GRADING

NHSX-030-7(188)--3H-57

LETTING DATE 10/18/2016

LINN Co.

INDEX OF SHEETS

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

LINN COUNTY

GRADING

U.S. 30 MT. VERNON / LISBON BYPASS
FROM IOWA HIGHWAY 1 TO SPRING CREEK

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
811 Know what's below. Call before you dig.

REVISIONS

	TOTAL 387
PROJECT IDENTIFICATION NUMBER	
95-57-030-050	
PROJECT NUMBER	
NHSX-030-7(188)--3H-57	
R.O.W. PROJECT NUMBER	
NHSX-030-7(101)--2R-57	
NHSX-030-8(28)--2R-16	

For Project Location Map
Refer to Sheet A.2

DESIGN DATA URBAN		
2009 AADT	10,600	V.P.D.
2035 AADT	16,700	V.P.D.
2035 DHV	1,450	V.P.H.
TRUCKS	10	%
Total Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Cindy A. Spencer	Primary Signature Block
CS.1	Roch S.V. Player	Geotechnical Signature Block

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

Cindy A. Spencer, P.E. Date

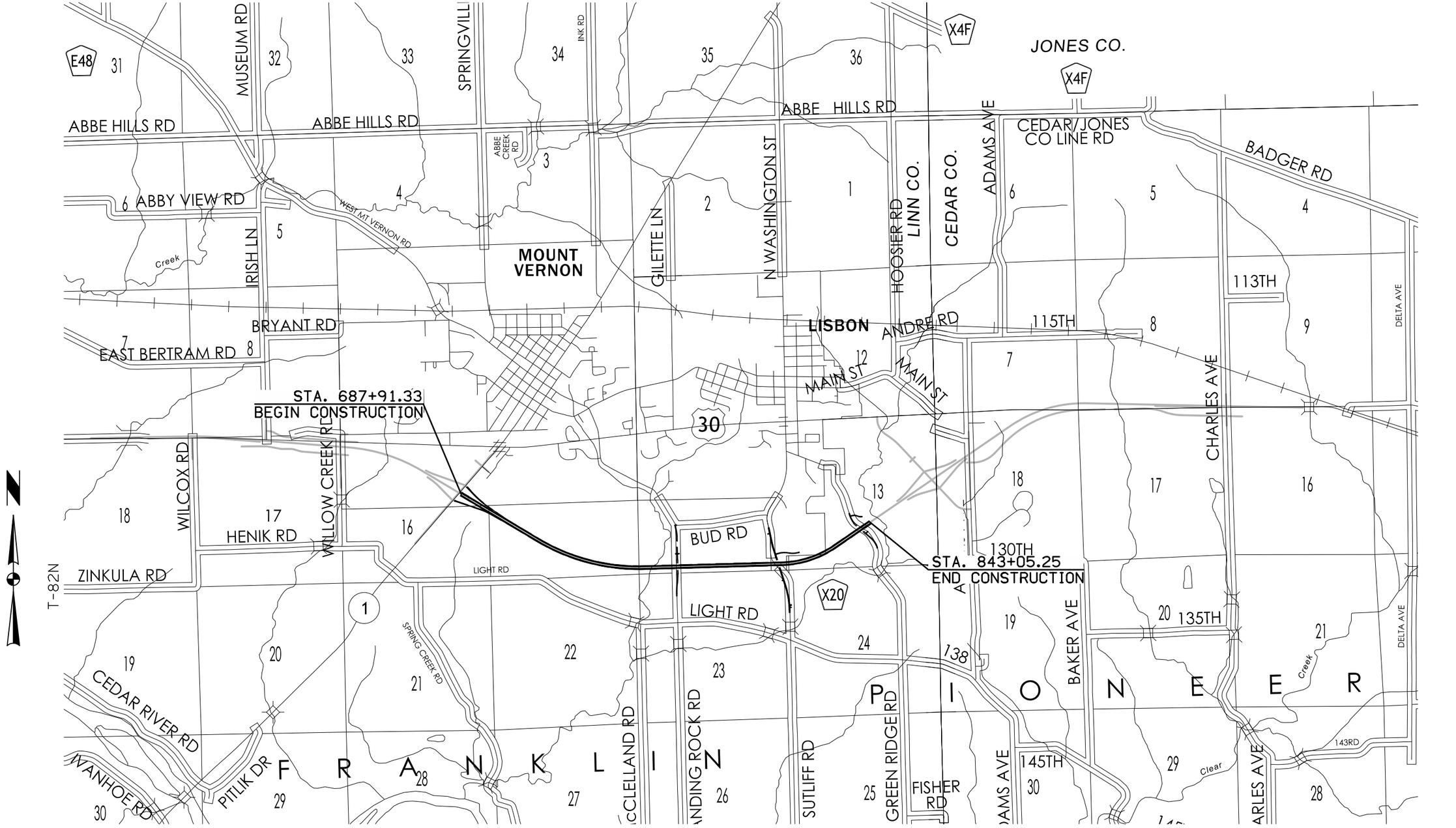
License Number 17561

My License Renewal Date is December 31, 2016

Pages or sheets covered by this seal:
A.1-A.2, B.1-B.5, C.1-C.18, D.1-D.23, E.1-E.18, G.1-G.9, J.1-J.2, K.1-K.3, M.1, T.1-T.15, U.1, V.1-V.46, W.1-W.119, X.1-X.42, Y.1-Y.11

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER A.1

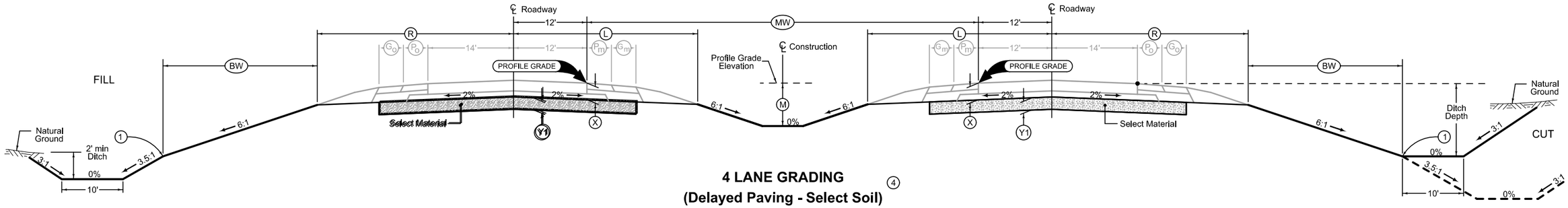
6:06:39 PM 8/23/2016 V8i_IDOTRoadpw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188a01.sht



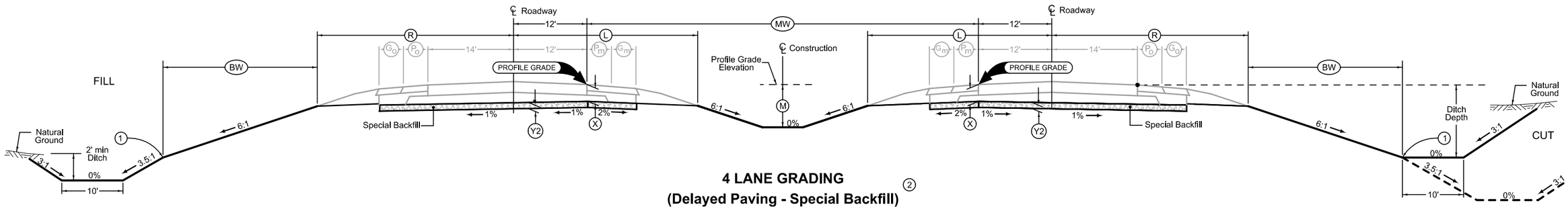
FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER A.2

2:53:55 PM 8/22/2016 dshlain pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188a01.sht

G_4D_Grade_Delay_S
10-18-16



4 LANE GRADING
(Delayed Paving - Select Soil) (4)



4 LANE GRADING
(Delayed Paving - Special Backfill) (2)
(Optional)

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

See Plan & Profiles sheets and cross sections for additional details of ditches and backslopes.

Quantity calculations based on Select Soil.

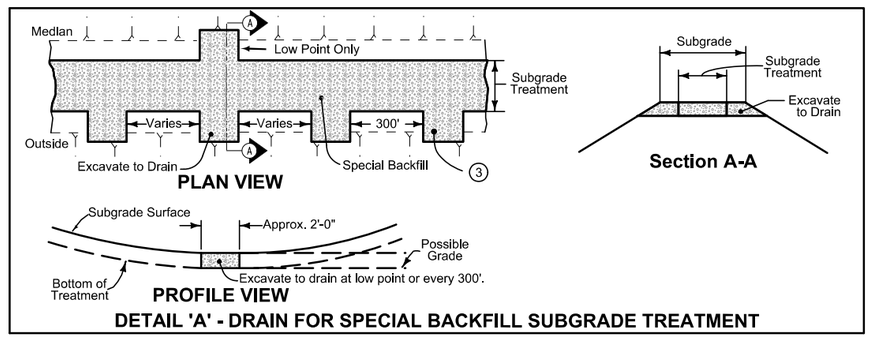
(1) Refer to project plan and cross sections for specific location of foreslope change.

(2) See Detail 'A"

(3) Excavate a portion of subgrade as necessary to provide drainage for the treatment. The additional excavation and Special Backfill for outlets is incidental and will not be paid for separately.

(4) Compaction with Moisture Control for Select Soil is incidental and will not be paid for separately. Maintain moisture content within limits specified in Tab. 103-6.

LOCATION			DIMENSIONS							
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet	(MW) Feet	(M) Feet	(Y1) Inches	(Y2) Inches
									30	12



DETAIL 'A' - DRAIN FOR SPECIAL BACKFILL SUBGRADE TREATMENT

MAINLINE U.S. 30

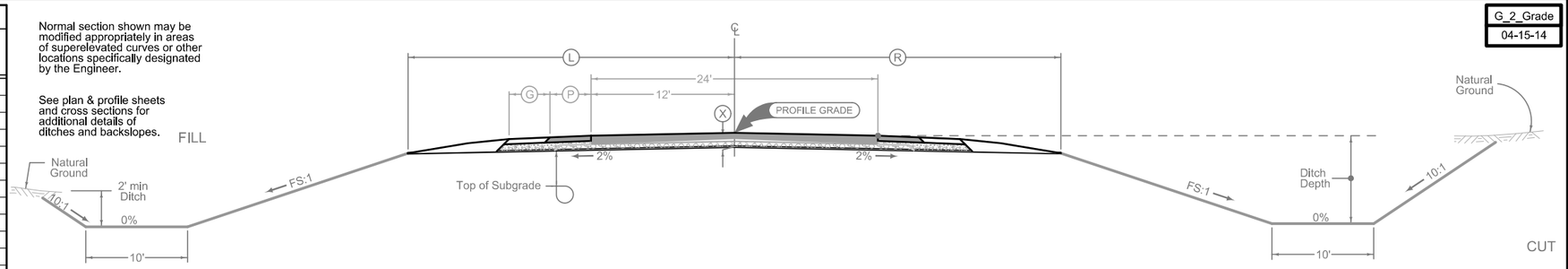
FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER B.1

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

LOCATION			DIMENSIONS				
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	FS	BS
SUTLIFF	8788+63.95	8819+78.00	21.6	21.6	15	3	2.5

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

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



G_2_Grade
04-15-14

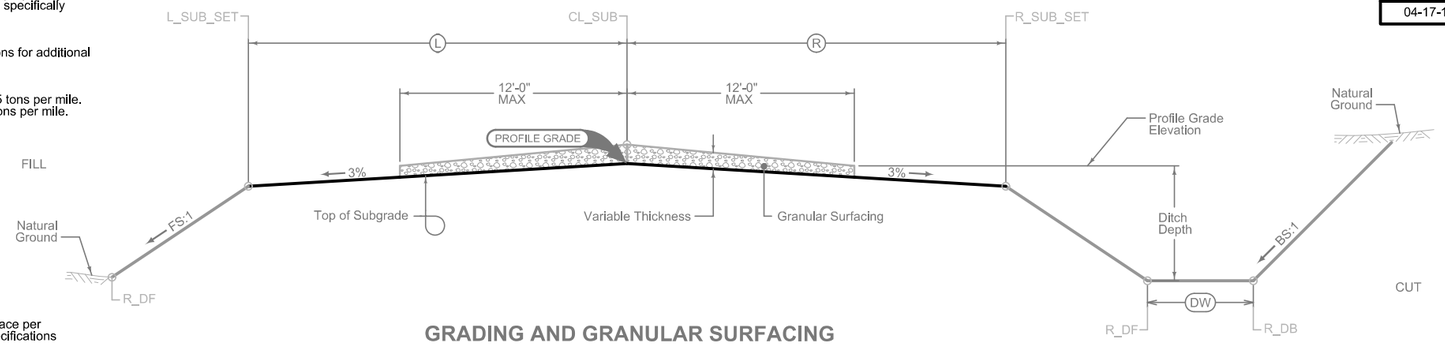
2 LANE GRADING

LOCATION			DIMENSIONS					
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	FS	BS	(DW) Feet
STANDING ROCK	7760+77.25	7786+07.16	13	13	3	2.5	10
SUTLIFF ACCESS	9810+18.00	9818+65.45	11	11	3	2.5	N/A
GREEN RIDGE	10829+66.35	10845+85.00	13	13	3	2.5	10
GREEN RIDGE ENTRANCE	19844+90.04	19849+16.16	11	11	3	2.5	N/A

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

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

Place Granular Surfacing as follows:
Grading design application rate is 4435 tons per mile.
Paving design application rate is N/A tons per mile.



G_2_GradeGran
04-17-12

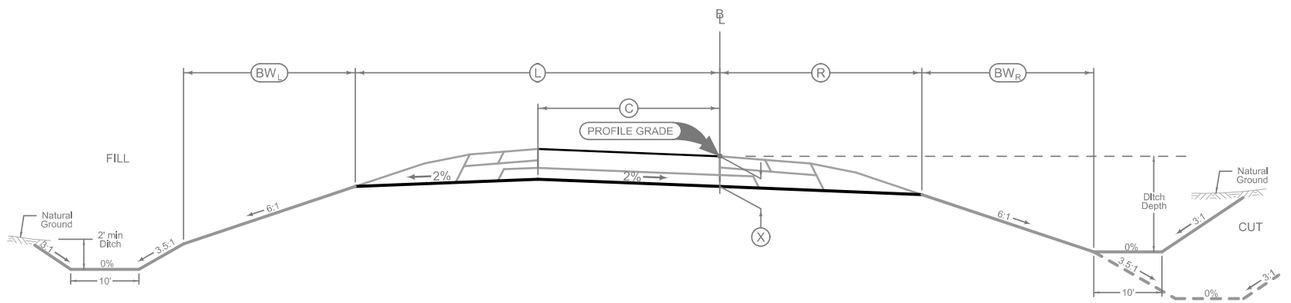
GRADING AND GRANULAR SURFACING

(1) Seal coat roadway surface per section 2307 of the specifications in place of surfacing

LOCATION				DIMENSIONS					
INTERCHANGE	RAMP	STATION TO STATION		(L) Feet	(R) Feet	(C) Feet	(X) Inches	BW_L Feet	BW_R Feet
IA. HWY. 1	A	1588+35.40	1600+43.85	33.8	19.5	16	22	6.2	4.5
	D	4486+96.26	4498+39.51	33.8	19.5	16	22	6.2	4.5

Section view is in direction of traffic.

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

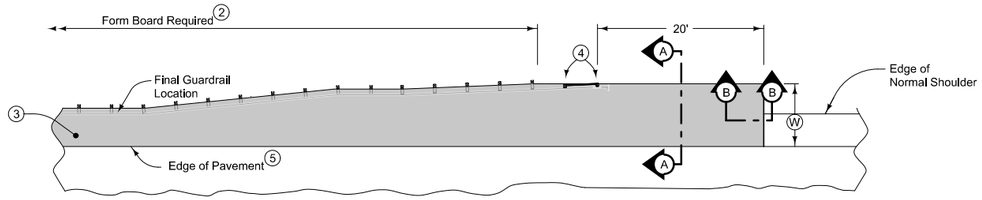


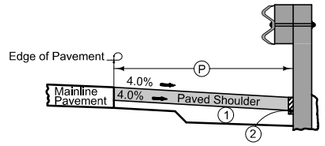
G_1R_Grade
04-15-14

RAMP GRADING

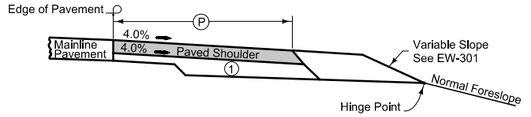
MINOR ROADWAYS

7156
04-16-13

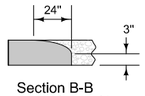




Typical Section with Form Board



Section A-A



Section B-B
Roll down at granular shoulder or earth.

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

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

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

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

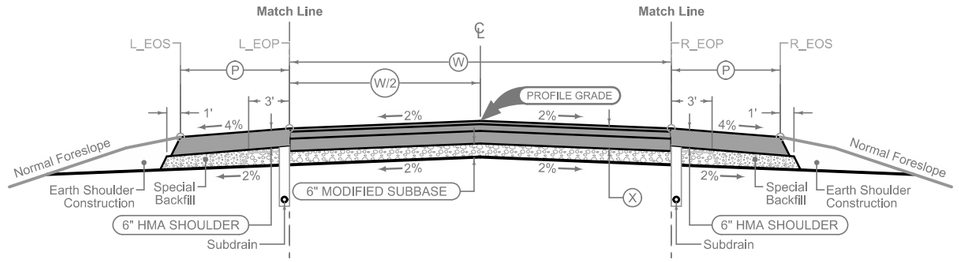
1. 6" subgrade treatment.
2. When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function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

PAVED SHOULDER AT GUARDRAIL

HMA Shoulder

Shoulder Jointing:
Longitudinal joint: B

2_P_HMA_ 10-19-10		
STATION TO STATION		(P) Feet
8788+63.95	8819+78.00	6

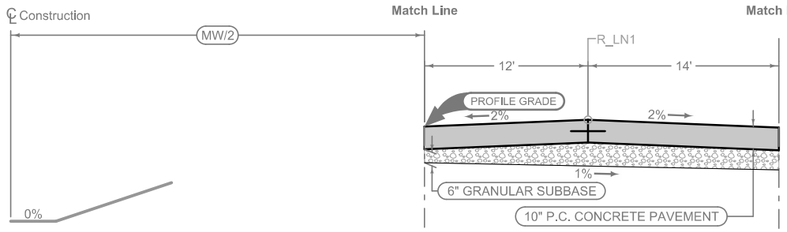


LOCATION			(W)	(X)
ROAD IDENTIFICATION	STATION TO STATION		Feet	Inches
SUTLIFF	8788+63.95	8819+78.00	24	9

HMA Shoulder

Shoulder Jointing:
Longitudinal joint: B

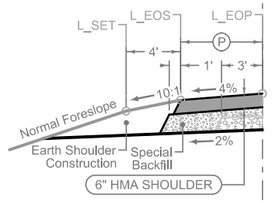
2_P_HMA_ 10-19-10		
STATION TO STATION		(P) Feet
8788+63.95	8819+78.00	6

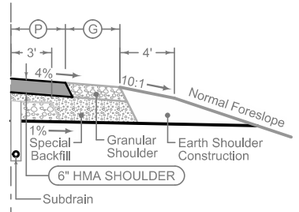


HMA Shoulder

Shoulder Jointing:
Longitudinal joint: B

			4_P_HMA_ 04-16-13
Direction of Travel	BEGIN STATION	END STATION	(P) Feet
B	687+91.33	843+05.25	6





Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

				4_C_ 10-15-13
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
B	687+91.33	843+05.25	4	4

Section shown in the direction of traffic.

Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

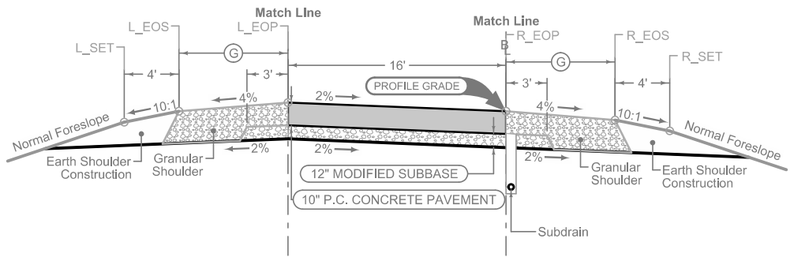
			4DP_ 10-19-10
ROAD IDENTIFICATION	BEGIN STATION	END STATION	(MW) Feet
U.S. 30	687+91.33	843+05.25	64

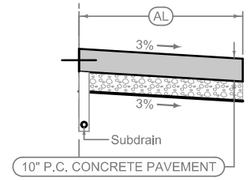
Paving work to be done by others

MAINLINE U.S. 30 PAVING
(FOR INFORMATION ONLY)

Granular Shoulder

BEGIN STATION	END STATION	(G) Feet
		1R_G_ 10-19-10
1588+35.40	1600+43.85	4
4486+96.26	4498+39.51	4





Section shown in the direction of traffic.

Ramp Jointing:
Transverse joints: CD at 20' spacing.

BEGIN STATION	END STATION
	1RP_ 10-19-10
1588+35.40	1600+43.85
4486+96.26	4498+39.51

Granular Shoulder

BEGIN STATION	END STATION	(G) Feet
		1R_G_ 10-19-10
1588+35.40	1600+43.85	6
4486+96.26	4498+39.51	6

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

Direction of Travel	BEGIN STATION	END STATION	(AL) Feet
			4_AuxLane_PCC_ 10-19-10
WB	1591+12.87	1589+32.87	VAR
WB	1589+32.87	1588+35.40	12

Paving work to be done by others

INTERCHANGE RAMPS PAVING
(FOR INFORMATION ONLY)

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	41.40	
2	2102-0425070	SPECIAL BACKFILL	TON	1280.00	
3	2102-2200000	INTERCEPTING DITCHES AND FLUMES	LF	3867.00	
4	2102-2624980	CONTRACTOR FURNISH SELECT TREATMENT	CY	116396.00	
5	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	1303593.00	
6	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	3034.00	
7	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	400.00	
8	2102-4560000	LOCATING TILE LINES	STA	153.70	
9	2105-8425015	TOPSOIL, STRIP, SALVAGE, AND SPREAD	CY	162505.00	
10	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS, OR STRUCTURES	CY	1043.00	
11	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	807368.00	
12	2115-0100000	MODIFIED SUBBASE	CY	1535.30	
13	2122-5500060	PAVED SHOULDERS, HMA, 6 INCH	SY	3781.20	
14	2123-7450020	EARTH SHOULDER FINISHING	STA	55.76	
15	2303-1042500	HMA HT BASE COURSE, 1/2 INCH	TON	2069.20	
16	2303-1042500	HMA HT INTERMEDIATE COURSE, 1/2 INCH	TON	827.70	
17	2303-1043500	HMA HT SURFACE COURSE, 1/2 INCH, NO FRICTION	TON	827.70	
18	2303-1258284	ASPHALT BINDER, PG 58-28H	TON	223.50	
19	2303-9093010	HMA, DRIVEWAY	SY	250.80	
20	2307-0025005	AGGREGATE, ROADWAY COVER, 1/2 INCH	TON	32.90	
21	2307-0600454	BINDER BITUMEN, CRS-2	GAL	876.30	
22	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON	2814.80	
23	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	593.60	
24	2402-0425040	FLOODED BACKFILL	CY	5942.70	
25	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	8348.00	
26	2416-0100024	APRON, CONCRETE, 24 INCH	EACH	34.00	
27	2416-0100030	APRON, CONCRETE, 30 INCH	EACH	6.00	
28	2416-0100036	APRON, CONCRETE, 36 INCH	EACH	4.00	
29	2416-0100042	APRON, CONCRETE, 42 INCH	EACH	2.00	
30	2416-0100054	APRON, CONCRETE, 54 INCH	EACH	2.00	
31	2416-0100060	APRON, CONCRETE, 60 INCH	EACH	2.00	
32	2416-0100066	APRON, CONCRETE, 66 INCH	EACH	2.00	
33	2416-1180024	CULVERT, CONCRETE ROADWAY PIPE, 24 INCH	LF	1080.00	
34	2416-1180030	CULVERT, CONCRETE ROADWAY PIPE, 30 INCH	LF	388.00	
35	2416-1180036	CULVERT, CONCRETE ROADWAY PIPE, 36 INCH	LF	236.00	
36	2416-1180060	CULVERT, CONCRETE ROADWAY PIPE, 60 INCH	LF	188.00	
37	2416-1180066	CULVERT, CONCRETE ROADWAY PIPE, 66 INCH	LF	258.00	
38	2416-1240030	CULVERT, 3000D CONCRETE ROADWAY PIPE, 30 INCH	LF	440.00	
39	2416-1240042	CULVERT, 3000D CONCRETE ROADWAY PIPE, 42 INCH	LF	276.00	
40	2416-1240054	CULVERT, 3000D CONCRETE ROADWAY PIPE, 54 INCH	LF	304.00	
41	2416-1245024	CULVERT, 3750D CONCRETE ROADWAY PIPE, 24 INCH	LF	498.00	
42	2416-1245030	CULVERT, 3750D CONCRETE ROADWAY PIPE, 30 INCH	LF	448.00	
43	2422-0360015	APRON, UNCLASSIFIED, 15 INCH	EACH	2.00	
44	2422-0360018	APRON, UNCLASSIFIED, 18 INCH	EACH	4.00	
45	2422-0360024	APRON, UNCLASSIFIED, 24 INCH	EACH	10.00	
46	2422-0360030	APRON, UNCLASSIFIED, 30 INCH	EACH	2.00	
47	2422-1720015	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 15 INCH	LF	33.00	
48	2422-1720018	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 18 INCH	LF	159.00	
49	2422-1720024	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 24 INCH	LF	223.00	
50	2422-1723024	CULVERT, UNCLASSIFIED ROADWAY PIPE, 24 INCH	LF	110.00	
51	2422-1723030	CULVERT, UNCLASSIFIED ROADWAY PIPE, 30 INCH	LF	138.00	
52	2435-0251100	INTAKE, SW-511	EACH	1.00	
53	2502-8212034	SUBDRAIN, LONGITUDINAL, SHOULDER, 4 INCH	LF	5996.10	
54	2502-8221304	SUBDRAIN OUTLET, DR-304	EACH	28.00	
55	2505-4008130	REMOVAL OF CABLE GUARDRAIL	LF	615.90	
56	2505-4008300	STEEL BEAM GUARDRAIL	LF	125.00	
57	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	EACH	12.00	
58	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	12.00	
59	2505-4021710	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, LS-625	EACH	12.00	
60	2507-3250005	ENGINEERING FABRIC	SY	1575.70	
61	2507-6800061	REVETMENT, CLASS E	TON	987.60	
62	2507-8029000	EROSION STONE	TON	111.20	
63	2510-6745850	REMOVAL OF PAVEMENT	SY	9487.70	
64	2515-6745600	REMOVAL OF PAVED DRIVEWAY	SY	2052.10	
65	2518-6910000	SAFETY CLOSURE	EACH	13.00	
66	2520-3350010	FIELD LABORATORY	EACH	1.00	
67	2520-3350015	FIELD OFFICE	EACH	1.00	
68	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
69	2527-9263109	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	35.48	
70	2528-8445110	TRAFFIC CONTROL	LS	1.00	
71	2533-4980005	MOBILIZATION	LS	1.00	
72	2601-2634100	MULCHING	ACRE	93.30	
73	2601-2636015	NATIVE GRASS SEEDING	ACRE	69.75	
74	2601-2636041	SEEDING AND FERTILIZING	ACRE	23.60	
75	2601-2640350	SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT	SQ	1126.56	
76	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	47.30	
77	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION	MGAL	169.00	
78	2601-2643300	MOBILIZATION FOR WATERING	EACH	3.00	
79	2602-0000020	SILT FENCE	LF	10485.00	
80	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	17470.50	
81	2602-0000050	SILT BASIN	EACH	144.00	
82	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	13978.00	

100-1D
10-18-05

PROJECT DESCRIPTION

This project is for grading and associated work on the central section of the U.S. 30 Mt. Vernon / Lisbon Bypass.

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	10-18-16	Steel Beam Guardrail Components
BA-201	10-18-16	Steel Beam Guardrail Barrier Transition Section
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
DR-101	04-19-16	Pipe Culvert (Bedding and Backfill)
DR-102	04-21-15	Pipe Culvert (Cover and Camber)
DR-103	04-21-15	Pipe Culvert (Installation Details)
DR-104	04-19-16	Depth of Cover Tables for Concrete and Corrugated Pipe
DR-111	04-21-15	Box Culvert (Backfill)
DR-121	10-20-15	Connected Pipe Joints
DR-141	04-21-15	Pipe Bends and Half Pipe
DR-201	04-21-15	Concrete Aprons
DR-203	04-21-15	Metal Pipe Aprons and Beveled Ends
DR-213	04-21-15	Pipe Apron Guard
DR-301	04-21-15	Subdrains for Fill or Foundation Drainage (Standard)
DR-303	10-18-16	Subdrains (Longitudinal)
DR-304	10-18-16	Outlets for Longitudinal, Transverse and Backslope Subdrains
DR-402	10-18-16	Rock Flume for Bridge End Drain
DR-601	10-20-15	Reinforced Concrete Pipe Culvert
DR-651	10-20-15	Unclassified Pipe Culvert
EC-101	04-19-16	Wood Excelsior Mat for Ditch Protection
EC-103	04-21-15	Wood Excelsior Mat for Slope Protection
EC-201	10-18-16	Silt Fence
EC-202	10-21-14	Floating Silt Curtain
EC-204	04-19-16	Perimeter and Slope Sediment Control Devices
EC-301	10-18-16	Rock Erosion Control (REC)
EC-502	04-21-15	Seeding in Rural Areas
EW-101	10-20-15	Embankment and Rebuilding Embankments
EW-102	10-20-15	Allowable Placement of Unsuitable Soil in Embankments
EW-103	10-20-15	Embankment Subgrade Treatment, Moisture Density Control and Special Compaction
EW-110	10-20-15	Ditch Blocks and Dikes
EW-201	04-19-16	Bridge Berm Grading without Recoverable Slope (Barnroof Section)
EW-203	04-21-15	Bridge Berm Grading with Recoverable Slope (Non-Barnroof Section)
EW-204	04-21-15	Bridge Berm Grading with Recoverable Slope (Barnroof Section)
EW-212	10-20-15	Settlement Plate
EW-301	10-20-15	Guardrail Grading
EW-401	10-20-15	Temporary Stream Crossing, Causeway, or Equipment Pad
EW-402	10-20-15	Temporary Stream Diversion
EW-403	10-20-15	Temporary Erosion Control Measures
EW-501	10-20-15	Rural Entrance
EW-502	10-20-15	Safety Ramp
EW-503	10-20-15	Side Road Grading
LS-625	04-19-16	Steel Beam Guardrail Tangent End Terminal (NCHRP 350 TL-3)
LS-630	10-18-16	Steel Beam Guardrail Installation At Concrete Barrier Or Bridge Rail End Section
MI-101	10-20-15	Fencing Layout
MI-103	10-20-15	Deer Fence and Field Fence Construction
PM-110	04-16-13	Line Types
PV-3	10-18-11	Safety Edge
PV-101	04-19-16	Joints
PV-102	10-18-16	PCC Curb Details
PV-301	04-19-11	Superelevation Details Two Lane Roadway
SI-173	04-19-16	Object Markers
SI-211	10-18-16	Object Marker and Delineator Placement with Guardrail
SW-511	04-21-09	Rectangular Area Intake
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-211	04-17-12	Lane Closure on Low Volume Roadway
TC-252	04-19-16	Routes Closed to Traffic

100-1A
07-15-97

ESTIMATED PROJECT QUANTITIES
(1 DIVISION PROJECT)

Item No.	Item Code	Item	Unit	Total	As Built Qty.
83	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	2796.00	
84	2602-0000160	ROCK CHECK DAM	LF	2686.50	
85	2602-0000312	PERIMETER SLOPE AND SEDIMENT CONTROL DEVICE, 12 INCH	LF	300.00	
86	2602-0000320	PERIMETER SLOPE AND SEDIMENT CONTROL DEVICE, 20 INCH	LF	6394.00	
87	2602-0000350	REMOVAL OF PERIMETER SLOPE AND SEDIMENT CONTROL DEVICE	LF	6694.00	
88	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	4.00	
89	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	2.00	

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	CLEARING AND GRUBBING
		Clear and grub within construction limits, to the west bank of Spring Creek. Refer to Tab 110-17 for specific locations. Parcel 46 will have 4 inch tall stumps for removal.
2	2102-0425070	SPECIAL BACKFILL
		Refer to Tab 112-9 for locations.
3	2102-2200000	INTERCEPTING DITCHES AND FLUMES
		Refer to Tab. 100-16 for locations.
4	2102-2624980	CONTRACTOR FURNISH SELECT TREATMENT
		Refer to Tab. 103-11 for locations.
5	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW
		Refer to T sheets for additional information. Quantity includes 1,303,593 CY cut and 1,049,578 CY fill+30%.
		Excess 254,015 CY excavation shall become property of the Contractor to be wasted off-site.
6	2102-2710090	EXCAVATION, CLASS 10, WASTE
		Refer to T Sheets for locations and quantities.
10	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS, OR STRUCTURES
		Refer to Tab. 104-4 for locations and quantities. Quantities based on cast-in-place option.
12	2115-0100000	MODIFIED SUBBASE
		Refer to Tab. 100-25 for locations.
11	2107-0875100	COMPACTION WITH MOISTURE CONTROL
		Refer to Sheet CS.1 for additional information.
13	2122-5500060	PAVED SHOULDERS, HMA, 6 INCH
14	2123-7450020	EARTH SHOULDER FINISHING
		Refer to Tab. 112-9 for locations and quantities.
15	2303-1042500	HMA HT BASE COURSE, 1/2 INCH
16	2303-1042500	HMA HT INTERMEDIATE COURSE, 1/2 INCH
17	2303-1043500	HMA HT SURFACE COURSE, 1/2 INCH, NO FRICTION
18	2303-1258284	ASPHALT BINDER, PG 58-28H
		Refer to Tab. 100-25 for locations and additional information. Quantities have been increased 5% for overruns.
		Binder rate estimated at 6%.
19	2303-9093010	HMA, DRIVEWAY
		Refer to Tab. 102-3 for location and additional information.
20	2307-0025005	AGGREGATE, ROADWAY COVER, 1/2 INCH
21	2307-0600454	BINDER BITUMEN, CRS-2
		For application on the Sutliff Access. Aggregate application assumed at 30 lb / SY. Prime roadway base prior to application of surface treatment.
22	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE
		Quantity includes 1,810.1 TON for Standing Rock Road and 1,004.7 TON for Green Ridge Road.
23	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE
		Refer to Tab. 102-3 for locations and quantities.
24	2402-0425040	FLOODED BACKFILL
		Refer to Tabs 104-3 and 104-4 for quantities.
25	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT
		Refer to Tab. 104-3 for quantities.
53	2502-8212034	SUBDRAIN, LONGITUDINAL, SHOULDER, 4 INCH
54	2502-8221304	SUBDRAIN OUTLET, DR-304
		Refer to Tab. 104-9, Sheet CS.1 for locations.
55	2505-4008130	REMOVAL OF CABLE GUARDRAIL
		Refer to Tab. 110-7B for locations.

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
56	2505-4008300	STEEL BEAM GUARDRAIL
57	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION
58	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED
59	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL
		Refer to Tab. 108-8A for locations and additional information.
60	2507-3250005	ENGINEERING FABRIC
61	2507-6800061	REVETMENT, CLASS E
62	2507-8029000	EROSION STONE
		Refer to Tab. 100-23 for locations and quantities.
63	2510-6745850	REMOVAL OF PAVEMENT
		Refer to Tab. 110-1 for locations.
64	2515-6745600	REMOVAL OF PAVED DRIVEWAY
		Refer to Tab. 110-8 for locations.
65	2518-6910000	SAFETY CLOSURE
		Refer to Tab. 108-13A for locations.
69	2527-9263109	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED
		Refer to Tab. 108-22 for locations.
73	2601-2636015	NATIVE GRASS SEEDING
		Included for all areas 8 feet or further from the U.S. 30 outside edge of shoulder.
74	2601-2636041	SEEDING AND FERTILIZING
		Included for all areas closer than 8 feet from the U.S. 30 outside edge of shoulder, the U.S. 30 median, and all side roads.
75	2601-2640350	SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT
		Refer to Tab. 100-22 for locations.
76	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING
		Included for non-permanent seeding and disturbed areas as directed by the Engineer.
77	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION
		Estimate based on four waterings of the Special Ditch Control at a rate of 50 gallons per square.
79	2602-0000020	SILT FENCE
		Refer to Tab. 100-17. The tabulation includes estimated locations for placement of silt fence to address possible erosion during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
80	2602-0000030	SILT FENCE FOR DITCH CHECKS
		Refer to Tab. 100-18. The tabulation includes estimated locations for placement of Silt Fence for Ditch Checks to address possible erosion during construction. Verify the specific locations prior to beginning placement.
		Bid item includes 50% additional quantity for field adjustments and replacements.
81	2602-0000050	SILT BASIN
		Refer to Tab. 100-14. The tabulation includes estimated locations for placement of silt basins to address possible erosion during construction. Verify the specific locations wit the Engineer prior to beginning placement. Bid item includes 100% additional quantity for field adjustments and maintenance.
82	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS
		This item is included for silt fence or ditch check removal required for staging reasons, removal to allow for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth.
83	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS
		This item is included for clean-out and repair of the silt fence and ditch checks during the grading project.
84	2602-0000160	ROCK CHECK DAM
		Refer to Tab. 100-32 for locations and additional information. Length is measured along the top of the check dam from roadway foreslope to ditch backslope.
85	2602-0000312	PERIMETER SLOPE AND SEDIMENT CONTROL DEVICE, 12 INCH
86	2602-0000320	PERIMETER SLOPE AND SEDIMENT CONTROL DEVICE, 20 INCH
		Refer to Tab. 100-19 for locations.

232-10
10-21-14

EMERALD ASH BORER

Dispose of all wood material generated as a result of clearing and/or grubbing according to the Iowa Department of Agriculture and Land Stewardship's Emerald Ash Borer (EAB) Quarantine Order. For more information refer to http://www.iowatreepests.com/eab_regulations.html.

104-4
10-20-09

DRAINAGE STRUCTURES BY CULVERT CONTRACTOR

* Not a Bid Item

Location	Design Number	Size	Kind	Lgth. New Const.	No. of Aprons	Flow Line Elevation				Dimensions - Lin. Ft.				Skew Ahead		By Road Contractor					Floodable* Backfill	Porous* Backfill	Flooded Backfill	Remarks
										Total		Extensions		Degrees		Dike				Comp. Backfill				
																Rt. / Lt.	Location Station	Top. Elev.	Type		(A)	(B)	(A+B)	
		Ft.		Lin. Ft.		Left	Right	Other	Other	Left	Right	Left	Right	Left	Right					Cu. Yds.	Cu. Yds.	Cu. Yds.	Cu. Yds.	
761+21.00	1516	12x9	TWIN RCB	230	2	736.80	736.00			114.0	117.0			19						307.0	128.4	6.9	135.3	CIP Option
779+96.00	1616	6x8	RCB	312	2	763.00	760.25			148.0	164.0				15					370.0	125.7	8.9	134.6	CIP Option
822+84.18	1716	5x6	RCB	412	2	773.63	762.34			184.2	227.8			10						366.0	123.3	11.4	134.7	CIP Option

104-3
04-21-15

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
* Not a bid item
(1) Diameter or equivalent diameter
(2) 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 (1)	Kind Of Pipe (2)	Length New Const.	Bedding Class	Design Cover (H)	Camber* (DR-102)	Apron No.		Apron Guard* (DR-213)	Elbow* (DR-141)	Diaphragm* (DR-501)	Tee Section* (DR-142)	"D" Section* (DR-141)	Reducer*	Type 'C' Connections* (DR-122)		Connected Pipe Joint* (DR-121)	4" Perforated Subdrain*	Flow Line Elevations				Dimensions Lin. Ft.				Skew Ahead Degrees		Dike				Class 20	Flowable Mortar	Floodable* Backfill	Porous* Backfill	Flooded Backfill	Remarks
																								Total		Extensions				Rt. / Lt.	Location Station	Top Elevation	Type					
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	(A) CY	(B) CY	(A+B) CY	
8.5	694+65.95	3000D	30	RCP	440	B	18.4		1	1	2								Type 3		813.30	811.10			217.10	235.20				1					2203.0		554.2	38.1	592.3	
2.5	700+00.00 LT	2000D	24	RCP	108	B	3.0		1	1	2								Type 3		816.05	819.32	817.56		87.66	32.60					MED	700+20.00	820.82	M	173.0	11.0	66.0	9.1	75.1	See storm tab
2.7	713+30.00 LT	2000D	24	RCP	74	B	3.6		1	1	2								Type 3		792.26	795.77			53.86	32.40					MED	713+50.00	797.27	M	3.0	7.3	49.7	6.7	56.4	
83.3	717+31.43	2000D	60	RCP	188	B	6.0		1	1	2								Type 3		787.85	784.58			96.90	107.10				11					110.0		530.0	23.5	553.5	
2.8	726+60.00 LT	2000D	24	RCP	70	B	2.8		1	1	2								Type 3		785.15	787.13			49.80	32.46					MED	726+80.00	788.63	M	14.0	6.4	31.0	6.4	37.4	
18.8	727+96.63	2000D	36	RCP	20	B			1		1								Type 3		782.17		782.05	779.95	97.54	128.60				11					101.0		485.4	19.1	504.5	20^ elbows
		2000D	30	RCP	192	B	11.5			1	1	2				1			Type 3			775.05								11									
2.9	740+55.00 LT	2000D	24	RCP	70	B	2.2		1	1	2								Type 3		776.28	778.06			49.80	32.46					MED	740+75.00	779.56	M	89.0	6.3	29.7	6.4	36.1	
15.1	740+75.00	2000D	36	RCP	196	B	8.2		1	1	2								Type 3		776.15	769.30			95.30	116.70					L	741+06.00	778.65	M	487.0	9.5	273.2	19.1	292.3	Mortar WB only
140.4	751+83.82	2000D	66	RCP	258	B	10.7		1	1	2								Type 3		756.61	753.30			132.60	141.90				32					198.0		792.0	33.2	825.2	
3.2	755+80.00 LT	2000D	24	RCP	70	B	2.2		1	1	2								Type 3		757.60	759.58			49.80	32.46					MED	756+00.00	761.08	M	92.0	6.4	31.0	6.4	37.4	
4.0	761+27.00 LT	2000D	24	RCP	78	B	4.1		1	1	2								Type 3		748.30	752.72			57.76	32.50									0.0	7.6	56.0	7.0	63.0	
3.7	775+85.00 LT	2000D	24	RCP	74	B	3.6		1	1	2								Type 3		776.42	779.89			53.86	32.40					MED	775+65.00	781.39	M	145.0	7.3	49.2	6.7	55.9	
30.1	797+71.00	3000D	42	RCP	276	B	15.8		1	1	2								Type 3		795.50	790.75			135.70	156.30				24					190.0		488.1	28.2	516.3	
2.4	805+50.00 LT	2000D	24	RCP	70	B	2.3		1	1	2								Type 3		802.66	804.00			49.80	32.46					MED	805+70.00	805.50	M	100.0	6.5	33.1	6.4	39.5	
12.6	810+93.73	2000D	30	RCP	196	B	7.4		1	1	2								Type 3		798.03	795.85			96.70	111.60				10					353.0	9.5	272.4	17.5	289.9	Mortar WB only
5.1	816+70.70 LT	2000D	24	RCP	72	B	2.8		1	1	2								Type 3		794.53	798.62			51.66	32.60									46.0	7.0	41.5	6.5	48.0	
70.0	818+30.24	3000D	54	RCP	304	B	20.8		1	1	2								Type 3		783.00	776.90			140.70	179.30				24					87.0		616.2	34.8	651.0	
2.8	830+50.00 LT	2000D	24	RCP	76	B	3.9		1	1	2								Type 3		822.98	827.23			55.97	32.29					MED	830+30.00	828.73	M	141.0	7.5	54.0	6.9	60.9	
14.0	832+41.07	2000D	36	RCP	20	B			1		1	2				1			Type 3		806.20		806.08	803.98	201.95	280.20				26					43.0				0.0	20^ elbows
		3750D	30	RCP	448	*	40.6			1	1								Type 3			781.20								26									Special bed rec
4.9	1588+53.27	2000D	24	RCP	68	B	3.9		1	1	2								Type 3		811.39	810.00			32.90	47.36									120.0	7.6	45.6	6.2	51.8	
1.2	1593+60.00	2000D	24	RCP	80	B	5.8		1	1	2								Type 3		814.99	818.33			43.66	48.60									236.0		78.4	7.2	85.6	
1.5	4487+26.57	2000D	24	RCP	68	B	3.3		1	1	2								Type 3		813.50	812.18			47.06	33.16				22					110.0	4.6	31.7	6.2	37.9	
2.3	4492+50.00	2000D	24	RCP	102	B	9.0		1	1	2								Type 3		816.73	813.67			59.86	54.40									192.0		108.8	8.9	117.7	
2.9	7766+59.00	2000D	24	UNCL	60	B	6.3		1	1	2								Type 3		778.50	779.68			37.23	35.03									96.0					
2.0	7769+83.00	3750D	24	RCP	170	B	23.7		1	1	2								Type 3		766.85	770.34			96.36	85.90									1113.0		165.0	14.2	179.2	
6.4	7772+52.00	3750D	24	RCP	168	B	23.6		1	1	2								Type 3		767.02	770.35			95.13	85.13									748.0		165.0	14.0	179.0	
3.3	7784+64.50	2000D	24	UNCL	50	B	4.9		1	1	2								Type 3		777.20	779.90			34.53	27.73				6					109.0					
2.9	8803+25.00	3750D	24	RCP	160	B	21.9		1	1	2								Type 3		801.99	799.00			81.66	90.60									1032.0		138.8	13.4	152.2	
8.4	9811+27.79	3000D	30	UNCL	138	B	19.3		1	1	2								Type 3		820.80	812.80			64.60	85.70				9					17.0					
0.1	19845+10.75	2000D	15	UNCL	33	B	2.0		1	1									Type 3		890.59	890.21			18.66	18.66				8										Entrance pipe
1.3	19848+30.91	3000D	18	UNCL	110	B	14.6		1	1									Type 3		828.75	846.50			81.76	40.40				21										Entrance pipe

104-5A
10-15-13

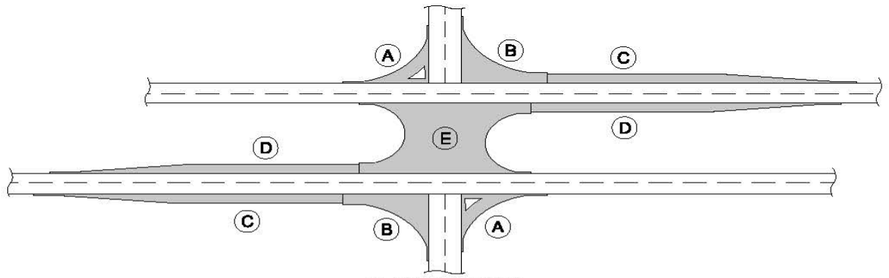
INTAKES AND UTILITY ACCESSES

* Bid Item
** For SW-545

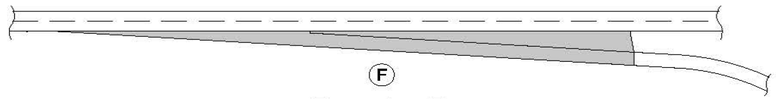
No.	Location Station	Type or Standard Road Plan*	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
1	700+00.00, 72.4'L	SW-511	821.90	817.06		

SELECT TREATMENT

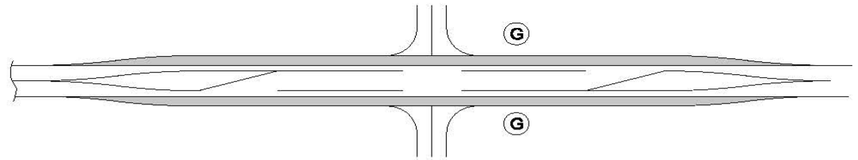
Possible Detail: G_4D_Grade_Delay_S



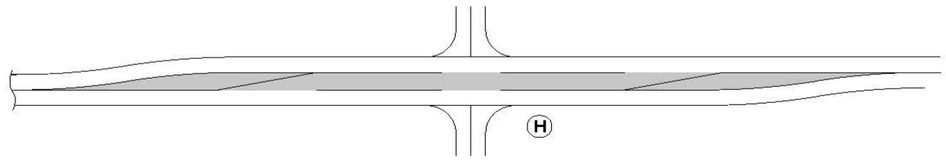
Typical Intersection



Ramp or Loop Taper



Channelized Intersection
Widen Existing Roadway



Channelized Intersection
Reconstructed Roadway

Location				Mainline							Section Area												
						Shoulder Width																	
						Median Side		Outside															
Road Identification	Direction of Travel	Station to Station		Length	Width	GM	PM	PO	GO	Pavement & Subgrade Thickness (X)	Area	A	B	C	D	E	F	G	H	Area	Total Area (Mainline + Section)	Select Treament Thickness (Y1)	Contractor Furnished Select Treatment	Remarks
				FT	FT	FT	FT	FT	FT	IN	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	SF	IN	CY	
U.S. 30	WB	688+78.37	842+32.25	15353.9	26.0		6.0	4.0	4.0	16.0	614155.2						12006.0			12006.0	626161.2	30.0	57978	
	EB	688+62.85	842+32.25	15369.4	26.0		6.0	4.0	4.0	16.0	614776.0						16137.0			16137.0	630913.0	30.0	58418	

GRADING FOR GUARDRAIL INSTALLATIONS

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

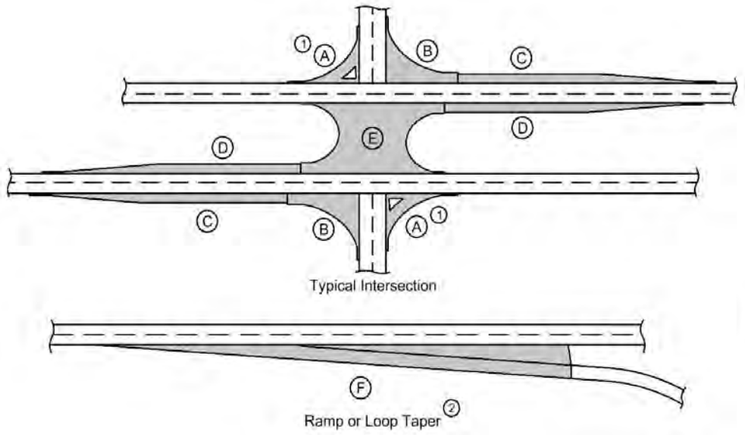
Refer to EW-301

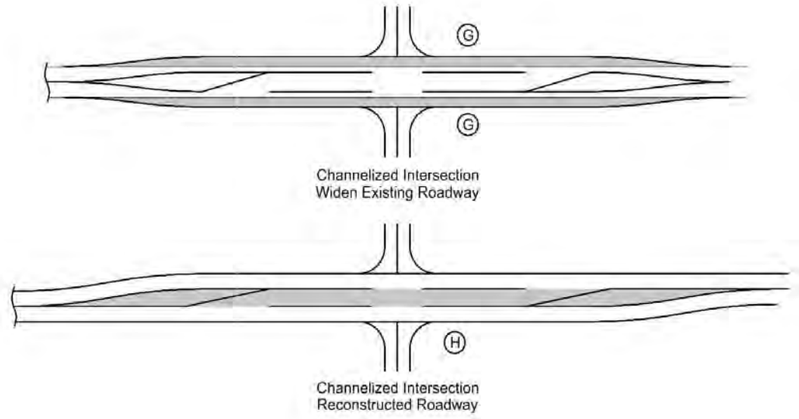
Location					Dimensions (Feet)									Earthwork		
No.	(1) Direction of Traffic	Station	Side	Foreslope at Guardrail	X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10	Embankment In Place	Remarks
														CY	CY	
1	WB	688+17.18	MED	3:1	53.125	5.0	78.125	7.5	225.000	7.5	275.790	9.5	55.5			NOTE: Shaping associated with guardrail grading
2	WB	688+24.23	L	3:1	53.125	5.0	78.125	7.5	175.000	7.5	225.790	9.5	55.5			was included with cross sections and earthwork
																information in the T sheets reflect all grading
3	NB	8805+12.74	R	3:1	65.000	5.0					115.000	7.0	47.0			necessary to construct guardrail blisters. These
4	SB	8805+23.06	L	3:1	52.500	5.0					102.500	7.0	47.0			quantities will not be calculated separately.
5	NB	8807+81.86	R	3:1	52.500	5.0					102.500	7.0	47.0			
6	SB	8807+92.18	L	3:1	65.000	5.0					115.000	7.0	47.0			
7	NB	7769+93.12	R	3:1	52.500	5.0					102.500	7.0	47.0			
8	SB	7769+93.12	L	3:1	40.000	5.0					90.000	7.0	47.0			
9	NB	7772+42.12	R	3:1	40.000	5.0					90.000	7.0	47.0			
10	SB	7772+42.12	L	3:1	52.500	5.0					102.500	7.0	47.0			
11	NB	10837+49.73	R	3:1	52.500	5.0					102.500	7.0	47.0			
12	SB	10837+57.77	L	3:1	40.000	5.0					90.000	7.0	47.0			
13	NB	10840+56.33	R	3:1	40.000	5.0					90.000	7.0	47.0			
14	SB	10840+64.37	L	3:1	52.500	5.0					102.500	7.0	47.0			
15	EB	842+91.50	MED	3:1	53.125	5.0	78.125	7.5	225.000	7.5	275.790	9.5	55.5			
16	EB	842+91.50	R	3:1	53.125	5.0	78.125	7.5	175.000	7.5	225.790	9.5	55.5			

TABULATION OF INTERCEPTING DITCHES

Location			Length	Remarks
Station to Station		Side	LF	
720+45.00	721+40.00	L	95.0	
721+60.00	726+60.00	L	500.0	
730+70.00	732+60.00	L	190.0	
732+80.00	736+35.00	L	355.0	
736+55.00	739+68.00	L	313.0	
739+88.00	743+00.00	L	312.0	
751+80.00	753+70.00	L	190.0	
756+90.00	760+80.00	L	390.0	
772+52.00	774+40.00	R	188.0	
793+85.00	795+45.00	L	160.0	
795+75.00	798+00.00	L	225.0	
808+50.00	808+95.00	L	45.0	
809+15.00	810+70.00	L	155.0	
810+80.00	811+90.00	L	110.0	
830+05.00	833+25.00	L	320.0	
7763+35.00	7766+54.00	R	319.0	

HMA PAVEMENT





(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.

(2) Refer to PV-410, PV-411, PV-412, and PV-414.

(3) Quantity includes Pavement Header.

Calculations assume a surface course unit weight (lbs/cf) of 145, an intermediate course unit weight (lbs/cf) of 145, a base course unit weight (lbs/cf) of 145, and a special backfill unit weight (lbs/cf) of 140.

Location				Mainline			Area (3)								Bid Items												Remarks
															Hot Mix Asphalt Pavement						Binder						
Road Identification	Direction of Travel	Station to Station		Width	Length	Area	A (1)	B	C	D	E	F (2)	G	H	Surface		Intermediate		Base		Surface	Intermediate	Base	Special Backfill	Modified Subbase	Granular Subbase	Pavement Scarification	
				FT	FT	SY	SY	SY	SY	SY	SY	SY	SY	SY	TONS	SY	TONS	SY	TONS	SY	TONS	TONS	TONS	TONS	CY	SY	SY	
Sutliff	BOTH	8788+63.95	8791+71.21	24.0	307.3	819.4									89.105	819.4	89.105	819.4	222.764	819.4	5.346	5.346	13.366		173.5			Stg 1
Sutliff	BOTH	8809+39.00	8819+78.00	24.0	1039.0	2770.7									301.310	2770.7	301.310	2770.7	753.275	2770.7	18.079	18.079	45.197		586.8			Stg 2
Sutliff	BOTH	8791+71.21	8804+54.52	24.0	1283.3	3422.2									372.160	3422.2	372.160	3422.2	930.400	3422.2	22.330	22.330	55.824		724.8			Stg 3
Sutliff	BOTH	8808+50.40	8809+39.00	24.0	88.6	236.3									25.694	236.3	25.694	236.3	64.235	236.3	1.542	1.542	3.854		50.0			Stg 3

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	
8788+63.95	8819+78.00	BOTH	HMA	9487.7	52.0	

REMOVAL OF CONCRETE DRIVES

Location		Area	Remarks
Station	Side	SY	
8791+23.00	R	221.8	HMA
8804+18.00	R	1830.2	Seal Coat

REMOVAL OF CABLE GUARDRAIL

* Not a bid item

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

Location					Type	Cable	Post * Footings, Concrete	End Terminal*	Remarks
No.	Direction of Traffic (1)	Station to Station		Side	(High/Low Tension)	Remove	Remove	Remove	
						LF	Yes/No	No.	
1	NB	8812+01.83	8813+88.00	R	Low Tension	197.4	No	1	Verify post footings
2	SB	8810+70.83	8814+64.90	L	Low Tension	418.5	No	1	Verify post footings

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) Bid Item
(3) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(4) Does not include shrink.

Calculations assume a HMA unit weight (lbs/cf) of 145, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Location					Quantities																	
Road Identification	Direction Of Traffic (1)	Station to Station		Side	(P) Width	(G) Width	(L) Length	Class 13 Excavation (3)	Hot Mix Asphalt		Binder	Paved Shoulder	Reinforced Paved Shoulder	Special Backfill				Modified Subbase	Granular Shoulder		Earth Shoulder Construction Alternates			Remarks
														HMA Alternate		PCC Alternate					STA (2)	HMA	PCC	
					FT	FT	FT	CY (2)	TON	TON/STA	TONS	SY (2)	SY (2)	TON (2)	TON/STA	TON (2)	TON/STA	CY (2)	TON (2)	TON/STA		CY (4)	CY (4)	
Sutliff	NB	8788+63.95	8791+71.21	R	6.00		307.26		66.8	21.8	4.0	204.8		69.26	22.54						3.1	45.4		6" HMA
Sutliff	SB	8788+63.95	8791+71.21	L	6.00		307.26		66.8	21.8	4.0	204.8		69.26	22.54						3.1	45.4		6" HMA
Sutliff	NB	8809+39.00	8819+78.00	R	6.00		1039.00		226.0	21.8	13.6	692.7		234.19	22.54						10.4	153.5		6" HMA
Sutliff	SB	8809+39.00	8819+78.00	L	6.00		1039.00		226.0	21.8	13.6	692.7		234.19	22.54						10.4	153.5		6" HMA
Sutliff	NB	8791+71.21	8803+77.72	R	6.00		1206.51		262.4	21.8	15.7	804.3		271.95	22.54						12.1	178.3		6" HMA
Sutliff	NB	8803+77.72	8804+16.47	R	8.00		38.75		11.2	29.0	0.7	34.4		11.84	30.55						0.4	5.5		6" HMA
Sutliff	NB	8804+16.47	8804+47.72	R	8 to 6.75		31.25		8.4	26.7	0.5	25.6		8.78	28.08						0.3	4.5		6" HMA
Sutliff	NB	8804+47.72	8804+64.52	R	6.75		16.80		4.1	24.5	0.2	12.6		4.30	25.62						0.2	2.4		6" HMA
Sutliff	SB	8791+71.21	8804+00.55	L	6.00		1229.34		267.4	21.8	16.0	819.6		277.09	22.54						12.3	181.6		6" HMA
Sutliff	SB	8804+00.55	8804+39.30	L	8.00		38.75		11.2	29.0	0.7	34.4		11.84	30.55						0.4	5.5		6" HMA
Sutliff	SB	8804+39.30	8804+70.55	L	8 to 6.75		31.25		8.4	26.7	0.5	25.6		8.78	28.08						0.3	4.5		6" HMA
Sutliff	SB	8804+70.55	8804+84.52	L	6.75		13.97		3.4	24.5	0.2	10.5		3.58	25.62						0.1	2.0		6" HMA
Sutliff	NB	8808+00.40	8808+34.38	R	6.75		33.98		8.3	24.5	0.5	25.5		8.71	25.62						0.3	4.9		6" HMA
Sutliff	NB	8808+34.38	8808+65.63	R	6.75 to 8		31.25		8.4	26.7	0.5	25.6		8.78	28.08						0.3	4.5		6" HMA
Sutliff	NB	8808+65.63	8809+04.38	R	8.00		38.75		11.2	29.0	0.7	34.4		11.84	30.55						0.4	5.5		6" HMA
Sutliff	NB	8809+04.38	8809+39.00	R	6.00		34.62		7.5	21.8	0.5	23.1		7.80	22.54						0.3	5.1		6" HMA
Sutliff	SB	8808+00.40	8808+57.20	L	6.75		56.80		13.9	24.5	0.8	42.6		14.55	25.62						0.6	8.2		6" HMA
Sutliff	SB	8808+57.20	8808+88.45	L	6.75 to 8		31.25		8.4	26.7	0.5	25.6		8.78	28.08						0.3	4.5		6" HMA
Sutliff	SB	8808+88.45	8809+27.20	L	8.00		38.75		11.2	29.0	0.7	34.4		11.84	30.55						0.4	5.5		6" HMA
Sutliff	SB	8809+27.20	8809+39.00	L	6.00		11.80		2.6	21.8	0.2	7.9		2.66	22.54						0.1	1.7		6" HMA

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 Milepost to Milepost 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	
698+15 to 700+77	BOTH	Trees - Clearing and Grubbing																	0.4		
759+28 to 761+08	BOTH	Trees - Clearing and Grubbing																	0.3		
778+34 to 784+22	BOTH	Trees - Clearing and Grubbing																	4.7		
796+69 to 804+80	BOTH	Trees - Clearing and Grubbing																	6.0		
810+30 to 838+68	BOTH	Trees - Clearing and Grubbing																	23.9		
839+75 to 846+37	BOTH	Trees - Clearing and Grubbing																	3.5		
8816+70 to 8818+20	SB	Trees - Clearing and Grubbing																	0.1		
10829+66 to 10837+75	BOTH	Trees - Clearing and Grubbing																	1.7		
10829+66 to 10833+65	NB	Trees - Clearing and Grubbing																	0.2		
10841+44 to 10844+00	BOTH	Trees - Clearing and Grubbing																	0.6		

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
(1) Refer to MI-210
(2) Refer to EW-501.
(3) Refer to EW-501 or EW-502.
*Predetermined for access point not constructed with this project.

Location		Type	Length of Opening (1)			(W)	(1) (2) (PR)	(2) (SR)	Pipe Culvert (3)					Aprons	Driveway Surface Area		Driveway Surfacing Material	Remarks
Station	Side	A, B, C, Safety Ramp, or Predetermined*	Case	1¼" Dropped Curb	3" Dropped Curb				(H)	Size	Pipe Length	Lt.	Rt.		HMA	PCC		
			1 or 2	LF	LF	FT	FT	FT	FT	IN	LF	LF	LF	No.	SY	SY	TON	
7775+77.00	L	C				24.0	-	15.0									46.296	No pipe
7775+77.00	R	C				20.0	-	15.0	6.2	24.0	118.0	52.9	72.2	2			42.202	
7786+07.00	L	C				20.0	-	15.0										No pipe. UAC Existing ent.
8790+46.00	R	C				20.0	-	15.0	2.2	24.0	48.1	24.2	32.8	2			36.455	
8791+23.00	R	B				28.0	35.0	-	2.2	24.0	56.7	26.0	37.7	2	250.8			8" HMA Surfacing
8800+40.00	L	C				20.0	-	15.0									28.202	No pipe
8817+68.00	L	C				20.0	-	15.0	2.1	18.0	48.5	23.0	30.7	2			41.866	
10836+31.00	R	C				20.0	-	15.0									70.419	No pipe
10844+78.00	R	C				22.0	-	15.0									328.110	See Tab 104-3 for pipe

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-210, BA-211, BA-250, LS-625, LS-626, LS-630, SI-172, SI-173 and SI-211.

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

Location					Layout Lengths BA-250 or LS-630				Long-Span System		Delineators and Object Markers					Bid Items								
No.	(1) Direction of Traffic	Side O = Outside M = Median	Station	Offset	VT1	VF	VT2	ET	BA-211		SI-211	Delineator SI-172	Object Marker SI-173			Bolted End Anchor		Barrier Transition Section	Steel Beam Guardrail	End Terminal		Post Adapter	Remarks
												White	Type 1	Type 2	Type 3	BA-202		BA-201	BA-200	Standard	Count	BA-210	
				FT	LF	LF	LF	LF	STATION	TYPE	TYPE	EACH	EACH	EACH	EACH	TYPE	EACH	EACH	LF		EACH	EACH	
1	NB	O	8805+12.74	18.0	65.625			50.0			3				1	A	1	1	25.0	LS-625	1		Sutliff Bridge
2	SB	O	8805+23.06	18.0	53.125			50.0			3			1		A	1	1	12.5	LS-625	1		
3	NB	O	8807+81.86	18.0	53.125			50.0			3			1		A	1	1	12.5	LS-625	1		
4	SB	O	8807+92.18	18.0	65.625			50.0			3				1	A	1	1	25.0	LS-625	1		
5	NB	O	7769+93.12	15.0	53.125			50.0			3				1	A	1	1	12.5	LS-625	1		Standing Rock Bridge
6	SB	O	7769+93.12	15.0	40.625			50.0			3			1		A	1	1	0.0	LS-625	1		
7	NB	O	7772+42.12	15.0	40.625			50.0			3			1		A	1	1	0.0	LS-625	1		
8	SB	O	7772+42.12	15.0	53.125			50.0			3				1	A	1	1	12.5	LS-625	1		
9	NB	O	10837+49.73	15.0	53.125			50.0			3				1	A	1	1	12.5	LS-625	1		Green Ridge Bridge
10	SB	O	10837+57.77	15.0	40.625			50.0			3			1		A	1	1	0.0	LS-625	1		
11	NB	O	10840+56.33	15.0	40.625			50.0			3			1		A	1	1	0.0	LS-625	1		
12	SB	O	10840+64.37	15.0	53.125			50.0			3				1	A	1	1	12.5	LS-625	1		

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

Location								Length by Line Type (Unfactored)																Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side L	Side C	Side R	BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4											
								STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
Sutliff	8809+39.00	8814+59.00	BOTH	Waterborne/Solvent Paint	X	X	X	5.20				10.40												
Sutliff	8814+59.00	8819+78.00	BOTH	Waterborne/Solvent Paint	X	X	X			5.19		10.38												
Sutliff	8788+63.95	8791+71.21	BOTH	Waterborne/Solvent Paint	X	X	X	3.07				6.15												
				Factored Total: Waterborne/Solvent Paint				2.07	-	6.49	-	26.93	-	-	-	-	-	-	-	-	-	-	-	
				Bid Quantity: Painted Pavement Markings, Waterborne or Solvent-Based							35.48													

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type Road Qty.	Closure Type Hazard Qty.	Remarks
1588+30.00		1	Ramp A
4486+93.00		1	Ramp D
@ Light Rd.	1		Standing Rock
7760+60.00		1	Standing Rock
7775+50.00		1	Standing Rock
7786+50.00	1		Standing Rock
8804+55.00		1	Sutliff - Stage 1
8819+90.00		1	Sutliff - Stage 1
8791+50.00		1	Sutliff - Stage 2
8809+45.00		1	Sutliff - Stage 2
@ Light Rd.	1		Green Ridge
10836+50.00		1	Green Ridge
10844+60.00		1	Green Ridge

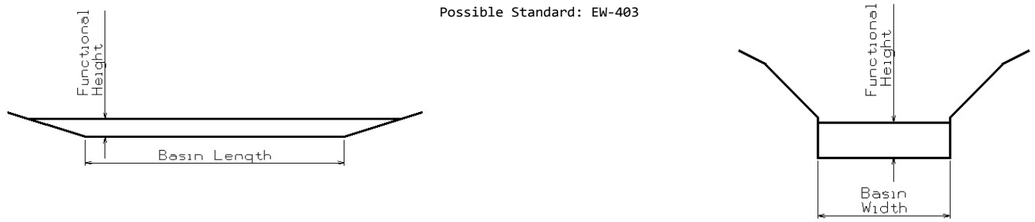
ROCK EROSION CONTROL

Refer to EC-301

Location				(L)	(W)	Rock Erosion Control (REC)					Material Bid Quantities			Remarks
Road Identification	Station	End Station	Side			Type 1 Rock Ditch Check	Type 2 Rock Ditch	Type 3 Rock Flume	Type 4 Rock Splash Basin	Type 5 Rock Slope Protection	Erosion Stone	Class E Revetment	Eng. Fabric	
			Lt./Rt.	FT	FT						TON	TON	SY	
U.S. 30	721+40.00	721+60.00	Lt.	20	26.4					X		51.6	82.2	
U.S. 30	732+60.00	732+80.00	Lt.	20	19.8					X		37.1	64.6	
U.S. 30	736+35.00	736+55.00	Lt.	20	41.3					X		86.1	125.1	
U.S. 30	739+68.00	739+88.00	Lt.	20	46.9					X		98.5	140.8	
U.S. 30	761+27.00		Lt.	10	29.05			X			36.0		54.5	at pipe outlet
U.S. 30	761+60.00		Lt.	10	42.5				X			80.5	95.2	RCB inlet
U.S. 30	760+81.50		Rt.	55	42.5				X			290.9	327.7	RCB outlet
U.S. 30	772+42.00	772+52.00	Rt.	10	46.5					X		49.7	81.5	
U.S. 30	779+52.00		Lt.	10	13.6				X			32.0	52.7	RCB inlet
U.S. 30	780+45.00		Rt.	20	13.6				X			47.0	72.2	RCB outlet
U.S. 30	808+95.00	809+15.00	Lt.	20	20.3					X		27.2	55.0	
U.S. 30	810+70.00	810+80.00	Lt.	10	49.53					X		51.9	87.3	
U.S. 30	816+70.70		Lt.	10	33.2			X			41.2		61.1	at pipe outlet
U.S. 30	822+44.00		Rt.	30	25							82.5	109.6	See U.1 Depth=2.5'
U.S. 30	823+21.70		Lt.	10	12.5				X			26.3	53.0	RCB inlet
U.S. 30	830+50.00		Lt.	10	8.3			X			10.1		20.9	at pipe outlet
U.S. 30	831+18.30		Rt.	10	19.4			X			23.9		38.7	on skew @ outlet
Standing Rock	7766+54.00	7766+64.00	Rt.	10	19.8					X		19.7	38.3	
Green Ridge Entrance	19848+74.60		Lt.	7.5	8				X			6.6	15.3	at pipe outlet

SILT BASINS

Possible Standard: EW-403



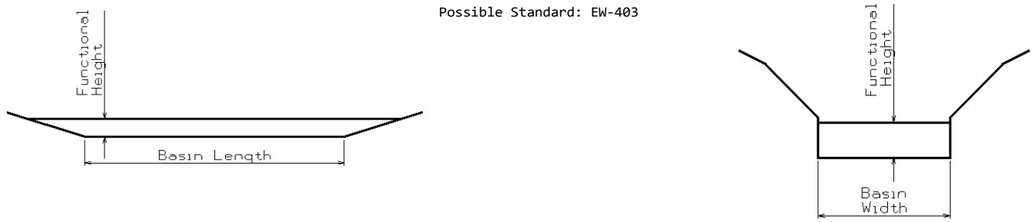
* The functional height used in the volume equation is 3 feet as shown on EW-403. A 5% reduction in storage volume per average % slope is a
* Volume equation: (Width*Length*Height)-(Width*Length*Height*0.05*Avg.%Slope*100)

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	
21	717+03.00	L	1		10.0	50.0	3.00	1.2%	1411.50	
21	717+15.00	L	1		10.0	50.0	3.00	1.2%	1413.00	
21	717+45.00	R	1		10.0	50.0	3.00	1.9%	1357.50	
23	727+72.00	L	1		10.0	50.0	3.00	2.6%	1308.00	
23	727+82.00	L	1		10.0	50.0	3.00	0.2%	1485.00	
23	729+00.00	R	1		10.0	50.0	3.00	0.5%	1462.50	
25A	733+38.00	R	1		10.0	50.0	3.00	0.4%	1473.75	
25B	736+80.00	R	1		10.0	50.0	3.00	0.8%	1440.00	
25	740+70.00	L	1		10.0	50.0	3.00	0.7%	1451.25	
25	740+70.00	R	1		10.0	50.0	3.00	2.1%	1346.25	
25	740+80.00	R	1		10.0	50.0	3.00	1.6%	1380.75	
26	751+06.00	L	1		10.0	50.0	3.00	4.6%	1155.00	
26	751+18.00	L	1		10.0	50.0	3.00	0.2%	1484.25	
26	752+51.00	R	1		10.0	50.0	3.00	5.4%	1095.75	
26	752+63.00	R	1		10.0	50.0	3.00	0.5%	1462.50	
29	759+99.00	R	1		10.0	50.0	3.00	6.8%	987.75	
29	761+00.00	R	1		10.0	50.0	3.00	5.8%	1064.25	
29	761+46.00	L	1		10.0	50.0	3.00	4.9%	1131.00	
29	761+90.00	L	1		10.0	50.0	3.00	5.0%	1125.00	
29	772+03.00	R	1		10.0	50.0	3.00	2.2%	1338.00	
29	772+04.00	L	1		10.0	50.0	3.00	2.2%	1338.00	
31	779+48.00	L	1		10.0	50.0	3.00	5.0%	1125.00	
31	779+60.00	L	1		10.0	50.0	3.00	6.0%	1052.25	
31	780+37.00	R	1		10.0	50.0	3.00	4.9%	1133.25	
31	780+49.00	R	1		10.0	50.0	3.00	6.0%	1048.50	
32	797+02.00	R	1		10.0	50.0	3.00	2.3%	1331.25	
32	797+13.00	R	1		10.0	50.0	3.00	5.2%	1109.25	
32	798+21.00	L	1		10.0	50.0	3.00	2.5%	1313.25	
32	798+33.00	L	1		10.0	50.0	3.00	2.1%	1343.25	
34	810+71.00	L	1		10.0	50.0	3.00	0.7%	1449.00	
34	810+81.00	L	1		10.0	50.0	3.00	0.3%	1477.50	
34	811+08.00	R	1		10.0	50.0	3.00	2.6%	1302.00	
34	811+18.00	R	1		10.0	50.0	3.00	0.9%	1431.75	
36	817+64.00	L	1		10.0	50.0	3.00	2.8%	1291.50	
36	817+76.00	L	1		10.0	50.0	3.00	2.0%	1350.00	
36	818+96.00	R	1		10.0	50.0	3.00	1.1%	1418.25	
36	819+03.00	R	1		10.0	50.0	3.00	0.5%	1464.75	
37	822+42.00	R	1		10.0	50.0	3.00	6.4%	1023.00	
37	823+13.00	L	1		10.0	50.0	3.00	4.5%	1164.75	
37	823+23.00	L	1		10.0	50.0	3.00	5.0%	1125.00	
39	833+24.00	L	1		10.0	50.0	3.00	5.7%	1074.00	
R1	834+09.00	R	1		10.0	50.0	3.00	0.8%	1439.25	
62-2	1588+50.00	L	1		10.0	50.0	3.00	0.1%	1496.25	
62-2	1588+57.00	L	1		10.0	50.0	3.00	0.1%	1489.50	
18	1593+55.00	R	1		10.0	50.0	3.00	0.3%	1477.50	
18	1593+65.00	R	1		10.0	50.0	3.00	2.4%	1318.50	
18	1594+42.00	L	1		10.0	50.0	3.00	1.9%	1358.25	
18	1594+52.00	L	1		10.0	50.0	3.00	0.5%	1462.50	
59-2	4487+19.00	R	1		10.0	50.0	3.00	1.7%	1371.00	
59-2	4487+47.00	L	1		10.0	50.0	3.00	0.2%	1485.00	
18	4492+45.00	L	1		10.0	50.0	3.00	0.4%	1469.25	
18	4492+55.00	L	1		10.0	50.0	3.00	2.8%	1293.00	
18	4494+44.00	R	1		10.0	50.0	3.00	1.3%	1402.50	
18	4494+54.00	R	1		10.0	50.0	3.00	0.4%	1473.75	
67	7766+54.00	L	1		10.0	50.0	3.00	1.0%	1423.50	
67	7766+54.00	R	1		10.0	50.0	3.00	1.0%	1425.00	
67	7766+64.00	L	1		10.0	50.0	3.00	7.5%	938.25	
67	7766+64.00	R	1		10.0	50.0	3.00	3.4%	1243.50	
29	7772+55.00	R	1		10.0	50.0	3.00	1.9%	1356.00	
SR3	7777+07.00	L	1		10.0	50.0	3.00	0.5%	1462.50	
70	7784+55.00	R	1		10.0	50.0	3.00	0.3%	1477.50	
70	7784+65.00	R	1		10.0	50.0	3.00	6.4%	1023.75	
70	7784+64.00	L	1		10.0	50.0	3.00	2.9%	1285.50	
Sut1	8788+64.00	L	1		10.0	50.0	3.00	4.6%	1156.50	
Sut2	8791+50.00	R	1		10.0	50.0	3.00	4.1%	1192.50	
71	8803+20.00	L	1		10.0	50.0	3.00	3.7%	1220.25	
71	8803+30.00	L	1		10.0	50.0	3.00	0.3%	1477.50	

100-14
04-19-16

SILT BASINS

Possible Standard: EW-403



* The functional height used in the volume equation is 3 feet as shown on EW-403. A 5% reduction in storage volume per average % slope is a
* Volume equation: (Width*Length*Height)-(Width*Length*Height*0.05*Avg.%Slope*100)

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	
71	8803+30.00	R	1		10.0	50.0	3.00	8.7%	849.75	
	8810+65.00	R	1		10.0	50.0	3.00	4.0%	1200.00	
Sut3	8817+92.00	L	1		10.0	50.0	3.00	4.0%	1200.00	
GR3	10836+04.00	L	1		10.0	50.0	3.00	2.5%	1311.00	
GR4	10842+20.00	L	1		10.0	50.0	3.00	0.5%	1462.50	

100-34
04-19-16

STORMWATER DRAINAGE BASIN

Basin No.	Station to Station		Side	Disturbed Area Acres	Discharge Point Station	Discharge Point Side	Required Storage Volume CF	Remarks
62-2	688+20.00	692+13.00	L	2.8	2583+04.00	R	9972.0	Portion of larger area (rest in (120))
59-2	688+20.00	689+90.00	R	1.8	4486+89.00	R	6372.0	Portion of larger area (rest in (120))
18	689+90.00	701+24.00	B	11.5	4494+49.00	R	41220.0	
21	700+57.00	719+33.00	B	9.8	717+52.00	R	35136.0	
23	719+30.00	730+65.00	B	7.2	728+20.00	L	25812.0	
25	730+61.00	744+50.00	B	6.4	740+75.00	R	23148.0	
25A	730+65.00	735+60.00	R	0.8	733+38.00	R	2988.0	
25B	735+60.00	737+77.00	R	0.3	736+80.00	R	1152.0	
26	741+06.00	756+43.00	B	10.1	752+47.00	R	36216.0	
29	756+00.00	775+08.00	B	14.2	760+77.00	R	50976.0	
31	774+50.00	791+94.00	B	12.3	780+43.00	R	44208.0	
32	791+90.00	805+80.00	B	10.5	797+07.00	R	37944.0	
34	808+60.00	812+06.00	B	2.7	811+13.00	R	9576.0	
36	812+06.00	820+45.00	B	9.5	819+01.00	R	34092.0	
37	820+38.00	830+02.00	B	6.3	822+44.00	R	22824.0	
39	830+02.00	837+75.00	B	6.5	831+18.00	R	23364.0	
R1	834+09.00	838+00.00	R	2.4	834+09.00	R	8532.0	
L1	839+30.00	845+39.00	L	3.9	845+39.00	L	14112.0	
R2	840+15.00	846+45.00	R	2.4	846+45.00	R	8640.0	
SR1	7760+77.25	7763+49.00	L	0.2	7760+77.25	L	792.0	
SR2	7760+77.25	7763+37.00	R	0.3	7760+77.25	R	972.0	
SR3	7776+50.00	7780+59.00	L	0.8	7777+07.00	L	2772.0	
67	7763+37.00	7768+38.00	B	1.0	7766+59.00	L	3708.0	
70	7780+78.00	7785+75.00	B	1.1	7784+68.00	L	3960.0	
Sut1	8788+63.95	8800+40.00	L	2.0	8788+63.95	L	7092.0	
Sut2	8788+63.95	8799+00.00	R	1.1	8788+63.95	R	4068.0	
71	8800+40.00	8805+72.00	B	2.7	8803+25.00	R	9576.0	
Sut3	8816+53.00	8819+78.00	L	0.4	8816+53.00	L	1404.0	
Sut4	8811+00.00	8819+78.00	R	1.6	8811+00.00	R	5724.0	
GR1	10829+66.35	10833+25.00	L	0.7	10829+66.35	L	2664.0	
GR2	10829+66.35	10836+31.00	R	0.6	10829+66.35	R	2160.0	
GR3	10833+25.00	10837+30.00	L	0.9	10836+04.00	L	3060.0	
GR4	10841+60.00	10844+90.00	L	0.8	10842+20.00	L	3024.0	
GR5	10844+90.00	10845+85.00	L	0.1	10845+85.00	L	288.0	
GR6	10844+78.00	10845+85.00	R	0.1	10845+85.00	R	396.0	

100-35
04-19-16

SUMMARY OF STORMWATER STORAGE

Basin No.	Item	Total Storage Volume Provided CF	Total Storage Volume Required CF	Remarks
62-2	Storm Sewer Sta. 6689+34 RT	6169	9972	Portion urban section
59-2	Culvert Sta. 4487+27 Iowa 1 Ramp D	5316	6372	Portion urban section
18	Culvert Sta. 694+65.95	40319	41220	
21	Culvert Sta. 717+31.43	45098	35136	
23	Culvert Sta. 727+96.63	22293	25812	Also long. silt fence
25	Culvert Sta. 740+75	30915	23148	
25A	Rt. Ditch	6731	2988	
25B	Rt. Ditch	4430	1152	
26	Culvert Sta. 751+83.82	34065	36216	
29	Culvert Sta. 761+21	63235	50976	
31	Culvert Sta. 779+96	51713	44208	
32	Culvert Sta. 797+71	35719	37944	
34	Culvert Sta. 810+93.73	10580	9576	
36	Culvert Sta. 818+30.24	39467	34092	
37	Culvert Sta. 822+84.14	16012	22824	
39	Culvert Sta. 83241.07	12255	23364	Also long. silt fence
R1	Right Ditch	5639	8532	
L1	Left ditch at Spring Creek	12964	14112	
R2	Right ditch at Spring Creek	7876	8640	
SR1	Standing Rock left ditch at south tie	2896	792	
SR2	Standing Rock right ditch at south tie	2896	972	
SR3	Standing Rock Left ditch, Sta. 7776+50 - 7780+59	2704	2772	
67	Culvert Sta. 7766+59	9306	3708	
70	Culvert Sta. 7784+64.50	8200	3960	
Sut1	Sutliff left ditch at south tie	11455	7092	
Sut2	Sutliff right ditch at south tie	8135	4068	
71	Culvert Sta. 8803+25	6613	9576	Also long. silt fence
Sut3	Sutliff left ditch at north tie	2303	1404	Also long. silt fence
Sut4	Sutliff right ditch at north tie	6102	5724	
GR1	Green Ridge left ditch at south tie	2754	2664	
GR2	Green Ridge right ditch at south tie	4819	2160	
GR3	Green Ridge left ditch south of bypass	3518	3060	Also long. silt fence
GR4	Green Ridge left ditch north of bypass	4154	3024	
GR5	Green Ridge left ditch at north tie	2896	288	
GR6	Green Ridge right ditch at north tie	2896	396	

100-22
04-21-15

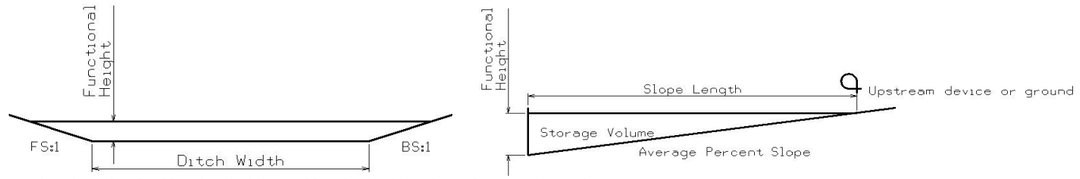
ROLLED EROSION CONTROL

Refer to EC-101, EC-103 and EC-104

Location: Road Identification	Location: Begin Station	Location: End Station	Location: Side	L FT	W FT	Turf Reinforcement Mat (TRM) (EC-104): Type 1 Squares	Type 2 Squares	Type 3 Squares	Type 4 Squares	Slope Protection (EC-103) Squares	Special Ditch Control (EC-101) Squares	Remarks
U.S. 30	749+20.00	752+47.00	R	327.0	16.0						52	
U.S. 30	757+50.00	760+00.00	R	250.0	16.0						40	
U.S. 30	761+00.00	763+50.00	R	250.0	16.0						40	
U.S. 30	761+90.00	764+50.00	L	260.0	16.0						42	
U.S. 30	777+29.00	779+50.00	L	221.0	16.0						35	
U.S. 30	779+58.00	785+60.00	L	602.0	16.0						96	
U.S. 30	780+47.00	787+65.00	R	718.0	16.0						115	
U.S. 30	794+00.00	796+25.00	R	225.0	16.0						36	
U.S. 30	797+09.00	799+00.00	R	191.0	16.0						31	
U.S. 30	814+75.00	816+98.00	L	223.0	16.0						36	
U.S. 30	815+13.00	818+00.00	R	287.0	16.0						46	
U.S. 30	820+38.00	822+44.00	R	206.0	16.0						33	
U.S. 30	820+45.00	822+60.00	L	215.0	16.0						34	
U.S. 30	823+21.00	827+50.00	L	429.0	16.0						69	
U.S. 30	830+02.00	836+75.00	L	673.0	16.0						108	
Standing Rock	7768+38.00	7769+83.00	R	145.0	16.0						23	
Standing Rock	7768+33.00	7769+83.00	L	150.0	16.0						24	
Standing Rock	7784+60.00	7785+75.00	R	115.0	16.0						18	
Sutliff	8803+25.00	8804+75.00	R	150.0	16.0						24	
Sutliff	8807+91.00	8811+50.00	L	359.0	16.0						57	
Sutliff	8811+00.00	8815+17.00	R	417.0	16.0						67	
Sutliff	8819+00.00	8819+78.00	R	78.0	16.0						12	
Green Ridge	10830+75.00	10833+25.00	L	250.0	16.0						40	
Green Ridge	10830+75.00	10833+75.00	R	300.0	16.0						48	

ROCK CHECK DAM

Possible Detail: 570-2



* The functional height used in the volume equation is 90% of effective height. Effective height is 2 feet as shown in 570-2.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Location			Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Offset FT	Installation LF	Maintenance Each	Removal Each	Foreslope FS:1	Backslope BS:1	Ditch Width FT	Avg. % Slope	Volume* CF	
37	822+52.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	822+72.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	822+92.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	823+12.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	823+32.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	823+52.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	823+72.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	823+92.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	824+12.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	824+32.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	824+52.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	824+72.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	824+92.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	825+12.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	825+32.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	825+52.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
37	825+72.00	Rt.		26.3			3.5	3.0	10.0	15.4%	285.3	
R1	835+34.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	835+54.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	835+74.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	835+94.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	836+14.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	836+34.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	836+54.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	836+74.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	836+94.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	837+14.00	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	836+85.19	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	837+05.19	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	837+25.19	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	837+45.19	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	837+65.19	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
R1	837+85.19	Rt.		26.3			3.5	3.0	10.0	21.4%	285.3	
L1	841+19.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	841+39.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	841+59.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	841+79.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	841+99.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	842+19.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	842+39.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	842+59.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	842+79.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	842+99.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	843+19.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	843+39.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	843+59.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	843+79.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	843+99.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	844+19.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	844+39.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	844+59.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	844+79.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	844+99.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	845+19.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
L1	845+39.00	Lt.		26.3			3.5	3.0	10.0	12.1%	285.3	
R2	842+65.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	842+85.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	843+05.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	843+25.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	843+45.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	843+65.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	843+85.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	844+05.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	844+25.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	844+45.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	844+65.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	844+85.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	845+05.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	

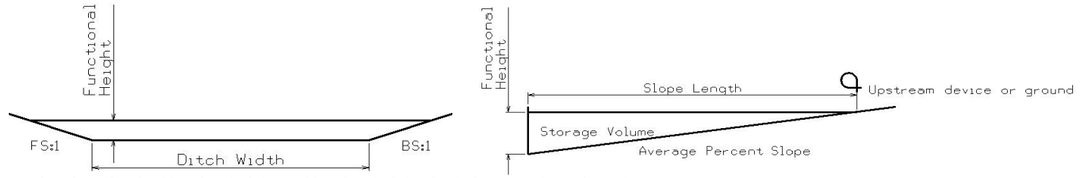
TABULATION OF SILT FENCES

Refer to EC-201

Location			Length	Remarks
Begin Station	End Station	Side	LF	
688+42.00	693+00.00	L	518.0	
687+95.00	692+20.00	R	485.0	
717+60.00	728+16.00	R	1176.0	
769+28.00	772+00.00	R	315.0	Bridge abutment
770+20.00	773+07.00	L	315.0	Bridge abutment
805+42.00	808+30.00	R	350.0	Bridge abutment
805+58.00	809+18.00	L	350.0	Bridge abutment
827+50.00	831+15.00	R	405.0	
831+24.00	834+09.00	R	325.0	
837+28.00	840+05.00	R	315.0	Bridge abutment
837+05.00	841+81.00	L	545.0	Bridge abutment
845+00.00		B	480.0	Bridge abutment
7772+57.00	7777+00.00	L	503.0	
7784+72.00	7786+07.00	L	155.0	
8811+50.00	8817+50.00	L	660.0	
8799+00.00	8803+22.00	R	482.0	
8807+85.00	8809+17.00	R	152.0	
9810+89.00	9811+38.00	R	69.0	
9811+46.00	9814+25.00	R	319.0	
9811+21.00	9814+10.00	L	329.0	
10836+05.00	10837+25.00	L	140.0	

ROCK CHECK DAM

Possible Detail: 570-2



* The functional height used in the volume equation is 90% of effective height. Effective height is 2 feet as shown in 570-2.

* Volume equation: $[0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]$

Basin No.	Location			Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Offset	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg. % Slope	Volume*	
			FT	LF	Each	Each	FS:1	BS:1	FT		CF	
R2	845+25.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	845+45.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	845+65.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	845+85.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	846+05.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	846+25.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
R2	846+45.00	Rt.		26.3			3.5	3.0	10.0	14.2%	285.3	
L1	10839+76.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10840+01.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10840+26.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10840+51.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10840+76.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10841+01.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10841+26.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10841+51.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10841+76.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10842+01.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10842+26.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10842+51.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10842+76.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
L1	10843+01.00	Rt.		23.8			3.0	2.5	10.0	12.6%	269.1	
39	10840+16.00	Lt.		23.8			3.0	2.5	10.0	12.5%	269.1	
39	10840+41.00	Lt.		23.8			3.0	2.5	10.0	12.5%	269.1	
39	10840+66.00	Lt.		23.8			3.0	2.5	10.0	12.5%	269.1	
39	10840+91.00	Lt.		23.8			3.0	2.5	10.0	12.5%	269.1	
39	10841+16.00	Lt.		23.8			3.0	2.5	10.0	12.5%	269.1	
39	10841+41.00	Lt.		23.8			3.0	2.5	10.0	12.5%	269.1	
GR4	10842+25.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10842+50.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10842+75.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10843+00.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10843+25.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10843+50.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10843+75.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10844+00.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10844+25.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	
GR4	10844+50.00	Lt.		23.8			3.0	2.5	10.0	11.3%	269.1	

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Refer to EC-204

* Volume equation: [(H3*FS+2*DW*H2+H3*BS)/(4*slope)]

Location						Stormwater Storage		Remarks
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	Avg. % Slope	Volume*	
			LF	LF	LF		CF	
700+00.00		L		30.0				Around area intake
713+30.00		L		30.0				Around median drain inlet
726+60.00		L		30.0				Around median drain inlet
740+55.00		L		30.0				Around median drain inlet
755+80.00		L		30.0				Around median drain inlet
761+27.00		L		30.0				Around median drain inlet
775+85.00		L		30.0				Around median drain inlet
805+50.00		L		30.0				Around median drain inlet
816+70.70		L		30.0				Around median drain inlet
830+50.00		L		30.0				Around median drain inlet
749+47.00		R			23.0	5.39%	241.51	Ditch checks over wood excelsior
749+77.00		R			23.0	5.39%	241.51	mat
750+07.00		R			23.0	5.39%	241.51	
750+37.00		R			23.0	5.39%	241.51	
750+67.00		R			23.0	5.39%	241.51	
750+97.00		R			23.0	5.39%	241.51	
751+27.00		R			23.0	5.39%	241.51	
751+57.00		R			23.0	5.39%	241.51	
751+87.00		R			23.0	5.39%	241.51	
752+17.00		R			23.0	5.39%	241.51	
752+47.00		R			23.0	5.39%	241.51	
757+75.00		R			23.0	6.83%	190.59	
758+00.00		R			23.0	6.83%	190.59	
758+25.00		R			23.0	6.83%	190.59	
758+50.00		R			23.0	6.83%	190.59	
758+75.00		R			23.0	6.83%	190.59	
759+00.00		R			23.0	6.83%	190.59	
759+25.00		R			23.0	6.83%	190.59	
759+50.00		R			23.0	6.83%	190.59	
759+75.00		R			23.0	6.83%	190.59	
760+00.00		R			23.0	6.83%	190.59	
761+00.00		R			23.0	5.81%	224.05	
761+25.00		R			23.0	5.81%	224.05	
761+50.00		R			23.0	5.81%	224.05	
761+75.00		R			23.0	5.81%	224.05	
762+00.00		R			23.0	5.81%	224.05	
762+25.00		R			23.0	5.81%	224.05	
762+50.00		R			23.0	5.81%	224.05	
762+75.00		R			23.0	5.81%	224.05	
763+00.00		R			23.0	5.81%	224.05	
763+25.00		R			23.0	5.81%	224.05	
763+50.00		R			23.0	1.21%	1075.83	
761+90.00		L			23.0	5.00%	260.35	
762+25.00		L			23.0	5.00%	260.35	
762+60.00		L			23.0	5.00%	260.35	
762+95.00		L			23.0	5.00%	260.35	
763+30.00		L			23.0	5.00%	260.35	
763+65.00		L			23.0	5.00%	260.35	
764+00.00		L			23.0	5.00%	260.35	
764+35.00		L			23.0	3.00%	433.92	
777+40.00		L			23.0	2.00%	650.88	
777+75.00		L			23.0	5.00%	260.35	
778+10.00		L			23.0	5.00%	260.35	
778+45.00		L			23.0	5.00%	260.35	
778+80.00		L			23.0	5.00%	260.35	
779+15.00		L			23.0	5.00%	260.35	
779+50.00		L			23.0	5.00%	260.35	
779+58.00		L			23.0	5.97%	218.05	
779+83.00		L			23.0	5.97%	218.05	
780+08.00		L			23.0	5.97%	218.05	
780+33.00		L			23.0	5.97%	218.05	
780+58.00		L			23.0	5.97%	218.05	
780+83.00		L			23.0	5.97%	218.05	
781+08.00		L			23.0	5.97%	218.05	
781+33.00		L			23.0	5.97%	218.05	
781+58.00		L			23.0	5.97%	218.05	
781+83.00		L			23.0	5.97%	218.05	
782+08.00		L			23.0	5.97%	218.05	
782+33.00		L			23.0	5.97%	218.05	
782+58.00		L			23.0	5.97%	218.05	
782+83.00		L			23.0	5.97%	218.05	
783+08.00		L			23.0	5.97%	218.05	
783+33.00		L			23.0	5.97%	218.05	
783+58.00		L			23.0	5.97%	218.05	
783+83.00		L			23.0	5.97%	218.05	
784+08.00		L			23.0	5.97%	218.05	
784+33.00		L			23.0	5.97%	218.05	
784+58.00		L			23.0	5.97%	218.05	
784+83.00		L			23.0	5.97%	218.05	

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PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Refer to EC-204

* Volume equation: [(H3*FS+2*DW*H2+H3*BS)/(4*slope)]

Location						Stormwater Storage		Remarks
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	Avg. % Slope	Volume*	
			LF	LF	LF		CF	
785+08.00		L			23.0	5.97%	218.05	
785+33.00		L			23.0	5.97%	218.05	
785+58.00		L			23.0	4.00%	325.44	
780+47.00		R			23.0	6.02%	216.24	
780+72.00		R			23.0	6.02%	216.24	
780+97.00		R			23.0	6.02%	216.24	
781+22.00		R			23.0	6.02%	216.24	
781+47.00		R			23.0	6.02%	216.24	
781+72.00		R			23.0	6.02%	216.24	
781+97.00		R			23.0	6.02%	216.24	
782+22.00		R			23.0	6.02%	216.24	
782+47.00		R			23.0	6.02%	216.24	
782+72.00		R			23.0	6.02%	216.24	
782+97.00		R			23.0	6.02%	216.24	
783+22.00		R			23.0	6.02%	216.24	
783+47.00		R			23.0	6.02%	216.24	
783+72.00		R			23.0	6.02%	216.24	
783+97.00		R			23.0	6.02%	216.24	
784+22.00		R			23.0	6.02%	216.24	
784+47.00		R			23.0	6.02%	216.24	
784+72.00		R			23.0	6.02%	216.24	
784+97.00		R			23.0	6.02%	216.24	
785+22.00		R			23.0	6.02%	216.24	
785+47.00		R			23.0	6.02%	216.24	
785+72.00		R			23.0	6.02%	216.24	
785+97.00		R			23.0	6.02%	216.24	
786+22.00		R			23.0	6.02%	216.24	
786+47.00		R			23.0	6.02%	216.24	
786+72.00		R			23.0	6.02%	216.24	
786+97.00		R			23.0	6.02%	216.24	
787+22.00		R			23.0	6.02%	216.24	
787+47.00		R			23.0	6.02%	216.24	
794+25.00		R			23.0	6.33%	205.65	
794+50.00		R			23.0	6.33%	205.65	
794+75.00		R			23.0	6.33%	205.65	
795+00.00		R			23.0	6.33%	205.65	
795+25.00		R			23.0	6.33%	205.65	
795+50.00		R			23.0	6.33%	205.65	
795+75.00		R			23.0	6.33%	205.65	
796+00.00		R			23.0	6.33%	205.65	
796+25.00		R			23.0	6.33%	205.65	
797+09.00		R			23.0	5.21%	249.86	
797+39.00		R			23.0	5.21%	249.86	
797+69.00		R			23.0	5.21%	249.86	
797+99.00		R			23.0	5.21%	249.86	
798+29.00		R			23.0	5.21%	249.86	
798+59.00		R			23.0	5.21%	249.86	
798+89.00		R			23.0	5.21%	249.86	
814+88.00		L			23.0	3.00%	433.92	
815+18.00		L			23.0	5.42%	240.18	
815+48.00		L			23.0	5.42%	240.18	
815+78.00		L			23.0	5.42%	240.18	
816+08.00		L			23.0	5.42%	240.18	
816+38.00		L			23.0	5.42%	240.18	
816+68.00		L			23.0	5.42%	240.18	
816+98.00		L			23.0	5.42%	240.18	
815+50.00		R			23.0	7.48%	174.03	
815+75.00		R			23.0	7.48%	174.03	
816+00.00		R			23.0	7.48%	174.03	
816+25.00		R			23.0	7.48%	174.03	
816+50.00		R			23.0	7.48%	174.03	
816+75.00		R			23.0	7.48%	174.03	
817+00.00		R			23.0	7.48%	174.03	
817+25.00		R			23.0	7.48%	174.03	
817+50.00		R			23.0	7.48%	174.03	
817+75.00		R			23.0	7.48%	174.03	
818+00.00		R			23.0	7.48%	174.03	
820+69.00		R			23.0	12.82%	101.54	
820+94.00		R			23.0	6.36%	204.68	
821+19.00		R			23.0	6.36%	204.68	
821+44.00		R			23.0	6.36%	204.68	
821+69.00		R			23.0	6.36%	204.68	
821+94.00		R			23.0	6.36%	204.68	
822+19.00		R			23.0	6.36%	204.68	
822+44.00		R			23.0	6.36%	204.68	
820+60.00		L			23.0	8.00%	162.72	
820+85.00		L			23.0	8.00%	162.72	
821+10.00		L			23.0	8.00%	162.72	
821+35.00		L			23.0	8.00%	162.72	
821+60.00		L			23.0	8.00%	162.72	

100-19
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PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Refer to EC-204

* Volume equation: [(H3*FS+2*DW*H2+H3*BS)/(4*slope)]

Location						Stormwater Storage		Remarks
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	Avg. % Slope	Volume*	
			LF	LF	LF		CF	
821+85.00		L			23.0	8.00%	162.72	
822+10.00		L			23.0	8.00%	162.72	
822+35.00		L			23.0	8.00%	162.72	
822+60.00		L			23.0	8.00%	162.72	
823+21.00		L			23.0	5.00%	260.35	
823+61.00		L			23.0	10.75%	121.09	
823+86.00		L			23.0	10.75%	121.09	
824+11.00		L			23.0	10.75%	121.09	
824+36.00		L			23.0	10.75%	121.09	
824+61.00		L			23.0	10.75%	121.09	
824+86.00		L			23.0	10.75%	121.09	
825+11.00		L			23.0	10.75%	121.09	
825+36.00		L			23.0	10.75%	121.09	
825+61.00		L			23.0	10.75%	121.09	
825+86.00		L			23.0	10.75%	121.09	
826+11.00		L			23.0	10.75%	121.09	
826+36.00		L			23.0	10.75%	121.09	
826+61.00		L			23.0	10.75%	121.09	
826+86.00		L			23.0	10.75%	121.09	
827+11.00		L			23.0	10.75%	121.09	
827+36.00		L			23.0	10.75%	121.09	
830+25.00		L			23.0	5.68%	229.18	
830+50.00		L			23.0	5.68%	229.18	
830+75.00		L			23.0	5.68%	229.18	
831+00.00		L			23.0	5.68%	229.18	
831+25.00		L			23.0	5.68%	229.18	
831+50.00		L			23.0	5.68%	229.18	
831+75.00		L			23.0	5.68%	229.18	
832+00.00		L			23.0	5.68%	229.18	
832+25.00		L			23.0	5.68%	229.18	
832+50.00		L			23.0	5.68%	229.18	
832+75.00		L			23.0	5.68%	229.18	
833+00.00		L			23.0	5.68%	229.18	
833+25.00		L			23.0	5.68%	229.18	
833+34.00		L			23.0	10.00%	130.18	
833+59.00		L			23.0	10.00%	130.18	
833+84.00		L			23.0	10.00%	130.18	
834+09.00		L			23.0	10.00%	130.18	
834+34.00		L			23.0	10.00%	130.18	
834+59.00		L			23.0	10.00%	130.18	
834+84.00		L			23.0	10.00%	130.18	
835+09.00		L			23.0	10.00%	130.18	
835+34.00		L			23.0	10.00%	130.18	
835+59.00		L			23.0	10.00%	130.18	
835+84.00		L			23.0	10.00%	130.18	
836+09.00		L			23.0	10.00%	130.18	
836+34.00		L			23.0	10.00%	130.18	
836+59.00		L			23.0	10.00%	130.18	
7768+58.00		R			23.0	10.60%	117.06	
7768+83.00		R			23.0	10.60%	117.06	
7769+08.00		R			23.0	10.60%	117.06	
7769+33.00		R			23.0	10.60%	117.06	
7769+58.00		R			23.0	10.60%	117.06	
7769+83.00		R			23.0	10.60%	117.06	
7768+58.00		L			23.0	8.37%	148.25	
7768+83.00		L			23.0	8.37%	148.25	
7769+08.00		L			23.0	8.37%	148.25	
7769+33.00		L			23.0	8.37%	148.25	
7769+58.00		L			23.0	8.37%	148.25	
7769+83.00		L			23.0	8.37%	148.25	
7784+65.00		R			23.0	6.35%	195.40	
7784+90.00		R			23.0	6.35%	195.40	
7785+15.00		R			23.0	6.35%	195.40	
7784+40.00		R			23.0	6.35%	195.40	
7784+65.00		R			23.0	6.35%	195.40	
8803+30.00		R			23.0	8.67%	143.12	
8803+55.00		R			23.0	8.67%	143.12	
8803+80.00		R			23.0	8.67%	143.12	
8804+05.00		R			23.0	8.67%	143.12	
8804+30.00		R			23.0	8.67%	143.12	
8804+55.00		R			23.0	8.67%	143.12	
8807+91.00		L			23.0	7.65%	162.20	
8808+16.00		L			23.0	7.65%	162.20	
8808+41.00		L			23.0	7.65%	162.20	
8808+66.00		L			23.0	7.65%	162.20	
8808+91.00		L			23.0	7.65%	162.20	
8809+16.00		L			23.0	7.65%	162.20	
8809+41.00		L			23.0	7.65%	162.20	
8809+66.00		L			23.0	7.65%	162.20	
8809+91.00		L			23.0	7.65%	162.20	

100-19
MODIFIED

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Refer to EC-204

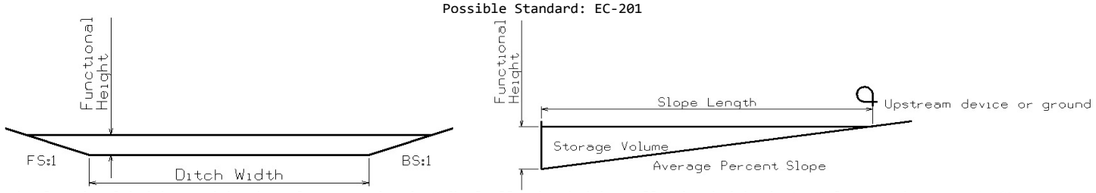
* Volume equation: [(H3*FS+2*DW*H2+H3*BS)/(4*slope)]

Location						Stormwater Storage		Remarks
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	Avg. % Slope	Volume*	
			LF	LF	LF		CF	
8810+16.00		L			23.0	7.65%	162.20	
8810+41.00		L			23.0	7.65%	162.20	
8810+66.00		L			23.0	7.65%	162.20	
8810+91.00		L			23.0	7.65%	162.20	
8811+16.00		L			23.0	7.65%	162.20	
8811+41.00		L			23.0	7.65%	162.20	
8811+00.00		R			23.0	8.00%	155.10	
8811+25.00		R			23.0	8.00%	155.10	
8811+50.00		R			23.0	8.00%	155.10	
8811+75.00		R			23.0	8.00%	155.10	
8812+00.00		R			23.0	8.00%	155.10	
8812+25.00		R			23.0	8.00%	155.10	
8812+50.00		R			23.0	8.00%	155.10	
8812+75.00		R			23.0	8.00%	155.10	
8813+00.00		R			23.0	8.00%	155.10	
8813+25.00		R			23.0	8.00%	155.10	
8813+50.00		R			23.0	8.00%	155.10	
8813+75.00		R			23.0	8.00%	155.10	
8814+00.00		R			23.0	8.00%	155.10	
8814+25.00		R			23.0	8.00%	155.10	
8814+50.00		R			23.0	8.00%	155.10	
8814+75.00		R			23.0	8.00%	155.10	
8815+00.00		R			23.0	8.00%	155.10	
8819+40.00		R			23.0	8.00%	155.10	
10830+75.00		L			23.0	5.41%	229.36	
10831+05.00		L			23.0	5.41%	229.36	
10831+35.00		L			23.0	5.41%	229.36	
10831+65.00		L			23.0	5.41%	229.36	
10831+95.00		L			23.0	5.41%	229.36	
10832+25.00		L			23.0	5.41%	229.36	
10832+55.00		L			23.0	5.41%	229.36	
10832+85.00		L			23.0	5.41%	229.36	
10833+15.00		L			23.0	5.41%	229.36	
10830+95.00		R			23.0	5.41%	229.36	
10831+25.00		R			23.0	5.41%	229.36	
10831+55.00		R			23.0	5.41%	229.36	
10831+85.00		R			23.0	5.41%	229.36	
10832+15.00		R			23.0	5.41%	229.36	
10832+45.00		R			23.0	5.41%	229.36	
10832+75.00		R			23.0	5.41%	229.36	
10833+05.00		R			23.0	5.41%	229.36	
10833+35.00		R			23.0	5.41%	229.36	
10833+65.00		R			23.0	5.41%	229.36	
10833+95.00		R			23.0	5.41%	229.36	
10834+25.00		R			23.0	5.41%	229.36	
10834+55.00		R			23.0	5.41%	229.36	
10834+85.00		R			23.0	5.41%	229.36	
10835+15.00		R			23.0	5.41%	229.36	
10835+45.00		R			23.0	5.41%	229.36	

100-18
Modified

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

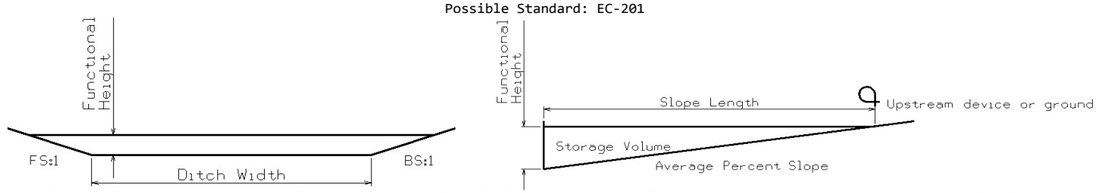
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg. % Slope	Volume*	
			LF	LF	LF	FS:1	BS:1	FT		CF	
18	699+02.00	R	23.0			3.5	3.0	10.0	0.6%	1495.1	
21	702+20.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	702+95.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	703+70.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	704+45.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	705+20.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	705+95.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	706+70.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	707+45.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	708+20.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	708+95.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	709+70.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	710+45.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	711+20.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	711+95.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	712+70.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	713+45.00	R	26.0			3.5	3.0	10.0	1.9%	723.4	
21	713+95.00	R	23.0			3.5	3.0	10.0	2.6%	578.8	
21	714+45.00	R	23.0			3.5	3.0	10.0	2.6%	578.8	
21	714+95.00	R	23.0			3.5	3.0	10.0	2.6%	578.8	
21	715+45.00	R	23.0			3.5	3.0	10.0	2.6%	578.8	
21	715+95.00	R	23.0			3.5	3.0	10.0	2.6%	578.8	
21	716+45.00	R	23.0			3.5	3.0	10.0	2.6%	578.8	
23	729+10.00	R	23.0			3.5	3.0	10.0	1.4%	964.6	
25A	731+78.00	R	23.0			3.5	3.0	10.0	1.6%	723.4	
25A	733+28.00	R	23.0			3.5	3.0	10.0	0.4%	3038.5	
25A	733+48.00	R	23.0			3.5	3.0	10.0	0.9%	1495.1	
25B	736+70.00	R	23.0			3.5	3.0	10.0	1.0%	1495.1	
25B	736+90.00	R	23.0			3.5	3.0	10.0	0.6%	1495.1	
25	738+35.00	R	23.0			3.5	3.0	10.0	2.1%	723.4	
25	738+95.00	R	23.0			3.5	3.0	10.0	2.1%	723.4	
25	739+55.00	R	23.0			3.5	3.0	10.0	2.1%	723.4	
25	740+15.00	R	23.0			3.5	3.0	10.0	2.1%	723.4	
25	741+50.00	R	23.0			3.5	3.0	10.0	1.6%	964.6	
25	742+25.00	R	23.0			3.5	3.0	10.0	1.6%	964.6	
25	743+00.00	R	23.0			3.5	3.0	10.0	1.6%	964.6	
25	743+75.00	R	23.0			3.5	3.0	10.0	1.6%	964.6	
26	745+62.00	R	26.0			3.5	3.0	10.0	0.7%	1495.1	
26	747+17.00	R	26.0			3.5	3.0	10.0	0.9%	1495.1	
26	748+17.00	R	23.0			3.5	3.0	10.0	1.2%	964.6	
26	749+17.00	R	23.0			3.5	3.0	10.0	1.4%	964.6	
26	753+63.00	R	23.0			3.5	3.0	10.0	1.4%	964.6	
26	754+63.00	R	23.0			3.5	3.0	10.0	1.4%	964.6	
26	755+63.00	R	23.0			3.5	3.0	10.0	1.4%	964.6	
29	757+50.00	R	23.0			3.5	3.0	10.0	1.8%	723.4	
29	764+50.00	R	26.0			3.5	3.0	10.0	1.8%	723.4	
29	765+25.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	765+85.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	766+45.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	767+05.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	767+65.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	768+25.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	768+85.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	769+45.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	772+63.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	773+23.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
29	773+83.00	R	26.0			3.5	3.0	10.0	2.2%	578.8	
31	776+00.00	R	23.0			3.5	3.0	10.0	0.5%	3038.5	
31	777+57.00	R	23.0			3.5	3.0	10.0	2.7%	482.3	
31	777+92.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
31	778+27.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
31	778+62.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
31	778+97.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
31	779+32.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
31	779+67.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
31	780+02.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
31	787+72.00	R	26.0			3.5	3.0	10.0	1.5%	964.6	
31	788+47.00	R	26.0			3.5	3.0	10.0	1.3%	964.6	

100-18
Modified

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

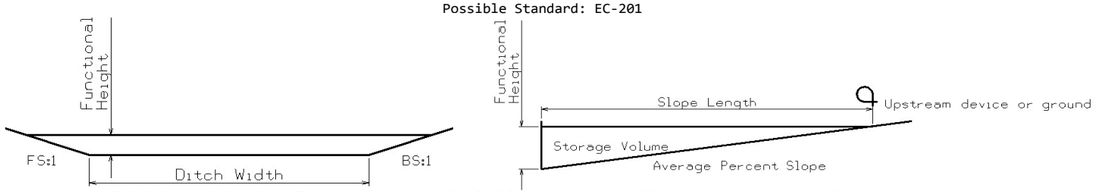
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg. % Slope	Volume*	
			LF	LF	LF	FS:1	BS:1	FT		CF	
31	789+47.00	R	26.0			3.5	3.0	10.0	1.1%	1495.1	
31	791+02.00	R	26.0			3.5	3.0	10.0	0.7%	1495.1	
32	794+00.00	R	23.0			3.5	3.0	10.0	0.5%	3038.5	
32	799+09.00	R	23.0			3.5	3.0	10.0	0.5%	3038.5	
32	800+59.00	R	23.0			3.5	3.0	10.0	0.5%	3038.5	
32	803+09.00	R	23.0			3.5	3.0	10.0	0.5%	3038.5	
34	809+13.00	R	23.0			3.5	3.0	10.0	2.6%	482.3	
34	809+63.00	R	23.0			3.5	3.0	10.0	2.6%	482.3	
34	810+13.00	R	23.0			3.5	3.0	10.0	2.6%	482.3	
34	810+63.00	R	23.0			3.5	3.0	10.0	2.6%	482.3	
34	812+68.00	R	23.0			3.5	3.0	10.0	0.9%	1495.1	
34	814+18.00	R	23.0			3.5	3.0	10.0	0.9%	1495.1	
36	819+50.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
36	819+85.00	R	23.0			3.5	3.0	10.0	4.9%	337.6	
R2	840+90.00	R	23.0			3.5	3.0	10.0	2.0%	723.4	
R2	841+65.00	R	23.0			3.5	3.0	10.0	2.0%	723.4	
R2	842+40.00	R	23.0			3.5	3.0	10.0	2.0%	723.4	
21	700+85.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	701+60.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	702+35.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	703+10.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	703+85.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	704+60.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	705+35.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	706+10.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	706+85.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	707+60.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	708+35.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	709+10.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	709+85.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
21	710+60.00	L	23.0			3.5	3.0	10.0	2.4%	578.8	
21	711+20.00	L	23.0			3.5	3.0	10.0	2.4%	578.8	
21	711+80.00	L	23.0			3.5	3.0	10.0	2.4%	578.8	
21	712+40.00	L	23.0			3.5	3.0	10.0	2.4%	578.8	
21	713+03.00	L	23.0			3.5	3.0	10.0	2.4%	578.8	
21	714+03.00	L	23.0			3.5	3.0	10.0	1.2%	964.6	
21	715+03.00	L	23.0			3.5	3.0	10.0	1.2%	964.6	
21	716+03.00	L	23.0			3.5	3.0	10.0	1.2%	964.6	
21	718+15.00	L	23.0			3.5	3.0	10.0	1.2%	964.6	
23	721+47.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
23	722+97.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
23	724+47.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
23	726+02.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
23	726+77.00	L	26.0			3.5	3.0	10.0	1.6%	723.4	
23	727+27.00	L	23.0			3.5	3.0	10.0	2.6%	578.8	
25	732+16.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
25	733+66.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
25	735+16.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
25	736+66.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
25	738+16.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
25	739+66.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
26	743+46.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
26	745+01.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
26	746+56.00	L	26.0			3.5	3.0	10.0	0.7%	1495.1	
26	748+11.00	L	23.0			3.5	3.0	10.0	4.6%	337.6	
26	748+46.00	L	23.0			3.5	3.0	10.0	4.6%	337.6	
26	748+81.00	L	23.0			3.5	3.0	10.0	4.6%	337.6	
26	749+16.00	L	23.0			3.5	3.0	10.0	4.6%	337.6	
26	749+51.00	L	23.0			3.5	3.0	10.0	4.6%	337.6	
26	749+86.00	L	23.0			3.5	3.0	10.0	4.6%	337.6	
26	750+21.00	L	23.0			3.5	3.0	10.0	4.6%	337.6	
26	750+56.00	L	23.0			3.5	3.0	10.0	4.6%	337.6	
29	756+51.00	L	26.0			3.5	3.0	10.0	1.8%	723.4	
29	757+26.00	L	26.0			3.5	3.0	10.0	1.8%	723.4	
29	758+01.00	L	26.0			3.5	3.0	10.0	1.8%	723.4	
29	759+01.00	L	26.0			3.5	3.0	10.0	1.2%	964.6	
29	759+36.00	L	23.0			3.5	3.0	10.0	4.9%	337.6	
29	759+71.00	L	23.0			3.5	3.0	10.0	4.9%	337.6	

100-18
Modified

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

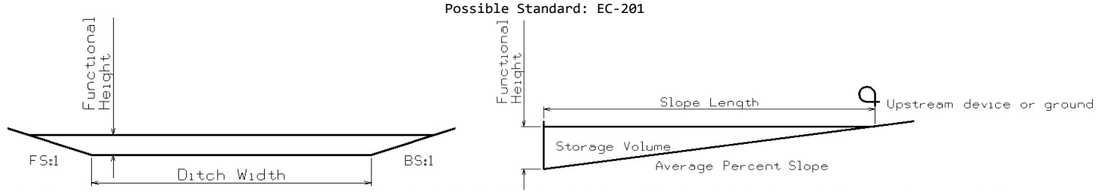
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg. % Slope	Volume*	
			LF	LF	LF	FS:1	BS:1	FT		CF	
29	760+06.00	L	23.0			3.5	3.0	10.0	4.9%	337.6	
29	760+41.00	L	23.0			3.5	3.0	10.0	4.9%	337.6	
29	760+76.00	L	23.0			3.5	3.0	10.0	4.9%	337.6	
29	761+11.00	L	23.0			3.5	3.0	10.0	4.9%	337.6	
29	761+06.00	L	23.0			3.5	3.0	10.0	4.9%	337.6	
29	764+95.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	765+55.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	766+15.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	766+75.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	767+35.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	767+95.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	768+55.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	769+15.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	772+63.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	773+23.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	773+83.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
29	774+43.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
31	776+00.00	L	23.0			3.5	3.0	10.0	1.0%	1495.1	
31	786+18.00	L	26.0			3.5	3.0	10.0	1.9%	723.4	
31	786+93.00	L	26.0			3.5	3.0	10.0	1.7%	723.4	
31	787+68.00	L	26.0			3.5	3.0	10.0	1.5%	964.6	
31	788+43.00	L	26.0			3.5	3.0	10.0	1.3%	964.6	
31	789+43.00	L	26.0			3.5	3.0	10.0	1.1%	1495.1	
31	790+43.00	L	26.0			3.5	3.0	10.0	0.9%	1495.1	
32	793+06.00	L	23.0			3.5	3.0	10.0	0.5%	3038.5	
32	794+01.00	L	23.0			3.5	3.0	10.0	2.5%	578.8	
32	794+61.00	L	23.0			3.5	3.0	10.0	2.5%	578.8	
32	795+21.00	L	23.0			3.5	3.0	10.0	2.5%	578.8	
32	795+81.00	L	23.0			3.5	3.0	10.0	2.5%	578.8	
32	796+41.00	L	23.0			3.5	3.0	10.0	2.5%	578.8	
32	797+01.00	L	23.0			3.5	3.0	10.0	2.5%	578.8	
32	797+61.00	L	23.0			3.5	3.0	10.0	2.5%	578.8	
32	798+93.00	L	23.0			3.5	3.0	10.0	2.1%	723.4	
32	799+53.00	L	23.0			3.5	3.0	10.0	2.1%	723.4	
32	800+13.00	L	23.0			3.5	3.0	10.0	2.1%	723.4	
32	801+68.00	L	23.0			3.5	3.0	10.0	0.5%	3038.5	
32	803+23.00	L	23.0			3.5	3.0	10.0	0.5%	3038.5	
32	804+78.00	L	23.0			3.5	3.0	10.0	0.5%	3038.5	
36	813+38.00	L	23.0			3.5	3.0	10.0	0.5%	3038.5	
36	818+20.00	L	23.0			3.5	3.0	10.0	4.0%	385.8	
36	818+60.00	L	23.0			3.5	3.0	10.0	4.0%	385.8	
36	819+00.00	L	23.0			3.5	3.0	10.0	4.0%	385.8	
36	819+40.00	L	23.0			3.5	3.0	10.0	4.0%	385.8	
36	819+80.00	L	23.0			3.5	3.0	10.0	4.0%	385.8	
36	820+20.00	L	23.0			3.5	3.0	10.0	4.0%	385.8	
37	822+75.00	L	23.0			3.5	3.0	10.0	4.5%	337.6	
37	827+70.00	L	26.0			3.5	3.0	10.0	2.5%	578.8	
37	828+30.00	L	26.0			3.5	3.0	10.0	2.5%	578.8	
37	828+90.00	L	26.0			3.5	3.0	10.0	2.5%	578.8	
37	829+50.00	L	26.0			3.5	3.0	10.0	2.5%	578.8	
39	836+84.00	L	26.0			3.5	3.0	10.0	1.8%	723.4	
L1	840+99.00	L	23.0			3.5	3.0	10.0	1.0%	1495.1	
62-2	1589+17.00	L	26.0			3.5	3.0	10.0	2.3%	578.8	
62-2	1589+77.00	L	26.0			3.5	3.0	10.0	2.3%	578.8	
62-2	1590+37.00	L	26.0			3.5	3.0	10.0	2.2%	578.8	
62-2	1590+97.00	L	26.0			3.5	3.0	10.0	2.0%	723.4	
62-2	1591+57.00	L	26.0			3.5	3.0	10.0	1.7%	723.4	
18	1592+92.00	L	23.0			3.5	3.0	10.0	1.9%	723.4	
18	1593+67.00	L	23.0			3.5	3.0	10.0	1.9%	723.4	
18	1596+52.00	L	23.0			3.5	3.0	10.0	0.5%	3038.5	
18	1598+52.00	L	23.0			3.5	3.0	10.0	0.5%	3038.5	
18	1588+57.00	R	23.0			3.5	3.0	10.0	2.7%	482.3	
18	1589+07.00	R	23.0			3.5	3.0	10.0	2.7%	482.3	
18	1589+57.00	R	26.0			3.5	3.0	10.0	2.3%	578.8	
18	1590+17.00	R	26.0			3.5	3.0	10.0	2.3%	578.8	
18	1590+77.00	R	26.0			3.5	3.0	10.0	2.0%	723.4	
18	1591+52.00	R	26.0			3.5	3.0	10.0	1.7%	723.4	
59-2	4487+94.00	R	26.0			3.5	3.0	10.0	1.7%	723.4	

100-18
Modified

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

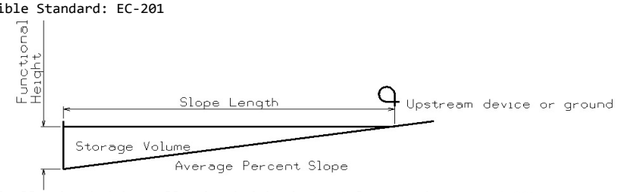
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg. % Slope	Volume*	
			LF	LF	LF	FS:1	BS:1	FT		CF	
59-2	4488+70.00	R	26.0			3.5	3.0	10.0	2.3%	578.8	
59-2	4489+30.00	R	26.0			3.5	3.0	10.0	2.3%	578.8	
59-2	4489+00.00	L	26.0			3.5	3.0	10.0	2.3%	578.8	
18	4490+44.00	R	23.0			3.5	3.0	10.0	1.3%	964.6	
18	4491+44.00	R	23.0			3.5	3.0	10.0	1.3%	964.6	
18	4492+44.00	R	23.0			3.5	3.0	10.0	1.3%	964.6	
18	4493+44.00	R	23.0			3.5	3.0	10.0	1.3%	964.6	
18	4496+04.00	R	23.0			3.5	3.0	10.0	1.1%	1495.1	
18	4497+04.00	R	23.0			3.5	3.0	10.0	1.1%	1495.1	
18	4498+04.00	R	23.0			3.5	3.0	10.0	1.1%	1495.1	
SR1	7760+77.00	L	22.0			3.0	2.5	10.0	0.4%	2896.4	
67	7764+54.00	L	22.0			3.0	2.5	10.0	1.0%	1425.2	
67	7765+54.00	L	22.0			3.0	2.5	10.0	1.0%	1425.2	
SR3	7778+32.00	L	22.0			3.0	2.5	10.0	2.0%	689.6	
SR3	7778+92.00	L	22.0			3.0	2.5	10.0	2.3%	551.7	
70	7781+60.00	L	22.0			3.0	2.5	10.0	1.8%	689.6	
70	7782+90.00	L	22.0			3.0	2.5	10.0	1.5%	919.5	
70	7783+90.00	L	22.0			3.0	2.5	10.0	2.9%	459.8	
SR2	7760+77.00	R	22.0			3.0	2.5	10.0	0.4%	2896.4	
67	7765+04.00	R	22.0			3.0	2.5	10.0	1.0%	1425.2	
29	7773+30.00	R	22.0			3.0	2.5	10.0	1.9%	689.6	
29	7774+05.00	R	22.0			3.0	2.5	10.0	1.9%	689.6	
29	7774+80.00	R	22.0			3.0	2.5	10.0	1.9%	689.6	
29	7775+55.00	R	22.0			3.0	2.5	10.0	1.9%	689.6	
29	7776+30.00	R	22.0			3.0	2.5	10.0	1.9%	689.6	
29	7777+05.00	R	22.0			3.0	2.5	10.0	1.9%	689.6	
29	7777+80.00	R	22.0			3.0	2.5	10.0	1.1%	919.5	
29	7778+55.00	R	22.0			3.0	2.5	10.0	2.3%	551.7	
29	7779+15.00	R	22.0			3.0	2.5	10.0	2.0%	689.6	
29	7779+90.00	R	22.0			3.0	2.5	10.0	0.9%	1425.2	
70	7781+80.00	R	22.0			3.0	2.5	10.0	1.0%	1425.2	
70	7783+05.00	R	22.0			3.0	2.5	10.0	1.3%	919.5	
Sut1	8789+14.00	L	22.0			3.0	2.5	10.0	4.6%	321.8	
Sut1	8789+49.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8789+84.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8790+19.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8790+54.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8790+89.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8791+24.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8791+59.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8791+94.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8792+29.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8792+64.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8792+99.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8793+34.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8793+69.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8794+04.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8794+39.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8794+74.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8795+09.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8795+44.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8795+79.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8796+14.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8796+49.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8796+84.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8797+19.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8797+54.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8797+89.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8798+24.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8798+59.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8798+94.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8799+29.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8799+64.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut1	8799+99.00	L	22.0			3.0	2.5	10.0	4.1%	321.8	
71	8800+80.00	L	22.0			3.0	2.5	10.0	3.7%	367.8	
71	8801+20.00	L	22.0			3.0	2.5	10.0	3.7%	367.8	
71	8801+60.00	L	22.0			3.0	2.5	10.0	3.7%	367.8	
71	8802+00.00	L	22.0			3.0	2.5	10.0	3.7%	367.8	

100-18
Modified

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

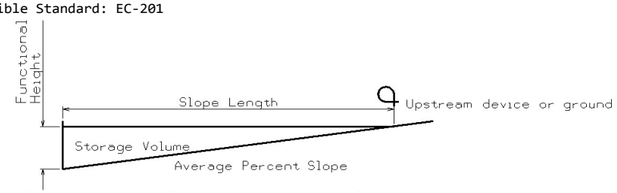
* Volume equation: $[0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]$

Basin No.	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg. % Slope	Volume*	
			LF	LF	LF	FS:1	BS:1	FT		CF	
71	8802+40.00	L	22.0			3.0	2.5	10.0	3.7%	367.8	
71	8802+80.00	L	22.0			3.0	2.5	10.0	3.7%	367.8	
Sut3	8818+32.00	L	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut3	8818+67.00	L	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut3	8819+02.00	L	22.0			3.0	2.5	10.0	4.1%	367.8	
Sut2	8788+64.00	R	22.0			3.0	2.5	10.0	4.3%	321.8	
Sut2	8791+85.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8792+20.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8792+55.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8792+90.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8793+25.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8793+60.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8793+95.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8794+30.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8794+65.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8795+00.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8795+35.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	8795+70.00	R	22.0			3.0	2.5	10.0	4.1%	321.8	
Sut2	9796+05.00	R	22.0			3.0	2.5	10.0	2.4%	551.7	
Sut2	8796+65.00	R	22.0			3.0	2.5	10.0	2.4%	551.7	
Sut2	8797+25.00	R	22.0			3.0	2.5	10.0	2.4%	551.7	
Sut2	8797+85.00	R	22.0			3.0	2.5	10.0	2.4%	551.7	
Sut2	8798+45.00	R	22.0			3.0	2.5	10.0	2.4%	551.7	
Sut4	8815+25.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut4	8815+65.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut4	8816+05.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut4	8816+45.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut4	8816+85.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut4	8817+25.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut4	8817+65.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut4	8818+25.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
Sut4	8818+65.00	R	22.0			3.0	2.5	10.0	4.0%	367.8	
GR1	10829+75.00	L	22.0			3.0	2.5	10.0	1.9%	689.6	
GR3	10834+04.00	L	22.0			3.0	2.5	10.0	2.5%	551.7	
GR3	10834+54.00	L	22.0			3.0	2.5	10.0	2.5%	551.7	
GR3	10835+04.00	L	22.0			3.0	2.5	10.0	2.5%	551.7	
GR3	10835+54.00	L	22.0			3.0	2.5	10.0	2.5%	551.7	
GR5	10845+85.00	L	22.0			3.0	2.5	10.0	0.3%	2896.4	
GR2	10829+75.00	R	22.0			3.0	2.5	10.0	3.5%	413.8	
GR2	10830+20.00	R	22.0			3.0	2.5	10.0	3.5%	413.8	
GR2	10830+65.00	R	22.0			3.0	2.5	10.0	4.5%	321.8	
L1	10843+26.00	R	22.0			3.0	2.5	10.0	1.0%	1425.2	
GR6	10845+85.00	R	22.0			3.0	2.5	10.0	0.2%	2896.4	
18	691+05.00	M	28.0			6.0	6.0	3.7	0.9%	1223.8	
18	692+05.00	M	28.0			6.0	6.0	3.7	1.2%	789.5	
18	693+05.00	M	28.0			6.0	6.0	3.7	1.4%	789.5	
18	693+80.00	M	28.0			6.0	6.0	3.7	1.6%	592.2	
18	694+55.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
18	695+30.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
18	696+05.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
18	696+80.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
18	697+55.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
18	698+30.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
18	699+05.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
18	699+80.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	701+70.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	702+45.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	703+20.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	703+95.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	704+70.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	705+45.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	706+20.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	706+95.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	707+70.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	708+45.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	709+20.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	709+95.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
21	710+70.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	

100-18
Modified

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



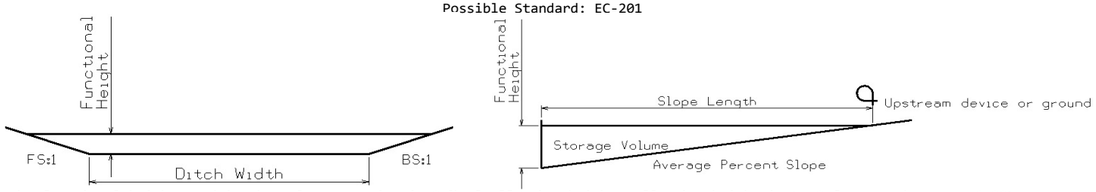
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

* Volume equation: $[0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]$

Basin No.	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg. % Slope	Volume*	
			LF	LF	LF	FS:1	BS:1	FT		CF	
21	711+45.00	M	28.0			6.0	6.0	3.7	1.6%	789.5	
21	713+00.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
23	715+50.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
23	717+05.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
23	718+60.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
23	720+15.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
23	721+70.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
23	723+25.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
23	724+80.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
23	726+35.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	727+95.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	729+50.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	731+05.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	732+60.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	734+15.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	735+70.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	737+25.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	738+80.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
25	740+35.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
26	742+85.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
26	744+40.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
26	745+95.00	M	28.0			6.0	6.0	3.7	0.7%	1223.8	
26	747+50.00	M	28.0			6.0	6.0	3.7	1.0%	1223.8	
26	748+50.00	M	28.0			6.0	6.0	3.7	1.3%	789.5	
26	749+50.00	M	28.0			6.0	6.0	3.7	1.5%	789.5	
26	750+25.00	M	28.0			6.0	6.0	3.7	1.7%	592.2	
26	751+00.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
26	751+75.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
26	752+50.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
26	753+25.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
26	754+00.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
26	754+75.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
26	755+50.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
29	756+70.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
29	757+45.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
29	758+20.00	M	28.0			6.0	6.0	3.7	1.7%	592.2	
29	759+70.00	M	28.0			6.0	6.0	3.7	0.9%	1223.8	
29	761+20.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
29	761+60.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
29	763+10.00	M	28.0			6.0	6.0	3.7	1.0%	1223.8	
29	764+60.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
29	765+35.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	765+95.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	766+55.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	767+15.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	767+75.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	768+35.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	768+95.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	769+55.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	770+15.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	770+75.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	771+35.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	771+95.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	772+55.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	773+15.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	773+75.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	774+35.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
29	774+95.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	776+05.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	776+65.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	777+25.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	777+85.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	778+45.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	779+05.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	779+65.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	780+25.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	780+85.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	781+45.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

* Volume equation: $[0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]$

Basin No.	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg. % Slope	Volume*	
			LF	LF	LF	FS:1	BS:1	FT		CF	
31	782+05.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	782+65.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	783+25.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	783+85.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	784+45.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	785+05.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
31	785+65.00	M	28.0			6.0	6.0	3.7	2.0%	592.2	
31	786+40.00	M	28.0			6.0	6.0	3.7	1.9%	592.2	
31	787+15.00	M	28.0			6.0	6.0	3.7	1.7%	592.2	
31	787+90.00	M	28.0			6.0	6.0	3.7	1.5%	789.5	
31	788+90.00	M	28.0			6.0	6.0	3.7	1.2%	789.5	
31	789+90.00	M	28.0			6.0	6.0	3.7	1.0%	1223.8	
31	791+45.00	M	28.0			6.0	6.0	3.7	0.6%	2487.1	
32	797+30.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
32	799+30.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
32	801+30.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
32	803+30.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
32	805+30.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
36	808+50.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
36	810+50.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
36	812+50.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
36	814+50.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
36	816+50.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
36	816+90.00	M	28.0			6.0	6.0	3.7	0.5%	2487.1	
36	818+90.00	M	28.0			6.0	6.0	3.7	1.2%	789.5	
36	819+90.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
36	820+65.00	M	28.0			6.0	6.0	3.7	2.2%	473.7	
36	821+25.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	821+85.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	822+45.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	823+05.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	823+65.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	824+25.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	824+85.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	825+45.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	826+05.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	826+65.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	827+25.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	827+85.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	828+45.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	829+05.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
36	829+65.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
39	830+70.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
39	831+30.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
39	831+90.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
39	832+50.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
39	833+10.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
39	833+70.00	M	28.0			6.0	6.0	3.7	2.5%	473.7	
39	834+30.00	M	28.0			6.0	6.0	3.7	2.4%	473.7	
39	834+90.00	M	28.0			6.0	6.0	3.7	2.3%	473.7	
39	835+50.00	M	28.0			6.0	6.0	3.7	2.1%	473.7	
39	836+10.00	M	28.0			6.0	6.0	3.7	2.0%	592.2	
39	836+85.00	M	28.0			6.0	6.0	3.7	1.8%	592.2	
39	837+11.19	M	28.0			6.0	6.0	3.7	1.6%	592.2	
39	837+86.19	M	28.0			6.0	6.0	3.7	1.4%	789.5	
39	838+86.19	M	28.0			6.0	6.0	3.7	1.2%	789.5	
39	839+86.19	M	28.0			6.0	6.0	3.7	0.9%	1223.8	

POLLUTION PREVENTION PLAN

This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP).

This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed per plan revisions or by contract modification, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The prime contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITES
- A. Designer:
  1. Prepares Base PPP included in the project plan.
  2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
  3. Signature authority on the Base PPP and NOI.
- B. Contractor/Subcontractor:
  1. Affected contractors/subcontractors are co-permittees with the IDOT and will sign a certification statement adhering to the requirements of the NPDES permit and this PPP plan. Affected contractors/subcontractors are anyone responsible for sediment or erosion controls or involved in land disturbing activities. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
  2. Submit an Erosion Control Implementation Plan (ECIP) according to Specifications Section 2602 and any additional plan notes.
  3. Install and maintain appropriate controls.
  4. Supervise and implement good housekeeping practices.
  5. Conduct joint required inspections of the site with inspection staff.
  6. Comply with training and certification requirements of Specifications Section 2602.
  7. Signature authority on Co-Permittee Certification Statements and storm water inspection reports.
- C. RCE/Inspector:
  1. Update PPP whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the discharge of pollutants from the project.
  2. Maintain an up-to-date record that identifies contractors and subcontractors as co-permittees.
  3. Make these plans available to the DNR upon their request.
  4. Conduct joint required inspections of the site with the contractor/subcontractor.
  5. Complete an inspection report after each inspection.
  6. Signature authority on storm water inspection reports and Notice of Discontinuation (NOD).

II. PROJECT SITE DESCRIPTION
- A. This Pollution Prevention Plan (PPP) is for the construction of the U.S. 30 Mt. Vernon / Lisbon bypass (central segment).
- B. This PPP covers approximately 181 acres with an estimated 141 acres being disturbed. The portion of the PPP covered by this contract has 141 acres disturbed.
- C. The PPP is located in an area of Tama-Colo-Ely and Fayette-Downs-Chelsea soil associations. The estimated average SCS runoff curve number for this PPP after completion will be 78.
- D. Storm Water Site Map - Multiple sources of information comprise the base storm water site map including:
  1. Drainage patterns – Plan and Profile sheets and Situation plans.
  2. Proposed Slopes – Cross Sections.
  3. Areas of Soil Disturbance – construction limits shown on Plan and Profile sheets.
  4. Location of Structural Controls – Tabulations on C sheets.
  5. Locations of Non-structural Controls – Tabulations on C sheets.
  6. Locations of Stabilization Practices – generally within construction limits shown on Plan and Profile sheets.
  7. Surface Waters (including wetlands) – Project Location Map and Plan and Profile sheets.
  8. Locations where storm water is discharged – Plan and Profile sheets.
- E. The base site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries.
- F. Runoff from this work will flow into roadway ditches and unnamed tributaries to Spring Creek and the Cedar River.

III. CONTROLS
- A. The contractor's ECIP specified in Article 2602.03 for accomplishment of storm water controls should clearly describe the intended sequence of major activities and for each activity define the control measure and the timing during the construction process that the measure will be implemented.
- B. Preserve vegetation in areas not needed for construction.
- C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water monitoring inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B.
  1. EROSION AND SEDIMENT CONTROLS
     a. Stabilization Practices
        1) Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized.
        2) Stabilization practices shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.
        3) Temporary stabilizing seeding shall be completed as the disturbed areas are constructed. If construction activity is not planned to occur in a disturbed area for at least 21 days, the area shall be stabilized by temporary seeding or mulching within 14 days.
        4) Permanent and Temporary Stabilization practices to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located on the C sheets of the plan. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation.

POLLUTION PREVENTION PLAN

5) Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips.
6) Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located on the C sheets of the plan. Additional information may be found in Tabulations in the C or T sheets of the plans or is referenced in Standard Specifications Section 2105.

b. Structural Practices
1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas.
2) Structural practices to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located on the C sheets of the plan, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B sheets of the plans or are referenced in the Standard Road Plans Tabulation.

c. Storm Water Management
1) Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along length of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located on the C sheets of the plan, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation. The installation of these devices may be subject to Section 404 of the Clean Water Act.

2. OTHER CONTROLS
a. Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.
1) Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
2) Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
3) Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
4) Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
5) Spill Prevention and Control - Implement procedures to contain and clean-up spills and prevent material discharges to the storm drain system and waters of the state.
6) Concrete Residuals and Washout Wastes - Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.
7) Concrete Grooving/Grinding Slurry – Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.
8) Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onside fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water.
9) Litter Management - Ensure employees properly dispose of litter.
10) Dewatering – Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.

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

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

V. INSPECTION REQUIREMENTS
A. Inspections shall be made jointly by the contractor and the contracting authority at least once every seven calendar days. Storm water monitoring inspections will include:
1. Date of the inspection.
2. Summary of the scope of the inspection.
3. Name and qualifications of the personnel making the inspection.
5. Review erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
6. Major observations related to the implementation of the PPP.
7. Identify corrective actions required to maintain or modify erosion and sediment control measures.
B. Include storm water monitoring inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 calendar days of the inspection.

VI. NON-STORM WATER DISCHARGES
This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of patio blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION
Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS
A. Base PPP - Initial Pollution Prevention Plan.
B. Amended PPP - May include Plan Revisions or Contract Modifications for new items, storm water monitoring inspection reports, and fieldbook entries made by the inspector.

110-12A
10-18-16

POLLUTION PREVENTION PLAN

C. IDR - Inspector's Daily Report – this contains the inspector's daily diary and bid item postings.
D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs).
E. Signature Authority - Representative from Designer, Contractor/Subcontractor, or RCE/Inspector authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____
Signature

_____
Printed or Typed Name

_____
Signature

_____
Printed or Typed Name

LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

(1) Refer to EW-203, EW-204, or EW-211.
*Not a bid item

Location					Longitudinal Subdrain (DR-303)							Subdrain Outlet				
				Depth	Shoulder		Backslope		Bridge Berm (1)			DR-303, DR-304, or DR-305		Porous* Backfill	Class "A"* Crushed Stone	Remarks
Line No.	Road or Lane Ident.	Station to Station		Side	(D)	Size	Length	Size	Length	Size	Type	Length	Station	Standard Road Plan and Type		
					IN	IN	FT	IN	FT	IN		FT			CY	CY	
1	SUTLIFF RD.	8788+63.95	8793+00.00	RT	42.0	4.0	476.1						8788+63.95	DR-304	44.1	0.2	
													8793+00.00	DR-304		0.2	
2	SUTLIFF RD.	8793+00.00	8798+00.00	RT	42.0	4.0	540.0						8793+00.00	DR-304	50.0	0.2	
													8798+00.00	DR-304		0.2	
3	SUTLIFF RD.	8798+00.00	8801+00.00	RT	42.0	4.0	340.0						8798+00.00	DR-304	31.5	0.2	
													8801+00.00	DR-304		0.2	
4	SUTLIFF RD.	8801+00.00	8804+55.00	RT	42.0	4.0	395.0						8801+00.00	DR-304	36.6	0.2	
													8804+55.00	DR-304		0.2	
5	SUTLIFF RD.	8808+51.00	8813+50.00	RT	42.0	4.0	539.0						8808+51.00	DR-304	49.9	0.2	
													8813+50.00	DR-304		0.2	
6	SUTLIFF RD.	8813+50.00	8817+00.00	RT	42.0	4.0	390.0						8813+50.00	DR-304	36.1	0.2	
													8817+00.00	DR-304		0.2	
7	SUTLIFF RD.	8817+00.00	8819+78.00	RT	42.0	4.0	318.0						8817+00.00	DR-304	29.4	0.2	
													8819+78.00	DR-304		0.2	
8	SUTLIFF RD.	8788+63.95	8793+00.00	LT	42.0	4.0	476.1						8788+63.95	DR-304	44.1	0.2	
													8793+00.00	DR-304		0.2	
9	SUTLIFF RD.	8793+00.00	8798+00.00	LT	42.0	4.0	540.0						8793+00.00	DR-304	50.0	0.2	
													8798+00.00	DR-304		0.2	
10	SUTLIFF RD.	8798+00.00	8801+00.00	LT	42.0	4.0	340.0						8798+00.00	DR-304	31.5	0.2	
													8801+00.00	DR-304		0.2	
11	SUTLIFF RD.	8801+00.00	8804+55.00	LT	42.0	4.0	395.0						8801+00.00	DR-304	36.6	0.2	
													8804+55.00	DR-304		0.2	
12	SUTLIFF RD.	8808+51.00	8813+50.00	LT	42.0	4.0	539.0						8808+51.00	DR-304	49.9	0.2	
													8813+50.00	DR-304		0.2	
13	SUTLIFF RD.	8813+50.00	8817+00.00	LT	42.0	4.0	390.0						8813+50.00	DR-304	36.1	0.2	
													8817+00.00	DR-304		0.2	
14	SUTLIFF RD.	8817+00.00	8819+78.00	LT	42.0	4.0	318.0						8817+00.00	DR-304	29.4	0.2	
													8819+78.00	DR-304		0.2	
Totals							5996.1							28	555.2	5.6	

NOTE: ALL LONGITUDINAL SUBDRAINS ARE TYPE 8 WITH HMA (ACC) UNLESS OTHERWISE NOTED IN REMARKS COLUMN.
NOTE: THERE ARE 28 OF DR-304 OUTLETS

SHRINKAGE DATA

Material	%	Remarks
TOPSOIL	40%	SHRINKAGE
CLASS 10	30%	SHRINKAGE
BROKEN/WEATHERED ROCK	0%	SHRINKAGE
ROCK	10%	SWELL
UNSUITABLE	35%	SHRINKAGE
BOULDERS		400 CY (Est.)
		NOTE: BOULDER ESTIMATE IS FOR
		CLASS 12 BOULDER EXCAVATION
		IN THE OVERBURDEN SOIL ONLY
		AND IS A SEPARATE QUANTITY
		FROM CLASS 12 ROCK EXCAVATION.

SETTLEMENT PLATES

Refer to Standard Road Plan EW-212

No.	Location		Remarks
	Station	Offset	
7	688+40.00	LT 26	
8	688+31.00	RT 26	
9	7769+65.00	RT 13	
10	7772+70.00	LT 13	
11	8804+85.00	RT 18	
12	8808+20.00	LT 18	

SPECIAL ATTENTION (SLIVER FILL)

Special attention should be given to Article 107.03.C, of the current Standard Specification Series, on this project.

EMBANKMENT WITH MOISTURE CONTROL

Moisture content shall be within the limits of minus _2__ and plus __2_ percentage points of Optimum Moisture Content for maximum density within the area described and listed below.

Moisture Control is required for all Class 10 fill placed in all locations and depths. Stability berms placed outside the normal foreslope template and topsoil will not require Moisture Control.

Moisture Control is also required on all select subgrade treatments.

PLOWING AND SHAPING

Refer to Standard Road Plan EW-101

Station to Station		D	Remarks
		FT	
7763+00.00	7764+75.00	3.0	Standing Rock Road
7784+50.00	7785+50.00	3.0	Standing Rock Road
8816+00.00	8817+00.00	3.0	Sutliff Road

GEOTECHNICAL 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 Date

Printed or Typed Name
My license renewal date is December 31, 20 16

Pages or sheets covered by this seal: CS.1-CS.2, Q.1-Q.53

LIST OF SUBDRAIN WORK

Refer to DR-121, DR-201, DR-203, DR-301, DR-302, DR-303, DR-304, and DR-305.

* Not a bid item

Location			Pipe			Aprons		Outlets			Connected Pipe Joints*		Trench Drain	Granular Material	Porous Backfill*	Class "A" Crushed Stone*	Remarks
No.	Station to Station		Type of Installation	Concrete C.M.P., C.M.P. Coated, or Plastic	Dia.	Length	DR-201	DR-203	DR-304	DR-305		DR-121			Blanket			
			DR-301, DR-302, DR-303		IN	LF	No.	No.	No.	Type	No.	Type	No.	LF	CY	CY	CY	
1	759+90.00	761+65.00													534.0			Granular Working Blanket, Special Backfill
2	779+00.00	780+60.00													891.0			Granular Working Blanket, Special Backfill
3	821+90.00	823+15.00													427.0			Granular Working Blanket, Special Backfill
4	821+30.00	822+90.00													2163.0			Special Backfill
5	822+00.00		DR-301, Type 2	Plastic	6.0	175				B	1					19.4		
	Totals					175					1				4015.0	16.2		
	NOTE: THERE ARE 1 OF DR-305 OUTLETS																	

SURVEY SYMBOLS

- San. SAA Sanitary Sewer Line Co. 1
- T1 TLA Underground Telephone Line Co. 1
- E1 ELA Underground Electric Line Co. 1
- T2 TLB Underground Telephone Line Co. 2
- TV TVA Underground TV Cable Co. 1
- G GLA Underground Gas Line Co. 1
- FO FOA Underground Fiber Optic Co. 1
- T3 TLC Underground Telephone Line Co. 3
- FO2 FOB Underground Fiber Optic Co. 2
- E2 ELB Underground Electric Line Co. 2
- FO3 FOC Underground Fiber Optic Co. 3
- G2 GLB Underground Gas Line Co. 2
- St.S. STA Storm Sewer Line Co. 1
- FO4 FOD Underground Fiber Optic Co. 4
- G3 GLC Underground Gas Line Co. 3
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- EP Edge of Paved Roads (ML or SR)
- SNP Unpaved Shoulder
- CU Back of Curb
- DIK Centerline of Dike or Dam
- RIP Rip-Rap
- GU Gutter In Front of Curb
- SWK Sidewalk
- CON Concrete or A/C Slab
- ENP Edge Paved Entrance & Park Lot
- ENT Centerline BL of Entrance
- ENU Edge Unpaved Entrance & Parking
- BNK Stream Bank
- EG Edge of Gravel Road
- EW Edge of Water
- SH Paved Shoulder
- SNK Sink Hole
- TPD Telephone Pedestal
- PPA Power Pole Co. 1
- SI Sign
- PIP Pipe Culvert
- FW Wire Fence
- PLG Location of General Photo
- TLNR Tree Line Right
- IN Storm Sewer Intake
- MIS Miscellaneous
- LUM Luminaire
- TDC Tree Deciduous
- BLD Building or Foundation
- PR Electic Riser Pole
- UB Utility Box
- SL Speed Limit Sign
- MH Utility Access (Manhole)
- FHD Fire Hydrants
- WV Water Valve
- RET Retaining Walls
- FCL Chain Link and Security Fence
- CUL Culvert
- EB Electrical Box
- SHR Shrub
- SEP Septic Tank
- TEV Evergeen Tree
- TLNL Tree Line Left
- BIN Grain Bin
- LP L.P. Tank
- FWD Wood Fence
- GV Gas Valve
- WEL Well
- GDL Guard Rail Steel
- FLG Flag Poles
- WHD Water Hydrant
- HDG Hedge Row
- BB Billboard
- OUT Tile Outlet
- GP Guard Post (Less Than 4 Posts)
- TV Satelite TV Dish
- MM Mile Marker Post
- TVP TV Pedestal
- LC Lot Corner
- INB Storm Sewer Beehive Intake
- TFR Tree Fruit

UTILITY LEGEND

- PPA Power Pole Co. 1
- E1 - Unlabeled Electric
- E2 - Alliant Energy
- FO - Iowa Network Services
- FO2 - CenturyLink
- FO3 - Windstream
- FO4 - Iowa Health Systems
- Petro - Magellan
- G2 - Buckeye Partners (12" Steel Petroleum, Gas and Diesel)
- G3 - Alliant Energy
- San. - Sanitary Sewer Line
- St.S. - Storm Sewer Line
- T1 - Windstream
- T2 - Iowa Department of Transportation
- T3 - CenturyLink
- TV - Mediacom
- Cipco - CIPCO Transmission Lines
- ITC - ITC Transmission Lines

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	**Design Color No.**	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

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

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.1

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FRANKLIN TWP.
T-82N R-5W
SEC. 16

IA. HWY. 1 RAMP 'C'

68°38'51"

85°00'00"

Sta. 684+96.09
Install 36" X 438' 3750D RCP
Skew = 35° Lt. Ahd.
F.L. = Lt. 808.05
Rt. 805.82
(By Others)

Sta. 687+09.85 WBL
Construct 194'-0" x 40'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 10° Skew (L.A.) (By Others)

POT Sta 687+04.52 (Hwy 30)
= Sta 6687+04.52 (IA Hwy. 1)

BEGIN CONSTRUCTION
STA 687+91.33

IA. HWY. 1 RAMP 'A'

Sta. 694+65.95
Install 30" X 440' 3000D RCP
Skew = 1° Rt. Ahd.
F.L. = Lt. 813.30
Rt. 811.10

685

690

695

30

80°04'48"

99°55'12"

Sta. 686+94.33 EBL
Construct 194'-0" x 40'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 10° Skew (L.A.) (By Others)

IOWA HWY. 1

IA. HWY. 1 RAMP 'B'

IA. HWY. 1 RAMP 'D'

95°00'00"

111°57'17"

0 50
FEET

FRANKLIN TWP.
T-82N R-5W
SEC. 16

Refer to K Sheets For Interchange Information

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.2

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FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC.**	**LINN** COUNTY	PROJECT NUMBER **NHSX-030-7(188)--3H-57**	SHEET NUMBER **D.3**

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FRANKLIN TWP.
T-82N R-5W
SEC. 15

Sta. 700+00.00 WBL
Install 24" X 108' 2000D RCP
F.L. = Lt. 816.05
Rt. 819.32
Other = 817.56

SW-511
700+00.00
75.85' Lt.
F.G.= 821.90
F.L.= 817.56

700+20.00 Med.
Install Type "M" Dike
Elev. =820.82

713+50.00 Med.
Install Type "M" Dike
Elev. =797.27

Sta. 713+30.00 WBL
Install 24" X 74' 2000D RCP
F.L. = Lt. 792.26
Rt. 795.77

700

705

710

30

FRANKLIN TWP.
T-82N R-5W
SEC. 16

0 50
FEET

FRANKLIN TWP.
T-82N R-5W
SEC. 15

Refer to K Sheets For Ramp Information

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.4

2:36:05 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

VPI +00.000
Elv 800.62
Len 230.00 ft
ex = 0.36'
K = 185
DS = 70 mph

+0.62% Rt. Ditch Grade
+24 Rt.
815.93

-1.892%
+50 Lt.
798.42

-2.37% Lt. Ditch Grade

-0.650%

+2.59% Rt. Ditch Grade
+50 Rt.
794.60

+00 Lt.
792.50

-0.80% Lt.
Ditch Grade

+50 Lt.
792.10

Lt
Med
Rt

V Ditch
4' Ditch
Dike
Ditch Grade

5' Ditch
4' Ditch
5' Ditch

Ditch Grade
Dike
Ditch Grade

Lt
Med
Rt

e

825.21 824.74 824.27 823.79 823.32 822.85 822.37 821.90 821.43 820.96 820.48 820.01 819.54 819.06 818.59 818.12 817.65 817.17 816.70 816.23 815.75 815.28 814.81 814.33 813.86 813.39 812.92 812.44 811.97 811.50 811.02 810.55 810.08 809.61 809.13 808.66 808.19 807.71 807.24 806.77 806.30 805.82 805.35 804.88 804.40 803.93 803.46 802.98 802.52 802.08 801.68 801.31 800.98 800.68 800.41 800.18 799.98 799.81 799.64 799.48 799.32

699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	D.5

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FRANKLIN TWP.
T-82N R-5W
SEC. 15

Sta. 717+31.43
Install 60" X 188' 2000D RCP
Skew = 11° Rt. Ahd.
F.L. = Lt. 787.85
Rt. 784.58

Sta. 726+60.00 WBL
Install 24" X 70' 2000D RCP
F.L. = Lt. 785.15
Rt. 787.13

726+80.00 Med.
Install Type "M" Dike
Elev. =788.63

Sta. 727+96.63
Install 36" X 20' 2000D RCP + 2-20° Elbows
Install 30" X 192' 2000D RCP
Skew = 11° Rt. Ahd.
F.L. = Lt. 782.17
Other 782.05
Other 779.95
Rt. 775.05

715

720

PC Sta 719+61.18

725

30

Curve Data
Δ = 32° 30' 23.27" (LT)
T = 2,040.74
L = 3,971.41
R = 7,000.00
E = 291.41
e = 3.0%
l = 135'
x = 90'

FRANKLIN TWP.
T-82N R-5W
SEC. 15

0 50
FEET

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.6

2:36:08 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC.**	**LINN** COUNTY	PROJECT NUMBER	**NHSX-030-7(188)--3H-57**	SHEET NUMBER **D.7**

2:36:09 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 15

Curve Data
Δ = 32° 30′ 23.27″ (LT)
T = 2,040.74
L = 3,971.41
R = 7,000.00
E = 291.41
e = 3.0%
l = 135′
x = 90′

Sta. 740+55.00 WBL
Install 24″ X 70′ 2000D RCP
F.L. = Lt. 776.28
Rt. 778.06

740+75.00 Med.
Install Type "M" Dike
Elev. =779.56

Sta. 740+75.00
Install 36″ X 196′ 2000D RCP
F.L. = Lt. 776.15
Rt. 769.30

741+06.00 Lt.
Install Type "M" Dike
Elev. =778.65

730

735

740

PI Sta 739+46.89

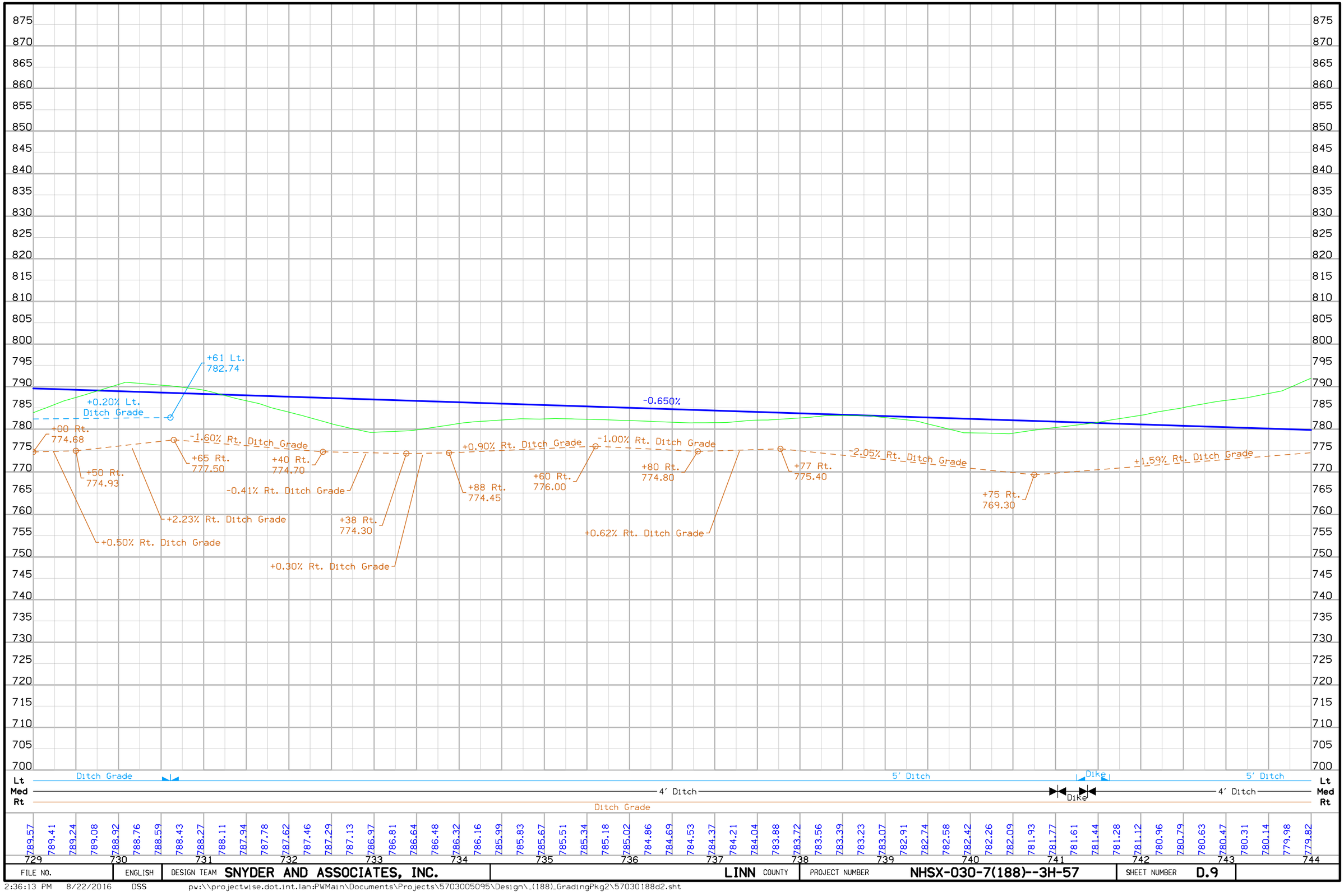
30

0 50
FEET

FRANKLIN TWP.
T-82N R-5W
SEC. 15

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.8

2:36:12 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht



FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.9

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FRANKLIN TWP.
T-82N R-5W
SEC. 15

Curve Data
Δ = 32° 30′ 23.27″ (LT)
T = 2,040.74
L = 3,971.41
R = 7,000.00
E = 291.41
e = 3.0%
l = 135′
x = 90′

Sta. 751+83.82
Install 66″ X 258′ 2000D RCP
Skew = 32° Rt. Ahd.
F.L. = Lt. 756.61
Rt. 753.30

Sta. 755+80.00 WBL
Install 24″ X 70′ 2000D RCP
F.L. = Lt. 757.60
Rt. 759.58

FRANKLIN TWP.
T-82N R-5W
SEC. 14

756+00.00 Med.
Install Type "M" Dike
Elev. =761.08

745

750

755

Cipco

PT Sta. 759+32.59

30

756+00.00 Lt.
Install Type "M" Dike
Elev. =759.10

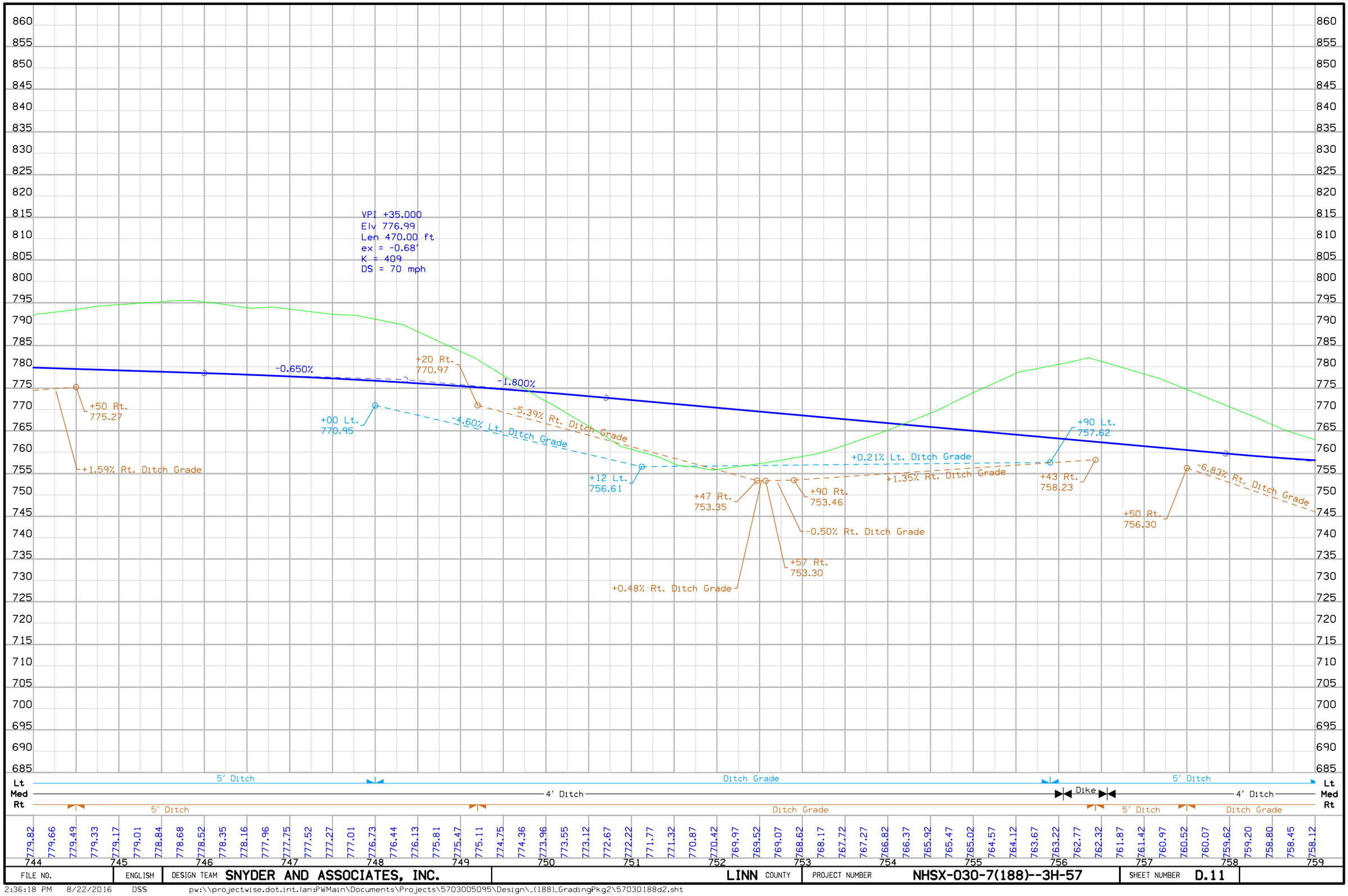
FRANKLIN TWP.
T-82N R-5W
SEC. 15

FRANKLIN TWP.
T-82N R-5W
SEC. 14

0 50
FEET

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.10

2:36:17 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	D.11

2:36:18 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 14

Sta. 761+21.00
Twin 12'x9'x230' RCB
Skew = 19° Lt. Ahd.
15° Headwalls
F.L. = Lt. 736.80
Rt. 736.00
(By Others)

Sta. 761+27.00 WBL
Install 24" X 78' 2000D RCP
F.L. = Lt. 748.30
Rt. 752.72

Overexcavation Limits

Overexcavation Limits

STANDING ROCK RD.

Sta. 7771+17.62
Construct 232'-0" x 30'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 0° Skew
(By Others)

POT Sta 771+17.62 (Hwy 30)
= Sta 7771+17.62 (Standing Rock)

89°33'20"

90°26'40"

760

765

770

30

E5(C)

Cipco

POT Sta 759+32.59

T1

FRANKLIN TWP.
T-82N R-5W
SEC. 14

0 50
FEET

Refer to Sheets E.1 - E.4 For
Standing Rock Road Information

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.12

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FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC.**	**LINN** COUNTY	PROJECT NUMBER **NHSX-030-7(188)--3H-57**	SHEET NUMBER **D.13**

2:36:22 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 14

Sta. 779+96.00
6'x8'x312' RCB
Skew = 15° Rt. Ahd.
15° Headwalls
F.L. = Lt. 763.00
Rt. 760.25
(By Others)

15" X 57' CMP

775+65.00 Med.
Install Type "M" Dike
Elev. =781.39

Sta. 775+85.00 WBL
Install 24" X 74' 2000D RCP
F.L. = Lt. 776.42
Rt. 779.89

Overexcavation Limits

775

780

785

30

Overexcavation Limits

0 50
FEET

FRANKLIN TWP.
T-82N R-5W
SEC. 14

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.14

2:36:24 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

VPI +50.000
Elv 815.50
Len 1,070.00 ft
ex = -3.55'
K = 403
DS = 70 mph

+2.158%

+08 Lt.
777.19

+50 Rt.
774.43

-1.00% Lt. Ditch Grade
-0.50% Rt. Ditch Grade

+29 Lt.
774.98

-5.00% Lt. Ditch Grade
-4.89% Rt. Ditch Grade

+50 Rt.
775.93

+50 Lt.
763.93

+58 Lt.
763.93

+47 Rt.
760.31

+39 Rt.
760.31

+5.97% Lt. Ditch Grade
+6.02% Rt. Ditch Grade

+60 Lt.
799.86

+65 Rt.
803.53

Lt	5' Ditch	Ditch Grade	Special Shaping	Ditch Grade	5' Ditch	Lt
Med	4' Ditch	Dike		4' Ditch		Med
Rt	Ditch Grade		Special Shaping	Ditch Grade	5' Ditch	Rt

779.90 780.44 780.98 781.52 782.06 782.59 783.13 783.67 784.21 784.75 785.29 785.83 786.37 786.91 787.45 787.99 788.53 789.07 789.61 790.15 790.69 791.23 791.77 792.30 792.84 793.38 793.92 794.46 795.00 795.54 796.08 796.62 797.16 797.70 798.24 798.78 799.32 799.86 800.40 800.94 801.47 802.01 802.55 803.09 803.63 804.17 804.70 805.21 805.70 806.18 806.64 807.09 807.52 807.94 808.34 808.73 809.10 809.45 809.79 810.11 810.42

774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	D.15

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FRANKLIN TWP.
T-82N R-5W
SEC. 14

Sta. 797+71.00
Install 42" X 276' 3000D RCP
Skew = 24° Lt. Ahd.
F.L. = Lt. 795.50
Rt. 790.75

Overexcavation Limits

790

795

800

30

Overexcavation Limits

FRANKLIN TWP.
T-82N R-5W
SEC. 14

0 50
FEET

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.16

2:36:27 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

VPI +50.000
Elv 815.50
Len 1,070.00 ft
ex = -3.55'
K = 403
DS = 70 mph

+2.158%
-0.500%
+5.21% Rt. Ditch Grade
-0.51% Lt. Ditch Grade
-0.50% Rt. Ditch Grade
+91 Lt.
807.82
+94 Rt.
807.84
+70 Lt.
806.90
+00 Rt.
806.81
-6.33% Rt. Ditch Grade
-2.49% Lt. Ditch Grade
-2.25% Rt.
Ditch Grade
+25 Rt.
792.57
+06 Rt.
790.75
+09 Rt.
790.75
(Special Shaping)
+00 Rt.
800.70
+2.09% Lt. Ditch Grade
+27 Lt.
795.50
+0.50% Rt. Ditch Grade
+50 Lt.
800.16
+0.50% Lt. Ditch Grade

Lt	5' Ditch		Ditch Grade	
Med		4' Ditch		
Rt	5' Ditch	Ditch Grade	Special Shaping	Ditch Grade

810.42 810.72 810.99 811.25 811.50 811.73 811.95 812.14 812.33 812.50 812.65 812.79 812.91 813.02 813.11 813.18 813.24 813.29 813.31 813.33 813.32 813.31 813.27 813.22 813.16 813.08 812.98 812.87 812.75 812.63 812.50 812.38 812.25 812.13 812.00 811.88 811.75 811.63 811.50 811.38 811.25 811.13 811.00 810.88 810.75 810.63 810.50 810.38 810.25 810.13 810.00 809.88 809.75 809.63 809.50 809.38 809.25 809.13 809.00 808.88 808.75

789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.17	

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FRANKLIN TWP.
T-82N R-5W
SEC. 14

FRANKLIN TWP.
T-82N R-5W
SEC. 13

SUTLIFF RD.

SUTLIFF ENTRANCE

90°00'00"

90°00'00"

Sta. 805+50.00 WBL
Install 24" X 70' 2000D RCP
F.L. = Lt. 802.66
Rt. 804.00

Sta. 805+70.00 Med.
Install Type "M" Dike
Elev. =805.50

805

Sta. 8806+52.46
Construct 252'-0" x 36'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 16° Skew
(By Others)

POT Sta 807+03.40 (Hwy 30)
= Sta 8806+47.46 (Sutliff)

PC Sta 808+28.63

810

Sta. 810+93.73
Install 30" X 196' 2000D RCP
Skew = 10° Rt. Ahd.
F.L. = Lt. 798.03
Rt. 795.85

815

Sta. 816+70.70 (WBL)
Install 24" X 72' 2000D RCP
Skew = 10° Rt. Ahd.
F.L. = Lt. 794.53
Rt. 798.62

15" CMP

30

106°25'53"

73°34'07"

Sta. 818+30.24
Install 54" X 304' 3000D
Skew = 24° Rt. Ahd.
F.L. = Lt. 783.00
Rt. 776.90

PI Sta 818+61.04

Curve Data
Δ = 32° 52' 10.61" (LT)
T = 1,032.42
L = 2,007.89
R = 3,500.00
E = 149.09
e = 5.0%
l = 225'
x = 90'

Sta. 821+82
36" X 105.5' CMP
D.A. = 5.1 Ac

24" x 51' CMP

24" x 119' CMP

FRANKLIN TWP.
T-82N R-5W
SEC. 14

FRANKLIN TWP.
T-82N R-5W
SEC. 13

0 50
FEET

Refer to Sheets E.7 - E.8 For Sutliff Road Information

Refer to Sheets E.17 - E.18 For Sutliff Entrance Information

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.18

2:36:31 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

VPI +50.000
Elv 801.50
Len 540.00 ft
ex = 2.01'
K = 181
DS = 70 mph

+0.50% Rt. Ditch Grade
+51 Rt.
803.46
-0.50% Rt. D.G.
+0.50% Lt. Ditch Grade
+81 Rt.
802.81
+80 Lt.
802.81
+60 Rt.
802.54
-2.64% Rt. Ditch Grade
-0.68% Lt. Ditch Grade
+00 Lt.
799.22
+76 Lt.
798.03
+0.30% Lt. D.G.
+13 Rt.
795.85
+06 Lt.
798.42
+0.91% Rt. Ditch Grade
+13 Rt.
799.48
+75 Lt.
797.08
-7.48% Rt. Ditch Grade
-5.42% Lt. Ditch Grade
+2.00% Lt. Ditch Grade
-0.500%
+2.477%
+05 Lt.
783.70
+4.00% Lt.
Ditch Grade
+98 Lt.
785.00
-2.78% Lt. Ditch Grade
+70 Lt.
783.00
-1.09% Rt.
Ditch Grade
+00 Rt.
778.00
+01 Rt.
776.90

Lt	Ditch Grade	Special Shaping	Ditch Grade	5' Ditch	Ditch Grade	Lt
Med	4' Ditch — Dike —	3' Ditch	10:1 Transition	4' Ditch		Med
Rt	Ditch Grade	Special Shaping		Ditch Grade		Rt

808.75 808.63 808.50 808.38 808.25 808.13 808.00 807.88 807.75 807.63 807.50 807.38 807.25 807.13 807.00 806.88 806.75 806.63 806.50 806.38 806.25 806.13 806.00 805.88 805.75 805.63 805.50 805.38 805.25 805.13 805.00 804.88 804.75 804.63 804.50 804.38 804.25 804.13 804.00 803.88 803.75 803.63 803.50 803.38 803.25 803.13 803.00 802.88 802.76 802.68 802.64 802.62 802.65 802.70 802.80 802.92 803.08 803.28 803.51 803.77 804.07

804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.19

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FRANKLIN TWP.
T-82N R-5W
SEC. 13

Sta. 822+84.18
Install 5'x6'x412' RCB
Skew = 10° Lt. Ahd.
15° Headwalls
F.L. = Lt. 773.63
Rt. 764.34
(By Others)

Sta. 830+50.00 WBL
Install 24" X 76' 2000D RCP
F.L. = Lt. 822.98
Rt. 827.23

Sta. 830+30.00 Med.
Install Type "M" Dike
Elev. =828.73

Sta. 832+41.07
Install 36" X 20' 2000D RCP + 2 Elbows
Install 30" X 448' 3750D RCP
Skew = 26° Lt. Ahd.
F.L. = Lt. 806.20
Other 806.08
Other 803.98
Lt. 781.20

820
825
830
30
PT Sta 828+36.52

Curve Data
Δ = 32° 52' 10.61" (LT)
T = 1,032.42
L = 2,007.89
R = 3,500.00
E = 149.09
e = 5.0%
l = 225'
x = 90'

Overexcavation Limits

FRANKLIN TWP.
T-82N R-5W
SEC. 13

0 50
FEET

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.20

2:36:34 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188d2.sht

VPI +50.000
Elv 801.50
Len 540.00 ft
ex = 2.01'
K = 181
DS = 70 mph

+2.477%
+45 Lt.
793.30
+4.00% Lt. Ditch Grade
-8.00% Lt. Ditch Grade
+38 Rt.
783.00
+4.94% Rt. Ditch Grade
-12.82% Rt. Ditch Grade
+16 Rt.
776.97
+0.47% Rt. Ditch Grade
+01 Rt.
776.90
+55 Rt.
768.00
-6.36% Rt. Ditch Grade
+44 Rt.
762.34
+50 Rt.
762.34
+60 Lt.
776.09
-4.47% Lt. Ditch Grade
+00 Rt.
816.38
+15.44% Rt. Ditch Grade
+50 Lt.
817.49
+10.75% Lt. Ditch Grade
+60 Lt.
775.58
+5.00% Lt. Ditch Grade
+21 Lt.
773.63
+15 Lt.
773.63
+02 Lt.
824.77
-5.68% Lt. Ditch Grade
+29 Lt.
806.20
+10.00% Lt. Ditch Grade

Lt	Ditch Grade	Special Shaping	Ditch Grade	5' Ditch	Ditch Grade
Med	4' Ditch				
Rt	Ditch Grade	Special Shaping	Ditch Grade	No Ditch	

804.07 804.41 804.77 805.18 805.61 806.08 806.59 807.13 807.70 808.31 808.93 809.55 810.17 810.79 811.41 812.03 812.65 813.27 813.89 814.51 815.12 815.74 816.36 816.98 817.60 818.22 818.84 819.46 820.08 820.70 821.32 821.94 822.56 823.18 823.79 824.41 825.03 825.65 826.27 826.89 827.51 828.13 828.75 829.37 829.99 830.61 831.23 831.85 832.47 833.08 833.70 834.32 834.94 835.56 836.18 836.80 837.42 838.04 838.66 839.28 839.90

819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	D.21

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FRANKLIN TWP.
T-82N R-5W
SEC. 13

19850

GREEN RIDGE ENTRANCE

POT Sta 838+87.30 (U.S. 30)
= Sta 10838+87.30 (Green Ridge)

Sta. 10839+07.30
Construct 280' x 30'-0"
Welded Girder Bridge
Beam Bridge with 15° Skew
(By Others)

Sta. 846+36.75 WBL
Construct 663'-0" x 40'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 0° Skew
(By Others)

END CONSTRUCTION
STA 843+05.25

835

840

845

POT1 Sta 836+72.64

30

EQUATION:
Sta 837+21.45 BK =
Sta 836+72.64 AH

105°04'10"

74°55'50"

GREEN RIDGE RD.

Sta. 846+36.75 EBL
Construct 663'-0" x 40'-0"
Pretensioned Prestressed Concrete
Beam Bridge with 0° Skew
(By Others)

FRANKLIN TWP.
T-82N R-5W
SEC. 13

0 50
FEET

Refer to Sheets E.15 - E.16 For Green Ridge Ent. Information

Refer to Sheets E.11 - E.14 For Green Ridge Road Information

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER D.22

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EQUATION:
BK 837+21.446 =
AH 836+72.637

+2.477%

+10.00% Lt. Ditch Grade

+75 Lt.
840.79

VPI +59.030
Elv 850.00
Len 800.00 ft
ex = -1.98'
K = 405
DS = 70 mph

+0.500%

+15 Rt.
845.72

END CONSTRUCTION
Sta 843+05.25

+50 Rt.
841.02

-2.00% Rt. Ditch Grade

-1.00% Lt. Ditch Grade

+30 Lt.
844.77

+00 Lt.
843.07

-14.18% Rt. Ditch Grade

-12.09% Lt. Ditch Grade

+39 Lt.
790.00

+45 Rt.
785.00

+21.42% Rt. Ditch Grade

+0.81% Rt.
Ditch Grade

+09 Rt.
774.00

+32 Rt.
775.00

+49 Rt.
842.86

+21.42% Rt. Ditch Grade

+25 Lt.
803.00

+15 Lt.
791.00

+10.90% Lt.
Ditch Grade

+11.95% Rt.
Ditch Grade

+00 Rt.
790.60

Ditch Grade

Ditch Grade

839.90	840.51	841.11	841.70	842.27	842.82	843.36	843.89	844.40	844.89	845.37	845.83	846.27

5' Ditch | Special Shaping | Ditch Grade | No Ditch | Ditch Grade

4' Ditch

Special Shaping | Ditch Grade | No Ditch

846.68	847.10	847.50	847.89	848.26	848.61	848.95	849.27	849.58	849.88	850.15	850.41	850.66	850.89	851.11	851.31	851.49	851.66	851.82	851.95	852.08	852.20	852.33	852.45	852.58	852.70	852.83	852.95	853.08	853.20	853.33	853.45	853.58	853.70	853.83	853.95	854.08	854.20	854.33	854.45	854.58	854.70	854.83	854.95	855.08	855.20	855.33	855.45	855.58	855.70

834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849

875	870	865	860	855	850	845	840	835	830	825	820	815	810	805	800	795	790	785	780	775	770

880	875	870	865	860	855	850	845	840	835	830	825	820	815	810	805	800	795	790	785	780

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	D.23

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FRANKLIN TWP.
T-82N R-5W
SEC. 23

FRANKLIN TWP.
T-82N R-5W
SEC. 14

Curve Data
Δ = 7° 12′ 49.69″ (RT)
T = 157.59
L = 314.76
R = 2,500.00
E = 4.96
e = NC

Curve Data
Δ = 6° 54′ 04.99″ (LT)
T = 150.75
L = 301.13
R = 2,500.00
E = 4.54
e = NC

Sta. 7766+59.00
Install 24″ X 60′ UNCL.
F.L. = Lt. 778.50
Rt. 779.98

Sta. 7769+83.00
Install 24″ X 170′ 3750D
F.L. = Lt. 766.85
Rt. 770.34

Sta. 7772+52.00
Install 24″ X 168′ 3750D
F.L. = Lt. 767.02
Rt. 770.35

BEGIN CONSTRUCTION
STA 7760+77.25

STANDING ROCK RD.

7760

7765

7770

770

775

PI Sta 7763+16.44

PC Sta 7765+55.19

PT Sta 7768+56.32

PT Sta 5757+64.93

PC Sta 7761+58.85

PT Sta 7764+73.61

PI Sta 7767+05.94

Sta. 5755+30.79
15″ X 38.0′ CMP
D.A. = 3.6 Ac
(Remove)

Sta. 5760+48.37
24″ X 48.1′ CMP
D.A. = 10.5 Ac
(Remove)

POT Sta 7771+17.62 (Standing Rock)
= Sta 771+17.62 (Hwy 30)

Sta. 7771+17.62 (Standing Rock Rd.)
Construct 232′-0″ x 30′-0″ Pretensioned
Prestressed Concrete Beam Bridge
(By Others)

30

Refer to Sheets D.11 - D.12 For
Mainline Information

0 FEET 50

STANDING ROCK RD.

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.1

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BEGIN CONSTRUCTION
MATCH EXISTING
Sta 7760+77.25
Elv = 783.64

VPI +62.630
Elv 788.45
K = 65
Len 150.00 ft
ex = 0.43'
DS = 40 mph

VPI +17.730
Elv 799.10
K = 70
Len 420.00 ft
ex = -3.15'
DS = 40 mph

+0.40% Rt. Ditch Grade
+0.40% Lt. Ditch Grade
+3.42% Rt. Ditch Grade
+0.70%
+3.000%
+3.000%
-3.000%
-1.00% Rt. Ditch Grade
-1.56% Lt. Ditch Grade
-0.50% Lt. Ditch Grade
+7.49% Lt. Ditch Grade
-10.60% Rt. Ditch Grade
-8.37% Lt. Ditch Grade
-1.17% Lt. Ditch Grade
+1.00% Rt. Ditch Grade
-1.00% Rt. Ditch Grade
+1.92% Rt. Ditch Grade
+1.00% Lt. Ditch Grade

+77 Rt. 782.16
+77 Lt. 780.58
+37 Rt. 783.20
+49 Lt. 781.66
+00 Lt. 779.30
+59 Rt. 779.98
+59 Lt. 778.50
+00 Lt. 781.57
+38 Rt. 785.71
+50 Rt. 783.09
+33 Lt. 779.41
+83 Rt. 770.34
+83 Lt. 766.85
+14 Rt. 770.65
+13 Lt. 766.50
+20 Rt. 770.67
+15 Lt. 766.65
+52 Rt. 770.35
+52 Lt. 767.02

STANDING ROCK RD.

Lt	Ditch Grade	No Ditch	Ditch Grade	Special Shaping	Special Shaping
					Ditch Grade
Rt	Ditch Grade	5' Ditch	Ditch Grade	Special Shaping	Ditch Grade

783.80 783.97 784.15 784.33 784.50 784.68 784.85 785.03 785.20 785.38 785.55 785.73 785.90 786.08 786.25 786.43 786.60 786.78 786.96 787.13 787.31 787.48 787.66 787.83 788.02 788.29 788.66 789.12 789.68 790.33 791.07 791.82 792.57 793.30 793.94 794.49 794.96 795.34 795.62 795.82 795.93 795.95 795.88 795.72 795.47 795.13 794.70 794.18 793.58 792.88 792.13 791.38 790.63

7759 7760 7761 7762 7763 7764 7765 7766 7767 7768 7769 7770 7771 7772 7773 7774

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	E.2

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FRANKLIN TWP.
T-82N R-5W
SEC. 14

Curve Data
Δ = 11° 07′ 53.13″ (LT)
T = 116.94
L = 233.14
R = 1,200.00
E = 5.68
e = NC

Curve Data
Δ = 19° 06′ 49.01″ (LT)
T = 74.17
L = 146.96
R = 440.54
E = 6.20
e = NC

7775

+77.00 Lt.Prop. Type "C" Ent.

Ent. +26 Lt. (Close)

(Remove) 48" CMP

7780

PC Sta 7781+89.04

PT Sta 7784+22.18

Sta. 5773+00.30
18" X 38.8' CMP
D.A. = 3.8 Ac
(Remove)

7785

(U.A.C.)

(U.A.C.)

POT Sta 7789+31.38

PC Sta 7787+54.12

STANDING ROCK RD.

+77.00 Rt.Prop. Type "C" Ent.

PI Sta 7783+05.98

PI Sta 7786+81.33

PC Sta 7786+07.16

END CONSTRUCTION
STA 7786+07.16

Sta. 7784+64.50
Install 24" X 50' UNCL
Skew = 6° Lt. Ahd.
F.L. = Lt. 777.20
Rt. 779.90

BUD RD.

0 50
FEET

STANDING ROCK RD.

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.3

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VPI +89.210
Elv 781.96
K = 64
Len 350.00 ft
ex = 2.38'
DS = 40 mph

VPI +35.000
Elv 790.42
K = 73
Len 310.00 ft
ex = -1.65'
DS = 40 mph

VPI +75.000
Elv 784.29
K = 64
Len 210.00 ft
ex = 0.87'
DS = 40 mph

VPI +40.000
Elv 786.77
Len 120.00 ft
K = 70
ex = -0.26'
DS = 40 mph

MATCH EXISTING
Sta 7786+07.16, Elev = 786.63

-3.000%
+2.448%
-1.803%
+1.503%
-0.208%

+1.92% Rt. Ditch Grade
+20 Rt.
779.33

+78 Rt.
783.78
-1.03% Rt.
Ditch Grade
+90 Rt.
782.63

+60 Rt.
780.20
-2.86% Rt.
Ditch Grade

+55 Rt.
784.08
+7.64% Rt.
Ditch Grade
+65 Rt.
777.20

790
-1.53%
780
770
760
+12.5'

7775+77.00 - Prop. Type C Ent. Lt. & Rt.

790
780
770
760

7786+23.35 - Type C Ent. Lt. (U.A.C.)

STANDING ROCK RD.

Lt — Special Shaping

Rt — Ditch Grade | 5' Ditch | Ditch Grade | 5' Ditch | Ditch Grade | Special Shaping

7774	7775	7776	7777	7778	7779	7780	7781	7782	7783	7784	7785	7786	7787	7788	7789
790.63	789.88	789.13	788.38	787.63	786.89	786.23	785.67	785.20	784.84	784.57	784.39	784.32	784.34	784.46	784.67
784.99	785.40	785.91	786.50	787.09	787.59	788.00	788.33	788.58	788.73	788.81	788.79	788.69	788.51	788.24	787.88
787.45	786.99	786.54	786.09	785.71	785.43	785.24	785.16	785.17	785.28	785.49	785.79	786.14	786.40	786.57	786.65
786.64															

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	E.4

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FRANKLIN TWP.
T-82N R-5W
SEC. 23

Curve Data
Δ = 16° 28′ 46.05″ (LT)
T = 434.43
L = 862.86
R = 3,000.00
E = 31.29
e = 3.4%
l = 82′
x = 48′

8785

8790

8795

PC Sta 8789+69.35

PI Sta 8794+03.78

SUTLIFF RD.

BEGIN CONSTRUCTION
STA 8788+63.95

+46.00 Rt.Prop.
Type "C" Ent.

+23.00 Rt.Prop.
Type "B" Ent.

0 50
FEET

SUTLIFF RD.

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.5

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8790+46.00 - Prop. Type C Ent. Rt.

780

-4.0% +8.0%

20' VC

770

BEGIN CONSTRUCTION
MATCH EXISTING
Sta 8788+63.95
Elv = 770.15

+64 Rt.
764.78

+4.25% Rt.
Ditch Grade

+4.58% Lt.
Ditch Grade

+50 Rt.
768.44

+50 Lt.
768.44

+64 Lt.
764.50

+4.100%

+00 Rt.
795.09

+2.35% Rt. Ditch Grade

780

-4.0% +8.0%

20' VC

770

8791+23.00 - Prop. Type B Ent. Rt.

SUTLIFF RD.

Lt

Rt

Ditch Grade

5' Ditch

Ditch Grade

5' Ditch

Ditch Grade

770.60 771.63 772.65 773.68 774.70 775.73 776.75 777.78 778.80 779.83 780.85 781.88 782.90 783.93 784.95 785.98 787.00 788.03 789.05 790.08 791.10 792.13 793.15 794.18 795.20 796.23 797.25 798.28 799.30 800.33 801.35 802.38 803.40 804.43 805.45 806.48

8783 8784 8785 8786 8787 8788 8789 8790 8791 8792 8793 8794 8795 8796 8797

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	E.6

FRANKLIN TWP.
T-82N R-5W
SEC. 23

FRANKLIN TWP.
T-82N R-5W
SEC. 14

30

POT Sta 8806+92.36 (Sutliff Rd.)
= Sta 806+92.36 (Hwy 30)

Sta. 8803+25.00
Install 24" X 160' 3750D RCP
F.L. = Lt. 801.99
Rt. 799.00

Sta. 6784+21.82
36" X 105.5' CMP
D.A. = 5.1 Ac
(Remove)

8800

+40.00 Lt.Prop.
Type "C" Ent.

PT Sta 8798+32.21

SUTLIFF RD.

8805

805

8810

POT Sta 8810+00.00 (Sutliff Rd.)
= Sta 9810+00.00 (Sutliff Access)

9810

90°00'00"

PC Sta 8811+50.63

PC Sta 98104+95.00

Sta. 8806+92.36
Construct 252'-0" x 40'-0"
Pretensioned Prestressed
Concrete Beam Bridge
with 10° Skew
(By Others)

810

SUTLIFF ACCESS

PT Sta 9812+63.84

PT Sta 9814+27.14

Refer to Sheets E.17 - E.18 For Sutliff Access Information

Refer to Sheets D.11 - D.12 For Mainline Information

FRANKLIN TWP.
T-82N R-5W
SEC. 13

0 50
FEET

SUTLIFF RD.

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.7

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FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC.**	**LINN** COUNTY	PROJECT NUMBER **NHSX-030-7(188)--3H-57**	SHEET NUMBER **E.8**

FRANKLIN TWP.
T-82N R-5W
SEC. 14

Curve Data
Δ = 5° 53′ 19.91″ (RT)
T = 154.31
L = 308.34
R = 3,000.00
e = 3.4%
l = 82′
x = 48′

8815

8820

+68.00 Lt. Prop. Type "C" Ent.

PI Sta 8813+04.94

PT Sta 8814+58.97

POT Sta 8821+58.97

END CONSTRUCTION
STA 8819+78.00

BUD ROAD

SUTLIFF RD.

Ent. 196 - Rt. (U.A.C.)

0 FEET 50

SUTLIFF RD.

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.9

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END CONSTRUCTION
MATCH EXISTING
Sta 8819+78.00, Elev = 880.97

+4.000%

+5.65% Rt. Ditch Grade

+4.08% Lt. Ditch Grade

+73.80 Rt.
876.78

+78 Lt.
875.79

+00 Lt.
872.61

+00 Rt.
872.61

+8.0% Rt. Ditch Grade

+17 Rt.
857.29

8817+68.00 - Prop. Type C Ent. Lt.

+11.8% +4.0%

SUTLIFF RD.

Lt: No Ditch | 5' Ditch | Ditch Grade

Rt: Ditch Grade | 5' Ditch | Ditch Grade

851.85 852.85 853.85 854.85 855.85 856.85 857.85 858.85 859.85 860.85 861.85 862.85 863.85 864.85 865.85 866.85 867.85 868.85 869.85 870.85 871.85 872.85 873.85 874.85 875.85 876.85 877.85 878.85 879.85 880.85

8813 8814 8815 8816 8817 8818 8819 8820 8821

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.10

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FRANKLIN TWP.
T-82N R-5W
SEC. 13

Curve Data
Δ = 9° 49′ 19.97″ (LT)
T = 42.96
L = 85.71
R = 500.00
E = 1.84
e = NC

Curve Data
Δ = 22° 57′ 10.46″ (LT)
T = 162.42
L = 320.48
R = 800.00
e = NC

Sta. 10838+87.30 (Green Ridge Rd.)
Construct 299′-6″ x 30′-0″
Pretensioned Prestressed Concrete
Beam Bridge with 15° Skew (L.A.)
(By Others)

GREEN RIDGE RD.

BEGIN CONSTRUCTION
STA 10829+66.35

POT Sta 10829+47.82
PC Sta 10829+91.85
PI Sta 10830+34.8
PT Sta 10830+77.57
PC Sta 10830+85.05
PI Sta 10832+47.47
PT Sta 10834+05.53

10830
10835
10840

105°04′10″
74°55′50″

835
840

30

POT Sta 10838+87.30 (Green Ridge Rd.)
= Sta 838+87.30 (Hwy 30)

PC Sta 10840+50.62

+31.00 Rt. Prop. Type "C" Ent.

+47 Rt. (Close) Ent.

Refer to Sheets D.21 - D.22
For Mainline Information

0 50
FEET

GREEN RIDGE RD.

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.11

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FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC.**	**LINN** COUNTY	PROJECT NUMBER **NHSX-030-7(188)--3H-57**	SHEET NUMBER **E.12**

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FRANKLIN TWP.
T-82N R-5W
SEC. 13

Curve Data
Δ = 31° 38' 06.41" (RT)
T = 226.64
L = 441.71
R = 800.00
e = NC

POT Sta 10844+78.00 (Green Ridge Rd.)
= Sta 19844+78.00 (Green Ridge Rd. Entrance)

10845

END CONSTRUCTION
STA 10845+85.00

PT Sta 10842+77.26

POT Sta 10849+59.15

19845

GREEN RIDGE RD.

PT Sta 10844+32.33

Ent. +36 Rt.
(U.A.C.)

Ent. +78 Rt.
(U.A.C.)

Ent. +47 Rt.
(Close)

GREEN RIDGE ENTRANCE

19850

0 50
FEET

Refer to Sheets E.15 - E.16 For
Green Ridge Entrance Information

GREEN RIDGE RD.

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.13

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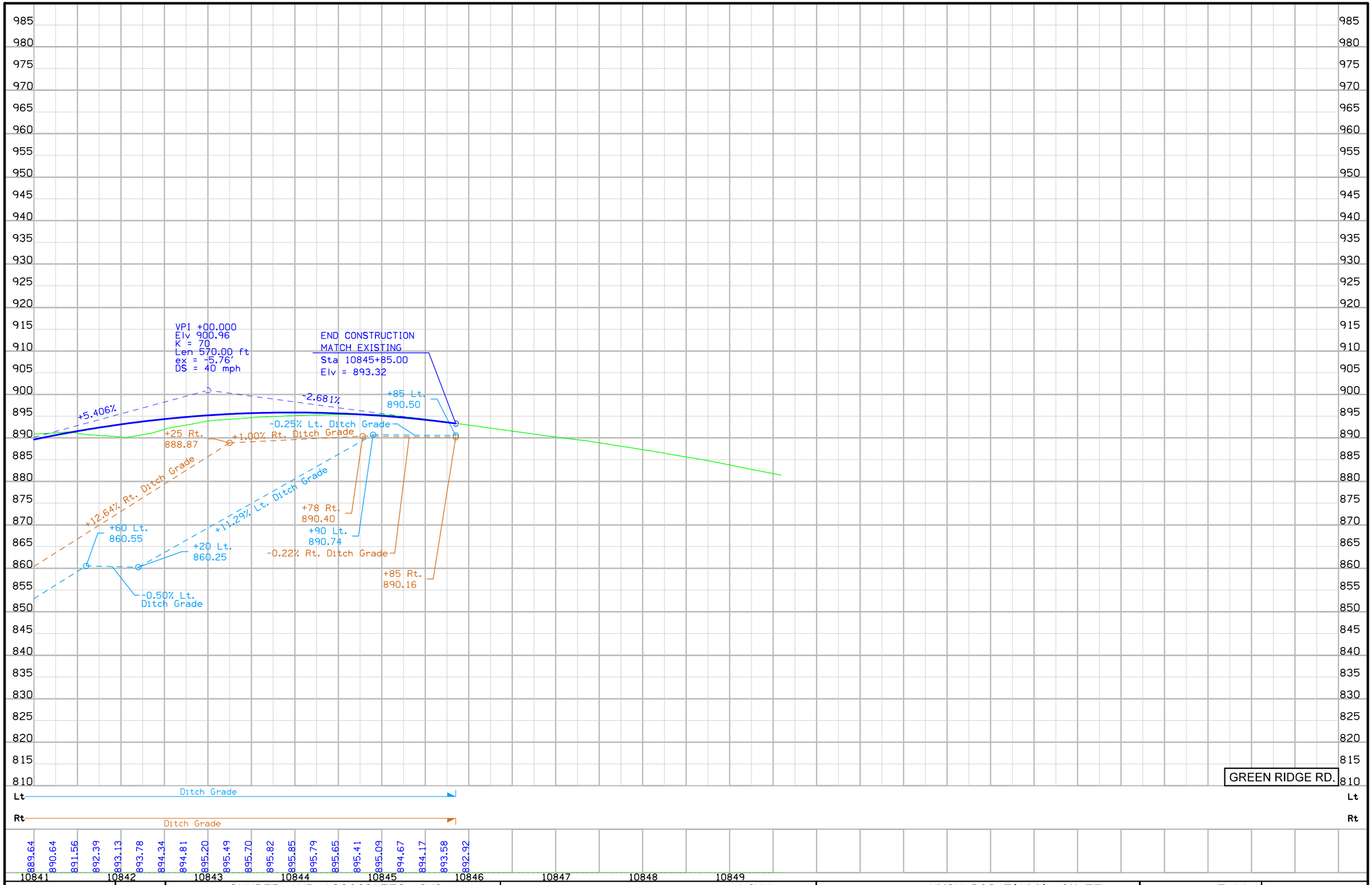

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.14

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FRANKLIN TWP.
T-82N R-5W
SEC. 13

Curve Data
Δ = 30° 35′ 05.31″ (RT)
T = 54.69
L = 106.76
R = 200.00
E = 7.34
e = nc

Curve Data
Δ = 19° 30′ 00.25″ (LT)
T = 34.37
L = 68.07
R = 200.00
E = 2.93
e = nc

Sta. 19845+10.75
Install 15″X33′ Uncl.
Skew = 8° Rt. Ahead
F.L. = Lt. 000.00
Rt. 000.00

Sta. 19848+30.91
Install 18″X110′ Uncl.
Skew = 21° Lt. Ahead
F.L. = Lt. 828.75
Rt. 846.50

93°97′38″

POT Sta 19844+78.00 (Green Ridge Rd. Entrance)
= Sta 10844+78.00 (Green Ridge Rd.)

BEGIN CONSTRUCTION
STA 19844+90.04

END CONSTRUCTION
STA 19849+16.16

GREEN RIDGE ENTRANCE

GREEN RIDGE RD.

PI Sta 19846+35.51
PC Sta 19848+02.62
PT Sta 19846+87.58
PC Sta 19845+80.82
PT Sta 19848+36.99
PI Sta 19848+70.69
POT Sta 19849+16.16

19845
19850
10845
10840
845
840

30

Refer to Sheets D.22-D.23 For U.S. 30 Information
Refer to Sheets E.11 - E.14 For Green Ridge Road Information

0 FEET 50

GREEN RIDGE RD. ENTRANCE

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.15

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VPI +30.000
Elv 893.25
K = 5.2
Len 50.00 ft
ex = ???'
DS = 15 mph

-4.004%

BEGIN CONSTRUCTION
MATCH EXISTING
Sta 19844+90.04, Elev = 894.85

-13.600%

VPI +00.000
Elv 856.53
K = 11
Len 110.00 ft
ex = 1.42'
DS = 15 mph

-3.237%

END CONSTRUCTION
Sta 19849+16.16, Elev = 852.77

No Ditch

No Ditch

GREEN RIDGE RD. ENTRANCE

894.45 893.07 890.51 887.13 883.73 880.33 876.93 873.53 870.13 866.73 863.34 860.35 857.95 856.14 854.92 854.10 853.29

19844 19845 19846 19847 19848 19849 19850

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	E.16

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SUTLIFF RD.

POT Sta 9810+00.00 (Sutliff Ent. Pond)
= Sta 8810+00.00 (Sutliff Rd.)

Curve Data
Δ = 25° 22′ 24.68″ (RT)
T = 168.84
L = 332.14
R = 750.00
E = 18.77
e = NC

PI Sta 9812+63.84

9810

8810

90°00′00″

90°00′00″

SUTLIFF RD. POND ENTRANCE

SUTLIFF ACCESS

PC Sta 9810+95.00

BEGIN CONSTRUCTION
STA 9810+18.00

Sta. 9811+27.79
Install 30″ X 138′ 3000D UNCL
Skew = 9° Rt. Ahd.
F.L. = Lt. 820.80
Rt. 812.80

Sta. 8806+92.36
Construct 252′-0″ x 40′-0″
Pretensioned Prestresses Concrete
Beam Bridge with 10° Skew

PT Sta 9814+27.14

PC Sta 9815+35.05

9815

Curve Data
Δ = 23° 28′ 26.05″ (LT)
T = 155.82
L = 307.27
R = 750.00
E = 16.02
e = NC

PI Sta 9816+90.88

PT Sta 9818+42.33

PI Sta 9818+65.45

PI Sta 9819+14.74

PI Sta 9819+65.92

POT Sta 9820+15.49

9820

FRANKLIN TWP.
T-82N R-5W
SEC. 13

END CONSTRUCTION
9818+65.45

15" CMP

15" x 32'-9" CMP

30

8088

Refer to Sheets D.17-D.18
For U.S. 30 Information

Refer to Sheets E.5-E.10 For
Sutliff Road Information

0 FEET 50

SUTLIFF RD. POND ENTRANCE

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.17

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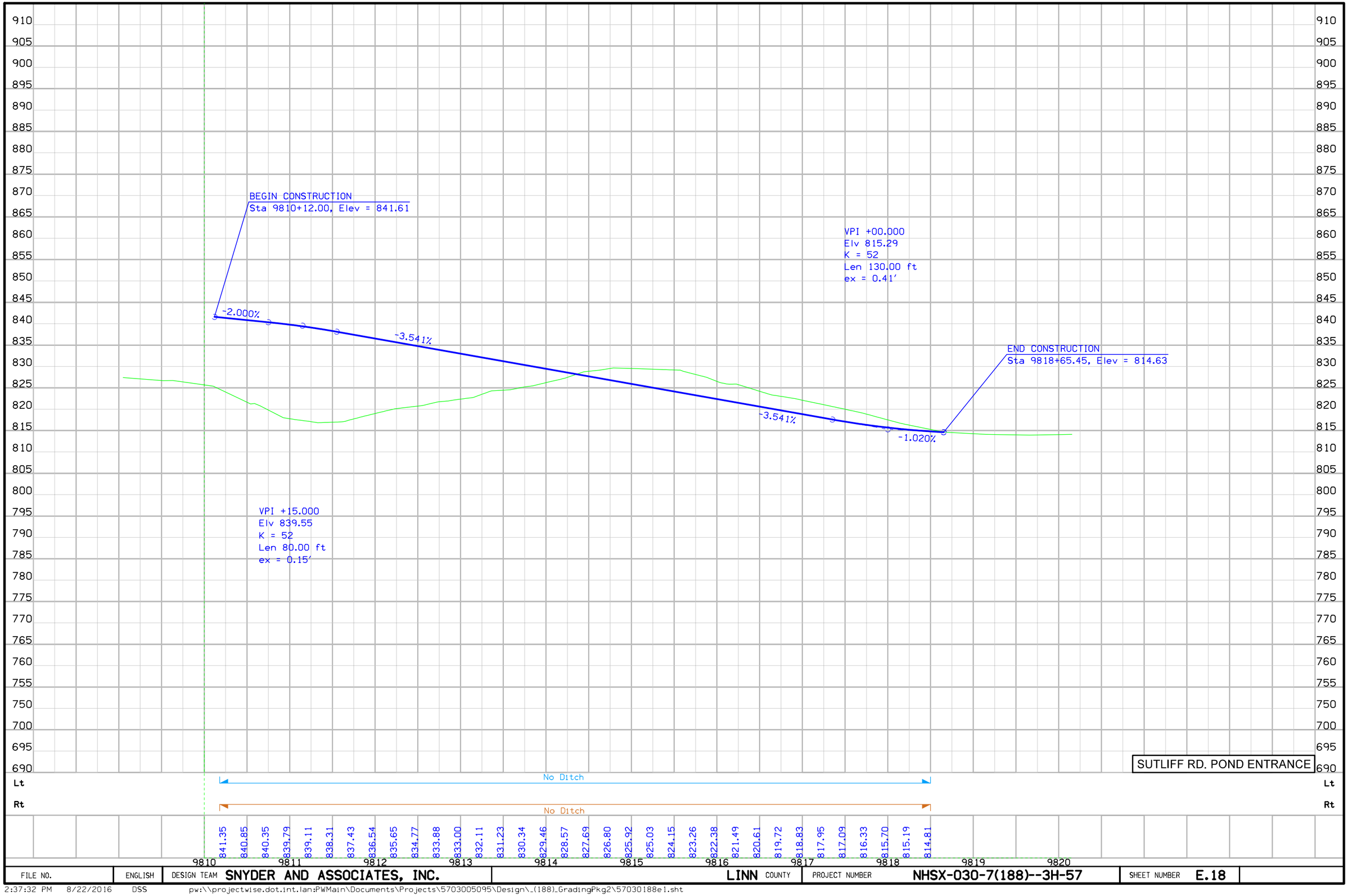

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER E.18

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Survey Information

General Information

Measurement units for this survey are US survey feet. This survey was performed for the design of the Mt. Vernon / Lisbon By-Pass project in Linn and Cedar County. Project horizontal and vertical datums were provided from the Design Survey Office based upon the 2001 Mt. Vernon/ Lisbon By-pass project. This survey is a Full Field Survey.

At the time of the survey, three alignments (A, E and F) for the new road were being considered. Survey was performed for all three alternate routes. Because of this, some of the stationing normally found in the sur file, pink sheets, etc. is incomplete and/or subject to change. It is expected that in December 2012 an alignment will be chosen and at that time, necessary station data will be updated accordingly.

Horizontal Control

The project coordinate system used was the same as that used on preliminary survey project on the Mt. Vernon-Lisbon bypass and U. S. 30 in Cedar and Clinton Counties. The survey coordinate system for this project is Modified Iowa State Plane South Zone in U.S Survey Feet units. State plane coordinates were modified to remove grid to ground distortion by scaling about point G083 by a factor of 1.000020987. The coordinates of G083 are N=694668.52 E=2319361.99. The datum is NAD83(1996-HARN).

Vertical Control

Vertical datum for this survey is relative to NAVD88. Geoid 09. US Survey feet.

The survey control is relative to IaRTN reference stations. Multiple Iowa RTN observations were completed on CP315. After review of these observations, the shots were averaged to establish the site BM elevation. A level run was then completed through project control points and benchmarks. The error was allowable and the error was distributed proportionately among the project monuments.

Vertical equations are as follows:

Datum Benchmark
BM #1 this survey Elevation = 888.678 NAVD 88
BM #25A Project #366(6) Elevation = 888.18
Found IHC plug on top of RCBC headwall.

Datum Benchmark
BM #2 this survey Elevation = 887.369 NAVD 88
BM #24C Project #366(6) Elevation = 885.24
Found IHC plug on top of northwest barrier wall of bridge over the South Raccoon River.

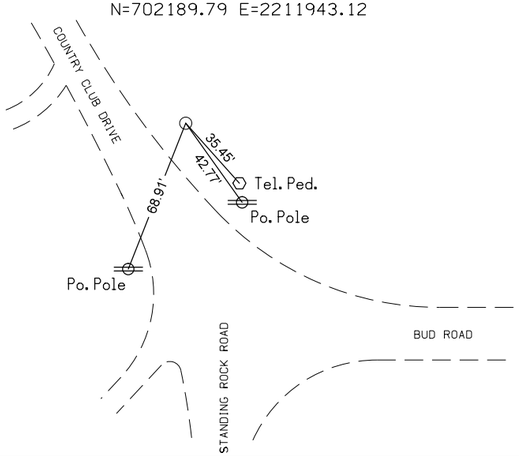
Alignment Information

At the time of the survey, three alignments (A, E and F) for the new road were being considered. Survey was performed for all three alternate routes. Because of this, some of the alignments and stationing normally found in the sur file, pink sheets, etc. is incomplete and/or subject to change. It is expected that in December 2012 an alignment will be chosen and at that time, necessary station data will be updated accordingly.

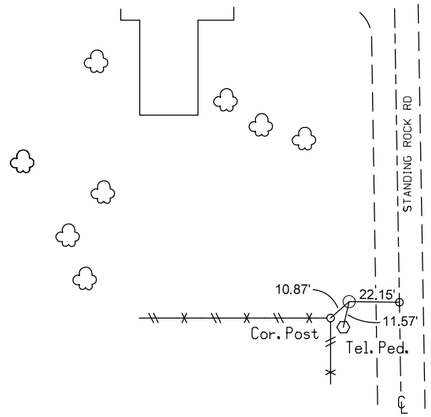
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
511	704994.014	2203125.720	790.740	671+41.08	-32.334	BM	CUT X IN RCP IN FRONT OF HOUSE 1201
512	704958.729	2201357.080	784.880	653+74.38	57.729	BM	SPIKE IN POWER POLE SOUTH SIDE HWY30 LAST POWER POLE GOING WEST
513	705161.943	2200003.552	809.020	640+15.21	-103.506	BM	SPIKE IN POWER POLE NW QUAD WILLOW CR & HWY30
514	703670.380	2204690.621	808.420	687+46.38	1242.010	BM	1/2IN REBAR IN FIELD ENTRANCE
515	705234.956	2197443.864	825.350	614+54.49	-97.104	BM	SPIKE IN POWER POLE NE QUAD IRISH LN & HWY30
516	705255.921	2196224.914	825.350	602+35.47	-80.257	BM	SPIKE IN POWER POLE NORTH SIDE HWY30 TOP OF HILL AT JOG IN FENCE
517	705264.545	2194813.478	791.610	588+27.25	-69.185	BM	SPIKE IN POWER POLENORTH SIDE HWY30 AT WILCOX
518	705264.369	2190329.278	750.280	543+43.75	-139.553	BM	CUT X NORTH END RCP NORTH DITCH AT CEDAR RIVER SIGN
519	705288.657	2192477.674	743.370	564+92.13	-129.140	BM	CUT X IN HEADWALL TWIN RCB NORTH DITCH
520	703893.060	2194790.446	763.310	587+83.21	1301.789	BM	CUT X IN RCP
521	704064.509	2200026.728	780.680	640+72.34	992.682	BM	SPIKE IN POWER POLE 3RD NORTH FROM BRIDGE ON WILCOX CR
522	704834.782	2205255.718	828.780	692+75.00	60.602	BM	CUT X IN LIGHT POLE BASE NW COR BP STATION
523	704347.675	2205631.837	830.017	696+66.08	535.781	BM	ARROW ON HYDRANT IN FRONT OF SLEEP INN
524	703744.837	2204777.467	825.049	688+30.87	1164.889	BM	SPIKE IN POWER POLE 2ND POWER POLE SOUTH OF CLINIC
525	702374.186	2203573.691	810.045	676+70.28	2572.301	BM	CUT X IN RCP 200FT SOUTH OF FARM ENTRANCE EAST SIDE
526	701705.292	2202992.241	803.374	671+09.91	3258.948	BM	CUT X IN RCP 700FT SOUTH OF FARM ENTRANCE EAST SIDE
527	700730.308	2202027.639	803.040	661+75.45	4263.378	BM	SPIKE IN POWER POLE 1ST POWER POLE NORTH OF LIGHT ON HWY1
528	700033.587	2202767.382	777.820	669+37.13	4936.836	BM	SPIKE IN POWER POLE COR SPRING CR & LIGHT
529	700117.649	2204060.010	764.690	682+26.52	4812.628	BM	SPIKE IN GATE POST NEXT TO CP309
530	700076.944	2205384.138	807.320	695+51.27	4812.148	BM	GIN SPIKE IN CP AT SEC COR SOUTH OF CP308
531	700130.260	2206693.162	817.850	705+27.35	4743.682	BM	BENCHTITE IN GATE POST 6FT EAST OF POWER POLE
532	699655.312	2207872.081	812.770	712+58.34	5321.690	BM	SPIKE IN POWER POLE1ST EAST OF DRIVE AT 509 POWER POLE WITH TRANSFORMER
533	699172.927	2208880.540	825.380	722+02.01	5920.985	BM	SPIKE IN POWER POLE SOUTH OF CP305 CREST OF HILL
534	698706.660	2210112.513	756.610	733+65.64	6531.004	BM	SPIKE IN POWER POLE 3RD ON SOUTH SIDE WEST OF MCCLELLAND
535	698629.360	2210473.248	738.530	737+14.50	6651.013	BM	NAIL WITH WASHER IN SW CORNER BRIDGE
536	698632.213	2211442.790	758.410	746+75.93	6764.482	BM	SPIKE IN GATE POST 5FT NORTH OF CP303
537	699705.746	2212037.921	787.480	753+95.74	5770.232	BM	SPIKE IN POWER POLE 5TH POWER POLE NORTH OF LIGHT ON STANDING ROCK
538	702125.394	2211917.938	778.040	755+67.35	3353.697	BM	SPIKE IN POWER POLE EAST SIDE ROAD 1ST POWER POLE SOUTH OF 626 DRIVE
539	702125.570	2211917.810	786.360	755+67.25	3353.507	BM	SPIKE IN POWER POLE WEST SIDE ROAD AT INTAKE
700	704830.812	2206375.936	831.859	703+93.23	35.952	BM	TOP CULVERT 200FT EAST OF CAR WASH S SIDE HWY30
701	704932.486	2207808.425	838.131	718+24.95	74.637	BM	ARROW ON HYDRANT EAST SIDE HWY30 & HILL VIEW DR
702	705005.571	2208400.530	826.719	724+21.55	72.741	BM	SPIKE IN POWER POLE NEAR CP331
703	705090.902	2209028.005	796.530	730+54.72	62.908	BM	TOP CULVERT WEST SIDE OF COUNTRY CLUB DR
704	705196.278	2209854.359	828.282	738+87.71	57.271	BM	SPIKE IN POWER POLE 125FT EAST OF CP333
705	705506.336	2212500.394	851.469	765+51.82	67.232	BM	ARROW ON HYDRANT EAST OF CP335
706	705659.240	2213966.378	838.885	780+29.41	27.035	BM	TOP CULVERT EAST OF GRAVEL DRIVE NORTH SOUTH HOUSE #596
707	705667.466	2214512.661	846.342	785+75.42	46.064	BM	ARROW ON HYDRANT WEST SIDE DRIVEWAY TO NOLZ CHIROPRACTIC
708	705803.483	2215009.528	861.286	790+78.46	-65.003	BM	X BOLT ON HYDRANT IN FRONT OF LISBON SCHOOL NORTH SIDE HWY30
709	705794.765	2215360.108	858.227	794+28.16	-38.812	BM	CHISELED CROSS TOP CULVERT NORTH SIDE HWY30 EAST OF G R DR
710	705823.697	2215898.341	867.921	799+67.14	-40.890	BM	X BOLT HYDRANT AT NE QUAD HWY30 & WASHINGTON
711	705869.659	2216264.085	870.870	803+34.70	-68.840	BM	X BOLT HYDRANT AT NW QUAD HWY30 & S JACKSON
712	705843.563	2216567.152	867.797	806+36.12	-27.896	BM	CHISELED CROSS TOP INTAKE N SIDE HWY30 2ND INTAKE EAST OF S JACKSON
713	705883.822	2216782.843	867.260	808+53.53	-57.517	BM	X BOLT N SIDE HWY30 FIRST HYDRANT EAST OF S JACKSON
714	705782.668	2216888.606	865.539	809+54.20	48.708	BM	FLANGE BOLT WITH FLAG ON HYDRANT NW CORNER DOLLAR GENERAL
715	705912.310	2217307.237	866.592	813+78.69	-60.225	BM	SPIKE IN POLE 300FT EAST OF DOLLAR GENERAL N SIDE HWY30
716	705813.545	2217687.733	863.358	817+53.87	57.102	BM	ARROW ON HYDRANT IN FRONT OF HOUSE#766 S SIDE HWY30
717	705841.567	2217921.457	864.401	819+88.69	40.589	BM	CHISELED CROSS TOP CULVERT S SIDE HWY30 NW CORNER CHURCH PROPERTY
718	705838.228	2218086.173	867.013	821+53.05	52.010	BM	ARROW ON HYDRANT S SIDE HWY30 MIDDLE CHURCH PROPERTY
719	705861.757	2218486.982	868.199	825+54.53	48.188	BM	ARROW ON HYDRANT NE CORNER CHURCH PROPERTY S SIDE HWY30
720	706121.786	2220960.091	891.994	850+37.42	-90.107	BM	RAILROAD RAIL(VERTICAL) 100FT WEST OF E MAIN ST & HWY 30 N SIDE
721	706067.764	2222323.946	927.523	863+96.68	40.821	BM	CHISELED CROSS TOP CULVERT SW QUAD OF HWY30 & ADAMS AVE
722	706099.862	2223101.874	933.921	871+75.17	53.377	BM	CHISELED CROSS NE CORNER OF CONC PAD FOR SOLAR PANEL
723	706139.105	2224603.149	930.296	886+81.49	59.624	BM	REF PT 300FT EAST OF CP344 S SIDE HWY30
724	706128.887	2225625.376	904.637	897+03.77	60.393	BM	SPIKE IN POLE NEAR CP345
725	706132.867	2226752.297	891.190	908+29.03	59.908	BM	SPIKE IN POWER POLE FIRST POWER POLE WEST OF CP346
726	706177.017	2228907.444	882.584	929+84.63	59.916	BM	RAILROAD RAIL(VERTICAL) ROW MARKER POST 150FT EAST OF MILE POST 270
727	706228.161	2230104.937	882.837	941+83.05	28.092	BM	CHISELED CROSS ON FIRST 30IN RCP EAST OF CP348
728	706221.341	2232839.978	868.623	969+18.42	59.935	BM	RAILROAD RAIL(VERTICAL) ROW MARKER POST AT T IN FENCE 300FT W OF CP351
729	705743.013	2222409.944	929.861	864+63.92	369.968	BM	CUT CROSS TOP INTAKE AT MEADOWVIEW & ADAMS N SIDE
730	705199.113	2222354.532	929.389	863+77.42	909.797	BM	SPIKE IN POWER POLE NW QUAD ADAMS & 122ND ST
731	703604.532	2222494.540	880.119	864+25.77	2509.782	BM	PK NAIL IN SOUTH BOUND LANE AT 230 ADAMS AVE
732	701946.436	2222435.102	842.383	862+71.37	4161.743	BM	SPIKE IN POWER POLE 261 ADAMS AVE
733	701488.991	2222556.499	834.080	863+66.34	4625.395	BM	SPIKE IN POWER POLE SE QUAD VALLEY FORGE & ADAMS AVE
734	701059.776	2222560.882	838.025	863+46.11	5054.156	BM	SPIKE IN POWER POLE NE QUAD VALLEY FORGE & 130TH ST
735	699817.227	2222544.406	844.805	862+58.42	6293.716	BM	SPIKE IN POWER POLE SW QUAD EVERETT CT & ADAMS AVE
736	698094.914	2222694.113	879.481	863+09.13	8021.779	BM	CUT CROSS IN 135TH ST NORTHSIDE 25FT FROM END OF CONCRETE
737	697037.897	2222650.630	833.310	862+05.12	9074.564	BM	SPIKE IN POWER POLE AT ADAMS CT & ADAMS AVE
738	696838.955	2222161.024	840.445	856+98.97	9244.876	BM	SPIKE IN POWER POLE AT 10 138TH STREET
739	697149.529	2221261.468	845.611	848+97.93	8886.126	BM	SPIKE IN POWER POLE 50FT WEST OF CP359 ON S SIDE ROAD
740	697351.015	2220052.824	809.293	837+00.64	8625.543	BM	SPIKE IN POWER POLE NE QUAD GREEN RIDGE RD & LIGHT ROAD
741	697375.254	2218560.733	810.432	822+11.53	8528.078	BM	SPIKE IN POWER POLE 75FT WEST OF CP361 ON N SIDE
742	697461.021	2217271.746	805.920	809+28.31	8379.130	BM	SPIKE IN POWER POLE AT 150 LIGHT ROAD WEST SIDE OF DRIVE
743	697916.404	2216179.604	765.824	798+53.72	7870.616	BM	SPIKE IN POWER POLE SE QUAD SUTLIFF RD & LIGHT RD
744	699202.523	2216079.415	782.454	798+17.80	6581.101	BM	SPIKE IN POWER POLE 50FT EAST OF CP364
745	700536.903	2215733.524	817.798	795+38.89	5231.131	BM	X ON LIGHT POLE BASE 597 SUTLIFF RD
746	701400.439	2215339.455	853.655	791+88.38	4349.016	BM	SURVEY MARKER NAIL 2FT FROM EOP AT END OF NORTHBOUND GUARDRAIL
747	702244.236	2215281.710	886.570	791+72.79	3503.389	BM	SPIKE IN POWER POLE 200FT SOUTH OF BUD RD & SUTLIFF RD
748	702344.228	2214510.452	876.427	784+07.48	3365.056	BM	SPIKE IN POWER POLE AT 257 BUD RD S SIDE
749	702287.292	2213855.497	836.692	777+50.50	3389.257	BM	SPIKE IN POWER POLE 30FT WEST OF CP367 N SIDE
750	698723.077	2220028.248	843.702	837+43.45	7253.929	BM	SPIKE IN POWER POLE 1ST POLE SOUTH OF 533 GREENRIDGE RD DRIVEWAY
751	699478.071	2220032.164	852.122	837+84.43	6500.038	BM	SPIKE IN POWER POLE 555 GREENRIDGE RD
752	699962.208	2219647.946	821.602	834+24.45	5997.621	BM	SPIKE IN POWER POLE 100FT SE OF 577 GREENRIDGE RD DRIVE
753	700660.066	2219096.602	786.992	829+08.03	5273.536	BM	SPIKE IN POWER POLE 200FT SE OF 606 GREENRIDGE RD DRIVE
754	701227.130	2219182.781	822.371	830+21.94	4711.387	BM	SPIKE IN 20IN WHITE PINE E SIDE 500FT NORTH OF 606 GREENRIDGE RD DRIVE
755	701761.211	2218900.800	860.049	827+66.52	4164.106	BM	SPIKE IN 24IN OAK ON E SIDE NEXT TO CABLE BOX
756	702251.034	2218285.112	893.972	821+75.63	3644.646	BM	SPIKE IN POWER POLE 125FT NORTH OF 657 GREENRIDGE RD DRIVE
757	702499.341	2218168.121	893.591	820+70.97	3390.894	BM	SPIKE IN POWER POLE 665 GREENRIDGE RD
758	703670.082	2217619.041	882.512	815+80.03	2194.607	BM	SPIKE IN POWER POLE W SIDE ROAD 200FT SOUTH OF 721 GREENRIDGE RD
759	704238.827	2217253.406	869.062	812+42.76	1608.597	BM	SPIKE IN POWER POLE ACROSS FROM 203 CEMETARY RD
760	704431.584	2216620.953	870.358	806+20.53	1385.022	BM	ARROW ON HYDRANT AT REGAL RIDGE CT & CEMETARY
761	704559.093	2216260.746	868.393	802+67.02	1239.981	BM	ARROW ON HYDRANT S JACKSON & CEMETARY RD
762	704751.703	2215914.219	869.119	799+29.57	1030.587	BM	X BOLT ON HYDRANT S WASHINGTON & CEMETARY
763	703848.777	2215812.825	892.152	797+83.27	1927.333	BM	SPIKE IN POWER POLE W SIDE OF WASHINGTON RD ACROSS FROM #716
764	703124.159	2215640.545	907.336	795+75.06	2642.457	BM	FLANGE BOLT WITH FLAG ON HYDRANT AT HILL RIDGE & S WASHINGTON
765	702629.624	2215329.448	893.288	792+39.69	3120.861	BM	X BOLT ON HYDRANT AT 908 SUTLIFF RD

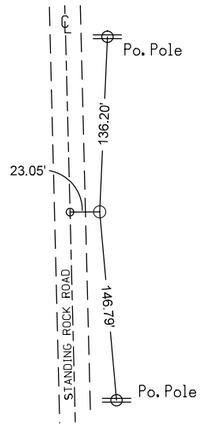
STA. 756+00.09, 3292.79′ Rt.
CP No. 300, SET 1/2″ REBAR
N=702189.79 E=2211943.12



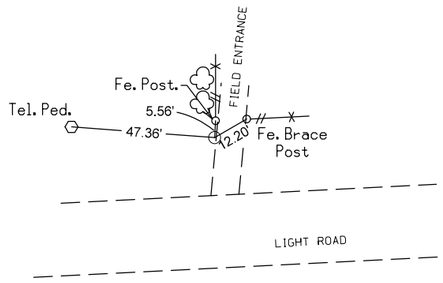
STA. 754+52.64, 4603.88′ Rt.
CP No. 301, SET 1/2″ REBAR
N=700870.49 E=2211954.27



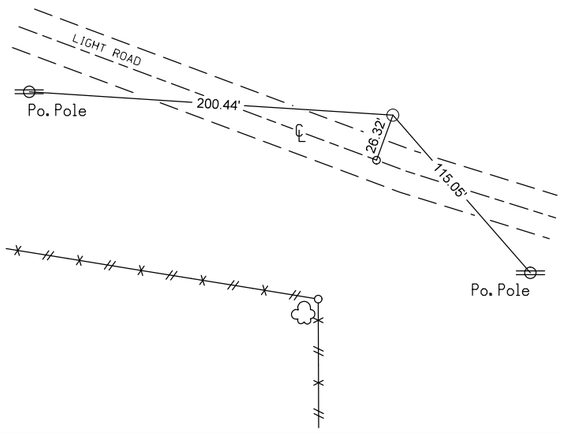
STA. 753+73.66, 5905.26′ Rt.
CP No. 302, SET 1/2″ REBAR
N=699569.04 E=2212032.22



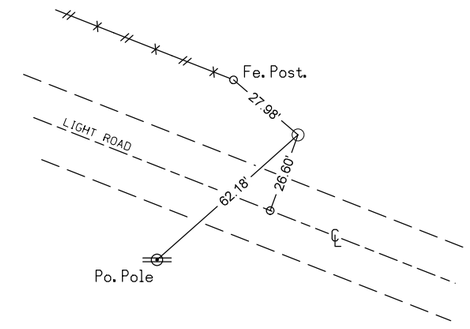
STA. 746+75.12, 6769.32′ Rt.
CP No. 303, SET 1/2″ REBAR
N=698627.31 E=2211442.57



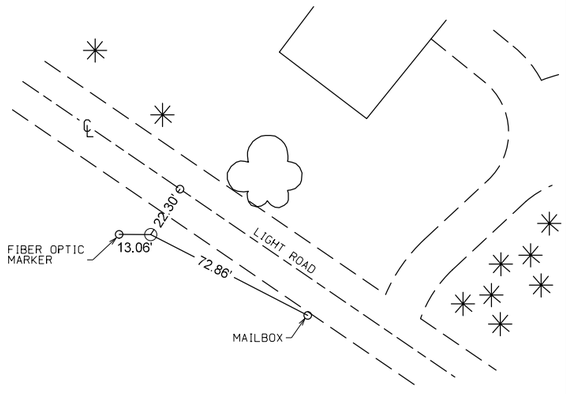
STA. 733+00.62, 6435.93′ Rt.
CP No. 304, SET 1/2″ REBAR
N=698793.25 E=2210036.56



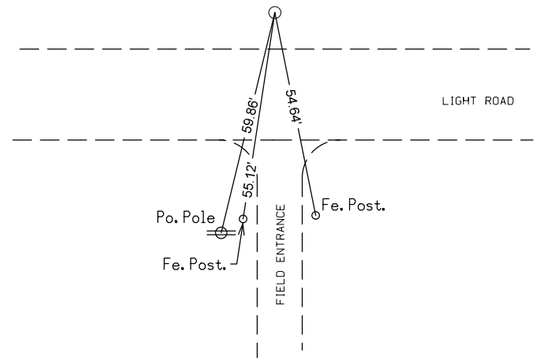
STA. 722+53.25, 5885.86′ Rt.
CP No. 305, SET 1/2″ REBAR
N=699213.92 E=2208927.22



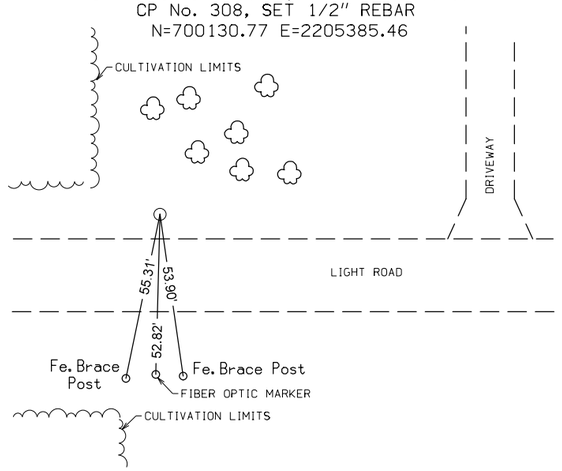
STA. 711+50.76, 5222.36′ Rt.
CP No. 306, SET 1/2″ REBAR
N=699741.09 E=2207753.43



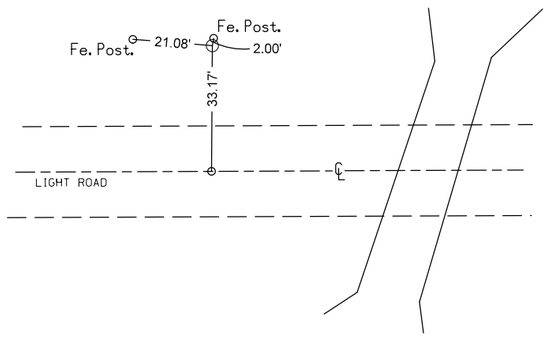
STA. 705+33.17, 4690.33′ Rt.
CP No. 307, SET 1/2″ REBAR
N=700183.99 E=2206701.66



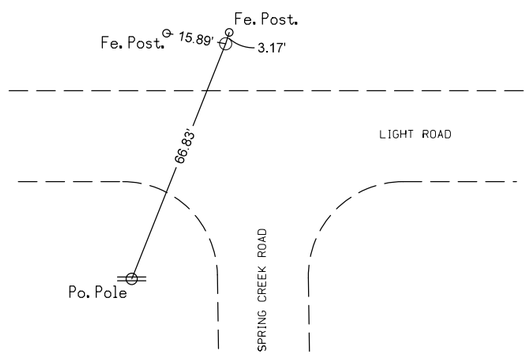
STA. 695+50.92, 4758.31′ Rt.
CP No. 308, SET 1/2″ REBAR
N=700130.77 E=2205385.46



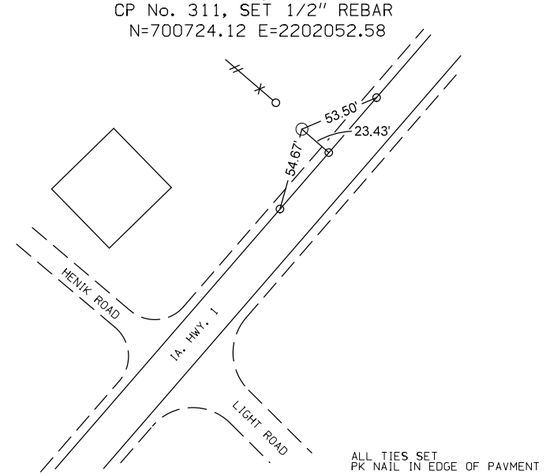
STA. 682+26.46, 4814.23′ Rt.
CP No. 309, SET 1/2″ REBAR
N=700116.05 E=2204059.90



STA. 669+60.50, 4874.00′ Rt.
CP No. 310, SET 1/2″ REBAR
N=700095.67 E=2202792.69



STA. 662+00.57, 4268.80′ Rt.
CP No. 311, SET 1/2″ REBAR
N=700724.12 E=2202052.58

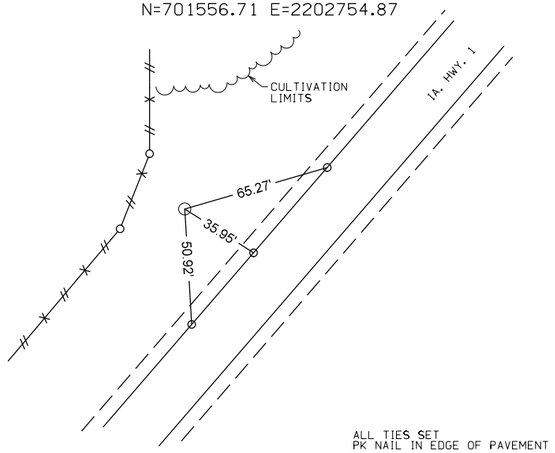


ALL TIES SET
PK NAIL IN EDGE OF PAVMENT

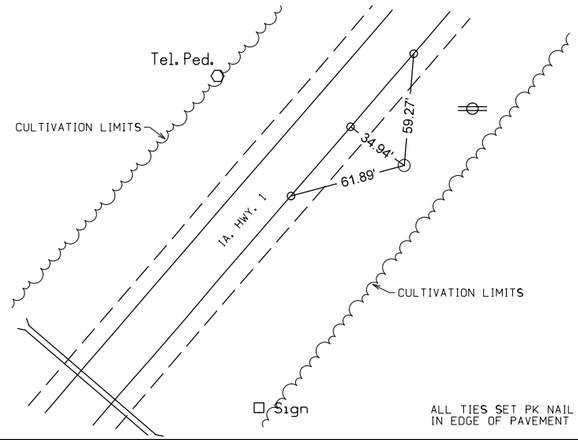
FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER G.3

2:58:19 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188g1.sht

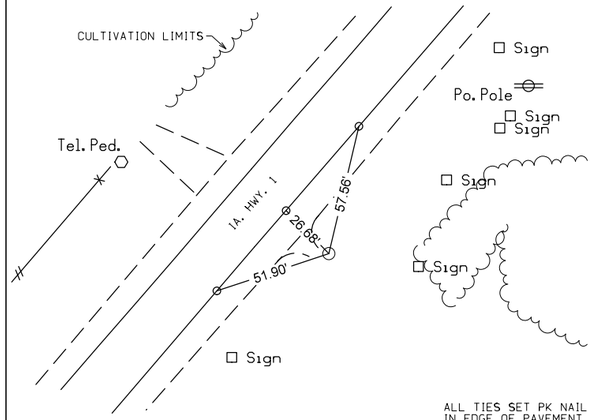
STA. 668+77.27, 3414.84′ Rt.
CP No. 312, SET 1/2″ REBAR
N=701556.71 E=2202754.87



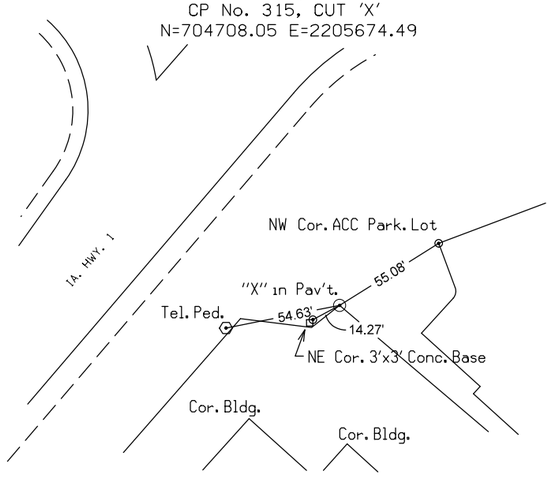
STA. 677+98.53, 2425.61′ Rt.
CP No. 313, SET 1/2″ REBAR IN EAST DITCH
N=702516.82 E=2203706.44



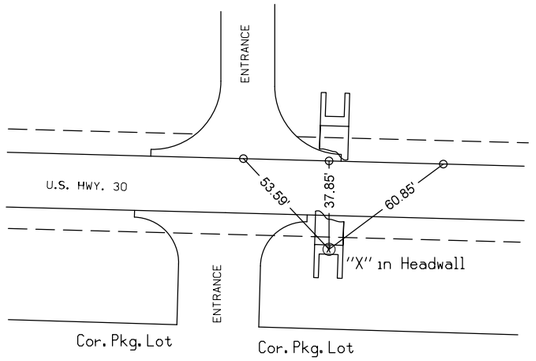
STA. 687+46.38, 1242.01′ Rt.
CP No. 314, SET 1/2″ REBAR IN FIELD ENTRANCE
N=703670.38 E=2204690.62



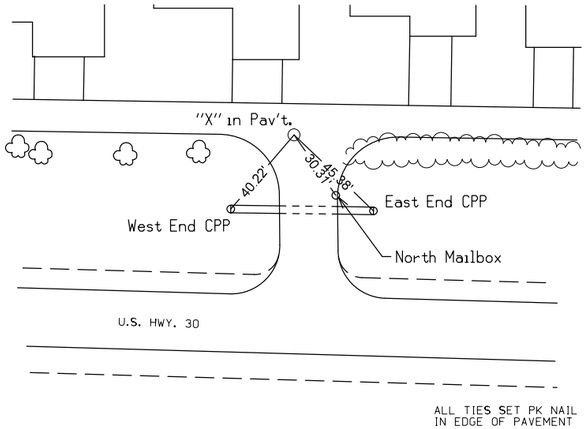
STA. 696+97.51, 174.26′ Rt.
CP No. 315, CUT 'X'
N=704708.05 E=2205674.49



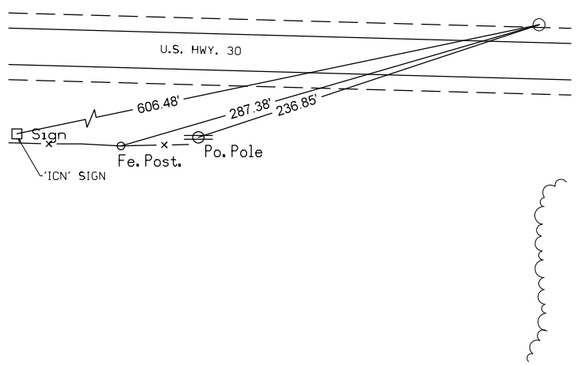
STA. 683+28.41, 26.37′ Rt.
CP No. 316, CUT 'X' IN SOUTH RCBC HEADWALL
N=704898.42 E=2204310.65



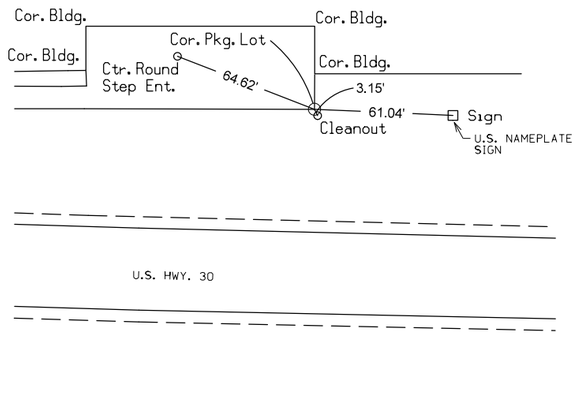
STA. 669+28.22, 78.36′ Lt.
CP No. 317, CUT 'X' IN DRIVEWAY
N=705046.64 E=2202914.39



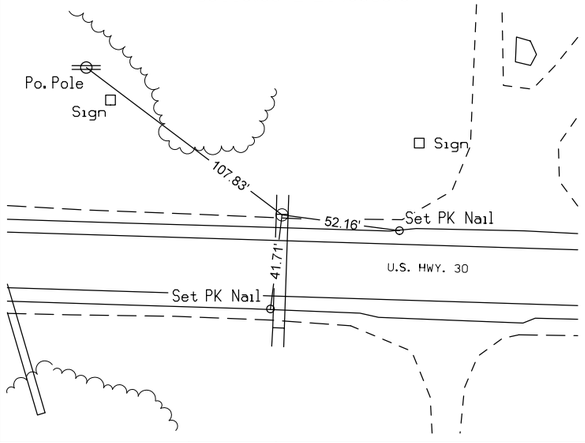
STA. 655+96.56, 23.88′ Lt.
CP No. 318, SET 1/2″ REBAR
N=705033.42 E=2201581.67



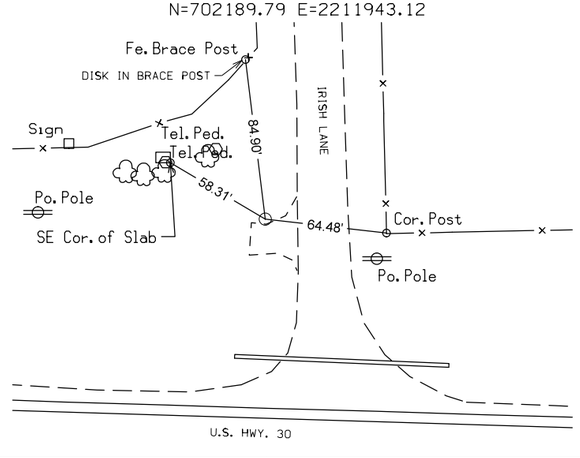
STA. 643+02.25, 72.00′ Lt.
CP No. 319, SET PK NAIL IN CORNER OF ACC LOT
N=705121.56 E=2200289.47



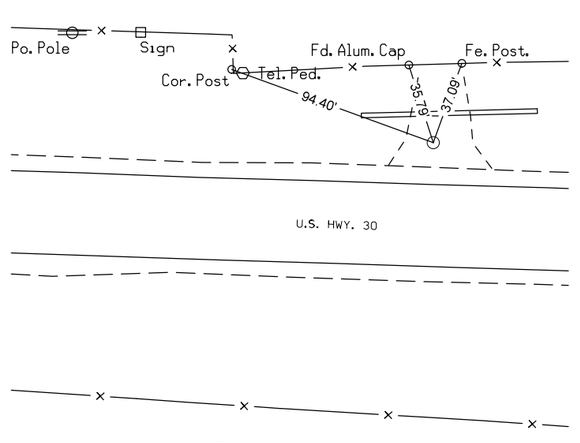
STA. 628+20.42, 23.12′ Lt.
CP No. 320, FOUND MONUMENT IN RCBC HEADWALL
N=705118.65 E=2198806.84



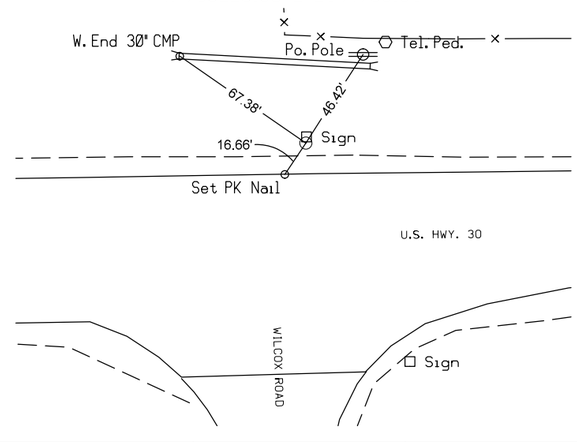
STA. 613+94.00, 117.23′ Lt.
CP No. 321, SET 1/2″ REBAR
N=702189.79 E=2211943.12



STA. 601+09.28, 36.05′ Lt.
CP No. 322, SET 1/2″ REBAR
N=705215.65 E=2196097.41



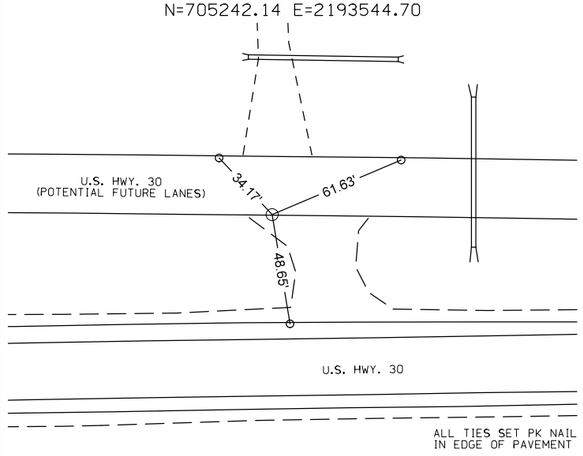
STA. 588+02.04, 30.82′ Lt.
CP No. 323, SET 1/2″ REBAR
N=705225.80 E=2194788.81



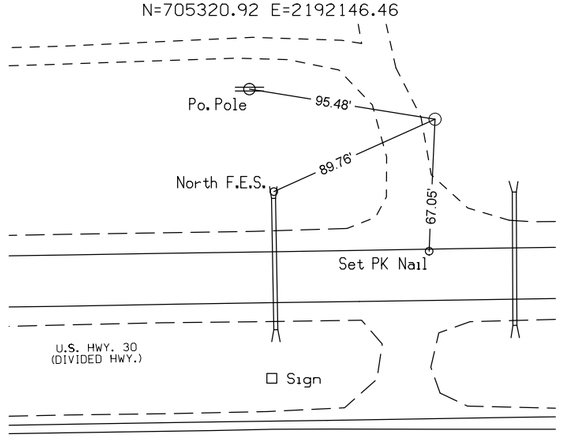
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER G.4

2:58:20 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188g1.sht

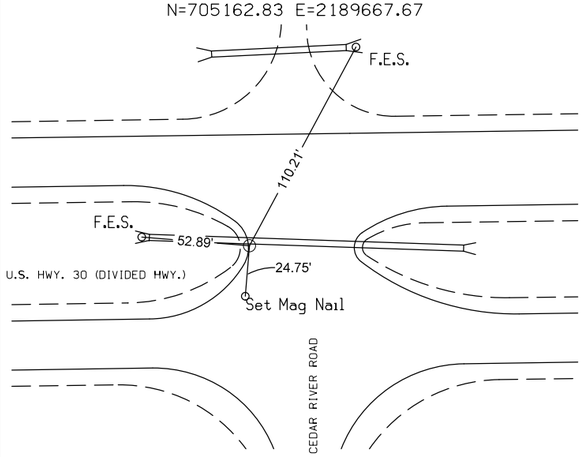
STA. 575+58.32, 66.26' Lt.
CP No. 324, SET CUT 'X' IN CONCRETE
N=705242.14 E=2193544.70



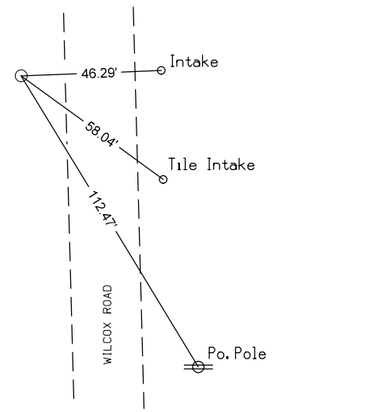
STA. 561+61.45, 166.48' Lt.
CP No. 325, SET 1/2" REBAR
N=705320.92 E=2192146.46



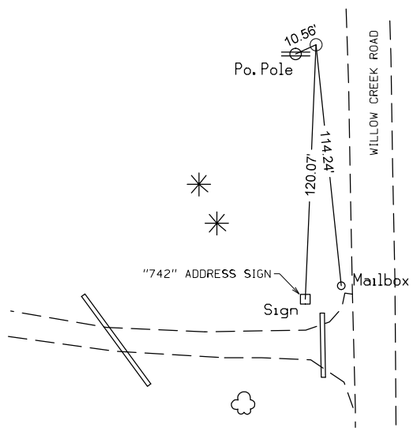
STA. XXX+XX.XX, 1987.40' Lt.
CP No. 326, SET CUT 'X' IN PCC AT CEDAR RIVER ROAD
N=705162.83 E=2189667.67



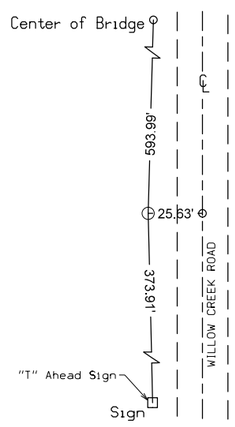
STA. 587+83.21, 1301.79' Rt.
CP No. 327, CUT 'X' IN RCP
N=703893.06 E=2194790.45



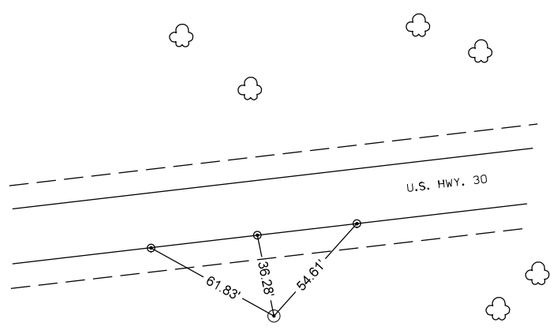
STA. 640+95.89, 1288.56' Rt.
CP No. 328, SET 1/2" REBAR
N=703768.04 E=2200041.11



STA. 641+59.09, 2639.28' Rt.
CP No. 329, SET 1/2" REBAR IN WEST DITCH
N=702416.02 E=2200062.49

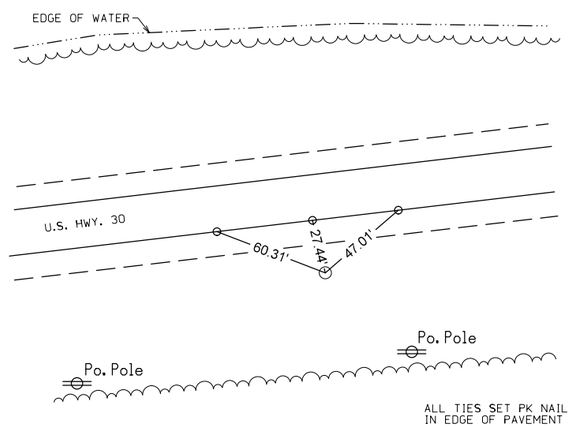


STA. 711+22.75, 47.83' Rt.
CP No. 330, SET 1/2" REBAR
N=704875.30 E=2207108.04



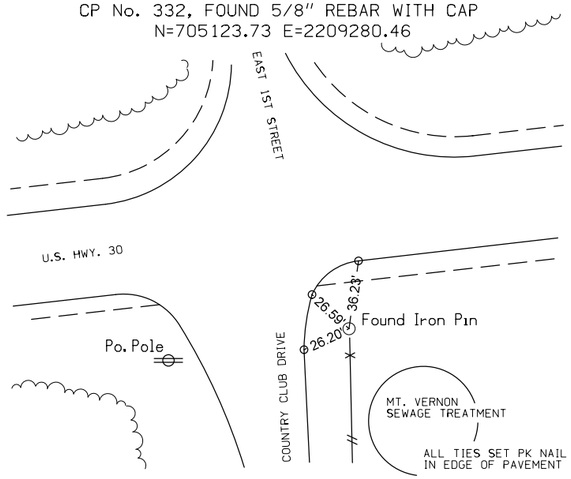
ALL TIES SET PK NAIL
IN EDGE OF PAVEMENT

STA. 724+60.72, 39.00' Rt.
CP No. 331, SET 1/2" REBAR
N=705043.74 E=2208435.39



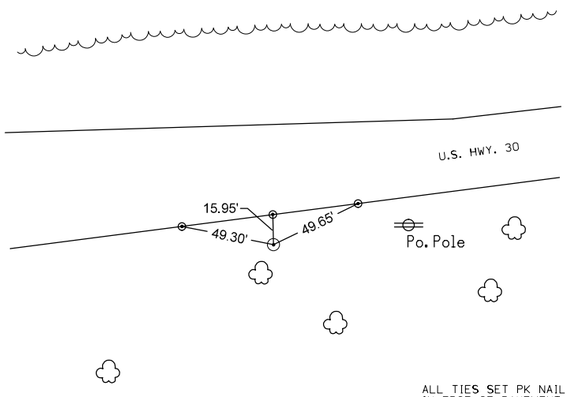
ALL TIES SET PK NAIL
IN EDGE OF PAVEMENT

STA. 733+09.25, 60.47' Rt.
CP No. 332, FOUND 5/8" REBAR WITH CAP
N=705123.73 E=2209280.46



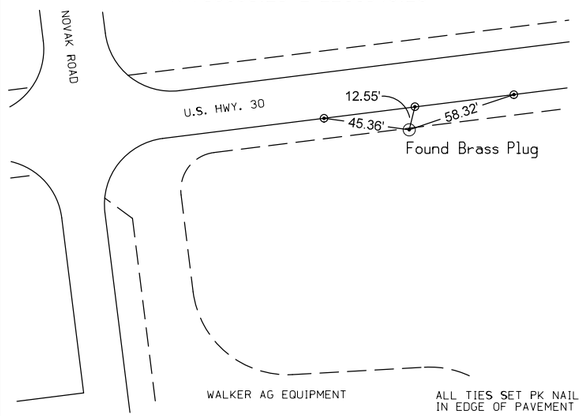
ALL TIES SET PK NAIL
IN EDGE OF PAVEMENT

STA. 737+57.74, 31.44' Rt.
CP No. 333, SET 1/2" REBAR
N=705206.34 E=2209722.23



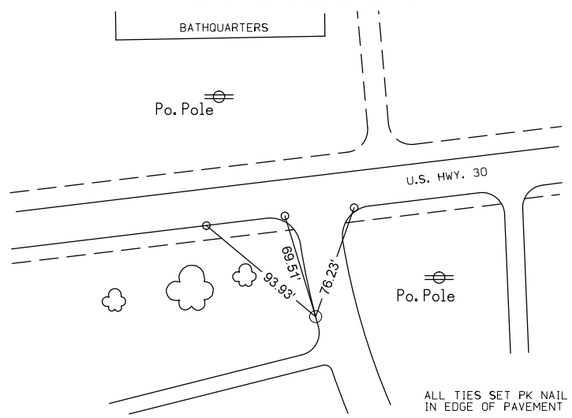
ALL TIES SET PK NAIL
IN EDGE OF PAVEMENT

STA. 751+39.69, 23.38' Rt.
CP No. 334, FOUND BRASS PLUG ON TOP
OF CULVERT AT WALKER AG EQUIPMENT
N=705380.20 E=2211093.23



ALL TIES SET PK NAIL
IN EDGE OF PAVEMENT

STA. 764+81.07, 80.67' Rt.
CP No. 335, SET PK NAIL IN ASPHALT DRIVE
ACROSS FROM BATHQUARTERS BUILDING
N=705484.50 E=2212431.78

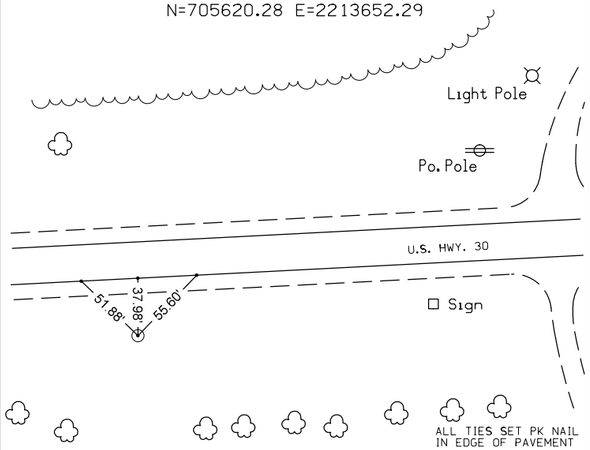


ALL TIES SET PK NAIL
IN EDGE OF PAVEMENT

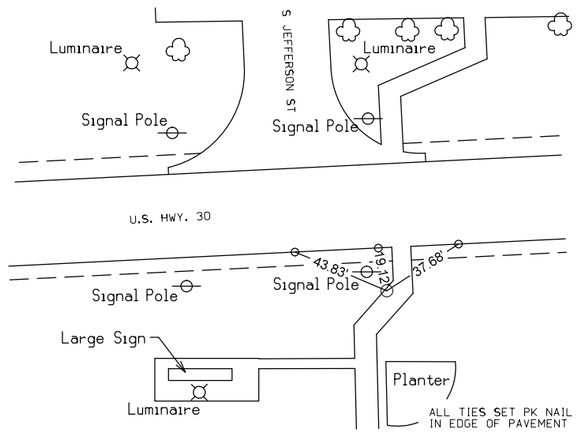
FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER G.5

2:58:21 PM 8/22/2016 DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188g1.sht

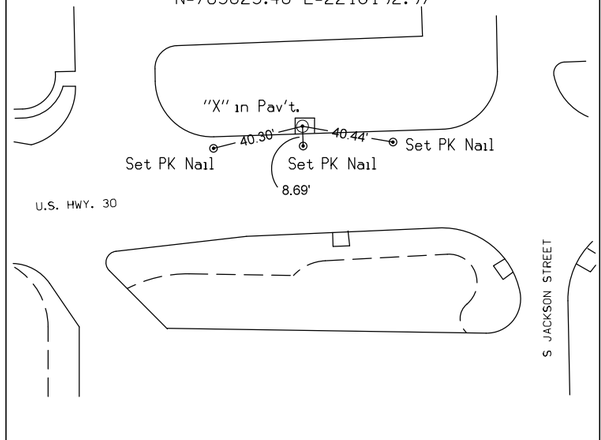
STA. 777+13.76, 50.28′ Rt.
CP No. 336, SET 1/2″ REBAR
N=705620.28 E=2213652.29



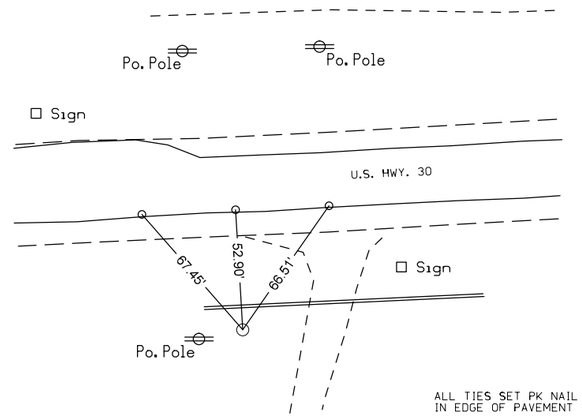
STA. 789+69.53, 37.98′ Rt.
CP No. 337, SET CUT 'X' IN SIDEWALK
N=705695.19 E=2214905.87



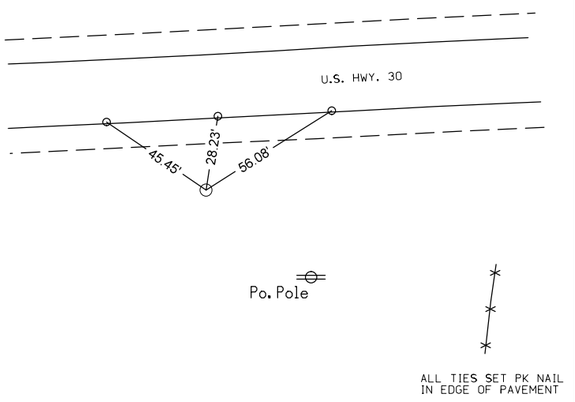
STA. 802+61.50, 28.21′ Lt.
CP No. 338, SET CUT 'X' ON INTAKE
N=705825.48 E=2216192.97



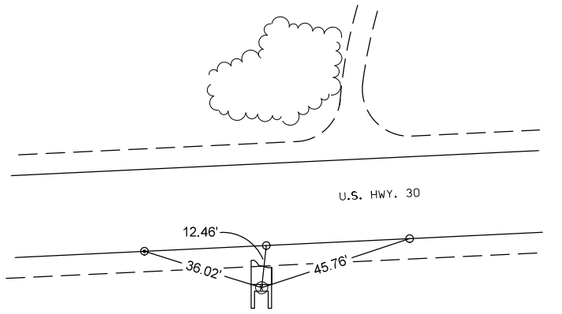
STA. 816+23.29, 62.10′ Rt.
CP No. 339, SET 1/2″ REBAR
N=705802.15 E=2217557.55



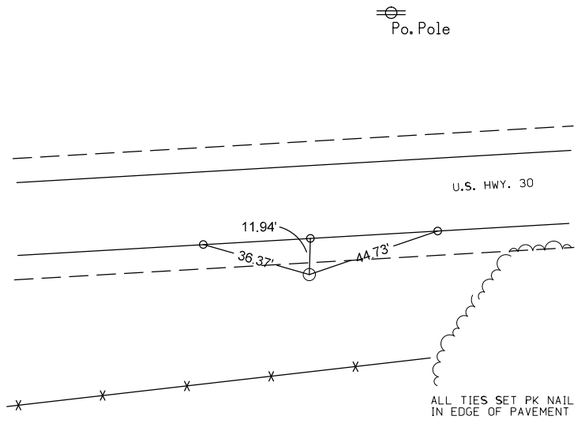
STA. 829+90.92, 35.60′ Rt.
CP No. 340, SET 1/2″ REBAR
N=705895.75 E=2218922.23



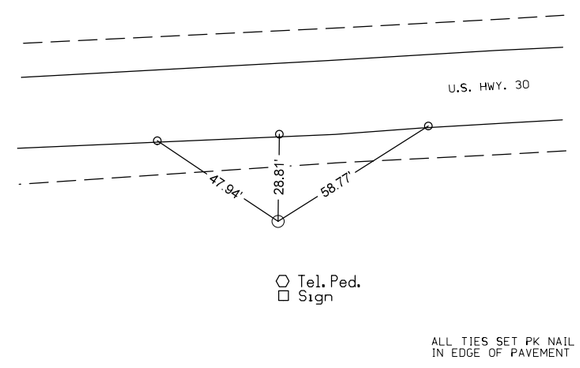
STA. 843+28.34, 18.96′ Rt.
CP No. 341, FOUND IUC BRASS PLUG ON HEADWALL
N=705978.04 E=2220257.22



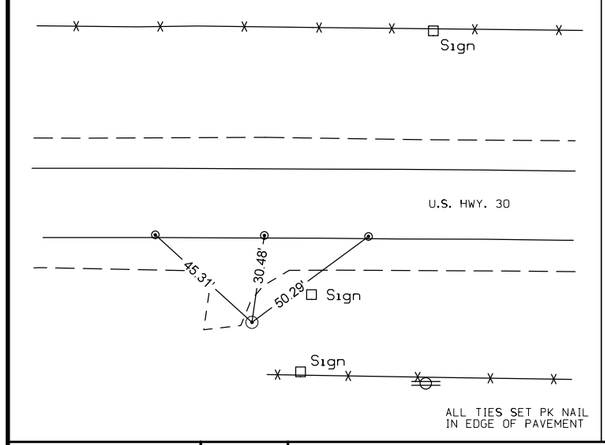
STA. 856+54.27, 22.66′ Rt.
CP No. 342, SET 1/2″ REBAR
N=706043.07 E=2221581.74



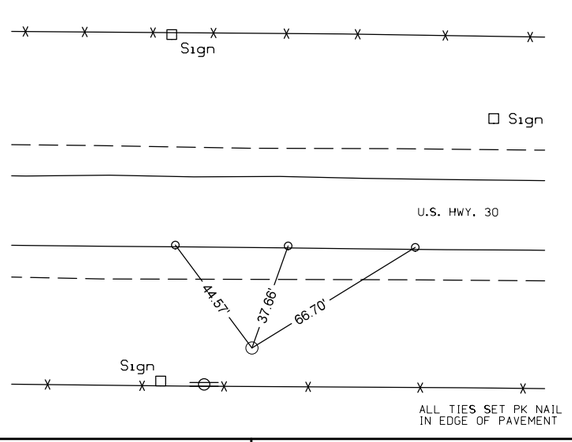
STA. 871+64.43, 39.77′ Rt.
CP No. 343, SET 1/2″ REBAR
N=706112.83 E=2223090.37



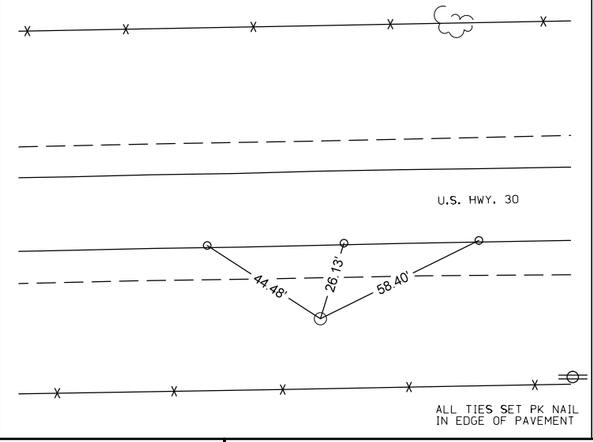
STA. 884+11.65, 41.74′ Rt.
CP No. 344, SET 1/2″ REBAR
N=706159.48 E=2224333.49



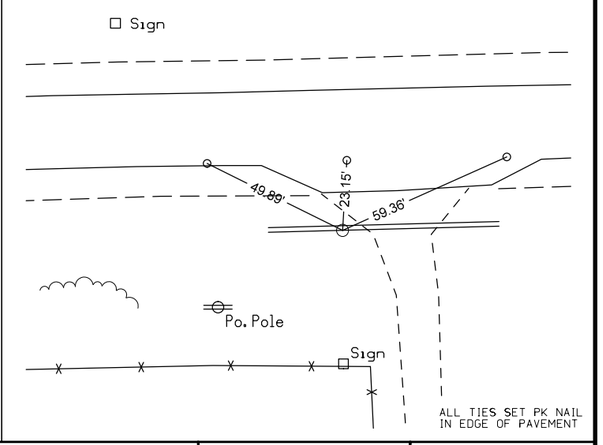
STA. 897+20.52, 46.95′ Rt.
CP No. 345, SET 1/2″ REBAR
N=706142.17 E=2225642.25



STA. 910+26.57, 36.86′ Rt.
CP No. 346, SET 1/2″ REBAR
N=706159.97 E=2226949.32

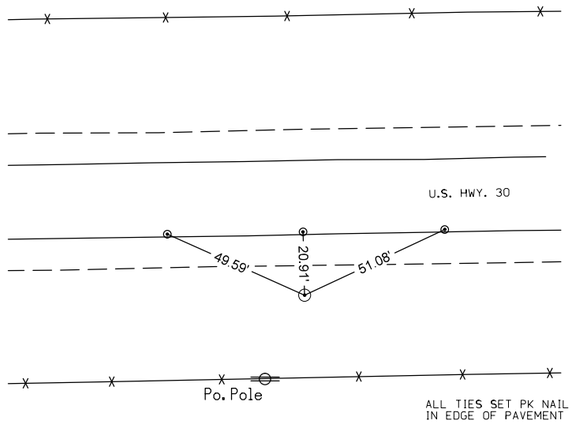


STA. 923+03.18, 34.76′ Rt.
CP No. 347, SET 1/2″ REBAR
N=706188.22 E=2228225.62

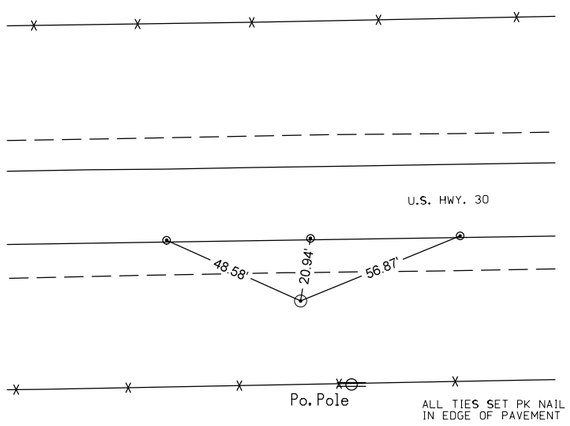


FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER G.6

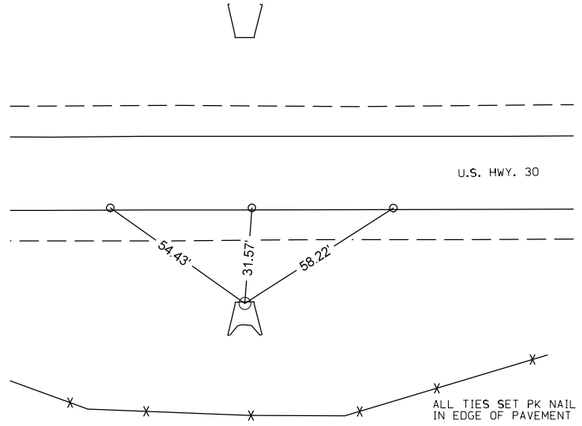
STA. 936+05.22, 32.08' Rt.
CP No. 348, SET 1/2" REBAR
N=706214.86 E=2229527.24



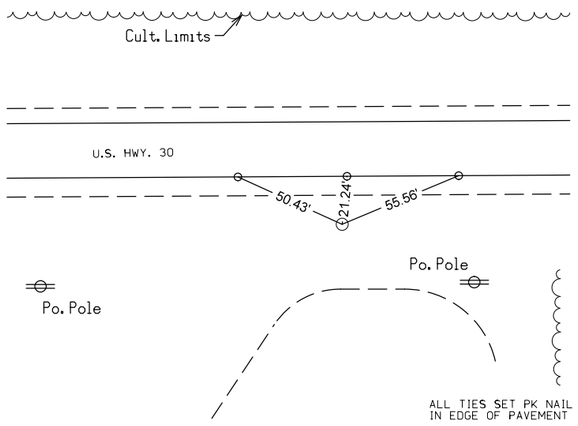
STA. 949+10.61, 32.23' Rt.
CP No. 349, SET 1/2" REBAR
N=706235.76 E=2230832.46



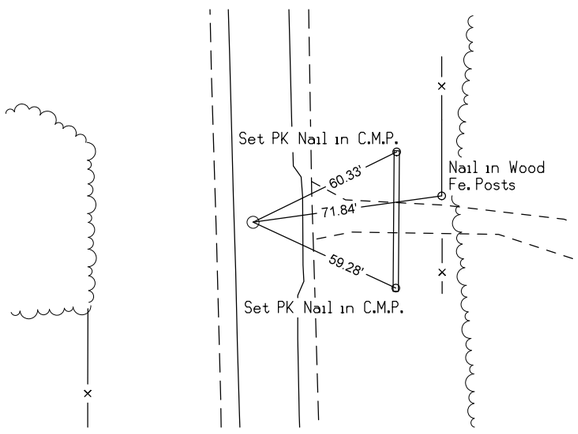
STA. 959+53.67, 43.19' Rt.
CP No. 350, SET 1/2" REBAR
N=706236.68 E=2231874.98



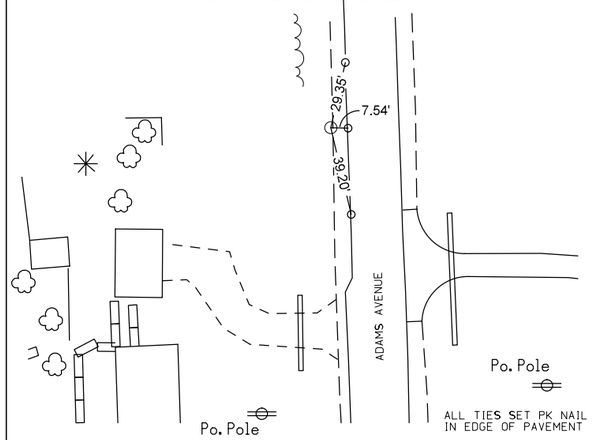
STA. 972+33.08, 32.80' Rt.
CP No. 351, SET 1/2" REBAR
N=706250.14 E=2233154.49



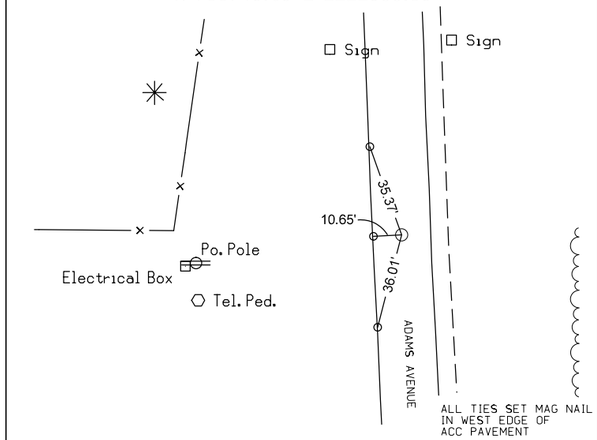
STA. 863+92.43, 1360.16' Rt.
CP No. 352, SET PK NAIL IN ACC (ADAMS AVENUE)
N=704750.35 E=2222395.34



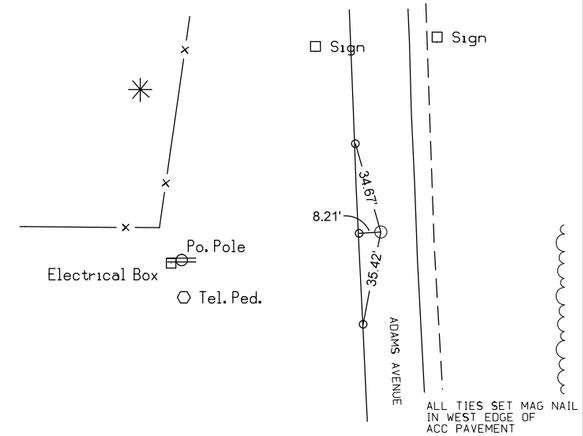
STA. 863+08.93, 4037.63' Rt.
CP No. 353, SET 1/2" REBAR
N=702072.50 E=2222465.49



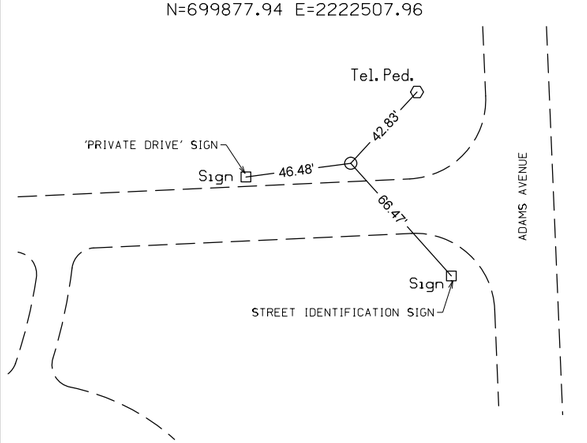
STA. 863+00.35, 5365.64' Rt.
CP No. 354, SET PK NAIL IN C.L. OF ADAMS AVENUE
N=700746.18 E=2222533.06



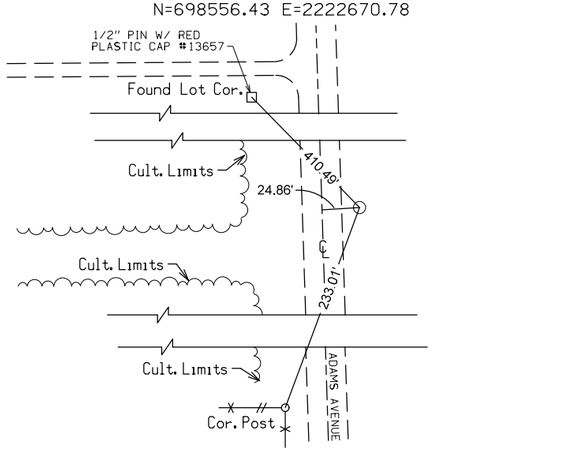
STA. 862+97.90, 5365.55' Rt.
CP No. 355, SET PK NAIL ±2' WEST OF C.L. OF ADAMS AVE.
N=700746.13 E=2222530.61



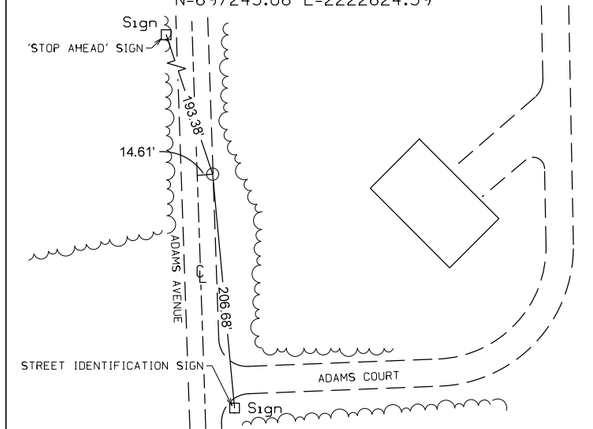
STA. 862+25.51, 6231.02' Rt.
CP No. 356, SET CUT 'X' IN NE CORNER OF MAILBOX BASE
N=699877.94 E=2222507.96



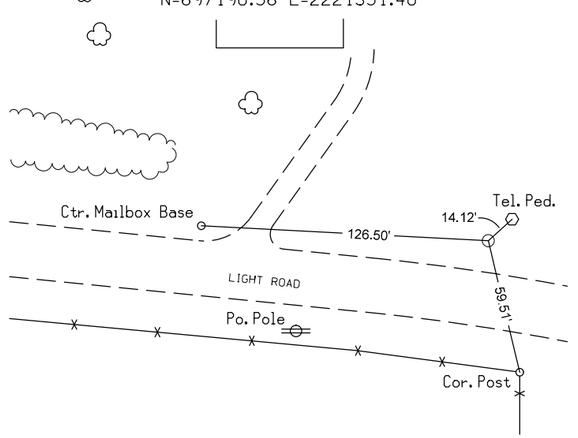
STA. 863+12.30, 7559.69' Rt.
CP No. 357, SET 1/2" REBAR
N=698556.43 E=2222670.78



STA. 861+90.99, 8866.25' Rt.
CP No. 358, SET 1/2" REBAR
N=697245.06 E=2222624.59

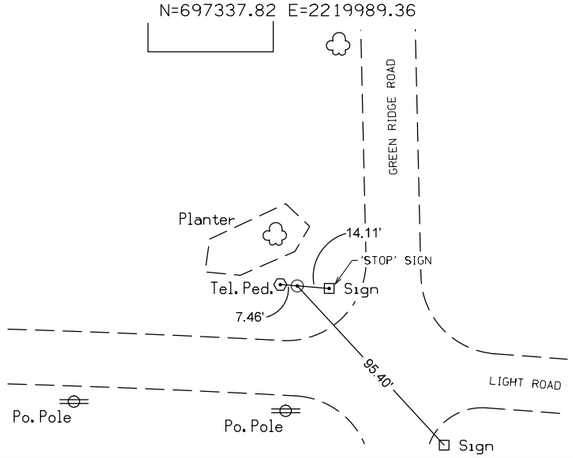


STA. 849+89.77, 8849.56' Rt.
CP No. 359, SET 1/2" REBAR
N=697190.56 E=2221351.40

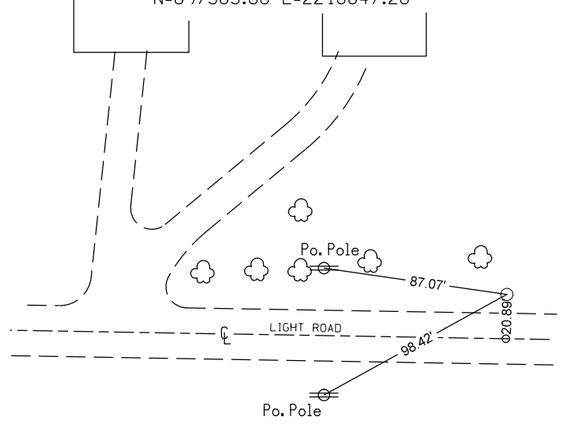


FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER G.7

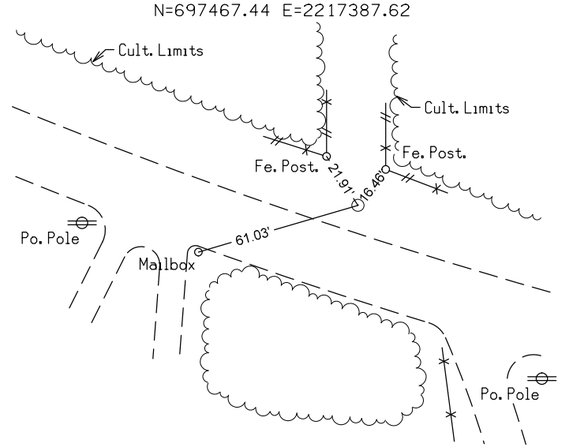
STA. 836+36.60, 8635.61′ Rt.
CP No. 360, SET 1/2″ REBAR
N=697337.82 E=2219989.36



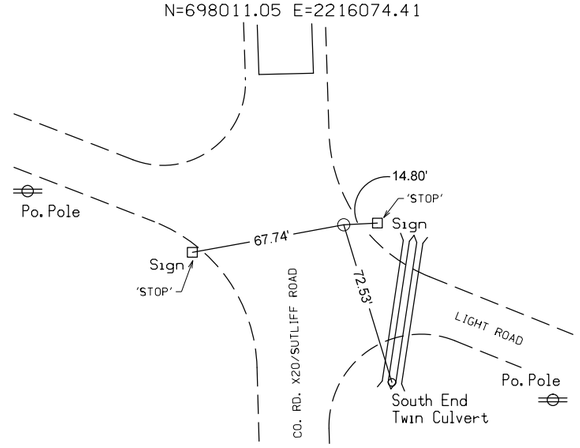
STA. 822+97.29, 8544.56′ Rt.
CP No. 361, SET 1/2″ REBAR
N=697363.00 E=2218647.20



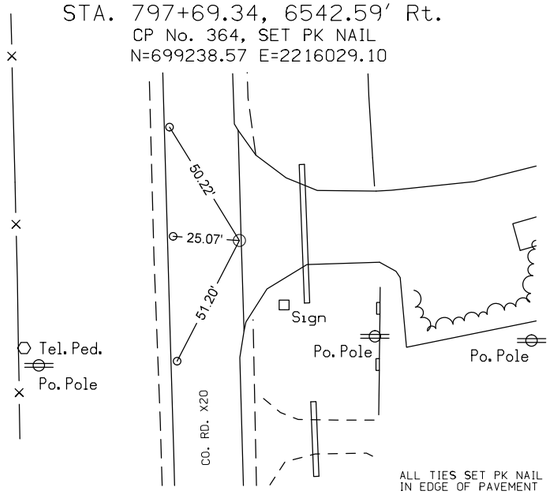
STA. 810+44.36, 8378.40′ Rt.
CP No. 362, SET 1/2″ REBAR
N=697467.44 E=2217387.62



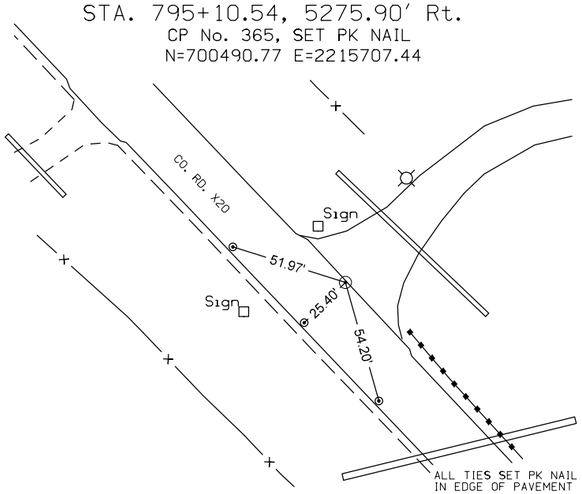
STA. 7497+53.38, 7770.85′ Rt.
CP No. 363, SET PK NAIL
N=698011.05 E=2216074.41



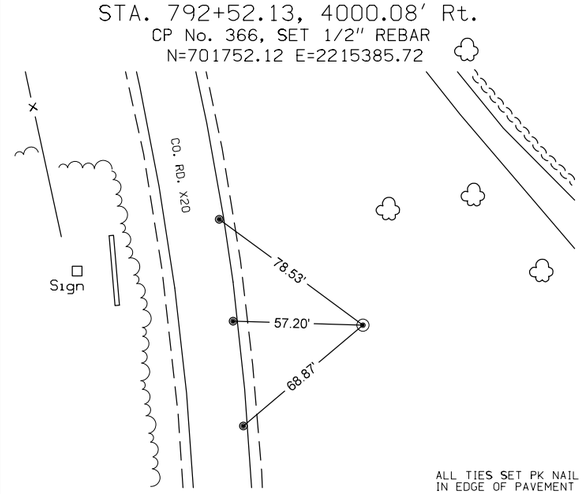
STA. 797+69.34, 6542.59′ Rt.
CP No. 364, SET PK NAIL
N=699238.57 E=2216029.10



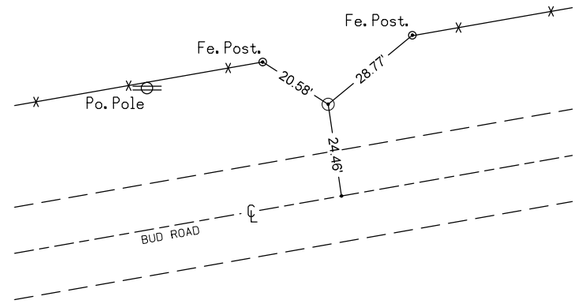
STA. 795+10.54, 5275.90′ Rt.
CP No. 365, SET PK NAIL
N=700490.77 E=2215707.44



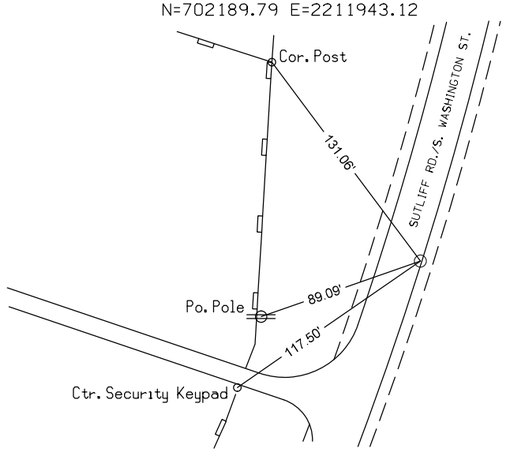
STA. 792+52.13, 4000.08′ Rt.
CP No. 366, SET 1/2″ REBAR
N=701752.12 E=2215385.72



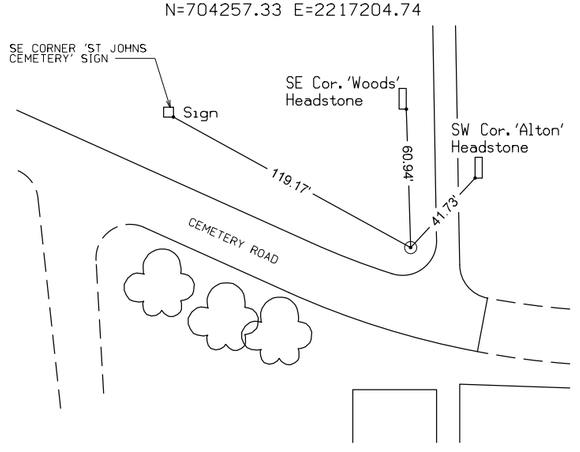
STA. 777+86.73, 3396.19′ Rt.
CP No. 367, SET 1/2″ REBAR
N=702282.17 E=2213892.03



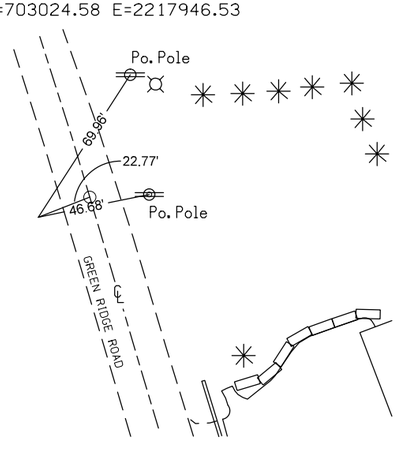
STA. 797+86.01, 2154.64′ Rt.
CP No. 368, SET MAG NAIL IN ACC ROADWAY
N=702189.79 E=2211943.12



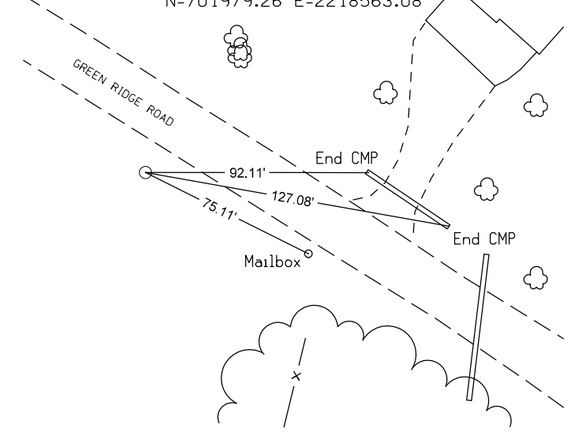
STA. 811+95.06, 1587.73′ Rt.
CP No. 369, SET CUT 'X'
N=704257.33 E=2217204.74



STA. 818+75.43, 2855.41′ Rt.
CP No. 370, SET 1/2″ REBAR
N=703024.58 E=2217946.53



STA. 824+39.92, 3929.74′ Rt.
CP No. 371, SET 1/2″ REBAR
N=701979.26 E=2218563.08



FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER G.8

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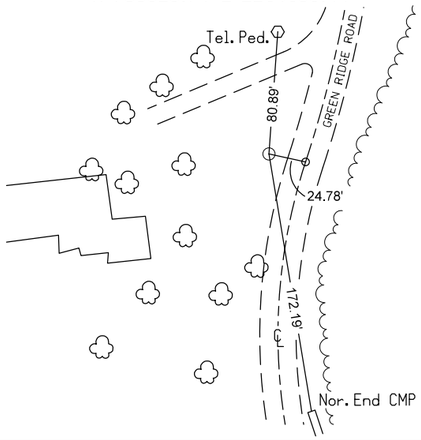
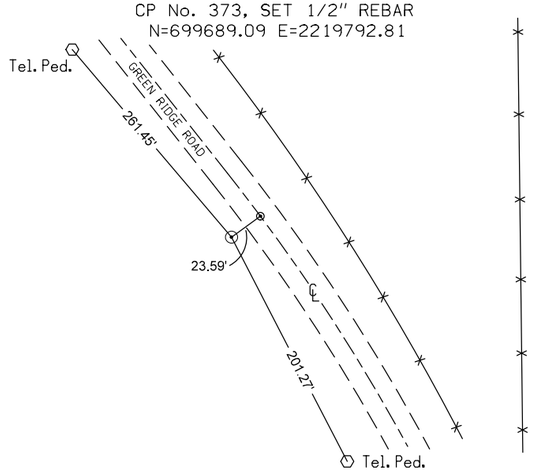
STA. 829+27.98, 5108.64′ Rt.

CP No. 372, SET 1/2″ REBAR
N=700825.74 E=2219108.44



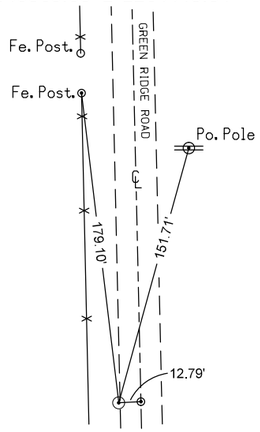
STA. 835+55.73, 6277.52′ Rt.

CP No. 373, SET 1/2″ REBAR
N=699689.09 E=2219792.81



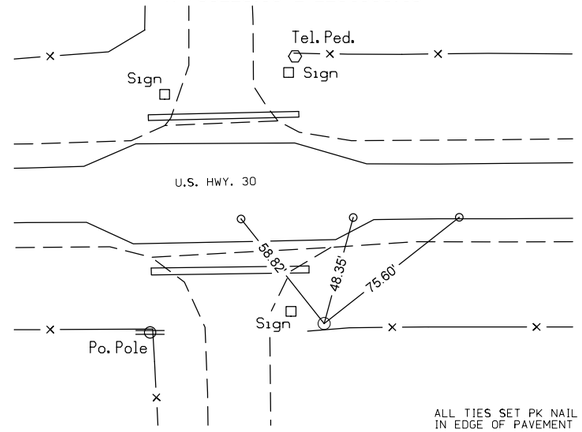
STA. 836+88.34, 7657.96′ Rt.

CP No. 374, SET 1/2″ REBAR
N=698316.83 E=2219993.04



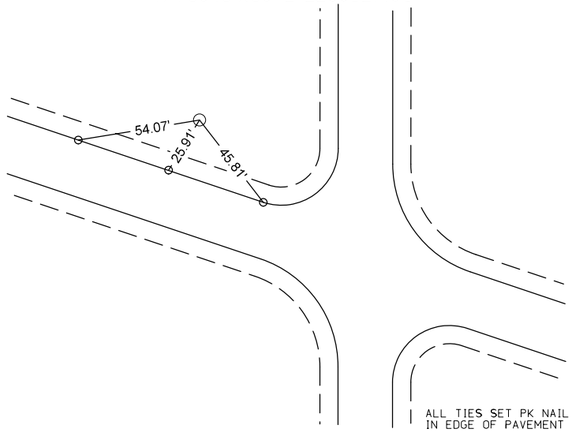
STA. 956+61.82, 58.59′ Rt.

CP No. 372, FOUND 5/8″ REBAR WITH ALUMINUM DOT CAP
N=706220.86 E=2231583.15



STA. 1022+40.90, 36.19′ Lt.

CP No. 372, FOUND 5/8″ REBAR WITH ALUMINUM DOT CAP
N=705409.05 E=2238027.51



FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER G.9

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12

LRD CORP

687+00
℄440′

689+00
℄405′

FRANKLIN TWP.
T-82N R-5W
SEC. 16

13

MT VERNON DEVELOPMENT
GROUP, LLC

691+80
℄335′

3585

1590

699

Sta. 694+65.95
Install 30″ X 440′ 3000D RCP
Skew = 1° Rt. Ahd.
F.L. = Lt. 813.30
Rt. 811.10

699
℄23

1595

Sta. 684+96.09
Install 36″ X 438′ 3750D RCP
Skew = 35° Lt. Ahd.
F.L. = Lt. 808.05
Rt. 805.82

Sta. 687+09.85 WBL
Construct 194′-0″ x 40′-0″
Pretensioned Prestresses Concrete
Beam Bridge with 10° Skew (L.A.)

POT Sta 687+04.52 (Hwy 30)
= Sta 6687+04.52 (IA Hwy. 1)

685

690

695

Sta. 686+94.33 EBL
Construct 194′-0″ x 40′-0″
Pretensioned Prestresses Concrete
Beam Bridge with 10° Skew (L.A.)

6685

698+50
℄185′

4495

REVISED	8/10/15	PAR	12
REVISED	8/10/15	PAR	13
REVISED	8/10/15	PAR	16

MT V

4490

690+50±1/4SectionLine
℄360′

2585

685+20
℄395′

687+70
℄410′

4485

12

13

0 50
FEET

FOR INFORMATION ONLY

FRANKLIN TWP.
T-82N R-5W
SEC. 16

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 11/23/2015
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM		LINN COUNTY	PROJECT NUMBER		SHEET NUMBER	
		SNYDER AND ASSOCIATES, INC.			NHSX-030-7(188)--3H-57		H.1	

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13

MT VERNON DEVELOPMENT GROUP, LLC

FRANKLIN TWP.
T-82N R-5W
SEC. 15

18

ROBERT L. & ANNA M. BROULIK

699+87±℄
℄230'

Sta. 700+00.00 WBL
Install 24" X 108' 2000D RCP
F.L. = Lt. 816.05
Rt. 819.32

700+20.00 Med.
Install Type "M" Dike
Elev. =820.82

1600

705+00
℄145'

Future R/W Line

700

705

710

Sta. 713+30.00 WBL
Install 24" X 74' 2000D RCP
F.L. = Lt. 792.26
Rt. 795.77

713+50.00 Med.
Install Type "M" Dike
Elev. =797.27

4500

700+48±℄
℄180'

13

MT VERNON DEVELOPMENT GROUP, LLC

FRANKLIN TWP.
T-82N R-5W
SEC. 16

18

ROBERT L. & ANNA M. BROULIK

FRANKLIN TWP.
T-82N R-5W
SEC. 15

0 50
FEET

FOR INFORMATION ONLY

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 08/10/15
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.2

1:35:14 PM 5/18/2016 ncuva pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\ROW\Plans and Displays\Requested Displays\(188)H.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 15

18

ROBERT L. & ANNA M.
BROULIK

19

724+35
℄155'

Sta. 726+60.00 WBL
Install 24" X 70' 2000D RCP
F.L. = Lt. 785.15
Rt. 787.13

726+80.00 Med.
Install Type "M" Dike
Elev. =788.63

Sta. 727+96.63
Install 36" X 20' 2000D RCP + 2-20° Elbows
Install 30" X 192' 2000D RCP
Skew = 11° Rt. Ahd.
F.L. = Lt. 782.17
Other 782.05
Other 779.95
Rt. 775.05

Sta. 717+31.43
Install 60" X 188' 2000D RCP
Skew = 11° Rt. Ahd.
F.L. = Lt. 787.85
Rt. 784.58

Future R/W Line

715

720

PC Sta 719+61.18

725

Curve Data
Δ = 32° 30' 23.27" (LT)
T = 2,040.74
L = 3,971.41
R = 7,000.00
E = 291.41
e = 3.0%
l = 135'
x = 90'

728+65
℄165'

18

ROBERT L. & ANNA M.
BROULIK

18

ROBERT L. & ANNA M.
BROULIK

FRANKLIN TWP.
T-82N R-5W
SEC. 15

0 50
FEET

FOR INFORMATION ONLY

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 1/14/15
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.3

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FRANKLIN TWP.
T-82N R-5W
SEC. 15

19

ROSE A. POSPISIL
FARMS, LLC

19

18

ROBERT L. & AN
BROULIK

743+43±
℄285′

740+00
℄205′

729+46±
℄160′

Curve Data
Δ = 32° 30′ 23.27" (LT)
T = 2,040.74
L = 3,971.41
R = 7,000.00
E = 291.41
e = 3.0%
l = 135′
x = 90′

Sta. 740+55.00 WBL
Install 24" X 70′ 2000D RCP
F.L. = Lt. 776.28
Rt. 778.06

740+75.00 Med.
Install Type "M" Dike
Elev. =779.56

Sta. 740+75.00
Install 36" X 196′ 2000D RCP
F.L. = Lt. 776.15
Rt. 769.30

741+06.00 Lt.
Install Type "M" Dike
Elev. =778.65

730

735

740

18

ROBERT L. & ANNA M.
BROULIK

730+81±
℄150′

733+00
℄155′

740+00
℄155′

19

ROSE A. POSPISIL
FARMS, LLC

PI Sta 740+01.92

FRANKLIN TWP.
T-82N R-5W
SEC. 15

0 50
FEET

FOR INFORMATION ONLY

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 1/14/15
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.4

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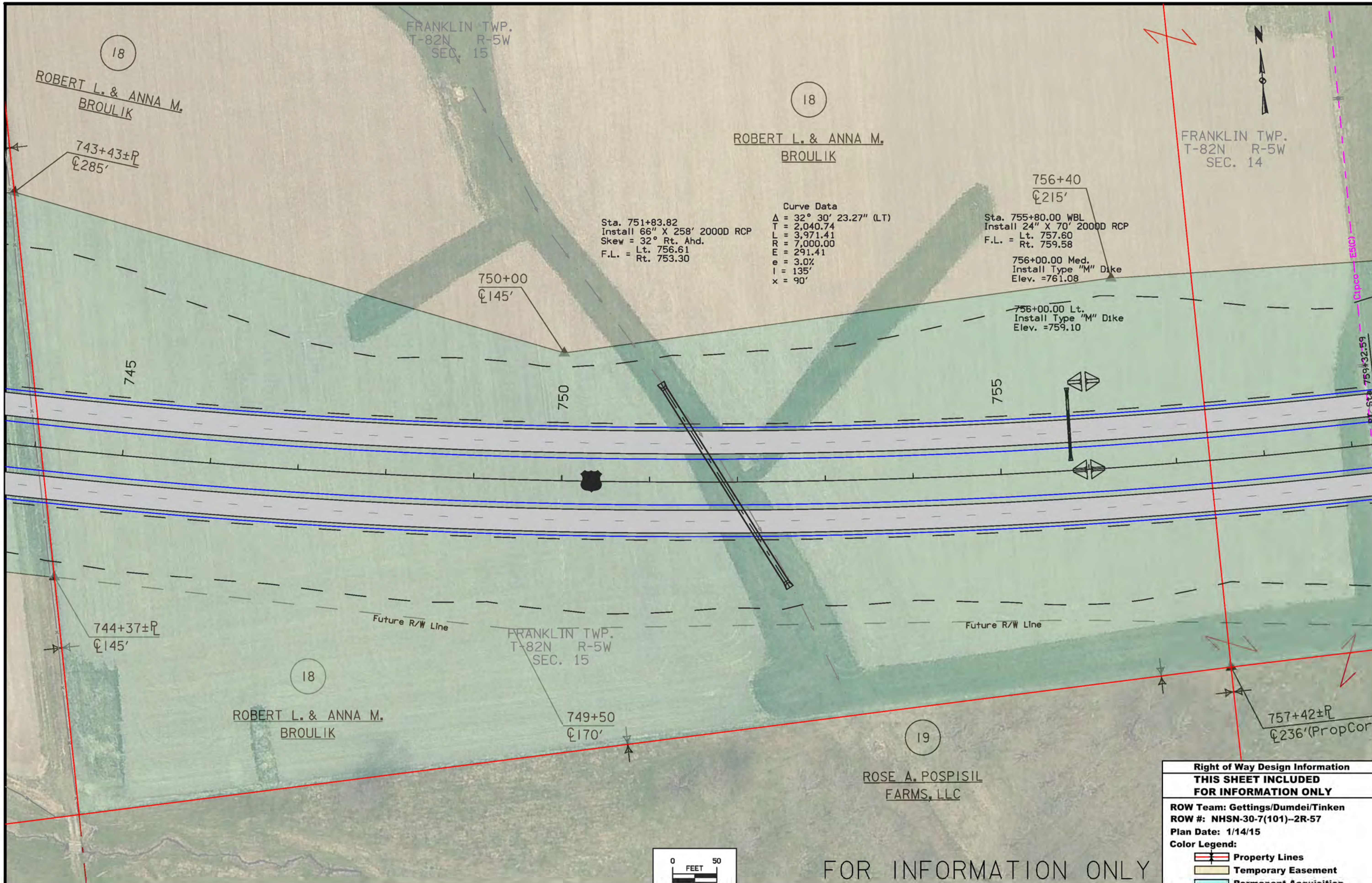

FRANKLIN TWP.
T-82N R-5W
SEC. 15
18
ROBERT L. & ANNA M.
BROULIK
743+43±R
℄285'
18
ROBERT L. & ANNA M.
BROULIK
FRANKLIN TWP.
T-82N R-5W
SEC. 14
756+40
℄215'
Sta. 751+83.82
Install 66" X 258' 2000D RCP
Skew = 32° Rt. Ahd.
F.L. = Lt. 756.61
Rt. 753.30
Curve Data
Δ = 32° 30' 23.27" (LT)
T = 2,040.74
L = 3,971.41
R = 7,000.00
E = 291.41
e = 3.0%
l = 135'
x = 90'
Sta. 755+80.00 WBL
Install 24" X 70' 2000D RCP
F.L. = Lt. 757.60
Rt. 759.58
756+00.00 Med.
Install Type "M" Dike
Elev. =761.08
756+00.00 Lt.
Install Type "M" Dike
Elev. =759.10
750+00
℄145'
745
750
755
PT Sta. 759+32.59
E5(C)
(Cipco)
Future R/W Line
Future R/W Line
744+37±R
℄145'
FRANKLIN TWP.
T-82N R-5W
SEC. 15
18
ROBERT L. & ANNA M.
BROULIK
749+50
℄170'
19
ROSE A. POSPISIL
FARMS, LLC
757+42±R
℄236'(PropCorn
0 FEET 50
FOR INFORMATION ONLY
Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY
ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 1/14/15
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.5

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FOR INFORMATION ONLY

FRANKLIN TWP.
T-82N R-5W
SEC. 14

18

ROBERT L. & ANNA M.
BROULIK

762+20
℄195'

Sta. 761+21.00
Install Twin 12' X 9' X 230' RCB
Skew = 19° Lt. Ahd.
15° HEADWALLS
F.L. = Lt. 736.80
Rt. 736.00

Sta. 761+27.00 WBL
Install 24" X 78' 2000D RCP
F.L. = Lt. 748.30
Rt. 752.72

765+00
℄140'

769+30
℄120'

770+25
℄160'

Sta. 7771+17.62
Construct 232'-0" x 30'-0"
Pretensioned Prestresses Concrete
Beam Bridge with 0° Skew

772+00
℄160'

760

765

770

PT Sta 759+32.59

763+50
℄140'

761+00
℄230'±SecLine

orner)

FRANKLIN TWP.
T-82N R-5W
SEC. 14

0 50 FEET

POT Sta 771+17.62 (Hwy 30)
= Sta 7771+17.62 (Standing Rock)

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 1/14/15
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.6

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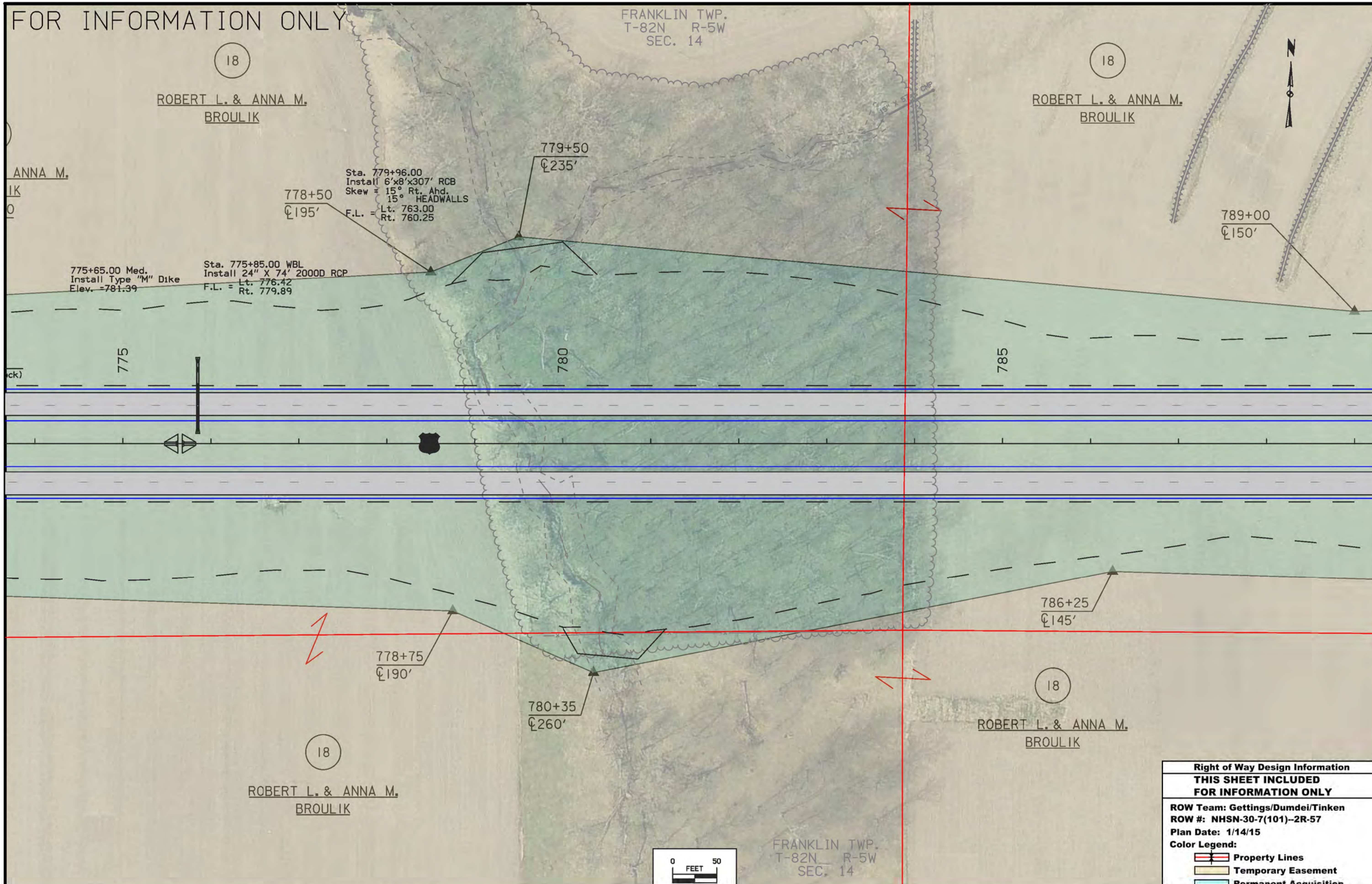
FOR INFORMATION ONLY



Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 1/14/15
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.7

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FRANKLIN TWP.
T-82N R-5W
SEC. 14

18

ROBERT L. & ANNA M.
BROULIK

ROBERT L. & ANNA M.
BROULIK

18A

EUGENE W. & JULIA A.
ACHENBACH

Sta. 797+71.00
Install 42" X 276' 3000D RCP
Skew = 24° Lt. Ahd.
F.L. = Lt. 795.50
Rt. 790.75

797+26±℄
℄175'

803+94±℄
℄205'

Future R/W Line

790

795

800

796+20
℄175'

797+22±℄
℄221'(PropCor)

18

ROBERT L. & ANNA M.
BROULIK

18

ROBERT L. & ANNA M.
BROULIK

FRANKLIN TWP.
T-82N R-5W
SEC. 14

0 50
FEET

FOR INFORMATION ONLY

REVISED	4-1-16	PAR	18A

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 10/16/14
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.8

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FRANKLIN TWP.
T-82N R-5W
SEC. 14

35

TIMOTHY M. & SANDRA B.
SEVERSEN

FRANKLIN TWP.
T-82N R-5W
SEC. 13

SCOTT P. ROGERS

9810

9815

9820

9788

810+83±℄
℄270.5'(PropCor)

94±℄

Sta. 805+50.00 WBL
Install 24" X 70' 2000D RCP
Lt. 802.66
F.L. = Rt. 804.00

Sta. 805+70.00 Med.
Install Type "M" Dike
Elev. =805.50

805

Sta. 8806+52.46
Construct 252'-0" x 36'-0"
Prestensioned Prestresses Concrete
Beam Bridge with 16° Skew

PI Sta 808+28.63

810

Sta. 810+93.73
Install 30" X 196' 2000D RCP
Skew = 10° Rt. Ahd.
Lt. 798.03
F.L. = Rt. 795.85

815

Sta. 816+70.70 (WBL)
Install 24" X 72' 2000D RCP
Skew = 10° Rt. Ahd.
Lt. 794.53
F.L. = Rt. 798.62

817+60±℄
℄170'

15" CMP

34

WILMA L. WILLIAMS
REVOCABLE TRUST

POT Sta 807+03.40 (Hwy 30)
= Sta 8806+47.46 (Sutliff)

Sta. 818+30.24
Install 54" X 304' 3000D
Skew = 24° Rt. Ahd.
F.L. = Lt. 783.00
Rt. 776.90

PI Sta 81

810+50±℄
℄140'

18

ROBERT L. & ANNA M.
BROULIK

34A

SCOTT C.
SHERWOOD

816+25
℄195'

FRANKLIN TWP.
T-82N R-5W
SEC. 13

Curve Data
Δ = 32° 52' 10.61" (LT)
T = 1,032.42
L = 2,007.89
R = 3,500.00
E = 149.09
e = 5.0%
I = 225'
x = 90'

0 FEET 50

FOR INFORMATION ONLY

REVISED	5/11/16	PAR	34
REVISED	4-1-16	PAR	34

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 5/11/2016
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM	LINN COUNTY	PROJECT NUMBER	SHEET NUMBER
		SNYDER AND ASSOCIATES, INC.		NHSX-030-7(188)--3H-57	H.9

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FOR INFORMATION ONLY

FRANKLIN TWP.
T-82N R-5W
SEC. 13

REVISED	9/3/15	PAR	51

34

WILMA L. WILLIAMS
REVOCABLE TRUST

821+15
℄315′

Sta. 822+84.18
Install 5′x6′x412′ RCB
Skew = 10° Lt. Ahd.
15° HEADWALLS
F.L. = Lt. 773.63
Rt. 764.34

825+84±℄
℄240′

51E

ROBERT J. &
DOROTHY GAINES

830+17±℄
℄275′

Sta. 830+50.00 WBL
Install 24" X 76′ 2000D RCP
F.L. = Lt. 822.98
~~Rt. 827.23~~

Sta. 830+30.00 Med.
Install Type "M" Dike
Elev. =828.73

51

ROBERT J. &
DOROTHY GAINES (FEE)
GARY GAINES (CP)

832+15
℄295′

834+31±℄
℄300′

Sta. 832+41.07
Install 36" X 20′ ~~2000D~~ RCP + 2 Elbows
Install 30" X 448′ 3750D RCP
Skew = 26° Lt. Ahd.
F.L. = Lt. 806.20
Other 806.08
Other 803.98
Lt. 781.20

ROBERT
DOROTHY

820

825

830

Sta. 828+36.52

826+70
℄135′

827+36±℄
℄160′

Curve Data
Δ = 32° 52′ 10.61″ (Lt)
T = 1,032.42
L = 2,007.89
R = 3,500.00
E = 149.09
e = 5.0%
I = 225′
x = 90′

34A

SCOTT C.
SHERWOOD

823+01±℄
℄325′

FRANKLIN TWP.
T-82N R-5W
SEC. 13

51

ROBERT J. &
DOROTHY GAINES (FEE)
GARY GAINES (CP)

829+00
℄295′

0 50
FEET

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 09/03/15
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.10

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REVISED	9/3/15	PAR	51
REVISED	10/29/15	PAR	46

838+38±℄
℄330'

51E
ROBERT J. & DOROTHY GAINES

52E
STATE OF IOWA (STEVE & LINDSAY JORDAN)
839+40
℄330'

Ingress-egress easement to Parcel 46

842+34±℄
℄392'(PropCor)

842+07±℄
℄349'(PropCor)

841+48±℄
℄260'

843+10±℄
℄300'

844+25
℄335'

46
MARIE E. HUBBARD

840+00 (close)
℄260'

44
DOUGLAS J. WHITE

Sta. 10839+07.30
Construct 280' x 30'-0"
Welded Girder Bridge
Beam Bridge with 15° Skew

835
840
845
10840

Sta. 846+36.75 WBL
Construct 663'-0" x 40'-0"
Pretensioned Prestresses Concrete
Beam Bridge with 0° Skew

POT1 Sta 836+72.64

EQUATION:
Sta 837+21.45 BK =
Sta 836+72.64 AH

POT Sta 838+87.30 (U.S. 30)
= Sta 10838+87.30 (Green Ridge)

Sta. 846+36.75 EBL
Construct 663'-0" x 40'-0"
Pretensioned Prestresses Concrete
Beam Bridge with 0° Skew

44
DOUGLAS J. WHITE

837+65
℄180'

841+74±℄
℄190'

840+40±℄
℄190'

843+34±℄
℄288'(PropCor)

51
ROBERT J. & DOROTHY GAINES (FEE)
GARY GAINES (CP)

10835

51C
JEFFERY & TIFFANY STULL

46
MARIE E. HUBBARD
846+50
℄365'

836+00
℄425'

0 FEET 50

FOR INFORMATION ONLY

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: Cuva/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 10/29/15
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER H.11

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FRANKLIN TWP.
T-82N - R-5W
SEC. 14

18
ROBERT L. & ANNA M.
BROULIK

18
ROBERT L. & ANNA M.
BROULIK

MATTHEW M. &
AMY E.
REGHKEMMER

Curve Data
Δ = 11° 07' 53.13" (LT)
T = 116.94
L = 233.14
R = 1,200.00
E = 5.68
e = 4.4%
l = 91'
x = 41'

Curve Data
Δ = 19° 06' 49.01" (LT)
T = 74.17
L = 146.96
R = 440.54
E = 6.20

7775
Ent. 126 Lt.
(Close)

+77.00 Lt. Prop.
Type "C" Ent.

(Remove)
24" CMP

7780

PC Sta 7781+89.04

PT Sta 7784+22.18

7785

(Remove)
Sta. 7773+00.30
18" X 38.8' CMP
0.4 Ac.

(L.A.C.)

PT Sta 7787+54.12

PT Sta 7789+31.38

12" RCP

+77.00 Rt. Prop.
Type "C" Ent.

7776+50
℄65'

7781+10
℄70'

PI Sta 7783+05.98

Sta 7786+07.16
End Construction

Sta. 7784+64.50
Install 24" X 48' UNCL
Skew = 6° Lt. Ahd.
F.L. = Lt. 777.20
Rt. 779.90

7784+25
℄70'

7786+00
℄70'

PC Sta 7786+07.16

PI Sta 7786+81.33

7786+40
℄14'±P

7786+81±ExR/W
℄56'(ExCorner)

18
ROBERT L. & ANNA M.
BROULIK

18
ROBERT L. & ANNA M.
BROULIK

18
ROBERT L. & ANNA M.
BROULIK

±PropR/W

0 50
FEET

For Side Road Details
Refer to Sheet No. E.27

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 1/14/15
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FOR INFORMATION ONLY

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER HE.1

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FRANKLIN TWP.
T-82N R-5W
SEC. 23

Curve Data
Δ = 15° 28' 46.05" (LT)
T = 434.43
L = 862.86
R = 3,000.00
E = 31.29
e = 3.4%
l = 82'
x = 48'

18B
NEIL STINE

8785
8790
8795

8792+00
℄61'±ExR/W

8792+00
℄8.9'±℄

8794+60
℄75'

8797+04±℄
℄90'

PC Sta 8789+69.35

19"/24" X 47" CMP

Sta 8788+63.95
Begin Construction

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

+46.00 Rt. Prop. Type "C" End

+23.00 Lt. Prop. Type "B" End

8790+25
℄80'

8790+64±℄
℄80'

34B
PATRICK S. &
CAROL S. REILLY

8790+95
℄85'

8791+50
℄85'

PI Sta 8794+03.78

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

34A
SCOTT C.
SHERWOOD

0 50 FEET

FOR INFORMATION ONLY

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 10/16/14
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER HE.2	

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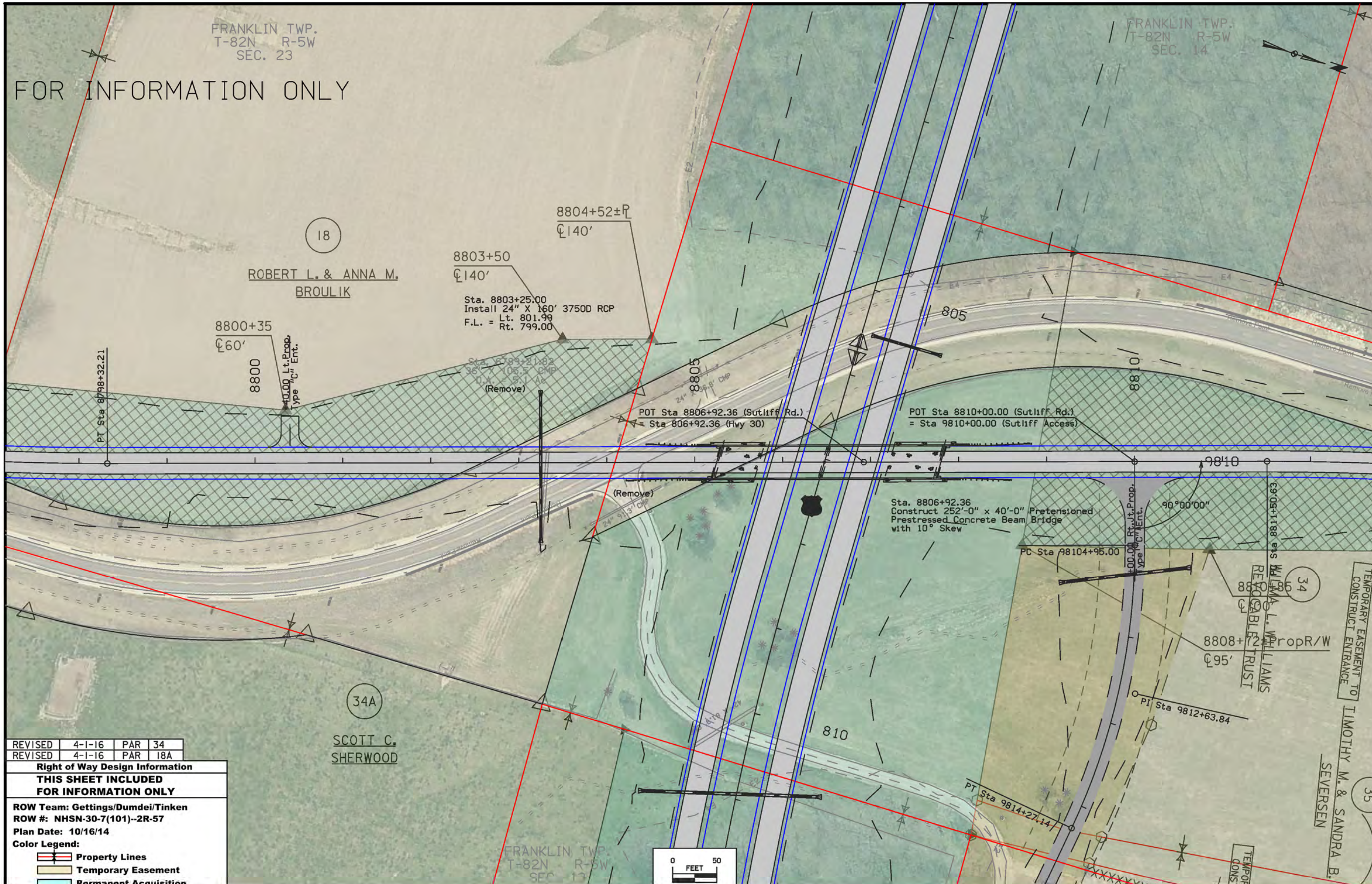
FRANKLIN TWP.
T-82N R-5W
SEC. 23
FOR INFORMATION ONLY
FRANKLIN TWP.
T-82N R-5W
SEC. 14
18
ROBERT L. & ANNA M.
BROULIK
8804+52±P
℄140′
8803+50
℄140′
Sta. 8803+25.00
Install 24" X 160′ 3750D RCP
F.L. = Lt. 801.99
Rt. 799.00
8800+35
℄60′
8800
40.00 Lt.Prop.
Type "C" Ent.
PT Sta 8798+32.21
(Remove)
805
8805
8810
POT Sta 8806+92.36 (Sutliff Rd.)
= Sta 806+92.36 (Hwy 30)
POT Sta 8810+00.00 (Sutliff Rd.)
= Sta 9810+00.00 (Sutliff Access)
9810
(Remove)
Sta. 8806+92.36
Construct 252′-0" x 40′-0" Pretensioned
Prestressed Concrete Beam Bridge
with 10° Skew
90°00′00"
PC Sta 98104+95.00
Sta 9811+50.63
34
8808+72±PropR/W
℄95′
PI Sta 9812+63.84
TEMPORARY EASEMENT TO
CONSTRUCT ENTRANCE
TIMOTHY M. & SANDRA B.
SEVERSEN
35
34A
SCOTT C.
SHERWOOD
810
PT Sta 9814+27.14
FRANKLIN TWP.
T-82N R-5W
SEC. 13
0 50
FEET
REVISED 4-1-16 PAR 34
REVISED 4-1-16 PAR 18A
Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY
ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 10/16/14
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER HE.3

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FOR INFORMATION ONLY

FRANKLIN TWP.
T-82N R-5W
SEC. 14

18

ROBERT L. & ANNA M.
BROULIK

18

ROBERT L. & ANNA M.
BROULIK

Curve Data
Δ = 5° 53' 19.91" (RT)
T = 154.31
L = 308.34
R = 3,000.00
e = 3.4%
l = 82'
x = 48'

TEMPORARY EASEMENT TO
CONSTRUCT ENTRANCE

8817+35
℄90'

8818+00
℄90'

8815

8820

Sta 8819+78.00
End Construction

+68.00 Lt. Prop. 15" Ent.

POT Sta 8821+58.97

PT Sta 8813+04.94

PT Sta 8814+58.97

8815+50
℄80'

8818+70
℄90'±ExR/W

Ent. 96 Rt. (U.A.C.)

15" X 37.3' CMP

15" X 31.6' CMP

8820+23±℄
℄3.7'(ExCor)

8820+11±℄
℄61'(ExCorner)

15" X 32.5' CMP

CITY OF LISBON

TEMPORARY EASEMENT TO
CONSTRUCT ENTRANCE

TIMOTHY M. & SANDRA B.
SEVERSEN

35

34

WILMA L. WILLIAMS
REVOCABLE TRUST

0 50
FEET

Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY
ROW Team: Gettings/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 10/16/14
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER HE.4

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FRANKLIN TWP.
T-82N R-5W
SEC. 13

FOR INFORMATION ONLY

REVISED	9/3/15	PAR	51

Curve Data
Δ = 9° 49' 19.97" (LT)
T = 42.96
L = 85.71
R = 500.00
E = 1.84
Refer to other sheets for special shapes.

Curve Data
Δ = 22° 57' 10.46" (LT)
T = 162.42
L = 320.48
R = 800.00
e = 5.4%
l = 111'
x = 41'

51

ROBERT J. & DOROTHY GAINES (FEE)
GARY GAINES (CP)

TEMPORARY EASEMENT TO SHAPE

10829+50
℄36'±ExR/W

10833+15
℄135'

10832+50
℄135'

10833+40
℄110'

10834+50
℄115'

10837+10±PropR/W
℄50'

10836+00
℄110'

POT Sta 10838+87.30 (Green Ridge Rd.)
= Sta 838+87.30 (Hwy 30)

Sta. 10838+87.30 (Green Ridge Rd.)
Construct 299'-6" x 30'-0"
Prestensioned Prestressed Concrete
Beam Bridge with 15° Skew (L.A.)

POT Sta 10829+47.82
POT Sta 10829+91.85
10830
POT Sta 10830+77.57
POT Sta 10830+85.05
PT Sta 10832+47.47
PT Sta 10834+05.53
10835
10840
835
840

46

Sta 10829+66.35
Begin Construction
10829+50
℄2.8'±R
10829+50
℄30'±ExR/W

MARIE E. HUBBARD

10829+75
℄45'

PT Sta 10830+34.81

10830+52±R
℄45'

10831+80
℄50'

51C

JEFFERY & TIFFANY STULL

10832+56±ExR/W
℄50'

43100 Rt. Prop. Ent. Type "C"

PC Sta 10840+50.62

(Close)

MARIE

0 50
FEET

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: Cuva/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 09/03/15
Color Legend:
- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER HE.5

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FRANKLIN TWP.
T-82N R-5W
SEC. 13
REVISED 9/3/15 PAR 51
REVISED 10/29/15 PAR 46
10842+22±PropR/W
℄155'
10843+00
℄135'
10844+00
℄105'
Curve Data
Δ = 31° 38' 06.41" (RT)
T = 226.64
L = 441.71
R = 800.00
e = 5.4%
10845
10845+00
℄50'
10846+25
℄34'±ExR/W
Sta 10845+85.00
End Construction
10846+25
℄0.6'±℞
PI Sta 10842+77.26
POT Sta 10849+59.15
51E
ROBERT J. &
DOROTHY GAINES
10843+30
℄55'
PT Sta 10844+92.33
PC Sta 10840+50.62
10846+25
℄32'±ExR/W
10845+20±℞
℄50'
45
ANTHONY P.
& BETSY A.
AWBREY
24' wide
Ingress-egress
easement to
Parcel 46
Ingress-egress
easement to
Parcel 46
KEITH S.
TECHAU
TERRY L. & MARY K.
HARRIS
DONALD K.
& LULU G.
COPPESS
LEONARD L. II &
PATRICIA F. BAKER
46
MARIE E. HUBBARD
0 FEET 50
FOR INFORMATION ONLY
Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY
ROW Team: Cuva/Dumdei/Tinken
ROW #: NHSN-30-7(101)--2R-57
Plan Date: 10/29/15
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER HE.6

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108-23A
08-01-08

TRAFFIC CONTROL PLAN

1. Existing U.S. 30 will remain open to traffic at all times. No lane or shoulder closures are anticipated.The U.S. 30 bypass will be closed to traffic throughout construction.

2. Iowa 1 will remain open to traffic at all times. Shoulder closures as necessary for construction will be per Standard Road Plan TC-202.

3. Standing Rock Road will be closed to traffic at the bypass for the duration of construction. Maintain access at Sta. 7775+77 LT at all times; will require staged construction of Standing Rock Road north of that location.

4. Sutliff Road and Green Ridge Road will be closed to traffic during construction. Refer to Staging notes for additional information.

5. A detour will be established for Sutliff Road during construction. Refer to Sheet J.X for detour information.

6. Refer to the TC- series of Standard Road plans for traffic control layouts and additional information.

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
NHSX-030-7(120)--3H-57	Grading
NHSX-030-7(189)--3H-57	Grading
NHSX-030-7(171)--3H-57	Bridges, New (Iowa 1)
NHSX-030-7(172)--3H-57	Bridge, New (Standing Rock)
NHSX-030-7(173)--3H-57	Bridge, New (Sutliff)
NHSX-030-7(174)--3H-57	Bridge, New (Green Ridge)
NHSX-030-7(175)--3H-57	Bridges, New (Spring Creek)
NHSX-030-7(185)--3H-57	RCB, New Twin Box
NHSX-030-7(186)--3H-57	RCB, New Single Box

108-26A
08-01-08

STAGING NOTES

Contractor may revise project staging with approval of the Engineer. Access south of the bypass will be available throughout construction via Iowa 1 or Adams Avenue (east of Lisbon).

Standing Rock Road Staging
Standing Rock Road will be closed at the bypass throughout construction. Stage construct Standing Rock Road north of the bypass to maintain access to the residence at Sta. 7775+77 LT. Generally, it is assumed that this would include delaying removal of existing roadway north of the bypass until proposed roadway is complete. Temporary granular surfacing as necessary will be paid for with existing bid items.

Sutliff Road Staging
Sutliff Road will be closed at the bypass throughout construction regardless of staging.

Stage 1: Close existing Sutliff Road from Sta. 8804+75 to EOP. Access across dam will be available via existing entrance. Gap construction of bypass from Sta. 809+00 to 811+50.
- Grade Sutliff Road in closure area. Pave from Sta. 8809+39 to EOP.
- Construct Sutliff Pond Entrance.
- Construct both bridge abutments.

Stage 2: Close Sutliff Road south of Sta. 8809+39. Access across dam will be available via Sutliff Pond Entrance.
- Construct bypass through area gapped during Stage 1.
- Grade Sutliff south of Sta. 8804+75. Stage construction (1/2-at-a-time assumed) south of Sta. 8791+50 to maintain access to quarry.

Stage 3: Sutliff remains closed Sta. 8791+50 to Sta. 8804+75
- Sutliff bridge is constructed by others.
- Upon completion of bridge and approaches, pave remainder of Sutliff Road.

Green Ridge Road Staging
Green Ridge Road will be closed at the bypass throughout construction. Stage construct Green Ridge Road south of the bypass to maintain access to the residence at Sta. 10836+31 RT. Generally, it is assumed that this would include delaying removal of existing roadway south of the bypass until proposed roadway is complete. Temporary granular surfacing as necessary will be paid for with existing bid items.

LEGEND

A — DETOUR; F14, X20; ↑

B — DETOUR 1500'

C — ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY (shown with 10) *

D — DETOUR (arrow to the left)

E — DETOUR; F14, X20; ↱ OR →

G — END DETOUR

F — DETOUR; F14, X20; ↰ OR ←

H — ROAD CLOSED 1 MILES AHEAD LOCAL TRAFFIC ONLY

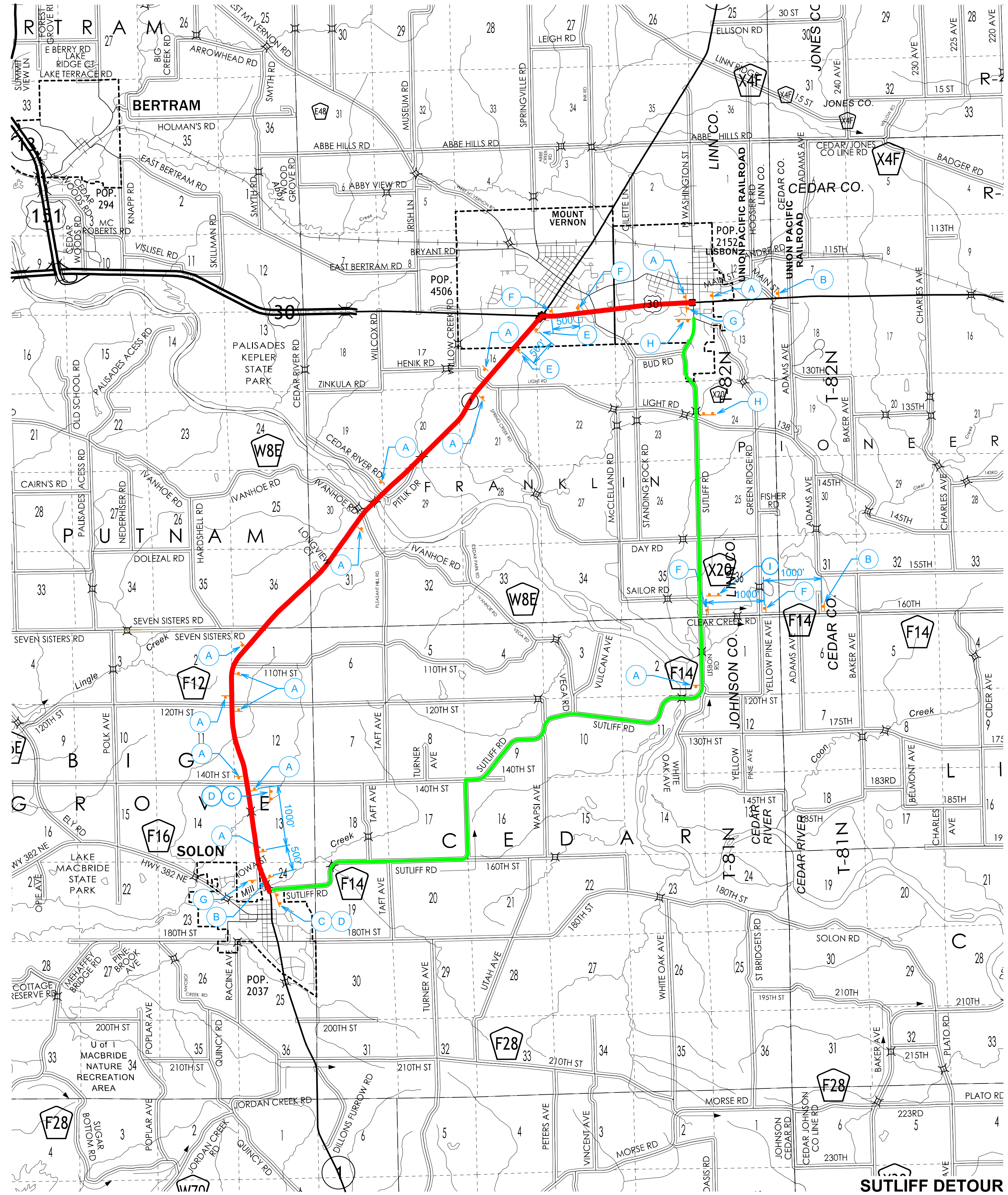
I — ROAD CLOSED 3 MILES AHEAD LOCAL TRAFFIC ONLY

Traffic Sign

Type 3 Barricade

Detour Route

* The number in the blank will change with distance



SUTLIFF DETOUR

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER J.2

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

FRANKLIN TWP.
T-82N R-5W
SEC. 15/16

IOWA HWY. 1

PI Sta 1587+37.69 (Ramp A)=
PI Sta 3587+90.06 (Ramp C)=
POT Sta 6690+53.92 (IA 1)

Ramp BL - Ia. Hwy 1 Ramp C

IA HWY 1 RAMP 'C'

12′
15:1 Taper
16′
68°38′51″
85°00′00″

POT Sta 687+04.52 (Hwy 30)=
POT Sta 6687+04.52 (IA 1)

POT Sta 700+43.85 98.00′ LT (Hwy 30)=
POT Sta 1600+43.85 (Ramp A)
Point M on Standard Road Plan PV-410

POT Sta 700+56.39

Ramp BL - Ia. Hwy 1 Ramp A

843.58′

15:1 Taper for 600′

26′
8′
64′
14°55′12″
8′
26′
12°02′05″
16′

583.00′

50:1 Taper for 1000′

POT Sta 702+61.34

80°04′48″
99°59′12″

POT Sta 700+68.18, 78.00′ RT (Hwy. 30)
= PT Sta 4500+68.18 (Ramp D)
Point G on Standard Road Plan PV-411

Ia. Hwy 1 Ramp B

Ramp BL - Ia. Hwy 1 Ramp D

IA HWY 1 RAMP 'D'

111°57′17″

PI Sta 2586+72.90 (Ramp B)=
PI Sta 4486+17.40 (Ramp D)=
POT Sta 6683+53.95 (IA 1)

10′
6′
70′
5′
6′

0 100
FEET

Geometric Plan
Proposed Interchange of
U.S. Hwy. 30 with IA. Hwy. 1
Linn County

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER K.1

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Refer to Sheets D.2-D.3 For Mainline Information

FRANKLIN TWP.
T-82N R-5W
SEC. 16

Curve Data
Δ = 11° 06′ 21.59″ (LT)
T = 340.28
L = 678.43
R = 3,500.00
E = 16.50
e = 4.0%
I = 124′
x = 62′

PI Sta 1587+37.69 (Ramp A)=
PI Sta 3587+90.06 (Ramp C)=
POT Sta 6690+53.92 (IA 1)

POT Sta 700+43.85 98.00′ LT (Hwy 30)=
POT Sta 1600+43.85 (Ramp A)
Point M on Standard Road Plan PV-410

Sta. 1593+60.00
Install 24″ X 80′ 2000D RCP
F.L. = Lt. 814.99
Rt. 818.33

Sta. 1588+53.27
Install 24″ X 68′ 2000D RCP
F.L. = Lt. 811.39
Rt. 810.00

PC Sta 1592+30.85
PT Sta 1599+09.28
PI Sta 1596+71.13

IOWA HWY. 1
POT Sta 1587+37.69
0699
IA. HWY. 1 RAMP 'A'
30

BEGIN CONSTRUCTION
STA 1588+35.40

0 FEET 50

IA. HWY. 1 RAMP 'A'

VPI +58.170
Elv 815.42
K = 39
Len 170.00 ft
ex = 0.92′
DS = 45 mph

VPI +00.000
Elv 830.47
K = 248
Len 1,000.00 ft
ex = -5.04′
DS = 60 mph

TIE IN
Sta 1587+72.83, Elev = 817.13

TIE IN
Sta 1600+43.85, Elev = 821.28

-2.000%
+2.344%
-1.690%
+2.68% Rt. Ditch Grade
+53 Rt. 810.00
+45 Rt. 812.46
+50 Rt. 818.66
+60 Rt. 818.33
-0.30% Rt. Ditch Grade
-1.89% Lt. Ditch Grade
+00 Rt. 819.30
+2.42% Rt. Ditch Grade
+10 Lt. 817.78
+47 Lt. 813.30
+0.50% Lt. Ditch Grade
+44 Lt. 816.28

BEGIN CONSTRUCTION
Sta 1588+35.40, Elev = 816.37

Lt: 5′ Ditch | Ditch Grade
Rt: Special Shaping | Ditch Grade | 5′ Ditch | Ditch Grade | V Ditch

817.09 816.68 816.43 816.34 816.41 816.64 817.03 817.58 818.16 818.75 819.32 819.87 820.39 820.89 821.36 821.81 822.23 822.63 823.00 823.35 823.67 823.97 824.24 824.48 824.70 824.90 825.07 825.21 825.33 825.43 825.50 825.54 825.56 825.55 825.52 825.46 825.38 825.28 825.14 824.98 824.80 824.59 824.36 824.10 823.82 823.51 823.17 822.82 822.43 822.02 821.60

1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600 1601

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	K.2

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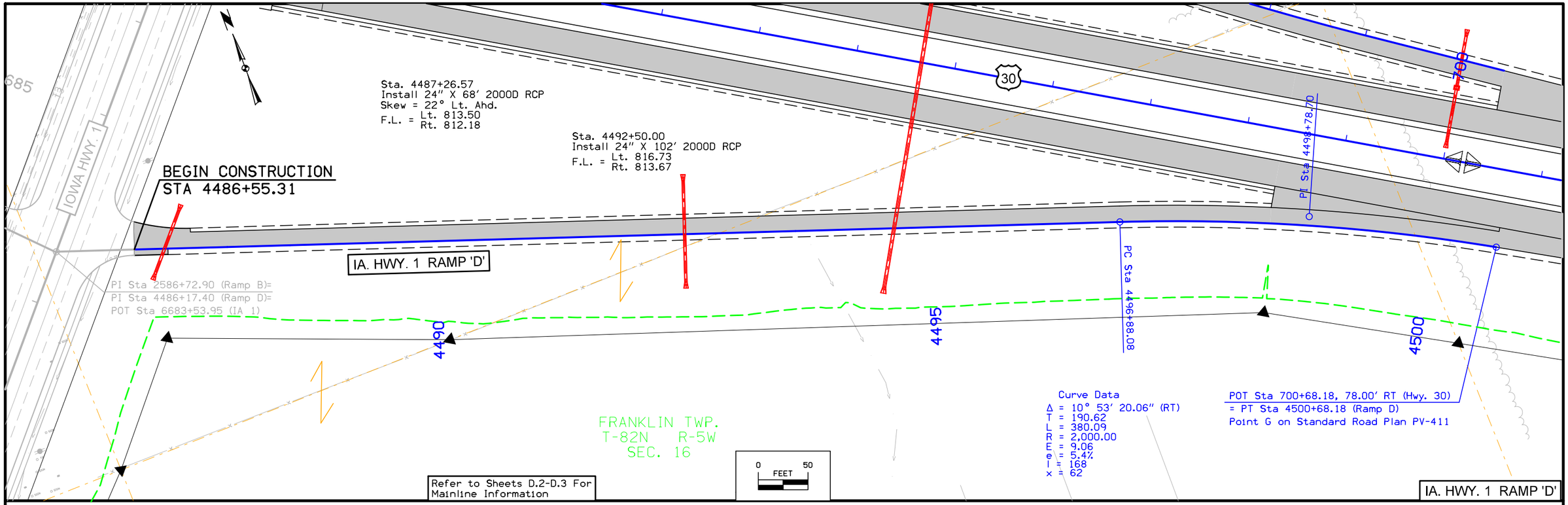

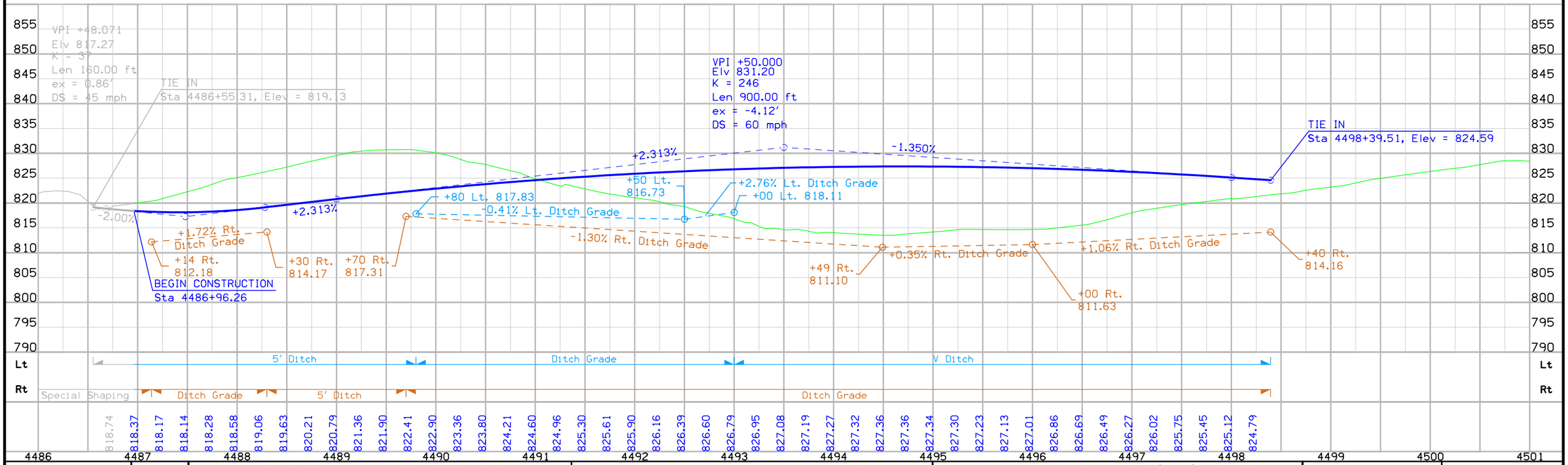

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	K.3

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STORM SEWER

* Bid Item
** For SW-545

For bedding and backfill purposes under Primary roads, use material complying with Article 4120.04 (Class A Crushed Stone) of the Standard Specifications for all bedding and backfill. Place and compact the material according to Article 2435.03, A and Article 2552.03, E (Class I materials).

INTAKES AND UTILITY ACCESSES

PIPES

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. An additional 6 ft length is added to Design Length to account for estimated length to center of structures.

No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes	Line Number	Intake/ Utility Access No. From	Intake/ Utility Access No. To	Class 'D'	Pipe Diameter IN	Bid* Length FT	Design Length FT	Slope %	Flow Lines: Inlet Elevation	Flow Lines: Outlet Elevation	Flow Lines: Other Elevation	Pipe Profile Sheet No.	Notes
1	700+00.00, 75.85'L	SW-511	821.90	817.56		Refer to Sheet V.2 for pipe info.													

SURVEY SYMBOLS

- San. — SAA Sanitary Sewer Line Co. 1
- T1 — TLA Underground Telephone Line Co. 1
- E1 — ELA Underground Electric Line Co. 1
- T2 — TLB Underground Telephone Line Co. 2
- TV — TVA Underground TV Cable Co. 1
- G — GLA Underground Gas Line Co. 1
- FO — FOA Underground Fiber Optic Co. 1
- T3 — TLC Underground Telephone Line Co. 3
- FO2 — FOB Underground Fiber Optic Co. 2
- E2 — ELB Underground Electric Line Co. 2
- FO3 — FOC Underground Fiber Optic Co. 3
- G2 — GLB Underground Gas Line Co. 2
- St.S. — STA Storm Sewer Line Co. 1
- FO4 — FOD Underground Fiber Optic Co. 4
- G3 — GLC Underground Gas Line Co. 3
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- EP Edge of Paved Roads (ML or SR)
- SNP Unpaved Shoulder
- CU Back of Curb
- DIK Centerline of Dike or Dam
- RIP Rip-Rap
- GU Gutter In Front of Curb
- SWK Sidewalk
- CON Concrete or A/C Slab
- ENP Edge Paved Entrance & Park Lot
- ENT Centerline BL of Entrance
- ENU Edge Unpaved Entrance & Parking
- BNK Stream Bank
- EG Edge of Gravel Road
- EW Edge of Water
- SH Paved Shoulder
- SNK Sink Hole
- TPD Telephone Pedestal
- PPA Power Pole Co. 1
- SI Sign
- PIP Pipe Culvert
- FW Wire Fence
- PLG Location of General Photo
- TLNR Tree Line Right
- IN Storm Sewer Intake
- MIS Miscellaneous
- LUM Luminaire
- TDC Tree Deciduous
- BLD Building or Foundation
- PR Electic Riser Pole
- UB Utility Box
- SL Speed Limit Sign
- MH Utility Access (Manhole)
- FHD Fire Hydrants
- WV Water Valve
- RET Retaining Walls
- FCL Chain Link and Security Fence
- CUL Culvert
- EB Electrical Box
- SHR Shrub
- SEP Septic Tank
- TEV Evergeen Tree
- TLNL Tree Line Left
- BIN Grain Bin
- LP L.P. Tank
- FWD Wood Fence
- GV Gas Valve
- WEL Well
- GDL Guard Rail Steel
- FLG Flag Poles
- WHD Water Hydrant
- HDG Hedge Row
- BB Billboard
- OUT Tile Outlet
- GP Guard Post (Less Than 4 Posts)
- TV Satelite TV Dish
- MM Mile Marker Post
- TVP TV Pedestal
- LC Lot Corner
- INB Storm Sewer Beehive Intake
- TFR Tree Fruit

UTILITY LEGEND

- PPA Power Pole Co. 1
- E1 – Unlabeled Electric
- E2 – Alliant Energy
- FO – Iowa Network Services
- FO2 – CenturyLink
- FO3 – Windstream
- FO4 – Iowa Health Systems
- Petro — Magellan
- G2 – Buckeye Partners (12" Steel Petroleum, Gas and Diesel)
- G3 – Alliant Energy
- San. – Sanitary Sewer Line
- St.S. – Storm Sewer Line
- T1 – Windstream
- T2 – Iowa Department of Transportation
- T3 – CenturyLink
- TV – Mediacom
- Cipco — CIPCO Transmission Lines
- ITC — ITC Transmission Lines

PLAN VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Purple (Halo)	(15)	Backslope Drains
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
SHADING	**Design Color No.**	
Brown, Light	(236)	Core Out

PROFILE VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Blue	(1)	Proposed Alignment, Stationing, and Alignment Annotation
Green	(2)	Existing Ground Line Profile
Green, Med	(227)	Topsoil
Green, Med	(227)	Slope Dressing Only
Orange	(6)	Loam
Brown, Dark	(238)	Class 10
Brown, Med	(237)	Sand
Red	(3)	Unsuitable A
Pink, Dark	(13)	Unsuitable B
Pink	(11)	Unsuitable C
Red	(3)	Shale
Red	(3)	Waste
Gray, Light	(48)	Broken and Weathered Rock
Gray, Med	(80)	Rock
Gray, V.Dark	(128)	Boulders

PATTERN AND SYMBOL LEGEND OF SOILS SHEETS

- Drill
- Water
- Dry
- Sample
- Plugged
- Moisture
- Shelby
- Blow Count
- Dens. Core
- Dig/Core
- Treatment
- Sand Blanket
- Soil Remediation Area
- Select Soil
- Select Sand
- Slope Dressing Only
- Broken and Weathered Rock
- Rock

Soils Book No. Braun Intertec
Date(s) Drilled 2013-2015

- Gravelly Sand/Sandy Gravel
- Unsuitable A
- Unsuitable B
- Unsuitable C
- Sandy Soil
- Boulders
- Shale

- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Clearing & Grubbing Area
- Pavement Removal

RIGHT-OF-WAY LEGEND

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

NOTE: Sounding and test boring data shown in the plans were accumulated for designing and estimating purposes. Their appearance on the plans does not constitute a guarantee that conditions other than those indicated will be encountered. Details and notes shown elsewhere shall be used for roadway and structure construction.

SOILS LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES Q & R)

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.1

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FRANKLIN TWP.
T-82N R-5W
SEC. 16

IA. HWY. 1 RAMP 'C'

IA. HWY. 1 RAMP 'A'

IA. HWY. 1 RAMP 'D'

IA. HWY. 1 RAMP 'B'

IOWA HWY. 1

RB1498 RB1410 RB1503 RB1504 RB1505 RB1506 RB1507 RB1131 RB1130 RB1126 RB1511 RB1510 RB1509 RB1407 RB1408 RB1409

SB1117 SB1120 SB1123 SB1124 SB1127 SB1129 SB1122 SB1128 SB1119 SB1118 SB1121 SB1125 SB1512 SB1513

BB1551 BB1552 BB1553 BB1554 BB1556 BB1558 BB1555 BB1557

685 690 695

30

Settlement Plate 7
STA. 688+40 LT 26
DETAIL SEE STANDARD EW-212

Settlement Plate 8
STA. 688+31 RT 26
DETAIL SEE STANDARD EW-212

0 50
FEET

FRANKLIN TWP.
T-82N R-5W
SEC. 16

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.2

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SHELBY TUBE CORE DATA

CORE NO.	SB1122(2-4)	SB1128(14-16)
DEPTH IN FEET	2-4	14-16
CLASSIFICATION (AASHTO)	A-7-6(26)	A-6(4)
COEFF. CONSOL. FT^2/DAY	-	-
TRIAXIAL COMPRESSION	CU	CU
COHESION, C - PSF	172	1,136
FRICTION ANGLE, ϕ - Degrees	31	16
MOISTURE CONTENT %	18	18
DENSITY - PCF	97	114

CU - CONSOLIDATED & UNDRAINED
UU - UNCONSOLIDATED & UNDRAINED
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)

US Highway 30 Eastbound

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.3

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SHELBY TUBE CORE DATA		
CORE NO.	SB1124(9-11)	SB1124(14-16)
DEPTH IN FEET	9-11	14-16
CLASSIFICATION (AASHTO)	A-4(4)	A-6(4)
COEFF. CONSOL. FT^2/DAY	0.1	-
TRIAXIAL COMPRESSION	CU	CU
COHESION, C - PSF	1,290	1,148
FRICTION ANGLE, ϕ - Degrees	28	12
MOISTURE CONTENT %	21	17
DENSITY - PCF	108	115
CU - CONSOLIDATED & UNDRAINED		
UU - UNCONSOLIDATED & UNDRAINED		
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)		

US Highway 30 Westbound

FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC**	**LINN** COUNTY	PROJECT NUMBER **NHSX-030-7(188)--3H-57**	SHEET NUMBER **Q.4**

FRANKLIN TWP.
T-82N R-5W
SEC. 15

1600

700

705

710

RB1131 RB1133 RB1135 RB1137 RB1139 RB1141

RB1132 RB1134 RB1136 RB1138 RB1140

30

4500

FRANKLIN TWP.
T-82N R-5W
SEC. 16

0 50
FEET

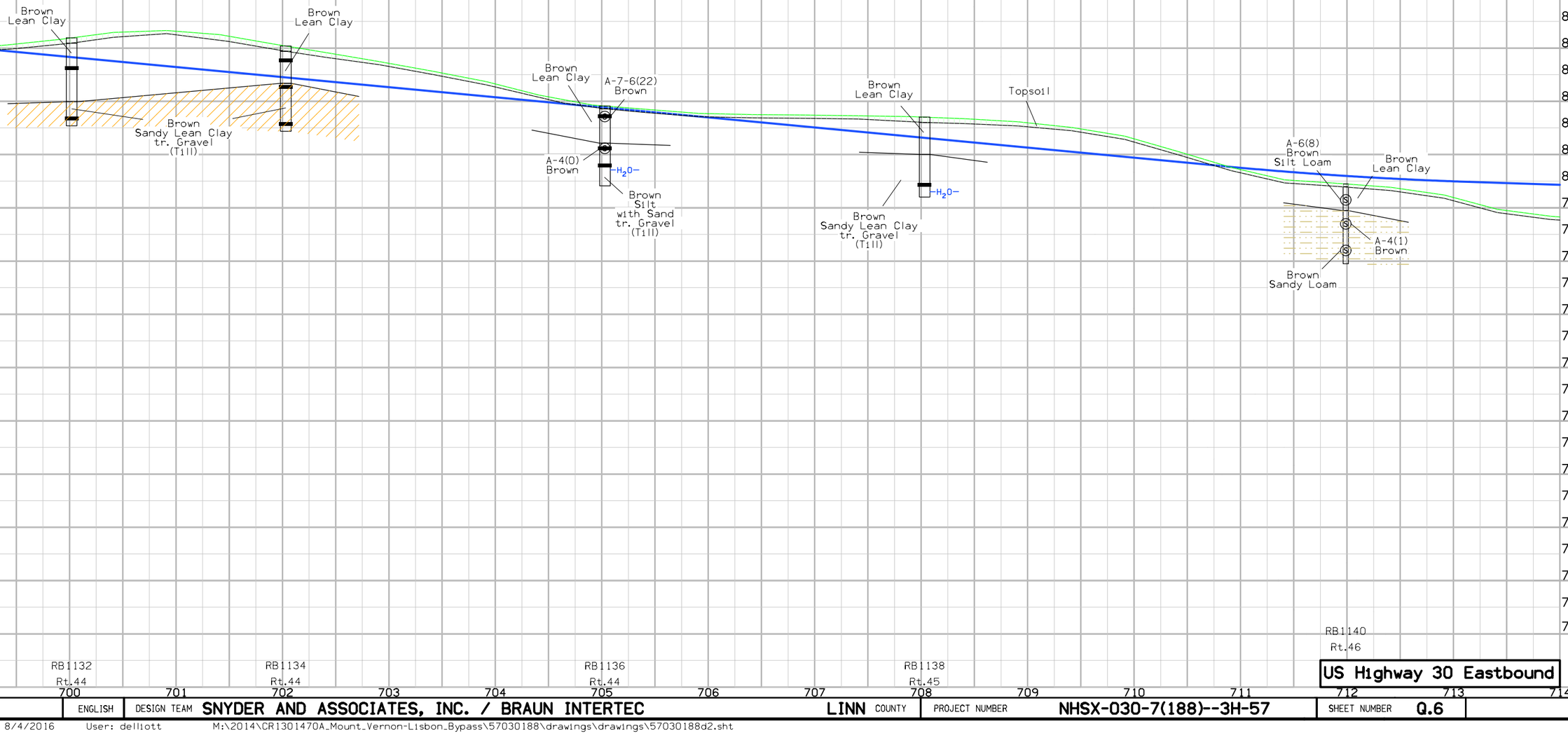
FRANKLIN TWP.
T-82N R-5W
SEC. 15

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.5

10:45:46 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

	26,17 89,120 --,--	19,18,19 101,122,115 --,--,--	20,23,16 97,114,117 21,NP,--	Cut Moisture Cut Density (lb/ft3) Plastic Limit	16 116 --	--,--,-- --,--,-- 19,14,--



RB1132
Rt.44

RB1134
Rt.44

RB1136
Rt.44

RB1138
Rt.45

RB1140
Rt.46

US Highway 30 Eastbound

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.6

10:45:47 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

26,27,8
--,104,125
--,--,--

22,--,28,--
98,--,102,--
--,18,--,18

28,26
87,105
--,--

17,--,14,--
102,--,120,--
--,19,--,14

--,--,--
--,--,--
--,22,19

Brown
Lean Clay

Brown
Carbon 4%

Brown
Lean Clay

A-6(15)
Brown
112 @ 15
Silty Clay Loam

A-6(10)
Brown

Topsoil

Brown
Lean Clay

Brown
Sandy Lean Clay
tr. Gravel
(T1ll)

Brown
Sandy Lean Clay
tr. Gravel
(T1ll)

$-H_2O-$

Brown
Sandy Lean Clay
tr. Gravel
(T1ll)

A-6(14)
Brown

A-6(5)
Brown

$-H_2O-$

Brown
Carbon 4%

A-6(13)
Brown

A-6(10)
Brown

Brown
Sandy Lean Clay
tr. Gravel
(T1ll)

RB1141
shifted
5 feet left
to show on
Q Sheet

RB1141
Lt.46

RB1133
Lt.44

RB1135
Lt.44

RB1137
Lt.46

RB1139
Lt.45

US Highway 30 Westbound

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.7

10:45:48 AM 8/4/2016 User: dellıott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 15

715

720

725

RB1141

RB1147

RB1149

SB1142

RB1146

30

RB1148

SB1150

FRANKLIN TWP.
T-82N R-5W
SEC. 15

0 50
FEET

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.8	

10:45:49 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

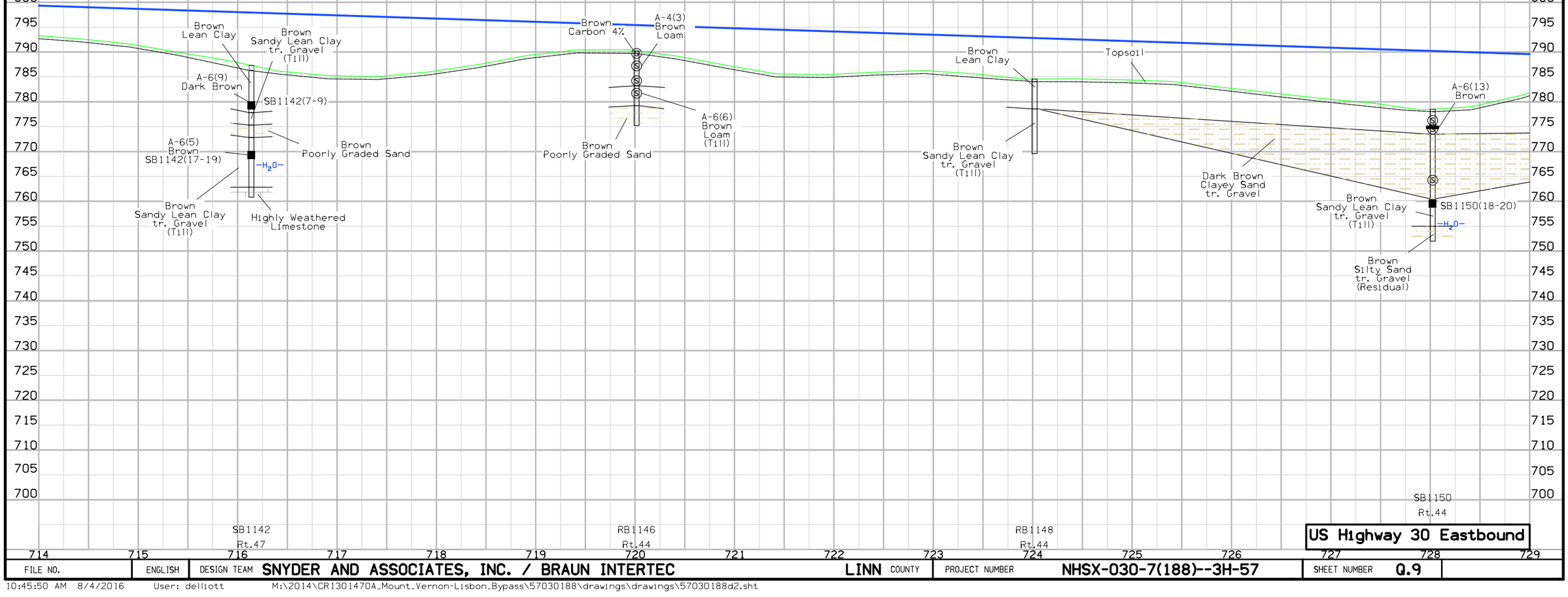
19,16
107,119
13,14

27,18,22,15
--,--,--,--
--,16,--,15

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

29,27,12,13
--,100,--,118
24,22,--,--

SHELBY TUBE CORE DATA			
CORE NO.	SB1142(7-9)	SB1142(17-19)	SB1150(18-20)
DEPTH IN FEET	7-9	17-19	18-20
CLASSIFICATION (AASHTO)	A-6(9)	A-6(5)	-
COEFF. CONSOL. FT^2/DAY	-	-	-
TRIAXIAL COMPRESSION	UU	UC	UC
COHESION, C - PSF	1,610	1,183	753
FRICTION ANGLE, ϕ - Degrees	-	-	-
MOISTURE CONTENT %	19	16	13
DENSITY - PCF	107	119	118
CU - CONSOLIDATED & UNDRAINED			
UU - UNCONSOLIDATED & UNDRAINED			
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)			



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.9

10:45:50 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

875 870 865 860 855 850 845 840 835 830 825 820 815 810 805 800 795 790 785 780 775 770 765 760 755 750 745 740 735 730 725 720 715 710 705 700

Topsoil

Brown
Lean Clay

Brown
Sandy Lean Clay
tr. Gravel
(Till)

Brown
Lean Clay

Brown
Sandy Lean Clay
tr. Gravel
(Till)

RB1147
Lt.44

RB1149
Lt.44

714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729

US Highway 30 Westbound

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.10

10:45:51 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 15

730

735

740

RB1151

RB1153

RB1155

RB1157

RB1160

BA1159

30

RB1152

RB1154

RB1156

RB1158

0 FEET 50

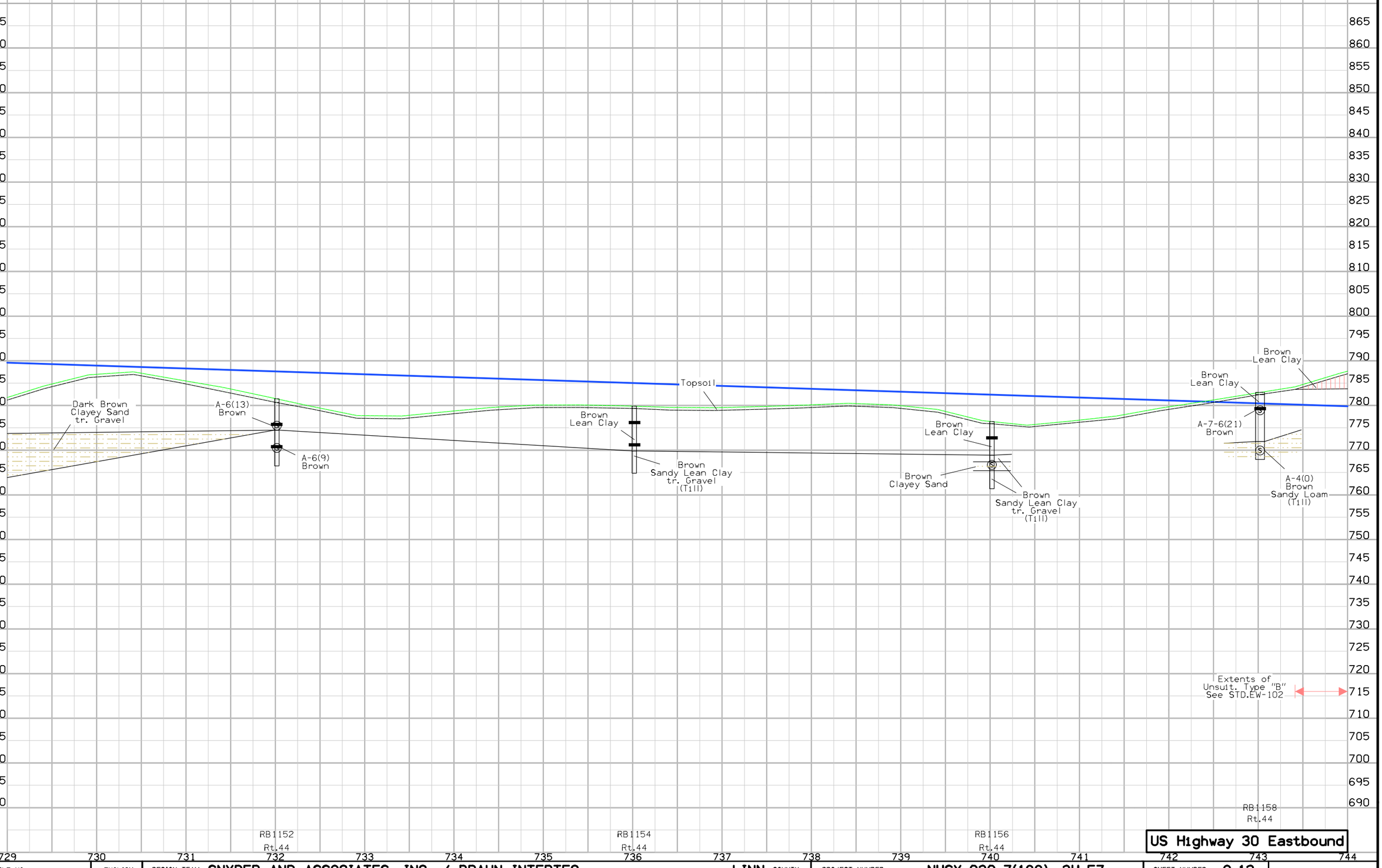
FRANKLIN TWP.
T-82N R-5W
SEC. 15

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.11

10:45:52 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

	21.20 108.113 23.18	Cut Moisture Cut Density (lb/ft3) Plastic Limit	29.30 96.100 --.--	25.17 101.-- --.--	27.13 100.-- 22.NP



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER Q.12

10:45:53 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

26,28,24,17,19
--,--,105,--,--
--,22,--,--,17

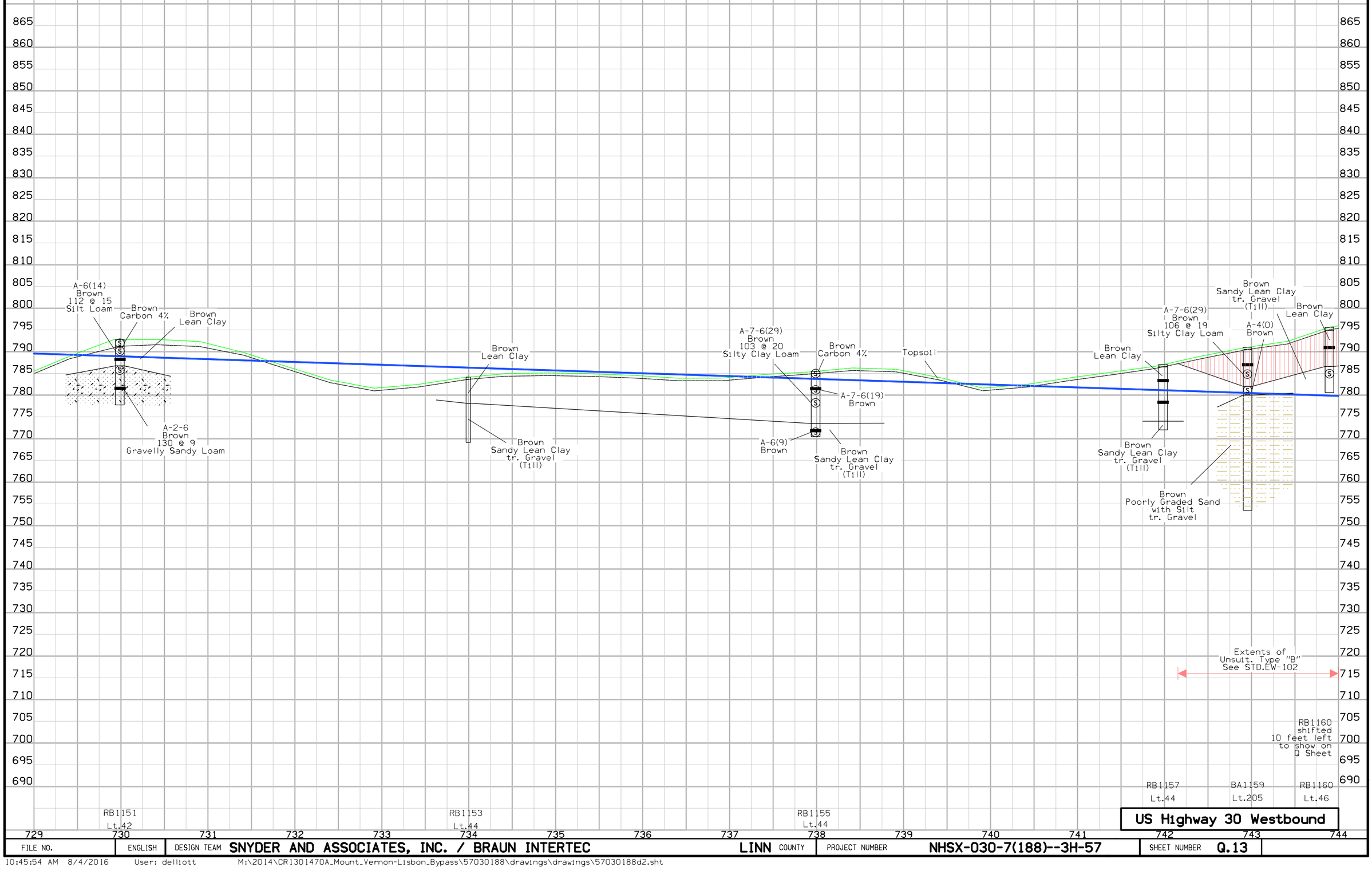
Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

21,27,28,23
--,101,--,114
--,23,24,18

27,24
98,103
--,--

20,--,11
106,--,--
--,17,NP

24,14
100,--
--,--



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.13

10:45:54 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 15

FRANKLIN TWP.
T-82N R-5W
SEC. 14

59

BA1162

BA1166

BA1177

745

750

755

RB1160

RB1163

RB1167

SB1710

RB1172

RB1174

RB1178

RB1181

RB1161

RB1165

RB1169

SB1171

RB1176

RB1180

30

BA1164

BA1168

BA1175

BA1179

FRANKLIN TWP.
T-82N R-5W
SEC. 15

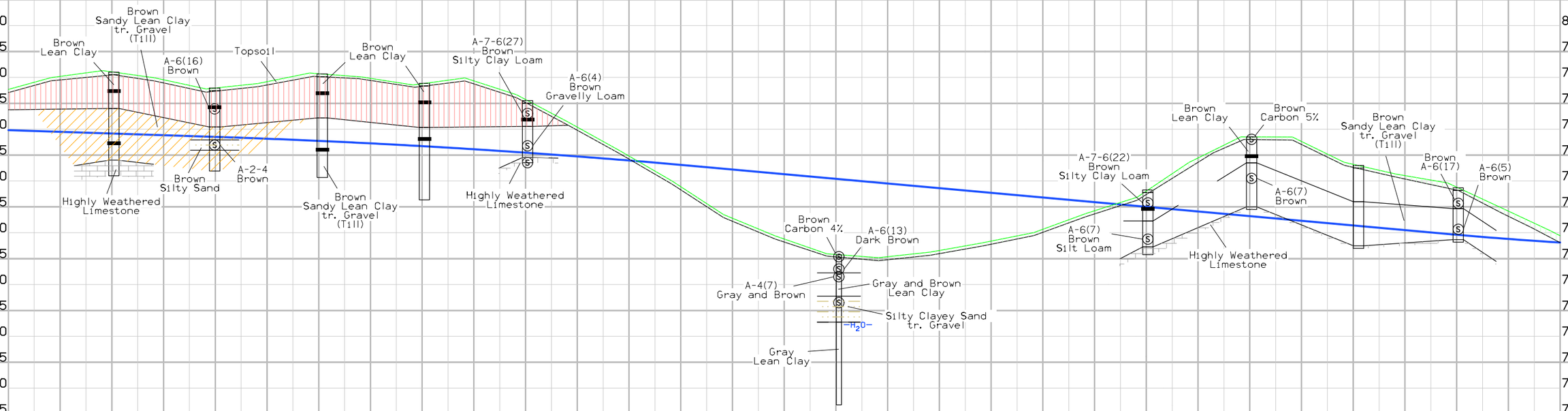
FRANKLIN TWP.
T-82N R-5W

0 FEET 50

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.14

10:45:54 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht



US Highway 30 Eastbound

FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC**	**LINN** COUNTY	PROJECT NUMBER	**NHSX-030-7(188)--3H-57**	SHEET NUMBER **Q.15**

10:45:55 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

SHELBY TUBE CORE DATA	
CORE NO.	RB1181(4.5-6.5)
DEPTH IN FEET	4.5-6.5
CLASSIFICATION (AASHTO)	A-6(16)
COEFF. CONSOL. FT^2/DAY	-
TRIAXIAL COMPRESSION	CU
COHESION, C - PSF	1,320
FRICTION ANGLE, ϕ - Degrees	15
MOISTURE CONTENT %	21
DENSITY - PCF	105
CU - CONSOLIDATED & UNDRAINED	
UU - UNCONSOLIDATED & UNDRAINED	
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)	

US Highway 30 Westbound

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.16

FRANKLIN TWP.
T-82N R-5W
SEC. 14

STANDING ROCK RD.

SB1416

Settlement Plate 10
STA. 7772+70 LT 13
DETAIL SEE STANDARD EW-212

BB1561

760

765

770

RB1181

RB1189

RB1191

RB1194

SB1185

30

BB1560

SB1186

RB1188

RB1190

RB1193

SB1183

SB1187

MINIMUM 1.0 FT THICK
GRANULAR WORKING BLANKET

BB1559

Settlement Plate 9
STA. 7769+65 RT 13
DETAIL SEE STANDARD EW-212

RB1415

FRANKLIN TWP.
T-82N R-5W
SEC. 14

0 50
FEET

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.17

10:45:58 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

SHELBY TUBE CORE DATA

CORE NO.	SB1183(2-4)	SB1187(2-4)	SB1186(4-6)
DEPTH IN FEET	2-4	2-4	4-6
CLASSIFICATION (AASHTO)	A-6(17)	A-6(19)	A-2-4
COEFF. CONSOL. FT^2/DAY	0.21	0.19	0.09
TRIAXIAL COMPRESSION	-	-	-
COHESION, C - PSF	1,134	-	-
FRICTION ANGLE, ϕ - Degrees	28	-	-
MOISTURE CONTENT %	21	22	12
DENSITY - PCF	107	90	111
CU - CONSOLIDATED & UNDRAINED			
UU - UNCONSOLIDATED & UNDRAINED			
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)			

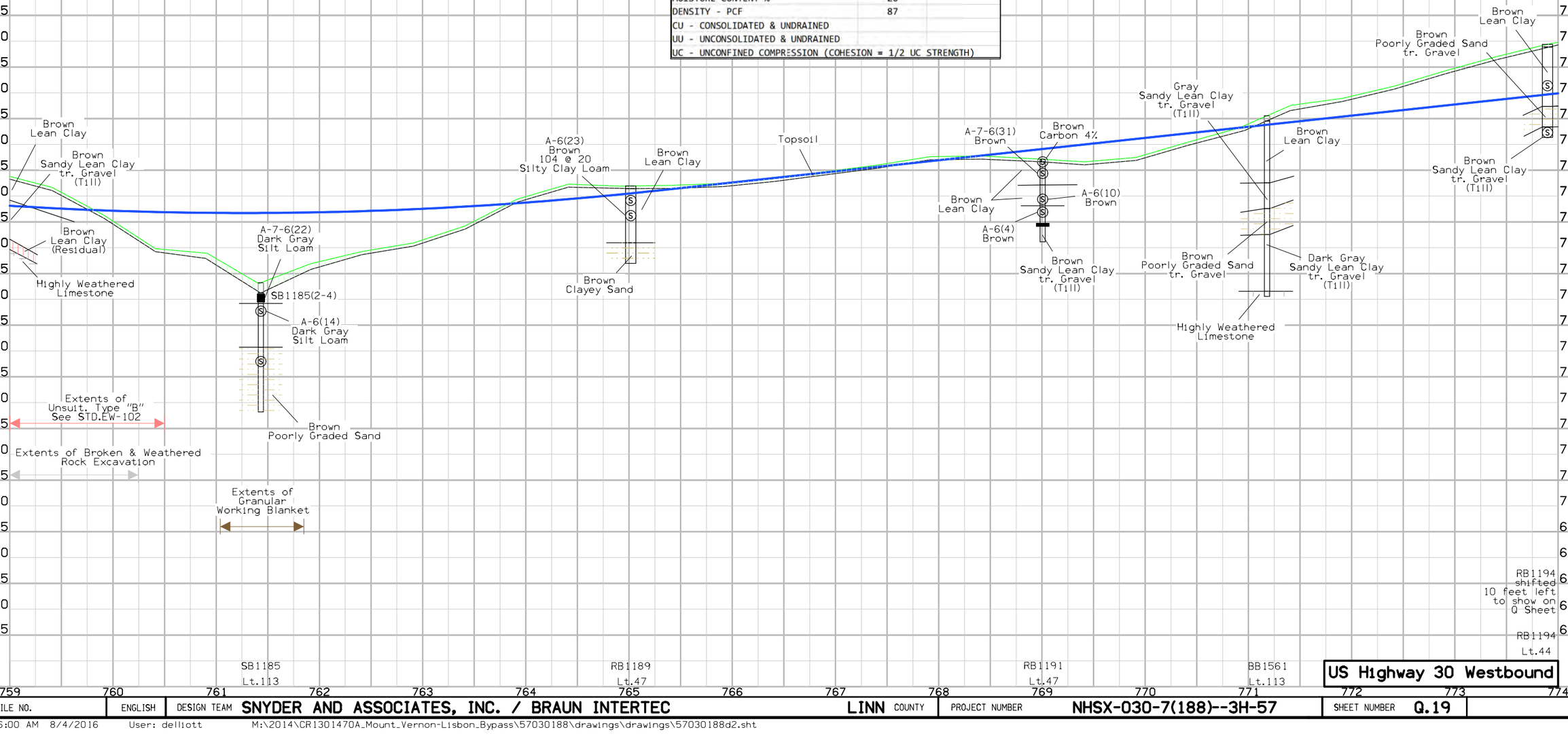
US Highway 30 Eastbound

FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC**	**LINN** COUNTY	PROJECT NUMBER	**NHSX-030-7(188)--3H-57**	SHEET NUMBER	**Q.18**	

10:45:58 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

20,20,17	18,--	Cut Moisture	22,21,24,--,21		13,5
87,--,--	--,---	Cut Density (lb/ft3)	--,---,---,98		--,--
20,14,--	--,19	Plastic Limit	--,17,11,13,--		--,--

SHELBY TUBE CORE DATA	
CORE NO.	SB1185(2-4)
DEPTH IN FEET	2-4
CLASSIFICATION (AASHTO)	A-7-6(21)
COEFF. CONSOL. FT^2/DAY	0.26
TRIAXIAL COMPRESSION	CU
COHESION, C - PSF	1,728
FRICTION ANGLE, ϕ - Degrees	9
MOISTURE CONTENT %	20
DENSITY - PCF	87
CU - CONSOLIDATED & UNDRAINED	
UU - UNCONSOLIDATED & UNDRAINED	
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)	



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.19

10:46:00 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 14

N

MINIMUM 1.0 FT THICK
GRANULAR WORKING BLANKET

775

780

785

RB1194 RB1196 SB1199 RB1207 RB1209

30

RB1195 SB1197 SB1201 SB1205 RB1208 RB1210

SB1202

SB1711

SB1200

SB1204

0 50
FEET

FRANKLIN TWP.
T-82N R-5W
SEC. 14

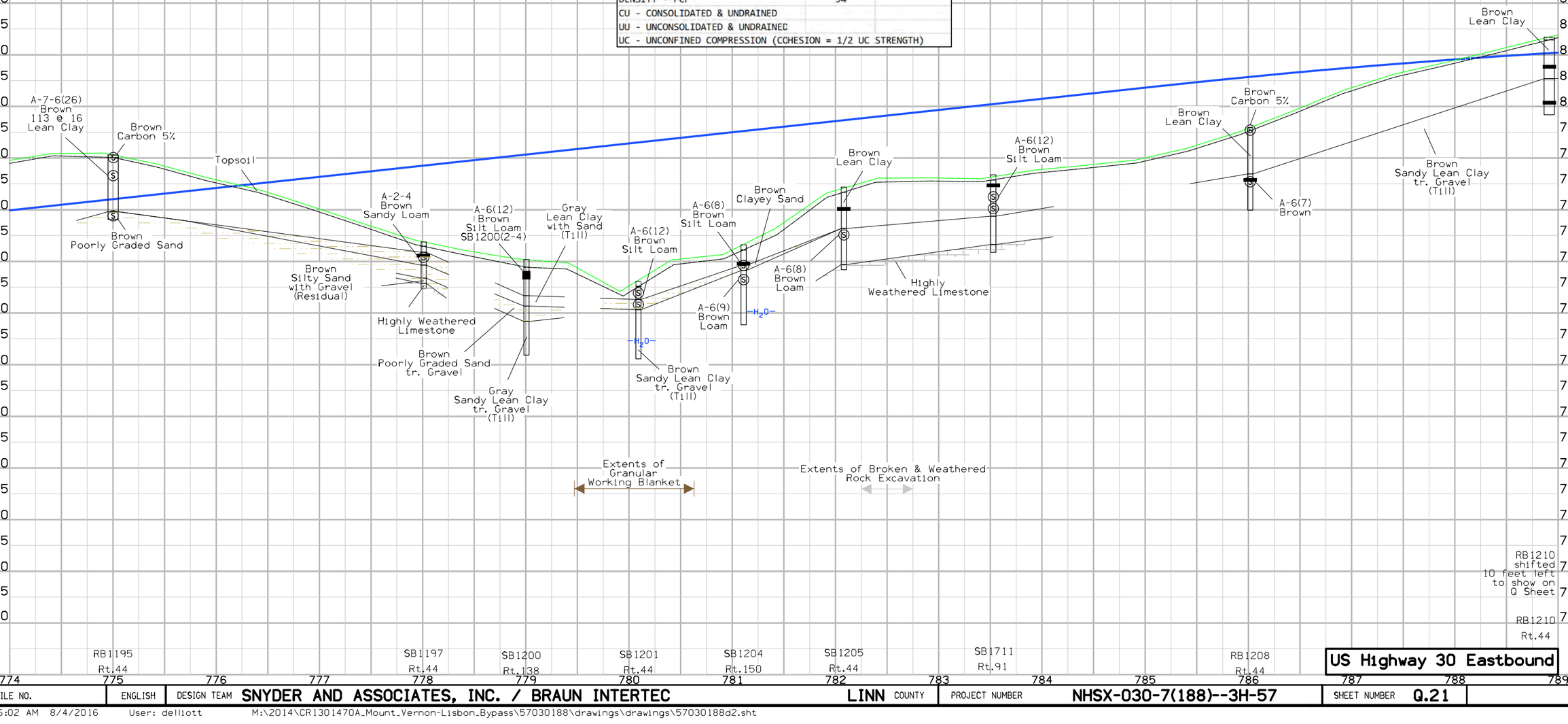
US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.20

10:46:01 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

	22,25,9 --,--,-- --,25,NP	Cut Moisture Cut Density (lb/ft3) Plastic Limit	10 104 16	14 94 22	22,6 --,-- 19,--	16,12 99,-- 18,15	18,10 107,-- --,15	17,25,11 95,--,-- --,20,--	26,21 --,116 --,17	23,12 102,122 --,--

SHELBY TUBE CORE DATA	
CORE NO.	SB1200(2-4)
DEPTH IN FEET	2-4
CLASSIFICATION (AASHTO)	A-6(12)
COEFF. CONSOL. FT^2/DAY	0.15
TRIAXIAL COMPRESSION	-
COHESION, C - PSF	-
FRICTION ANGLE, ϕ - Degrees	-
MOISTURE CONTENT %	14
DENSITY - PCF	94
CU - CONSOLIDATED & UNDRAINED	
UU - UNCONSOLIDATED & UNDRAINED	
UC - UNCONFINED COMPRESSION (CCHESION = 1/2 UC STRENGTH)	



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.21

10:46:02 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

24 26,21,27
94 97,103,--
18 19,20,15

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

26,11
--,127
--,15

SHELBY TUBE CORE DATA			
CORE NO.	SB1199(4.5-6.5)	SB1202(3-5)	SB1202(5.5-7.5)
DEPTH IN FEET	4.5-6.5	3-5	5.5-7.5
CLASSIFICATION (AASHTO)	A-7-6(25)	-	-
COEFF. CONSOL. FT^2/DAY	0.21	0.17	-
TRIAXIAL COMPRESSION	CU	CU	UC
COHESION, C - PSF	348	452	659
FRICTION ANGLE, ϕ - Degrees	20	19	-
MOISTURE CONTENT %	24	26	21
DENSITY - PCF	94	97	103
CU - CONSOLIDATED & UNDRAINED			
UU - UNCONSOLIDATED & UNDRAINED			
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)			

875 870 865 860 855 850 845 840 835 830 825 820 815 810 805 800 795 790 785 780 775 770 765 760 755 750 745 740 735 730 725 720 715 710 705 700

Brown
Lean Clay

Brown
Sandy Lean Clay
tr. Gravel
(Till)

Brown
Poorly Graded Sand
tr. Gravel

Highly Weathered
Limestone

A-7-6(25)
Brown
Silty Clay Loam
SB1199(4.5-6.5)

Topsoil

A-7-6(23)
Brown
Silty Clay Loam
SB1202(3-5)

A-6(21)
Brown
Silty Clay Loam
SB1202(5.5-7.5)

Brown
Sandy Lean Clay
tr. Gravel
(Till)

H_2O

A-4(1)
Brown
Gravelly Loam

Brown
Poorly Graded Sand
with Clay
tr. Gravel

Brown
Lean Clay
tr. Gravel
(Residual)

Extents of
Granular
Working Blanket

Extents of Broken & Weathered
Rock Excavation

Brown
Lean Clay

Brown
Sandy Lean Clay
tr. Gravel
(Till)

Highly Weathered
Limestone

Brown
Silty Sand
tr. Gravel

Brown
Lean Clay

A-6(10)
Brown

Brown
Sandy Lean Clay
tr. Gravel
(Till)

Extents of Broken & Weathered
Rock Excavation

RB1196
Lt.44

SB1199
Lt.44

SB1202
Lt.100

RB1207
Lt.44

RB1209
Lt.44

774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789

US Highway 30 Westbound

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.22

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FRANKLIN TWP.
T-82N R-5W
SEC. 14

790

795

800

SB1215

RB1211

RB1213

30

RB1210

RB1212

RB1214

SB1216

BA

N

FRANKLIN TWP.
T-82N R-5W
SEC. 14

0 50
FEET

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.23

10:46:05 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

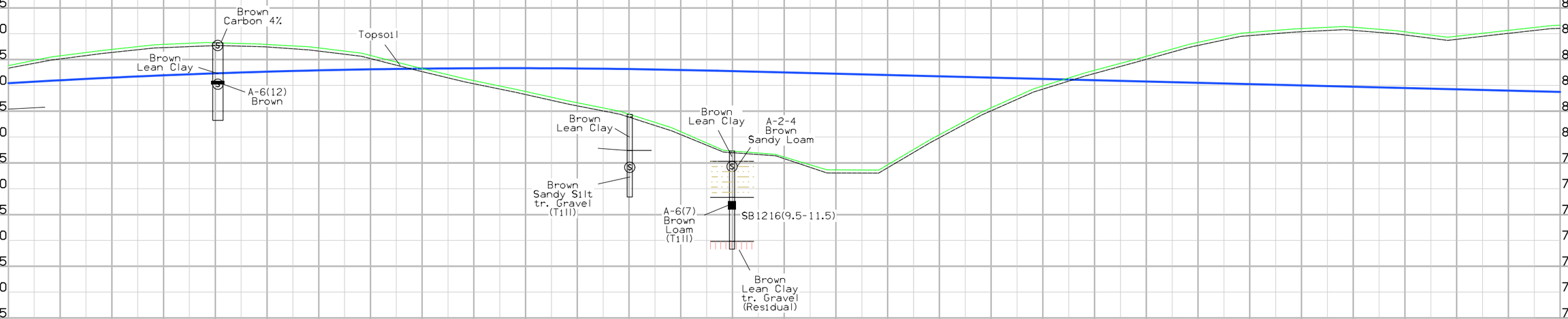
26,28	--	--,13
--,99	--	--,120
--,24	NP	15,13

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

SHELBY TUBE CORE DATA

CORE NO.	SB1216(9.5-11.5)
DEPTH IN FEET	9.5-11.5
CLASSIFICATION (AASHTO)	A-6(7)
COEFF. CONSOL. FT^2/DAY	-
TRIAXIAL COMPRESSION	UC
COHESION, C - PSF	2,202
FRICTION ANGLE, ϕ - Degrees	4
MOISTURE CONTENT %	13
DENSITY - PCF	120

CU - CONSOLIDATED & UNDRAINED
UU - UNCONSOLIDATED & UNDRAINED
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)



RB1212 Rt.44 | RB1214 Rt.44 | SB1216 Rt.127

US Highway 30 Eastbound

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.24

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25
93
21

22,24
--,100
--,20

4,--
--,--
15,15

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

890 885 880 875 870 865 860 855 850 845 840 835 830 825 820 815 810 805 800 795 790 785 780 775 770 765 760 755 750 745 740 735 730 725 720 715

Brown
Lean Clay

A-6(19)
Brown

Brown
Lean Clay

A-4(9)
Brown

Brown
Sandy Lean Clay
tr. Gravel
(Till)

Brown
Sandy Lean Clay
tr. Gravel
(Till)

Brown
Lean Clay

Topsoil

A-2-4
Brown

Brown
Sandy Lean Clay
tr. Gravel
(Till)

A-6(10)
Brown

Brown
Lean Clay

Brown
Sandy Lean Clay
tr. Gravel
(Till)

Gray
Sandy Lean Clay
tr. Gravel
(Till)

RB1211
Lt.44

RB1213
Lt.44

SB1215
Lt.87

US Highway 30 Westbound

789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.25

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FRANKLIN TWP.
T-82N R-5W
SEC. 14

FRANKLIN TWP.
T-82N R-5W
SEC. 13

SB1426

SB1425

SUTLIFF RD.

SUTLIFF ENTRANCE

DB1600

DB1601

DB1602

BA1227

Settlement Plate 12
STA. 8808+20 LT 18
DETAIL SEE STANDARD EW-212

BB1564

805

RB1228

RB1236

RB1240

RB1232

BA1234

BA1237

810

RB1230

BB1565

RB1231

RB1233

RB1235

RB1239

RB1243

BA1241

815

SB1245

BA1229

RB1715

RB1716

30

RB1238

RB1242

RB1244

BB1566

SB1424

Settlement Plate 11
STA. 8804+85 RT 18
DETAIL SEE STANDARD EW-212

SB1246

SB1720

FRANKLIN TWP.
T-82N R-5W
SEC. 14

FRANKLIN TWP.
T-82N R-5W
SEC. 13

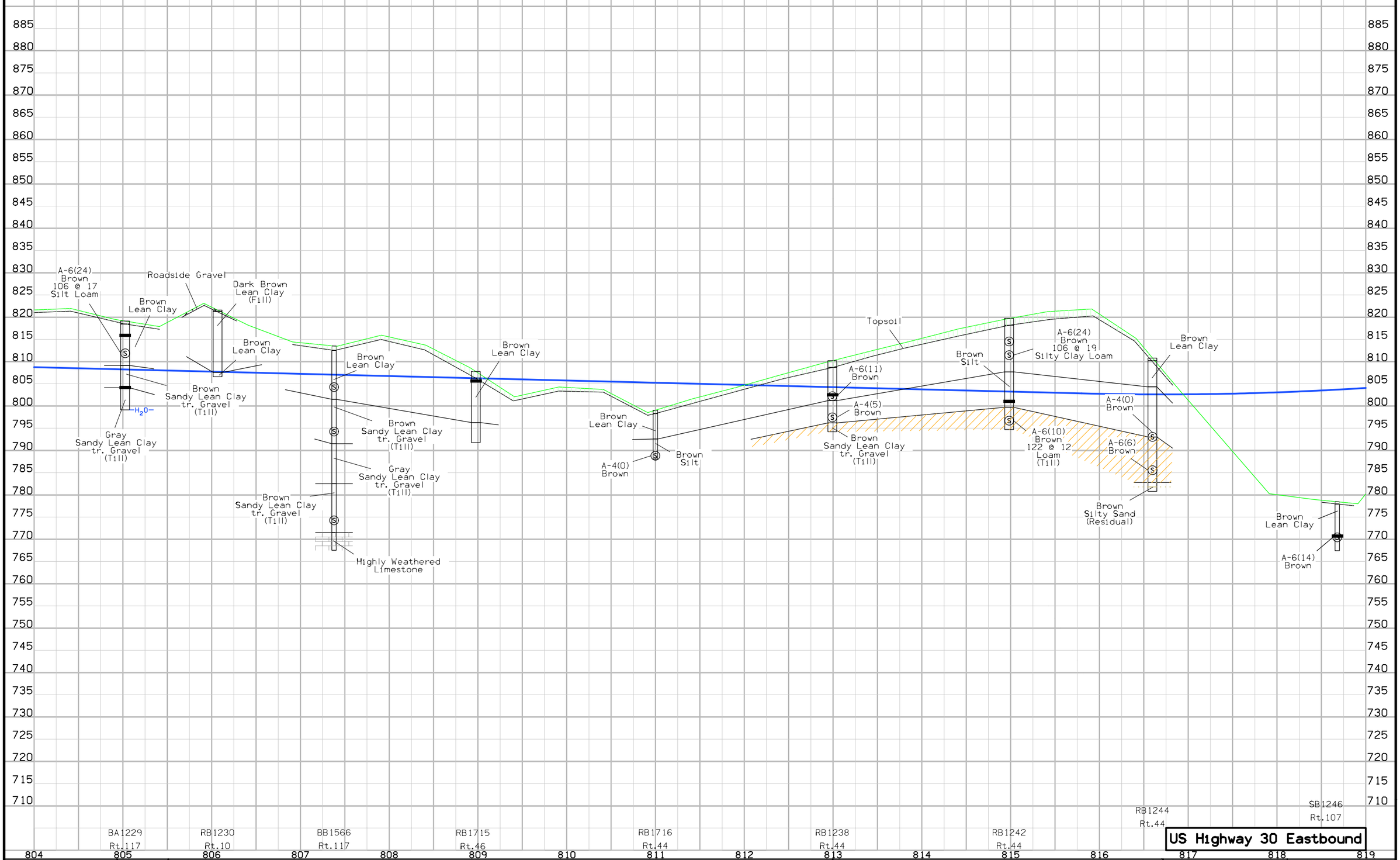
0 50
FEET

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.26

10:46:09 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

US Highway 30 Eastbound



FILE NO. | ENGLISH | DESIGN TEAM **SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC** | **LINN** COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **Q.27**

10:46:10 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

SHELBY TUBE CORE DATA	
CORE NO.	SB1245(9.5-11.5)
DEPTH IN FEET	9.5-11.5
CLASSIFICATION (AASHTO)	A-2-4
COEFF. CONSOL. FT^2/DAY	0.08
TRIAXIAL COMPRESSION	-
COHESION, C - PSF	-
FRICTION ANGLE, ϕ - Degrees	-
MOISTURE CONTENT %	16
DENSITY - PCF	104
CU - CONSOLIDATED & UNDRAINED	
UU - UNCONSOLIDATED & UNDRAINED	
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)	

US Highway 30 Westbound

FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC**	**LINN** COUNTY	PROJECT NUMBER **NHSX-030-7(188)--3H-57**	SHEET NUMBER **Q.28**

FRANKLIN TWP.
T-82N R-5W
SEC. 13

RB1249
SB1255
BA1265
SB1271
RB1247
BA1248
SB1250
SB1253
BA1261
BA1258
SB1270
SB1266
RB1263
RB1260
SB1251
SB1254
RB1257
SB1264
SB1268
RB1262
RB1259
RB1717
RB1256
SB1269
SB1267
SB1719
SB1252

820
825
830
835

MINIMUM 1.0 FT THICK
GRANULAR WORKING BLANKET

MINIMUM 1.0 FT THICK
GRANULAR WORKING BLANKET

30

EXTENTS OF
SOIL CORE OUT

See Sheet Q.53

FRANKLIN TWP.
T-82N R-5W
SEC. 13

0 50
FEET

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.29

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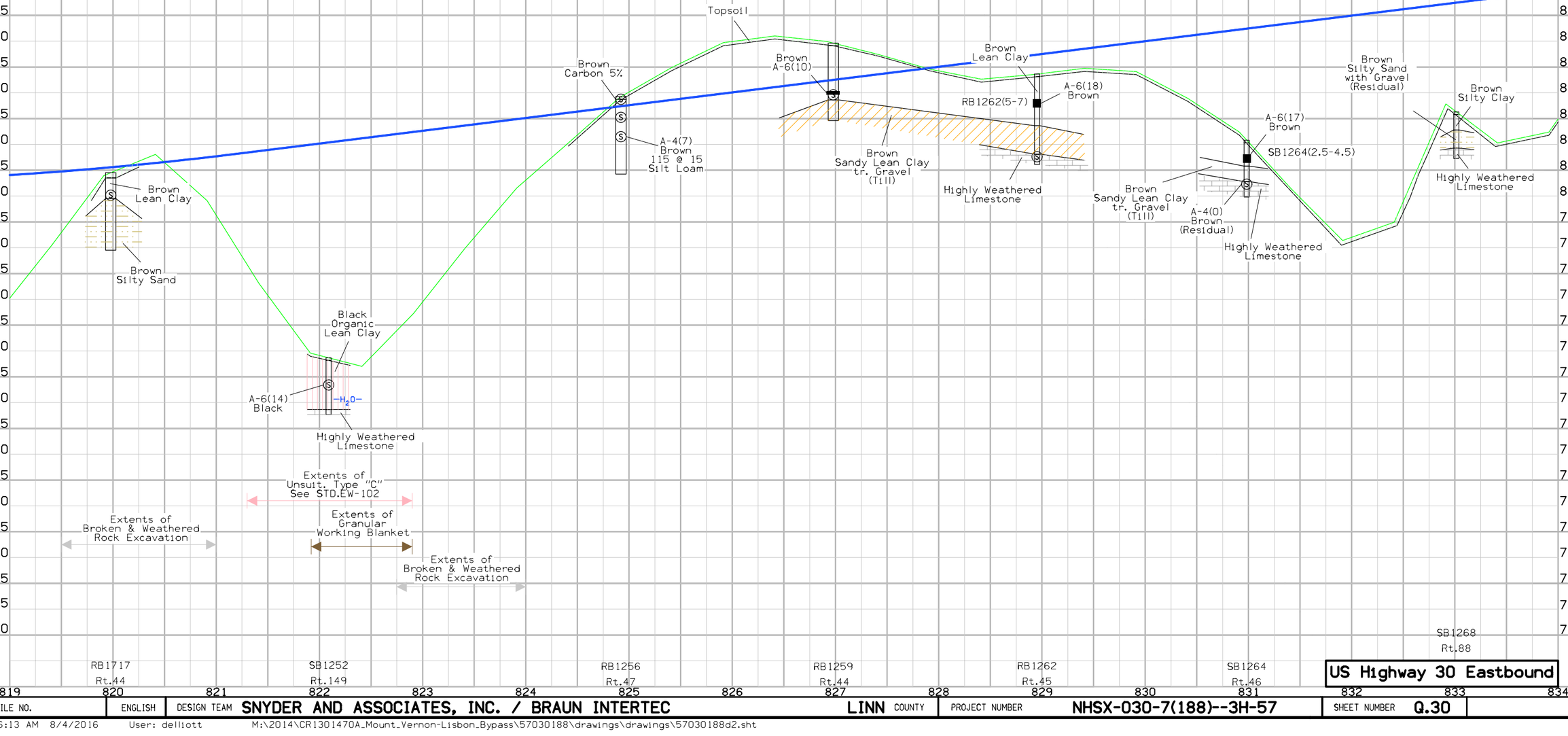
	14 -- --		-- -- 17		30,11,-- --,--,-- --,--,18	Cut Moisture Cut Density (lb/ft3) Plastic Limit	13 121 15		17,33 104,-- 19,--		21,7 104,-- 18,24	

SHELBY TUBE CORE DATA

CORE NO.	RB1262(5-7)	SB1264(2.5-4.5)
DEPTH IN FEET	5-7	2.5-4.5
CLASSIFICATION (AASHTO)	A-6(18)	A-6(17)
COEFF. CONSOL. FT^2/DAY	-	-
TRIAXIAL COMPRESSION	CU	CU
COHESION, C - PSF	610	430
FRICTION ANGLE, ϕ - Degrees	20	34
MOISTURE CONTENT %	17	21
DENSITY - PCF	104	104
CU - CONSOLIDATED & UNDRAINED		
UU - UNCONSOLIDATED & UNDRAINED		
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)		



RB1717 Rt.44 | SB1252 Rt.149 | RB1256 Rt.47 | RB1259 Rt.44 | RB1262 Rt.45 | SB1264 Rt.46 | SB1268 Rt.88

US Highway 30 Eastbound

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.30

10:46:13 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

SHELBY TUBE CORE DATA						
CORE NO.	SB1250(3.5-5.5)	SB1253(2.5-4.5)	SB1254(7.5-9.5)	SB1254(12-14)	SB1266(5-7)	SB1271(7.5-9.5)
DEPTH IN FEET	3.5-5.5	2.5-4.5	7.5-9.5	12.-14	5-7	7.5-9.5
CLASSIFICATION (AASHTO)			A-4(1)	A-5(23)	A-6(15)	A-7-6(36)
COEFF. CONSOL. FT^2/DAY	-	0.07	0.05	0.17	-	-
TRIAXIAL COMPRESSION	UC	CU	CU	CU	CU	UC
COHESION, C - PSF	3,687	964	4,952	934	916	274
FRICTION ANGLE, ϕ - Degrees		[illegible]	16	18	8	8
MOISTURE CONTENT %	[illegible]	18	13	42	12	37
DENSITY - PCF	109	110	119	75	102	77
CU - CONSOLIDATED & UNDRAINED						
UU - UNCONSOLIDATED & UNDRAINED						
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)						

US Highway 30 Westbound

FILE NO. | ENGLISH | DESIGN TEAM **SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC** | **LINN** COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **Q.31**

10:46:15 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188d2.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 13

END CONSTRUCTION
STA 843+05.25

835 840 845

RB1434 RB1270 RB1272 RB1274 RB1275 RB1277 RB1278 RB1280 RB1282 RB1284

BB1569 BB1570 BB1571 BB1574 BB1575 BB1576 BB1577 BB1578 BB1579 BB1580 BB1581 BB1582 BB1583

BA1273 BA1276 BA1279 BA1281 BA1283 BA1285

SB1432 SB1433

GREEN RIDGE RD.

30

0 FEET 50

FRANKLIN TWP.
T-82N R-5W
SEC. 13

US Highway 30

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.32

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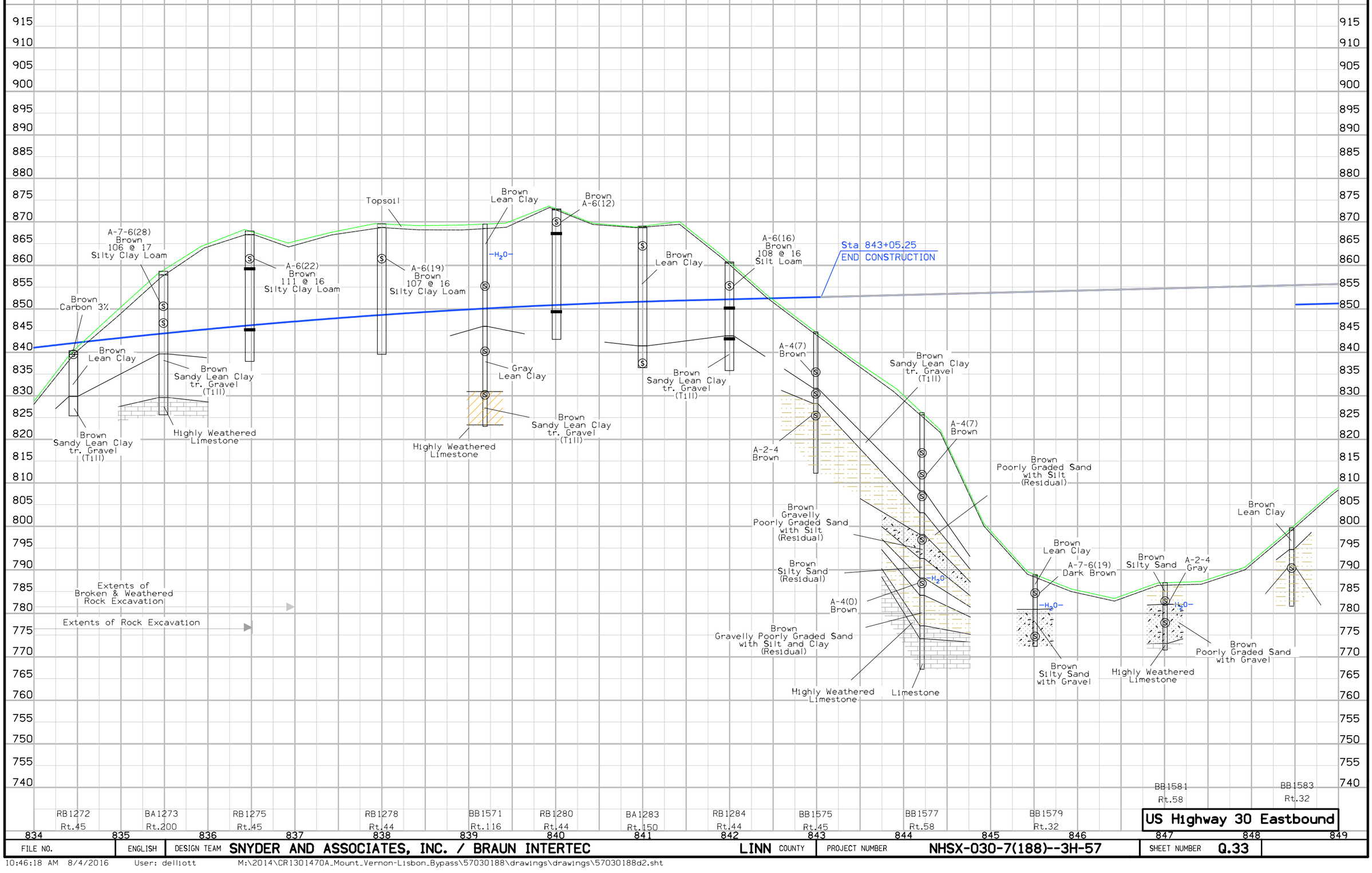

US Highway 30 Eastbound

FILE NO. | ENGLISH | DESIGN TEAM **SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC** | **LINN** COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **Q.33**

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US Highway 30 Westbound

FILE NO.	ENGLISH	DESIGN TEAM **SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC**	**LINN** COUNTY	PROJECT NUMBER **NHSX-030-7(188)--3H-57**	SHEET NUMBER **Q.34**

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FRANKLIN TWP.
T-82N R-5W
SEC. 23

FRANKLIN TWP.
T-82N R-5W
SEC. 14

BEGIN CONSTRUCTION
STA 7760+77.25

Settlement Plate 10
STA. 7772+70 LT 13
DETAIL SEE STANDARD EW-212

Settlement Plate 9
STA. 7769+65 RT 13
DETAIL SEE STANDARD EW-212

STANDING ROCK RD.

7760
7765
7770
770
775

RB1414
RB1415
RB1416
RB1190
RB1191
RB1193
RB1194
RB1195
BB1559
BB1560
BB1561
SB1416

30

0 FEET 50

Standing Rock Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.35

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Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

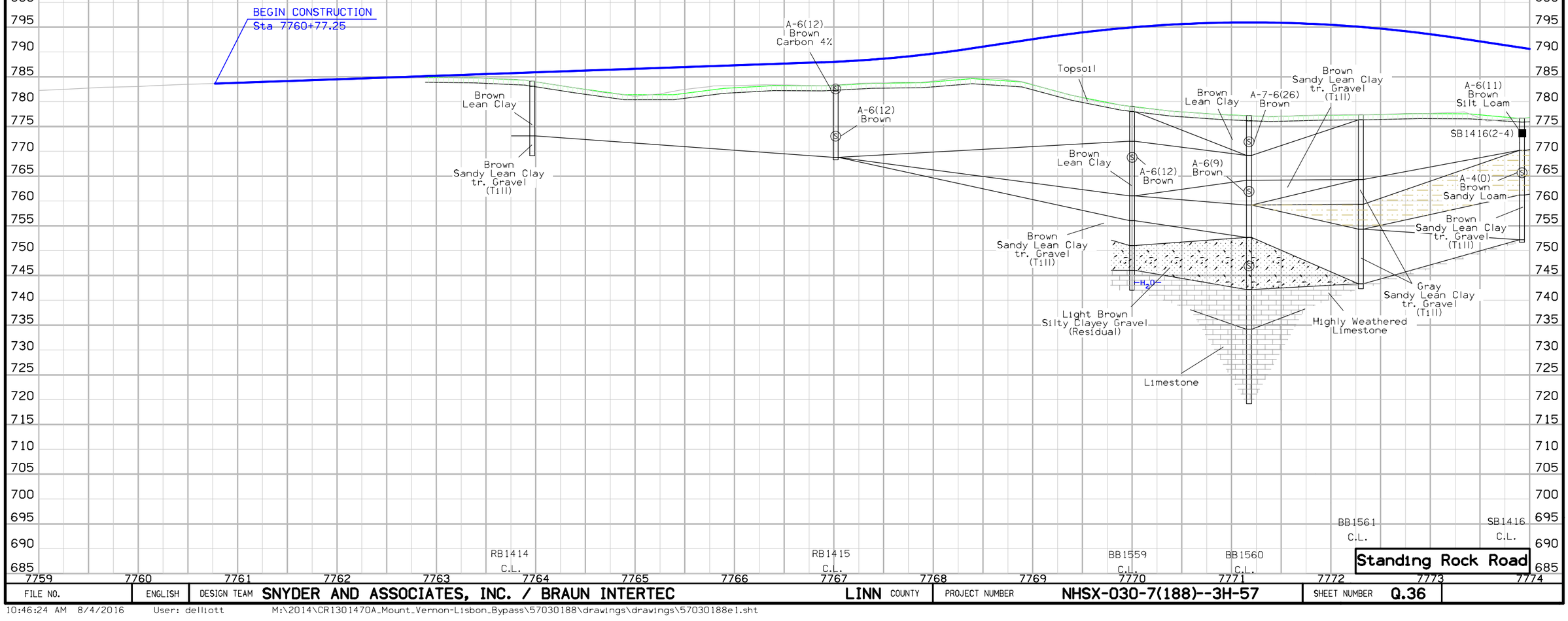
22,--
--,--
22,20

27
--
22

--,17,--
--,--,--
19,18,--

16,13
91,--
11,12

SHELBY TUBE CORE DATA	
CORE NO.	SB1416(2-4)
DEPTH IN FEET	2-4
CLASSIFICATION (AASHTO)	A-6(11)
COEFF. CONSOL. FT^2/DAY	-
TRIAXIAL COMPRESSION	CU
COHESION, C - PSF	120
FRICTION ANGLE, ϕ - Degrees	14
MOISTURE CONTENT %	16
DENSITY - PCF	91
CU - CONSOLIDATED & UNDRAINED	
UU - UNCONSOLIDATED & UNDRAINED	
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)	



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER Q.36

10:46:24 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

NKLIN TWP.
2N R-5W
EC. 14

FRANKLIN TWP.
T-82N R-5W
SEC. 14

7775

7780

7785

SB1416

RB1417

RB1418

END CONSTRUCTION
STA 7786+07.16

0 50
FEET

Standing Rock Road

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.37

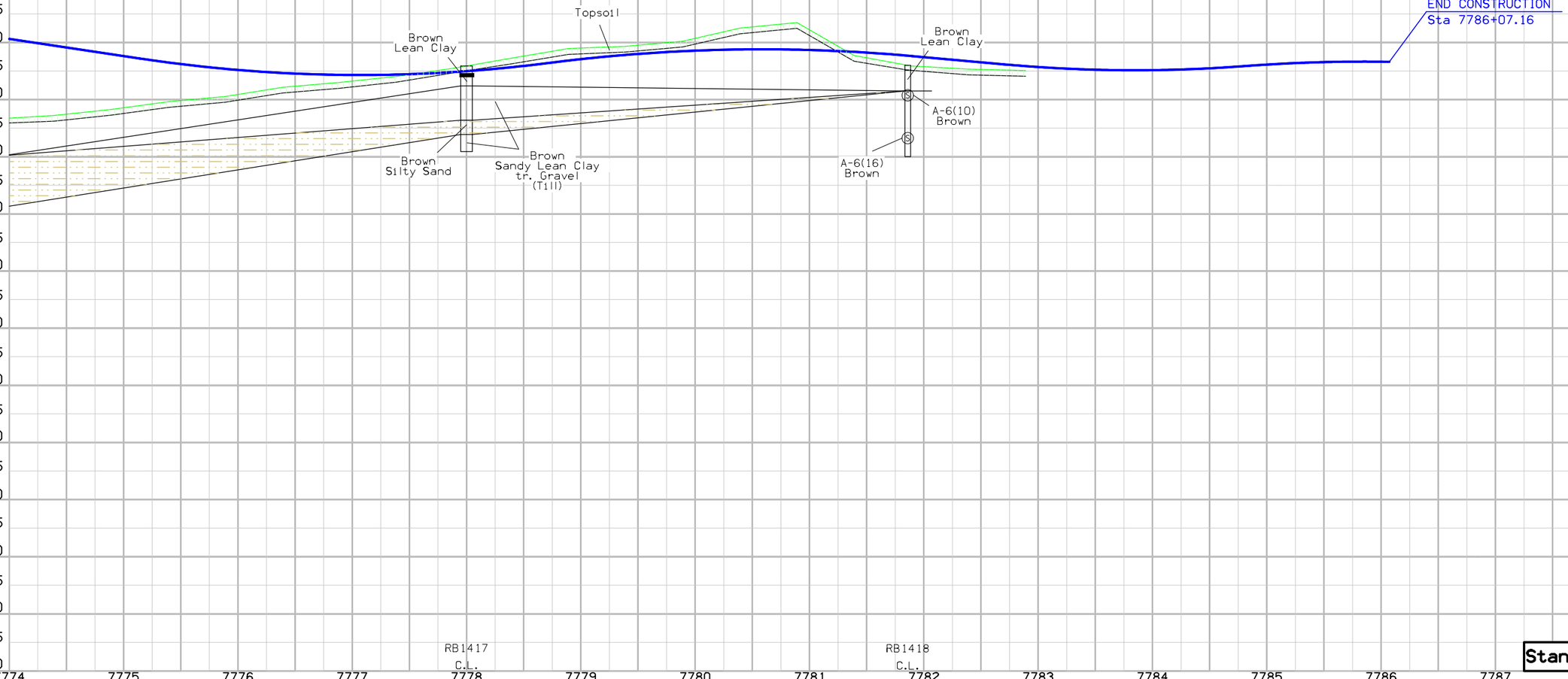
10:46:25 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

24
94
--

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

--.--
--.--
13.17

865 860 855 850 845 840 835 830 825 820 815 810 805 800 795 790 785 780 775 770 765 760 755 750 745 740 735 730 725 720 715 710 705 700 695 690 685 680



7774 7775 7776 7777 7778 7779 7780 7781 7782 7783 7784 7785 7786 7787 7788 7789

Standing Rock Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER Q.38

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FRANKLIN TWP.
T-82N R-5W
SEC. 23

8785

8790

8795

SUTLIFF RD.

RB 1420

RB 1421

RB 1422

BEGIN CONSTRUCTION
STA 8788+63.95

0 50
FEET

Sutliff Road

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.39

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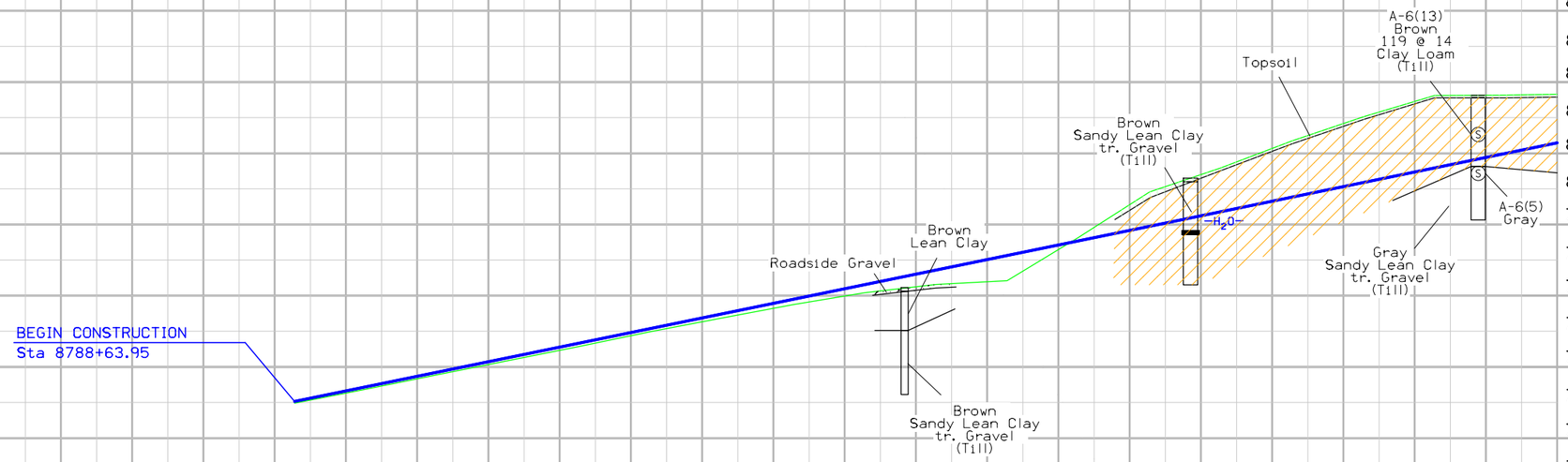
Cut Moisture	17	--,13
Cut Density (lb/ft3)	120	--,--
Plastic Limit	--	13,13



RB1420
Lt.6

RB1421
Lt.19

RB1422
C.L.

Sutliff Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.40

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FRANKLIN TWP.
T-82N R-5W
SEC. 23

FRANKLIN TWP.
T-82N R-5W
SEC. 14

30

Settlement Plate 11
STA. 8804+85 RT 18
DETAIL SEE STANDARD EW-212

Settlement Plate 12
STA. 8808+20 LT 18
DETAIL SEE STANDARD EW-212

+40.00 Lt.Prop.
Type "C" Ent.

8800
8805
805
8810
9810
810

SUTLIFF RD.

SUTLIFF ACCESS

FRANKLIN TWP.
T-82N R-5W
SEC. 13

0 50
FEET

RB1423 SB1720 SB1424 BB1596 BB1595 RB1230 BB1594 SB1425 SB1426
BA1229 BA1227 RB1228 RB1715 RB1231 RB1232 RB1233 RB1716

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.41

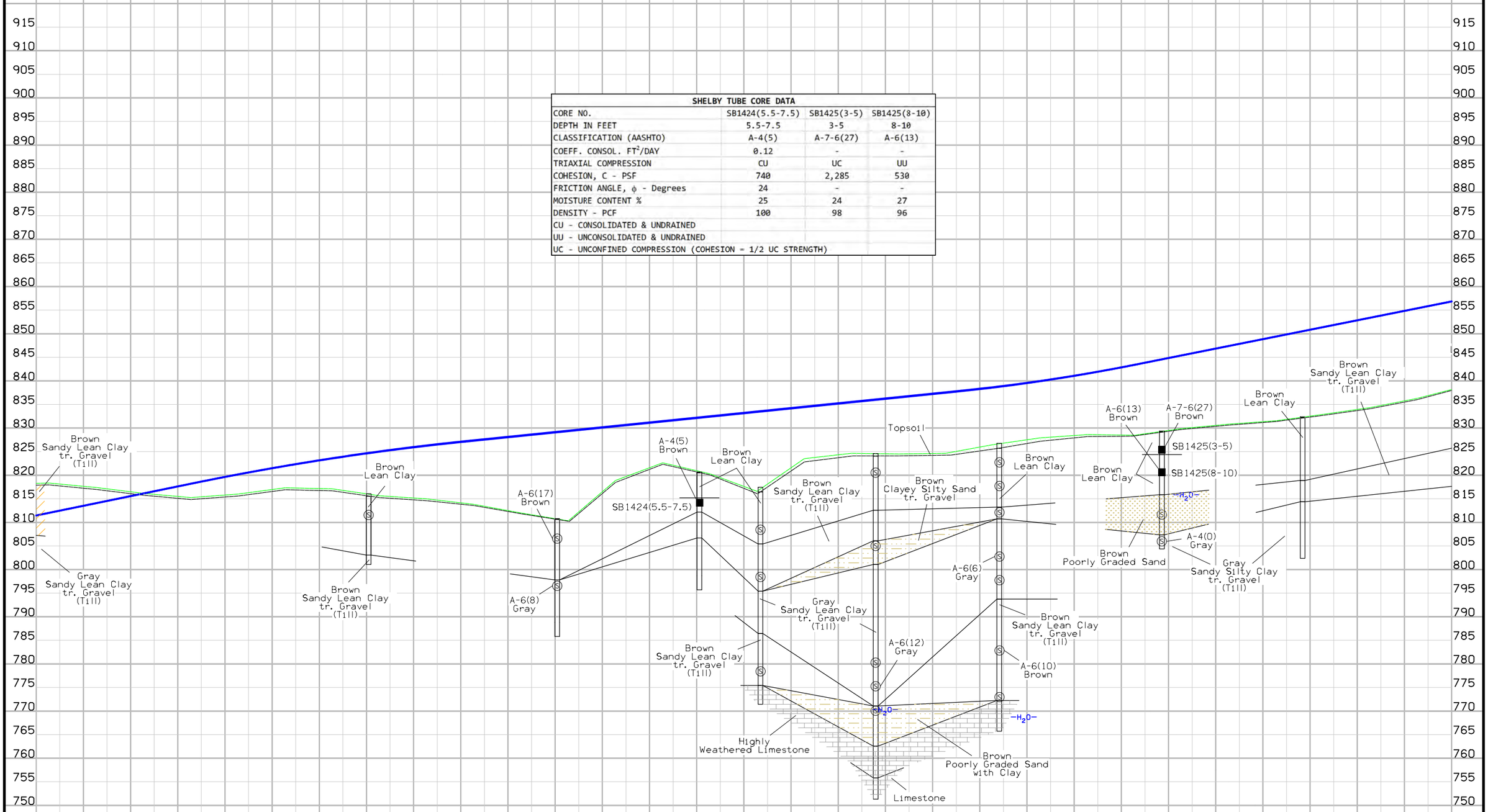
Sutliff Road

10:46:29 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

Cut Moisture	--	33,17	25	28,14,17	25,8,14,15,17	25,24,19,10,11,15,22	24,27,--,14
Cut Density (lb/ft3)	--	--,--	100	--,--,--	--,--,--,--,--	--,--,--,--,--,--,--	98,96,--,--
Plastic Limit	18	13,13	19	21,16,18	20,--,--,16,--	21,22,--,16,--,17,--	22,19,--,13

SHELBY TUBE CORE DATA

CORE NO.	SB1424(5.5-7.5)	SB1425(3-5)	SB1425(8-10)
DEPTH IN FEET	5.5-7.5	3-5	8-10
CLASSIFICATION (AASHTO)	A-4(5)	A-7-6(27)	A-6(13)
COEFF. CONSOL. FT^2/DAY	0.12	-	-
TRIAXIAL COMPRESSION	CU	UC	UU
COHESION, C - PSF	740	2,285	530
FRICTION ANGLE, ϕ - Degrees	24	-	-
MOISTURE CONTENT %	25	24	27
DENSITY - PCF	100	98	96
CU - CONSOLIDATED & UNDRAINED			
UU - UNCONSOLIDATED & UNDRAINED			
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)			



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER Q.42

10:46:31 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 14

End Construction
Sta 8819+78.00

8815

8820

SB 1427

SB 1428

RB 1429

E2

E4

T2

0 FEET 50

Sutliff Road

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.43

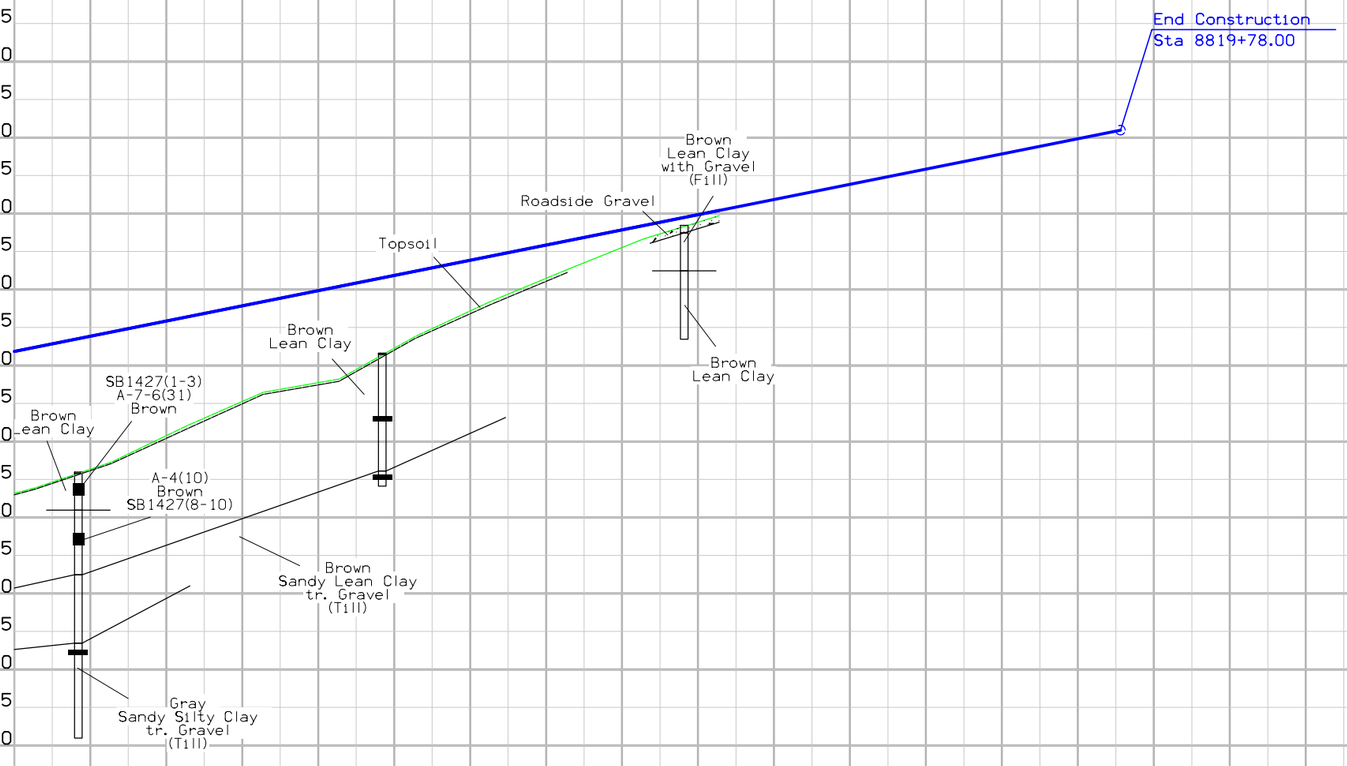
10:46:32 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

22,31,18
95,97,113
16,21,--

17,21
82,115
--,--

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

SHELBY TUBE CORE DATA		
CORE NO.	SB1427(1-3)	SB1427(8-10)
DEPTH IN FEET	1-3	8-10
CLASSIFICATION (AASHTO)	A-7-6(31)	A-4(10)
COEFF. CONSOL. FT^2/DAY	-	0.15
TRIAXIAL COMPRESSION	UU	CU
COHESION, C - PSF	3,465	646
FRICTION ANGLE, ϕ - Degrees	-	21
MOISTURE CONTENT %	22	31
DENSITY - PCF	95	97
CU - CONSOLIDATED & UNDRAINED		
UU - UNCONSOLIDATED & UNDRAINED		
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)		



Sutliff Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.44

10:46:34 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 13

GREEN RIDGE RD.

BEGIN CONSTRUCTION
STA 10829+66.35

10830
10835
10840
835
840

RB1430 SB1431 SB1432 SB1433
BA1273 RB1272 SB1270 RB1274 RB1275 RB1277 BA1276 RB1278 BA1279
RB1569 RB1570 RB1571 RB1280 BA1281 RB1282 BA1283 RB1284 BA1285 RB1575 RB1574

30

0 FEET 50

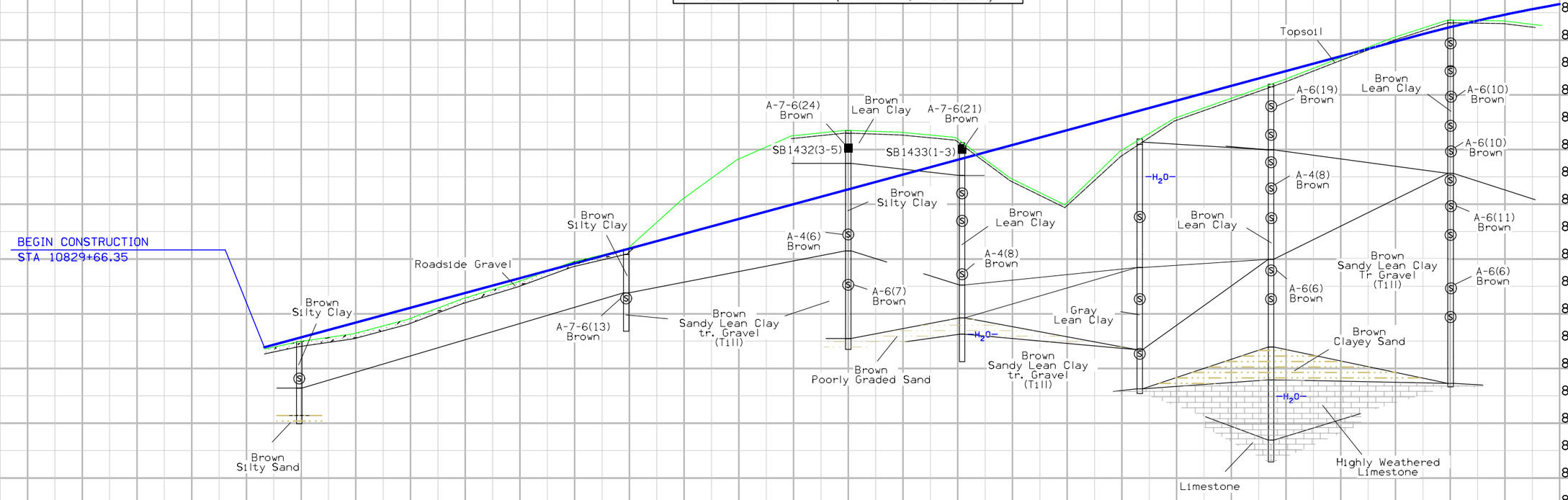
Green Ridge Road

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.45

10:46:35 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

19 -- 19	Cut Moisture Cut Density (lb/ft3) Plastic Limit	21 -- 19	25,19,17 98,--,-- 21,20,18	26,17,17,23 97,--,--,-- 20,17,--,19	22,24,16 --,--,-- 24,20,16	23,25,18,23,--,17,12 --,--,--,--,--,--,-- 23,--,--,22,21,16,--	--,18,19,21,26,18,--,14,13,12 --,--,--,--,--,--,--,--,--,-- 23,--,21,--,20,--,16,--,14,--	19 104 --

SHELBY TUBE CORE DATA		
CORE NO.	SB1432(3-5)	SB1433(1-3)
DEPTH IN FEET	3-5	1-3
CLASSIFICATION (AASHTO)	A-7-6(24)	A-7-6(21)
COEFF. CONSOL. FT²/DAY	-	-
TRIAXIAL COMPRESSION	UC	UC
COHESION, C - PSF	1,123	1,448
FRICTION ANGLE, ϕ - Degrees	-	-
MOISTURE CONTENT %	25	26
DENSITY - PCF	98	97
CU - CONSOLIDATED & UNDRAINED		
UU - UNCONSOLIDATED & UNDRAINED		
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)		



Green Ridge Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.46

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FRANKLIN TWP.
T-82N R-5W
SEC. 13

10845

END CONSTRUCTION
STA 10845+85.00

19845

19850

BA1279

BA1281

BA1285

RB1434

RB1435

E4

0 FEET 50

Green Ridge Road

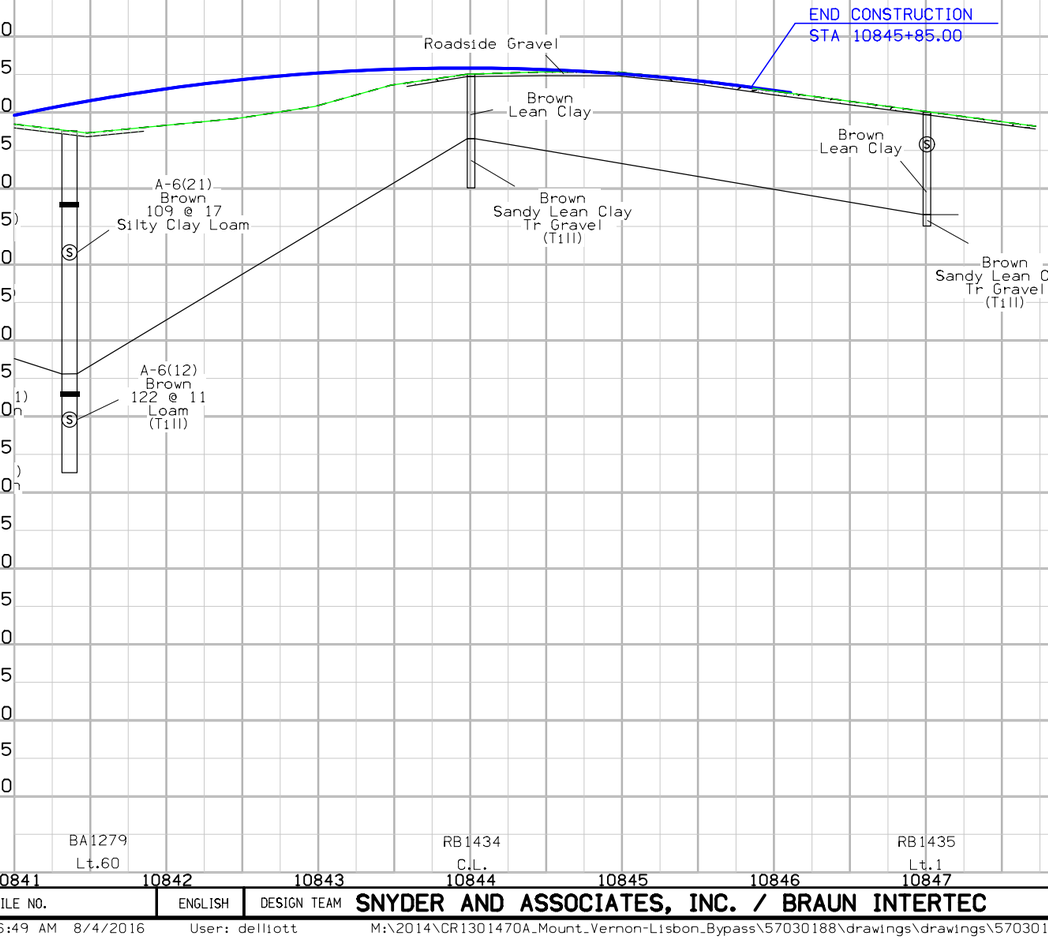
FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.47

10:46:38 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

19,--,16,--
104,--,121,--
--,18,--,14

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

25
--
20



Green Ridge Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.48

10:46:49 AM 8/4/2016 User: dellIott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188e1.sht

FRANKLIN TWP.
T-82N R-5W
SEC. 13

SB1427
SB1426
SB1425
SB1564
SB1565
SB1566
SB1245
SB1246

DB1600
DB1601
DB1602

RB1236
RB1240
RB1247
RB1232
RB1228
RB1230
RB1231
RB1233
RB1235
RB1239
RB1243
RB1715
RB1716
RB1238
RB1242
RB1244

BA1227
BA1234
BA1237
BA1241
BA1229

9810
9815
9820
805
810
815
820

Settlement Plate 12
STA. 8808+20 LT 18
DETAIL SEE STANDARD EW-212

Settlement Plate 11
STA. 8804+85 RT 18
DETAIL SEE STANDARD EW-212

0 FEET 50

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER Q.49

Sutliff Road Pond Entrance

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24,27,--,14
98,96,--,--
22,19,--,13

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

24
96
--

23,21,24
105,106,103
19,22,22

21,23,22,23,24,23
106,102,104,104,102,102
--,17,19,19,--,19

23,10,18,15
102,--,112,--
19,17,16,20

900 895 890 885 880 875 870 865 860 855 850 845 840 835 830 825 820 815 810 805 800 795 790 785 780 775 770 765 760 755 750 745 740 735 730 725

TIE IN
STA 9810+12.00

END CONSTRUCTION
STA 9818+65.45

Brown
Lean Clay

A-7-6(27)
Brown

A-6(13)
Brown

Brown
Lean Clay

H_2O

Brown
Poorly Graded Sand

Gray
Sandy Silty Clay
tr. Gravel
(Till)

A-4(0)
Gray

Topsoil

Brown
Lean Clay

A-7-6(32)
Brown

A-4(9)
Brown

Brown
Lean Clay

A-4(5)
Brown

Brown
Sandy Lean Clay
tr. Gravel
(Till)

Highly Weathered
Limestone

Brown
Lean Clay
(Fill)

A-7-6(30)
Brown

A-7-6(25)
Brown

A-7-6(29)
Brown

A-7-6(25)
Brown

Brown
Lean Clay
with Gravel
(Residual)

A-7-6(27)
Brown

A-4(1)
Brown

Brown
Lean Clay

Brown
Sandy Lean Clay
tr. Gravel
(Till)

A-4(5)
Brown

A-2-4
Brown

Brown
Silty Sand
(Residaul)

Highly Weathered
Limestone

SB1425
Rt.49

RB1236
Rt.66

RB1240
Rt.71

DB1600
Lt.2

DB1601
Lt.2

DB1602
Lt.2

9810 9811 9812 9813 9814 9815 9816 9817 9818 9819 9820

Sutliff Road Pond Entrance

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.50

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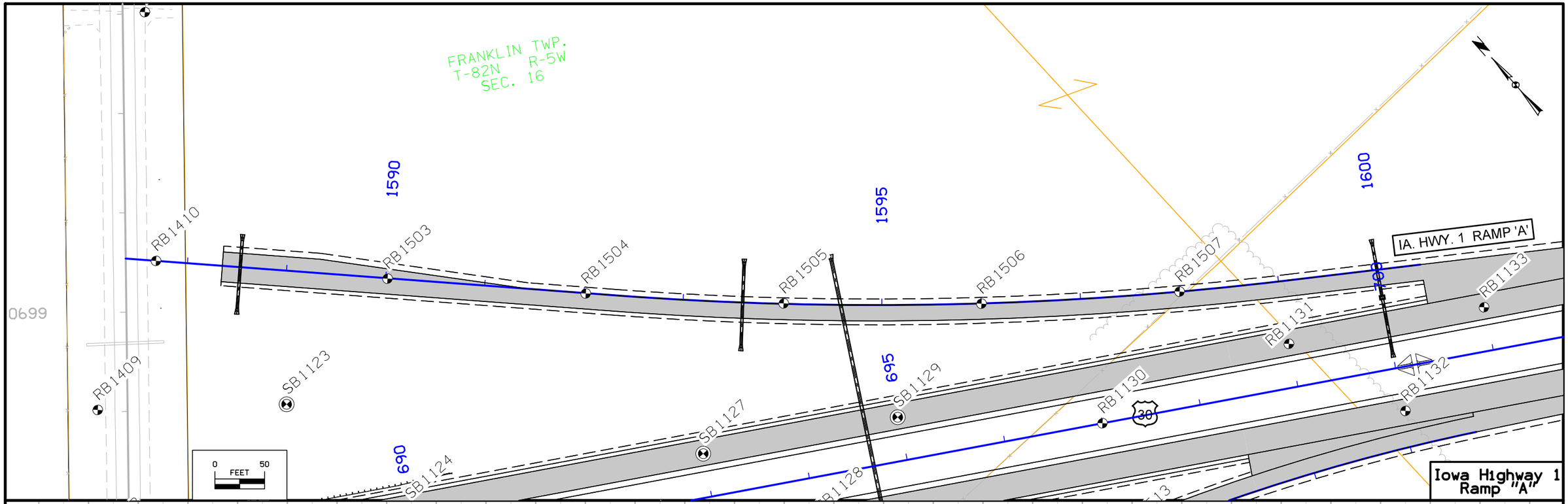
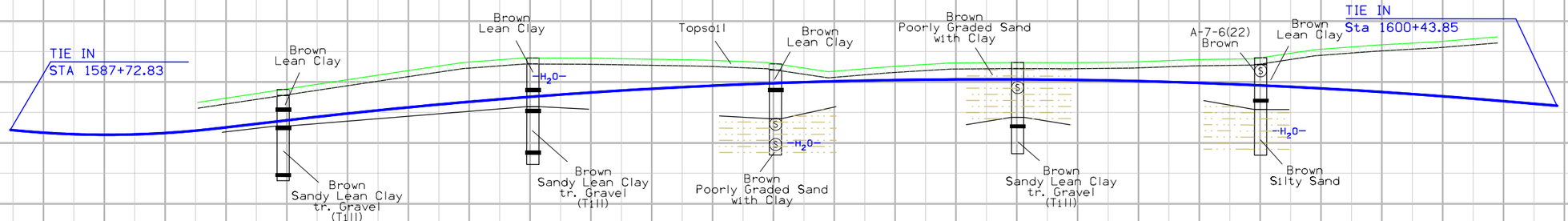


19,11,16	17,18,14	20,3,16
103,106,117	101,112,121	103,--,--
--,--,--	--,--,--	--,--,--

Cut Moisture
Cut Density (lb/ft3)
Plastic Limit

2,22	--,21
--,103	--,101
--,--	20,--



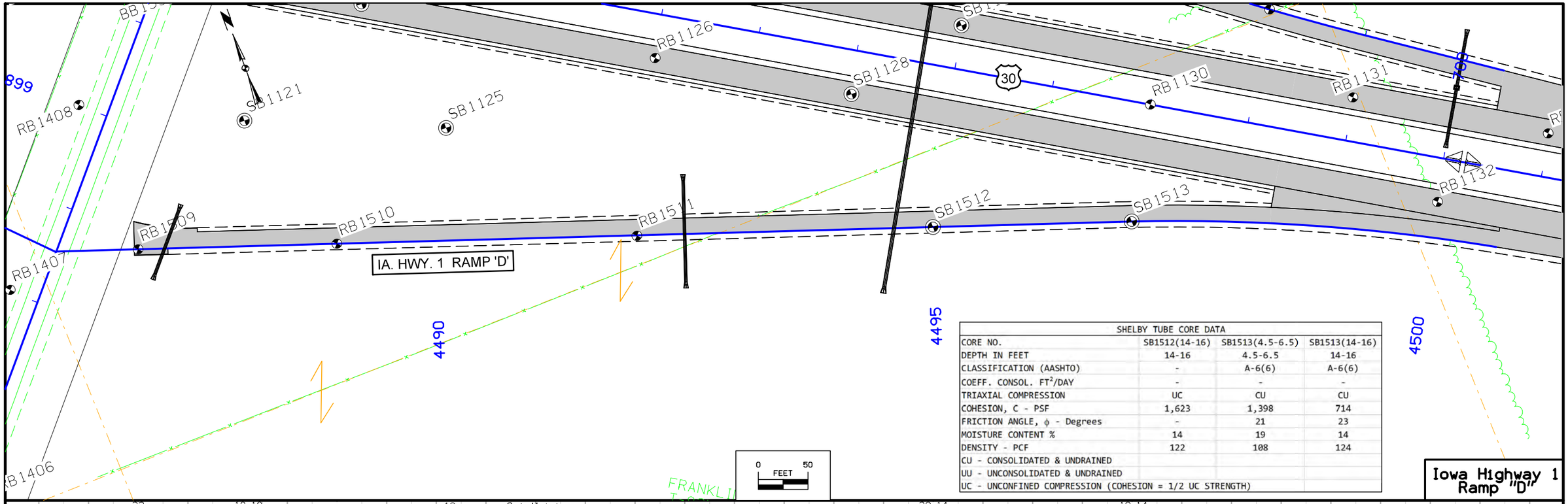
850 845 840 835 830 825 820 815 810 805 800 795 790 785 780 775

RB1503 C.L. RB1504 C.L. RB1505 C.L. RB1506 C.L. RB1507 C.L.

1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600 1601

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER Q.51

10:46:53 AM 8/4/2016 User: delliott M:\2014\CR1301470A_Mount_Vernon-Lisbon_Bypass\57030188\drawings\drawings\57030188k1.sht



SHELBY TUBE CORE DATA			
CORE NO.	SB1512(14-16)	SB1513(4.5-6.5)	SB1513(14-16)
DEPTH IN FEET	14-16	4.5-6.5	14-16
CLASSIFICATION (AASHTO)	-	A-6(6)	A-6(6)
COEFF. CONSOL. FT^2/DAY	-	-	-
TRIAXIAL COMPRESSION	UC	CU	CU
COHESION, C - PSF	1,623	1,398	714
FRICTION ANGLE, ϕ - Degrees	-	21	23
MOISTURE CONTENT %	14	19	14
DENSITY - PCF	122	108	124
CU - CONSOLIDATED & UNDRAINED			
UU - UNCONSOLIDATED & UNDRAINED			
UC - UNCONFINED COMPRESSION (COHESION = 1/2 UC STRENGTH)			

Iowa Highway 1 Ramp "D"

	RB1509 C.L.	SB1121 Lt.126	RB1510 C.L.	SB1125 Lt 113'	RB1511 C.L.	SB1512 C.L.	SB1513 C.L.
Cut Moisture	22	18,18	--,--	19		29,14	19,14
Cut Density (lb/ft3)	100	--,113	--,--	--		--,122	108,124
Plastic Limit	--	19,--	18,13	16		21,--	16,12

TIE IN STA 4486+55.31

A-7-6(26) Dark Brown Silty Clay Loam

Brown Poorly Graded Sand

A-6(15) Brown 113 @ 16 Silt Loam

A-6(5) Brown 125 @ 10 Loam (T1ll)

A-6(22) Brown

Topsoil

Brown Lean Clay

Dark Brown Lean Clay

Brown Poorly Graded Sand

Gray Sandy Lean Clay tr. Gravel (T1ll)

Brown Sandy Lean Clay tr. Gravel (T1ll)

Gray Sandy Lean Clay tr. Gravel (T1ll)

A-6(20) Brown Carbon 5% Silty Clay Loam

Brown Clayey Sand

Dark Brown Lean Clay

SB1513(4.5-6.5)

A-6(6) Brown

SB1513(14-16)

A-6(6) Gray

SB1512(14-16)

Brown Sandy Lean Clay tr. Gravel (T1ll)

Gray Sandy Lean Clay tr. Gravel (T1ll)

TIE IN STA 4498+39.51

845 840 835 830 825 820 815 810 805 800 795 790 785 780 775 770

4486 4487 4488 4489 4490 4491 4492 4493 4494 4495 4496 4497 4498 4499 4500 4501

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER Q.52

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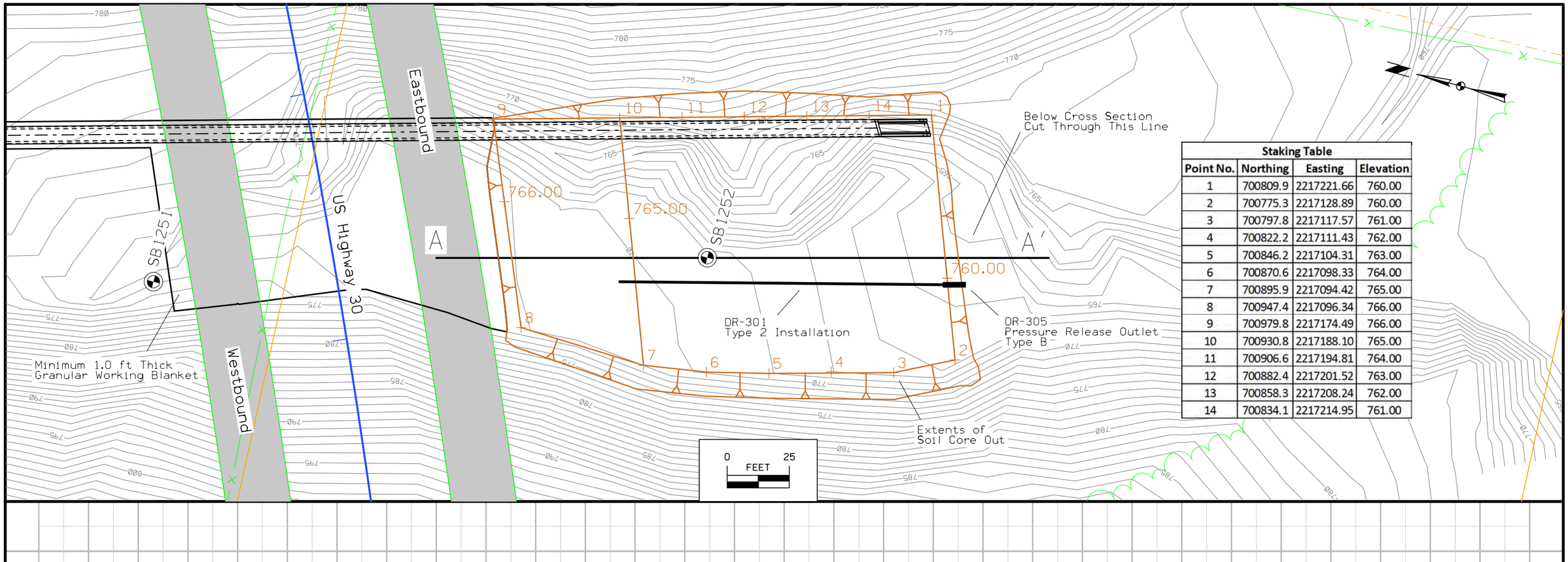
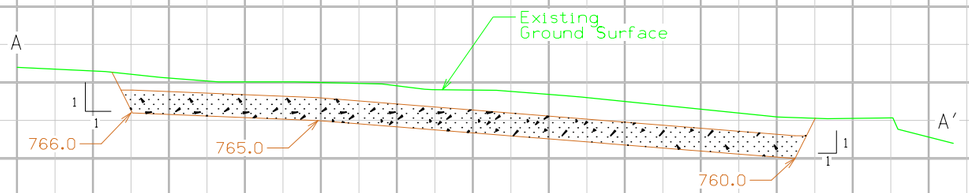


Staking Table			
Point No.	Northing	Easting	Elevation
1	700809.9	2217221.66	760.00
2	700775.3	2217128.89	760.00
3	700797.8	2217117.57	761.00
4	700822.2	2217111.43	762.00
5	700846.2	2217104.31	763.00
6	700870.6	2217098.33	764.00
7	700895.9	2217094.42	765.00
8	700947.4	2217096.34	766.00
9	700979.8	2217174.49	766.00
10	700930.8	2217188.10	765.00
11	700906.6	2217194.81	764.00
12	700882.4	2217201.52	763.00
13	700858.3	2217208.24	762.00
14	700834.1	2217214.95	761.00



Place 3 feet of granular material within the area shown above. Approximately 2,163 cubic yards of granular material will be required at the bottom of the excavation. Minimum 1 foot thickness of granular material required below bottoms of culvert and adjacent to core out area.

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER AND ASSOCIATES, INC. / BRAUN INTERTEC	LINN COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	Q.53

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Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
U.S. 30																						
688+25.00	241	1	240	0	0	0	0	1	1	2,754	0	240	2,994	-2,993	0	0	240	92	172	80		
688+50.00	242	1	241	0	0	0	0	1	1	2,571	0	241	2,812	-2,811	2,116	2,429	241	92	173	81		
688+75.00	294	1	293	0	0	0	0	1	1	2,358	0	293	2,651	-2,650	1,911	2,243	293	88	210	122		
689+00.00	345	1	344	0	0	0	0	1	1	2,178	0	344	2,522	-2,521	1,698	2,031	344	84	246	162		
689+25.00	336	1	335	0	0	0	0	1	1	1,991	0	335	2,326	-2,325	1,518	1,850	335	81	240	159		
689+50.00	329	1	328	0	0	0	0	1	1	1,801	0	328	2,129	-2,128	1,331	1,663	328	77	235	158		
689+75.00	322	1	321	0	0	0	0	1	1	1,635	0	321	1,956	-1,955	1,141	1,474	321	74	230	156		
690+00.00	317	1	316	0	0	0	0	1	1	1,505	0	316	1,821	-1,820	975	1,307	316	72	226	154		
690+25.00	315	2	313	0	0	0	0	2	2	1,410	0	313	1,723	-1,721	845	1,177	313	71	224	153		
690+50.00	314	2	312	0	0	0	0	2	2	1,353	0	312	1,665	-1,663	749	1,082	312	70	223	153		
690+75.00	314	2	312	0	0	0	0	2	2	1,328	0	312	1,640	-1,638	692	1,025	312	70	223	153		
691+00.00	313	1	312	0	0	0	0	1	1	1,326	0	312	1,638	-1,637	667	1,000	312	70	223	153		
691+25.00	315	2	313	0	0	0	0	2	2	1,362	0	313	1,675	-1,673	665	998	313	71	224	153		
691+50.00	317	2	315	0	0	0	0	2	2	1,412	0	315	1,727	-1,725	701	1,034	315	72	225	153		
691+75.00	318	1	317	0	0	0	0	1	1	1,445	0	317	1,762	-1,761	751	1,084	317	73	227	154		
692+00.00	320	1	319	0	0	0	0	1	1	1,472	0	319	1,791	-1,790	785	1,118	319	73	228	155		
692+25.00	363	31	332	0	0	0	0	31	24	1,490	0	332	1,822	-1,798	811	1,144	332	79	238	159		
692+50.00	384	42	342	0	0	0	0	42	32	1,504	0	342	1,846	-1,814	829	1,162	342	83	245	162		
692+75.00	345	13	332	0	0	0	0	13	10	1,535	0	332	1,867	-1,857	843	1,176	332	79	238	159		
693+00.00	326	2	324	0	0	0	0	2	2	1,561	0	324	1,885	-1,883	874	1,207	324	76	232	156		
693+25.00	463	113	350	0	0	0	0	113	87	1,575	0	350	1,925	-1,838	901	1,233	350	87	250	163		
693+50.00	569	199	370	0	0	0	0	199	153	1,601	0	370	1,971	-1,818	914	1,247	370	96	265	169		
693+75.00	427	87	340	0	0	0	0	87	67	1,647	0	340	1,987	-1,920	940	1,273	340	83	243	160		
694+00.00	316	1	315	0	0	0	0	1	1	1,699	0	315	2,014	-2,013	987	1,319	315	72	225	153		
694+25.00	314	1	313	0	0	0	0	1	1	1,745	0	313	2,058	-2,057	1,038	1,371	313	71	224	153		
694+50.00	334	15	319	0	0	0	0	15	12	1,751	0	319	2,070	-2,058	1,084	1,417	319	73	228	155		
694+75.00	351	30	321	0	0	0	0	30	23	1,692	0	321	2,013	-1,990	1,091	1,424	321	74	230	156		
695+00.00	342	31	311	0	0	0	0	31	24	1,590	0	311	1,901	-1,877	1,031	1,364	311	70	223	153		
695+25.00	332	30	302	0	0	0	0	30	23	1,469	0	302	1,771	-1,748	930	1,262	302	66	216	150		
695+50.00	321	27	294	0	0	0	0	27	21	1,347	0	294	1,641	-1,620	809	1,142	294	62	210	148		
695+75.00	310	24	286	0	0	0	0	24	18	1,246	0	286	1,532	-1,514	687	1,019	286	58	205	147		
696+00.00	300	22	278	0	0	0	0	22	17	1,161	0	278	1,439	-1,422	593	918	278	55	199	144		
696+25.00	292	21	271	0	0	0	0	21	16	1,089	0	271	1,360	-1,344	518	833	271	52	194	142		
696+50.00	285	21	264	0	0	0	0	21	16	1,018	0	264	1,282	-1,266	468	762	264	49	189	140		
696+75.00	283	26	257	0	0	0	0	26	20	893	0	257	1,150	-1,130	422	695	257	46	184	138		
697+00.00	278	28	250	0	0	0	0	28	22	734	0	250	984	-962	321	584	250	43	179	136		
697+25.00	271	29	242	0	0	0	0	29	22	564	0	242	806	-784	196	435	242	39	173	134		
697+50.00	272	37	235	0	0	0	0	37	28	383	0	235	618	-590	46	276	235	36	168	132		
697+75.00	287	58	229	0	0	0	0	58	45	233	0	229	462	-417	0	132	229	33	164	131		
698+00.00	343	120	223	0	0	0	0	120	92	134	0	223	357	-265	0	43	223	30	160	130		
698+25.00	593	306	287	0	0	0	0	306	235	93	0	287	380	-145	0	7	287	48	205	157		
698+50.00	872	521	351	0	0	0	0	521	401	54	0	351	405	-4	0	0	351	66	251	185		
698+75.00	1,035	689	346	0	0	0	0	689	530	9	0	346	355	175	0	0	346	66	248	182		
699+00.00	1,222	880	342	0	0	0	0	880	677	0	0	342	342	335	0	0	342	66	245	179		
699+25.00	1,357	1,074	283	0	0	0	0	1,074	826	0	0	283	283	543	0	0	283	66	203	137		
699+50.00	1,491	587	224	0	680	0	0	1,267	975	0	0	224	224	751	0	0	224	66	160	94		
699+75.00	1,670	757	223	0	690	0	0	1,447	1,113	0	0	223	223	890	0	0	223	66	160	94		
700+00.00	1,840	1,591	221	0	29	0	0	1,620	1,246	0	0	221	221	1,025	0	0	221	66	158	92		
700+25.00	2,685	2,234	278	0	173	0	0	2,407	1,852	0	0	278	278	1,574	0	0	278	92	199	107		
700+50.00	3,500	2,838	334	0	327	0	0	3,165	2,435	0	0	334	334	2,101	0	0	334	119	239	120		
700+75.00	3,551	2,870	331	0	350	0	0	3,220	2,477	0	0	331	331	2,146	0	0	331	119	237	118		
701+00.00	3,538	2,860	329	0	350	0	0	3,210	2,469	0	0	329	329	2,140	0	0	329	118	235	117		
701+25.00	3,481	2,825	326	0	330	0	0	3,155	2,427	0	0	326	326	2,101	0	0	326	118	233	115		
701+50.00	3,367	2,755	323	0	289	0	0	3,044	2,342	0	0	323	323	2,019	0	0	323	117	231	114		
701+75.00	3,211	2,656	319	0	235	0	0	2,891	2,224	0	0	319	319	1,905	0	0	319	116	228	112		
702+00.00	3,022	2,545	314	0	164	0	0	2,709	2,084	0	0	314	314	1,770	0	0	314	114	225	111		
702+25.00	2,827	2,426	309	0	92	0	0	2,518	1,937	0	0	309	309	1,628	0	0	309	112	221	109		
702+50.00	2,631	2,293	303	0	34	0	0	2,327	1,790	0	0	303	303	1,487	0	0	303	109	217	108		
702+75.00	2,428	2,128	297	0	3	0	0	2,131	1,639	0	0	297	297	1,342	0	0	297	107	213	106		
703+00.00	2,227	1,935	292	0	0	0	0	1,935	1,488	0	0	292	292	1,196	0	0	292	105	209	104		
703+25.00	2,034	1,748	286	0	0	0	0	1,748	1,345	0	0	286	286	1,059	0	0	286	102	205	103		
703+50.00	1,843	1,563	280	0	0	0	0	1,563	1,202	0	0	280	280	922	0	0	280	100	200	100		
703+75.00	1,651	1,377	274	0	0	0	0	1,377	1,059	0	0	274	274	785	0	0	274	97	196	99		
704+00.00	1,470	1,202	268	0	0	0	0	1,202	925	0	0	268	268	657	0	0	268	94	192	98		
704+25.00	1,312	1,051	261	0	0	0	0	1,051	808	0	0	261	261	547	0	0	261	91	187	96		
704+50.00	1,182	926	256	0	0	0	0	926	712	0	0	256	256	456	0	0	256	89	183	94		
704+75.00	1,090	837	253	0	0	0	0	837	644	0	0	253	253	391	0	0	253	88	181	93		
705+00.00	1,052	801	251	0	0	0	0	801	616	0	0	251	251	365	0	0	251	88	180	92		
705+25.00	1,053	803	250	0	0	0	0	803	618	0	0	250	250	368	0	0	250	89	179	90		
705+50.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
705+50.00	1,069	820	249	0	0	0	0	820	631	0	0	249	249	382	0	0	249	90	178	88		
705+75.00	1,101	852	249	0	0	0	0	852	655	0	0	249	249	406	0	0	249	91	178	87		
706+00.00	1,150	902	248	0	0	0	0	902	694	0	0	248	248	446	0	0	248	92	178	86		
706+25.00	1,208	960	248	0	0	0	0	960	738	0	0	248	248	490	0	0	248	93	178	85		
706+50.00	1,269	1,021	248	0	0	0	0	1,021	785	0	0	248	248	537	0	0	248	93	178	85		
706+75.00	1,331	1,083	248	0	0	0	0	1,083	833	0	0	248	248	585	0	0	248	93	178	85		
707+00.00	1,377	1,130	247	0	0	0	0	1,130	869	0	0	247	247	622	0	0	247	93	177	84		
707+25.00	1,415	1,169	246	0	0	0	0	1,169	899	0	0	246	246	653	0	0	246	92	176	84		
707+50.00	1,445	1,200	245	0	0	0	0	1,200	923	0	0	245	245	678	0	0	245	92	175	83		
707+75.00	1,457	1,214	243	0	0	0	0	1,214	934	0	0	243	243	691	0	0	243	91	174	83		
708+00.00	1,458	1,217	241	0	0	0	0	1,217	936	0	0	241	241	695	0	0	241	90	173	83		
708+25.00	1,441	1,203	238	0	0	0	0	1,203	925	0	0	238	238	687	0	0	238	89	170	81		
708+50.00	1,407	1,172	235	0	0	0	0	1,172	902	0	0	235	235	667	0	0	235	86	168	82		
708+75.00	1,364	1,132	232	0	0	0	0	1,132	871	0	0	232	232	639	0	0	232	84	166	82		
709+00.00	1,322	1,093	229	0	0	0	0	1,093	841	0	0	229	229	612	0	0	229	82	164	82		
709+25.00	1,288	1,062	226	0	0	0	0	1,062	817	0	0	226	226	591	0	0	226	80	162	82		
709+50.00	1,248	1,025	223	0	0	0	0	1,025	788	0	0	223	223	565	0	0	223	79	160	81		
709+75.00	1,182	961	221	0	0	0	0	961	739	0	0	221	221	518	0	0	221	78	158	80		
710+00.00	1,086	867	219	0	0	0	0	867	667	0	0	219	219	448	0	0	219	77	157	80		
710+25.00	968	751	217	0	0	0	0	751	578	0	0	217	217	361	0	0	217	76	155	79		
710+50.00	836	621	215	0	0	0	0	621	478	1	0	215	216	262	0	0	215	75	154	79		
710+75.00	708	493	215	0	0	0	0	493	379	5	0	215	220	159	0	0	215	75	154	79		
711+00.00	598	382	216	0	0	0	0	382	294	21	0	216	237	57	0	0	216	76	155	79		
711+25.00	534	317	217	0	0	0	0	317	244	77	0	217	294	-50	0	0	217	76	155	79		
711+50.00	514	296	218	0	0	0	0	296	228	170	0	218	388	-160	0	0	218	77	156	79		
711+75.00	510	291	219	0	0	0	0	291	224	250	0	219	469	-245	0	11	219	78	157	79		
712+00.00	503	284	219	0	0	0	0	284	218	301	0	219	520	-302	0	53	219	78	157	79		
712+25.00	482	264	218	0	0	0	0	264	203	334	0	218	552	-349	0	100	218	77	156	79		
712+50.00	443	227	216	0	0	0	0	227	175	373	0	216	589	-414	14	128	216	75	155	80		
712+75.00	382	169	213	0	0	0	0	169	130	437	0	213	650	-520	33	154	213	74	153	79		
713+00.00	308	101	207	0	0	0	0	101	78	526	0	207	733	-655	58	193	207	70	148	78		
713+25.00	260	56	204	0	0	0	0	56	43	621	0	204	825	-782	81	242	204	68	146	78		
713+50.00	259	50	209	0	0	0	0	50	38	695	0	209	904	-866	100	303	209	71	150	79		
713+75.00	278	65	213	0	0	0	0	65	50	749	0	213	962	-912	109	368	213	74	153	79		
714+00.00	299	81	218	0	0	0	0	81	62	790	0	218	1,008	-946	132	422	218	77	156	79		
714+25.00	316	94	222	0	0	0	0	94	72	818	0	222	1,040	-968	154	463	222	79	159	80		
714+50.00	334	109	225	0	0	0	0	109	84	851	0	225	1,076	-992	169	490	225	82	161	79		
714+75.00	360	130	230	0	0	0	0	130	100	902	0	230	1,132	-1,032	194	523	230	85	165	80		
715+00.00	377	143	234	0	0	0	0	143	110	976	0	234	1,210	-1,100	243	575	234	87	168	81		
715+25.00	375	139	236	0	0	0	0	139	107	1,059	0	236	1,295	-1,188	317	649	236	89	169	80		
715+50.00	357	121	236	0	0	0	0	121	93	1,146	0	236	1,382	-1,289	399	732	236	89	169	80		
715+75.00	331	97	234	0	0	0	0	97	75	1,239	0	234	1,473	-1,398	486	819	234	88	168	80		
716+00.00	302	70	232	0	0	0	0	70	54	1,335	0	232	1,567	-1,513	579	912	232	86	166	80		
716+25.00	274	44	230	0	0	0	0	44	34	1,427	0	230	1,657	-1,623	675	1,007	230	85	165	80		
716+50.00	257	28	229	0	0	0	0	28	22	1,510	0	229	1,739	-1,717	766	1,099	229	84	164	80		
716+75.00	250	21	229	0	0	0	0	21	16	1,591	0	229	1,820	-1,804	849	1,182	229	84	164	80		
717+00.00	251	21	230	0	0	0	0	21	16	1,559	0	230	1,789	-1,773	931	1,263	230	85	165	80		
717+25.00	268	36	232	0	0	0	0	36	28	1,392	0	232	1,624	-1,596	899	1,232	232	86	166	80		
717+50.00	310	79	231	0	0	0	0	79	61	1,173	0	231	1,404	-1,343	732	1,064	231	86	165	79		
717+75.00	394	163	231	0	0	0	0	163	125	914	0	231	1,145	-1,020	512	845	231	85	165	80		
718+00.00	521	286	235	0	0	0	0	286	220	671	0	235	906	-686	276	599	235	88	168	80		
718+25.00	691	452	239	0	0	0	0	452	348	513	0	239	752	-404	170	413	239	91	171	80		
718+50.00	882	640	242	0	0	0	0	640	492	428	0	242	670	-178	151	322	242	92	173	81		
718+75.00	1,029	787	242	0	0	0	0	787	605	361	0	242	603	2	135	255	242	92	173	81		
719+00.00	1,111	871	240	0	0	0	0	871	670	312	0	240	552	118	84	191	240	91	172	81		
719+25.00	1,151	912	239	0	0	0	0	912	702	296	0	239	535	167	66	148	239	90	171	81		
719+50.00	1,140	901	239	0	0	0	0	901	693	303	0	239	542	151	56	133	239	90	171	81		
719+75.00	1,061	823	238	0	0	0	0	823	633	332	0	238	570	63	69	134	238	89	170	81		
720+00.00	920	684	236	0	0	0	0	684	526	376	0	236	612	-86	79	150	236	87	169	82		
720+25.00	740	508	232	0	0	0	0	508	391	423	0	232	655	-264	100	173	232	85	166	81		
720+50.00	568	340	228	0	0	0	0	340	262	497	0	228	725	-463	107	207	228	82	163	81		
720+75.00	435	212	223	0	0	0	0	212	163	624	0	223	847	-684	163	280	223	79	160	81		
721+00.00	360	139	221	0	0	0	0	139	107	774	0	221	995	-888	247	359	221	77	158	81		
721+25.00	337	117	220	0	0	0	0	117	90	874	0	220	1,094	-1,004	274	450	220	77	158	81		
721+50.00	351	129	222	0	0	0	0	129	99	889	0	222	1,111	-1,012	298	530	222	78	159	81		
721+75.00	341	172	169	0	0	0	0	172	132	836	0	169	1,005	-873	295	546	169	81	121	40		
722+00.00	360	245	115	0	0	0	0	245	188	748	0	115	863	-675	263	513	115	84	83	-1		
722+25.00	443	326	117	0	0	0	0	326	251	660	0	117	777	-526	237	457	117	86	84	-2		
722+50.00	513	395	118	0	0	0	0	395	304	601	0	118	719	-415	212	404	118	87	85	-2		
722+75.00	554	435	119	0	0	0	0	435	335	573	0	119	692	-357	207	367	119	88	85	-3		
723+00.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
723+00.00	572	453	119	0	0	0	0	453	348	563	0	119	682	-334	194	345	119	89	85	-4		
723+25.00	576	457	119	0	0	0	0	457	352	570	0	119	689	-337	197	338	119	89	85	-4		
723+50.00	563	445	118	0	0	0	0	445	342	586	0	118	704	-362	199	342	118	88	85	-3		
723+75.00	530	413	117	0	0	0	0	413	318	603	0	117	720	-402	207	355	117	86	84	-2		
724+00.00	499	382	117	0	0	0	0	382	294	612	0	117	729	-435	216	364	117	86	84	-2		
724+25.00	481	363	118	0	0	0	0	363	279	629	0	118	747	-468	210	363	118	87	85	-2		
724+50.00	460	342	118	0	0	0	0	342	263	653	0	118	771	-508	205	370	118	87	85	-2		
724+75.00	428	311	117	0	0	0	0	311	239	668	0	117	785	-546	214	386	117	86	84	-2		
725+00.00	383	266	117	0	0	0	0	266	205	692	0	117	809	-604	218	394	117	85	84	-1		
725+25.00	337	221	116	0	0	0	0	221	170	729	0	116	845	-675	235	406	116	85	83	-2		
725+50.00	303	188	115	0	0	0	0	188	145	771	0	115	886	-741	251	429	115	83	83	0		
725+75.00	266	152	114	0	0	0	0	152	117	835	0	114	949	-832	274	457	114	82	82	0		
726+00.00	232	119	113	0	0	0	0	119	92	913	0	113	1,026	-934	318	505	113	81	81	0		
726+25.00	196	83	113	0	0	0	0	83	64	1,002	0	113	1,115	-1,051	364	569	113	80	81	1		
726+50.00	160	49	111	0	0	0	0	49	38	1,122	0	111	1,233	-1,195	430	648	111	79	80	1		
726+75.00	142	31	111	0	0	0	0	31	24	1,226	0	111	1,337	-1,313	499	760	111	78	80	2		
727+00.00	134	23	111	0	0	0	0	23	18	1,291	0	111	1,402	-1,384	557	863	111	78	80	2		
727+25.00	130	19	111	0	0	0	0	19	15	1,356	0	111	1,467	-1,452	602	929	111	78	80	2		
727+50.00	127	15	112	0	0	0	0	15	12	1,457	0	112	1,569	-1,557	655	993	112	79	80	1		
727+75.00	136	23	113	0	0	0	0	23	18	1,545	0	113	1,658	-1,640	757	1,095	113	81	81	0		
728+00.00	153	39	114	0	0	0	0	39	30	1,508	0	114	1,622	-1,592	845	1,182	114	83	82	-1		
728+25.00	173	55	118	0	0	0	0	55	42	1,361	0	118	1,479	-1,437	807	1,145	118	87	85	-2		
728+50.00	202	81	121	0	0	0	0	81	62	1,176	0	121	1,297	-1,235	660	998	121	91	87	-4		
728+75.00	254	132	122	0	0	0	0	132	102	930	0	122	1,052	-950	480	813	122	93	88	-5		
729+00.00	370	245	125	0	0	0	0	245	188	640	0	125	765	-577	273	580	125	97	90	-7		
729+25.00	596	468	128	0	0	0	0	468	360	427	0	128	555	-195	117	357	128	101	92	-9		
729+50.00	886	755	131	0	0	0	0	755	581	295	0	131	426	155	81	221	131	104	94	-10		
729+75.00	1,137	1,006	131	0	0	0	0	1,006	774	192	0	131	323	451	32	135	131	104	94	-10		
730+00.00	1,287	1,156	131	0	0	0	0	1,156	889	125	0	131	256	633	2	71	131	104	94	-10		
730+25.00	1,334	1,204	130	0	0	0	0	1,204	926	100	0	130	230	696	0	28	130	104	93	-11		
730+50.00	1,311	1,182	129	0	0	0	0	1,182	909	132	0	129	261	648	0	11	129	102	93	-9		
730+75.00	1,228	1,100	128	0	0	0	0	1,100	846	175	0	128	303	543	31	28	128	101	92	-9		
731+00.00	1,082	955	127	0	0	0	0	955	735	204	0	127	331	404	20	52	127	100	91	-9		
731+25.00	886	761	125	0	0	0	0	761	585	246	0	125	371	214	32	65	125	97	90	-7		
731+50.00	678	555	123	0	0	0	0	555	427	304	0	123	427	0	46	83	123	94	88	-6		
731+75.00	485	364	121	0	0	0	0	364	280	386	0	121	507	-227	61	118	121	91	87	-4		
732+00.00	339	221	118	0	0	0	0	221	170	512	0	118	630	-460	100	173	118	88	85	-3		
732+25.00	253	137	116	0	0	0	0	137	105	672	0	116	788	-683	165	250	116	85	83	-2		
732+50.00	219	104	115	0	0	0	0	104	80	827	0	115	942	-862	225	353	115	84	83	-1		
732+75.00	223	107	116	0	0	0	0	107	82	935	0	116	1,051	-969	277	476	116	84	83	-1		
733+00.00	248	133	115	0	0	0	0	133	102	955	0	115	1,070	-968	321	580	115	84	83	-1		
733+25.00	300	183	117	0	0	0	0	183	141	888	0	117	1,005	-864	348	608	117	86	84	-2		
733+50.00	373	252	121	0	0	0	0	252	194	774	0	121	895	-701	308	558	121	91	87	-4		
733+75.00	443	321	122	0	0	0	0	321	247	651	0	122	773	-526	238	469	122	93	88	-5		
734+00.00	507	384	123	0	0	0	0	384	295	552	0	123	675	-380	170	374	123	94	88	-6		
734+25.00	559	435	124	0	0	0	0	435	335	476	0	124	600	-265	126	300	124	95	89	-6		
734+50.00	596	473	123	0	0	0	0	473	364	414	0	123	537	-173	92	243	123	95	88	-7		
734+75.00	613	490	123	0	0	0	0	490	377	372	0	123	495	-118	58	194	123	94	88	-6		
735+00.00	606	484	122	0	0	0	0	484	372	347	0	122	469	-97	43	158	122	93	88	-5		
735+25.00	589	468	121	0	0	0	0	468	360	330	0	121	451	-91	32	137	121	91	87	-4		
735+50.00	575	455	120	0	0	0	0	455	350	318	0	120	438	-88	27	123	120	90	86	-4		
735+75.00	564	444	120	0	0	0	0	444	342	314	0	120	434	-92	20	112	120	90	86	-4		
736+00.00	550	430	120	0	0	0	0	430	331	320	0	120	440	-109	21	108	120	90	86	-4		
736+25.00	536	417	119	0	0	0	0	417	321	326	0	119	445	-124	25	113	119	89	85	-4		
736+50.00	544	424	120	0	0	0	0	424	326	326	0	120	446	-120	28	117	120	90	86	-4		
736+75.00	577	457	120	0	0	0	0	457	352	312	0	120	432	-80	27	118	120	91	86	-5		
737+00.00	641	520	121	0	0	0	0	520	400	287	0	121	408	-8	16	109	121	91	87	-4		
737+25.00	726	605	121	0	0	0	0	605	465	263	0	121	384	81	7	91	121	92	87	-5		
737+50.00	809	687	122	0	0	0	0	687	528	243	0	122	365	163	2	75	122	92	88	-4		
737+75.00	900	777	123	0	0	0	0	777	598	219	0	123	342	256	0	63	123	94	88	-6		
738+00.00	1,008	883	125	0	0	0	0	883	679	193	0	125	318	361	0	51	125	97	90	-7		
738+25.00	1,088	961	127	0	0	0	0	961	739	176	0	127	303	436	0	42	127	99	91	-8		
738+50.00	1,119	991	128	0	0	0	0	991	762	172	0	128	300	462	0	35	128	100	92	-8		
738+75.00	1,097	969	128	0	0	0	0	969	745	178	0	128	306	439	0	35	128	101	92	-9		
739+00.00	1,014	886	128	0	0	0	0	886	682	193	0	128	321	361	5	39	128	100	92	-8		
739+25.00	891	764	127	0	0	0	0	764	588	222	0	127	349	239	13	46	127	100	91	-9		
739+50.00	758	631	127	0	0	0	0	631	485	281	0	127	408	77	26	59	127	99	91	-8		
739+75.00	682	554	128	0	0	0	0	554	426	364	0	128	492	-66	50	95	128	100	92	-8		
740+00.00	699	570	129	0	0	0	0	570	438	434	0	129	563	-125	77	156	129	102	93	-9		
740+25.00	780	650	130	0	0	0	0	650	500	474	0	130	604	-104	97	219	130	103	93	-10		
740+50.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
740+50.00	900	769	131	0	0	0	0	769	592	458	0	131	589	3	139	263	131	104	94	-10		
740+75.00	1,040	908	132	0	0	0	0	908	698	398	0	132	530	168	127	254	132	106	95	-11		
741+00.00	1,193	1,059	134	0	0	0	0	1,059	815	336	0	134	470	345	92	204	134	108	96	-12		
741+25.00	1,367	1,231	136	0	0	0	0	1,231	947	268	0	136	404	543	56	154	136	112	98	-14		
741+50.00	1,569	1,430	139	0	0	0	0	1,430	1,100	190	0	139	329	771	17	105	139	115	100	-15		
741+75.00	1,797	1,655	142	0	0	0	0	1,655	1,273	118	0	142	260	1,013	0	56	142	119	102	-17		
742+00.00	2,058	1,914	144	0	0	0	0	1,914	1,472	66	0	144	210	1,262	0	20	144	122	103	-19		
742+25.00	2,336	2,190	146	0	0	0	0	2,190	1,685	31	0	146	177	1,508	0	3	146	125	105	-20		
742+50.00	2,619	2,471	148	0	0	0	0	2,471	1,901	9	0	148	157	1,744	0	0	148	127	106	-21		
742+75.00	2,984	2,829	155	0	0	0	0	2,829	2,176	0	0	155	155	2,021	0	0	155	136	111	-25		
743+00.00	3,341	3,180	161	0	0	0	0	3,180	2,446	0	0	161	161	2,285	0	0	161	144	115	-29		
743+25.00	3,654	3,493	161	0	0	0	0	3,493	2,687	0	0	161	161	2,526	0	0	161	144	115	-29		
743+50.00	4,044	3,883	161	0	0	0	0	3,883	2,987	0	0	161	161	2,826	0	0	161	144	115	-29		
743+75.00	4,457	4,296	161	0	0	0	0	4,296	3,305	0	0	161	161	3,144	0	0	161	145	115	-30		
744+00.00	4,793	4,631	162	0	0	0	0	4,631	3,562	0	0	162	162	3,400	0	0	162	145	116	-29		
744+25.00	5,006	4,698	161	0	147	0	0	4,845	3,727	0	0	161	161	3,566	0	0	161	144	115	-29		
744+50.00	5,108	4,684	160	0	264	0	0	4,948	3,806	0	0	160	160	3,646	0	0	160	143	115	-28		
744+75.00	5,122	4,275	158	0	689	0	0	4,964	3,818	0	0	158	158	3,660	0	0	158	141	113	-28		
745+00.00	5,038	3,552	153	0	1,333	0	0	4,885	3,758	0	0	153	153	3,605	0	0	153	134	110	-24		
745+25.00	4,935	3,419	147	0	1,368	0	0	4,787	3,682	0	0	147	147	3,535	0	0	147	126	105	-21		
745+50.00	4,842	3,248	145	0	1,449	0	0	4,697	3,613	0	0	145	145	3,468	0	0	145	123	104	-19		
745+75.00	4,666	3,040	142	0	1,483	0	0	4,523	3,479	0	0	142	142	3,337	0	0	142	119	102	-17		
746+00.00	4,410	3,443	139	0	829	0	0	4,272	3,286	0	0	139	139	3,147	0	0	139	115	100	-15		
746+25.00	4,118	3,434	136	0	548	0	0	3,982	3,063	0	0	136	136	2,927	0	0	136	111	98	-13		
746+50.00	3,857	3,364	133	0	360	0	0	3,724	2,865	0	0	133	133	2,732	0	0	133	107	95	-12		
746+75.00	3,705	3,575	130	0	0	0	0	3,575	2,750	0	0	130	130	2,620	0	0	130	103	93	-10		
747+00.00	3,646	3,517	129	0	0	0	0	3,517	2,705	0	0	129	129	2,576	0	0	129	102	93	-9		
747+25.00	3,619	3,491	128	0	0	0	0	3,491	2,685	0	0	128	128	2,557	0	0	128	100	92	-8		
747+50.00	3,600	3,473	127	0	0	0	0	3,473	2,672	0	0	127	127	2,545	0	0	127	99	91	-8		
747+75.00	3,563	3,436	127	0	0	0	0	3,436	2,643	0	0	127	127	2,516	0	0	127	99	91	-8		
748+00.00	3,518	3,391	127	0	0	0	0	3,391	2,608	0	0	127	127	2,481	0	0	127	100	91	-9		
748+25.00	3,394	3,243	129	0	0	22	0	3,265	2,512	0	0	129	129	2,383	0	0	129	101	93	-8		
748+50.00	3,086	1,555	129	0	0	1,402	0	2,957	2,275	0	0	129	129	2,146	0	0	129	102	93	-9		
748+75.00	2,689	0	129	0	0	2,560	0	2,560	1,969	0	0	129	129	1,840	0	0	129	102	93	-9		
749+00.00	2,262	663	128	0	0	1,471	0	2,134	1,642	0	0	128	128	1,514	0	0	128	101	92	-9		
749+25.00	1,772	1,205	128	0	0	439	0	1,644	1,265	1	0	128	129	1,136	0	0	128	100	92	-8		
749+50.00	1,290	1,014	128	0	0	148	0	1,162	894	65	0	128	193	701	0	0	128	101	92	-9		
749+75.00	934	806	128	0	0	0	0	806	620	228	0	128	356	264	63	25	128	100	92	-8		
750+00.00	701	572	129	0	0	0	0	572	440	402	0	129	531	-91	109	103	129	102	93	-9		
750+25.00	541	410	131	0	0	0	0	410	315	656	0	131	787	-472	147	225	131	104	94	-10		
750+50.00	442	310	132	0	0	0	0	310	238	1,062	0	132	1,194	-956	370	409	132	106	95	-11		
750+75.00	383	250	133	0	0	0	0	250	192	1,445	0	133	1,578	-1,386	542	725	133	108	95	-13		
751+00.00	346	212	134	0	0	0	0	212	163	1,707	0	134	1,841	-1,678	779	1,082	134	109	96	-13		
751+25.00	313	178	135	0	0	0	0	178	137	1,904	0	135	2,039	-1,902	1,006	1,344	135	110	97	-13		
751+50.00	282	148	134	0	0	0	0	148	114	2,055	0	134	2,189	-2,075	1,203	1,541	134	109	96	-13		
751+75.00	281	147	134	0	0	0	0	147	113	2,135	0	134	2,269	-2,156	1,354	1,692	134	109	96	-13		
752+00.00	298	163	135	0	0	0	0	163	125	2,125	0	135	2,260	-2,135	1,434	1,772	135	110	97	-13		
752+25.00	310	174	136	0	0	0	0	174	134	2,009	0	136	2,145	-2,011	1,424	1,762	136	112	98	-14		
752+50.00	331	197	134	0	0	0	0	197	152	1,799	0	134	1,933	-1,781	1,308	1,646	134	109	96	-13		
752+75.00	388	254	134	0	0	0	0	254	195	1,524	0	134	1,658	-1,463	1,098	1,436	134	109	96	-13		
753+00.00	491	354	137	0	0	0	0	354	272	1,214	0	137	1,351	-1,079	824	1,162	137	112	98	-14		
753+25.00	634	496	138	0	0	0	0	496	382	874	0	138	1,012	-630	519	852	138	114	99	-15		
753+50.00	820	681	139	0	0	0	0	681	524	554	0	139	693	-169	244	539	139	115	100	-15		
753+75.00	1,089	949	140	0	0	0	0	949	730	326	0	140	466	264	46	284	140	117	100	-17		
754+00.00	1,477	1,335	142	0	0	0	0	1,335	1,027	147	0	142	289	738	0	121	142	119	102	-17		
754+25.00	2,005	1,831	145	0	0	29	0	1,860	1,431	26	0	145	171	1,260	0	31	145	123	104	-19		
754+50.00	2,636	2,417	148	0	0	71	0	2,488	1,914	0	0	148	148	1,766	0	0	148	127	106	-21		
754+75.00	3,292	3,015	151	0	0	126	0	3,141	2,416	0	0	151	151	2,265	0	0	151	131	108	-23		
755+00.00	3,951	3,579	154	0	0	218	0	3,797	2,921	0	0	154	154	2,767	0	0	154	135	110	-25		
755+25.00	4,605	3,679	157	0	0	769	0	4,448	3,422	0	0	157	157	3,265	0	0	157	139	113	-26		
755+50.00	5,102	4,026	159	0	0	916	0	4,942	3,802	0	0	159	159	3,643	0	0	159	142	114	-28		
755+75.00	5,435	4,699	160	0	0	576	0	5,275	4,058	0	0	160	160	3,898	0	0	160	143	115	-28		
756+00.00	5,776	5,036	161	0	0	579	0	5,615	4,319	0	0	161	161	4,158	0	0	161	145	115	-30		
756+25.00	5,911	5,211	161	0	0	539	0	5,750	4,423	0	0	161	161	4,262	0	0	161	145	115	-30		
756+50.00	5,702	5,038	159	0	0	506	0	5,544	4,265	0	0	159	159	4,106	0	0	159	143	114	-29		
756+75.00	5,383	4,729	157	0	0	497	0	5,226	4,020	0	0	157	157	3,863	0	0	157	139	113	-26		
757+00.00	5,047	4,474	154	0	0	419	0	4,893	3,764	0	0	154	154	3,610	0	0	154	135	110	-25		
757+25.00	4,635	4,163	150	0	0	322	0	4,485	3,450	0	0	150	150	3,300	0	0	150	130	108	-22		
757+50.00	4,227	3,863	148	0	0	217	0	4,080	3,138	0	0	148	148	2,990	0	0	148	127	106	-21		
757+75.00	3,872	3,550	147	0	0	176	0	3,726	2,866	0	0	147	147	2,719	0	0	147	126	105	-21		
758+00.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
758+00.00	3,495	3,167	146	0	0	182	0	3,349	2,576	0	0	146	146	2,430	0	0	146	125	105	-20		
758+25.00	3,095	2,769	146	0	0	179	0	2,948	2,268	0	0	146	146	2,122	0	0	146	125	105	-20		
758+50.00	2,718	2,397	146	0	0	175	0	2,572	1,978	0	0	146	146	1,832	0	0	146	125	105	-20		
758+75.00	2,420	2,184	147	0	0	90	0	2,274	1,749	0	0	147	147	1,602	0	0	147	126	105	-21		
759+00.00	2,193	1,974	149	0	0	70	0	2,044	1,572	0	0	149	149	1,423	0	0	149	129	107	-22		
759+25.00	1,880	1,611	152	0	0	117	0	1,728	1,329	18	0	152	170	1,159	0	0	152	134	109	-25		
759+50.00	1,429	1,145	154	0	0	130	0	1,275	981	171	0	154	325	656	0	0	154	136	110	-26		
759+75.00	978	729	150	0	0	98	0	827	636	619	0	150	769	-133	134	66	150	131	108	-23		
760+00.00	683	487	145	0	0	51	0	538	414	1,250	0	145	1,395	-981	379	378	145	123	104	-19		
760+25.00	537	372	139	0	0	27	0	399	307	1,683	0	139	1,822	-1,515	759	914	139	114	100	-14		
760+50.00	437	295	131	0	0	12	0	307	236	1,794	0	131	1,925	-1,689	1,015	1,338	131	104	94	-10		
760+75.00	574	431	143	0	0	0	0	431	332	1,813	0	143	1,956	-1,624	1,134	1,467	143	120	103	-17		
761+00.00	652	498	154	0	0	0	0	498	383	1,884	0	154	2,038	-1,655	1,153	1,485	154	134	110	-24		
761+25.00	456	313	143	0	0	0	0	313	241	2,088	0	143	2,231	-1,990	1,224	1,557	143	119	103	-16		
761+50.00	331	199	132	0	0	0	0	199	153	1,842	0	132	1,974	-1,821	1,428	1,761	132	106	95	-11		
761+75.00	378	245	133	0	0	0	0	245	188	1,251	0	133	1,384	-1,196	1,182	1,514	133	109	95	-14		
762+00.00	446	310	136	0	0	0	0	310	238	994	0	136	1,130	-892	590	923	136	113	98	-15		
762+25.00	421	289	132	0	0	0	0	289	222	844	0	132	976	-754	333	666	132	108	95	-13		
762+50.00	408	280	128	0	0	0	0	280	215	648	0	128	776	-561	183	516	128	102	92	-10		
762+75.00	439	314	125	0	0	0	0	314	242	399	0	125	524	-282	-1	320	125	98	90	-8		
763+00.00	561	440	121	0	0	0	0	440	338	181	0	121	302	36	0	134	121	93	87	-6		
763+25.00	729	612	117	0	0	0	0	612	471	60	0	117	177	294	0	38	117	88	84	-4		
763+50.00	920	805	115	0	0	0	0	805	619	10	0	115	125	494	0	6	115	85	83	-2		
763+75.00	1,125	1,011	114	0	0	0	0	1,011	778	0	0	114	114	664	0	0	114	84	82	-2		
764+00.00	1,244	1,129	115	0	0	0	0	1,129	868	0	0	115	115	753	0	0	115	85	83	-2		
764+25.00	1,228	1,114	114	0	0	0	0	1,114	857	0	0	114	114	743	0	0	114	84	82	-2		
764+50.00	1,128	1,014	114	0	0	0	0	1,014	780	0	0	114	114	666	0	0	114	83	82	-1		
764+75.00	1,013	900	113	0	0	0	0	900	692	0	0	113	113	579	0	0	113	83	81	-2		
765+00.00	908	795	113	0	0	0	0	795	612	0	0	113	113	499	0	0	113	82	81	-1		
765+25.00	826	714	112	0	0	0	0	714	549	0	0	112	112	437	0	0	112	81	80	-1		
765+50.00	759	648	111	0	0	0	0	648	498	0	0	111	111	387	0	0	111	80	80	0		
765+75.00	716	606	110	0	0	0	0	606	466	0	0	110	110	356	0	0	110	79	79	0		
766+00.00	697	587	110	0	0	0	0	587	452	0	0	110	110	342	0	0	110	78	79	1		
766+25.00	699	590	109	0	0	0	0	590	454	0	0	109	109	345	0	0	109	78	78	0		
766+50.00	724	615	109	0	0	0	0	615	473	0	0	109	109	364	0	0	109	78	78	0		
766+75.00	772	663	109	0	0	0	0	663	510	0	0	109	109	401	0	0	109	77	78	1		
767+00.00	840	731	109	0	0	0	0	731	562	0	0	109	109	453	0	0	109	77	78	1		
767+25.00	918	809	109	0	0	0	0	809	622	0	0	109	109	513	0	0	109	77	78	1		
767+50.00	997	888	109	0	0	0	0	888	683	0	0	109	109	574	0	0	109	76	78	2		
767+75.00	1,065	956	109	0	0	0	0	956	735	0	0	109	109	626	0	0	109	76	78	2		
768+00.00	1,097	988	109	0	0	0	0	988	760	0	0	109	109	651	0	0	109	77	78	1		
768+25.00	1,076	967	109	0	0	0	0	967	744	2	0	109	111	633	0	0	109	77	78	1		
768+50.00	1,034	925	109	0	0	0	0	925	712	13	0	109	122	590	0	0	109	77	78	1		
768+75.00	978	869	109	0	0	0	0	869	668	35	0	109	144	524	0	0	109	77	78	1		
769+00.00	896	788	108	0	0	0	0	788	606	66	0	108	174	432	0	0	108	75	78	3		
769+25.00	835	727	108	0	0	0	0	727	559	84	0	108	192	367	0	2	108	75	78	3		
769+50.00	597	500	97	0	0	0	0	500	385	82	0	97	179	206	0	4	97	62	70	8		
769+75.00	382	294	88	0	0	0	0	294	226	74	0	88	162	64	0	2	88	50	63	13		
770+00.00	391	299	92	0	0	0	0	299	230	70	0	92	162	68	0	0	92	56	66	10		
770+25.00	542	448	94	0	0	0	0	448	345	59	0	94	153	192	0	0	94	58	68	10		
770+50.00	825	730	95	0	0	0	0	730	562	81	0	95	176	386	0	0	95	61	68	7		
770+75.00	849	747	102	0	0	0	0	747	575	239	0	102	341	234	0	0	102	71	73	2		
771+00.00	803	697	106	0	0	0	0	697	536	328	0	106	434	102	0	0	106	77	76	-1		
771+25.00	910	753	157	0	0	0	0	753	579	256	0	157	413	166	0	0	157	75	113	38		
771+50.00	1,006	804	202	0	0	0	0	804	618	138	0	202	340	278	0	0	202	69	145	76		
771+75.00	1,107	919	188	0	0	0	0	919	707	41	0	188	229	478	0	0	188	59	135	76		
772+00.00	1,327	1,131	196	0	0	0	0	1,131	870	13	0	196	209	661	0	0	196	64	140	76		
772+25.00	1,553	1,345	208	0	0	0	0	1,345	1,035	2	0	208	210	825	0	0	208	72	149	77		
772+50.00	1,689	1,484	205	0	0	0	0	1,484	1,142	0	0	205	205	937	0	0	205	71	147	76		
772+75.00	2,166	1,931	235	0	0	0	0	1,931	1,485	0	0	235	235	1,250	0	0	235	90	168	78		
773+00.00	2,697	2,428	269	0	0	0	0	2,428	1,868	0	0	269	269	1,599	0	0	269	111	193	82		
773+25.00	2,958	2,684	274	0	0	0	0	2,684	2,065	0	0	274	274	1,791	0	0	274	114	196	82		
773+50.00	3,201	2,923	278	0	0	0	0	2,923	2,248	0	0	278	278	1,970	0	0	278	117	199	82		
773+75.00	3,391	3,110	281	0	0	0	0	3,110	2,392	0	0	281	281	2,111	0	0	281	119	201	82		
774+00.00	3,514	3,231	283	0	0	0	0	3,231	2,485	0	0	283	283	2,202	0	0	283	121	203	82		
774+25.00	3,549	3,266	283	0	0	0	0	3,266	2,512	0	0	283	283	2,229	0	0	283	121	203	82		
774+50.00	3,546	3,262	284	0	0	0	0	3,262	2,509	0	0	284	284	2,225	0	0	284	121	203	82		
774+75.00	3,438	3,153	285	0	0	0	0	3,153	2,425	0	0	285	285	2,140	0	0	285	121	204	83		
775+00.00	3,215	2,930	285	0	0	0	0	2,930	2,254	0	0	285	285	1,969	0	0	285	121	204	83		
775+25.00	2,977	2,691	286	0	0	0	0	2,691	2,070	0	0	286	286	1,784	0	0	286	123	205	82		
775+50.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
775+50.00	2,698	2,410	288	0	0	0	0	2,410	1,854	0	0	288	288	1,566	0	0	288	124	206	82		
775+75.00	2,408	2,105	289	0	0	14	0	2,119	1,630	0	0	289	289	1,341	0	0	289	124	207	83		
776+00.00	2,065	1,746	288	0	0	30	0	1,776	1,366	0	0	288	288	1,078	0	0	288	124	206	82		
776+25.00	1,649	1,338	284	0	0	27	0	1,365	1,050	11	0	284	295	755	0	0	284	121	203	82		
776+50.00	1,237	934	279	0	0	25	0	959	738	90	0	279	369	369	0	0	279	118	200	82		
776+75.00	933	627	277	0	0	29	0	656	505	320	0	277	597	-92	0	3	277	116	198	82		
777+00.00	740	440	274	0	0	26	0	466	358	681	0	274	955	-597	161	95	274	115	196	81		
777+25.00	613	315	274	0	0	24	0	339	261	1,098	0	274	1,372	-1,111	231	370	274	114	196	82		
777+50.00	528	239	277	0	0	13	0	252	194	1,556	0	277	1,833	-1,639	454	771	277	116	198	82		
777+75.00	469	185	284	0	0	0	0	185	142	2,059	0	284	2,343	-2,201	895	1,228	284	121	203	82		
778+00.00	454	161	293	0	0	0	0	161	124	2,506	0	293	2,799	-2,675	1,398	1,731	293	127	210	83		
778+25.00	483	177	306	0	0	0	0	177	136	2,883	0	306	3,189	-3,053	1,845	2,178	306	136	219	83		
778+50.00	535	215	320	0	0	0	0	215	165	3,248	0	320	3,568	-3,403	2,222	2,555	320	145	229	84		
778+75.00	684	265	419	0	0	0	0	265	204	3,732	0	419	4,151	-3,947	2,587	2,920	419	153	300	147		
779+00.00	783	265	518	0	0	0	0	265	204	4,230	0	518	4,748	-4,544	2,961	3,405	518	158	370	212		
779+25.00	710	182	528	0	0	0	0	182	140	4,427	0	528	4,955	-4,815	3,281	3,903	528	163	378	215		
779+50.00	819	270	549	0	0	0	0	270	208	4,530	0	549	5,079	-4,871	3,357	4,100	549	173	393	220		
779+75.00	985	418	567	0	0	0	0	418	322	4,763	0	567	5,330	-5,008	3,322	4,202	567	181	405	224		
780+00.00	924	360	564	0	0	0	0	360	277	4,674	0	564	5,238	-4,961	3,328	4,436	564	181	403	222		
780+25.00	925	363	562	0	0	0	0	363	279	4,162	0	562	4,724	-4,445	3,252	4,345	562	181	402	221		
780+50.00	1,013	540	473	0	0	0	0	540	415	3,588	0	473	4,061	-3,646	3,025	3,834	473	184	338	154		
780+75.00	1,006	722	284	0	0	0	0	722	555	3,018	0	284	3,302	-2,747	2,665	3,260	284	184	203	19		
781+00.00	1,063	875	188	0	0	0	0	875	673	2,526	0	188	2,714	-2,041	2,232	2,690	188	182	135	-47		
781+25.00	1,231	1,044	187	0	0	0	0	1,044	803	2,134	0	187	2,321	-1,518	1,818	2,198	187	180	134	-46		
781+50.00	1,373	1,188	185	0	0	0	0	1,188	914	1,818	0	185	2,003	-1,089	1,465	1,806	185	178	133	-45		
781+75.00	1,475	1,292	183	0	0	0	0	1,292	994	1,559	0	183	1,742	-748	1,161	1,490	183	176	131	-45		
782+00.00	1,549	1,368	181	0	0	0	0	1,368	1,052	1,338	0	181	1,519	-467	929	1,236	181	172	130	-42		
782+25.00	1,557	1,376	178	0	0	3	0	1,379	1,061	1,180	0	178	1,358	-297	756	1,028	178	168	128	-40		
782+50.00	1,502	1,324	174	0	0	3	0	1,327	1,021	1,081	0	174	1,255	-234	642	892	174	163	125	-38		
782+75.00	1,444	1,263	170	0	0	11	0	1,274	980	1,014	0	170	1,184	-204	588	819	170	157	122	-35		
783+00.00	1,378	1,182	165	0	0	31	0	1,213	933	961	0	165	1,126	-193	570	776	165	152	118	-34		
783+25.00	1,295	1,101	161	0	0	33	0	1,134	872	927	0	161	1,088	-216	544	739	161	146	115	-31		
783+50.00	1,182	990	157	0	0	35	0	1,025	788	940	0	157	1,097	-309	537	718	157	141	113	-28		
783+75.00	1,041	839	153	0	0	49	0	888	683	981	0	153	1,134	-451	559	729	153	134	110	-24		
784+00.00	899	703	148	0	0	48	0	751	578	1,026	0	148	1,174	-596	581	758	148	128	106	-22		
784+25.00	765	602	143	0	0	20	0	622	478	1,077	0	143	1,220	-742	607	791	143	122	103	-19		
784+50.00	643	505	138	0	0	0	0	505	388	1,125	0	138	1,263	-875	638	832	138	115	99	-16		
784+75.00	528	395	133	0	0	0	0	395	304	1,164	0	133	1,297	-993	671	870	133	109	95	-14		
785+00.00	418	290	128	0	0	0	0	290	223	1,188	0	128	1,316	-1,093	695	896	128	102	92	-10		
785+25.00	324	201	123	0	0	0	0	201	155	1,167	0	123	1,290	-1,135	695	904	123	95	88	-7		
785+50.00	268	149	119	0	0	0	0	149	115	1,113	0	119	1,232	-1,117	648	871	119	90	85	-5		
785+75.00	251	135	116	0	0	0	0	135	104	1,007	0	116	1,123	-1,019	581	810	116	86	83	-3		
786+00.00	266	151	115	0	0	0	0	151	116	829	0	115	944	-828	462	701	115	85	83	-2		
786+25.00	296	182	114	0	0	0	0	182	140	627	0	114	741	-601	289	530	114	84	82	-2		
786+50.00	328	215	113	0	0	0	0	215	165	420	0	113	533	-368	124	350	113	82	81	-1		
786+75.00	360	249	111	0	0	0	0	249	192	238	0	111	349	-157	0	186	111	79	80	1		
787+00.00	394	287	107	0	0	0	0	287	221	127	0	107	234	-13	0	68	107	75	77	2		
787+25.00	459	354	105	0	0	0	0	354	272	63	0	105	168	104	0	13	105	71	75	4		
787+50.00	545	441	104	0	0	0	0	441	339	20	0	104	124	215	0	0	104	70	75	5		
787+75.00	651	547	104	0	0	0	0	547	421	3	0	104	107	314	0	0	104	71	75	4		
788+00.00	799	693	106	0	0	0	0	693	533	0	0	106	106	427	0	0	106	72	76	4		
788+25.00	980	873	107	0	0	0	0	873	672	0	0	107	107	565	0	0	107	75	77	2		
788+50.00	1,183	1,074	109	0	0	0	0	1,074	826	0	0	109	109	717	0	0	109	77	78	1		
788+75.00	1,386	1,275	111	0	0	0	0	1,275	981	0	0	111	111	870	0	0	111	80	80	0		
789+00.00	1,545	1,432	113	0	0	0	0	1,432	1,102	0	0	113	113	989	0	0	113	82	81	-1		
789+25.00	1,635	1,521	114	0	0	0	0	1,521	1,170	0	0	114	114	1,056	0	0	114	84	82	-2		
789+50.00	1,697	1,581	116	0	0	0	0	1,581	1,216	0	0	116	116	1,100	0	0	116	86	83	-3		
789+75.00	1,757	1,640	117	0	0	0	0	1,640	1,262	0	0	117	117	1,145	0	0	117	87	84	-3		
790+00.00	1,819	1,701	118	0	0	0	0	1,701	1,308	0	0	118	118	1,190	0	0	118	88	85	-3		
790+25.00	1,893	1,774	119	0	0	0	0	1,774	1,365	0	0	119	119	1,246	0	0	119	90	85	-5		
790+50.00	1,968	1,848	120	0	0	0	0	1,848	1,422	0	0	120	120	1,302	0	0	120	92	86	-6		
790+75.00	2,012	1,891	121	0	0	0	0	1,891	1,455	0	0	121	121	1,334	0	0	121	93	87	-6		
791+00.00	2,018	1,896	122	0	0	0	0	1,896	1,458	0	0	122	122	1,336	0	0	122	94	88	-6		
791+25.00	2,002	1,879	123	0	0	0	0	1,879	1,445	0	0	123	123	1,322	0	0	123	95	88	-7		
791+50.00	1,963	1,840	123	0	0	0	0	1,840	1,415	0	0	123	123	1,292	0	0	123	96	88	-8		
791+75.00	1,897	1,773	124	0	0	0	0	1,773	1,364	0	0	124	124	1,240	0	0	124	97	89	-8		
792+00.00	1,809	1,684	125	0	0	0	0	1,684	1,295	0	0	125	125	1,170	0	0	125	98	90	-8		
792+25.00	1,662	1,538	124	0	0	0	0	1,538	1,183	0	0	124	124	1,059	0	0	124	97	89	-8		
792+50.00	1,422	1,301	121	0	0	0	0	1,301	1,001	0	0	121	121	880	0	0	121	93	87	-6		
792+75.00	1,157	1,038	119	0	0	0	0	1,038	798	0	0	119	119	679	0	0	119	90	85	-5		
793+00.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
793+00.00	922	803	119	0	0	0	0	803	618	1	0	119	120	498	0	0	119	90	85	-5		
793+25.00	710	593	117	0	0	0	0	593	456	28	0	117	145	311	0	0	117	87	84	-3		
793+50.00	559	446	113	0	0	0	0	446	343	84	0	113	197	146	0	0	113	83	81	-2		
793+75.00	417	306	111	0	0	0	0	306	235	127	0	111	238	-3	0	0	111	79	80	1		
794+00.00	296	186	110	0	0	0	0	186	143	250	0	110	360	-217	0	14	110	79	79	0		
794+25.00	251	138	113	0	0	0	0	138	106	474	0	113	587	-481	111	88	113	82	81	-1		
794+50.00	243	126	117	0	0	0	0	126	97	729	0	117	846	-749	145	215	117	88	84	-4		
794+75.00	220	100	120	0	0	0	0	100	77	996	0	120	1,116	-1,039	233	413	120	91	86	-5		
795+00.00	184	63	121	0	0	0	0	63	48	1,237	0	121	1,358	-1,310	335	668	121	92	87	-5		
795+25.00	181	58	123	0	0	0	0	58	45	1,506	0	123	1,629	-1,584	576	909	123	96	88	-8		
795+50.00	187	60	127	0	0	0	0	60	46	1,787	0	127	1,914	-1,868	845	1,178	127	101	91	-10		
795+75.00	204	72	132	0	0	0	0	72	55	2,058	0	132	2,190	-2,135	1,126	1,459	132	107	95	-12		
796+00.00	238	101	137	0	0	0	0	101	78	2,365	0	137	2,502	-2,424	1,398	1,731	137	114	98	-16		
796+25.00	276	136	140	0	0	0	0	136	105	2,508	0	140	2,648	-2,543	1,704	2,037	140	118	100	-18		
796+50.00	307	167	140	0	0	0	0	167	128	2,435	0	140	2,575	-2,447	1,848	2,181	140	119	100	-19		
796+75.00	327	184	143	0	0	0	0	184	142	2,526	0	143	2,669	-2,527	1,775	2,107	143	122	103	-19		
797+00.00	337	191	146	0	0	0	0	191	147	2,838	0	146	2,984	-2,837	1,865	2,198	146	126	105	-21		
797+25.00	343	195	148	0	0	0	0	195	150	2,970	0	148	3,118	-2,968	2,177	2,510	148	128	106	-22		
797+50.00	335	188	147	0	0	0	0	188	145	2,768	0	147	2,915	-2,770	2,309	2,642	147	127	105	-22		
797+75.00	333	190	143	0	0	0	0	190	146	2,412	0	143	2,555	-2,409	2,107	2,440	143	123	103	-20		
798+00.00	365	224	141	0	0	0	0	224	172	2,011	0	141	2,152	-1,980	1,752	2,085	141	119	101	-18		
798+25.00	433	293	140	0	0	0	0	293	225	1,547	0	140	1,687	-1,462	1,351	1,683	140	118	100	-18		
798+50.00	556	415	141	0	0	0	0	415	319	1,070	0	141	1,211	-892	886	1,219	141	119	101	-18		
798+75.00	706	565	141	0	0	0	0	565	435	663	0	141	804	-369	419	752	141	120	101	-19		
799+00.00	934	791	143	0	0	0	0	791	608	354	0	143	497	111	134	396	143	122	103	-19		
799+25.00	1,267	1,122	145	0	0	0	0	1,122	863	170	0	145	315	548	0	166	145	125	104	-21		
799+50.00	1,626	1,478	148	0	0	0	0	1,478	1,137	64	0	148	212	925	0	40	148	128	106	-22		
799+75.00	2,002	1,853	149	0	0	0	0	1,853	1,425	10	0	149	159	1,266	0	0	149	130	107	-23		
800+00.00	2,380	2,230	150	0	0	0	0	2,230	1,715	0	0	150	150	1,565	0	0	150	131	108	-23		
800+25.00	2,727	2,576	151	0	0	0	0	2,576	1,982	0	0	151	151	1,831	0	0	151	132	108	-24		
800+50.00	3,087	2,935	152	0	0	0	0	2,935	2,258	0	0	152	152	2,106	0	0	152	134	109	-25		
800+75.00	3,409	3,256	153	0	0	0	0	3,256	2,505	0	0	153	153	2,352	0	0	153	135	110	-25		
801+00.00	3,663	3,509	154	0	0	0	0	3,509	2,699	0	0	154	154	2,545	0	0	154	137	110	-27		
801+25.00	3,901	3,746	155	0	0	0	0	3,746	2,882	0	0	155	155	2,727	0	0	155	138	111	-27		
801+50.00	4,121	3,966	155	0	0	0	0	3,966	3,051	0	0	155	155	2,896	0	0	155	138	111	-27		
801+75.00	4,323	4,168	155	0	0	0	0	4,168	3,206	0	0	155	155	3,051	0	0	155	138	111	-27		
802+00.00	4,531	4,377	154	0	0	0	0	4,377	3,367	0	0	154	154	3,213	0	0	154	137	110	-27		
802+25.00	4,734	4,580	154	0	0	0	0	4,580	3,523	0	0	154	154	3,369	0	0	154	136	110	-26		
802+50.00	4,844	4,692	152	0	0	0	0	4,692	3,609	0	0	152	152	3,457	0	0	152	135	109	-26		
802+75.00	4,841	4,690	151	0	0	0	0	4,690	3,608	0	0	151	151	3,457	0	0	151	133	108	-25		
803+00.00	4,796	4,645	151	0	0	0	0	4,645	3,573	0	0	151	151	3,422	0	0	151	132	108	-24		
803+25.00	4,777	4,626	151	0	0	0	0	4,626	3,558	0	0	151	151	3,407	0	0	151	132	108	-24		
803+50.00	4,775	4,624	151	0	0	0	0	4,624	3,557	0	0	151	151	3,406	0	0	151	133	108	-25		
803+75.00	4,814	4,586	228	0	0	0	0	4,586	3,528	0	0	228	228	3,300	0	0	228	134	163	29		
804+00.00	4,894	4,587	307	0	0	0	0	4,587	3,528	0	0	307	307	3,221	0	0	307	136	220	84		
804+25.00	4,930	4,611	319	0	0	0	0	4,611	3,547	0	0	319	319	3,228	0	0	319	144	228	84		
804+50.00	4,891	4,589	302	0	0	0	0	4,589	3,530	0	0	302	302	3,228	0	0	302	148	216	68		
804+75.00	4,701	4,455	246	0	0	0	0	4,455	3,427	0	0	246	246	3,181	0	0	246	132	176	44		
805+00.00	4,292	4,090	202	0	0	0	0	4,090	3,146	0	0	202	202	2,944	0	0	202	108	145	37		
805+25.00	3,796	3,615	181	0	0	0	0	3,615	2,781	0	0	181	181	2,600	0	0	181	91	130	39		
805+50.00	3,359	3,202	157	0	0	0	0	3,202	2,463	0	0	157	157	2,306	0	0	157	72	113	41		
805+75.00	2,995	2,862	133	0	0	0	0	2,862	2,202	0	0	133	133	2,069	0	0	133	57	95	38		
806+00.00	2,796	2,652	144	0	0	0	0	2,652	2,040	3	0	144	147	1,893	0	0	144	64	103	39		
806+25.00	2,672	2,506	166	0	0	0	0	2,506	1,928	12	0	166	178	1,750	0	0	166	74	119	45		
806+50.00	2,540	2,354	186	0	0	0	0	2,354	1,811	27	0	186	213	1,598	0	0	186	74	133	59		
806+75.00	2,457	2,246	211	0	0	0	0	2,246	1,728	56	0	211	267	1,461	0	0	211	78	151	73		
807+00.00	2,368	2,151	217	0	0	0	0	2,151	1,655	91	0	217	308	1,347	0	0	217	79	155	76		
807+25.00	2,220	2,011	209	0	0	0	0	2,011	1,547	79	0	209	288	1,259	0	0	209	75	150	75		
807+50.00	2,013	1,809	204	0	0	0	0	1,809	1,392	56	0	204	260	1,132	0	0	204	72	146	74		
807+75.00	1,812	1,613	199	0	0	0	0	1,613	1,241	35	0	199	234	1,007	0	0	199	67	143	76		
808+00.00	1,716	1,511	205	0	0	0	0	1,511	1,162	10	0	205	215	947	0	0	205	69	147	78		
808+25.00	1,549	1,340	209	0	0	0	0	1,340	1,031	10	0	209	219	812	0	0	209	72	150	78		
808+50.00	1,205	1,004	201	0	0	0	0	1,004	772	8	0	201	209	563	0	0	201	68	144	76		
808+75.00	902	686	216	0	0	0	0	686	528	65	0	216	281	247	0	0	216	78	155	77		
809+00.00	661	427	234	0	0	0	0	427	328	209	0	234	443	-115	0	0	234	88	168	80		
809+25.00	542	305	237	0	0	0	0	305	235	367	0	237	604	-369	0	40	237	88	170	82		
809+50.00	672	427	245	0	0	0	0	427	328	276	0	245	521	-193	0	97	245	93	175	82		
809+75.00	973	785	188	0	0	0	0	785	604	55	0	188	243	361	0	56	188	98	135	37		
810+00.00	1,410	1,281	129	0	0	0	0	1,281	985	0	0	129	129	856	0	0	129	103	93	-10		
810+25.00	1,388	1,256	132	0	0	0	0	1,256	966	68	0	132	200	766	0	0	132	106	95	-11		
810+50.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1469090	1216279	162505	826	64728	21760	3034	1303593	1002764	644166	697	162505	807368	195390	333893	528259	162505	97957	116518	18561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
810+50.00	824	698	126	0	0	0	0	698	537	343	0	126	469	68	0	2	126	98	90	-8		
810+75.00	896	706	190	0	0	0	0	706	543	477	0	190	667	-124	206	128	190	97	136	39		
811+00.00	1,584	1,314	270	0	0	0	0	1,314	1,011	346	0	270	616	395	0	225	270	110	193	83		
811+25.00	2,068	1,786	282	0	0	0	0	1,786	1,374	240	0	282	522	852	0	159	282	117	202	85		
811+50.00	2,386	2,096	290	0	0	0	0	2,096	1,612	147	0	290	437	1,175	0	88	290	122	208	86		
811+75.00	2,743	2,446	297	0	0	0	0	2,446	1,882	72	0	297	369	1,513	0	37	297	127	213	86		
812+00.00	3,077	2,781	296	0	0	0	0	2,781	2,139	23	0	296	319	1,820	0	7	296	127	212	85		
812+25.00	3,458	2,598	295	0	564	0	0	3,162	2,432	2	0	295	297	2,135	0	0	295	126	211	85		
812+50.00	3,897	2,307	296	0	1,293	0	0	3,600	2,769	0	0	296	296	2,473	0	0	296	127	212	85		
812+75.00	4,260	2,595	296	0	1,368	0	0	3,963	3,048	0	0	296	296	2,752	0	0	296	126	212	86		
813+00.00	4,548	2,771	295	0	1,482	0	0	4,253	3,272	0	0	295	295	2,977	0	0	295	126	211	85		
813+25.00	4,800	2,673	293	0	1,834	0	0	4,507	3,467	0	0	293	293	3,174	0	0	293	125	210	85		
813+50.00	5,029	2,733	291	0	2,004	0	0	4,737	3,644	0	0	291	291	3,353	0	0	291	123	208	85		
813+75.00	5,231	3,140	288	0	1,803	0	0	4,943	3,802	0	0	288	288	3,514	0	0	288	121	206	85		
814+00.00	5,384	3,378	285	0	1,721	0	0	5,099	3,922	0	0	285	285	3,637	0	0	285	119	204	85		
814+25.00	5,489	3,264	282	0	1,944	0	0	5,208	4,006	0	0	282	282	3,724	0	0	282	117	202	85		
814+50.00	5,576	3,032	280	0	2,264	0	0	5,296	4,074	0	0	280	280	3,794	0	0	280	116	200	84		
814+75.00	5,661	2,983	281	0	2,397	0	0	5,380	4,138	0	0	281	281	3,857	0	0	281	117	201	84		
815+00.00	5,727	3,202	286	0	2,239	0	0	5,441	4,185	0	0	286	286	3,899	0	0	286	120	205	85		
815+25.00	5,823	3,556	370	0	1,897	0	0	5,453	4,195	0	0	370	370	3,825	0	0	370	126	265	139		
815+50.00	5,807	3,866	458	0	1,483	0	0	5,349	4,115	0	0	458	458	3,657	0	0	458	133	328	195		
815+75.00	5,428	3,946	391	0	1,092	0	0	5,038	3,875	0	0	391	391	3,484	0	0	391	138	280	142		
816+00.00	4,630	3,800	316	0	514	0	0	4,314	3,318	0	0	316	316	3,002	0	0	316	140	226	86		
816+25.00	3,456	2,979	311	0	166	0	0	3,145	2,419	0	0	311	311	2,108	0	0	311	136	223	87		
816+50.00	2,231	1,861	304	0	66	0	0	1,927	1,482	137	0	304	441	1,041	0	0	304	132	218	86		
816+75.00	1,259	960	299	0	0	0	0	960	738	554	0	299	853	-115	137	80	299	128	214	86		
817+00.00	713	406	307	0	0	0	0	406	312	1,394	0	307	1,701	-1,389	365	396	307	134	220	86		
817+25.00	490	179	311	0	0	0	0	179	138	2,454	0	311	2,765	-2,627	1,030	1,111	311	137	223	86		
817+50.00	383	77	306	0	0	0	0	77	59	3,406	0	306	3,712	-3,653	1,753	2,091	306	134	219	85		
817+75.00	389	76	313	0	0	0	0	76	58	4,074	0	313	4,387	-4,329	2,695	3,044	313	139	224	85		
818+00.00	457	140	317	0	0	0	0	140	108	4,312	0	317	4,629	-4,521	3,220	3,712	317	142	227	85		
818+25.00	571	249	322	0	0	0	0	249	192	4,273	0	322	4,595	-4,403	3,252	3,949	322	144	230	86		
818+50.00	807	471	336	0	0	0	0	471	362	3,973	0	336	4,309	-3,947	3,099	3,909	336	154	240	86		
818+75.00	1,240	728	357	0	0	155	0	883	679	3,308	0	357	3,665	-2,986	2,758	3,610	357	167	255	88		
819+00.00	1,857	1,212	380	0	0	265	0	1,477	1,136	2,294	0	380	2,674	-1,538	2,173	2,945	380	182	272	90		
819+25.00	2,595	2,133	298	0	0	165	0	2,298	1,768	1,241	0	298	1,539	229	1,486	1,963	298	196	213	17		
819+50.00	3,590	3,260	209	0	0	121	0	3,381	2,601	508	0	209	717	1,884	783	986	209	208	150	-58		
819+75.00	4,727	3,806	217	0	598	106	0	4,510	3,469	153	0	217	370	3,099	157	335	217	219	155	-64		
820+00.00	5,705	4,135	222	0	1,258	91	0	5,484	4,218	33	0	222	255	3,963	0	54	222	226	159	-67		
820+25.00	6,182	4,457	227	0	1,402	96	0	5,955	4,581	1	0	227	228	4,353	0	1	227	232	163	-69		
820+50.00	5,887	4,138	235	0	1,469	45	0	5,652	4,348	49	0	235	284	4,064	0	0	235	243	168	-75		
820+75.00	5,207	3,505	244	0	1,455	3	0	4,963	3,818	266	0	244	510	3,308	0	8	244	255	175	-80		
821+00.00	4,134	3,109	244	0	727	54	0	3,890	2,992	899	0	244	1,143	1,849	167	131	244	255	175	-80		
821+25.00	2,895	2,561	235	0	0	57	42	2,618	2,014	2,445	0	235	2,680	-666	473	646	235	241	168	-73		
821+50.00	2,337	1,705	228	0	0	7	398	1,712	1,317	4,988	0	228	5,216	-3,899	1,319	2,103	228	232	163	-69		
821+75.00	2,126	1,100	228	0	0	0	798	1,100	846	7,505	0	228	7,733	-6,887	2,361	4,625	228	233	163	-70		
822+00.00	1,594	578	230	0	0	0	786	578	445	9,440	0	230	9,670	-9,225	3,127	7,142	230	235	165	-70		
822+25.00	1,129	253	233	0	0	0	644	253	195	10,774	0	233	11,007	-10,812	3,381	9,077	233	238	167	-71		
822+50.00	853	287	234	0	0	0	333	287	221	10,712	0	234	10,946	-10,725	3,385	10,411	234	240	168	-72		
822+75.00	826	503	234	0	0	56	33	559	430	9,690	0	234	9,924	-9,494	3,385	10,349	234	241	168	-73		
823+00.00	1,153	780	235	0	0	138	0	918	706	8,437	0	235	8,672	-7,966	3,385	9,326	235	242	168	-74		
823+25.00	1,481	1,067	232	0	0	182	0	1,249	961	6,956	0	232	7,188	-6,227	3,385	8,074	232	240	166	-74		
823+50.00	1,707	1,279	227	0	0	201	0	1,480	1,138	5,551	0	227	5,778	-4,640	3,344	6,593	227	233	163	-70		
823+75.00	1,842	1,521	219	0	0	102	0	1,623	1,248	4,173	0	219	4,392	-3,144	3,109	5,188	219	222	157	-65		
824+00.00	1,973	1,762	211	0	0	0	0	1,762	1,355	2,855	0	211	3,066	-1,711	2,629	3,811	211	211	151	-60		
824+25.00	2,127	1,924	203	0	0	0	0	1,924	1,480	1,713	0	203	1,916	-436	1,944	2,492	203	200	145	-55		
824+50.00	2,283	2,088	195	0	0	0	0	2,088	1,606	764	0	195	959	647	1,012	1,357	195	190	140	-50		
824+75.00	2,546	2,358	188	0	0	0	0	2,358	1,814	177	0	188	365	1,449	167	503	188	180	135	-45		
825+00.00	2,981	2,801	180	0	0	0	0	2,801	2,155	3	0	180	183	1,972	0	88	180	170	129	-41		
825+25.00	3,493	3,321	172	0	0	0	0	3,321	2,555	0	0	172	172	2,383	0	0	172	158	123	-35		
825+50.00	3,957	3,794	163	0	0	0	0	3,794	2,918	0	0	163	163	2,755	0	0	163	146	117	-29		
825+75.00	4,283	4,054	154	0	39	36	0	4,129	3,176	0	0	154	154	3,022	0	0	154	135	110	-25		
826+00.00	4,551	3,892	149	0	396	114	0	4,402	3,386	0	0	149	149	3,237	0	0	149	128	107	-21		
826+25.00	4,777	3,267	147	0	1,202	160	0	4,629	3,561	0	0	147	147	3,414	0	0	147	125	105	-20		
826+50.00	4,839	3,085	145	0	1,484	125	0	4,694	3,611	0	0	145	145	3,466	0	0	145	122	104	-18		
826+75.00	4,753	3,325	142	0	1,236	51	0	4,612	3,548	0	0	142	142	3,406	0	0	142	118	102	-16		
827+00.00	4,515	3,328	139	0	1,038	9	0	4,375	3,365	0	0	139	139	3,226	0	0	139	114	100	-14		
827+25.00	4,086	3,321	134	0	630	0	0	3,951	3,039	4	0	134	138	2,901	0	0	134	108	96	-12		
827+50.00	3,731	3,389	136	0	206	0	0	3,595	2,765	47	0	136	183	2,582	0	0	136	110	98	-12		
827+75.00	3,644	3,469	149	0	26	0	0	3,495	2,688	151	0	149	300	2,388	0	16	149	127	107	-20		
828+00.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
828+00.00	3,622	3,442	170	0	10	0	0	3,452	2,655	330	0	170	500	2,155	64	79	170	155	122	-33		
828+25.00	3,586	3,391	195	0	0	0	0	3,391	2,608	830	0	195	1,025	1,583	194	222	195	187	140	-47		
828+50.00	3,604	3,403	201	0	0	0	0	3,403	2,618	948	0	201	1,149	1,469	411	703	201	195	144	-51		
828+75.00	3,714	3,520	193	0	1	0	0	3,521	2,708	641	0	193	834	1,874	469	817	193	185	138	-47		
829+00.00	3,885	3,669	215	0	1	0	0	3,670	2,823	722	0	215	937	1,886	316	512	215	214	154	-60		
829+25.00	3,910	3,669	241	0	0	0	0	3,669	2,822	1,048	0	241	1,289	1,533	307	598	241	246	173	-73		
829+50.00	3,569	3,327	242	0	0	0	0	3,327	2,559	1,396	0	242	1,638	921	341	925	242	247	173	-74		
829+75.00	2,875	2,635	240	0	0	0	0	2,635	2,027	1,688	0	240	1,928	99	336	1,269	240	245	172	-73		
830+00.00	2,275	2,035	240	0	0	0	0	2,035	1,565	2,033	0	240	2,273	-708	385	1,538	240	246	172	-74		
830+25.00	1,987	1,744	243	0	0	0	0	1,744	1,342	2,448	0	243	2,691	-1,349	542	1,853	243	250	174	-76		
830+50.00	1,830	1,585	245	0	0	0	0	1,585	1,219	2,983	0	245	3,228	-2,009	823	2,238	245	253	175	-78		
830+75.00	1,753	1,506	247	0	0	0	0	1,506	1,158	3,887	0	247	4,134	-2,976	1,187	2,719	247	257	177	-80		
831+00.00	1,691	1,441	250	0	0	0	0	1,441	1,108	5,106	0	250	5,356	-4,248	1,572	3,580	250	261	179	-82		
831+25.00	1,576	1,323	253	0	0	0	0	1,323	1,018	6,354	0	253	6,607	-5,589	1,967	4,783	253	265	181	-84		
831+50.00	1,361	1,112	249	0	0	0	0	1,112	855	7,332	0	249	7,581	-6,726	2,370	6,026	249	260	178	-82		
831+75.00	1,124	883	241	0	0	0	0	883	679	7,926	0	241	8,167	-7,488	2,723	7,004	241	249	173	-76		
832+00.00	876	650	226	0	0	0	0	650	500	8,291	0	226	8,517	-8,017	3,003	7,598	226	230	162	-68		
832+25.00	651	429	222	0	0	0	0	429	330	8,331	0	222	8,553	-8,223	3,222	7,963	222	225	159	-66		
832+50.00	524	286	238	0	0	0	0	286	220	8,623	0	238	8,861	-8,641	3,338	8,003	238	244	170	-74		
832+75.00	448	199	249	0	0	0	0	199	153	9,404	0	249	9,653	-9,500	3,358	8,295	249	256	178	-78		
833+00.00	372	124	248	0	0	0	0	124	95	9,761	0	248	10,009	-9,914	3,331	9,076	248	254	178	-76		
833+25.00	310	69	241	0	0	0	0	69	53	9,245	0	241	9,486	-9,433	3,331	9,433	241	246	173	-73		
833+50.00	404	167	237	0	0	0	0	167	128	8,189	0	237	8,426	-8,298	3,358	8,917	237	241	170	-71		
833+75.00	623	348	238	0	0	37	0	385	296	6,657	0	238	6,895	-6,599	3,306	7,862	238	243	170	-73		
834+00.00	985	641	243	0	0	101	0	742	571	4,829	0	243	5,072	-4,501	3,165	6,330	243	247	174	-73		
834+25.00	1,518	1,066	249	0	0	203	0	1,269	976	3,357	0	249	3,606	-2,630	2,868	4,501	249	253	178	-75		
834+50.00	2,210	1,630	251	0	0	329	0	1,959	1,507	2,206	0	251	2,457	-950	2,156	3,029	251	254	180	-74		
834+75.00	3,534	2,754	252	0	0	528	0	3,282	2,525	1,207	0	252	1,459	1,066	1,185	1,878	252	253	180	-73		
835+00.00	6,238	5,268	256	0	0	714	0	5,982	4,602	598	0	256	854	3,748	546	952	256	260	183	-77		
835+25.00	9,540	8,426	268	0	0	846	0	9,272	7,132	305	0	268	573	6,559	283	436	268	278	192	-86		
835+50.00	11,662	10,543	276	0	0	843	0	11,386	8,758	106	0	276	382	8,376	66	185	276	292	198	-94		
835+75.00	12,436	11,426	270	0	0	740	0	12,166	9,358	16	0	270	286	9,072	0	39	270	286	193	-93		
836+00.00	12,538	11,747	264	0	0	526	0	12,273	9,441	0	0	264	264	9,177	0	0	264	279	189	-90		
836+25.00	11,852	11,244	258	0	0	350	0	11,594	8,918	0	0	258	258	8,660	0	0	258	272	185	-87		
836+50.00	10,441	9,862	244	0	0	335	0	10,197	7,844	0	0	244	244	7,600	0	0	244	253	175	-78		
836+75.00	9,370	8,812	339	0	0	219	0	9,031	6,947	0	0	339	339	6,608	0	0	339	232	243	11		
837+00.00	8,890	8,380	436	0	0	74	0	8,454	6,503	0	0	436	436	6,067	0	0	436	218	312	94		
836+76.19	7,779	7,412	365	0	0	2	0	7,414	5,703	0	0	365	365	5,338	0	0	365	171	261	90		
837+01.19	7,219	6,911	306	0	0	2	0	6,913	5,318	0	0	306	306	5,012	0	0	306	133	219	86		
837+26.19	7,487	7,181	306	0	0	0	0	7,181	5,524	0	0	306	306	5,218	0	0	306	133	219	86		
837+51.19	6,730	6,466	264	0	0	0	0	6,466	4,974	0	0	264	264	4,710	0	0	264	108	189	81		
837+76.19	5,934	5,762	172	0	0	0	0	5,762	4,432	0	0	172	172	4,260	0	0	172	90	123	33		
838+01.19	5,916	5,793	123	0	0	0	0	5,793	4,456	0	0	123	123	4,333	0	0	123	102	88	-14		
838+26.19	6,090	5,949	125	0	16	0	0	5,965	4,588	0	0	125	125	4,463	0	0	125	104	90	-14		
838+51.19	6,071	5,936	119	0	16	0	0	5,952	4,578	0	0	119	119	4,459	0	0	119	95	85	-10		
838+76.19	5,903	5,760	117	0	26	0	0	5,786	4,451	0	0	117	117	4,334	0	0	117	90	84	-6		
839+01.19	5,789	5,643	120	0	26	0	0	5,669	4,361	0	0	120	120	4,241	0	0	120	93	86	-7		
839+26.19	5,564	5,446	118	0	0	0	0	5,446	4,189	0	0	118	118	4,071	0	0	118	91	85	-6		
839+51.19	5,468	5,350	118	0	0	0	0	5,350	4,115	0	0	118	118	3,997	0	0	118	88	85	-3		
839+76.19	5,794	5,669	125	0	0	0	0	5,669	4,361	0	0	125	125	4,236	0	0	125	98	90	-8		
840+01.19	5,992	5,862	130	0	0	0	0	5,862	4,509	0	0	130	130	4,379	0	0	130	107	93	-14		
840+26.19	5,871	5,742	129	0	0	0	0	5,742	4,417	0	0	129	129	4,288	0	0	129	106	93	-13		
840+51.19	5,776	5,649	127	0	0	0	0	5,649	4,345	0	0	127	127	4,218	0	0	127	103	91	-12		
840+76.19	5,678	5,550	126	0	2	0	0	5,552	4,271	0	0	126	126	4,145	0	0	126	101	90	-11		
841+01.19	5,247	5,121	124	0	2	0	0	5,123	3,941	0	0	124	124	3,817	0	0	124	98	89	-9		
841+26.19	4,653	4,533	120	0	0	0	0	4,533	3,487	0	0	120	120	3,367	0	0	120	92	86	-6		
841+51.19	5,646	5,494	152	0	0	0	0	5,494	4,226	0	0	152	152	4,074	0	0	152	135	109	-26		
841+76.19	6,251	6,032	188	0	31	0	0	6,063	4,664	0	0	188	188	4,476	0	0	188	182	135	-47		
842+01.19	5,002	4,782	189	0	31	0	0	4,813	3,702	0	0	189	189	3,513	0	0	189	183	135	-48		
842+26.19	3,923	3,734	189	0	0	0	0	3,734	2,872	2	0	189	191	2,681	0	0	189	184	135	-49		
842+51.19	6,279	5,878	384	0	0	18	0	5,896	4,535	354	0	384	738	3,797	0	0	384	443	275	-168		
843+01.19	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		
Iowa 1 Ramp A																						
1588+50.00																						
1588+75.00	1,278	1,053	225	0	0	0	0	1,053	810	0	0	225	225	585	0	0	225	63	161	98		
1589+00.00	1,308	1,075	233	0	0	0	0	1,075	827	0	0	233	233	594	0	0	233	67	167	100		
1589+25.00	1,295	1,064	231	0	0	0	0	1,064	818	0	0	231	231	587	0	0	231	66	165	99		
1589+50.00	1,264	1,036	228	0	0	0	0	1,036	797	0	0	228	228	569	0	0	228	65	163	98		
1589+75.00	1,252	1,027	225	0	0	0	0	1,027	790	0	0	225	225	565	0	0	225	64	161	97		
1590+00.00	1,281	1,055	226	0	0	0	0	1,055	812	0	0	226	226	586	0	0	226	65	162	97		

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	Linn COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER T.9

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
1590+00.00	1,323	1,096	227	0	0	0	0	1,096	843	0	0	227	227	616	0	0	227	66	163	97		
1590+25.00	1,376	1,147	229	0	0	0	0	1,147	882	0	0	229	229	653	0	0	229	67	164	97		
1590+50.00	1,325	1,105	220	0	0	0	0	1,105	850	0	0	220	220	630	0	0	220	64	158	94		
1590+75.00	1,278	1,066	212	0	0	0	0	1,066	820	0	0	212	212	608	0	0	212	62	152	90		
1591+00.00	1,336	1,118	218	0	0	0	0	1,118	860	0	0	218	218	642	0	0	218	65	156	91		
1591+25.00	1,402	1,180	222	0	0	0	0	1,180	908	0	0	222	222	686	0	0	222	68	159	91		
1591+50.00	1,468	1,241	227	0	0	0	0	1,241	955	0	0	227	227	728	0	0	227	71	163	92		
1591+75.00	1,501	1,270	231	0	0	0	0	1,270	977	0	0	231	231	746	0	0	231	73	165	92		
1592+00.00	1,518	1,284	234	0	0	0	0	1,284	988	0	0	234	234	754	0	0	234	74	168	94		
1592+25.00	1,539	1,300	239	0	0	0	0	1,300	1,000	0	0	239	239	761	0	0	239	75	171	96		
1592+50.00	1,565	1,319	246	0	0	0	0	1,319	1,015	0	0	246	246	769	0	0	246	78	176	98		
1592+75.00	1,595	1,343	252	0	0	0	0	1,343	1,033	0	0	252	252	781	0	0	252	80	180	100		
1593+00.00	1,621	1,364	257	0	0	0	0	1,364	1,049	0	0	257	257	792	0	0	257	83	184	101		
1593+25.00	1,465	1,233	232	0	0	0	0	1,233	948	0	0	232	232	716	0	0	232	71	166	95		
1593+50.00	1,297	1,090	207	0	0	0	0	1,090	838	0	0	207	207	631	0	0	207	60	148	88		
1593+75.00	1,284	1,074	210	0	0	0	0	1,074	826	0	0	210	210	616	0	0	210	62	150	88		
1594+00.00	1,260	1,047	213	0	0	0	0	1,047	805	0	0	213	213	592	0	0	213	63	153	90		
1594+25.00	1,227	1,012	215	0	0	0	0	1,012	778	0	0	215	215	563	0	0	215	64	154	90		
1594+50.00	1,198	982	216	0	0	0	0	982	755	0	0	216	216	539	0	0	216	64	155	91		
1594+75.00	1,221	1,007	214	0	0	0	0	1,007	775	0	0	214	214	561	0	0	214	64	153	89		
1595+00.00	1,284	1,070	214	0	0	0	0	1,070	823	0	0	214	214	609	0	0	214	63	153	90		
1595+25.00	1,335	1,121	214	0	0	0	0	1,121	862	0	0	214	214	648	0	0	214	63	153	90		
1595+50.00	1,370	1,157	213	0	0	0	0	1,157	890	0	0	213	213	677	0	0	213	63	153	90		
1595+75.00	1,384	1,171	213	0	0	0	0	1,171	901	0	0	213	213	688	0	0	213	63	153	90		
1596+00.00	1,386	1,174	212	0	0	0	0	1,174	903	0	0	212	212	691	0	0	212	62	152	90		
1596+25.00	1,388	1,178	210	0	0	0	0	1,178	906	0	0	210	210	696	0	0	210	62	150	88		
1596+50.00	1,398	776	209	413	0	0	0	1,189	915	0	0	209	209	706	0	0	209	61	150	89		
1596+75.00	1,415	793	209	413	0	0	0	1,206	928	0	0	209	209	719	0	0	209	61	150	89		
1597+00.00	1,433	1,225	208	0	0	0	0	1,225	942	0	0	208	208	734	0	0	208	61	149	88		
1597+25.00	1,448	1,241	207	0	0	0	0	1,241	955	0	0	207	207	748	0	0	207	61	148	87		
1597+50.00	1,458	1,252	206	0	0	0	0	1,252	963	0	0	206	206	757	0	0	206	60	148	88		
1597+75.00	1,463	1,258	205	0	0	0	0	1,258	968	0	0	205	205	763	0	0	205	60	147	87		
1598+00.00	1,484	1,281	203	0	0	0	0	1,281	985	0	0	203	203	782	0	0	203	59	145	86		
1598+25.00	1,503	1,154	199	0	150	0	0	1,304	1,003	0	0	199	199	804	0	0	199	58	143	85		
1598+50.00	1,508	1,025	196	0	287	0	0	1,312	1,009	0	0	196	196	813	0	0	196	57	140	83		
1598+75.00	1,510	1,060	192	0	258	0	0	1,318	1,014	0	0	192	192	822	0	0	192	56	138	82		
1599+00.00	1,517	1,087	189	0	240	0	0	1,327	1,021	0	0	189	189	832	0	0	189	56	135	79		
1599+25.00	1,519	1,095	189	0	235	0	0	1,330	1,023	0	0	189	189	834	0	0	189	56	135	79		
1599+50.00	1,514	1,091	188	0	236	0	0	1,327	1,021	0	0	188	188	833	0	0	188	56	135	79		
1599+75.00	1,505	1,075	184	0	246	0	0	1,321	1,016	0	0	184	184	832	0	0	184	54	132	78		
1600+00.00	1,483	1,050	179	0	254	0	0	1,304	1,003	0	0	179	179	824	0	0	179	52	128	76		
1600+25.00	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		
Iowa 1 Ramp D																						
4487+00.00	722	550	172	0	0	0	0	550	423	5	0	172	177	246	0	0	172	58	123	65		
4487+25.00	1,050	835	215	0	0	0	0	835	642	3	0	215	218	424	0	0	215	76	154	78		
4487+50.00	1,197	985	212	0	0	0	0	985	758	1	0	212	213	545	0	0	212	68	152	84		
4487+75.00	1,368	1,150	218	0	0	0	0	1,150	885	0	0	218	218	667	0	0	218	67	156	89		
4488+00.00	1,506	1,281	225	0	0	0	0	1,281	985	0	0	225	225	760	0	0	225	70	161	91		
4488+25.00	1,619	1,387	232	0	0	0	0	1,387	1,067	0	0	232	232	835	0	0	232	73	166	93		
4488+50.00	1,718	1,481	237	0	0	0	0	1,481	1,139	0	0	237	237	902	0	0	237	75	170	95		
4488+75.00	1,795	1,555	240	0	0	0	0	1,555	1,196	0	0	240	240	956	0	0	240	76	172	96		
4489+00.00	1,853	1,611	242	0	0	0	0	1,611	1,239	0	0	242	242	997	0	0	242	77	173	96		
4489+25.00	1,864	1,621	243	0	0	0	0	1,621	1,247	0	0	243	243	1,004	0	0	243	78	174	96		
4489+50.00	1,811	1,569	242	0	0	0	0	1,569	1,207	0	0	242	242	965	0	0	242	77	173	96		
4489+75.00	1,744	1,501	243	0	0	0	0	1,501	1,155	0	0	243	243	912	0	0	243	78	174	96		
4490+00.00	1,637	1,391	246	0	0	0	0	1,391	1,070	0	0	246	246	824	0	0	246	79	176	97		
4490+25.00	1,490	1,243	247	0	0	0	0	1,243	956	0	0	247	247	709	0	0	247	80	177	97		
4490+50.00	1,341	1,096	245	0	0	0	0	1,096	843	0	0	245	245	598	0	0	245	79	175	96		
4490+75.00	1,149	908	241	0	0	0	0	908	698	0	0	241	241	457	0	0	241	77	173	96		
4491+00.00	917	678	239	0	0	0	0	678	522	0	0	239	239	283	0	0	239	76	171	95		
4491+25.00	776	538	238	0	0	0	0	538	414	14	0	238	252	162	0	0	238	75	170	95		
4491+50.00	708	472	236	0	0	0	0	472	363	61	0	236	297	66	0	0	236	75	169	94		
4491+75.00	624	389	235	0	0	0	0	389	299	129	0	235	364	-65	0	0	235	74	168	94		
4492+00.00	550	316	234	0	0	0	0	316	243	203	0	234	437	-194	0	1	234	74	168	94		
4492+25.00	412	227	185	0	0	0	0	227	175	291	0	185	476	-301	0	38	185	67	133	66		
4492+50.00	286	151	135	0	0	0	0	151	116	400	0	135	535	-419	48	123	135	60	97	37		
4492+75.00	281	114	167	0	0	0	0	114	88	518	0	167	685	-597	85	231	167	59	120	61		
4493+00.00	276	78	198	0	0	0	0	78	60	628	0	198	826	-766	202	350	198	58	142	84		
4493+25.00	239	45	194	0	0	0	0	45	35	715	0	194	909	-874	312	459	194	56	139	83		
4493+50.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
4493+50.00	213	23	190	0	0	0	0	23	18	789	0	190	979	-961	399	547	190	54	136	82		
4493+75.00	188	8	180	0	0	0	0	8	6	863	0	180	1,043	-1,037	473	620	180	50	129	79		
4494+00.00	174	1	173	0	0	0	0	1	1	914	0	173	1,087	-1,086	547	694	173	47	124	77		
4494+25.00	176	2	174	0	0	0	0	2	2	936	0	174	1,110	-1,108	598	746	174	47	125	78		
4494+50.00	181	5	176	0	0	0	0	5	4	939	0	176	1,115	-1,111	621	768	176	48	126	78		
4494+75.00	189	10	179	0	0	0	0	10	8	910	0	179	1,089	-1,081	623	770	179	49	128	79		
4495+00.00	190	13	177	0	0	0	0	13	10	865	0	177	1,042	-1,032	594	741	177	49	127	78		
4495+25.00	187	13	174	0	0	0	0	13	10	829	0	174	1,003	-993	552	696	174	47	125	78		
4495+50.00	181	11	170	0	0	0	0	11	8	801	0	170	971	-963	516	660	170	45	122	77		
4495+75.00	179	12	167	0	0	0	0	12	9	779	0	167	946	-937	492	633	167	44	120	76		
4496+00.00	179	16	163	0	0	0	0	16	12	733	0	163	896	-884	473	612	163	42	117	75		
4496+25.00	184	25	159	0	0	0	0	25	19	659	0	159	818	-799	433	568	159	40	114	74		
4496+50.00	191	36	155	0	0	0	0	36	28	563	0	155	718	-690	366	497	155	38	111	73		
4496+75.00	203	51	152	0	0	0	0	51	39	447	0	152	599	-560	277	403	152	36	109	73		
4497+00.00	220	70	150	0	0	0	0	70	54	344	0	150	494	-440	169	291	150	35	108	73		
4497+25.00	238	89	149	0	0	0	0	89	68	266	0	149	415	-347	73	191	149	35	107	72		
4497+50.00	254	107	147	0	0	0	0	107	82	200	0	147	347	-265	2	116	147	35	105	70		
4497+75.00	271	126	145	0	0	0	0	126	97	141	0	145	286	-189	0	58	145	35	104	69		
4498+00.00	292	149	143	0	0	0	0	149	115	94	0	143	237	-122	0	19	143	35	103	68		
4498+25.00	0	0	0	0	0	0	0	0	0	0	0		0	0	0	3	0	0	0	0		
Standing Rock																						
7761+00.00																						
7761+25.00	62	41	21	0	0	0	0	41	32	1	0	21	22	10	0	0	21	26	15	-11		
7761+50.00	69	47	22	0	0	0	0	47	36	1	0	22	23	13	0	0	22	26	16	-10		
7761+75.00	77	55	22	0	0	0	0	55	42	1	0	22	23	19	0	0	22	28	16	-12		
7762+00.00	87	64	23	0	0	0	0	64	49	1	0	23	24	25	0	0	23	29	17	-12		
7762+25.00	99	75	24	0	0	0	0	75	58	1	0	24	25	33	0	0	24	30	18	-12		
7762+50.00	105	82	23	0	0	0	0	82	63	2	0	23	25	38	0	0	23	30	17	-13		
7762+75.00	112	88	24	0	0	0	0	88	68	5	0	24	29	39	0	0	24	31	18	-13		
7763+00.00	121	95	26	0	0	0	0	95	73	8	0	26	34	39	0	0	26	32	19	-13		
7763+25.00	204	178	26	0	0	0	0	178	137	13	75	26	114	23	0	0	26	32	19	-13		
7763+50.00	206	179	27	0	0	0	0	179	138	20	68	27	115	23	0	0	27	33	20	-13		
7763+75.00	211	183	28	0	0	0	0	183	141	30	58	28	116	25	0	0	28	35	20	-15		
7764+00.00	213	184	29	0	0	0	0	184	142	41	47	29	117	25	0	0	29	36	21	-15		
7764+25.00	206	177	29	0	0	0	0	177	136	53	36	29	118	18	0	0	29	36	21	-15		
7764+50.00	201	171	30	0	0	0	0	171	132	66	27	30	123	9	0	3	30	37	22	-15		
7764+75.00	197	166	31	0	0	0	0	166	128	77	21	31	129	-1	0	7	31	38	23	-15		
7765+00.00	178	146	32	0	0	0	0	146	112	89	0	32	121	-9	0	13	32	40	23	-17		
7765+25.00	176	143	33	0	0	0	0	143	110	105	0	33	138	-28	6	21	33	41	24	-17		
7765+50.00	177	143	34	0	0	0	0	143	110	121	0	34	155	-45	11	34	34	43	25	-18		
7765+75.00	188	153	35	0	0	0	0	153	118	135	0	35	170	-52	14	46	35	45	25	-20		
7766+00.00	198	161	37	0	0	0	0	161	124	146	0	37	183	-59	17	57	37	47	27	-20		
7766+25.00	208	169	39	0	0	0	0	169	130	155	0	39	194	-64	21	68	39	49	28	-21		
7766+50.00	218	178	40	0	0	0	0	178	137	163	0	40	203	-66	25	76	40	52	29	-23		
7766+75.00	201	160	41	0	0	0	0	160	123	173	0	41	214	-91	30	84	41	51	30	-21		
7767+00.00	143	104	39	0	0	0	0	104	80	177	0	39	216	-136	36	94	39	45	28	-17		
7767+25.00	96	58	38	0	0	0	0	58	45	176	0	38	214	-169	34	99	38	37	28	-9		
7767+50.00	72	36	36	0	0	0	0	36	28	178	0	36	214	-186	31	97	36	32	26	-6		
7767+75.00	63	27	36	0	0	0	0	27	21	188	0	36	224	-203	34	99	36	31	26	-5		
7768+00.00	78	24	54	0	0	0	0	24	18	203	0	54	257	-239	37	110	54	32	39	7		
7768+25.00	97	23	74	0	0	0	0	23	18	216	0	74	290	-272	46	125	74	33	53	20		
7768+50.00	140	61	79	0	0	0	0	61	47	249	0	79	328	-281	59	138	79	43	57	14		
7768+75.00	249	148	101	0	0	0	0	148	114	339	0	101	440	-326	91	169	101	61	73	12		
7769+00.00	399	266	133	0	0	0	0	266	205	471	0	133	604	-399	175	249	133	78	95	17		
7769+25.00	571	412	159	0	0	0	0	412	317	611	0	159	770	-453	277	372	159	96	114	18		
7769+50.00	756	570	186	0	0	0	0	570	438	774	0	186	960	-522	411	511	186	115	133	18		
7769+75.00	964	752	212	0	0	0	0	752	578	952	0	212	1,164	-586	579	661	212	134	152	18		
7772+50.00	1,362	1,016	346	0	0	0	0	1,016	782	1,977	0	346	2,323	-1,541	709	850	346	218	248	30		
7772+75.00	583	388	195	0	0	0	0	388	298	1,383	0	195	1,578	-1,280	0	0	195	122	140	18		
7773+00.00	508	331	177	0	0	0	0	331	255	1,273	0	177	1,450	-1,195	1,201	1,305	177	113	127	14		
7773+25.00	451	286	165	0	0	0	0	286	220	1,155	0	165	1,320	-1,100	1,091	1,195	165	104	118	14		
7773+50.00	410	255	155	0	0	0	0	255	196	1,076	0	155	1,231	-1,035	976	1,066	155	92	111	19		
7773+75.00	384	238	146	0	0	0	0	238	183	976	0	146	1,122	-939	878	975	146	88	105	17		
7774+00.00	375	238	137	0	0	0	0	238	183	828	0	137	965	-782	775	881	137	87	98	11		
7774+25.00	371	239	132	0	0	0	0	239	184	716	0	132	848	-664	652	745	132	85	95	10		
7774+50.00	367	239	128	0	0	0	0	239	184	626	0	128	754	-570	557	638	128	83	92	9		
7774+75.00	369	244	125	0	0	0	0	244	188	531	0	125	656	-468	466	547	125	81	90	9		
7775+00.00	389	262	127	0	0	0	0	262	202	438	0	127	565	-363	371	452	127	82	91	9		
7775+25.00	479	327	152	0	0	0	0	327	252	348	0	152	500	-248	279	359	152	99	109	10		
7775+50.00	506	354	152	0	0	0	0	354	272	274	0	152	426	-154	189	270	152	100	109	9		

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
7775+50.00	446	321	125	0	0	0	0	321	247	219	0	125	344	-97	115	196	125	82	90	8		
7775+75.00	420	305	115	0	0	0	0	305	235	143	0	115	258	-23	61	141	115	75	83	8		
7776+00.00	394	289	105	0	0	0	0	289	222	81	0	105	186	36	0	65	105	69	75	6		
7776+25.00	382	281	101	0	0	0	0	281	216	63	0	101	164	52	0	7	101	66	73	7		
7776+50.00	389	289	100	0	0	0	0	289	222	46	0	100	146	76	0	0	100	64	72	8		
7776+75.00	395	297	98	0	0	0	0	297	228	29	0	98	127	101	0	0	98	63	70	7		
7777+00.00	405	307	98	0	0	0	0	307	236	16	0	98	114	122	0	0	98	62	70	8		
7777+25.00	420	321	99	0	0	0	0	321	247	5	0	99	104	143	0	0	99	63	71	8		
7777+50.00	441	341	100	0	0	0	0	341	262	0	0	100	100	162	0	0	100	64	72	8		
7777+75.00	461	360	101	0	0	0	0	360	277	0	0	101	101	176	0	0	101	65	73	8		
7778+00.00	475	374	101	0	0	0	0	374	288	0	0	101	101	187	0	0	101	65	73	8		
7778+25.00	497	397	100	0	0	0	0	397	305	0	0	100	100	205	0	0	100	64	72	8		
7778+50.00	523	423	100	0	0	0	0	423	325	0	0	100	100	225	0	0	100	65	72	7		
7778+75.00	533	430	103	0	0	0	0	430	331	0	0	103	103	228	0	0	103	65	74	9		
7779+00.00	579	473	106	0	0	0	0	473	364	0	0	106	106	258	0	0	106	67	76	9		
7779+25.00	598	490	108	0	0	0	0	490	377	0	0	108	108	269	0	0	108	69	78	9		
7779+50.00	560	455	105	0	0	0	0	455	350	0	0	105	105	245	0	0	105	67	75	8		
7779+75.00	563	460	103	0	0	0	0	460	354	0	0	103	103	251	0	0	103	66	74	8		
7780+00.00	607	503	104	0	0	0	0	503	387	0	0	104	104	283	0	0	104	66	75	9		
7780+25.00	671	567	104	0	0	0	0	567	436	0	0	104	104	332	0	0	104	67	75	8		
7780+50.00	715	611	104	0	0	0	0	611	470	0	0	104	104	366	0	0	104	67	75	8		
7780+75.00	664	562	102	0	0	0	0	562	432	0	0	102	102	330	0	0	102	65	73	8		
7781+00.00	528	429	99	0	0	0	0	429	330	1	0	99	100	230	0	0	99	64	71	7		
7781+25.00	427	329	98	0	0	0	0	329	253	12	0	98	110	143	0	0	98	63	70	7		
7781+50.00	392	296	96	0	0	0	0	296	228	28	0	96	124	104	0	0	96	61	69	8		
7781+75.00	401	306	95	0	0	0	0	306	235	37	0	95	132	103	0	0	95	61	68	7		
7782+00.00	442	345	97	0	0	0	0	345	265	37	0	97	134	131	0	0	97	62	70	8		
7782+25.00	473	376	97	0	0	0	0	376	289	31	0	97	128	161	0	0	97	62	70	8		
7782+50.00	486	389	97	0	0	0	0	389	299	27	0	97	124	175	0	0	97	62	70	8		
7782+75.00	491	394	97	0	0	0	0	394	303	20	0	97	117	186	0	0	97	61	70	9		
7783+00.00	481	386	95	0	0	0	0	386	297	19	0	95	114	183	0	0	95	60	68	8		
7783+25.00	448	356	92	0	0	0	0	356	274	28	0	92	120	154	0	0	92	58	66	8		
7783+50.00	410	321	89	0	0	0	0	321	247	37	0	89	126	121	0	0	89	56	64	8		
7783+75.00	400	313	87	0	0	0	0	313	241	48	0	87	135	106	0	0	87	55	63	8		
7784+00.00	416	329	87	0	0	0	0	329	253	59	0	87	146	107	0	0	87	55	63	8		
7784+25.00	425	338	87	0	0	0	0	338	260	71	0	87	158	102	0	1	87	55	63	8		
7784+50.00	423	339	84	0	0	0	0	339	261	71	21	84	176	85	0	7	84	52	60	8		
7784+75.00	330	257	73	0	0	0	0	257	198	59	28	73	160	38	0	7	73	45	53	8		
7785+00.00	211	155	56	0	0	0	0	155	119	49	37	56	142	-23	0	2	56	34	40	6		
7785+25.00	153	109	44	0	0	0	0	109	84	31	56	44	131	-47	0	1	44	28	32	4		
7785+50.00	40	17	23	0	0	0	0	17	13	12	0	23	35	-22	0	0	23	15	17	2		
7785+75.00	8	5	3	0	0	0	0	5	4	6	0	3	9	-5	0	0	3	4	3	-1		
7786+00.00	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		
Sutliff																						
8788+75.00																						
8789+00.00	163	125	38	0	0	0	0	125	96	0	0	38	38	58	0	0	38	40	28	-12		
8789+25.00	161	122	39	0	0	0	0	122	94	0	0	39	39	55	0	0	39	41	28	-13		
8789+50.00	152	115	37	0	0	0	0	115	88	0	0	37	37	51	0	0	37	39	27	-12		
8789+75.00	145	110	35	0	0	0	0	110	85	0	0	35	35	50	0	0	35	37	25	-12		
8790+00.00	148	114	34	0	0	0	0	114	88	0	0	34	34	54	0	0	34	35	25	-10		
8790+25.00	155	122	33	0	0	0	0	122	94	0	0	33	33	61	0	0	33	35	24	-11		
8790+50.00	199	163	36	0	0	0	0	163	125	0	0	36	36	89	0	0	36	38	26	-12		
8790+75.00	202	166	36	0	0	0	0	166	128	0	0	36	36	92	0	0	36	39	26	-13		
8791+00.00	204	167	37	0	0	0	0	167	128	0	0	37	37	91	0	0	37	40	27	-13		
8791+25.00	267	226	41	0	0	0	0	226	174	0	0	41	41	133	0	0	41	45	30	-15		
8791+50.00	243	205	38	0	0	0	0	205	158	0	0	38	38	120	0	0	38	35	28	-7		
8791+75.00	215	176	39	0	0	0	0	176	135	0	0	39	39	96	0	0	39	35	28	-7		
8792+00.00	232	189	43	0	0	0	0	189	145	0	0	43	43	102	0	0	43	47	31	-16		
8792+25.00	234	192	42	0	0	0	0	192	148	1	0	42	43	105	0	0	42	46	30	-16		
8792+50.00	245	203	42	0	0	0	0	203	156	4	0	42	46	110	0	0	42	46	30	-16		
8792+75.00	259	219	40	0	0	0	0	219	168	10	0	40	50	118	0	0	40	44	29	-15		
8793+00.00	280	241	39	0	0	0	0	241	185	16	0	39	55	130	0	0	39	42	28	-14		
8793+25.00	310	271	39	0	0	0	0	271	208	20	0	39	59	149	0	0	39	42	28	-14		
8793+50.00	341	301	40	0	0	0	0	301	232	22	0	40	62	170	0	0	40	44	29	-15		
8793+75.00	377	335	42	0	0	0	0	335	258	22	0	42	64	194	0	0	42	45	30	-15		
8794+00.00	419	376	43	0	0	0	0	376	289	23	0	43	66	223	0	0	43	47	31	-16		
8794+25.00	457	412	45	0	0	0	0	412	317	25	0	45	70	247	0	0	45	49	33	-16		
8794+50.00	492	213	46	0	233	0	0	446	343	28	0	46	74	269	0	0	46	51	33	-18		
8794+75.00	538	0	47	0	491	0	0	491	378	31	0	47	78	300	0	0	47	53	34	-19		
8795+00.00	595	0	49	0	546	0	0	546	420	33	0	49	82	338	0	0	49	54	35	-19		

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
8795+00.00	660	0	52	0	608	0	0	608	468	32	0	52	84	384	0	0	52	56	38	-18		
8795+25.00	732	0	56	0	676	0	0	676	520	29	0	56	85	435	0	0	56	57	40	-17		
8795+50.00	810	0	60	0	750	0	0	750	577	24	0	60	84	493	0	0	60	59	43	-16		
8795+75.00	904	0	63	0	841	0	0	841	647	14	0	63	77	570	0	0	63	61	45	-16		
8796+00.00	1,015	0	67	0	948	0	0	948	729	3	0	67	70	659	0	0	67	64	48	-16		
8796+25.00	1,129	0	70	0	1,059	0	0	1,059	815	0	0	70	70	745	0	0	70	65	50	-15		
8796+50.00	1,247	33	69	0	1,145	0	0	1,178	906	0	0	69	69	837	0	0	69	64	50	-14		
8796+75.00	1,334	170	67	0	1,097	0	0	1,267	975	0	0	67	67	908	0	0	67	62	48	-14		
8797+00.00	1,348	227	68	0	1,053	0	0	1,280	985	0	0	68	68	917	0	0	68	63	49	-14		
8797+25.00	1,318	147	69	0	1,102	0	0	1,249	961	0	0	69	69	892	0	0	69	65	50	-15		
8797+50.00	1,289	659	71	0	559	0	0	1,218	937	0	0	71	71	866	0	0	71	67	51	-16		
8797+75.00	1,244	1,171	73	0	0	0	0	1,171	901	0	0	73	73	828	0	0	73	70	53	-17		
8798+00.00	1,138	1,063	75	0	0	0	0	1,063	818	0	0	75	75	743	0	0	75	73	54	-19		
8798+25.00	959	885	74	0	0	0	0	885	681	0	0	74	74	607	0	0	74	73	53	-20		
8798+50.00	758	685	73	0	0	0	0	685	527	1	0	73	74	453	0	0	73	71	53	-18		
8798+75.00	587	516	71	0	0	0	0	516	397	19	0	71	90	307	0	0	71	69	51	-18		
8799+00.00	600	528	72	0	0	0	0	528	406	58	0	72	130	276	0	0	72	78	52	-26		
8799+25.00	678	605	73	0	0	0	0	605	465	95	0	73	168	297	0	2	73	87	53	-34		
8799+50.00	671	599	72	0	0	0	0	599	461	119	0	72	191	270	0	11	72	85	52	-33		
8799+75.00	680	607	73	0	0	0	0	607	467	132	0	73	205	262	0	23	73	86	53	-33		
8800+00.00	711	636	75	0	0	0	0	636	489	144	0	75	219	270	0	30	75	89	54	-35		
8800+25.00	774	695	79	0	0	0	0	695	535	179	0	79	258	277	9	38	79	98	57	-41		
8800+50.00	855	769	86	0	0	0	0	769	592	239	0	86	325	267	27	65	86	104	62	-42		
8800+75.00	932	839	93	0	0	0	0	839	645	324	0	93	417	228	54	120	93	113	67	-46		
8801+00.00	1,001	901	100	0	0	0	0	901	693	419	0	100	519	174	111	204	100	123	72	-51		
8801+25.00	1,062	953	109	0	0	0	0	953	733	513	0	109	622	111	187	298	109	131	78	-53		
8801+50.00	1,224	1,112	112	0	0	0	0	1,112	855	613	0	112	725	130	281	393	112	135	80	-55		
8801+75.00	1,342	1,233	109	0	0	0	0	1,233	948	720	0	109	829	119	381	493	109	135	78	-57		
8802+00.00	1,293	1,186	107	0	0	0	0	1,186	912	826	0	107	933	-21	487	600	107	132	77	-55		
8802+25.00	1,204	1,099	105	0	0	0	0	1,099	845	912	0	105	1,017	-172	593	705	105	130	75	-55		
8802+50.00	1,079	976	103	0	0	0	0	976	751	978	0	103	1,081	-330	679	791	103	127	74	-53		
8802+75.00	920	819	101	0	0	0	0	819	630	1,014	0	101	1,115	-485	745	857	101	124	73	-51		
8803+00.00	762	663	99	0	0	0	0	663	510	1,010	0	99	1,109	-599	781	893	99	120	71	-49		
8803+25.00	604	508	96	0	0	0	0	508	391	969	0	96	1,065	-674	772	890	96	115	69	-46		
8803+50.00	490	397	93	0	0	0	0	397	305	936	0	93	1,029	-724	720	848	93	111	67	-44		
8803+75.00	501	406	95	0	0	0	0	406	312	865	0	95	960	-648	685	811	95	113	68	-45		
8804+00.00	626	528	98	0	0	0	0	528	406	742	0	98	840	-434	618	730	98	117	70	-47		
8804+25.00	716	616	100	0	0	0	0	616	474	684	0	100	784	-310	472	599	100	119	72	-47		
8804+50.00	640	544	96	0	0	0	0	544	418	776	0	96	872	-454	408	541	96	113	69	-44		
8804+75.00	699	611	88	0	0	0	0	611	470	880	0	88	968	-498	505	635	88	103	63	-40		
8805+00.00	1,279	1,130	149	0	0	0	0	1,130	869	1,508	0	149	1,657	-788	612	740	149	158	107	-51		
8808+00.00	921	830	91	0	0	0	0	830	638	813	0	91	904	-266	0	0	91	90	65	-25		
8808+25.00	1,286	1,181	105	0	0	0	0	1,181	908	876	0	105	981	-73	544	672	105	108	75	-33		
8808+50.00	1,292	1,181	111	0	0	0	0	1,181	908	961	0	111	1,072	-164	608	735	111	118	80	-38		
8808+75.00	1,280	1,160	120	0	0	0	0	1,160	892	1,064	0	120	1,184	-292	691	819	120	138	86	-52		
8809+00.00	1,219	1,093	126	0	0	0	0	1,093	841	1,174	0	126	1,300	-459	789	919	126	151	90	-61		
8809+25.00	1,128	1,009	119	0	0	0	0	1,009	776	1,130	0	119	1,249	-473	897	1,031	119	145	85	-60		
8809+50.00	1,068	960	108	0	0	0	0	960	738	949	0	108	1,057	-319	860	996	108	133	78	-55		
8809+75.00	1,004	905	99	0	0	0	0	905	696	802	0	99	901	-205	705	825	99	123	71	-52		
8810+00.00	1,005	905	100	0	0	0	0	905	696	869	0	100	969	-273	574	693	100	123	72	-51		
8810+25.00	1,025	915	110	0	0	0	0	915	704	1,149	0	110	1,259	-555	691	760	110	135	79	-56		
8810+50.00	979	861	118	0	0	0	0	861	662	1,360	0	118	1,478	-816	916	1,026	118	146	85	-61		
8810+75.00	969	845	124	0	0	0	0	845	650	1,451	0	124	1,575	-925	1,118	1,235	124	153	89	-64		
8811+00.00	1,062	934	128	0	0	0	0	934	718	1,491	0	128	1,619	-901	1,214	1,326	128	160	92	-68		
8811+25.00	1,134	1,008	126	0	0	0	0	1,008	775	1,498	0	126	1,624	-849	1,250	1,363	126	157	90	-67		
8811+50.00	1,207	1,086	121	0	0	0	0	1,086	835	1,493	0	121	1,614	-779	1,255	1,368	121	149	87	-62		
8811+75.00	1,300	1,182	118	0	0	0	0	1,182	909	1,483	0	118	1,601	-692	1,248	1,362	118	144	85	-59		
8812+00.00	1,493	1,376	117	0	0	0	0	1,376	1,058	1,462	0	117	1,579	-521	1,238	1,353	117	142	84	-58		
8812+25.00	1,665	1,552	113	0	0	0	0	1,552	1,194	1,422	0	113	1,535	-341	1,216	1,331	113	137	81	-56		
8812+50.00	1,673	1,563	110	0	0	0	0	1,563	1,202	1,361	0	110	1,471	-269	1,176	1,291	110	133	79	-54		
8812+75.00	1,633	1,525	108	0	0	0	0	1,525	1,173	1,272	0	108	1,380	-207	1,115	1,230	108	129	78	-51		
8813+00.00	1,545	1,441	104	0	0	0	0	1,441	1,108	1,157	0	104	1,261	-153	1,026	1,141	104	124	75	-49		
8813+25.00	1,408	1,309	99	0	0	0	0	1,309	1,007	1,013	0	99	1,112	-105	912	1,027	99	118	71	-47		
8813+50.00	1,243	1,150	93	0	0	0	0	1,150	885	854	0	93	947	-62	768	883	93	110	67	-43		
8813+75.00	1,111	1,024	87	0	0	0	0	1,024	788	712	0	87	799	-11	608	723	87	103	63	-40		
8814+00.00	1,031	948	83	0	0	0	0	948	729	589	0	83	672	57	466	581	83	97	60	-37		
8814+25.00	952	873	79	0	0	0	0	873	672	474	0	79	553	119	343	458	79	92	57	-35		
8814+50.00	880	804	76	0	0	0	0	804	618	386	0	76	462	156	228	343	76	88	55	-33		
8814+75.00	807	735	72	0	0	0	0	735	565	325	0	72	397	168	143	256	72	83	52	-31		
8815+00.00	717	649	68	0	0	0	0	649	499	270	0	68	338	161	92	197	68	79	49	-30		
8815+25.00																						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

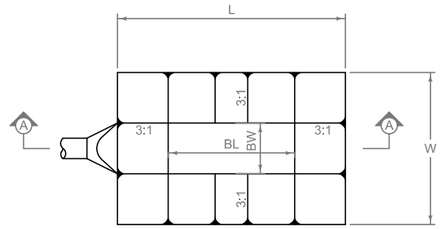
Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
8815+25.00	675	605	70	0	0	0	0	605	465	220	0	70	290	175	53	147	70	81	50	-31		
8815+50.00	671	599	72	0	0	0	0	599	461	179	0	72	251	210	31	107	72	84	52	-32		
8815+75.00	622	551	71	0	0	0	0	551	424	144	0	71	215	209	14	80	71	82	51	-31		
8816+00.00	555	489	66	0	8	0	0	497	382	116	37	66	219	163	4	60	66	77	48	-29		
8816+25.00	455	395	60	0	10	0	0	405	312	92	50	60	202	110	1	48	60	69	43	-26		
8816+50.00	392	337	55	0	9	0	0	346	266	69	63	55	187	79	0	38	55	62	40	-22		
8816+75.00	361	310	51	0	12	0	0	322	248	49	73	51	173	75	0	29	51	57	37	-20		
8817+00.00	276	226	50	0	0	0	0	226	174	35	0	50	85	89	0	22	50	56	36	-20		
8817+25.00	277	226	51	0	0	0	0	226	174	24	0	51	75	99	0	17	51	56	37	-19		
8817+50.00	285	234	51	0	0	0	0	234	180	13	0	51	64	116	0	12	51	56	37	-19		
8817+75.00	286	236	50	0	0	0	0	236	182	6	0	50	56	126	0	5	50	55	36	-19		
8818+00.00	264	214	50	0	0	0	0	214	165	3	0	50	53	112	0	0	50	55	36	-19		
8818+25.00	247	195	52	0	0	0	0	195	150	2	0	52	54	96	0	0	52	58	38	-20		
8818+50.00	220	168	52	0	0	0	0	168	129	0	0	52	52	77	0	0	52	58	38	-20		
8818+75.00	207	155	52	0	0	0	0	155	119	0	0	52	52	67	0	0	52	58	38	-20		
8819+00.00	188	142	46	0	0	0	0	142	109	0	0	46	46	63	0	0	46	50	33	-17		
8819+25.00	159	120	39	0	0	0	0	120	92	0	0	39	39	53	0	0	39	41	28	-13		
8819+50.00	209	169	40	0	0	0	0	169	130	0	0	40	40	90	0	0	40	44	29	-15		
8819+75.00	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		
Sutliff Entrance																						
9810+25.00	30	0	30	0	0	0	0	0	0	934	0	30	964	-964	0	0	30	23	22	-1		
9810+50.00	51	0	51	0	0	0	0	0	0	1,404	0	51	1,455	-1,455	767	847	51	51	37	-14		
9810+75.00	68	1	67	0	0	0	0	1	1	1,687	0	67	1,754	-1,753	1,237	1,321	67	72	48	-24		
9811+00.00	74	1	73	0	0	0	0	1	1	1,801	0	73	1,874	-1,873	1,520	1,605	73	79	53	-26		
9811+25.00	73	1	72	0	0	0	0	1	1	1,741	0	72	1,813	-1,812	1,634	1,718	72	78	52	-26		
9811+50.00	69	1	68	0	0	0	0	1	1	1,558	0	68	1,626	-1,625	1,574	1,659	68	73	49	-24		
9811+75.00	65	1	64	0	0	0	0	1	1	1,332	0	64	1,396	-1,395	1,391	1,475	64	67	46	-21		
9812+00.00	61	1	60	0	0	0	0	1	1	1,126	0	60	1,186	-1,185	1,165	1,249	60	62	43	-19		
9812+25.00	57	1	56	0	0	0	0	1	1	956	0	56	1,012	-1,011	959	1,043	56	57	40	-17		
9812+50.00	53	1	52	0	0	0	0	1	1	791	0	52	843	-842	789	873	52	51	38	-13		
9812+75.00	47	1	46	0	0	0	0	1	1	620	0	46	666	-665	624	708	46	43	33	-10		
9813+00.00	41	1	40	0	0	0	0	1	1	464	0	40	504	-503	453	537	40	35	29	-6		
9813+25.00	35	1	34	0	0	0	0	1	1	323	0	34	357	-356	296	380	34	28	25	-3		
9813+50.00	30	1	29	0	0	0	0	1	1	220	0	29	249	-248	156	240	29	21	21	0		
9813+75.00	25	1	24	0	0	0	0	1	1	141	0	24	165	-164	53	137	24	15	18	3		
9814+00.00	20	1	19	0	0	0	0	1	1	66	0	19	85	-84	0	58	19	8	14	6		
9814+25.00	49	31	18	0	0	0	0	31	24	15	0	18	33	-9	0	9	18	7	13	6		
9814+50.00	119	97	22	0	0	0	0	97	75	0	0	22	22	53	0	0	22	12	16	4		
9814+75.00	183	158	25	0	0	0	0	158	122	0	0	25	25	97	0	0	25	16	18	2		
9815+00.00	231	204	27	0	0	0	0	204	157	0	0	27	27	130	0	0	27	19	20	1		
9815+25.00	279	250	29	0	0	0	0	250	192	0	0	29	29	163	0	0	29	22	21	-1		
9815+50.00	306	275	31	0	0	0	0	275	212	0	0	31	31	181	0	0	31	24	23	-1		
9815+75.00	292	261	31	0	0	0	0	261	201	0	0	31	31	170	0	0	31	24	23	-1		
9816+00.00	268	238	30	0	0	0	0	238	183	0	0	30	30	153	0	0	30	22	22	0		
9816+25.00	242	214	28	0	0	0	0	214	165	0	0	28	28	137	0	0	28	20	20	0		
9816+50.00	211	185	26	0	0	0	0	185	142	0	0	26	26	116	0	0	26	18	19	1		
9816+75.00	192	167	25	0	0	0	0	167	128	0	0	25	25	103	0	0	25	16	18	2		
9817+00.00	176	151	25	0	0	0	0	151	116	0	0	25	25	91	0	0	25	16	18	2		
9817+25.00	158	134	24	0	0	0	0	134	103	0	0	24	24	79	0	0	24	15	18	3		
9817+50.00	131	109	22	0	0	0	0	109	84	0	0	22	22	62	0	0	22	12	16	4		
9817+75.00	93	74	19	0	0	0	0	74	57	0	0	19	19	38	0	0	19	8	14	6		
9818+00.00	62	44	18	0	0	0	0	44	34	0	0	18	18	16	0	0	18	6	13	7		
9818+25.00	37	20	17	0	0	0	0	20	15	1	0	17	18	-3	0	0	17	5	13	8		
9818+50.00	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		
Green Ridge																						
10829+75.00	98	74	24	0	0	0	0	74	57	4	0	24	28	29	0	0	24	33	18	-15		
10830+00.00	141	113	28	0	0	0	0	113	87	3	0	28	31	56	0	0	28	37	20	-17		
10830+25.00	197	164	33	0	0	0	0	164	126	3	0	33	36	90	0	0	33	43	24	-19		
10830+50.00	266	228	38	0	0	0	0	228	175	4	0	38	42	133	0	0	38	49	28	-21		
10830+75.00	334	292	42	0	0	0	0	292	225	5	0	42	47	178	0	0	42	54	30	-24		
10831+00.00	403	357	46	0	0	0	0	357	275	4	0	46	50	225	0	0	46	58	33	-25		
10831+25.00	472	424	48	0	0	0	0	424	326	4	0	48	52	274	0	0	48	61	35	-26		
10831+50.00	548	498	50	0	0	0	0	498	383	6	0	50	56	327	0	0	50	64	36	-28		
10831+75.00	635	583	52	0	0	0	0	583	448	8	0	52	60	388	0	0	52	67	38	-29		
10832+00.00	738	684	54	0	0	0	0	684	526	10	0	54	64	462	0	0	54	70	39	-31		
10832+25.00	849	793	56	0	0	0	0	793	610	10	0	56	66	544	0	0	56	72	40	-32		
10832+50.00	961	904	57	0	0	0	0	904	695	11	0	57	68	627	0	0	57	73	41	-32		
10832+75.00	1,084	1,026	58	0	0	0	0	1,026	789	11	0	58	69	720	0	0	58	75	42	-33		
10833+00.00																						

Refer to Standard Road Plans EW-101 and EW-102.

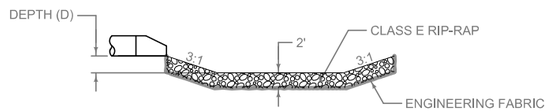
TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut									Fill					Checks (EW-102)		Topsoil					
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	1,469,090	1,216,279	162,505	826	64,728	21,760	3,034	1,303,593	1,002,764	644,166	697	162,505	807,368	195,390	333,893	528,259	162,505	97,957	116,518	18,561		
	Template Cut Volume	Template Class 10 Volume	Template Topsoil Cut Volume	Template Unsuitable Type B Volume	Template Select Loam Volume	Template B & W Rock Volume	Template Waste Volume	Total Cut Adjusted	Total Cut Adjusted w/ Weighted Average 1.3 Shrink Factor	Template Fill Volume	Plowing & Shaping + Fill	Topsoil Stripping + Fill	Total Fill Adjusted	Total Cut Adjusted w/ 1.3 Shrink Factor Minus Fill	Approx. Fill Volume Below 5' And Above 20' Cu. Yds.	Approx. Fill Volume Below 3' Cu. Yds.	Total Topsoil Cut Volume	Template Topsoil Replacement Volume	Topsoil Cut With 1.4 Shrink Factor	Topsoil Cut With Shrink Minus Topsoil Replacement		
10833+00.00	1,188	1,130	58	0	0	0	0	1,130	869	6	0	58	64	805	0	0	58	76	42	-34		
10833+25.00	1,414	1,354	60	0	0	0	0	1,354	1,042	2	0	60	62	980	0	0	60	78	43	-35		
10833+50.00	1,747	1,682	65	0	0	0	0	1,682	1,294	0	0	65	65	1,229	0	0	65	82	47	-35		
10833+75.00	1,999	1,929	70	0	0	0	0	1,929	1,484	0	0	70	70	1,414	0	0	70	85	50	-35		
10834+00.00	2,177	2,102	75	0	0	0	0	2,102	1,617	0	0	75	75	1,542	0	0	75	86	54	-32		
10834+25.00	2,251	2,175	76	0	0	0	0	2,175	1,673	0	0	76	76	1,597	0	0	76	84	55	-29		
10834+50.00	2,215	2,140	75	0	0	0	0	2,140	1,646	0	0	75	75	1,571	0	0	75	83	54	-29		
10834+75.00	2,100	2,024	76	0	0	0	0	2,024	1,557	0	0	76	76	1,481	0	0	76	84	55	-29		
10835+00.00	1,833	1,757	76	0	0	0	0	1,757	1,352	0	0	76	76	1,276	0	0	76	84	55	-29		
10835+25.00	1,362	1,286	76	0	0	0	0	1,286	989	0	0	76	76	913	0	0	76	83	55	-28		
10835+50.00	824	749	75	0	0	0	0	749	576	36	0	75	111	465	0	0	75	82	54	-28		
10835+75.00	440	363	77	0	0	0	0	363	279	179	0	77	256	23	36	17	77	84	55	-29		
10836+00.00	243	169	74	0	0	0	0	169	130	471	0	74	545	-415	122	123	74	79	53	-26		
10836+25.00	114	53	61	0	0	0	0	53	41	800	0	61	861	-820	352	389	61	58	44	-14		
10836+50.00	50	1	49	0	0	0	0	1	1	925	0	49	974	-973	620	703	49	41	35	-6		
10836+75.00	45	1	44	0	0	0	0	1	1	773	0	44	817	-816	725	826	44	37	32	-5		
10837+00.00	39	1	38	0	0	0	0	1	1	530	0	38	568	-567	580	679	38	29	28	-1		
10837+25.00	39	6	33	0	0	0	0	6	5	304	0	33	337	-332	350	429	33	31	24	-7		
10837+50.00	2,349	2,244	105	0	0	0	0	2,244	1,726	163	0	105	268	1,458	88	190	105	135	75	-60		
10840+75.00	3,602	3,483	119	0	0	0	0	3,483	2,679	8	0	119	127	2,552	0	0	119	151	85	-66		
10841+00.00	4,116	3,976	140	0	0	0	0	3,976	3,058	11	0	140	151	2,907	0	0	140	136	100	-36		
10841+25.00	3,441	3,305	136	0	0	0	0	3,305	2,542	16	0	136	152	2,390	0	0	136	125	98	-27		
10841+50.00	2,811	2,683	128	0	0	0	0	2,683	2,064	31	0	128	159	1,905	0	0	128	156	92	-64		
10841+75.00	2,292	2,177	115	0	0	0	0	2,177	1,675	49	0	115	164	1,511	0	0	115	146	83	-63		
10842+00.00	1,914	1,809	105	0	0	0	0	1,809	1,392	61	0	105	166	1,226	0	0	105	137	75	-62		
10842+25.00	1,525	1,430	95	0	0	0	0	1,430	1,100	67	0	95	162	938	0	3	95	125	68	-57		
10842+50.00	1,240	1,152	88	0	0	0	0	1,152	886	69	0	88	157	729	0	11	88	115	63	-52		
10842+75.00	1,085	1,005	80	0	0	0	0	1,005	773	63	0	80	143	630	0	17	80	105	58	-47		
10843+00.00	933	862	71	0	0	0	0	862	663	52	0	71	123	540	0	15	71	92	51	-41		
10843+25.00	828	763	65	0	0	0	0	763	587	41	0	65	106	481	0	9	65	83	47	-36		
10843+50.00	741	681	60	0	0	0	0	681	524	32	0	60	92	432	0	5	60	78	43	-35		
10843+75.00	647	592	55	0	0	0	0	592	455	23	0	55	78	377	0	2	55	72	40	-32		
10844+00.00	547	497	50	0	0	0	0	497	382	15	0	50	65	317	0	0	50	65	36	-29		
10844+25.00	434	390	44	0	0	0	0	390	300	8	0	44	52	248	0	0	44	58	32	-26		
10844+50.00	324	286	38	0	0	0	0	286	220	2	0	38	40	180	0	0	38	49	28	-21		
10844+75.00	242	209	33	0	0	0	0	209	161	0	0	33	33	128	0	0	33	42	24	-18		
10845+00.00	183	154	29	0	0	0	0	154	118	0	0	29	29	89	0	0	29	37	21	-16		
10845+25.00	129	103	26	0	0	0	0	103	79	1	0	26	27	52	0	0	26	33	19	-14		
10845+50.00	81	59	22	0	0	0	0	59	45	2	0	22	24	21	0	0	22	27	16	-11		
10845+75.00	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0		
Green Ridge Ent																						
19845+00.00																						
19845+25.00	37	20	17	0	0	0	0	20	15	14	0	17	31	-16	0	0	17	5	13	8		
19845+50.00	39	24	15	0	0	0	0	24	18	0	0	15	15	3	0	0	15	3	11	8		
19845+75.00	25	11	14	0	0	0	0	11	8	0	0	14	14	-6	0	0	14	2	10	8		
19846+00.00	20	6	14	0	0	0	0	6	5	0	0	14	14	-9	0	0	14	1	10	9		
19846+25.00	22	7	15	0	0	0	0	7	5	3	0	15	18	-13	0	0	15	2	11	9		
19846+50.00	26	10	16	0	0	0	0	10	8	8	0	16	24	-16	0	0	16	4	12	8		
19846+75.00	30	13	17	0	0	0	0	13	10	9	0	17	26	-16	0	0	17	5	13	8		
19847+00.00	33	16	17	0	0	0	0	16	12	6	0	17	23	-11	0	0	17	5	13	8		
19847+25.00	38	21	17	0	0	0	0	21	16	3	0	17	20	-4	0	0	17	5	13	8		
19847+50.00	44	26	18	0	0	0	0	26	20	3	0	18	21	-1	0	0	18	6	13	7		
19847+75.00	36	15	21	0	0	0	0	15	12	67	0	21	88	-76	0	0	21	10	15	5		
19848+00.00	31	1	30	0	0	0	0	1	1	264	0	30	294	-293	62	23	30	23	22	-1		
19848+25.00	41	1	40	0	0	0	0	1	1	577	0	40	617	-616	138	181	40	36	29	-7		
19848+50.00	46	1	45	0	0	0	0	1	1	816	0	45	861	-860	413	495	45	42	33	-9		
19848+75.00	47	1	46	0	0	0	0	1	1	656	0	46	702	-701	653	735	46	43	33	-10		
19849+00.00	71	33	38	0	0	0	0	33	25	226	0	38	264	-239	493	574	38	32	28	-4		
	0	0	0	0	0	0	0	0	0	0	0		0	0	85	176	0	0	0	0		

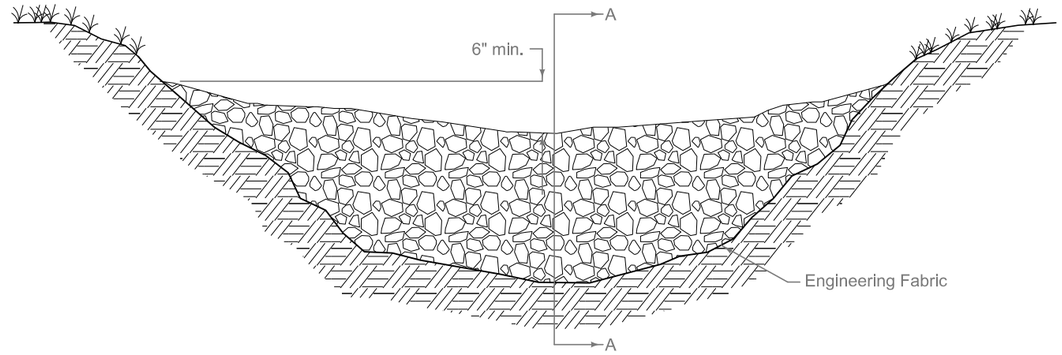


PLAN

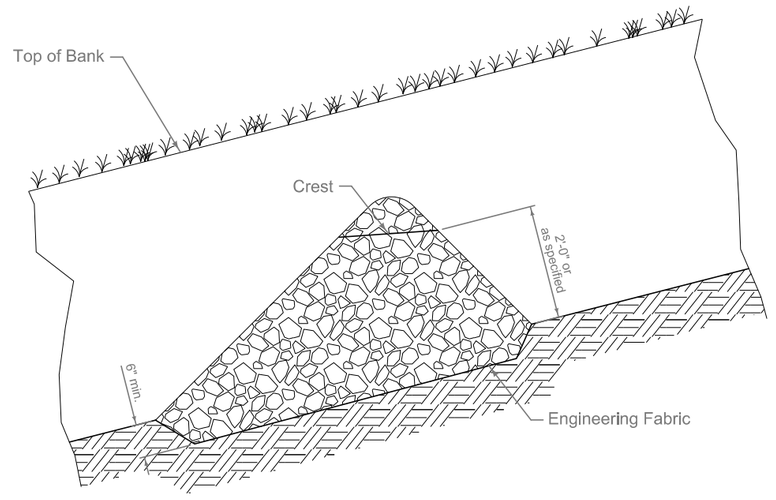


SECTION A-A

SETTLING BASIN



DITCH CROSS-SECTION



SECTION A-A

ROCK CHECK DAM

FILE NO.	ENGLISH	DESIGN TEAM SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER U.1

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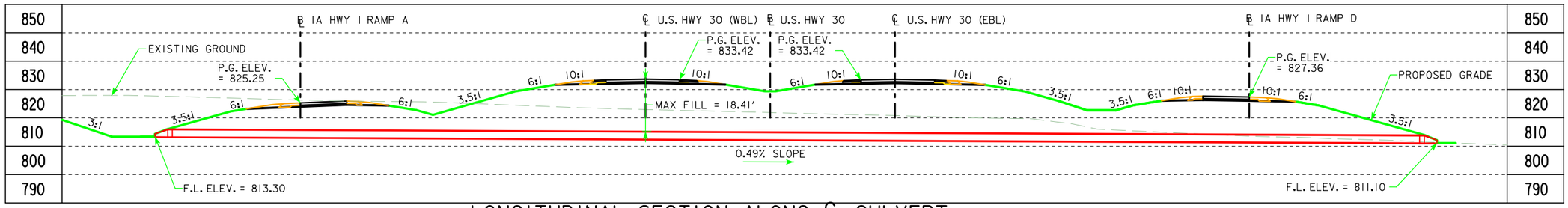
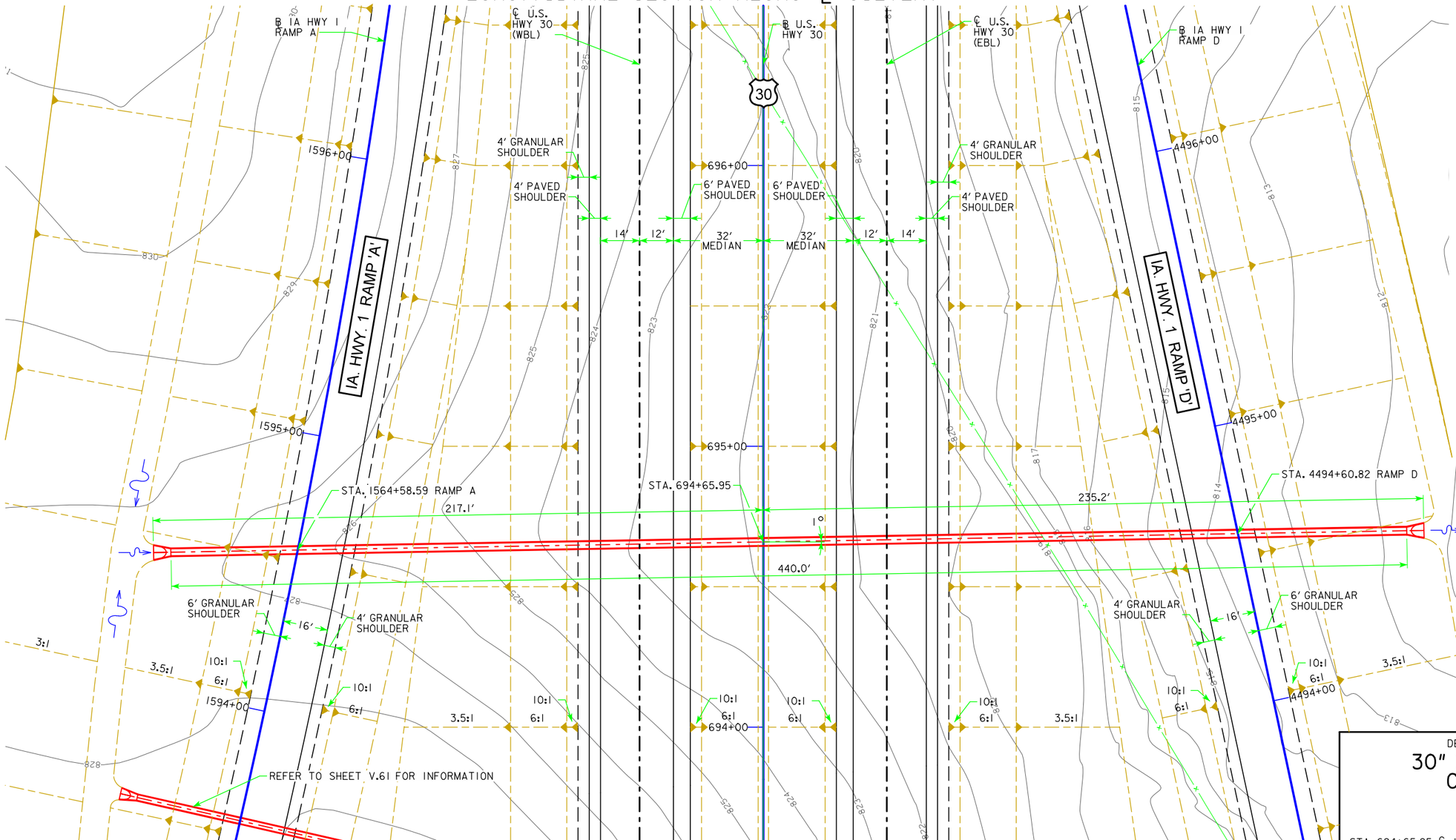
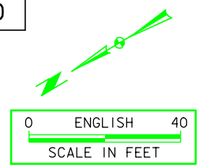


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #523
DESCRIPTION: ARROW ON HYDRANT IN FRONT OF SLEEP INN
STA. 696+66.08, 535.781' RT.
ELEV. = 830.017

HYDRAULIC DATA

DRAINAGE AREA = 8.47 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 22.16 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 16
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 1° SKEW RT AHD

30" X 440' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 694+65.95 ℄ U.S. HWY. 30 OCTOBER 2016

LINN/CEDAR COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. __ OF __ FILE NO. - DESIGN NO. -

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.1

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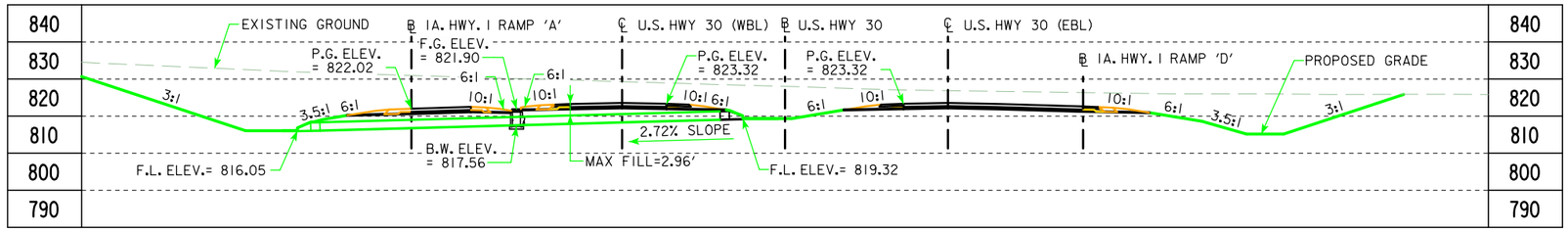
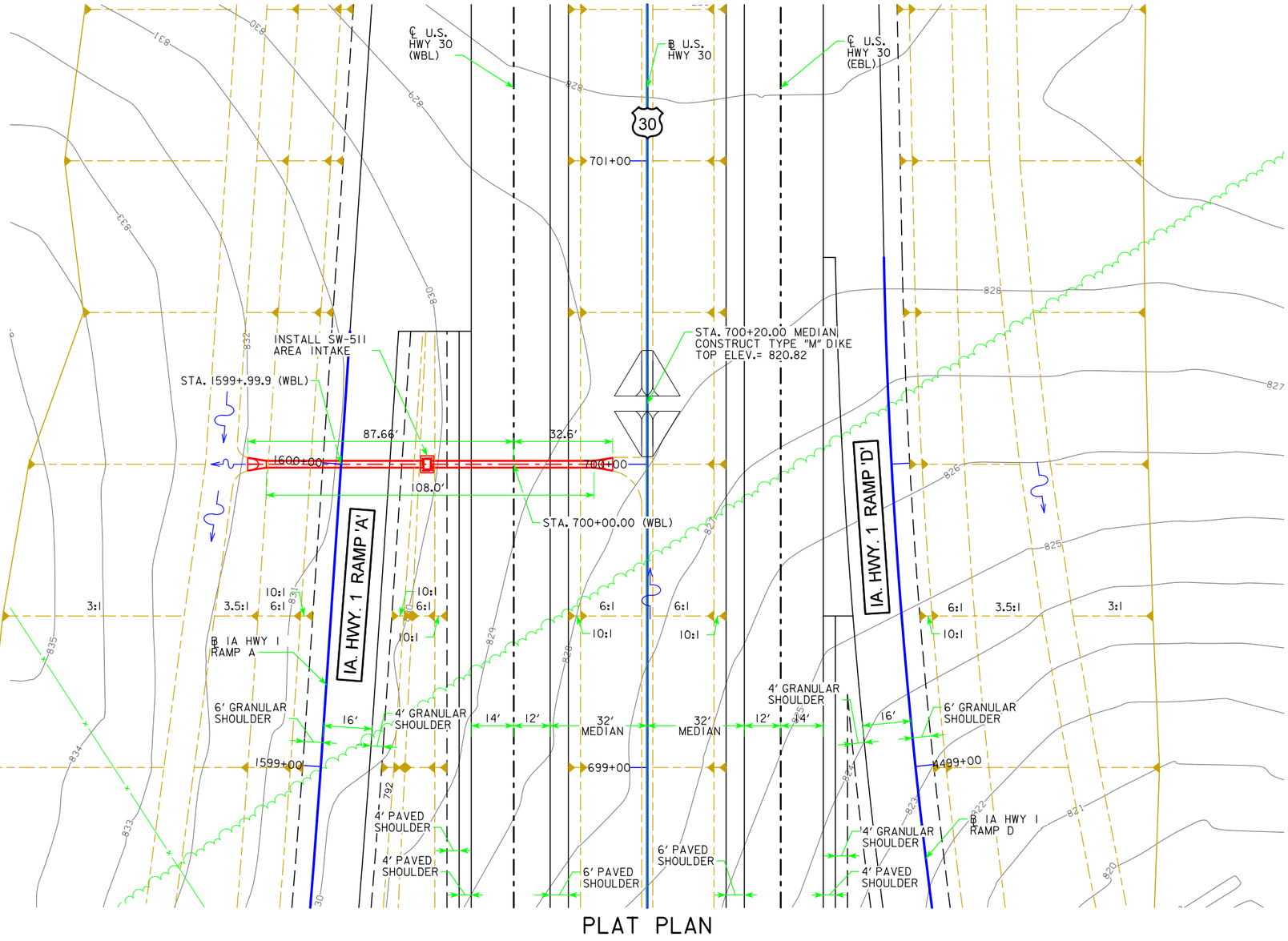
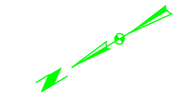


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #528
DESCRIPTION: SPIKE IN POWER POLE COR SPRING CR & LIGHT
STA. 669+37.13, 4,936.836' RT.
ELEV. = 777.82

HYDRAULIC DATA

DRAINAGE AREA = 2.48 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 5.81 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 108' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 700+00.00 ℄ U.S. HWY. 30 (WBL) OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. - OF - FILE NO. - DESIGN NO. -

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.2

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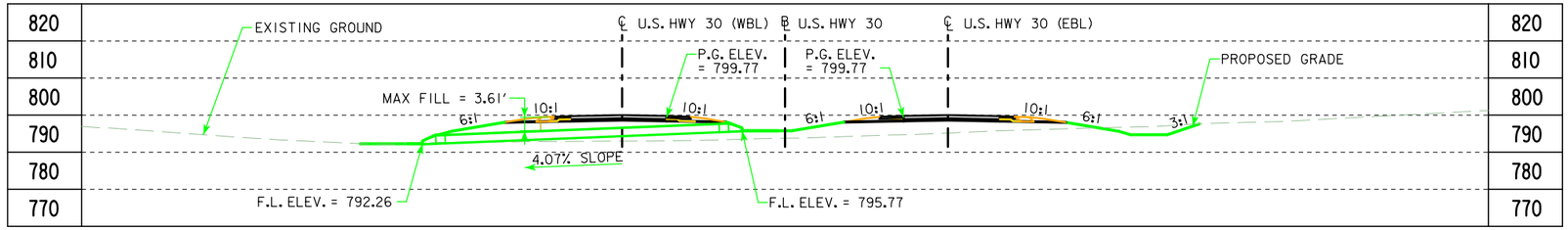
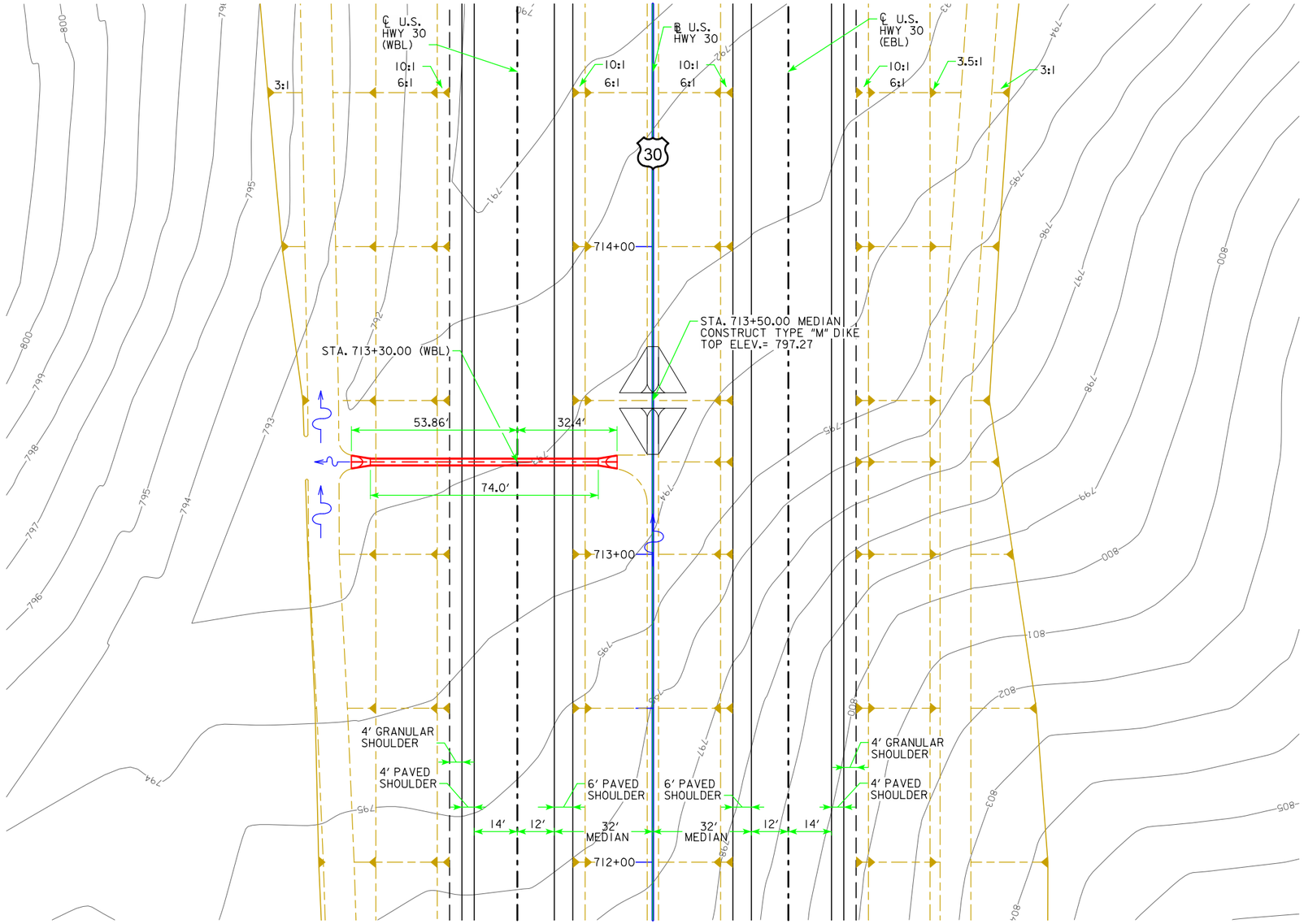
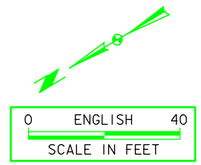


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #532
DESCRIPTION: SPIKE IN POWER POLE 1ST EAST OF DRIVE AT 509 POWER POLE WITH TRANSFORMER

STA. 712+58.34, 5,321.69' RT.
ELEV. = 812.77'

HYDRAULIC DATA

DRAINAGE AREA = 2.69 ACRES ROLLING
DESIGN DISCHARGE, Q_{50} = 6.18 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 74' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 713+30.00 ℄ U.S. HWY. 30 (WBL) OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. - OF - FILE NO. - DESIGN NO. -

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.3

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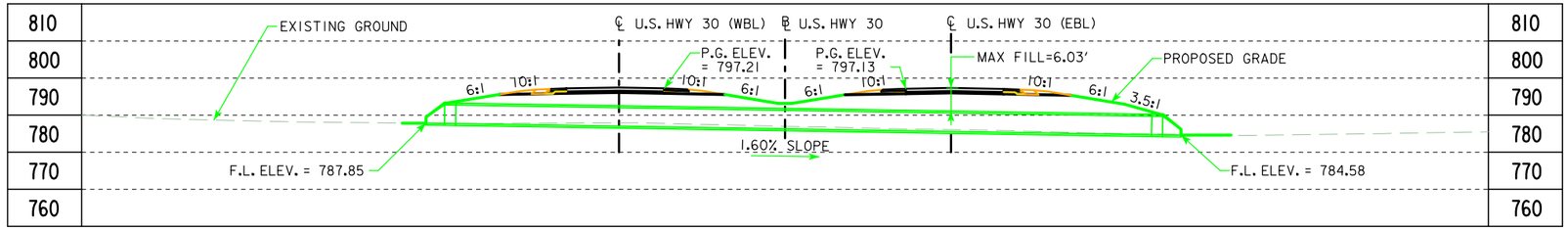
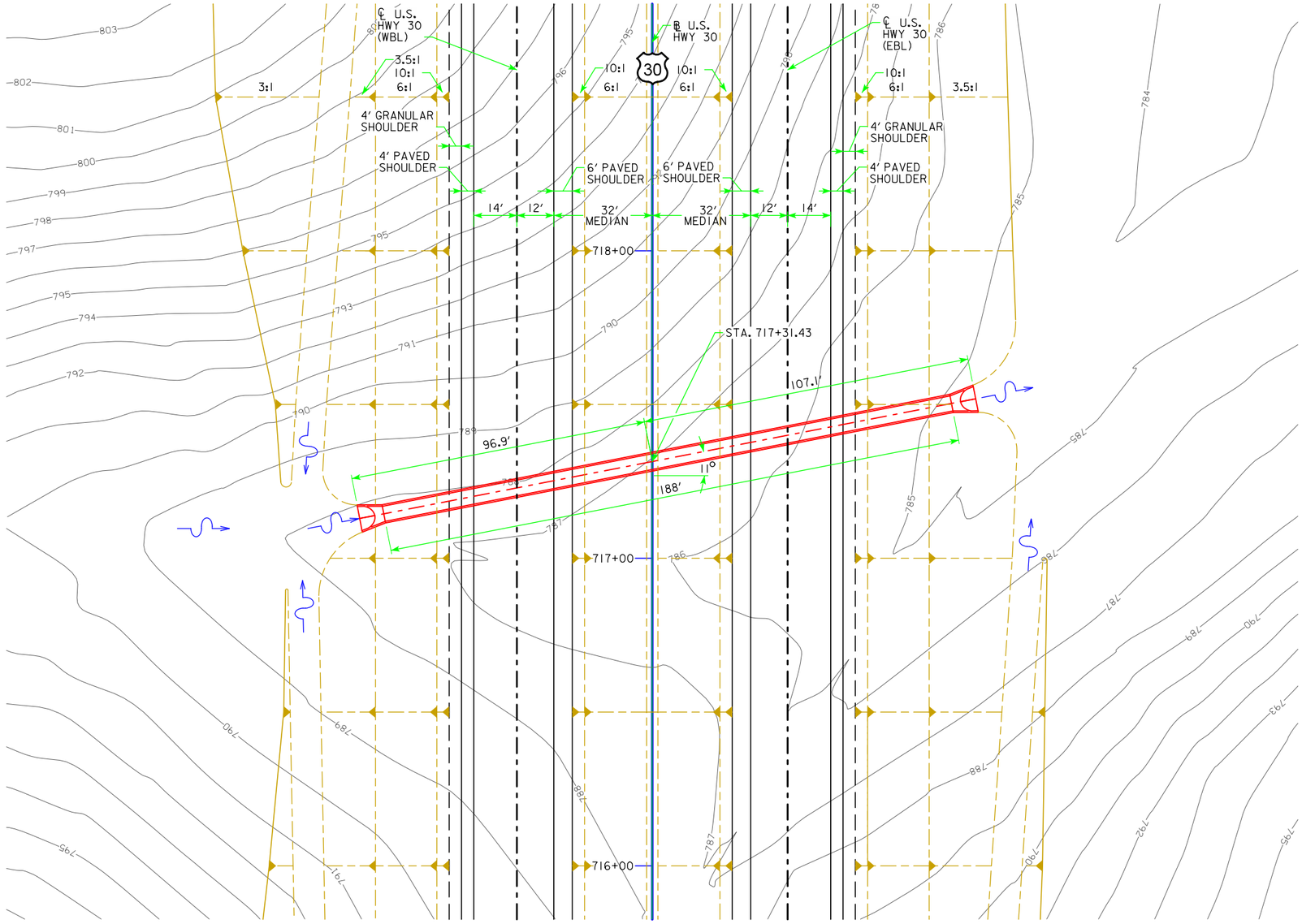


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #701
DESCRIPTION: ARROW ON HYDRANT
EAST SIDE HWY30 & HILL VIEW DR

STA. 718+24.95, 74.637' RT.
ELEV. = 838.13

HYDRAULIC DATA

DRAINAGE AREA = 83.30 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 125.85 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 11° SKEW R.A.

60" X 188' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 717+31.43 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. _ OF _ FILE NO. - DESIGN NO. -

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** **LINN** COUNTY PROJECT NUMBER **NHSX-030-7(188)--3H-57** SHEET NUMBER **V.4**

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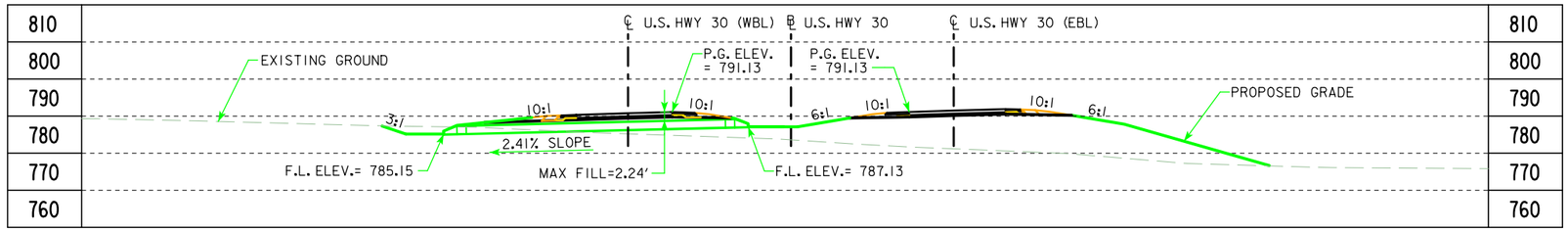
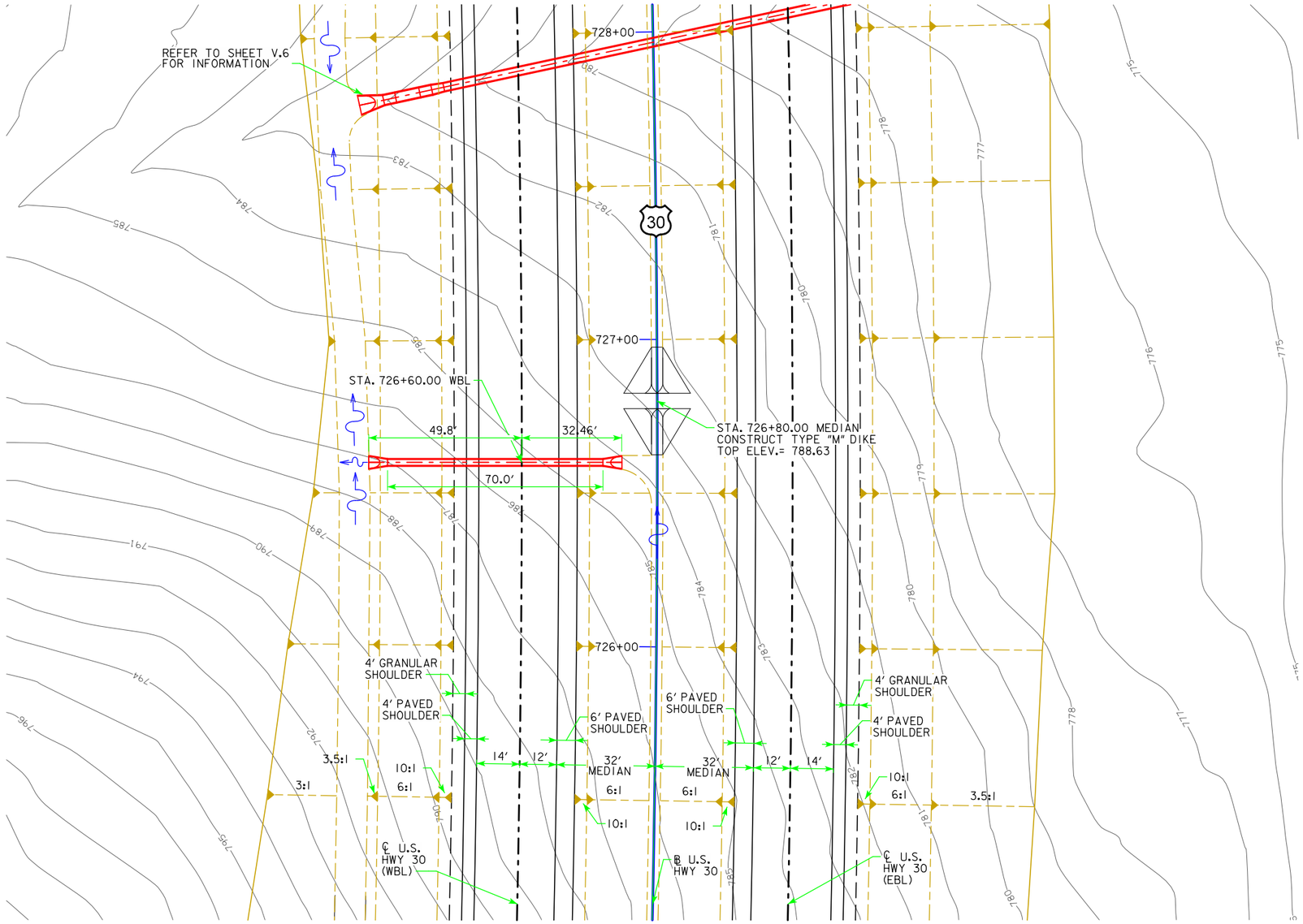
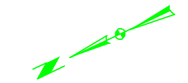


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #535
DESCRIPTION: NAIL WITH WASHER IN SW CORNER BRIDGE
STA. 737+14.50, 6,651.013' RT.
ELEV. = 738.53

HYDRAULIC DATA

DRAINAGE AREA = 2.75 ACRES FLAT
DESIGN DISCHARGE, Q_{50}= 3.14 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 70' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 726+60.00 ℄ U.S. HWY. 30 WBL — OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. __ OF __ FILE NO. _____ DESIGN NO. __

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.5

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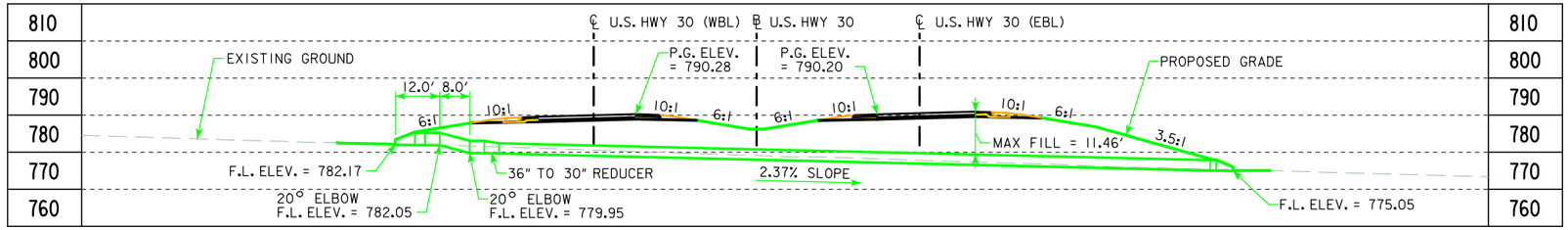
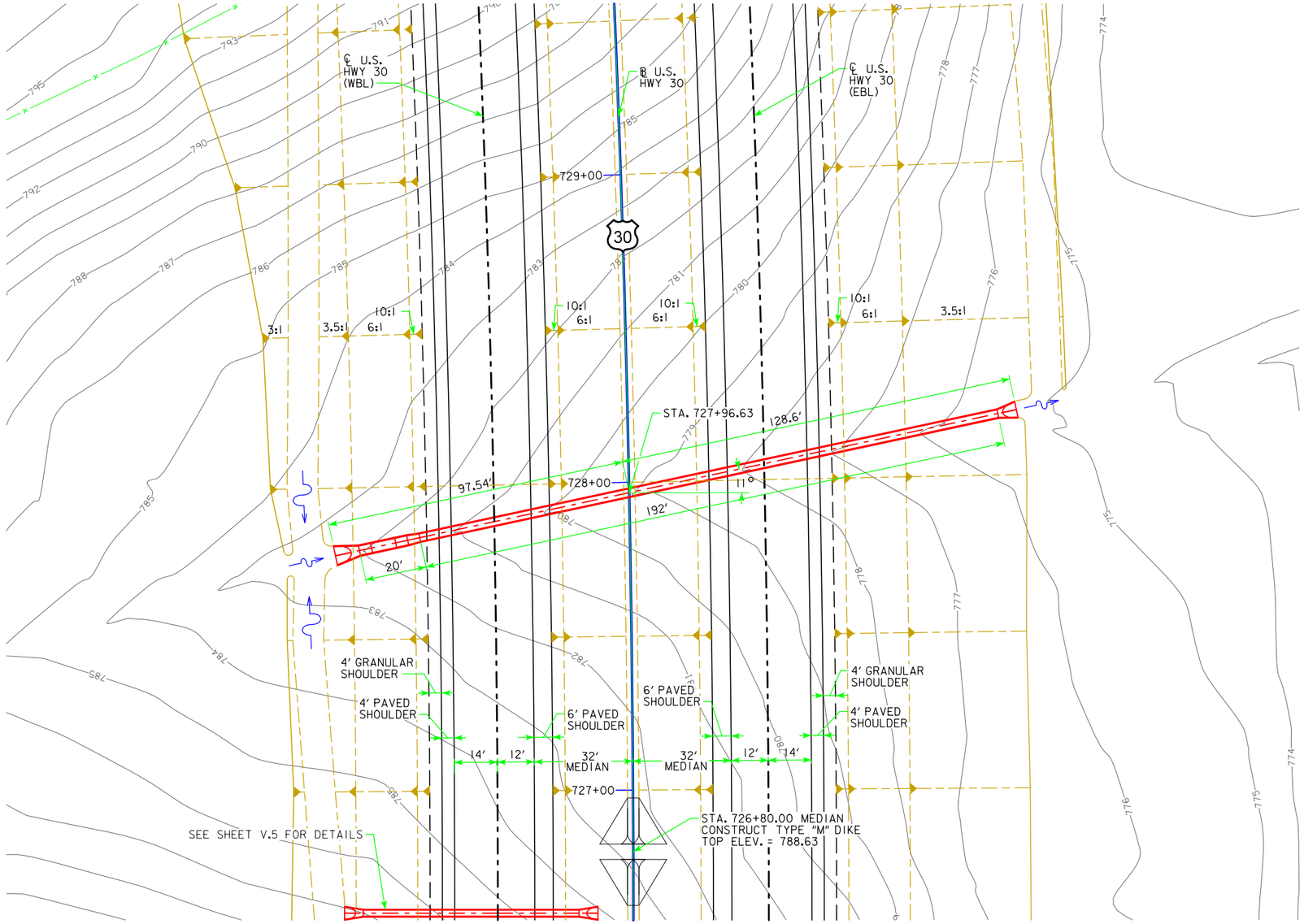


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #703
DESCRIPTION: TOP CULVERT WEST SIDE OF COUNTRY CLUB DR
STA. 730+54.72, 62.90' RT.
ELEV. = 796.53'

HYDRAULIC DATA

DRAINAGE AREA = 18.76 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 40.55 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 11° SKEW R.A.

36" X 20' AND 30" X 192' SLOPE TAPERED INLET REINFORCED CONCRETE PIPE PLAT PLAN

STA. 727+96.63 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. -- OF -- FILE NO. -- DESIGN NO. --

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	V.6

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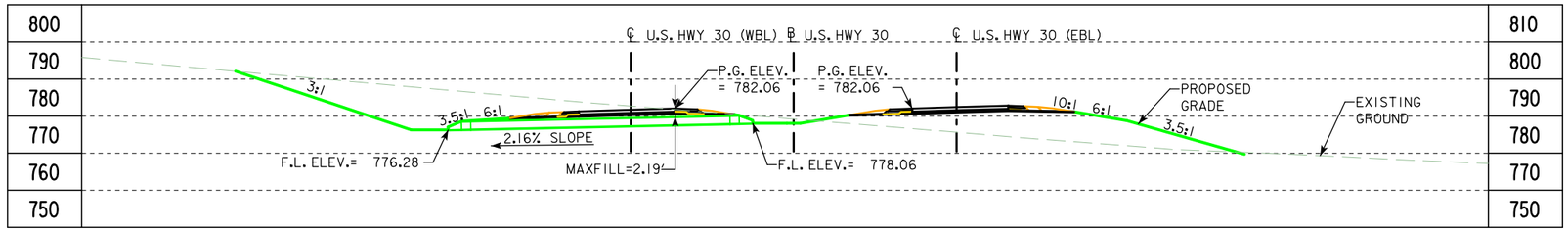
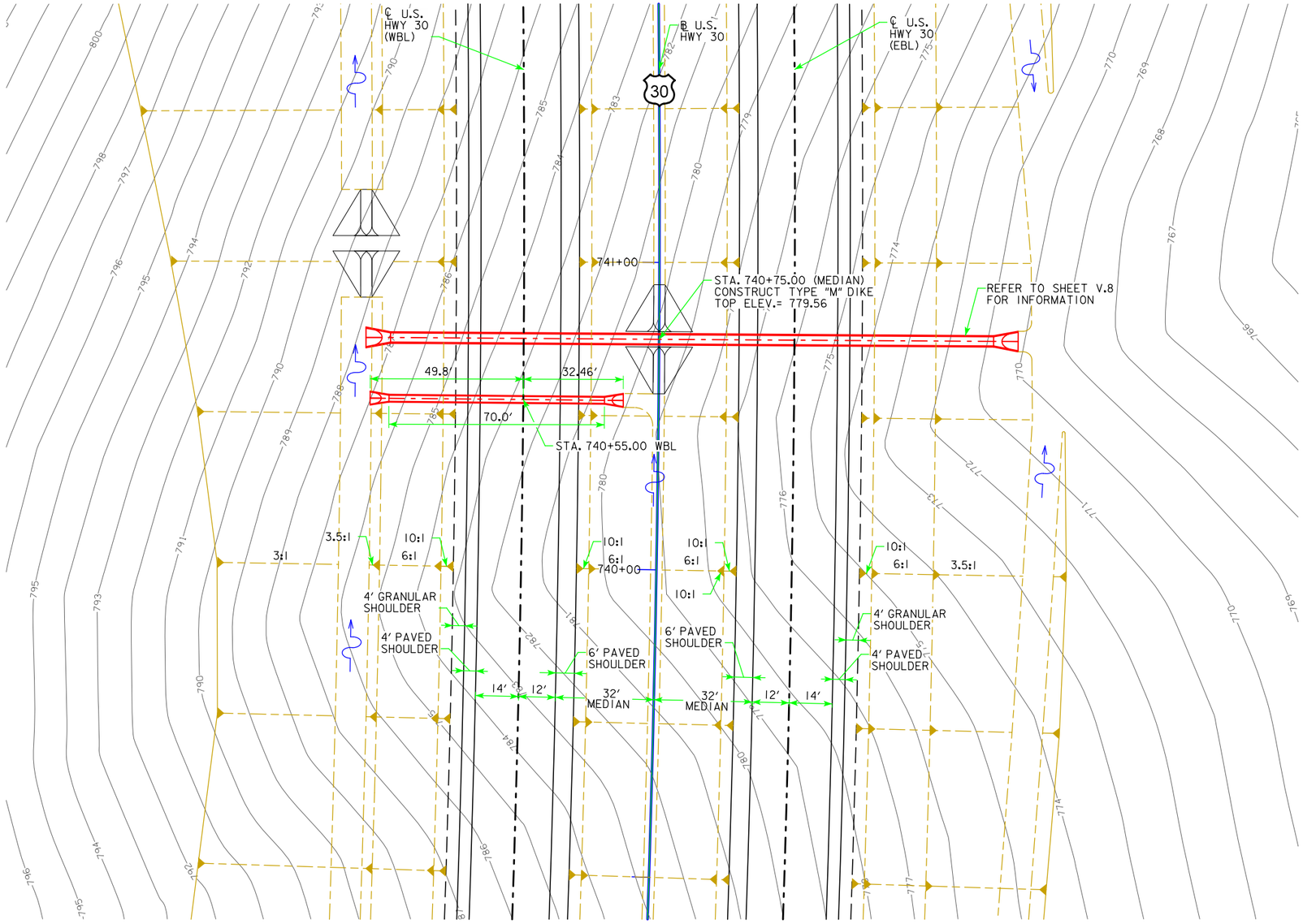


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #703
DESCRIPTION: TOP CULVERT WEST SIDE OF COUNTRY CLUB DR
STA. 730+54.72, 62.90' RT.
ELEV. = 796.53

BENCH MARK: #704
DESCRIPTION: SPIKE IN POWER POLE 125FT EAST OF CP333
STA. 738+87.71, 57.27' RT.
ELEV. = 828.28'

HYDRAULIC DATA

DRAINAGE AREA = 2.87 ACRES FLAT
DESIGN DISCHARGE, Q_{50} = 6.49 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 70' REINFORCED CONCRETE PIPE

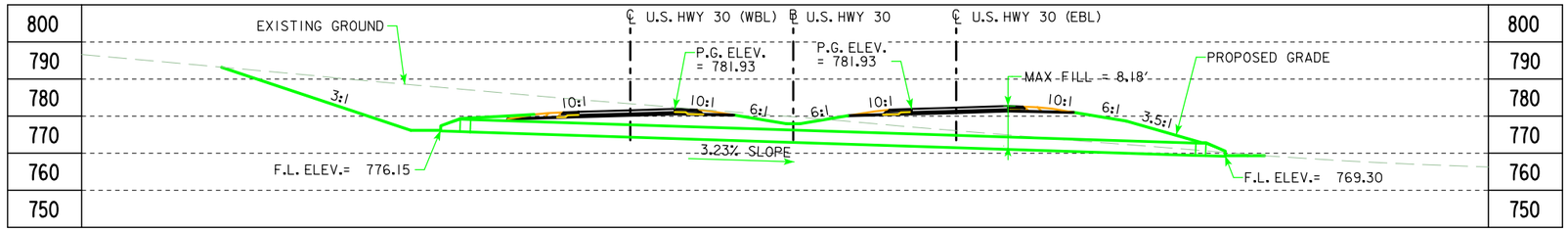
PLAT PLAN

STA. 740+55.00 ℄ U.S. HWY. 30 (WBL) OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. -- OF -- FILE NO. -- DESIGN NO. --



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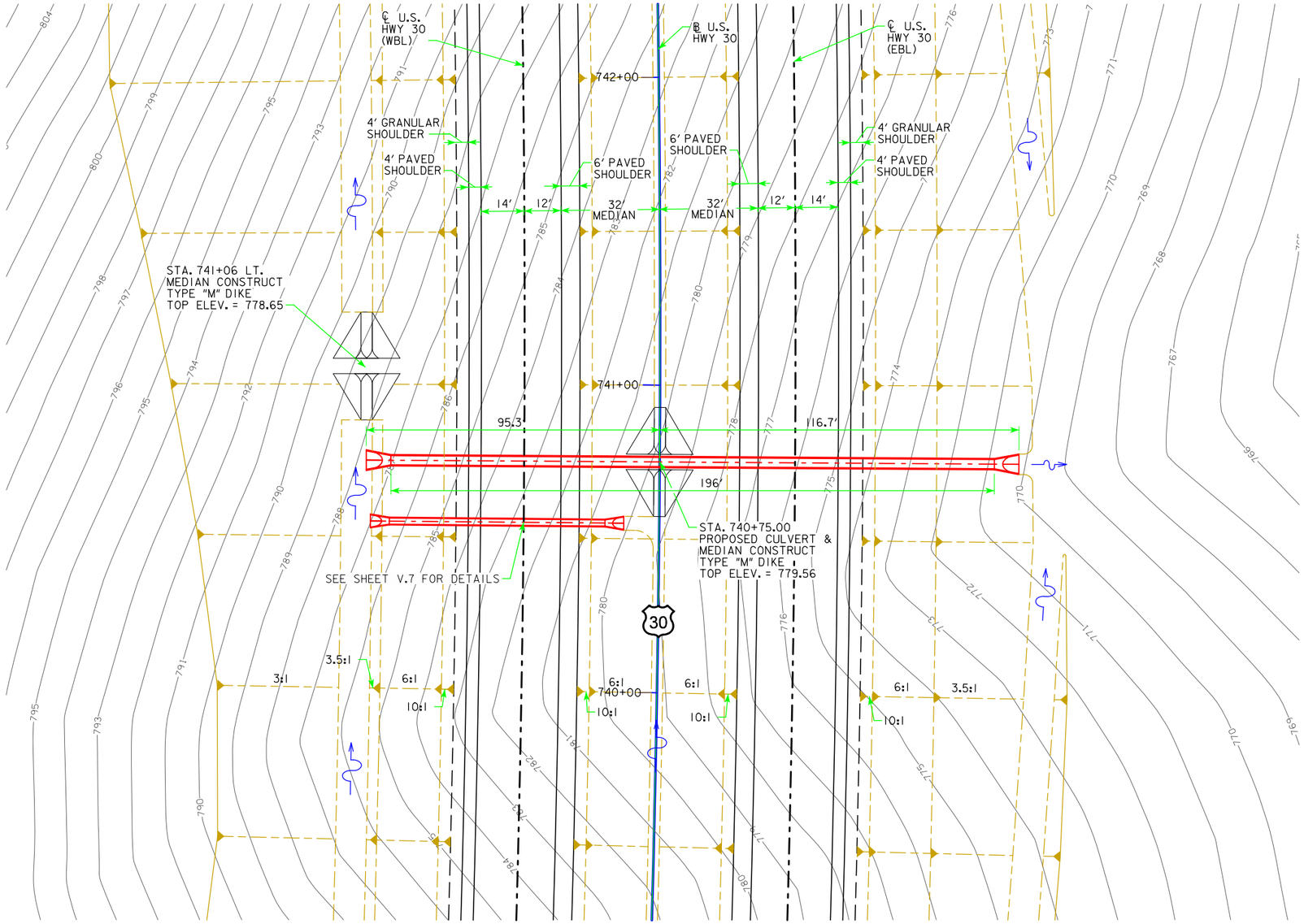
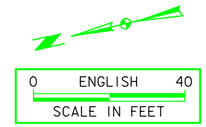


PLAT PLAN



BENCH MARK: #703
DESCRIPTION: TOP CULVERT WEST SIDE OF COUNTRY CLUB DR
STA. 730+54.72, 62.90' RT.
ELEV. = 796.53'

HYDRAULIC DATA

DRAINAGE AREA = 15.10 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 34.38 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

36" X 196' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 740+75.00 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.8

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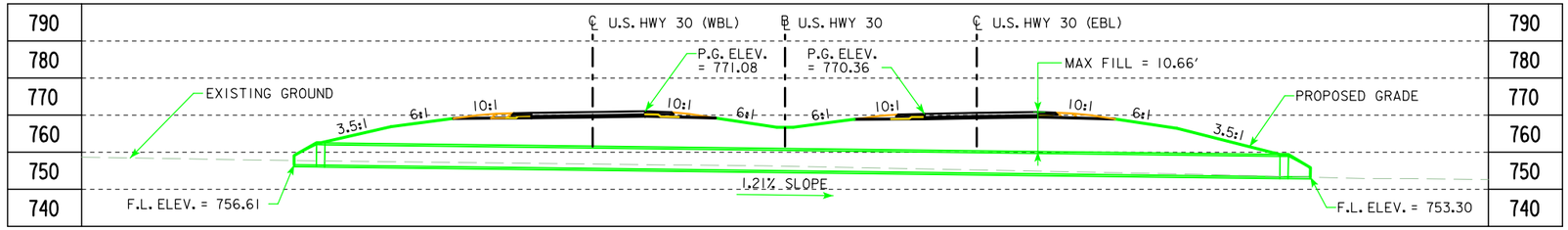
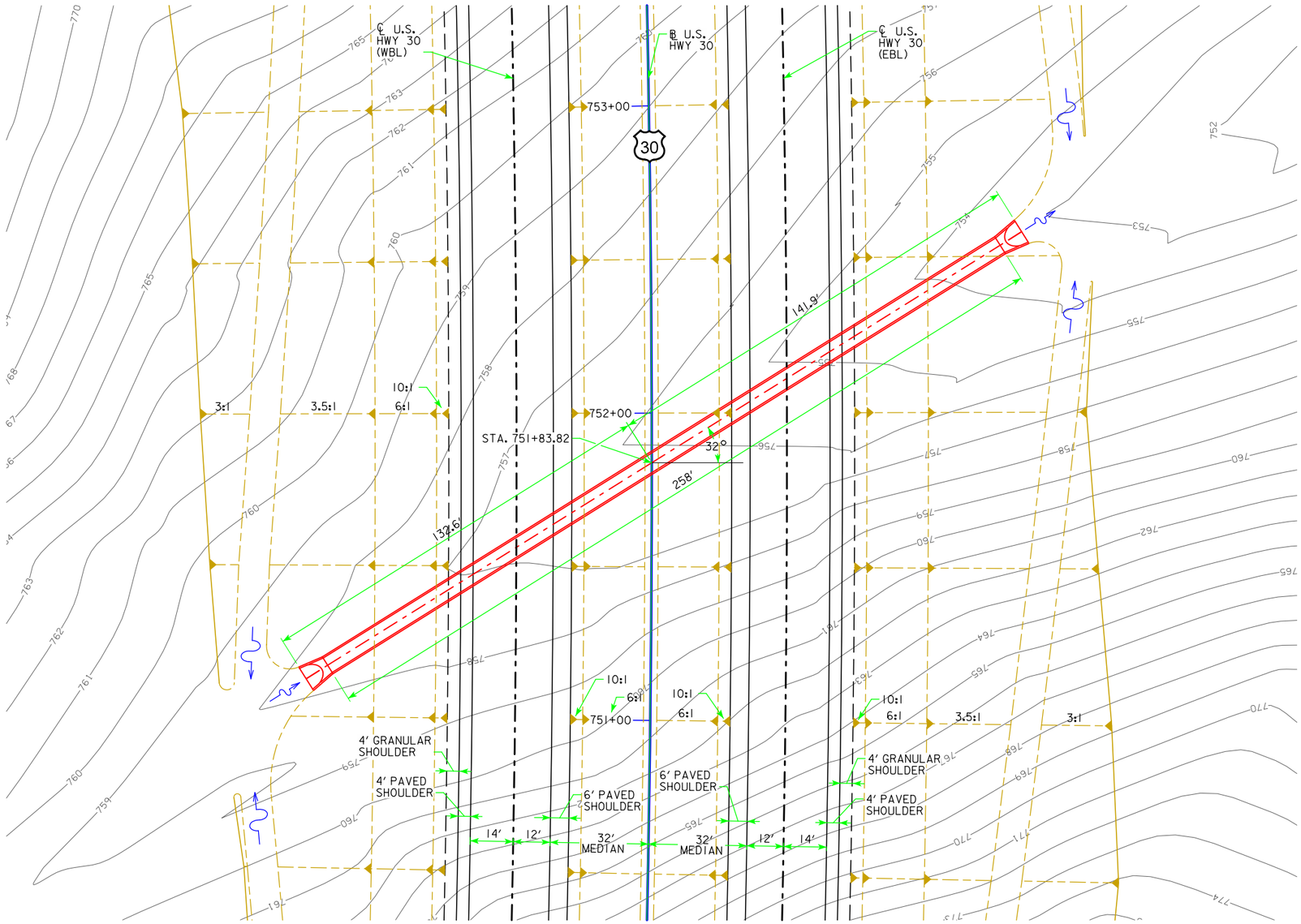
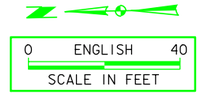


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #518
DESCRIPTION: CUT X NORTH END RCP NORTH DITCH AT CEDAR RIVER SIGN
STA. 543+43.75, 139.553' LT.
ELEV. = 750.28

HYDRAULIC DATA

DRAINAGE AREA = 140.43 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 187.22 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 32° SKEW R.A.

66" X 258' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 751+83.82 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. -- OF -- FILE NO. ---------- DESIGN NO. ----------

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.9

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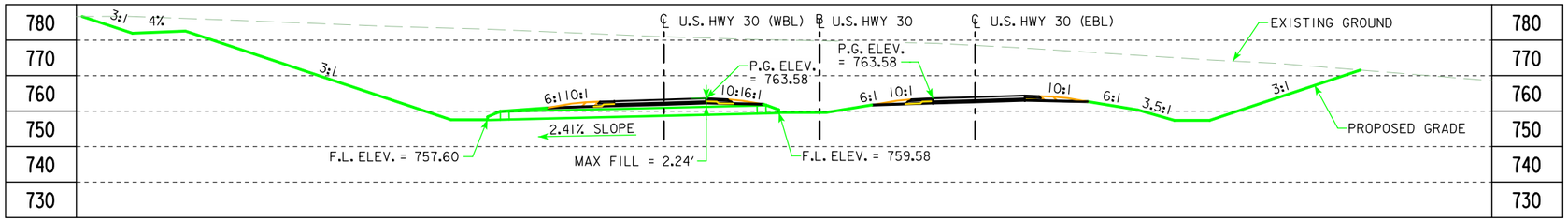
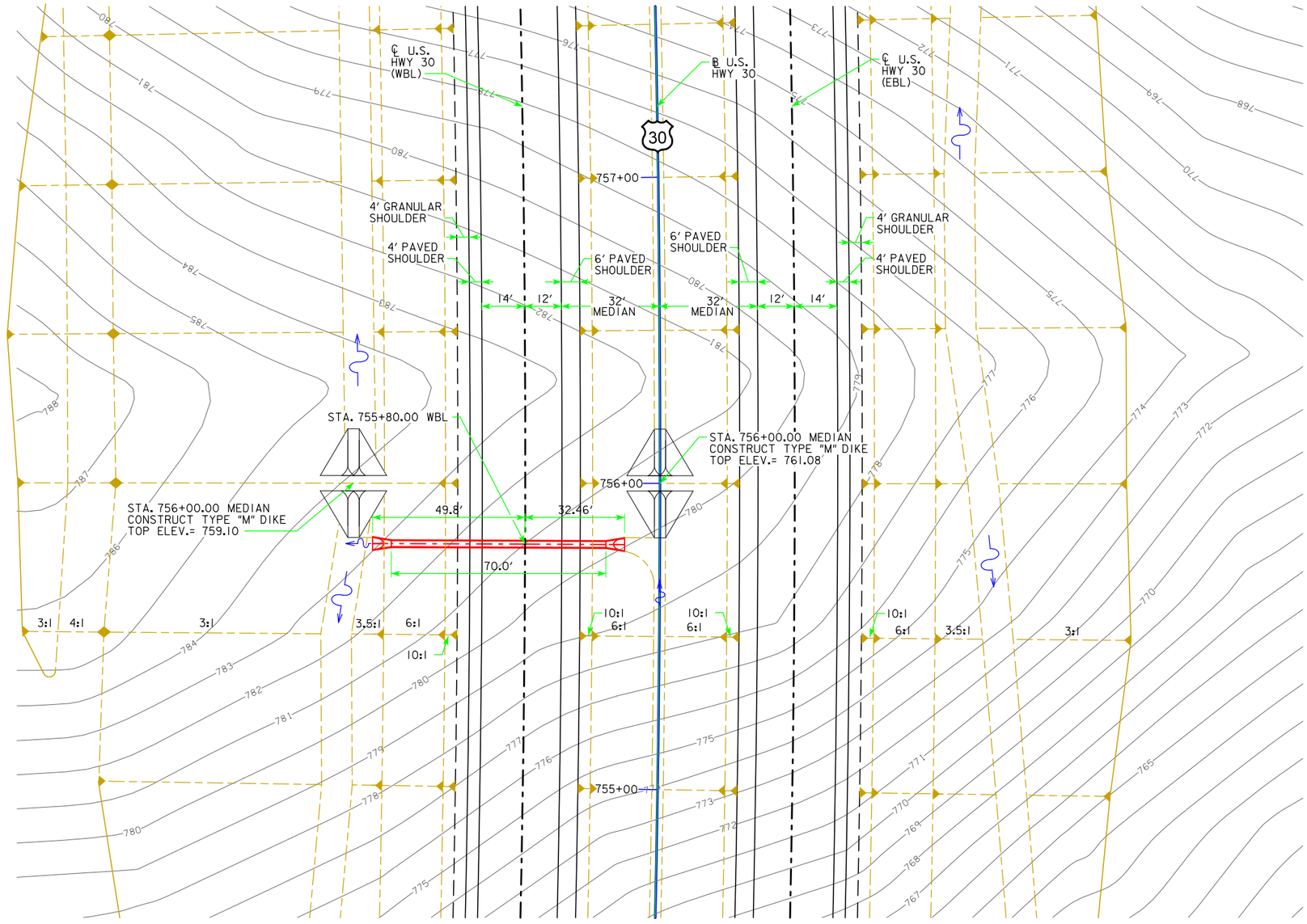


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #538
DESCRIPTION: SPIKE IN POWER POLE EAST SIDE ROAD IST POWER POLE SOUTH OF 626 DRIVE
STA. 755+67.35, 3,353.69' RT.
ELEV. = 778.04'

HYDRAULIC DATA

DRAINAGE AREA = 3.16 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 6.98 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 15
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 70' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 755+80.00 ℄ U.S. HWY. 30 WBL — OCTOBER 2016

LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.10

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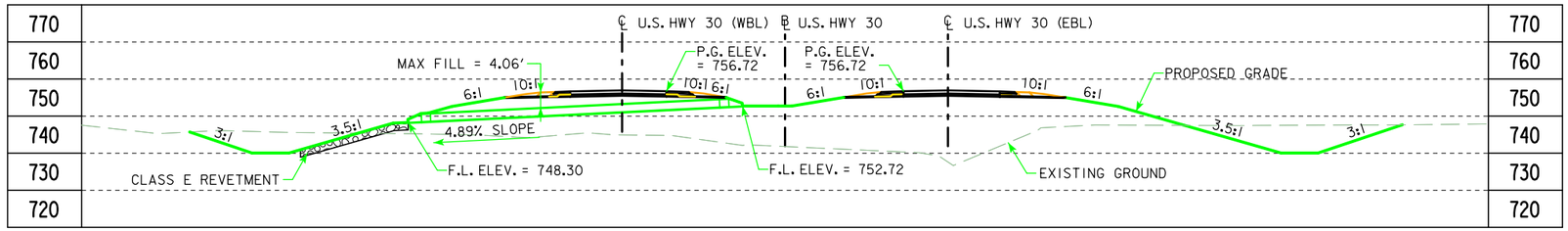
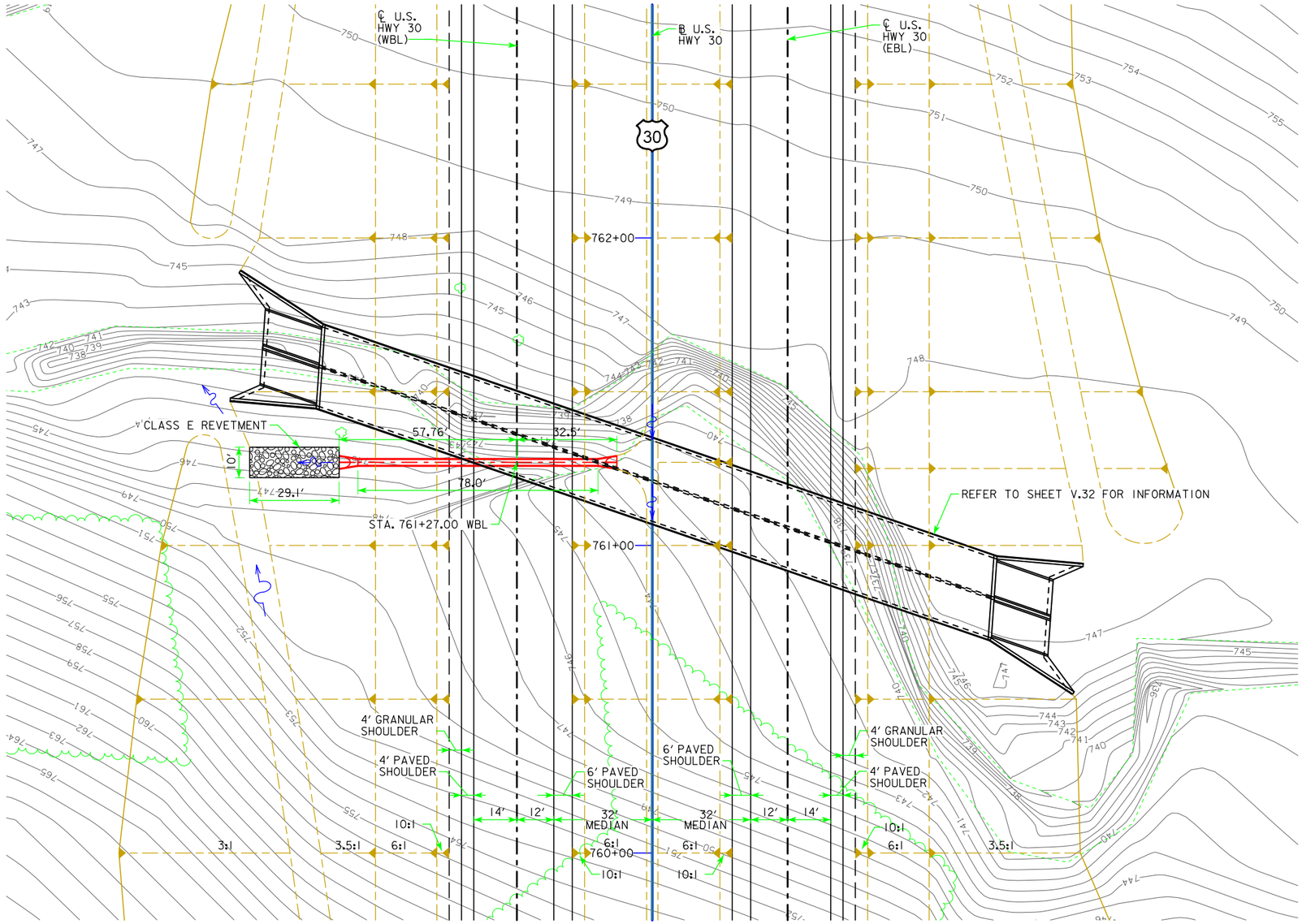


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #705
DESCRIPTION: ARROW ON HYDRANT
EAST OF CP335
STA. 765+51.82, 67.232' RT.
ELEV. = 851.469

HYDRAULIC DATA

DRAINAGE AREA = 3.96 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 8.29 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 78' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 761+27.00 ℄ U.S. HWY. 30 WBL OCTOBER 2016

LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.11

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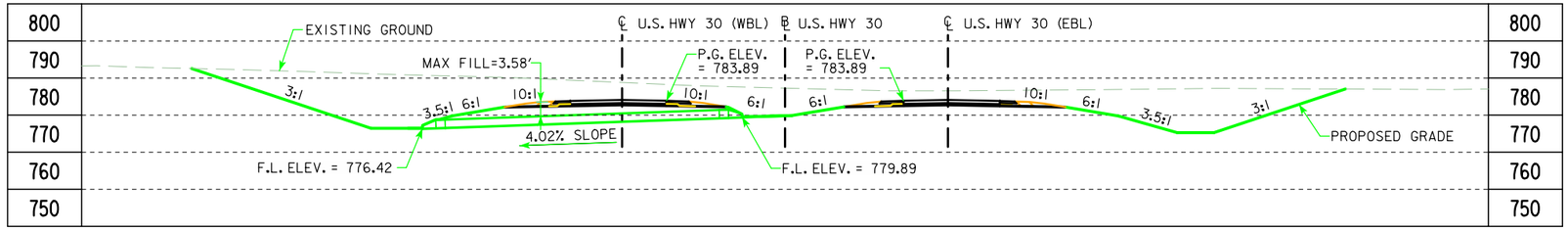

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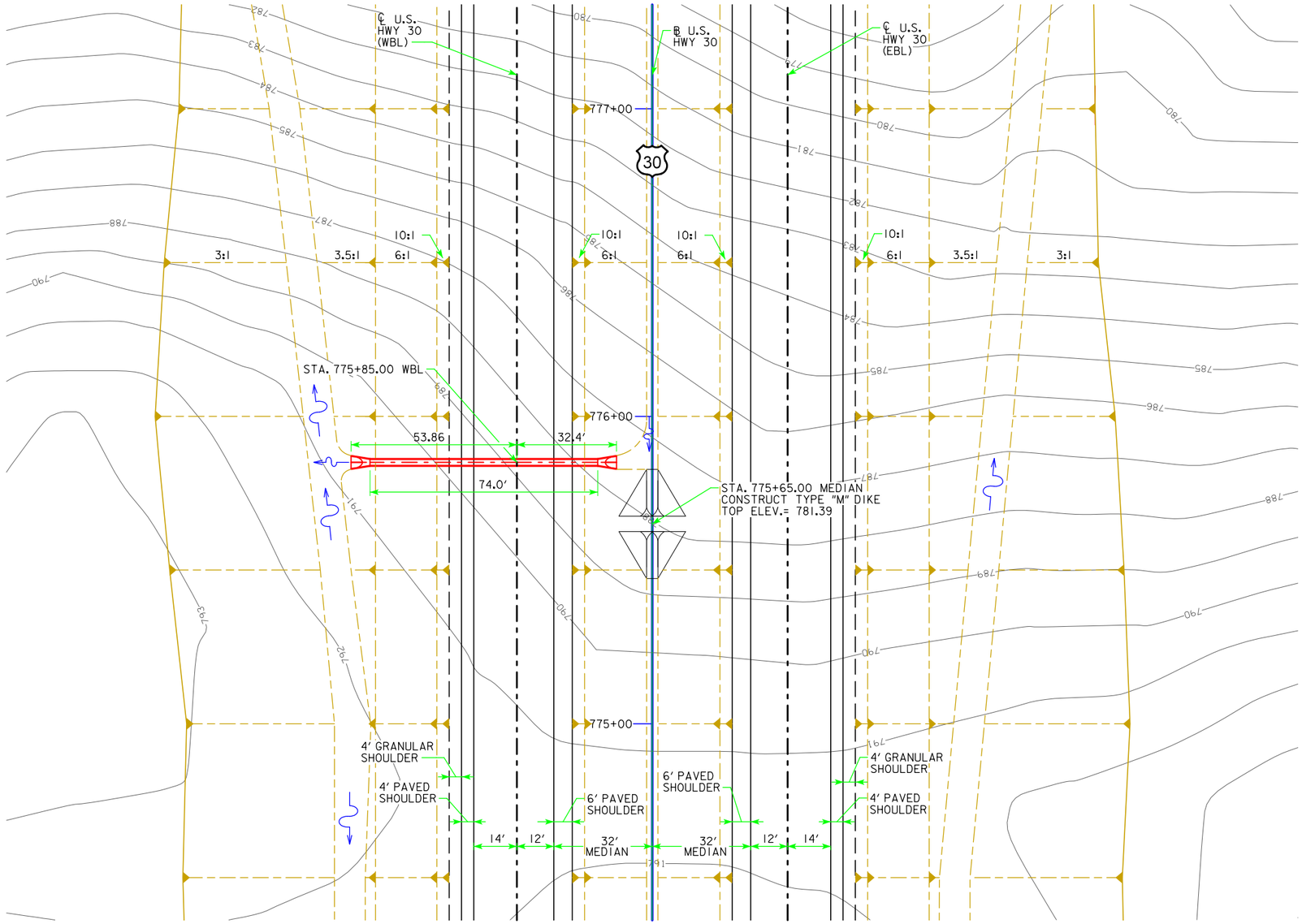
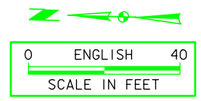


PLAT PLAN



BENCH MARK: #528
DESCRIPTION: SPIKE IN POWER POLE COR SPRING CR & LIGHT
STA. 669+37.13, 4,936.836' RT.
ELEV. = 777.82'

HYDRAULIC DATA

DRAINAGE AREA = 3.67 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 7.82 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 74' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 775+85.00 ℄ U.S. HWY. 30 WBL — OCTOBER 2016

LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.12

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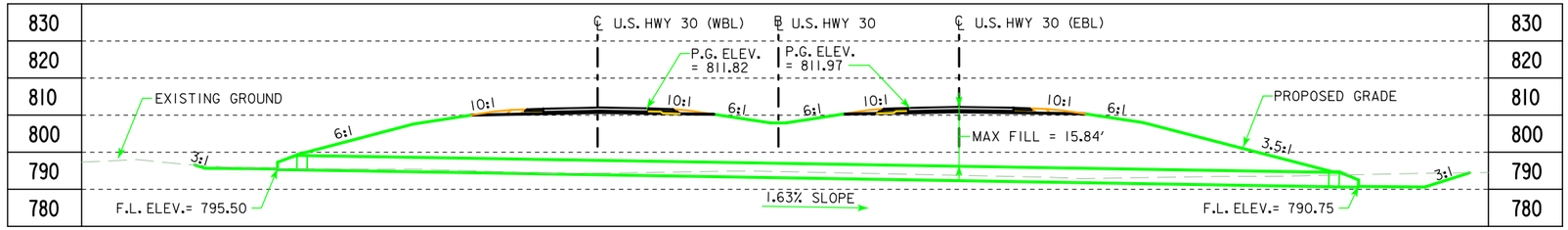
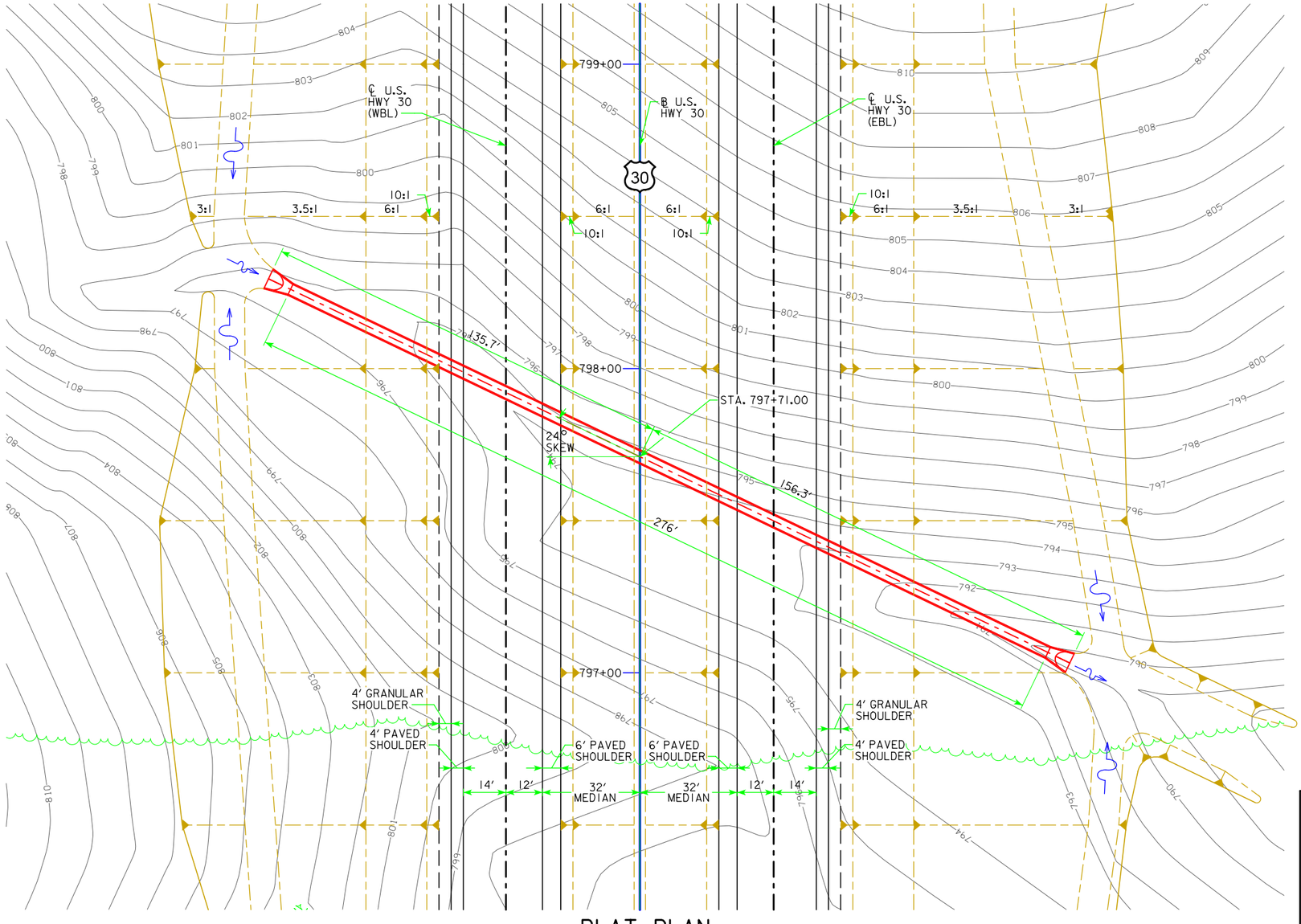
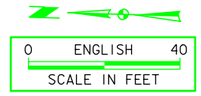


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #703
DESCRIPTION: TOP CULVERT WEST SIDE OF COUNTRY CLUB DR
STA. 730+54.72, 62.908' RT.
ELEV. = 796.53'

HYDRAULIC DATA

DRAINAGE AREA = 30.06 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 58.02 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 24° SKEW L.A.

42" X 276' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 797+71.00 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.13

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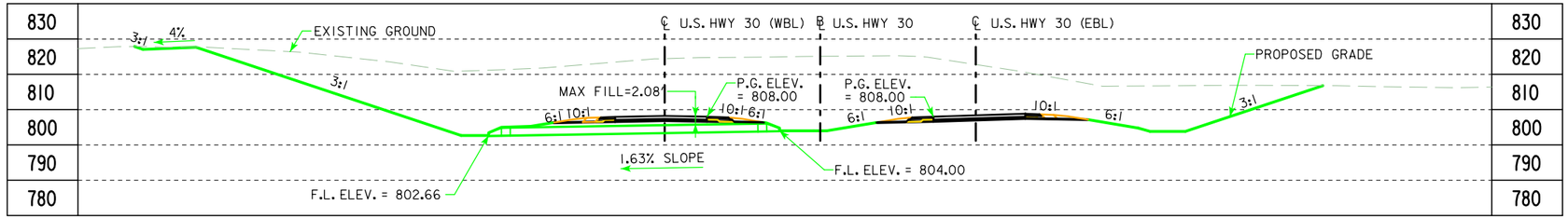
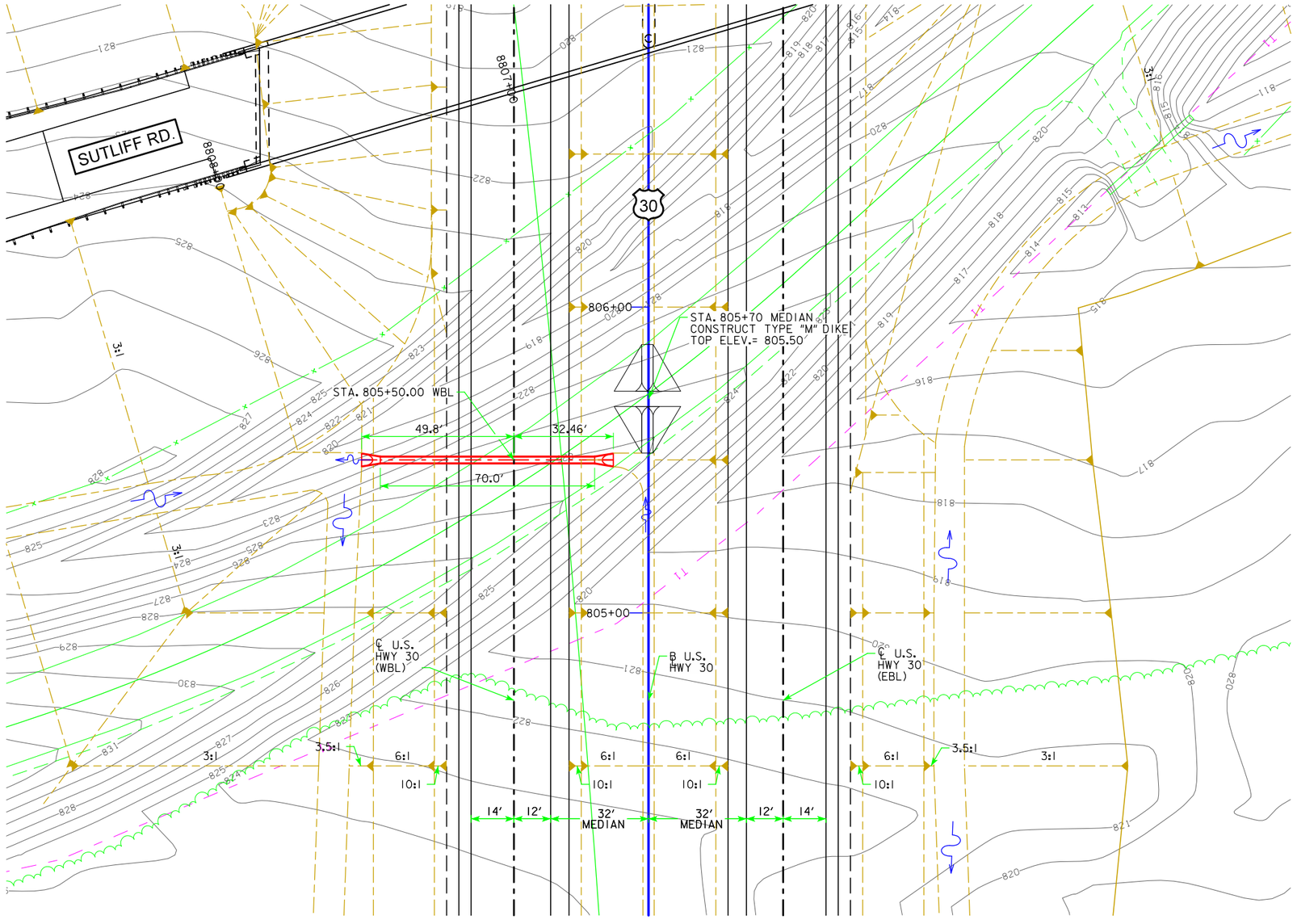


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #712
DESCRIPTION: CHISELED CROSS TOP
INTAKE N SIDE HWY 30 2ND
INTAKE EAST OF S JACKSON
STA. 806+36.12, 27.896' LT.
ELEV. = 867+797

HYDRAULIC DATA

DRAINAGE AREA = 2.40 ACRES FLAT
DESIGN DISCHARGE, Q_{50}= 5.66 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 70' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 805+50.00 ℄ U.S. HWY. 30 (WBL) OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.14

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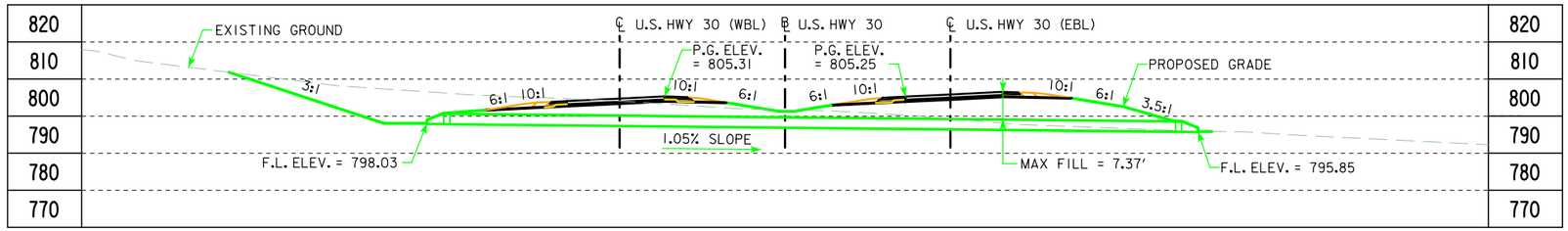
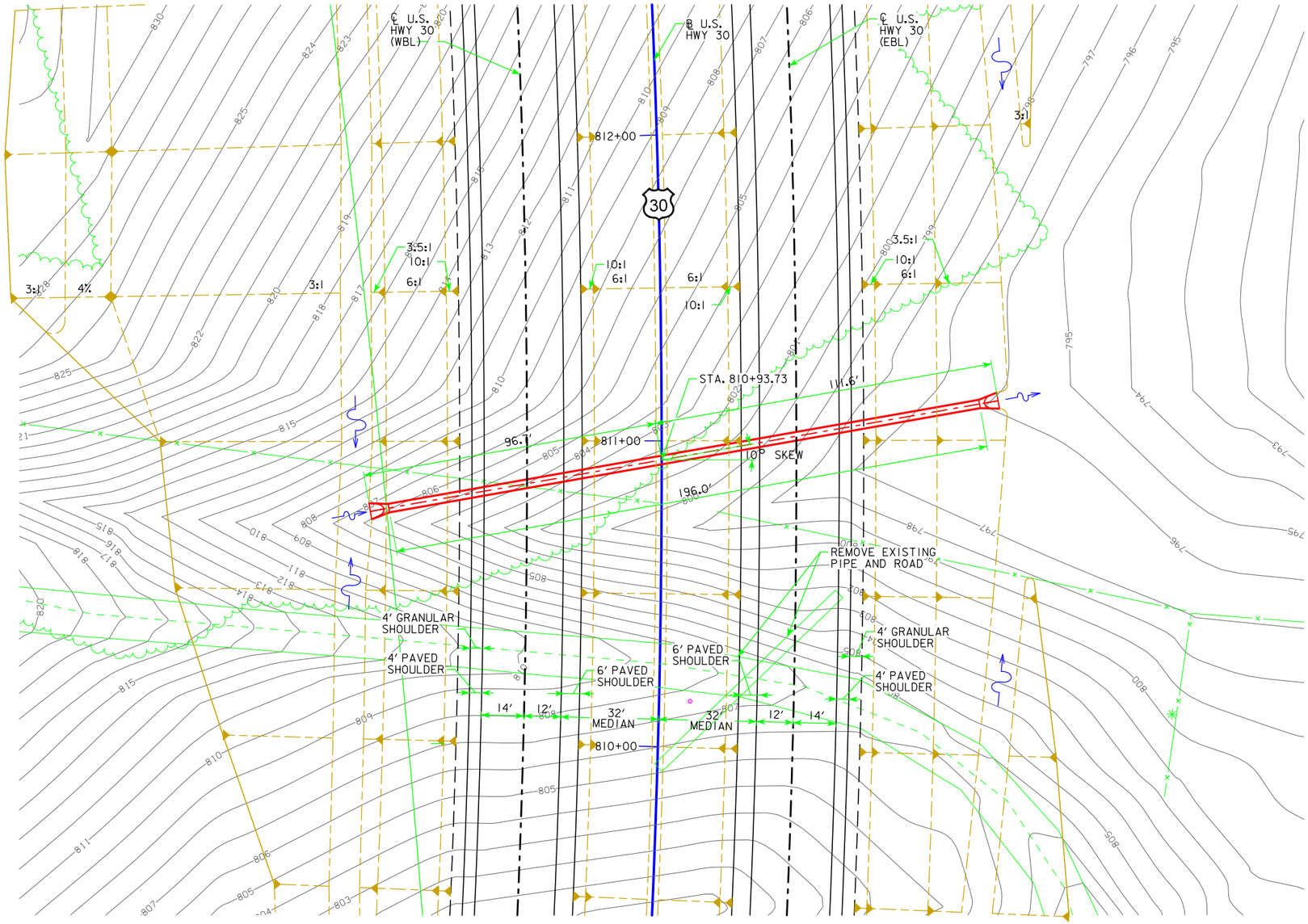


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #714
DESCRIPTION: FLANGE BOLT WITH FLAG ON HYDRANT NW CORNER DOLLAR GENERAL
STA. 809+54.20, 48.708' RT.
ELEV. = 865+539

HYDRAULIC DATA

DRAINAGE AREA = 12.58 ACRES ROLLING
DESIGN DISCHARGE, Q_{50} = 29.93 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 10° SKEW R.A.

30" X 196' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 810+93.73 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.15

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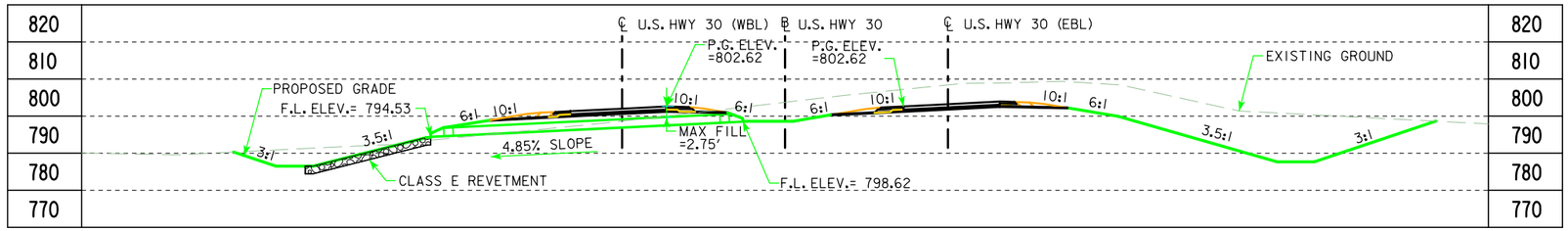

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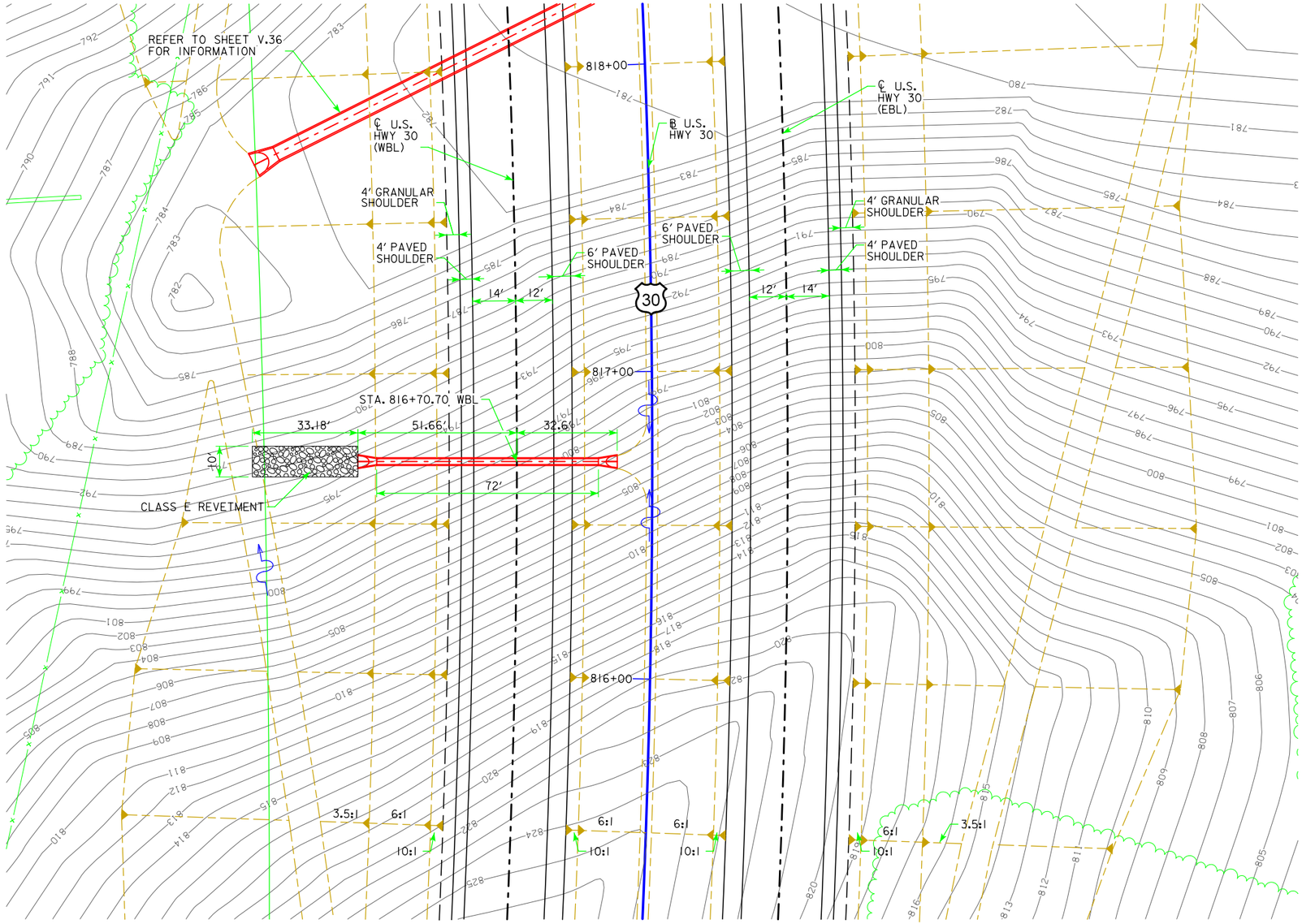
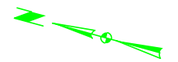


PLAT PLAN



BENCH MARK: #714
DESCRIPTION: FLANGE BOLT WITH FLAG ON HYDRANT NW CORNER DOLLAR GENERAL
STA. 809+54.20, 48.708' RT.
ELEV. = 865+539

HYDRAULIC DATA

DRAINAGE AREA = 5.09 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 10.03 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 72' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 816+70.70 ℄ U.S. HWY. 30 WBL — OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.16

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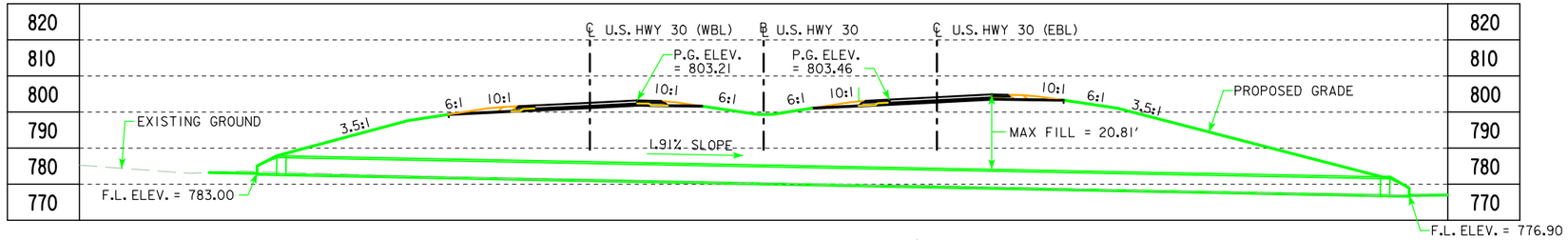
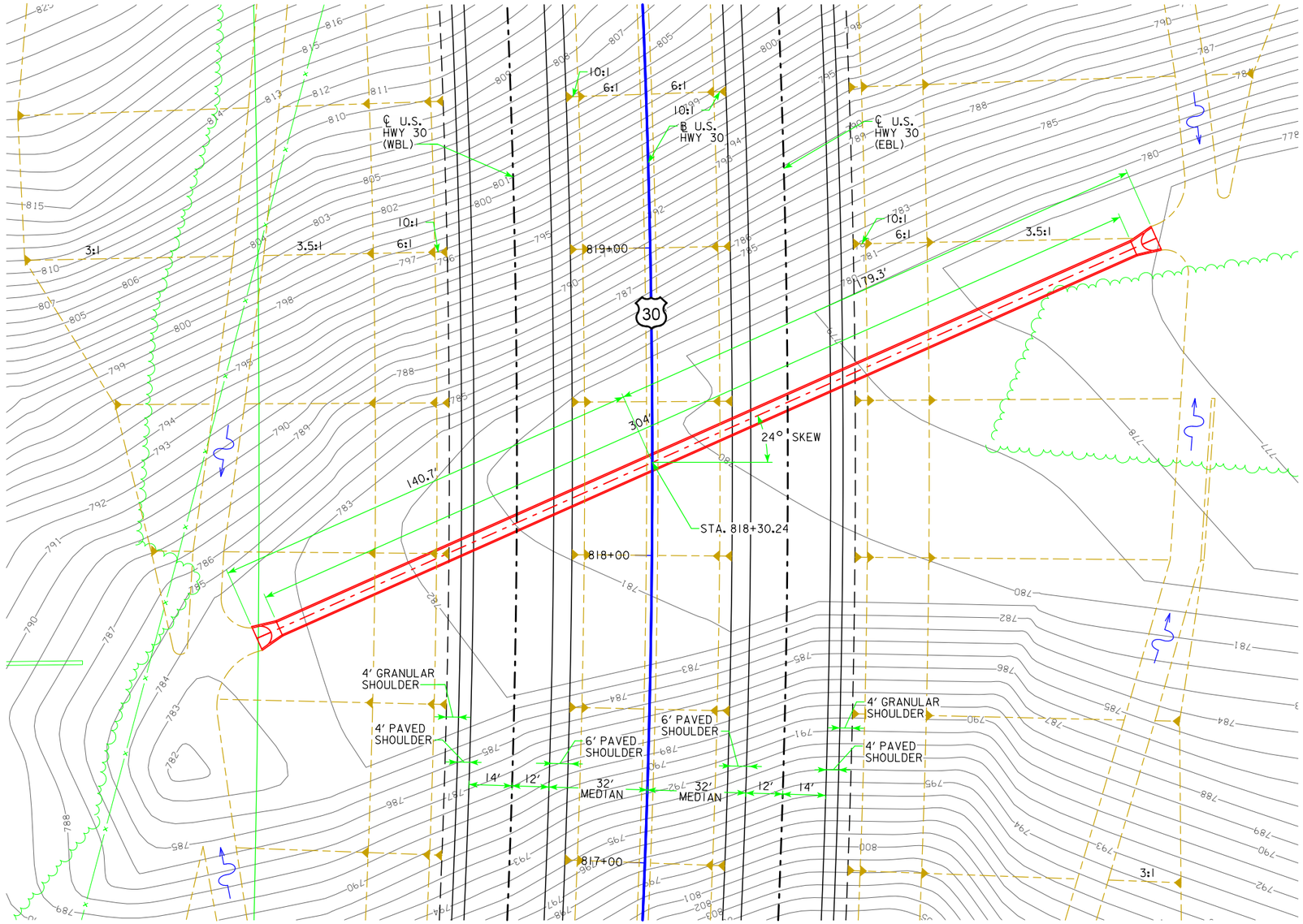


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

BENCH MARK: #714
DESCRIPTION: FLANGE BOLT WITH FLAG ON HYDRANT NW CORNER DOLLAR GENERAL
STA. 818+30.24
ELEV. = 865+539

HYDRAULIC DATA

DRAINAGE AREA = 70.03 ACRES 1/2 HILLY 1/2 ROLLING
DESIGN DISCHARGE, Q_{50} = 128.72 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 24° SKEW R.A.

54" X 304' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 818+30.24 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.17

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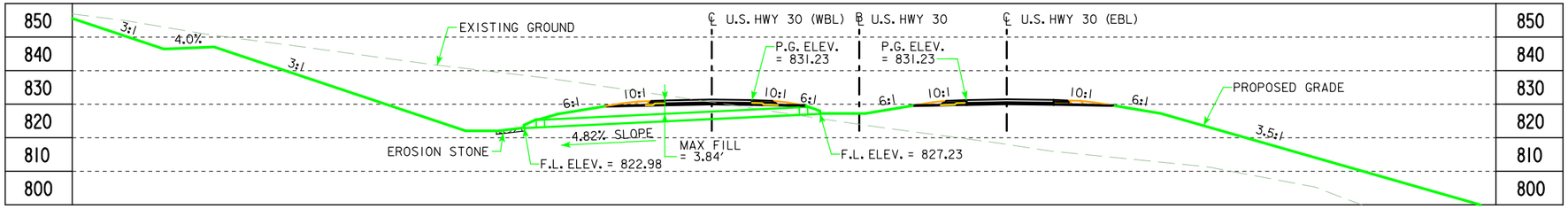
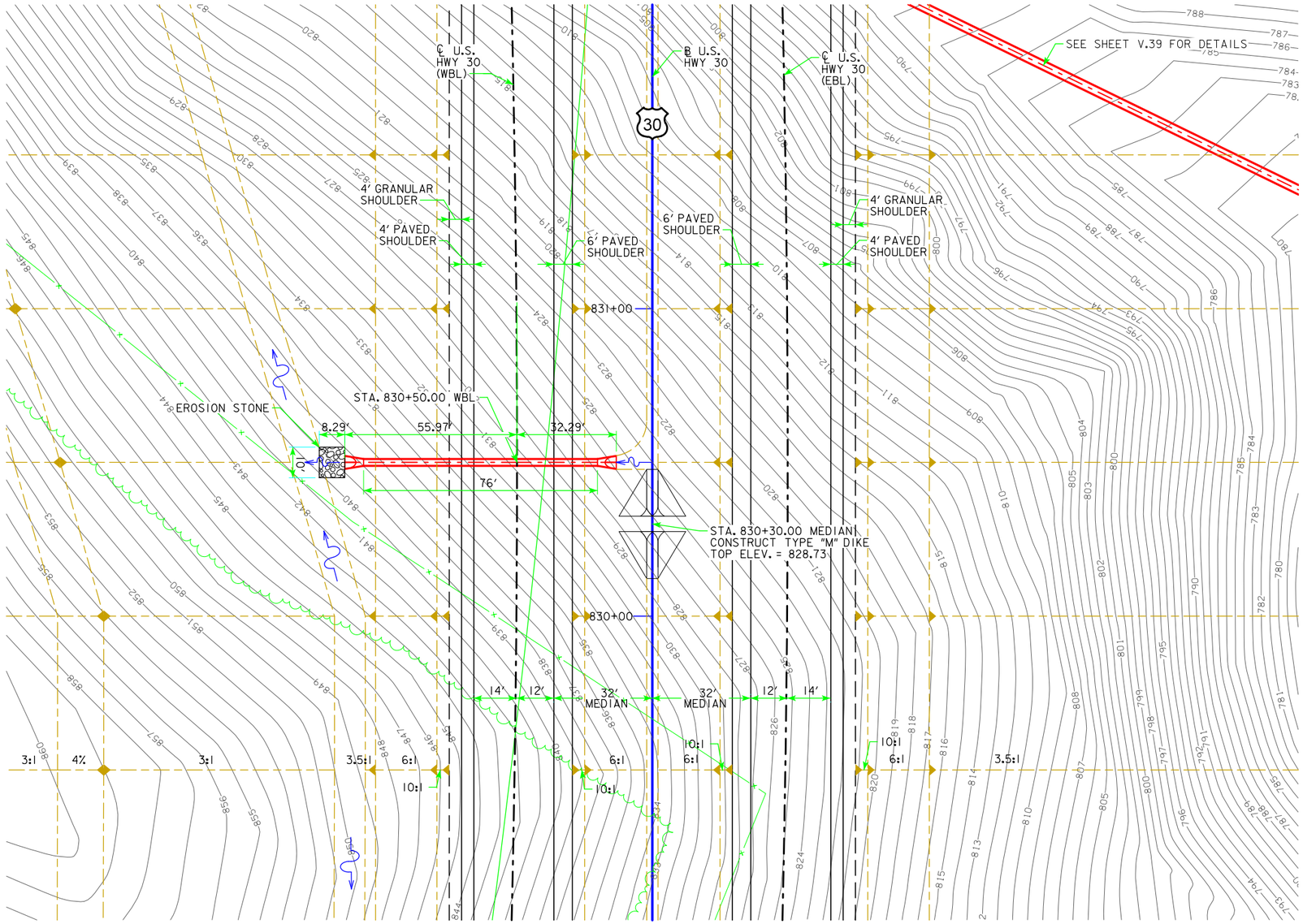


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

BENCH MARK: #754
DESCRIPTION: SPIKE IN 20IN WHITE PINE E SIDE 500FT NORTH OF 606 GREENRIDGE RD DRIVE
STA. 830+12.94, 4,711.39' RT.
ELEV. = 822.37'

HYDRAULIC DATA

DRAINAGE AREA = 2.77 ACRES ROLLING
DESIGN DISCHARGE, Q_{50} = 6.32 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY

0 ENGLISH 40
SCALE IN FEET

DESIGN FOR 0° SKEW

24" X 76' REINFORCED CONCRETE PIPE

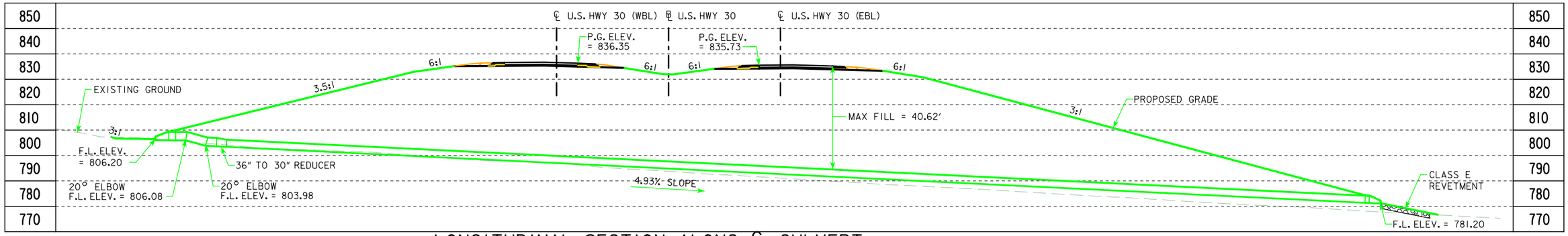
PLAT PLAN

STA. 830+50.00 ℄ U.S. HWY. 30 WBL OCTOBER 2016

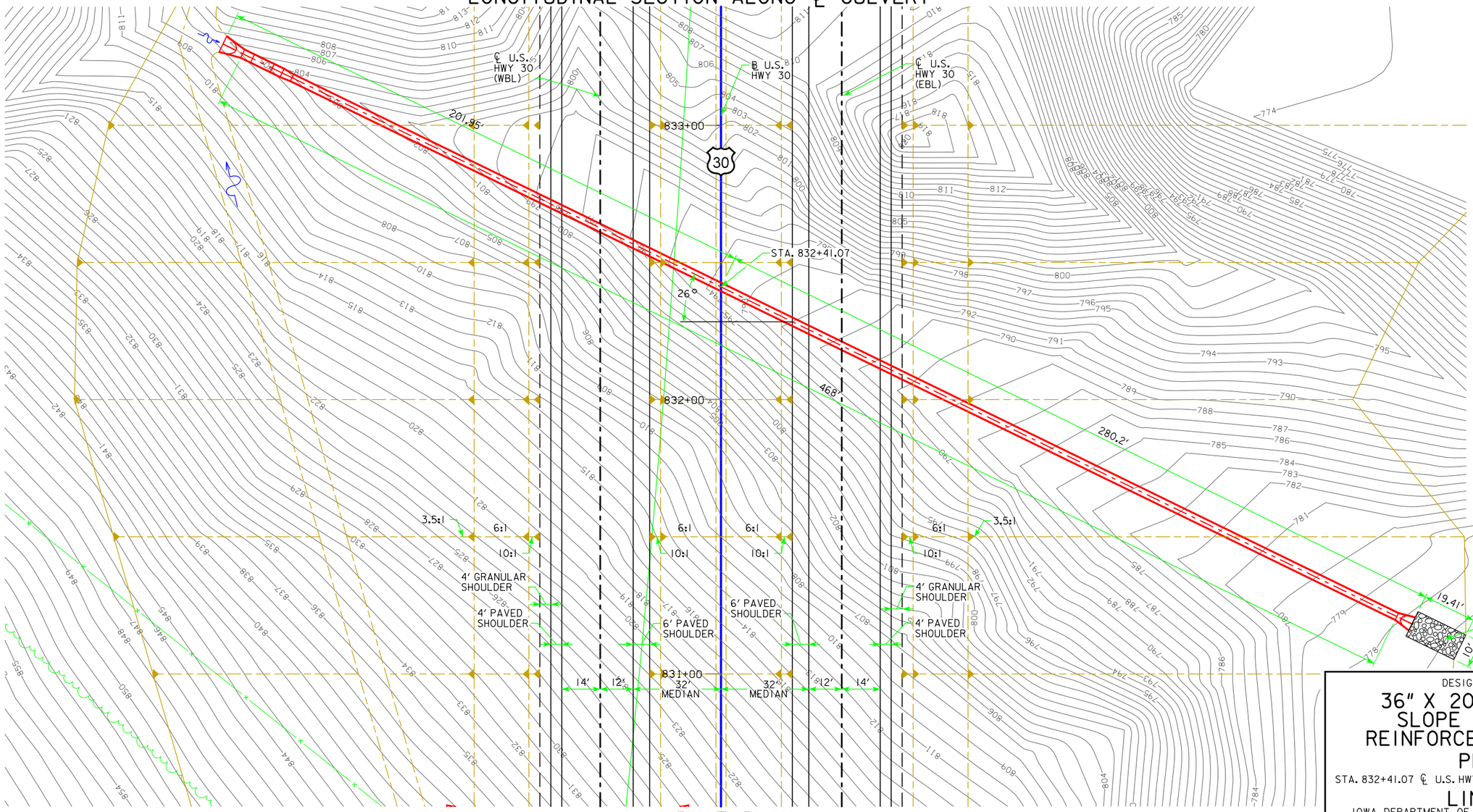
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____



LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #752
DESCRIPTION: SPIKE IN POWER POLE
100FT SE OF 577 GREENRIDGE RD DRIVE
STA. 834+24.45, 5,997.62I' RT.
ELEV. = 821.60

HYDRAULIC DATA

DRAINAGE AREA = I3.98 ACRES HILLY
DESIGN DISCHARGE, Q_{50}= 43.23 cfs

UTILITIES LEGEND:

REFER TO SHEET D.I

LOCATION

U.S. 30
T-82N R-5W
SECTION I3
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 26° SKEW L.A.

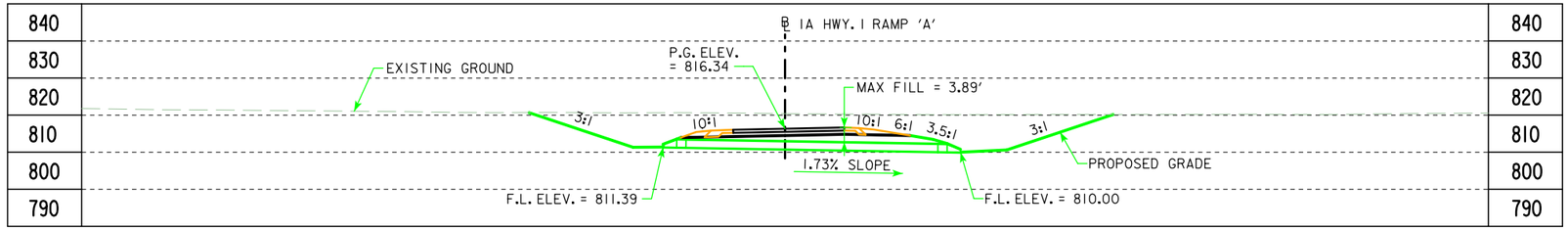
36" X 20' AND 30" X 448' SLOPE TAPERED INLET REINFORCED CONCRETE PIPE PLAT PLAN

STA. 832+41.07 ℄ U.S. HWY. 30 OCTOBER 2016

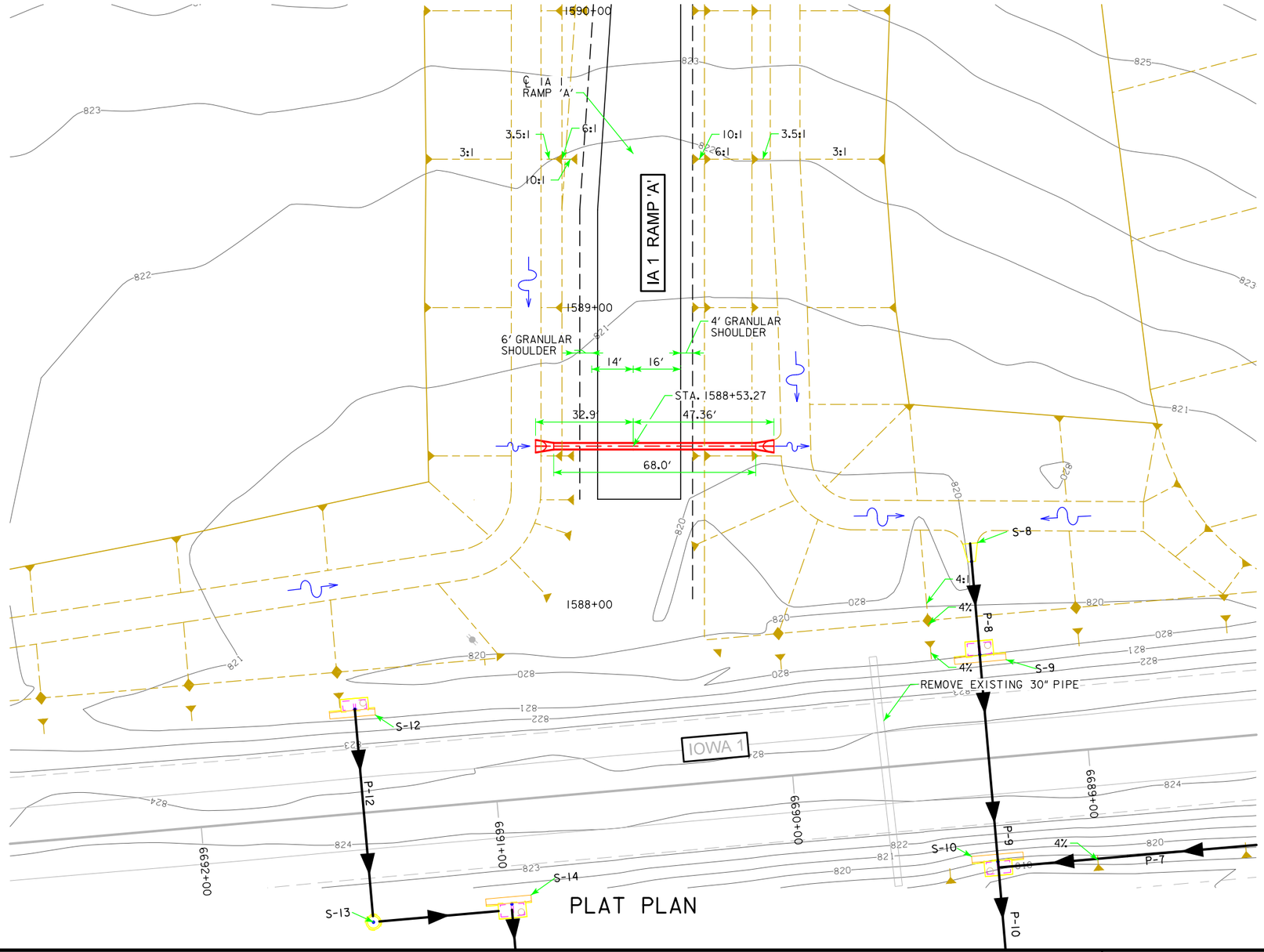
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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



LONGITUDINAL SECTION ALONG ℄ CULVERT



0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #524
DESCRIPTION: SPIKE IN POWER POLE 2ND POWER POLE SOUTH OF CLINIC
STA. 688+30.87, 1,164.889' RT.
ELEV. = 825.05

HYDRAULIC DATA

DRAINAGE AREA = 4.92 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 14.65 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

IOWA I RAMP 'A'
T-82N R-5W
SECTION 16
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 68' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 1588+53.27 ℄ IA I RAMP 'A' OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** **LINN** COUNTY PROJECT NUMBER **NHSX-030-7(188)--3H-57** SHEET NUMBER **V.20**

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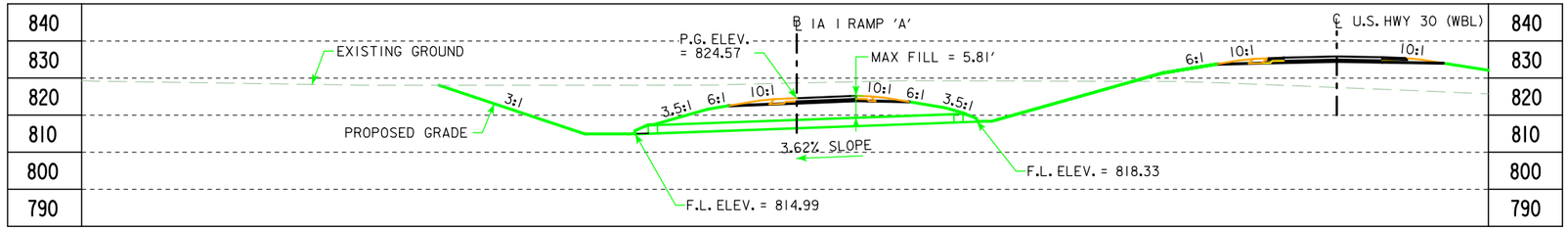
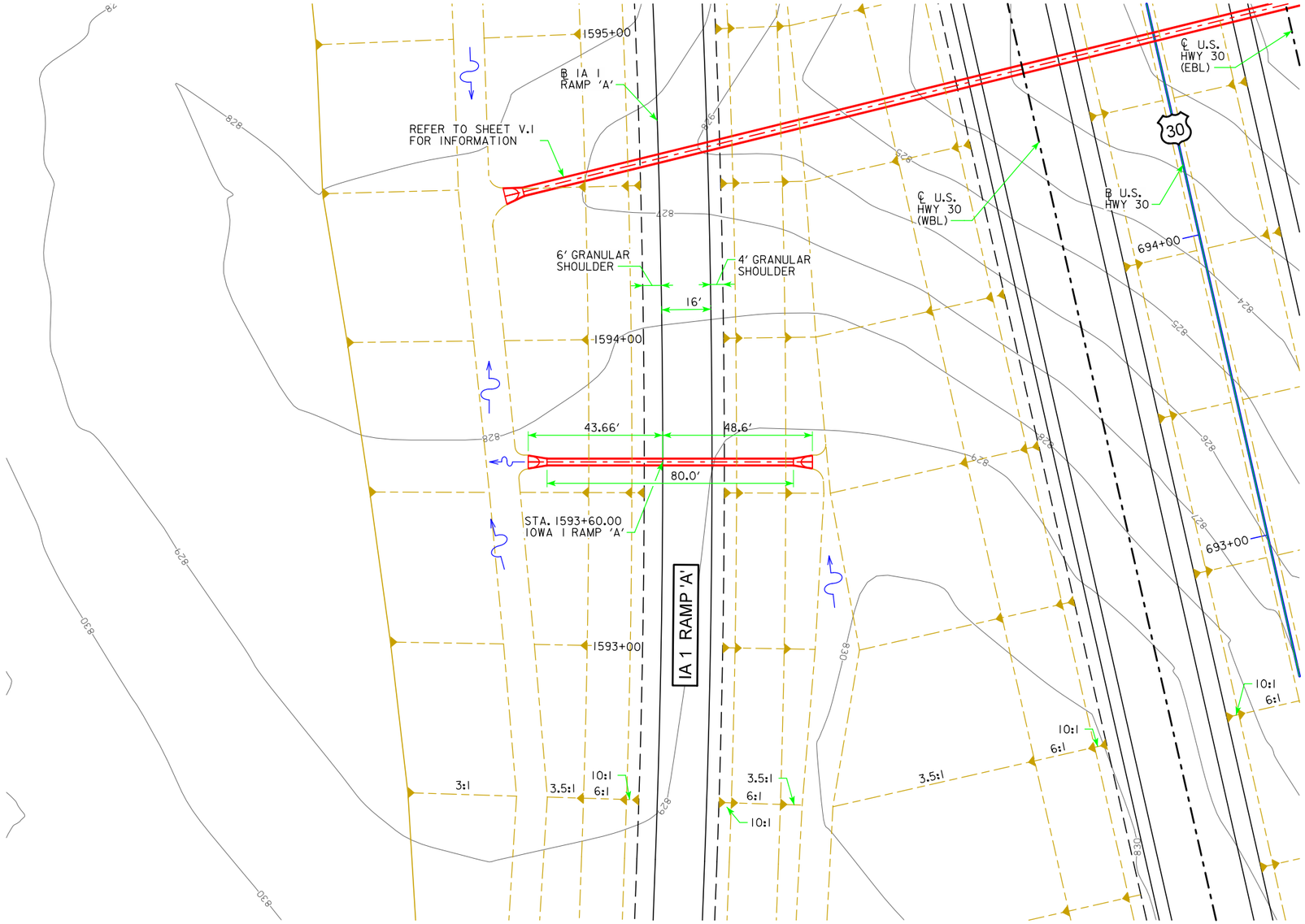
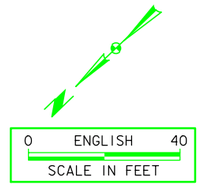


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #522
DESCRIPTION: CUT X IN LIGHT POLE BASE NW COR BP STATION
STA. 692+75.00, 60.60' RT.
ELEV. = 828.78

HYDRAULIC DATA

DRAINAGE AREA = 1.23 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 3.41 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

IOWA I RAMP 'A'
T-82N R-5W
SECTION 16
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 80' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 1593+60.00 ℄ IA I RAMP 'A' OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.21

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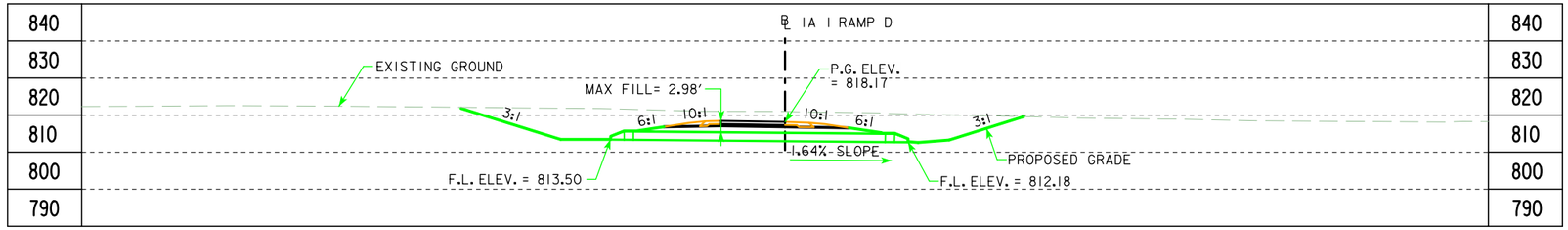
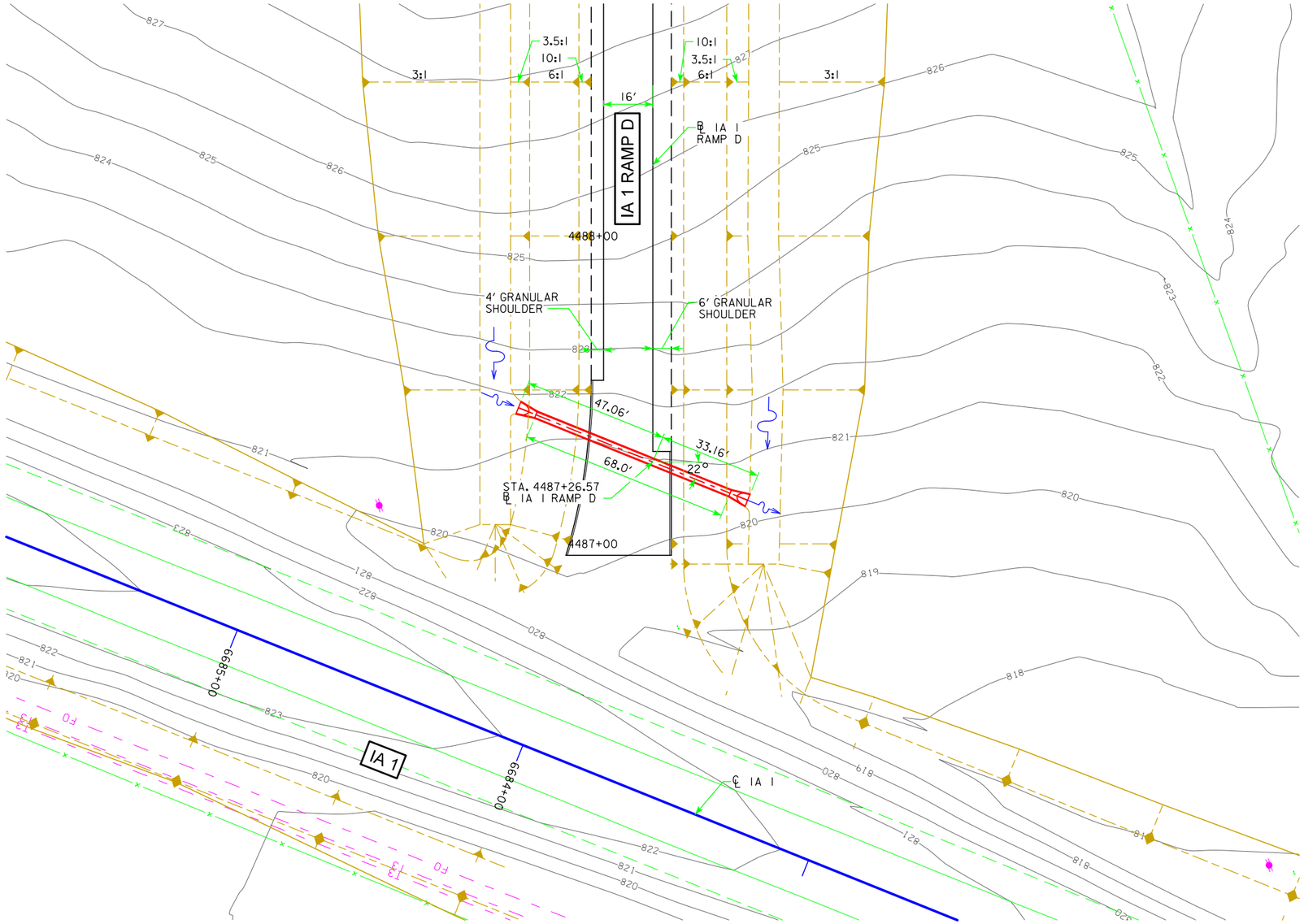
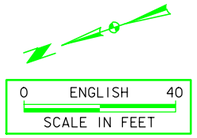


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #514
DESCRIPTION: 1/2IN REBAR IN FIELD ENTRANCE
STA. 687+46.38, 1,242.01' RT.
ELEV. = 808.42'

HYDRAULIC DATA

DRAINAGE AREA = 1.46 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 3.88 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

IA 1 RAMP D
T-82N R-5W
SECTION 16
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 22° SKEW L.A.

24" X 68' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 4487+26.57 ℄ IA 1 RAMP D — OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.22

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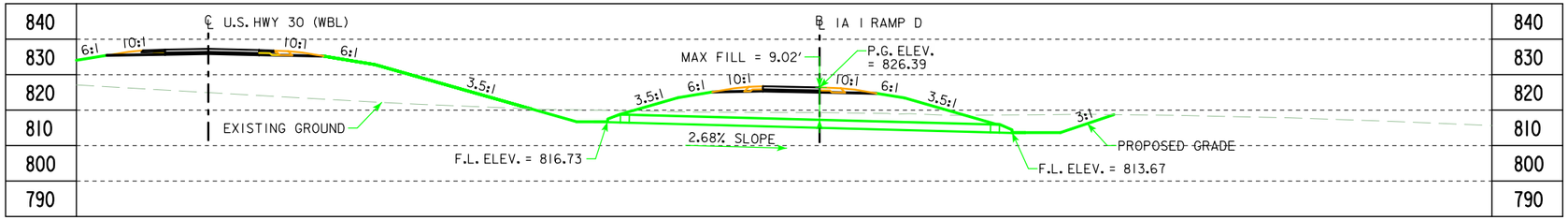
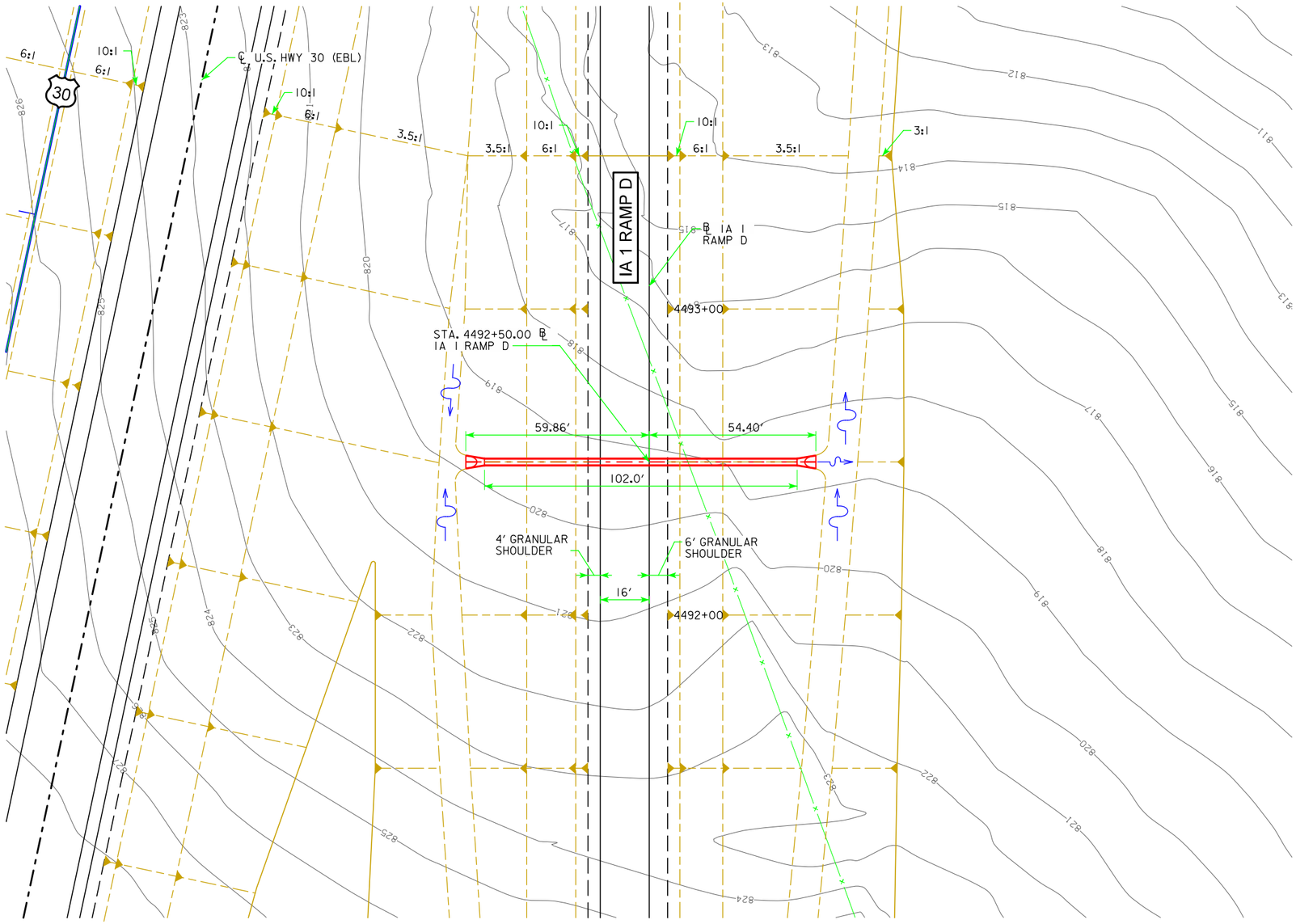
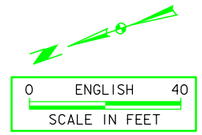


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #522
DESCRIPTION: CUT X IN LIGHT POLE BASE NW COR BP STATION
STA. 692+75.00, 60.60' RT.
ELEV. = 828.78

HYDRAULIC DATA

DRAINAGE AREA = 2.28 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 5.45 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

IA I RAMP D
T-82N R-5W
SECTION 16
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 102' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 4492+50.00 ℄ IA I RAMP D — OCTOBER 2016

LINN/CEDAR COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.23

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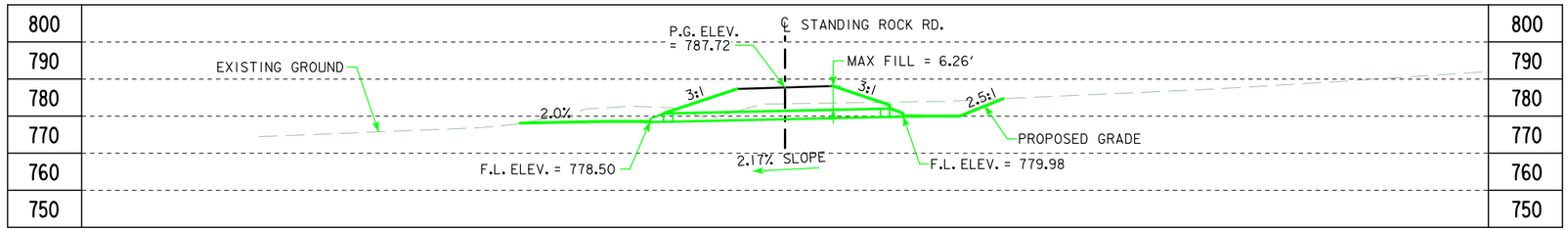
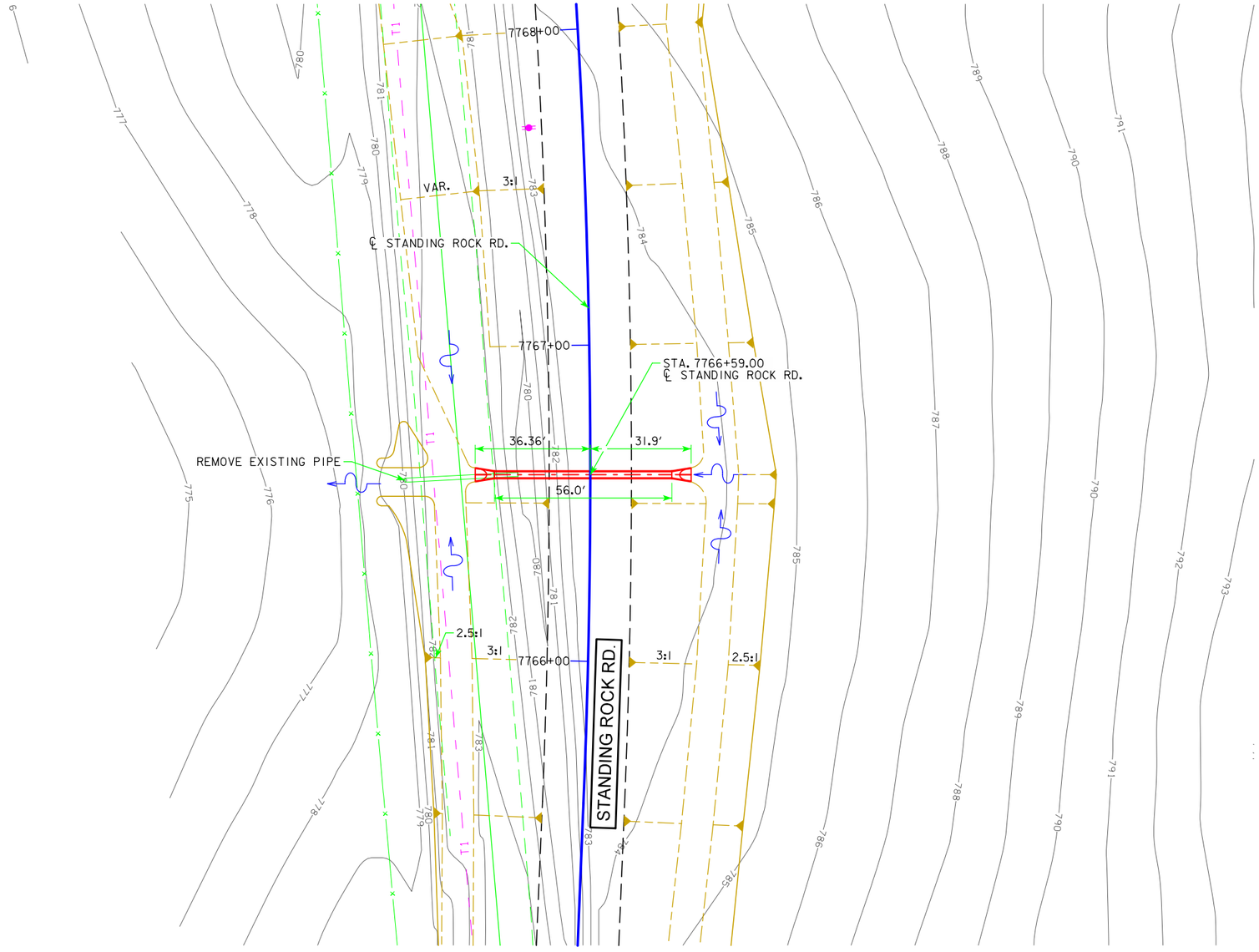
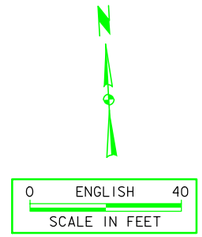


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #749
DESCRIPTION: SPIKE IN POWER POLE 30FT WEST OF CP367 N SIDE
STA. 777+50.50, 3,389.25′ RT.
ELEV. = 836.69

HYDRAULIC DATA

DRAINAGE AREA = 2.88 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 9.76 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

STANDING ROCK ROAD
T-82N R-5W
SECTION 23
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 56′ REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 7766+59.00 ℄ STANDING ROCK RD. OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.24

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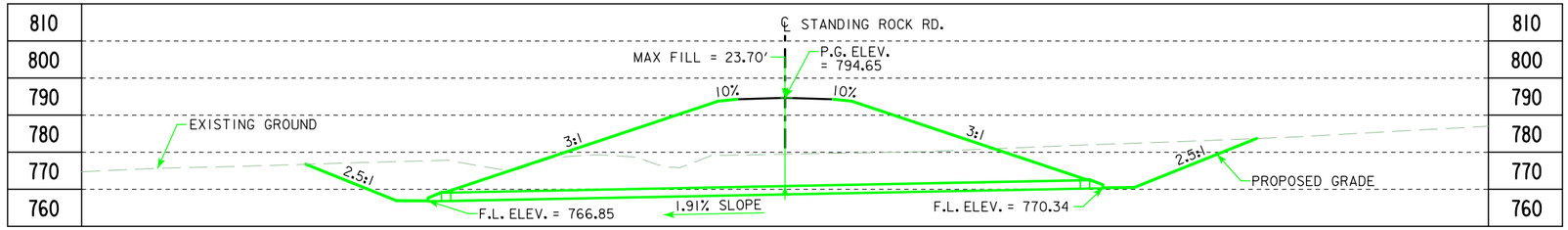
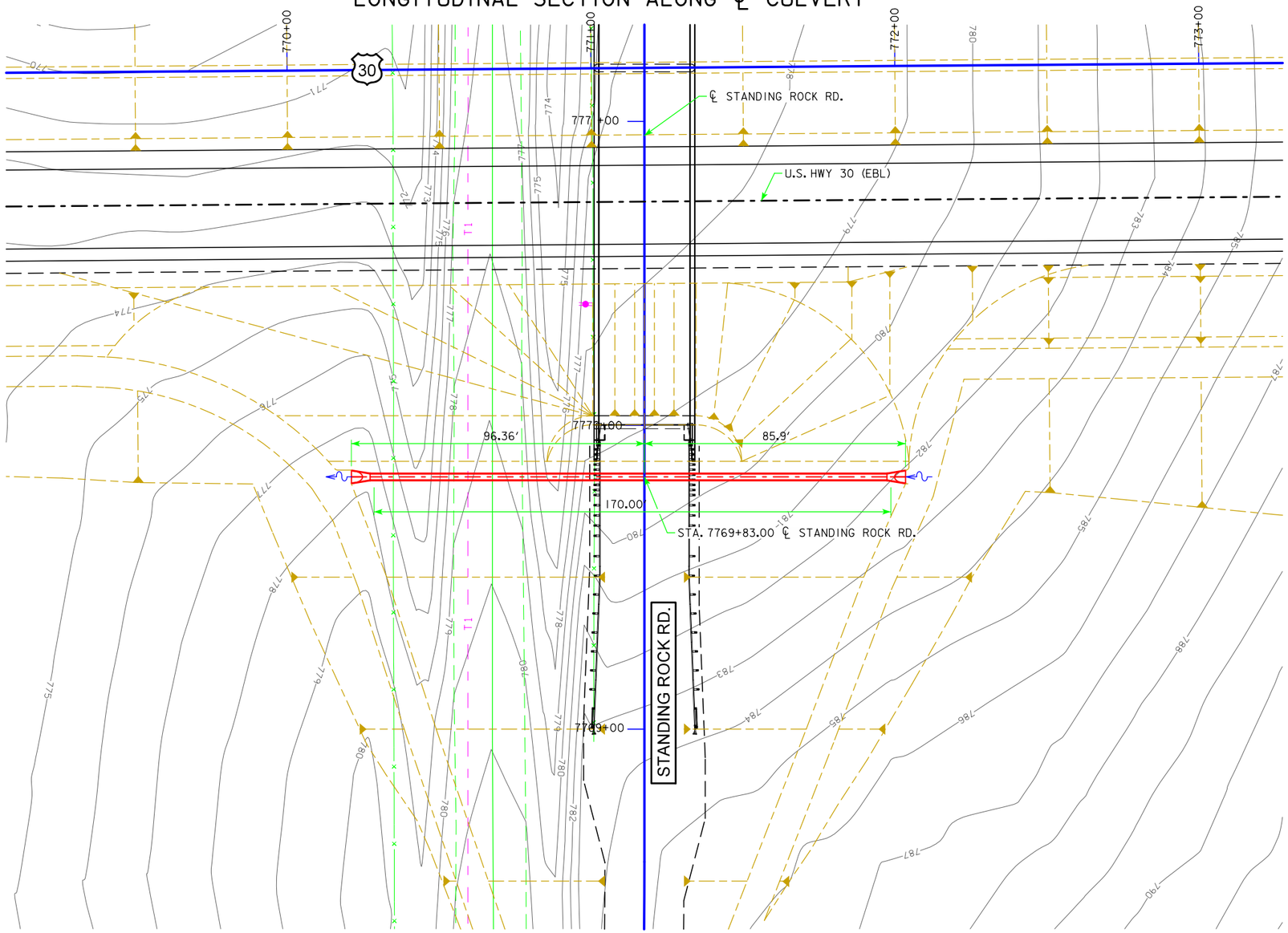


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #749
DESCRIPTION: SPIKE IN POWER POLE
30FT WEST OF CP367 N SIDE
STA. 777+50.50, 3,389.25' RT.
ELEV. = 836.69

HYDRAULIC DATA

DRAINAGE AREA = 2.01 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 7.43 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

STANDING ROCK ROAD
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 170' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 7769+83.00 ℄ STANDING ROCK RD. OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.25

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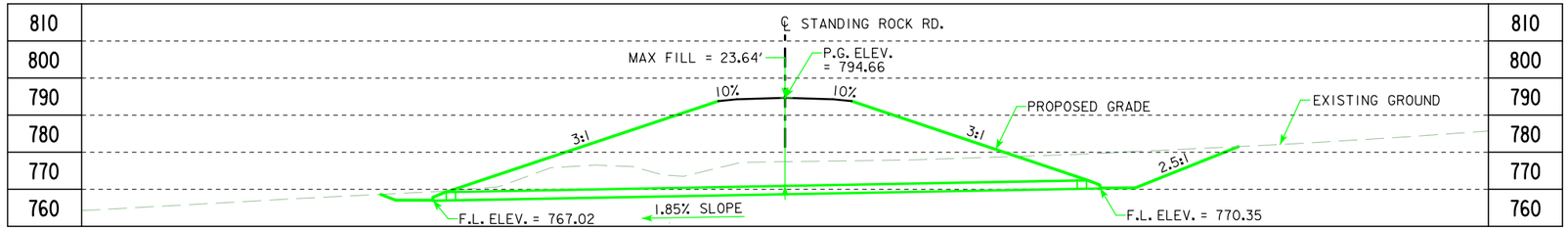
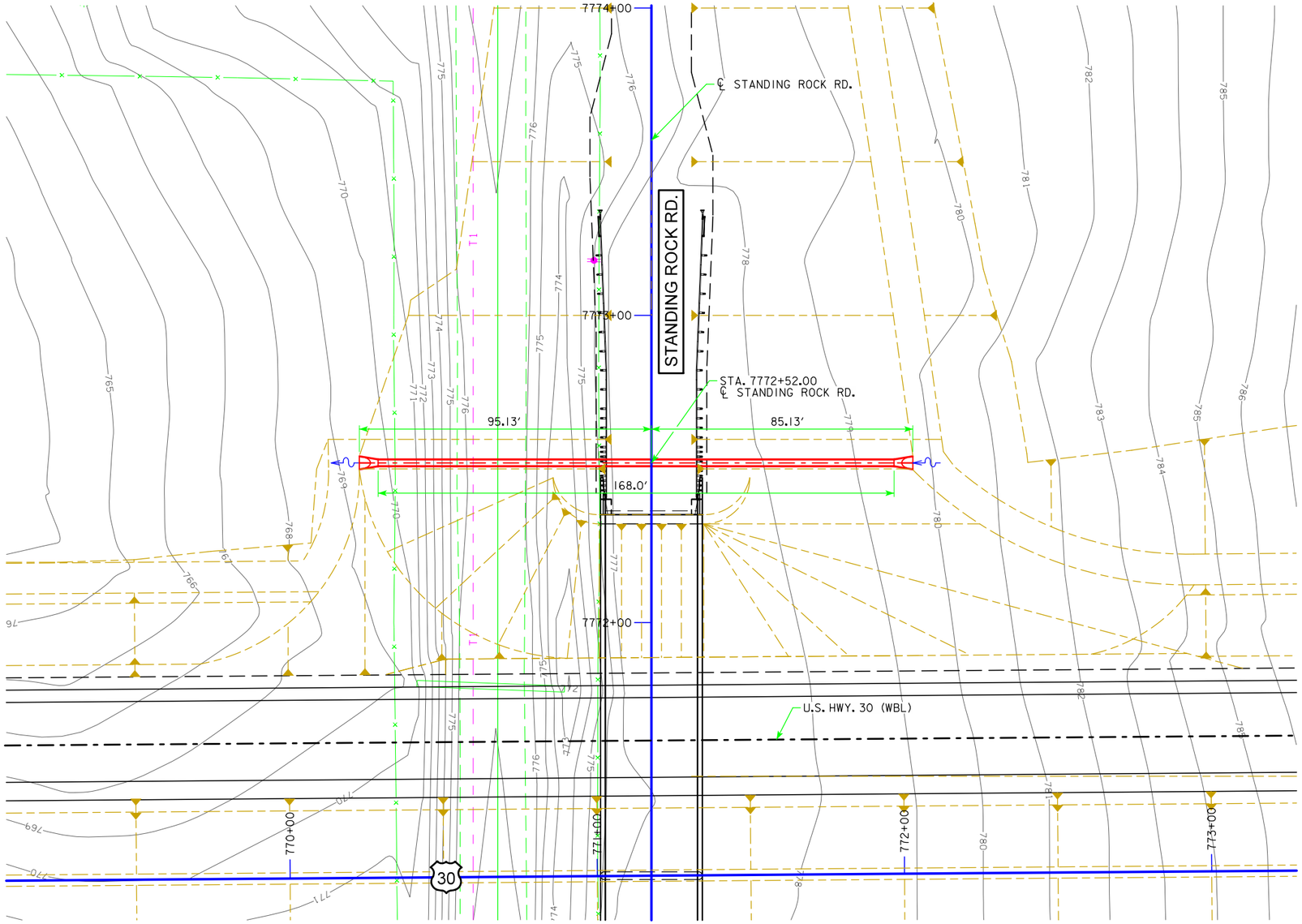
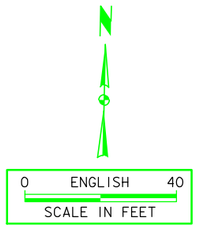


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #705
DESCRIPTION: ARROW ON HYDRANT EAST OF CP335
STA. 765+51.82, 67.23' RT.
ELEV. = 851.469

HYDRAULIC DATA

DRAINAGE AREA = 6.37 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 17.84 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

STANDING ROCK ROAD
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 0° SKEW

24" X 168' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 7772+52.00 ℄ STANDING ROCK RD. OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.26

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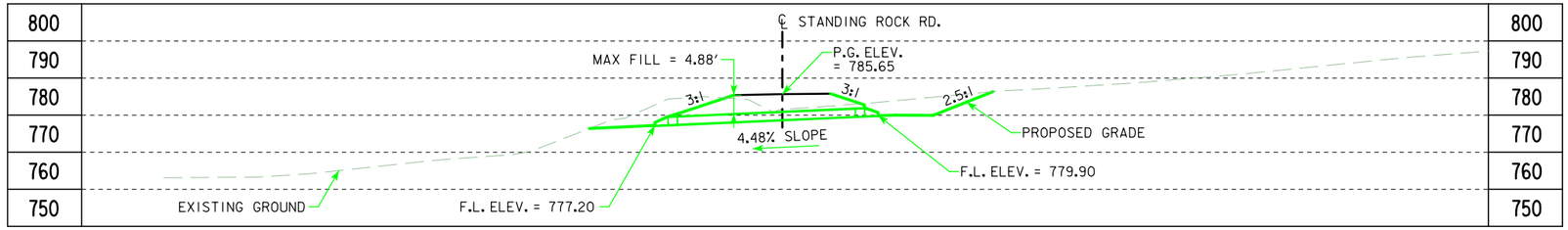
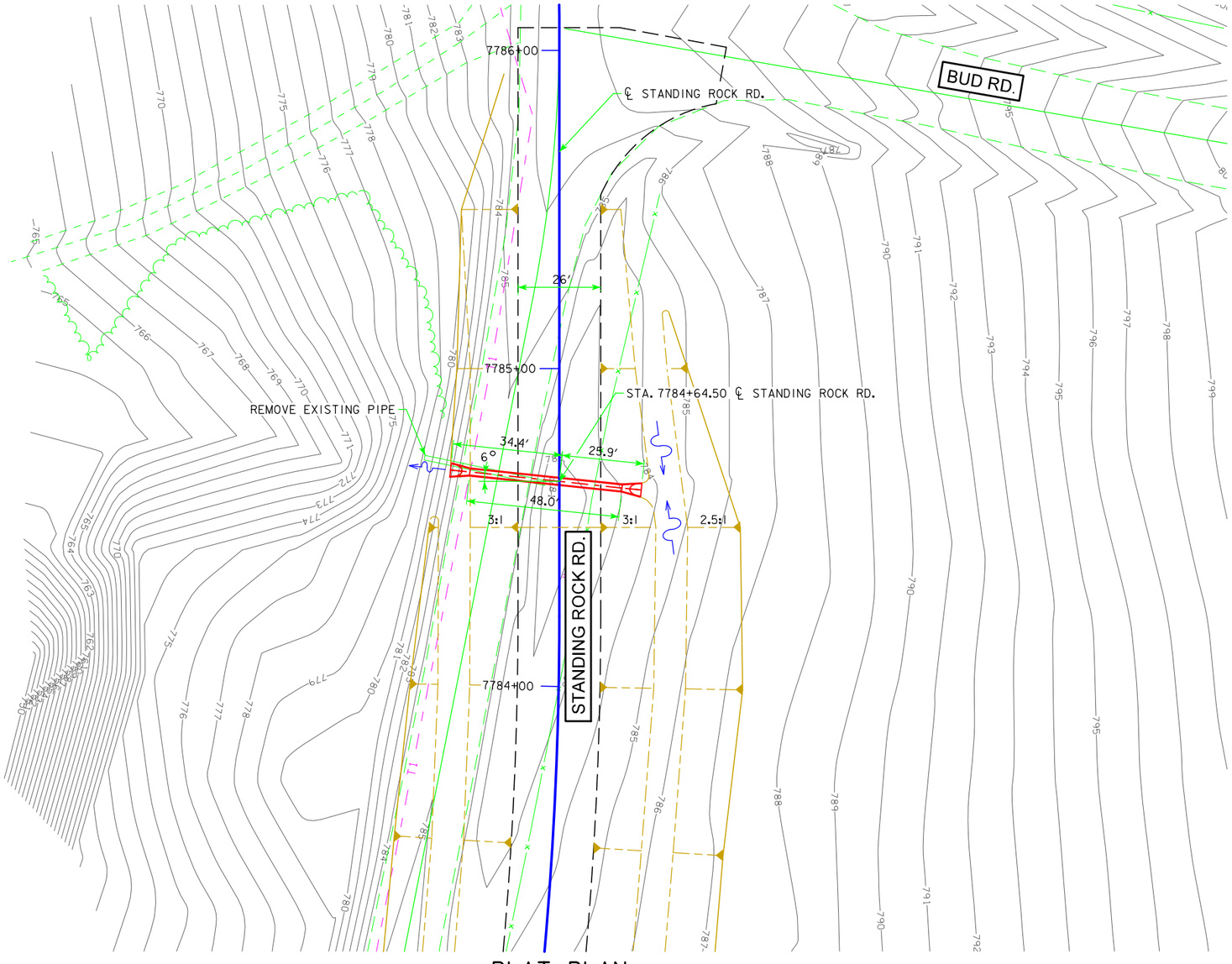


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN

0 ENGLISH 40
SCALE IN FEET

BENCH MARK: #705
DESCRIPTION: ARROW ON HYDRANT
EAST OF CP335
STA. 765+51.82, 67.232' RT.
ELEV. = 851.469

HYDRAULIC DATA

DRAINAGE AREA = 3.31 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 10.85 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

STANDING ROCK ROAD
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

PRELIMINARY

DESIGN FOR 6° SKEW L.A.

24" X 48' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 7784+64.50 ℄ STANDING ROCK RD. OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** **LINN** COUNTY PROJECT NUMBER **NHSX-030-7(188)--3H-57** SHEET NUMBER **V.27**

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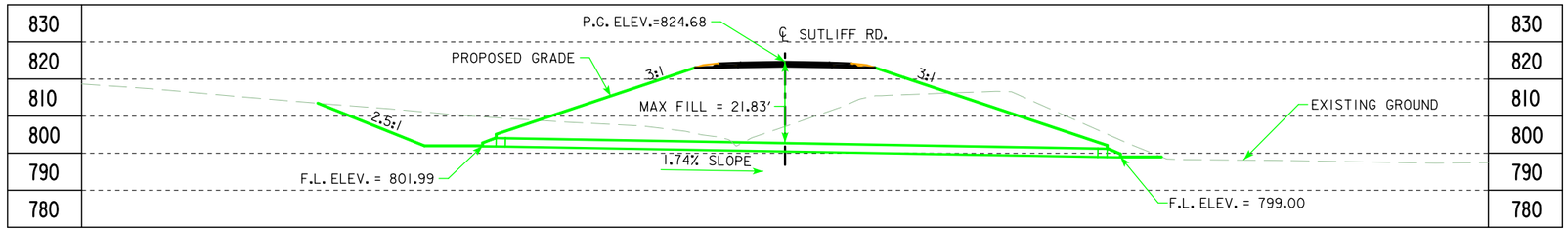

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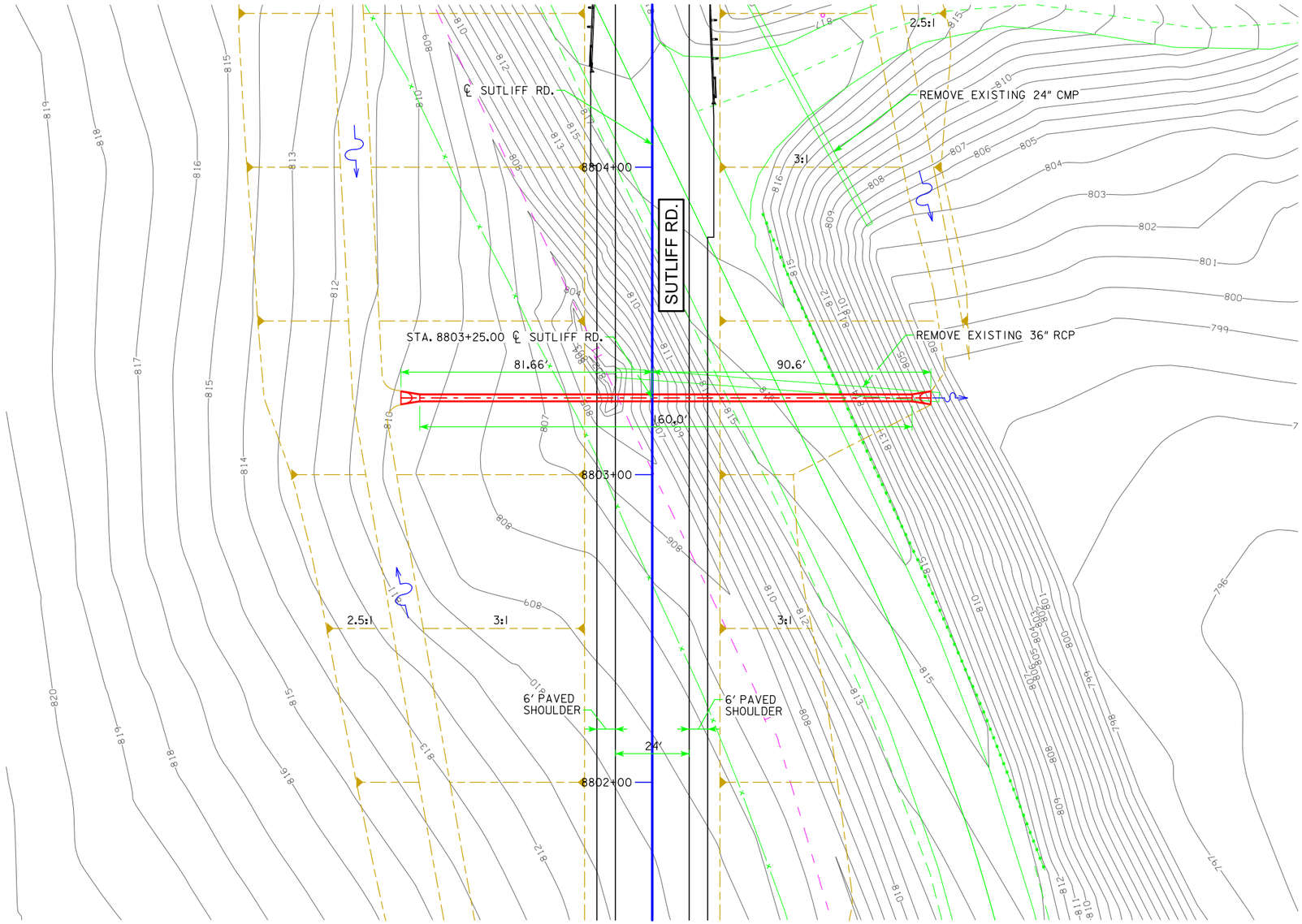
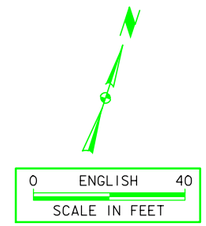


PLAT PLAN



BENCH MARK: #713
DESCRIPTION: X BOLT N SIDE HWY30 FIRST HYDRANT EAST OF S JACKSON
STA. 808+53.53, 57.517' LT.
ELEV. = 867+260

HYDRAULIC DATA

DRAINAGE AREA = 2.85 ACRES ROLLING
DESIGN DISCHARGE, Q_{50}= 9.68 cfs

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

SUTLIFF RD.
T-82N R-5W
SECTION 23
FRANKLIN TOWNSHIP
LINN COUNTY

PRELIMINARY

DESIGN FOR 0° SKEW

24" X 160' REINFORCED CONCRETE PIPE

PLAT PLAN

STA. 8803+25.00 ℄ SUTLIFF RD. OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.28

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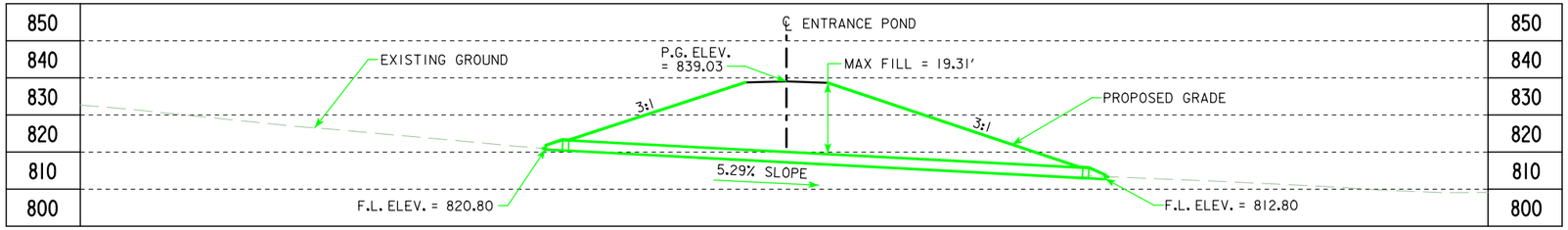
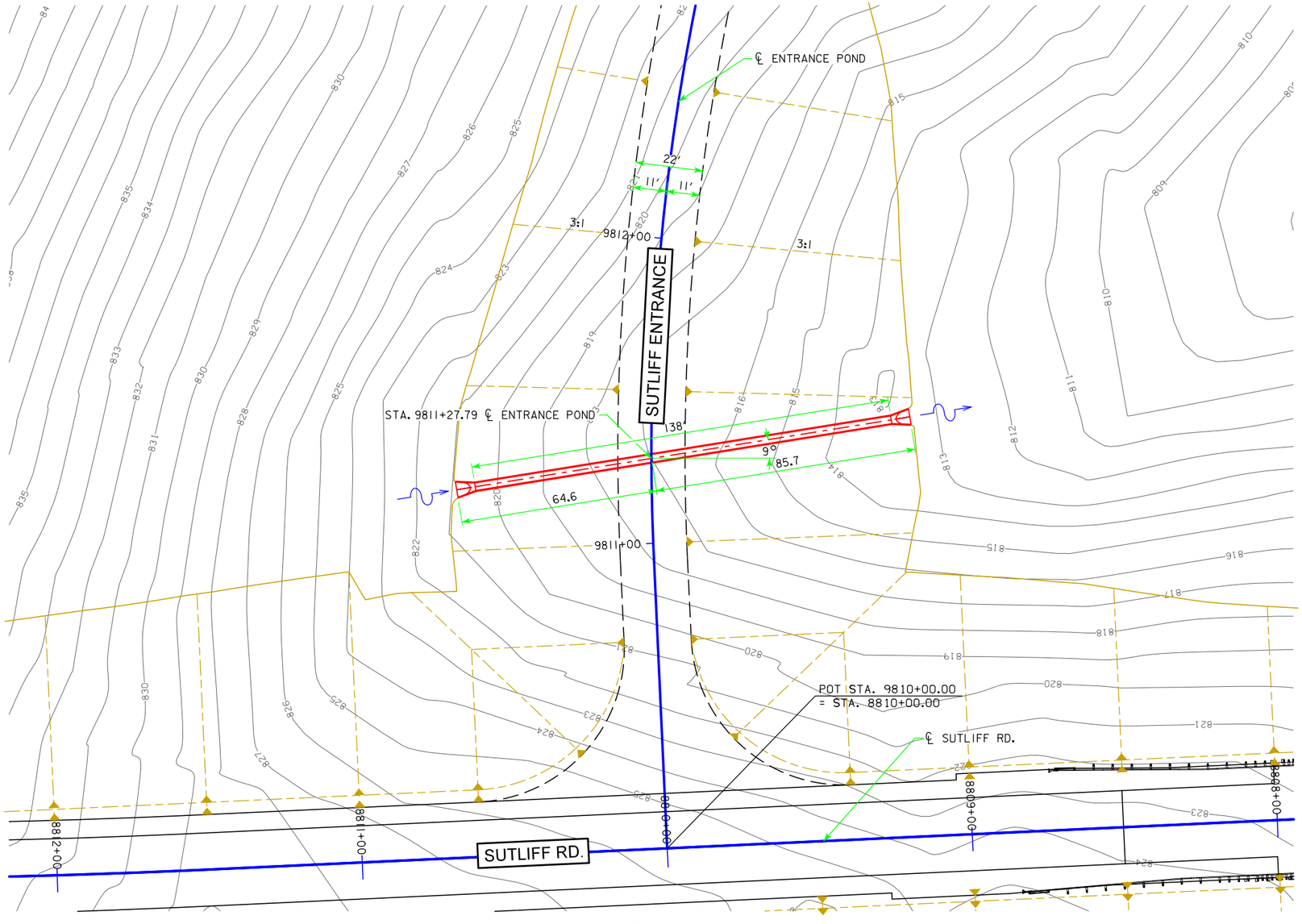
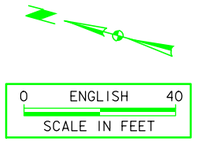


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #709
DESCRIPTION: CHISELED CROSS TOP
CULVERT NORTH SIDE HWY30 EAST OF G R DR
STA. 794+28.16, 38.812' LT.
ELEV. = 858.227

HYDRAULIC DATA

DRAINAGE AREA = 8.42 ACRES ROLLING
DESIGN DISCHARGE, Q_{50} = 22.06 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 9° SKEW R.A.

30" X 138' UNCLASSIFIED PIPE

PLAT PLAN

STA. 9811+27.79 ℄ SUTLIFF ENTRANCE OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** **LINN** COUNTY PROJECT NUMBER **NHSX-030-7(188)--3H-57** SHEET NUMBER **V.29**

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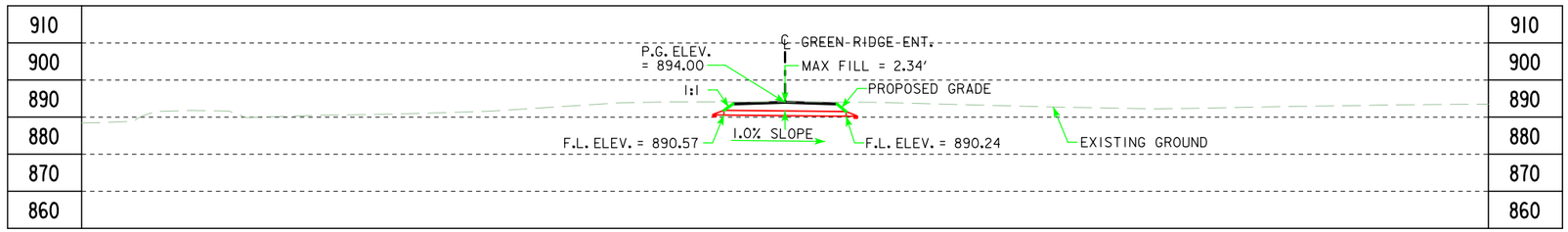
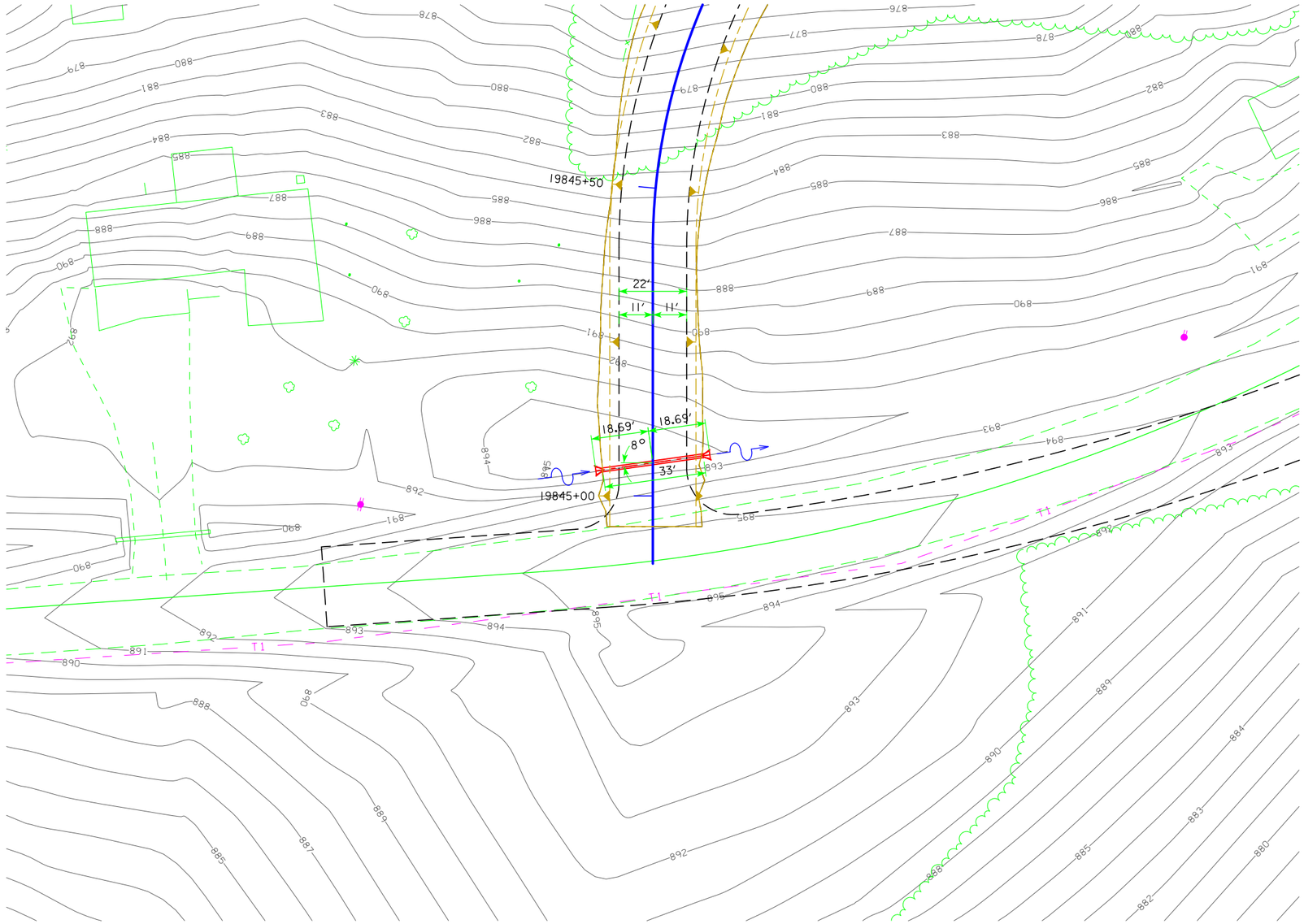
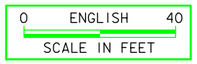


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #751
DESCRIPTION: SPIKE IN POWER POLE
555 GREENRIDGE RD.
STA. 837+84.43, 6500.038' RT.
ELEV. = 852.122

HYDRAULIC DATA

DRAINAGE AREA = ?? ACRES ROLLING
DESIGN DISCHARGE, Q_{50} = ?? CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

GREEN RIDGE ROAD OVER US30
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 8° SKEW R.A.

15" X 33' UNCLASSIFIED PIPE

PLAT PLAN

STA. 19845+10.75 ℄ GREEN RIDGE ENTRANCE OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.30

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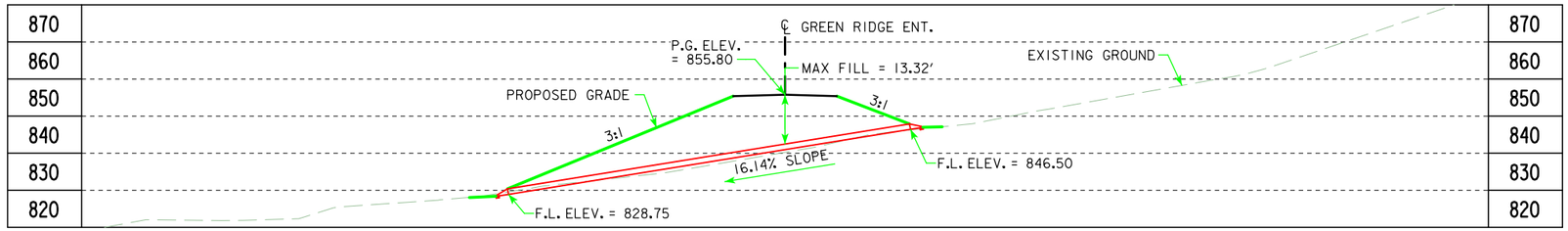
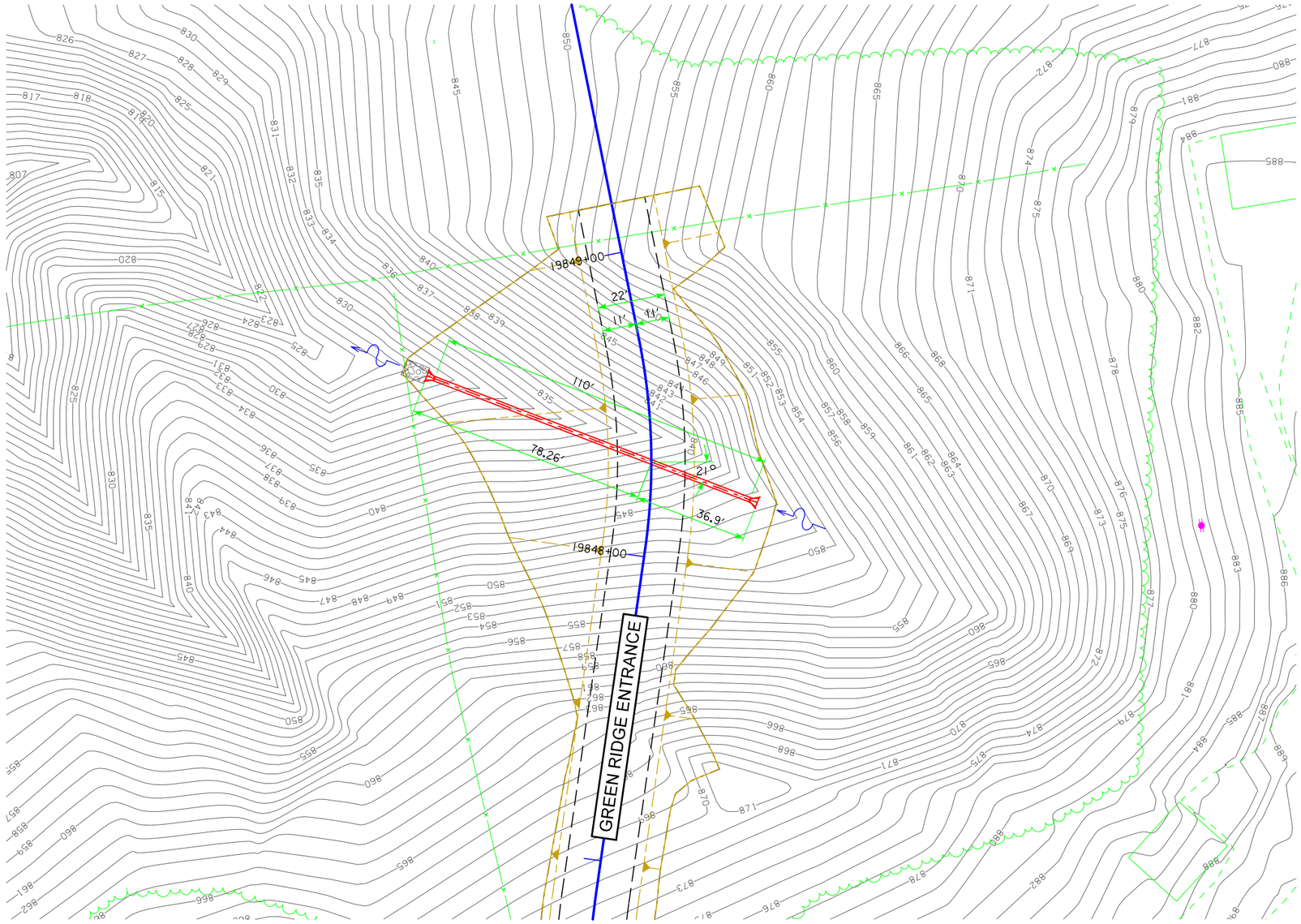
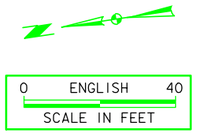


LONGITUDINAL SECTION ALONG ℄ CULVERT



PLAT PLAN



BENCH MARK: #751
DESCRIPTION: SPIKE IN POWER POLE
555 GREENRIDGE RD.
STA. 837+84.43, 6500.038' RT.
ELEV. = 852.122

HYDRAULIC DATA

DRAINAGE AREA = ?? ACRES ROLLING
DESIGN DISCHARGE, Q_{50} = ?? CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

GREEN RIDGE ROAD OVER US30
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY

DESIGN FOR 21° SKEW L.A.

18" X 110' UNCLASSIFIED PIPE

PLAT PLAN

STA. 19848+30.91 ℄ GREEN RIDGE ENTRANCE OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.31

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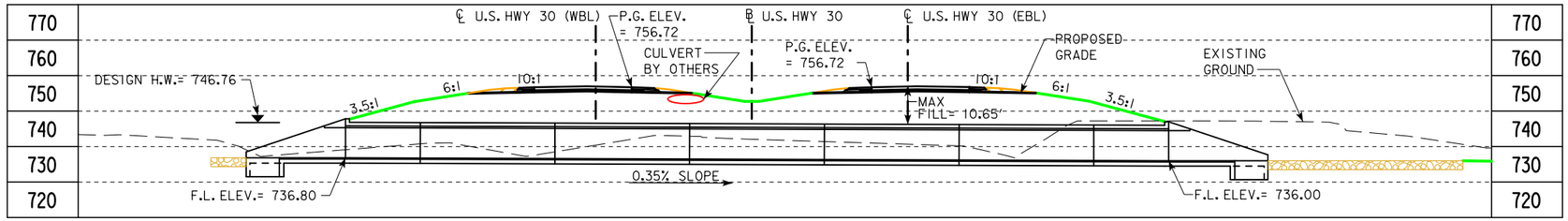
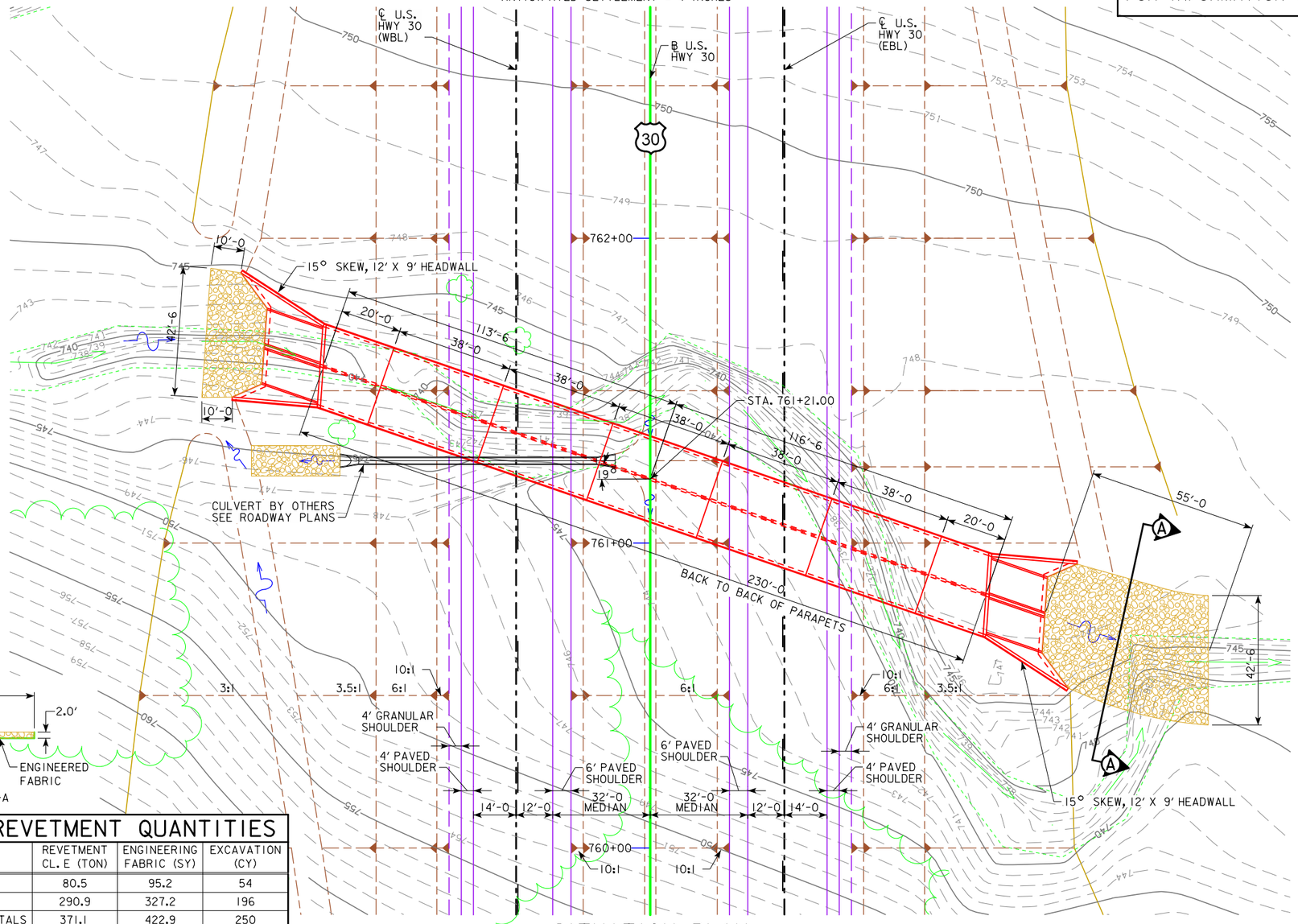
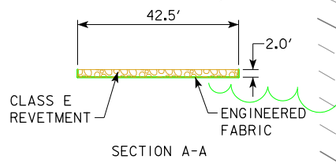


LONGITUDINAL SECTION ALONG ℄ CULVERT

ANTICIPATED SETTLEMENT = 4 INCHES



SITUATION PLAN



SECTION A-A

ESTIMATED REVETMENT QUANTITIES

LOCATION	REVETMENT CL. E (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	80.5	95.2	54
OUTLET	290.9	327.2	196
TOTALS	371.1	422.9	250

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.
QUANTITIES SHOWN FOR INFORMATION ONLY. REVETMENT AND ENGINEERING FABRIC TO BE INSTALLED BY OTHERS.

BENCH MARK: #705
DESCRIPTION: ARROW ON HYDRANT EAST OF CP335
STA. 765+51.82, 67.232' RT.
ELEV. = 851.469

N

0 ENGLISH 40
SCALE IN FEET

FOR INFORMATION ONLY

PROPOSED PROFILE GRADE ON U.S 30

VPI 761+60.00
Elv = 753.14
L= 730 FT.
K = 184 FT.

TRAFFIC ESTIMATE:

2009 AADT, 10,600 VPD
2035 AADT, 16,700 VPD
10% TRUCKS
DESIGN ESALs ---------

HYDRAULIC DATA

DRAINAGE AREA = 2.31 SQ. MILES
DESIGN DISCHARGE, Q_{50}= 1,911 CFS
Q_{100}= 2,289 CFS
Q_{500}= 3,343 CFS
DESIGN HIGH WATER EL, Q_{50}= 746.76

UTILITIES LEGEND:

REFER TO SHEET D.1 OF ROADWAY PLANS

LOCATION

U.S. 30 OVER UNNAMED STREAM
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY
LAT 41.903957
LONG -91.403725
FHWA #700555

DESIGN FOR 19° SKEW L.A.

TWIN 12' X 9' X 230' REINFORCED CONCRETE BOX CULVERT SITUATION PLAN

STA. 761+21.00 ℄ U.S. HWY.30

OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 2 FILE NO. 30839 DESIGN NO. 1516

DESIGN TEAM | LINN COUNTY | PROJECT NUMBER NHSX-030-7(188)--3H-57 | SHEET NUMBER V.32

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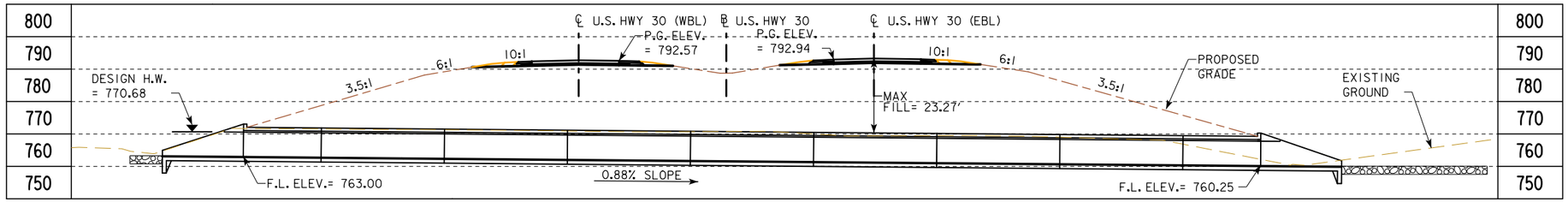


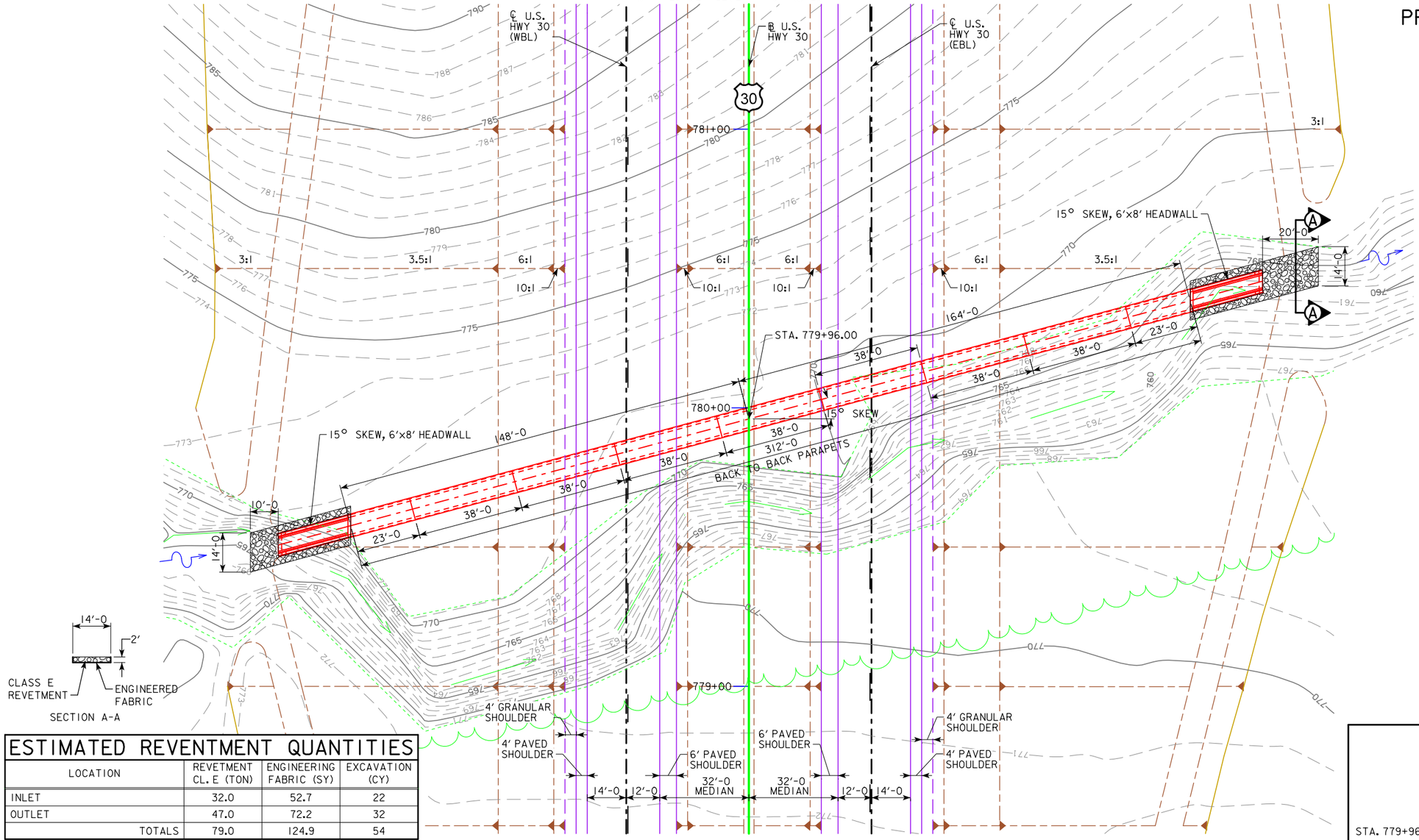
BENCH MARK: #529
DESCRIPTION:
SPIKE IN GATE POST NEXT TO CP309
STA. 682+26.52, 4,812.628' RT.
ELEV. = 764.69'

N

0 ENGLISH 40
SCALE IN FEET

LONGITUDINAL SECTION ALONG ℄ CULVERT

ANTICIPATED SETTLEMENT = 5 INCHES



SECTION A-A

ESTIMATED REVENTMENT QUANTITIES

LOCATION	REVETMENT CL. E (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	32.0	52.7	22
OUTLET	47.0	72.2	32
TOTALS	79.0	124.9	54

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.
QUANTITIES SHOWN FOR INFORMATION ONLY. REVETMENT AND ENGINEERING FABRIC TO BE INSTALLED BY OTHERS.

SITUATION PLAN

PROPOSED PROFILE GRADE

TRAFFIC ESTIMATE:

2009 AADT, 10,600 VPD
2035 AADT, 16,700 VPD
10% TRUCKS
DESIGN ESALs _____

HYDRAULIC DATA

DRAINAGE AREA = 235.8 ACRES 1/2 ROLLING
1/2 HILLY
DESIGN DISCHARGE, Q_{50}= 323.84 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1 IN ROADWAY PLANS

LOCATION

U.S. 30 OVER UNNAMED STREAM
T-82N R-5W
SECTION 14
FRANKLIN TOWNSHIP
LINN COUNTY
LAT 41.903978
LONG -91.396837

FOR INFORMATION ONLY

DESIGN FOR 15° SKEW R.A.

6' X 8' X 312' REINFORCED CONCRETE BOX CULVERT SITUATION PLAN

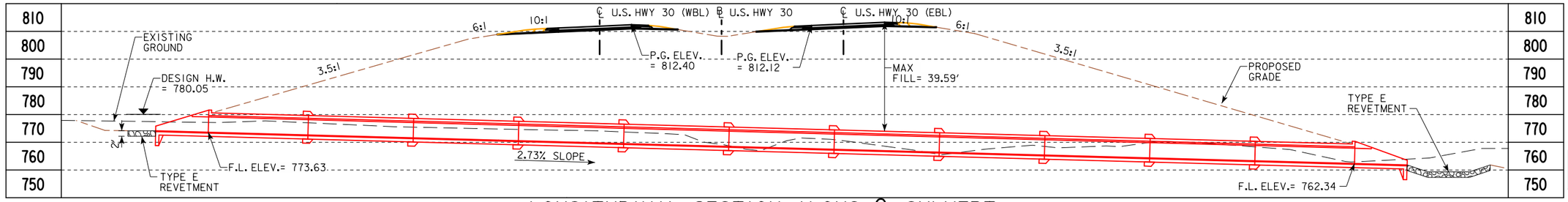
STA. 779+96.00 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY

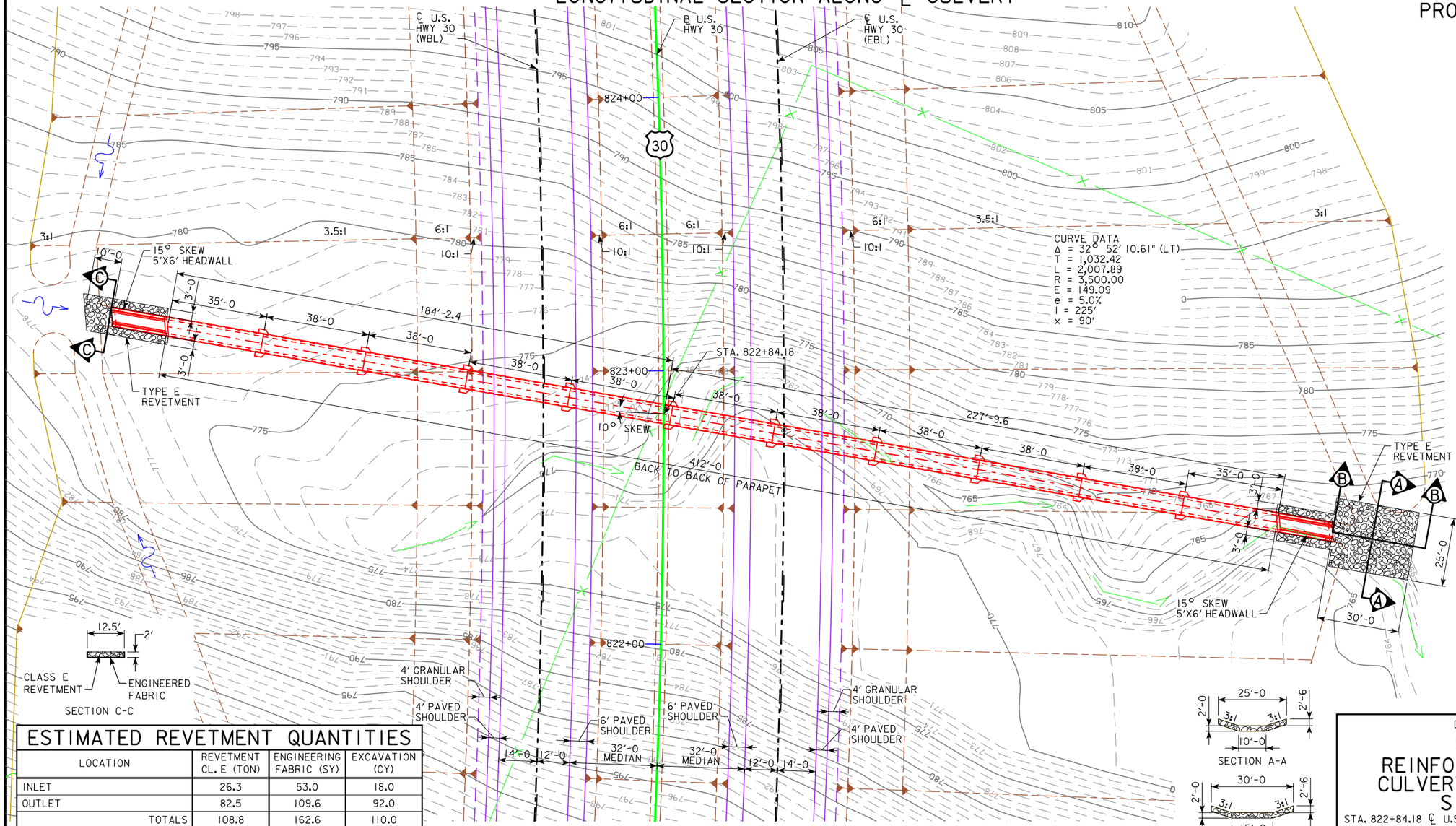
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 3 FILE NO. 30839 DESIGN NO. 1616

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** LINN COUNTY PROJECT NUMBER **NHSX-030-7(188)--3H-57** SHEET NUMBER **V.33**



LONGITUDINAL SECTION ALONG ℄ CULVERT



PROPOSED PROFILE GRADE

+2.477%

VPI STA. 818+50.00
Elv = 801.50

TRAFFIC ESTIMATE:

2009 AADT, 10,600 VPD
2035 AADT, 16,700 VPD
10% TRUCKS
DESIGN ESALs _____

BENCH MARK: #756
DESCRIPTION: SPIKE IN POWER POLE 125FT NORTH OF 657 GREENRIDGE RD DRIVE.
STA. 821+75.63, 3,644.646' RT.
ELEV. = 893.97

HYDRAULIC DATA

DRAINAGE AREA = 110.34 ACRES HILLY
DESIGN DISCHARGE, Q_{50}= 207.83 CFS

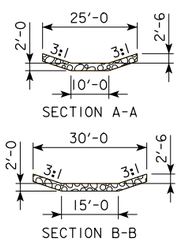
UTILITIES LEGEND:

REFER TO SHEET D.1 ON ROADWAY SHEETS

LOCATION

U.S. 30 OVER UNNAMED STREAM
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY
LAT 41.904842
LONG -91.381243

SECTION C-C



SECTION A-A
SECTION B-B

ESTIMATED REVETMENT QUANTITIES

LOCATION	REVETMENT CL. E (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	26.3	53.0	18.0
OUTLET	82.5	109.6	92.0
TOTALS	108.8	162.6	110.0

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.
QUANTITIES SHOWN FOR INFORMATION ONLY. REVETMENT AND ENGINEERING FABRIC TO BE INSTALLED BY OTHERS.

SITUATION PLAN

FOR INFORMATION ONLY

DESIGN FOR 10° SKEW L.A.

5' X 6' X 412' REINFORCED CONCRETE BOX CULVERT WITH BELL JOINTS SITUATION PLAN

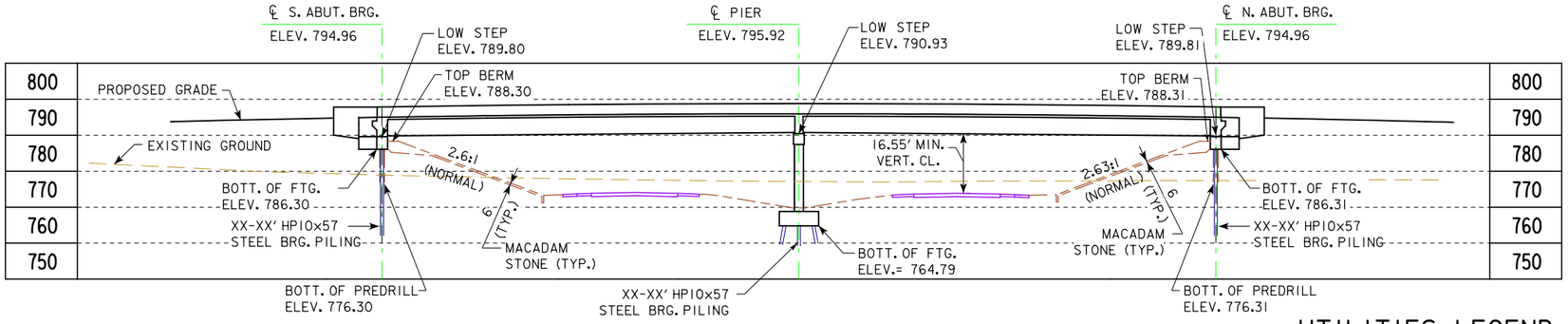
STA. 822+84.18 ℄ U.S. HWY. 30 OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

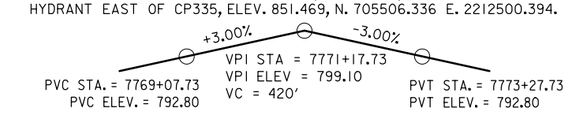
DESIGN SHEET NO. 2 OF 3 FILE NO. 30839 DESIGN NO. 1716

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** | LINN COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **V.34**

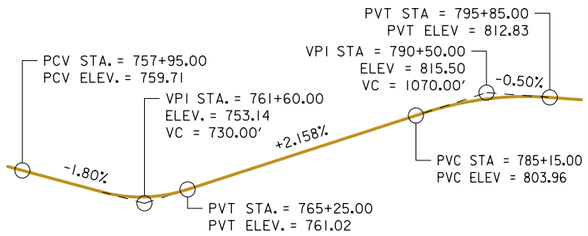


LONGITUDINAL SECTION ALONG ℄ ROADWAY

BENCH MARK NO. 705 - STA. 765+51.82, 67.232 RT, ARROW ON HYDRANT EAST OF CP335, ELEV. 851.469, N. 705506.336 E. 2212500.394.



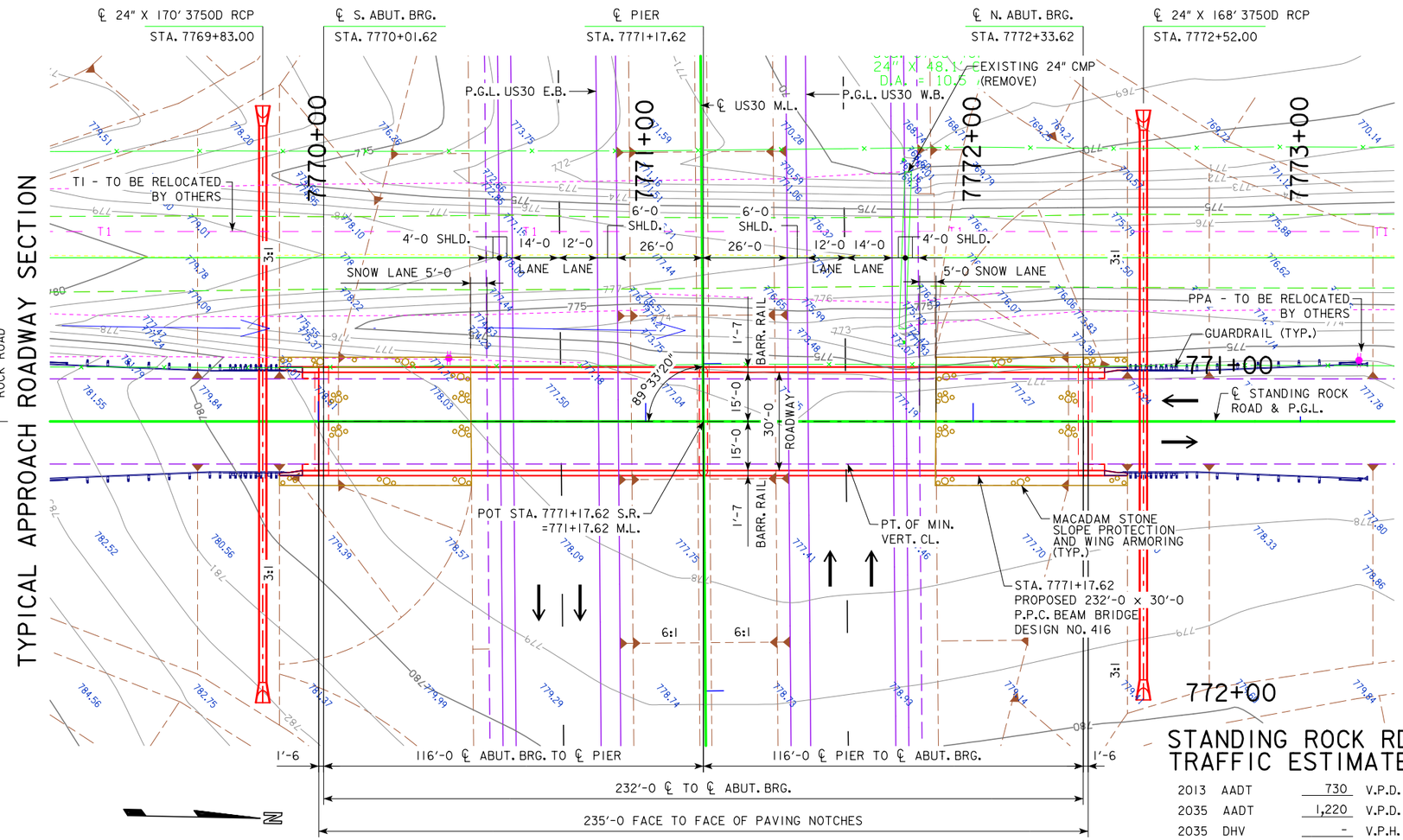
PROPOSED PROFILE GRADE STANDING ROCK ROAD



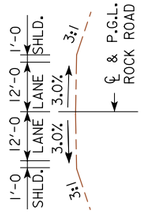
PROPOSED PROFILE GRADE US30

UTILITIES LEGEND:

PPA - POWER POLE CO. I
TI - WINDSTREAM



TYPICAL APPROACH ROADWAY SECTION



SITUATION PLAN

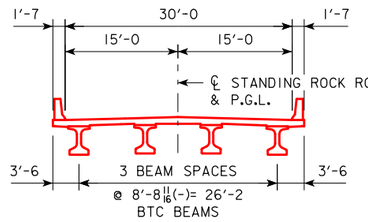
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.

FOR INFORMATION ONLY

0 ENGLISH 40
SCALE IN FEET

STANDING ROCK RD TRAFFIC ESTIMATE

2013 AADT	730	V.P.D.
2035 AADT	1,220	V.P.D.
2035 DHV	-	V.P.H.
TRUCKS	3	%
TOTAL DESIGN ESALs	-	



PROPOSED CROSS SECTION

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 7771+61.72, OFFSET 13.08' RT
OVERHEAD ELEVATION = 795.55
DEPTH OF SUPERSTRUCTURE = 4.67'
UNDERPASS STATION = 7771+31.05, OFFSET 44.00' RT
UNDERPASS ELEVATION = 774.33
MINIMUM VERTICAL CLEARANCE = 16.55'

LOCATION

STANDING ROCK ROAD OVER US30
T-82N R-5W
SECTION 16
FRANKLIN TOWNSHIP
LINN COUNTY
BRIDGE MAINT. NO. ?
FHWA NO. 700525
LATITUDE 41.9039680°
LONGITUDE -91.4000640°

US30 TRAFFIC ESTIMATE

2013 AADT	8,700	V.P.D.
2035 AADT	12,670	V.P.D.
2035 DHV	1,450	V.P.H.
TRUCKS	10	%
TOTAL DESIGN ESALs	-	

NOTES:
ALL OFFSETS ARE MEASURED FROM ℄ OF STANDING ROCK ROAD.
TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE.
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
PIER TYPE - FRAME PIER.
PIERS EXEMPT FROM VEHICULAR COLLISION FORCE DESIGN.
BEAM TYPE - BTC BEAMS, DEPTH = 3'-9.
TL-4 BRIDGE RAILING PROPOSED.
2 - SPAN GRADING SHOWN.

PRELIMINARY

DESIGN FOR 0° SKEW

232'-0 X 30'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

116'-0 END SPANS (BTC BEAMS)

SITUATION PLAN

STA. 7771+17.62

LINN COUNTY

OCTOBER 2016

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 30839 DESIGN NO. 416

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.35

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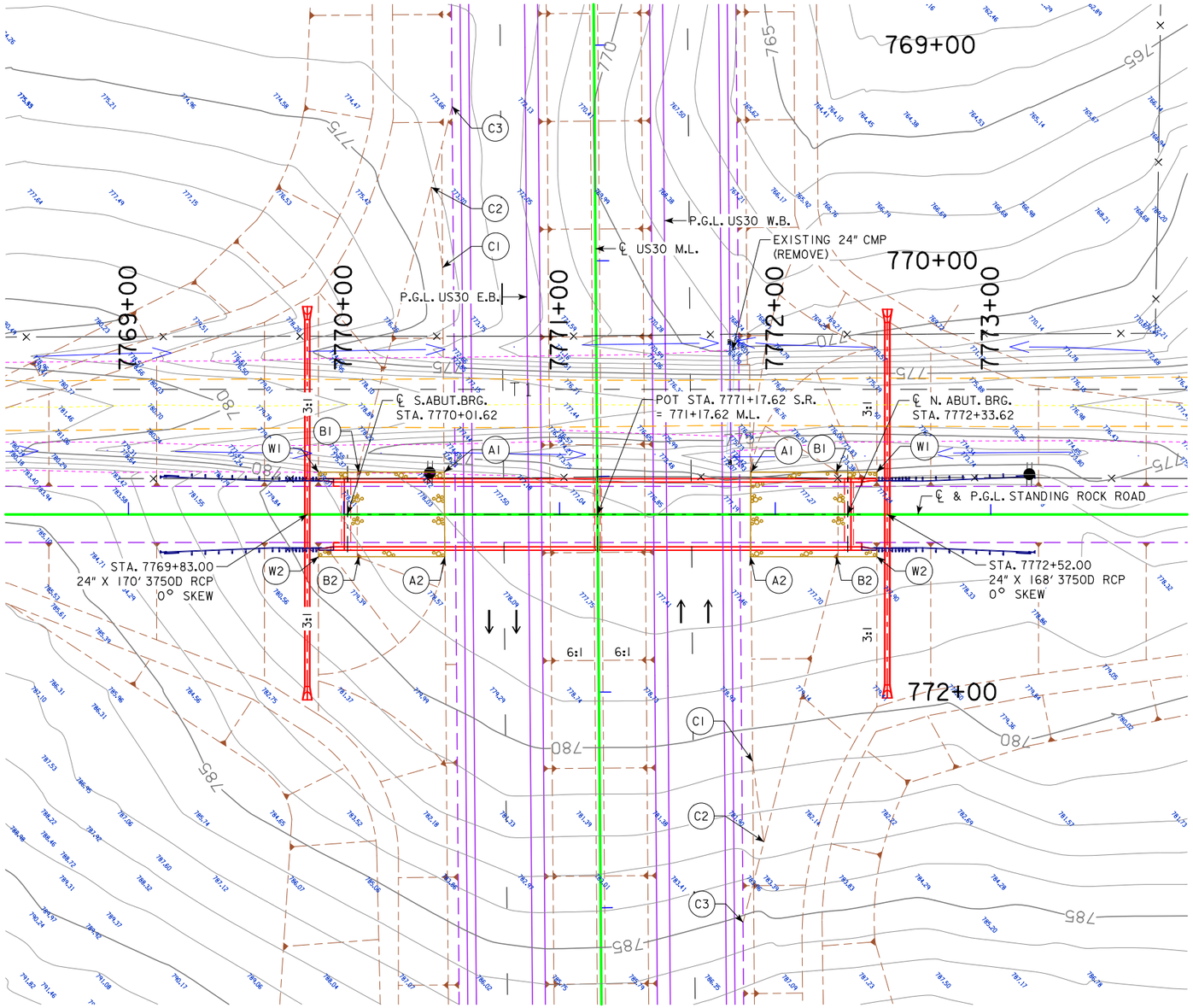
BENCH MARK NO. 705 - STA. 765+51.82, 67.232 RT, ARROW ON HYDRANT EAST OF CP335, ELEV. 851.469, N. 705506.336 E. 2212500.394.



SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.

BERM SLOPE LOCATION TABLE

POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	7770+46.47	-19.58	772.81	7771+88.47	-19.58	772.83
A2	7770+46.77	19.58	773.65	7771+88.77	19.58	773.67
B1	7770+06.12	-19.58	788.30	7772+29.12	-19.58	788.31
B2	7770+06.12	19.58	788.30	7772+29.12	19.58	788.31
W1	7769+88.12	-19.58	794.21	7772+47.12	-19.58	794.21
W2	7769+88.12	19.58	794.21	7772+47.12	19.58	794.21

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

RECOVERABLE BERM LOCATION TABLE

	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
C1	770+02.59	71.00	770.76	772+32.65	-71.00	775.73
C2	769+65.27	76.00	773.53	772+69.97	-76.00	779.92
C3	769+27.95	66.00	769.35	773+07.29	-66.00	777.54

REFER TO EW-203 FOR DETAILS.

NOTE:
FOR MACADAM STONE SLOPE PROTECTION SECTIONS AND ESTIMATED QUANTITIES SEE STANDARD SHEET 1006.

N

FOR INFORMATION ONLY

0 ENGLISH 60
SCALE IN FEET

PRELIMINARY

DESIGN FOR 0° SKEW

232'-0 X 30'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

116'-0 END SPANS (BTC BEAMS)

SITUATION PLAN - SITE

STA. 7771+17.62 OCTOBER 2016

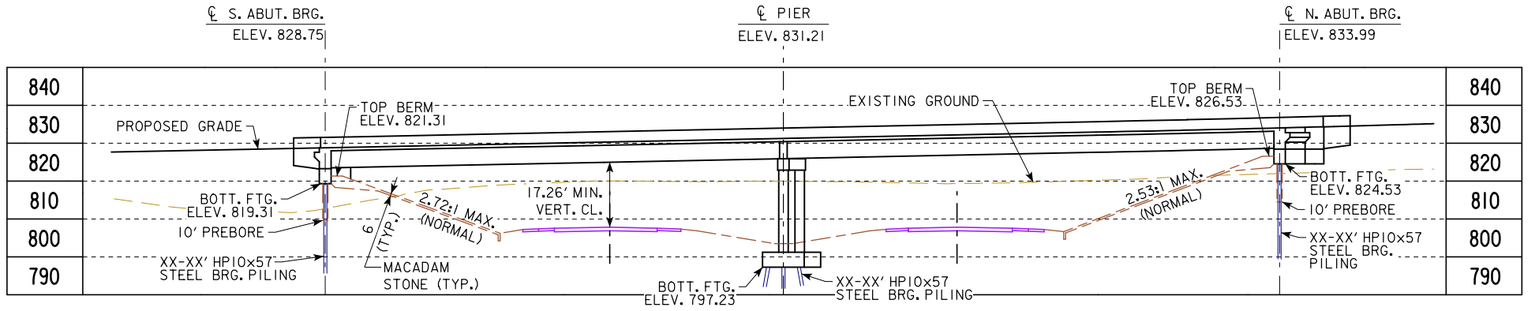
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 416

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** | **LINN** COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **V.36**

BENCH MARK NO. 712 - STA. 806+36.12, 27.896' LT., CHISELED CROSS TOP INTAKE N. SIDE HWY30 2ND INTAKE EAST OF S. JACKSON, ELEV. 867.80, N. 705843.563 E. 2216567.152



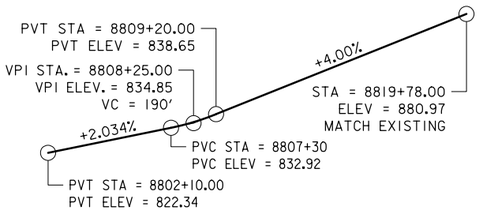
MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 8805+96.84, OFFSET 16.08'
OVERHEAD ELEVATION = 829.92
DEPTH OF SUPERSTRUCTURE = 5.333'
UNDERPASS STATION = 807+33.15, OFFSET 44.00' RT. ℄ US30
UNDERPASS ELEVATION = 807.32
MINIMUM VERTICAL CLEARANCE = 17.26'

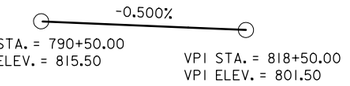
LONGITUDINAL SECTION ALONG ℄ ROADWAY

UTILITIES LEGEND:

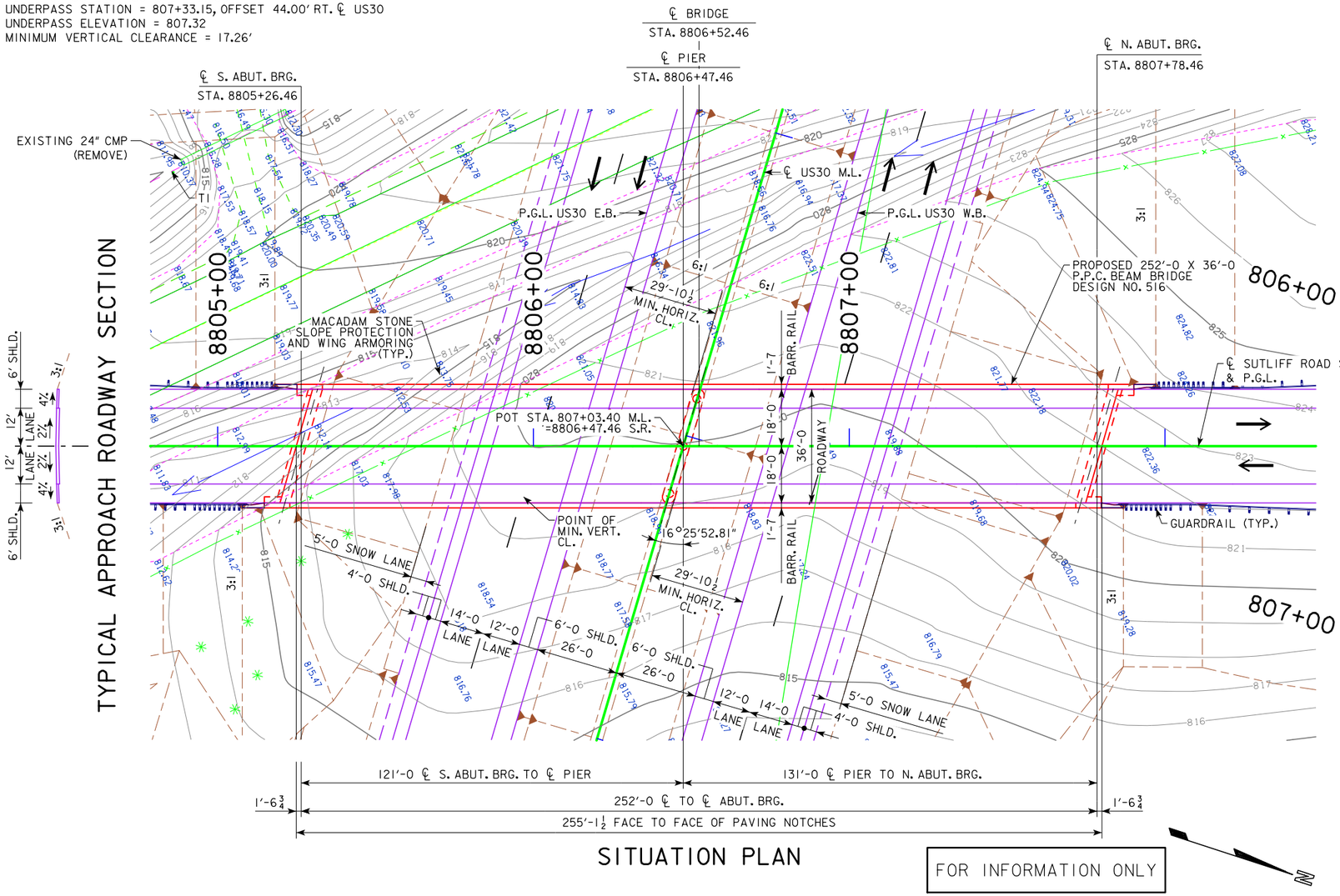
TI UNDERGROUND TELEPHONE LINE



PROPOSED PROFILE GRADE SUTLIFF ROAD



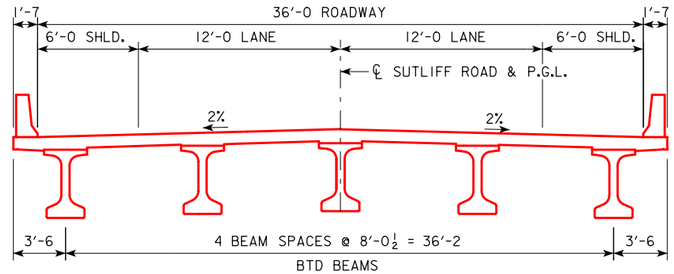
PROPOSED PROFILE GRADE US30



TYPICAL APPROACH ROADWAY SECTION

SITUATION PLAN

FOR INFORMATION ONLY



PROPOSED CROSS SECTION

US30 TRAFFIC ESTIMATE

2013 AADT	10,300	V.P.D.
2035 AADT	12,670	V.P.D.
2035 DHV	-	V.P.H.
TRUCKS	10	%
TOTAL DESIGN ESALs	-	

SUTLIFF RD TRAFFIC ESTIMATE

2013 AADT	740	V.P.D.
2035 AADT	1,240	V.P.D.
2035 DHV	-	V.P.H.
TRUCKS	5	%
TOTAL DESIGN ESALs	-	

NOTES:

ALL OFFSETS ARE MEASURED FROM ℄ OF SUTLIFF ROAD U.N.O.
TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE.
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
PIER TYPE - FRAME PIER.
PIERS EXEMPT FROM VEHICULAR COLLISION FORCE DESIGN.
BEAM TYPE - BTD BEAMS, DEPTH = 4'-6.
TL-4 BRIDGE RAILING PROPOSED.
2 - SPAN GRADING SHOWN.

PRELIMINARY

LOCATION

SUTLIFF ROAD OVER US30
T-82N R-5W
SECTION 16
FRANKLIN TOWNSHIP
LINN COUNTY
BRIDGE MAINT. NO.
FHWA NO. 700530
LATITUDE 41.9040072°
LONGITUDE -91.3868924°

0 ENGLISH 40
SCALE IN FEET

DESIGN FOR 16° SKEW (L.A.)

252'-0 X 36'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

121'-0 S. SPAN BTD BEAMS 131'-0 N. SPAN

SITUATION PLAN

STATION 8806+52.46 OCTOBER 2016

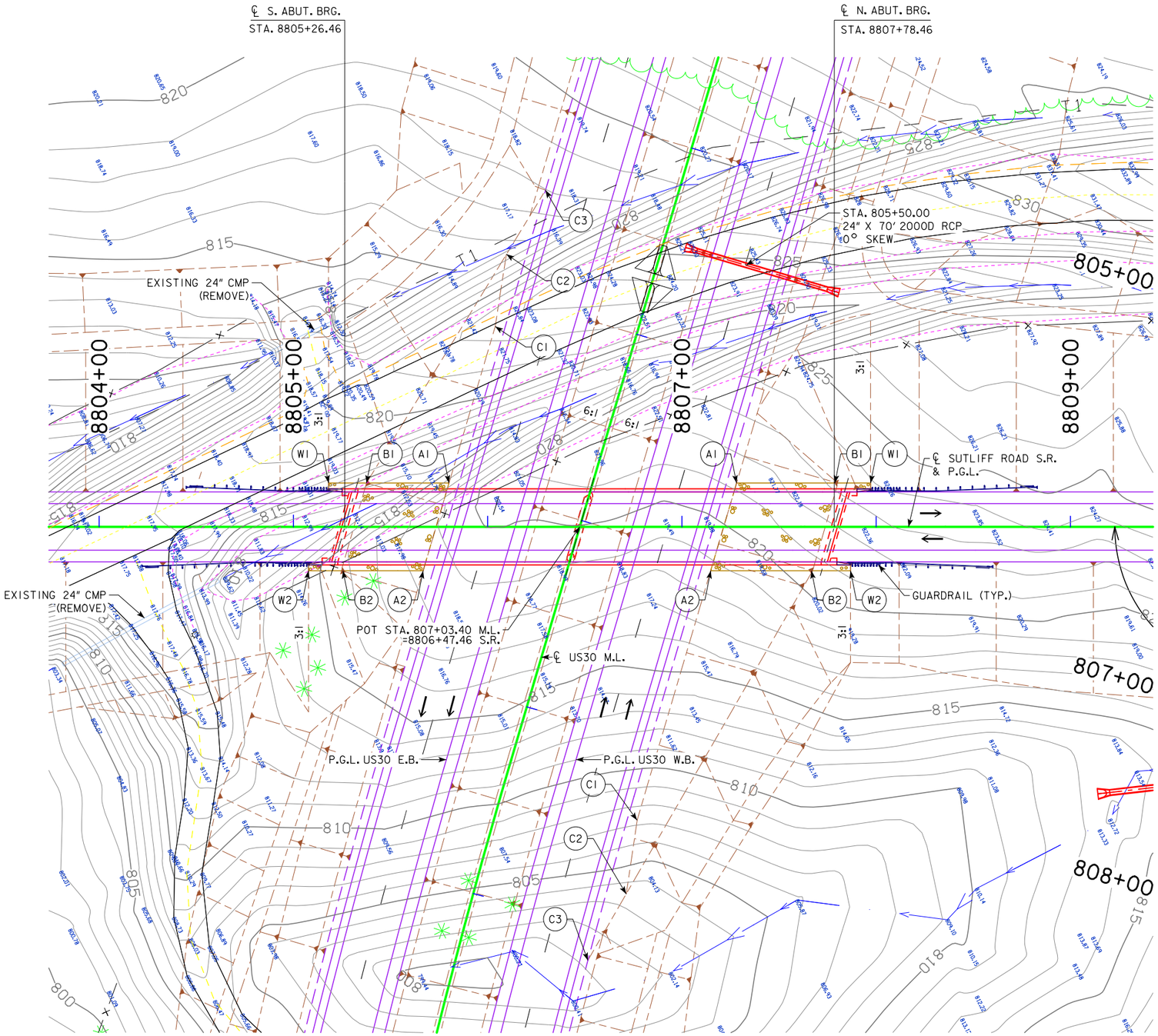
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 516

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** | **LINN** COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **V.37**

BENCH MARK NO. 712 - STA. 803+34.70, 68.840' LT., CHISELED CROSS TOP INTAKE N. SIDE HWY30 2ND INTAKE EAST OF S. JACKSON, ELEV. 867.80, N. 705843.563 E. 2216567.152



SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.

BERM SLOPE LOCATION TABLE						
POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	8805+80.09	-22.58	807.06	8807+28.14	-22.58	806.69
A2	8805+66.77	22.58	806.97	8807+14.82	22.58	806.33
B1	8805+37.62	-22.58	821.31	8807+80.25	-22.58	826.53
B2	8805+24.66	22.58	821.31	8807+67.30	22.58	826.53
W1	8805+18.12	-22.58	828.13	8807+97.12	-22.58	834.04
W2	8805+07.80	22.58	827.92	8807+86.80	22.58	833.76

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

RECOVERABLE BERM LOCATION TABLE						
	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
C1	806+16.76	71.00	807.22	808+40.14	-71.00	805.05
C2	805+79.44	76.00	810.66	808+79.09	-76.00	808.22
C3	805+42.12	66.00	807.68	809+18.04	-66.00	804.46

REFER TO EW-203 FOR DETAILS.

NOTE:

FOR MACADAM STONE SLOPE PROTECTION SECTIONS AND ESTIMATED QUANTITIES SEE STANDARD SHEET 1006C.

FOR INFORMATION ONLY

0 ENGLISH 60
SCALE IN FEET

PRELIMINARY

DESIGN FOR 16° SKEW

252'-0 X 36'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

121'-0 S. SPAN BTD BEAMS 131'-0 N. SPAN

SITUATION PLAN - SITE

STATION 8806+52.46 OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ___ OF ___ FILE NO. 30839 DESIGN NO. 516

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN	COUNTY	PROJECT NUMBER	NHSX-030-7(188)--3H-57	SHEET NUMBER	V.38

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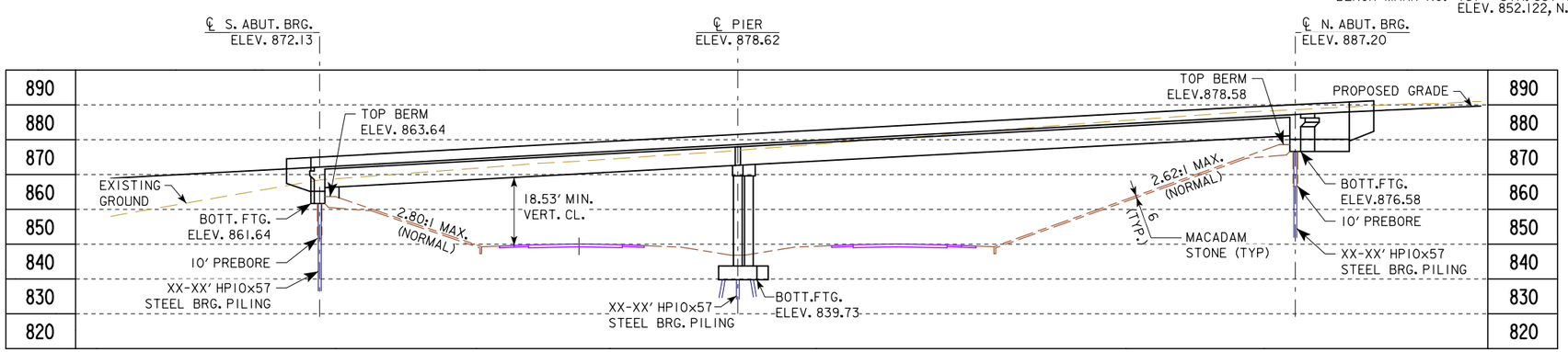
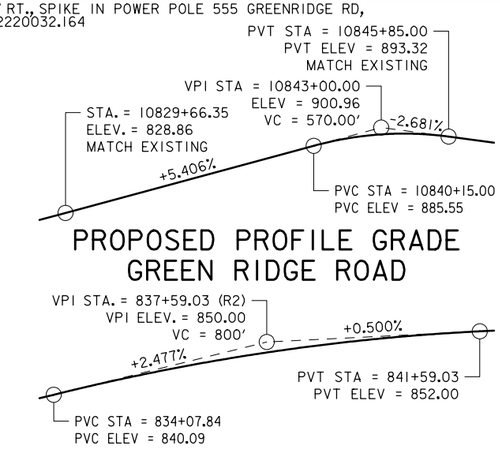
BENCH MARK NO. 751 - STA. 837+84.43, 6500.038' RT., SPIKE IN POWER POLE 555 GREENRIDGE RD, ELEV. 852.122, N. 699478.071 E. 2220032.164





MINIMUM VERTICAL CLEARANCE

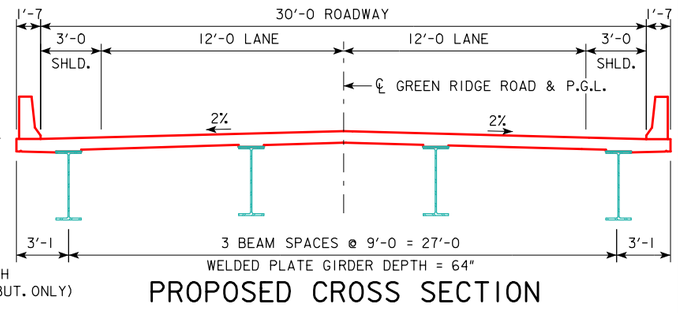
OVERHEAD STATION = 10838+19.46, OFFSET 13.50' RT.
OVERHEAD ELEVATION = 874.58
DEPTH OF SUPERSTRUCTURE = 6.17'
UNDERPASS STATION = 839+17.97, OFFSET 62.0' RT. ℄ US30
UNDERPASS ELEVATION = 849.88
MINIMUM VERTICAL CLEARANCE = 18.53'

LONGITUDINAL SECTION ALONG ℄ ROADWAY

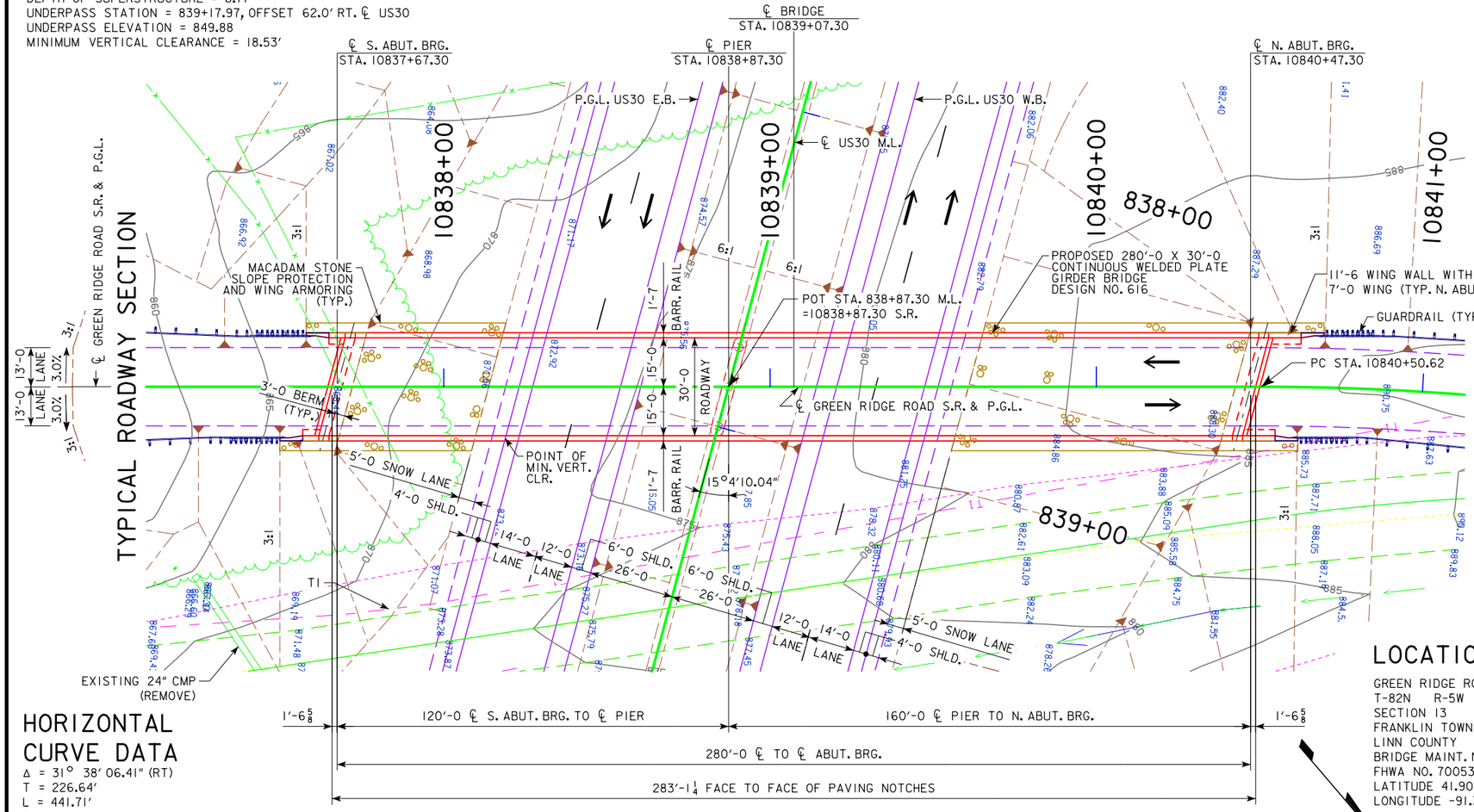
UTILITIES LEGEND:

TI UNDERGROUND TELEPHONE LINE

PROPOSED PROFILE GRADE US30



PROPOSED CROSS SECTION



SITUATION PLAN

US30 TRAFFIC ESTIMATE

2013 AADT	8,400	V.P.D.
2035 AADT	12,670	V.P.D.
2035 DHV	1,450	V.P.H.
TRUCKS	10	%
TOTAL DESIGN ESALs	-	

GREEN RIDGE RD TRAFFIC ESTIMATE

2013 AADT	130	V.P.D.
2035 AADT	220	V.P.D.
2035 DHV	-	V.P.H.
TRUCKS	3	%
TOTAL DESIGN ESALs	-	

NOTES:

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
ALL OFFSETS ARE MEASURED FROM ℄ OF GREEN RIDGE ROAD U.N.O.
TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE.
PIER TYPE - FRAME PIER.
PIERS EXEMPT FROM VEHICULAR COLLISION FORCE DESIGN.
BEAM TYPE - WELDED PLATE GIRDERS, DEPTH = 64".
TL-4 BRIDGE RAILING PROPOSED.
NON-STANDARD ABUTMENT WINGS ARE REQUIRED AT NORTH ABUTMENT.

HORIZONTAL CURVE DATA

Δ = 31° 38' 06.41" (RT)
T = 226.64'
L = 441.71'
R = 800.00'
e = 5.4%
I = 111'
x = 41'

LOCATION

GREEN RIDGE ROAD OVER US30
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY
BRIDGE MAINT. NO.
FHWA NO. 700535
LATITUDE 41.9072136°
LONGITUDE -91.3760785°

FOR INFORMATION ONLY

0 ENGLISH 40
SCALE IN FEET

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

280'-0 X 30'-0 CONTINUOUS WELDED GIRDER BRIDGE

120'-0 S. SPAN 160'-0 N. SPAN

SITUATION PLAN

STATION 10839+07.30 OCTOBER 2016

LINN COUNTY

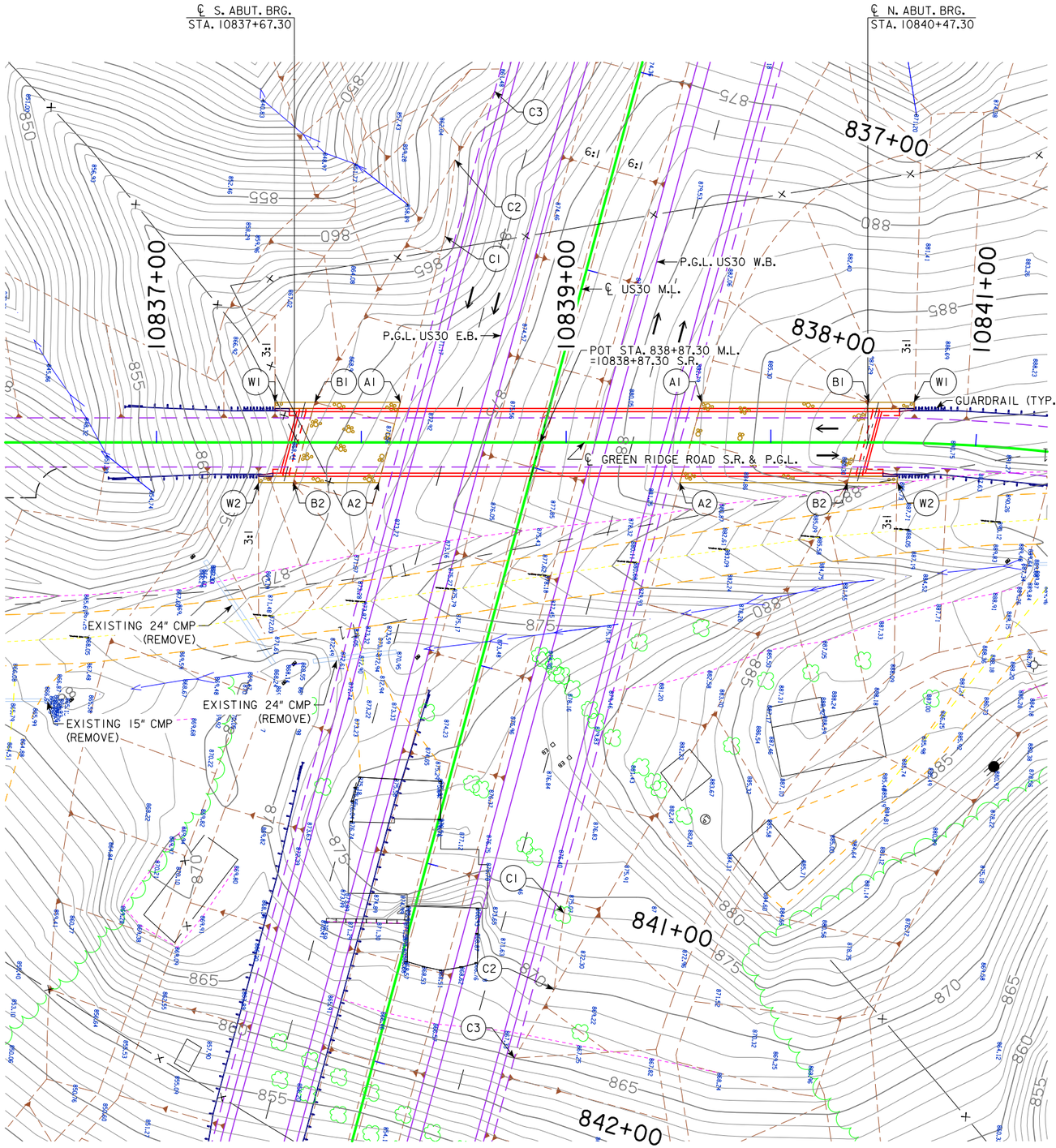
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 616

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.39

8/22/2016 2:40:00 PM DSS pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5703005095\Design_(188)_GradingPkg2\57030188v01.sht V.39 11x17mixed_bw_clr_pdf.plt

BENCH MARK NO. 751 - STA. 837+84.43, 6500.038' RT., SPIKE IN POWER POLE 555 GREENRIDGE RD, ELEV. 852.122, N. 699478.071 E. 2220032.164



SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.

BERM SLOPE LOCATION TABLE

POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	10838+19.05	-19.583	849.16	10839+66.10	-19.583	848.69
A2	10838+08.50	19.583	849.61	10839+55.56	19.583	849.18
B1	10837+77.21	-19.583	863.64	10840+47.89	-19.583	878.58
B2	10837+66.71	19.583	863.64	10840+37.39	19.583	878.58
W1	10837+57.82	-19.583	871.05	10840+69.82	-19.583	888.89
W2	10837+49.78	19.583	870.62	10840+61.78	19.583	887.08

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

RECOVERABLE BERM LOCATION TABLE

	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV	STATION	OFFSET	ELEV
C1	838+02.23 (R2)	71.00	848.08	841+06.11 (R2)	71.00	851.14
C2	837+64.91 (R2)	76.00	850.81	841+43.43 (R2)	76.00	854.94
C3	837+27.59 (R2)	66.00	847.18	841+80.75 (R2)	66.00	851.75

REFER TO EW-203 FOR DETAILS.

NOTE:

FOR MACADAM STONE SLOPE PROTECTION SECTIONS AND ESTIMATED QUANTITIES SEE STANDARD SHEET 1006C.

FOR INFORMATION ONLY

0 ENGLISH 60
SCALE IN FEET

PRELIMINARY

DESIGN FOR 15° SKEW (L.A.)

280'-0 X 30'-0 CONTINUOUS WELDED GIRDER BRIDGE

120'-0 S. SPAN 160'-0 N. SPAN

SITUATION PLAN - SITE

STATION 10839+07.30 OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 616

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** | **LINN** COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **V.40**

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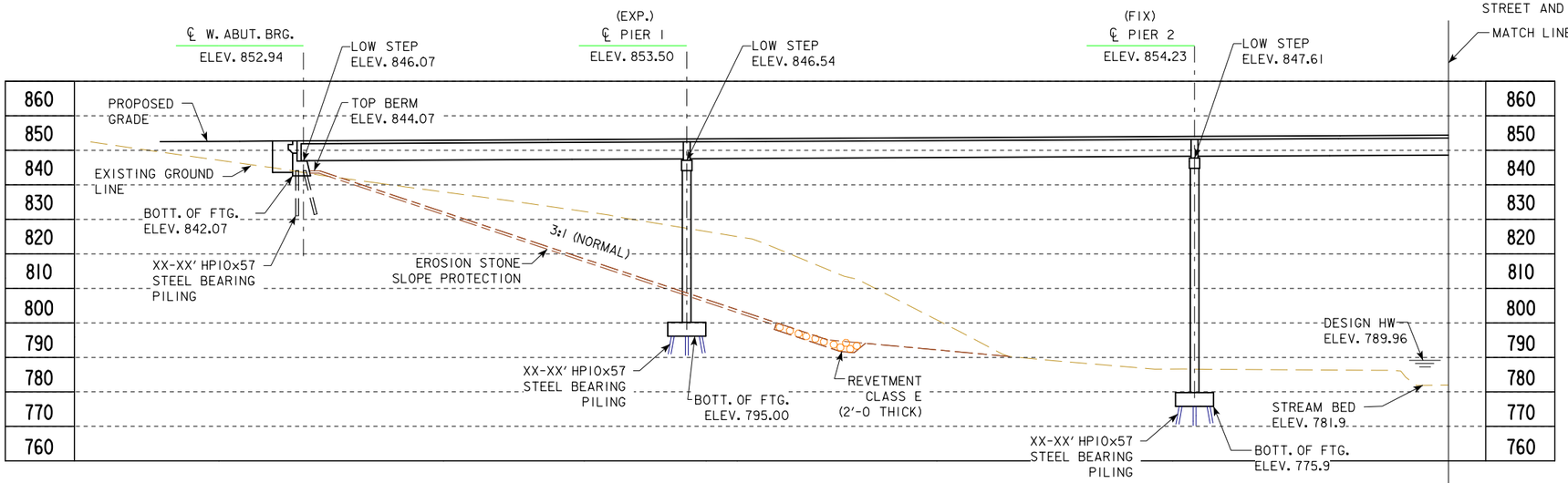
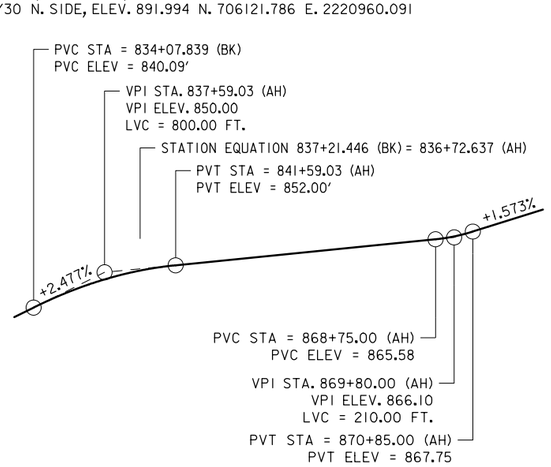
BENCH MARK NO. 720 - STA. 850+37.42, 90.107 LT., RAILROAD RAIL (VERTICAL) 100 FT. WEST OF E. MAIN STREET AND HWY30 N. SIDE, ELEV. 891.994 N. 706121.786 E. 2220960.091



LONGITUDINAL SECTION ALONG ℄ ROADWAY - W.B.

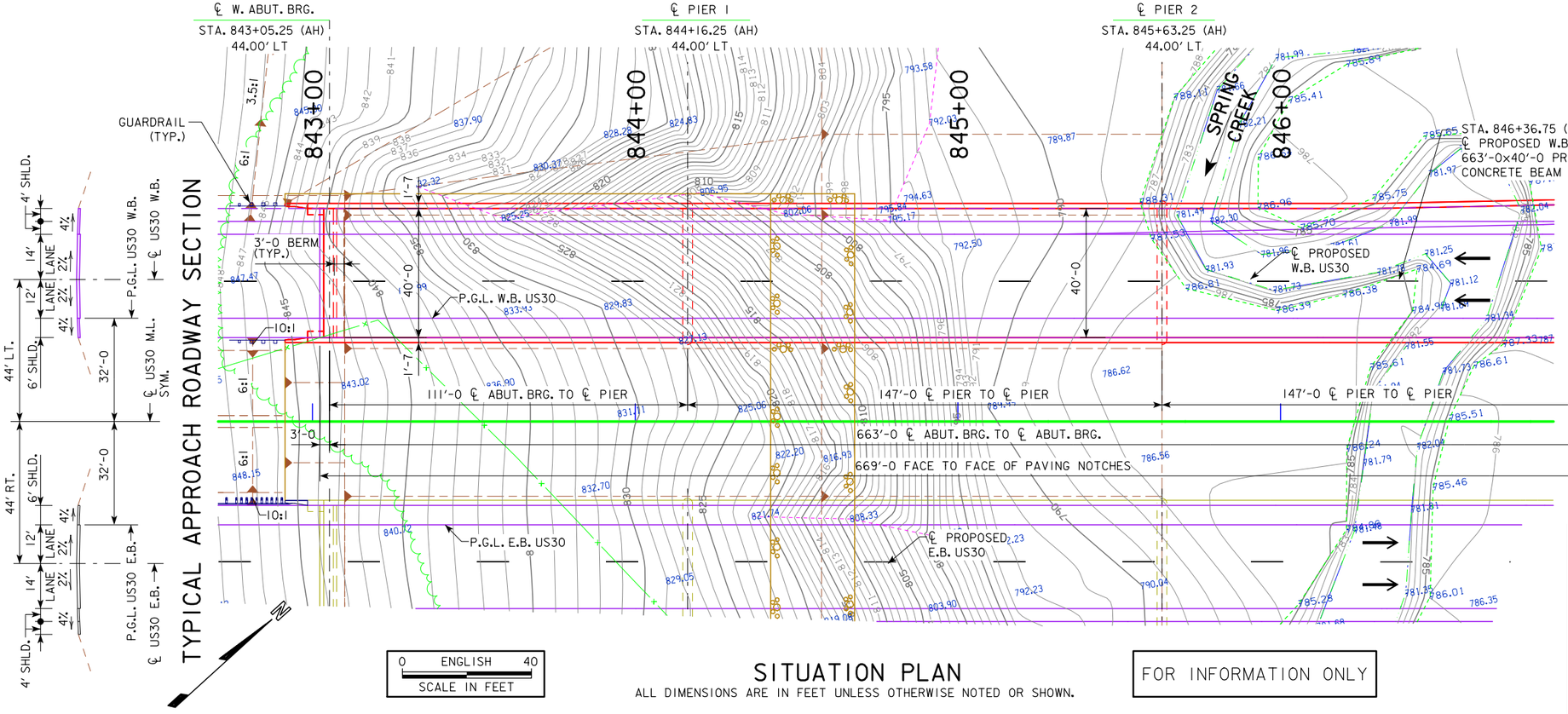


PROPOSED PROFILE GRADE

(MAINLINE US30)

US30 TRAFFIC ESTIMATE

2009	AADT	10,600	V.P.D.
2035	AADT	16,700	V.P.D.
2035	DHV	1450	V.P.H.
TRUCKS		10	%
TOTAL DESIGN ESALs		-	



NOTES:
ALL OFFSETS ARE MEASURED FROM ℄ OF US30.
TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.21' ABOVE THE PROFILE GRADE TO ACCOUNT FOR CROSS SLOPE AND PARABOLIC CROWN.
PIER TYPE - T-PIERS
BEAM TYPE - BTE BEAMS, DEPTH = 5'-3.
BRIDGE RAIL - TL-4.

LOCATION

W.B. US30 OVER SPRING CREEK
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY
BRIDGE MAINT. NO. ?
FHWA NO. 700540
LATITUDE 41.9084380°
LONGITUDE -91.3738600°

0 ENGLISH 40
SCALE IN FEET

SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.

FOR INFORMATION ONLY

PRELIMINARY

DESIGN FOR 0° SKEW

663'-0 x 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE

SPANS (111'-0, 147'-0, 147'-0, 147'-0, 111'-0) (BTE BEAMS)

SITUATION PLAN (W.B.)

STATION 846+36.75 (AH), 44.00' LT

OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 716

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.41

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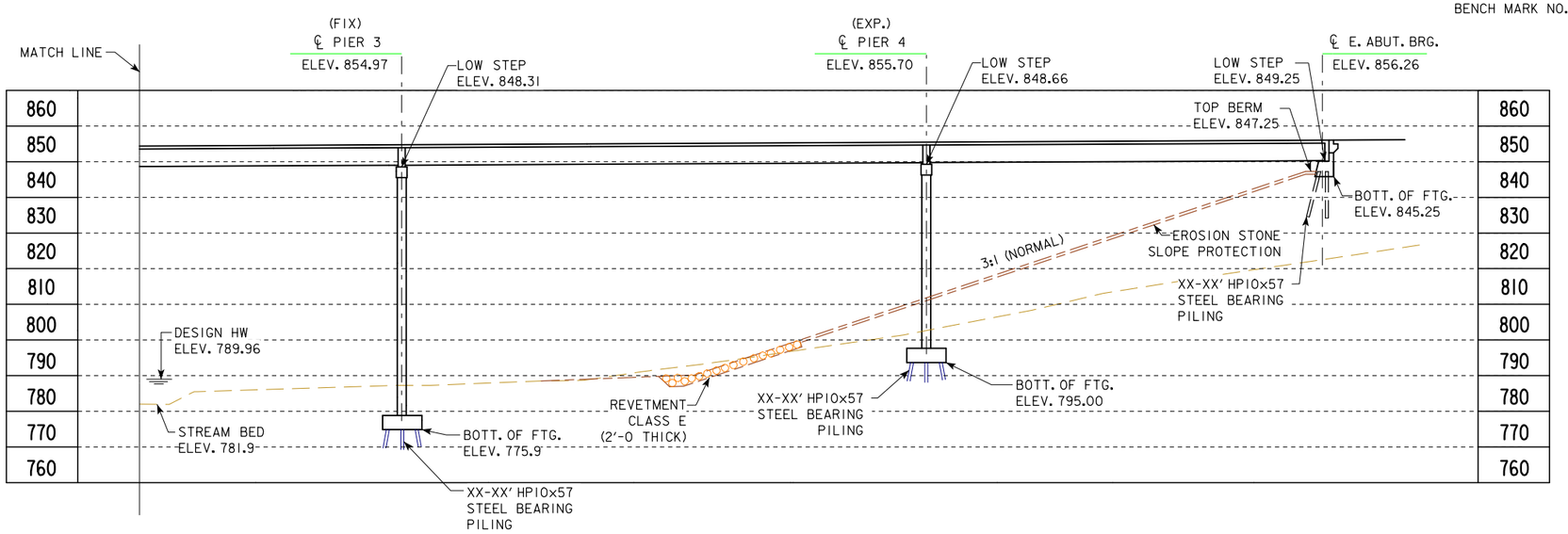
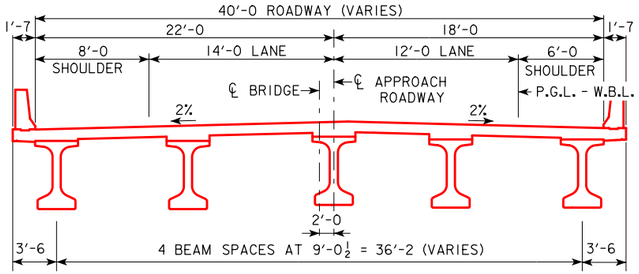
BENCH MARK NO. 720 - STA. 850+37.42, 90.107 LT., RAILROAD RAIL (VERTICAL) 100 FT. WEST OF E. MAIN STREET AND HWY30 N. SIDE, ELEV. 891.994 N. 706121.786 E. 2220960.091

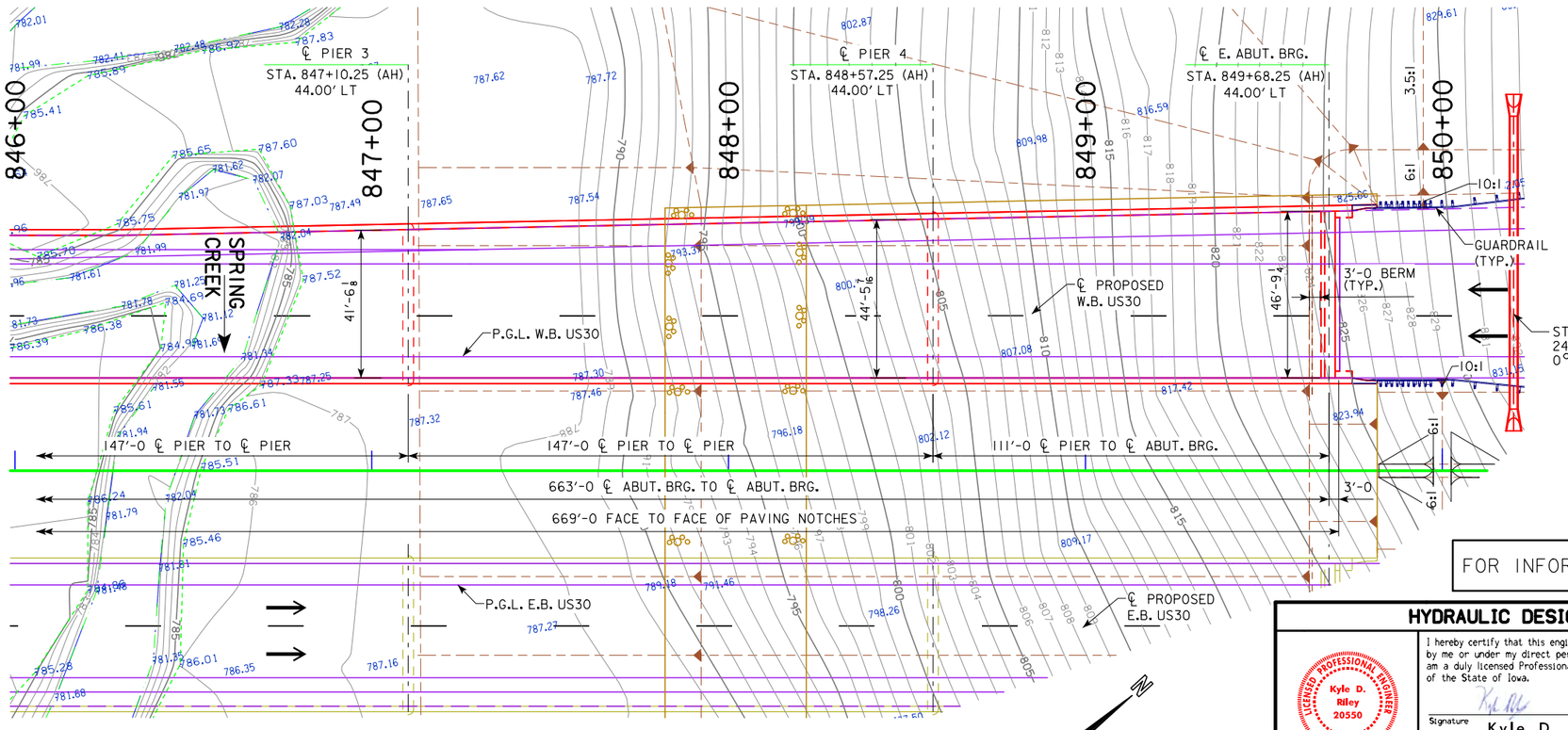


LONGITUDINAL SECTION ALONG ℄ ROADWAY - W.B.



PROPOSED CROSS SECTION

(W.B. IN DIRECTION OF STATIONING)
(PRETENSIONED PRESTRESSED CONC. BEAM)



SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.

HYDRAULIC DATA

DRAINAGE AREA= 3.30 SQ.MI.
STREAM SLOPE = 14.85 FT./MI.

Q_{50}= 1,324 CFS
NATURAL STAGE AT BRIDGE= 789.96
BACKWATER= 0.06 FT
BRIDGE VELOCITY = 3.36 FPS

Q_{100}= 1,602 CFS
NATURAL STAGE AT BRIDGE= 790.24
BACKWATER= 0.11 FT
BRIDGE VELOCITY = 3.49 FPS

Q_{200} = 1,802 CFS
NATURAL STAGE AT BRIDGE= 790.58
CALCULATED SCOUR = ELEV. 781.39

Q_{500}= 2,114 CFS
BRIDGE VELOCITY = 3.66 FPS
CALCULATED SCOUR = ELEV. 781.04
ROADWAY OVERTOP = N/A

FOR INFORMATION ONLY

HYDRAULIC 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.

Kyle D. Riley 20550 LICENSED PROFESSIONAL ENGINEER IOWA

12-23-2013
Signature Kyle D. Riley Date
Printed or Typed Name

My license renewal date is December 31, 2014

Pages or sheets covered by this seal: V.102-V.104 (HYDRAULIC DATA)

PRELIMINARY

DESIGN FOR 0° SKEW

663'-0 x 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE

SPANS (111'-0, 147'-0, 147'-0, 147'-0, 111'-0) (BTE BEAMS)

SITUATION PLAN (W.B.)

STATION 846+36.75 (AH), 44.00' LT

OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 716

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.42

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BERM SLOPE LOCATION TABLE

POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	844+56.99 (AH)	-70.58	795.07	847+92.33 (AH)	-73.53	790.19
A2	844+56.99 (AH)	-21.42	795.07	847+92.33 (AH)	-21.42	790.19
B1	843+10.00 (AH)	-70.58	844.07	849+63.50 (AH)	-77.26	847.25
B2	843+10.00 (AH)	-21.42	844.07	849+63.50 (AH)	-21.42	847.25
W1	842+88.50 (AH)	-70.58	852.03	849+85.00 (AH)	-77.69	855.51
W2	842+88.50 (AH)	-21.42	852.03	849+85.00 (AH)	-21.42	855.51

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

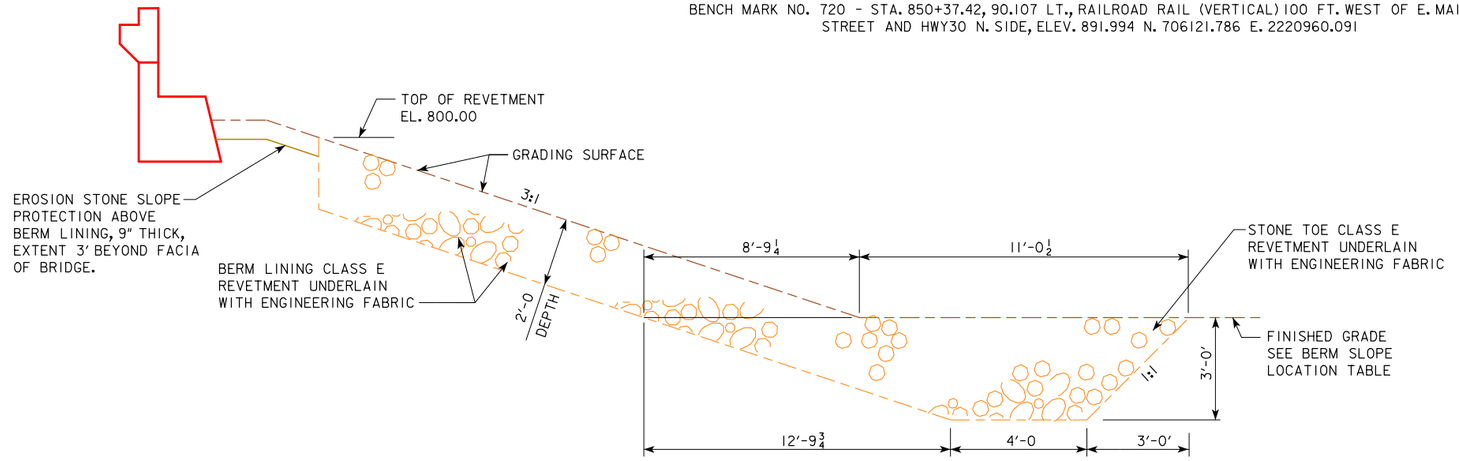
ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - WEST ABUTMENT	130	450	1231	359
STONE TOE - WEST ABUTMENT	149	--	196	93
BERM LINING - EAST ABUTMENT	272	517	1533	489
STONE TOE - EAST ABUTMENT	156	--	205	97
TOTALS	707	967	3165	1038

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

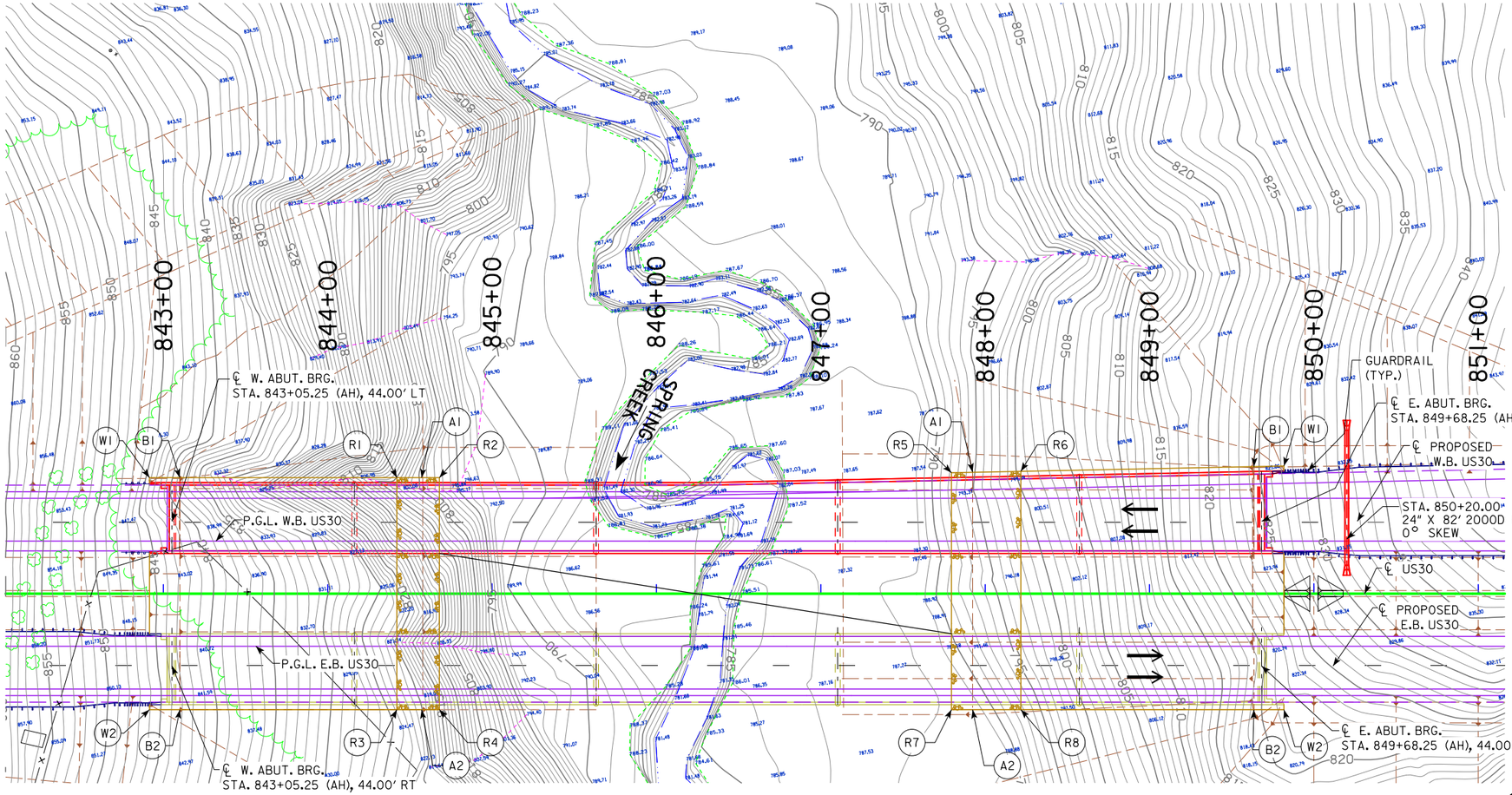
USE WHEN QUANTITY EQUALS OR EXCEEDS QUANTITY UNDER THE BRIDGE.

BENCH MARK NO. 720 - STA. 850+37.42, 90.107 LT., RAILROAD RAIL (VERTICAL) 100 FT. WEST OF E. MAIN STREET AND HWY30 N. SIDE, ELEV. 891.994 N. 706121.786 E. 2220960.091



REVETMENT LAYOUT:

- (R1) 844+42.21, -70.58', TOP OF REVETMENT
- (R2) 844+67.98, -70.58', BOTTOM OF REVETMENT
- (R3) 844+42.21, 70.58', TOP OF REVETMENT
- (R4) 844+67.98, 70.58', BOTTOM OF REVETMENT
- (R5) 847+82.18, -73.63', BOTTOM OF REVETMENT
- (R6) 848+21.75, -74.42', TOP OF REVETMENT
- (R7) 847+82.18, 70.58', BOTTOM OF REVETMENT
- (R8) 848+21.75, 70.58', TOP OF REVETMENT



FOR INFORMATION ONLY

SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.

0 ENGLISH 80
SCALE IN FEET

PRELIMINARY

DESIGN FOR 0° SKEW

663'-0 x 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE

SPANS (111'-0, 147'-0, 147'-0, 147'-0, 111'-0) (BTE BEAMS)

SITUATION PLAN (W.B.)

STATION 846+36.75 (AH), 44.00' LT

OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 716

DESIGN TEAM	SNYDER AND ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER NHSX-030-7(188)--3H-57	SHEET NUMBER V.43

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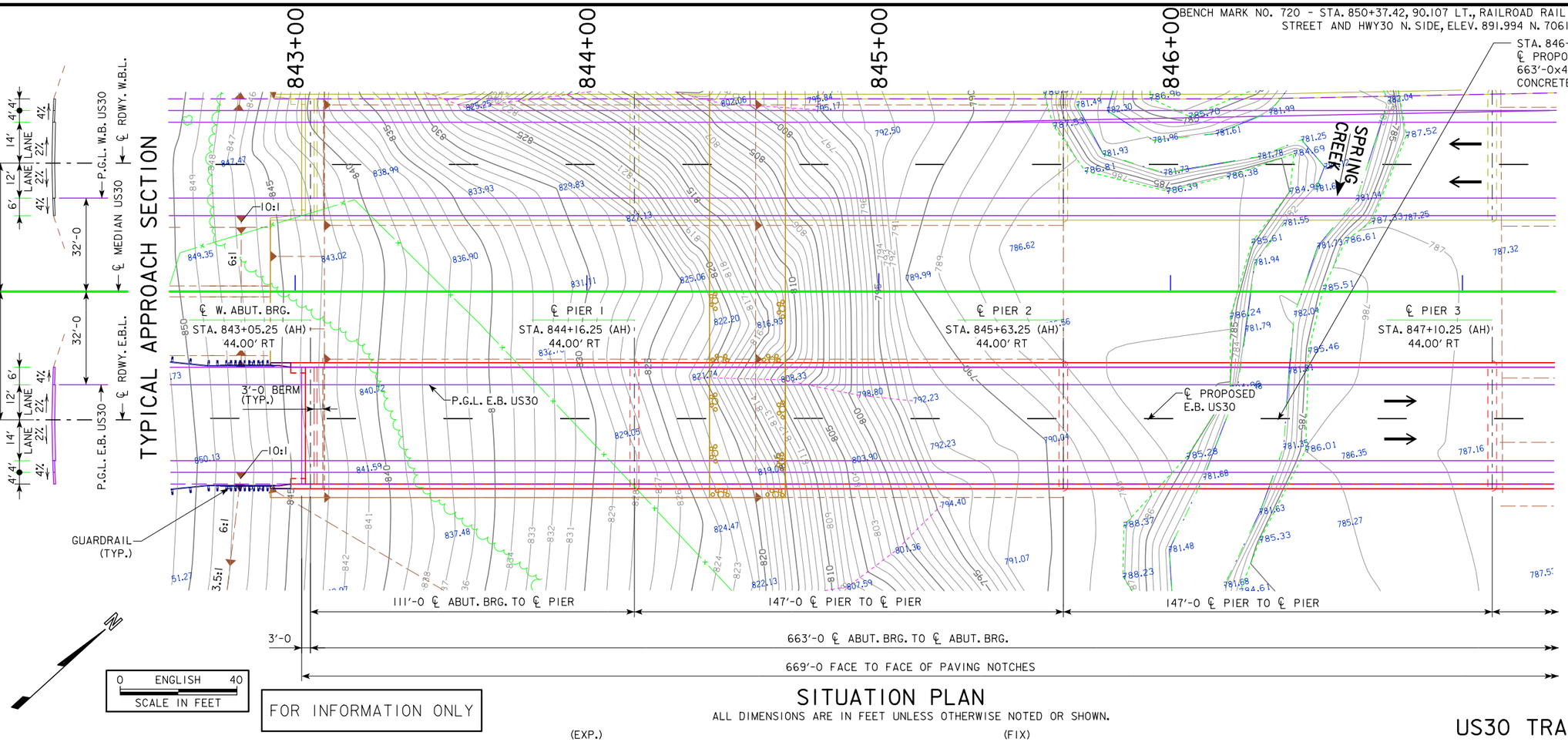
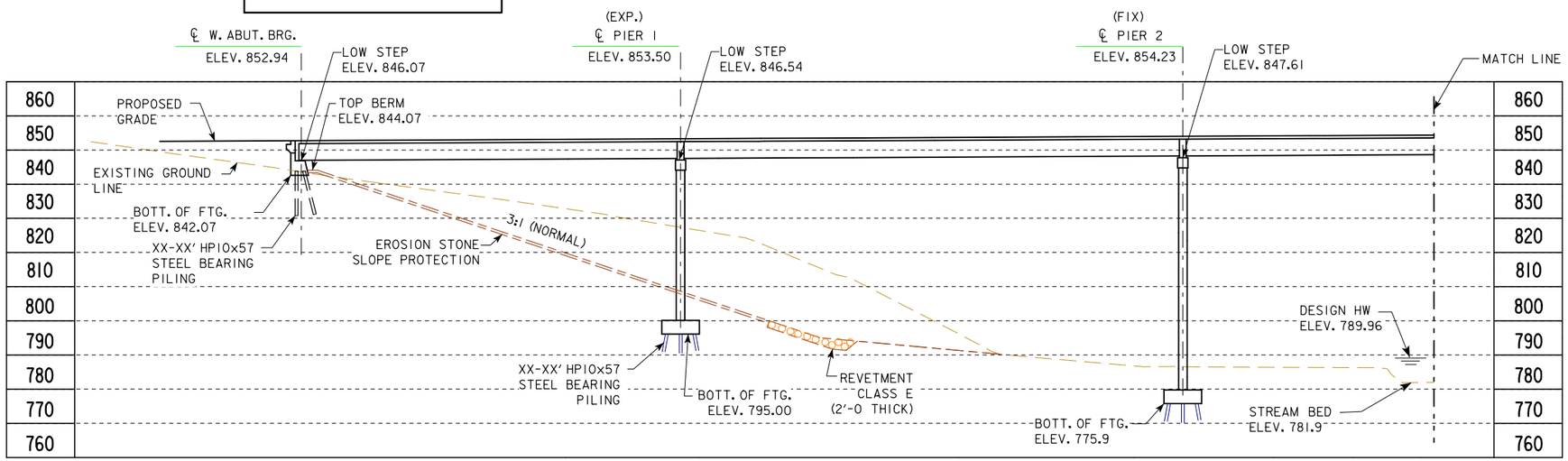
BENCH MARK NO. 720 - STA. 850+37.42, 90.107 LT., RAILROAD RAIL (VERTICAL) 100 FT. WEST OF E. MAIN STREET AND HWY30 N. SIDE, ELEV. 891.994 N. 706121.786 E. 2220960.091



FOR INFORMATION ONLY

SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.



LONGITUDINAL SECTION ALONG ℄ ROADWAY - E.B.

LOCATION

E.B. US30 OVER SPRING CREEK
T-82N R-5W
SECTION 13
FRANKLIN TOWNSHIP
LINN COUNTY
BRIDGE MAINT. NO. ?
FHWA NO. 700545
LATITUDE 41.9084380°
LONGITUDE -91.3738600°

US30 TRAFFIC ESTIMATE

2009 AADT	10,600	V.P.D.
2035 AADT	16,700	V.P.D.
2035 DHV	1450	V.P.H.
TRUCKS	10	%
TOTAL DESIGN ESALs	-	

NOTES:
ALL OFFSETS ARE MEASURED FROM ℄ OF US30.
TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.21' ABOVE THE PROFILE GRADE TO ACCOUNT FOR CROSS SLOPE AND PARABOLIC CROWN.
PIER TYPE - T-PIERS
BEAM TYPE - BTE BEAMS, DEPTH = 5'-3.
BRIDGE RAIL - TL-4.

PRELIMINARY

DESIGN FOR 0° SKEW

663'-0 x 40'-0 PRETENSIONED PRESTRESSED CONC. BEAM BRIDGE

SPANS (111'-0, 147'-0, 147'-0, 147'-0, 111'-0) (BTE BEAMS)

SITUATION PLAN (E.B.)

STATION 846+36.75 (AH), 44.00' RT

OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 816

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** | LINN COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **V.44**

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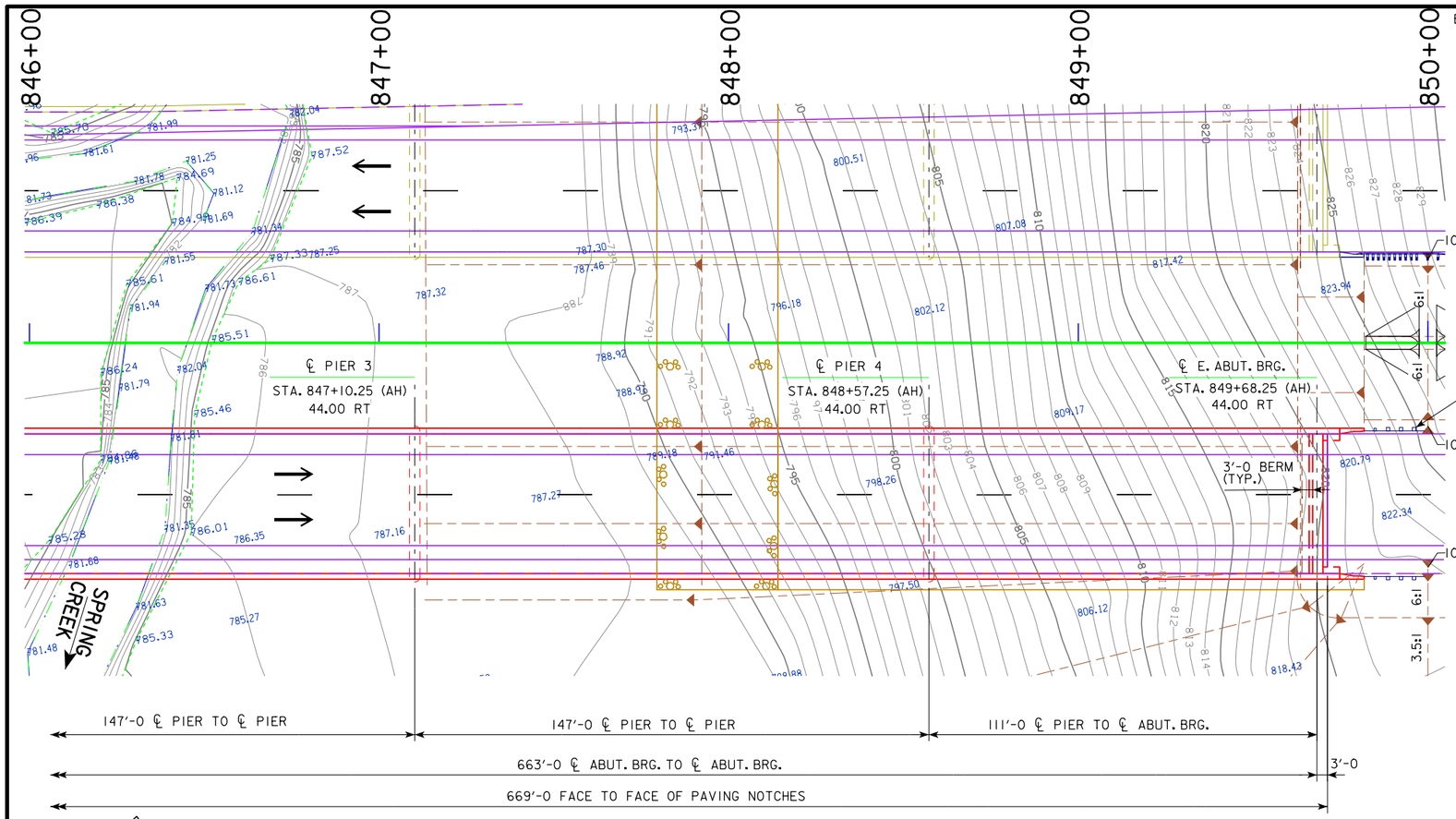
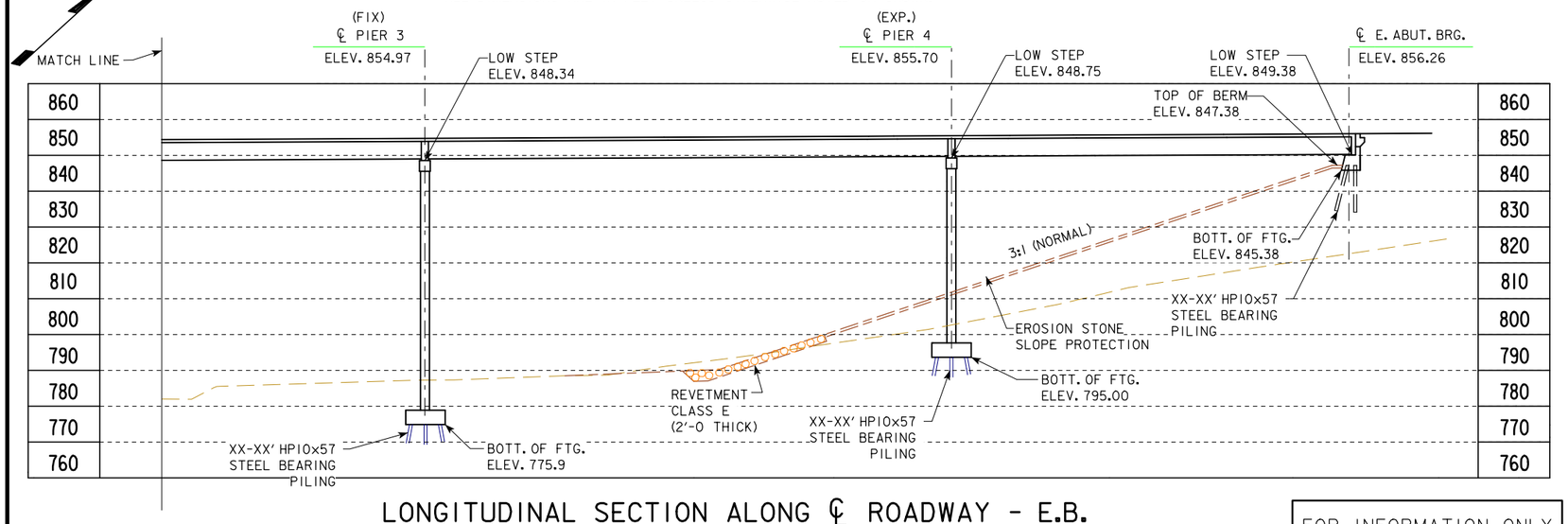


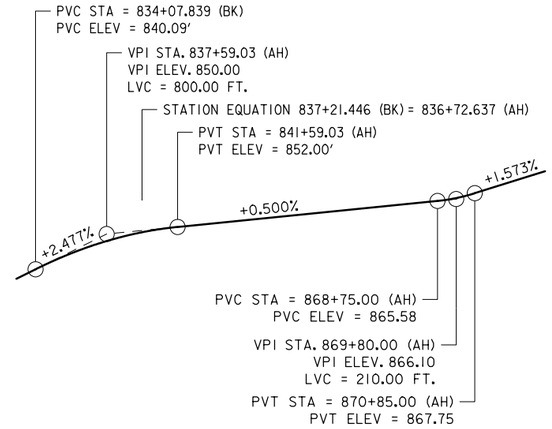
SITUATION PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.



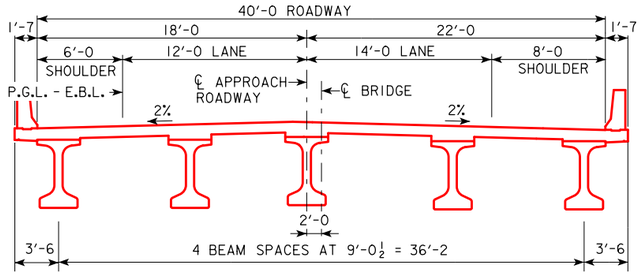
LONGITUDINAL SECTION ALONG ℄ ROADWAY - E.B.

BENCH MARK NO. 720 - STA. 850+37.42, 90.107 LT., RAILROAD RAIL (VERTICAL) 100 FT. WEST OF E. MAIN STREET AND HWY30 N. SIDE, ELEV. 891.994 N. 706121.786 E. 2220960.091



PROPOSED PROFILE GRADE

(MAINLINE US30)



PROPOSED CROSS SECTION

(E.B. IN DIRECTION OF STATIONING)
(PRETENSIONED PRESTRESSED CONC. BEAM)

HYDRAULIC DATA

DRAINAGE AREA= 3.30 SQ.MI.
STREAM SLOPE = 14.85 FT./MI.

Q_{50}= 1,324 CFS
NATURAL STAGE AT BRIDGE= 789.96
BACKWATER= 0.06 FT
BRIDGE VELOCITY = 3.36 FPS

Q_{100}= 1,602 CFS
NATURAL STAGE AT BRIDGE= 790.24
BACKWATER= 0.11 FT
BRIDGE VELOCITY = 3.49 FPS

Q = 1,802 CFS
NATURAL STAGE AT BRIDGE= 790.58
CALCULATED SCOUR = ELEV. 781.39

Q_{500}= 2,114 CFS
BRIDGE VELOCITY = 3.66 FPS
CALCULATED SCOUR = ELEV. 781.04
ROADWAY OVERTOP = N/A

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SITUATION PLAN (E.B.)

STATION 846+36.75 (AH), 44.00' RT

OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. 30839 DESIGN NO. 816

FOR INFORMATION ONLY

0 ENGLISH 40
SCALE IN FEET

DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** | **LINN** COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **V.45**

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BENCH MARK NO. 720 - STA. 850+37.42, 90.107 LT., RAILROAD RAIL (VERTICAL) 100 FT. WEST OF E. MAIN STREET AND HWY30 N. SIDE, ELEV. 891.994 N. 706121.786 E. 2220960.091

BERM SLOPE LOCATION TABLE

POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	844+56.99 (AH)	21.42	795.07	847+92.33 (AH)	21.42	790.19
A2	844+56.99 (AH)	70.58	795.07	847+92.33 (AH)	70.58	790.19
B1	843+10.00 (AH)	21.42	844.07	849+63.50 (AH)	21.42	847.38
B2	843+10.00 (AH)	70.58	844.07	849+63.50 (AH)	70.58	847.38
W1	842+88.50 (AH)	21.42	852.03	849+85.00 (AH)	21.42	855.51
W2	842+88.50 (AH)	70.58	852.03	849+85.00 (AH)	70.58	855.51

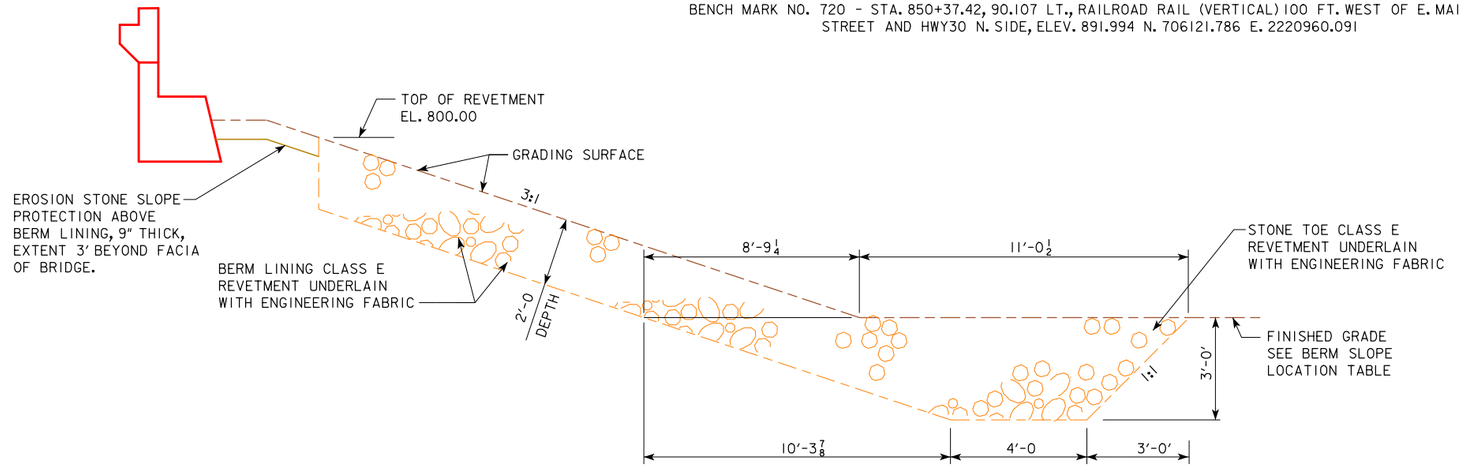
BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

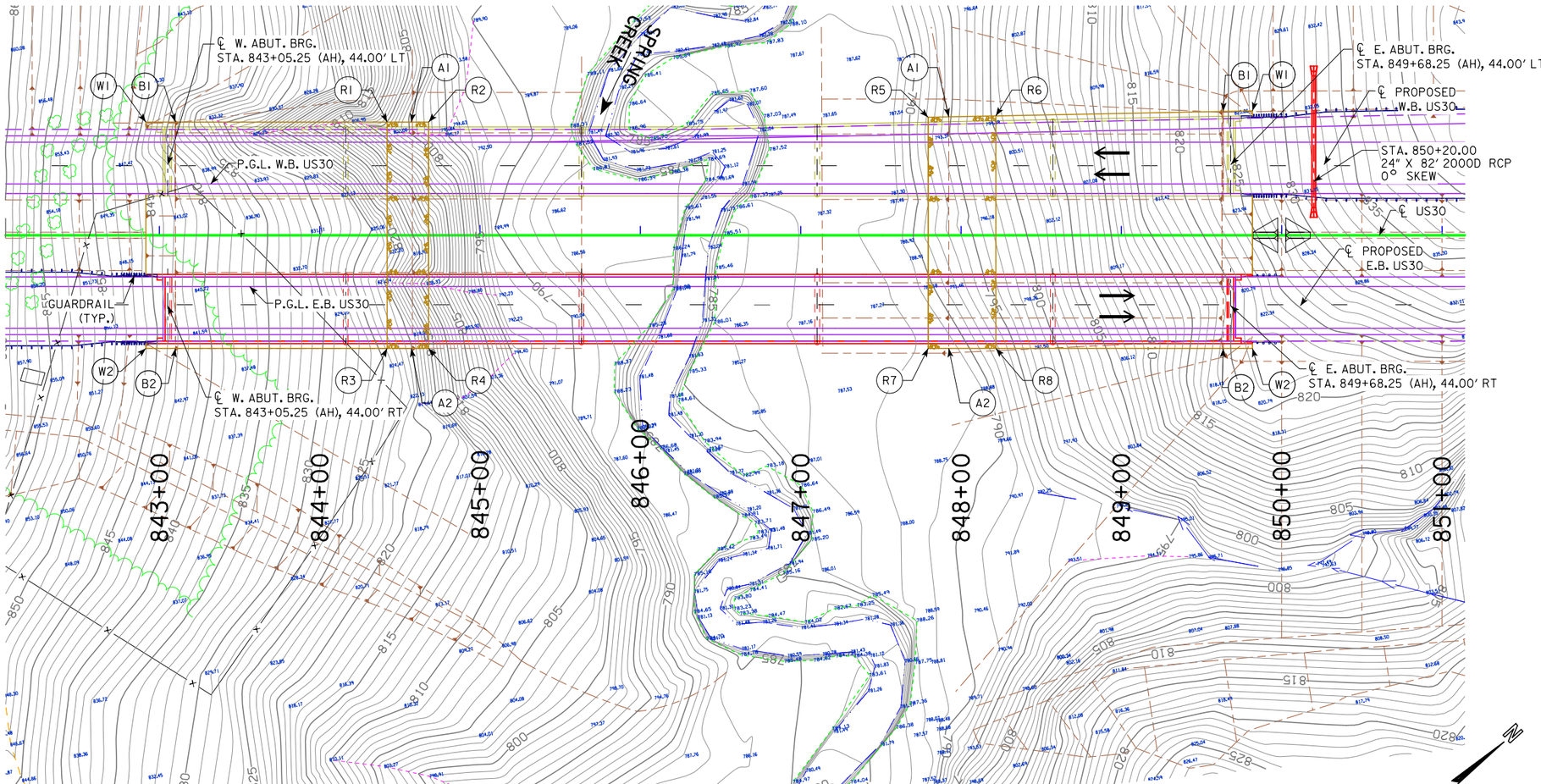
ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - WEST ABUTMENT	130	450	1231	359
STONE TOE - WEST ABUTMENT	149	--	196	93
BERM LINING - EAST ABUTMENT	259	481	1432	459
STONE TOE - EAST ABUTMENT	149	--	196	93
TOTALS	687	931	3055	1004

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

USE WHEN QUANTITY EQUALS OR EXCEEDS QUANTITY UNDER THE BRIDGE.





SITE PLAN

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.

0 ENGLISH 80
SCALE IN FEET

REVETMENT LAYOUT:

(R1) 844+42.21, -70.58', TOP OF REVETMENT
(R2) 844+67.98, -70.58', BOTTOM OF REVETMENT
(R3) 844+42.21, 70.58', TOP OF REVETMENT
(R4) 844+67.98, 70.58', BOTTOM OF REVETMENT
(R5) 847+82.18, -73.63', BOTTOM OF REVETMENT
(R6) 848+21.75, -74.42', TOP OF REVETMENT
(R7) 847+82.18, 70.58', BOTTOM OF REVETMENT
(R8) 848+21.75, 70.58', TOP OF REVETMENT

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SITUATION PLAN - SITE (E.B.)

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OCTOBER 2016

LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

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DESIGN TEAM **SNYDER AND ASSOCIATES, INC.** | **LINN** COUNTY | PROJECT NUMBER **NHSX-030-7(188)--3H-57** | SHEET NUMBER **V.46**

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