BENTON Co.

PCC PAVEMENT - GRADE AND NEW
NHSX-030-6(231)--3H-06

LETTING DATE 05-15-2018

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

BENTON COUNTY

PCC PAVEMENT - GRADE AND NEW

US 218 Interchange

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

REVISIONS

TOTAL 653
PROJECT IDENTIFICATION NUMBER
92-06-030-030-01
PROJECT NUMBER
NHSX-030-6(231)--3H-06
R.O.W. PROJECT NUMBER
NHSN-030-6(101)--2R-06
NHSN-030-6(238)--2R-06

For Project Location Map
Refer to Sheet A.2

For Index of Sheets
Refer to Sheet A.3

DESIGN DATA RURAL

2017 AADT	5400	V.P.D.
2037 AADT	8500	V.P.D.
2037 DHV	880	V.P.H.
TRUCKS	19	%
Total Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Kelly C. Bell	Primary Signature Block
CD.1	David R. Claman	Hydraulic Signature Block
CS.1	John A. Christiansen	Geotech Signature Block
V.6	James S. Nelson	Structural Signature Block
SPS.1	Bryan P. Kumm	Geotech Signature Block

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER — Kelly C. Bell 17944 — IOWA

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

Kelly Bell — 3/2/2018
Signature — Date

Kelly C. Bell
Printed or Typed Name

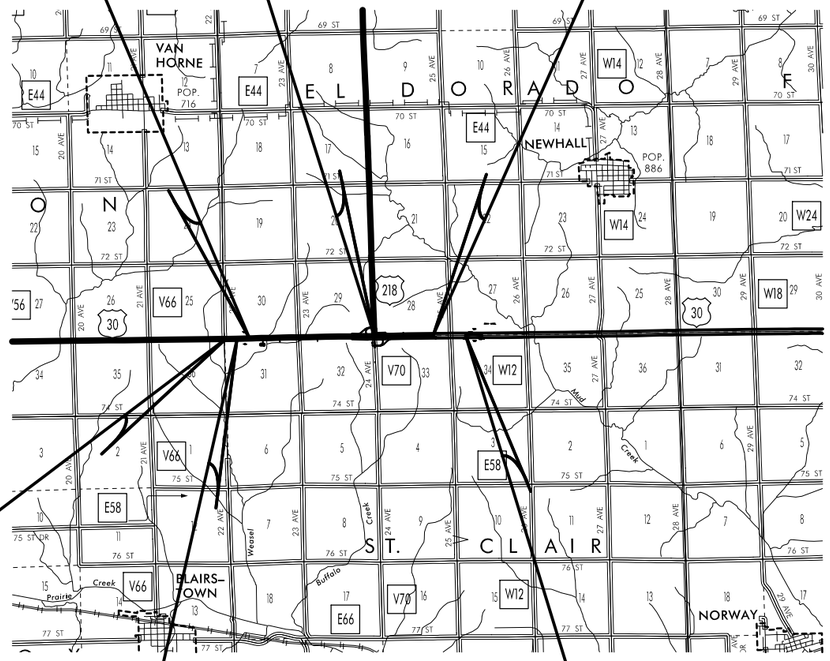
My license renewal date is December 31, 2019

Pages or sheets covered by this seal: A.1-A.3, B.1-B.11, C.1-C.26, CE.1-CE.16, D.1-D.11, E.1-E.7, F.1-F.3, G.1-G.12, H.1-H.6, HE.1-HE.4, J.1-J.24, K.1-K.21, L.1-L.2, M.1-M.4, T.1-T.37, U.1-U.36, V.1-V.5, W.100-W.197, W.200-W.287 X.100-X.109, X.200-X.254, X.300-X.311, X.400-X.413, Y.100-Y.107, Y.200-Y.206, Y.300-Y.315, Y.400-Y.416, Z.100-Z.120, Z.200-Z.211, Z.300-Z.308, Z.400-Z.408

US 218 Bridge over US 30
FHWA No. 700855

STA. 1389+00.00
BEGIN GRADE & PAVE (WB)
M.P. 230.32

STA. 1516+70.00
END GRADE & PAVE (EB & WB)
M.P. 234.5



STA. 1372+23.82
BEGIN PROJECT
BEGIN CROSSOVER #1
M.P. 230.0

STA. 1380+00.00
BEGIN GRADE & PAVE (EB)
M.P. 230.15

STA. 1539+05.00
END PROJECT
PROPOSED CROSSOVER #2
M.P. 235.06

LOCATION MAP SCALE
0 1 2 3
Miles

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER A.2

9:11:47 AM 3/30/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231A01.sht

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Location Map Sheet
A.3	Index of Sheets
B Sheets	**Typical Cross Sections and Details**
B.1 - 11	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
C.1	Project Description
C.1 - 2	Estimated Project Quantities
C.3 - 6	Estimate Reference Information
C.7	Standard Road Plans
C.7	Index of Tabulations
C.8	General Notes
C.9 - 26	Tabulations
CD Sheets	**Drainage Tabulations**
CD.1 - 3	Drainage Tabulations
CE Sheets	**Erosion Control Tabulations**
CE.1	Index of Tabulations
CE.1 - 2	Pollution Prevention Plan (PPP)
CE.3	Stormwater Drainage Basin and Storage
CE.4	Silt Basins
CE.5	Silt Fences
CE.5 - 9	Silt Fence for Ditch Checks
CE.10	Perimeter and Slope Sediment Control Device
CE.10	Temporary Sediment Control Basins
CE.10	Grate Intake Sediment Filter Bag
* CE.11 - 16	Drainage Basins Layout
CS Sheets	**Soils Tabulations**
CS.1 - 4	Soils Tabulations
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 11	U.S. Highway 30
E Sheets	**Side Road Plan and Profile Sheets**
* E.1	23rd Avenue
* E.2 - 5	24th Avenue/US 218
* E.6	Youngville Café Access
* E.7	Wheeler Access
F Sheets	**Detour Pavement Sheets**
* F.1	Crossover #1
* F.2	Crossover #2
* F.3	Crossover #3
G Sheets	**Survey Sheets**
G.1 - 6	Reference Ties and Bench Marks
G.7 - 12	Horizontal Control Tab. & Super for all Alignments
H Sheets	**Right-of-Way Sheets**
H.1 - 6	U.S. Highway 30
HE.1	22nd Avenue
HE.2	23rd Avenue
HE.3 - 4	24th Avenue/US 218
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
J.1	Staging Notes Stage
J.1	Coordinated Operations
J.2	Traffic Closure Tables
J.2	511 Travel Restrictions
* J.3	Traffic Control and Staging Legend & Symbols
* J.4 - 6	Staging Typicals
* J.7 - 11	Stage 2
* J.12 - 19	Stage 3
* J.20 - 22	Stage 4
* J.23	US 218 Detour Signing Southbound
* J.24	US 218 Detour Signing Northbound

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* K.5 - 6	US 30 & US 218 RAMP "B" Plan and Profile Sheets
* K.7 - 8	US 30 & US 218 RAMP "C" Plan and Profile Sheets
* K.9 - 10	US 30 & US 218 RAMP "D" Plan and Profile Sheets
K.11 - 12	Modified PV-412 Decceleration Taper
K.13	Taper Details for Combination Ramp/Loop Terminal
K.14	Geometric & Staking Details - Loop A/Ramp D Terminal
K.15	Return Edge Profiles - Loop A/Ramp D Terminal
K.16	Jointing Details - Loop A/Ramp D Terminal
K.17 - 18	Geometric & Staking Details - Loop B/Ramp C Terminal
K.19	Return Edge Profiles - Loop B/Ramp C Terminal
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L.2	Jointing - 23rd Avenue
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* M.2	Storm Sewer Legend & Symbol Information Sheet
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* Q.17	Soils Sheets 23rd Avenue
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* Q.22	Soils Sheets MSE Wall
* Q.23	Soils Sheets Youngville Café Access
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* Q.30 - 31	Soils Sheets U.S. 218 Ramp D
SPS Sheets	**Bridge Plan Soils Sheets**
SPS.1 - 2	RCB at Sta. 1400+94
T Sheets	**Earthwork Quantity Sheets**
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T.3 - 37	Earthwork Quantity Sheets
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
* U.1	Modified DR-502 - Slotted Drain for Median Crossovers
* U.2 - 3	Interim PV-411 - Acceleration Taper, 16' Ent. Ramp
* U.4 - 8	Interim TC-61 - Two-Lane, Two-Way Operation
* U.9	Interim TC-418 - Lane Closure on Divided Highway
* U.10	540-13 - Barricade at Crossover
* U.11	570-1 - Slash Mulch Berm
* U.12	570-2 - Rock Check Dam
* U.13	570-3 - Temporary Sediment Control Basin
* U.14 - 16	570-4 - Silt Fence Installation for Shallow/No Ditch
* U.17	570-5 - Erosion Control For Intake Or Manhole Well
* U.18	570-7 - Grate Intake Sediment Filter Bag
* U.19	570-8 - Temporary Roack Berm For Sediment Control
* U.20	570-9 - Erosion Control For Trenchless Construction
* U.21	570-10 - Stabilized Construction Entrance
* U.22 - 24	Geometric & Staking Details - Crossover #1
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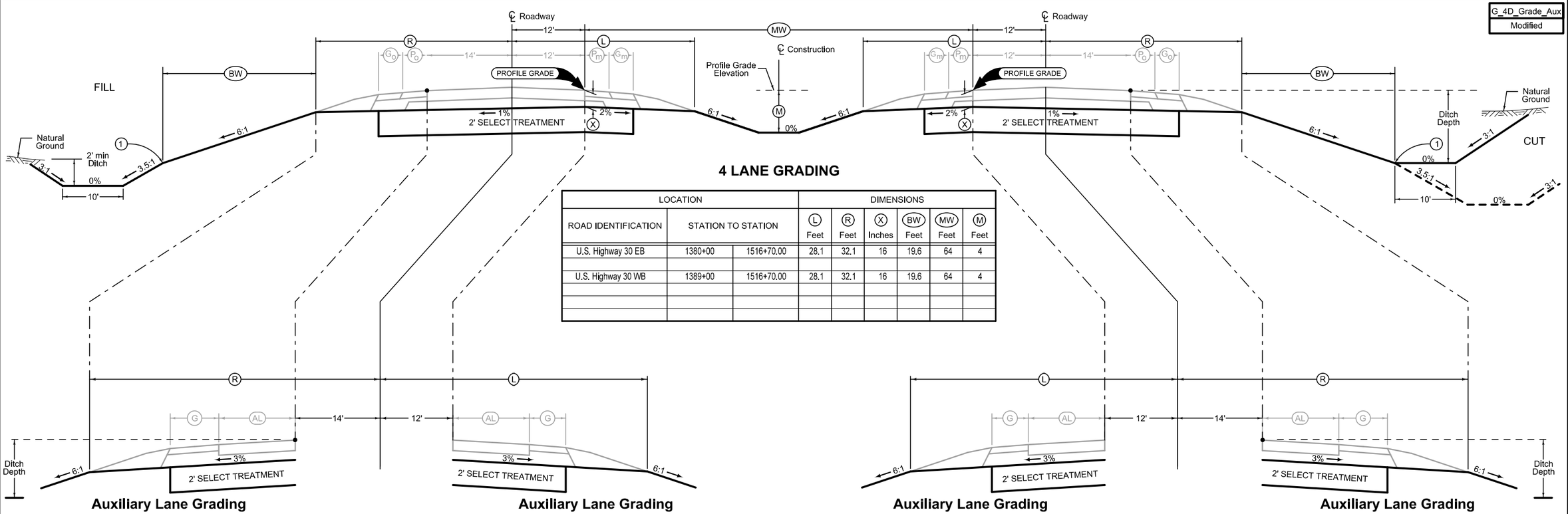
W.200 - 287	US 30 WB Stage 3 Cross Sections
X Sheets	**Side Road Cross Sections**
X.100 - 109	23rd Avenue Cross Sections
X.200 - 254	24th Avenue & US 218 Cross Sections
X.300 - 311	Youngville Café Access Cross Sections
X.400 - 413	Wheeler Access Cross Sections
Y Sheets	**Ramp Cross Sections**
Y.100 - 107	US 30 & IA 218 Ramp "A" Cross Sections
Y.200 - 206	US 30 & IA 218 Ramp "B" Cross Sections
Y.300 - 315	US 30 & IA 218 Ramp "C" Cross Sections
Y.400 - 416	US 30 & IA 218 Ramp "D" Cross Sections
Z Sheets	**Borrow Cross Sections**
Z.100 - 120	Crossover 1 Cross Sections
Z.200 - 211	Crossover 2 Cross Sections
Z.300 - 308	Crossover 3 Cross Sections
Z.400 - 408	Removal of Crossover 2 Cross Sections

* Color Plan Sheets

G_4D_Grade_Aux
Modified



4 LANE GRADING

LOCATION			DIMENSIONS					
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet	(MW) Feet	(M) Feet
U.S. Highway 30 EB	1380+00	1516+70.00	28.1	32.1	16	19.6	64	4
U.S. Highway 30 WB	1389+00	1516+70.00	28.1	32.1	16	19.6	64	4

Auxiliary Lane Grading

LOCATION			(R) Feet
ROAD IDENTIFICATION	STATION TO STATION		
U.S. 30 WB (Ramp C Taper)	1448+75.00	1461+05.00	35.0 - 73.9
U.S. 30 WB (Loop B Taper)	1472+23.74	1478+25.00	74.6 - 35.0

Auxiliary Lane Grading

LOCATION			(L) Feet
ROAD IDENTIFICATION	STATION TO STATION		
U.S. 30 WB (23rd Ave)	1423+73.00	1423+73.00	41.3
U.S. 30 WB (23rd Ave)	1425+23.00	1425+23.00	0.0 - 41.3

Auxiliary Lane Grading

LOCATION			(L) Feet
ROAD IDENTIFICATION	STATION TO STATION		
U.S. 30 EB (23rd Ave)	1419+23.00	1420+43.00	0.0 - 41.3
U.S. 30 EB (23rd Ave)	1420+43.00	1421+93.00	41.3

Auxiliary Lane Grading

LOCATION			(R) Feet
ROAD IDENTIFICATION	STATION TO STATION		
U.S. 30 EB (Loop A Taper)	1473+15.00	1479+16.14	35.0 - 74.60
U.S. 30 EB (Ramp D Taper)	1489+95.00	1502+25.00	75.4 - 35.0

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.

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

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER B.1

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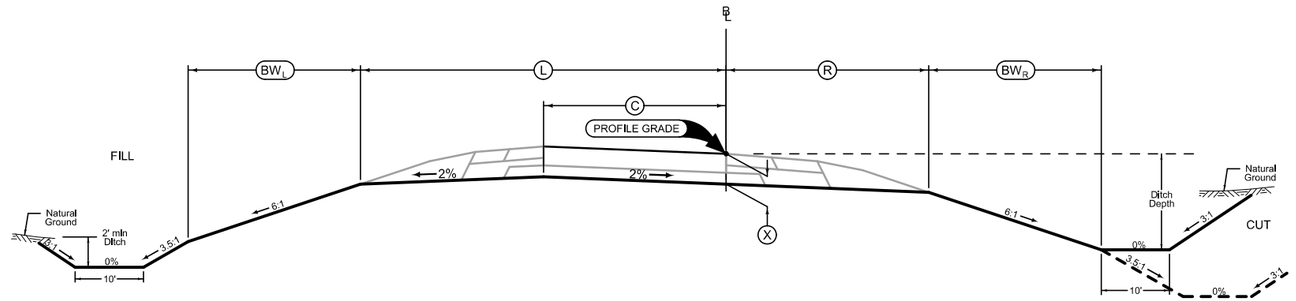
LOCATION				DIMENSIONS					
INTERCHANGE	RAMP	STATION TO STATION		(L) Feet	(R) Feet	(C) Feet	(X) Inches	(BW_L) Feet	(BW_R) Feet
U.S. 218	A	11479+15.00	11486+64.72	35.8	19.5	18.0	22.0	20.2	14.4
U.S. 218	B	21472+25.00	21479+75.06	35.8	19.5	18.0	22.0	20.2	14.4
U.S. 218	C	31440+55.75	31443+73.46	53.9-71.8	19.5	36.1-54.0	22.0	16.9	16.7
U.S. 218	C	31443+73.46	31456+46.34	33.8	19.5	16.0	22.0	16.9	16.7
U.S. 218	D	41474+40.45	41477+60.34	53.9-71.8	19.5	36.1-54.0	22.0	16.9	16.7
U.S. 218	D	41477+60.34	41489+96.32	33.8	19.5	16.0	22.0	16.9	16.7

G_1R_Grade
04-15-14



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.

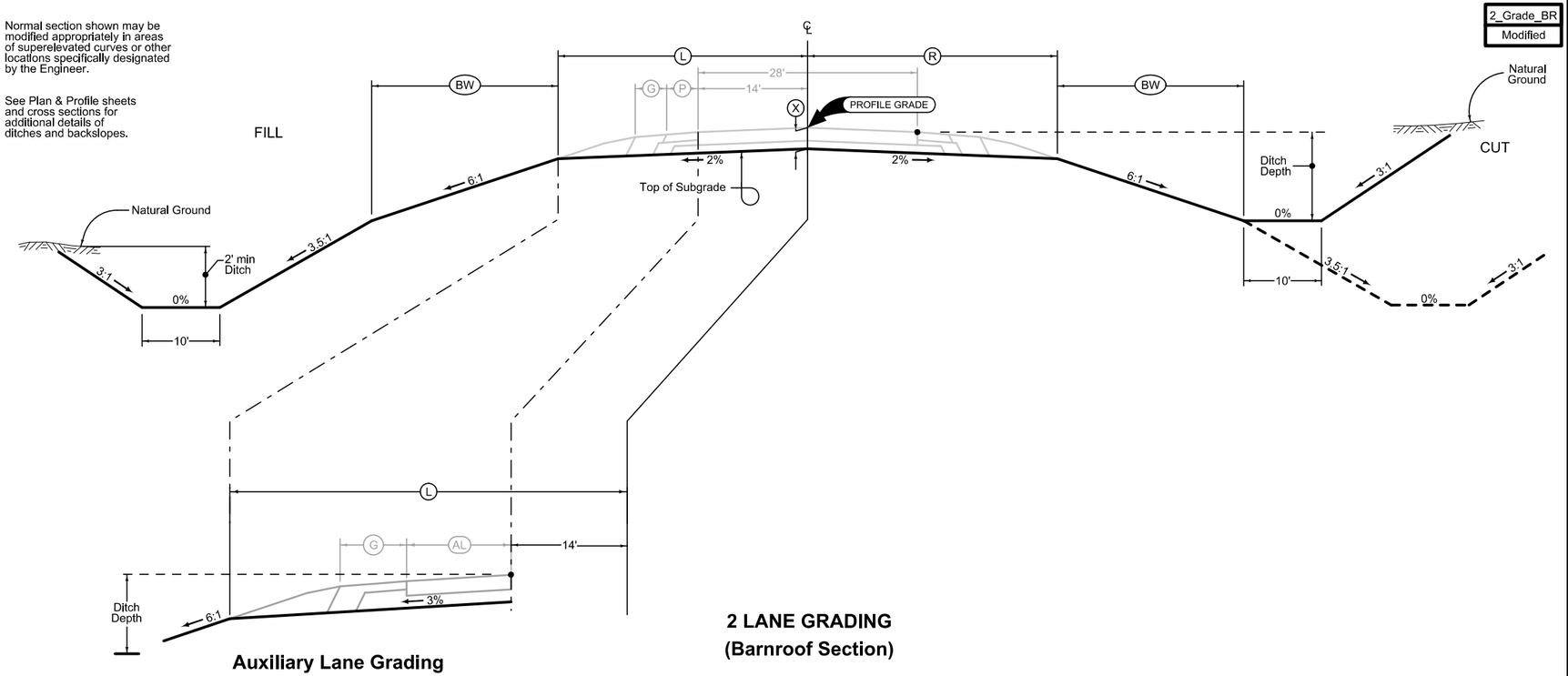
RAMP GRADING

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
US 218	241468+00.00	241483+25.00	31.8	31.8	22.0	19.9
US 218	241483+25.00	241489+76.20	(1)	31.8	22.0	19.9
US 218	241489+76.20	241503+00.00	31.8	31.8	22.0	19.9
(1) See Auxiliary Lane Grading						

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.

2_Grade_BR
Modified



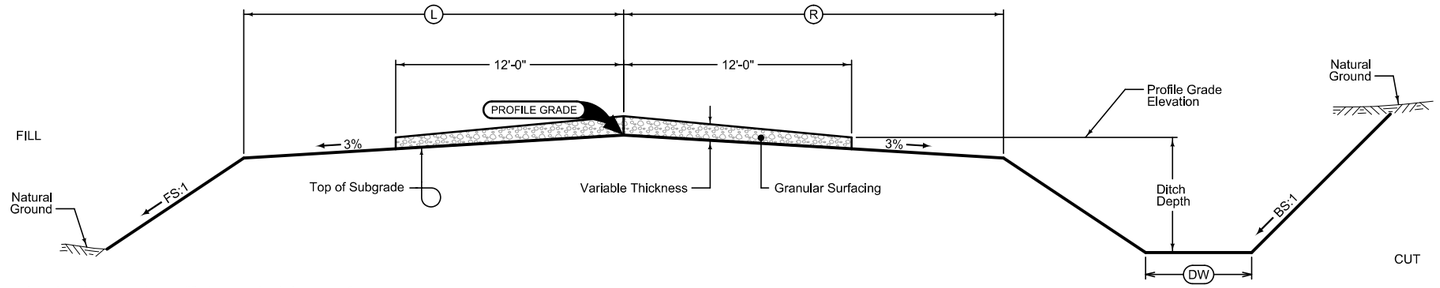
2 LANE GRADING
(Barnroof Section)

Auxiliary Lane Grading

LOCATION			(L) Feet
ROAD IDENTIFICATION	STATION TO STATION		
US 218	241483+25.00	241487+96.20	43.26
US 218	241487+96.20	241489+76.20	43.26-31.8

LOCATION			DIMENSIONS					Granular Surfacing Class A TONS	Granular Surfacing Class A CY
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	FS	BS	(DW) Feet		
23rd Avenue	231416+75.00	231421+64.75	15.0	15.0	3	3	5.0	205.7	108.8
23rd Avenue	231424+00.00	231427+00.00	15.0	15.0	3	3	5.0	126.0	66.7
24th Avenue	241450+50.00	241468+00.00	15.0	15.0	3	3	5.0	735.0	388.9
							TOTAL:	1066.7	564.4

2_GradeGran
04-17-12

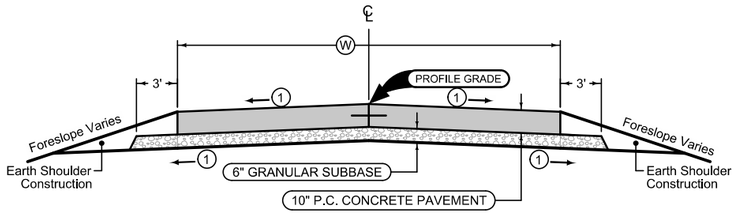


Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

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

Place Granular Surfacing as follows:
Grading & Paving design application rate is 42 tons per station.

GRADING AND GRANULAR SURFACING



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

LOCATION			DIMENSIONS
ROAD IDENTIFICATION	STATION TO STATION		(W) Feet
23rd Ave (S)	231421+64.75	231422+24.89	30 - 130
23rd Ave (N)	231423+40.93	231424+00.00	30 - 130

(1) Subgrade parallels pavement slope.
See L sheets for details.

See Tab 100-24 for pavement quantities.

PAVED RETURNS

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER B.3

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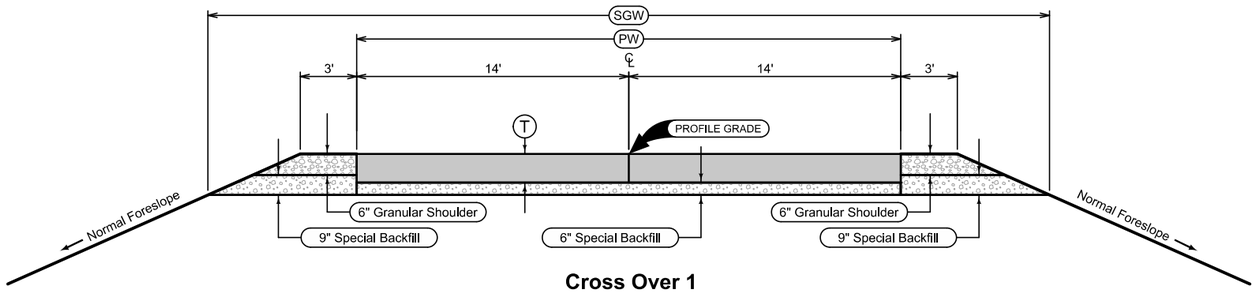
Detour

LOCATION			DIMENSIONS					
			HMA			PCC		
ROAD IDENTIFICATION	STATION TO STATION		(PW) Feet	(T) Inches	(SGW) Feet	(PW) Feet	(T) Inches	(SGW) Feet
Cross-over 1	104+51.99	115+05.58	28.0	12.0	37.0	28.0	9.0	35.5
Cross-over 2	1539+05.00	1551+10.08	---	12.0	---	---	9.0	---
Cross-over 3	300+00.00	309+02.44	16.0	12.0	25.0	16.0	9.0	23.5

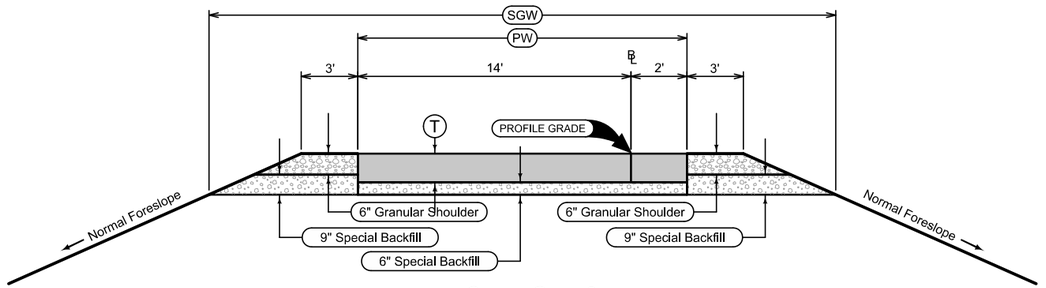
Quantity calculations based on vertical pavement edges.

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

See Tab. 112-8 for Quantities



Cross Over 1



Cross Over 3

PCC Detour Pavement Jointing:
- Longitudinal joints adjacent to mainline pavement:
  - KT-2 or L-2 if mainline pavement is new. Bend bars out.
  - BT-3 if mainline pavement is existing.
- Longitudinal jointing of Detour Pavement (Crossover 2 Only)
  - KT-2 or L-2 spaced at one-quarter median width.
- Transverse joints:
  - Match existing roadway joints. CD joints are required.

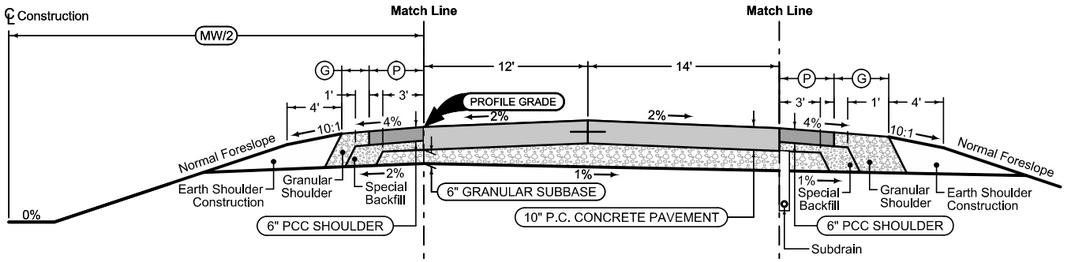
HMA Detour Pavement Jointing:
- Longitudinal joints: B

Combination Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1** or BT-5
**Bent bars will be permitted for the BT-1 joint, and 30" #5 bars can be substituted for the 36" #4 bars
Tie bars spaced at 42" centers
Transverse joints: C
Match joint locations in adjacent pavement

4_C_ 10-19-10

Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
EB	1392+13.00	1419+22.70	4.0	2.0
EB	1424+48.00	1516+70.00	4.0	2.0



Section shown in the direction of traffic.

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

4DP_ 10-19-10

Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
EB	1380+00.00	1516+70.00	64

Combination Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1** or BT-5
**Bent bars will be permitted for the BT-1 joint, and 30" #5 bars can be substituted for the 36" #4 bars
Tie bars spaced at 42" centers
Transverse joints: C
Match joint locations in adjacent pavement

4_C_ 10-19-10

Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
EB	1380+00.00	1516+70.00	4.0	4.0

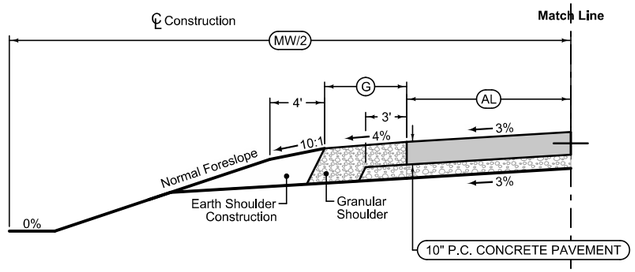
Auxiliary Lane

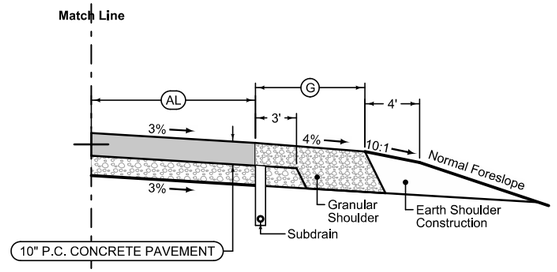
Longitudinal joint: L or KT
Transverse joint: Match Mainline

Auxiliary Lane Granular Shoulder

4_AuxLane_PCC_ 10-19-10 | 4_AL_Shldr_G_ 10-19-10

Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
EB	1419+23.00	1420+43.00	0.0 - 12.0	6.0
EB	1420+43.00	1421+93.00	12.0	6.0





Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

Auxiliary Lane Granular Shoulder

4_AuxLane_PCC_ 10-19-10 | 4_AL_Shldr_G_ 10-19-10

Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet
EB	1473+15.00	1479+16.14	0.0-40.0	6.0
EB	1489+95.00	1502+25.00	39.3-0.0	6.0

See Tab 100-24 for pavement quantities.

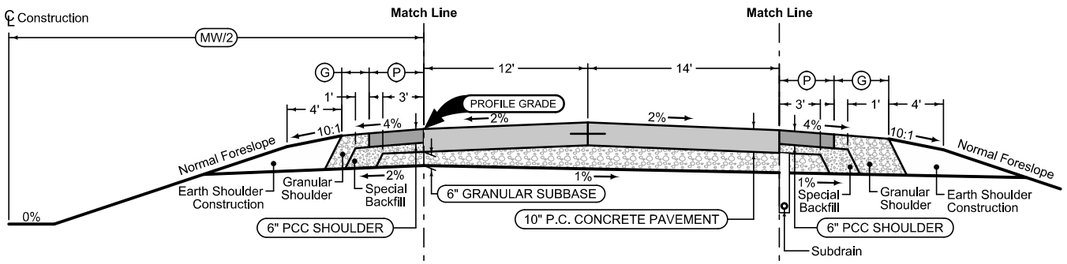
See Tab 112-9 for shoulder quantities.

U.S. Highway 30 EB

Combination Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1** or BT-5
**Bent bars will be permitted for the BT-1 joint, and 30" #5 bars can be substituted for the 36" #4 bars
Tie bars spaced at 42" centers
Transverse joints: C
Match joint locations in adjacent pavement

			4_C_ 10-19-10	
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
WB	1389+00.00	1421+18.00	4.0	2.0
WB	1426+43.00	1516+70.00	4.0	2.0



Section shown in the direction of traffic.

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

			4DP_ 10-19-10
Direction of Travel	BEGIN STATION	END STATION	(MW) Feet
WB	1389+00.00	1516+70.00	64

Combination Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1** or BT-5
**Bent bars will be permitted for the BT-1 joint, and 30" #5 bars can be substituted for the 36" #4 bars
Tie bars spaced at 42" centers
Transverse joints: C
Match joint locations in adjacent pavement

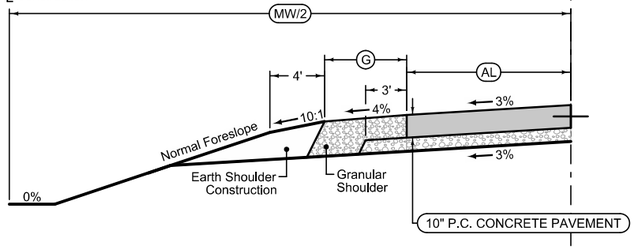
			4_C_ 10-19-10	
Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(G) Feet
WB	1389+00.00	1476+80.00	4.0	4.0
WB	1488+00.00	1516+70.00	4.0	4.0

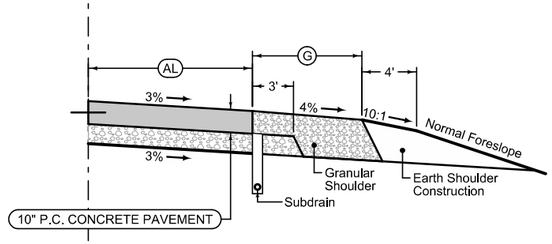
Auxiliary Lane

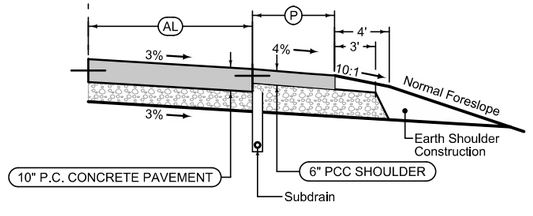
Longitudinal joint: L or KT
Transverse joint: Match Mainline

Auxiliary Lane Granular Shoulder

			4_AuxLane_PCC_ 10-19-10		4_AL_Shldr_G_ 10-19-10
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet	
WB	1423+73.00	1425+23.00	12.0	6.0	
WB	1425+23.00	1426+43.00	12.0 - 0.0	6.0	







Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

Auxiliary Lane Granular Shoulder

			4_AuxLane_PCC_ 10-19-10		4_AL_Shldr_G_ 10-19-10
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(G) Feet	
WB	1448+75.00	1461+00.50	0.0 - 37.9	6.0	
WB	1472+23.74	1474+89.11	40.1 - 21.4	6.0	
WB	1476+41.56	1478+25.00	11.4-0.0	6.0	

Auxilary Lane 6" Paved Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1** or BT-5
**Bent bars will be permitted for the BT-1 joint, and 30" #5 bars can be substituted for the 36" #4 bars
Tie bars spaced at 42" centers
Transverse joints: C
Match joint locations in adjacent pavement

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

			4_AuxLane_PCC_ 10-19-10		2_AL_Shldr_FullPCC_ 10-19-10
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(P) Feet	
WB	1474+89.11	1476+41.56	21.4-11.4	11	

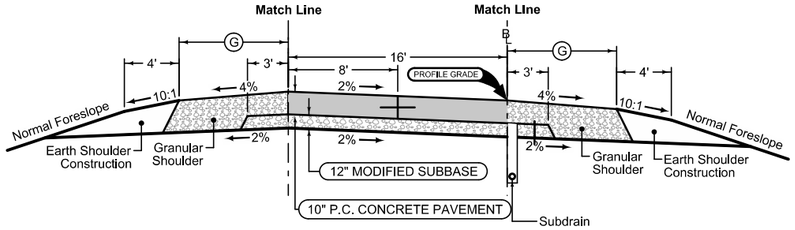
See Tab 100-24 for pavement quantities.

See Tab 112-9 for shoulder quantities.

U.S. Highway 30 WB

Granular Shoulder

	BEGIN STATION	END STATION	(G) Feet
			1R_G_ 10-19-10
Ramp C	31440+55.75	31456+46.34	4.0
Ramp D	41474+40.45	41489+96.32	4.0



Granular Shoulder

	BEGIN STATION	END STATION	(G) Feet
			1R_G_ 10-19-10
Ramp C	31440+55.75	31456+46.34	6.0
Ramp D	41474+40.45	41489+96.32	6.0

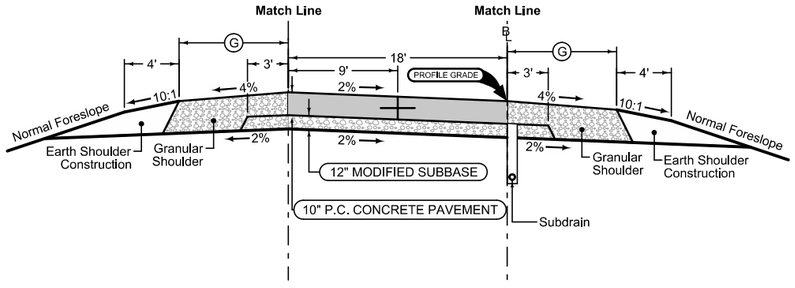
Section shown in the direction of traffic.

Ramp Jointing:
Transverse joints: CD at 15' spacing.
Longitudinal joints: L-2

	BEGIN STATION	END STATION
		1RP_ 10-17-17
Ramp C	31440+55.75	31456+46.34
Ramp D	41474+40.45	41489+96.32

Granular Shoulder

	BEGIN STATION	END STATION	(G) Feet
			1R_G_ 10-19-10
Loop A	11479+15.00	11486+64.71	4.0
Loop B	21472+25.00	21479+75.06	4.0



Granular Shoulder

	BEGIN STATION	END STATION	(G) Feet
			1R_G_ 10-19-10
Loop A	11479+15.00	11486+64.71	6.0
Loop B	21472+25.00	21479+75.06	6.0

Section shown in the direction of traffic.

Loop Jointing:
Transverse joints: CD at 15' spacing
Longitudinal joint: L-2

	BEGIN STATION	END STATION
		1LP_ 10-17-17
Loop A	11479+15.00	11486+64.71
Loop B	21472+25.00	21479+75.06

See Tab 100-24 for pavement quantities.

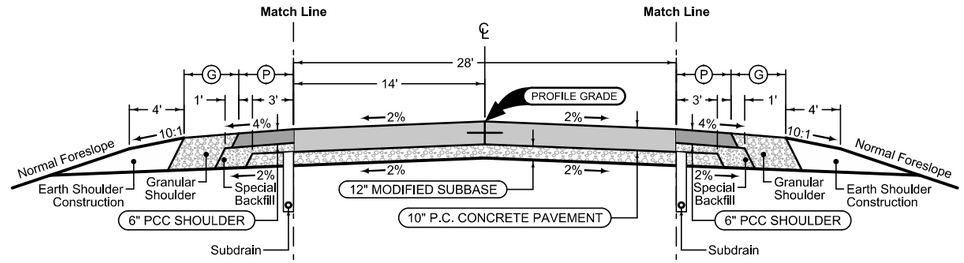
See Tab 112-9 for shoulder quantities.

US 218 RAMPS/LOOPS

Combination Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1** or BT-5
**Bent bars will be permitted for the BT-1 joint, and 30" #5 bars can be substituted for the 36" #4 bars
Tie bars spaced at 42" centers
Transverse joints: C
Match joint locations in adjacent pavement

2_C_ 10-19-10			
STATION TO STATION		(P) Feet	(G) Feet
241468+00	241503+00	4.0	4.0



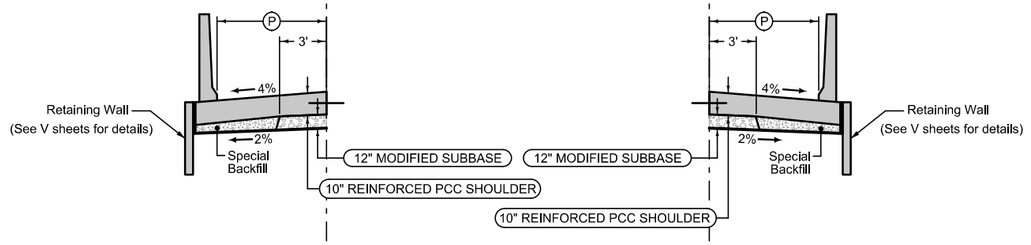
Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

2P_ 10-19-10	
STATION TO STATION	
241468+00	241503+00

Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 20' spacing

2_P_FullPCC_ 10-19-10		
STATION TO STATION		(P) Feet
214171+25.00	241474+45.72	8



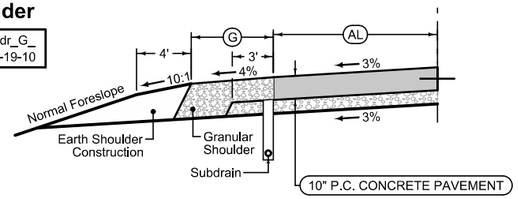
Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

2_AuxLane_PCC_ 10-19-10			
STATION TO STATION		(AL) Feet	(G) Feet
241483+36.20	241487+96.20	12.0	6.0
241487+96.20	241489+76.20	12.0 - 0.0	6.0

Auxiliary Lane Granular Shoulder

2_AL_Shldr_G_ 10-19-10



Combination Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1** or BT-5
**Bent bars will be permitted for the BT-1 joint, and 30" #5 bars can be substituted for the 36" #4 bars
Tie bars spaced at 42" centers
Transverse joints: C
Match joint locations in adjacent pavement

2_C_ 10-19-10			
STATION TO STATION		(P) Feet	(G) Feet
241468+00	241503+00	4.0	4.0

Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 20' spacing

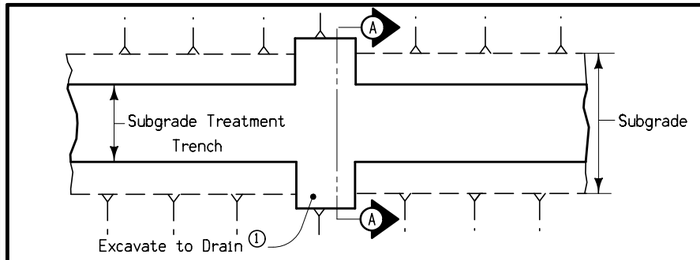
2_P_FullPCC_ 10-19-10		
STATION TO STATION		(P) Feet
241473+75.00	241474+45.72	8

See Tab 100-24 for pavement quantities.

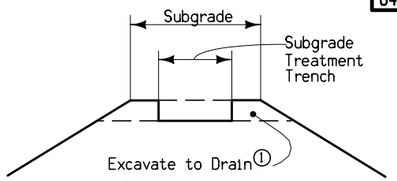
See Tab 112-9 for shoulder quantities.

U.S. Highway 218

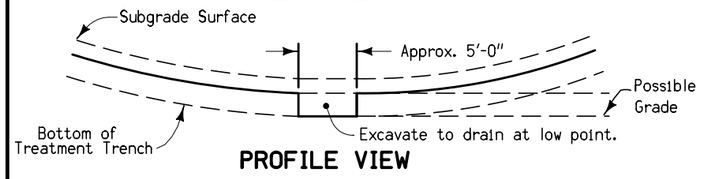
8301
04-20-04



PLAN VIEW



SECTION A-A



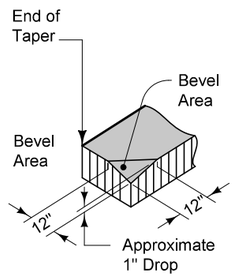
PROFILE VIEW

① The contractor shall excavate a portion of subgrade as necessary to provide drainage for the treatment trench. When the subgrade treatment is granular soils, the contractor shall excavate a portion of the subgrade and backfill it with the granular soils every 300 feet.

This excavation shall be considered incidental.

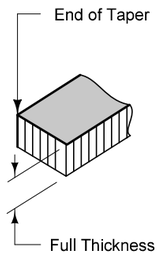
TYPICAL DETAILS OF DRAIN FOR SUBGRADE TREATMENT TRENCH

7101
10-19-10



DETAIL 'A'

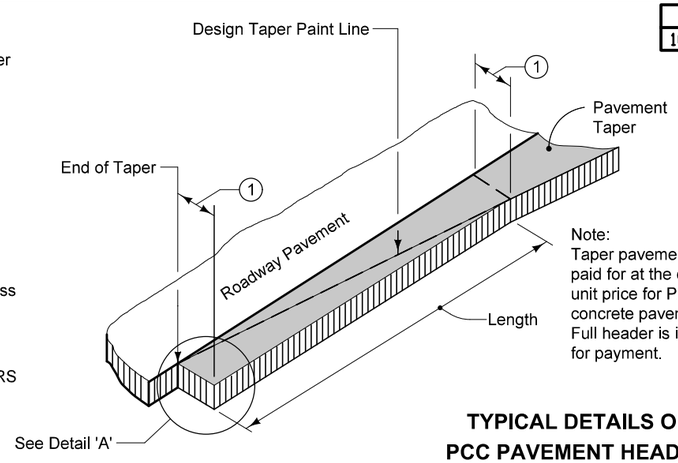
FOR
GRANULAR SHOULDERS



DETAIL 'A'

FOR
PAVED SHOULDERS

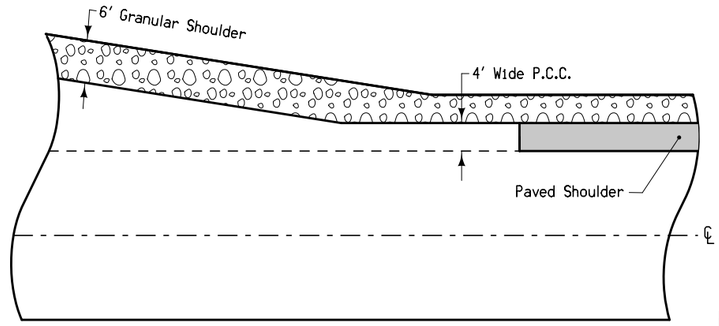
① Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).



Note:
Taper pavement to be paid for at the contract unit price for P.C. concrete pavement. Full header is included for payment.

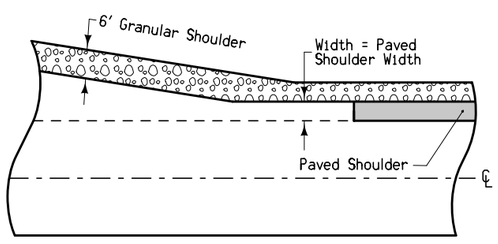
TYPICAL DETAILS OF PCC PAVEMENT HEADER

7154
MODIFIED

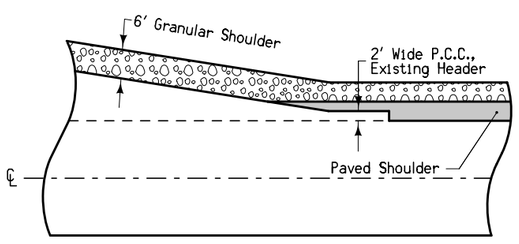


PAVED SHOULDER DETAIL AT RAMP TAPERS (Non-Interstate)

7154A
10-20-09



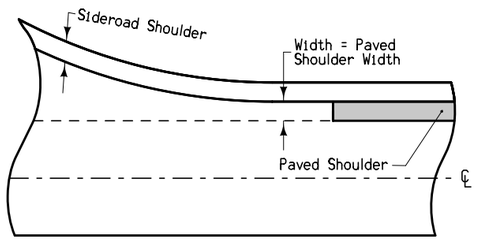
With Newly Constructed Turn Lanes



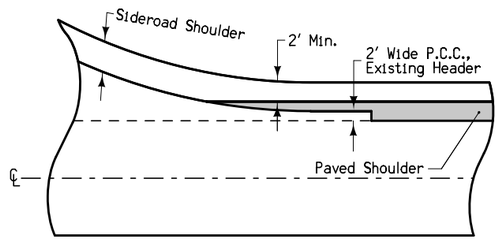
At UAC Turn Lanes

PAVED SHOULDER DETAIL AT TURN LANES

7154B
10-20-09



With Newly Constructed Returns

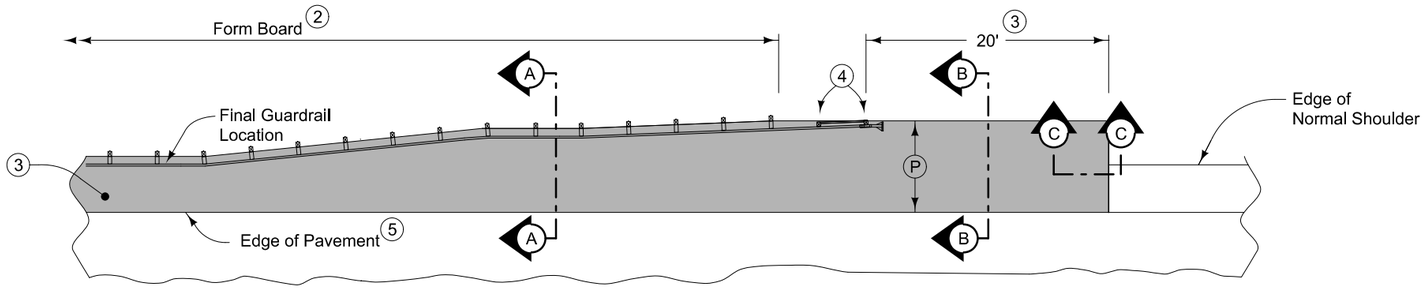


At UAC Returns

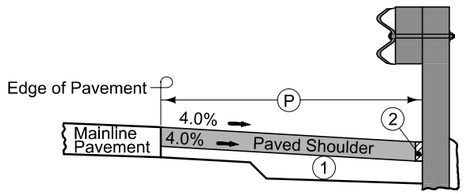
PAVED SHOULDER DETAIL AT RETURNS

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER B.9

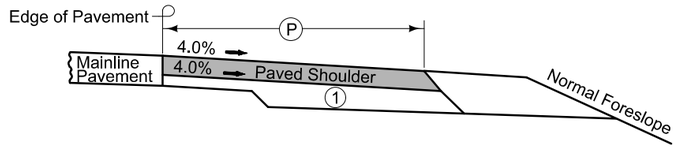
9:21:16 AM 3/30/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231B01.sht



PLAN VIEW

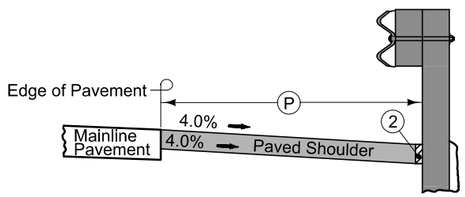


Section A-A

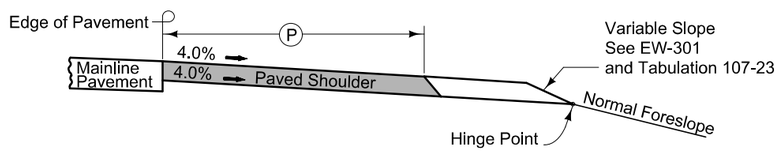


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

7156
Modified

6" PCC Paved Shoulder at guardrail 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 P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Refer to Tabulation 112-9 for shoulder quantities.

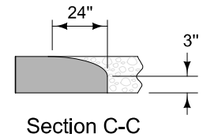
(1) For subgrade treatment, refer to other details in the plan.

(2) PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.

(3) Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.

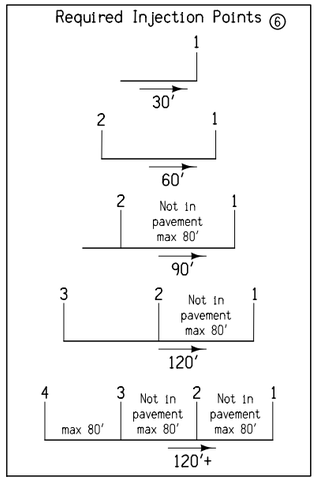
(4) Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

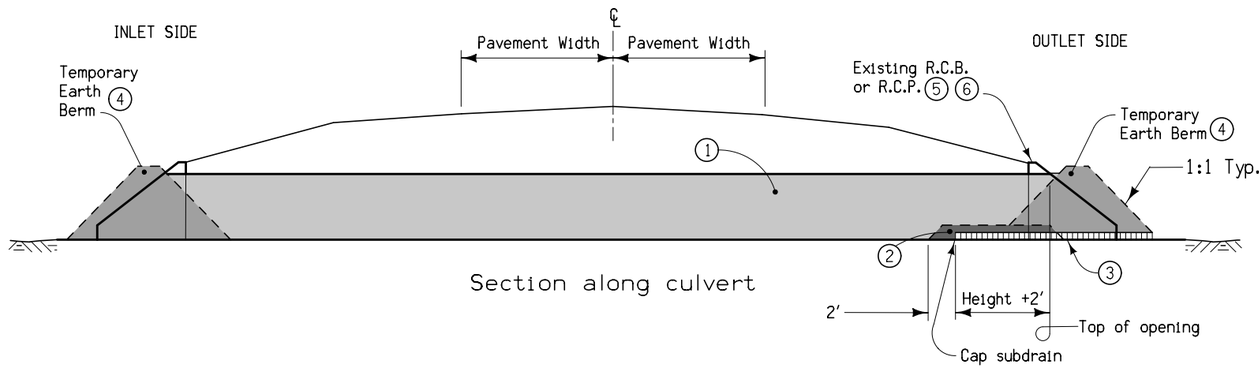
(5) 'KT-1 joint for PCC shoulder.

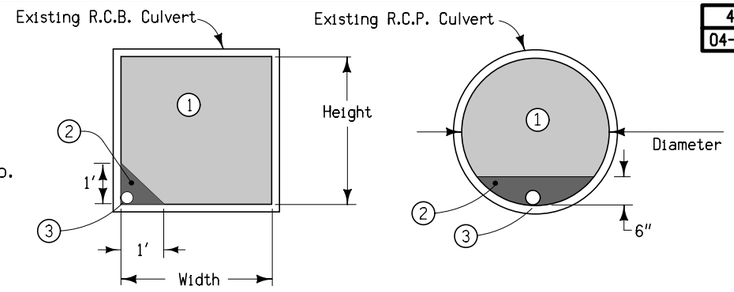


Section C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL





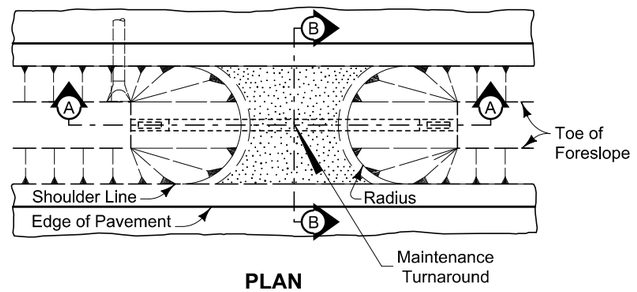


4315
04-15-08

① Flowable Mortar.
② Granular Backfill.
③ 4″ subdrain at flowline elevation of culvert shall be extended into the culvert a distance of 2′ plus the height of the culvert. Granular Backfill covers subdrain and extends an additional 2′. Subdrain and granular backfill are incidental to flowable mortar.
④ Ends of culvert shall be plugged sufficiently to retain flowable mortar. Temporary earth berms are incidental to flowable mortar.
⑤ Removal of headwalls may be required.
⑥ Outlet shall be filled first. See injection point detail for additional information.

DETAILS OF CULVERT ABANDONMENT WITH FLOWABLE MORTAR (Rectangular structures less than 8′ in either height or width. Circular structures less than 10′ Dia.)

8101
Modified



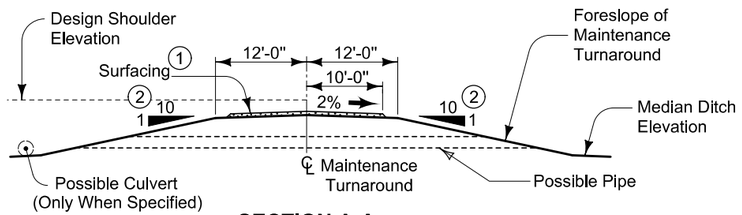
PLAN

① Surfacing quantities based on a 6 inch layer of Macadam Stone base and a 4 inch layer of Class 'A' Road Stone. Apply surfacing as directed by the Engineer.

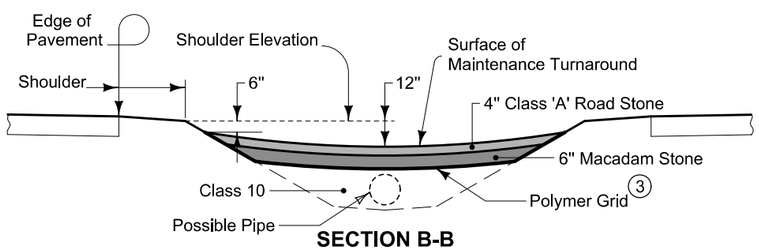
② Construct 8:1 foreslope when drainage pipe is incorporated into the maintenance turnaround.

③ Install Polymer Grid between Class 10 and stone material.

④ See Standard Road Plan DR-212.



SECTION A-A



SECTION B-B

MAINTENANCE TURNAROUND

Location		Class 'A' Road Stone	Macadam Stone	Polymer Grid	Class 10	Pipe Length	Beveled Pipe & Guard ④	Radius	Remarks
Road Identification	Station	CY	TONS	SY	CY	LF	EACH	FT	
U.S. Highway 30	1398+08.00	29.9	78.8	269.3	--	--	--	20.0	--

100-1D
10-18-05

PROJECT DESCRIPTION

This project involves PCC paving and grading U.S. Highway 30 from a two-lane to a four-lane facility from east of 22nd Avenue to west of 25th Avenue, including the new construction of the U.S. Highway 218 interchange.

100-1C
04-17-12

ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)

Division 1: Roadway Items
Division 2: Benton County Items

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
1	2101-0850001	CLEARING AND GRUBBING	ACRE	138.0					138.0					
2	2102-0425071	SPECIAL BACKFILL	CY	15,460.6					15,460.6					
3	2102-2624980	CONTRACTOR FURNISHED SELECT TREATMENT	CY	83,486.7					83,486.7					
4	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	566,741.0					566,741.0					
5	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	230,803.0					230,803.0					
6	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	2,253.0					2,253.0					
7	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	100.0					100.0					
8	2102-4560000	LOCATING TILE LINES	STA	273.40					273.40					
9	2105-8425011	TOPSOIL, SPREAD	CY	114,939.0					114,939.0					
10	2105-8425020	TOPSOIL, STRIP AND STOCKPILE	CY	133,787.0					133,787.0					
11	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS OR STRUCTU RES	CY	2,061.6					2,061.6					
12	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	826,371.7					826,371.7					
13	2107-3825025	GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN	CY	1,060.0					1,060.0					
14	2111-8174100	GRANULAR SUBBASE	SY	101,727.9	920.6				102,648.5					
15	2113-0001100	SUBGRADE STABILIZATION MATERIAL, POLYMER GRID	SY	372.3					372.3					
16	2115-0100000	MODIFIED SUBBASE	CY	9,370.5					9,370.5					
17	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	13,460.7					13,460.7					
18	2122-5190006	PAVED SHOULDER, P.C. CONCRETE, 6 IN.	SY	23,540.3					23,540.3					
19	2122-5190501	PAVED SHOULDER, PORTLAND CEMENT CONCRETE (PAVED SHOULDER PANEL FOR BRIDGE END DRAIN)	SY	103.0					103.0					
20	2122-5191005	REINFORCED PAVED SHOULDER FOR CONCRETE BARRIER	SY	396.2					396.2					
21	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	685.20					685.20					
22	2210-0475290	MACADAM STONE BASE	TON	82.5					82.5					
23	2301-1003100	STANDARD OR SLIP-FORM PORTLAND CEMENT CONCRETE PAVEMENT, QM-C, CLASS 3 DURABILITY, 10 IN.	SY	106,695.9	813.8				107,509.7					
24	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	1.00					1.00					
25	2304-0100000	DETOUR PAVEMENT	SY	9,906.8					9,906.8					
26	2312-8260050	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	CY	594.3					594.3					
27	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	1,742.9					1,742.9					
28	2402-0425030	GRANULAR BACKFILL	CY	8,180.0					8,180.0					
29	2402-0425040	FLOODED BACKFILL	CY	5,201.2					5,201.2					
30	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	5,791.6					5,791.6					
31	2416-0100018	APRONS, CONCRETE, 18 IN. DIA.	EACH	1					1					
32	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	EACH	30					30					
33	2416-0100036	APRONS, CONCRETE, 36 IN. DIA.	EACH	8					8					
34	2416-0100042	APRONS, CONCRETE, 42 IN. DIA.	EACH	4					4					
35	2416-0100054	APRONS, CONCRETE, 54 IN. DIA.	EACH	2					2					
36	2416-0100072	APRONS, CONCRETE, 72 IN. DIA.	EACH	2					2					
37	2416-0100078	APRONS, CONCRETE, 78 IN. DIA.	EACH	2					2					
38	2416-0101036	REMOVE AND REINSTALL CONCRETE PIPE APRONS LESS THAN OR EQUAL TO 36 IN.	EACH	1					1					
39	2416-0102236	APRON, LOW CLEARANCE CONCRETE, EQUIVALENT DIAMETER 36 IN.	EACH	2					2					
40	2416-1180024	CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.	LF	1082					1082					
41	2416-1180036	CULVERT, CONCRETE ROADWAY PIPE, 36 IN. DIA.	LF	402					402					
42	2416-1180042	CULVERT, CONCRETE ROADWAY PIPE, 42 IN. DIA.	LF	394					394					
43	2416-1180054	CULVERT, CONCRETE ROADWAY PIPE, 54 IN. DIA.	LF	258					258					
44	2416-1180072	CULVERT, CONCRETE ROADWAY PIPE, 72 IN. DIA.	LF	242					242					
45	2416-1180078	CULVERT, CONCRETE ROADWAY PIPE, 78 IN. DIA.	LF	74					74					
46	2416-1200236	CULVERT, LOW CLEARANCE CONCRETE ROADWAY PIPE, EQUIVALENT DIAMETER 36 IN.	LF	66					66					
47	2416-1240024	CULVERT, 3000D CONCRETE ROADWAY PIPE, 24 IN. DIA.	LF	210					210					
48	2416-1240036	CULVERT, 3000D CONCRETE ROADWAY PIPE, 36 IN. DIA.	LF	296					296					
49	2416-1262024	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 24 IN. DIA.	LF	340					340					
50	2416-1262036	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 36 IN. DIA.	LF	232					232					
51	2416-1262042	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 42 IN. DIA.	LF	108					108					
52	2417-0250021	APRONS, METAL, ARCH, 21 IN. X 15 IN.	EACH	4					4					
53	2417-0250057	APRONS, METAL, ARCH, 57 IN. X 38 IN.	EACH	2					2					
54	2417-1060024	CULVERT, CORRUGATED METAL ROADWAY PIPE, 24 IN. DIA.	LF	87					87					
55	2417-1080021	CULVERT, CORRUGATED METAL ARCH ENTRANCE PIPE, 21 IN. X 15 IN.	LF	95					95					
56	2417-1080057	CULVERT, CORRUGATED METAL ARCH ENTRANCE PIPE, 57 IN. X 38 IN.	LF	40					40					
57	2417-2307036	DRAIN, CORRUGATED METAL SLOTTED PIPE, 36 IN., W/6 IN. GRATE	LF	152					152					
58	2417-5895018	BEVELED PIPE AND GUARD, 18 INCH	EACH	1					1					
59	2418-0000010	TEMPORARY STREAM DIVERSION	EACH	3					3					
60	2422-0360018	APRONS, UNCLASSIFIED, 18 IN. DIA.	EACH	2					2					
61	2422-0360024	APRONS, UNCLASSIFIED, 24 IN. DIA.	EACH	28					28					
62	2422-0360030	APRONS, UNCLASSIFIED, 30 IN. DIA.	EACH	2					2					
63	2422-1722018	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 18 IN. DIA.	LF	38					38					
64	2422-1722024	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 24 IN. DIA.	LF	1249					1249					
65	2422-1722030	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 30 IN. DIA.	LF	57					57					
66	2422-1723018	CULVERT, UNCLASSIFIED ROADWAY PIPE, 18 IN. DIA.	LF	194					194					
67	2432-0000100	MECHANICALLY STABILIZED EARTH RETAINING WALL	SF	9940					9940					

ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)

Division 1: Roadway Items
Division 2: Benton County Items

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
68	2435-0254900	BARRIER INTAKE, SW-549	EACH	4					4					
69	2435-0900000	BRIDGE END DRAIN, SW-538	EACH	1					1					
70	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	40,277.4					40,277.4					
71	2502-8212104	SUBDRAIN, PLASTIC PIPE, 4 IN.	LF	0					0					
72	2502-8221306	SUBDRAIN OUTLET, DR-306	EACH	169					169					
73	2503-0110018	STORM SEWER GRAVITY MAIN, TRENCHED, 18 IN.	LF	428.0					428.0					
74	2503-0500402	BRIDGE END DRAIN, DR-402	EACH	3					3					
75	2505-4008300	STEEL BEAM GUARDRAIL	LF	62.5					62.5					
76	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	4					4					
77	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4					4					
78	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	4					4					
79	2505-6000111	HIGH TENSION CABLE GUARDRAIL	LF	380.0					380.0					
80	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR	EACH	4					4					
81	2505-6000131	HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT	EACH	1					1					
82	2506-4984000	FLOWABLE MORTAR	CY	126.6					126.6					
83	2507-3250005	ENGINEERING FABRIC	SY	488.7					488.7					
84	2507-8029000	EROSION STONE	TON	342.5					342.5					
85	2510-6745850	REMOVAL OF PAVEMENT	SY	80,094.0					80,094.0					
86	2513-0001040	CONCRETE BARRIER, BA-104	LF	391.4					391.4					
87	2513-0001070	CONCRETE BARRIER RAIL, BA-107	EACH	2					2					
88	2518-0470005	CROSSOVER BARRICADE	EACH	1					1					
89	2518-6910000	SAFETY CLOSURE	EACH	90					90					
90	2519-2000010	FENCE, CHANNEL CROSSING, TYPE A	LF	70.0					70.0					
91	2519-2000020	FENCE, CHANNEL CROSSING, TYPE B	LF	35.0					35.0					
92	2519-3280000	FENCE, FIELD	LF	35,324.1					35,324.1					
93	2519-3300400	FIELD FENCE BRACE PANELS	EACH	491					491					
94	2519-4200140	REMOVAL OF FENCE, FIELD	LF	19,887.4					19,887.4					
95	2520-3350015	FIELD OFFICE	EACH	1					1					
96	2526-8285000	CONSTRUCTION SURVEY	LS	1.00					1.00					
97	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	2,966.41					2,966.41					
98	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	8					8					
99	2527-9263180	PAVEMENT MARKINGS REMOVED	STA	944.21					944.21					
100	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	8					8					
101	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	162.5					162.5					
102	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	5					5					
103	2528-8445110	TRAFFIC CONTROL	LS	1.00					1.00					
104	2528-8445113	FLAGGERS	EACH						See Proposal					
105	2528-9109020	TEMPORARY LANE SEPARATOR SYSTEM	LF	1,570.0					1,570.0					
106	2533-4980005	MOBILIZATION	LS	1.00					1.00					
107	2538-6975110	SEALING WELLS	EACH	1					1					
108	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE	STA	586.7					586.7					
109	2551-0000110	TEMP CRASH CUSHION	EACH	1					1					
110	2599-9999001	('ACRES' ITEM) SUBGRADE STABILIZATION	ACRE	27.0					27.0					
111	2601-2633100	MOWING	ACRE	516.0					516.0					
112	2601-2634100	MULCHING	ACRE	194.0					194.0					
113	2601-2634105	MULCHING, BONDED FIBER MATRIX	ACRE	1.0					1.0					
114	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	22.0					22.0					
115	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	172.0					172.0					
116	2602-0000020	SILT FENCE	LF	152,990.0					152,990.0					
117	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	17,578.5					17,578.5					
118	2602-0000050	SILT BASINS	EACH	62					62					
119	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	170,568.5					170,568.5					
120	2602-0000080	REMOVAL OF SILT BASINS	EACH	62					62					
121	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	17,056.9					17,056.9					
122	2602-0000130	TEMPORARY SEDIMENT CONTROL BASIN	EACH	8					8					
123	2602-0000135	REMOVAL OF TEMPORARY SEDIMENT CONTROL BASIN	EACH	8					8					
124	2602-0000140	MAINTENANCE OF TEMPORARY SEDIMENT CONTROL BASIN	EACH	24					24					
125	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE	LF	1,200.0					1,200.0					
126	2602-0000212	FLOATING SILT CURTAIN (HANGING)	LF	400.0					400.0					
127	2602-0000240	MAINTENANCE OF FLOATING SILT CURTAIN	LF	200.0					200.0					
128	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	700.0					700.0					
129	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	LF	700.0					700.0					
130	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1					1					
131	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1					1					
132	2612-0000520	ROADSIDE SPRAY FOR WEED CONTROL	ACRE	13.0					13.0					

SEE V SHEETS FOR ADDITIONAL BID ITEMS AND QUANTITIES

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	**CLEARING AND GRUBBING**
		Quantity includes all disturbed areas.
-	-	-
2	2102-0425071	**SPECIAL BACKFILL**
		Refer to Tab. 112-8 and Tab. 112-9 for locations and details.
		Includes an additional 4,895 tons for retaining wall core-out. Refer to Sheet Q.22.
-	-	-
3	2102-2624980	**CONTRACTOR FURNISHED SELECT TREATMENT**
		Refer to Tab. 103-11
-	-	-
4	2102-2625001	**EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED**
		Refer to "T" sheets, cross sections.

		Provide borrow material according to Section 2102 of the Standard Specifications.
-	-	-
5	2102-2710070	**EXCAVATION, CLASS 10, ROADWAY AND BORROW**
		Refer to T Sheets.
		Overhaul is incidental to roadway excavation on this project and will not be paid for separately.
		Includes settlement plates. Refer to Tab. 103-5, and Sheet CS.1 and Q Sheets for details.
-	-	-
6	2102-2710090	**EXCAVATION, CLASS 10, WASTE**
		Refer to "T" sheets, cross sections for details.

		Overhaul shall be incidental to the bid item.
-	-	-
7	2102-2712015	**EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS**
		A. Refer to Tab. 103-7 in the CS Sheets.
		B. Dispose of excess material according to Article 1106.07 of the current specifications.
-	-	-
8	2102-4560000	**LOCATING TILE LINES**
		Estimated for twice the length of the project.
-	-	-
9	2105-8425011	**TOPSOIL, SPREAD**
		Refer to Tab. 103-10 in the CS Sheets and T Sheets and cross sections for details.
		The Contractor shall spread all required topsoil and follow provisions in
		Section 2105 of the current specifications.
-	-	-
10	2105-8425020	**TOPSOIL, STRIP AND STOCKPILE**
		Refer to Tab. 103-10 in the CS Sheets and T Sheets and cross sections for details.
		The Contractor shall strip all required topsoil, stockpile topsoil on the project,
		and follow applicable provisions, for stripping and stockpiling of the topsoil,
		in Section 2105 of the current specifications.
-	-	-
11	2107-0425020	**COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS OR STRUCTU RES**
		Refer to Tab.104-4 in the CD Sheets
-	-	-
12	2107-0875100	**COMPACTION WITH MOISTURE CONTROL**
		Refer to Tab. 103-6 and T Sheets
		Cubic yards shown on the contract documents as determined by the template fill volume (742,885 CY)
		plus select treatment (83,486.7 CY).
		Shrinkage will not be included in the moisture control quantity.
-	-	-
13	2107-3825025	**GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN**
		Refer to Tab. 104-5C in the CS Sheets
-	-	-
14	2111-8174100	**GRANULAR SUBBASE**
		Refer to Tab. 100-24
-	-	-
15	2113-0001100	**SUBGRADE STABILIZATION MATERIAL, POLYMER GRID**
		Refer to Typical 8101 and Tab 104-8A.
-	-	-
16	2115-0100000	**MODIFIED SUBBASE**
		Refer to Tab. 100-24
-	-	-
17	2121-7425010	**GRANULAR SHOULDERS, TYPE A**
		Refer to Tab. 112-9 and Tab. 112-8
-	-	-
18	2122-5190006	**PAVED SHOULDER, P.C. CONCRETE, 6 IN.**
		Refer to Tab. 112-9 and Typicals
-	-	-

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
19	2122-5190501	**PAVED SHOULDER, PORTLAND CEMENT CONCRETE (PAVED SHOULDER PANEL FOR BRIDGE END DRAIN)**
		Refer to Tab. 104-8A.
-	-	-
20	2122-5191005	**REINFORCED PAVED SHOULDER FOR CONCRETE BARRIER**
		Refer to Tab. 112-9 and Typicals
-	-	-
21	2123-7450000	**SHOULDER CONSTRUCTION, EARTH**
		Refer to Tab. 112-9 and Typicals
		Requires 19,153.3 cu. yds. of Topsoil for Earth Shoulder Fill.
		No payment for overhaul allowed for this material. Approximately 18,856 cu. yds. of topsoil is available
		on the project.
-	-	-
22	2210-0475290	**MACADAM STONE BASE**
		Refer to Typical 8101 and Tab 104-8A.
-	-	-
23	2301-1003100	**STANDARD OR SLIP-FORM PORTLAND CEMENT CONCRETE PAVEMENT, QM-C, CLASS 3 DURABILITY, 10 IN.**
		Refer to Tab. 100-24
-	-	-
24	2301-6911722	**PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES**
		- -
-	-	-
25	2304-0100000	**DETOUR PAVEMENT**
		Refer to Tab. 112-8 and Typical Detour for location and details.
-	-	-
26	2312-8260050	**GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE**
		Refer to Typical 2_GradeGran in the B Sheets for locations and details and Typical 8101
-	-	-
27	2315-8275025	**SURFACING, DRIVEWAY, CLASS A CRUSHED STONE**
		Refer to Tab. 102-3
-	-	-
28	2402-0425030	**GRANULAR BACKFILL**
		Refer to V Sheets for locations and details
-	-	-
29	2402-0425040	**FLOODED BACKFILL**
30	2402-2720100	**EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT**
		Refer to Tab. 104-3 and Tab. 104-4 in the CD Sheets
-	-	-
31	2416-0100018	**APRONS, CONCRETE, 18 IN. DIA.**
		Refer to Tab. 104-5B in the M Sheets
-	-	-
32	2416-0100024	**APRONS, CONCRETE, 24 IN. DIA.**
33	2416-0100036	**APRONS, CONCRETE, 36 IN. DIA.**
34	2416-0100042	**APRONS, CONCRETE, 42 IN. DIA.**
35	2416-0100054	**APRONS, CONCRETE, 54 IN. DIA.**
36	2416-0100072	**APRONS, CONCRETE, 72 IN. DIA.**
37	2416-0100078	**APRONS, CONCRETE, 78 IN. DIA.**
		Refer to Tab. 104-3 in the CD Sheets
-	-	-
38	2416-0101036	**REMOVE AND REINSTALL CONCRETE PIPE APRONS LESS THAN OR EQUAL TO 36 IN.**
		Refer to Tab. 112-8
-	-	-
39	2416-0102236	**APRON, LOW CLEARANCE CONCRETE, EQUIVALENT DIAMETER 36 IN.**
40	2416-1180024	**CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.**
41	2416-1180036	**CULVERT, CONCRETE ROADWAY PIPE, 36 IN. DIA.**
42	2416-1180042	**CULVERT, CONCRETE ROADWAY PIPE, 42 IN. DIA.**
43	2416-1180054	**CULVERT, CONCRETE ROADWAY PIPE, 54 IN. DIA.**
44	2416-1180072	**CULVERT, CONCRETE ROADWAY PIPE, 72 IN. DIA.**
45	2416-1180078	**CULVERT, CONCRETE ROADWAY PIPE, 78 IN. DIA.**
46	2416-1200236	**CULVERT, LOW CLEARANCE CONCRETE ROADWAY PIPE, EQUIVALENT DIAMETER 36 IN.**
47	2416-1240024	**CULVERT, 3000D CONCRETE ROADWAY PIPE, 24 IN. DIA.**
48	2416-1240036	**CULVERT, 3000D CONCRETE ROADWAY PIPE, 36 IN. DIA.**
49	2416-1262024	**CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 24 IN. DIA.**
50	2416-1262036	**CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 36 IN. DIA.**
51	2416-1262042	**CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 42 IN. DIA.**
		Refer to Tab. 104-3 in the CD Sheets
-	-	-
52	2417-0250021	**APRONS, METAL, ARCH, 21 IN. X 15 IN.**
53	2417-0250057	**APRONS, METAL, ARCH, 57 IN. X 38 IN.**
		Refer to Tab. 102-3
-	-	-
54	2417-1060024	**CULVERT, CORRUGATED METAL ROADWAY PIPE, 24 IN. DIA.**
		Refer to Tab. 104-3 in the CD Sheets
-	-	-

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
55	2417-1080021	CULVERT, CORRUGATED METAL ARCH ENTRANCE PIPE, 21 IN. X 15 IN.
56	2417-1080057	CULVERT, CORRUGATED METAL ARCH ENTRANCE PIPE, 57 IN. X 38 IN.
		Refer to Tab. 102-3
-	-	-
57	2417-2307036	DRAIN, CORRUGATED METAL SLOTTED PIPE, 36 IN., W/6 IN. GRATE
58	2417-5895018	BEVELED PIPE AND GUARD, 18 INCH
		Refer to Tab. 112-8
-	-	-
59	2418-0000010	TEMPORARY STREAM DIVERSION
		Includes two for RCB at Sta. 1400+94 (US 30) and one for RCB at Sta. 231420+88 (23rd Ave)
-	-	-
60	2422-0360018	APRONS, UNCLASSIFIED, 18 IN. DIA.
61	2422-0360024	APRONS, UNCLASSIFIED, 24 IN. DIA.
62	2422-0360030	APRONS, UNCLASSIFIED, 30 IN. DIA.
63	2422-1722018	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 18 IN. DIA.
64	2422-1722024	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 24 IN. DIA.
65	2422-1722030	CULVERT, UNCLASSIFIED ENTRANCE PIPE, 30 IN. DIA.
		Refer to Tab. 102-3
-	-	-
66	2422-1723018	CULVERT, UNCLASSIFIED ROADWAY PIPE, 18 IN. DIA.
		See Tab. 112-8
-	-	-
67	2432-0000100	MECHANICALLY STABILIZED EARTH RETAINING WALL
		Refer to V Sheets for locations and details
-	-	-
68	2435-0254900	BARRIER INTAKE, SW-549
69	2435-0900000	BRIDGE END DRAIN, SW-538
		Refer to Tab. 104-5B in the M Sheets
-	-	-
70	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.
		Refer to Tab. 104-9 in the CS Sheets
-	-	-
71	2502-8212104	SUBDRAIN, PLASTIC PIPE, 4 IN.
		Refer to Tab. 104-5C in the CS Sheets
-	-	-
72	2502-8221306	SUBDRAIN OUTLET, DR-306
		See Tab. 104-9 in the CS Sheets for details.
		Special attention should be paid to all detail notes on the tab.
-	-	-
73	2503-0110018	STORM SEWER GRAVITY MAIN, TRENCHED, 18 IN.
		Refer to Tab. 104-5B in the M Sheets
-	-	-
74	2503-0500402	BRIDGE END DRAIN, DR-402
		Refer to Tab. 104-8A.
-	-	-
75	2505-4008300	STEEL BEAM GUARDRAIL
76	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201
77	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED
78	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205
		Refer to Tab. 108-8A
-	-	-
79	2505-6000111	HIGH TENSION CABLE GUARDRAIL
80	2505-6000121	HIGH TENSION CABLE GUARDRAIL, END ANCHOR
81	2505-6000131	HIGH TENSION CABLE GUARDRAIL, SPARE PARTS KIT
		Refer to Tab. 108-9A
-	-	-
82	2506-4984000	FLOWABLE MORTAR
		Refer to Tab. 110-9 and Typical 4315.
		Silt inside existing culverts need not be removed prior to placing flowable mortar.
-	-	-
83	2507-3250005	ENGINEERING FABRIC
		Refer to Tab. 104-8A
		Use material specified for embankment erosion control according to Article 4196.01, B, 3.
		Material will be measured in sq. yds. of actual area covered.
		Refer to details.
-	-	-
84	2507-8029000	EROSION STONE
		Refer to Tab. 104-8A.

		The tabulation includes estimated locations for placement of "Erosion Stone" to
		address erosion to be encountered during construction. Verify the specific
		locations with the Engineer prior to beginning placement. Bid item includes
		30% additional quantity for other locations of erosion.
-	-	-

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ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
85	2510-6745850	REMOVAL OF PAVEMENT
		Refer to Tab. 110-1 and 102-5
		Existing longitudinal subdrains will likely be encountered and shall be removed, including outlets. This
		removal is incidental to removal of existing pavements and shall include complete removal of longitudinal
		subdrain pipe, porous backfill, shoulder stone and outlet. The porous backfill can be reused as suitable
		soil if mixed throughly with cohesive soil.
-	-	-
86	2513-0001040	CONCRETE BARRIER, BA-104
87	2513-0001070	CONCRETE BARRIER RAIL, BA-107
		Refer to Tab. 108-18B
-	-	-
88	2518-0470005	CROSSOVER BARRICADE
		Refer to Detail 540-13 on Sheet U.2
-	-	-
89	2518-6910000	SAFETY CLOSURE
		Refer to Tab. 108-13A
-	-	-
90	2519-2000010	FENCE, CHANNEL CROSSING, TYPE A
91	2519-2000020	FENCE, CHANNEL CROSSING, TYPE B
92	2519-3280000	FENCE, FIELD
93	2519-3300400	FIELD FENCE BRACE PANELS
		Refer to Tab. 100-7
-	-	-
94	2519-4200140	REMOVAL OF FENCE, FIELD
		Refer to Tab. 100-7R
-	-	-
95	2520-3350015	FIELD OFFICE
		- -
-	-	-
96	2526-8285000	CONSTRUCTION SURVEY
		- -
-	-	-
97	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED
98	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED
99	2527-9263180	PAVEMENT MARKINGS REMOVED
100	2527-9263190	SYMBOLS AND LEGENDS REMOVED
		Refer to Tab. 108-22 and Tab. 108-29
-	-	-
101	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE
		Refer to Tab. 108-33
-	-	-
102	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE
		Refer to Tab. 108-27
-	-	-
103	2528-8445110	TRAFFIC CONTROL
		- -
-	-	-
104	2528-8445113	FLAGGERS
		- -
-	-	-
105	2528-9109020	TEMPORARY LANE SEPARATOR SYSTEM
		Refer to Tab. 108-35
-	-	-
106	2533-4980005	MOBILIZATION
		- -
-	-	-
107	2538-6975110	SEALING WELLS
		For the plug and abandonment of the existing well at Sta. 1483+33, 206' LT (ML030).
-	-	-
108	2548-0000200	MILLED SHOULDER RUMBLE STRIPS, PCC SURFACE
		Refer to Tab. 112-10
-	-	-
109	2551-0000110	TEMP CRASH CUSHION
		See Tab. 108-30
-	-	-

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
110	**2599-9999001**	**('ACRES' ITEM) SUBGRADE STABILIZATION**
		Apply and distribute evenly and uniformly 1.5 tons per acre of dry cereal straw or native grass straw.
		Use Certified Noxious Weed Seed Free Mulch certified by the Iowa Crop Improvement Association or other state's
		Crop Improvement Associations.
		The general absence of straw longer than 6 inches after distribution will be considered excessive
		pulverization and will not be accepted.
		After the application of the dry cereal straw or native grass straw, apply a tackifier that will easily
		mix with water and shall be noncorrosive to hydraulic application equipment. The tackifier will be
		nonfoaming and contain mixture enhancers to prevent foaming and mixing problems during agitation in the
		application equipment.
		Application equipment will have both mechanical agitation and a slurry bypass.
		Application rate will be as indicated by the manufacturer product label for the site conditions and
		time of year.
		Tackifiers will be considered safe to the applicator, adjacent workers, and the environment when properly
		applied according to Environmental Protection Agency (EPA) and other regulatory agencies.
		Material Safety Data Sheets (MSDS) will be required to be submitted to the Engineer prior to application.
		The tackifier will be nontoxic to plants, fish and other wildlife and 100% biodegradable.
		The tackifier will be water soluble natural proteins, vegetable gums, guar gums, starch, psyllium, pitch, or
		rosen type blended with gelling and hardening agents, or a water soluble blend of hydrophilic polymers,
		viscosifiers, sticking aids and other gums.
		Guar gum based tackifiers will consist of a minimum of 95% guar gum, by weight. The remaining 5% will consist
		of dispersing and cross-link additives. Starch will be a non-ionic, cold-water soluble (pre-gelatinized)
		granular cornstarch. Psyllium will be a finely ground muciloid coating of plantago seeds that is applied
		in a wet slurry to the surface of the soil. Pitch and Rosen will be a non-ionic pitch and rosin emulsion that
		has a minimum solids content of 48 percent. The rosin will be a minimum of 26 percent of the total solids
		content. The tackifier will be a non-corrosive, water-dilutable emulsion that cures to water-insoluble
		binding and cementing agent upon application.
		Approved products include:
		Hyrdatack P by Innovative Turf Solutions, LLC
		HF5000 Tack by Rantec Corporation
		Second Nature Tacpac GTX by Central Fiber Corp.
		Startak 100 P by Chemstar
		Method of Measurement will be in acres to the nearest 0.1 acre of subgrade satisfactory stabilized.
		Basis of Payment for Subgrade Stabilization will be the contract unit price per acre to the nearest 0.1 acre
		for Subgrade Stabilization. Payment is full compensation for preparing the area and all materials, labor,
		and equipment required to stabilized the subgrade.
-	-	-
111	**2601-2633100**	**MOWING**
		Estimate based on four mowings of entire seeded area when the vegetation reaches a height of 12 inches.
		Mow to a height of 4 to six inches.
		Areas inaccessible to field equipment shall be cut with appropriate hand equipment and kept current with the
		mowing of adjacent areas.
-	-	-
112	**2601-2634100**	**MULCHING**
		Mulching per Article 2601.03, E, 2. Anchor mulch into the soil using mulch anchoring equipment with a
		minimum of two passes.
		Included for areas requiring reshaping and seedbed preparation. Mulch shall be Certified Noxious Weed Seed
		Free Mulch as certified by the Iowa Crop Improvement Association or adjacent states Crop Improvement
		Associations.
		Mulch Rate: 1 1/2 tons of dry cereal straw or native grass straw per acre.
-	-	-
113	**2601-2634105**	**MULCHING, BONDED FIBER MATRIX**
		A Bonded Fiber Matrix shall be applied as the mulch as directed by the Engineer.
		The seed and fertilizer for the area to be covered shall be applied before the Bonded Fiber
		Matrix Hydraulic Mulch application.
		Application rate shall be a minimum of 3000 lbs per acre.
-	-	-

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10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
114	**2601-2636043**	**SEEDING AND FERTILIZING (RURAL)**
		All areas 8 foot adjacent to the shoulder on U.S.30, interchange ramps, sideroads, and all the disturbed
		area of 23rd Avenue, Youngsville Café road, the farm access road, and the field entrance across from Ramp A
		shall be fertilized per Article 2601.03, C, 3, and seeded per the following:
		109 lbs/acre Alkali grass
		109 lbs/acre Turf-type Tall Fescue (at least two cultivars)
		66 lbs/acre Perennial ryegrass
		66 lbs/acre Crested wheatgrass
		44 lbs/acre Hard fine fescue
		44 lbs/acre Sheep fine fescue
		The mix may contain a 10% increase of any of the combinations of grasses listed above.
		Turf-type Tall Fescue will contain a minimum 36 lbs. of each cultivar Inferno and Quest.
		All seed and fertilizer shall be applied with ground driven equipment. No broadcast seeding will be allowed.
		Full seedbed preparation will be required. Seeder will have a maximum horizontal row spacing of 3.0 inches.
		All Seeding and Fertilizing (Rural) will be completed during the time frame of August 27 through September 15.
-	-	-
115	**2601-2642100**	**STABILIZING CROP - SEEDING AND FERTILIZING**
		Included for all disturbed areas with the exception of areas noted in item SEEDING AND FERTILIZING (RURAL).
-	-	-
116	**2602-0000020**	**SILT FENCE**
		Refer to Tab. 100-17 in the CE Sheets
		The tabulation includes estimated locations for placement of "Silt Fence" to address
		erosion to be encountered during construction. Verify the specific locations with
		the Engineer prior to beginning placement. Bid item includes 25% additional quantity
		for field adjustments and replacements.
-	-	-
117	**2602-0000030**	**SILT FENCE FOR DITCH CHECKS**
		Refer to Tab 100-18 in the CE Sheets
		The tabulation includes estimated locations for placement of "Silt Fence for Ditch Checks"
		to address erosion to be encountered during construction. Verify the specific locations
		with the Engineer prior to beginning placement. Bid item includes 50% additional quantity
		for field adjustments and replacements.
-	-	-
118	**2602-0000050**	**SILT BASINS**
		Refer to Tab. 100-14 in the CE Sheets
		The tabulation includes estimated locations for placement of "Silt Basins" to address
		erosion to be encountered during construction. Verify the specific locations with the
		Engineer prior to beginning placement. Bid item includes 100% additional quantity for
		field adjustment and maintenance.
-	-	-
119	**2602-0000071**	**REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS**
		Refer to Tab. 100-17 and Tab. 100-18 in the CE Sheets
		This item is included for silt fence and silt fence for 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.
-	-	-
120	**2602-0000080**	**REMOVAL OF SILT BASINS**
		Refer to Tab. 100-14 in the CE Sheets
-	-	-
121	**2602-0000101**	**MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK**
		Refer to Tab. 100-17 and Tab. 100-18 in the CE Sheets
		This item is included for clean-out and repair of the silt fence and silt fence for ditch
		checks during the grading project.
-	-	-
122	**2602-0000130**	**TEMPORARY SEDIMENT CONTROL BASIN**
123	**2602-0000135**	**REMOVAL OF TEMPORARY SEDIMENT CONTROL BASIN**
124	**2602-0000140**	**MAINTENANCE OF TEMPORARY SEDIMENT CONTROL BASIN**
		Refer to U sheets for Method of Measurement and Basis of Payment and Tab. 100-33 in the CE sheets for locations.
-	-	-
125	**2602-0000150**	**STABILIZED CONSTRUCTION ENTRANCE**
		Use aggregate meeting Gradation No. 13 of Section 4109 of the Standard Specifications.
		Use engineering fabric for Embankment Erosion Control complying with Section 4196 of the
		Standard Specifications.
		Obtain the Engineer's approval for location and length of stabilized entrances prior
		to constructing. Install fabric prior to placing aggregate. Install aggregate at a
		minimum depth of 6 inches and minimum width of 20 feet.
		Measurement will be in linear feet measured along the length of the entrance at the
		entrance centerline.
		Payment will be at the contract price per linear foot. Payment is full compensation
		for furnishing all materials and work necessary for installation, maintenance, and removal
		of stabilized construction entrance.
-	-	-

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
126	**2602-0000212**	**FLOATING SILT CURTAIN (HANGING)**
127	**2602-0000240**	**MAINTENANCE OF FLOATING SILT CURTAIN**
		Refer to Tab. 100-10
-	-	-
128	**2602-0000312**	**PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.**
		Refer to Tab. 100-19M in the CE sheets for location and spacing requirements.
		Refer to Standard Road Plan EC-204.
		Item is included for temporary perimeter sediment control, inlet protection, and water velocity reduction on
		slopes or ditches at locations to be determined during construction. Verify specific locations with the
		Engineer prior to beginning placement.
		Perimeter and Slope Sediment Control Devices will be required to be constructed out of wood excelsior.
-	-	-
129	**2602-0000350**	**REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE**
		See Tab. 100-19M in the CE sheets.
		Included for removal of perimeter and sediment control devices. All material shall become the property of
		the contractor and removed from the project within 24 hours.
-	-	-
130	**2602-0010010**	**MOBILIZATIONS, EROSION CONTROL**
		- -
-	-	-
131	**2602-0010020**	**MOBILIZATIONS, EMERGENCY EROSION CONTROL**
		- -
-	-	-
132	**2612-0000520**	**ROADSIDE SPRAY FOR WEED CONTROL**
		Apply as needed to control thistles and other invasive species as directed by the Engineer.
		In order to not exceed the herbicide’s maximum annual use rate, combined applications may not exceed 100% of
		the seeded area per year.
		Use aminopyralid herbicide at a rate of 2.8 oz. per acre active ingredient (for example, for a 40.6% active
		ingredient product, apply at 7 oz. per acre). Use a surfactant according to label directions.
		Coordinate the herbicide applications with the Mowing bid item so there is at least 8 inches of re-growth on
		Canada thistle following mowing, and at least 14 calendar days prior to the next mowing.
		The Engineer will verify evidence of the specified herbicide effects to the treated areas 10 to 14 calendar
		days after application.
		See Herbicide Application Tab 231-2.
		The quantity of Roadside Spray for Weed Control for which payment is made will be the acres displaying a
		complete visual herbicide control response to the target weed.
		For the number of acres of Roadside Spray for Weed Control measured by the Engineer, the Contractor will be
		paid contract unit price.
-	-	-

STANDARD ROAD PLANS

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

Number	Date	Title
BA-104	04-20-10	34" Concrete Barrier for use with Reinforced Paved Shoulder
BA-106	10-21-14	Reinforced Paved Shoulder for Concrete Barrier
BA-107	10-18-11	Concrete Barrier End Section
BA-200	10-18-16	Steel Beam Guardrail Components
BA-201	04-18-17	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
BA-205	04-19-16	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	10-18-16	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-351	04-20-10	High Tension Cable Guardrail
BA-401	04-16-13	Temporary Barrier Rail (Precast Concrete)
BA-500	04-19-16	Temporary Crash Cushions Sand Barrel
DR-101	04-18-17	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	04-17-18	Box Culvert (Backfill)
DR-121	10-17-17	Connected Pipe Joints
DR-122	10-18-16	Construction of Type "C" Concrete Adaptors for Pipe Culvert Connections
DR-141	04-18-17	Pipe Bends and Half Pipe
DR-201	04-21-15	Concrete Aprons
DR-202	04-21-15	Low Clearance Concrete Pipe Aprons
DR-203	04-21-15	Metal Pipe Aprons and Beveled Ends
DR-212	04-21-15	Beveled Pipe and Guard
DR-303	10-17-17	Subdrains (Longitudinal)
DR-306	10-17-17	Precast Concrete Headwall for Subdrain Outlets
DR-402	04-17-18	Rock Flume for Bridge End Drain
DR-502	10-18-16	Slotted Drain for Median Crossovers
DR-601	04-18-17	Reinforced Concrete Pipe Culvert
DR-611	04-18-17	Reinforced Concrete Pipe Culvert Letdown Structure
DR-621	04-18-17	Pipe Extension
DR-641	04-18-17	Concrete/Corrugated Pipe Culvert Letdown Structure with Metal Apron
DR-651	04-18-17	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	10-17-17	Silt Fence
EC-202	10-21-14	Floating Silt Curtain
EC-204	04-18-17	Perimeter and Slope Sediment Control Devices
EC-301	10-18-16	Rock Erosion Control (REC)
EW-101	10-17-17	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-204	10-17-17	Bridge Berm Grading with Recoverable Slope (Barnroof Section)
EW-211	10-17-17	Special Grading at Side Piers
EW-212	10-20-15	Settlement Plate
EW-301	10-20-15	Guardrail Grading
EW-302	10-20-15	Special Shaping for High Tension Cable Guardrail at Median Obstacles
EW-402	04-18-17	Temporary Stream Diversion
EW-403	04-18-17	Temporary Erosion Control Measures
EW-501	10-20-15	Rural Entrance
EW-503	10-20-15	Side Road Grading
LI-130	10-17-17	Temporary Floodlighting Luminaires
MI-101	10-20-15	Fencing Layout
MI-102	10-20-15	Chain Link Fence Construction
MI-103	10-20-15	Deer Fence and Field Fence Construction
MI-104	10-17-17	Fence Construction at Channel Crossings, Flood Plains, and Minor Ground Depressions
PM-110	04-16-13	Line Types
PM-111	04-21-15	Symbols and Legends
PM-120	10-21-14	Stop Lines and Islands
PM-310	04-19-16	Entrance and Exit Ramps
PM-420	04-19-11	Two-Lane Roadway with no Turn Lanes (One-Way Stop Condition)
PM-521	04-19-11	Two-Lane Roadway with Right Turn Lanes
PM-562	04-19-11	Divided Multi-Lane Roadway with Left Turn Lanes
PM-760	04-19-11	Divided Multi-Lane Roadway Median
PV-12	04-19-16	Milled Shoulder Rumble Strips
PV-101	10-17-17	Joints
PV-102	10-18-16	PCC Curb Details
PV-103	04-19-11	Manhole Boxouts in PCC Pavement
PV-303	04-19-11	Superelevation Details Ramps
SI-173	04-19-16	Object Markers
SI-211	10-18-16	Object Marker and Delineator Placement with Guardrail
SI-881	10-17-17	Special Signs for Workzones
SW-101	04-17-18	Trench Bedding and Backfill Zones
SW-102	04-18-17	Rigid Gravity Pipe Trench Bedding
SW-211	04-17-18	Special Pipe Connections for Storm Sewer
SW-538	04-17-18	Intake for Bridge End Drain
SW-549	04-17-18	Single-Grate Barrier Intake, Rectangular
SW-603	04-17-18	Castings for Grate Intakes
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-62	10-18-16	Permanent Two-Lane to Four-Lane Divided Transition
TC-202	04-21-15	Work Within 15 ft of Traveled Way
TC-213	04-17-12	Lane Closure with Flaggers
TC-251	04-17-12	Temporary Road Closure
TC-252	04-19-16	Routes Closed to Traffic

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STANDARD ROAD PLANS

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

Number	Date	Title
TC-272	10-18-16	Unsignalized Equipment Crossing
TC-273	04-20-10	Construction Site Entrance
TC-402	04-21-15	Work Within 15 ft of Traveled Way
TC-451	04-21-15	Temporary Road Closure on Divided Highway

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10-16-12

HERBICIDE

For all herbicide applications, the following provisions shall apply.

1. Follow all laws, rules and regulations related to the handling of pesticides, including but not limited to:
   a. Follow all herbicide label directions, restrictions, and precautions.
   b. The company responsible for the herbicide applicator must be licensed with Iowa Department of Agriculture and Land Stewardship (IDALS) as a commercial pesticide applicator company.
   c. The person applying the herbicide must be certified through IDALS as a pesticide applicator in Category 6, Right-of-Way. For herbicide applications that require an aquatic certification, the applicator must also be certified as a pesticide applicator in Category 5, Aquatics.
   d. Use herbicide and adjuvant products labeled for the application site:
      i. For applications on the primary highway right-of-way, use only products labeled for use on highway rights-of-way or roadsides.
      ii. For applications to or over water, use only products labeled for corresponding use in aquatic sites, unless intermittent pockets of standing water, such as tire ruts, and the product is labeled for such use.
      iii. For applications to areas in the water conveyance portion of the ditch that do not contain water at the time of application, use only products labeled for non-irrigation ditch banks or aquatic sites.
   e. Do not apply any herbicide to or over standing or flowing water unless required coverage is obtained under a National Pollutant Discharge and Elimination System (NPDES) Pesticide Discharge Permit through Iowa DNR. If standing or flowing water is encountered in areas when they need to be sprayed, notify Iowa DOT (Roadside Development) to determine if submittal of a Notice of Intent (NOI) is required.

2. Schedule work according to weather conditions and take measures to avoid off-target damage, such as runoff, leaching, drift and volatilization.
   a. Do not spray herbicide 24 hours prior to forecast precipitation that is expected to cause significant runoff conditions.
   b. For areas with saturated soil, such as ditch bottoms, do not spray herbicide 24 hours prior to forecast precipitation, unless using products labeled for aquatic sites.
   c. For conventional applications, avoid applications when wind speed exceeds 10 mph. For invert applications, avoid applications when wind speed exceeds 15 mph.
   d. For conventional foliar applications, use a drift retardant and maintain drift control throughout the application period by adding more to the tank as it breaks down from agitation.
   e. Avoid spraying volatile products when temperatures are forecast to exceed 85° F within 3 days.
   f. Check the IDALS Sensitive Crops Directory and do not spray adjacent to a listed operation when wind is blowing towards it.

3. Respond to allegations of any off-target damage attributed to handling and spraying of herbicide.

4. Provide the following documents to the Engineer for approval not less than 2 weeks prior to the application.
   a. A copy of the herbicide and adjuvant labels, including any applicable supplemental labels.
   b. A copy of the herbicide and adjuvant Material Safety Data Sheets (MSDS.)

5. Have copies of the herbicide and adjuvant labels and MSDSs on-hand and at locations of storage, transport, and application.

6. Schedule work to maximize efficiency of the herbicide application in relation to weather conditions and plant growth stage. Follow any label recommendations given as “for best results.”
   a. For weed applications:
      i. To determine if weeds are “actively growing,” use as a guideline that there needs to have been at least 1 hour of temperature above 65° F and 1 hour of sun in the day prior to, of, or forecast before a rain the day after the application.
      ii. For spring applications to thistles, apply after basal leaves of Canada thistles are fully extended, and after rosettes of musk thistle are at least 8 inches diameter, but before flower stage.
      iii. For fall applications to thistles, apply prior to the second hard freeze of 28° F, unless otherwise listed in the label directions.
   b. For tree and brush applications:

231-2
10-16-12

HERBICIDE

      i. For foliar applications and cut stump/surface applications with water-soluble products, apply after leaves are fully opened in the spring and prior to leaf discoloration in the fall.
      ii. For cut stump applications with oil soluble products, do not apply during periods of heavy sap flow. Use as a guideline that heavy sap flow occurs in late winter to early spring when nighttime temperatures below 32° F are followed by daytime temperatures above 32° F with sunny conditions.
      iii. For cut stump and basal bark applications, add sufficient dye so that treated areas are visible to inspection 7 days after application.

7. Notify the Engineer prior to calibrating, mixing and applying herbicides, including incidental items.

8. Provide copies of daily spray logs to the RCE at the end of each week of spraying (form provided by Iowa DOT).

9. If Contractor does not complete spray item on schedule, the Engineer may adjust the schedule.

281-1
10-18-16

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers NWP 14-Linear Transprotation Projects, Permit No. 2017-537. A copy of this permit is available from the Iowa DOT website (http://www.envpermits.iowadot.gov/). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
	Benton	US 30	BOTH	229.01	231	2009		NHSX-030-6(143)--3H-06	HMA	2	HMA	2	CIP	4	MIL	4					
						1990		FN-30-6(48)--21-06	AAC	3					MIL	1.5	HENNESSEY	C.LST.			
						1977		FN-30-6(30)--21-06	AAC	1.5	TBB	1.5					LE GRAND	C.LST.			
						1965		FN-278	AAC	3							VINTON-MILROY	C.LST.			
						1949		F-278(2)	PCC	6.5							CEDAR RAPIDS	C.LST.	1		
						1927		F-278	PC7	7							LE GRAND	C.LST.	1		DUR=0
	Benton	US 30	BOTH	231	231.69	2009		NHSX-030-6(143)--3H-06	HMA	2	HMA	2	CIP	4	MIL	4	BEVERLY	C.LST.			
						1990		FN-30-6(49)--21-06	AAC	3					MIL	1.5	HENNESSEY	C.LST.			
						1977		FN-970-1(1)--21-06	AAC	1.5	TBB	1.5					GARRISON B	C.LST.			
						1965		FN-233*<1>	AAC	3							CEDAR RAPIDS	C.LST.	1		
						1949		FN-233(2)	PCC	6.5							CEDAR RAPIDS	C.LST.	1		
						1927		F-278	PC7	7							LE GRAND	C.LST.			DUR=0
	Benton	US 30	EB	231.41	239.21	1999		NHS-30-6(63)--19-06	PCC	10	RSB	10.5					CEDAR RAPIDS	C.LST.	I		
	Benton	US 30	WB	231.69	239.21	2003		NHSN-030-6(93)--2R-06	AAC	1.5	AAC	2			MIL	1.5	BEVERLY	C.LST.			
						1990		FN-30-6(49)--21-06	AAC	3					MIL	1.5	HENNESSEY	C.LST.			
						1977		FN-970-1(1)--21-06	AAC	1.5	TBB	1.5					GARRISON B	C.LST.			
						1965		FN-233*<1>	AAC	3							CEDAR RAPIDS	C.LST.			
						1949		FN-233(2)	PCC	6.5							CEDAR RAPIDS	C.LST.	1		
						1927		F-278	PC7	7							LE GRAND	C.LST.	1		DUR=0
	Benton	US 218	BOTH	134.16	135.1	2015		NHSX-218-6(54)--3H-06	HMA	1.5	HMA	4	CIP	5.5	SCR	1.5					
						2015	W	NHSX-218-6(54)--3H-06	HMA	1.5	HMA	4	HMA	3							WIDEN 3.0' BOTH SIDES OF PAVEMENT
						1992		FN-218-6(30)--21-06	AAC	1.5	BAC	1.5			MIL	1.5	GARRISON B	C.LST			
						1976		FN-218-6(18)--21-06	AAC	3							GARRISON B	C.LST			
						1961		FN-58*<1>	AAC	3							GARRISON A	C.LST.			
						1952		P-1015	AAC	3							ANDERSON				
						1927		FA-58B	PC7	7							LE GRAND	C.LST	3		

LEGEND

AAC	TYPE A ASPHALT CEMENT CONCRETE
BAC	TYPE B ASPHALT CEMENT CONCRETE
CIP	COLD IN-PLACE ASPHALT
HMA	HOT MIX ASPHALT
MIL	MILLED SURFACE
PC7	10"-7"-10" PCC CONCRETE SLAB
PCC	PORTLAND CEMENT CONCRETE
RSB	ROLLED STONE BASE
SCR	SCARIFICATION
TBB	TYPE B ASPHALT CEMENT CONCRETE BASE
W	WIDENING

110-9
10-18-11

CULVERT ABANDONMENT

Refer to Details 4315 and 4316

* Not a bid item

Location Station	Description	Fill Material		4" Perforated Subdrain*	Remarks
		Flowable Mortar	Granular Backfill*		
		CY	TON	LF	
1462+12.92	3' x 3' x 164' RCB	54.7	0.2	5.0	
1472+14.19	42" x 202' Conc. Pipe	71.9	0.4	5.5	
	TOTAL:	**126.6**			

110-1
04-16-13

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area	Saw Cut*	Remarks
				SY	LF	
STAGE 2						
US 30						
1455+08.00	1516+70.00	EB	HMA/PCC	20698.0	645.0	
US 218						
241476+71.00	241503+00.00	NB/SB	HMA/PCC	8083.0	269.0	
STAGE 3						
US 30						
1380+00.00	1516+70.00	WB	HMA/PCC	48382.0	48.0	
STAGE 4						
US 30						
1540+90.00	1548+85.00	EB/WB	Detour	2931.0	1346.0	
			TOTALS:	**80094.0**	**2308.0**	

100-7R
MODIFIED

REMOVAL OF FENCE

* Bid Item

Location From Station	Location From Offset	Location To Station	Location To Offset	Side	Field Fence*	Chain Link Fence*	Remarks
					LF	LF	
US 30							
1380+00.00	21.6	1422+56.98	28.4	LT	4257.0		
1425+68.26	27.9	1449+24.17	21.7	LT	2577.7		
1381+00.00	140.8	1395+78.23	153.5	LT	1478.3		
1400+34.23	157.9	1422+43.21	151.9	LT	2264.8		
1423+14.22	150.8	1449+21.22	143.6	LT	2647.0		
1486+33.53	136.9	1495+86.36	136.9	LT	952.8		
1501+04.12	131.9	1505+94.12	120.0	LT	488.2		
1514+88.92	103.9	1517+00.00	106.9	LT	232.3		
23rd Avenue							
231416+50.00	35.9	231423+11.70	25.5	LT	662.2		
231416+25.00	30.0	231422+83.22	31.6	RT	657.7		
231424+33.23	33.7	231426+29.60	32.9	RT	196.4		
US 218							
241453+00.60	33.7	241471+95.40	42.3	LT	1894.8		
241451+63.97	34.5	241467+42.12	27.0	RT	1578.2		
			TOTAL:		**19887.4**		

FENCING

* Bid Item

Refer to MI-101, MI-102, MI-103, MI-104, 510-3, and 510-5

Location				Side	Chain Link				Deer				Field				Channel Crossing		Remarks
From		To			Fence		Gate				Gate				Gate				
Station	Offset	Station	Offset		Length*	Type	No.*	Type	Fence Length*	Brace Panels*	No.*	Type	Fence Length*	Brace Panels*	No.*	Type	Length*	Type	
					LF		EACH		LF	EACH	EACH		LF	EACH	EACH		LF		
U.S. 30																			
1378+20.00	149.0	1381+00.00	149.0	RT									100.0	3					
1381+00.00	149.0	1388+50.00	184.0	RT									750.8	6					
1388+50.00	184.0	1395+00.00	164.0	RT									650.3	6					
1395+00.00	164.0	1396+40.50	169.0	RT									140.6	4					
1396+40.50	169.0	1397+55.00	176.4	RT									114.8	3					
Ent.																			
1398+60.00	183.2	1399+50.00	189.0	RT									90.2	3					
1399+50.00	189.0	1401+80.00	189.0	RT									229.9	6			35.0	A	
1401+80.00	189.0	1405+00.00	174.0	RT									320.4	6					
1405+00.00	174.0	1409+60.00	172.7	RT									460.0	5					
Ent.																			
1410+20.00	172.5	1421+99.14	169.3	RT									1179.1	8					
23rd Ave																			
1423+71.58	291.5	1426+00.00	179.0	RT									254.6	6					
1426+00.00	179.0	1435+30.00	159.0	RT									930.2	5					
Ent.																			
1436+60.00	159.0	1445+00.00	159.0	RT									840.0	5					
1445+00.00	159.0	1449+30.50	199.0	RT									432.4	6					
1449+30.55	199.0	1461+00.00	149.0	RT									1170.5	7					
1461+00.00	149.0	1472+75.14	166.5	RT									1175.3	7					
1472+75.14	166.5	1473+59.43	166.6	RT									84.3	3					
US 218																			
1477+39.37	824.1	1481+59.56	714.1	RT									434.4	5					
1481+59.56	714.1	1483+24.33	594.3	RT									203.7	6					
1483+24.33	594.3	1485+09.33	389.2	RT									276.1	6					
1485+09.33	389.2	1486+59.47	284.1	RT									183.3	6					
1486+59.47	284.1	1487+59.62	229.1	RT									114.3	4					
1487+59.62	229.1	1489+64.78	174.0	RT									212.4	6					
1489+64.78	174.0	1491+70.00	136.0	RT									208.6	6					
1491+70.00	136.0	1502+00.17	144.4	RT									1033.1	7					
1502+00.17	144.4	1507+70.49	155.2	RT									571.3	6					
1507+70.49	155.2	1511+72.74	149.1	RT									400.3	6					
1511+72.74	149.1	1515+74.74	127.5	RT									400.8	6					
1515+74.74	127.5	1516+70.00	126.1	RT									95.3	3					
1380+00.00	140.7	1381+00.00	139.8	LT									100.1	3					
1381+00.00	139.8	1384+40.00	174.0	LT									341.7	6					
1384+40.00	174.0	1387+85.00	179.0	LT									345.0	6					
1387+85.00	179.0	1389+40.00	179.0	LT									155.0	3					
Ent.																			
1390+10.00	175.1	1392+50.00	148.2	LT									241.5	5					
1392+50.00	148.2	1395+78.24	152.5	LT									328.3	5					
Ent.																			
1400+34.23	157.9	1400+80.00	189.0	LT									55.4	3					
1400+80.00	189.0	1403+45.00	151.4	LT									267.5	6			35.0	B	
1403+45.00	151.4	1409+50.00	150.7	LT									605.1	5					
Ent.																			
1410+25.00	150.6	1421+55.83	149.1	LT									1130.8	8					
1421+55.83	149.1	1422+01.20	170.1	LT									50.0	3					
23rd Ave																			
1423+59.08	184.0	1425+25.00	184.0	LT									165.9	3					
1425+25.00	184.0	1427+25.00	169.0	LT									200.6	6					
1427+25.00	169.0	1435+92.00	169.0	LT									867.0	5					
Ent.																			
1436+16.00	168.2	1437+00.00	164.0	LT									84.0	3					
1437+00.00	164.0	1438+70.00	144.7	LT									171.1	4					
1438+70.00	144.7	1445+00.00	143.1	LT									630.2	6					
1445+00.00	143.1	1445+50.00	159.0	LT									52.5	4					
1445+50.00	159.0	1452+75.00	159.0	LT									724.9	6					
1452+75.00	159.0	1454+00.00	169.0	LT									125.4	4					
1454+00.00	169.0	1455+15.64	159.0	LT									116.1	4					
1455+15.64	159.0	1415+95.11	164.0	LT									479.5	6					
1415+95.11	164.0	1462+60.30	199.0	LT									267.5	6					
1462+60.30	199.0	1465+90.57	364.2	LT									369.3	6					
1465+90.57	364.2	1470+00.44	729.1	LT									548.8	6					
1470+00.44	729.1	1474+17.54	787.7	LT									421.2	5					
US 218																			
1477+89.09	319.0	1484+24.00	319.0	LT									634.9	5					
1484+24.00	319.0	1484+24.00	154.0	LT									165.0	4					
1484+24.00	154.0	1496+00.00	149.0	LT									1176.1	8					
1496+00.00	149.0	1497+00.00	159.0	LT									100.0	3					
Ent.																			
1497+40.00	161.0	1498+00.00	164.0	LT									59.7	3					
1498+00.00	164.0	1500+00.00	149.0	LT									199.5	6					
1500+00.00	149.0	1501+97.00	149.0	LT									196.0	6					
1501+97.00	149.0	1512+00.00	149.0	LT									1004.2	7					

FENCING

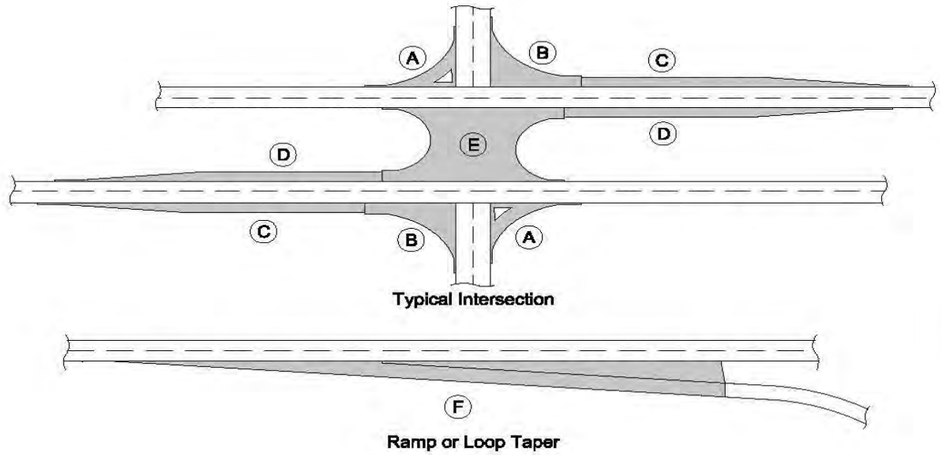
* Bid Item

Refer to MI-101, MI-102, MI-103, MI-104, 510-3, and 510-5

Location				Side	Chain Link				Deer				Field				Channel Crossing		Remarks
From		To			Fence		Gate				Gate				Gate				
Station	Offset	Station	Offset		Length*	Type	No.*	Type	Fence Length*	Brace Panels*	No.*	Type	Fence Length*	Brace Panels*	No.*	Type	Length*	Type	
					LF		EACH		LF	EACH	EACH		LF	EACH	EACH		LF		
1501+97.00	149.0	1512+00.00	149.0	LT									1004.2	7					
1512+00.00	149.0	1517+00.00	105.9	LT									503.4	5					
23rd Ave																			
231416+25.29	29.0	231416+75.17	44.0	RT									52.1	3					
231416+75.17	44.0	231418+60.12	54.0	RT									185.2	4					
231418+60.12	54.0	231419+88.68	79.1	RT									241.7	5					
US 30																			
231424+65.66	79.1	231428+00.00	32.0	RT									337.6	5					
231416+18.35	31.2	231421+16.40	89.1	LT									501.4	5			35.0	A	
US 30																			
231424+54.30	79.1	231424+88.00	73.4	LT									34.2	3					
Ent.																			
231425+12.00	69.4	231427+34.83	32.0	LT									226.0	4					
US 218																			
241452+04.26	33.3	241452+46.50	43.2	RT									43.4	3					
241452+46.50	43.2	241455+25.97	51.9	RT									279.6	6					
241455+25.97	51.9	241461+11.02	54.5	RT									585.1	6					
241461+11.02	54.5	241464+61.17	88.1	RT									351.8	6					
241464+61.17	88.1	241466+61.45	92.3	RT									200.3	6					
241466+61.45	92.3	241467+39.49	146.7	RT									95.1	4					
US 30																			
241478+80.66	230.1	241481+49.77	214.0	RT									269.6	6					
241481+49.77	214.0	241482+09.39	189.2	RT									64.6	4					
241482+09.39	189.2	241482+64.51	123.8	RT									85.5	4					
241482+64.51	123.8	241486+00.00	99.0	RT									336.4	6					
241486+00.00	99.0	241494+40.00	99.0	RT									840.0	6					
241494+40.00	99.0	241498+30.00	69.0	RT									391.2	4					
241498+30.00	69.0	241498+88.00	69.0	RT									58.0	3					
Ent.																			
241499+12.00	69.0	241502+93.67	69.0	RT									381.7	4					
241453+00.83	33.2	241453+30.72	40.3	LT									30.7	3					
241453+30.72	40.3	241456+10.54	56.5	LT									280.3	6					
241456+10.54	56.5	241457+88.00	57.2	LT									177.5	5					
Ent.																			
241458+12.00	57.3	241458+85.55	57.6	LT									73.6	3					
241458+85.55	57.6	241460+10.51	68.1	LT									125.4	4					
241460+10.51	68.1	241465+60.57	70.3	LT									550.1	6					
241465+60.57	70.3	241468+25.74	126.5	LT									271.0	6					
241468+25.74	126.5	241469+00.35	201.7	LT									106.0	4					
241469+00.35	201.7	241471+97.73	202.9	LT									297.4	6					
US 30																			
241483+59.11	134.0	241496+00.00	99.0	LT									1241.3	8					
241496+00.00	99.0	241498+00.00	79.0	LT									201.0	6					
241498+00.00	79.0	241498+85.00	79.0	LT									85.0	3					
Ent.																			
241499+15.00	79.0	241502+98.41	79.0	LT									384.1	4					
		TOTALS:											**35324.1**	**491**			**70.0**	**Type A Crossing**	
																	35.0	**Type B Crossing**	

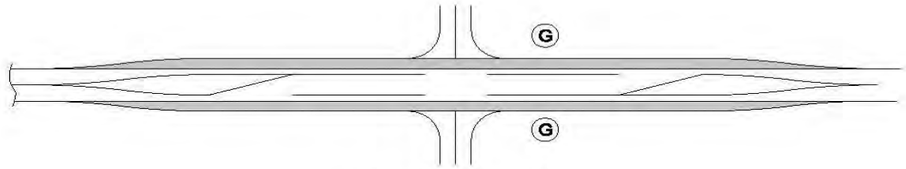
SELECT TREATMENT

Possible Detail: G_4D_Grade_Delay_S

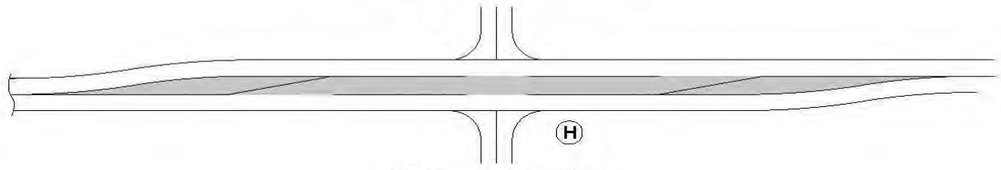


Typical Intersection

Ramp or Loop Taper



Channelized Intersection
Widen Existing Roadway

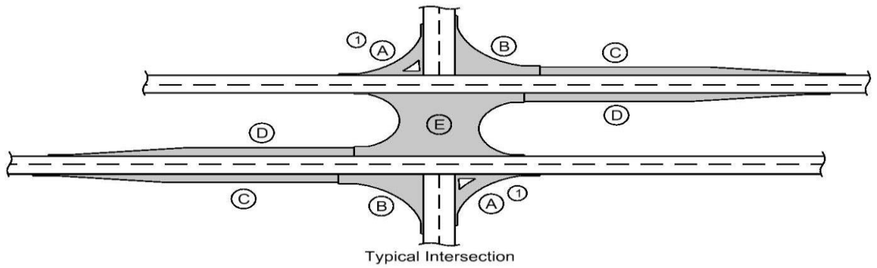


Channelized Intersection
Reconstructed Roadway

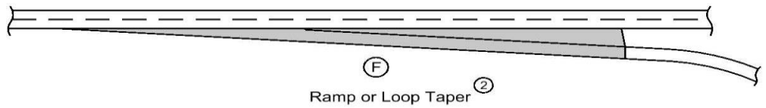
Moisture control is required for select soils treatment and is incidental to placement of the material.

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. Highway 30	EB	1380+00.00	1419+23.00	3923.0	26.0	2.0	4.0	4.0	4.0	16.0	156920.0										156920.0	24.0	11623.7	
U.S. Highway 30	EB	1419+23.00	1424+48.00	525.0	26.0	6.0	0.0	4.0	4.0	16.0	21000.0	1840.9	1840.9		2520.0	8363.7				14565.5	35565.5	24.0	2634.5	
U.S. Highway 30	EB	1424+48.00	1473+15.00	4867.0	26.0	2.0	4.0	4.0	4.0	16.0	194680.0										194680.0	24.0	14420.7	
U.S. Highway 30	EB	1473+15.00	1479+16.14	601.1	26.0	2.0	4.0	0.0	6.0	16.0	22843.3						12500.3			12500.3	35343.6	24.0	2618.0	
U.S. Highway 30	EB	1479+16.14	1489+95.00	1078.9	26.0	2.0	4.0	4.0	4.0	16.0	43154.4										43154.4	24.0	3196.6	
U.S. Highway 30	EB	1489+95.00	1502+25.00	1230.0	26.0	2.0	4.0	0.0	6.0	16.0	46740.0						15225.8			15225.8	61965.8	24.0	4590.1	
U.S. Highway 30	EB	1502+25.00	1516+70.00	1445.0	26.0	2.0	4.0	4.0	4.0	16.0	57800.0										57800.0	24.0	4281.5	
U.S. Highway 30	WB	1389+00.00	1421+18.00	3218.0	26.0	2.0	4.0	4.0	4.0	16.0	128720.0										128720.0	24.0	9534.8	
U.S. Highway 30	WB	1421+18.00	1426+43.00	525.0	26.0	6.0	0.0	4.0	4.0	16.0	21000.0	1821.3	1821.3		2520.0					6162.6	27162.6	24.0	2012.0	
U.S. Highway 30	WB	1426+43.00	1448+75.00	2232.0	26.0	2.0	4.0	4.0	4.0	16.0	89280.0										89280.0	24.0	6613.3	
U.S. Highway 30	WB	1448+75.00	1461+05.00	1230.0	26.0	2.0	4.0	0.0	6.0	16.0	46740.0						16530.0			16530.0	63270.0	24.0	4686.7	
U.S. Highway 30	WB	1461+05.00	1472+23.74	1118.7	26.0	2.0	4.0	4.0	4.0	16.0	44749.6										44749.6	24.0	3314.8	
U.S. Highway 30	WB	1472+23.74	1478+25.00	601.3	26.0	2.0	4.0	0.0	6.0	16.0	22847.9						11811.1			11811.1	34659.0	24.0	2567.3	
U.S. Highway 30	WB	1478+25.00	1516+70.00	3845.0	26.0	2.0	4.0	4.0	4.0	16.0	153800.0										153800.0	24.0	11392.6	
																						TOTAL:	**83486.7**	

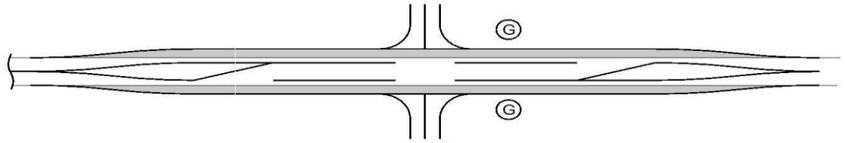
PCC PAVEMENT



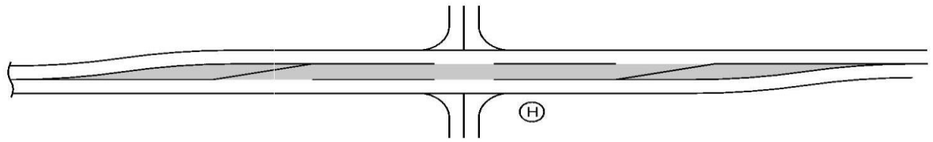
Typical Intersection



Ramp or Loop Taper (2)



Channelized Intersection
Widen Existing Roadway



Channelized Intersection
Reconstructed Roadway

(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.

Location				Mainline			Area (3)								Total Area By Pavement Thickness						
Road Identification	Direction of Travel	Station to Station		Width	Length	Area	A (1)	B	C	D	E	F (2)	G	Paved SideRoad Returns	10 IN.	10 IN. (County)	Modified Subbase	Granular Subbase	Granular Subbase (County)	Remarks
				FT	FT	SY	SY	SY	SY	SY	SY	SY	SY	SY	SY	SY	CY	SY	SY	
U.S. Highway 30	EB	1380+00.00	1419+23.00	26.0	3923.0	11333.1									11333.1			13948.4		
U.S. Highway 30	EB	1419+23.00	1421+93.00	26.0	270.0	780.0				280.0					1060.0			1240.0		
U.S. Highway 30	EB	1421+93.00	1424+48.00	26.0	255.0	736.7					929.3				1666.0			1836.0		
U.S. Highway 30	EB	1424+48.00	1473+15.00	26.0	4867.0	14060.2									14060.2			17304.9		
U.S. Highway 30	EB	1473+15.00	1479+16.14	26.0	601.1	1736.6						1388.9			3125.5			3526.3		
U.S. Highway 30	EB	1479+16.14	1489+95.00	26.0	1078.9	3116.7									3116.7			3835.9		
U.S. Highway 30	EB	1489+95.00	1502+25.00	26.0	1230.0	3553.3						1691.8			5245.1			6065.1		
U.S. Highway 30	EB	1502+25.00	1516+70.00	26.0	1445.0	4174.4									4174.4			5137.8		
U.S. Highway 30	WB	1389+00.00	1423+73.00	26.0	3473.0	10033.1									10033.1			12348.4		
U.S. Highway 30	WB	1423+73.00	1426+43.00	26.0	270.0	780.0				280.0					1060.0			1240.0		
U.S. Highway 30	WB	1426+43.00	1448+75.00	26.0	2232.0	6448.0									6448.0			7936.0		
U.S. Highway 30	WB	1448+75.00	1461+05.00	26.0	1230.0	3553.3						1836.7			5390.0			6210.0		
U.S. Highway 30	WB	1461+05.00	1472+23.74	26.0	1118.7	3231.9									3231.9			3977.7		
U.S. Highway 30	WB	1472+23.74	1478+25.00	26.0	601.3	1737.0						1312.3			3049.3			3450.1		
U.S. Highway 30	WB	1478+25.00	1516+70.00	26.0	3845.0	11107.8									11107.8			13671.1		
U.S. Highway 218 Loop A	EB	11479+15.00	11486+64.72	18.0	749.7	1499.4									1499.4		666.4			
U.S. Highway 218 Loop B	WB	21472+25.00	21479+75.06	18.0	750.1	1500.1									1500.1		666.7			
U.S. Highway 218 Ramp C	WB	31440+55.75	31443+73.46	16.0	317.7	564.8						990.3			1555.1		589.0			
U.S. Highway 218 Ramp C	WB	31443+73.46	31456+46.34	16.0	1272.9	2262.9									2262.9		1037.2			
U.S. Highway 218 Ramp D	EB	41474+40.45	41477+60.34	16.0	319.9	568.7						995.1			1563.8		592.4			
U.S. Highway 218 Ramp D	EB	41477+60.34	41489+96.32	16.0	1236.0	2197.3									2197.3		1007.1			
U.S. Highway 218	NB/SB	241468+00.00	241470+98.30	28.0	298.3	928.0	271.4	244.4							1443.8		547.6			
U.S. Highway 218	NB/SB	241470+98.30	241474+45.71	28.0	347.4	1080.8									1080.8		437.5			
U.S. Highway 218	NB/SB	241477+05.72	241480+39.82	28.0	334.1	1039.4									1039.4		420.7			
U.S. Highway 218	NB/SB	241480+39.82	241483+25.00	28.0	285.2	887.2	253.1	420.4							1560.7		583.6			
U.S. Highway 218	NB/SB	241483+25.00	241489+76.20	28.0	651.2	2026.0			746.7						2772.7		1068.9			
U.S. Highway 218	NB/SB	241489+76.20	241503+00.00	28.0	1323.8	4118.5									4118.5		1667.0			
U.S. Highway 30	EB	Intersection at 23rd Ave.												409.1		409.1			462.9	
U.S. Highway 30	WB	Intersection at 23rd Ave.												404.7		404.7			457.8	
													TOTALS:		106695.9	813.8	9284.0	101727.9	920.6	

100-27
04-17-18

PROPOSED POSTED SPEED LIMIT

Road Identification	Begin Station	End Station	Proposed Posted Speed Limit			Remarks
			35 or less	40 - 45	over 45	
U.S. Highway 30 EB	1380+00.00	1516+70.00			x	
U.S. Highway 30 WB	1389+00.00	1516+70.00			x	
U.S. Highway 218 Loop A	11479+15.00	11486+64.72			x	
U.S. Highway 218 Loop B	21472+25.00	21479+75.06			x	
U.S. Highway 218 Ramp C	31440+55.75	31456+46.34			x	
U.S. Highway 218 Ramp D	41474+40.45	41489+96.32			x	
U.S. Highway 218	241468+00.00	241503+00.00			x	

100-10
10-21-14

FLOATING SILT CURTAINS

Refer to EC-202

Station	Hanging	Containment	Clean-out (Containment)	Maintenance of Floating Silt Curtain	Remarks
	LF	LF	LF	LF	
1400+94.00	400.0			200.0	

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 0, 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	6" PCC Paved Shoulder	10" Reinforced Paved Shoulder	Special Backfill				Modified Subbase	Granular Shoulder		Earth Shoulder Construction Alternates			Remarks
														HMA	PCC Alternate									
					FT	FT	FT	CY (2)	TON	TON/STA	TONS	SY (2)	SY (2)	TON (2)	CY (2)	TON	TON/STA	CY (2)	TON (2)	TON/STA	STA (2)	HMA CY (4)	PCC CY (4)	
U.S. Highway 30	EB	1380+00.00	1473+15.00	Rt.	4.0	4.0	9315.0					4140.0			2018.3	3814.5	41.0		1304.1	14.0	93.2		2263.2	
U.S. Highway 30	EB	1473+15.00	1473+42.68	Rt.		4.0	27.7												9.3	33.7	0.3		10.1	
U.S. Highway 30	EB	1473+42.68	1479+16.14	Rt.		6.0	573.5												313.9	54.7	5.7		233.6	
U.S. Highway 30	EB	1479+16.14	1489+95.00	Rt.	4.0	4.0	1078.9					479.5			233.8	441.8	41.0		151.0	14.0	10.8		262.1	
U.S. Highway 30	EB	1489+95.00	1500+09.23	Rt.		6.0	1014.2												555.2	54.7	10.1		413.2	
U.S. Highway 30	EB	1500+09.23	1502+25.00	Rt.		4.0	215.8												72.6	33.7	2.2		78.6	
U.S. Highway 30	EB	1502+25.00	1516+70.00	Rt.	4.0	4.0	1445.0					642.2			313.1	591.7	41.0		202.3	14.0	14.5		351.1	
U.S. Highway 30	EB	1392+13.01	1419+23.00	Lt.	4.0	2.0	2710.0					1204.4			364.3	688.6	25.4		189.7	7.0	27.1		521.9	
U.S. Highway 30	EB	1419+23.00	1424+48.00	Lt.		6.0	525.0												256.9	48.9	5.3		115.5	
U.S. Highway 30	EB	1424+48.00	1516+70.00	Lt.	4.0	2.0	9222.0					4098.7			1239.8	2343.3	25.4		645.5	7.0	92.2		1776.1	
U.S. Highway 30	EB	1540+93.00	1548+86.00	Lt.		2.0	793.0								40.8	77.2	9.7		62.7	7.9	7.9		155.1	
U.S. Highway 30	WB	1389+00.00	1448+75.00	Rt.	4.0	4.0	5975.0					2655.6			1294.6	2446.8	41.0		836.5	14.0	59.8		1451.7	
U.S. Highway 30	WB	1448+75.00	1449+74.94	Rt.		4.0	99.9												33.6	33.7	1.0		36.4	
U.S. Highway 30	WB	1449+74.94	1461+05.00	Rt.		6.0	1130.1												618.6	54.7	11.3		460.4	
U.S. Highway 30	WB	1461+05.00	1472+23.74	Rt.	4.0	4.0	1118.7					497.2			242.4	458.1	41.0		156.6	14.0	11.2		271.8	
U.S. Highway 30	WB	1472+23.74	1474+89.11	Rt.		6.0	265.4												145.3	54.7	2.7		108.1	
U.S. Highway 30	WB	1474+89.11	1476+41.56	Rt.	11.0		152.5					186.3			48.0	90.7	59.5				1.5			
U.S. Highway 30	WB	1476+41.56	1477+92.93	Rt.		6.0	151.4												82.9	54.7	1.5		61.7	
U.S. Highway 30	WB	1477+92.93	1478+25.00	Rt.		4.0	32.1												10.8	33.7	0.3		11.7	
U.S. Highway 30	WB	1478+25.00	1516+70.00	Rt.	4.0	4.0	3845.0					1708.9			833.1	1574.5	41.0		538.3	14.0	38.5		934.2	
U.S. Highway 30	WB	1389+00.00	1421+18.00	Lt.	4.0	2.0	3218.0					1430.2			432.6	817.7	25.4		225.3	7.0	32.2		736.6	
U.S. Highway 30	WB	1421+18.00	1426+43.00	Lt.		6.0	525.0												256.9	48.9	5.3		120.2	
U.S. Highway 30	WB	1426+43.00	1516+70.00	Lt.	4.0	2.0	9027.0					4012.0			1213.6	2293.8	25.4		631.9	7.0	90.3		2066.2	
U.S. Highway 30	WB	1541+08.00	1548+31.00	Lt.		2.0	723.0								37.2	70.3	9.7		57.2	7.9	7.2		141.4	
U.S. 218 Loop A	EB	11479+15.00	11486+64.72	Rt.		6.0	749.7												485.4	64.8	7.5		509.5	
U.S. 218 Loop A	EB	11479+15.00	11486+64.72	Lt.		4.0	749.7												257.2	34.3	7.5		354.9	
U.S. 218 Loop B	WB	21472+25.00	21479+75.06	Rt.		6.0	750.1												485.7	64.8	7.5		509.8	
U.S. 218 Loop B	WB	21472+25.00	21479+75.06	Lt.		4.0	750.1												257.3	34.3	7.5		355.0	
U.S. 218 Ramp C	WB	31440+55.75	31456+46.34	Rt.		6.0	1590.6												948.6	59.6	15.9		667.5	
U.S. 218 Ramp C	WB	31440+55.75	31443+73.46	Lt.		6.0	317.7												118.8	37.4	3.2		150.4	
U.S. 218 Ramp C	WB	31443+73.46	31456+46.34	Lt.		4.0	1272.9												448.2	35.2	12.7		556.3	
U.S. 218 Ramp D	WB	41474+40.45	41489+96.32	Rt.		6.0	1555.9												927.9	59.6	15.6		652.9	
U.S. 218 Ramp D	WB	41474+40.45	41477+60.34	Lt.		6.0	319.9												119.6	37.4	3.2		151.4	
U.S. 218 Ramp D	WB	41477+60.34	41489+96.32	Lt.		4.0	1236.0												435.2	35.2	12.4		540.2	
U.S. Highway 218	NB	241468+00.00	241470+98.30	Rt.		4.0	298.3												44.5	14.9	3.0		120.1	
U.S. Highway 218	NB	241470+98.30	241472+45.00	Rt.	4.0	4.0	146.7					65.2			42.4	80.2	54.7		21.9	14.9	1.5		59.1	
U.S. Highway 218	NB	241472+45.00	241472+77.84	Rt.	11.1		32.8					40.5			14.3	27.0	82.2				0.3		12.1	
U.S. Highway 218	NB	241472+77.84	241473+15.24	Rt.	11.1 to 9.6		37.4					43.0			15.7	29.7	79.3				0.4		13.5	
U.S. Highway 218	NB	241473+15.24	241473+75.00	Rt.	9.6		59.8					63.7			22.4	42.3	70.8				0.6		18.8	(1)
U.S. Highway 218	NB	241473+75.00	241474+25.72	Rt.	9.6		50.7						75.4		10.2	19.3	38.1							
U.S. Highway 218	NB	241477+25.72	241477+57.98	Rt.	9.6		32.3					34.4			12.1	22.9	70.8				0.3		13.0	
U.S. Highway 218	NB	241477+57.98	241477+95.39	Rt.	9.6 to 11.1		37.4					43.0			15.7	29.7	79.3				0.4		15.1	
U.S. Highway 218	NB	241477+95.39	241478+27.65	Rt.	11.1		32.3					39.8			14.0	26.5	82.2				0.3		13.0	
U.S. Highway 218	NB	241478+27.65	241503+00.00	Rt.	4.0	4.0	2472.4					1098.8			715.2	1351.6	54.7		368.6	14.9	24.7		995.3	

(Continued on next page)

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 0, 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	6" PCC Paved Shoulder	10" Reinforced Paved Shoulder	Special Backfill				Modified Subbase	Granular Shoulder		Earth Shoulder Construction Alternates			Remarks
														HMA	PCC Alternate									
					FT	FT	FT	CY (2)	TON	TON/STA	TONS	SY (2)	SY (2)	TON (2)	CY (2)	TON	TON/STA	CY (2)	TON (2)	TON/STA	STA (2)	HMA CY (4)	PCC CY (4)	
(Continued from previous page)																								
U.S. Highway 218	SB	241468+00.00	241470+08.00	Rt.	4.0	4.0	208.0					92.4			60.2	113.7	54.7		31.0	14.9	2.1		83.7	
U.S. Highway 218	SB	241470+08.00	241470+40.34	Rt.	11.1		32.3					39.9			14.1	26.6	82.2				0.3		11.6	
U.S. Highway 218	SB	241470+40.34	241470+77.74	Rt.	11.1 to 9.6		37.4					43.0			15.7	29.7	79.3				0.4		13.6	
U.S. Highway 218	SB	241470+77.74	241471+25.00	Rt.	9.6		47.3					50.4			17.7	33.5	70.8				0.5		16.0	
U.S. Highway 218	SB	241471+25.00	241474+25.72	Rt.	9.6		300.7						320.8		60.6	114.5	38.1							
U.S. Highway 218	SB	241477+25.72	241478+07.98	Rt.	9.6		82.3					87.7			30.8	58.3	70.8				0.8		33.1	
U.S. Highway 218	SB	241478+07.98	241478+45.39	Rt.	9.6 to 11.1		37.4					43.0			15.7	29.7	79.3				0.4		15.1	
U.S. Highway 218	SB	241478+45.39	241478+77.65	Rt.	11.1		32.3					39.8			14.0	26.5	82.2				0.3		13.0	
U.S. Highway 218	SB	241478+77.65	241480+39.82	Rt.	4.0	4.0	162.2					72.1			46.9	88.7	54.7		24.2	14.9	1.6		65.3	
U.S. Highway 218	SB	241480+39.82	241480+74.05	Rt.		4.0	34.2												5.1	14.9	0.3		13.8	
U.S. Highway 218	SB	241480+74.05	241489+46.40	Rt.		6.0	872.3												191.1	21.9	8.7		351.2	
U.S. Highway 218	SB	241489+46.40	241489+76.20	Rt.		4.0	29.8												4.4	14.9	0.3		12.0	
U.S. Highway 218	SB	241489+76.20	241503+00.00	Rt.	4.0	4.0	1323.8					588.4			382.9	723.7	54.7		197.4	14.9	13.2		533.0	
											TOTALS:	**23540.3**	**396.2**		**9832.3**	**18583.0**			**12729.2**		**685.2**		**19449.8**	

NOTES:
(1) Includes 28 LF of 4" sloped curb for DR-402 Rock Flume. See Tab. 104-8A for location.

MILLED RUMBLE STRIPS

See PV-12 and PV-13.

* Calculated at 18" width for Shoulder.

Location					Length		Fog Seal* (Milled Rumble Strip)	Effective Shoulder Width			Remarks
Road Identification	Station to Station		Shoulder Pavement Type	Rumble Strip Type (Centerline, Rt or Lt Shoulder)	PCC	HMA	Shoulder	PCC Paved	HMA Paved	Granular\ Earth	
					STA	STA	GAL	FT	FT	FT	
U.S. Highway 30 EB	1380+00.00	1516+70.00	PCC	Right Shoulder	136.70			6.0		4.0	
U.S. Highway 30 EB	1392+13.01	1516+70.00	PCC	Left Shoulder	124.57			4.0		2.0	
U.S. Highway 30 WB	1389+00.00	1516+70.00	PCC	Right Shoulder	127.70			6.0		4.0	
U.S. Highway 30 WB	1389+00.00	1516+70.00	PCC	Left Shoulder	127.70			4.0		2.0	
U.S. Highway 218 NB	241468+00.00	241503+00.00	PCC	Right Shoulder	35.00			6.0		4.0	
U.S. Highway 218 SB	241468+00.00	241503+00.00	PCC	Right Shoulder	35.00			6.0		4.0	
		TOTAL:			**586.67**						

108-18B
10-16-12

CONCRETE BARRIER AT SIDE LOCATIONS

Refer to BA-102, BA-103, BA-104, BA-105, BA-106, BA-107, and BA-150.

(1) Lane(s) to which the installation is adjacent.
(2) Refer to the Shoulders tabulation (112-9) for quantities.
* Bid Item

Location					Side Barrier						Expansion Joints		
No.	(1) Direction of Traffic	Station to Station		Side	(L2) Offset	Barrier Type (BA-102, BA-103, or BA-104)	(L) Length of Barrier*	BA-105 Transition Section*	BA-107 End Section*	Reinforced Paved (2) Shoulder (Required?)	Remarks	Station	Side	Remarks
					FT		LF	No.	No.	Yes/No				
	NB	241473+75.00	241474+45.72	Rt.	8.0	BA-104	70.7		1	Yes		241473+85.72	Rt.	
	SB	241471+25.00	241474+45.72	Rt.	8.0	BA-104	320.7		1	Yes		241473+85.72	Lt.	
						TOTALS:	**391.4**		**2**					

104-8A
10-17-17

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

Location			Bid Items		PCC Paved Shoulder			Scour Protection (DR-401)			Rock Flume (DR-402)			
Bridge Station	Bridge Corner	Distance DI-1 or DI-2	PCC Paved Shoulder	Bridge End Drain	Panels Required	Polymer Grid	Modified Subbase	Special Ditch Control, Wood Excelsior Mat	Turf Reinforced Mat (TRM), Type 2	Transition Mat	Macadam Stone Base	Engineering Fabric	Erosion Stone	Remarks
								EC-101	EC-104	EC-105				
		FT	SY	TYPE	A B C or D	SY	TONS	SQ	SQ	SF	TONS	SY	TONS	
241473+40.00	SE	109.2	(1)	DR-402							1.219	171.4	120.150	
241477+50.00	NW	48.9	51.5	DR-402	B, C	51.5	43.230				1.219	171.4	120.150	
241477+50.00	NE	48.9	51.5	DR-402	A, D	51.5	43.230				1.219	145.9	102.150	
		TOTALS:	**103.0**			**103.0**	**86.460**				**3.656**	**488.7**	**342.450**	

NOTES:
(1) Paved shoulder included on Tab. 112-9

GRADING FOR GUARDRAIL INSTALLATIONS

(1) Lane(s) to which the installation is adjacent. Refer to EW-301

Location				Foreslope at Guardrail	Dimensions (Feet)									Earthwork		Remarks
No.	(1) Direction of Traffic	Station	Side		X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10	Embankment In Place	
														CY	CY	
		US 218														
	NB	241473+68.00	Rt.	6 to 1	52.5	5.0					102.7	14.8	75.0	(1)	(1)	
	NB	241477+17.72	Rt.	6 to 1	40.0	5.0					90.2	14.8	75.0	(1)	(1)	
	SB	241471+18.00	Rt.	6 to 1	40.0	5.0					90.2	14.8	75.0	(1)	(1)	
	SB	241477+17.72	Rt.	6 to 1	90.0	5.0					140.2	14.8	75.0	(1)	(1)	

Notes:
(1) See T Sheets

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-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Location					Layout Lengths				Long-Span System		Delineators and Object Markers (2)					Bid Items												Remarks
					BA-250, BA-260, or LS-630														BA-250 or LS-630					BA-260 or LS-635				
No.	(1) Direction of Traffic	Side O = Outside M = Median	Station	Offset	VT1	VF	VT2	ET			SI-211	Delineator SI-172	Object Marker SI-173			Bolted End Anchor		Post Adapter	Steel Beam Guardrail	Barrier Transition Section	End Terminal				Barrier Transition Section	End Terminal		
												Type 1	Type 2	Type 3							Tangent	Flared	Tangent	Flared		Tangent		
									BA-211			White	OM2-2	OM3-L	OM3-R	BA-202		BA-210	BA-200	BA-201	BA-205	BA-206	LS-625	LS-626	BA-221	BA-225		
				FT	LF	LF	LF	LF	STATION	TYPE	TYPE	EACH	EACH	EACH	EACH	TYPE	EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH		
			US 218																									
	NB	O	241473+68.00	8.4	53.125			47.7			3			1	1	A	1		12.5	1	1							
	NB	O	241477+17.72	8.4	40.625			47.7			3			1	1	A	1		0.0	1	1							
	SB	O	241471+18.00	8.4	40.625			47.7								A	1		0.0	1	1							
	SB	O	241477+17.72	8.4	90.625			47.7								A	1		50.0	1	1							
												TOTALS:		**2**	**2**		**4**		**62.5**	**4**	**4**							

107-24
10-15-13

GRADING FOR HIGH TENSION CABLE GUARDRAIL INSTALLATIONS

Refer to Standard Road Plan EW-302

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

Location				Dimensions			Protection Length	Earthwork:	Remarks
No.	Direction of (1) Traffic	Station	Side	C_A	C_O	C_T	(C_A+C_O+C_T)		
				FT	FT	FT	FT	CY	
	US 30 EB	1474+01.06	M	150.0	40.0		190.0	(1)	
	US 30 WB	1477+35.55	M	150.0	40.0		190.0	(1)	

Notes:
(1) Seet T Sheets

108-9A
04-20-10

HIGH TENSION CABLE GUARDRAIL

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

Refer to BA-351.

Location					Dimensions			Bid Items		Remarks
No.	Direction of (1) Traffic	Station	Side	Offset D_θ	Approach C_A	Obstacle C_O	Trailing C_T	Protection Length (C_A+C_θ+C_T)	End Anchor	
				FT	FT	FT	FT	FT	No.	
	US 30 EB	1474+01.06	M	16.0	150.0	40.0		190.0	2	
	US 30 WB	1477+35.55	M	16.0	150.0	40.0		190.0	2	
							TOTALS:	**380.0**	**4**	

112-8
Modified

MEDIAN CROSSOVERS

Refer to F & U Sheets

* Not a bid item

Road Ident.	Location Station	Crossover Design	Detour Pavement	Special Backfill	Granular Shoulder	Embankment in Place	Class 10 Excavation	Class 13 Excavation	Removal of Pavement	Saw Cut*	18" Unclassified Roadway Pipe	36" CMP Slotted Drain/ 6" Grate	Beveled Pipe and Guard	Remove & Reinstall 18" Apron	Remarks
			SY	CY	TON	CY	CY	CY	SY	LF	LF	LF	No.	Each	
U.S. 30	1381+79.97	XOver1	3876.1	345.0	345.8	(1)	(1)								
U.S. 30	1544+66.17	XOver2	4494.1	275.0	272.7	(1)	(1)				194.0	152.0	1	1	
U.S. 30	1384+76.38	XOver3	1536.7	113.3	113.1	(1)	(1)								
	TOTALS:		**9906.8**	**733.3**	**731.5**						**194.0**	**152.0**	**1**	**1**	

Notes:
(1) See T Sheets

108-13A
08-01-08

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type		Remarks
	Road Qty.	Hazard Qty.	
STAGE 2			
US 30 EB			
1380+00.00	1		Beginning of Project
1382+00.00		2	At pipe 25' Lt and Rt
1388+10.00		2	At pipe 25' Lt and Rt
1400+94.00		2	At pipe 25' Lt and Rt
1413+75.00		2	At pipe 25' Lt and Rt
1424+00.00		2	At pipe 25' Lt and Rt
1425+50.00		2	At pipe 25' Lt and Rt
1454+00.00		2	At pipe 25' Lt and Rt
1460+75.00		2	At pipe 25' Lt and Rt
1465+25.00		2	At pipe 25' Lt and Rt
1470+00.00		2	At pipe 25' Lt and Rt
1470+25.00		2	At pipe 25' Lt and Rt
1477+00.00		2	At pipe 25' Lt and Rt
1484+00.00		2	At pipe 25' Lt and Rt
1493+85.00		2	At pipe 25' Lt and Rt
1501+00.00		2	At pipe 25' Lt and Rt
1506+25.00		2	At pipe 25' Lt and Rt
1516+70.00	1		End of Project
1518+25.00	2		At entrance Rt
1528+50.00	2		At 25th Avenue
1538+80.00	1		At entrance Med
1544+66.17	1		At crossover 2
1551+60.00	1		At entrance Med
1561+60.00	1		At entrance Med
1571+65.00	1		At entrance Med
23rd Ave			
231421+50.00	1		Beginning of Construction
STAGE 3			
US 30 WB			
1377+00.00	2		At entrance Rt and Lt
1379+00.00	1		At crossover 1
1385+25.00	1		At crossover 1
1389+00.00	1		Beginning of Project
1397+50.00		2	At pipe 25' Lt and Rt
1400+94.00		2	At pipe 25' Lt and Rt
1404+75.00		2	At pipe 25' Lt and Rt
1425+50.00		2	At pipe 25' Lt and Rt
1439+00.00		2	At pipe 25' Lt and Rt
1454+00.00		2	At pipe 25' Lt and Rt
1460+75.00		2	At pipe 25' Lt and Rt
1470+00.00		2	At pipe 25' Lt and Rt
1484+00.00		2	At pipe 25' Lt and Rt
1493+85.00		2	At pipe 25' Lt and Rt
1506+25.00		2	At pipe 25' Lt and Rt
1516+70.00	1		End of Project
1518+25.00	2		At entrance Rt
1528+50.00	2		**At 25th Avenue**
1544+66.17	1		At crossover 2
23rd Ave			
231424+00.00	1		End of Construction
US 218			
241468+00.00	1		Beginning of Construction
241475+68.30		2	At Bridge 25' Lt and Rt
241503+00.00	1		End of Construction
Loop B			
21474+00.00		2	At pipe 25' Lt and Rt
Ramp C			
31453+75.00		2	At pipe 25' Lt and Rt
Ramp D			
41476+17.00		2	At pipe 25' Lt and Rt
41482+00.00		2	At pipe 25' Lt and Rt
STAGE 4			
US 30 EB			
13+79.00	1		(1)
SUBTOTALS:	**27**	**64**	
BID TOTALS:	**91**		

108-13A
08-01-08

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type		Remarks
	Road Qty.	Hazard Qty.	

NOTES:

(1) Safety closure and Type III Barricade shall be a new red and white sheeted device that shall remain in place at the end of the project.

108-35
04-17-12

TEMPORARY LANE SEPARATOR SYSTEM

See TC-61

Station to Station		Length	Remarks
		LF	
1537+55.00	1545+40.00	785	Stage 2, Crossover 2
1537+55.00	1545+40.00	785	Stage 3, Crossover 2
	TOTAL:	**1570**	

108-27
10-17-17

TEMPORARY FLOODLIGHTING LUMINAIRES

Possible Standard: LI-130

No.	Location Station	Offset	Number Lumin.	Remarks
				Refer to J Sheets
	1381+79.97	+/- 85'	2	Crossover 1
	1544+66.17	+/- 85'	2	Crossover 2
	1384+76.38	- 85'	1	Crossover 3
		TOTAL:	**5**	

CRASH CUSHIONS

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

No.	(1) Direction of Traffic	Location Station	Side	Obstacle Width	Crash Cushion (Select One)*					Sand Barrel Details (2)					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V Length	W Length	X Length	Y Length	Z Length	Excavation Class 10	Embankment in Place	Permanent	Permanent Severe Use		
				FT						FT	FT	FT	FT	FT	CY	CY	EACH	EACH		
	WB	1544+50.00	Lt.	1.88	1						24.25	5.25	3.25	12.00					Temporary Barrier Rail, Concrete	Stage 2
				TOTALS:	**1**															

TEMPORARY BARRIER RAIL

Possible Standards: BA-400, BA-401

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

No.	Station to Station		Length	(Select One) Steel	(Select One) Concrete	Anchored*	Modular Glare Screen System	Remarks
			LF	BA-400	BA-401	(Y/N)	(Y/N)	
	1544+50.00	1546+12.50	162.5		X	No	No	Stage 2, Crossover 2
		TOTAL:	**162.5**					

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	1½" 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	
US 30																		
1389+75.00	Lt.	C				24.0		15.0	5.3	24.0	103.0	51.0	52.0	2			55.394	
1398+08.00	Lt.	C				24.0		15.0									41.160	
1398+08.00	Rt.	C				24.0		15.0	9.9	24.0	178.0	98.4	79.5	2			73.080	
1409+90.00	Lt.	C				24.0		15.0	4.3	24.0	89.0	47.4	40.8	2			40.110	
1409+90.00	Rt.	C				24.0		15.0	8.0	24.0	147.0	68.6	78.0	2			56.826	
1436+04.00	Lt.	C				24.0		15.0	7.6	24.0	143.0	80.8	61.4	2			38.044	
1436+04.00	Rt.	C				24.0		15.0	7.1	24.0	133.0	60.9	72.2	2			66.696	
1497+25.00	Lt.	C				24.0		15.0	6.8	24.0	121.0	56.2	64.8	2			41.160	
1518+25.00	Rt.	C				28.0		15.0	2.2	30.0	57.0	29.5	27.5	2			74.775	
1518+25.00	Rt.	C				28.0		15.0	0.9	57 x 38	40.0	19.5	20.5	2				Low Clearance Pipe
23rd Avenue																		
231425+00.00	Lt.	C				24.0		15.0	4.6	24.0	53.0	28.6	23.8	2			21.420	
US 218																		
241458+00.00	Lt.	C				24.0		15.0	3.4	24.0	45.0	22.9	21.5	2			14.994	
241469+35.00	Lt.	C				30.0		15.0	11.3	24.0	95.0	48.8	46.2	2			160.851	
241499+00.00	Lt.	C				30.0		15.0	1.4	21 x 15	52.0	25.9	25.9	2			16.838	Low Clearance Pipe
241499+00.00	Rt.	C				24.0		15.0	1.2	21 x 15	43.0	22.0	20.3	2			12.978	Low Clearance Pipe
Café Access						**28.0**		**15.0**									**509.460**	
1+09.00		C				28.0			14.0	24.0	119.0	63.0	68.0	2				(1)
6+50.00		C				28.0			2.3	24.0	42.0	24.8	25.8	2				
11+85.00		C				28.0			1.1	18.0	35.0	20.9	20.9	2				
Wheeler Access						**24.0**		**15.0**									**519.120**	
+55.00		C				24.0			1.5	24.0	32.0	20.3	20.3	2				
5+65.00		C				24.0			1.7	24.0	33.0	20.3	21.3	2				
10+65.00		C				24.0			2.1	24.0	35.0	21.3	22.3	2				
																TOTAL:	**1742.904**	

BID ITEMS:		
APRONS, UNCLASSIFIED, 18 IN. DIA.	2.0	EACH
CULVERT, UNCLASSIFIED ENTRANCE PIPE, 18 IN. DIA.	35.0	LF
APRONS, UNCLASSIFIED, 24 IN. DIA.	30.0	EACH
CULVERT, UNCLASSIFIED ENTRANCE PIPE, 24 IN. DIA.	1368.0	LF
APRONS, UNCLASSIFIED, 30 IN. DIA.	2.0	EACH
CULVERT, UNCLASSIFIED ENTRANCE PIPE, 30 IN. DIA.	57.0	LF
APRONS, METAL, ARCH, 21 IN. x 15 IN.	4.0	EACH
CULVERT, CORRUGATED METAL ARCH ENTRANCE PIPE, 21 IN. X 15 IN.	95.0	LF
APRONS, METAL, ARCH, 57 IN. x 38 IN.	2.0	EACH
CULVERT, CORRUGATED METAL ARCH ENTRANCE PIPE, 57 IN. X 38 IN.	40.0	LF

NOTES:
(1) Added on 2018-10-29

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			BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4									
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
STAGE 1																						
Co Rd V66	(1)		NB/SB	Waterborne/Solvent Paint	x	x	x		158.40			158.40	158.40									
Co Rd E44	(2)		EB/WB	Waterborne/Solvent Paint	x	x	x		158.40			158.40	158.40									
STAGE 2																						
US 30	1454+50.00	1580+00.00	WB	Removal of Paint	x	x					125.50		125.50		16.00							
US 30	1454+50.00	1539+05.00	WB	Waterborne/Solvent Paint	x	x			84.55			84.55										
US 30	1539+05.00	1572+50.00	WB	Waterborne/Solvent Paint		x							33.45									Crossover 2, See J Sheets
US 30	1572+50.00	1580+00.00	WB	Waterborne/Solvent Paint	x								7.50									Crossover 2, See J Sheets
US 30	1539+05.00	1551+10.00	EB	Waterborne/Solvent Paint	x		x								12.05	12.05						Crossover 2, See J Sheets
STAGE 3																						
US 30	1357+25.00	1372+25.00	BOTH	Removal of Paint		x				15.00												
US 30	1372+25.00	1380+36.70	BOTH	Removal of Paint	x		x			8.12		16.24										
US 30	1516+70.00	1545+38.75	EB	Removal of Paint	x	x					28.69		28.69									
US 30	1539+05.00	1551+10.00	EB	Removal of Paint	x		x								12.05	12.05						Crossover 2, See J Sheets
US 30	1516+70.00	1539+05.00	WB	Removal of Paint	x	x			22.35			22.35										
US 30	1539+05.00	1572+50.00	WB	Removal of Paint		x							33.45									Crossover 2, See J Sheets
US 30	1572+50.00	1580+00.00	WB	Removal of Paint	x								7.50									Crossover 2, See J Sheets
US 30	1357+25.00	1372+25.00	BOTH	Waterborne/Solvent Paint		x			15.00													
US 30	1372+25.00	1516+70.00	EB	Waterborne/Solvent Paint	x	x	x		144.45			288.90										Crossover 1, See J Sheets
US 30	1516+70.00	1539+05.00	EB	Waterborne/Solvent Paint	x	x			22.35			22.35										
US 30	1539+05.00	1545+38.75	EB	Waterborne/Solvent Paint	x								**6.34**									
US 30	1539+05.00	1550+40.00	WB	Waterborne/Solvent Paint	x		x								11.35	11.35						Crossover 2, See J Sheets
US 30	1550+40.00	1572+50.00	WB	Waterborne/Solvent Paint	x	x						22.10	22.10									
FINAL																						
US 30	1357+25.00	1372+25.00	BOTH	Removal of Paint		x			15.00													
US 30	1372+25.00	1392+13.00	EB	Removal of Paint	x	x	x		19.88			39.76										Crossover 1, See J Sheets
US 30	1392+13.00	1539+05.00	EB	Removal of Paint	x	x			146.92			146.92										
US 30	1539+05.00	1545+38.75	EB	Removal of Paint	x								6.34									
US 30	1422+21.57	1423+51.74	EB	Removal of Paint			x					1.30										
US 30	1473+15.00	1479+16.14	EB	Removal of Paint			x					6.01										
US 30	1489+95.00	1502+25.00	EB	Removal of Paint			x					12.30										
US 30	1539+05.00	1550+40.00	WB	Removal of Paint	x		x								11.35	11.35						Crossover 2, See J Sheets
US 30	1550+40.00	1572+50.00	WB	Removal of Paint		x						22.10										
US 30	1357+25.00	1372+25.00	BOTH	Waterborne/Solvent Paint		x			15.00													
US 30	1372+25.00	1380+70.00	EB	Waterborne/Solvent Paint	x		x								8.45	8.45						Crossover 1, See J Sheets
US 30	1380+70.00	1392+13.00	EB	Waterborne/Solvent Paint	x	x	x				11.43				11.43	11.43						Crossover 1, See J Sheets
US 30	1392+13.00	1420+43.00	EB	Waterborne/Solvent Paint	x	x					27.10		27.10									
US 30	1420+43.00	1421+93.00	EB	Waterborne/Solvent Paint	x	x					1.50		1.50	1.50								
US 30	1421+93.00	1473+15.00	EB	Waterborne/Solvent Paint	x	x					51.22		51.22									
US 30	1473+15.00	1479+16.14	EB	Waterborne/Solvent Paint	x	x	x				6.01		6.01			6.32	2.85	6.01				
US 30	1479+16.14	1489+95.00	EB	Waterborne/Solvent Paint	x	x					10.79		10.79									
US 30	1489+95.00	1502+25.00	EB	Waterborne/Solvent Paint	x	x	x				12.30		12.30			4.60		12.30				
US 30	1502+25.00	1545+38.75	EB	Waterborne/Solvent Paint	x	x					43.14		43.14									
US 30	1372+25.00	1380+36.77	WB	Waterborne/Solvent Paint	x		x					8.12			13.75							Includes cross hatch
US 30	1380+36.77	1389+00.00	WB	Waterborne/Solvent Paint	x		x								8.63	8.63						Crossover 3, See J Sheets
US 30	1389+00.00	1396+20.00	WB	Waterborne/Solvent Paint	x		x					7.20			16.63							Includes cross hatch
US 30	1396+20.00	1401+70.00	WB	Waterborne/Solvent Paint	x		x					5.50	5.50									
US 30	1401+70.00	1423+73.00	WB	Waterborne/Solvent Paint	x	x	x				22.03	22.03	22.03									
US 30	1423+73.00	1425+23.00	WB	Waterborne/Solvent Paint	x	x	x				1.50	1.50	1.50	1.50								
US 30	1425+23.00	1448+75.00	WB	Waterborne/Solvent Paint	x	x	x				23.52	23.52	23.52									
US 30	1448+75.00	1461+05.00	WB	Waterborne/Solvent Paint	x	x	x				12.30		12.30			4.60		12.30				
US 30	1461+05.00	1472+23.74	WB	Waterborne/Solvent Paint	x	x	x				11.19	11.19	11.19									
US 30	1472+23.74	1478+25.00	WB	Waterborne/Solvent Paint	x	x	x				6.01		6.01			5.72	3.17	6.01				
US 30	1478+25.00	1516+70.00	WB	Waterborne/Solvent Paint	x	x	x				38.45	38.45	38.45									
US 30	1516+70.00	1550+40.00	WB	Waterborne/Solvent Paint	x	x					33.70		33.70									
US 30	1550+40.00	1580+00.00	WB	Waterborne/Solvent Paint		x					29.60											

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			BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4								
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
LOOP A	11479+15.00	11486+64.72	EB	Waterborne/Solvent Paint	x		x										7.50	7.50			
LOOP A	11489+73.00	11489+75.00	EB	Waterborne/Solvent Paint		x	x												0.67		
LOOP B	21472+25.00	21479+75.06	WB	Waterborne/Solvent Paint	x		x										7.50	7.50			
LOOP B	21482+82.00	21482+84.00	WB	Waterborne/Solvent Paint		x	x												0.63		
RAMP C	31440+55.75	31443+73.46	WB	Waterborne/Solvent Paint	x		x							7.64			6.36				Includes cross hatch
RAMP C	31443+73.46	31456+46.34	WB	Waterborne/Solvent Paint	x		x										12.73	12.73			
RAMP D	41474+40.45	41477+60.34	EB	Waterborne/Solvent Paint	x		x							7.68			6.40				Includes cross hatch
RAMP D	41477+60.34	41489+96.32	EB	Waterborne/Solvent Paint	x		x										12.36	12.36			
US 218	241468+00.00	241483+25.00	BOTH	Waterborne/Solvent Paint	x	x	x		15.25			30.50									
US 219	241483+25.00	241487+96.20	BOTH	Waterborne/Solvent Paint	x	x	x		4.71			9.42		4.71							
US 220	241487+96.20	241503+00.00	BOTH	Waterborne/Solvent Paint	x	x	x		15.04			30.08									
23RD AVE	231422+14.00	231422+16.00	NB	Waterborne/Solvent Paint		x	x												0.39		
23RD AVE	231423+50.00	231423+52.00	SB	Waterborne/Solvent Paint		x	x												0.39		
				Factored Total: Waterborne/Solvent Paint				-	1266.30	-	85.45	922.21	692.45	-	-	-	-	-	-	-	-	
				Factored Total: Removal of Paint				-	408.30	28.90	38.55	266.98	201.48	-	-	-	-	-	-	-	-	
				Bid Quantity: Painted Pavement Markings, Waterborne or Solvent-Based							**2966.41**										
				Bid Quantity: Pavement Markings Removed							**944.21**										

NOTES:
(1) Detour route painting from US Highway 30 north to Van Horne (Co. Rd. E44)
(2) Detour route painting from Van Horne (Co. Rd. V66) east to US Highway 218

PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

Road Identification	Location															SCHOOL	XING	STOP	AHEAD	ONLY	BIKE	LANE	EXIT	Groove Cuts	Remarks
	Station	Side	STAW	RTAW	LTAW	CSRW	CSLW	CSTW	CRLW	FERW	LLRW	RLRW	RRCW	BLSW	WCSW	WPSB	SCLW	XNGW	STPW	AHDW	ONLW	BIKW	LANW	XITW	EACH	
PAINTED SYMBOLS AND LEGENDS																										
STAGE 2																										
US 30 WB	1584+00.00	Lt									1															
US 30 WB	1585+00.00	Lt									1															
US 30 WB	1594+00.00	Lt									1															
US 30 WB	1595+00.00	Lt									1															
STAGE 3																										
US 30 WB	1584+00.00	Rt										1														
US 30 WB	1585+00.00	Rt										1														
US 30 WB	1594+00.00	Rt										1														
US 30 WB	1595+00.00	Rt										1														
									SUBTOTALS:		**4**	**4**														
SYMBOLS AND LEGENDS REMOVED																										
STAGE 3																										
US 30 WB	1584+00.00	Lt									1															
US 30 WB	1585+00.00	Lt									1															
US 30 WB	1594+00.00	Lt									1															
US 30 WB	1595+00.00	Lt									1															
STAGE 4																										
US 30 WB	1584+00.00	Rt										1														
US 30 WB	1585+00.00	Rt										1														
US 30 WB	1594+00.00	Rt										1														
US 30 WB	1595+00.00	Rt										1														
									SUBTOTALS:		**4**	**4**														
										BID ITEMS:																
										PAINTED SYMBOLS AND LEGENDS		**8**	**EACH**													
										SYMBOLS AND LEGENDS REMOVED		**8**	**EACH**													

ROADWAY ITEMS FOR DRAINAGE STRUCTURES INSTALLED BY CULVERT CONTRACTOR

* Not a Bid Item
(1) Backfill according to DR-111

Location	Design Number	Size	Kind	By Road Contractor										Excavation		Revetment		Engineering Fabric	Remarks
				Dike					Compacting Backfill Adjacent	Compaction w/Moisture Control	Compaction w/Moisture and Density	Floodable* Backfill	Porous* Backfill	Flooded Backfill (1)					
				Lt.	Rt.	Location Station	Top. Elev.	Type				(A)	(B)	(A+B)	Type	Quantity	Type	Quantity	
									CY	CY	CY	CY	CY	CY		CY		TONS	SY	
STAGE 1																			
US HWY 30																			
1401+00.00	718	8' x 8'	RCB						2061.6			42.8	3.7	46.5					
STAGE 2																			
US HWY 30																			
1401+00.00	718	8' x 8'	RCB																
							TOTALS:		**2061.6**			**42.8**	**3.7**	**46.5**					

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.

David R. Claman — 2/19/2018
Signature — Date

David R. Claman
Printed or Typed Name

My license renewal date is December 31, 20 18

Pages or sheets covered by this seal: CD.1 - CD.3

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 (3) Backfill according to DR-101

Drainage Area	Location	Type	Size (1)	Pipe Classification	Kind Of Pipe (2)	Length New Const.	Bedding Class	Design Cover (H)	Camber* (DR-102)	Apron No.		Apron Guard* (DR-213)	Elbow* (DR-141)	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. Total		Dimensions Lin. Ft. Extensions		Skew Ahead Degrees		Dike Rt.	Dike Location Station	Dike Top Elevation	Dike Type	Class 20	Flowable Mortar	Floodable* Backfill (A)	Porous* Backfill (B)	Flooded Backfill (3) (A+B)	Remarks
ACRE			IN			LF		FT	FT	IN	OUT	No.	No.	No.	No.	No.	Type	No.	Type	FT	Lt.	Rt.	Other	Other	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.				CY	CY	CY	CY	CY	
	STAGE 1																																							
	US HWY 30																																							
MED	1381+25.00	DR-601	24	2000	RCP	98	B			1	1	1							Type 3		884.49	881.73			42.1	68.1									73.7		66.6	8.5	75.1	
MED	1382+00.00	DR-641	24	2000	RCP	68	B	3.9		1		1			1		C-3	1	Type 3		887.95	884.76	886.10		37.0	37.1											31.1	5.7	36.7	(1)
			24		CMP	30	B				1										884.76	880.15	880.56		37.1	72.0									14.1		2.8	2.8	(2)	
113.0	1388+10.00	DR-601	54	2000	RCP	168	B	14.8			1								Type 3		869.48	868.39			36.1	139.9									68.8		498.2	18.9	517.1	
MED	1424+00.00	DR-641	24	2000	RCP	68	B	3.0		1					1		C-3	1	Type 3		892.36	889.20	890.52		37.0	36.9											24.1	5.6	29.8	(3)
			24		CMP	57	B				1										889.20	876.80	887.18		36.9	97.5									39.9		4.9	4.9		
227.0	1425+50.00	DR-601	72	2000	RCP	152	B	11.7			1								Type 3																354.0		426.4	20.2	446.6	
25.0	1454+00.00	DR-601	36	2000	RCP	142	B	11.0			1								Type 3		900.74	898.40			21.3	128.7									138.7		243.9	13.4	257.3	
48.0	1460+75.00	JACK	42	2000	RCP	108				1									Type 3		904.90	902.17			119.1	3.1														
		DR-621	42	2000	RCP	112	B				1								Type 3		902.17	889.33			3.1	116.9		112.0							317.8		142.1	11.6	153.7	
MED	1465+25.00	DR-601	24	2000	RCP	74	B	2.3		1	1								Type 3		906.34	904.10			36.0	50.2									102.1		13.3	6.6	19.9	
48.0	1470+00.00	DR-601	36	2000	RCP	100	B	2.3			1								Type 3		908.66	907.90			14.0	94.0									409.0		35.1	9.6	44.7	
MED	1470+25.00	DR-601	24	2000	RCP	80	B	2.6		1	1								Type 3		911.29	908.08			36.0	56.2									233.8		16.4	7.1	23.4	
MED	1477+00.00	DR-601	24	2000	RCP	92	B	2.2		1	1								Type 3		919.88	917.84			35.0	62.2									264.3		22.5	8.0	30.5	
	1484+00.00	JACK	36	2000	RCP	232		7.0		1	1								Type 3		920.50	915.56			106.6	123.3														(5)
	1493+85.00	JACK	24	2000	RCP	170		4.7		1									Type 3		926.52	925.51			98.0	78.1														
		DR-621	24	2000	RCP	32	B	4.7			1								Type 3		925.51	925.29			78.1	116.3									18.5			3.0	3.0	
MED	1501+00.00	DR-611	24	2000	RCP	74	B	3.2		1	1								Type 3		927.97	926.26	927.09		37.5	48.6									36.0		17.1	6.6	23.7	
	1506+25.00	JACK	24	2000	RCP	170					1								Type 3		916.49	919.19			99.5	76.7														
		DR-621	24	2000	RCP	16	B	6.8		1									Type 3		919.19	919.53			79.7	98.8									10.0			1.7	1.7	
	US 218 Ramp D																																							
	41476+17.00	DR-601	24	3000	RCP	210	B	19.8		1	1								Type 3		912.32	910.82			129.3	92.9									189.7		923.3	17.2	940.5	
	41482+00.00	DR-601	42	2000	RCP	282	B	11.8		1	1								Type 3		912.71	907.48			146.4	151.6				61					93.8		366.5	28.6	395.1	
	23rd Avenue																																							
325.0	231420+88.00	DR-601	78	2000	RCP	74	B	7.0		1	1								Type 3		875.50	876.05			47.0	45.6									224.6		380.3	12.1	392.4	
	STAGE 2																																							
	US HWY 30																																							
113.0	1388+10.00	DR-621	54	2000	RCP	90	B	14.8		1									Type 3		870.09	869.48			134.1	36.1	90.0								301.0		256.6	10.5	267.0	
MED	1397+50.00	DR-601	24	2000	RCP	68	B	2.2		1	1								Type 3		878.55	880.20			45.2	35.0									26.8		10.6	6.1	16.7	
MED	1404+75.00	DR-611	24	2000	RCP	92	B	3.8		1	1	1							Type 3		870.00	876.91	870.93		64.0	40.0									85.7		42.5	8.0	50.5	(6)
MED	1413+75.00	DR-611	24	2000	RCP	86	B	3.4		1	1	1							Type 3		878.70	883.45	878.89		61.2	37.0			MED	1413+55.00	886.21	M			103.7		32.6	7.5	40.2	(7)
227.0	1425+50.00	DR-621	72	2000	RCP	90	B	11.7		1																	90.0								642.8		544.0	12.3	556.3	
MED	1439+00.00	DR-611	24	2000	RCP	82	B	2.8		1	1	1							Type 3		900.35	903.65	900.53		57.2	37.0			MED	1438+80.00	906.41	M			155.3		23.7	7.2	30.9	(7)
25.0	1454+00.00	DR-321	36	2000	RCP	96	B	11.0		1									Type 3		902.35	900.74			123.3	21.3	94.0								479.8		251.4	9.0	260.5	
48.0	1470+00.00	DR-621	36	2000	RCP	64	B	2.3		1									Type 3		909.15	908.66			86.0	14.0			LT	1469+75.00	910.85	M			121.4		26.6	6.3	32.9	
																																		MED	1470+00.00	913.69	M						
MED	1477+00.00			2000																													MED	1476+85.00	921.82	M						
MED	1501+00.00			2000																													MED	1501+15.00	931.00	M						
	US 218																																							
20.0	241476+90.90	DR-601	36	3000	RCP	296	B	17.3		1	1								Type 3		913.72	919.40			117.6	194.4				6					792.0		190.8	27.8	218.6	
																																						1.0			
	US 218 Loop B																																							
48.0	21474+00.00	DR-601	44x27	2000	LCP	66	B	1.5		1	1								Type 3		909.37	910.03			54.8	27.2									156.3		34.1	7.9	42.0	
	US 218 Ramp C																																							
	31453+75.00	DR-601	24	2000	RCP	56	B	2.0		1	1								Type 3		905.78	905.43			43.8	24.4									68.3		17.3	5.2	22.4	
	23rd Avenue																																							
	231424+25.00	DR-601	24	2000	RCP	96	B	8.3		1	1								Type 3		881.73	881.19			53.6	54.7									270.2		209.7	8.3	218.0	
																																	TOTALS:			5791.6		4847.7	308.0	5154.7	

(Continued on sheet CD.3)

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 (3) Backfill according to DR-101

Drainage Area	Location	Type	Size (1)	Pipe Classification	Kind Of Pipe (2)	Length New Const.	Bedding Class	Design Cover (H)	Camber* (DR-102)	Apron No.		Apron Guard* (DR-213)	Elbow* (DR-141)	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. Total		Dimensions Lin. Ft. Extensions		Skew Ahead Degrees		Dike Rt. \ Lt.	Dike Location Station	Dike Top Elevation	Dike Type	Class 20	Flowable Mortar	Floodable* Backfill (A)	Porous* Backfill (B)	Flooded Backfill (3) (A+B)	Remarks
ACRE			IN			LF		FT	FT	IN	OUT	No.	No.	No.	No.	No.	Type	No.	Type	FT	Lt.	Rt.	Other	Other	Lt.	Rt.	Lt.	Rt.	Lt.	Rt.	Lt.				CY	CY	CY	CY	CY	
	BID ITEMS:																																						
	APRONS, CONCRETE, 24 IN. DIA.											30	EACH																										
	APRONS, CONCRETE, 36 IN. DIA.											8	EACH																										
	APRONS, CONCRETE, 42 IN. DIA.											4	EACH																										
	APRONS, CONCRETE, 54 IN. DIA.											2	EACH																										
	APRONS, CONCRETE, 72 IN. DIA.											2	EACH																										
	APRONS, CONCRETE, 78 IN. DIA.											2	EACH																										
	APRON, LOW CLEARANCE CONCRETE, EQUIVALENT DIAMETER 36 IN.											2	EACH																										
	CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.											1082	LF																										
	CULVERT, CONCRETE ROADWAY PIPE, 36 IN. DIA.											402	LF																										
	CULVERT, CONCRETE ROADWAY PIPE, 42 IN. DIA.											394	LF																										
	CULVERT, CONCRETE ROADWAY PIPE, 54 IN. DIA.											258	LF																										
	CULVERT, CONCRETE ROADWAY PIPE, 72 IN. DIA.											242	LF																										
	CULVERT, CONCRETE ROADWAY PIPE, 78 IN. DIA.											74	LF																										
	CULVERT, LOW CLEARANCE CONCRETE RDWY PIPE, EQ. DIA. 36 IN.											66	LF																										
	CULVERT, 3000D CONCRETE ROADWAY PIPE, 24 IN. DIA.											210	LF																										
	CULVERT, 3000D CONCRETE ROADWAY PIPE, 36 IN. DIA.											296	LF																										
	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 24 IN. DIA.											340	LF																										
	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 36 IN. DIA.											232	LF																										
	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 42 IN. DIA.											108	LF																										
	APRONS, METAL, 24 IN. DIA.											2	EACH																										
	CULVERT, CORRUGATED METAL ROADWAY PIPE, 24 IN. DIA.											87	LF																										

NOTES:
(1) A=68.0', D=6.0'; one 7.5° DR-141
(2) B=15.0', C=2.0', E=15.0', L=3.5'; includes two 15° CMP elbows
(3) A=68.0', D=6.0'; one 7.5° DR-141
(4) B=43.0', C=2.0', E=14.0', L=3.5'; includes two 15° CMP elbows
(5) Stage 1: Remove existing outlet apron to provide room to jack 232' of RCP. Install outlet apron
Stage 2: Remove 18' of jacked 36" RCP from inlet end & install inlet apron
(6) F=34.19; One 3° Elbow
(7) F=28.19; One 3° Elbow

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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 a new 4 lane divided highway and new interchange.
- B. This PPP covers approximately 165 acres with an estimated 138 acres being disturbed. The portion of the PPP covered by this contract has 138 acres disturbed.
- C. The PPP is located in an area of 1 soil association (Dinsdale-Klinger). The estimated weighted average runoff coefficient number for this PPP after completion will be 0.32.
- 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 road ditches to: Unnamed tributaries to Buffalo, Weasel and Mud Creeks to Prairie Creek to Cedar River to Iowa River to Mississippi 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) Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have:
           a) Permanently ceased on any portion of the site, or
           b) Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
        3) Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above.
        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.

POLLUTION PREVENTION PLAN

Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation.

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.

110-12A
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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.
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.

Paul Flattery

Signature

Paul W. Flattery

Print Name

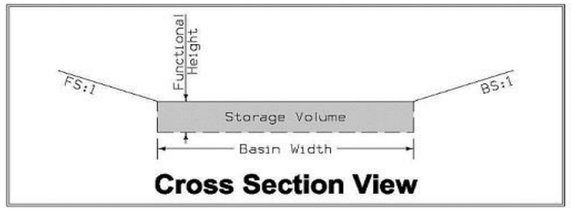
STORMWATER DRAINAGE BASIN AND STORAGE

Refer to EC Standards and 570s Details.

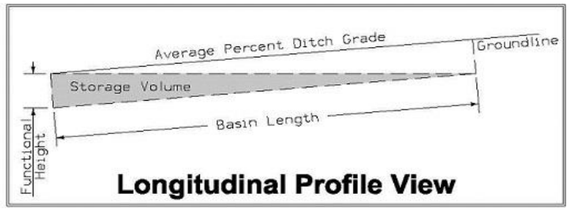
Drainage Basin Location						Summary of Stormwater Storage							Remarks
Basin No.	Station to Station		Side	Discharge Point		Total Disturbed Area	Disturbed Area with Storage Provided	Disturbed Area without Storage Provided	Best Management Practice	Total Storage Volume Provided	Total Storage Volume Required	Storage Volume Met?	
				Station	Side	Acres	Acres	Acres		CF	CF	Yes/No	
1	1380+00.00	1398+08.00	ALL	1388+08.31	RT	12.7	12.7	0.0	Total	63885.6	45572.0	Yes	
									Silt Fence for Ditch Check (EC-201)	48105.0			
									Silt Basin (EW-403)	3287.5			
									Temporary Sediment Control Basin (570-3)	12493.1			
2	1395+00.00	1422+82.00	ALL	1400+85.04	RT	17.6	17.6	0.0	Total	97048.2	63424.4	Yes	
									Silt Fence for Ditch Check (EC-201)	77504.7			
									Silt Basin (EW-403)	7675.0			
									Temporary Sediment Control Basin (570-3)	11868.4			
3	1419+00.00	1445+00.00	ALL	1423+34.79	RT	19.8	19.8	0.0	Total	96131.0	71138.9	Yes	
									Silt Fence for Ditch Check (EC-201)	80643.5			
									Silt Basin (EW-403)	15487.5			
4	1445+00.00	1460+75.00	LT,RT	1454+00.00	RT	6.8	6.8	0.0	Total	35643.0	24490.4	Yes	
									Silt Fence for Ditch Check (EC-201)	30380.5			
									Silt Basin (EW-403)	5262.5			
5	1457+30.00	1482+00.00	ALL	1460+75.00	RT	32.6	32.6	0.0	Total	138216.2	117503.3	Yes	
									Silt Fence for Ditch Check (EC-201)	115128.7			
									Silt Basin (EW-403)	23087.5			
6	1475+68.00	1485+76.00	Rt	241450+50.00	RT	2.0	2.0	0.0	Total	62454.9	7117.2	Yes	
									Silt Fence for Ditch Check (EC-201)	62454.9			
7	1479+16.00	1491+50.00	ALL	1482+20.13	RT	19.0	19.0	0.0	Total	121156.5	68238.7	Yes	
									Silt Fence for Ditch Check (EC-201)	54308.6			
									Silt Basin (EW-403)	10212.5			
									Temporary Sediment Control Basin (570-3)	56635.4			
8	1491+50.00	1497+25.00	LT,RT	1493+56.54	RT	2.4	2.4	0.0	Total	23708.8	8712.0	Yes	
									Silt Fence for Ditch Check (EC-201)	18583.8			
									Silt Basin (EW-403)	5125.0			
9	1497+25.00	1516+70.00	Med,RT	1516+70.00	RT	5.7	5.7	0.0	Total	32186.4	20471.8	Yes	
									Silt Fence for Ditch Check (EC-201)	28723.9			
									Silt Basin (EW-403)	3462.5			
10	1501+50.00	1516+70.00	Med	1516+70.00	Med	3.1	3.1	0.0	Total	12307.4	11304.0	Yes	
									Silt Fence for Ditch Check (EC-201)	12307.4			
11	1508+11.00	1516+70.00	LT	1516+70.00	Lt	4.2	4.2	0.0	Total	38793.9	15241.7	Yes	
									Silt Fence for Ditch Check (EC-201)	36118.9			
									Silt Basin (EW-403)	2675.0			
12	1539+05.00	1551+10.00	Med	1539+05.00	Med	2.2	2.2	0.0	Total	8827.6	7778.6	Yes	
									Silt Fence for Ditch Check (EC-201)	6477.6			
									Silt Basin (EW-403)	2350.0			
									TOTALS				
									Silt Fence for Ditch Check (EC-201)	**570737.4**			
									Silt Basin (EW-403)	**78625.0**			
									Temporary Sediment Control Basin (570-3)	**80997.0**			

SILT BASINS

Possible Standard: EW-403



Cross Section View



Longitudinal Profile View

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

Basin No.	Location		Bid Items		Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Removal	Basin Width	Basin Length	Height	Avg. % Slope	Volume*	
			EACH	EACH	FT	FT	FT		CF	
	US 30	**Stage 2**								
3	1424+90.00	RT	1	1	10.0	50.0	2.85	1.2%	1275.0	
3	1425+60.00	RT	1	1	10.0	50.0	2.85	1.2%	1375.0	
4	1453+40.00	RT	1	1	10.0	50.0	2.85	0.4%	1362.5	
4	1454+10.00	RT	1	1	10.0	50.0	2.85	0.5%	1287.5	
5	1460+80.00	RT	1	1	10.0	50.0	2.85	1.1%	1325.0	
5	1469+45.00	RT	1	1	10.0	50.0	2.85	0.8%	1325.0	
5	1470+35.00	RT	1	1	10.0	50.0	2.85	0.8%	1137.5	
7	1483+24.00	RT	1	1	10.0	50.0	2.85	2.3%	1062.5	
7	1484+15.00	RT	1	1	10.0	50.0	2.85	2.9%	1375.0	
8	1493+31.00	RT	1	1	10.0	50.0	2.85	0.4%	1312.5	
8	1493+92.00	RT	1	1	10.0	50.0	2.85	0.9%	1262.5	
9	1505+70.00	RT	1	1	10.0	50.0	2.85	1.3%	1262.5	
9	1506+30.00	RT	1	1	10.0	50.0	2.85	1.3%	1062.5	
12	1532+50.00	RT	1	1	10.0	50.0	2.85	2.9%	925.0	
1	1388+15.00	Med	1	1	10.0	50.0	2.85	4.0%	1137.5	
2	1400+80.00	Med	1	1	10.0	50.0	2.85	2.3%	925.0	
2	1401+10.00	Med	1	1	10.0	50.0	2.85	4.0%	1387.5	
3	1425+35.00	Med	1	1	10.0	50.0	2.85	0.3%	1287.5	
3	1425+60.00	Med	1	1	10.0	50.0	2.85	1.1%	1400.0	
5	1453+95.00	Med	1	1	10.0	50.0	2.85	0.2%	1325.0	
5	1454+05.00	Med	1	1	10.0	50.0	2.85	0.8%	1375.0	
5	1460+70.00	Med	1	1	10.0	50.0	2.85	0.4%	1387.5	
5	1460+80.00	Med	1	1	10.0	50.0	2.85	0.3%	1112.5	
12	1549+90.00	Med	1	1	10.0	50.0	2.85	2.5%	1425.0	
	US 30	**Stage 3**								
1	1396+95.00	Med	1	1	10.0	50.0	2.85	0.5%	1412.5	
2	1404+20.00	Med	1	1	10.0	50.0	2.85	0.1%	1400.0	
2	1404+80.00	Med	1	1	10.0	50.0	2.85	0.2%	1325.0	
2	1413+80.00	Med	1	1	10.0	50.0	2.85	0.8%	1325.0	
3	1439+05.00	Med	1	1	10.0	50.0	2.85	0.8%	1400.0	
5	1464+70.00	Med	1	1	10.0	50.0	2.85	0.2%	1412.5	
5	1465+29.00	Med	1	1	10.0	50.0	2.85	0.1%	1237.5	
5	1470+30.00	Med	1	1	10.0	50.0	2.85	1.5%	1287.5	
7	1477+04.00	Med	1	1	10.0	50.0	2.85	1.1%	1375.0	
9	1500+45.00	Med	1	1	10.0	50.0	2.85	0.4%	1137.5	
1	1387+48.00	LT	1	1	10.0	50.0	2.85	2.3%	737.5	
2	1400+42.00	LT	1	1	10.0	50.0	2.85	5.5%	1312.5	
3	1421+67.00	LT	1	1	10.0	50.0	2.85	0.9%	1337.5	
3	1424+90.00	LT	1	1	10.0	50.0	2.85	0.7%	1225.0	
3	1425+60.00	LT	1	1	10.0	50.0	2.85	1.6%	1375.0	
4	1453+44.00	LT	1	1	10.0	50.0	2.85	0.4%	1237.5	
4	1454+04.00	LT	1	1	10.0	50.0	2.85	1.5%	1375.0	
5	1464+00.00	LT	1	1	10.0	50.0	2.85	0.4%	1275.0	
5	1477+69.00	LT	1	1	10.0	50.0	2.85	1.2%	925.0	
7	1483+45.00	LT	1	1	10.0	50.0	2.85	4.0%	1225.0	
7	1484+05.00	LT	1	1	10.0	50.0	2.85	1.6%	1362.5	
8	1493+30.00	LT	1	1	10.0	50.0	2.85	0.5%	1362.5	
8	1493+90.00	LT	1	1	10.0	50.0	2.85	0.5%	1187.5	
11	1505+70.00	LT	1	1	10.0	50.0	2.85	1.9%	1250.0	
11	1506+30.00	LT	1	1	10.0	50.0	2.85	1.4%	1425.0	
	23rd Ave									
3	231420+30.00	RT	1	1	10.0	50.0	2.85	1.5%	1275.0	
3	231420+95.00	RT	1	1	10.0	50.0	2.85	1.2%	1162.5	
3	231420+25.00	LT	1	1	10.0	50.0	2.85	2.1%	950.0	
3	231424+35.00	LT	1	1	10.0	50.0	2.85	3.8%	1425.0	
	Ramp A									
7	11487+45.00	RT	1	1	10.0	50.0	2.85	0.9%	1050.0	
7	11488+08.00	RT	1	1	10.0	50.0	2.85	3.0%	1425.0	
	Ramp B									
5	21470+18.00	RT	1	1	10.0	50.0	2.85	1.4%	1300.0	
5	21473+33.00	RT	1	1	10.0	50.0	2.85	1.0%	1125.0	

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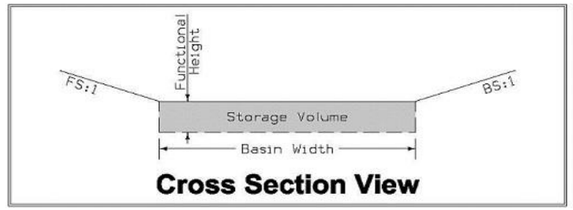
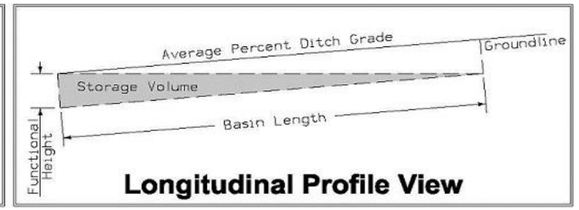
SILT BASINS

Possible Standard: EW-403



Cross Section View



Longitudinal Profile View

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

Basin No.	Location		Bid Items		Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Removal	Basin Width	Basin Length	Height	Avg. % Slope	Volume*	
			EACH	EACH	FT	FT	FT		CF	
5	21474+05.00	RT	1	1	10.0	50.0	2.85	2.4%	1425.0	
	Ramp C									
5	31456+13.00	RT	1	1	10.0	50.0	2.85	0.4%	1312.5	
5	31456+76.00	RT	1	1	10.0	50.0	2.85	0.9%	1375.0	
5	31453+17.00	LT	1	1	10.0	50.0	2.85	0.4%	1425.0	
	Ramp D									
7	41476+25.00	RT	1	1	10.0	50.0	2.85	0.7%	1337.5	
	TOTALS:		**62**	**62**						

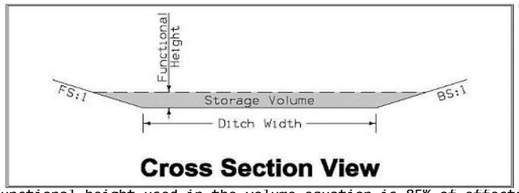
TABULATION OF SILT FENCES

Refer to EC-201

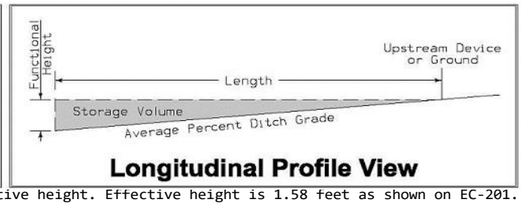
Location			Length	Remarks
Begin Station	End Station	Side	LF	
US 30	**Stage 2**			
1380+00.00	1397+15.00	Rt.	3790.0	Two Rows w/ 18 tails
1399+25.00	1408+95.00	Rt.	2140.0	Two Rows w/ 10 tails
1410+75.00	1422+00.00	Rt.	2490.0	Two Rows w/ 12 tails
1423+90.00	1435+15.00	Rt.	2490.0	Two Rows w/ 12 tails
1436+80.00	1475+02.00	Rt.	8444.0	Two Rows w/ 40 tails
1480+70.00	1486+85.00	Rt.	1390.0	Two Rows w/ 8 tails
1492+00.00	1516+70.00	Rt.	5460.0	Two Rows w/ 26 tails
1380+65.00	1516+70.00	Med.	29970.0	Two Rows w/ 138 tails
US 30	**Stage 3**			
1387+40.00	1388+40.00	Lt.	240.0	Two Rows w/ 2 tails
1390+35.00	1397+65.00	Lt.	1620.0	Two Rows w/ 8 tails
1398+70.00	1409+25.00	Lt.	2350.0	Two Rows w/ 12 tails
1410+45.00	1421+75.00	Lt.	2500.0	Two Rows w/ 12 tails
1423+60.00	1435+10.00	Lt.	2540.0	Two Rows w/ 12 tails
1436+75.00	1460+00.00	Lt.	5130.0	Two Rows w/ 24 tails
1464+90.00	1469+60.00	Lt.	1060.0	Two Rows w/ 6 tails
1477+75.00	1496+55.00	Lt.	4160.0	Two Rows w/ 20 tails
1498+05.00	1516+70.00	Lt.	4130.0	Two Rows w/ 20 tails
23rd Avenue				
231416+75.00	231421+00.00	Rt.	970.0	Two Rows w/ 6 tails
231424+50.00	231427+00.00	Rt.	580.0	Two Rows w/ 4 tails
231416+75.00	231421+00.00	Lt.	970.0	Two Rows w/ 6 tails
231424+50.00	231427+00.00	Lt.	580.0	Two Rows w/ 4 tails
US 218				
241450+50.00	241468+40.00	Rt.	3940.0	Two Rows w/ 18 tails
241470+00.00	241474+35.00	Rt.	990.0	Two Rows w/ 6 tails
241477+20.00	241481+20.00	Rt.	880.0	Two Rows w/ 4 tails
241482+80.00	241498+75.00	Rt.	3510.0	Two Rows w/ 16 tails
241499+30.00	241503+00.00	Rt.	820.0	Two Rows w/ 4 tails
241450+50.00	241457+75.00	Lt.	1610.0	Two Rows w/ 8 tails
241458+25.00	241468+84.00	Lt.	2358.0	Two Rows w/ 12 tails
241469+85.00	241474+50.00	Lt.	1050.0	Two Rows w/ 6 tails
241477+20.00	241480+80.00	Lt.	800.0	Two Rows w/ 4 tails
241483+00.00	241498+70.00	Lt.	3460.0	Two Rows w/ 16 tails
241499+30.00	241503+00.00	Lt.	820.0	Two Rows w/ 4 tails
Ramp A				
11476+90.00	11488+90.00	Rt.	2640.0	Two Rows w/ 12 tails
11480+60.00	11484+00.00	Lt.	760.0	Two Rows w/ 4 tails
Ramp B				
21470+00.00	21481+80.00	Rt.	2600.0	Two Rows w/ 12 tails
21473+80.00	21477+10.00	Lt.	740.0	Two Rows w/ 4 tails
Ramp C				
31441+50.00	31456+70.00	Rt.	3360.0	Two Rows w/ 16 tails
31447+20.00	31453+80.00	Lt.	1480.0	Two Rows w/ 8 tails
Ramp D				
41475+50.00	41491+50.00	Rt.	3520.0	Two Rows w/ 16 tails
41480+50.00	41487+50.00	Lt.	1560.0	Two Rows w/ 8 tails
Café and Wheeler Entrance				
1+00.00	10+60.00	Lt.		
+00.00	12+81.00	Lt.	2490.0	One Row w/ 12 tails
	Tab Total		122392.0	
	Bid Total		152990.0	
	Maintenance		15299.0	
	Removal		152990.0	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



Longitudinal Profile View

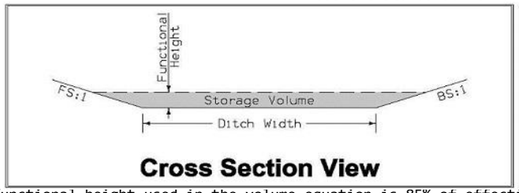
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

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

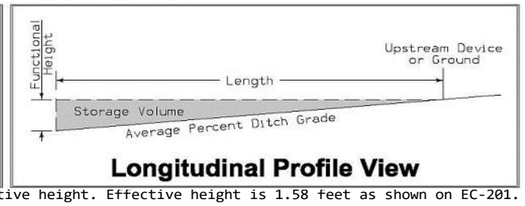
Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope Ditch Grade	Volume*	
				LF	LF	LF	FS:1	BS:1	FT		CF	
US 30												
1	1	1380+17.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1380+55.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1381+30.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1382+05.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1382+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1383+55.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1384+30.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1385+05.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1385+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1386+55.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1387+30.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.0%	808.0	
1	1	1388+90.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.5%	3393.6	
1	1	1392+05.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.5%	3393.6	
1	1	1393+65.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.5%	3393.6	
2	1	1395+22.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.5%	3393.6	
2	1	1395+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.6%	808.0	
2	1	1396+35.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.6%	808.0	
2	1	1397+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.6%	808.0	
2	1	1397+85.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.6%	808.0	
2	1	1398+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.6%	808.0	
2	1	1399+35.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.6%	808.0	
2	1	1400+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.6%	808.0	
2	1	1401+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1403+15.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1404+70.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1406+25.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1407+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1409+35.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1410+90.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1412+45.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1414+00.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1415+55.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1417+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1418+65.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1420+20.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1421+75.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
3	1	1424+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1426+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1427+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1428+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1429+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1430+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1431+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1432+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1433+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1434+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1435+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1436+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1437+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1438+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1439+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1440+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1441+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1442+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1443+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1444+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1444+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
4	1	1446+90.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
4	1	1450+05.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
4	1	1453+20.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
4	1	1454+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.5%	3393.6	
4	1	1457+95.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.5%	3393.6	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



Longitudinal Profile View

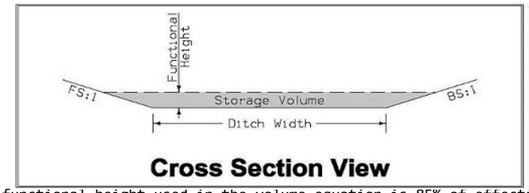
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope Ditch Grade	Volume*	
				LF	LF	LF	FS:1	BS:1	FT		CF	
5	1	1461+50.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.1%	1077.3	
5	1	1462+50.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.1%	1077.3	
5	1	1463+50.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.1%	1077.3	
5	1	1464+50.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.1%	1077.3	
5	1	1465+50.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
5	1	1467+05.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
5	1	1468+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
5	1	1471+70.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
5	1	1473+25.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	1.3%	1077.3	
5	1	1474+25.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.4%	646.4	
5	1	1474+85.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.4%	646.4	
5	1	1475+45.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.4%	646.4	
7	1	1481+40.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
7	1	1482+00.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.3%	646.4	
7	1	1482+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.3%	646.4	
7	1	1483+20.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.3%	646.4	
7	1	1484+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.9%	538.7	
7	1	1485+30.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.9%	538.7	
7	1	1485+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.9%	538.7	
7	1	1486+30.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.9%	538.7	
7	1	1486+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.9%	538.7	
7	1	1487+30.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.9%	538.7	
7	1	1487+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.9%	538.7	
8	1	1493+30.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
8	1	1494+50.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
8	1	1496+05.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
8	1	1496+85.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
9	1	1497+95.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
9	1	1501+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
9	1	1502+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.3%	1077.3	
9	1	1503+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.3%	1077.3	
9	1	1504+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.3%	1077.3	
9	1	1505+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.3%	1077.3	
9	1	1507+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.3%	1077.3	
9	1	1508+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.3%	1077.3	
9	1	1508+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1509+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1509+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1510+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1510+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1511+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1511+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1512+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1512+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1513+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1513+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1514+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1514+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1515+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1515+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1516+10.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
9	1	1516+60.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.9%	538.7	
12	1	1530+90.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1531+40.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1531+90.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1532+40.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1532+90.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1533+40.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1533+90.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1534+40.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1534+90.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1535+40.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1535+90.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1536+40.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	

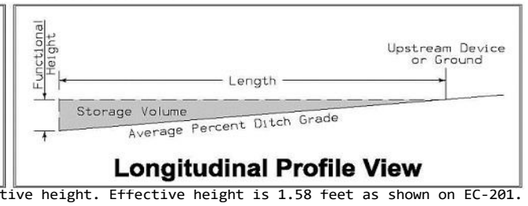
100-18
10-17-17

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



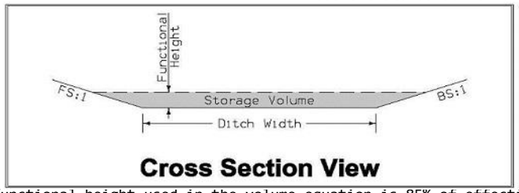
Longitudinal Profile View

* 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)]

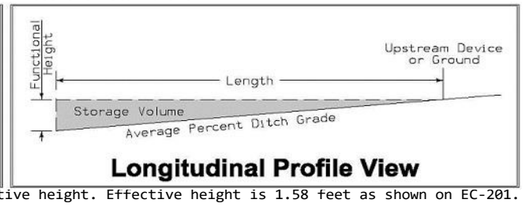
Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope Ditch Grade	Volume*	
				LF	LF	LF	FS:1	BS:1	FT		CF	
12	1	1536+90.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1537+40.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1537+90.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
12	1	1538+40.00	Rt.	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
1	1	1391+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-0.5%	2550.5	
1	1	1394+25.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-0.5%	2550.5	
1	1	1396+90.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-0.5%	2550.5	
2	1	1399+25.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-0.5%	2550.5	
2	1	1400+85.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-0.5%	2550.5	
2	1	1401+50.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	4.1%	323.9	
2	1	1403+05.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.6%	1255.0	
2	1	1404+15.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.6%	1255.0	
2	1	1405+35.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.6%	1255.0	
2	1	1406+45.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.6%	1255.0	
2	1	1408+00.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.6%	1255.0	
2	1	1409+55.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1410+55.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1411+55.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1412+55.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1413+05.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1414+35.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1414+90.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1415+90.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1416+90.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
2	1	1417+90.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.4%	2550.5	
3	5	1423+90.00	Med	20.0	2.0	20.0	6.0	6.0	0.0	-2.5%	324.7	
3	5	1424+10.00	Med	20.0	2.0	20.0	6.0	6.0	0.0	-1.0%	838.7	
3	5	1425+65.00	Med	20.0	2.0	20.0	6.0	6.0	0.0	1.1%	541.1	
3	1	1426+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.1%	809.7	
3	1	1427+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.1%	809.7	
3	1	1428+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.1%	809.7	
3	1	1429+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.1%	809.7	
3	1	1430+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	2.0%	607.3	
3	1	1431+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	2.0%	607.3	
3	1	1432+15.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	2.0%	607.3	
3	1	1432+90.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	2.0%	607.3	
3	1	1433+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	2.0%	607.3	
3	1	1434+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	2.0%	607.3	
3	1	1435+15.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	2.0%	607.3	
3	1	1435+90.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	2.0%	607.3	
3	1	1436+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
3	1	1437+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
3	1	1439+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.5%	809.7	
3	1	1440+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.5%	809.7	
3	1	1441+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.5%	809.7	
3	1	1442+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.5%	809.7	
3	1	1443+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.7%	1255.0	
3	1	1444+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.6%	2550.5	
3	1	1447+80.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.4%	2550.5	
3	1	1450+95.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.4%	809.7	
3	1	1451+95.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.2%	809.7	
3	1	1452+95.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.2%	2550.5	
5	1	1453+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.2%	2550.5	
5	1	1454+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
5	1	1455+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
5	1	1458+80.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.4%	2550.5	
5	1	1461+95.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-0.5%	2550.5	
5	1	1464+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-0.2%	2550.5	
5	1	1465+85.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-0.2%	2550.5	
5	1	1468+55.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.4%	809.7	
5	1	1469+55.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.4%	809.7	
5	1	1470+85.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.4%	809.7	
5	1	1471+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.4%	809.7	
5	1	1472+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.4%	809.7	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



Longitudinal Profile View

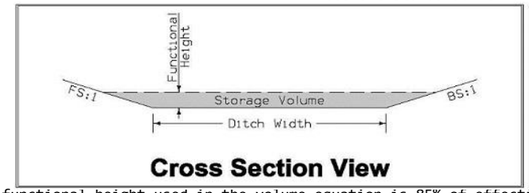
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope Ditch Grade	Volume*	
				LF	LF	LF	FS:1	BS:1	FT		CF	
5	1	1473+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.3%	809.7	
5	1	1474+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.3%	809.7	
5	1	1475+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.2%	809.7	
5	1	1476+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.1%	809.7	
6	1	1477+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.1%	1255.0	
6	1	1478+65.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	1.0%	1255.0	
6	1	1480+20.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.9%	1255.0	
6	1	1481+75.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.8%	1255.0	
6	1	1483+30.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.7%	1255.0	
6	1	1484+85.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.6%	1255.0	
6	1	1486+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.2%	2550.5	
6	1	1489+55.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.2%	2550.5	
6	1	1492+70.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.2%	2550.5	
9	1	1496+25.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	0.2%	2550.5	
9	1	1497+80.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.0%	1255.0	
9	1	1499+35.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.0%	1255.0	
9	1	1500+40.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.0%	1255.0	
10	1	1502+95.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.0%	1255.0	
10	1	1504+50.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.0%	1255.0	
10	1	1506+05.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.0%	1255.0	
10	1	1507+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-1.0%	1255.0	
10	1	1508+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1508+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1509+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1509+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1510+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1510+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1511+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1511+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1512+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1512+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1513+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1513+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1514+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1514+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1515+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.6%	404.8	
10	1	1515+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
10	1	1516+10.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
10	1	1516+60.00	Med	24.0	2.4	24.0	6.0	6.0	4.0	-2.9%	404.8	
1	1	1380+25.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1380+65.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1381+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1382+15.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1382+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1383+65.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1384+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1385+15.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1385+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1386+65.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1387+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1388+30.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
1	1	1389+05.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
1	1	1390+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
1	1	1392+15.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
1	1	1393+70.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
1	1	1395+25.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
1	1	1396+80.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
1	1	1397+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.9%	1669.8	
2	1	1398+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.6%	3393.6	
2	1	1399+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-5.6%	323.2	
2	1	1399+50.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-5.6%	323.2	
2	1	1399+80.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-5.6%	323.2	
2	1	1400+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-5.6%	323.2	

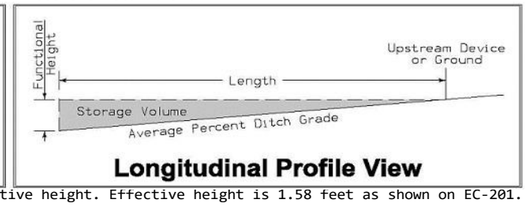
100-18
10-17-17

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



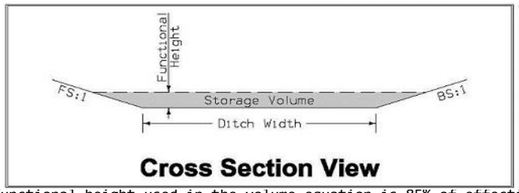
Longitudinal Profile View

* 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)]

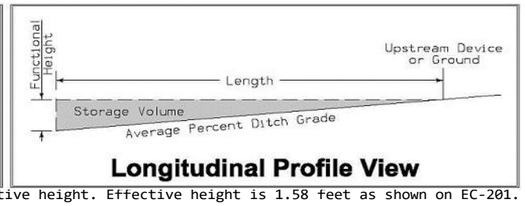
Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope Ditch Grade	Volume*	
				LF	LF	LF	FS:1	BS:1	FT		CF	
2	1	1400+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-5.6%	323.2	
2	1	1401+70.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	2.0%	808.0	
2	1	1402+45.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	2.0%	808.0	
2	1	1403+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	2.0%	808.0	
2	1	1403+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	2.0%	808.0	
2	1	1404+70.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1406+25.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1407+80.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1409+35.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
2	1	1410+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
2	1	1411+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
2	1	1412+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
2	1	1413+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
2	1	1414+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
2	1	1415+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
2	1	1416+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
2	1	1417+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1419+35.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
3	1	1420+15.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.0%	1669.8	
3	1	1421+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.0%	1669.8	
3	1	1424+80.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.0%	1669.8	
3	1	1426+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1426+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1427+70.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1428+45.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1429+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1429+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1430+70.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1431+45.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1432+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1432+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1433+70.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1434+45.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1435+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1435+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1436+70.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1437+45.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1438+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1438+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1439+70.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1440+45.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
3	1	1441+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
3	1	1442+75.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
3	1	1444+30.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.8%	1669.8	
4	1	1447+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
4	1	1450+25.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
4	1	1453+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
4	1	1454+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.5%	1077.3	
4	1	1455+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.5%	1077.3	
4	1	1456+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.5%	1077.3	
5	1	1457+75.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.9%	1669.8	
5	1	1458+55.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.9%	1669.8	
5	1	1460+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.9%	1669.8	
5	1	1461+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.4%	3393.6	
5	1	1464+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.4%	3393.6	
5	1	1467+75.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.4%	3393.6	
5	1	1478+30.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
5	1	1479+30.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
5	1	1480+30.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
5	1	1481+30.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.2%	1077.3	
7	1	1483+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
7	1	1484+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



Longitudinal Profile View

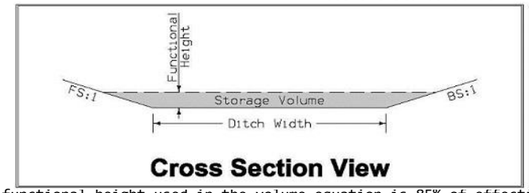
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope Ditch Grade	Volume*	
				LF	LF	LF	FS:1	BS:1	FT		CF	
7	1	1485+35.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
7	1	1486+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
7	1	1486+85.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
7	1	1487+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.6%	808.0	
7	1	1488+35.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.4%	3393.6	
7	1	1489+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.4%	3393.6	
8	1	1493+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
8	1	1494+50.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
8	1	1496+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
11	1	1498+25.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.9%	1669.8	
11	1	1499+80.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.9%	1669.8	
11	1	1501+35.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.9%	1669.8	
11	1	1502+90.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.9%	1669.8	
11	1	1504+45.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.9%	1669.8	
11	1	1507+00.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.4%	1077.3	
11	1	1508+00.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.4%	1077.3	
11	1	1508+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.3%	646.4	
11	1	1509+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.3%	646.4	
11	1	1509+80.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.3%	646.4	
11	1	1510+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-2.3%	646.4	
11	1	1510+75.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-4.9%	377.1	
11	1	1511+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-4.9%	377.1	
11	1	1511+45.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-4.9%	377.1	
11	1	1514+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.4%	3393.6	
11	1	1515+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.4%	1077.3	
11	1	1516+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.4%	1077.3	
Ramp A												
7	1	11479+82.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.0%	1669.8	
7	1	11480+60.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.0%	1495.1	
7	1	11482+15.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.0%	1495.1	
7	1	11483+70.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.0%	1495.1	
7	1	11485+25.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.0%	1495.1	
7	1	11486+25.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.1%	964.6	
7	1	11487+40.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.9%	1495.1	
7	1	11480+85.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
7	1	11481+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.8%	808.0	
Ramp B												
5	1	21471+85.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.0%	1669.8	
5	1	21473+30.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.0%	1669.8	
5	1	21474+70.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.4%	646.4	
5	1	21475+20.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.4%	646.4	
5	1	21475+80.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	2.4%	646.4	
5	1	21476+40.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.4%	578.8	
5	1	21477+00.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.5%	578.8	
5	1	21477+50.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.5%	578.8	
5	1	21478+00.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.5%	578.8	
5	1	21478+50.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.5%	578.8	
5	1	21479+00.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.7%	482.3	
5	1	21480+10.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.5%	964.6	
5	1	21480+60.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.5%	964.6	
5	1	21481+60.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.5%	964.6	
5	1	21474+20.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	1.4%	1077.3	
5	1	21475+20.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	1.4%	964.6	
5	1	21476+20.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	1.4%	964.6	
Ramp C												
5	1	31441+80.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-3.2%	434.1	
5	1	31442+10.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-2.2%	578.8	
5	1	31442+70.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-2.2%	578.8	
5	1	31443+30.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-2.2%	578.8	
5	1	31444+05.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.9%	723.4	
5	1	31444+80.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.9%	723.4	

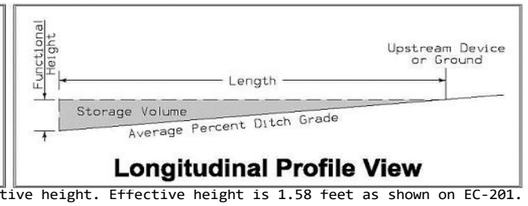
100-18
10-17-17

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



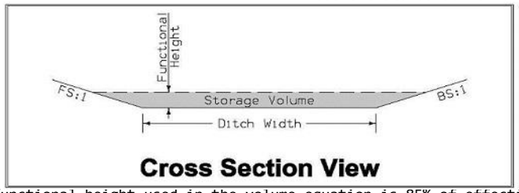
Longitudinal Profile View

* 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)]

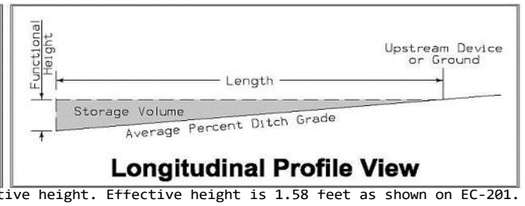
Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope Ditch Grade	Volume*	
				LF	LF	LF	FS:1	BS:1	FT		CF	
5	1	31445+55.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.9%	723.4	
5	1	31447+10.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.7%	1495.1	
5	1	31448+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.7%	1495.1	
5	1	31449+05.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-3.6%	385.8	
5	1	31449+50.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-3.2%	434.1	
5	1	31449+95.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-3.2%	434.1	
5	1	31450+45.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-2.9%	482.3	
5	1	31450+95.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-2.6%	482.3	
5	1	31454+10.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.4%	3038.5	
5	1	31448+10.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.5%	964.6	
5	1	31449+10.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	-1.5%	964.6	
5	1	31450+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.5%	1077.3	
5	1	31451+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.4%	1077.3	
5	1	31452+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.4%	1077.3	
5	1	31453+10.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.4%	1077.3	
Ramp D												
7	1	41476+12.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.7%	1495.1	
7	1	41476+90.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.7%	1495.1	
7	1	41478+45.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.6%	1495.1	
7	1	41481+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.6%	482.3	
7	1	41482+15.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.6%	482.3	
7	1	41482+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.6%	482.3	
7	1	41483+15.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.6%	482.3	
7	1	41483+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.8%	482.3	
7	1	41484+15.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.8%	482.3	
7	1	41484+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.8%	482.3	
7	1	41485+15.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.8%	482.3	
7	1	41485+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.7%	482.3	
7	1	41486+15.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.7%	482.3	
7	1	41486+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.7%	482.3	
7	1	41487+15.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.7%	482.3	
7	1	41487+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	0.4%	3038.5	
7	1	41489+25.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	0.4%	3038.5	
7	1	41484+05.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	3.1%	484.8	
7	1	41484+50.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	3.1%	484.8	
7	1	41484+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	3.1%	484.8	
7	1	41485+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	3.1%	484.8	
7	1	41485+85.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	3.1%	484.8	
7	1	41486+30.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	3.1%	484.8	
23rd Ave												
3	1	231417+60.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	-1.7%	454.7	
3	1	231418+35.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	-1.7%	454.7	
3	1	231419+10.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	-1.7%	454.7	
3	1	231419+85.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	-1.7%	454.7	
3	1	231424+70.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	3.7%	242.5	
3	1	231425+10.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	3.7%	242.5	
3	1	231425+50.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	3.7%	242.5	
3	1	231425+90.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	3.7%	242.5	
3	1	231426+10.00	Rt.	15.0	1.5	15.0	3.0	3.0	5.0	3.7%	242.5	
3	1	231417+60.00	Lt.	15.0	1.5	15.0	3.0	3.0	5.0	-2.1%	363.8	
3	1	231418+20.00	Lt.	15.0	1.5	15.0	3.0	3.0	5.0	-2.1%	363.8	
3	1	231418+80.00	Lt.	15.0	1.5	15.0	3.0	3.0	5.0	-2.1%	363.8	
3	1	231419+40.00	Lt.	15.0	1.5	15.0	3.0	3.0	5.0	-2.1%	363.8	
3	1	231420+00.00	Lt.	15.0	1.5	15.0	3.0	3.0	5.0	-2.1%	363.8	
3	1	231425+15.00	Lt.	15.0	1.5	15.0	3.0	3.0	5.0	3.9%	242.5	
3	1	231425+55.00	Lt.	15.0	1.5	15.0	3.0	3.0	5.0	3.9%	242.5	
3	1	231425+95.00	Lt.	15.0	1.5	15.0	3.0	3.0	5.0	3.9%	242.5	
US 218												
6	1	241450+70.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	0.6%	904.8	
6	1	241452+25.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	0.6%	904.8	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



Longitudinal Profile View

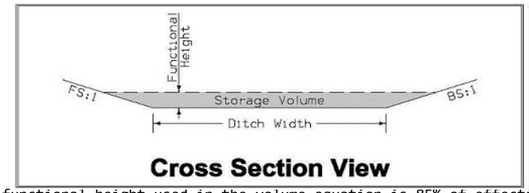
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Type	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	Ditch Grade	CF	
6	1	241453+80.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241454+30.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241454+80.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241455+30.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241455+80.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241456+30.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	1.0%	904.8	
6	1	241457+85.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241458+35.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241458+85.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241459+35.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241459+85.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241460+35.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241460+85.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241461+35.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	2.5%	350.3	
6	1	241461+85.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	0.6%	904.8	
6	1	241463+40.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	0.6%	904.8	
6	1	241464+95.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	0.6%	904.8	
6	1	241466+50.00	Rt.	14.0	1.4	14.0	3.0	2.5	5.0	0.6%	904.8	
6	1	241470+70.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	1.9%	723.4	
6	1	241471+45.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	0.5%	3038.5	
6	1	241473+05.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	0.5%	3038.5	
6	1	241477+00.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	1.0%	1495.1	
6	1	241478+55.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	1.0%	1495.1	
6	1	241480+10.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	0.6%	1495.1	
6	1	241481+65.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	0.6%	1495.1	
6	1	241483+20.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.2%	578.8	
6	1	241483+80.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.2%	578.8	
6	1	241484+40.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.2%	578.8	
6	1	241485+00.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.2%	578.8	
6	1	241485+60.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.2%	578.8	
6	1	241486+20.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	2.2%	578.8	
6	1	241486+80.00	Rt.	21.0	2.1	21.0	3.5	3.0	10.0	0.6%	1495.1	
6	1	241488+35.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	0.6%	1669.8	
6	1	241489+90.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
6	1	241493+05.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
6	1	241496+20.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
6	1	241499+35.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
6	1	241502+50.00	Rt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
11	1	241450+70.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.5%	583.8	
11	1	241451+70.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.5%	583.8	
11	1	241452+70.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.5%	583.8	
11	1	241453+70.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241454+45.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241455+20.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241455+95.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241456+70.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241457+45.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241458+20.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241458+95.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241459+70.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241460+45.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241461+20.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241461+95.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241462+70.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241463+45.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241464+20.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.7%	437.8	
11	1	241464+95.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.0%	904.8	
11	1	241466+50.00	Lt.	14.0	1.4	14.0	3.0	2.5	5.0	1.0%	904.8	
11	1	241468+05.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	2.2%	578.8	
11	1	241468+65.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	0.6%	1495.1	
11	1	241470+20.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	0.6%	1495.1	
11	1	241471+75.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	2.5%	578.8	
11	1	241472+25.00	Lt.	32.0	3.2	32.0	10.0	10.0	0.0	1.7%	676.4	
11	1	241473+00.00	Lt.	32.0	3.2	32.0	10.0	10.0	0.0	-0.6%	1397.8	
5	1	241477+60.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	1.1%	964.6	
5	1	241478+60.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	1.1%	964.6	

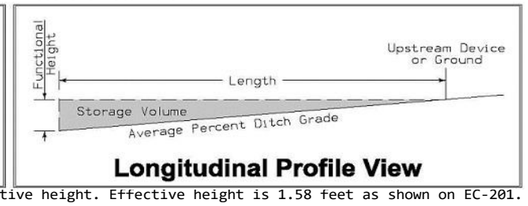
100-18
10-17-17

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



Cross Section View



Longitudinal Profile View

* 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.	Type	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	Ditch Grade	CF	
5	1	241479+60.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	1.1%	964.6	
5	1	241480+60.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.8%	1495.1	
5	1	241483+20.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	-0.8%	1495.1	
5	1	241484+75.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	0.7%	1495.1	
5	1	241486+30.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	0.7%	1495.1	
5	1	241487+85.00	Lt.	21.0	2.1	21.0	3.5	3.0	10.0	0.7%	1495.1	
5	1	241489+40.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.7%	1669.8	
5	1	241490+95.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	0.7%	1669.8	
5	1	241492+50.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-1.4%	1077.3	
5	1	241493+50.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.6%	1669.8	
5	1	241495+05.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.6%	1669.8	
5	1	241496+60.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.6%	1669.8	
5	1	241498+15.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
5	1	241501+30.00	Lt.	25.0	2.5	25.0	6.0	3.0	10.0	-0.5%	3393.6	
		TOTALS:		**Tab Total**	**11719.0**							
				Bid Total	**17578.5**							
				Maintenance	**1757.9**							
				Removal	**17578.5**							

FILE NO.	ENGLISH	DESIGN TEAM **Flattery\Bell\Paul**	**BENTON** COUNTY	PROJECT NUMBER **NHSX-030-6(231)--3H-06**	SHEET NUMBER **CE.9**

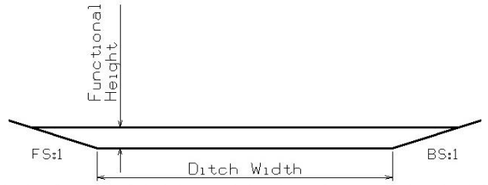
PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

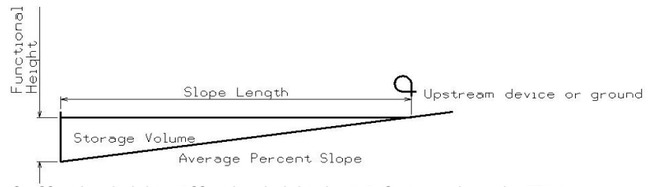
Possible Standards: EC-204

Location			Length of Installation			Remarks
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	
			LF	LF	LF	
US 30						
1382+00.00	1382+00.00	Med		20.0		Inlet Protection
1388+10.00	1388+10.00	Lt.		30.0		Inlet Protection
1397+50.00	1397+50.00	Med		20.0		Inlet Protection
1404+75.00	1404+75.00	Med		20.0		Inlet Protection
1413+75.00	1413+75.00	Med		20.0		Inlet Protection
1424+00.00	1424+00.00	Med		20.0		Inlet Protection
1425+50.00	1425+50.00	Lt.		50.0		Inlet Protection
1439+00.00	1439+00.00	Med		20.0		Inlet Protection
1454+00.00	1454+00.00	Lt.		30.0		Inlet Protection
1460+75.00	1460+75.00	Lt.		30.0		Inlet Protection
1465+25.00	1465+25.00	Med		20.0		Inlet Protection
1470+00.00	1470+00.00	Lt.		30.0		Inlet Protection
1470+25.00	1470+25.00	Med		20.0		Inlet Protection
1472+14.19	1472+14.19	Lt.		30.0		Inlet Protection
1477+00.00	1477+00.00	Med		20.0		Inlet Protection
1484+00.00	1484+00.00	Lt.		30.0		Inlet Protection
1493+85.00	1493+85.00	Lt.		20.0		Inlet Protection
1501+00.00	1501+00.00	Med		20.0		Inlet Protection
1506+25.00	1506+25.00	Lt.		20.0		Inlet Protection
1539+20.00	1539+20.00	Med		20.0		Inlet Protection
1542+75.00	1542+75.00	Med		20.0		Inlet Protection
1550+53.00	1550+53.00	Med		20.0		Inlet Protection
23rd Ave						
231420+88.00	231420+88.00	Rt.		60.0		Inlet Protection
231424+25.00	231424+25.00	Lt.		20.0		Inlet Protection
24th Ave						
241476+90.90	241476+90.90	Rt.		30.0		Inlet Protection
Ramp C						
31453+75.00	31453+75.00	Lt.		20.0		Inlet Protection
Ramp D						
41476+17.00	41476+17.00	Lt.		20.0		Inlet Protection
41482+00.00	41482+00.00	Lt.		20.0		Inlet Protection
	Total			**700.0**		
	Removal			**700.0**		

TEMPORARY SEDIMENT CONTROL BASIN

Possible Detail 570-3





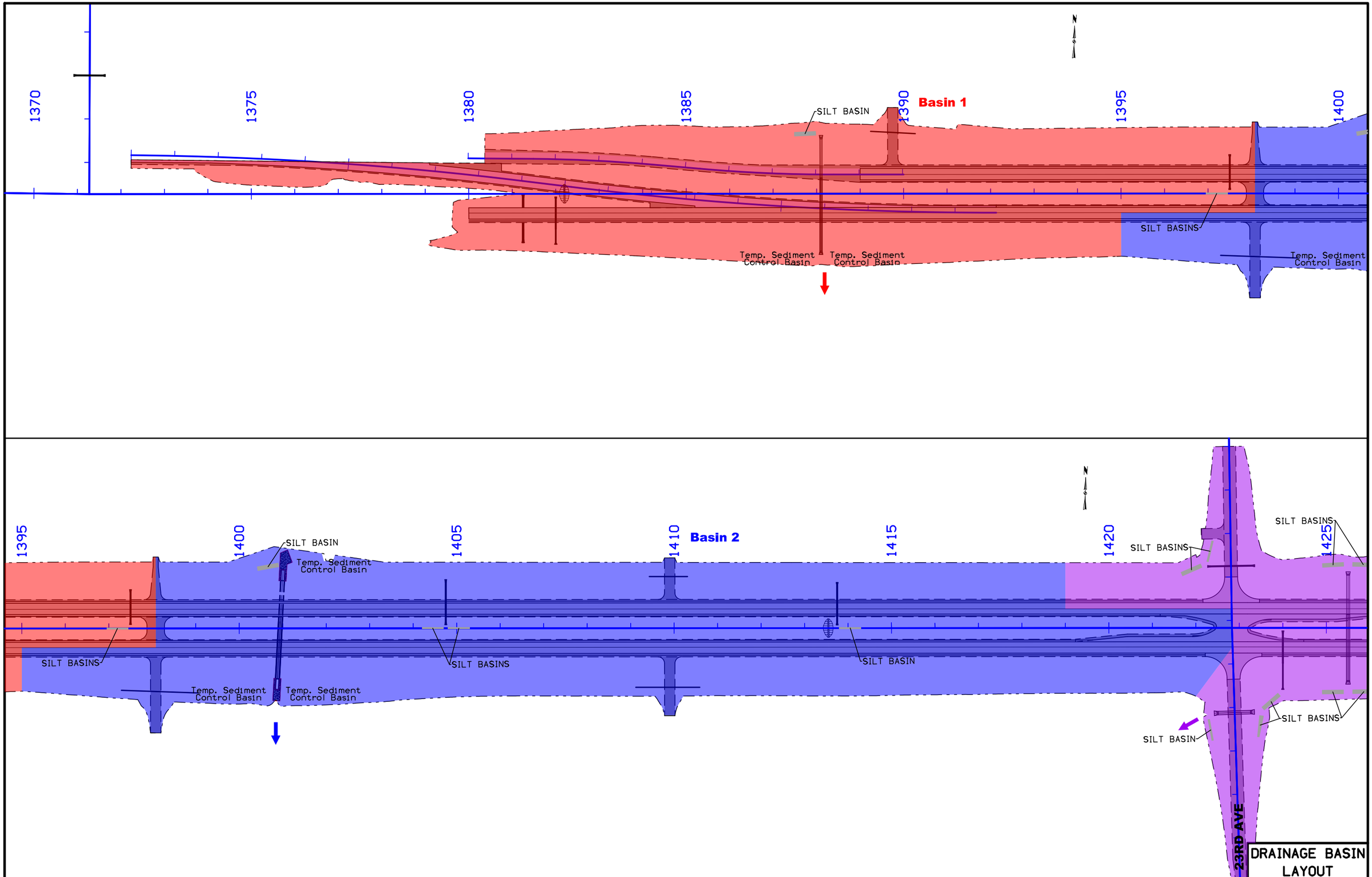
* The functional height used in the volume equation is 95% of effective height. Effective height is 2.5 feet as shown in 570-3.
* Volume equation: $[(1/4(FS*H^2))+(DW*H)+(1/4*(BS*H^2))]*(H/Avg\%Slope)$

Basin No.	Location Station	Side	Bid Items: Installation Each	Bid Items: Maintenance Each	Bid Items: Removal Each	Stormwater Storage Volume Summary: Foreslope FS:1	Backslope BS:1	Ditch Width FT	Average % Slope	Volume* CF	Remarks
	US 30										
1	1387+85.00	Rt.	1	3	1	3.5	3.0	10.00	2.0%	2498.6	
1	1388+55.00	Rt.	1	3	1	3.5	3.0	10.00	0.5%	9994.5	
2	1400+70.00	Rt.	1	3	1	3.5	3.0	10.00	1.6%	3123.3	
2	1401+00.00	Rt.	1	3	1	3.5	3.0	10.00	0.8%	6246.6	
2	1401+20.00	Lt.	1	3	1	3.5	3.0	10.00	2.0%	2498.6	
	Ramp D										
7	41480+00.00	Rt.	1	3	1	3.5	3.0	10.00	0.1%	49972.4	
7	41480+85.00	Rt.	1	3	1	3.5	3.0	10.00	1.0%	4997.2	
7	41483+40.00	Lt.	1	3	1	3.5	3.0	10.00	3.0%	1665.7	
	TOTALS:		**8**	**24**	**8**						

GRATE INTAKE SEDIMENT FILTER BAG

Possible Detail: 570-7

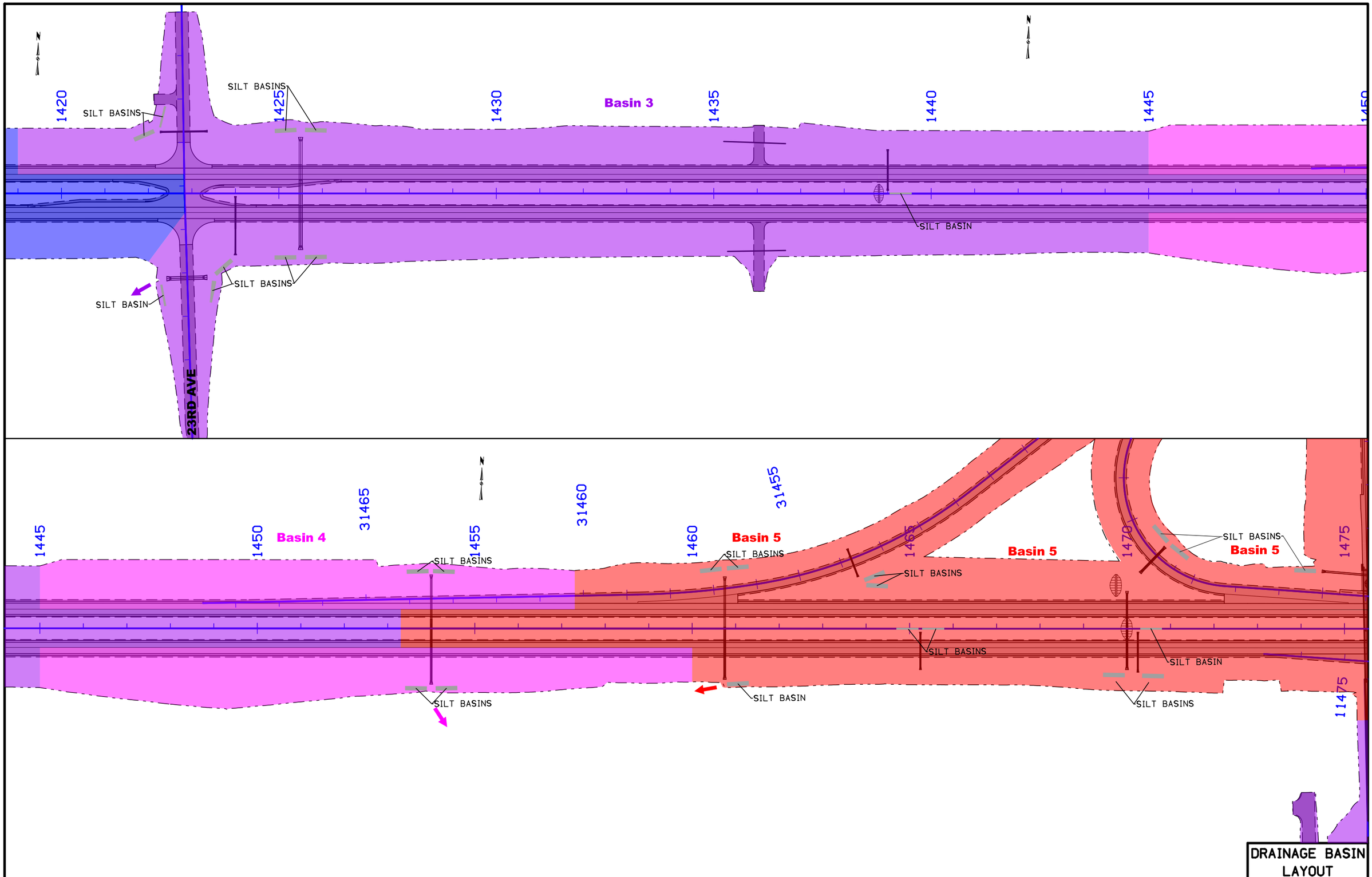
Location Station	Side	Installation EACH	Maintenance EACH	Removal EACH	Remarks
241470+87.00	Lt.	1	1	1	SW-549
241471+65.00	Lt.	1	1	1	SW-549
241472+80.00	Lt.	1	1	1	SW-549
241473+95.00	Lt.	1	1	1	SW-549
241473+95.00	Rt.	1	1	1	SW-538
	Total	**5**	**5**	**5**	



DRAINAGE BASIN LAYOUT

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell \ Paul	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER CE.11

11:27:24 AM 11/2/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231CE11.sht



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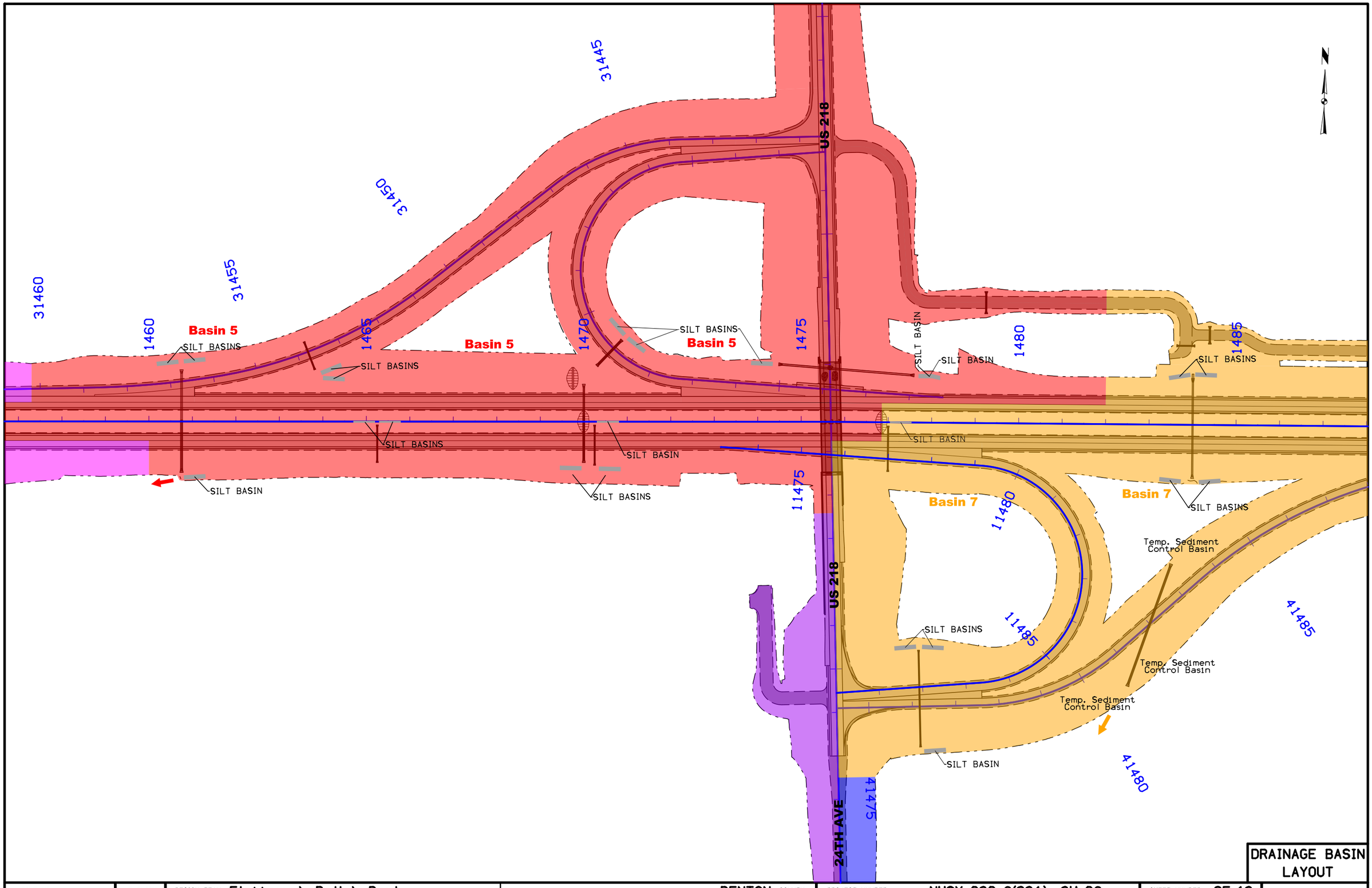

DRAINAGE BASIN LAYOUT

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell \ Paul	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER CE.13

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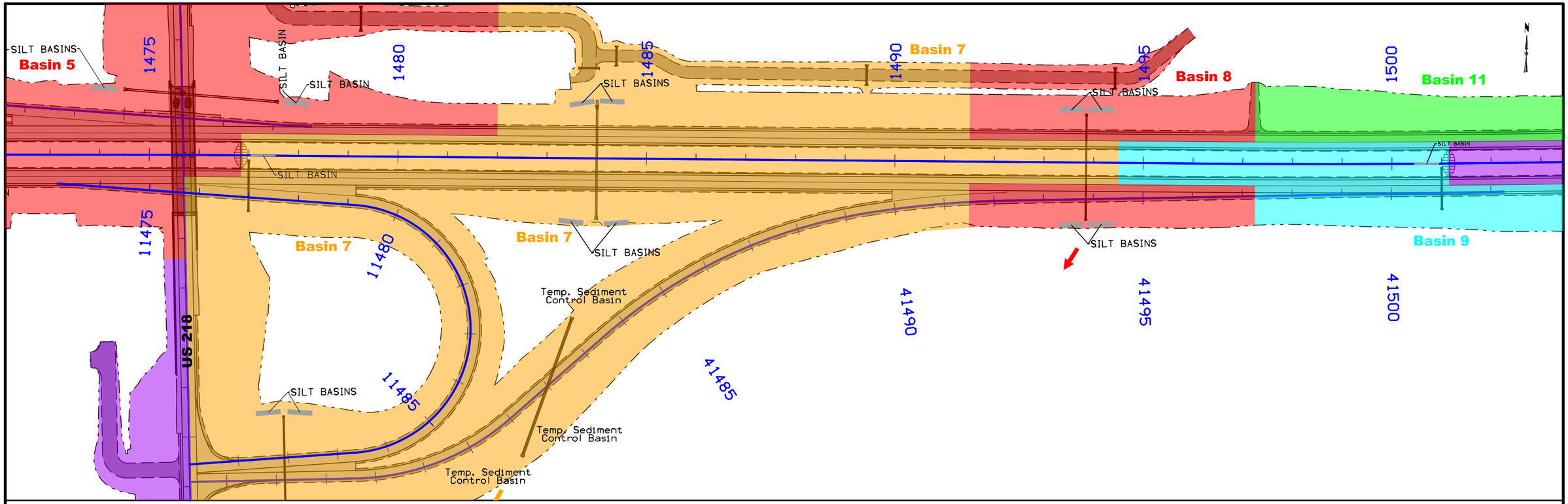

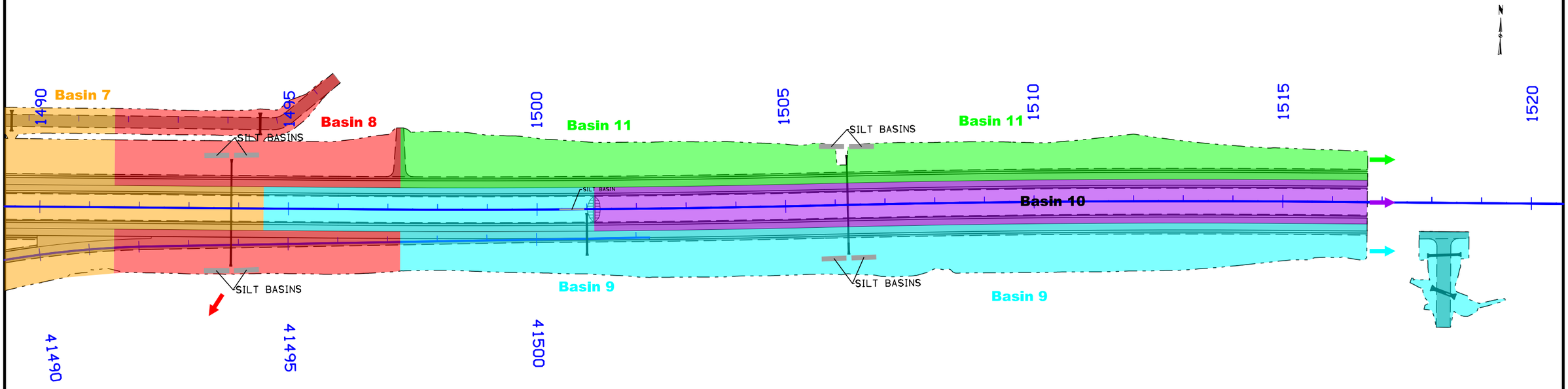

DRAINAGE BASIN LAYOUT

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell \ Paul	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER CE.14

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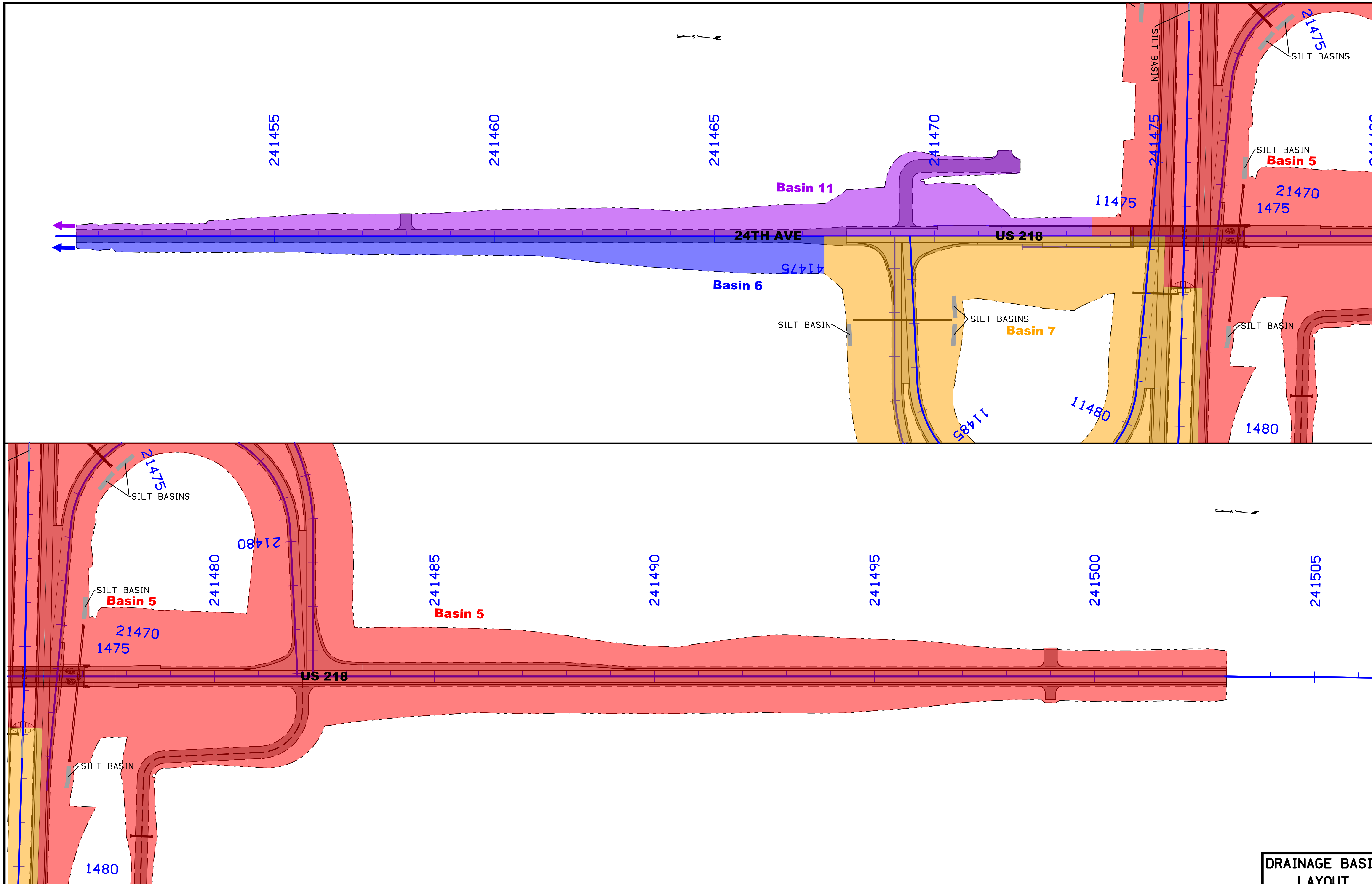
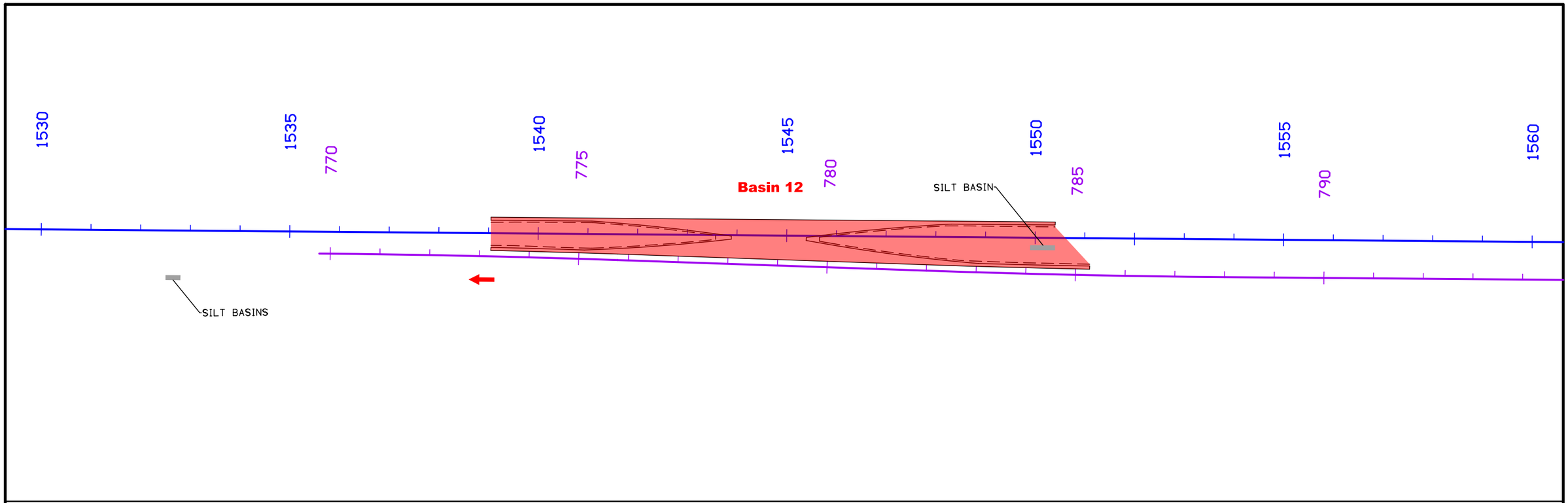


DRAINAGE BASIN LAYOUT

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell \ Paul	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER CE.15

11:27:36 AM 11/2/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231CE11.sht



DRAINAGE BASIN LAYOUT

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell \ Paul	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER CE.16	

104-5C
10-17-17

LIST OF SUBDRAIN WORK

Possible Standards: DR-121, DR-201, DR-203, DR-301, DR-302, DR-303, DR-305 and DR-306. Possible Detail: 500-10.

* Not a bid item

No.	Location: Station to Station		Type of Installation	Pipe: Concrete, C.M.P., or Plastic	Pipe: Dia.	Pipe: Length	Aprons: DR-201	Aprons: DR-203	Outlets: 500-10	Outlets: DR-305 Type	Outlets: DR-305 No.	Outlets: DR-306 No.	Connected Pipe Joints*: DR-121 Type	Connected Pipe Joints*: DR-121 No.	Trench Drain	Granular Material: Blanket	Special Backfill*	Class "A" Crushed Stone*	Remarks
			DR-301, DR-302, DR-303		IN	LF	No.	No.	No.	Type	No.	No.	Type	No.	LF	CY	TONS	CY	
1	1423+00.00	1425+50.00														220.0			12-inch thick Working Blanket - US 30 Stage 1
2	1452+50.00	1454+00.00														195.0			12-inch thick Working Blanket - US 30 Stage 1
3	1462+00.00	1467+00.00														330.0			12-inch thick Working Blanket - US 30 Stage 1
4	31445+50.00	31448+00.00														200.0			12-inch thick Working Blanket - Ramp C
5	31452+25.00	31454+00.00														115.0			12-inch thick Working Blanket - Ramp C
	241471+20.00	241474+57.00															4895.0		Special Backfill - MSE Wall Core-Out at South Abutment of US 218 over US 30 Bridge
1	1474+50.00	1475+43.90	DR-301 Type 2	Plastic	4.0	100						1				10.8			MSE Wall; outlet to ditch at Station 1474+50 as shown on Q.22
2	1474+50.00	1475+92.70	DR-301 Type 2	Plastic	4.0	150						1				10.8			MSE Wall; outlet to ditch at Station 1474+50 as shown on Q.22

Notes:

1. The Working Blankets shown on the Q Sheets and on tab. 104-5C may be deleted if determined not to be necessary at the time of construction.
2. See "MSE Retaining Wall Construction Notes" on Sheet V.1 for details of drain installation
3. See plan view on Sheet Q.22 for locations of drain installation.
4. Drain line No. 2 length includes subdrain within MSE wall and length outside wall to reach ditch outlet location.
5. Quantities are for porous trench width of 20 inches (both lines combined) and depth of 4 feet with 6 inches of topsoil cover.

103-5
10-15-13

SETTLEMENT PLATES

Refer to Standard Road Plan EW-212

No.	Location: Station	Location: Offset	Remarks
1	1388+00.00	25' RT	SP-1
2	1389+75.00	25' LT	SP-2, Stage 2
3	1425+40.00	25' RT	SP-3
4	1425+40.00	60' LT	SP-4, Stage 2
5	41476+00.00	10' RT	SP-5
6	41482+00.00	10' RT	SP-6
7	241477+35	20' RT	SP-7

103-6
10-17-17

EMBANKMENT WITH MOISTURE CONTROL

Moisture Control is required for all Class 10 fill placed in all locations and depths. Topsoil will not require Moisture Control.

103-7
08-01-08

SHRINKAGE DATA

Material	%	Remarks
Entire Project	30%	
Topsoil	40%	
Boulder Estimate		100 CY

103-10
04-18-17

TOPSOIL STRIPPING AND PLACEMENT

Road Identification	Location: Dir. of Traffic	Location: Begin Station	Location: End Station	Topsoil Stripping Thickness IN	Topsoil Placement Thickness IN	Remarks
US 30 Eastbound	EB	1380+00.00	1516+70.00	9.0	8.0	
US 30 Westbound	WB	1389+00.00	1516+70.00	9.0	8.0	
US 218 / 24th Ave.		241450+05.00	241503+00.00	12.0	8.0	
Loop A		11479+15.00	11486+64.72	12.0	8.0	
Loop B		21472+25.00	21479+75.06	12.0	8.0	
Ramp C		31440+41.75	31456+46.34	12.0	8.0	
Ramp D		41474+26.45	41489+96.32	12.0	8.0	
23rd Ave.		231416+75.00	231427+00.00	6.0	8.0	
Youngville Café Access		+00.00	12+75.00	12.0	8.0	

107-31
04-19-11

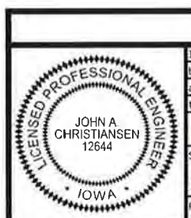
PLOWING AND SHAPING

Refer to Standard Road Plan EW-101

Station to Station		D FT	Remarks
1458+75	1466+00	4.5	Stage 1
1490+00	1491+25	4.5	Stage 1
1492+50	1507+00	4.5	Stage 1
1395+50	1397+00	5.0	Stage 2
1413+75	1418+75	5.0	Stage 2
1433+50	1438+25	5.0	Stage 2
1438+50	1440+50	3.5	Stage 2
1448+25	1457+75	5.0	Stage 2
1458+00	1459+50	3.5	Stage 2
1486+25	1493+50	3.5	Stage 2
1498+50	1506+00	5.0	Stage 2

SPECIAL ATTENTION (SLIVER FILL)

Special attention should be given to Article 2107.03.C, of the current Standard Specification Series, on this project.



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.

John A. Christiansen 2/16/18
Signature Date

John A. Christiansen
Printed or Typed Name

My license renewal date is December 31, 20 18

Pages or sheets covered by this seal: CS.1- CS.4, Q.1-Q.31

LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

Location						Longitudinal Subdrain (DR-303)							Subdrain Outlet		Porous* Backfill	Class "A"* Crushed Stone	Remarks
Line No.	Road or Lane Identification	Station to Station		Side	Depth (D)	Shoulder		Backslope		Bridge Berm (EW-203 or EW-204)			DR-303, DR-305 or DR-306				
						Size	Length	Size	Length	Standard Road Plan and Type	Size	Length	Station	Standard Road Plan and Type			
					IN	IN	FT	IN	FT		IN	FT			CY	CY	
1	EBL	1380+00.00	1385+00.00	RT	42.0	4.0	540.0						1380+00.00	DR-306	50.0	0.4	
													1385+00.00	DR-306		0.4	
2	EBL	1385+00.00	1390+00.00	RT	42.0	4.0	540.0						1385+00.00	DR-306	50.0	0.4	
													1390+00.00	DR-306		0.4	
3	EBL	1390+00.00	1395+00.00	RT	42.0	4.0	540.0						1390+00.00	DR-306	50.0	0.4	
													1395+00.00	DR-306		0.4	
4	EBL	1395+00.00	1400+00.00	RT	42.0	4.0	540.0						1395+00.00	DR-306	50.0	0.4	
													1400+00.00	DR-306		0.4	
5	EBL	1400+00.00	1404+75.00	RT	42.0	4.0	515.0						1400+00.00	DR-306	47.7	0.4	
													1404+75.00	DR-306		0.4	
6	EBL	1404+75.00	1409+75.00	RT	42.0	4.0	540.0						1404+75.00	DR-306	50.0	0.4	
													1409+75.00	DR-306		0.4	
7	EBL	1409+75.00	1415+00.00	RT	42.0	4.0	565.0						1409+75.00	DR-306	52.3	0.4	
													1415+00.00	DR-306		0.4	
8	EBL	1415+00.00	1420+00.00	RT	42.0	4.0	540.0						1415+00.00	DR-306	50.0	0.4	
													1420+00.00	DR-306		0.4	
9	EBL	1420+00.00	1425+00.00	RT	42.0	4.0	540.0						1420+00.00	DR-306	50.0	0.4	
													1425+00.00	DR-306		0.4	
10	EBL	1425+00.00	1430+00.00	RT	42.0	4.0	540.0						1425+00.00	DR-306	50.0	0.4	
													1430+00.00	DR-306		0.4	
11	EBL	1430+00.00	1435+00.00	RT	42.0	4.0	540.0						1430+00.00	DR-306	50.0	0.4	
													1435+00.00	DR-306		0.4	
12	EBL	1435+00.00	1440+00.00	RT	42.0	4.0	540.0						1435+00.00	DR-306	50.0	0.4	
													1440+00.00	DR-306		0.4	
13	EBL	1440+00.00	1445+00.00	RT	42.0	4.0	540.0						1440+00.00	DR-306	50.0	0.4	
													1445+00.00	DR-306		0.4	
14	EBL	1445+00.00	1450+00.00	RT	42.0	4.0	540.0						1445+00.00	DR-306	50.0	0.4	
													1450+00.00	DR-306		0.4	
15	EBL	1450+00.00	1455+00.00	RT	42.0	4.0	540.0						1450+00.00	DR-306	50.0	0.4	
													1455+00.00	DR-306		0.4	
16	EBL	1455+00.00	1460+00.00	RT	42.0	4.0	540.0						1455+00.00	DR-306	50.0	0.4	
													1460+00.00	DR-306		0.4	
17	EBL	1460+00.00	1465+20.00	RT	42.0	4.0	560.0						1460+00.00	DR-306	51.9	0.4	
													1465+20.00	DR-306		0.4	
18	EBL	1465+30.00	1469+95.00	RT	42.0	4.0	505.0						1465+30.00	DR-306	46.8	0.4	
													1469+95.00	DR-306		0.4	
19	EBL	1470+30.00	1475+00.00	RT	42.0	4.0	510.0						1470+30.00	DR-306	47.2	0.4	US 30 EB AND LOOP A TAPER
													1475+00.00	DR-306		0.4	
20	EBL	1475+00.00	1476+95.00	RT	42.0	4.0	235.0						1475+00.00	DR-306	21.8	0.4	US 30 EB AND LOOP A TAPER
													1476+95.00	DR-306		0.4	
21	EBL	1477+05.00	1479+10.00	RT	42.0	4.0	245.0						1477+05.00	DR-306	22.7	0.4	
													1479+10.00	DR-306		0.4	
22	EBL	1479+20.00	1482+80.00	RT	42.0	4.0	380.0						1479+20.00	DR-306	35.2	0.4	INSTALL OUTLET PRIOR TO LOOP A
23	EBL	1482+80.00	1486+40.00	RT	42.0	4.0	400.0						1482+80.00	DR-306	37.0	0.4	
													1486+40.00	DR-306		0.4	
24	EBL	1486+40.00	1489+90.00	RT	42.0	4.0	370.0						1486+40.00	DR-306	34.3	0.4	SINGLE OUTLET
25	EBL	1490+00.00	1494+50.00	RT	42.0	4.0	490.0						1490+00.00	DR-306	45.4	0.4	US 30 EB/RAMP D TAPER; SING.OUT.
26	EBL	1494+50.00	1500+00.00	RT	42.0	4.0	570.0						1500+00.00	DR-306	52.8	0.4	SINGLE OUTLET
27	EBL	1500+00.00	1505+00.00	RT	42.0	4.0	540.0						1500+00.00	DR-306	50.0	0.4	
													1505+00.00	DR-306		0.4	
28	EBL	1505+00.00	1510+00.00	RT	42.0	4.0	540.0						1505+00.00	DR-306	50.0	0.4	
													1510+00.00	DR-306		0.4	
29	EBL	1510+00.00	1513+35.00	RT	42.0	4.0	375.0						1510+00.00	DR-306	34.7	0.4	
													1513+35.00	DR-306		0.4	
30	EBL	1513+35.00	1516+70.00	RT	42.0	4.0	375.0						1513+35.00	DR-306	34.7	0.4	
													1516+70.00	DR-306		0.4	
31	WBL	1389+00.00	1394+00.00	LT	42.0	4.0	540.0						1389+00.00	DR-306	50.0	0.4	
													1394+00.00	DR-306		0.4	
32	WBL	1394+00.00	1397+45.00	LT	42.0	4.0	385.0						1394+00.00	DR-306	35.6	0.4	
													1397+45.00	DR-306		0.4	
33	WBL	1397+55.00	1400+00.00	LT	42.0	4.0	285.0						1397+55.00	DR-306	26.4	0.4	
													1400+00.00	DR-306		0.4	
34	WBL	1400+00.00	1404+70.00	LT	42.0	4.0	510.0						1400+00.00	DR-306	47.2	0.4	
													1404+70.00	DR-306		0.4	
35	WBL	1404+80.00	1409+00.00	LT	42.0	4.0	460.0						1404+80.00	DR-306	42.6	0.4	
													1409+00.00	DR-306		0.4	
36	WBL	1409+00.00	1414+00.00	LT	42.0	4.0	540.0						1409+00.00	DR-306	50.0	0.4	
													1414+00.00	DR-306		0.4	
37	WBL	1414+00.00	1419+00.00	LT	42.0	4.0	540.0						1414+00.00	DR-306	50.0	0.4	
													1419+00.00	DR-306		0.4	
38	WBL	1419+00.00	1424+00.00	LT	42.0	4.0	540.0						1419+00.00	DR-306	50.0	0.4	
													1424+00.00	DR-306		0.4	
39	WBL	1424+00.00	1429+00.00	LT	42.0	4.0	540.0						1424+00.00	DR-306	50.0	0.4	
													1429+00.00	DR-306		0.4	
40	WBL	1429+00.00	1434+00.00	LT	42.0	4.0	540.0						1429+00.00	DR-306	50.0	0.4	
													1434+00.00	DR-306		0.4	
41	WBL	1434+00.00	1439+00.00	LT	42.0	4.0	540.0						1434+00.00	DR-306	50.0	0.4	
													1439+00.00	DR-306		0.4	

LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

Location						Longitudinal Subdrain (DR-303)							Subdrain Outlet		Porous* Backfill	Class "A"* Crushed Stone	Remarks
Line No.	Road or Lane Identification	Station to Station		Side	Depth (D)	Shoulder		Backslope		Bridge Berm (EW-203 or EW-204)			DR-303, DR-305 or DR-306				
						Size	Length	Size	Length	Standard Road Plan and Type	Size	Length	Station	Standard Road Plan and Type			
					IN	IN	FT	IN	FT		IN	FT			CY	CY	
42	WBL	1439+00.00	1444+00.00	LT	42.0	4.0	540.0						1439+00.00	DR-306	50.0	0.4	
													1444+00.00	DR-306		0.4	
43	WBL	1444+00.00	1449+00.00	LT	42.0	4.0	540.0						1444+00.00	DR-306	50.0	0.4	
													1449+00.00	DR-306		0.4	
44	WBL	1449+00.00	1454+00.00	LT	42.0	4.0	540.0						1449+00.00	DR-306	50.0	0.4	
													1454+00.00	DR-306		0.4	
45	WBL	1454+00.00	1457+50.00	LT	42.0	4.0	390.0						1454+00.00	DR-306	36.1	0.4	
													1457+50.00	DR-306		0.4	
46	WBL	1457+50.00	1460+70.00	LT	42.0	4.0	360.0						1457+50.00	DR-306	33.3	0.4	US 30 WB AND RAMP C TAPER
													1460+70.00	DR-306		0.4	
47	WBL	1461+05.00	1465+00.00	LT	42.0	4.0	415.0						1465+00.00	DR-306	38.4	0.4	SINGLE OUTLET
48	WBL	1465+00.00	1468+45.00	LT	42.0	4.0	385.0						1465+00.00	DR-306	35.6	0.4	
													1468+45.00	DR-306		0.4	
49	WBL	1468+45.00	1472+20.00	LT	42.0	4.0	395.0						1468+45.00	DR-306	36.6	0.4	SINGLE OUTLET
50	WBL	1472+30.00	1477+30.00	LT	36.0	4.0	540.0						1472+30.00	DR-306	41.7	0.4	US 30 WB AND LOOP B TAPER
													1477+30.00	DR-306		0.4	
51	WBL	1477+30.00	1482+30.00	LT	36.0	4.0	540.0						1477+30.00	DR-306	41.7	0.4	
													1482+30.00	DR-306		0.4	
52	WBL	1482+30.00	1487+30.00	LT	36.0	4.0	540.0						1482+30.00	DR-306	41.7	0.4	
													1487+30.00	DR-306		0.4	
53	WBL	1487+30.00	1492+30.00	LT	42.0	4.0	540.0						1487+30.00	DR-306	50.0	0.4	
													1492+30.00	DR-306		0.4	
54	WBL	1492+30.00	1497+30.00	LT	42.0	4.0	540.0						1492+30.00	DR-306	50.0	0.4	
													1497+30.00	DR-306		0.4	
55	WBL	1497+30.00	1502+30.00	LT	42.0	4.0	540.0						1497+30.00	DR-306	50.0	0.4	
													1502+30.00	DR-306		0.4	
56	WBL	1502+30.00	1507+30.00	LT	42.0	4.0	540.0						1502+30.00	DR-306	50.0	0.4	
													1507+30.00	DR-306		0.4	
57	WBL	1507+30.00	1512+30.00	LT	42.0	4.0	540.0						1507+30.00	DR-306	50.0	0.4	
													1512+30.00	DR-306		0.4	
58	WBL	1512+30.00	1516+70.00	LT	18.0	4.0	480.0						1512+30.00	DR-306	14.8	0.4	
													1516+70.00	DR-306		0.4	
59	Loop A	11479+15.00	11484+00.00	RT	42.0	4.0	525.0						11479+15.00	DR-306	48.6	0.4	OUTLET WITH LINE NO. 22
													11484+00.00	DR-306		0.4	
60	Loop A	11484+00.00	11486+64.72	RT	42.0	4.0	304.7						11484+00.00	DR-306	28.2	0.4	
													11486+64.72	DR-306		0.4	
61	Loop B	21472+25.00	21473+75.00	RT	42.0	4.0	190.0						21472+25.00	DR-306	17.6	0.4	
													21473+75.00	DR-306		0.4	
62	Loop B	21473+75.00	21476+75.00	RT	42.0	4.0	340.0						21473+75.00	DR-306	31.5	0.4	
													21476+75.00	DR-306		0.4	
63	Loop B	21476+75.00	21479+75.06	RT	42.0	4.0	340.1						21476+75.00	DR-306	31.5	0.4	
													21479+75.06	DR-306		0.4	
64	Ramp C	31441+00.00	31443+70.00	LT	42.0	4.0	310.0						31441+00.00	DR-306	28.7	0.4	RAMP C AND LOOP B TAPER
													31443+70.00	DR-306		0.4	
65	Ramp C	31443+75.00	31447+75.00	LT	42.0	4.0	440.0						31447+75.00	DR-306	40.7	0.4	SINGLE OUTLET
66	Ramp C	31447+75.00	31452+10.00	RT	42.0	4.0	475.0						31447+75.00	DR-306	44.0	0.4	SUPERELEV. CHANGE - OUTLET RIGHT
													31452+10.00	DR-306		0.4	
67	Ramp C	31452+10.00	31453+70.00	RT	42.0	4.0	200.0						31452+10.00	DR-306	18.5	0.4	
													31453+70.00	DR-306		0.4	
68	Ramp C	31453+80.00	31454+75.00	RT	42.0	4.0	135.0						31453+80.00	DR-306	12.5	0.4	
													31454+75.00	DR-306		0.4	
69	Ramp C	31454+75.00	31456+46.34	RT	42.0	4.0	211.3						31454+75.00	DR-306	19.6	0.4	
													31456+46.34	DR-306		0.4	
70	Ramp D	41475+00.00	41477+55.00	LT	42.0	4.0	295.0						41475+00.00	DR-306	27.3	0.4	RAMP D AND LOOP A TAPER
													41477+55.00	DR-306		0.4	
71	Ramp D	41477+65.00	41482+25.00	LT	42.0	4.0	480.0						41482+25.00	DR-306	44.4	0.4	SINGLE OUTLET
72	Ramp D	41482+25.00	41486+00.00	RT	42.0	4.0	415.0						41482+25.00	DR-306	38.4	0.4	SUPERELEV. CHANGE - OUTLET RIGHT
													41486+00.00	DR-306		0.4	
73	Ramp D	41486+00.00	41489+96.32	RT	42.0	4.0	436.3						41486+00.00	DR-306	40.4	0.4	
													41489+96.32	DR-306		0.4	
74	US 218	241468+00.00	241471+25.00	LT	42.0	4.0	365.0						241468+00.00	DR-306	33.8	0.4	
													241471+25.00	DR-306		0.4	
75	US 218	241477+10.00	241480+50.00	LT	42.0	4.0	380.0						241477+10.00	DR-306	35.2	0.4	
													241480+50.00	DR-306		0.4	
76	US 218	241480+50.00	241483+36.20	LT	42.0	4.0	326.2						241480+50.00	DR-306	30.2	0.4	
													241483+36.20	DR-306		0.4	
77	US 218	241483+36.20	241488+25.00	LT	42.0	4.0	528.8						241483+36.20	DR-306	49.0	0.4	
													241488+25.00	DR-306		0.4	
78	US 218	241488+25.00	241493+15.00	LT	42.0	4.0	530.0						241488+25.00	DR-306	49.1	0.4	
													241493+15.00	DR-306		0.4	
79	US 218	241493+15.00	241498+05.00	LT	30.0	4.0	530.0						241493+15.00	DR-306	32.7	0.4	
													241498+05.00	DR-306		0.4	
80	US 218	241498+05.00	241503+00.00	LT	30.0	4.0	535.0						241498+05.00	DR-306	33.0	0.4	
													241503+00.00	DR-306		0.4	
81	US 218	241468+00.00	241471+00.00	RT	42.0	4.0	340.0						241468+00.00	DR-306	31.5	0.4	
													241471+00.00	DR-306		0.4	
82	US 218	241471+00.00	241473+75.00	RT	42.0	4.0	315.0						241471+00.00	DR-306	29.2	0.4	
													241473+75.00	DR-306		0.4	

LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

Location						Longitudinal Subdrain (DR-303)							Subdrain Outlet		Porous* Backfill	Class "A"* Crushed Stone	Remarks
Line No.	Road or Lane Identification	Station to Station		Side	Depth (D)	Shoulder		Backslope		Bridge Berm (EW-203 or EW-204)			DR-303, DR-305 or DR-306				
						Size	Length	Size	Length	Standard Road Plan and Type	Size	Length	Station	Standard Road Plan and Type			
					IN	IN	FT	IN	FT		IN	FT			CY	CY	
83	US 218	241477+10.00	241481+50.00	RT	42.0	4.0	480.0						241477+10.00	DR-306	44.4	0.4	
													241481+50.00	DR-306		0.4	
84	US 218	241481+50.00	241486+50.00	RT	42.0	4.0	540.0						241481+50.00	DR-306	50.0	0.4	
													241486+50.00	DR-306		0.4	
85	US 218	241486+50.00	241491+50.00	RT	30.0	4.0	540.0						241486+50.00	DR-306	33.3	0.4	
													241491+50.00	DR-306		0.4	
86	US 218	241491+50.00	241494+00.00	RT	26.0	4.0	290.0						241491+50.00	DR-306	14.9	0.4	
													241494+00.00	DR-306		0.4	
87	US 218	241494+00.00	241503+00.00	RT	22.0	4.0	940.0						241494+00.00	DR-306	38.7	0.4	SHALLOW DITCH; SEE NOTE BELOW
													241503+00.00	DR-306		0.4	
	Totals						40257.4							DR-306 = 166	3563.1	66.4	

NOTE: ALL LONGITUDINAL SUBDRAINS ARE TYPE 7 WITH PCC UNLESS OTHERWISE NOTED IN REMARKS COLUMN.
NOTE: LINE NO. 84 OUTLETS SHALL DAYLIGHT AT LEAST 6 INCHES ABOVE BASE OF DITCH.
NOTE: LINE NO. 22 SHALL OUTLET AT SAME LOCATION AS LINE NO. 57.

NEW OUTLET TO BE ADDED																	
	US 218			RT	48.0	4.0	20.0						241503+00.00	DR-306	2.2	0.4	
	Totals						20.0							DR-306 = 1	2.2	0.4	

SURVEY SYMBOLS

- GDL Guard Rail Steel
- D Centerline Draw or Stream (Down)
- TDC Tree Deciduous
- SI Sign
- BNK Stream Bank
- TEV Evergeen Tree
- HDG Hedge Row
- LP L.P. Tank
- SHR Shrub
- SI Sign
- RET Retaining Walls
- FWD Wood Fence
- FCL Chain Link and Security Fence
- LUM Luminaire
- STP Stump
- CIS Cistern
- LUM Luminaire
- UB Utility Box
- SI Sign
- TPD Telephone Pedestal
- TIL Tile Line
- OUT Tile Outlet
- MM Mile Marker Post
- MH Utility Access (Manhole)
- WV Water Valve
- WHD Water Hydrant
- CIS Cistern
- WEL Well
- EB Electrical Box
- INB Storm Sewer Beehive Intake
- SEP Septic Tank
- WM Wind Mill

UTILITY LEGEND

This is a POINT 25 Project and is subject to the provisions of IAC 761-115.25.

-E1-
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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 Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.1

9:09:32 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231LGD.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

1388+14 82.25 LT
TWIN 3' X 3' X 57' RCB
D.A. = PART OF 113 Ac - F-R
Stage 2 Remove

Stage 2
Sta. 1388+10
Extend with 54" x 90' RCP
F.L. = Lt. 870.09
Rt. 869.48

Sta. 1387+96 84.40' LT
36" X 67' RCP
D.A. = PART OF
113 Ac - F-R
Stage 2 Remove

Sta. 1388+32 85.04' LT
36" X 67' RCP
D.A. = PART OF 1
13 Ac F-R
Stage 2 Remove

Stage 2
Sta. 1397+50 - 44' LT
Install 24" x 68' RCP
F.L. = Lt. 878.55
Rt. 880.20

DO NOT DISTURB
EXISTING SEPTIC &
FENCE

22nd Avenue

Sta. 1389+00.00
BEGIN CONSTRUCTION WB

18" X 30.0'
C.M.P.
Remove

+21.00 CLOSE

+75 Prop. Jt.
Type "C" Ent.
24" Uncl. Pipe

18" X 24.0'
C.M.P.
Remove

+02.00 CLOSE

+08 Prop.
Type "C" Ent.

1370 1375 1380 1385 1390 1395 1400

PI Sta 1371+26.92

30

POT Sta. 1371+26.92 (ML030)
= POT Sta. 221371+27.26 (SR22NDAVE)

Sta. 1380+00.00
BEGIN CONSTRUCTION EB

Stage 1
Sta. 1381+10
Install 54" x 168' RCP
F.L. = Lt. 869.48
Rt. 868.39

Stage 1
Sta. 1382+00 - 44' RT
Install 24" x 68' RCP
F.L. = Lt. 887.95
Rt. 884.76
Other 886.10
Install 24" x 30' CMP
F.L. = Lt. 884.76
Rt. 880.15
Other 880.56

Stage 1
Sta. 1388+10
Install 54" x 168' RCP
F.L. = Lt. 869.48
Rt. 868.39

24" X 40.5'
C.M.P.
Remove

+08 Prop.
Type "C" Ent.
24" Uncl. Pipe

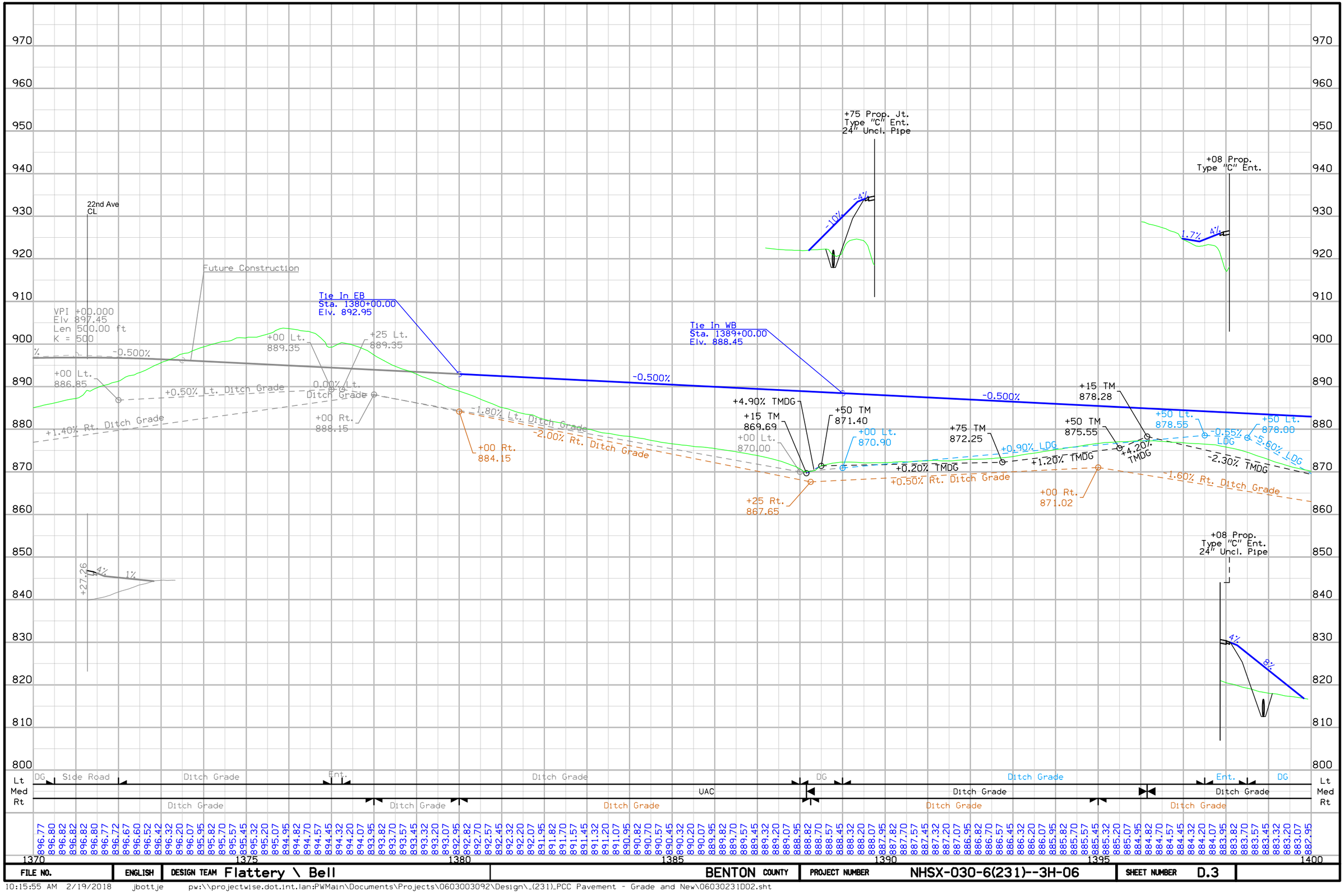
Eldorado TWP.
T-83N R-10W
SEC. 31

0 100
FEET

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.2

10:15:53 AM 2/19/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231D02.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.3

10:15:55 AM 2/19/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231D02.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

Eldorado TWP.
T-83N R-10W
SEC. 29

Eldorado TWP.
T-83N R-10W
SEC. 31

Eldorado TWP.
T-83N R-10W
SEC. 32

23rd Avenue

Sta. 1400+79.24 89.10' LT
Skew 2° Lt. Ahd.
84" X 86' RCP
Remove in Stage 2

Stage 2
Sta. 1400+94
Extend with 8' x 8' x 84' RCB
F.L. = Lt. 864.00
Rt. 863.19
Design No. 1218

DO NOT DISTURB
EXISTING SEPTIC &
FENCE

Sta. 1400+98.63 90.31' LT
Skew 2° Lt. Ahd.
12 X 5 X 53.3 RCB
D.A. = 803 Ac - R
Lined w/ 83" X 57" X 40' Steel Arch Pipe
Remove in Stage 2

Stage 2
Sta. 1404+75 - 44' LT
Install 24" x 92' RCP
F.L. = Lt. 870.00
Rt. 876.91
Other 870.93

18" X 30.5'
C.M.P.
Remove

+90 Prop.
CLOSE Type "C" Ent.
24" Uncl. Pipe

Stage 2
Sta. 1413+75 - 44' LT
Install 24" x 86' RCP
F.L. = Lt. 878.70
Rt. 883.45
Other 878.89

+55 Prop.
Type M Dike
Elev. =886.21

Stage 2
Sta. 1425+50
Extend 72" x 90' RCP
F.L. = Lt. 878.75
Rt. 878.60

Sta. 1425+43.05 88.87' LT
6' X 5' X 47' RCB
D.A. = 227 Ac - F-GR-R
Remove

1400 1405 1410 1415 1420 1425 1430

30

24" X 40.5'
C.M.P.
Remove

18" X 30.4'
C.M.P.
Remove

+90 Prop.
Type "C" Ent.
24" Uncl. Pipe

POT Sta. 1422+82.53 (ML030)
= POT Sta. 231422+82.94 (SR23RDAVE)

Stage 1
Sta. 1425+50
Install 72" x 152' RCP
F.L. = Lt.
Rt.

Stage 1
Sta. 1424+00 - 44' RT
Install 24" x 68' RCP
F.L. = Lt. 892.36
Rt. 889.20
Other 890.52
Install 24" x 57' CMP
F.L. = Lt. 889.20
Rt. 876.80
Other 877.18

Stage 1
Sta. 1400+94
Build 8' x 8' x 141' RCB
F.L. = Lt. 863.19
Rt. 861.81
Design No. 718

0 100
FEET

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.4

10:16:08 AM 2/19/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231D02.sht

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER	NHSX-030-6(231)--3H-06	SHEET NUMBER	D.5

10:16:10 AM 2/19/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231D02.sht

Eldorado TWP.
T-83N R-10W
SEC. 29

Stage 2
Sta. 1439+00
Install 24" x 82' RCP
F.L. = Lt. 900.35
Rt. 903.65
Other 900.53

+04 Prop. Type "C" Ent. 24" Uncl. Pipe

+80 Prop. Type M Dike Elev. =906.41

+80.00 ENT. CLOSE

Stage 2
Sta. 1454+00
Extend 36" x 96' RCP
F.L. = Lt. 902.35
Rt. 900.74

Sta. 1452+73.91 80.73' LT
2' X 2' X 62' RCB
D.A. = 25 Ac - GR-R
Stage 2 Remove

+04 ENT. CLOSE

1430 1435 1440 1445 1450 1455 1460

30

18" x 29.6' CMP Remove

+04 Prop. Type "C" Ent. 24" Uncl. Pipe

+00.00 ENT. CLOSE

+65 ENT. CLOSE

Stage 1
Sta. 1454+00
Install 36" x 142' RCP
F.L. = Lt. 900.74
Rt. 898.40
Shape to drain from existng RCB to Lt FL.

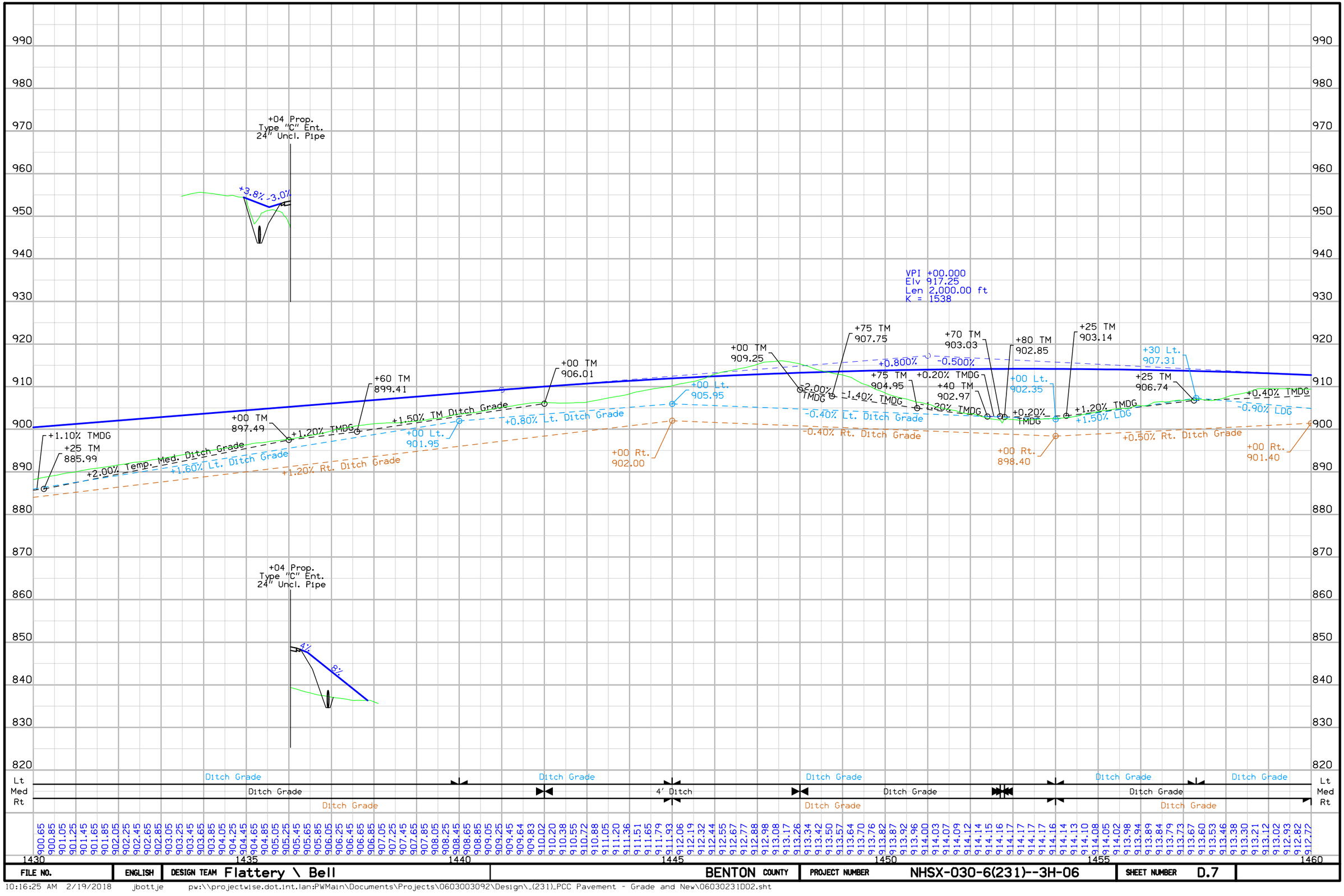
Eldorado TWP.
T-83N R-10W
SEC. 32

0 100
FEET

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.6

10:16:24 AM 2/19/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231D02.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.7

Eldorado TWP.
T-83N R-10W
SEC. 29

Eldorado TWP.
T-83N R-10W
SEC. 28

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 33

218

US 218

30

Ramp C

Ramp B

Ramp A

Ramp D

24th Avenue

Youngville Cafe Access

Sta. 1462+28.65 70.91' LT
3' X 3' X 58.98' RCB, W/EXTS
D.A. = 48 Ac - R
Plug and Abandon

Stage 2
Sta. 1470+00
Extend 42" x 62' RCP
F.L. = Lt. 909.15
Rt. 908.66

+75 Prop.
Type M Dike
Elev. =910.85

Sta. 1472+14.19
42" X 202' Conc Pipe
D.A. = 76 Ac - R
Plug and Abandon

Sta. 1475+53.62 175.99' LT
30" X 86' Conc Pipe
D.A. = 20 Ac - R
Remove

Stage 1
Sta. 1484+00
Jack 36" x 214' RCP
F.L. = Lt. 920.50
Rt. 915.56
Stage 2 Remove 18'

Sta. 1475+53.62
30" X 19.4' RCP
2' X 2' X 66.8' RCB
36" X 140.1' RCP
D.A. = 24 Ac - R
Remove

44" X 32.2'
C.M.P.
Remove

24" X 58.3'
C.M.P.
Remove

CLOSE

OBLITERATE

18" X 76.4'
C.M.P.
Remove

Stage 1
Sta. 1460+75
Jack 42" x 176' RCP
F.L. = Lt. 904.90
Rt. 900.56
Install 42" x 44' RCP
F.L. = Lt. 900.56
Rt. 899.33

Sta. 1466+74.53 26.12' RT
18" X 76' Conc Pipe
D.A. = 2 1/2 Ac - MEDIAN
Stage 1 Remove

Stage 1
Sta. 1465+25 - 44' RT
Install 24" x 74' RCP
F.L. = Lt. 906.34
Rt. 904.10

+00 Prop.
Type M Dike
Elev. =913.69

POT Sta. 1475+68.30 (ML030)
= POT Sta 241475+68.30 (SR218)

Sta. 1472+39.26
18" X 102' Conc Pipe
D.A. = 1 Ac - MEDIAN
Stage 1 Remove

Stage 1
Sta. 1470+00
Install 42" x 100' RCP
F.L. = Lt. 908.66
Rt. 907.90

Stage 1
Sta. 1470+25 - 44' RT
Install 24" x 80' RCP
F.L. = Lt. 910.47
Rt. 909.98

+85 Prop.
Type M Dike
Elev. =921.82

Sta. 1476+49.90 44.90' RT
24" X 86' Conc Pipe
D.A. = 3 Ac - MEDIAN
Remove

Sta. 1475+56.22 102.59' RT
24" X 76' PLASTIC PIPE
D.A. = 4 1/2 A - F-GR
Remove

Stage 1
Sta. 1477+00 - 44' RT
Install 24" x 92' RCP
F.L. = Lt. 912.32
Rt. 910.82

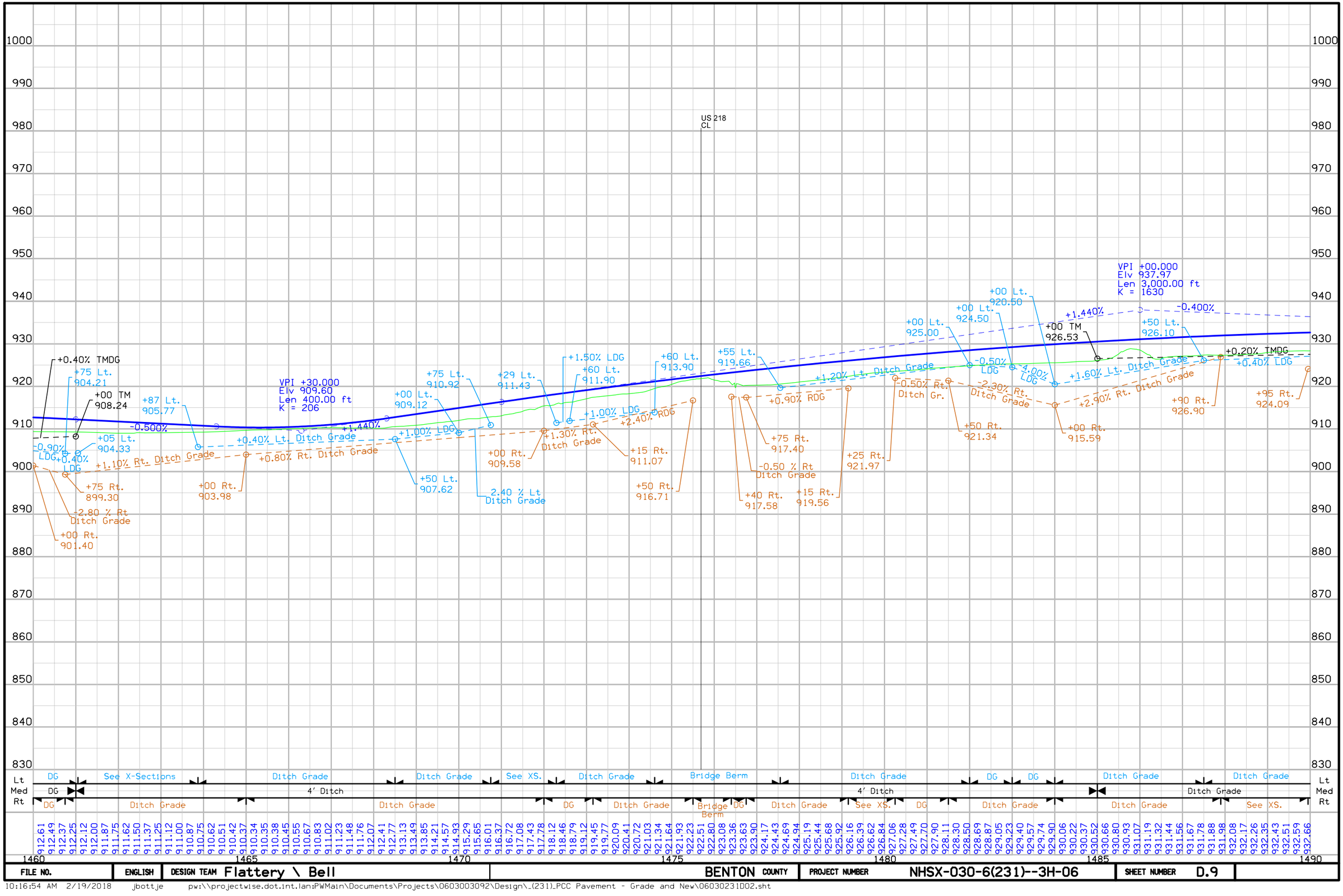
Sta. 1486+35.12 54.97' RT
18" X 74' Conc Pipe
D.A. = 3 Ac - MEDIAN
Remove

0 100
FEET

U.S. Highway 30

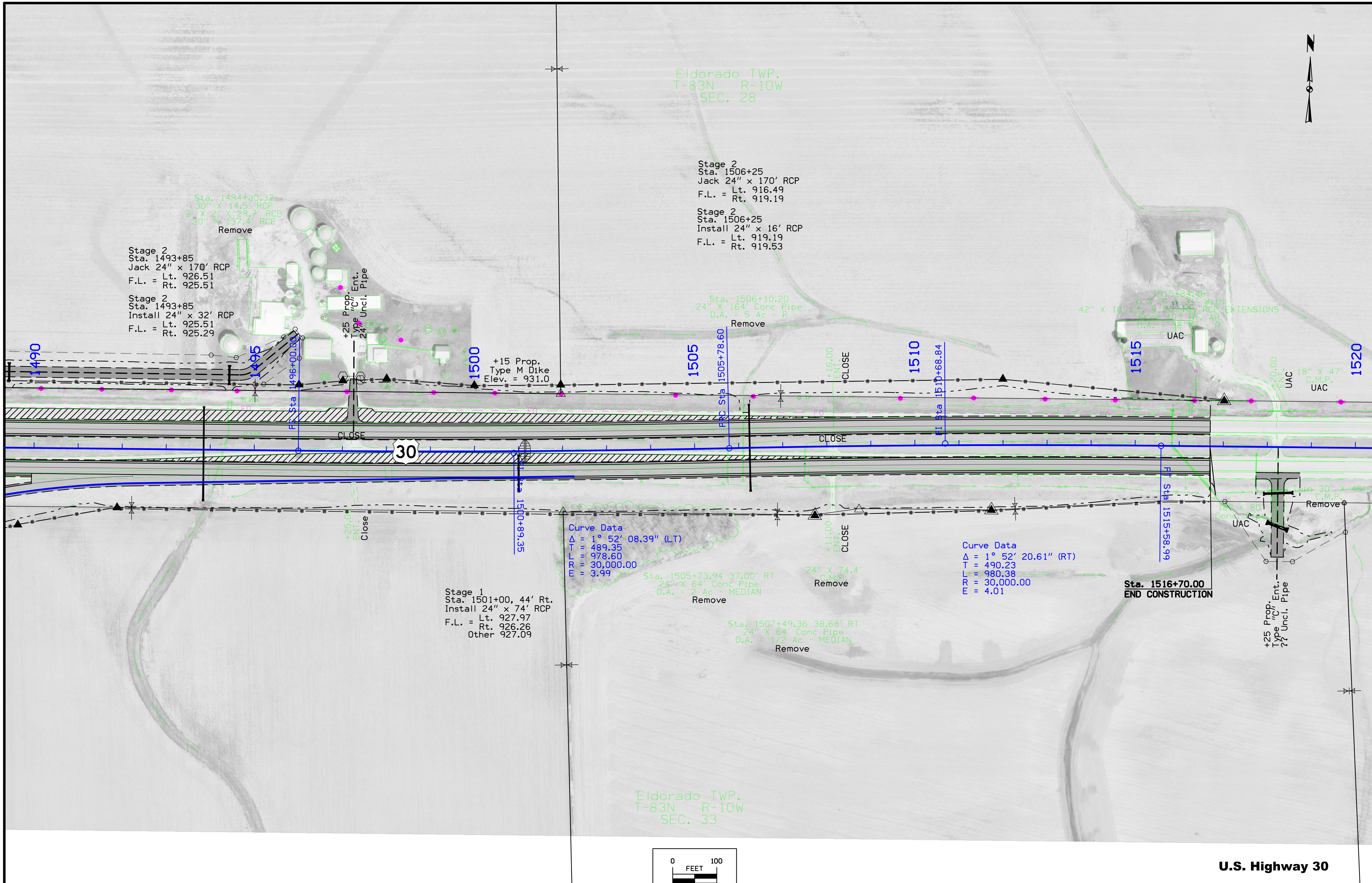
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.8

10:16:52 AM 2/19/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231D02.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.9

10:16:54 AM 2/19/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231D02.sht

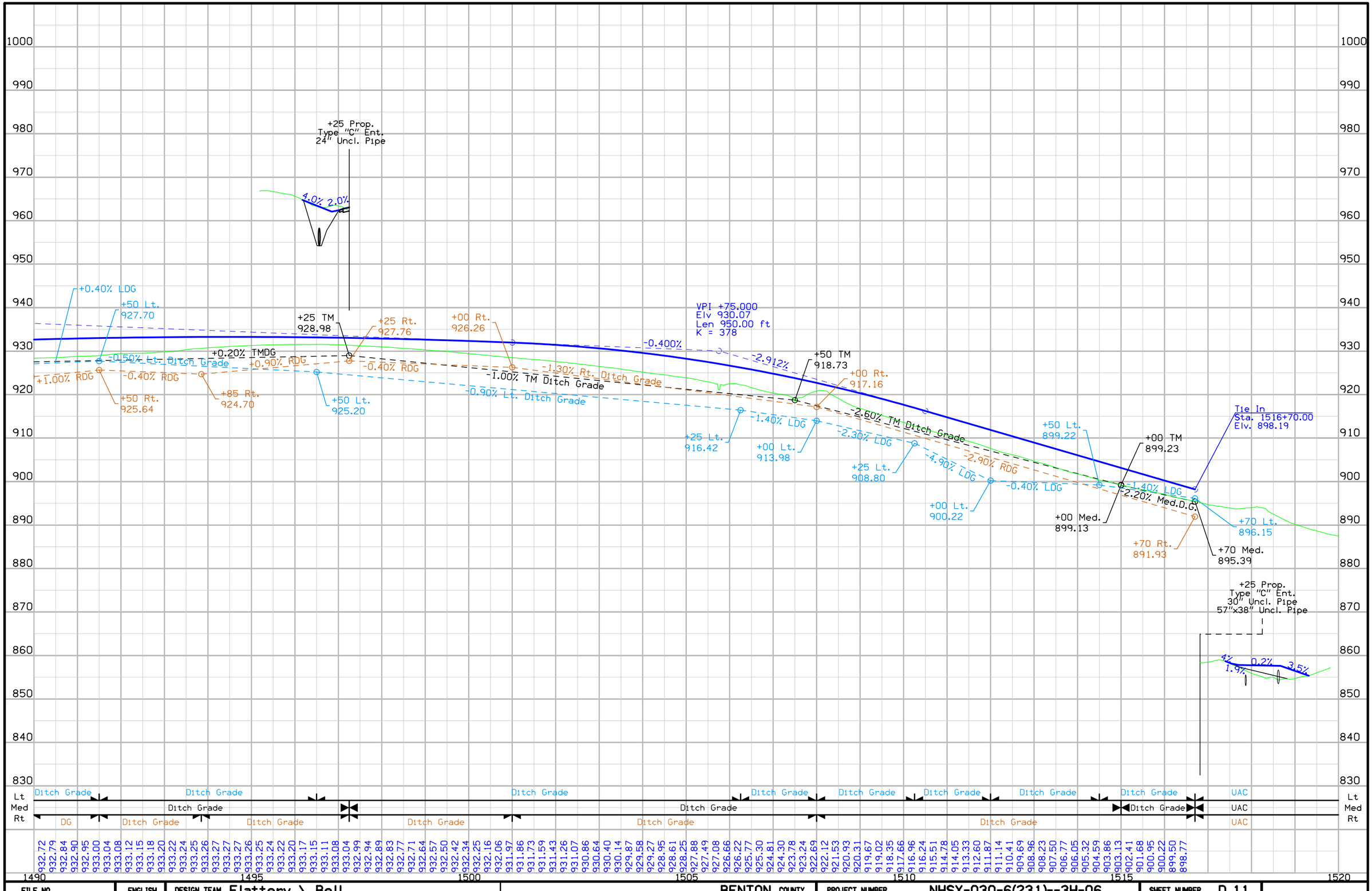


Eldorado TWP.
T-83N R-10W
SEC. 28
Stage 2
Sta. 1506+25
Jack 24" x 170' RCP
F.L. = Lt. 916.49
Rt. 919.19
Stage 2
Sta. 1506+25
Install 24" x 16' RCP
F.L. = Lt. 919.19
Rt. 919.53
Sta. 1494+30.32
Remove
Stage 2
Sta. 1493+85
Jack 24" x 170' RCP
F.L. = Lt. 926.51
Rt. 925.51
Stage 2
Sta. 1493+85
Install 24" x 32' RCP
F.L. = Lt. 925.51
Rt. 925.29
+25 Prop.
Type "C" Ent.
24" Uncl. Pipe
Sta. 1506+10.20
24" X 164' Conc Pipe
D.A. = 5 Ac - R
Remove
+15 Prop.
Type M Dike
Elev. = 931.0
1490
1495
1500
1505
1510
1515
1520
PT Sta 1496+00.00
PRC Sta 1505+78.60
PI Sta 1510+68.84
PI Sta 1500+89.35
PT Sta 1515+58.99
CLOSE
UAC
Remove
30
Close
Curve Data
Δ = 1° 52' 08.39" (LT)
T = 489.35
L = 978.60
R = 30,000.00
E = 3.99
Curve Data
Δ = 1° 52' 20.61" (RT)
T = 490.23
L = 980.38
R = 30,000.00
E = 4.01
Sta. 1505+73.94 37.00' RT
24" X 64' Conc Pipe
D.A. = 2 Ac - MEDIAN
Remove
Sta. 1507+49.36 38.68' RT
24" X 64' Conc Pipe
D.A. = 1/2 Ac - MEDIAN
Remove
Stage 1
Sta. 1501+00, 44' Rt.
Install 24" x 74' RCP
F.L. = Lt. 927.97
Rt. 926.26
Other 927.09
Sta. 1516+70.00
END CONSTRUCTION
+25 Prop.
Type "C" Ent.
?? Uncl. Pipe
Eldorado TWP.
T-83N R-10W
SEC. 33
0 FEET 100
N

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell		BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.10

10:15:39 AM 2/19/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231D02.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER D.11

Eldorado TWP.
T-83N R-10W
SEC. 31

Eldorado TWP.
T-83N R-10W
SEC. 30

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 29

231415 231420 231425 231430 231435

POT Sta 231414+82.97

PI Sta 231422+82.93

23rd Avenue

U.A.C.

18" X 30.0' C.M.P.
U.A.C.

Sta. 231416+75.00
BEGIN CONSTRUCTION

Sta. 231420+88. 282' RT
8' X 6' X 46' OBLONG CMP
D.A. = 325 Ac - F-GR-R

REMOVE
Sta. 231420+88.00
Install 78" x 74' RCP
F.L. = Lt. 875.50
Rt. 876.05

+00 Prop.
Type "C" Ent.
24" Uncl. Pipe

18" X 29.8'
Remove

+92.00
ENT.

24" X 24.2' C.M.P.
U.A.C.

Sta. 231424+14
24" X 48' Conc Pipe
D.A. = 4 1/2 Ac - R

REMOVE
Sta. 231424+25.00
Install 24" x 96' RCP
F.L. = Lt. 881.73
Rt. 881.19

Sta. 231427+00.00
END CONSTRUCTION

+65.00
ENT.

0 100
FEET

23rd Avenue

+00 Prop.
Type "C" Ent.
24" Uncl. Pipe
2.9%

RESUME CONSTRUCTION
Sta. 231423+40.93
Elv. 894.67

END CONSTRUCTION
Sta. 231427+00.00
Elv. 894.85

STOP CONSTRUCTION
Sta. 231422+24.91
Elv. 894.68

BEGIN CONSTRUCTION
Sta. 231416+75.00
Elv. 885.14

VPI +50.000
Elv 883.43
Len 350.00 ft
K = 88

VPI +75.000
Elv 890.65
Len 250.00 ft
K = 51

-0.977%
+3.000%
-3.000%
+1.866%
-2.14%
-1.70% Rt. Ditch Grade
+3.90% LDG
+3.70% Ditch Grade

+75 Lt.
884.07

+75 Rt.
882.85

+75 Rt.
876.05

+25 Lt.
878.80

6.60 % Lt.
Ditch Grade

+75 Lt.
875.50

0.40 % Rt.
Ditch Grade

+00 Rt.
876.15

+35 Lt.
881.81

+45 Rt.
880.56

+00 Lt.
891.15

+00 Rt.
890.00

+00 Lt.
888.25

920 910 900 890 880 870 860 850

Lt
Rt

U.A.C. | Ditch Grade | DG | Mainline | Ditch Grade | DG | U.A.C.

885.14 884.93 884.80 884.73 884.73 884.81 884.96 885.17 885.46 885.82 886.25 886.75 887.32 887.97 888.68 889.43 890.18 890.93 891.68 892.43 893.18 893.93

894.40 893.71 893.14 892.70 892.37 892.17 892.09 892.13 892.29 892.57 892.98 893.45 893.91 894.38 894.85

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER E.1

10:48:13 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231E01.sht

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 33

POT Sta 241450+04.05

BEGIN CONSTRUCTION
Sta. 241450+50.00

24th Avenue

241455

241460

241465

241470

241475

+00 Prop. Type "B" Ent. 24" Uncl. Pipe

15" x 16.0' C.M.P. Remove

CLOSE

18" x 22.0' C.M.P.

END GRAVEL
BEGIN PAVING
Sta. 241468+00.00

+35 Prop. Type "B" Ent. 24" Uncl. Pipe

Sta. 241476+90.9
Install 36" x 296' RCP
Skew = 5.89° Lt. Ahd.
F.L. = Lt. 913.72
Rt. 919.40

Sta. 241475+75.72
Build 257' x 44'
Pretensioned Prestressed
Concrete Beam Bridge
BY OTHERS

Sta. 241475+54. 132' RT
24" x 76' PLASTIC PIPE
D.A. = 4 1/2 A - F-GR
REMOVE

Sta. 241477+44
30"x 85' Conc Pipe
D.A. = 20 Ac - R
REMOVE

Proposed MSE Wall

POT Sta. 1475+68.30 (ML030)
= POT Sta 241475+68.30 (SR218)

Ramp A

Ramp D

30

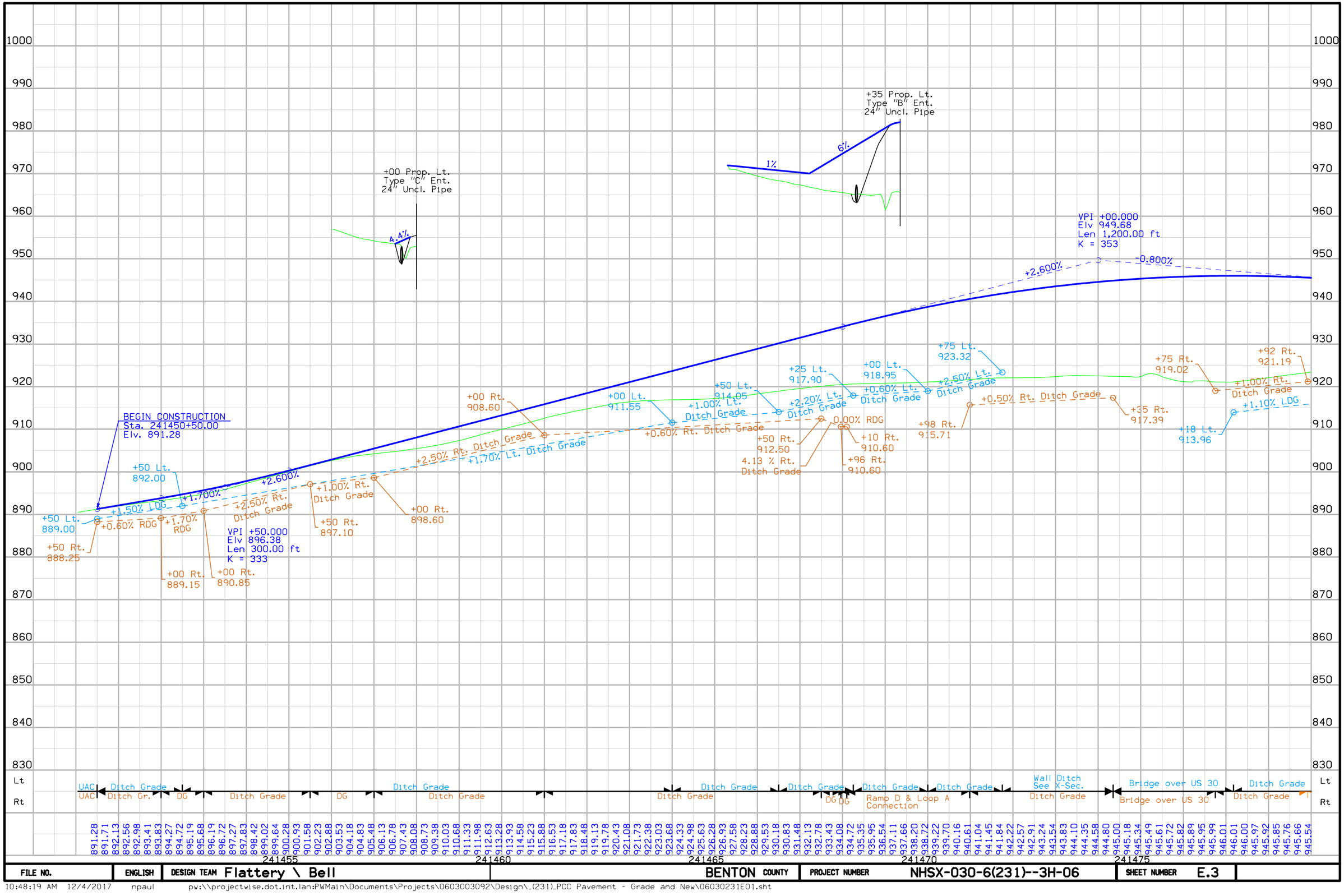
218

0 100
FEET

24th Avenue/
U.S. Highway 218

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER E.2

10:48:17 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231E01.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER E.3

Eldorado TWP.
T-83N R-10W
SEC. 29

Ramp C

Ramp B

241480

241485

241490

241495

241500

241505

241510

Sta. 241503+00.00
END CONSTRUCTION

PI Sta 241502+95.73

+00 Prop.
Type "C" Ent.
21x15" L.C.P.

+00 Prop.
Type "B" Ent.
24" Uncl. Pipe

Sta. 241502+67
2' X 2' X 29.58' RCB W/EXTS
D.A. = 10 Ac - R
U.A.C.

Sta. 241507+47
2' X 2' X 33' RCB W/EXTS
D.A. = 12 Ac - R

218

Eldorado TWP.
T-83N R-10W
SEC. 28

0 100
FEET

24th Avenue/
U.S. Highway 218

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER E.4	

10:48:22 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231E01.sht

+00 Prop. Lt.
Type "C" Ent.
21x15" L.C.P.

+00 Prop. Rt.
Type "C" Ent.
21x15" L.C.P

1%

4%

0%

5.1%

END CONSTRUCTION
Sta. 241503+00.00
Elv. 929.48

+36 Lt.
927.98

+00 Rt.
923.04

+2.24% Rt.

+0.60% Rt. Ditch Grade

+1.10%
LDG

+20 Lt.
917.29

Ditch Grade

+0.60% RDG

+0.70% Lt. Ditch Grade

+00 Rt.
932.00

-0.50% RDG

+00 Rt.
933.20

+50 Lt.
932.98

1.40% Lt. D.G.

+00 Rt.
930.70

-0.50% Rt. Ditch Grade

-0.60% Lt. Ditch Grade

+00 Lt.
929.48

+00 Rt.
928.70

-0.50%

-0.800%

Rt. DG

-0.50% Lt. Ditch Grade

+00 Lt.
927.08

+0.000%

+0.000%

+67 Rt.
925.86

+67 Lt.
924.24

+1.64% RDG

+1.60%
LDG

+00 Rt.
926.40

+00 Lt.
924.77

VPI +25.000
Elv 929.48
Len 500.00 ft
K = 625

+00 Prop.
Type "B" Ent.
24" Uncl. Pipe

-4.000%

-0.800%

+2.600%

-3.100%

+0.343%

Lt
Rt

Ditch Gr.
Ditch Grade

Ramp C & Loop B
Connection
Ditch Grade

Ditch Grade
Ditch Grade

Ditch Grade
Ditch Grade

Ditch Grade
Ditch Grade

Ditch Grade
Ditch Grade

DG
DG

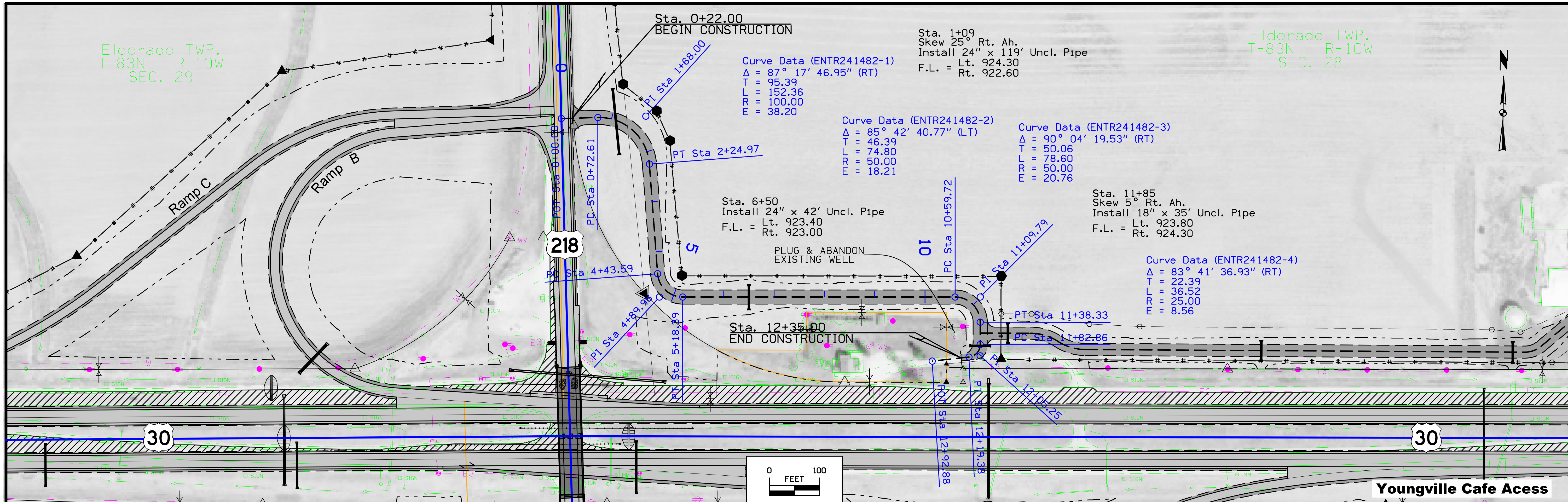
UAC
UAC

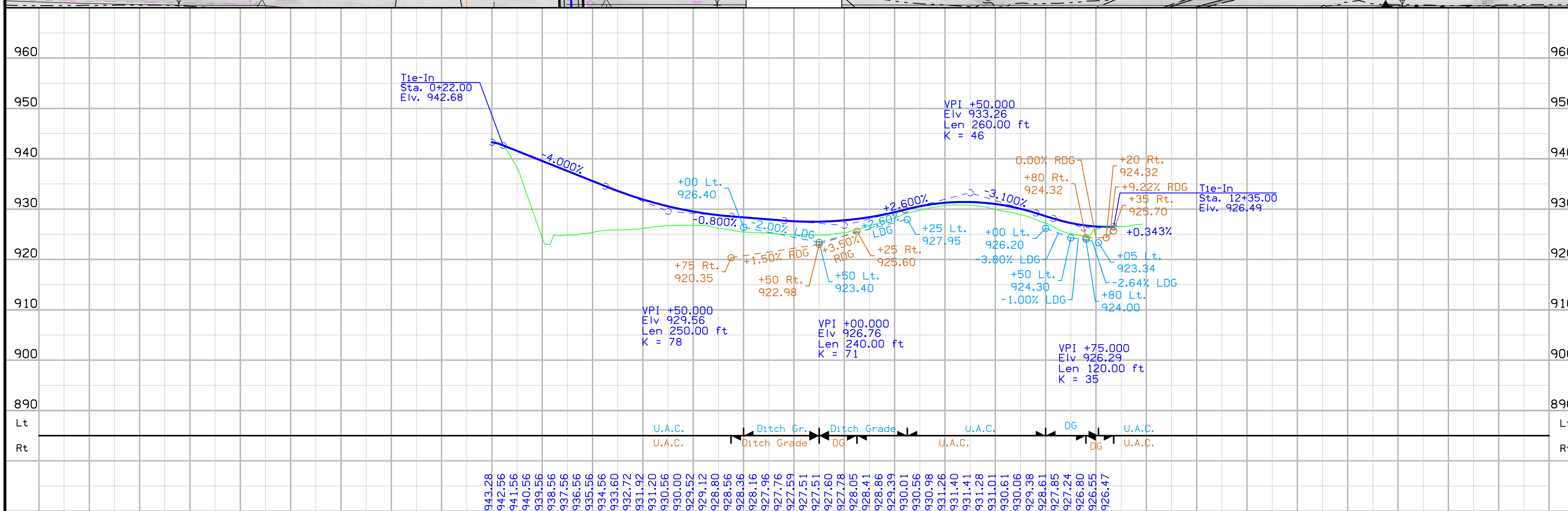
945.40 945.25 945.07 944.88 944.68 944.48 944.28 944.08 943.88 943.68 943.48 943.28 943.08 942.88 942.68 942.48 942.28 942.08 941.88 941.68 941.48 941.28 941.08 940.88 940.68 940.48 940.28 940.08 939.88 939.68 939.48 939.28 939.08 938.88 938.68 938.48 938.28 938.08 937.88 937.68 937.48 937.28 937.08 936.88 936.68 936.48 936.28 936.08 935.88 935.68 935.48 935.28 935.08 934.88 934.68 934.48 934.28 934.08 933.88 933.68 933.48 933.28 933.08 932.88 932.68 932.48 932.28 932.08 931.88 931.68 931.48 931.29 931.10 930.93 930.76 930.61 930.46 930.33 930.20 930.09 929.98 929.89 929.80 929.73 929.66 929.61 929.56 929.53 929.50 929.49 929.48 929.48 929.48 929.48 929.48 929.48

241480 241485 241490 241495 241500 241505

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER E.5

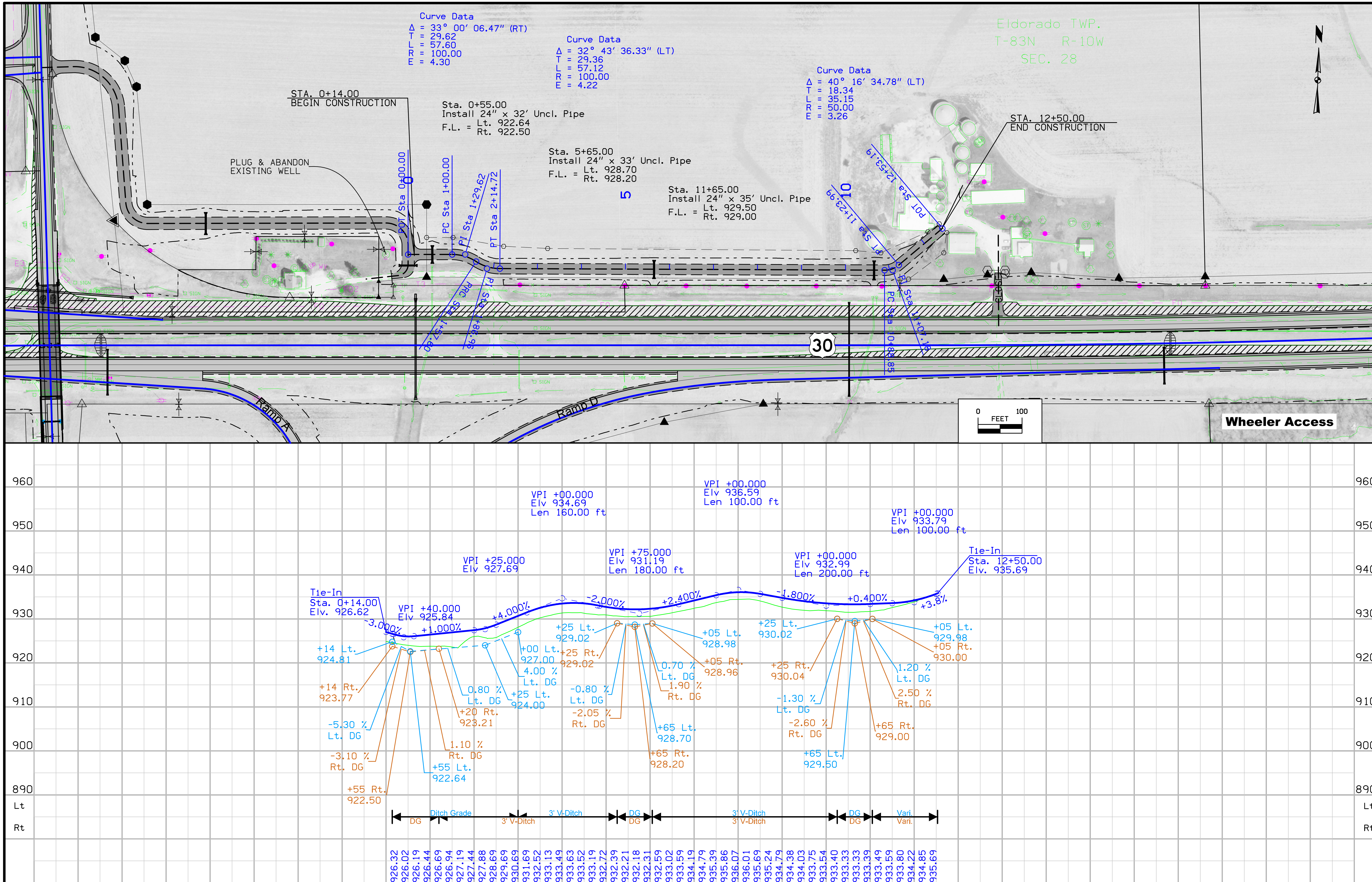
10:48:24 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231E01.sht


Sta. 0+22.00
BEGIN CONSTRUCTION
Eldorado TWP.
T-83N R-10W
SEC. 29
Eldorado TWP.
T-83N R-10W
SEC. 28
Sta. 1+09
Skew 25° Rt. Ah.
Install 24" x 119' Uncl. Pipe
F.L. = Lt. 924.30
Rt. 922.60
Curve Data (ENTR241482-1)
Δ = 87° 17' 46.95" (RT)
T = 95.39
L = 152.36
R = 100.00
E = 38.20
Curve Data (ENTR241482-2)
Δ = 85° 42' 40.77" (LT)
T = 46.39
L = 74.80
R = 50.00
E = 18.21
Curve Data (ENTR241482-3)
Δ = 90° 04' 19.53" (RT)
T = 50.06
L = 78.60
R = 50.00
E = 20.76
Sta. 6+50
Install 24" x 42' Uncl. Pipe
F.L. = Lt. 923.40
Rt. 923.00
Sta. 11+85
Skew 5° Rt. Ah.
Install 18" x 35' Uncl. Pipe
F.L. = Lt. 923.80
Rt. 924.30
Curve Data (ENTR241482-4)
Δ = 83° 41' 36.93" (RT)
T = 22.39
L = 36.52
R = 25.00
E = 8.56
PI Sta 1+68.00
PT Sta 2+24.97
PC Sta 0+72.61
POT Sta 0+00.00
PC Sta 4+43.59
PI Sta 4+89.98
PT Sta 5+18.39
PC Sta 10+59.72
PI Sta 11+09.79
PT Sta 11+38.33
PC Sta 11+82.86
PI Sta 12+05.25
PT Sta 12+19.38
POT Sta 12+92.88
PLUG & ABANDON
EXISTING WELL
Sta. 12+35.00
END CONSTRUCTION
Ramp B
Ramp C
218
30
30
0
5
10
0 100
FEET
Youngville Cafe Acess


960
950
940
930
920
910
900
890
Tie-In
Sta. 0+22.00
Elv. 942.68
-4.000%
-0.800%
+2.600%
-3.100%
+0.343%
VPI +50.000
Elv 929.56
Len 250.00 ft
K = 78
VPI +00.000
Elv 926.76
Len 240.00 ft
K = 71
VPI +50.000
Elv 933.26
Len 260.00 ft
K = 46
VPI +75.000
Elv 926.29
Len 120.00 ft
K = 35
Tie-In
Sta. 12+35.00
Elv. 926.49
+00 Lt.
926.40
-2.00% LDG
+2.60% LDG
+25 Lt.
927.95
+50 Lt.
923.40
+75 Rt.
920.35
+1.50% RDG
+50 Rt.
922.98
+3.50% RDG
+25 Rt.
925.60
+00 Lt.
926.20
-3.80% LDG
+50 Lt.
924.30
-1.00% LDG
+05 Lt.
923.34
-2.64% LDG
+80 Lt.
924.00
0.00% RDG
+80 Rt.
924.32
+20 Rt.
924.32
+9.22% RDG
+35 Rt.
925.70
Lt
Rt
U.A.C.
Ditch Gr.
Ditch Grade
U.A.C.
DG
U.A.C.
U.A.C.
Ditch Grade
DG
U.A.C.
DG
U.A.C.
943.28
942.56
941.56
940.56
939.56
938.56
937.56
936.56
935.56
934.56
933.60
932.72
931.92
931.20
930.56
930.00
929.52
929.12
928.80
928.56
928.36
928.16
927.96
927.76
927.59
927.51
927.51
927.60
927.78
928.05
928.41
928.86
929.39
930.01
930.56
930.98
931.26
931.40
931.41
931.28
931.01
930.61
930.06
929.38
928.61
927.85
927.24
926.80
926.55
926.47
0
5
10

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER E.6	REVISED 2018-10-29

1:41:21 PM 10/29/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231E01.sht


Curve Data
Δ = 33° 00' 06.47" (RT)
T = 29.62
L = 57.60
R = 100.00
E = 4.30
Curve Data
Δ = 32° 43' 36.33" (LT)
T = 29.36
L = 57.12
R = 100.00
E = 4.22
Curve Data
Δ = 40° 16' 34.78" (LT)
T = 18.34
L = 35.15
R = 50.00
E = 3.26
Eldorado TWP.
T-83N R-10W
SEC. 28
STA. 0+14.00
BEGIN CONSTRUCTION
Sta. 0+55.00
Install 24" x 32' Uncl. Pipe
F.L. = Lt. 922.64 Rt. 922.50
Sta. 5+65.00
Install 24" x 33' Uncl. Pipe
F.L. = Lt. 928.70 Rt. 928.20
Sta. 11+65.00
Install 24" x 35' Uncl. Pipe
F.L. = Lt. 929.50 Rt. 929.00
STA. 12+50.00
END CONSTRUCTION
PLUG & ABANDON
EXISTING WELL
POT Sta 0+00.00
PC Sta 1+00.00
PI Sta 1+29.62
PT Sta 2+14.72
PC Sta 11+23.99
POT Sta 12+53.19
PC Sta 10+88.85
PT Sta 11+07.15
30
Ramp A
Ramp D
0 FEET 100
Wheeler Access
960
950
940
930
920
910
900
890
Lt
Rt
VPI +00.000
Elv 934.69
Len 160.00 ft
VPI +00.000
Elv 936.59
Len 100.00 ft
VPI +00.000
Elv 933.79
Len 100.00 ft
VPI +25.000
Elv 927.69
VPI +75.000
Elv 931.19
Len 180.00 ft
VPI +00.000
Elv 932.99
Len 200.00 ft
Tie-In
Sta. 12+50.00
Elv. 935.69
Tie-In
Sta. 0+14.00
Elv. 926.62
VPI +40.000
Elv 925.84
-3.000%
+1.000%
+4.000%
-2.000%
+2.400%
-1.800%
+0.400%
+3.8%
+14 Lt. 924.81
+14 Rt. 923.77
-5.30 % Lt. DG
-3.10 % Rt. DG
+55 Rt. 922.50
+55 Lt. 922.64
1.10 % Rt. DG
+20 Rt. 923.21
0.80 % Lt. DG
+25 Lt. 924.00
4.00 % Lt. DG
+00 Lt. 927.00
+25 Lt. 929.02
+25 Rt. 929.02
-0.80 % Lt. DG
-2.05 % Rt. DG
+05 Lt. 928.98
+05 Rt. 928.96
0.70 % Lt. DG
1.90 % Rt. DG
+65 Lt. 928.70
+65 Rt. 928.20
+25 Lt. 930.02
+25 Rt. 930.04
-1.30 % Lt. DG
-2.60 % Rt. DG
+65 Lt. 929.50
+05 Lt. 929.98
+05 Rt. 930.00
1.20 % Lt. DG
2.50 % Rt. DG
+65 Rt. 929.00
DG
Ditch Grade
3' V-Ditch
3' V-Ditch
DG
DG
3' V-Ditch
3' V-Ditch
DG
DG
Vari.
Vari.
926.32
926.02
926.19
926.44
926.69
926.94
927.19
927.44
927.88
928.69
929.69
930.69
931.69
932.52
933.13
933.49
933.63
933.52
933.19
932.72
932.39
932.21
932.18
932.31
932.59
933.02
933.59
934.19
934.79
935.39
935.86
936.01
935.69
935.24
934.79
934.38
934.03
933.75
933.54
933.40
933.33
933.33
933.39
933.49
933.59
933.80
934.22
934.85
935.69
0
5
10

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER E.7

10:49:05 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231E01.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

Eldorado TWP.
T-83N R-10W
SEC. 31

22nd Avenue

Sta. 100+00.00 (XOVER1)
= Sta. 1372+23.82, 89.19' Lt. (ML030)
BEGIN CONSTRUCTION

Curve 8020 Data
Δ = 6° 28' 02.63" (RT)
T = 451.99
L = 903.02
R = 8,000.00
E = 12.76

Curve 8025 Data
Δ = 7° 01' 04.93" (LT)
T = 490.56
L = 979.90
R = 8,000.00
E = 15.03

Sta. 119+94.92 (XOVER1)
= Sta. 1392+13.01, 44.00' Rt. (ML030)
END CONSTRUCTION

PC Sta 100+00.00
PI Sta 104+51.99
PT Sta 109+03.02
PC Sta 110+15.02
PI Sta 115+05.58
PT Sta 119+94.92

CLOSE
CLOSE

0 100
FEET

Crossover 1

Tie In
Sta. 106+85.01
Elev. 892.03

VPI +80.000
Elv 890.38
Len 180.00 ft
K = 219

Tie In
Sta. 113+02.74
Elev. 889.99

+0.50% Rt. Ditch Grade
-2.20% Rt. Ditch Grade
+2.000%
+0.500%
+0.500%
-0.320%

+50 Rt.
892.29

+75 Rt.
893.91

+00 Rt.
884.56

VPI +50.000
Elv 888.73
Len 220.00 ft
K = 88

Proposed US 30 EB

Lt
Rt

U.A.C. U.A.C. Ditch Grade Ditch Grade V Ditch V Ditch U.A.C. U.A.C.

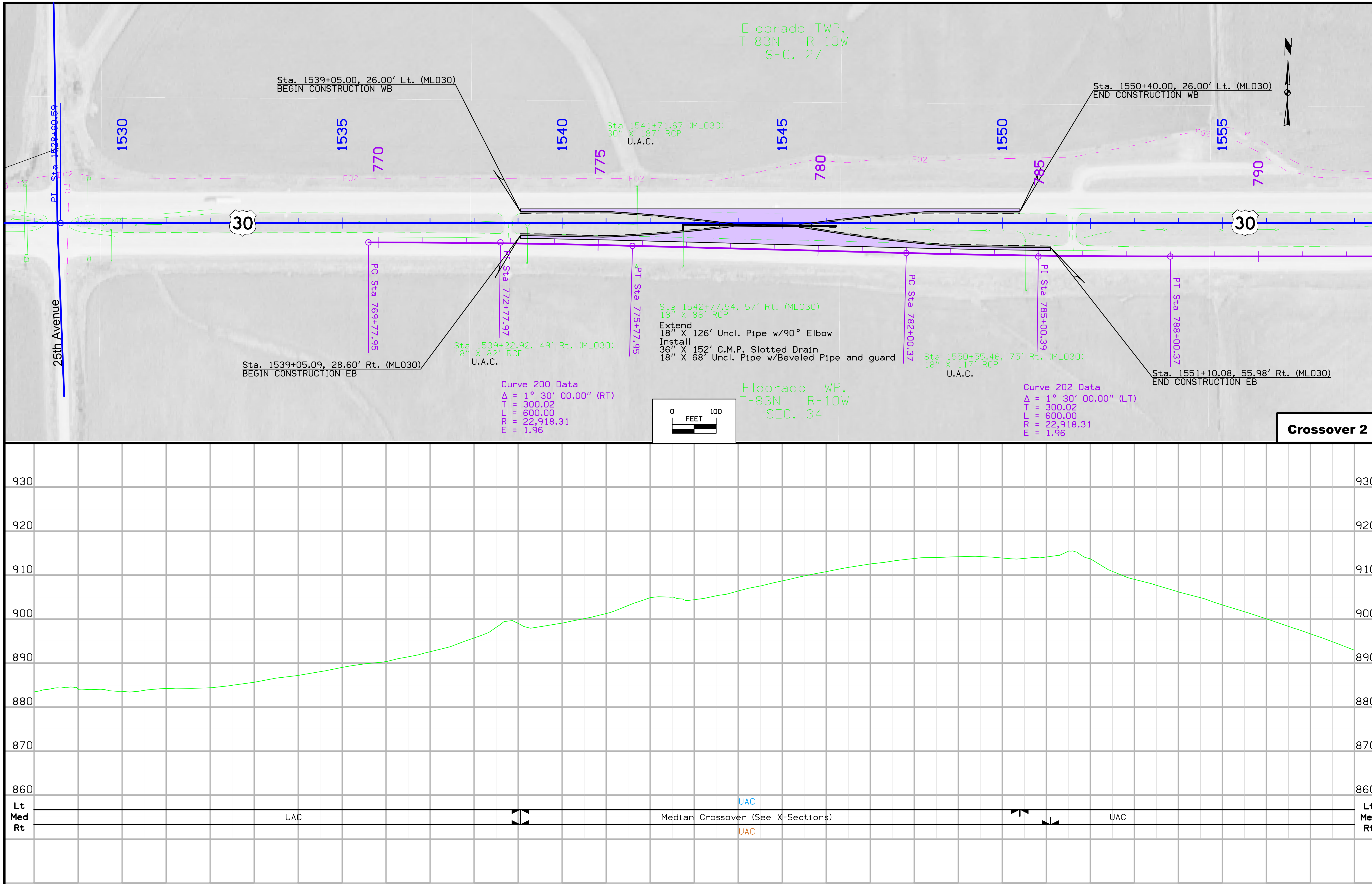
891.73 891.23 890.74 890.30 889.94 889.64 889.42 889.27 889.19 889.18 889.24 889.36 889.48 889.61 889.73 889.86 889.98 890.08 890.15 890.19 890.21 890.19 890.15 890.08 890.00

100 105 110 115 120

920 910 900 890 880 870 860 850

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER F.1

11:53:29 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231F01.sht


Eldorado TWP.
T-83N R-10W
SEC. 27
Sta. 1539+05.00, 26.00' Lt. (ML030)
BEGIN CONSTRUCTION WB
Sta. 1550+40.00, 26.00' Lt. (ML030)
END CONSTRUCTION WB
Sta. 1541+71.67 (ML030)
30" X 187' RCP
U.A.C.
PI Sta. 1528+60.59
1530
1535
1540
1545
1550
1555
770
775
780
785
790
F02
30
PC Sta 769+77.95
PI Sta 772+77.97
PT Sta 775+77.95
PC Sta 782+00.37
PI Sta 785+00.39
PT Sta 788+00.37
25th Avenue
Sta. 1542+77.54, 57' Rt. (ML030)
18" X 88' RCP
Extend
18" X 126' Uncl. Pipe w/90° Elbow
Install
36" X 152' C.M.P. Slotted Drain
18" X 68' Uncl. Pipe w/Beveled Pipe and guard
Sta. 1539+22.92, 49' Rt. (ML030)
18" X 82' RCP
U.A.C.
Sta. 1539+05.09, 28.60' Rt. (ML030)
BEGIN CONSTRUCTION EB
Sta. 1550+55.46, 75' Rt. (ML030)
18" X 117' RCP
U.A.C.
Sta. 1551+10.08, 55.98' Rt. (ML030)
END CONSTRUCTION EB
Curve 200 Data
Δ = 1° 30' 00.00" (RT)
T = 300.02
L = 600.00
R = 22,918.31
E = 1.96
Eldorado TWP.
T-83N R-10W
SEC. 34
0 100
FEET
Curve 202 Data
Δ = 1° 30' 00.00" (LT)
T = 300.02
L = 600.00
R = 22,918.31
E = 1.96
Crossover 2
930
920
910
900
890
880
870
860
Lt
Med
Rt
UAC
Median Crossover (See X-Sections)
UAC
UAC
UAC
1530
1535
1540
1545
1550
1555

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER F.2

11:54:09 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231F01.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

Curve 8320 Data
Δ = 4° 27′ 21.86″ (RT)
T = 136.17
L = 272.21
R = 3,500.00
E = 2.65

22nd Avenue

Sta 300+38.00 (XOVER3)
= Sta. 1380+38.00 (SUR030)
BEGIN CONSTRUCTION

300
POT Sta 300+00.00

18″ X 30.0′
C.M.P.

PI Sta 302+86.17

305
PC Sta 305+34.21

PT Sta 308+41.60

310
POT Sta 310+02.44

30

PC Sta 301+50.00

PT Sta 304+22.21

PT Sta 306+88.00

Curve 8325 Data
Δ = 5° 01′ 55.57″ (LT)
T = 153.80
L = 307.39
R = 3,500.00
E = 3.38

Sta 309+02.44 (XOVER3)
= Sta. 1389+00.00, 44.00′ Lt. (MLO30)
END CONSTRUCTION

Eldorado TWP.
T-83N R-10W
SEC. 31

0 100
FEET

Crossover 3

Tie In
Sta. 300+38.00
Elev. 890.08

VPI +85.000
Elv 887.14
Len 290.00 ft
K = 116

VPI +00.000
Elv 889.71
Len 350.00 ft
K = 348

Tie In
Sta. 309+02.44
Elev. 888.69

+85 Rt.
888.20
-2.90% RDG

-2.000%

+35 Rt.
886.75

+50 Rt.
885.26

+50 Rt.
884.76

+0.500%

+0.500%

-1.30% RDG

-0.50% RDG

+0.30% Rt.

+0.30% Rt. Ditch Grade

+00 Rt.
884.43

+70 Rt.
885.42

+38 Lt.
884.86

-2.00% Lt. Ditch Grade

+00 Lt.
873.62

-1.80% LDG

-0.20% LDG

+0.89% LDG

+00 Lt.
870.02

+03 Lt.
870.01

+02 Lt.
870.90

U.A.C.
U.A.C.
DG
DG
Ditch Grade
Ditch Grade
Ditch Grade
Ditch Grade
DG
DG
U.A.C.
U.A.C.

889.84 889.39 888.99 888.65 888.36 888.12 887.94 887.81 887.74 887.72 887.75 887.84 887.96 888.09 888.21 888.34 888.46 888.59 888.71 888.84 888.95 889.05 889.13 889.19 889.24 889.26 889.27 889.26 889.24 889.19 889.13 889.04 888.95 888.83 888.70

300 305 310

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER F.3

11:54:26 AM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231F01.sht

Benton County
NHS-030-6(87)--19-06
Benton County HWY 30 from the
Tama County Line
To HWY 218
PIN 96-06-030-030
Sap-0150.4

Party Personnel

John Dewey- Party Chief
John Bennett- Assistant Survey Party Chief
Jeffrey Duncan- Assistant Survey Party Chief

Date(s) of Survey

Begin Date
12/2010
End Date
09/2011

General Information

Measurement units for this survey are US survey feet. This survey is for proposed reconstruction of Highway 30 This project is a partial field survey for the digital terrain model. This survey was limited to the specific area of the survey request. Additional aerial photography survey will be added to this survey in 06030087.pho

Vertical Control

Vertical datum for this survey is relative to NAVD88.

Survey Information

Horizontal Control

The coordinate system is Iowa State Plane North Zone. Due to lower linear distortion on this project there was no modification from state plane grid to ground. Horizontal control was brought to the site by averaging a minimum of five GPS network observations on control throughout the project. Geodetic datum for this survey is NAD83(CORS96)(EPOCH 2002.00)

Alignment Information

The horizontal alignment for Highway 30 survey is a retrace of As-built Plans No. FN-30-6(33)21-06, F-278 (2), NHS-30-6(63)19-06, and BRF-30-6(51)38-86. Survey stationing was equated to the plan FN-30-6(33)21-06 at the POT at Sta. 741+13.08 and run back and ahead without equation throughout the survey.

Survey stationing relates to as built plans as follows:

PI Sta. 712+36.65 This Survey
= PI Sta. 1712+35.79 As-built Plans Project No. BRF-30-6(51)38-86

PI Sta. 773+71.87 This Survey
= PI Sta. 773+71.89 As-built Plans Project No. FN-30-6(33)21-06

PI Sta. 817+03.67 This Survey
= PI Sta. 817+04.05 As-built Plans Project No. FN-30-6(33)21-06

PI Sta. 896+29.25 This Survey
= PI Sta. 896+29.59 As-built Plans Project No. FN-30-6(33)21-06
= PI Sta. 130+40.1 As-built Plans Project No. F-278 (2)

PI Sta. 921+04.41 This Survey
= PI Sta. 155+15.25 As-built Plans Project No. F-278 (2)

PI Sta. 949+24.00 This Survey
= PI Sta. 183+34.73 As-built Plans Project No. F-278 (2)

PI Sta. 1002+56.36 This Survey
= PI Sta. 236+66.4 As-built Plans Project No. F-278 (2)

PI Sta. 1055+72.26 This Survey
= PI Sta. 289+81.7 As-built Plans Project No. F-278 (2)

PI Sta. 1081+96.62 This Survey
= PI Sta. 316+05.65 As-built Plans Project No. F-278 (2)

PI Sta. 1108+34.49 This Survey
= PI Sta. 342+43.56 As-built Plans Project No. F-278 (2)

PI Sta. 1160+95.18 This Survey
= PI Sta. 395+05.4 As-built Plans Project No. F-278 (2)

ALIGNMENT INFORMATION CONT.

PI Sta. 1213+52.34 This Survey
= PI Sta. 447+63.2 As-built Plans Project No. F-278 (2)

PI Sta. 1266+19.55 This Survey
= PI Sta. 500+32.2 As-built Plans Project No. F-278 (2)

PI Sta. 1300+58.26 This Survey
= PI Sta. 534+72.9 As-built Plans Project No. F-278 (2)

PI Sta. 1318+83.00 This Survey
= PI Sta. 552+98.55 As-built Plans Project No. F-278 (2)

PI Sta. 1345+08.44 This Survey
= PI Sta. 579+25.1 As-built Plans Project No. F-278 (2)

PI Sta. 1371+29.08 This Survey
= PI Sta. 605+46.9 As-built Plans Project No. F-278 (2)

PI Sta. 1383+16.83 This Survey
= PI Sta. 617+35.0 As-built Plans Project No. F-278 (2)

PI Sta. 1396+23.81 This Survey
= PI Sta. 630+42.5 As-built Plans Project No. F-278 (2)

PI Sta. 1422+83.03 This Survey
= PI Sta. 657+03.2 As-built Plans Project No. F-278 (2)

PI Sta. 1455+00.70 This Survey
= PI Sta. 689+22.86 As-built Plans Project No. NHS-30-6(63)19-06

PI Sta. 1466+79.53 This Survey
= PI Sta. 701+02.41 As-built Plans Project No. NHS-30-6(63)19-06

PI Sta. 1475+58.31 This Survey
= PI Sta. 709+80.83 As-built Plans Project No. NHS-30-6(63)19-06

PI Sta. 1501+99.70 This Survey
= PI Sta. 736+22.21 As-built Plans Project No. NHS-30-6(63)19-06

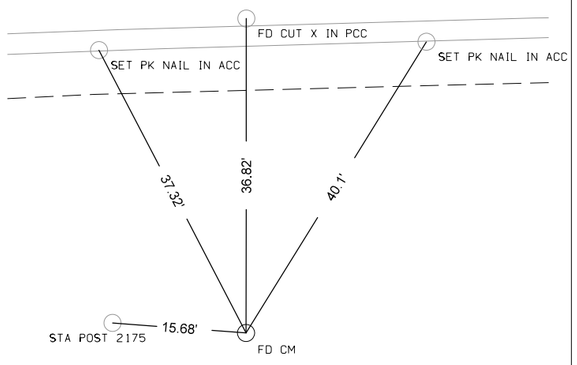
PI Sta. 1528+62.66 This Survey
= PI Sta. 762+85.17 As-built Plans Project No. NHS-30-6(63)19-06

FOR ADDITIONAL SURVEY INFORMATION SEE SURVEY INDEX

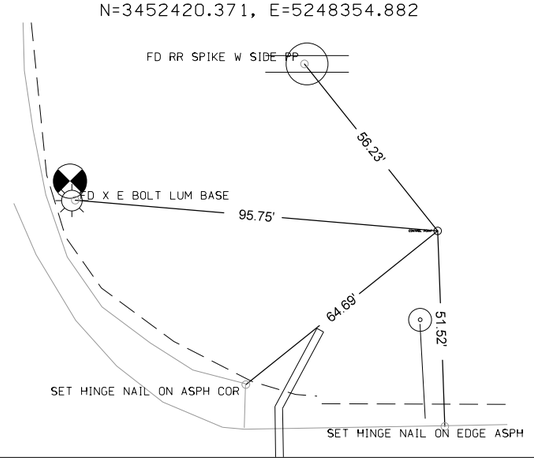
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
571	3452388.867	5249107.981	831.446	749+96.36	-28.231	BM	FND IHC BM N. HDWL 8'X6' RCB
603	3452396.088	5253009.836	910.728	788+97.95	28.038	BM	BUTTON ON HDWL
606	3452384.629	5255882.182	935.222	817+70.02	65.218	BM	CM
608	3452415.538	5258481.886	925.434	843+69.90	59.781	CP	CP/BM FD CM
609	3452515.328	5259881.424	918.753	857+70.35	-26.293	BM	FND IHC BM N HDWL
610	3452471.161	5261092.660	893.613	869+81.10	29.739	BM	FND IHC BM S HDWL
613	3452428.726	5263785.828	937.363	896+73.32	99.251	BM	FND CUT SQUARE IN TOP OF 24" RCP
614	3452491.442	5264152.691	932.885	900+40.89	42.331	BM	FND CUT X INLET HDWL
615	3452526.591	5265450.419	943.449	913+39.03	29.014	BM	FND IHC BM ON INLET HDWL
618	3452617.654	5268415.187	938.062	943+04.79	-25.345	BM	FND IHC BM ON INLET HDWL
619	3452658.553	5269000.009	945.997	948+90.02	-59.907	BM	FND CONC MON
622	3452597.326	5271999.562	937.034	978+88.80	27.444	BM	FND IHC BM ON INLET HDWL
624	3452565.569	5274414.003	928.709	1003+03.04	79.812	BM	FND CM
625	3452623.082	5274950.147	933.220	1008+39.59	25.227	BM	FND IHC BM ON INLET HDWL
628	3452635.631	5277433.426	932.447	1033+22.90	25.354	BM	FND IHC BM ON INLET HDWL
630	3452694.607	5279099.715	923.109	1049+89.47	-25.116	BM	FND CUT X ON INLET HDWL
631	3452584.670	5279767.154	923.309	1056+55.90	89.182	BM	FND CM
632	3452652.205	5280091.417	919.408	1059+80.75	25.529	BM	IHC BM ON INLET HDWL
634	3452665.029	5281484.166	920.798	1073+73.55	30.660	BM	FND CUT X ON OUTLET HDWL
636	3452685.351	5283184.282	889.098	1090+73.76	32.996	BM	FND CUT X ON INLET HDWL
637	3452705.697	5284202.737	912.177	1100+92.40	26.641	BM	FND IHC BM ON INLET HDWL
638	3452799.972	5285001.824	904.935	1108+92.58	-56.775	BM	FND CONC MON
639	3452723.644	5285587.302	894.729	1114+77.14	26.316	BM	FND IHC BM ON INLET HDWL
640	3452738.144	5286677.374	894.998	1125+67.31	24.418	BM	FND IHC BM ON INLET HDWL
641	3451671.559	5287594.067	875.806	1134+71.61	1101.528	BM	CUT X IN HDWL
642	3452768.906	5288509.610	863.863	1143+99.78	14.838	BM	FND CUT X ON SW HANDRAIL OF BRIDGE
647	3452898.213	5294690.692	874.024	1205+82.06	-27.856	BM	FND IHC ON NE HANDRAIL OF BRIDGE
648	3452958.492	5295408.323	890.460	1213+00.51	-77.409	BM	◈ CONTROL POINT
649	3452923.486	5296554.911	898.809	1224+46.45	-25.187	BM	FND IHC ON NE HANDRAIL OF BRIDGE
650	3452931.138	5297070.286	894.703	1229+61.88	-25.096	BM	FND IHC BM ON INLET HDWL
657	3453041.305	5303314.193	906.294	1292+06.44	-57.164	BM	◈ CONTROL POINT
659	3452973.885	5304655.597	919.496	1305+47.03	25.354	BM	FND IHC BM ON INLET HDWL
660	3452934.892	5305956.039	902.142	1318+46.73	84.184	BM	FND CM
661	3453053.781	5306689.582	901.779	1325+81.99	-23.826	BM	FND IHC BM ON INLET HDWL
662	3453076.202	5308106.918	911.220	1339+99.50	-25.275	BM	FND IHC BM ON INLET HDWL
664	3453098.968	5310235.027	874.695	1361+27.62	-24.018	BM	FND IHC BM ON INLET HDWL
665	3453144.030	5311277.289	888.165	1371+70.39	-58.163	BM	◈ CONTROL POINT
667	3453144.072	5312921.061	875.129	1388+14.76	-26.940	BM	FND IHC BM ON INLET HDWL
64	3453142.516	5316335.395	884.289	1422+27.97	58.435	CP	FND REBAR IN CONC MON◈ CONTROL POINT
672	3453230.571	5316649.820	886.498	1425+44.16	-23.460	BM	FND IHC BM ON INLET HDWL
674	3453289.523	5319380.345	906.622	1452+75.17	-30.264	BM	FND IHC BM ON INLET HDWL
675	3453302.342	5320342.423	908.596	1462+36.49	-50.359	BM	FND IHC BM ON INLET HDWL
22882	3458665.009	5321373.879	891.321	1473+58.98	-5410.401	CP	FND CM
22879	3455926.698	5321531.534	925.754	1474+69.18	-2669.870	CP	FND CM
676	3450211.215	5321827.497	887.594	1476+76.43	3049.526	BM	CUT X IN HDWL
678	3453350.665	5322225.316	928.472	1481+21.14	-84.091	BM	CUT X IN CONC

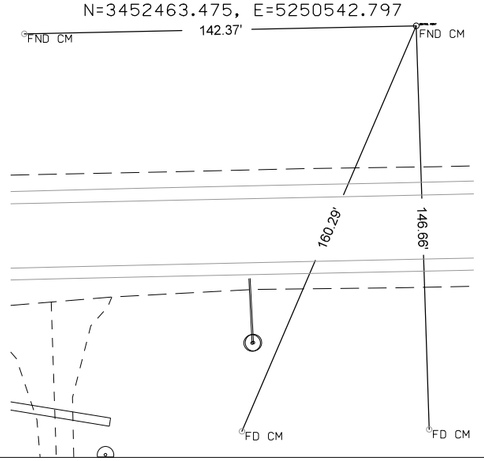
CP STA 715+16, 49' RT
CP 1, FD Concrete Monument
N=3452237.93, E=5245631.064



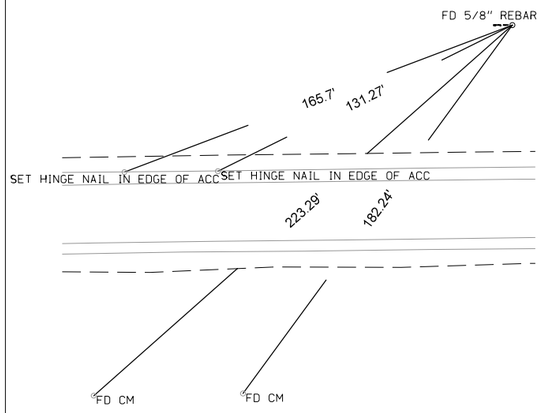
CP STA 742+44, 75' LT
CP 37, FD Concrete Monument
N=3452420.371, E=5248354.882



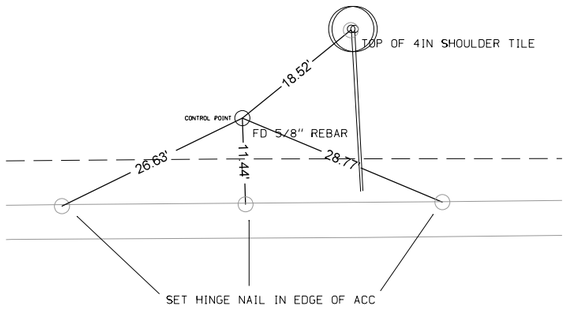
CP STA 764+32, 72' LT
CP 22847, FD Concrete Monument
N=3452463.475, E=5250542.797



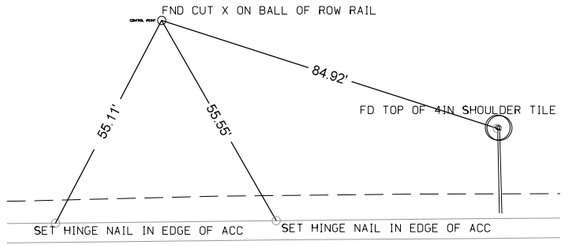
CP STA 775+10, 72' LT
CP 38, FD 5/8" REBAR
N=3452483.97, E=5251620.889



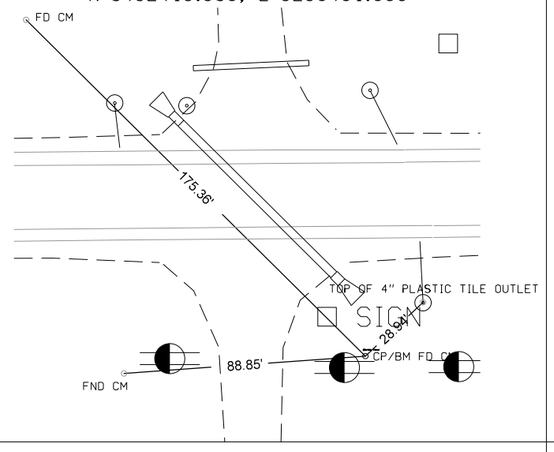
CP STA 803+70, 27' LT
CP 39, FD 5/8" REBAR
N=3452464.384, E=5254482.114



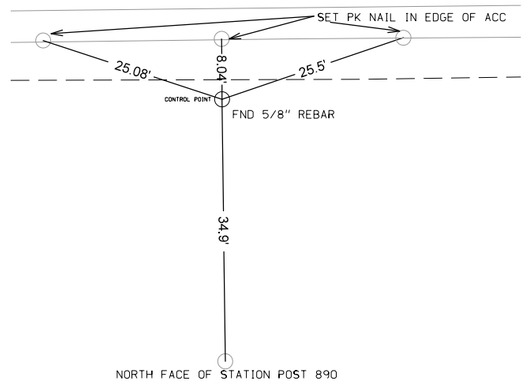
CP STA 830+03, 64' LT
CP 40, FD CUT X ON BALL OF ROW RAIL
N=3452526.458, E=5257114.173



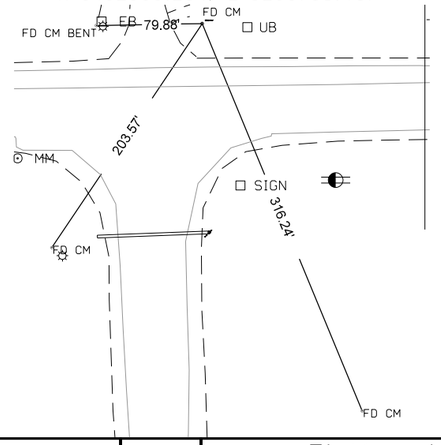
CP STA 843+69, 59' RT
CP 608, FD Concrete Monument
N=3452415.538, E=5258481.886



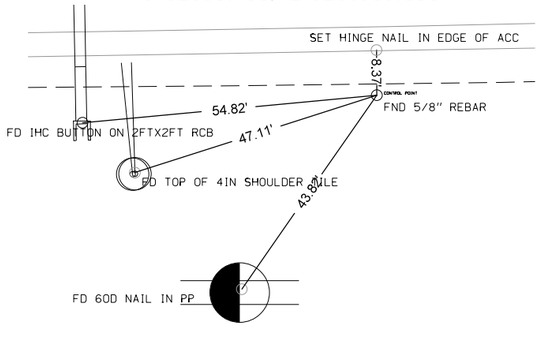
CP STA 889+91, 24' RT
CP 42, FD 5/8" Rebar
N=3452495.734, E=5263102.478



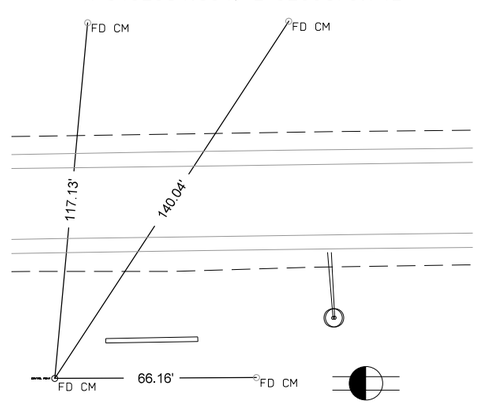
CP STA 896+70, 58' LT
CP 37611, FD Concrete Monument
N=3452586.289, E=5263780.417



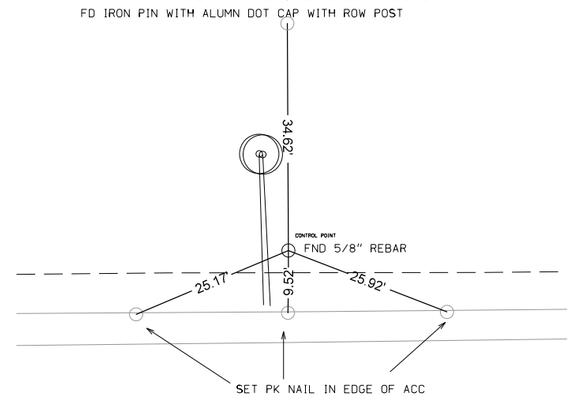
CP STA 913+93, 24' RT
CP 43, FD 5/8" Rebar
N=3452531.701, E=5265505.001



CP STA 920+65, 57' RT
CP 200027, FD Concrete Monument
N=3452509.859, E=5266176.792



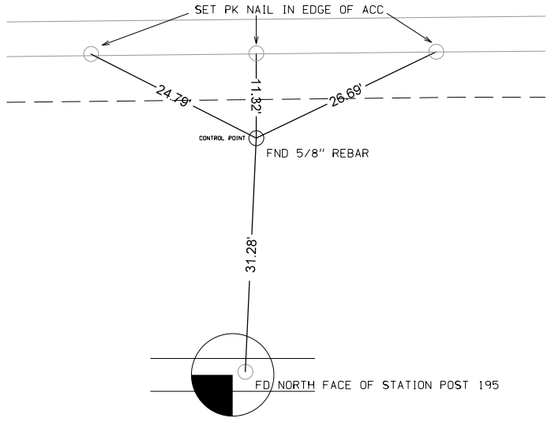
CP STA 936+00, 25' LT
CP 44, FD 5/8" Rebar
N=3452609.704, E=5267711.199



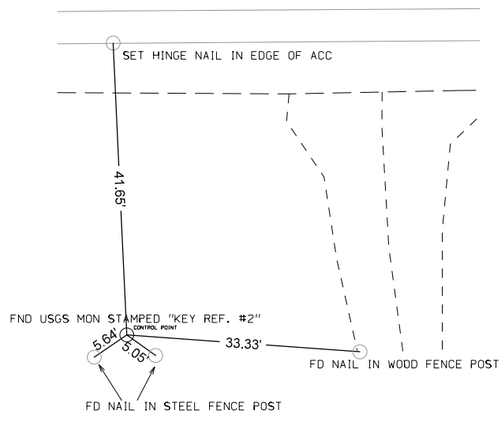
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER G.3

9:14:25 AM 11/28/2017 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231G01.sht

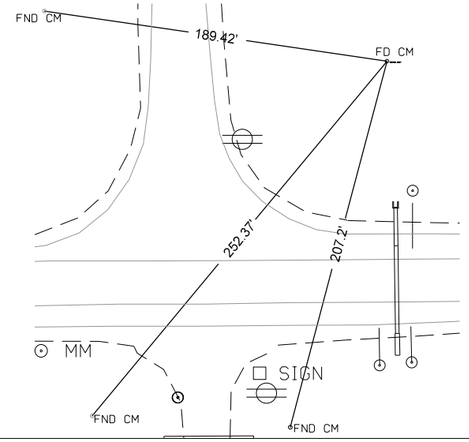
CP STA 960+93, 27′ RT
CP 45, FD 5/8″ Rebar
N=3452581.68, E=5270204.749



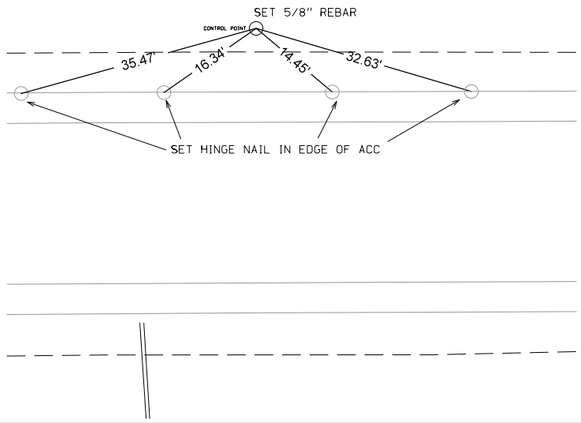
CP STA 992+38, 57′ RT
CP 46, FD 5/8″ Rebar
N=3452578.592, E=5273349.534



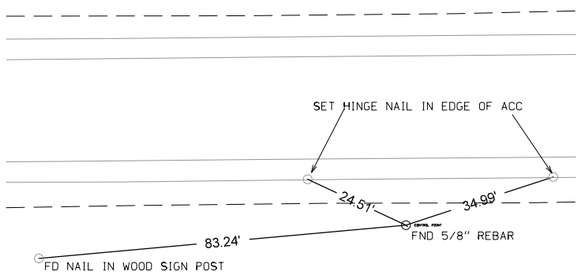
CP STA 1003+57, 120′ LT
CP 200008, FD Concrete Monument
N=3452765.895, E=5274466.914



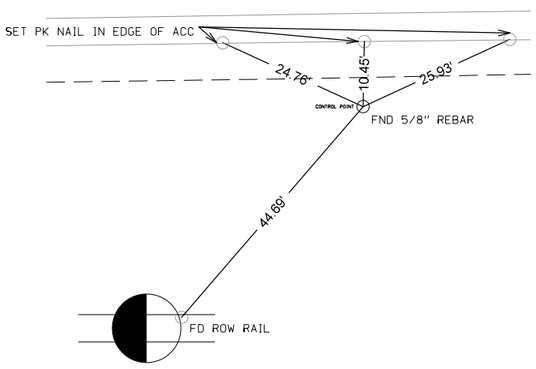
CP STA 1026+09, 24′ LT
CP 47, FD 5/8″ Rebar
N=3452682.333, E=5276719.615



CP STA 1053+59, 26′ RT
CP 48, FD 5/8″ Rebar
N=3452645.246, E=5279470.035

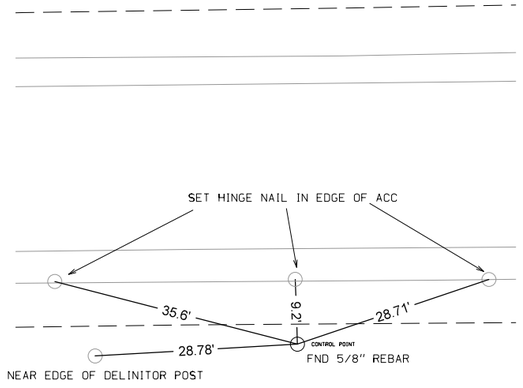


CP STA 1075+92, 26′ RT
CP 49, FD 5/8″ Rebar
N=3452672.429, E=5281703.269

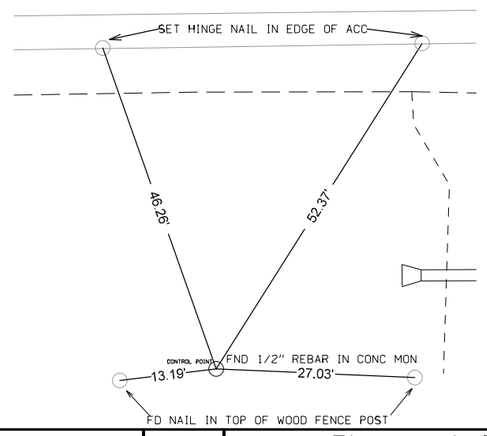


CP STA 1105+90, 25′ RT
CP 50, FD 5/8″ Rebar
N=3452713.844, E=5284700.81

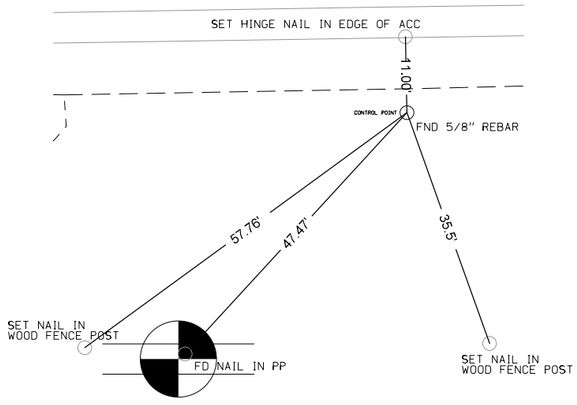
CP STA 1128+88, 24′ RT
CP 51, FD 5/8″ Rebar
N=3452742.03, E=5286998.851



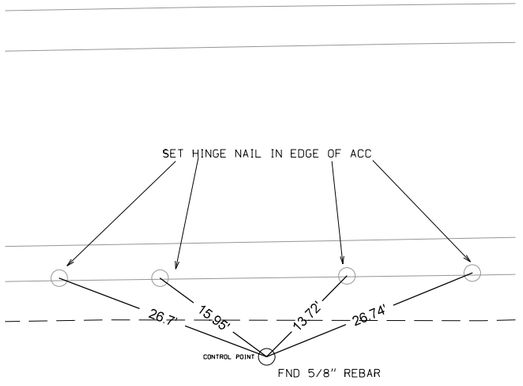
CP STA 1160+34, 59′ RT
CP 53, FD 5/8″ Rebar
N=3452743.585, E=5290145.25



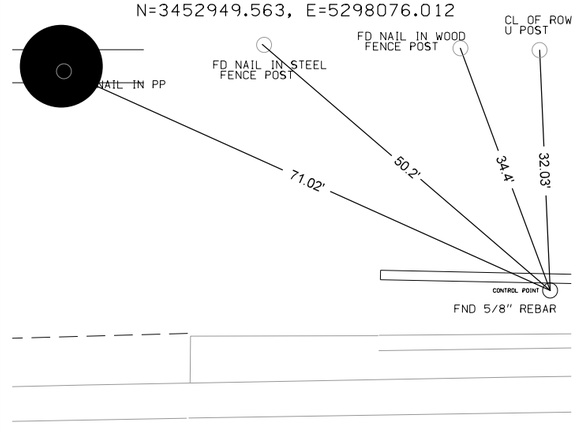
CP STA 1195+93, 26′ RT
CP 54, FD 5/8″ Rebar
N=3452829.352, E=5293703.037



CP STA 1218+15, 25′ RT
CP 55, FD 5/8″ Rebar
N=3452863.299, E=5295924.992

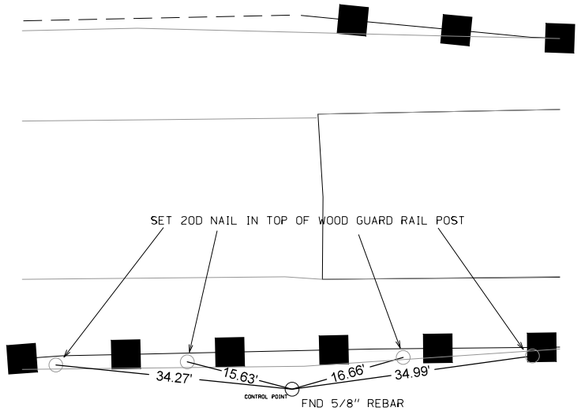


CP STA 1239+67, 28′ LT
CP 56, FD 5/8″ Rebar
N=3452949.563, E=5298076.012

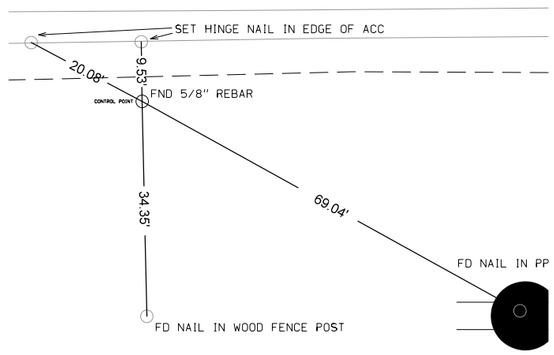


FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER G.4

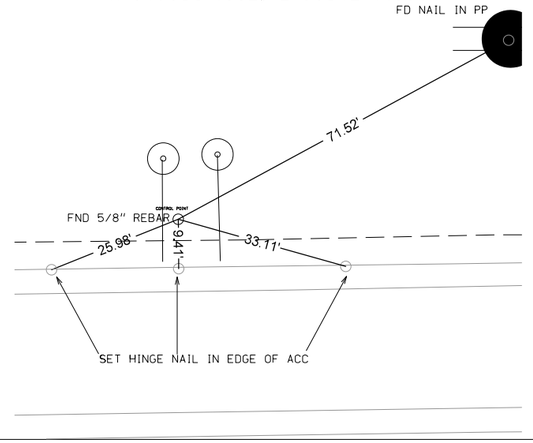
CP STA 1255+89, 27′ RT
CP 57, FD 5/8″ Rebar
N=3452917.867, E=5299698.368



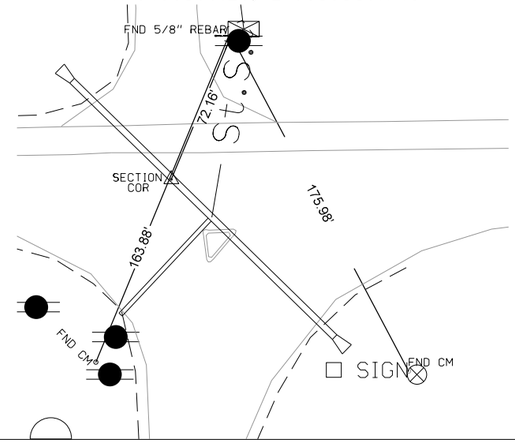
CP STA 1271+07, 25′ RT
CP 58, FD 5/8″ Rebar
N=3452939.646, E=5301215.846



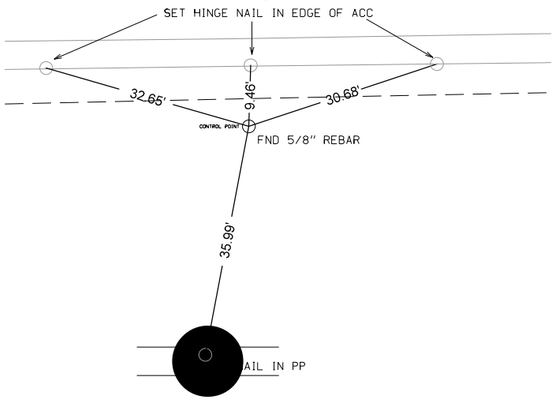
CP STA 1301+89, 25′ LT
CP 59, FD 5/8″ Rebar
N=3453019.332, E=5304297.558



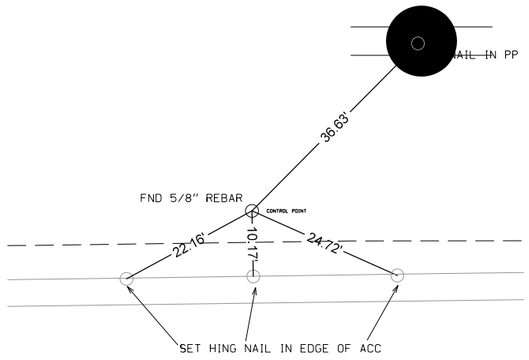
CP STA 1319+11, 66′ LT
CP 200015, FD 5/8″ Rebar
N=3453086.28, E=5306018.793



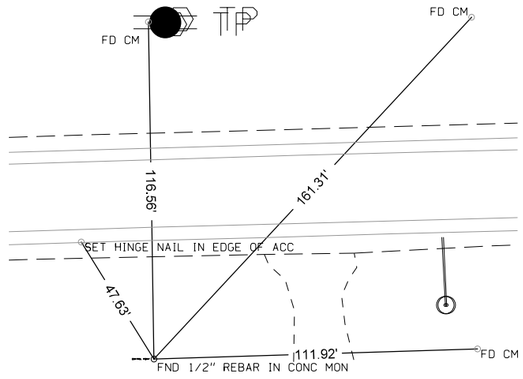
CP STA 1343+60, 25′ RT
CP 61, FD 5/8″ Rebar
N=3453030.746, E=5308468.565



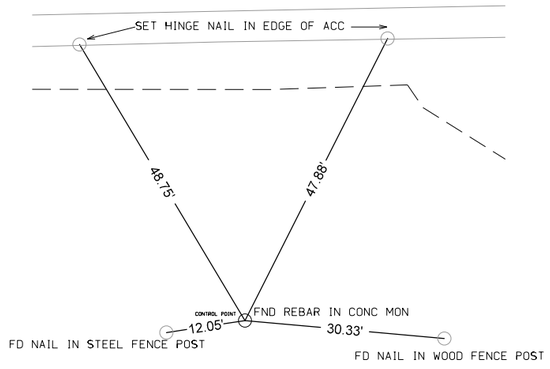
CP STA 1377+43, 25′ RT
CP 62, FD 5/8″ Rebar
N=3453119.625, E=5311851.158



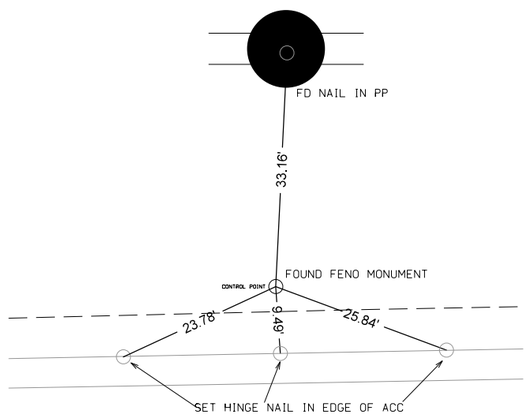
CP STA 1395+66, 57′ RT
CP 63, FD Concrete Monument
N=3453085.514, E=5313675.183



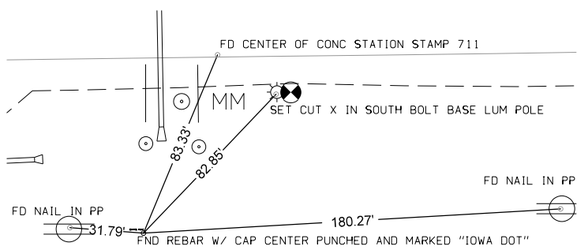
CP STA 1422+27, 58′ RT
CP 64, FD Concrete Monument
N=3453142.516, E=5316335.395



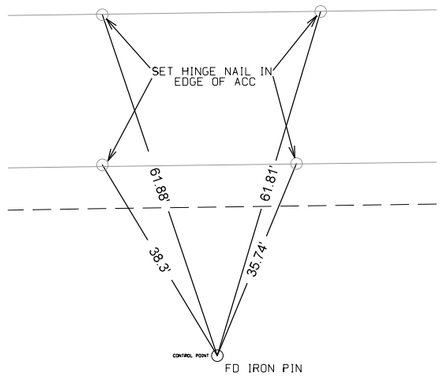
CP STA 1445+79, 25′ LT
CP 65, FD Feno Monument
N=3453271.786, E=5318684.952



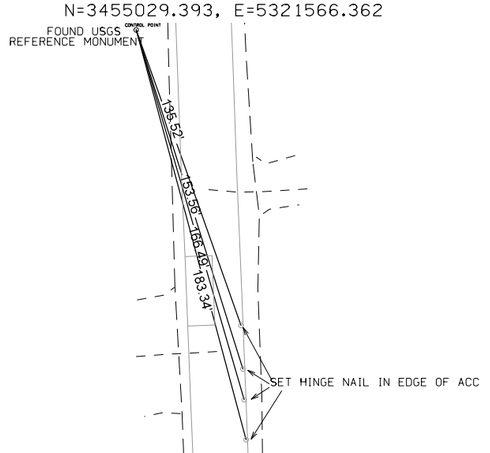
CP STA 1476+43, 165′ RT
CP 67, FD Rebar Cap CTR Punched, Marked "IOWA DOT",
N=3453094.791, E=5321751.741



CP STA 1501+99, 1′ RT
CP 40910, FD Iron Pin
N=3453293.933, E=5324304.848

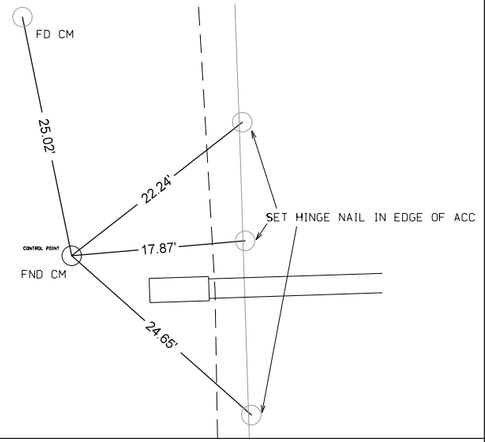


CP STA 1474+89, 1772′ LT
CP 6777, FD USGS Monument
N=3455029.393, E=5321566.362

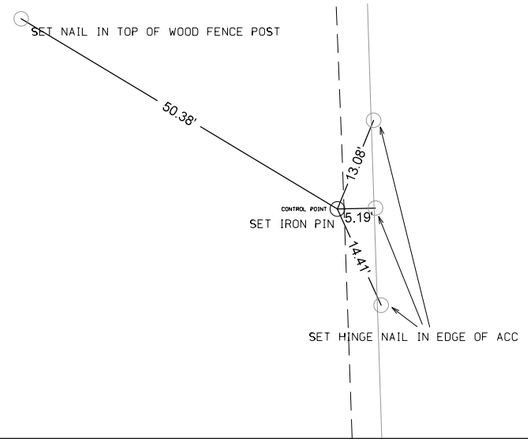


FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER G.5

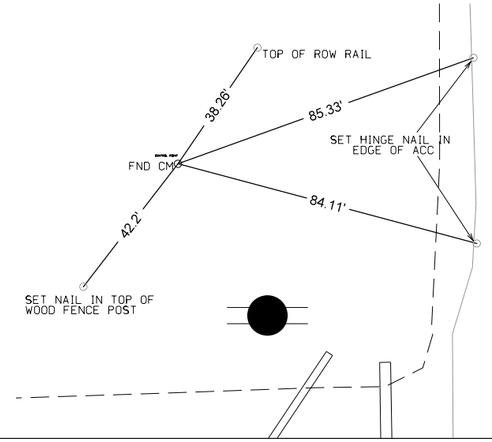
CP STA 1474+69, 2669' LT
CP 22879, FD Concrete Monument
N=3455926.698, E=5321531.534



CP STA 1474+53, 4182' LT
CP 300, Set Iron Pin
N=3457438.982, E=5321491.499



CP STA 1473+58, 5410' LT
CP 300, FD Concrete Monument
N=3458665.009, E=5321373.879



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER G.6

ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
SUR030 - Existing US 30 CL																			
143		686+94.11	3,452,163.60	5,242,811.06															
C16								701+77.43	3,452,194.65	5,244,294.05	705+31.22	3,452,202.06	5,244,647.77	708+84.50	3,452,241.99	5,244,999.29			
C1								708+84.50	3,452,241.99	5,244,999.29	712+36.65	3,452,281.74	5,245,349.19	715+88.31	3,452,289.13	5,245,701.27			
C2								770+71.89	3,452,404.19	5,251,183.65	773+71.90	3,452,410.49	5,251,483.58	776+71.89	3,452,413.17	5,251,783.58			
34785		817+03.67	3,452,449.19	5,255,815.19															
C3								893+29.25	3,452,523.90	5,263,440.41	896+29.25	3,452,526.84	5,263,740.39	899+29.25	3,452,531.89	5,264,040.35			
C4								918+04.41	3,452,563.43	5,265,915.25	921+04.41	3,452,568.47	5,266,215.20	924+04.41	3,452,571.72	5,266,515.19			
22857		949+24.00	3,452,599.02	5,269,034.63															
C5								999+56.36	3,452,642.73	5,274,066.80	1002+56.36	3,452,645.33	5,274,366.79	1005+56.36	3,452,646.86	5,274,666.79			
C6								1052+72.27	3,452,670.93	5,279,382.63	1055+72.27	3,452,672.47	5,279,682.63	1058+72.27	3,452,676.33	5,279,982.60			
34798		1081+96.62	3,452,706.30	5,282,306.77															
22863		1108+34.49	3,452,742.53	5,284,944.39															
C7								1157+95.18	3,452,799.87	5,289,904.75	1160+95.18	3,452,803.34	5,290,204.73	1163+95.18	3,452,807.82	5,290,504.69			
34816		1213+52.34	3,452,881.87	5,295,461.30															
C7A								1263+19.56	3,452,956.49	5,300,427.96	1266+19.56	3,452,960.99	5,300,727.92	1269+19.56	3,452,963.68	5,301,027.91			
C8								1297+58.27	3,452,989.08	5,303,866.51	1300+58.27	3,452,991.77	5,304,166.50	1303+58.27	3,452,996.36	5,304,466.46			
22869		1318+83.00	3,453,019.68	5,305,991.02															
C9								1342+08.45	3,453,054.02	5,308,316.21	1345+08.45	3,453,058.45	5,308,616.18	1348+08.45	3,453,061.51	5,308,916.16			
C10								1368+29.08	3,453,082.10	5,310,936.70	1371+29.08	3,453,085.16	5,311,236.68	1374+29.08	3,453,089.12	5,311,536.65			
C11								1380+16.82	3,453,096.89	5,312,124.34	1383+16.83	3,453,100.86	5,312,424.32	1386+16.82	3,453,111.02	5,312,724.16			
C12								1393+23.80	3,453,134.96	5,313,430.74	1396+23.80	3,453,145.12	5,313,730.57	1399+23.79	3,453,151.55	5,314,030.50			
34823		1422+83.03	3,453,202.12	5,316,389.19															
C13								1455+00.60	3,453,263.70	5,319,606.18	1457+79.30	3,453,269.03	5,319,884.82	1460+57.88	3,453,260.83	5,320,163.39			
C14								1464+01.51	3,453,250.72	5,320,506.88	1466+80.13	3,453,242.51	5,320,785.37	1469+58.64	3,453,247.83	5,321,063.94			
C15								1470+58.50	3,453,249.74	5,321,163.78	1475+58.50	3,453,259.28	5,321,663.69	1480+58.50	3,453,266.06	5,322,163.64			
952		26+40.57	3,453,295.09	5,324,304.84															
953		1743+04.51	3,453,331.04	5,326,967.55															
ML030 - Proposed US 30 CL																			
20100		690+00.00	3,452,213.99	5,243,115.97															
20110								739+99.70	3,452,318.66	5,248,114.57	741+11.03	3,452,320.99	5,248,225.87	742+22.35	3,452,321.55	5,248,337.20			
20115		817+01.28	3,452,359.20	5,255,816.04															
20120		896+27.22	3,452,436.85	5,263,741.59															
20125		921+02.43	3,452,478.48	5,266,216.45															
20130		949+21.65	3,452,509.02	5,269,035.51															
20135		1002+53.75	3,452,555.33	5,274,367.41															
20140		1055+69.85	3,452,582.47	5,279,683.44															
20145		1081+94.60	3,452,616.30	5,282,307.97															
20150		1108+32.40	3,452,652.54	5,284,945.52															
20155		1160+93.15	3,452,713.35	5,290,205.92															
20160		1213+50.47	3,452,791.88	5,295,462.65															
20165		1266+17.41	3,452,871.00	5,300,729.00															
20170		1300+56.14	3,452,901.77	5,304,167.59															
20175		1318+81.14	3,452,929.69	5,305,992.37															
20180		1345+06.35	3,452,968.46	5,308,617.30															
20185		1371+26.92	3,452,995.16	5,311,237.73															
20190		1422+81.53	3,453,112.14	5,316,391.02															
20295		1475+57.24	3,453,227.30	5,321,665.47															
20297								1496+00.00	3,453,254.99	5,323,708.04	1500+89.35	3,453,261.63	5,324,197.34	1505+78.60	3,453,284.22	5,324,686.17			
20299								1505+78.60	3,453,284.22	5,324,686.17	1510+68.84	3,453,306.85	5,325,175.88	1515+58.99	3,453,313.47	5,325,666.07			
20205		1528+60.59	3,453,331.04	5,326,967.55															
20210		1581+34.10	3,453,403.58	5,332,240.56															
SR23RDAVE - Proposed 23rd Avenue		CL																	
51500		231414+82.97	3,452,313.39	5,316,435.86															
51505		231422+82.93	3,453,112.18	5,316,392.42															
51510		231439+41.44	3,454,769.49	5,316,329.29															
SR218 - Proposed 24th Avenue /US		218 CL																	
52000		241450+04.05	3,450,665.57	5,321,786.82															
52002		241475+68.30	3,453,227.45	5,321,676.53															
20910		241502+95.73	3,455,952.35	5,321,559.21															
20909		241529+37.59	3,458,592.64	5,321,468.23															
20883		241555+79.84	3,461,233.67	5,321,387.71															

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER G.7

9:14:31 AM 11/28/2017 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231G01.sht

ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
SR218A - US 218 Loop A CL																			
64000		11473+14.29	3,453,164.02	5,321,424.55															
64002		11479+15.00	3,453,134.16	5,322,024.53															
64003								11479+15.00	3,453,134.16	5,322,024.53	11514+12.33	3,452,960.28	5,325,517.53	11486+64.72	3,452,635.55	5,322,035.31			
64004		11489+98.12	3,452,604.59	5,321,703.34															
SR218B - US 218 Loop B CL																			
65000		21466+23.05	3,453,288.92	5,321,932.42															
65002		21472+25.00	3,453,318.02	5,321,331.17															
65003								21472+25.00	3,453,318.02	5,321,331.17	21507+56.55	3,453,488.74	5,317,803.74	21479+75.06	3,453,816.65	5,321,320.04			
65004		21483+06.29	3,453,847.41	5,321,649.84															
SR218C - US 218 Ramp C CL																			
65010		31440+41.75	3,453,882.81	5,321,648.31															
65013								31443+73.46	3,453,868.54	5,321,316.91	31445+34.49	3,453,861.61	5,321,156.03	31446+84.41	3,453,759.84	5,321,031.24			
65014								31450+62.52	3,453,520.87	5,320,738.23	31453+34.50	3,453,348.96	5,320,527.45	31455+95.00	3,453,299.78	5,320,259.95			
65015								31455+95.00	3,453,299.78	5,320,259.95	31457+35.23	3,453,274.42	5,320,122.03	31458+75.00	3,453,268.56	5,319,981.93			
65016		31458+75.00	3,453,268.56	5,319,981.93															
65018		31468+75.20	3,453,226.73	5,318,982.60															
SR218D - US 218 Ramp D CL																			
64010		41474+26.45	3,452,569.30	5,321,704.86															
64013								41477+60.34	3,452,583.66	5,322,038.44	41479+37.15	3,452,591.26	5,322,215.09	41480+99.43	3,452,710.77	5,322,345.40			
64014								41483+49.12	3,452,879.53	5,322,529.41	41486+55.16	3,453,086.39	5,322,754.96	41489+45.00	3,453,141.19	5,323,056.05			
64015								41489+45.00	3,453,141.19	5,323,056.05	41490+85.23	3,453,166.30	5,323,194.02	41492+25.00	3,453,171.92	5,323,334.13			
64016		41492+25.00	3,453,171.92	5,323,334.13															
64018		41502+26.51	3,453,212.01	5,324,334.85															
SR23RDAVE_RET_3 - Proposed West Median Return @ 23rd Avenue																			
51532								30+00.00	3,453,090.13	5,316,302.96	30+27.13	3,453,090.75	5,316,330.09	30+52.71	3,453,106.26	5,316,352.36			
51534								30+52.71	3,453,106.26	5,316,352.36	30+73.51	3,453,118.14	5,316,369.42	30+75.16	3,453,124.05	5,316,349.48			
51536								30+75.16	3,453,124.05	5,316,349.48	31+37.80	3,453,141.84	5,316,289.42	31+99.43	3,453,140.42	5,316,226.80			
SR23RDAVE_RET_4 - Proposed West Median Return @ 23rd Avenue																			
51142								40+00.00	3,453,134.13	5,316,482.03	40+27.13	3,453,133.54	5,316,454.90	40+52.71	3,453,118.05	5,316,432.62			
51144								40+52.71	3,453,118.05	5,316,432.62	40+73.51	3,453,106.18	5,316,415.54	40+75.16	3,453,100.25	5,316,435.48			
51146								40+75.16	3,453,100.25	5,316,435.48	41+37.80	3,453,082.41	5,316,495.52	41+99.43	3,453,083.78	5,316,558.15			
ENTL1389 - Entrance @ Sta. 1389+39 LT																			
10740		0+00.00	3,453,080.27	5,313,048.35															
10741		2+06.00	3,453,286.22	5,313,043.67															
ENTL1398 - Entrance @ Sta. 1398+08 LT																			
10750		0+00.00	3,453,099.99	5,313,917.13															
10751		2+06.00	3,453,305.94	5,313,912.45															
ENTL1409 - Entrance @ Sta. 1409+90 LT																			
10760		0+00.00	3,453,126.82	5,315,098.82															
10761		2+06.00	3,453,332.76	5,315,094.15															
ENTL1436 - Entrance @ Sta. 1436+04 LT																			
10772		0+00.00	3,453,184.99	5,317,712.21															
10773		2+56.00	3,453,440.93	5,317,706.62															
ENTL1497 - Entrance @ Sta. 1497+25 LT																			
10800		0+00.00	3,453,300.94	5,323,832.25															
10801		2+06.00	3,453,506.91	5,323,828.60															
ENTL231425 - Entrance @ Sta. 231425+00 LT																			
11160		0+00.00	3,453,329.09	5,316,384.16															
11161		3+00.00	3,453,317.67	5,316,084.37															
ENTL241458 - Entrance @ Sta. 241458+00 LT																			
22185		100+00.00	3,451,460.79	5,321,752.59															
22186		102+00.00	3,451,452.18	5,321,552.77															
ENTL241469 - Entrance @ Sta. 241469+35 LT																			
ENTCEM1		100+00.00	3,452,594.73	5,321,703.77															
ENTCEM2								101+25.00	3,452,589.36	5,321,578.88	101+60.00	3,452,587.85	5,321,543.92	101+79.98	3,452,622.82	5,321,542.41			
ENTCEM3		104+04.98	3,452,847.61	5,321,532.73															

ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
ENTL241499 - Entrance @ Sta. 241499+00 LT																			
22180		100+00.00	3,455,556.99	5,321,576.23															
22181		102+00.00	3,455,548.39	5,321,376.42															
ENTM1398 - Entrance @ Sta. 1398+08																			
420		0+00.00	3,452,956.03	5,313,920.39															
421		2+00.00	3,453,155.98	5,313,915.85															
ENTR1398 - Entrance @ Sta. 1398+08 RT																			
10752		0+00.00	3,453,012.02	5,313,919.12															
10753		2+06.00	3,452,806.07	5,313,923.80															
ENTR1409 - Entrance @ Sta. 1409+90 RT																			
10762		0+00.00	3,453,038.84	5,315,100.82															
10763		2+06.00	3,452,832.89	5,315,105.49															
ENTR1436 - Entrance @ Sta. 1436+04 RT																			
10770		0+00.00	3,453,097.01	5,317,714.13															
10771		2+06.00	3,452,891.06	5,317,718.63															
ENTR1518 - Entrance @ Sta. 1518+25 RT																			
430		0+00.00	3,453,317.06	5,325,932.06															
431		3+00.00	3,453,017.09	5,325,936.11															
ENTR241482 - Entrance @ Sta. 241482+00 RT																			
7000		0+00.00	3,453,858.56	5,321,649.36															
ENTR241482-1								0+72.61	3,453,861.69	5,321,721.90	1+68.00	3,453,865.79	5,321,817.20	2+24.97	3,453,770.79	5,321,825.79			
ENTR241482-2								4+43.59	3,453,553.06	5,321,845.49	4+89.98	3,453,506.85	5,321,849.67	5+18.39	3,453,507.57	5,321,896.06			
ENTR241482-3								10+59.72	3,453,515.88	5,322,437.32	11+09.79	3,453,516.65	5,322,487.38	11+38.33	3,453,466.59	5,322,488.09			
ENTR241482-4								11+82.86	3,453,422.07	5,322,488.72	12+05.25	3,453,399.68	5,322,489.03	12+19.38	3,453,396.91	5,322,466.81			
7001		12+92.88	3,453,387.80	5,322,393.87															
ENTR241499 - Entrance @ Sta. 241499+00 RT																			
22182		200+00.00	3,455,556.99	5,321,576.23															
22183		202+00.00	3,455,565.59	5,321,776.05															
ENTL11 - Entrance @ Sta. 11+60 RT (Cafe Access)																			
20		0+00.00	3,453,444.92	5,322,488.39															
ENTL11-1								1+00.00	3,453,446.33	5,322,588.38	1+29.62	3,453,446.75	5,322,618.00	1+57.60	3,453,430.97	5,322,643.07			
ENTL11-2								1+57.60	3,453,430.97	5,322,643.07	1+86.96	3,453,415.32	5,322,667.92	2+14.72	3,453,415.60	5,322,697.28			
ENTL11-3								10+88.85	3,453,423.73	5,323,571.37	11+07.18	3,453,423.90	5,323,589.70	11+23.99	3,453,435.88	5,323,603.58			
21		12+53.19	3,453,520.32	5,323,701.37															
SR218A_RET_1 - US 218 Ramp D Return NE																			
33020		100+00.00	3,452,614.63	5,321,811.00															
33021		100+30.15	3,452,614.83	5,321,780.85															
33024								100+30.15	3,452,614.83	5,321,780.85	100+58.09	3,452,615.02	5,321,752.91	100+80.16	3,452,640.14	5,321,740.69			
33025								100+80.16	3,452,640.14	5,321,740.69	101+42.50	3,452,696.20	5,321,713.41	102+03.09	3,452,758.49	5,321,710.73			
SR218B_RET_1 - US 218 Ramp C Return SW																			
34020		100+00.00	3,453,837.54	5,321,544.01															
34021		100+30.15	3,453,837.33	5,321,574.16															
34024								100+30.15	3,453,837.33	5,321,574.16	100+58.67	3,453,837.14	5,321,602.68	100+80.99	3,453,811.27	5,321,614.68			
34025								100+80.99	3,453,811.27	5,321,614.68	101+40.45	3,453,757.33	5,321,639.70	101+98.39	3,453,697.93	5,321,642.26			
SR218C_RET_1 - US 218 Ramp C Return SW																			
34018		100+00.00	3,453,982.33	5,321,618.00															
34017		100+30.15	3,453,952.23	5,321,616.30															
34018								100+30.15	3,453,952.23	5,321,616.30	100+67.38	3,453,915.06	5,321,614.19	100+96.79	3,453,900.44	5,321,579.95			
34019								100+96.79	3,453,900.44	5,321,579.95	101+55.09	3,453,877.56	5,321,526.33	102+12.12	3,453,875.05	5,321,468.09			
SR218D_RET_1 - US 218 Ramp D Return SE																			
33018		100+00.00	3,452,475.45	5,321,722.92															
33017		100+30.15	3,452,505.55	5,321,724.62															
33018								100+30.15	3,452,505.55	5,321,724.62	100+64.60	3,452,539.95	5,321,726.57	100+91.71	3,452,553.20	5,321,758.38			
33019								100+91.71	3,452,553.20	5,321,758.38	101+45.04	3,452,573.72	5,321,807.60	101+97.27	3,452,576.01	5,321,860.88			

SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

Name	Location	Δ_{scs}	Horizontal Alignment Data												Remarks
			Spiral Data							Curve Data					
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ_c	T	L	R	E	
SUR030 - Existing US 30 CL																
C16											5° 16′ 52.70″ LT	353.79′	707.08′	7,670.93′	8.15′	
C1											5° 16′ 42.71″ RT	352.15′	703.80′	7,639.44′	8.11′	
C2											0° 41′ 25.59″ RT	300.00′	600.00′	49,790.59′	0.90′	
C3											0° 24′ 08.59″ LT	300.00′	600.00′	85,433.42′	0.53′	
C4											0° 20′ 35.01″ RT	300.00′	600.00′	100,208.52′	0.45′	
C5											0° 12′ 18.68″ RT	300.00′	600.00′	167,539.39′	0.27′	
C6											0° 26′ 46.14″ LT	300.00′	600.00′	77,053.04′	0.58′	
C7											0° 11′ 36.63″ LT	300.00′	600.00′	177,653.34′	0.25′	
C7A											0° 20′ 52.70″ RT	300.00′	600.00′	98,793.79′	0.46′	
C8											0° 21′ 48.90″ LT	300.00′	600.00′	94,551.75′	0.48′	
C9											0° 15′ 44.65″ RT	300.00′	600.00′	131,010.28′	0.34′	
C10											0° 10′ 25.05″ LT	300.00′	600.00′	197,999.18′	0.23′	
C11											1° 10′ 59.55″ LT	300.01′	600.00′	29,054.47′	1.55′	
C12											0° 42′ 44.95″ RT	300.00′	599.99′	48,249.35′	0.93′	
C13											2° 47′ 00.34″ RT	278.69′	557.28′	11,471.39′	3.38′	
C14											2° 46′ 48.49″ LT	278.62′	557.12′	11,481.77′	3.38′	
C15											0° 18′ 59.46″ RT	500.00′	1,000.00′	181,019.57′	0.69′	
ML030 - Proposed US 30 CL																
20110											0° 54′ 40.33″ RT	111.33′	222.65′	14,000.00′	0.44′	
20297											1° 52′ 08.39″ LT	489.35′	978.60′	30,000.00′	3.99′	
20299											1° 52′ 20.61″ RT	490.23′	980.38′	30,000.00′	4.01′	
SR23RDAVE_RET_3 - Proposed West Median Return @ 23rd Avenue																
51532											33° 33′ 16.79″ LT	27.13′	52.71′	90.00′	4.00′	
51534											128° 38′ 44.64″ LT	20.80′	22.45′	10.00′	13.08′	
51536											17° 47′ 58.57″ LT	62.64′	124.26′	400.00′	4.87′	
SR23RDAVE_RET_4 - Proposed West Median Return @ 23rd Avenue																
51142											33° 33′ 16.79″ LT	27.13′	52.71′	90.00′	4.00′	
51144											128° 38′ 44.64″ LT	20.80′	22.45′	10.00′	13.08′	
51146											17° 47′ 58.57″ LT	62.64′	124.26′	400.00′	4.87′	
SR218A - Proposed US 218 Loop A CL																
64003											171° 49′ 21.21″ RT	3,497.33′	749.72′	250.00′	3,256.26′	
SR218B - Proposed US 218 Loop B CL																
65003											171° 54′ 05.52″ RT	3,531.55′	750.06′	250.00′	3,290.39′	
SR218C - Proposed US 218 Ramp C CL																
65013											36° 44′ 05.49″ LT	161.03′	310.95′	485.00′	26.03′	
65014											28° 46′ 55.63″ RT	271.99′	532.48′	1,060.00′	34.34′	
65015											8° 01′ 17.07″ RT	140.23′	280.00′	2,000.00′	4.91′	
SR218D - Proposed US 218 Ramp D CL																
64013											40° 03′ 33.45″ LT	176.81′	339.10′	485.00′	31.22′	
64014											32° 12′ 31.44″ RT	306.04′	595.88′	1,060.00′	43.30′	
64015											8° 01′ 17.07″ RT	140.23′	280.00′	2,000.00′	4.91′	
SR218A_RET_1 - Proposed US 218 Ramp D Return NE																
33024											63° 40′ 23.90″ RT	27.94′	50.01′	45.00′	7.97′	
33025											23° 28′ 42.62″ RT	62.34′	122.93′	300.00′	6.41′	
SR218B_RET_1 - Proposed US 218 Ramp C Return SW																
34024											64° 43′ 46.78″ RT	28.52′	50.84′	45.00′	8.28′	
34025											22° 25′ 19.75″ RT	59.46′	117.40′	300.00′	5.84′	
SR218C_RET_1 - Proposed US 218 Ramp C Return NW																
34018											63° 38′ 26.41″ RT	37.23′	66.64′	60.00′	10.61′	
34019											20° 38′ 55.46″ RT	58.29′	115.32′	320.00′	5.27′	
SR218D_RET_1 - Proposed US 218 Ramp D Return SE																
33018											64° 07′ 47.49″ RT	34.45′	61.56′	55.00′	9.90′	
33019											20° 09′ 34.37″ RT	53.33′	105.56′	300.00′	4.70′	

SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

Name	Location	Δ_{scs}	Horizontal Alignment Data												Remarks
			Spiral Data							Curve Data					
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ_c	T	L	R	E	
ENTR241482 - Entrance @ Sta. 241482+00 RT																
ENTR241482-1											87° 17′ 46.95″ RT	95.39′	152.36′	100.00′	38.20′	
ENTR241482-2											85° 42′ 40.77″ LT	46.39′	74.80′	50.00′	18.21′	
ENTR241482-3											90° 04′ 19.53″ RT	50.06′	78.60′	50.00′	20.76′	
ENTR241482-4											83° 41′ 36.93″ RT	22.39′	36.52′	25.00′	8.56′	
ENTL11 - Entrance @ Sta. 11+60 RT (Cafe Access)																
ENTL11-1											33° 00′ 06.47″ RT	29.62′	57.60′	100.00′	4.30′	
ENTL11-2											32° 43′ 36.33″ LT	29.36′	57.12′	100.00′	4.22′	
ENTL11-3											40° 16′ 34.78″ LT	18.34′	35.15′	50.00′	3.26′	

SUPERELEVATION DATA

See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius	Superelevation Data			Standard Road Plan	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E	Section F-F	Case A	Case B	Case C	Case S	Case T	Case U	Remarks
			e	L	x														
		FT	%	FT	FT														
US 218 Loop A	64003	250	6.0	137	46	PV-303	11478+65.10		11479+15.00	11479+56.10						11479+10.43	11479+10.43		
US 218 Loop A	64003	250	6.0	180	60	PV-303													
							11487+30.72		11486+64.72	11486+10.72						11486+70.72	11486+70.72		
US 218 Loop B	65003	250	6.0	137	46	PV-303	21471+75.10		21472+25.00	21472+66.10						21472+20.43	21472+20.43		
US 218 Loop B	65003	250	6.0	180	60	PV-303													
							21480+41.06		21479+75.06	21479+21.06						21479+81.06	21479+81.06		
US 218 Ramp C	65013	485	6.0	180	60	PV-303	31441+87.46	31442+47.46	31443+73.46	31444+27.46						31443+67.46	31443+67.46		L & x calculated assuming a pavement width of 36'
US 218 Ramp C	65013	485	6.0	144	48	PV-303													
							31448+33.61	31447+85.61	31446+84.81	31446+41.61						31446+89.61	31446+89.61		
US 218 Ramp C	65014	1060	6.0	179	60	PV-303	31449+97.22		31450+62.52	31451+16.22						31450+56.55	31450+56.55		
									31455+95.00	31455+41.30						31456+00.97	31456+00.97		
US 218 Ramp C	65015	2000	5.4	168	62	PV-303			31455+95.00										
							31459+30.60		31458+75.00	31458+24.60						31458+68.16	31458+68.16		
US 218 Ramp D	64013	485	6.0	180	60	PV-303	41475+74.34	41476+34.34	41477+60.34	41478+14.34						41477+54.34	41477+54.34		
US 218 Ramp D	64013	485	6.0	144	48	PV-303													
							41482+48.23	41482+00.23	41480+99.43	41480+56.23						41481+04.23	41481+04.23		
US 218 Ramp D	64014	1060	6.0	179	60	PV-303	41482+83.82		41483+49.12	41484+02.82						41483+43.15	41483+43.15		
									41489+45.00	41488+91.30						41489+50.97	41489+50.97		
US 218 Ramp D	64015	2000	5.4	168	62	PV-303			41489+45.00	41489+95.40						41489+51.84	41489+51.84		
							41492+80.60		41492+25.00	41491+74.60						41492+18.16	41492+18.16		

Union TWP.
T-83N R-11W
SEC. 25

Eldorado TWP.
T-83N R-10W
SEC. 30

N

22nd Avenue

(67)
STATE OF IOWA
(HAROLD A. THOMPSON TRUST)
(HAROLD A. THOMPSON TRUSTEE)
(SCOTT THOMPSON (CP-1))
(STEVEN THOMPSON (CP-2))

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

Sta. 1361+27, W/ 12'X6' EXTS
8' X 6' X 33' RCB
D.A. = 435 Ac - F-GR-R

+86 Prop. Jt. Type "C" Ent. XX" Uncl. Pipe

24" X 39.9' C.M.P. Remove

1350 1355 1360 1365 1370 1375 1380

+07.00 CLOSE

18" X 30.5' C.M.P. Remove

24" X 96.0' C.M.P. Remove

POT Sta. 1371+26.92 (ML030)
= POT Sta. 221371+27.26 (SR22NDAVE)

+96.00 CLOSE

24" X 30.2' C.M.P. Remove

+32 Prop. Jt. Type "C" Ent. XX" Uncl. Pipe

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

+66 Prop. Type "C" Ent. XX" Uncl. Pipe

1371+28±P
℄215'

+27 Prop. Type "C" Ent. Design as Safety Ramp XX" Uncl. Pipe

1374+75 ℄200'
1374+25 ℄205'
1374+00 ℄193'±PropR/W

1378+20 ℄150'
1377+50 ℄165'
1377+40 ℄205'
1376+85 ℄225'
1376+85 ℄265'
1376+00 ℄265'

(70)
STATE OF IOWA
(CALVIN F. & STELLA M. WOLTER)

TEMPORARY EASEMENT TO REMOVE BINS

TEMPORARY EASEMENT TO REMOVE BUILDINGS

(67)
STATE OF IOWA
(HAROLD A. THOMPSON TRUST)
(HAROLD A. THOMPSON TRUSTEE)
(SCOTT THOMPSON (CP-1))
(STEVEN THOMPSON (CP-2))

Union TWP.
T-83N R-11W
SEC. 36

Eldorado TWP.
T-83N R-10W
SEC. 31

0 100 FEET

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Larson
ROW #: NHSN-030-6(238)- -2R-06
Plan Date: 5/19/2017
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-30-6(231)- -3H-06	SHEET NUMBER H.01

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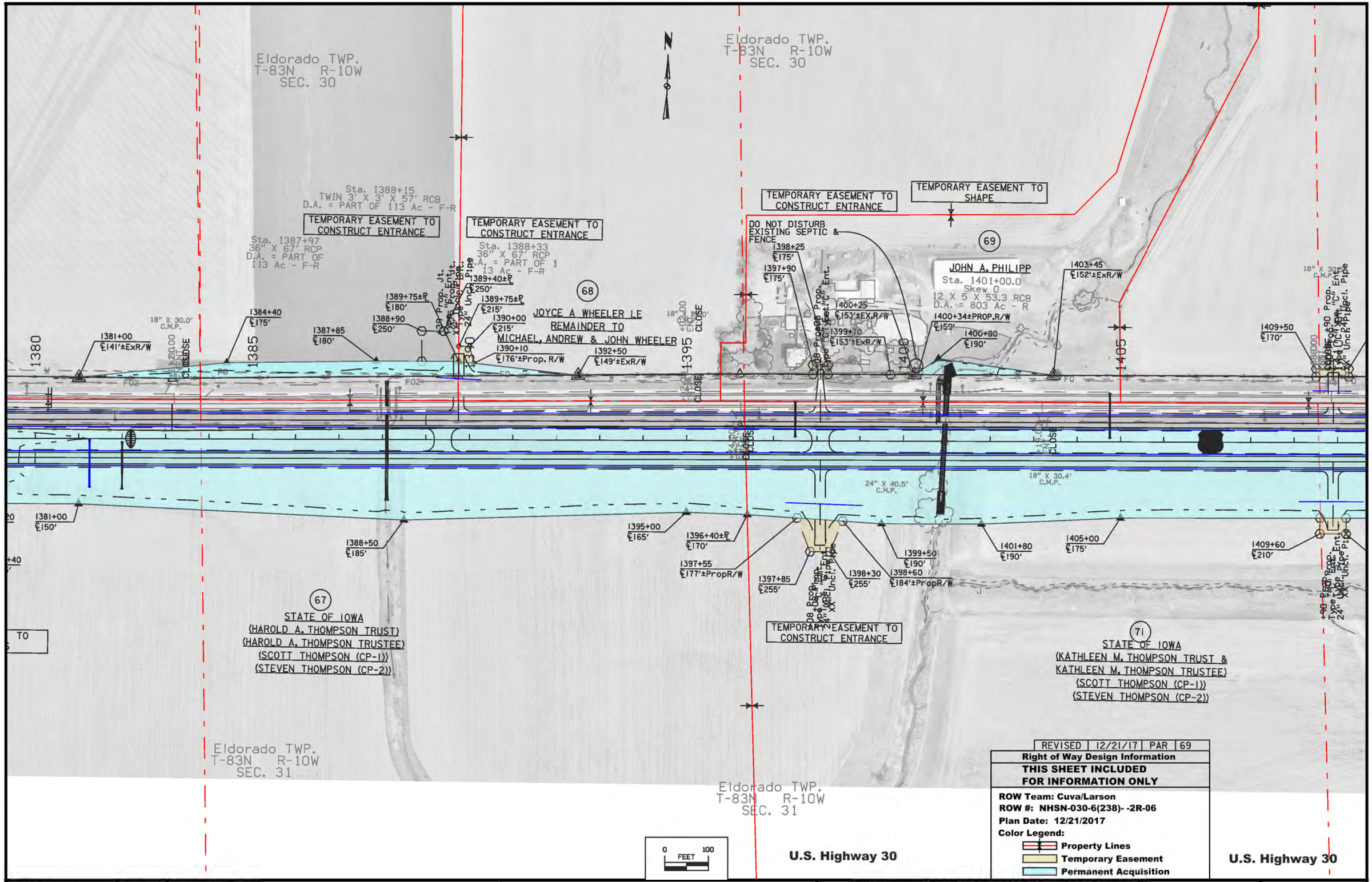

REVISED	12/21/17	PAR	69

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Larson
ROW #: NHSN-030-6(238)- -2R-06
Plan Date: 12/21/2017
Color Legend:
- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)- -3H-06	SHEET NUMBER H.02

1:25:03 PM 12/21/2017 jlarso1 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\ROW\06030101h.sht

KEVIN GILBREAITH

Eldorado TWP.
T-83N R-10W
SEC. 30

Eldorado TWP.
T-83N R-10W
SEC. 29

68
JOYCE A WHEELER LE
REMAINDER TO
MICHAEL, ANDREW & JOHN WHEELER

72
KAYE A. LESS
KAREN M. WHEELER

73
CORA F.
SCHOENFELDER

23rd Avenue

Sta. 1422+59
24" X 48' Conc Pipe
D.A. = 4 1/2 Ac - R

Sta. 1425+44
6' X 5' X 47' RCB
D.A. = 227 Ac - F-GR-R

TEMPORARY EASEMENT TO
CONSTRUCT ENTRANCE

1410+25 ℄170'

1422+80±R ℄185'

1425+25 ℄185'

1427+25 ℄170'

1436+00±R ℄170'

1437+00 ℄165'

1438+70 ℄146'±ExR/W

+04 Prop. Type "C" Ent. XX" Uncl. Pipe

1415 1420 1425 1430 1435 1440

FO

Sta. 1422+81.53

POT Sta. 1422+82.53 (ML030)
= POT Sta. 231422+82.94 (SR23RDAVE)

1410+20 ℄210'

+90 Prop. Type "C" Ent. XX" Uncl. Pipe

1422+88±R ℄170'

1422+93±R ℄330'

231419+87±Prop.R/W ℄80'

1426+00 ℄180'

1435+30 ℄160'

1436+60 ℄160'

1435+80 ℄235'

1436+25 ℄235'

18" X 29.6' C.M.P.

71
STATE OF IOWA
(KATHLEEN M. THOMPSON TRUST &
KATHLEEN M. THOMPSON TRUSTEE)
(SCOTT THOMPSON (CP-1))
(STEVEN THOMPSON (CP-2))

75
JOHN W. THORMAN TRUST
MARY A. & CHARLES W. THORMAN (TRUSTEES)
MARY A. THORMAN TRUST
MARY A. THORMAN (TRUSTEE)

Eldorado TWP.
T-83N R-10W
SEC. 31

Eldorado TWP.
T-83N R-10W
SEC. 32

0 FEET 100

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Larson
ROW #: NHSN-30-6(238)- -2R-06
Plan Date: 5/19/2017
Color Legend:
- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-30-6(231)- -3H-06	SHEET NUMBER H.03

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Eldorado TWP.
T-83N R-10W
SEC. 29

74
RICK NOLAN

Stage 2 Sta.1454+00
Jack 36" x 142' RCP then
Extend Jacked with
36" x 96' RCP+ Lt.Apron
F.L. = Lt. 902.35
Rt. 900.74

74
RICK NOLAN

Stage 2 Sta.1470+00
Extend 42" x 62' RCP + Lt. Apron
Lt. 909.15
Rt. 908.66

73
CORA F.
SCHOENFELDER

74A
CARROLL EUGENE LEWIS

Sta. 1452+75
2' X 2' X 62' RCB
D.A. = 25 Ac - GR-R
Remove in Stage 2

Sta. 1462+27, W/ EXTS
3' x 3' X 58.98' RCB
D.A. = 48 Ac - R

38+70
46'±ExR/W
1440
1445+00
℄144'±ExR/W
1445+50
℄160'
1445
+80.00 ENT. CLOSE
1449+22±℄
℄160'
1450
1452+75
℄160'
1454+00
℄170'
1455+15±℄
℄160'
1455
+84 ENT CLOSE
1459+95±℄
℄165'
1460
1462+60
℄200'
1465
1465+90
℄365'
Ramp C
Loop B
1470
1470+00
℄730'

1445+00
℄160'
1449+31±℄
℄200'
+00.00 ENT. CLOSE
+65 ENT. CLOSE
1461+00
℄150'

Stage 1Sta. 1454+00
Install 36"x142' RCP+Rt Apron
F.L. = Lt. 900.74
Rt. 898.40
Shape to drain
from existng RCB to Lt FL.

Stage 1 Sta.1460+75
Jack 42" x 176" RCP + Lt. Apron
Install 42" x 44' RCP + Rt. Apron
Lt. 904.90
Rt. 899.33
Other 900.56

Sta. 1466+80, 26' RT
18" X 76' Conc Pipe
D.A. = 2 1/2 Ac - MEDIAN
Stage 1 Remove

1472+75±ExR/W
℄168'(ExCorner)

Stage 1 Sta.1470+00
Install 42" x 100' RCP + Rt. Apron
Lt. 908.66
Rt. 907.90

75
JOHN W. THORMAN TRUST
MARY A. & CHARLES W. THORMAN (TRUSTEES)
MARY A. THORMAN TRUST
MARY A. THORMAN (TRUSTEE)

76
MARYANN SCHULTZ TRUST
& SARA JANE CREAMER (TRUSTEE)(1/2 INT)
BYORTH FARM TRUST
& JON C. CREAMER (TRUSTEE)(1/2 INT)

MARYANN SC
& SARA JANE CREAME
BYORTH F
& JON C. CREAMER

Eldorado TWP.
T-83N R-10W
SEC. 32

0 100
FEET

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: Cuva/Larson
ROW #: NHSN-30-6(238)--2R-06
Plan Date: 5/19/2017
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-30-6(231)- -3H-06	SHEET NUMBER H.4

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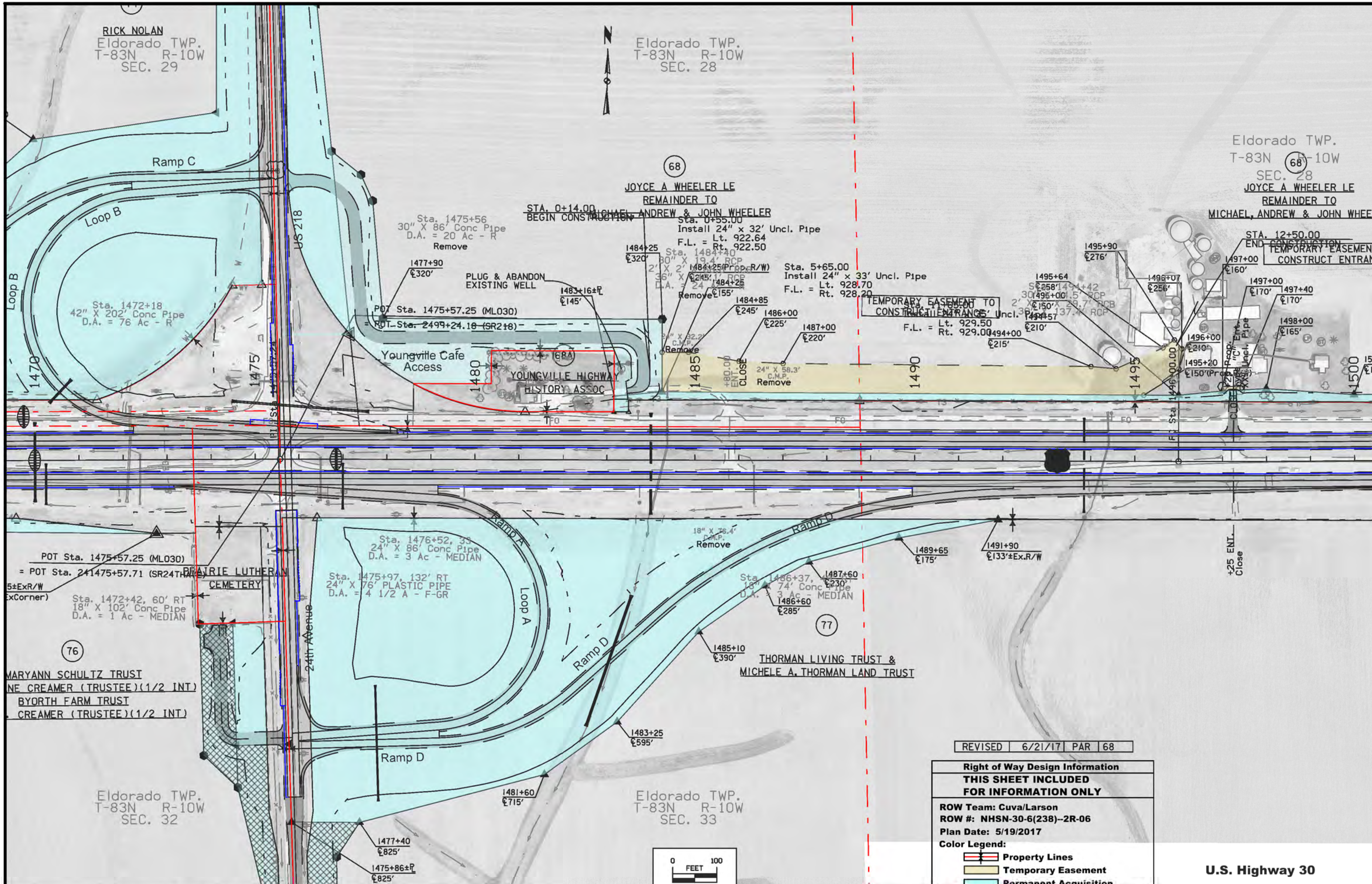


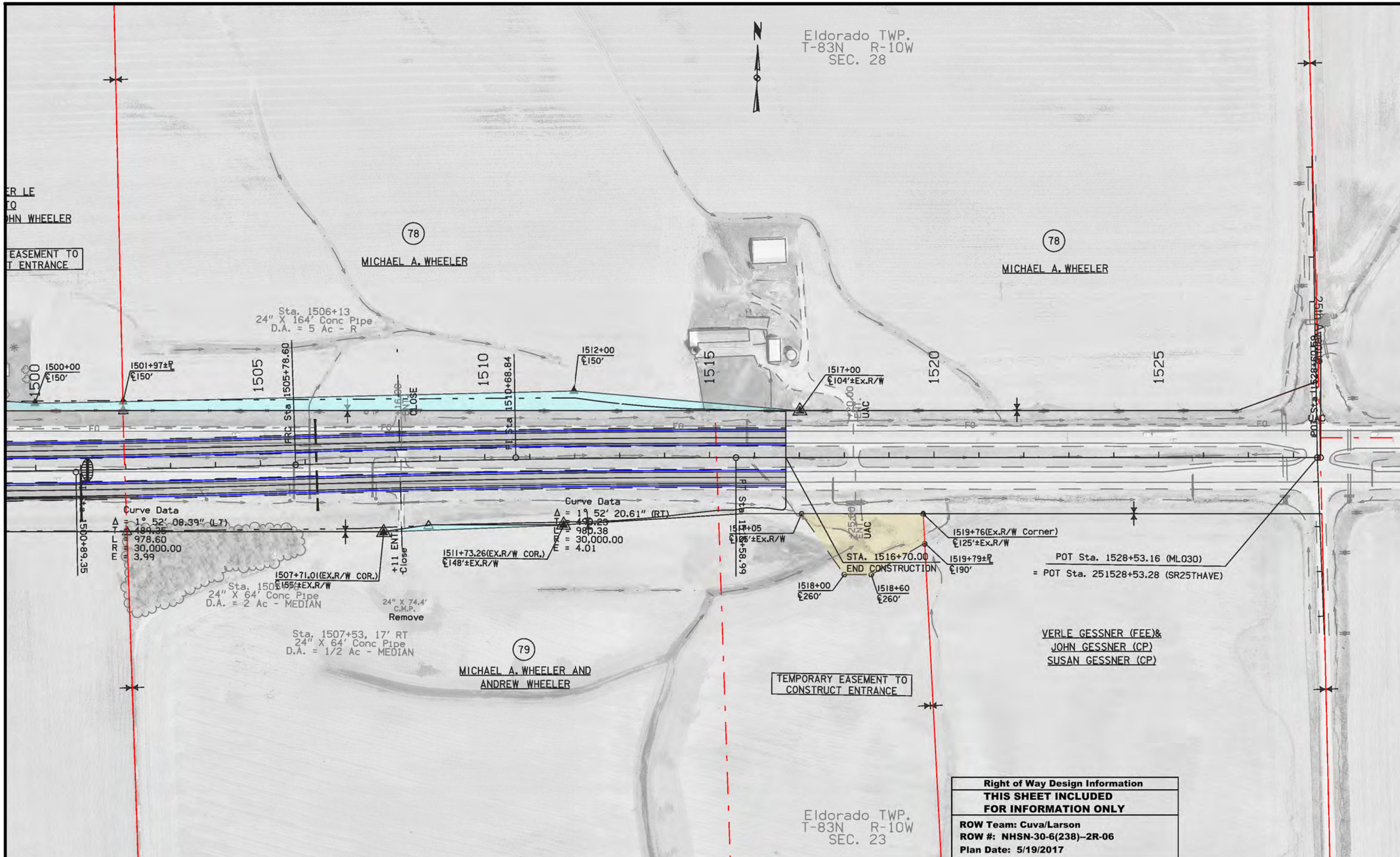
REVISED | 6/21/17 | PAR | 68

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY
ROW Team: Cuva/Larson
ROW #: NHSN-30-6(238)--2R-06
Plan Date: 5/19/2017
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHS-030-6(87)--19-06	SHEET NUMBER H.5

8:42:29 AM 1/10/2018 ncuva pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\ROW\06030101h.sht


Eldorado TWP.
T-83N R-10W
SEC. 28
MICHAEL A. WHEELER
78
MICHAEL A. WHEELER
78
EASEMENT TO
T ENTRANCE
Sta. 1506+13
24" X 164' Conc Pipe
D.A. = 5 Ac - R
1500+00
℄150'
1501+97±℄
℄150'
1512+00
℄150'
1517+00
℄104'±Ex.R/W
1500
1505
1510
1515
1520
1525
Curve Data
Δ = 1° 52' 08.39" (LT)
T = 489.35
L = 978.60
R = 30,000.00
E = 3.99
Curve Data
Δ = 1° 52' 20.61" (RT)
R = 30,000.00
E = 4.01
1507+71.01(EX.R/W COR.)
1511+73.26(EX.R/W COR.)
℄148'±EX.R/W
1519+76(EX.R/W Corner)
℄125'±Ex.R/W
1519+79±℄
℄190'
STA. 1516+70.00
END CONSTRUCTION
1518+00
℄260'
1518+60
℄260'
POT Sta. 1528+53.16 (ML030)
= POT Sta. 251528+53.28 (SR25THAVE)
24" X 64' Conc Pipe
D.A. = 2 Ac - MEDIAN
24" X 74.4'
C.M.P.
Remove
Sta. 1507+53, 17' RT
24" X 64' Conc Pipe
D.A. = 1/2 Ac - MEDIAN
79
MICHAEL A. WHEELER AND
ANDREW WHEELER
TEMPORARY EASEMENT TO
CONSTRUCT ENTRANCE
VERLE GESSNER (FEE)&
JOHN GESSNER (CP)
SUSAN GESSNER (CP)
Eldorado TWP.
T-83N R-10W
SEC. 23

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Larson
ROW #: NHSN-30-6(238)--2R-06
Plan Date: 5/19/2017
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

0 FEET 100

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-30-6(231)- -3H-06	SHEET NUMBER H.6

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+66 Prop. Type "C" Ent. XX" Uncl. Pipe

+07.00 ENT. CLOSE

Union TWP. T-83N R-11W SEC. 36

Union TWP. T-83N R-11W SEC. 25

12" X 30.2' C.M.P.

221375

221380

221385

POT Sta 221371+27.26

POT Sta 221385+33.37

BEGIN CONSTRUCTION Sta. 221371+85.24

+27 Prop. Type "C" Ent. Design as Safety Ramp XX" Uncl. Pipe

22nd Avenue

22nd Avenue

221377+25 ℄3'±ExR/W

221377+00 ℄50'

END CONSTRUCTION Sta. 221377+00.00

221372+77±ExR/W ℄70'

ACQUIRE ACCESS CONTROL ON S.R. FROM 221369+19 TO 221373+35

(67) HAROLD A. THOMPSON TRUST
HAROLD A. THOMPSON TRUSTEE
SCOTT THOMPSON (CP-1)
STEVEN THOMPSON (CP-2)

(70) CALVIN F. & STELLA M. WOLTER

(67) HAROLD A. THOMPSON TRUST
HAROLD A. THOMPSON TRUSTEE
SCOTT THOMPSON (CP-1)
STEVEN THOMPSON (CP-2)

Eldorado TWP. T-83N R-10W SEC. 31

Eldorado TWP. T-83N R-10W SEC. 30

+96.00 ENT. CLOSE

CLOSE

0 100 FEET

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Larson
ROW #: NHSN-30-6(238)- -2R-06
Plan Date: 5/19/2017
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-30-6(231)- -3H-06	SHEET NUMBER HE.1

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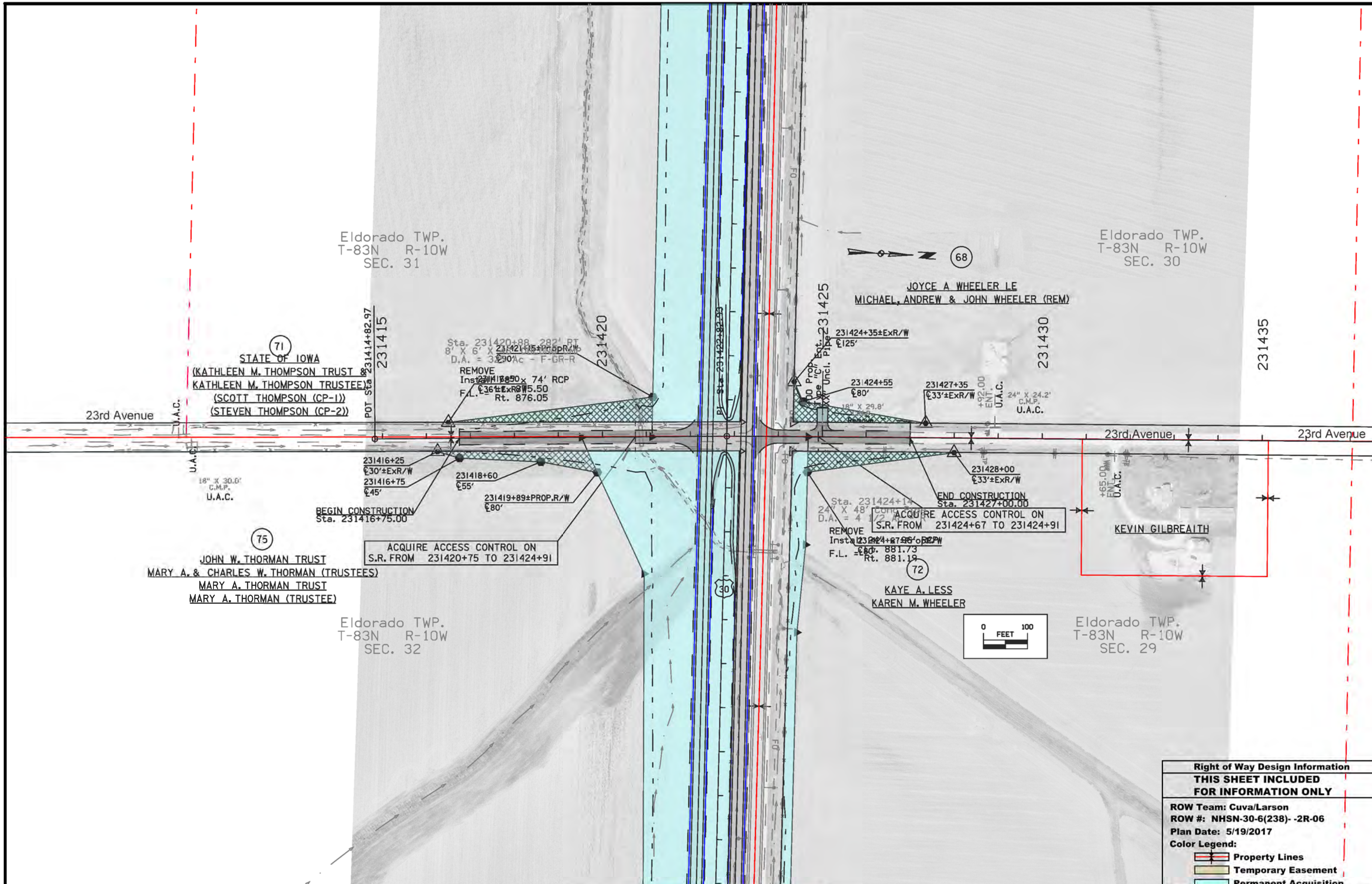

Eldorado TWP.
T-83N R-10W
SEC. 31
Eldorado TWP.
T-83N R-10W
SEC. 30
Eldorado TWP.
T-83N R-10W
SEC. 32
Eldorado TWP.
T-83N R-10W
SEC. 29
68
JOYCE A WHEELER LE
MICHAEL, ANDREW & JOHN WHEELER (REM)
71
STATE OF IOWA
(KATHLEEN M. THOMPSON TRUST &
KATHLEEN M. THOMPSON TRUSTEE)
(SCOTT THOMPSON (CP-1))
(STEVEN THOMPSON (CP-2))
75
JOHN W. THORMAN TRUST
MARY A. & CHARLES W. THORMAN (TRUSTEES)
MARY A. THORMAN TRUST
MARY A. THORMAN (TRUSTEE)
72
KAYE A. LESS
KAREN M. WHEELER
KEVIN GILBREAITH
23rd Avenue
23rd Avenue
23rd Avenue
231415
231420
231425
231430
231435
POT Sta 231414+82.97
U.A.C.
18" X 30.0' C.M.P.
U.A.C.
231416+25
℄30'±ExR/W
231416+75
℄45'
BEGIN CONSTRUCTION
Sta. 231416+75.00
231418+60
℄55'
231419+89±PROP.R/W
℄80'
ACQUIRE ACCESS CONTROL ON
S.R. FROM 231420+75 TO 231424+91
REMOVE
F.L.
Rt. 876.05
231424+35±ExR/W
℄125'
231424+55
℄80'
231427+35
℄33'±ExR/W
24" X 24.2' C.M.P.
U.A.C.
231428+00
℄33'±ExR/W
END CONSTRUCTION
Sta. 231427+00.00
ACQUIRE ACCESS CONTROL ON
S.R. FROM 231424+67 TO 231424+91
REMOVE
F.L.
Rt. 881.19
30
0 FEET 100

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Larson
ROW #: NHSN-30-6(238)- -2R-06
Plan Date: 5/19/2017
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-30-6(231)- -3H-06	SHEET NUMBER HE.2

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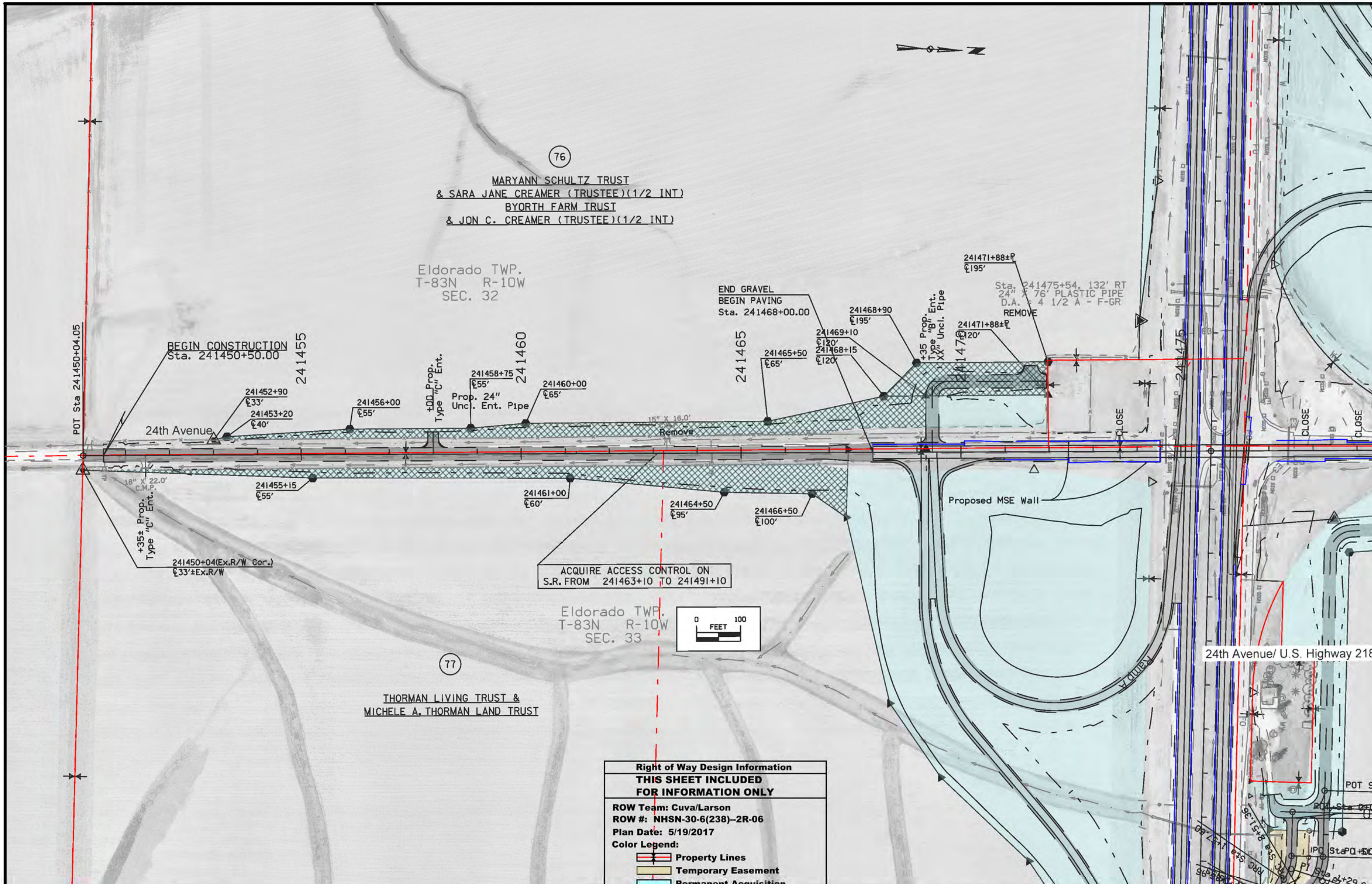


76
MARYANN SCHULTZ TRUST
& SARA JANE CREAMER (TRUSTEE)(1/2 INT)
BYORTH FARM TRUST
& JON C. CREAMER (TRUSTEE)(1/2 INT)
Eldorado TWP.
T-83N R-10W
SEC. 32
BEGIN CONSTRUCTION
Sta. 241450+50.00
POT Sta 241450+04.05
24th Avenue
241455
241460
241465
END GRAVEL
BEGIN PAVING
Sta. 241468+00.00
Sta. 241475+54, 132' RT
24" X 76' PLASTIC PIPE
D.A. = 4 1/2 A - F-GR
REMOVE
Proposed MSE Wall
ACQUIRE ACCESS CONTROL ON
S.R. FROM 241463+10 TO 241491+10
Eldorado TWP.
T-83N R-10W
SEC. 33
0 FEET 100
77
THORMAN LIVING TRUST &
MICHELE A. THORMAN LAND TRUST
24th Avenue/ U.S. Highway 218
Ramp A
CLOSE

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Larson
ROW #: NHSN-30-6(238)--2R-06
Plan Date: 5/19/2017
Color Legend:
Property Lines
Temporary Easement
Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-30-6(231)- -3H-06	SHEET NUMBER HE.3

10:14:38 AM 6/22/2017 THU pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\ROW\06030101he.sht

74
RICK NOLAN

DORIS SCHULZE

Eldorado TWP.
T-83N R-10W
SEC. 29

241475
241480
241485
241490
241495
241500

241483+60 ℄135'

241496+00 ℄100'

Prop. 24" Uncl. Ent. Pipe
241498+00 ℄80'

+00 Prop. Type "C" Ent.

Sta. 241503+00.00
End Construction
241502+97±℄ ℄80'

PI Sta 241502+95.73

CLOSE
CLOSE
CLOSE

241482+65 ℄125'±PropR/W
241482+10 ℄190'
241481+50 ℄215'

+00 Prop. Type "B" End XX" Uncl. Pipe

241486+00 ℄100'

ACQUIRE ACCESS CONTROL ON
S.R. FROM 241478+57 TO 241491+10

241494+40 ℄100'

241498+30 ℄70'

+00 Prop. Type "C" Ent.

Prop. 24" Uncl. Ent. Pipe
241502+94±1/4-1/4 Line ℄70'

Sta. 26+22
2' X 2' X 29.58' W/ EXTS RCB
D.A. = 10 Ac - R

Eldorado TWP.
T-83N R-10W
SEC. 28

0 100 FEET

RAMP A

68
JOYCE A WHEELER LE
REMAINDER TO
MICHAEL, ANDREW & JOHN WHEELER

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva/Larson
ROW #: NHSN-30-6(238)--2R-06
Plan Date: 5/19/2017
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-30-6(231)- -3H-06	SHEET NUMBER HE.4

10:30:26 AM 6/19/2017 jlarsol pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\ROW\06030101he.sht

108-23A
08-01-08

TRAFFIC CONTROL PLAN

1. Traffic on U.S. Highway 30 shall be maintained at all times except as noted in Note 3

2. Traffic on U.S. Highway 218 shall be maintained at all times via off-site detour

3. Temporary nighttime road closures (TC-251/TC-451) will only be allowed for setting beams and overhead signs/trusses

4. Detour and detour signing shall be furnished, maintained, and removed by the Contractor

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-030-6(189)--3H-86	Grading
MP-030-6(709)234--76-06	PCC Patching
NHSN-000-S(943)--2R-00	Traffic Signs

108-26A
08-01-08

STAGING NOTES

STAGE 1:
Grade and pave crossover 2

STAGE 2:
Traffic:
US 30 on existing WB lanes
US 218 on detour
24th Avenue closed
23rd Avenue open to the north, closed to the south

Construction:
Grade and pave new EB lanes from Sta. 1380+00 to Sta. 1516+70
Grade and surface 23rd Avenue south of US 30
Grade and pave proposed crossover 1

STAGE 3:
Traffic:
US 30 new existing EB lanes
US 218 on detour
24th Avenue closed
23rd Avenue open to the south, closed to the north

Construction:
Grade and pave new WB lanes from Sta. 1389+00 to Sta. 1516+70
Grade and surface 23rd Avenue north of US 30
Finish grade and pave Ramps A - D.
Grade and pave proposed crossover 3

STAGE 4:
Traffic:
Traffic in normal lanes

Construction:
Complete

* This is to only be used in conjunction with Tabulation 108-23A
Shaded area indicates non-working times

TRAFFIC CONTROL CLOSURE TABLE(S)

	AM																							Noon	PM																							
	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
SUN																																																
MON																																																
TUE																																																
WED																																																
THU																																																
FRI																																																
SAT																																																

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			No Restrictions Expected									

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

	Pavement Removal		Proposed Granular Shoulder
	Proposed Granular Subbase		Temporary Shoulder
	Proposed Special Backfill		Existing Shoulder Strengthening
	Temporary Barrier Rail		Permanent Barrier Rail
			Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

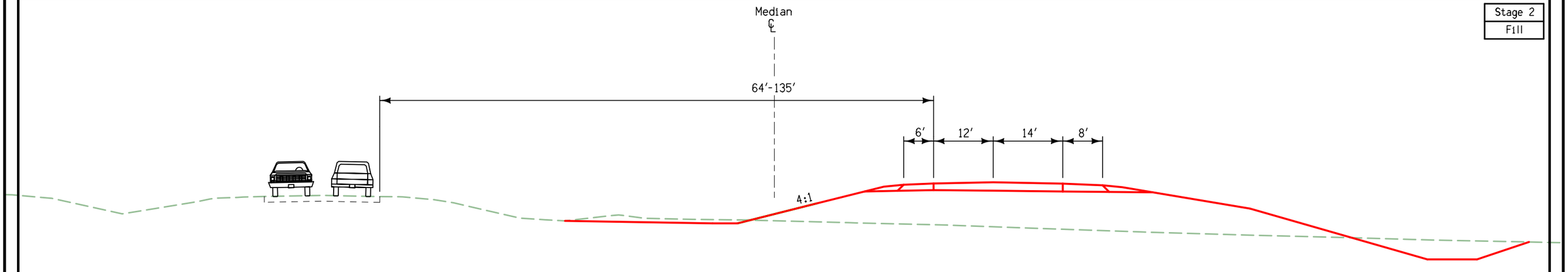
●	Channelizing Device		Crash Cushion (Temp or Perm)
✕	Drum		Traffic Signal
◘	Temporary Lane Separator		Flagger
◆	Tubular Marker		Temporary Floodlighting
♦	Channelizer Marker		Traffic Sign
△	Concrete Barrier Marker		Type III Barricade
ς	Delineator		Type A Warning Light
	Temporary Barrier Rail		Direction of Traffic
	Pavement Removal		Safety Closure
	Sand Barrel Layout	1	Lane Identification

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)

Stage 2
Fill



LEGEND

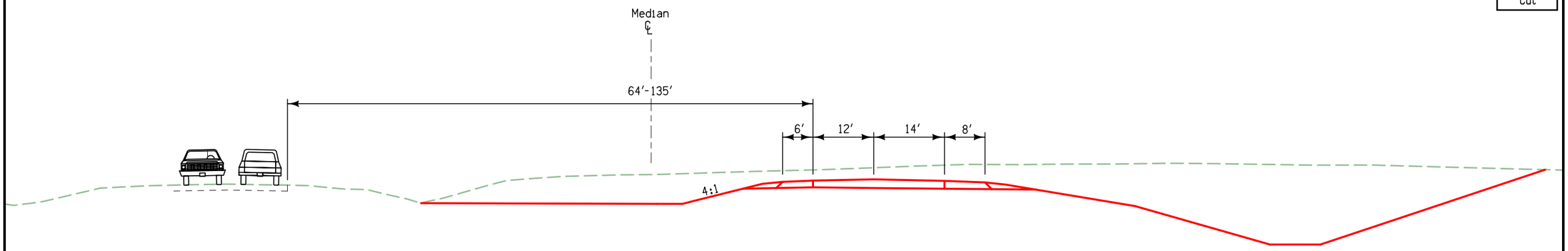
STAGE 2 CONSTRUCTION

EXISTING GROUND

EXISTING PAVEMENT

STAGE 2 (FILL)

Stage 2
Cut



LEGEND

STAGE 2 CONSTRUCTION

EXISTING GROUND

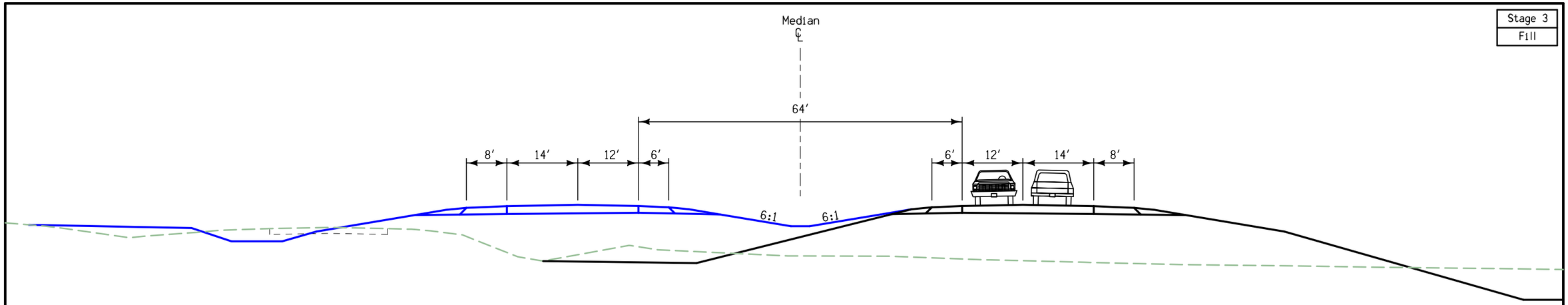
EXISTING PAVEMENT

STAGE 2 (CUT)

FILE NO.	ENGLISH	DESIGN TEAM	Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER	NHSX-030-6(231)--3H-06	SHEET NUMBER	J.4

8:40:18 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J04.sht

Stage 3
Fill

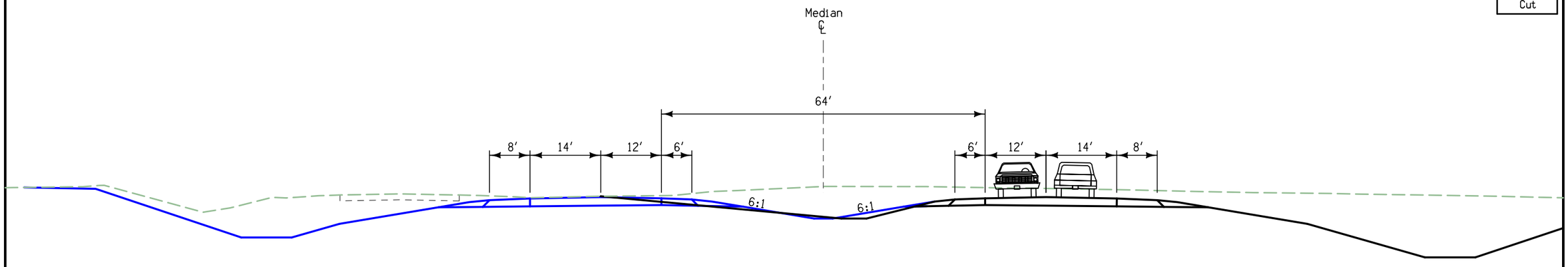


LEGEND

- STAGE 3 CONSTRUCTION
- COMPLETED CONSTRUCTION
- EXISTING GROUND
- EXISTING PAVEMENT

STAGE 3 (FILL)

Stage 3
Cut



LEGEND

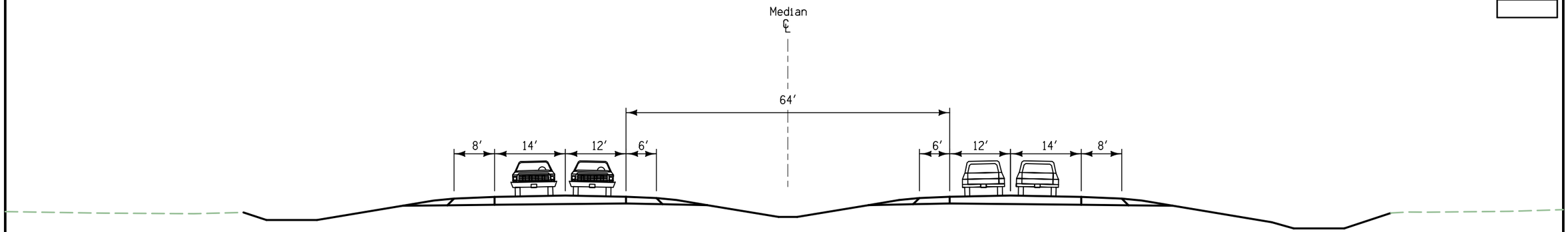
- STAGE 3 CONSTRUCTION
- COMPLETED CONSTRUCTION
- EXISTING GROUND
- EXISTING PAVEMENT

STAGE 3 (CUT)

FILE NO.	ENGLISH	DESIGN TEAM	Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER	NHSX-030-6(231)--3H-06	SHEET NUMBER	J.5

8:40:19 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J04.sht

Final



FINAL

LEGEND

COMPLETED CONSTRUCTION

EXISTING GROUND

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.6

8:40:21 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J04.sht

Eldorado TWP.
T-83N R-10W
SEC. 28

Sta. 1516+70.00
END CONSTRUCTION

1515

1520

1525

1530

US 30 Westbound

30

US 30 Eastbound

25th Avenue

Eldorado TWP.
T-83N R-10W
SEC. 33

0 50
FEET

STAGE 2
CROSSOVER 2
Sheet 1 of 5

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.7

8:40:34 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J07.sht

Eldorado TWP.
T-83N R-10W
SEC. 27

1530 1535 1540 1545

W1-4R
48" x 48"

500' 150'

US 30 Westbound

30

US 30 Eastbound

DO NOT ENTER
R5-1
30" x 30"

W6-3
48" x 48"

60' 115'

℄

40'C/C

85'

R4-7B
36" x 48"

DO NOT PASS
R4-1
36" x 48"
Mount on back of barricade; back-to-back with R4-7B sign

Eldorado TWP.
T-83N R-10W
SEC. 34

0 FEET 50

STAGE 2
CROSSOVER 2
Sheet 2 of 5

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.8

8:40:38 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J07.sht

Eldorado TWP.
T-83N R-10W
SEC. 27

1545 1550 1555 1560

1000'

40'C/C

US 30 Westbound

40'C/C

30

85'

Pavement Marking Removal Limits

500'

US 30 Eastbound

END
ROAD WORK

G20-2A
48" x 24"

SPEED
LIMIT
65

R2-1
48" x 60"

Eldorado TWP.
T-83N R-10W
SEC. 34

STAGE 2
CROSSOVER 2
Sheet 3 of 5

0 FEET 50

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.9

8:40:42 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J07.sht

Eldorado TWP.
T-83N R-10W
SEC. 27

SPEED LIMIT 55
R2-1
48" x 60"

SPEED LIMIT 55
R2-1
48" x 60"

1560
1565
1570
1575

40'C/C

780' Taper

750'

0'-500'

65'C/C

US 30 Westbound

US 30 Eastbound

30

Eldorado TWP.
T-83N R-10W
SEC. 34

0 50
FEET

STAGE 2
CROSSOVER 2
Sheet 4 of 5

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.10

8:40:45 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J07.sht

Eldorado TWP.
T-83N R-10W
SEC. 27

Eldorado TWP.
T-83N R-10W
SEC. 26

1580

1575

Pavement Marking Removal Limits

750'

Refer to TC-61 for advance signing

US 30 Westbound

30

US 30 Eastbound

26th Avenue

Eldorado TWP.
T-83N R-10W
SEC. 34

Eldorado TWP.
T-83N R-10W
SEC. 35

0 50
FEET

STAGE 2
CROSSOVER 2
Sheet 5 of 5

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.11

8:40:48 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J07.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

1360 1365 1370

Existing US 30

500' 500' 500'

Proposed US 30 ℄

30

ROAD WORK AHEAD
W20-1
48" x 48"

ROAD WORK AHEAD
W20-1
48" x 48"

W1-4R
48" x 48"

Eldorado TWP.
T-83N R-10W
SEC. 31

0 FEET 50

STAGE 3
CROSSOVER 1
Sheet 1 of 3

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.12

8:40:57 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J12.sht

22nd Avenue

Eldorado TWP.
T-83N R-10W
SEC. 30

N

40'C/C

1375

W1-6
48" x 24"

1380

1385

US 30 Westbound

30

US 30 Eastbound

Eldorado TWP.
T-83N R-10W
SEC. 31

0 50
FEET

STAGE 3
CROSSOVER 1
Sheet 2 of 3

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.13

8:41:01 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J12.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

1390

1395

1400

US 30 Westbound

30

US 30 Eastbound

40'C/C

500'

W1-4R
48" x 48"

Eldorado TWP.
T-83N R-10W
SEC. 31

0 FEET 50

STAGE 3
CROSSOVER 1
Sheet 3 of 3

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.14

8:41:05 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J12.sht

Eldorado TWP.
T-83N R-10W
SEC. 28

Sta. 1516+70.00
END CONSTRUCTION

1515

1520

1525

1530

US 30 Westbound

30

US 30 Eastbound

25th Avenue

Eldorado TWP.
T-83N R-10W
SEC. 33

0 50
FEET

STAGE 3
CROSSOVER 2
Sheet 1 of 5

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.15

8:41:09 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J12.sht

Eldorado TWP.
T-83N R-10W
SEC. 27

1530

1535

1540

1545

W6-3
48" x 48"

W1-6
48" x 24"

℄

Pavement M

85'

US 30 Westbound

30

US 30 Eastbound

150'

85'

Pavement Marking Removal Limits

Pavement M

DO
NOT
PASS

R4-1
36" x 48"

Eldorado TWP.
T-83N R-10W
SEC. 34

0 FEET 50

STAGE 3
CROSSOVER 2
Sheet 2 of 5

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.16

8:41:12 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J12.sht

Eldorado TWP.
T-83N R-10W
SEC. 27

1545
1550
1555
1560

Pavement Marking Removal Limits
85'
40'C/C
5 Drums
5 Channelizers
500'
40'C/C
W1-4L
48" x 48"
500'
US 30 Westbound

30

US 30 Eastbound
500'
emoval Limits
Pavement Marking Removal Limits
END
ROAD WORK
G20-2A
48" x 24"
SPEED
LIMIT
65
R2-1
48" x 60"

Eldorado TWP.
T-83N R-10W
SEC. 34

STAGE 3
CROSSOVER 2
Sheet 3 of 5

0 50
FEET

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.17

8:41:15 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J12.sht

Eldorado TWP.
T-83N R-10W
SEC. 27

1560 1565 1570 1575

SPEED LIMIT 55

R2-1
48" x 60"

5 Drums

5 Channelizers

65'C/C

780' Taper

0'-500'

US 30 Westbound

30

US 30 Eastbound

SPEED LIMIT 55

R2-1
48" x 60"

Eldorado TWP.
T-83N R-10W
SEC. 34

0 50
FEET

STAGE 3
CROSSOVER 2
Sheet 4 of 5

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.18

8:41:18 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J12.sht

Eldorado TWP.
T-83N R-10W
SEC. 27

Eldorado TWP.
T-83N R-10W
SEC. 26

1575

1580

Pavement Marking Removal Limits

750'

Refer to TC-61 for advance signing

US 30 Westbound

30

US 30 Eastbound

26th Avenue

Eldorado TWP.
T-83N R-10W
SEC. 34

Eldorado TWP.
T-83N R-10W
SEC. 35

0 FEET 50

STAGE 3
CROSSOVER 2
Sheet 5 of 5

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.19

8:41:20 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J12.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

22nd Avenue

NO PASSING ZONE
W14-3
48" X 60" X 60"

1365

1000'

1370

1375

Existing US 30

750'

100'C/C

30

W6-1
48" x 48"

Eldorado TWP.
T-83N R-10W
SEC. 31

Note: Signing By Others

0 FEET 50

STAGE 4
FINAL TRAFFIC (WEST END)
Sheet 1 of 3

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.20

8:41:27 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J20.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

N

R4-7B
36" x 48"

1380

185'

R5-1
30" x 30"

W6-3
48" x 48"

150'

R5-1
30" x 30"

1385

1390

720'

20'C/C @ 45°

US 30 Westbound

15:1 Taper

100'C/C

100'C/C

100'C/C

100'C/C

20'C/C @ 45°

30

US 30 Eastbound

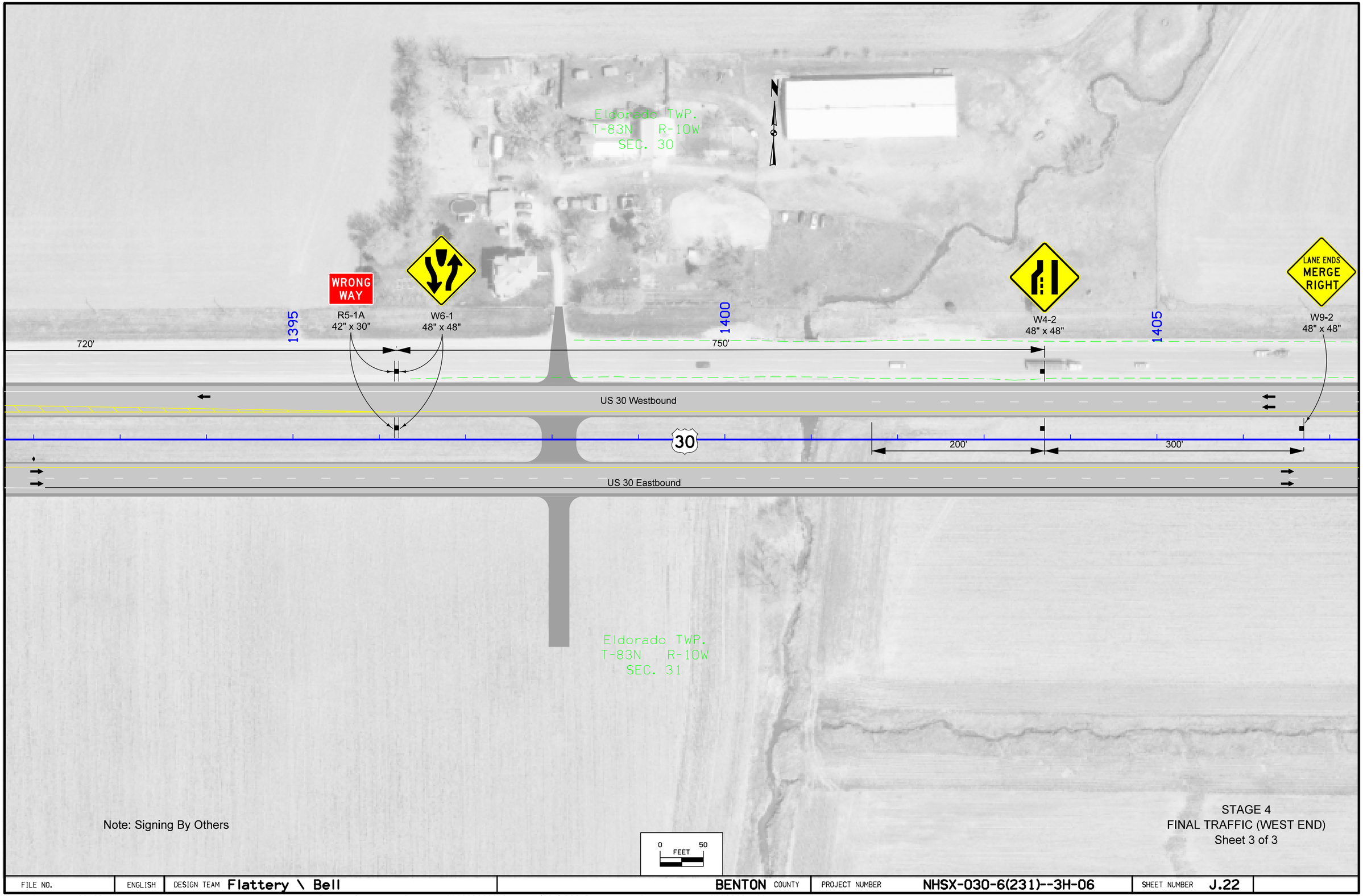
Eldorado TWP.
T-83N R-10W
SEC. 31

Note: Signing By Others

0 50
FEET

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.21

8:41:43 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J20.sht



Note: Signing By Others

STAGE 4
FINAL TRAFFIC (WEST END)
Sheet 3 of 3

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.22

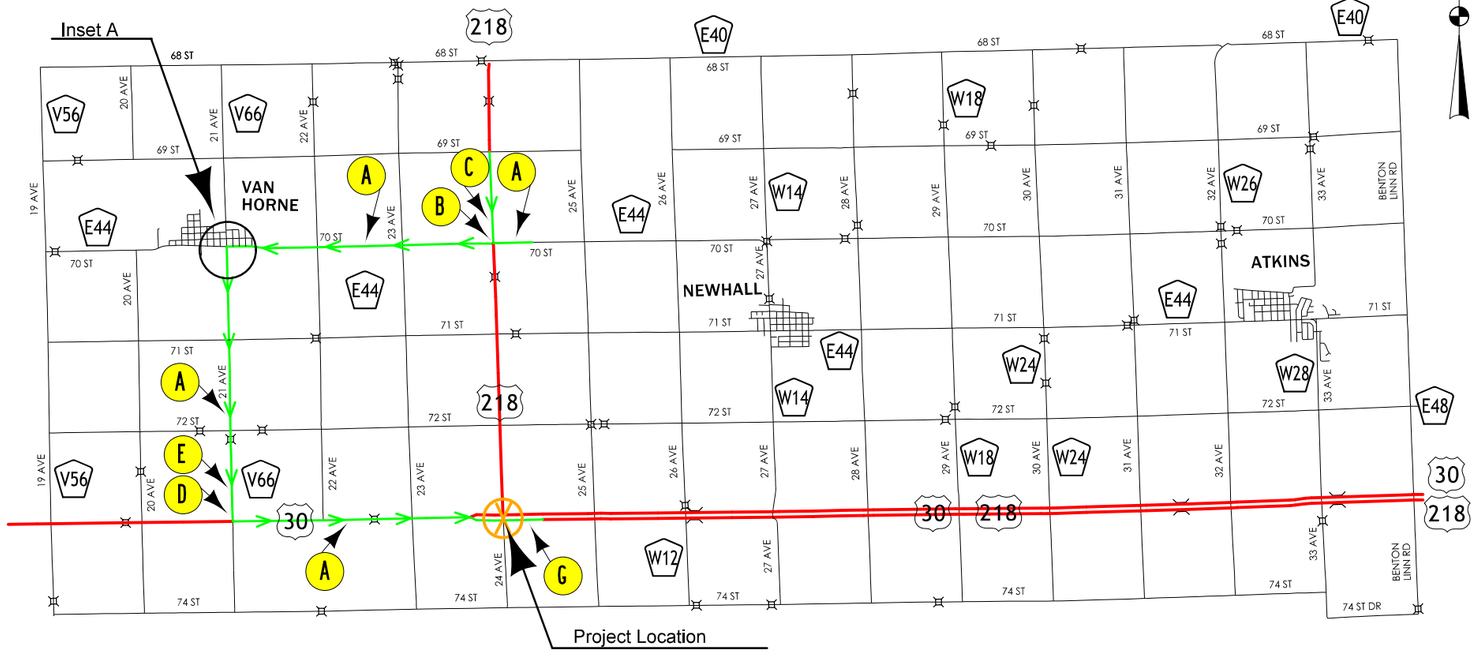
8:41:46 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J20.sht

A

B

D

C



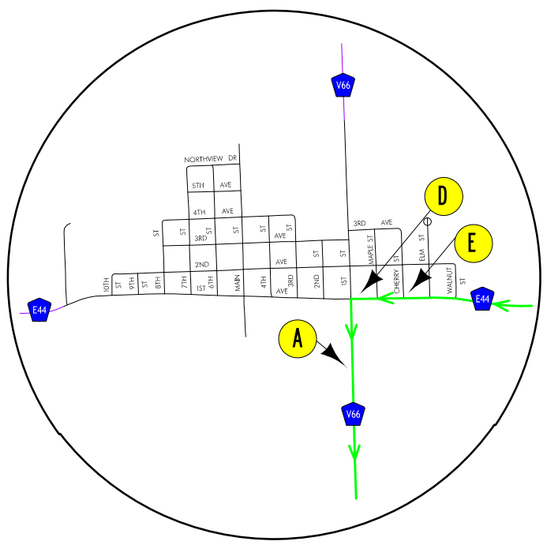
E

F

G

NOTE:
The quantity of detour signs and the locations provided are for guidance. If field conditions (i.e. grade, existing signs, etc.) require a modification, additional signs, or safety concerns arise, please contact the project supervisor and the appropriate accommodations will be made.

Inset A



= Location of interchange project

= Detour Route

NOT TO SCALE

US 218 Detour Signing
Southbound

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.23

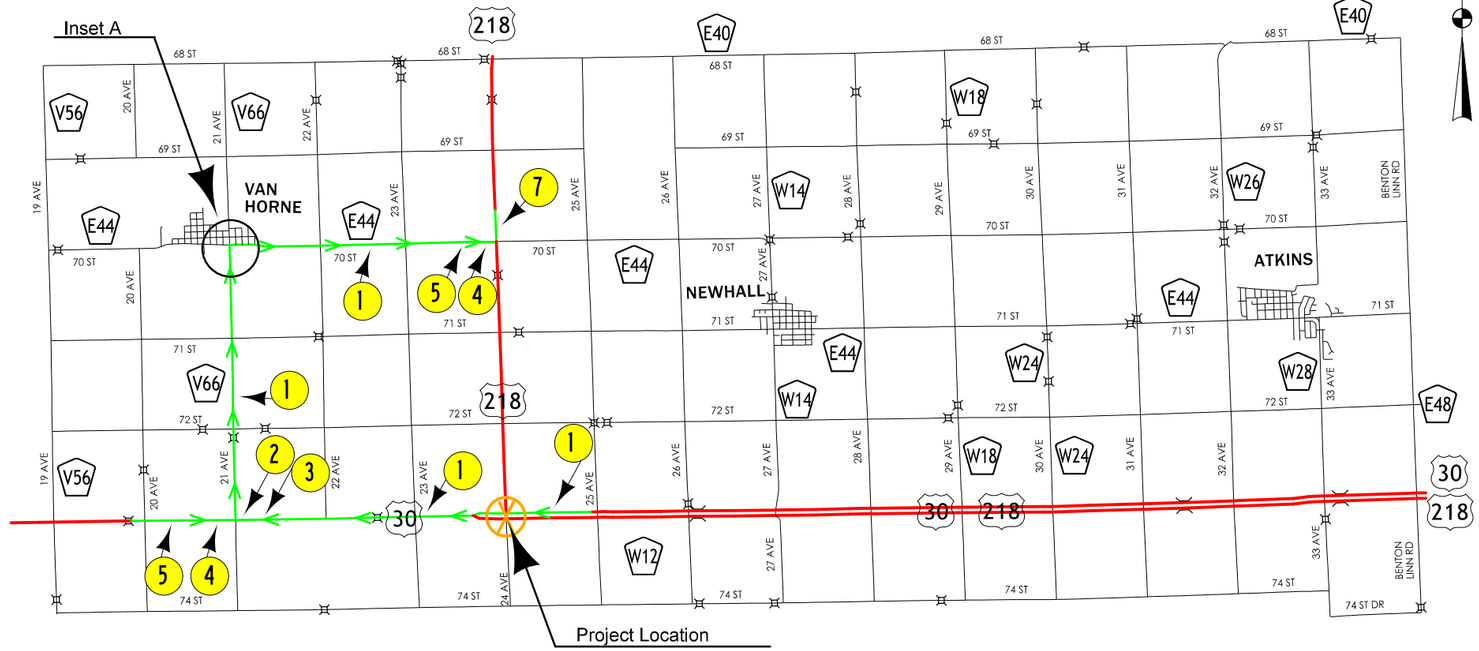
8:41:52 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J23.sht

1

2

4

3



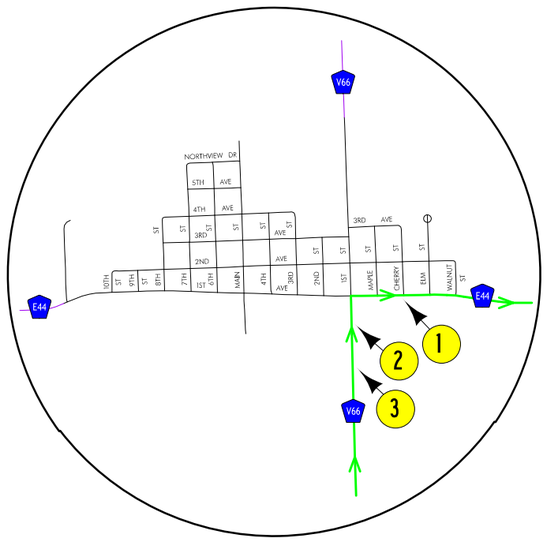
5

6

7

NOTE:
The quantity of detour signs and the locations provided are for guidance. If field conditions (i.e. grade, existing signs, etc.) require a modification, additional signs, or safety concerns arise, please contact the project supervisor and the appropriate accommodations will be made.

Inset A



= Location of interchange project

= Detour Route

NOT TO SCALE

US 218 Detour Signing
Northbound

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER J.24

8:41:54 AM 4/20/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231J23.sht

Eldorado TWP.
T-83N R-10W
SEC. 29

Curve 65013 Data
Δ = 36° 44′ 05.49″ (LT)
T = 161.03
L = 310.95
R = 485.00
E = 26.03
e = 6.0%
L = 144
x = 48

Curve 65014 Data
Δ = 28° 46′ 55.63″ (RT)
T = 271.99
L = 532.48
R = 1,060.00
E = 34.34
e = 6.0%
L = 179
x = 60

Curve 65015 Data
Δ = 8° 01′ 17.07″ (RT)
T = 140.23
L = 280.00
R = 2,000.00
E = 4.91
e = 5.4%
L = 168
x = 62

Curve 65003 Data
Δ = 171° 54′ 05.52″ (RT)
T = 3,531.55
L = 750.06
R = 250.00
E = 3,290.39
e = 6.0
L = 137
x = 46

Ramp C

Ramp B (SR218C)

Loop B

Loop A

Loop B (SR218B)

Curve 65003

Curve 65014

Curve 65015

Curve 64013

PI Sta 31446+84.14

PI Sta 31445+34.49

PC Sta 31443+73.46

PC Sta 31450+62.52

PCC Sta 31455+95.00

PT Sta 31457+35.23

PI Sta 31453+34.50 (SR218C)

PT Sta 21479+75.06

PT Sta 11486+64.72

PC Sta 41477+60.34

PI Sta 41479+37.15

90°0′0″

87°8′15″

88°18′42″

90°0′0″

87°8′15″

Sta. 1458+75.00, 78.00 Lt. (ML030)
= PT Sta 31458+75.00 (SR218C)
Point "G" Standard Road Plan PV-411

Sta. 1472+25.00 98.00 LT (ML030)
= PC Sta 21472+25.00 (SR218B)
Point "M" Modified PV-412

PI Sta 1475+57.24 (ML030)
Δ = 0° 28′ 26.178″

Sta. 1479+15.00, 98.00 Rt (ML030)
= PC Sta 11479+15.00 (SR218A)
Point "M" Modified PV-412

POT Sta 241482+24.27 (SR218)
= POT Sta 31440+41.75 (SR218C)

POT Sta 241481+88.83 (SR218)
= POT Sta 21483+06.29 (SR218B)

POT Sta 1475+68.30 (ML030)
= POT Sta 241475+68.30 (SR218)

POT Sta 241469+44.86 (SR218)
= POT Sta 11489+98.12 (SR218A)

POT Sta 241469+09.54 (SR218)
=POT Sta 41474+26.45 (SR218D)

1455 1460 1465 1470 1475 1480

31455 31450 31445

241485 241480 241475 241470

21480 11480 11485 41475

21475

Eldorado TWP.
T-83N R-10W
SEC. 32

0 100 FEET

Geometric Plan
Proposed Interchange of
US 30 with US 218
Benton County

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.1

6:07:18 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K01.sht

Eldorado TWP.
T-83N R-10W
SEC. 28

N

241485

PC Sta 31443+73.46

POT Sta 241482+24.27 (SR218)
= POT Sta 31440+41.75 (SR218C)

POT Sta 241481+88.83 (SR218)
= POT Sta 21483+06.29 (SR218B)

90°0′0″

Curve 65013

Loop ℄ (SR218B)

87°8′15″

PT Sta 21479+75.06

21480

241480

Loop B

Sta. 1472+25.00 98.00 LT (ML030)
= PC Sta 21472+25.00 (SR218B)
Point "M" Modified PV-412

1475

1480

1485

1490

1495

1500

Curve 20297 Data
Δ = 1° 52′ 08.39″ (LT)
T = 489.35
L = 978.60
R = 30,000.00
E = 3.99

POT Sta 1475+68.30 (ML030)
= POT Sta 241475+68.30 (SR218)

PC Sta 41400+85.23

PT Sta 1496+00.00

241475

PI Sta 1475+57.24 (ML030)
Δ = 0° 28′ 26.178″

88°18′42″

PI Sta 41486+55.16 (SR218D)

Curve 64015

PI Sta 1500+89.35

Sta. 1479+15.00, 98.00 Rt (ML030)
= PC Sta 11479+15.00 (SR218A)
Point "M" Modified PV-412

Curve 64013 Data
Δ = 171° 49′ 21.21″ (RT)
T = 3,497.33
L = 749.72
R = 250.00
E = 3,256.26
e = 6.0%
L = 137
x = 48

Curve 64014

PCC Sta 41489+45.00

Sta. 1492+25.00, 78.00 Rt. (ML030)
= PT Sta 41492+25.00 (SR218D)
Point "G" Standard Road Plan PV-411

11480

11485

Curve 64003

PT Sta 11486+64.72

Ramp D

41490

Curve 64015 Data
Δ = 8° 01′ 17.07″ (RT)
T = 140.23
L = 280.00
R = 2,000.00
E = 4.91
e = 5.4%
L = 168
x = 62

Ramp ℄ (SR218D)

PC Sta 41483+49.12

41485

Curve 64014 Data
Δ = 32° 12′ 31.44″ (RT)
T = 306.04
L = 595.88
R = 1,060.00
E = 43.30
e = 6.0%
L = 179
x = 60

POT Sta 241469+44.86 (SR218)
= POT Sta 11489+98.12 (SR218A)

241470

87°8′15″

Loop ℄
(SR218A)

PT Sta 41480+99.43

Curve 64013

PI Sta 41479+37.15

41480

Curve 64013 Data
Δ = 40° 03′ 33.45″ (LT)
T = 176.81
L = 339.10
R = 485.00
E = 31.22
e = 6.0%
L = 144
x = 48

POT Sta 241469+09.54 (SR218)
=POT Sta 41474+26.45 (SR218D)

90°0′0″

PC Sta 41477+60.34

41475

Eldorado TWP.
T-83N R-10W
SEC. 33

0 100
FEET

Geometric Plan
Proposed Interchange of
US 30 with US 218
Benton County

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.2

6:07:20 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K01.sht

Eldorado TWP.
T-83N R-10W
SEC. 29

Eldorado TWP.
T-83N R-10W
SEC. 28

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 33

218

30

Ramp B

Ramp C

Ramp A

Ramp D

24th Avenue

PC Sta 11479+15.00 (SR218A)
= Sta 1479+15.00, 98.0' Rt (ML030)
Begin Ramp A Construction

POT Sta 11473+14.29 (SR218A)
= Sta 1473+15.00, 58.0' Rt (ML030)

POT Sta 11489+98.12 (SR218A)
= Sta 241469+44.86 (SR218)

PT Sta 11486+64.72 (SR218A)
= Sta 41477+59.44, 51.98 Lt (SR218D)
End Ramp A Construction

Curve Data (64003)
Δ = 171° 49' 21.21" (RT)
T = 3,497.33
L = 749.72
R = 250.00
E = 3,256.26
e = 6.0%
L = 137
x = 46

11475

11480

11485

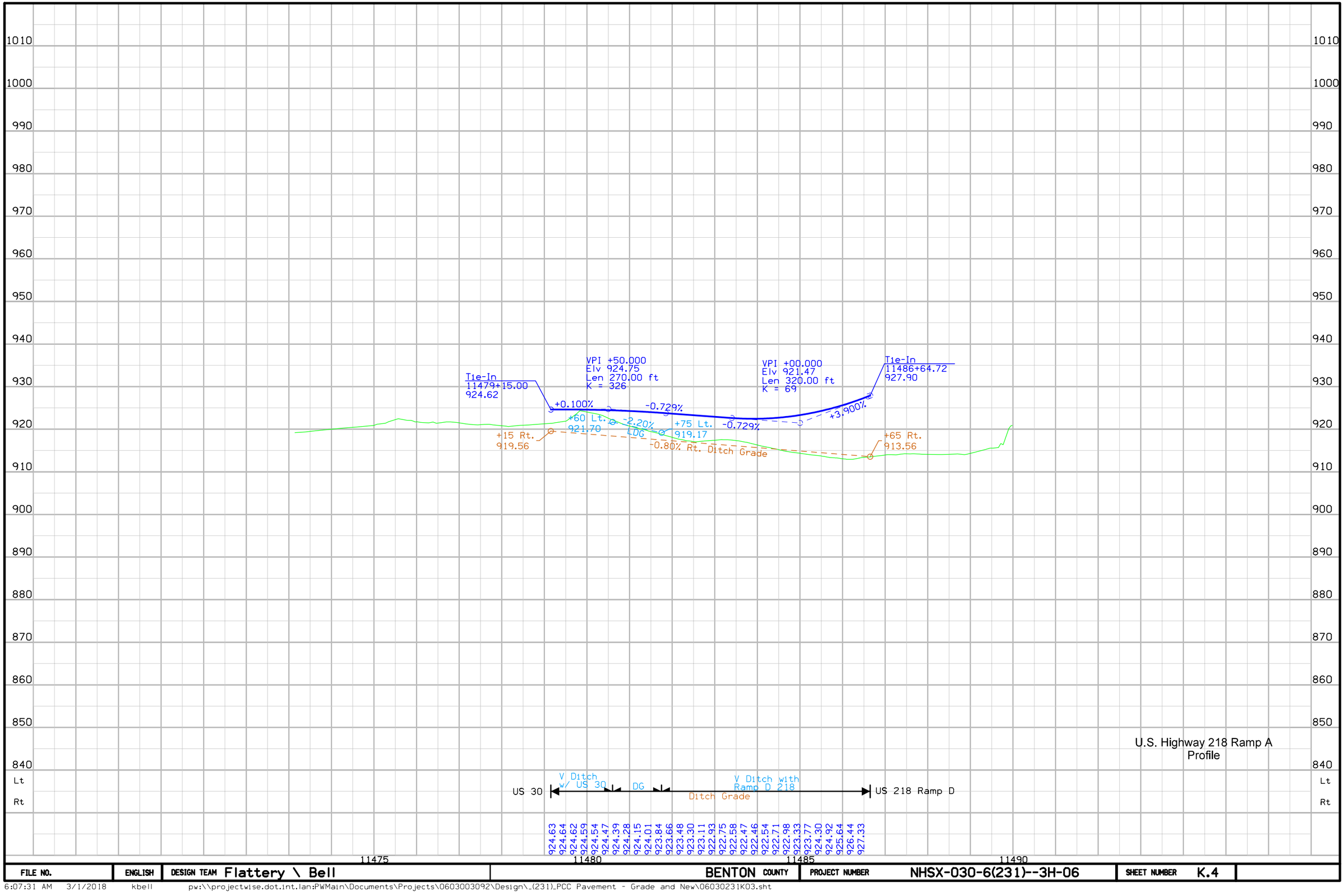
Taper

0 100
FEET

U.S. Highway 218 Ramp A

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.3

6:07:29 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K03.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.4

6:07:31 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K03.sht

Eldorado TWP.
T-83N R-10W
SEC. 29

Eldorado TWP.
T-83N R-10W
SEC. 28

PT Sta 21479+75.06 (SR218B)
= Sta 31443+72.56, 51.98 Lt (SR218C)
End Loop B Construction

POT Sta 21483+06.29 (SR218B)
= Sta 241481+88.83 (SR218)

POT Sta 21466+23.05 (SR218B)
= Sta 1478+25.00, 58.0' Lt (ML030)

Ramp B

21480

Curve Data (65003)
Δ = 171° 54' 05.52" (RT)
T = 3,531.55
L = 750.06
R = 250.00
E = 3,290.39
e = 6.0%
L = 137
x = 46

21475

21470

Sta. 21474+00
Install 44" x 27" 66\ LCP
F.L. = Lt. 909.37
Rt. 910.03

19:1 Taper

30

30

218

218

PC Sta 21472+25.00 (SR218B)
= Sta 1472+25.00, 98.0' Lt (ML030)
Begin Loop B Construction

Ramp A

Ramp D

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 33

0 FEET 100

U.S. Highway 218 Ramp B

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.5

6:07:33 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K03.sht

1010
1000
990
980
970
960
950
940
930
920
910
900
890
880
870
860
850
840

Tie in
21472+25.00
916.64

VPI +10.000
Elv 912.20
Len 370.00 ft
K = 59

Tie in
21479+75.06
934.27

-2.400%

+3.905%

+1.98% Rt. Ditch Grade

+75 Rt.
921.40

+25 Rt.
911.43

0.80% RDG

+1.80% LDG

+70 Lt.
914.35

+00 Lt.
909.49

+00 Rt.
910.03

U.S. Highway 218 Ramp B
Profile

Lt
Rt

US 30

V Ditch
w/ US 30

Ditch
Grade

Ditch Grade

V Ditch
w/ Ramp C

Ditch Grade

US 218 Ramp C

916.64
916.10
915.66
915.32
915.10
914.98
914.96
915.05
915.25
915.56
915.97
916.49
917.11
917.84
918.68
919.62
920.60
921.58
922.55
923.53
924.51
925.48
926.46
927.43
928.41
929.39
930.36
931.34
932.32
933.29
934.27

21470
21475
21480

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.6

6:07:35 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K03.sht

Eldorado TWP.
T-83N R-10W
SEC. 32

218

30

218

POT Sta. 31440+41.75 (SR218C)
= Sta. 241482+24.27 (SR218)

Ramp B

Ramp C

24th Avenue

PC Sta 31443+73.46

PI Sta 31445+34.49

PT Sta 31446+84.41

31445

Sta 31440+55.75 (SR218C)
= Sta 241482+24.27, 14.00 Lt (SR218)
Begin Ramp C Construction

Curve Data (65013)
Δ = 36° 44′ 05.49″ (LT)
T = 161.03
L = 310.95
R = 485.00
E = 26.03
e = 6.0%
L = 144
x = 48

PCC Sta 31450+62.52

31450

Sta. 31453+75
Install 24″ x 56′ RCP
F.L. = Lt. 905.78
Rt. 905.43

31455

PCC Sta 31455+95.00

Curve Data (65014)
Δ = 28° 46′ 55.63″ (RT)
T = 271.99
L = 532.48
R = 1,060.00
E = 34.34
e = 6.0%
L = 179
x = 60

Sta. 31456+46.34 (SR218C)
= Sta. 1461+02.86, 95.62′ Lt. (ML030)
End Ramp C Construction

PT Sta 31457+55.23

PI Sta 31458+25.00

31460

Curve Data (65015)
Δ = 8° 01′ 17.07″ (RT)
T = 140.23
L = 280.00
R = 2,000.00
E = 4.91
e = 5.4%
L = 168
x = 62

PCC Sta 31468+75.20

30

31465

POT Sta. 1448+75.00 (SR218C)
= Sta. 1448+75.00, 58.00′ Lt. (ML030)

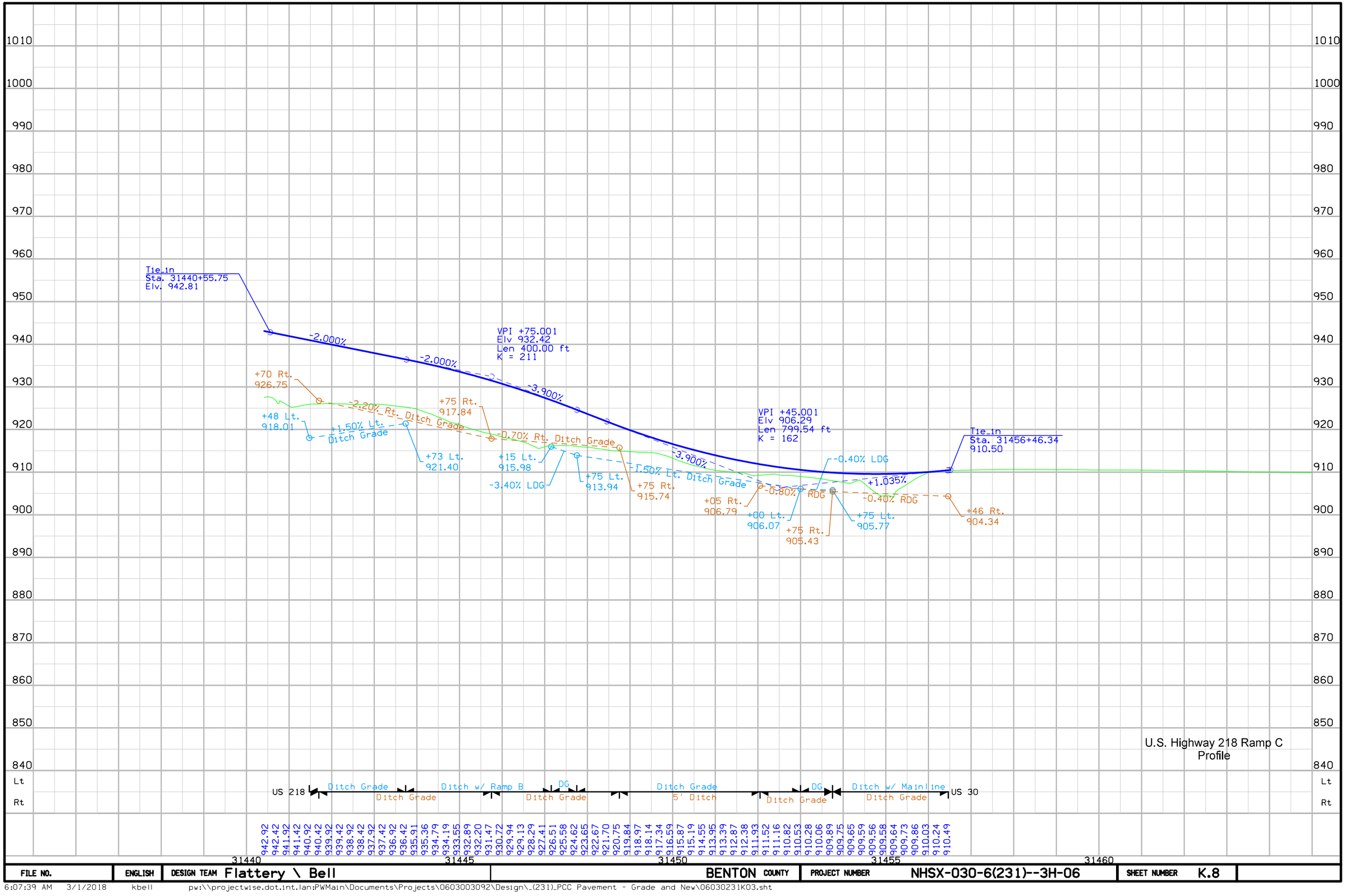
Eldorado TWP.
T-83N R-10W
SEC. 29

0 100
FEET

U.S. Highway 218 Ramp C

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.7	

6:07:37 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K03.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.8

6:07:39 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K03.sht

Eldorado TWP.
T-83N R-10W
SEC. 28

218

30

218

POT Sta 41474+26.45 (SR218D)
= Sta 241469+09.54 (SR218)

POT Sta 41489+96.32 (SR218D)
Sta 1489+97.25, 97.10 Rt (SR218)
End Ramp D Construction

POT Sta 41502+26.51 (SR218D)
= Sta 1502+25.00, 58.00' Rt. (ML030)

Ramp A

Ramp D

24th Avenue

41475

41480

41485

41490

41495

41500

PC Sta 41477+60.34

PT Sta 41480+99.43

PC Sta 41483+49.12

PI Sta 41479+37.15

PT Sta 41485+85.28

PC Sta 41489+45.00

PT Sta 41492+25.00

POT Sta 41502+26.51

Sta 41474+40.45 (SR218D)
Sta 241469+09.54, 14.00 Rt (SR218)
Begin Ramp D Construction

Sta. 41476+17
Install 24" x 210' RCP
F.L. = Lt. 912.32
Rt. 910.82

Sta. 41482+00
Install 24" x 282' RCP
Skew = 62° Lt. Ahd.
F.L. = Lt. 912.70
Rt. 907.48

Curve Data (64013)
Δ = 40° 03' 33.45" (LT)
T = 176.81
L = 339.10
R = 485.00
E = 31.22
e = 6.0%
L = 144
x = 48

Curve Data (64014)
Δ = 32° 12' 31.44" (RT)
T = 306.04
L = 595.88
R = 1,060.00
E = 43.30
e = 6.0%
L = 179
x = 60

Curve Data (64015)
Δ = 8° 01' 17.07" (RT)
T = 140.23
L = 280.00
R = 2,000.00
E = 4.91
e = 5.4%
L = 168
x = 62

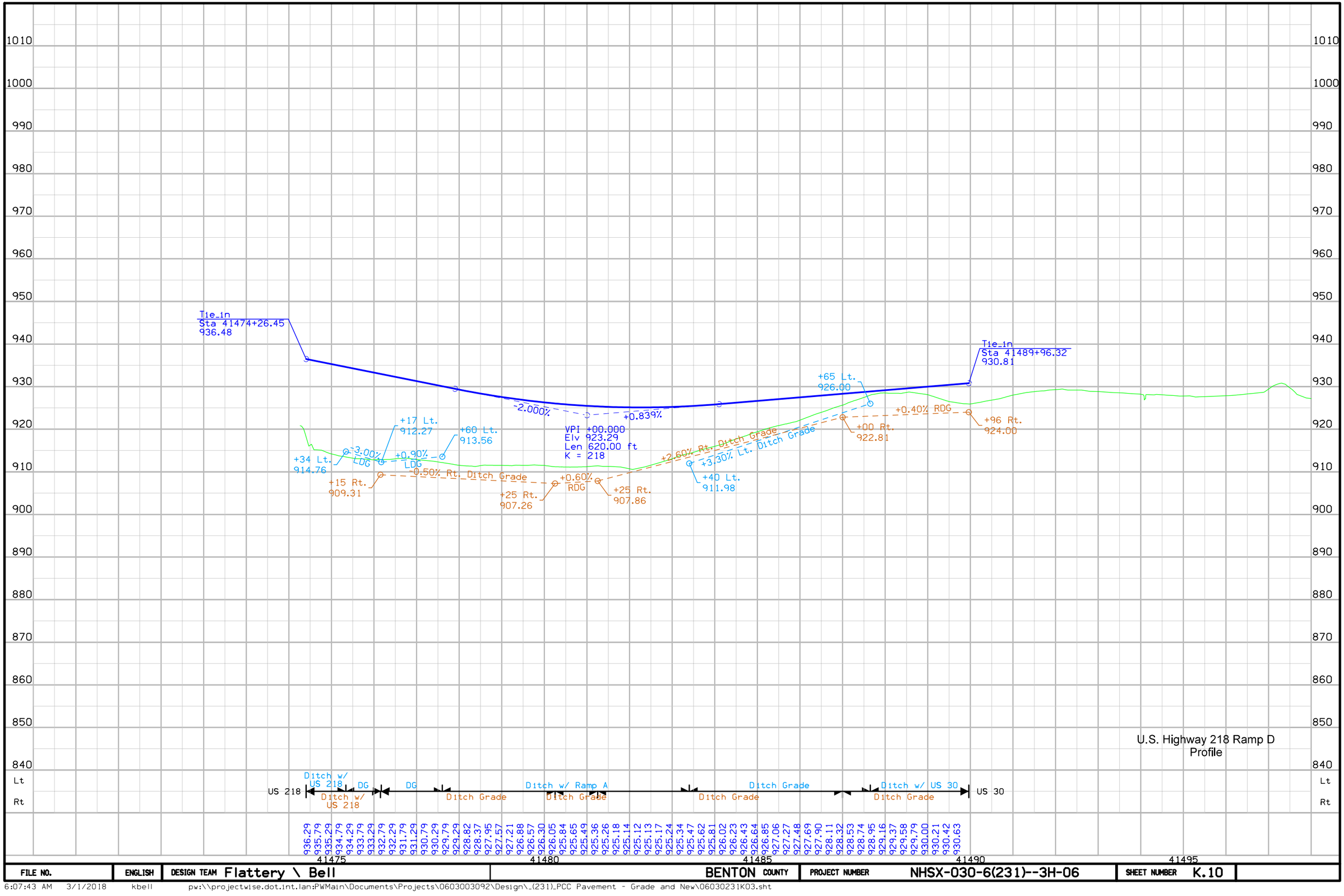
Eldorado TWP.
T-83N R-10W
SEC. 33

0 FEET 100

U.S. Highway 218 Ramp D

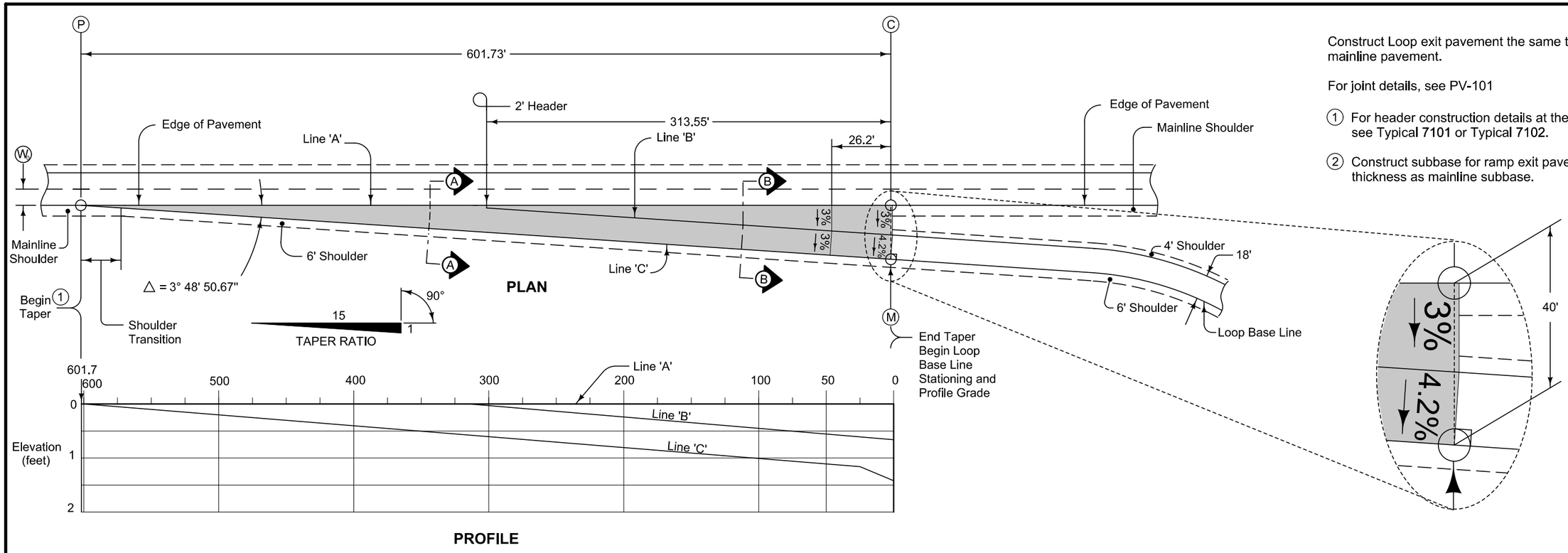
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.9

6:07:41 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K03.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.10

6:07:43 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K03.sht



Construct Loop exit pavement the same thickness as mainline pavement.

For joint details, see PV-101

(1) For header construction details at the beginning of taper, see Typical 7101 or Typical 7102.

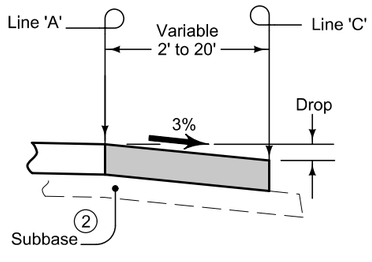
(2) Construct subbase for ramp exit pavement the same thickness as mainline subbase.

C

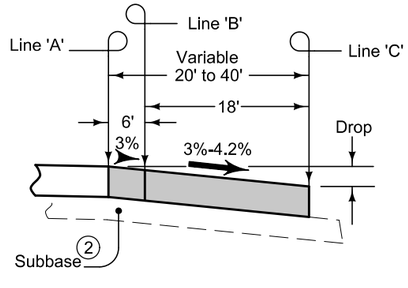
TABLE OF OFFSETS AND DROPS FOR 18' LOOP TAPER

DISTANCE FROM POINT Ⓔ & Ⓖ ALONG LINE 'A' (Ft.)		601.7	600	575	550	525	500	475	450	425	400	375	350	325	313.5	300	275	250	225	200	175	150	125	100	75	50	26.2	25	0
FROM LINE 'A' TO LINE 'B'	OFFSET (Ft.)															0.95	2.71	4.47	6.23	7.98	9.74	11.50	13.26	15.01	16.77	18.53	20.20	20.29	22.04
	SLOPE (%)															← Constant 3.0% Slope →													
	DROP (Ft.)															0.03	0.08	0.13	0.19	0.24	0.29	0.35	0.40	0.45	0.50	0.56	0.61	0.61	0.66
FROM LINE 'B' TO LINE 'C'	OFFSET (Ft.)														← Constant 18.0' Offset →														
	SLOPE (%)														← Constant 3.0% Slope →													3.06	4.20
	DROP (Ft.)														← Constant 0.54' Drop →													0.55	0.76
FROM LINE 'A' TO LINE 'C'	OFFSET (Ft.)	0.00	0.11	1.66	3.21	4.76	6.31	7.86	9.41	10.96	12.51	14.07	15.62	17.24	18.00	20.00	21.67	23.33	25.00	26.67	28.33	30.00	31.67	33.33	35.00	36.67	38.25	38.33	40.00
	SLOPE (%)	–	← Constant 3.0% Slope →																									3.03	3.60
	DROP (Ft.)	–	0.00	0.05	0.10	0.14	0.19	0.24	0.28	0.33	0.38	0.42	0.47	0.50	0.54	0.57	0.62	0.67	0.73	0.78	0.82	0.89	0.94	0.99	1.04	1.10	1.15	1.16	1.42

M



SECTION A-A



SECTION B-B

TABLE OF SHOULDER TRANSITION LENGTHS			
W_0	Shoulder Width beyond Edge of Mainline Pavement		
	8'	10'	12'
14'	30'	60'	NA

NOTE: W_0 is the width of the outside lane to the Edge of Pavement.

MODIFIED

STANDARD ROAD PLAN

REVISION	
2	10-18-11

PV-412

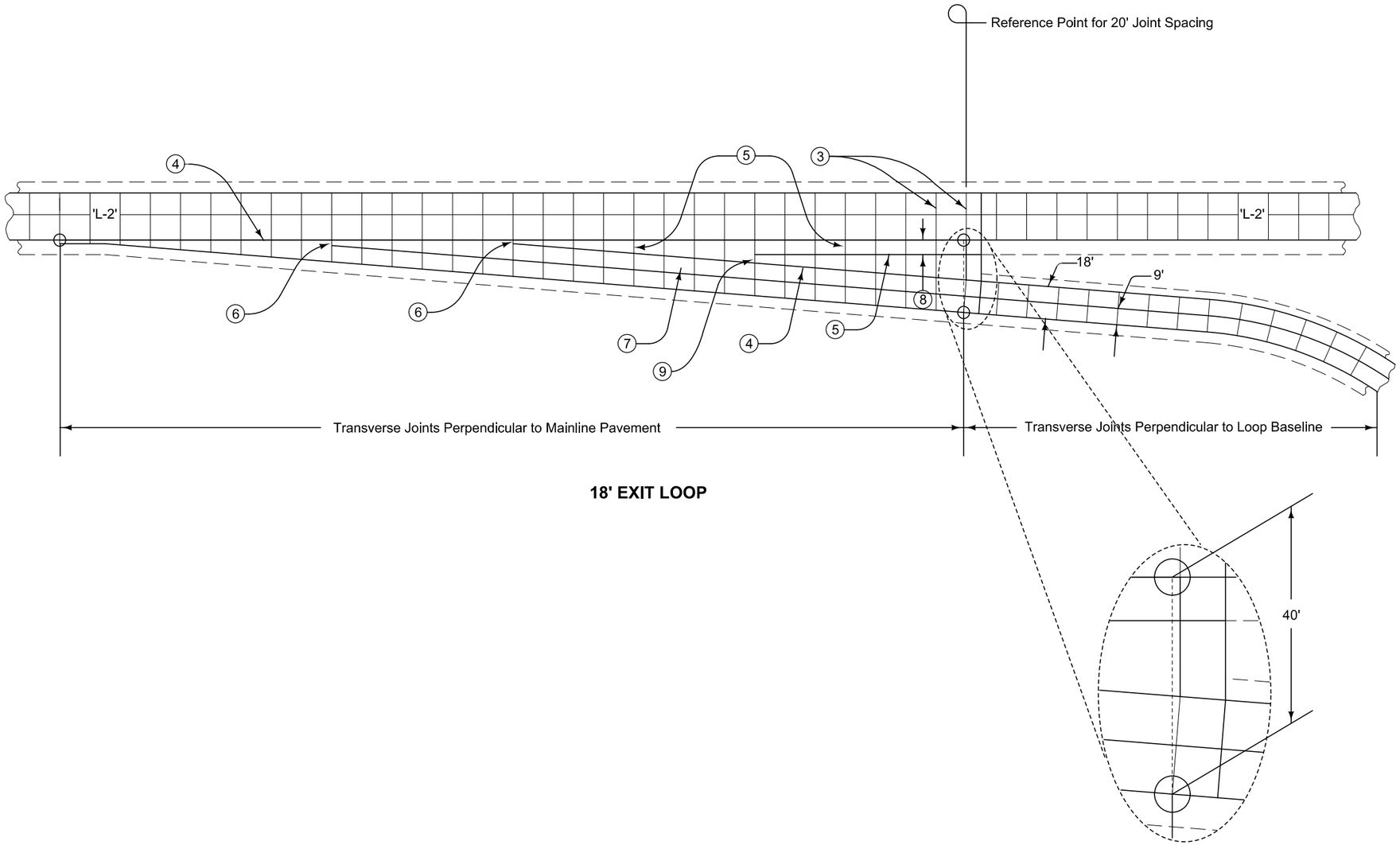
SHEET 1 of 2

MODIFICATIONS: Adjusted Table of Offsets & Drops for loop superelevation.
Adjusted Gore Pavement

DECELERATION TAPER FOR 18' EXIT LOOP

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.11

6:07:59 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K11.sht



18' EXIT LOOP

③ 'CD' Joints at 20' spacing.

④ 'BT-2' or 'KT-2' Joint.

⑤ 'C' Joint.

⑥ 'B' Joint. 2' minimum, 4' maximum.

⑦ 'L-2' Joint.

⑧ 10' minimum or equal to mainline shoulder width.

⑨ 'B' or 'C' Joint. 2' minimum. 4' maximum.

MODIFIED

STANDARD ROAD PLAN

REVISION	
2	10-18-11

PV-412

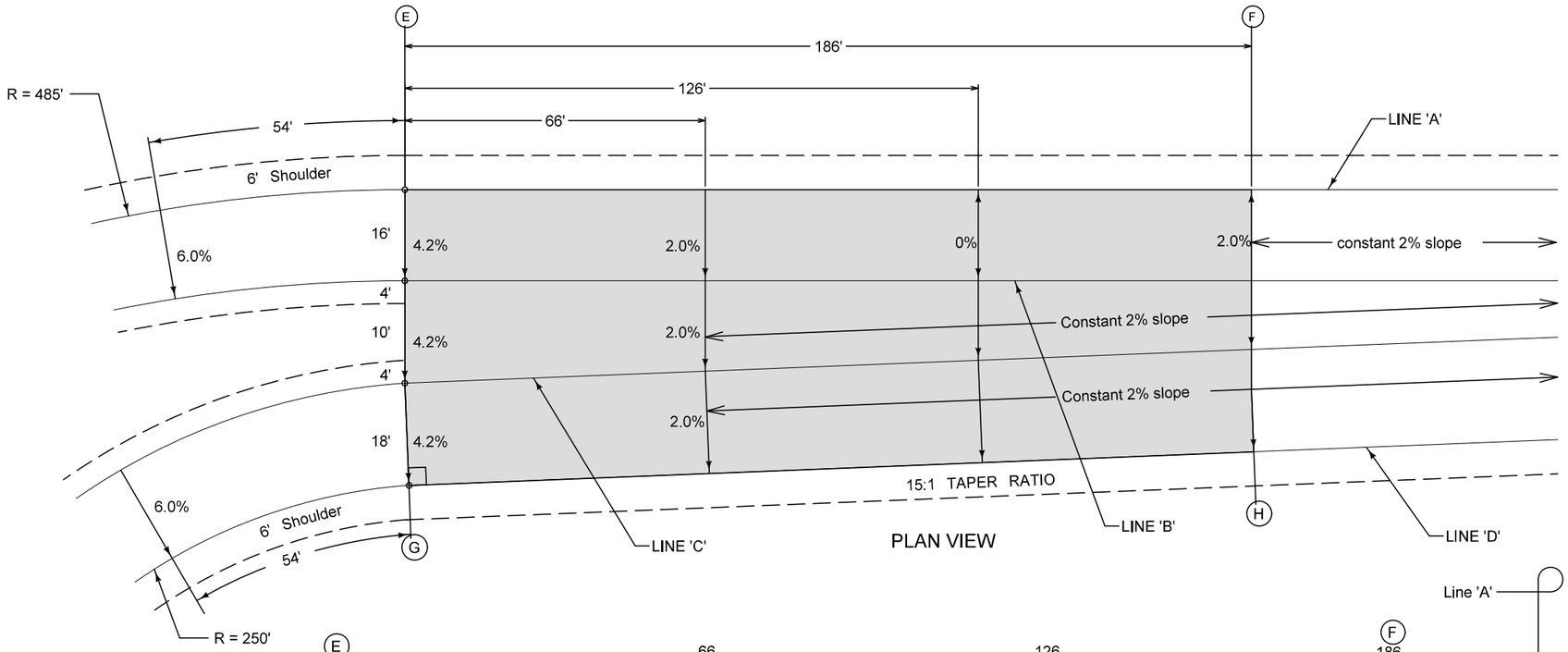
SHEET 2 of 2

MODIFICATIONS: Adjusted for gore width.

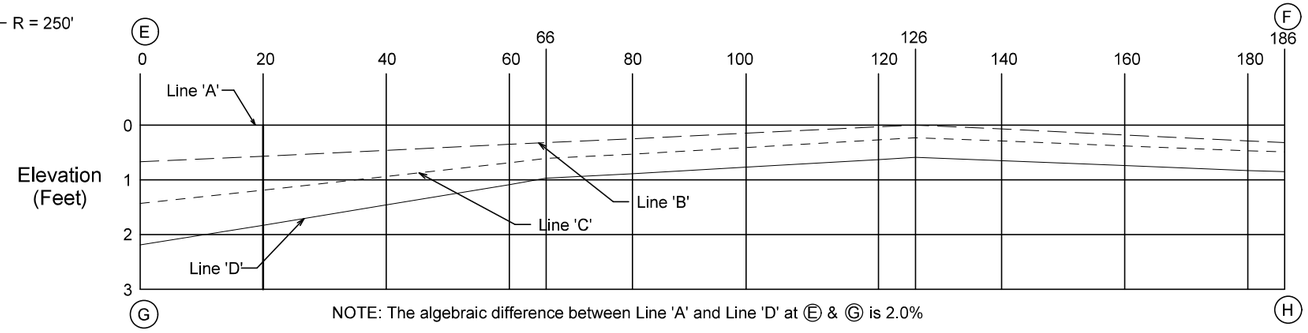
DECELERATION TAPER FOR 18' EXIT LOOP

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.12

6:08:01 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K11.sht

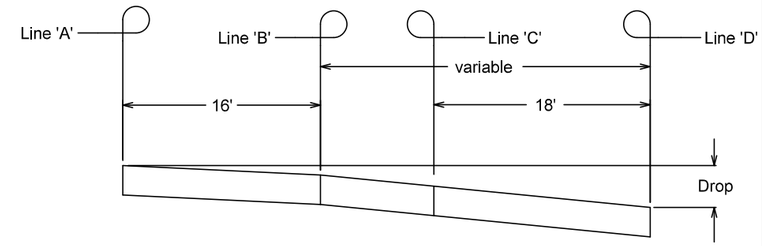


PLAN VIEW



NOTE: The algebraic difference between Line 'A' and Line 'D' at Ⓔ & Ⓖ is 2.0%

PROFILE



Construct ramp/loop pavement the same thickness as mainline pavement

Construct subbase for ramp\loop pavement the same thickness as mainline subbase.

For joint details, see PV-101.

40 MPH ENTRANCE RAMP
6.0% max
e = 6%
L = 180
x = 60

TABLE OF OFFSETS AND DROPS FOR 18' LOOP TAPER

DISTANCE FROM POINT Ⓔ & Ⓖ ALONG LINE 'A' (Ft.)		0	20	40	60	66	80	100	120	126	140	160	180	186
FROM LINE 'A' TO LINE 'B'	OFFSET (Ft.)	Constant 16.0' Offset												
	SLOPE (%)	4.20	3.53	2.87	2.20	2.00	1.53	0.87	0.20	0.00	-0.47	-1.13	-1.80	-2.00
	DROP (Ft.)	0.67	0.57	0.46	0.35	0.32	0.25	0.14	0.03	0.00	0.07	0.18	0.29	0.32
FROM LINE 'B' TO LINE 'C'	OFFSET (Ft.)	18.00	17.00	16.00	15.00	14.70	14.00	13.00	12.00	11.70	11.00	10.00	9.00	8.70
	SLOPE (%)	4.20	3.62	2.98	2.24	Constant 2.0% Slope								
	DROP (Ft.)	0.76	0.62	0.48	0.34	0.29	0.28	0.26	0.24	0.23	0.22	0.20	0.18	0.17
FROM LINE 'C' TO LINE 'D'	OFFSET (Ft.)	Constant 18.0' Offset												
	SLOPE (%)	4.20	3.53	2.87	2.20	Constant 2.0% Slope								
	DROP (Ft.)	0.76	0.64	0.52	0.40	Constant 0.36' Drop								
FROM LINE 'A' TO LINE 'D'	OFFSET (Ft.)	52.00	51.00	50.00	49.00	48.70	48.00	47.00	46.00	45.70	45.00	44.00	43.00	42.70
	SLOPE (%)	4.20	3.59	2.92	2.22	2.00								
	DROP (Ft.)	2.19	1.83	1.46	1.09	0.97	0.89	0.76	0.63	0.59	0.51	0.38	0.25	0.21

Taper Details for Combination Ramp/Loop Terminal

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 33

218

241471

241470

241469

241468

Sta. 241470+98.30, 14.00' Rt. (SR218)
= Sta. 102+03.09 (SR218A_RET_1)

Sta. 241469+78.78, 38.84' Rt. (SR218)
= Sta. 100+80.16 (SR218A_RET_1)

Sta. 241469+51.76, 77.88' Rt. (SR218)
= Sta. 100+30.15 (SR218A_RET_1)

Sta. 11488+90.00 (SR218A)
= Sta. 100+00.00 (SR218A_RET_1)

PT Sta. 11486+64.72 (SR218A)
Point "G" Entrance Ramp/Exit Loop Combination

POT Sta. 241469+44.86 (SR218)
= POT Sta 11489+98.12 (SR218A)

POT Sta. 11488+50.95 (SR218A)
Point "H" Entrance Ramp/Exit Loop Combination

11489

11488

11487

11486

11485

87°8'15"

R 15'

Loop A

Curve 64003

Curve 64003 Data
Δ = 171° 49' 21.21" (RT)
T = 3,497.33
L = 749.72
R = 250.00
E = 3,256.26
e = 6.0%
L = 137
x = 48

20:1 Taper Ratio

Loop B (SR218A)

Constant Slope 2.0% / 18.0' Transition 4.2% / 18.0'

Constant Slope 2.0% / 14.7' Transition 4.2% / 18.0'

Constant Slope 2.0% / 16.0' Transition 0.0% / 16.0' Transition 2.0% / 16.0' Transition 4.2% / 16.0'

Ramp B (SR218D)

Curve 64013

Ramp D

R 15'

90°0'0"

POT Sta. 241469+09.54 (SR218)
= POT Sta 41474+26.45 (SR218D)

Sta. 241468+91.16, 52.77' Rt. (SR218)
= Sta. 100+91.71 (SR218D_RET_1)

Sta. 41475+82.61 (SR218D)
= Sta. 101+97.27 (SR218D_RET_1)

POT Sta. 41475+74.34 (SR218D)
Point "F" Entrance Ramp/Exit Loop Combination

PC Sta. 41477+60.34 (SR218D)
Point "E" Entrance Ramp/Exit Loop Combination

41475

41476

41477

41478

41479

Curve 64013 Data
Δ = 40° 03' 33.45" (LT)
T = 176.81
L = 339.10
R = 485.00
E = 31.22
e = 6.0%
L = 144
x = 48

Sta. 241468+45.00, 17.00' Rt. (SR218)
= Sta. 100+30.15 (SR218D_RET_1)

Sta. 241468+15.00, 14.00' Rt. (SR218)
= Sta. 100+00.00 (SR218D_RET_1)

0 20 FEET

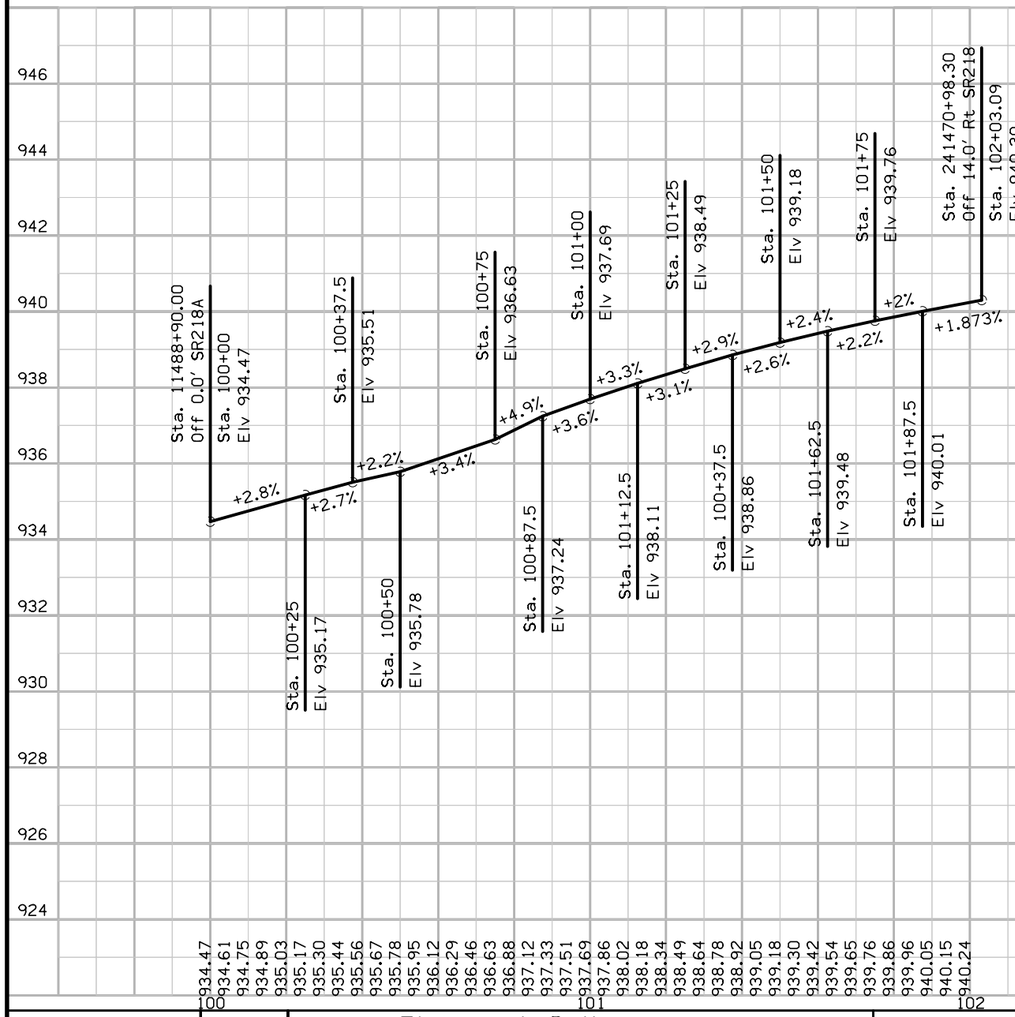
Notes:
Refer to Sheet K.13 for additional infomation.
Refer to G sheets for horizontal alignment information.

Geometric and Staking Details
Loop A/Ramp D Terminal

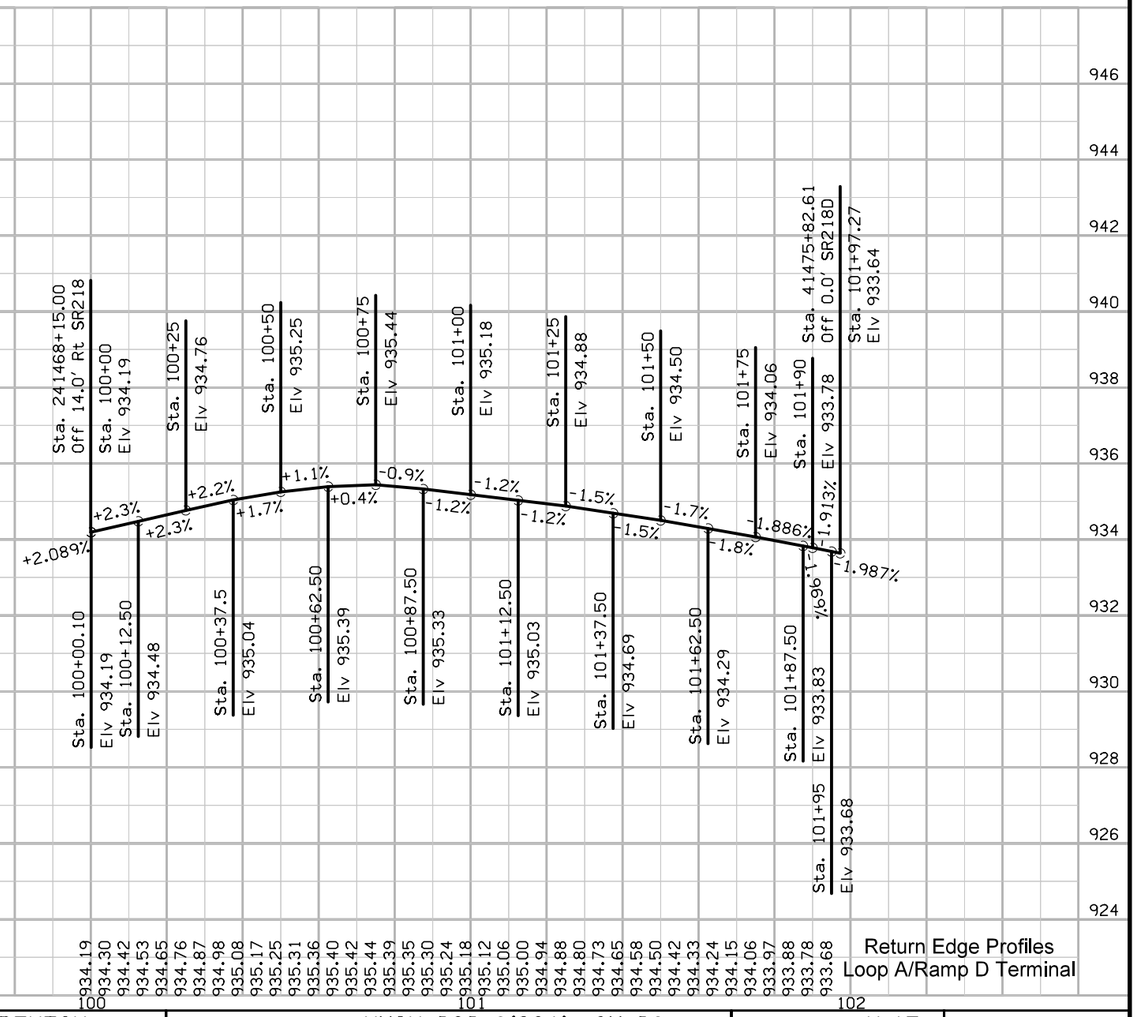
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.14

6:08:11 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K14.sht

SR218A_RET_1



SR218D_RET_1



Return Edge Profiles
Loop A/Ramp D Terminal

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.15

6:08:13 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K14.sht

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 33

218

SR218A_RET_1

SR218D_RET_1

11489 11488 11487 11486 11485

41475 41476 41477 41478 41479

24171 24170 24169 24168

NOTE:
All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.
All transverse joints shall be CD joints with a maximum 20' spacing unless indicted otherwise.
Transverse joints on ramps and loops shall be CD joints with a maximum 15' spacing unless indicated otherwise.
If a joint length is 2', a C joint shall be used instead of a CD joint.
Refer to Standard Road Plans for details of paved header, if applicable.
Refer to Standard Road Plan PV-1 for additional details.
Refer to Standard Road Plans for additional jointing details around physical features.

0 20
FEET

Jointing Details
Loop A/Ramp D Terminal

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.16

6:08:16 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K14.sht

POT Sta. 21479+75.06 (SR218A)
Point "G" Entrance Ramp/Exit Loop Combination

Loop B

Ramp C

4.2% 18.0′ | 4.2% 18.0′ | 4.2% 16.0′

POT Sta. 31443+73.46 (SR218A)
Point "E" Entrance Ramp/Exit Loop Combination

Eldorado TWP.
T-83N R-10W
SEC. 29

21480

Transition | Transition | Transition

2.0% 18.0′ | 2.0% 14.7′ | 2.0% 16.0′

31443

Loop B (SR218B) | Ramp C (SR218C)

21481

20:1 Taper Ratio

Constant Slope | Constant Slope | Transition

0.0% 16.0′

Sta. 31442+22.14 (SR218C)
= Sta. 102+12.12 (SR218C_RET_1)

POT Sta. 21481+61.29 (SR218A)
Point "H" Entrance Ramp/Exit Loop Combination

POT Sta. 31441+87.46 (SR218A)
Point "F" Entrance Ramp/Exit Loop Combination

31442

Transition

2.0% 16.0′

Sta. 21482+00.00 (SR218B)
= Sta. 100+00.00 (SR218B_RET_1)

21482

Sta. 241481+82.03, 76.04′ Lt. (SR218)
= Sta. 100+30.15 (SR218B_RET_1)

Sta. 241482+44.82, 67.54′ Lt. (SR218)
= Sta. 100+96.79 (SR218C_RET_1)

Sta. 241481+54.24, 36.68′ Lt. (SR218)
= Sta. 100+80.99 (SR218B_RET_1)

Sta. 241482+95.00, 29.00′ Lt. (SR218)
= Sta. 100+30.15 (SR218C_RET_1)

Sta. 241480+39.82, 14.00′ Lt. (SR218)
= Sta. 101+98.39 (SR218B_RET_1)

Sta. 241483+25.00, 26.00′ Lt. (SR218)
= Sta. 100+00.00 (SR218C_RET_1)

Constant Slope

31441

241480 | 241481 | 241483 | 241484 | 241485

87°8′15″ | 90°0′0″

218

POT Sta. 241481+88.83 (SR218)
= POT Sta 21483+06.29 (SR218B)

POT Sta. 241482+24.27 (SR218)
= POT Sta 31440+41.75 (SR218C)

241482

R 25′ | R 25′

Notes:
Refer to Sheet K.13 for additional infomation.
Refer to G sheets for horizontal alignment information.

0 20 FEET

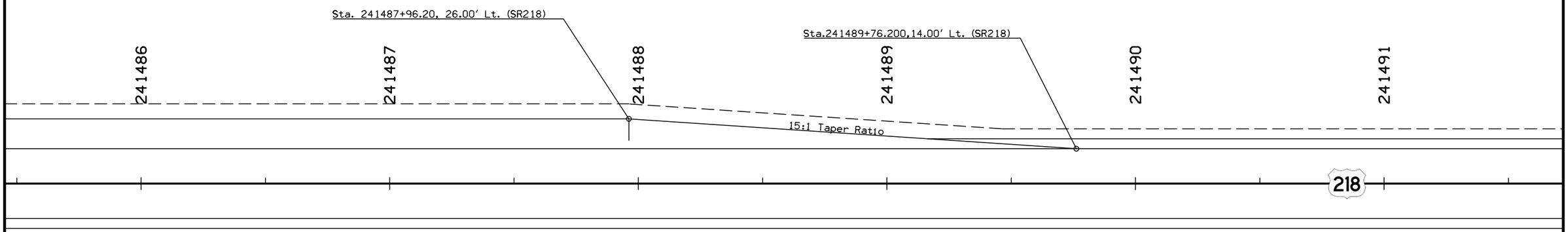
Eldorado TWP.
T-83N R-10W
SEC. 28

Geometric and Staking Details
Loop B/Ramp C Terminal
Sheet 1 of 2

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.17

6:08:18 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K14.sht

Eldorado TWP.
T-83N R-10W
SEC. 29



Eldorado TWP.
T-83N R-10W
SEC. 28

Notes:
Refer to Sheet K.13 for additional infomation.
Refer to G sheets for horizontal alignment information.

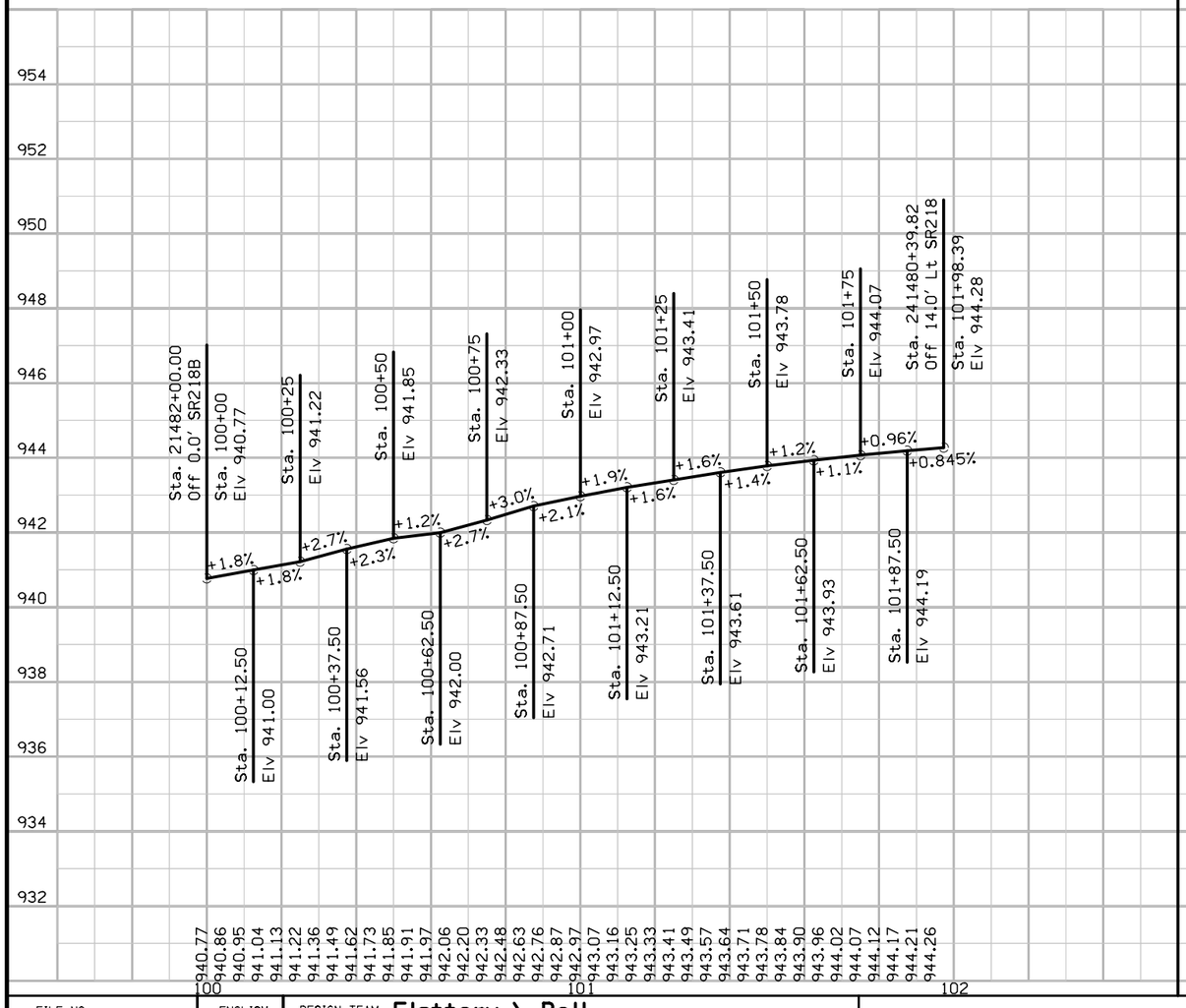
0 20
FEET

Geometric and Staking Details
Loop B/Ramp C Terminal
Sheet 2 of 2

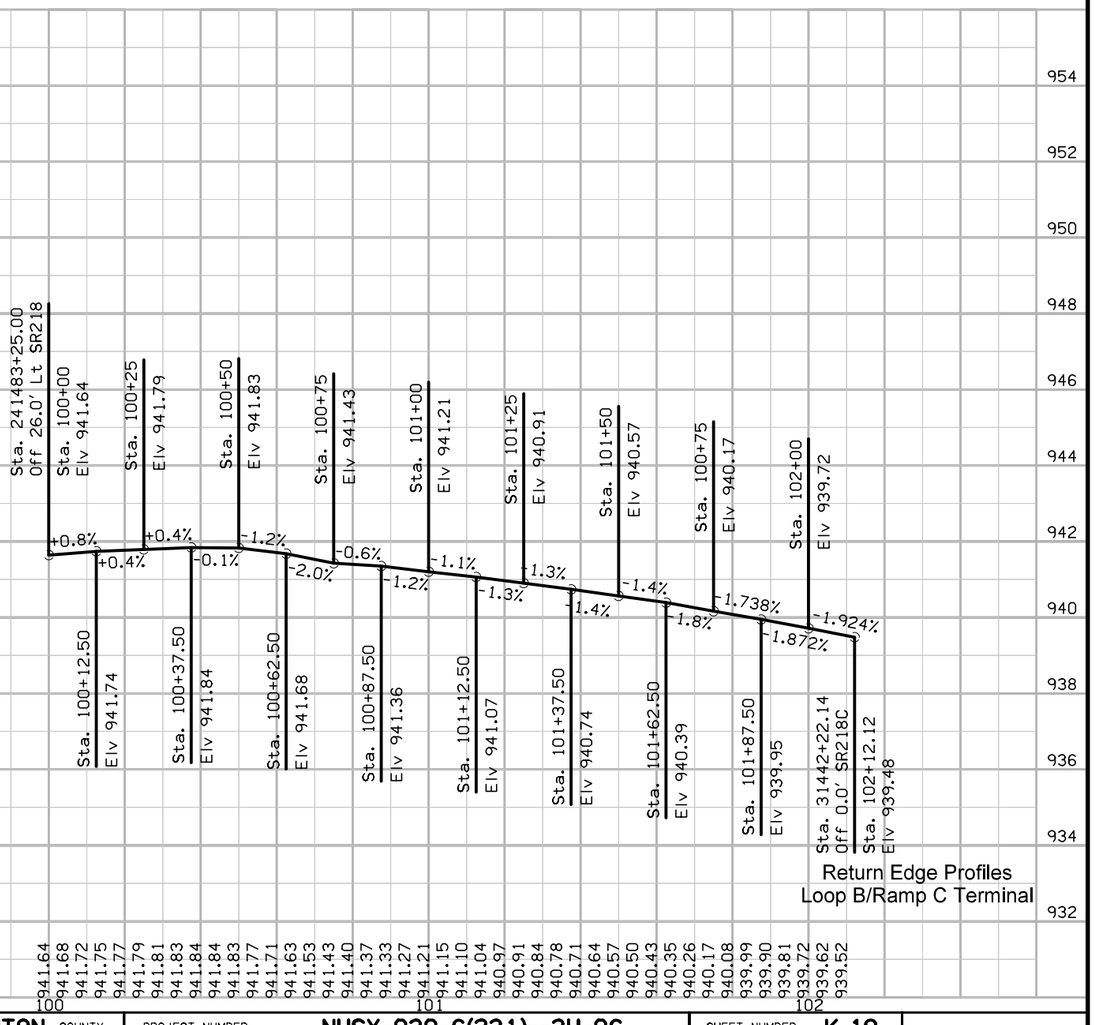
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.18

6:08:20 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K14.sht

SR218B_RET_1

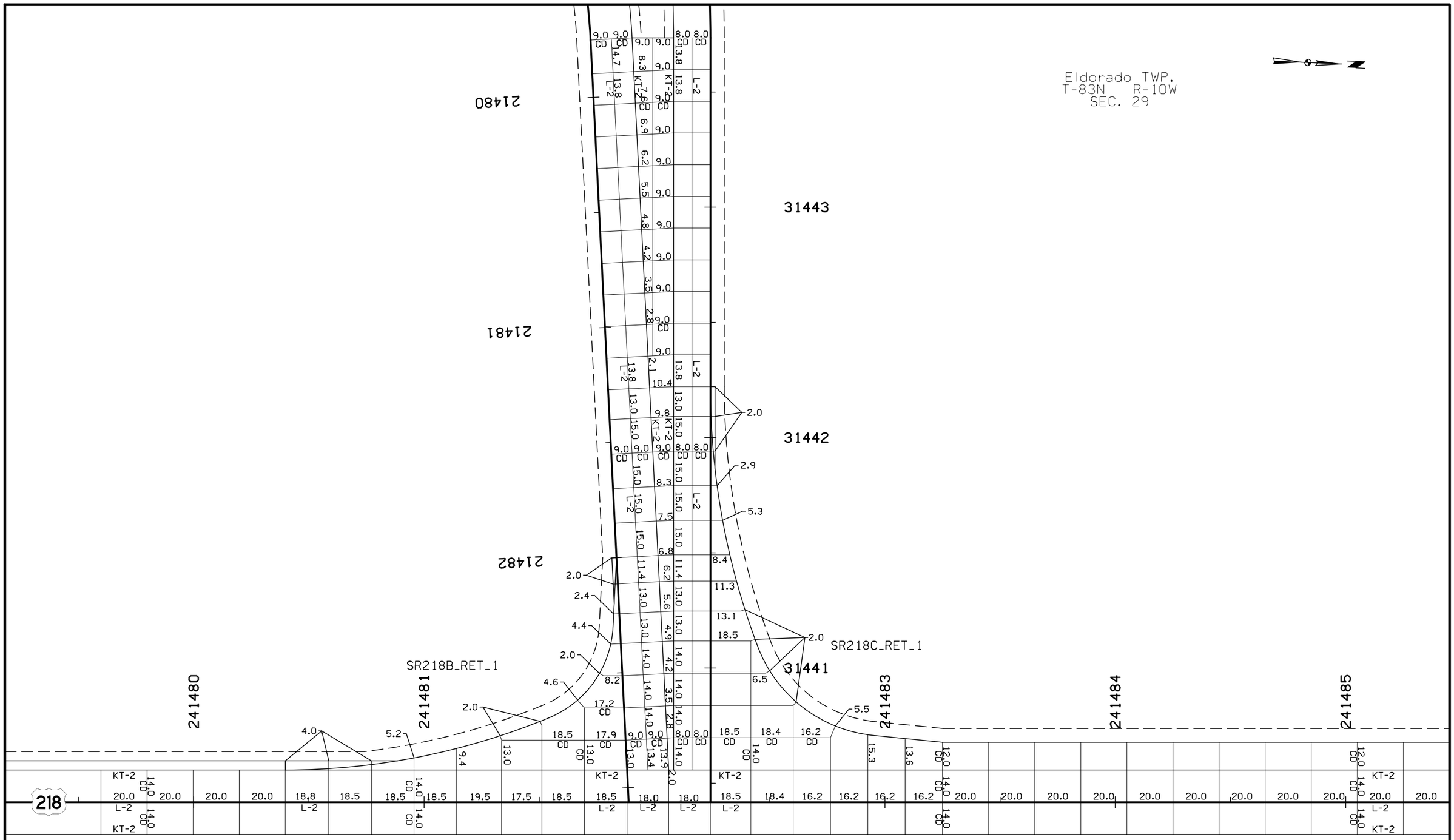


SR218C_RET_1



Return Edge Profiles
Loop B/Ramp C Terminal

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.19



NOTE:
All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.
All transverse joints shall be CD joints with a maximum 20' spacing unless indicted otherwise.
Transverse joints on ramps and loops shall be CD joints with a maximum 15' spacing unless indicated otherwise.
If a joint length is 2', a C joint shall be used instead of a CD joint.
Refer to Standard Road Plans for details of paved header, if applicable.
Refer to Standard Road Plan PV-1 for additional details.
Refer to Standard Road Plans for additional jointing details around physical features.

0 20 FEET

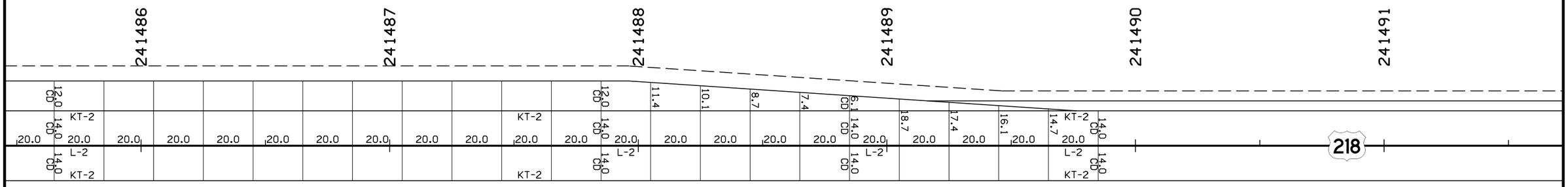
Eldorado TWP.
T-83N R-10W
SEC. 28

Jointing Details
Loop B/Ramp C Terminal
Sheet 1 of 2

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.20

6:08:24 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K14.sht

Eldorado TWP.
T-83N R-10W
SEC. 29



Eldorado TWP.
T-83N R-10W
SEC. 28

NOTE:
All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.
All traverse joints shall be CD joints with a maximum 20' spacing unless indicted otherwise.
If a joint length is 2', a C joint shall be used instead of a CD joint.
Refer to Standard Road Plans for details of paved header, if applicable.
Refer to Standard Road Plan PV-1 for additional details.
Refer to Standard Road Plans for additional jointing details around physical features.

0 20
FEET

Jointing Details
Loop B/Ramp C Terminal
Sheet 2 of 2

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER K.21

6:08:26 AM 3/1/2018 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231K14.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

Eldorado TWP.
T-83N R-10W
SEC. 29

Eldorado TWP.
T-83N R-10W
SEC. 31

Eldorado TWP.
T-83N R-10W
SEC. 32

23rd Avenue

231424

231423

231422

231421

R = 50'

R = 50'

R = 50'

R = 50'

89°7'8"

91°48'46"

Match Line

1425

1426

10:1 Taper

Sta. 1426+43.00, 32.00' LT (ML030)
End Taper

Sta. 1425+23.00, 20.00' LT (ML030)
Begin Taper

1420 1421 1422 1423 1424 1425

Match Line

Sta. 1422+82.93 (ML030)
= Sta. 231422+82.92 (SR23RDAVE)

Sta. 1421+18.00, 32.00' LT (ML030)
= Sta. 31+99.43 (SR23RDAVE_RET3)

Sta. 1422+40.28, 12.85' LT (ML030)
= Sta. 30+75.16 (SR23RDAVE_RET3)

Sta. 1422+42.75, 5.00' RT (ML030)
= Sta. 30+52.71 (SR23RDAVE_RET3)

Sta. 1423+73.00, 20.00' LT (ML030)
= Sta. 40+00.00 (SR23RDAVE_RET4)

Sta. 1423+23.25, 5.00' LT (ML030)
= Sta. 40+52.71 (SR23RDAVE_RET4)

Sta. 1423+25.72, 12.85' RT (ML030)
= Sta. 40+75.16 (SR23RDAVE_RET4)

Sta. 1424+48.00, 32.00' RT (ML030)
= Sta. 41+99.43 (SR23RDAVE_RET4)

30

30

Sta. 1420+43.00, 20.00' RT (ML030)
End Taper

Sta. 1419+23.00, 32.00' RT (ML030)
Begin Taper

10:1 Taper

Sta. 1421+93.00, 20.00' RT (ML030)
= Sta. 30+00.00 (SR23RDAVE_RET3)

3.0% 12.0'	Constant Slope	3.0% 12.0'	
2.0% 12.0'	Constant Slope	2.0% 12.0'	2.0% 12.0' Constant Slope 2.0% 12.0'
2.0% 14.0'	Constant Slope	2.0% 14.0'	2.0% 14.0' Constant Slope 2.0% 14.0'

Notes:

Refer to appropiate Standard Road Plans for additional infomation.

Refer to G sheets for horizontal alignment information.

0 20
FEET

GEOMETRICS AND STAKING DETAIL
Intersection of U.S. 30
and 23rd Avenue
at Sta. 1422+82.93

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER L.1

11:07:41 AM 11/28/2017 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231L02.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

Eldorado TWP.
T-83N R-10W
SEC. 29

Eldorado TWP.
T-83N R-10W
SEC. 31

Eldorado TWP.
T-83N R-10W
SEC. 32

23rd Avenue

Match Line

Match Line

231424

231423

231422

231421

30

30

1419 1420 1421 1422 1423 1424 1425 1426

Notes:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All transverse joints shall be CD joints with a maximum 20' spacing unless indicated otherwise.

If a joints length is 2', a C joint shall be used instead of a CD joint.

Refer to Typical 701 for details of paved header.

Refer to Typicals 7154A and 7154B for paved shoulder details.

0 20
FEET

JOINTING LAYOUT
Intersection of U.S. 30
and 23rd Avenue

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER L.2

11:07:44 AM 11/28/2017 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231L02.sht

STORM SEWER

(1) Diameter or equivalent diameter
* Bid Item
** For SW-545

INTAKES AND UTILITY ACCESSES

No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
1	241473+95.00, 21.96	SW-549	943.94	938.9		
2	241473+95.00, -21.96	SW-549	943.94	938.4		
3	241472+80.00, -21.96	SW-549	942.7	937		
4	241471+65.00, -21.96	SW-549	941.09	935		
5	241470+87.00, -23.58	SW-538	939.62	933		
6	241470+87.00, -35	DR-122	937.97	933.04		
7	241470+87.00, -88	DR-122	922.9	921.12		
8	241470+87.00, -100.05	DR-201 (18")	---	921		
		Total:				
		DR-122	**2**			
		DR-201 (18")	**1**			
		SW-538	**1**			
		SW-549	**4**			

PIPES

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. An additional 2 ft length is added to each side of the Design Length to account for estimated length to center of structures.

Line Number	Intake/ Utility Access No. From	To	Class 'D'	(1) Pipe Size IN	Bid* Length FT	Design Length FT	Slope %	Connected Pipe Joint (DR-121) Type	Flow Lines: Inlet Elevation	Outlet Elevation	Other Elevation	Pipe Profile Sheet No.	Notes
P-1	1	2	2000	18	40	35.5	0.5	2	939.4	939.22		M.4	
P-2	2	3	2000	18	114	110.0	1	2	938.9	937.8		M.4	
P-3	3	4	2000	18	114	110.0	1.5	2	937.5	935.85		M.4	
P-4	4	5	2000	18	79	74.0	2	2	935.5	934.02		M.4	
P-5	5	6	2000	18	16	11.6	4	2	933.5	933.04		M.4	
P-6	6	7	2000	18	57	53.0	22.49	2	933.04	921.12		M.4	
P-7	7	8	2000	18	8	5.9	2	2	921.12	921		M.4	
			Total:										
			2000	**18**	**428**								

SURVEY SYMBOLS

- GDL Guard Rail Steel
- D Centerline Draw or Stream (Down)
- TDC Tree Deciduous
- SI Sign
- BNK Stream Bank
- TEV Evergeen Tree
- HDG Hedge Row
- LP L.P. Tank
- SHR Shrub
- SI Sign
- RET Retaining Walls
- FWD Wood Fence
- FCL Chain Link and Security Fence
- LUM Luminaire
- STP Stump
- CIS Cistern
- LUM Luminaire
- UB Utility Box
- SI Sign
- TPD Telephone Pedestal
- TIL Tile Line
- OUT Tile Outlet
- MM Mile Marker Post
- MH Utility Access (Manhole)
- WV Water Valve
- WHD Water Hydrant
- CIS Cistern
- WEL Well
- EB Electrical Box
- INB Storm Sewer Beehive Intake
- SEP Septic Tank
- WM Wind Mill

UTILITY LEGEND

This is a POINT 25 Project and is subject to the provisions of IAC 761-115.25.

-E1-
Alliant Energy
Mark Wills
200 1st St. SE
Cedar Rapids, Ia 52401
319-786-8196
markwills@alliantenergy.com

-E2-
East-Central Iowa Rural Electric Cooperative
Gary Marlow
2400 Bing Miller Lane
Urbana, IA 52345-0248
319-443-4343
gary.marlow@ecirec.coop

-FO-
Century Link (formerly Lightcore)
Robert Sampson
1310 East Mary Street
Ottumwa, IA 52501
636 887 5367
Robert.Sampson@centurylink.com

-TV4-
Coon Creek Telephone & Cable
Deb Lucht
312 Locust NE
Blairstown, IA 52209
319-454-6234
csr@cooncreektelephone.com

-W-
Poweshiek Water Association
Chad Coburn
125 Industrial Drive
Brooklyn, IA 52211
641-522-7416
chad@poweshiekwater.com

PLAN VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features, Utilities, and Labels
Blue, Light	(230)	Proposed Storm Sewer Structures and Annotation
SHADING	**Design Color No.**	
Gray, Light	(48)	Proposed Pavement Shading

PROFILE VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	
Gray, Dark	(112)	Existing Ground Line Profile and Existing Utilities Information
Blue, Light	(230)	Proposed Storm Sewer Structures

PLAN VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- Plug and Abandon Existing Pipe or Structure
- Removal of Existing Pipe or Structure
- Previously Constructed Pipe or Structure
- Direction of Pipe Flow

PROFILE VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- Existing Ground
- Proposed Ground
- Previously Constructed Pipe or Structure
- Proposed Pipe

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

RIGHT-OF-WAY LEGEND

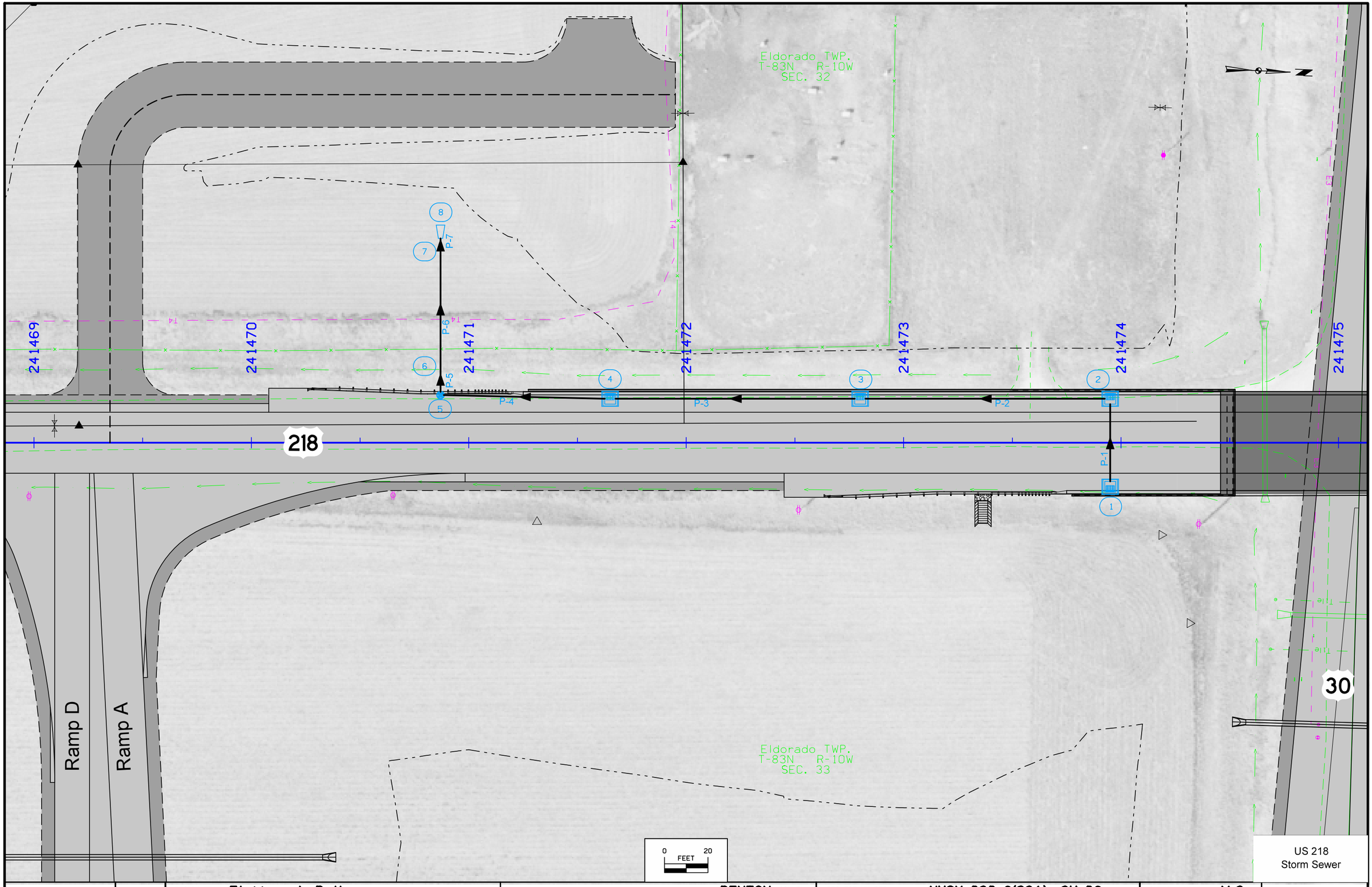
- Proposed Right-of-Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- A/C Access Control

STORM SEWER LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES M)

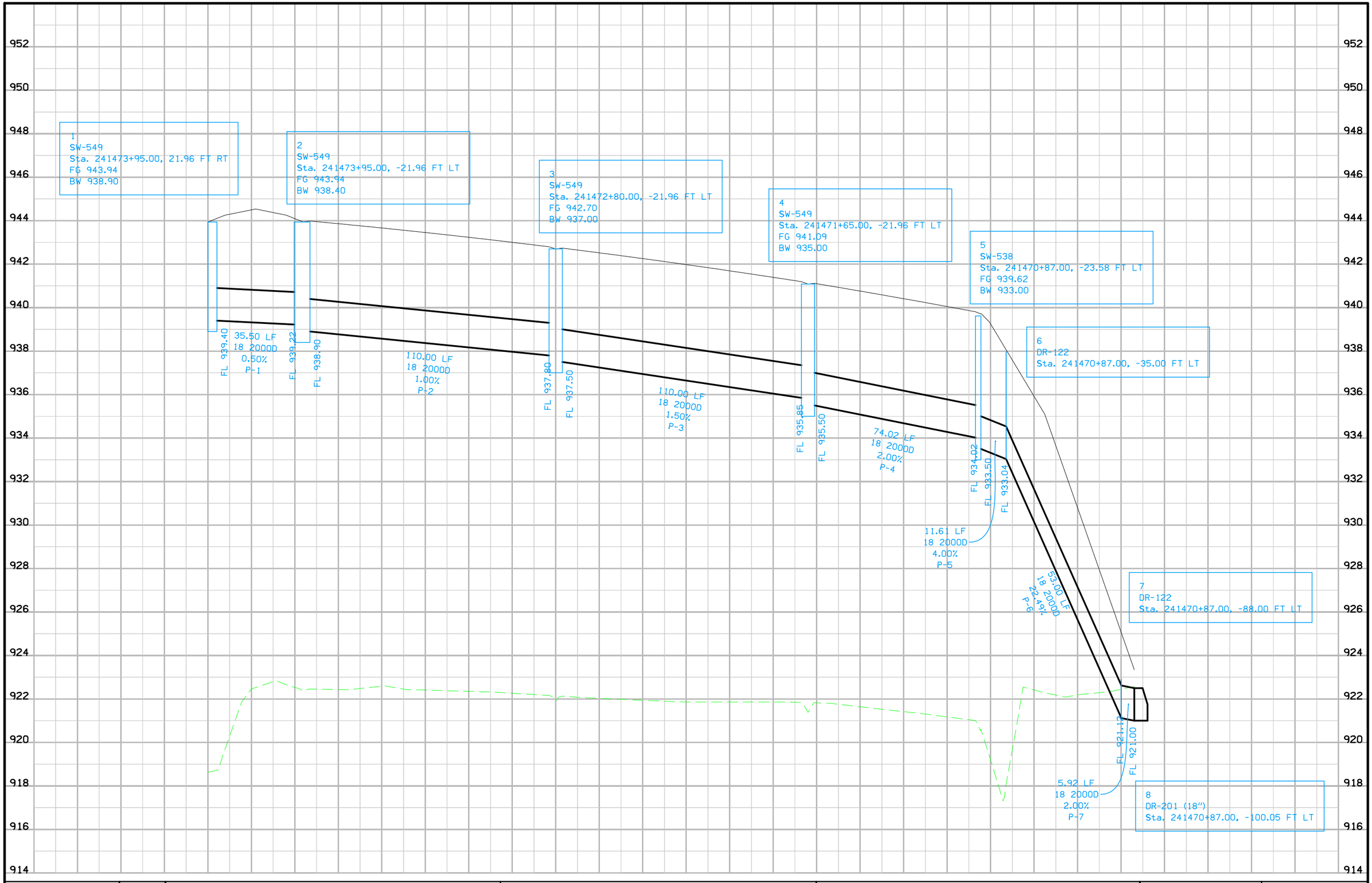
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER M.2

11:09:04 AM 11/28/2017 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231LGD.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER M.3

11:09:15 AM 11/28/2017 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231M03.sht



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER M.4

11:09:21 AM 11/28/2017 kbell pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231M04.sht

SURVEY SYMBOLS

- D Centerline Draw or Stream (Down)
- SI Sign
- EW Edge of Water
- TDC Tree Deciduous
- BNK Stream Bank
- EG Edge of Gravel Road
- FWD Wood Fence
- TEV Evergeen Tree
- LUM Luminaire
- SI Sign
- RET Retaining Walls
- GDL Guard Rail Steel
- SHR Shrub
- EB Electrical Box
- PPA Power Pole Co. 1
- MH Utility Access (Manhole)
- HDG Hedge Row
- LP L.P. Tank
- STP Stump
- RR Centerline of Railroad Tracks
- FCL Chain Link and Security Fence
- FHD Fire Hydrants
- SWP Swamp or Marsh
- RIP Rip-Rap
- INB Storm Sewer Beehive Intake
- GP GP Guard Post (Less Than 4 Posts)
- FLG Flag Poles
- TSG Traffic Signal
- OUT Tile Outlet
- SI Sign
- GDL Guard Rail Steel
- LUM Luminaire
- MH Utility Access (Manhole)
- TDC Tree Deciduous
- FCL Chain Link and Security Fence
- EB Electrical Box
- PPA Power Pole Co. 1
- TPD Telephone Pedestal
- FW Wire Fence
- BB Billboard
- MM Mile Marker Post
- SL Speed Limit Sign
- IN Storm Sewer Intake
- INB Storm Sewer Beehive Intake
- PR Electic Riser Pole
- STA Storm Sewer Line Co. 1
- FHD Fire Hydrants
- TLNR Tree Line Right
- FLG Flag Poles
- WV Water Valve
- FWD Wood Fence
- TLNL Tree Line Left
- SAA Sanitary Sewer Line Co. 1
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- BNK Stream Bank
- EW Edge of Water
- DIK Centerline of Dike or Dam
- TLA Underground Telephone Line Co. 1
- TVA Underground TV Cable Co. 1
- GLA Underground Gas Line Co. 1

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
- Cone Penetration Test (CPT)
- Settlement Plate
- Dig/Core
- Treatment
- Sand Blanket
- Soil Remediation Area
- Select Soil
- Select Sand
- Slope Dressing Only
- Broken and Weathered Rock
- Rock
- Sandstone
- Unsuitable A
- Unsuitable B
- Unsuitable C
- Sandy Soil
- Boulders
- Shale
- Boring Truncated

Soils Book No. _____

Date(s) Drilled 11/2013 to 12/2015

Reference Point

Station

- Survey Line
- Section Corner
- Ground Line Intercept

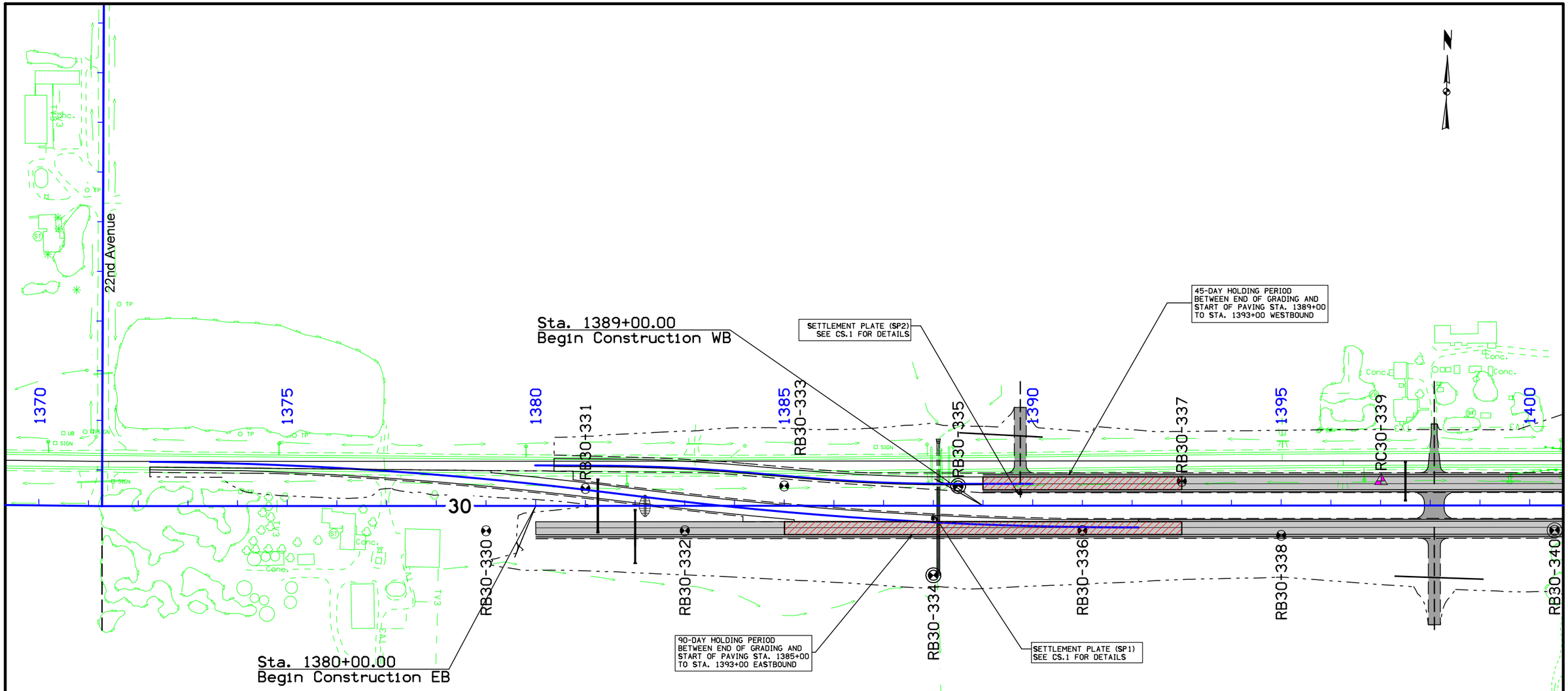
RIGHT-OF-WAY LEGEND

- 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

LEGEND AND SYMBOL INFORMATION SHEET

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.1

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



SETTLEMENT PLATES:
1. SETTLEMENT PLATES SHALL BE INSTALLED BY THE GRADING CONTRACTOR AT THE LOCATIONS SHOWN IN THE PLANS AS PER DETAIL SHOWN IN STANDARD ROADWAY PLAN EW-212 AND IN ACCORDANCE WITH SECTION 2106 OF THE STANDARD SPECIFICATION.
2. CARE SHALL BE TAKEN TO PROTECT THE SETTLEMENT PLATES FROM EQUIPMENT TRAFFIC OR CONSTRUCTION ACTIVITIES.

SPECIAL ATTENTION (SLIVER FILL)

SPECIAL ATTENTION SHOULD BE GIVEN TO ARTICLE 2107.03.C, OF THE CURRENT STANDARD SPECIFICATION SERIES, ON THIS PROJECT.

NOTE:
PLOWING AND SHAPING TO BE DONE BY CONTRACTOR.
SEE STANDARD ROAD PLAN EW-101. EMBANKMENT AND REBUILDING EMBANKMENTS.
SEE SHEET CS.2 AND APPROPRIATE CROSS SECTIONS FOR DETAILS.

CONE PENETRATION TEST (CPT) DATA ARE AVAILABLE ON REQUEST

0 100 FEET

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.2

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

23,16,13

970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820 810 800

22nd Ave
CL

SHELBY TUBE CORE DATA

CORE NO.	RB30-340-B1	RB30-340-D1	RB30-340-E2
DEPTH IN FEET	0.5-2.5	8.0-10.0	18.0-20.0
CLASSIFICATION (AASHTO)			
COEFF.CONSOL. (SQ.FT /DAY)	-	-	-
TRIAXIAL COMPRESSION	UC	UC	UC
COHESION - PSF	1250	2390	2360
FRICTION COEFF.	-	-	-
MOISTURE CONTENT %	35	13	14
DRY DENSITY - PCF	81	118	119

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

PROPOSED CL GROUND SURFACE

EXISTING GROUND SURFACE

RB30-330 Rt. 50
TOPSOIL
LEAN CLAY DK BRN
2
SILTY CLAY BR
H_2O
4
SANDY LEAN CLAY BR GR
14
SANDY LEAN CLAY GR

RB30-332 Rt. 50
TOPSOIL
LEAN CLAY DK BR
4
SILTY CLAY BR
H_2O
1
SILTY CLAY BR GR
6
SANDY LEAN CLAY GR
15
16

RB30-334 Rt. 140
LEAN CLAY DR BR
1 M
VERY SOFT TO SOFT SILTY CLAY BR
H_2O
SILTY CLAY LT GR
8
STIFF SILTY CLAY BR GR
5
MEDIUM STIFF TO HARD SANDY CLAY GR
10 M
13
15 M
22

RB30-336 Rt. 50
TOPSOIL
LEAN CLAY DR BR
5
SILTY CLAY BR
H_2O
5
SILTY CLAY BR OR
7
9
SANDY LEAN CLAY GR
19

RB30-338 Rt. 60
TOPSOIL
LEAN CLAY DR BR
7
SILTY CLAY BR
SILTY SAND BR
H_2O
2
SILTY CLAY BR OR
7
SANDY LEAN CLAY GR
9

RB30-340 Rt. 50
TOPSOIL
RB30-340-B1
STIFF LEAN CLAY DR GR
4
MEDIUM STIFF SILTY CLAY BR GR
RB30-340-D1
VERY STIFF SANDY LEAN CLAY GR
13
STIFF TO VERY STIFF SANDY LEAN CLAY GR
H_2O
RB30-340-E2
17

U.S. Highway 30
Eastbound

1370 1375 1380 1385 1390 1395 1400

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.3

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

21,13

35,13,15

18,14,13

22nd Ave
CL

SHELBY TUBE CORE DATA

CORE NO.	RB30-335-C1
DEPTH IN FEET	9.0-11.0
CLASSIFICATION (AASHTO)	
COEFF.CONSOL. (SQ.FT /DAY)	-
TRIAXIAL COMPRESSION	UC
COHESION - PSF	1720
FRICTION COEFF.	-
MOISTURE CONTENT %	15
DRY DENSITY - PCF	113

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

PROPOSED CL GROUND SURFACE

EXISTING GROUND SURFACE

RB30-331
Lt. 35

TOPSOIL
SANDY LEAN CLAY BR
SANDY LEAN CLAY BR GR
SANDY LEAN CLAY GR
$-H_2O_M-$
3 M
15
13 M
17

RB30-333
Lt. 40

TOPSOIL
SANDY LEAN CLAY BR
LEAN CLAY BR GR
LEAN CLAY BR
SANDY LEAN CLAY BR GR
SANDY LEAN CLAY GR
$-H_2O_M-$
3 M
10
11 M
18 M
19

RB30-335
Lt. 40

TOPSOIL
SOFT TO MEDIUM STIFF SANDY LEAN CLAY BR GR
STIFF TO VERY STIFF SANDY LEAN CLAY GR
RB30-335-C1
$-H_2O-$
3
12
13
11
14

RB30-337
Lt. 49

TOPSOIL
SANDY LEAN CLAY BR
SANDY LEAN CLAY BR GR
SANDY LEAN CLAY GR
SANDY LEAN CLAY GR
$-H_2O-$
4 M
10
23 M
24
21 M

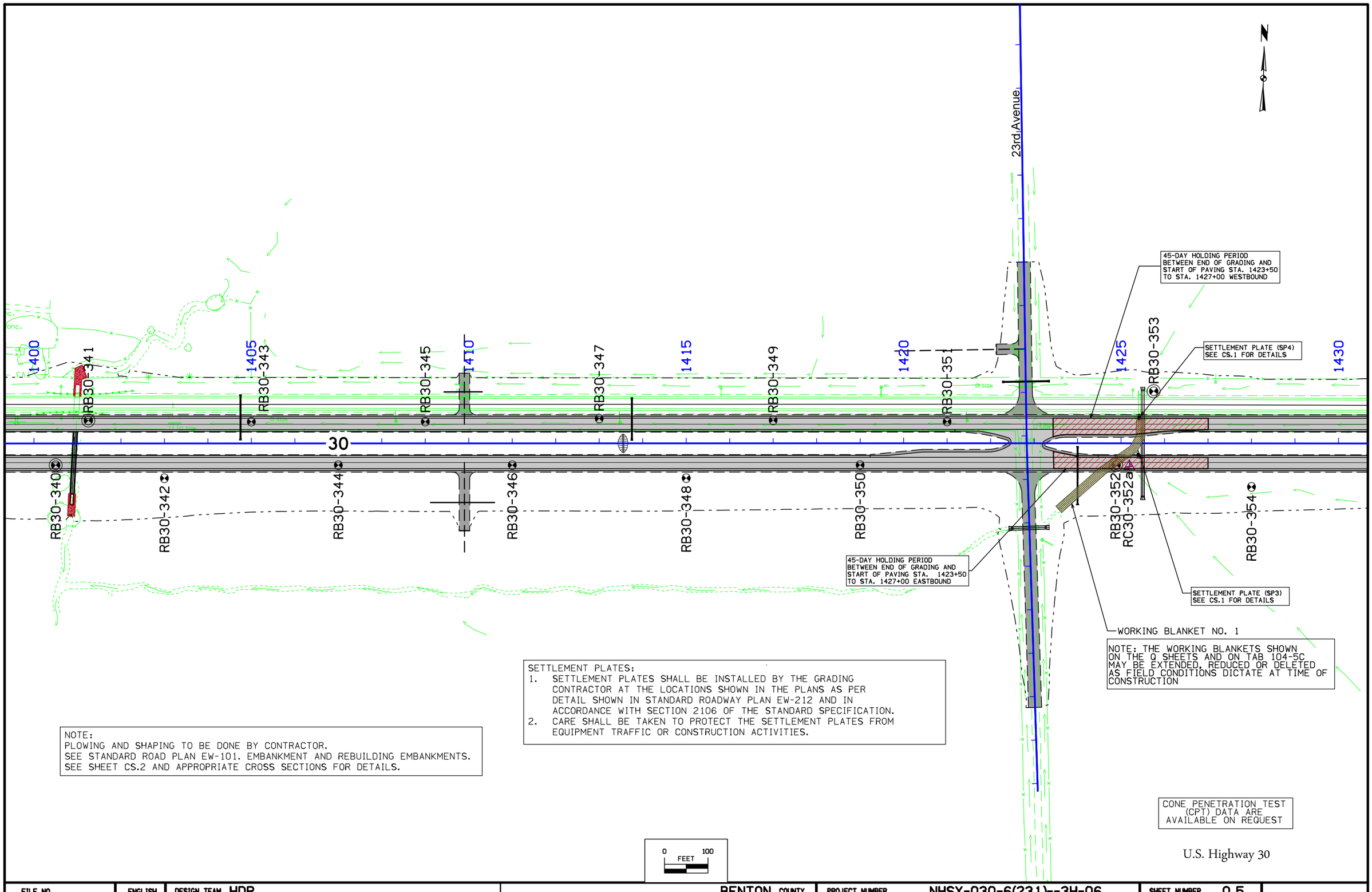
U.S. Highway 30
Westbound

970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820 810 800

1370 1375 1380 1385 1390 1395 1400

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER	NHSX-030-6(231)--3H-06	SHEET NUMBER Q.4

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



NOTE:
PLOWING AND SHAPING TO BE DONE BY CONTRACTOR.
SEE STANDARD ROAD PLAN EW-101. EMBANKMENT AND REBUILDING EMBANKMENTS.
SEE SHEET CS.2 AND APPROPRIATE CROSS SECTIONS FOR DETAILS.

SETTLEMENT PLATES:
1. SETTLEMENT PLATES SHALL BE INSTALLED BY THE GRADING CONTRACTOR AT THE LOCATIONS SHOWN IN THE PLANS AS PER DETAIL SHOWN IN STANDARD ROADWAY PLAN EW-212 AND IN ACCORDANCE WITH SECTION 2106 OF THE STANDARD SPECIFICATION.
2. CARE SHALL BE TAKEN TO PROTECT THE SETTLEMENT PLATES FROM EQUIPMENT TRAFFIC OR CONSTRUCTION ACTIVITIES.

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.5

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

16,18

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

SHELBY TUBE CORE DATA

CORE NO.	RB30-352-B1	RB30-352-G1
DEPTH IN FEET	0.5-2.5	18.0-20.0
CLASSIFICATION (AASHTO)		
COEFF.CONSOL. (SQ.FT /DAY)	-	-
TRIAXIAL COMPRESSION	UC	UC
COHESION - PSF	1050	340
FRICTION COEFF.	-	-
MOISTURE CONTENT %	27	21
DRY DENSITY - PCF	80	97

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

PROPOSED CL GROUND SURFACE
EXISTING GROUND SURFACE

RB30-342 Rt. 80: TOPSOIL; LEAN CLAY DR BR; 5; SILTY SAND BR GR; SILTY SAND BR OR; 11; SAND BR OR; 14; 22; SAND BR
RB30-344 Rt. 50: TOPSOIL; LEAN CLAY DR BR; 7; SILTY CLAY BR GR; 16; SAND BR; 3; SILTY SAND BR OR; 0; SILTY CLAY GR; 12; SANDY LEAN CLAY GR
RB30-346 Rt. 50: LEAN CLAY DR BR; TOPSOIL; SILTY CLAY BR GR; 7; SAND BR; 3; SILTY CLAY BR GR; 15; SANDY LEAN CLAY GR; 16
RB30-348 Rt. 80: TOPSOIL; LEAN CLAY DR BR; 6; SILTY CLAY BR; SAND BR; 8; SILTY CLAY BR GR; 11; SANDY LEAN CLAY GR; 13
RB30-350 Rt. 50: TOPSOIL; LEAN CLAY DR BR; 4; SILTY CLAY BR; SAND BR OR; 2; SILTY CLAY BR OR; 15; SANDY LEAN CLAY GR; 15
RB30-352 Rt. 50: RB30-352-B1; TOPSOIL; STIFF LEAN CLAY DR BR; SOFT TO MEDIUM STIFF LEAN CLAY BR GR; 2; LEAN TO FAT CLAY BR GR; 1; SAND GR; 4; MEDIUM STIFF TO STIFF SILTY CLAY GR; RB30-352-G1; SOFT LEAN CLAY DR GR; 18; STIFF TO HARD SANDY LEAN CLAY GR; 8
RB30-354 Rt. 100: TOPSOIL; LEAN CLAY BR; 6; SAND BR; SANDY LEAN CLAY BR GR; 1; SAND BR OR; 6; SILTY SAND BR GR; 11; SANDY LEAN CLAY GR; 13; 17

U.S. Highway 30
Eastbound

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.6

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

21,15,15,13 | 11,14 | 13 | 21,12 | 13,13

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820 810 800

SHELBY TUBE CORE DATA

CORE NO.	RB30-347-C1	RB30-353-C1
DEPTH IN FEET	9.0-11.0	9.0-11.0
CLASSIFICATION (AASHTO)		
COEFF.CONSOL. (SQ.FT /DAY)	-	-
TRIAXIAL COMPRESSION	UC	UC
COHESION - PSF	3570	840
FRICTION COEFF.	-	-
MOISTURE CONTENT %	13	14
DRY DENSITY - PCF	124	106

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

PROPOSED CL GROUND SURFACE

EXISTING GROUND SURFACE

RB30-341
Lt. 53
TOPSOIL
MEDIUM DENSE POORLY GRADED SAND BR
STIFF SANDY LEAN CLAY GR
MEDIUM DENSE POORLY GRADED SAND GR
STIFF TO HARD SANDY LEAN CLAY GR
HARD SANDY LEAN CLAY GR BR

RB30-343
Lt. 50
TOPSOIL
LEAN CLAY GR BR
POORLY GRADED SAND BR
CLAYEY SAND GR

RB30-345
Lt. 50
TOPSOIL
SANDY LEAN CLAY GR BR
POORLY GRADED SAND BR
SANDY LEAN CLAY GR

RB30-347
Lt. 57
TOPSOIL
SANDY LEAN CLAY GR BR
SANDY LEAN CLAY GR

RB30-349
Lt. 53
TOPSOIL
SANDY LEAN CLAY GR BR
SANDY LEAN CLAY GR

RB30-351
Lt. 50
TOPSOIL
SANDY LEAN CLAY GR BR
SANDY LEAN CLAY GR

RB30-353
Lt. 120
TOPSOIL
SANDY LEAN CLAY FILL DR BR TO GR BR
VERY LOOSE POORLY GRADED SAND GR
MEDIUM DENSE FINE TO COARSE SAND BR
MEDIUM DENSE POORLY GRADED SAND GR
MEDIUM DENSE FINE TO COARSE SAND GR
VERY STIFF SANDY LEAN CLAY GR

1400 1405 1410 1415 1420 1425 1430

U.S. Highway 30
Westbound

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.7

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

1430 1435 1440 1445 1450 1455 1460

RB30-356 RB30-357 RB30-358 RB30-359 RB30-360 RB30-361 RB30-362 RB30-363 RB30-364 RB30-365 RB30-366 RB30-367 RB30-368 RB30-369 RB30-370

30

Conc.

TV3

WORKING BLANKET NO. 2

NOTE: THE WORKING BLANKETS SHOWN ON THE Q SHEETS AND ON TAB 104-5C MAY BE EXTENDED, REDUCED OR DELETED AS FIELD CONDITIONS DICTATE AT TIME OF CONSTRUCTION

NOTE:
PLOWING AND SHAPING TO BE DONE BY CONTRACTOR.
SEE STANDARD ROAD PLAN EW-101. EMBANKMENT AND REBUILDING EMBANKMENTS.
SEE SHEET CS.2 AND APPROPRIATE CROSS SECTIONS FOR DETAILS.

0 100
FEET

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.8

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

19,15

17,12
24

SHELBY TUBE CORE DATA

CORE NO.	RB30-362-B1
DEPTH IN FEET	1.0-3.0
CLASSIFICATION (AASHTO)	
COEFF.CONSOL. (SQ.FT /DAY)	-
TRIAXIAL COMPRESSION	UC
COHESION - PSF	3310
FRICTION COEFF.	-
MOISTURE CONTENT %	30
DRY DENSITY - PCF	91

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

EXISTING GROUND SURFACE
PROPOSED CL GROUND SURFACE

RB30-356 Rt. 50: TOPSOIL; LEAN CLAY BR; SANDY LEAN CLAY BR GR; SILT BR OR; SANDY LEAN CLAY GR

RB30-358 Rt. 60: TOPSOIL; LEAN CLAY BR; SANDY LEAN CLAY BR GR; SANDY LEAN CLAY GR

RB30-360 Rt. 100: TOPSOIL; LEAN CLAY BR; SANDY LEAN CLAY BR; SANDY LEAN CLAY GR

RB30-362 Rt. 50: TOPSOIL; LEAN TO FAT CLAY BR; SANDY LEAN CLAY BR GR; SILTY CLAY BR; SANDY LEAN CLAY GR

RB30-364 Rt. 90: TOPSOIL; LEAN CLAY BR; SANDY LEAN CLAY BR; SANDY LEAN CLAY BR GR

RB30-366 Rt. 50: TOPSOIL; LEAN CLAY BR; SANDY LEAN CLAY BR; SANDY LEAN CLAY GR

RB30-368 Rt. 80: TOPSOIL; LEAN CLAY BR; SANDY LEAN CLAY BR; SANDY LEAN CLAY BR GR; SANDY LEAN CLAY GR

RB30-370 Rt. 70: TOPSOIL; LEAN CLAY BR; SANDY LEAN CLAY BR GR; CLAYEY SAND BR; SANDY LEAN CLAY GR BR; SANDY LEAN CLAY GR; SAND GR; SANDY LEAN CLAY GR

990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840 830 820

1435 1440 1445 1450 1455 1460

U.S. Highway 30
Eastbound

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.9

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

13 | 16,12 | 15,13 | 18,14

SHELBY TUBE CORE DATA

CORE NO.	RB30-357-C1	RB30-365-B2
DEPTH IN FEET	9.0-11.0	9.0-11.0
CLASSIFICATION (AASHTO)		
COEFF.CONSOL. (SQ.FT /DAY)	-	-
TRIAXIAL COMPRESSION	UC	UC
COHESION - PSF	3970	2230
FRICTION COEFF.	-	-
MOISTURE CONTENT %	13	15
DRY DENSITY - PCF	115	116

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

EXISTING GROUND SURFACE
PROPOSED CL GROUND SURFACE

TOPSOIL
SANDY LEAN CLAY GR BR
SANDY LEAN CLAY GR
SANDY LEAN CLAY BR
SANDY LEAN CLAY DR BR
SANDY LEAN CLAY BR (FILL)
MEDIUM STIFF TO STIFF SANDY LEAN CLAY GR BR
STIFF TO VERY STIFF SANDY LEAN CLAY GR
RB30-357-C1
RB30-365-B2

RB30-357 Lt. 40
RB30-359 Lt. 123
RB30-361 Lt. 40
RB30-363 Lt. 116
RB30-365 Lt. 40
RB30-367 Lt. 25
RB30-369 Lt. 15

1435 1440 1445 1450 1455 1460

U.S. Highway 30
Westbound

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.10

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

218

30

30

RB30-370
RB30-371
RB30-372
RB30-373
RB30-374
RB30-375
RB30-376
RB30-377
RB30-378
RB30-379
RB30-380
RB30-381
RB30-382
RB30-383
RB30-384
RB30-385
RB24A-1

1460
1465
1470
1475
1480
1485
1490

Ramp A
Ramp B

WORKING BLANKET NO. 3

NOTE: THE WORKING BLANKETS SHOWN ON THE Q SHEETS AND ON TAB 104-5C MAY BE EXTENDED, REDUCED OR DELETED AS FIELD CONDITIONS DICTATE AT TIME OF CONSTRUCTION

NOTE:
PLOWING AND SHAPING TO BE DONE BY CONTRACTOR.
SEE STANDARD ROAD PLAN EW-101. EMBANKMENT AND REBUILDING EMBANKMENTS.
SEE SHEET CS.2 AND APPROPRIATE CROSS SECTIONS FOR DETAILS.

0 100
FEET

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.11

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

19

29

24,31

SHELBY TUBE CORE DATA

CORE NO.	RB30-374-D2	RB30-378-C1
DEPTH IN FEET	13.0-15.0	9.0-11.0
CLASSIFICATION (AASHTO)		
COEFF.CONSOL. (SQ.FT /DAY)	-	-
TRIAXIAL COMPRESSION	UC	UC
COHESION - PSF	1870	1360
FRICTION COEFF.	-	-
MOISTURE CONTENT %	16	17
DRY DENSITY - PCF	116	112

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

PROPOSED CL GROUND SURFACE
EXISTING GROUND SURFACE

TOPSOIL
LEAN CLAY BR
SANDY LEAN CLAY BR GR
SANDY LEAN CLAY GR
RB30-372 Rt. 70

TOPSOIL
LEAN CLAY BR
SANDY LEAN CLAY BR
SANDY LEAN CLAY BR GR
RB30-374-D2
RB30-374 Rt. 90

TOPSOIL
LEAN CLY BR
SANDY LEAN CLAY BR GR
RB30-376 Rt. 70

LIMESTONE GRAVEL
SANDY LEAN CLAY DR BR TO BR GR (FILL)
SANDY LEAN CLAY BR
RB30-378-C1
SANDY LEAN CLAY GR BR
RB30-378 Rt. 70

TOPSOIL
SANDY LEAN CLAY DR BR
SILTY CLAY GR BR
SANDY LEAN CLAY BR
SANDY LEAN CLAY GR BR
RB30-380 Rt. 70

TOPSOIL
SANDY LEAN CLAY BR TO DR BR (FILL)
SILTY CLAY GR
SILTY CLAY DR BR
SANDY LEAN CLAY GR BR
LEAN TO FAT CLAY DR GR TO BL
SILT GR
SILTY CLAY BR
RB30-382 Rt. 70

TOPSOIL
SANDY LEAN CLAY DR BR (FILL)
LEAN CLAY DR BR (FILL)
SANDY LEAN CLAY BR
CLAYEY SAND BR
SAND BR
SANDY LEAN CLAY GR BR
RB30-384 Rt. 70

U.S. Highway 30
Eastbound

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.12

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

16,20

32,15

SHELBY TUBE CORE DATA

CORE NO.	RB30-371-C1	RB30-379-C2
DEPTH IN FEET	9.0-11.0	9.0-11.0
CLASSIFICATION (AASHTO)		
COEFF.CONSOL. (SQ.FT /DAY)	-	-
TRIAXIAL COMPRESSION	UC	UC
COHESION - PSF	670	3870
FRICTION COEFF.	-	-
MOISTURE CONTENT %	21	15
DRY DENSITY - PCF	107	118

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

PROPOSED CL GROUND SURFACE
EXISTING GROUND SURFACE

TOPSOIL
LEAN CLAY DR BR
9
$-H_2O-$
RB30-371-C1
SANDY LEAN CLAY BR
15
SANDY LEAN CLAY GR
15

TOPSOIL
LEAN CLAY DR BR (FILL)
$-H_2O-$ 4
LEAN CLAY GR
SANDY LEAN CLAY BR GR
6
SAND BR
8
SANDY LEAN CLAY GR BR
12
M
SANDY LEAN CLAY GR

TOPSOIL
SILTY CLAY GR
$-H_2O-$ 4
MEDIUM STIFF SANDY LEAN CLAY GR BR
9
MEDIUM STIFF TO STIFF SANDY LEAN CLAY BR
13
STIFF TO VERY STIFF SANDY LEAN CLAY GR

TOPSOIL
SANDY LEAN CLAY BR TO DR BR (FILL)
$-H_2O-$
3
M
LEAN CLAY GR BR
5
SANDY LEAN CLAY GR BR
13
M
SANDY LEAN CLAY BR
SANDY LEAN CLAY LT GR TO GR

TOPSOIL
SILTY CLAY BR TO DR BR
$-H_2O-$ 7
RB30-379-C2
SANDY LEAN CLAY GR BR
14

TOPSOIL
SANDY LEAN CLAY BR
8
SANDY LEAN CLAY GR BR
13
SANDY LEAN CLAY BR GR
15

TOPSOIL
LEAN CLAY BR TO DR BR
8
SILTY CLAY DR BR
$-H_2O-$ 5
SANDY LEAN CLAY BR
9
SANDY LEAN CLAY GR BR

TOPSOIL
SILTY CLAY GR BR
4
$-H_2O-$
7
SANDY LEAN CLAY BR
14
SANDY LEAN CLAY GR BR
17

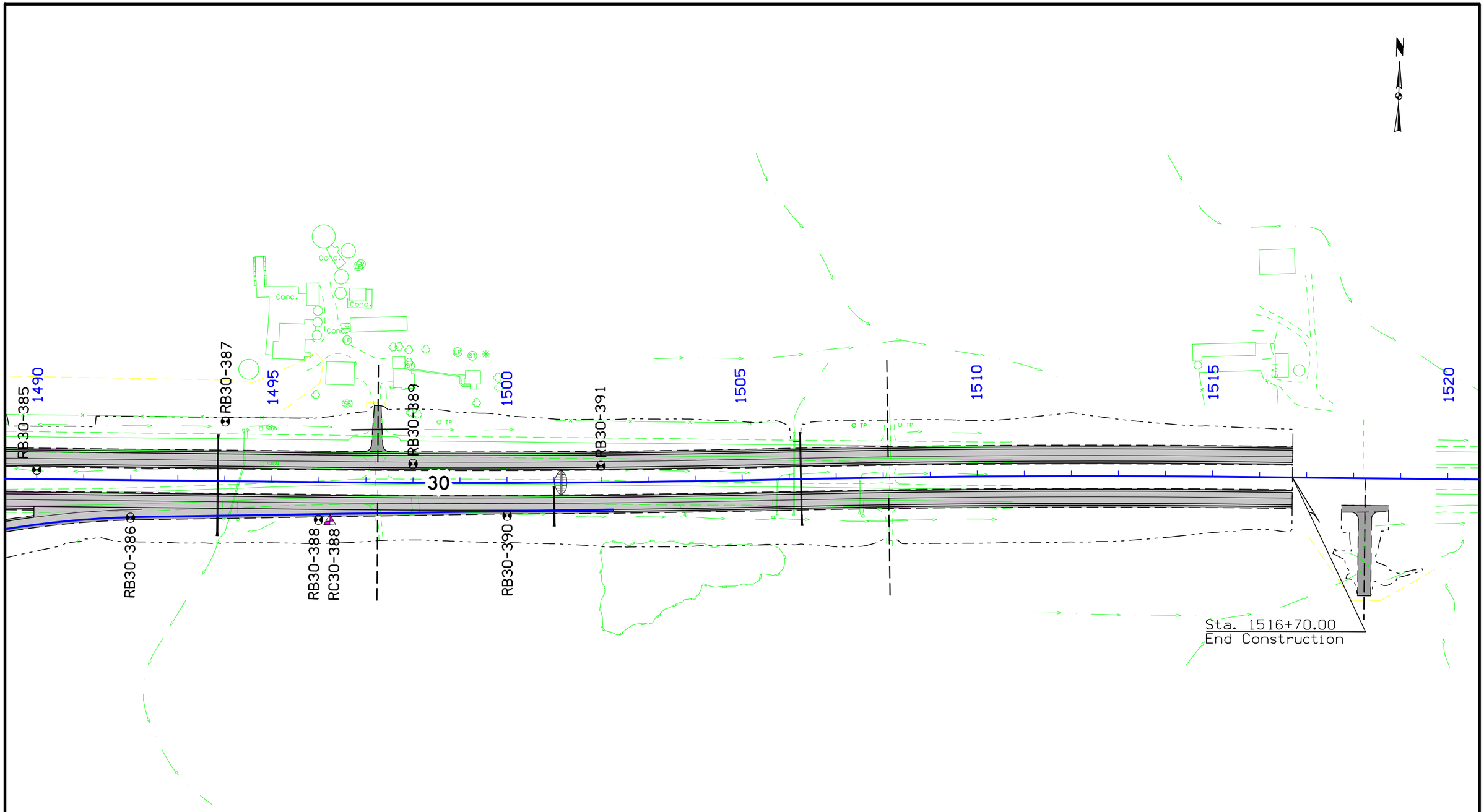
RB30-371 Lt. 45
RB30-373 Lt. 120
RB30-375 Lt. 30
RB30-377 Lt. 102
RB30-379 Lt. 20
RB30-381 Lt. 30
RB30-383 Lt. 35
RB30-385 Lt. 20

1460 1465 1470 1475 1480 1485 1490

U.S. Highway 30
Westbound

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.13

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



NOTE:
PLOWING AND SHAPING TO BE DONE BY CONTRACTOR AT THE FOLLOWING STATIONS.
SEE STANDARD ROAD PLAN EW-101. EMBANKMENT AND REBUILDING EMBANKMENTS.
SEE SHEET CS.2 AND APPROPRIATE CROSS SECTIONS FOR DETAILS.

0 100
FEET

CONE PENETRATION TEST (CPT) DATA ARE AVAILABLE ON REQUEST

U.S. Highway 30

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.14

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

26,26,15

13

EXISTING GROUND SURFACE

PROPOSED CL GROUND SURFACE

TOPSOIL
SILTY CLAY DR BR
LEAN CLAY BR AN DR BR
SANDY LEAN CLAY BR GR
SANDY LEAN CLAY BR
POORLY GRADED SAND BR
SILT BR
SANDY LEAN CLAY BR
SANDY LEAN CLAY GR BR

RB30-388-D1

TOPSOIL
LEAN CLAY DR BR
SANDY LEAN CLAY BR
SANDY LEAN CLAY GR BR
SANDY LEAN CLAY GR
SILT BR
SANDY LEAN CLAY GR

TOPSOIL
SANDY LEAN CLAY BR
SANDY LEAN CLAY GR BR
SANDY LEAN CLAY GR

SHELBY TUBE CORE DATA

CORE NO.	RB30-388-D1
DEPTH IN FEET	9.0-11.0
CLASSIFICATION (AASHTO)	
COEFF.CONSOL. (SQ.FT /DAY)	-
TRIAXIAL COMPRESSION	UC
COHESION - PSF	3550
FRICTION COEFF.	-
MOISTURE CONTENT %	14
DRY DENSITY - PCF	118

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

RB30-386 Rt. 80

RB30-388 Rt. 80

RB30-390 Rt. 70

U.S. Highway 30 Eastbound

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.15

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

17,14 | 16,14 | 15,19

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

EXISTING GROUND SURFACE

TOPSOIL
$-H_2O-$
4 LEAN CLAY BR GR
SANDY LEAN CLAY BR
RB30-387-C1
12 SANDY LEAN CLAY BR
13 M SANDY LEAN CLAY GR BR
15 SANDY LEAN CLAY GR
29 M

TOPSOIL
SANDY LEAN CLAY BR AND DR BR
10 M SANDY LEAN CLAY BR
10 SANDY LEAN CLAY GR BR
14 M
16

TOPSOIL
$-H_2O-$ 6 M SANDY LEAN CLAY BR
10 SAND BR
13 M
15 SANDY LEAN CLAY BR

PROPOSED CL GROUND SURFACE

SHELBY TUBE CORE DATA

CORE NO.	RB30-387-C1
DEPTH IN FEET	9.0-11.0
CLASSIFICATION (AASHTO)	
COEFF.CONSOL. (SQ.FT /DAY)	-
TRIAXIAL COMPRESSION	UC
COHESION - PSF	1690
FRICTION COEFF.	-
MOISTURE CONTENT %	16
DRY DENSITY - PCF	117

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

RB30-387 Lt. 127 | RB30-389 Lt. 40 | RB30-391 Lt. 35

U.S. Highway 30 Westbound

1495 1500 1505 1510 1515 1520

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.16

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

231415 231420 231425 231430 231435

23rd Avenue

RB23A-1

RB23A-2

23rd Avenue

Sta. 231416+75.00
Begin Construction

Sta. 231427+00.00
End Construction

30

0 100
FEET

23rd Avenue

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

35.16

920 910 900 890 880 870 860 850

PROPOSED CL GROUND SURFACE

EXISTING GROUND SURFACE

RB23A-1
Lt. 10

Lean Clay
BRN
5
Silty Clay
DK GRY
$-H_2O$
Silty Clay
BRN GRY
6
Sandy Lean Clay
GRY
7

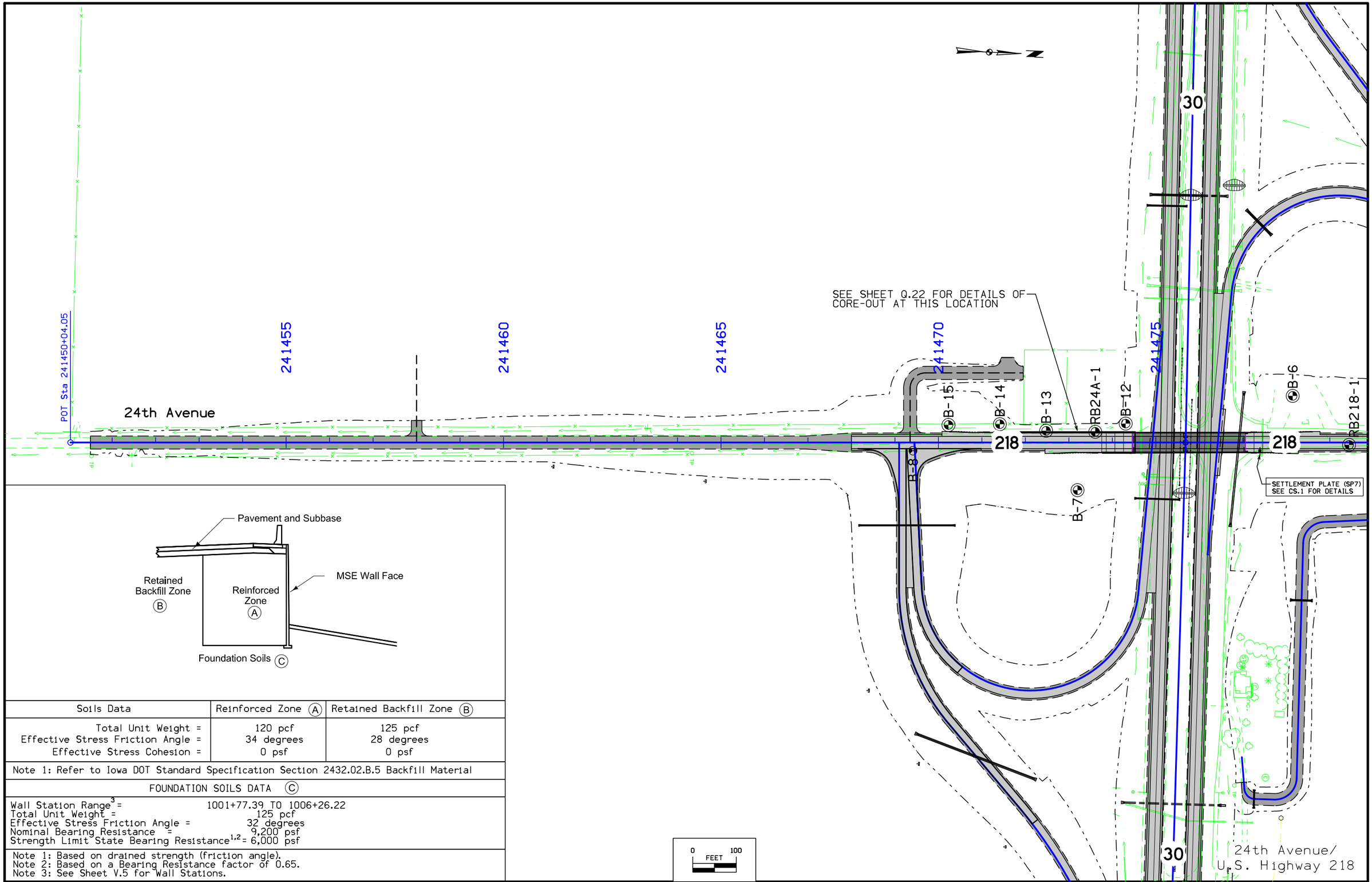
RB23A-2
Rt. 15

Lean Clay
BRN
8
Silty Clay
BRN
4
Silty Clay
BRN ORG
$-H_2O$
14
Sandy Lean Clay
GRY

231415 231420 231425 231430 231435

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.17

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



Soils Data	Reinforced Zone (A)	Retained Backfill Zone (B)
Total Unit Weight =	120 pcf	125 pcf
Effective Stress Friction Angle =	34 degrees	28 degrees
Effective Stress Cohesion =	0 psf	0 psf

Note 1: Refer to Iowa DOT Standard Specification Section 2432.02.B.5 Backfill Material

FOUNDATION SOILS DATA (C)

Wall Station Range[3] = 1001+77.39 TO 1006+26.22
Total Unit Weight = 125 pcf
Effective Stress Friction Angle = 32 degrees
Nominal Bearing Resistance = 9,200 psf
Strength Limit State Bearing Resistance[1,2] = 6,000 psf

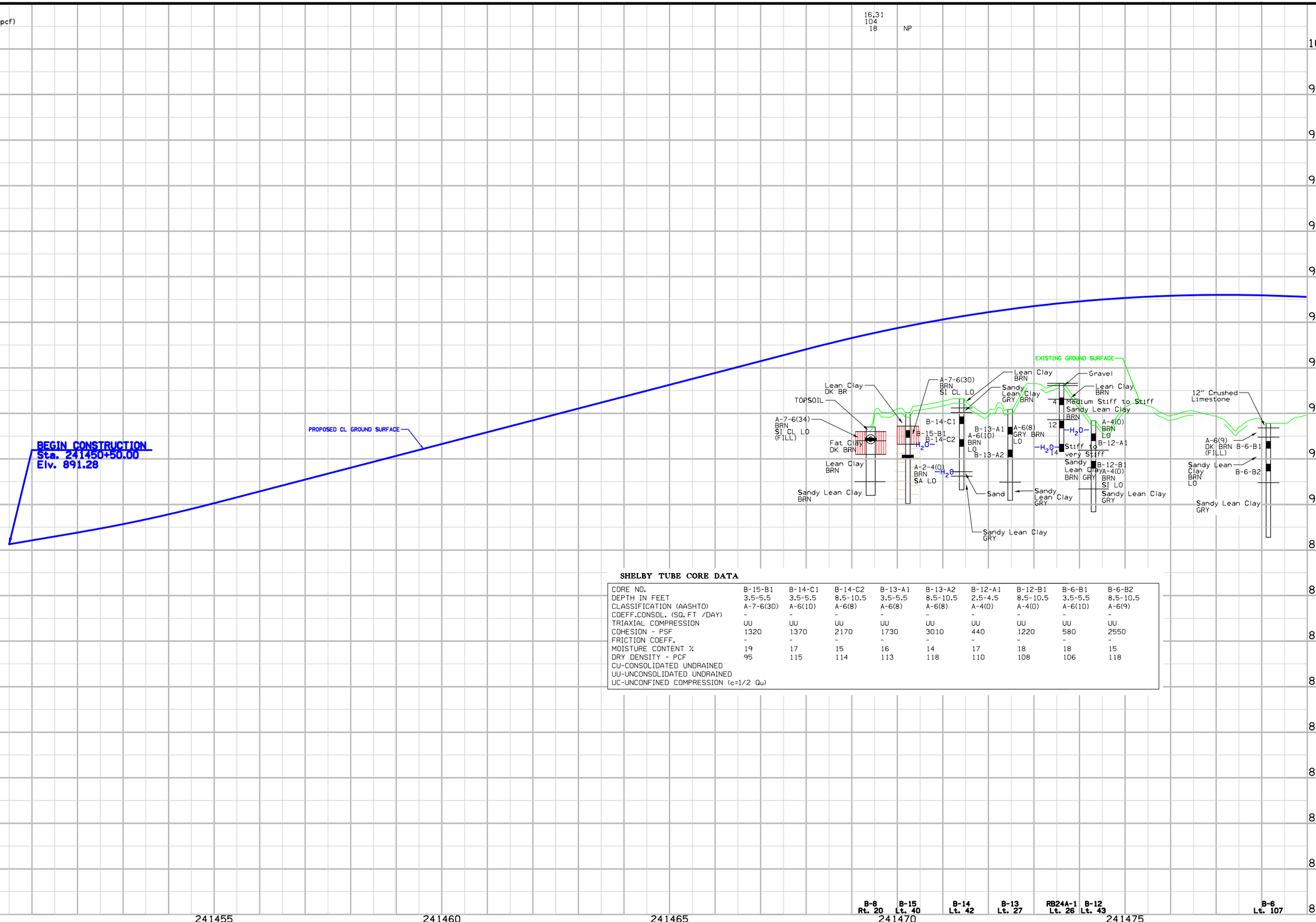
Note 1: Based on drained strength (friction angle).
Note 2: Based on a Bearing Resistance factor of 0.65.
Note 3: See Sheet V.5 for Wall Stations.

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.18

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

16.31
104
18 NP



SHELBY TUBE CORE DATA

CORE NO.	B-15-B1	B-14-C1	B-14-C2	B-13-A1	B-13-A2	B-12-A1	B-12-B1	B-6-B1	B-6-B2
DEPTH IN FEET	3.5-5.5	3.5-5.5	8.5-10.5	3.5-5.5	8.5-10.5	2.5-4.5	8.5-10.5	3.5-5.5	8.5-10.5
CLASSIFICATION (AASHTO)	A-7-6(30)	A-6(10)	A-6(8)	A-6(8)	A-6(8)	A-4(0)	A-4(0)	A-6(10)	A-6(9)
COEFF.CONSOL. (SQ.FT /DAY)	-	-	-	-	-	-	-	-	-
TRIAXIAL COMPRESSION	UU	UU	UU	UU	UU	UU	UU	UU	UU
COHESION - PSF	1320	1370	2170	1730	3010	440	1220	580	2550
FRICTION COEFF.	-	-	-	-	-	-	-	-	-
MOISTURE CONTENT %	19	17	15	16	14	17	18	18	15
DRY DENSITY - PCF	95	115	114	113	118	110	108	106	118

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.19

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

241480
241485
241490
241495
241500
241505
241510
RB218-1
B-5
B-4
218
218
Sta. 241503+00.00
End Construction
PI Sta 241502+95.73
SIGN
TP
N

0 FEET 100

24th Avenue/
U.S. Highway 218

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.20	

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE 29
CUT DENSITY (pcf) 97
PLASTIC LIMIT 15

PROPOSED CL GROUND SURFACE

EXISTING GROUND SURFACE

6" Asphalt Over 6" Concrete over Sandy Lean Clay DK BRN CL LO (FILL)

A-6(14) BRN 117.1013

Sandy Lean Clay BRN

H_2O

9" Asphalt over 9.6" Sand over 9.5" Concrete over Lean Clay DK BRN

Lean Clay BRN

Sandy Lean Clay BRN

H_2O

Gravel

Lean Clay BRN

3 Medium Stiff to Very Stiff Sandy Lean Clay BRN GRY

10

11 Stiff to Very Stiff Sandy Lean Clay GRY

END CONSTRUCTION
Sta. 241503+00.00
Elv. 929.36

RB218-1 Rt. 3

B-5 Lt. 20

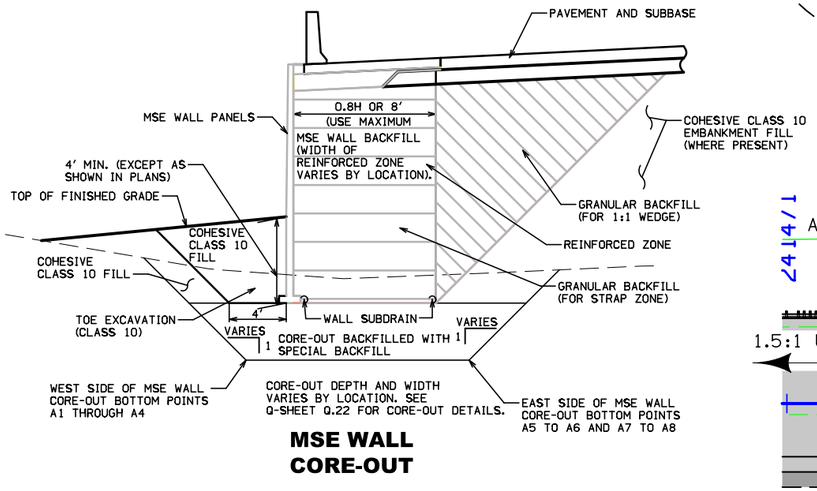
B-4 Lt. 4

1020 1010 1000 990 980 970 960 950 940 930 920 910 900 890 880 870 860 850

241480 241485 241490 241495 241500 241505

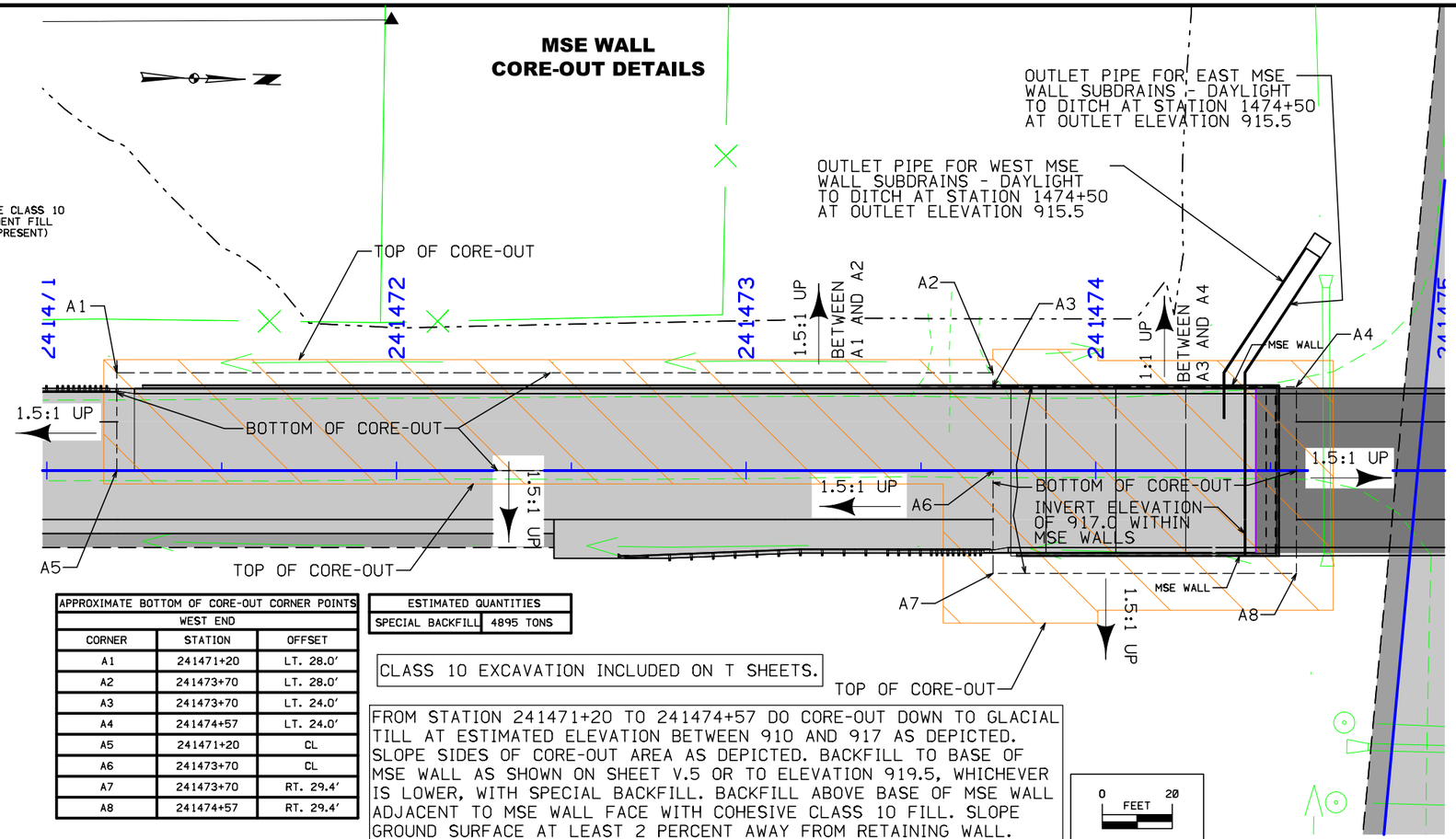
FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.21

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



MSE WALL CORE-OUT

MSE WALL CORE-OUT DETAILS

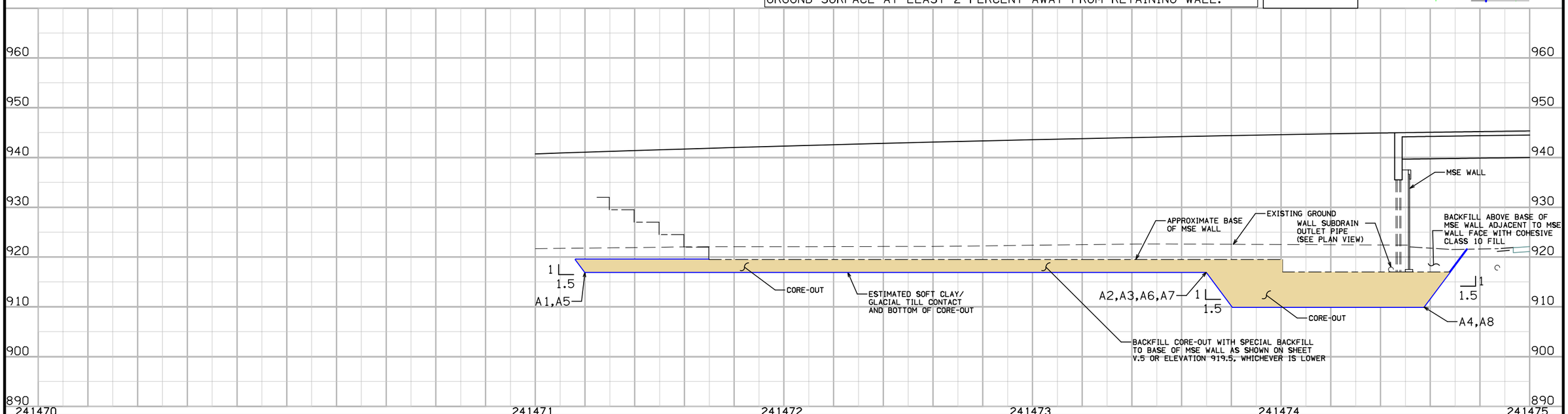


APPROXIMATE BOTTOM OF CORE-OUT CORNER POINTS		
WEST END		
CORNER	STATION	OFFSET
A1	241471+20	LT. 28.0'
A2	241473+70	LT. 28.0'
A3	241473+70	LT. 24.0'
A4	241474+57	LT. 24.0'
A5	241471+20	CL
A6	241473+70	CL
A7	241473+70	RT. 29.4'
A8	241474+57	RT. 29.4'

ESTIMATED QUANTITIES	
SPECIAL BACKFILL	4895 TONS

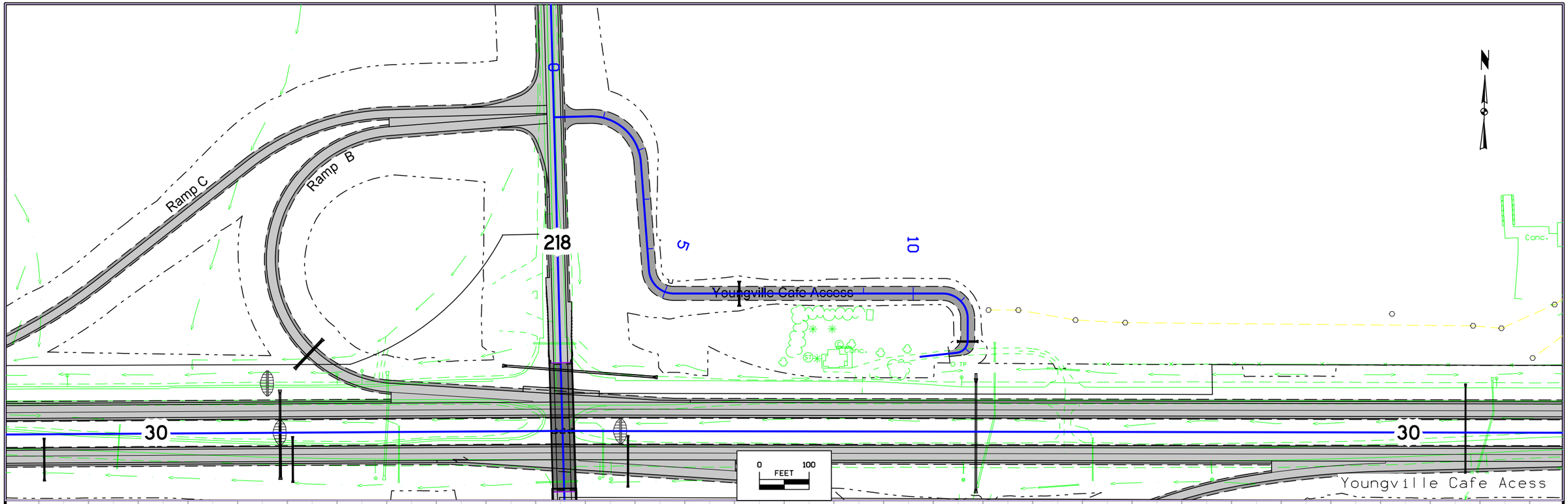
CLASS 10 EXCAVATION INCLUDED ON T SHEETS.

FROM STATION 241471+20 TO 241474+57 DO CORE-OUT DOWN TO GLACIAL TILL AT ESTIMATED ELEVATION BETWEEN 910 AND 917 AS DEPICTED. SLOPE SIDES OF CORE-OUT AREA AS DEPICTED. BACKFILL TO BASE OF MSE WALL AS SHOWN ON SHEET V.5 OR TO ELEVATION 919.5, WHICHEVER IS LOWER, WITH SPECIAL BACKFILL. BACKFILL ABOVE BASE OF MSE WALL ADJACENT TO MSE WALL FACE WITH COHESIVE CLASS 10 FILL. SLOPE GROUND SURFACE AT LEAST 2 PERCENT AWAY FROM RETAINING WALL.



FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.22

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

960
950
940
930
920
910
900
890

EXISTING GROUND SURFACE
PROPOSED CL GROUND SURFACE

0
5
10
15

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.23

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

218

30

30

RB30-380

11475

11480

11485

B-9

B-10

75-DAY HOLDING PERIOD
BETWEEN END OF GRADING AND
START OF PAVING STA. 111481+00
TO STA. 11476+64.72

SETTLEMENT PLATE (SP6)
SEE CS.1 FOR DETAILS

SETTLEMENT PLATE (SP5)
SEE CS.1 FOR DETAILS

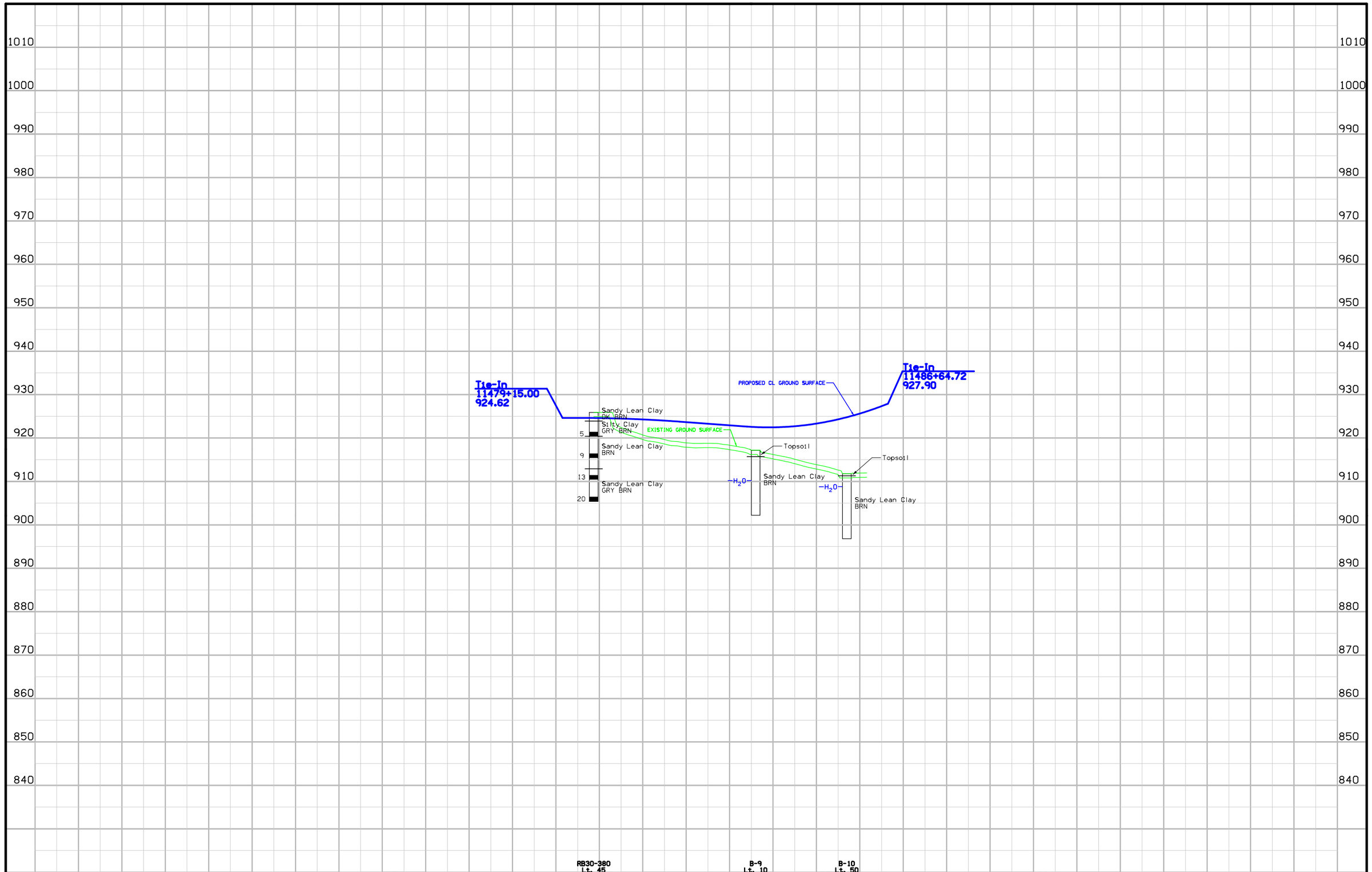
75-DAY HOLDING PERIOD
BETWEEN END OF GRADING AND
START OF PAVING STA. 41474+26.45
TO STA. 4148+00

0 FEET 100

U.S. Highway 218 Loop A

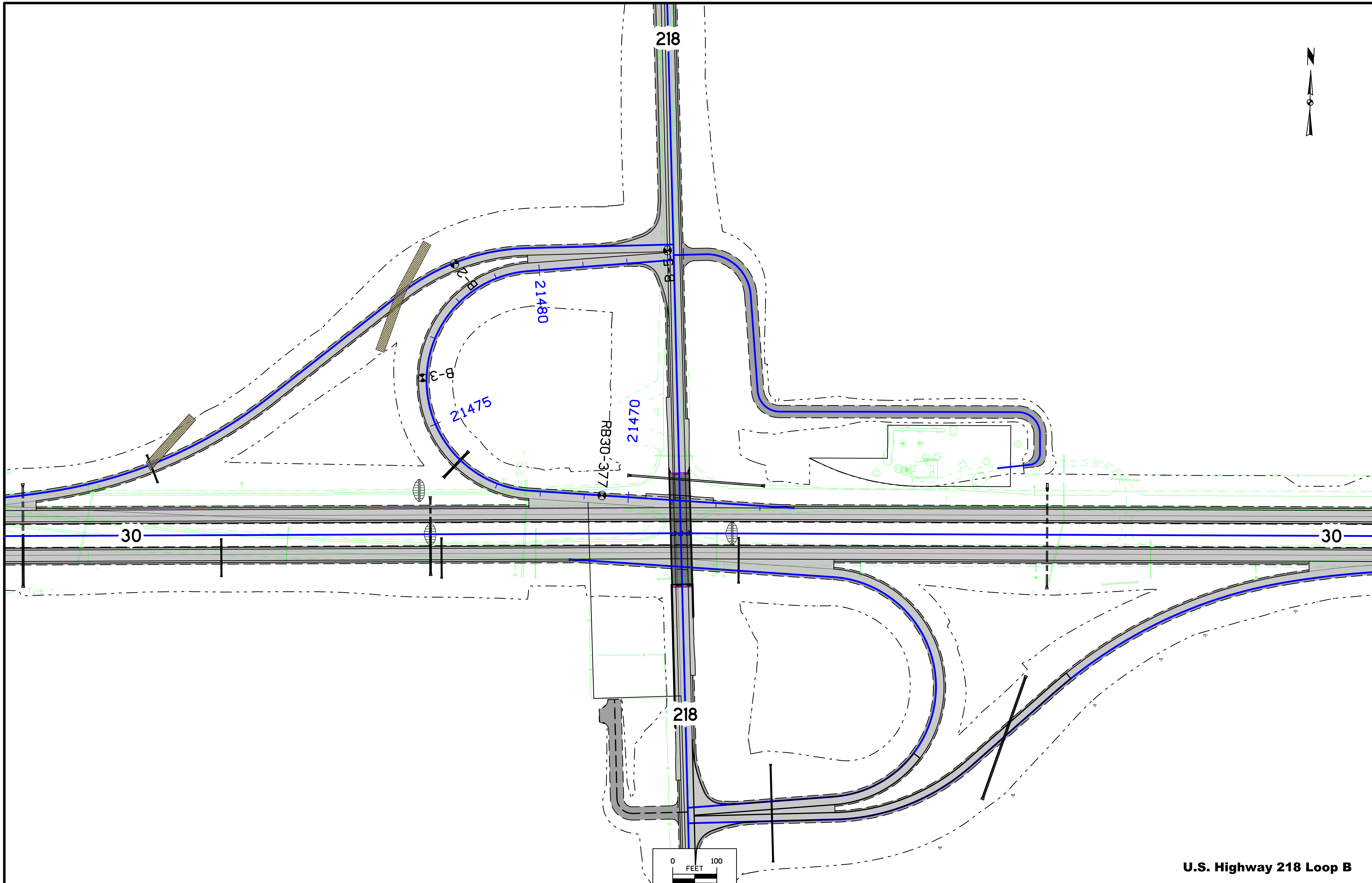
FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.24

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.25

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



U.S. Highway 218 Loop B

FILE NO.	ENGLISH	DESIGN TEAM HDR		BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.26

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

32.15

1010 1000 990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840

PROPOSED CL GROUND SURFACE

EXISTING GROUND SURFACE

Tie in
21472+25.00
916.64

Tie in
21479+75.06
934.27

RB30-377
Rt. 0

- Topsoil
- Sandy Lean Clay BRN (FILL)
- Lean Clay GRY BRN
- Sandy Lean Clay GRY BRN
- Sandy Lean Clay BRN
- Sandy Lean Clay LT GRY
- Sandy Lean Clay GRY

B-3
Lt. 9

- Topsoil
- Lean Clay BRN
- Sandy Lean Clay BRN

B-2
Lt. 74

- Topsoil
- Lean Clay BRN
- Sand BRN
- Sandy Lean Clay BRN

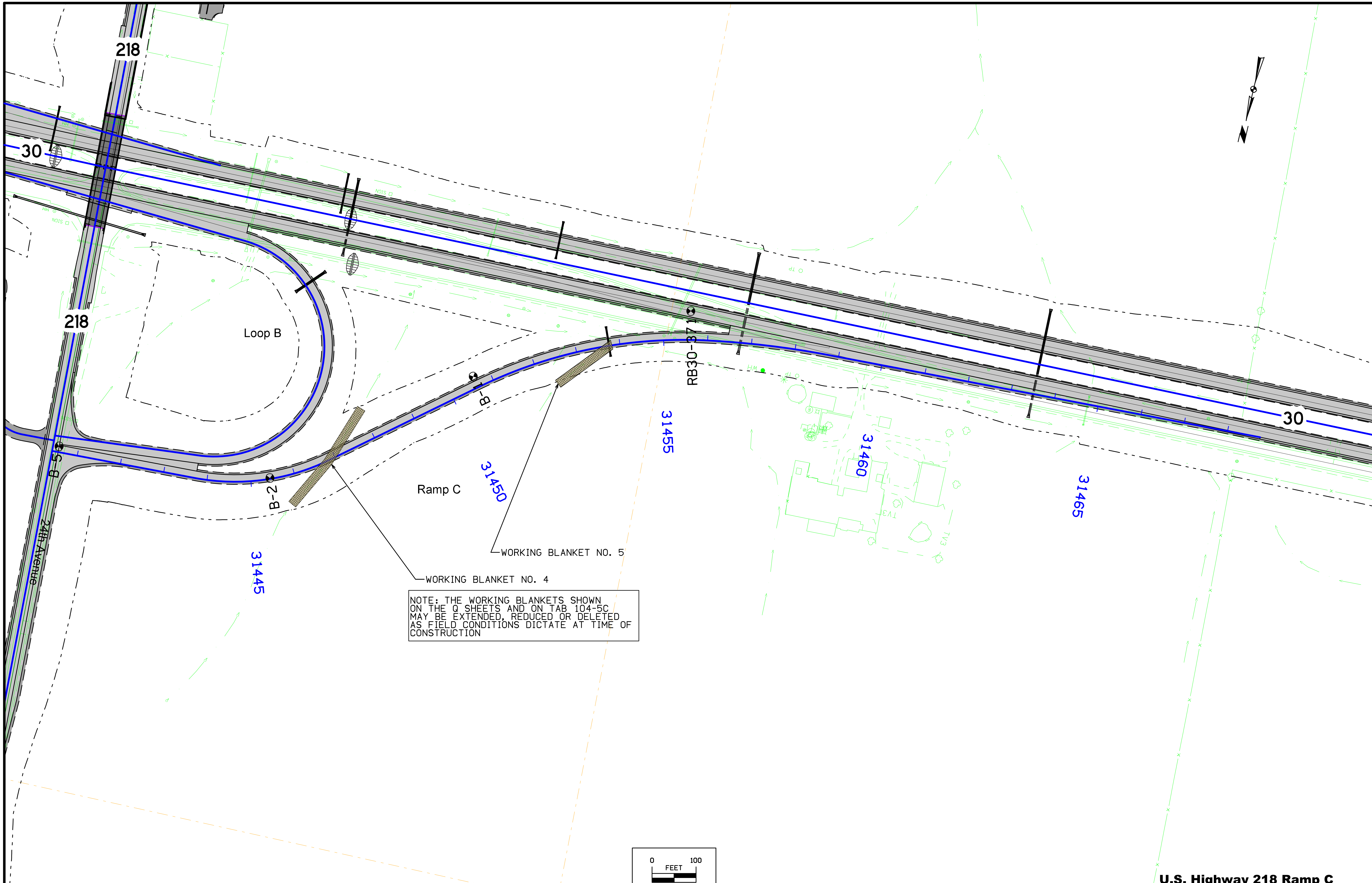
B-5
Lt. 23

- 9" Asphalt over 9.6" Sand over 9.5" Concrete over Lean Clay DK BRN
- Lean Clay BRN
- Sandy Lean Clay BRN

21470 21475 21480

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.27

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



NOTE: THE WORKING BLANKETS SHOWN ON THE Q SHEETS AND ON TAB 104-5C MAY BE EXTENDED, REDUCED OR DELETED AS FIELD CONDITIONS DICTATE AT TIME OF CONSTRUCTION

U.S. Highway 218 Ramp C

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.28

CUT MOISTURE
CUT DENSITY (pcf)
PLASTIC LIMIT

22.24
95
12

1010 1000 990 980 970 960 950 940 930 920 910 900 890 880 870 860 850 840

Tie in
Sta. 31440+41.75
943.09

PROPOSED CL GROUND SURFACE

EXISTING GROUND SURFACE

Tie in
Sta. 31456+46.34
910.50

B-5
Lt. 13

9" Asphalt over
9.6" Sand over
9.5" Concrete
over Lean Clay
DK BRN

Lean Clay
BRN

Sandy Lean Clay
BRN

H_2O

B-2
Lt. 2

TOPSOIL

Lean Clay
BRN

Sand
BRN

Sandy Lean Clay
BRN

H_2O

B-1
Lt. 27

TOPSOIL

A-6(6)
GRY BRN
LO
118.2@12.6

Sandy Lean Clay
BRN

H_2O

RB30-371
Lt. 65

TOPSOIL

LEAN CLAY
DR BR

9

H_2O

RB30-371-C1

SANDY
LEAN CLAY
BR

15

SANDY
LEAN CLAY
GR

15

31440 31445 31450 31455 31460

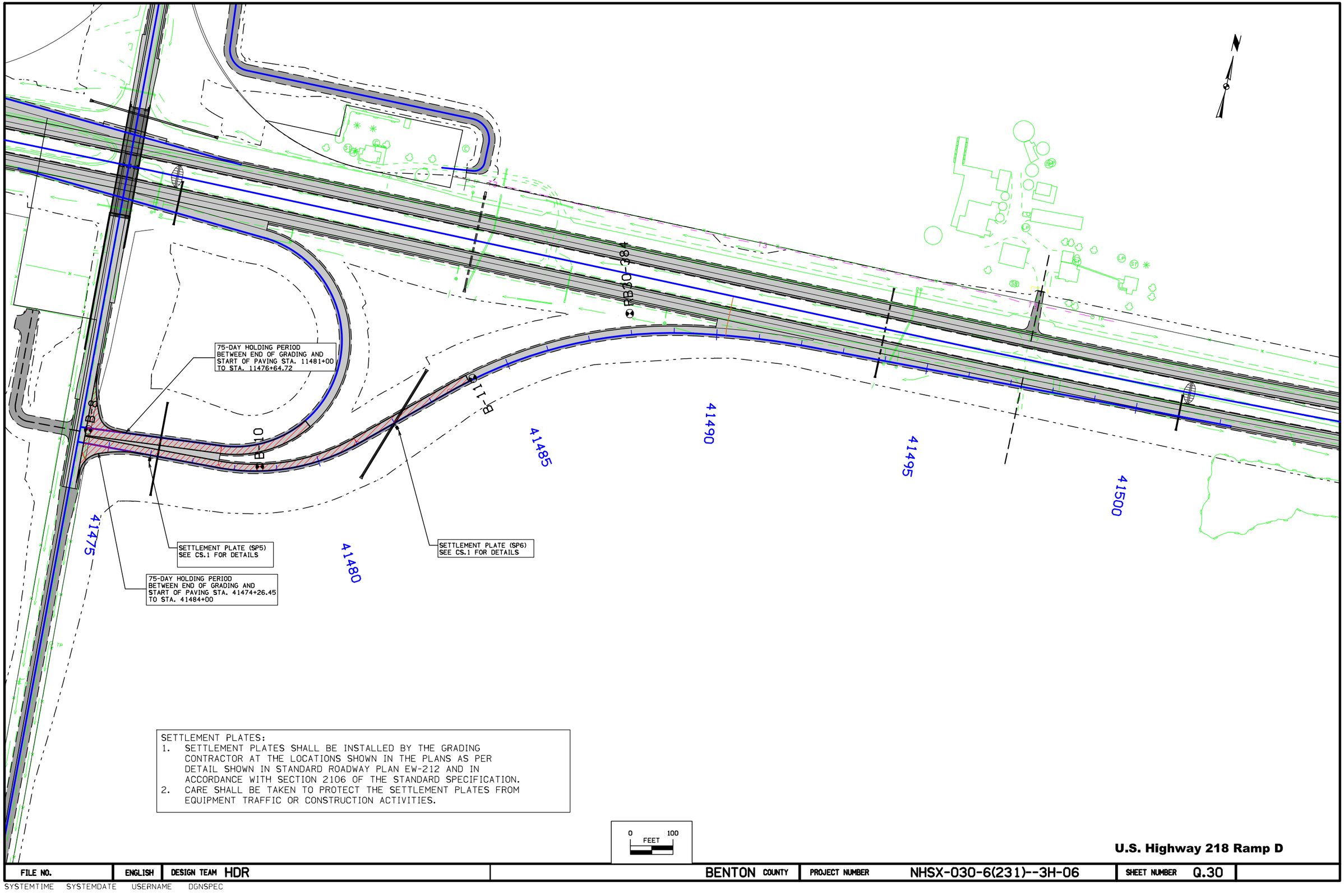
SHELBY TUBE CORE DATA

CORE NO.	RB30-371-C1
DEPTH IN FEET	9.0-11.0
CLASSIFICATION (AASHTO)	
COEFF.CONSOL. (SQ.FT /DAY)	-
TRIAXIAL COMPRESSION	UC
COHESION - PSF	670
FRICTION COEFF.	-
MOISTURE CONTENT %	21
DRY DENSITY - PCF	107

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.29

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC



SETTLEMENT PLATES:

1. SETTLEMENT PLATES SHALL BE INSTALLED BY THE GRADING CONTRACTOR AT THE LOCATIONS SHOWN IN THE PLANS AS PER DETAIL SHOWN IN STANDARD ROADWAY PLAN EW-212 AND IN ACCORDANCE WITH SECTION 2106 OF THE STANDARD SPECIFICATION.
2. CARE SHALL BE TAKEN TO PROTECT THE SETTLEMENT PLATES FROM EQUIPMENT TRAFFIC OR CONSTRUCTION ACTIVITIES.

U.S. Highway 218 Ramp D

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.30

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT MOISTURE 16
CUT DENSITY (pcf) 104
PLASTIC LIMIT 18

23,18
87
14

1010
1000
990
980
970
960
950
940
930
920
910
900
890
880
870
860
850
840

Tie-in
Sta 41474+26.45
936.48

PROPOSED CL GROUND SURFACE

Tie-in
Sta 41489+98.32
930.81

TOPSOIL

A-7-6(34)
BRN
SI CL LO
(FILL)

Fat Clay
DK BRN

Lean Clay
BRN

Sandy Lean Clay
BRN

EXISTING GROUND SURFACE

TOPSOIL

$-H_2O-$

Sandy Lean Clay
BRN

TOPSOIL

A-6(8)
BRN
LO

Sandy Lean Clay
GRY

TOPSOIL

SANDY
LEAN CLAY
DK BR
(FILL)

LEAN CLAY
DK BR
(FILL)

6

SANDY
LEAN CLAY
BR

CLAYEY SAND
BR

$-H_2O-$ 14

SAND
BR

8

SANDY
LEAN CLAY
GR BR

B-8
Lt. 31

B-10
Lt. 10

B-11
Rt. 2

RB30-384
Lt. 50

41475 41480 41485 41490 41495

FILE NO.	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER Q.31

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION.
DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

LEGEND

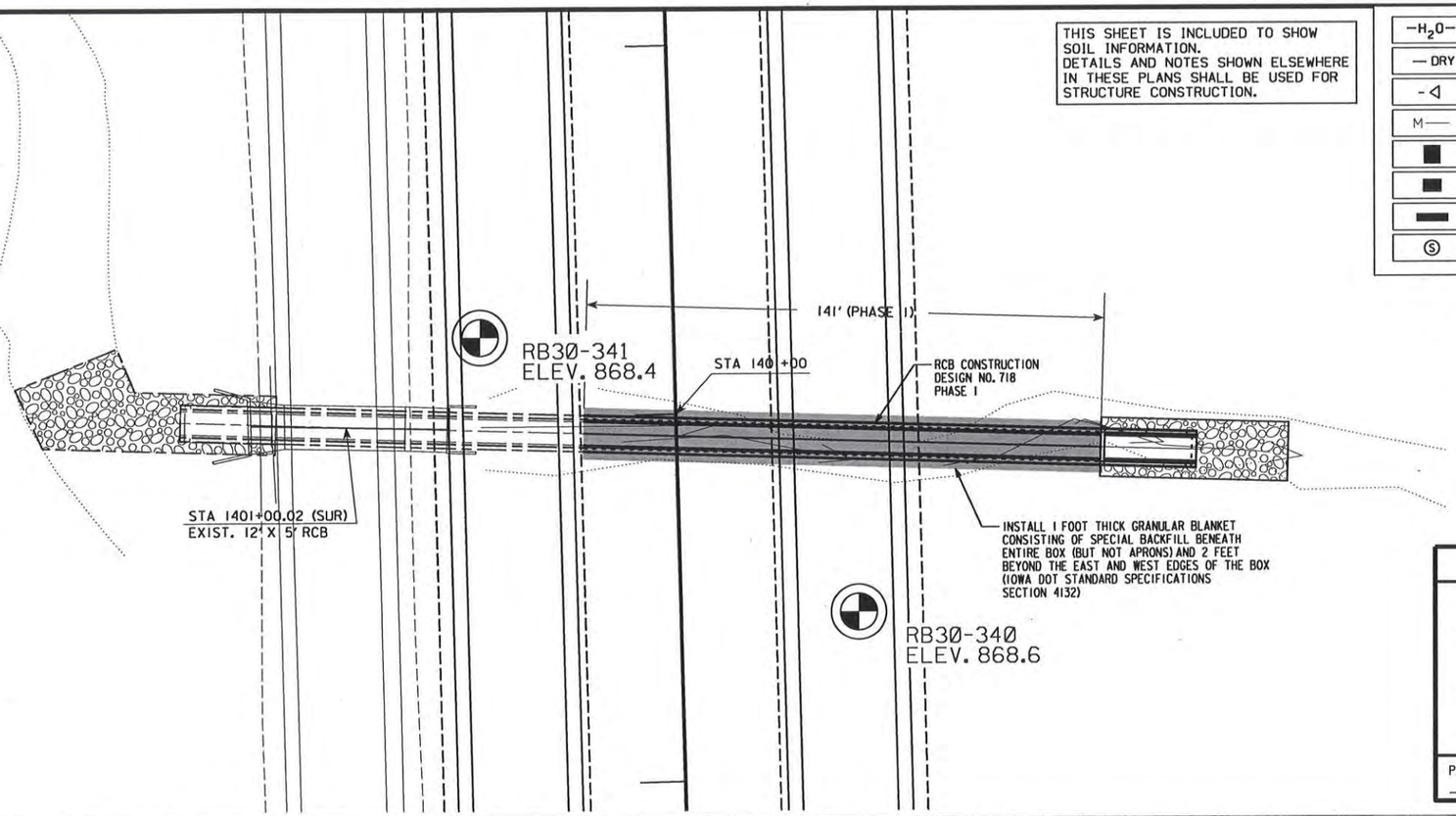
$-H_2O-$	WATER
— DRY	DRY
-◁	PLUGGED
M—	MOISTURE
■	SHELBY
■	BLOW COUNT
▬	DENS. CORE
Ⓢ	SAMPLE

BLOW COUNT
LAYER - NO. BLOWS
B2 ■ 5

	DIAMOND CORE
	SAND
	GRAVELLY SAND
	BOULDERS

SOILS BOOK NO. ----------

	SOIL REMEDIATION AREA
	LIMESTONE (LS.)
	BROKEN & WEATHERED LS.
	SANDSTONE
	SHALE
	SANDY SOIL



N

0 ENGLISH 40
SCALE IN FEET

LOCATION

T-83N R-10W
SECTION 30,31
ELDORADO TOWNSHIP
BENTON COUNTY
LATITUDE 41.9633903°
LONGITUDE -092.0551438°

Water Level Observations (Ft.)				
Boring No.	Date Drilled	While Drilling	End of Drilling	After 24 Hours
RB30-340	12/12/2013	-	-	18.5
RB30-341	11/14/2013	4.0	4.0	4.0

GEOTECHNICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
BRYAN P. KUMM
19842
IOWA

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

Signature — Date: March 1, 2018

BRYAN P. KUMM
Printed or Typed Name

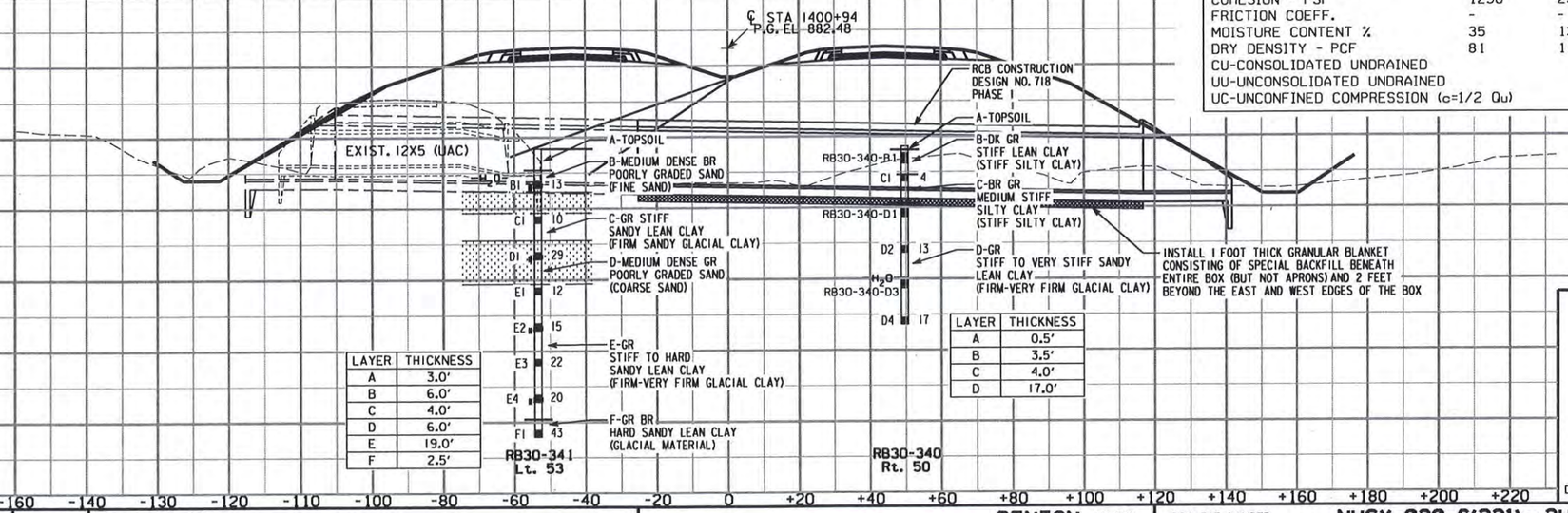
My license renewal date is December 31, 2019

Pages or sheets covered by this seal: SPS.1, SPS.2

SHELBY TUBE CORE DATA

CORE NO.	RB30-340-B1	RB30-340-D1	RB30-340-D3
DEPTH IN FEET	0.5'-2.5'	8.0'-10.0'	18.0'-20.0'
CLASSIFICATION (AASHTO)			
COEFF.CONSOL. (SQ. FT /DAY)	-	-	-
TRIAXIAL COMPRESSION	UC	UC	UC
COHESION - PSF	1250	2390	2360
FRICTION COEFF.	-	-	-
MOISTURE CONTENT %	35	13	14
DRY DENSITY - PCF	81	118	119

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)



LAYER	THICKNESS
A	3.0'
B	6.0'
C	4.0'
D	6.0'
E	19.0'
F	2.5'

LAYER	THICKNESS
A	0.5'
B	3.5'
C	4.0'
D	17.0'

DESIGN FOR 3° SKEW

8' X 8' X 141' REINFORCED CONCRETE BOX CULVERT PHASE I

SOIL PROFILE SHEET

STATION 1400+94 — February 2017

BENTON COUNTY

DESIGN SHEET NO. 1 OF 2 FILE NO. 31044 DESIGN NO. 718

FILE NO. 31044 | ENGLISH | DESIGN TEAM HDR | BENTON COUNTY | PROJECT NUMBER NHSX-030-6(231)--3H-06 | SHEET NUMBER SPS.1

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION.
DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

LEGEND

SOILS BOOK NO. _____

$-H_2O-$	WATER	BLOW COUNT: LAYER - NO. BLOWS (B2 — 5)	SOIL REMEDIATION AREA
— DRY	DRY		LIMESTONE (LS.)
-◁	PLUGGED		BROKEN & WEATHERED LS.
M——	MOISTURE	DIAMOND CORE	SANDSTONE
■	SHELBY	SAND	SHALE
■	BLOW COUNT	GRAVELLY SAND	SANDY SOIL
▬	DENS. CORE	BOULDERS	
Ⓢ	SAMPLE		

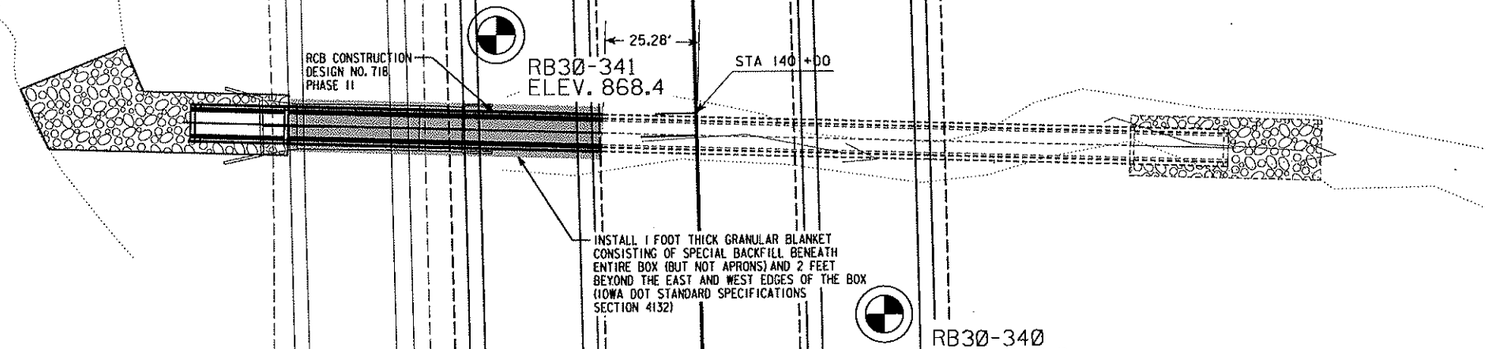
N

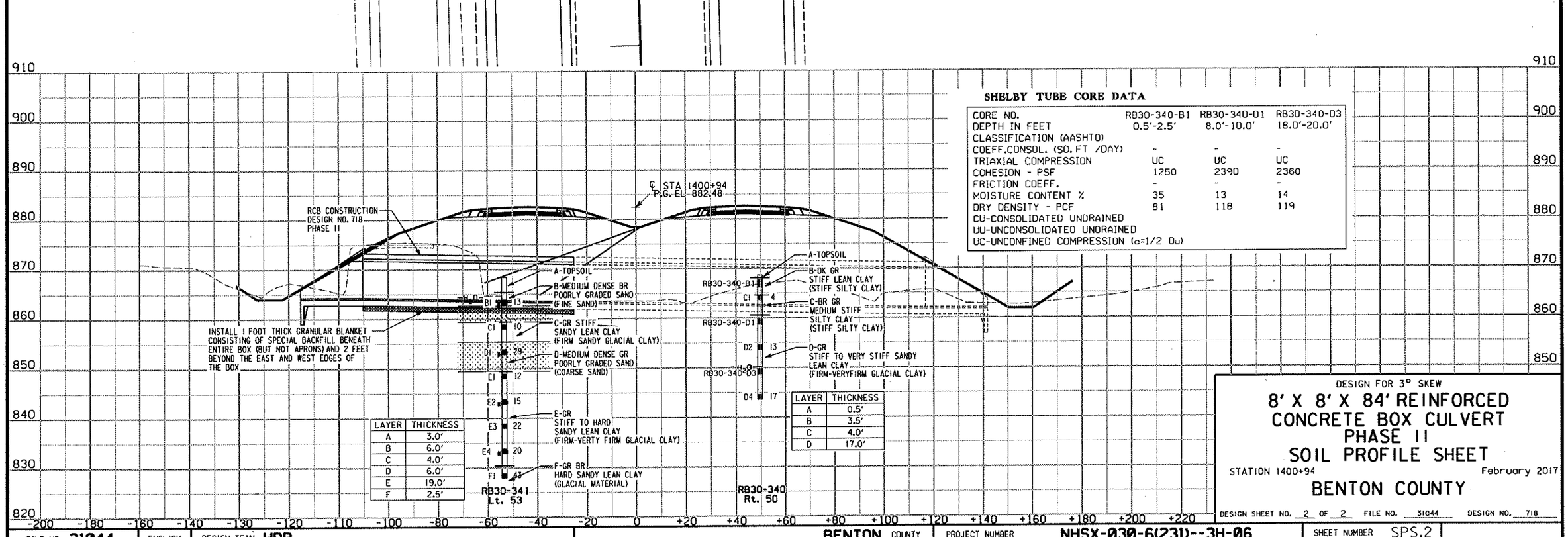
0 ENGLISH 40
SCALE IN FEET

LOCATION

T-83N R-10W
SECTION 30,31
ELDORADO TOWNSHIP
BENTON COUNTY
LATITUDE 41.9633903°
LONGITUDE -092.0551438°

Water Level Observations (Ft.)				
Boring No.	Date Drilled	While Drilling	End of Drilling	After 24 Hours
RB30-340	12/12/2013	-	-	18.5
RB30-341	11/14/2013	4.0	4.0	4.0





LAYER	THICKNESS
A	3.0'
B	6.0'
C	4.0'
D	6.0'
E	19.0'
F	2.5'

LAYER	THICKNESS
A	0.5'
B	3.5'
C	4.0'
D	17.0'

SHELBY TUBE CORE DATA

CORE NO.	RB30-340-B1	RB30-340-01	RB30-340-03
DEPTH IN FEET	0.5'-2.5'	8.0'-10.0'	18.0'-20.0'
CLASSIFICATION (AASHTO)			
COEFF.CONSOL. (SQ.FT /DAY)	-	-	-
TRIAXIAL COMPRESSION	UC	UC	UC
COHESION - PSF	1250	2390	2360
FRICTION COEFF.	-	-	-
MOISTURE CONTENT %	35	13	14
DRY DENSITY - PCF	81	118	119

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

DESIGN FOR 3° SKEW

8' X 8' X 84' REINFORCED CONCRETE BOX CULVERT PHASE II SOIL PROFILE SHEET

STATION 1400+94

February 2017

BENTON COUNTY

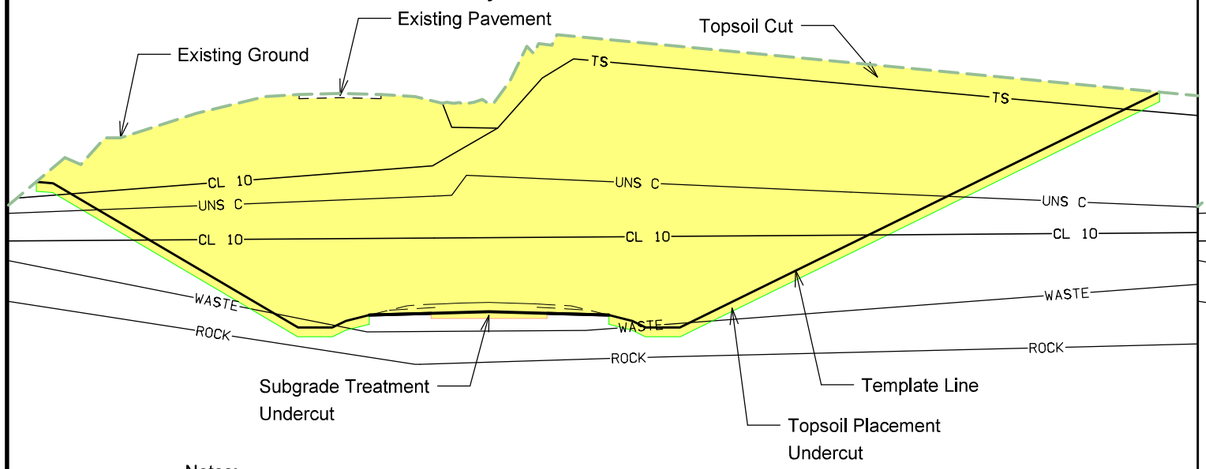
DESIGN SHEET NO. 2 OF 2 FILE NO. 31044 DESIGN NO. 718

FILE NO. 31044	ENGLISH	DESIGN TEAM HDR	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER SPS.2

SYSTEMTIME SYSTEMDATE USERNAME DGNSPEC

CUT SIDE Total Cut Unadjusted

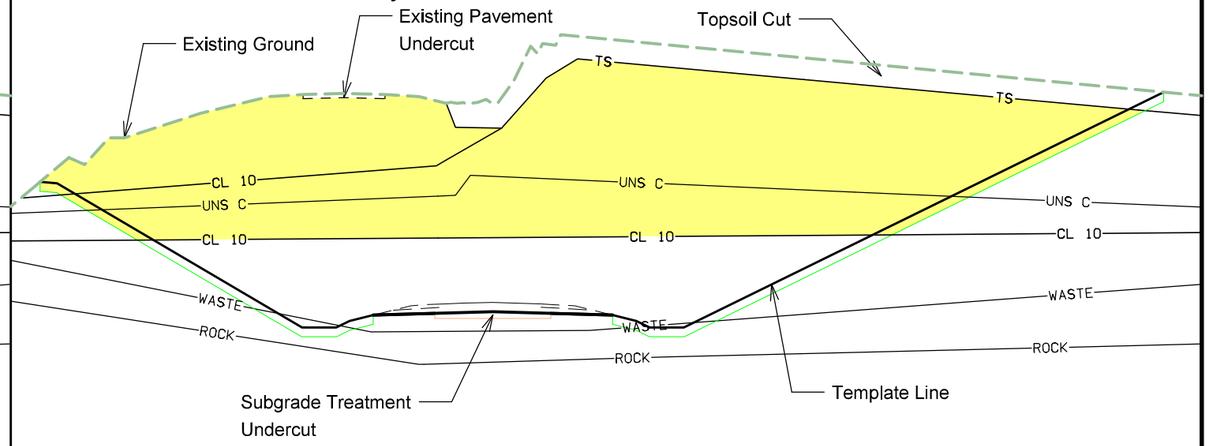
RURAL



Notes:

1. "Total Cut Unadjusted" Column includes all cut values in the Station Range based on Typical, Topsoil and Subgrade Treatment needs.
2. "Total Cut Unadjusted" does not include and Existing Pavement values inside or outside the cut template as shown on cross sections.
3. Tabulated Plowing and Shaping operations are included in the "Total Cut Unadjusted" values.

CUT SIDE Total Cut Adjusted

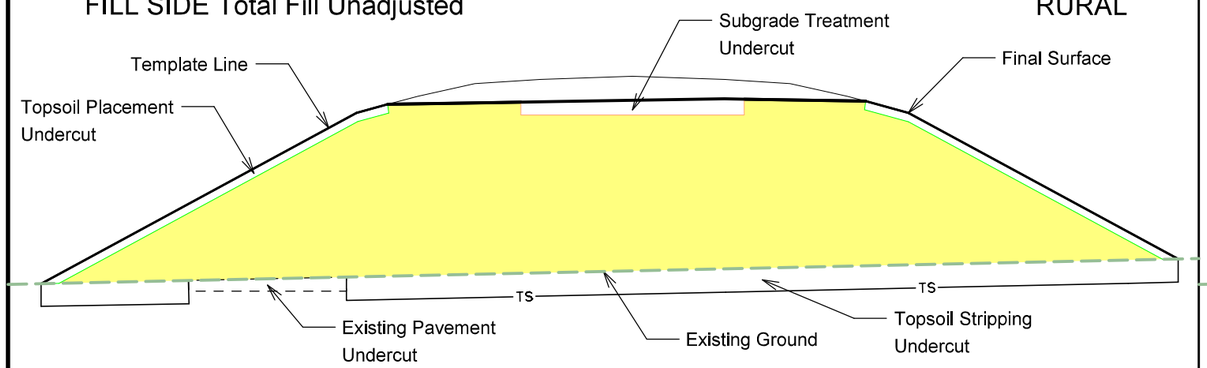


Notes:

1. "Total Cut Adjusted" Column includes all cut values usable as Class 10 material.
2. "Total Cut Adjusted" does not include and Existing Pavement , Existing Topsoil, or material to be wasted.

FILL SIDE Total Fill Unadjusted

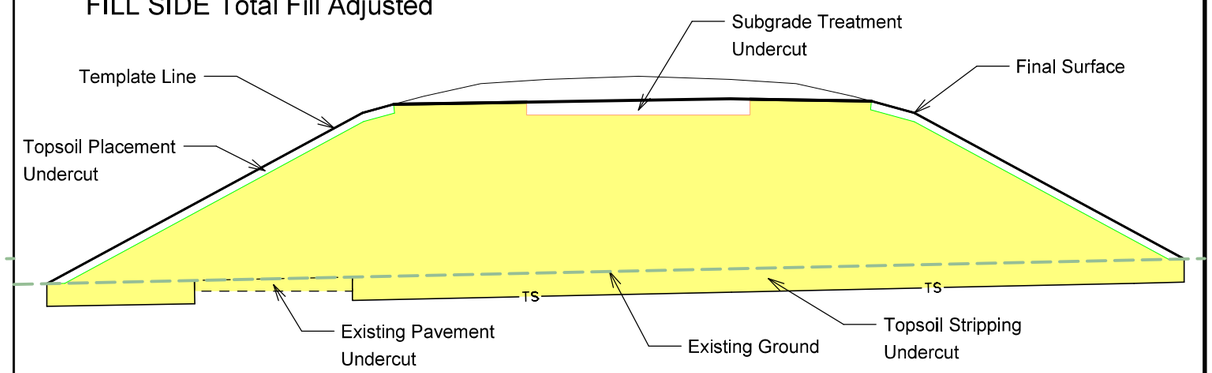
RURAL



Notes:

1. "Total Fill Unadjusted" Column includes all Class 10, 12, and 13 fill. This excludes the topsoil, subgrade treatment, subbase, new pavement, and shoulder fill needs in that station range.
2. "Total Fill Unadjusted" Column does not include adjustments for additional fill from cuts such as existing pavement removed, plowing and shaping operations, entrances, dikes, or topsoil stripping.

FILL SIDE Total Fill Adjusted

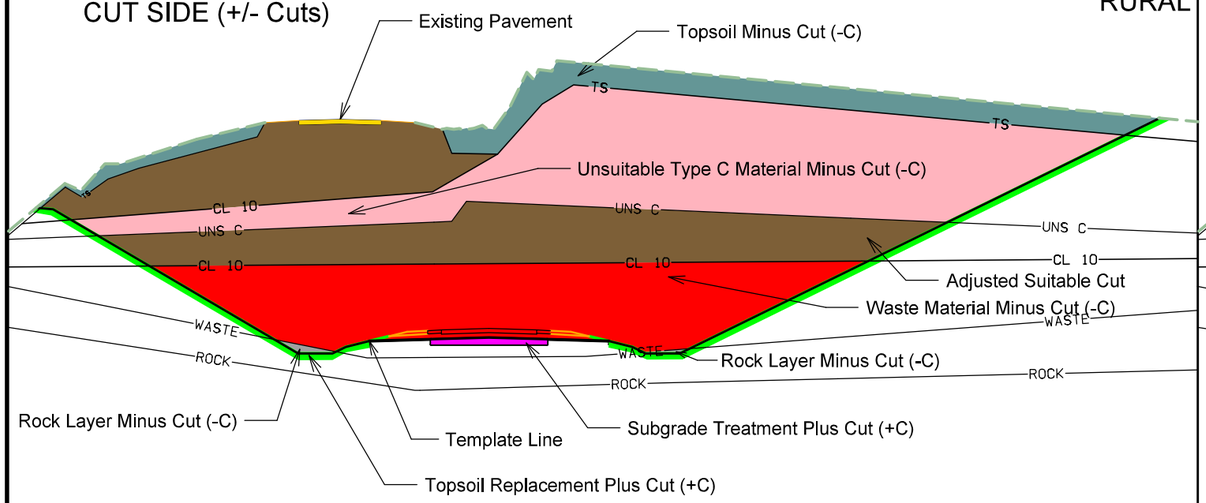


Notes:

1. "Total Fill Adjusted" Column includes all Class 10, 12, and 13 fill and adjustments for additional fill from cuts such as existing pavement, plowing and shaping operations, entrances, dikes, and topsoil stripping.
2. The available area to place unsuitable materials in the T Sheet tabulation does not include the undercut values from the topsoil stripping, existing pavement, or plowing and shaping

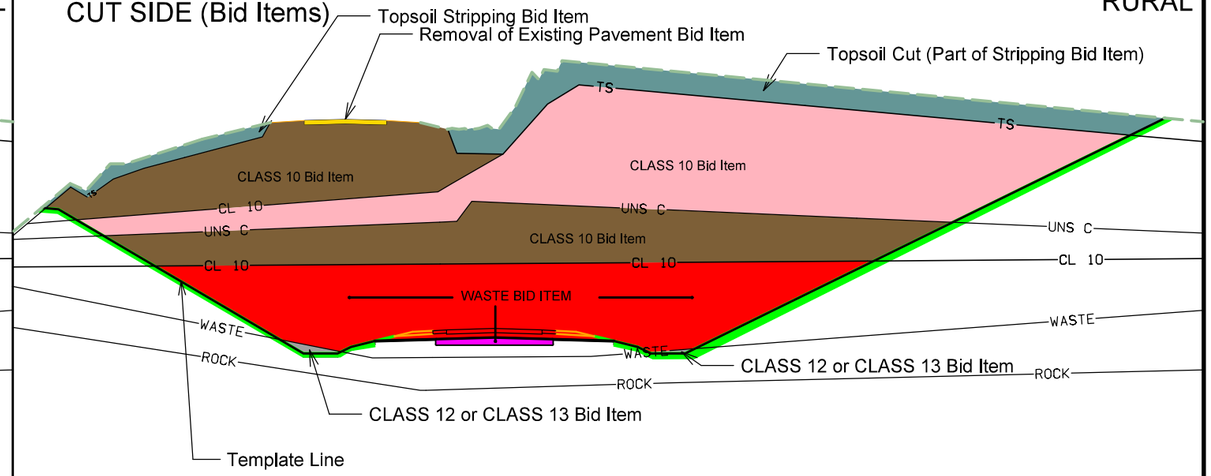
CUT SIDE (+/- Cuts)

RURAL



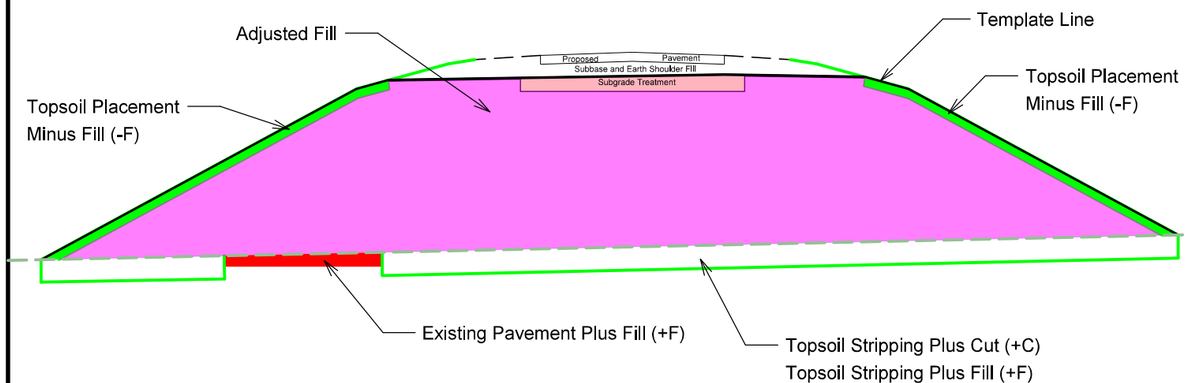
CUT SIDE (Bid Items)

RURAL



FILL SIDE (+/- Fills)

RURAL

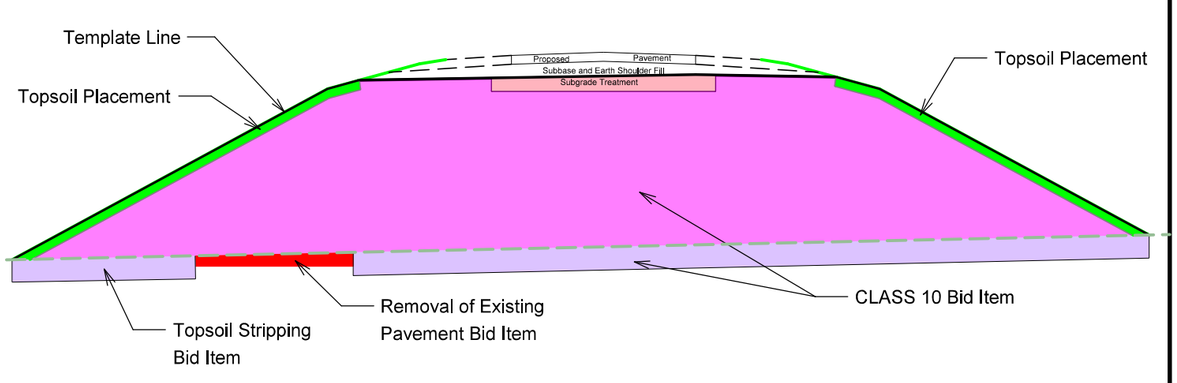


Notes:

1. "Add Quantity +C" columns are additional cut encountered that is not Typical, Topsoil, or Subgrade Treatment Based. (Entrance, Dike, Etc.)
2. "-C" columns are either soil types or Class 10, 12, or 13 designated material that is encountered in the cut station range that is paid for by other bid items.
3. The "(SoilType) Cut" columns are soil types encountered in the cut that are paid by either Class 10, 12 or 13.
4. The "Adjusted Clas (10,12 or 13)" columns are the sum of all various soil types encountered in that station range, that are paid by Class 10, 12, or 13 bid items.
5. Refer to Standard Road Plan EW-102 for placement of unsuitable soil types.

FILL SIDE (Bid Items)

RURAL



Notes:

1. Refer to Standard Road Plan EW-102 for placement of unsuitable soil types.

FILE NO.	ENGLISH	DESIGN TEAM Project Manager\Designer	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.2

10:51:19 AM 4/10/2017 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231LGD.sht

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
Stage 1																						
XOver2																						
1539+05.00	32	15	16	0	0		15	1	0	11			12	16	-1	0	0	16	3	4	12	
1539+25.00	45	18	26	0	0		18	2	0	21			23	30	-12	0	0	26	7	10	16	
1539+50.00	45	18	27	0	0		18	3	0	22			25	33	-15	0	0	27	8	11	16	
1539+75.00	47	18	29	0	0		18	4	0	23			27	35	-17	0	0	29	8	11	18	
1540+00.00	47	18	29	0	0		18	4	0	23			27	35	-17	0	0	29	9	13	16	
1540+25.00	46	17	28	0	0		17	3	0	23			26	34	-17	0	0	28	8	11	17	
1540+50.00	45	17	28	0	0		17	3	0	23			26	34	-17	0	0	28	8	11	17	
1540+75.00	44	17	28	0	0		17	3	0	23			26	34	-17	0	0	28	8	11	17	
1541+00.00	44	17	27	0	0		17	3	0	23			26	34	-17	0	0	27	8	11	16	
1541+25.00	43	17	26	0	0		17	4	0	22			26	34	-17	0	0	26	6	8	18	
1541+50.00	41	18	24	0	0		18	4	0	19			23	30	-12	0	0	24	4	6	18	
1541+75.00	42	18	24	0	0		18	4	0	19			23	30	-12	0	0	24	3	4	20	
1542+00.00	44	18	26	0	0		18	6	0	21			27	35	-17	0	0	26	2	3	23	
1542+25.00	51	18	33	0	0		18	16	0	28			44	57	-39	0	0	33	4	6	27	
1542+50.00	56	18	38	0	0		18	40	0	34			74	96	-78	0	0	38	4	6	32	
1542+75.00	56	17	39	0	0		17	66	0	36			102	133	-116	0	0	39	2	3	36	
1543+00.00	55	16	39	0	0		16	79	0	37			116	151	-135	0	0	39	0	0	39	
1543+25.00	56	16	40	0	0		16	81	0	38			119	155	-139	0	0	40	0	0	40	
1543+50.00	57	17	41	0	0		17	82	0	38			120	156	-139	0	0	41	0	0	41	
1543+75.00	58	17	41	0	0		17	81	0	38			119	155	-138	0	0	41	0	0	41	
1544+00.00	59	18	41	0	0		18	76	0	38			114	148	-130	0	0	41	0	0	41	
1544+25.00	60	18	42	0	0		18	74	0	38			112	146	-128	0	0	42	0	0	42	
1544+50.00	60	18	42	0	0		18	75	0	39			114	148	-130	0	0	42	0	0	42	
1544+75.00	60	18	42	0	0		18	74	0	39			113	147	-129	0	0	42	0	0	42	
1545+00.00	61	18	43	0	0		18	72	0	40			112	146	-128	0	0	43	0	0	43	
1545+25.00	61	18	43	0	0		18	70	0	40			110	143	-125	0	0	43	0	0	43	
1545+50.00	61	18	43	0	0		18	69	0	40			109	142	-124	0	0	43	0	0	43	
1545+75.00	61	18	43	0	0		18	65	0	40			105	137	-119	0	0	43	1	1	42	
1546+00.00	60	19	42	0	0		19	51	0	38			89	116	-97	0	0	42	4	6	36	
1546+25.00	59	20	39	0	0		20	34	0	34			68	88	-68	0	0	39	4	6	33	
1546+50.00	55	20	35	0	0		20	23	0	29			52	68	-48	0	0	35	4	6	29	
1546+75.00	51	20	31	0	0		20	15	0	25			40	52	-32	0	0	31	4	6	25	
1547+00.00	48	20	28	0	0		20	8	0	22			30	39	-19	0	0	28	4	6	22	
1547+25.00	44	20	24	0	0		20	4	0	18			22	29	-9	0	0	24	3	4	20	
1547+50.00	39	19	20	0	0		19	2	0	14			16	21	-2	0	0	20	3	4	16	
1547+75.00	35	19	16	0	0		19	0	0	11			11	14	5	0	0	16	2	3	13	
1548+00.00	31	19	12	0	0		19	0	0	7			7	9	10	0	0	12	2	3	9	
1548+25.00	30	19	11	0	0		19	0	0	7			7	9	10	0	0	11	2	3	8	
1548+50.00	32	18	14	0	0		18	0	0	9			9	12	6	0	0	14	3	4	10	
1548+75.00	36	18	18	0	0		18	0	0	13			13	17	1	0	0	18	5	7	11	
1549+00.00	38	18	20	0	0		18	0	0	15			15	20	-2	0	0	20	5	7	13	
1549+25.00	39	18	21	0	0		18	0	0	15			15	20	-2	0	0	21	6	8	13	
1549+50.00	39	17	22	0	0		17	0	0	16			16	21	-4	0	0	22	6	8	14	
1549+75.00	42	17	24	0	0		17	0	0	19			19	25	-8	0	0	24	7	10	14	
1550+00.00	44	17	26	0	0		17	1	0	22			23	30	-13	0	0	26	8	11	15	
1550+25.00	34	13	21	0	0		13	4	0	18			22	29	-16	0	0	21	7	10	11	
1550+50.00	23	9	14	0	0		9	4	0	12			16	21	-12	0	0	14	4	6	8	
1550+75.00	19	9	10	0	0		9	1	0	7			8	10	-1	0	0	10	2	3	7	
1551+00.00	7	4	3	0	0		4	0	0	2			2	3	1	0	0	3	1	1	2	
1551+10.00																						
XOver2																						
Totals:	2,242	842	1,399	0	0	0	842	1,211	0	1,189	0	0	2,400	3,120	-2,278	0	0	1,399	179	251	1,148	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.3

10/23/2017 11:29:17 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
Stage 2																						
US_30_EB																						
1379+25.00	43	27	16	0	0		27	0	0	1			1	1	26	0	0	16	14	20	-4	
1379+50.00	115	66	49	0	0		66	14	0	18			32	42	24	0	0	49	27	38	11	
1379+75.00	163	82	81	0	0		82	47	0	46			93	121	-39	0	0	81	39	55	26	
1380+00.00	149	66	82	0	0		66	92	0	57			149	194	-128	0	0	82	40	56	26	
1380+25.00	138	54	84	0	0		54	149	0	61			210	273	-219	0	69	84	42	59	25	
1380+50.00	134	47	86	0	0		47	206	0	65			271	352	-305	0	144	86	43	60	26	
1380+75.00	131	43	88	0	0		43	264	0	68			332	432	-389	0	220	88	45	63	25	
1381+00.00	128	39	90	0	0		39	327	0	70			397	516	-477	78	300	90	47	66	24	
1381+25.00	125	33	92	0	0		33	394	0	74			468	608	-575	165	387	92	48	67	25	
1381+50.00	123	29	94	0	0		29	459	0	77			536	697	-668	250	472	94	47	66	28	
1381+75.00	123	27	96	0	0		27	527	0	80			607	789	-762	338	560	96	46	64	32	
1382+00.00	122	24	98	0	0		24	595	0	82			677	880	-856	425	647	98	46	64	34	
1382+25.00	123	23	100	0	0		23	653	0	85			738	959	-936	497	719	100	45	63	37	
1382+50.00	123	22	101	0	0		22	708	0	86			794	1,032	-1,010	569	792	101	45	63	38	
1382+75.00	123	21	103	0	0		21	764	0	88			852	1,108	-1,087	644	866	103	44	62	41	
1383+00.00	123	19	104	0	0		19	820	0	90			910	1,183	-1,164	727	949	104	44	62	42	
1383+25.00	122	16	106	0	0		16	876	0	92			968	1,258	-1,242	807	1,030	106	43	60	46	
1383+50.00	122	15	107	0	0		15	929	0	94			1,023	1,330	-1,315	878	1,100	107	43	60	47	
1383+75.00	124	15	109	0	0		15	971	0	96			1,067	1,387	-1,372	933	1,156	109	43	60	49	
1384+00.00	125	15	110	0	0		15	1,006	0	97			1,103	1,434	-1,419	982	1,203	110	43	60	50	
1384+25.00	125	14	111	0	0		14	1,048	0	98			1,146	1,490	-1,476	1,036	1,258	111	44	62	49	
1384+50.00	127	14	113	0	0		14	1,096	0	100			1,196	1,555	-1,541	1,097	1,320	113	45	63	50	
1384+75.00	129	14	114	0	0		14	1,140	0	101			1,241	1,613	-1,599	1,156	1,378	114	46	64	50	
1385+00.00	131	15	116	0	0		15	1,182	0	103			1,285	1,671	-1,656	1,209	1,431	116	47	66	50	
1385+25.00	129	14	116	0	0		14	1,223	0	103			1,326	1,724	-1,710	1,264	1,486	116	47	66	50	
1385+50.00	130	13	117	0	0		13	1,258	0	104			1,362	1,771	-1,758	1,310	1,533	117	48	67	50	
1385+75.00	133	14	119	0	0		14	1,290	0	106			1,396	1,815	-1,801	1,352	1,574	119	49	69	50	
1386+00.00	134	14	120	0	0		14	1,322	0	107			1,429	1,858	-1,844	1,395	1,617	120	50	70	50	
1386+25.00	137	16	121	0	0		16	1,355	0	108			1,463	1,902	-1,886	1,438	1,660	121	51	71	50	
1386+50.00	142	18	123	0	0		18	1,387	0	109			1,496	1,945	-1,927	1,478	1,700	123	52	73	50	
1386+75.00	148	22	126	0	0		22	1,420	0	111			1,531	1,990	-1,968	1,520	1,742	126	53	74	52	
1387+00.00	154	26	128	0	0		26	1,456	0	112			1,568	2,038	-2,012	1,560	1,782	128	54	76	52	
1387+25.00	158	28	130	0	0		28	1,502	0	113			1,615	2,100	-2,072	1,613	1,836	130	55	77	53	
1387+50.00	160	28	132	0	0		28	1,572	0	115			1,687	2,193	-2,165	1,700	1,923	132	56	78	54	
1387+75.00	154	20	134	0	0		20	1,711	0	119			1,830	2,379	-2,359	1,877	2,100	134	56	78	56	
1388+00.00	148	10	138	0	0		10	1,847	0	124			1,971	2,562	-2,552	2,049	2,271	138	56	78	60	
1388+25.00	161	19	142	0	0		19	1,770	0	123			1,893	2,461	-2,442	1,942	2,165	142	57	80	62	
1388+50.00	176	36	141	0	0		36	1,601	0	117			1,718	2,233	-2,197	1,720	1,942	141	58	81	60	
1388+75.00	181	42	140	0	0		42	1,520	0	115			1,635	2,126	-2,084	1,609	1,832	140	58	81	59	
1389+00.00	180	41	139	0	0		41	1,482	0	115			1,597	2,076	-2,035	1,559	1,781	139	57	80	59	
1389+25.00	174	37	138	0	0		37	1,470	0	114			1,584	2,059	-2,022	1,547	1,769	138	56	78	60	
1389+50.00	169	33	136	0	0		33	1,462	0	113			1,575	2,048	-2,015	1,541	1,763	136	55	77	59	
1389+75.00	167	32	135	0	0		32	1,437	0	113			1,550	2,015	-1,983	1,511	1,733	135	55	77	58	
1390+00.00	165	31	134	0	0		31	1,404	0	112			1,516	1,971	-1,940	1,468	1,690	134	54	76	58	
1390+25.00	164	31	133	0	0		31	1,371	0	110			1,481	1,925	-1,894	1,427	1,650	133	54	76	57	
1390+50.00	164	32	132	0	0		32	1,332	0	109			1,441	1,873	-1,841	1,379	1,602	132	53	74	58	
1390+75.00	163	32	131	0	0		32	1,299	0	108			1,407	1,829	-1,797	1,340	1,563	131	52	73	58	
1391+00.00	160	29	131	0	0		29	1,283	0	108			1,391	1,808	-1,779	1,314	1,537	131	52	73	58	
1391+25.00	156	26	130	0	0		26	1,266	0	107			1,373	1,785	-1,759	1,286	1,508	130	51	71	59	
1391+50.00	157	27	131	0	0		27	1,256	0	108			1,364	1,773	-1,746	1,266	1,487	131	50	70	61	
1391+75.00	160	25	134	0	0		25	1,265	0	112			1,377	1,790	-1,765	1,270	1,492	134	50	70	64	
1392+00.00	159	22	136	0	0		22	1,256	0	114			1,370	1,781	-1,759	1,257	1,478	136	49	69	67	
1392+25.00	156	20	136	0	0		20	1,231	0	114			1,345	1,749	-1,729	1,225	1,447	136	48	67	69	
1392+50.00	154	19	135	0	0		19	1,204	0	112			1,316	1,711	-1,692	1,190	1,412	135	47	66	69	
1392+75.00	156	22	134	0	0		22	1,165	0	110			1,275	1,658	-1,636	1,138	1,360	134	47	66	68	
1393+00.00	160	26	134	0	0		26	1,113	0	109			1,222	1,589	-1,563	1,070	1,292	134	46	64	70	
1393+25.00	163	30	133	0	0		30	1,051	0	106			1,157	1,504	-1,474	992	1,214	133	46	64	69	
1393+50.00	169	37	133	0	0		37	984	0	103			1,087	1,413	-1,376	904	1,126	133	45	63	70	
1393+75.00	178	43	134	0	0		43	921	0	102			1,023	1,330	-1,287	823	1,045	134	45	63	71	
1394+00.00	182	48	134	0	0		48	863	0	99			962	1,251	-1,203	749	971	134	45	63	71	
1394+25.00	189	54	134	0	0		54	800	0	97			897	1,166	-1,112	670	892	134	45	63	71	
1394+50.00	196	63	133	0	0		63	741	0	94			835	1,086	-1,023	597	819	133	44	62	71	
1394+75.00	202	69	133	0	0		69	695	0	92			787	1,023	-954	538	761	133	44	62	71	
1395+00.00	209	76	133	0	0		76	661	0	91			752	978	-902	498	720	133	44	62	71	
1395+25.00	220	86	134	0	0		86	636	0	90			726	944	-858	467	689	134	45	63	71	
1395+50.00																						
Subtotals:	9,708	2,051	7,657	0	0	0	2,051	66,149	0	6,277	0	0	72,426	94,154	-92,103	64,640	77,962	7,657	3,095	4,333	3,324	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.4

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1395+50.00	220	85	135	0	0		85	611	0	89			700	910	-825	436	658	135	46	64	71	
1395+75.00	210	73	137	0	0		73	593	0	94			687	893	-820	415	637	137	47	66	71	
1396+00.00	210	72	138	0	0		72	593	0	106			699	909	-837	417	640	138	49	69	69	
1396+25.00	225	85	140	0	0		85	583	0	107			690	897	-812	403	625	140	50	70	70	
1396+50.00	240	99	141	0	0		99	572	0	95			667	867	-768	393	615	141	51	71	70	
1396+75.00	259	116	143	0	0		116	577	0	89			666	866	-750	402	624	143	52	73	70	
1397+00.00	282	137	145	0	0		137	574	0	87			661	859	-722	402	624	145	53	74	71	
1397+25.00	304	157	147	0	0		157	572	0	88			660	858	-701	407	629	147	54	76	71	
1397+50.00	324	176	148	0	0		176	576	0	87			663	862	-686	416	638	148	55	77	71	
1397+75.00	344	194	150	0	0		194	586	0	88			674	876	-682	433	655	150	56	78	72	
1398+00.00	359	208	151	0	0		208	610	0	89		2,169	2,868	3,728	-3,520	467	689	151	57	80	71	
1398+25.00	369	217	152	0	0		217	650	0	90			740	962	-745	521	744	152	58	81	71	
1398+50.00	366	212	153	0	0		212	713	0	93			806	1,048	-836	550	772	153	59	83	70	
1398+75.00	353	200	153	0	0		200	787	0	95			882	1,147	-947	647	868	153	60	84	69	
1399+00.00	339	187	153	0	0		187	862	0	98			960	1,248	-1,061	0	0	153	60	84	69	
1399+25.00	328	174	154	0	0		174	932	0	102			1,034	1,344	-1,170	0	0	154	61	85	69	
1399+50.00	321	167	154	0	0		167	986	0	104			1,090	1,417	-1,250	0	0	154	62	87	67	
1399+75.00	313	159	154	0	0		159	1,033	0	106			1,139	1,481	-1,322	0	0	154	62	87	67	
1400+00.00	292	138	154	0	0		138	1,105	0	109			1,214	1,578	-1,440	0	0	154	62	87	67	
1400+25.00	289	135	154	0	0		135	1,162	0	112			1,274	1,656	-1,521	0	0	154	62	87	67	
1400+50.00	290	136	154	0	0		136	1,175	0	116			1,291	1,678	-1,542	0	0	154	63	88	66	
1400+75.00	322	162	159	0	0		162	1,300	0	122			1,422	1,849	-1,687	0	0	159	63	88	71	
1401+00.00	353	193	160	0	0		193	1,238	0	117			1,355	1,762	-1,569	0	0	160	65	91	69	
1401+25.00	356	200	155	0	0		200	1,017	0	108			1,125	1,463	-1,263	0	0	155	64	90	65	
1401+50.00	371	217	154	0	0		217	941	0	105			1,046	1,360	-1,143	0	0	154	64	90	64	
1401+75.00	379	225	153	0	0		225	868	0	102			970	1,261	-1,036	0	0	153	63	88	65	
1402+00.00	387	234	153	0	0		234	799	0	99			898	1,167	-933	0	0	153	63	88	65	
1402+25.00	393	241	153	0	0		241	734	0	96			830	1,079	-838	0	0	153	62	87	66	
1402+50.00	393	241	152	0	0		241	686	0	94			780	1,014	-773	0	0	152	61	85	67	
1402+75.00	393	241	151	0	0		241	646	0	92			738	959	-718	0	0	151	60	84	67	
1403+00.00	393	243	150	0	0		243	606	0	89			695	904	-661	0	0	150	59	83	67	
1403+25.00	386	236	149	0	0		236	584	0	89			673	875	-639	0	0	149	58	81	68	
1403+50.00	356	209	147	0	0		209	603	0	89			692	900	-691	0	0	147	57	80	67	
1403+75.00	325	179	146	0	0		179	635	0	91			726	944	-765	0	0	146	56	78	68	
1404+00.00	310	165	145	0	0		165	646	0	91			737	958	-793	0	0	145	55	77	68	
1404+25.00	298	153	144	0	0		153	655	0	92			747	971	-818	0	0	144	54	76	68	
1404+50.00	284	141	143	0	0		141	659	0	92			751	976	-835	0	0	143	53	74	69	
1404+75.00	272	130	142	0	0		130	658	0	92			750	975	-845	0	0	142	52	73	69	
1405+00.00	264	122	142	0	0		122	657	0	93			750	975	-853	0	0	142	52	73	69	
1405+25.00	257	117	141	0	0		117	658	0	93			751	976	-859	0	0	141	51	71	70	
1405+50.00	255	114	141	0	0		114	654	0	94			748	972	-858	0	0	141	51	71	70	
1405+75.00	255	115	141	0	0		115	650	0	93			743	966	-851	0	0	141	51	71	70	
1406+00.00	255	115	140	0	0		115	655	0	93			748	972	-857	0	0	140	51	71	69	
1406+25.00	256	116	140	0	0		116	659	0	93			752	978	-862	0	0	140	51	71	69	
1406+50.00	257	116	140	0	0		116	658	0	93			751	976	-860	0	0	140	50	70	70	
1406+75.00	257	117	140	0	0		117	656	0	93			749	974	-857	0	0	140	51	71	69	
1407+00.00	257	117	140	0	0		117	650	0	93			743	966	-849	0	0	140	51	71	69	
1407+25.00	255	116	139	0	0		116	646	0	92			738	959	-843	0	0	139	51	71	68	
1407+50.00	258	119	139	0	0		119	645	0	92			737	958	-839	0	0	139	51	71	68	
1407+75.00	260	122	138	0	0		122	642	0	91			733	953	-831	0	0	138	51	71	67	
1408+00.00	261	123	138	0	0		123	637	0	91			728	946	-823	0	0	138	51	71	67	
1408+25.00	265	127	138	0	0		127	630	0	91			721	937	-810	0	0	138	51	71	67	
1408+50.00	268	130	138	0	0		130	621	0	90			711	924	-794	0	0	138	51	71	67	
1408+75.00	273	134	139	0	0		134	610	0	90			700	910	-776	0	0	139	51	71	68	
1409+00.00	277	139	139	0	0		139	600	0	89			689	896	-757	0	0	139	51	71	68	
1409+25.00	281	142	139	0	0		142	589	0	88			677	880	-738	0	0	139	51	71	68	
1409+50.00	284	146	139	0	0		146	573	0	87			660	858	-712	0	0	139	51	71	68	
1409+75.00	288	148	140	0	0		148	556	0	87		1,432	2,075	2,698	-2,550	0	0	140	51	71	69	
1410+00.00	291	151	140	0	0		151	543	0	86			629	818	-667	0	0	140	51	71	69	
1410+25.00	294	154	140	0	0		154	528	0	85			613	797	-643	0	0	140	51	71	69	
1410+50.00	296	156	140	0	0		156	511	0	85			596	775	-619	0	0	140	51	71	69	
1410+75.00	298	158	140	0	0		158	498	0	84			582	757	-599	0	0	140	50	70	70	
1411+00.00	302	162	141	0	0		162	484	0	84			568	738	-576	0	0	141	50	70	71	
1411+25.00	305	164	141	0	0		164	470	0	84			554	720	-556	0	0	141	50	70	71	
1411+50.00	305	165	141	0	0		165	456	0	83			539	701	-536	0	0	141	50	70	71	
1411+75.00	311	170	140	0	0		170	443	0	82			525	683	-513	0	0	140	50	70	70	
1412+00.00	317	177	140	0	0		177	429	0	80			509	662	-485	0	0	140	50	70	70	
1412+25.00	323	182	141	0	0		182	418	0	81			499	649	-467	166	389	141	50	70	71	
1412+50.00																						
Subtotals:	20,533	10,671	9,861	0	0	0	10,671	46,553	0	6,364	0	3,601	56,518	73,473	-62,802	6,474	9,807	9,861	3,711	5,195	4,666	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1412+50.00	327	186	140	0	0		186	410	0	80			490	637	-451	0	0	140	51	71	69	
1412+75.00	329	189	140	0	0		189	403	0	79			482	627	-438	302	524	140	51	71	69	
1413+00.00	332	192	140	0	0		192	399	0	79			478	621	-429	363	585	140	51	71	69	
1413+25.00	334	193	140	0	0		193	397	0	79			476	619	-426	369	592	140	51	71	69	
1413+50.00	333	193	140	0	0		193	394	0	79			473	615	-422	371	593	140	51	71	69	
1413+75.00	331	191	140	0	0		191	398	0	79			477	620	-429	367	589	140	51	71	69	
1414+00.00	325	185	140	0	0		185	404	0	79			483	628	-443	367	589	140	51	71	69	
1414+25.00	316	176	140	0	0		176	411	0	80			491	638	-462	381	603	140	51	71	69	
1414+50.00	306	167	139	0	0		167	418	0	80			498	647	-480	384	606	139	50	70	69	
1414+75.00	293	155	139	0	0		155	430	0	81			511	664	-509	385	607	139	50	70	69	
1415+00.00	280	142	138	0	0		142	447	0	81			528	686	-544	390	612	138	50	70	68	
1415+25.00	268	130	138	0	0		130	465	0	83			548	712	-582	407	629	138	50	70	68	
1415+50.00	256	119	137	0	0		119	484	0	83			567	737	-618	449	671	137	49	69	68	
1415+75.00	249	112	137	0	0		112	494	0	84			578	751	-639	465	688	137	49	69	68	
1416+00.00	243	107	136	0	0		107	494	0	84			578	751	-644	467	689	136	49	69	67	
1416+25.00	240	104	136	0	0		104	492	0	85			577	750	-646	415	637	136	49	69	67	
1416+50.00	235	99	136	0	0		99	494	0	86			580	754	-655	368	590	136	49	69	67	
1416+75.00	227	92	135	0	0		92	502	0	85			587	763	-671	378	601	135	49	69	66	
1417+00.00	224	89	135	0	0		89	509	0	86			595	774	-685	387	610	135	48	67	68	
1417+25.00	220	85	135	0	0		85	522	0	87			609	792	-707	403	625	135	48	67	68	
1417+50.00	213	79	134	0	0		79	538	0	87			625	813	-734	425	647	134	48	67	67	
1417+75.00	209	75	134	0	0		75	552	0	88			640	832	-757	443	666	134	48	67	67	
1418+00.00	205	71	134	0	0		71	567	0	90			657	854	-783	462	684	134	48	67	67	
1418+25.00	201	67	134	0	0		67	577	0	91			668	868	-801	473	696	134	47	66	68	
1418+50.00	198	64	134	0	0		64	588	0	92			680	884	-820	485	707	134	47	66	68	
1418+75.00	200	64	135	0	0		64	599	0	93			692	900	-836	498	720	135	47	66	69	
1419+00.00	201	66	135	0	0		66	606	0	93			699	909	-843	541	763	135	47	66	69	
1419+25.00	203	69	135	0	0		69	612	0	92			704	915	-846	580	802	135	47	66	69	
1419+50.00	206	71	135	0	0		71	615	0	92			707	919	-848	576	798	135	47	66	69	
1419+75.00	205	70	135	0	0		70	627	0	93			720	936	-866	586	809	135	47	66	69	
1420+00.00	203	68	135	0	0		68	647	0	95			742	965	-897	607	829	135	47	66	69	
1420+25.00	200	64	136	0	0		64	673	0	98			771	1,002	-938	634	857	136	47	66	70	
1420+50.00	196	60	136	0	0		60	699	0	100			799	1,039	-979	662	884	136	47	66	70	
1420+75.00	192	55	137	0	0		55	734	0	103			837	1,088	-1,033	699	922	137	47	66	71	
1421+00.00	188	49	139	0	0		49	782	0	108			890	1,157	-1,108	754	976	139	47	66	73	
1421+25.00	180	40	140	0	0		40	834	0	113			947	1,231	-1,191	813	1,035	140	46	64	76	
1421+50.00	172	32	140	0	0		32	889	0	119			1,008	1,310	-1,278	874	1,096	140	46	64	76	
1421+75.00	169	26	144	0	0		26	956	0	126			1,082	1,407	-1,381	948	1,170	144	49	69	75	
1422+00.00	163	16	147	0	0		16	1,039	0	134			1,173	1,525	-1,509	1,040	1,262	147	53	74	73	
1422+25.00	117	4	113	0	0		4	911	0	108			1,019	1,325	-1,321	857	1,079	113	27	38	75	
1422+50.00	150	0	150	0	0		0	1,477	0	150			1,627	2,115	-2,115	1,201	1,646	150	0	0	150	
1423+00.00	75	0	75	0	0		0	774	0	74			848	1,102	-1,102	658	880	75	0	0	75	
1423+25.00	154	38	116	0	0		38	1,018	0	106			1,124	1,461	-1,423	967	1,190	116	36	50	66	
1423+50.00	235	81	154	0	0		81	1,223	0	131			1,354	1,760	-1,679	1,225	1,447	154	69	97	57	
1423+75.00	238	87	151	0	0		87	1,219	0	122			1,341	1,743	-1,656	1,212	1,434	151	62	87	64	
1424+00.00	238	91	147	0	0		91	1,242	0	118			1,360	1,768	-1,677	0	0	147	58	81	66	
1424+25.00	243	96	147	0	0		96	1,256	0	118			1,374	1,786	-1,690	0	0	147	58	81	66	
1424+50.00	242	97	146	0	0		97	1,260	0	115			1,375	1,788	-1,691	0	0	146	57	80	66	
1424+75.00	236	92	144	0	0		92	1,285	0	113			1,398	1,817	-1,725	0	0	144	57	80	64	
1425+00.00	233	88	144	0	0		88	1,328	0	115			1,443	1,876	-1,788	1,351	1,573	144	56	78	66	
1425+25.00	230	85	145	0	0		85	1,348	0	117			1,465	1,905	-1,820	0	0	145	56	78	67	
1425+50.00	227	80	147	0	0		80	1,305	0	117			1,422	1,849	-1,769	1,322	1,544	147	56	78	69	
1425+75.00	214	68	146	0	0		68	1,254	0	117			1,371	1,782	-1,714	0	0	146	55	77	69	
1426+00.00	202	58	144	0	0		58	1,234	0	118			1,352	1,758	-1,700	1,230	1,452	144	54	76	68	
1426+25.00	206	65	142	0	0		65	1,240	0	117			1,357	1,764	-1,699	0	0	142	53	74	68	
1426+50.00	212	70	142	0	0		70	1,252	0	118			1,370	1,781	-1,711	0	0	142	54	76	66	
1426+75.00	213	71	142	0	0		71	1,267	0	118			1,385	1,801	-1,730	0	0	142	54	76	66	
1427+00.00	210	68	142	0	0		68	1,284	0	118			1,402	1,823	-1,755	0	0	142	54	76	66	
1427+25.00	201	60	141	0	0		60	1,292	0	118			1,410	1,833	-1,773	0	0	141	53	74	67	
1427+50.00	191	52	140	0	0		52	1,292	0	118			1,410	1,833	-1,781	1,304	1,526	140	52	73	67	
1427+75.00	182	45	138	0	0		45	1,289	0	117			1,406	1,828	-1,783	1,300	1,522	138	51	71	67	
1428+00.00	176	39	137	0	0		39	1,287	0	117			1,404	1,825	-1,786	0	0	137	51	71	66	
1428+25.00	173	36	137	0	0		36	1,284	0	116			1,400	1,820	-1,784	0	0	137	50	70	67	
1428+50.00	169	33	136	0	0		33	1,269	0	114			1,383	1,798	-1,765	0	0	136	50	70	66	
1428+75.00	166	30	136	0	0		30	1,249	0	113			1,362	1,771	-1,741	1,249	1,472	136	49	69	67	
1429+00.00	165	30	135	0	0		30	1,221	0	111			1,332	1,732	-1,702	0	0	135	49	69	66	
1429+25.00	165	30	135	0	0		30	1,186	0	109			1,295	1,684	-1,654	1,167	1,390	135	49	69	66	
1429+50.00	166	30	135	0	0		30	1,149	0	109			1,258	1,635	-1,605	1,119	1,342	135	48	67	68	
1429+75.00																						
Subtotals:	15,001	5,636	9,367	0	0	0	5,636	57,796	0	6,898	0	0	64,694	84,102	-78,466	35,676	47,458	9,367	3,318	4,645	4,722	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.6

10/23/2017 11:29:18 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1429+75.00	167	32	135	0	0		32	1,110	0	109			1,219	1,585	-1,553	0	0	135	48	67	68	
1430+00.00	169	34	135	0	0		34	1,069	0	108			1,177	1,530	-1,496	1,015	1,238	135	47	66	69	
1430+25.00	169	35	134	0	0		35	1,030	0	106			1,136	1,477	-1,442	965	1,187	134	47	66	68	
1430+50.00	168	34	134	0	0		34	997	0	106			1,103	1,434	-1,400	0	0	134	46	64	70	
1430+75.00	168	34	133	0	0		34	967	0	105			1,072	1,394	-1,360	0	0	133	46	64	69	
1431+00.00	168	35	133	0	0		35	945	0	104			1,049	1,364	-1,329	0	0	133	46	64	69	
1431+25.00	170	37	133	0	0		37	925	0	103			1,028	1,336	-1,299	0	0	133	45	63	70	
1431+50.00	172	40	132	0	0		40	909	0	102			1,011	1,314	-1,274	0	0	132	45	63	69	
1431+75.00	174	42	132	0	0		42	891	0	101			992	1,290	-1,248	783	1,005	132	45	63	69	
1432+00.00	175	43	132	0	0		43	870	0	100			970	1,261	-1,218	757	979	132	45	63	69	
1432+25.00	174	43	131	0	0		43	853	0	98			951	1,236	-1,193	0	0	131	45	63	68	
1432+50.00	174	43	131	0	0		43	836	0	98			934	1,214	-1,171	0	0	131	45	63	68	
1432+75.00	171	42	130	0	0		42	819	0	97			916	1,191	-1,149	0	0	130	45	63	67	
1433+00.00	171	41	130	0	0		41	798	0	97			895	1,164	-1,123	0	0	130	44	62	68	
1433+25.00	171	41	130	0	0		41	776	0	96			872	1,134	-1,093	0	0	130	44	62	68	
1433+50.00	171	42	129	0	0		42	757	0	94			851	1,106	-1,064	610	832	129	44	62	67	
1433+75.00	173	43	129	0	0		43	740	0	94			834	1,084	-1,041	0	0	129	44	62	67	
1434+00.00	174	45	129	0	0		45	722	0	93			815	1,060	-1,015	0	0	129	44	62	67	
1434+25.00	175	46	129	0	0		46	705	0	92			797	1,036	-990	0	0	129	44	62	67	
1434+50.00	175	47	129	0	0		47	689	0	91			780	1,014	-967	538	761	129	44	62	67	
1434+75.00	175	46	129	0	0		46	669	0	90			759	987	-941	514	736	129	44	62	67	
1435+00.00	175	46	129	0	0		46	648	0	90			738	959	-913	469	692	129	44	62	67	
1435+25.00	173	44	129	0	0		44	631	0	89			720	936	-892	449	670	129	43	60	69	
1435+50.00	169	40	129	0	0		40	612	0	92			704	915	-875	425	647	129	43	60	69	
1435+75.00	169	40	129	0	0		40	594	0	100			694	902	-862	404	627	129	43	60	69	
1436+00.00	173	44	129	0	0		44	570	0	98		1,394	2,062	2,681	-2,637	374	597	129	44	62	67	
1436+25.00	176	48	128	0	0		48	542	0	91			633	823	-775	341	563	128	44	62	66	
1436+50.00	180	52	127	0	0		52	516	0	88			604	785	-733	311	533	127	44	62	65	
1436+75.00	188	61	127	0	0		61	481	0	84			565	735	-674	267	489	127	44	62	65	
1437+00.00	197	70	127	0	0		70	443	0	81			524	681	-611	218	441	127	44	62	65	
1437+25.00	206	81	126	0	0		81	411	0	78			489	636	-555	196	419	126	44	62	64	
1437+50.00	212	86	126	0	0		86	384	0	78			462	601	-515	165	387	126	44	62	64	
1437+75.00	211	85	126	0	0		85	369	0	78			447	581	-496	134	356	126	43	60	66	
1438+00.00	206	80	126	0	0		80	367	0	78			445	579	-499	139	361	126	43	60	66	
1438+25.00	196	71	125	0	0		71	373	0	78			451	586	-515	152	374	125	43	60	65	
1438+50.00	191	66	124	0	0		66	377	0	82			459	597	-531	161	384	124	43	60	64	
1438+75.00	188	64	124	0	0		64	376	0	89			465	605	-541	150	372	124	42	59	65	
1439+00.00	186	62	124	0	0		62	369	0	93			462	601	-539	122	345	124	42	59	65	
1439+25.00	188	64	124	0	0		64	357	0	92			449	584	-520	142	364	124	42	59	65	
1439+50.00	190	65	124	0	0		65	338	0	90			428	556	-491	62	285	124	42	59	65	
1439+75.00	192	67	124	0	0		67	314	0	85			399	519	-452	31	254	124	42	59	65	
1440+00.00	194	71	123	0	0		71	296	0	78			374	486	-415	8	230	123	41	57	66	
1440+25.00	198	75	123	0	0		75	280	0	75			355	462	-387	0	222	123	41	57	66	
1440+50.00	203	80	123	0	0		80	253	0	74			327	425	-345	0	207	123	41	57	66	
1440+75.00	209	86	123	0	0		86	225	0	71			296	385	-299	0	172	123	41	57	66	
1441+00.00	213	90	123	0	0		90	205	0	70			275	358	-268	0	144	123	41	57	66	
1441+25.00	213	90	123	0	0		90	186	0	70			256	333	-243	0	125	123	41	57	66	
1441+50.00	210	87	123	0	0		87	179	0	71			250	325	-238	0	127	123	41	57	66	
1441+75.00	202	80	122	0	0		80	187	0	78			265	345	-265	0	156	122	40	56	66	
1442+00.00	191	70	121	0	0		70	207	0	87			294	382	-312	0	194	121	40	56	65	
1442+25.00	184	63	120	0	0		63	232	0	93			325	423	-360	12	234	120	39	55	65	
1442+50.00	181	60	120	0	0		60	254	0	96			350	455	-395	49	272	120	39	55	65	
1442+75.00	178	58	119	0	0		58	260	0	96			356	463	-405	66	289	119	38	53	66	
1443+00.00	177	59	119	0	0		59	244	0	95			339	441	-382	53	276	119	38	53	66	
1443+25.00	179	60	119	0	0		60	218	0	93			311	404	-344	23	246	119	38	53	66	
1443+50.00	182	63	120	0	0		63	191	0	88			279	363	-300	0	211	120	38	53	67	
1443+75.00	188	69	120	0	0		69	164	0	79			243	316	-247	0	176	120	38	53	67	
1444+00.00	201	78	122	0	0		78	135	0	71			206	268	-190	0	139	122	38	53	69	
1444+25.00	217	94	123	0	0		94	107	0	65			172	224	-130	0	103	123	38	53	70	
1444+50.00	236	113	123	0	0		113	83	0	61			144	187	-74	0	70	123	38	53	70	
1444+75.00	258	135	123	0	0		135	61	0	55			116	151	-16	0	44	123	38	53	70	
1445+00.00	302	177	125	0	0		177	40	0	43			83	108	69	0	17	125	40	56	69	
1445+25.00	381	252	129	0	0		252	21	0	27			48	62	190	0	0	129	42	59	70	
1445+50.00	502	369	132	0	0		369	6	0	13			19	25	344	0	0	132	44	62	70	
1445+75.00	657	523	134	0	0		523	0	0	3			3	4	519	0	0	134	47	66	68	
1446+00.00	800	665	136	0	0		665	0	0				0	0	665	0	0	136	49	69	67	
1446+25.00	905	765	139	0	0		765	0	0	1			1	1	764	0	0	139	51	71	68	
1446+50.00	990	848	141	0	0		848	0	0	1			1	1	847	0	0	141	53	74	67	
1446+75.00																						
Subtotals:	15,921	7,261	8,654	0	0	0	7,261	31,183	0	5,472	0	1,394	38,049	49,464	-42,203	10,105	19,546	8,654	2,923	4,092	4,562	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1446+75.00	1,073	930	143	0	0		930	0	0	2			2	3	927	0	0	143	54	76	67	
1447+00.00	1,200	1,055	145	0	0		1,055	0	0	2			2	3	1,052	0	0	145	56	78	67	
1447+25.00	1,337	1,190	147	0	0		1,190	0	0	1			1	1	1,189	0	0	147	58	81	66	
1447+50.00	1,428	1,278	150	0	0		1,278	0	0	2			2	3	1,275	0	0	150	59	83	67	
1447+75.00	1,490	1,339	152	0	0		1,339	0	0	1			1	1	1,338	0	0	152	61	85	67	
1448+00.00	1,515	1,361	154	0	0		1,361	0	0	2			2	3	1,358	0	0	154	63	88	66	
1448+25.00	1,493	1,338	155	0	0		1,338	0	0	1			1	1	1,337	0	0	155	64	90	65	
1448+50.00	1,460	1,304	156	0	0		1,304	0	0	1			1	1	1,303	0	0	156	66	92	64	
1448+75.00	1,426	1,269	157	0	0		1,269	0	0	1			1	1	1,268	0	0	157	67	94	63	
1449+00.00	1,367	1,210	157	0	0		1,210	0	0	1			1	1	1,209	0	0	157	68	95	62	
1449+25.00	1,204	1,048	156	0	0		1,048	5	0	6			11	14	1,034	0	0	156	68	95	61	
1449+50.00	994	839	155	0	0		839	21	0	23			44	57	782	0	0	155	67	94	61	
1449+75.00	855	703	152	0	0		703	54	0	43			97	126	577	0	0	152	66	92	60	
1450+00.00	752	601	150	0	0		601	109	0	58			167	217	384	0	53	150	64	90	60	
1450+25.00	661	513	148	0	0		513	176	0	64			240	312	201	0	146	148	63	88	60	
1450+50.00	586	440	146	0	0		440	249	0	69			318	413	27	12	234	146	61	85	61	
1450+75.00	523	379	144	0	0		379	318	0	73			391	508	-129	92	315	144	59	83	61	
1451+00.00	463	320	142	0	0		320	387	0	80			467	607	-287	178	400	142	58	81	61	
1451+25.00	406	266	140	0	0		266	461	0	87			548	712	-446	277	499	140	57	80	60	
1451+50.00	358	220	138	0	0		220	541	0	93			634	824	-604	386	608	138	55	77	61	
1451+75.00	310	176	135	0	0		176	622	0	97			719	935	-759	502	724	135	53	74	61	
1452+00.00	268	135	132	0	0		135	705	0	100			805	1,047	-912	621	844	132	52	73	59	
1452+25.00	238	108	130	0	0		108	787	0	101			888	1,154	-1,046	740	961	130	51	71	59	
1452+50.00	214	87	127	0	0		87	872	0	101			973	1,265	-1,178	857	1,079	127	50	70	57	
1452+75.00	190	65	125	0	0		65	932	0	101			1,033	1,343	-1,278	941	1,164	125	49	69	56	
1453+00.00	173	49	125	0	0		49	971	0	104			1,075	1,398	-1,349	1,001	1,223	125	48	67	58	
1453+25.00	157	34	123	0	0		34	1,015	0	105			1,120	1,456	-1,422	1,063	1,286	123	47	66	57	
1453+50.00	139	18	121	0	0		18	1,024	0	106			1,130	1,469	-1,451	1,075	1,297	121	45	63	58	
1453+75.00	132	12	120	0	0		12	988	0	106			1,094	1,422	-1,410	1,023	1,245	120	45	63	57	
1454+00.00	141	21	120	0	0		21	953	0	104			1,057	1,374	-1,353	970	1,192	120	45	63	57	
1454+25.00	150	29	120	0	0		29	928	0	102			1,030	1,339	-1,310	931	1,153	120	46	64	56	
1454+50.00	152	33	119	0	0		33	888	0	99			987	1,283	-1,250	872	1,095	119	46	64	55	
1454+75.00	151	33	118	0	0		33	845	0	96			941	1,223	-1,190	814	1,036	118	46	64	54	
1455+00.00	154	37	117	0	0		37	795	0	94			889	1,156	-1,119	748	970	117	45	63	54	
1455+25.00	160	43	117	0	0		43	733	0	92			825	1,073	-1,030	666	888	117	46	64	53	
1455+50.00	167	51	116	0	0		51	672	0	90			762	991	-940	586	809	116	46	64	52	
1455+75.00	171	55	115	0	0		55	627	0	88			715	930	-875	528	750	115	46	64	51	
1456+00.00	169	56	114	0	0		56	590	0	86			676	879	-823	482	705	114	45	63	51	
1456+25.00	166	53	113	0	0		53	560	0	86			646	840	-787	0	0	113	45	63	50	
1456+50.00	154	44	111	0	0		44	558	0	86			644	837	-793	348	571	111	44	62	49	
1456+75.00	139	29	109	0	0		29	581	0	88			669	870	-841	380	601	109	42	59	50	
1457+00.00	125	18	107	0	0		18	602	0	89			691	898	-880	406	628	107	41	57	50	
1457+25.00	116	10	105	0	0		10	615	0	91			706	918	-908	0	0	105	40	56	49	
1457+50.00	109	6	103	0	0		6	608	0	92			700	910	-904	0	0	103	38	53	50	
1457+75.00	103	2	101	0	0		2	566	0	92			658	855	-853	703	926	101	36	50	51	
1458+00.00	102	0	101	0	0		0	525	0	91			616	801	-801	631	853	101	32	45	56	
1458+25.00	105	3	103	0	0		3	494	0	88			582	757	-754	533	755	103	31	43	60	
1458+50.00	117	11	105	0	0		11	460	0	86			546	710	-699	443	666	105	32	45	60	
1458+75.00	125	29	96	0	0		29	440	10	76			526	684	-655	413	636	96	32	45	51	
1459+00.00	115	29	86	5	0		29	435	13	68	19		535	696	-667	403	625	86	32	45	41	
1459+25.00	108	24	84	9	0		24	424	14	67	15		520	676	-652	386	608	84	31	43	41	
1459+50.00	104	22	82	9	0		22	412	14	67	15		508	660	-638	367	588	82	31	43	39	
1459+75.00	101	21	80	9	0		21	399	14	67	15		495	644	-623	346	568	80	30	42	38	
1460+00.00	104	26	78	5	0		26	386	16	67	19		488	634	-608	322	545	78	30	42	36	
1460+25.00	99	26	72	5	0		26	375	18	64	19		476	619	-593	257	478	72	30	42	30	
1460+50.00	97	24	72	10	0		24	362	19	64	14		459	597	-573	98	320	72	35	49	23	
1460+75.00	107	31	76	11	0		31	340	23	66	13		442	575	-544	73	295	76	38	53	23	
1461+00.00	111	36	75	11	0		36	317	26	64	13		420	546	-510	135	358	75	38	53	22	
1461+25.00	116	41	75	11	0		41	293	28	64	13		398	517	-476	108	330	75	37	52	23	
1461+50.00	128	54	74	12	0		54	287	31	61	12		391	508	-454	104	325	74	37	52	22	
1461+75.00	142	69	73	12	0		69	300	32	57	12		401	521	-452	126	347	73	37	52	21	
1462+00.00	161	87	74	24	0		87	280	34	55	12		381	495	-408	107	329	74	37	52	22	
1462+25.00	180	105	75	36	0		105	242	38	54	11		345	449	-344	61	283	75	36	50	25	
1462+50.00	190	116	73	37	0		116	213	42	51	11		317	412	-296	27	250	73	36	50	23	
1462+75.00	199	126	73	37	0		126	181	44	49	10		284	369	-243	0	216	73	35	49	24	
1463+00.00	211	138	73	35	0		138	158	46	47	10		261	339	-201	0	189	73	35	49	24	
1463+25.00	226	154	73	33	0		154	137	50	43	10		240	312	-158	0	160	73	34	48	25	
1463+50.00	245	172	73	32	0		172	117	54	38	8		217	282	-110	0	134	73	34	48	25	
1463+75.00																						
Subtotals:	27,932	20,151	7,776	343	0	0	20,151	28,935	566	4,460	251	0	34,212	44,476	-24,325	22,142	33,257	7,776	3,151	4,411	3,365	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1463+75.00	269	193	75	31	0		193	103	56	34	7		200	260	-67	0	116	75	34	48	27	
1464+00.00	295	219	76	31	0		219	92	59	30	5		186	242	-23	0	103	76	34	48	28	
1464+25.00	322	245	77	31	0		245	82	63	28	4		177	230	15	0	92	77	33	46	31	
1464+50.00	351	274	77	32	0		274	73	68	26	2		169	220	54	0	83	77	33	46	31	
1464+75.00	379	303	76	32	0		303	66	73	24			163	212	91	0	70	76	34	48	28	
1465+00.00	402	326	76	31	0		326	60	76	24			160	208	118	0	60	76	34	48	28	
1465+25.00	422	346	76	30	0		346	54	79	23			156	203	143	0	46	76	34	48	28	
1465+50.00	436	362	75	29	0		362	49	83	20			152	198	164	0	30	75	34	48	27	
1465+75.00	446	371	75	28	0		371	46	85	20			151	196	175	0	18	75	34	48	27	
1466+00.00	365	291	74	27	0		291	43	0	19			62	81	210	0	9	74	34	48	26	
1466+25.00	365	292	73	27	0		292	41	0	19			60	78	214	0	0	73	34	48	25	
1466+50.00	365	291	74	27	0		291	43	0	21			64	83	208	0	0	74	34	48	26	
1466+75.00	367	290	77	27	0		290	42	0	23			65	85	206	0	0	77	34	48	29	
1467+00.00	366	287	79	27	0		287	37	0	22			59	77	210	0	0	79	34	48	31	
1467+25.00	361	281	80	25	0		281	36	0	24			60	78	203	0	0	80	34	48	32	
1467+50.00	353	273	80	24	0		273	37	0	26			63	82	191	0	0	80	35	49	31	
1467+75.00	348	266	82	24	0		266	38	0	30			68	88	178	0	0	82	35	49	33	
1468+00.00	342	259	84	24	0		259	41	0	32			73	95	164	0	0	84	36	50	34	
1468+25.00	342	255	86	24	0		255	45	0	35			80	104	151	0	0	86	37	52	34	
1468+50.00	341	253	88	24	0		253	49	0	37			86	112	141	0	0	88	38	53	35	
1468+75.00	337	248	89	24	0		248	53	0	39			92	120	128	0	0	89	39	55	34	
1469+00.00	332	242	90	24	0		242	56	0	41			97	126	116	0	0	90	41	57	33	
1469+25.00	327	236	91	24	0		236	59	0	43			102	133	103	0	0	91	42	59	32	
1469+50.00	318	227	92	24	0		227	60	0	44			104	135	92	0	0	92	42	59	33	
1469+75.00	307	214	93	24	0		214	61	0	45			106	138	76	0	0	93	42	59	34	
1470+00.00	298	203	95	24	0		203	63	0	46			109	142	61	0	0	95	43	60	35	
1470+25.00	288	193	96	24	0		193	65	0	47			112	146	47	0	0	96	43	60	36	
1470+50.00	276	180	96	24	0		180	63	0	48			111	144	36	0	0	96	43	60	36	
1470+75.00	265	169	96	24	0		169	58	0	49			107	139	30	0	0	96	43	60	36	
1471+00.00	258	161	97	24	0		161	53	0	50			103	134	27	0	0	97	44	62	35	
1471+25.00	255	158	97	24	0		158	43	0	48			91	118	40	0	0	97	44	62	35	
1471+50.00	253	156	97	24	0		156	27	0	45			72	94	62	0	0	97	45	63	34	
1471+75.00	240	152	88	25	0		152	19	0	33			52	68	84	0	0	88	46	64	24	
1472+00.00	212	139	73	27	0		139	22	0	28			50	65	74	0	0	73	37	52	21	
1472+25.00	203	131	71	29	0		131	33	0	40			73	95	36	0	0	71	28	39	32	
1472+50.00	211	134	77	31	0		134	36	0	45			81	105	29	0	0	77	28	39	38	
1472+75.00	213	138	76	33	0		138	26	0	40			66	86	52	0	0	76	28	39	37	
1473+00.00	217	142	74	35	0		142	23	0	37			60	78	64	0	0	74	27	38	36	
1473+25.00	217	145	72	35	0		145	23	0	37			60	78	67	0	0	72	26	36	36	
1473+50.00	230	150	80	35	0		150	26	0	39			65	85	66	0	0	80	32	45	35	
1473+75.00	255	168	88	35	0		168	28	0	40			68	88	80	0	0	88	39	55	33	
1474+00.00	284	198	86	35	0		198	28	0	39			67	87	111	0	0	86	38	53	33	
1474+25.00	309	229	80	35	0		229	26	0	33			59	77	152	0	0	80	36	50	30	
1474+50.00	328	258	70	36	0		258	24	0	25			49	64	194	0	0	70	35	49	21	
1474+75.00	306	248	58	19	0		248	24	0	13	21		58	75	173	0	0	58	25	35	23	
1475+00.00	283	239	44	0	0		239	11	0		49		60	78	161	0	0	44	14	20	24	
1475+25.00	308	289	18	34	0		289	0	0		30		30	39	250	0	0	18	12	17	1	
1475+50.00	333	318	15	68	0		318	0	0	15	3		18	23	295	0	147	15	11	15	0	
1475+75.00	317	275	42	54	0		275	24	0	42	2		68	88	187	0	137	42	10	14	28	
1476+00.00	289	227	62	20	0		227	36	0	36	17		89	116	111	0	152	62	9	13	49	
1476+25.00	300	227	73	16	0		227	29	0	29	17		75	98	130	0	59	73	12	17	56	
1476+50.00	328	247	81	30	0		247	32	0	42			74	96	151	0	0	81	17	24	57	
1476+75.00	385	296	89	27	0		296	32	0	37			69	90	206	0	140	89	25	35	54	
1477+00.00	432	340	92	25	0		340	34	0	30			64	83	257	0	142	92	33	46	46	
1477+25.00	439	345	93	24	0		345	34	0	29			63	82	263	0	138	93	33	46	47	
1477+50.00	448	353	94	24	0		353	32	0	29			61	79	274	0	134	94	33	46	48	
1477+75.00	462	367	95	24	0		367	29	0	29			58	75	292	0	127	95	33	46	49	
1478+00.00	475	379	96	24	0		379	24	0	29			53	69	310	0	0	96	33	46	50	
1478+25.00	480	383	97	24	0		383	19	0	30			49	64	319	0	0	97	33	46	51	
1478+50.00	479	380	99	24	0		380	14	0	32			46	60	320	0	0	99	33	46	53	
1478+75.00	468	370	98	24	0		370	7	0	29			36	47	323	0	0	98	31	43	55	
1479+00.00	320	241	79	24	0		241	2	0	35			37	48	193	0	0	79	15	21	58	
1479+25.00	178	117	61	24	0		117	0	0	42			42	55	62	0	0	61	0	0	61	
1479+50.00	177	114	62	24	0		114	0	0	40			40	52	62	0	0	62	1	1	61	
1479+75.00	174	111	62	24	0		111	0	0	37			37	48	63	0	0	62	4	6	56	
1480+00.00	169	108	61	24	0		108	0	0	33			33	43	65	0	0	61	8	11	50	
1480+25.00	165	105	61	24	0		105	0	0	32			32	42	63	0	0	61	11	15	46	
1480+50.00	169	107	62	24	0		107	0	0	30			30	39	68	0	0	62	17	24	38	
1480+75.00																						
Subtotals:	21,554	16,234	5,318	1,863	0	0	16,234	2,435	642	2,198	157	0	5,432	7,062	9,172	0	1,802	5,318	2,053	2,874	2,444	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1480+75.00	175	112	63	24	0		112	0	0	28			28	36	76	0	1	63	22	31	32	
1481+00.00	177	113	64	24	0		113	0	0	27			27	35	78	0	5	64	24	34	30	
1481+25.00	179	115	65	24	0		115	0	0	25			25	33	83	0	10	65	26	36	29	
1481+50.00	186	120	66	24	0		120	1	0	26			27	35	85	0	14	66	28	39	27	
1481+75.00	191	124	68	24	0		124	1	0	28			29	38	86	0	17	68	30	42	26	
1482+00.00	192	124	69	24	0		124	2	0	30			32	42	82	0	22	69	32	45	24	
1482+25.00	192	122	70	24	0		122	4	0	37			41	53	69	0	22	70	34	48	22	
1482+50.00	185	114	71	24	0		114	8	0	44			52	68	46	0	25	71	35	49	22	
1482+75.00	175	99	76	24	0		99	18	0	54			72	94	6	0	39	76	36	50	26	
1483+00.00	168	84	83	24	0		84	33	0	66			99	129	-45	0	56	83	37	52	31	
1483+25.00	161	75	86	24	0		75	49	0	72			121	157	-82	0	74	86	38	53	33	
1483+50.00	153	66	87	24	0		66	58	0	75			133	173	-107	0	85	87	38	53	34	
1483+75.00	143	57	86	24	0		57	72	0	80			152	198	-141	0	100	86	36	50	36	
1484+00.00	140	54	87	24	0		54	75	0	82			157	204	-150	0	104	87	36	50	37	
1484+25.00	140	53	87	24	0		53	71	0	80			151	196	-143	0	100	87	37	52	35	
1484+50.00	137	52	85	24	0		52	80	0	79			159	207	-155	0	111	85	35	49	36	
1484+75.00	137	52	85	24	0		52	80	0	77			157	204	-152	0	103	85	35	49	36	
1485+00.00	138	54	84	24	0		54	57	0	73			130	169	-115	0	68	84	35	49	35	
1485+25.00	164	88	75	24	0		88	26	0	43			69	90	-2	0	23	75	34	48	27	
1485+50.00	177	124	53	24	0		124	13	0				13	17	107	0	0	53	33	46	7	
1485+75.00	150	104	46	24	0		104	16	0				16	21	83	0	0	46	32	45	1	
1486+00.00	126	72	54	24	0		72	33	0	25			58	75	-4	0	18	54	31	43	11	
1486+25.00	122	61	61	24	0		61	49	0	47			96	125	-64	0	33	61	30	42	19	
1486+50.00	131	59	71	24	0		59	47	0	60			107	139	-80	0	25	71	28	39	32	
1486+75.00	132	57	75	24	0		57	40	0	64			104	135	-78	0	9	75	26	36	39	
1487+00.00	128	54	75	24	0		54	36	0	64			100	130	-76	0	0	75	24	34	41	
1487+25.00	123	49	74	24	0		49	31	0	63			94	122	-73	0	0	74	23	32	42	
1487+50.00	122	46	76	24	0		46	27	0	67			94	122	-76	0	0	76	20	28	48	
1487+75.00	117	45	72	24	0		45	23	0	66			89	116	-71	0	0	72	17	24	48	
1488+00.00	117	46	71	24	0		46	21	0	66			87	113	-67	0	0	71	13	18	53	
1488+25.00	121	46	75	24	0		46	24	0	71			95	124	-78	0	0	75	11	15	60	
1488+50.00	115	46	69	24	0		46	23	0	64			87	113	-67	0	0	69	9	13	56	
1488+75.00	107	47	60	24	0		47	21	0	51			72	94	-47	0	0	60	7	10	50	
1489+00.00	101	48	53	24	0		48	19	0	40			59	77	-29	0	0	53	5	7	46	
1489+25.00	99	49	51	24	0		49	17	0	36			53	69	-20	0	0	51	3	4	47	
1489+50.00	100	49	51	24	0		49	14	0	36			50	65	-16	0	0	51	2	3	48	
1489+75.00	112	57	55	24	0		57	36	0	37			73	95	-38	0	0	55	1	1	54	
1490+00.00	301	232	69	24	0		232	70	163	41			274	356	-124	0	0	69	11	15	54	
1490+25.00	305	227	78	24	0		227	81	158	45			284	369	-142	0	16	78	21	29	49	
1490+50.00	292	218	74	24	0		218	84	154	45			283	368	-150	0	25	74	19	27	47	
1490+75.00	288	218	70	24	0		218	79	153	42			274	356	-138	0	10	70	17	24	46	
1491+00.00	288	220	67	24	0		220	67	152	36			255	332	-112	0	0	67	15	21	46	
1491+25.00	137	71	66	24	0		71	58	0	30			88	114	-43	0	0	66	15	21	45	
1491+50.00	145	76	69	24	0		76	53	0	26			79	103	-27	0	0	69	18	25	44	
1491+75.00	154	84	70	24	0		84	50	0	22			72	94	-10	0	0	70	20	28	42	
1492+00.00	160	90	71	23	0		90	48	0	20	1		69	90	0	0	0	71	21	29	42	
1492+25.00	167	94	73	23	0		94	49	0	21	1		71	92	2	0	0	73	21	29	44	
1492+50.00	304	231	73	23	0		231	52	134	21	1		208	270	-39	0	0	73	22	31	42	
1492+75.00	297	222	74	23	0		222	66	126	25	1		218	283	-61	0	0	74	23	32	42	
1493+00.00	289	214	75	23	0		214	79	118	28	1		226	294	-80	0	0	75	25	35	40	
1493+25.00	286	212	74	23	0		212	86	114	29	1		230	299	-87	0	0	74	25	35	39	
1493+50.00	287	212	75	22	0		212	94	111	31	2		238	309	-97	0	0	75	26	36	39	
1493+75.00	282	208	75	23	0		208	108	107	32	1		248	322	-114	0	17	75	26	36	39	
1494+00.00	279	203	76	23	0		203	113	103	34	1		251	326	-123	0	22	76	26	36	40	
1494+25.00	279	202	77	23	0		202	104	100	34	1		239	311	-109	0	9	77	26	36	41	
1494+50.00	280	204	76	22	0		204	98	97	33	2		230	299	-95	0	1	76	26	36	40	
1494+75.00	281	206	76	22	0		206	90	93	33	2		218	283	-77	0	0	76	27	38	38	
1495+00.00	284	208	75	22	0		208	77	88	32	2		199	259	-51	0	0	75	27	38	37	
1495+25.00	290	213	76	22	0		213	61	84	31	2		178	231	-18	0	0	76	27	38	38	
1495+50.00	295	219	76	21	0		219	51	80	28	3		162	211	9	0	0	76	28	39	37	
1495+75.00	305	229	76	21	0		229	46	78	28	3		155	202	28	0	0	76	28	39	37	
1496+00.00	309	234	76	20	0		234	45	77	29	4		155	202	33	0	0	76	28	39	37	
1496+25.00	305	229	75	20	0		229	42	77	31	4		154	200	29	0	0	75	28	39	36	
1496+50.00	291	218	73	19	0		218	38	77	31	5		151	196	22	0	0	73	28	39	34	
1496+75.00	290	222	68	18	0		222	24	87	24	6		141	183	39	0	0	68	27	38	30	
1497+00.00	279	247	32	18	0		247	6	100		6		112	146	101	0	0	32	27	38	-6	
1497+25.00	274	241	32	17	0		241	4	99		7		110	143	98	0	0	32	26	36	-4	
1497+50.00	252	186	66	16	0		186	32	79	25	8		144	187	-1	0	0	66	26	36	30	
1497+75.00																						
Subtotals:	13,608	8,827	4,782	1,567	0	0	8,827	3,080	2,809	2,770	65	0	8,724	11,341	-2,514	0	1,164	4,782	1,673	2,342	2,440	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1497+75.00	211	142	69	15	0		142	68	60	37	9		174	226	-84	0	0	69	26	36	33	
1498+00.00	203	132	71	15	0		132	84	55	40	9		188	244	-112	0	0	71	26	36	35	
1498+25.00	199	128	71	15	0		128	94	52	40	9		195	254	-126	0	0	71	27	38	33	
1498+50.00	196	125	71	14	0		125	103	49	40	10		202	263	-138	0	7	71	28	39	32	
1498+75.00	195	124	72	14	0		124	112	47	41	10		210	273	-149	0	21	72	28	39	33	
1499+00.00	197	124	73	13	0		124	119	46	41	11		217	282	-158	0	33	73	29	41	32	
1499+25.00	199	124	74	13	0		124	124	45	41	11		221	287	-163	0	40	74	30	42	32	
1499+50.00	198	123	75	12	0		123	127	44	40	12		223	290	-167	0	44	75	30	42	33	
1499+75.00	196	122	74	11	0		122	129	43	39	13		224	291	-169	0	47	74	31	43	31	
1500+00.00	197	122	74	10	0		122	130	43	40	14		227	295	-173	0	48	74	31	43	31	
1500+25.00	196	122	74	9	0		122	133	41	39	15		228	296	-174	0	51	74	32	45	29	
1500+50.00	198	124	74	9	0		124	137	40	39	15		231	300	-176	0	56	74	33	46	28	
1500+75.00	198	124	74	8	0		124	143	38	39	16		236	307	-183	0	64	74	33	46	28	
1501+00.00	204	130	74	6	0		130	149	37	38	18		242	315	-185	0	72	74	34	48	26	
1501+25.00	215	141	75	5	0		141	153	36	37	19		245	319	-178	0	77	75	34	48	27	
1501+50.00	224	148	76	4	0		148	158	35	37	20		250	325	-177	0	83	76	35	49	27	
1501+75.00	229	152	77	4	0		152	160	35	36	20		251	326	-174	0	87	77	37	52	25	
1502+00.00	233	155	78	3	0		155	164	36	35	21		256	333	-178	0	92	78	38	53	25	
1502+25.00	231	152	79	2	0		152	171	35	35	22		263	342	-190	0	101	79	39	55	24	
1502+50.00	227	148	79	2	0		148	175	34	35	22		266	346	-198	0	107	79	40	56	23	
1502+75.00	223	145	78	1	0		145	175	35	34	23		267	347	-202	0	108	78	40	56	22	
1503+00.00	219	141	78	1	0		141	169	36	34	23		262	341	-200	0	100	78	40	56	22	
1503+25.00	218	140	78	1	0		140	160	40	33	23		256	333	-193	0	90	78	40	56	22	
1503+50.00	214	136	78	1	0		136	156	43	33	23		255	332	-196	0	85	78	40	56	22	
1503+75.00	208	131	77	2	0		131	156	46	32	22		256	333	-202	0	83	77	40	56	21	
1504+00.00	203	127	76	3	0		127	152	49	31	21		253	329	-202	0	79	76	40	56	20	
1504+25.00	202	126	76	5	0		126	146	53	31	19		249	324	-198	0	70	76	40	56	20	
1504+50.00	200	125	75	7	0		125	144	57	30	17		248	322	-197	0	70	75	40	56	19	
1504+75.00	197	122	74	9	0		122	139	60	30	15		244	317	-195	0	75	74	40	56	18	
1505+00.00	193	120	73	11	0		120	131	64	29	13		237	308	-188	0	72	73	40	56	17	
1505+25.00	195	122	73	13	0		122	121	69	29	11		230	299	-177	0	65	73	40	56	17	
1505+50.00	197	125	72	14	0		125	107	74	30	10		221	287	-162	0	51	72	39	55	17	
1505+75.00	211	139	73	15	0		139	97	77	28	9		211	274	-135	0	40	73	40	56	17	
1506+00.00	237	163	74	16	0		163	84	79	23	8		194	252	-89	0	29	74	40	56	18	
1506+25.00	255	182	73	17	0		182	73	81	20	7		181	235	-53	0	17	73	41	57	16	
1506+50.00	258	185	73	17	0		185	70	81	22	7		180	234	-49	0	16	73	42	59	14	
1506+75.00	260	184	76	18	0		184	66	83	26	6		181	235	-51	0	13	76	43	60	16	
1507+00.00	187	108	79	19	0		108	57	0	28	5		90	117	-9	0	3	79	44	62	17	
1507+25.00	192	113	79	20	0		113	45	0	31	4		80	104	9	0	0	79	44	62	17	
1507+50.00	214	141	74	21	0		141	26	0	21	3		50	65	76	0	0	74	43	60	14	
1507+75.00	273	212	61	22	0		212	7	0		2		9	12	200	0	0	61	38	53	8	
1508+00.00	329	273	56	23	0		273	0	0		1		1	1	272	0	0	56	36	50	6	
1508+25.00	351	286	65	23	0		286	3	0		1		4	5	281	0	0	65	39	55	10	
1508+50.00	358	285	73	24	0		285	10	0	11			21	27	258	0	0	73	42	59	14	
1508+75.00	363	291	72	24	0		291	12	0	11			23	30	261	0	0	72	42	59	13	
1509+00.00	367	295	72	24	0		295	11	0	11			22	29	266	0	26	72	42	59	13	
1509+25.00	371	299	72	24	0		299	10	0	11			21	27	272	0	0	72	42	59	13	
1509+50.00	372	300	72	24	0		300	9	0	11			20	26	274	0	0	72	42	59	13	
1509+75.00	371	297	73	24	0		297	7	0	12			19	25	272	0	0	73	42	59	14	
1510+00.00	370	298	72	24	0		298	5	0	11			16	21	277	0	0	72	42	59	13	
1510+25.00	374	303	71	24	0		303	4	0	10			14	18	285	0	0	71	42	59	12	
1510+50.00	380	309	71	24	0		309	2	0	9			11	14	295	0	0	71	42	59	12	
1510+75.00	386	316	70	24	0		316	0	0	6			6	8	308	0	0	70	42	59	11	
1511+00.00	397	326	70	24	0		326	0	0	4			4	5	321	0	0	70	42	59	11	
1511+25.00	407	336	70	24	0		336	0	0	3			3	4	332	0	0	70	42	59	11	
1511+50.00	404	336	69	23	0		336	0	0	2			2	3	333	0	0	69	41	57	12	
1511+75.00	400	331	69	22	0		331	0	0	4			4	5	326	0	0	69	41	57	12	
1512+00.00	397	325	72	22	0		325	0	0	9			9	12	313	0	0	72	41	57	15	
1512+25.00	386	313	74	22	0		313	1	0	13			14	18	295	0	0	74	41	57	17	
1512+50.00	374	300	74	22	0		300	2	0	16			18	23	277	0	38	74	40	56	18	
1512+75.00	359	286	73	22	0		286	2	0	18			20	26	260	0	9	73	40	56	17	
1513+00.00	342	269	72	22	0		269	1	0	21			22	29	240	0	0	72	39	55	17	
1513+25.00	323	252	70	22	0		252	2	0	23			25	33	220	0	0	70	38	53	17	
1513+50.00	304	234	70	22	0		234	3	0	26			29	38	196	0	0	70	37	52	18	
1513+75.00	282	214	68	22	0		214	4	0	27			31	40	174	0	0	68	35	49	19	
1514+00.00	260	193	66	22	0		193	4	0	29			33	43	150	0	0	66	34	48	18	
1514+25.00	236	173	63	22	0		173	3	0	29			32	42	131	0	0	63	32	45	18	
1514+50.00	211	150	61	22	0		150	2	0	31			33	43	107	0	0	61	31	43	18	
1514+75.00																						
Subtotals:	18,176	13,239	4,934	1,038	0	0	13,239	5,011	1,878	1,702	569	0	9,160	11,908	1,331	0	2,166	4,934	2,564	3,590	1,344	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1514+75.00	184	128	55	22	0		128	1	0	26			27	35	93	0	0	55	29	41	14	
1515+00.00	164	114	49	22	0		114	0	0	20			20	26	88	0	0	49	27	38	11	
1515+25.00	154	107	47	22	0		107	0	0	17			17	22	85	0	0	47	27	38	9	
1515+50.00	149	104	45	22	0		104	0	0	15			15	20	85	0	0	45	25	35	10	
1515+75.00	145	102	43	22	0		102	0	0	14			14	18	84	0	0	43	23	32	11	
1516+00.00	145	103	42	22	0		103	0	0	13			13	17	86	0	0	42	23	32	10	
1516+25.00	148	106	42	22	0		106	0	0	11			11	14	92	0	0	42	24	34	8	
1516+50.00	122	89	33	17	0	49	138	0	0	5		550	555	722	-584	0	0	33	19	27	6	
1516+70.00																						
US_30_EB																						
Totals:	143,644	84,923	58,705	4,982	0	49	84,972	241,143	5,895	36,262	1,042	5,545	289,887	376,853	-291,881	139,036	193,161	58,705	22,685	31,759	26,946	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
US_218_Ramp_A																						
11479+15.00																						
11479+25.00	112	79	34	0	0		79	8	0	10			18	23	56	0	0	34	11	15	19	
11479+50.00	278	193	85	0	0		193	20	0	25			45	59	135	0	0	85	27	38	47	
11479+75.00	271	183	87	0	0		183	23	0	26			49	64	119	0	0	87	26	36	51	
11480+00.00	252	162	90	0	0		162	25	0	25			50	65	97	0	0	90	26	36	54	
11480+25.00	222	129	94	0	0		129	18	0	28			46	60	69	0	0	94	28	39	55	
11480+50.00	195	97	98	0	0		97	13	0	38			51	66	31	0	0	98	30	42	56	
11480+75.00	185	80	105	0	0		80	36	0	51			87	113	-33	0	0	105	35	49	56	
11481+00.00	175	63	112	0	0		63	75	0	61			136	177	-114	0	0	112	40	56	56	
11481+25.00	159	46	114	0	0		46	110	0	67			177	230	-184	0	0	114	42	59	55	
11481+50.00	148	33	115	0	0		33	146	0	74			220	286	-253	0	0	115	42	59	56	
11481+75.00	132	22	110	0	0		22	190	0	81			271	352	-330	0	13	110	39	55	55	
11482+00.00	124	17	108	0	0		17	237	0	87			324	421	-404	0	73	108	37	52	56	
11482+25.00	126	16	109	0	0		16	279	0	89			368	478	-462	0	125	109	38	53	56	
11482+50.00	131	21	111	0	0		21	311	0	89			400	520	-499	0	166	111	39	55	56	
11482+75.00	141	27	114	0	0		27	330	0	90			420	546	-519	0	194	114	41	57	57	
11483+00.00	147	31	116	0	0		31	327	0	90			417	542	-511	0	199	116	43	60	56	
11483+25.00	152	34	118	0	0		34	307	0	91			398	517	-483	0	179	118	44	62	56	
11483+50.00	152	34	117	0	0		34	291	0	90			381	495	-461	0	161	117	43	60	57	
11483+75.00	150	32	118	0	0		32	300	0	92			392	510	-478	0	176	118	44	62	56	
11484+00.00	142	27	116	0	0		27	334	0	92			426	554	-527	0	221	116	42	59	57	
11484+25.00	133	21	111	0	0		21	383	0	90			473	615	-594	60	285	111	39	55	56	
11484+50.00	123	17	106	0	0		17	424	0	87			511	664	-647	114	338	106	36	50	56	
11484+75.00	113	13	100	0	0		13	449	0	82			531	690	-677	146	371	100	32	45	55	
11485+00.00	107	11	96	0	0		11	472	0	79			551	716	-705	176	400	96	29	41	55	
11485+25.00	102	9	93	0	0		9	498	0	77			575	748	-739	211	436	93	27	38	55	
11485+50.00	100	7	92	0	0		7	528	0	77			605	787	-780	248	473	92	27	38	54	
11485+75.00	98	7	91	0	0		7	569	0	76			645	839	-832	304	528	91	28	39	52	
11486+00.00	101	8	93	0	0		8	618	0	77			695	904	-896	368	592	93	30	42	51	
11486+25.00	107	12	95	0	0		12	668	0	78			746	970	-958	433	657	95	33	46	49	
11486+50.00	117	7	99	0	11		7	715	0	79			794	1,032	-1,025	494	718	99	37	52	47	
11486+64.72	75	0	61	0	14		0	445	0	48			493	641	-641	0	0	61	23	32	29	
US_218_Ramp_A Totals:	4,570	1,438	3,108	0	25	0	1,438	9,149	0	2,146	0	0	11,295	14,684	-13,246	2,554	6,303	3,108	1,058	1,482	1,627	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.13

10/23/2017 11:29:19 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
US_218_Ramp_B																						
21472+25.00																						
21472+50.00	112	71	41	22	0		71	6	0	10			16	21	50	0	0	41	21	29	12	
21472+75.00	122	79	42	18	0		79	0	0	1			1	1	78	0	0	42	20	28	14	
21473+00.00	109	63	46	13	0		63	4	0	12			16	21	42	0	0	46	18	25	21	
21473+25.00	131	68	63	8	0		68	20	0	30			50	65	3	0	0	63	21	29	34	
21473+50.00	166	85	81	3	0		85	49	0	41			90	117	-32	0	0	81	27	38	43	
21473+75.00	196	98	98	0	0		98	71	0	51			122	159	-61	0	0	98	34	48	50	
21474+00.00	238	117	121	0	0		117	62	0	54			116	151	-34	0	0	121	46	64	57	
21474+25.00	274	143	131	0	0		143	38	0	49			87	113	30	0	0	131	53	74	57	
21474+50.00	267	143	124	0	0		143	28	0	42			70	91	52	0	0	124	48	67	57	
21474+75.00	254	133	120	0	0		133	24	0	40			64	83	50	0	0	120	46	64	56	
21475+00.00	245	125	120	0	0		125	27	0	42			69	90	35	0	0	120	45	63	57	
21475+25.00	231	112	119	0	0		112	37	0	46			83	108	4	0	0	119	45	63	56	
21475+50.00	216	97	120	0	0		97	55	0	53			108	140	-43	0	0	120	45	63	57	
21475+75.00	204	84	121	0	0		84	86	0	62			148	192	-108	0	0	121	46	64	57	
21476+00.00	195	72	123	0	0		72	125	0	71			196	255	-183	0	0	123	47	66	57	
21476+25.00	188	63	125	0	0		63	168	0	76			244	317	-254	0	0	125	49	69	56	
21476+50.00	184	56	128	0	0		56	217	0	82			299	389	-333	0	62	128	50	70	58	
21476+75.00	175	46	128	0	0		46	277	0	88			365	475	-429	0	143	128	50	70	58	
21477+00.00	161	38	123	0	0		38	331	0	92			423	550	-512	0	215	123	47	66	57	
21477+25.00	153	34	118	0	0		34	363	0	93			456	593	-559	34	257	118	44	62	56	
21477+50.00	151	37	114	0	0		37	377	0	89			466	606	-569	52	277	114	41	57	57	
21477+75.00	152	43	109	0	0		43	384	0	82			466	606	-563	61	286	109	38	53	56	
21478+00.00	158	51	106	0	0		51	385	0	78			463	602	-551	62	287	106	36	50	56	
21478+25.00	162	59	103	0	0		59	378	0	73			451	586	-527	53	277	103	34	48	55	
21478+50.00	167	64	102	0	0		64	365	0	71			436	567	-503	38	261	102	34	48	54	
21478+75.00	169	68	101	0	0		68	351	0	69			420	546	-478	20	243	101	34	48	53	
21479+00.00	169	69	100	0	0		69	344	0	68			412	536	-467	13	237	100	35	49	51	
21479+25.00	165	66	100	0	0		66	349	0	68			417	542	-476	18	243	100	35	49	51	
21479+50.00	155	56	99	0	0		56	363	0	69			432	562	-506	36	260	99	36	50	49	
21479+75.00	139	41	98	0	0		41	398	0	71			469	610	-569	82	307	98	37	52	46	
21479+75.06	0	0	0	0	0		0	1	0				1	1	-1	0	0	0	0	0	0	
US_218_Ramp_B Totals:	5,408	2,281	3,124	64	0	0	2,281	5,683	0	1,773	0	0	7,456	9,693	-7,412	470	3,356	3,124	1,162	1,627	1,498	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.14

10/23/2017 11:29:19 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
US_218_Ramp_C																						
31440+55.75																						
31440+75.00	0	0	0	0	0		0	2,953	0		270		3,223	4,190	-4,190	2,064	3,667	0	0	0	0	
31441+00.00	0	0	0	0	0		0	3,816	0		176		3,992	5,190	-5,190	2,682	4,739	0	52	73	-73	
31441+25.00	264	0	264	0	0		0	3,215	0	264			3,479	4,523	-4,523	2,696	3,970	264	111	155	109	
31441+50.00	280	15	264	0	0		15	2,321	0	250			2,571	3,342	-3,327	2,609	2,821	264	122	171	93	
31441+75.00	343	83	260	0	0		83	1,796	0	205			2,001	2,601	-2,518	1,927	2,140	260	123	172	88	
31442+00.00	347	109	238	0	0		109	1,605	0	171			1,776	2,309	-2,200	1,680	1,893	238	111	155	83	
31442+25.00	306	86	220	0	0		86	1,506	0	167			1,673	2,175	-2,089	1,552	1,765	220	99	139	81	
31442+50.00	308	90	218	0	0		90	1,439	0	164			1,603	2,084	-1,994	1,464	1,677	218	97	136	82	
31442+75.00	307	91	216	0	0		91	1,367	0	162			1,529	1,988	-1,897	1,370	1,582	216	95	133	83	
31443+00.00	309	96	214	0	0		96	1,279	0	159			1,438	1,869	-1,773	1,256	1,469	214	93	130	84	
31443+25.00	312	100	212	0	0		100	1,179	0	156			1,335	1,736	-1,636	1,126	1,339	212	91	127	85	
31443+50.00	314	105	209	0	0		105	1,070	0	152			1,222	1,589	-1,484	983	1,196	209	87	122	87	
31443+72.55	234	81	153	0	0		81	777	0	112			889	1,156	-1,075	641	833	153	59	83	70	
31443+73.46	7	3	4	0	0		3	23	0	3			26	34	-31	38	46	4	2	3	1	
31443+75.00	11	4	7	0	0		4	32	0	5			37	48	-44	42	55	7	3	4	3	
31444+00.00	173	64	108	0	0		64	524	0	77			601	781	-717	281	494	108	45	63	45	
31444+25.00	159	51	108	0	0		51	550	0	79			629	818	-767	322	536	108	44	62	46	
31444+50.00	146	38	108	0	0		38	590	0	82			672	874	-836	377	590	108	43	60	48	
31444+75.00	135	26	108	0	0		26	645	0	86			731	950	-924	451	664	108	42	59	49	
31445+00.00	129	18	111	0	0		18	704	0	91			795	1,034	-1,016	528	741	111	41	57	54	
31445+25.00	126	13	113	0	0		13	745	0	95			840	1,092	-1,079	581	794	113	42	59	54	
31445+50.00	121	8	114	0	0		8	771	0	98			869	1,130	-1,122	615	828	114	42	59	55	
31445+75.00	117	2	115	0	0		2	790	0	103			893	1,161	-1,159	641	854	115	43	60	55	
31446+00.00	119	1	117	0	0		1	809	0	106			915	1,190	-1,189	664	878	117	45	63	54	
31446+25.00	124	5	119	0	0		5	810	0	105			915	1,190	-1,185	668	880	119	46	64	55	
31446+50.00	128	8	120	0	0		8	789	0	104			893	1,161	-1,153	640	853	120	47	66	54	
31446+75.00	131	10	121	0	0		10	758	0	105			863	1,122	-1,112	601	814	121	48	67	54	
31447+00.00	132	10	122	0	0		10	718	0	105			823	1,070	-1,060	549	762	122	50	70	52	
31447+25.00	137	10	127	0	0		10	673	0	108			781	1,015	-1,005	490	703	127	54	76	51	
31447+50.00	140	8	132	0	0		8	620	0	109			729	948	-940	421	634	132	57	80	52	
31447+75.00	139	7	132	0	0		7	550	0	106			656	853	-846	328	541	132	58	81	51	
31448+00.00	136	7	129	0	0		7	473	0	104			577	750	-743	222	436	129	56	78	51	
31448+25.00	135	10	126	0	0		10	402	0	99			501	651	-641	125	338	126	54	76	50	
31448+50.00	138	15	123	0	0		15	342	0	92			434	564	-549	40	254	123	52	73	50	
31448+75.00	136	17	119	0	0		17	285	0	87			372	484	-467	0	176	119	50	70	49	
31449+00.00	139	21	117	0	0		21	228	0	82			310	403	-382	0	98	117	48	67	50	
31449+25.00	149	32	117	0	0		32	174	0	76			250	325	-293	0	22	117	48	67	50	
31449+50.00	155	39	116	0	0		39	128	0	72			200	260	-221	0	0	116	48	67	49	
31449+75.00	157	42	115	0	0		42	97	0	69			166	216	-174	0	0	115	47	66	49	
31450+00.00	156	43	113	0	0		43	89	0	66			155	202	-159	0	0	113	46	64	49	
31450+25.00	151	39	112	0	0		39	95	0	67			162	211	-172	0	0	112	44	62	50	
31450+50.00	142	31	110	0	0		31	103	0	68			171	222	-191	0	0	110	43	60	50	
31450+75.00	137	27	109	0	0		27	105	0	69			174	226	-199	0	0	109	41	57	52	
31451+00.00	138	29	109	0	0		29	102	0	68			170	221	-192	0	0	109	40	56	53	
31451+25.00	145	35	110	0	0		35	93	0	66			159	207	-172	0	0	110	40	56	54	
31451+50.00	153	42	110	0	0		42	77	0	63			140	182	-140	0	0	110	40	56	54	
31451+75.00	157	47	110	0	0		47	64	0	60			124	161	-114	0	0	110	40	56	54	
31452+00.00	171	59	112	0	0		59	59	0	58			117	152	-93	0	0	112	41	57	55	
31452+25.00	186	74	113	0	0		74	49	0	52			101	131	-57	0	0	113	42	59	54	
31452+50.00	201	88	113	0	0		88	29	0	45			74	96	-8	0	0	113	42	59	54	
31452+75.00	204	92	113	0	0		92	20	0	40			60	78	14	0	0	113	41	57	56	
31453+00.00	202	90	112	0	0		90	20	0	40			60	78	12	0	0	112	41	57	55	
31453+25.00	203	89	113	0	0		89	24	0	43			67	87	2	0	0	113	42	59	54	
31453+50.00	192	80	112	0	0		80	27	0	43			70	91	-11	0	0	112	41	57	55	
31453+75.00	188	80	107	0	0		80	32	0	46			78	101	-21	0	0	107	38	53	54	
31454+00.00	181	82	99	0	0		82	40	0	47			87	113	-31	0	0	99	33	46	53	
31454+25.00	177	86	90	0	0		86	46	0	45			91	118	-32	0	0	90	30	42	48	
31454+50.00	177	96	82	0	0		96	53	0	42			95	124	-28	0	0	82	28	39	43	
31454+75.00	166	91	74	1	0		91	61	0	38			99	129	-38	0	0	74	26	36	38	
31455+00.00	154	86	68	4	0		86	62	0	33			95	124	-38	0	0	68	24	34	34	
31455+25.00	150	86	64	7	0		86	49	0	30			79	103	-17	0	0	64	22	31	33	
31455+50.00	148	88	60	10	0		88	30	0	27			57	74	14	0	0	60	21	29	31	
31455+75.00	147	90	57	13	0		90	18	0	24			42	55	35	0	0	57	22	31	26	
31456+00.00	146	92	54	15	0		92	12	0	21			33	43	49	0	0	54	23	32	22	
31456+25.00	144	92	52	18	0		92	9	0	18			27	35	57	0	0	52	24	34	18	
31456+46.34	122	78	43	17	0		78	5	0	14			19	25	53	0	0	43	21	29	14	
US_218_Ramp_C																						
Totals:	11,081	3,237	7,837	85	0	0	3,237	38,926	0	5,443	446	0	44,815	58,260	-55,023	30,673	42,080	7,837	3,231	4,524	3,314	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
US_218_Ramp_D																						
41474+40.45																						
41474+50.00	0	0	0	0	0		0	1,788	0				1,788	2,324	-2,324	1,050	2,239	0	0	0	0	
41474+75.00	0	0	0	0	0		0	4,689	0				4,689	6,096	-6,096	2,682	5,872	0	45	63	-63	
41475+00.00	0	0	0	0	0		0	4,172	0				4,172	5,424	-5,424	2,696	5,213	0	105	147	-147	
41475+25.00	0	0	0	0	0		0	3,387	0				3,387	4,403	-4,403	2,709	4,207	0	121	169	-169	
41475+50.00	370	14	274	0	81		14	2,789	0	232			3,021	3,927	-3,913	2,711	3,432	274	133	186	88	
41475+75.00	400	19	266	0	116		19	2,550	0	200			2,750	3,575	-3,556	2,712	3,121	266	131	183	83	
41476+00.00	335	6	249	0	79		6	2,480	0	200			2,680	3,484	-3,478	2,712	3,030	249	119	167	82	
41476+17.00	235	2	169	0	64		2	1,646	0	135			1,781	2,315	-2,313	1,854	2,018	169	80	112	57	
41476+25.00	110	1	79	0	30		1	762	0	63			825	1,073	-1,072	880	949	79	38	53	26	
41476+50.00	338	47	245	0	47		47	2,312	0	195			2,507	3,259	-3,212	2,599	2,812	245	115	161	84	
41476+75.00	327	85	242	0	0		85	2,206	0	194			2,400	3,120	-3,035	2,461	2,674	242	112	157	85	
41477+00.00	303	67	237	0	0		67	2,131	0	191			2,322	3,019	-2,952	2,362	2,575	237	108	151	86	
41477+25.00	283	51	232	0	0		51	2,066	0	190			2,256	2,933	-2,882	2,274	2,487	232	104	146	86	
41477+50.00	266	39	227	0	0		39	1,995	0	188			2,183	2,838	-2,799	2,181	2,395	227	99	139	88	
41477+55.20	52	6	46	0	0		6	408	0	38			446	580	-574	467	511	46	20	28	18	
41477+60.80	41	4	38	0	0		4	351	0	32			383	498	-494	394	442	38	17	24	14	
41477+75.00	69	2	68	0	0		2	676	0	60			736	957	-955	675	796	68	30	42	26	
41478+00.00	121	1	120	0	0		1	1,200	0	107			1,307	1,699	-1,698	1,170	1,383	120	52	73	47	
41478+25.00	121	0	120	0	0		0	1,194	0	109			1,303	1,694	-1,694	1,165	1,378	120	51	71	49	
41478+50.00	122	1	121	0	0		1	1,171	0	109			1,280	1,664	-1,663	1,135	1,348	121	51	71	50	
41478+75.00	125	3	122	0	0		3	1,138	0	108			1,246	1,620	-1,617	1,092	1,305	122	51	71	51	
41479+00.00	131	5	126	0	0		5	1,132	0	112			1,244	1,617	-1,612	1,084	1,297	126	51	71	55	
41479+25.00	136	6	129	0	0		6	1,133	0	114			1,247	1,621	-1,615	1,086	1,299	129	52	73	56	
41479+50.00	139	8	131	0	0		8	1,119	0	115			1,234	1,604	-1,596	1,069	1,282	131	54	76	55	
41479+75.00	140	7	133	0	0		7	1,106	0	117			1,223	1,590	-1,583	1,052	1,265	133	55	77	56	
41480+00.00	142	7	136	0	0		7	1,101	0	120			1,221	1,587	-1,580	1,045	1,258	136	57	80	56	
41480+25.00	142	4	138	0	0		4	1,106	0	123			1,229	1,598	-1,594	1,054	1,268	138	58	81	57	
41480+50.00	141	1	139	0	0		1	1,111	0	127			1,238	1,609	-1,608	1,061	1,274	139	59	83	56	
41480+75.00	143	2	141	0	0		2	1,111	0	129			1,240	1,612	-1,610	1,060	1,273	141	61	85	56	
41481+00.00	158	11	147	0	0		11	1,104	0	130			1,234	1,604	-1,593	1,050	1,264	147	66	92	55	
41481+25.00	177	23	154	0	0		23	1,091	0	133			1,224	1,591	-1,568	1,032	1,244	154	71	99	55	
41481+50.00	183	28	155	0	0		28	1,079	0	132			1,211	1,574	-1,546	1,010	1,223	155	73	102	53	
41481+75.00	179	27	153	0	0		27	1,069	0	130			1,199	1,559	-1,532	991	1,204	153	72	101	52	
41482+00.00	179	26	153	0	0		26	1,056	0	130			1,186	1,542	-1,516	969	1,182	153	72	101	52	
41482+25.00	177	26	151	0	0		26	1,035	0	128			1,163	1,512	-1,486	937	1,151	151	71	99	52	
41482+50.00	174	25	149	0	0		25	1,011	0	126			1,137	1,478	-1,453	901	1,114	149	69	97	52	
41482+75.00	170	23	147	0	0		23	985	0	125			1,110	1,443	-1,420	862	1,075	147	68	95	52	
41483+00.00	164	19	145	0	0		19	947	0	124			1,071	1,392	-1,373	810	1,022	145	67	94	51	
41483+25.00	160	16	144	0	0		16	893	0	124			1,017	1,322	-1,306	735	948	144	65	91	53	
41483+50.00	166	16	150	0	0		16	832	0	125			957	1,244	-1,228	654	867	150	69	97	53	
41483+75.00	170	15	154	0	0		15	766	0	123			889	1,156	-1,141	572	784	154	70	98	56	
41484+00.00	168	17	150	0	0		17	700	0	118			818	1,063	-1,046	491	705	150	67	94	56	
41484+25.00	171	22	148	0	0		22	640	0	114			754	980	-958	415	628	148	65	91	57	
41484+50.00	169	24	145	0	0		24	576	0	110			686	892	-868	332	545	145	63	88	57	
41484+75.00	166	26	141	0	0		26	511	0	105			616	801	-775	250	463	141	61	85	56	
41485+00.00	167	29	138	0	0		29	452	0	101			553	719	-690	176	389	138	59	83	55	
41485+25.00	170	33	136	0	0		33	399	0	99			498	647	-614	111	324	136	57	80	56	
41485+50.00	170	37	133	0	0		37	351	0	95			446	580	-543	44	257	133	55	77	56	
41485+75.00	170	40	130	0	0		40	311	0	91			402	523	-483	0	196	130	53	74	56	
41486+00.00	171	44	127	0	0		44	267	0	86			353	459	-415	0	133	127	51	71	56	
41486+25.00	175	50	125	0	0		50	212	0	81			293	381	-331	0	55	125	50	70	55	
41486+50.00	182	60	122	0	0		60	157	0	74			231	300	-240	0	0	122	48	67	55	
41486+75.00	191	71	120	0	0		71	108	0	67			175	228	-157	0	0	120	46	64	56	
41487+00.00	194	79	115	0	0		79	68	0	59			127	165	-86	0	0	115	43	60	55	
41487+25.00	207	95	112	0	0		95	36	0	49			85	111	-16	0	0	112	41	57	55	
41487+50.00	224	116	108	0	0		116	14	0	38			52	68	48	0	0	108	38	53	55	
41487+75.00	232	131	101	0	0		131	4	0	26			30	39	92	0	0	101	34	48	53	
41488+00.00	238	140	98	0	0		140	1	0	22			23	30	110	0	0	98	32	45	53	
41488+25.00	237	142	96	0	0		142	5	0	23			28	36	106	0	0	96	31	43	53	
41488+50.00	233	138	95	0	0		138	14	0	24			38	49	89	0	0	95	30	42	53	
41488+75.00	220	128	92	0	0		128	25	0	27			52	68	60	0	0	92	28	39	53	
41489+00.00	193	105	88	0	0		105	36	0	35			71	92	13	0	0	88	26	36	52	
41489+25.00	157	73	84	0	0		73	50	0	44			94	122	-49	0	0	84	24	34	50	
41489+50.00	125	46	80	0	0		46	67	0	49			116	151	-105	0	0	80	23	32	48	
41489+75.00	106	29	78	0	0		29	82	0	53			135	176	-147	0	0	78	22	31	47	
41489+96.32	79	15	65	0	0		15	78	0	47			125	163	-148	0	0	65	18	25	40	
US_218_Ramp_D																						
Totals:	11,304	2,333	8,557	0	417	0	2,333	67,062	0	6,475	0	0	73,537	95,599	-93,266	58,829	77,172	8,557	3,927	5,498	3,060	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
23rd_Ave_South																						
231416+75.00																						
231417+00.00	22	11	11	0	0		11	0	0	1			1	1	10	0	0	11	14	20	-9	
231417+25.00	34	20	14	0	0		20	0	0	1			1	1	19	0	0	14	17	24	-10	
231417+50.00	39	23	16	0	0		23	3	0	2			5	7	17	0	0	16	19	27	-11	
231417+75.00	42	24	18	0	0		24	8	0	3			11	14	10	0	0	18	21	29	-11	
231418+00.00	47	28	19	0	0		28	15	0	5			20	26	2	0	0	19	24	34	-15	
231418+25.00	57	35	21	0	0		35	27	0	8			35	46	-11	0	0	21	27	38	-17	
231418+50.00	68	45	23	0	0		45	44	0	9			53	69	-24	0	0	23	30	42	-19	
231418+75.00	82	55	27	0	0		55	65	0	11			76	99	-44	0	1	27	33	46	-19	
231419+00.00	96	65	31	0	0		65	91	0	13			104	135	-70	0	35	31	38	53	-22	
231419+25.00	110	77	34	0	0		77	122	0	14			136	177	-100	0	75	34	42	59	-25	
231419+50.00	126	88	37	0	0		88	155	0	16			171	222	-134	5	118	37	46	64	-27	
231419+75.00	141	101	40	0	0		101	192	0	17			209	272	-171	52	165	40	51	71	-31	
231420+00.00	156	113	43	0	0		113	236	0	17			253	329	-216	105	218	43	56	78	-35	
231420+25.00	175	128	47	0	0		128	289	0	20			309	402	-274	173	287	47	61	85	-38	
231420+50.00	204	153	51	0	0		153	348	0	22			370	481	-328	254	367	51	67	94	-43	
231420+75.00	229	173	56	0	0		173	424	0	25			449	584	-411	361	475	56	73	102	-46	
231421+00.00	195	138	56	0	0		138	513	0	30			543	706	-568	484	597	56	74	104	-48	
231421+25.00	113	63	50	0	0		63	574	0	34			608	790	-727	567	680	50	65	91	-41	
231421+50.00	54	13	42	0	0		13	672	0	36			708	920	-907	696	810	42	54	76	-34	
231421+75.00	39	0	39	0	0		0	818	0	39			857	1,114	-1,114	887	1,000	39	47	66	-27	
231422+00.00	41	0	41	0	0		0	1,029	0	41			1,070	1,391	-1,391	0	0	41	40	56	-15	
23rd_Ave_South																						
Totals:	2,070	1,353	716	0	0	0	1,353	5,625	0	364	0	0	5,989	7,786	-6,433	3,583	4,829	716	899	1,259	-543	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.17

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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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
US_218_South																						
241450+50.00	23	9	14	0	0		9	1	0	4			5	7	3	0	0	14	15	21	-7	
241450+75.00	25	7	17	0	0		7	2	0	6			8	10	-3	0	0	17	17	24	-7	
241451+00.00	25	8	17	0	0		8	4	0	10			14	18	-10	0	0	17	17	24	-7	
241451+25.00	37	16	21	0	0		16	7	0	10			17	22	-6	0	0	21	20	28	-7	
241451+50.00	39	13	27	0	0		13	10	0	12			22	29	-16	0	0	27	21	29	-2	
241451+75.00	32	3	29	0	0		3	16	0	18			34	44	-41	0	0	29	21	29	0	
241452+00.00	34	4	30	0	0		4	22	0	20			42	55	-51	0	0	30	21	29	1	
241452+25.00	36	4	31	0	0		4	24	0	22			46	60	-56	0	0	31	22	31	0	
241452+50.00	37	5	32	0	0		5	26	0	23			49	64	-59	0	0	32	22	31	1	
241452+75.00	39	6	32	0	0		6	28	0	23			51	66	-60	0	0	32	23	32	0	
241453+00.00	38	7	31	0	0		7	29	0	21			50	65	-58	0	0	31	22	31	0	
241453+25.00	41	8	34	0	0		8	26	0	21			47	61	-53	0	0	34	24	34	0	
241453+50.00	47	10	37	0	0		10	22	0	19			41	53	-43	0	0	37	26	36	1	
241453+75.00	54	15	39	0	0		15	16	0	18			34	44	-29	0	0	39	27	38	1	
241454+00.00	62	22	40	0	0		22	12	0	15			27	35	-13	0	0	40	29	41	-1	
241454+25.00	72	30	42	0	0		30	10	0	14			24	31	-1	0	0	42	30	42	0	
241454+50.00	84	39	44	0	0		39	8	0	12			20	26	13	0	0	44	31	43	1	
241454+75.00	95	50	45	0	0		50	6	0	10			16	21	29	0	0	45	31	43	2	
241455+00.00	104	58	46	0	0		58	5	0	9			14	18	40	0	0	46	32	45	1	
241455+25.00	113	66	47	0	0		66	4	0	9			13	17	49	0	0	47	33	46	1	
241455+50.00	125	76	49	0	0		76	5	0	10			15	20	57	0	0	49	34	48	1	
241455+75.00	135	84	51	0	0		84	8	0	11			19	25	59	0	0	51	36	50	1	
241456+00.00	139	86	53	0	0		86	14	0	12			26	34	52	0	0	53	37	52	1	
241456+25.00	139	83	55	0	0		83	21	0	15			36	47	36	0	0	55	38	53	2	
241456+50.00	133	77	56	0	0		77	32	0	17			49	64	13	0	0	56	39	55	1	
241456+75.00	125	69	56	0	0		69	46	0	18			64	83	-14	0	0	56	39	55	1	
241457+00.00	120	64	56	0	0		64	63	0	19			82	107	-43	0	0	56	39	55	1	
241457+25.00	117	61	56	0	0		61	79	0	21			100	130	-69	0	0	56	39	55	1	
241457+50.00	112	57	56	0	0		57	96	0	23			119	155	-98	0	0	56	39	55	1	
241457+75.00	109	52	57	0	0		52	111	0	25			136	177	-125	0	0	57	39	55	2	
241458+00.00	109	51	57	0	0	23	74	124	0	26		113	263	342	-268	0	0	57	39	55	2	
241458+25.00	110	54	57	0	0		54	135	0	25			160	208	-154	0	0	57	40	56	1	
241458+50.00	114	57	58	0	0		57	142	0	25			167	217	-160	0	0	58	40	56	2	
241458+75.00	122	63	59	0	0		63	146	0	25			171	222	-159	0	0	59	41	57	2	
241459+00.00	132	72	61	0	0		72	147	0	25			172	224	-152	0	0	61	42	59	2	
241459+25.00	142	79	62	0	0		79	147	0	25			172	224	-145	0	0	62	43	60	2	
241459+50.00	152	89	63	0	0		89	146	0	24			170	221	-132	0	0	63	44	62	1	
241459+75.00	162	97	65	0	0		97	145	0	24			169	220	-123	0	0	65	45	63	2	
241460+00.00	169	103	66	0	0		103	146	0	24			170	221	-118	0	0	66	46	64	2	
241460+25.00	175	107	67	0	0		107	147	0	25			172	224	-117	0	0	67	47	66	1	
241460+50.00	174	106	68	0	0		106	149	0	25			174	226	-120	0	0	68	47	66	2	
241460+75.00	172	105	68	0	0		105	149	0	25			174	226	-121	0	0	68	47	66	2	
241461+00.00	177	106	70	0	0		106	151	0	26			177	230	-124	0	0	70	48	67	3	
241461+25.00	185	112	73	0	0		112	154	0	26			180	234	-122	0	0	73	50	70	3	
241461+50.00	197	121	76	0	0		121	158	0	27			185	241	-120	0	0	76	52	73	3	
241461+75.00	214	134	79	0	0		134	164	0	27			191	248	-114	0	0	79	54	76	4	
241462+00.00	231	149	82	0	0		149	171	0	27			198	257	-108	0	7	82	56	78	4	
241462+25.00	247	162	85	0	0		162	179	0	27			206	268	-106	0	13	85	58	81	4	
241462+50.00	259	171	87	0	0		171	191	0	27			218	283	-112	0	20	87	60	84	3	
241462+75.00	261	172	89	0	0		172	209	0	27			236	307	-135	0	36	89	61	85	4	
241463+00.00	252	164	88	0	0		164	222	0	26			248	322	-158	0	47	88	62	87	1	
241463+25.00	239	150	89	0	0		150	251	0	29			280	364	-214	0	82	89	63	88	1	
241463+50.00	227	135	92	0	0		135	299	0	37			336	437	-302	0	146	92	63	88	4	
241463+75.00	217	124	93	0	0		124	340	0	43			383	498	-374	0	198	93	63	88	5	
241464+00.00	212	117	94	0	0		117	383	0	48			431	560	-443	8	254	94	64	90	5	
241464+25.00	211	115	96	0	0		115	427	0	51			478	621	-506	64	311	96	65	91	5	
241464+50.00	214	116	98	0	0		116	468	0	53			521	677	-561	118	365	98	67	94	4	
241464+75.00	220	119	101	0	0		119	507	0	56			563	732	-613	170	416	101	68	95	6	
241465+00.00	224	120	104	0	0		120	547	0	59			606	788	-668	224	469	104	70	98	6	
241465+25.00	227	121	106	0	0		121	585	0	60			645	839	-718	273	520	106	72	101	5	
241465+50.00	231	122	109	0	0		122	617	0	63			680	884	-762	319	564	109	74	104	6	
241465+75.00	232	121	111	0	0		121	643	0	64			707	919	-798	356	603	111	75	105	6	
241466+00.00	231	118	113	0	0		118	666	0	65			731	950	-832	386	633	113	77	108	5	
241466+25.00	225	109	115	0	0		109	693	0	67			760	988	-879	424	671	115	78	109	6	
241466+50.00	212	96	116	0	0		96	729	0	69			798	1,037	-941	473	720	116	79	111	6	
241466+75.00	196	81	116	0	0		81	771	0	71			842	1,095	-1,014	529	776	116	79	111	6	
241467+00.00	183	66	117	0	0		66	820	0	75			895	1,164	-1,098	597	842	117	80	112	5	
241467+25.00																						
Subtotals:	9,548	5,193	4,350	0	0	23	5,216	12,821	0	1,915	0	113	14,849	19,304	-14,088	3,940	7,692	4,350	3,022	4,231	120	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.18

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
241467+25.00	171	54	117	0	0		54	878	0	78			956	1,243	-1,189	672	919	117	80	112	5	
241467+50.00	180	47	133	0	0		47	1,077	0	95			1,172	1,524	-1,477	932	1,178	133	87	122	11	
241467+75.00	207	41	166	0	0		41	1,455	0	128			1,583	2,058	-2,017	1,426	1,673	166	98	137	29	
241468+00.00	159	26	133	0	0		26	1,269	0	105			1,374	1,786	-1,760	1,187	1,434	133	74	104	29	
241468+25.00	100	17	83	0	0		17	902	0	64			966	1,256	-1,239	715	961	83	46	64	19	
241468+50.00	103	17	86	0	0		17	960	0	66			1,026	1,334	-1,317	797	1,044	86	47	66	20	
241468+75.00	106	19	87	0	0		19	1,012	0	67			1,079	1,403	-1,384	870	1,117	87	48	67	20	
241469+00.00	110	21	89	0	0		21	1,059	0	68			1,127	1,465	-1,444	932	1,179	89	50	70	19	
241469+25.00	112	21	91	0	0	5	26	1,102	0	70		4,329	5,501	7,151	-7,125	992	1,239	91	51	71	20	
241469+50.00	115	23	92	0	0		23	1,141	0	71			1,212	1,576	-1,553	1,047	1,292	92	52	73	19	
241469+75.00	121	26	94	0	0		26	1,181	0	72			1,253	1,629	-1,603	1,045	1,291	94	53	74	20	
241470+00.00	122	27	95	0	0		27	1,228	0	72			1,300	1,690	-1,663	1,105	1,352	95	53	74	21	
241470+25.00	120	24	96	0	0		24	1,262	0	74			1,336	1,737	-1,713	0	0	96	53	74	22	
241470+50.00	115	21	94	0	0		21	1,269	0	73			1,342	1,745	-1,724	0	0	94	52	73	21	
241470+75.00	54	9	45	0	0		9	610	0	35			645	839	-830	0	0	45	25	35	10	
241470+87.00	101	24	77	0	0		24	903	0	59			962	1,251	-1,227	0	0	77	43	60	17	
241471+00.00	281	86	195	0	0	66	152	2,057	0	145		29	2,231	2,900	-2,748	0	0	195	112	157	38	
241471+25.00	294	117	178	0	0	133	250	1,660	0	123		59	1,842	2,395	-2,145	0	0	178	103	144	34	
241471+50.00	189	89	100	0	0	82	171	788	0	66		38	892	1,160	-989	0	0	100	56	78	22	
241471+65.00	138	75	63	0	0	47	122	465	0	42		17	524	681	-559	0	0	63	35	49	14	
241471+75.00	387	236	151	0	0	93	329	1,084	0	98		21	1,203	1,564	-1,235	0	0	151	86	120	31	
241472+00.00	433	279	154	0	0	94	373	1,049	0	95		21	1,165	1,515	-1,142	0	0	154	87	122	32	
241472+25.00	481	322	159	0	0	96	418	1,045	0	94		23	1,162	1,511	-1,093	0	0	159	84	118	41	
241472+50.00	526	363	163	0	0	97	460	1,053	0	93		24	1,170	1,521	-1,061	0	0	163	81	113	50	
241472+75.00	112	78	34	0	0	19	97	208	0	20		5	233	303	-206	0	0	34	17	24	10	
241472+80.00	457	324	133	0	0	76	400	824	0	77		18	919	1,195	-795	0	0	133	74	104	29	
241473+00.00	582	422	160	0	0	99	521	1,004	0	90		26	1,120	1,456	-935	0	0	160	93	130	30	
241473+25.00	565	408	156	0	0	104	512	938	0	84		31	1,053	1,369	-857	0	0	156	89	125	31	
241473+50.00	512	366	146	0	0	237	603	873	0	76		37	986	1,282	-679	0	0	146	84	118	28	
241473+75.00	371	260	112	0	0	393	653	534	0	61		36	631	820	-167	0	0	112	64	90	22	
241473+95.00	88	61	27	0	0	123	184	92	0	15		9	116	151	33	0	0	27	16	22	5	
241474+00.00	472	341	131	0	0	552	893	292	0	63		65	420	546	347	0	0	131	78	109	22	
241474+25.00	415	306	109	0	0	453	759	99	0	42		51	192	250	509	0	0	109	63	88	21	
241474+50.00	32	24	9	0	0	21	45	14	0	3		1	18	23	22	0	0	9	7	10	-1	
241474+52.50																						
US_218_South																						
Totals:	17,879	9,767	8,108	0	0	2,813	12,580	44,208	0	4,399	0	4,953	53,560	69,628	-57,048	15,660	22,371	8,108	5,163	7,229	881	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.19

10/23/2017 11:29:21 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
US_218_North																						
241476+50.00																						
241476+75.00	14	15	0	7	0		15	877	0		139		1,016	1,321	-1,306	650	896	0	136	190	-190	
241477+00.00	167	25	142	4	0		25	2,407	0	119	160		2,686	3,492	-3,467	2,638	2,885	142	183	256	-114	
241477+25.00	222	23	199	0	0		23	3,438	0	169	100		3,707	4,819	-4,796	2,964	4,239	199	173	242	-43	
241477+50.00	228	19	209	0	0		19	3,702	0	176	78		3,956	5,143	-5,124	2,977	4,596	209	147	206	3	
241477+75.00	234	20	214	0	0		20	3,648	0	180	63		3,891	5,058	-5,038	2,978	4,527	214	141	197	17	
241478+00.00	237	26	211	0	0		26	3,499	0	174	54		3,727	4,845	-4,819	2,980	4,334	211	140	196	15	
241478+25.00	231	28	202	0	0		28	3,404	0	167	54		3,625	4,713	-4,685	2,980	4,211	202	138	193	9	
241478+50.00	231	27	204	0	0		27	3,335	0	171	54		3,560	4,628	-4,601	2,980	4,121	204	135	189	15	
241478+75.00	225	27	198	0	0		27	3,244	0	166	53		3,463	4,502	-4,475	2,980	4,003	198	133	186	12	
241479+00.00	234	46	188	0	0		46	3,146	0	155	52		3,353	4,359	-4,313	2,980	3,875	188	132	185	3	
241479+25.00	255	76	179	0	0		76	3,071	0	142	51		3,264	4,243	-4,167	2,980	3,778	179	131	183	-5	
241479+50.00	256	78	178	0	0		78	2,965	0	137	48		3,150	4,095	-4,017	2,978	3,639	178	130	182	-4	
241479+75.00	253	63	190	0	0		63	2,857	0	150	44		3,051	3,966	-3,903	2,974	3,493	190	128	179	11	
241480+00.00	245	54	192	0	0		54	2,760	0	153	40		2,953	3,839	-3,785	2,974	3,368	192	127	178	14	
241480+25.00	245	51	194	0	0		51	2,669	0	155	35		2,859	3,717	-3,666	2,977	3,253	194	126	176	18	
241480+50.00	181	36	145	0	0		36	2,008	0	117	26		2,151	2,796	-2,760	2,155	2,402	145	90	126	19	
241480+75.00	116	21	95	0	0		21	1,369	0	79	20		1,468	1,908	-1,887	1,333	1,580	95	54	76	19	
241481+00.00	114	19	95	0	0		19	1,333	0	79	21		1,433	1,863	-1,844	1,288	1,534	95	54	76	19	
241481+25.00	117	20	97	0	0		20	1,300	0	78	21		1,399	1,819	-1,799	1,247	1,494	97	55	77	20	
241481+50.00	119	20	99	0	0		20	1,267	0	78	21		1,366	1,776	-1,756	1,206	1,452	99	56	78	21	
241481+75.00	118	19	99	0	0		19	1,229	0	79	21		1,329	1,728	-1,709	1,156	1,403	99	55	77	22	
241482+00.00	118	20	98	0	0		20	1,180	0	78	21		1,279	1,663	-1,643	1,092	1,339	98	54	76	22	
241482+25.00	113	17	96	0	0		17	1,123	0	77	21		1,221	1,587	-1,570	1,018	1,265	96	52	73	23	
241482+50.00	105	11	94	0	0		11	1,057	0	77	21		1,155	1,502	-1,491	932	1,179	94	50	70	24	
241482+75.00	101	9	91	0	0		9	987	0	75	22		1,084	1,409	-1,400	844	1,091	91	48	67	24	
241483+00.00	94	6	88	0	0		6	918	0	73	22		1,013	1,317	-1,311	754	1,001	88	46	64	24	
241483+25.00	144	19	125	0	0		19	1,086	0	99	26		1,211	1,574	-1,555	972	1,219	125	65	91	34	
241483+50.00	205	42	163	0	0		42	1,224	0	124	29		1,377	1,790	-1,748	1,153	1,400	163	84	118	45	
241483+75.00	218	58	161	0	0		58	1,105	0	118	30		1,253	1,629	-1,571	998	1,245	161	83	116	45	
241484+00.00	234	73	160	0	0		73	997	0	114	30		1,141	1,483	-1,410	858	1,104	160	81	113	47	
241484+25.00	248	90	159	0	0		90	891	0	109	30		1,030	1,339	-1,249	716	962	159	80	112	47	
241484+50.00	264	106	158	0	0		106	788	0	104	30		922	1,199	-1,093	577	824	158	79	111	47	
241484+75.00	278	122	157	0	0		122	687	0	99	30		816	1,061	-939	441	688	157	78	109	48	
241485+00.00	295	139	155	0	0		139	586	0	94	29		709	922	-783	303	550	155	77	108	47	
241485+25.00	312	159	153	0	0		159	482	0	88	29		599	779	-620	164	410	153	76	106	47	
241485+50.00	328	177	151	0	0		177	376	0	81	29		486	632	-455	21	268	151	74	104	47	
241485+75.00	352	204	149	0	0		204	276	0	72	29		377	490	-286	0	133	149	73	102	47	
241486+00.00	382	235	147	0	0		235	189	0	63	29		281	365	-130	0	16	147	72	101	46	
241486+25.00	418	273	146	0	0		273	118	0	51	29		198	257	16	0	0	146	71	99	47	
241486+50.00	470	324	146	0	0		324	62	0	37	29		128	166	158	0	0	146	71	99	47	
241486+75.00	525	379	146	7	0		379	30	0	26	23		79	103	276	0	0	146	71	99	47	
241487+00.00	572	427	145	20	0		427	15	0	21	10		46	60	367	0	0	145	70	98	47	
241487+25.00	606	463	143	29	0		463	5	0	15	1		21	27	436	0	0	143	69	97	46	
241487+50.00	632	490	141	30	0		490	1	0	9			10	13	477	0	0	141	67	94	47	
241487+75.00	645	507	138	30	0		507	0	0	3			3	4	503	0	0	138	65	91	47	
241488+00.00	645	512	134	30	0		512	0	0				0	0	512	0	0	134	63	88	46	
241488+25.00	644	514	130	30	0		514	0	0				0	0	514	0	0	130	61	85	45	
241488+50.00	648	522	127	30	0		522	0	0				0	0	522	0	0	127	60	84	43	
241488+75.00	658	534	123	30	0		534	0	0				0	0	534	0	0	123	59	83	40	
241489+00.00	677	555	121	30	0		555	0	0	1			1	1	554	0	0	121	58	81	40	
241489+25.00	700	583	118	30	0		583	0	0				0	0	583	0	0	118	57	80	38	
241489+50.00	723	609	113	30	0		609	0	0	1			1	1	608	0	0	113	56	78	35	
241489+75.00	747	636	111	30	0		636	0	0				0	0	636	0	0	111	55	77	34	
241490+00.00	782	668	113	30	0		668	0	0	1			1	1	667	0	0	113	55	77	36	
241490+25.00	820	709	111	30	0		709	0	0				0	0	709	0	0	111	54	76	35	
241490+50.00	861	751	110	30	0		751	0	0				0	0	751	0	0	110	53	74	36	
241490+75.00	916	806	111	30	0		806	0	0				0	0	806	0	0	111	54	76	35	
241491+00.00	989	875	114	29	0		875	0	0				0	0	875	0	0	114	56	78	36	
241491+25.00	1,057	940	117	29	0		940	0	0				0	0	940	0	0	117	58	81	36	
241491+50.00	1,125	1,006	119	29	0		1,006	0	0	1			1	1	1,005	0	0	119	60	84	35	
241491+75.00	1,194	1,072	122	29	0		1,072	0	0	1			1	1	1,071	0	0	122	62	87	35	
241492+00.00	1,256	1,131	125	29	0		1,131	0	0				0	0	1,131	0	0	125	64	90	35	
241492+25.00	1,309	1,183	126	29	0		1,183	0	0				0	0	1,183	0	0	126	65	91	35	
241492+50.00	1,354	1,227	127	29	0		1,227	0	0				0	0	1,227	0	0	127	66	92	35	
241492+75.00	1,396	1,265	131	29	0		1,265	0	0	1			1	1	1,264	0	0	131	68	95	36	
241493+00.00	1,426	1,295	132	29	0		1,295	0	0				0	0	1,295	0	0	132	69	97	35	
241493+25.00	1,427	1,295	131	30	0		1,295	0	0	1			1	1	1,294	0	0	131	69	97	34	
Subtotals:	33,055	23,751	9,306	778	0	0	23,751	67,711	0	4,438	1,704	0	73,853	96,009	-72,258	61,217	79,773	9,306	5,442	7,619	1,687	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.20

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
241493+25.00	1,400	1,268	131	30	0		1,268	0	0	1			1	1	1,267	0	0	131	68	95	36	
241493+50.00	1,368	1,238	130	30	0		1,238	0	0				0	0	1,238	0	0	130	67	94	36	
241493+75.00	1,345	1,214	130	30	0		1,214	0	0	1			1	1	1,213	0	0	130	66	92	38	
241494+00.00	1,316	1,187	129	29	0		1,187	0	0	1			1	1	1,186	0	0	129	65	91	38	
241494+25.00	1,282	1,156	126	29	0		1,156	0	0				0	0	1,156	0	0	126	64	90	36	
241494+50.00	1,245	1,121	124	29	0		1,121	0	0				0	0	1,121	0	0	124	62	87	37	
241494+75.00	1,200	1,079	121	29	0		1,079	0	0				0	0	1,079	0	0	121	61	85	36	
241495+00.00	1,153	1,034	119	29	0		1,034	0	0				0	0	1,034	0	0	119	59	83	36	
241495+25.00	1,101	984	117	29	0		984	0	0				0	0	984	0	0	117	58	81	36	
241495+50.00	1,037	922	115	29	0		922	0	0	1			1	1	921	0	0	115	56	78	37	
241495+75.00	960	848	112	29	0		848	0	0	1			1	1	847	0	0	112	54	76	36	
241496+00.00	878	770	108	29	0		770	0	0				0	0	770	0	0	108	51	71	37	
241496+25.00	793	689	104	29	0		689	0	0				0	0	689	0	0	104	49	69	35	
241496+50.00	698	600	99	29	0		600	0	0				0	0	600	0	0	99	46	64	35	
241496+75.00	601	508	94	29	0		508	0	0				0	0	508	0	0	94	42	59	35	
241497+00.00	515	426	89	29	0		426	0	0				0	0	426	0	0	89	39	55	34	
241497+25.00	443	357	85	29	0		357	0	0	1			1	1	356	0	0	85	36	50	35	
241497+50.00	380	299	82	29	0		299	0	0				0	0	299	0	0	82	34	48	34	
241497+75.00	328	248	80	29	0		248	0	0				0	0	248	0	0	80	33	46	34	
241498+00.00	291	213	78	29	0		213	0	0				0	0	213	0	0	78	32	45	33	
241498+25.00	268	192	77	29	0		192	0	0	15			15	20	173	0	0	77	31	43	34	
241498+50.00	253	176	77	29	0		176	0	0	16			16	21	155	0	0	77	31	43	34	
241498+75.00	240	163	77	29	0		163	0	0	2			2	3	160	0	0	77	30	42	35	
241499+00.00	228	150	78	29	0		150	0	0	3		164	167	217	-67	0	0	78	31	43	35	
241499+25.00	218	140	78	29	0		140	0	0	4			4	5	135	0	0	78	31	43	35	
241499+50.00	215	136	78	29	0		136	0	0	7			7	9	127	0	0	78	31	43	35	
241499+75.00	215	137	78	29	0		137	0	0	8			8	10	127	0	0	78	31	43	35	
241500+00.00	217	139	78	29	0		139	1	0	10			11	14	125	0	0	78	32	45	33	
241500+25.00	216	136	80	30	0		136	1	0	12			13	17	119	0	0	80	32	45	35	
241500+50.00	209	130	80	30	0		130	2	0	13			15	20	111	0	0	80	32	45	35	
241500+75.00	197	117	79	30	0		117	4	0	15			19	25	92	0	0	79	32	45	34	
241501+00.00	182	104	79	29	0		104	6	0	29			35	46	59	0	0	79	31	43	36	
241501+25.00	170	91	79	29	0		91	9	0	32			41	53	38	0	0	79	31	43	36	
241501+50.00	156	76	79	29	0		76	12	0	24			36	47	29	0	0	79	31	43	36	
241501+75.00	144	64	80	29	0		64	18	0	30			48	62	2	0	0	80	32	45	35	
241502+00.00	138	57	81	29	0		57	23	0	34			57	74	-17	0	0	81	32	45	36	
241502+25.00	132	50	82	29	0		50	25	0	36			61	79	-29	0	0	82	33	46	36	
241502+50.00	91	32	59	20	0		32	26	0	29			55	72	-40	0	0	59	23	32	27	
241502+67.00	41	14	27	9	0		14	14	0	14			28	36	-22	0	0	27	11	15	12	
241502+75.00	117	38	79	29	0		38	34	0	41			75	98	-60	0	0	79	31	43	36	
241503+00.00																						
US_218_North Totals:	55,036	42,054	12,984	1,915	0	0	42,054	67,886	0	4,818	1,704	164	74,572	96,944	-54,890	61,217	79,774	12,984	7,083	9,917	3,068	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.21

10/23/2017 11:29:21 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
XOver1																						
100+00.00	11	11	0	1	0		11	0	0				0	0	11	0	0	0	0	0	0	
100+25.00	11	11	0	1	0		11	0	0				0	0	11	0	0	0	0	0	0	
100+50.00	11	10	0	1	0		10	0	0				0	0	10	0	0	0	0	0	0	
100+75.00	9	10	0	1	0		10	0	0				0	0	10	0	0	0	0	0	0	
101+00.00	10	10	0	1	0		10	0	0				0	0	10	0	0	0	0	0	0	
101+25.00	10	10	0	1	0		10	0	0				0	0	10	0	0	0	1	1	-1	
101+50.00	10	10	0	1	0		10	0	0				0	0	10	0	0	0	5	7	-7	
101+75.00	12	13	0	1	0		13	0	0				0	0	13	0	0	0	8	11	-11	
102+00.00	17	16	0	1	0		16	0	0				0	0	16	0	0	0	10	14	-14	
102+25.00	22	22	0	1	0		22	1	0				1	1	21	0	0	0	11	15	-15	
102+50.00	28	28	0	1	0		28	4	0				4	5	23	0	0	0	11	15	-15	
102+75.00	32	32	0	0	0		32	5	0				5	7	26	0	0	0	11	15	-15	
103+00.00	36	36	0	0	0		36	3	0				3	4	32	0	0	0	12	17	-17	
103+25.00	45	45	0	0	0		45	1	0				1	1	44	0	0	0	12	17	-17	
103+50.00	60	60	0	0	0		60	0	0				0	0	60	0	0	0	12	17	-17	
103+75.00	69	69	0	0	0		69	0	0				0	0	69	0	0	0	12	17	-17	
104+00.00	68	68	0	0	0		68	0	0				0	0	68	0	0	0	11	15	-15	
104+25.00	67	67	0	0	0		67	0	0				0	0	67	0	0	0	10	14	-14	
104+50.00	61	61	0	0	0		61	0	0				0	0	61	0	0	0	6	8	-8	
104+75.00	45	45	0	0	0		45	0	0				0	0	45	0	0	0	4	6	-6	
105+00.00	28	28	0	0	0		28	0	0				0	0	28	0	0	0	5	7	-7	
105+25.00	18	18	0	0	0		18	1	0				1	1	17	0	0	0	6	8	-8	
105+50.00	16	16	0	0	0		16	4	0				4	5	11	0	0	0	6	8	-8	
105+75.00	20	21	0	0	0		21	6	0				6	8	13	0	0	0	6	8	-8	
106+00.00	23	23	0	0	0		23	7	0				7	9	14	0	0	0	6	8	-8	
106+25.00	24	24	0	0	0		24	9	0				9	12	12	0	0	0	5	7	-7	
106+50.00	24	24	0	0	0		24	13	0				13	17	7	0	0	0	5	7	-7	
106+75.00	26	25	0	0	0		25	18	0				18	23	2	0	0	0	5	7	-7	
107+00.00	25	25	0	0	0		25	23	0				23	30	-5	0	0	0	4	6	-6	
107+25.00	22	22	0	0	0		22	28	0				28	36	-14	0	0	0	4	6	-6	
107+50.00	19	18	0	0	0		18	34	0				34	44	-26	0	0	0	3	4	-4	
107+75.00	13	14	0	0	0		14	45	0				45	59	-45	0	0	0	3	4	-4	
108+00.00	9	9	0	0	0		9	62	0				62	81	-72	0	0	0	3	4	-4	
108+25.00	3	3	0	0	0		3	36	0				36	47	-44	0	0	0	3	4	-4	
108+50.00	0	0	0	0	0		0	66	0				66	86	-86	0	0	0	3	4	-4	
108+75.00	0	0	0	0	0		0	151	0				151	196	-196	0	47	0	3	4	-4	
109+00.00	0	0	0	0	0		0	188	0				188	244	-244	0	90	0	3	4	-4	
109+25.00	0	0	0	0	0		0	223	0				223	290	-290	0	131	0	5	7	-7	
109+50.00	0	0	0	0	0		0	256	0				256	333	-333	18	169	0	5	7	-7	
109+75.00	0	0	0	0	0		0	287	0				287	373	-373	59	209	0	6	8	-8	
110+00.00	0	0	0	0	0		0	310	0				310	403	-403	91	242	0	6	8	-8	
110+25.00	0	0	0	0	0		0	327	0				327	425	-425	118	269	0	7	10	-10	
110+50.00	0	0	0	0	0		0	341	0				341	443	-443	138	290	0	7	10	-10	
110+75.00	0	0	0	0	0		0	352	0				352	458	-458	152	303	0	7	10	-10	
111+00.00	0	0	0	0	0		0	359	0				359	467	-467	163	315	0	8	11	-11	
111+25.00	0	0	0	0	0		0	359	0				359	467	-467	166	319	0	8	11	-11	
111+50.00	1	1	0	0	0		1	353	0				353	459	-458	164	315	0	9	13	-13	
111+75.00	1	1	0	0	0		1	346	0				346	450	-449	150	300	0	9	13	-13	
112+00.00	0	0	0	0	0		0	337	0				337	438	-438	130	281	0	10	14	-14	
112+25.00	1	1	0	0	0		1	325	0				325	423	-422	108	259	0	11	15	-15	
112+50.00	3	2	0	0	0		2	309	0				309	402	-400	79	231	0	12	17	-17	
112+75.00	6	5	0	0	0		5	288	0				288	374	-369	51	202	0	13	18	-18	
113+00.00	4	3	0	0	0		3	266	0				266	346	-343	22	173	0	12	17	-17	
113+25.00	0	0	0	0	0		0	245	0				245	319	-319	0	146	0	12	17	-17	
113+50.00	0	0	0	0	0		0	224	0				224	291	-291	0	118	0	12	17	-17	
113+75.00	0	0	0	0	0		0	205	0				205	267	-267	0	92	0	13	18	-18	
114+00.00	0	0	0	0	0		0	187	0				187	243	-243	0	70	0	13	18	-18	
114+25.00	0	0	0	0	0		0	171	0				171	222	-222	0	51	0	13	18	-18	
114+50.00	0	0	0	0	0		0	155	0				155	202	-202	0	31	0	14	20	-20	
114+75.00	0	0	0	0	0		0	139	0				139	181	-181	0	12	0	14	20	-20	
115+00.00	0	0	0	0	0		0	123	0				123	160	-160	0	0	0	14	20	-20	
115+25.00	0	0	0	0	0		0	107	0				107	139	-139	0	0	0	14	20	-20	
115+50.00	0	0	0	0	0		0	94	0				94	122	-122	0	0	0	15	21	-21	
115+75.00	0	0	0	0	0		0	81	0				81	105	-105	0	0	0	15	21	-21	
116+00.00	0	0	0	0	0		0	63	0				63	82	-82	0	0	0	16	22	-22	
116+25.00	0	0	0	0	0		0	44	0				44	57	-57	0	0	0	15	21	-21	
116+50.00	0	0	0	0	0		0	28	0				28	36	-36	0	0	0	15	21	-21	
116+75.00																						
Subtotals:	920	917	0	11	0	0	917	7,609	0	0	0	0	7,609	9,892	-8,975	1,608	4,663	0	539	755	-755	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
116+75.00	0	0	0	0	0		0	15	0				15	20	-20	0	0	0	14	20	-20	
117+00.00	0	0	0	0	0		0	6	0				6	8	-8	0	0	0	14	20	-20	
117+25.00	0	0	0	0	0		0	2	0				2	3	-3	0	0	0	14	20	-20	
117+50.00	2	2	0	0	0		2	1	0				1	1	1	0	0	0	14	20	-20	
117+75.00	4	4	0	0	0		4	1	0				1	1	3	0	0	0	14	20	-20	
118+00.00	6	6	0	0	0		6	1	0				1	1	5	0	0	0	14	20	-20	
118+25.00	7	7	0	0	0		7	1	0				1	1	6	0	0	0	14	20	-20	
118+50.00	8	8	0	0	0		8	1	0				1	1	7	0	0	0	13	18	-18	
118+75.00	8	8	0	0	0		8	1	0				1	1	7	0	0	0	13	18	-18	
119+00.00	8	8	0	0	0		8	1	0				1	1	7	0	0	0	13	18	-18	
119+25.00	4	4	0	0	0		4	1	0				1	1	3	0	0	0	7	10	-10	
119+50.00	0	0	0	0	0		0	0	0				0	0	0	0	0	0	0	0	0	
119+75.00	0	0	0	0	0		0	0	0				0	0	0	0	0	0	0	0	0	
119+94.92																						
XOver1																						
Totals:	967	964	0	11	0	0	964	7,640	0	0	0	0	7,640	9,932	-8,968	1,609	4,664	0	683	957	-957	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
Cafe_Frontage																						
+25.00	0	0	0	0	0		0	65	0				65	85	-85	306	0	0	0	0	0	
+50.00	0	0	0	0	0		0	317	0				317	412	-412	195	303	0	0	0	0	
+75.00	0	0	0	0	0		0	709	0				709	922	-922	705	813	0	2	3	-3	
1+00.00	29	0	29	0	0		0	884	0	28			912	1,186	-1,186	932	1,040	29	14	20	9	
1+25.00	63	0	63	0	0		0	802	0	62			864	1,123	-1,123	826	933	63	27	38	25	
1+50.00	76	0	76	0	0		0	677	0	75			752	978	-978	663	771	76	33	46	30	
1+75.00	79	0	79	0	0		0	548	0	78			626	814	-814	495	603	79	35	49	30	
2+00.00	83	2	80	0	0		2	444	0	76			520	676	-674	359	468	80	37	52	28	
2+25.00	86	5	81	0	0		5	368	0	73			441	573	-568	261	369	81	37	52	29	
2+50.00	84	6	78	0	0		6	310	0	69			379	493	-487	185	293	78	35	49	29	
2+75.00	84	9	76	0	0		9	254	0	65			319	415	-406	113	221	76	34	48	28	
3+00.00	85	12	73	0	0		12	198	0	60			258	335	-323	40	150	73	32	45	28	
3+25.00	90	19	71	0	0		19	149	0	55			204	265	-246	0	86	71	31	43	28	
3+50.00	98	28	70	0	0		28	113	0	50			163	212	-184	0	38	70	29	41	29	
3+75.00	111	40	71	0	0		40	87	0	46			133	173	-133	0	4	71	30	42	29	
4+00.00	124	51	73	0	0		51	70	0	42			112	146	-95	0	0	73	32	45	28	
4+25.00	124	50	74	0	0		50	68	0	42			110	143	-93	0	0	74	32	45	29	
4+50.00	109	24	85	0	0		24	84	0	60			144	187	-163	0	0	85	40	56	29	
4+75.00	101	18	83	0	0		18	90	0	60			150	195	-177	0	8	83	38	53	30	
5+00.00	104	36	68	0	0		36	81	0	41			122	159	-123	0	0	68	29	41	27	
5+25.00	101	34	66	0	0		34	76	0	40			116	151	-117	0	0	66	27	38	28	
5+50.00	92	27	65	0	0		27	74	0	39			113	147	-120	0	0	65	26	36	29	
5+75.00	85	22	64	0	0		22	74	0	38			112	146	-124	0	0	64	26	36	28	
6+00.00	84	20	64	0	0		20	71	0	38			109	142	-122	0	0	64	25	35	29	
6+25.00	86	21	65	0	0		21	71	0	38			109	142	-121	0	0	65	26	36	29	
6+50.00	77	16	61	0	0		16	70	0	38			108	140	-124	0	0	61	23	32	29	
6+75.00	58	6	52	0	0		6	66	0	37			103	134	-128	0	0	50	16	22	28	
7+00.00	49	2	47	0	0		2	58	0	36			94	122	-120	0	0	47	14	20	27	
7+25.00	47	2	45	0	0		2	46	0	33			79	103	-101	0	0	45	13	18	27	
7+50.00	50	4	46	0	0		4	35	0	32			67	87	-83	0	0	46	13	18	28	
7+75.00	52	6	46	0	0		6	27	0	29			56	73	-67	0	0	46	14	20	26	
8+00.00	57	10	47	0	0		10	19	0	28			47	61	-51	0	0	47	15	21	26	
8+25.00	62	14	49	0	0		14	15	0	27			42	55	-41	0	0	49	16	22	27	
8+50.00	67	17	50	0	0		17	13	0	27			40	52	-35	0	0	50	16	22	28	
8+75.00	71	20	51	0	0		20	10	0	27			37	48	-28	0	0	51	17	24	27	
9+00.00	73	22	51	0	0		22	9	0	26			35	46	-24	0	0	51	17	24	27	
9+25.00	73	22	51	0	0		22	11	0	27			38	49	-27	0	0	51	17	24	27	
9+50.00	71	20	51	0	0		20	13	0	28			41	53	-33	0	0	51	17	24	27	
9+75.00	68	18	50	0	0		18	18	0	28			46	60	-42	0	0	50	16	22	28	
10+00.00	64	15	49	0	0		15	22	0	28			50	65	-50	0	0	49	16	22	27	
10+25.00	62	14	49	0	0		14	24	0	29			53	69	-55	0	0	49	15	21	28	
10+50.00	64	14	50	0	0		14	26	0	30			56	73	-59	0	0	50	16	22	28	
10+75.00	63	12	51	0	0		12	29	0	30			59	77	-65	0	0	51	17	24	27	
11+00.00	59	8	51	0	0		8	37	0	31			68	88	-80	0	0	51	17	24	27	
11+25.00	50	6	45	0	0		6	46	0	30			76	99	-93	0	0	45	13	18	27	
11+50.00	43	4	39	0	0		4	49	0	29			78	101	-97	0	0	39	9	13	26	
11+75.00	18	1	17	0	0		1	22	0	13			35	46	-45	0	0	17	4	6	11	
11+85.00	23	5	18	0	0		5	23	0	14			37	48	-43	0	0	18	7	10	8	
12+00.00	28	11	17	0	0		11	8	0	8			16	21	-10	0	0	17	11	15	2	
12+25.00	9	1	8	0	0		1	0	0	2			2	3	-2	0	0	8	5	7	1	
12+35.00																						
Cafe_Frontage Totals:	3,336	694	2,645	0	0	0	694	7,380	0	1,842	0	0	9,222	11,989	-11,295	5,080	6,099	2,645	1,033	1,447	1,199	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.24

10/23/2017 11:29:22 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
Stage 3																						
US_30_WB																						
1389+00.00	110	51	58	25	0		51	893	0	37	25		955	1,242	-1,191	238	1,027	58	73	102	-44	
1389+25.00	108	50	58	25	0		50	889	0	36	25		950	1,235	-1,185	792	1,022	58	73	102	-44	
1389+50.00	113	54	59	25	0		54	880	0	36	25		941	1,223	-1,169	780	1,010	59	74	104	-45	
1389+75.00	119	60	59	25	0		60	868	0	35	25	1,450	2,378	3,091	-3,031	764	995	59	74	104	-45	
1390+00.00	113	56	58	25	0		56	856	0	33	25		914	1,188	-1,132	749	979	58	74	104	-46	
1390+25.00	105	48	57	25	0		48	843	0	31	25		899	1,169	-1,121	732	961	57	73	102	-45	
1390+50.00	99	43	56	25	0		43	829	0	30	25		884	1,149	-1,106	712	943	56	72	101	-45	
1390+75.00	93	39	54	25	0		39	815	0	28	25		868	1,128	-1,089	696	926	54	71	99	-45	
1391+00.00	92	35	57	25	0		35	800	0	28	25		853	1,109	-1,074	676	906	57	73	102	-45	
1391+25.00	93	32	60	25	0		32	783	0	28	25		836	1,087	-1,055	654	883	60	76	106	-46	
1391+50.00	88	31	57	25	0		31	749	0	26	25		800	1,040	-1,009	610	840	57	74	104	-47	
1391+75.00	83	32	51	25	0		32	692	0	23	25		740	962	-930	536	766	51	73	102	-51	
1392+00.00	81	34	47	25	0		34	652	0	24	25		701	911	-877	484	714	47	71	99	-52	
1392+25.00	84	39	45	25	0		39	636	0	25	25		686	892	-853	463	693	45	70	98	-53	
1392+50.00	90	47	44	25	0		47	618	0	25	25		668	868	-821	439	668	44	69	97	-53	
1392+75.00	99	55	44	25	0		55	595	0	26	24		645	839	-784	410	640	44	69	97	-53	
1393+00.00	107	63	44	25	0		63	571	0	27	23		621	807	-744	378	608	44	69	97	-53	
1393+25.00	114	70	44	25	0		70	548	0	27	21		596	775	-705	348	579	44	69	97	-53	
1393+50.00	122	78	44	25	0		78	524	0	28	19		571	742	-664	317	547	44	70	98	-54	
1393+75.00	129	85	43	25	0		85	499	0	28	17		544	707	-622	285	515	43	70	98	-55	
1394+00.00	136	93	43	25	0		93	476	0	28	14		518	673	-580	255	485	43	70	98	-55	
1394+25.00	145	101	43	25	0		101	452	0	29	11		492	640	-539	224	454	43	70	98	-55	
1394+50.00	152	109	43	25	0		109	426	0	29	8		463	602	-493	191	421	43	70	98	-55	
1394+75.00	167	124	43	25	0		124	394	0	25	6		425	553	-429	148	378	43	70	98	-55	
1395+00.00	173	129	44	25	0		129	373	0	27	3		403	524	-395	122	352	44	71	99	-55	
1395+25.00	168	125	44	25	0		125	368	0	32	2		402	523	-398	114	343	44	71	99	-55	
1395+50.00	175	131	44	25	0		131	338	4	33	1		376	489	-358	75	304	44	71	99	-55	
1395+75.00	181	137	44	25	0		137	282	9	33			324	421	-284	3	233	44	71	99	-55	
1396+00.00	202	159	44	25	0		159	213	32	32			277	360	-201	0	143	44	71	99	-55	
1396+25.00	199	155	44	25	0		155	215	32	33			280	364	-209	0	146	44	71	99	-55	
1396+50.00	168	124	44	25	0		124	268	9	35			312	406	-282	0	215	44	71	99	-55	
1396+75.00	152	108	43	25	0		108	296	5	36			337	438	-330	21	251	43	71	99	-56	
1397+00.00	133	90	43	25	0		90	328	0	38			366	476	-386	61	291	43	71	99	-56	
1397+25.00	116	75	42	25	0		75	363	0	38			401	521	-446	108	337	42	71	99	-57	
1397+50.00	104	62	42	25	0		62	380	0	39			419	545	-483	130	360	42	71	99	-57	
1397+75.00	94	52	41	25	0		52	372	0	37	1		410	533	-481	121	351	41	71	99	-58	
1398+00.00	82	42	40	25	0		42	390	0	36	3	361	790	1,027	-985	143	373	40	71	99	-59	
1398+25.00	73	32	41	25	0		32	432	0	39	6		477	620	-588	198	428	41	71	99	-58	
1398+50.00	75	34	41	25	0		34	460	0	37	8		505	657	-623	234	464	41	71	99	-58	
1398+75.00	92	50	42	25	0		50	479	0	35	11		525	683	-633	259	489	42	71	99	-57	
1399+00.00	108	66	42	25	0		66	493	0	31	13		537	698	-632	277	506	42	71	99	-57	
1399+25.00	122	80	42	25	0		80	498	0	28	16		542	705	-625	283	514	42	71	99	-57	
1399+50.00	137	94	43	25	0		94	509	0	26	18		553	719	-625	299	529	43	71	99	-56	
1399+75.00	160	114	46	25	0		114	549	0	22	19		590	767	-653	350	580	46	74	104	-58	
1400+00.00	194	142	52	25	0		142	590	0	20	20		630	819	-677	403	633	52	79	111	-59	
1400+25.00	225	167	58	25	0		167	612	0	20	21		653	849	-682	432	660	58	84	118	-60	
1400+50.00	235	170	65	25	0		170	631	0	20	22		673	875	-705	456	686	65	89	125	-60	
1400+75.00	169	106	63	25	0		106	712	0	24	23		759	987	-881	562	792	63	92	129	-66	
1401+00.00	150	90	61	25	0		90	735	0	30	23		788	1,024	-934	592	822	61	90	126	-65	
1401+25.00	203	138	65	25	0		138	657	0	32	23		712	926	-788	490	719	65	88	123	-58	
1401+50.00	204	143	62	25	0		143	613	0	28	23		664	863	-720	433	662	62	86	120	-58	
1401+75.00	197	144	53	25	0		144	591	0	23	22		636	827	-683	404	634	53	79	111	-58	
1402+00.00	201	151	50	25	0		151	579	0	18	22		619	805	-654	389	619	50	77	108	-58	
1402+25.00	201	148	53	25	0		148	569	0	18	21		608	790	-642	377	606	53	79	111	-58	
1402+50.00	182	132	50	25	0		132	555	0	17	20		592	770	-638	358	588	50	77	108	-58	
1402+75.00	161	114	47	25	0		114	535	0	17	19		571	742	-628	330	560	47	75	105	-58	
1403+00.00	145	100	44	25	0		100	484	0	17	19		520	676	-576	265	495	44	73	102	-58	
1403+25.00	135	93	42	25	0		93	466	0	18	18		502	653	-560	242	472	42	71	99	-57	
1403+50.00	133	90	43	25	0		90	476	0	23	17		516	671	-581	256	485	43	71	99	-56	
1403+75.00	134	90	44	25	0		90	462	0	26	16		504	655	-565	237	465	44	71	99	-55	
1404+00.00	133	89	44	25	0		89	452	0	27	16		495	644	-555	224	454	44	71	99	-55	
1404+25.00	132	88	44	25	0		88	447	0	28	15		490	637	-549	217	447	44	71	99	-55	
1404+50.00	131	87	44	25	0		87	446	0	29	15		490	637	-550	216	446	44	71	99	-55	
1404+75.00	131	86	44	25	0		86	445	0	30	14		489	636	-550	215	445	44	71	99	-55	
1405+00.00	129	85	44	25	0		85	440	0	30	14		484	629	-544	208	438	44	71	99	-55	
1405+25.00																						
Subtotals:	8,881	5,741	3,139	1,625	0	0	5,741	35,391	91	1,854	1,022	1,811	40,169	52,220	-46,479	21,980	37,292	3,139	4,776	6,686	-3,547	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1405+25.00	127	83	44	25	0		83	435	0	30	14		479	623	-540	202	432	44	71	99	-55	
1405+50.00	125	81	44	25	0		81	433	0	30	14		477	620	-539	199	429	44	71	99	-55	
1405+75.00	123	79	44	25	0		79	435	0	30	14		479	623	-544	202	432	44	71	99	-55	
1406+00.00	120	76	44	25	0		76	438	0	30	14		482	627	-551	205	436	44	71	99	-55	
1406+25.00	119	74	44	25	0		74	442	0	31	15		488	634	-560	212	441	44	71	99	-55	
1406+50.00	116	73	44	25	0		73	446	0	30	15		491	638	-565	216	446	44	71	99	-55	
1406+75.00	115	72	44	25	0		72	448	0	29	16		493	641	-569	220	450	44	71	99	-55	
1407+00.00	115	70	45	25	0		70	452	0	30	17		499	649	-579	224	454	45	71	99	-54	
1407+25.00	113	68	45	25	0		68	456	0	30	17		503	654	-586	229	459	45	71	99	-54	
1407+50.00	112	67	45	25	0		67	460	0	31	17		508	660	-593	234	464	45	71	99	-54	
1407+75.00	113	67	45	25	0		67	462	0	32	18		512	666	-599	237	467	45	70	98	-53	
1408+00.00	113	68	45	25	0		68	463	0	32	18		513	667	-599	238	468	45	70	98	-53	
1408+25.00	114	68	45	25	0		68	463	0	32	18		513	667	-599	238	468	45	70	98	-53	
1408+50.00	113	69	45	25	0		69	462	0	31	18		511	664	-595	238	467	45	70	98	-53	
1408+75.00	115	70	45	25	0		70	461	0	31	18		510	663	-593	235	465	45	70	98	-53	
1409+00.00	116	71	45	25	0		71	459	0	31	17		507	659	-588	233	463	45	70	98	-53	
1409+25.00	117	73	44	25	0		73	457	0	31	17		505	657	-584	230	460	44	70	98	-54	
1409+50.00	125	81	44	25	0		81	452	0	25	17		494	642	-561	224	452	44	70	98	-54	
1409+75.00	129	87	43	25	0		87	449	0	22	17	527	1,015	1,320	-1,233	220	450	43	70	98	-55	
1410+00.00	125	83	43	25	0		83	446	0	27	16		489	636	-553	216	446	43	70	98	-55	
1410+25.00	123	80	43	25	0		80	438	0	27	16		481	625	-545	205	436	43	70	98	-55	
1410+50.00	122	80	42	25	0		80	430	0	26	16		472	614	-534	195	425	42	70	98	-56	
1410+75.00	123	81	42	25	0		81	422	0	27	15		464	603	-522	185	415	42	70	98	-56	
1411+00.00	125	83	42	25	0		83	414	0	27	14		455	592	-509	174	403	42	70	98	-56	
1411+25.00	128	86	42	25	0		86	404	0	28	13		445	579	-493	161	391	42	70	98	-56	
1411+50.00	131	89	42	25	0		89	393	0	28	12		433	563	-474	148	377	42	70	98	-56	
1411+75.00	133	92	41	25	0		92	384	0	27	11		422	549	-457	135	365	41	70	98	-57	
1412+00.00	135	94	41	25	0		94	378	0	27	10		415	540	-446	127	358	41	70	98	-57	
1412+25.00	137	96	41	25	0		96	373	0	28	10		411	534	-438	121	351	41	70	98	-57	
1412+50.00	140	98	41	25	0		98	364	0	28	9		401	521	-423	109	339	41	70	98	-57	
1412+75.00	144	102	42	25	0		102	354	0	29	8		391	508	-406	96	326	42	70	98	-56	
1413+00.00	147	105	42	25	0		105	344	0	29	7		380	494	-389	83	312	42	70	98	-56	
1413+25.00	150	108	42	25	0		108	335	0	29	6		370	481	-373	72	302	42	70	98	-56	
1413+50.00	153	111	42	25	0		111	325	0	30	5	60	420	546	-435	59	289	42	70	98	-56	
1413+75.00	158	116	42	25	0		116	313	4	30	4		351	456	-340	43	273	42	70	98	-56	
1414+00.00	162	120	43	25	0		120	303	5	31	3		342	445	-325	30	260	43	70	98	-55	
1414+25.00	167	124	43	25	0		124	297	6	31	2		336	437	-313	21	251	43	70	98	-55	
1414+50.00	170	127	43	25	0		127	290	7	31	2		330	429	-302	13	243	43	70	98	-55	
1414+75.00	172	129	43	25	0		129	284	8	31	1		324	421	-292	5	235	43	70	98	-55	
1415+00.00	173	130	43	25	0		130	278	8	31	1		318	413	-283	0	229	43	70	98	-55	
1415+25.00	174	132	43	25	0		132	274	9	31	1		315	410	-278	0	222	43	70	98	-55	
1415+50.00	177	132	44	25	0		132	270	10	33	1		314	408	-276	0	217	44	70	98	-54	
1415+75.00	176	132	44	25	0		132	267	11	33	1		312	406	-274	0	213	44	70	98	-54	
1416+00.00	174	130	44	25	0		130	266	11	33	1		311	404	-274	0	212	44	70	98	-54	
1416+25.00	171	126	44	25	0		126	265	10	34	1		310	403	-277	0	211	44	70	98	-54	
1416+50.00	166	122	44	25	0		122	262	9	34	1		306	398	-276	0	207	44	70	98	-54	
1416+75.00	161	117	44	25	0		117	263	8	34	1		306	398	-281	0	208	44	70	98	-54	
1417+00.00	157	113	44	25	0		113	269	8	34	1		312	406	-293	0	216	44	70	98	-54	
1417+25.00	153	108	45	25	0		108	275	7	36	1		319	415	-307	0	224	45	70	98	-53	
1417+50.00	146	101	45	25	0		101	281	6	36	2		325	423	-322	1	231	45	70	98	-53	
1417+75.00	140	95	45	25	0		95	287	6	36	2		331	430	-335	9	238	45	70	98	-53	
1418+00.00	133	89	44	25	0		89	294	5	36	3		338	439	-350	18	248	44	70	98	-54	
1418+25.00	127	83	44	25	0		83	302	4	37	3		346	450	-367	29	259	44	70	98	-54	
1418+50.00	120	76	44	25	0		76	309	3	37	4		353	459	-383	38	268	44	70	98	-54	
1418+75.00	109	66	43	25	0		66	316	0	36	5		357	464	-398	46	276	43	70	98	-55	
1419+00.00	108	65	43	25	0		65	316	0	36	6		358	465	-400	47	277	43	68	95	-52	
1419+25.00	114	70	43	25	0		70	319	0	35	7		361	469	-399	51	280	43	67	94	-51	
1419+50.00	118	75	43	25	0		75	324	0	33	8		365	475	-400	59	287	43	67	94	-51	
1419+75.00	121	80	42	25	0		80	328	0	31	9		368	478	-398	62	293	42	66	92	-50	
1420+00.00	127	84	42	25	0		84	329	0	31	11		371	482	-398	64	294	42	64	90	-48	
1420+25.00	130	89	41	25	0		89	329	0	28	12		369	480	-391	64	294	41	63	88	-47	
1420+50.00	134	93	41	25	0		93	336	0	27	13		376	489	-396	73	303	41	62	87	-46	
1420+75.00	136	97	39	25	0		97	344	0	24	15		383	498	-401	83	313	39	62	87	-48	
1421+00.00	137	100	37	25	0		100	350	0	21	16		387	503	-403	91	321	37	61	85	-48	
1421+25.00	139	104	36	25	0		104	356	0	18	17		391	508	-404	99	329	36	60	84	-48	
1421+50.00	147	107	39	25	0		107	364	0	15	18		397	516	-409	109	339	39	62	87	-48	
1421+75.00	171	126	45	25	0		126	372	0	11	20		403	524	-398	120	350	45	66	92	-47	
1422+00.00	99	71	28	25	0		71	325	0	8	23		356	463	-392	59	289	28	35	49	-21	
1422+25.00																						
Subtotals:	9,223	6,314	2,909	1,700	0	0	6,314	24,734	145	2,008	695	587	28,169	36,620	-30,306	7,550	23,043	2,909	4,663	6,528	-3,619	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1422+25.00	22	13	9	25	0		13	223	0	9	25		257	334	-321	0	156	9	1	1	8	
1422+50.00	74	49	25	50	0		49	341	0	25	50		416	541	-492	0	176	25	0	0	25	
1423+00.00	25	13	12	25	0		13	224	0	12	25		261	339	-326	0	157	12	0	0	12	
1423+25.00	104	68	36	25	0		68	380	0	13	25		418	543	-475	130	360	36	35	49	-13	
1423+50.00	184	127	58	25	0		127	512	0	16	25		553	719	-592	303	532	58	69	97	-39	
1423+75.00	168	117	51	25	0		117	563	0	17	25		605	787	-670	368	598	51	66	92	-41	
1424+00.00	165	116	49	25	0		116	591	0	17	25		633	823	-707	403	633	49	65	91	-42	
1424+25.00	165	115	50	25	0		115	622	0	16	25		663	862	-747	445	675	50	67	94	-44	
1424+50.00	170	117	53	25	0		117	652	0	17	25		694	902	-785	484	712	53	70	98	-45	
1424+75.00	178	122	56	25	0		122	664	0	18	25		707	919	-797	499	729	56	72	101	-45	
1425+00.00	177	118	58	25	0		118	681	0	18	25		724	941	-823	521	751	58	74	104	-46	
1425+25.00	150	94	56	25	0		94	716	0	22	25		763	992	-898	567	797	56	74	104	-48	
1425+50.00	120	69	51	25	0		69	729	0	19	25		773	1,005	-936	582	813	51	74	104	-53	
1425+75.00	125	74	51	25	0		74	723	0	18	25		766	996	-922	576	806	51	75	105	-54	
1426+00.00	132	80	52	25	0		80	736	0	23	25		784	1,019	-939	593	823	52	76	106	-54	
1426+25.00	120	68	52	25	0		68	742	0	25	25		792	1,030	-962	601	831	52	76	106	-54	
1426+50.00	108	55	52	25	0		55	745	0	27	25		797	1,036	-981	605	835	52	77	108	-56	
1426+75.00	94	44	50	25	0		44	752	0	29	25		806	1,048	-1,004	614	844	50	75	105	-55	
1427+00.00	82	34	48	25	0		34	766	0	31	25		822	1,069	-1,035	633	863	48	74	104	-56	
1427+25.00	84	36	48	25	0		36	772	0	30	25		827	1,075	-1,039	641	871	48	73	102	-54	
1427+50.00	90	42	48	25	0		42	767	0	29	25		821	1,067	-1,025	634	863	48	73	102	-54	
1427+75.00	78	31	47	25	0		31	756	0	30	25		811	1,054	-1,023	620	849	47	72	101	-54	
1428+00.00	59	14	45	25	0		14	742	0	32	25		799	1,039	-1,025	602	831	45	70	98	-53	
1428+25.00	49	6	43	25	0		6	733	0	30	25		788	1,024	-1,018	589	818	43	68	95	-52	
1428+50.00	48	4	43	25	0		4	715	0	28	25		768	998	-994	566	796	43	68	95	-52	
1428+75.00	46	3	43	25	0		3	696	0	26	25		747	971	-968	541	771	43	68	95	-52	
1429+00.00	47	3	44	25	0		3	680	0	24	25		729	948	-945	520	750	44	68	95	-51	
1429+25.00	49	6	43	25	0		6	664	0	20	25		709	922	-916	499	729	43	68	95	-52	
1429+50.00	55	12	43	25	0		12	648	0	18	25		691	898	-886	478	709	43	68	95	-52	
1429+75.00	64	22	43	25	0		22	632	0	17	25		674	876	-854	458	688	43	68	95	-52	
1430+00.00	77	35	42	26	0		35	618	0	16	26		660	858	-823	439	670	42	68	95	-53	
1430+25.00	93	50	42	25	0		50	602	0	16	25		643	836	-786	419	649	42	68	95	-53	
1430+50.00	107	64	43	25	0		64	583	0	16	25		624	811	-747	394	624	43	69	97	-54	
1430+75.00	121	78	43	25	0		78	563	0	15	25		603	784	-706	368	598	43	70	98	-55	
1431+00.00	138	94	44	25	0		94	543	0	15	25		583	758	-664	342	572	44	71	99	-55	
1431+25.00	159	112	46	25	0		112	524	0	16	25		565	735	-623	316	546	46	72	101	-55	
1431+50.00	176	129	47	25	0		129	503	0	15	24		542	705	-576	289	519	47	73	102	-55	
1431+75.00	187	139	48	25	0		139	482	0	16	23		521	677	-538	263	493	48	73	102	-54	
1432+00.00	194	146	48	25	0		146	462	0	16	22		500	650	-504	237	467	48	73	102	-54	
1432+25.00	200	152	48	25	0		152	443	0	17	21		481	625	-473	212	442	48	73	102	-54	
1432+50.00	206	159	48	25	0		159	426	0	16	19		461	599	-440	191	420	48	73	102	-54	
1432+75.00	217	168	48	25	0		168	410	0	17	17		444	577	-409	169	399	48	72	101	-53	
1433+00.00	225	177	48	25	0		177	392	0	17	16		425	553	-376	147	376	48	72	101	-53	
1433+25.00	230	182	48	25	0		182	374	0	17	14		405	527	-345	122	352	48	72	101	-53	
1433+50.00	237	189	48	25	0		189	357	5	16	13		391	508	-319	101	330	48	72	101	-53	
1433+75.00	242	193	48	25	0		193	344	6	17	11		378	491	-298	85	313	48	72	101	-53	
1434+00.00	248	200	48	25	0		200	331	8	17	10		366	476	-276	66	296	48	72	101	-53	
1434+25.00	254	207	47	25	0		207	315	11	16	9		351	456	-249	46	276	47	72	101	-54	
1434+50.00	260	213	47	25	0		213	299	13	16	8		336	437	-224	25	255	47	72	101	-54	
1434+75.00	267	220	47	25	0		220	283	16	15	7		321	417	-197	4	233	47	72	101	-54	
1435+00.00	274	226	47	25	0		226	266	19	15	6		306	398	-172	0	212	47	72	101	-54	
1435+25.00	281	234	47	25	0		234	249	24	14	5		292	380	-146	0	190	47	71	99	-52	
1435+50.00	290	244	47	25	0		244	218	31	12	4		265	345	-101	0	148	47	71	99	-52	
1435+75.00	309	262	47	25	0		262	177	46	11	3		237	308	-46	0	95	47	72	101	-54	
1436+00.00	307	259	47	25	0		259	183	42	11	2	1,121	1,359	1,767	-1,508	0	104	47	72	101	-54	
1436+25.00	295	247	48	25	0		247	201	31	12	1		245	319	-72	0	126	48	71	99	-51	
1436+50.00	296	247	49	25	0		247	188	34	13	1		236	307	-60	0	111	49	71	99	-50	
1436+75.00	301	248	53	25	0		248	182	36	13			231	300	-52	0	103	53	74	104	-51	
1437+00.00	308	252	56	25	0		252	179	39	13			231	300	-48	0	99	56	77	108	-52	
1437+25.00	311	256	54	25	0		256	177	41	14			232	302	-46	0	96	54	75	105	-51	
1437+50.00	316	263	52	25	0		263	171	43	14			228	296	-33	0	88	52	74	104	-52	
1437+75.00	321	271	50	25	0		271	160	46	13			219	285	-14	0	74	50	72	101	-51	
1438+00.00	322	273	49	25	0		273	148	46	17			211	274	-1	0	59	49	70	98	-49	
1438+25.00	279	231	48	25	0		231	142	0	23			165	215	17	0	51	48	69	97	-49	
1438+50.00	282	235	46	25	0		235	136	0	23			159	207	28	0	43	46	67	94	-48	
1438+75.00	284	239	45	25	0		239	129	0	21		60	210	273	-34	0	34	45	67	94	-49	
1439+00.00	288	243	45	26	0		243	123	0	21			144	187	56	0	26	45	67	94	-49	
1439+25.00	292	247	45	26	0		247	118	0	21			139	181	66	0	18	45	67	94	-49	
1439+50.00																						
Subtotals:	12,226	9,056	3,162	1,728	0	0	9,056	31,168	537	1,259	1,162	1,181	35,307	45,899	-36,843	18,303	31,268	3,162	4,594	6,432	-3,270	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.27

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1439+50.00	294	249	45	26	0		249	114	0	21			135	176	74	0	14	45	67	94	-49	
1439+75.00	296	251	45	25	0		251	111	0	22			133	173	78	0	10	45	66	92	-47	
1440+00.00	304	259	46	25	0		259	107	0	22			129	168	91	0	5	46	66	92	-46	
1440+25.00	316	270	46	25	0		270	100	0	22			122	159	111	0	0	46	66	92	-46	
1440+50.00	327	281	46	25	0		281	89	0	21			110	143	138	0	0	46	66	92	-46	
1440+75.00	336	291	45	25	0		291	76	0	19			95	124	168	0	0	45	66	92	-47	
1441+00.00	347	302	45	25	0		302	64	0	18			82	107	195	0	0	45	66	92	-47	
1441+25.00	361	315	46	25	0		315	54	0	18			72	94	221	0	0	46	66	92	-46	
1441+50.00	372	326	46	25	0		326	47	0	16			63	82	244	0	0	46	66	92	-46	
1441+75.00	382	336	46	25	0		336	42	0	15			57	74	262	0	0	46	66	92	-46	
1442+00.00	390	345	46	25	0		345	38	0	15			53	69	276	0	0	46	66	92	-46	
1442+25.00	399	352	46	25	0		352	38	0	15			53	69	283	0	0	46	66	92	-46	
1442+50.00	406	360	46	25	0		360	37	0	14			51	66	294	0	0	46	66	92	-46	
1442+75.00	413	367	46	25	0		367	35	0	13			48	62	305	0	0	46	66	92	-46	
1443+00.00	419	374	45	25	0		374	32	0	12			44	57	317	0	0	45	66	92	-47	
1443+25.00	430	385	45	25	0		385	26	0	10			36	47	338	0	0	45	66	92	-47	
1443+50.00	452	408	44	25	0		408	20	0	5			25	33	376	0	0	44	66	92	-48	
1443+75.00	456	413	43	25	0		413	18	0	5			23	30	383	0	0	43	66	92	-49	
1444+00.00	442	401	41	25	0		401	18	0	8			26	34	367	0	0	41	66	92	-51	
1444+25.00	437	396	40	25	0		396	17	0	9			26	34	362	0	0	40	66	92	-52	
1444+50.00	432	393	40	25	0		393	16	0	9			25	33	361	0	0	40	66	92	-52	
1444+75.00	426	386	40	25	0		386	15	0	11			26	34	352	0	0	40	66	92	-52	
1445+00.00	421	379	42	25	0		379	15	0	8			23	30	349	0	0	42	68	95	-53	
1445+25.00	425	379	47	25	0		379	15	0	3			18	23	356	0	0	47	72	101	-54	
1445+50.00	435	386	49	25	0		386	15	0				15	20	367	0	0	49	75	105	-56	
1445+75.00	444	395	49	25	0		395	15	0				15	20	376	0	0	49	75	105	-56	
1446+00.00	444	396	49	25	0		396	15	0				15	20	377	0	0	49	75	105	-56	
1446+25.00	438	390	48	25	0		390	16	0				16	21	369	0	0	48	75	105	-57	
1446+50.00	434	386	48	25	0		386	14	0				14	18	368	0	0	48	75	105	-57	
1446+75.00	448	401	47	25	0		401	8	0				8	10	391	0	0	47	75	105	-58	
1447+00.00	431	384	47	25	0		384	8	0				8	10	374	0	0	47	75	105	-58	
1447+25.00	376	328	47	25	0		328	17	0				17	22	306	0	0	47	75	105	-58	
1447+50.00	335	289	46	25	0		289	24	0				24	31	258	0	0	46	75	105	-59	
1447+75.00	303	257	46	25	0		257	33	0	1			34	44	213	0	0	46	75	105	-59	
1448+00.00	277	229	47	25	0		229	52	0	6			58	75	154	0	0	47	75	105	-58	
1448+25.00	330	282	48	25	0		282	80	76	10			166	216	66	0	0	48	75	105	-57	
1448+50.00	296	248	48	25	0		248	111	60	13	1		185	241	8	0	10	48	75	105	-57	
1448+75.00	279	229	49	25	0		229	137	57	16	3		213	277	-48	0	43	49	74	104	-55	
1449+00.00	266	216	50	25	0		216	153	58	16	5		232	302	-86	0	65	50	73	102	-52	
1449+25.00	248	198	50	25	0		198	170	52	14	7		243	316	-118	0	87	50	73	102	-52	
1449+50.00	233	182	51	25	0		182	191	47	15	8		261	339	-157	0	114	51	73	102	-51	
1449+75.00	216	164	52	25	0		164	213	41	17	10		281	365	-201	0	142	52	73	102	-50	
1450+00.00	201	149	52	25	0		149	232	37	17	12		298	387	-238	0	168	52	73	102	-50	
1450+25.00	188	135	53	25	0		135	252	34	19	14		319	415	-280	0	194	53	72	101	-48	
1450+50.00	177	124	53	25	0		124	271	31	19	16		337	438	-314	0	217	53	72	101	-48	
1450+75.00	169	116	53	26	0		116	286	28	19	18		351	456	-340	8	238	53	72	101	-48	
1451+00.00	166	112	54	26	0		112	298	27	19	20		364	473	-361	23	254	54	71	99	-45	
1451+25.00	163	109	54	26	0		109	312	27	18	22		379	493	-384	42	272	54	71	99	-45	
1451+50.00	161	106	55	26	0		106	328	27	19	23		397	516	-410	62	293	55	71	99	-44	
1451+75.00	159	103	56	26	0		103	344	27	20	24		415	540	-437	83	312	56	70	98	-42	
1452+00.00	157	100	57	26	0		100	359	27	20	24		430	559	-459	101	332	57	70	98	-41	
1452+25.00	152	95	57	26	0		95	369	27	20	25		441	573	-478	116	346	57	70	98	-41	
1452+50.00	141	83	58	26	0		83	394	27	26	25		472	614	-531	148	378	58	68	95	-37	
1452+75.00	139	85	54	25	0		85	392	28	27	24		471	612	-527	146	376	54	63	88	-34	
1453+00.00	152	102	50	25	0		102	361	29	21	25		436	567	-465	105	335	50	61	85	-35	
1453+25.00	166	114	52	26	0		114	348	31	22	26		427	555	-441	87	317	52	62	87	-35	
1453+50.00	171	118	53	26	0		118	331	32	22	26		411	534	-416	66	296	53	62	87	-34	
1453+75.00	180	124	55	26	0		124	320	35	24	26		405	527	-403	52	281	55	62	87	-32	
1454+00.00	180	124	55	26	0		124	314	38	24	26		402	523	-399	44	274	55	62	87	-32	
1454+25.00	172	117	55	26	0		117	308	40	25	25		398	517	-400	36	267	55	61	85	-30	
1454+50.00	163	109	54	26	0		109	296	41	25	25		387	503	-394	22	252	54	59	83	-29	
1454+75.00	156	102	53	27	0		102	283	43	26	25		377	490	-388	4	234	53	58	81	-28	
1455+00.00	149	97	52	28	0		97	268	46	26	26		366	476	-379	0	213	52	56	78	-26	
1455+25.00	143	93	50	29	0		93	252	51	26	26		355	462	-369	0	192	50	54	76	-26	
1455+50.00	139	91	48	30	0		91	237	56	25	26		344	447	-356	0	174	48	53	74	-26	
1455+75.00	143	95	48	31	0		95	223	62	24	26		335	436	-341	0	157	48	53	74	-26	
1456+00.00	150	101	48	33	0		101	210	67	24	26		327	425	-324	0	139	48	53	74	-26	
1456+25.00	156	108	48	35	0		108	197	73	24	27		321	417	-309	0	122	48	53	74	-26	
1456+50.00																						
Subtotals:	19,709	16,390	3,315	1,753	0	0	16,390	10,201	1,382	1,020	642	0	13,245	17,219	-829	1,147	7,124	3,315	4,586	6,420	-3,105	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1456+50.00	163	116	47	36	0		116	185	78	24	26		313	407	-291	0	107	47	52	73	-26	
1456+75.00	169	123	45	38	0		123	172	84	23	27		306	398	-275	0	90	45	51	71	-26	
1457+00.00	173	130	43	39	0		130	159	91	22	26		298	387	-257	0	72	43	49	69	-26	
1457+25.00	187	144	43	41	0		144	146	97	22	26		291	378	-234	0	56	43	49	69	-26	
1457+50.00	210	167	43	42	0		167	135	102	21	25		283	368	-201	0	42	43	50	70	-27	
1457+75.00	122	80	42	44	0		80	122	0	19	24		165	215	-135	0	25	42	51	71	-29	
1458+00.00	174	134	40	45	0		134	113	44	14	22		193	251	-117	0	13	40	53	74	-34	
1458+25.00	180	141	39	47	0		141	107	39	9	22		177	230	-89	0	5	39	56	78	-39	
1458+50.00	200	161	39	49	0		161	95	45	6	22		168	218	-57	0	0	39	57	80	-41	
1458+75.00	224	186	39	51	0		186	83	60	5	19		167	217	-31	0	0	39	57	80	-41	
1459+00.00	237	199	38	53	0		199	74	68	5	16		163	212	-13	0	0	38	55	77	-39	
1459+25.00	247	211	36	51	0		211	64	74	3	15		156	203	8	0	0	36	54	76	-40	
1459+50.00	179	143	36	48	0		143	55	0	3	15		73	95	48	0	0	36	53	74	-38	
1459+75.00	178	143	35	48	0		143	47	0	1	17		65	85	59	0	0	35	52	73	-38	
1460+00.00	175	139	35	48	0		139	38	0	2	19		59	77	62	0	0	35	52	73	-38	
1460+25.00	180	144	36	48	0		144	31	0	5	21		57	74	70	0	0	36	52	73	-37	
1460+50.00	195	157	38	48	0		157	29	0	8	22		59	77	80	0	0	38	52	73	-35	
1460+75.00	155	128	27	48	0		128	29	0	9	23		61	79	49	0	0	27	37	52	-25	
1461+00.00	68	56	12	48	0		56	25	0	5	35		65	85	-29	0	0	12	23	32	-20	
1461+25.00	31	23	8	49	0		23	20	0	2	46		68	88	-65	0	0	8	23	32	-24	
1461+50.00	36	26	10	49	0		26	18	0	2	42		62	81	-55	0	0	10	25	35	-25	
1461+75.00	42	31	12	49	0		31	17	0	3	37		57	74	-43	0	0	12	26	36	-24	
1462+00.00	45	34	11	37	0		34	28	0	3	21		52	68	-34	0	0	11	28	39	-28	
1462+25.00	47	37	10	25	0		37	40	0	1	8		49	64	-27	0	0	10	30	42	-32	
1462+50.00	57	46	11	25	0		46	39	0	2	5		46	60	-14	0	0	11	31	43	-32	
1462+75.00	68	57	11	25	0		57	39	0	3	1		43	56	1	0	0	11	33	46	-35	
1463+00.00	85	73	12	26	0		73	38	0	3			41	53	20	0	0	12	35	49	-37	
1463+25.00	114	100	14	26	0		100	36	0	5			41	53	47	0	0	14	38	53	-39	
1463+50.00	143	127	16	26	0		127	35	0	5			40	52	75	0	0	16	41	57	-41	
1463+75.00	157	140	16	26	0		140	35	0	3			38	49	91	0	0	16	43	60	-44	
1464+00.00	165	147	17	26	0		147	34	0	2			36	47	100	0	0	17	44	62	-45	
1464+25.00	175	152	23	25	0		152	35	0	4			39	51	101	0	0	23	49	69	-46	
1464+50.00	187	154	32	25	0		154	36	0	8			44	57	97	0	0	32	56	78	-46	
1464+75.00	196	156	41	26	0		156	36	0	9			45	59	98	0	0	41	63	88	-47	
1465+00.00	214	163	51	26	0		163	35	0	7			42	55	108	0	0	51	72	101	-50	
1465+25.00	225	167	58	26	0		167	34	0	7			41	53	114	0	0	58	78	109	-51	
1465+50.00	221	161	60	26	0		161	34	0	11			45	59	103	0	0	60	79	111	-51	
1465+75.00	218	157	61	26	0		157	38	0	15			53	69	88	0	0	61	78	109	-48	
1466+00.00	214	152	62	26	0		152	40	0	19			59	77	75	0	0	62	78	109	-47	
1466+25.00	208	145	63	26	0		145	40	0	21			61	79	66	0	0	63	78	109	-46	
1466+50.00	201	140	61	26	0		140	43	0	21			64	83	57	0	0	61	77	108	-47	
1466+75.00	195	137	58	26	0		137	43	0	18			61	79	58	0	0	58	77	108	-50	
1467+00.00	195	137	57	26	0		137	42	0	17			59	77	60	0	0	57	77	108	-51	
1467+25.00	199	142	56	26	0		142	40	0	12			52	68	74	0	0	56	76	106	-50	
1467+50.00	199	144	55	26	0		144	39	0	10			49	64	80	0	0	55	76	106	-51	
1467+75.00	194	139	55	27	0		139	39	0	12			51	66	73	0	0	55	76	106	-51	
1468+00.00	194	140	53	28	0		140	40	0	9			49	64	76	0	0	53	75	105	-52	
1468+25.00	196	144	52	28	0		144	41	0	12			53	69	75	0	0	52	75	105	-53	
1468+50.00	195	142	52	28	0		142	46	0	18			64	83	59	0	0	52	75	105	-53	
1468+75.00	188	137	51	28	0		137	53	0	20			73	95	42	0	0	51	74	104	-53	
1469+00.00	182	132	50	28	0		132	58	0	21			79	103	29	0	0	50	74	104	-54	
1469+25.00	179	129	49	28	0		129	61	0	21			82	107	22	0	0	49	74	104	-55	
1469+50.00	177	129	48	28	0		129	60	0	19	1		80	104	25	0	0	48	73	102	-54	
1469+75.00	165	128	37	28	0		128	54	0	14	1		69	90	38	0	0	37	64	90	-53	
1470+00.00	141	121	20	28	0		121	46	0	7	1	28	82	107	14	0	0	20	49	69	-49	
1470+25.00	126	114	13	28	0		114	41	0	2	2	53	98	127	-13	0	0	13	44	62	-49	
1470+50.00	98	88	11	28	0		88	42	0	2	2		46	60	28	0	0	11	40	56	-45	
1470+75.00	63	53	9	28	0		53	42	0	3	4		49	64	-11	0	0	9	34	48	-39	
1471+00.00	47	38	9	28	0		38	41	0	3	8		52	68	-30	0	0	9	30	42	-33	
1471+25.00	40	31	9	28	0		31	41	0	2	13		56	73	-42	0	0	9	28	39	-30	
1471+50.00	37	27	10	28	0		27	41	0	4	19		64	83	-56	0	0	10	25	35	-25	
1471+75.00	44	26	18	29	0		26	31	0	10	24		65	85	-59	0	0	18	23	32	-14	
1472+00.00	77	54	23	31	0		54	30	0	16	13		59	77	-23	0	0	23	23	32	-9	
1472+25.00	116	88	28	32	0		88	42	0	18			60	78	10	0	0	28	34	48	-20	
1472+50.00	128	92	35	34	0		92	45	0	14			59	77	15	0	0	35	45	63	-28	
1472+75.00	134	100	34	35	0		100	43	0	6			49	64	36	0	0	34	46	64	-30	
1473+00.00	146	114	32	37	0		114	43	0	4	1		48	62	52	0	0	32	45	63	-31	
1473+25.00	153	123	30	38	0		123	42	0	3	1		46	60	63	0	0	30	44	62	-32	
1473+50.00																						
Subtotals:	10,273	7,939	2,327	2,306	0	0	7,939	3,645	782	659	672	81	5,839	7,591	348	0	408	2,327	3,536	4,950	-2,623	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.29

10/23/2017 11:29:23 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1473+50.00	163	133	31	39	0		133	42	0	3	2		47	61	72	0	0	31	46	64	-33	
1473+75.00	174	143	31	39	0		143	41	0	3	2		46	60	83	0	0	31	47	66	-35	
1474+00.00	188	156	32	40	0		156	40	0	3	2		45	59	98	0	0	32	49	69	-37	
1474+25.00	175	146	29	45	0		146	38	0	6	1		45	59	88	0	0	29	45	63	-34	
1474+50.00	123	102	21	54	0		102	31	0	8	3		42	55	47	0	0	21	33	46	-25	
1474+75.00	95	79	16	69	0		79	18	0	4	20		42	55	24	0	0	16	25	35	-19	
1475+00.00	98	91	8	118	0		91	6	0		71		77	100	-9	0	0	8	23	32	-24	
1475+25.00	101	99	2	168	0		99	2	0	2	110		114	148	-49	0	0	2	23	32	-30	
1475+50.00	94	94	0	183	0		94	2	0		115		117	152	-58	0	0	0	23	32	-32	
1475+75.00	91	91	0	145	0		91	2	0		86		88	114	-23	0	0	0	23	32	-32	
1476+00.00	92	84	8	89	0		84	9	0	3	44		56	73	11	0	0	8	23	32	-24	
1476+25.00	90	73	17	68	0		73	21	0	8	33		62	81	-8	0	0	17	23	32	-15	
1476+50.00	86	71	15	58	0		71	30	0	7	27		64	83	-12	0	0	15	23	32	-17	
1476+75.00	83	71	12	54	0		71	32	0	4	26	25	87	113	-42	0	0	12	23	32	-20	
1477+00.00	83	72	12	53	0		72	32	0	3	27		62	81	-9	0	0	12	23	32	-20	
1477+25.00	86	74	12	53	0		74	32	0	3	28		63	82	-8	0	0	12	23	32	-20	
1477+50.00	142	127	15	53	0		127	33	0	3	14		50	65	62	0	0	15	33	46	-31	
1477+75.00	200	182	19	52	0		182	32	0	2			34	44	138	0	0	19	43	60	-41	
1478+00.00	201	182	19	51	0		182	32	0	2			34	44	138	0	0	19	44	62	-43	
1478+25.00	194	175	19	49	0		175	32	0	2			34	44	131	0	0	19	45	63	-44	
1478+50.00	207	170	37	48	0		170	41	0	17			58	75	95	0	0	37	62	87	-50	
1478+75.00	219	168	51	46	0		168	144	0	29			173	225	-57	0	52	51	75	105	-54	
1479+00.00	211	165	46	44	0		165	140	0	25			165	215	-50	0	48	46	68	95	-49	
1479+25.00	203	159	44	42	0		159	38	0	22			60	78	81	0	0	44	62	87	-43	
1479+50.00	188	154	35	41	0		154	33	0	11			44	57	97	0	0	35	57	80	-45	
1479+75.00	179	148	32	41	0		148	32	0	7			39	51	97	0	0	32	53	74	-42	
1480+00.00	174	143	31	41	0		143	33	0	7			40	52	91	0	0	31	50	70	-39	
1480+25.00	166	139	27	40	0		139	33	0	4			37	48	91	0	0	27	47	66	-39	
1480+50.00	157	133	24	40	0		133	33	0	3			36	47	86	0	0	24	46	64	-40	
1480+75.00	150	126	24	40	0		126	33	0	5			38	49	77	0	0	24	44	62	-38	
1481+00.00	142	118	24	40	0		118	34	0	6			40	52	66	0	0	24	44	62	-38	
1481+25.00	134	111	23	40	0		111	34	0	6			40	52	59	0	0	23	44	62	-39	
1481+50.00	128	105	23	40	0		105	34	0	6			40	52	53	0	0	23	44	62	-39	
1481+75.00	122	100	22	40	0		100	33	0	6			39	51	49	0	0	22	44	62	-40	
1482+00.00	125	101	24	39	0		101	33	0	8			41	53	48	0	0	24	44	62	-38	
1482+25.00	135	108	27	38	0		108	33	0	11			44	57	51	0	0	27	44	62	-35	
1482+50.00	140	112	28	36	0		112	35	0	12			47	61	51	0	0	28	44	62	-34	
1482+75.00	136	111	25	35	0		111	37	0	8			45	59	53	0	0	25	44	62	-37	
1483+00.00	149	119	31	33	0		119	40	0	11			51	66	53	0	0	31	53	74	-43	
1483+25.00	170	131	39	31	0		131	41	0	14			55	72	60	0	0	39	62	87	-48	
1483+50.00	186	145	41	30	0		145	40	0	11	1		52	68	77	0	0	41	64	90	-49	
1483+75.00	226	178	48	29	0		178	40	0	8	1		49	64	114	0	0	48	71	99	-51	
1484+00.00	282	223	59	29	0		223	41	0	7	2		50	65	158	0	0	59	82	115	-56	
1484+25.00	317	252	66	29	0		252	41	0	5	2		48	62	190	0	0	66	89	125	-59	
1484+50.00	325	257	67	28	0		257	40	0	2	1		43	56	201	0	0	67	90	126	-59	
1484+75.00	324	256	68	28	0		256	40	0	2	1		43	56	200	0	0	68	91	127	-59	
1485+00.00	315	251	64	29	0		251	41	0	2	2		45	59	193	0	0	64	87	122	-58	
1485+25.00	325	261	64	33	0		261	34	0	7	1		42	55	206	0	0	64	79	111	-47	
1485+50.00	362	296	66	38	0		296	16	0	5	1		22	29	267	0	0	66	73	102	-36	
1485+75.00	299	241	58	38	0		241	9	0		2		11	14	227	0	0	58	67	94	-36	
1486+00.00	203	146	57	33	0		146	54	0	18	2		74	96	50	0	0	57	61	85	-28	
1486+25.00	129	74	55	28	0		74	30	23	44	17		114	148	-74	0	0	55	25	35	20	
1486+35.14	74	74	0	0	0		74	34	0				34	44	30	0	0	0	36	50	-50	
1486+50.00	188	145	43	28	0		145	63	24	18	1		106	138	7	0	0	43	61	85	-42	
1486+75.00	182	143	38	28	0		143	69	25	15	1		110	143	0	0	0	38	61	85	-47	
1487+00.00	176	139	38	28	0		139	77	23	16	1		117	152	-13	0	0	38	61	85	-47	
1487+25.00	173	135	37	28	0		135	86	23	17	1		127	165	-30	0	0	37	61	85	-48	
1487+50.00	170	133	37	28	0		133	90	23	17	1		131	170	-37	0	0	37	61	85	-48	
1487+75.00	174	131	43	28	0		131	91	22	23	1		137	178	-47	0	0	43	61	85	-42	
1488+00.00	173	129	44	28	0		129	92	21	24	1		138	179	-50	0	0	44	61	85	-41	
1488+25.00	169	129	40	28	0		129	92	21	20	1		134	174	-45	0	0	40	61	85	-45	
1488+50.00	176	131	46	28	0		131	91	22	25	1		139	181	-50	0	0	46	61	85	-39	
1488+75.00	182	133	49	28	0		133	88	23	28	1		140	182	-49	0	0	49	61	85	-36	
1489+00.00	183	134	49	28	0		134	83	23	27	1		134	174	-40	0	0	49	61	85	-36	
1489+25.00	184	135	49	28	0		135	81	23	27	1		132	172	-37	0	0	49	61	85	-36	
1489+50.00	183	134	49	28	0		134	80	22	27	1		130	169	-35	0	0	49	61	85	-36	
1489+75.00	185	134	51	28	0		134	79	22	29	1		131	170	-36	0	0	51	61	85	-34	
1490+00.00	187	134	52	28	0		134	80	22	30	1		133	173	-39	0	0	52	61	85	-33	
1490+25.00																						
Subtotals:	11,846	9,539	2,313	3,067	0	0	9,539	3,123	362	738	659	25	4,907	6,379	3,160	0	100	2,313	3,501	4,901	-2,588	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1490+25.00	188	135	52	28	0		135	82	22	30	1		135	176	-41	0	0	52	61	85	-33	
1490+50.00	189	137	52	28	0		137	84	22	30	1		137	178	-41	0	0	52	61	85	-33	
1490+75.00	190	138	52	28	0		138	82	22	30	1		135	176	-38	0	0	52	61	85	-33	
1491+00.00	191	140	51	28	0		140	79	23	29	1		132	172	-32	0	0	51	61	85	-34	
1491+25.00	192	142	50	28	0		142	78	24	28			130	169	-27	0	0	50	61	85	-35	
1491+50.00	195	146	50	28	0		146	76	24	28			128	166	-20	0	0	50	61	85	-35	
1491+75.00	202	152	50	28	0		152	72	24	28			124	161	-9	0	0	50	61	85	-35	
1492+00.00	209	159	49	28	0		159	70	25	26			121	157	2	0	0	49	61	85	-36	
1492+25.00	216	167	48	28	0		167	70	25	24			119	155	12	0	0	48	61	85	-37	
1492+50.00	223	176	47	28	0		176	69	25	22			116	151	25	0	0	47	61	85	-38	
1492+75.00	232	185	47	28	0		185	68	25	21			114	148	37	0	0	47	61	85	-38	
1493+00.00	240	193	47	28	0		193	63	25	20			108	140	53	0	0	47	61	85	-38	
1493+25.00	247	200	47	28	0		200	56	26	20			102	133	67	0	0	47	61	85	-38	
1493+50.00	227	180	47	28	0		180	49	0	19			68	88	92	0	0	47	61	85	-38	
1493+75.00	234	188	46	28	0		188	43	0	16			59	77	111	0	0	46	61	85	-39	
1494+00.00	241	196	45	28	0		196	41	0	13			54	70	126	0	0	45	61	85	-40	
1494+25.00	247	203	44	29	0		203	40	0	10			50	65	138	0	0	44	61	85	-41	
1494+50.00	254	210	44	28	0		210	38	0	8			46	60	150	0	0	44	61	85	-41	
1494+75.00	264	220	44	28	0		220	36	0	6			42	55	165	0	0	44	61	85	-41	
1495+00.00	277	233	44	28	0		233	33	0	3			36	47	186	0	0	44	61	85	-41	
1495+25.00	293	249	44	28	0		249	31	0				31	40	209	0	0	44	61	85	-41	
1495+50.00	309	264	44	28	0		264	29	0				29	38	226	0	0	44	61	85	-41	
1495+75.00	324	280	44	29	0		280	28	0				28	36	244	0	0	44	61	85	-41	
1496+00.00	343	297	45	29	0		297	26	0				26	34	263	0	0	45	63	88	-43	
1496+25.00	370	322	48	29	0		322	24	0				24	31	291	0	0	48	65	91	-43	
1496+50.00	406	358	48	33	0		358	19	0				19	25	333	0	0	48	67	94	-46	
1496+75.00	458	412	46	37	0		412	10	0				10	13	399	0	0	46	69	97	-51	
1497+00.00	495	451	45	37	0		451	5	0				5	7	445	0	0	45	70	98	-53	
1497+25.00	510	461	49	37	0	669	1,130	10	0				10	13	1,117	0	0	49	71	99	-50	
1497+50.00	511	455	56	33	0		455	22	0				22	29	426	0	0	56	74	104	-48	
1497+75.00	498	440	57	29	0		440	36	0	1			37	48	392	0	0	57	74	104	-47	
1498+00.00	481	425	56	28	0		425	49	0	3			52	68	357	0	0	56	74	104	-48	
1498+25.00	460	404	56	28	0		404	60	0	5			65	85	320	0	0	56	73	102	-46	
1498+50.00	514	459	55	28	0		459	69	83	6			158	205	254	0	0	55	72	101	-46	
1498+75.00	473	420	54	28	0		420	77	78	8			163	212	208	0	0	54	71	99	-45	
1499+00.00	435	383	52	28	0		383	85	74	9			168	218	165	0	0	52	69	97	-45	
1499+25.00	403	351	51	28	0		351	93	70	9	1		173	225	126	0	0	51	69	97	-46	
1499+50.00	375	325	50	28	0		325	101	67	9	3		180	234	91	0	0	50	68	95	-45	
1499+75.00	346	297	49	28	0		297	108	63	11	5		187	243	54	0	7	49	67	94	-45	
1500+00.00	317	270	47	28	0		270	115	60	12	6		193	251	19	0	16	47	65	91	-44	
1500+25.00	287	240	47	28	0		240	121	51	14	8		194	252	-12	0	23	47	64	90	-43	
1500+50.00	258	213	46	28	0		213	128	42	14	9		193	251	-38	0	33	46	63	88	-42	
1500+75.00	239	195	45	28	0		195	136	46	15	11	18	226	294	-99	0	43	45	61	85	-40	
1501+00.00	221	177	44	28	0		177	143	51	16	13		223	290	-113	0	52	44	60	84	-40	
1501+25.00	205	161	44	28	0		161	150	50	17	15		232	302	-141	0	60	44	60	84	-40	
1501+50.00	194	150	44	28	0		150	154	49	17	16		236	307	-157	0	66	44	60	84	-40	
1501+75.00	183	140	44	28	0		140	158	49	16	18		241	313	-173	0	72	44	60	84	-40	
1502+00.00	173	129	44	28	0		129	162	48	16	19		245	319	-190	0	75	44	60	84	-40	
1502+25.00	168	124	44	28	0		124	164	49	16	20		249	324	-200	0	78	44	60	84	-40	
1502+50.00	168	123	45	28	0		123	163	49	16	20		248	322	-199	0	78	45	60	84	-39	
1502+75.00	168	123	46	28	0		123	162	51	17	20		250	325	-202	0	75	46	60	84	-38	
1503+00.00	163	118	46	28	0		118	161	52	18	19		250	325	-207	0	75	46	59	83	-37	
1503+25.00	162	116	46	28	0		116	159	54	19	19		251	326	-210	0	73	46	59	83	-37	
1503+50.00	161	115	46	28	0		115	154	56	19	18		247	321	-206	0	68	46	59	83	-37	
1503+75.00	157	112	46	28	0		112	149	59	20	16		244	317	-205	0	60	46	59	83	-37	
1504+00.00	150	104	46	28	0		104	144	62	24	15		245	319	-215	0	53	46	58	81	-35	
1504+25.00	143	98	46	28	0		98	139	66	27	13		245	319	-221	0	47	46	57	80	-34	
1504+50.00	141	96	45	28	0		96	134	71	28	12		245	319	-223	0	40	45	56	78	-33	
1504+75.00	143	97	46	28	0		97	131	74	31	11		247	321	-224	0	35	46	55	77	-31	
1505+00.00	145	100	45	28	0		100	128	77	32	10		247	321	-221	0	33	45	54	76	-31	
1505+25.00	150	106	44	28	0		106	123	81	32	9		245	319	-213	0	26	44	53	74	-30	
1505+50.00	163	117	46	28	0		117	112	87	32	9		240	312	-195	0	12	46	54	76	-30	
1505+75.00	166	125	42	29	0		125	99	93	30	8		230	299	-174	0	0	42	51	71	-29	
1506+00.00	58	31	27	29	0		31	78	0	21	7		106	138	-107	0	0	27	37	52	-25	
1506+25.00	68	38	30	28	0		38	76	0	19	5		100	130	-92	0	0	30	39	55	-25	
1506+50.00	93	48	45	28	0		48	89	0	27	4		120	156	-108	0	0	45	52	73	-28	
1506+75.00	103	59	44	29	0		59	86	0	25	4		115	150	-91	0	0	44	53	74	-30	
1507+00.00	113	70	43	29	0		70	77	0	22	3		102	133	-63	0	0	43	53	74	-31	
1507+25.00																						
Subtotals:	17,322	14,148	3,178	1,950	0	669	14,817	5,906	2,174	1,084	370	18	9,552	12,418	2,399	0	1,199	3,178	4,160	5,824	-2,646	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
1507+25.00	119	76	43	29	0		76	66	0	21	2		89	116	-40	0	0	43	53	74	-31	
1507+50.00	126	82	45	28	0		82	51	0	20	1		72	94	-12	0	0	45	53	74	-29	
1507+75.00	139	94	45	28	0		94	30	0	13	1		44	57	37	0	0	45	52	73	-28	
1508+00.00	149	106	42	28	0		106	20	0	5			25	33	74	0	0	42	53	74	-32	
1508+25.00	141	98	43	28	0		98	26	0	12			38	49	49	0	0	43	53	74	-31	
1508+50.00	130	84	45	28	0		84	42	0	22			64	83	1	0	0	45	53	74	-29	
1508+75.00	124	78	46	28	0		78	58	0	24			82	107	-29	0	0	46	53	74	-28	
1509+00.00	120	74	46	28	0		74	69	0	26			95	124	-50	0	0	46	52	73	-27	
1509+25.00	115	70	46	28	0		70	76	0	26			102	133	-63	0	0	46	52	73	-27	
1509+50.00	110	64	46	28	0		64	81	0	27			108	140	-76	0	0	46	51	71	-25	
1509+75.00	104	59	45	28	0		59	85	0	28			113	147	-88	0	0	45	51	71	-26	
1510+00.00	101	56	45	28	0		56	87	0	29			116	151	-95	0	0	45	50	70	-25	
1510+25.00	103	57	46	28	0		57	88	0	30			118	153	-96	0	0	46	51	71	-25	
1510+50.00	107	60	47	28	0		60	87	0	29			116	151	-91	0	0	47	52	73	-26	
1510+75.00	111	63	49	28	0		63	88	0	30			118	153	-90	0	0	49	53	74	-25	
1511+00.00	117	66	51	28	0		66	87	0	31			118	153	-87	0	0	51	55	77	-26	
1511+25.00	124	71	53	29	0		71	84	0	32			116	151	-80	0	0	53	56	78	-25	
1511+50.00	133	77	55	29	0		77	83	0	33			116	151	-74	0	0	55	58	81	-26	
1511+75.00	140	84	57	29	0		84	83	0	33			116	151	-67	0	0	57	60	84	-27	
1512+00.00	131	78	54	29	0		78	84	0	31			115	150	-72	0	0	54	59	83	-29	
1512+25.00	108	59	49	29	0		59	85	0	30			115	150	-91	0	0	49	57	80	-31	
1512+50.00	93	47	46	29	0		47	83	0	30			113	147	-100	0	0	46	55	77	-31	
1512+75.00	84	40	44	29	0		40	82	0	31			113	147	-107	0	0	44	53	74	-30	
1513+00.00	79	36	43	29	0		36	86	0	32			118	153	-117	0	0	43	51	71	-28	
1513+25.00	75	34	41	29	0		34	88	0	32			120	156	-122	0	0	41	49	69	-28	
1513+50.00	72	34	39	29	0		34	85	0	30			115	150	-116	0	0	39	48	67	-28	
1513+75.00	72	35	37	29	0		35	78	0	28			106	138	-103	0	0	37	47	66	-29	
1514+00.00	73	37	36	29	0		37	69	0	28			97	126	-89	0	0	36	46	64	-28	
1514+25.00	74	38	36	29	0		38	63	0	28			91	118	-80	0	0	36	45	63	-27	
1514+50.00	76	41	35	29	0		41	61	0	27			88	114	-73	0	0	35	44	62	-27	
1514+75.00	88	49	39	29	0		49	61	0	30			91	118	-69	0	0	39	43	60	-21	
1515+00.00	99	57	42	29	0		57	57	0	31			88	114	-57	0	0	42	43	60	-18	
1515+25.00	104	62	42	29	0		62	45	0	30			75	98	-36	0	0	42	42	59	-17	
1515+50.00	111	68	42	29	0		68	28	0	29			57	74	-6	0	0	42	42	59	-17	
1515+75.00	126	84	42	29	0		84	10	0	23			33	43	41	0	0	42	42	59	-17	
1516+00.00	150	108	42	29	0		108	1	0	14			15	20	89	0	0	42	41	57	-15	
1516+25.00	161	119	42	29	0		119	0	0	9			9	12	107	0	0	42	41	57	-15	
1516+50.00	133	99	34	23	0		99	0	0	7			7	9	90	0	0	34	32	45	-11	
1516+70.00																						
US_30_WB																						
Totals:	93,702	71,671	22,023	15,210	0	669	72,340	116,525	5,473	9,593	5,226	3,703	140,520	182,676	-110,336	48,980	100,433	22,023	31,707	44,390	-22,367	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.32

10/23/2017 11:29:24 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
23rd_Ave_North																						
231423+50.00																						
231423+75.00	0	0	0	0	0		0	426	0		58		484	629	-629	0	441	0	19	27	-27	
231424+00.00	14	14	0	0	0		14	260	0		58		318	413	-399	112	226	0	43	60	-60	
231424+12.89	10	10	0	0	0		10	132	0				132	172	-162	69	127	0	25	35	-35	
231424+25.00	32	16	16	0	0		16	123	0	11			134	174	-158	77	131	16	24	34	-18	
231424+50.00	208	167	41	0	0		167	190	0	17		245	452	588	-421	48	163	41	57	80	-39	
231424+75.00	304	258	46	0	0		258	138	0	12			150	195	63	0	96	46	63	88	-42	
231425+00.00	265	232	33	0	0		232	99	0	9			108	140	92	0	46	33	59	83	-50	
231425+25.00	228	199	29	0	0		199	74	0	8			82	107	92	0	12	29	54	76	-47	
231425+50.00	201	164	37	0	0		164	59	0	11			70	91	73	0	0	37	50	70	-33	
231425+75.00	181	146	35	0	0		146	40	0	11			51	66	80	0	0	35	47	66	-31	
231426+00.00	161	128	33	0	0		128	24	0	10			34	44	84	0	0	33	44	62	-29	
231426+25.00	137	107	30	0	0		107	14	0	8			22	29	78	0	0	30	41	57	-27	
231426+50.00	109	82	27	0	0		82	7	0	8			15	20	63	0	0	27	37	52	-25	
231426+75.00	77	53	24	0	0		53	4	0	8			12	16	37	0	0	24	33	46	-22	
231427+00.00	48	28	20	0	0		28	3	0	7			10	13	15	0	0	20	28	39	-19	
23rd_Ave_North																						
Totals:	1,975	1,604	371	0	0	0	1,604	1,593	0	120	116	245	2,074	2,697	-1,093	306	1,242	371	624	874	-503	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.33

10/23/2017 11:29:24 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
XOver3																						
300+38.00	31	19	12	12	0		19	0	0	5			5	7	13	0	0	12	4	6	6	
300+50.00	55	31	25	20	0		31	0	0	9	5		14	18	13	0	0	25	9	13	12	
300+75.00	57	30	27	20	0		30	0	0	10	5		15	20	11	0	0	27	13	18	9	
301+00.00	62	33	29	25	0		33	2	0	12			14	18	15	0	0	29	18	25	4	
301+25.00	59	26	32	24	0		26	6	0	15	1		22	29	-3	0	0	32	20	28	4	
301+50.00	57	23	34	21	0		23	10	0	16	4		30	39	-16	0	0	34	23	32	2	
301+75.00	57	23	35	16	0		23	15	0	17	9		41	53	-30	0	0	35	25	35	0	
302+00.00	60	23	37	9	0		23	22	0	20	16		58	75	-52	0	0	37	27	38	-1	
302+25.00	62	24	38	3	0		24	33	0	21	22		76	99	-75	0	0	38	30	42	-4	
302+50.00	66	27	39	0	0		27	55	0	21	25		101	131	-104	0	0	39	32	45	-6	
302+75.00	72	33	39	0	0		33	87	0	19	25		131	170	-137	0	0	39	34	48	-9	
303+00.00	88	65	23	0	0		65	123	0	13	25		161	209	-144	0	0	23	37	52	-29	
303+25.00	100	73	27	0	0		73	167	0	17	25		209	272	-199	0	38	27	39	55	-28	
303+50.00	104	58	46	0	0		58	214	0	25	25		264	343	-285	0	99	46	41	57	-11	
303+75.00	111	64	47	0	0		64	259	0	24	25		308	400	-336	0	159	47	43	60	-13	
304+00.00	113	65	48	0	0		65	304	0	24	25		353	459	-394	39	228	48	44	62	-14	
304+25.00	116	67	49	0	0		67	348	0	25	25		398	517	-450	104	293	49	45	63	-14	
304+50.00	116	67	49	0	0		67	390	0	24	25		439	571	-504	163	350	49	46	64	-15	
304+75.00	116	68	49	0	0		68	432	0	24	25		481	625	-557	218	406	49	46	64	-15	
305+00.00	116	67	49	0	0		67	470	0	25	25		520	676	-609	269	456	49	47	66	-17	
305+25.00	112	63	48	0	0		63	508	0	26	25		559	727	-664	319	506	48	47	66	-18	
305+50.00	109	60	49	0	0		60	547	0	29	25		601	781	-721	369	556	49	47	66	-17	
305+75.00	107	58	49	0	0		58	582	0	29	25		636	827	-769	415	602	49	48	67	-18	
306+00.00	105	55	50	0	0		55	615	0	30	25		670	871	-816	458	645	50	49	69	-19	
306+25.00	103	52	51	0	0		52	648	0	29	25		702	913	-861	502	689	51	49	69	-18	
306+50.00	103	51	52	0	0		51	682	0	29	25		736	957	-906	546	733	52	50	70	-18	
306+75.00	105	51	54	0	0		51	717	0	30	25		772	1,004	-953	593	780	54	51	71	-17	
307+00.00	111	54	57	0	0		54	754	0	33	25		812	1,056	-1,002	640	827	57	52	73	-16	
307+25.00	119	61	59	0	0		61	786	0	34	25		845	1,099	-1,038	681	868	59	52	73	-14	
307+50.00	125	66	60	0	0		66	827	0	35	25		887	1,153	-1,087	736	923	60	53	74	-14	
307+75.00	130	68	62	0	0		68	912	0	39	25		976	1,269	-1,201	842	1,030	62	53	74	-12	
308+00.00	127	48	79	0	0		48	988	0	58	25		1,071	1,392	-1,344	936	1,123	79	52	73	6	
308+25.00	132	36	96	0	0		36	981	0	76	25		1,082	1,407	-1,371	922	1,109	96	51	71	25	
308+50.00	142	45	96	0	0		45	959	0	76	25		1,060	1,378	-1,333	887	1,074	96	50	70	26	
308+75.00	142	45	97	0	0		45	965	0	76	25		1,066	1,386	-1,341	892	1,079	97	49	69	28	
309+00.00	13	4	9	0	0		4	95	0	7	2		104	135	-131	0	0	9	5	7	2	
309+02.44																						
XOver3																						
Totals:	3,403	1,703	1,702	150	0	0	1,703	14,503	0	1,002	714	0	16,219	21,085	-19,382	10,529	14,571	1,702	1,381	1,934	-232	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.34

10/23/2017 11:29:24 AM kbell W:\Projects\0603003092\Design_n\06030231T03.xlsm

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
Access																						
+25.00																						
+50.00	62	9	53	0	0		9	44	0	31			75	98	-89	0	0	53	21	29	24	
+75.00	59	9	50	0	0		9	51	0	33			84	109	-100	0	0	50	19	27	23	
1+00.00	44	1	43	0	0		1	62	0	35			97	126	-125	0	0	43	14	20	23	
1+25.00	42	1	42	0	0		1	69	0	36			105	137	-136	0	0	42	13	18	24	
1+50.00	45	3	42	0	0		3	75	0	35			110	143	-140	0	0	42	13	18	24	
1+75.00	51	9	42	0	0		9	69	0	32			101	131	-122	0	0	42	14	20	22	
2+00.00	55	13	42	0	0		13	51	0	31			82	107	-94	0	0	42	13	18	24	
2+25.00	52	9	43	0	0		9	48	0	32			80	104	-95	0	0	43	14	20	23	
2+50.00	49	3	45	0	0		3	61	0	35			96	125	-122	0	0	45	15	21	24	
2+75.00	46	1	44	0	0		1	66	0	35			101	131	-130	0	0	44	15	21	23	
3+00.00	45	2	44	0	0		2	63	0	34			97	126	-124	0	0	44	15	21	23	
3+25.00	46	2	44	0	0		2	57	0	33			90	117	-115	0	0	44	15	21	23	
3+50.00	47	3	44	0	0		3	52	0	33			85	111	-108	0	0	44	15	21	23	
3+75.00	47	3	44	0	0		3	51	0	32			83	108	-105	0	0	44	15	21	23	
4+00.00	47	4	44	0	0		4	49	0	31			80	104	-100	0	0	44	15	21	23	
4+25.00	47	4	44	0	0		4	48	0	31			79	103	-99	0	0	44	15	21	23	
4+50.00	47	4	44	0	0		4	49	0	31			80	104	-100	0	0	44	15	21	23	
4+75.00	50	4	45	0	0		4	48	0	32			80	104	-100	0	0	45	15	21	24	
5+00.00	52	6	46	0	0		6	43	0	31			74	96	-90	0	0	46	16	22	24	
5+25.00	56	9	47	0	0		9	37	0	30			67	87	-78	0	0	47	16	22	25	
5+50.00	58	11	48	0	0		11	36	0	29			65	85	-74	0	0	48	17	24	24	
5+75.00	67	15	51	0	0		15	35	0	29			64	83	-68	0	0	51	20	28	23	
6+00.00	66	16	51	0	0		16	35	0	28			63	82	-66	0	0	51	20	28	23	
6+25.00	59	11	48	0	0		11	35	0	29			64	83	-72	0	0	48	17	24	24	
6+50.00	57	10	47	0	0		10	34	0	29			63	82	-72	0	0	47	17	24	23	
6+75.00	57	10	47	0	0		10	34	0	29			63	82	-72	0	0	47	17	24	23	
7+00.00	57	9	47	0	0		9	36	0	30			66	86	-77	0	0	47	17	24	23	
7+25.00	56	9	47	0	0		9	38	0	30			68	88	-79	0	0	47	17	24	23	
7+50.00	56	10	47	0	0		10	37	0	29			66	86	-76	0	0	47	17	24	23	
7+75.00	57	10	47	0	0		10	35	0	29			64	83	-73	0	0	47	17	24	23	
8+00.00	57	10	47	0	0		10	34	0	29			63	82	-72	0	0	47	17	24	23	
8+25.00	58	11	47	0	0		11	33	0	29			62	81	-70	0	0	47	17	24	23	
8+50.00	58	11	47	0	0		11	32	0	29			61	79	-68	0	0	47	17	24	23	
8+75.00	56	9	47	0	0		9	36	0	29			65	85	-76	0	0	47	17	24	23	
9+00.00	53	7	46	0	0		7	42	0	30			72	94	-87	0	0	46	16	22	24	
9+25.00	51	5	45	0	0		5	46	0	31			77	100	-95	0	0	45	16	22	23	
9+50.00	50	5	45	0	0		5	46	0	31			77	100	-95	0	0	45	16	22	23	
9+75.00	53	6	46	0	0		6	41	0	31			72	94	-88	0	0	46	16	22	24	
10+00.00	55	9	46	0	0		9	36	0	29			65	85	-76	0	0	46	16	22	24	
10+25.00	56	9	47	0	0		9	35	0	29			64	83	-74	0	0	47	17	24	23	
10+50.00	59	11	48	0	0		11	36	0	29			65	85	-74	0	0	48	18	25	23	
10+75.00	69	16	53	0	0		16	37	0	30			67	87	-71	0	0	53	21	29	24	
11+00.00	67	16	51	0	0		16	35	0	29			64	83	-67	0	0	51	20	28	23	
11+25.00	59	12	47	0	0		12	32	0	28			60	78	-66	0	0	47	17	24	23	
11+50.00	59	13	46	0	0		13	26	0	26			52	68	-55	0	0	46	17	24	22	
11+75.00	48	8	40	0	0		8	23	0	25			48	62	-54	0	0	40	13	18	22	
12+00.00	32	2	30	0	0		2	21	0	26			47	61	-59	0	0	30	6	8	22	
12+25.00	26	1	25	0	0		1	18	0	25			43	56	-55	0	0	25	3	4	21	
12+50.00	1	1	0	0	0		1	10	0				10	13	-12	0	0	0	1	1	-1	
Access																						
Totals:	2,546	372	2,175	0	0	0	372	2,067	0	1,459	0	0	3,526	4,584	-4,212	0	0	2,175	760	1,064	1,111	

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
Stage 4																						
XOver2_Removal																						
1540+92.96	4	2	2	0	0		2	0	0				0	0	2	0	0	2	2	3	-1	
1541+00.00	6	3	3	0	0		3	0	0				0	0	3	0	0	3	3	4	-1	
1541+07.72	24	11	12	1	0		11	0	0	4			4	5	6	0	0	12	9	13	-1	
1541+25.00	38	21	17	4	0		21	0	0	5			5	7	15	0	0	17	13	18	-1	
1541+50.00	43	26	17	6	0		26	0	0	6			6	8	18	0	0	17	13	18	-1	
1541+75.00	45	28	17	9	0		28	0	0	7			7	9	19	0	0	17	13	18	-1	
1542+00.00	48	34	14	12	0		34	0	0	6			6	8	26	0	0	14	13	18	-4	
1542+25.00	56	48	9	16	0		48	0	0	2			2	3	45	0	0	9	14	20	-11	
1542+50.00	79	74	5	19	0		74	0	0				0	0	74	0	0	5	15	21	-16	
1542+75.00	100	98	2	23	0		98	0	0				0	0	98	0	0	2	16	22	-20	
1543+00.00	102	101	0	27	0		101	0	0				0	0	101	0	0	0	16	22	-22	
1543+25.00	98	98	0	32	0		98	0	0				0	0	98	0	0	0	16	22	-22	
1543+50.00	98	98	0	36	0		98	0	0				0	0	98	0	0	0	17	24	-24	
1543+75.00	98	98	0	42	0		98	0	0				0	0	98	0	0	0	17	24	-24	
1544+00.00	98	98	0	46	0		98	0	0				0	0	98	0	0	0	17	24	-24	
1544+25.00	101	101	0	47	0		101	0	0				0	0	101	0	0	0	17	24	-24	
1544+50.00	104	104	0	47	0		104	0	0				0	0	104	0	0	0	18	25	-25	
1544+75.00	107	107	0	48	0		107	0	0				0	0	107	0	0	0	18	25	-25	
1545+00.00	110	110	0	48	0		110	0	0				0	0	110	0	0	0	18	25	-25	
1545+25.00	116	116	0	45	0		116	0	0				0	0	116	0	0	0	18	25	-25	
1545+50.00	120	120	0	40	0		120	0	0				0	0	120	0	0	0	18	25	-25	
1545+75.00	117	115	2	35	0		115	0	0				0	0	115	0	0	2	19	27	-25	
1546+00.00	104	98	6	31	0		98	0	0	1			1	1	97	0	0	6	19	27	-21	
1546+25.00	87	77	10	27	0		77	0	0	1			1	1	76	0	0	10	19	27	-17	
1546+50.00	77	61	15	23	0		61	0	0	4			4	5	56	0	0	15	19	27	-12	
1546+75.00	66	47	19	19	0		47	0	0	7			7	9	38	0	0	19	19	27	-8	
1547+00.00	59	36	23	15	0		36	0	0	13			13	17	19	0	0	23	20	28	-5	
1547+25.00	53	28	26	12	0		28	1	0	19			20	26	2	0	0	26	20	28	-2	
1547+50.00	52	22	30	9	0		22	1	0	23			24	31	-9	0	0	30	20	28	2	
1547+75.00	51	17	34	7	0		17	1	0	23			24	31	-14	0	0	34	21	29	5	
1548+00.00	52	14	37	4	0		14	3	0	26			29	38	-24	0	0	37	22	31	6	
1548+25.00	39	14	25	3	0		14	2	0	16			18	23	-9	0	0	25	15	21	4	
1548+50.00	19	11	8	2	0		11	0	0	2			2	3	8	0	0	8	6	8	0	
1548+75.00																						
XOver2_Removal																						
Totals:	2,371	2,036	333	735	0	0	2,036	8	0	165	0	0	173	225	1,811	0	0	333	520	728	-395	

FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER T.36

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]
							[2]+[6]						[8]+[9]+[10]+[11]+[12]	[13]*1.3	[7]-[14]					[19]*1.4	[18]-[20]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Template Waste Volume	Manually Calculated Cut Adjustments (+/- Cut)	Total Cut Adjusted	Total Fill Unadjusted Volume	Plowing & Shaping Undercut (+ Fill)	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Manual Calculated Fill Adjustments (+/- Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink	
Summary:																						
Stage 1																						
XOver2	2,242	842	1,399	0	0	0	842	1,211	0	1,189	0	0	2,400	3,120	-2,278	0	0	1,399	179	251	1,148	
Stage 1 Subtotals:	2,242	842	1,399	0	0	0	842	1,211	0	1,189	0	0	2,400	3,120	-2,278	0	0	1,399	179	251	1,148	
Stage 2																						
US_30_EB	143,644	84,923	58,705	4,982	0	49	84,972	241,143	5,895	36,262	1,042	5,545	289,887	376,853	-291,881	139,036	193,161	58,705	22,685	31,759	26,946	
US_218_Ramp_A	4,570	1,438	3,108	0	25	0	1,438	9,149	0	2,146	0	0	11,295	14,684	-13,246	2,554	6,303	3,108	1,058	1,482	1,627	
US_218_Ramp_B	5,408	2,281	3,124	64	0	0	2,281	5,683	0	1,773	0	0	7,456	9,693	-7,412	470	3,356	3,124	1,162	1,627	1,498	
US_218_Ramp_C	11,081	3,237	7,837	85	0	0	3,237	38,926	0	5,443	446	0	44,815	58,260	-55,023	30,673	42,080	7,837	3,231	4,524	3,314	
US_218_Ramp_D	11,304	2,333	8,557	0	417	0	2,333	67,062	0	6,475	0	0	73,537	95,599	-93,266	58,829	77,172	8,557	3,927	5,498	3,060	
23rd_Ave_South	2,070	1,353	716	0	0	0	1,353	5,625	0	364	0	0	5,989	7,786	-6,433	3,583	4,829	716	899	1,259	-543	
US_218_South	17,879	9,767	8,108	0	0	2,813	12,580	44,208	0	4,399	0	4,953	53,560	69,628	-57,048	15,660	22,371	8,108	5,163	7,229	881	
US_218_North	55,036	42,054	12,984	1,915	0	0	42,054	67,886	0	4,818	1,704	164	74,572	96,944	-54,890	61,217	79,774	12,984	7,083	9,917	3,068	
XOver1	967	964	0	11	0	0	964	7,640	0	0	0	0	7,640	9,932	-8,968	1,609	4,664	0	683	957	-957	
Cafe_Frontage	3,336	694	2,645	0	0	0	694	7,380	0	1,842	0	0	9,222	11,989	-11,295	5,080	6,099	2,645	1,033	1,447	1,199	
Stage 2 Subtotals:	255,295	149,044	105,784	7,057	442	2,862	151,906	494,702	5,895	63,522	3,192	10,662	577,973	751,368	-599,462	318,711	439,809	105,784	46,924	65,699	40,093	
Stage 3																						
US_30_WB	93,702	71,671	22,023	15,210	0	669	72,340	116,525	5,473	9,593	5,226	3,703	140,520	182,676	-110,336	48,980	100,433	22,023	31,707	44,390	-22,367	
23rd_Ave_North	1,975	1,604	371	0	0	0	1,604	1,593	0	120	116	245	2,074	2,697	-1,093	306	1,242	371	624	874	-503	
XOver3	3,403	1,703	1,702	150	0	0	1,703	14,503	0	1,002	714	0	16,219	21,085	-19,382	10,529	14,571	1,702	1,381	1,934	-232	
Access	2,546	372	2,175	0	0	0	372	2,067	0	1,459	0	0	3,526	4,584	-4,212	0	0	2,175	760	1,064	1,111	
Stage 3 Subtotals:	101,626	75,350	26,271	15,360	0	669	76,019	134,688	5,473	12,174	6,056	3,948	162,339	211,042	-135,023	59,815	116,246	26,271	34,472	48,262	-21,991	
Stage 4																						
XOver2_Removal	2,371	2,036	333	735	0	0	2,036	8	0	165	0	0	173	225	1,811	0	0	333	520	728	-395	
Stage 4 Subtotals:	2,371	2,036	333	735	0	0	2,036	8	0	165	0	0	173	225	1,811	0	0	333	520	728	-395	
Project Totals:	361,534	227,272	133,787	23,152	442	3,531	230,803	630,609	11,368	77,050	9,248	14,610	742,885	965,755	-734,952	378,526	556,054	133,787	82,095	114,939	18,856	

BID ITEMS

EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED
(734,952+1,811)/1.3 = 566,741 CY
([15]+1,811)/1.3 =

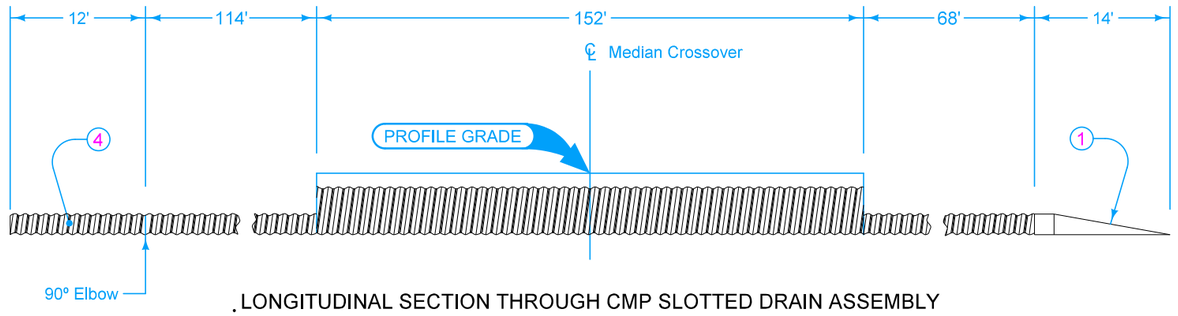
EXCAVATION, CLASS 10, ROADWAY AND BORROW
230,803 CY
[7]

EXCAVATION, CLASS 10, WASTE
442+1,811 2,253 CY
[5]+1,811

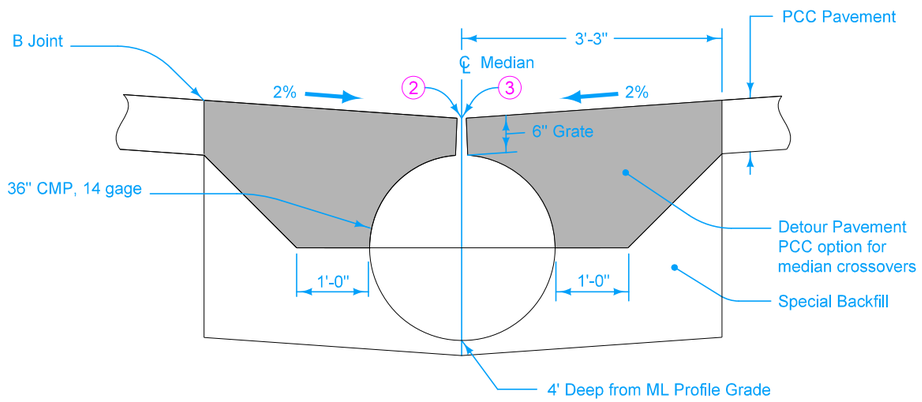
TOPSOIL, SPREAD
114,939 CY
[20]

TOPSOIL, STRIP AND STOCKPILE
133,787 CY
[18]

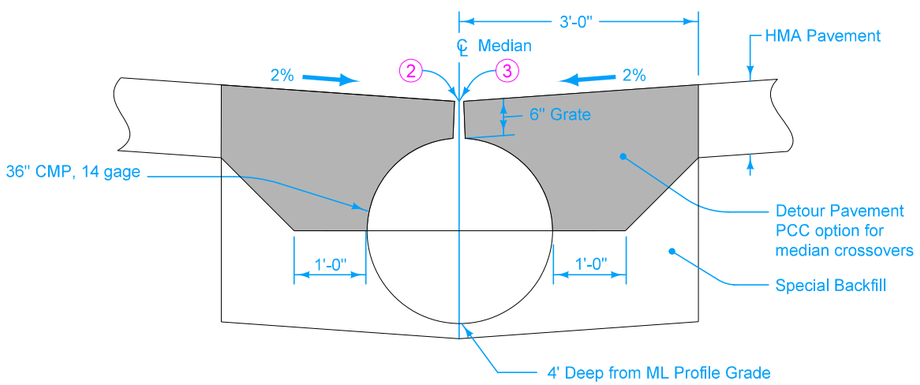
COMPACTION WITH MOISTURE CONTROL
742,885 CY
[13]



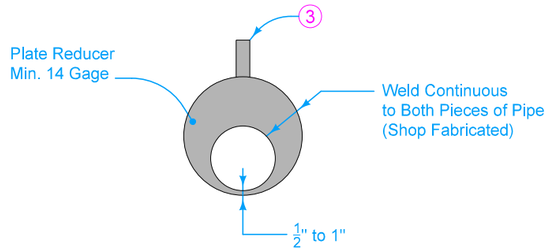
LONGITUDINAL SECTION THROUGH CMP SLOTTED DRAIN ASSEMBLY



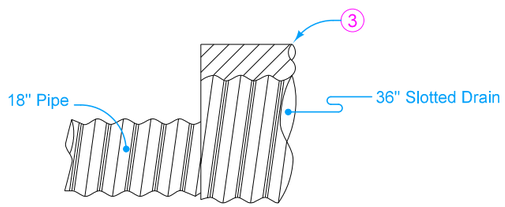
PCC PAVEMENT SITUATION



HMA PAVEMENT SITUATION



END VIEW OF PIPE REDUCER



SIDE VIEW OF PIPE REDUCER

1. Beveled pipe and guard. See DR-212.
2. During construction of crossover pavement, cover slotted drain with duct tape or wood block.
3. Slotted grate 6 inches high x $1\frac{3}{4}$ inches opening width. Use $\frac{3}{16}$ inch material for spacers and bearing bars (sides).
4. Remove existing Apron, DR-122 Type C-4 connection to existing median pipe.

Possible Contract Items:
- Beveled Pipe and Guard
- Culvert, Unclassified Roadway Pipe, 18" Dia.
- Detour Pavement
- Drain, Corrugated Metal Pipe Slotted, 36", w/6" Grate
- Special Backfill

Tabulation:
- 112-8

MODIFIED

STANDARD ROAD PLAN

REVISION	
1	10-18-16

DR-502

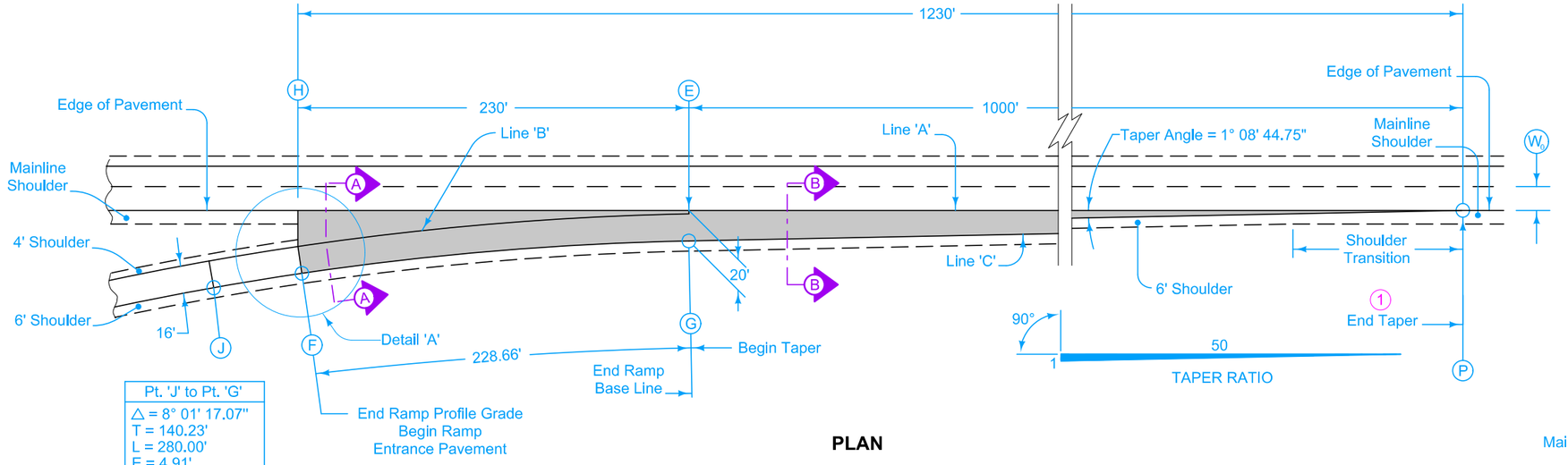
SHEET 1 of 1

MODIFICATIONS: Modified for crossover @ Sta. 1544+66.17

SLOTTED DRAIN FOR MEDIAN CROSSOVERS

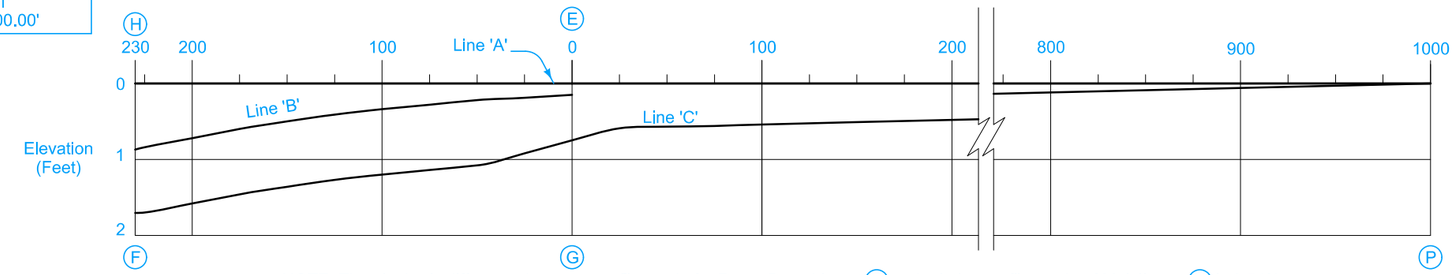
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.1

10:26:15 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



Pt. 'J' to Pt. 'G'
△ = 8° 01' 17.07"
T = 140.23'
L = 280.00'
E = 4.91'
R = 2000.00'

PLAN

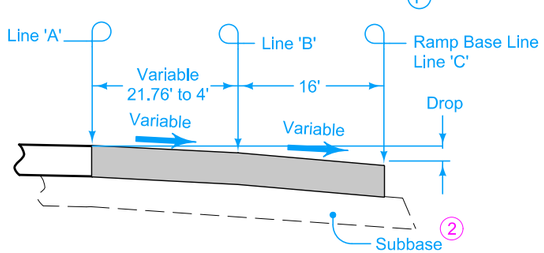


NOTE: The algebraic difference between profile grade for Ramp Base Line at (F) and relative profile grade of Mainline at (H) is 0.54%.

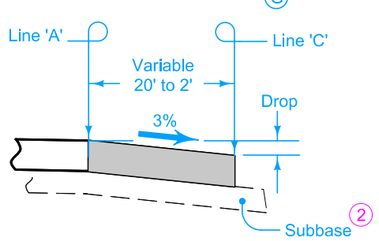
PROFILE

TABLE OF OFFSETS AND DROPS FOR 16' RAMP TAPER																									
Distance From Point (E) Along Line 'A' (Ft.)		230	225	200	175	150	125	100	75	50	25	0	25	50	75	100	200	300	400	500	600	700	800	900	1000
From Line 'A' To Line 'B'	Offset (Ft.)	21.76	21.10	17.95	15.11	12.59	10.38	8.48	6.90	5.62	4.66	4.0													
	Slope (%)	◄ Constant 4.0% Slope ►										3.78													
	Drop (Ft.)	0.87	0.84	0.72	0.60	0.50	0.42	0.34	0.28	0.22	0.19	0.15													
From Line 'B' To Line 'C'	Offset (Ft.)	◄ Constant 16.0' Offset ►																							
	Slope (%)	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	4.58	3.78													
	Drop (Ft.)	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.73	0.60													
From Line 'A' To Line 'C'	Offset (Ft.)												19.5	19.0	18.5	18.0	16.0	14.0	12.0	10.0	8.0	6.0	4.0	2.0	0.0
	Slope (%)												◄ Constant 3.0% Slope ►												
	Drop (Ft.)	1.73	1.70	1.58	1.46	1.36	1.28	1.20	1.14	1.08	0.92	0.75	0.59	0.57	0.56	0.54	0.48	0.42	0.36	0.30	0.24	0.18	0.12	0.06	0.0
Distance From Point (G) Along Line 'C' (Ft.)		228.66	223.66	198.66	173.70	148.77	123.87	99.00	74.15	49.31	24.49	0.00													

(F) (G) (H) (E) (P)



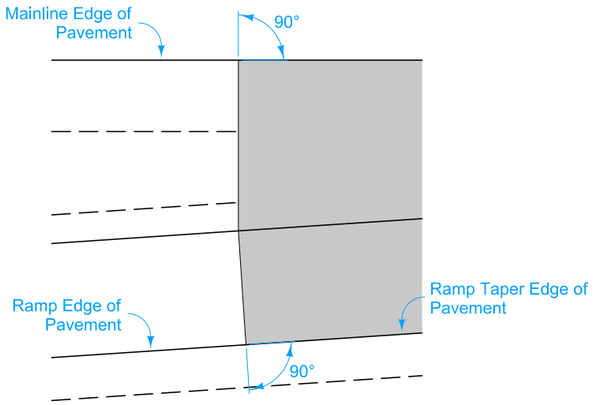
SECTION A-A



SECTION B-B

TABLE OF SHOULDER TRANSITION LENGTHS			
W_0	Shoulder Width beyond Edge of Mainline Pavement		
	8'	10'	12'
12'	NA	200'	300'
14'	100'	200'	NA

NOTE: W_0 is the width of the outside lane to the Edge of Pavement.



DETAIL A

Construct ramp entrance pavement the same thickness as mainline pavement.

Ramp entrance pavement shown by shaded area is 1793 square yards.

For joint details, see PV-101

(1) For header construction details at the end of taper, see Typical 7101 or Typical 7102.

(2) Construct subbase for ramp entrance pavement the same thickness as mainline subbase.

INTERIM

STANDARD ROAD PLAN

REVISION	
4	4-17-18

PV-411

SHEET 1 of 2

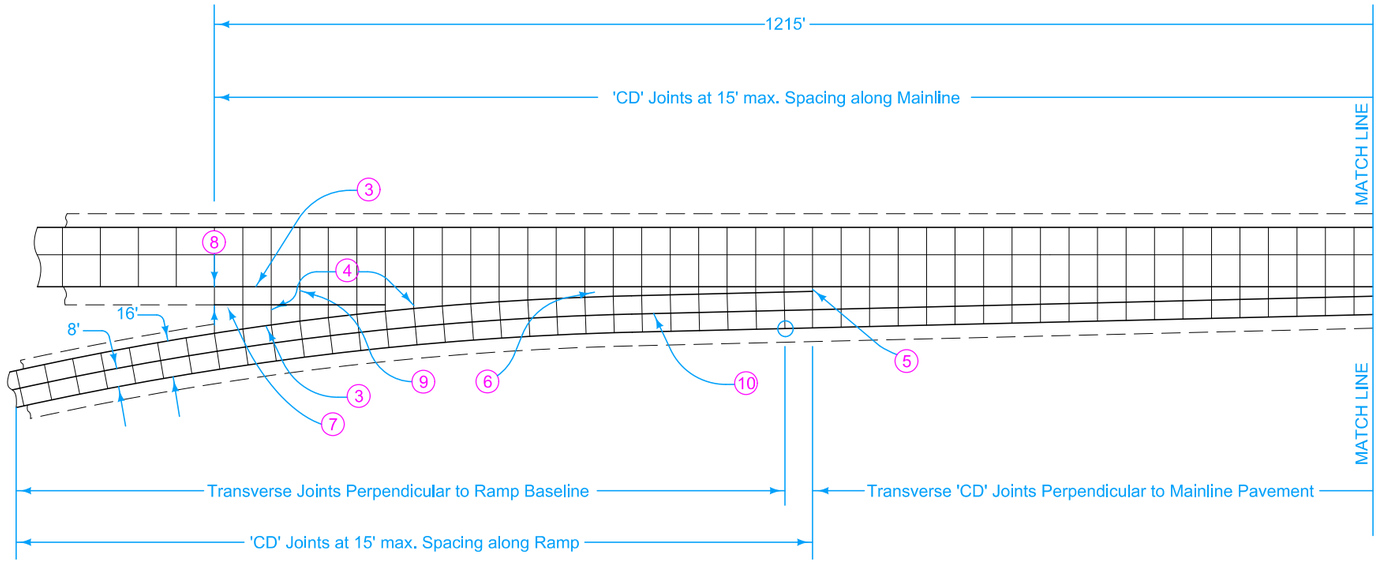
REVISIONS: Extended the 15' transverse joint spacing on the mainline to the header for the centerline joint.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

ACCELERATION TAPER FOR 16' ENTRANCE RAMP

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.2

10:26:17 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



③ 'BT-2' or 'KT-2' Joint.

④ 'C' Joint.

⑤ 'B' Joint. 2' minimum, 4' maximum.

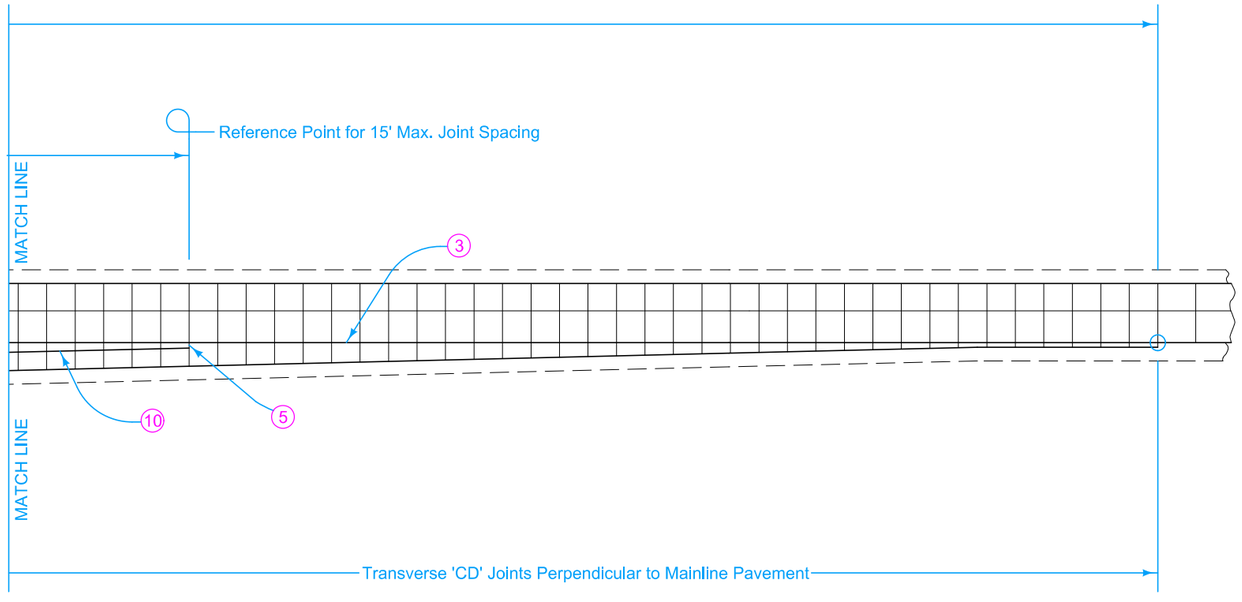
⑥ Construct transverse joints on the entrance ramp taper perpendicular to the tapered edge where the gore area is greater than 4 feet.

⑦ 'C' Joint equal to mainline shoulder width.

⑧ 10' minimum, or equal to mainline shoulder width.

⑨ 'B' or 'C' Joint. 2' minimum. 4' maximum.

⑩ 'L-2' Joint.



16' ENTRANCE RAMP

INTERIM

STANDARD ROAD PLAN

REVISION	
4	4-17-18

PV-411

SHEET 2 of 2

REVISIONS: Extended the 15' transverse joint spacing on the mainline to the header for the centerline joint.

Brian Smith

APPROVED BY DESIGN METHODS ENGINEER

ACCELERATION TAPER FOR 16' ENTRANCE RAMP

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.3

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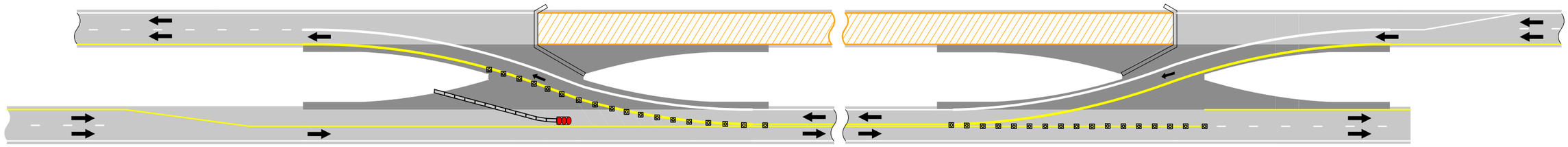


See Sheets 2 and 4 for Details

See Sheets 3 and 4 for Details

OVERVIEW OF CROSSOVER

Place Two-Way Traffic symbol and DO NOT PASS signs alternately on both sides of the roadway at a maximum of one-half mile intervals for both directions of travel. Always have signs in sight of motorists.

When the Average Daily Traffic (ADT) exceeds 20,000 vehicles per day or when a traffic queue extends beyond the advanced signing, place RIGHT/LEFT LANE CLOSED 4 MILES and RIGHT/LEFT LANE CLOSED 2 MILES signs (W20-5) on both sides of the roadway 4 miles and 2 miles in advance of the lane closure, respectively, as appropriate.

Possible Contract Items:

- Painted Symbols and Legends
- Pavement Marking Items
- Pavement Marking Removed
- Safety Closures
- Temporary Barrier Rail
- Temporary Crash Cushions
- Temporary Floodlighting
- Temporary Lane Separator System
- Traffic Control

Possible Tabulations:

108-13A, 108-22, 108-27, 108-29, 108-30, 108-33, 108-35

INTERIM

STANDARD ROAD PLAN

REVISION 12 04-17-18

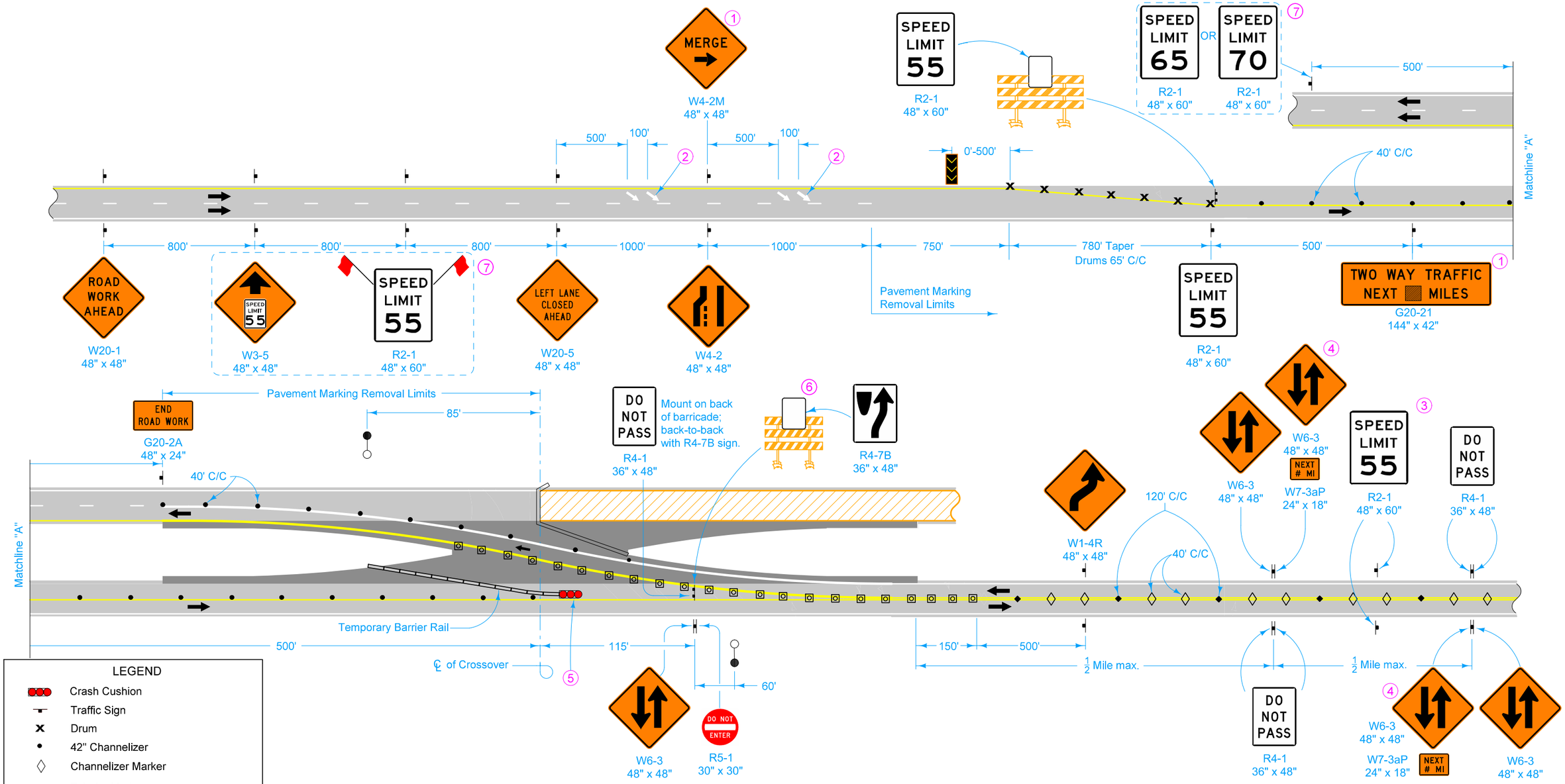
TC-61

SHEET 1 of 5

REVISIONS: Re-released 04-21-15 revision.

APPROVED BY DESIGN METHODS ENGINEER

TWO-LANE, TWO-WAY OPERATION



LEGEND

- Crash Cushion
- Traffic Sign
- Drum
- 42" Channelizer
- Channelizer Marker
- Tubular Marker
- Type III Barricade
- Arrow Board
- Safety Closure (Refer to TC-252)
- Temporary Floodlighting
- Work Area
- Direction of Traffic
- Detour Pavement
- Temporary Lane Separator System

See sheet 4 for supplemental drawings.

1. Refer to SI-881 for sign details.
2. Refer to PM-111 for arrow details.
3. Space Speed Limit signs at one-mile intervals.
4. Install an additional supplemental plaque with the message NEXT X MILES on the Two-Way Traffic symbol sign assembly on the right side of the roadway to inform motorists of the remaining length of two-lane traffic. Round X to the nearest whole-mile increment.
5. Temporary Crash Cushion. Refer to BA-500 for approved sand barrel layouts.
6. Use a 4 foot wide Type III Barricade.
7. For roadways with a posted speed limit of 60 mph or greater before road work:

   Place SPEED LIMIT AHEAD sign and SPEED LIMIT 55 sign prior to the lane closure as shown. Place SPEED LIMIT 65 or 70 beyond the work area as shown.

   Remove or cover all existing signs that conflict with 55 mph speed limit while 55 mph speed limit is in effect.

INTERIM
STANDARD ROAD PLAN

REVISION	
12	04-17-18

TC-61

SHEET 2 of 5

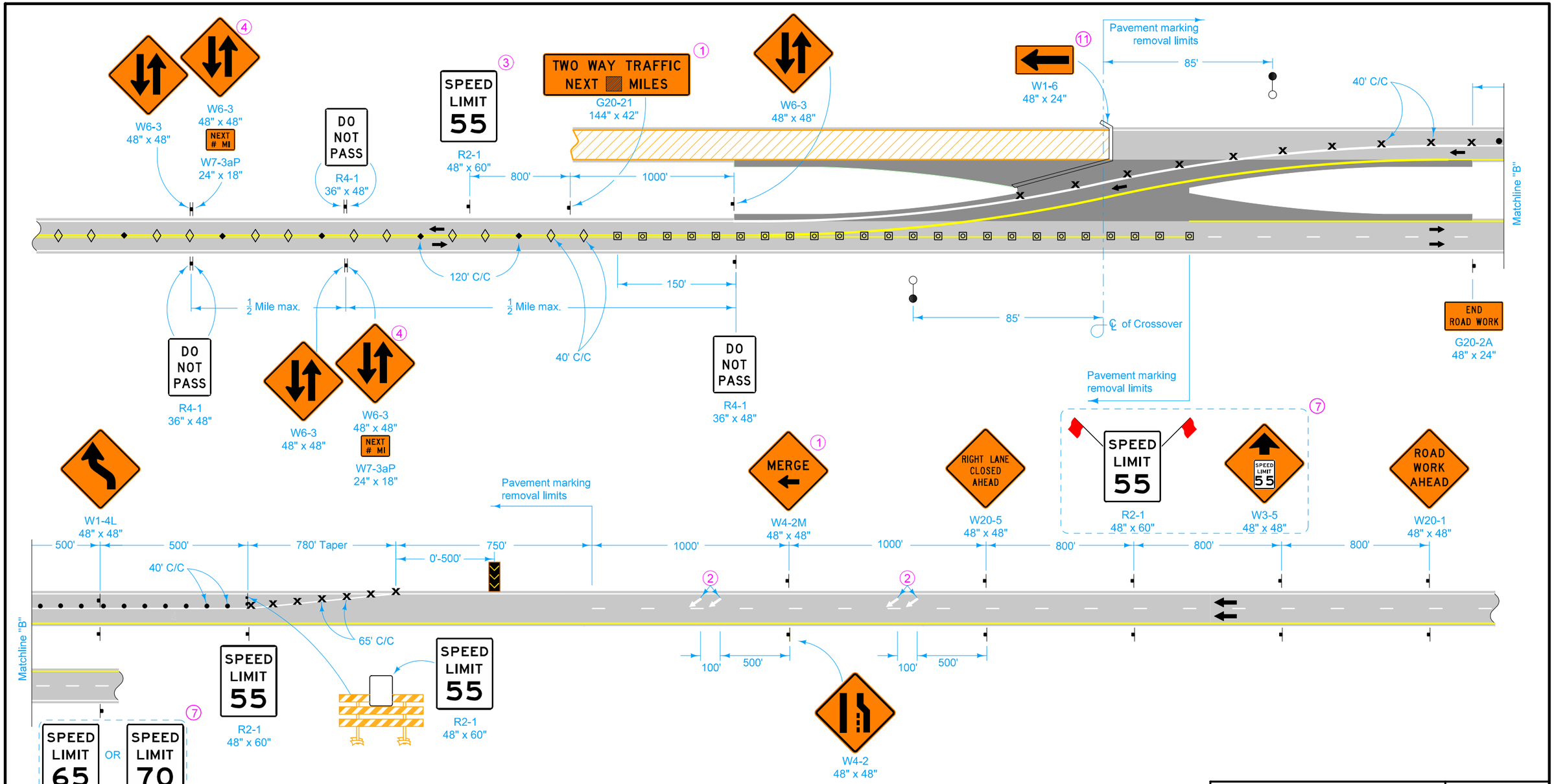
REVISIONS: Re-released 04-21-15 revision.

APPROVED BY DESIGN METHODS ENGINEER

TWO-LANE, TWO-WAY OPERATION

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.5

10:26:21 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\0603023 1U01.sht



LEGEND

Traffic Sign	Arrow Board
Drum	Safety Closure (Refer to TC-252)
42" Channelizer	Temporary Floodlighting
Channelizer Marker	Work Area
Tubular Marker	Direction of Traffic
Type III Barricade	Detour Pavement
Temporary Lane Separator System	

See sheet 4 for supplemental drawings.

(1) Refer to SI-881 for sign details.

(2) Refer to PM-111 for arrow details.

(3) Space Speed Limit signs at one-mile intervals.

(4) Install an additional supplemental plaque with the message NEXT X MILES on the Two-Way Traffic symbol sign assembly on the right side of the roadway to inform motorists of the remaining length of two-lane traffic. Round X to the nearest whole-mile increment.

(7) For roadways with a posted speed limit of 60 mph or greater before road work:

Place SPEED LIMIT AHEAD sign and SPEED LIMIT 55 sign prior to the lane closure as shown. Place SPEED LIMIT 65 or 70 beyond the work area as shown.

Remove or cover all existing signs that conflict with 55 mph speed limit while 55 mph speed limit is in effect.

(11) Add below R11-2 already included in Safety Closure.

INTERIM
STANDARD ROAD PLAN

REVISION	
12	04-17-18

TC-61

SHEET 3 of 5

REVISIONS: Re-released 04-21-15 revision.

APPROVED BY DESIGN METHODS ENGINEER

TWO-LANE, TWO-WAY OPERATION

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.6

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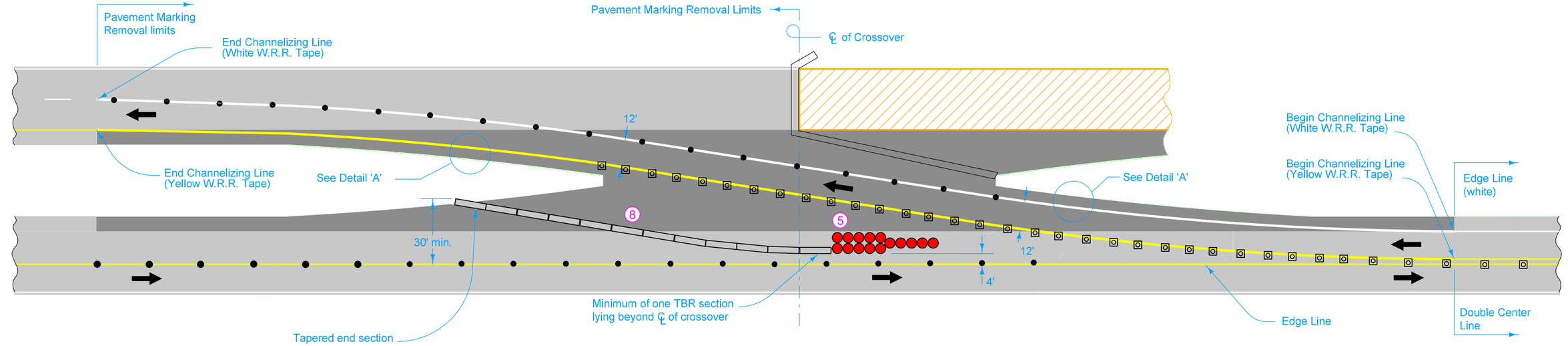
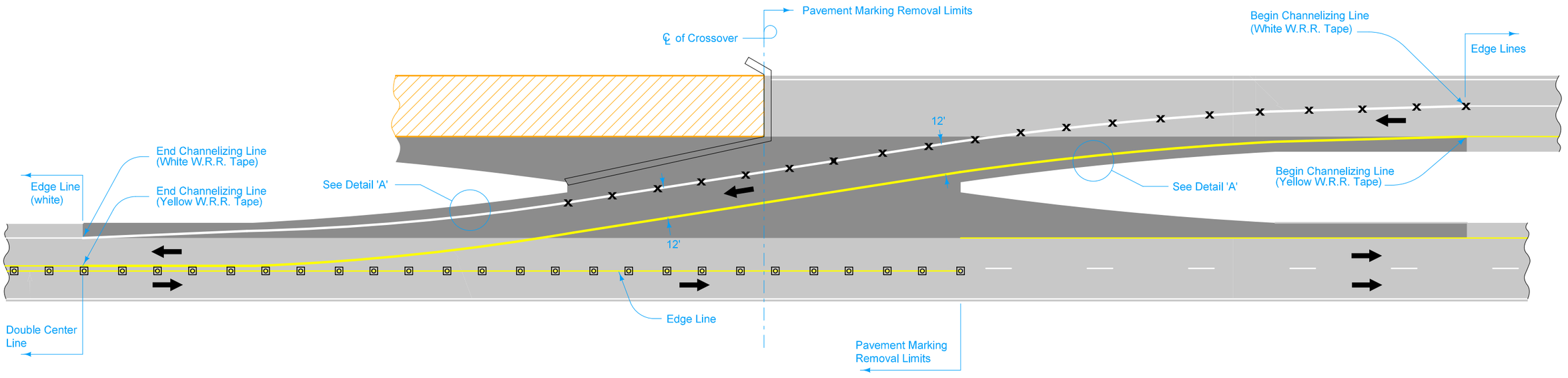
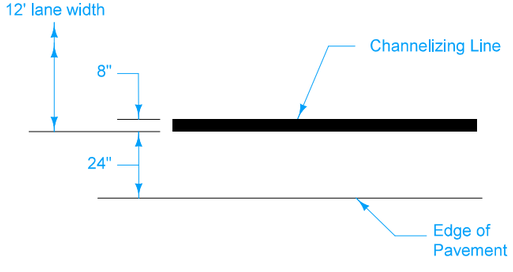




LEGEND

- Drum
- 42" Channelizer
- Crash Cushion
- Work Area
- Direction of Traffic
- Detour Pavement
- Safety Closure (Refer to TC-252)
- Temporary Lane Separator System



DETAIL 'A'

SUPPLEMENTAL CROSSOVER DRAWINGS (9)

(5) Temporary Crash Cushion. Refer to BA-500 for approved sand barrel layouts.

(8) Number of TBR sections varies based on dimensions of Detour Pavement. Refer to BA-401 and 108-33 for TBR information.

(9) Details shown hereon are intended to provide additional information to the requirements shown on sheets 2 and 3.

INTERIM
STANDARD ROAD PLAN

REVISION 12 04-17-18

TC-61

SHEET 4 of 5

REVISIONS: Re-released 04-21-15 revision.

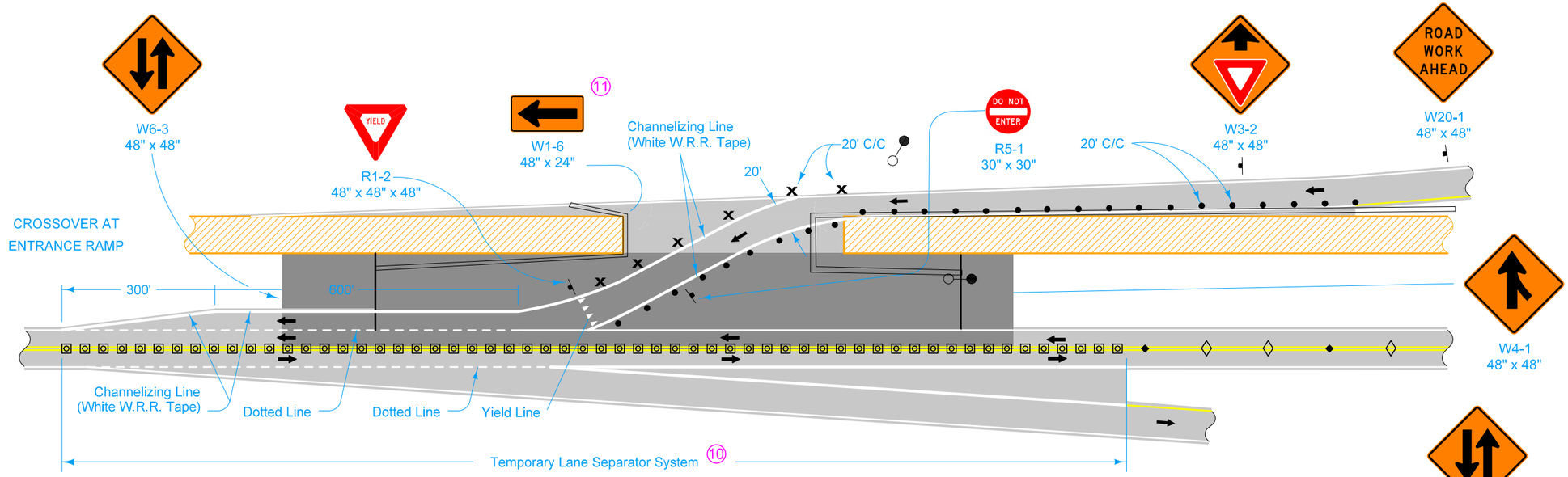
APPROVED BY DESIGN METHODS ENGINEER

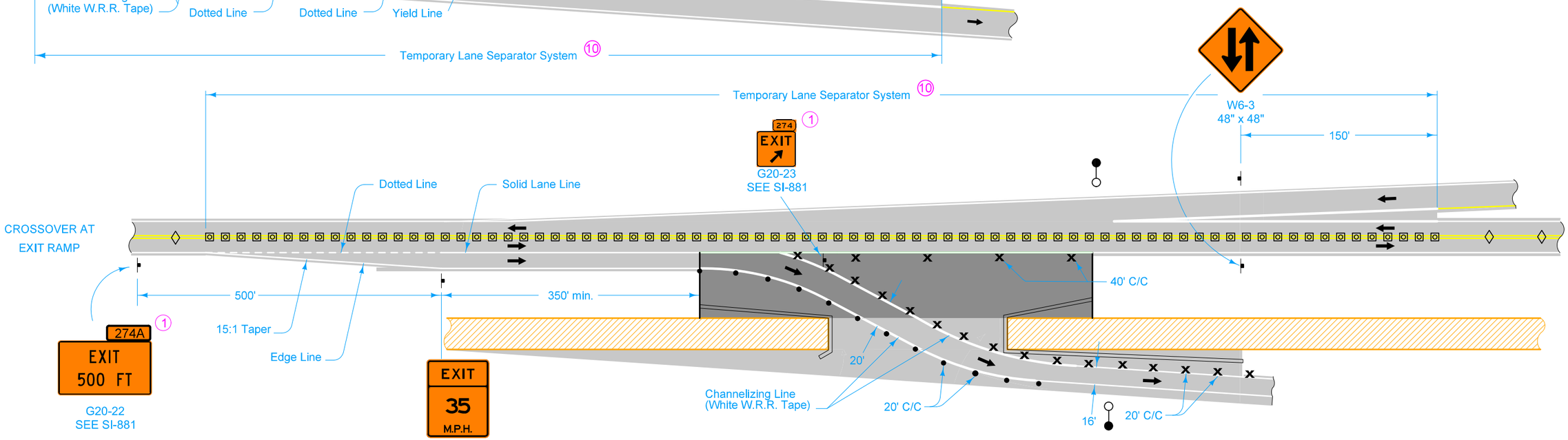
TWO-LANE, TWO-WAY OPERATION

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.7

10:26:25 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht

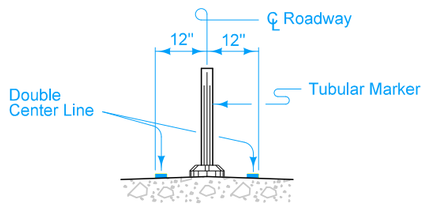
RAMP LOCATIONS





LEGEND

- Traffic Sign
- 42" Channelizer
- Drum
- Channelizer Marker
- Tubular Marker
- Temporary Floodlighting
- Temporary Lane Separator System
- Work Area
- Detour Pavement
- Direction of Traffic
- Safety Closure (Refer to TC-252)



PLACEMENT OF
DOUBLE YELLOW CENTERLINE

(1) Refer to SI-881 for sign details.

(10) Place TLSS from start of ramp gore or start of full width decel lane to end of temporary ramp crossover pavement or end of ramp gore.

(11) Add below R11-2 already included in Safety Closure.

INTERIM

STANDARD ROAD PLAN

REVISION 12 04-17-18

TC-61

SHEET 5 of 5

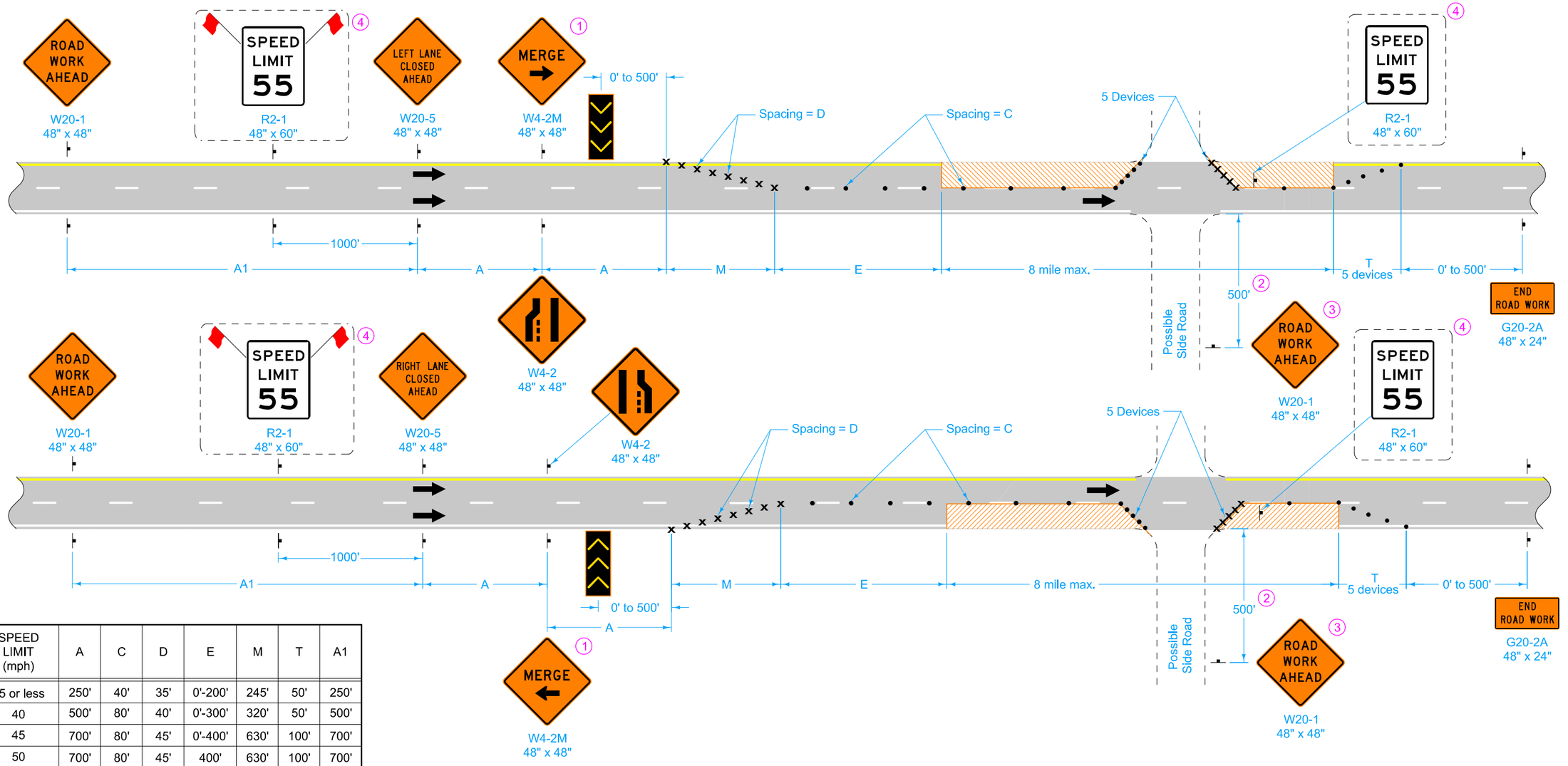
REVISIONS: Re-released 04-21-15 revision.

APPROVED BY DESIGN METHODS ENGINEER

TWO-LANE, TWO-WAY OPERATION

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.8

10:26:27 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



SPEED LIMIT (mph)	A	C	D	E	M	T	A1
35 or less	250'	40'	35'	0'-200'	245'	50'	250'
40	500'	80'	40'	0'-300'	320'	50'	500'
45	700'	80'	45'	0'-400'	630'	100'	700'
50	700'	80'	45'	400'	630'	100'	700'
55 - 60	1000'	100'	55'	600'	770'	100'	2000'
65 - 70	1000'	100'	65'	700'	910'	100'	2000'

LEGEND

- Direction Of Traffic
- Traffic Sign
- Drum
- 42" Channelizer
- Arrow Board
- Work Area

When the Average Daily Traffic (ADT) exceeds 20,000 vehicles per day or when a traffic queue extends beyond the advanced signing, place RIGHT/LEFT LANE CLOSED 4 MILES and RIGHT/LEFT LANE CLOSED 2 MILES signs (W20-5) on both sides of the roadway 4 miles and 2 miles in advance of the lane closure, respectively, as appropriate.

Where there is a lane line drop-off or rise, do not allow traffic to cross over the drop-off or rise, except for ramp locations where a BUMP (W8-1) sign is placed.

Lane line drop-offs greater than a nominal 4 inches are not allowed during non-working hours.

1. Refer to SI-881 for sign details.
2. Where side road speed limit is 40 mph or less, a distance of 200 feet is allowed.
3. Place a ROAD WORK AHEAD sign on the opposite side of the intersection in a similar location.
4. For roadways with a posted speed limit of 60 mph or greater before road work:

   Place SPEED LIMIT 55 signs prior to the lane closure as shown.

   When the length of closure is greater than 1 mile, install SPEED LIMIT 55 signs in the closed lane at 1-mile intervals.

   Remove or cover all existing signs that conflict with 55 mph speed limit while 55 mph speed limit is in effect.

Possible Contract Item:
Traffic Control

INTERIM
STANDARD ROAD PLAN

REVISION 10 04-17-18

TC-418

SHEET 1 of 1

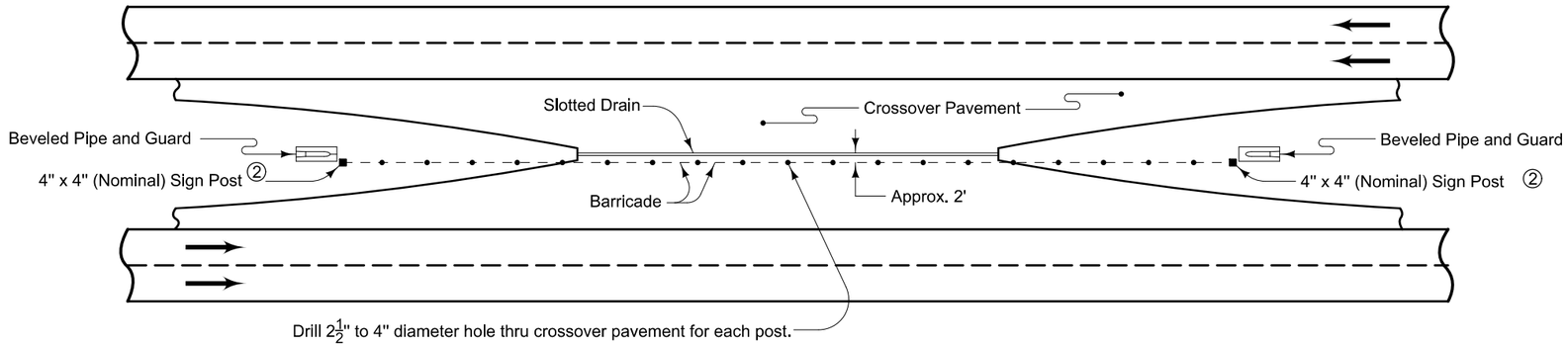
REVISIONS: Re-released 10-15-13 revision.

APPROVED BY DESIGN METHODS ENGINEER

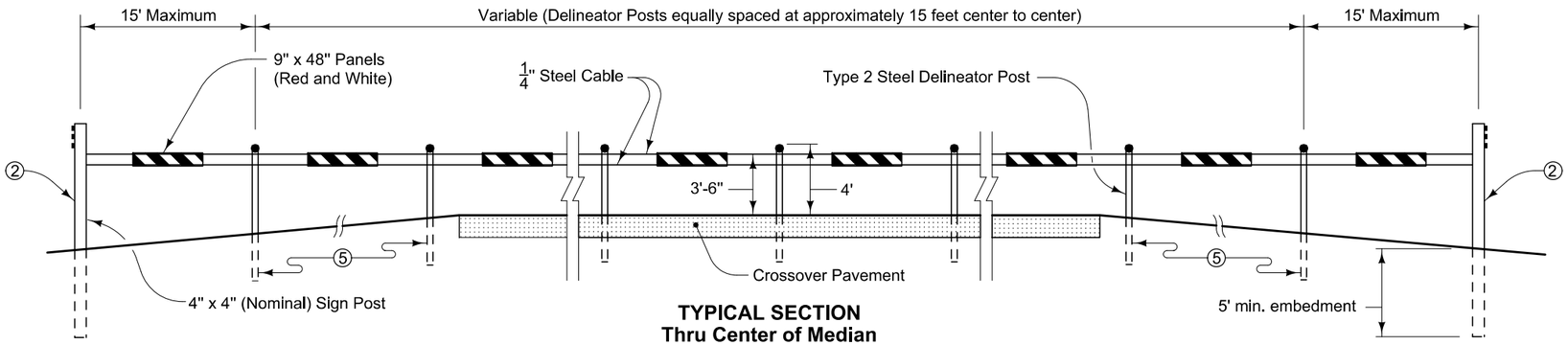
LANE CLOSURE ON DIVIDED HIGHWAY

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.9

10:26:28 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



PLAN VIEW



TYPICAL SECTION Thru Center of Median

The price bid for "Crossover Barricade", each, is considered full compensation for furnishing all materials and work necessary to construct the barricade as detailed hereon.

① 3 1/4" center mount yellow reflector, attached to sign post with 0.190 x 1.25 slotted pan head screws.

② Extend the barricade to within 2 feet from the top end of the concrete collar.

③ 0.125 inch aluminum panel with Type III or IV retroreflective sheeting on both sides.

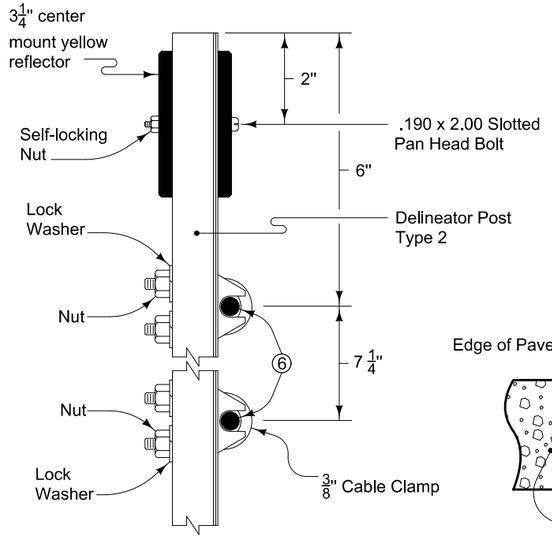
④ Reflectorized red stripes on both sides shall slope from upper left to lower right of panel.

⑤ Embed all delineator posts a minimum of 2'-6".

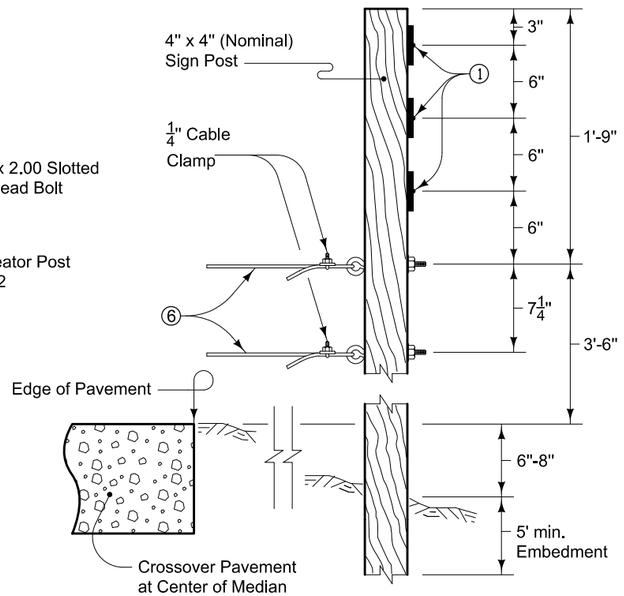
⑥ 1/4" inch diameter steel cable.

List Of Materials For Barricading At Median Crossovers

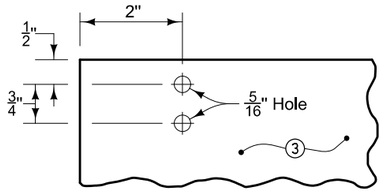
Quantities for Standard Road Plans			Items
PV-500	PV-503	PV-506	
25	19	18	Type 2 Steel Delineator Posts
2	2	2	4" x 4" (Nominal) Sign Post
56	44	42	3 ¼ " Yellow Reflectors, center mounted
25	19	18	0.190 x 2.00 slotted pan head bolts and self-locking nuts
6	6	6	0.190 x 1.25 slotted pan head screws
26	20	19	9" x 48" Aluminum panels (red on white)
50	38	36	⅜" Cable clamps, lock washers and nuts
104	80	76	¼" Cable clamps, neoprene washers and self-locking nuts
4	4	4	⅜" x 6" Eye bolts, washers and nuts
4	4	4	¼" Cable clamps
820'	640'	610'	Approximate length of ¼" diameter Steel Cable
405'	315'	300'	Distance from Sign Post to Sign Post based on Note ②



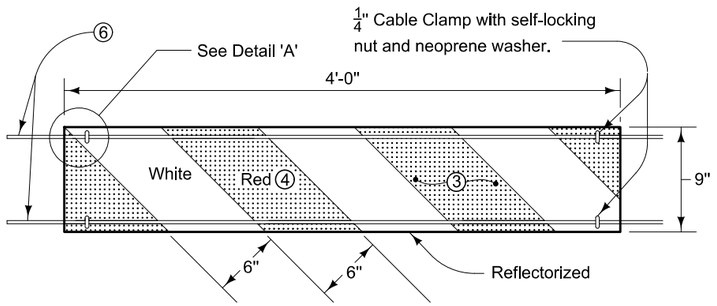
DELINEATOR POST ATTACHMENT DETAILS



SIGN POST ATTACHMENT DETAILS



TYPICAL HOLE LOCATION DETAIL 'A'



PANEL ATTACHMENT DETAILS

IOWA DOT Highway Division

DETAIL SHEET 540-13

REVISION:	REVISION NO.	REVISION DATE
Changed RV designations to PV.	9	10-19-10

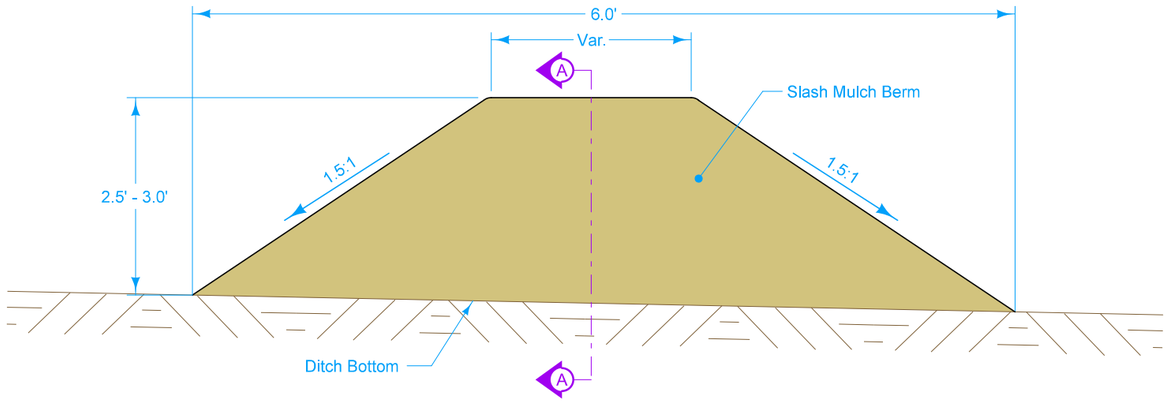
DETAILS OF BARRICADE AT CROSSOVER

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.10

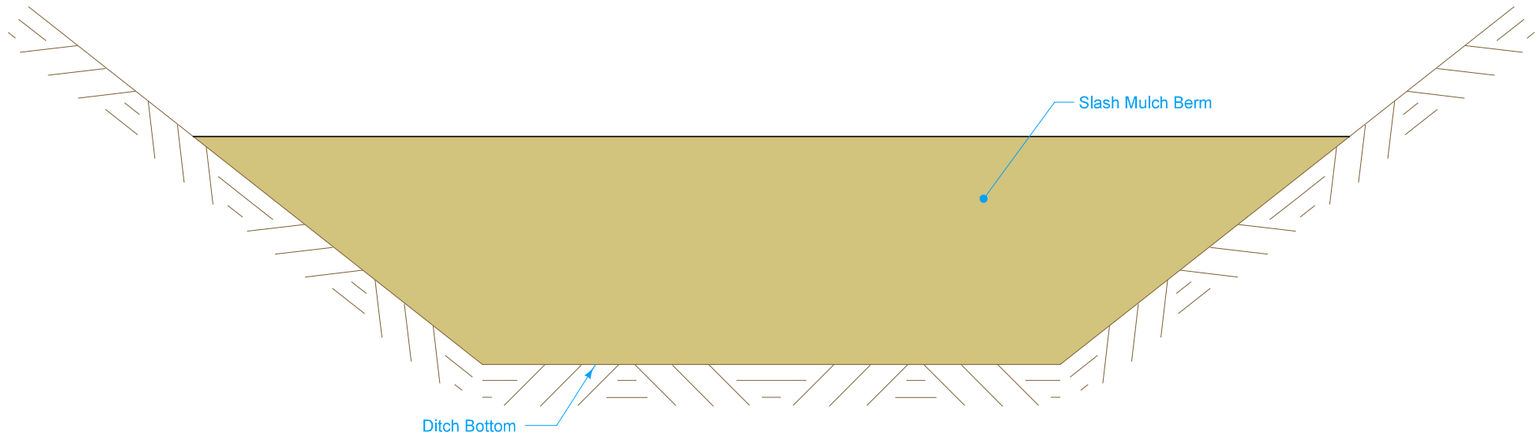
10:26:30 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht

Slash mulch consists of waste material from clearing and grubbing. Use material with a maximum length of 20 inches and maximum width of 2 inches for individual pieces. Material will be accepted based on visual inspection.

Dispose of the slash mulch berm material off the project unless the Engineer approves a suitable site within the project limits.



DITCH PROFILE



SECTION A-A

MODIFIED

ROAD DESIGN DETAIL

REVISION	
1	10-18-16

570-1

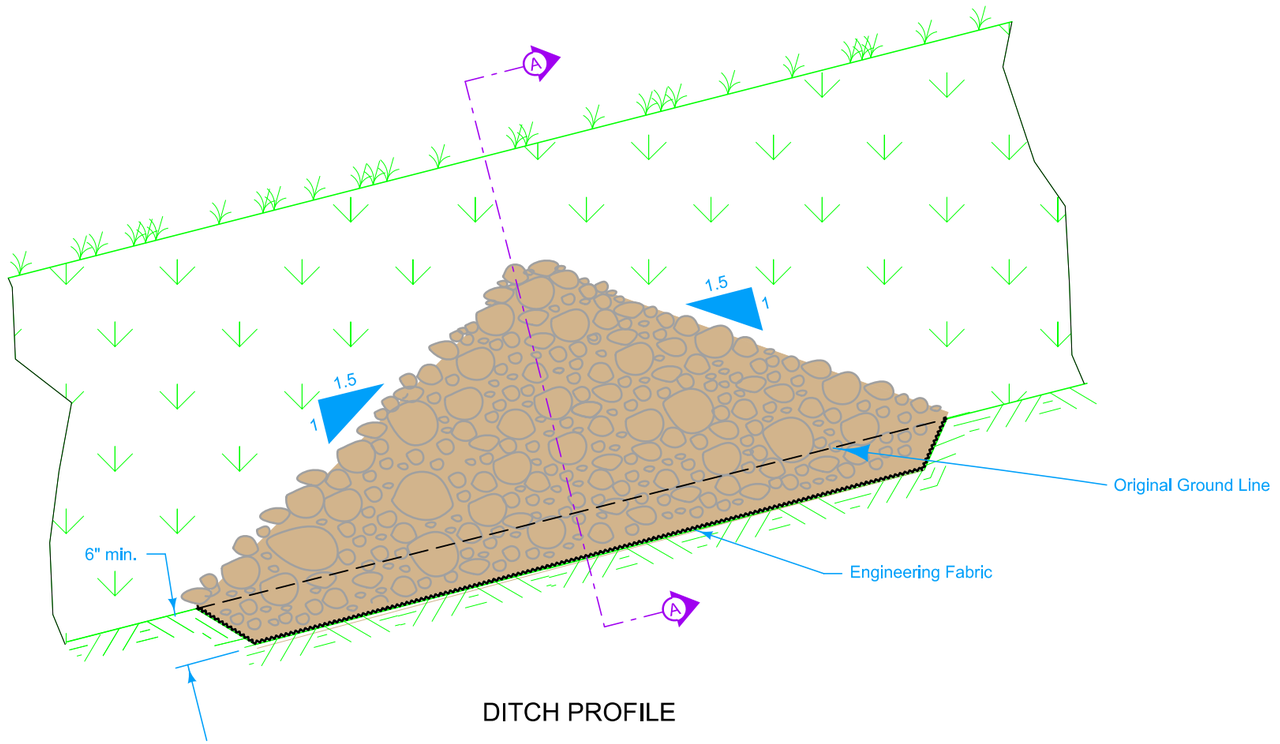
SHEET 1 of 1

REVISIONS: Corrected typo from 'much' to 'mulch' in general notes.

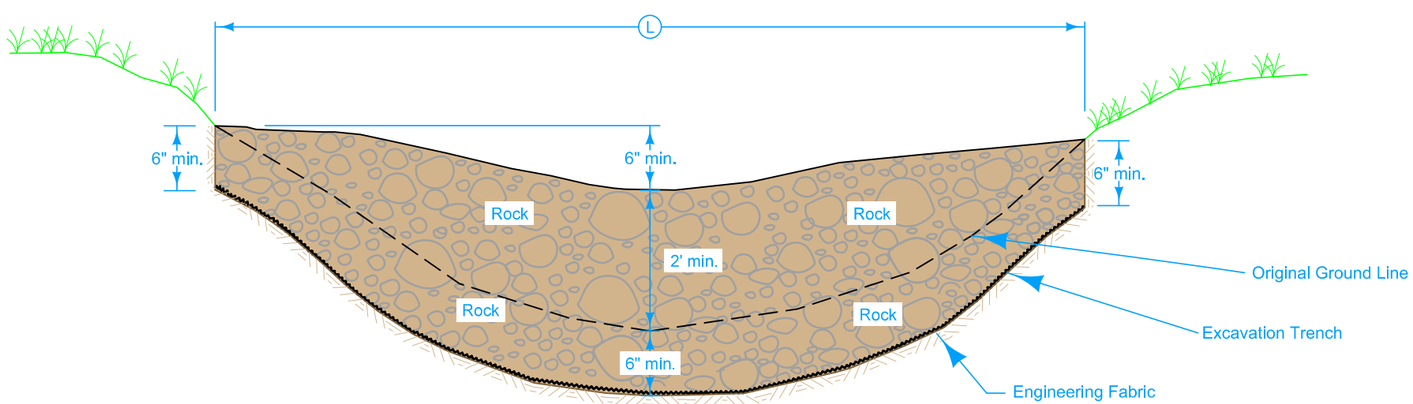
SLASH MULCH BERM

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.11

10:26:32 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



DITCH PROFILE



SECTION A-A

Use Class D Revetment to construct Rock Check Dam.

Method of Measurement for Rock Check Dam will be in linear feet to the nearest 0.1 feet.

Basis of Payment for Rock Check Dam will be the contract unit price per linear foot. Payment is full compensation for all materials, labor, and equipment required to construct the Rock Check Dam as shown. Class 10 excavation required to cut trench and engineering fabric installed prior to placing revetment are incidental and will not be paid for separately.

Method of Measurement for Maintenance of Rock Check Dam will be by count.

Basis of Payment for Maintenance of Rock Check Dam will be at the contract unit price for each occurrence. Payment is full compensation for clean out and disposal of material when capacity reaches 50%, and for any repair that is needed during the project.

Method of Measurement for Removal of Rock Check Dam will be by count.

Basis of Payment for Removal of Rock Check Dam will be at the contract unit price for each Rock Check Dam removed. Payment is full compensation for all labor and equipment required to remove all rock and material above original ditch grade. Rock, silt, and engineering fabric that is flush with and/or below final ditch grade will be allowed to remain in the excavation trench.

Possible Contract Items:
- Rock Check Dam
- Maintenance of Rock Check Dam
- Removal of Rock Check Dam

Possible Tabulation:
- 100-32

IOWADOT

ROAD DESIGN DETAIL

REVISION	
1	10-17-17

570-2

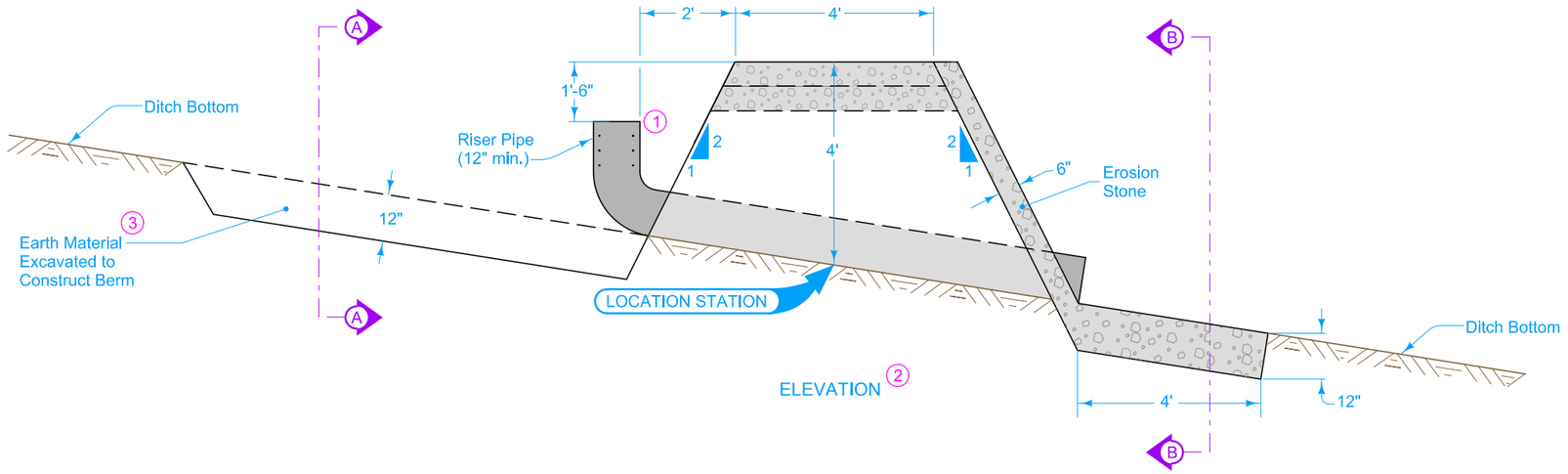
SHEET 1 of 1

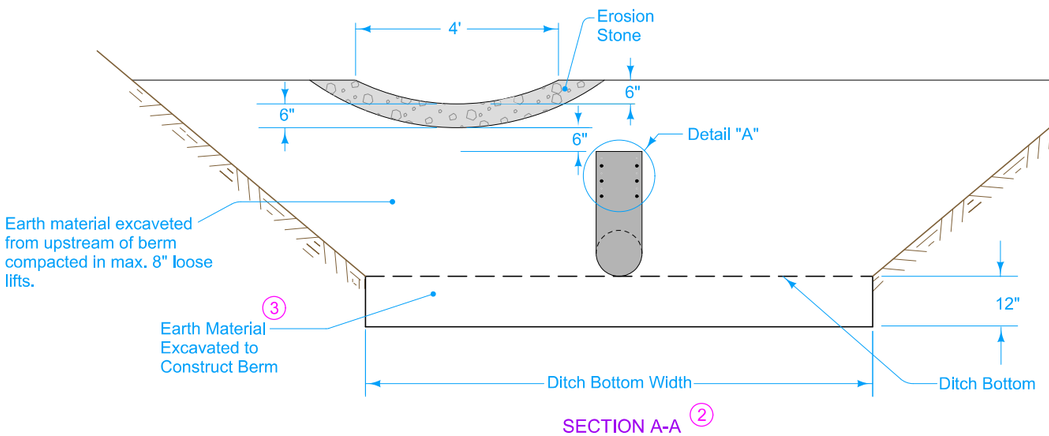
REVISIONS: Modified some linework for clarity on the "Original Ground Line".

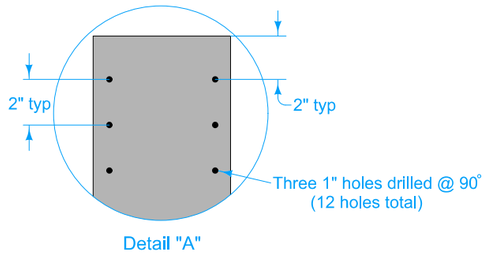
ROCK CHECK DAM

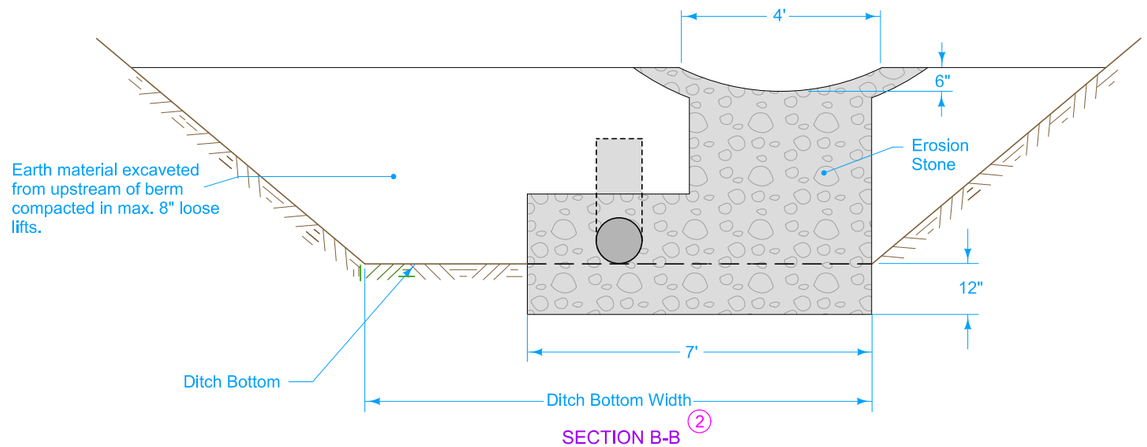
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.12

10:26:33 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht









Measurement for Temporary Sediment Control Basin will be by count.

Basis of Payment for Temporary Sediment Control Basin will be at the contract unit price for each device installed. Payment is full compensation for furnishing all equipment, labor, and materials required to construct the Temporary Sediment Control Basin as shown.

Method of Measurement for Maintenance of Temporary Sediment Control Basin will be by count.

Basis of Payment for Maintenance of Temporary Sediment Control Basin will be at the contract unit price for each occurence. Payment is full compensation for clean out and disposal of material when capacity reaches 50%, and for any other repair needed during the project.

Measurement for Removal of Temporary Sediment Control Basin will be by count.

Basis of Payment for Removal of Temporary Sediment Control Basin will be at the contract unit price for each device removed. Payment is full compensation for all labor and equipment required to remove all rock and material above designed ditch grade and to place topsoil per note 3 below. Rock and engineering fabric that is flush with and/or below designed ditch grade will be allowed to remain in place.

(1) Ensure Riser Pipe remains vertical.

(2) Dimensions shown are minimums.

(3) When Temporary Sediment Control Basin is removed, if basin has not silted in to designed ditch grade, use topsoil to bring up to designed ditch grade .

Possible Contract Items:
- Temporary Sediment Control Basin
- Maintenance of Temporary Sediment Control Basin
- Removal of Temporary Sediment Control Basin

Incidental to Temporary Sediment Control Basin:
- Erosion Stone
- Pipe
- Excavated Earth Material

Possible Tabulation:
- 100-33

MODIFIED

ROAD DESIGN DETAIL

REVISION	
1	10-18-16

570-3

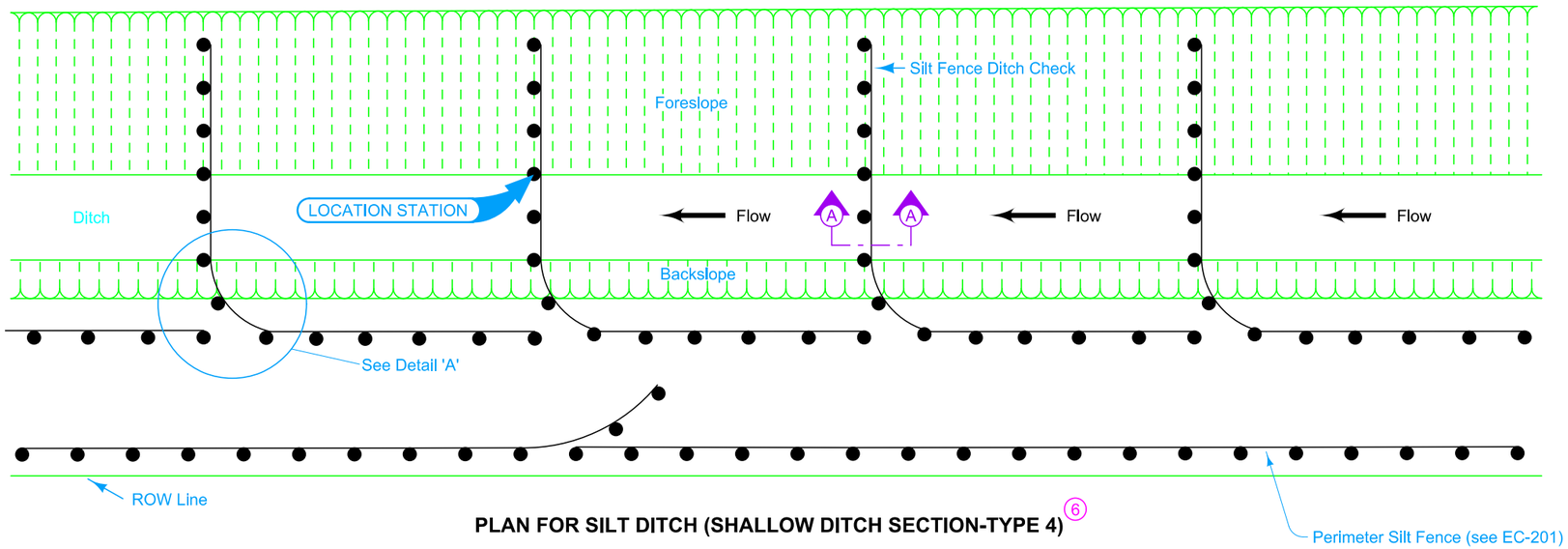
SHEET 1 of 1

REVISIONS: Changed Possible Tabulation from 100-30 to 100-33.

TEMPORARY SEDIMENT CONTROL BASIN

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.13

10:26:35 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\0603023101.sht



PLAN FOR SILT DITCH (SHALLOW DITCH SECTION-TYPE 4) (6)

Install all silt fence using a silt fence machine. Use manual (trench) installation if physical conditions prohibit machine installation.

For machine installation, compact by driving over each side of silt fence at least two times with device exerting 60 p.s.i. or greater.

For manual installation, compact with a mechanical or pneumatic tamper.

(1) Secure top of engineering fabric to steel posts using cable ties (50 lb.) or wire. See attachment to post.

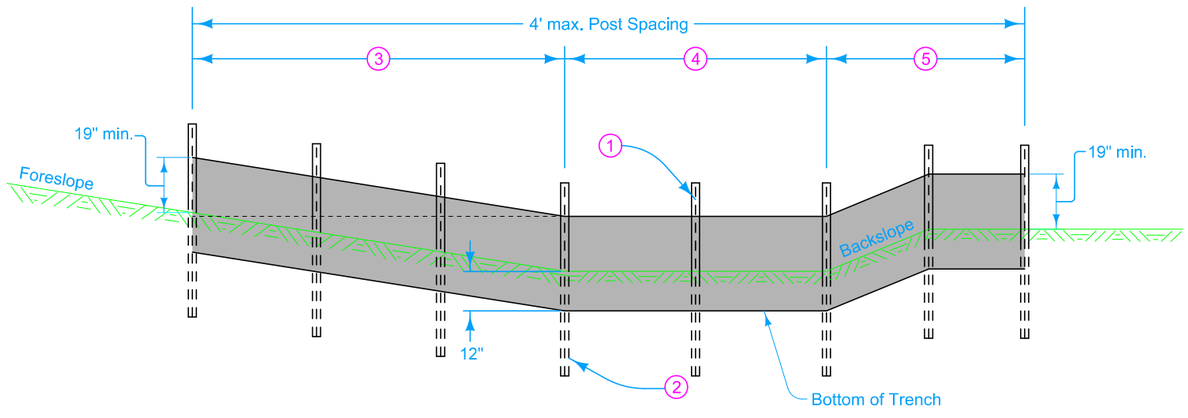
(2) Embed all posts 28 inches below the ground line.

(3) The minimum end span (in feet) = 2 X Foreslope (H:V).

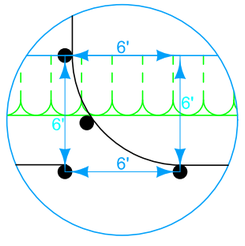
(4) Locate posts at toe of foreslope and toe of backslope and space remaining posts equally.

(5) Place posts as shown in Detail 'A' to transition from transverse to parallel installation. Place one post at the backslope intercept and the other beyond the intercept.

(6) Refer to tabulation 100-18.



FRONT VIEW



Detail 'A'

Possible Contract Item:
Silt Fence for Ditch Checks

Possible Tabulation:
100-18

IOWA DOT

REVISION
1 | 10-17-17

ROAD DESIGN DETAIL

570-4

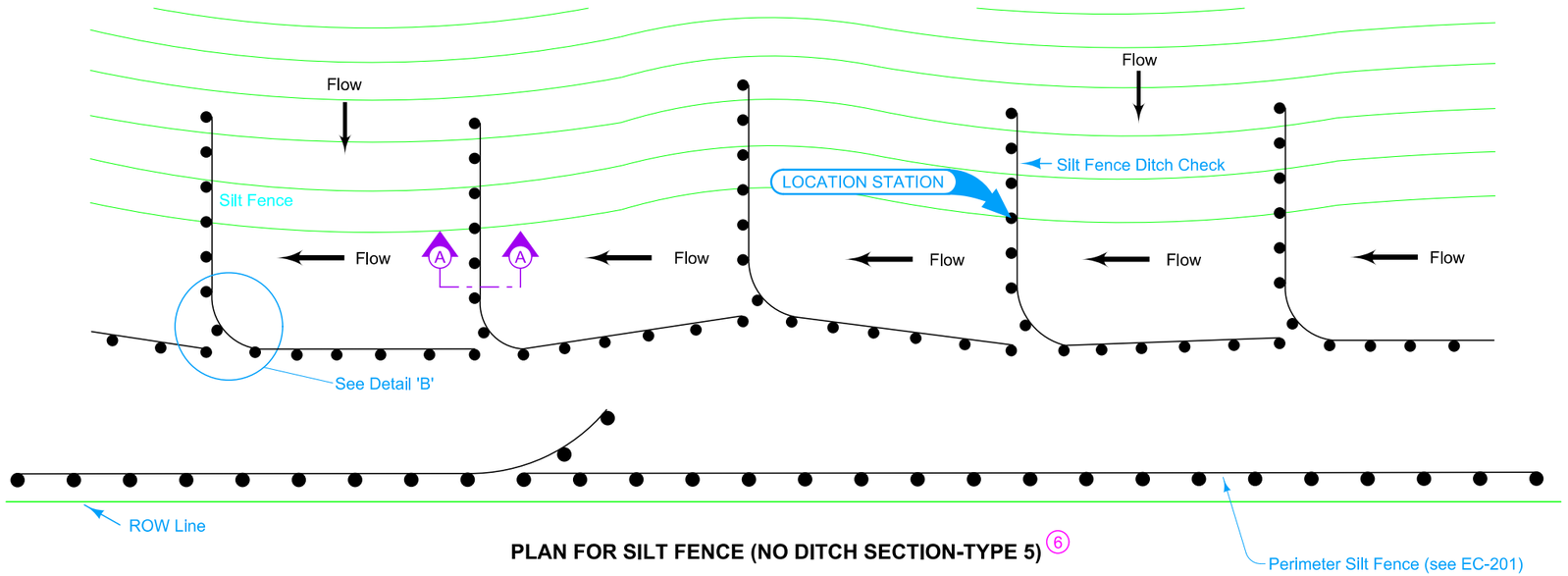
SHEET 1 of 3

REVISIONS: Added Designer Info button and silt fence along ROW line. Renumbered circle note 8 on page 3 to circle note 9.

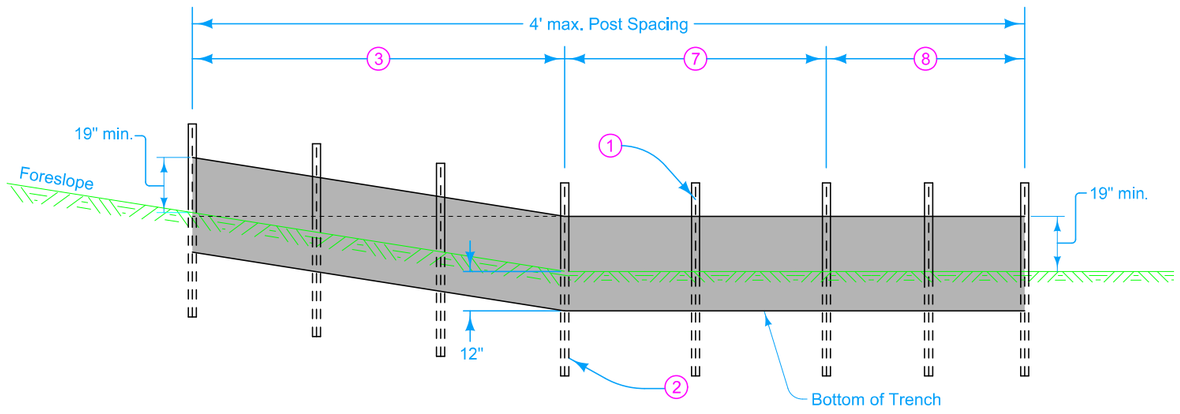
SILT FENCE INSTALLATION FOR SHALLOW OR NO DITCH

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.14

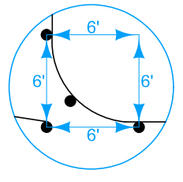
10:26:36 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



PLAN FOR SILT FENCE (NO DITCH SECTION-TYPE 5) (6)



FRONT VIEW



Detail 'B'

(1) Secure top of engineering fabric to steel posts using cable ties (50 lb.) or wire. See attachment to post.

(2) Embed all posts 28 inches below the ground line.

(3) The minimum end span (in feet) = 2 X Foreslope (H:V).

(6) Refer to tabulation 100-18.

(7) Locate post at toe of forslope. Locate 2 additional posts at 4 foot spacing.

(8) Place posts as shown in Detail 'B' to transition from transverse to parallel installation. The parallel portion of the installation should approximately parallel the intercept of the foreslope.

Contour Lines

IOWA DOT

ROAD DESIGN DETAIL

REVISION	
1	10-17-17

570-4

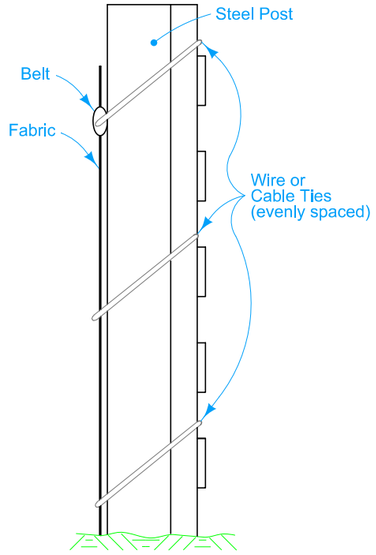
SHEET 2 of 3

REVISIONS: Added Designer Info button and silt fence along ROW line. Renumbered circle note 8 on page 3 to circle note 9.

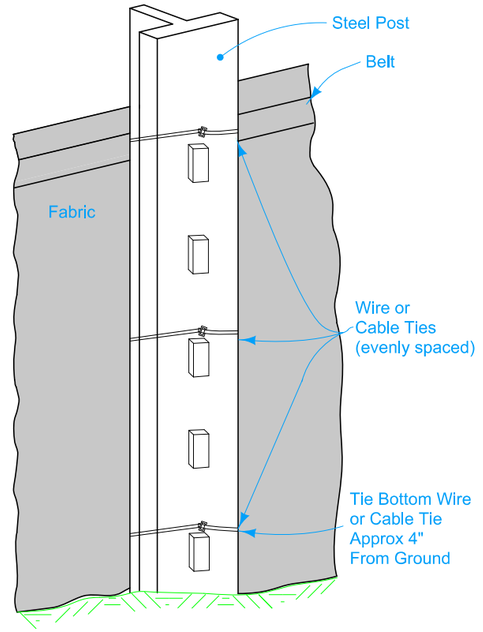
SILT FENCE INSTALLATION FOR SHALLOW OR NO DITCH

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.15

10:26:38 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



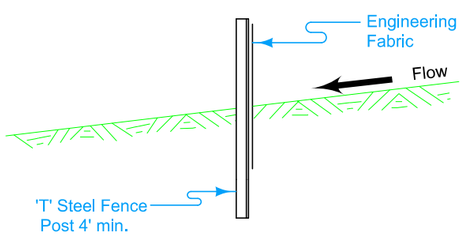
PROFILE VIEW
ATTACHMENT TO POST



BACK VIEW
ATTACHMENT TO POST

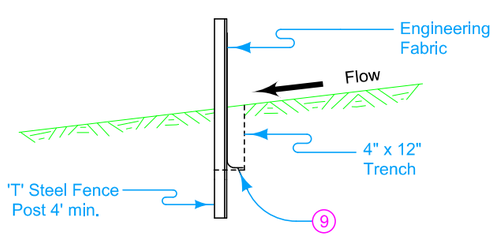
(9) For manual installation only, fold engineering fabric along bottom of trench.

DITCH CHECK - MACHINE INSTALLATION



SECTION A-A

DITCH CHECK - MANUAL INSTALLATION



SECTION A-A

IOWA DOT

ROAD DESIGN DETAIL

REVISION	
1	10-17-17

570-4

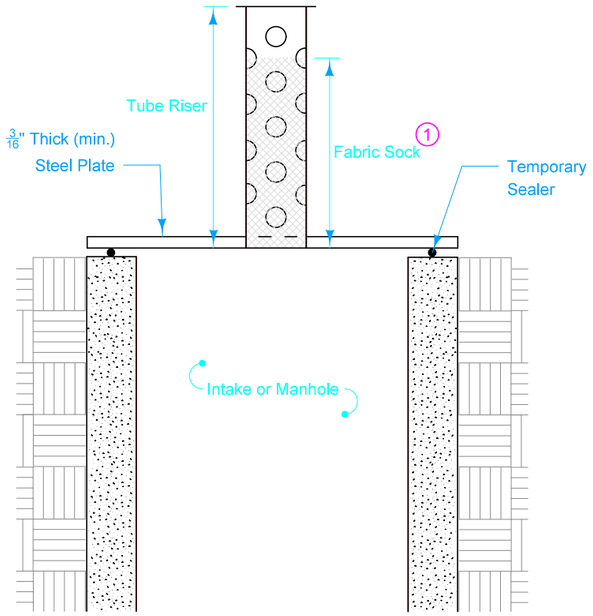
SHEET 3 of 3

REVISIONS: Added Designer Info button and silt fence along ROW line. Renumbered circle note 8 on page 3 to circle note 9.

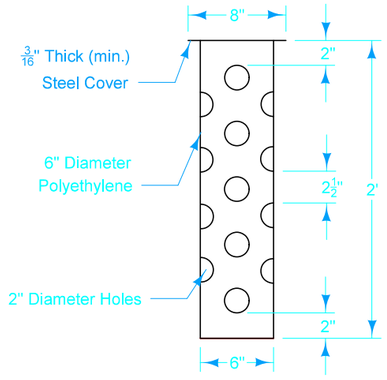
SILT FENCE INSTALLATION FOR SHALLOW OR NO DITCH

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.16

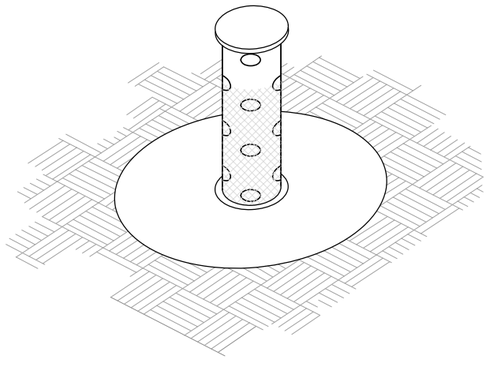
10:26:40 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



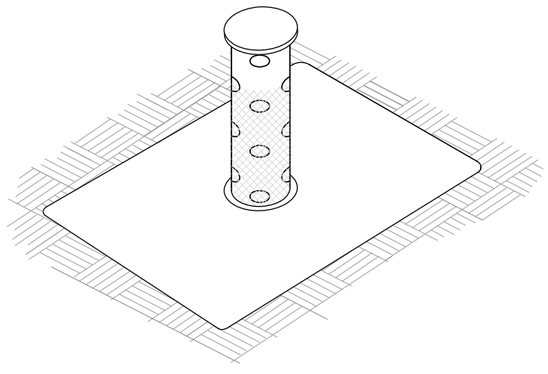
SECTION VIEW



TUBE RISER 2

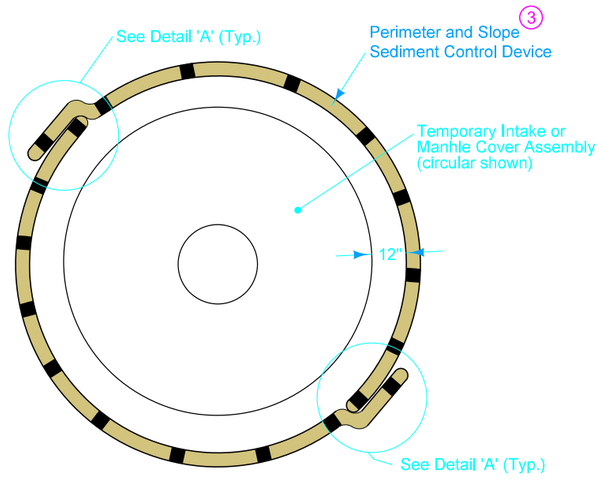


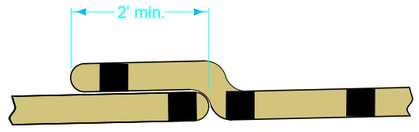
ISOMETRIC VIEW
(Circular)



ISOMETRIC VIEW
(Rectangular)

TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY





DETAIL 'A' 4
(Overlap Joint)

PERIMETER AND SLOPE SEDIMENT CONTROL

Method of Measurement for Temporary Intake or Manhole Cover Assembly will be by count.

Basis of Payment for Temporary Intake or Manhole Cover Assembly will be at the contract unit price for each device installed.

Method of Measurement for Maintenance of Temporary Intake or Manhole Cover Assembly will be by count.

Basis of Payment for Maintenance of Temporary Intake or Manhole Cover Assembly will be at the contract unit price for each occurance. Payment is full compensation for inspecting fabric sock and replacing when flow capicity has been reduced to 50%.

Method of Measurment for Removal of Temporary Intake or Manhole Cover Assembly will be by count.

Basis of Payment for Removal of Temporary Intake or Manhole Cover Assembly will be at the contract unit price for each device removed.

1. Wrap fabric sock around tube riser. Use fabric complying with Article 4196.01, B, 1 with a minimum flow rate of 90 gallons per minute per square foot. Ensure top of sock is below form grade elevation.
2. Tube riser may be such that it can be pushed down and pulled up.
3. Place Perimeter and Slope Sediment Control Devices around all intake or manhole wells. Use 20 inch diameter device.
4. Extra material required to install overlaps will not be included in the installation length.

Possible Contract Items:
- Temporary Intake or Manhole Cover Assembly
- Maintenance of Temporary Intake or Manhole Cover Assembly
- Removal of Temporary Intake or Manhole Cover Assembly
- Perimeter and Slope Sediment Control Device

Possible Tabulations:
- 100-11
- 100-19

IOWADOT

ROAD DESIGN DETAIL

REVISION	
1	04-18-17

570-5

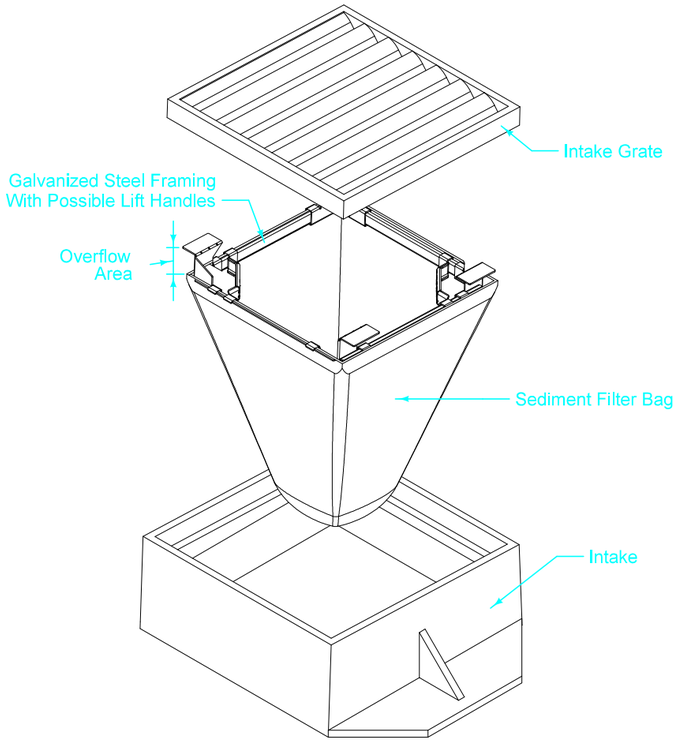
SHEET 1 of 1

REVISIONS: Add bid items for maintenance and removal. Added basis of payment and method of measurement.

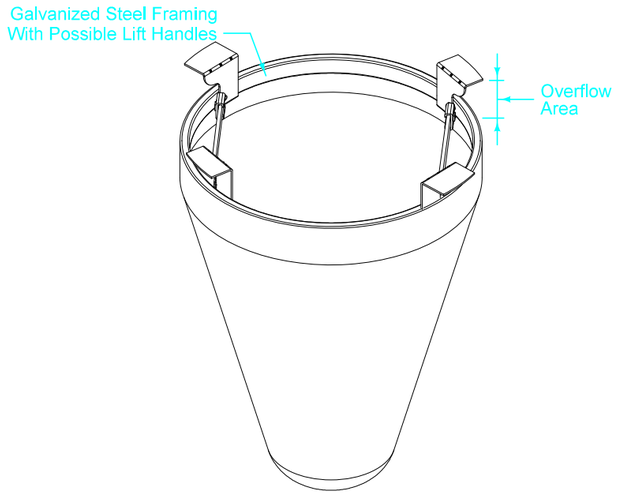
EROSION CONTROL FOR INTAKE OR MANHOLE WELL

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.17

10:26:41 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



TYPICAL SEDIMENT FILTER BAG PLACEMENT



SEDIMENT FILTER BAG FOR CIRCULAR GRATE

Remove sediment filter bag upon stabilization of sediment sources.

Measurement for Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Grate Intake Sediment Filter Bag will be at the contract unit price for each device installed. Payment is full compensation for furnishing all equipment, labor, and materials required to install the Grate Intake Sediment Filter Bag as shown.

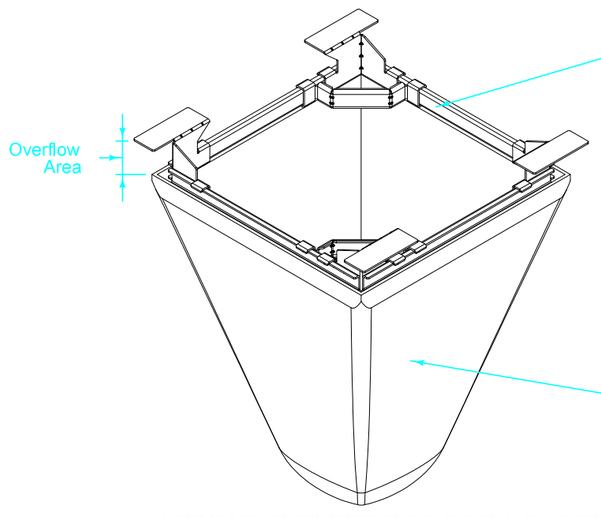
Method of Measurement for Maintenance of Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Maintenance of Grate Intake Sediment Filter Bag will be at the contract unit price for each occurence. Payment is full compensation for clean out and disposal of material when capacity reaches 50%, and for any other repair needed during the project.

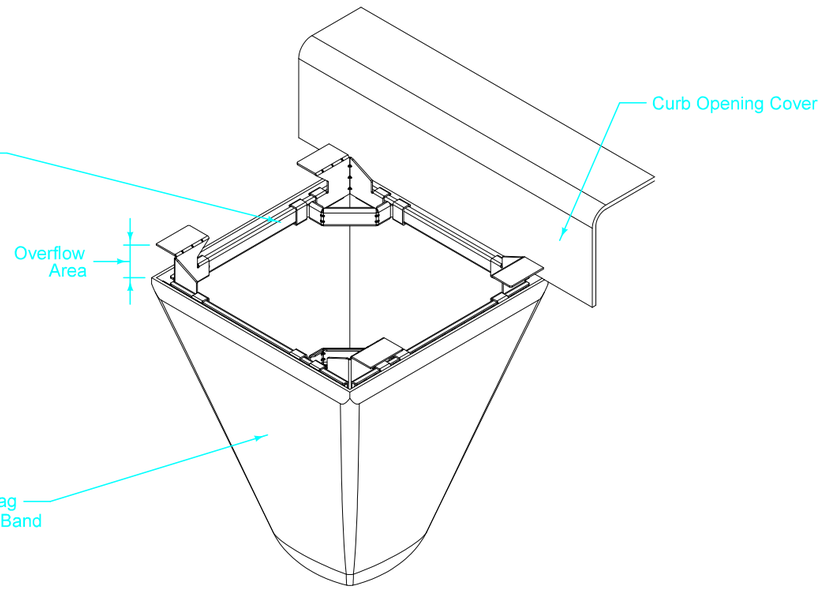
Measurement for Removal of Grate Intake Sediment Filter Bag will be by count.

Basis of Payment for Removal of Grate Intake Sediment Filter Bag will be at the contract unit price for each device removed. Payment is full compensation for all labor and equipment required for removal.

(1) Woven material meeting the requirements of Table 4196.01-1 of the Standard Specifications, except a maximum apparent opening size US Sieve No. 10 and a minimum flow rate of 145 gallons per minute per square foot.



SEDIMENT FILTER BAG FOR SQUARE OR RECTANGULAR GRATE



SEDIMENT FILTER BAG FOR COMBINATION GRATE WITH CURB OPENING

Possible Contract Items:
- Grate Intake Sediment Filter Bag
- Maintenance of Grate Intake Sediment Filter Bag
- Removal of Grate Intake Sediment Filter Bag

Possible Tabulation:
- 100-37

MODIFIED

ROAD DESIGN DETAIL

REVISION	
NEW	04-18-17

570-7

SHEET 1 of 1

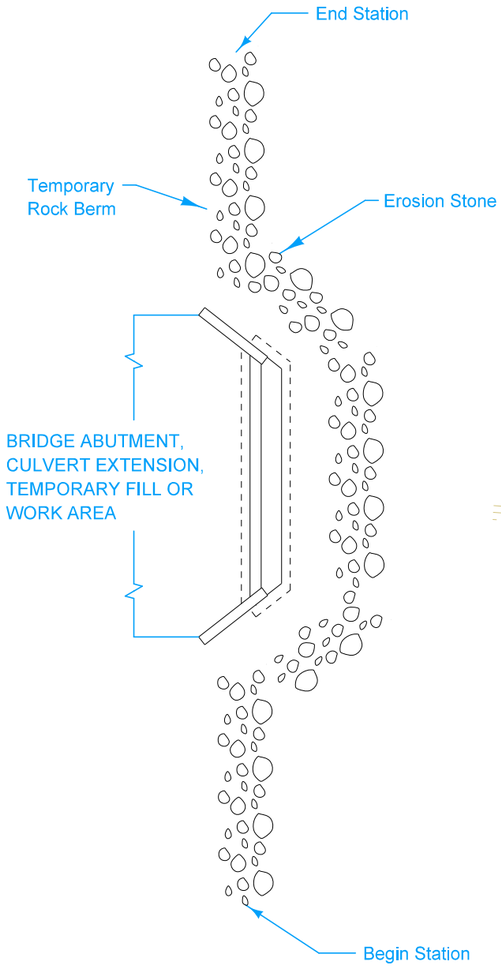
REVISIONS: NEW

GRATE INTAKE
SEDIMENT FILTER BAG

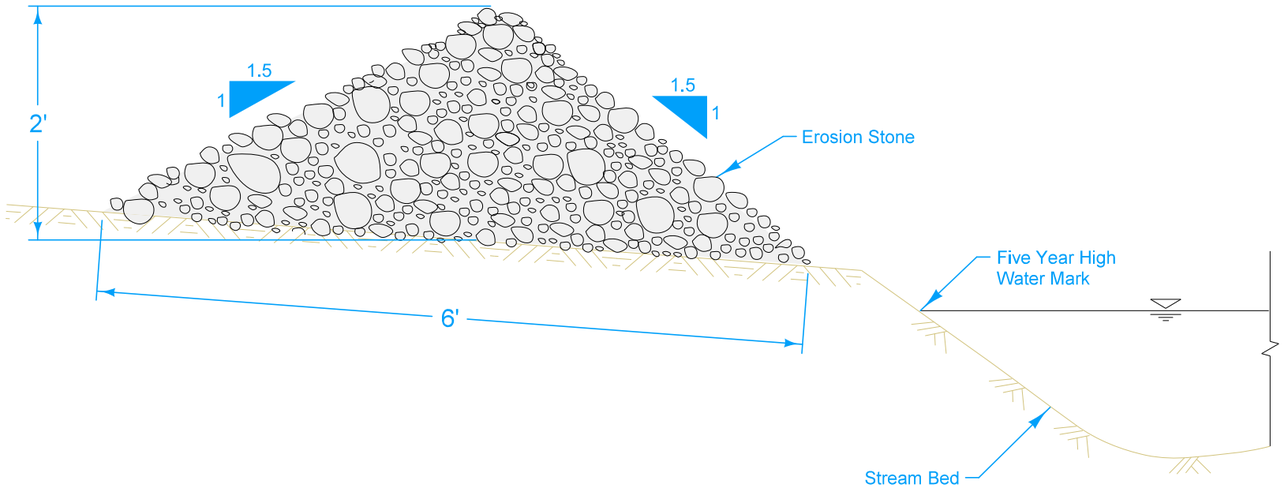
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.18

10:26:43 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht

Place Erosion Stone as near to the five year high water mark as possible while not allowing it to enter the stream bed. Remove Erosion Stone after project completion.



PLAN



PROFILE

Possible Contract Item:
Erosion Stone

Possible Tabulation:
100-23

IOWADOT

ROAD DESIGN DETAIL

REVISION	
NEW	10-17-17

570-8

SHEET 1 of 1

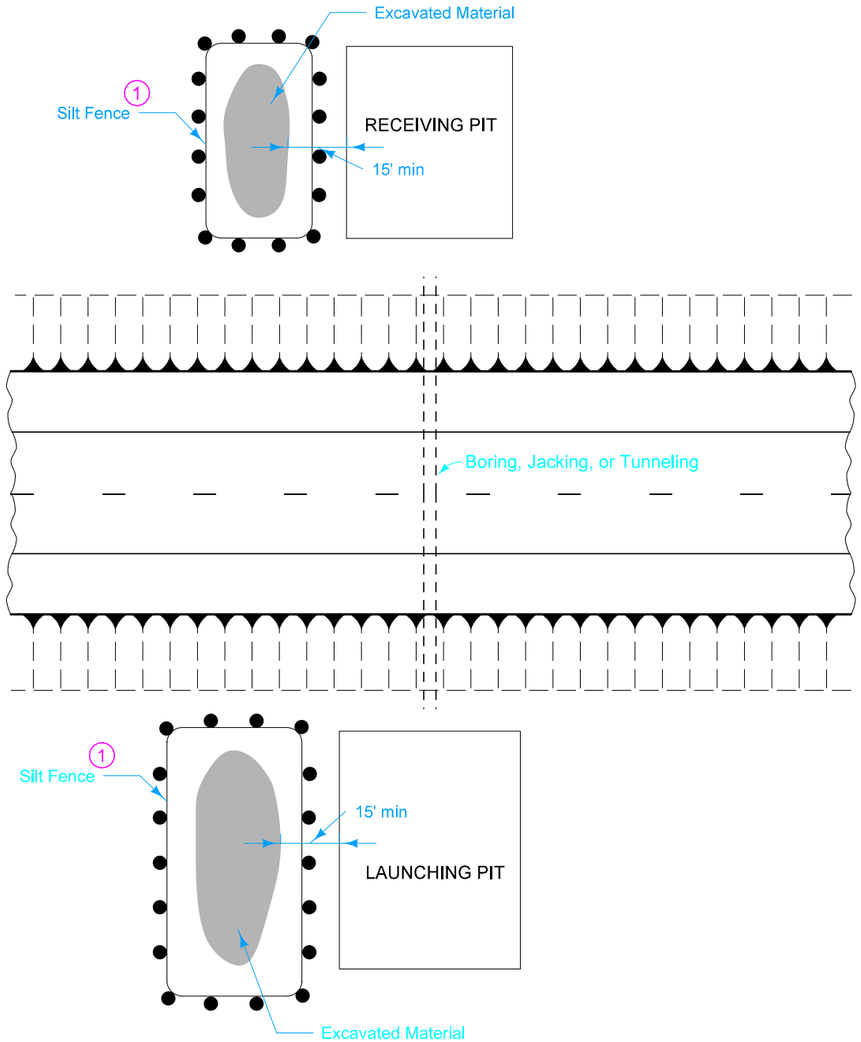
REVISIONS: NEW

TEMPORARY ROCK BERM FOR SEDIMENT CONTROL

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.19

10:26:45 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht

(1) Install silt fence to enclose excavated material.



Possible Contract Items:
Silt Fence
Removal of Silt Fence or Silt Fence for Silt Ditch Check

Possible Tabulations:
100-17

IOWA DOT

REVISION	
NEW	04-18-17

ROAD DESIGN DETAIL

570-09

SHEET 1 of 1

REVISIONS: NEW

EROSION CONTROL FOR TRENCHLESS CONSTRUCTION

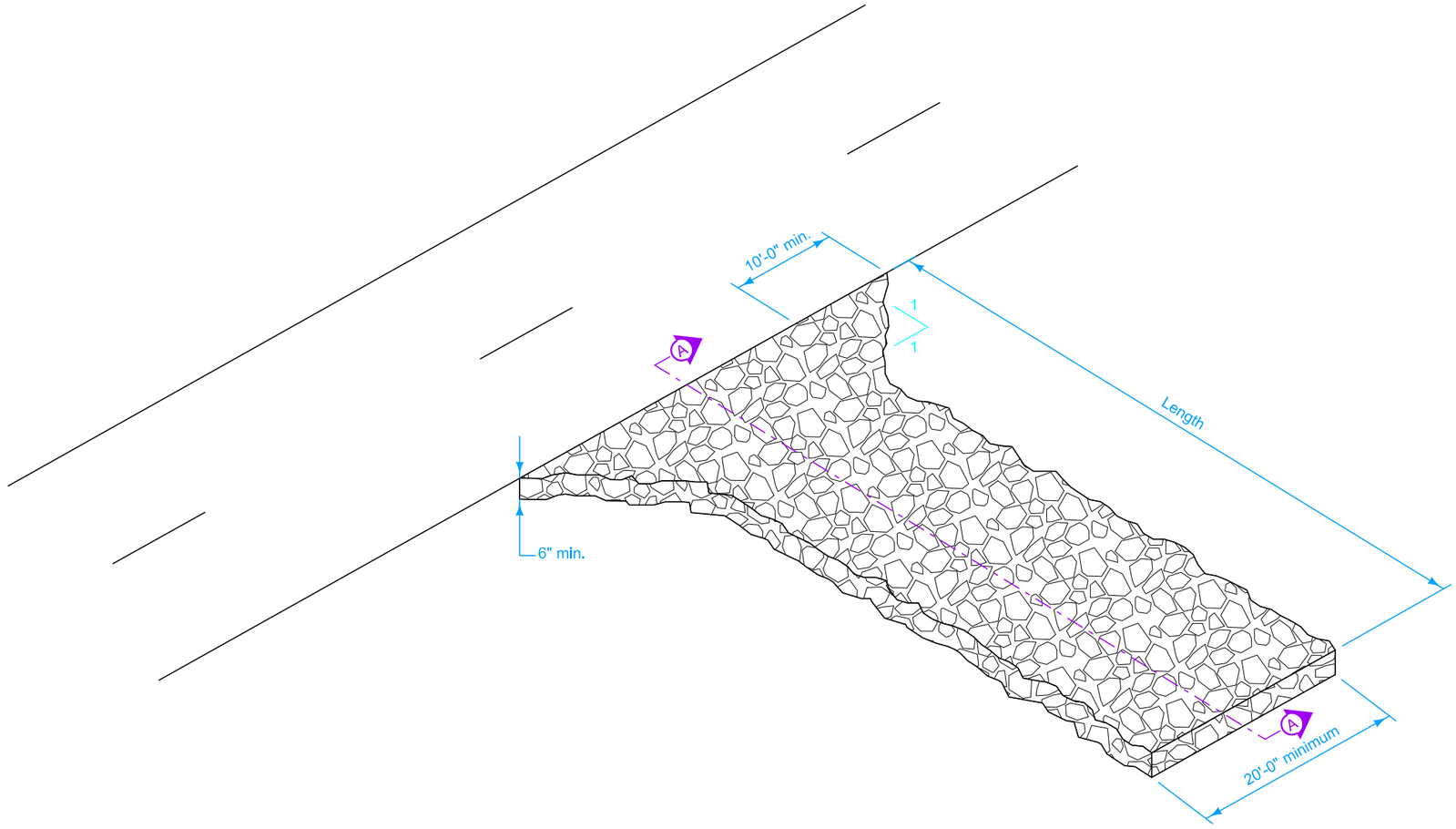
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.20

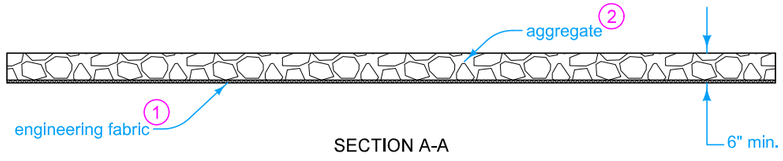
10:26:46 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht

Obtain the Engineer's approval for location and length of stabilized entrances prior to constructing.

Method of Measurement for Stabilized Construction Entrance will be in linear feet measured along the length of the entrance at the entrance centerline.

Basis of Payment for Stabilized Construction Entrance will be at the contract unit price per linear foot. Payment is full compensation for furnishing all materials and work necessary for installation, maintenance, and removal of stabilized construction entrance. Maintenance includes installing additional material or cleaning required to maintain the entrance in a functional contdition.





SECTION A-A

1. Place engineering fabric prior to placing aggregate. Use fabric for Embankment Erosion Control complying with Section 4196 of the Standard Specifications.
2. Use aggregate meeting Gradation No. 13 of Section 4109 of the Standard Specificaitons.

Possible Contract Item:
Stabilized Construction Entrance

IOWADOT

REVISION	
NEW	04-18-17

ROAD DESIGN DETAIL

570-10

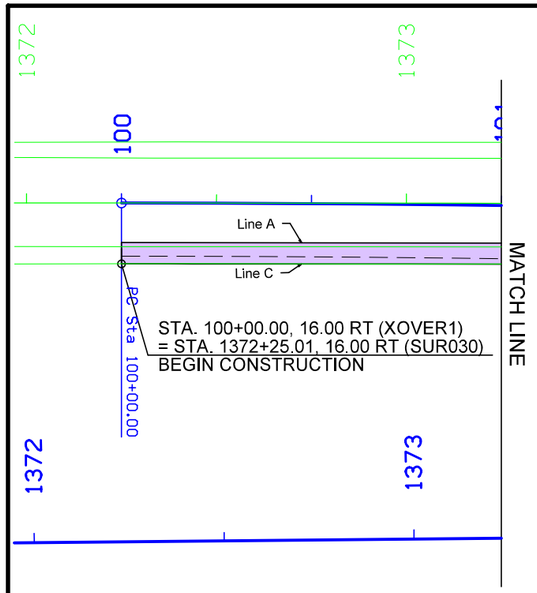
SHEET 1 of 1

REVISIONS: NEW

STABILIZED CONSTRUCTION ENTRANCE

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.21

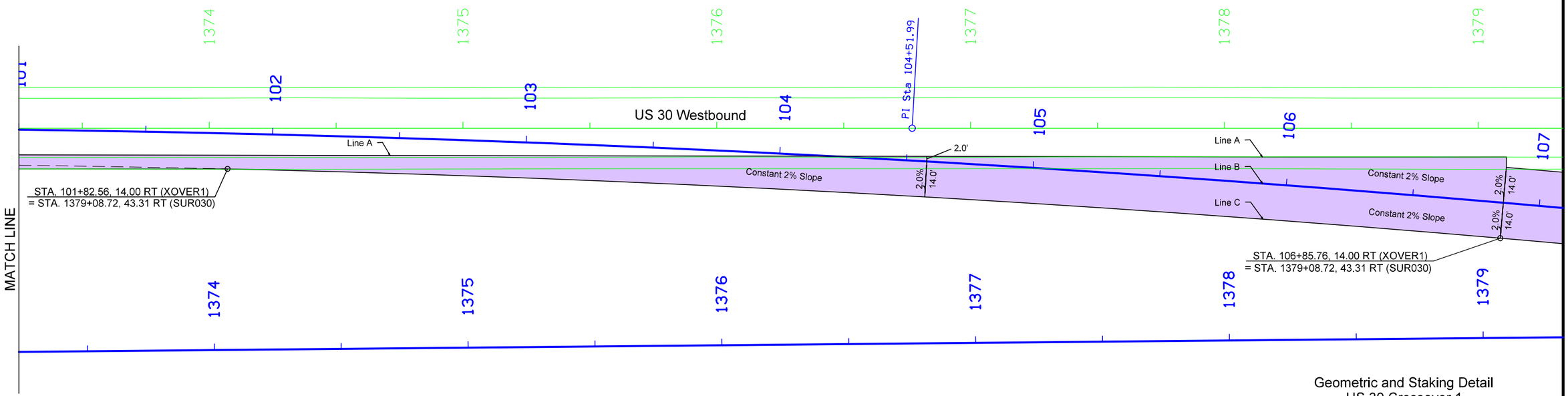
10:26:48 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U01.sht



Eldorado TWP.
T-83N R-10W
SEC. 30

SUR030 Chain

		1372+25.00	1372+50.00	1372+75.00	1373+00.00	1373+25.00	1373+50.00	1373+75.00	1374+00.00	1374+07.22	1374+25.00	1374+50.00	1374+75.00	1375+00.00	1375+25.00	1375+50.00	1375+75.00	1376+00.00	1376+25.00	1376+50.00	1376+75.00	1376+81.96	1377+00.00	1377+25.00	1377+50.00	1377+75.00	1378+00.00	1378+25.00	1378+50.00	1378+75.00	1379+00.00	1379+08.72
Elevation Line A		892.17	892.78	893.38	893.95	894.50	895.02	895.51	895.89	896.00	896.25	896.58	896.82	897.02	897.11	897.18	897.16	897.12	896.99	896.82	896.55	896.46	896.24	895.91	895.48	895.00	894.51	894.03	893.54	893.06	892.59	892.38
Line 'A' to	Offset																					2.00	2.98	4.47	6.03	7.67	9.40	11.20	13.11	15.12	17.16	18.10
Line 'B'	Slope																					2%	Constant 2% Slope									2%
Elevation Line B																						896.42	896.18	895.81	895.35	894.83	894.31	893.79	893.26	892.74	892.22	892.02
Line 'B' to	Offset																					14.00	Constant 14' Width									14.00
Line 'C'	Slope																					2%	Constant 2% Slope									2%
Line 'A' to	Offset	5.63	5.61	5.58	5.56	5.53	5.50	5.46	5.50	5.41	5.81	6.44	7.14	7.92	8.78	9.72	10.74	11.83	13.01	14.26	15.59	16.00	16.98	18.47	20.03	21.67	23.40	25.20	27.11	29.12	31.16	32.10
Line 'C'	Slope	2%	Constant 2% Slope																													2%
Elevation Line C		892.06	892.67	893.27	893.84	894.39	894.91	895.40	895.78	895.89	896.13	896.45	896.68	896.87	896.94	896.99	896.94	896.88	896.73	896.52	896.23	896.14	895.89	895.52	895.05	894.53	894.01	893.48	892.96	892.43	891.92	891.74

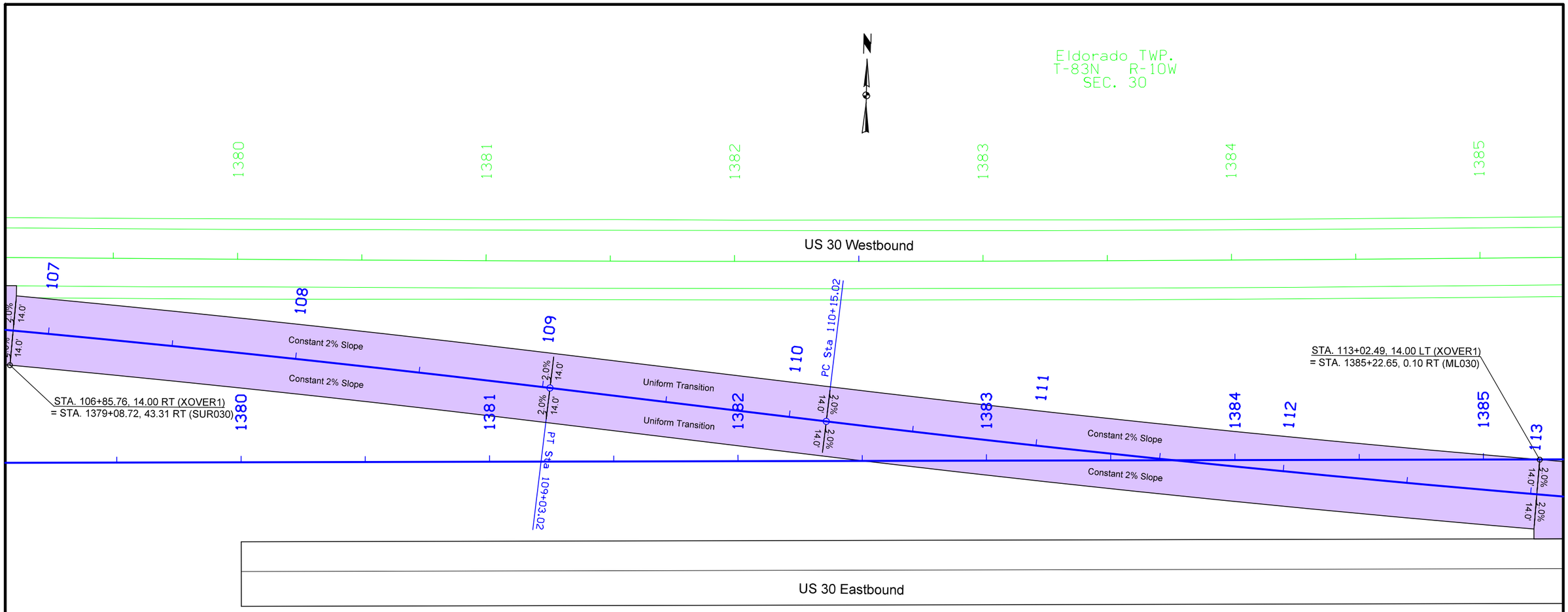


0 FEET 20

Geometric and Staking Detail
US 30 Crossover 1
(Sheet 1 of 3)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.22

10:36:21 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U22.sht



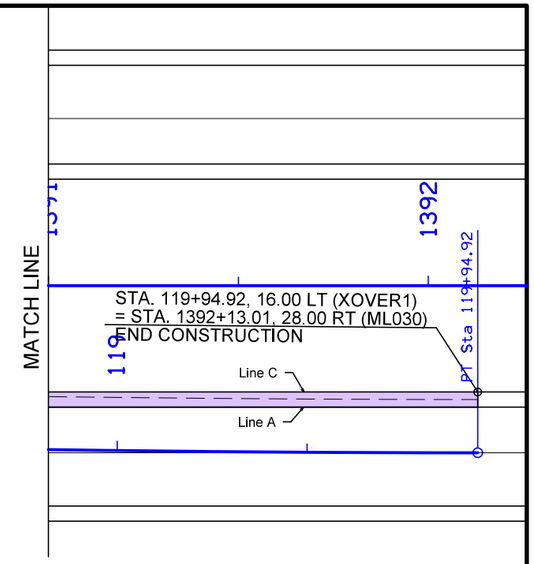
Geometric and Staking Detail
US 30 Crossover 1
(Sheet 2 of 3)

0 20
FEET

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.23

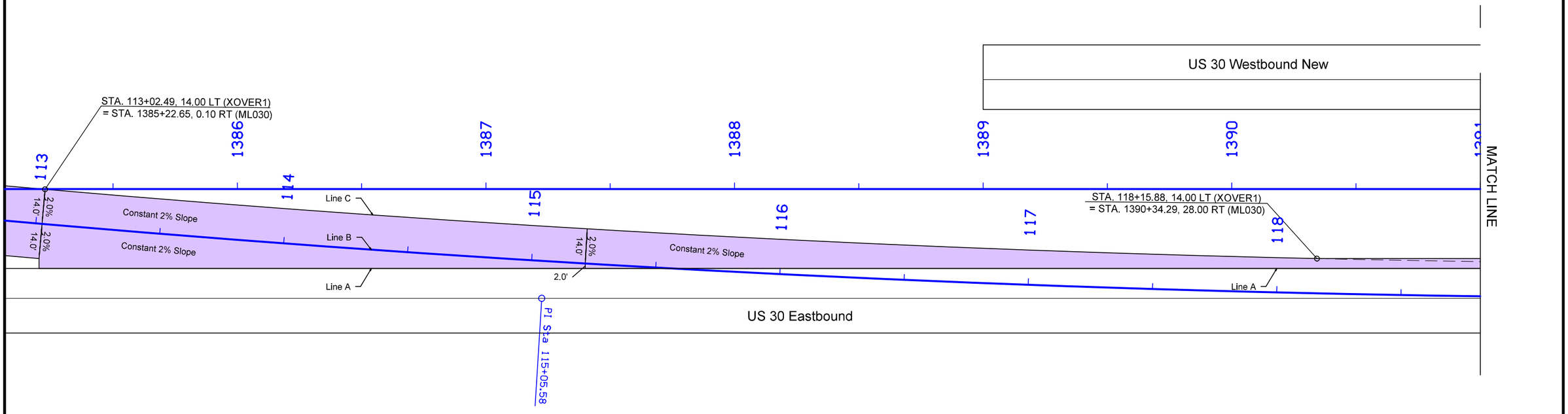
10:36:23 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U22.sht

Eldorado TWP.
T-83N R-10W
SEC. 30



ML030 Chain

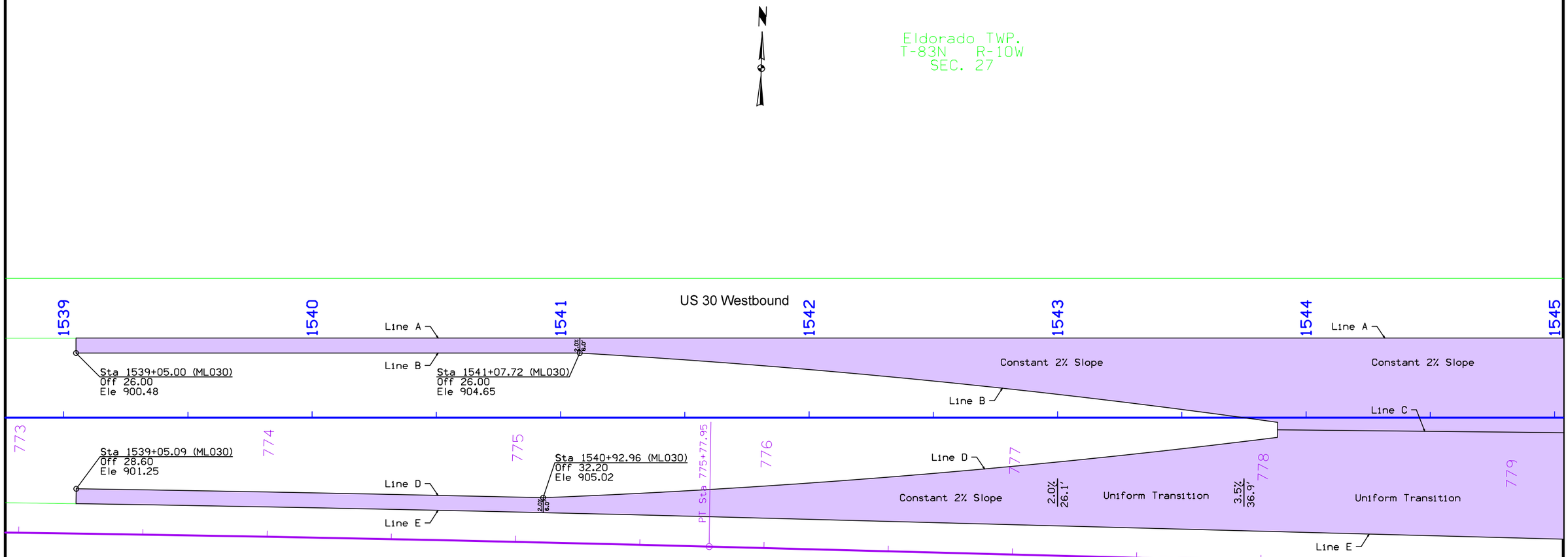
		1385+23.23	1385+25.00	1385+50.00	1385+75.00	1386+00.00	1386+25.00	1386+50.00	1386+75.00	1387+00.00	1387+25.00	1387+40.76	1387+50.00	1387+75.00	1388+00.00	1388+25.00	1388+50.00	1388+75.00	1389+00.00	1389+25.00	1389+50.00	1389+75.00	1390+00.00	1390+25.00	1390+34.29	1390+50.00	1390+75.00	1391+00.00	1391+25.00	1391+50.00	1391+75.00	1392+00.00	1392+13.01
Elevation Line A		890.35	890.32	890.20	890.07	889.95	889.82	889.70	889.57	889.45	889.32	889.25	889.20	889.07	888.95	888.82	888.70	888.57	888.45	888.32	888.20	888.07	887.95	887.82	887.78	887.70	887.57	887.45	887.32	887.20	887.07	886.95	886.88
Line 'A' to Line 'B'	Offset	17.95	17.64	15.52	13.48	11.52	9.64	7.84	6.11	4.47	2.90	2.00																					
	Slope	2%	Constant 2% Slope									2%																					
Elevation Line B		889.99	889.98	889.89	889.81	889.72	889.63	889.54	889.45	889.36	889.27	889.21																					
Line 'B' to Line 'C'	Offset	14.00	Constant 14' Width									14.00																					
	Slope	2%	Constant 2% Slope									2%																					
Line 'A' to Line 'C'	Offset	31.95	31.64	29.52	27.48	25.52	23.64	21.84	20.11	18.47	16.90	16.00	15.43	14.02	12.69	11.43	10.25	9.16	8.14	7.20	6.33	5.55	4.84	4.21	4.00	Constant 4' Width							4.00
	Slope	2%	Constant 2% Slope																											2%	2.25%	3.50%	4%
Elevation Line C		889.71	889.7	889.62	889.53	889.45	889.36	889.27	889.18	889.08	888.99	888.93	888.89	888.80	888.70	888.60	888.50	888.39	888.29	888.18	888.07	887.96	887.85	887.74	887.70	887.62	887.49	887.37	887.24	887.12	886.98	886.81	886.72



Geometric and Staking Detail
US 30 Crossover 1
(Sheet 3 of 3)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.24

10:36:24 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U22.sht



ML030 Chain

		1539+05.00	1539+25.00	1539+50.00	1539+75.00	1540+00.00	1540+25.00	1540+50.00	1540+75.00	1541+00.00	1541+25.00	1541+50.00	1541+75.00	1542+00.00	1542+25.00	1542+50.00	1542+75.00	1543+00.00	1543+25.00	1543+50.00	1543+75.00	1543+88.48	1544+00.00	1544+25.00	1544+50.00	1544+75.00	1545+00.00
Elevation Line A		900.60	901.01	901.52	902.06	902.60	903.12	903.65	904.14	904.62	905.11	905.60	906.09	906.58	907.08	907.59	908.11	908.62	909.14	909.65	910.17	910.45	910.68	911.20	911.71	912.22	912.71
Line 'A' to	Offset	6.00	Constant 6' Width							6.00	7.06	8.74	10.60	12.63	14.86	17.26	19.84	22.60	25.50	28.68	31.99	33.86					
Line 'B'	Slope	2%	Constant 2% Slope																			2%					
Elevation Line B		900.48	900.89	901.40	901.94	902.48	903.00	903.53	904.02	904.50	904.97	905.43	905.88	906.33	906.78	907.24	907.71	908.17	908.63	909.08	909.53	909.77					
Line 'A' to	Offset																						37.00	37.25	37.50	37.74	37.99
Line 'C'	Slope																						2%	Constant 2% Slope			2%
Elevation Line C																							909.95	910.47	910.98	911.49	911.96
Elevation Line D		901.25	901.66	902.16	902.65	903.14	903.64	904.15	904.65	905.15	905.62	906.09	906.55	907.02	907.48	907.91	908.35	908.80	909.07	909.19	909.53	909.86					
Line 'D' to	Offset	6.00	Constant 6' Width						6.00	6.45	8.18	10.12	12.27	14.62	17.18	19.95	22.92	26.10	29.49	33.09	36.90	39.04					
Line 'E'	Slope	2%	Constant 2% Slope															2%	2.54%	3.41%	3.50%	3.15%					
Line 'C' to	Offset																						41.14	41.58	41.95	42.36	42.77
Line 'E'	Slope																						3.35%	3.27%	3.03%	2.74%	2.50%
Elevation Line E		901.37	901.78	902.28	902.77	903.26	903.76	904.27	904.77	905.28	905.78	906.29	906.80	907.31	907.82	908.31	908.81	909.32	909.82	910.32	910.82	911.09	911.33	911.83	912.25	912.65	913.03

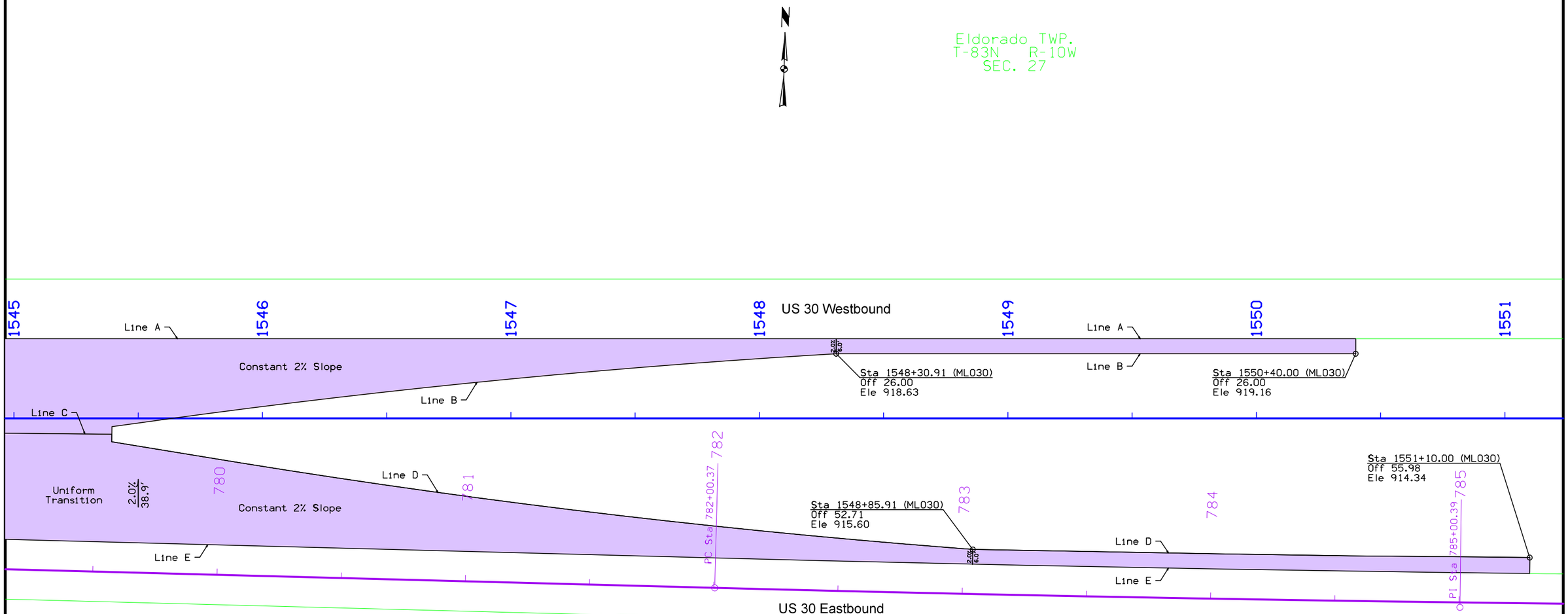
Eldorado TWP.
T-83N R-10W
SEC. 34

0 20
FEET

Geometric and Staking Detail
US 30 Crossover 2
(Sheet 1 of 2)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.25

10:41:48 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U25.sht



ML030 Chain

		1545+25.00	1545+39.41	1545+50.00	1545+75.00	1546+00.00	1546+25.00	1546+50.00	1546+75.00	1547+00.00	1547+25.00	1547+50.00	1547+75.00	1548+00.00	1548+25.00	1548+50.00	1548+75.00	1549+00.00	1549+25.00	1549+50.00	1549+75.00	1550+00.00	1550+25.00	1550+40.00	1550+50.00	1550+75.00	1551+00.00	1551+10.00
Elevation Line A		913.19	913.46	913.63	914.11	914.66	915.14	915.62	916.12	916.63	917.09	917.55	917.96	918.34	918.68	918.99	919.26	919.41	919.56	919.60	919.63	919.52	919.38	919.28				
Line 'A' to	Offset		35.35	33.87	30.46	27.23	24.19	21.32	18.64	16.14	13.82	11.68	9.73	7.95	6.35	6.00	Constant 6' Width							6.00				
Line 'B'	Slope		2%	Constant 2% Slope																				2%				
Elevation Line B			912.75	912.95	913.50	914.12	914.66	915.19	915.75	916.31	916.81	917.32	917.77	918.18	918.55	918.87	919.14	919.29	919.44	919.48	919.51	919.40	919.26	919.16				
Line 'A' to	Offset	38.24																										
Line 'C'	Slope	2%																										
Elevation Line C		912.42																										
Elevation Line D			912.72	912.95	913.32	913.68	914.01	914.34	914.55	914.74	914.96	915.20	915.35	915.45	915.52	915.56	915.60	915.58	915.54	915.47	915.39	915.26	915.10	915.00	914.91	914.69	914.45	914.34
Line 'D' to	Offset		40.37	38.91	35.46	32.07	28.84	25.81	22.95	20.28	17.80	15.50	13.37	11.43	9.64	8.00	6.51	6.00	Constant 6' Width									6.00
Line 'E'	Slope		2.18%	2%	Constant 2% Slope																							2%
Line 'C' to	Offset	43.17																										
Line 'E'	Slope	2.25%																										
Elevation Line E		913.39	913.60	913.73	914.03	914.32	914.59	914.86	915.01	915.15	915.32	915.51	915.62	915.68	915.71	915.72	915.73	915.70	915.66	915.59	915.51	915.38	915.22	915.12	915.03	914.81	914.57	914.46

Eldorado TWP.
T-83N R-10W
SEC. 34

0 20
FEET

Geometric and Staking Detail
US 30 Crossover 2
(Sheet 2 of 2)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.26

10:41:51 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U25.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

POT Sta 300+00.00

PI Sta 302+86.17

PC Sta 301+50.00

PT Sta 304+22.21

Existing US 30 Westbound

Uniform Transition

Constant 2% Slope

2.0%

14.0'

16.0'

2.0'

(CURVE 8320)

(ML030)

US 30 Eastbound New

0 20
FEET

Geometric and Staking Detail
US 30 Crossover 3
(Sheet 1 of 2)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.27

10:45:24 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U27.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

N

305 306 307 308 309 310

PC Sta 305+34.21

Uniform Transition

2.0%
16.0'

Constant 2% Slope

(CURVE 8325)

Constant 2% Slope

PT Sta 308+41.60

16.0'
2.0%

Constant 2% Slope

Uniform Transition

2.0%
14.0'

2.0%
2.0'

US 30 Westbound New

PCT Sta 310+02.44

1385 1386 1387 1388 1389 1390 1391

PI Sta 306+88.00

(ML 030)

US 30 Eastbound New

0 20
FEET

Geometric and Staking Detail
US 30 Crossover 3
(Sheet 2 of 2)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.28

10:45:26 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U27.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

22nd Avenue

1370 1375 1380 1385 1390 1395 1400

POT Sta. 1371+26.92 (ML030)
= POT Sta. 221371+27.26 (SR22NDAVE)

30

STA. 1380+00.00 140.7' LT
BEGIN FENCE REMOVAL
BEGIN FIELD FENCING

STA. 1380+00.00
BEGIN FENCE REMOVAL

+00.00
139.8' LT

+40.00
174.0' LT

+85.00
179.0' LT

+40.00
179.0' LT

+10.00
175.1' LT

+50.00
148.2' LT

+78.24
152.5' LT

STA. 1378+20.00 149.0' RT
BEGIN FIELD FENCING

+00.00
149.0' RT

+50.00
184.0' RT

+00.00
164.0' RT

+40.50
169.0' RT

+55.00
176.4' RT

+60.00
183.2' RT

+50.00
189.0' RT

Eldorado TWP.
T-83N R-10W
SEC. 31

0 100
FEET

U.S. Highway 30
Proposed Fencing Details
(Sheet 1 of 5)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.29

10:53:04 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U29.sht

Eldorado TWP.
T-83N R-10W
SEC. 30

Eldorado TWP.
T-83N R-10W
SEC. 29

Eldorado TWP.
T-83N R-10W
SEC. 31

Eldorado TWP.
T-83N R-10W
SEC. 32

23rd Avenue

1400 1405 1410 1415 1420 1425 1430

+34.23
157.9' LT

+80.00
189.0' LT

Channel Crossing
Type "B"

+45.00
151.4' LT

+50.00
150.7' LT

+25.00
150.6' LT

+55.83
149.1' LT

+10.00
228.0' LT

+06.34
203.9' LT

+01.20
170.1' LT

+43.98
451.4' LT

+06.54
517.5' LT

+59.08
184.0' LT

+25.00
184.0' LT

+25.00
169.0' LT

30

Channel Crossing
Type "A"

+50.00
189.0' RT

+80.00
189.0' RT

+00.00
174.0' RT

+60.00
172.7' RT

+20.00
172.5' RT

POT Sta. 1422+82.53 (ML030)
= POT Sta. 231422+82.94 (SR23RDAVE)

+99.14
169.3' RT

Channel Crossing
Type "A"

+00.00
179.0' RT

+71.58
291.5' RT

+50.65
420.8' RT

+46.67
606.0' RT

+72.79
665.2' RT

+33.32
656.3' RT

0 100
FEET

U.S. Highway 30
Proposed Fencing Details
(Sheet 2 of 5)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.30

10:53:12 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U29.sht

Eldorado TWP.
T-83N R-10W
SEC. 29

N

1430 1435 1440 1445 1450 1455 1460

+92.00
169.0' LT

+16.00
168.2' LT

+00.00
164.0' LT

+70.00
144.7' LT

+00.00
143.1' LT

+50.00
159.0' LT

+75.00
159.0' LT

+00.00
169.0' LT

+15.64
159.0' LT

+95.11
164.0' LT

30

+30.00
159.0' RT

+60.00
159.0' RT

+00.00
159.0' RT

+30.50
199.0' RT

Eldorado TWP.
T-83N R-10W
SEC. 32

0 FEET 100

U.S. Highway 30
Proposed Fencing Details
(Sheet 3 of 5)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.31

10:53:19 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U29.sht

Eldorado TWP.
T-83N R-10W
SEC. 29

Eldorado TWP.
T-83N R-10W
SEC. 28

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 33

218

US 218

30

30

Ramp B

Ramp C

Ramp A

Ramp D

24th Avenue

Youngville Cafe Access

+00.00
149.0' RT

+00.44
729.1' LT

+17.54
787.7' LT

+59.43
166.6' RT

+75.14
166.5' RT

POT Sta. 1475+68.30 (ML030)
= POT Sta 241475+68.30 (SR218)

+60.30
199.0' LT

+90.57
364.2' LT

+95.11
164.0' LT

+71.49
699.6' LT

+38.50
646.4' LT

+65.09
587.5' LT

+89.09
319.0' LT

+24.00
319.0' LT

+24.00
154.0' LT

+73.29
374.9' RT

+80.80
672.2' RT

+57.59
745.2' RT

+19.35
1009.1' RT

+39.37
824.13' RT

+87.26
903.7' RT

+59.56
714.1' RT

+24.33
594.3' RT

+09.33
389.2' RT

+59.47
284.1' RT

+59.62
229.1' RT

+64.78
174.0' RT

1460

1465

1470

1475

1480

1485

1490

0 100
FEET

U.S. Highway 30
Proposed Fencing Details
(Sheet 4 of 5)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.32

10:53:35 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U29.sht

Eldorado TWP.
T-83N R-10W
SEC. 28

N

1490 1495 1500 1505 1510 1515 1520

+00.00
149.0' LT

+00.00
159.0' LT

+40.00
161.0' LT

+00.00
164.0' LT

+00.00
149.0' LT

+97.00
149.0' LT

+00.00
149.0' LT

PC Sta 1496+00.00

PT Sta 1500+89.35

PC Sta 1505+78.60

PT Sta 1510+68.84

PC Sta 1515+58.99

STA. 1517+00.00 105.9' LT
END FENCING REMOVAL
END FIELD FENCING

30

+64.78
174.0' RT

+70.00
136.0' RT

+00.17
144.4' RT

Curve Data
Δ = 1° 52' 08.39" (LT)
T = 489.35
L = 978.60
R = 30,000.00
E = 3.99

+70.49
155.2' RT

+72.74
149.1' RT

Curve Data
Δ = 1° 52' 20.61" (RT)
T = 490.23
L = 980.38
R = 30,000.00
E = 4.01

+74.74
127.5' RT

STA. 1516+70.00 126.1' RT
END FIELD FENCING

Eldorado TWP.
T-83N R-10W
SEC. 33

0 FEET 100

U.S. Highway 30
Proposed Fencing Details
(Sheet 5 of 5)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.33

10:53:44 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U29.sht

Eldorado TWP.
T-83N R-10W
SEC. 31

Eldorado TWP.
T-83N R-10W
SEC. 30

Eldorado TWP.
T-83N R-10W
SEC. 32

Eldorado TWP.
T-83N R-10W
SEC. 29

POT Sta 231414+82.97

231415

231420

PI Sta 231422+82.03

231425

231430

231435

23rd Avenue

23rd Avenue

30

STA. 231416+18.35 31.2' LT
BEGIN FENCE REMOVAL
BEGIN FIELD FENCING

+16.40
89.1' LT

Channel Crossing
Type "A"

+33.98
124.8' LT

+54.30
79.1' LT

+88.00
73.4' LT

+12.00
69.4' LT

STA. 231427+34.83 32.0' LT
END FENCE REMOVAL
END FIELD FENCING

STA. 231416+25.29 29.0' RT
BEGIN FENCE REMOVAL
BEGIN FIELD FENCING

+75.17
44.0' RT

+60.12
54.0' RT

+88.68
79.1' RT

+93.71
311.1' RT

+65.66
79.1' RT

STA. 231428+00.00 32.0' RT
END FENCE REMOVAL
END FIELD FENCING

0 100
FEET

23rd Avenue
Proposed Fencing Details

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.34

10:53:49 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U29.sht

Eldorado TWP.
T-83N R-10W
SEC. 32

POT Sta 241450+04.05

241455

241460

241465

241470

241475

STA. 241453+00.83 33.2' LT
BEGIN FENCE REMOVAL
BEGIN FIELD FENCING

24th Avenue

+30.72
40.3' LT

+10.54
56.5' LT

+88.00
57.2' LT

+12.00
57.3' LT

+85.55
57.6' LT

+10.51
68.1' LT

+60.57
70.3' LT

+00.35
201.7' LT

+25.74
126.5' LT

+97.73
202.9' LT

+53.20
969.8' LT

30

218

218

+46.50
43.2' RT

+25.97
51.9' RT

+11.02
54.5' RT

+61.17
88.1' RT

+61.45
92.3' RT

+39.49
146.7' RT

STA. 241452+04.26 33.3' RT
BEGIN FENCE REMOVAL
BEGIN FIELD FENCING

POT Sta. 1475+68.30 (ML030)
= POT Sta 241475+68.30 (SR218)

Ramp A

Ramp D

+37.11
570.0' RT

+52.03
738.2' RT

+51.50
929.2' RT

+80.66
230.1' RT

+61.95
864.7' RT

+97.03
859.9' RT

Eldorado TWP.
T-83N R-10W
SEC. 33

0 100
FEET

24th Avenue/
U.S. Highway 218
Proposed Fencing Details
(Sheet 1 of 2)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.35

10:54:03 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U29.sht

Eldorado TWP.
T-83N R-10W
SEC. 29

Ramp C

Ramp B

241480

241485

241490

241495

241500

241505

241510

PI Sta 241502+95.73

+09.31
552.3' LT

+59.11
134.0' LT

+00.00
99.0' LT

+00.00
79.0' LT

+85.00
79.0' LT

+15.00
79.0' LT

STA. 241502+98.41 79.0' LT
END FENCE REMOVAL
END FIELD FENCING

218

218

+64.51
123.8' RT

+00.00
99.0' RT

+09.39
189.2' RT

+49.77
214.0' RT

+40.00
99.0' RT

+30.00
69.0' RT

+88.00
69.0' RT

+12.00
69.0' RT

STA. 241502+93.67 69.0' RT
END FENCE REMOVAL
END FIELD FENCING

Sta. 241507+47
2' X 2' X 33' RCB W/EXTS
D.A. = 12 Ac - R

Sta. 241502+67
2' X 2' X 29.58' RCB W/EXTS
D.A. = 10 Ac - R
U.A.C.

Eldorado TWP.
T-83N R-10W
SEC. 28

0 FEET 100

24th Avenue/
U.S. Highway 218
Proposed Fencing Details
(Sheet 2 of 2)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER U.36	

10:54:15 AM 3/15/2018 jbottje pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231U29.sht

MSE RETAINING WALL CONSTRUCTION NOTES

(1) The MSE Wall shall be designed for a 250 psf surcharge load to account for traffic live loads.

(2) The MSE wall shall be designed according to Iowa Department of Transportation standard specifications and AASHTO LRFD Bridge Design Specification.

(3) The MSE wall shall be designed for a minimum service life of 75 years.

(4) Refer to Sheet Q.18 for details on required bearing resistance.

(5) The parameters provided on Sheet Q.18 are based on the use of granular backfill material in the reinforced zone, the 1:1 temporary excavation zone and completion of the coreout detailed on Sheet Q.22.

(6) The minimum depth of embedment for the MSE wall is 4 feet.

(7) The length of the reinforcement strips (or mesh) will vary by wall station and shall be based on a minimum width to wall height ratio of 0.8 or 8 feet, whichever is greater.

(8) The MSE Wall designer shall review the bridge plans (Design No. 117) for the pile and corrugated metal pipe sleeve layout for incorporation into the MSE Wall design and construction.

(9) See Sheets X.220 through X.225 for soil types.

(10) The Contractor is responsible for ensuring the stability of the 1:1 temporary excavation slope. The Contractor shall provide the Iowa DOT Resident Construction Engineer with supporting calculations if a slope other than 1:1 or temporary excavation support is needed.

(11) The panels for the MSE Wall shall be cast as per the MSE Wall Details on Sheets V.2 through V.4.

(12) Two MSE Wall subdrains are required; one directly behind the wall panels and one at the back of the reinforced zone (see MSE Wall Details on Sheet V.2). Outlets for the wall drains are shown on Sheet Q.22 and Sheet CS.1 (Tab 104-5C).

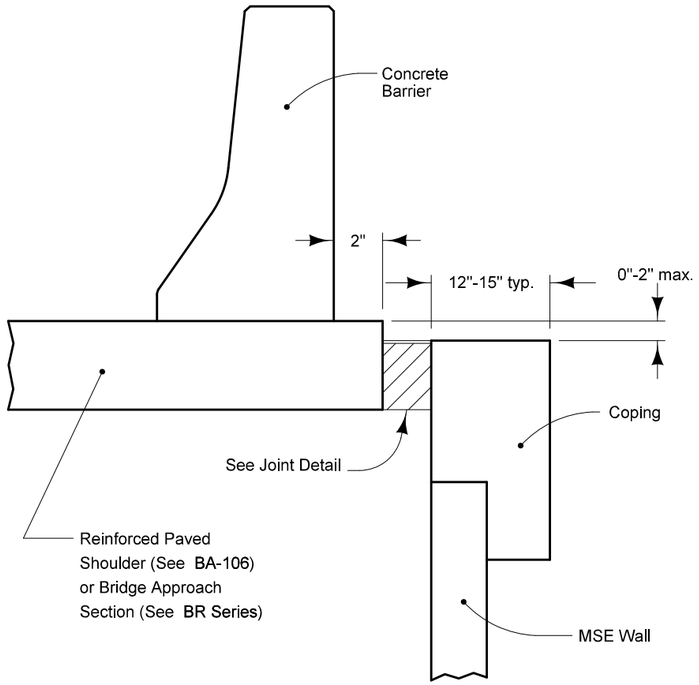
(13) For estimating purposes only, the following assumptions were used:
- (a) The wall height at a given station is the distance between the top elevation of the leveling pad and the elevation of the top of coping of the MSE wall.
- (b) The quantities of the granular backfill material and/or the excavation behind the wall were calculated based on the average end area between cross sections. The average end area was computed with the estimated wall heights and reinforcement lengths. These quantities may need to be adjusted if the required reinforcement length is greater than the estimated length, and/or if the footing elevation is adjusted.

(14) The Contractor shall submit the design computations and the MSE Wall shop drawings at least 4 weeks prior to construction for review. The submittal with cover letter shall be sent via email (in .PDF format) to:

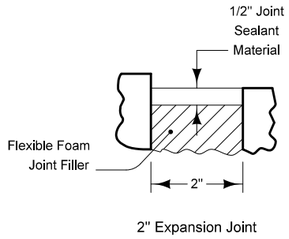
Soils Design Section
Iowa Department of Transportation
Attn: Steve Megivern, P.E.
Stephen.Megivern@iowadot.us

Only the submittal cover letter shall be sent via email (in .PDF format) to the applicable office(s) of the Resident Construction Engineer (RCE) and District Materials Engineer (DME) for their information and documentation that the plans have been submitted. The Soils Design section will distribute final approved documents to the RCE and DME.

8208
Modified

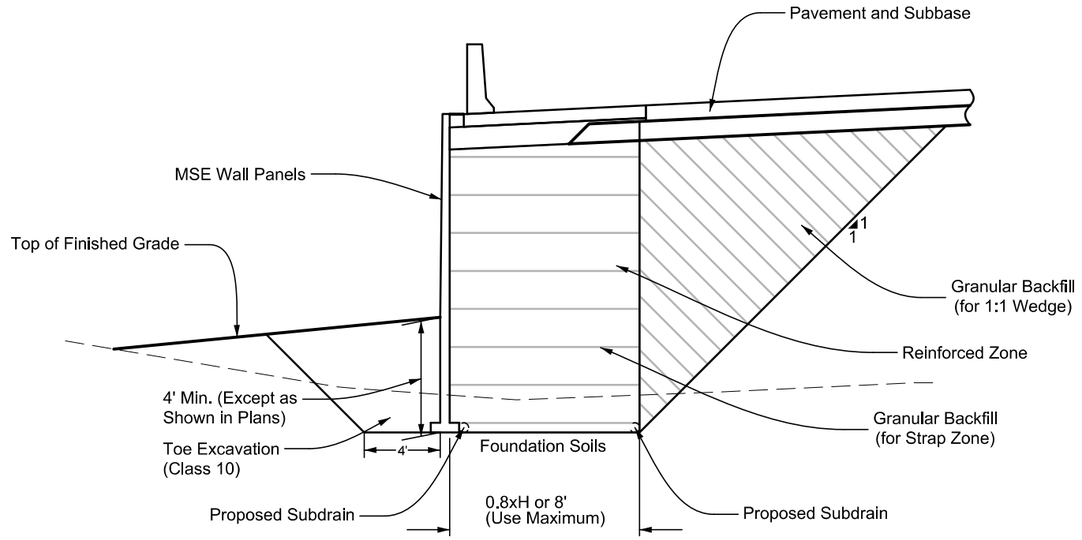


Refer to tabulation 108-20.



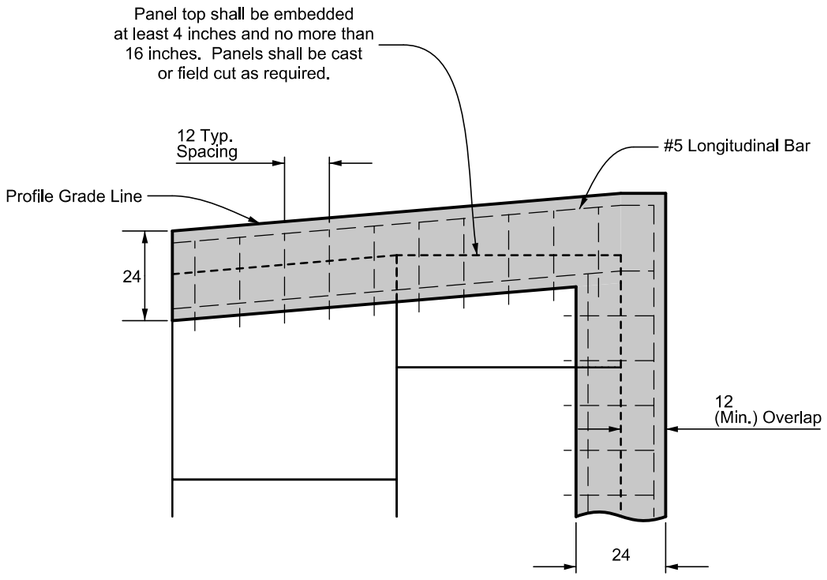
2" Expansion Joint

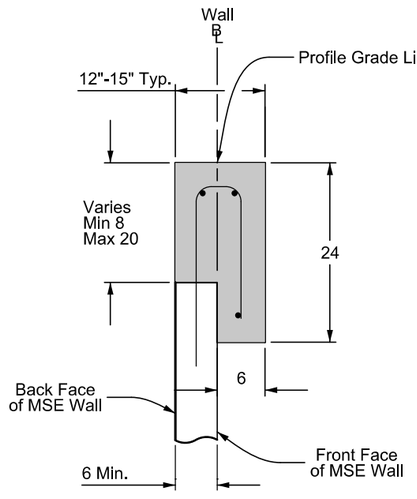
CONCRETE BARRIER WITH MSE WALL

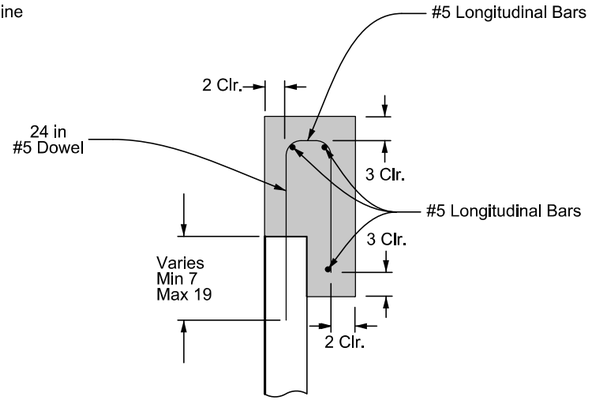


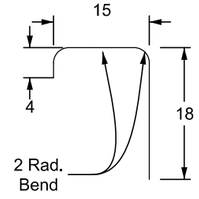
*See Q-Sheets & cross sections for core-out details.

MSE WALL BACKFILL







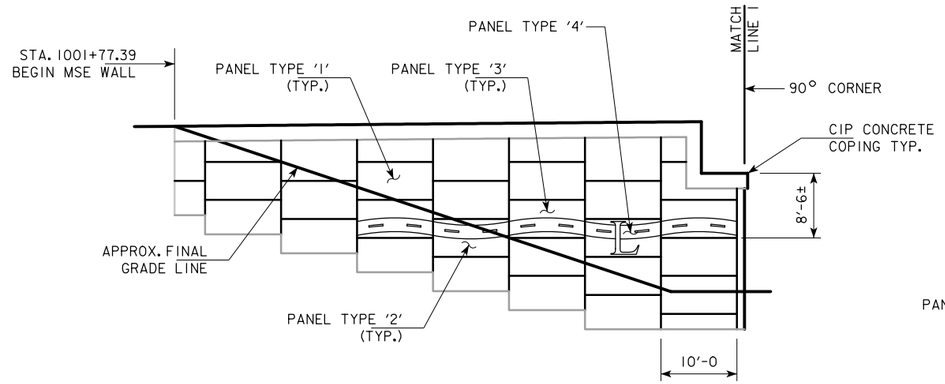


COPING DETAILS

All dimensions given in inches unless noted

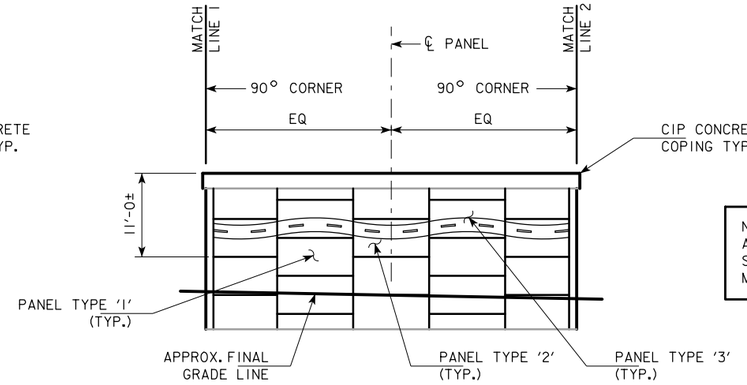
FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER V.2

3:01:26 PM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231V02.sht



MSE WALL EAST ELEVATION

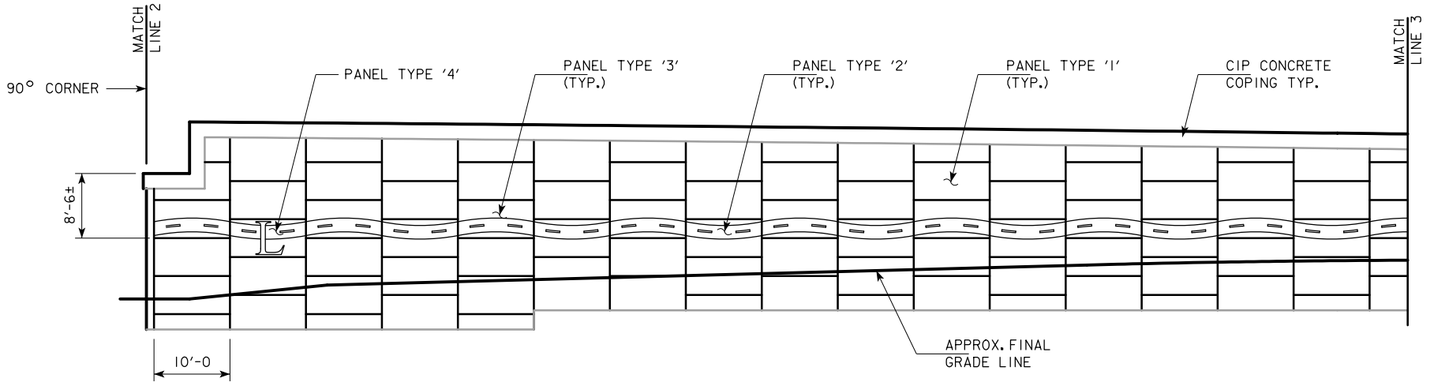
(LOOKING WEST)



MSE WALL NORTH ELEVATION

(LOOKING SOUTH)

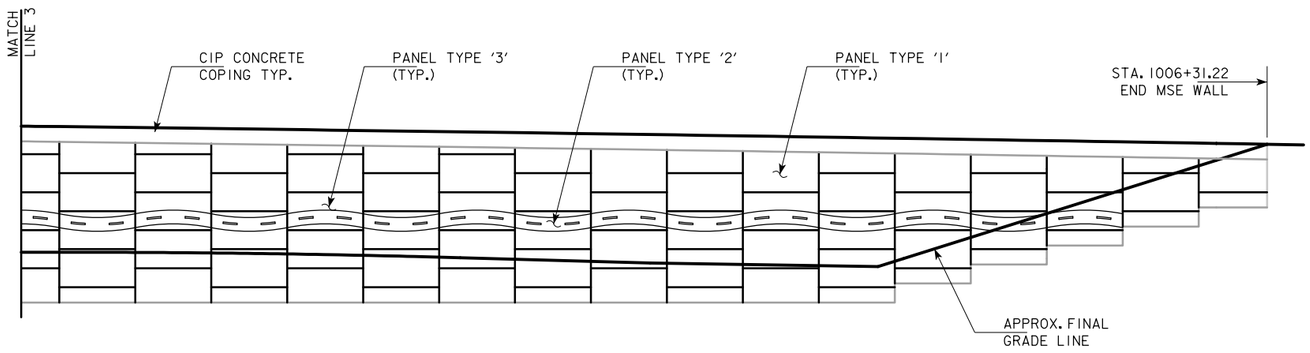
NOTE: EXPOSED MSE WALL CORNERS AND SLIP JOINT COVERS (IF REQUIRED) SHALL BE INTEGRALLY COLORED TO MATCH PANELS.



MSE WALL PARTIAL WEST ELEVATION

(LOOKING EAST)

NOTE: MSE WALL FOOTING SHOWN IS FOR ILLUSTRATION PURPOSES ONLY. FINAL CONFIGURATION TO BE DETERMINED BY MSE WALL SUPPLIER.



MSE WALL PARTIAL WEST ELEVATION

(LOOKING EAST)

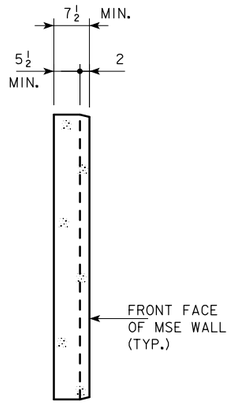
NOTE: FOR MSE PANEL AESTHETIC DETAILS SEE SHEET V.4.

MSE PANEL AESTHETIC NOTES

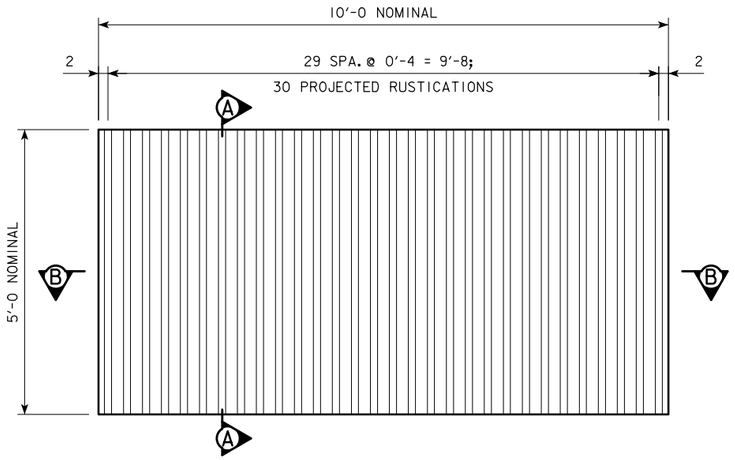
MSE WALL CONCRETE PANELS SHALL INCLUDE RUSTICATION AND INTEGRAL CONCRETE COLOR IN ACCORDANCE WITH THE "SPECIAL PROVISIONS FOR AESTHETIC TREATMENT OF MSE RETAINING WALL CONCRETE PANELS". INTEGRAL COLOR IS NOT REQUIRED FOR PANELS THAT ARE 100% BELOW FINAL GRADE.

A MOCKUP PANEL IS REQUIRED. DO NOT BEGIN PANEL PRODUCTION UNTIL AFTER REVIEW AND APPROVAL OF MOCKUP(S). SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

MSE WALL AESTHETIC DETAILS

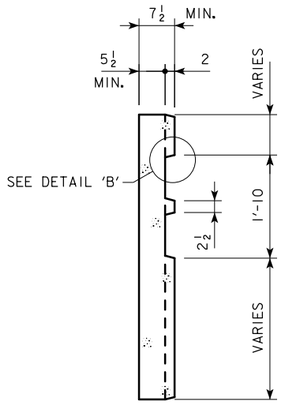


SECTION A-A

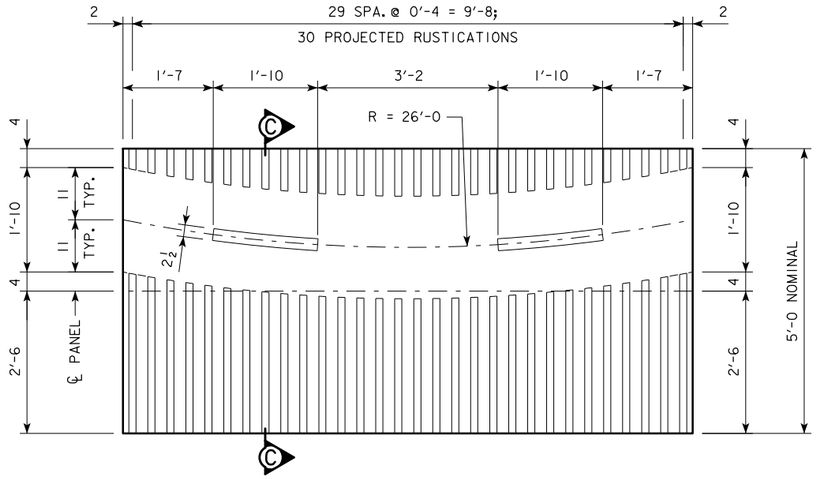


PANEL TYPE '1'

SECTION B-B

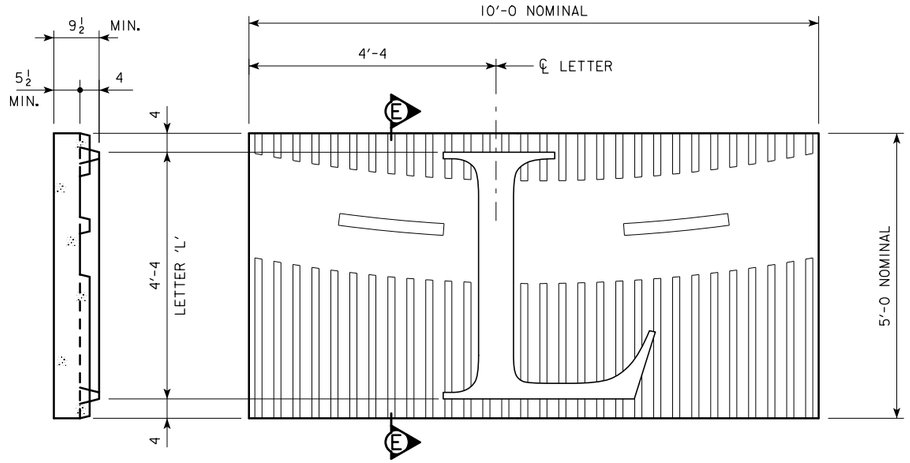


SECTION C-C



PANEL TYPE '2'

(FEATURES IDENTICAL TO PANEL TYPE '3', ROTATED 180 DEGREES)

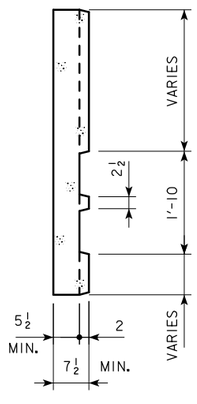


SECTION E-E

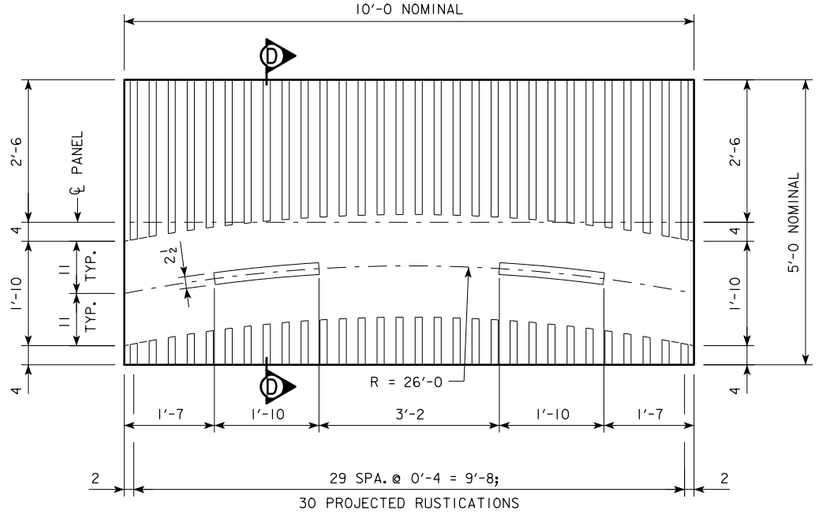
PANEL TYPE '4'

(2 REQUIRED)

NOTE: SEE PANEL TYPE '2' FOR DIMENSIONS NOT SHOWN. LETTER 'L' FONT CHARACTERISTICS SHALL MATCH TIMES NEW ROMAN (REGULAR).

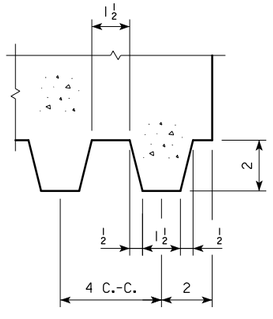


SECTION D-D

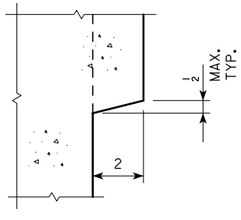


PANEL TYPE '3'

(FEATURES IDENTICAL TO PANEL TYPE '2', ROTATED 180 DEGREES)



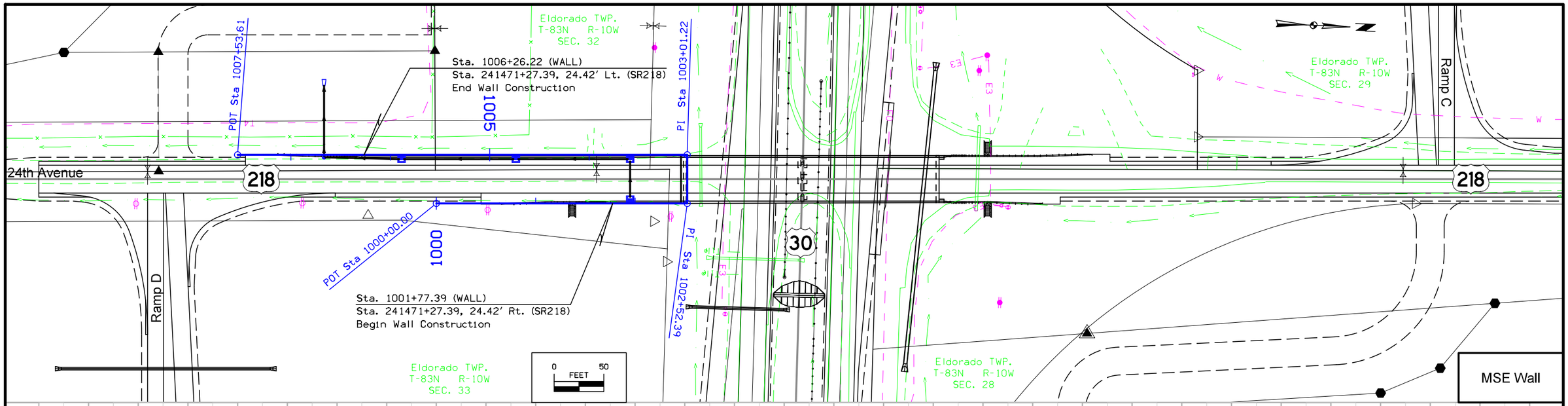
DETAIL 'A'

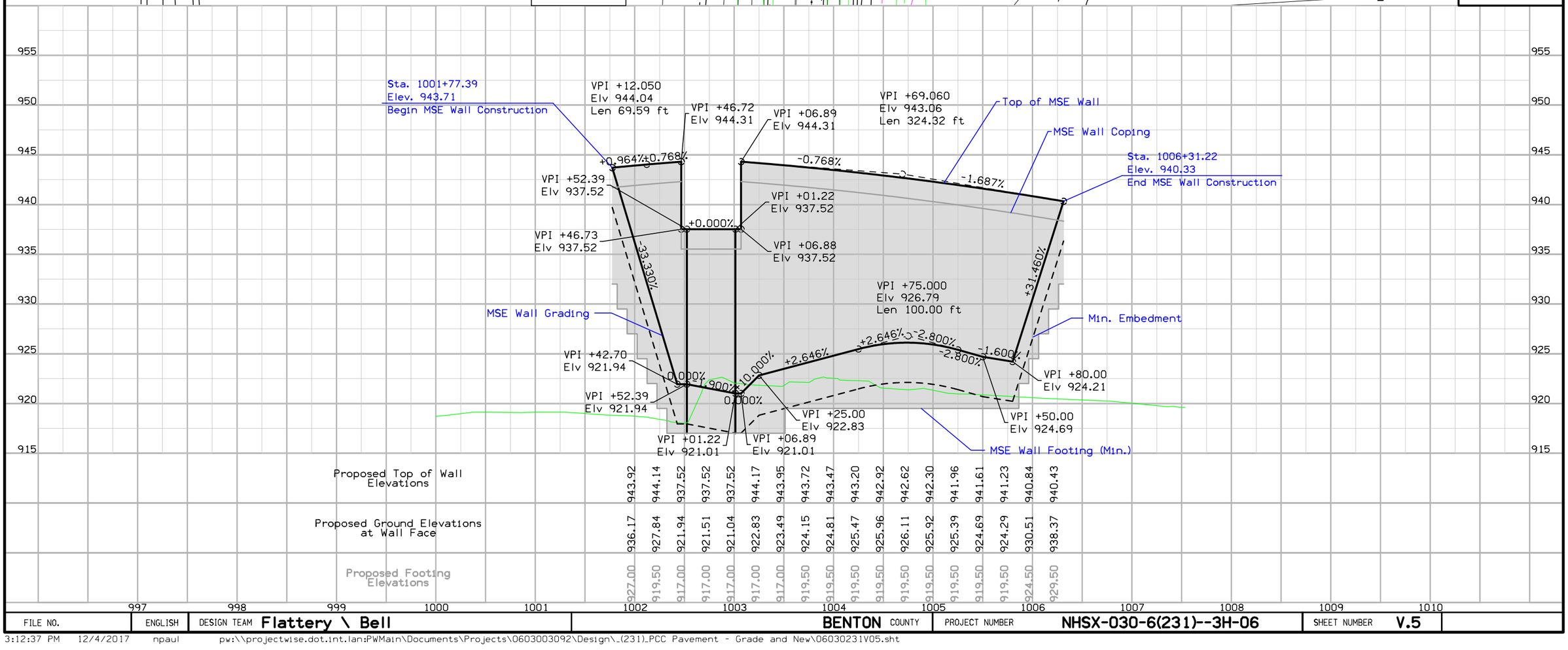


DETAIL 'B'

NOTE: FOR MSE PANEL AESTHETIC NOTES SEE SHEET V.3.

MSE WALL AESTHETIC DETAILS





	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010
Proposed Top of Wall Elevations						943.92	944.14	937.52	937.52	937.52	944.17	943.95	943.72	943.47	943.20	942.92	942.62	942.30	941.96	941.61	941.23	940.84	940.43
Proposed Ground Elevations at Wall Face						936.17	927.84	921.94	921.51	921.04	922.83	923.49	924.15	924.81	925.47	925.96	926.11	925.92	925.39	924.69	924.29	930.51	938.37
Proposed Footing Elevations						927.00	919.50	917.00	917.00	917.00	917.00	917.00	919.50	919.50	919.50	919.50	919.50	919.50	919.50	919.50	919.50	924.50	929.50

FILE NO.	ENGLISH	DESIGN TEAM	Flattery \ Bell	BENTON COUNTY	PROJECT NUMBER	NHSX-030-6(231)--3H-06	SHEET NUMBER	V.5

3:12:37 PM 12/4/2017 npaul pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\0603003092\Design_(231)_PCC Pavement - Grade and New\06030231V05.sht

ESTIMATED CAST IN PLACE CULVERT QUANTITIES - ALTERNATE

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2102-0425071	SPECIAL BACKFILL	CY	125.0	
2	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	115.0	
3	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS	1.00	
4	2402-2720000	EXCAVATION, CLASS 20	CY	1,030	
5	2403-0100020	STRUCTURAL CONCRETE (RCB CULVERT)	CY	276.4	
6	2404-7775000	REINFORCING STEEL	LB	47,935	
7	2507-3250005	ENGINEERING FABRIC	SY	262.0	
8	2507-6800061	REVETMENT, CLASS E	TON	185.0	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2102-0425071	**SPECIAL BACKFILL** RECLAIMED ASPHALT PAVEMENT (RAP) AND RECLAIMED HMA SHALL NOT BE USED FOR THE SPECIAL BACKFILL.
2	2104-2710020	**EXCAVATION, CLASS 10, CHANNEL** - -
3	2401-6745650	**REMOVAL OF EXISTING STRUCTURES** - -
4	2402-2720000	**EXCAVATION, CLASS 20** INCLUDES EXCAVATION NECESSARY TO PLACE 1'-0 SPECIAL BACKFILL BEDDING FROM BACK TO BACK OF PARAPETS.
5	2403-0100020	**STRUCTURAL CONCRETE (RCB CULVERT)** - -
6	2404-7775000	**REINFORCING STEEL** - -
7	2507-3250005	**ENGINEERING FABRIC** ENGINEERING FABRIC SHALL BE MATERIAL AS SPECIFIED FOR EMBANKMENT EROSION CONTROL IN ACCORDANCE WITH ARTICLE 4196.01,B,3, OF THE STANDARD SPECIFICATIONS.
8	2507-6800061	**REVETMENT, CLASS E** ESTIMATED AT 1.6 TON/CY.

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
James S. Nelson 16032
IOWA

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

Signature — Date: 4/4/2017

James S. Nelson
Printed or Typed Name

My license renewal date is December 31, 2019

Pages or sheets covered by this seal: SHEET V.6 TO V.14

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 REINFORCED CONCRETE BOX CULVERT

QUANTITIES

STA. 1400+94.00 (U.S. 30) APRIL, 2017

BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 5 FILE NO. 31043 DESIGN NO. 718

DESIGN TEAM JSZ / JSN | BENTON COUNTY | PROJECT NUMBER NHSX-030-6(231)--3H-06 | SHEET NUMBER V.6

GENERAL NOTES:

IT IS THE INTENT OF THIS DESIGN TO REPLACE THE EXISTING 12'-0 x 5'-0 REINFORCED CONCRETE BOX CULVERT WITH A SLOPE TAPERED INLET EXTENSION WITH A 8'-0 x 8'-0 x 225'-0 REINFORCED CONCRETE BOX CULVERT SKEWED 3°, LEFT AHEAD, AT STATION 1400+94.00.

THE RCB CULVERT SECTIONS ARE DESIGNED FOR HL-93 LIVE LOAD AND EARTH FILLS OF 11 FEET.

FAINT LINES ON PLANS INDICATE EXISTING STRUCTURE.

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

WHEN DE-WATERING PRESENTS A PROBLEM FOR PLACING THE CURTAIN WALLS AS DETAILED, ALTERNATE METHODS SUCH AS STEEL SHEET PILE AND PRECAST CONCRETE WALLS MAY BE APPROVED BUT AT NO ADDITIONAL COST. THE CULVERT CONTRACTOR IS TO SUBMIT TO THE ENGINEER FOR APPROVAL COMPLETE DRAWINGS OF THE PROPOSED CURTAIN WALL ALTERNATE BEFORE BEGINNING CONSTRUCTION.

EXCEPT FOR DOWEL BARS 5r1, LONGITUDINAL REINFORCING IS NOT TO EXTEND THRU THE CONSTRUCTION JOINTS.

REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS.

THE CLASS 20 EXCAVATION QUANTITY IS BASED ON THE ASSUMPTION THAT AT THE START OF CULVERT CONSTRUCTION, THE EXISTING GROUNDLINE SHOWN ON THE "SITUATION PLAN" HAS REMAINED UNDISTURBED AND NO ROADWAY FILL HAS BEEN PLACED.

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

CONSTRUCTION SHALL BE DONE IN STAGES WITH AT LEAST TWO LANES TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH "TRAFFIC CONTROL PLAN" NOTE.

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

STANDARDS:
FOR DETAILS AND NOTES NOT SHOWN REFER TO THE FOLLOWING IOWA D.O.T. - HIGHWAY STANDARDS:

STANDARD	ISSUED	REVISED
RCB G1-12	04-12	07-16
RCB G2-12	04-12	12-16
RCB 8-8-12	04-12	---------
PWH 0-1-12	04-12	12-16
PWH 0-2-12	04-12	12-16
PWH 0-3-12	04-12	07-16
PWH 0-4-12	04-12	---------
PWH 0-7-12	04-12	07-16

SUMMARY OF REINFORCING STEEL

	LOCATION	QUANTITY	TOTAL
	HEADWALL 0° SKEW (2 REQ'D)	2 @ 3483	6966
	38-0 BARREL SECTIONS (4 REQ'D)	4 @ 6880	27,520
	34'-0 BARREL SECTION (1 REQ'D)	6156	6156
	15'-0 BARREL SECTION (1 REQ'D)	2716	2716
	12'-0 BARREL SECTIONS (2 REQ'D)	2 @ 2173	4346
Δ	5r1 DOWEL BARS (7 SETS REQ'D)	7 @ 33	231
		TOTAL (LBS.)	47,935

Δ ONE SET OF 5r1 DOWEL BARS INCLUDES 9-#5 BARS x 3'-6 LONG. WT. = 33 LBS. PER SET.

CONCRETE PLACEMENT QUANTITIES

LOCATION	FOOTING	WALLS	SLAB	TOTAL
HEADWALL 0° SKEW (2 REQ'D)	2 @ 11.6 = 23.2	2 @ 9.0 = 18.0	*2 @ 1.2 = 2.4	43.6
38-0 BARREL SECTIONS (4 REQ'D)	4 @ 13.1 = 52.4	4 @ 16.1 = 64.4	4 @ 10.1 = 40.4	157.2
34'-0 BARREL SECTION (1 REQ'D)	11.7	14.4	9.1	35.2
15'-0 BARREL SECTION (1 REQ'D)	5.2	6.4	4.0	15.6
12'-0 BARREL SECTIONS (2 REQ'D)	2 @ 4.1 = 8.2	2 @ 5.1 = 10.2	2 @ 3.2 = 6.4	24.8
TOTAL (CU. YDS.)	100.7	113.4	62.3	276.4

* INCLUDES PARAPET AND TOP OF WINGWALL.

NOTE:
POLLUTION PREVENTION PLAN SHOWN ELSEWHERE IN THESE PLANS.

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

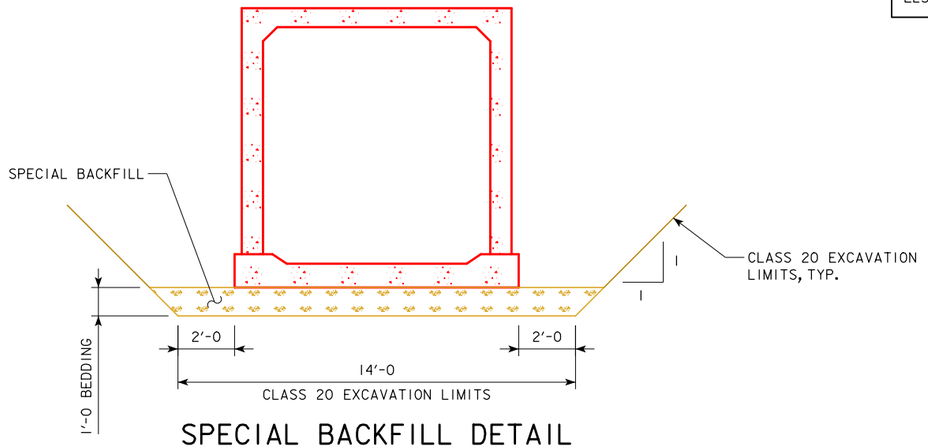
SPECIFICATIONS:

DESIGN:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH ED., SERIES OF 2010.

CONSTRUCTION:
IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT SERIES, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5th ED., SERIES OF 2010:
REINFORCING STEEL IN ACCORDANCE WITH AASHTO LRFD SECTION 5, GRADE 60.
CONCRETE IN ACCORDANCE WITH AASHTO LRFD SECTION 5, f'c = 4.0 KSI.



SPECIAL BACKFILL DETAIL

SPECAL BACKFILL SHALL BE FILLED BETWEEN BACK TO BACK OF PARAPETS.

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 REINFORCED CONCRETE BOX CULVERT

GENERAL NOTES

STA. 1400+94.00 (U.S. 30) APRIL, 2017

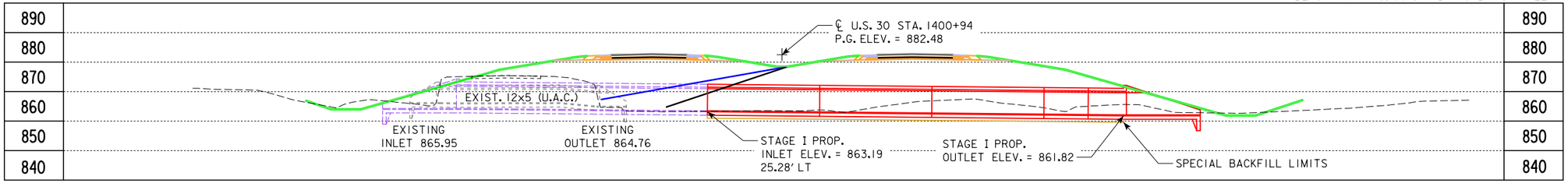
BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 5 FILE NO. 31043 DESIGN NO. 718

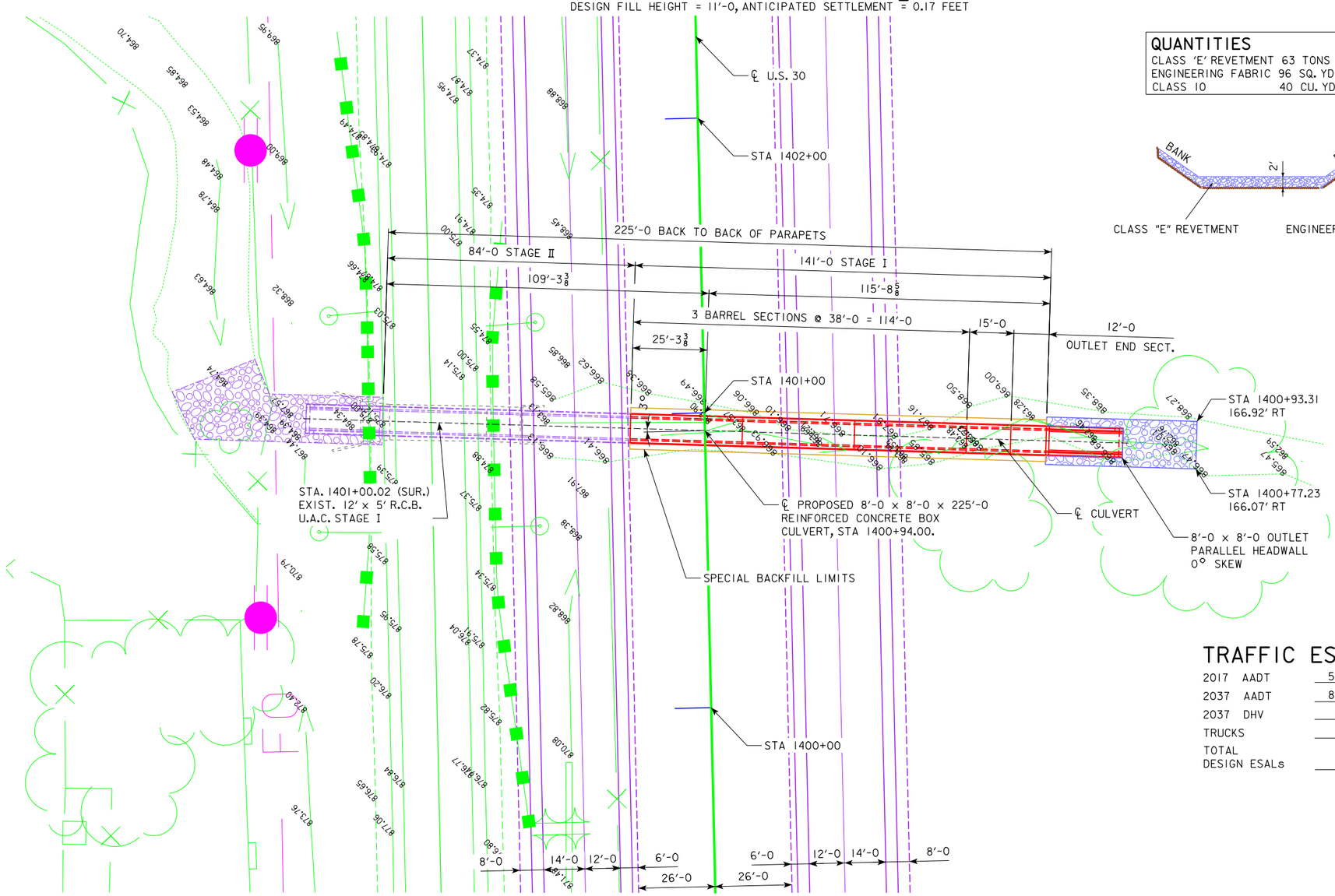
DESIGN TEAM JSZ / JSN | BENTON COUNTY | PROJECT NUMBER NHSX-030-6(231)--3H-06 | SHEET NUMBER V.7

BENCH MARK NO. 667: FND IHC BM ON INLET HDWL, STA. 1388+14.76, 27' LT., ELEV. = 875.129



LONGITUDINAL SECTION ALONG ℄ CULVERT

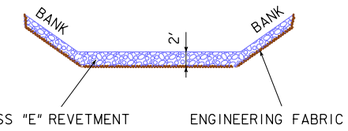
DESIGN FILL HEIGHT = 11'-0, ANTICIPATED SETTLEMENT = 0.17 FEET



SITUATION PLAN

QUANTITIES

CLASS 'E' REVETMENT	63 TONS
ENGINEERING FABRIC	96 SQ. YDS.
CLASS 10	40 CU. YDS.



HYDRAULIC DATA

DRAINAGE AREA = 803 ACRES
Q_{50} = 627 CFS

N

UTILITIES LEGEND:

FO - FIBER OPTIC

LOCATION

US 30 OVER WEASEL CREEK
T-83N R-10W
SECTION 30 & 31
ELDORADO TOWNSHIP
BENTON COUNTY
LATITUDE 41.963390°
LONGITUDE -092.055144°

TRAFFIC ESTIMATE

2017 AADT	5400	V.P.D.
2037 AADT	8500	V.P.D.
2037 DHV	880	V.P.H.
TRUCKS	19	%
TOTAL DESIGN ESALs		

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 REINFORCED CONCRETE BOX CULVERT

SITUTATION PLAN (STAGE I)

STA. 1400+94.00 (U.S. 30) APRIL, 2017

BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 5 FILE NO. 31043 DESIGN NO. 718

DESIGN TEAM JSZ / JSN | BENTON COUNTY | PROJECT NUMBER NHSX-030-6(231)--3H-06 | SHEET NUMBER V.8

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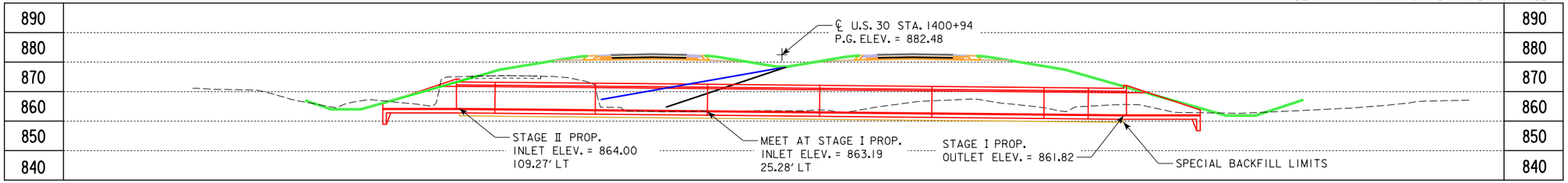
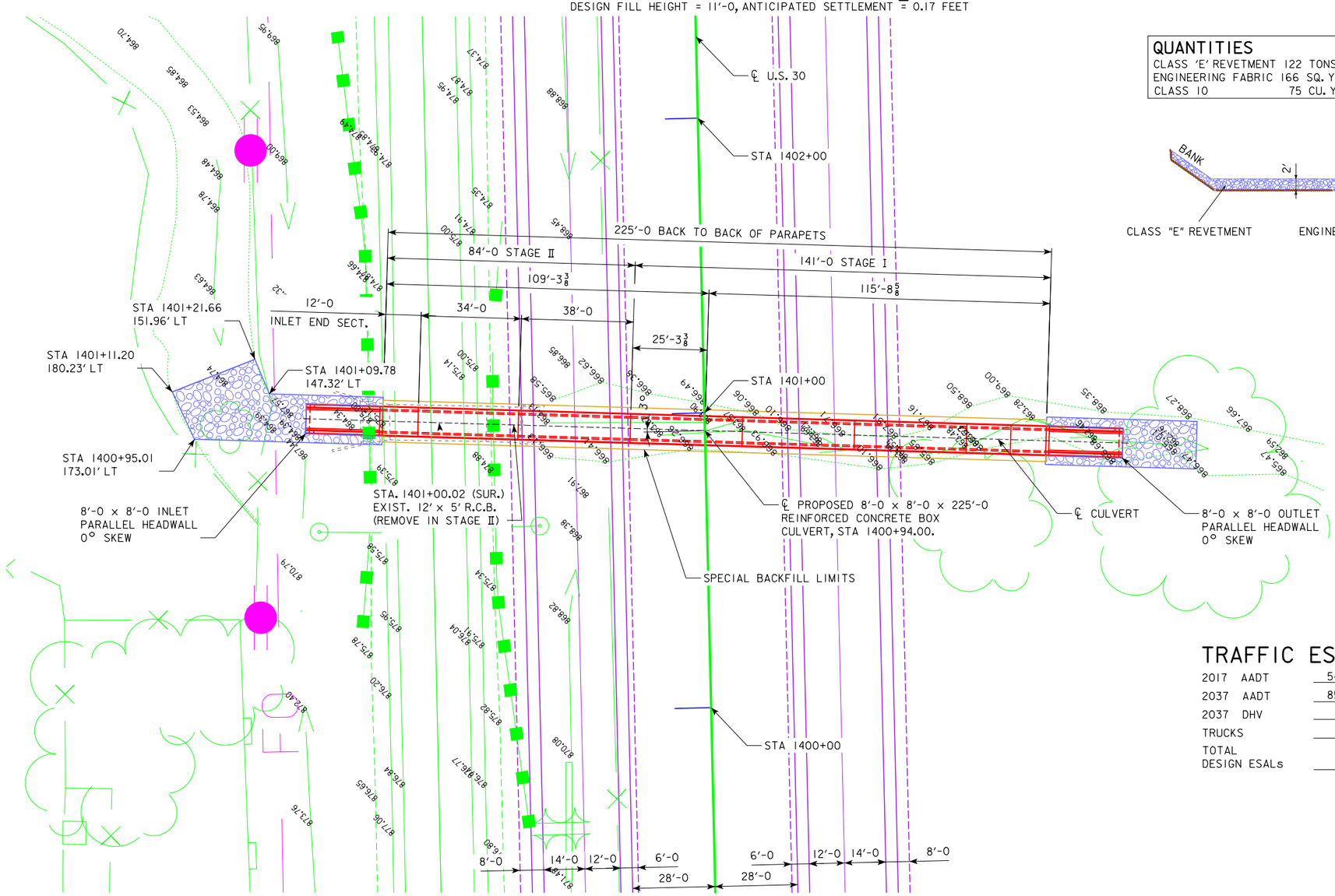
BENCH MARK NO. 667: FND IHC BM ON INLET HDWL, STA. 1388+14.76, 27' LT., ELEV. = 875.129



LONGITUDINAL SECTION ALONG ℄ CULVERT

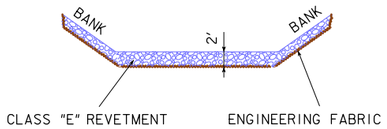
DESIGN FILL HEIGHT = 11'-0, ANTICIPATED SETTLEMENT = 0.17 FEET



SITUATION PLAN

QUANTITIES

CLASS 'E' REVETMENT	122 TONS
ENGINEERING FABRIC	166 SQ. YDS.
CLASS 10	75 CU. YDS.



HYDRAULIC DATA

DRAINAGE AREA = 803 ACRES
Q_{50} = 627 CFS

N

UTILITIES LEGEND:

FO - FIBER OPTIC

LOCATION

US 30 OVER WEASEL CREEK
T-83N R-10W
SECTION 30 & 31
ELDORADO TOWNSHIP
BENTON COUNTY
LATITUDE 41.963390°
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TRAFFIC ESTIMATE

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TRUCKS	19	%
TOTAL DESIGN ESALs		

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 REINFORCED CONCRETE BOX CULVERT

SITUTATION PLAN (STAGE II)

STA. 1400+94.00 (U.S. 30) APRIL, 2017

BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 5 FILE NO. 31043 DESIGN NO. 718

DESIGN TEAM JSZ / JSN | BENTON COUNTY | PROJECT NUMBER NHSX-030-6(231)--3H-06 | SHEET NUMBER V.9

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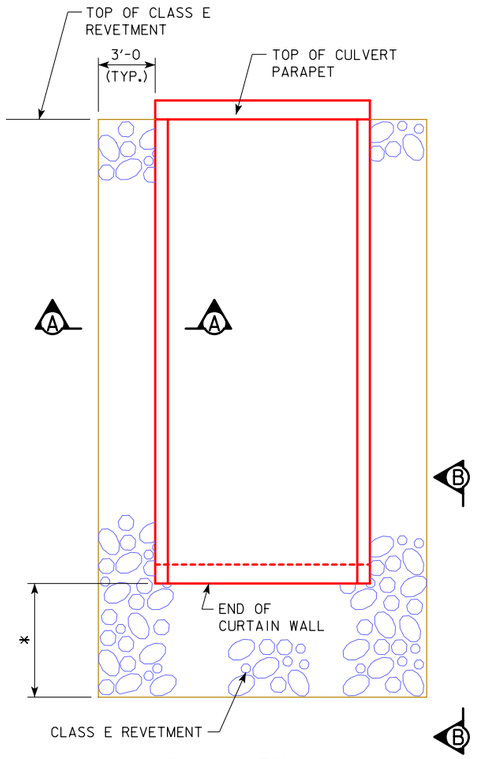
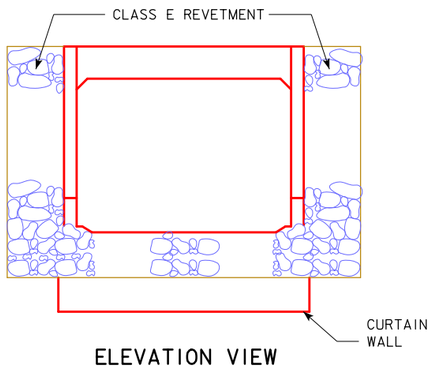
* = SEE CULVERT PLANS FOR LIMITS OF REVETMENT AND ENGINEERING FABRIC.



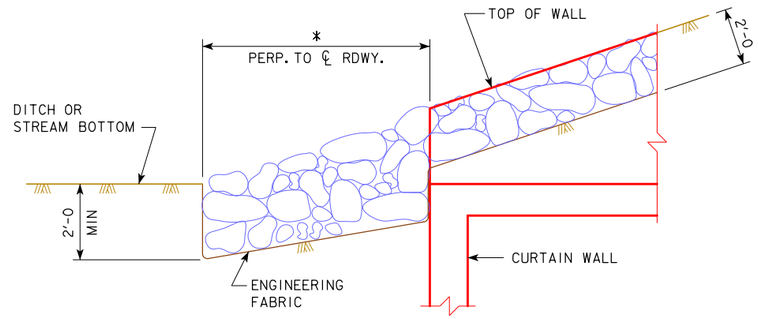
PLAN VIEW



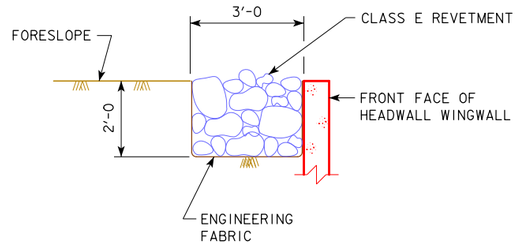
ELEVATION VIEW

0° SKEW HEADWALLS

* = SEE CULVERT PLANS FOR LIMITS OF REVETMENT AND ENGINEERING FABRIC.



VIEW B-B



SECTION A-A

TYPICAL DETAILS

CONSTRUCTION NOTES:

CLASS E REVETMENT SHALL BE USED AND PLACED ACCORDING TO ARTICLE 2507.03, OF THE STANDARD SPECIFICATIONS.
THE ENGINEERING FABRIC SHALL MEET THE MATERIAL REQUIREMENTS IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 REINFORCED CONCRETE BOX CULVERT

REVETMENT PROTECTION DETAILS

STA. 1400+94.00 (U.S. 30) APRIL, 2017

BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 5 FILE NO. 31043 DESIGN NO. 718

REVISED I-16 - ADDED NOTE "SEE CULVERT PLANS FOR LIMITS OF REVETMENT AND ENGINEERING FABRIC."
ENGLISHSINGLECULVERTS.DGN - 1092 - THIS SHEET ISSUED 04-12.

DESIGN TEAM JSZ / JSN	CAST-IN-PLACE CULVERT REVETMENT PROTECTION DETAILS	STANDARD SHEET 1092	BENTON COUNTY	PROJECT NUMBER NHSX-030-6(231)--3H-06	SHEET NUMBER V.10

ESTIMATED PRECAST CULVERT QUANTITIES - ALTERNATE

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2102-0425071	SPECIAL BACKFILL	CY	135.0	
2	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	115.0	
3	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS	1.00	
4	2402-2720000	EXCAVATION, CLASS 20	CY	1,200	
5	2415-2110808	PRECAST CONCRETE BOX CULVERT, 8 FT. X 8 FT.	LF	237.0	
6	2415-2200808	PRECAST CONCRETE BOX CULVERT STRAIGHT END SECTION, 8 FT. X 8 FT.	EACH	2	
7	2507-3250005	ENGINEERING FABRIC	SY	262.0	
8	2507-6800061	REVETMENT, CLASS E	TON	185.0	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2102-0425071	**SPECIAL BACKFILL** RECLAIMED ASPHALT PAVEMENT (RAP) AND RECLAIMED HMA SHALL NOT BE USED FOR THE SPECIAL BACKFILL.
2	2104-2710020	**EXCAVATION, CLASS 10, CHANNEL** - -
3	2401-6745650	**REMOVAL OF EXISTING STRUCTURES** - -
4	2402-2720000	**EXCAVATION, CLASS 20** INCLUDES EXCAVATION NECESSARY TO PLACE 6" SPECIAL BACKFILL BEDDING UNDER APRONS AND 1'-0 SPECIAL BACKFILL BEDDING UNDER BARREL.
5	2415-2110808	**PRECAST CONCRETE BOX CULVERT, 8 FT. X 8 FT.** INCLUDES MATERIAL AND LABOR ASSOCIATED WITH PROVIDING AND INSTALLING THE CULVERT TIES, LIFTING HOLE PLUGS, ENGINEERING FABRIC, JOINT MATERIAL, AND GROUT AS REQUIRED.
6	2415-2200808	**PRECAST CONCRETE BOX CULVERT STRAIGHT END SECTION, 8 FT. X 8 FT.** INCLUDES MATERIAL AND LABOR ASSOCIATED WITH PROVIDING AND INSTALLING THE CULVERT TIES, LIFTING HOLE PLUGS, ENGINEERING FABRIC, JOINT MATERIAL, AND GROUT AS REQUIRED. INCLUDES 0 DEGREE SKEW 2 PRECAST END SECTIONS, 2 PRECAST LINTEL BEAMS, AND 2 PRECAST CURTAIN WALLS.
7	2507-3250005	**ENGINEERING FABRIC** ENGINEERING FABRIC SHALL BE MATERIAL AS SPECIFIED FOR EMBANKMENT EROSION CONTROL IN ACCORDANCE WITH ARTICLE 4196.01,B,3, OF THE STANDARD SPECIFICATIONS.
8	2507-6800061	**REVETMENT, CLASS E** ESTIMATED AT 1.6 TON/CY.

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 PRECAST REINFORCED CONCRETE BOX CULVERT

QUANTITIES

STA. 1400+94.00 (U.S. 30) APRIL, 2017

BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 4 FILE NO. 31043 DESIGN NO. 718

DESIGN TEAM JSZ / JSN | BENTON COUNTY | PROJECT NUMBER NHSX-030-6(231)--3H-06 | SHEET NUMBER V.11

GENERAL NOTES:

IT IS THE INTENT OF THIS DESIGN TO REPLACE THE EXISTING 12'-0 x 5'-0 REINFORCED CONCRETE BOX CULVERT WITH A SLOPE TAPERED INLET EXTENSION WITH A 8'-0 x 8'-0 x 237'-0 PRECAST REINFORCED CONCRETE BOX CULVERT SKEWED 3°, LEFT AHEAD, AT STATION 1400+94.00.

COPIES OF ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CULVERT CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES. DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS (DESIGN NUMBERS #7026 AND #2548).

FAINT LINES ON PLANS INDICATE EXISTING STRUCTURE.

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

THE PRECAST R.C.B. CULVERT SECTIONS ARE DESIGNED FOR HL-93 LIVE LOAD AND EARTH FILLS OF 11 FEET.

THE PRECAST R.C.B. BARREL AND END SECTIONS SHALL CONFORM TO IOWA D.O.T. SINGLE PRECAST R.C.B. CULVERT STANDARDS. AT THE CONTRACTOR'S OPTION, PRECAST BARREL SECTIONS MAY CONFORM TO ASTM C1577.

EXCESS CLASS 20 EXCAVATION MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED AT THE CONSTRUCTION SITE, AS DIRECTED BY THE ENGINEER.

THE BID ITEM "REMOVAL OF EXISTING STRUCTURES" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING THE 12'-0 x 5'-0 REINFORCED CONCRETE BOX CULVERT WITH A SLOPE TAPERED INLET EXTENSION. REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS.

THE LENGTH IN LINEAR FEET OF PRECAST REINFORCED CONCRETE BOX CULVERT WILL BE BASED ON THE PLAN QUANTITY. FOR THE NUMBER OF LINEAR FEET GIVEN ON THE PLAN, THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE PER LINEAR FOOT. THE PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, LABOR AND EQUIPMENT NECESSSARY TO COMPLETE THE WORK EXCEPT FOR BID ITEMS "CONCRETE BOX CULVERT STRAIGHT END SECTION", "CLASS 20 EXCAVATION", "CLASS E REVETMENT", AND "GRANULAR BACKFILL".

FOR EACH PRECAST BOX CULVERT STRAIGHT END SECTION INSTALLED THE CONTRACTOR WILL BE PAID THE CONTRACT PRICE PER EACH. THE PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING LINTEL BEAMS AND CURTAIN WALLS), LABOR AND EQUIPMENT NECESSARY TO COMPLETE THE WORK EXCEPT FOR BID ITEMS "PRECAST CONCRETE BOX CULVERT", "CLASS 20 EXCAVATION", "CLASS E REVETMENT", AND "GRANULAR BACKFILL".

THE CURTAIN WALL AND THE TYPE 3 LINTEL BEAM OR TYPE I PARAPET SHALL BE PRECAST.

THE CONTRACTOR SHALL FURNISH AND INSTALL CULVERT TIES FOR ALL JOINTS. THE MAIN SECTION JOINTS WILL HAVE ONE TIE ON EACH SIDE OF THE BARREL AND THE LAST BARREL SECTION WILL BE ATTACHED TO THE END SECTIONS WITH TWO TIES PER SIDE. THE END SECTION JOINTS WILL HAVE TWO TIES PER SIDE.

CULVERT TIES SHALL BE INCLUDED IN THE COST FOR PRECAST CONCRETE BOX CULVERT. TIE RODS WILL BE 1 INCH DIAMETER STEEL AND SHALL MEET REQUIREMENTS OF ASTM A709 GRADE 36 OR EQUAL.

CULVERT TIE ASSEMBLIES SHALL BE GALVANIZED AFTER FABRICATION.

THE LIMITS FOR EXCAVATION FOR THE PRECAST CONCRETE BOX CULVERT SHALL BE AS SHOWN ON THE "GRANULAR BEDDING DETAIL".

A MINIMUM OF 6 INCHES OF GRANULAR MATERIAL WITH A MAXIMUM AGGREGATE SIZE OF $\frac{3}{8}$ INCH SHALL BE USED AS BEDDING FOR THE PRECAST BOX CULVERT. THE BEDDING SHALL BE SHAPED TO A FLAT BASE USING A TEMPLATE. THE 6 INCH GRANULAR BEDDING SHALL BE BID AS SPECIAL BACKFILL.

THE CONTRACTOR SHALL SUBMIT DETAILS OF THE PROPOSED PRECAST BOX SECTIONS TO THE OFFICE OF BRIDGES AND STRUCTURES FOR ALL PROJECTS. THE DETAILS SHALL INCLUDE THE FOLLOWING INFORMATION AS FOUND ON THE "SUBMITTAL SHOP DRAWING" STANDARD SHEET:

A. A SITUATION PLAN DRAWING SHOWING THE BACK TO BACK PARAPET DIMENSION FOR THE LINE OF THE CULVERT SECTIONS.
B. DIMENSION THE NUMBER OF PRECAST SECTIONS AND SECTION LENGTHS.
C. A DETAIL OF THE PRECAST BARREL SECTIONS SHOWING A CROSS SECTION VIEW OF THE SECTION, STEEL LOCATIONS, DIMENSIONS, ETC.
D. A DETAIL OF THE PRECAST CULVERT END SECTION SHOWING A CROSS SECTION VIEW OF THE SECTIONS, STEEL LOCATIONS, DIMENSIONS, ETC. SIMILAR TO THE END SECTION DETAILS SHOWN IN THE IDOT STANDARDS.

THE CONTRACTOR SHALL PROVIDE ALL INFORMATION SHOWN ON THE SUBMITTAL SHOP DRAWING SHEET REGARDLESS OF WHICH PRECAST BOX OPTION IS SELECTED.

APPROVAL OF DETAILS IS NOT REQUIRED FOR PROJECTS CONFORMING TO "ASTM C1577" AND "IDOT STANDARDS" PRECAST BOX OPTIONS WITH END SECTIONS CONFORMING TO "IDOT STANDARDS." HOWEVER, THE DETAILS SHALL BE RECEIVED BY THE OFFICE OF BRIDGES AND STRUCTURES PRIOR TO THE START OF FABRICATION.

APPROVAL OF DETAILS IS REQUIRED FOR "NONSTANDARD" PRECAST BOX OPTIONS AND "NONSTANDARD" END SECTION OPTIONS. BOXES AND END SECTIONS REQUIRING OPENINGS OR ATTACHMENTS SHALL BE CONSIDERED NONSTANDARD. THE CONTRACTOR SHALL ALLOW THIRTY WORKING DAYS FOR THE ENGINEER'S REVIEW PRIOR TO THE START OF FABRICATION.

DETAILS REQUIRING APPROVAL SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF IOWA. BOXCAR SOFTWARE VERSION 3.1 OR LATER OR OTHER EQUIVALENT SOFTWARE CAN BE USED TO DESIGN THE PRECAST BOX CULVERT BARREL SECTIONS, PROVIDING THE ANALYSIS MEETS THE MINIMUM REQUIREMENTS ESTABLISHED FOR THE IDOT STANDARDS AS FOUND IN THE IDOT BRIDGE DESIGN MANUAL. THE MINIMUM REQUIREMENTS INCLUDE REINFORCEMENT CLEARANCE REQUIREMENTS USED IN THE "IDOT STANDARDS."

INSTALLATION NOTES:

PRECAST CONCRETE BOX CULVERT SECTIONS SHALL BE LAID WITH THE GROOVE END OF EACH SECTION UP-GRADE, AND THE SECTIONS SHALL BE TIGHTLY JOINED. CONCRETE TIES TO BE USED ONLY TO HOLD BOX SECTIONS TOGETHER, NOT FOR PULLING SECTIONS TIGHT. JOINT OPENINGS BETWEEN SECTIONS SHOULD BE AS TIGHT AS PRACTICABLE AND LIMITED TO A MAXIMUM OF $\frac{3}{4}$ INCH OPENINGS. THE JOINT ON THE BOTTOM OF THE CULVERT SHALL BE SEALED WITH A FLEXIBLE WATER TIGHT 1 INCH BUTYL ROPE GASKET AS PER MATERIALS I.M. 491.09.

BUTYL ROPE GASKET SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER AND SHALL EXTEND VERTICALLY 6 INCHES ABOVE THE BOTTOM FILLET. ALL JOINTS SHALL BE TRIMMED CLEAN ON THE INSIDE AFTER SEALING.

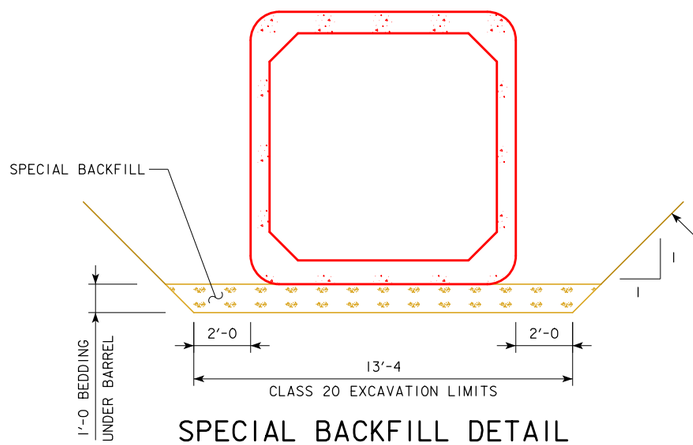
THE CONTRACTOR SHALL PLACE A 2 FOOT WIDE PIECE OF ENGINEERING FABRIC AROUND THE TOP AND SIDES OF EACH PRECAST JOINT. THE FABRIC SHALL BE CENTERED WITH 1 FOOT ON EACH SIDE OF THE JOINT, THE FABRIC SHALL BE ATTACHED TO THE WALLS AND TOP OF EACH SECTION TO PREVENT THE FABRIC FROM SLIPPING OFF THE JOINT DURING BACKFILLING OPERATIONS. ATTACHMENT METHODS SHALL BE APPROVED BY THE ENGINEER. ALL COSTS INCLUDING MATERIAL AND LABOR ASSOCIATED WITH PROVIDING THE ENGINEERING FABRIC AND INSTALLING IT AS REQUIRED SHALL BE INCLUDED IN THE BID ITEMS "PRECAST CONCRETE BOX CULVERT" AND "PRECAST BOX CULVERT STRAIGHT END SECTION". THE ENGINEERING FABRIC SHALL BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.

CLASS E REVETMENT WILL BE PLACED AROUND BOTH PRECAST BOX CULVERT END SECTIONS, AS SHOWN IN THESE PLANS.

DURING BACKFILLING THE COMPACTION ADJACENT TO THE BOTTOM CORNER RADII OR CHAMFER SHALL BE ACCOMPLISHED WITH A MECHANICAL HAND COMPACTOR.

THE CONTRACTOR SHALL FURNISH AND INSTALL LIFTING HOLE PLUGS FOR EACH SECTION. LIFTING HOLES SHALL BE PLUGGED WITH A PRECAST CONCRETE PLUG OR PLASTIC PLUG APPROVED BY THE ENGINEER, SEALED AND COVERED WITH A 2'-0 x 2'-0 PIECE OF ENGINEERING FABRIC CENTERED OVER THE HOLE AND ATTACHED TO THE SECTION TO PREVENT THE FABRIC FROM SLIPPING.

SINCE PRECAST CONCRETE CULVERT END SECTIONS HAVE THE FORESLOPE LOCATED AT THE BOTTOM OF THE PARAPET INSTEAD OF THE TOP (AS IN THE CASE OF CAST IN PLACE RCB CULVERTS) THE MAIN BARREL SECTION HAS BEEN LENGTHENED.



SPECIAL BACKFILL DETAIL (UNDER BARREL)

SPECAL BACKFILL SHALL BE FILLED BETWEEN BACK TO BACK OF PARAPETS.

SPECIFICATIONS:

DESIGN:

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH ED., SERIES OF 2010.

CONSTRUCTION:

IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT SERIES, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH ED., SERIES OF 2010:

BAR REINFORCEMENT IN ACCORDANCE WITH AASHTO LRFD SECTION 5, GRADE 60.
WELDED WIRE REINFORCEMENT IN ACCORDANCE WITH AASHTO LRFD SECTION 5.
CONCRETE IN ACCORDANCE WITH AASHTO LRFD SECTION 5, f'c FOR BARREL SECTIONS AS NOTED ON CULVERT BARREL DETAIL STANDARDS, FOR END SECTION DESIGN f'c = 5 KSI.

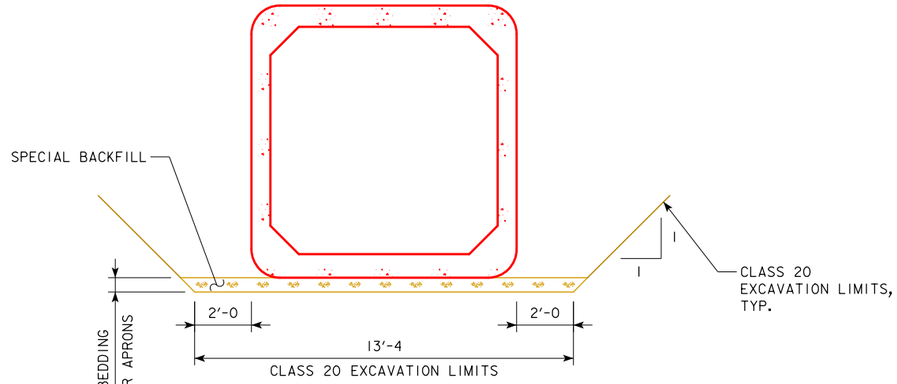
TRAFFIC CONTROL PLAN

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

NOTE:
POLLUTION PREVENTION PLAN SHOWN ELSEWHERE IN THESE PLANS.

STANDARDS:
FOR DETAILS AND NOTES NOT SHOWN REFER TO THE FOLLOWING IOWA D.O.T. - HIGHWAY STANDARDS:

STANDARD	ISSUED	REVISED
PRCB G1-13	01-13	07-16
PRCB G2-13	01-13	07-16
PRCB 8-13	01-13	---------
PES 1-13-T1	01-13	07-16
PES 1-13-T3	01-13	07-16
PES 3-13-T3	01-13	07-16
PES 4-13	01-13	---------
PEP 1-13	01-13	12-15



SPECIAL BACKFILL DETAIL (UNDER APRONS)

SPECIAL BACKFILL SHALL TERMINATE 3'-0 SHORT OF THE PRECAST CURTAIN WALL.

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 PRECAST REINFORCED CONCRETE BOX CULVERT

GENERAL NOTES

STA. 1400+94.00 (U.S. 30) APRIL, 2017

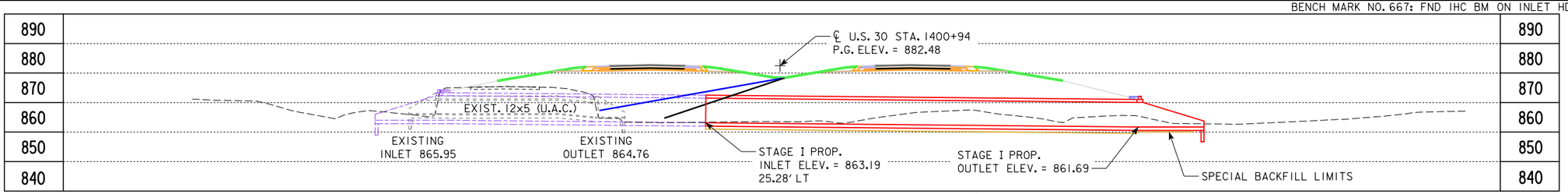
BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 4 FILE NO. 31043 DESIGN NO. 718

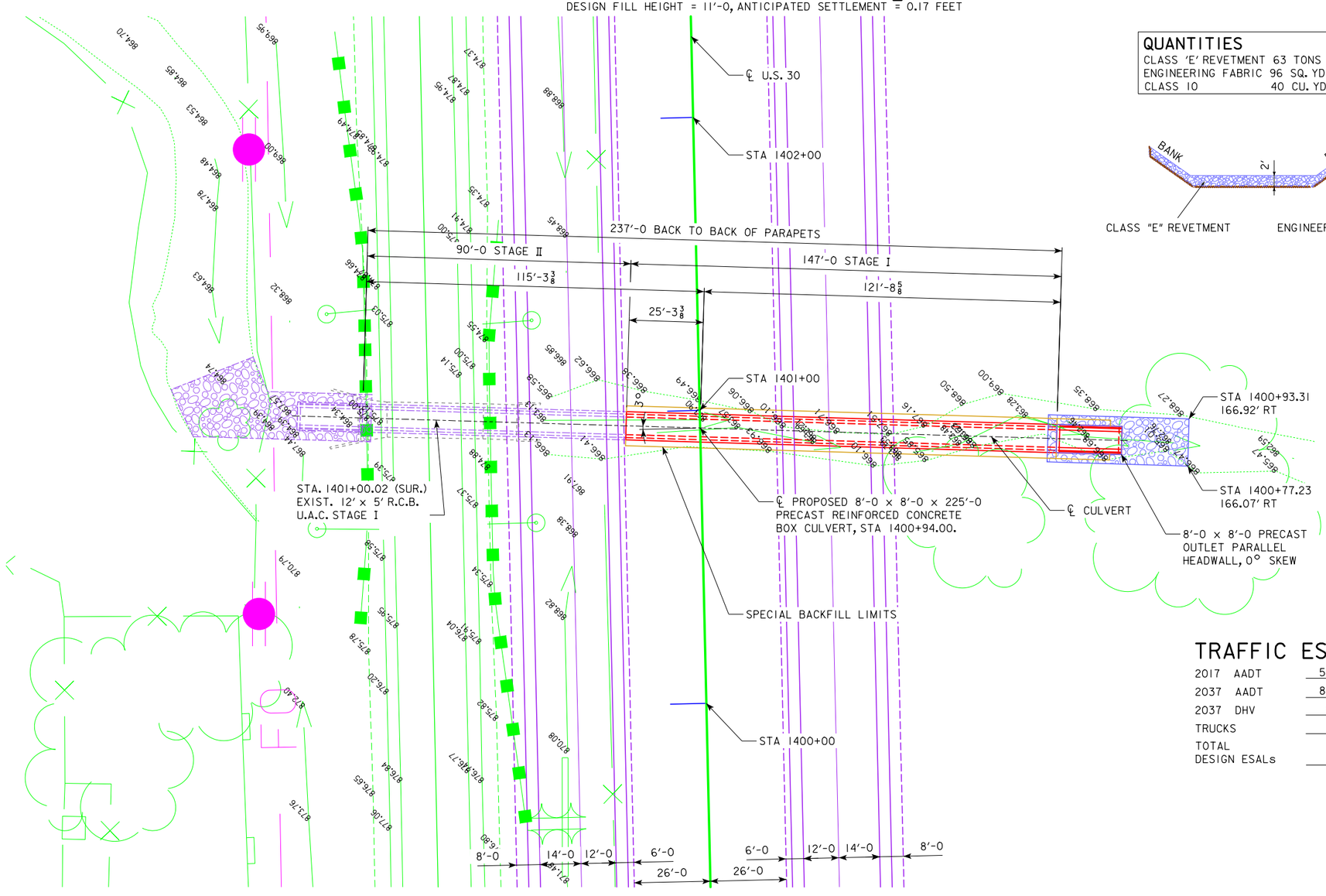
REVISED 12-15 - MODIFIED CLASS 20 EXCAVATION LIMIT FROM 1'-0 OUTSIDE FACE OF BARREL TO 2'-0 FROM INSIDE FACE OF BARREL.
ENGLISHPRECASTCULVERTS.DGN - 108IP - THIS SHEET ISSUED 01-13.

BENCH MARK NO. 667: FND IHC BM ON INLET HDWL, STA. 1388+14.76, 27' LT., ELEV. = 875.129



LONGITUDINAL SECTION ALONG ℄ CULVERT

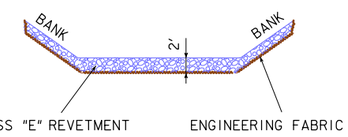
DESIGN FILL HEIGHT = 11'-0, ANTICIPATED SETTLEMENT = 0.17 FEET



SITUATION PLAN

QUANTITIES

CLASS 'E' REVETMENT	63 TONS
ENGINEERING FABRIC	96 SQ. YDS.
CLASS 10	40 CU. YDS.



HYDRAULIC DATA

DRAINAGE AREA = 803 ACRES
Q_{50} = 627 CFS

N

UTILITIES LEGEND:

FO - FIBER OPTIC

LOCATION

US 30 OVER WEASEL CREEK
T-83N R-10W
SECTION 30 & 31
ELDORADO TOWNSHIP
BENTON COUNTY
LATITUDE 41.963390°
LONGITUDE -092.055144°

TRAFFIC ESTIMATE

2017 AADT	5400	V.P.D.
2037 AADT	8500	V.P.D.
2037 DHV	880	V.P.H.
TRUCKS	19	%
TOTAL DESIGN ESALs		

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 PRECAST REINFORCED CONCRETE BOX CULVERT

SITUTATION PLAN (STAGE I)

STA. 1400+94.00 (U.S. 30) APRIL, 2017

BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 4 FILE NO. 31043 DESIGN NO. 718

DESIGN TEAM JSZ / JSN | BENTON COUNTY | PROJECT NUMBER NHSX-030-6(231)--3H-06 | SHEET NUMBER V.13

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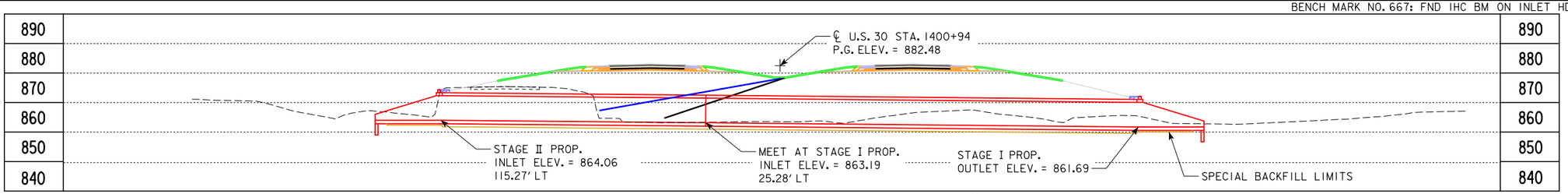
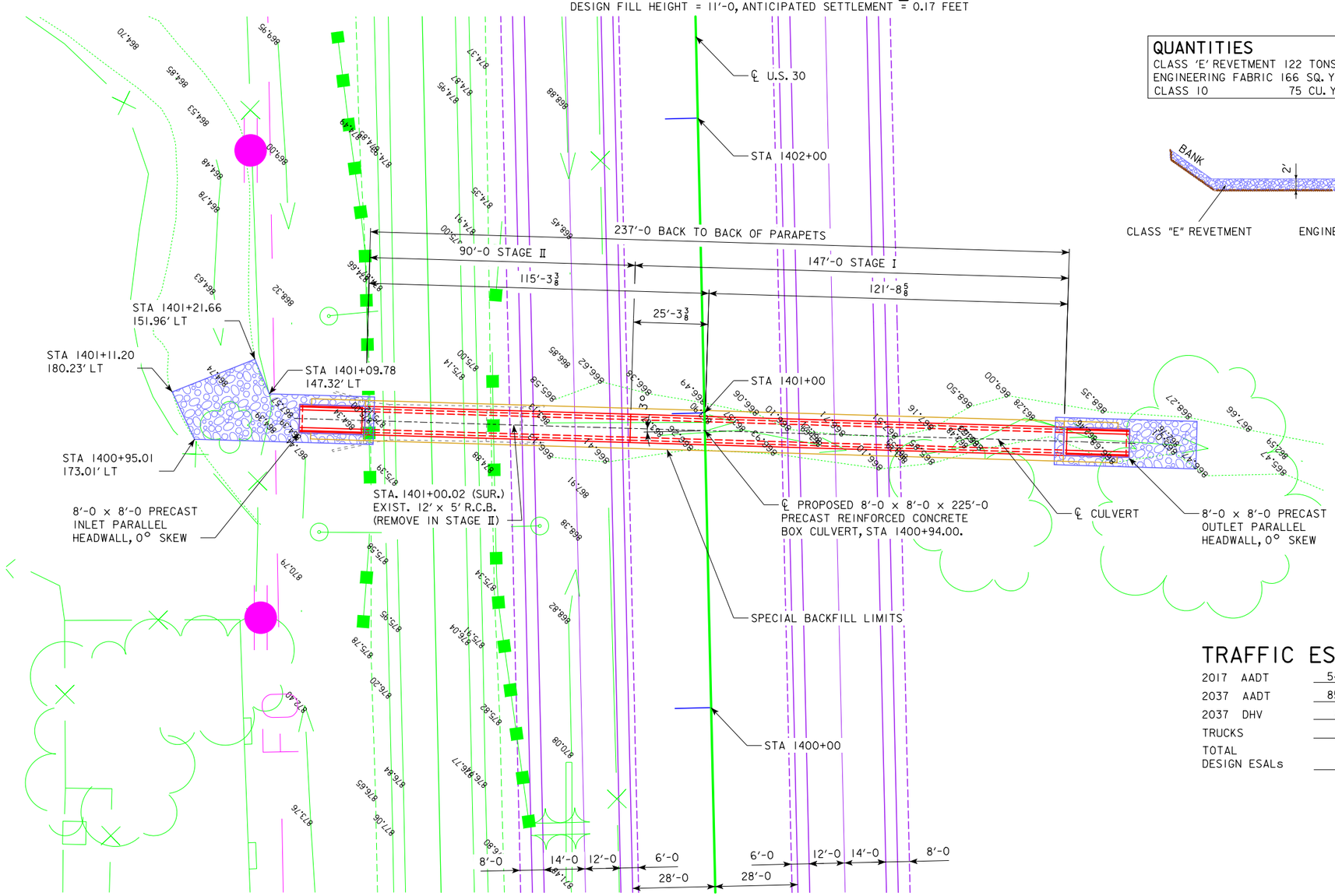
BENCH MARK NO. 667: FND IHC BM ON INLET HDWL, STA. 1388+14.76, 27' LT., ELEV. = 875.129



LONGITUDINAL SECTION ALONG ℄ CULVERT

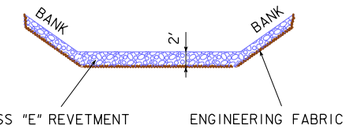
DESIGN FILL HEIGHT = 11'-0, ANTICIPATED SETTLEMENT = 0.17 FEET



SITUATION PLAN

QUANTITIES

CLASS 'E' REVETMENT	122 TONS
ENGINEERING FABRIC	166 SQ. YDS.
CLASS 10	75 CU. YDS.



HYDRAULIC DATA

DRAINAGE AREA = 803 ACRES
Q_{50} = 627 CFS

N

UTILITIES LEGEND:

FO - FIBER OPTIC

LOCATION

US 30 OVER WEASEL CREEK
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TOTAL DESIGN ESALs		

DESIGN FOR 3° SKEW (L.A.)

8'-0 x 8'-0 x 225'-0 PRECAST REINFORCED CONCRETE BOX CULVERT

SITUTATION PLAN (STAGE II)

STA. 1400+94.00 (U.S. 30) APRIL, 2017

BENTON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 4 FILE NO. 31043 DESIGN NO. 718

DESIGN TEAM JSZ / JSN | BENTON COUNTY | PROJECT NUMBER NHSX-030-6(231)--3H-06 | SHEET NUMBER V.14

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