LETTING DATE 12/18/18

BRIDGE AND APPROACHES - CCS
BRF-030-1(155)--38-43
HARRISON Co.

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 3	Typical Cross Sections and Details
CD Sheets	**Drainage Tabulations**
CD.1	Drainage Tabulations
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	US HWY 30
F Sheets	**Detour or Temporary Pavement Sheets**
* F.1	Detour Plan and Profile Sheets
G Sheets	**Survey Sheets**
G.1	Bench Marks
G.1	Horizontal Control Tab. & Super for all Alignments
J Sheets	**Traffic Control and Staging Sheets**
* J.1	Traffic Control Plan
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
U.1 - 3	500 Series, Modified Standards and Detail Sheets
V Sheets	**Bridge and Culvert Situation Plans**
V.1 - 4	Bridge and Culvert Situation Plans
W Sheets	**Mainline Cross Sections**
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 7	Mainline Cross Sections
X Sheets	**Side Road Cross Sections**
X.1 - 8	Detour Cross Sections
	* Color Plan Sheets

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

HARRISON COUNTY

BRIDGE AND APPROACHES - CCS

SCALES: As Noted

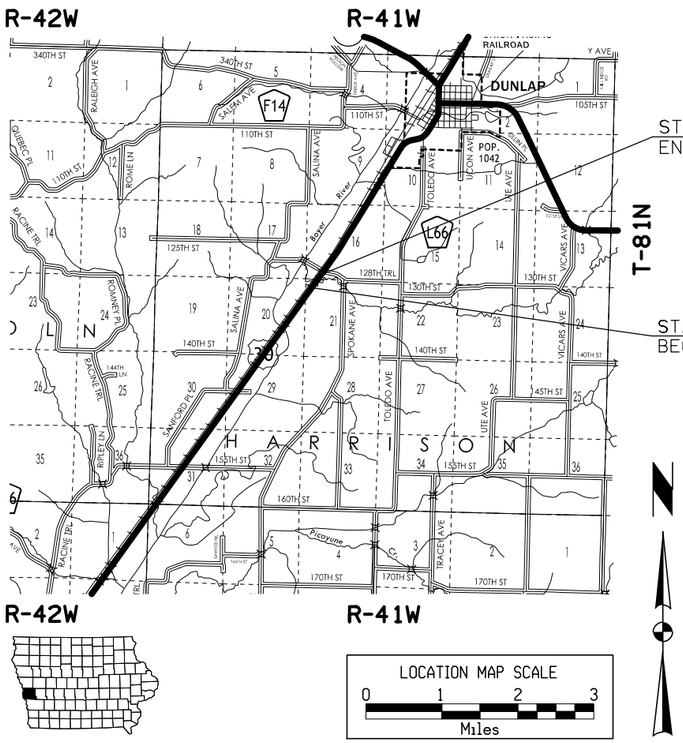
Refer to the Proposal Form for list of applicable specifications.

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

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

REVISIONS

TOTAL 33
PROJECT IDENTIFICATION NUMBER
15-43-030-030
PROJECT NUMBER
BRF-030-1(155)--38-43
R.O.W. PROJECT NUMBER
NHSN-030-1(156)--2R-43
NHSN-030-1(156)--2R-43



STA. 1391+38.70
END PROJECT

STA. 1376+47.05
BEGIN PROJECT

LOCATION MAP SCALE
0 1 2 3
Miles

For Project Location Map
Refer to Sheet A.2

DESIGN DATA RURAL		
2020 AADT	3400	V.P.D.
2040 AADT	4000	V.P.D.
2040 DHV	410	V.P.H.
TRUCKS	23	%
Total Design ESALs	--	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Brian T. Higginbotham	Primary Signature Block
V.1	Stephen W. Moffitt	Hydraulic & Structural

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN – Date: 12/20/16

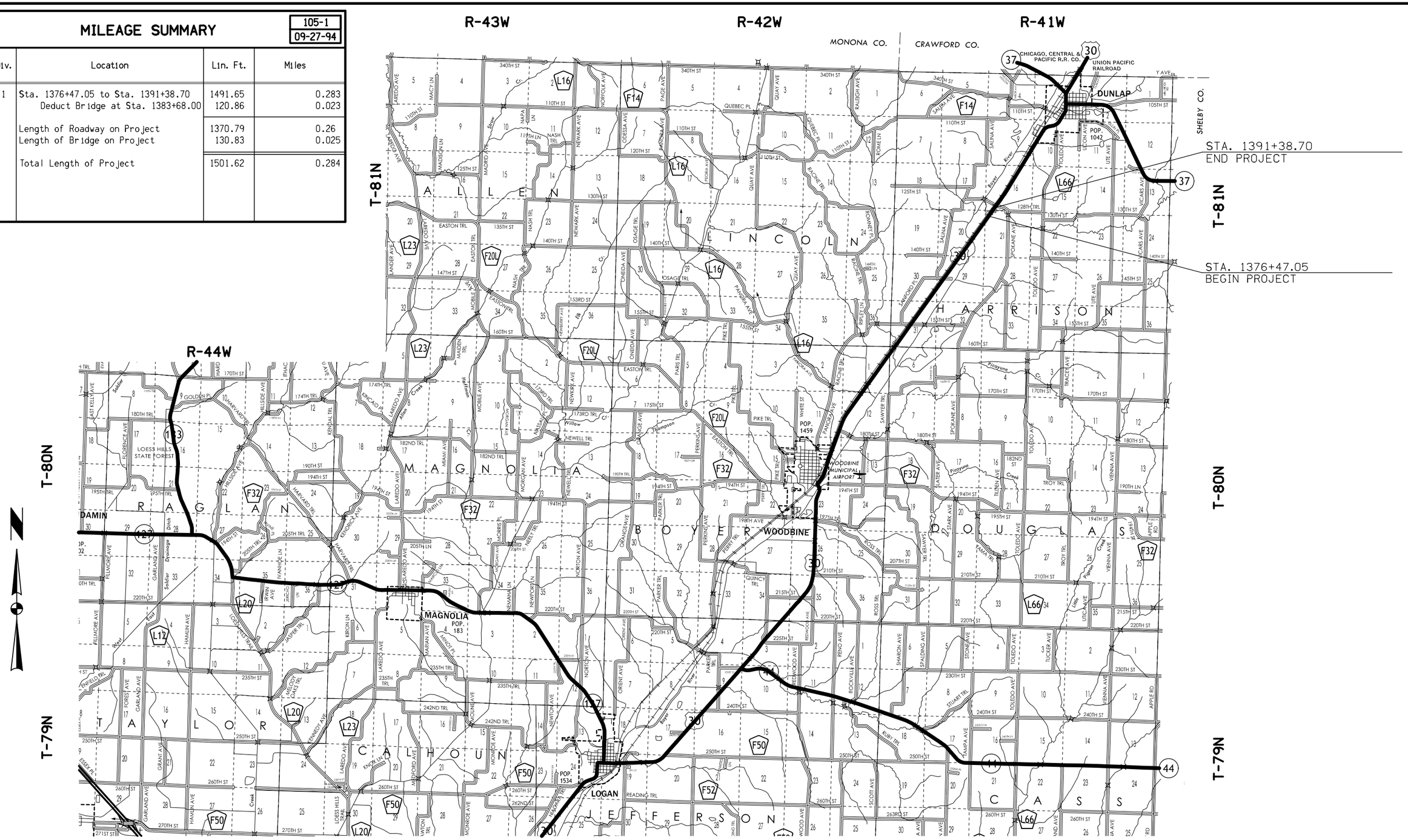
FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER A.1

9:17:16 AM 12/20/2016 BTH W:\Projects\4303003015\Design\43030155a01.sht

MILEAGE SUMMARY

105-1
09-27-94

Div.	Location	Lin. Ft.	Miles
1	Sta. 1376+47.05 to Sta. 1391+38.70	1491.65	0.283
	Deduct Bridge at Sta. 1383+68.00	120.86	0.023
	Length of Roadway on Project	1370.79	0.26
	Length of Bridge on Project	130.83	0.025
	Total Length of Project	1501.62	0.284



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER A.2

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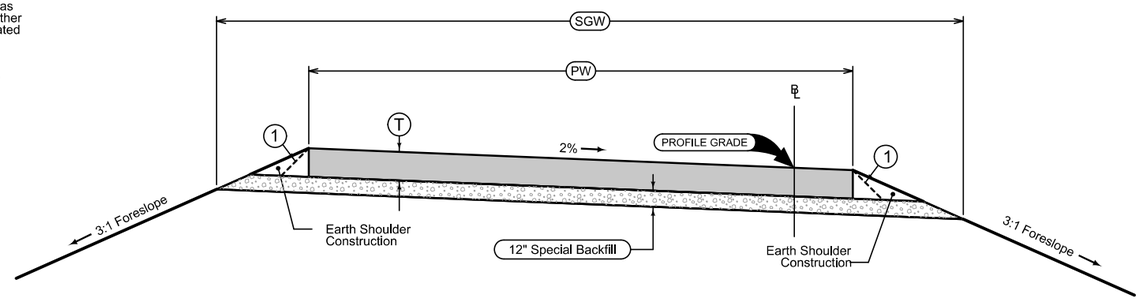
LOCATION			DIMENSIONS						12" Special Backfill	Earth Shoulder Construction
ROAD IDENTIFICATION	STATION TO STATION		HMA			PCC				
			(PW) Feet	(T) Inches	(SGW) Feet	(PW) Feet	(T) Inches	(SGW) Feet	Tons/Station	Station
US 30 Detour	11379+01.46	11383+55.52	28	9	38.81	28	8	38.06	256	4.54
US 30 Detour	11384+34.68	11389+10.34	28	9	38.81	28	8	38.06	256	4.76

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.

(1) Possible HMA 1:1 slope

D_Detour
Modified



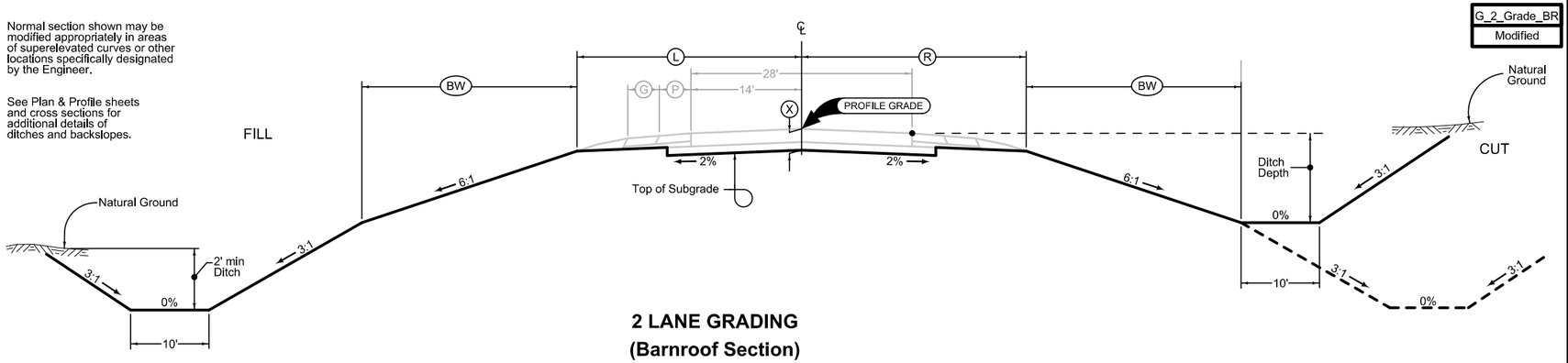
DETOUR PAVING

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
US 30	1382+34.51	1383+07.51	32.5-34.6	32.9	24	N/A
US 30	1384+28.49	1385+01.49	34.6-32.9	32.9-32.5	24	N/A

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

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

G_2_Grade_BR
Modified



2 LANE GRADING
(Barnroof Section)

Paved Shoulder at Guardrail

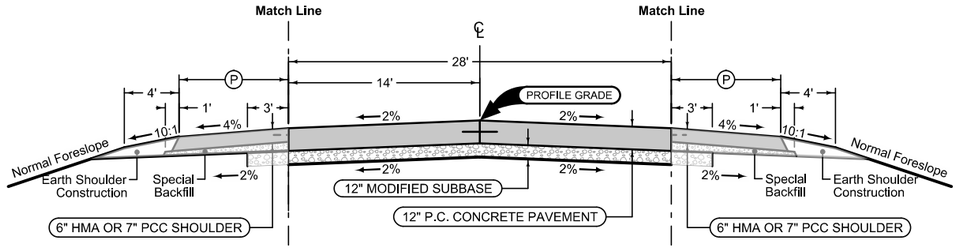
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

2_P_Guard_ Modified		
STATION TO STATION		(P) Feet
1381+71.85	1381+91.85	14
1381+91.85	1382+34.51	12.1
1382+34.51	1382+44.51	10.0-9.6
1382+44.51	1382+64.51	9.6
Bridges		
1384+71.49	1384+92.46	9.6
1384+92.46	1385+01.49	9.6-10.5
1385+01.49	1385+05.07	12.8-13.1
1385+05.07	1385+17.59	13.1
1385+17.59	1385+69.79	13.1-15.2
1385+69.79	1385+89.79	15.2

Combination Shoulder

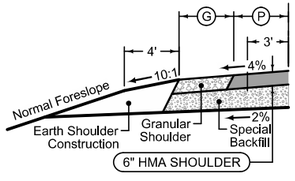
Shoulder Jointing:
Longitudinal joint: B

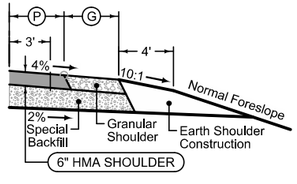
2_C_ Modified			
STATION TO STATION		(P) Feet	(G) Feet
1381+42.25	1381+71.85	UAC	5.4-9.7
1385+89.79	1386+29.01	UAC	11.0-4.1



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

2P_ Modified	
STATION TO STATION	
1382+34.51	1383+07.51
1384+28.49	1385+01.49





Paved Shoulder at Guardrail

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

2_P_Guard_ Modified		
STATION TO STATION		(P) Feet
1381+46.21	1381+66.21	14.6
1381+66.21	1382+18.41	14.6-12.4
1382+18.41	1382+30.93	12.4
1382+30.93	1382+34.51	12.4-12.0
1382+34.51	1382+43.52	10.5-9.6
1382+43.52	1382+64.51	9.6
Bridge		
1384+71.49	1384+91.96	9.6
1384+91.96	1385+01.49	9.6-10.0
1385+01.49	1385+44.15	11.9-13.7
1385+44.15	1385+64.15	13.7

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

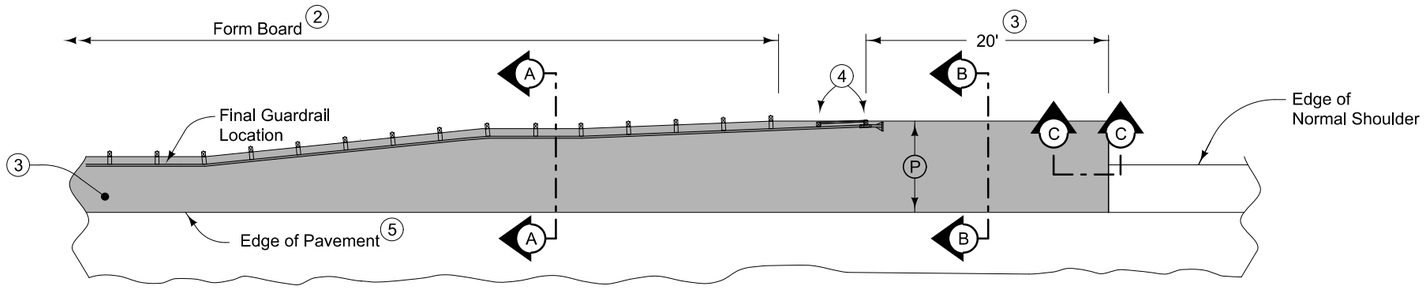
2_C_ Modified			
STATION TO STATION		(P) Feet	(G) Feet
1376+47.0	1379+49.0	4	6
1381+17.14	1381+46.21	UAC	6.8-11.0
1385+64.15	1385+92.59	UAC	9.7-5.8
1388+40.5	1391+38.7	4	6

See Tab 100-24 or 100-25 for pavement quantities.

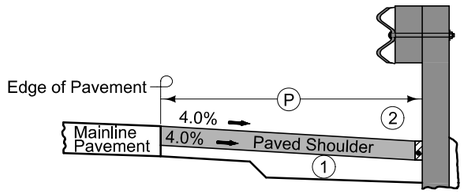
See Tab 112-9 for shoulder quantities.

U.S. 30

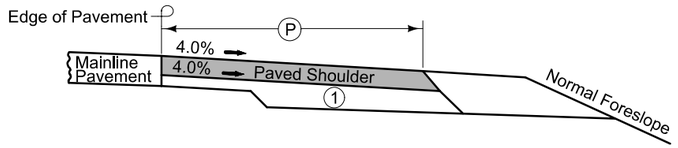
7156
04-18-17



PLAN VIEW

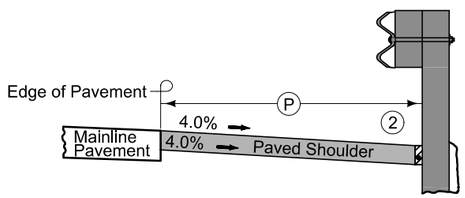


Section A-A

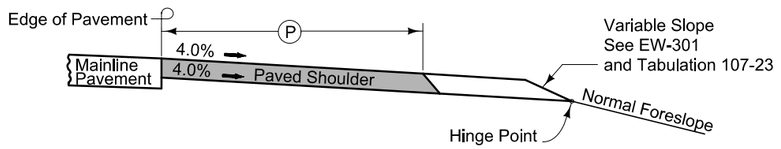


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at 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.

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

Refer to Tabulation 112-9 for shoulder quantities.

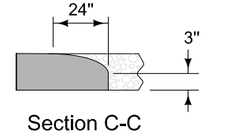
(1) For subgrade treatment, refer to other details in the plan.

(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.
'B' joint for HMA shoulder.



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

PAVED SHOULDER AT GUARDRAIL

100-34
04-19-16

STORMWATER DRAINAGE BASIN

Basin No.	Station to Station		Side	Disturbed Area Acres	Discharge Point Station	Discharge Point Side	Required Storage Volume CF	Remarks
1	1381+13.40	1383+32.82	LT	0.3	1383+11.10	LT	1047.6	Mainline-Left and NW of Bridge
2	1383+75.20	1387+01.50	LT	0.4	1387+00.30	LT	1404.0	Mainline- Left and NE of Bridge
3	1380+89.60	1383+41.00	RT	0.3	1381+17.00	RT	1155.6	Mainline- Right and SW of Bridge
4	1383+84.10	1385+96.60	RT	0.3	1384+18.70	RT	1162.8	Mainline- Right and SE of Bridge
5	11378+88.70	11383+63.41	LT	0.3	11383+63.40	LT	1177.2	Detour- Left and NW of Detour Bridge
6	11384+18.47	11389+22.70	LT	0.4	11384+29.53	LT	1335.6	Detour- Left and NE of Detour Bridge
7	11376+43.30	11383+58.80	RT	0.8	11376+53.40	RT	2991.6	Detour- Right and SW of Detour Bridge
8	11384+34.73	11391+65.73	RT	0.9	11384+34.40	RT	3193.2	Detour- Right and SE of Detour Bridge
							13467.6	

100-35
04-19-16

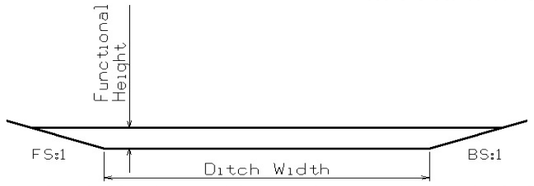
SUMMARY OF STORMWATER STORAGE

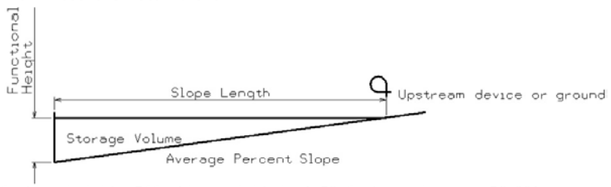
Basin No.	Item	Total Storage Volume Provided CF	Total Storage Volume Required CF	Remarks
1	SILT FENCE DITCH CHECK - CONTAINING BOTH ENDS OF FLAT DITCH	1127.7	1047.6	
2	SILT FENCE DITCH CHECK - CONTAINING BOTH ENDS OF FLAT DITCH	1788.6	1404.0	
3	SILT FENCE FOR SHALOW OR NO DITCH	2594.3	1155.6	END OF STAGE 2
4	SILT FENCE DITCH CHECK	2920.3	1162.8	END OF STAGE 2
5	SILT FENCE DITCH CHECK	3273.8	1177.2	STAGE 1
6	SILT FENCE DITCH CHECK	5027.0	1335.6	STAGE 1
7	SILT FENCE DITCH CHECK AND SILT FENCE FOR SHALLOW OR NO DITCH	3302.6	2991.6	STAGE 1
8	SILT FENCE DITCH CHECK	3819.7	3193.2	STAGE 1

100-18
10-18-16

SILT FENCES FOR DITCH CHECKS

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





* 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 Station	Location Side	Bid Items Installation LF	Bid Items Maintenance LF	Bid Items Removal LF	Stormwater Storage Volume Summary Foreslope FS:1	Backslope BS:1	Ditch Width FT	Avg. % Slope	Volume* CF	Remarks
1	1	1383+11.00	LT	20.0			3.0	3.0	5.0	0.0%	563.9	
1	1	1381+25.00	LT	20.0			3.0	3.0	5.0	0.0%	563.9	
2	1	1386+95.00	LT	20.0			3.0	3.0	5.0	0.1%	894.3	
2	1	1384+00.00	LT	20.0			3.0	3.0	5.0	0.1%	894.3	
3	4	1381+00.00	RT	127.0			3.0	3.0	10.0	1.5%	942.0	
3	4	1382+00.00	RT	117.0			3.0	6.0	10.0	1.5%	1023.5	
3	4	1382+95.00	RT	70.0			3.0	10.0	10.0	1.5%	628.8	
4	1	1384+25.00	RT	20.0			3.0	3.0	10.0	0.9%	1460.2	
4	1	1385+80.00	RT	20.0			3.0	3.0	10.0	0.9%	1460.2	
5	1	11380+35.00	LT	15.0			3.0	3.0	8.0	0.3%	1179.3	
5	1	11383+50.00	LT	10.0			4.3	3.0	5.0	0.3%	2094.5	
6	1	11384+50.00	LT	15.0			3.4	3.0	5.0	0.5%	1966.7	
6	1	11387+65.00	LT	35.0			3.0	3.0	25.0	0.5%	3060.4	
7	1	11377+50.00	RT	14.0			3.0	3.0	5.0	0.5%	1212.6	
7	1	11379+50.00	RT	15.0			3.0	3.0	5.0	0.5%	606.3	
7	4	11380+50.00	RT	316.0			3.0	0.0	5.0	0.5%	1483.7	
8	1	11384+35.00	RT	15.0			3.0	3.0	5.0	0.5%	1909.8	
8	1	11387+50.00	RT	20.0			3.0	3.0	5.0	0.5%	1909.8	

SURVEY SYMBOLS

- BL Topo Breakline
- BRG Bridge
- FW Wire Fence
- PPA Power Pole Co. 1
- TPD Telephone Pedestal
- GDL Guard Rail Steel
- SNP Unpaved Shoulder
- SH Paved Shoulder
- EP Edge of Paved Roads (ML or SR)
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- DIK Centerline of Dike or Dam
- BNK Stream Bank
- RR Centerline of Railroad Tracks
- EW Edge of Water
- SP Stream Profile
- T1 Windstream - Quality D
- FO Windstream - Quality D
- BD Bridge Deck
- PRO Profile Shot
- RRR Railroad Rail
- BCL Bridge Centerline
- SBR Size of Bridge
- BLS Bridge Low Steel
- TW Top of Water
- GR Ground Shot

UTILITY LEGEND

- T1 – Windstream - Quality D
- FO – Windstream - Quality D
- Harrison County REC

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

Silt Fence (color varies by drainage basin)

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER D.1

11:45:07 AM 12/15/2016 BTH W:\Projects\4303003015\Design\43030155_LGD.sht

For Bridge Situation Plan
Refer to Sheet No. V.1

For Detour Details
Refer to Sheet No. F.1

1380

1385

1390

Sta. 1381+81.5, 43' LT
Build DR-651
18" x 40'

Sta. 1385+80, 44.25' LT
Build DR-651
18" x 36'

Sta. 1376+47.05
Begin Project

Sta. 1382+34.51
Begin Construction

Mainline Groundline Intercept

Mainline Groundline Intercept

Sta. 1385+01.49
End Construction

Sta. 1391+38.70
End Project

POT Sta 1391+38.70

+29.07
(U.A.C.)

Sta. 1381+68.59, 61.5 RT
2 - TELEPHONE PEDESTALS

Mainline Groundline Intercept

Mainline Groundline Intercept

0 FEET 50

Sect. No. 21

Sta. 1383+68
Build 120'-0" X 44'-0"
Concrete Slab Bridge
15° Skew (R.A)

Sta.1383+52.59
60 X 30 Roadway Deck
Girder Span
DA= 32 Square Miles
(REMOVE)

Harrison TWP. T-81N
R-41W Sec. 16

U.S. HWY 30

VPI +50.000
Elv 1,086.18
Len 200.00 ft
K = 789
SSD = 2723'

Tie-In
Sta. 1382+34.51
Elev. 1086.57

VPI +00.000
Elv 1,087.18
Len 240.00 ft
K = 198
SSD = 668'

Tie-In
Sta. 1385+01.49
Elev. 1086.35

VPI +00.000
Elv 1,085.20
Len 100.00 ft
K = 469
SSD = 3165'

Existing Overlay (Computed)

VPI +50.000
Elv 1,083.90
K = 240
Len 200.00 ft

1,083.80

VPI +50.000
Elv 1,082.71
K = 926
Len 200.00 ft

+0.813%

-0.400%

-0.867%

-0.035%

+50 1081.00
+70 1083.50
+90 1083.50
+00 1081.00
+28 1081.80
+80 1081.00
+40 1081.00
+25 Rt. 1078.45
+00 Rt. 1081.10
+67 1083.90
+58 1081.65
+12 1081.53
+93 1083.90
+00 1081.40
+25 Rt. 1078.30
+75 Rt. 1079.65

0.00% Lt. Ditch Grade
+1.51% Rt. Ditch Grade
-0.12 % Lt. Ditch Grade
+0.90% Rt. Ditch Grade
-0.14 % Lt. Ditch Grade

Lt
Rt

Ditch Dike w/ pipe
Ditch Grade 5' wide ditch
Ditch Grade
Bridge
Bridge
Ditch Grade 5' wide ditch
Ditch Grade
Ditch Dike w/ pipe
Ditch Grade 5' wide ditch

1,082.27 1,082.43 1,082.59 1,082.77 1,082.94 1,083.13 1,083.32 1,083.52 1,083.73 1,083.93 1,084.13 1,084.34 1,084.54 1,084.74 1,084.95 1,085.15 1,085.35 1,085.55 1,085.76 1,085.96 1,086.16 1,086.36 1,086.52 1,086.65 1,086.75 1,086.82 1,086.85 1,086.86 1,086.83 1,086.77 1,086.68 1,086.58 1,086.48 1,086.36 1,086.24 1,086.12 1,085.98 1,085.84 1,085.69 1,085.53 1,085.36 1,085.17 1,084.98 1,084.77 1,084.56 1,084.39 1,084.23 1,084.11 1,084.01 1,083.93 1,083.89 1,083.87 1,083.86 1,083.85 1,083.84 1,083.83 1,083.82 1,083.81 1,083.80

1377 1378 1379 1380 1381 1382 1383 1384 1385 1386 1387 1388 1389 1390 1391

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER D.2

4:43:31 PM 12/19/2016 BTH W:\Projects\4303003015\Design\43030155D2.dgn

For Detour Bridge Situation Plan
Refer to Sheet No. V.2

For Main Line Details
Refer to Sheet No. D.2

Begin Detour
11376+47.05
1376+47.05, 11.00' RT

End Detour
11391+63.17
1391+38.70, 11.00' RT

SAWCUT

Detour Groundline Intercept

Sta. 11381+76.46, 41.4 LT
2 - TELEPHONE PEDESTALS

+29.07
(U.A.C.)

11379+01.46 Detour
1378+99.01, 38.25' RT

11389+10.34 Detour
1388+90.51, 37.84' RT

PC Sta 11376+97.05

Curve Data
Δ = 20° 13' 43.16" (RT)
T = 135.93
L = 269.03
R = 762.00
E = 12.03

PRC Sta 11379+66.08

PI Sta 11381+02.01

PT Sta 11382+35.11

Sta. 11383+95.1
Build 79'-2" X 28'-0"
Detour Bridge
0° Skew

POT Sta 11383+95.11

PC Sta 11385+75.11

PI Sta 11387+11.04

PRC Sta 11388+44.14

PT Sta 11391+13.17

POT Sta 11391+95.36

Sect. No. 21

Curve Data
Δ = 20° 13' 43.16" (LT)
T = 135.93
L = 269.03
R = 762.00
E = 12.03

Sta.1383+52.59
60 X 30 Roadway Deck
Girder Span
DA= 32 Square Miles
(REMOVE)

Curve Data
Δ = 20° 13' 43.16" (LT)
T = 135.93
L = 269.03
R = 762.00
E = 12.03

Curve Data
Δ = 20° 13' 43.16" (RT)
T = 135.93
L = 269.03
R = 762.00
E = 12.03

Harrison TWP. T-81N
R-41W Sec. 16

U.S. HWY 30 DETOUR

0 FEET 50

VPI +01.460
Elv 1,082.96

1,082.96

+0.100%
+00 Lt.
1082.00

VPI +60.000
Elv 1,082.90

+2.053%

VPI +60.000
Elv 1,083.00
K = 72
Len 140.00 ft

-0.26% Lt. Ditch Grade

VPI +50.000
Elv 1,086.90
Len 140.00 ft
SSD = 394'
K = 68

+0.000%

VPI +50.000
Elv 1,086.90
Len 150.00 ft
K = 73
SSD = 399'

-2.053%

VPI +40.000
Elv 1,083.00
K = 72
Len 150.00 ft

1,083.05

+0.029%

+0.16% Rt.
Ditch Grade

+50 Rt.
1077.75

+0.50% Rt.
Ditch Grade

+00 Rt.
1077.67

+00 Rt.
1080.00

+50 Lt.
1081.10

+70 Lt.
1078.75

-11.75% Lt.
Ditch Grade

0.00% Rt.
Ditch Grade

+50 Lt.
1080.00

+0.50% Lt. Ditch Grade

+0.50% Rt. Ditch Grade

+50 Rt.
1080.00

+25 Rt.
1080.00

+00 Lt.
1081.75

+50 Rt.
1082.00

Lt
Rt

Ditch Grade
Ditch Grade
No Ditch
Bridge
Bridge
Ditch Grade
Ditch Grade

1082.94 1082.92 1082.92 1082.95 1083.05 1083.24 1083.52 1083.88 1084.34 1084.85 1085.36 1085.84 1086.24 1086.54 1086.75 1086.87 1086.90 1086.90 1086.90 1086.90 1086.90 1086.90 1086.90 1086.90 1086.86 1086.73 1086.52 1086.22 1085.83 1085.36 1084.85 1084.34 1083.91 1083.56 1083.30 1083.12 1083.03 1083.02 1083.03 1083.04 1083.05

11377 11378 11379 11380 11381 11382 11383 11384 11385 11386 11387 11388 11389 11390 11391

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER F.1

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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)
US 30																			
20000		1375+65.60	7,171,375.03	16,527,210.13															
20001		1391+38.70	7,172,676.27	16,528,094.12															
US 30 DETOUR																			
10100		11375+65.60	7,171,368.85	16,527,219.23															
10101								11376+97.05	7,171,477.59	16,527,293.10	11378+32.98	7,171,590.02	16,527,369.48	11379+66.08	7,171,669.12	16,527,480.03			
10102								11379+66.08	7,171,669.12	16,527,480.03	11381+02.01	7,171,748.21	16,527,590.58	11382+35.11	7,171,860.64	16,527,666.97			
10103		11383+95.11	7,171,992.99	16,527,756.88															
10104								11385+75.11	7,172,141.89	16,527,858.03	11387+11.04	7,172,254.32	16,527,934.41	11388+44.14	7,172,386.24	16,527,967.21			
10105								11388+44.14	7,172,386.24	16,527,967.21	11389+80.07	7,172,518.15	16,528,000.00	11391+13.17	7,172,630.59	16,528,076.39			
10106		11391+95.36	7,172,698.57	16,528,122.57															
PIPE 1 CONST. RL																			
20050		21381+81.50	7,171,884.49	16,527,556.23															
20051		21382+51.50	7,171,923.83	16,527,498.33															
PIPE 2 CONST. RL																			
20060		31385+80.00	7,172,214.12	16,527,780.16															
20061		31386+50.00	7,172,253.46	16,527,722.26															

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	
US 30 DETOUR																
10101											20° 13′ 43.16″ RT	135.93′	269.03′	762.00′	12.03′	
10102											20° 13′ 43.16″ LT	135.93′	269.03′	762.00′	12.03′	
10104											20° 13′ 43.16″ LT	135.93′	269.03′	762.00′	12.03′	
10105											20° 13′ 43.16″ RT	135.93′	269.03′	762.00′	12.03′	

Control Point Coordinate Table
IaRCS Zone 6 - NAD83(2011) Datum - NAVD88 Vertical Datum
Points may be recovered by using IaRTN positioning device

Point	North	East	Elevation	Station	Offset	Feature	Description
1	7172707.086	16528216.660	1082.698	Off Chain	Off Chain	FENO	FENO MONUMENT
500	7172061.141	16527656.960	1088.850	1383+84.22	-15.945	BM	500 FND SQUARE NE WING
2	7168561.364	16525403.408	1081.172	Off Chain	Off Chain	FENO	FENO MONUMENT

Harrison ROW: NHSN-030-1(156)--2R-43 PIN 15-43-030-030
Mill Creek 7.2 mi E of Co Rd F32

		STATE		COUNTY		CITY			BORROW							
PARCEL NO.	OWNER NAME	FEE	EASE	FEE	EASE	FEE	EASE	EXCESS	FEE	T.E.	MITIGATION	OTHER	HOUSE	BUILDING(S)	A/C ONLY	TOTAL ACQ.
1	Richard Hein - Fee	90 SF														
	David A. Hein - Fee															
	Geraldine Hein - Fee															
	John A. Hein - Fee															
2	Gardner Family Farms, LLC. - Fee	333 SF														
3R	Union Pacific Railroad - Fee															
3 Parcels	"TOTALS	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC					
		423 SF	0 SF	0 SF	0 SF	0 SF	0 SF									

TEMPORARY EASEMENT
TO SHAPE

1381+70
℄60′

1382+80
℄65′

1385+90
℄55′

1386+05
℄66′

1381+40
℄50′

1382+60
℄65′

1383+00
℄55′

1384+25
℄60′

1386+30
℄65′

1386+75
℄60′

1387+00
℄50′

1381+25
℄33′±EX.R/W

1387+05
℄33′±EX.R/W

3R

UNION PACIFIC RAILROAD

1380

1385

1390

POT Sta. 1391+38.70

1381+15
℄67′±EX.R/W

1384+10
℄67′±EX.R/W

1385+55
℄67′±EX.R/W

1385+85
℄67′±EX.R/W

1378+70
℄67′±EX.R/W

1381+25
℄70′

1380+40
℄120′

1381+45
℄70′

1382+65
℄155′

1383+40
℄145′

1384+40
℄72′

1385+20
℄175′

1381+35
℄140′

1383+81±P
℄67′

1383+88±P
℄155′

1381+55
℄67′±EX.R/W

(REMOVE)

1384+95
℄67′±EX.R/W

1385+65
℄73′

1385+75
℄73′

1389+10
℄67′±EX.R/W

1387+25
℄130′

2

SEC. 21-81-41W NW1/4NW1/4

GARDNER FAMILY FARMS, LLC

TEMPORARY EASEMENT FOR
DETOUR

TEMPORARY EASEMENT FOR
DETOUR

1

RICHARD, JOHN A., DAVID A. & GERALDINE HEIN

0 50
FEET

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
ROW #: NHSN-030-1(156)--2R-43
Plan Date: 02-17-17
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER H.1

5:33:12 PM 2/17/2017 sgroat pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4303003015\ROW\43030156.sht

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
US 30	E-W	Harrison	7.2 Miles East of County Road F-32	Mill Creek	Traffic Control Device		Horizontal	12	12			(1)
US 30	E-W	Harrison	7.2 Miles East of County Road F-32	Mill Creek	Traffic Control Device		Horizontal	12	11			(2)
		(1) Lane Closure										
		(2) On-site detc										

STAGING NOTES

Stage 1

Traffic:
Maintain two-way traffic on mainline. Utilize TC213 for construciton of detour tie-ins.

Construction:
Construct two-lane detour with temporary bridge south of US 30.

Stage 2

Traffic:
Maintain two-way traffic on paved detour.

Construction:
1. Remove existing bridge.
2. Build new 130' X 44' Bridge.
3. Construct Bridge Approach Pavement, guardrail, adjacent paved shoulders and granular shoulders.

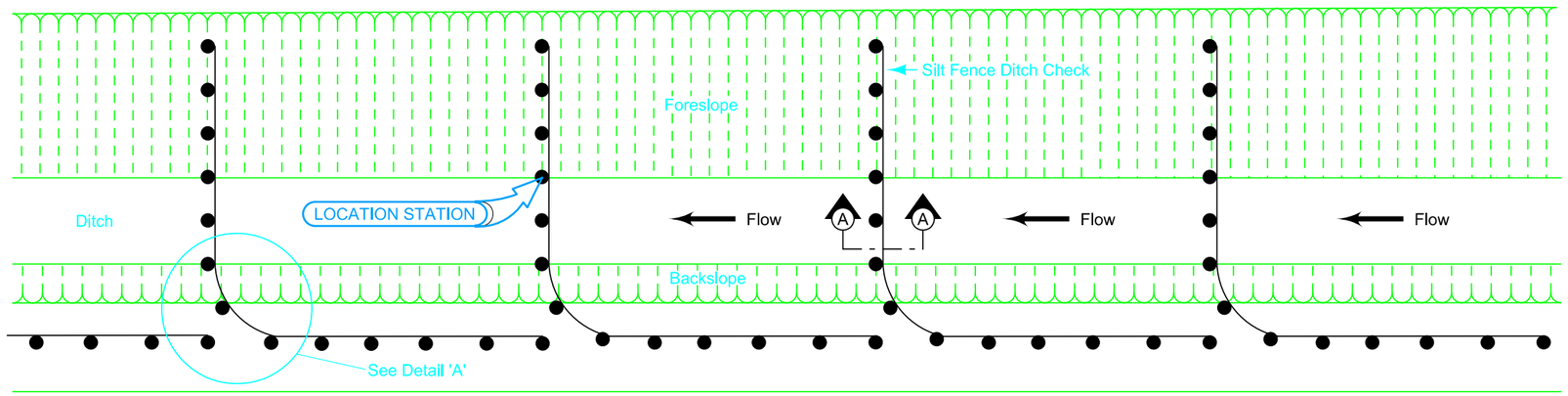
Stage 3

Traffic:
Maintain two way traffic on mainline. Utilize TC-202 for removal of detour. Utilitize TC-213 for restoration of tie-in locations and construction of south ditch and foreslope.

Construction:
1. Remove detour and temporary bridge.
2. Reconstruct shoulders at detour tie-ins.

TRAFFIC CONTROL PLAN

1. Traffic on US 30 will be maintained at all times during construction with the use of a paved on-site detour.
2. Maintain access to Entrance at Sta. 1376+29.07 RT at all times.
3. Maintain access to Entrance at Sta. 1391+38 LT at all times.
4. Maintain access to Entrance at Sta. 1391+40 RT at all times.



PLAN FOR SILT DITCH (SHALLOW DITCH SECTION-TYPE 4) (6)

Install all silt fence using a silt fence machine. Use manual (trench) installation if phyical 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.

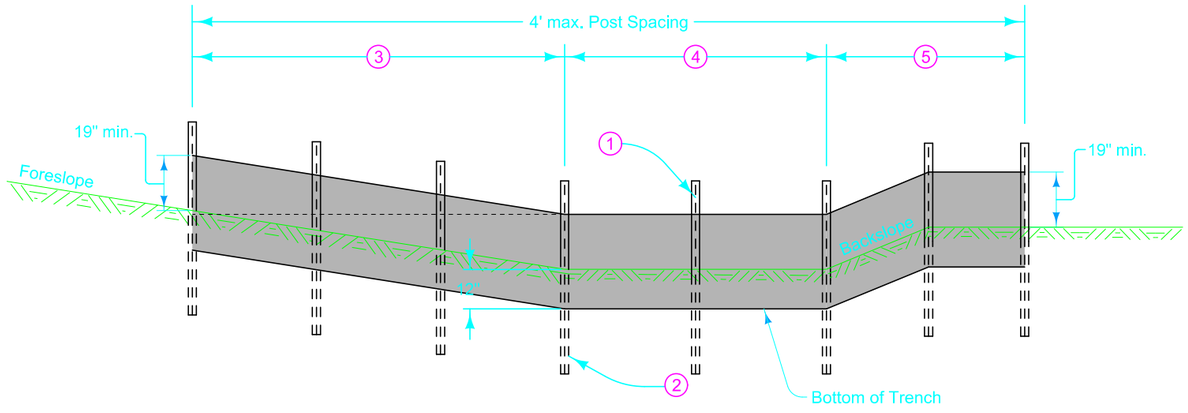
(2) Embed all posts 28 inches below the ground line.

(3) The minimum end span (in feet) = 2 X Foreslope (H:V).

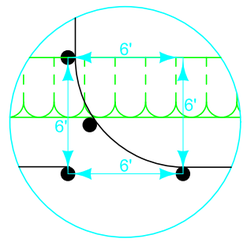
(4) Locate posts at toe of foreslope and toe of backslope and space remaining posts equally.

(5) Place posts as shown in Detail 'A' to transition from tranverse to parallell installation. Place one post at the backslope intercept and the other beyond the intercept.

(6) Refer to Tab. 100-18.



FRONT VIEW



Detail 'A'

Possible Contract Items:
Silt Fence for Ditch Checks

Possible Tabulations:
100-18

REVISION	
NEW	10-18-16

ROAD DESIGN DETAIL

570-4

SHEET 1 of 3

SILT FENCE INSTALLATION FOR SHALLOW OR NO DITCH

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER U.1

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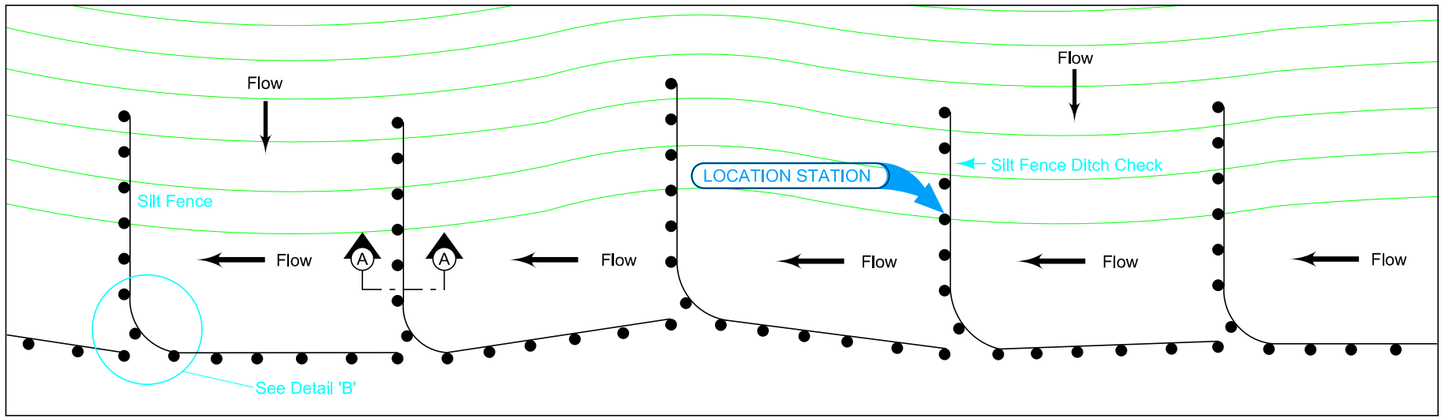
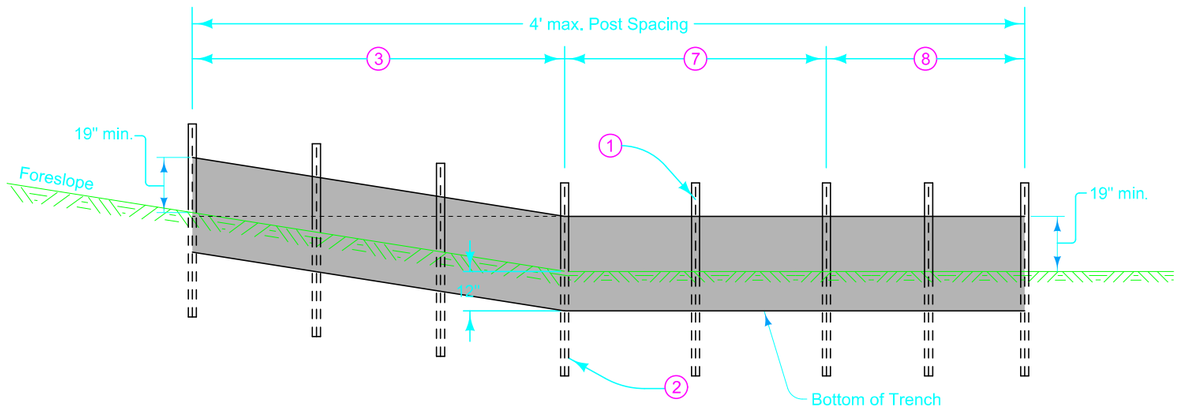
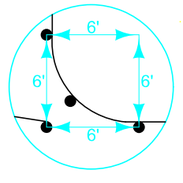


PLAN FOR SILT FENCE (NO DITCH SECTION-TYPE 5) (6)



FRONT VIEW



Detail 'B'

Contour Lines

(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 tranverse to parallel installation. The parallel portion of the installation should approximately parallel the intercept of the foreslope.

REVISION	
NEW	10-18-16

ROAD DESIGN DETAIL

570-4

SHEET 2 of 3

SILT FENCE INSTALLATION FOR SHALLOW OR NO DITCH

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER U.2

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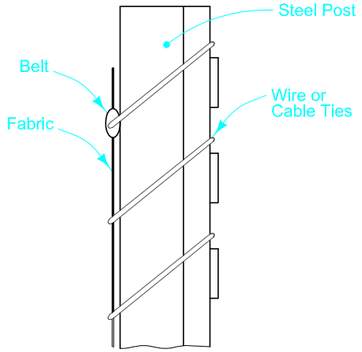
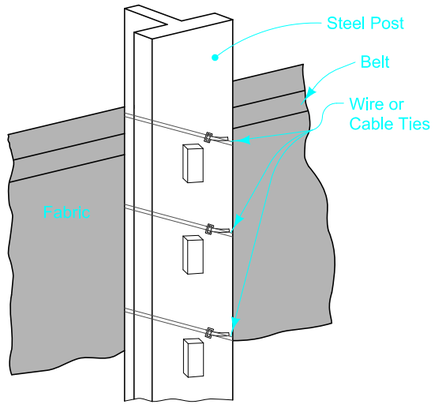


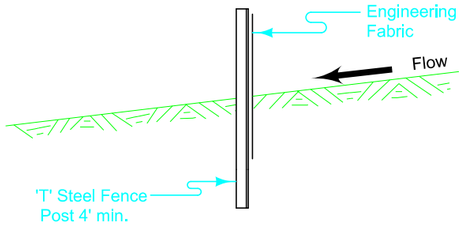
PROFILE VIEW
ATTACHMENT TO POST



BACK VIEW
ATTACHMENT TO POST

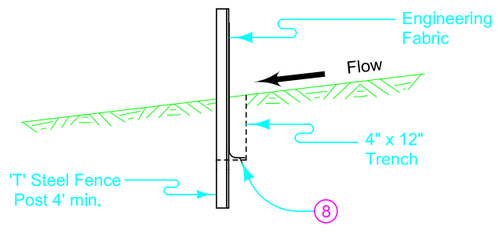
(8) For manual installation only, fold engineering fabric along bottom of trench.

DITCH CHECK - MACHINE INSTALLATION



SECTION A-A

DITCH CHECK - MANUAL INSTALLATION



SECTION A-A

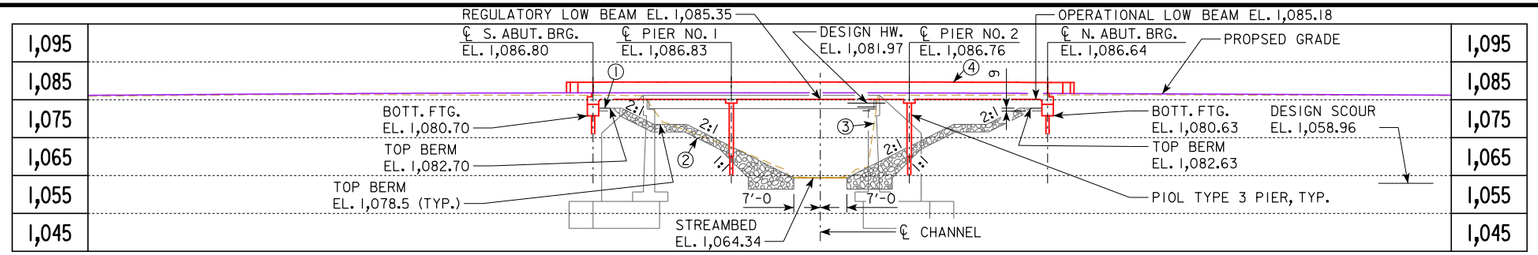
ROAD DESIGN DETAIL

REVISION
NEW 10-18-16

570-4

SHEET 3 of 3

SILT FENCE INSTALLATION
FOR SHALLOW OR NO DITCH



① BERM PROTECTION
EROSION STONE (0-9 THICK. MIN.)
UNDERLAIN W/ ENGR. FABRIC

② BERM PROTECTION
CLASS E REVET. (2' THICK. MIN.)
UNDERLAIN W/ ENGR. FABRIC

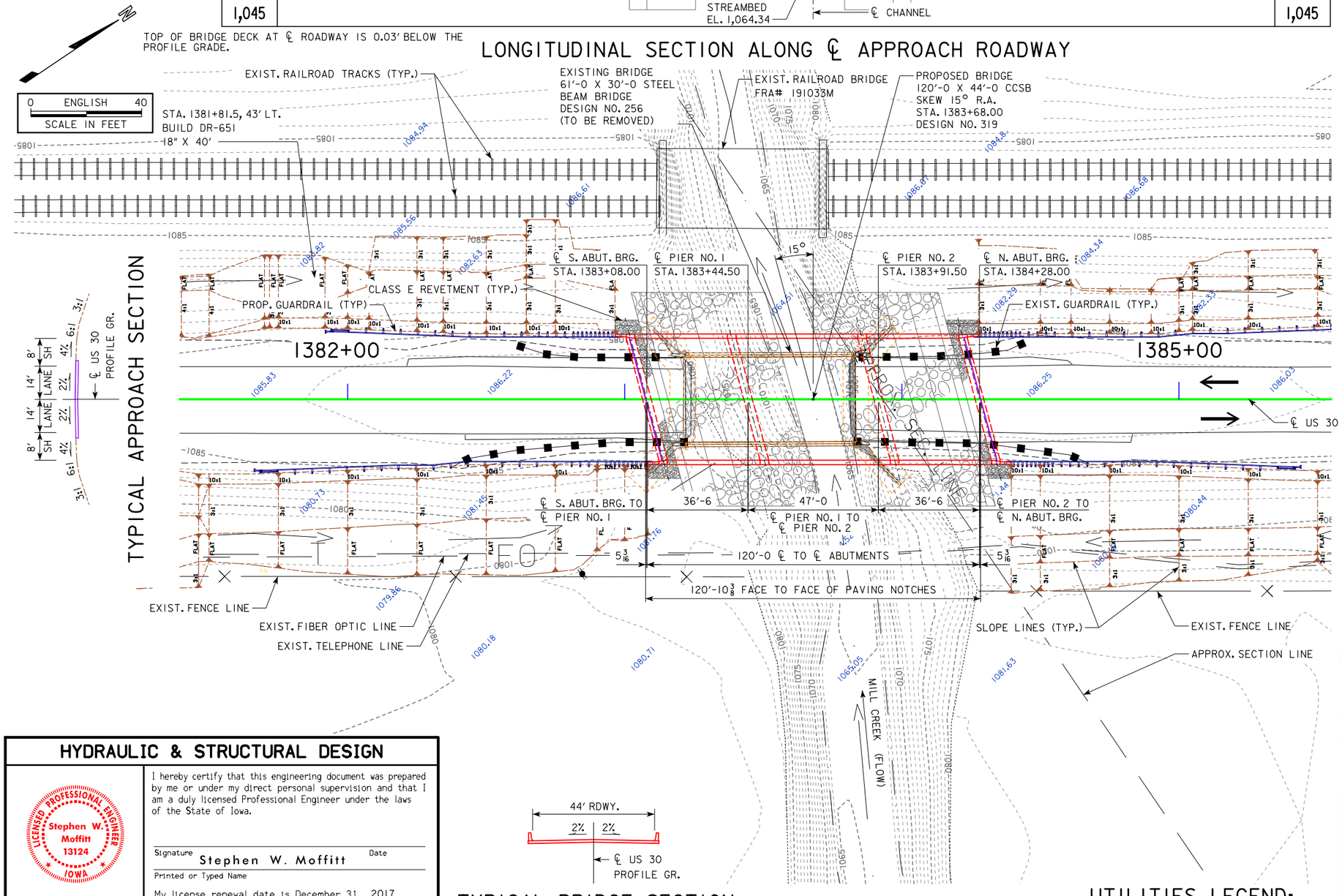
③ EXISTING GROUND

④ TL-4 BRIDGE RAILING PROPOSED

BENCH MARK NO. 500
FOUND SQUARE, NE WING
STA. 1383+54.22, 15.945' LT.
N 7172061.141
E 16527656.960

TOP OF BRIDGE DECK AT ℄ ROADWAY IS 0.03' BELOW THE PROFILE GRADE.

LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

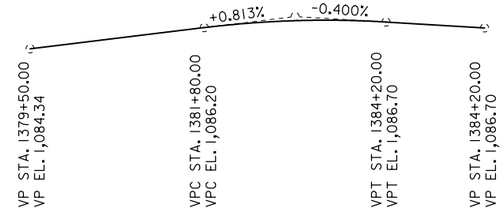


TYPICAL APPROACH SECTION

TYPICAL BRIDGE SECTION

SITUATION PLAN

VPI STA. 1383+00.00
VPI EL. 1,087.18
L = 240.0'
K = 198



PROPOSED PROFILE GRADE US 30

HYDRAULIC DATA

DRAINAGE AREA = 37.5 SQ. MI.
STREAM SLOPE = 5.28 FT./MI.
AVG. LOW WATER STAGE = 1,075.37

Q CHANNEL CAPACITY = 4,675 CFS
STAGE = 1,081.97
REGULATORY LOW BEAM = 1,085.35
OPERATIONAL LOW BEAM = 1,085.18
AVERAGE BRIDGE VELOCITY = 5.02 FPS
CALCULATED DESIGN & CHECK SCOUR = 1,058.96
ROAD OVERTOP = 1,075.58
STA. = 1360+35.09

Q_{25} = 7,340 CFS
Q_{50} = 9,020 CFS
Q_{100} = 10,900 CFS
Q_{500} = 15,200 CFS
Q CHANNEL CAPACITY = 4,675 CFS

FLOWRATE AT BRIDGE IS LIMITED TO CHANNEL CAPACITY UPSTREAM OF THE BRIDGE. DISCHARGES IN EXCESS OF CHANNEL CAPACITY WILL FLOW SOUTH ACROSS THE BOYER RIVER FLOOD PLAIN TO THE BOYER RIVER LEVEE, WHERE IT WILL OVERTOP AT APPROXIMATE EL. 1,079.

UTILITIES LEGEND:

FO : FIBER OPTIC
T : TELEPHONE

LOCATION

U.S. 30 OVER MILL CREEK
T-81N R-41W
SECTION 21
HARRISON TOWNSHIP
HARRISON COUNTY
FHWA NO. 27571
BRIDGE MAINT. NO. 4334.8S030
LATITUDE 41.819852
LONGITUDE -95.631913

TRAFFIC ESTIMATE

2020	AADT	3,400	V.P.D.
2040	AADT	4,000	V.P.D.
2040	DHV	-	V.P.H.
TRUCKS		23	%
TOTAL DESIGN ESALs		-	

HYDRAULIC & STRUCTURAL DESIGN

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

LICENSED PROFESSIONAL ENGINEER
Stephen W. Moffitt
13124
IOWA

Signature Stephen W. Moffitt Date

Printed or Typed Name

My license renewal date is December 31, 2017

Pages or sheets covered by this seal: SHEETS V.1 - V.4

ALL UNITS ARE IN FEET UNLESS OTHERWISE NOTED.

DESIGN FOR 15° SKEW (R.A.)

120'-0 X 44'-0 CONTINUOUS CONCRETE SLAB BRIDGE

36'-6 END SPANS 47'-0 CENTER SPAN

SITUATION PLAN

STATION 1383+68.00 (U.S. 30) DECEMBER 2016

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. 31404 DESIGN NO. 319

DESIGN TEAM RM/ hgm | HARRISON COUNTY | PROJECT NUMBER BRF-030-1(155)--38-43 | SHEET NUMBER V.1

12/12/2016 2:14:09 PM jlk Z:\Projects\190216 IDOT - US 30 over Mill Creek\CADD\dgn\Prelim\43030155.str TSL_43_0319_01 11x17_pdf.pltcfg

0 ENGLISH 40
SCALE IN FEET

N

STA. 1381+81.5, 43' LT.
BUILD DR-651
18" X 40'

PROPOSED BRIDGE
120'-0 X 44'-0 CCSB
SKEW 15° R.A.
STA. 1383+68.00
DESIGN NO. 319

MILL CREEK (FLOW)

STA. 1385+80, 44.25' LT.
BUILD DR-651
18" X 36'

1382+00

1385+00

WI BI AI AI BI WI

W2 B2 A2 A2 B2 W2

PROPOSED STEEL I-BEAM BRIDGE

℄ US 30 & P.G.L.

SLOPE LINES (TYP.)

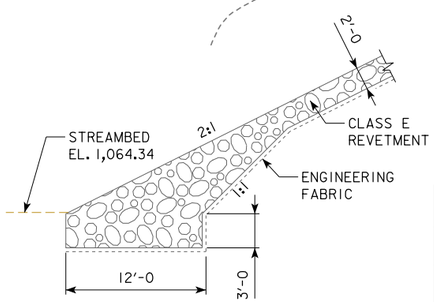
℄ DETOUR

11382+00

11385+00

PROPOSED DETOUR BRIDGE
79'-2 X 28'-0 STEEL
I-BEAM BRIDGE
DESIGN NO. 419

SITE PLAN



STREAMBANK REVETMENT DETAIL

NORMAL TO CHANNEL

BERM SLOPE LOCATION TABLE

POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
AI	1383+50.68	38.58' LT	1,064.34	1383+64.48	38.58' LT	1,064.34
A2	1383+71.36	38.58' RT	1,064.34	1383+85.36	38.58' RT	1,064.34
BI	1383+02.28	38.58' LT	1,082.70	1384+13.11	38.58' LT	1,082.63
B2	1383+22.96	38.58' RT	1,082.70	1384+33.79	38.58' RT	1,082.63
WI	1382+96.66	28.58' LT	1,082.70	1384+27.55	28.58' LT	1,082.63
W2	1383+08.45	28.58' RT	1,082.70	1384+39.34	28.58' RT	1,082.63

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED REVETMENT QUANTITIES

SOUTH ABUTMENT			NORTH ABUTMENT			TOTALS
ITEM	UNIT	QUANTITY	ITEM	UNIT	QUANTITY	
CLASS E REVETMENT	TONS	431	CLASS E REVETMENT	TONS	431	862
EROSION STONE	TONS	12	EROSION STONE	TONS	12	24
ENGINEERING FABRIC	SY	399	ENGINEERING FABRIC	SY	399	798
EXCAVATION, CL. 10	CY	283	EXCAVATION, CL. 10	CY	283	566

DESIGN FOR 15° SKEW (R.A.)

120'-0 X 44'-0 CONTINUOUS CONCRETE SLAB BRIDGE

36'-6 END SPANS 47'-0 CENTER SPAN

SITUATION PLAN - SITE

STATION 1383+68.00 (U.S. 30) DECEMBER 2016

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 2 FILE NO. 31404 DESIGN NO. 319

DESIGN TEAM RM/ hgm | HARRISON COUNTY | PROJECT NUMBER BRF-030-1(155)--38-43 | SHEET NUMBER V.2

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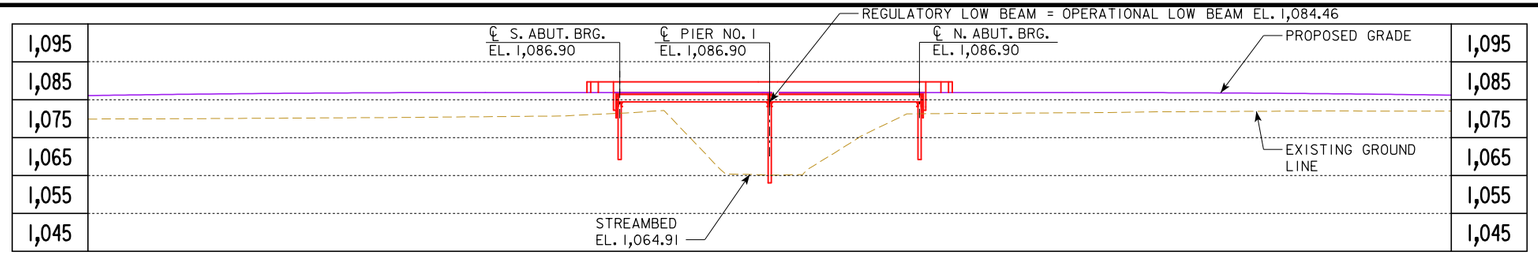
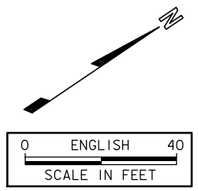
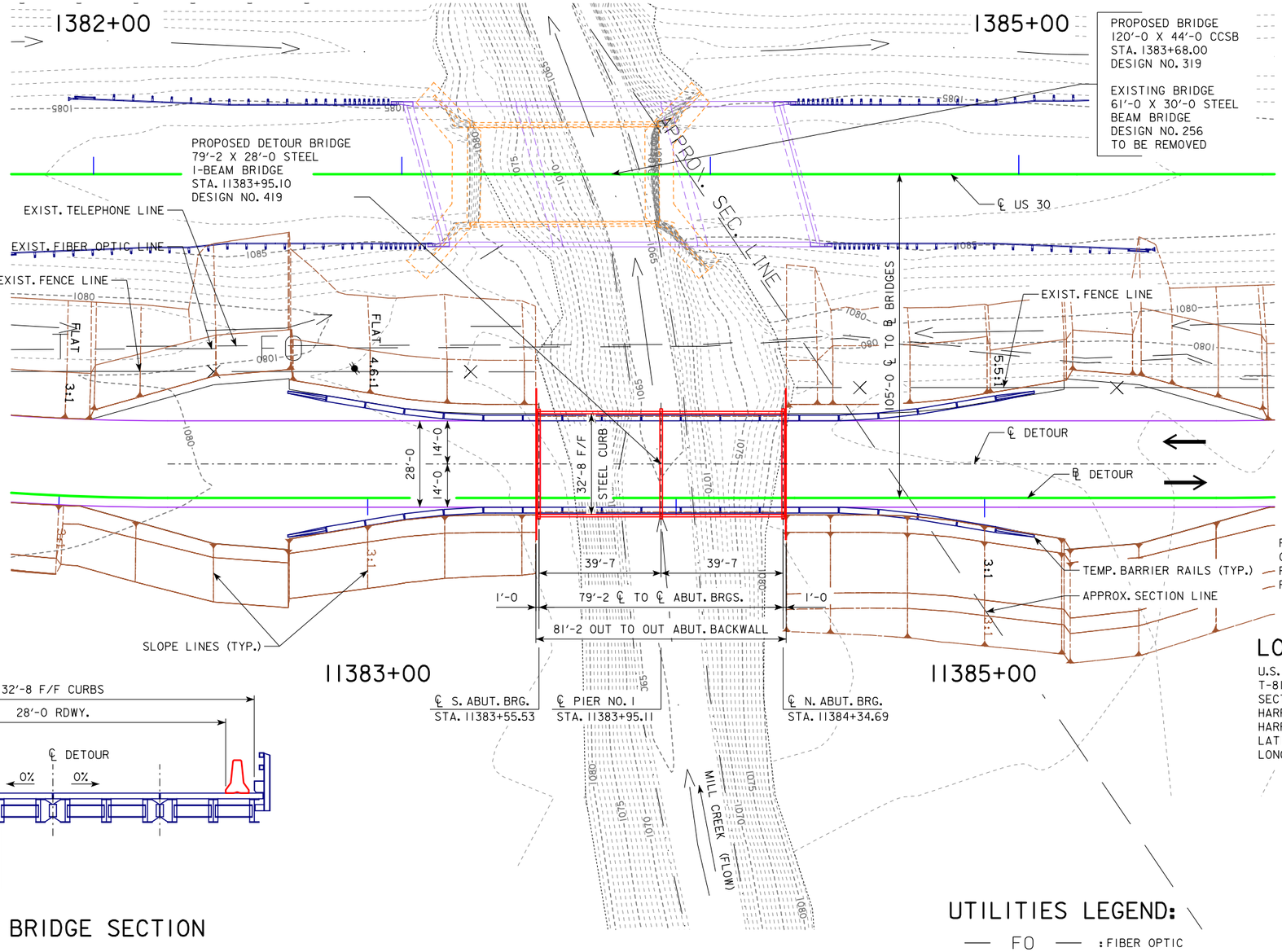


BENCH MARK NO. 500
FOUND SQUARE, NE WING
STA. 1383+54.22, 15.945' LT.
N 7172061.141
E 16527656.960

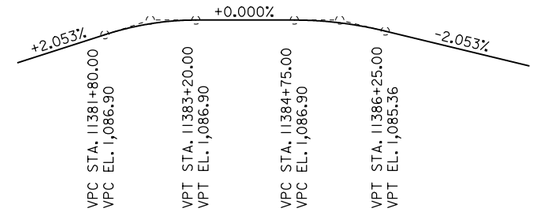


LONGITUDINAL SECTION ALONG ℄ DETOUR ROADWAY



VPI STA. 11382+50.00
VPI EL. 1,086.90
L = 140.0'
K = 68

VPI STA. 11385+50.00
VPI EL. 1,086.90
L = 150.0'
K = 73



PROPOSED PROFILE GRADE ON DETOUR

HYDRAULIC DATA

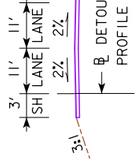
DRAINAGE AREA = 37.5 SQ. MI.
STREAM SLOPE = 5.28 FT./MI.
AVG. LOW WATER STAGE = 1,075.77

Q CHANNEL CAPACITY = 4,675 CFS
STAGE = 1,082.33
REGULATORY LOW BEAM = 1,084.46
OPERATIONAL LOW BEAM = 1,084.46
AVERAGE BRIDGE VELOCITY = 6.05 FPS.
CALCULATED DESIGN & CHECK SCOUR = 1,057.86
ROAD OVERTOP = 1,076.58
STA. = 1361+40.10

Q_2 = 1,680 CFS
Q_{10} = 5,080 CFS
Q_{50} = 9,020 CFS
Q CHANNEL CAPACITY = 4,675 CFS

FLOWRATE AT BRIDGE IS LIMITED TO CHANNEL CAPACITY UPSTREAM OF THE BRIDGE. DISCHARGES IN EXCESS OF CHANNEL CAPACITY WILL FLOW SOUTH ACROSS THE BOYER RIVER FLOOD PLAIN TO THE BOYER RIVER LEVEE, WHERE IT WILL OVERTOP AT APPROXIMATE EL. 1,079.

TYPICAL APPROACH SECTION



TYPICAL BRIDGE SECTION

SITUATION PLAN

UTILITIES LEGEND:
FO : FIBER OPTIC
T : TELEPHONE

LOCATION

U.S. 30 DETOUR OVER MILL CREEK
T-81N R-41W
SECTION 21
HARRISON TOWNSHIP
HARRISON COUNTY
LATITUDE 41.8198522
LONGITUDE -95.63191299

TRAFFIC ESTIMATE

2020	AADT	3,400	V.P.D.
2040	AADT	4,000	V.P.D.
2040	DHV	-	V.P.H.
TRUCKS		23	%
TOTAL DESIGN ESALs		-	

DESIGN FOR 0° SKEW

79'-2 X 28'-0 STEEL I-BEAM DETOUR BRIDGE

39'-7 END SPANS

SITUATION PLAN

STATION 11383+95.10 (℄ US 30 DETOUR) OCTOBER 2016

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. 31404 DESIGN NO. 419

ALL UNITS ARE IN FEET UNLESS OTHERWISE NOTED.

0 ENGLISH 40
SCALE IN FEET

N

1382+00

PROPOSED DETOUR BRIDGE
79'-2 X 28'-0 STEEL
I-BEAM BRIDGE
STA. 11383+95.10
DESIGN NO. 419

1385+00

MILL CREEK (FLOW)

EXIST. TELEPHONE LINE

EXIST. FIBER OPTIC LINE

EXIST. FENCE LINE

℄ US 30

PROJ. SEC. LINE

105'-0 ℄ TO ℄ BRIDGES

EXIST. FENCE LINE

FLAT 3:1

FLAT 4.6:1

FLAT 5:1

FLAT

28'-0

4'-0 | 14'-0

32'-8 F/F STEEL CURB

℄ DETOUR

TEMP. BARRIER RAILS (TYP.)

39'-7

39'-7

1'-0

79'-2 ℄ TO ℄ ABUT. BRGS.

1'-0

3:1

SLOPE LINES (TYP.)

11383+00

11385+00

APPROX. SECTION LINE

SITE PLAN

DESIGN FOR 0° SKEW

79'-2 X 28'-0 STEEL I-BEAM DETOUR BRIDGE

39'-7 END SPANS

SITUATION PLAN - SITE PLAN

STATION 11383+95.10 (℄ US 30 DETOUR) OCTOBER 2016

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. 31404 DESIGN NO. 419

DESIGN TEAM RM/ hgm | HARRISON COUNTY | PROJECT NUMBER BRF-030-1(155)--38-43 | SHEET NUMBER V.4

12/12/2016 2:16:57 PM jlk Z:\Projects\190216 IDOT - US 30 over Mill Creek\CADD\dgn\Prelim\43030155.str TSL_43_0319_04 11x17_pdf.pltcfg

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- Additional Topsoil Removal
- Subgrade Treatment
- Granular Shoulder
- Pavement
- Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- TS — Topsoil (Class 10)
- SLOPE DRESSING — Slope Dressing Only
- CL 10 — Class 10 Materials
- SEL LO — Select Loams And Clay-Loams
- SEL SA — Select Sand
- UNS A — Unsuitable Type A Disposal
- UNS B — Unsuitable Type B Disposal
- UNS C — Unsuitable Type C Disposal
- SHALE — Shale
- WASTE — Waste
- B&W LS — Broken and Weathered Rock
- ROCK — Solid Rock
- BLDRS — Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

SYMBOL LEGEND OF CROSS SECTION SHEETS

Existing ROW — Existing Right-of-Way Limit

Proposed ROW — Proposed Right-of-Way Limit

Temporary ROW — Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

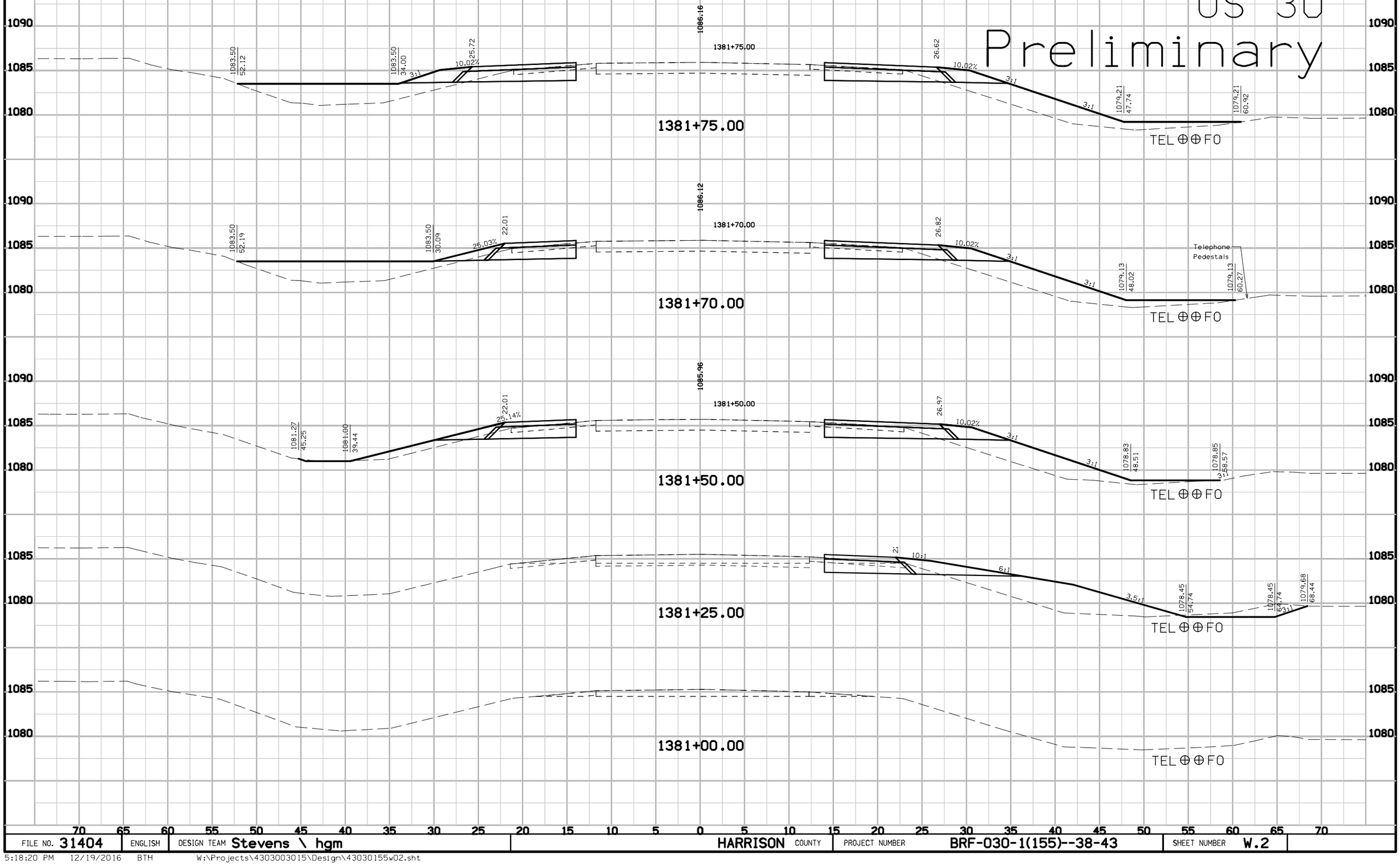
(COVERS SHEET SERIES W, X, Y, & Z)

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER W.1

2:33:38 PM 10/21/2016 BTH W:\Projects\43030030015\Design\43030155_LGD.sht

US 30

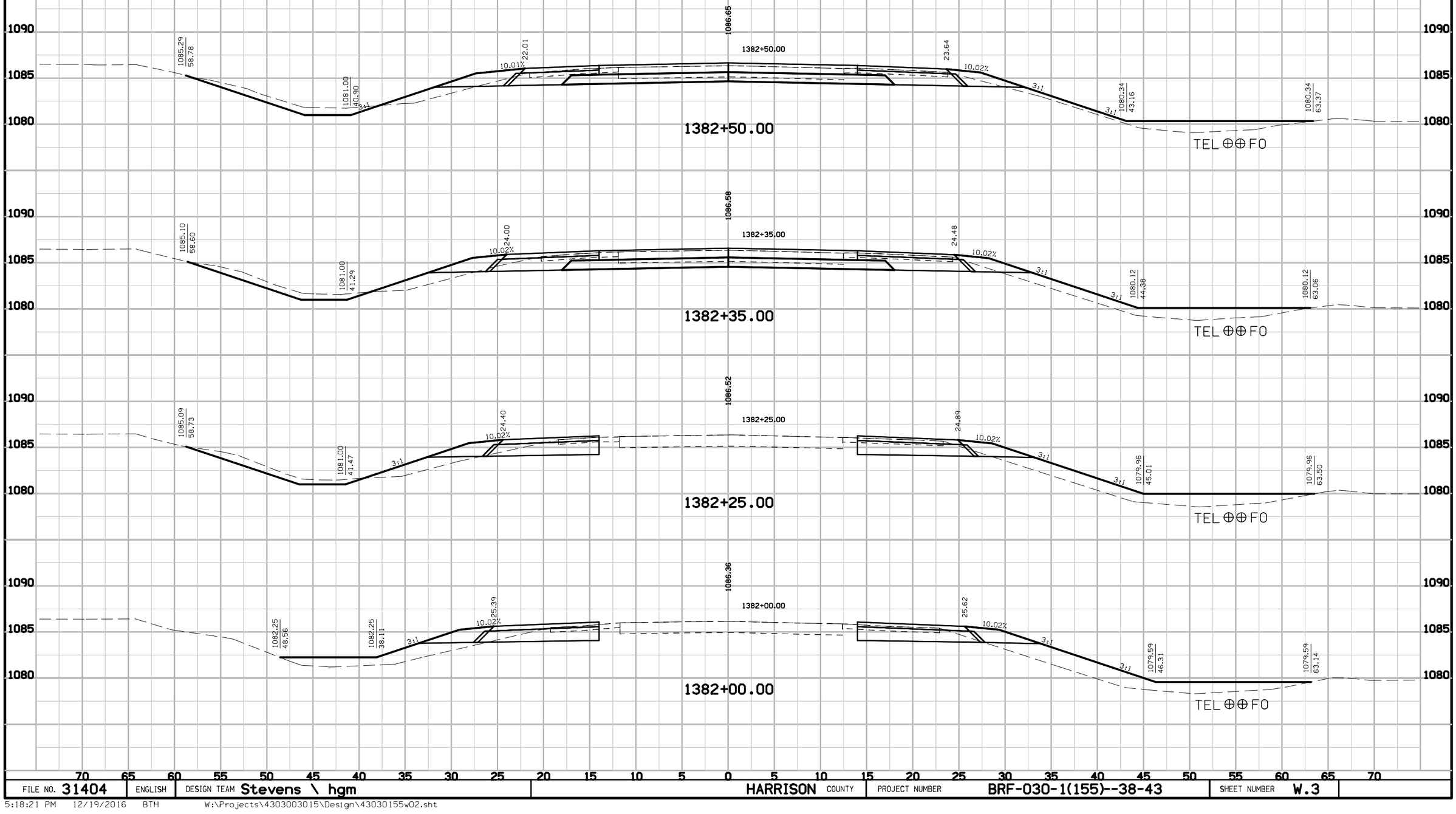
Preliminary



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER W.2

5:18:20 PM 12/19/2016 BTH W:\Projects\4303003015\Design\43030155w02.sht

US 30
Preliminary



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER W.3

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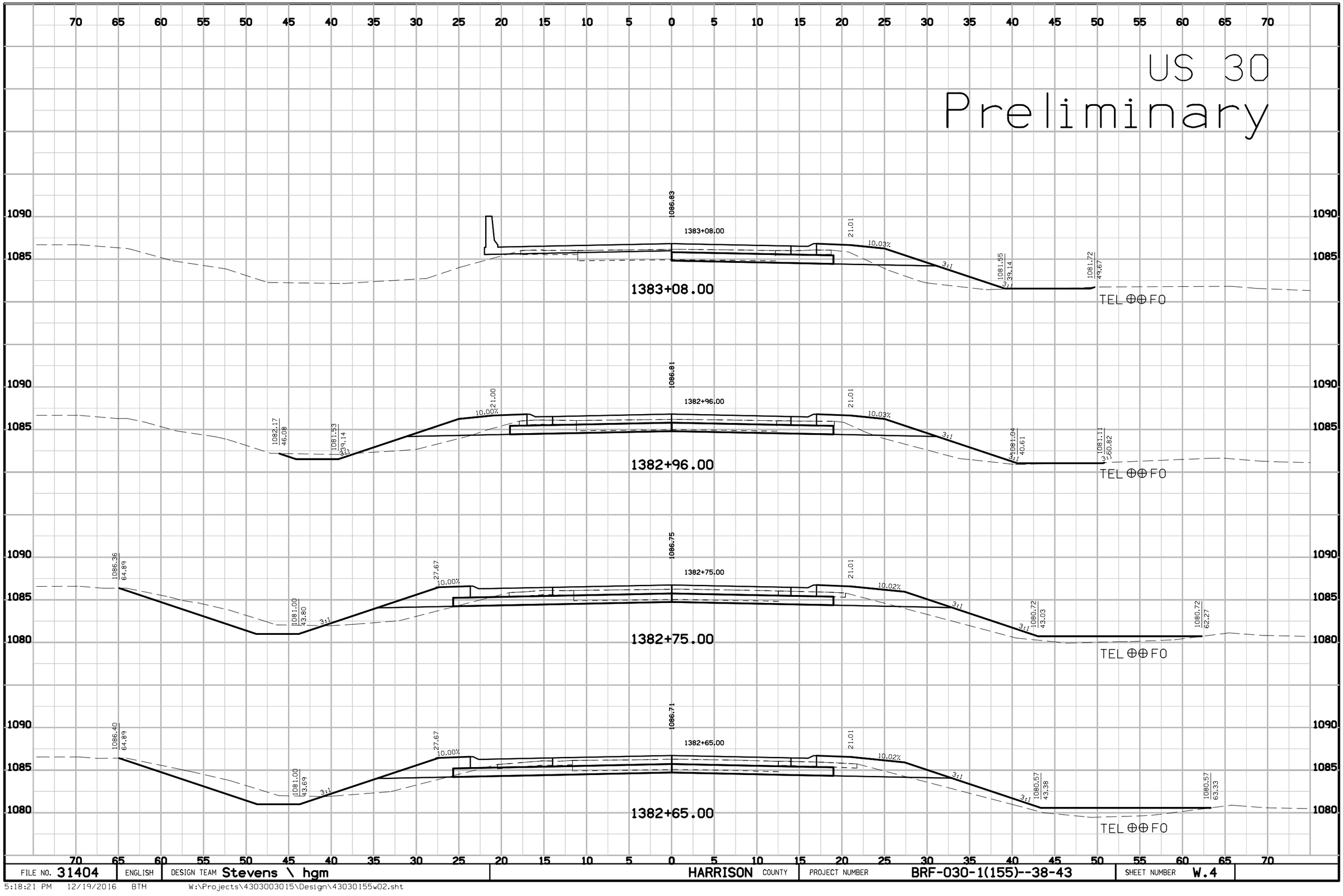
US 30
Preliminary



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER W.4

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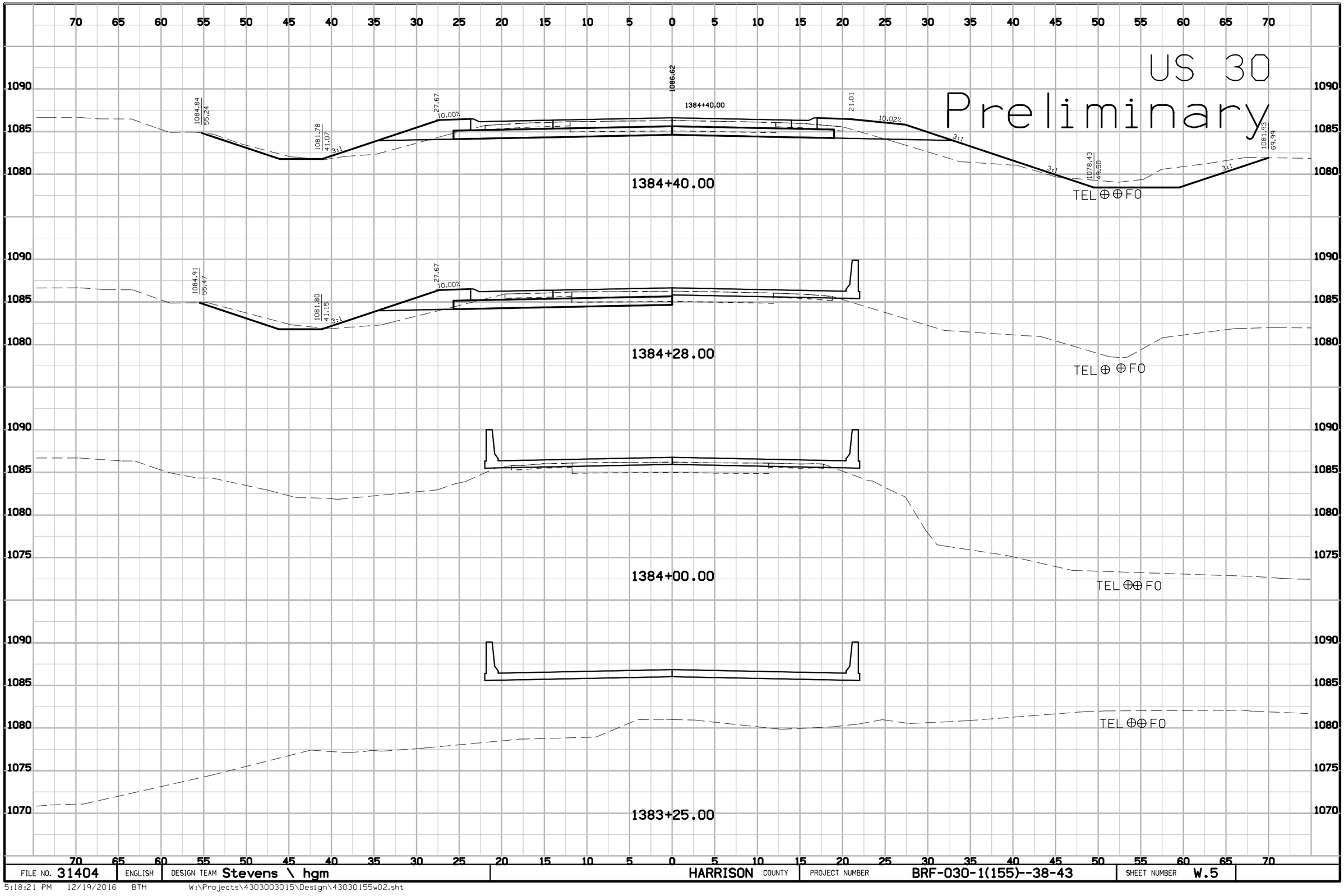
US 30

Preliminary



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER W.5

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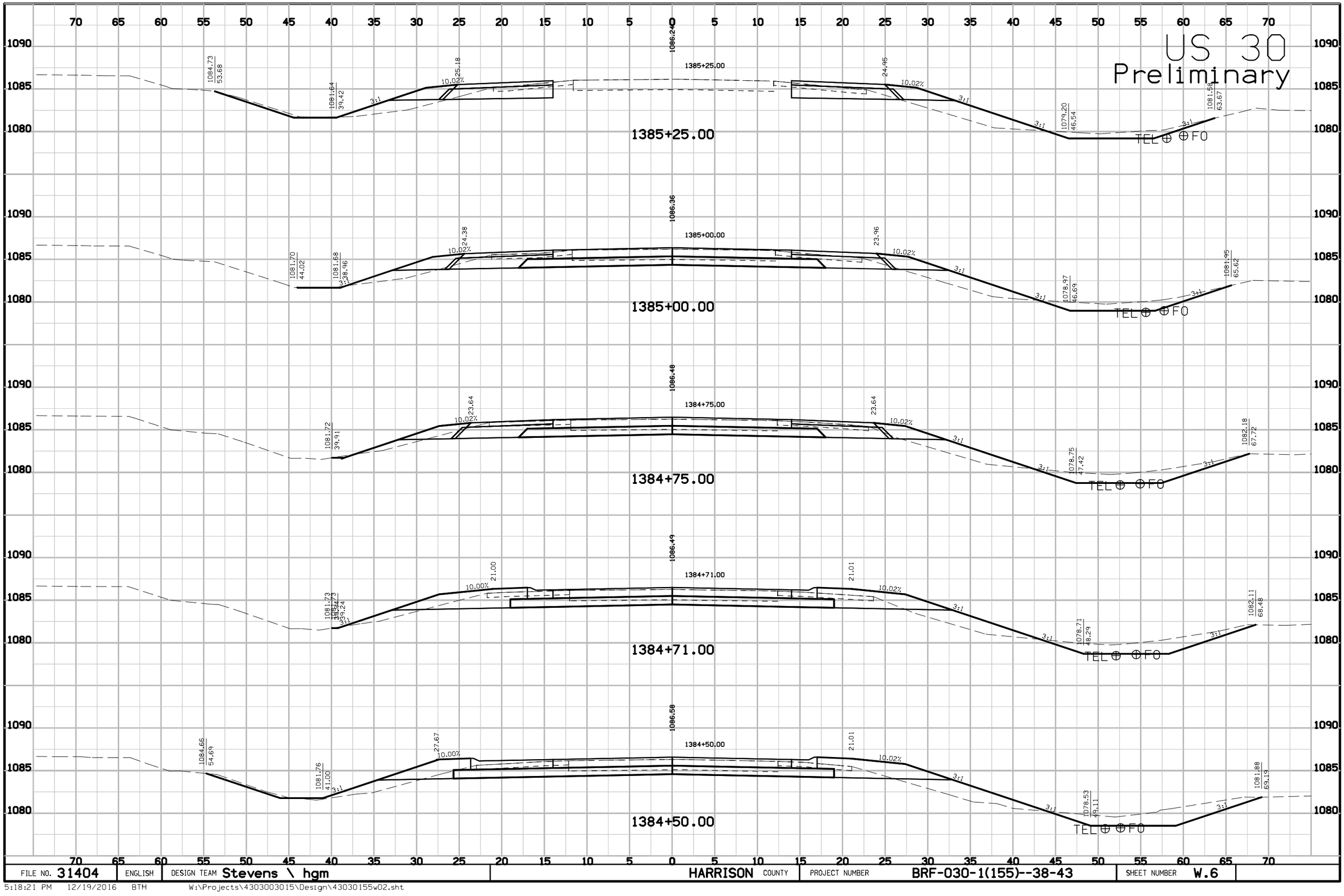
US 30
Preliminary



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER W.6

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Preliminary

US 30

1387+00.00

1386+50.00

1084.72 54.41

1081.47 39.67

6:1

16.70%

18.01

1086.54 65.13

1081.51 45.05

6:1

10.02%

22.01

1386+25.00

1386+00.00

1083.03 48.52

1083.03 36.86

6:1

10.02%

22.01

1385+75.00

1083.90 51.24

1083.90 33.61

3:1

10.02%

26.97

22.00

10:1

6:1

3.5:1

1079.65 51.42

1079.65 31.43

3:1

1082.58 70.23

1385+50.00

1086.12

1084.42 52.73

1081.73 39.65

3:1

10.02%

26.18

25.72

10.02%

3:1

3:1

1079.42 46.09

3:1

1080.24 58.52

TEL ⊕ ⊕ FO

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER W.7

5:18:22 PM 12/19/2016 BTH W:\Projects\43030030I5\Design\43030155w02.sht

US 30 Detour

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

1085
1080

1082.31
11377+50.00
2.00%
3:1
1077.75
16.50
1078.50
29.75
11377+50.00
TEL ⊕ ⊕FO

1081.98
11377+00.00
2.00%
3:1
1077.67
15.75
1078.61
23.57
11377+00.00
TEL ⊕ ⊕FO

11376+50.00
TEL ⊕ ⊕FO

11376+00.00
TEL ⊕ ⊕FO

11375+65.60

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER X.1

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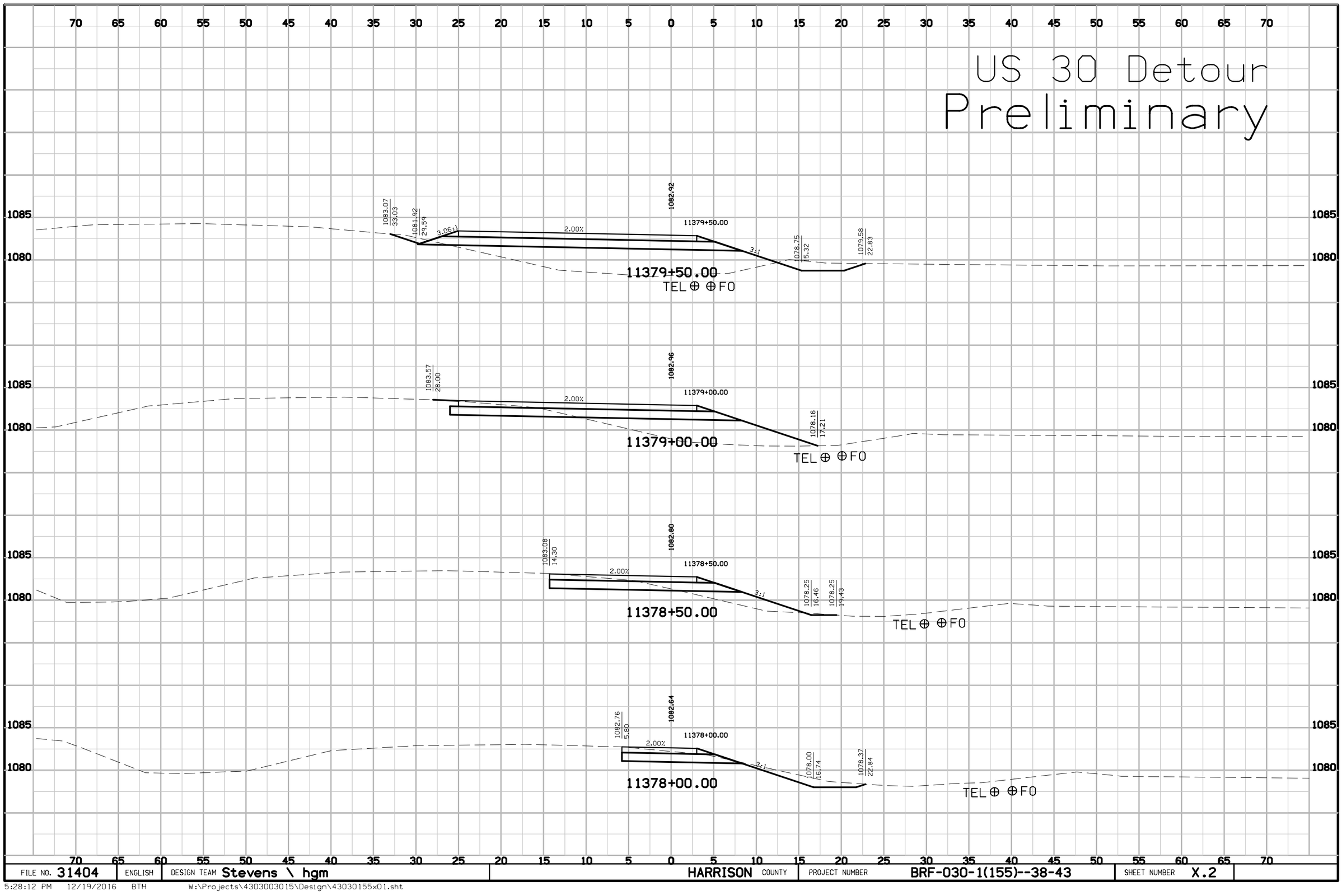
US 30 Detour
Preliminary



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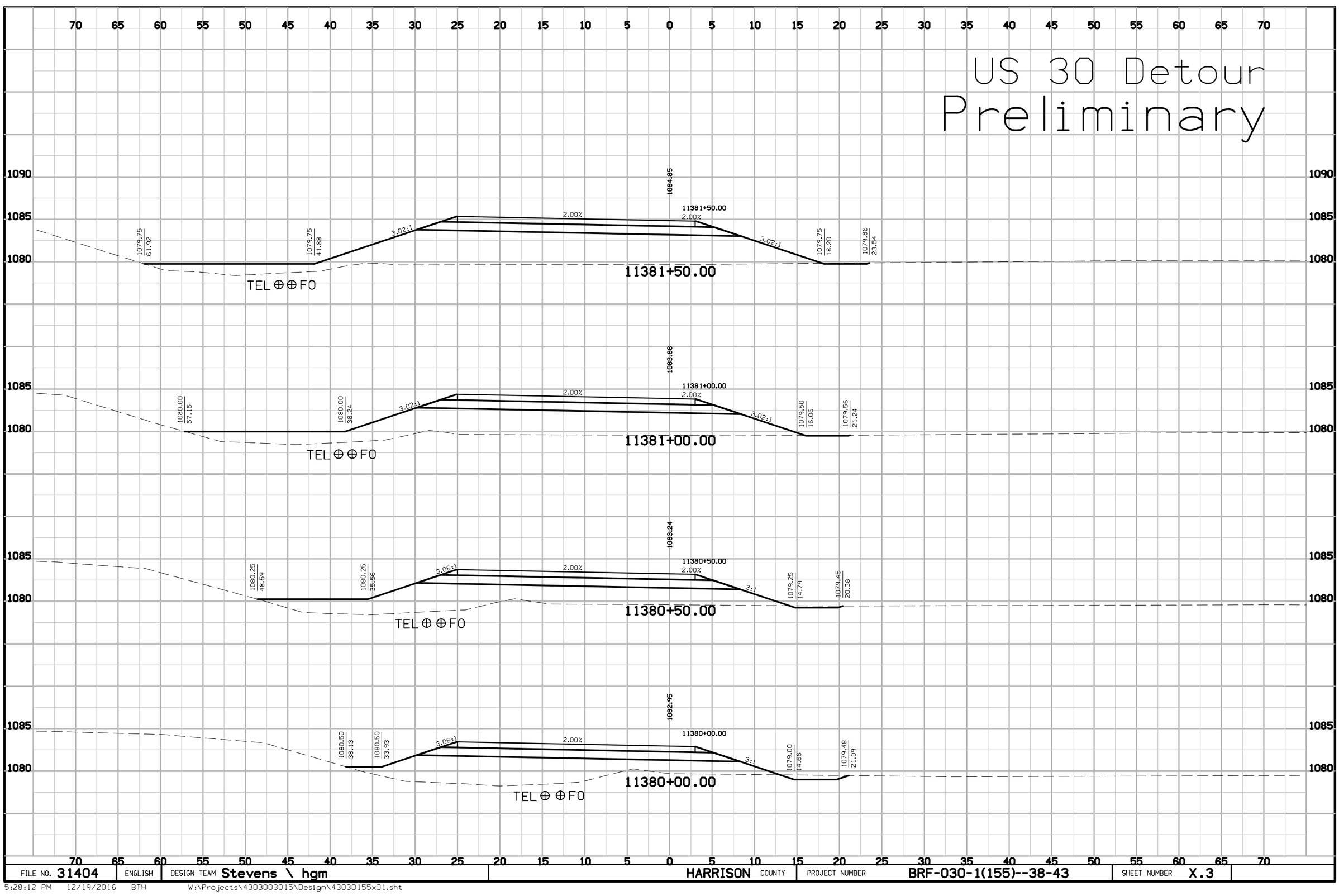
US 30 Detour

Preliminary



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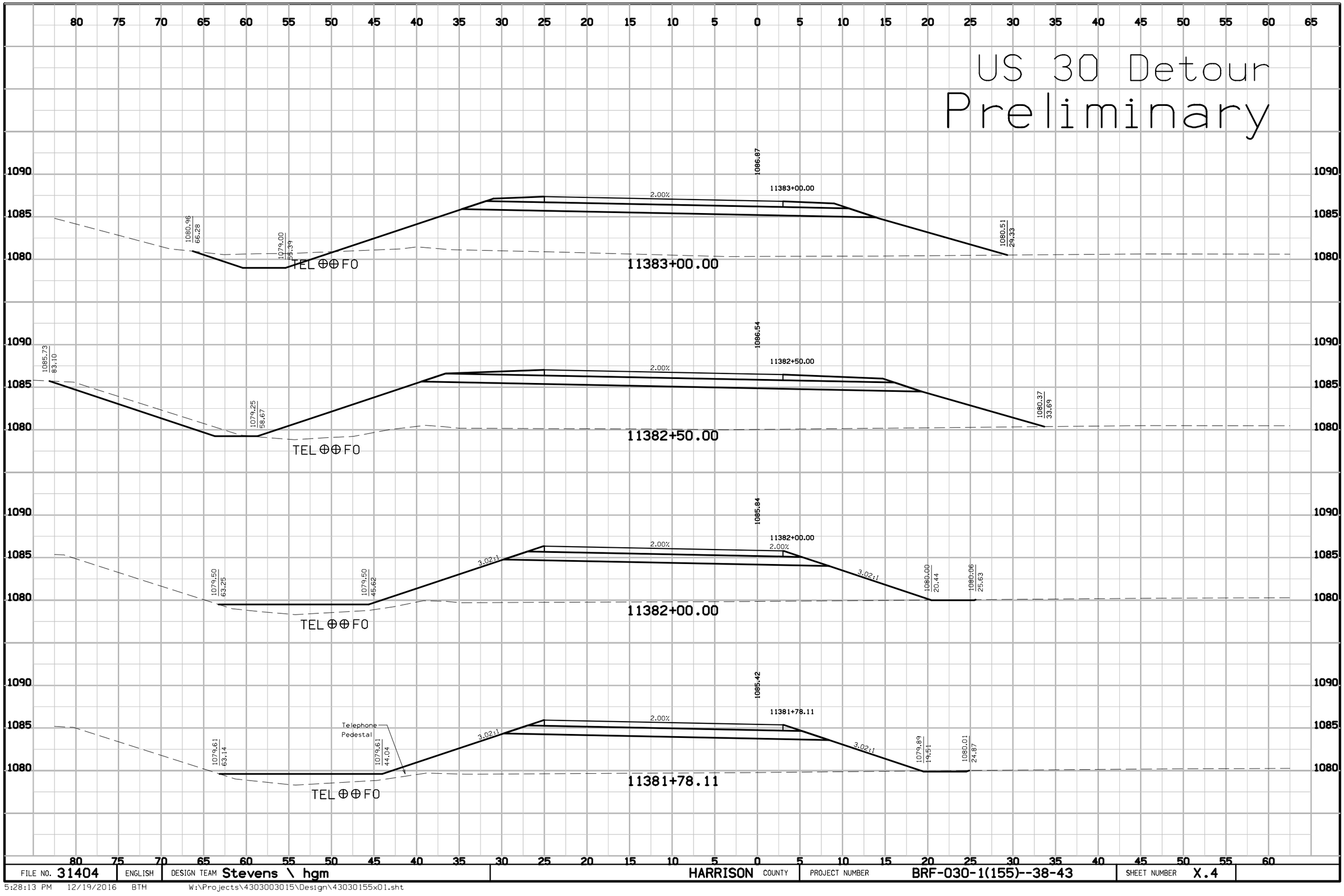
US 30 Detour
Preliminary



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER X.4

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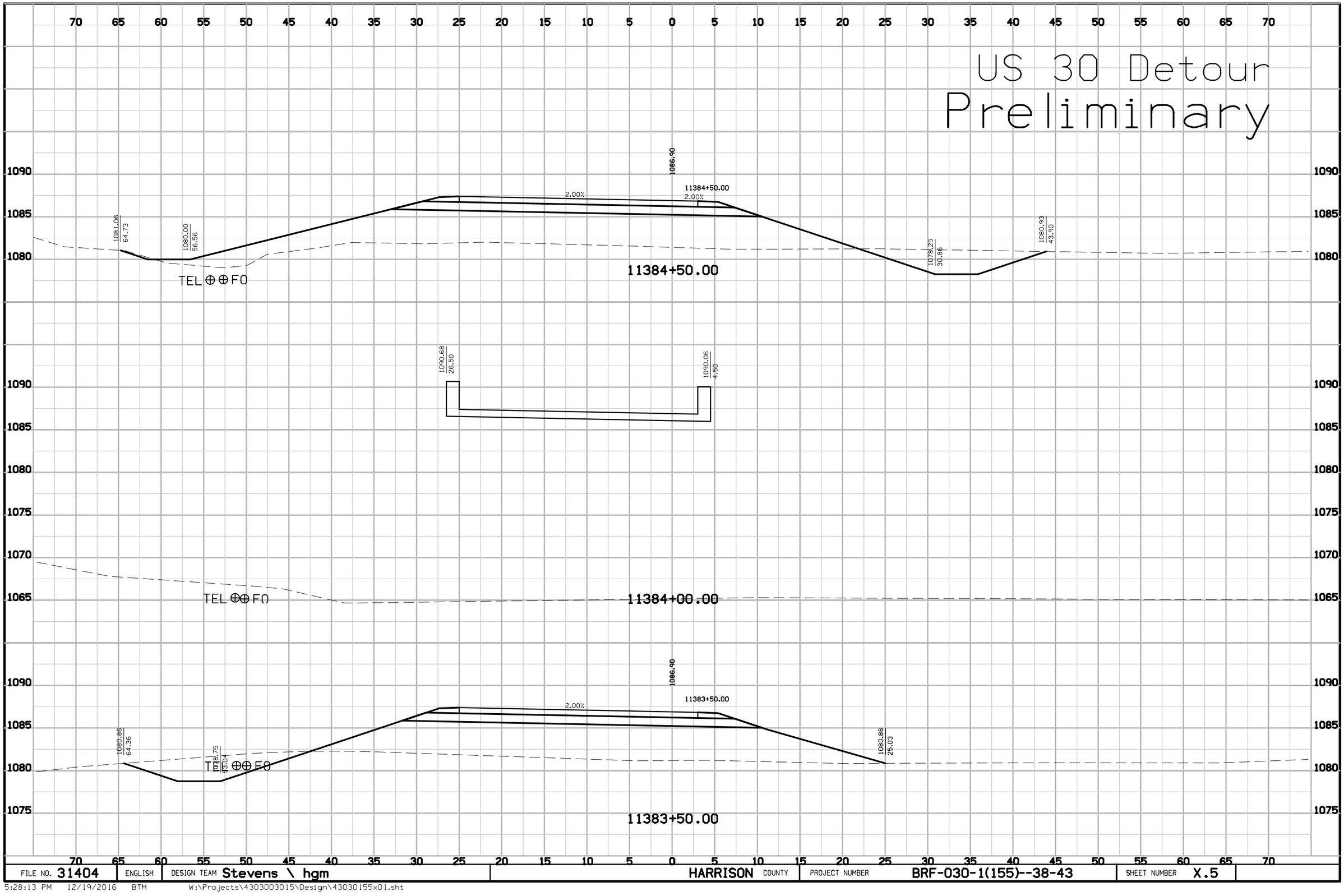
US 30 Detour
Preliminary



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER X.5

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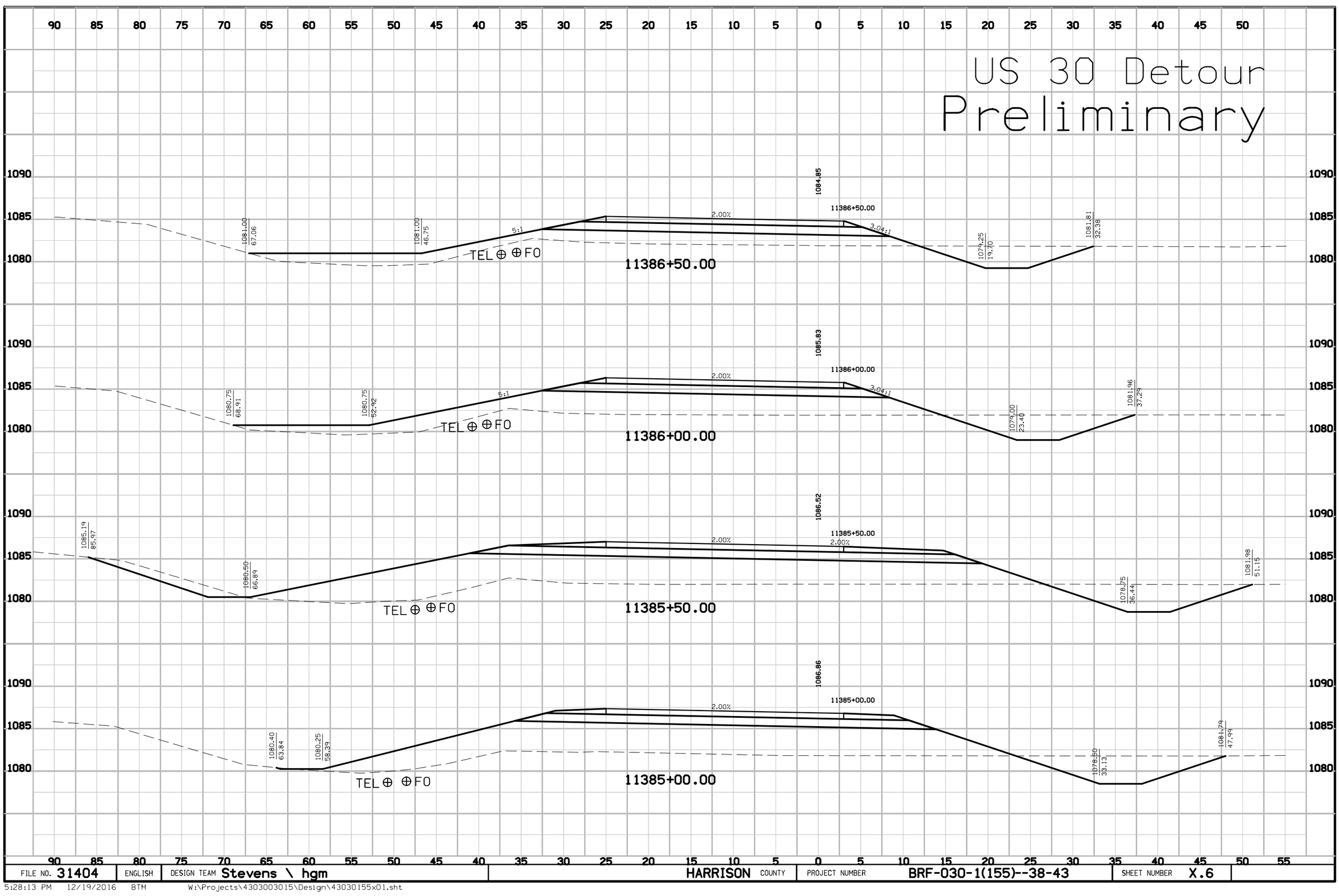
US 30 Detour
Preliminary



FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER X.6

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70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

US 30 Detour

Preliminary

1085 / 1080

1083.14

1083.47 / 16.45

2.00% | 2.00%

11389+50.00

1080.13 / 11.84

11389+50.00

TEL ⊕⊕ FO

1083.05

1083.51 / 28.00

11389+00.00

2.00% | 2.00%

3:1

1080.50 / 10.46

1081.37 / 18.07

11389+00.00

TEL ⊕⊕ FO

1083.03

1082.03 / 29.59

3.06:1

11388+50.00

2.00%

3:1

1080.25 / 11.17

1082.26 / 22.21

11388+50.00

TEL ⊕⊕ FO

1083.03

1081.75 / 44.64

1081.75 / 30.44

3.05:1

11388+00.00

2.00%

3.04:1

1080.00 / 12.01

1082.08 / 23.25

TEL ⊕⊕ FO

11388+00.00

1083.30

1081.50 / 55.48

1081.50 / 31.98

3.04:1

11387+50.00

2.00%

3.04:1

1079.75 / 13.55

1082.00 / 25.31

TEL ⊕⊕ FO

11387+50.00

1083.91

1081.25 / 62.41

1081.25 / 40.79

5:1

11387+00.00

2.00%

3.04:1

1079.50 / 16.13

1081.86 / 28.20

TEL ⊕⊕ FO

11387+00.00

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER X.7

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US 30 Detour

Preliminary

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

1085

11391+50.00

1085

1085

1080

1083.34

11391+00.00

2.00%

3:1

1081.50

8.34

1082.35

15.87

11391+00.00

TEL ⊕⊕ FO

1085

1080

1083.29

11390+50.00

2.00%

2.00%

3:1

1081.25

8.95

1081.61

15.04

11390+50.00

TEL ⊕ ⊕ FO

1085

1080

1083.25

1083.39

7.19

11390+00.00

2.00%

2.00%

3:1

1081.00

9.57

1081.00

11.86

11390+00.00

TEL ⊕ ⊕ FO

1085

1080

70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

FILE NO. 31404	ENGLISH	DESIGN TEAM Stevens \ hgm	HARRISON COUNTY	PROJECT NUMBER BRF-030-1(155)--38-43	SHEET NUMBER X.8

5:28:14 PM 12/19/2016 BTH W:\Projects\4303003015\Design\43030155x01.sht