LETTING DATE
07-10-2019

FREMONT Co. UNKNOWN PAVEMENT - GRADE AND REPLACE
NHSX-002-1(122)--3H-36

INDEX OF SHEETS

No.	DESCRIPTION
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* A.2	Location Map Sheet
B Sheets	**Typical Cross Sections and Details**
B.1 - 6	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
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C.1	Estimated Project Quantities
C.1	Estimate Reference Information
C.1	Standard Road Plans
C.1	Index of Tabulations
C.1	Pollution Prevention Plan
C.1	General Notes
C.1	Tabulations (beg. with tab. of incidentals if needed)
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	Iowa Highway 2 Plan Sheet
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MG Sheets	**Survey Sheets**
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MU Sheets	**Levee Detail Sheets**
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* MU.2 - 4	Levee Entrance Plan & Profile
MX Sheets	**Levee Cross Sections**
MX.1 - 15	DK407 Levee Cross Sections
MX.16 - 23	Existing Levee Obliteration Cross Sections

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

FREMONT COUNTY

UNKNOWN PAVEMENT - GRADE AND REPLACE

Missouri River east 0.8 mi.

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

REVISIONS

	TOTAL
	--
PROJECT IDENTIFICATION NUMBER	
19-36-002-070	
PROJECT NUMBER	
NHSX-002-1(122)--3H-36	
R.O.W. PROJECT NUMBER	
NHSN-002-1(125)--2R-36	

INDEX OF SHEETS

No.	DESCRIPTION
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* RR.1	Erosion Control Legend and Symbol Information Sheet
* RR.2 - 5	Drainage Areas
U Sheets	**500 Series, Mod.Stds. and Detail Sheets**
U.1	Concrete Barrier Transition- Full to Half 34"
U.1	40' Median Crossover
U.1	Bridge Approaches
U.1	540-13
U.1	Detail of Barrier Layout
V Sheets	**Bridge and Culvert Situation Plans**
* V.1 - 2	Bridge and Culvert Situation Plans
W Sheets	**Mainline Cross Sections**
W.100 - 133	Mainline Cross Sections Stage 2
W.200 - 238	Mainline Cross Sections Stage 3
	* Color Plan Sheets

Progress Plans
Not for Construction
6/10/19

DESIGN DATA RURAL

2019	AADT	9860	V.P.D.
2029	AADT	14,540	V.P.D.
20--	DHV	--	V.P.H.
TRUCKS		29	%
Total Design ESALs		8,360,000	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Kelly C. Bell	Primary Signature Block
CD.1	David R. Claman	Hydraulic Design
CS.1	--------	Geotechnical Design
MA.1	Patrick H. Poepsel	Signature Block
RC.1	Seana K. Godbold	Landscape Design

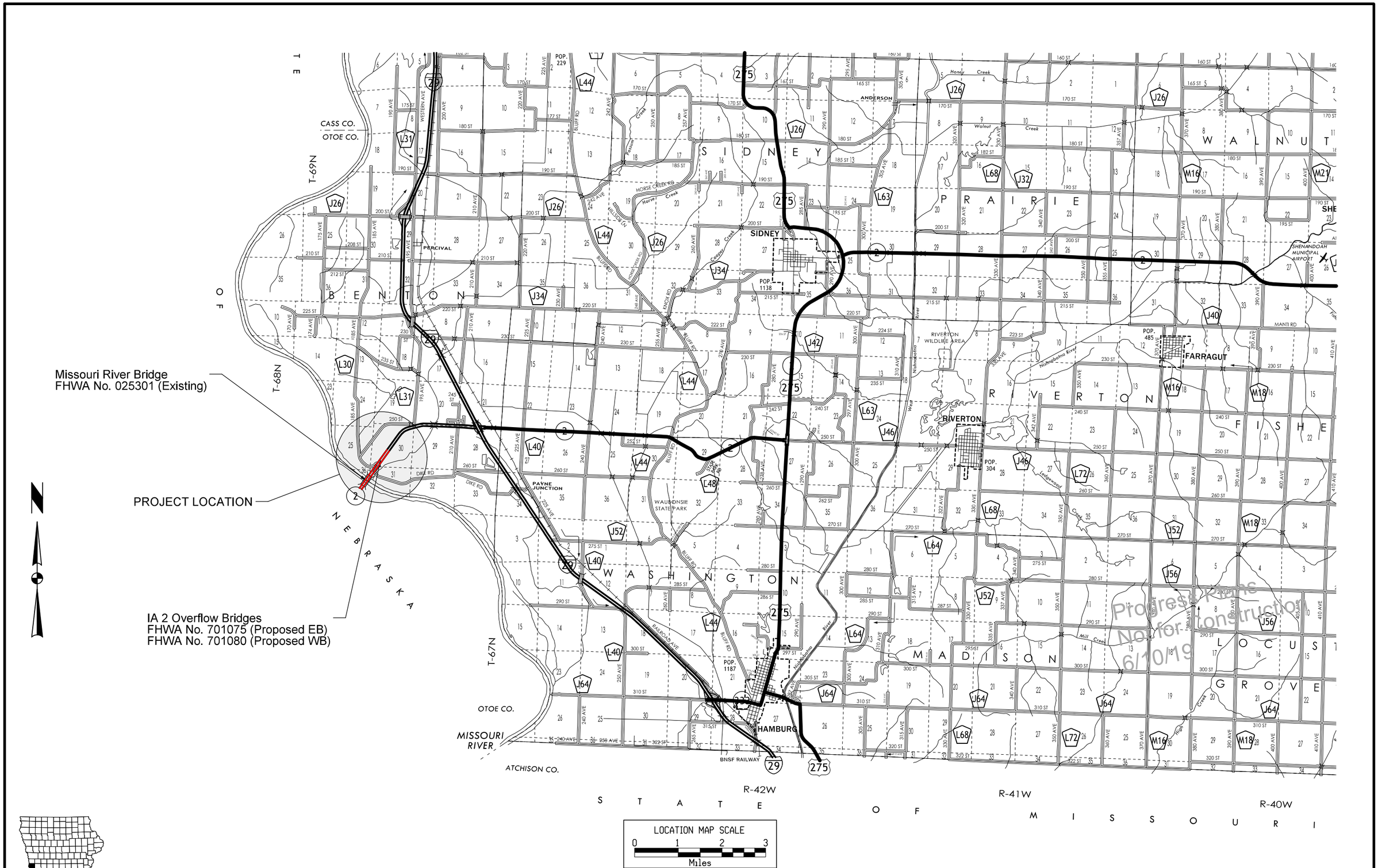
ROADWAY DESIGN

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.

Signature: Kelly C. Bell Date: 06-06-2019
Printed or Typed Name: Kelly C. Bell
My license renewal date is December 31, 2019

Pages or sheets covered by this seal: X
X



FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER A.2

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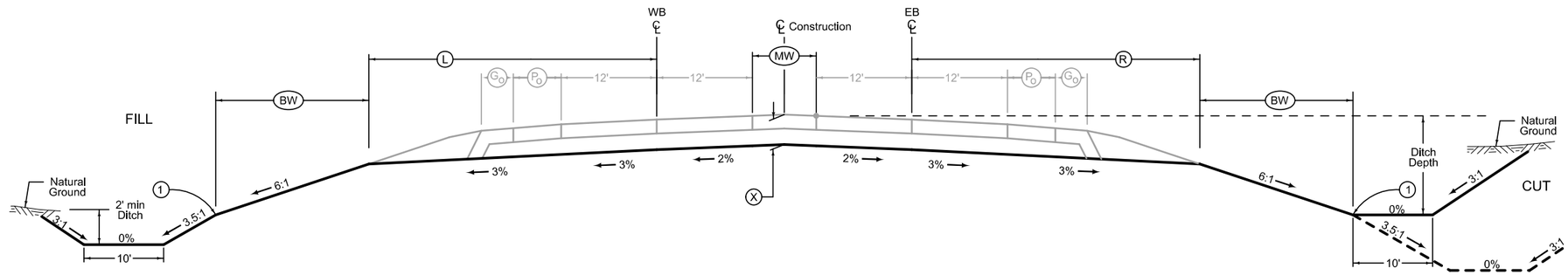
Grade_1



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

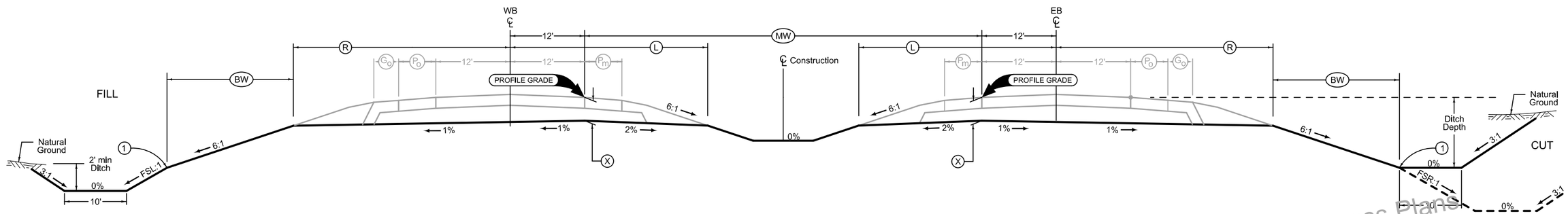
See Plan & Profiles sheets and cross sections for additional details of ditches and backslopes.

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

LOCATION			DIMENSIONS				
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet	(MW) Feet
IA 2	386+28.00	390+10.12	36.63	36.63	22	14.56	8-24

4 LANE GRADING

Grade_2



Progress Plans
Not for Construction
6/10/19

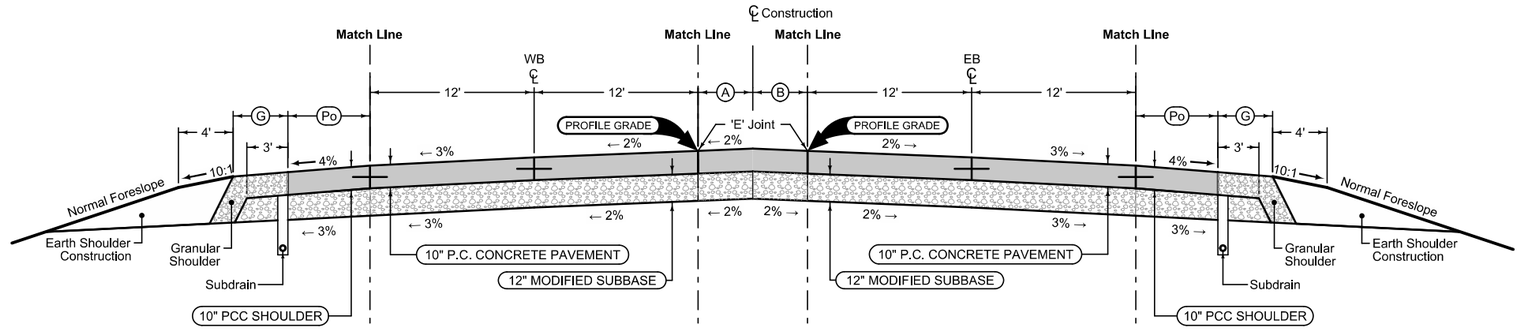
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

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

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

LOCATION			DIMENSIONS						
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet	(MW) Feet	FSL	FSR
IA 2 EB/WB	390+10.12	393+92.24	31.21	36.8	22	14.9	24-40	3.5	3.5
IA 2 EB/WB	393+92.24	394+30.00	31.21	--	22	--	40	3.5	3.5
	BRIDGE & APPROACHES								
IA 2 EB	406+67.00	420+50.00	--	36.3	22	--	40	--	3.5
IA 2 WB	406+67.00	420+50.00	35.02	--	22	8.98	40	3.0	--

4 LANE GRADING



Full Depth Combination Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 17' spacing

Direction of Travel	BEGIN STATION	END STATION	Po Feet	G Feet
WB	386+28.00	394+30.00	6	4
	BRIDGE & APPROACHES			
WB	406+67.00	420+50.00	6	4

Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

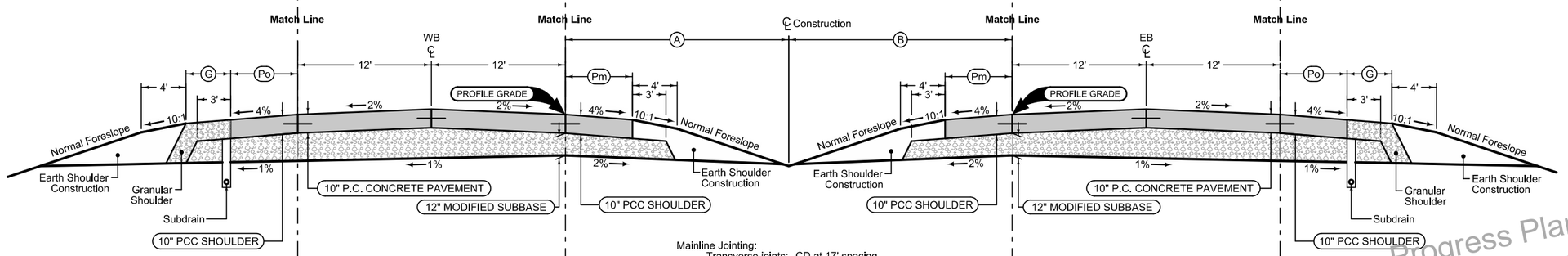
4DP_1
04-21-15

BEGIN STATION	END STATION	A Feet	B Feet
386+28.00	390+10.12	4-12	4-12

Full Depth Combination Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 17' spacing

Direction of Travel	BEGIN STATION	END STATION	Po Feet	G Feet
EB	386+28.00	394+30.00	6	4
	BRIDGE & APPROACHES			
EB	406+67.00	420+50.00	6	4



Mainline Jointing:
Transverse joints: CD at 17' spacing
Longitudinal joint: L-2

4DP_2
04-21-15

BEGIN STATION	END STATION	A Feet	B Feet
390+10.12	393+92.24	12-20	12-20
393+92.24	394+30.00	20	20
BRIDGE & APPROACHES			
406+67.00	420+50.00	20	20

4_P_FullPCC_
10-19-10

Direction of Travel	BEGIN STATION	END STATION	Pm Feet
EB/WB	386+28.00	394+30.00	6
	BRIDGE & APPROACHES		
EB/WB	406+67.00	420+50.00	6

Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 17' spacing

Progress Plans
Not for Construction
6/10/19

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

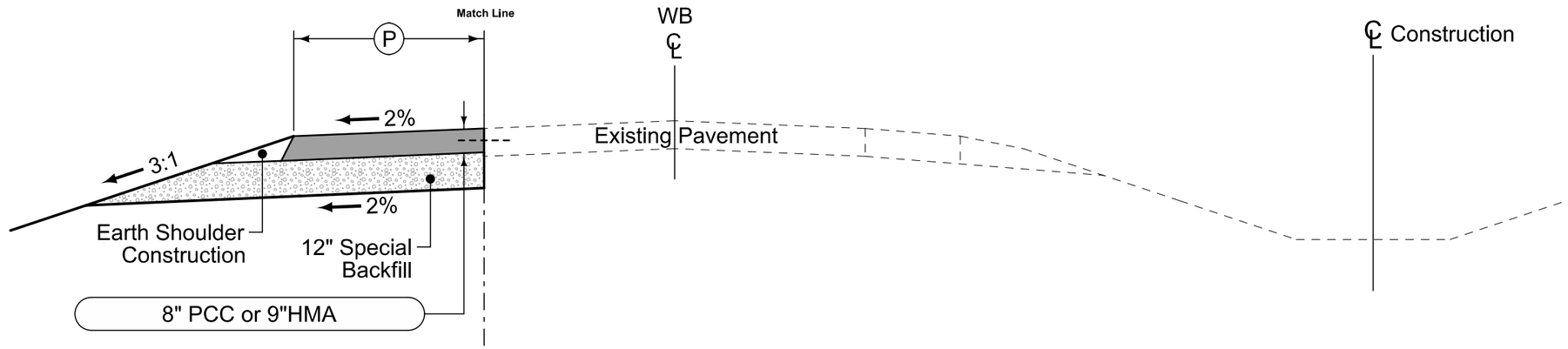
See Tab 112-9 for shoulder quantities.

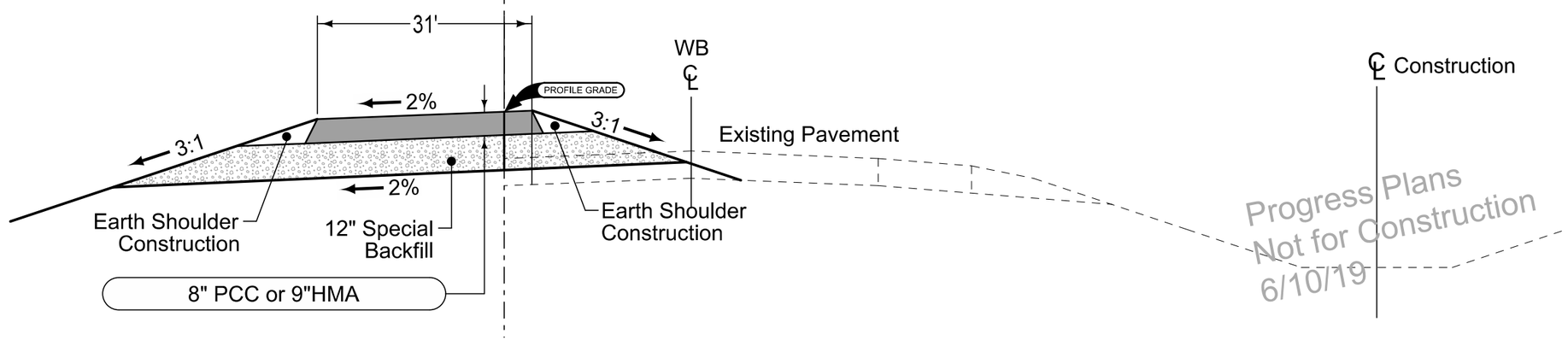
IOWA HIGHWAY 2

Paved Shoulder Strengthening

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		(P) Feet
386+28.00	387+84.06	4
387+84.06	398+42.86	4-27
398+42.86	402+00.00	27
412+60.00	421+80.00	27-4
421+80.00	423+40.00	4





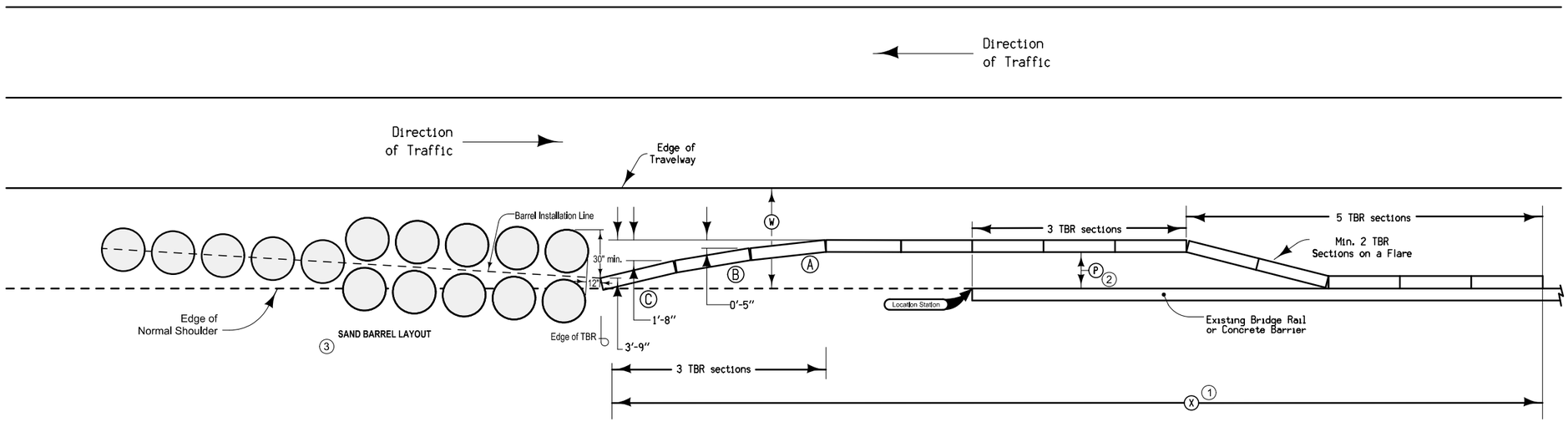
Progress Plans
Not for Construction
6/10/19

LOCATION		
ROAD IDENTIFICATION	STATION TO STATION	
IA 2 (Runaround)	402+00.00	412+60.00

See Tab 100-24 or 100-25 for pavement quantities.
See Tab 112-9 for shoulder quantities.

IOWA HIGHWAY 2
SHOULDER STRENGTHENING
AND DETOUR PAVEMENT

TBR-1



1. Distance = number of section needed times 12.5'
   See BA-401 for Temporary Barrier Details.
   See Tab. 108-33 for quantities.

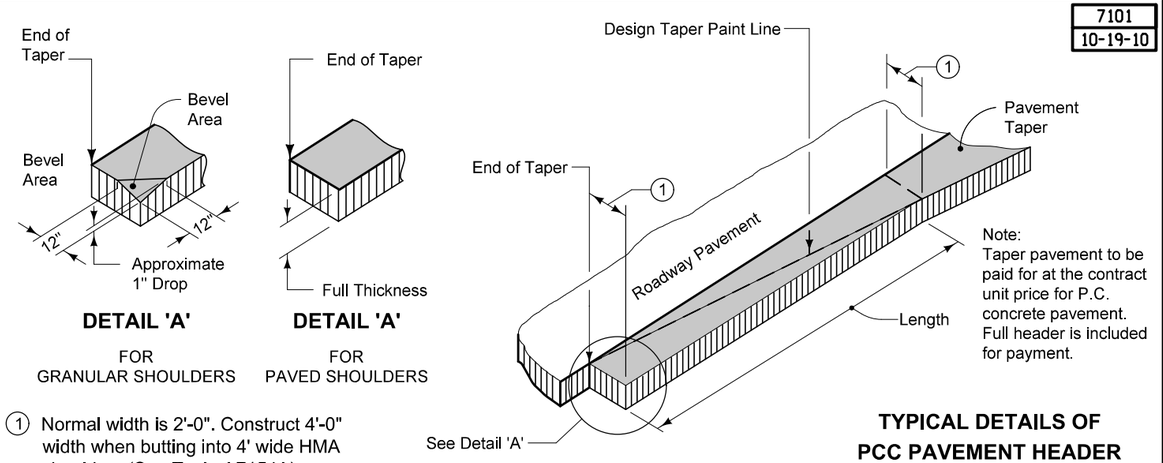
2. P < 24" then Anchor Temporary Barrier Rail.
   P ≥ 24" then Unachored Temporary Barrier Rail.

3. See BA-500 for Temporary Crash Cushion details.
   See Tab. 108-30 for quantites.

Location Station	Bridge Over	Corner	Traffic Direction	(P) Inches	(W) Feet	(X) Feet
406+00.00	EB Bridge	NW	WB	24	6	162.5

TBR OVERLAP FOR EXPOSED BRIDGE RAIL

7101
10-19-10



DETAIL 'A'
FOR GRANULAR SHOULDERS

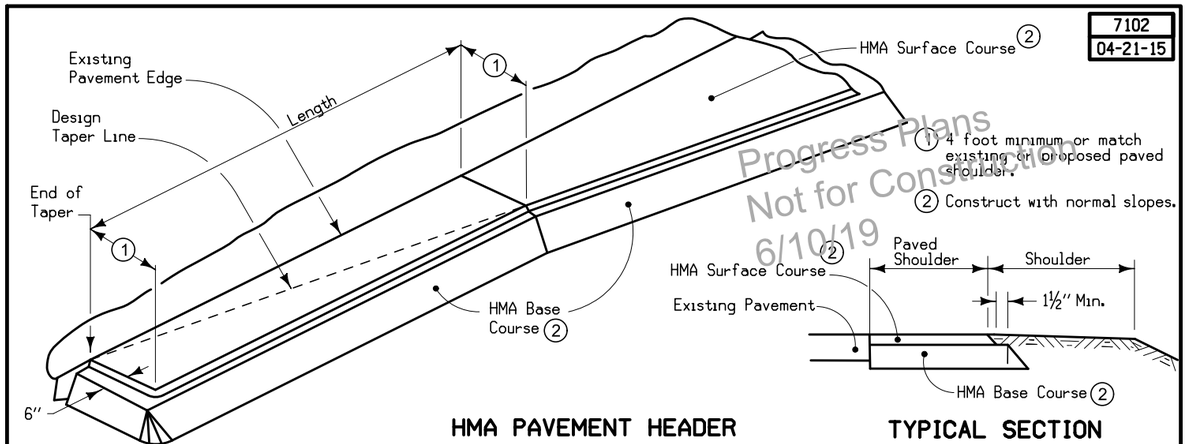
DETAIL 'A'
FOR PAVED SHOULDERS

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

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

TYPICAL DETAILS OF PCC PAVEMENT HEADER

7102
04-21-15



1. 4 foot minimum or match existing or proposed paved shoulder.
2. Construct with normal slopes.

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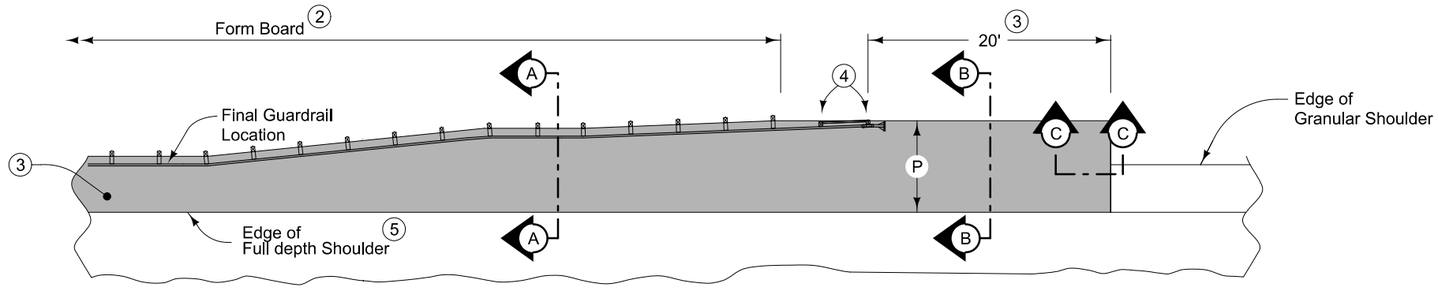
HMA PAVEMENT HEADER

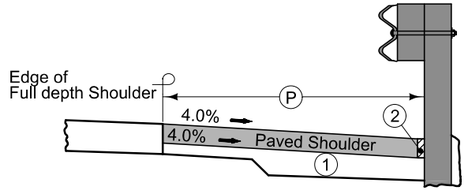
TYPICAL SECTION

Refer to project plans for exact details of pavement requirements.

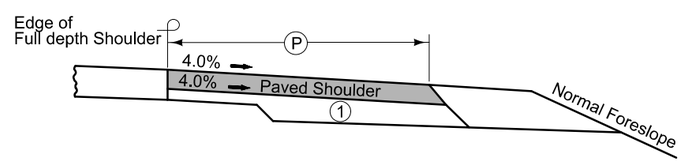
7156
Modified



PLAN VIEW



Section A-A



Section B-B

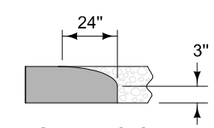
NEW CONSTRUCTION

6" PCC Paved Shoulder shall be constructed withthe 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. 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 last 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.

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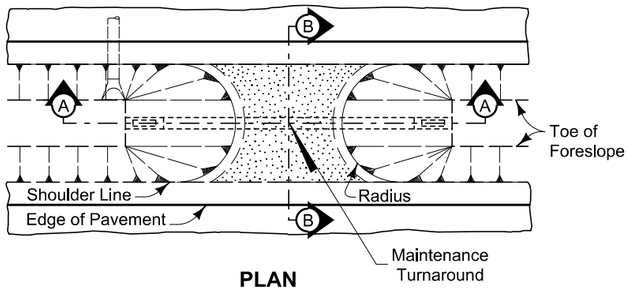
6/10/19

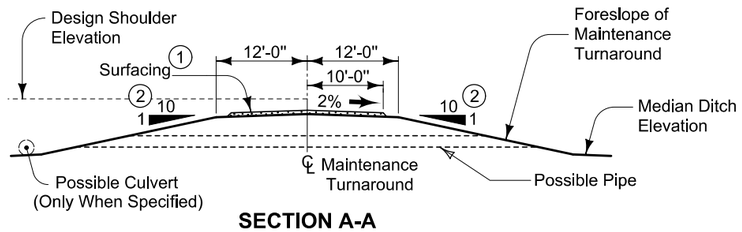
PAVED SHOULDER AT GUARDRAIL

8101
04-21-15

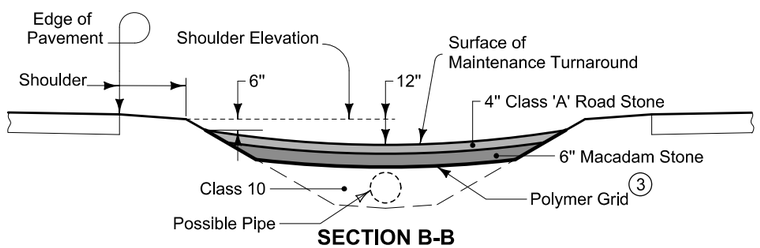


PLAN

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	TONS	TONS	SY	CY	LF	EACH	FT	

Progress Plans
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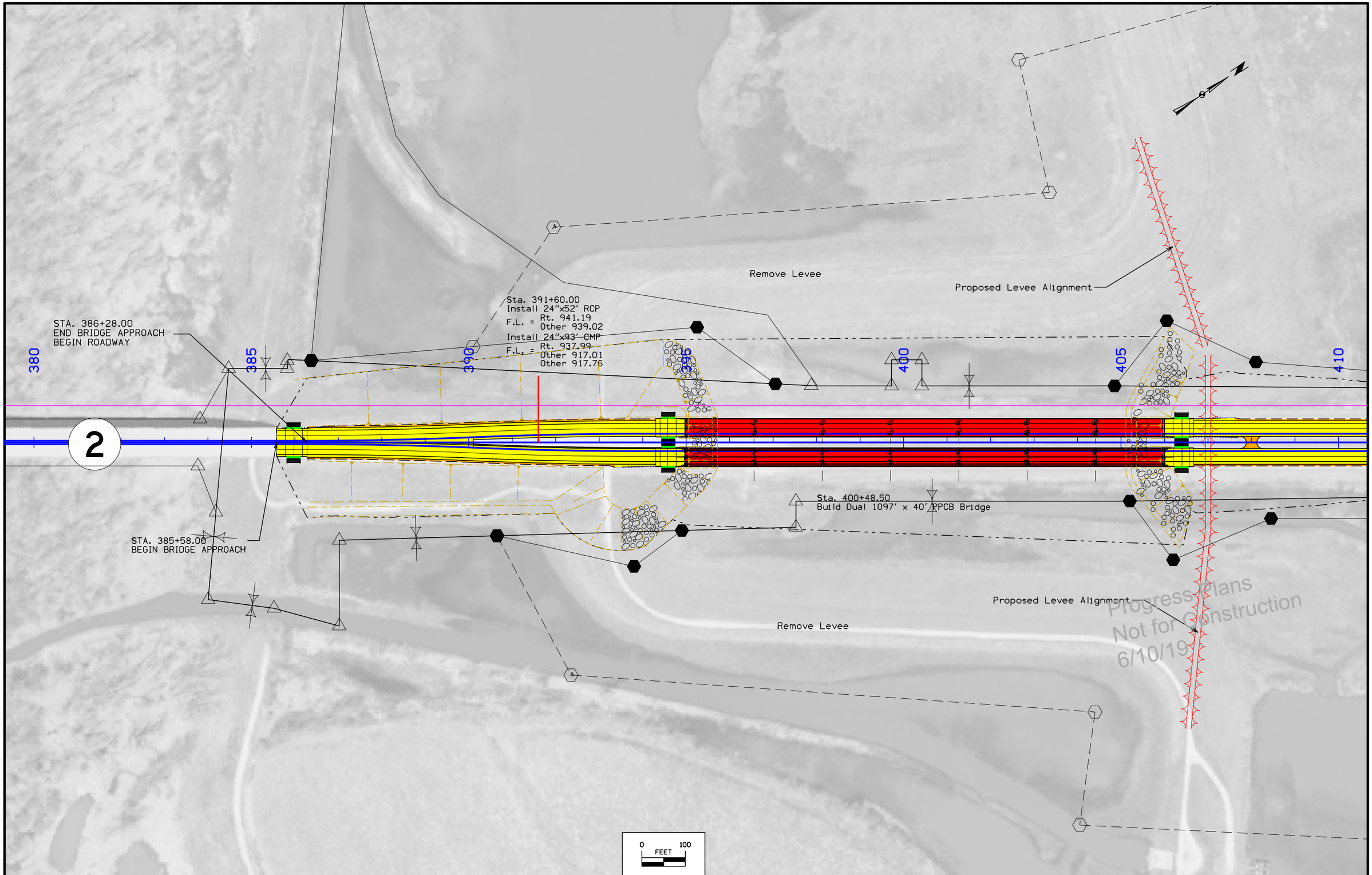
6/10/19



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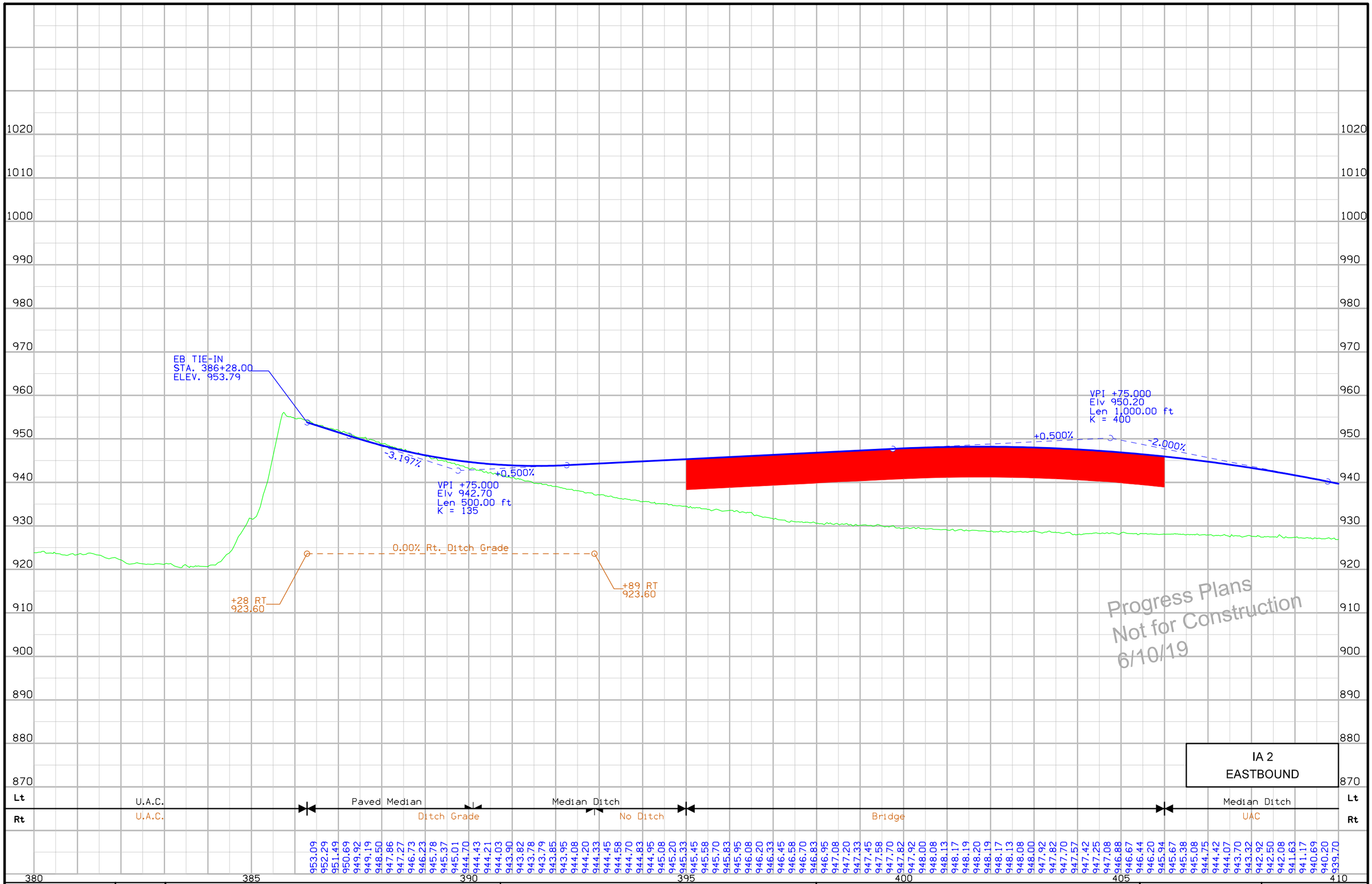

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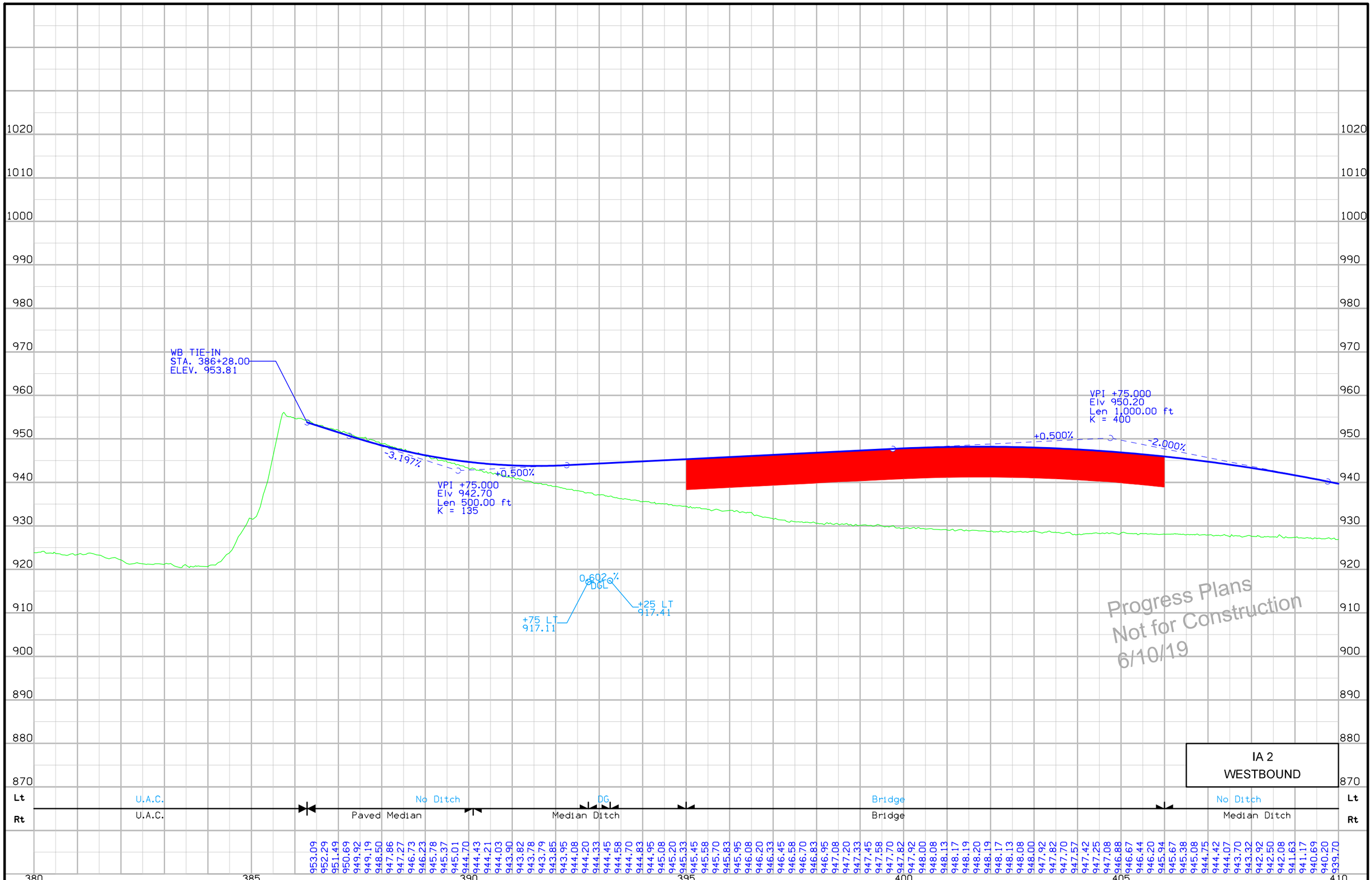

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Sta. 411+00.00
Install 24"x56' RCP
F.L. = Rt. 934.61
Other 932.45
Install 24"x71' CMP
F.L. = Lt. 916.43
Other 916.43
Other 917.09

STA. 420+50.00
END CONSTRUCTION

410 415 420 425 430 435 440

2

TS Sta 439+97.36

Progress Plans
Not for Construction
6/10/19

0 100
FEET

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER D.5

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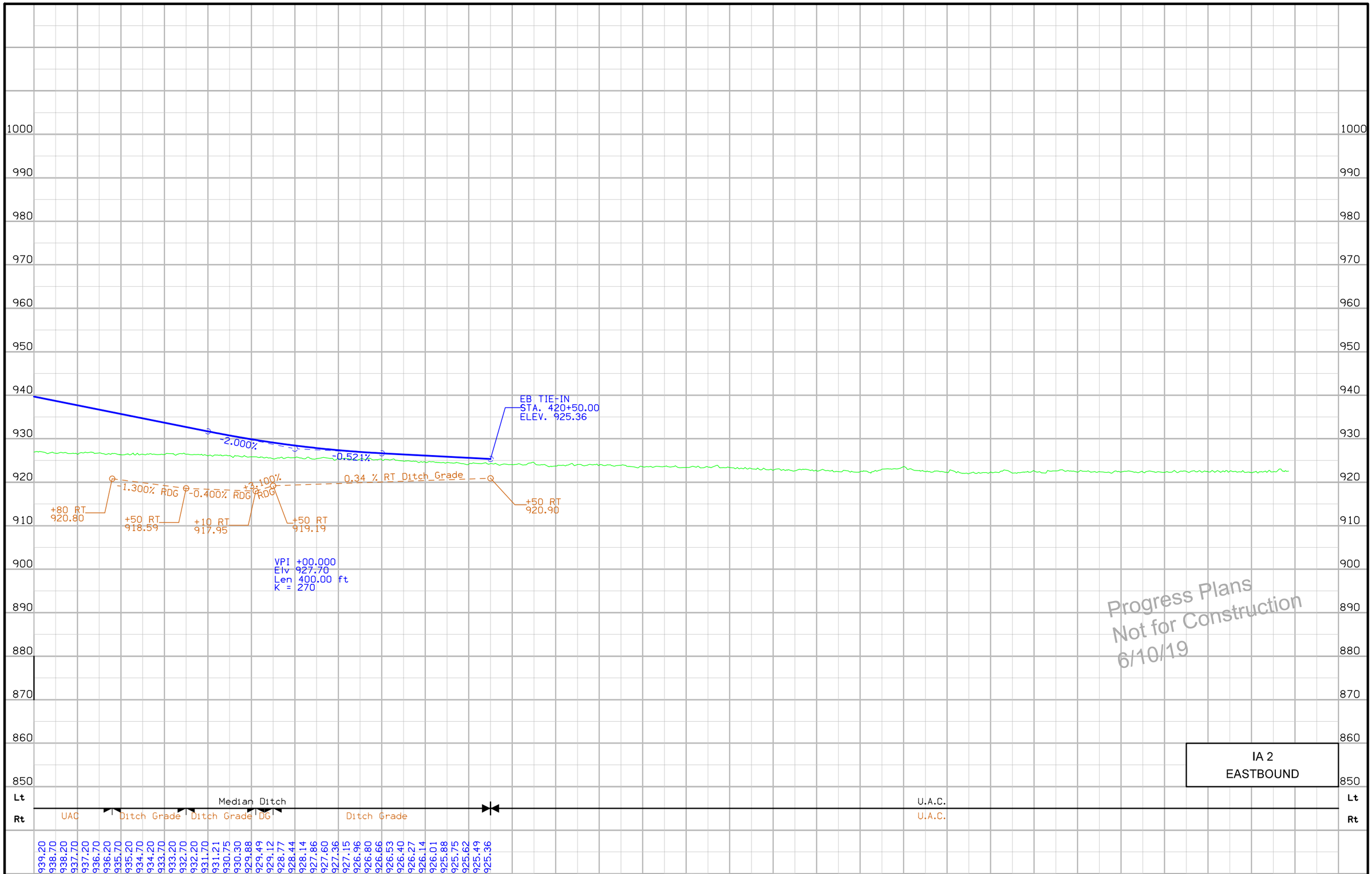

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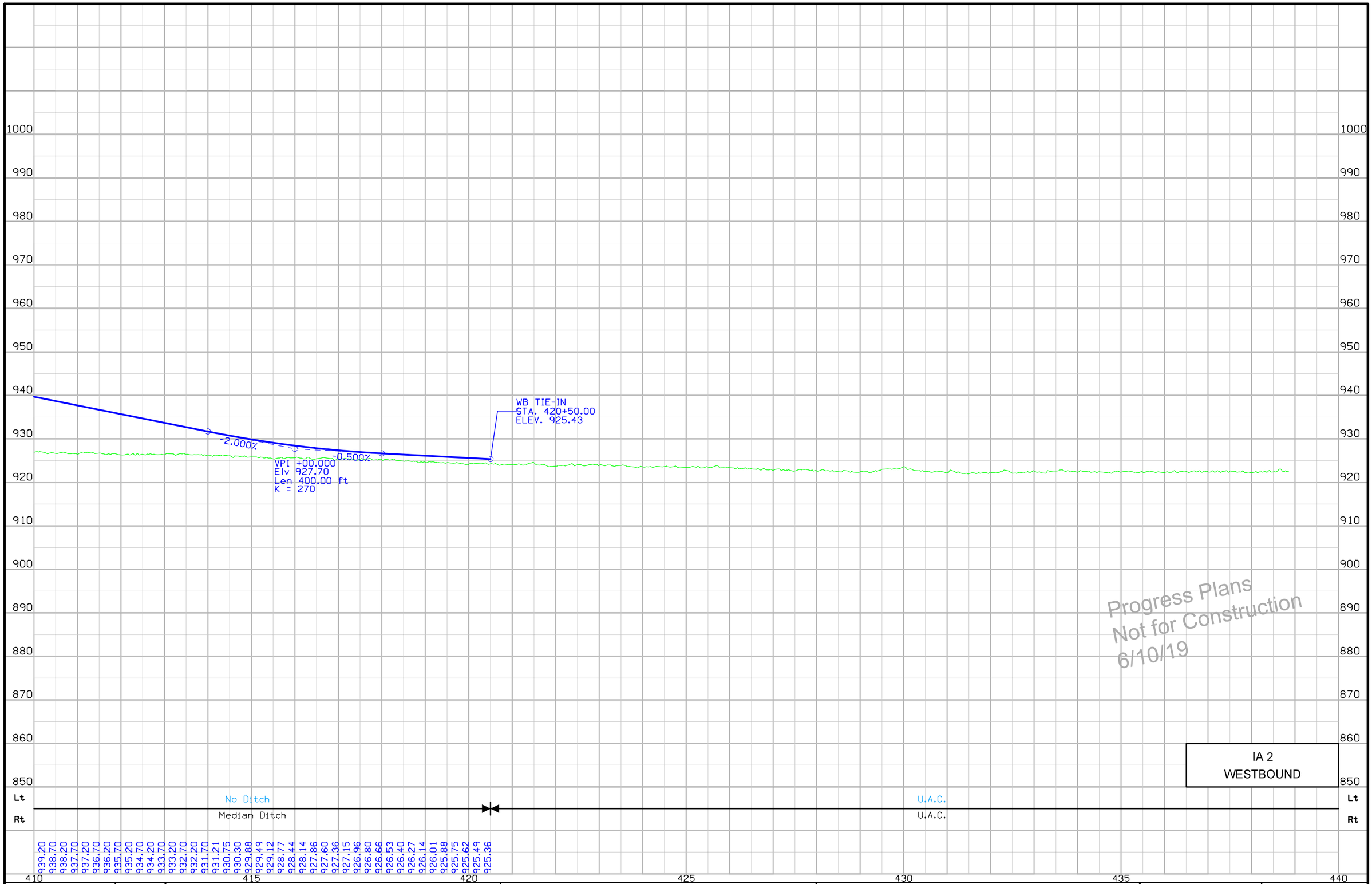

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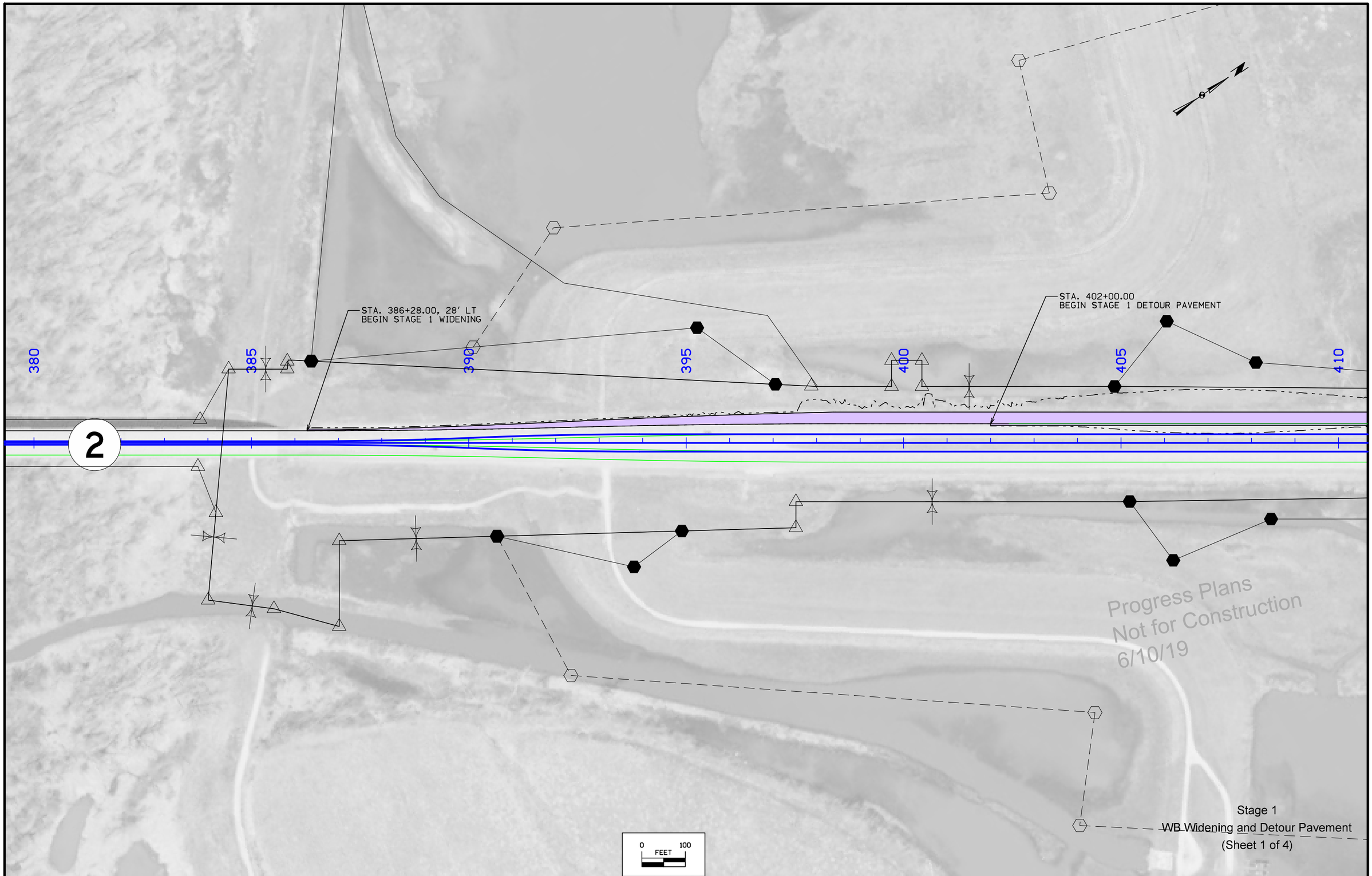

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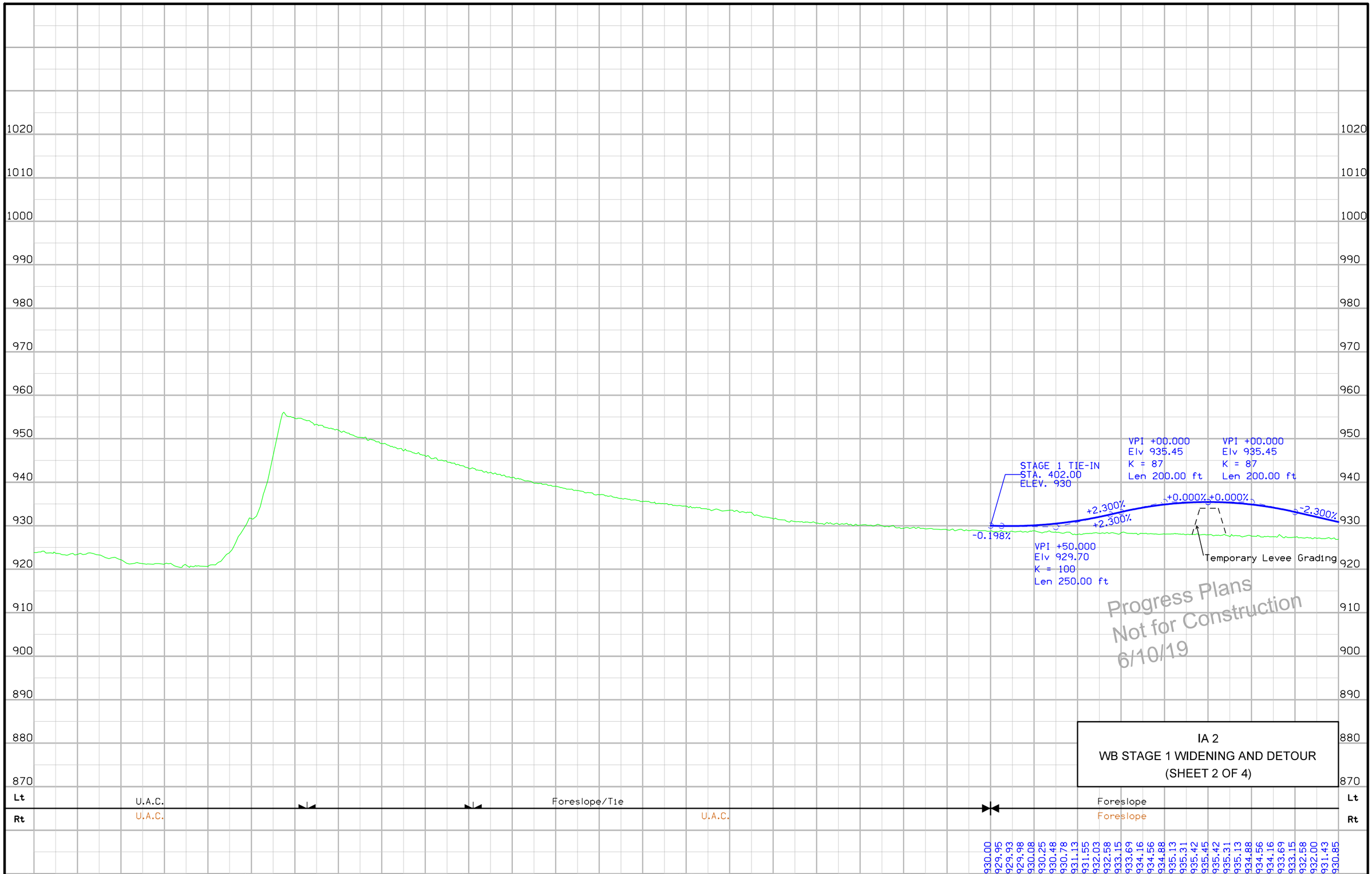

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER F.2

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STA. 412+60.00
END STAGE 1 DETOUR PAVEMENT

STA. 423+40.00, 44 LT
END STAGE 1 WIDENING

410 415 420 425 430 435 440

2

TS Sta 439+97.36

avement

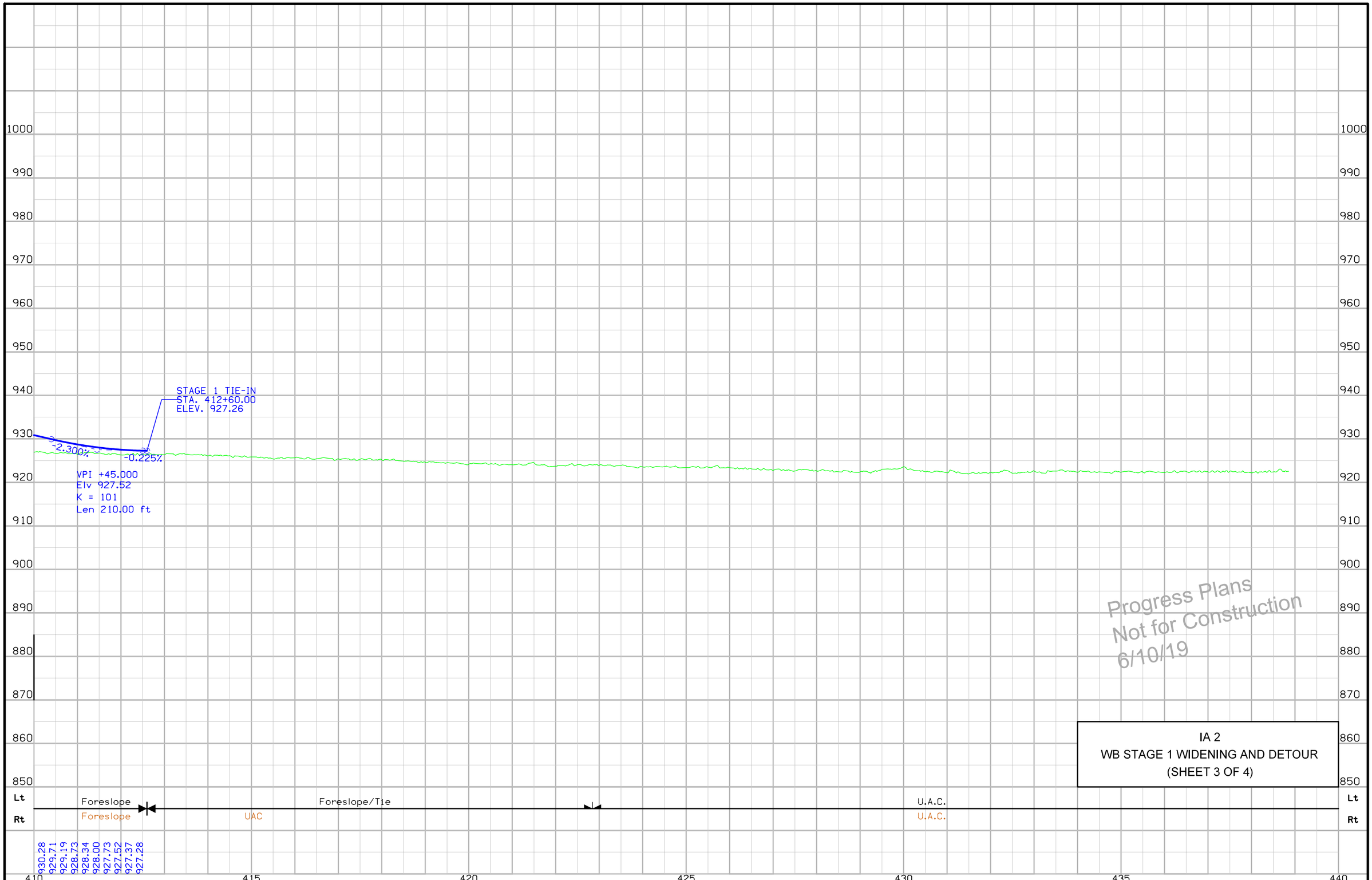
0 100
FEET

Progress Plans
Not for Construction
6/10/19

Stage 1
WB Widening and Detour Pavement
(Sheet 3 of 4)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER F.3

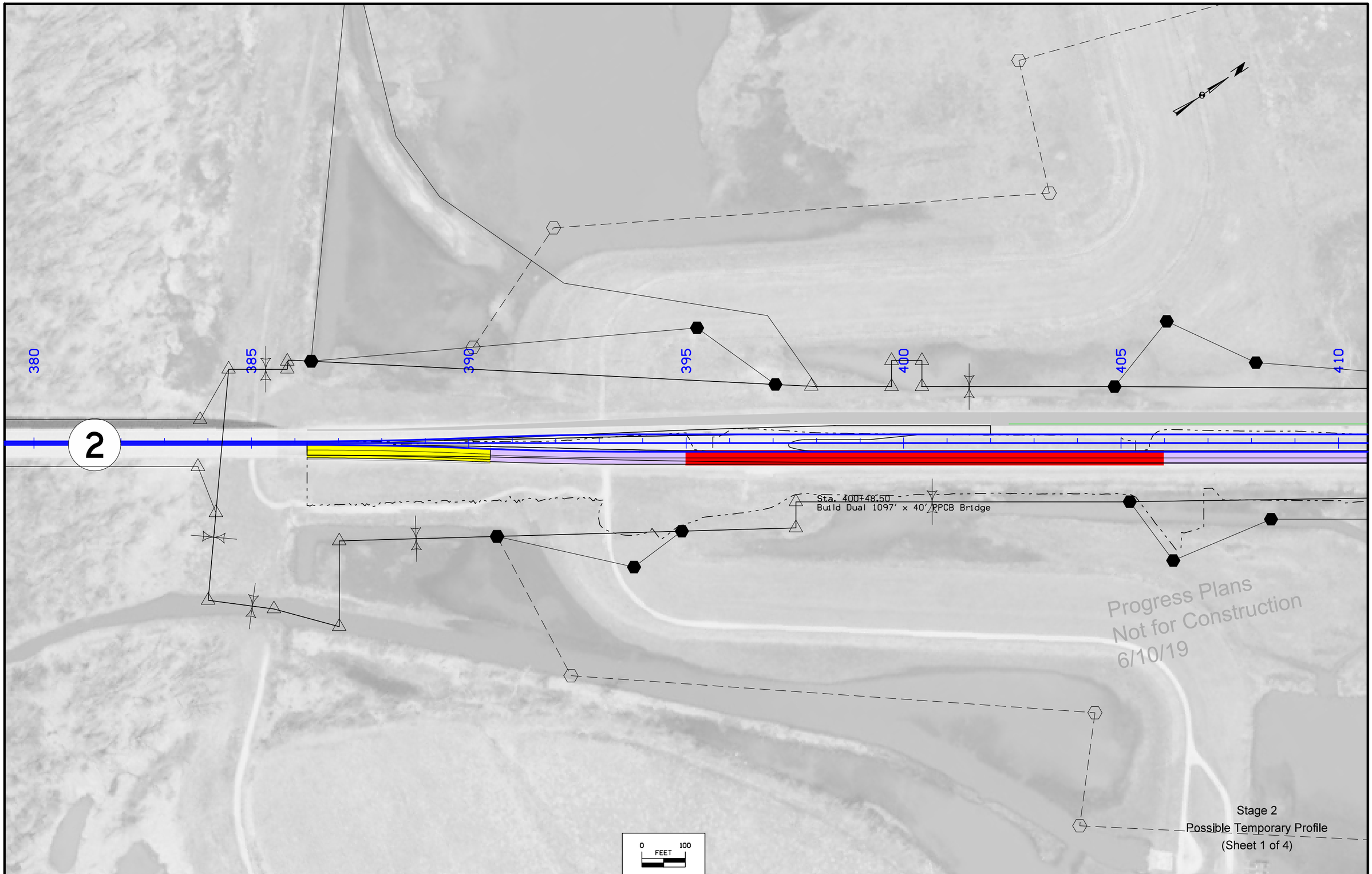
5:06:02 PM 6/4/2019 mjack pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\3600207019\Design\(122)_Unknown Pavement - Grade and Replace\CADD_Files\Sheet_Files\36002122_F01.dgn



Progress Plans
Not for Construction
6/10/19

IA 2
WB STAGE 1 WIDENING AND DETOUR
(SHEET 3 OF 4)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER F.4



Stage 2
Possible Temporary Profile
(Sheet 1 of 4)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER F.5

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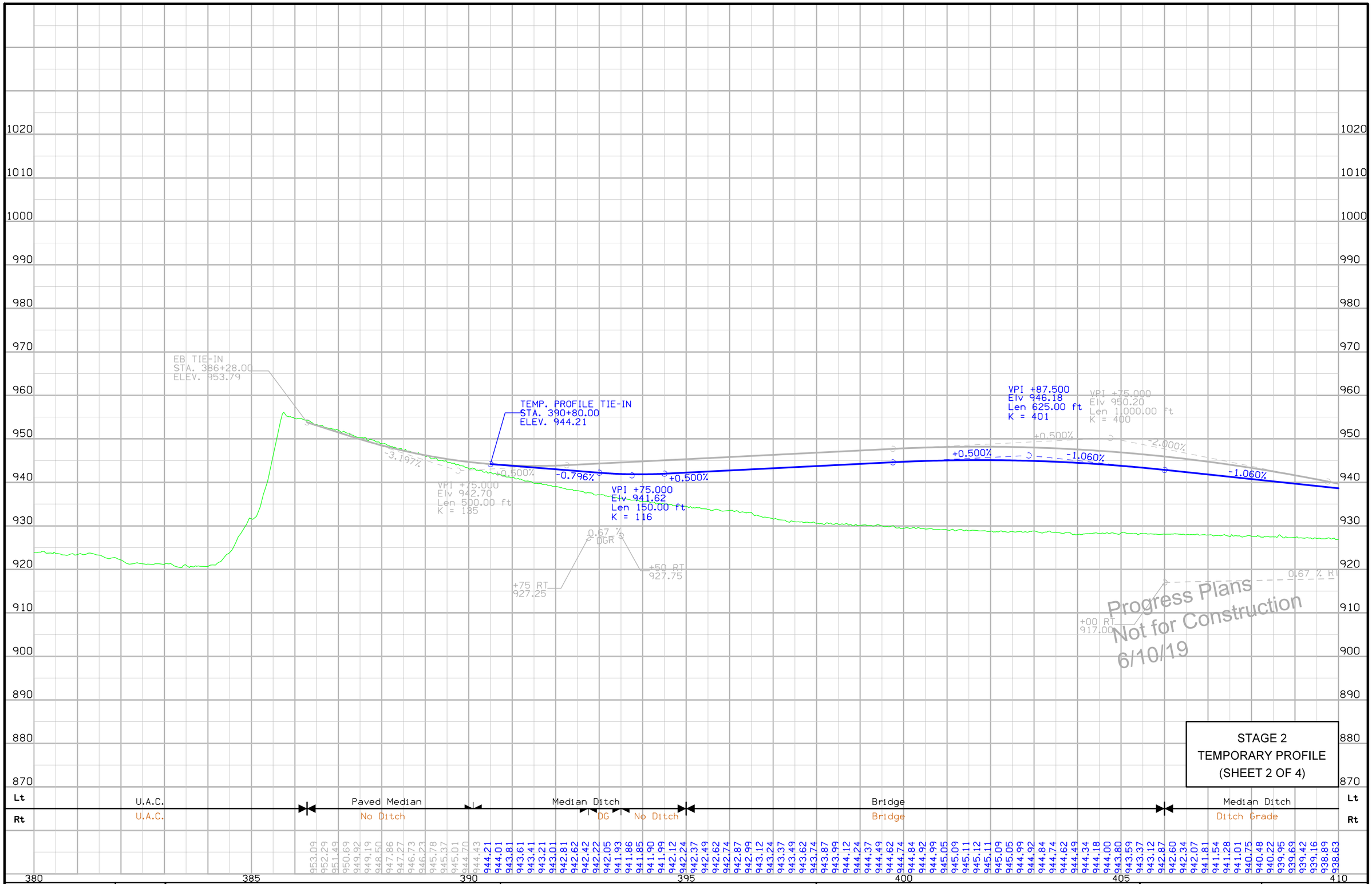

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER F.6

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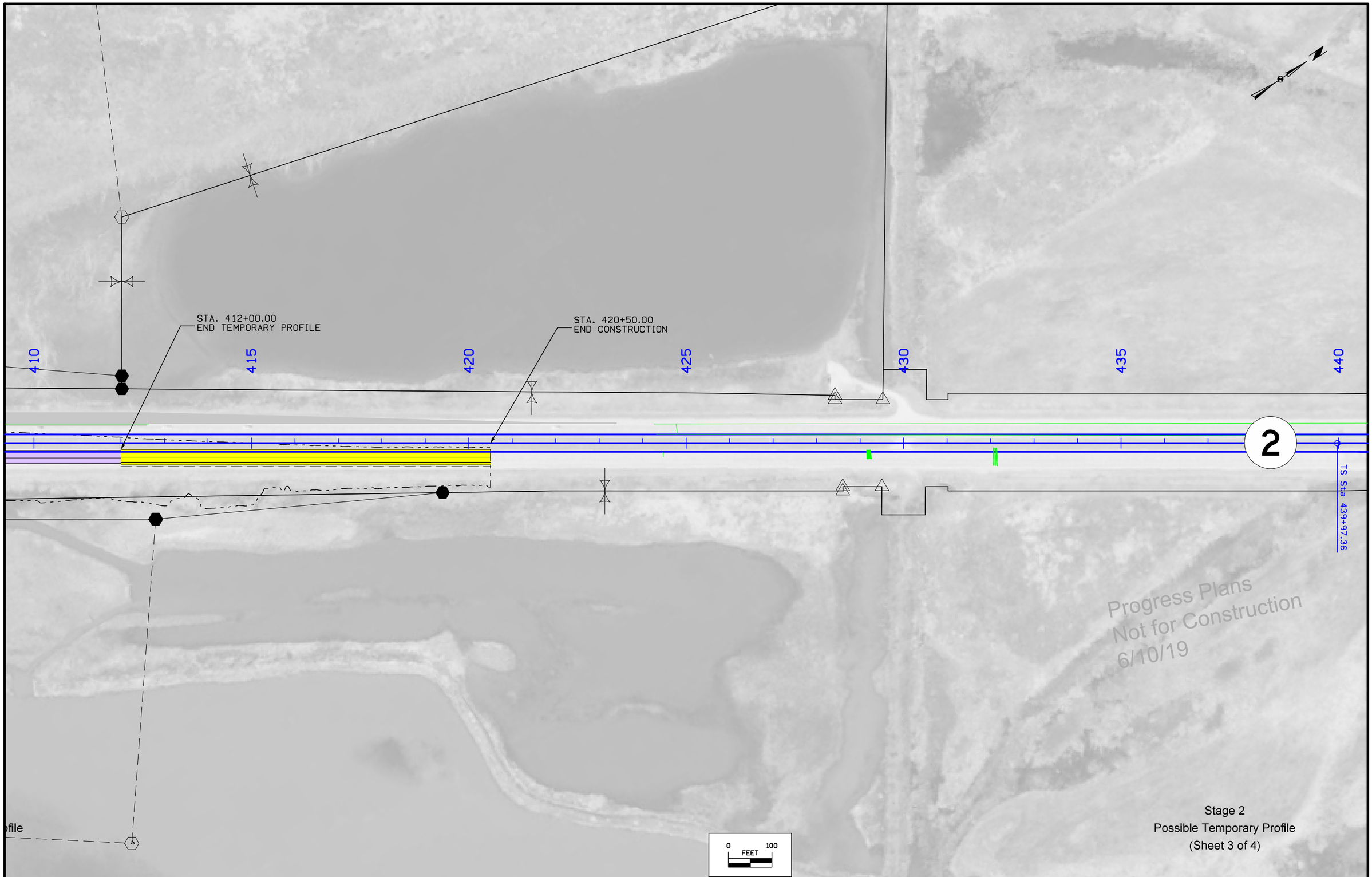

Stage 2
Possible Temporary Profile
(Sheet 3 of 4)

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER F.7

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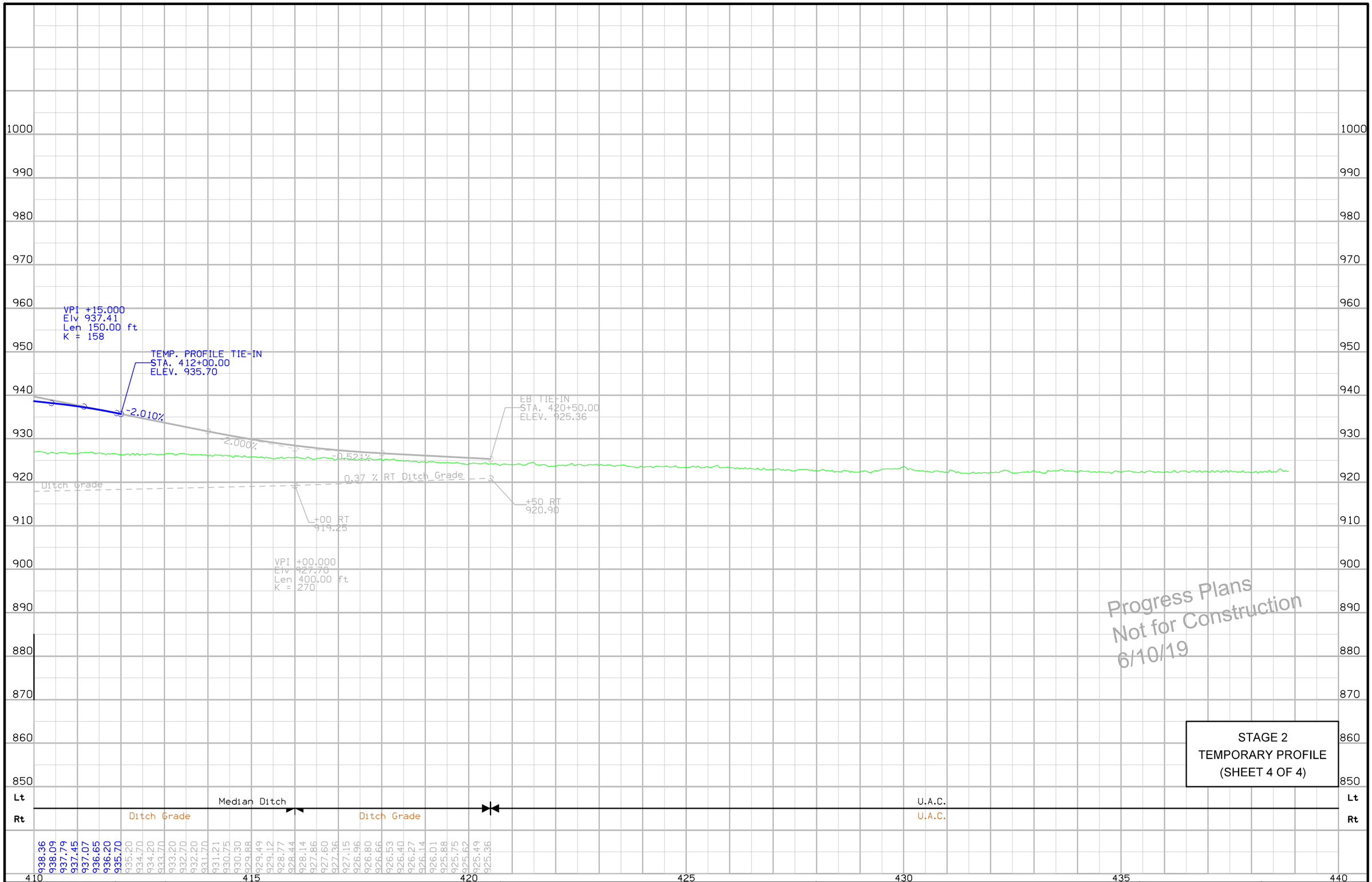

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER F.8

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Survey Information

Progress Plans
Not for Construction
6/10/19

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points

Primary control is for use with RTK base stations and for RTN validation.
Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.

Progress Plans
Not for Construction
6/10/19

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 6

Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 6

Progress Plans
Not for Construction
6/10/19

101-16
10-20-09

ALIGNMENT COORDINATES

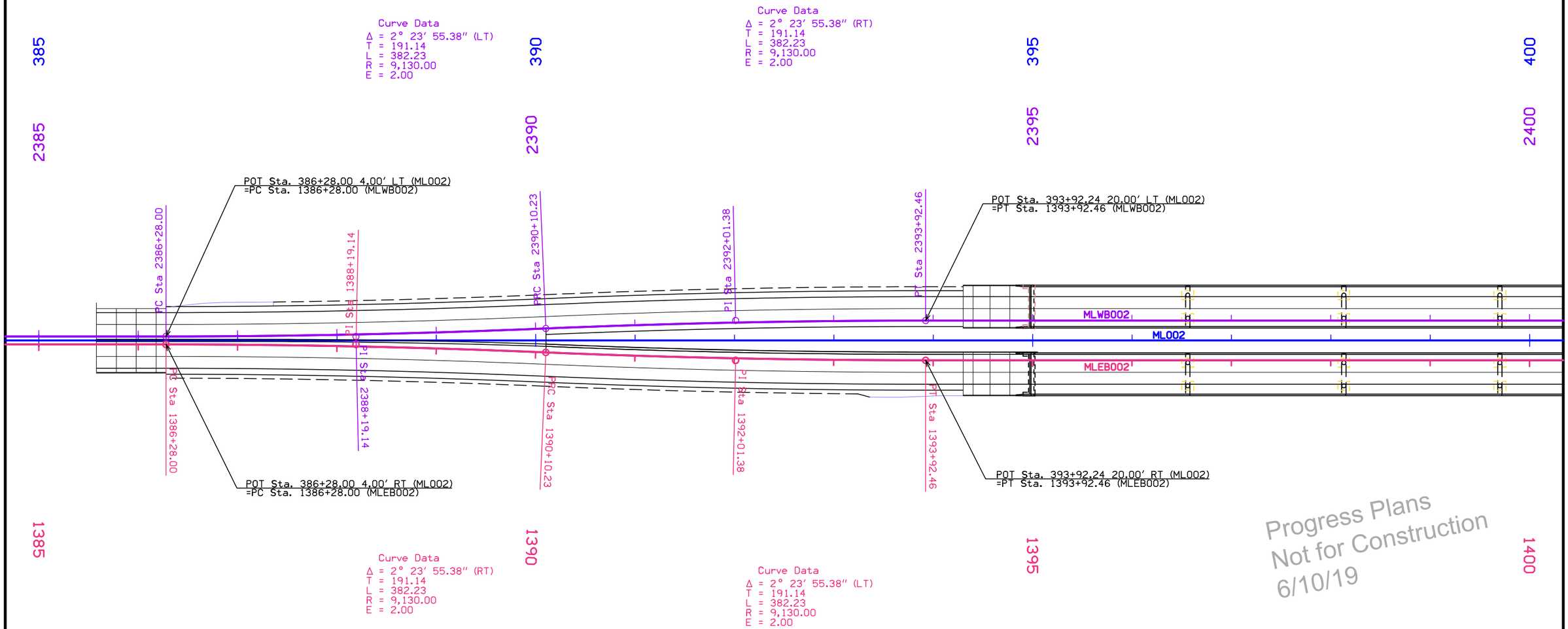
Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
1	ML002	376+44.3000 R1	6753555.97	16473191.52															
2	ML002				439+97.3623 R1	6758798.93	16476779.38				441+64.0664 R1	6758936.50	16476873.53				442+47.3623 R1	6759002.08	16476925.01
3	ML002							442+47.3623 R1	6759002.08	16476925.01	447+94.7053 R1	6759432.60	16477263.00	453+13.4739 R1	6759618.74	16477777.72			
4	ML002				453+13.4739 R1	6759618.74	16477777.72				453+96.8413 R1	6759647.09	16477856.11				455+63.4739 R1	6759693.41	16478016.25
6	ML002				467+30.7358 R1	6760017.74	16479137.55				468+97.4285 R1	6760064.05	16479297.68				469+80.7358 R1	6760082.81	16479378.90
7	ML002							469+80.7358 R1	6760082.81	16479378.90	471+99.5637 R1	6760132.07	16479592.11	474+17.0688 R1	6760140.08	16479810.79			
8	ML002				474+17.0688 R1	6760140.08	16479810.79				475+00.4258 R1	6760143.13	16479894.10				476+67.0688 R1	6760140.15	16480060.76
9	ML002	483+13.8554 R1	6760128.56	16480707.44															
1	MLEB002	1376+44.3000 R1	6753553.71	16473194.82															
2	MLEB002							1386+28.0000 R1	6754365.52	16473750.36	1388+19.1439 R1	6754523.27	16473858.31	1390+10.2320 R1	6754676.35	16473972.76			
3	MLEB002							1390+10.2320 R1	6754676.35	16473972.76	1392+01.3760 R1	6754829.44	16474087.22	1393+92.4641 R1	6754987.19	16474195.17			
5	MLEB002	1439+97.5856 R1	6758787.63	16476795.89															
1	MLWB002	2376+44.3000 R1	6753558.22	16473188.22															
2	MLWB002							2386+28.0000 R1	6754370.04	16473743.76	2388+19.1439 R1	6754527.78	16473851.71	2390+10.2320 R1	6754689.91	16473952.96			
3	MLWB002							2390+10.2320 R1	6754689.91	16473952.96	2392+01.3760 R1	6754852.03	16474054.21	2393+92.4641 R1	6755009.78	16474162.16			
5	MLWB002	2439+97.5856 R1	6758810.22	16476762.88															

101-17
04-19-11

SPIRAL OR CIRCULAR CURVE DATA

Name	Location	ΔSCS	Horizontal Alignment Data													Remarks
			Spiral Data								Curve Data					
			θS	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	ΔC	T	L	R	E	
C1	ML002	39.4833	3.7500	250.0000	810.8677	120.7098	249.8929	5.4525	166.7041	83.3673	31.9833	547.3430	1066.1116	1909.8600	76.8835	
C2	ML002	17.1583	3.1250	250.0000	470.9134	27.0832	249.9256	4.5442	166.6926	83.3569	10.9083	218.8279	436.3330	2291.8300	10.4233	
C1	MLEB002										2.3987	191.1439	382.2320	9130.0000	2.0007	
C2	MLEB002										2.3987	191.1439	382.2320	9130.0000	2.0007	
C1	MLWB002										2.3987	191.1439	382.2320	9130.0000	2.0007	
C2	MLWB002										2.3987	191.1439	382.2320	9130.0000	2.0007	

Progress Plans
Not for Construction
6/10/19



Progress Plans
Not for Construction
6/10/19

Details of Median
Width Transition

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER G.5

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Traffic on IA 2 shall be maintained at all times.

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
None Provided	

108-26A
08-01-08

STAGING NOTES

STAGE 1:
IA 2 traffic on existing eastbound lanes

1A: Build crossover at Sta. 430+00.00
1B: Grade proposed levee at IA 2 westbound to protection elevation
1C: Grade and pave IA 2 westbound lanes from Sta. 386+28.00 to Sta. 423+40.00

STAGE 2:
IA 2 traffic on widened/reconstructed westbound lanes

2A: Grade and pave IA 2 eastbound lanes to interim elevation
2B: Build new IA 2 eastbound bridge substructure; install temporary bridge deck
2C: Grade proposed levee south of IA 2 and under IA 2 eastbound
2D: Remove existing levees and IA 2 roadway under new eastbound bridge

STAGE 3:
IA 2 traffic on interim eastbound lanes

3A: Grade and pave IA 2 westbound lanes
3B: Build new IA 2 westbound bridge
3C: Grade proposed levee north of IA 2 and under IA 2 westbound to final elevation

STAGE 4:
IA 2 traffic on new westbound lanes

4A: Remove temporary pavement, grade and pave to final elevations
4B: Remove temporary bridge deck and build final bridge superstructure

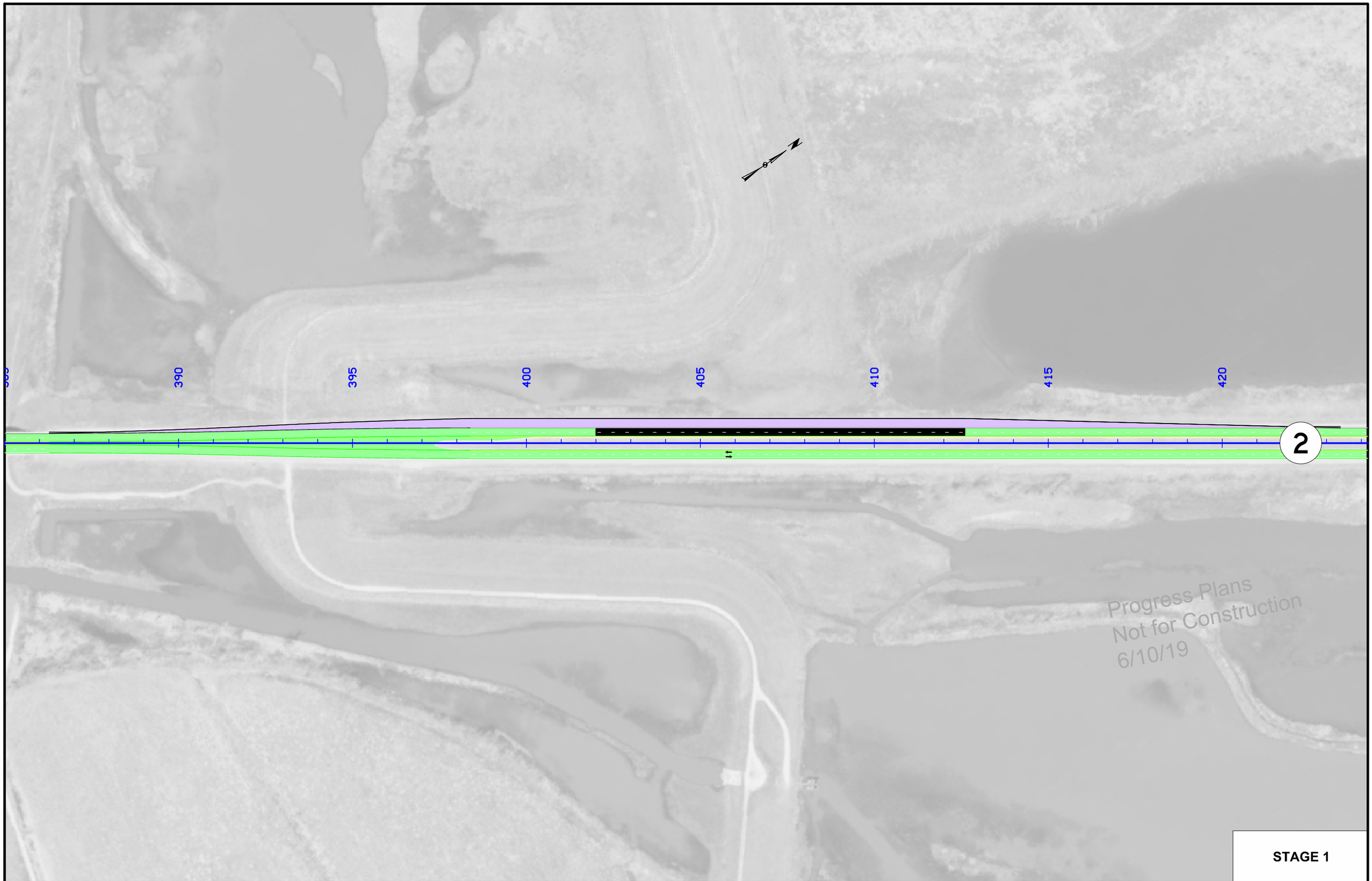
STAGE 5:
IA 2 on normal lanes

Progress Plans
Not for Construction
6/10/19

108-25
10-21-14

511 TRAVEL RESTRICTIONS

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



STAGE 1

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER J.3

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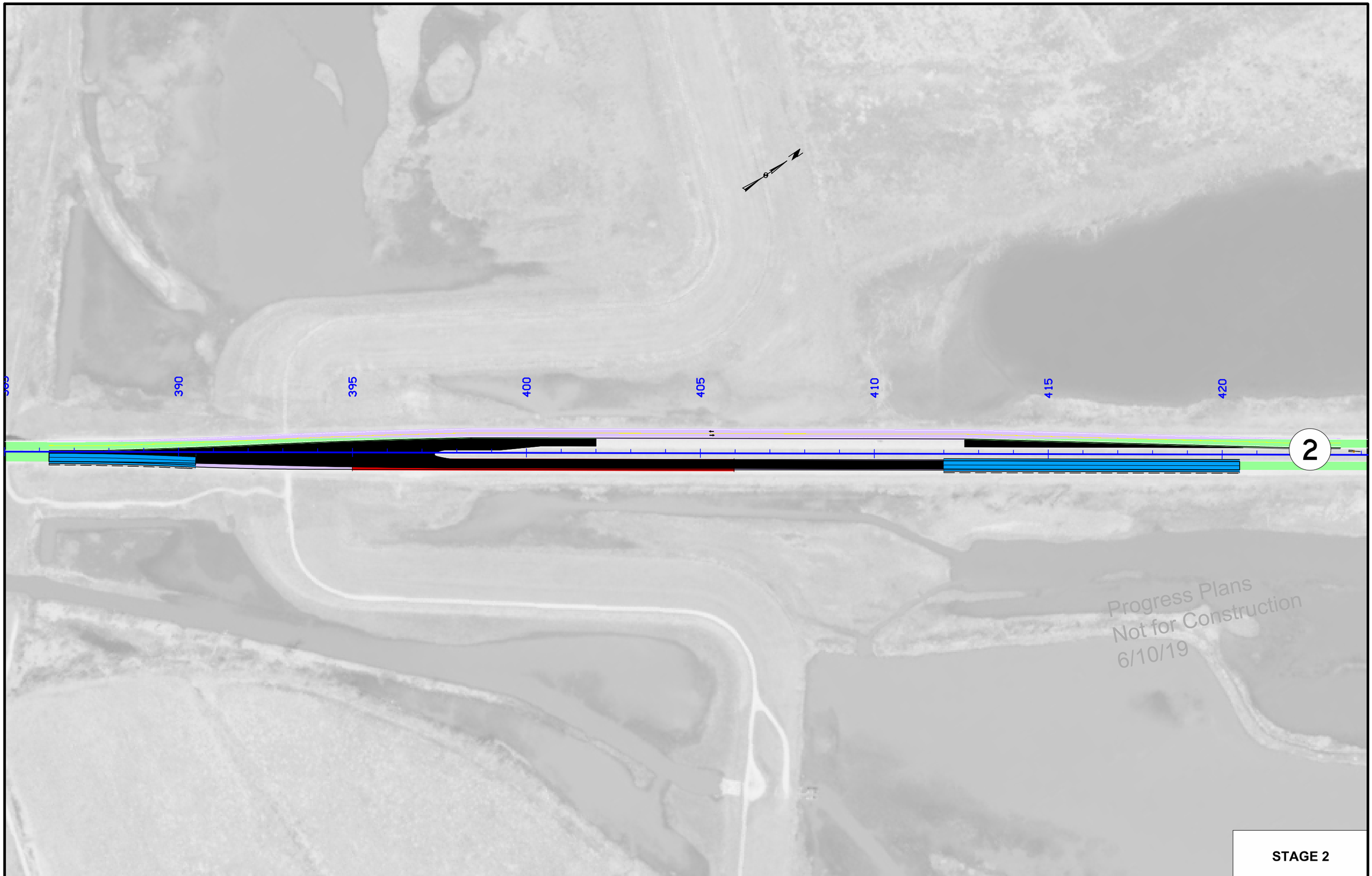

STAGE 2

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER J.4

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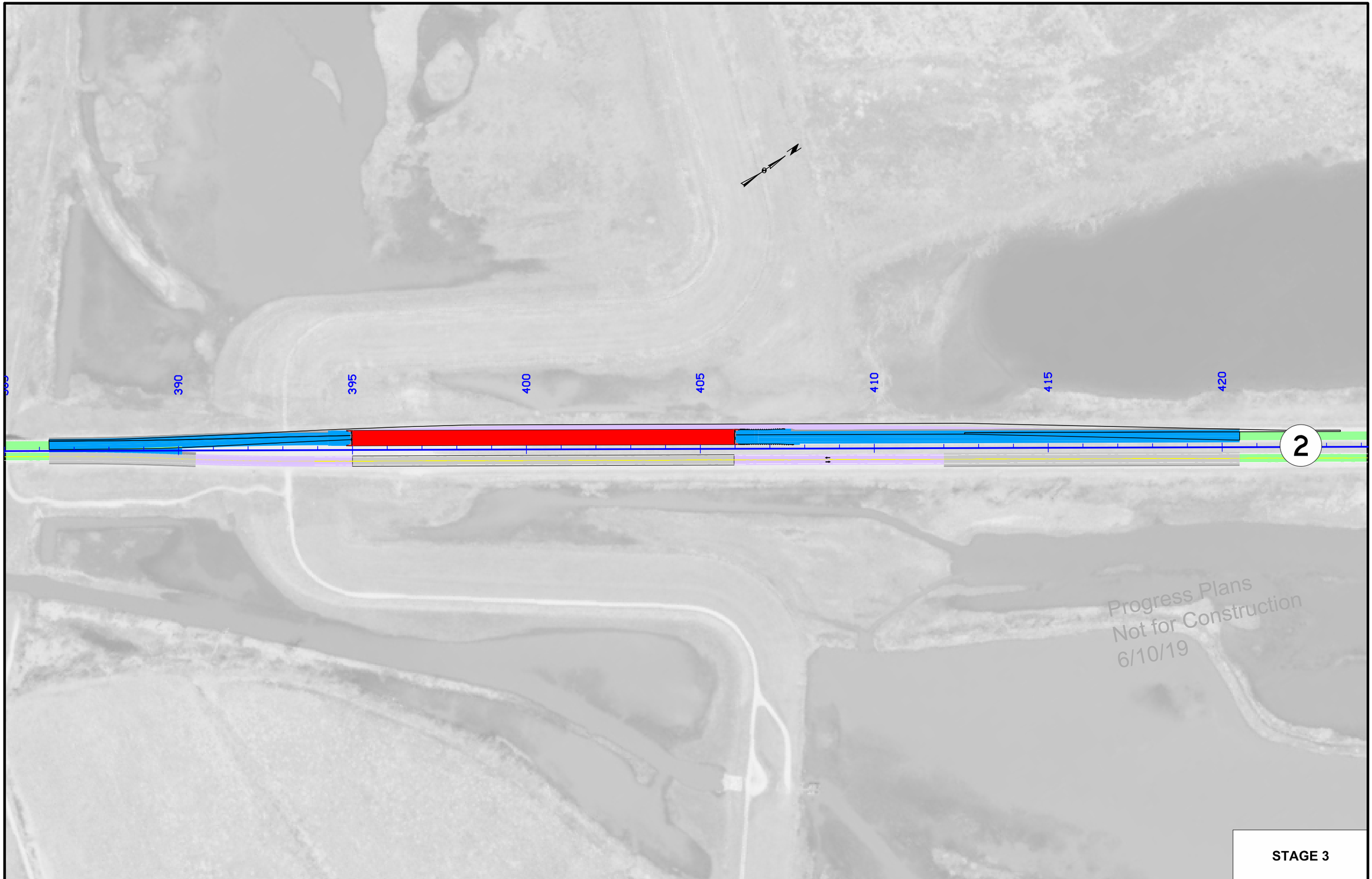

STAGE 3

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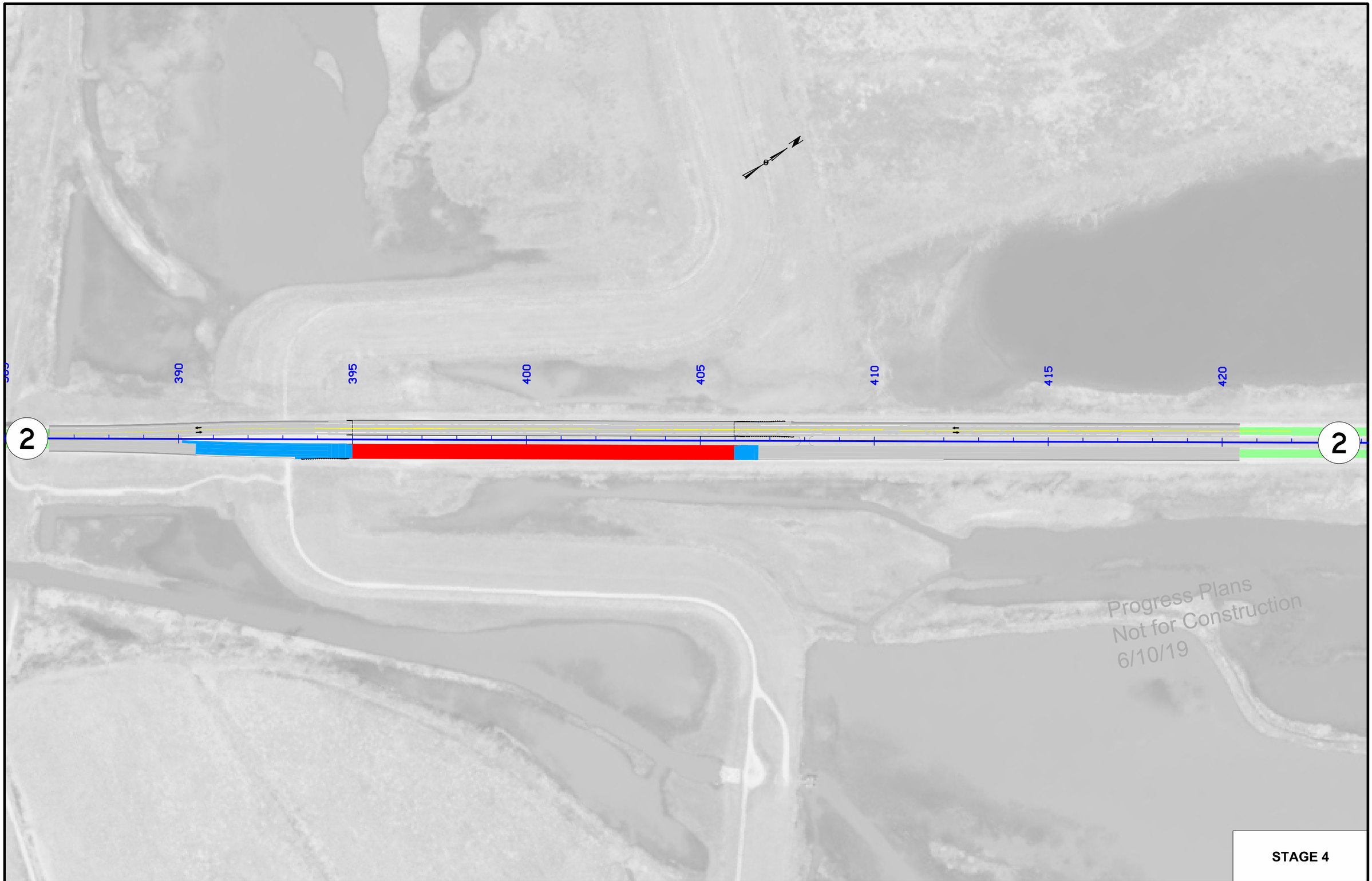

STAGE 4

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER J.6

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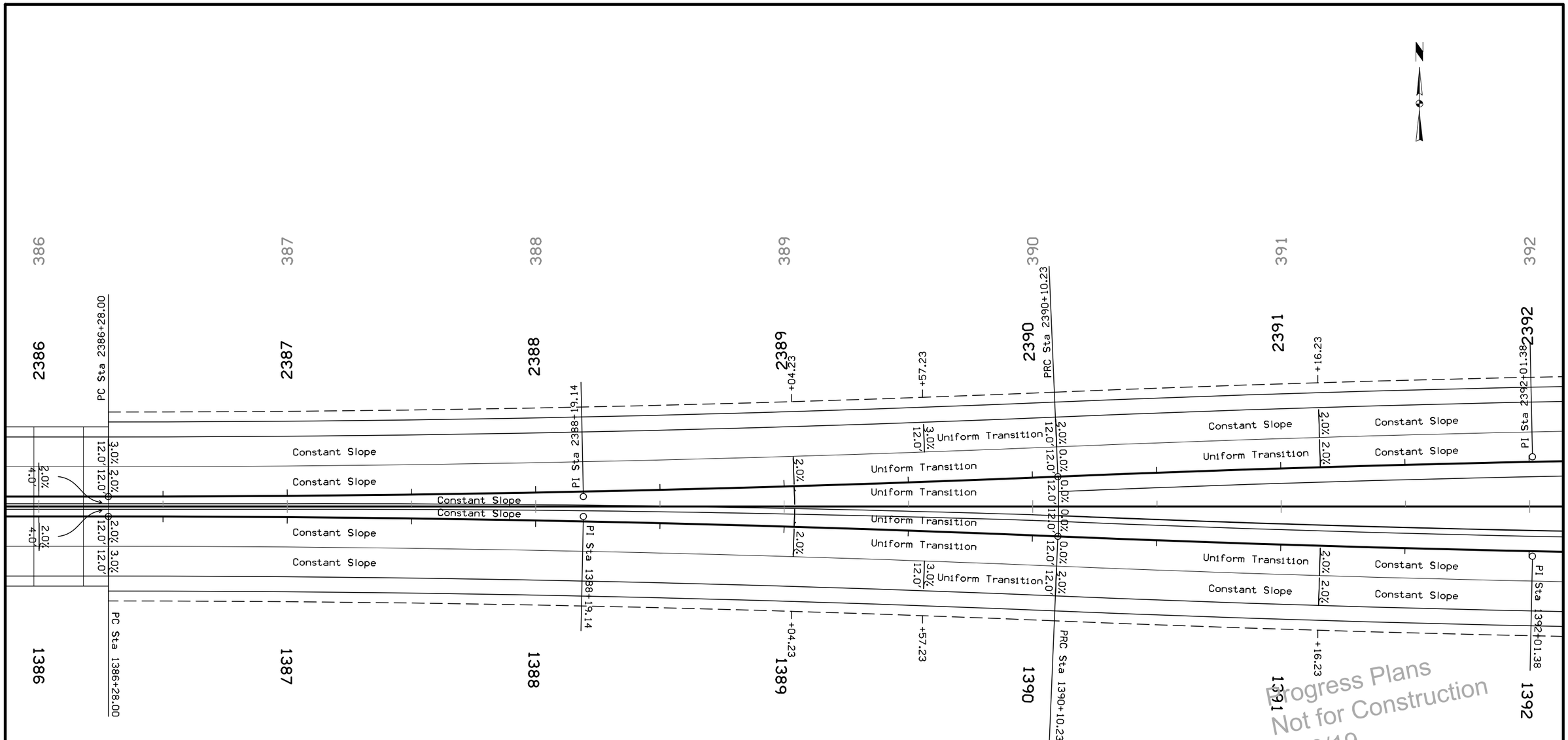


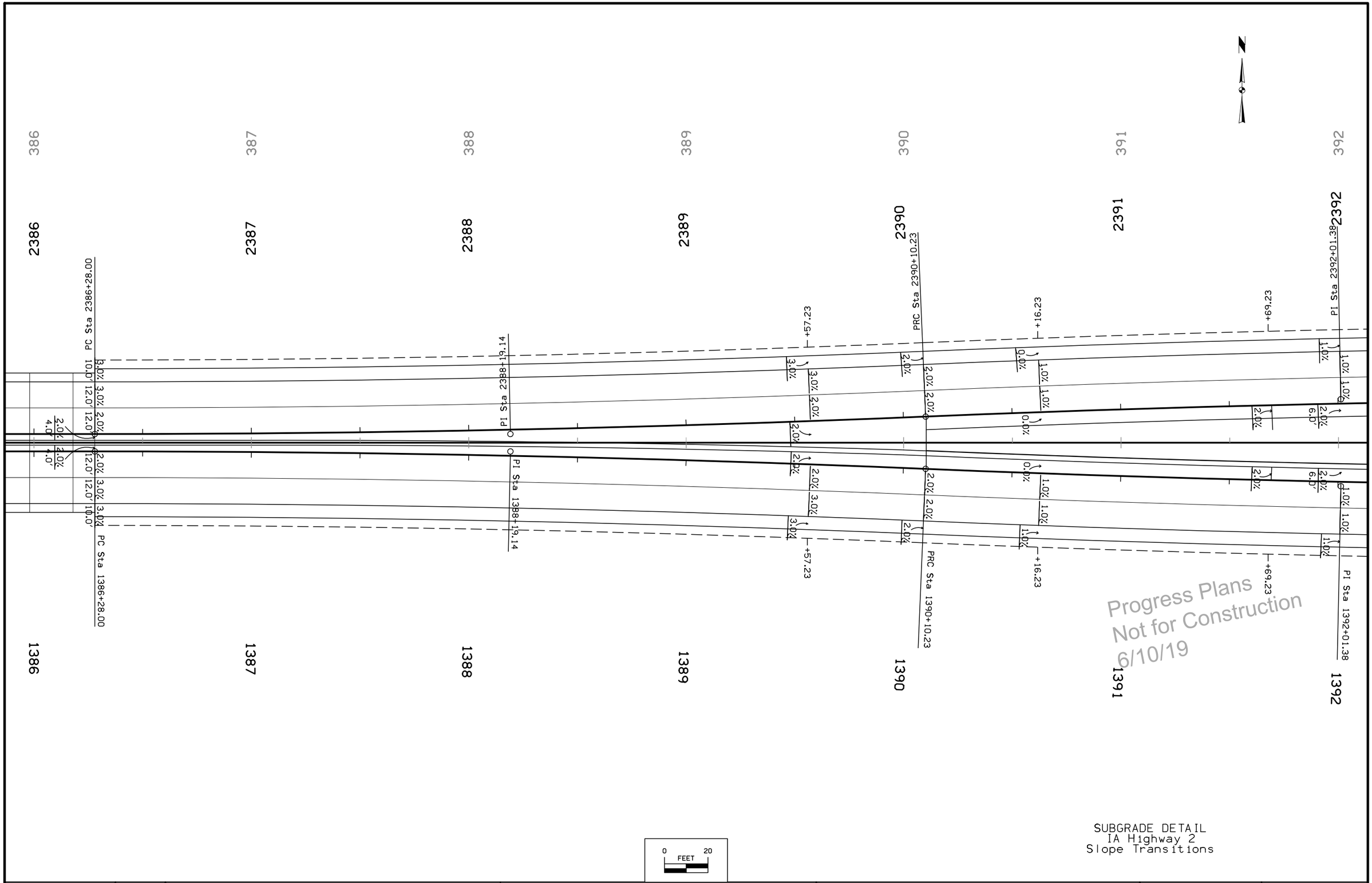
Note:
Refer to G Sheets for Horizontal Alignment Information.

0 20
FEET

STAKING DETAIL
IA Highway 2

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER L.1

11:59:11 AM 5/15/2019 mjack pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\3600207019\Design\(122)_Unknown Pavement - Grade and Replace\CADD_Files\Sheet_Files\36002122_L01.dgn



SUBGRADE DETAIL
IA Highway 2
Slope Transitions

FILE NO.	ENGLISH	DESIGN TEAM Flattery \ Bell	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER L.2

12:00:03 PM 5/15/2019 mjack pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\3600207019\Design\(122)_Unknown Pavement - Grade and Replace\CADD_Files\Sheet_Files\36002122_L01.dgn

INDEX OF SHEETS

No.	DESCRIPTION
MA Sheets	**Levee Title Sheets**
MA.1	Levee Title Sheet
MB Sheets	**Levee Typical Cross Sections and Details**
* MB.1 - 4	Levee Typical Cross Sections and Details
MC Sheets	**Levee Quantities and General Information**
MC.1	Estimated Project Quantities
MC.2	Estimate Reference Information
MC.3	Standard Road Plans
MC.3	Index of Tabulations
MC.3	General Notes
MC.3 - 4	Tabulations
ME Sheets	**Levee Plan and Profile Sheets**
* ME.1	Levee Plan & Profile Legend & Symbol Information Sheet
* ME.2 - 3	Missouri River Levee L-575 Hwy 2 Setback (DK407)
MG Sheets	**Levee Survey Sheets**
MG.1	Horizontal Control Tab. for Levee Alignments
MJ Sheets	**Levee Staging Sheets**
* MJ.1	Levee Staging Legend & Symbol Information Sheet
* MJ.2 - 6	Levee Staging
MQ Sheets	**Levee Soils Sheets**
* MQ.1	Soils Legend & Symbol Information Sheet
* MQ.2 - 3	Levee Soils Sheets DK407
MR Sheets	**Levee Erosion Control Sheets**
* MR.1 - 8	Erosion Control Plan
MRC Sheets	**Levee Erosion Control Quantities**
MRC.1 - 2	Pollution Prevention Plan
MRC.2 - 4	Erosion Control Tabulations
MT Sheets	**Levee Earthwork Quantity Sheets**
MT.1 - 6	Earthwork Quantity Sheets
MU Sheets	**Levee Detail Sheets**
* MU.1	Levee Materials Site Plan
* MU.2 - 5	Levee Entrance Plan & Profile
MU.6 - 11	Levee Details
MX Sheets	**Levee Cross Sections**
MX.1	Cross Sections Legend and Symbol Information Sheet
MX.2 - 16	DK407 Levee Cross Sections
MX.17 - 24	Existing Levee Obliteration Cross Sections
MX.25 - 32	Levee Entrance Cross Sections

* Color Plan Sheets

Progress Plans
Not for Construction
6/10/19

GEOTECHNICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
PATRICK H. POEPSEL
16203
IOWA

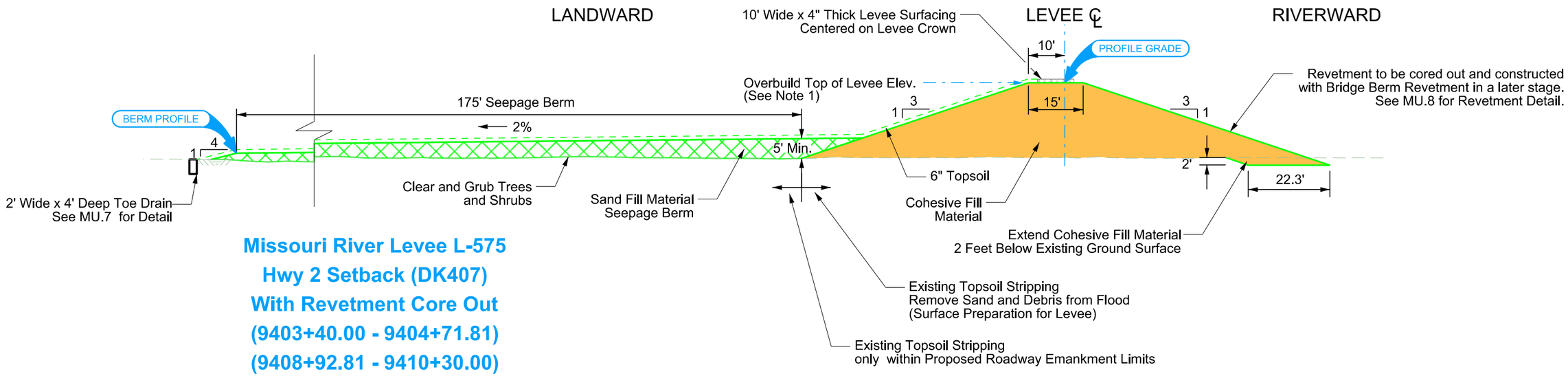
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature Date

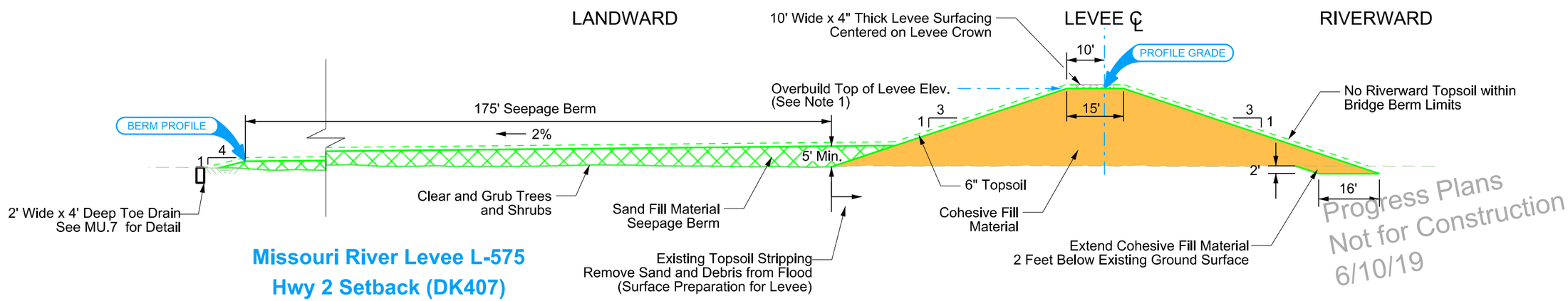
PATRICK H. POEPSEL
Printed or Typed Name

My license renewal date is December 31, 2019

Pages or sheets covered by this seal: MA.1, MB.1-MB.4, MC.1-MC.4, ME.1-ME.3 MG.1, MJ.1-MJ.6, MQ.1-MQ.3, MR.1-MR.8, MRC.1-MRC.4, MT.1-MT.6, MU.1-MU.11 MX.1-MX.32



Missouri River Levee L-575
Hwy 2 Setback (DK407)
With Revetment Core Out
(9403+40.00 - 9404+71.81)
(9408+92.81 - 9410+30.00)

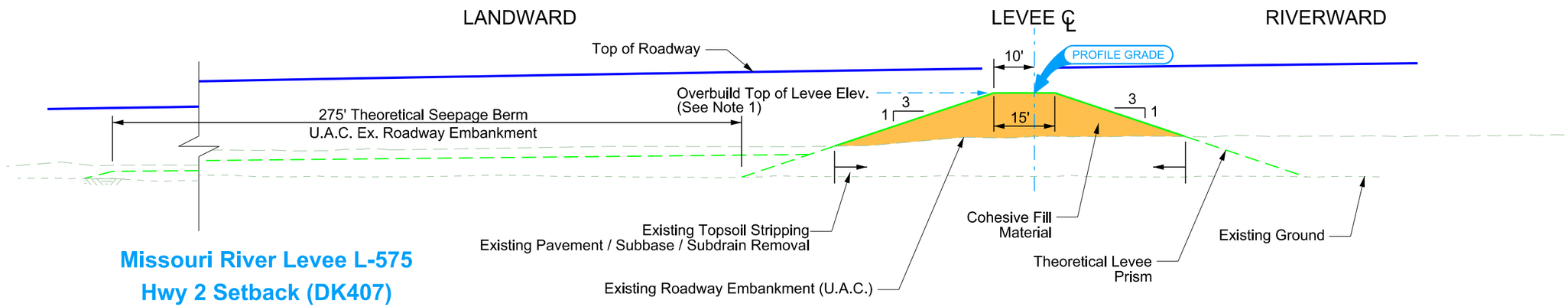


Progress Plans
Not for Construction
6/10/19

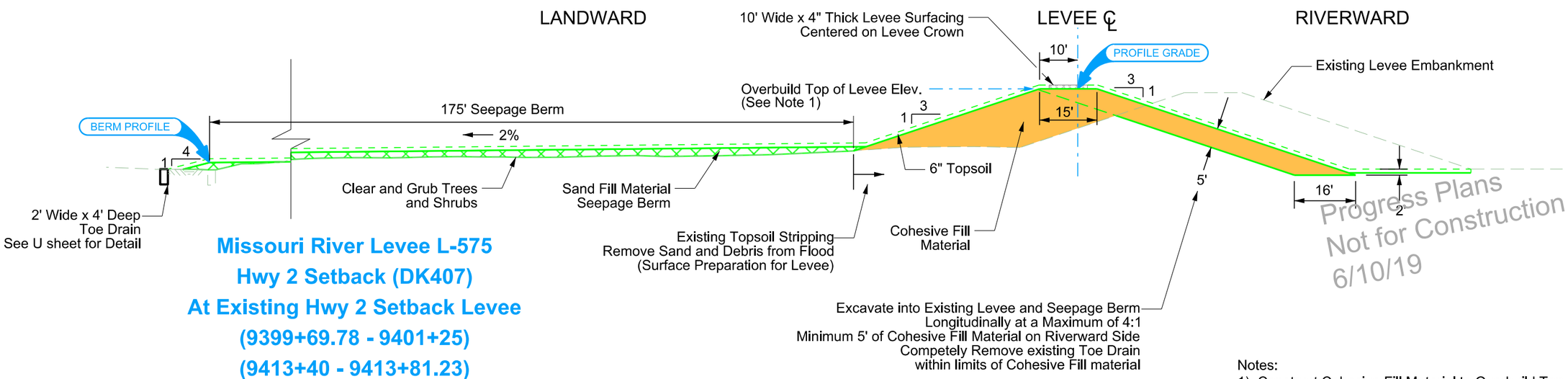
Missouri River Levee L-575
Hwy 2 Setback (DK407)
Without Revetment
(9401+25 - 9403+40)
(9404+71.81 - 9406+07)
(9407+95 - 9408+92.81)
(9410+30- 9413+40)

Notes:
1) Construct Cohesive Fill Material to Overbuild Top of Levee Elevation (Profile Grade). Topsoil and surfacing shall be constructed above the Overbuild Top of Levee Elevation.

PRELIMINARY



Missouri River Levee L-575
Hwy 2 Setback (DK407)
At Roadway Embankment
(9406+07 - 9407+95)



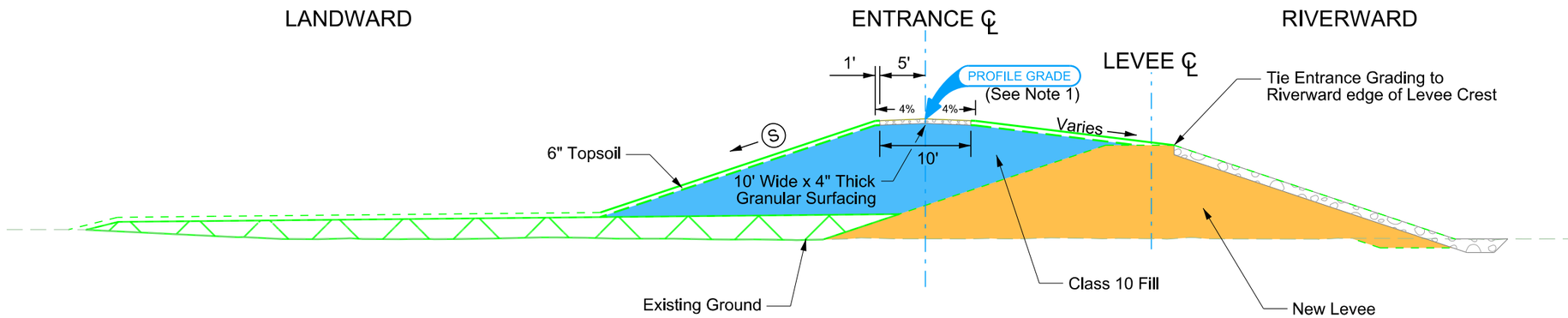
Missouri River Levee L-575
Hwy 2 Setback (DK407)
At Existing Hwy 2 Setback Levee
(9399+69.78 - 9401+25)
(9413+40 - 9413+81.23)

Progress Plans
Not for Construction
6/10/19

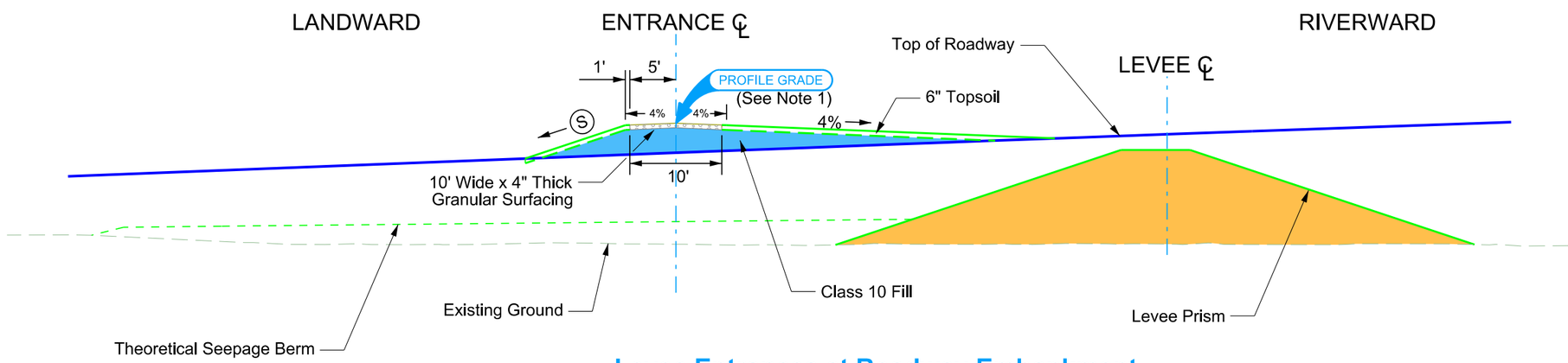
Notes:
1) Construct Cohesive Fill Material to Overbuild Top of Levee Elevation (Profile Grade). Topsoil and surfacing shall be constructed above the Overbuild Top of Levee Elevation.

2) See MJ Sheets for staging.

PRELIMINARY



Levee Entrances at Missouri River Levee L-575



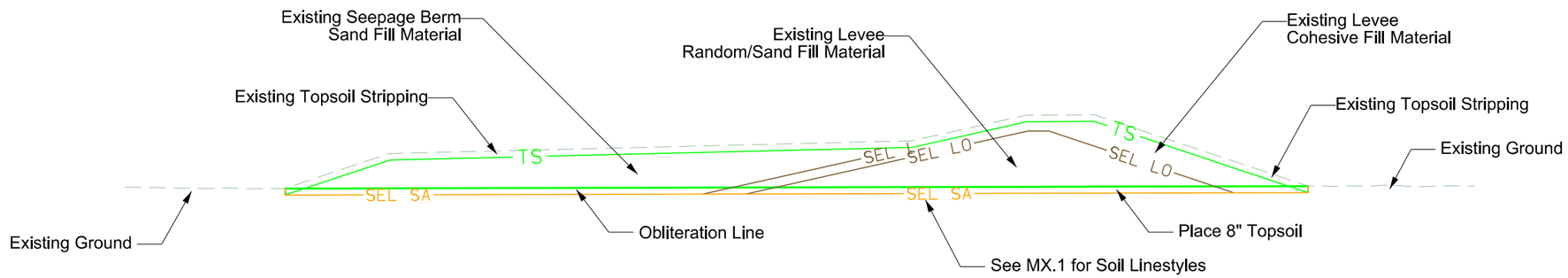
Levee Entrances at Roadway Embankment

Progress Plans
Not for Construction
6/10/19

ROADWAY IDENTIFICATION	BEGIN STATION	END STATION	(S) Slope
WB Entrance (ML002_ENT_WB)	10405+39.45	10407+52.19	3:1
WB Entrance (ML002_ENT_WB)	10407+52.19	10407+92.19	3:1 - 4:1
WB Entrance (ML002_ENT_WB)	10407+92.19	10408+50.00	4:1 - 10:1
EB Entrance (ML002_ENT_EB)	20408+50.00	20409+07.80	10:1 to 3.5:1
EB Entrance (ML002_ENT_EB)	20409+07.80	20409+37.80	3.5:1 to 3:1
EB Entrance (ML002_ENT_EB)	20409+37.80	20411+71.81	3:1

Notes:
1) Profile Grade at top of surfacing.

PRELIMINARY



Typical Detail for Obliteration of Existing Levee

Note:
The work of obliterating or reshaping of the existing levee shall be done at the direction of the Engineer.

Progress Plans
Not for Construction
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PRELIMINARY

ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)

Division 1: See C.1.
Division 2: See C.1.
Division 3: See C.1.
Division 4: Levee 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				8.1		8.1					
2	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY				14505		14505					
3	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY				141041		141041					
4	2105-8425005	TOPSOIL, FURNISH AND SPREAD	CY				6015		6015					
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY				20631		20631					
6	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL	CY				41291		41291					
7	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON				359.1		359.1					
8	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS				1		1					
9	2507-3250005	ENGINEERING FABRIC	SY				2054.3		2054.3					
10	2507-6800061	REVETMENT, CLASS E	TON				1934.9		1934.9					
11	2519-3700000	GATE, AS PER PLAN	EACH				2		2					
12	2599-9999003	('CUBIC YARDS' ITEM) EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED,	CY				41291		41291					
		COHESIVE							0					
13	2599-9999003	('CUBIC YARDS' ITEM) EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED,	CY				30944		30944					
		SELECT SAND							0					
14	2599-9999003	('CUBIC YARDS' ITEM) EXCAVATE AND STOCKPILE	CY				56459		56459					
15	2599-9999005	('EACH' ITEM) LEVEE HAUL ROAD	EACH				2		2					
16	2599-9999009	('LINEAR FEET' ITEM) TOE DRAIN	LF				1320.4		1320.4					
17	2599-9999010	('LUMP SUM' ITEM) LEVEE DEWATERING	LS				1		1					
18	2599-9999018	('SQUARE YARDS' ITEM) SURFACE PREPARATION FOR LEVEE	SY				14989.1		14989.1					
19	2601-2633100	MOWING	ACRE				8.8		8.8					
20	2601-2634100	MULCHING	ACRE				8.8		8.8					
21	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE				8.8		8.8					
22	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT	SQ				199		199					
23	2601-2643411	TURF REINFORCEMENT MAT, TYPE 1	SQ				737		737					
24	2602-0000020	SILT FENCE	LF				8014		8014					
25	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF				12421.5		12421.5					
26	2602-0000050	SILT BASINS	EACH				10		10					
27	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF				10217.8		10217.8					
28	2602-0000080	REMOVAL OF SILT BASINS	EACH				10		10					
29	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF				2043.6		2043.6					
30	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF				1000		1000					
31	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF				1000		1000					
32	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	LF				2000		2000					

Progress Plans
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ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	CLEARING AND GRUBBING
		Refer to Tab 110-17 on MC Sheets.
-	-	-
2	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED
		Class 10 material for levee entrances (ML002_ENT_WB & ML002_ENT_EB). Refer to Sheet MB.3.
		This quantity includes shrink.
		Refer to MT sheets.
-	-	-
3	2102-2710090	EXCAVATION, CLASS 10, WASTE
		Existing Levee Random/Sand Fill Material and Existing Seepage Berm Sand Fill Material. Material may be used in
		roadway or levee entrance embankment if it meets the specifications for those materials.
		Refer to MT sheets. Refer to Sheet MB.4.
-	-	-
4	2105-8425005	TOPSOIL, FURNISH AND SPREAD
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD
		Refer to Tab. 103-10 and the MT Sheets. Shrink is not included.
-	-	-
6	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL
		Refer to Tab.103-1 on MC Sheets for further information.
		Cubic yards shown on the contract documents as determined by the template fill volume. Shrinkage
		will not be included in moisture and density control quantity.
		Refer to the Special Provision for Levee Construction for further information and details.
-	-	-
7	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE
		See MB Sheets and Tab 102-3 on MC Sheets.
-	-	-
8	2401-6745650	REMOVAL OF EXISTING STRUCTURES
		Refer to Tab 110-2 on MC Sheets.
-	-	-
9	2507-3250005	ENGINEERING FABRIC
		Refer to Tab. 100-23 on MC Sheets.
		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 Sheet MU.8.
-	-	-
10	2507-6800061	REVETMENT, CLASS E
		Refer Sheet MU.8 and Tab. 100-23 on MC Sheets.
-	-	-
11	2519-3700000	GATE, AS PER PLAN
		Refer to Sheets MU.2 and MU.4.
		Pole gate materials and construction shall match the existing gates removed at the existing levee and shall be
		as directed by the Engineer.
-	-	-
12	2599-9999003	('CUBIC YARDS' ITEM) EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED, COHESIVE
		Cohesive Fill Material. Refer to Sheet MB.1-2 and MT Sheets. Shrink is not included.
		Refer to the Special Provision for Levee Construction for further information and details.
		Includes 1,860 cy for Stage 1 and 39,431 cy for Stage 2.
-	-	-
13	2599-9999003	('CUBIC YARDS' ITEM) EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED, SELECT SAND
		Sand Fill Material for Seepage Berm. Refer to Sheet MB.1-2 and MT Sheets. Shrink is not included.
		Refer to the Special Provision for Levee Construction for further information and details.
		Includes 810 cy for Stage 1 and 30,134 cy for Stage 2.
-	-	-
14	2599-9999003	('CUBIC YARDS' ITEM) EXCAVATE AND STOCKPILE
		Item is for excavation of Existing Levee Cohesive Fill Material and stockpiling at a location designated
		by the Engineer within 10 miles of the project site. Shaping and compacting is not required.
		Shrink is not included. Refer to Sheet MB.4 and MT Sheets.
		Refer to the Special Provision for Levee Construction for further information and details.
-	-	-
15	2599-9999005	('EACH' ITEM) LEVEE HAUL ROAD
		Refer to Sheet MU.6.
		Method of Measurement: The Engineer will count each Levee Haul Road constructed.
		Basis of Payment: Payment will be the contract unit price for each Levee Haul Road counted. Payment is full
		compensation for furnishing all material, labor, and equipment necessary to construct, maintain, and remove the
		Levee Haul Road.
-	-	-
16	2599-9999009	('LINEAR FEET' ITEM) TOE DRAIN
		Refer to Sheet MU.7 and MB Sheets.
		Refer to the Special Provision for Levee Construction for further information and details.
-	-	-
17	2599-9999010	('LUMP SUM' ITEM) LEVEE DEWATERING
		Refer to Sheet MU.9.
		Refer to the Special Provision for Levee Dewatering for further information and details.
-	-	-
18	2599-9999018	('SQUARE YARDS' ITEM) SURFACE PREPARATION FOR LEVEE
		Refer to Sheet MU.9 and MB Sheets.
		Refer to the Special Provision for Levee Construction for further information and details.
-	-	-
19	2601-2633100	MOWING
20	2601-2634100	MULCHING
21	2601-2636043	SEEDING AND FERTILIZING (RURAL)
		Perform in accordance with the Special Provision for Levee Seeding.
-	-	-

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
22	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT
		Refer to Tab. 100-22 on MC Sheets for locations. Refer to Standard Road Plan EC-103.
-	-	-
23	2601-2643411	TURF REINFORCEMENT MAT, TYPE 1
		See Tab 100-22 on MRC Sheets.
		Refer to the Special Provision for Levee Seeding for further information and details.
-	-	-
24	2602-0000020	SILT FENCE
		Refer to Tab. 100-17 on MRC 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.
-	-	-
25	2602-0000030	SILT FENCE FOR DITCH CHECKS
		Refer to Tab 100-18 on MRC 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.
-	-	-
26	2602-0000050	SILT BASINS
		Refer to Tab. 100-14 on MRC 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.
-	-	-
27	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS
		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.
-	-	-
28	2602-0000080	REMOVAL OF SILT BASINS
		Refer to Tab. 100-14 on MRC Sheets.
-	-	-
29	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK
		This item is included for clean-out and repair of the silt fence and silt fence for ditch
		checks during the project.
-	-	-
30	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.
31	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.
		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.
		Use Perimeter and Slope Sediment Control Devices fabricated using wood excelsior.
-	-	-
32	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE
		- -
-	-	-

Progress Plans
Not for Construction
6/10/19

105-4
10-18-11

STANDARD ROAD PLANS

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

Number	Date	Title
EC-103	04-21-15	Wood Excelsior Mat for Slope Protection
EC-201	10-16-18	Silt Fence
EC-204	04-18-17	Perimeter and Slope Sediment Control Devices
EW-403	04-18-17	Temporary Erosion Control Measures
EW-501	10-20-15	Rural Entrance
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)

232-10
04-18-17

EMERALD ASH BORER

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

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

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

For questions, concerns, and general assistance, contact:

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

Or

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

281-1
10-18-16

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers _____, Permit No. _____. 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.

110-2
04-16-13

REMOVAL OF EXISTING STRUCTURES

Location	Description	Remarks
1115+52	16' Pole Gate on Ex. Levee	Ex. Levee (EX_DK)
1119+16	16' Pole Gate on Ex. Levee	Ex. Levee (EX_DK)

103-1
10-17-17

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Location		Lane	Depth	Compact	Remarks
Station to Station			FT	CY	
9399+69.78	9413+81.23			41291	See Special Provision for Levee Construction.

103-10
04-18-17

TOPSOIL STRIPPING AND PLACEMENT

Location				Topsoil Stripping Thickness	Topsoil Placement Thickness	Remarks
Road Identification	Dir. of Traffic	Begin Station	End Station	IN	IN	

Note:
All existing topsoil stripping is assumed to be 8 inches.
All topsoil placement for the proposed levee and seepage berm to be 6 inches.
All topsoil placement for the existing levee obliteration to be 8 inches.
Refer to MB sheet Typicals, MT Sheets, and Cross Sections for more information

111-25
10-18-11

INDEX OF TABULATIONS

Tabulation	Tabulation Title	Sheet No.
MC Sheets		
100-1C	ESTIMATED PROJECT QUANTITIES (UP TO A 5 DIVISION PROJECT)	MC.1
100-4A	ESTIMATE REFERENCE INFORMATION	MC.2
100-23	ROCK EROSION CONTROL	MC.4
102-3	ACCESS POINTS AND SAFETY RAMPS	MC.4
103-1	EMBANKMENT WITH MOISTURE AND DENSITY CONTROL	MC.3
103-10	TOPSOIL STRIPPING AND PLACEMENT	MC.3
105-4	STANDARD ROAD PLANS	MC.3
110-2	REMOVAL OF EXISTING STRUCTURES	MC.3
110-17	CLEARING AND GRUBBING	MC.4
111-25	INDEX OF TABULATIONS	MC.3
MRC Sheets		
100-14	SILT BASINS	MRC.2
100-17	TABULATION OF SILT FENCES	MRC.3
100-18	SILT FENCES FOR DITCH CHECKS	MRC.3
100-22	ROLLED EROSION CONTROL	MRC.4
100-34	STORMWATER DRAINAGE BASIN AND STORAGE	MRC.2
110-12	POLLUTION PREVENTION PLAN	MRC.1 - MRC.2

Progress Plans
Not for Construction
6/10/19

110-17
04-18-17

CLEARING AND GRUBBING

Location: Station to Station or Ref. Loc. Sign to Ref. Loc. Sign or Description	Direction of Travel	Work and Material Type	Trees, Stumps, and Logs and Down Timber Material Diameters: 3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	All Other Materials: Length	Width	Estimated Quantities: Units	Area	Herbicide Application	Remarks
																FT	FT	Units	Acres	Each	
Sta. 9399+54.8 - Sta. 9405+45.5		Brush - Clearing																	4.2		Note 1
Sta. 9408+60.7 - Sta. 9413+96.2		Brush - Clearing																	3.9		Note 1
																	TOTALS		8.1		

Notes:
1) Area measured 15' outside limits of levee (riverward side of levee to tope of seepage berm) up to proposed IA 2.

100-23
MODIFIED

ROCK EROSION CONTROL

Refer to MU.8.

Location: Road Identification	Begin Station	End Station	Side (Lt./Rt.)	L (FT)	W (FT)	Rock Erosion Control (REC): Riverward Levee Revetment					Material Bid Quantities: Eng. Fabric (SY)	Class E Revetment (TON)	Erosion Stone (TON)	Remarks
DK407	9403+40.00	9404+71.81	Rt.			x					1028.9	969.7		
DK407	9408+92.81	9410+30.00	Rt.			x					1025.4	965.2		
										TOTALS	2054.3	1934.9		

NOTE: See bridge plans (123) for continuation of revetment along bridge berm.

102-3
10-16-18

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of Unclassified Pipe calculated is based on using Corrugated Metal 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: Station	Side	Type: A, B, C, Safety Ramp, or Predetermined*	Length of Opening (1): Case (1 or 2)	1½" Dropped Curb (LF)	3" Dropped Curb (LF)	W (FT)	(1)(2) PR (FT)	(2) SR (FT)	Pipe Culvert (3): H (FT)	Size (IN)	Pipe Length (LF)	Lt. (LF)	Rt. (LF)	Aprons (No.)	Driveway Surface Area: HMA (SY)	PCC (SY)	Driveway Surfacing Material (TON)	Remarks
408+50	LT	B				10.0		25.0									87.630	Note 1
																	98.440	Note 2
408+50	RT	B				10.0		25.0									90.260	Note 3
																	82.780	Note 4
														TOTALS			359.110	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE

NOTES:
1) ML002_ENT_WB - See MB.3, MU.2-3, and XS for details.
2) For granular surfacing along levee - Sta. 9399+69.8 - 9403+91.8 - see MB.1-2 for details.
3) ML002_ENT_EB - See MB.3, MU.4-5, and XS for details.
4) For granular surfacing along levee - Sta. 9410+26.4 - 9413+81.2- see MB.1-2 for details.

Progress Plans
Not for Construction
6/10/19

SURVEY SYMBOLS

DIK Centerline of Dike or Dam

Edge of Gravel Road

Survey Breakline

UTILITY LEGEND

DISTRICT	CONTACT NAME	CONTACT PHONE	CONTACT EMAIL
TLIA01) ENTURYLINK	Tom Sturmer	7205788090	Thomas.sturmer@centurylink.com
PI)SPIRAL OMMUNICATIONS	Steve Van Der Kamp	4022748733	steve.vanderkamp@spiral-communications.com
/INIA) INDSTREAM OMMUNICATIONS	LOCATE DESK	8002891901	LOCATE.DESK@WINDSTREAM.COM

— FO — Spiral Communications

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

Survey Line

Station

Section Corner

Ground Line Intercept

Saw Cut

Guardrail

Trench Drain

HighTension Cable Guardrail

Sheet Pile

Pavement Removal

Clearing & Grubbing Area

Existing Levee Critical Zone

Proposed Levee Critical Zone

Cohesive Fill Groundline Intercept

Seepage Berm Hinge Point

Limits of Temporary Dewatering Dike

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

Progress Plans
Not for Construction
6/10/19

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES ME & MU)

415

410

405

400

WESTBOUND HWY 2

EASTBOUND HWY 2

Proposed Levee Critical Zone

Possible Limits of Temporary Dewatering Berm

Possible limits of Temporary Dewatering Berm

9405

9410

9415

9400

PI Sta 9405+00.00

PI Sta 9409+00.00

PI Sta 9413+75.53

POT Sta 9415+75.53

PI Sta 9399+74.35

POT Sta 9397+74.35

MISSOURI RIVER LEVEE L-575

HWY 2 SETBACK (DK407)

MISSOURI RIVER LEVEE L-575

HWY 2 SETBACK (DK407)

STA. 9413+81.23
= STA. 1135+18.87 Ex. Levee (EX_DK)
End Levee Construction

Proposed Levee Critical Zone

STA. 9399+69.78
= STA. 1099+69.78 Ex. Levee (EX_DK)
Begin Levee Construction

Existing Levee Critical Zone

Existing Levee

Progress Plans
Not for Construction
6/10/2019

Benton TWP.
T-68N R-43W
SEC. 30

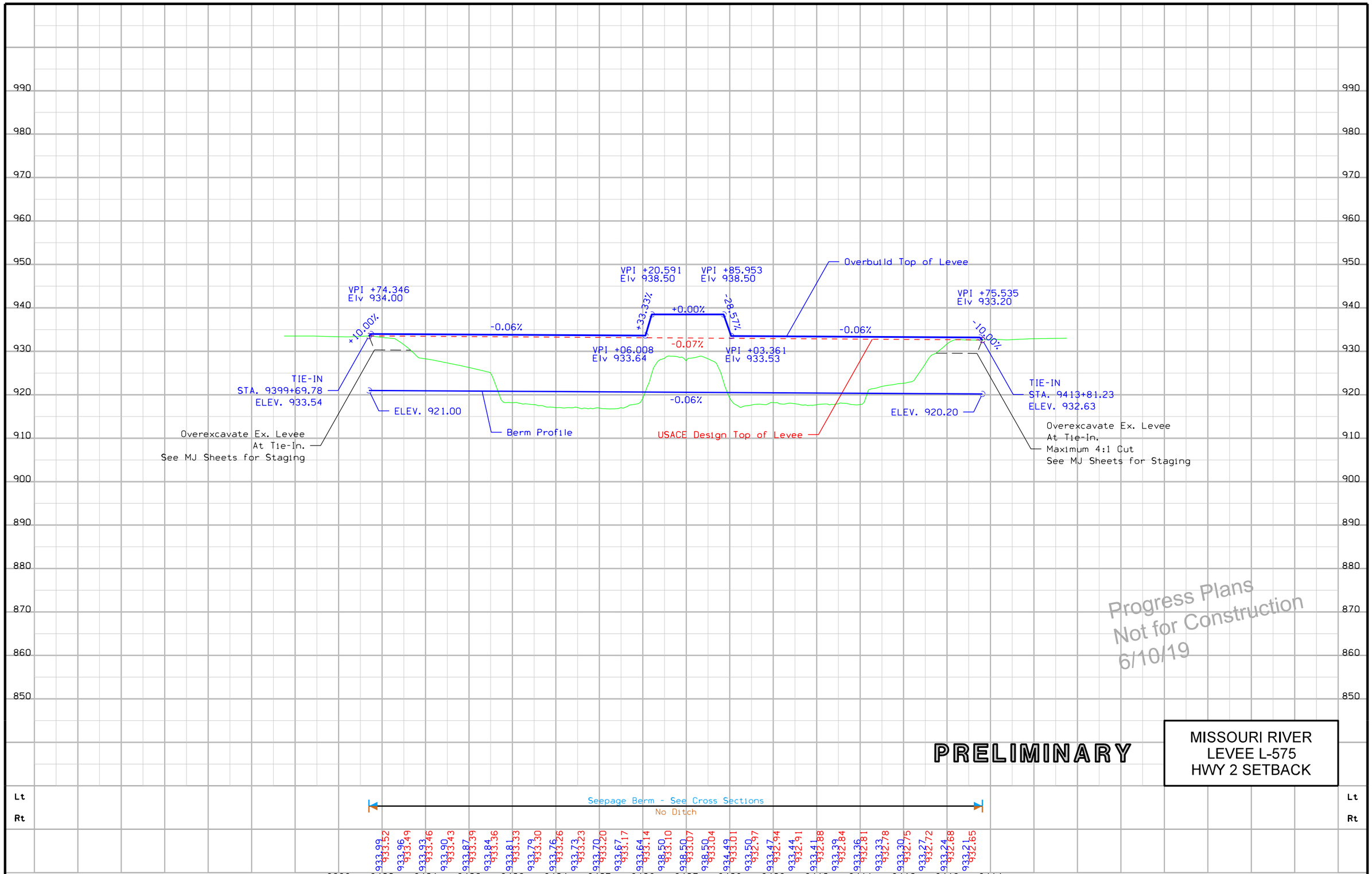
0 100
FEET

PRELIMINARY

MISSOURI RIVER
LEVEE L-575
HWY 2 SETBACK

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER ME.2

3:17:03 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_ME02.dgn



FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER ME.3

3:17:08 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_ME02.dgn

ALIGNMENT COORDINATES

PRELIMINARY

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)
DK4071	DK407	9397+74.35	6,756,403.15	16,474,058.54															
DK4073	DK407	9399+74.35	6,756,337.00	16,474,247.28															
DK4075	DK407	9405+00.00	6,756,190.68	16,474,752.16															
DK4077	DK407	9409+00.00	6,755,964.78	16,475,082.27															
DK4079	DK407	9413+75.53	6,755,659.05	16,475,446.49															
DK40710	DK407	9415+75.53	6,755,532.16	16,475,601.09															
EB10	ML002_ENT_EB	20408+50.00	6,756,171.02	16,475,046.49															
ENT_EB_CUR1	ML002_ENT_EB							20409+91.83	6,756,034.43	16,475,084.67	20410+84.62	6,755,945.06	16,475,109.64	20411+71.81	6,755,885.41	16,475,180.71			
ENT_WB_CUR1	ML002_ENT_WB							10405+39.45	6,756,223.20	16,474,648.92	10405+97.16	6,756,207.14	16,474,704.35	10406+53.48	6,756,212.79	16,474,761.78			
WB10	ML002_ENT_WB	10408+50.00	6,756,232.02	16,474,957.36															
EX100	EX. LEVEE (EX_DK)	1097+74.35	6,756,403.15	16,474,058.54															
EX_DK1	EX. LEVEE (EX_DK)							1099+83.42	6,756,334.01	16,474,255.84	1102+32.23	6,756,251.71	16,474,490.65	1103+40.91	6,756,040.08	16,474,359.80			
EX_DK2	EX. LEVEE (EX_DK)							1112+04.07	6,755,305.92	16,473,905.87	1114+03.13	6,755,136.62	16,473,801.18	1115+17.28	6,755,031.13	16,473,969.99			
EX_DK3	EX. LEVEE (EX_DK)							1119+31.04	6,754,811.87	16,474,320.87	1121+16.13	6,754,713.79	16,474,477.84	1122+29.72	6,754,862.70	16,474,587.77			
EX_DK4	EX. LEVEE (EX_DK)							1131+81.07	6,755,628.10	16,475,152.76	1133+91.62	6,755,797.50	16,475,277.81	1135+05.50	6,755,663.91	16,475,440.56			
EX101	EX. LEVEE (EX_DK)	1137+13.18	6,755,532.16	16,475,601.09															

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	
ENT_EB_CUR1	ML002_ENT_EB										34° 22′ 27.38″ LT	92.79′	179.98′	300.00′	14.02′	
ENT_WB_CUR1	ML002_ENT_WB										21° 46′ 41.98″ LT	57.71′	114.03′	300.00′	5.50′	
EX_DK1	EX. LEVEE (EX_DK)										102° 24′ 52.81″ RT	248.82′	357.49′	200.00′	119.23′	
EX_DK2	EX. LEVEE (EX_DK)										89° 43′ 40.73″ LT	199.05′	313.21′	200.00′	82.17′	
EX_DK3	EX. LEVEE (EX_DK)										85° 34′ 00.42″ LT	185.09′	298.68′	200.00′	72.51′	
EX_DK4	EX. LEVEE (EX_DK)										92° 56′ 39.46″ RT	210.55′	324.44′	200.00′	90.40′	

Progress Plans
Not for Construction
6/10/19

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)	Levee Grading 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	Levee Grading
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 Levee 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
Delineator	Type A Warning Light
Temporary Barrier Rail	Direction of Traffic
Pavement Removal	Safety Closure
Sand Barrel Layout	Lane Identification

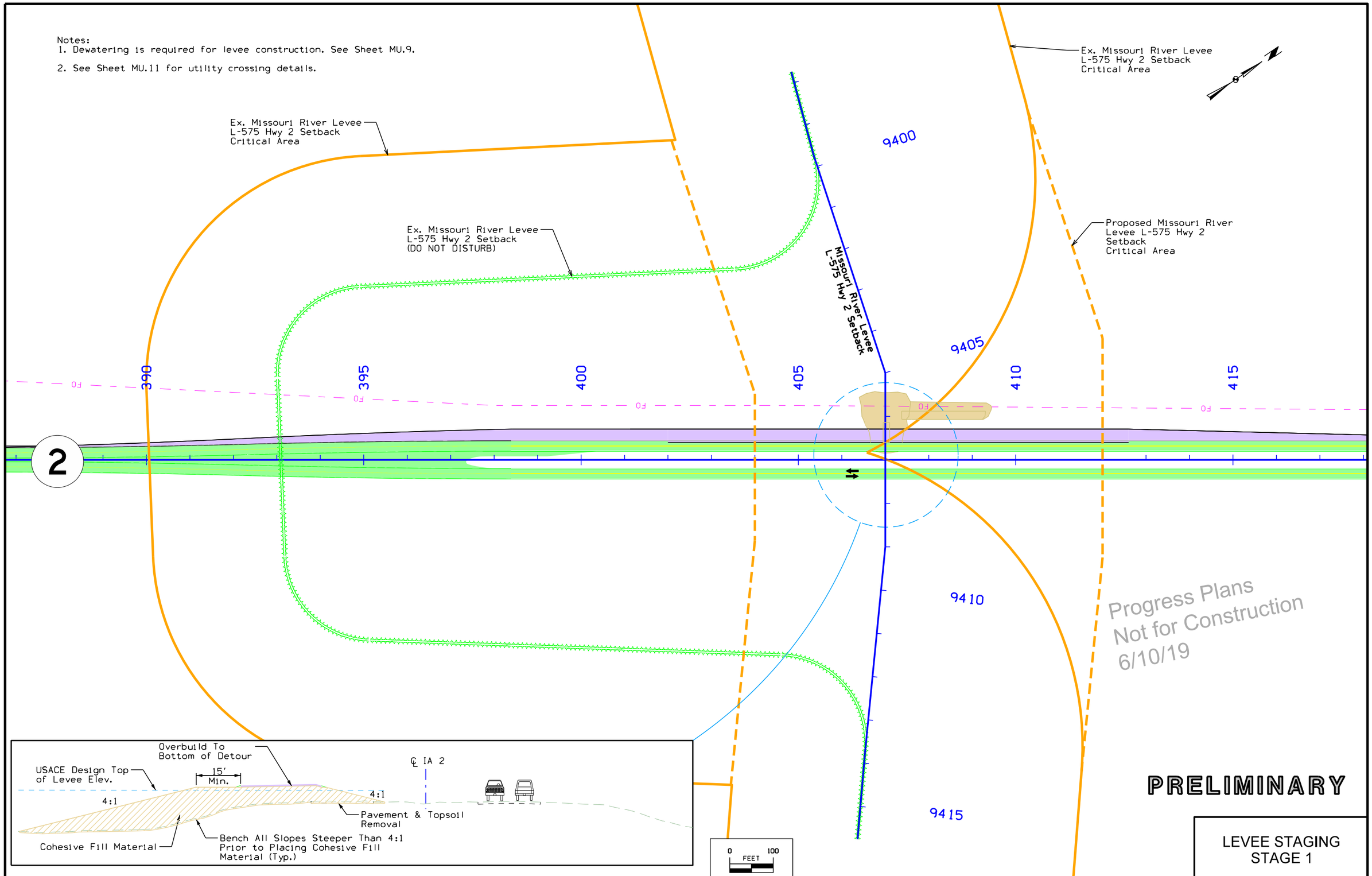
NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

Progress Plans
Not for Construction
6/10/19

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES MJ)

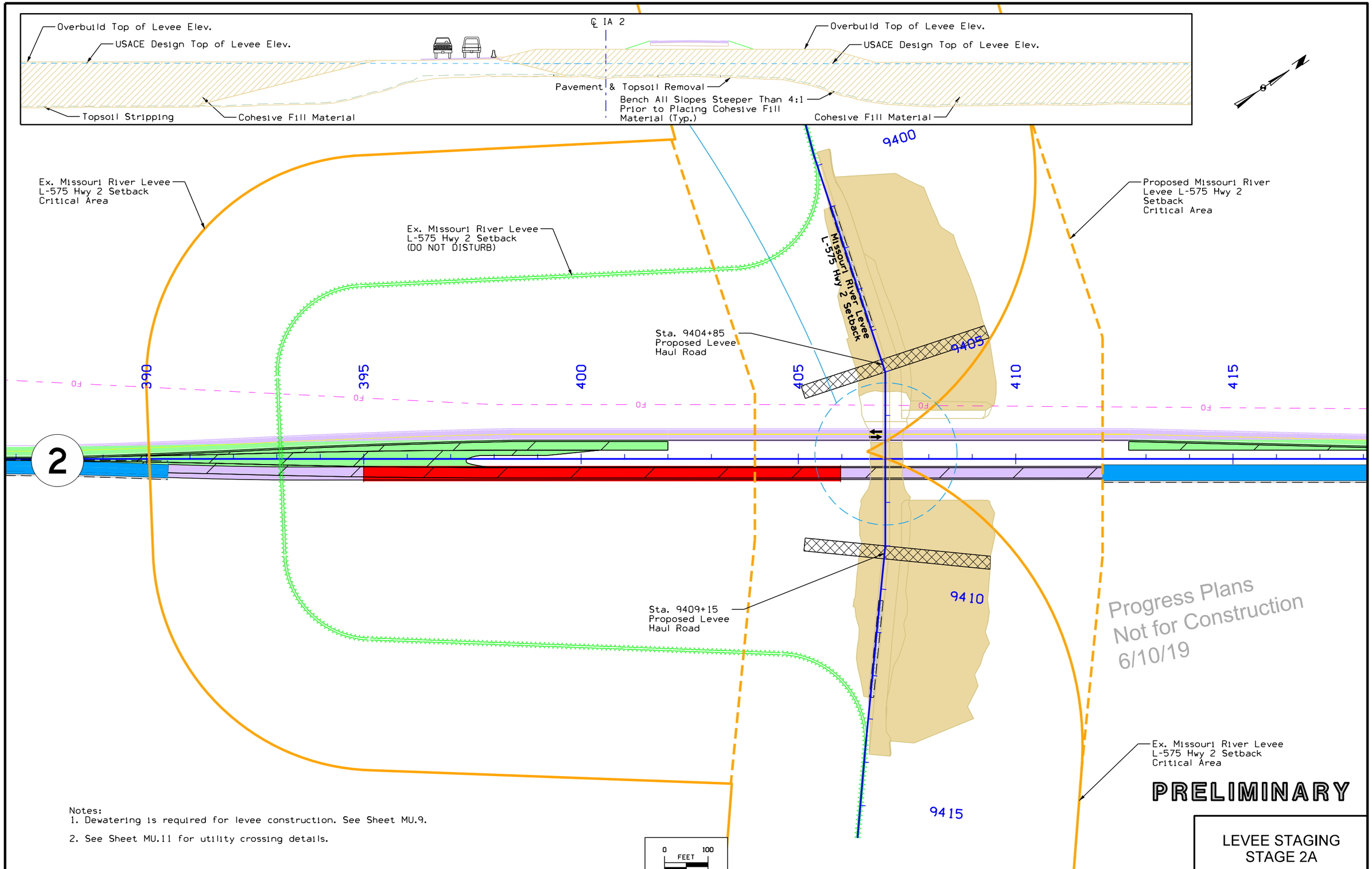
Notes:
1. Dewatering is required for levee construction. See Sheet MU.9.
2. See Sheet MU.11 for utility crossing details.



LEVEE STAGING
STAGE 1

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MJ.2

3:29:07 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MJ01.dgn

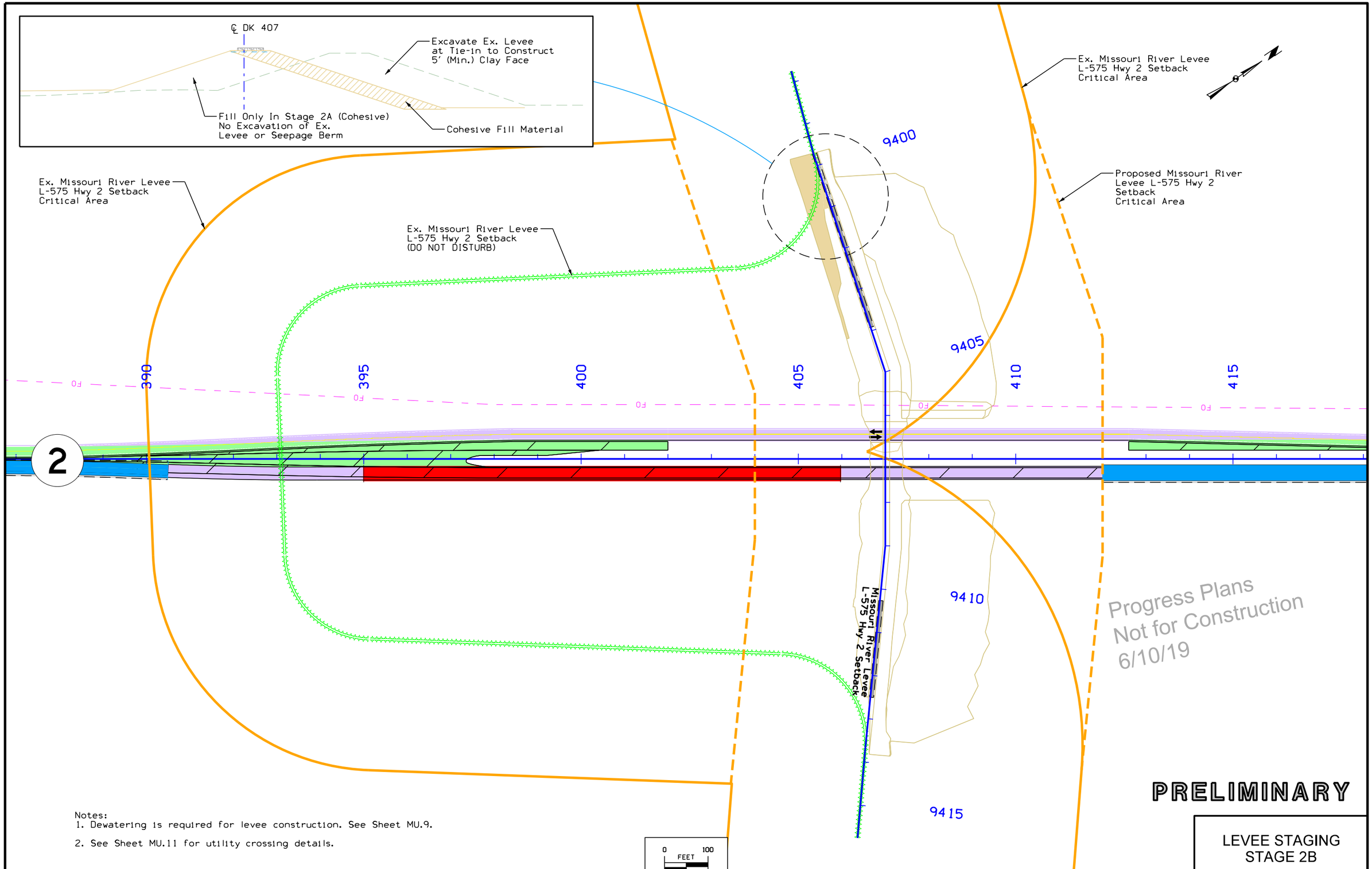


Notes:
1. Dewatering is required for levee construction. See Sheet MU.9.
2. See Sheet MU.11 for utility crossing details.

LEVEE STAGING
STAGE 2A

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MJ.3

3:29:12 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MJ01.dgn



Notes:
1. Dewatering is required for levee construction. See Sheet MU.9.
2. See Sheet MU.11 for utility crossing details.

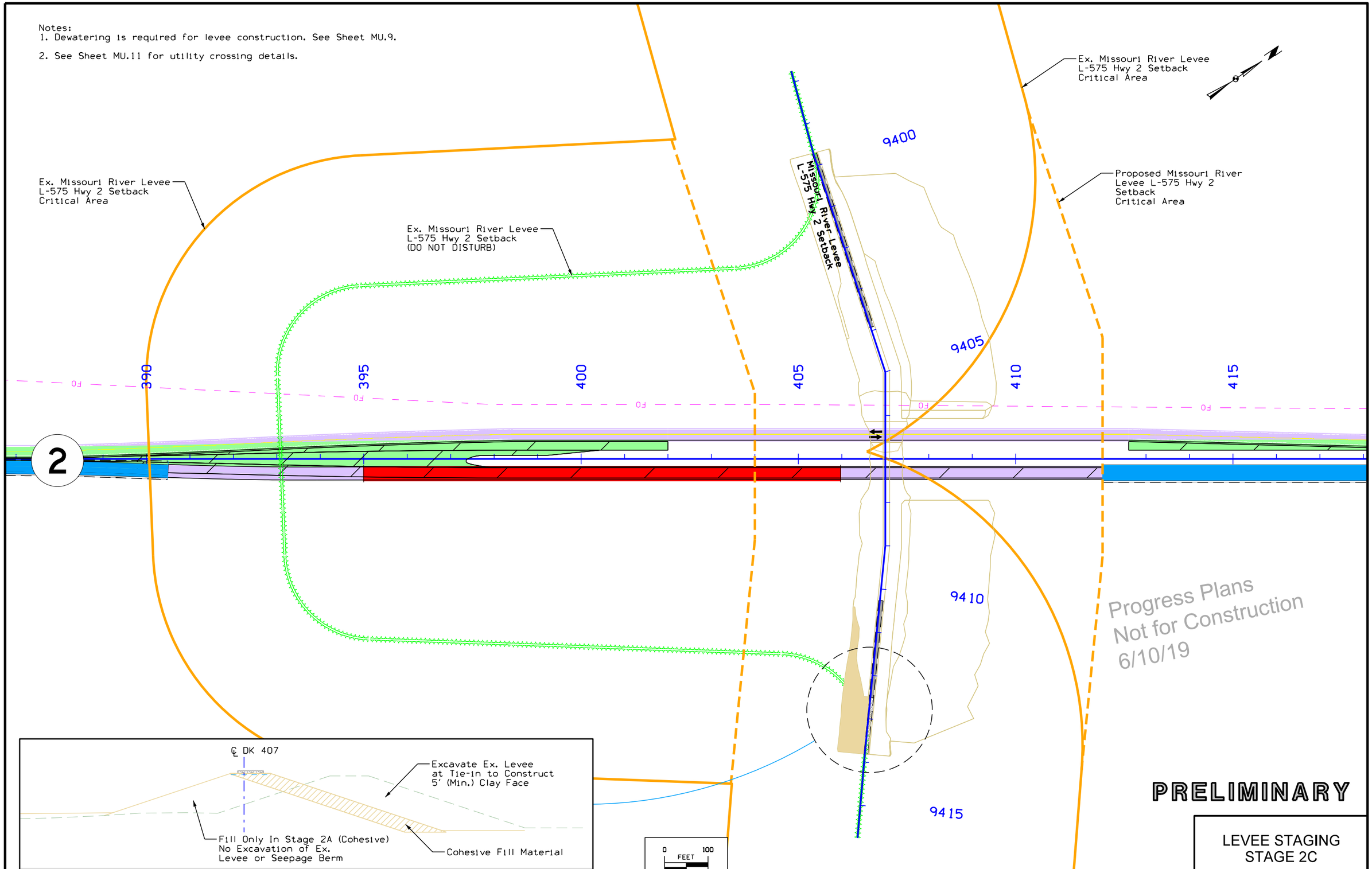
LEVEE STAGING
STAGE 2B

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MJ.4

3:29:18 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MJ01.dgn

Notes:
1. Dewatering is required for levee construction. See Sheet MU.9.

2. See Sheet MU.11 for utility crossing details.



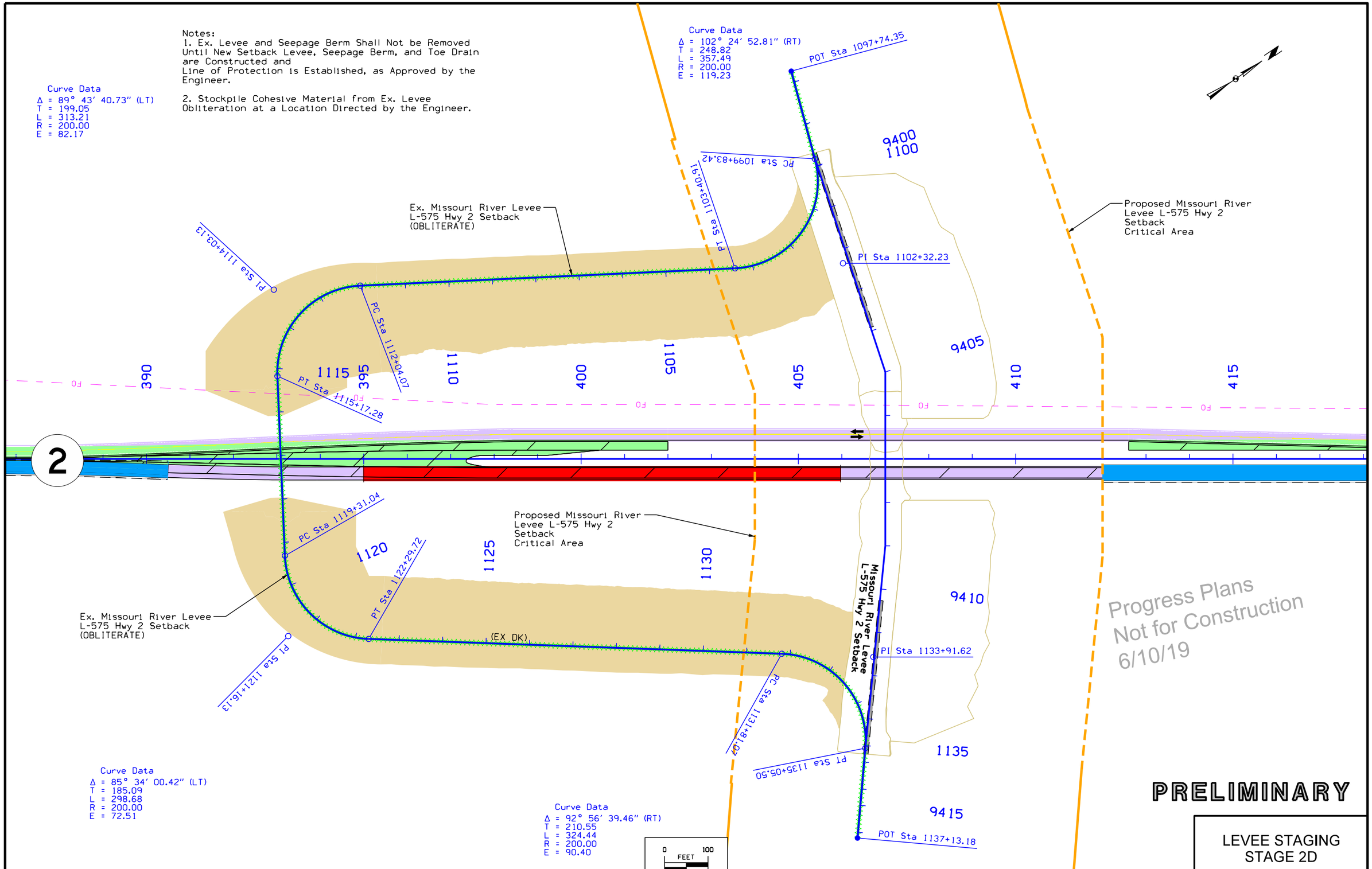
LEVEE STAGING
STAGE 2C

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MJ.5

3:29:23 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MJ01.dgn

Notes:
1. Ex. Levee and Seepage Berm Shall Not be Removed Until New Setback Levee, Seepage Berm, and Toe Drain are Constructed and Line of Protection is Established, as Approved by the Engineer.

2. Stockpile Cohesive Material from Ex. Levee Obliteration at a Location Directed by the Engineer.



PRELIMINARY

LEVEE STAGING
STAGE 2D

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MJ.6

3:29:29 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MJ01.dgn

SURVEY SYMBOLS

- DIK Centerline of Dike or Dam
- Edge of Gravel Road
- Survey Breakline

UTILITY LEGEND

DISTRICT	CONTACT NAME	CONTACT PHONE	CONTACT EMAIL
TLIA01) ENTURYLINK	Tom Sturmer	7205788090	Thomas.sturmer@centurylink.com
PI)SPIRAL OMMUNICATIONS	Steve Van Der Kamp	4022748733	steve.vanderkamp@spiral-communications.com
/INIA) INDSTREAM OMMUNICATIONS	LOCATE DESK	8002891901	LOCATE.DESK@WINDSTREAM.COM

- Spiral Communications

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

Date(s) Drilled_____

Drill	Dig/Core	
Water	Treatment	Sandstone
Dry	Sand Blanket	Unsuitable A
Sample	Soil Remediation Area	Unsuitable B
Plugged	Select Soil	Unsuitable C
Moisture	Select Sand	Sandy Soil
Shelby	Slope Dressing Only	Boulders
Blow Count	Broken and Weathered Rock	Shale
Dens. Core	Rock	

- Existing Levee Critical Zone
- Proposed Levee Critical Zone
- Cohesive Fill Groundline Intercept
- Seepage Berm Hinge Point
- Limits of Temporary Dewatering Dike

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

RIGHT-OF-WAY LEGEND

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

Progress Plans
Not for Construction
6/10/19

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

SOILS LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES MQ)

415

410

405

400

WESTBOUND HWY 2

EASTBOUND HWY 2

9405

PI Sta 9405+00.00

PI Sta 9409+00.00

9410

PI Sta 9413+75.53

9415

POT Sta 9415+75.53

PI Sta 9399+74.35

9400

POT Sta 9397+74.35

B-1

B-2

CPT-39LC

CPT-38LC

CPT DS-2

3MSB-BH-10LC

MISSOURI RIVER LEVEE L-575

HWY 2 SETBACK (DK407)

MISSOURI RIVER LEVEE L-575

HWY 2 SETBACK (DK407)

Progress Plans
Not for Construction
6/10/19

Benton TWP.
T-68N R-43W
SEC. 30

0 100
FEET

PRELIMINARY

MISSOURI RIVER
LEVEE L-575
HWY 2 SETBACK

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MO.2

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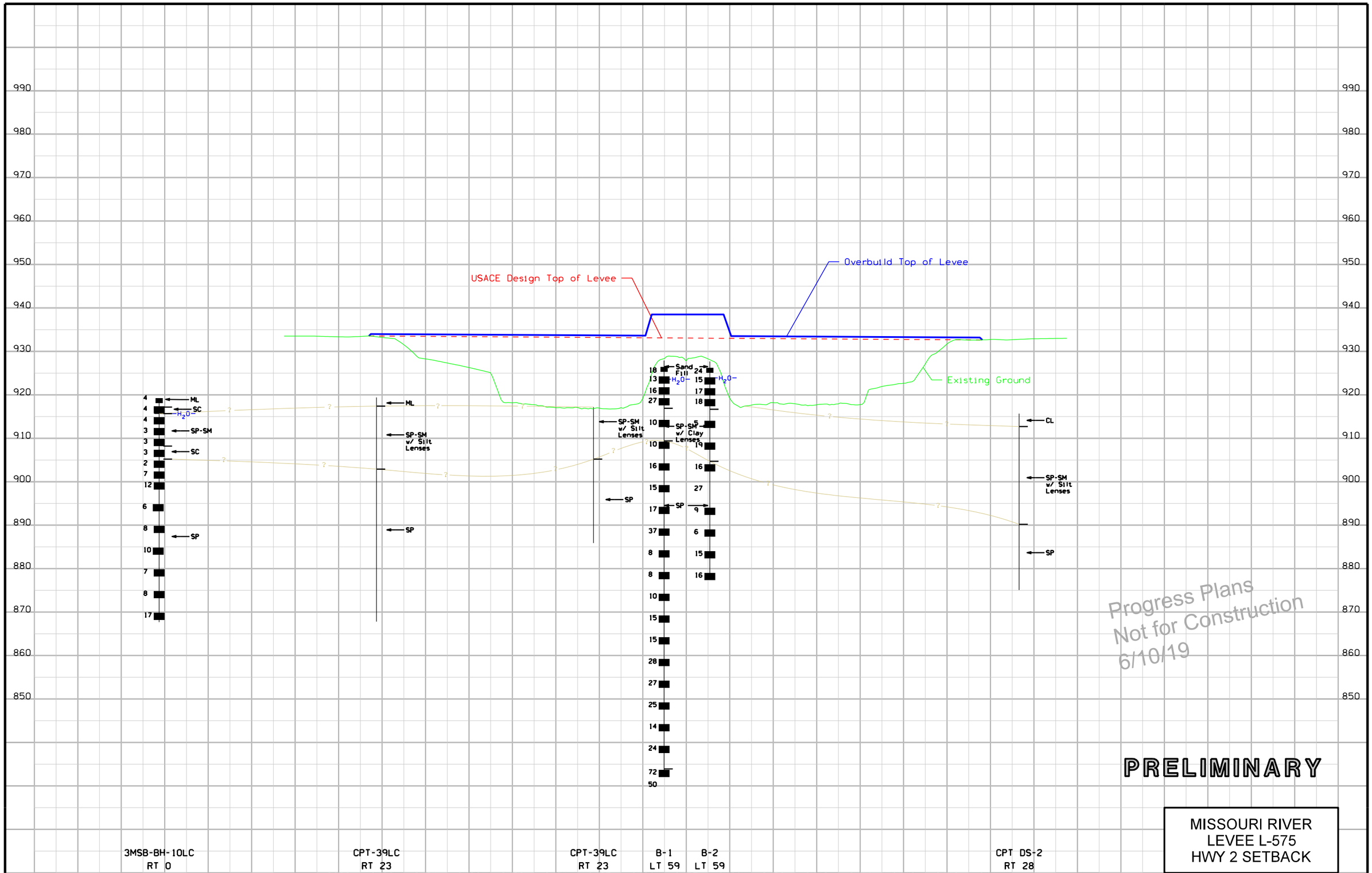
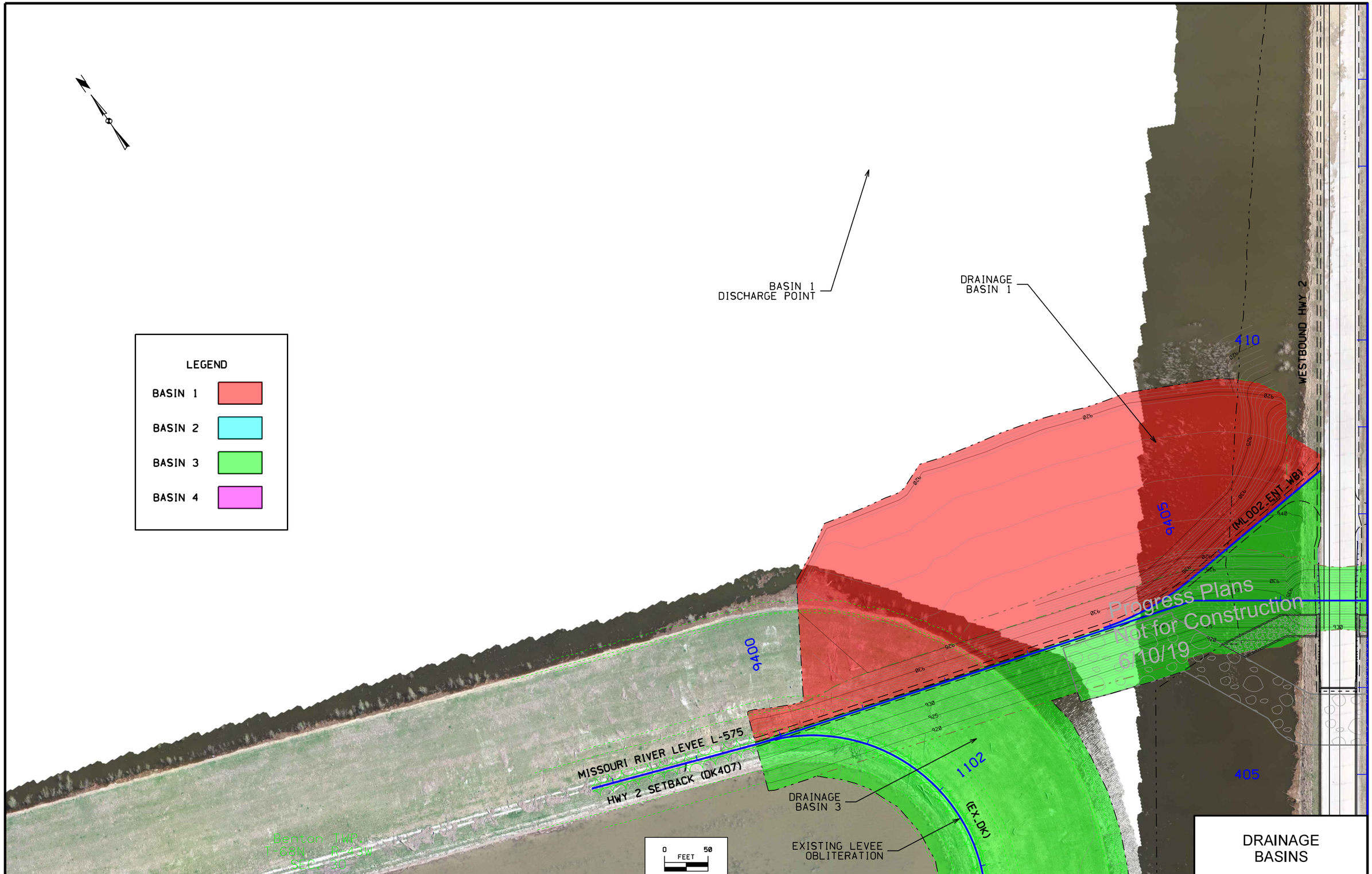


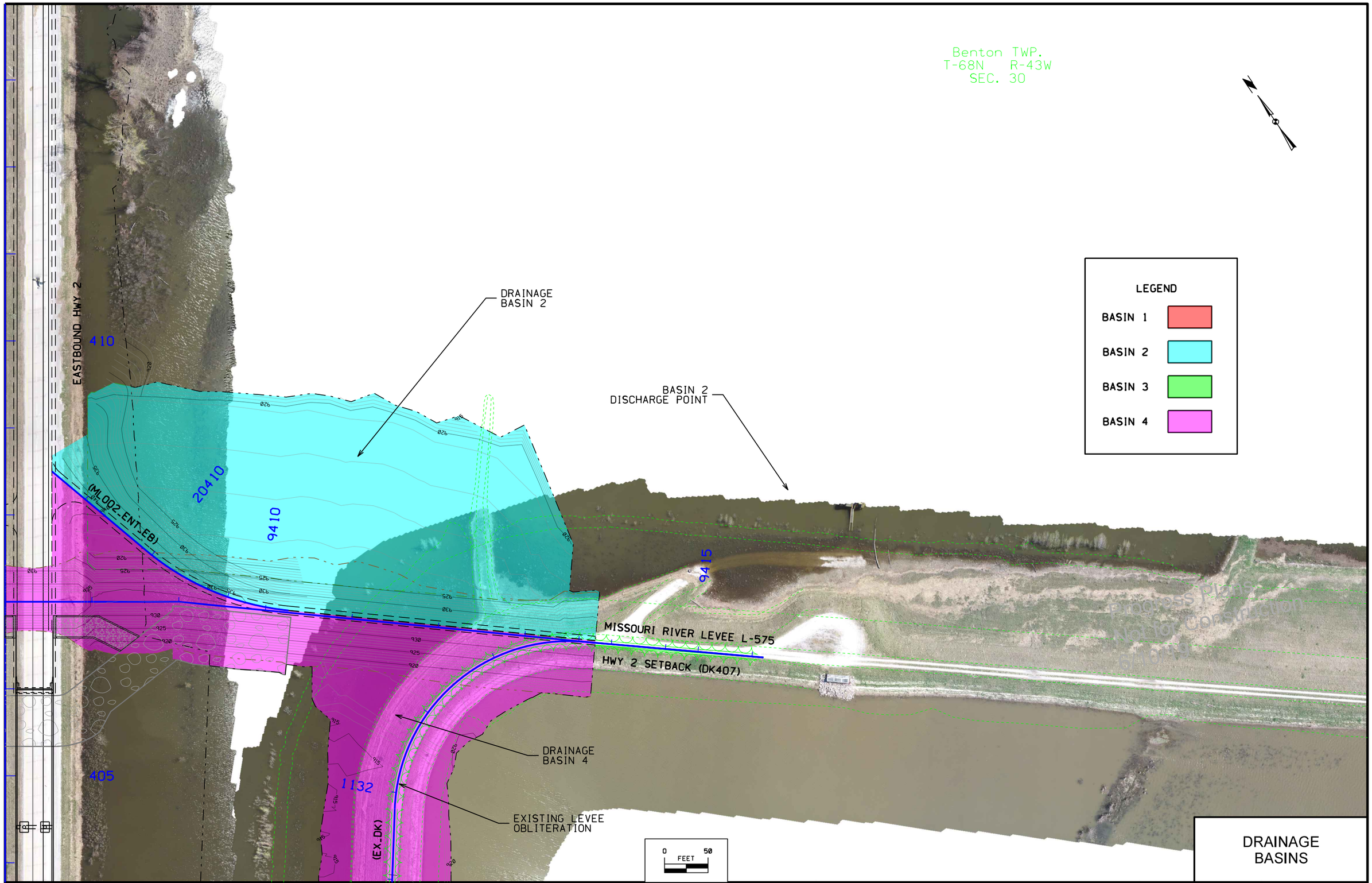
FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER M0.3

3:18:28 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_M001.dgn



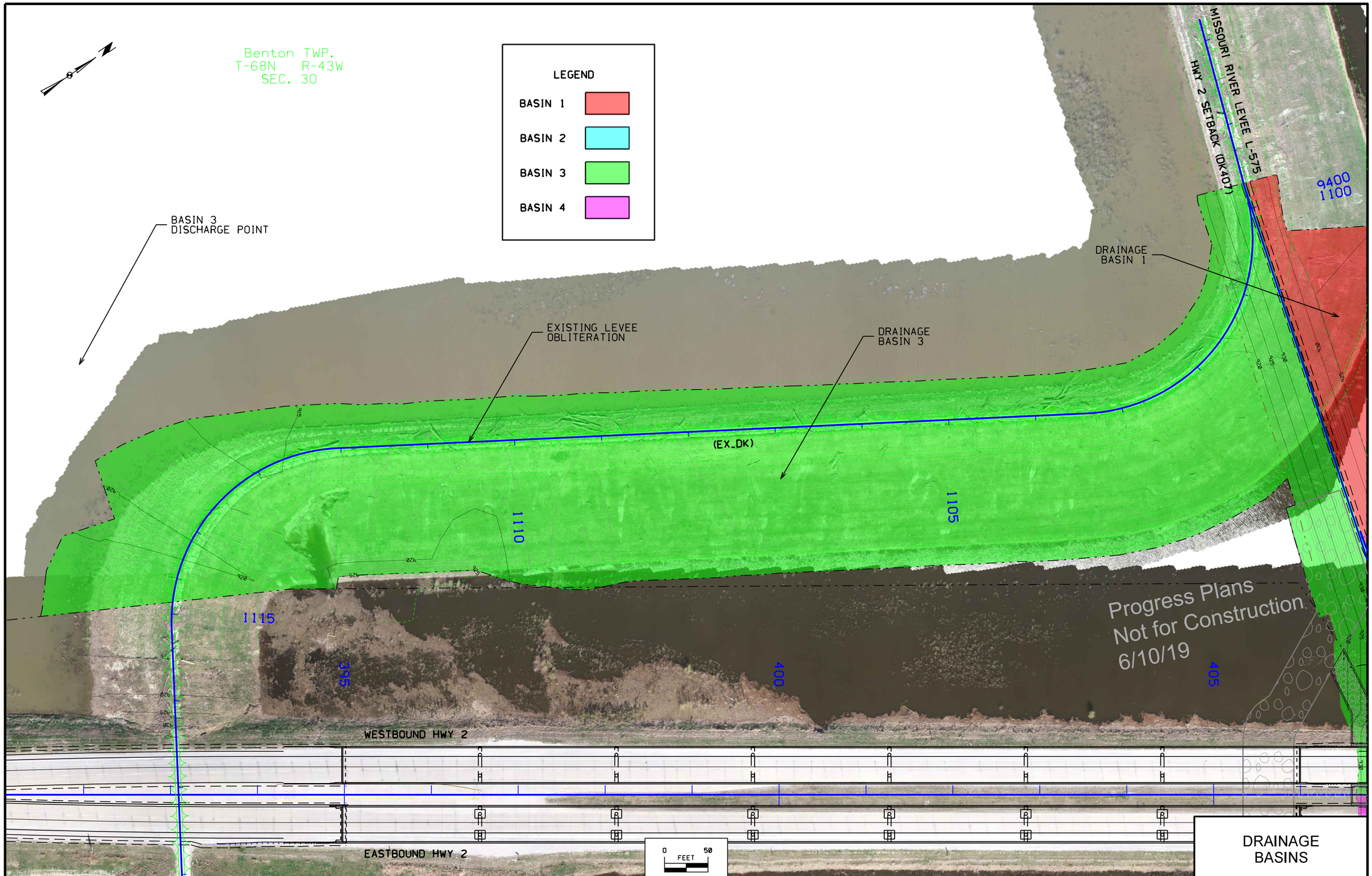
FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MR.1

4:07:19 PM 6/6/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MR01.dgn



FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MR.2

4:06:19 PM 6/6/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MR01.dgn



DRAINAGE BASINS

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MR.3

4:08:03 PM 6/6/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MR01.dgn

WESTBOUND HWY 2

EASTBOUND HWY 2

1120

1125

1130

EXISTING LEVEE OBLITERATION

(EX_DK)

DRAINAGE BASIN 4

BASIN 4 DISCHARGE POINT

MISSOURI RIVER LEVEE L-575

HWY 2 SETBACK (DK407)

Progress Plans
Not for Construction
6/10/19

LEGEND

BASIN 1

BASIN 2

BASIN 3

BASIN 4

Benton TWP.
T-68N R-43W
SEC. 30

0 50
FEET

DRAINAGE BASINS

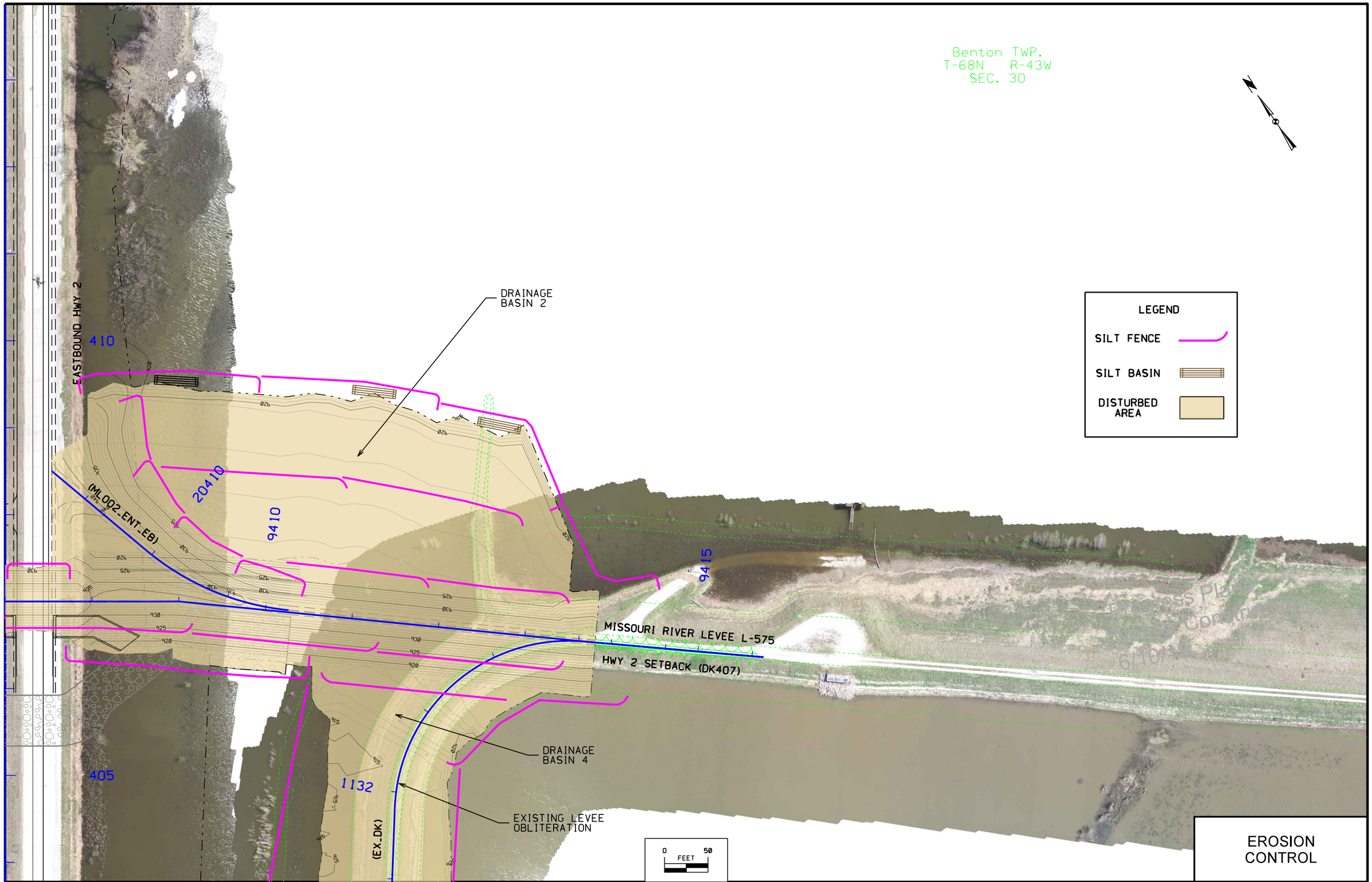
FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MR.4

4:09:05 PM 6/6/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MR01.dgn

EROSION CONTROL

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MR.5

4:09:50 PM 6/6/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MR01.dgn



EROSION CONTROL

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MR.6

3:30:33 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MR01.dgn

Benton TWP.
T-68N R-43W
SEC. 30

LEGEND

SILT FENCE

SILT BASIN

DISTURBED AREA

MISSOURI RIVER LEVEE L-575

HWY 2 SETBACK (DK407)

9400
1100

DRAINAGE BASIN 1

EXISTING LEVEE OBLITERATION

DRAINAGE BASIN 3

(EX_DK)

1110

1105

1115

395

400

405

Progress Plans
Not for Construction
6/10/19

WESTBOUND HWY 2

EASTBOUND HWY 2

0 50
FEET

EROSION CONTROL

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MR.7

4:11:53 PM 6/6/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MR01.dgn

WESTBOUND HWY 2

EASTBOUND HWY 2

EXISTING LEVEE OBLITERATION

1120

1125

1130

(EX_DK)

DRAINAGE BASIN 4

Progress Plans
Not for Construction
6/10/19

MISSOURI RIVER LEVEE L-575

HWY 2 SETBACK (DK407)

LEGEND

SILT FENCE

SILT BASIN

DISTURBED AREA

Benton TWP.
T-68N R-43W
SEC. 30

0 50
FEET

EROSION CONTROL

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MR.8

4:12:47 PM 6/6/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MR01.dgn

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. Is signature authority on the Base PPP.

B. Contractor:
1. Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. 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. Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Section 2602 of the Standard Specifications.
3. Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Section 2602 of the Standard Specifications.
4. Installs and maintains appropriate controls. This work may be subcontracted.
5. Supervises and implements good housekeeping practices.
6. Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement during winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports.
7. Complies with training and certification requirements of Section 2602 of the Standard Specifications.

C. Subcontractors:
1. Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if 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. Implement good housekeeping practices.

D. RCE/Project Engineer:
1. Is Project Storm Water Manager.
2. On projects where DOT is the Contracting Authority, is current with erosion control training or certification.
3. Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance.
4. Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit.
5. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
6. Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirements.
7. Is familiar with the Project PPP and storm water site map.
8. On projects where DOT is Contracting Authority, is responsible for monitoring inspection reports on a monthly basis, to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies.
9. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
10. Is signature authority on Notice of Discontinuation.

E. Inspector:
1. Updates 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. Maintains an up-to-date record that identifies contractors and subcontractors as co-permittees.
3. Makes these plans available to the DNR upon their request.
4. Conducts joint required inspections of the site with the contractor/subcontractor.
5. Completes an inspection report after each inspection.
6. Is signature authority on storm water inspection reports.

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the construction of the Missouri Rive Levee L-575 Highway 2 Setback as part of the Iowa 2 Overflow Bridge Project.

B. This PPP covers approximately *Provide # Of Acres* acres with an estimated *Provide # of Acres* acres being disturbed. The portion of the PPP covered by this contract has 21.76 acres disturbed.

C. The PPP is located in an area of Albaton-Luton_Onawa soil association.
The estimated weighted average runoff coefficient number for this PPP after completion will be 0.31.

D. Storm Water Site Map is located in the MR sheets. Proposed slopes are shown in cross sections, details, or standard road plans. Supplemental information is located in the Tabulations in the MC or MRC sheets.

E. The base storm water 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 Missouri River.

110-12
04-16-19

POLLUTION PREVENTION PLAN

III. CONTROLS

A. The Contractor's ECIP specified in Article 2602.03 of the Standard Specifications 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 of the Standard Specifications.

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 storm water site map (when included), Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the MC sheets. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the MC sheets.
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 in the MC sheets. Additional information may be found in the Tabulations in the MC or MT Tabulation sheets, or is referenced in Section 2105 of the Standard Specifications.

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 storm water site map (when included), Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the MC sheets, 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 or are referenced in the Standard Road Plans Tabulation (105-4) located in the MC sheets.

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 storm water site map (when included) and Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the MC sheets, 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 chemical spill and leak prevention and response 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 - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. 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 onsite 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. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
9) Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.
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.

Progress Plans
Not for Construction
Bidding

POLLUTION PREVENTION PLAN

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 of 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. Identification of 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 and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is impracticable and indicate an estimated date by which the corrections will be made.

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 headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

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

VIII. DEFINITIONS

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

CERTIFICATION STATEMENT

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

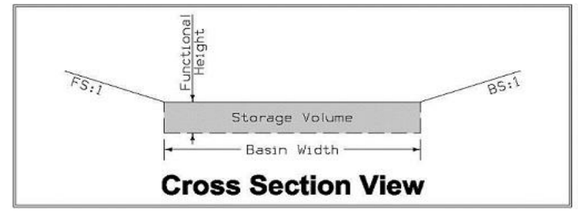
Signature

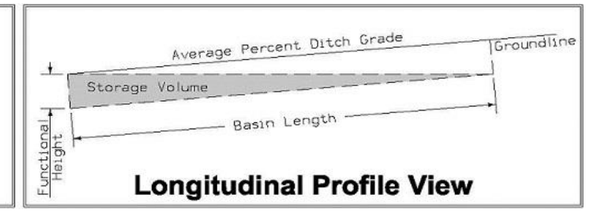
Printed or Typed Name

Signature

SILT BASINS

Possible Standard: EW-403





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

Basin No.	Location		Bid Items		Stormwater Storage Volume Summary					Remarks
	Station	Side	Installation	Removal	Basin Width	Basin Length	Height	Avg. % Slope	Volume*	
			EACH	EACH	FT	FT	FT		CF	
1	9401+75.00	LT	1	1	10.0	50.0	2.85	0.7%	1337.5	
1	9403+50.00	LT	1	1	10.0	50.0	2.85	0.8%	1325.0	
								Subtotal	2662.5	
2	9409+00.00	LT	1	1	10.0	50.0	2.85	0.3%	1387.5	
2	9410+78.00	LT	1	1	10.0	50.0	2.85	1.8%	1200.0	
2	9412+25.00	LT	1	1	10.0	50.0	2.85	3.0%	1050.0	
								Subtotal	3637.5	
			INSTALLATION							
			Subtotal	5						
			+ 100%	5						
			Total	10						
			REMOVAL							
			Total	5						

Progress Plans
Not for Construction
6/10/19

STORMWATER DRAINAGE BASIN AND STORAGE

Refer to EC Standards and 570s Details.

Basin No.	Drainage Basin Location: Station to Station		Side	Discharge Point		Summary of Stormwater Storage: 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?	Remarks
				Station	Side	Acres	Acres	Acres		CF	CF	Yes/No	
1	9399+69.78	9406+46.00	LT	9403+00.00	LT	3.1	3.1	0.0	Silt Fence for Shallow Ditch or No Ditch (EC-201)	11061.3	11160.0	Yes	Proposed Levee / WB Entrance Ramp
									Silt Basin (EW-403)	2662.5			
									Total	13723.8			
2	9407+54.00	9413+81.23	LT	9415+75.53	LT	2.9	2.9	0.0	Silt Fence for Shallow Ditch or No Ditch (EC-201)	9223.8	10512.0	Yes	Proposed Levee / EB Entrance Ramp
									Silt Basin (EW-403)	3637.5			
									Total	12861.3			
3	9399+69.78	9407+00.00	LT/RT	1113+55.25	RT	8.1	8.1	0.0	Silt Fence for Shallow Ditch or No Ditch (EC-201)	305347.0	29052.0	Yes	Proposed Levee / Existing Levee Obliteration
4	9407+00.00	9413+81.23	LT/RT	1120+92.10	RT	7.7	7.7	0.0	Silt Fence for Shallow Ditch or No Ditch (EC-201)	327243.8	27612.0	Yes	Proposed Levee / Existing Levee Obliteration

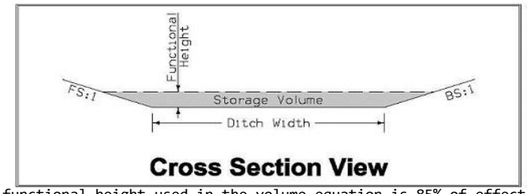
TABULATION OF SILT FENCES

Refer to EC-201

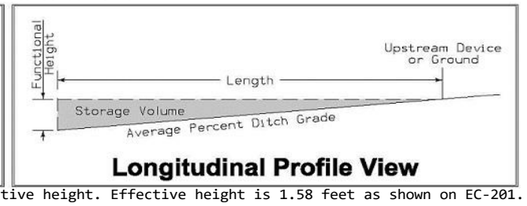
Location			Length	Remarks
Begin Station	End Station	Side	LF	
9400+45.00	9402+00.00	LT	185.0	Basin 1
9402+09.00	9403+75.00	LT	185.0	Basin 1
9403+82.00	9405+00.00	LT	185.0	Basin 1
9400+21.00	9401+96.00	LT	195.0	Basin 1
9402+06.00	9403+81.00	LT	195.0	Basin 1
9408+80.00	9410+65.00	LT	220.0	Basin 2
9410+75.00	9412+72.00	LT	220.0	Basin 2
9410+20.00	9411+69.00	LT	170.0	Basin 2
9411+82.00	9413+32.00	LT	170.0	Basin 2
9399+62.00	9401+61.00	RT	220.0	Basin 3
9401+72.00	9403+72.00	RT	220.0	Basin 3
9403+86.00	9405+06.00	RT	130.0	Basin 3
9405+09.00	9406+89.00	RT	200.0	Basin 3
9400+77.00	9402+77.00	RT	220.0	Basin 3
9406+33.00	9406+93.00	LT	103.0	Basin 3
1099+70.00	1102+40.00	RT	240.0	Basin 3 (EX_DK)
1102+58.00	1104+83.00	RT	220.0	Basin 3 (EX_DK)
1104+96.00	1106+96.00	RT	220.0	Basin 3 (EX_DK)
1107+09.00	1109+09.00	RT	220.0	Basin 3 (EX_DK)
1110+78.00	1114+50.00	LT	220.0	Basin 3 (EX_DK)
1114+63.00	1115+09.00	LT	160.0	Basin 3 (EX_DK)
9407+09.00	9407+69.00	LT	103.0	Basin 4
9407+00.00	9409+05.00	RT	220.0	Basin 4
9409+19.00	9411+19.00	RT	220.0	Basin 4
9411+33.00	9413+33.00	RT	220.0	Basin 4
9410+86.00	9412+86.00	RT	220.0	Basin 4
1119+08.00	1123+49.00	LT	210.0	Basin 4 (EX_DK)
1123+70.00	1125+70.00	LT	220.0	Basin 4 (EX_DK)
1125+84.00	1127+84.00	LT	220.0	Basin 4 (EX_DK)
1127+99.00	1129+99.00	LT	220.0	Basin 4 (EX_DK)
1130+30.00	1132+55.00	RT	220.0	Basin 4 (EX_DK)
1132+68.00	1135+47.00	RT	240.0	Basin 4 (EX_DK)
	INSTALLATION			
	Subtotal		6411.0	
	+ 25%		1603.0	
	Total		8014.0	
	MAINTENANCE			
	Total		801.4	
	REMOVAL			
	Total		4007.0	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



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	
1	5	9400+89.00	LT	192.6	192.6	192.6	3.0	0.1	10.0	0.3%	2555.5	DK407
1	5	9402+76.00	LT	222.0	222.0	222.0	4.0	0.1	10.0	0.6%	1327.4	DK407
1	5	9404+83.00	LT	222.0	222.0	222.0	4.0	0.1	10.0	0.2%	2697.6	DK407
1	5	9406+10.00	LT	235.4	235.4	235.4	4.0	0.1	10.0	0.3%	2697.6	DK407
1	5	10406+00.00	LT	100.0	100.0	100.0	3.0	0.1	5.0	0.6%	737.1	(ML002_ENT_WB)
1	5	10407+00.00	LT	110.0	110.0	110.0	3.0	0.1	5.0	1.4%	475.5	(ML002_ENT_WB)
1	5	10407+75.00	LT	100.0	100.0	100.0	3.0	0.1	5.0	2.0%	356.6	(ML002_ENT_WB)
1	5	10408+32.00	LT	100.0	100.0	100.0	3.0	0.1	5.0	3.1%	214.0	(ML002_ENT_WB)
										Subtotal	11061.3	
2	5	9409+68.00	LT	242.0	242.0	242.0	4.0	0.1	10.0	0.3%	2697.6	
2	5	9411+75.00	LT	222.0	222.0	222.0	4.0	0.1	10.0	0.8%	1327.4	
2	5	9413+25.00	LT	222.0	222.0	222.0	4.0	0.1	10.0	1.1%	1327.4	
2	5	9414+46.00	LT	172.0	172.0	172.0	4.0	0.1	10.0	0.9%	1327.4	
2	5	20408+68.00	LT	100.0	100.0	100.0	3.0	0.1	5.0	3.5%	214.0	(ML002_ENT_EB)
2	5	20409+25.00	LT	100.0	100.0	100.0	3.0	0.1	5.0	1.8%	356.6	(ML002_ENT_EB)
2	5	20410+00.00	LT	100.0	100.0	100.0	3.0	0.1	5.0	1.1%	475.5	(ML002_ENT_EB)
2	5	20411+00.00	LT	110.0	110.0	110.0	3.0	0.1	5.0	0.4%	1497.9	(ML002_ENT_EB)
										Subtotal	9223.8	
3	5	9406+25.00	LT	310.0	310.0	310.0	3.0	0.1	10.0	1.3%	811.3	DK407
3	5	1104+17.50	LT	525.0	525.0	525.0	300.0	0.1	200.0	0.2%	84929.9	(EX_DK)
3	5	1107+45.00	LT	525.0	525.0	525.0	300.0	0.1	200.0	0.2%	84929.9	(EX_DK)
3	5	1110+69.00	LT	525.0	525.0	525.0	300.0	0.1	200.0	0.3%	84929.9	(EX_DK)
3	5	1112+34.00	RT	525.0	525.0	525.0	200.0	0.1	200.0	0.8%	34801.8	(EX_DK)
3	5	1114+25.00	RT	425.0	425.0	425.0	50.0	0.1	100.0	5.0%	3140.9	(EX_DK)
3	5	1115+15.00	RT	260.0	260.0	260.0	200.0	0.1	100.0	2.0%	11803.3	(EX_DK)
										Subtotal	305347.0	
4	5	9407+76.00	RT	318.0	318.0	318.0	3.0	0.1	10.0	0.5%	2555.5	DK407
4	5	1119+10.00	RT	418.0	418.0	418.0	300.0	0.1	100.0	0.4%	63777.7	(EX_DK)
4	5	1120+95.00	RT	475.0	475.0	475.0	500.0	0.1	150.0	0.2%	102761.3	(EX_DK)
4	5	1123+69.00	RT	475.0	475.0	475.0	500.0	0.1	150.0	0.0%	102761.3	(EX_DK)
4	5	1126+99.00	RT	475.0	475.0	475.0	300.0	0.1	150.0	4.0%	9441.8	(EX_DK)
4	5	1130+09.00	LT	475.0	475.0	475.0	100.0	0.1	150.0	0.3%	45946.3	(EX_DK)
										Subtotal	327243.8	
		INSTALLATION										
		Subtotal		8281.0								
		+ 50%		4140.5								
		Total		12421.5								
		MAINTENANCE										
		Total		1242.2								
		REMOVAL										
		Total		6210.8								

Progress Plans
Not for Construction
6/10/19

ROLLED EROSION CONTROL

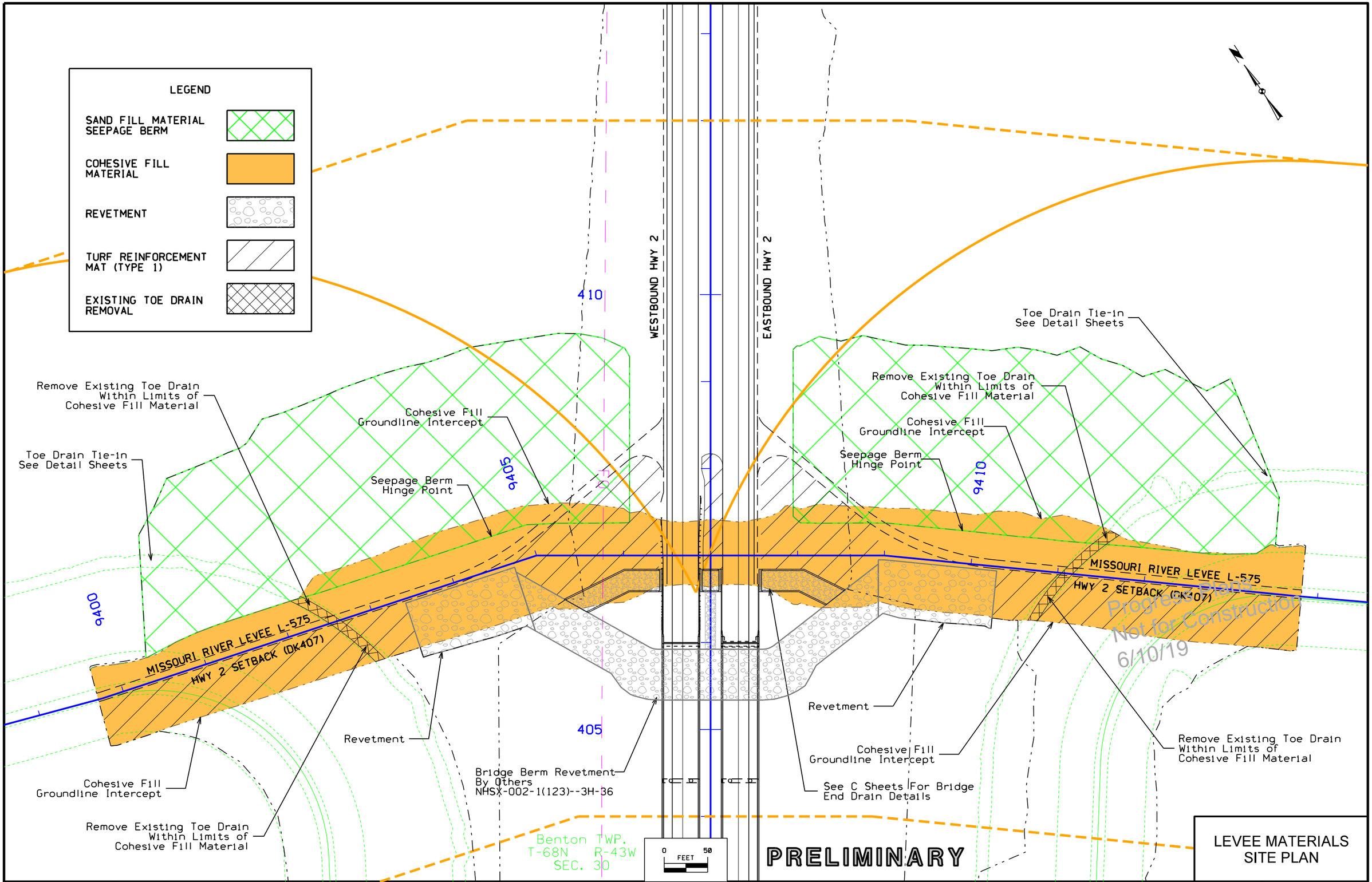
Refer Special Provision for Levee Seeding

Location				L	W	Turf Reinforcement Mat (TRM)				Slope Protection (EC-103)	Special Ditch Control (EC-101)	Remarks
Road Identification	Begin Station	End Station	Side			Type 1	Type 2	Type 3	Type 4			
				FT	FT	Squares	Squares	Squares	Squares	Squares	Squares	
DK407	9399+69.78	9403+40.00	RT	370		203						Permanent TRM - See MU.1
DK407	9404+71.81	9406+40.46	LT/RT	169		160						Permanent TRM - See MU.1
DK407	9407+58.00	9408+92.81	LT/RT	135		139						Permanent TRM - See MU.1
DK407	9410+30.00	9413+81.23	RT	351		206						Permanent TRM - See MU.1
DK407	9406+90.00	9407+14.00	LT/RT	24		29						Permanent TRM - See MU.1
DK407 - Stage 1	9405+43.00	9406+85.00	LT/RT							199		Note 1
					Total	737				199		

NOTES:

1) For Stage 1 grading prior to covering by roadway embankment in Stage 3. No seeding required.

Progress Plans
Not for Construction
6/10/19



LEVEE MATERIALS SITE PLAN

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MU.1

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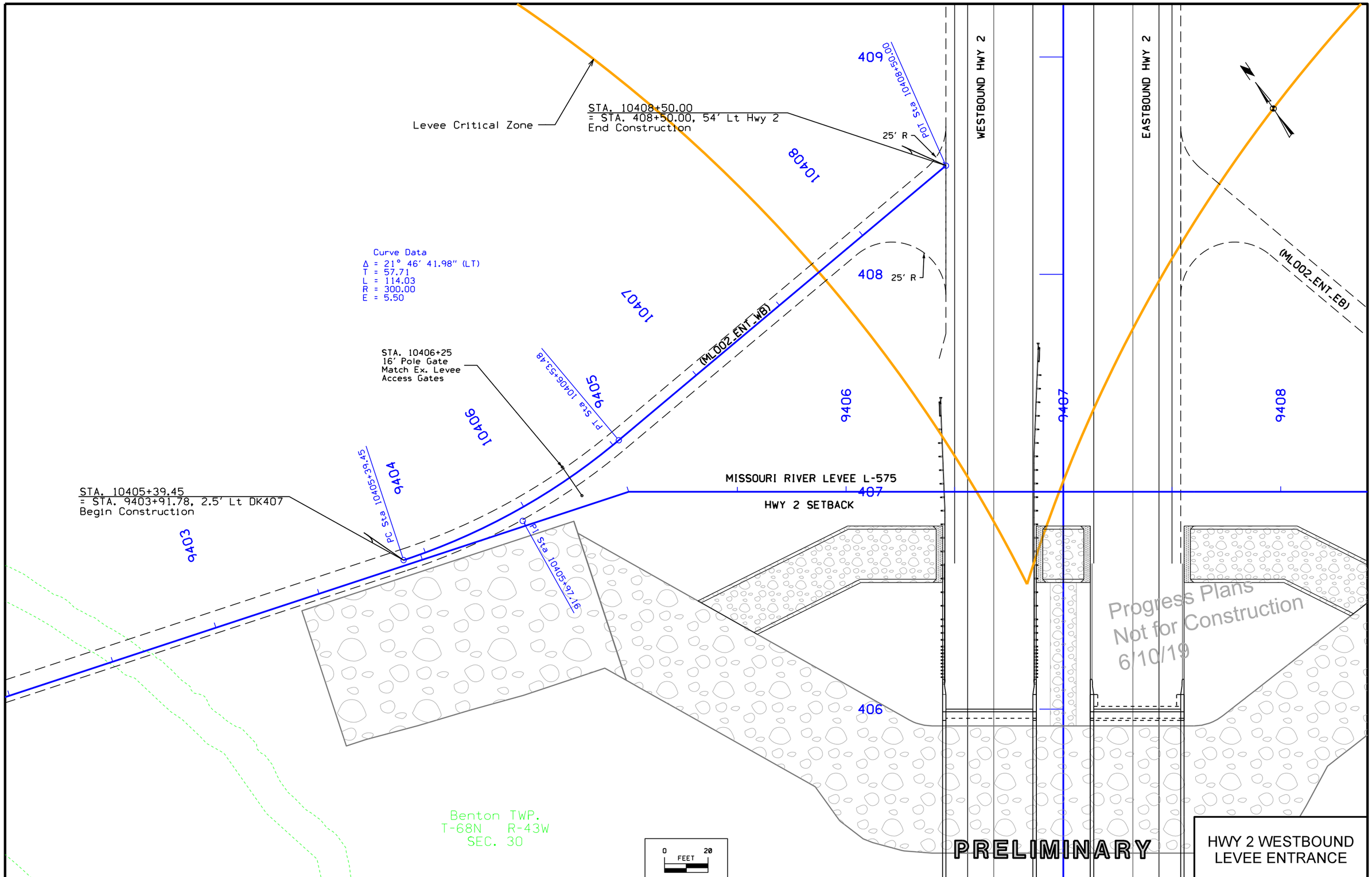

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MU.2

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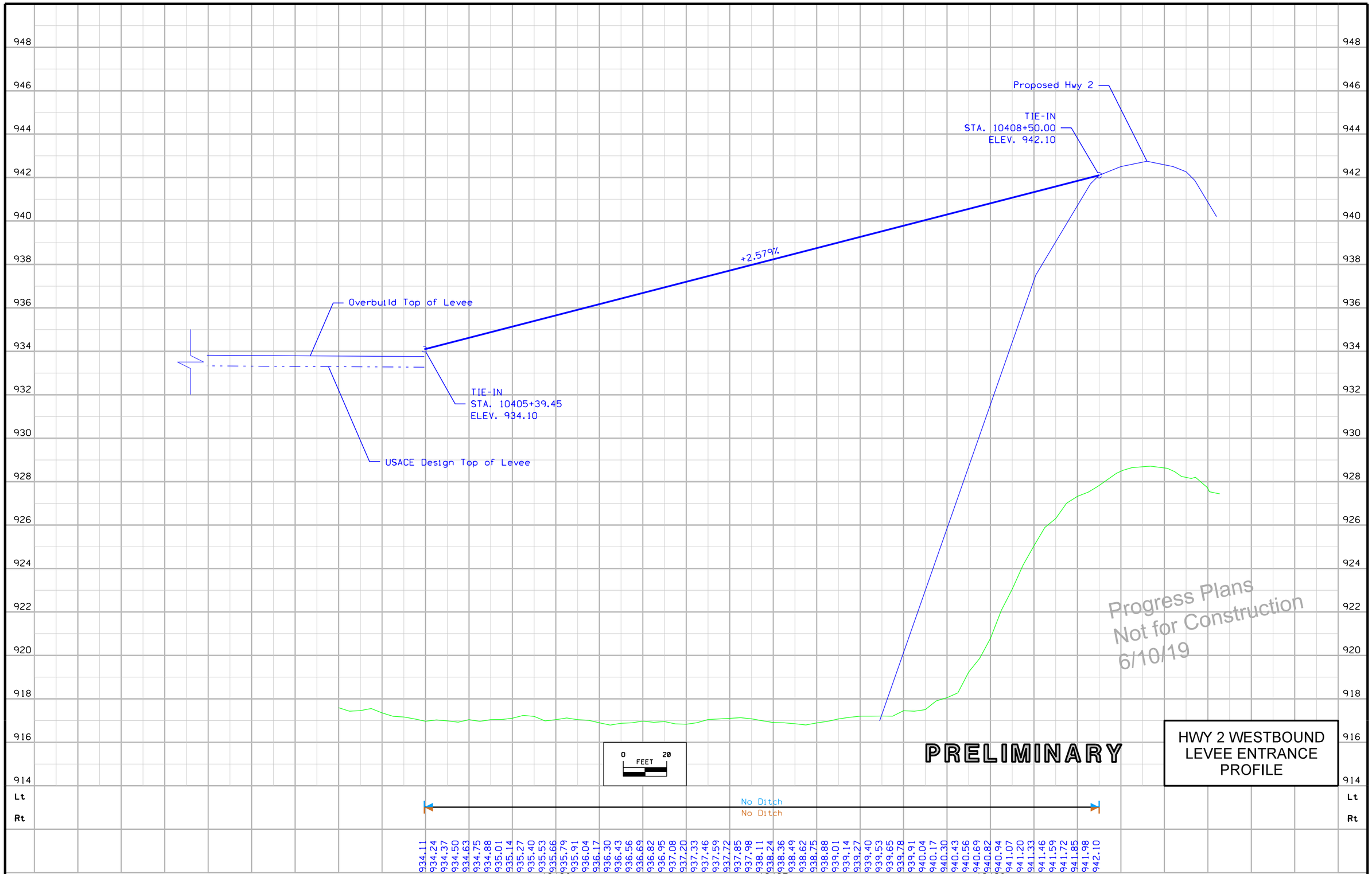

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MU.3

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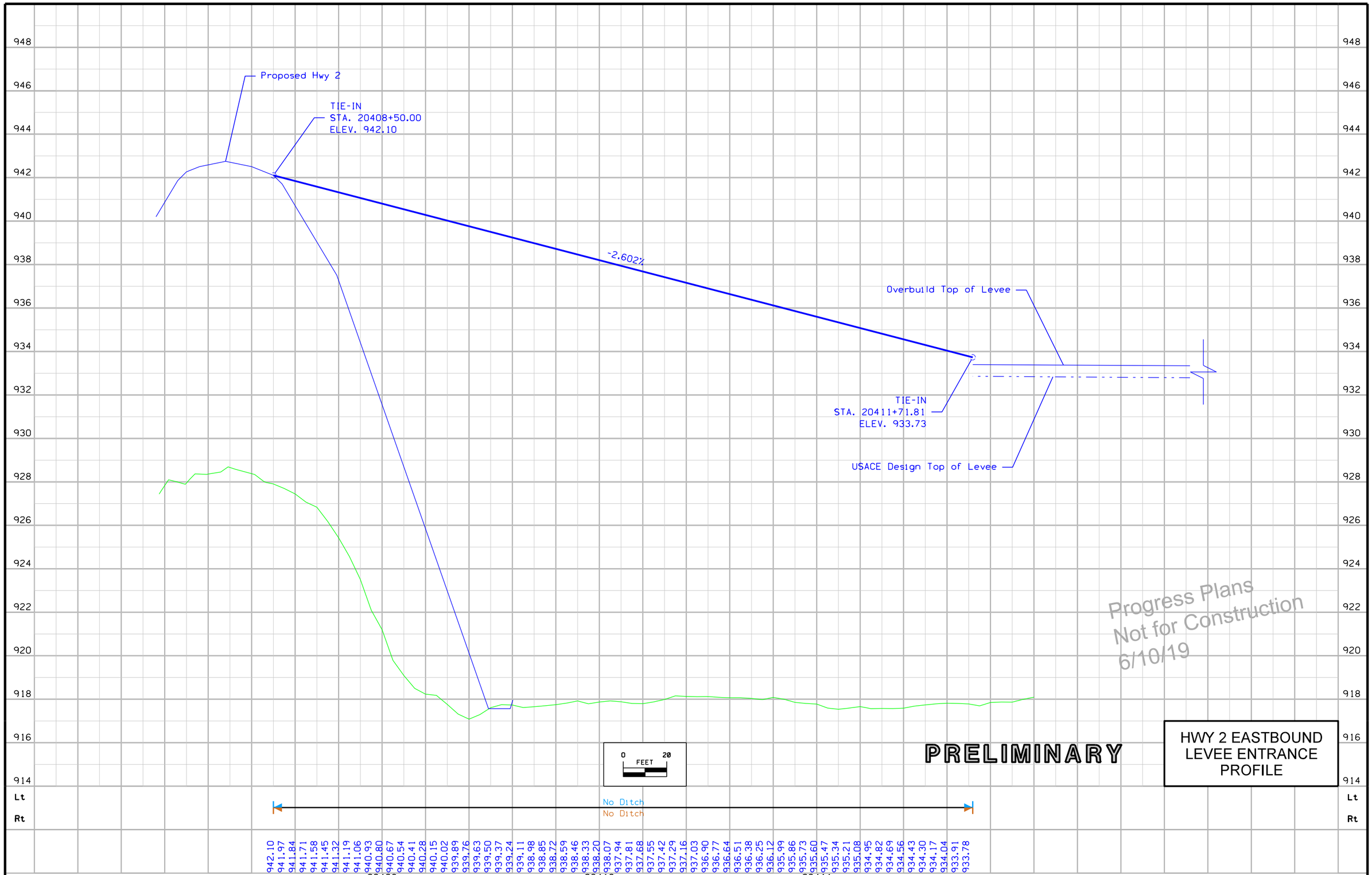
409
WESTBOUND HWY 2
EASTBOUND HWY 2
Levee Critical Zone
POT Sta 20408+50.00
25' R
STA. 20408+50.00
= STA. 408+50.00, 54' Rt Hwy 2
Begin Construction
20409
(ML002_ENT_WB)
408
25' R
(ML002_ENT_EB)
PC Sta 20409+91.83
20410
Curve Data
Δ = 34° 22' 27.38" (LT)
T = 92.79
L = 179.98
R = 300.00
E = 14.02
STA. 20410+60
16' Pole Gate
Match Ex. Levee
Access Gates
9406
9407
9408
9409
20411
9410
PT Sta 20411+71.81
STA. 20411+71.81
= STA. 9410+26.44, 2.5' Lt DK407
End Construction
9411
407
MISSOURI RIVER LEVEE L-575
HWY 2 SETBACK
POT Sta 20410+84.62
406
Progress Plans
Not for Construction
6/10/19
Benton TWP.
T-68N R-43W
SEC. 30
0 20
FEET
PRELIMINARY
HWY 2 EASTBOUND
LEVEE ENTRANCE

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MU.4

3:19:21 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MU02.dgn



FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MU.5

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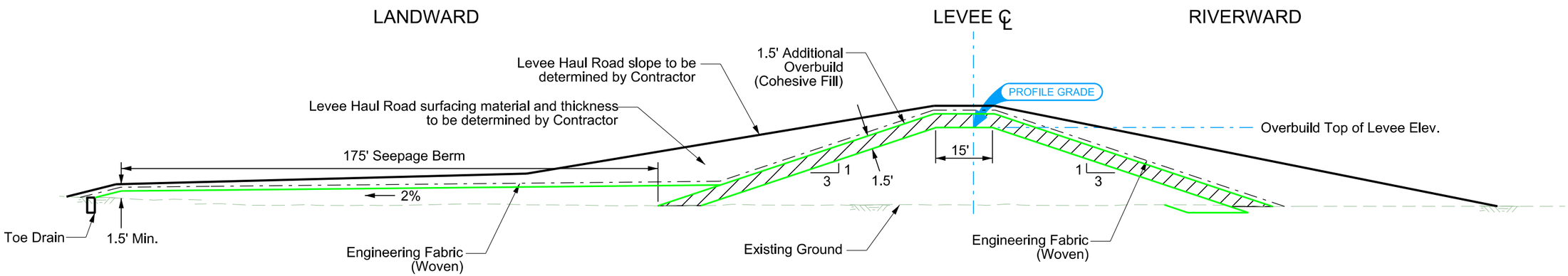


Typical Overbuild Section at Levee Haul Road

Construction equipment will not be allowed to access the existing levee or seepage berm until completion of the new levee and seepage berm.

Access over the new levee and seepage berm, once in operation, shall be limited to the designated locations shown in the MJ Sheets.
Alternative levee access locations shall be submitted for approval.

Contractor shall provide proposed typical levee haul road section at the levee and at the seepage berm.

The levee shall be overbuilt a minimum of 1.5 additional feet in the area of the levee haul roads.
The levee overbuild shall be constructed at the same time as the levee and per the Special Provision for Levee Construction.

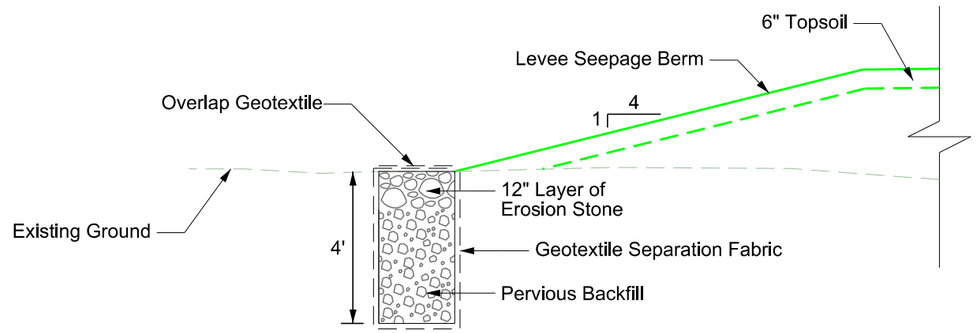
The levee haul roads shall be completely removed at completion of construction.
The additional overbuild shall be removed, as necessary, to establish the typical levee section.

A post-construction survey shall be completed after removal of the haul road to verify design grades.

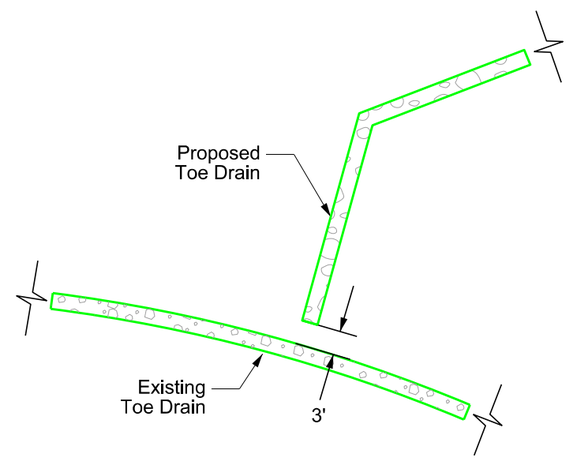
Progress Plans
Not for Construction
6/10/19

PRELIMINARY

Proposed Levee
Haul Road Detail



Toe Drain Detail



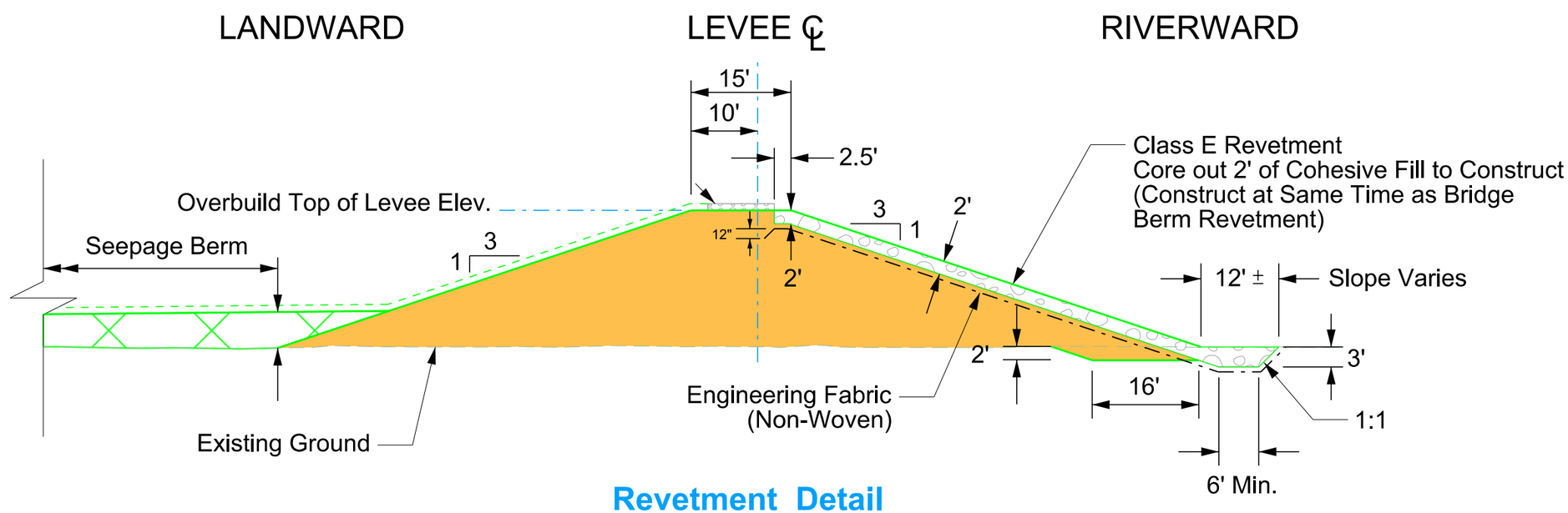
Toe Drain Tie-In - Plan View

Progress Plans
Not for Construction
6/10/19

PRELIMINARY

Seepage Berm
Toe Drain Detail

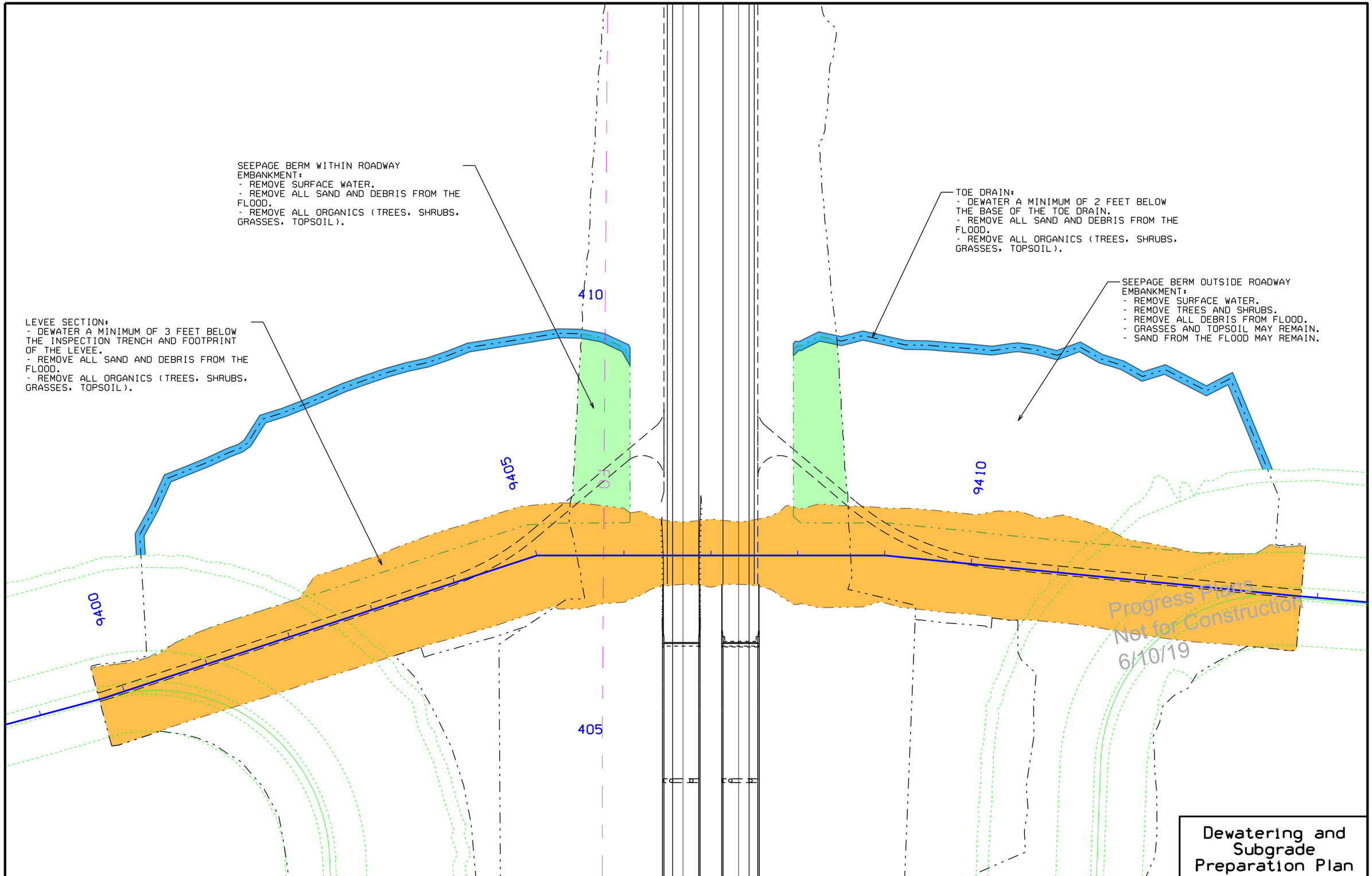
FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MU.7



Revetment Detail
(9403+40.00 - 9404+71.81)
(9408+92.81 - 9410+30.00)

Progress Plans
Not for Construction
6/10/19

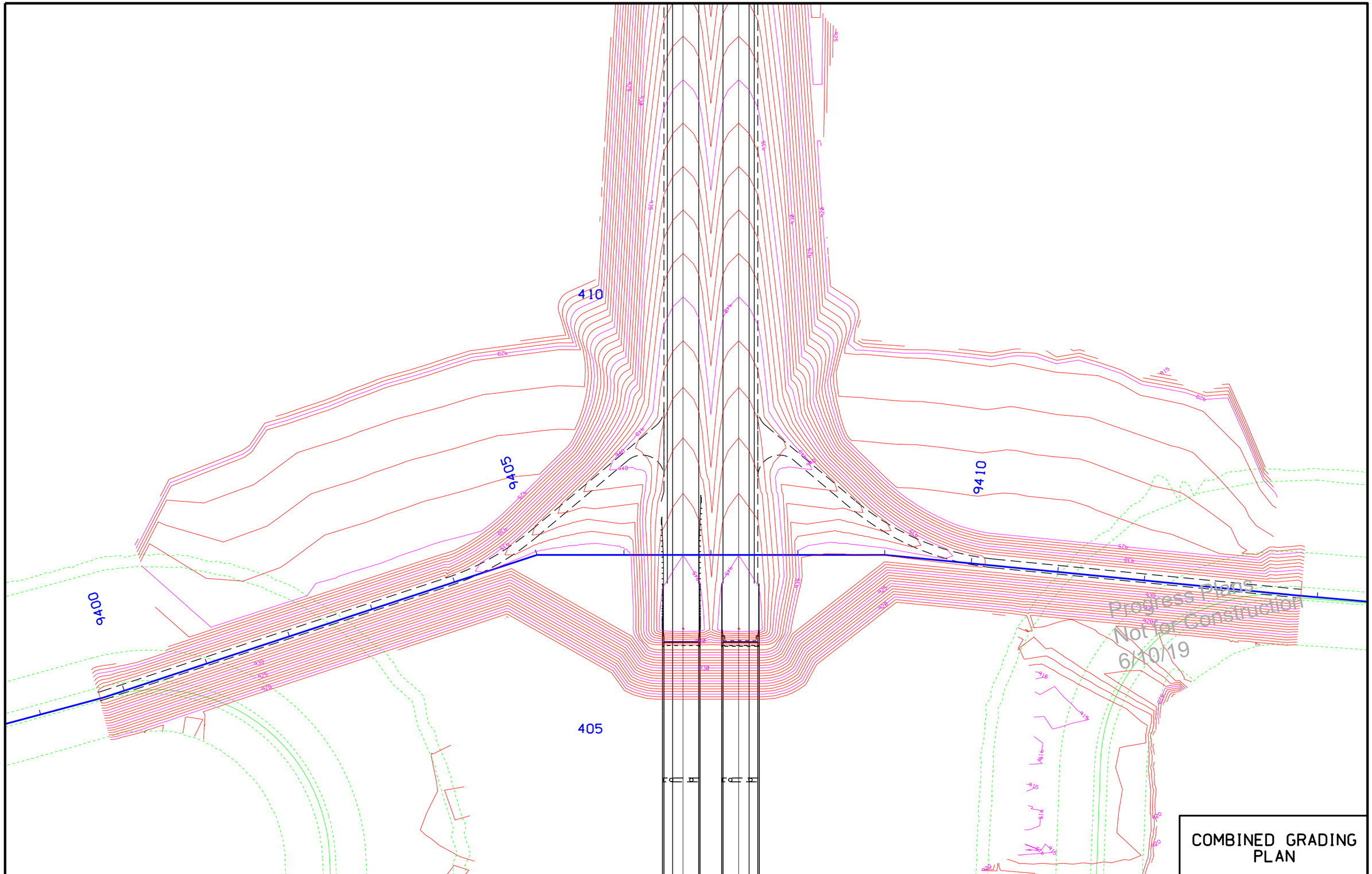
Revetment Detail



Dewatering and Subgrade Preparation Plan

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MU.9

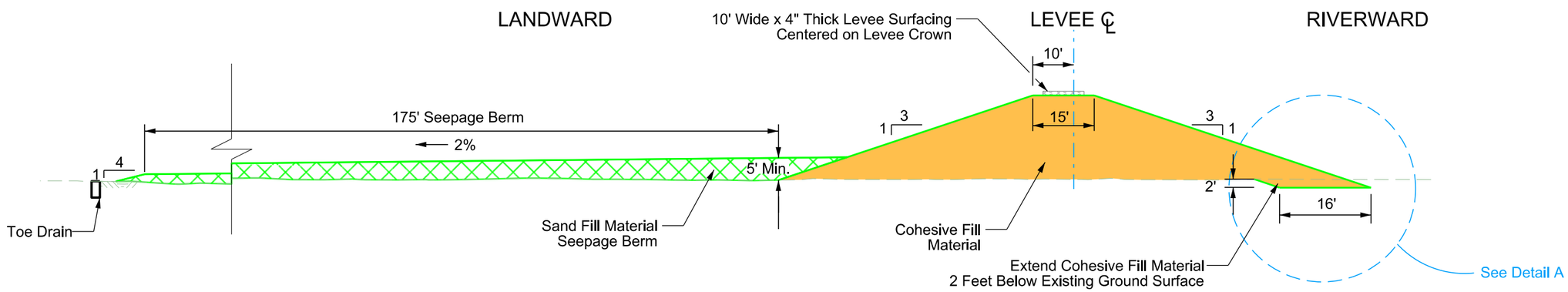
3:19:46 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MU02.dgn

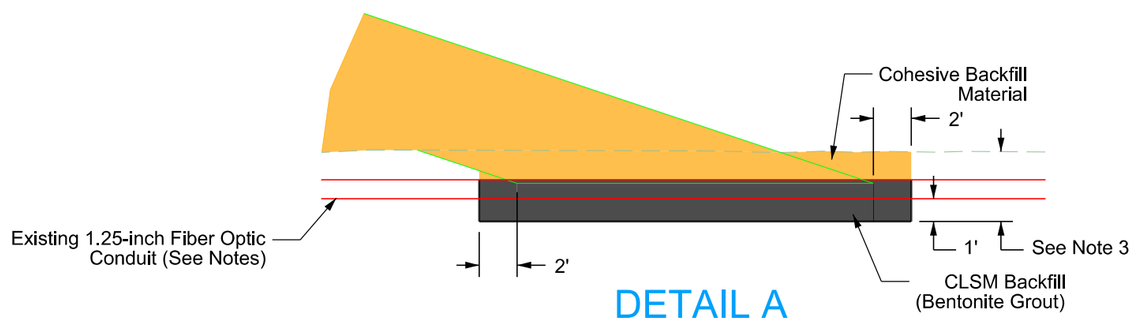


COMBINED GRADING PLAN

FILE NO.	ENGLISH	DESIGN TEAM HDR	FREMONT COUNTY	PROJECT NUMBER NHSX-002-1(122)--3H-36	SHEET NUMBER MU.10

3:19:57 PM 6/7/2019 JOHSMITH pw://HDR_US_Central_01/3047/10163716/36002122_MU02.dgn





DETAIL A

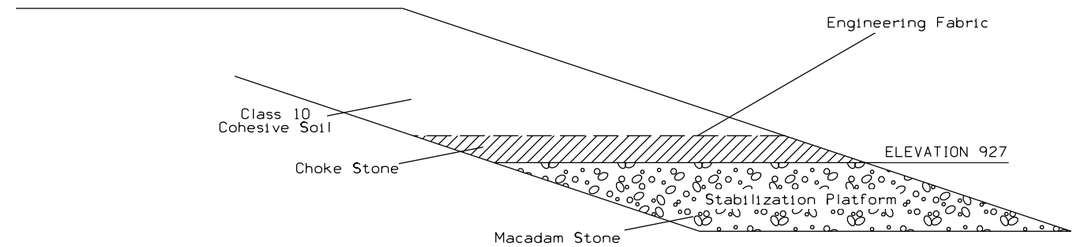
Progress Plans
Not for Construction
6/10/19

Notes:
1) Existing 1.25-inch fiber optic conduit is approximately 3 feet below existing grade and approximately 5 feet off the back of the ROW line.

2) Coordinate with the utility company on excavation of the fiber optic line at the riverward levee toe. After dewatering is complete, the utility company will locate the conduit and determine the depth. Once located, the Contractor shall carefully overexcavate around fiber optic line up to one foot below conduit and two feet on either side of the conduit. Hand tamp the grade around that trench and backfill with CLSM up to the top of the fiber optic line. Backfill with cohesive fill material in accordance with the Special Provision for Levee Construction.

3) This represents the total depth of the excavation, inlcuding over excavation below the conduit and inspection trench excavation. Total excavation to be limited to 5 feet. If fiber optic conduit is not encountered with this total excavation, no additional excavation will be conducted to locate the conduit.

Utility Crossing Detail



Notes:

1. THE STABILIZATION PLATFORM SHALL BE PLACED TO AN ELEVATION 927 FEET.
2. THE BOTTOM WIDTH OF STABILIZATION PLATFORM IS VARIABLE AND WILL EXTEND FROM TOE OF THE EXISTING EMBANKMENT TO THE TOE OF PROPOSED WIDENING.
3. BENCH EXISTING FORESLOPE PRIOR TO PLACING EMBANKMENT.
4. THE MACADAM STONE SHALL BE GRADATION NO. 13, AND SHALL MEET STD. SPECIFICATION 4122.03A, TABLE 4122.03.
5. THE CHOKE STONE SHALL MEET GRADATION NO.11 STANDARD SPECIFICATION 4120.04.
5. THE ENGINEERING FABRIC SHALL MEET STD. SPECIFICATION 4196.01.

Progress Plans
Not for Construction
6/10/19