IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE: District # 2 **DATE:** October 12, 2017

ATTENTION: Jon Ranney **REF.:** Floyd
NHSX-018-6(95)—3H-34

FROM: Foth PIN: 06-34-018-010

OFFICE: Design

SUBJECT: Field Exam Review (D-2)

Field Exam was held September 19, 2017. Attendees were as follows:

- Nick Humpal – DOT District 2
- John Clute – DOT Bridge
- Jeff Larson – DOT ROW
- Roy Gelhaus – DOT District 2
- Pete Hjelmstad – DOT District 2
- Johnny Mixdorf – DOT District 2
- Andy Floy – Foth
- Scott Ingersoll – Foth
- Adam Juel - Foth

This project involves proposed improvements to the U.S. 18/U.S. 218/Iowa 27 corridor from County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd, in Floyd County, Iowa. Improvements will include an interchange at County Road T-44 near Floyd along with frontage road improvements for access control along the corridor.

Highway 18 is expected to perform at free-flow conditions and level of service (LOS) capacity B in 2038. The 2018 ADT is estimated to be 11,600 vpd with 23% trucks. The 2038 ADT is estimated to 18,700 vpd with 26% trucks.

The proposed project will involve:

- Mainline - US-18 Typical Section (divided highway w/ depressed median)
  - 12’ inside lane – full depth pavement
  - 14’ outside lane – full depth pavement
  - 6’ paved inside shoulder (6’ effective width)
  - 4’ paved outside shoulder with 4’ granular outside shoulder (10’ effective width includes 2’ full depth from outside lane of mainline)
  - Foreslopes = 10:1 for 4’, then 6:1 to clear zone, then 3.5:1
  - 64’ median width
- Side Road - Country Road T-44 Typical Section (2-lane secondary road)
  - 12’ lanes – full depth pavement
  - 6’ granular shoulders
  - Foreslopes = 10:1 for 4’, then 4:1
- Side Road – US-218 Typical Section (2-lane urban roadway with curb and gutter)
  - 12’ driving lanes
  - 3.5’ curb and gutter section
  - 14’ painted median/TWLTL

- 45’ total roadway width (back of curb to back of curb)
- 2% slope behind curb for 10’, then 4:1

- Frontage Road – Woodland Lane (gravel roads)
  - 3” gravel driving surface
  - DOT to confirm preferred width with Floyd County
- Ramps – Typical Sections (Ramps A, B, and C = diagonal, Ramp D = loop)
  - Diagonal ramps
    - 16’ lane
    - 4’ paved plus 2’ granular shoulder on right
    - 4’ paved shoulder on left
  - Loop ramp
    - 18’ lane
    - 6’ paved shoulder on right
    - 4’ paved shoulder on left
  - Foreslopes = 10:1 for 4’, then 6:1 to clear zone, then 3.5:1
- Interchange Type = Three-Quadrant interchange
- Bridges
  - 174’-0 x 40’-0 pretensioned prestressed concrete beam bridge
  - 174’-0 x Var. Width pretensioned prestressed concrete beam bridge

Traffic Control/Staging, Detours

- Cross overs will be required to create head-to-head traffic on the existing WB lanes. New EB lanes and ramps will be built in the first year. A winter shut down will have EB traffic on new pavement and WB traffic on existing pavement. New WB lanes will be built with traffic head-to-head on new EB pavement.
- A detour from County Road T-44 to the interchange at US-18 and County Road B-35 will be utilized when traffic movements cannot be accommodated at the US-18 and County Road T-44 intersection.

ROW is required.

- D3 date is 11/17/2017.
- B1 date is 3/2/2018.
- D5 date is 4/6/2018

US-18 corridor is changing from Priority 3 Access control to Priority 2 Access Control with this project. Access control fence will be included in the D5 submittal.

Add if applicable:

County agreement anticipated
Lighting and signing needed.
378,799 CY of contractor furnished borrow required
No ADA accommodations required.

Is a cultural review of the need lines needed? Yes, no P03 date included in the current schedule

No plan sheets are included in this submittal; however, plan sheets may be viewed on the network at 3401801006 MarkedUp Full Plan D2 10-12-2017.pdf

This project is currently scheduled for a July 21, 2020 letting. The estimated cost of construction shown in the final concept was $16,689,000. The current cost estimate is $19,381,941.

Machine Guidance Electronic Files Checklist

Add information to address any incomplete items below:

Yes	N/A	No	
☒	☐	☐	Horizontal and Vertical Alignments Complete
☒	☐	☐	Typical Templates showing proposed Pavement, Shoulder, Foreslope design
☒	☐	☐	Correct Feature Naming for Roadway Breaklines and Components

cc:

M. J. Sankey	S. J. Gent	M. J. Kennerly
W.A. Sorenson	E. C. Wright	B. R. Smith
T. Nicholson	K. D. Nicholson	
Design Project Engineer (Or K. K. Patel)		
K. Brink	J. E. Laaser-Webb	T. Crouch
V. A. Brewer	D. R. Tebben	M. D. Masteller
N. L. Cuva	M. A. Swenson	C. B. Brakke
D. E. Sprengeler	N. L. McDonald	D. A. Popp
B. Bradley	G. A. Novey	D. R. Claman
J. McCollough	S. P. Anderson	B. Hofer
M. Hobbs (RR)	Assistant District Engr.	District Const. Engr.
E. Engle (RR)	Resident Const. Engr.	E. D. Gansen
District Utility Coordinator	P. C. Keen	Others on Field Exam
J. R. Schoenrock	Local FHWA	W. N. Cameron
J. Garton	S. J. Megivern	M. K. Solberg

When Machine Guidance Electronic Files are required:

CC: Hamski, Thomas; Henning, Sis; Richardson, Curtis; Bowman, Tommy; Filides, Brandon

LETTING DATE

FLOYD Co.

PCC PAVEMENT - GRADE AND NEW

NHSX-018-6(95)--3H-34

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

FLOYD COUNTY

PCC PAVEMENT - GRADE AND NEW

US 18/US 218/A 27 AT FLOYD COUNTY T44 SOUTH OF FLOYD

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

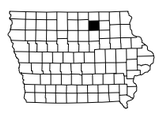
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

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

REVISIONS

TOTAL
PROJECT IDENTIFICATION NUMBER
06-34-018-010
PROJECT NUMBER
NHSX-018-6(95)--3H-34
R.O.W. PROJECT NUMBER
NHSN-018-6(94)--2R-34

INDEX OF SHEETS



DESIGN DATA RURAL		
2018 AADT	11,600	V.P.D.
2038 AADT	18,700	V.P.D.
20-- DHV	--	V.P.H.
TRUCKS	26	%
Total Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	ANDREW S. FLOY	Primary Signature Block
X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN – Date: 9/19/17

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER A.1

11:24:39 AM 9/8/2017 lbd pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095A01.dgn

140TH
QUARRY
218
140TH
140TH
LANCER
T38
12
7
RIVER RD
8
9
10
QUAIL
11
RAMPART
12
RUSTIC
7
145TH
145TH
T54
150TH
150TH
QUARRY
T64
13
18
17
16
15
14
13
STA. 13363+15.00 (US 18/US 218/IA 27)
BEGIN PROJECT
155TH
B33
18
18
27
160TH
FLOYD
T38
24
19
20
21
22
PACKARD
23
165TH
24
19
165TH
Stewart
Creek
170TH
170TH
25
MARCH
30
29
MIDAMERICAN ENERGY
27
26
ROTARY PARK RD
REDWOOD
25
SHADOW
30
LANCER
175TH
B35
NUTHATCH
T44
QUARRY
28
T64
177TH
STA. 13363+15.00 (US 18/US 218/IA 27)
END PROJECT
31
185TH
34
35
36
LEVELAND AVE
B4
31
LOCATION MAP SCALE
0 0.25 0.50 0.75
Miles
32
CEAN
GILBE
CHARLES CITY
ELLOGG AVE

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER A.2

4:03:57 PM 9/7/2017 lbd pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095A01.dgn

P00 Planning Concept Statement (Final)

Project Description

Floyd County
Project No.: NHSX-018-6(85)--3H-34
PIN: 06-34-018-010

Date: July 2017

I. PROJECT DESCRIPTION AND HISTORY

A. Project Description

The Iowa Department of Transportation (Iowa DOT) is proposing to improve the U.S. 18/U.S. 218/Iowa 27 corridor from County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd, in Floyd County, Iowa (Fig. 1). Improvements will include an interchange at County Road T-44 near Floyd along with frontage road improvements for access control along the corridor.

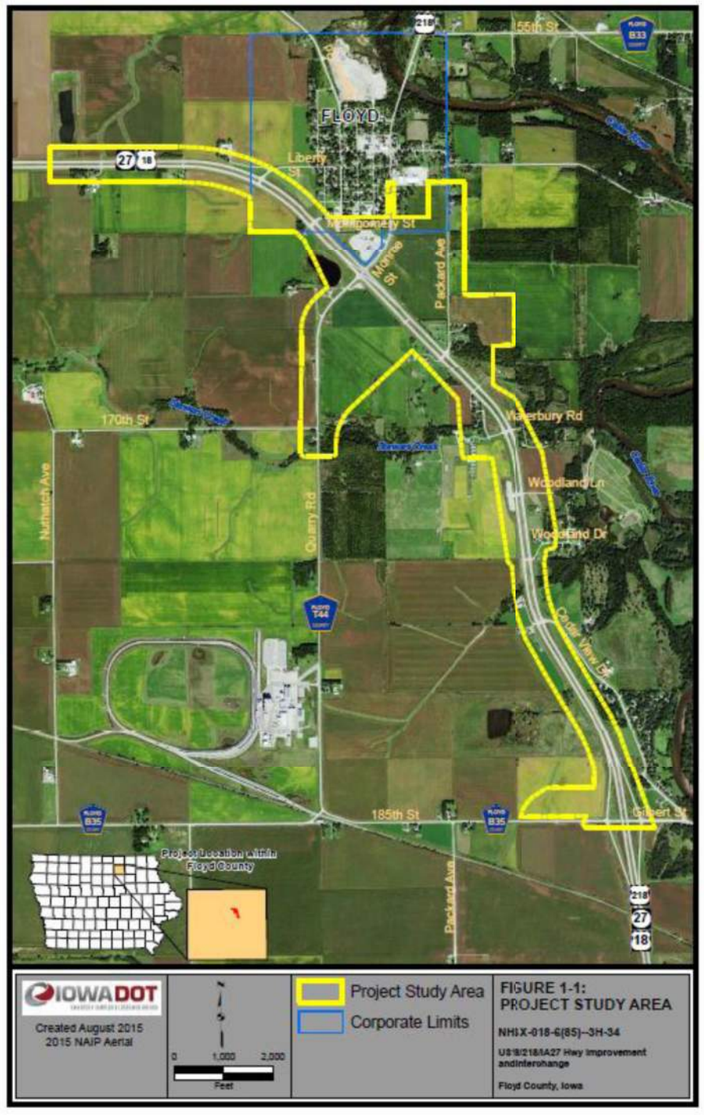


Figure 1 – Project Study Area

B. Project History

Links to Project History documents:
May 2006 Handout.doc
FloydPSFinal.pdf (2011)
FloydFinal PS.pdf (2012)
Project Statement FLOYD.pdf (2016)

The U.S. 18/U.S. 218/Iowa 27 corridor in the Floyd County area was constructed in 1926 as a two-lane highway. In 1988, the Iowa DOT's Transportation Commission identified the U.S. 18/U.S. 218/Iowa 27 corridor as part of the State's Commercial Industrial Network (CIN) [1]. As part of the CIN, segments of U.S. 18/U.S. 218/Iowa 27 in Iowa have been developed as four-lane expressways or freeway facilities with posted speed limits of 65 mph in rural areas. In 2000, the segment of U.S. 18/U.S. 218/Iowa 27 from the City of Rudd to the City of Charles City was upgraded to a four-lane expressway with at-grade access. These upgrades, completed as part of the Avenue of the Saints[2] project, resulted in traffic growth in the area. Traffic increased by over 100 percent between 1998 and 2013 and safety and operational issues have been noted.

There have been noted operational issues at the U.S. 18/U.S. 218/Iowa 27 intersection with County Road T-44 which is due to the increase of traffic, especially truck traffic, in the area since 2000. In an effort to improve these issues, an offset right turn lane for U.S. Highway 218 northbound traffic was constructed in 2003 and later reconstructed to be further offset to alleviate shadowing for the vehicle at the stop sign located on the U.S. Highway 218 southbound lane. Signs have been installed to indicate that "Cross Traffic Does Not Stop" along with flashing beacons warning drivers on this intersection.

Changes that have been made in the crossover median include stop bar pavement markings at the stop signs. These were placed to address the issue of truck trailers overhanging into the travel lanes of the expressway, and to inform drivers of how and where to align their vehicles as they approach. There was also a conflict with trucks sitting in the median at the stop sign traveling south or east with trucks in the eastbound to northbound left turn lane on the mainline. The driver could not go around the truck in the median and the truck in the median had no sight distance of the mainline in order to clear out. This not only created a standstill in the median, but had also caused trucks to back up and sit in the mainline of westbound U.S. Highway 18/Iowa 27.

Offset left turn lanes were installed in 2011 for both directions of U.S. 18/ U.S. 218/Iowa 27 to increase vehicle capacity and give trucks a clear space to maneuver. With this intersection configuration, there will be instances when vehicles will be stopped at the stop signs at the end of the turn lanes and the median at the same time.

Public Hearing Date and Summary

A public hearing was held on November 9, 2016 from 5:00 p.m. to 7:00 p.m. at the Floyd Community Center located at 706 Fairfield Street in Floyd, Iowa. The purpose of the meeting was to present the Proposed Alternative (Fig. 2) and to gather feedback from the public on Proposed Alternative and the EA. The hearing was conducted using a combined open forum and formal presentation format. The hearing began with an open session during which attendees could express their views and ask questions in an informal setting.

A formal presentation, followed by a question and answer session, was held after the open forum session. Approximately 104 people attended the public hearing. Overall, there was general support for the project, however, there were several comments related to access locations, property impacts, and the ROW/acquisition process. Other comments received related to safety concerns and emergency response time. A transcript of this hearing is included by reference as a separate document to the FONSI and is available upon request.

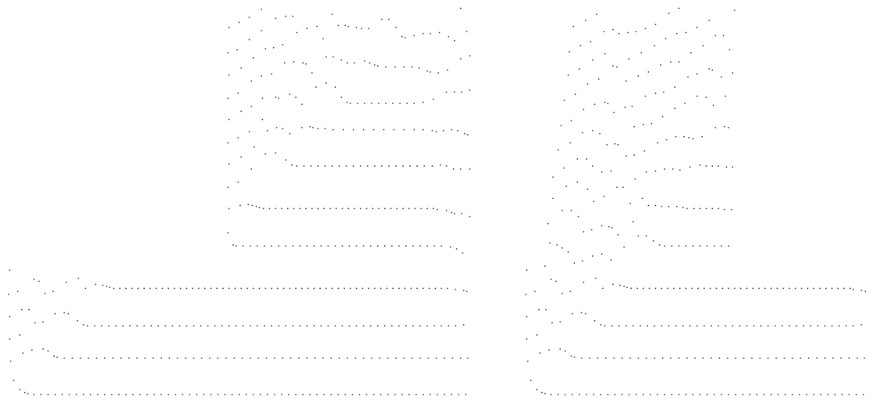


Figure 2 -- Proposed Alternative

C. Need for Project

The Purpose and Need section of the EA describes the transportation system problems that exist in the Study Area and the needs for the proposed action. One of the needs is Traffic Safety since the crash rate on this segment of highway is above the statewide average. It discusses the crash data along the project corridor and also at the intersection of U.S. 18/U.S. 218/Iowa 27 and County Road T-44.

Need for the Proposed Action

The need for the proposed action is based on a combination of factors, as follows:

- Traffic Demand – Designated as part of the Avenue of the Saints Expressway, traffic volume has more than doubled since the four-lane facility was opened in 2000.
- Operational Issues – A history of operational issues have been observed at the U.S. 18/ U.S. 218/Iowa 27 intersection with County Road T-44, in the City of Floyd.
- Traffic Safety – The crash rate on this segment is above the statewide average.
- System Continuity – This corridor has numerous at-grade entrances, private driveways, and median openings.

D. Environmental Status

Provide dates for when the NEPA product was complete and when the Decision Document was approved.

Link to environmental document: 20160628_020_Signed EA Document.pdf

Link to the FONSI document: 20170531_Floyd 18_FONSI.pdf

Dates for when each piece of the NEPA/404 Concurrence process was complete.

December 7, 2011. NEPA/404 Concurrence Points (CP) 1 and 2 Meeting.
October 9, 2012, NEPA/404 Concurrence Point (CP) 3 Meeting.
* Due to the lack of comments and concerns noted after CP3 that point, it was determined that the CP 4 process was not needed for this project. (Shelby Ebel 2/17/2017 email)

The NEPA/404 Concurrence process presented the corridor study area that was used to investigate all of the environmental resources (i.e. wetlands, streams, cultural, etc.). All resources within the corridor study area were documented.

Links to corridor study area figure and Microstation file:

Study Area figure: Floyd_StudyArea.pdf
Microstation file: 3H34186085.loc

For each alternative within the corridor study area, an impact area was established. The impact area for each alternative was developed based on the estimated intercept line with a buffer added to account for modifications due to further design refinements. The intent of the impact area is that any/all refinements/modifications made to an alignment will stay within the impact area. The impact area is what is cleared through the environmental document. A link to the impact area for the preferred alternative is identified below in the Recommended Alternative Section.

E. Public Involvement Summary

The following is a summary of the public involvement activities that took place for the project.

Links to all Public Information meeting and Public Hearing summaries:

2006-5-11 PIM	PIM Summary.pdf
2011-10-20 PIM	Floyd PIM Summary Booklet.pdf
2012-6-7 PIM	Floyd_PIM_Summary_Booklet.pdf
2016_11_09_PH	PUBLIC_HEARING_SUMMARY_BOOKLET.pdf

II. EXISTING CONDITIONS

A. Present Facility

The highway corridor between the City of Charles City and the City of Floyd is a four-lane expressway with Priority 3 access control. The adjacent land uses in this area includes a number of rural residential subdivisions, individual acreages, and commercial businesses. These properties rely on the highway for access and as such, there are at-grade intersections with every public roadway and at ¼ mile spacing.

There is a vast differential of speeds between vehicles entering and exiting the highway through these at-grade intersections and vehicles travelling on the posted 65 MPH facility. The expectancy of drivers on a four-lane divided facility is to have controlled access at interchanges only, such as the Charles City bypass directly to the south of the project area, and not along the highway with at-grade intersections.

B. Traffic Estimates

The study corridor has become a significant route for local and through vehicles alike. Traffic on the Avenue of the Saints Expressway has grown considerably since its construction and designation. Previous to the four-lane facility opening in 2000, the 1998 AADT was 4,550 vehicles. In 2013, the AADT was 10,100 vehicles with 20 percent being trucks. This accounts for a 122 percent increase in total traffic.

C. Capacity and Traffic Analysis

Traffic projections have been forecasted for program year 2018 and design year 2038. Based on these forecasts, the 2018 ADT is 11,600 vehicles with 23 percent being trucks and the 2038 ADT is 18,700 vehicles with 26 percent being trucks.

Even with a projected increase in 2038 ADT to 18,700 vehicles, the four-lane divided U.S. 18/U.S 218/Iowa 27 corridor is expected to perform at free-flow conditions and level of service (LOS) capacity B. However, the operations at the main intersection with the City of Floyd (County Road T-44) will most likely degrade as more traffic and trucks exert pressure on turning movements and gap-acceptance decisions by drivers. This can have the net effect of increasing the number of accidents in the corridor and the severity of crashes in an already above-average state crash rate location.

D. Bridge Sufficiency Ratings

N/A

E. Access Control

The highway corridor between the City of Charles City and the City of Floyd is a four-lane expressway with Priority 3 access control. The adjacent land uses in this area includes a number of rural residential subdivisions, individual acreages, and commercial businesses. These properties rely on the highway for access and as such, there are at-grade intersections with every public roadway and at ¼ mile spacing.

There is a vast differential of speeds between vehicles entering and exiting the highway through these at-grade intersections and vehicles travelling on the posted 65 MPH facility. The expectancy of drivers on a four-lane divided facility is to have controlled access at interchanges only, such as the Charles City bypass directly to the south of the project area, and not along the highway with at-grade intersections.

The Proposed Alternative includes the development of Priority II access control along the project corridor. Access to U.S. 18/U.S. 218/Iowa 27 would be developed at ½ mile spacing plus the existing interchange at County Road B-35 and the proposed interchange at County Road T-44. Two existing intersections would remain open and be improved for better access, at Woodland Lane and Cedar View Drive, while the remainder of the intersections would be closed. A network of frontage roads would be developed on both sides of the highway to maintain access for properties in the corridor.

F. Crash History

Along the project corridor, a five-year period of crash data was studied from 2009 through 2013. There were 90 crashes including 24 personal injury crashes and 66 property damage only crashes. The 90 crashes on this road segment equate to a calculated 161 crashes per 100 million vehicle miles, which is well above the statewide average of 49 crashes per 100 million vehicle miles for rural U.S. highways. There were a total of 36 injuries on this road segment during this study period with no fatalities.

At the U.S. 18/U.S. 218/Iowa 27 intersection with County Road T-44, a five-year period of crash data was studied from 2009 through 2013. There were 19 crashes including 9 personal injury crashes and 10 property damage only crashes. The 19 crashes at this intersection equate to a calculated 1.94 crashes per million entering vehicles, which is well above the statewide average of 0.8 crashes per million entering vehicles for rural intersections. There were a total of 17 injuries at this intersection during this study period with no fatalities.

Although the crash rate has not changed significantly, it is important to note that there have been two fatal crashes at the County Road T-44 intersection. One crash, resulting in one fatality, occurred after the EA was signed and prior to the public hearing. During review of this 2016 accident, it was determined that a previous 2008 crash, recorded in the crash history incorrectly as a major injury, had resulted in one fatality.

III. ALTERNATIVES ANALYSIS

A. Range of Alternatives Considered
Combined EA Figures.pdf

Design Criteria – consistent for all alternatives

Links to the Project Design Criteria Worksheets:
Design

Alternatives

No Build Alternative
Under the No Build Alternative, neither the proposed interchange at U.S. 18/U.S. 218/Iowa 27 and County Road T-44 nor the proposed frontage road network would be constructed. The road network would continue to be used in its existing configuration. All of the at-grade intersections in the project corridor would remain in place. This alternative would not improve traffic safety, would not provide system continuity for more efficient traffic flow, would not alleviate the demand for higher traffic volumes on U.S. 18/U.S. 218/Iowa 27, and would not resolve the operational issues in the project corridor. Although it does not meet the purpose and need, the No-Build Alternative was carried forward for detailed study because it provides a baseline for comparing the potential impacts of other alternatives and consideration of a no action alternative is required by the Council on Environmental Quality regulations for implementing NEPA (40 CFR 1500-1508).

Alternatives Considered
Three interchange alternatives were considered for development at the intersection of U.S. 18/U.S. 218/Iowa 27 and County Road T-44; the Folded-Diamond interchange with County Road T-44 over the mainline highway, the Three-Quadrant interchange, and the Folded-Diamond interchange with County Road T-44 under the mainline highway. There were also two frontage road alternatives considered for development in the project corridor, Priority I access control and Priority II access control.

Folded-Diamond Interchange – County Road T-44 Over (dismissed)
This Folded-Diamond interchange was comprised of two loops and two ramps that would serve entering and exiting traffic (Figure 4-3). County Road T-44 would cross over mainline U.S. 18/U.S. 218/Iowa 27 to serve traffic to and from the City of Floyd and also traffic south of town (Fig. 3).

Figure 3.

Figure 4.

This interchange configuration would minimize direct impacts to the truck stop on the east side of the mainline highway, avoid the borrow pond on the west side, but would directly impact the automobile dealership also on the west side. The north bound parallel exit ramp layout was calculated with a reduced design speed of 55 mph instead of 65 mph, avoiding impacts to the Oakwood Cemetery south of town. As previously mentioned, Priority II access control would be developed for the frontage road network.

B. Design Aspects NOT Considered in the Alternatives Analysis

List of any areas of design that were not reviewed:

1. Profiles for access locations (entrances)
2. Detailed drainage design

C. Aesthetics Review

No aesthetics aspects were considered with the project.

IV. RECOMMENDED ALTERNATIVE

A. Preferred Alternative

After reviewing the reasonable alternatives under consideration, the Iowa DOT has identified the Three-Quadrant interchange along with Priority II access control for the frontage road network as the Proposed Alternative (Fig. 5). This alternative is considered preferred because it best meets the project purpose and need while improving traffic operations and minimizing overall impacts. This alternative consists of constructing a new interchange at the U.S. 18/U.S. 218/Iowa 27 intersection with County Road T-44. Similar to the alternatives that were dismissed, the Proposed Alternative will remove several at-grade intersections to create Priority II access control along the study corridor. The Iowa DOT will develop a final preferred construction scenario during the design process.

Figure 5.

Link to preferred alternative figures and impact area figure: Combined EA Figures.pdf

Link to the recommended alternative Microstation file: 3H34186085.loc

Link to the Interchange Operation Report (IOR): US18-218-IA27-IOR_FINAL_082715_Report_Appendix.pdf

B. Cost Estimate

Links to project preferred alternative cost estimate:
Construction Cost Estimate: Page from DRAFT-2018-2022-5YrProg.pdf

This project is currently included in the approved 2018-2022 Transportation Improvement Program. The funding is broken down as follows: 2021: $1.0M Right-of-Way; 2022: $12.3M Grade and Pave; $4.2M Bridge New; $125K Traffic Signs; $64K Lighting.

C. Design Decisions

Link to the Design Decisions document: ProjectDesignCriteriaworksheet_218.xlsm

D. Project File Documentation

Link to project file documentation file: Project Documentation Shell - V8.xlsx

E. Staging / Construction Sequence

TBD.

F. Special Considerations

The following conditions were identified for approval and will be implemented during the design process prior to construction:

Right-of-way requirements will be minimized to the extent possible during final design. Relocations will be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and Iowa Code 316, the "Relocation Assistance Law". Relocations will be made available to all affected persons without discrimination.

A Section 401 Water Quality Certification from the Iowa DNR will be required for any unavoidable stream impacts.

A Section 404 permit from USACE will be required for stream and wetland impacts. A permit application and a wetland mitigation plan will be submitted to USACE for

approval.

An Iowa DNR Floodplain Development Permit will be required and applied for during final design.

A National Pollutant Discharge Elimination System (NPDES) general stormwater discharge permit for construction will be required from the DNR. Iowa DOT will require the contractor to comply with measures outlined in the Stormwater Pollution Prevention Plan (SWPPP).

Trees will be cut after October 1 and before March 31 per Iowa DOT Specifications. And impacted woodlands will be mitigated.

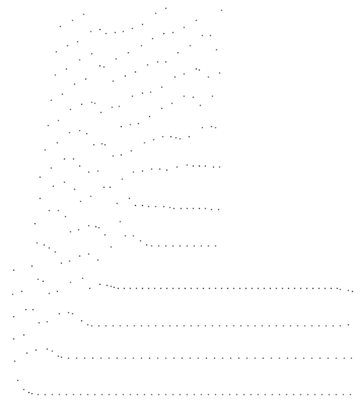
Construction activities will be coordinated with public utilities to avoid potential conflicts and to minimize planned interruptions of service.
Access will be provided during construction.

G. Program Status

This project is currently included in the approved 2018-2022 Transportation Improvement Program.

H. Project Management Team Membership

E. Jon Ranney, District 2
Dave Little, District 2
Krista Rostad, District 2
Nick Humpal, District 2
John Clute, Bridges & Structures
Elijah Gansen, Design
Tom Patham, FHWA Iowa Division
Nicole Cuva, Right of Way
Marty Sankey, Right of Way
Eric Wright, Traffic & Safety
Gary Harris, Location & Environment
Brad Hofer, Location & Environment
Matt Oeker, Location & Environment
Tom Lovan, Location & Environment
Valerie Brewer, Location & Environment



Roadway	**US-18**		
PIN Number	3401801006	**Submittal Date**	08/08/17
Project Number	HNSX-018-6(85)--3H-34		**Approval Date**
District	District 2	**Assistant District Engineer**	David Little
County	FLOYD	**or**	
Route	US-18	**Office Director**	
Location	From County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd		
Work Type	PCC Pavement - Grade and Replace		
Segment Manager			
Designer	Andy Floy		

Design Manual Section 1C-1
Last Updated: 05-26-17

Rural Expressways (Rural Arterials)

Design Element		Preferred	Acceptable Criteria	Project Values
Design speed (mph)		70	50	70
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	6%
Design lane width (ft)		12	12	12
Full depth paved width (ft)	Outside lane	14', 12' if using full depth paved shoulders	12	14'
	Inside lane(s)	12	12	12'
Right turn lane or an auxiliary lane (ft)		12	10	12'
Left turn lane (ft)		12	10	12'
Pavement cross-slope (on tangent sections)	Through lanes	2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3%	1.5% minimum, 3% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	3%
	Crown break at centerline	4%	4% maximum	4%
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard	n/a
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	n/a
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	10:1 for 4', then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1	n/a
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1
Transverse Slopes	w/ drainage structures	8:1	6:1	8:1
	w/o drainage structures	10:1	6:1	10:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	5 x 10
	Median ditch depth (ft)	4	2	4'
Median width (ft) (Refer to Section 3E-1)		64	50	64' - 100'
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	lane width + eff. shldr
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	lane width + eff. shldr
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft left and right of the design lane widths	n/a
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	16.5
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	16.5
	Over railroad	23.3	23.3	n/a
	Sign trusses and pedestrian crossings	17.5	17	17.5
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	
Level of Service		B	B	B

*FHWA notification via email is required if acceptable criteria is not met on the NHS system (No formal design exception required)

Design year ADT = 18,700

Design Manual Section 1C-1
Last Updated: 05-26-17

Effective Shoulder Width and Type for Multilane Arterials

Preferred (Values shown in feet)					Acceptable (Values shown in feet)					Project Values
	Rural Roadways		Urban Roadways			Rural Roadways		Urban Roadways		
Auxiliary lanes or turn lanes with shoulders	6		6		Auxiliary lanes or turn lanes with shoulders	6		0		6
Turn lanes with curbs	6		See Section 3C-2			6		0		n/a
Expressways	Outside		Median Side		Expressways	Outside		Median Side		
	Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	6	6	Routes where bicycles are to be accommodated	8	4	4	4	Outside 10', Med. 6'
On roadways approaching urban areas (due to increased bike traffic)	10	10	6	6						
On all curves with a superelevation rate of 7.0% or greater	10	10	6	6	On all other Expressways (Multilane Arterials)	8	2*	4	4	
On roadways with design year ADT > 6500 vpd	10	6	6	6						
On all other Expressways (Multilane Arterials)	10	4	6	4						

*Requires safety edge-See Section 3C-6
Curbs should be located beyond the outer edge of the effective shoulder width in rural areas
Refer to Section 3C-2 for curb offsets in urban areas

Notes:

10' outside shoulder consists of 2' full depth pavement, 4' paved shoulder, and 4' granular shoulder
6' paved median shoulder

Roadway Design Speed (mph) = 70

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Criteria for High Speed Roadways

Design Element			Preferred Criteria Design Speed, mph						Acceptable Criteria Design Speed, mph						Project Values
			50	55	60	65	70	75	50	55	60	65	70	75	
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	730
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e_{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	2040
		e_{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	n/a
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	210
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		84	114	151	193	247	312	84	114	151	193	247	312	247
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	181
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	181
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						.5
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4		3				7	6	6	–	–	–	n/a
		Rural roadways							5	5	4	4	4	4	3
		Interstates							5	5	4	4	4	4	n/a
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						34

Roadway	**US-218**		
PIN Number	3401801006	**Submittal Date**	08/08/17
Project Number	HNSX-018-6(85)--3H-34		**Approval Date**
District	District 2	**Assistant District Engineer**	
County	FLOYD	**or**	
Route	US-218	**Office Director**	
Location	From County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd		
Work Type	PCC Pavement - Grade and Replace		
Segment Manager			
Designer	Andy Floy		

Design Manual Section 1C-1
Last Updated: 05-26-17

Urban Two-Lane Roadways (Urban Arterials)

Design Element		Preferred	Acceptable Criteria	Project Values
Design speed (mph)		The anticipated posted speed limit	30	35
Maximum superelevation rate (Refer to Section 2A-2)		4%	6%	4
Design lane width (ft)		12	11	12'
Full depth paved width (ft)		Design lane width + curb and gutter unit or 14 feet for roadways with shoulders	Match design lane width	12'+3.5'
Right turn lane (ft)		12	10	12'
Left turn lane (ft)	With raised or painted median	12 ft + median	10 ft + median	12' + median
	With depressed median	12	10	NA
Two-way left turn lane		14	11	14'
Parking lane width (ft)		10	7	NA
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	3%
	Crown break at centerline	4%	4% maximum	4%
Shoulder cross-slope (on tangent sections)	Shoulders	4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	NA
	Curb and gutter units	Match pavement cross-slope	6% maximum	Match pavement
	Parking lanes	1% greater than pavement cross-slope	6% maximum	NA
Curb type (See Section 3C-2)	Design speed ≤ 45 mph	6-inch standard	any shape	6-inch standard
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	10:1 for 4', then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1	2%
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	3:1
Traverse Slopes	w/ drainage structures	8:1	6:1	8:1
	w/o drainage structures	10:1	6:1	10:1
Ditches (See Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	5 x 10
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths or design lane width + 3 ft each side in curb and gutter section	design lane widths + effective shoulder widths or curb-to-curb width in curb and gutter section**	NA
	Bridge length > 200 ft	design lane widths + effective shoulder widths or design lane width + 3 ft each side in curb and gutter section	design lane widths + 4 ft offset each side for roadways with shoulders or curb-to-curb width in curb and gutter section**	NA
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft left and right	NA
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	NA
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	NA
	Over railroad	23.3	23.3	NA
	Sign trusses and pedestrian bridges	17.5	17	NA
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	NA
Level of Service		C	D	C

*FHWA notification via email is required if acceptable critera is not met on the NHS system (No formal design exeption is required)

** If travel lanes are less than 12 ft wide contact the Methods Section for assistance.

Design year ADT = 3229

Design Manual Section 1C-1
Last Updated: 05-26-17

Effective Shoulder Width and Type for Two-Lane Highways

Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways	
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	NA
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	0
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	NA
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width	
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	2*	NA
On roadways approaching urban areas (due to increased bike traffic)	10	10				
On all curves with a superelevation rate of 7.0% or greater	10	10				
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	2*	
On all other NHS	10	4				
On non-NHS routes with design year ADT > 3000	10	4	Design year ADT < 400 vpd	4	2*	
On non-NHS routes with design year ADT < 3000	8	2*				

*Requires safety edge-Refer to Section 3C-6

Curbs should be located beyond the outer edge of the effective shoulder width in rural areas

Refer to Section 3C-2 for curb offsets in urban areas

Roadway Design Speed (mph) = 35

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Criteria for Low Speed Roadways

Design Element			Preferred Criteria Design Speed, mph					Acceptable Criteria Design Speed, mph					Project Values
			25	30	35	40	45	25	30	35	40	45	
Stopping sight distance (ft) (Refer to Section 6D-1)			155	200	250	305	360	155	200	250	305	360	250
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3)	Method 2 superelevation and side friction distribution	e = 4% max	See Table 10 in Section 2A-3					--					
	Method 5 superelevation and side friction distribution	e_{max} = 6%	144	231	340	485	643	144	231	340	485	643	340
		e_{max} = 8%	--	--	--	--	--	134	214	314	444	587	NA
Minimum vertical curve length (ft) (Refer to Section 2B-1)			75	90	105	120	135	75	90	105	120	135	105
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		12	19	29	44	61	12	19	29	44	61	29
	sag vertical curves	roadways without fixed-source lighting	26	37	49	64	79	26	37	49	64	79	49
		roadways with fixed-source lighting	26	37	49	64	79	14	20	27	35	44	49
Minimum gradient (%)	(Refer to Section 2B-1)		0.5					0.3% with a curb, 0.0% without a curb					0.5
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	5					--	9	8	8	7	5
		Rural roadways						--	--	--	6	6	NA
Clear zone			See "Preferred Clear Zone" table in Section 8A-2					See "Acceptable Clear Zone" table in Section 8A-2					10

Roadway	T-44		
PIN Number	634018010	Submittal Date	8/8/2017
Project Number	NHSX-018-6(85)--3H-34	Revison Date	
District	District 2		
County	FLOYD		
Route	T-44		
Location	From County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd		
Work Type	PCC Pavement - Grade and Replace		
Segment Manager			
Designer	Andy Floy		
Design year ADT =	310		

Design Manual Section 1C-1
Last Updated: 05-26-17

Secondary Roads

Design Elements		Project value	Local Systems I.M. 3.210 value	Remarks
Design speed (mph)		55	55	
Design lane width (ft.)		12	11	existing 12' lanes
Shoulder width (ft.)		6	6	
Bridge width - new (ft.)		N/A	N/A	
Bridge width - existing (ft.)		N/A	N/A	
Maximum super elevation rate (%)		6%	6%	
Minimum radius (ft.)		960	960	
Stopping sight distance (ft.)		495	495	
Vertical curve length (ft.)		165	165	
Minimum rate of vertical curvature (K)	Crest	114	114	
	Sag	115	115	
Minimum gradient (%)		0.50%	0.50%	
Maximum gradient (%)		6%	6%	
Foreslope		4 to 1	3 to 1	
Backslope		3 to 1	3 to 1	
Traverse slopes		6 to 1	6 to 1	
Clearzone		14	14	

Notes:

Roadway	US-18 Ramp A (EB off-ramp)		
PIN Number	3401801006	Submittal Date	08/08/17
Project Number	HNSX-018-6(85)--3H-34		Approval Date
District	District 2	Assistant District Engineer	David Little
County	FLOYD	or	
Route	US-18	Office Director	
Location	From County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd		
Work Type	PCC Pavement - Grade and Replace		
Segment Manager			
Designer	Andy Floy		

Design Manual Section 1C-1
Last Updated: 05-26-17

Ramps

Design Element		Preferred Values	Acceptable Values	Project Values
Design speed (mph)		See Design Speed for Ramps Table Below	See Design Speed for Ramps Table Below	
Design lane width (ft)				
Turn-lane width (ft)	Interstate ramps	12	12	NA
	Non-Interstate ramps	12	10	12
Pavement cross-slope (on tangent sections)		2%	1.5% minimum, 2% maximum	2%
Shoulder cross-slope (on tangent sections)		4	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	4:1 for interstates*, 3:1 for other roadways	10:1 then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1	NA
Bridge width—new**		design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	NA
Bridge width—existing**		design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	NA
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	NA
	over non-primary	16.5 at interchange locations, 15 at all other locations	14	NA
	over railroad	23.3	23.3	NA
	sign truss and pedestrian bridges	17.5	17	17.5
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	

*Design Exception required for ramps on the Interstate system only
**FHWA notification via email is required if acceptable cirteria is not met on the Interstate or NHS systems (No formal design exception required)

Design Manual Section 1C-1
Last Updated: 05-26-17

Effective Shoulder Width and Type for Ramps

Design Element		Ramp Type: Preferred							Ramp Type: Acceptable							Project Values
		Diagonal		Loop	Semi-Directional		Directional		Diagonal		Loop	Semi-Directional		Directional		
		one lane	two lane		one lane	two lane	one lane	two lane	Radius*> 500 feet*			Radius > 500 feet*		Radius > 500 feet		
									one lane	two lane		one lane	two lane	one lane	two lane	
Full depth paved width (ft)		16	24	18	16	24	16	24	14	22	17	14	22	14	22	16
Design lane width (ft)		16	12	18	16	12	16	12	14	11	17	14	11	14	11	16
Paved shoulder width (ft) (in the direction of travel)**	Left	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Right	6	6	6	6	6	8	8	6	6	6	6	6	8	8	4
***Granular shoulder width (ft) (in the direction of travel)	Left	4	-	-	-	-	-	-	4	-	-	-	-	-	-	0
	Right	6	-	-	-	-	-	-	6	-	-	-	-	-	-	2
Curb type	Interstate	4-inch sloped							4-inch sloped							NA
	Non-Interstate	4-inch sloped							6-inch sloped							4-inch sloped

*For radii less than 500 feet, refer to design widths of pavement for turning roadways in A Policy on Geometric Design of Highways and Streets
**Left and right shoulders widths may be reversed if needed to provide additional sight distance
***Non-Interstate interchanges only

Notes:

4' paved shoulder left
4' paved + 2' granular shoulder right

Ramp Design Speed (mph) = 60, (40)

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Criteria for Ramps Based Upon Design Speed

Design Element			Preferred Criteria: Design Speed, mph								Acceptable Criteria: Design Speed, mph								Project Values
			25	30	35	40	45	50	55	60	25	30	35	40	45	50	55	60	
Stopping sight distance (ft) (Refer to Section 5D-1)			155	200	250	305	360	425	495	570	155	200	250	305	360	425	495	570	570, (305)
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3)	Method 2 superelevation and side friction distribution	e_{max} = 4% max	See Table 10 in Section 2A-3					--	--	--	--								NA
	Method 5 superelevation and side friction distribution	e_{max} = 6%	144	231	340	485	643	833	1060	1330	144	231	340	485	643	833	1060	1330	1330, (485)
		e_{max} = 8%	--	--	--	--	--	--	--	--	134	214	314	444	587	758	960	1200	NA
Minimum vertical curve length (ft) (Refer to Section 2B-1)			75	90	105	120	135	150	165	180	75	90	105	120	135	150	165	180	180, (120)
Minimum Rate of Vertical Curvature (Refer to Section 2B-1)	crest vertical curves		12	19	29	44	61	84	114	151	12	19	29	44	61	84	114	151	151, (44)
	sag vertical curves	roadways without fixed source lighting	26	37	49	64	79	96	115	136	26	37	49	64	79	96	115	136	136, (64)
		roadways with fixed-source lighting	26	37	49	64	79	96	115	136	14	20	27	35	44	54	66	78	136, (64)
Minimum gradient (%)	(Refer to Section 2B-1)		0.5								0.3% with a curb, 0.0% without a curb								0.5
Maximum gradient (%) on ramps	(Refer to Sections 2B-1)	Upgrades	4								8	7	6	6	5	5	5	5	4
		Downgrades									Equal to the maximum upgrade gradient. In special cases, may be 2% greater but in no case greater than 8%								4
Clear zone			See "Preferred Clear Zone" table in Section 8A-2								See "Acceptable Clear Zone" table in Section 8A-2								24 (12)

Ramp Design Speed (mph) = 60 (40)

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Speed for Ramps

Design Element	Ramp Type: Preferred					Ramp Type: Acceptable					Project Values
	All curves near free flow terminals	Diagonal: Curves near at-grade terminals	Loop	Semi-Directional	Directional	All curves near free flow terminals	Diagonal: Curves near at-grade terminals	Loop	Semi-Directional	Directional	
Design speed (mph)	60	40	30	50	60	50	35	25	40	40	60, 40 at-grade
Maximum superelevation rate (Refer to Section 2A-2 for details)	6%	4%	6%			8%					6%, 4% at-grade

Roadway	**US-18 Ramp B (WB off-ramp)**		
PIN Number	3401801006	**Submittal Date**	08/08/17
Project Number	HNSX-018-6(85)--3H-34		**Approval Date**
District	District 2	**Assistant District Engineer**	David Little
County	FLOYD	**or**	
Route	US-18	**Office Director**	
Location	From County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd		
Work Type	PCC Pavement - Grade and Replace		
Segment Manager			
Designer	Andy Floy		

Design Manual Section 1C-1
Last Updated: 05-26-17

Ramps

Design Element		Preferred Values	Acceptable Values	Project Values
Design speed (mph)		See Design Speed for Ramps Table Below	See Design Speed for Ramps Table Below	
Design lane width (ft)				
Turn-lane width (ft)	Interstate ramps	12	12	NA
	Non-Interstate ramps	12	10	12
Pavement cross-slope (on tangent sections)		2%	1.5% minimum, 2% maximum	2%
Shoulder cross-slope (on tangent sections)		4	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	4:1 for interstates*, 3:1 for other roadways	10:1 then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1	NA
Bridge width—new**		design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	NA
Bridge width—existing**		design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	NA
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	NA
	over non-primary	16.5 at interchange locations, 15 at all other locations	14	NA
	over railroad	23.3	23.3	NA
	sign truss and pedestrian bridges	17.5	17	17.5
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	

*Design Exception required for ramps on the Interstate system only
**FHWA notification via email is required if acceptable cirteria is not met on the Interstate or NHS systems (No formal design exception required)

Design Manual Section 1C-1
Last Updated: 05-26-17

Effective Shoulder Width and Type for Ramps

Design Element		Ramp Type: Preferred: Diagonal: one lane	Preferred: Diagonal: two lane	Preferred: Loop	Preferred: Semi-Directional: one lane	Preferred: Semi-Directional: two lane	Preferred: Directional: one lane	Preferred: Directional: two lane	Acceptable: Diagonal: Radius*> 500 feet*: one lane	Acceptable: Diagonal: Radius*> 500 feet*: two lane	Acceptable: Loop	Acceptable: Semi-Directional: Radius > 500 feet*: one lane	Acceptable: Semi-Directional: Radius > 500 feet*: two lane	Acceptable: Directional: Radius > 500 feet: one lane	Acceptable: Directional: Radius > 500 feet: two lane	Project Values
Full depth paved width (ft)		16	24	18	16	24	16	24	14	22	17	14	22	14	22	16
Design lane width (ft)		16	12	18	16	12	16	12	14	11	17	14	11	14	11	16
Paved shoulder width (ft) (in the direction of travel)**	Left	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Right	6	6	6	6	6	8	8	6	6	6	6	6	8	8	4
***Granular shoulder width (ft) (in the direction of travel)	Left	4	-	-	-	-	-	-	4	-	-	-	-	-	-	0
	Right	6	-	-	-	-	-	-	6	-	-	-	-	-	-	2
Curb type	Interstate	4-inch sloped							4-inch sloped							NA
	Non-Interstate	4-inch sloped							6-inch sloped							4-inch sloped

*For radii less than 500 feet, refer to design widths of pavement for turning roadways in A Policy on Geometric Design of Highways and Streets
**Left and right shoulders widths may be reversed if needed to provide additional sight distance
***Non-Interstate interchanges only

Notes:

4' paved shoulder left
4' paved + 2' granular shoulder right

Ramp Design Speed (mph) = 50, (35)

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Criteria for Ramps Based Upon Design Speed

Design Element			Preferred Criteria: Design Speed, mph: 25	30	35	40	45	50	55	60	Acceptable Criteria: Design Speed, mph: 25	30	35	40	45	50	55	60	Project Values
Stopping sight distance (ft) (Refer to Section 5D-1)			155	200	250	305	360	425	495	570	155	200	250	305	360	425	495	570	425, (250)
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3)	Method 2 superelevation and side friction distribution	e_{max} = 4% max	See Table 10 in Section 2A-3					--	--	--	--								NA
	Method 5 superelevation and side friction distribution	e_{max} = 6%	144	231	340	485	643	833	1060	1330	144	231	340	485	643	833	1060	1330	833, (340)
		e_{max} = 8%	--	--	--	--	--	--	--	--	134	214	314	444	587	758	960	1200	NA
Minimum vertical curve length (ft) (Refer to Section 2B-1)			75	90	105	120	135	150	165	180	75	90	105	120	135	150	165	180	150, (105)
Minimum Rate of Vertical Curvature (Refer to Section 2B-1)	crest vertical curves		12	19	29	44	61	84	114	151	12	19	29	44	61	84	114	151	84, (29)
	sag vertical curves	roadways without fixed source lighting	26	37	49	64	79	96	115	136	26	37	49	64	79	96	115	136	96, (49)
		roadways with fixed-source lighting	26	37	49	64	79	96	115	136	14	20	27	35	44	54	66	78	96, (49)
Minimum gradient (%)	(Refer to Section 2B-1)		0.5								0.3% with a curb, 0.0% without a curb								0.5
Maximum gradient (%) on ramps	(Refer to Sections 2B-1)	Upgrades	4								8	7	6	6	5	5	5	5	4
		Downgrades									Equal to the maximum upgrade gradient. In special cases, may be 2% greater but in no case greater than 8%								4
Clear zone			See "Preferred Clear Zone" table in Section 8A-2								See "Acceptable Clear Zone" table in Section 8A-2								18 (14)

Ramp Design Speed (mph) = 50 (35)

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Speed for Ramps

Design Element	Ramp Type: Preferred: All curves near free flow terminals	Preferred: Diagonal: Curves near at-grade terminals	Preferred: Loop	Preferred: Semi-Directional	Preferred: Directional	Acceptable: All curves near free flow terminals	Acceptable: Diagonal: Curves near at-grade terminals	Acceptable: Loop	Acceptable: Semi-Directional	Acceptable: Directional	Project Values
Design speed (mph)	60	40	30	50	60	50	35	25	40	40	50, 35 at-grade
Maximum superelevation rate (Refer to Section 2A-2 for details)	6%	4%	6%			8%					6%, 6% at-grade

Roadway	**US-18 Ramp C (EB on-ramp)**		
PIN Number	3401801006	**Submittal Date**	08/08/17
Project Number	HNSX-018-6(85)--3H-34		**Approval Date**
District	District 2	**Assistant District Engineer**	David Little
County	FLOYD	**or**	
Route	US-18	**Office Director**	
Location	From County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd		
Work Type	PCC Pavement - Grade and Replace		
Segment Manager			
Designer	Andy Floy		

Design Manual Section 1C-1
Last Updated: 05-26-17

Ramps

Design Element		Preferred Values	Acceptable Values	Project Values
Design speed (mph)		See Design Speed for Ramps Table Below	See Design Speed for Ramps Table Below	
Design lane width (ft)				
Turn-lane width (ft)	Interstate ramps	12	12	NA
	Non-Interstate ramps	12	10	12
Pavement cross-slope (on tangent sections)		2%	1.5% minimum, 2% maximum	2%
Shoulder cross-slope (on tangent sections)		4	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	4:1 for interstates*, 3:1 for other roadways	10:1 then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1	NA
Bridge width—new**		design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	NA
Bridge width—existing**		design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	NA
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	NA
	over non-primary	16.5 at interchange locations, 15 at all other locations	14	NA
	over railroad	23.3	23.3	NA
	sign truss and pedestrian bridges	17.5	17	17.5
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	

*Design Exception required for ramps on the Interstate system only
**FHWA notification via email is required if acceptable cirteria is not met on the Interstate or NHS systems (No formal design exception required)

Design Manual Section 1C-1
Last Updated: 05-26-17

Effective Shoulder Width and Type for Ramps

Design Element		Ramp Type: Preferred: Diagonal one lane	Diagonal two lane	Loop	Semi-Directional one lane	Semi-Directional two lane	Directional one lane	Directional two lane	Acceptable: Diagonal Radius*> 500 feet* one lane	Diagonal Radius*> 500 feet* two lane	Loop	Semi-Directional Radius > 500 feet* one lane	Semi-Directional Radius > 500 feet* two lane	Directional Radius > 500 feet one lane	Directional Radius > 500 feet two lane	Project Values
Full depth paved width (ft)		16	24	18	16	24	16	24	14	22	17	14	22	14	22	16
Design lane width (ft)		16	12	18	16	12	16	12	14	11	17	14	11	14	11	16
Paved shoulder width (ft) (in the direction of travel)**	Left	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Right	6	6	6	6	6	8	8	6	6	6	6	6	8	8	4
***Granular shoulder width (ft) (in the direction of travel)	Left	4	-	-	-	-	-	-	4	-	-	-	-	-	-	0
	Right	6	-	-	-	-	-	-	6	-	-	-	-	-	-	2
Curb type	Interstate	4-inch sloped							4-inch sloped							NA
	Non-Interstate	4-inch sloped							6-inch sloped							4-inch sloped

*For radii less than 500 feet, refer to design widths of pavement for turning rcadways in A Policy on Geometric Design of Highways and Streets
**Left and right shoulders widths may be reversed if needed to provide additional sight distance
***Non-Interstate interchanges only

Notes:

4' paved shoulder left
4' paved + 2' granular shoulder right

Ramp Design Speed (mph) = 60, (40)

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Criteria for Ramps Based Upon Design Speed

Design Element			Preferred Criteria Design Speed, mph: 25	30	35	40	45	50	55	60	Acceptable Criteria Design Speed, mph: 25	30	35	40	45	50	55	60	Project Values
Stopping sight distance (ft) (Refer to Section 5D-1)			155	200	250	305	360	425	495	570	155	200	250	305	360	425	495	570	570, (305)
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3)	Method 2 superelevation and side friction distribution	e = 4% max	See Table 10 in Section 2A-3					--	--	--	--								NA
	Method 5 superelevation and side friction distribution	e_{max} = 6%	144	231	340	485	643	833	1060	1330	144	231	340	485	643	833	1060	1330	1330, (485)
		e_{max} = 8%	--	--	--	--	--	--	--	--	134	214	314	444	587	758	960	1200	NA
Minimum vertical curve length (ft) (Refer to Section 2B-1)			75	90	105	120	135	150	165	180	75	90	105	120	135	150	165	180	180, (120)
Minimum Rate of Vertical Curvature (Refer to Section 2B-1)	crest vertical curves		12	19	29	44	61	84	114	151	12	19	29	44	61	84	114	151	151, (44)
	sag vertical curves	roadways without fixed-source lighting	26	37	49	64	79	96	115	136	26	37	49	64	79	96	115	136	136, (64)
		roadways with fixed-source lighting	26	37	49	64	79	96	115	136	14	20	27	35	44	54	66	78	136, (64)
Minimum gradient (%)	(Refer to Section 2B-1)		0.5								0.3% with a curb, 0.0% without a curb								0.5
Maximum gradient (%) on ramps	(Refer to Sections 2B-1)	Upgrades	4								8	7	6	6	5	5	5	5	4
		Downgrades									Equal to the maximum upgrade gradient. In special cases, may be 2% greater but in no case greater than 8%								4
Clear zone			See "Preferred Clear Zone" table in Section 8A-2								See "Acceptable Clear Zone" table in Section 8A-2								30 (14)

Ramp Design Speed (mph) = 60 (40)

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Speed for Ramps

Design Element	Ramp Type: Preferred: All curves near free flow terminals	Diagonal: Curves near at-grade terminals	Loop	Semi-Directional	Directional	Acceptable: All curves near free flow terminals	Diagonal: Curves near at-grade terminals	Loop	Semi-Directional	Directional	Project Values
Design speed (mph)	60	40	30	50	60	50	35	25	40	40	60, 40 at-grade
Maximum superelevation rate (Refer to Section 2A-2 for details)	6%	4%	6%			8%					6%, 4% at-grade

Roadway	**US-18 Ramp D (WB on-ramp)**		
PIN Number	3401801006	**Submittal Date**	08/08/17
Project Number	HNSX-018-6(85)--3H-34		**Approval Date**
District	District 2	**Assistant District Engineer**	David Little
County	FLOYD	**or**	
Route	US-18	**Office Director**	
Location	From County Road B-35 north to 0.8 miles west of Liberty Street, near the City of Floyd		
Work Type	PCC Pavement - Grade and Replace		
Segment Manager			
Designer	Andy Floy		

Design Manual Section 1C-1
Last Updated: 05-26-17

Ramps

Design Element		Preferred Values	Acceptable Values	Project Values
Design speed (mph)		See Design Speed for Ramps Table Below	See Design Speed for Ramps Table Below	
Design lane width (ft)				
Turn-lane width (ft)	Interstate ramps	12	12	NA
	Non-Interstate ramps	12	10	12
Pavement cross-slope (on tangent sections)		2%	1.5% minimum, 2% maximum	2%
Shoulder cross-slope (on tangent sections)		4	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	4:1 for interstates*, 3:1 for other roadways	10:1 then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3.5:1
	Curbed roadways	2%	not steeper than 3:1	NA
Bridge width—new**		design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	NA
Bridge width—existing**		design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	NA
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	NA
	over non-primary	16.5 at interchange locations, 15 at all other locations	14	NA
	over railroad	23.3	23.3	NA
	sign truss and pedestrian bridges	17.5	17	17.5
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	

*Design Exception required for ramps on the Interstate system only
**FHWA notification via email is required if acceptable cirteria is not met on the Interstate or NHS systems (No formal design exception required)

Design Manual Section 1C-1
Last Updated: 05-26-17

Effective Shoulder Width and Type for Ramps

Design Element		Ramp Type: Preferred: Diagonal: one lane	Preferred: Diagonal: two lane	Preferred: Loop	Preferred: Semi-Directional: one lane	Preferred: Semi-Directional: two lane	Preferred: Directional: one lane	Preferred: Directional: two lane	Acceptable: Diagonal: Radius*> 500 feet*: one lane	Acceptable: Diagonal: Radius*> 500 feet*: two lane	Acceptable: Loop	Acceptable: Semi-Directional: Radius > 500 feet*: one lane	Acceptable: Semi-Directional: Radius > 500 feet*: two lane	Acceptable: Directional: Radius > 500 feet: one lane	Acceptable: Directional: Radius > 500 feet: two lane	Project Values
Full depth paved width (ft)		16	24	18	16	24	16	24	14	22	17	14	22	14	22	18
Design lane width (ft)		16	12	18	16	12	16	12	14	11	17	14	11	14	11	18
Paved shoulder width (ft) (in the direction of travel)**	Left	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Right	6	6	6	6	6	8	8	6	6	6	6	6	8	8	6
***Granular shoulder width (ft) (in the direction of travel)	Left	4	-	-	-	-	-	-	4	-	-	-	-	-	-	NA
	Right	6	-	-	-	-	-	-	6	-	-	-	-	-	-	NA
Curb type	Interstate	4-inch sloped							4-inch sloped							NA
	Non-Interstate	4-inch sloped							6-inch sloped							4-inch sloped

*For radii less than 500 feet, refer to design widths of pavement for turning roadways in A Policy on Geometric Design of Highways and Streets
**Left and right shoulders widths may be reversed if needed to provide additional sight distance
***Non-Interstate interchanges only

Notes:

Loop ramp requires paved shoulders

Ramp Design Speed (mph) = 50, (30)

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Criteria for Ramps Based Upon Design Speed

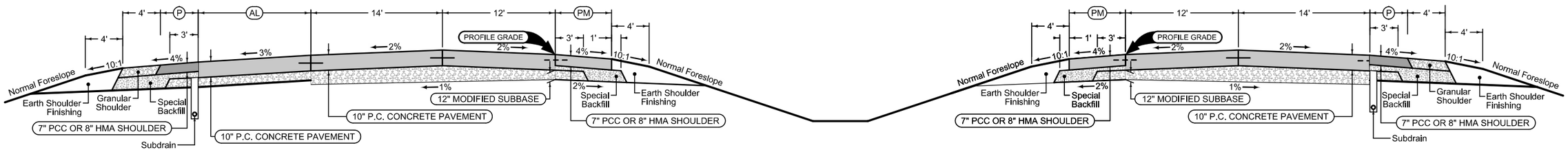
Design Element			Preferred Criteria: Design Speed, mph: 25	30	35	40	45	50	55	60	Acceptable Criteria: Design Speed, mph: 25	30	35	40	45	50	55	60	Project Values
Stopping sight distance (ft) (Refer to Section 8D-1)			155	200	250	305	360	425	495	570	155	200	250	305	360	425	495	570	425 (200)
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3)	Method 2 superelevation and side friction distribution	e_{max} = 4% max	See Table 10 in Section 2A-3					--	--	--	--								NA
	Method 5 superelevation and side friction distribution	e_{max} = 6%	144	231	340	485	643	833	1060	1330	144	231	340	485	643	833	1060	1330	833 (231)
		e_{max} = 8%	--	--	--	--	--	--	--	--	134	214	314	444	587	758	960	1200	NA
Minimum vertical curve length (ft) (Refer to Section 2B-1)			75	90	105	120	135	150	165	180	75	90	105	120	135	150	165	180	150 (90)
Minimum Rate of Vertical Curvature (Refer to Section 2B-1)	crest vertical curves		12	19	29	44	61	84	114	151	12	19	29	44	61	84	114	151	84, (19)
	sag vertical curves	roadways without fixed-source lighting	26	37	49	64	79	96	115	136	26	37	49	64	79	96	115	136	96, (37)
		roadways with fixed-source lighting	26	37	49	64	79	96	115	136	14	20	27	35	44	54	66	78	96, (37)
Minimum gradient (%)	(Refer to Section 2B-1)		0.5								0.3% with a curb, 0.0% without a curb								0.5
Maximum gradient (%) on ramps	(Refer to Sections 2B-1)	Upgrades	4								8	7	6	6	5	5	5	5	4
		Downgrades									Equal to the maximum upgrade gradient. In special cases, may be 2% greater but in no case greater than 8%								4
Clear zone			See "Preferred Clear Zone" table in Section 8A-2								See "Acceptable Clear Zone" table in Section 8A-2								18 (14)

Ramp Design Speed (mph) = 50 (30)

Design Manual Section 1C-1
Last Updated: 05-26-17

Design Speed for Ramps

Design Element	Ramp Type: Preferred: All curves near free flow terminals	Preferred: Diagonal: Curves near at-grade terminals	Preferred: Loop	Preferred: Semi-Directional	Preferred: Directional	Acceptable: All curves near free flow terminals	Acceptable: Diagonal: Curves near at-grade terminals	Acceptable: Loop	Acceptable: Semi-Directional	Acceptable: Directional	Project Values
Design speed (mph)	60	40	30	50	60	50	35	25	40	40	50, 30 at-grade
Maximum superelevation rate (Refer to Section 2A-2 for details)	6%	4%	6%			8%					6%



Paved Shoulder Alternates

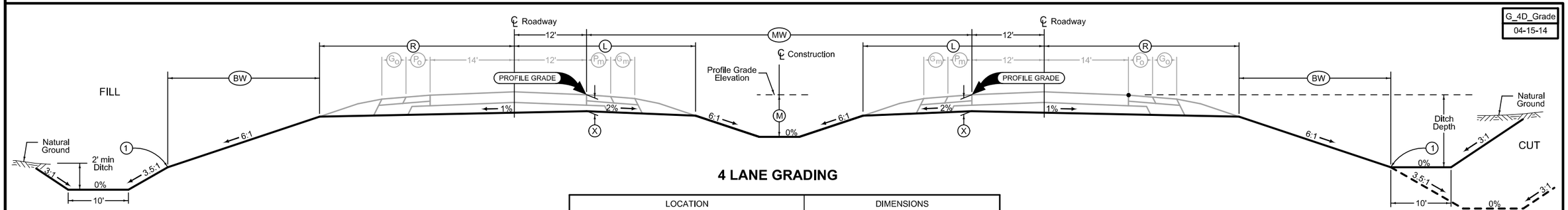
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

4_AuxLane_PCC_ 10-18-16				
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet	(PM) Feet
BOTH	363+14.98	465+65.92	4	6

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

4_AuxLane_PCC_ 10-18-16			
Direction of Travel	BEGIN STATION	END STATION	(AL) Feet
EB	386+11.06	392+17.34	0-40.3
WB	396+83.13	399+83.13	0-12
WB	399+83.13	408+33.13	12
WB	408+33.13	413+08.16	12-40.5
EB	425+24.64	440+55.16	40.5-0
WB	422+59.76	424+78.19	40.3-12
WB	424+78.19	429+78.19	12
WB	429+78.19	432+28.19	12-0



G_4D_Grade
04-15-14

4 LANE GRADING

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

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

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

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

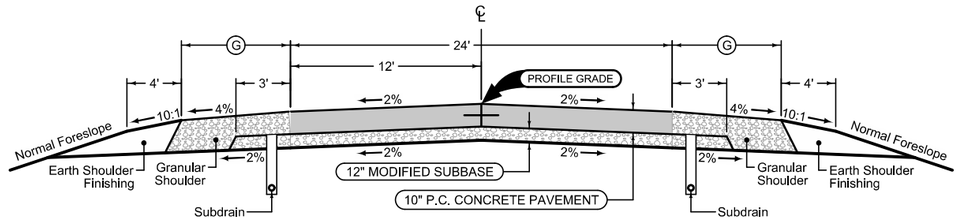
US HIGHWAY 18

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER B.1

5:38:00 PM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095B01.dgn

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

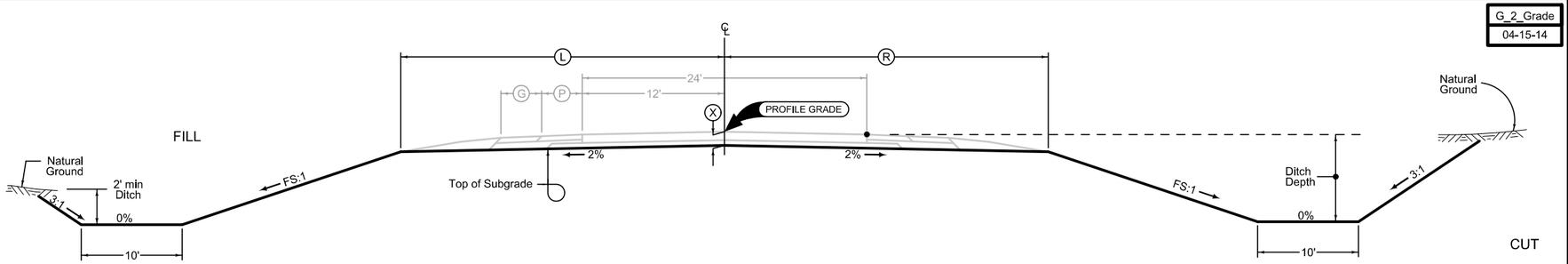
2P_ 10-19-10	
STATION TO STATION	
1390+50.00	1405+89.07



Granular Shoulder

2_G_SR_ 10-19-10		
STATION TO STATION		(G) Feet
1390+50.00	1405+89.07	6

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	FS



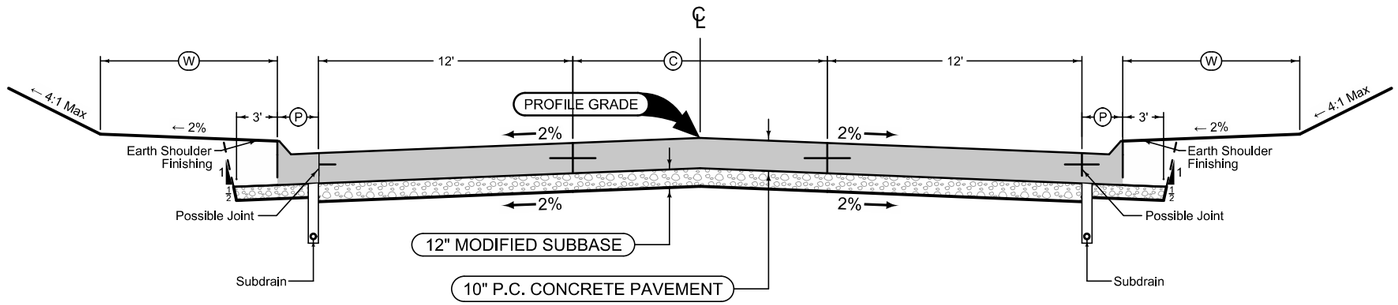
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

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

2 LANE GRADING

COUNTY ROAD T-44

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER B.2	



Curbed Shoulder

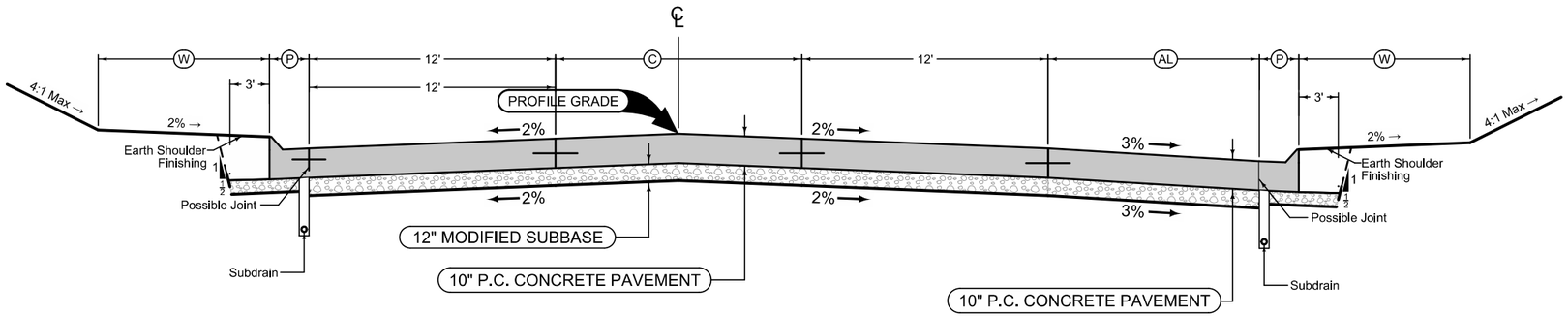
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

		2_Curb_ 10-17-17	
STATION TO STATION		(P) Feet	Curb Type See PV-102
1406+90.00	1412+37.65	3.5	T-6
1416+20.00	1422+88.58	3.5	T-6

		2P_TWLTL_ 10-19-10	
STATION TO STATION		(C) Feet	(W) Feet
1406+90.00	1408+70.00	14	10
1408+70.00	1408+90.00	14	10-19
1408+90.00	1409+10.00	14	19
1409+10.00	1410+50.00	14	19-10
1410+50.00	1412+37.65	14	10
1416+20.00	1422+88.58	14	10

US HIGHWAY 218



Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

		2_Curb_ 10-17-17	
STATION TO STATION		(P) Feet	Curb Type See PV-102
1412+37.65	1415+60.00	3.5	T-6

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

		2P_TWLTL_ 10-19-10	
STATION TO STATION		(C) Feet	(W) Feet
1412+37.65	1415+60.00	14	10

Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

		2_AuxLane_PCC_ 10-18-16
STATION TO STATION		(AL) Feet
1412+37.65	1414+17.61	0-8.5
1414+17.61	1415+60.00	8.5

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

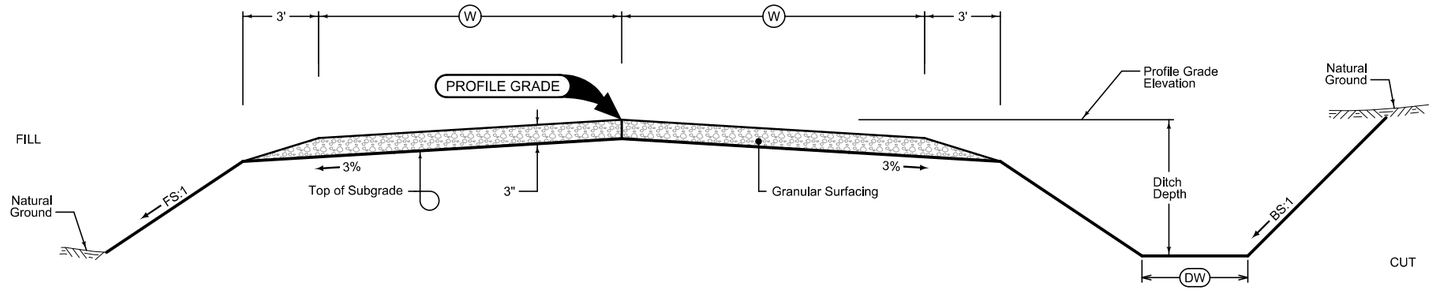
		2_Curb_ 10-17-17	
STATION TO STATION		(P) Feet	Curb Type See PV-102
1412+37.65	1415+60.00	3.5	T-6

US HIGHWAY 218

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER B.4

5:37:57 PM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095B01.dgn

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(W)	FS	BS	(DW) Feet



GRADING AND GRANULAR SURFACING

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

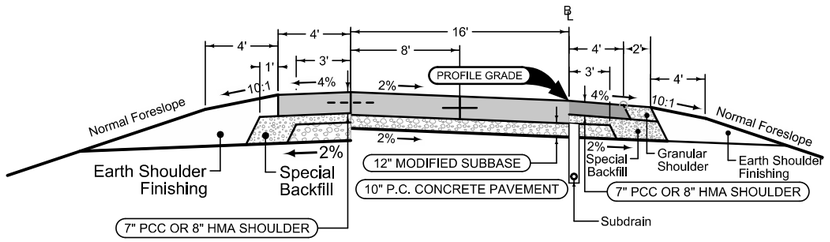
See plan & profile sheets and cross sections for additional details of ditches and backslopes.

G_2_GradeGran
10-17-17

NE WOODLAND LANE
NW WOODLAND LANE
SE WOODLAND LANE
SW WOODLAND LANE

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER B.5	

5:37:56 PM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095B01.dgn



Paved Shoulder Alternates

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

1R_P_ALT_
10-21-14

BEGIN STATION	END STATION	(P) Feet

Section shown in the direction of traffic.

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

1RP_
10-17-17

BEGIN STATION	END STATION

Combination Shoulder

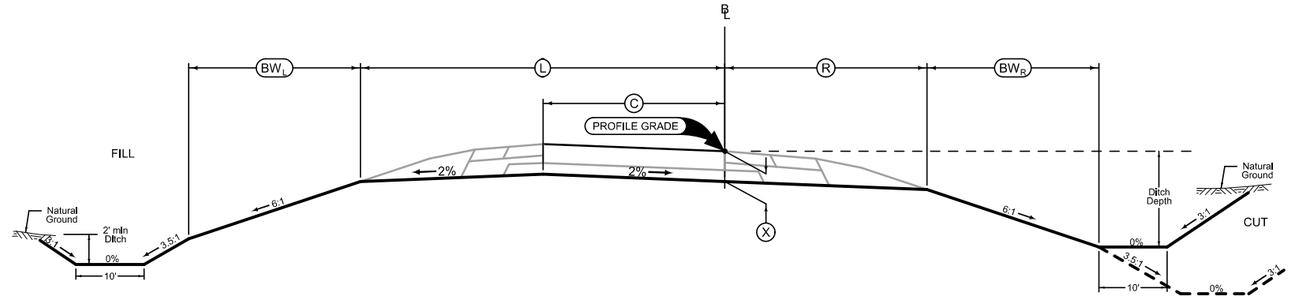
Shoulder Jointing:
Longitudinal joint: B

2_C_
10-15-13

STATION TO STATION		(P) Feet	(G) Feet

LOCATION				DIMENSIONS					
INTERCHANGE	RAMP	STATION TO STATION		(L) Feet	(R) Feet	(C) Feet	(X) Inches	(BW_L) Feet	(BW_R) Feet

G_1R_Grade
04-15-14



RAMP GRADING

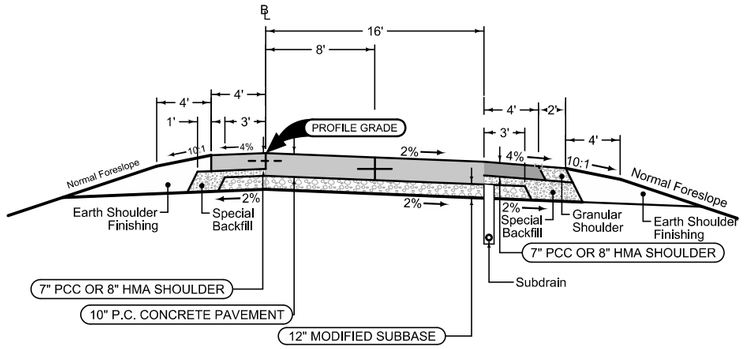
Section view is in direction of traffic.

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

US HIGHWAY 18 AND US HIGHWAY 218
RAMP A

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER B.6

5:37:55 PM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095B01.dgn



Paved Shoulder Alternates

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

1R_P_ALT_ 10-21-14		
BEGIN STATION	END STATION	(P) Feet

Section shown in the direction of traffic.

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

1RP_ 10-17-17	
BEGIN STATION	END STATION

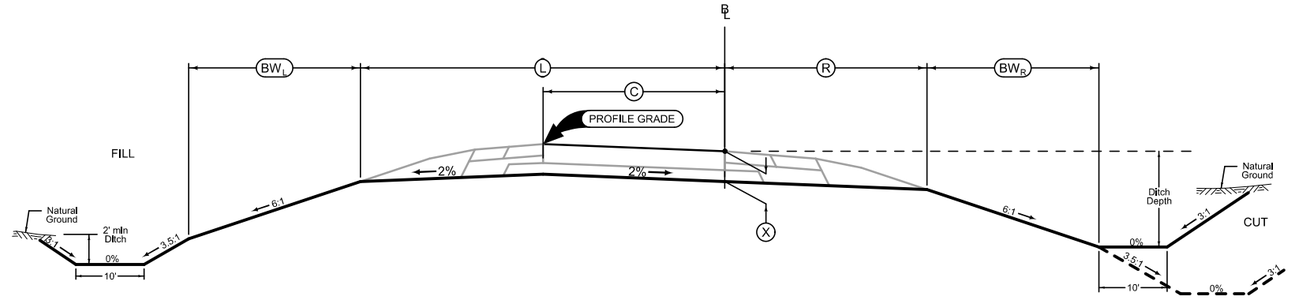
Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

2_C_ 10-15-13			
STATION TO STATION		(P) Feet	(G) Feet

LOCATION				DIMENSIONS					
INTERCHANGE	RAMP	STATION TO STATION		(L) Feet	(R) Feet	(C) Feet	(X) Inches	(BW_L) Feet	(BW_R) Feet

G_1R_Grade
04-15-14



RAMP GRADING

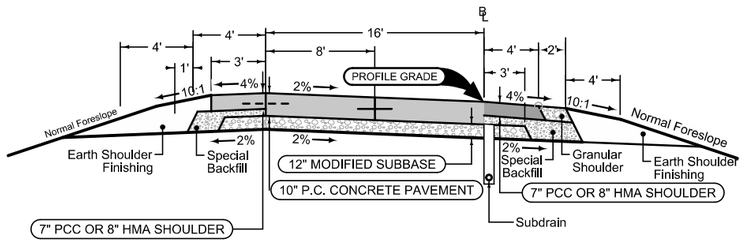
Section view is in direction of traffic.

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

US HIGHWAY 18 AND US HIGHWAY 218
RAMP B

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER B.7	

5:38:02 PM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095B01.dgn



Paved Shoulder Alternates

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

1R_P_ALT_
10-21-14

BEGIN STATION	END STATION	(P) Feet

Section shown in the direction of traffic.

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

1RP_
10-17-17

BEGIN STATION	END STATION

Combination Shoulder

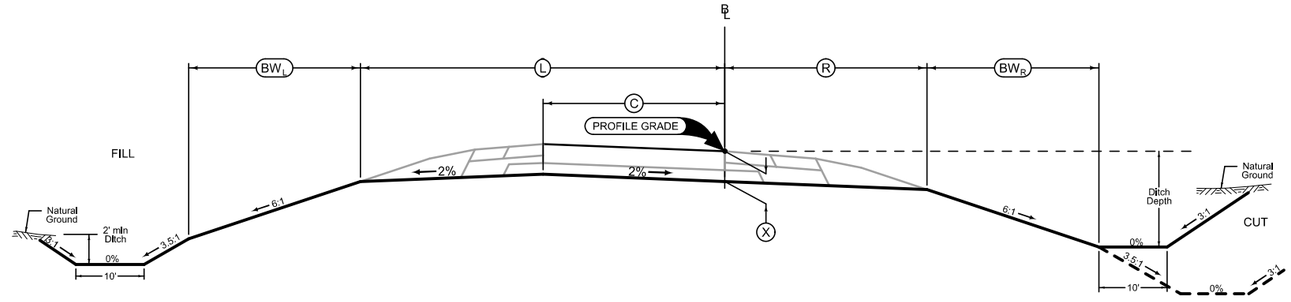
Shoulder Jointing:
Longitudinal joint: B

2_C_
10-15-13

STATION TO STATION		(P) Feet	(G) Feet

LOCATION				DIMENSIONS					
INTERCHANGE	RAMP	STATION TO STATION		(L) Feet	(R) Feet	(C) Feet	(X) Inches	(BW_L) Feet	(BW_R) Feet

G_1R_Grade
04-15-14



RAMP GRADING

Section view is in direction of traffic.

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

US HIGHWAY 18 AND US HIGHWAY 218
RAMP C

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER B.8	

5:38:03 PM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095B01.dgn

Paved Shoulder Alternates

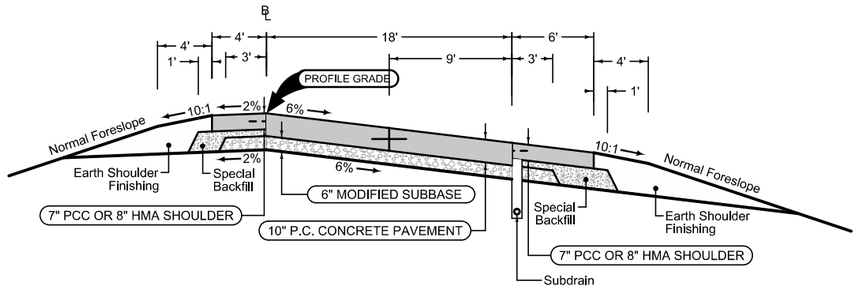
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

1L_P_ALT_ 10-21-14	
BEGIN STATION	END STATION

Section shown in the direction of traffic.

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

1LP_ 10-17-17	
BEGIN STATION	END STATION



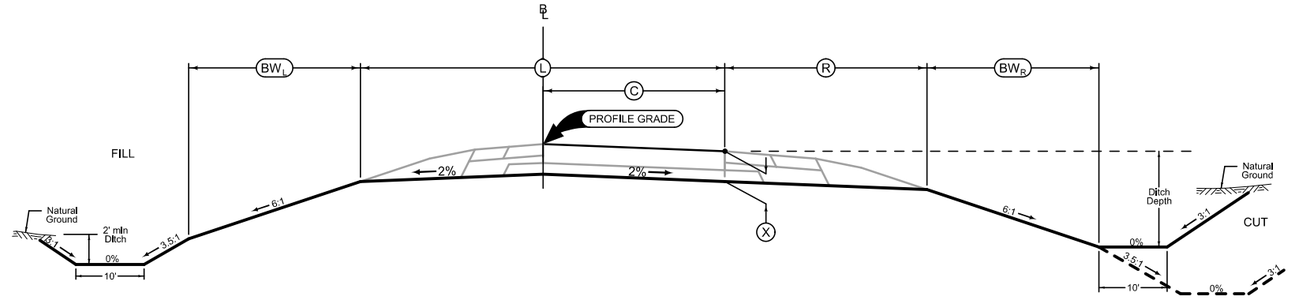
Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

2_C_ 10-15-13			
STATION TO STATION		(P) Feet	(G) Feet

LOCATION				DIMENSIONS					
INTERCHANGE	LOOP	STATION TO STATION		(L) Feet	(R) Feet	(C) Feet	(X) Inches	(BW_L) Feet	(BW_R) Feet

G_1L_Grade
06-27-17



LOOP GRADING

Section view is in direction of traffic.

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

US HIGHWAY 18 AND US HIGHWAY 218
RAMP D

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER B.9	

5:38:04 PM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095B01.dgn

SURVEY SYMBOLS

- BM Bench Mark
- PRO Profile Shot
- PIP Pipe Culvert
- PLG Location of General Photo
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- SOP Size of Pipe or Culvert
- INB Storm Sewer Beehive Intake
- UE Utility Elevation
- MH Utility Access (Manhole)
- St.S. - STA Storm Sewer Line Co. 1
- Tile - TIL Tile Line
- OUT Tile Outlet
- E1 - ELA Underground Electric Line Co. 1
- WV Water Valve
- W - WLA Underground Water Line Co. 1
- G - GLA Underground Gas Line Co. 1
- T1 - TLA Underground Telephone Line Co. 1
- FO - FOA Underground Fiber Optic Co. 1
- E2 - ELB Underground Electric Line Co. 2
- T2 - TLB Underground Telephone Line Co. 2
- TP TPD Telephone Pedestal
- FO2 - FOB Underground Fiber Optic Co. 2
- GV Gas Valve
- EB Electrical Box
- CUL Culvert
- RIP Rip-Rap
- FHD Fire Hydrants
- San. - SAA Sanitary Sewer Line Co. 1
- D Centerline Draw or Stream (Down)

SURVEYED UTILITY OWNER SYMBOLS

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 *Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.*

Remark Abbreviations
QLA Quality Level A Highest guideline quality level
QLD Quality Level D Lowest guideline quality level

- St.S. - STA City of Floyd Storm Sewer Line (from paint marks)
- E1 - ELA Iowa DOT Luminaire
- W - WLA City of Floyd Water Line
- G - GLA MidAmerican Gas Line
- T1 - TLA Omnitel Telephone Line
- FO - FOA INS Fiber Optic Line
- E2 - ELB MidAmerican Electric Line
- T2 - TLB CenturyLink Telephone Line
- FO2 - FOB Omnitel Fiber Optic Line
- San. - SAA City of Floyd Sanitary Sewer Line (from paint marks)

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

RIGHT-OF-WAY LEGEND

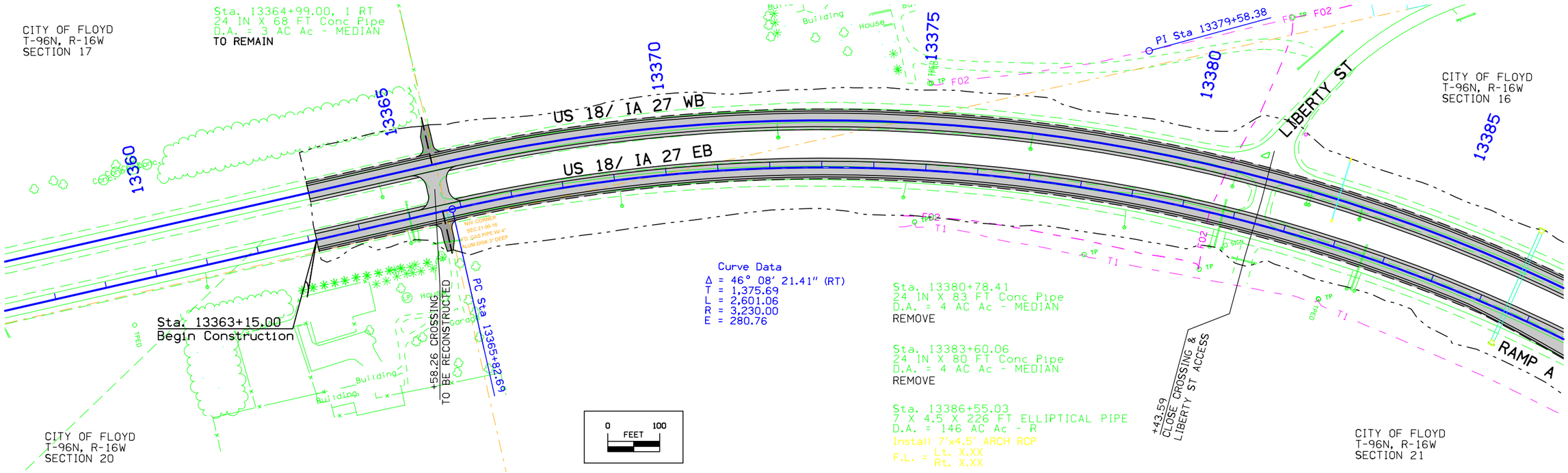
- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

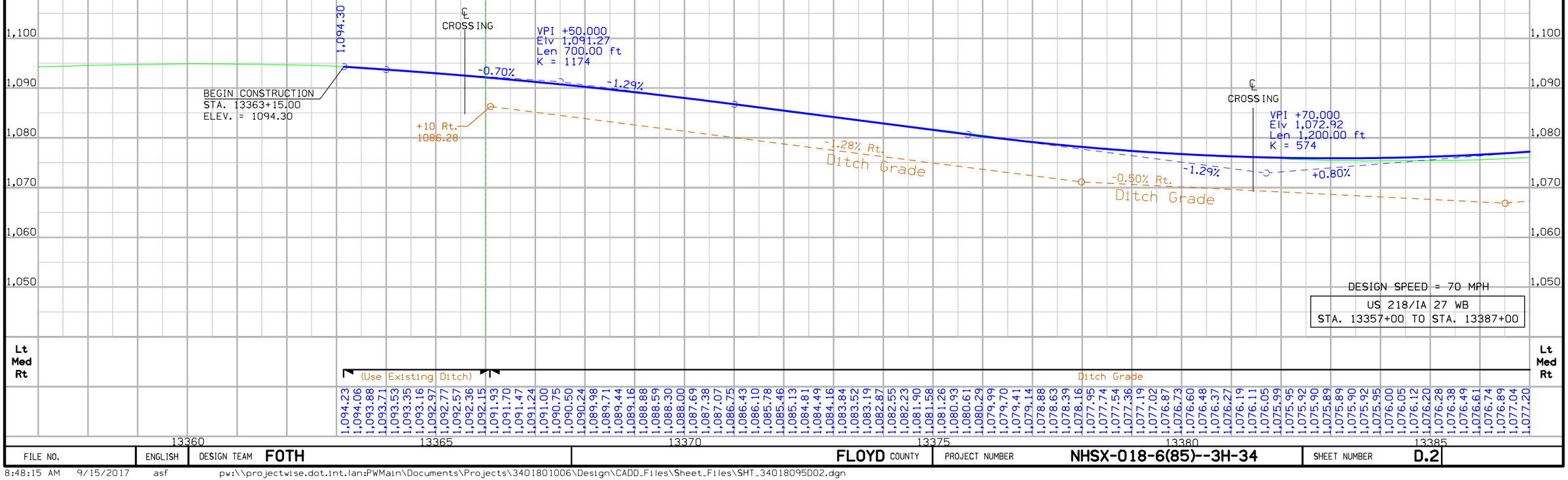
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER D.01

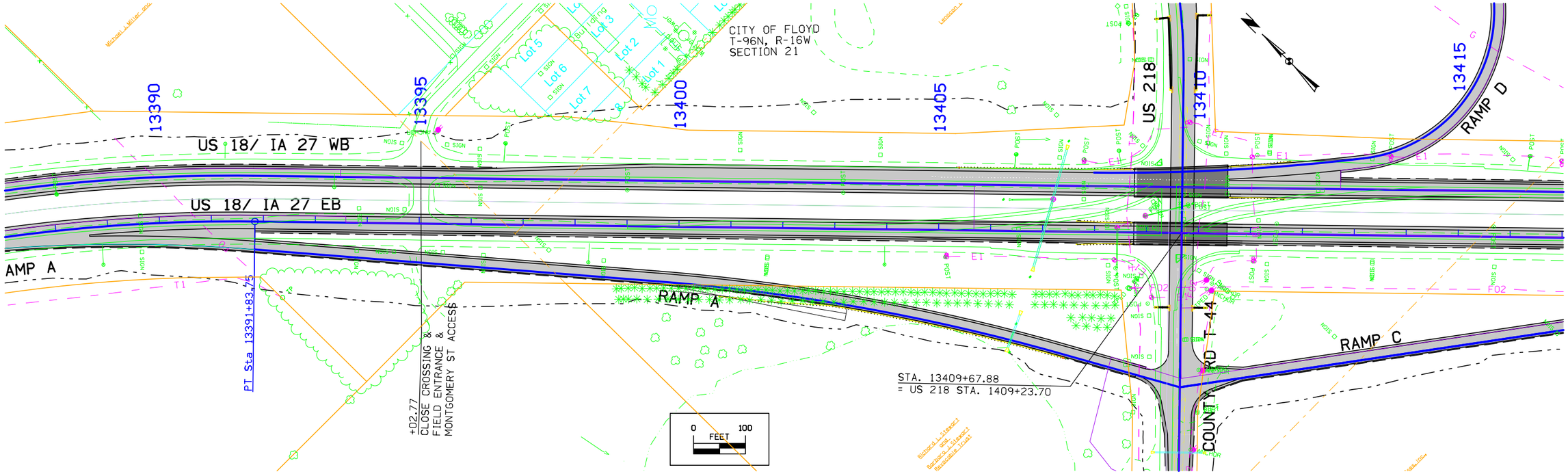
8:47:39 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D01.dgn

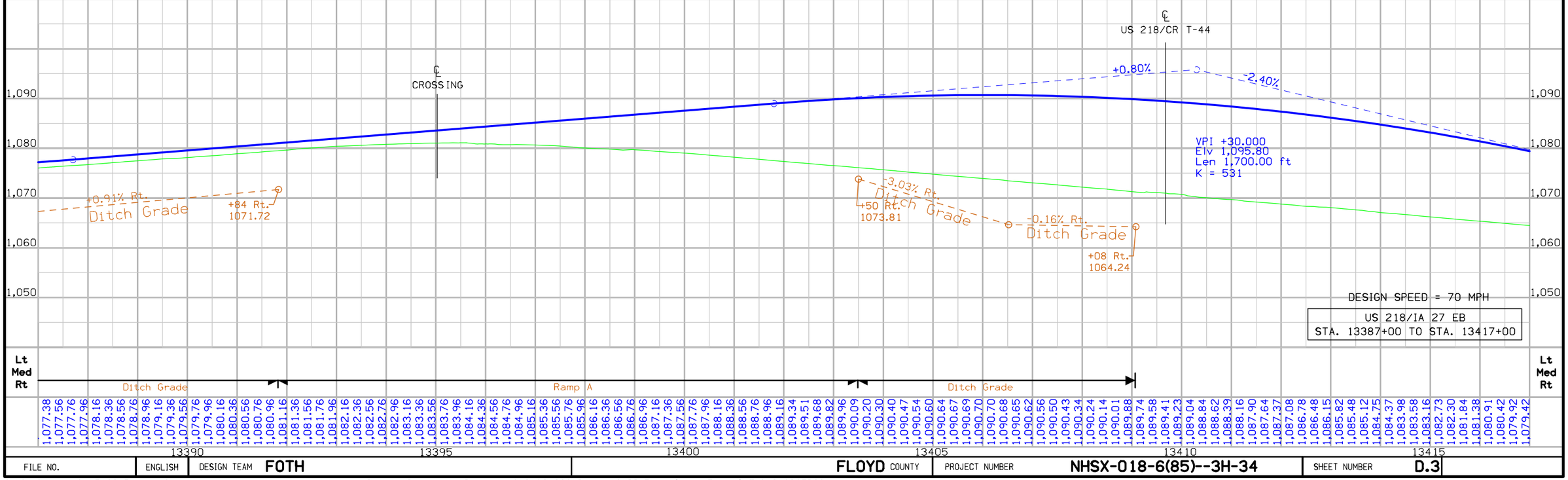




FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER D.2

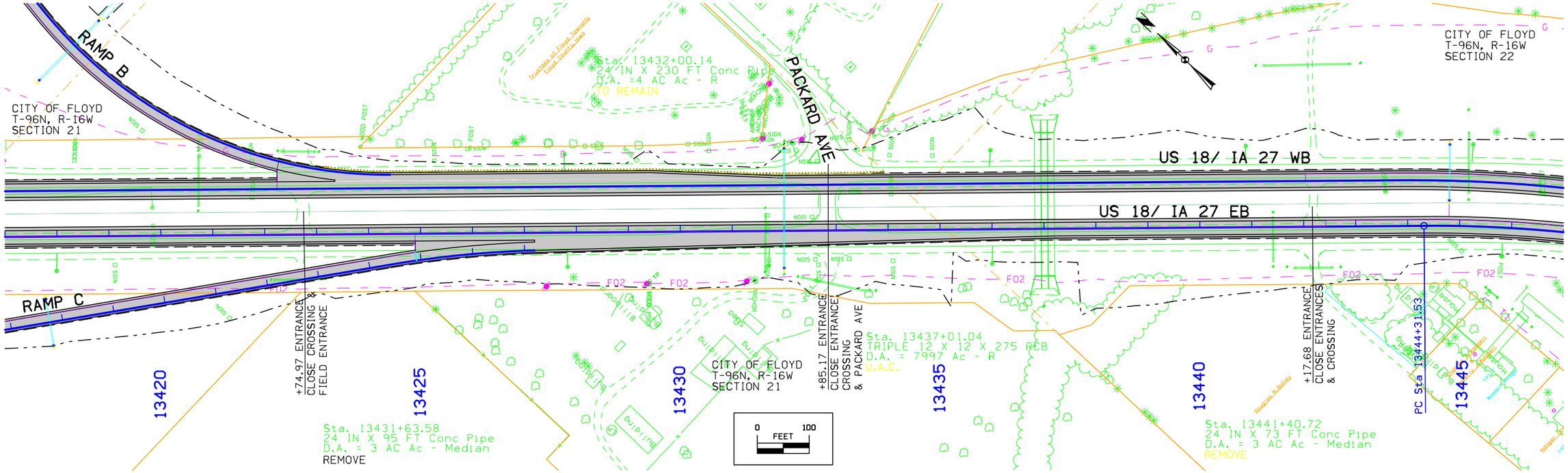
8:48:15 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D02.dgn

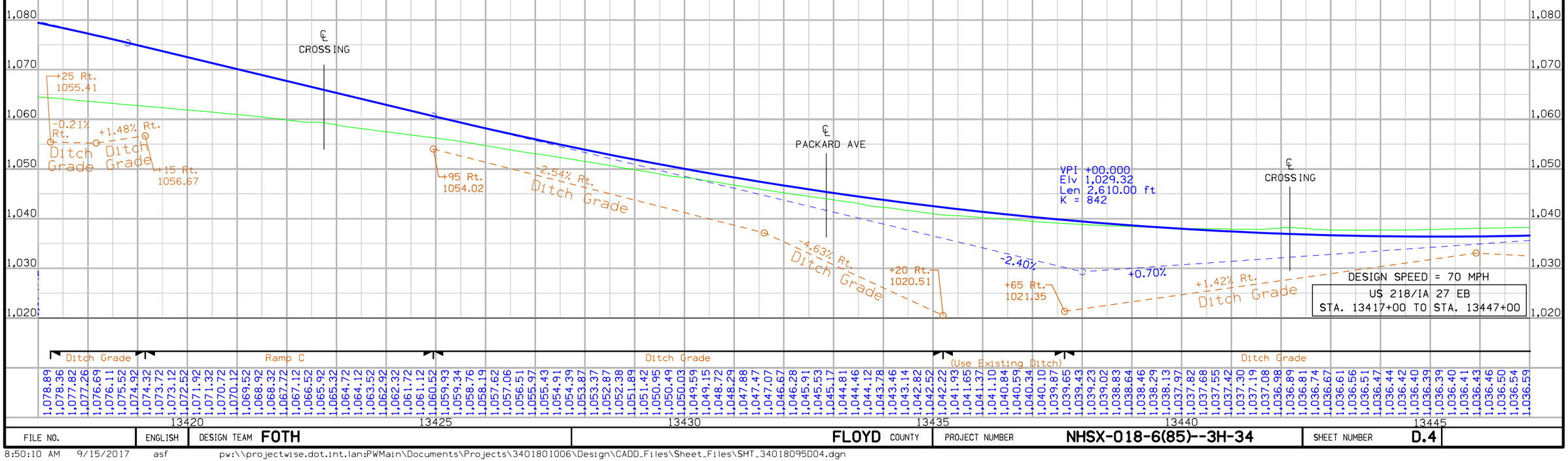




FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	D.3

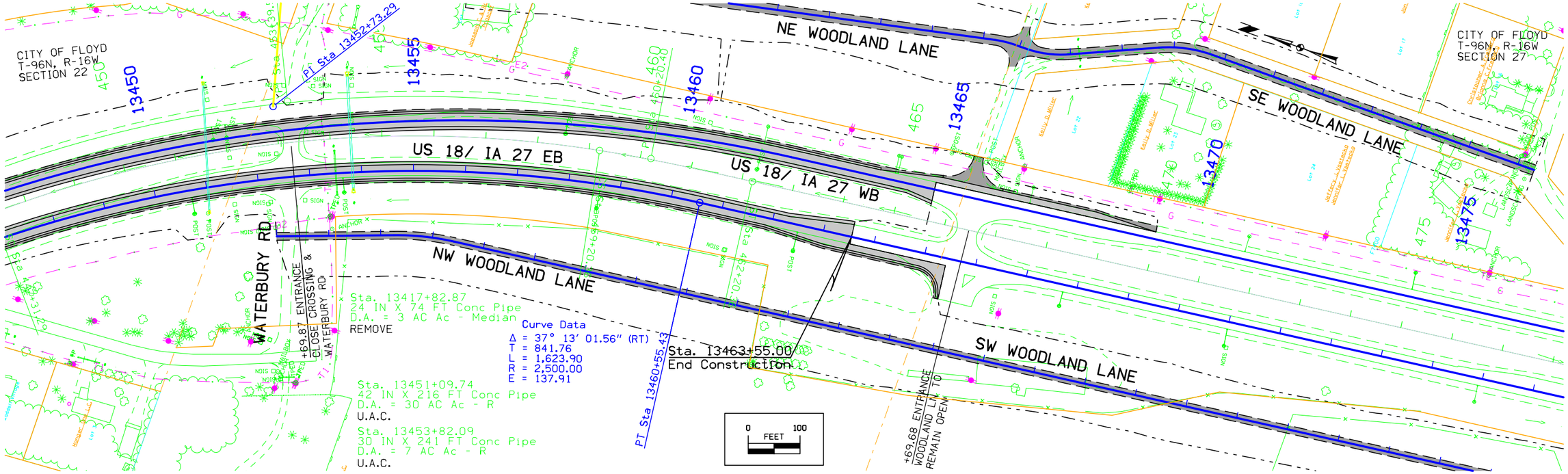
8:49:12 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D03.dgn

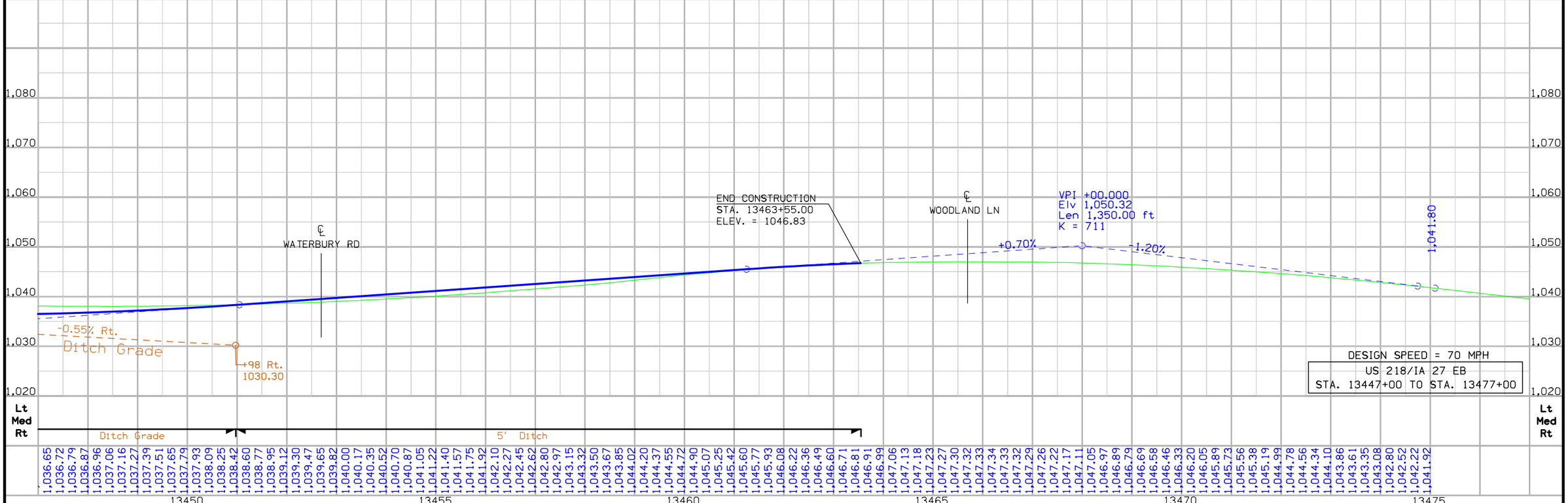




FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER D.4

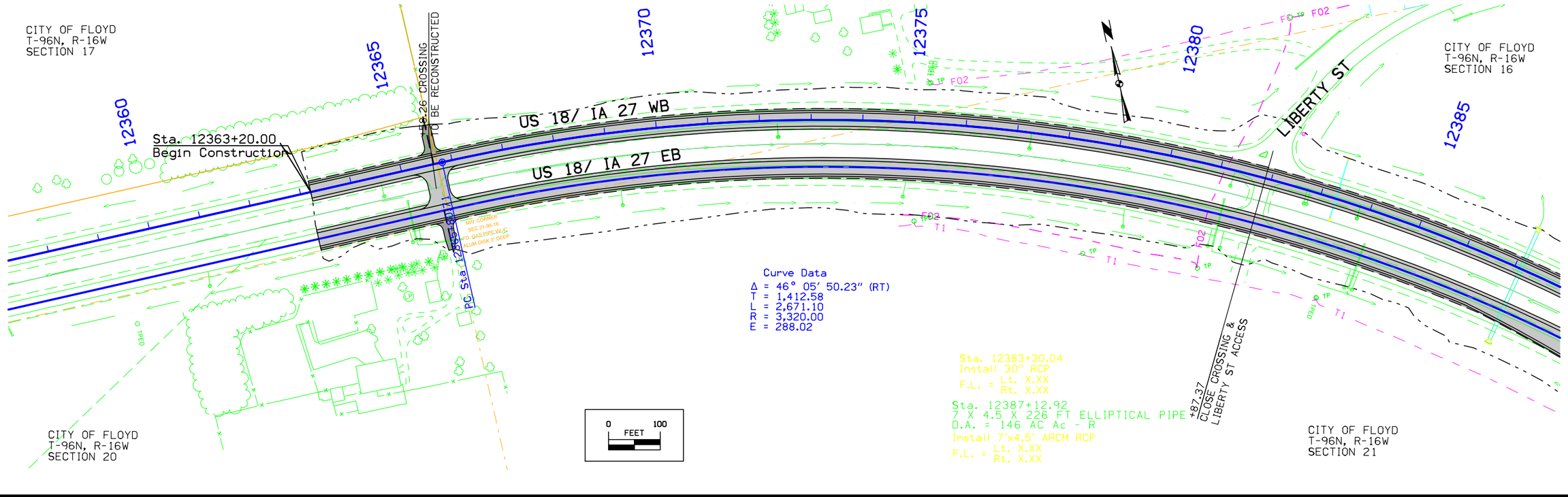
8:50:10 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D04.dgn

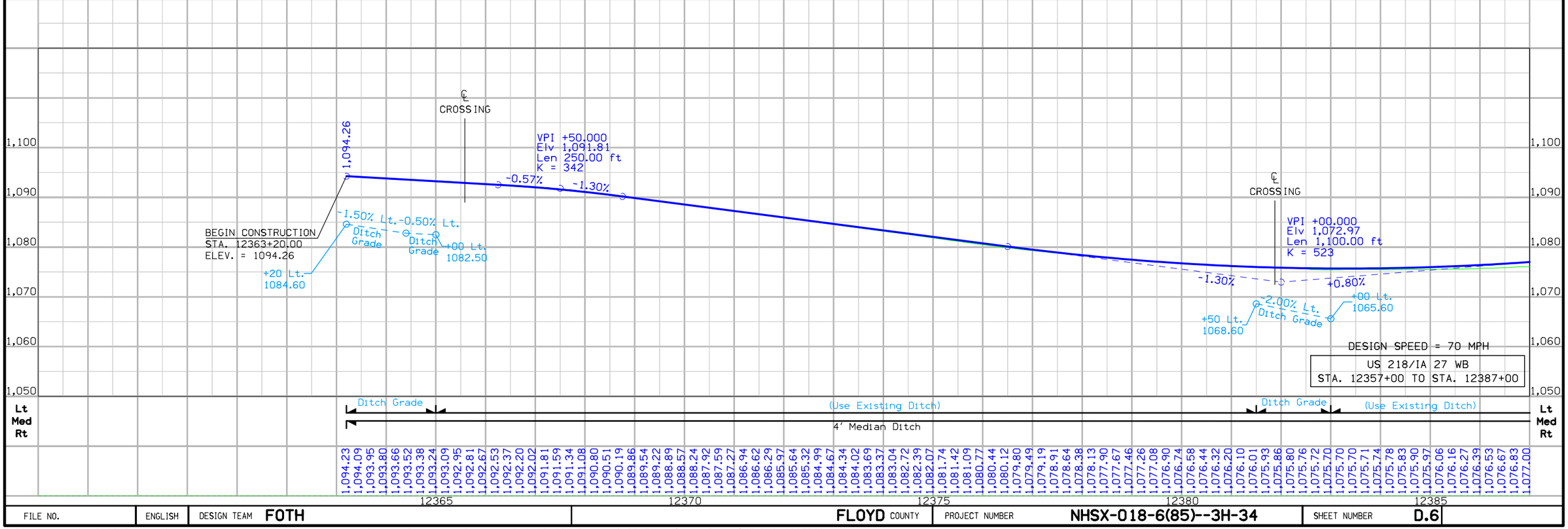




FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	D.5

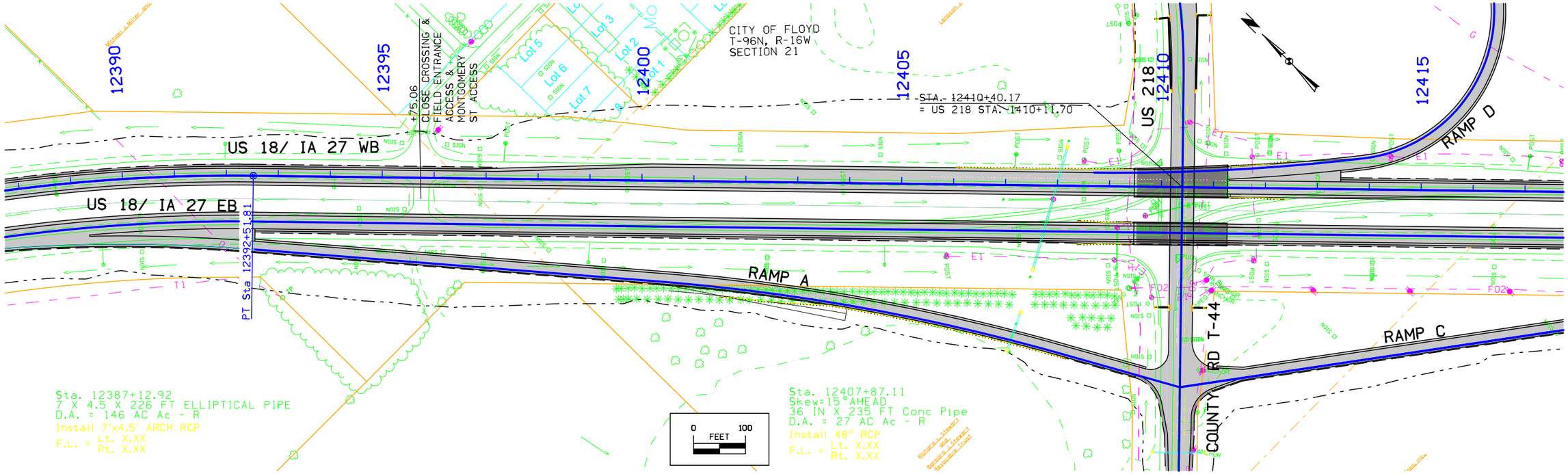
8:51:58 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D05.dgn

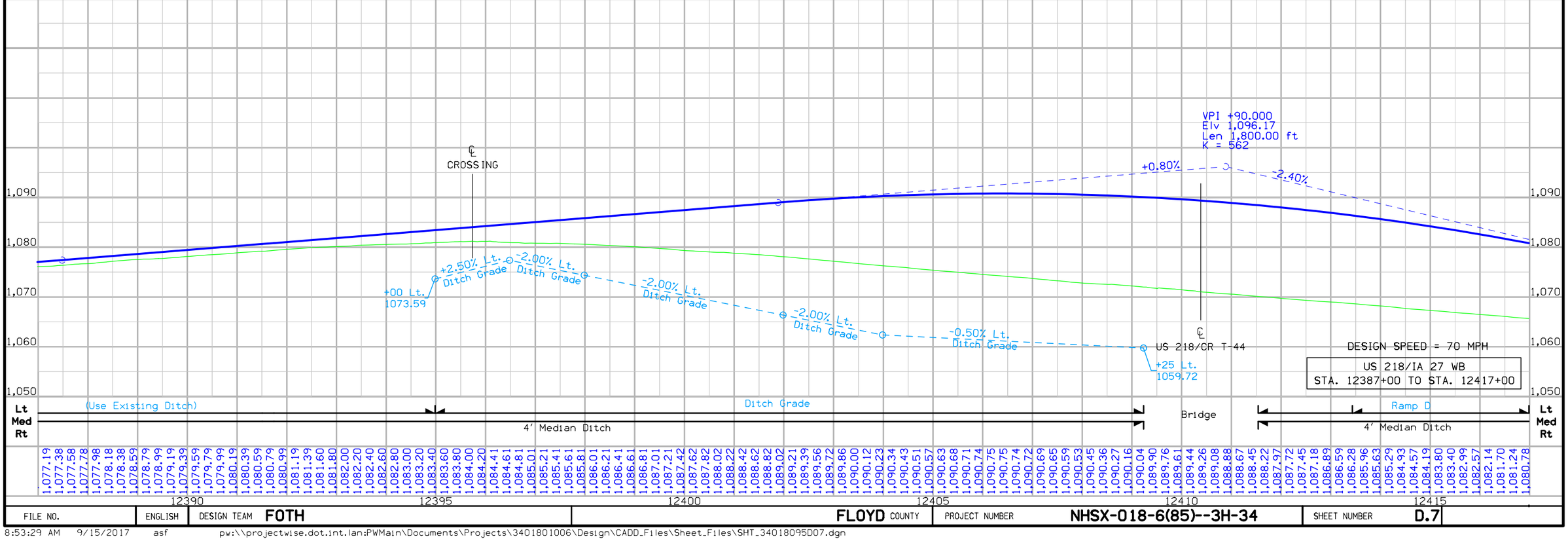




FILE NO.	ENGLISH	DESIGN TEAM	FOTH		FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	D.6

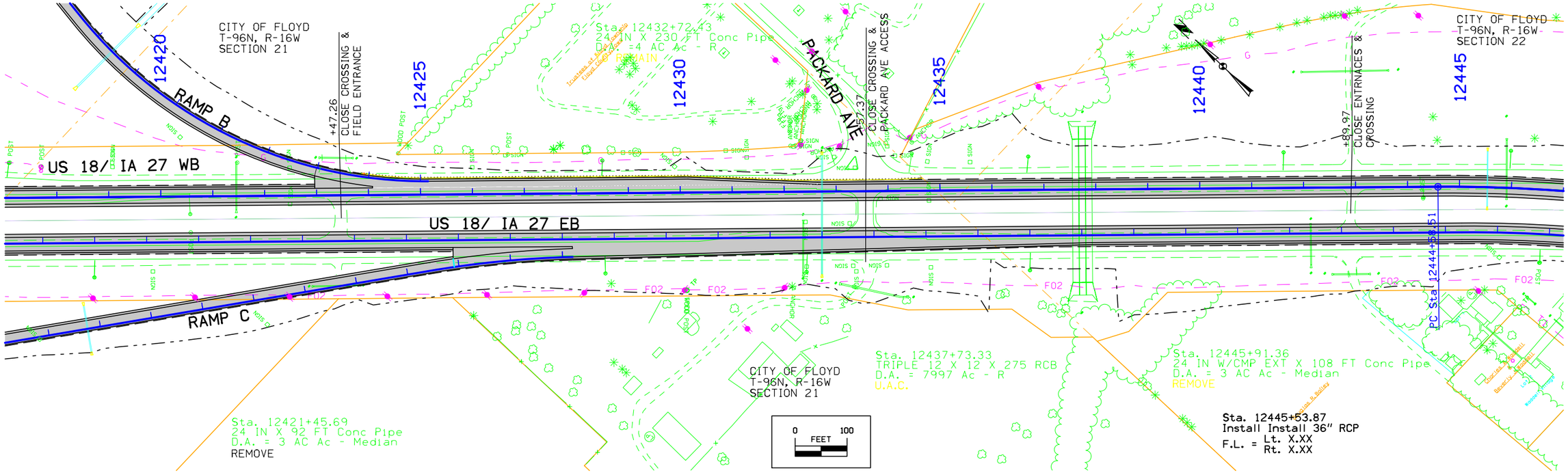
8:52:43 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D06.dgn

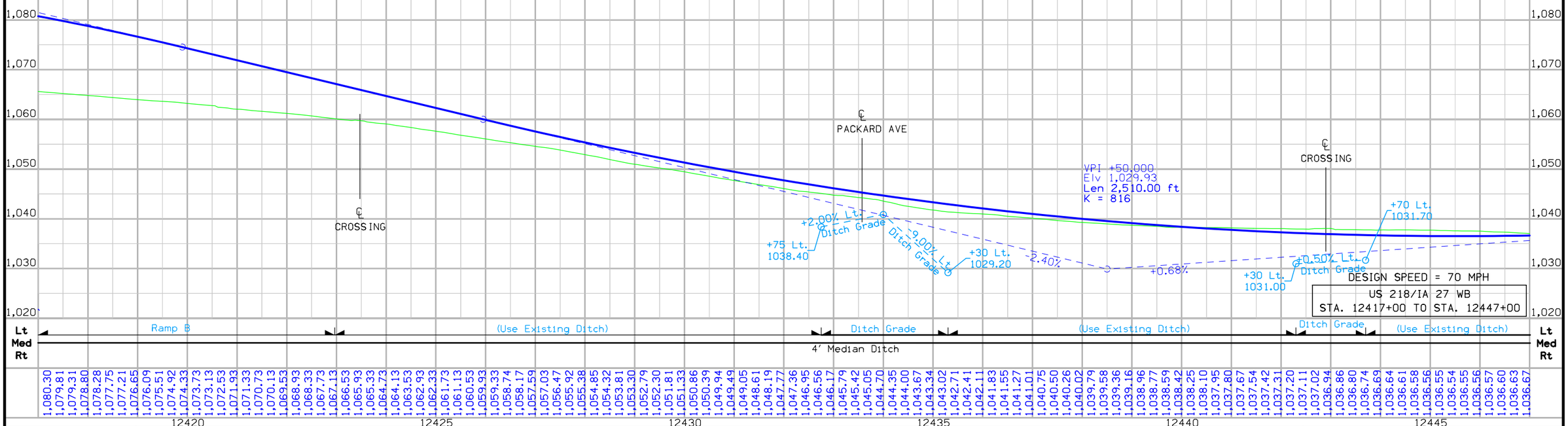




FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER D.7

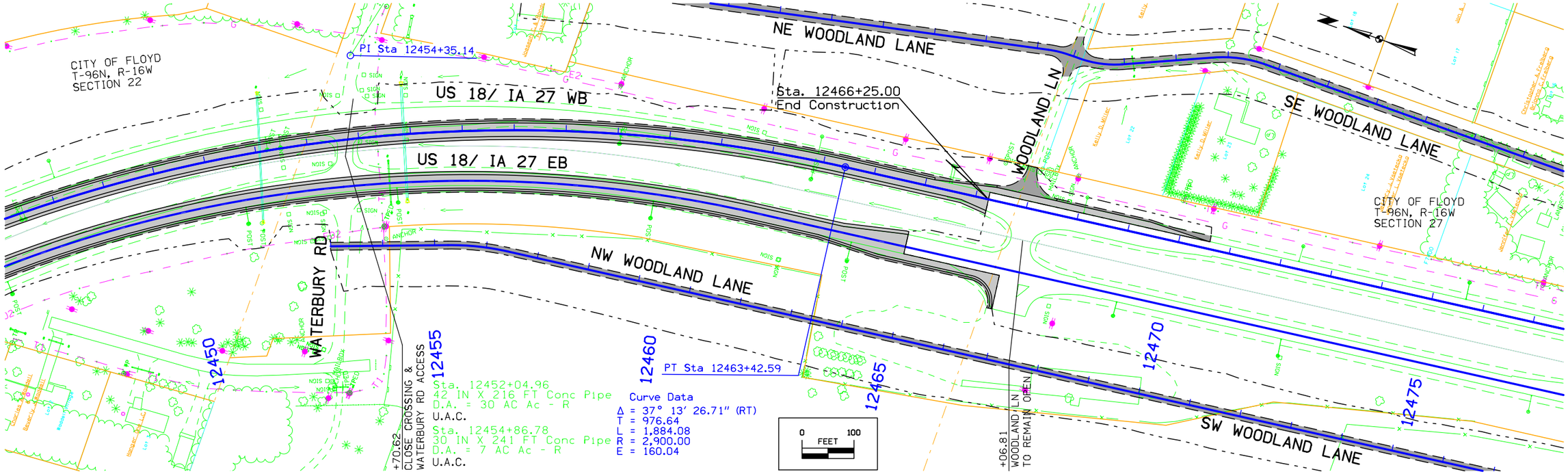
8:53:29 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D07.dgn

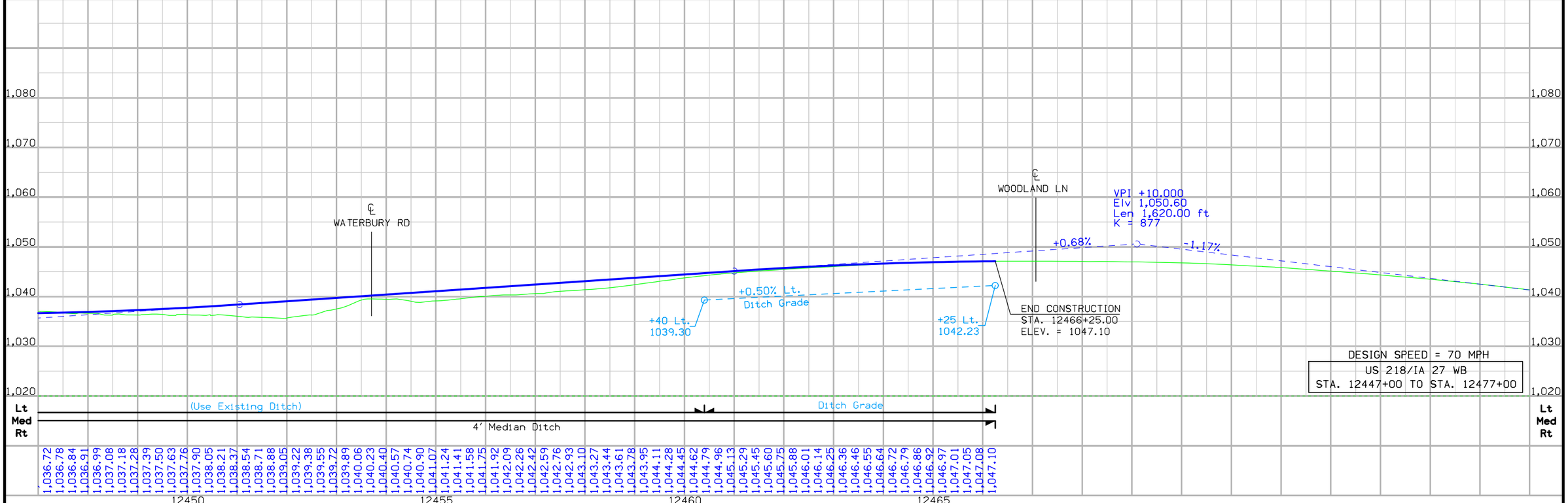




FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER D.8

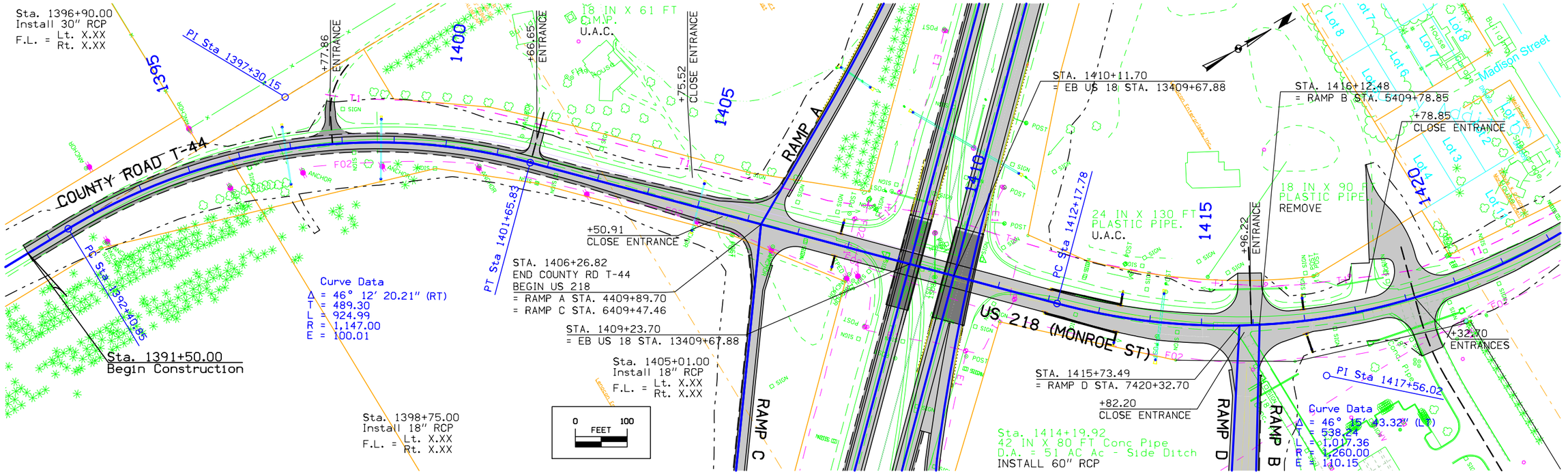
8:54:28 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D08.dgn

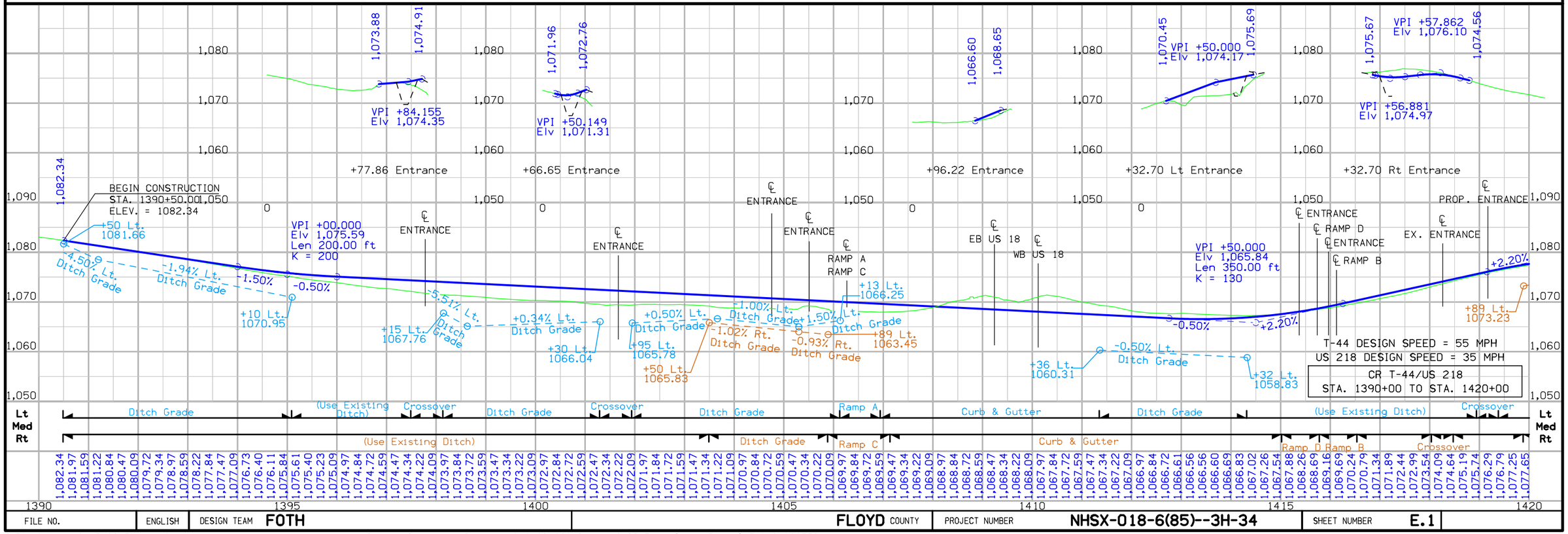




FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER D.9

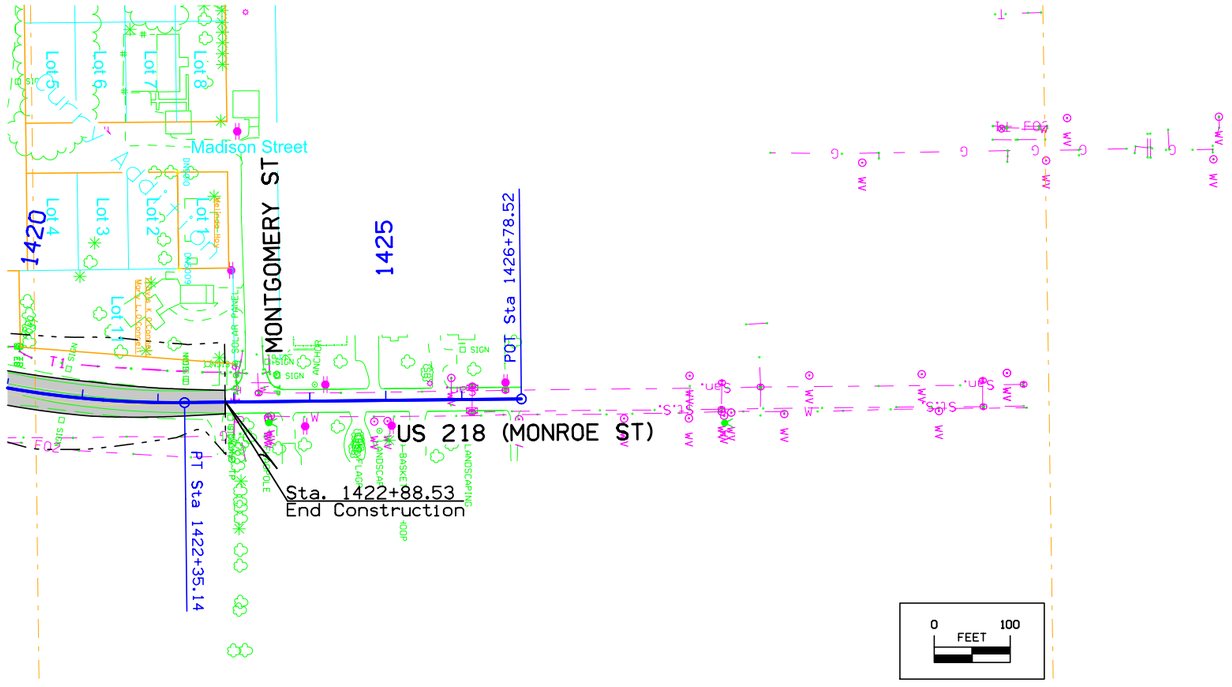
8:55:36 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095D09.dgn

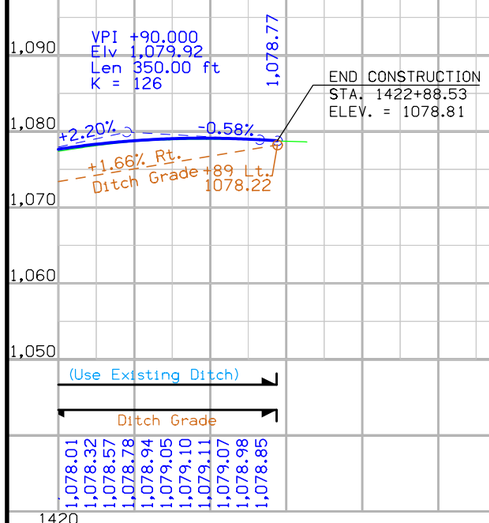




FILE NO.	ENGLISH	DESIGN TEAM **FOTH**	**FLOYD** COUNTY	PROJECT NUMBER	**NHSX-018-6(85)--3H-34**	SHEET NUMBER **E.1**

8:56:19 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095E01.dgn



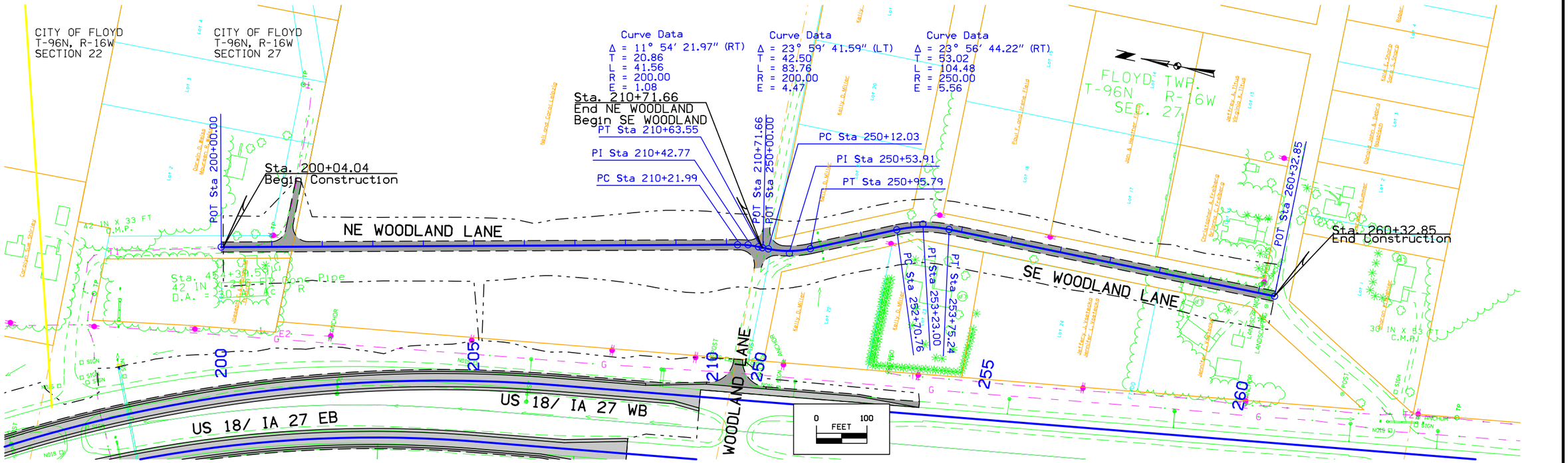


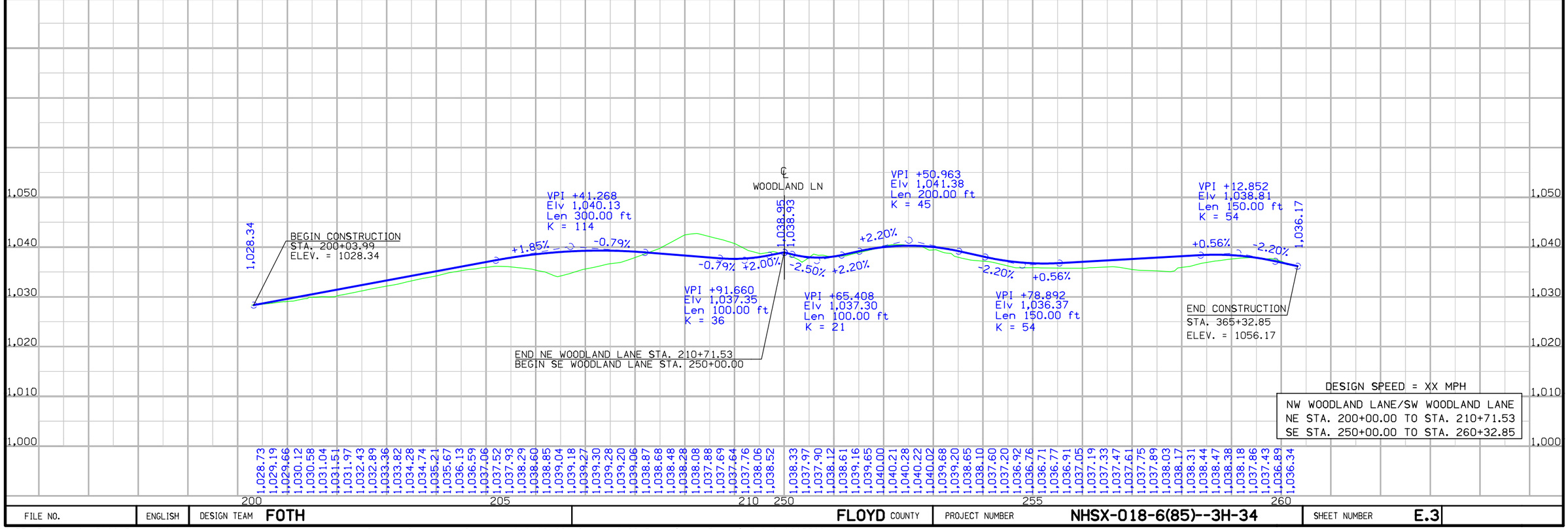
T-44 DESIGN SPEED = 55 MPH
US 218 DESIGN SPEED = 35 MPH

CR T-44/US 218
STA. 1420+00 TO STA. 1435+00

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER E.2

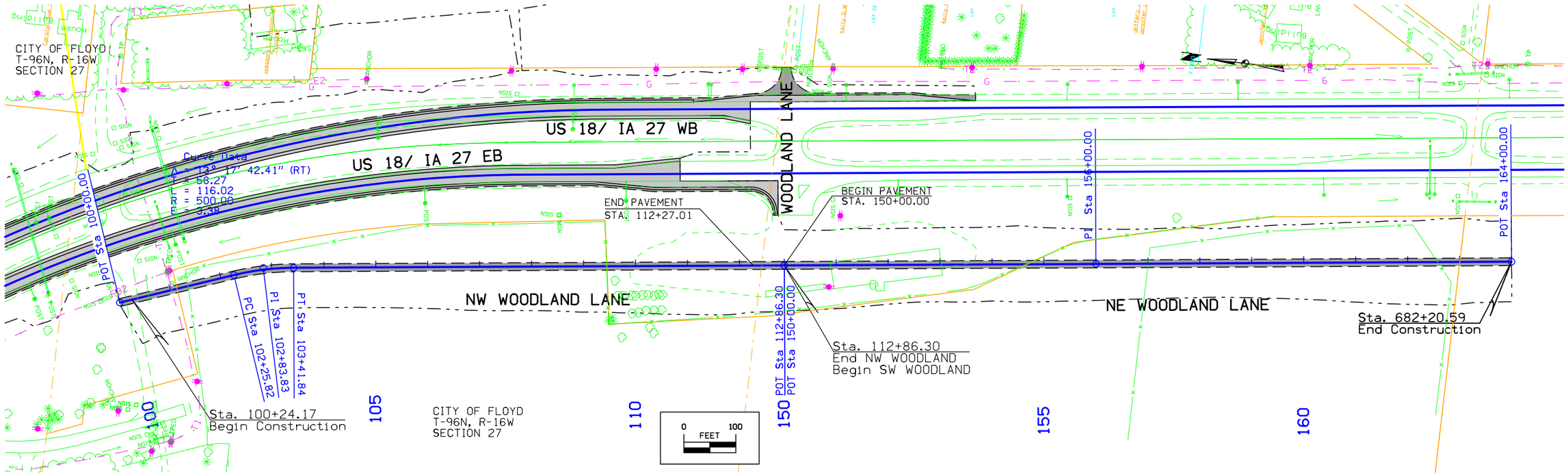
8:56:59 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095E02.dgn

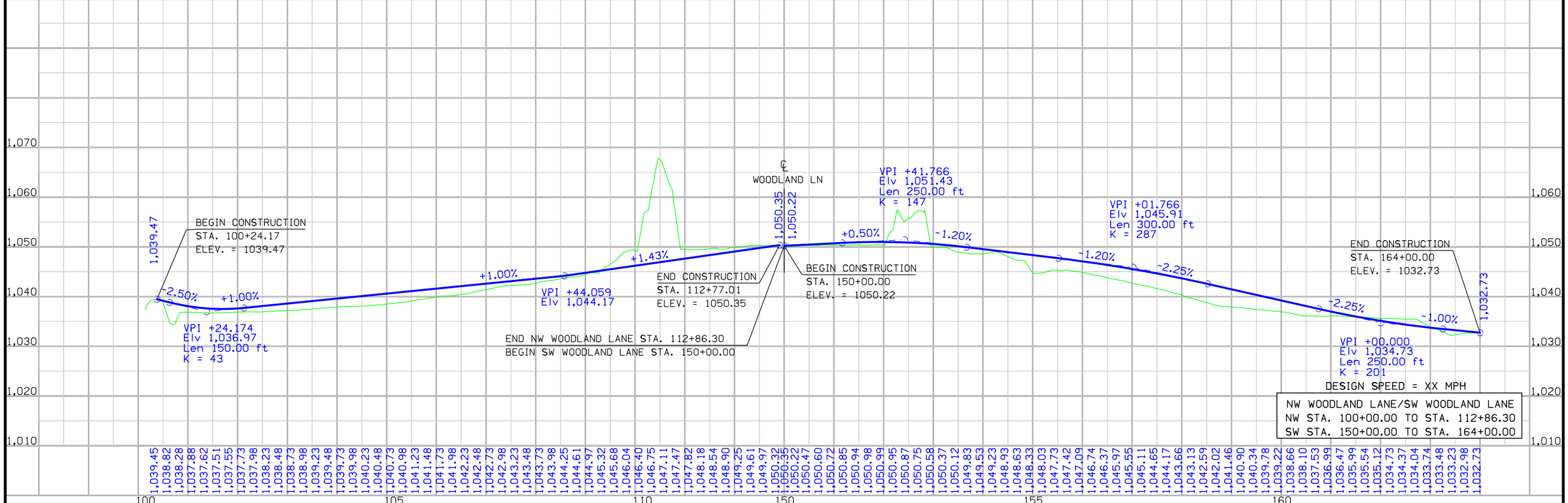




FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER E.3

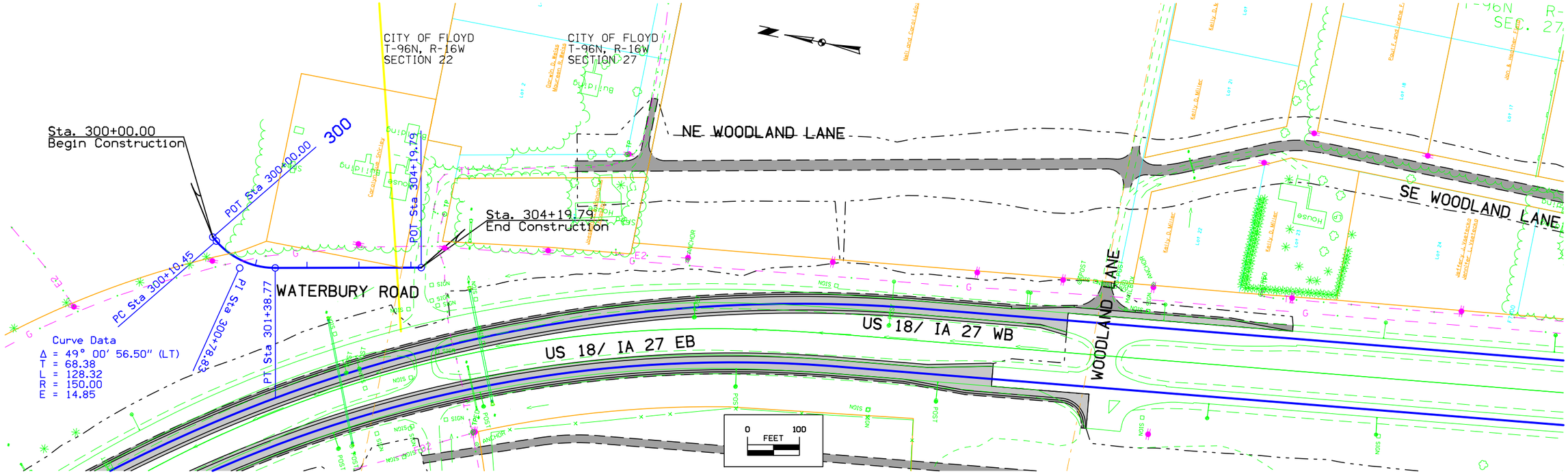
8:57:45 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095E03.dgn

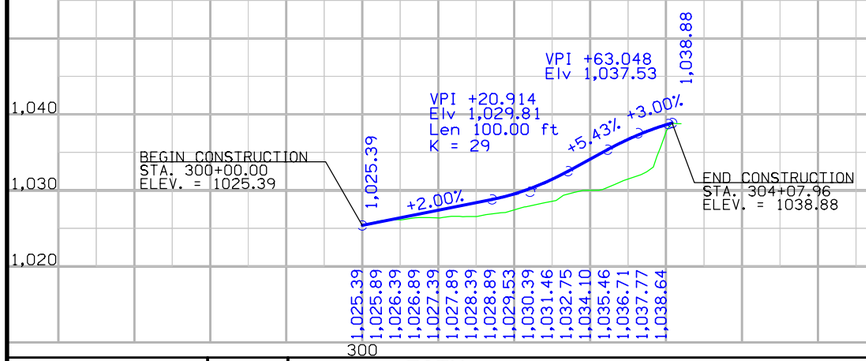




FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER E.4

8:58:36 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095E04.dgn





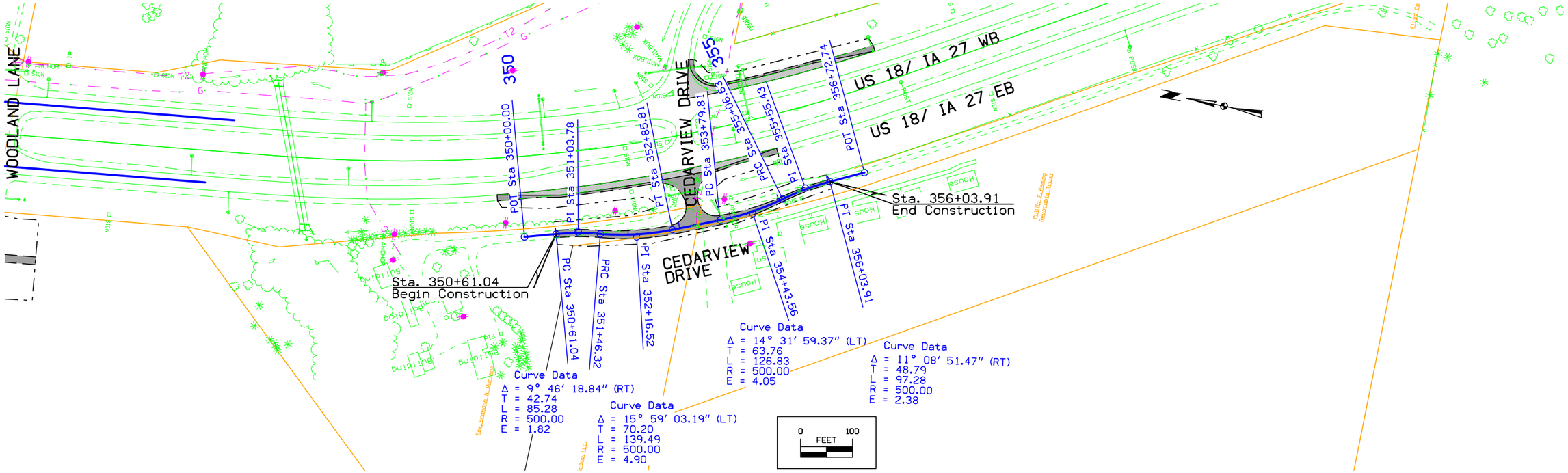
DESIGN SPEED = XX MPH

WATERBURY ROAD

STA. 300+00.00 TO STA. 304+19.79

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER E.5

8:59:29 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095E05.dgn



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER E.6

9:00:17 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095E06.dgn

Survey Information

General Information

Measurement units for this survey are US survey feet. This survey is for proposed US 18/218/IA 27 Hwy Improvement & Interchange near the town of Floyd. IDOT Feno monuments were found and used for Horizontal control on this project. Horizontal Coordinate values were established by IDOT. Benchmarks were established in a 26-mile level run between three 2nd order monuments, NGS mark E 36(BM700) to NGS mark M 36(BM648) to NGS mark V 39(BM636).

Vertical Control

This survey is relative to NAVD 88 vertical datum. NGS datasheets show a vertical difference of 0.03' (88 Higher than 29) between NAVD88 to NGVD29.

Vertical Equations:

All NGS 2nd order marks were held fixed vertically in the level run adjustment

BM # 700 this survey	Elev. = 1115.231 (NAVD 88 datum)
=NGS E 36 (2nd Order)	Elev. = 1115.231 (NAVD 88 datum)
=NGS E 36	Elev. = 1115.20 (NAVD 29 datum)
BM # 693 this survey	Elev. = 1111.775 (NAVD 88 datum)
=USGS 6CLC1969 (3rd Order)	Elev. = 1115.765 (NAVD 29 datum)
BM # 648 this survey	Elev. = 1113.820 (NAVD 88 datum)
=NGS M 36 (2nd Order)	Elev. = 1113.820 (NAVD 88 datum)
=NGS M 36	Elev. = 1113.790 (NAVD 29 datum)
BM # 636 this survey	Elev. = 1113.610 (NAVD 88 datum)
=NGS V 39 (2nd Order)	Elev. = 1113.610 (NAVD 88 datum)
=NGS V 39	Elev. = 1113.58 (NAVD 29 datum)

Horizontal Control

GENERAL INFORMATION FOR GPS PROJECT :Sap 0747

STATE PLANE COORDINATE ZONE 1401 (IOWA North LAMBERT)

STATE PLANE COORDINATES HELD AT POINT G34002

1 / GRID = 1.000070284

VERTICAL DATUM = NAVD 88 <> HORIZONTAL DATUM = NAD 83 (1996)

Local Project Plane Coordinate Conversion Equation:
a. Local Project Coord y = [(State Plane y - hold point y) 1/grid factor] + hold point y
b. Local Project Coord x = [(State Plane x - hold point x) 1/grid factor] + hold point x

ALL COORDINATES CONVERTED TO ENGLISH UNITS

POINT	STATE PLANE COORD(Y)	STATE PLANE COORD(X)	PROJECT PLANE COORD(Y) (Grid)	PROJECT PLANE COORD(X) (Grid)	Leveled ORTHO HEIGHT	Published Vertical HEIGHT	
34001	3874750.165	5110740.479	3874750.341	5110739.573	1100.385		
34002	3872249.003	5123629.121	3872249.003	5123629.121	1082.218		
34003	3861343.308	5129196.368	3861342.542	5129196.759	1043.109		
327	3874072.252	5094935.772	3874072.380	5094933.755	1125.470	1125.460	(County 327)
361	3842588.877	5158440.705	3842586.792	5158443.152	1040.642	1040.71	(County 361)
509	3855870.559	5140720.335	3855869.408	5140721.536	1010.455	1010.45	(County 509)
636(V39)	3836571.278	5164269.771	3836568.770	5164272.627	1013.610	1013.610	(2nd NGS V 39)
648(M36)	3855769.670	5140087.950	3855768.512	5140089.107	1013.820	1013.820	(2nd NGS M 36)
656(N1)	3863437.608	5129144.219	3863436.989	5129144.607	1036.383		
658(M1)	3864838.137	5128321.627	3864837.616	5128321.957	1032.570		
660(I1)	3866483.891	5128044.521	3866483.486	5128044.831	1029.753		
661(J1)	3868153.345	5127839.575	3868153.057	5127839.871	1046.950		
662(L1)	3869739.329	5126999.304	3869739.153	5126999.541	1039.623		
664(K1)	3871416.802	5125735.640	3871416.744	5125735.788	1050.495		
667(A1)	3873473.203	5123779.587	3873473.289	5123779.598	1084.160		
668(H1)	3874381.640	5122125.477	3874381.790	5122125.371	1078.922		
670(B1)	3874886.354	5118824.557	3874886.539	5118824.219	1088.373		
671(C1)	3874866.368	5117315.176	3874866.552	5117314.732	1094.126		
672(D1)	3874857.007	5115573.919	3874857.190	5115573.353	1088.237		
673(E1)	3874810.697	5113577.057	3874810.877	5113576.350	1078.914		
674(F1)	3874735.790	5111753.772	3874735.965	5111752.937	1101.675	1101.718	(County 335)
693	3877204.191	5079948.242	3877204.539	5079945.172	1111.775	1111.765	(3rd NGVD29)
694	3876428.213	5079868.574	3876428.507	5079865.498	1120.428	1120.440	(County 319)
700(E36)	3877276.797	5069125.302	3877277.150	5069121.471	1115.231	1015.231	(2nd NGS E 36)

Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. NHS-18-6(71)- - 19-34 Survey stationing was equated to the plan PI at STA 379+75.91 and run back and ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PT Sta. 319+17.80 As-built Plans Project No. NHS-18-6(71) - -19-34
= Survey POT STA 319+17.56

PI Sta 379+75.91 As-built Plans Project No. NHS-18-6(71) - -19-34
= Survey PI STA 379+75.91

PI STA 453+53.65 As-built Plans Project No. NHS-18-6(71) - -19-34
= Survey PI STA 453+53.70

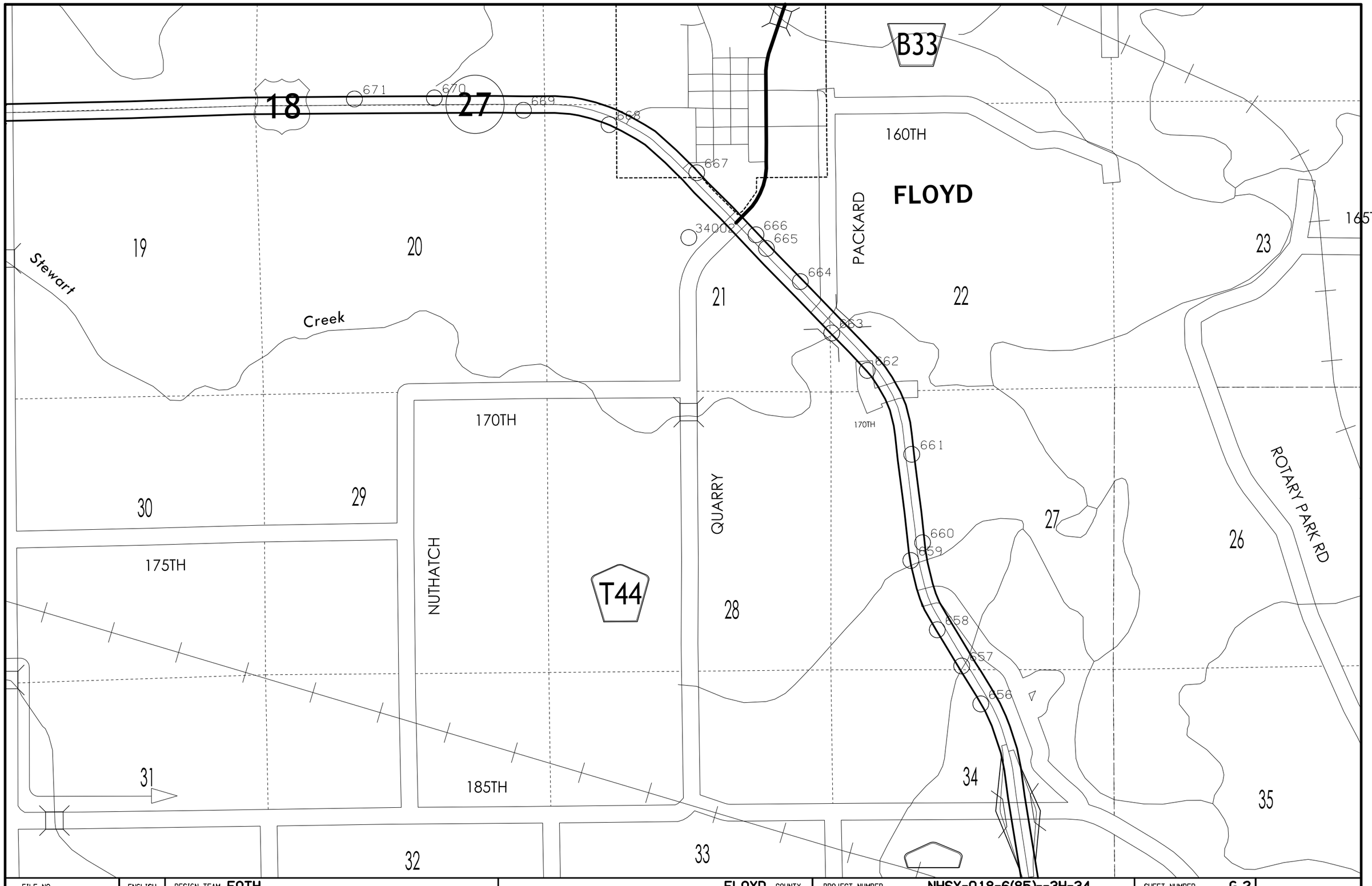
Station equation at As-built Plans Project No. NHS-18-6(71) - -19-34
ST STA 462+20.24 BK= POT STA 462+86.89 AH. Survey stationing continues through the plan equation station.

PI STA 491+70.94 As-built Plans Project No. NHS-18-6(71) - -19-34
= Survey PI STA 491+03.79

POT STA 509+32.65 Project No. NHS-18-6(71) - -19-34
= Survey POT STA 508+65.86

PROJECT CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
657	3864153.3690	5128784.3680	1031.9850	507+23.50	90.0529	BM	FD DOT BRASS BUTTON
658	3864837.6160	5128321.9570	1032.5700	498+98.77	132.7771	BM	FENO MONU=M1 STA152+37
659	3866147.2050	5127821.9680	1022.7960	485+37.24	127.3436	BM	DOT BRASS BUTTON
660	3866483.4860	5128044.8310	1029.7530	482+33.25	-136.0866	BM	FENO MONU=I1 STA147+21
661	3868153.0570	5127839.8710	1046.9500	465+51.15	-135.7274	BM	FENO MONU=J1 STA142+06
662	3869739.1530	5126999.5410	1039.6230	447+19.45	140.8051	BM	FENO MONU STA136+31
663	3870445.4890	5126328.3210	1026.8970	437+36.52	134.8917	BM	DOT BRASS BUTTON INHDWL
664	3871416.7440	5125735.7880	1050.4950	426+27.18	-117.6995	BM	FENO MONU STA129+96
665	3872042.1740	5125095.7080	1064.1110	417+32.56	-95.0564	BM	FD A BOLT ON W BOLT
666	3872300.5780	5124898.6400	1060.9730	414+09.93	-134.0019	BM	FENO MONU STA126+23
34002	3872249.0030	5123629.1210	1082.2180	405+61.61	811.8878	BM	IDOT FENO MONU
667	3873473.2890	5123779.5980	1084.1600	397+89.04	-149.7008	BM	FENO MONU=A1 STA121+26
668	3874381.7900	5122125.3710	1078.9220	378+89.79	148.2508	BM	FENO MONU=H1 STA115+43
669	3874653.2290	5120506.7980	1091.6160	361+80.63	114.3756	BM	FENO MONU STA110+29
670	3874886.5390	5118824.2190	1088.3730	344+99.43	-128.6630	BM	FENO MONU=B1 STA105+15
671	3874866.5520	5117314.7320	1094.1260	329+89.85	-117.4075	BM	FENO MONU=C1 STA100+54



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER G.2

4:05:26 PM 9/7/2017 lbd pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095G01.dgn

STAGING NOTES

Stage 1 Traffic:
US-18 EB traffic uses crossovers at each end of project to create head-to-head traffic on existing US-18 WB lanes. Traffic maintained on T-44 and US-218 via the use of existing and temporary pavement.

Stage 1 Construction:
US-18 EB lanes, including bridge over US-218
Ramps A, B, C, and D (excluding the terminals at T-44/US-218)
Frontage roads at Woodland Lane and Cedar View Drive

Stage 2 Traffic:
US-18 traffic remains head-to-head on existing US-18 WB lanes. Traffic on US-218 into Floyd maintained on existing and temporary pavement. Access to east truck stop will be maintained by utilizing temporary pavement. Traffic on T-44 south of US-18 will be detoured to the interchange at US-18 and County Road B-35. Access to the homes along T-44 will be maintained by staging and temporary surfacing.

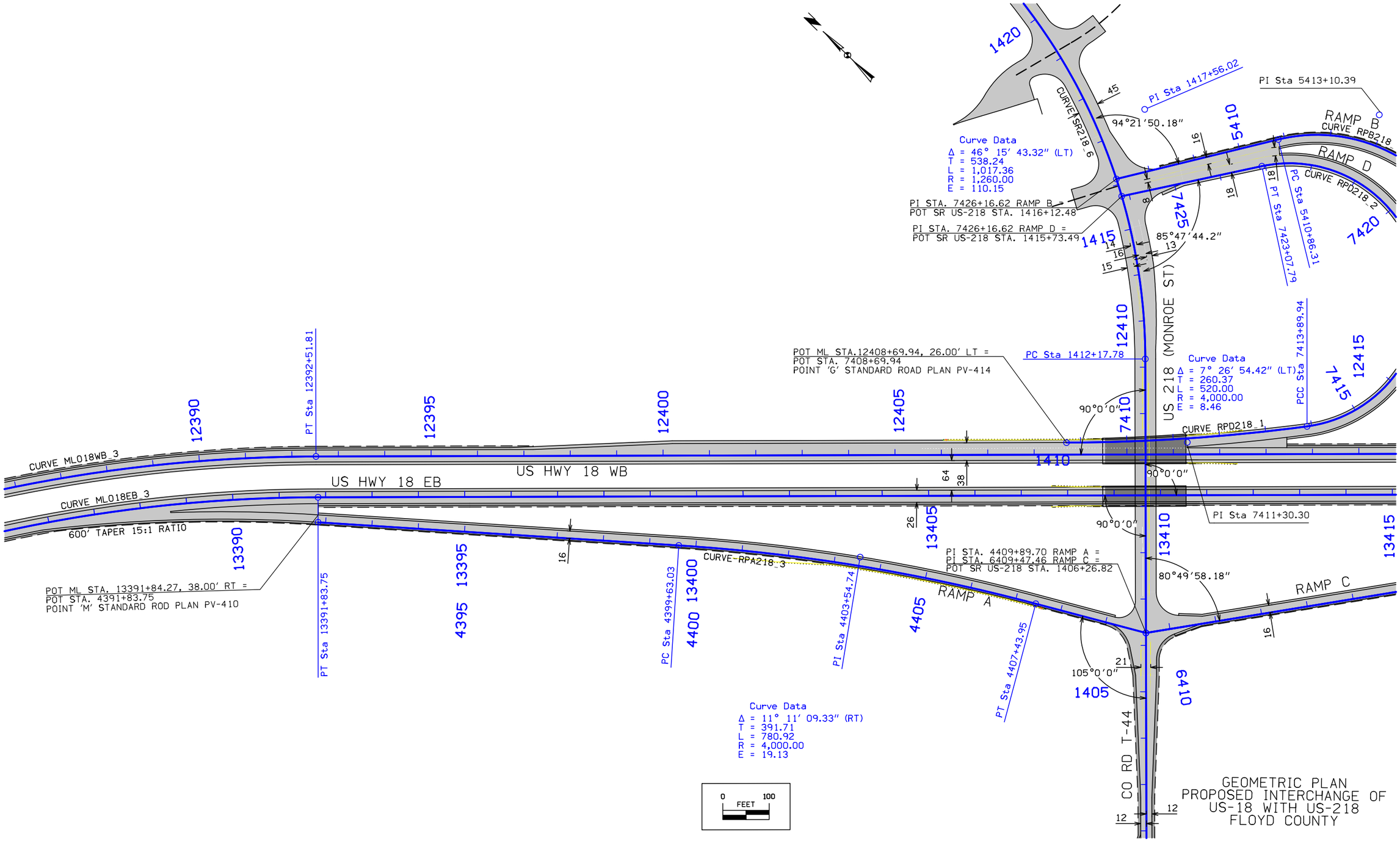
Stage 2 Construction:
T-44 from begin of reconstruciton to the new US-18 EB bridge (including the Ramp A and C terminals)
US-218 NB lane (including the Ramp B and D terminals)
East truck stop entrance

Stage 3 Traffic:
US-18 traffic switches to head-to-head on the new US-18 EB lanes (over T-44/US-218). Traffic on T-44/US-218 maintained utilizing temporary pavement. New Ramp A and Ramp C pavement can be used for traffic to get on and off of EB US-18. New Ramp B pavement can be used for traffic to get off of WB US-18 after the construction of temporary pavement (40 mph exit speed). Traffic wanting to travel WB on US-18 from T-44/US-218 will be detoured to the interchange at US-18 and County Road B-35.

Stage 3 Construction:
US-18 WB lanes, excluding bridge over US-218 and Ramp D connection
Remainder of US-218 NB lane

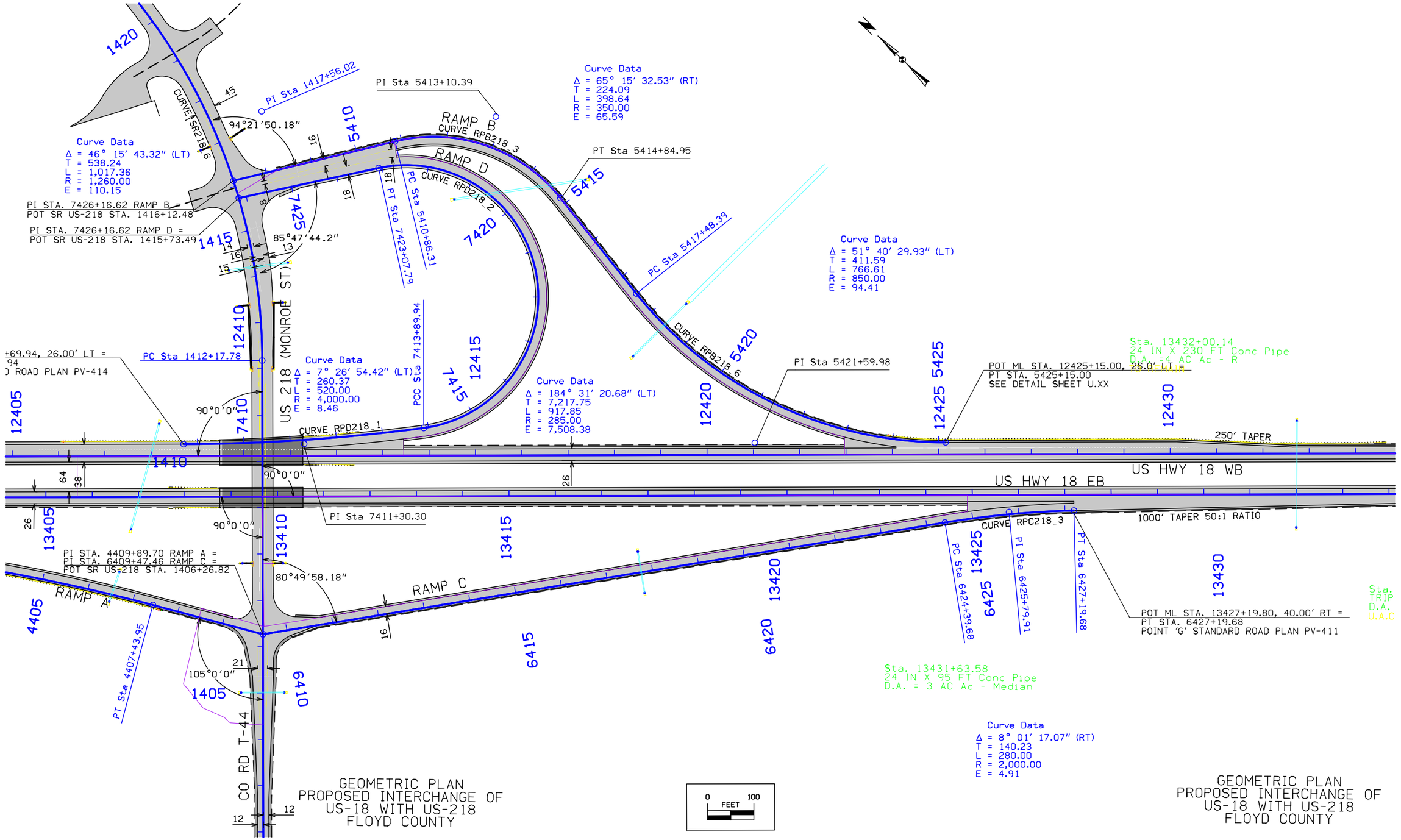
Stage 4 Traffic:
US-18 traffic remains head-to-head on the new US-18 EB lanes. T-44/US-218 traffic uses US-218 NB lanes along with temporary pavement widening. US-18 EB traffic uses new Ramp A and C pavement. Traffic wanting to exit US-18 WB uses new Ramp B pavement via temporary pavement crossover. Traffic wanting to get on US-18 WB from T-44/US-218 will be detourd to the interchange at US-18 and County Road B-35. Access to west truck stop will be maintained by staging the two entrances.

Stage 4 Construction:
Remainder of US-18 WB lanes, including bridge over US-218
Remainder of US-218 SB lanes
West truck stop entrances (staged to maintain access)



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER K.1

9:01:03 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095K01.dgn

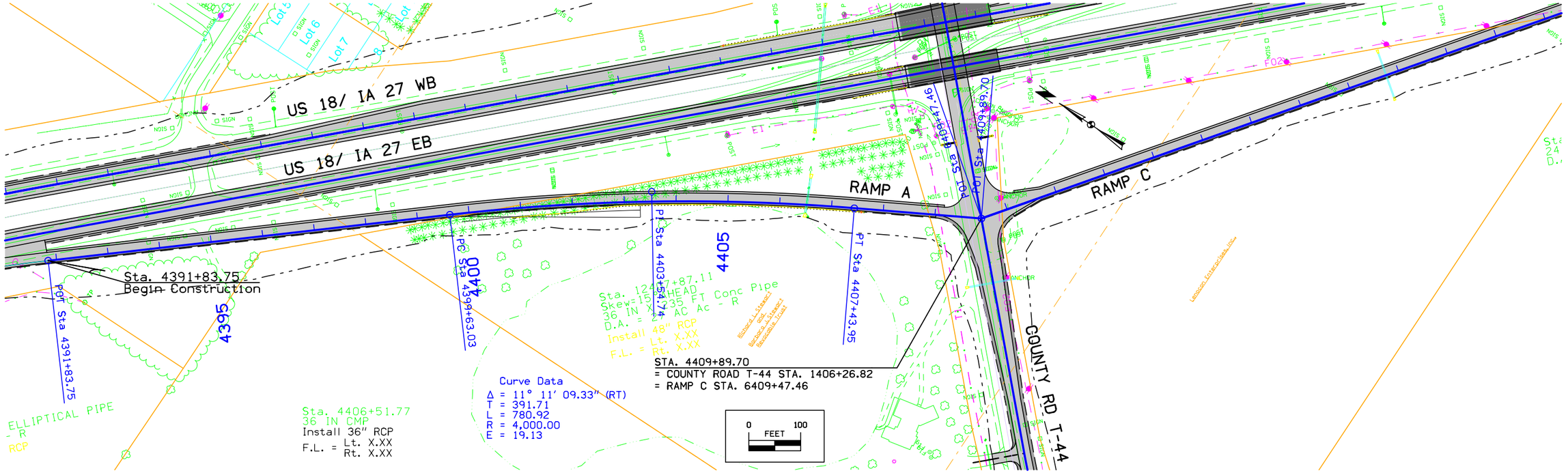


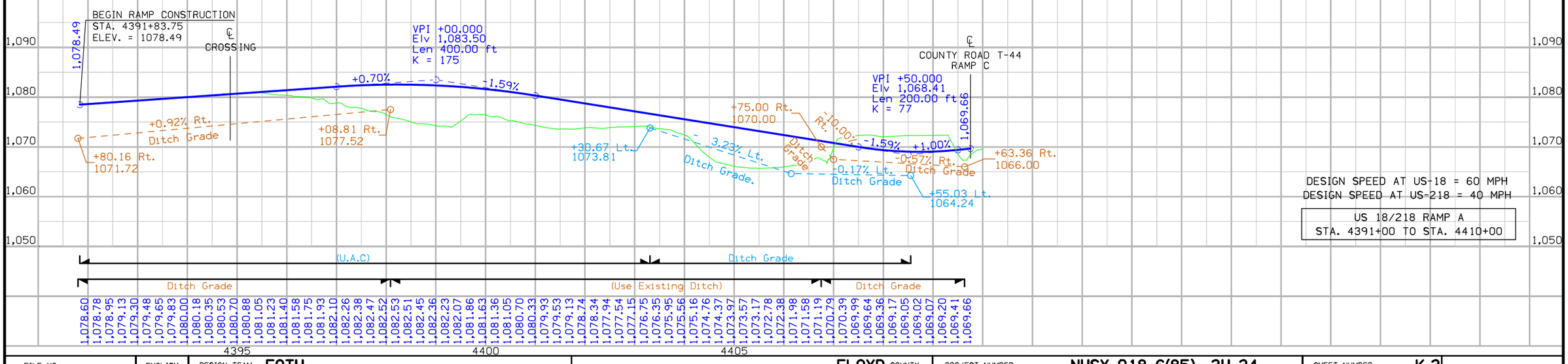
GEOMETRIC PLAN
PROPOSED INTERCHANGE OF
US-18 WITH US-218
FLOYD COUNTY

GEOMETRIC PLAN
PROPOSED INTERCHANGE OF
US-18 WITH US-218
FLOYD COUNTY

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER K.2

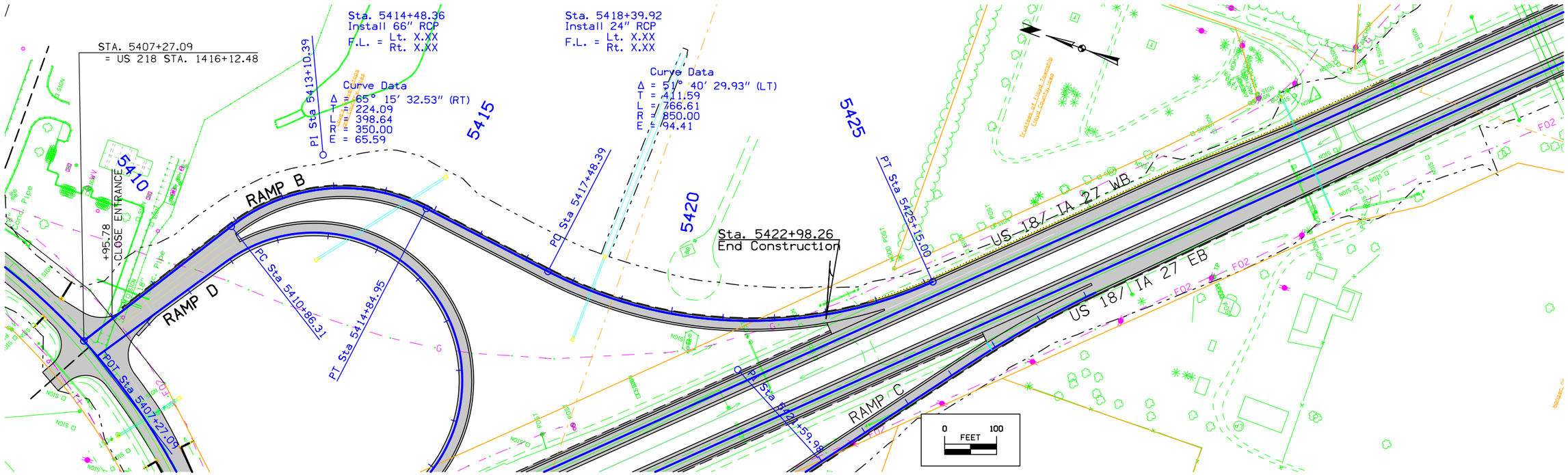
9:01:40 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095K02.dgn

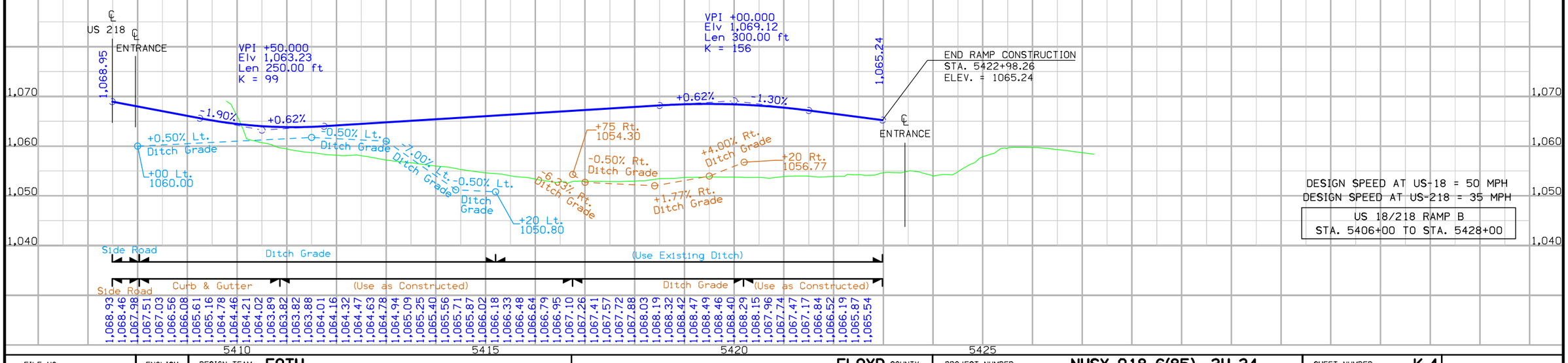




FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	K.3

9:02:43 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095K03.dgn



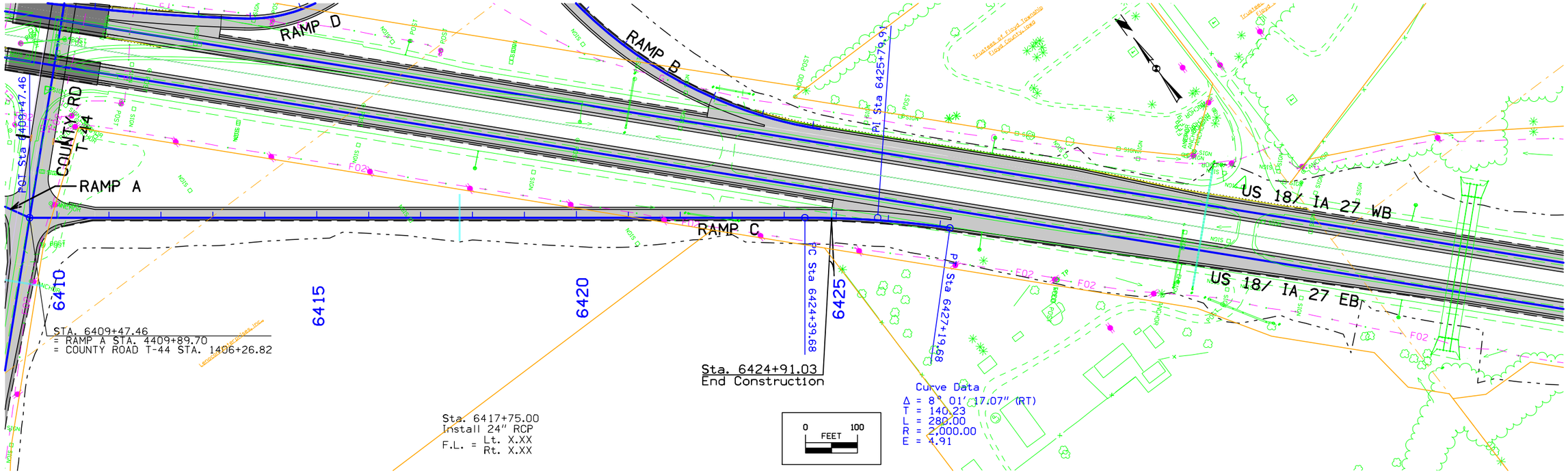


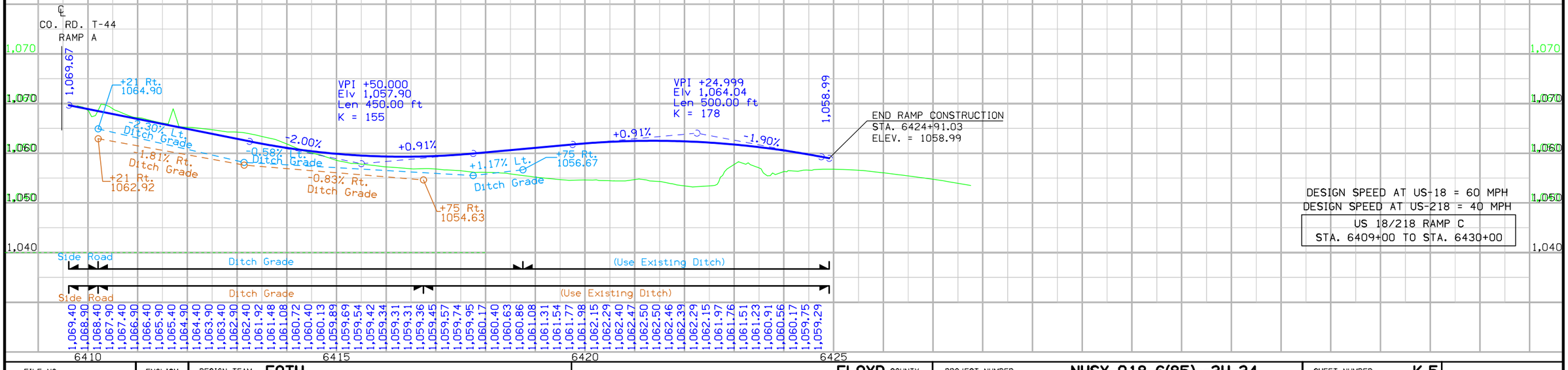
DESIGN SPEED AT US-18 = 50 MPH
DESIGN SPEED AT US-218 = 35 MPH

US 18/218 RAMP B
STA. 5406+00 TO STA. 5428+00

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER K.4

9:03:23 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095K04.dgn



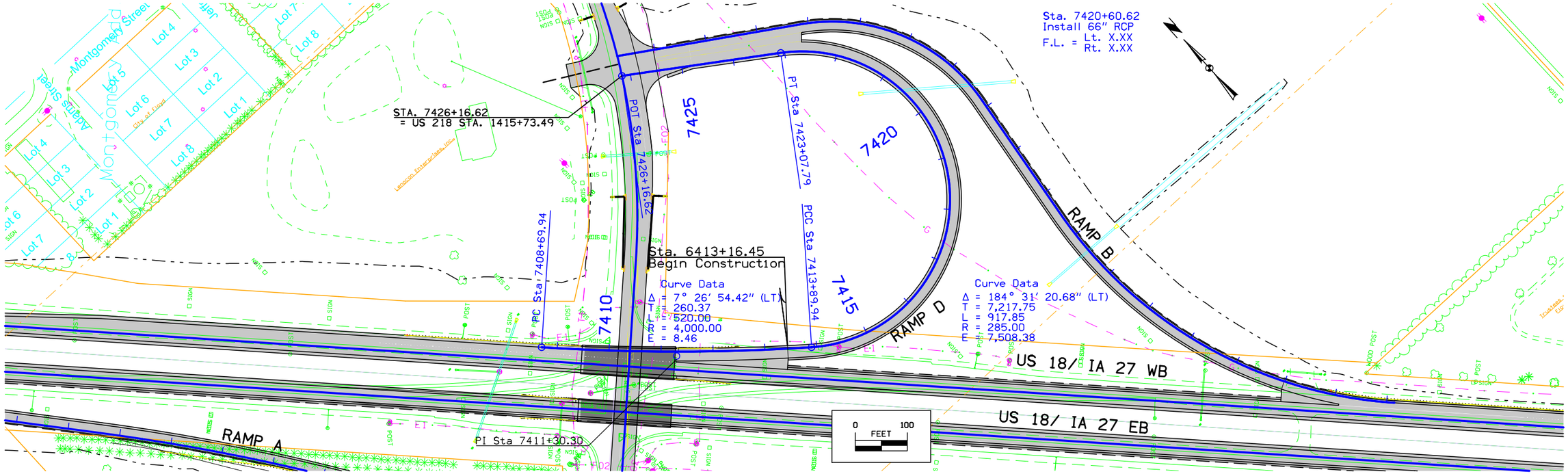


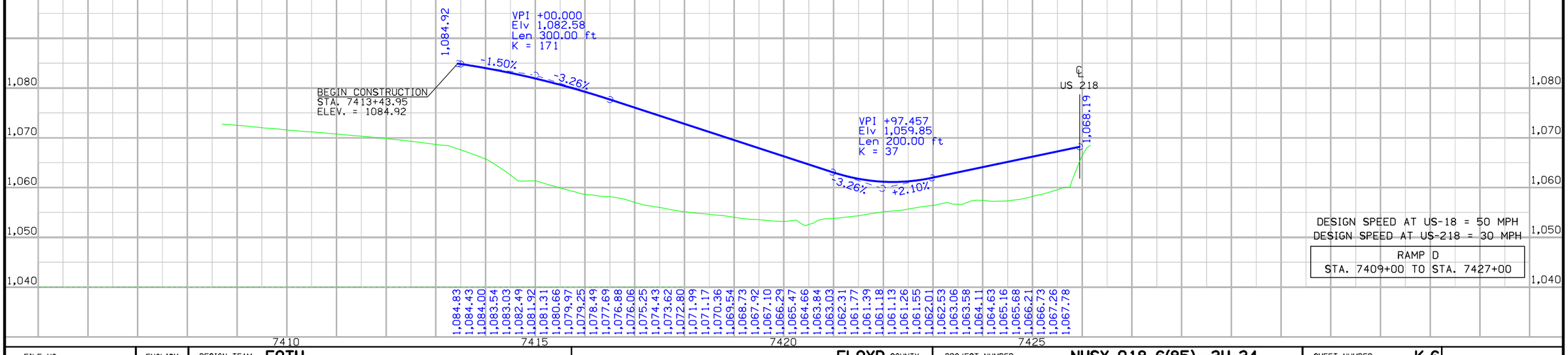
DESIGN SPEED AT US-18 = 60 MPH
DESIGN SPEED AT US-218 = 40 MPH

US 18/218 RAMP C
STA. 6409+00 TO STA. 6430+00

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER K.5

9:04:13 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095K05.dgn





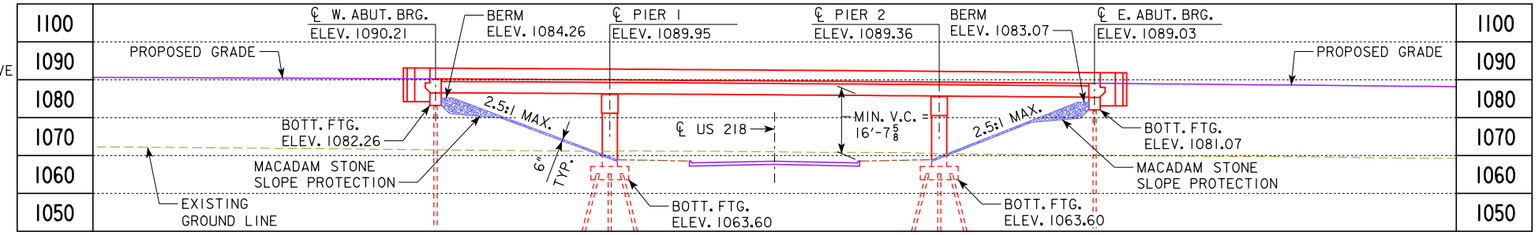
DESIGN SPEED AT US-18 = 50 MPH
DESIGN SPEED AT US-218 = 30 MPH

RAMP D
STA. 7409+00 TO STA. 7427+00

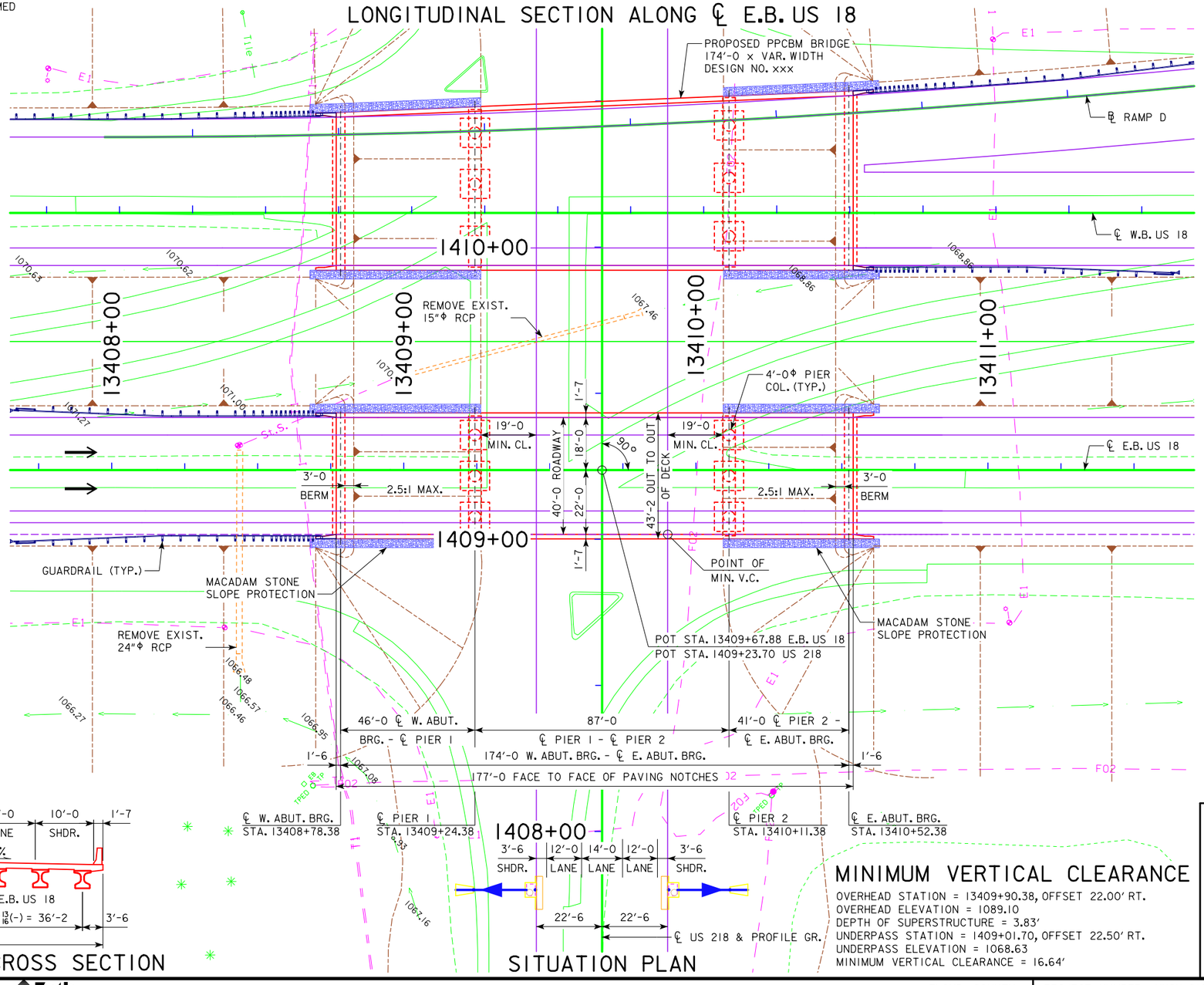
FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER K.6

9:04:56 AM 9/15/2017 asf pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095K06.dgn

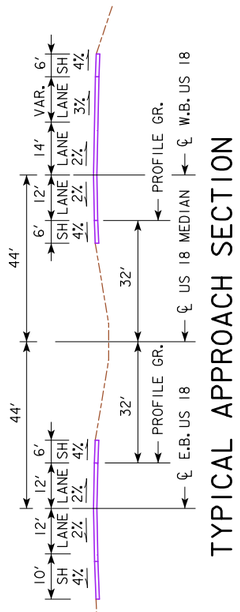
NOTES TO FINAL DESIGNER:
1. TL-4 BRIDGE RAILING PROPOSED.
2. TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.21' ABOVE THE PROFILE GRADE TO ACCOUNT FOR DECK CROSS SLOPE AND PARABOLIC CROWN.
3. PIER TYPE - COLUMN FRAME.
4. BEAM TYPE - BTB.
5. PIERS DESIGNED FOR VEHICULAR COLLISION FORCE.
6. BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.
7. ABUTMENT SLOPES TO BE CONFIRMED DURING FINAL DESIGN.



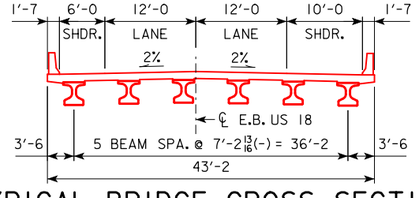
LONGITUDINAL SECTION ALONG ℄ E.B. US 18



TYPICAL APPROACH SECTION



TYPICAL BRIDGE CROSS SECTION

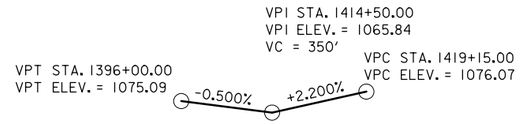


SITUATION PLAN

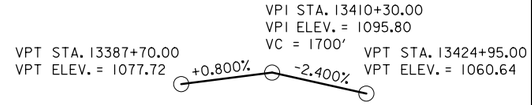
MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 13409+90.38, OFFSET 22.00' RT.
OVERHEAD ELEVATION = 1089.10
DEPTH OF SUPERSTRUCTURE = 3.83'
UNDERPASS STATION = 1409+01.70, OFFSET 22.50' RT.
UNDERPASS ELEVATION = 1068.63
MINIMUM VERTICAL CLEARANCE = 16.64'

BENCH MARK NO. 666 - FENO MONUMENT, STA. 414+09.93, 134' LT. - ELEV. 1060.97



PROPOSED PROFILE GRADE ON US 218



PROPOSED PROFILE GRADE ON E.B. US 18

UTILITIES LEGEND:

TI - CENTURYLINK
FO2 - OMNITEL
EI - MID AMERICAN ENERGY
ST. S. - CITY OF FLOYD

TRAFFIC ESTIMATE

2018 AADT	11,600	V.P.D.
2038 AADT	18,700	V.P.D.
202_ DHV	-	V.P.H.
TRUCKS	26	%
TOTAL DESIGN ESALs	-	

LOCATION

E.B. US 18 OVER US 218
T-96N R-16W
SECTION 21
FLOYD TOWNSHIP
FLOYD COUNTY
FHWA NO. ?
BRIDGE MAINT. NO. ?
LATITUDE 43.120932°
LONGITUDE -92.738774°

N

0 ENGLISH 40
SCALE IN FEET

PRELIMINARY

DESIGN FOR 0° SKEW

174'-0 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

46'-0, 41'-0 END SPANS — 87'-0 INTERIOR SPAN

SITUATION PLAN

STATION: 13409+65.38 (E.B. US 18) — FEBRUARY, 2018

FLOYD COUNTY

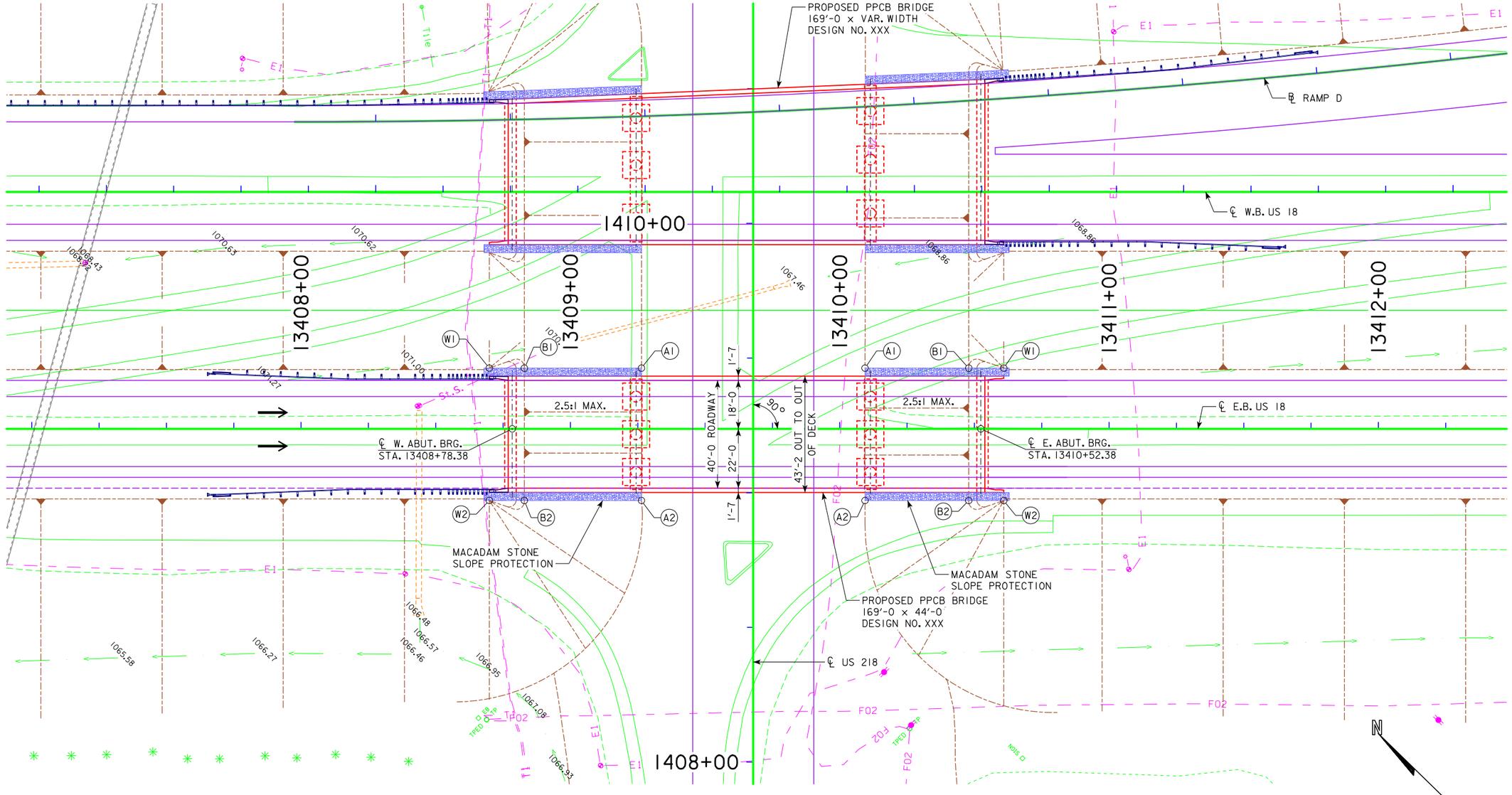
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 — FILE NO. ? — DESIGN NO. ?

DESIGN TEAM J.S.I. / T.J.C. / J.A.E. — Foth — FLOYD COUNTY — PROJECT NUMBER NHSX-018-6(96)--3H-34 — SHEET NUMBER V.1

9/7/2017 11:28:49 AM untitled pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\BRPrelim\Foth\STR_34018096_FOTH_Z02.dgn TSL_34_DDDD_EB_01 11x17_pdf.pltcfg

BENCH MARK NO. 666 - FENO MONUMENT, STA. 414+09.93,
134' LT. - ELEV. 1060.97



SITE PLAN

0 ENGLISH 40
SCALE IN FEET

BERM SLOPE LOCATION TABLE

POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	13409+26.38	22.58' LT	1068.74	13410+09.38	22.58' LT	1068.74
A2	13409+26.38	26.58' RT	1068.98	13410+09.38	26.58' RT	1068.98
B1	13408+82.88	22.58' LT	1084.26	13410+47.88	22.58' LT	1083.07
B2	13408+82.88	26.58' RT	1084.26	13410+47.88	26.58' RT	1083.07
W1	13408+69.88	22.58' LT	1089.77	13410+60.88	22.58' LT	1088.47
W2	13408+69.88	26.58' RT	1089.69	13410+60.88	26.58' RT	1088.39

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. ?? (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
SLOPE PROTECTION - WEST	XX	XX	XX	XX
SLOPE PROTECTION - EAST	XX	XX	XX	XX
TOTALS	XX	XX	XX	XX

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

STONE TOE - XX XX -- XX XX

USE WHEN QUANTITY EQUALS OR EXCEEDS QUANTITY UNDER THE BRIDGE.

PRELIMINARY

DESIGN FOR 0° SKEW

174'-0 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

46'-0, 41'-0 END SPANS 87'-0 INTERIOR SPAN

SITUATION PLAN - SITE

STATION: 13409+65.38 (E.B. US 18) FEBRUARY, 2018

FLOYD COUNTY

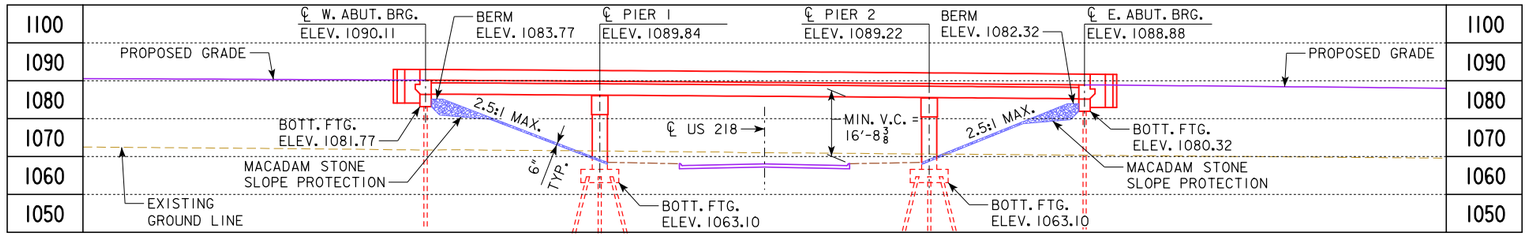
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 2 FILE NO. ? DESIGN NO. ?

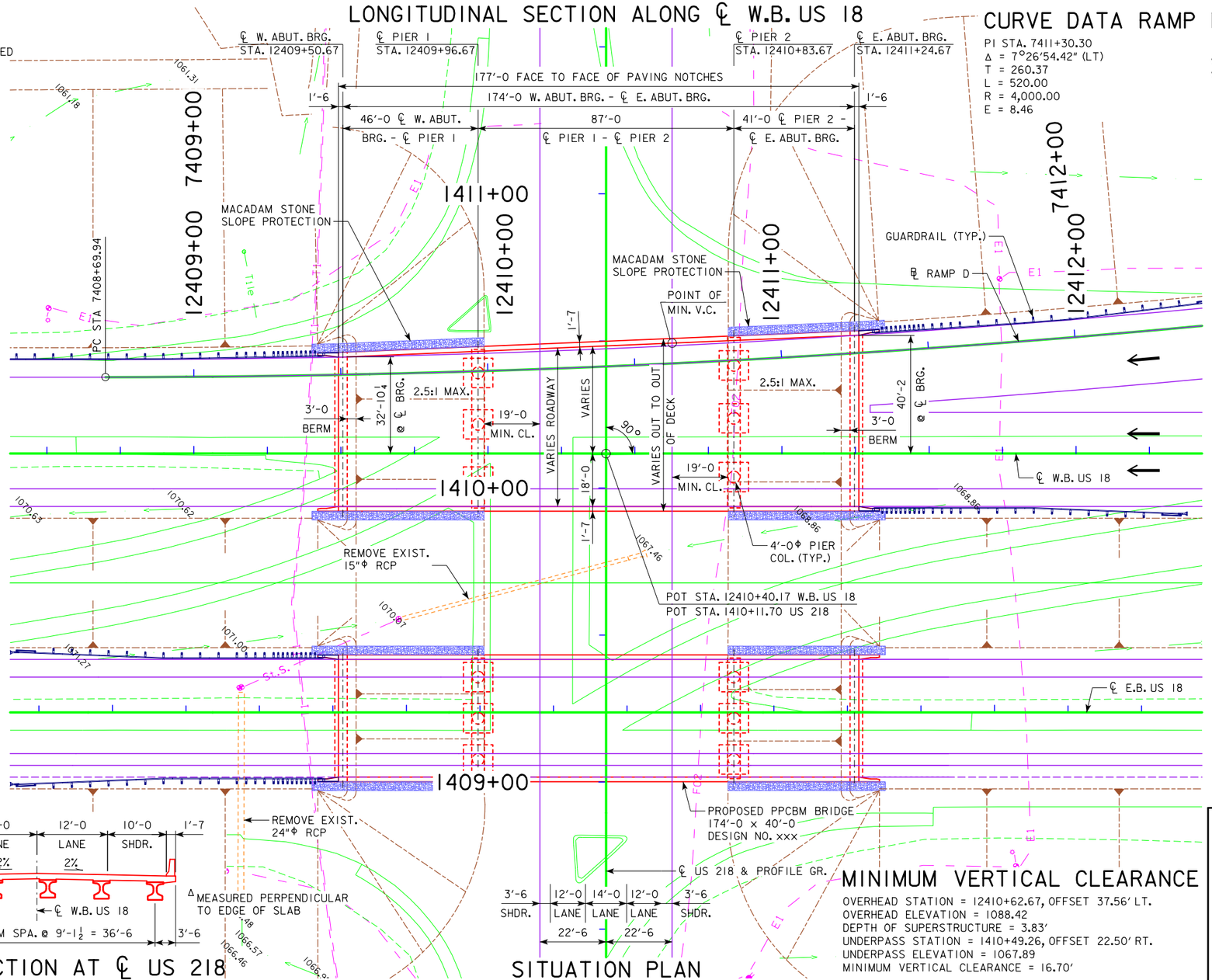
DESIGN TEAM J.S.I. / T.J.C. / J.A.E. Foth | FLOYD COUNTY | PROJECT NUMBER NHSX-018-6(96)--3H-34 | SHEET NUMBER V.2

9/7/2017 11:29:05 AM untitled pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\BRPrelim\Foth\STR_34018096_FOTH_Z02.dgn TSL_34_DDDD_EB_02 11x17_pdf.pltcfg

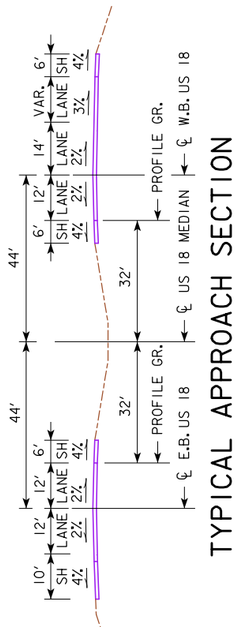
NOTES TO FINAL DESIGNER:
1. TL-4 BRIDGE RAILING PROPOSED.
2. TOP OF BRIDGE DECK AT CENTERLINE ROADWAY IS 0.21' ABOVE THE PROFILE GRADE TO ACCOUNT FOR DECK CROSS SLOPE AND PARABOLIC CROWN.
3. PIER TYPE - COLUMN FRAME.
4. BEAM TYPE - BTB.
5. NORTH GUTTER LINE IS TANGENT BETWEEN POINTS WHERE FACE OF PAVING NOTCH INTERSECTS 6' OFFSET OF ℄ RAMP D.
6. PIERS DESIGNED FOR VEHICULAR COLLISION FORCE.
7. BRIDGE AESTHETICS TO BE INCORPORATED DURING FINAL DESIGN.
8. ABUTMENT SLOPES TO BE CONFIRMED DURING FINAL DESIGN.



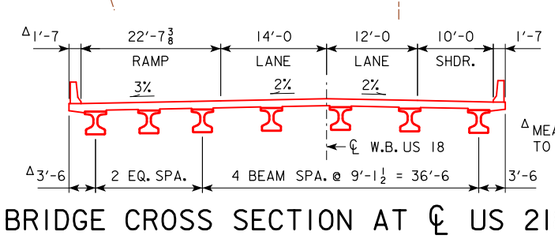
LONGITUDINAL SECTION ALONG ℄ W.B. US 18



TYPICAL APPROACH SECTION



BRIDGE CROSS SECTION AT ℄ US 218



SITUATION PLAN

CURVE DATA RAMP D

PI STA. 7411+30.30
Δ = 7°26'54.42" (LT)
T = 260.37
L = 520.00
R = 4,000.00
E = 8.46

BENCH MARK NO. 666 - FENO MONUMENT, STA. 414+09.93, 134' LT. - ELEV. 1060.97

VPI STA. 1414+50.00
VPI ELEV. = 1065.84
VC = 350'
VPT STA. 1396+00.00
VPT ELEV. = 1075.09
VPC STA. 1419+15.00
VPC ELEV. = 1076.07
-0.500% +2.200%

PROPOSED PROFILE GRADE ON US 218

VPI STA. 12410+90.00
VPI ELEV. = 1096.17
VC = 1800'
VPT STA. 12387+50.00
VPT ELEV. = 1077.38
VPT STA. 12425+95.00
VPT ELEV. = 1060.05
+0.803% -2.400%

PROPOSED PROFILE GRADE ON W.B. US 18

UTILITIES LEGEND:

T1 - CENTURYLINK
FO2 - OMNITEL
E1 - MID AMERICAN ENERGY
ST. S. - CITY OF FLOYD

TRAFFIC ESTIMATE

2018 AADT	11,600	V.P.D.
2038 AADT	18,700	V.P.D.
202_ DHV	-	V.P.H.
TRUCKS	26	%
TOTAL DESIGN ESALs	-	

LOCATION

W.B. US 18 OVER US 218
T-96N R-16W
SECTION 21
FLOYD TOWNSHIP
FLOYD COUNTY
FHWA NO. ?
BRIDGE MAINT. NO. ?
LATITUDE 43.121099°
LONGITUDE -92.738536°

N

0 ENGLISH 40
SCALE IN FEET

PRELIMINARY

MINIMUM VERTICAL CLEARANCE

OVERHEAD STATION = 12410+62.67, OFFSET 37.56' LT.
OVERHEAD ELEVATION = 1088.42
DEPTH OF SUPERSTRUCTURE = 3.83'
UNDERPASS STATION = 1410+49.26, OFFSET 22.50' RT.
UNDERPASS ELEVATION = 1067.89
MINIMUM VERTICAL CLEARANCE = 16.70'

DESIGN FOR 0° SKEW

174'-0 X VAR. WIDTH PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

46'-0, 41'-0 END SPANS 87'-0 INTERIOR SPAN

SITUATION PLAN

STATION: 12410+37.67 (W.B. US 18) FEBRUARY, 2018

FLOYD COUNTY

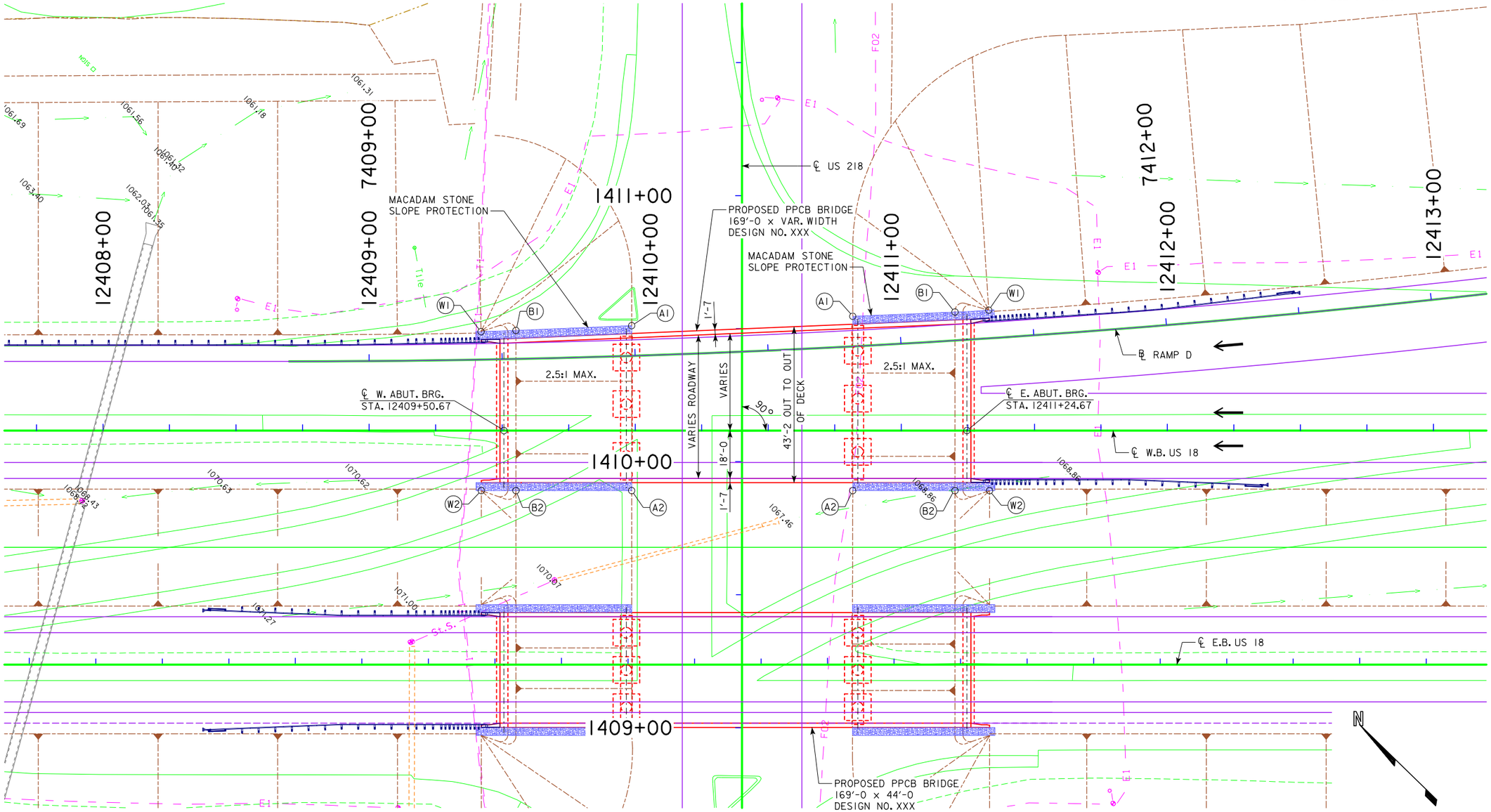
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. ? DESIGN NO. ?

DESIGN TEAM J.S.I. / T.J.C. / J.A.E. Foth | FLOYD COUNTY | PROJECT NUMBER NHSX-018-6(96)--3H-34 | SHEET NUMBER V.3

9/7/2017 11:29:20 AM untitled pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\BRPrelim\Foth\STR_34018096_FOTH_Z02.dgn TSL_34_DDDD_WB_01 11x17_pdf.pltcfg

BENCH MARK NO. 666 - FENO MONUMENT, STA. 414+09.93,
134' LT. - ELEV. 1060.97



SITE PLAN

BERM SLOPE LOCATION TABLE

POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	12409+98.67	39.45' LT	1068.21	12410+81.67	42.94' LT	1068.20
A2	12409+98.67	22.58' RT	1068.52	12410+81.67	22.58' RT	1068.52
B1	12409+55.17	37.63' LT	1083.77	12411+20.17	44.56' LT	1082.32
B2	12409+55.17	22.58' RT	1083.77	12411+20.17	22.58' RT	1082.32
W1	12409+42.09	37.24' LT	1089.06	12411+32.86	45.26' LT	1087.48
W2	12409+42.17	22.58' RT	1089.68	12411+33.17	22.58' RT	1088.33

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. ?? (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
SLOPE PROTECTION - WEST	XX	XX	XX	XX
SLOPE PROTECTION - EAST	XX	XX	XX	XX
TOTALS	XX	XX	XX	XX

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.

STONE TOE - XX XX -- XX XX

USE WHEN QUANTITY EQUALS OR EXCEEDS QUANTITY UNDER THE BRIDGE.

PRELIMINARY

DESIGN FOR 0° SKEW

174'-0 X VAR. WIDTH PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

46', 41'-0 END SPANS 87'-0 INTERIOR SPAN

SITUATION PLAN - SITE

STATION: 12410+37.67 (W.B. US 18) FEBRUARY, 2018

FLOYD COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 2 FILE NO. ? DESIGN NO. ?

DESIGN TEAM J.S.I. / T.J.C. / J.A.E. Foth | FLOYD COUNTY | PROJECT NUMBER NHSX-018-6(96)--3H-34 | SHEET NUMBER V.4

9/7/2017 11:29:34 AM untitled pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\BRPrelim\Foth\STR_34018096_FOTH_Z02.dgn TSL_34_DDDD_WB_02 11x17_pdf.pltcfg

US 18

Preliminary

366+00.00

365+50.00

365+00.00

364+50.00

364+00.00

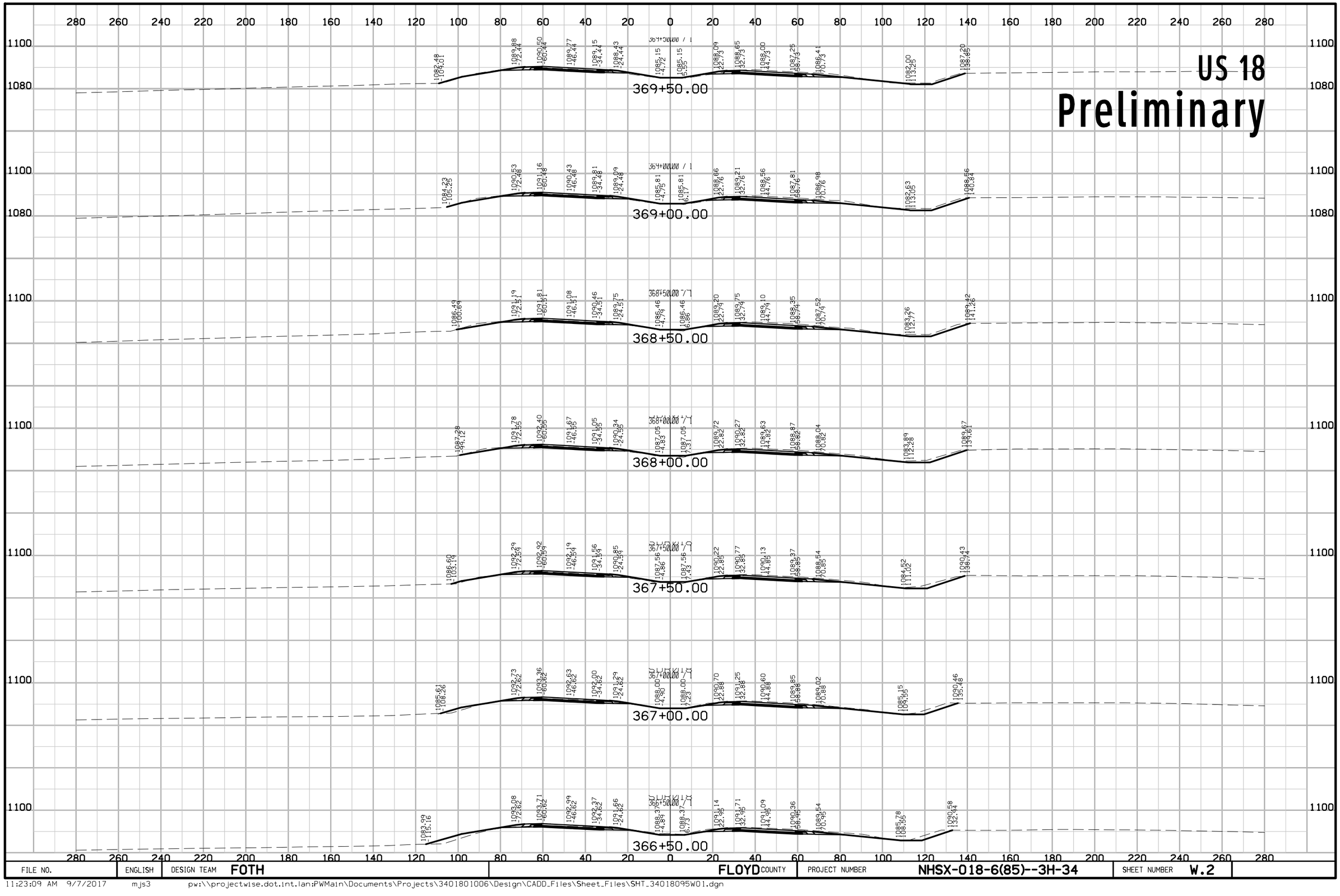
363+50.00

363+00.00

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.1

11:23:08 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

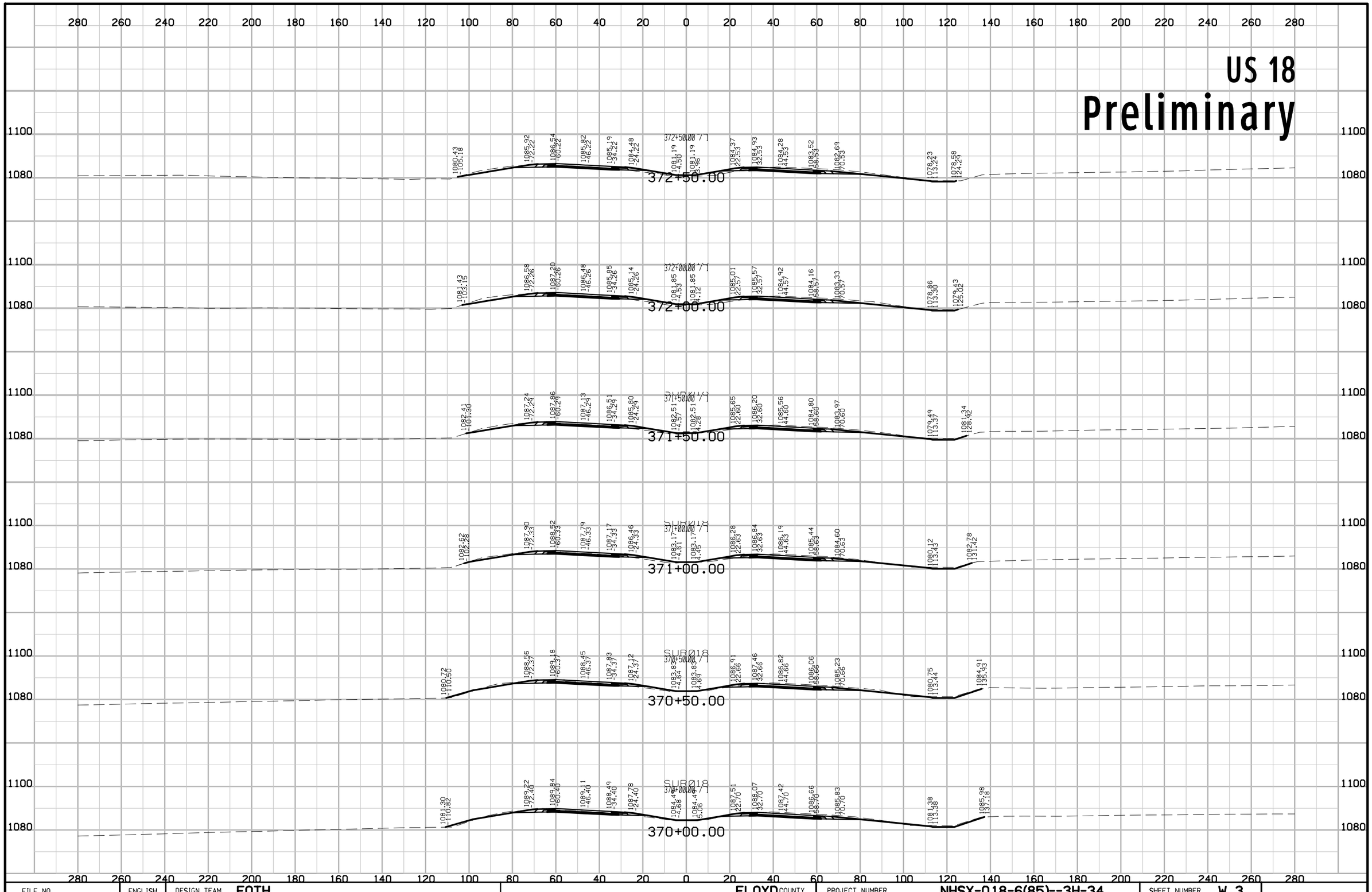
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.2

11:23:09 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

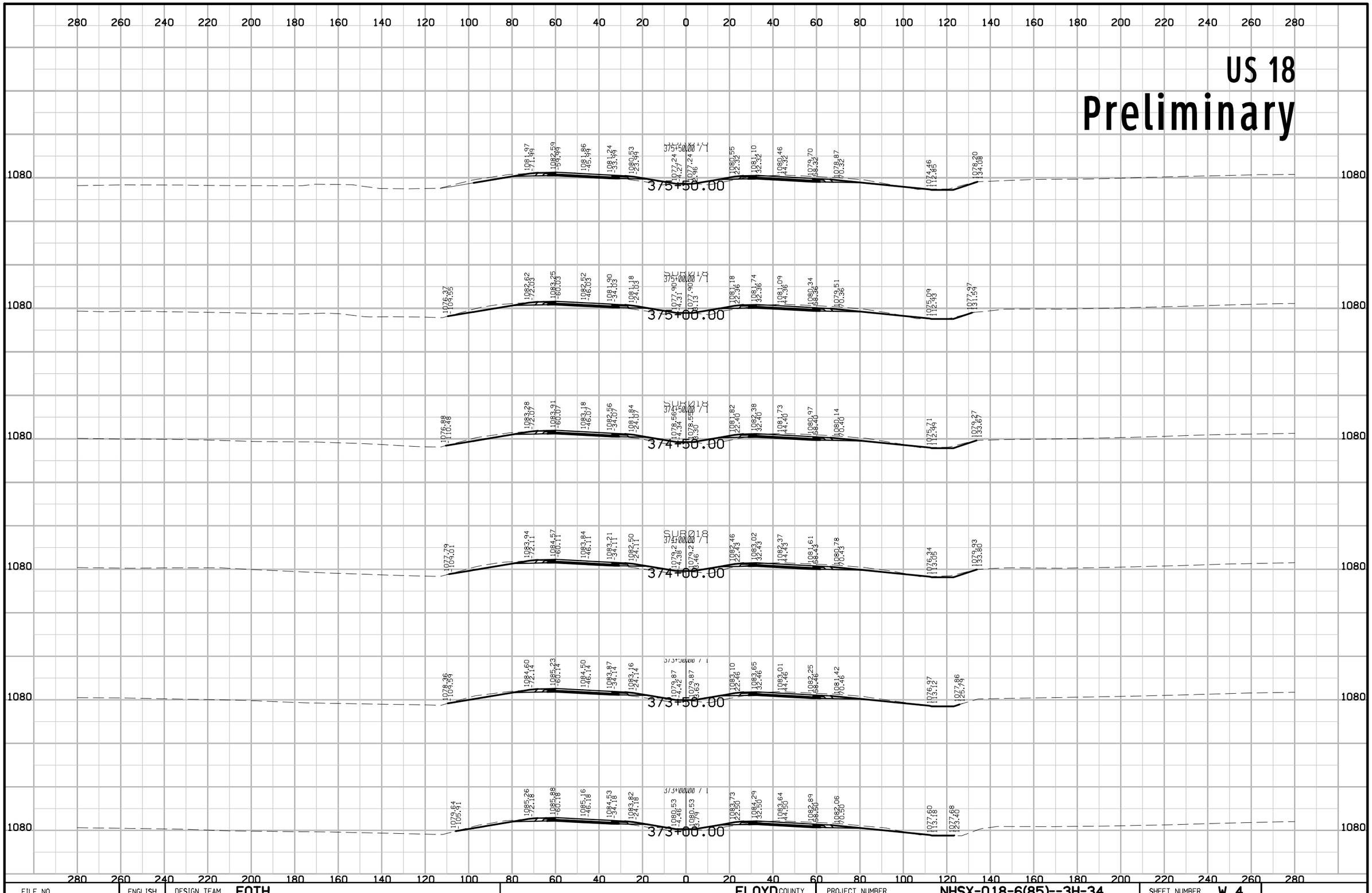
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	W.3

11:23:10 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

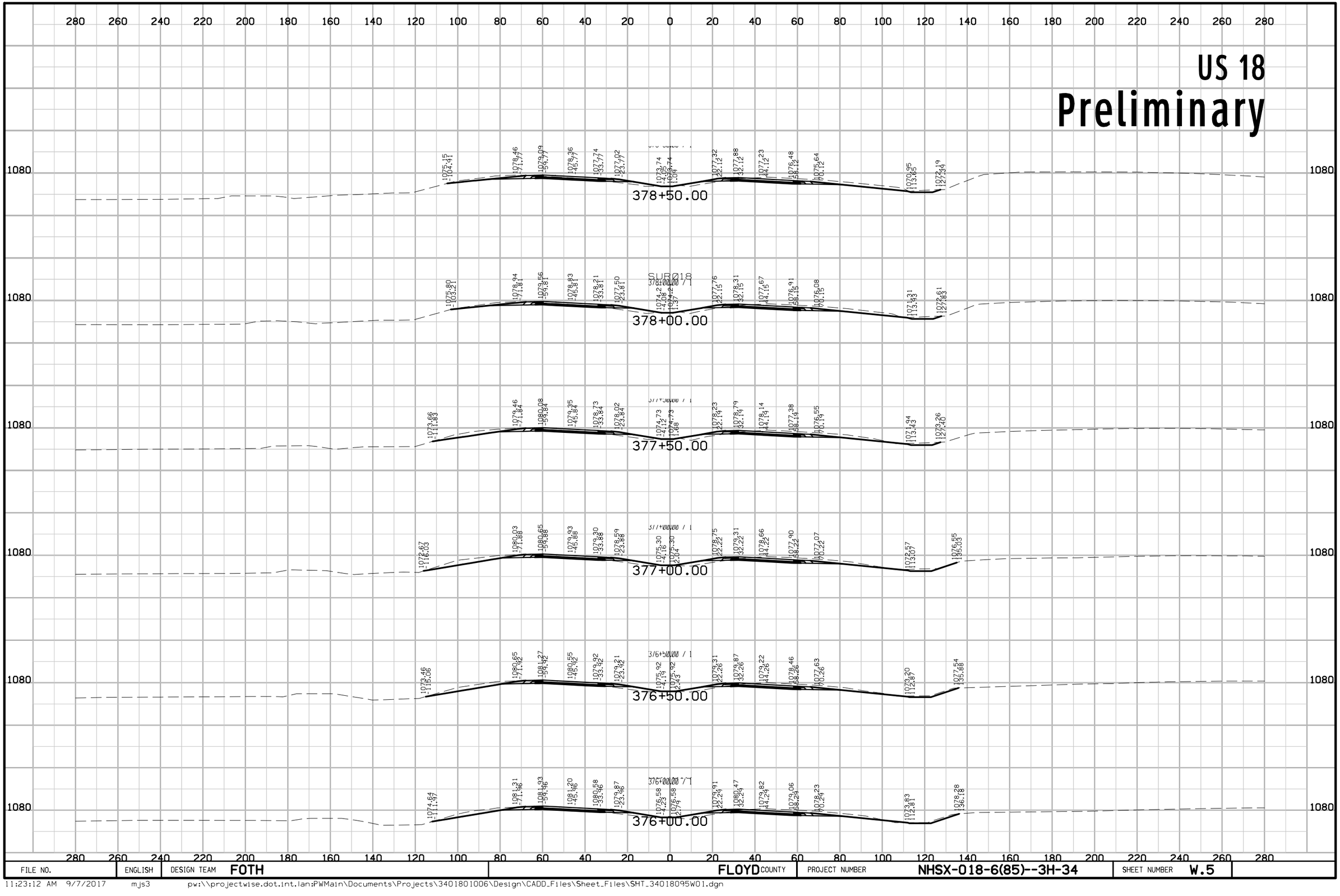
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.4

11:23:11 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

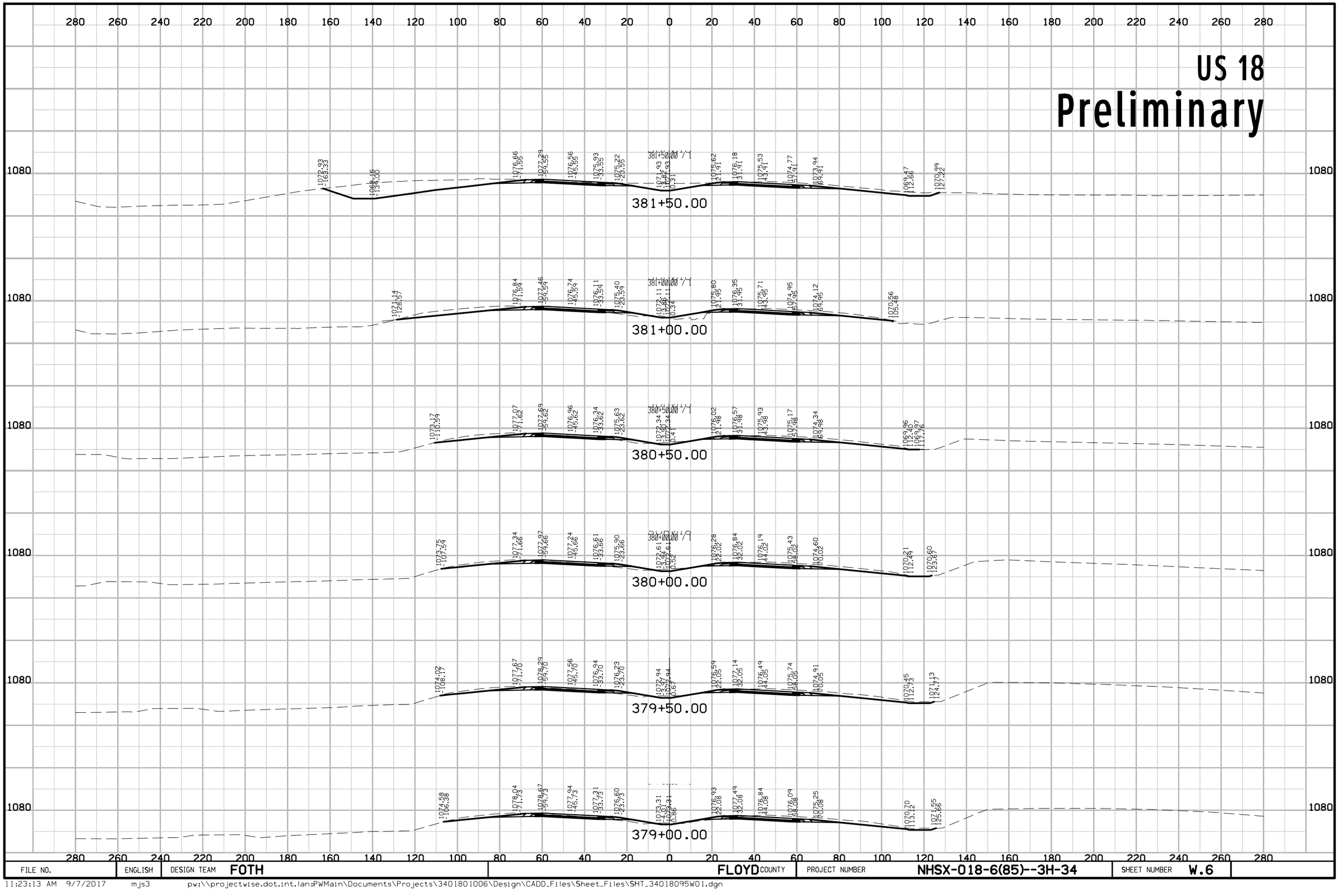
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.5

11:23:12 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

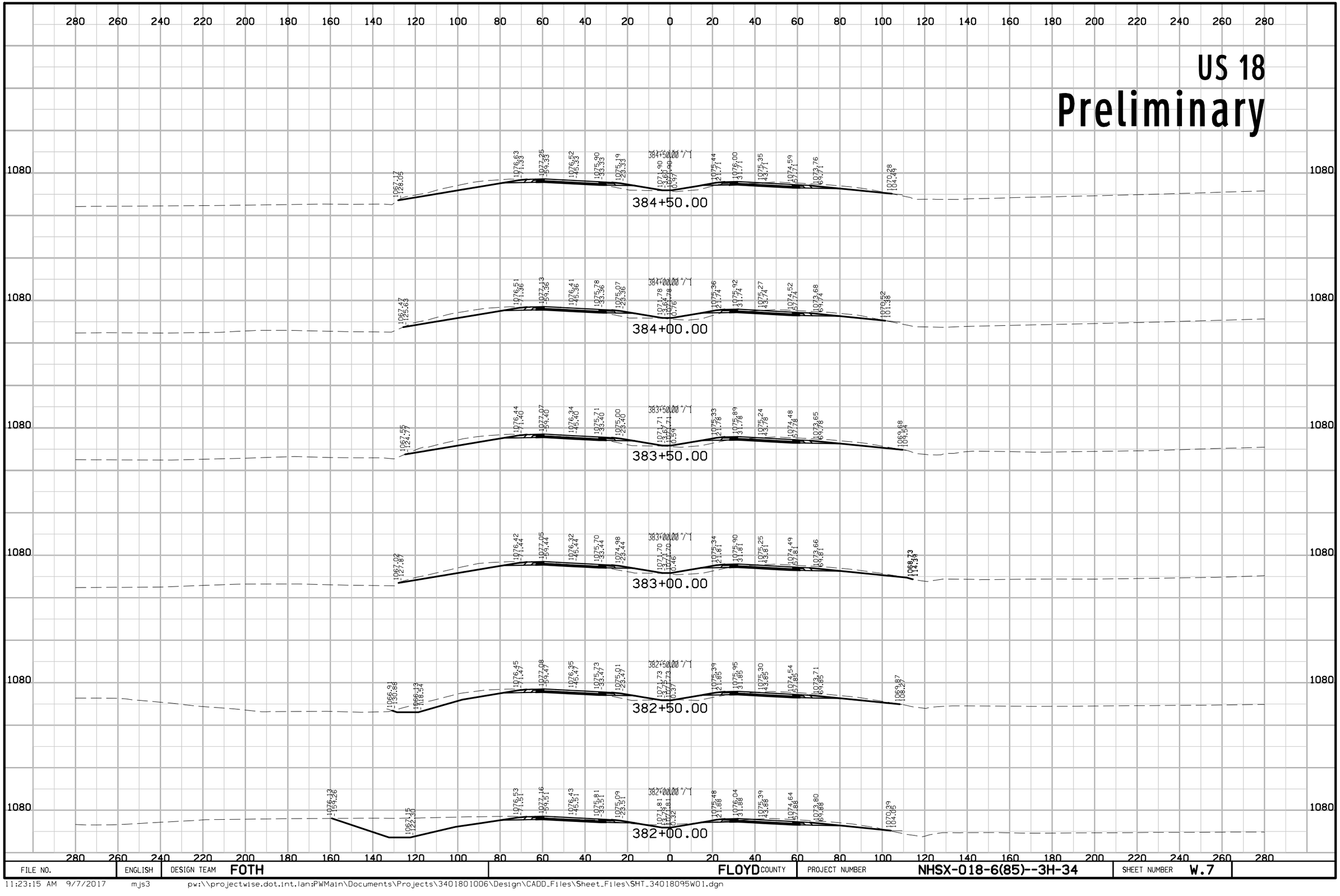
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.6

11:23:13 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

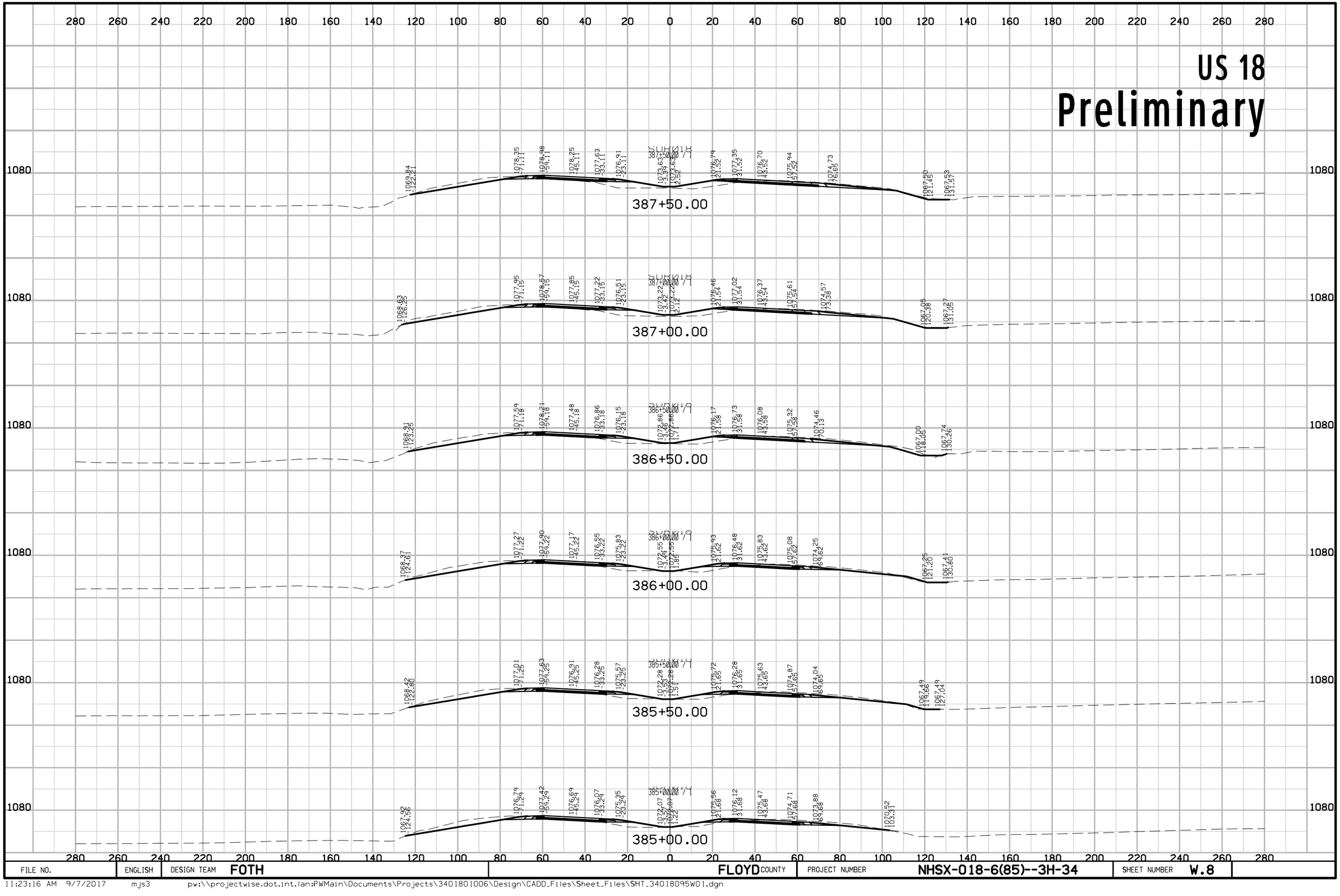
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.7

11:23:15 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

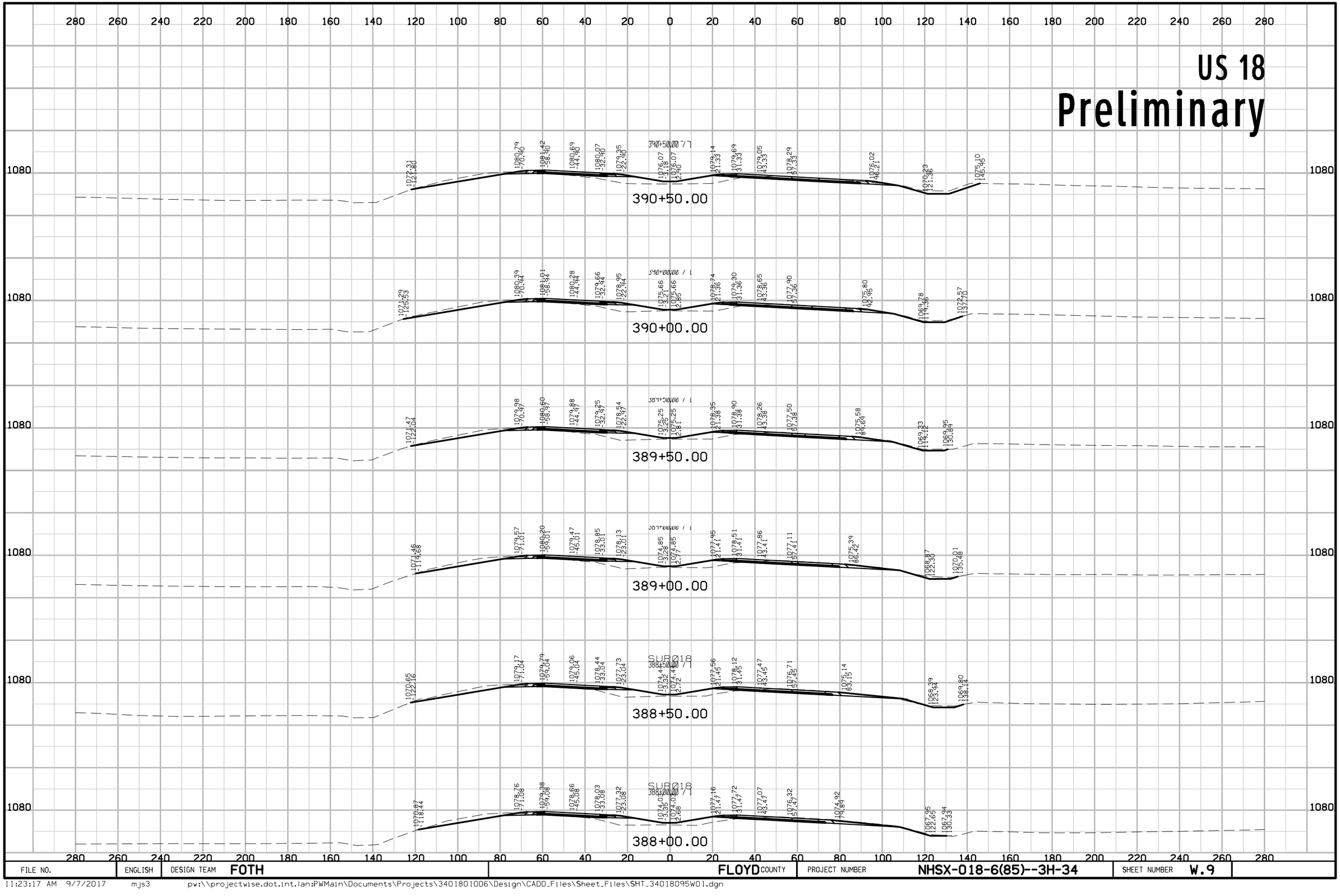
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.8

11:23:16 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

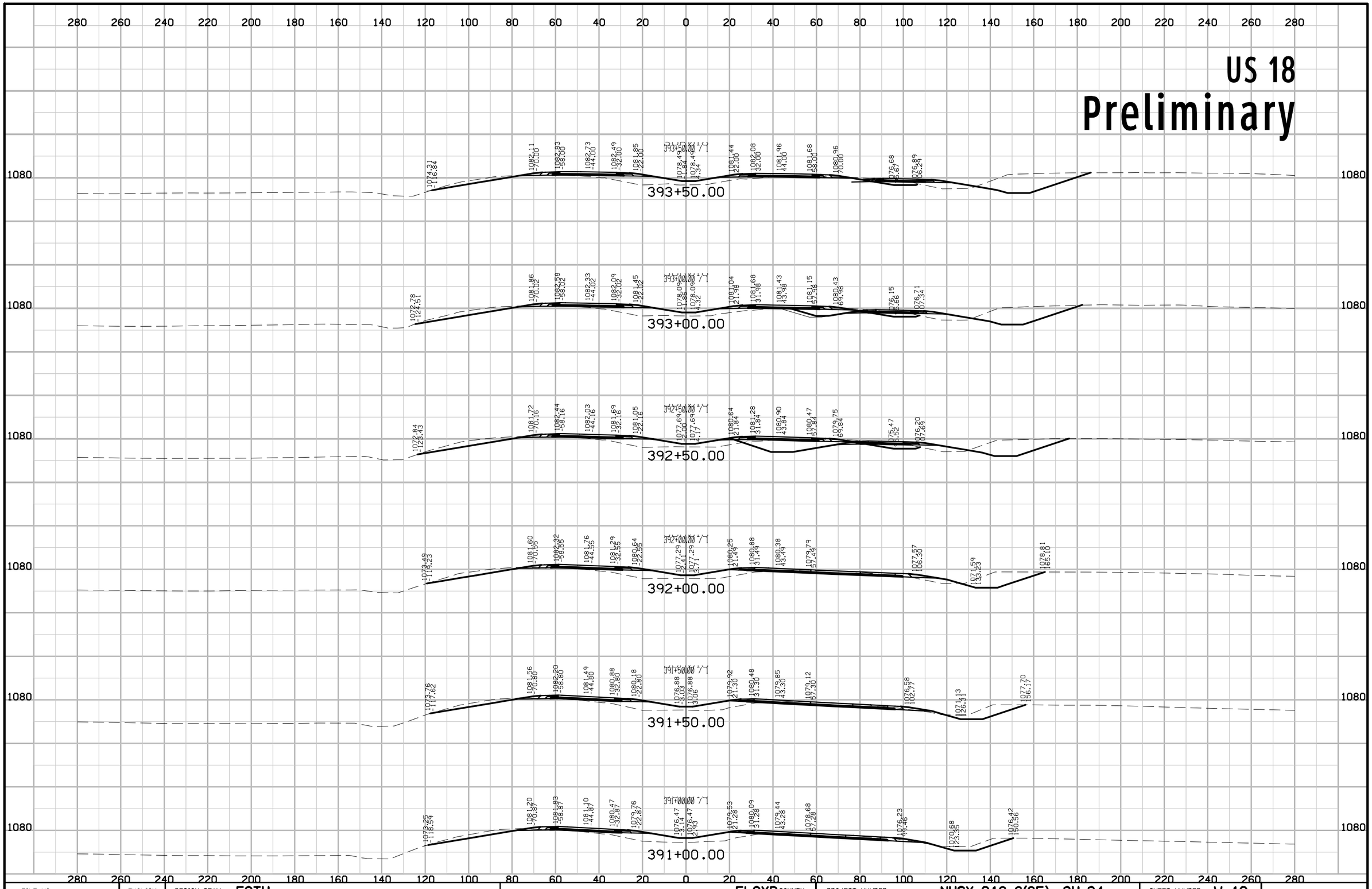
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.9

11:23:17 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

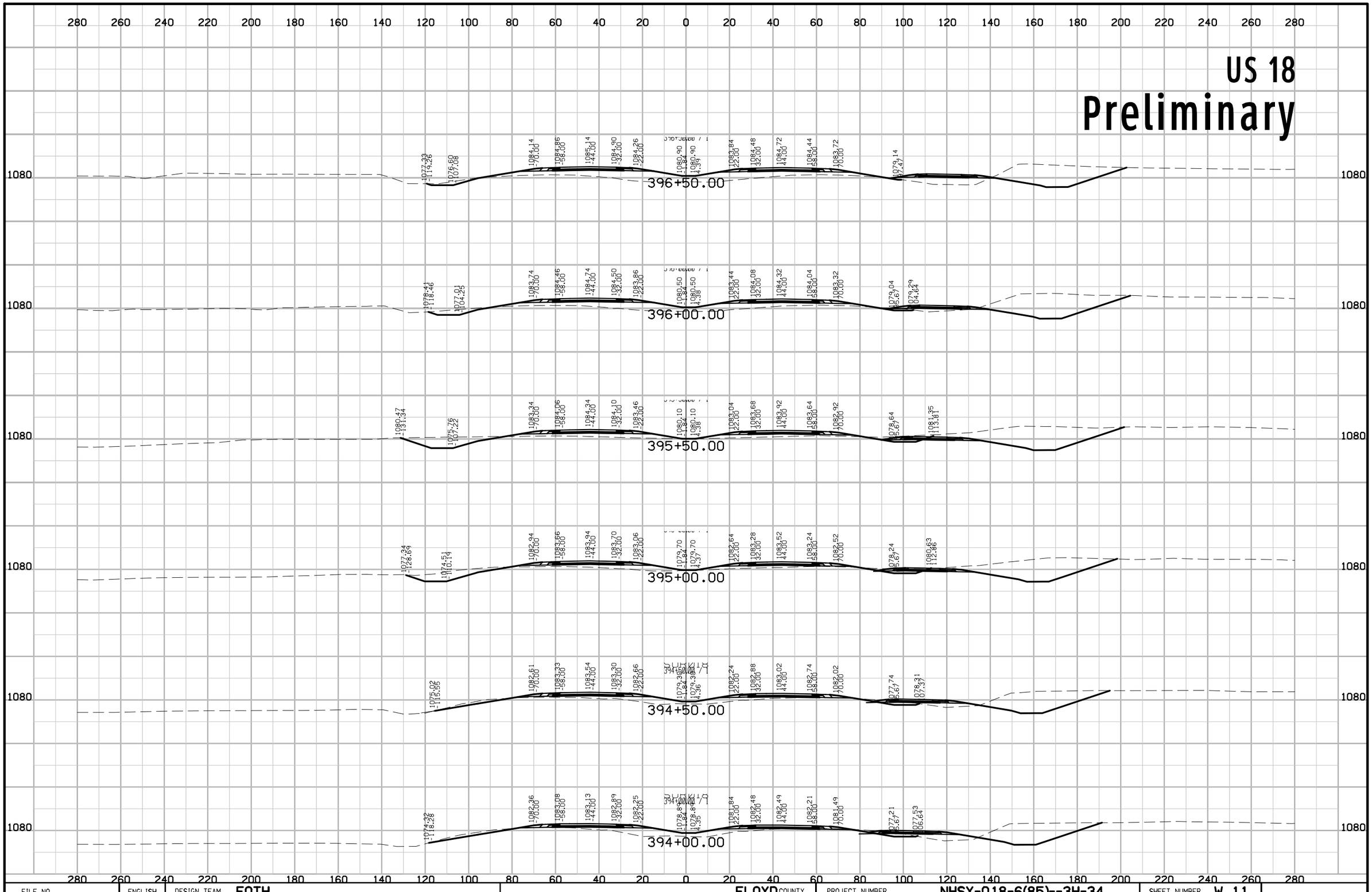
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.10

11:23:18 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

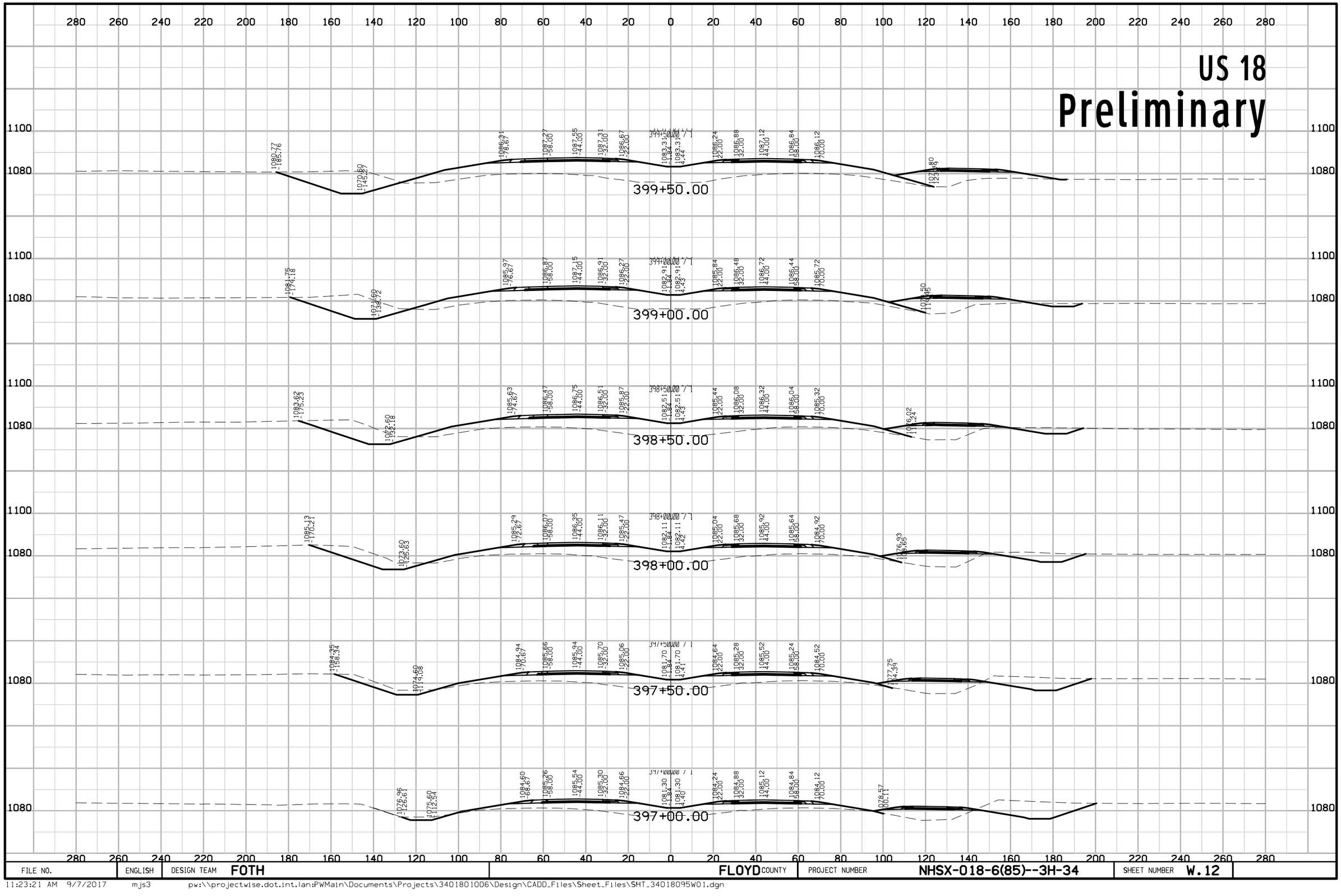
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.11

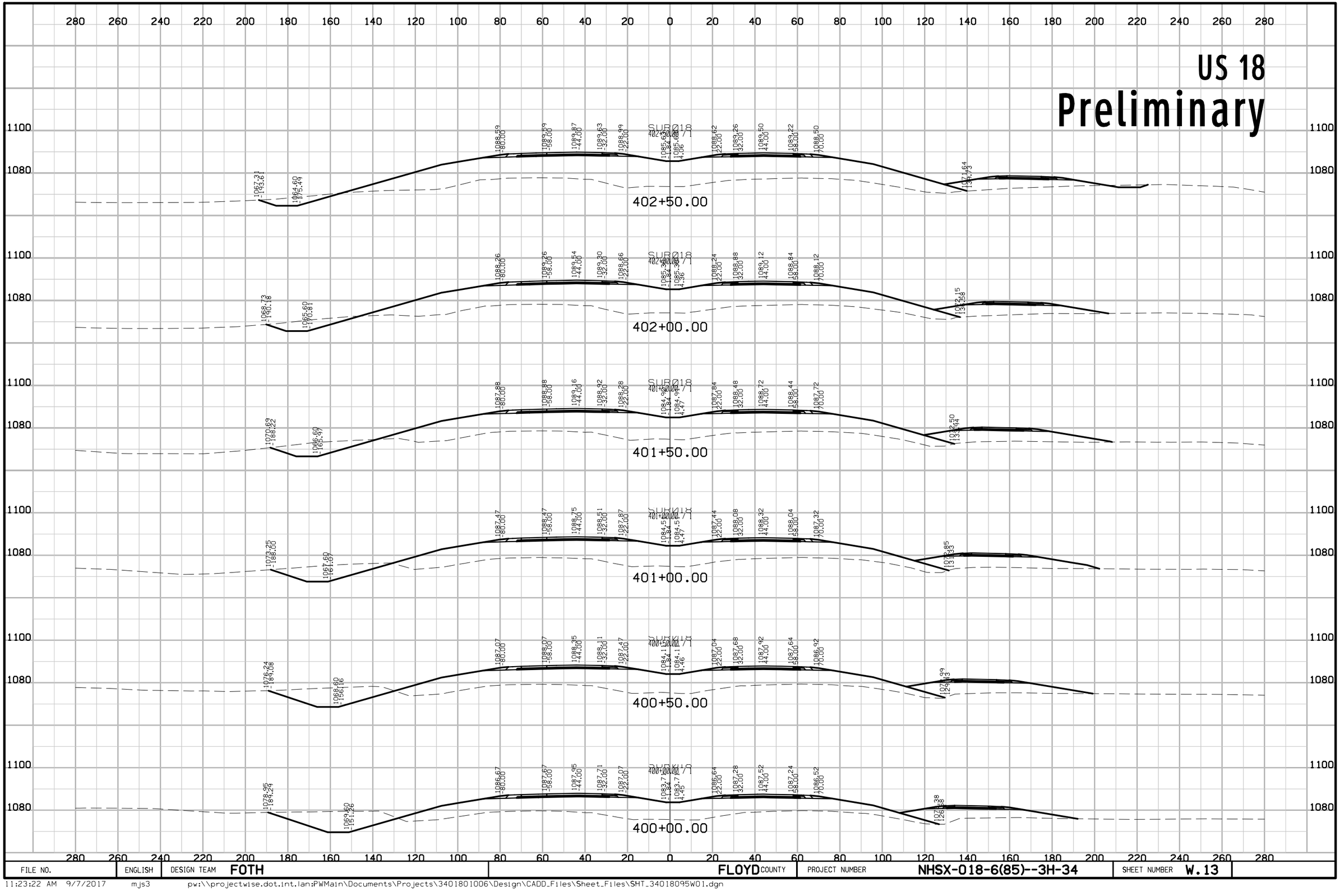
11:23:20 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.12

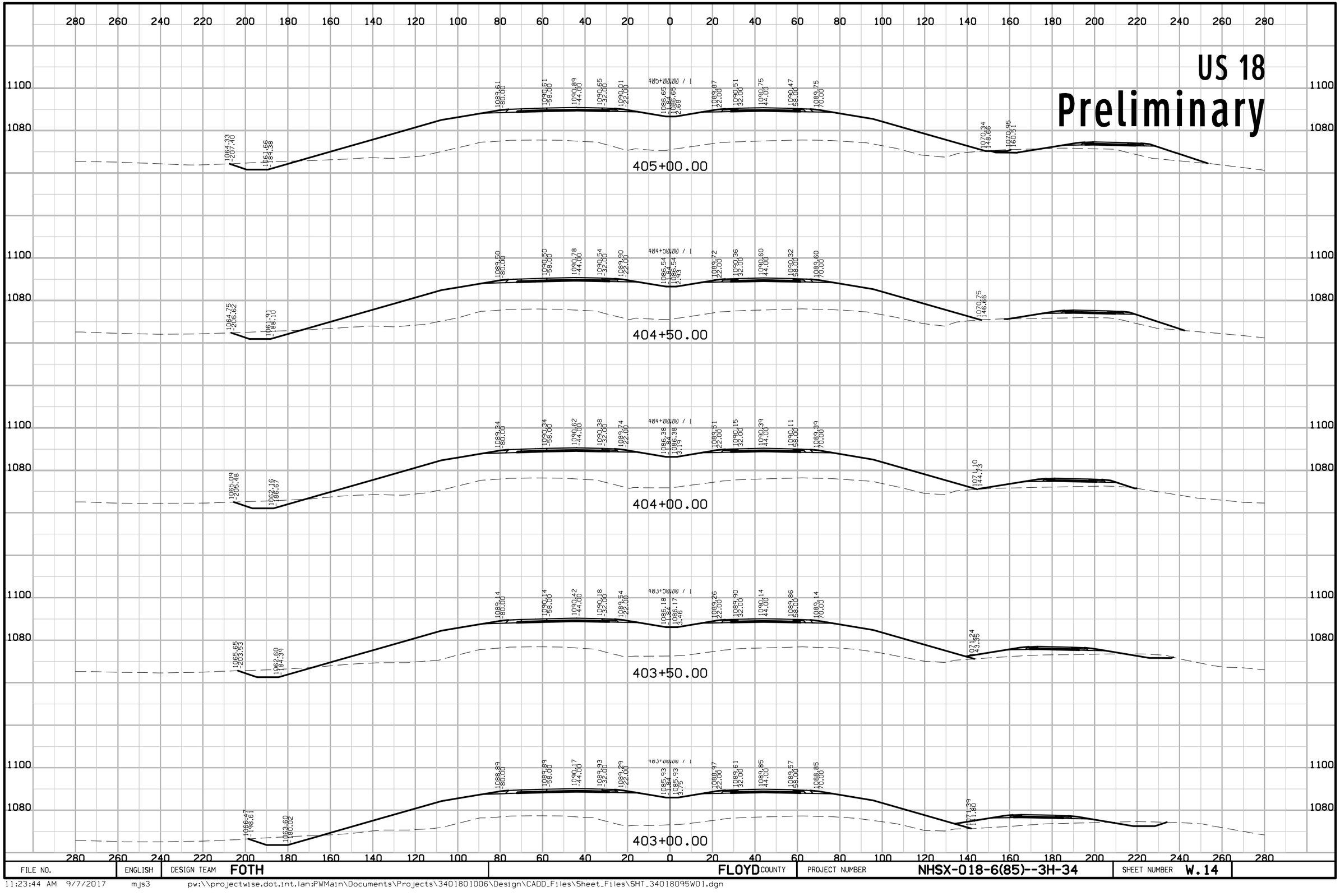
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.13

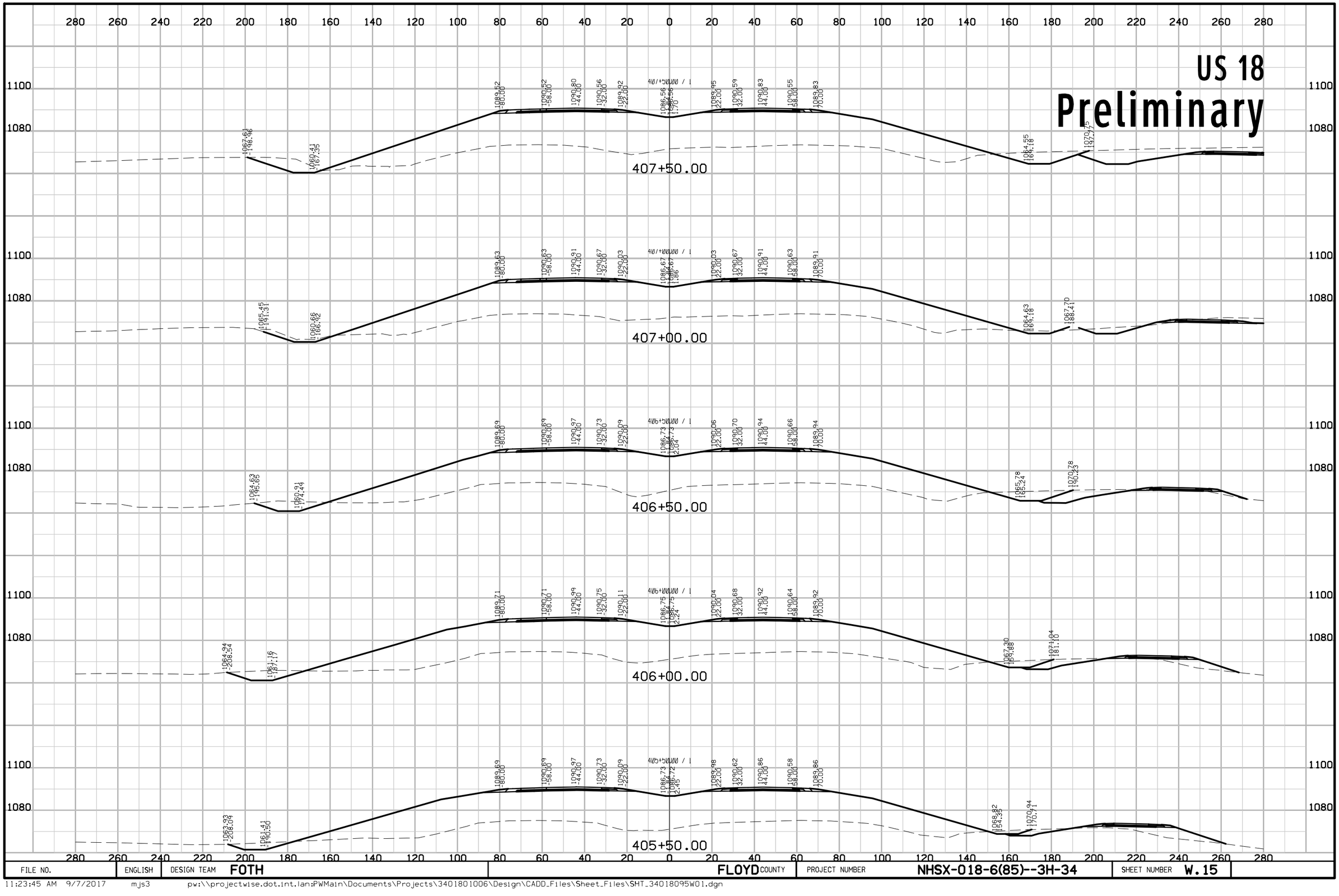
11:23:22 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	W.14

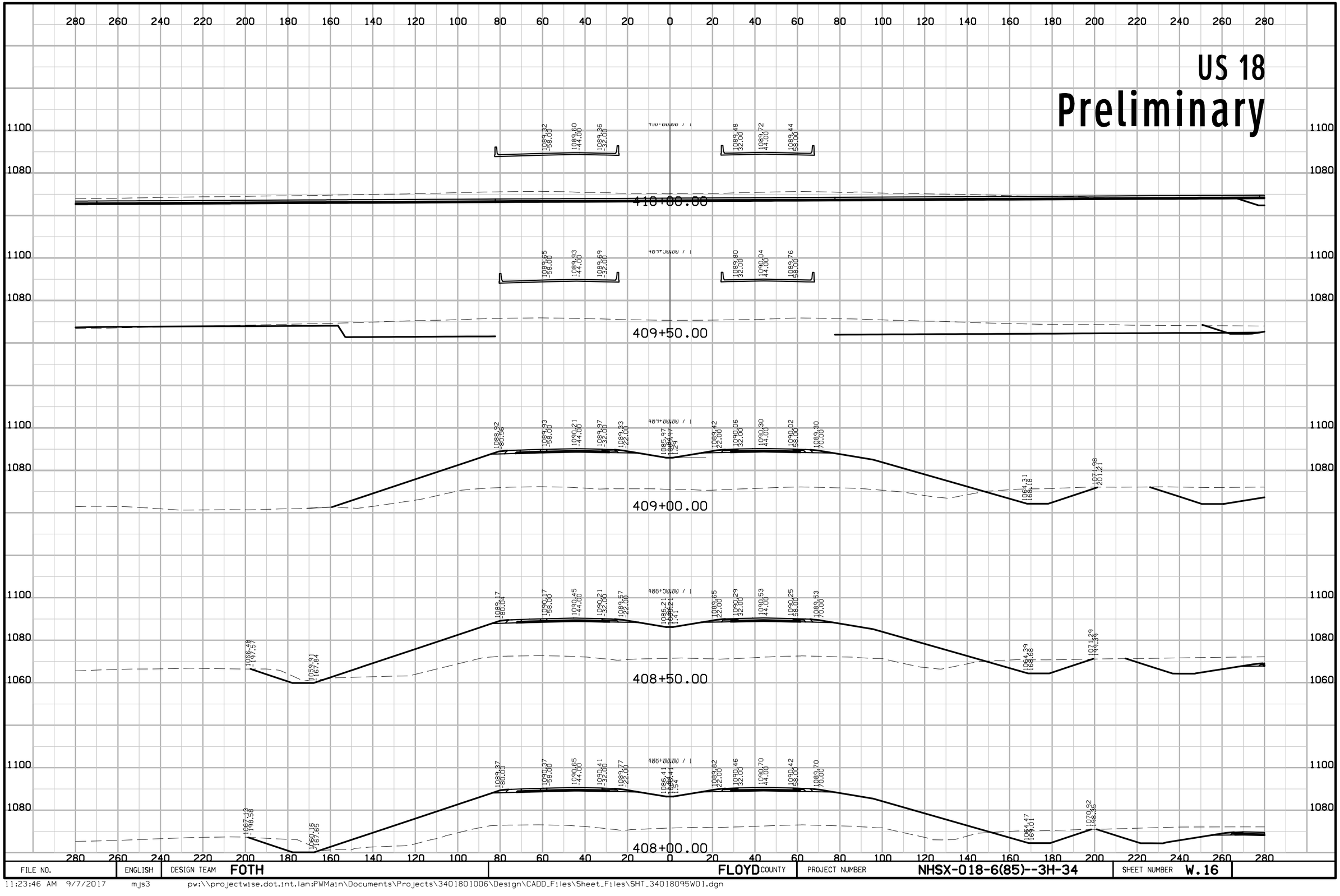
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.15

11:23:45 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

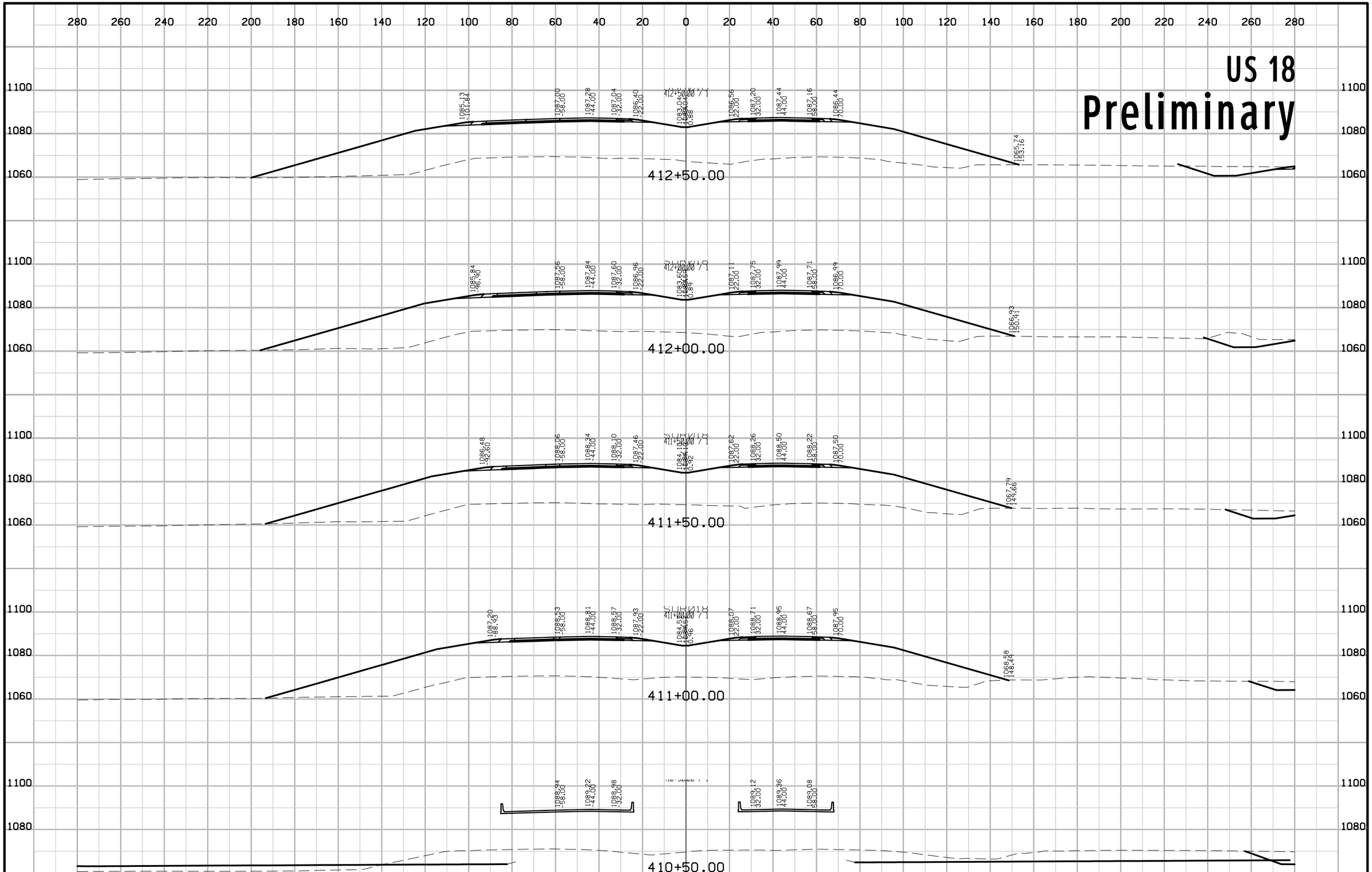
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.16

11:23:46 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18
Preliminary

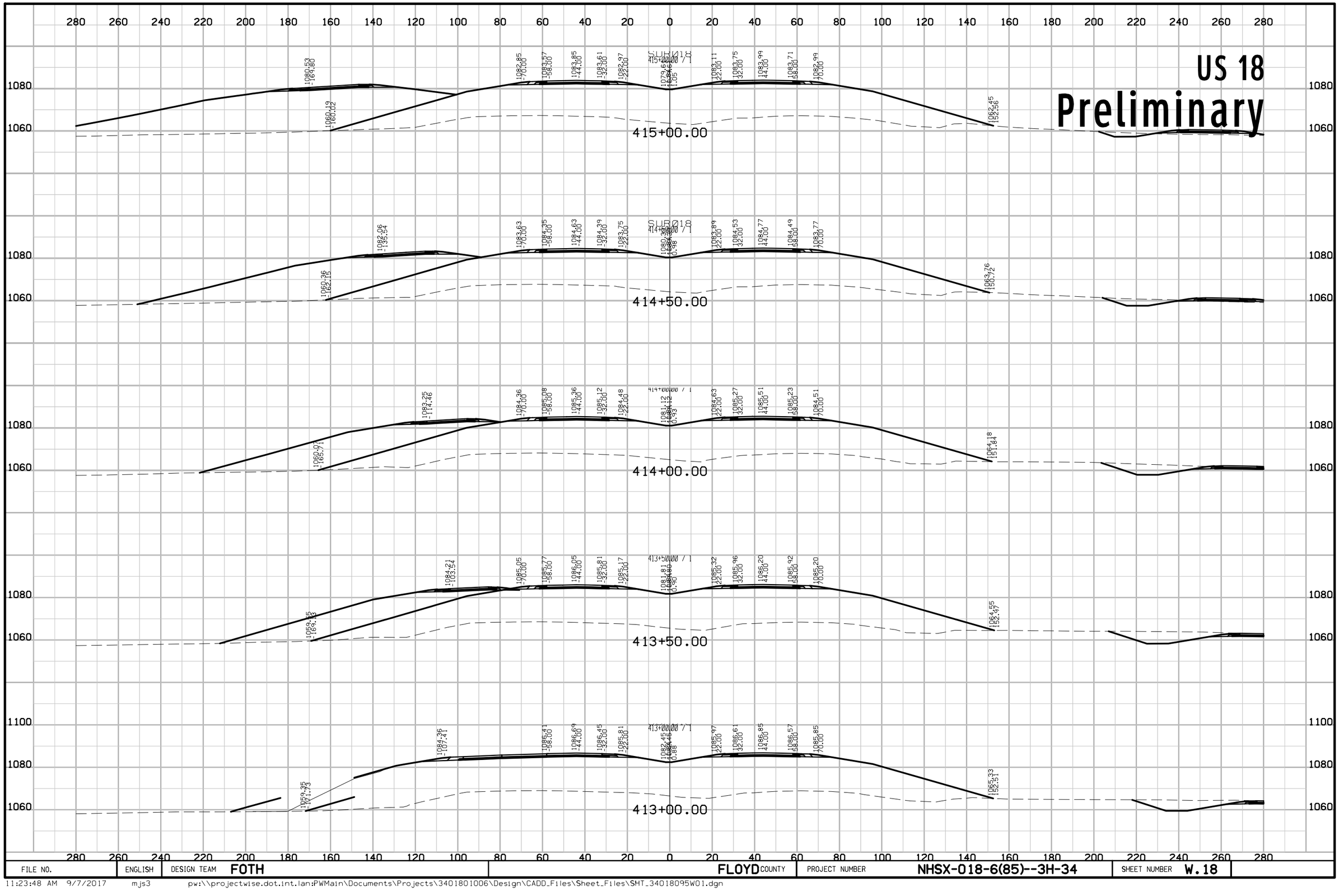


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.17

11:23:47 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18

Preliminary

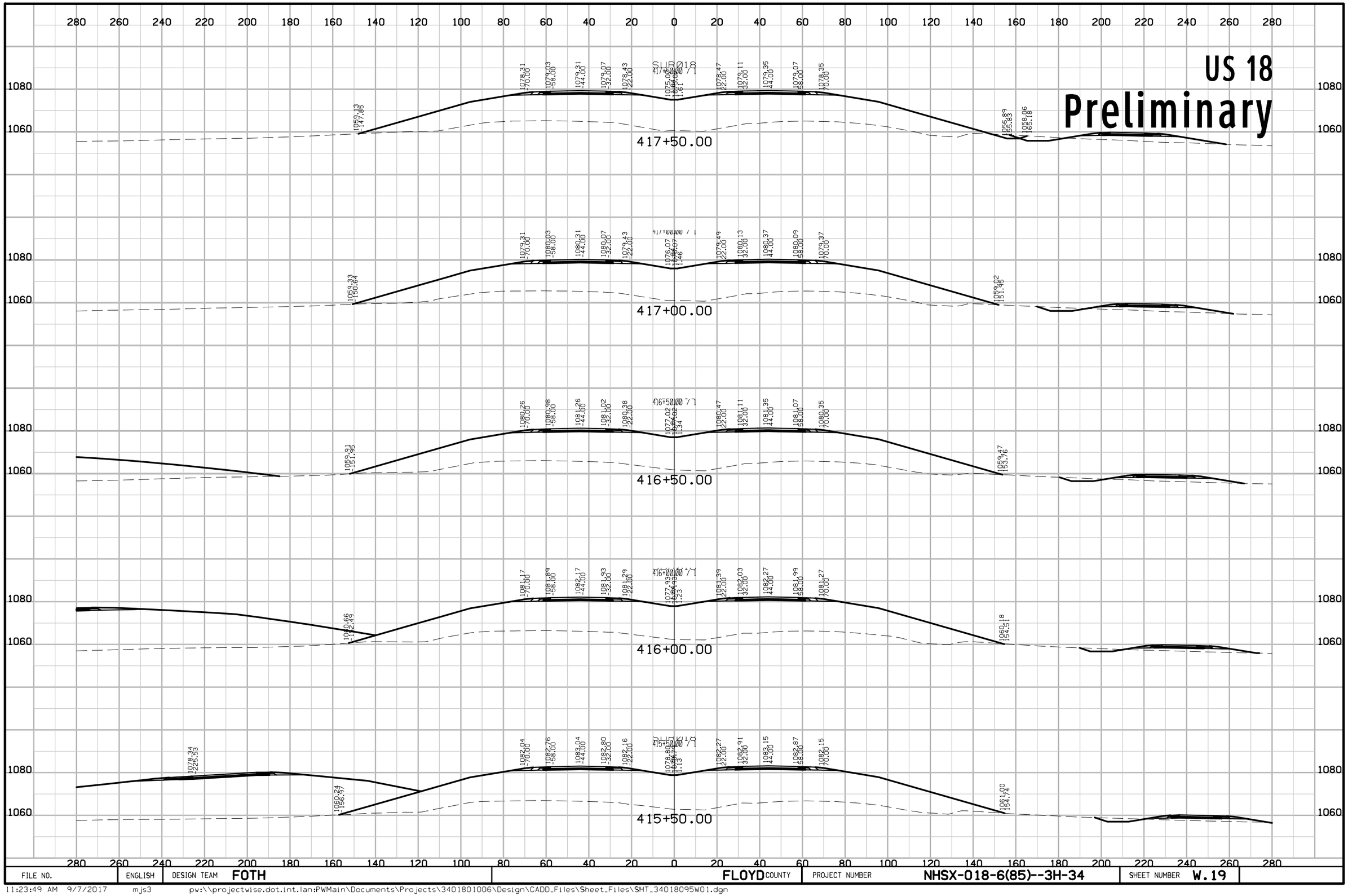


FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	W.18

11:23:48 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18

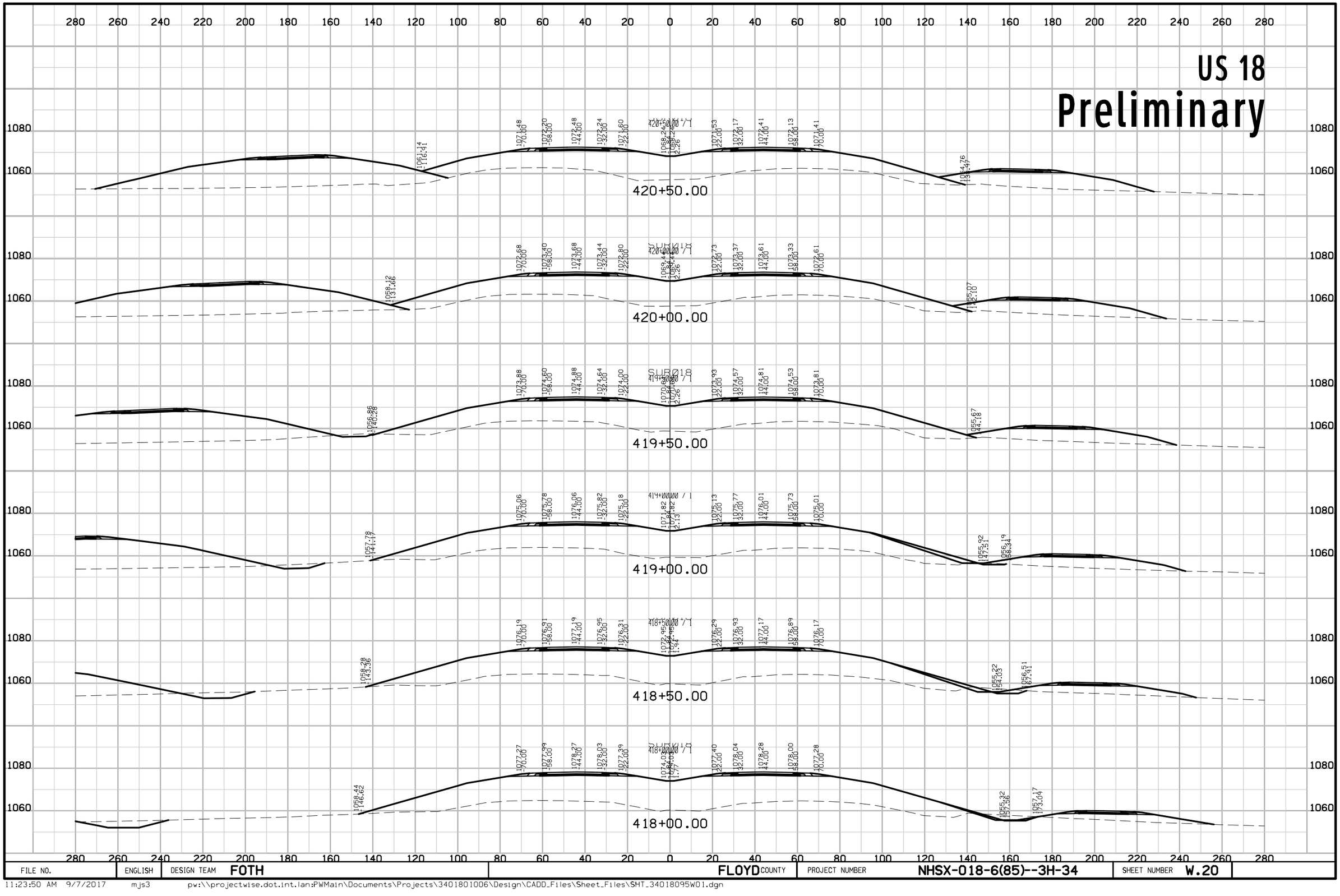
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.19

11:23:49 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

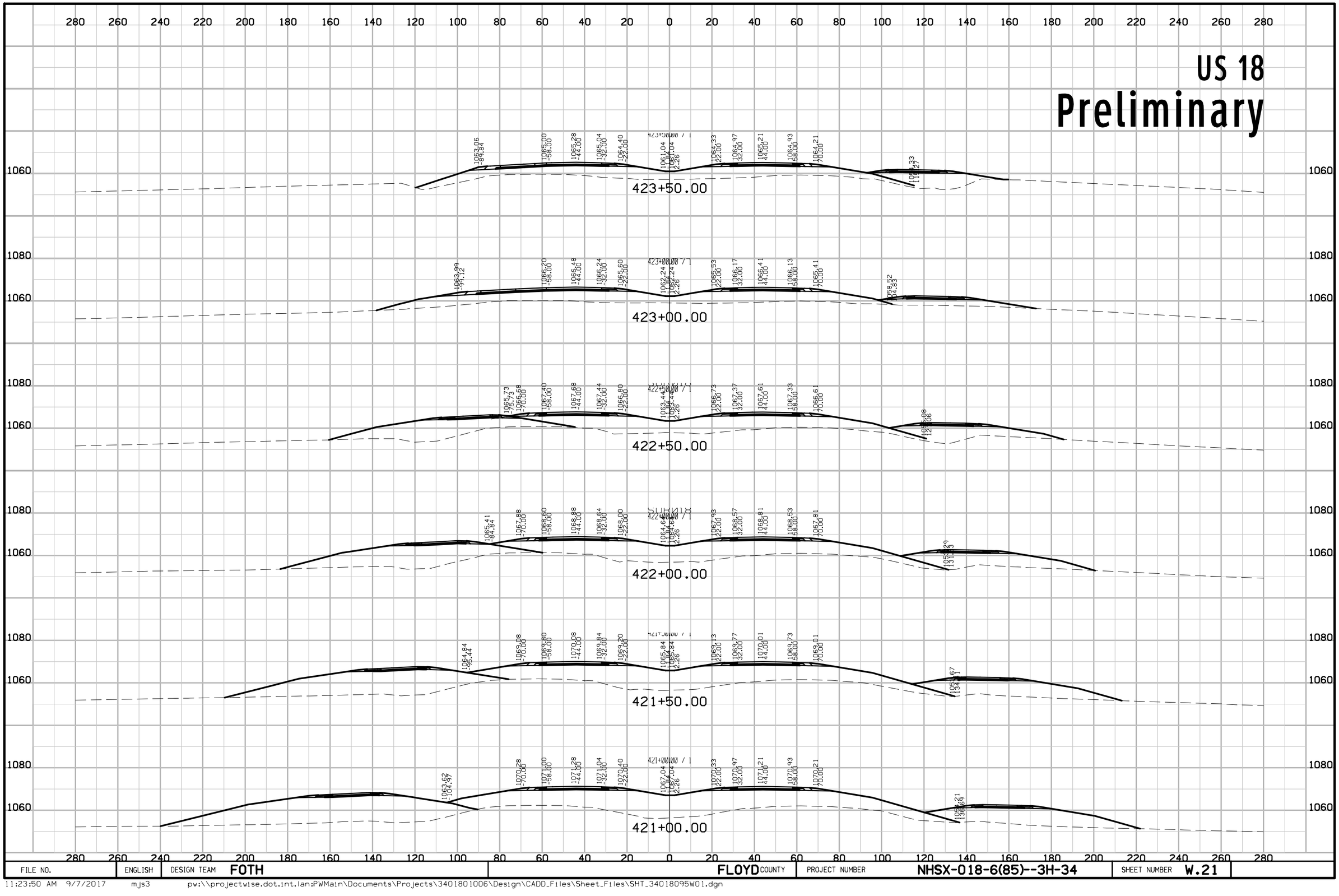
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.20

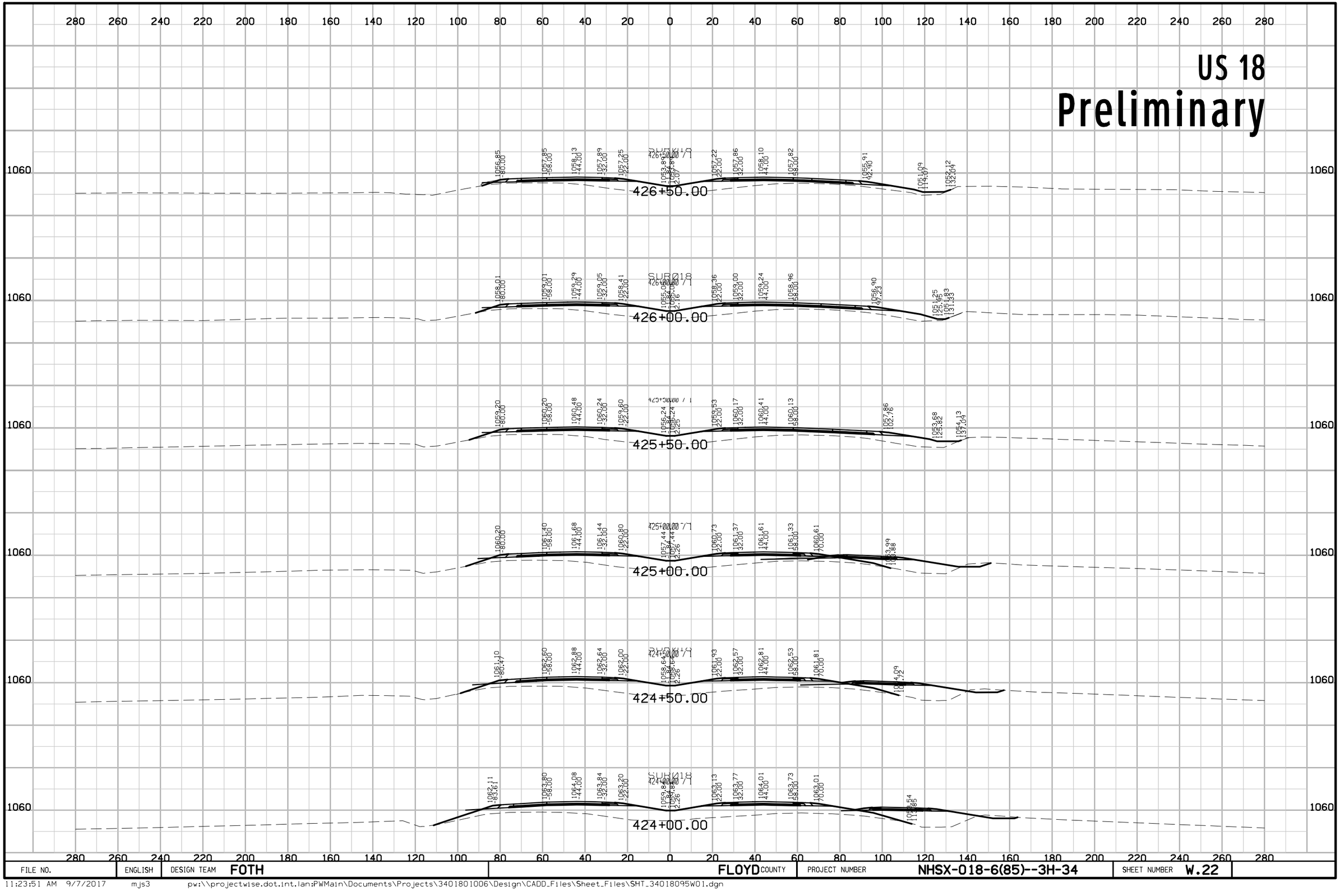
11:23:50 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.21

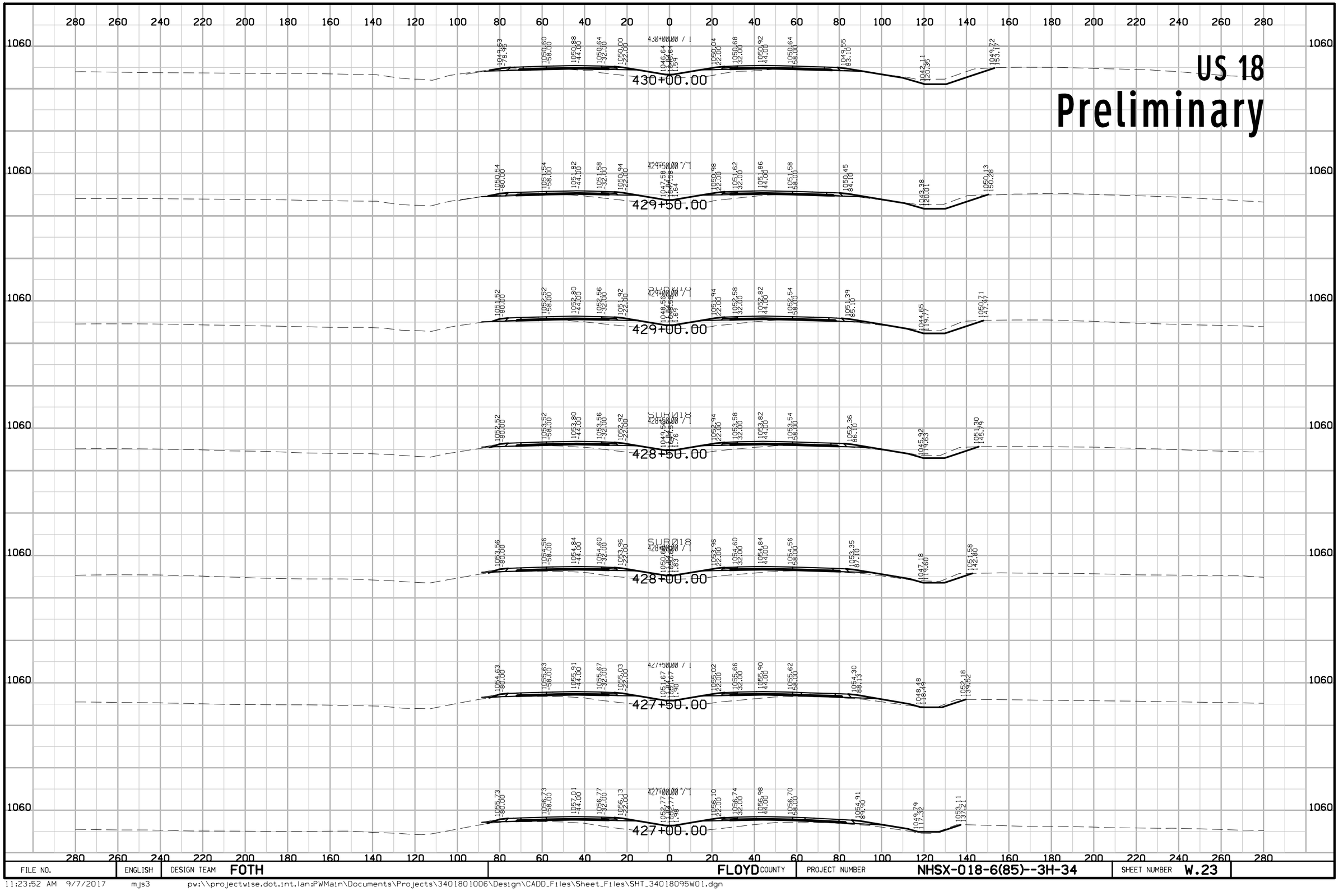
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.22

11:23:51 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

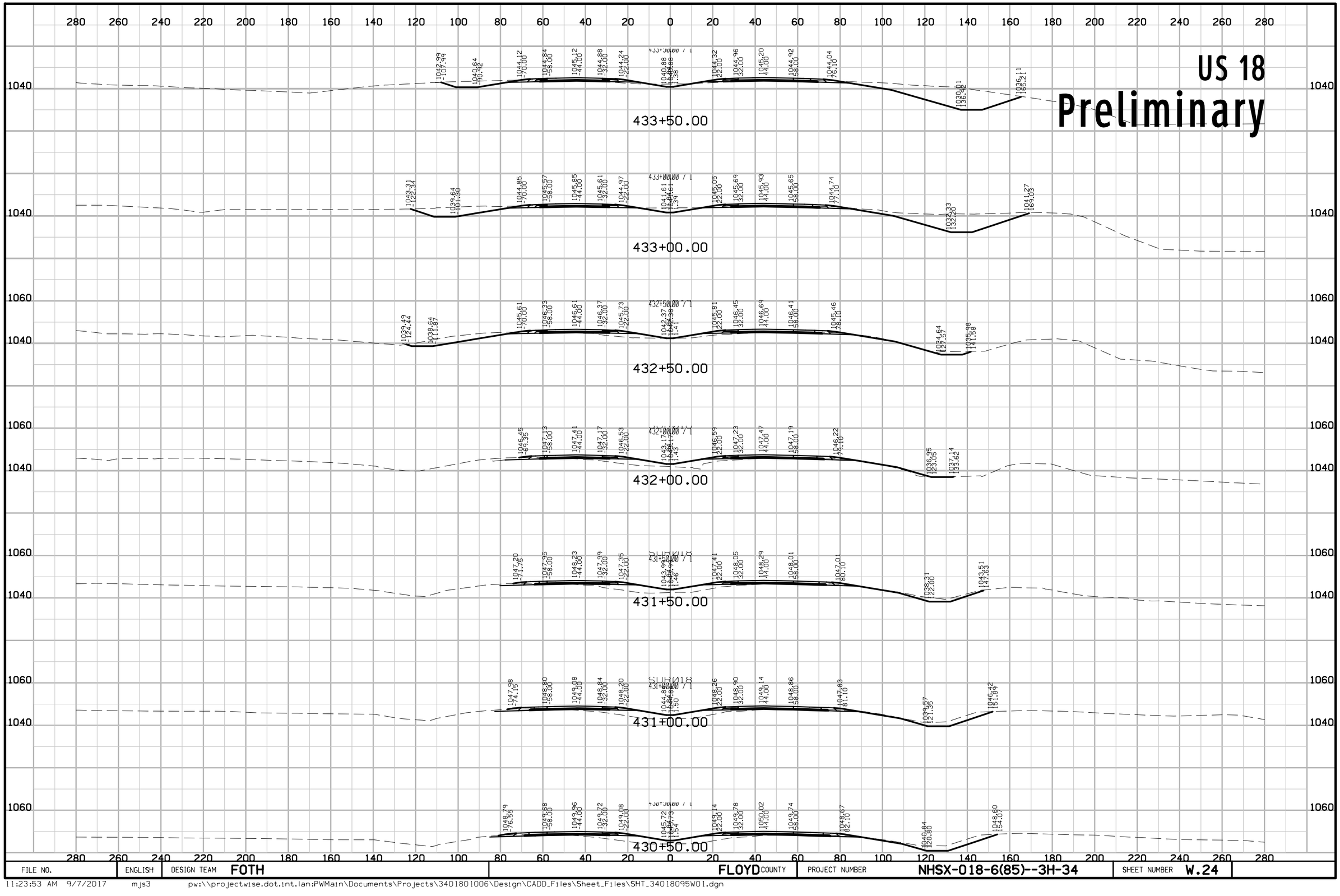
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.23

11:23:52 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.24

11:23:53 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18
Preliminary

436+50.00

436+00.00

435+50.00

435+00.00

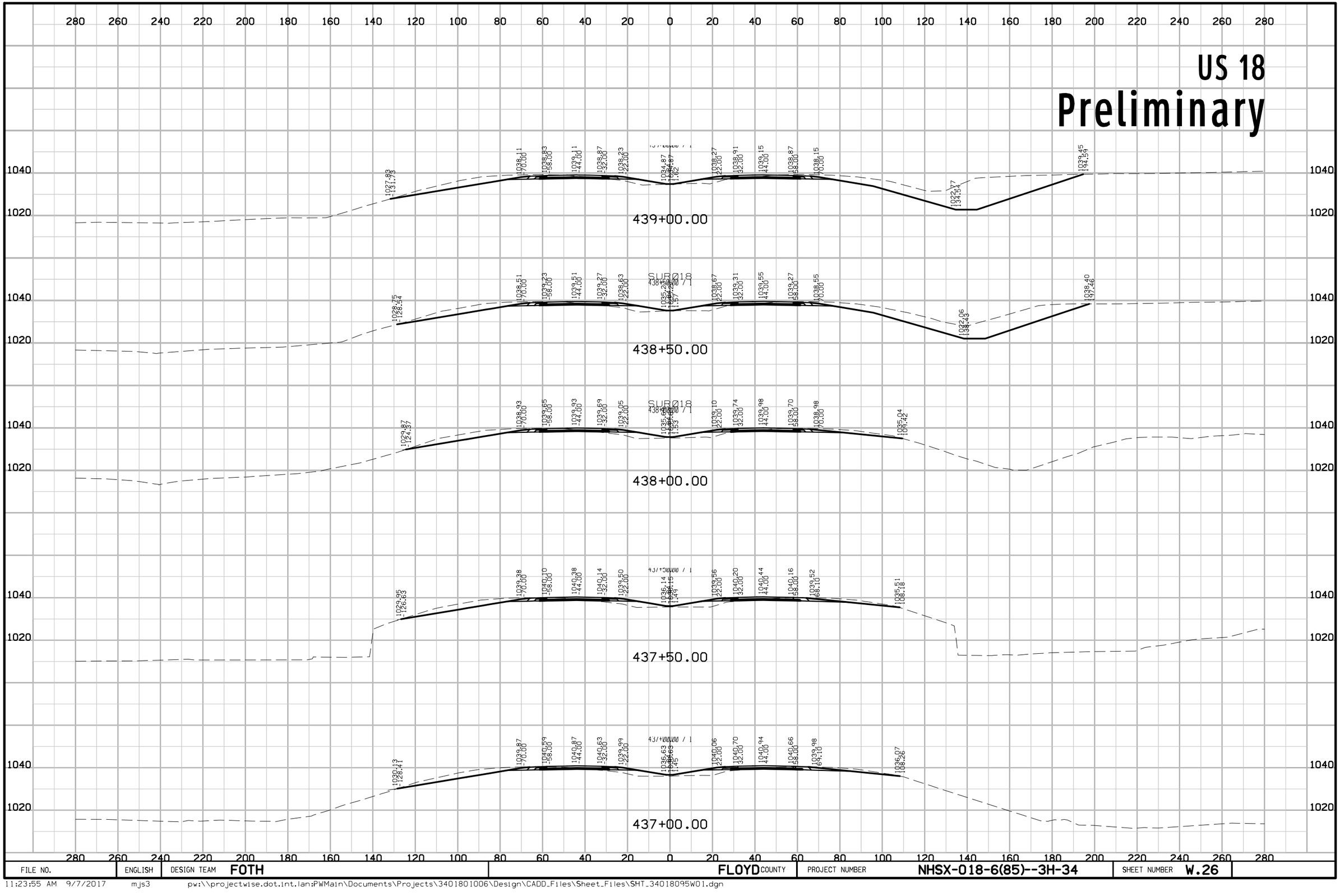
434+50.00

434+00.00

FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	W.25

11:23:54 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

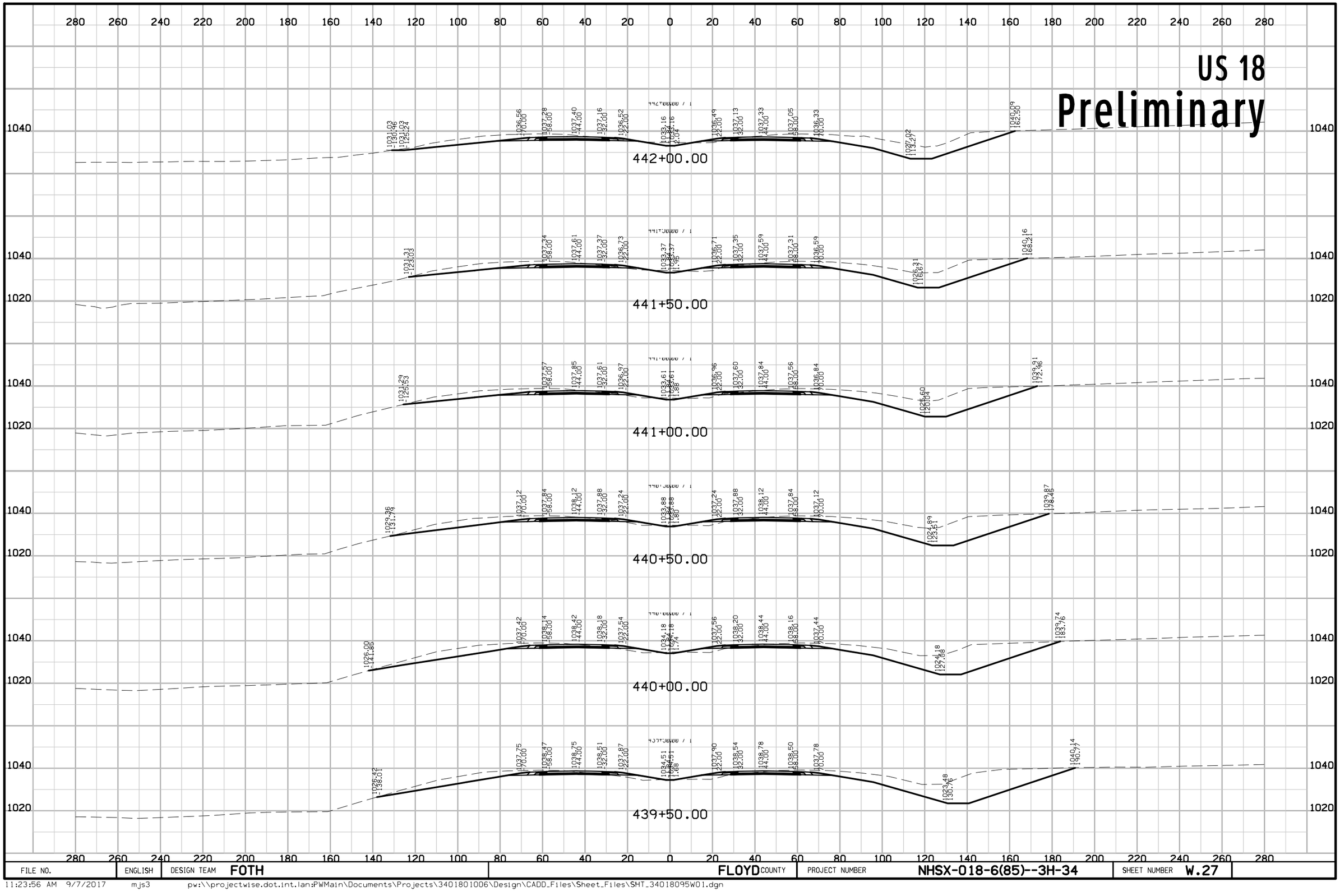
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.26

11:23:55 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

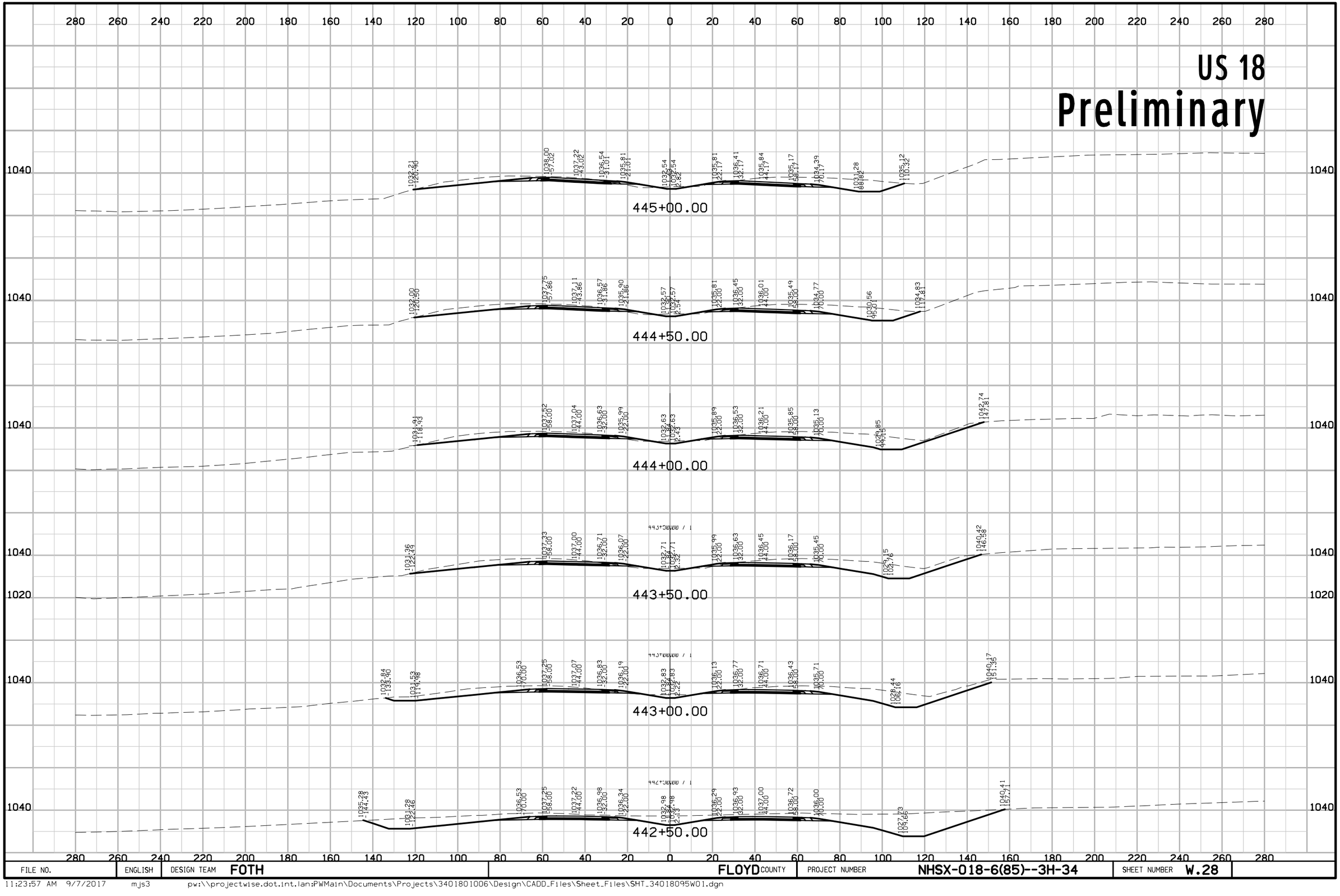
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM **FOTH**	**FLOYD** COUNTY	PROJECT NUMBER **NHSX-018-6(85)--3H-34**	SHEET NUMBER **W.27**	

11:23:56 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

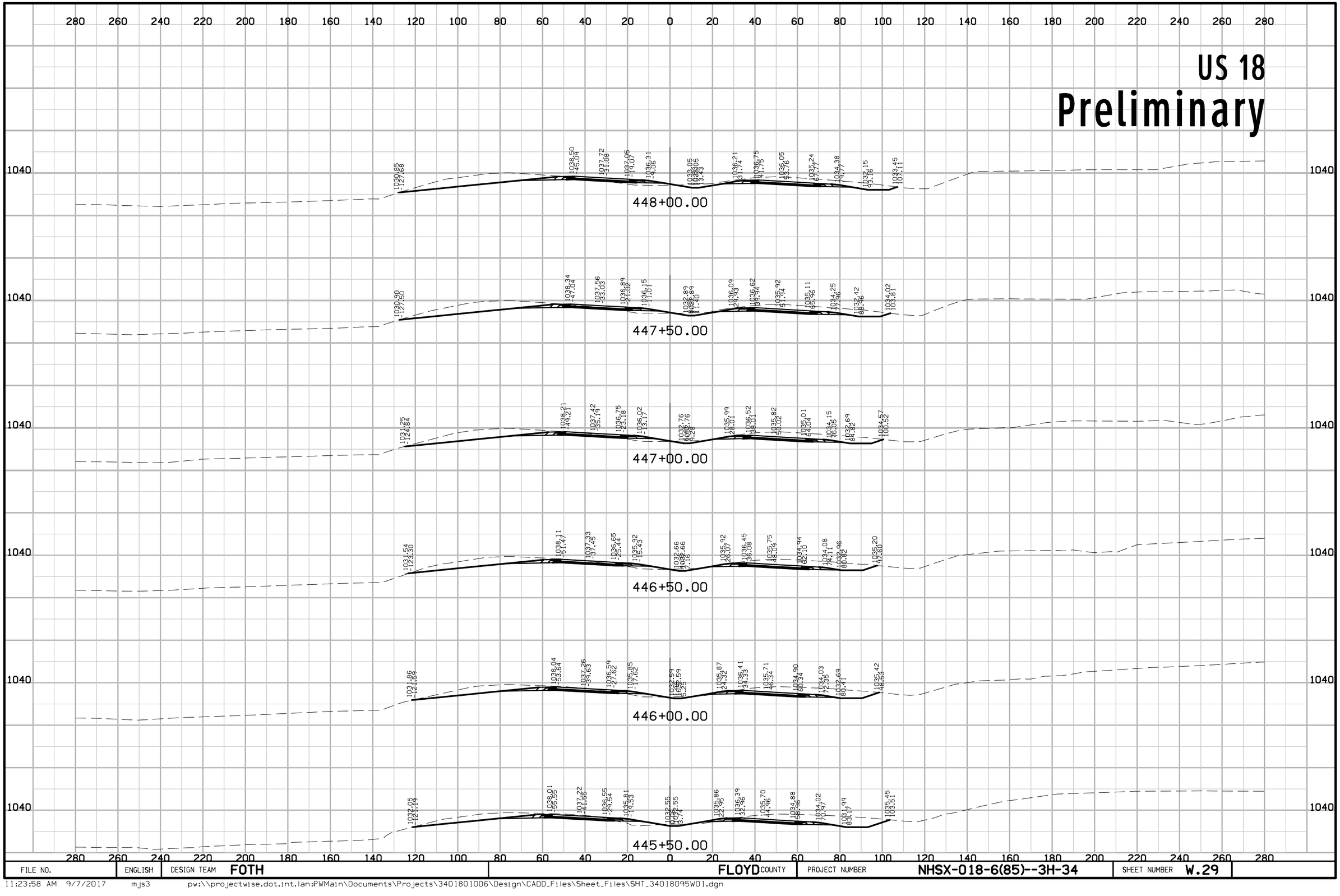
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.28

11:23:57 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

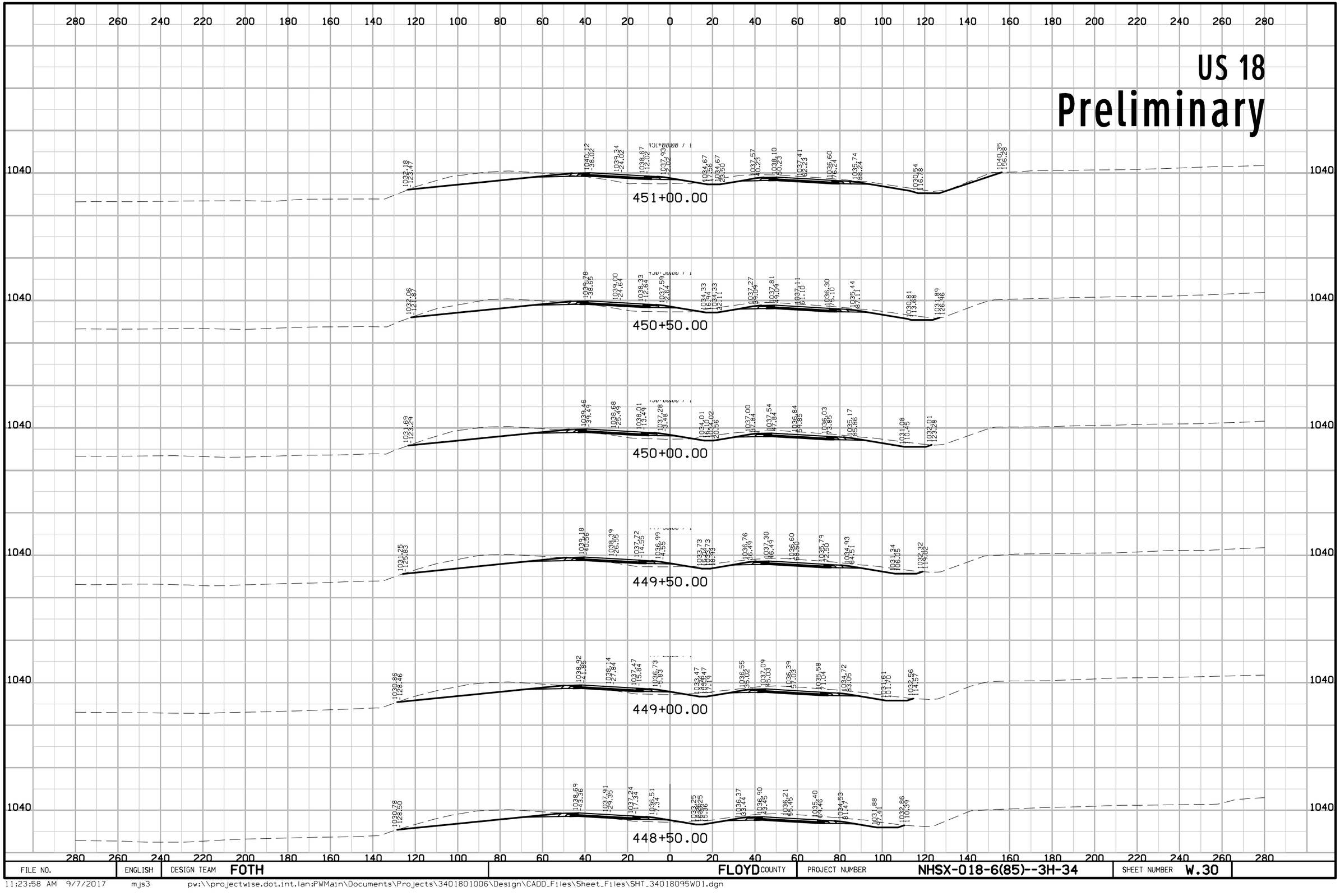
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.29

11:23:58 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

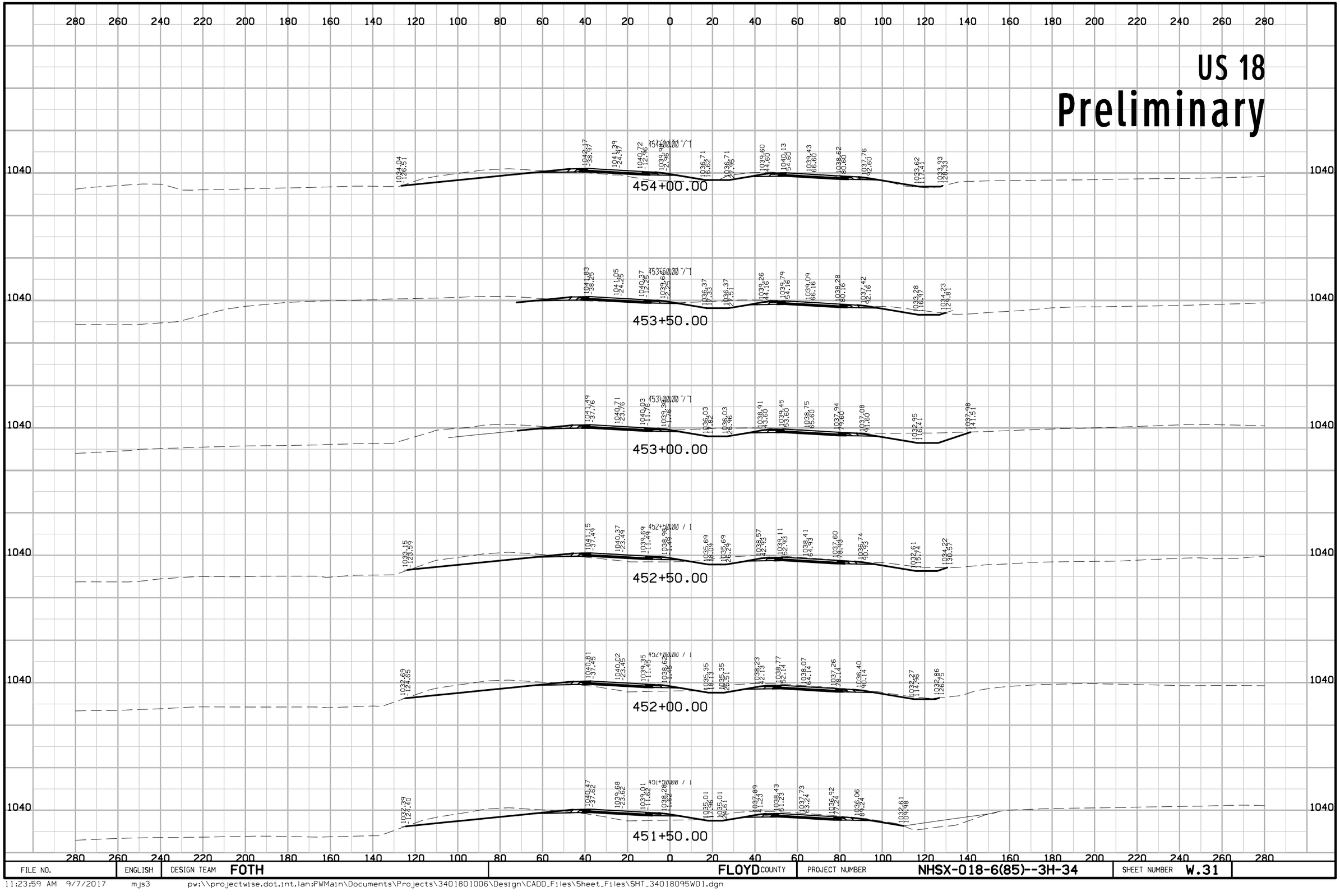
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.30

11:23:58 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

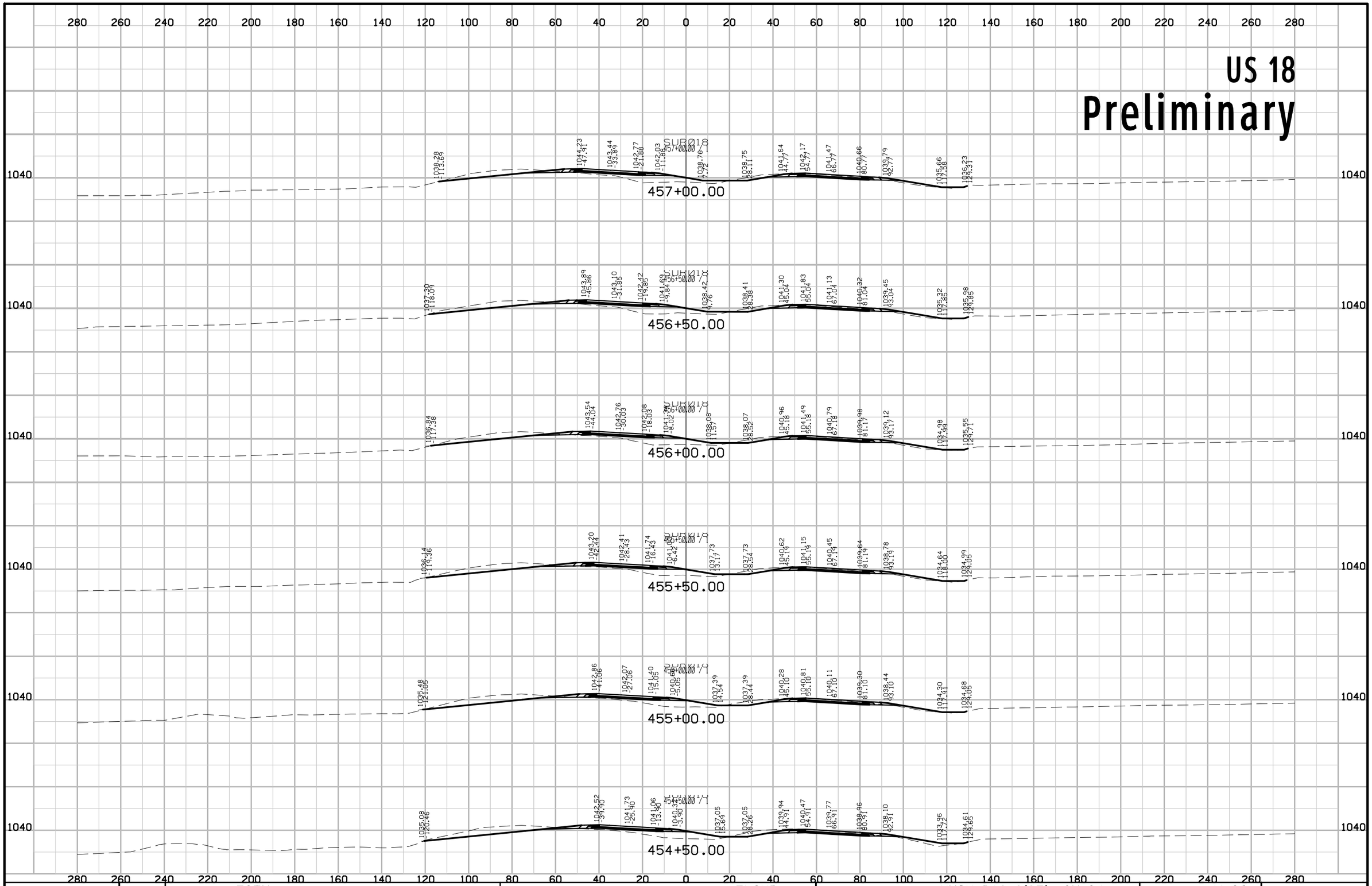
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.31

11:23:59 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

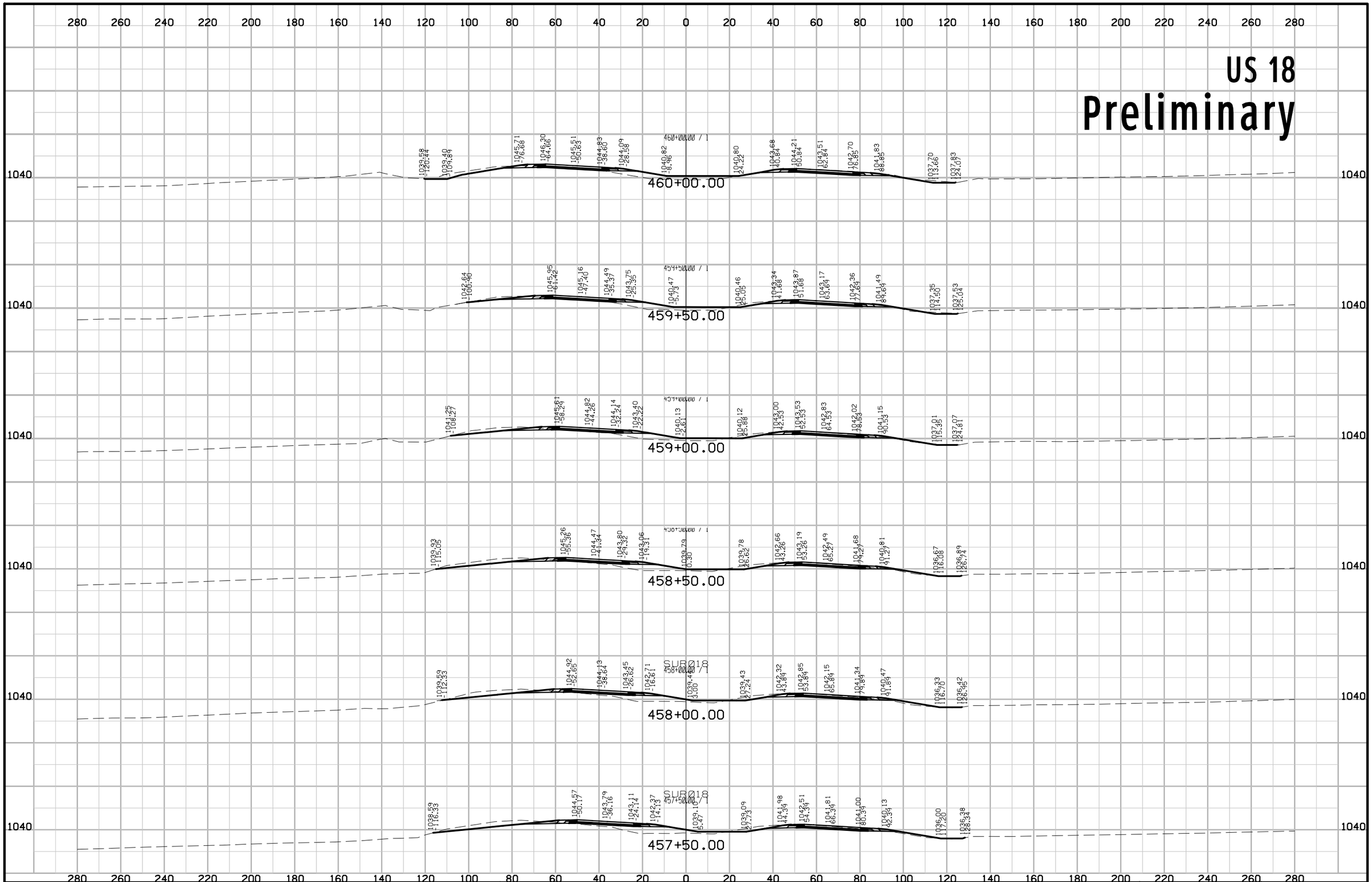
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.32

11:24:00 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

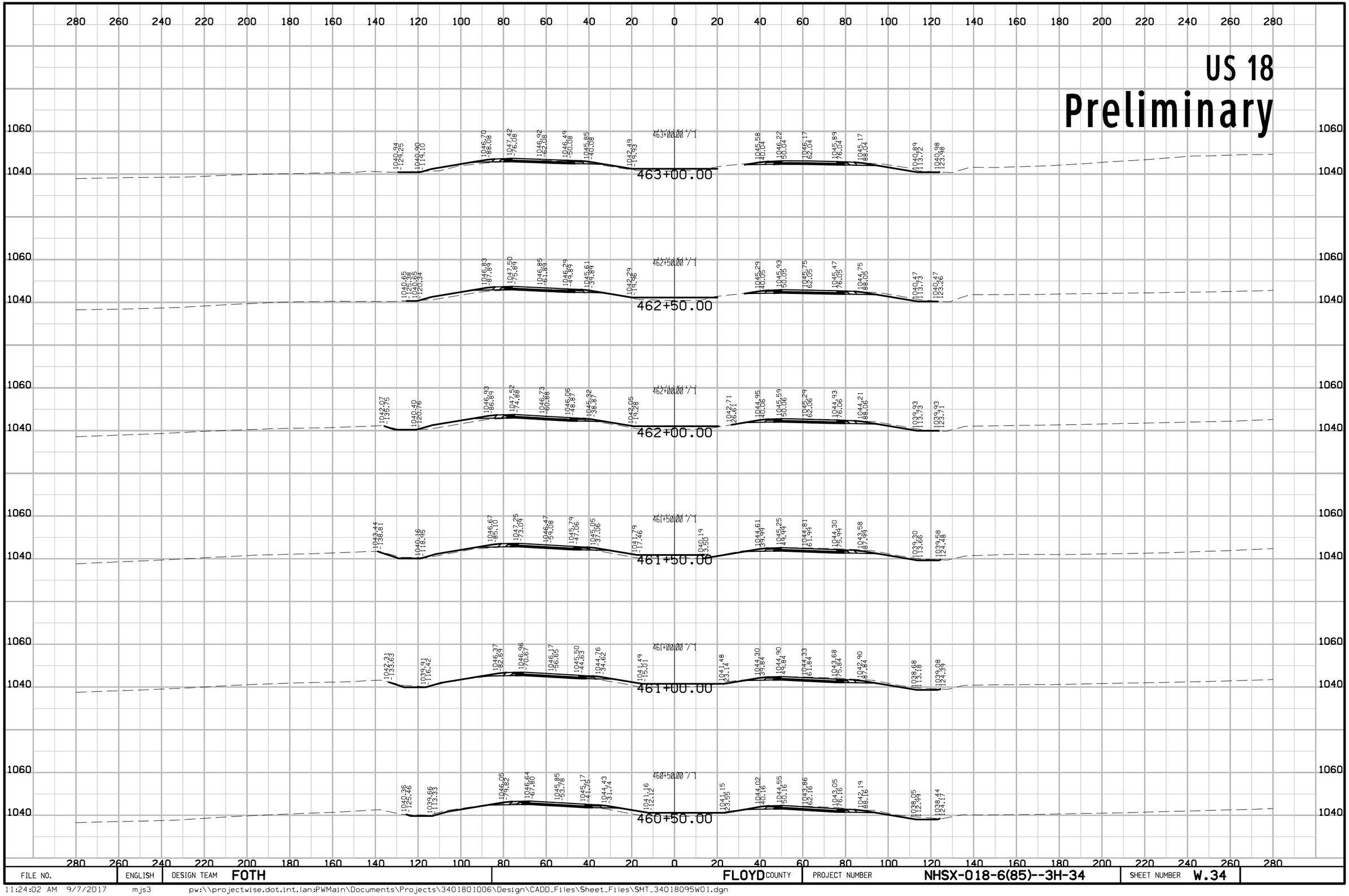
US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.33

11:24:01 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.34

11:24:02 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

US 18
Preliminary

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

1060

1047.53 139.50 | 1042.15 113.34 | 1046.35 88.10 | 1047.07 76.10 | 1047.33 62.10 | 1047.09 50.10 | 1046.45 40.10 | 1043.09 14.44

465+50.00

1060

1044.09 131.30 | 1041.90 114.71 | 1046.44 88.09 | 1047.16 76.09 | 1047.27 62.09 | 1047.03 50.09 | 1046.39 40.09 | 1043.03 14.44

465+00.00

1060

1044.49 134.32 | 1041.65 115.79 | 1046.50 88.09 | 1047.22 76.09 | 1047.18 62.09 | 1046.94 50.09 | 1046.30 40.09 | 1042.94 14.44

464+50.00

1060

1041.42 126.85 | 1041.49 116.77 | 1046.54 88.09 | 1047.26 76.09 | 1047.06 62.09 | 1046.82 50.09 | 1046.18 40.09 | 1042.82 14.43 | 1046.07 40.03 | 1046.71 50.03 | 1046.92 62.03 | 1046.64 76.03 | 1045.92 88.03 | 1041.64 113.70 | 1041.64 114.67

464+00.00

1060

1041.24 128.16 | 1041.15 117.86 | 1046.60 88.09 | 1047.32 76.09 | 1046.97 62.09 | 1046.67 50.09 | 1046.03 40.09 | 1042.87 14.43 | 1045.85 40.04 | 1046.49 50.04 | 1046.56 62.04 | 1046.28 76.04 | 1045.56 88.04 | 1041.28 113.71 | 1041.38 123.49

463+50.00

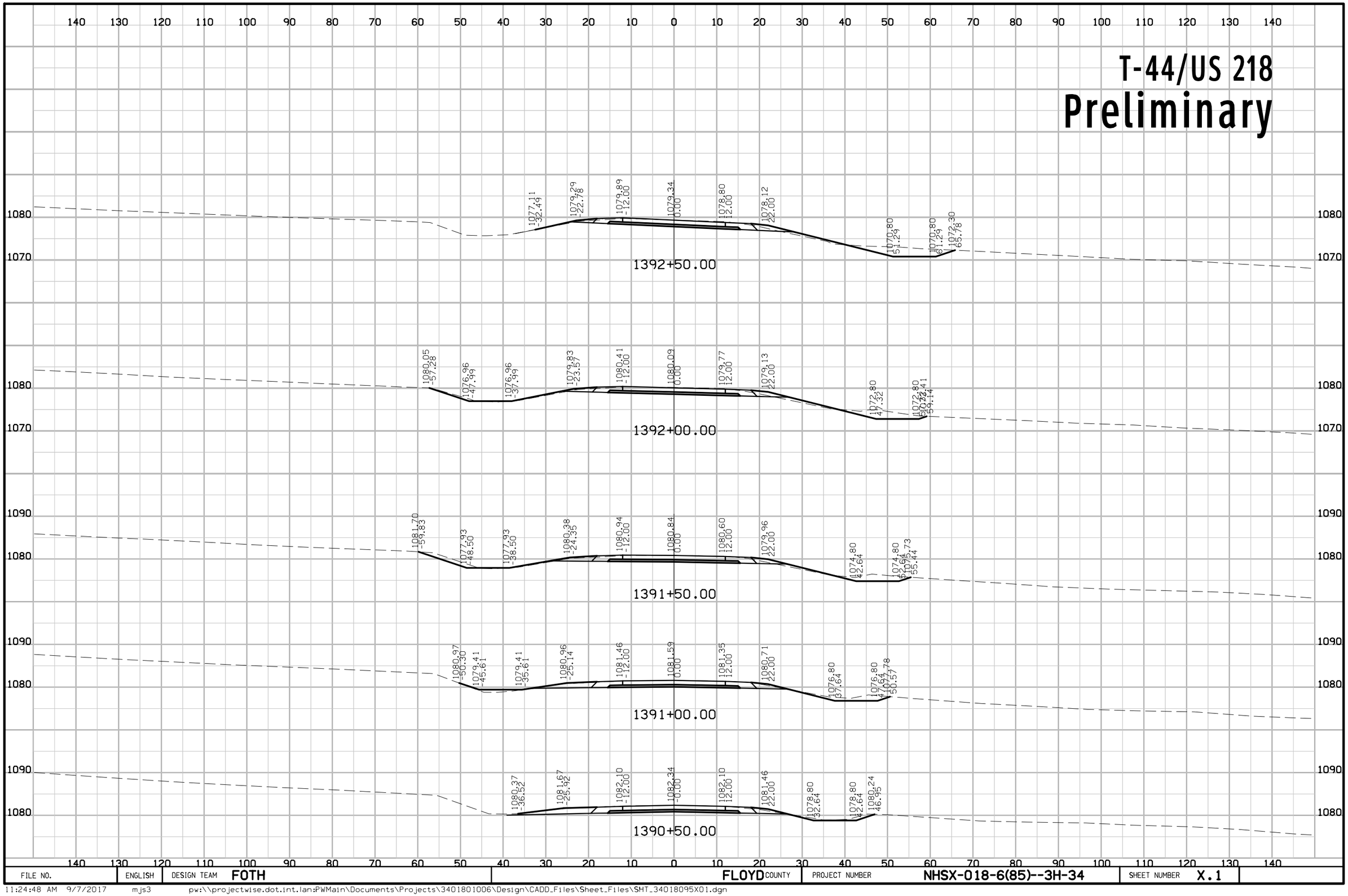
1040

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER W.35

11:24:03 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095W01.dgn

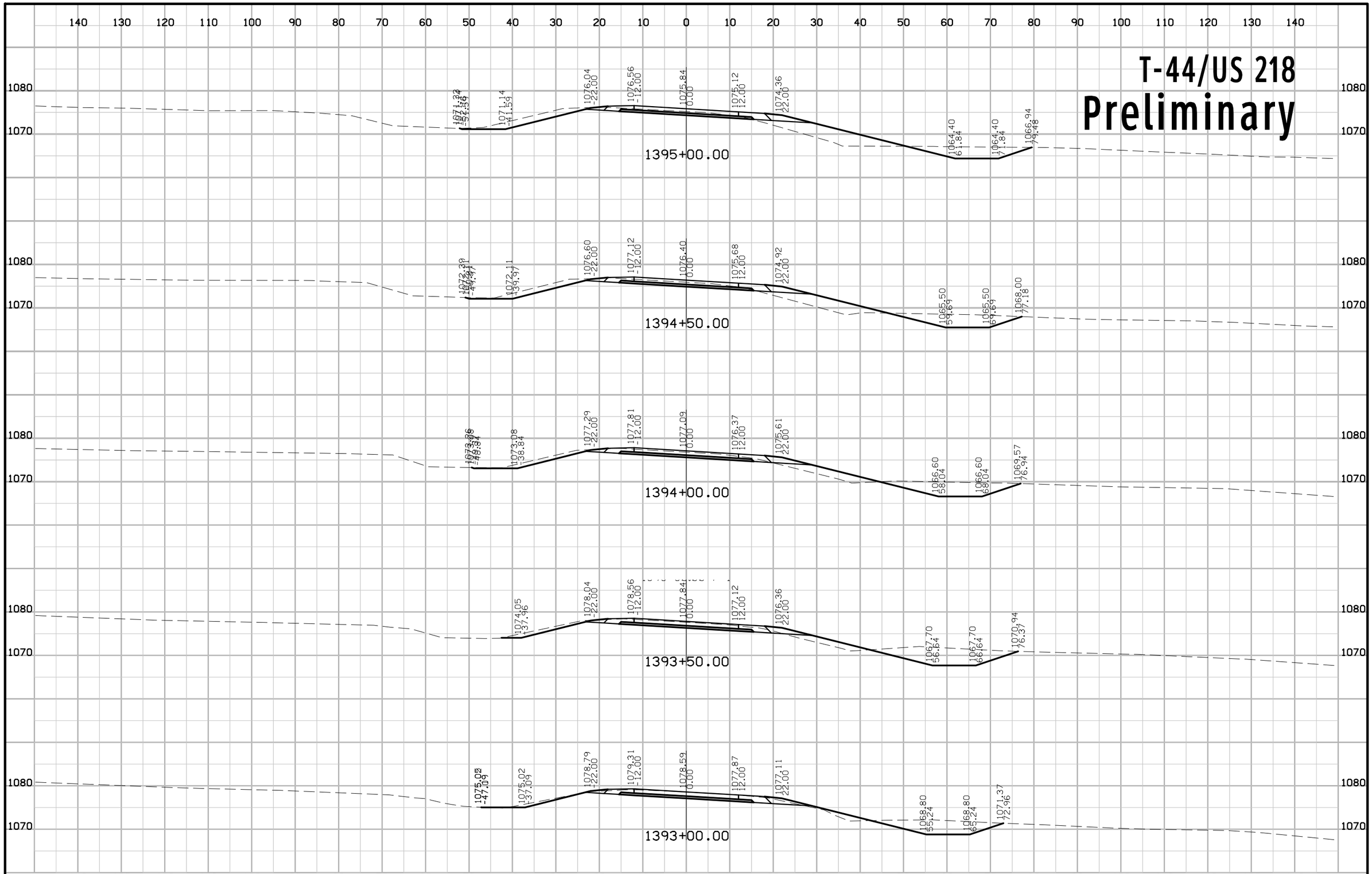
T-44/US 218
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER X.1

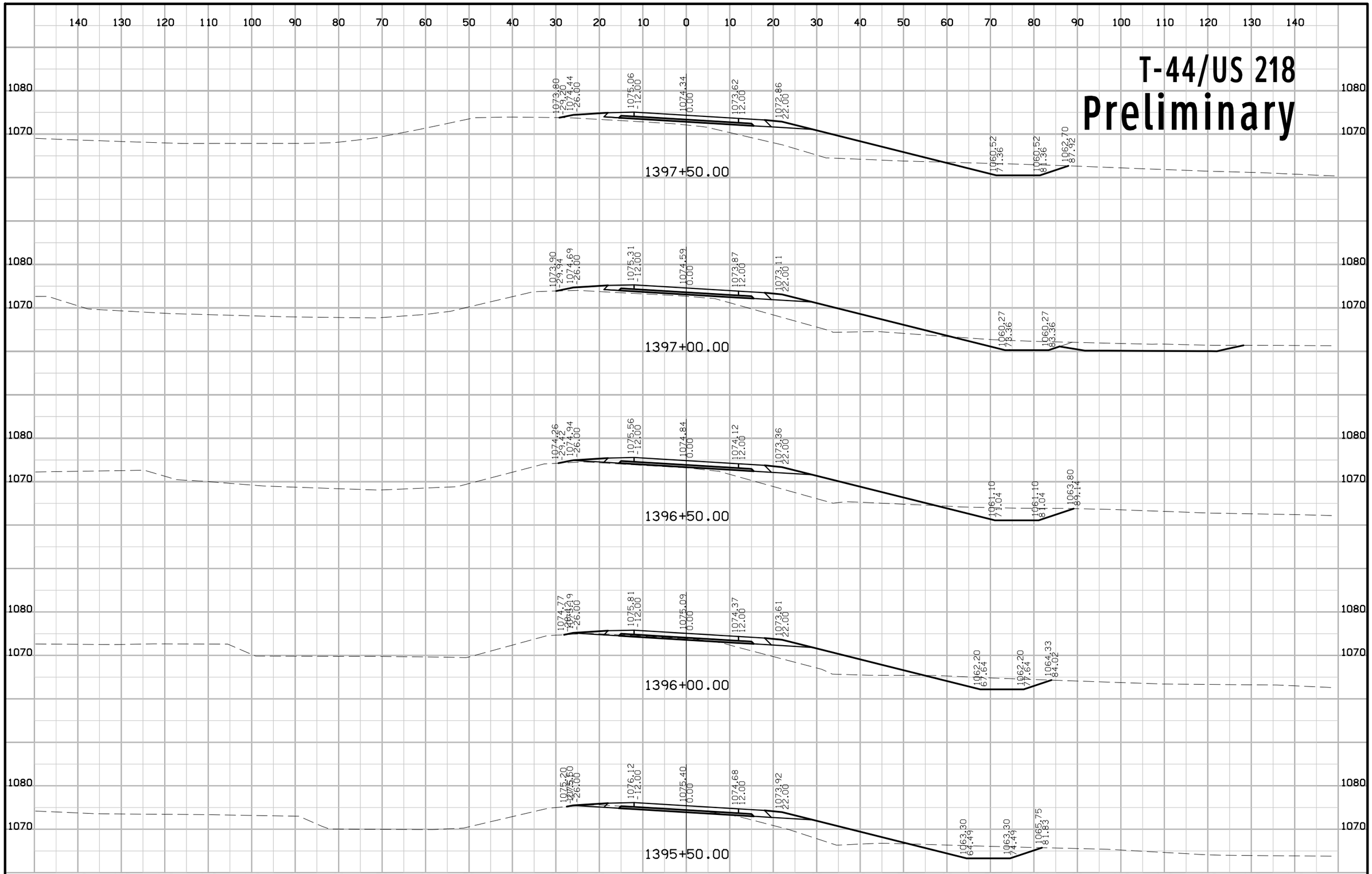
11:24:48 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095X01.dgn

T-44/US 218
Preliminary



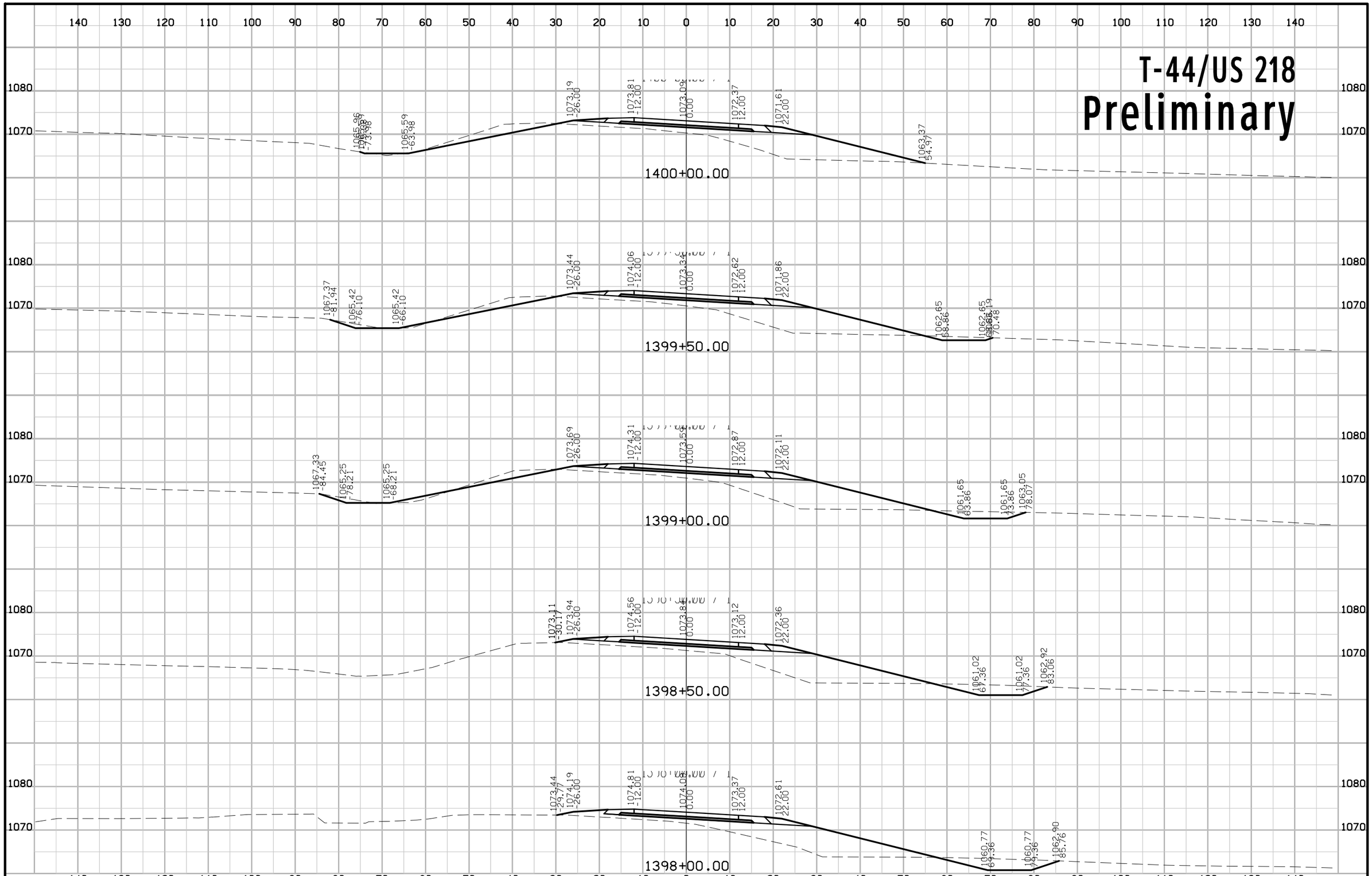
FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	X.2

T-44/US 218
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	X.3

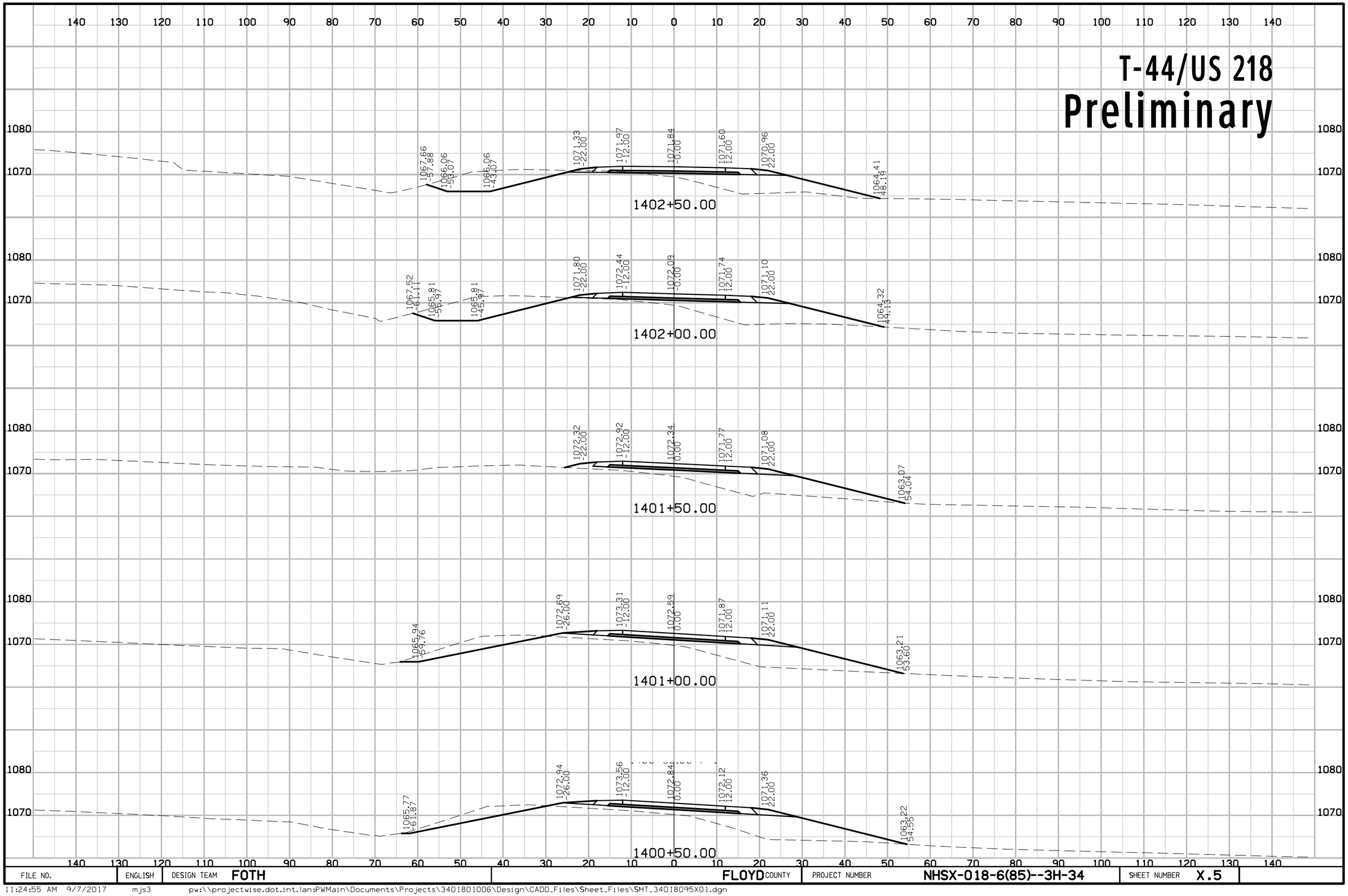
T-44/US 218
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	X.4

T-44/US 218

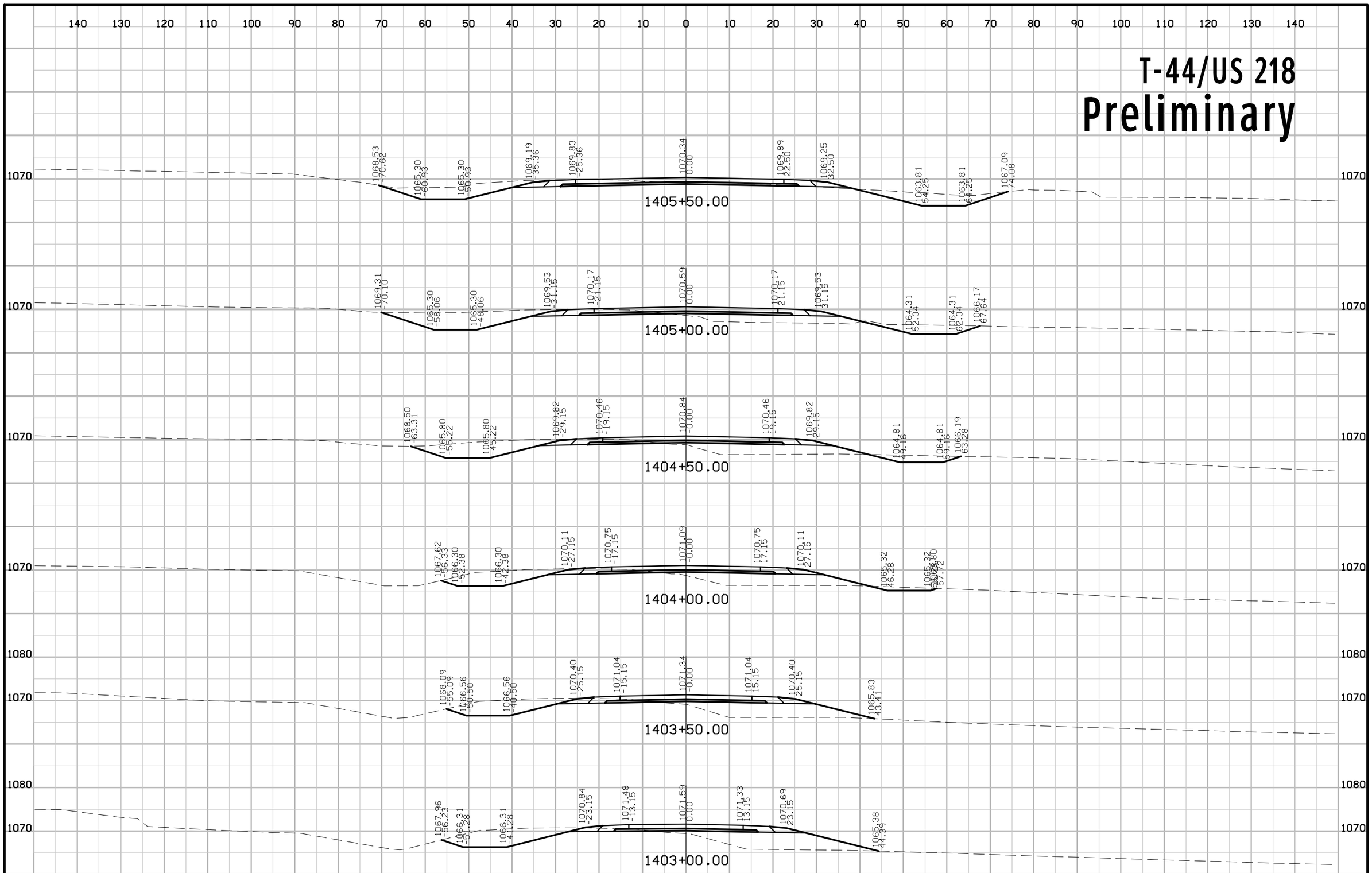
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER X.5

T-44/US 218

Preliminary

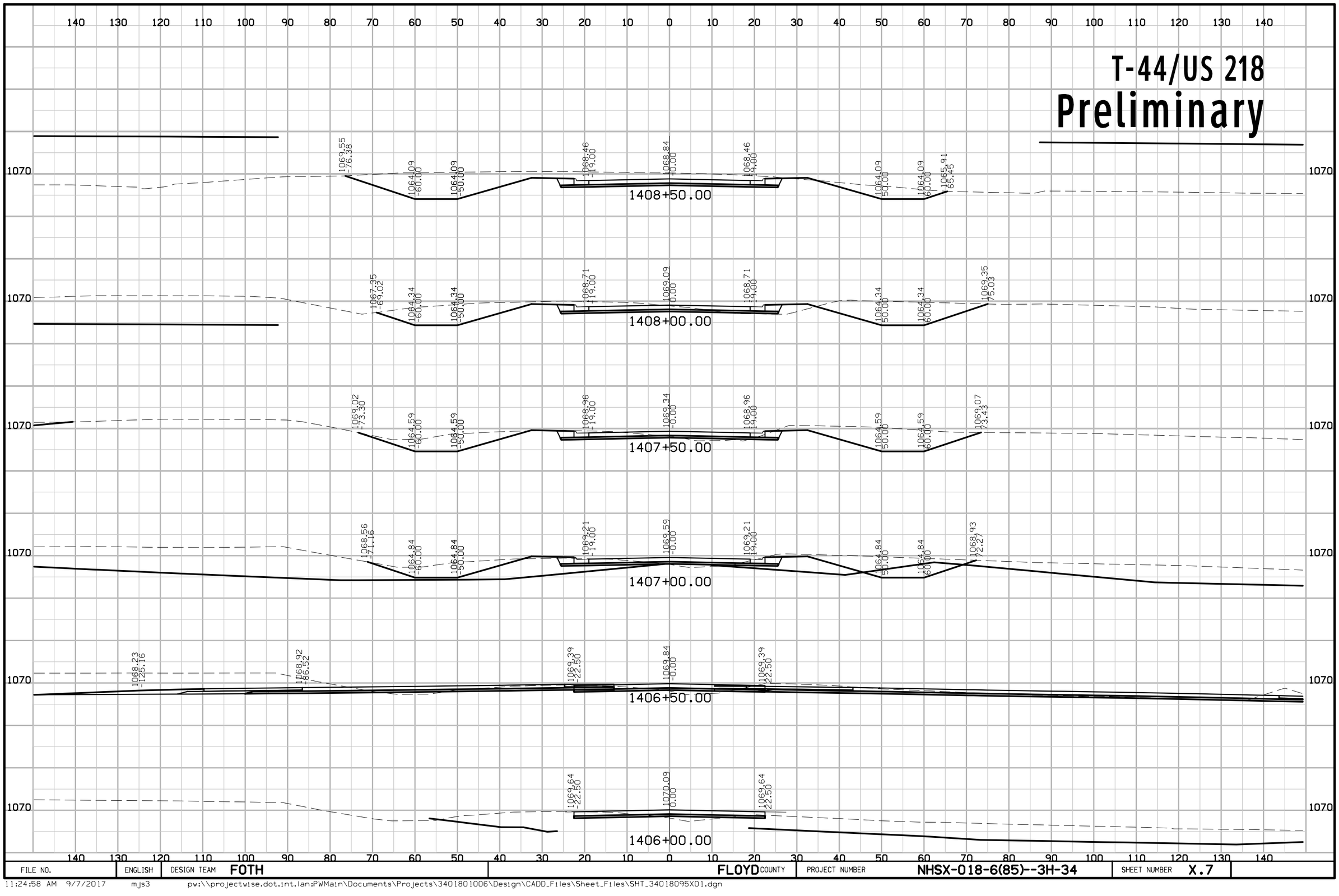


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER X.6

11:24:57 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095X01.dgn

T-44/US 218

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER X.7

11:24:58 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095X01.dgn

T-44/US 218
Preliminary

1411+00.00

1067.70 -74.59 | 1062.84 -60.00 | 1062.84 -50.00 | 1067.21 19.00 | 1067.59 -0.00 | 1067.21 19.00 | 1062.84 50.00 | 1064.09 63.74

1410+50.00

1071.65 -85.67 | 1063.09 -60.00 | 1063.09 -50.00 | 1067.46 -19.00 | 1067.84 -0.00 | 1067.46 19.00 | 1063.09 50.00 | 1063.09 60.00 | 1070.46 82.11

1410+00.00

1067.71 -19.00 | 1068.09 -0.00 | 1067.71 19.00

1409+50.00

1067.96 -19.00 | 1068.34 -0.00 | 1067.96 19.00

1409+00.00

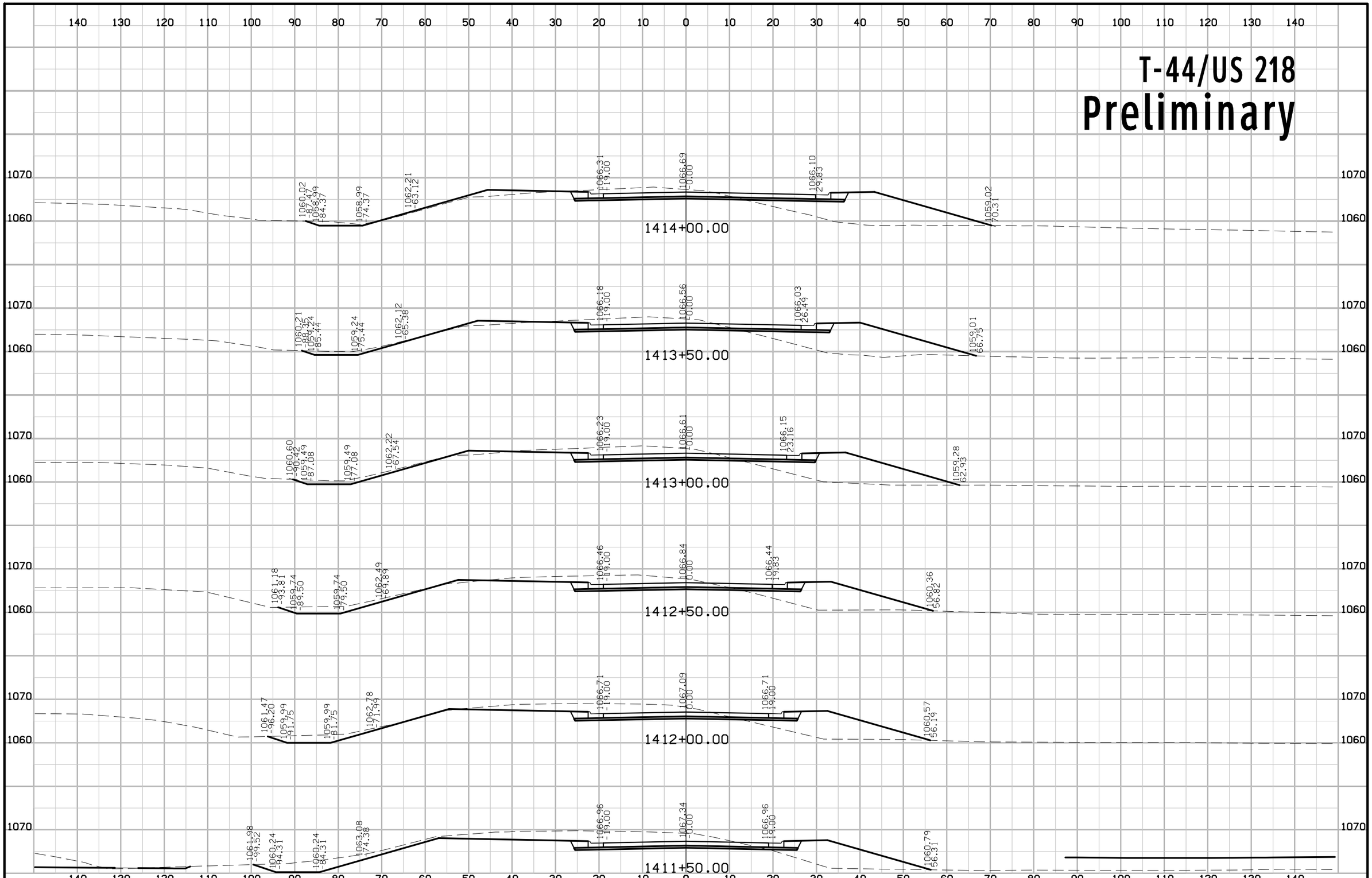
1068.21 -19.00 | 1068.59 -0.00 | 1068.21 19.00

FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER X.8

11:24:59 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\34018O1006\Design\CADD_Files\Sheet_Files\SHT_34018095X01.dgn

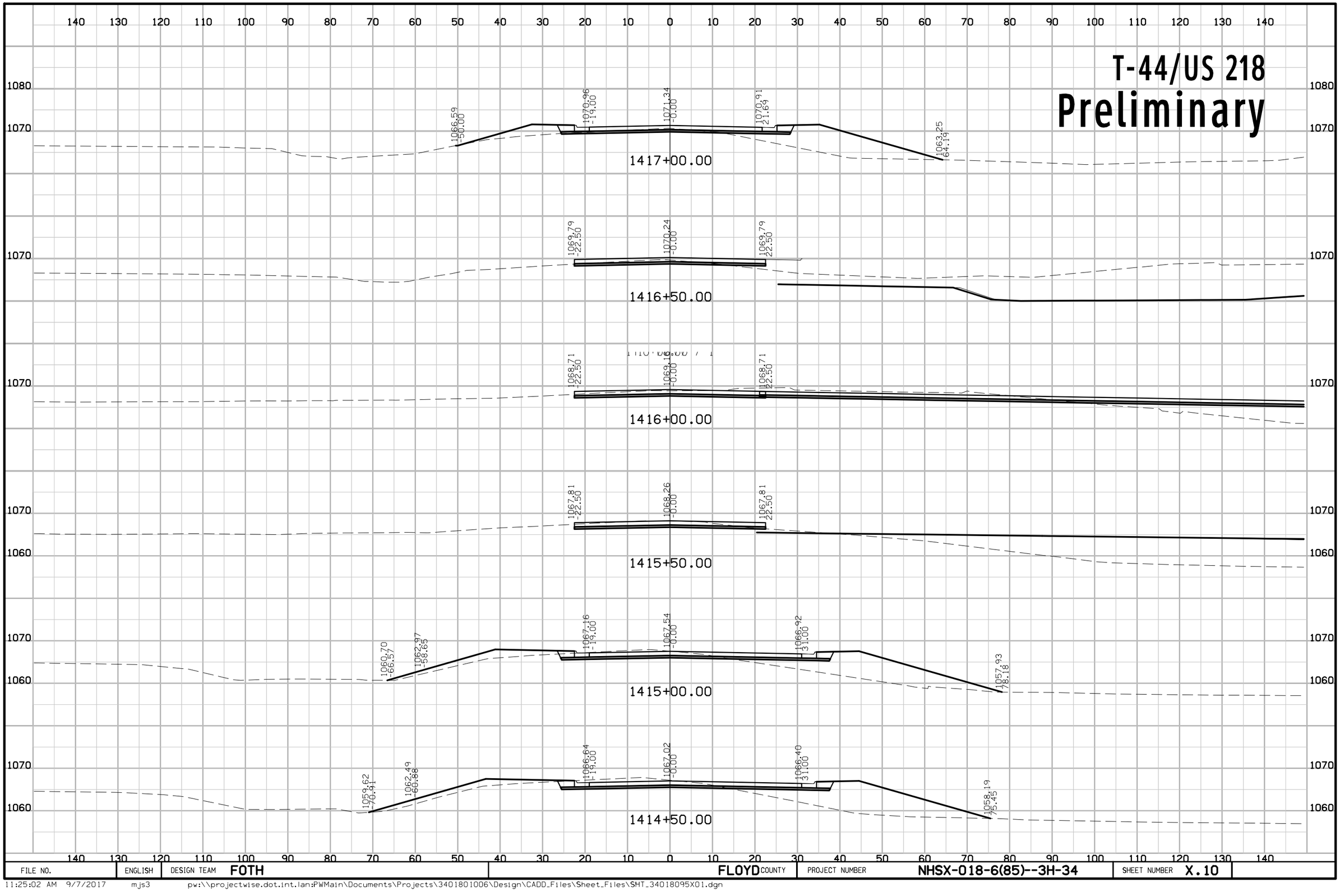
T-44/US 218

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	X.9

T-44/US 218
Preliminary

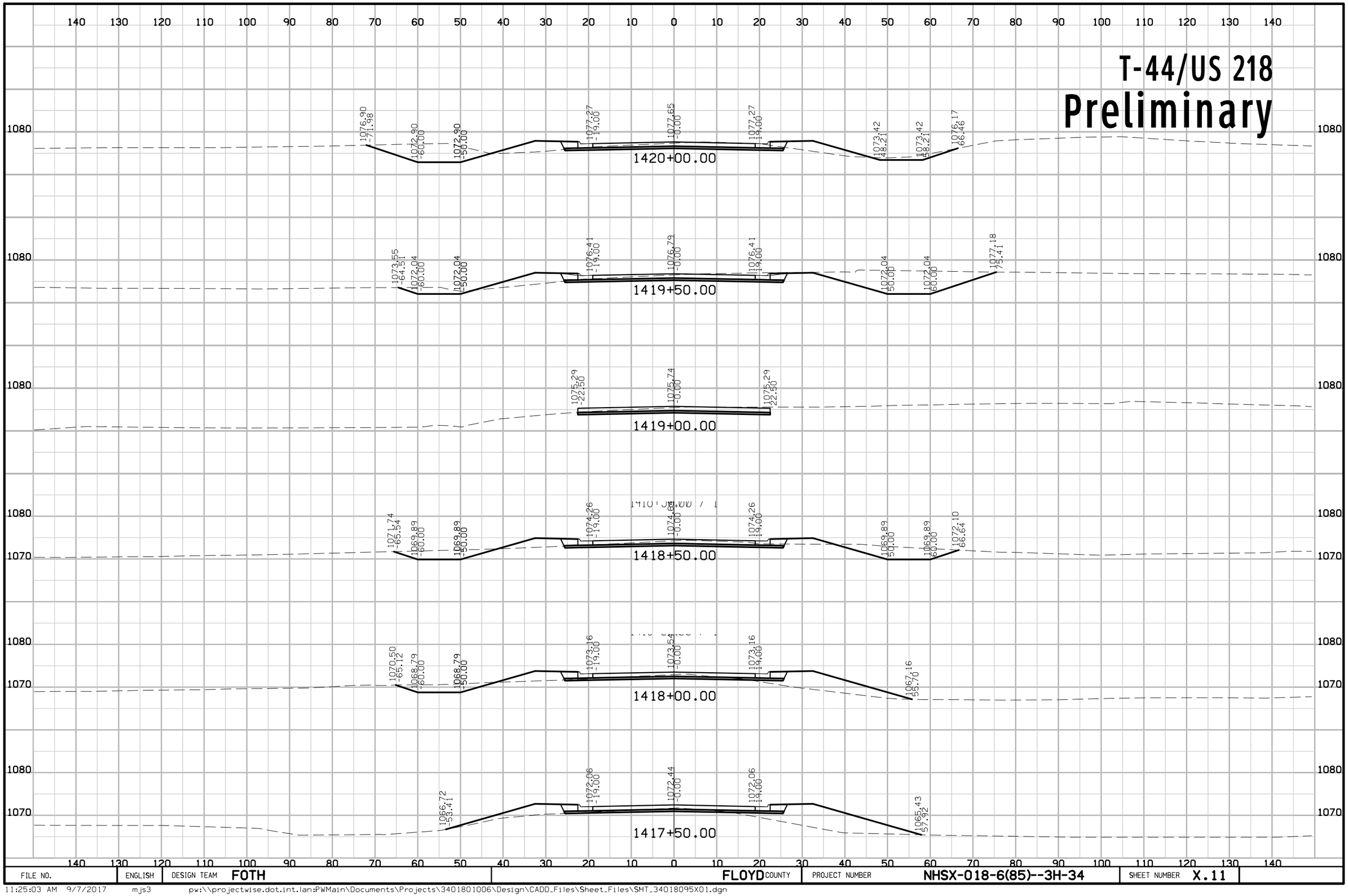


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER X.10

11:25:02 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095X01.dgn

T-44/US 218

Preliminary

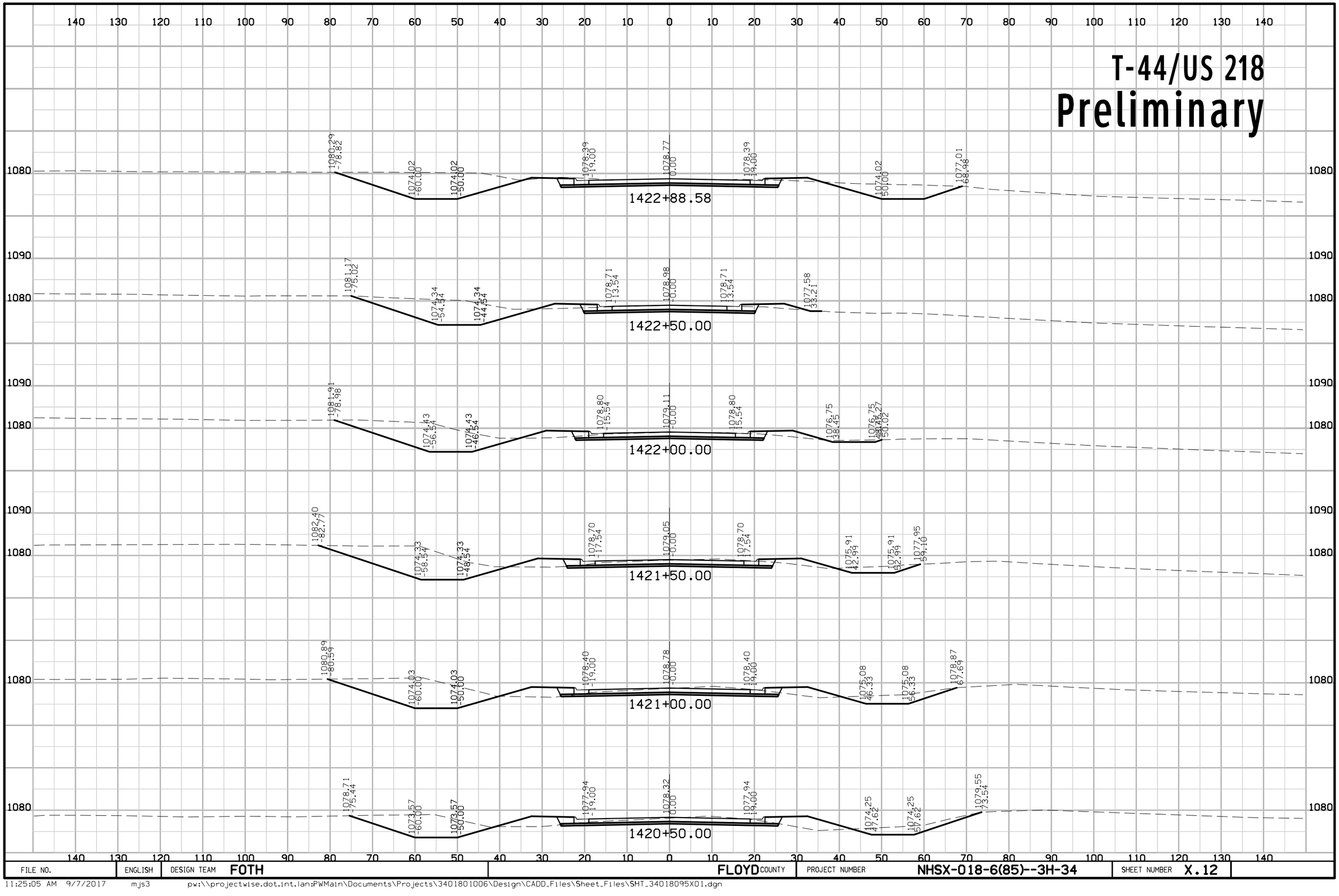


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER X.11

11:25:03 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095X01.dgn

T-44/US 218

Preliminary

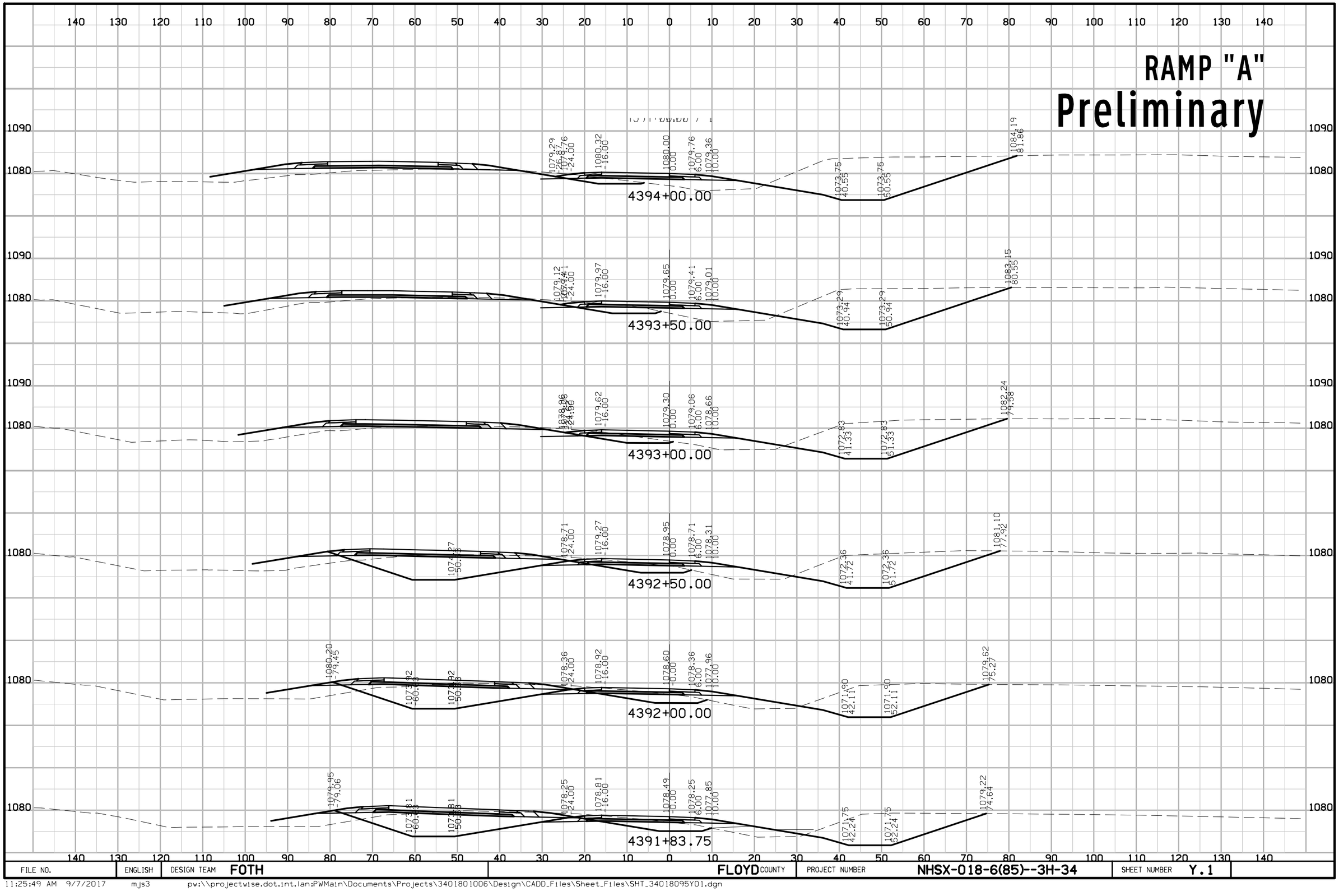


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER X.12

11:25:05 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095X01.dgn

RAMP "A"

Preliminary

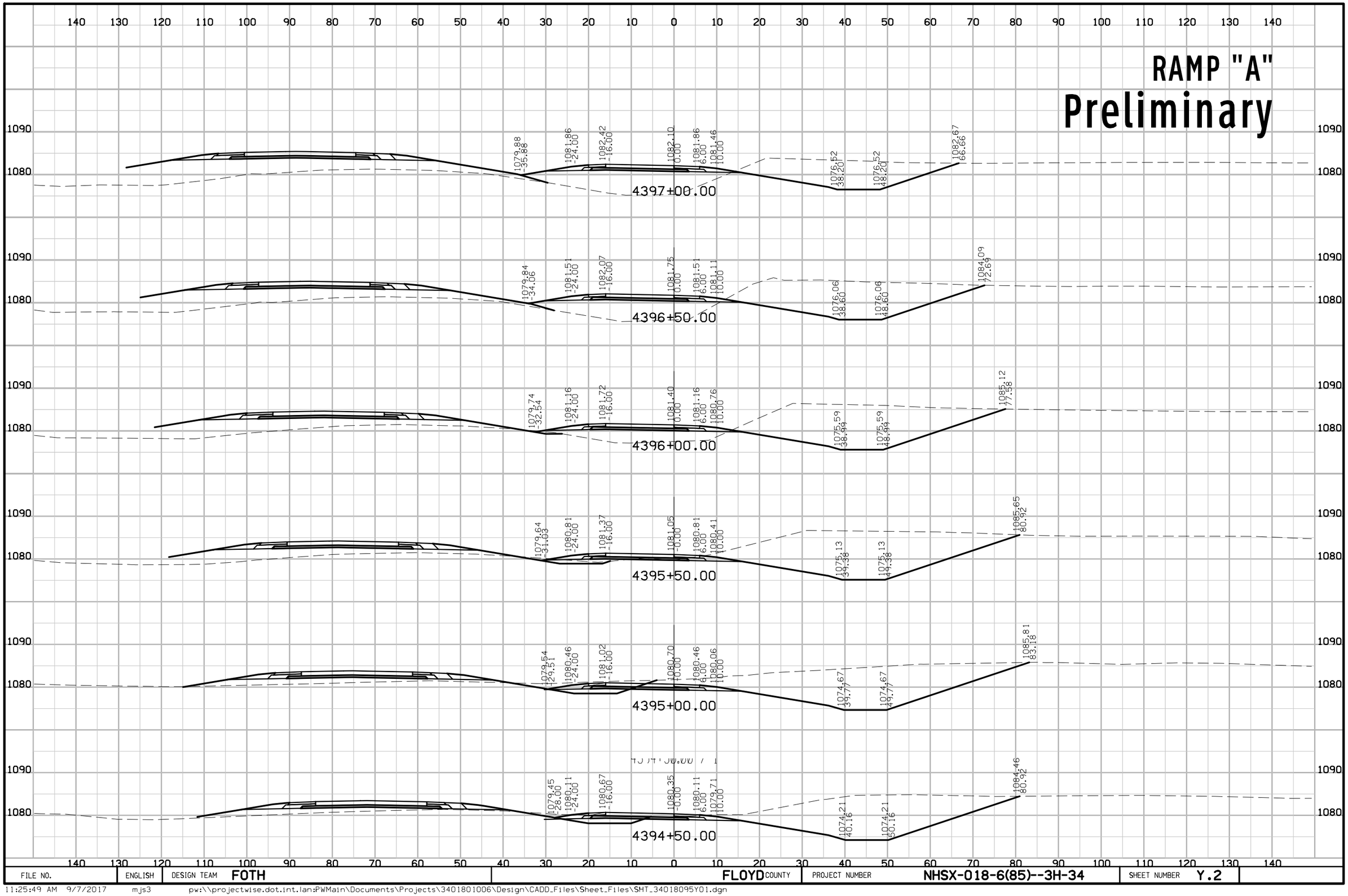


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.1

11:25:49 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y01.dgn

RAMP "A"

Preliminary

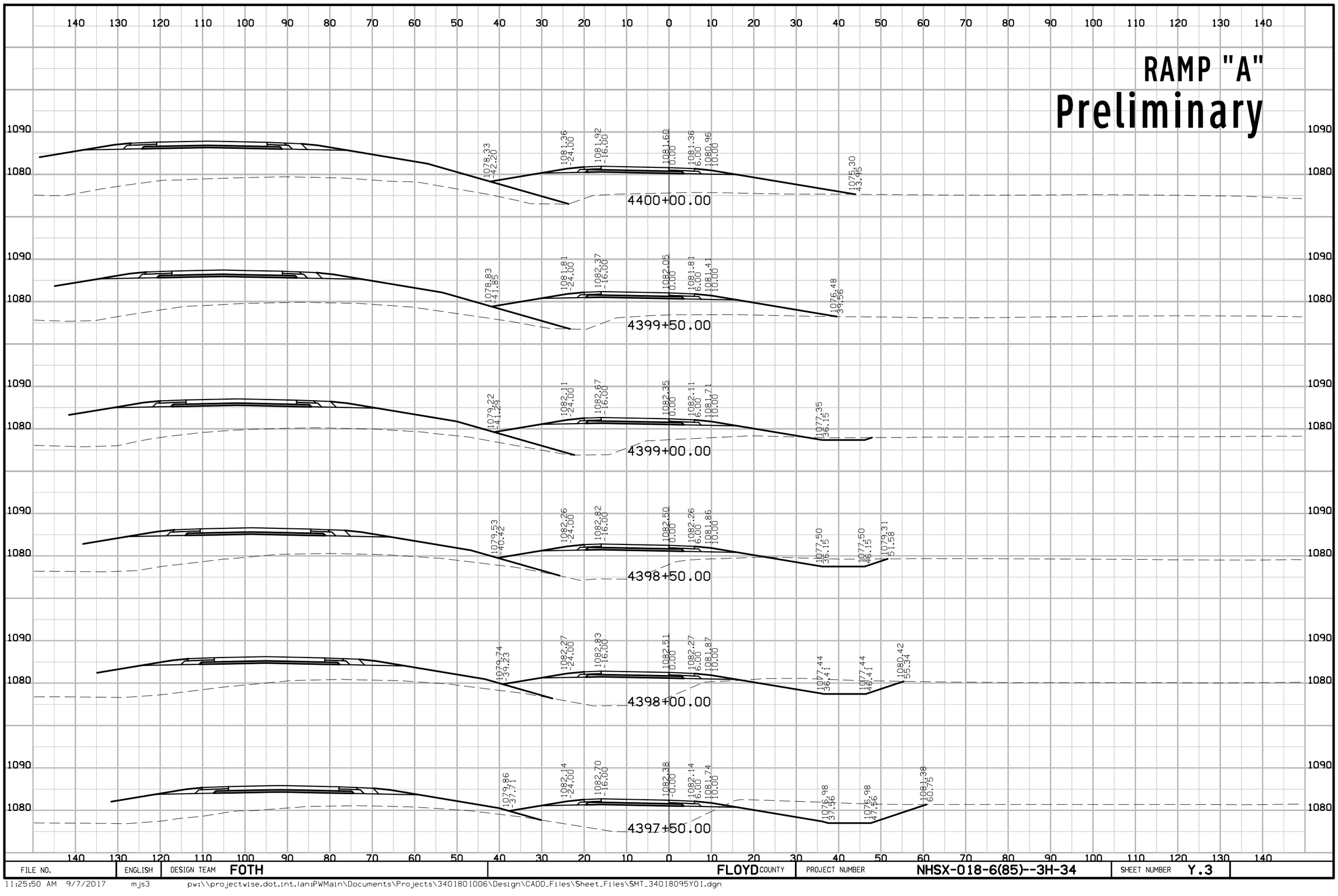


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.2

11:25:49 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y01.dgn

RAMP "A"

Preliminary

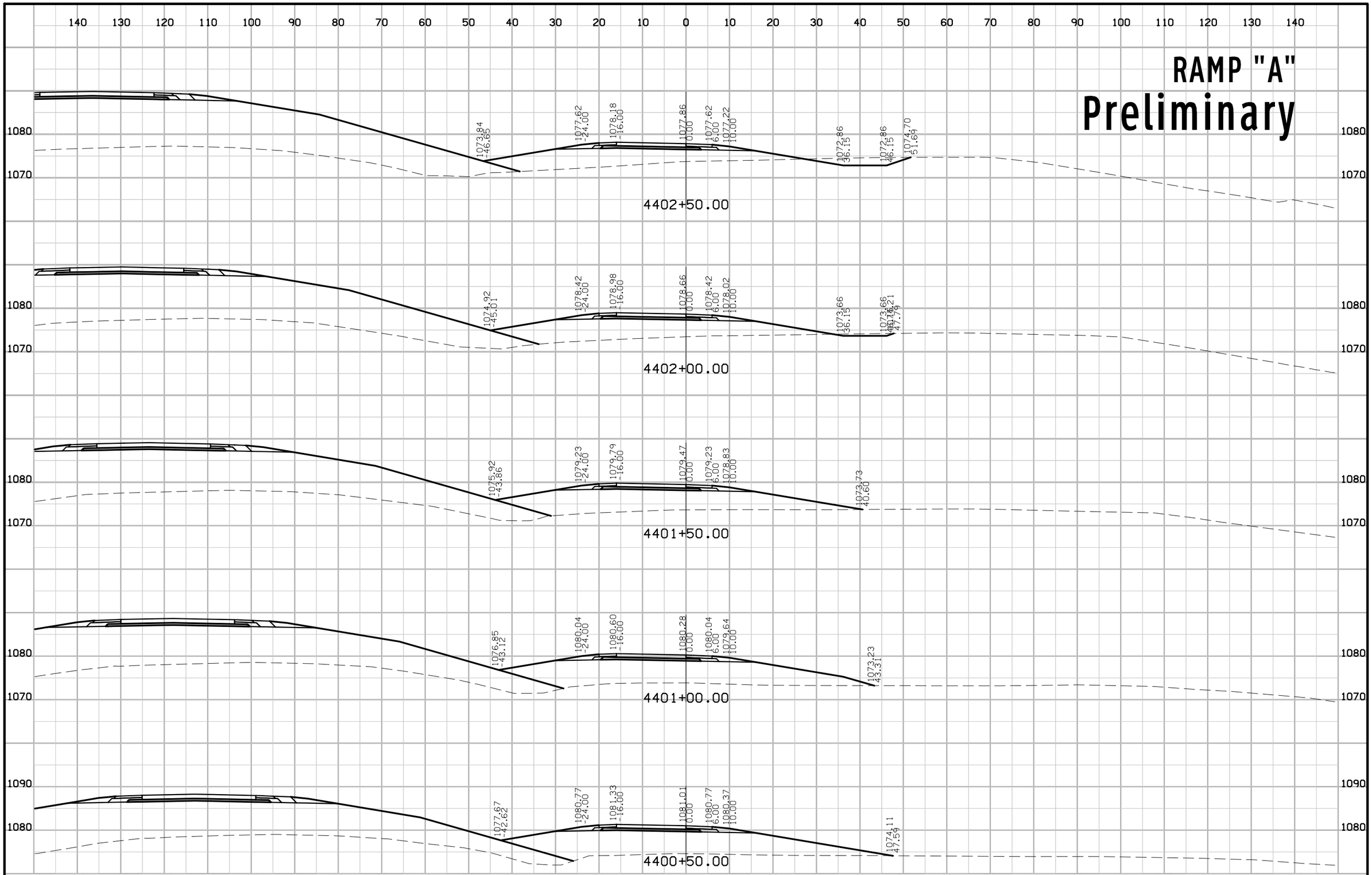


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.3

11:25:50 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y01.dgn

RAMP "A"

Preliminary

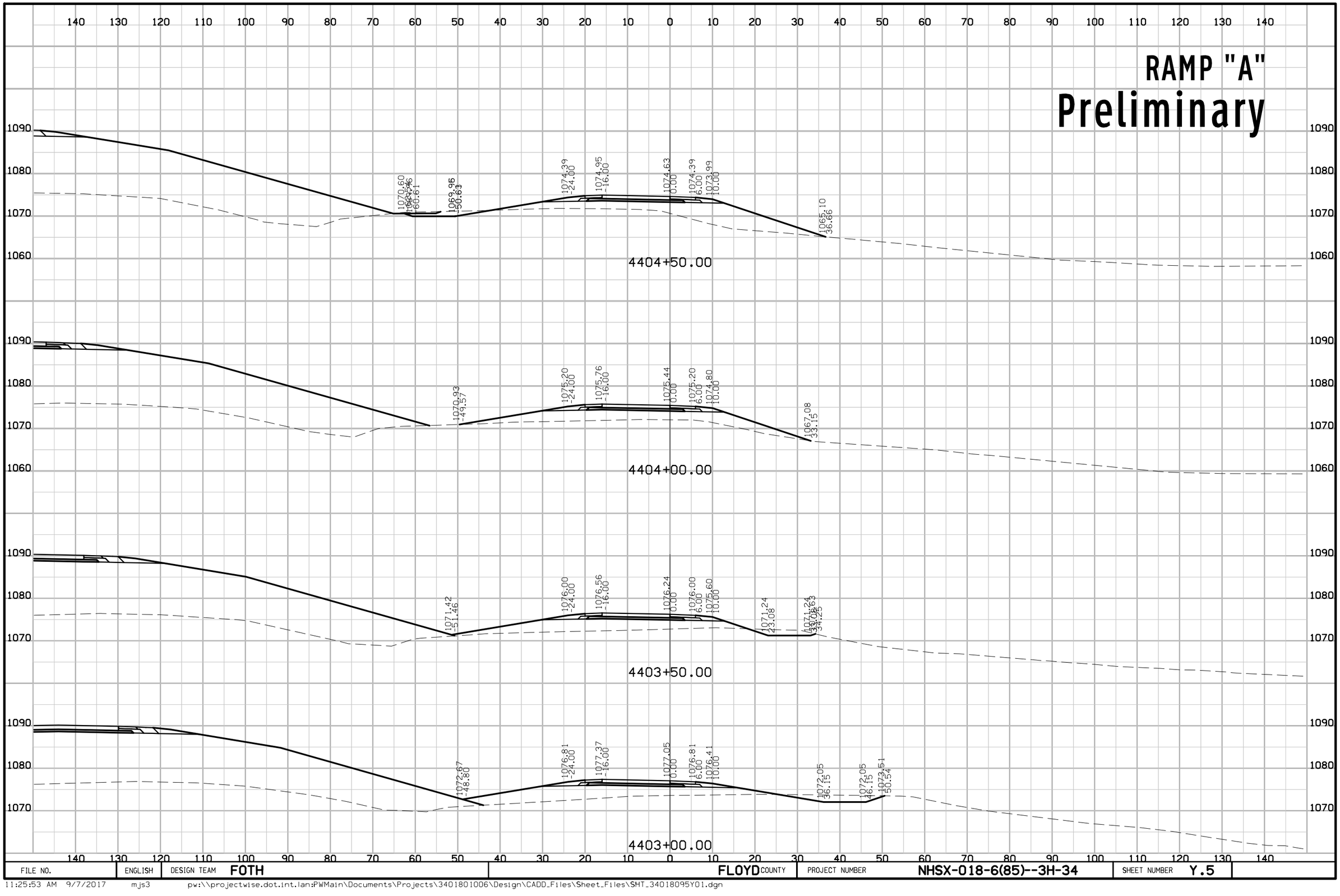


FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	Y.4

11:25:52 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y01.dgn

RAMP "A"

Preliminary

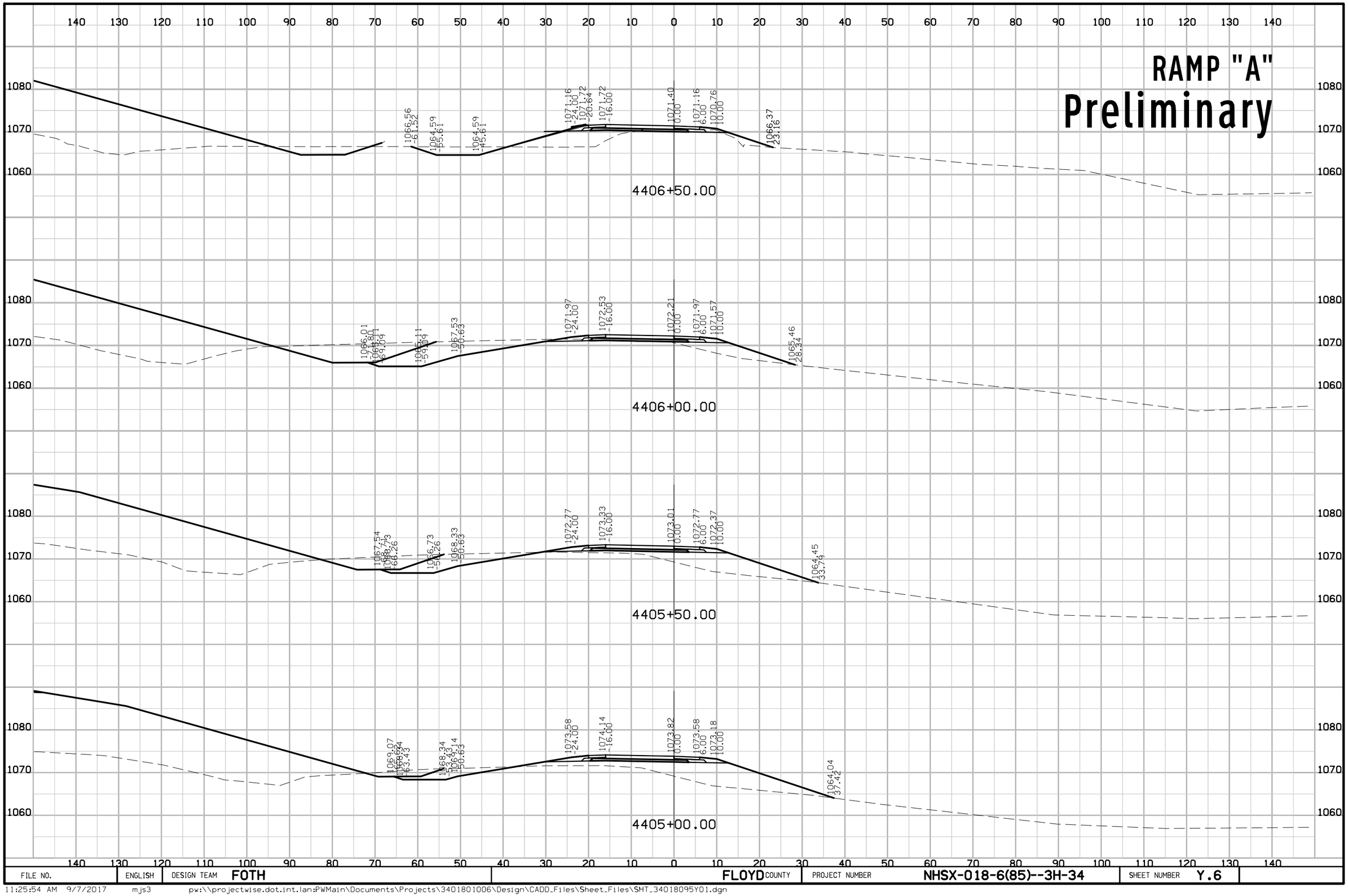


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.5

11:25:53 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y01.dgn

RAMP "A"

Preliminary

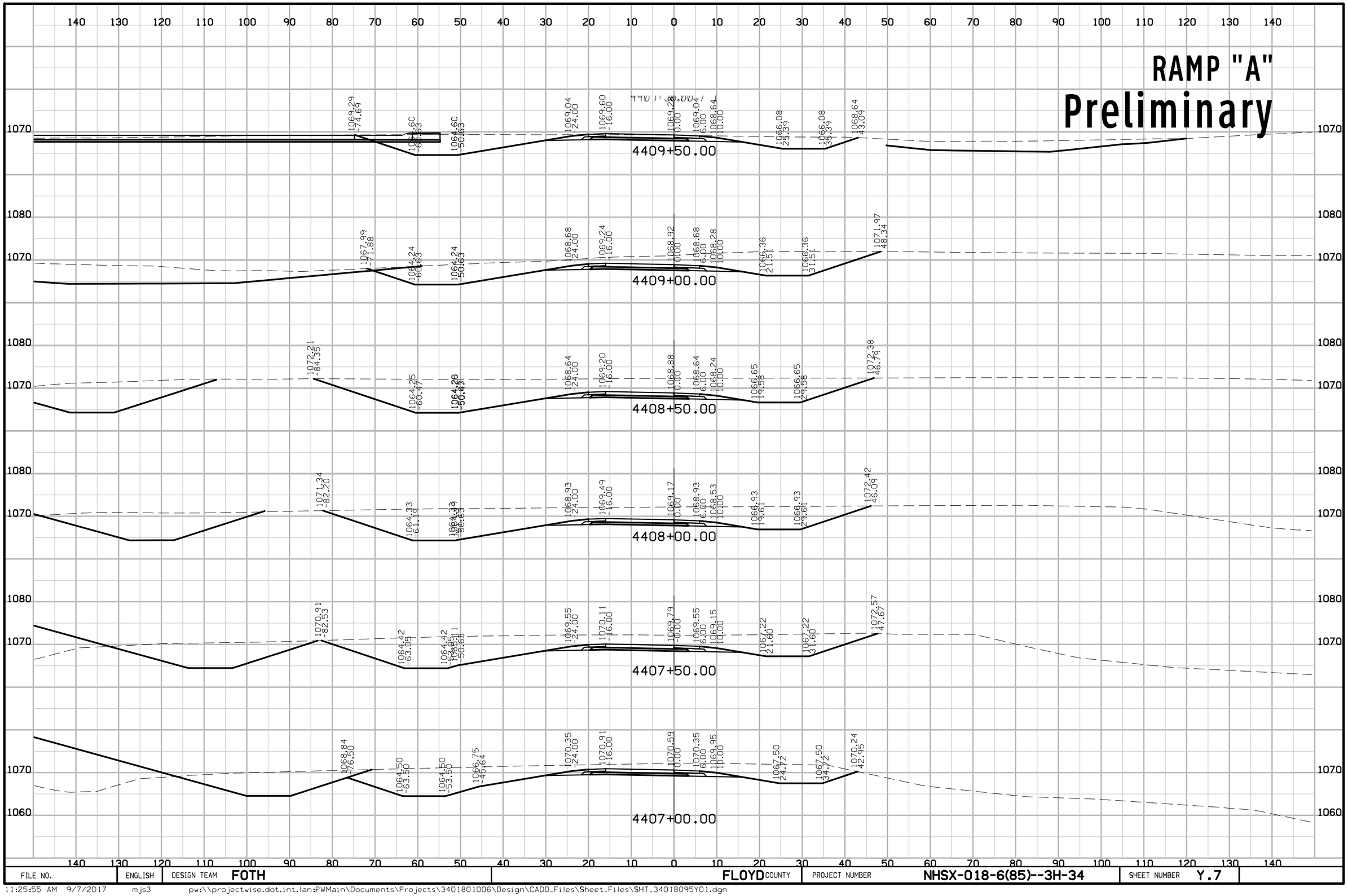


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.6

11:25:54 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y01.dgn

RAMP "A"

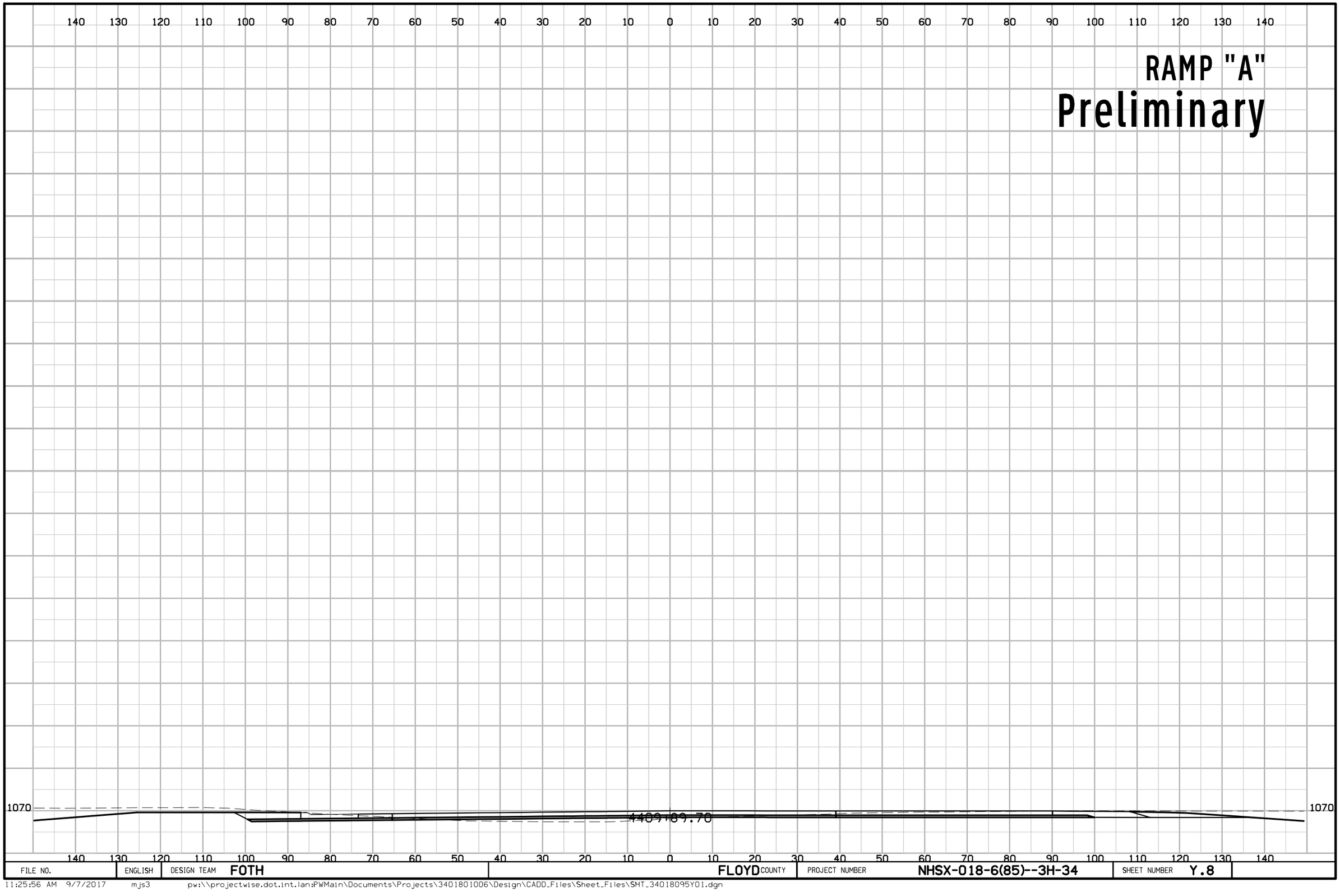
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	Y.7

11:25:55 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y01.dgn

RAMP "A"
Preliminary

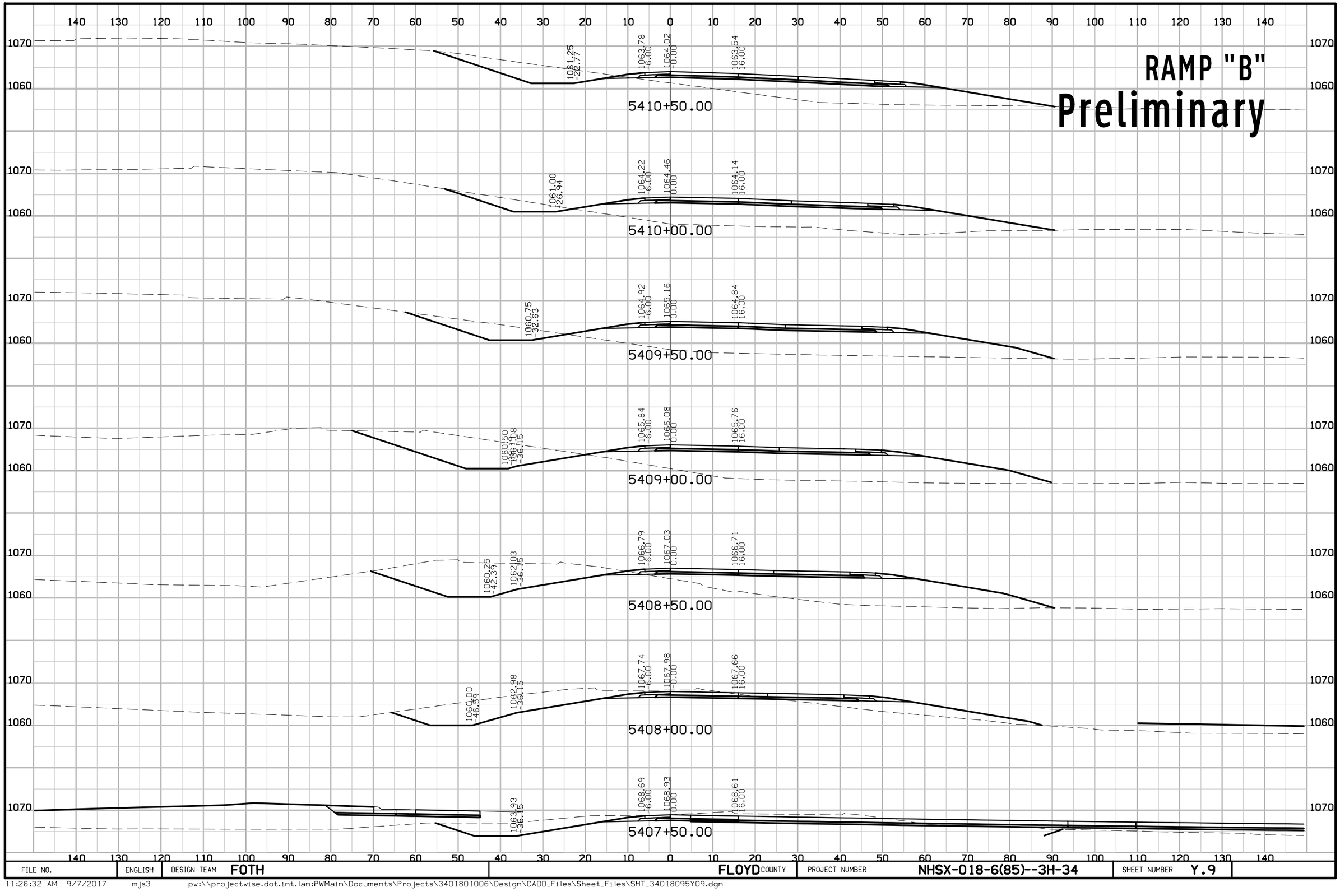


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.8

11:25:56 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y01.dgn

RAMP "B"

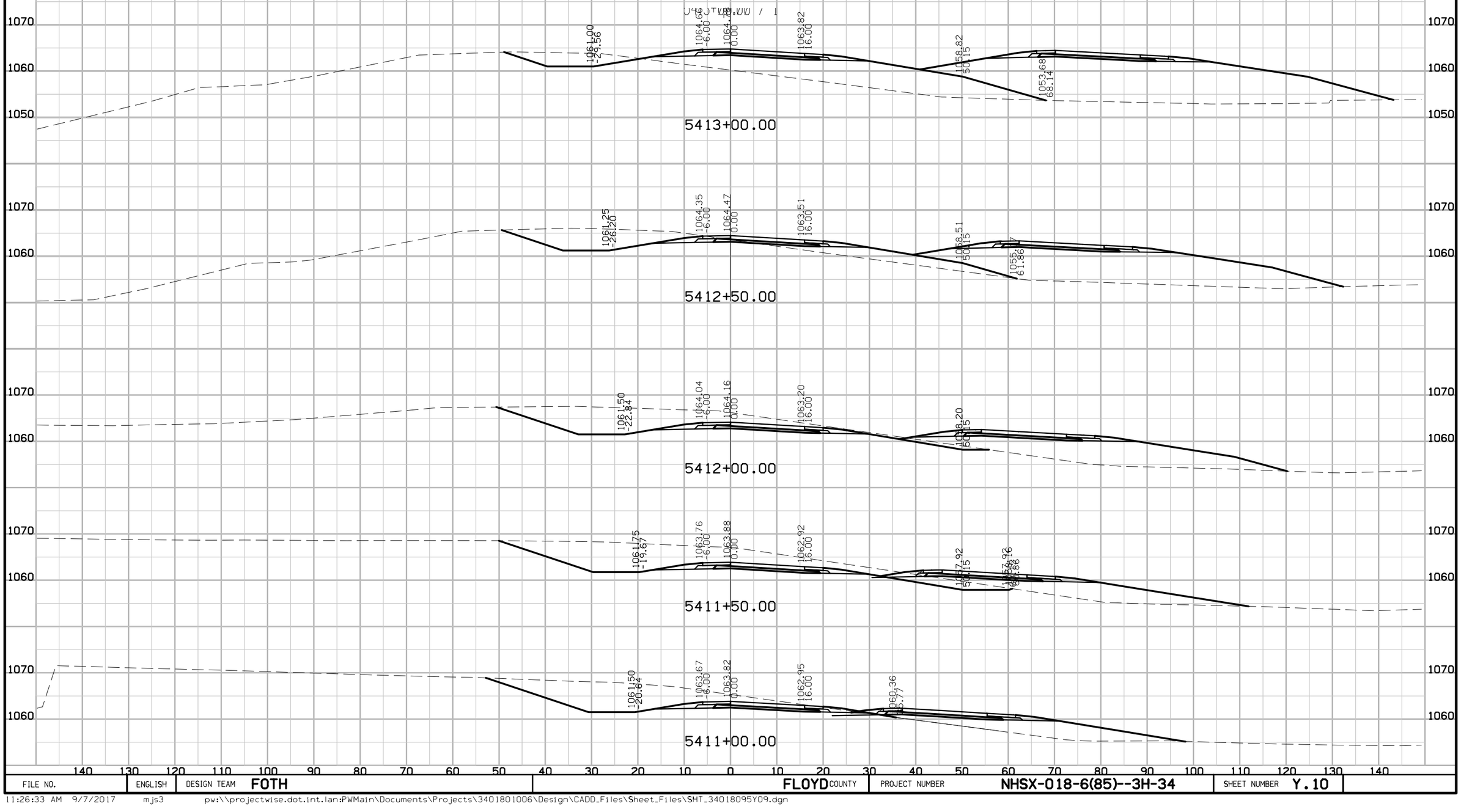
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.9

11:26:32 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y09.dgn

RAMP "B"
Preliminary

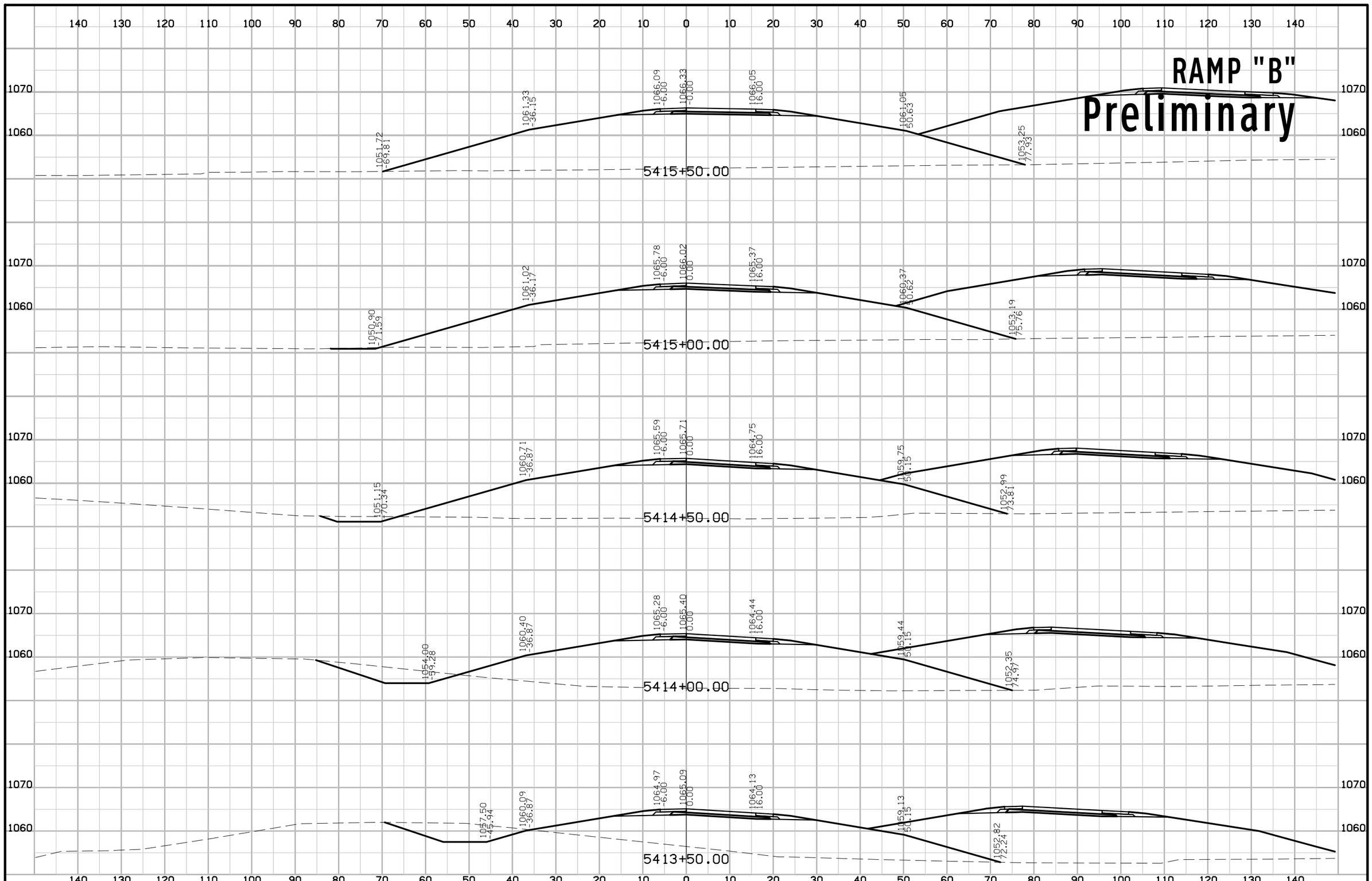


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.10

11:26:33 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y09.dgn

RAMP "B"

Preliminary

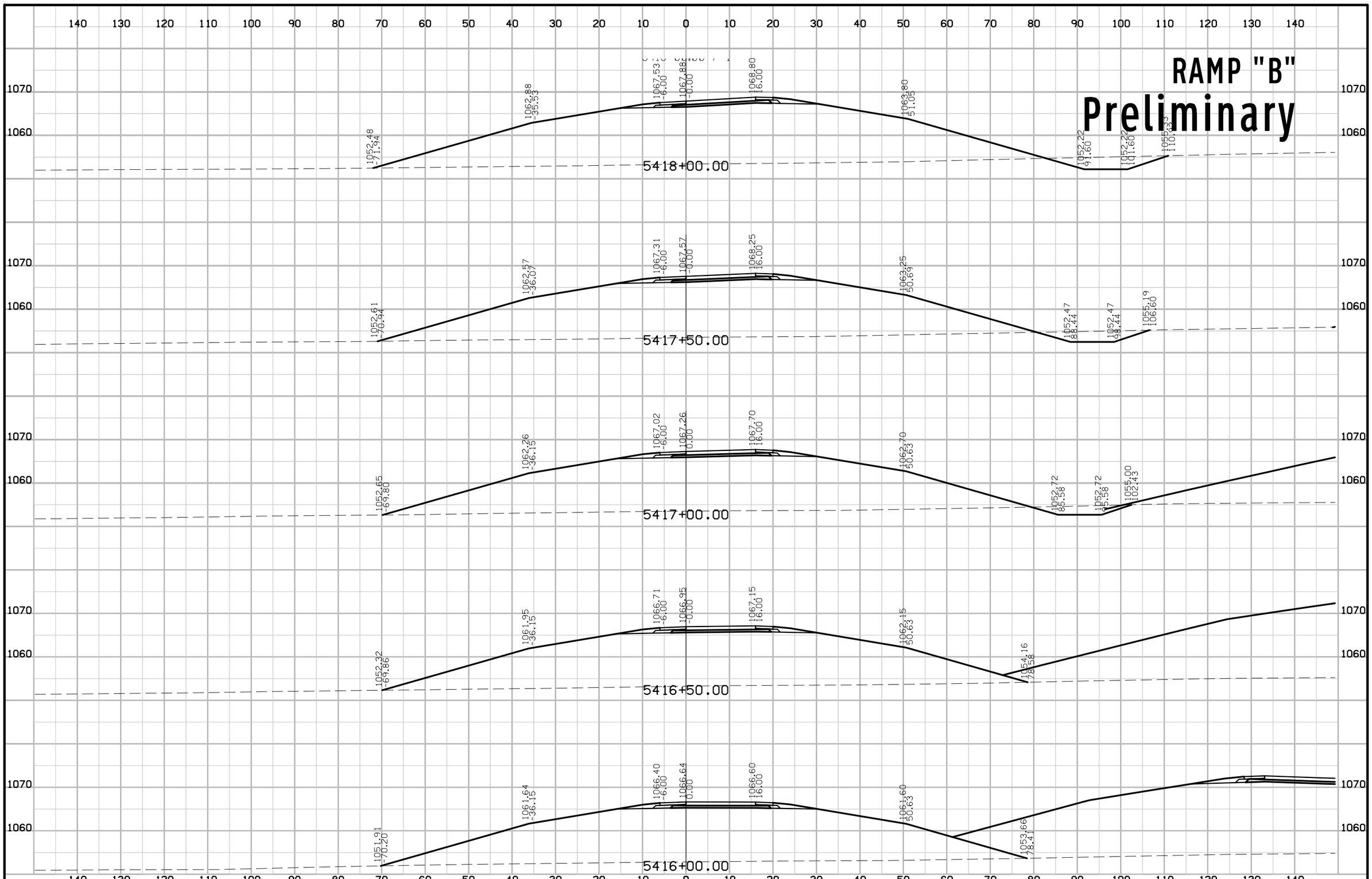


FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	Y.11

11:26:34 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y09.dgn

RAMP "B"

Preliminary

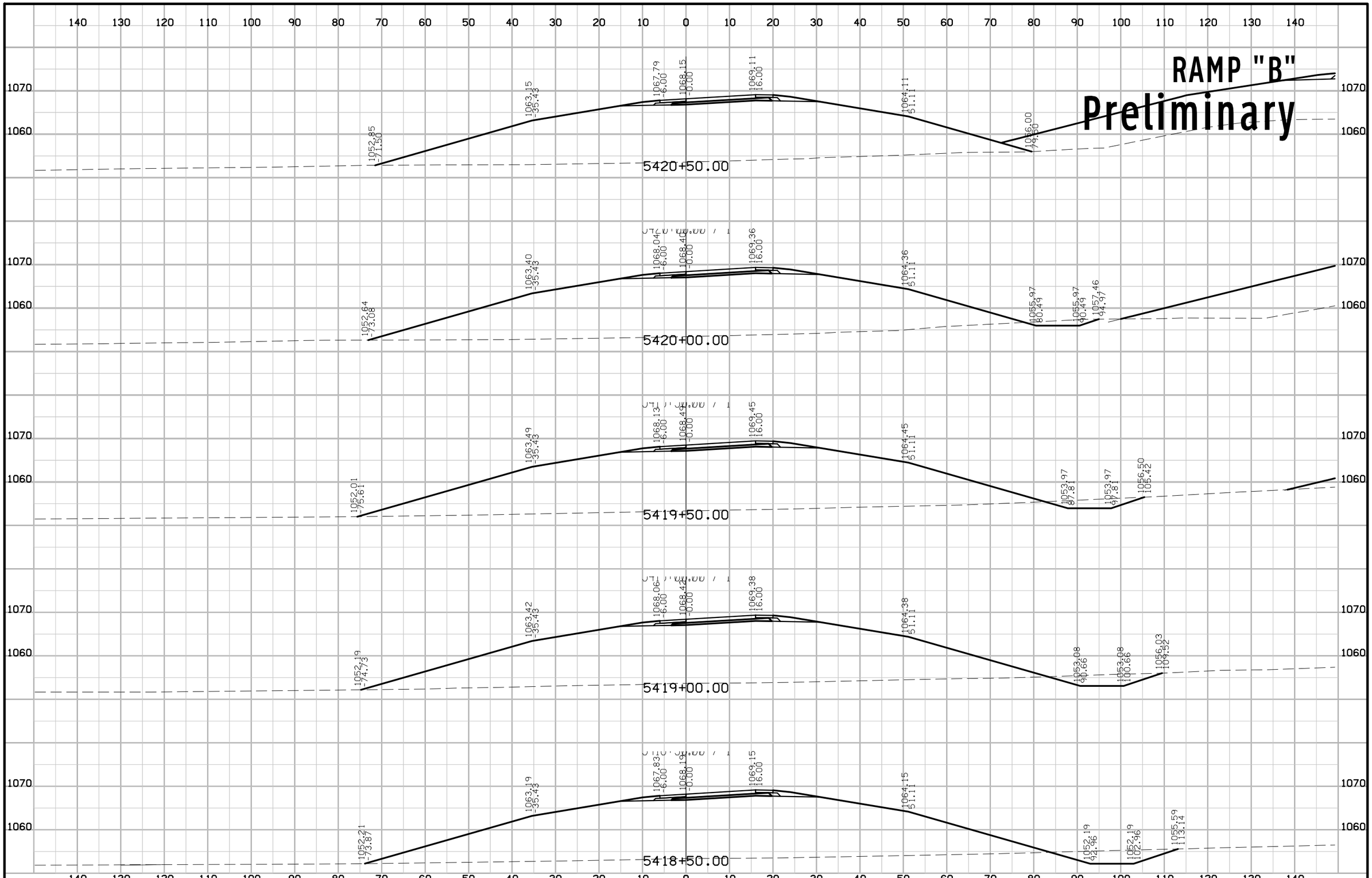


FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	Y.12

11:26:36 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y09.dgn

RAMP "B"

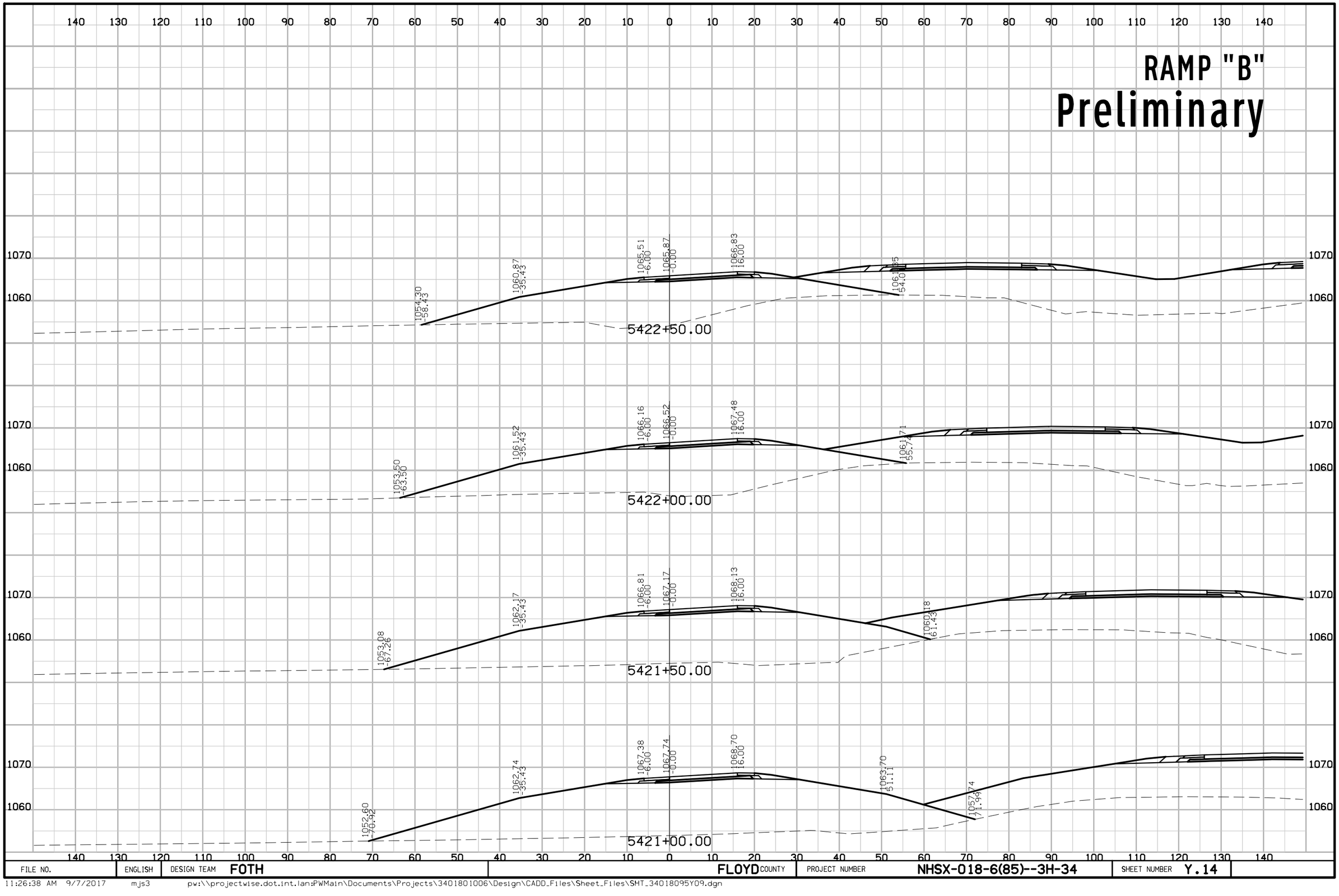
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.13

RAMP "B"

Preliminary

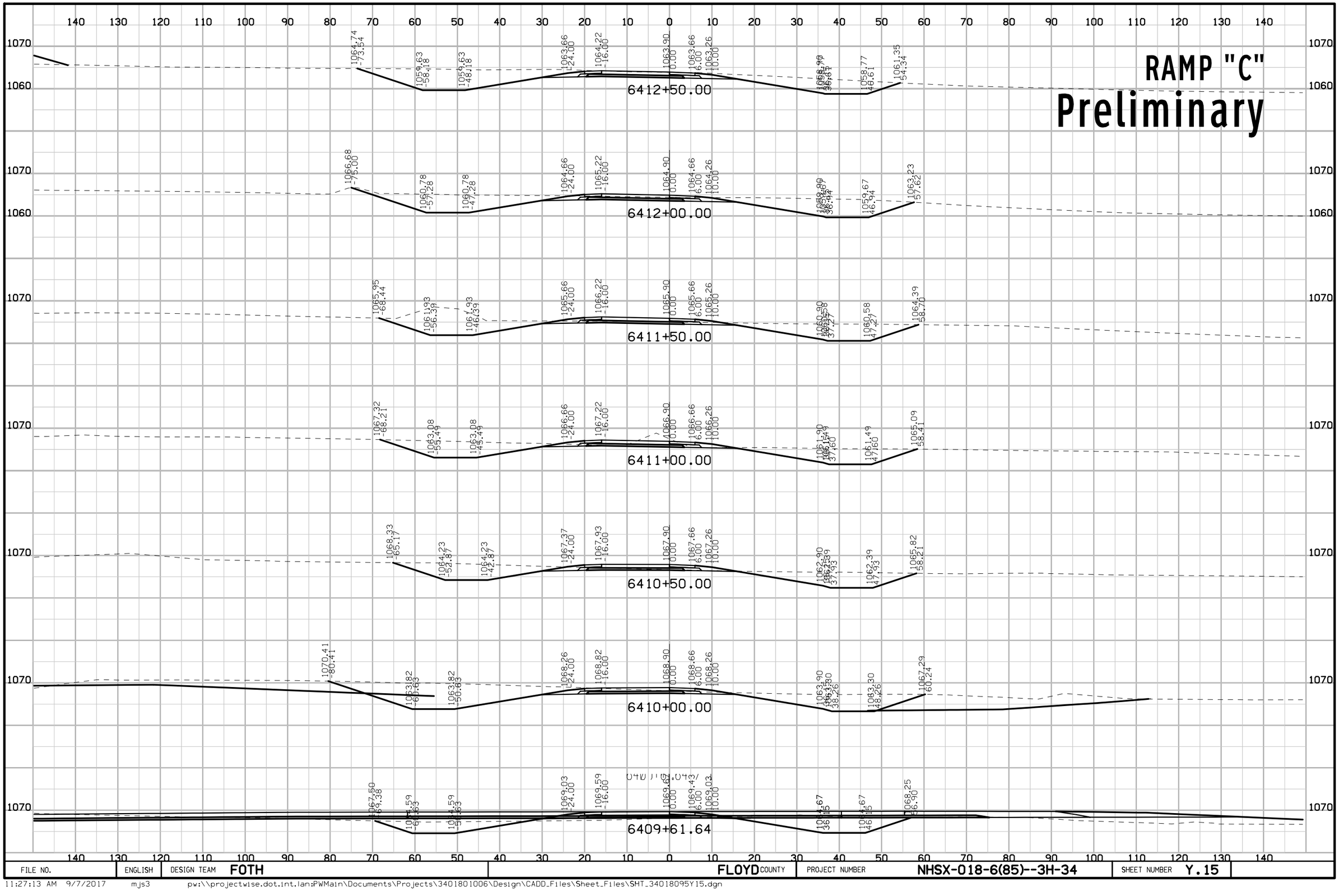


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.14

11:26:38 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y09.dgn

RAMP "C"

Preliminary

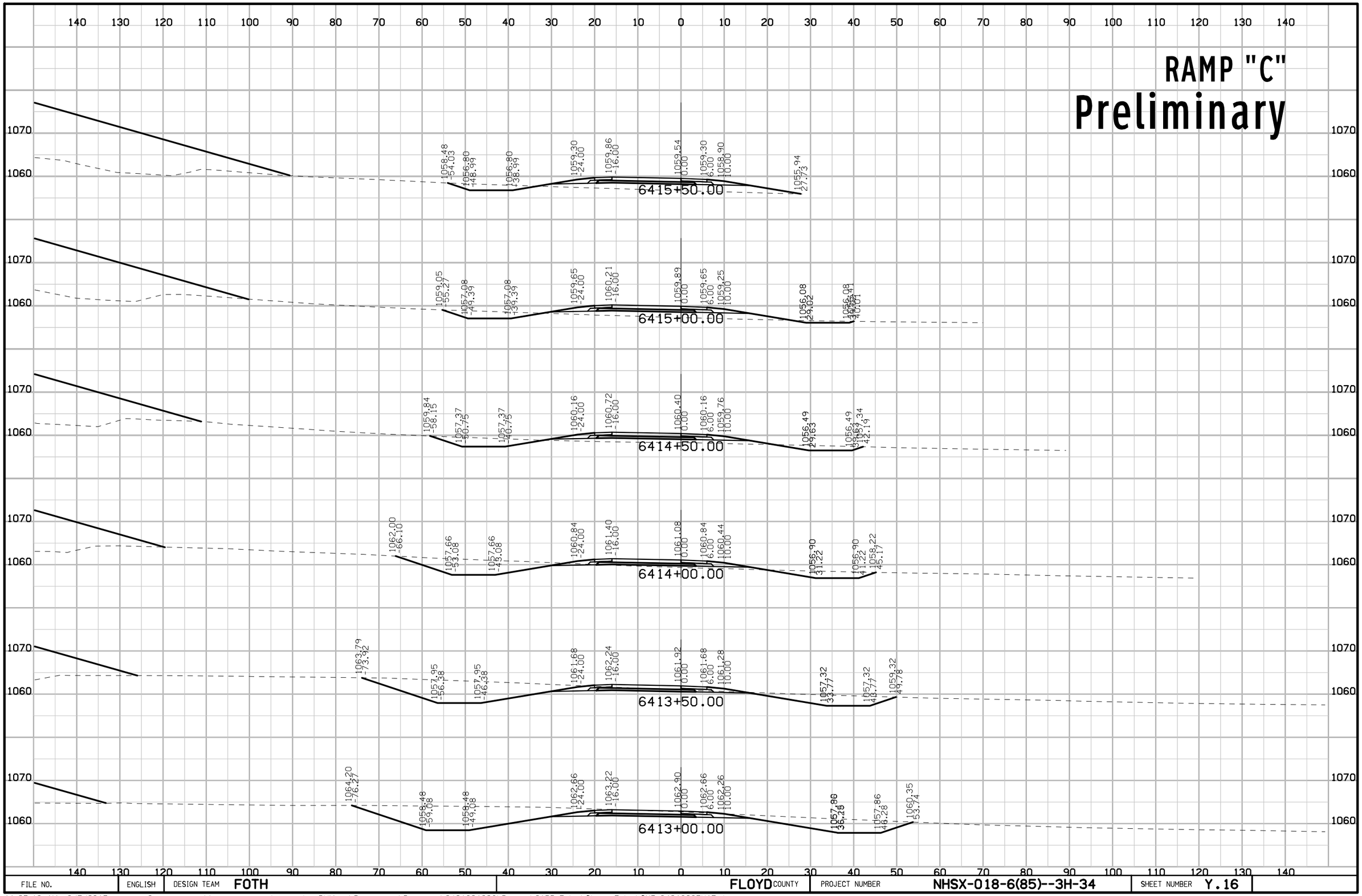


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.15

11:27:13 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y15.dgn

RAMP "C"

Preliminary

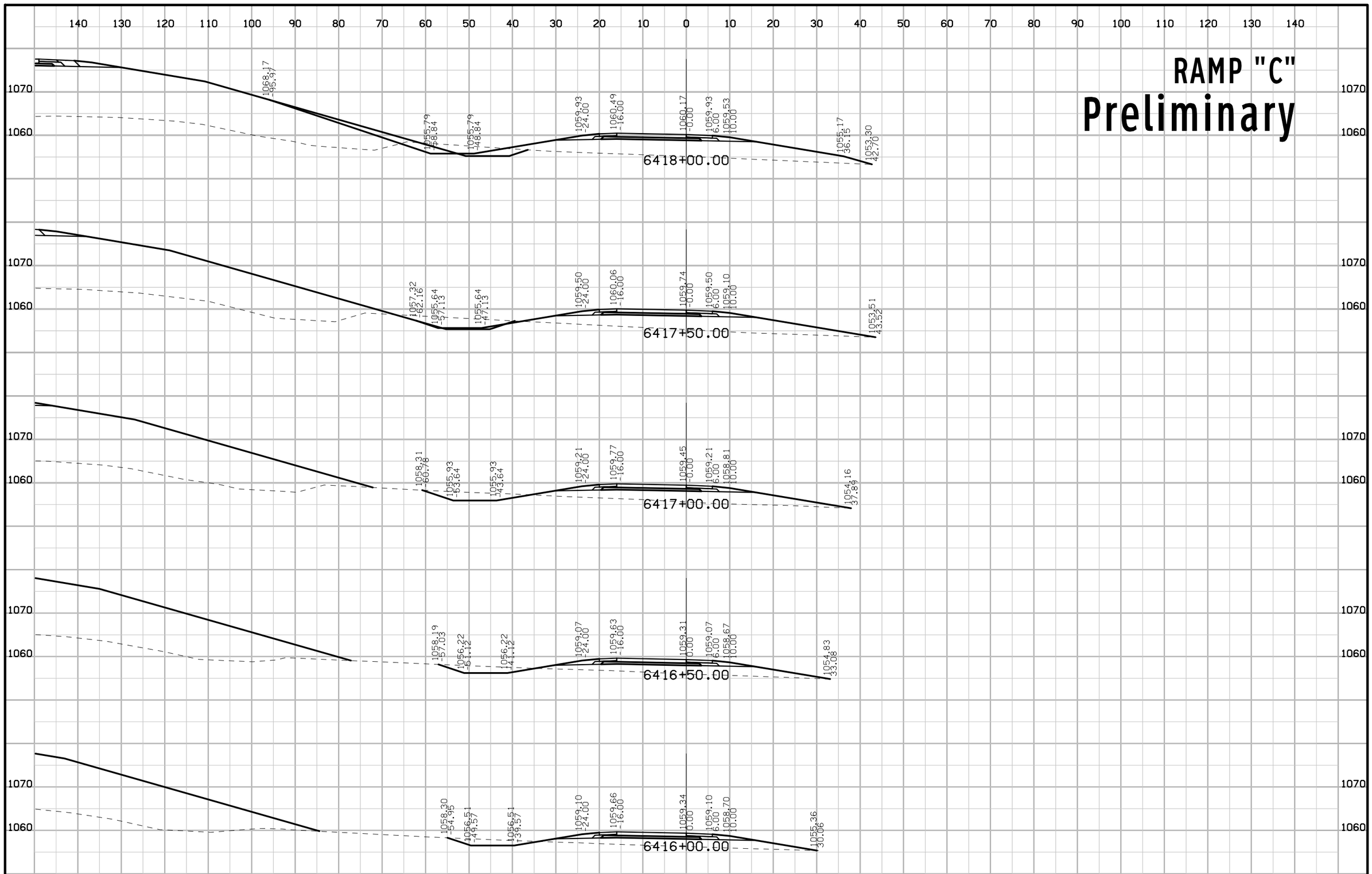


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.16

11:27:13 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y15.dgn

RAMP "C"

Preliminary

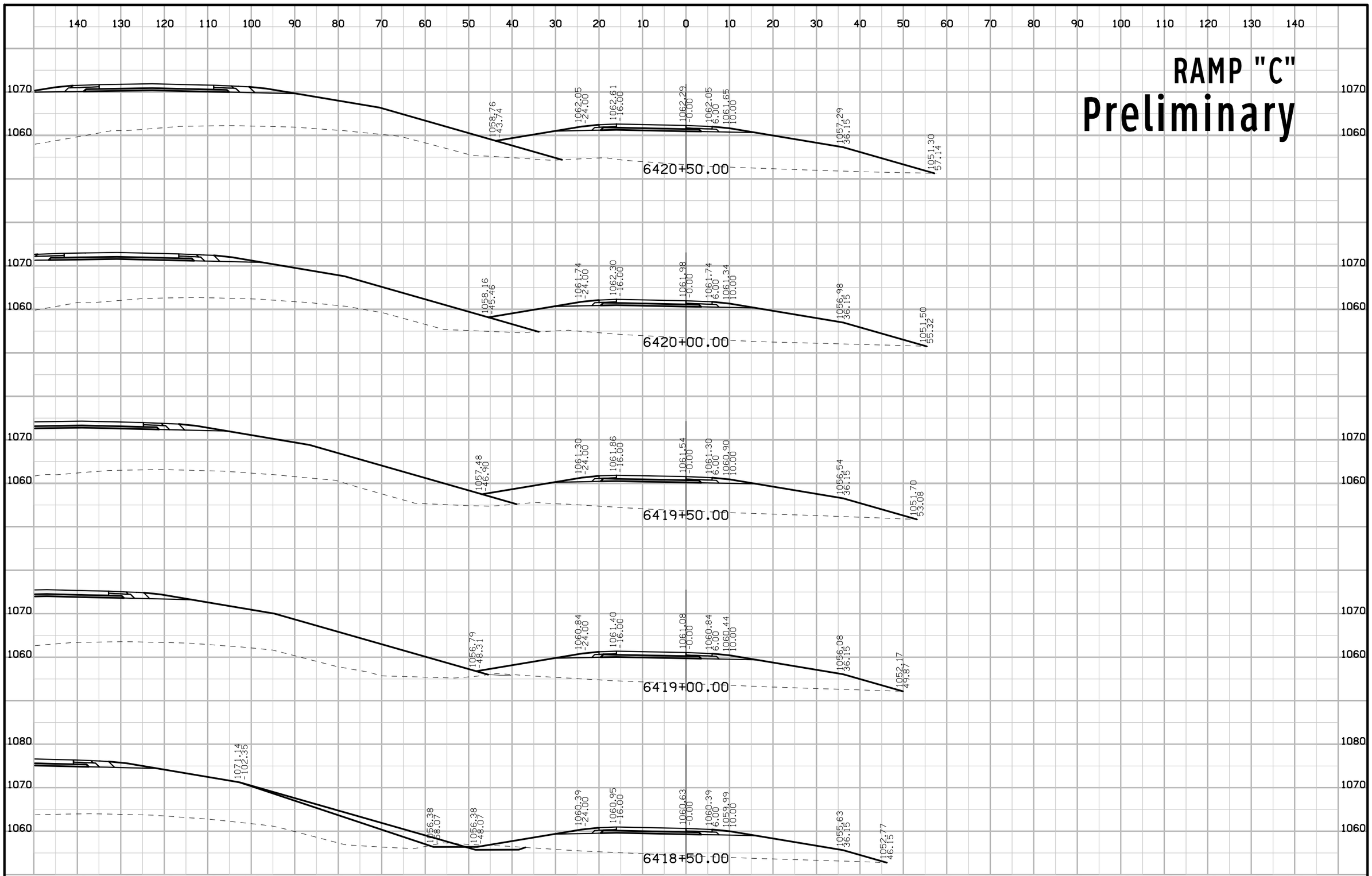


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.17

11:27:15 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y15.dgn

RAMP "C"

Preliminary

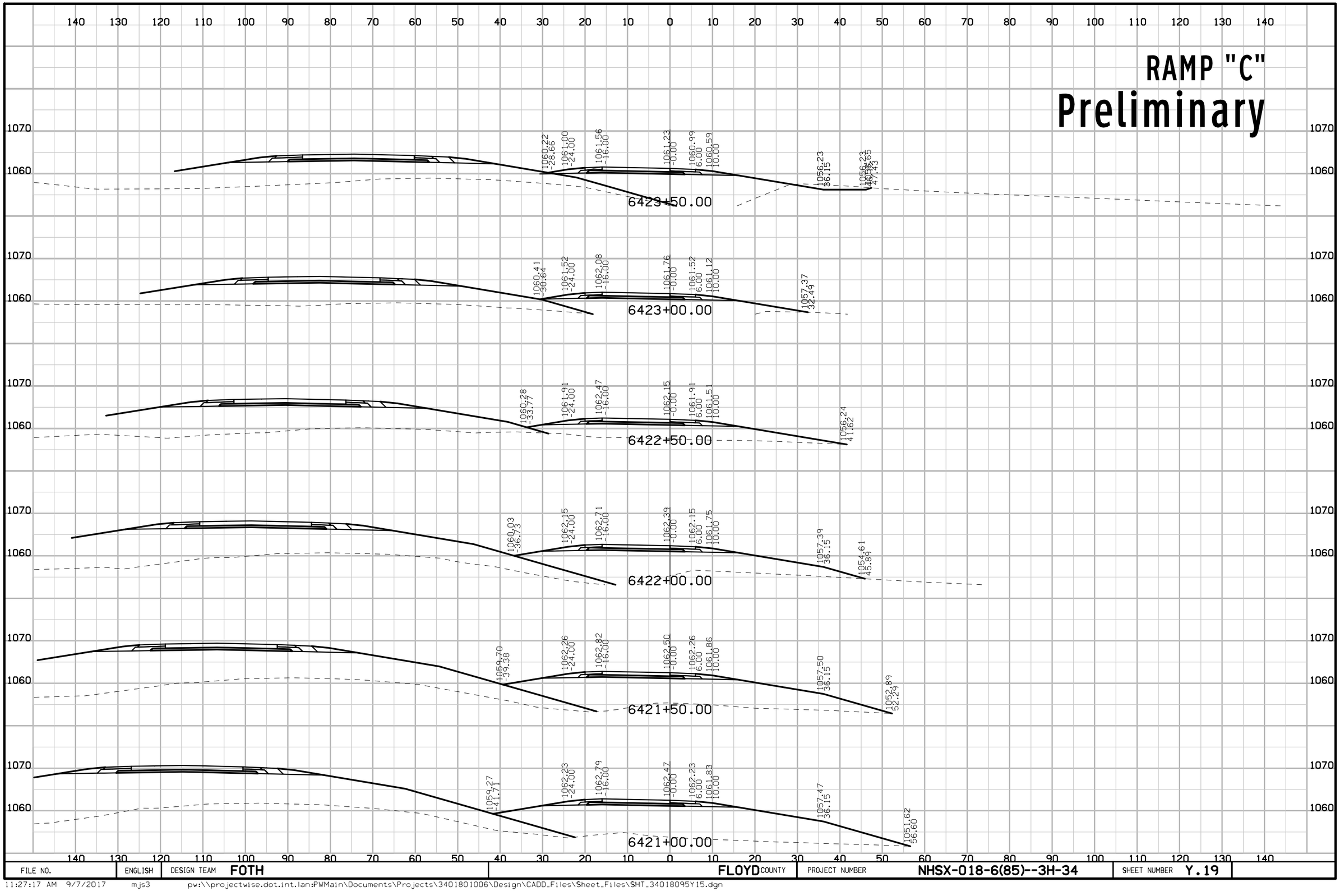


FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	Y.18

11:27:16 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y15.dgn

RAMP "C"

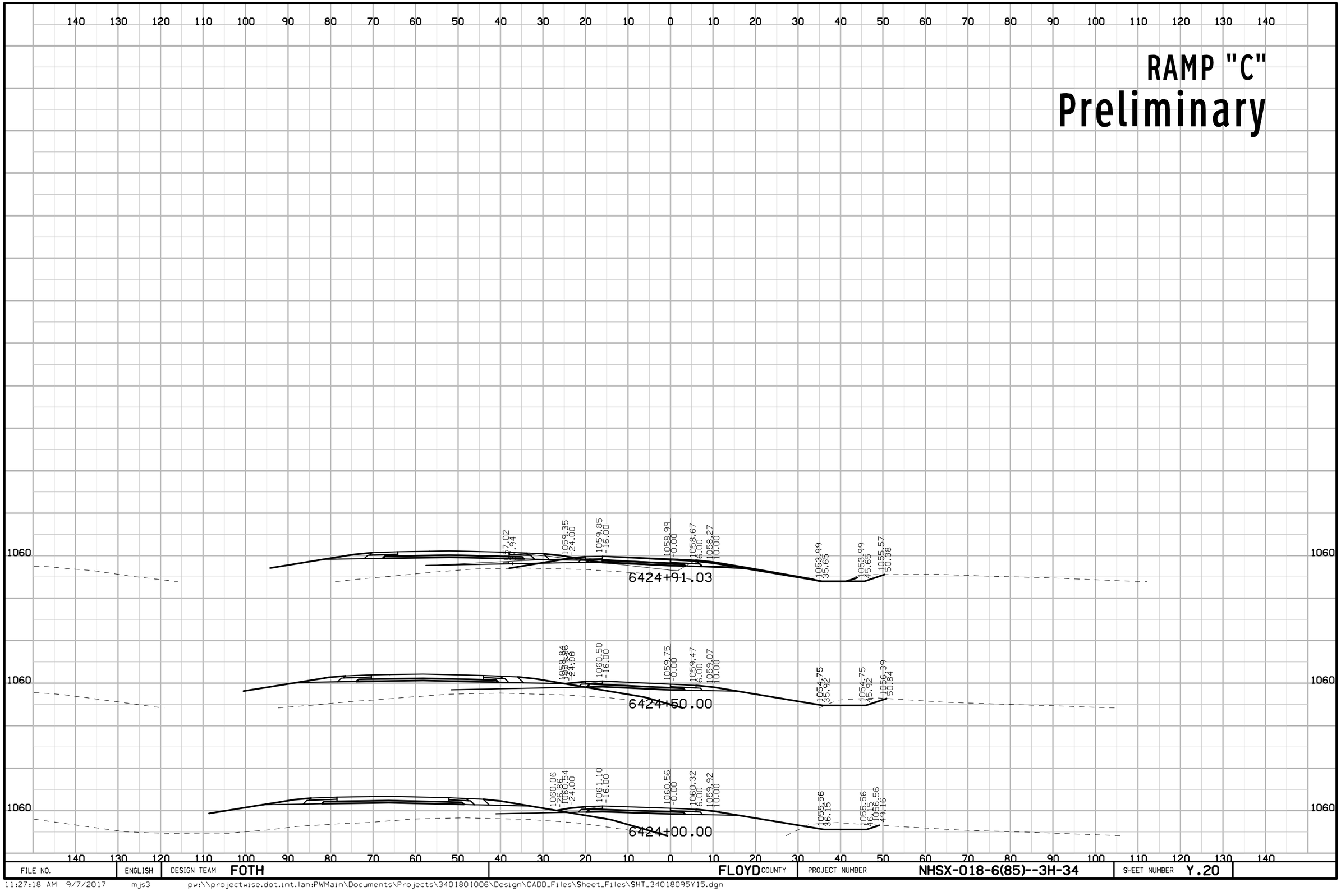
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.19

11:27:17 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y15.dgn

RAMP "C"
Preliminary

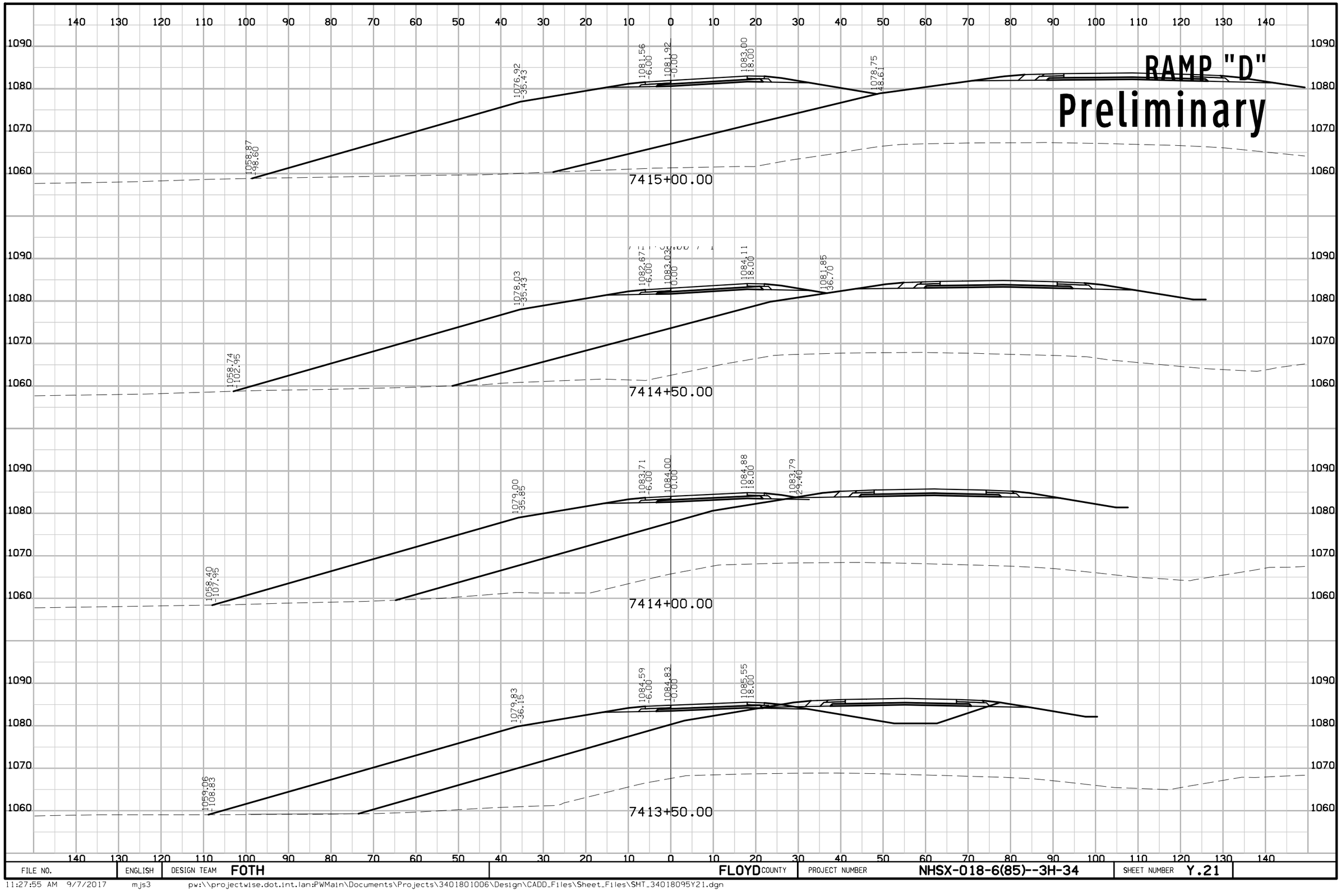


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.20

11:27:18 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y15.dgn

RAMP "D"

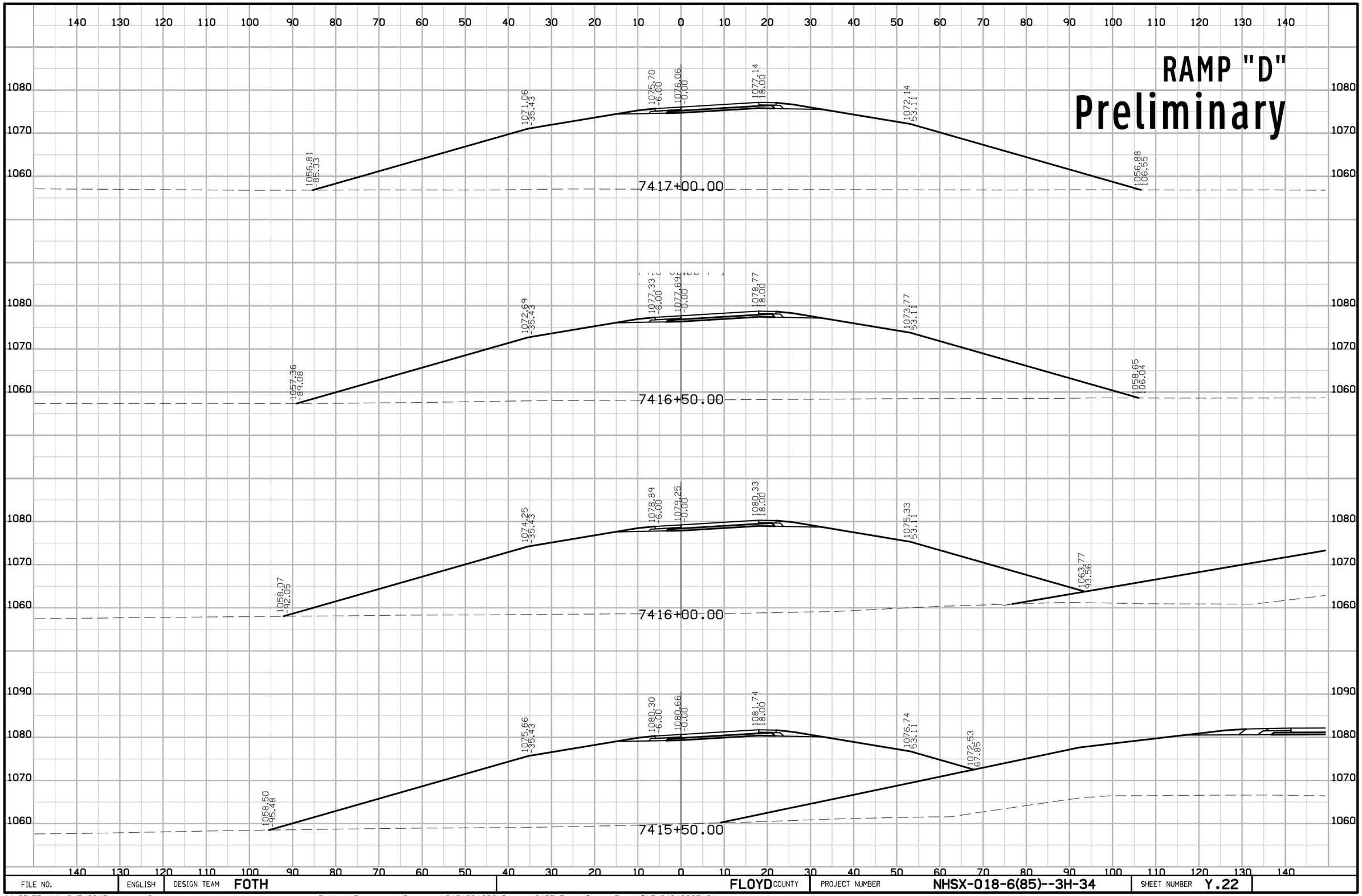
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.21

11:27:55 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y21.dgn

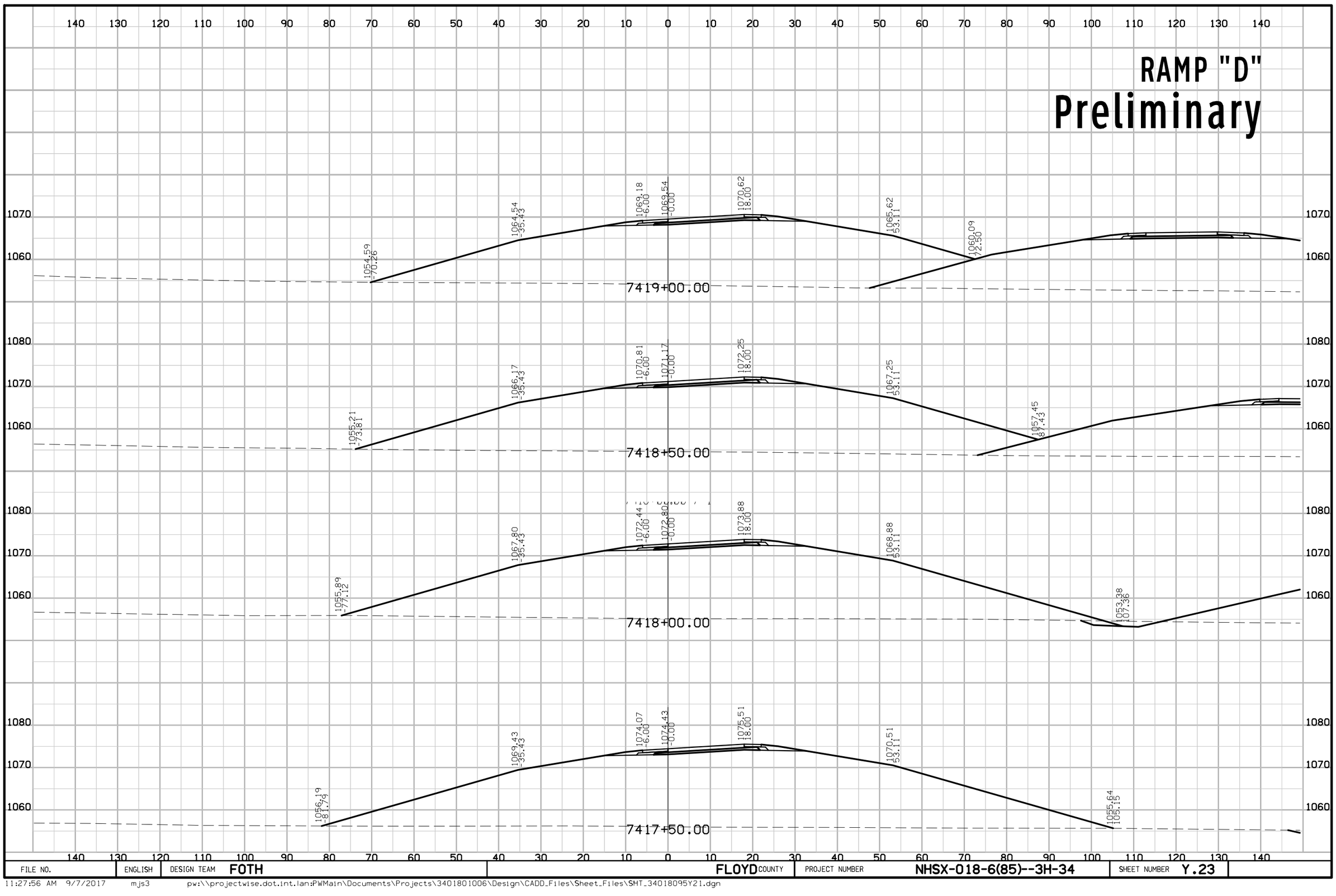
RAMP "D"
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.22

11:27:55 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y21.dgn

RAMP "D"
Preliminary

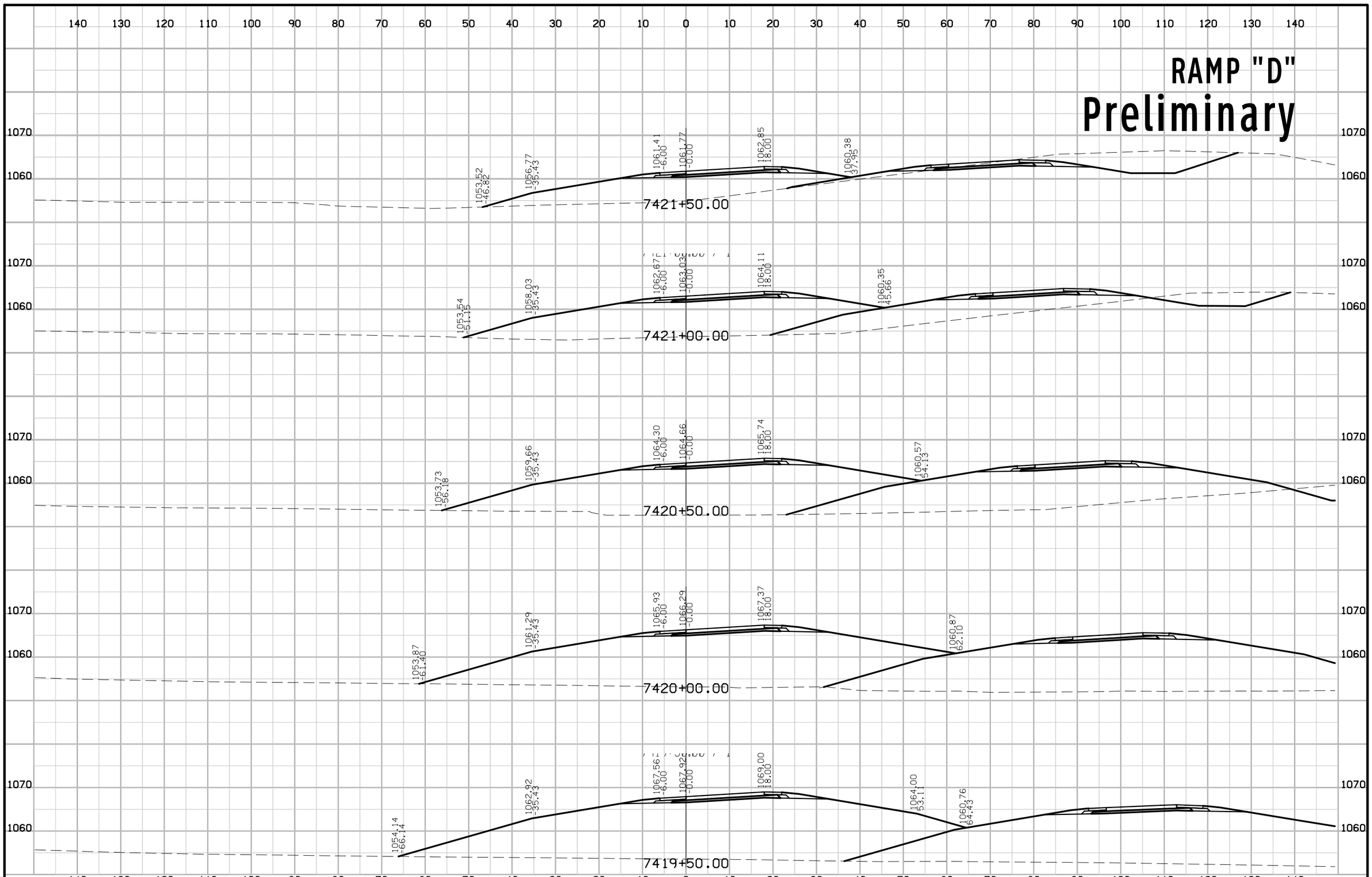


FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.23

11:27:56 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y21.dgn

RAMP "D"

Preliminary

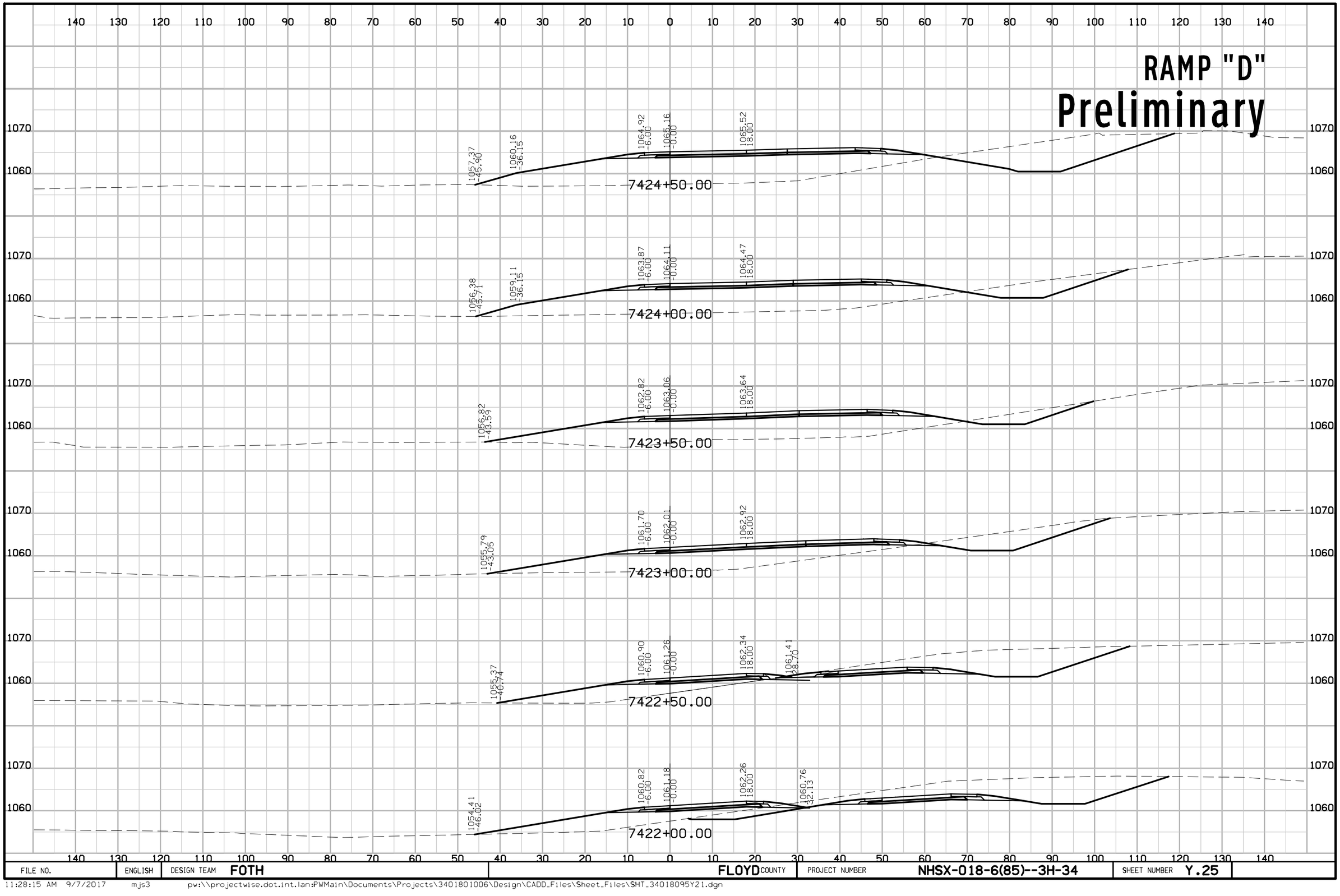


FILE NO.	ENGLISH	DESIGN TEAM	FOTH	FLOYD COUNTY	PROJECT NUMBER	NHSX-018-6(85)--3H-34	SHEET NUMBER	Y.24

11:28:14 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y21.dgn

RAMP "D"

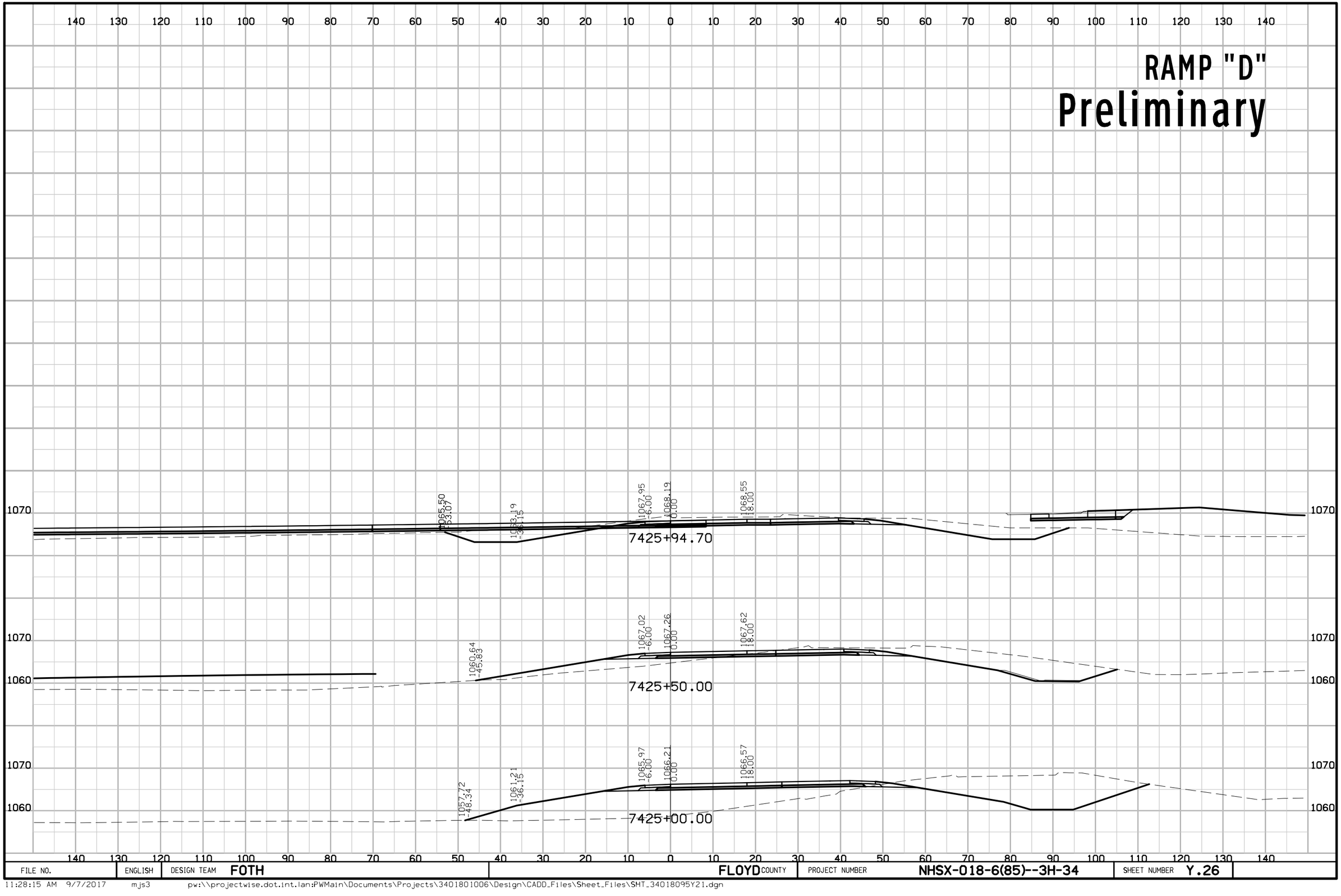
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.25

11:28:15 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y21.dgn

RAMP "D"
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM FOTH	FLOYD COUNTY	PROJECT NUMBER NHSX-018-6(85)--3H-34	SHEET NUMBER Y.26

11:28:15 AM 9/7/2017 mjs3 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\3401801006\Design\CADD_Files\Sheet_Files\SHT_34018095Y21.dgn