STPN-052-1(113)-2J-49 U.S. 52

LETTING DATE 12/17/24

JACKSON COUNTY

INDEX OF SHEETS

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
JACKSON COUNTY

U.S. 52 from Mississippi River Bridge to Overflow Bridge North of Sabula

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

REVISIONS

	TOTAL SHEETS
	TBD
PROJECT NUMBER	
STPN-052-1(113)-2J-49	
R.O.W. PROJECT NUMBER	
TBD	
PROJECT IDENTIFICATION NUMBER	
18-49-052-010	

Attendees

Name	Organization	Position	Email
Garret Reeder	IDOT	Project Manager	Garret.Reeder@iowadot.us
John Bartholomew	IDOT	Field Exam Engineer	John.Bartholomew@iowadot.us
Steven Flockhart	IDOT	District 6 Utility Coordinator	Steven.Flockhart@iowadot.us
Jimmy Ellis	IDOT	Preliminary Bridge Engineer	Jimmy.Ellis@iowadot.us
Zachary Abrams	IDOT	Traffic and Safety Engineer	Zachary.Abrams@iowadot.us
Jill Garton	IDOT	Location and Environment Eng	Jill.Garton@iowadot.us
Chad Lohrer	IDOT	District 6 Traffic Engineer	Chad.Lohrer@iowadot.us
Kevin Patel	IDOT	Design Engineer	Patel, Kevin <Kevin.Patel@iowadot.us>
Eric Wright	IDOT	ROW Engineer	Eric.Wright@iowadot.us
Mark Dell	IDOT	Design Engineer	Mark.Dell@iowadot.us
David Claman	IDOT	Preliminary Bridge Engineer	David.Claman@iowadot.us
Mark Peterson	Parsons	Project Manager	Mark.W.Peterson@parsons.com
Farhan Zafar	Parsons	Project Engineer	Farhan.Zafar@parsons.com
Tyler Kiefer	Parsons	Roadway Engineer	Tyler.kiefer@parsons.com

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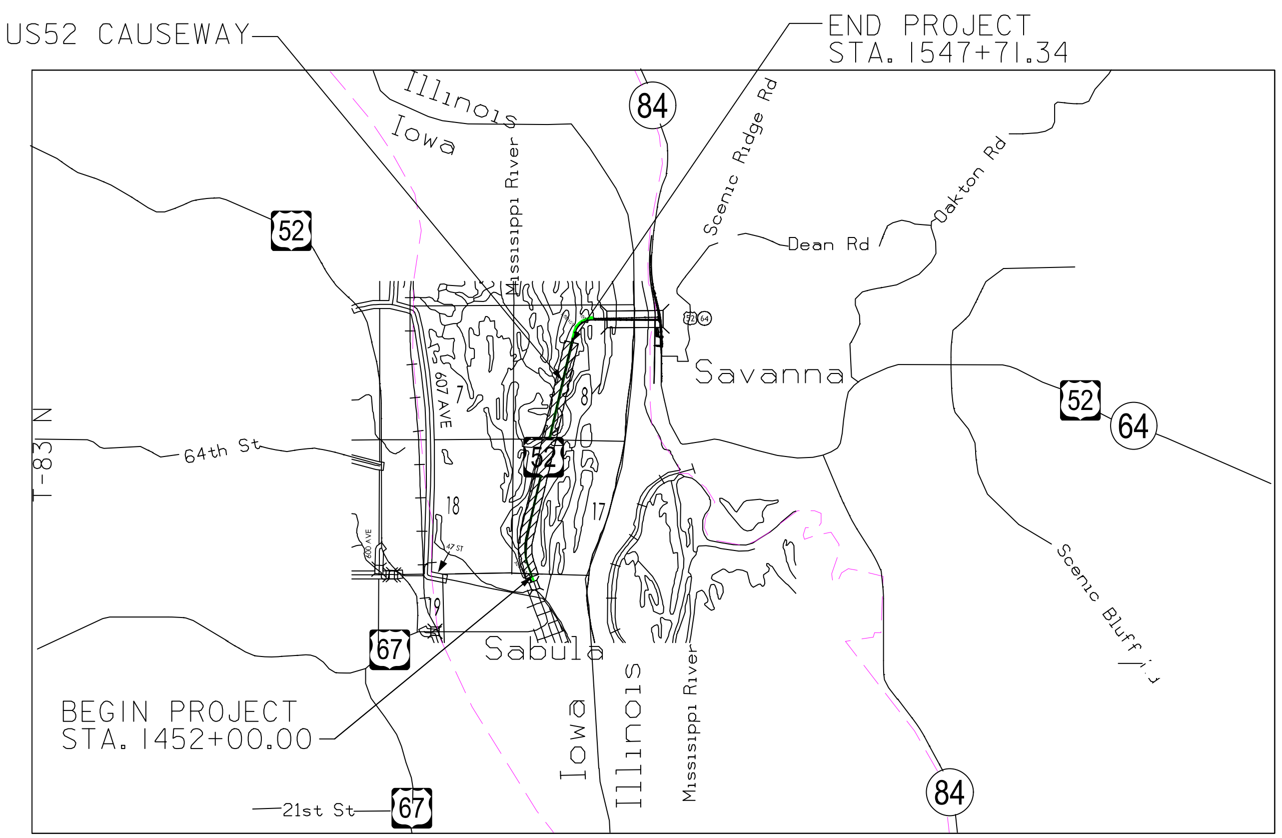
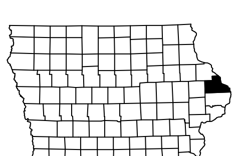


R-8 W

LOCATION MAP



DESIGN DATA RURAL		
2040 AADT	2,670	V.P.D.
2040 DHV	280	V.P.H.
TRUCKS	5	%
Total Design ESALs		

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
1	Mark W. Peterson	ROADWAY DESIGN
-	-	GEOTECHNICAL DESIGN

ESTIMATED EARTHWORK QTYS	
EXCAVATION, CLASS 10, WASTE	119,700 CY
EXCAVATION, CLASS 10, BORROW	87,400 CY
REVETMENT, CLASS B	624,910 TON
EROSION STONE	45,600 TON
MACADAM STONE	26,410 SY

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN – Date: 3-22-22

PROJECT DIRECTORY NAME: -\4905201018

1) Major Topics Discussed

MOT

1) Switching MOT Stage 1 (East Embankment Work) and Stage 2 (West Embankment Work)

- Steve Flockhart suggested that Stage 1 and Stage 2 be switched due to the Windstream/MediaCom conduits/handholes that need to be installed on the west side of the causeway prior to the removal of the concrete utility poles on the east side. Parsons had no issues with this suggestion and will update the MOT plans accordingly.

2) MOT through the Superelevated section. Sta. 1455+00 to 1469+15

- Parsons discussed the potential issue of the grades on either side of the stage line between Stages 1 and 2 in the superelevated section not matching due to the higher proposed profile through this section. The proposed profile is upwards of 2' higher than existing which could cause a drop-off issue through this section. Iowa DOT agreed that this could be a potential issue. Parsons to investigate further.

3) MOT Stage 3 "locked in" pavement

- Kevin Patel discussed the issue of "locking in" the contractor into paving the NB lane in Stage 3. In the current staging plan, the contractor will pave the NB lane between the final paved NB shoulder and final paved SB lane. This could cause potential issues with not being able to guarantee a 2% slope between two fixed points. Parsons agreed and will investigate options to resolve this issue. The first potential solution that was discussed was to grind down the shoulder/lane to provide the correct cross slope. The second potential solution was to make the shoulder in Stage 1 temporary so in Stage 3 they can remove that temporary pavement and pave both the NB lane and shoulder together which will guarantee the correct cross slope. Additional costs for these solutions will be analyzed by Parsons.

4) MOT North vs. South Construction Sequence

- Parsons discussed whether the Iowa DOT had a preference on whether the construction sequence began from the South or the North. Depending on the location of the material source, the direction loaded trucks enter the construction zone could affect how much damage the existing pavement undergoes. The DOT did not have a preference at this time but will reevaluate this as design progresses and means/methods become clearer. It was also suggested that a note can be added to the plans to allow the Contractor to submit their own MOT staging plans which would give them flexibility on which direction to start.

5) Potential Issues with Mounting MOT Signs in Embankment Slope

- Zachary Abrams discussed the potential issue with driving the MOT sign posts into the embankment due to the revetment and newly installed conduits on the west side of the causeway. Parsons agreed with this concern and will investigate this further to make sure there is a viable option for the contractor to mount the signs in the field if they are unable to drive the posts.

6) Special Events and Coordinated Operations Sections of the MOT Staging Notes

- Parsons requested a list of any special events and coordinated operations that will need to be included in the MOT plans. Garret Reeder stated that a list of these events and operations will be provided by the District and Sabula closer to the final plan submittal.

7) 35 mph Construction Zone Speed Limit

- Parsons discussed the use of a 35-mph speed limit within the construction zone. No comments/concerns were brought up by the Iowa DOT for the use of this speed limit.
Survey and Toe of Slope

8) Constructibility and Feasibility of Toeing in the Slope of the Embankment

- Due to the depths of some areas along the causeway it may not be possible to guarantee the position of the toe of slope to be trenched. It was determined that the hydrographic survey that was discussed in the PMT meeting would help convey a better picture of what the bottom of the river looks like along the causeway. Once this survey is complete, Parsons and the Iowa DOT agreed to discuss this matter further. One possible solution was to create a separate detail for the shallow sections vs. the deep sections.

9) Update on Hydrographic Survey

- Parsons asked about the progress of the hydrographic survey of the river bottom that was discussed in the PMT meeting. Iowa DOT is going to reach out to Jeremy Harris (Iowa DOT Survey Manager) to make sure he has all necessary information to perform the hydrographic survey. He was previously waiting for the ice to melt to be able to launch a boat. Parsons will provide any further information that Jeremy and his team may need to get started on this survey.

Roadway Design Items

10) Deficient HSSD on NB curve at Sta. 1456+60.25

- Parsons discussed that the only design element that is currently deficient is the Stopping Sight Distance (SSD) on the NB lane at the first curve of the project at Sta. 1456+60.25. The proposed SSD only satisfies a design speed of 50 mph compared to the Policy Design Speed of 60 mph. The existing condition has a similar deficiency at this curve that was resolved in the past by waiting to post the 55 mph speed limit of the causeway until after the curve which requires drivers to hold the slower speed limit that is posted in Sabula throughout the curve. Parsons proposed that a similar strategy will be utilized in the signing plan for the newly constructed causeway. Iowa DOT had no issues with this approach at this time.

11) Proposed Typical embankment section same as overflow bridge

- Iowa DOT asked if the proposed embankment section would match the Overflow Bridge embankment section. Parsons confirmed that the same embankment section is being used.

12) PCC Pavement Depth. 9” vs. 12”

- Parsons discussed that the PCC pavement depth for the causeway has not been determined yet and requested how the Iowa DOT wanted to proceed with that process. It was agreed that once the Geotechnical Report was completed and reviewed, Parsons and the Iowa DOT will discuss this matter with the Iowa Pavement Design Group to determine the depth and other pavement details.

13) Modify “Paved Shoulder at Guardrail” Detail

- Parsons requested to modify the Iowa standard detail for “Paved Shoulder at Guardrail” to a more job specific detail, so it better reflects the guardrail/shoulder condition that is seen on the causeway. John Bartholomew had no issue with this.

Utility Coordination

14) Updated Utility Contact Info

- Steve Flockhart noted that the contact information for the utilities on the project might be outdated. He will provide Parsons updated contact info to incorporate into the plans.

15) Depth of Jo-Carroll Gas line

- Parsons requested the depth of the gas line that runs through the project at Sta. 1505+00 in order to incorporate that information into the plans as a note to contractor. Steve Flockhart stated that there were discussions previously with Jo-Carroll about them pigging the gas line in the summer of 2022 which will allow them to confirm the depth. There were also discussions regarding Jo-Carroll adding a concrete cap on top of the gas line within the project limits as well. Steve will follow up with Jo-Carroll to confirm these items.

ROW

16) Confirmation of ROW

- Parsons discussed the lack of ROW documents for the project area. Iowa DOT was able to provide a Special Warranty Deed for this area which reflects that the existing ROW is 250’ wide and greater. Parsons to review this document and update the plans accordingly.

2) Action Items

Parsons

- Revise MOT staging to accommodate utility installation.

- Add note to MOT staging sheet to allow Contractor to submit their own MOT staging plans to provide flexibility to start construction from either the north or south.

- Determine time durations for each MOT Phase to develop construction schedule.

- Investigate different ways contractor will be able to mount MOT signs throughout project.

- Investigate cost and constructibility of options to eliminate the MOT Stage 3 “locking in” pavement issue. Temporary shoulder vs. grinding down pavement.

- Investigate constructibility of current MOT staging plan through superelevated section to make sure the higher proposed grade will work.

- Modify “Paved Shoulder at Guardrail” detail so it better represents the conditions on the causeway

- Show right-of-way lines on plans

Iowa DOT

- Develop list of MOT Special Events and Coordinated Operations

- Determine pavement thickness once Geotechnical Report is completed.

- Conduct the hydrographic survey of the bottom of river

- Coordinate with Jo-Carroll on their plan to pig the gas line, find depth of gas line, and whether they will be putting a concrete cap on the line.

- Provide updated utility contacts to Parsons.

- Review and confirm Mussel Survey and Wetland Mitigation do not require further action.

FIELD EXAM MEETING MINUTES

1) Meeting Details

Subject: Meeting Minutes
US 52 Causeway D02 Design Field Exam

Location: Web Meeting (Microsoft Teams)

Dates: 3/22/2022

Author(s): Mark Peterson, Tyler Kiefer

Distribution: Attendees

2) Attendees

Name	Organization	Position	Email
Garret Reeder	IDOT	Project Manager	Garret.Reeder@iowadot.us
John Bartholomew	IDOT	Field Exam Engineer	John.Bartholomew@iowadot.us
Steven Flockhart	IDOT	District 6 Utility Coordinator	Steven.Flockhart@iowadot.us
Jimmy Ellis	IDOT	Preliminary Bridge Engineer	Jimmy.Ellis@iowadot.us
Zachary Abrams	IDOT	Traffic and Safety Engineer	Zachary.Abrams@iowadot.us
Jill Garton	IDOT	Location and Environment Eng	Jill.Garton@iowadot.us
Chad Lohrer	IDOT	District 6 Traffic Engineer	Chad.Lohrer@iowadot.us
Kevin Patel	IDOT	Design Engineer	Patel, Kevin <Kevin.Patel@iowadot.us
Eric Wright	IDOT	ROW Engineer	Eric.Wright@iowadot.us
Mark Dell	IDOT	Design Engineer	Mark.Dell@iowadot.us
David Claman	IDOT	Preliminary Bridge Engineer	David.Claman@iowadot.us
Mark Peterson	Parsons	Project Manager	Mark.W.Peterson@parsons.com
Farhan Zafar	Parsons	Project Engineer	Farhan.Zafar@parsons.com
Tyler Kiefer	Parsons	Roadway Engineer	Tyler.kiefer@parsons.com

3) Topics and Discussions

Introduction

- Mark Peterson provided a brief background of the project and the issues with the current causeway that this project is hoping to resolve. Roger Walton was the previous Iowa DOT Project Engineer for this project and has since retired but all of his files/pictures/reports regarding this project have been uploaded to Projectwise and can be found here: Preliminary Design and History

- Parsons prepared the Final Project Concept Statement dated February 12, 2021.

- Garret Reeder reviewed the project schedule with the next upcoming milestone of W01 (Wetland Design Review) tentatively scheduled for early April 2022. Below is the project schedule:

oW01 - 04/08/2022
oD03 - 05/06/2022
oU02 - 07/08/2022
oB02 - 08/05/2022
oS02 - 09/30/2022
oD05 – 09/30/2022
oL03 - 12/17/2024

Project Concept Statement

- Three alternatives were investigated for this project. Due to the site constraints all three alternatives utilized the existing causeway's centerline but varied on the width of roadway/shoulders.

- The preferred alternative is (2) 12' wide lanes, 8' wide paved shoulders, steel-beam guardrail, 5' wide aggregate shoulders to the hinge point and 2:1 sloped embankment to the river bottom.

- There were prior discussions about the use of cable guardrail vs. steel beam guardrail with Roger Walton and it was concluded that steel beam guardrail would be utilized because it prevented errant vehicles from reaching the revetment and 2;1 slope.

- This project will have a large quantity of borrow embankment and revetment due to the widening of the roadway/embankment by 10' on each side.

- There have not been a significant number of crashes within the project limits. One fatality was recorded in 2019 that occurred after the initial crash data was provided for years 2014-2018.

- Exhibits from the Project Concept Statement were shown to illustrate the cracking of the pavement and weathered embankment that currently exists on the causeway.

Staging/MOT

- Parsons stated that the current MOT concept reflects one lane of travel being maintained during construction utilizing 2300'-2500' long construction zones. Traffic signals would be employed to maintain traffic in the single lane. These traffic signals, coupled with countdown timers, support an increase in the construction zone length from the standard 1500'. There are no driveways or cross-streets on the project.

- Steve Flockhart requested that Stage 1 and Stage 2 be flipped due to the Windstream/MediaCom conduit that needs to be installed on the West side of the causeway prior to the removal of the utility poles on the East side. No issues from Parsons on this request.

- Per Garret Reeder, the Special Events and Coordinated Operations section of the Staging Sheets will be worked out with the District and Sabula closer to the final submittal.

- The comments provided by Dan Sprengeler in the PMT meeting were incorporated in the plan set. Dan will provide further comments to the Staging/MOT plan as the design progresses and becomes more refined.

- Parsons discussed the use of a 35-mph speed limit within the construction zone. No comments/concerns were brought up by Iowa DOT for the use of this speed limit during construction.

- Parsons discussed Roger Walton's preference of the staging going from North to South to accommodate the quarry on the Savannah side of the river. It was concluded that a final decision on whether to start from the North vs. South would not be completed at the Field Exam meeting. This topic will be reviewed again in the future as the design progresses and means/methods become clearer. Garret Reeder suggested that a note could be added to the Staging/MOT plans giving the contractor the option to submit an updated MOT scheme which will give them flexibility to start from either end.

- Parsons to investigate the lengths/durations of each Phase to determine the construction schedule and make sure paving operations will not be completed in the winter.

- Zachary Abrams brought up the potential issue with driving the MOT sign posts into the embankment due to the revetment and newly installed conduit on the west side of the causeway. Parsons to investigate this further to make sure there is a viable option for the contractor to mount the signs in the field if they are unable to drive the posts.

- Kevin Patel brought up the potential issue of "locking in" the contractor into paving the last lane in Stage 3. In the current staging plan, the contractor will pave the NB lane between the final paved NB shoulder and final paved SB lane. This could cause potential issues with not being able to guarantee a 2% slope between two fixed points. Parsons to investigate options to resolve this issue. The first potential solution is to grind down the shoulder/lane to provide the correct cross slope. The second potential solution is to make the shoulder in Stage 1 temporary so in Stage 3 they can remove the temporary shoulder pavement and pave both the NB lane and shoulder together which will guarantee the correct cross slope. Additional costs for these solutions will be analyzed.

- Parsons discussed the potential issue of the stage line within the superelevated section. Currently the proposed profile through this section is upwards of 2' above existing. Parsons to investigate further the impacts of this in the staging plan.

Design Criteria

- The design criteria designation for this project is a Rural 2-Lane Arterial with a Design Speed of 60 mph.

- Currently the only design element that is deficient is the HSSD on the NB lane at the first curve of the project. This HSSD only satisfies a DS of 50 mph. The existing condition has a similar deficiency at this curve that was resolved by not posting the 55 mph speed limit along the causeway until after the curve which requires drivers to hold the slower speed limit that is posted in Sabula throughout the curve. A similar strategy will be utilized for the proposed causeway. The signing plan will be developed as the design progresses.

- No exceptions were noted by Iowa DOT for omitting spirals at the only curve in the project at Sta. 1455+00 to 1469+15. The existing curve is not spiraled, and Parsons is closely following the existing alignment/embankment as much as possible. Since the roadway is widening from 26' to 40', no issues were taken regarding any potential off-tracking by longer vehicles.

Typicals

- Parsons discussed the option of 9" vs. 12" thick PCC for the roadway. It was determined that the input from the Geotech report will be needed for Iowa DOT and Parsons to finalize the concrete pavement thickness.

- The proposed embankment typical section will follow closely to the Mississippi River Bridge causeway roadway embankment section.

- To avoid the erosion seen on the aggregate shoulders in the River Bridge section, Parsons will investigate the use of a larger stone in the proposed aggregate shoulders.

- Parsons asked Iowa DOT about the ability to revise/update the Standard Guardrail detail to better match what the causeway configuration where the shoulder width is a constant. John Bartholomew had no issue with this.

Plan/Profile Sheets

- Parsons said that the existing roadway is at 0% grade, and they are following the profile as much as possible.

- The only section that does not follow the existing profile is the superelevated section at the beginning of the project. In order to eliminate any potential flat spots in the SE section, Parsons has provided a 0.30% profile grade through the SE transition section.

- Once the pavement design is complete, Parsons will work with Iowa DOT to develop an acceptable jointing plan between the proposed PCC pavement and existing Flexible pavement on the North end of the project.

ROW

- Garret Reeder and Steve Flockhart sent an email during the meeting about a Specialty Warranty Deed for this this area that shows the ROW within the project limits. Parsons to review this but it was stated that a majority of the ROW is at least 250’ with some sections that are slightly more than 250’.

Survey

- Iowa DOT is going to reach out to survey manager Jeremy Harris to make sure he has all necessary information to perform the hydrographic survey. He was previously waiting for the ice to melt to be able to launch a boat.

- Parsons to provide any further information that Jeremy may need to get started once the ice melts.

- Once this survey is complete, Parsons and Iowa DOT will have a better idea on the depths of water within the project limits. This will help determine the constructability/feasibility of toeing in the bottom of the embankment and whether an additional detail will need to be developed for the shallow vs. deep sections.

Utility Coordination

- There are currently three utilities within the project limits. Windstream/MediaCom cables on existing concrete poles on the east side of the causeway and a Jo-Carroll gas line that crosses at ~Sta. 1505+00.

- The Windstream/MediaCom cables will be installed in conduits with handholes on the west side of the causeway during Stage 1. Parsons to include the conduit and handhole layouts in the plans along with any special details provided by Windstream/MediaCom.

- Steve Flockhart to double check with Jo-Carroll on the exact depth of the gas line through the project limits. He stated that there were discussions previously with Jo-Carroll and they indicated that they will pig the gas line in the summer of 2022 which will allow them to confirm the depth. There were also discussions about Jo-Carroll adding a concrete cap on top of the gas line. Steve will follow up with Jo-Carroll to confirm this.

- Steve Flockhart will also send over the updated Utility Contact info for these three utilities to Parsons to include in the plans.

Location/Environmental

- Jill Garton is now taking over the Location/Environmental aspects of this job.

- Jill is going to double check the previously completed Mussel Survey and Wetland Mitigation to make sure that no further action is required.

- Parsons to provide Project Construction Limits to Jill so the Woodland Impact can be reviewed. These limits will be provided once the hydrographic survey is completed in case there are areas where the limits will need to be increased.

Miscellaneous

- Parsons to provide the Field Exam Letter to Garret Reeder along with a marked-up plan set (minus cross sections) highlighting what was discussed in the Field Exam meeting.

FINAL PROJECT CONCEPT STATEMENT

U.S. 52 from Mississippi River Bridge to Overflow Bridge North of Sabula

Jackson County
Project # STPN-052-1(113)—2J-49
PIN: 18-49-052-010

Parsons Transportation Group, Inc.

Mark W. Peterson, P.E.

February 12, 2021

I. STUDY AREA

A. Project Description

The general project scope is to reconstruct the pavement, widen the shoulders, and stabilize the roadway embankment along approximately 2 miles of US-52 from the west approach of the new Mississippi River Bridge to the north approach of the new Mississippi River Overflow Bridge north of Sabula in Jackson County (See attached project location map).

The concept field exam was held on September 18, 2019 and attended by Roger Walton, Ken Yanna, Joe Kilburg, Ahmad Abu Afifeh, Mark Sloppy, and Mark Peterson of Parsons Transportation Group.

Three roadway alternatives were considered based primarily upon the width and composition of the shoulders and guardrail type. They are as follows:

Alternative 1:
The proposed typical section for Alternative 1 is two 12' wide travel lanes (one in each direction) with two 8' wide paved shoulders up to the face of guardrail and 4' wide granular surface from face of guardrail to hinge point. Steel beam guardrail is included on both sides of the roadway and 1:2 foreslopes to natural ground. Steel beam guardrail is to be installed a minimum of 4' (5' preferred) in front of any foreslope of 2:1 or flatter according to Iowa DOT Design Manual 8c-2, Steel Beam Guardrail.

Alternative 2:
The proposed typical section for Alternative 2 is two 12' wide travel lanes (one in each direction) with two 7' wide paved shoulders, 1' wide granular surface to face of guardrail, and an additional 4' wide granular surface to the hinge point. Steel beam guardrail will be placed on both sides of the roadway and 1:2 foreslopes to natural ground. The purpose of the 1' wide granular surface material in front of the guardrail is to

help reduce the likelihood that the bicycle pedals will strike the face of the guardrail for bicycles traveling on the paved surface of the path.

Alternative 3:
The proposed typical section for Alternative 3 is two 12' wide travel lanes (one in each direction) with two 7' wide paved shoulders, 1' wide granular surface to guardrail to provide lateral distance for bicycles, and 2' wide granular surface from guardrail to hinge point. Foreslopes would continue to be 1:2. Under this alternative, the proposed guardrail is high-tension cable guardrail located on both sides of the roadway. Note, the granular surface width was later revised to 8' wide on each side from guardrail to hinge point based upon cable guardrail deflection (see guardrail discussion below).

B. Discussion

Right-of-way (ROW)
The exact ROW limits are being verified through existing plan identification and other means. Near the new Mississippi River bridge, 250' of total right-of-way was indicated. This exceeds what is needed for this project, however, areas beyond the existing edge of embankment are wetlands and/or Waters of the US and any additional encroachments must be minimized and discussed with the US Army Corps of Engineers (USACE). In addition, US Fish and Wildlife (USF&W) has responsibility for a large portion of the adjacent area and must be included in the discussion of potential embankment encroachment.

Horizontal and Vertical Alignment
The existing horizontal and vertical alignments will remain largely unchanged for all alternatives unless minor modifications are necessary. The horizontal alignment is tied to the bridge approaches at each end which limits the ability to make significant alignment modifications. In addition, the existing embankment has consolidated since the original construction and areas outside of this embankment are unconsolidated river bottom sediment that could cause settlement issues over time.

Some vertical profile adjustments are likely since the existing profile is largely at zero percent grade. The vertical curve in the center of the alignment will be super-elevated and the combination of longitudinal grade and horizontal cross-slope will create a superelevation transition area that is flat unless longitudinal grade adjustments are made. Since any profile adjustments are tied to embankment height, and also river encroachment, it is important to limit profile raises. The area outside of the existing embankment is under the jurisdiction of the USACE. In addition, traffic control could be more complicated by large pavement elevation differences between existing and proposed pavement. Due to flood elevations associated with the 100-yr flood, profile lowering is also not under consideration.

Lane Width

Existing US-52 has two 12’ travel lanes (one in each direction) and all proposed alternatives contain 12’ wide lanes. There were discussions of creating a smaller proposed cross section by reducing the roadway width to two 11’ wide lanes. While 11’ lanes would provide a reduced pavement and embankment width, and subsequently provide a cost savings to the project, it was determined at a meeting with the Iowa DOT that a consistent roadway template should be provided throughout the causeway. This includes matching the cross sections of the previously built Mississippi River Bridge and Overflow Bridge which both have 12’ lanes and 8’ wide shoulders. In addition, 11’ wide lanes would likely require a Design Exception. According to the AASHTO Green Book Table 7-3 at the current design speed and ADT, the required width of traveled way would be 24 feet for two-way rural arterials. According to Iowa DOT Design Manual Section 1C-1, desirable (and acceptable) lane widths for Rural Two-Lane Highways (Rural Arterials), is 12’. Therefore, it was determined that the proposed roadway section will have 12’ wide lanes.

Shoulder

No sidewalk will be required as part of this project. The roadway shoulders and guardrail will be designed and constructed to accommodate bicycles on the shoulders. According to Iowa DOT Design Manual 3c-3, Shoulders Designed to Accommodate Bicycles, areas where a portion of the shoulder is paved to accommodate bicycles, the District in conjunction with the designer, must determine the shared use path category with which the segments of roadway will comply. The shoulder cross slope must also meet the requirements of the selected category. The shared use path category for U.S. 52 is Type 1 which is defined as a shared use path adjacent or near the roadway and functions similar to a sidewalk. These paths are generally used for transportation purposes.

The designer also considers the shoulder to accommodate one-way traffic. Iowa DOT Design Manual, Section 12B-2 C. Shared Use Path Design Elements requires a minimum width of 4 feet and a preferred width of 5 feet for essential operating space. A minimum 1-foot lateral offset from the edges of the path is desirable. Path widths between 8 and 5 feet should be avoided. The cross slopes for Type I shared use path category shall not exceed the requirements in Iowa DOT Design Manual, Section 12A-2. The maximum cross slope is 2% with a target value of 1.5%.

Shoulder rumble strips must be placed on all new or existing Primary Rural Roads with paved shoulders at least 2 feet wide according to Iowa DOT Design Manual 3C-5, Shoulder and Centerline Rumble Strips. The standard shoulder rumble strip width is 12 inches and a narrower width may be beneficial to accommodate bicyclists (preferable no less than 8 inches, but absolutely no less than 6 inches). The rumble strip is placed 6 inches from the painted edge line. A gapped rumble strip pattern consisting of 48 feet of rumble strips followed by a 12-foot gap will be provided to allow cyclists to cross over. A minimum of 4 feet of pavement should be provided outside of the rumble strip.

Subsequent to the concept field exam, discussions with Methods Section regarding the rumble strip indicated that a 6” wide rumble strip could be accommodated and would be sufficient to warn bicyclists of errant vehicles. It was also requested that a rumble strip be added at the centerline for the entire length of the roadway.

The granular surface adjacent to the paved shoulder will be Type A granular shoulder to prevent erosion along the edge of shoulder. Attachment 1 has photos of current erosion damage at the guardrail face due to pavement runoff.

Guardrail

High tension cable guardrail is the Department’s preferred traffic barrier according to Iowa DOT Design Manual 8b-5, Choosing a Barrier. High tension cable is flexible and deflects as much as 10 feet during a typical crash into the system. Deflection distance can be reduced through the use of tighter post spacing. According to Iowa DOT Design Manual 8c-3, High Tension Cable Guardrail, high tension guardrail should be placed 12’ (14’ preferred) from the face of the obstacle to provide an extra margin of safety to account for 6:1 or steeper slopes. Where the high-tension cable guardrail is adjacent to steep slopes (2:1) a minimum 1’ to (2’ preferred) distance is recommended between the back of post and the breakover. Therefore, a 2’ wide granular surface is proposed from the cable guardrail to the shoulder hinge point.

Steel beam guardrail provides the safest guardrail shape for motor vehicles due to its re-directive capabilities, but it could present a less safe option for bicyclists than other guardrail types like cable guardrail. Although there are few rigid obstacles on the adjacent foreslopes, and the roadway is mostly on tangent, the cable guardrail deflection distance would allow errant vehicles to impact rip rap areas and the 2:1 foreslopes that are within the 10-12’ deflection limit. This could make it more difficult for a vehicle to recover from a run-off-road crash and may increase potential for injury crashes or higher property value crashes.

Subsequent to the concept field exam, discussions with Traffic and Safety regarding the deflection of the cable guardrail indicated that the deflection distance would expose errant vehicles to the rip rap slope and deflection could not be limited sufficiently to prevent an errant vehicle from impacting the riprap. In addition, no testing has been conducted to evaluate the crash properties for vehicles along a rip rap slope. As such, the distance from the HTC guardrail to the rip rap slope should be increased to approximately 8’ behind the guardrail. This added shoulder width creates a much larger roadway footprint, increasing fill in the river, and adding to project cost for Alternative 3.

Pavement Type

The pavement type has been discussed as both concrete and bituminous in combination with all of the alternatives. The District has identified failure planes running through the subgrade, as shown on photos in Attachment 1, that have been causing pavement failures. The proposed pavement section, in combination with the embankment improvements, must be able to resist or arrest this cracking so that it does not travel into the surface material. At the south end of the project limit, concrete pavement was constructed with the overflow bridge. At the north end of the project limit, bituminous pavement with geogrid was constructed with the Mississippi River bridge.

Milling and resurfacing was considered as a low-cost alternative to pavement reconstruction even though US 52 was recently resurfaced in July 2019. However, this alternative will not address the subgrade failure planes and won't prevent the surface failures that have occurred. Therefore, this alternative was not further analyzed. Photos of pavement cracking in the 2019 resurfaced pavement are provided in Attachment 1.

Embankment
The original embankment construction was not optimal for embankment stability. Wet sandy soil was piled up by a steam dragline and then graded into the highway embankment. A sketch of the embankment construction is shown in Attachment 1. The 2019 soil borings reflect large amounts of sand and silt in the embankment material. When combined with saturated soil conditions and river currents, the initial embankment construction techniques cause embankment instability that is reflected up through the subgrade and into the pavement. This likely contributes directly to pavement cracking as can be seen in the Attachment 1 photos that show pavement cracking in the pavement that existed prior to 2019 and in the 2019 pavement after resurfacing.

Embankment fore-slopes are also showing deterioration and movement. This is likely caused by a combination of fine embankment materials being washed away by water current and wave action, repeated river flooding events, and deterioration of rip-rap/revetment over time. Attachment 1 shows a photo of wave action/current against the embankment and rip-rap exposure caused by erosion at the base of the fore-slope.

More recently, embankment stabilization techniques were used at the Mississippi River and Sabula Overflow bridges to resist embankment movement. See Attachment 1 for a typical section from the Sabula overflow bridge plan set. In addition, the Contractor's cross-sections for the New Mississippi River Bridge are included in Attachment 1 and show the method that was used to tie the revetment into the toe of slope.

The proposed embankment stabilization includes Class B Revetment approximately five feet below the channel bottom to one foot above flat pool elevation or the actual water level and from the toe of the existing embankment to the toe of the proposed widening. One foot of erosion stone and one foot of macadam stone (gradation no. 13) is proposed above the Class B Revetment platform. Class 10 or better embankment with engineering fabric will be placed above the macadam stone to the subgrade. One foot of erosion stone and 2.5 feet of Class B Revetment will be placed along the foreslope of the Class 10 embankment and is required since the existing granular shoulder rock in the project corridor has eroded as shown in photos in Attachment 1. The geotechnical design for this project will determine if modifications to the proposed embankment stabilization is necessary.

C. Need for Project

According to the Department, the existing roadway embankment along U.S. 52 is settling due to repeated flooding occurrences, resulting in longitudinal cracking in the US 52 pavement and other concerns. See Attachment 1 for photos of U.S. 52 existing conditions. There have been no occurrences of pavement overtopping due to river flooding.

D. Present Facility

The existing US-52 roadway in the project area is approximately 2 miles long with a typical cross section consisting of 24' wide asphalt pavement, 4' wide combination bituminous and aggregate shoulders with steel beam guardrail and 1:2 foreslopes. As-built plans are not available for the existing roadway. Asphalt resurfacing on US-52 from the Mississippi River Bridge to north of Sabula was completed in July 2019.

E. Traffic Estimates

The 2039 design year and 2019 existing year average daily traffic estimates are 2,670 ADT with 5% trucks and 2,184 ADT with 5% trucks, respectively.

F. Sufficiency Ratings

US-52 is classified as a minor arterial. The roadway prior to resurfacing had a poor infrastructure composite condition rating with a score of less than 60.

G. Access Control

There are currently no access points to US 52 throughout the project area and no access rights will be acquired for this project.

H. Crash History

According to the Iowa Crash Analysis Tool, during the five-year study period from January 1, 2014 through December 31, 2018, there were 4 crashes including, 0 fatal crashes, 2 personal injury crashes, and 2 personal property crashes. On June 14, 2019, a fatality was reported by news sources after an EB motorcyclist struck the guardrail on the opposite side of the road along the curve approaching the Mississippi River Bridge.

II. PROJECT CONCEPT

A. Preferred Alternative

The preferred alternative is Alternative 1 which includes two 12' wide travel lanes (one in each direction) with two 8' wide paved shoulders, and 5' wide granular surface to the hinge point. Steel beam guardrail will be placed on both sides of the roadway and 1:2 foreslopes to natural ground. Intermittent rumble strips will be located along each side of the shoulder as well as one continuous rumble strip along the centerline of the roadway for the length of the project.

Given that the cable guardrail alternative requires additional shoulder width due to cable elongation, Alternative 1 provides a narrower embankment section. This reduces encroachment into the river backwater and minimizes wetland encroachment that requires mitigation. Erosion control methods will be applied to all disturbed soil areas. For work in the water, additional methods such as a silt curtain will be used to prevent the dispersal of silt during construction activities.

The following is the cost estimate for Alternative 1;

Roadway Items	
Removal of Pavement	$177,333
Removal of Paved Shoulder	29,556
Removal of Aggregate Shoulder	29,556
PCC Pavement	1,773,333
PCC Shoulders	1,013,333
Granular Subbase	675,556
Granular Shoulder	168,889
Excavation Class 10 Waste	658,350
Class 10 Fill	262,200
Engineering Fabric	222,300
Class B Revetment	14,060,475
Erosion Stone	1,482,000
Macadam Stone	1,003,580
Removal of Steel Beam Guardrail	114,000
Steel Beam Guardrail	380,000
Clearing and Grubbing	116,027
Erosion Control	386,756
Subtotal	$22,553,243
Wetland Mitigation	*191,919
Traffic Control - 10%	2,255,325
Mobilization - 5%	1,250,024
M & C - 10%	2,625,051
Subtotal	$ 6,322,319
Project Total	**$28,875,562**

**Estimated Wetland Mitigation is based upon the additional shoulder width needed for the improvement times a 1:1 mitigation ratio for high-value habitats and $55,000 per acre cost for mitigation. This assumes that fill is primarily in open water and wetlands*

are mitigated in a wetland bank.

While Alternative 2 has a slightly lower cost, primarily due to the decrease in paved shoulder width from 8' to 7', it was determined during a meeting with Iowa DOT that the 1' granular surface between the face of guardrail and edge of shoulder could cause loss of control if a bicyclist accidentally rode off the edge of the paved shoulder. Therefore, it was concluded that the cost savings were not large enough to warrant the reduction in paved shoulder width.

Alternative 3 has an increase in cost of approximately $7,820,450 due to the increase in granular shoulder width to 9' (based on guardrail deflection) which results in an increase of earthwork that is needed to accommodate the widening.

B. Detour Analysis

There will be no off-site detour due to the limited Mississippi River crossings in the vicinity and the length of the detour required to access the next river crossing. The staging for the roadway construction will limit work zones to 1500' in length and maintain one lane of traffic at all times. According to the Department, construction will take approximately two years using this staged construction methodology.

C. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. To reduce impacts to the traveling public, the construction zone is limited to 1500'. Later, discussions concluded that comparable projects are using 3000' long construction zones. These could be employed on this project and could be effective in reducing costs and shortening the overall construction schedule. The plans for the extended work zones would need special provisions for wait time displays as part of the temporary signals.

Consideration was given to placing embankment and in particular rip rap, from a barge rather than from the roadway embankment in an effort to reduce traffic impact. This would allow more time for newly placed embankment to settle independent of lane closures that would affect traffic. However, this represents a higher cost option due to the complications of working from a floating platform. In addition, some areas along the embankment are too shallow for barge access. Additional right-of-way may also be required for barge access to the work area and for parked barges located along the embankment.

A construction staging scenario for work completed from the embankment would be as follows; (See Attachment 1 for a typical section of each stage)

- Stage 1 – construct embankment, widen shoulder*, and install guardrail on eastbound roadway. Traffic maintained on westbound roadway (two-way traffic). Note eastbound pavement cannot be constructed in this stage due to narrow existing westbound roadway.

- Stage 2 – construct embankment, widen shoulder, construct pavement, and install guardrail on westbound roadway. Traffic maintained on eastbound roadway and shoulder pavement.
- Stage 3 – Complete eastbound pavement construction and any adjustments to shoulder and guardrail*. Traffic maintained on westbound roadway and shoulder pavement.

*Note: The proposed roadway profile will closely match the existing profile. This will allow the permanent shoulder to be installed in Stage 1 for most of the project. This will reduce temporary pavement cost. The only exception is at the horizontal and vertical curves in the center of the project area where the profile will be higher in order to eliminate a zero percent cross-slope.

Another potential construction scenario would be to construct both embankments, widen shoulders and install guardrail in both directions in Stage 1 (year 1) and return the following year to complete the entire paving of the through lanes and shoulders.

The traffic control will be similar to Iowa DOT Standard Road Plan TC-217 for all scenarios.

D. <u>ADA Accommodations</u>

There are no sidewalks adjacent to US-52. The proposed shoulders are to accommodate bicycles. Special Considerations.

E. <u>Special Considerations</u>

US 52 is not identified as a roadway with significant safety or mobility concerns. Therefore, this is not a traffic critical project.

F. <u>Utility Coordination</u>

Two utilities are located on poles on the EB shoulder of US 52. Windstream and Mediacom are both overhead on poles that previously accommodated Alliant Energy. There is a high-pressure gas line crossing of the causeway that is very well marked and easily located and should be protected/avoided during construction. Utility coordination should be conducted during design.

G. <u>Program Status</u>

Site data has been developed by the Office of Design. This project is listed in the 2020-2024 Iowa Transportation Improvement Program with $24,608,000 for grading and paving in FY 2023. A schedule of events will be developed following approval of the Project Concept.

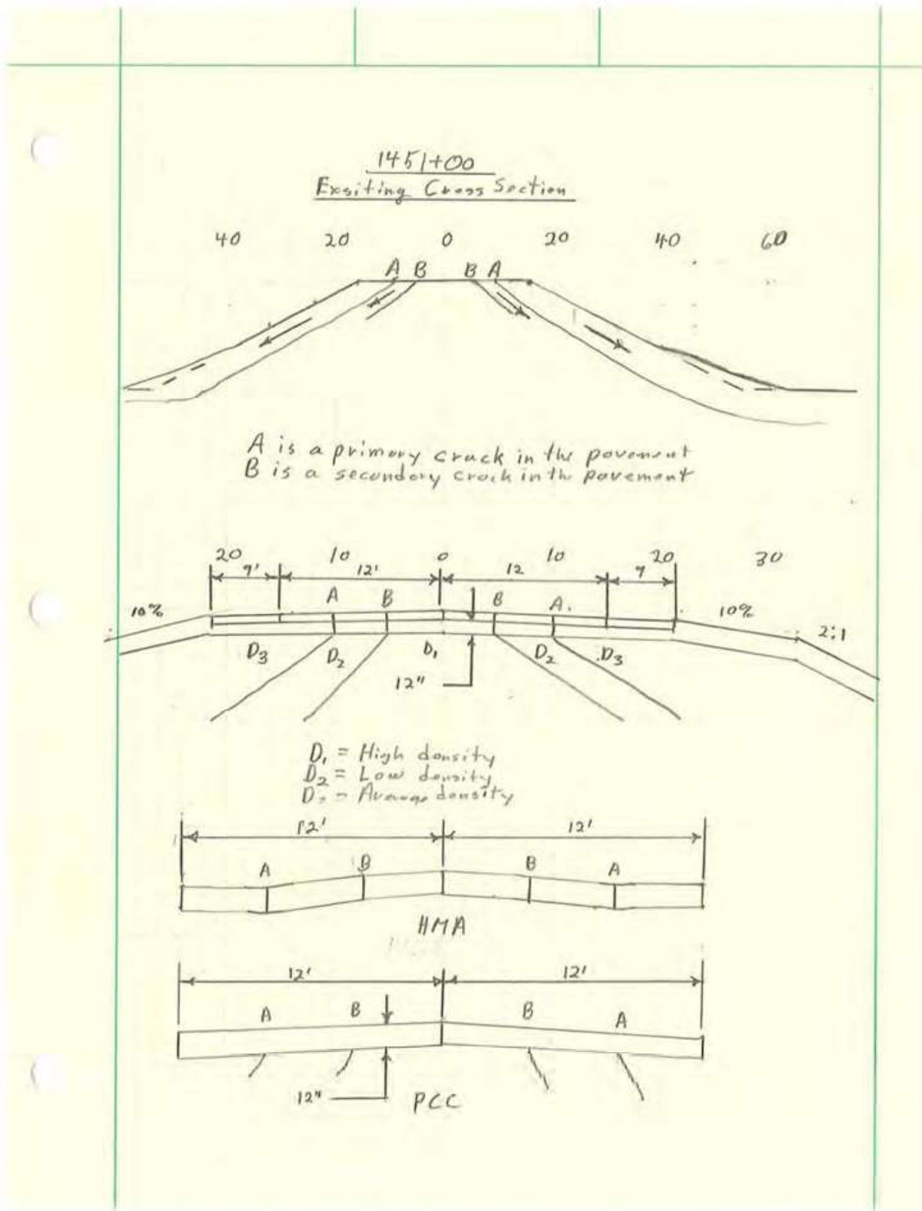
MWP

Distributed to:
James Schnoebelen, District 6
Jesse Tibodeau, District 6
Jeffery Tjaden, District 6
Sam Shea, District 6
Steven Flockhart, District 6
Steve McElmeel, District 6
Thomas Storey, District 6
Roger Walton, District 6
Charlie Purcell, Project Delivery
Michael Kennerly, Design
Kent Nicholson, Design
Kevin Patel, Design
Eric Wright, Design
Steve Megivern, Design
Norman Miller, Design
Michael Ross, Design
Alice Welch, Design
Seana Godbold, Design
Stuart Anderson, Program Management
Donald Tebben, Program Management
Shawn Majors, Program Management
Mark A Swenson, Project Scheduling
DeeAnn Newell, Location and Environment
Mary Kay Solberg, Location and Environment
Brad Hofer, Location and Environment
Brad Azeltine, Location and Environment
Matt Donovan, Location and Environment
Kenneth Brink, Location and Environment
Mark Sloppy, Location and Environment
Valerie Brewer, Location and Environment
Brandon Walls, Location and Environment
James Nelson, Bridges and Structures
Mike Nop, Bridges and Structures
Bob Younie, Maintenance
Tim Crouch, Traffic and Safety
Jan Laaser-Webb, Traffic and Safety
Chris Poole, Traffic and Safety
Willy Sorenson, Traffic and Safety
Dan Sprengeler, Traffic and Safety
Steve Gent, Traffic and Safety

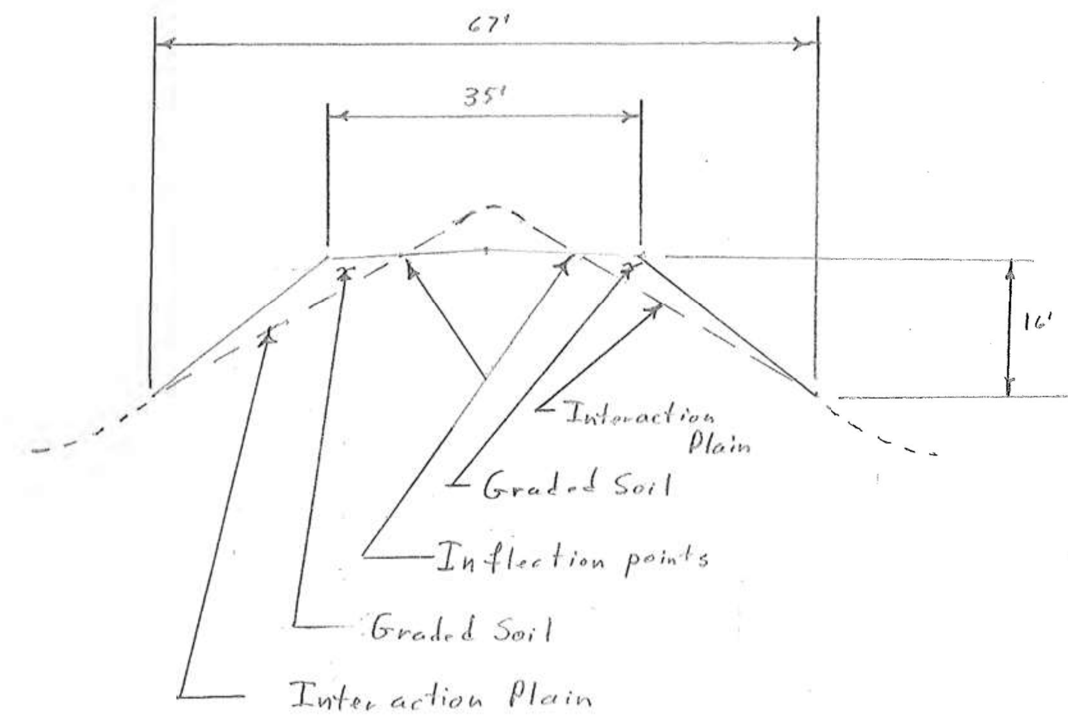
U.S. 52 from Mississippi River Bridge to Overflow Bridge North of Sabula
Jackson County
Project # STPN-052-1(113)—2J-49
PIN: 18-49-052-010
Project Location Map

ATTACHMENT 1

February 12, 2021



Attachment 1 – Roadway cracking due to roadway subgrade movement



Attachment 1 – Roadway cracking and embankment interaction

Attachment 1 – Longitudinal cracking in 2019 resurfaced pavement

Attachment 1 – Cracking in 2019 resurfaced pavement

Attachment 1 - Cracking in 2019 resurfaced pavement

Attachment 1 - Cracking in 2019 resurfaced pavement

Attachment 1 – wave action/current and rip-rap movement along fore-slope. Note: debris movement along face of embankment

Attachment 1 – rip-rap movement/erosion along face of fore slope as shown in discolored area.

Attachment 1 – Previously existing Pavement Cracking Eastbound prior to 2019 resurfacing

Attachment 1 – Previously existing Pavement Cracking Westbound prior to 2019 resurfacing

Attachment 1 – Close up of erosion at shoulder

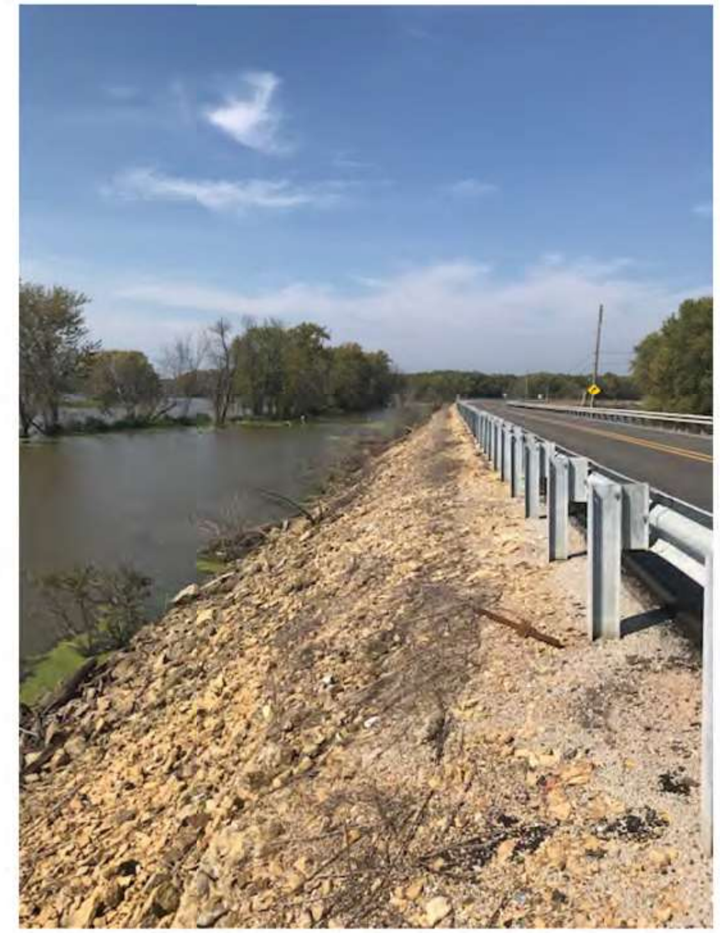
Attachment 1 – Shoulder erosion at new shoulder

Attachment 1 – North end of alignment looking south

Attachment1 – Looking south along east and west embankments

Attachment 1 – Looking south at south project limit towards overflow bridge

Attachment 1 – Looking north at south project limits

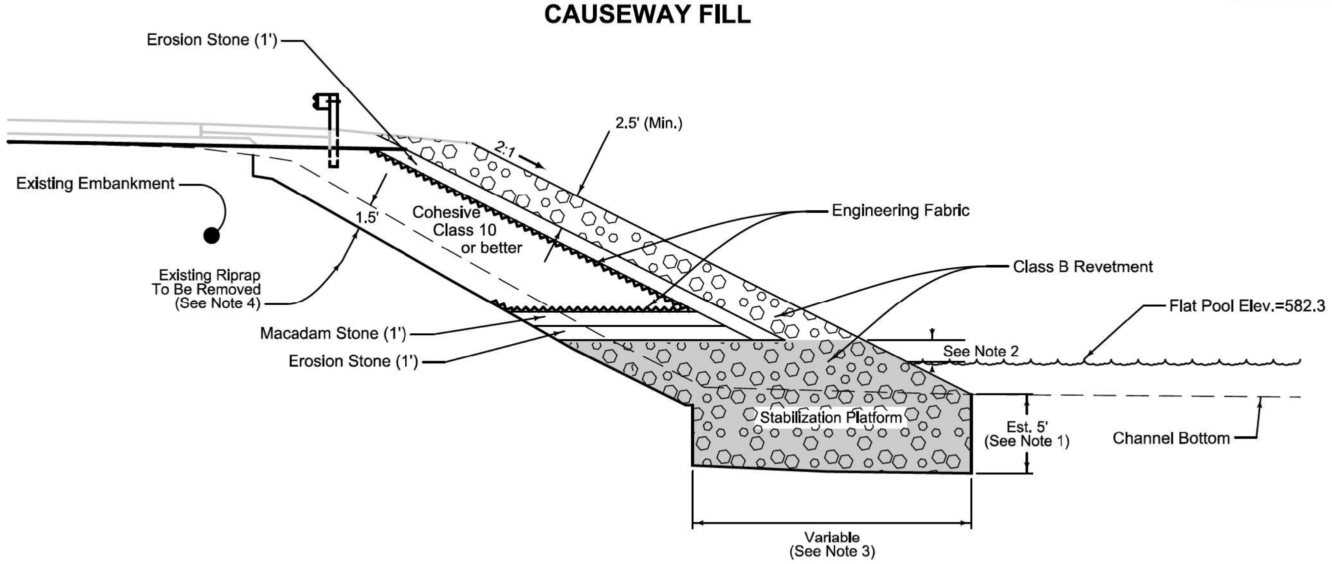


Attachment 1 – Looking north along west bank

Attachment 1 – Looking north at transition from overflow bridge rip-rap to existing rip rap slope

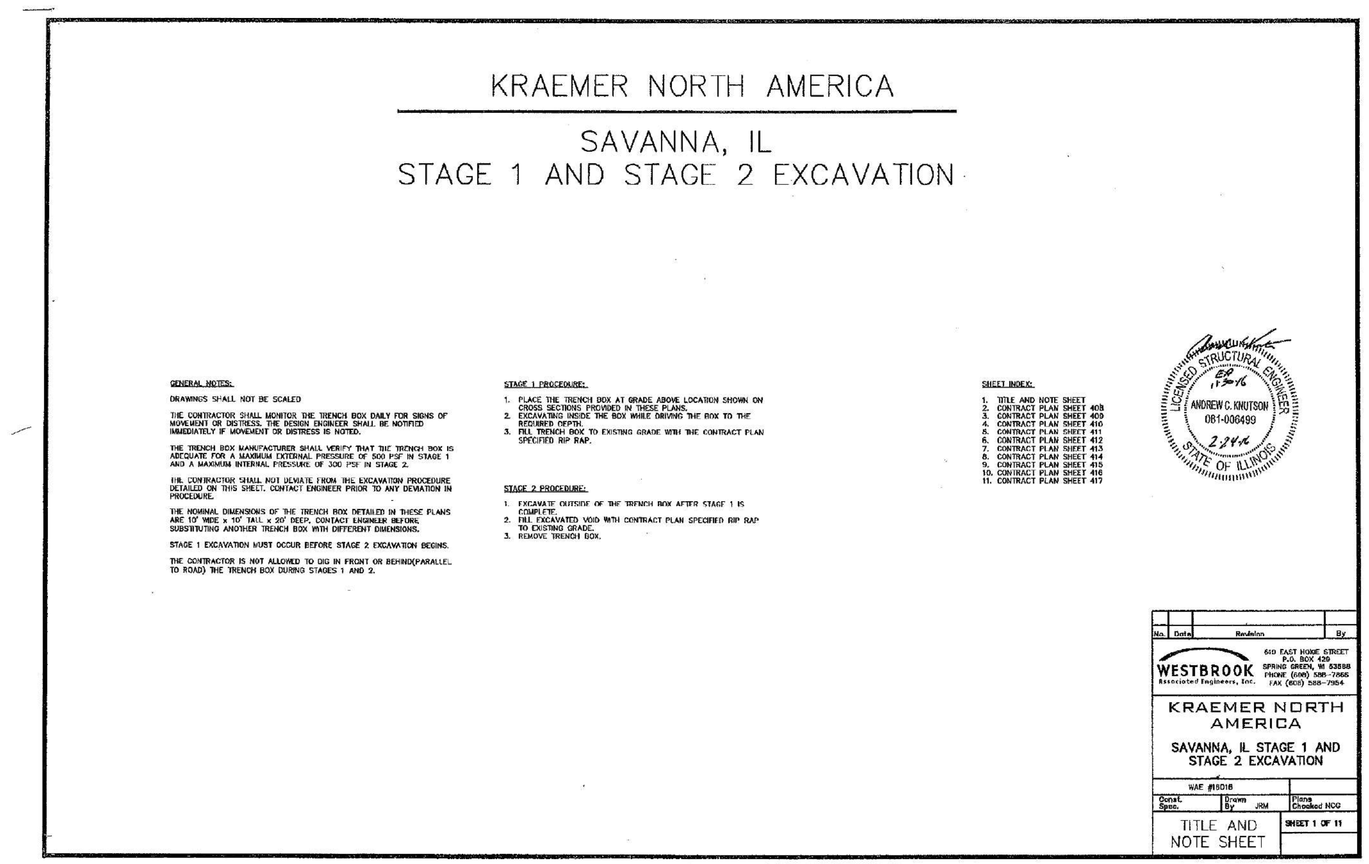
CAUSEWAY
SPECIAL

CAUSEWAY FILL



NOTES:

1. THE THICKNESS OF CLASS B REVETMENT PLACED BELOW THE CHANNEL BOTTOM IN ORDER TO STABILIZE THE EXISTING GROUND WAS ESTIMATED TO BE A NOMINAL 5 FEET THICK AND IS SHOWN, FOR QUANTIFING PURPOSES, AS A NEAT LINE ON THE TYPICAL. THE ACTUAL THICKNESS OF MATERIAL NECESSARY TO PROVIDE A STABLE WORKING SURFACE FOR CONSTRUCTION OF THE FORESLOPE WIDENING MAY BE MORE OR LESS THAN 5 FEET AND WILL BE DETERMINED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. THE CONTRACTOR WILL BE PAID BASED ON ACTUAL ROCK QUANTITIES PLACED. SOME AMOUNT OF EXCAVATION OF THE CHANNEL BOTTOM MAY BE NECESSARY TO ACHIEVE STABILTY.
2. THE STABILIZATION PLATFORM SHALL BE PLACED TO AN ELEVATION OF 1 FOOT ABOVE THE FLAT POOL ELEVATION (582.3 FEET) OR 1 FOOT ABOVE THE ACTUAL WATER LEVEL AT THE TIME OF CONSTRUCTION, WHICHEVER IS HIGHER.
3. THE BOTTOM WIDTH OF THE STABILIZATION PLATFORM IS VARIABLE AND WILL EXTEND FROM THE TOE OF THE EXISTING EMBANKMENT TO THE TOE OF THE PROPOSED WIDENING.
4. THE EXISTING SLOPE PROTECTION (RIP RAP) WAS ESTIMATED TO BE 18 INCHES IN THICKNESS AND SHALL BE REMOVED PRIOR TO PLACING THE COHESIVE CLASS 10 OR BETTER EMBANKMENT. BENCH EXISTING FORESLOPE PRIOR TO PLACING EMBANKMENT.
5. THE NEW FORESLOPE WILL BE ARMORED WITH A MINIMUM 2.5-FOOT THICK LAYER OF CLASS B REVETMENT. AN APPROXIMATE 1-FOOT THICK BEDDING LAYER CONSISTING OF EROSION STONE SHALL BE PLACED ON THE NEW FORESLOPE PRIOR TO ARMORING.
6. THE QUALITY OF CLASS B REVETMENT SHALL MEET STD SPECIFICATION 4130.01 TABLE 4130.01-1 FOR VIRGIN STONE REQUIREMENTS. RECYCLED PCC PAVEMENT OR BROKEN CONCRETE SHALL NOT BE ALLOWED.
7. THE MACADAM STONE SHALL BE GRADATION NO. 13, NO CHOKE STONE COURSE AND SHALL MEET STD. SPECIFICATIONS 4122.03A, TABLE 4122.03-1 FOR QUALITY.
8. THE QUALITY OF EROSION STONE SHALL MEET STD SPECIFICATION 4130.05, TABLE 4130.05-1. RECYCLED CONCRETE SHALL NOT BE ALLOWED.
9. THE ENGINEERING FABRIC SHALL MEET STD SPECIFICATION 4196.01 FOR FABRIC FOR USE UNDER EROSION STONE (TABLE 4196.01-3).
10. THE EXISTING RIPRAP IF REMOVED FROM THE EXISTING FORESLOPE WITHOUT BEING CONTAMINATED MAY BE USED AS ADDITIONAL ARMORING ON THE NEW FORESLOPE ON TOP OF THE 2.5-FOOT THICK LAYER OF CLASS B REVETMENT.
11. PROPER WIDENING CONSTRUCTION OF THE CAUSEWAY IS VITAL FOR THE OVERALL STABILTY OF THE EMBANKMENT EVEN FOR A SHORT PERIOD OF TIME. EARTH MOVING OPERATIONS SHOULD BE SCHEDULED TO NOT COINCIDE WITH EXPOSER TO COLD OR WET WEATHER (EARLY SPRING, LATE FALL OR WINTER). ANY SOIL ALLOWED TO FREEZE OR SOFTEN DUE TO STANDING WATER SHOULD BE REMOVED FROM THE SUBGRADE.



KRAEMER NORTH AMERICA

SAVANNA, IL
STAGE 1 AND STAGE 2 EXCAVATION

GENERAL NOTES:

DRAWINGS SHALL NOT BE SCALED

THE CONTRACTOR SHALL MONITOR THE TRENCH BOX DAILY FOR SIGNS OF MOVEMENT OR DISTRESS. THE DESIGN ENGINEER SHALL BE NOTIFIED IMMEDIATELY IF MOVEMENT OR DISTRESS IS NOTED.

THE TRENCH BOX MANUFACTURER SHALL VERIFY THAT THE TRENCH BOX IS ADEQUATE FOR A MAXIMUM EXTERNAL PRESSURE OF 500 PSF IN STAGE 1 AND A MAXIMUM INTERNAL PRESSURE OF 300 PSF IN STAGE 2.

THE CONTRACTOR SHALL NOT DEVIATE FROM THE EXCAVATION PROCEDURE DETAILED ON THIS SHEET. CONTACT ENGINEER PRIOR TO ANY DEVIATION IN PROCEDURE.

THE NOMINAL DIMENSIONS OF THE TRENCH BOX DETAILED IN THESE PLANS ARE 10' WIDE x 10' TALL x 20' DEEP. CONTACT ENGINEER BEFORE SUBSTITUTING ANOTHER TRENCH BOX WITH DIFFERENT DIMENSIONS.

STAGE 1 EXCAVATION MUST OCCUR BEFORE STAGE 2 EXCAVATION BEGINS.

THE CONTRACTOR IS NOT ALLOWED TO DIG IN FRONT OR BEHIND(PARALLEL TO ROAD) THE TRENCH BOX DURING STAGES 1 AND 2.

STAGE 1 PROCEDURE:

1. PLACE THE TRENCH BOX AT GRADE ABOVE LOCATION SHOWN ON CROSS SECTIONS PROVIDED IN THESE PLANS.
2. EXCAVATING INSIDE THE BOX WHILE DRIVING THE BOX TO THE REQUIRED DEPTH.
3. FILL TRENCH BOX TO EXISTING GRADE WITH THE CONTRACT PLAN SPECIFIED RIP RAP.

STAGE 2 PROCEDURE:

1. EXCAVATE OUTSIDE OF THE TRENCH BOX AFTER STAGE 1 IS COMPLETE.
2. FILL EXCAVATED VOID WITH CONTRACT PLAN SPECIFIED RIP RAP TO EXISTING GRADE.
3. REMOVE TRENCH BOX.

SHEET INDEX:

1. TITLE AND NOTE SHEET
2. CONTRACT PLAN SHEET 408
3. CONTRACT PLAN SHEET 409
4. CONTRACT PLAN SHEET 410
5. CONTRACT PLAN SHEET 411
6. CONTRACT PLAN SHEET 412
7. CONTRACT PLAN SHEET 413
8. CONTRACT PLAN SHEET 414
9. CONTRACT PLAN SHEET 415
10. CONTRACT PLAN SHEET 416
11. CONTRACT PLAN SHEET 417

LICENSED STRUCTURAL ENGINEER
ANDREW C. KNUTSON
081-006499
STATE OF ILLINOIS

No.	Date	Revision	By

WESTBROOK Associated Engineers, Inc.
610 EAST HOXIE STREET
P.O. BOX 429
SPRING GREEN, WI 53588
PHONE (608) 588-7866
FAX (608) 588-7954

KRAEMER NORTH AMERICA

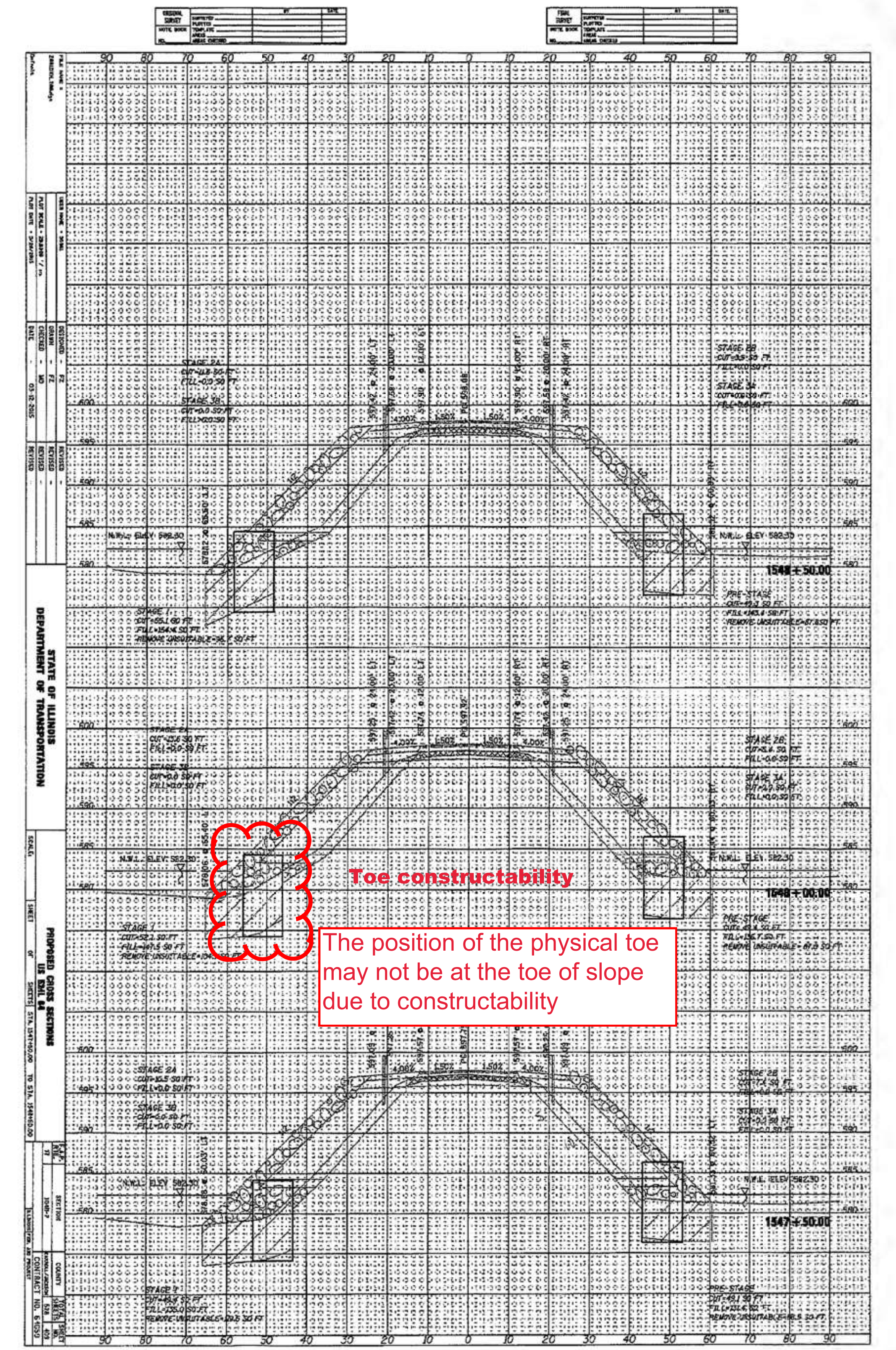
SAVANNA, IL STAGE 1 AND STAGE 2 EXCAVATION

WAE #16018

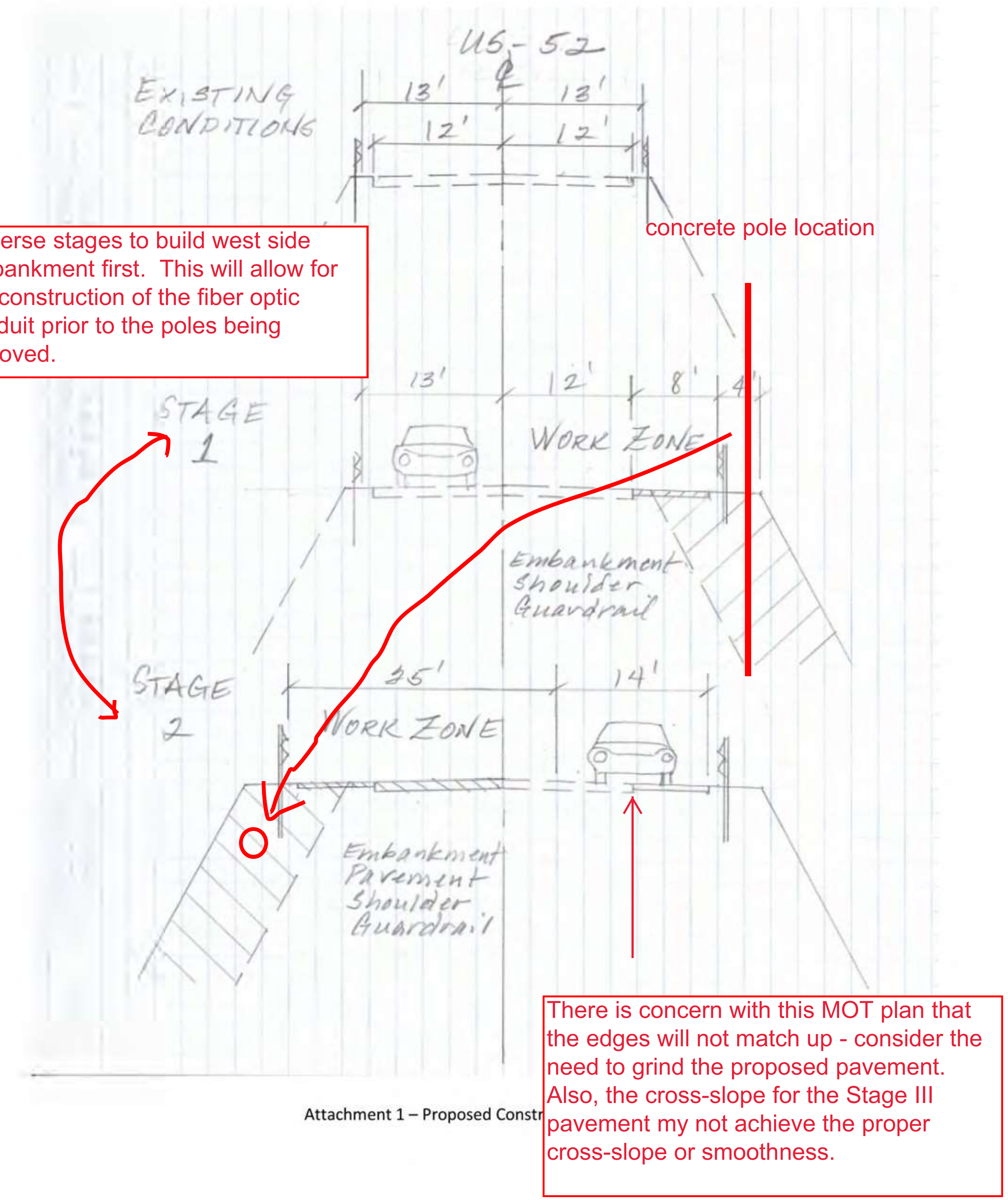
Const. Spec. | Drawn By JRM | Plans Checked NCG

TITLE AND NOTE SHEET | SHEET 1 OF 11

Attachment 1 - Contractor cross section for new Mississippi River Bridge



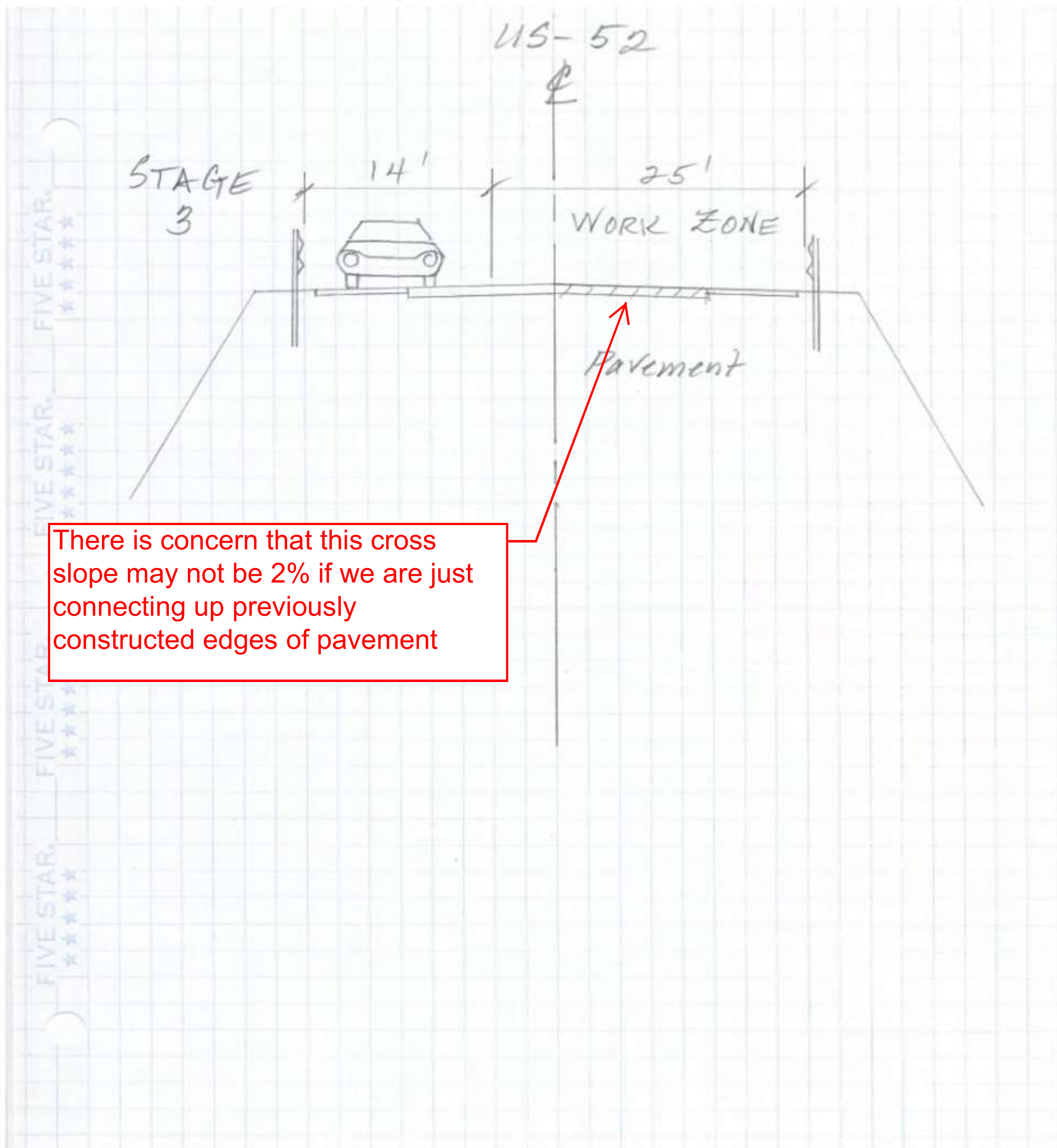
Attachment 1 - Contractor cross-sections for new Mississippi River Bridge



Attachment 1 – Proposed Constr

FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER A.14

3:29:38 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causway\03 - Sheet\49052113Z1A14.sht



Attachment 1 – Proposed Construction Sequence

Roadway				
PIN Number	18-49-052-010		**Submittal Date**	
Project Number	STPN-052-1(113)-2J-49			**Approval Date**
District	District 6	**Assistant District Engineer**	Jesse Tibodeau	
County	JACKSON		**or**	
Route	US-52	**Office Director**		
Location	West approach of the Mississippi River Bridge to the north approach of the Mississippi River Overflow Bridge North of Sabula in Jackson County			
Work Type	Causeway widening with PCC Replacement			
Segment Manager				
Designer	Parsons			

Design Manual Section 1C-1
Last Updated: 04-29-19

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	60
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	5.5%
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	N/A
Climbing Lane (ft)		12	12	N/A
Left turn lane (ft)		12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	N/A
	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 2:1 with guardrail
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	N/A
	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	N/A
Transverse Slopes	w/ drainage structures	8:1	6:1	N/A
	w/o drainage structures	10:1	6:1	N/A
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	N/A
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	N/A
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	N/A
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	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	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	N/A
	Over railroad	23.3	23.3	N/A
	Sign trusses and pedestrian bridges	17.5	17	N/A
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	N/A
Level of Service		B	B	A

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

US-52 TWO LANE RURAL SHOULDER DESIGN CRITERIA

Design year ADT = 2670

Design Manual Section 1C-1
Last Updated: 04-29-19

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	N/A
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width	
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A
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	0*	8' paved
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	0*	
On all other NHS	10	6				
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*	
On non-NHS routes with design year ADT < 3000	8	0*				

*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

Notes:

8' paved shoulder to face of steel-beam guardrail

US-52 TWO LANE RURAL HIGH SPEED ROADWAY DESIGN CRITERIA

Roadway Design Speed (mph) = 60

Design Manual Section 1C-1
Last Updated: 04-29-19

Design Criteria for High Speed Roadways

Design Element			Preferred Criteria						Acceptable Criteria						Project Values
			Design Speed, mph						Design Speed, mph						
			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	462
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	1909.86
		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	180
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	1833
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	320
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	N/A
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						.02%
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4	3					7	6	6	--	--	--	N/A
		Rural roadways							5	5	4	4	4	4	0.3
		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						Guardrail

EB curve offset to guardrail

Design Notes:

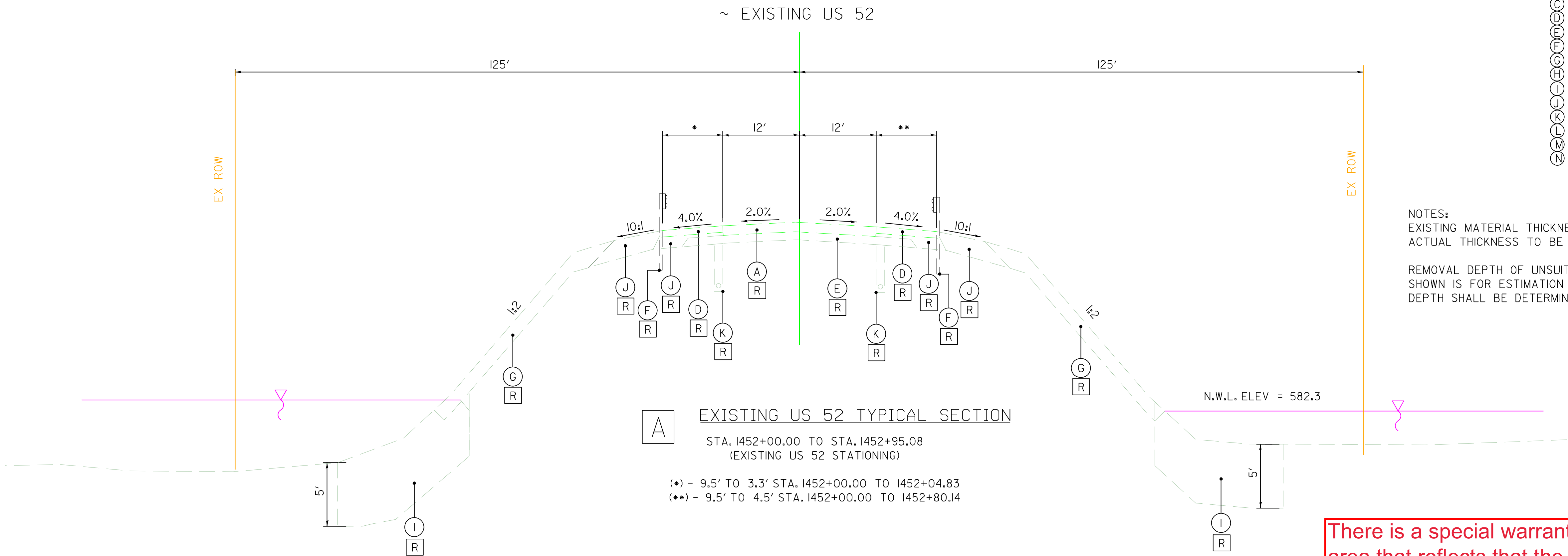
Field Exam Notes:

PROPOSED LEGEND

- (A) BITUMINOUS PAVEMENT - 7"
- (B) BITUMINOUS PAVEMENT - 9.5"
- (C) BITUMINOUS SHOULDER - 8"
- (D) PCC SHOULDER - 6"
- (E) AGGREGATE SUBBASE - 12"
- (F) GUARDRAIL
- (G) RIPRAP - DEPTH VARIES
- (H) EMBANKMENT
- (I) UNSUITABLE MATERIAL
- (J) SPECIAL BACKFILL
- (K) SUBDRAIN
- (L) EROSION STONE - 1'
- (M) MACADAM STONE - 1'
- (N) AGGREGATE SHOULDER - 8"
- [R] = REMOVAL

NOTES:
EXISTING MATERIAL THICKNESS IS FOR INFORMATION ONLY. ACTUAL THICKNESS TO BE DETERMINED IN THE FIELD.

REMOVAL DEPTH OF UNSUITABLE MATERIAL BELOW THE N.W.L. SHOWN IS FOR ESTIMATION PURPOSES ONLY. THE ACTUAL DEPTH SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.



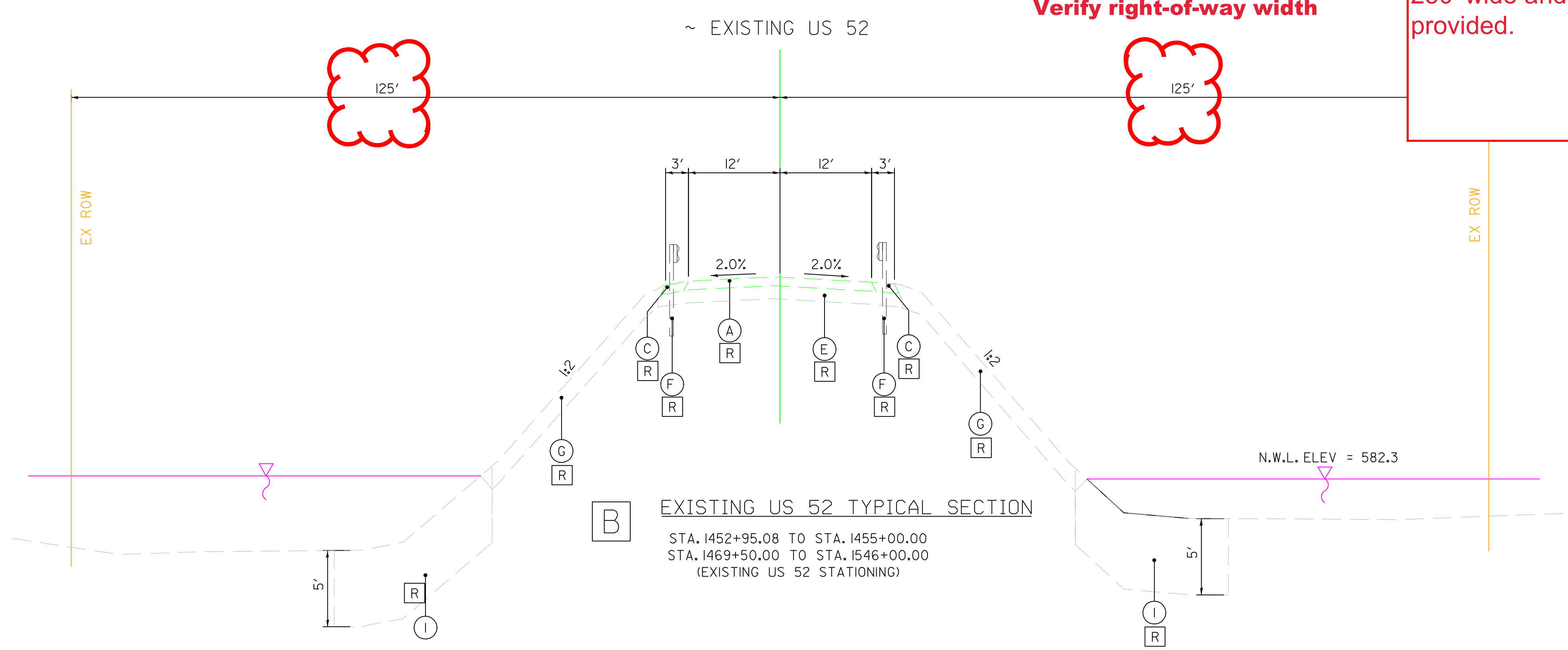
A EXISTING US 52 TYPICAL SECTION

STA. 1452+00.00 TO STA. 1452+95.08
(EXISTING US 52 STATIONING)

(*) - 9.5' TO 3.3' STA. 1452+00.00 TO 1452+04.83
(**) - 9.5' TO 4.5' STA. 1452+00.00 TO 1452+80.14

Verify right-of-way width

There is a special warranty deed for this area that reflects that the existing ROW is 250' wide and greater. This will be provided.



B EXISTING US 52 TYPICAL SECTION

STA. 1452+95.08 TO STA. 1455+00.00
STA. 1469+50.00 TO STA. 1546+00.00
(EXISTING US 52 STATIONING)

FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER B.1	REVISED

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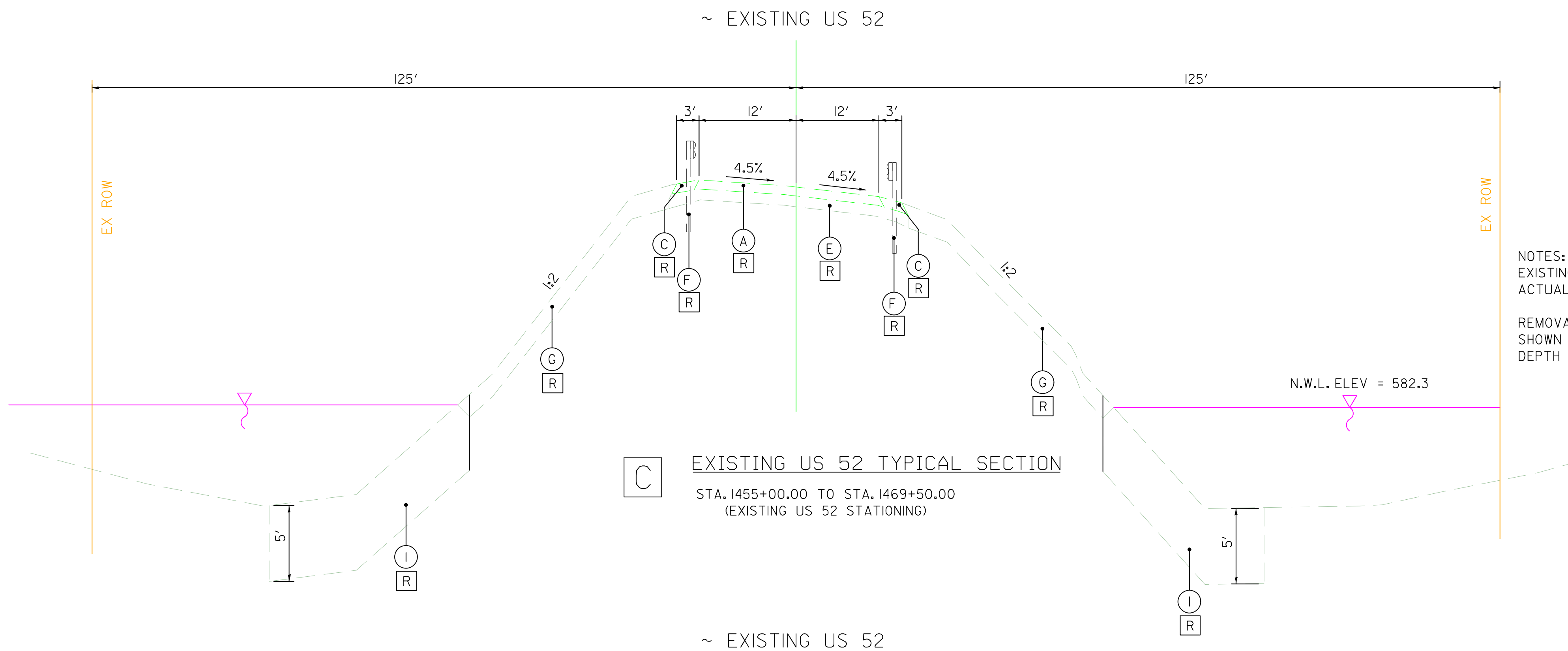
PROPOSED LEGEND

- (A) BITUMINOUS PAVEMENT - 7"
- (B) BITUMINOUS PAVEMENT - 9.5"
- (C) BITUMINOUS SHOULDER - 8"
- (D) PCC SHOULDER - 6"
- (E) AGGREGATE SUBBASE - 12"
- (F) GUARDRAIL
- (G) RIPRAP - DEPTH VARIES
- (H) EMBANKMENT
- (I) UNSUITABLE MATERIAL
- (J) SPECIAL BACKFILL
- (K) SUBDRAIN
- (L) EROSION STONE - 1'
- (M) MACADAM STONE - 1'
- (N) AGGREGATE SHOULDER - 8"
- [R] = REMOVAL

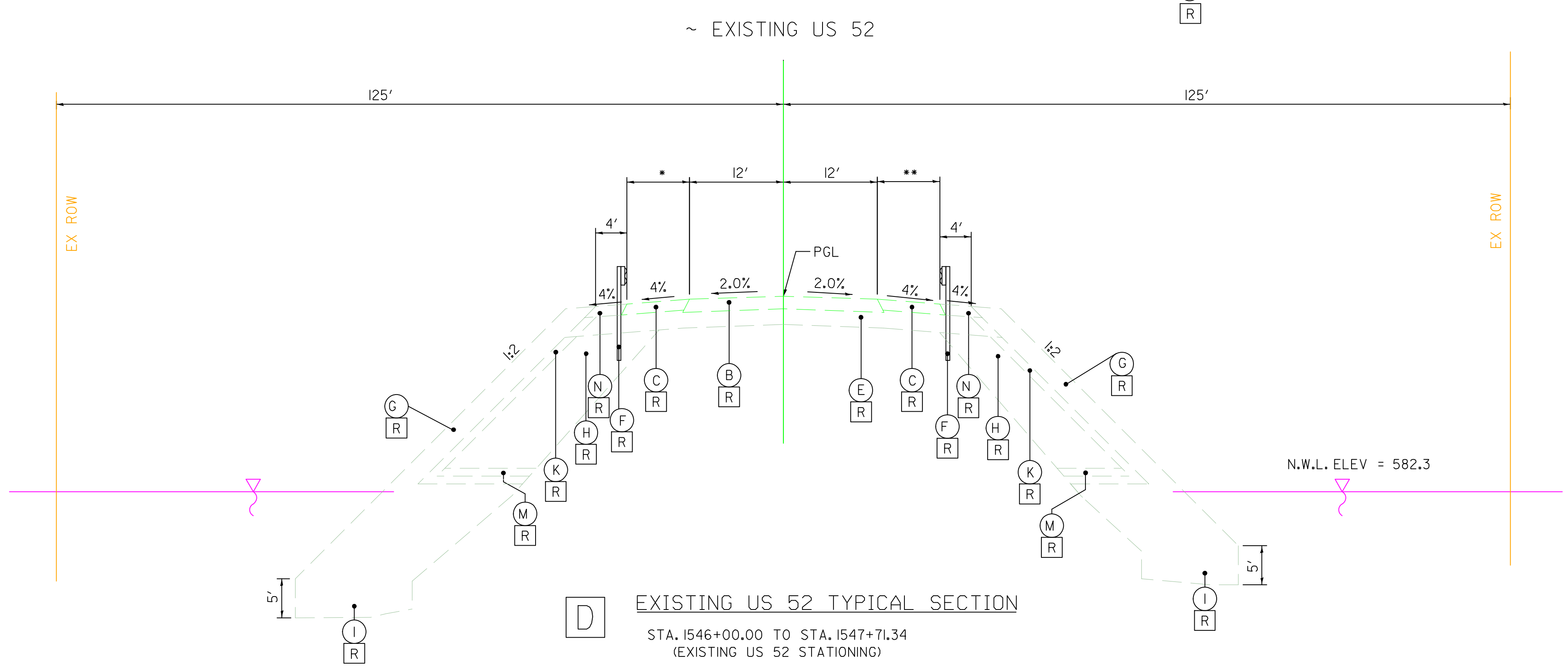
NOTES:
EXISTING MATERIAL THICKNESS IS FOR INFORMATION ONLY. ACTUAL THICKNESS TO BE DETERMINED IN THE FIELD.

REMOVAL DEPTH OF UNSUITABLE MATERIAL BELOW THE N.W.L. SHOWN IS FOR ESTIMATION PURPOSES ONLY. THE ACTUAL DEPTH SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.



C EXISTING US 52 TYPICAL SECTION

STA. 1455+00.00 TO STA. 1469+50.00
(EXISTING US 52 STATIONING)



D EXISTING US 52 TYPICAL SECTION

STA. 1546+00.00 TO STA. 1547+71.34
(EXISTING US 52 STATIONING)

(*) - 3' TO 8' STA. 1546+00.00 TO 1547+71.34

(**) - 3' TO 8' STA. 1546+00.00 TO 1546+80.21
8' STA. 1546+80.21 TO 1547+71.34

PAVED SHOULDER AT GUARDRAIL

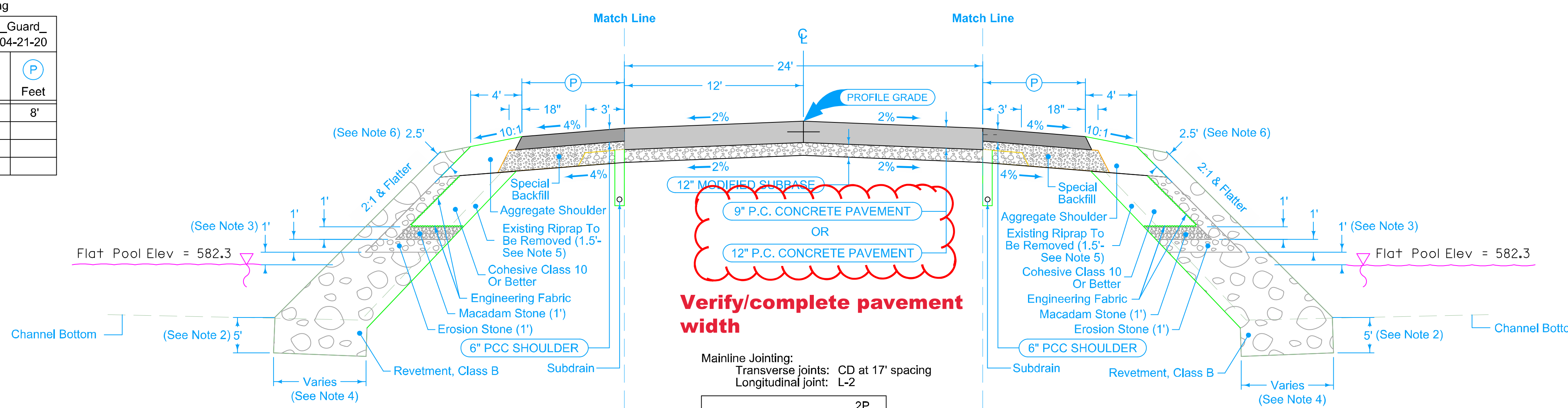
PCC Shoulder Jointing:
Longitudinal joint: L-1, BT-1, BT-5 OR KT-1
Transverse joints: C at 17' spacing

2_P_Guard_ 04-21-20		
STATION TO STATION		(P) Feet
1452+00.00	1547+71.34	8'

PAVED SHOULDER AT GUARDRAIL

PCC Shoulder Jointing:
Longitudinal joint: L-1, BT-1, BT-5 OR KT-1
Transverse joints: C at 17' spacing

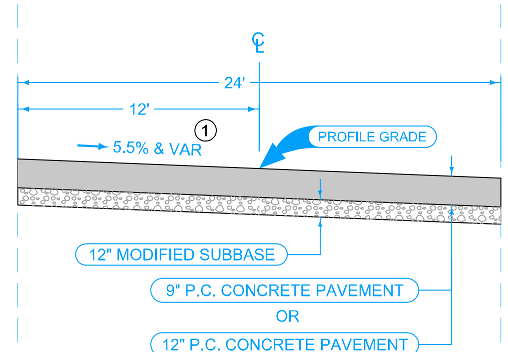
2_P_Guard_ 04-21-20		
STATION TO STATION		(P) Feet
1452+00.00	1547+71.34	8'



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

2P_ 04-21-20	
STATION TO STATION	
1452+00.00	1455+00.00
1469+15.00	1547+71.34

The proposed fill section is identical to that proposed for the overflow bridge.



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

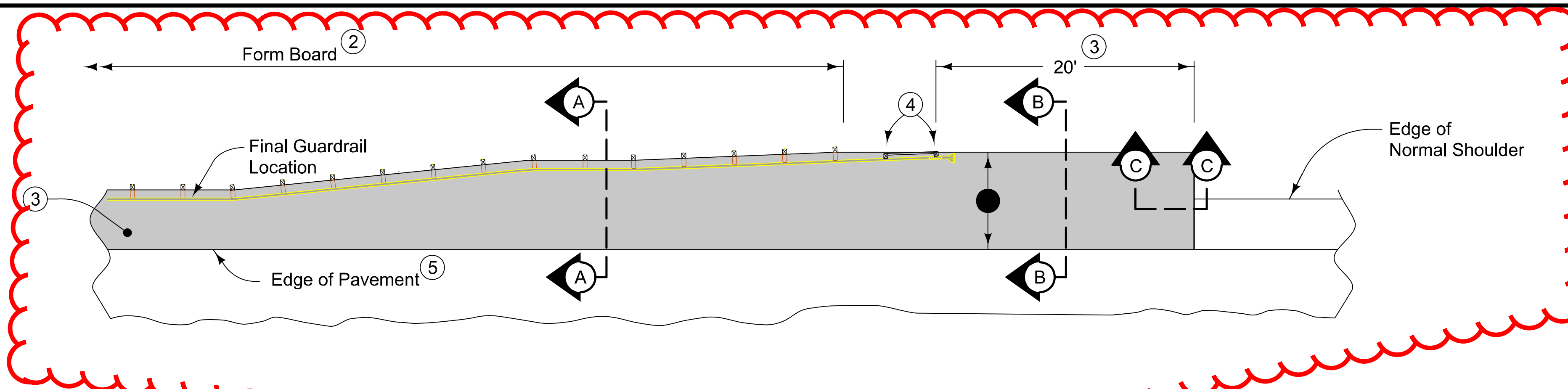
2P_ 04-21-20	
STATION TO STATION	
1455+00.00	1469+15.00

NOTES:

1. Section may be modified as directed by the Engineer through areas of special shaping. Refer to D-sheets and Standard Road Plans for super elevation slopes and additional requirements through superelevated curves.
2. The thickness of class B revetment placed below the channel bottom in order to stabilize the existing ground was estimated to be a normal 5 feet thick. The actual thickness of material necessary to provide a stable working surface for construction of the foreslope widening may be more or less than 5 feet and will be determined by the contractor at the time of construction. The contractor will be paid based on actual rock quantity placed.
3. The stabilization platform shall be placed to an elevation of 1 foot above the flat pool elevation (582.3 feet) or 1 foot above the actual water level at the time of construction, whichever is higher.
4. The bottom width of the stabilization paltform is variable and will extend from the toe of the existing embankment to the toe of the proposed widening.
5. The existing slope protection (Riprap) was estimated to be 18 inches in thickness and shall be removed prior to placing the cohesive class 10 or better embankment. Bench existing foreslope prior to placing embankment.
6. The new foreslope will be armed with a minimum 2.5 foot thick layer of class B revetment and approximate 1 foot thick bedding layer consisting of erosion stone shall be placed on the new foreslope prior to armoring.

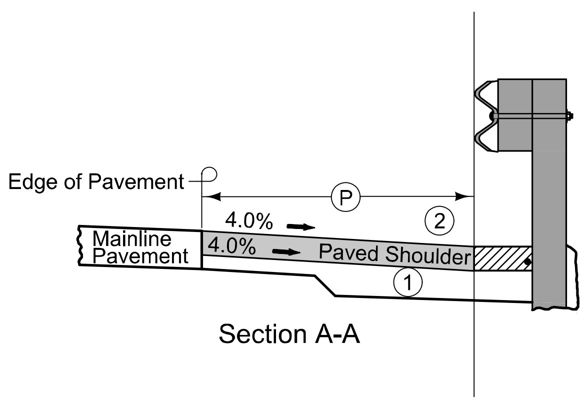
DESIGNER INFO

7156
06-16-21

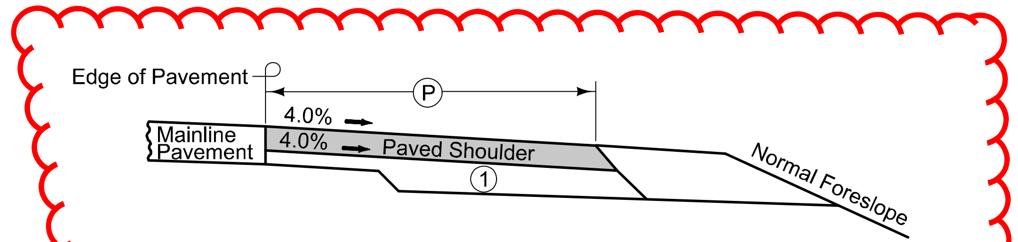


PLAN VIEW

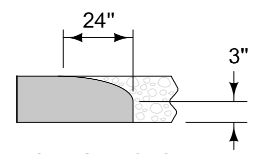
Meeting guardrail section at both ends



Section A-A



Section B-B



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

Modify detail as needed to reflect that there is not guardrail flare in our project

NEW CONSTRUCTION

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

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

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

Refer to Tabulation 112-9 for shoulder quantities.

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

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

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

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

5 'KT-1 joint for PCC shoulder. 'B' joint for HMA shoulder.

PAVED SHOULDER AT GUARDRAIL

FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER B.4	REVISED

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SURVEY SYMBOLS

- PPA Power Pole Co. 1
- ENT Centerline BL of Entrance
- EW Edge of Water
- D Centerline Draw or Stream (Down)
- BNK Stream Bank
- GDL Guard Rail Steel
- SNP Unpaved Shoulder
- ENU Edge Unpaved Entrance & Parking
- DU Centerline Draw or Stream (Up)
- TLNL Tree Line Left
- TLNR Tree Line Right
- FO1D Fiber Optic Co. 1 - Quality D
- TL1D Telephone Line Co. 1 - Quality D
- WL1D Water Line Co. 1 - Quality D
- TL2D Telephone Line Co. 2 - Quality D
- FO2D Fiber Optic Co. 2 - Quality D
- FO3D Fiber Optic Co. 3 - Quality D
- TR Telephone Riser Pole
- TDC Tree Deciduous
- EG Edge of Gravel Road
- FW Wire Fence
- TEV Evergeen Tree
- MH Utility Access (Manhole)
- RET Retaining Walls
- BL Topo Breakline
- PR Electic Riser Pole
- DIK Centerline of Dike or Dam
- OUT Tile Outlet
- TIL Tile Line
- SIGN SI Sign
- MM MM Mile Marker Post
- WV WV Water Valve
- WH WHD Water Hydrant
- LP L.P. Tank
- TP TPD Telephone Pedestal

New utility contacts will be provided by IDOT

UTILITY LEGEND

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

- G -
Jo-Carroll Energy
Patrick Anderson
103 Chicago Avenue
Savanna, Il 61074
815-858-4349
815-858-2207 ext. 1502
panderson@jocarroll.com

Windstream Communicatioins of Iowa
Terry Burke
PO Box 427
,
641-787-2259
Terry.R.Burke@windstreen.com

-TV-
MediaCom
Dennis Jarding
3900 26th Ave.
Moline, Il 61265
309-743-4750
djarding@mediacomcc.com

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

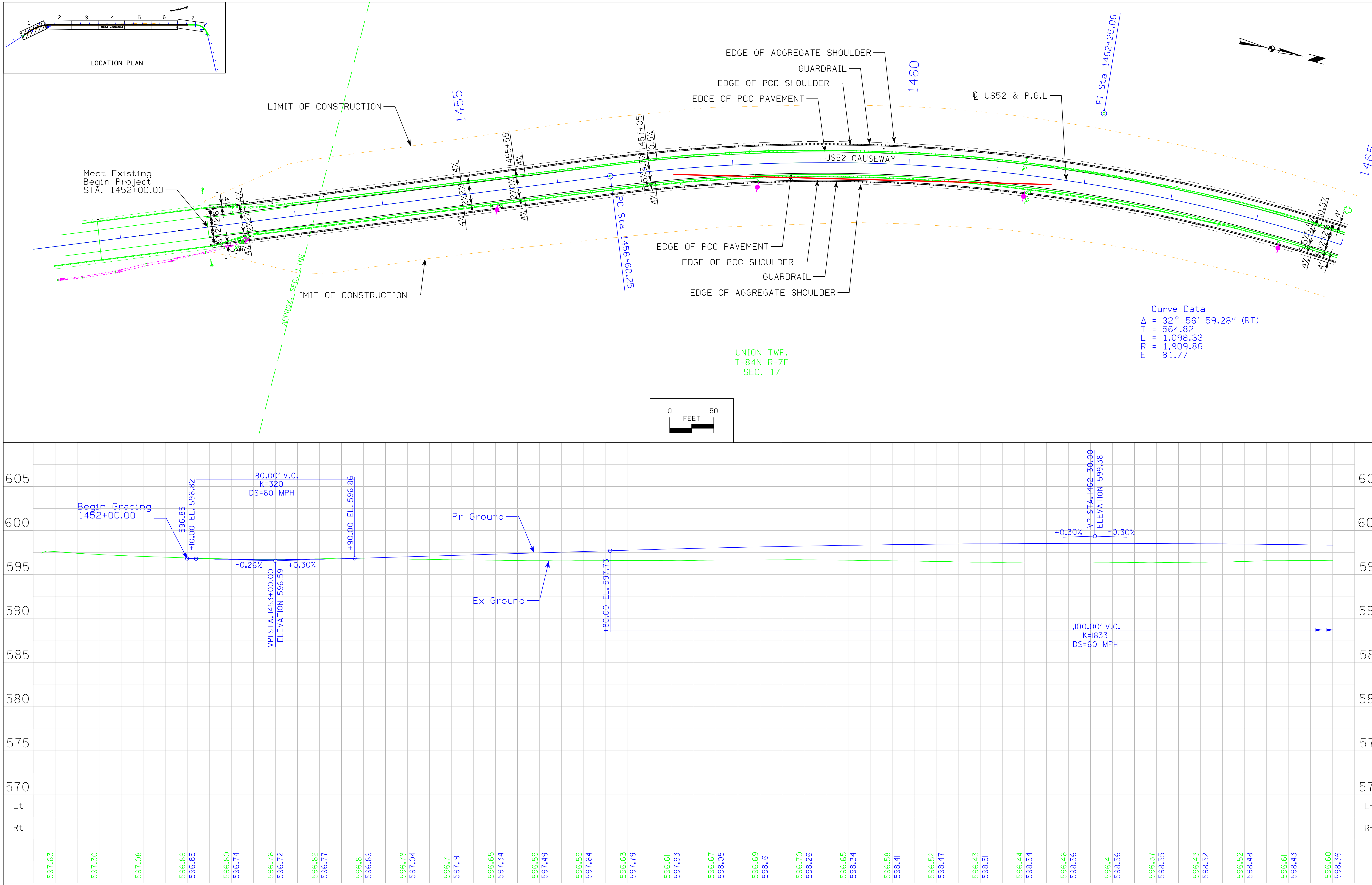
- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER D.1	REVISED

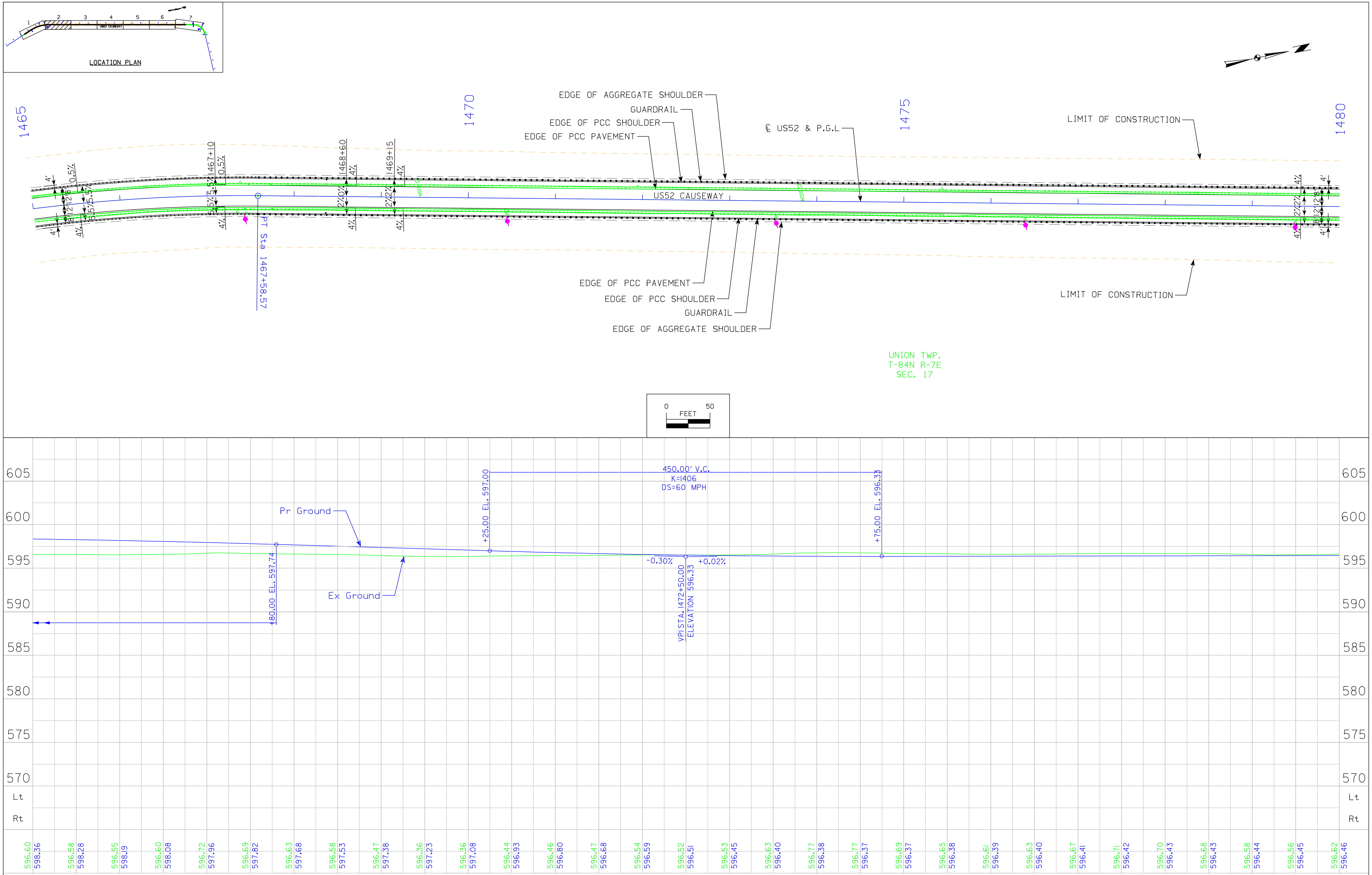
3:40:41 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causway\03 - Sheet\49052113Z1D1.sht



FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER D.2	REVISED

3:41:14 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1D2.sht

PLAN AND PROFILE - US52 CAUSEWAY ROAD



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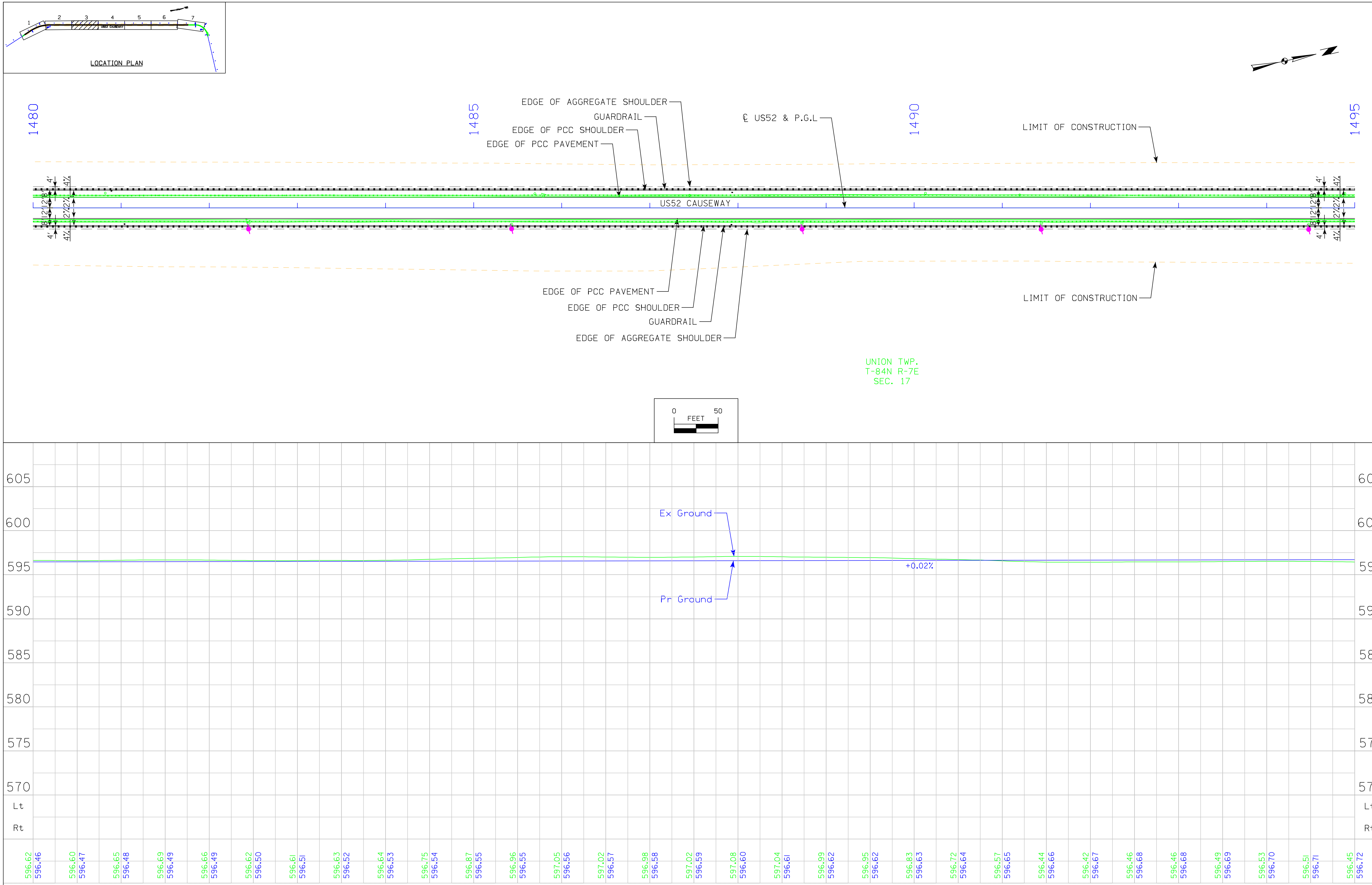
PLAN AND PROFILE - US52 CAUSEWAY ROAD



FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER D.4	REVISED

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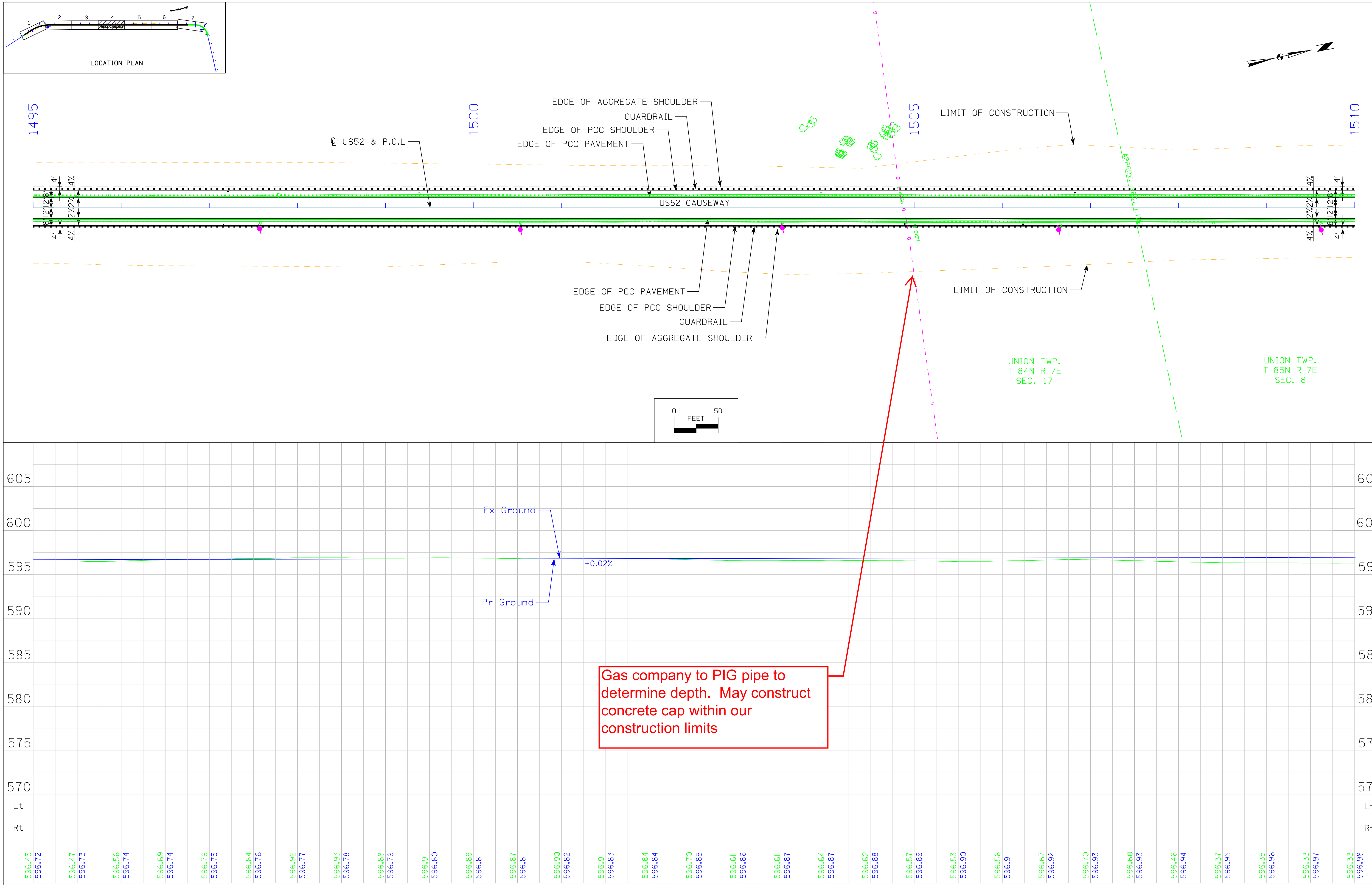
PLAN AND PROFILE - US52 CAUSEWAY ROAD



FILE NO. | ENGLISH | DESIGN TEAM Peterson \ Zafar \ Quraishi | JACKSON COUNTY | PROJECT NUMBER STPN-052-1(113)--2J-49 | SHEET NUMBER D.5 | REVISED

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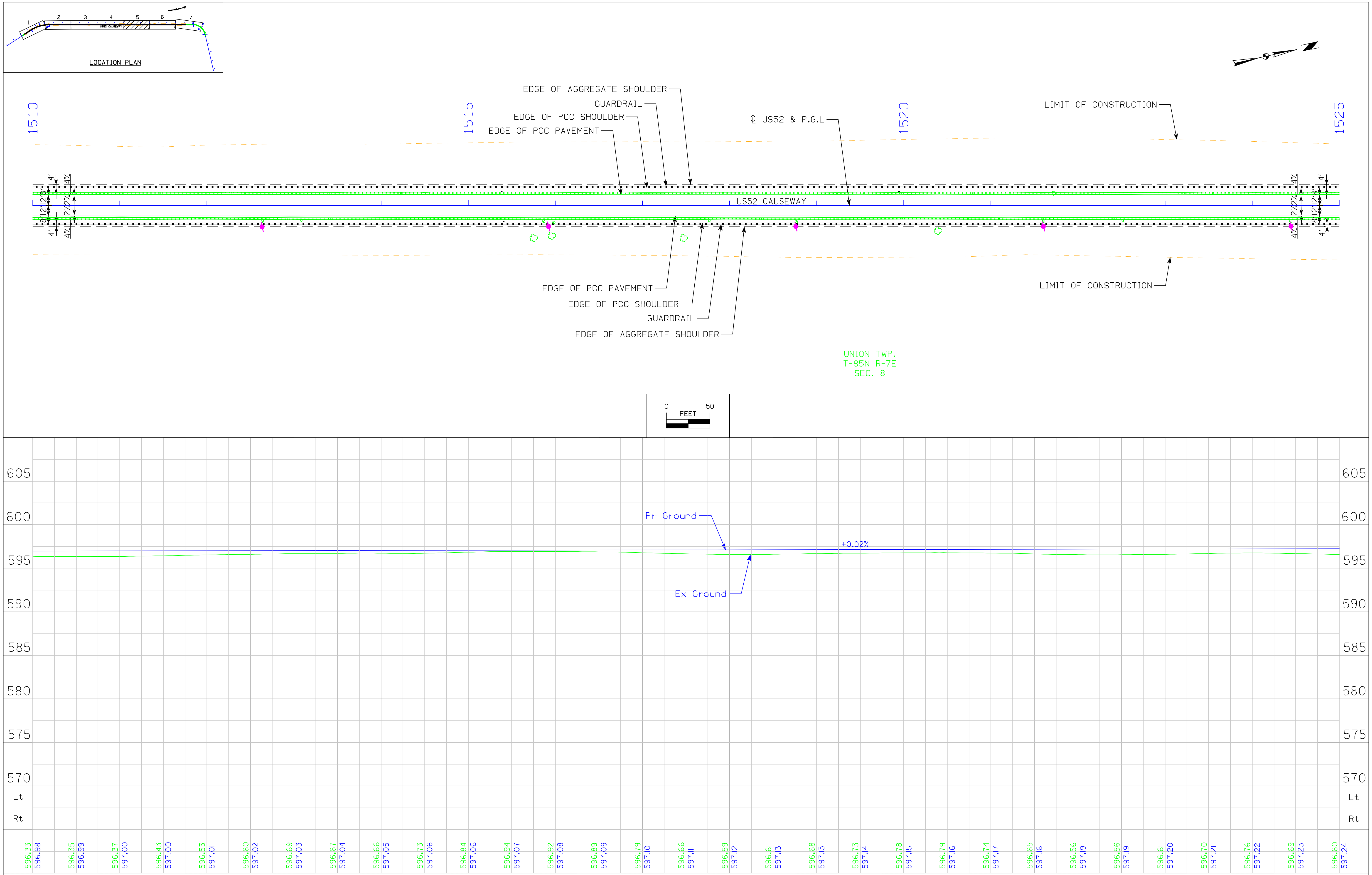
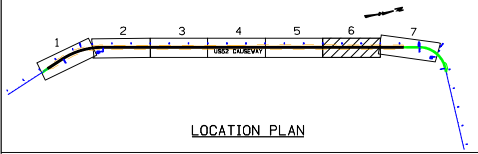
PLAN AND PROFILE - US52 CAUSEWAY ROAD

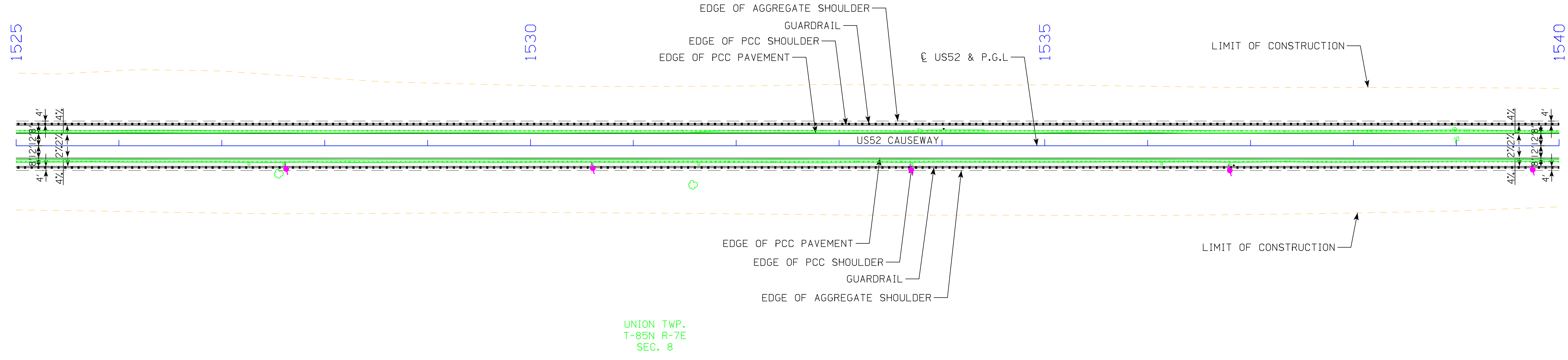


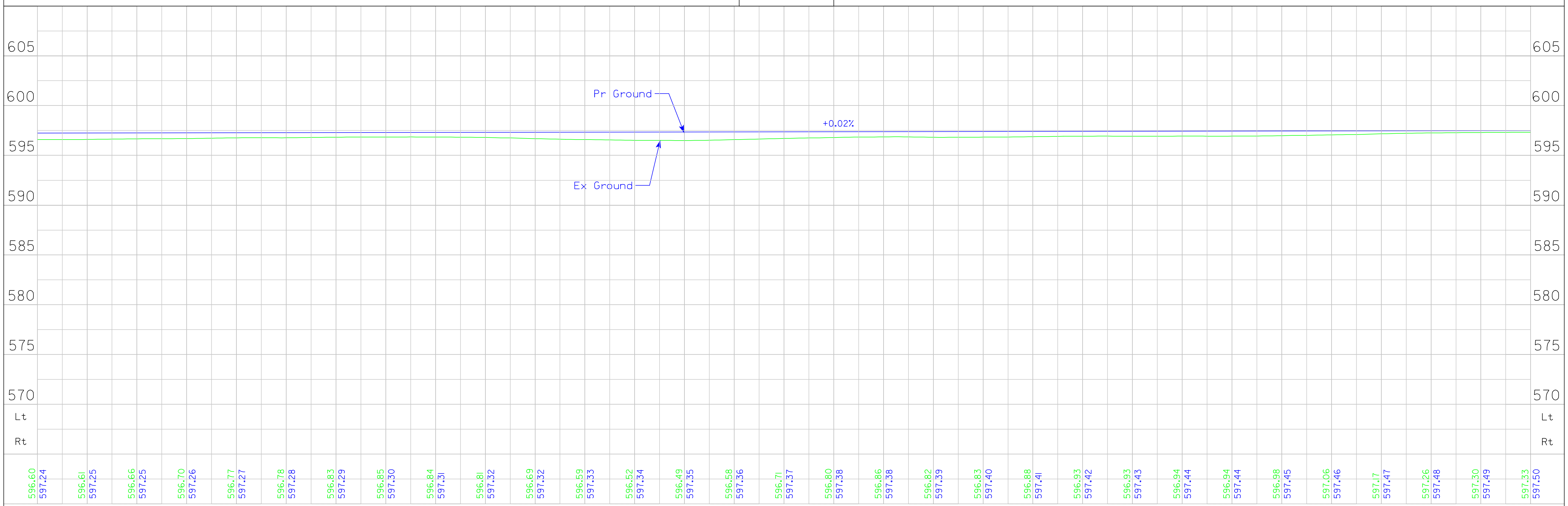
FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER D.6	REVISED

3:43:42 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1D6.sht

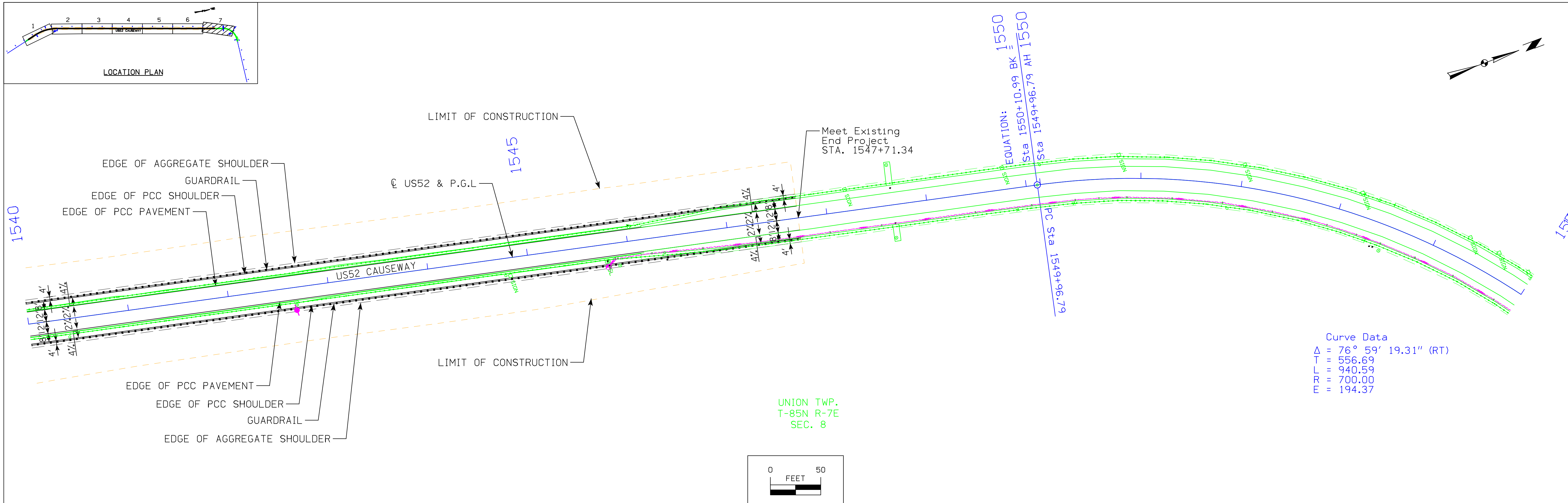
PLAN AND PROFILE - US52 CAUSEWAY ROAD

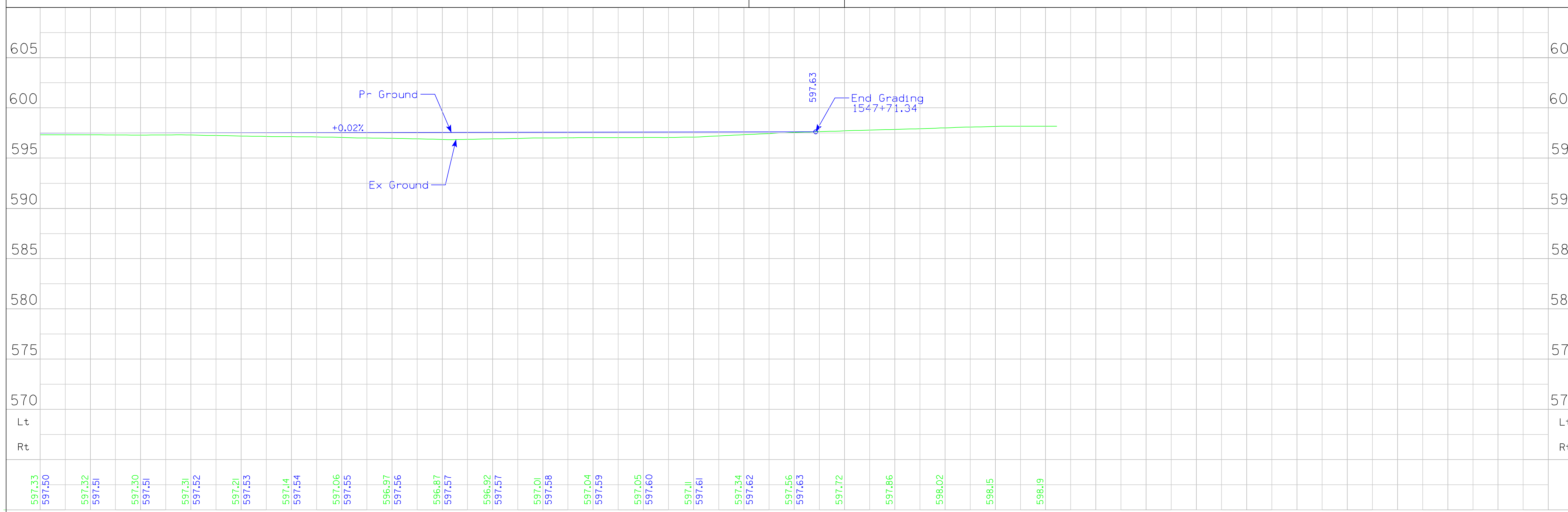






FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER D.7	REVISED





FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER D.8	REVISED

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PLAN AND PROFILE - US52 CAUSEWAY ROAD

Survey Information

Jackson County
STPN-052-1(113)—2J-49
US 52 north of Sabula
PIN 18-49-052-010
Sap-693.1

General Information

Measurement units for this survey are US survey feet. This survey is for reconstruction and widening of approximately 2 miles of US 52 from the Mississippi River Overflow Bridge north of Sabula north to the Mississippi River Bridge. This project is a Full DTM Survey.

Vertical Control

Vertical datum for this survey is NAVD88. Geoid 12B was used. The orthometric heights of NGS stations JLS 112 (NJ0066), F (AE9318) and B175 (NJ0101) were held in the adjustment. A closed level loop was run though the control points from NGS station F (AE9318) to CP 100 and back to station F. The record elevation of station F and the GPS derived elevation of CP 100 were held fixed. The estimated standard error of the observed height differences from the network adjustment was 0.0128 ft/mile. Benchmark 507, 508 and 509 from SAP 693 the Mississippi River Overflow Bridge project were found. The record elevation of 507 was 598.462 the elevation on this survey is 598.39. The record elevation of 508 was 598.757 the elevation on this survey is 598.68 The record elevation of 509 was 598.825 the elevation on this survey is 598.74. Control Point 100 is also Illinois DOT Permanent Survey Marker (PSM) CAR71 with a record elevation of 595.693 the elevation on this survey is 595.689.

Utility Information
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

A One-call Design Information request (DIR) Ticket# 551904736 was made June 26, 2019. The following Companies were listed on the DIR:

Company (Quality)	Symbol	Remark
Alliant Energy	N/A	Not Affected
Jo Carroll Energy	GL1D	Affected
City of Sabula	N/A	Not Affected
Windstream Communications	FO1B	Affected
Unknown Fiber Optic	FO2B	Affected

Following are the list of contacts made in the order they were received:

Windstream Communications - Received an E-mail from Lisa Zingula Lisa.Zingula@windstream.com on 6/26/2019. Attached to the e-mail was a pdf showing their facilities along US 52. These facilities were located.

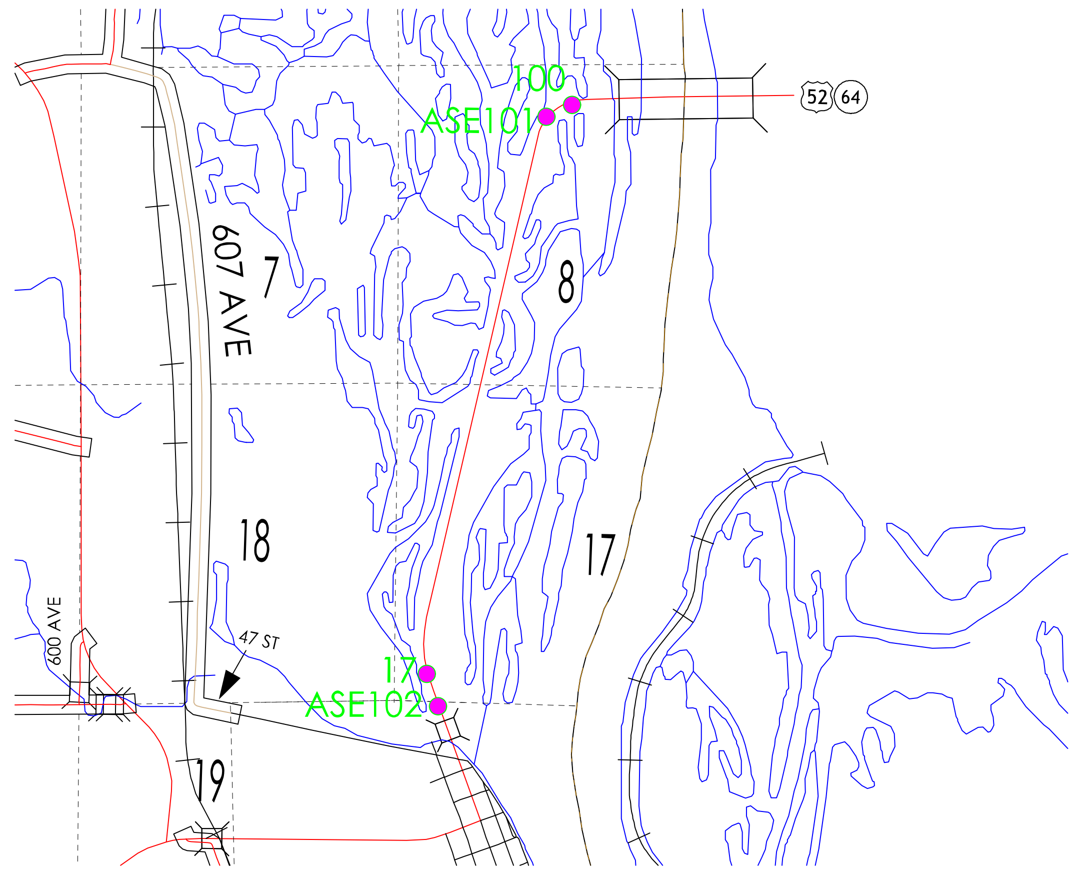
Alliant Energy - Received an E-mail from Deborah Reynolds Deborahreynolds@alliantenergy.com on 6/27/2019. Attached to the e-mail was a pdf showing their facilities along US 52. These facilities were not located.

City of Sabula - Received an E-mail from Wendy Hoertz sabula@iowtelecom.net on 7/15/2019. Stating they did not have any utilities on Hwy 52.

The provided e-mail address and phone number for Jo Carroll Energy did not work. There was old yellow paint and gas pipeline warning signs on the project. This evidence was located as Quality Level D.

A second fiber optic line was found on the project. There was no ownership marking on this line. These facilities were located.

CONTROL POINT VICINITY MAP



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 11

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

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 11

Horizontal Control

The project coordinate system is IaRCS Zone 11. The RTN position of reference station Davenport, Dubuque and Sabula were held and multiple 30-minute static observations were done on control points 17, 100, ASE101 and ASE102. The maximum difference in coordinates was 0.025' in the northing on point ASE102. Additional secondary control points were established by traverse.

Point Name	Northing	Easting	Feature Elevation	Definition	Description
178	266270.0056	21596730.9064	597.215	CP	FD 5/8 REBAR
100	8275751.7582	21599151.8408	595.689	CP	FD CONC MON W/DISK
ASE101	8275555.1163	21598724.0161	598.666	CP	SET 5/8 REBAR W/ RED CAP
ASE102	8265731.3938	21596918.1399	596.299	CP	SET 5/8 REBAR W/ RED CAP

Alignment Information

The horizontal alignment for this survey is a retrace of the Iowa As Built Plans FN-64-9(1)—21-49 and Illinois plans for FAP Route 17 contract 64G59. Survey stationing was equated to the plan PI at Sta. 1432+00.6 on the Iowa plans and run ahead to the PC at Sta. 1549+96.79 on the Illinois plans. Creating a Station Equation at the PC of the Illinois plans PC 1550+10.99 (BK) = 1549+96.79 (AH).

Survey stationing relates to as built plan stationing as follows:

PI Sta. 1432+00.6 CL Project No. FN-64-9(1)—21-49.
Survey PI Sta. 1432+00.6.

PI Sta. 1462+25.06 CL Project No. FN-64-9(1)—21-49.
Survey PI Sta. 1462+25.06.

PC Sta. 1549+96.79 CL Contract 64G59.
Survey PC Sta. 1550+10.99 (BK) = 1549+96.79 (AH).

PI Sta. 1555+53.48 CL Contract 64G59.
Survey PI Sta. 1555+53.48.

PI Sta. 1585+98.63 CL Contract 64G59.
Survey PI Sta. 1585+98.94.

ALIGNMENT COORDINATES

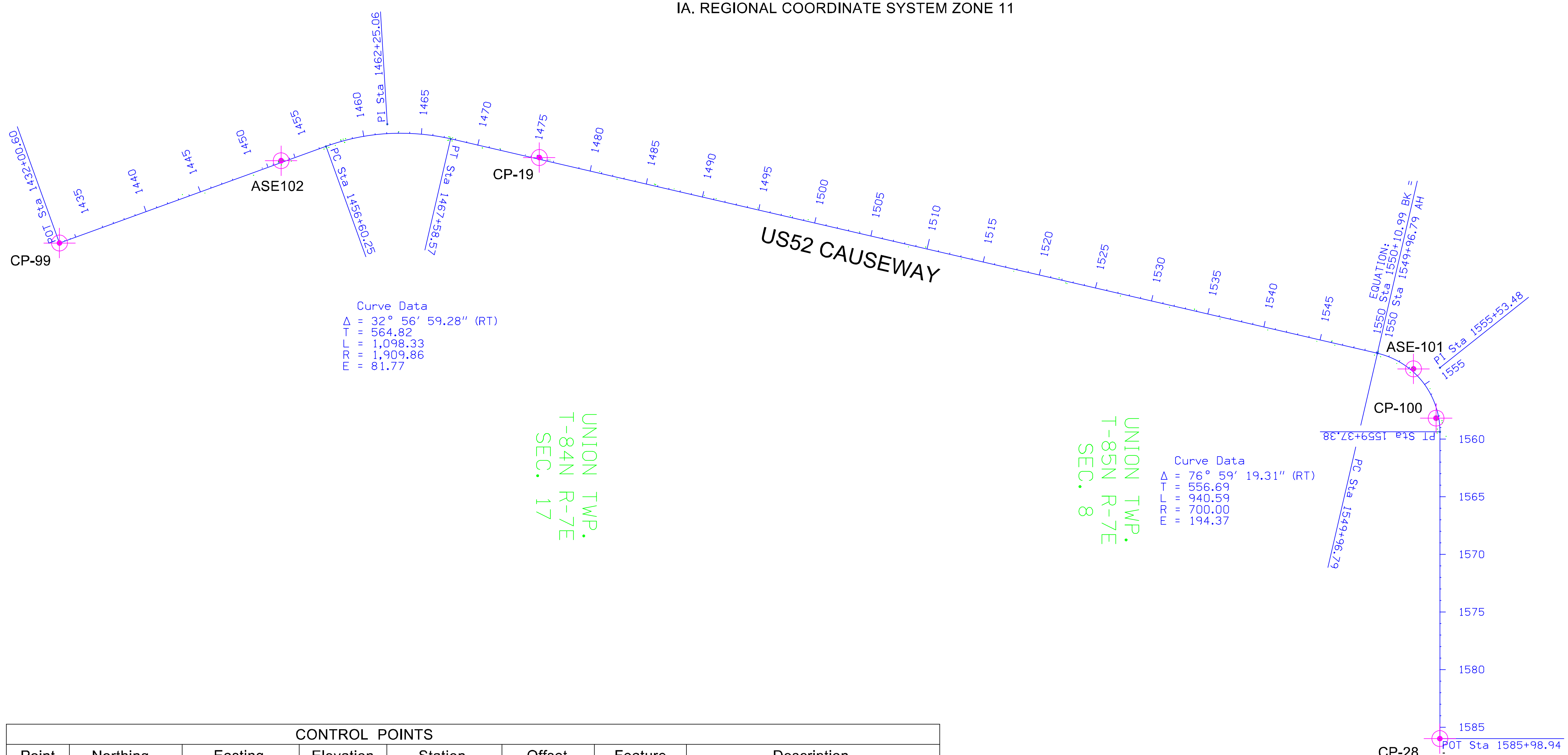
Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
100		1558+13.70	8275751.76	21599151.84															
ASE101		1553+34.90	8275555.12	21598724.02															
ASE102		1452+51.37	8265731.39	21596918.14															

GENERAL INFORMATION

MEASUREMENT UNITS FOR THIS SURVEY ARE US SURVEY FEET. THIS SURVEY IS FOR RECONSTRUCTION AND WIDENING OF APPROXIMATELY 2 MILES OF US 52 FROM THE MISSISSIPPI RIVER OVERFLOW BRIDGE NORTH OF SABULA NORTH TO THE MISSISSIPPI RIVER BRIDGE. THIS PROJECT IS A FULL DTM SURVEY.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00
VERT. DATUM: NAVD88
IA. REGIONAL COORDINATE SYSTEM ZONE 11



CONTROL POINTS							
Point	Northing	Easting	Elevation	Station	Offset	Feature	Description
CP19	8267971.0940	21596890.4050	596.206	1475+43.77	-15.70	CPS	CP FD 5/8 REBAR
CP28	8275784.1680	21601932.4800	0	1585+98.94 R2	00.00	CPS	CP PI STA 1585+98.94
CP99	8263808.8380	21597632.0600	595.774	1432+00.60	00.00	CPS	CP FD MAG NAIL
CP100	8275751.7582	21599151.8408	595.689	1558+13.70 R2	22.57	CPS	CP FD DISK IN CONCRETE
ASE101	8275555.1163	21598724.0161	598.666	1553+34.90 R2	-21.15	CPS	CP SET 5/8 REBAR W/ RED CAP
ASE102	8265731.3938	21596918.1399	596.299	1452+51.37	-16.04	CPS	CP SET 5/8 REBAR W/ RED CAP

TRAFFIC CONTROL PLAN

108-23A
08-01-08

US-52

Maintain at least one lane (two-way traffic) throughout the causeway during construction.

Temporary traffic signals and Wait Time Displays shall be employed to maintain traffic in the single lane through the work zone.

Work zones will be limited to (4) 2300'-2500' sections per side of roadway construction.

Preferred sequence of construction is to begin from the north and progress to the south in order to alleviate damage to the existing pavement.

TABULATION OF SPECIAL EVENTS

102-15
08-01-08

Need to develop list

COORDINATED OPERATIONS

111-01
04-17-12

None known but need to be coordinated

District to provide list for final plan submittal

STAGING NOTES

108-26A
08-01-08

STAGE 1 TRAFFIC

-FOUR SUBSTAGES (A-D) WILL BE NEEDED FOR STAGE 1. EACH SUBSTAGE WILL HAVE A WORKZONE LENGTH OF 2300'-2500'.

-MAINTAIN TRAFFIC ON WESTBOUND ROADWAY (TWO-WAY TRAFFIC) THROUGH WORK ZONE UTILIZING TEMPORARY TRAFFIC SIGNALS AND WAIT TIME DISPLAYS

STAGE 1 CONSTRUCTION

-CONSTRUCT EASTBOUND EMBANKMENT, SHOULDER AND GUARDRAIL

Revise staging to build west side first

STAGE 2 TRAFFIC

-FOUR SUBSTAGES (A-D) WILL BE NEEDED FOR STAGE 2. EACH SUBSTAGE WILL HAVE A WORKZONE LENGTH OF 2300'-2500'.

-MAINTAIN TRAFFIC ON EASTBOUND ROADWAY AND PREVIOUSLY CONSTRUCTED SHOULDER (TWO-WAY TRAFFIC) THROUGH WORK ZONE UTILIZING TEMPORARY TRAFFIC SIGNALS AND WAIT TIME DISPLAYS

STAGE 2 CONSTRUCTION

-CONSTRUCT WESTBOUND EMBANKMENT, SHOULDER, PAVEMENT AND GUARDRAIL

STAGE 3 TRAFFIC

-FOUR SUBSTAGES (A-D) WILL BE NEEDED FOR STAGE 3. EACH SUBSTAGE WILL HAVE A WORKZONE LENGTH OF 2300'-2500'.

-MAINTAIN TRAFFIC ON WESTBOUND ROADWAY AND PREVIOUSLY CONSTRUCTED SHOULDER (TWO-WAY TRAFFIC) THROUGH WORK ZONE UTILIZING TEMPORARY TRAFFIC SIGNALS AND WAIT TIME DISPLAYS

STAGE 3 CONSTRUCTION

-CONSTRUCT EASTBOUND PAVEMENT AND COMPLETE ANY ADJUSTMENTS TO SHOULDER AND GUARDRAIL.

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

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

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

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned
SHADING	**Design Color No.**	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

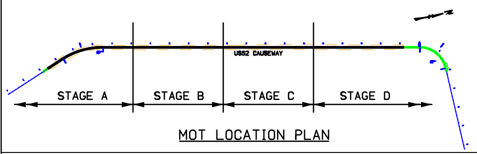
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

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

TRAFFIC CONTROL AND STAGING

(COVERS SHEET SERIES J)

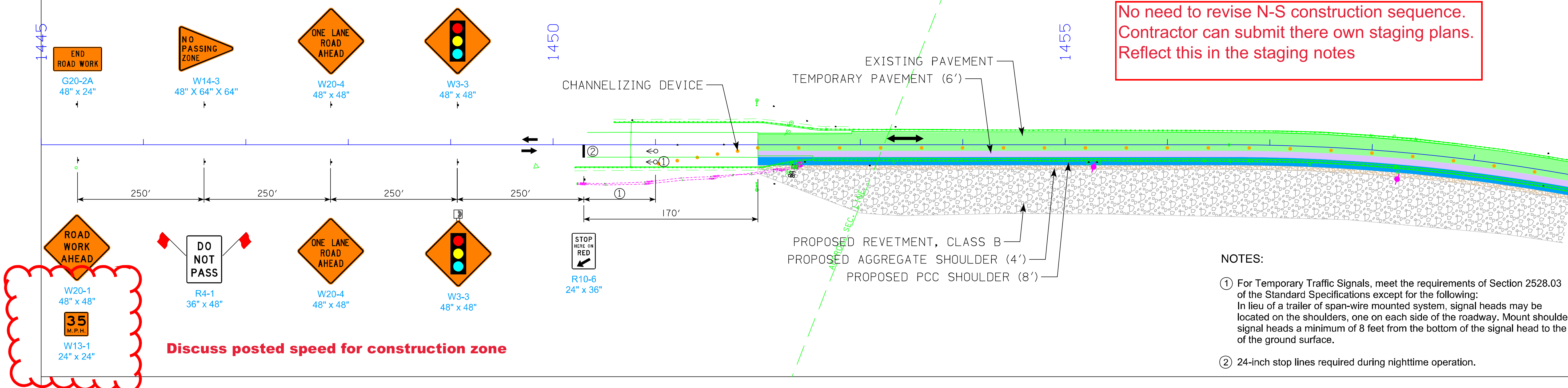


PHASE 1, STAGE 1A

US52 CAUSEWAY

Discuss whether construction should proceed from south to north or vice versa Roger suggested fill material would come from Illinois and if so construction should start at north end and proceed south in order to preserve existing pavement. Contractor fill material quarry unknown.

No need to revise N-S construction sequence. Contractor can submit there own staging plans. Reflect this in the staging notes



Discuss posted speed for construction zone

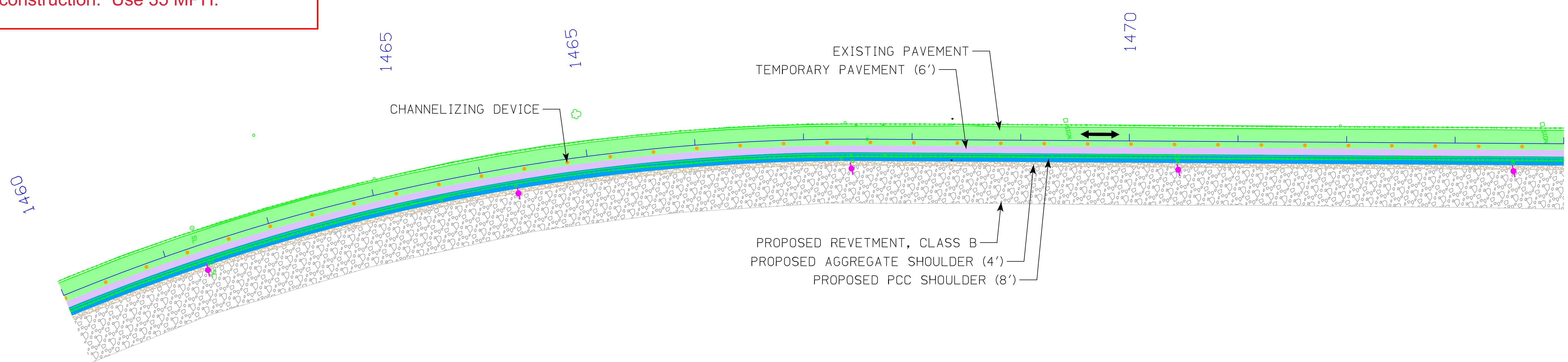
NOTES:

1. For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following: In lieu of a trailer of span-wire mounted system, signal heads may be located on the shoulders, one on each side of the roadway. Mount shoulder signal heads a minimum of 8 feet from the bottom of the signal head to the top of the ground surface.
2. 24-inch stop lines required during nighttime operation.

PHASE 1, STAGE 1A

US52 CAUSEWAY

No discussion of using a higher posted speed during construction. Use 35 MPH.



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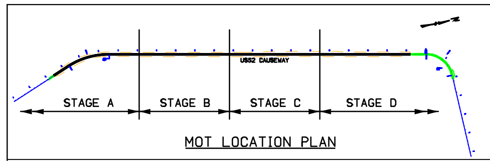
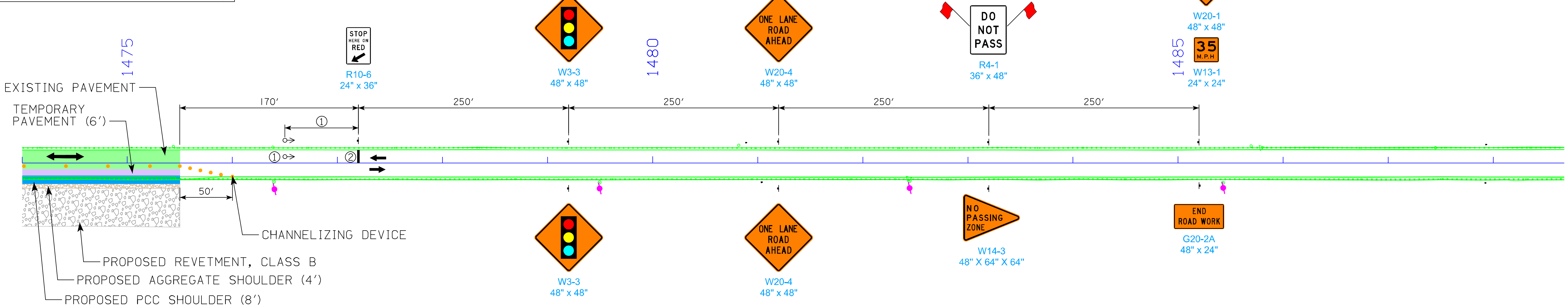
STAGING AND TRAFFIC CONTROL SHEETS



PHASE 1, STAGE 1A

US52 CAUSEWAY



For construction signage consider skid mounting or providing some sort of movable signage to make relocation easier.

NOTES:

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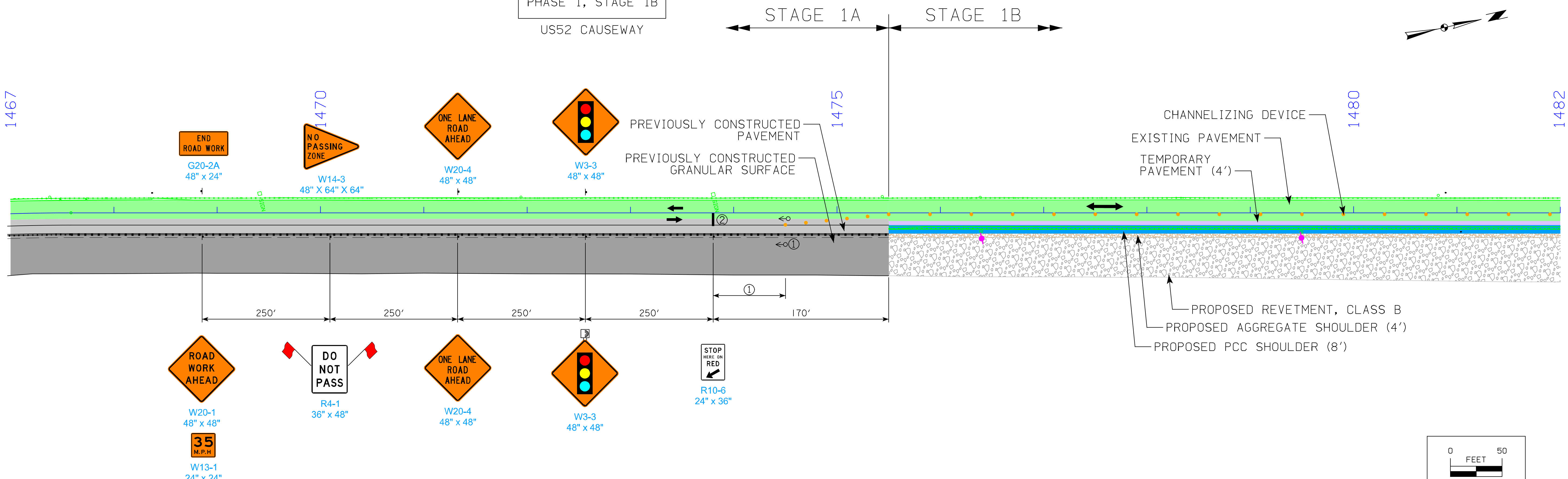
2. 24-inch stop lines required during nighttime operation.

PHASE 1, STAGE 1B

US52 CAUSEWAY



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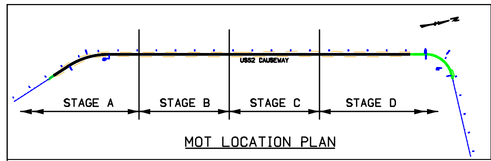
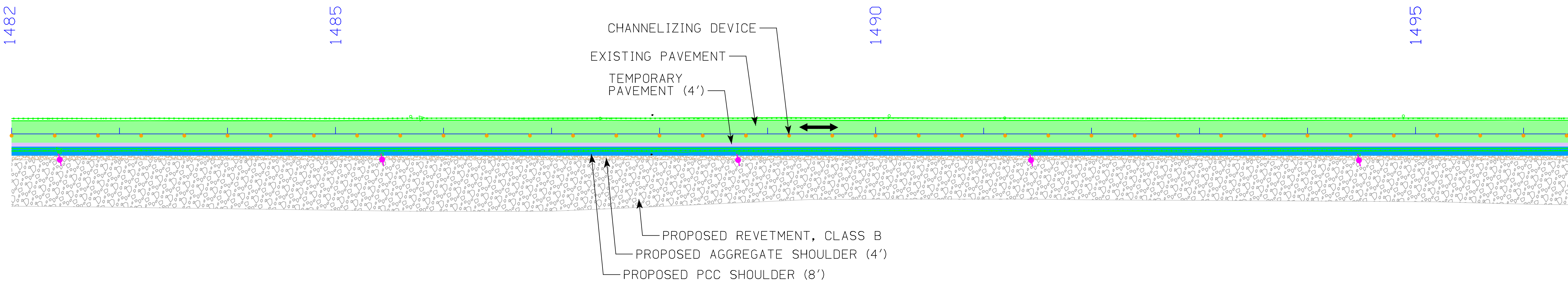
STAGING AND TRAFFIC CONTROL SHEETS



PHASE 1, STAGE 1B

US52 CAUSEWAY



NOTES:

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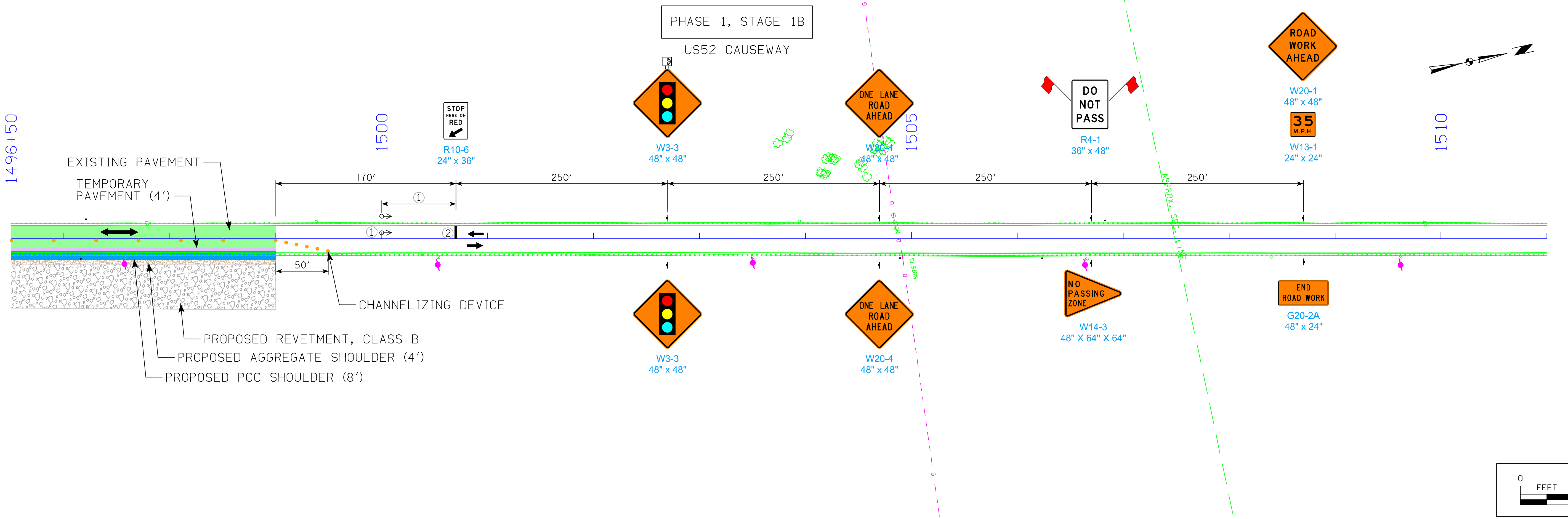
(2) 24-inch stop lines required during nighttime operation.

PHASE 1, STAGE 1B

US52 CAUSEWAY



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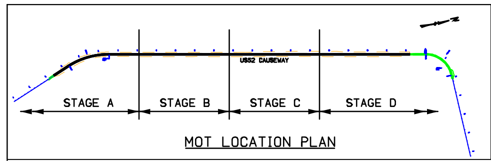
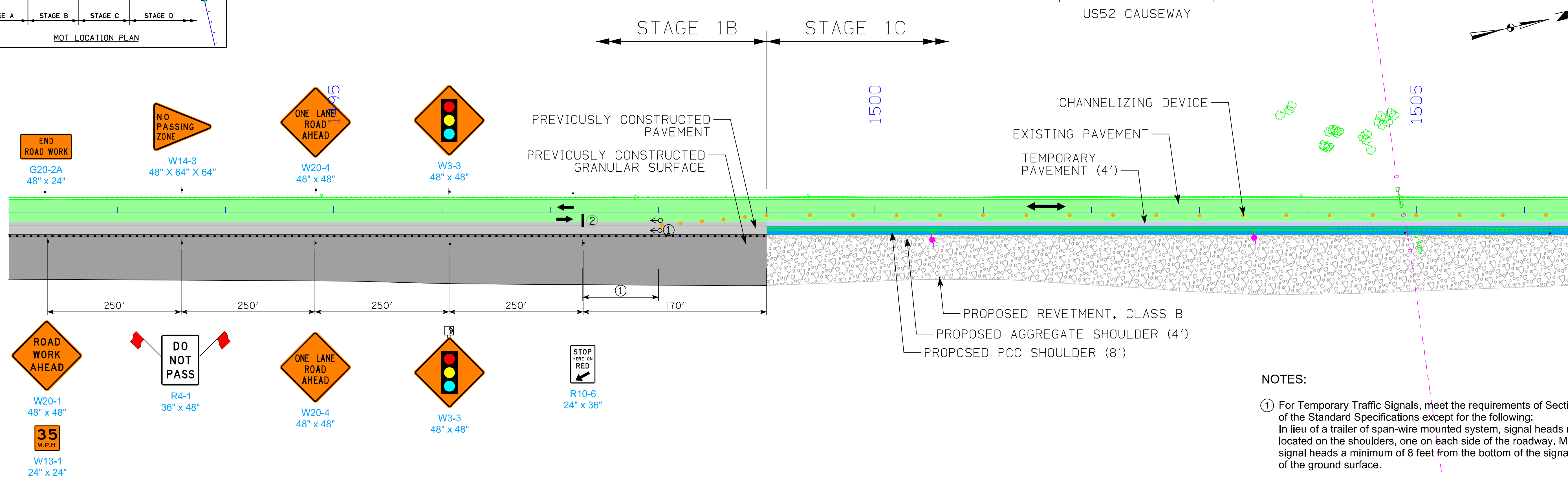
STAGING AND TRAFFIC CONTROL SHEETS



PHASE 1, STAGE 1C

US52 CAUSEWAY



NOTES:

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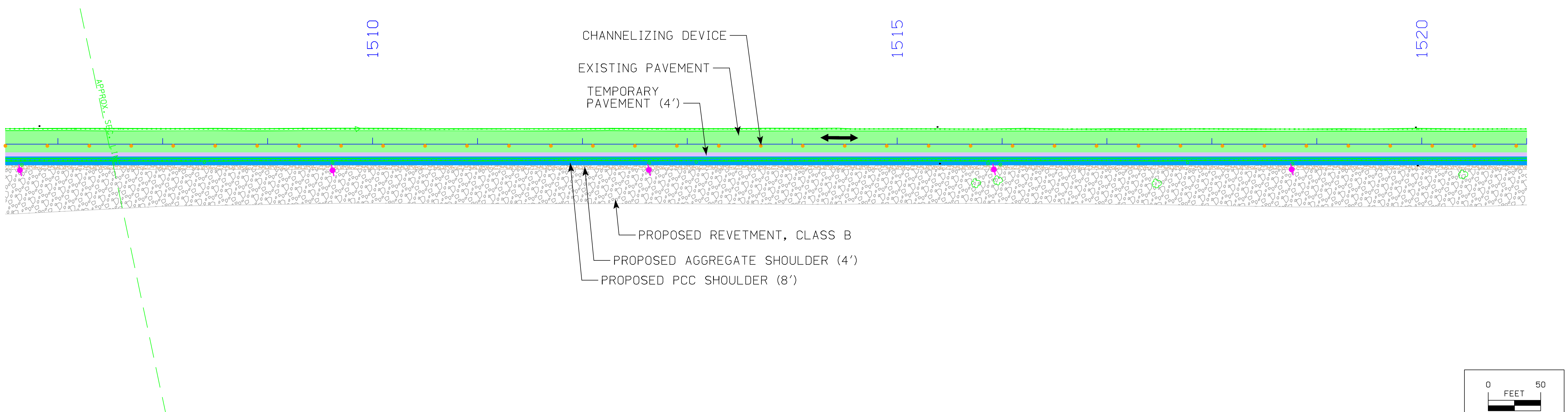
2. 24-inch stop lines required during nighttime operation.

PHASE 1, STAGE 1C

US52 CAUSEWAY



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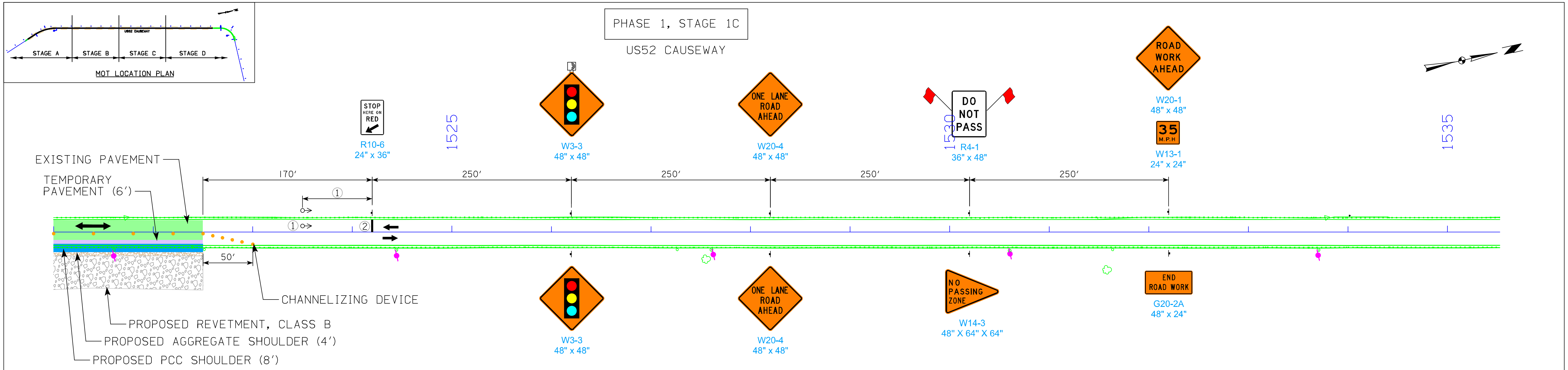

NOTES:

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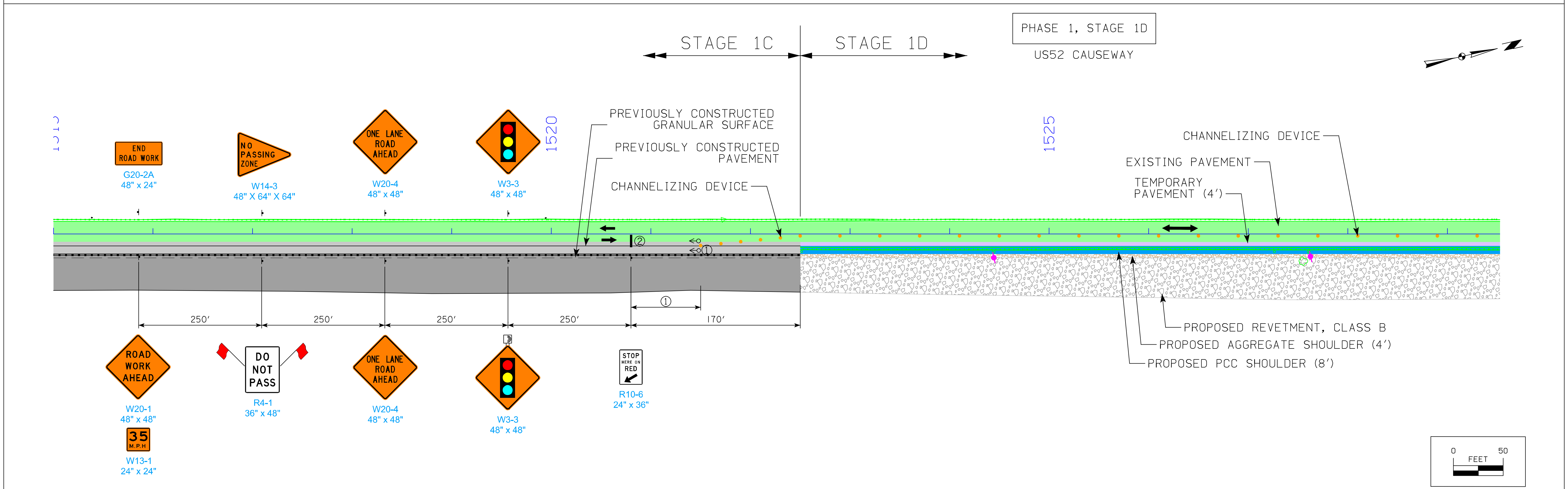

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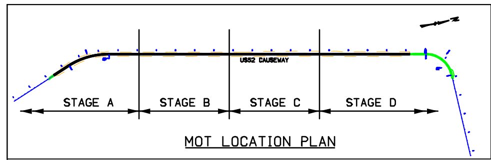
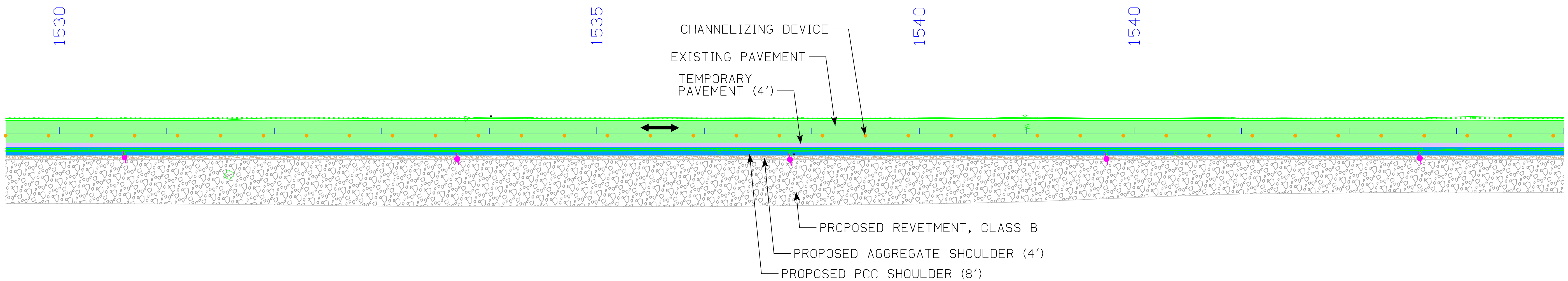


PHASE 1, STAGE 1D

US52 CAUSEWAY



NOTES:

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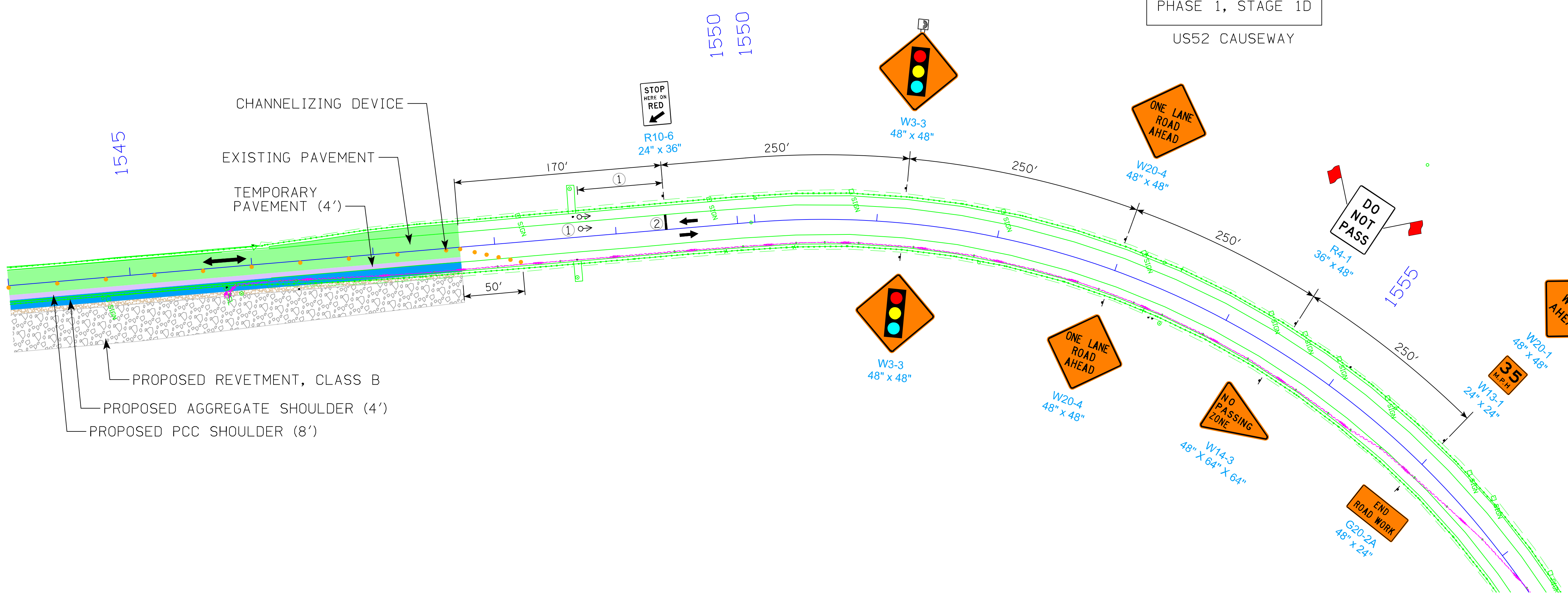
PHASE 1, STAGE 1D

US52 CAUSEWAY



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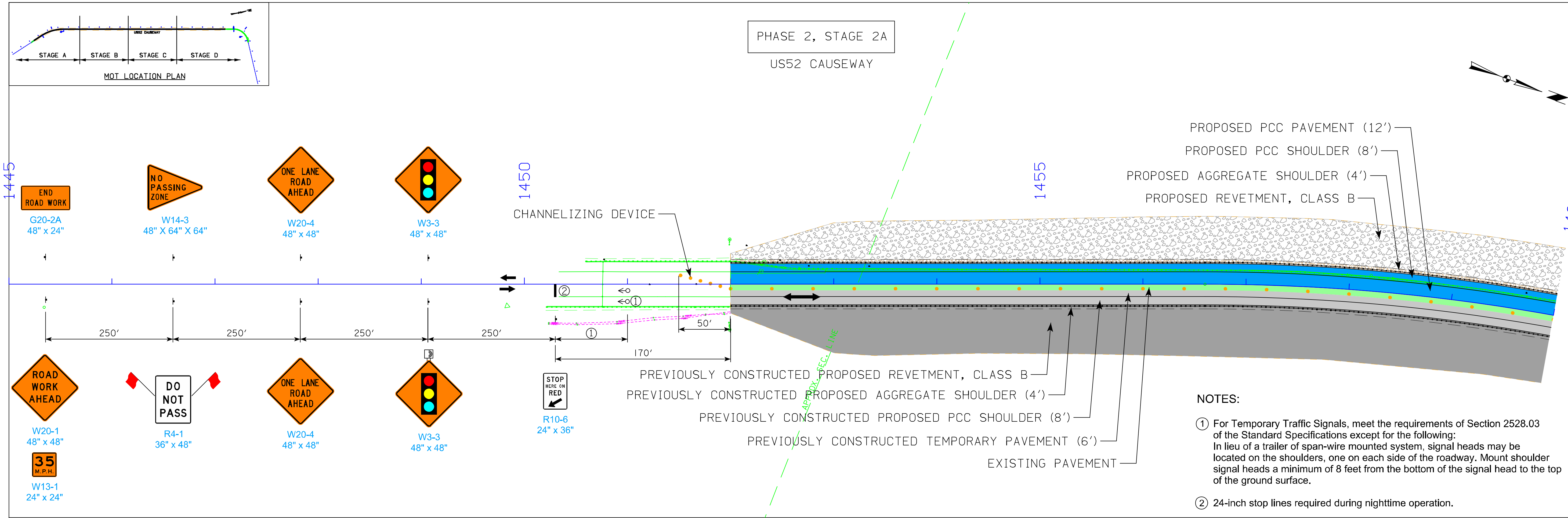

NOTES:

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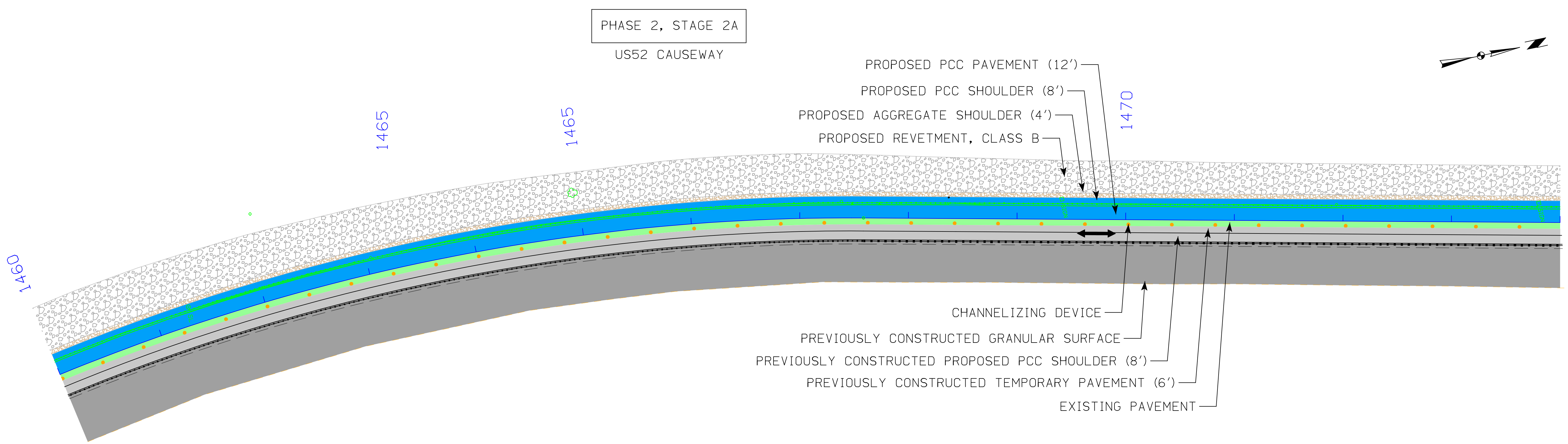

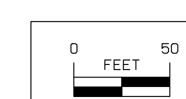

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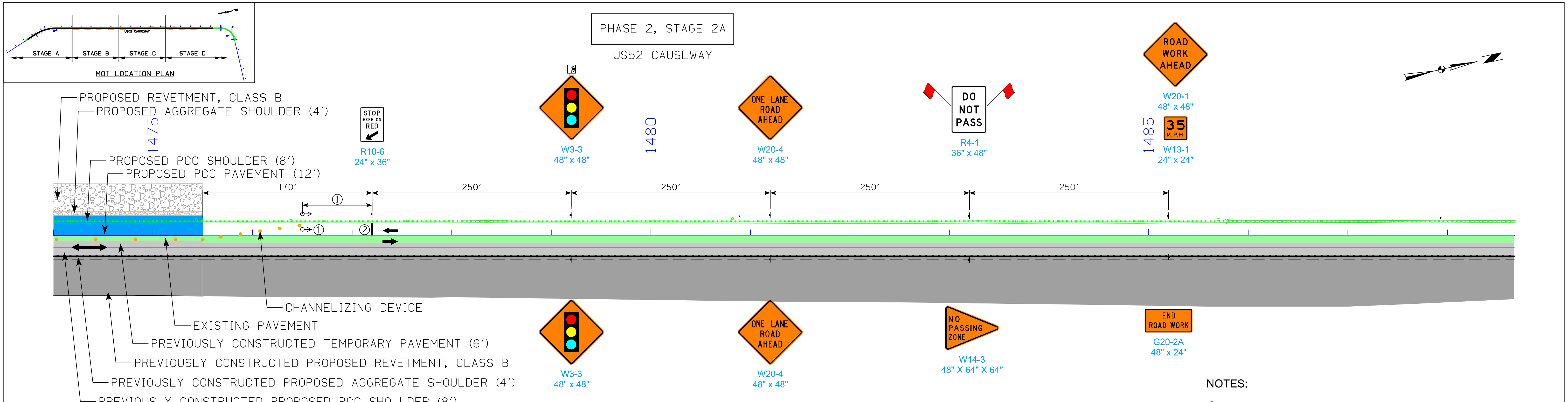
STAGING AND TRAFFIC CONTROL SHEETS



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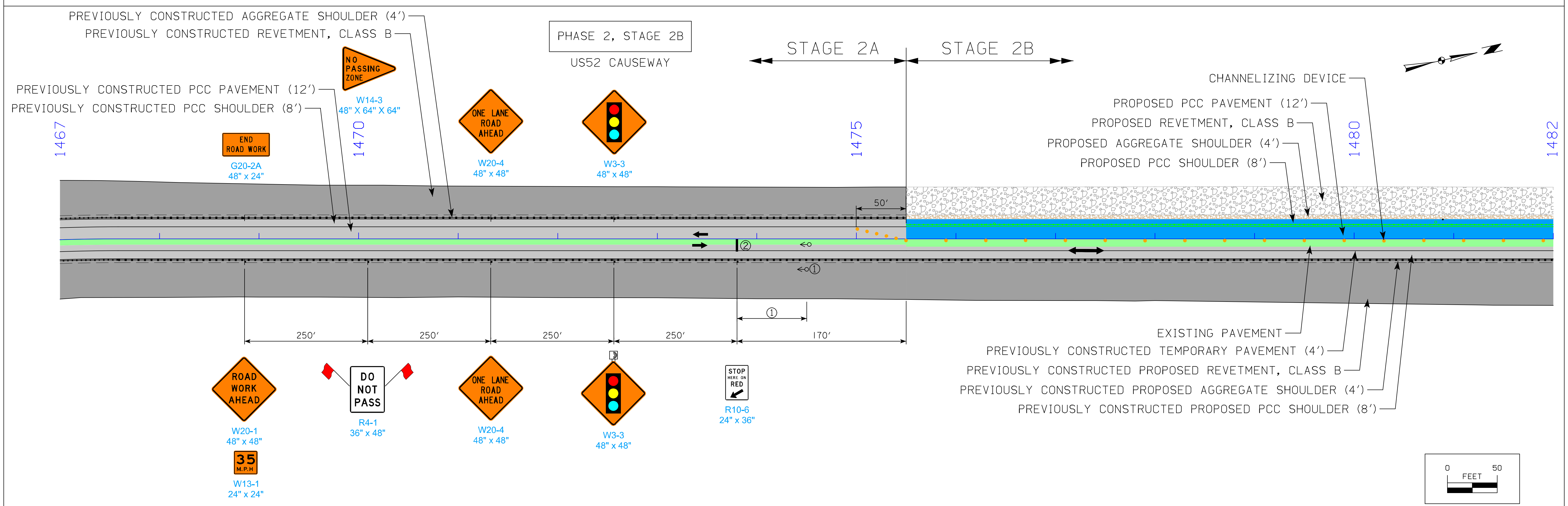

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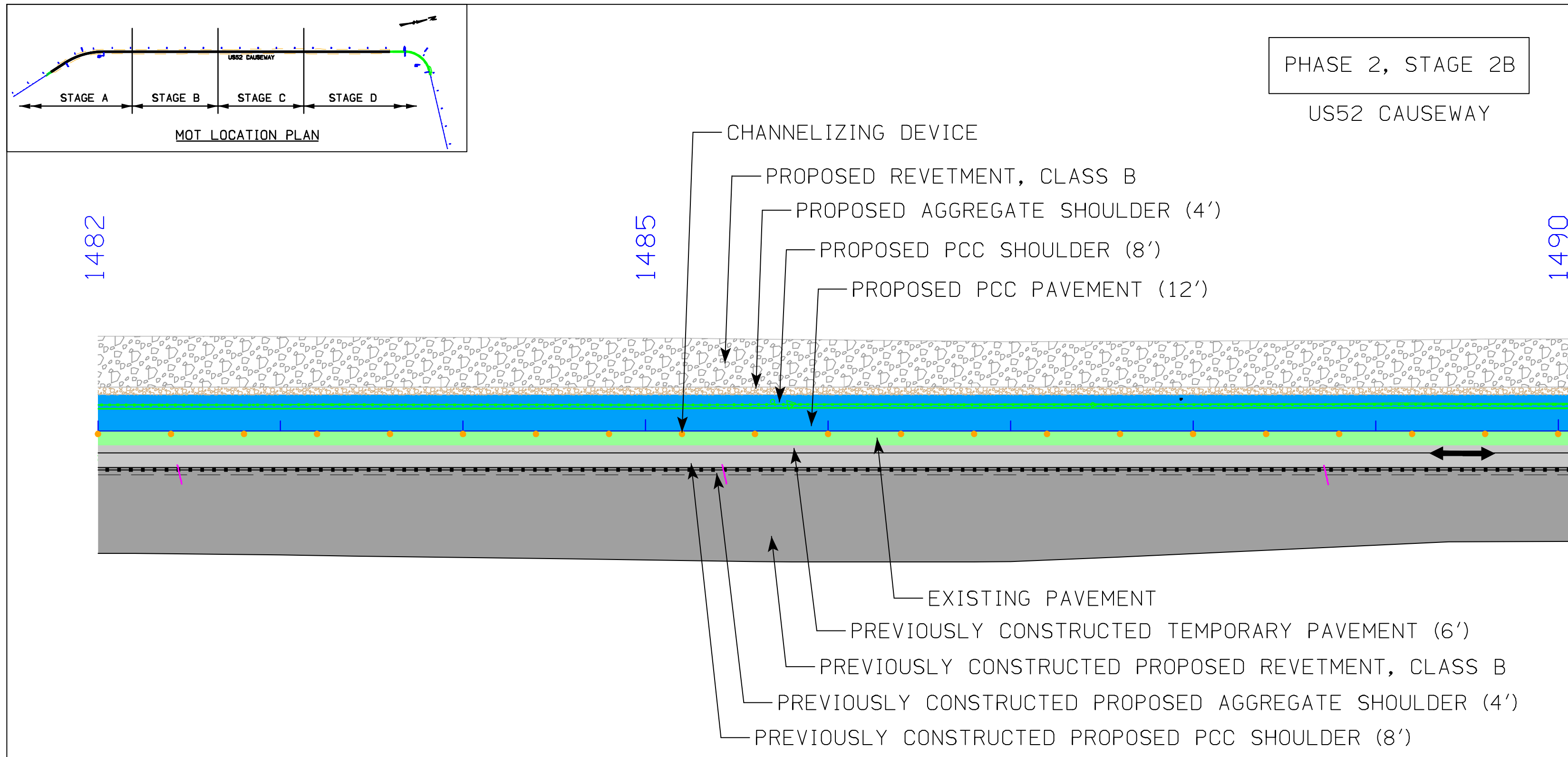
STAGING AND TRAFFIC CONTROL SHEETS



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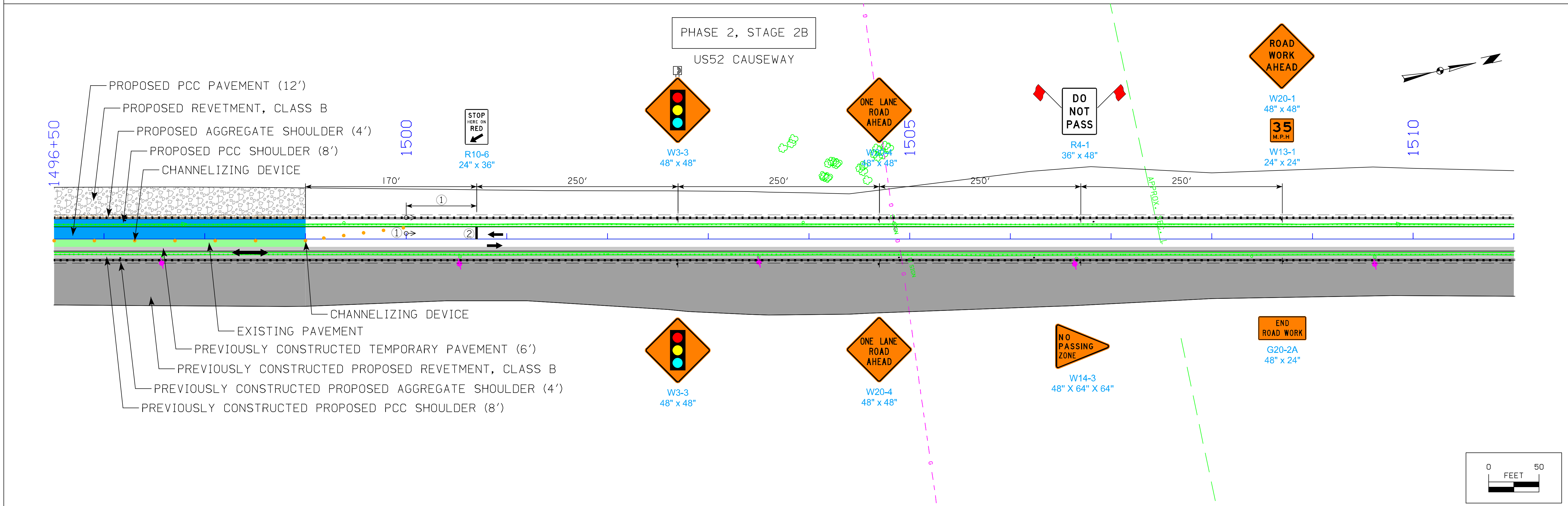
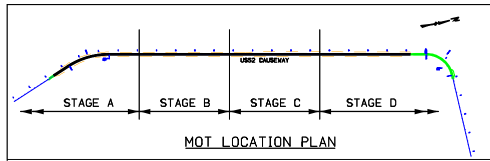
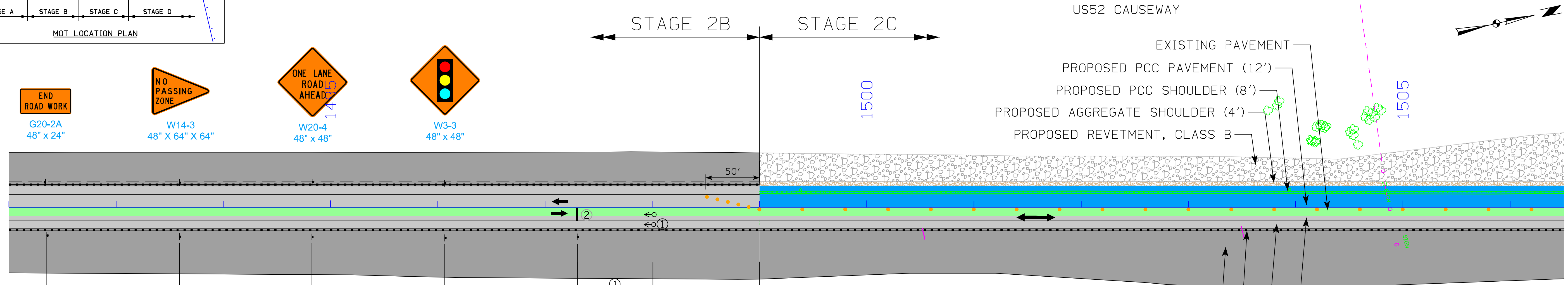
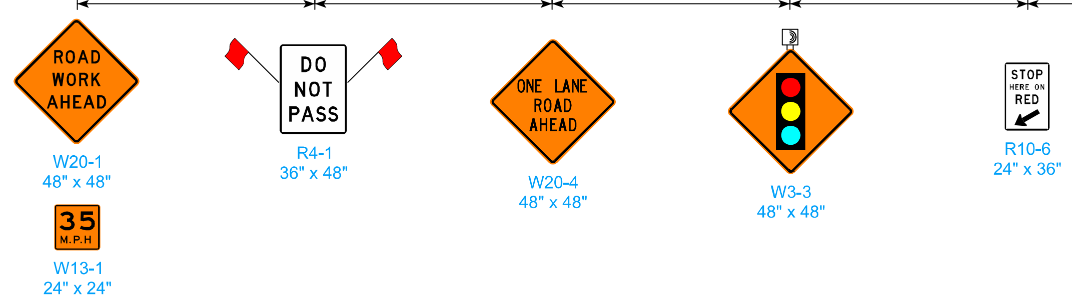




PHASE 2, STAGE 2C

US52 CAUSEWAY





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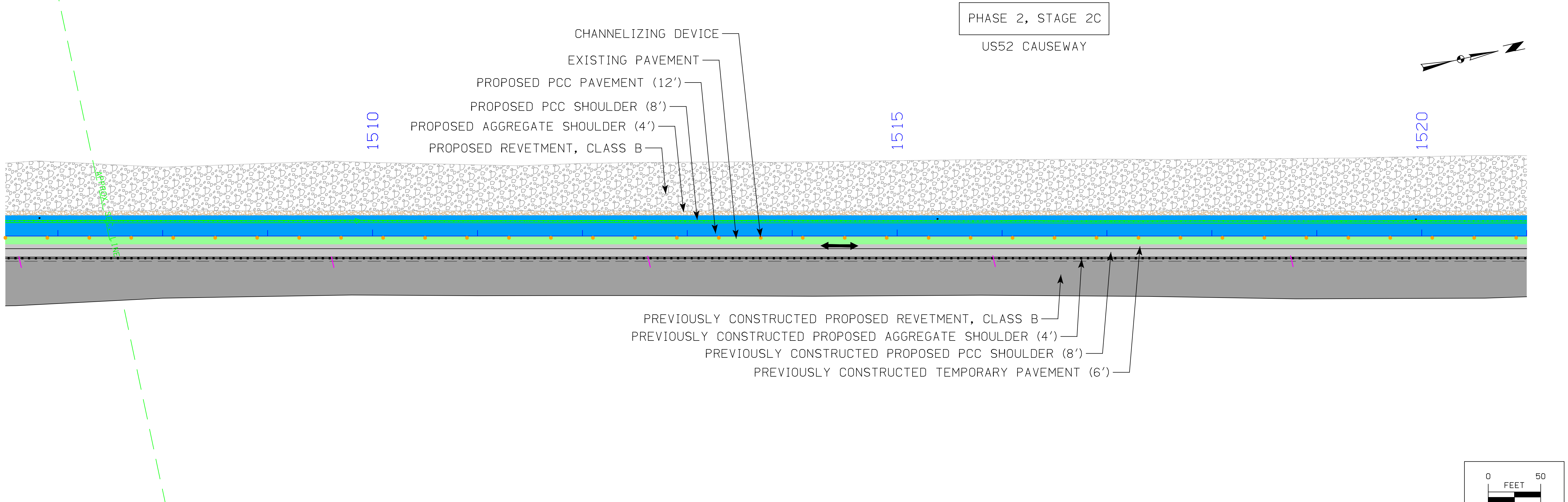
PHASE 2, STAGE 2C

US52 CAUSEWAY



FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER	STPN-052-1(113)--2J-49	SHEET NUMBER J.12	REVISED

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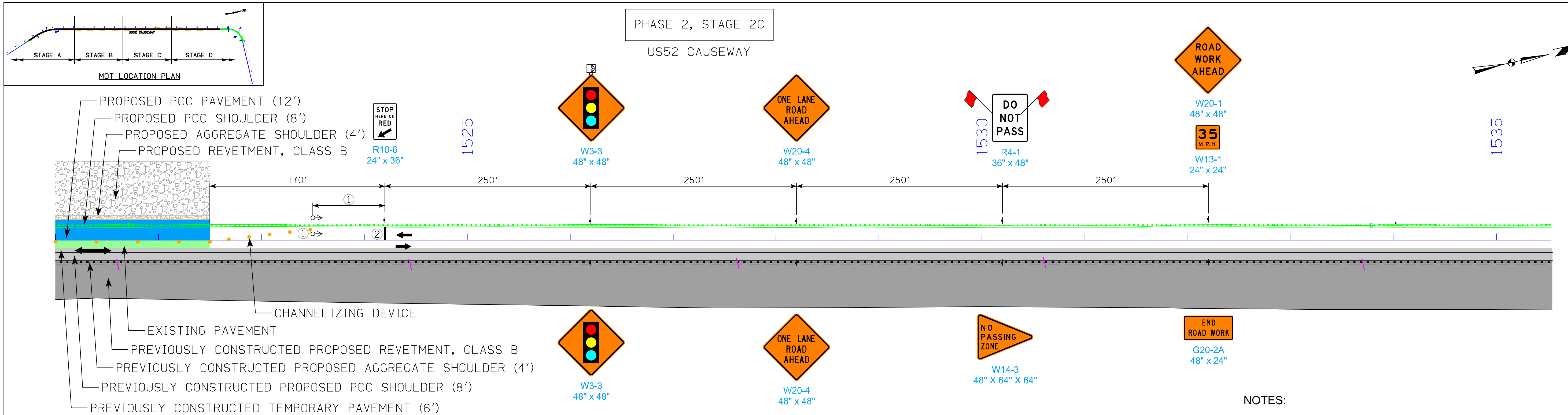
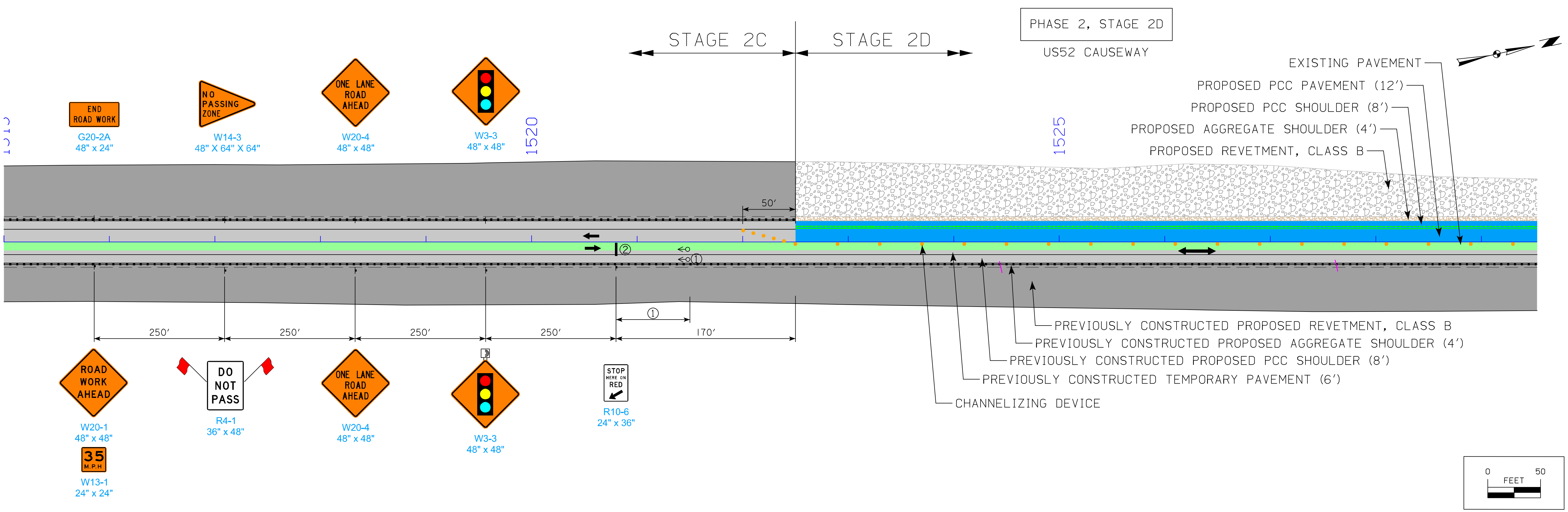
STAGING AND TRAFFIC CONTROL SHEETS



NOTES:

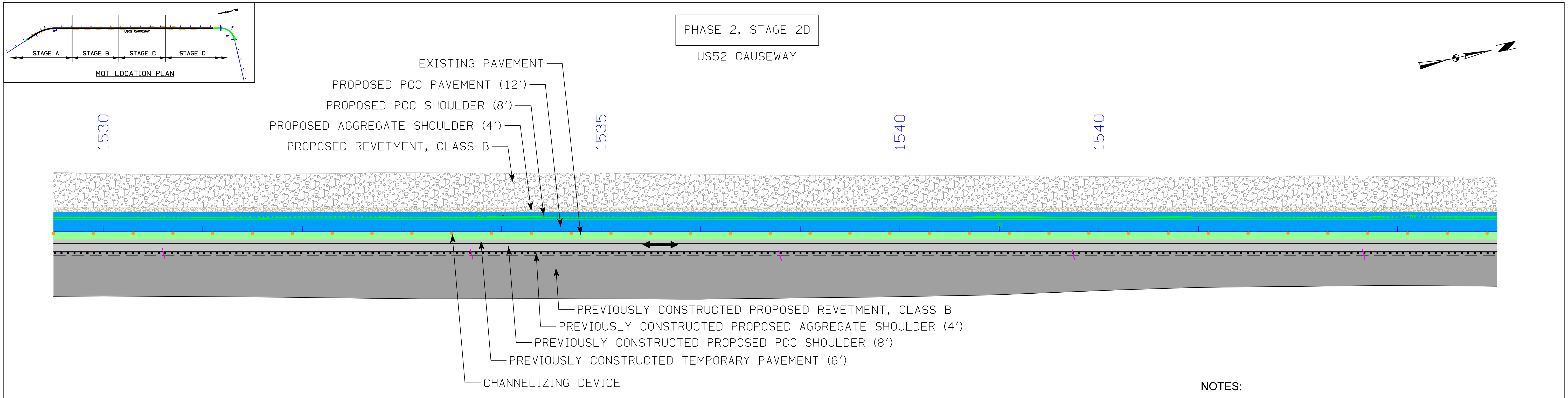
① For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following:
In lieu of a trailer of span-wire mounted system, signal heads may be located on the shoulders, one on each side of the roadway. Mount shoulder signal heads a minimum of 8 feet from the bottom of the signal head to the top of the ground surface.

② 24-inch stop lines required during nighttime operation.



FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER J.13	REVISED

3:56:20 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1J4_MOT_Ph2_stg2_05.sht



NOTES:

① For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following:
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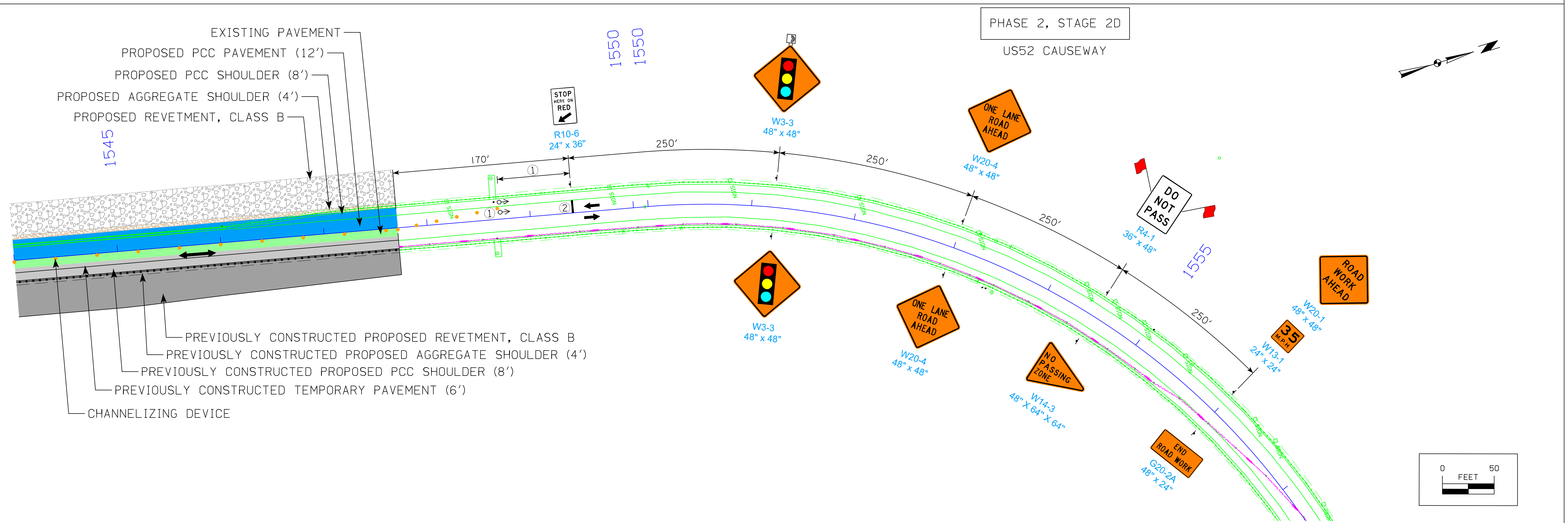
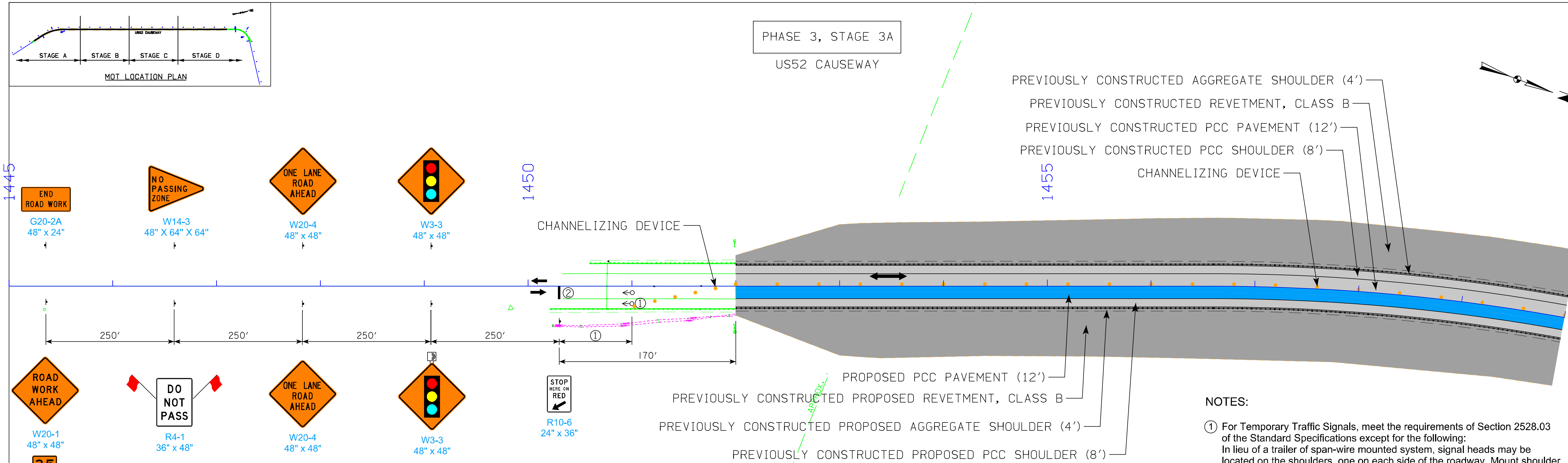
② 24-inch stop lines required during nighttime operation.



FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER J.14	REVISED

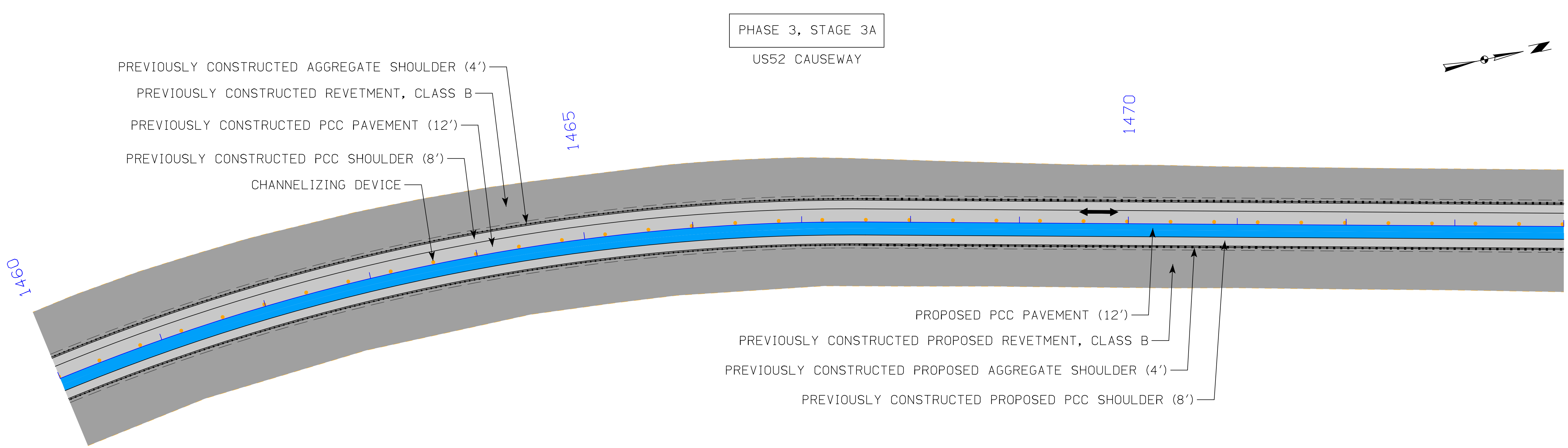
3:56:52 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1J4_MOT_Ph2_stg2_06.sht

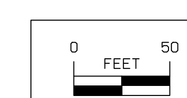
STAGING AND TRAFFIC CONTROL SHEETS



NOTES:

1. For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following:
   In lieu of a trailer of span-wire mounted system, signal heads may be located on the shoulders, one on each side of the roadway. Mount shoulder signal heads a minimum of 8 feet from the bottom of the signal head to the top of the ground surface.
2. 24-inch stop lines required during nighttime operation.

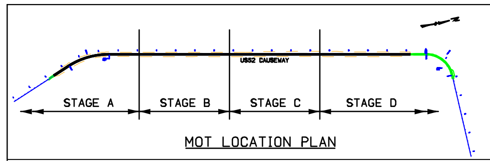


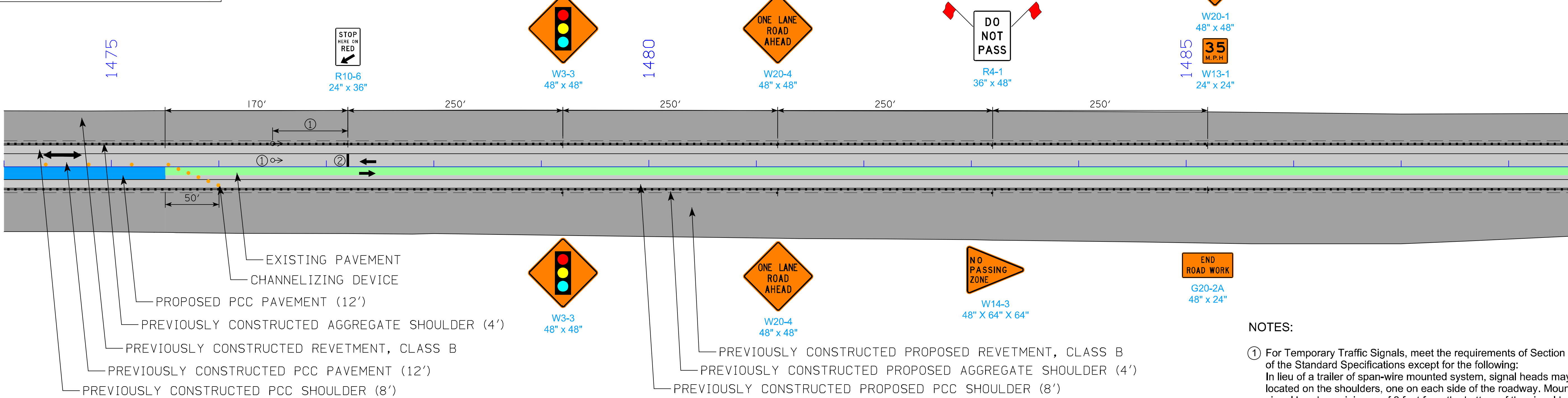


FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER	STPN-052-1(113)--2J-49	SHEET NUMBER J.15	REVISED

4:41:45 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1J1_MOT_Ph3_stg3_01.sht

STAGING AND TRAFFIC CONTROL SHEETS

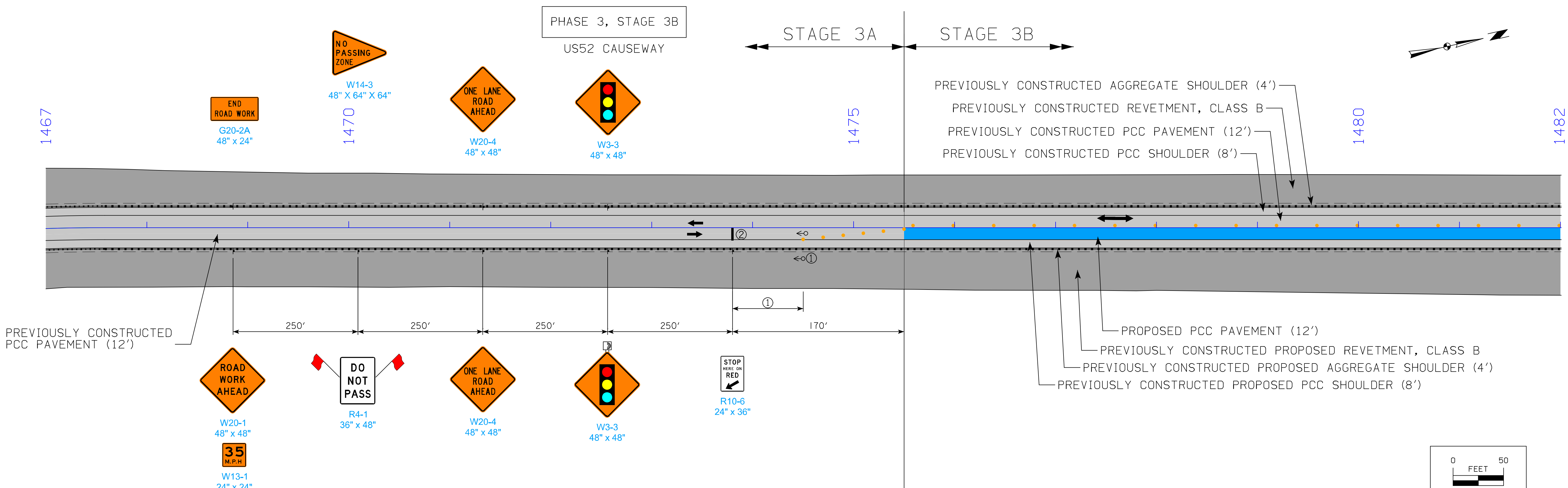


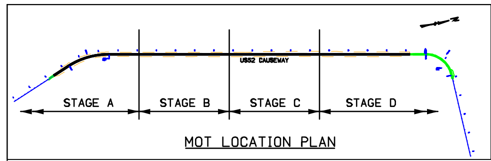


NOTES:

① For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following:
In lieu of a trailer of span-wire mounted system, signal heads may be located on the shoulders, one on each side of the roadway. Mount shoulder signal heads a minimum of 8 feet from the bottom of the signal head to the top of the ground surface.

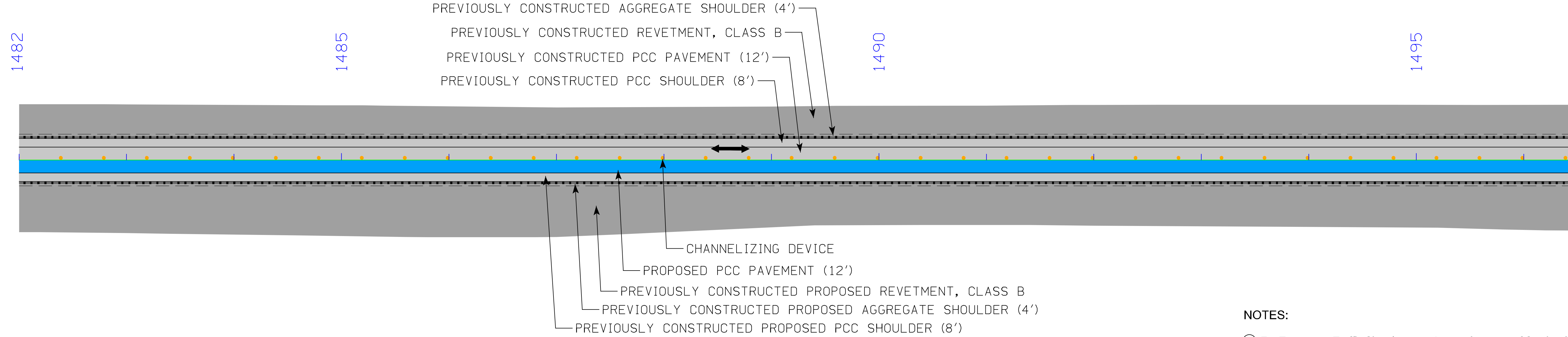
② 24-inch stop lines required during nighttime operation.





PHASE 3, STAGE 3B

US52 CAUSEWAY



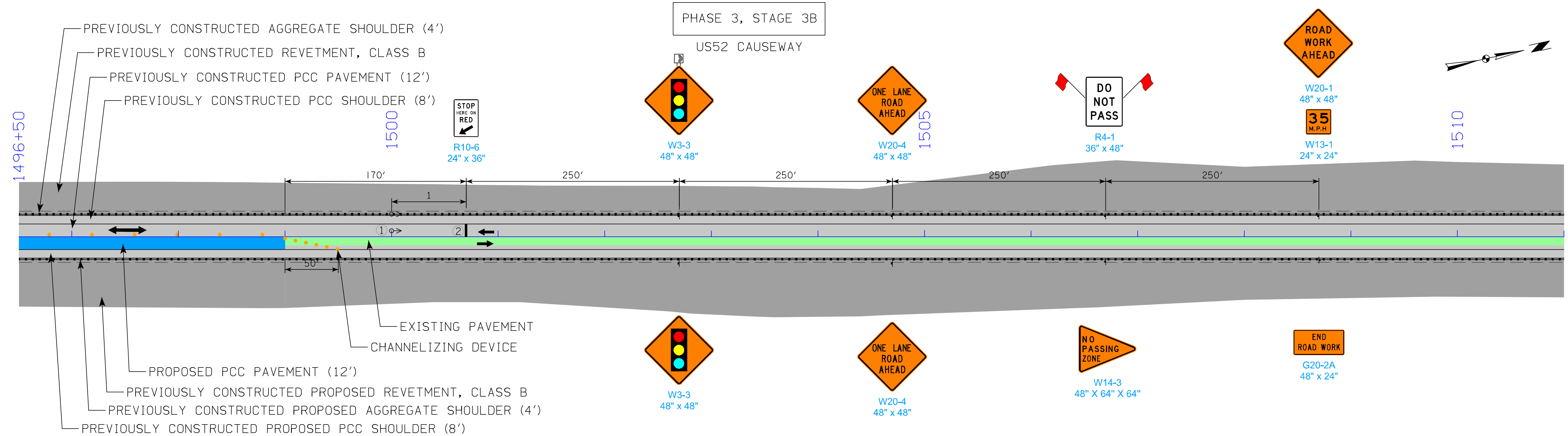
NOTES:

1. For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following: In lieu of a trailer of span-wire mounted system, signal heads may be located on the shoulders, one on each side of the roadway. Mount shoulder signal heads a minimum of 8 feet from the bottom of the signal head to the top of the ground surface.

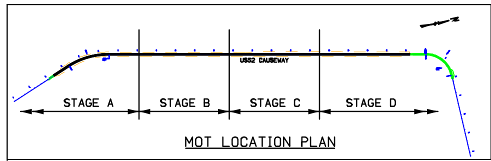
2. 24-inch stop lines required during nighttime operation.

PHASE 3, STAGE 3B

US52 CAUSEWAY

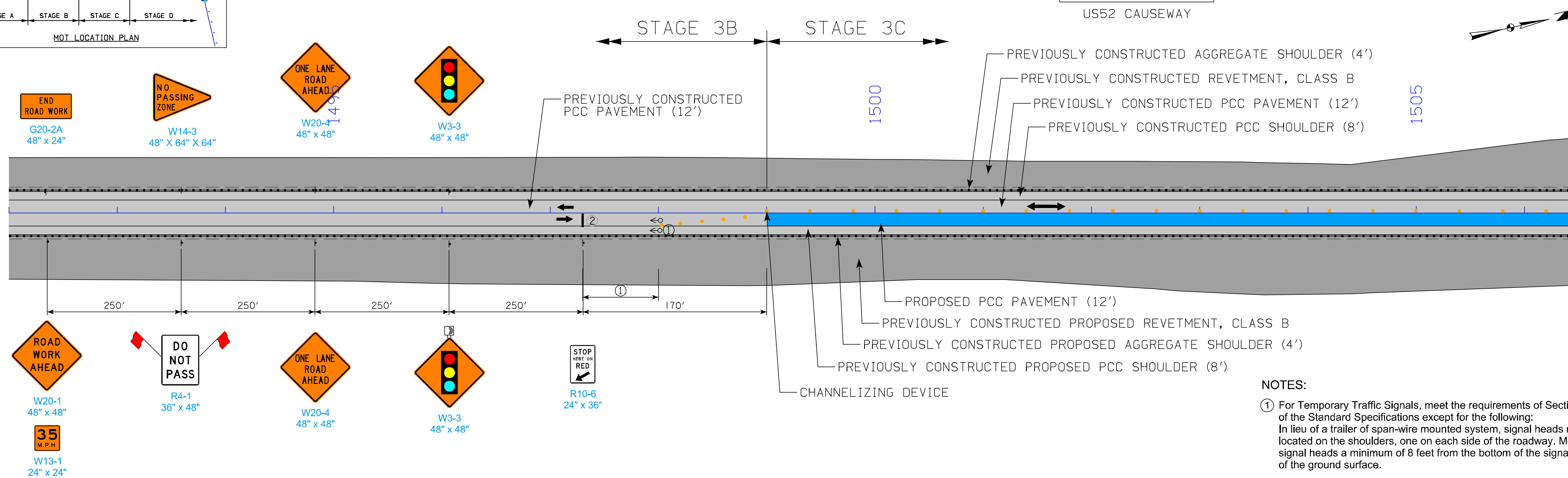


FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER	STPN-052-1(113)--2J-49	SHEET NUMBER J.17	REVISED



PHASE 3, STAGE 3C

US52 CAUSEWAY



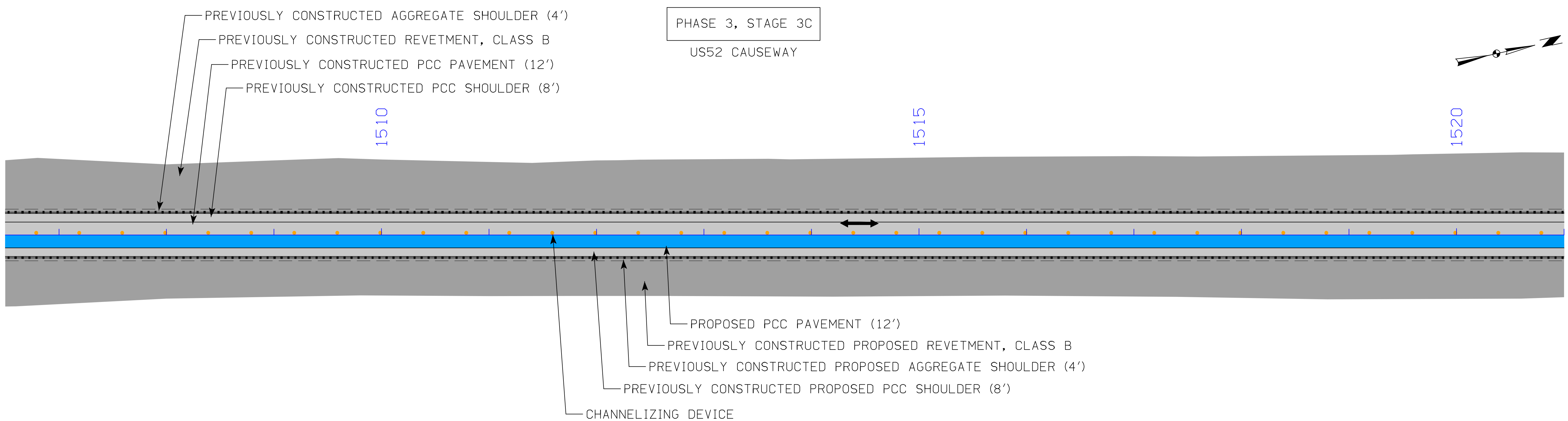
NOTES:

1. For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following: In lieu of a trailer of span-wire mounted system, signal heads may be located on the shoulders, one on each side of the roadway. Mount shoulder signal heads a minimum of 8 feet from the bottom of the signal head to the top of the ground surface.

2. 24-inch stop lines required during nighttime operation.

PHASE 3, STAGE 3C

US52 CAUSEWAY

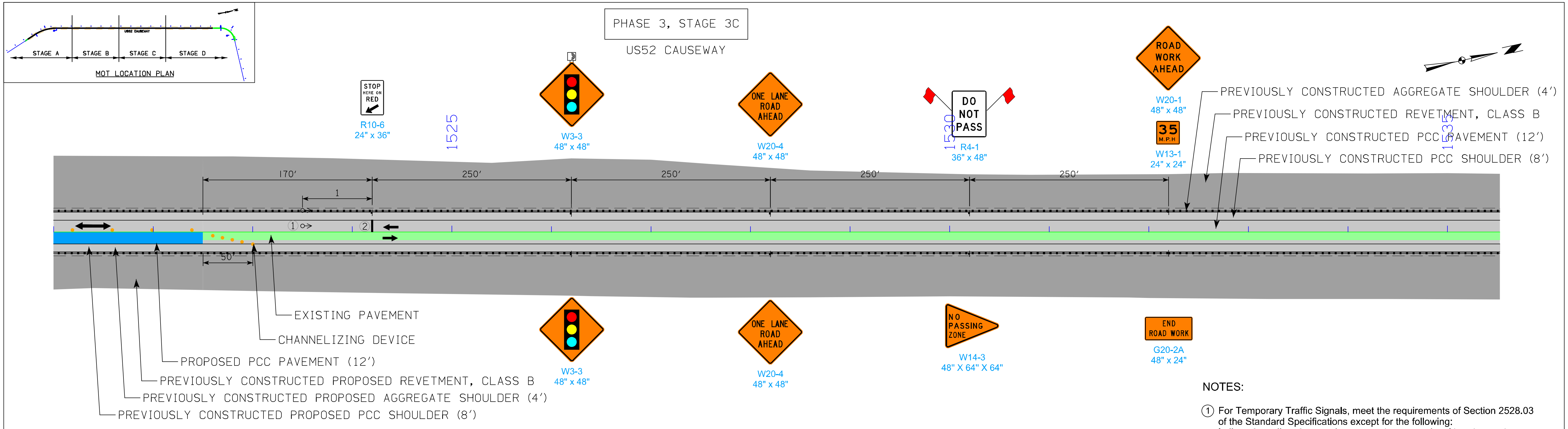


0 FEET 50

FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER	STPN-052-1(113)--2J-49	SHEET NUMBER J.18	REVISED

4:43:47 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causway\03 - Sheet\49052113Z1J3_MOT_Ph3_stg3_04.sht

STAGING AND TRAFFIC CONTROL SHEETS



NOTES:

1. For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following:
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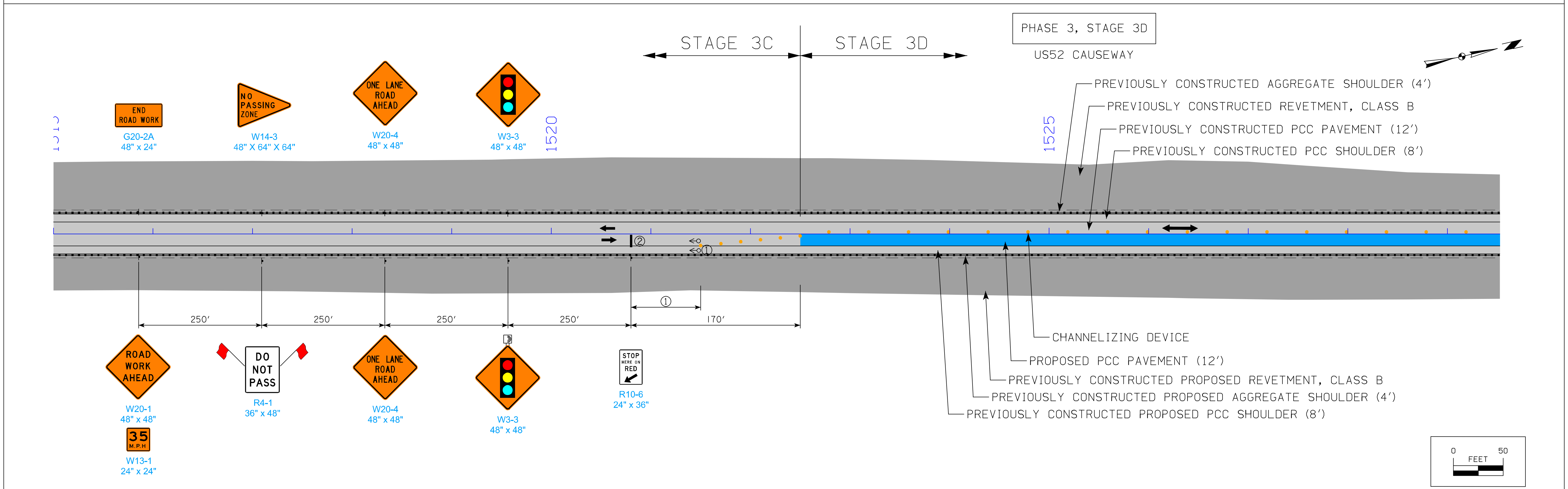
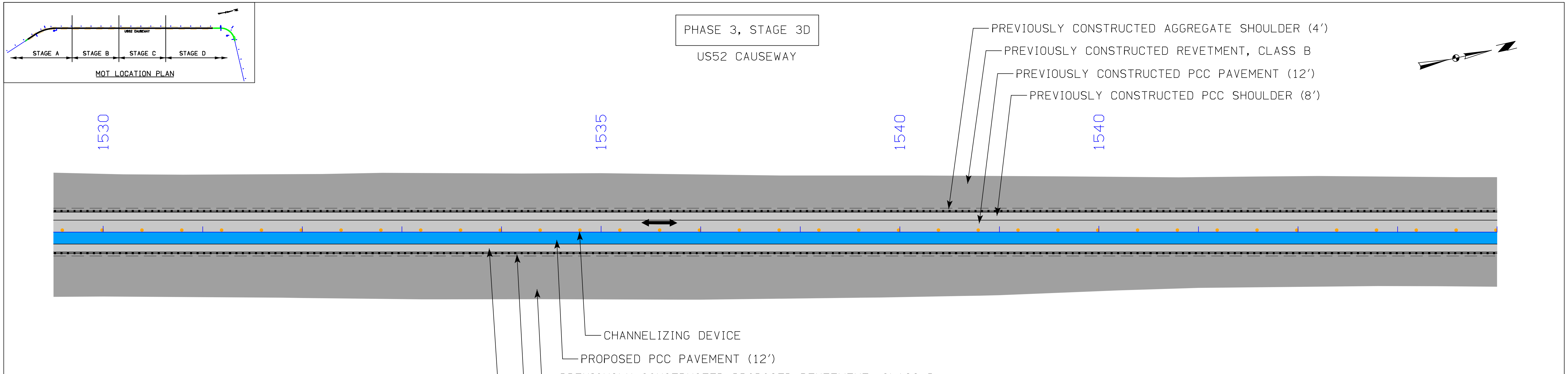
2. 24-inch stop lines required during nighttime operation.



FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER J.19	REVISED

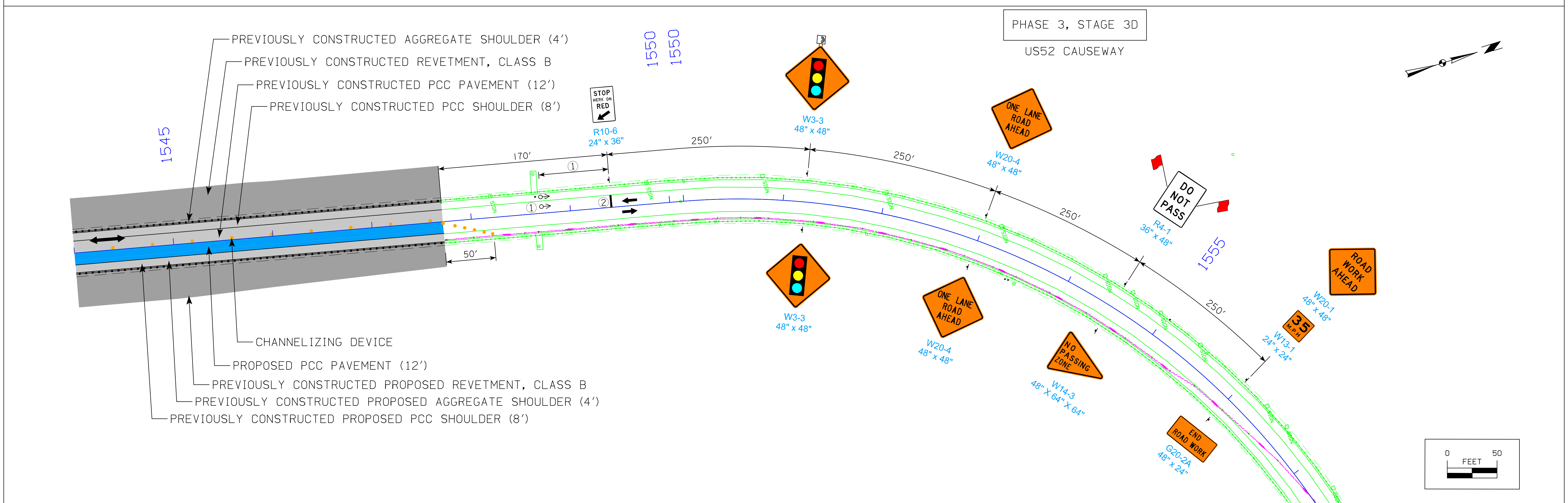
4:44:08 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1J4_MOT_Ph3_stg3_05.sht



NOTES:

1. For Temporary Traffic Signals, meet the requirements of Section 2528.03 of the Standard Specifications except for the following: In lieu of a trailer of span-wire mounted system, signal heads may be located on the shoulders, one on each side of the roadway. Mount shoulder signal heads a minimum of 8 feet from the bottom of the signal head to the top of the ground surface.

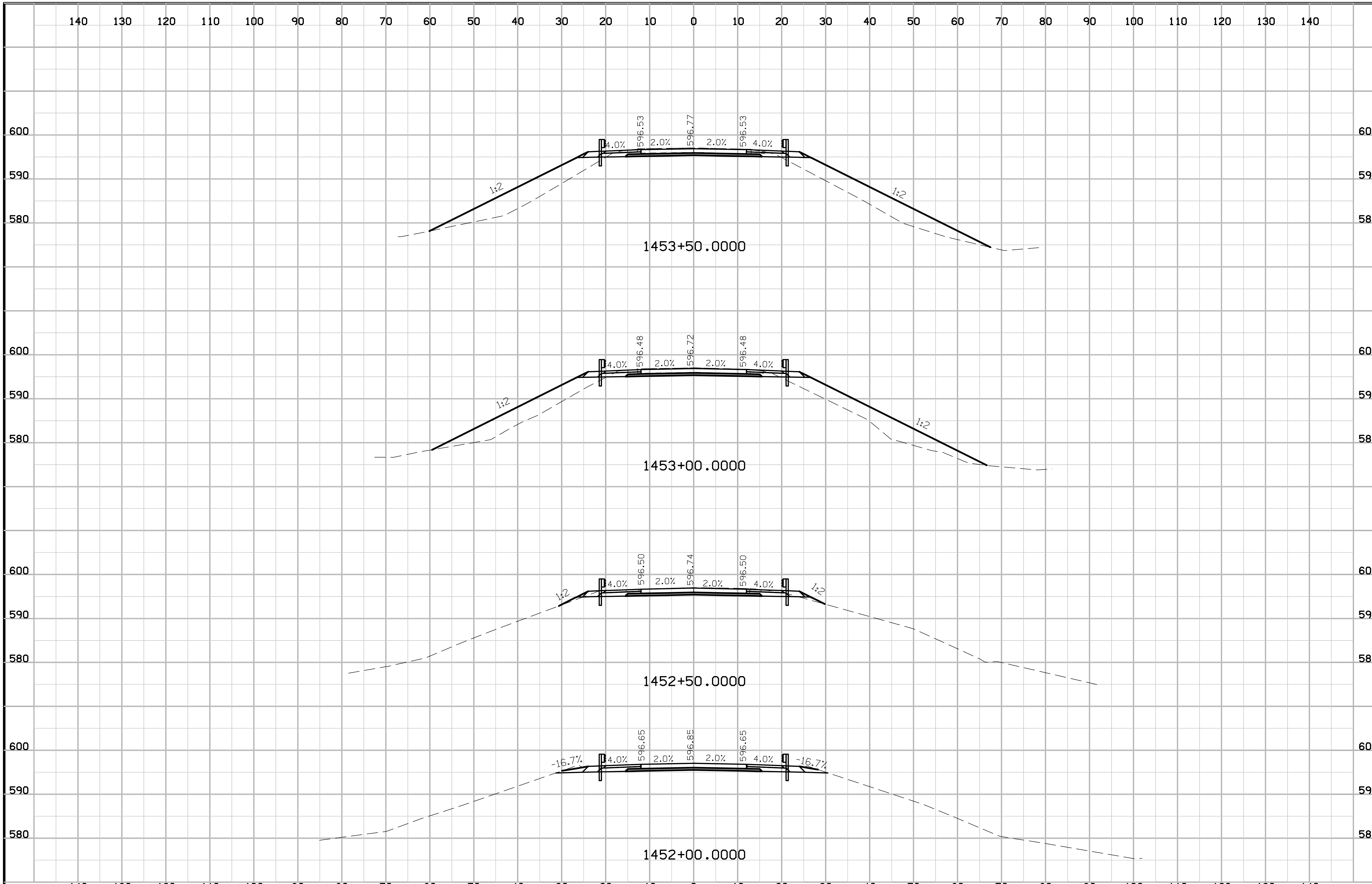
2. 24-inch stop lines required during nighttime operation.



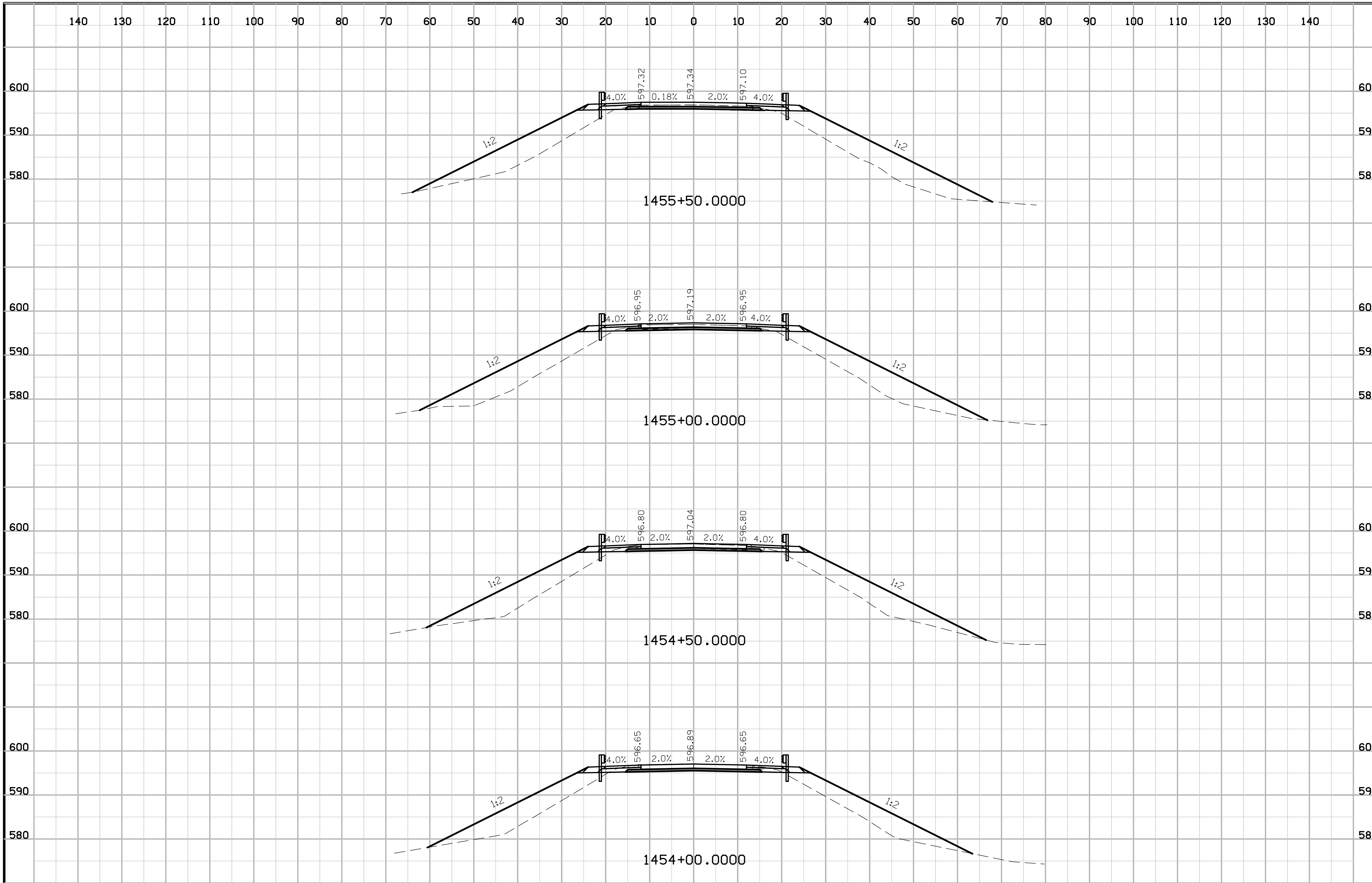
FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER J.20	REVISED

4:44:31 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1J4_MOT_Ph3_stg3_06.sht

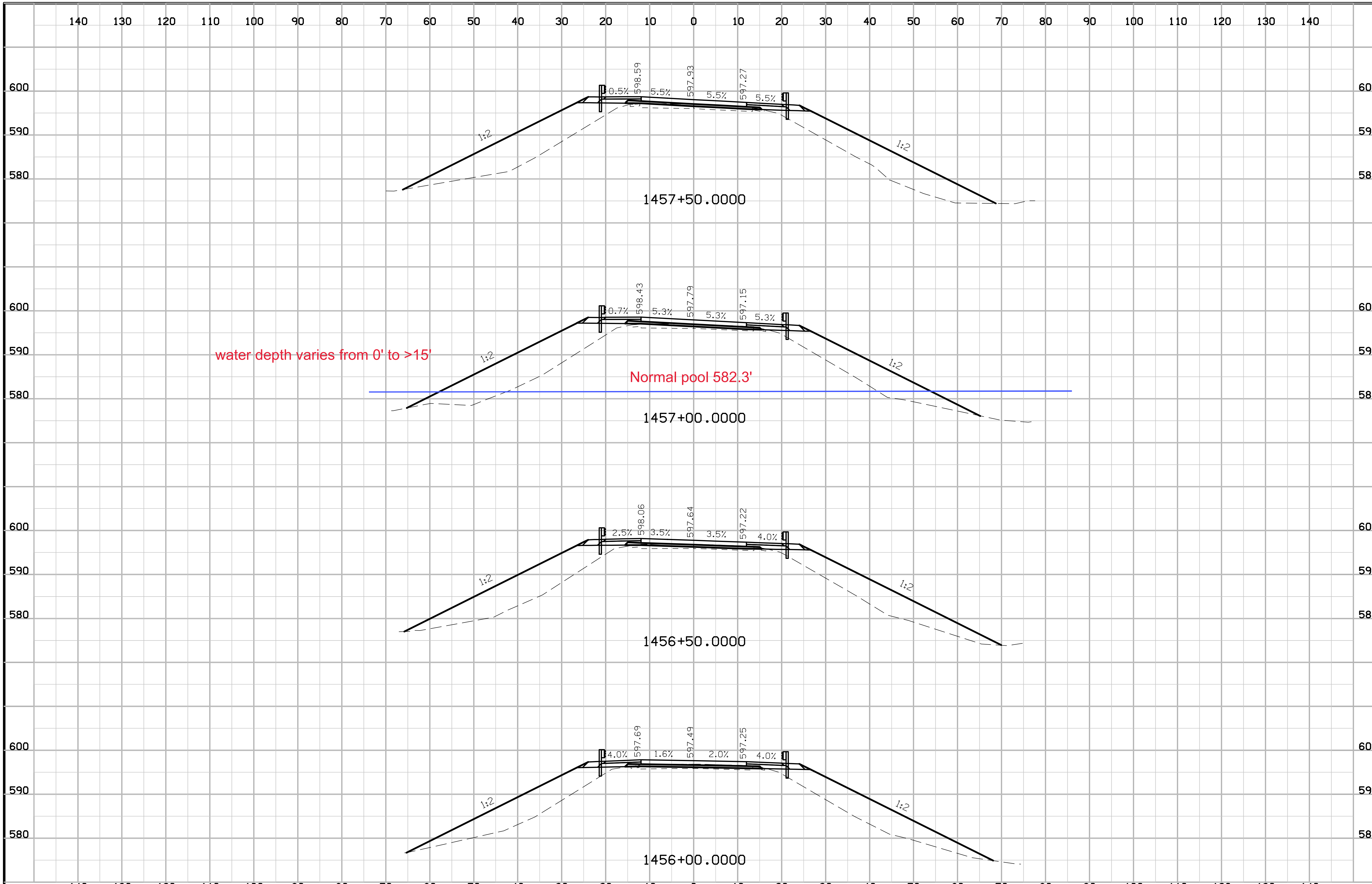
STAGING AND TRAFFIC CONTROL SHEETS



FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi		JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER W.1	REVISED

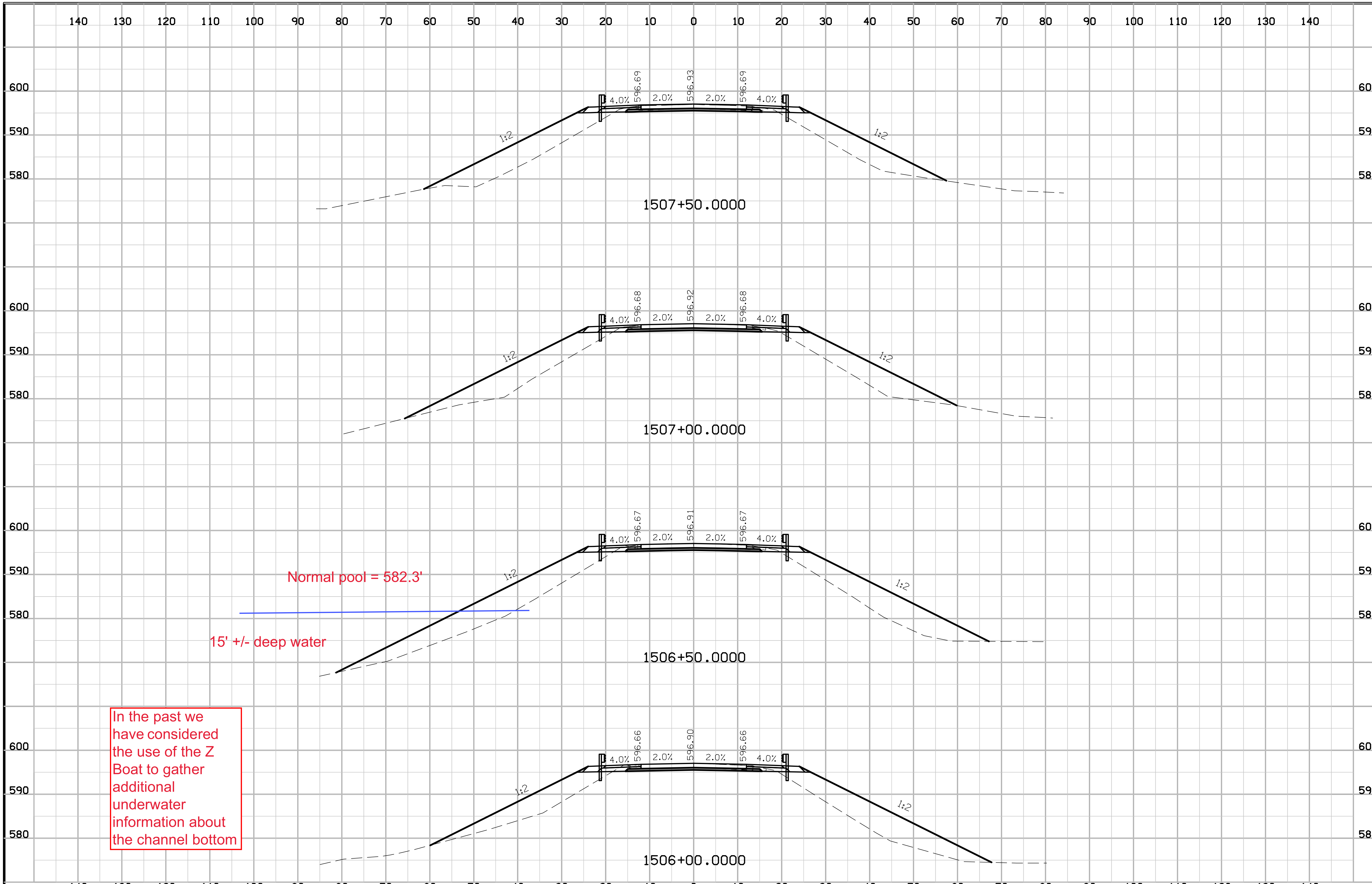


FILE NO.	ENGLISH	DESIGN TEAM **Peterson \ Zafar \ Quraishi**		**JACKSON** COUNTY	PROJECT NUMBER **STPN-052-1(113)--2J-49**	SHEET NUMBER **W.2**	REVISED



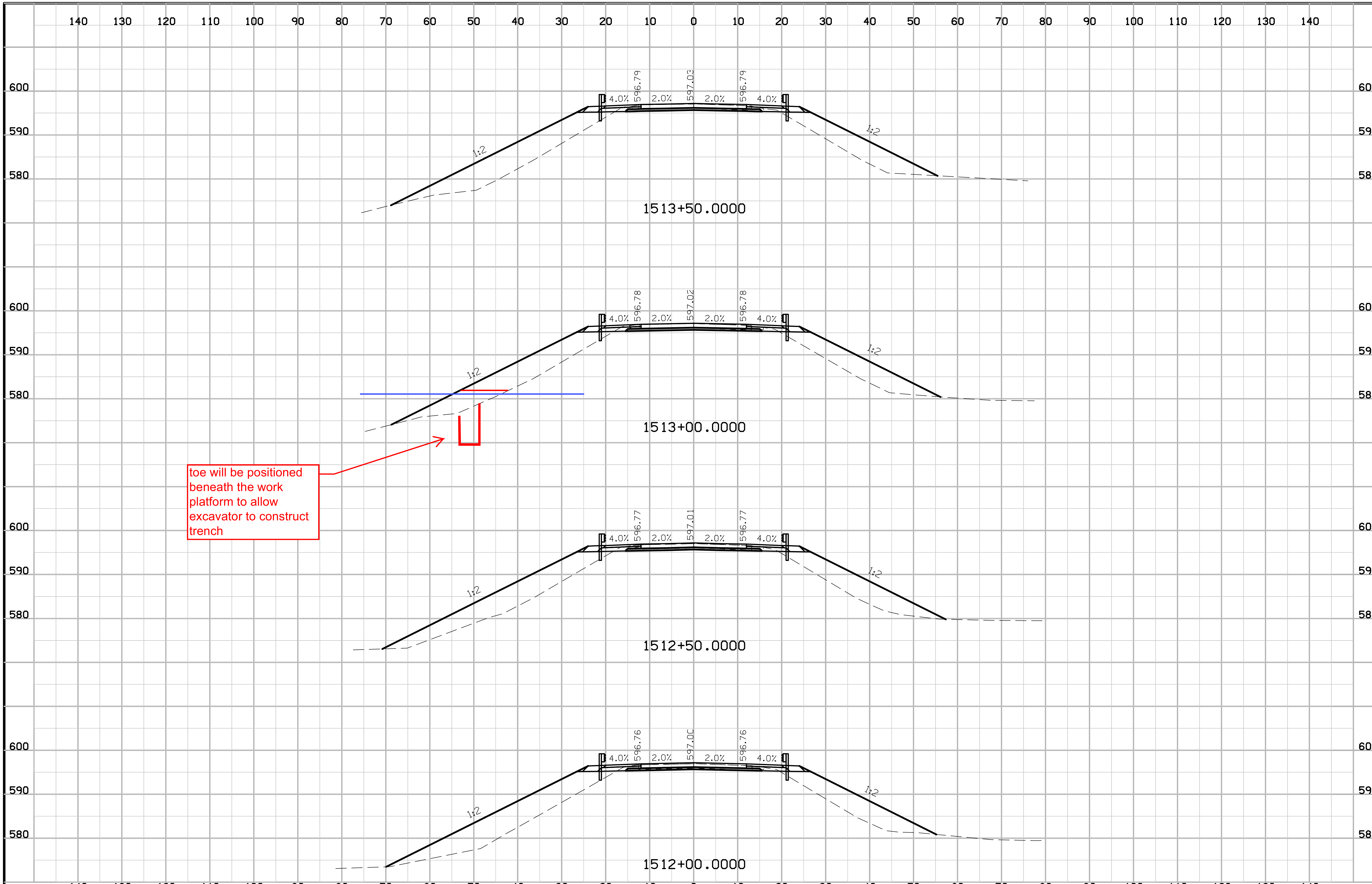
FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi		JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER W.3	REVISED

4:47:12 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1W1.sht

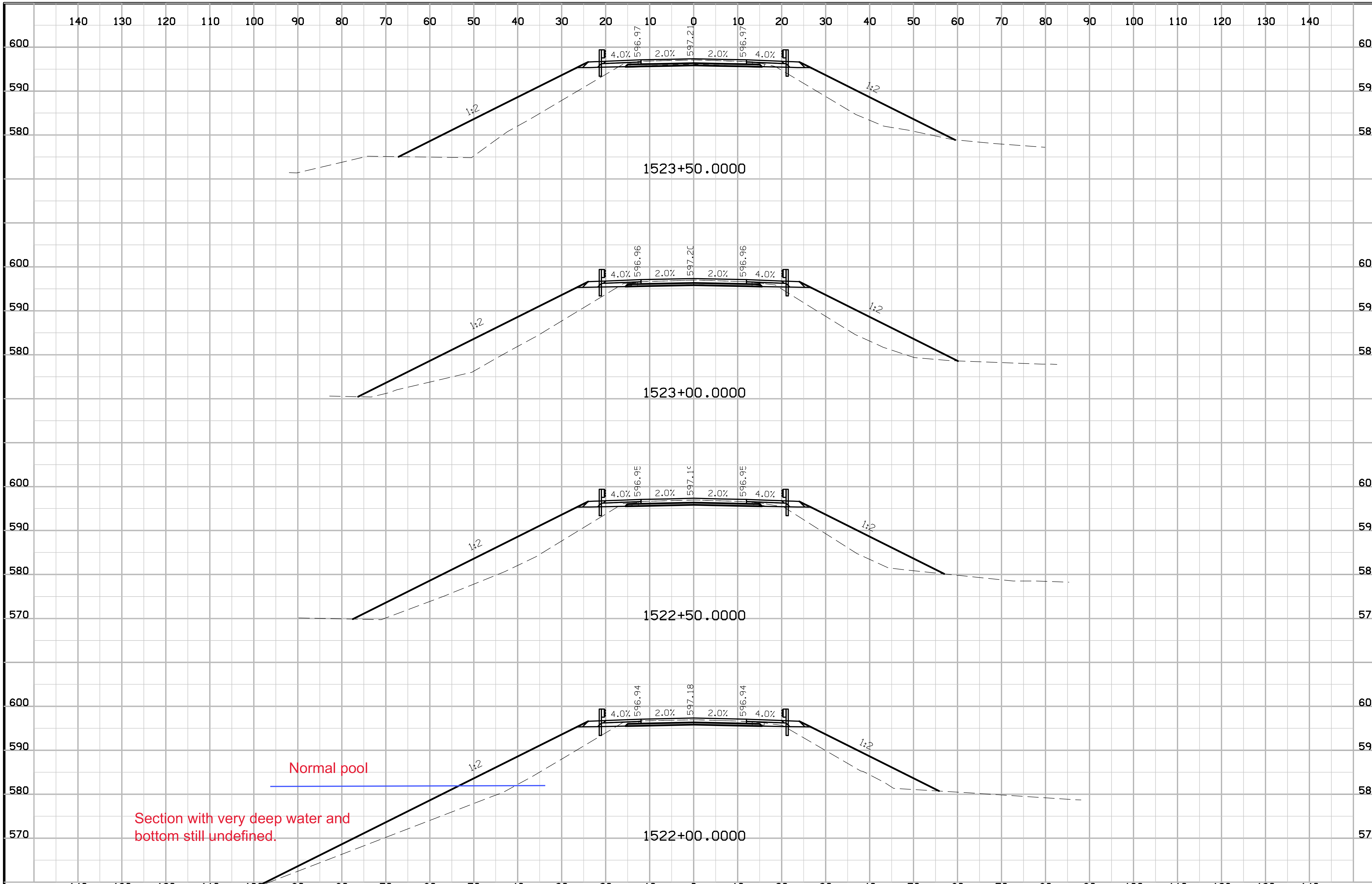


FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER W.26	REVISED

4:47:53 PM 3/4/2022 35361 pw:\\VANVA01PWINT01.parsons.com:Iowa State\Documents\IA US52 Causeway\03 - Sheet\49052113Z1W1.sht



FILE NO.	ENGLISH	DESIGN TEAM Peterson \ Zafar \ Quraishi	JACKSON COUNTY	PROJECT NUMBER STPN-052-1(113)--2J-49	SHEET NUMBER W.29	REVISED



FILE NO.	ENGLISH	DESIGN TEAM **Peterson \ Zafar\ Quraishi**		**JACKSON** COUNTY	PROJECT NUMBER **STPN-052-1(113)--2J-49**	SHEET NUMBER **W.34**	REVISED