COMBINED DESIGN REPORT
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
WINNEBAGO COUNTY
JOB NO P-92-111-06
PTB NO. 141-004
CONTRACT NOS. 64B13 & 64C24

I-39: 0.8 MILES NORTH OF BLACK HAWK RD. TO I-90
US 20: I-39 TO 0.3 MILES EAST OF KISHWAUKEE RIVER, AND
HARRISON AVENUE: BELL SCHOOL ROAD TO I-39

January 2019

Prepared For:

Illinois Department of Transportation

Illinois Department of Transportation
District 2
819 Depot Avenue
Dixon, Illinois 61021

Prepared By:

HANSON

Hanson Professional Services Inc.
1525 South Sixth Street
Springfield, Illinois 62703

Reviewed By:
Steve Robery, IDOT District 2

Illinois Department of Transportation

Phase I Report Approval

Key Route: FAI 39 & FAP 301 Marked Route/Road Name: I-39 / US 20

Job No.: P-92-111-06 Contract No.: 64B13 & 64C24

Section: (201-3)K & (4-1,5)R Project Length: 4.8 miles

PPS No.: 2159700002 County(ies): Winnebago

BLACKHAWK - SMR 1/14/19

Location/Limits: I:39: 0.8 mi. N. of ~~Baxter~~ Rd. to I-90; US 20: I-39 to 0.3mi E. of Kishwaukee River; Harrison Ave: Bell School Rd. to I-39

General Description of Existing Facility: I-39 is a 4-lane divided Interstate Highway with 12 ft. lanes, 10 ft. outside shoulders and 6 ft. inside shoulders. Harrison Avenue is a 4-lane principle arterial with 10 ft. soulders an an 18 ft. raised curberd median transitioning to a 22 ft. depressed median with barrier wall approaching I-39 from the west. US 20 east of the I-39 interchange is a 4-lane principle artierial with 10 ft. shoulders and a 22 ft. depressed median with barrier wall.

Need for Proposed Improvement: To improve capacity and operation by providing 3 through lanes on I-39 plus auxilairy lanes for entering and exiting the freeway, providing two northbound and two southbound ramps configured to a 70mph design speen at the system interchange, and eliminating low speed loop ramps at the Harrison Avenue interchange. To improve safety by eliminating substandard interchange ramps at both interchange, minimizing weaving and reducing To improve deteriorated roadway conditions with new pavement.

Scope of Project: ☐ New Construction ☒ Reconstruction ☐ 3R ☐ 3P

☐ SMART ☐ Other

General Description of Proposed Improvement: Reconstruction and additional lanes on the I-39/US 20 interstate, reconstruction of Harrison Avenue/US 20, reconfiguration of the I-39/US 20 system interchange involving realignment of the NB and SB ramps to a 70 mph design speed, reconstruction of the Harrison Avenue/US 20 interchange from a clover-leaf to a diverging diamond configuration, and raisng the profile and replacement of the bridge carrying Mulford Road over I-39 .

Environmental Processing: ☐ EIS ☐ EA ☒ Federal Approved CE

☐ State Approved CE ☐ Other

Approximate Amount of ROW to be Purchased: 10 Parcels Totaling 3.02 Acres.

Number of Businesses 0 and Residences 0 to be Acquired. ROW Cost: $ 150,000 (est)

Estimated Program Cost: $ $165,100, 000 (in FY NIP) Fund Type: tbd

Construction Cost: $ 188,100,000 Utility Reloc. Cost: $ 500,000(est) Consultant PE Cost: $ 10,200,000

Design Exceptions:

- Level One Required? ☒ Yes ☐ No
- Level Two Required? ☒ Yes ☐ No
- If yes, note date approved: 6/4/08,12/2/10, & 12/7/18

Type of Public Involvement Activity:

- Public Hearing Offered? ☐ Yes ☒ No
- Informational Meeting Held? ☒ Yes ☐ No
- Property Owners Contacted? ☒ Yes ☐ No

Regional Design Approval K D Mauchek Date: 1-14-19

IDOT Regional Engineer Signature

Printed 12/28/2018

BDE 1201 (Rev. 02/09/16)
Formerly BDE 2601

Illinois Department of Transportation

Categorical Exclusion Determination and Approval

Key Route	Marked Route/Road Name
FAI RTE 39 (I-39) and FAP RTE 301 (US 20)	IL 39 & IL 20
Section	**Job Number**
(201-3)K & (4-1,5)R	P-92-111-06
County(ies)	**Contract Number**
Winnebago	64C62, 64B13 & 64C24

☐ State Approved Categorical Exclusion (CE)

IDOT has addressed all environmental requirements for this project and determined that it has met the following requirements for a State Approved CE in the CE Programmatic Agreement (approved 10/14/15): (1) the scope is consistent with the project scope listed in Appendix ☐ A or ☐ B , item number _____ and (2) none of the circumstances in Section V exist. Therefore, on behalf of FHWA, IDOT hereby approves this project as a State Approved CE.

Approved by

Signature of Regional Engineer	Date

☒ Federal Approved Categorical Exclusion

After reviewing the project information provided, FHWA has determined that this project will not have any significant impacts on the human environment and approves its designation as a Federal Approved CE.

Approved by

Signature of FHWA Representative	Date
Andrew Brinkerhoff	1/8/2019

Wetland Impacts Involved

☐ Yes ☒ No

The FHWA issued a programmatic Wetland Finding for CEs on October 14, 2015, in compliance with Executive Order 11990, Protection of Wetlands. The programmatic Wetland Finding is contained in the CE Agreements, available online in the BDE Manual Appendix A.

Illinois Department of Transportation

Project Commitment

Key Route: FAI 39 & FAP 301

County(ies): Winnebago

Section: (201-3)K & (4-1,5)R

Job Numbers:

Preliminary Engineering: P-92-111-06
Land Acquisition: R-92-
Construction: C-92-

Marked Route/Road Name: I-39 & US 20

Project Contract Number: 64B13 7 64C24

Design Report: ☒ Yes or ☐ No

PPS: 2159700002

Project Description: I-39: 0.8 mi. N. of ~~Baxter Rd~~ Blackhawk Rd - SWR 1/19/19. to I-90; US 20: I-39 to 0.3 mi. E. of Kishwaukee River; and Harrison Ave: bell School to I-39

Program: ☐ Multi-Year ☐ FY _____ ☒ Unfunded

	Signature	Date
Phase I:		
Studies and Plans Engineer	Rebecca Amarruffo	1/14/2019
Engineer of Program Development	[signature]	1/14/2019
Recorded	Peggy Kingery	1/14/19
Phase II:		
Studies and Plans Engineer		
Land Acquisition Engineer		

☐ Land Acquisition complete.
☐ Land Acquisition not complete. Any additional commitments will be forwarded to Project Implementation.

Engineer of Program Development		
Recorded		
Phase III:		
Engineer of Project Implementation		
Recorded		
Phase IV:		
Engineer of Operations		
Recorded		

Return to Studies & Plans after Phase IV is recorded.

The Studies and Plans Engineer and the Land Acquisition Engineer certify that they have added a list of commitments made regarding the above project during the phase of work under their particular responsibility. The Engineer of Program Development, Project Implementation, and Operations certify that they have reviewed the commitments made by their bureaus, reviewed commitments made prior to their bureau's responsibility, and taken the necessary action to assure that those commitments impacting their bureau's activities were fulfilled. The Engineer of Operations also certifies that the commitments affecting long-range highway operational activities have been noted and dispersed to the appropriate personnel. The Studies and Plans Engineer shall insert the final signed original of this commitment form into the Library copy of the Project Report.

Illinois Department of Transportation

Commitments

Route:	FAI 39 (I-39) & FAP 301(US 20)
Section:	(201-3)K & (4-1,5)R
County:	Winnebago
Job No.:	P-92-111-06
Contract #:	64B13 &64C24

Policy Guidelines

1. All trees removed from the project area for construction or maintenance purposes will be replaced with deciduous tree species which are native to the District 2 area. Trees will be replaced according to the IDOT Departmental Policy D&E-18 (September 18, 2002). The location of the replacement trees shall be determined by the District 2 Roadside Manager. Trees which do not fit within the project limits may be planted elsewhere, as determined by the Roadside Manager.

2. According to IDOT BDE 59-7.15(3), all unmowed areas should be designated in the plans and seeded with the appropriate native seeding selections from Class 4, per directive of the December 8, 1999 Studies and Plans Engineer's Memorandum.

3. All woody plants which will have diameters of greater than 4 inches at maturity shall not be planted on the foreslopes, in the ditches, or in the clear zone as established in the BDE Manual.

Commitments

1. Trees three (3) inches or greater in diameter at breast height will not be cleared from April 1 through September 30. The US Fish and Wildlife Service concurred with our determination and date restriction on tree clearing on 7/8/2017.

2. Class 5 and 5C (Monarch and Pollinator Mix) Seed shall be used on all back slope and fore slopes on the project. Please refer to special provision for additional information.

3. This clearance is valid for two years and new surveys will be required prior to completing Phase II.

4. Wetland impacts will be mitigated at a later date.

5. This sign off covers no in-stream work involving the Kishwaukee River.

6. Provide an additional public informational meeting prior to the beginning of construction specifically for the purpose of educating the general public with respect to the operation of and navigation through this new type of interchange (DDI, see VIII. Conclusions/Recommendations).

7. Re-evaluate the bridge condition report (BCR) at the Kishwaukee River bridge just east of the US 20/Mill Road intersection during Phase 2 of the project. The Phase 1 BCR recommends structure widening and deck replacement over a complete replacement. A 0.1% grade will be retained across the structure for the Phase 1 study. When funding is available for Phase 2, the Phase 1 BCR will be re-evaluated. If the BCR then shows a complete replacement is recommended, a hydraulic report and new structure will be designed to accommodate raising the profile grade as necessary hydraulically to achieve the required 0.5% grade for new structures.

8. Conduct additional noise testing and analysis during Phase II, the detailed design and plan preparation phase of this project. This commitment was made in response to concerns voiced by several property owners during the second public informational meeting. The commitment is documented in various response letters provided in Appendix E.

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I. INTRODUCTION

A. Description and Location of Project

The project is located in Winnebago County in northern Illinois (see Figure 1). The study area is located south and east of the City of Rockford, Illinois (population 152,871 according to 2010 census). The study area lies in the northeast portion of Illinois Department of Transportation (IDOT) District 2 and is about 12 miles south of the Illinois/Wisconsin state line. Part of the study area is located in Cherry Valley, Illinois (population 3,162 according to 2010 census) including the I-39/Harrison Avenue interchange. The study area includes the I-39/US 20 system interchange and the I-39/Harrison Avenue interchange (see Figure 2). Land use within the study area is primarily residential with some industrial and commercial. There are also some undeveloped areas in the study area especially along the west side of I-39/US 20.

I-39 is a north/south interstate that begins north of Bloomington, IL and continues north around the east side of Rockford, IL and into Wisconsin. It carries regional and local traffic through Winnebago County. In the study area, I-39 is a four-lane interstate with full access control and is a Class I truck route. North of the study area, I-39 joins with I-90 to make a six-lane interstate with full access control from the Wisconsin state line to metro Chicago.

US 20 is an east/west roadway that enters Illinois near Dubuque, IA, continues around the south side of Rockford, IL and then into Chicago, IL. It is a four-lane expressway/principle arterial through most of Winnebago County but becomes a freeway with full access control beginning at Meridian Road west of Rockford and ending at the I-39/Harrison Avenue interchange east of Rockford. It is a joint interstate section with I-39 beginning at the system interchange at Milepost 119 and ending at Exit 122, Harrison Avenue. US 20 then continues east to Belvidere, IL as a four-lane principle arterial and Class II truck route.

Harrison Avenue is an east/west principle arterial within the study area and consists of two lanes in each direction with an 18-ft to 22-ft raised median or concrete barrier median with 10-ft wide outside shoulders. The I-39/Harrison Avenue interchange is one of three primary local access interchanges with I-39 on the east side of Rockford. It provides connections to Perryville Road and the City of Rockford to the west and to Mill Road and the Village of Cherry Valley to the east. It also serves as the through route for US 20 and its connections east to Chicago and west to Galena. The interchange also provides access to a large shopping area at South Mall Drive and the Magic Waters Waterpark immediately north.

The crossroad intersections on either side of the I-39/Harrison Avenue interchange are South Mall Drive on the west and Mill Road on the east. South Mall Drive provides access to Cherry

Vale Mall, a large retail shopping center that is a substantial traffic generator in the study area. Mill Road provides access to the Village of Cherry Valley.

Also traversing the study area are two minor arterial roadways, Linden Road and Mulford Road, and one principle arterial roadway, Perryville Road. Linden Road is a two-lane east/west roadway in the south and west part of the study area between Alpine Road and Perryville Road. It crosses under the eastbound US 20 to southbound I-39 ramp, the northbound I-39 to westbound US 20 ramp and I-39. Mulford Road is a two-lane north/south roadway that crosses over I-39/US 20 just east of the I-39/US 20 system interchange. Perryville Road is also a two-lane north/south roadway that crosses over I-39/US 20 about halfway between the system interchange and the I-39/Harrison Avenue interchange. Perryville Road also has an intersection with Harrison Avenue just west of the South Mall Drive intersection.

Two railroads cross the study area as well. The Canadian National (CN) railroad and the Union Pacific (UP) railroad both travel east/west through the study area. I-39/US 20 travels over both railroads on dual structures.

Figure 3 shows the existing roadway network. Figure 4 shows the functional classification of roadways in the study area.

The overall proposed improvements include adding lanes to the joint section of I-39/US 20, adding lanes to Harrison Avenue/US 20, modifications to the I-39/US 20 system interchange, the reconstruction of the I-39/Harrison Avenue interchange, and the reconstruction of Mulford and Perryville Road overpass structures (see Figure 5).

B. History of Project

The Illinois Department of Transportation has coordinated with the Rockford Metropolitan Agency for Planning (RMAP) with respect to the design year traffic projections and the scope of the project in general. Coordination with the Village of Cherry Valley, Winnebago County, and the Rockford-Winnebago County Better Roads Association has also taken place beginning with the early stages of project development and will continue through completion of the Phase I Combined Design Report, development of the contract plans (Phase II), and through the construction and operational phases of the proposed improvement.

RMAP has included the project in their Year 2040 – Long-Range Transportation Plan (see Figure 6). The I-39/I-90 Tollway Interchange Reconstruction project immediately north of the project limits was included in the long-range plan and is now completed. Reconstructing and widening Mulford Road to four lanes from Harrison Avenue to Sandy Hollow Road is included in the long-range plan as well as reconstructing and widening Sandy Hollow Road to 3-lanes from Alpine Road to Mulford Road. No other reconstruction or add lane improvements in the project area are included in the long-range plan.

This project was initially scoped to prepare an Environmental Class of Action Determination (ECAD) document to comply with the National Environmental Policy Act (NEPA). The NEPA process is ongoing, however, since the selected alternative involves widening primarily within

the existing right-of-way, with only minor amounts of additional right-of-way required, the adverse impacts are anticipated to be minimized. The project is being processed as a Federal Categorical Exclusion based on the anticipated minimal impacts with concurrence received by the FHWA on January 8, 2019 (See BDE 2301).

C. Design Criteria Used

The reconstruction/new construction requirements of the current Bureau of Design and Environment (BDE) Manual have been followed for the proposed improvements along I-39/US 20, the I-39/US 20 system interchange, the I-39/Harrison Avenue interchange, and along Harrison Avenue. Design requirements for the local routes, Linden Road, Mulford Road, Perryville Road, South Mall Drive, and Mill Road, have been taken from the Bureau of Local Roads (BLR) Manual. The connection to I-90 has been closely coordinated with the Illinois State Toll Highway Authority (ISTHA) guidelines. I-39, US 20 and their ramps will remain fully access controlled interstate facilities. IDOT policy will be followed for the location of the first points of access along Harrison Avenue. The present land use along I-39, US 20 and the local roads is rural and suburban.

Detailed design criteria are included in Appendix A.

II. PURPOSE AND NEED FOR THE IMPROVEMENT

The purpose of the proposed improvement is to improve operating conditions at the interchanges, reduce congestion in the study area, and provide geometric modifications that improve safety and provide continuity with adjacent roadway segments.

The need for the proposed improvement includes the following:

- To improve traffic capacity at the I-39/US 20 system interchange, along the I-39/US 20 mainline, at the I-39/Harrison Avenue interchange and along Harrison Avenue/US 20. See existing traffic discussion, Section II.B.

- To improve traffic operations at the I-39/US 20 system interchange by providing two through lanes in each direction.

- To improve traffic operations at the I-39/Harrison Avenue interchange by eliminating weaving movements within the interchange.

- To improve interchange safety and operations by providing interchange ramps designed to current IDOT standards.

- To improve lane balance throughout the study area.

- To improve traffic maintenance during future construction projects by providing additional lanes and wider shoulders.

A. Conditions on Existing Highway Network

In the study area for this project, I-39/US 20 is a four-lane interstate highway with full access control. It was constructed in the early 1960's as US 20 and is part of the Eisenhower Interstate System, which makes it a designated National Highway System (NHS) route. There are two interchanges in the study area (I-39/US 20 system interchange and the I-39/Harrison Avenue interchange) and another interchange just north of the study area (I-39/I-90 tollway interchange).

The I-39/US 20 system interchange (see Figure 7) was constructed in 1980 and is located 2.84 miles south of the I-39/Harrison Avenue interchange. It was constructed as a three-legged trumpet modified with future plans to be extended to the north. The northbound extension was never constructed, and subsequent development makes it clear that extension will never occur. Through traffic on I-39 northbound travels on a one-lane ramp and merges with US 20 eastbound traffic on a standard entrance ramp. Through traffic on I-39 southbound exits on a one-lane standard exit ramp then joins the US 20 to I-39 southbound traffic creating one of the two lanes along I-39 southbound. Eastbound US 20 to southbound I-39 exits on a one-lane standard exit ramp then joins the I-39 southbound traffic creating the second of the two lanes along I-39 southbound. Northbound I-39 traffic accessing westbound US 20 uses a one-lane loop ramp with a design speed of 30 mph in the northeast quadrant of the interchange. This interchange has seven single lane structures.

The I-39/Harrison Avenue interchange was constructed in 1963. The existing interchange is a full cloverleaf interchange that provides free-flow connections for all traffic movements (see Figure 8). The existing dual interchange structures carrying I-39 over Harrison Avenue are three-lane structures including an auxiliary lane.

Reconstruction of the I-39/I-90 tollway interchange just north of the study area for this project was completed in 2009. This interchange is approximately 0.68 miles north of the I-39/Harrison Avenue interchange which is less than the one mile minimum desirable distance for interchange spacing in urban areas. This interchange is a directional interchange where I-39 and I-90 join on the north leg (see Figure 9). The northbound I-39 traffic that continues northbound/westbound on I-39/I-90 travels on a two-lane flyover ramp joining in a major convergence. The I-39/I-90 southbound/eastbound traffic that continues on I-39 southbound travels on a two-lane exit ramp coming from a major divergence. The I-39 northbound to I-90 eastbound traffic travels on a one lane directional ramp. An auxiliary lane is provided for this movement from the I-39/Harrison Avenue interchange and a standard entrance ramp is used to merge with I-90 eastbound traffic. The I-90 westbound to I-39 southbound traffic travels on a one-lane directional ramp with an advisory speed of 25 mph that combines with the two-lane exit ramp coming from the I-39/I-90 southbound/eastbound to I-39 southbound movement. This one-lane directional ramp forms a third lane along I-39 at this location. The outside lane then becomes the exit ramp for the I-39 southbound to Harrison Avenue westbound movement.

Other roadways of importance in the study area are Linden Road, Mulford Road, Perryville Road, South Mall Drive and Mill Road.

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Reconstruction of the I-39/I-90 tollway interchange just north of the study area for this project was completed in 2009. This interchange is approximately 0.68 miles north of the I-39/Harrison Avenue interchange which is less than the one mile minimum desirable distance for interchange spacing in urban areas. This interchange is a directional interchange where I-39 and I-90 join on the north leg (see Figure 9). The northbound I-39 traffic that continues northbound/westbound on I-39/I-90 travels on a two-lane flyover ramp joining in a major convergence. The I-39/I-90 southbound/eastbound traffic that continues on I-39 southbound travels on a two-lane exit ramp coming from a major divergence. The I-39 northbound to I-90 eastbound traffic travels on a one lane directional ramp. An auxiliary lane is provided for this movement from the I-39/Harrison Avenue interchange and a standard entrance ramp is used to merge with I-90 eastbound traffic. The I-90 westbound to I-39 southbound traffic travels on a one-lane directional ramp with an advisory speed of 25 mph that combines with the two-lane exit ramp coming from the I-39/I-90 southbound/eastbound to I-39 southbound movement. This one-lane directional ramp forms a third lane along I-39 at this location. The outside lane then becomes the exit ramp for the I-39 southbound to Harrison Avenue westbound movement.

Other roadways of importance in the study area are Linden Road, Mulford Road, Perryville Road, South Mall Drive and Mill Road.

The existing I-39/US 20 pavement varies slightly through the study area. The mainline pavement is mostly 10-in Portland Cement Concrete (PCC) pavement with bituminous overlays of 3 ¼-in (1990) and 3 ¾ -in (2004). The I-39/US 20 eastbound pavement from Sta. 2661+49.93 to Sta. 2670+04.34 was replaced in 2004 with a full-depth bituminous concrete pavement, superpave, 11 3/4-in. The existing ramps of the I-39/US 20 system interchange are 9-in or 10-in PCC pavement with a bituminous overlay of 5-in (2004). Sections of these ramps are 9-in. or 10-in Continuously Reinforced Concrete (CRC) pavement with a bituminous overlay of 5-in. In 2013, several sections of pavement along the ramps of the I-39/US 20 system interchange were removed and replaced with a 2-in polymerized HMA surface course. The I-39/Harrison Avenue interchange ramps along with Harrison Avenue/US 20 consist of a 10-in PCC pavement. Harrison Avenue was overlayed in 1992 and in 2010 with 2 ½-in bituminous overlays both times.

1. Typical Sections

I-39/US 20 is a four-lane divided highway with 24-ft. wide pavement in each direction separated by a 40-ft. grass median, 4-ft. paved inside shoulders, and 10-ft. paved outside shoulders.

The existing typical sections for the roadways discussed below are shown on Figures 10A and 10B.

The ramps at the I-39/US 20 system interchange have a 16-ft. wide pavement with a 4-ft. paved left shoulder and a 6-ft. paved right shoulder.

The I-39/Harrison Avenue interchange ramps have a 16-ft. wide pavement with a 4-ft. paved left shoulder and an 8-ft. paved right shoulder.

Harrison Avenue/US 20 is designated Harrison Avenue west of the interchange with I-39 and is designated US 20 east of the interchange. From South Mall Drive to Mill Road, Harrison Avenue/US 20 is a four-lane divided roadway with 24-ft. wide pavement in each direction and 10-ft. paved outside shoulders. The lanes are separated by a 22-ft. concrete median with a concrete barrier. Harrison Avenue west of South Mall Drive is a four-lane divided roadway with 24-ft. wide pavement in each direction and 8-ft. paved outside shoulders. The lanes are separated by an 18-ft. raised concrete median. US 20 east of I-39 is a US highway with partial access control at signalized and unsignalized intersections. US 20 east of Mill Road has 24-ft. wide pavement in each direction separated by a 20-ft. wide median with concrete barrier. There is a 10-ft. wide paved shoulder.

Perryville Road immediately north of I-39/US 20 has a 24-ft. pavement with 8-ft. earth shoulders. Immediately south of I-39/US 20, Perryville Road begins to widen for a left turn lane at its intersection with Mill Road. The lanes widen out to 14-ft. with an 11-ft. wide flush median. The shoulders are 3-ft earth shoulders. At the intersection with Mill Road, Perryville Road has 13-ft. wide through lanes, 11.5-ft. wide median/left turn lane and an 11.5-ft. wide right turn lane in the northbound direction. The west side shoulder is a 3-ft. earth shoulder and the east side shoulder is 8.5-ft. paved shoulder with curb and gutter on the outside.

Mulford Road north of I-39/US 20 has a 24-ft. pavement with 10-ft. paved shoulders. South of I-39/US 20, Mulford Road has a 24-ft. pavement with 8-ft. earth shoulders.

Linden Road is a two-lane roadway with 24-ft. pavement, 10-ft. earth shoulders.

South Mall Drive is the first intersection west of the I-39/Harrison Avenue interchange and is approximately 900-ft. west of the west interchange ramp termini. South Mall Drive north of Harrison Avenue has a 36-ft. wide pavement and 2-ft. paved shoulder in each direction separated by a 6-ft. raised concrete median. South of Harrison Avenue, South Mall Drive has a 24-ft. wide pavement with curb and gutter in each direction separated by a 6-ft. flush median. South Mall Drive provides access to Cherry Vale Mall to the north and several retail outlets to the south. An intersection design study for the South Mall Drive/Harrison Avenue intersection is part of this project.

Mill Road is the first intersection to the east of the I-39/Harrison Avenue interchange and is approximately 500-ft. east of the east interchange ramp termini. Mill Road north of US 20 has a 24-ft. wide pavement with 3-ft. earth shoulders. South of US 20, Mill Road, right at the intersection, has a 48-ft. wide pavement with curb and gutter on each side. Mill Road provides mostly residential access and is the crossroad immediately west of the Kishwaukee River bridge. Mill Road to the north provides access over I-90 just east of the I-39/I-90 tollway interchange. An intersection design study for the Mill Road/US 20 intersection is part of this project.

2. Extent of Access Control/Access Management

I-39 is a full access controlled freeway. US 20 west of I-39 is also fully access controlled within the project limits. The first points of access on Harrison Avenue/US 20 west and east of I-39 are South Mall Drive and Mill Road, respectively. South Mall Drive is approximately 900-ft. from the interchange ramp terminal and Mill Road is approximately 500-ft. from the interchange ramp terminal. There is no access control on Harrison Avenue west of Perryville Road. East of Mill Road, US 20 is a partial access controlled expressway with median crossovers at approximately ¼ mile spacing.

Access control for the other roadways in the project limits, Linden, Mulford, and Perryville Roads, is at the I-39 and I-39/US 20 grade separations only.

B. Existing Traffic and Capacity Deficiencies

Base year 2020 traffic and design year 2040 traffic projections were provided by IDOT District 2 and HDR Engineering. Base year 2020 traffic is shown in Figure 11. Design year 2040 traffic projections are shown in Figure 12.

The base year (2020) and design year (2040) mainline traffic operation conditions analysis was performed using HCM methodology, which uses density as a Method of Effectiveness (MOE) to determine level-of-service (LOS) along the freeway. Density increases as flow increases up to capacity, resulting in an MOE that is sensitive to a broad range of flows. For this reason, density is used as the parameter to define LOS for the freeway and ramp segments, as show in Table 1.

At intersections, LOS criteria differ from freeway segments primarily because different transportation facilities create different driver expectations. Travel delay is used as the parameter to define intersection LOS. Table 2 summarizes LOS thresholds used in the analysis of the intersections.

Table 1: Freeway/Multilane Highway LOS Criteria

LOS	Freeway Weaving Segment Density (pc/mi/ln)*	Weaving Segment Density (pc/mi/ln)*	Merging and Diverging Segment Density (pc/mi/ln)*	Basic Freeway Segment Density (pc/mi/ln)*
A	0 - 10	0 - 12	0 - 10	0 - 11
B	> 10 - 20	> 12 - 24	> 10 - 20	> 11 - 18
C	> 20 - 28	> 24 - 32	> 20 - 28	> 18 - 26
D	> 28 - 35	> 32 - 36	> 28 - 35	> 26 - 35
E	> 35 - 43	> 36	> 35	> 35 - 45
F	> 43	Demand exceeds capacity	Demand exceeds capacity	> 45

* pc/mi/ln = passenger cars per mile per lane

Table 2: Intersection LOS Thresholds

LOS	Control Delay per Vehicle (seconds per vehicle)*
A	≤ 10
B	> 10 - 20
C	> 20 - 35
D	> 35 - 55
E	> 55 - 80
F	> 80

*Signalized Intersections

HCS 2010 software was used to evaluate the operating conditions along the freeway segments, at the interchanges, and at the intersections.

Interstate Operations

Existing I-39/US 20 in the study area is a four-lane freeway with a 40-ft. wide grass median. Table 3 shows the design year LOS for the freeway section within the study area for the no build condition. LOS F is projected for the design year 2040 traffic. This means demand will exceed capacity and the roadway is highly congested.

Table 3: I-39/US 20 (No Build) LOS

Section	2040

	NB LOS	PC/ MI/ LN	SB LOS	PC/ MI/ LN
I-39/US 20 (south) to US 20/Harrison Avenue (north)	F		F	
US 20/Harrison Avenue (north) to I-90	D	27.7	D	28.1

The I-39/US 20 system interchange was constructed as a three-legged trumpet modified with future plans to be extended to the north. The northbound extension was never constructed, and subsequent development makes it clear that extension will never occur. From the interchange design study for this interchange, the design year weave LOS for US 20 eastbound is D in both the AM and PM peak hour. The non-weaving LOS at this same location is C in both the AM and PM peak hour. For the merge ramps at US 20 westbound and I-39 southbound, a LOS D is projected for both the AM and PM design year peak hour traffic. Table 4 below shows this information.

Table 4: I-39/US 20 System Interchange (No Build) LOS

Movement	Type of Maneuver	Design Year 2040 Peak Hour LOS	
		AM	PM
US 20 Eastbound	Type A Weave	D	D
US 20 Eastbound	Non-Weaving	C	C
US 20 Westbound	Merge Ramp	D	D
I-39 Southbound	Merge Ramp	D	D

The existing I-39/Harrison Avenue interchange was constructed as a standard full cloverleaf and ramps do not meet the current BDE or AASHTO design standards. According to IDOT's BDE manual, there are a number of disadvantages associated with the full cloverleaf design:

- space limitations in urban areas often make full cloverleaf interchanges infeasible;
- weaving sections between loop ramps must be made long enough to provide for satisfactory traffic operations;
- the loops in a cloverleaf interchange result in a greater travel distance for left-turning vehicles than do diamonds and the speed on the ramps are generally slower;
- because of the geometric design of loop ramps, a full cloverleaf requires large amounts of right-of-way;
- exit and entrance terminals are located before and after the crossroad structure, which require additional signing to guide motorists; and
- where the crossroad is an expressway or arterial, considerable length of access control distance is needed along the crossroad to the first point of access.

The existing cloverleaf interchange has multiple unacceptable LOS maneuvers in the design year. The main concern for the existing I-39/Harrison Avenue interchange is related to the weaving movements within the cloverleaf interchange and the weaving movements related to the I-39/I-90 tollway interchange to the north. LOS D is projected for the weave movements within the existing interchange on I-39 for the design year. LOS F is projected in the design year along northbound I-39 to eastbound Harrison Avenue, diverge ramp, and along southbound I-39 from eastbound Harrison Avenue, merge ramp. Due to the close proximity of the I-39/I-90 tollway interchange to the north, the weave movements between the interchanges have a LOS D for the northbound weave with I-90 and a LOS E for the southbound weave with I-90. Tables 5 and 6 below show this information. The I-39/Harrison Avenue Access Justification Report (AJR) provides more detailed traffic information at this interchange location.

Table 5: I-39/Harrison Avenue Interchange (No Build) LOS

Movement	Type of Maneuver	2040	
		Peak Hour LOS	PC/ MI/ LN
Northbound I-39 to Eastbound Harrison Avenue	Diverge Ramp	F	50.0
Northbound I-39 to Westbound Harrison Avenue	Weave Segment	D	30.3
Southbound I-39 to Eastbound Harrison Avenue	Weave Segment	D	29.9
Southbound I-39 from Eastbound Harrison Avenue	Merge Ramp	F	42.8
Eastbound Harrison Avenue to Southbound I-39	Diverge Ramp	B	14.3
Eastbound Harrison Avenue to Northbound I-39	Weave Segment	B	13.2
Eastbound Harrison Avenue from Northbound I-39	Merge Ramp	C	20.1
Westbound Harrison Avenue to Northbound I-39	Diverge Ramp	B	14.6
Westbound Harrison Avenue to Southbound I-39	Weave Segment	B	17.2
Westbound Harrison Avenue from Southbound I-39	Merge Ramp	B	12.3

Table 6: I-39/Harrison and I-90 Weave (No Build) LOS

Movement	Type of	2040

	Maneuver	Peak Hour LOS	PC/ MI/ LN
Northbound I-39/I-90	Weave Segment	D	28.0
Southbound I-39/I-90	Weave Segment	E	35.1

The existing cloverleaf interchange at I-39/Harrison Avenue has 8 conflict points and 4 conflict zones. Conflict points/zones of the existing cloverleaf interchange present issues for drivers especially when design deficiencies exist within the ramp layouts (see discussion of ramp design deficiencies in Section II.D. Existing Geometry/Alignment and Profile Deficiencies). The 8 merge and diverge conflict points present issues for drivers as they must merge/diverge and adjust their speed at the same time to the new driving environment. The four conflict zones, or weaving sections of the existing cloverleaf, are short, restricting the distance for lane changes.

The distance between the I-39/Harrison Avenue interchange and the I-39/US 20 system interchange to the south is 2.84 miles. This allows adequate distance for acceleration, deceleration, and weaving to take place between interchanges and was not analyzed further.

Intersection Operations
Capacity analyses were conducted at the surrounding intersections for the peak hour to determine the design year intersection operations along Harrison Avenue/US 20. The intersections analyzed include Harrison Avenue at South Mall Drive and US 20 at Mill Road.

The future 2040 no build traffic at both intersections has very few acceptable LOS movements. Both intersections have several movements at LOS F. At Harrison Avenue/South Mall Drive the eastbound through, westbound through and southbound left all are LOS F. At US 20/Mill Road the eastbound through and westbound through are both LOS F. Both intersections also have significant overall delay and have an overall LOS F. The I-39/Harrison Avenue AJR discusses the traffic at these intersections in more detail.

C. Crash Information

A review of crash history was conducted for the study area for I-39/US 20 and along Harrison Avenue/US 20. Accident data was obtained from IDOT for the years 2009 to 2013. The data obtained was for I-39 Mile Station 118.00 to Mile Station 122.50. There were a total of 350 crashes in the study area for the years 2009 to 2013. Crash locations and groupings are shown on Figure 13. Table 7 shows the crash types and injury types that have occurred in the study area.

A further breakdown of crash locations reveals that there are some segments experiencing a significant number of crashes. The segment along US 20 that begins 250-ft. west of Mill Road and ends at the Boone County line has been on the 5% report in 2012 and again in 2015. A portion of this segment is in the study area for this project (see Figure 13).

Table 7: Crashes in the Study Area (2009-2013)

	Crash Data in Study Area

Location	Crash Type							
	Overturn	Rear End	Fixed Object	Animal	Sideswipe	Turning	Other	Total
I-39/US 20 System Interchange (Groups 1-5)	10	25	33	5	20	0	26	119
MP 120.00 to MP 121.00	1	5	16	2	6	0	6	36
MP 121.00 to 121.50	1	7	2	1	4	0	2	17
MP 121.50 to MP 122.50	0	10	19	3	18	0	7	57
I-39/Harrison Ave. Ramps	6	1	16	0	6	0	5	34
Harrison Avenue	0	3	0	0	4	0	3	10
Harrison Ave./South Mall Dr.	0	6	2	0	1	23	7	39
US 20/Mill Road	0	22	3	2	2	7	2	38
TOTALS	**18**	**79**	**91**	**13**	**61**	**30**	**58**	**350**

Crash Data in Study Area

Location	Injury Type						
	A	B	C	Fatality		PDO	Total
I-39/US 20 System Interchange	3	17	3	2		94	119
MP 120.00 to MP 121.00	3	3	2	0		28	36
MP 121.00 to 121.50	0	2	1	0		14	17
MP 121.50 to MP 122.50	0	5	4	0		48	57
I-39/Harrison Ave. Ramps	1	4	4	0		25	34
Harrison Avenue	0	0	1	0		9	10
Harrison Ave./South Mall Dr.	3	3	2	0		31	39
US 20/Mill Road	0	7	3	1		27	38
TOTALS	**10**	**41**	**20**	**3**		**276**	**350**

There is a significant number of rear end (79) and fixed object (91) crashes occurring in the study area. About half of the rear end crashes are occurring in areas where a weaving movement is taking place and the other half are taking place at the intersections along Harrison Avenue, South Mall Drive and Mill Road. Rear end crashes along the interstate are possibly due to sudden stops when trying to merge into traffic or as a result of sudden reductions in speed when entering or exiting lower speed interchange ramps. Over 25% of the crashes in the study area are fixed object crashes possibly caused by drivers losing control of their vehicle due to speeds too fast for conditions or trying to avoid an accident and crashing into guardrail or another fixed object.

Sixty-one (61) sideswipe crashes occurred in the study area. Over half of these crashes occurred in the I-39/Harrison Avenue interchange area (group 9 on Fig. 13). These could possibly be caused by vehicles slowing down along the mainline to exit and by vehicles changing lanes to avoid slower exiting or entering vehicles.

The next highest crash total was 58 other crash types. These crash types were mostly non-collision crashes possibly caused by vehicles leaving the roadway to avoid an accident or losing control of their vehicle due to speeds too fast for conditions. At the intersections of South Mall Drive and Mill Road there were eight (8) angle crashes included in the other crash type column.

Of the 350 crashes in the study area, 276 (79%) were property damage only, 10 (3%) were type A injury, 41 (12%) were type B injury, and 20 (6%) were type C injury. There were three fatalities during this time period. Two of the fatalities were near the I-39/US 20 system interchange. One was at the diverge of I-39 northbound to US 20 westbound and the other was at the exit ramp for I-39 southbound near the Mulford Road overpass. The third fatality was at the US 20/Mill Road intersection.

Table 8 shows a summary of the total number of accidents that have occurred under various conditions. In general, 214 accidents (61%) occurred on dry surface conditions, 238 accidents (68%) in clear weather conditions, and 217 accidents (62%) in daylight conditions. A majority of the accidents are taking place during daylight when surface conditions are dry and the weather is clear.

Table 8: Crashes Under Various Conditions in the Study Area (2009-2013)

Surface Condition					
	Dry	**Wet**	**Ice**	**Snow or Slush**	**Unknown**
No. of Accidents	214	77	27	31	1

Weather Condition				
	Clear	**Rain**	**Snow**	**Fog/Other**
No. of Accidents	238	59	42	11

Lighting Condition					
	Daylight	**Darkness**	**Dawn**	**Dusk**	**Darkness, Lighted Road**
No. of Accidents	217	71	11	13	38

D. Existing Geometry/Alignment and Profile Deficiencies

Existing geometric features along I-39/US 20 and at the interchanges in the study area were analyzed including mainline horizontal and vertical alignment, cross sections, ramp geometry, and weaving segments according to the IDOT's Bureau of Design and Environment Manual (BDE Manual). The following areas of concern were identified:

- I-39 through traffic is restricted to one lane in each direction at the I-39/US 20 system interchange (see Figure 7). I-39 through traffic also goes through standard exit and entrance ramp terminals. Both of these items are contrary to current policy (see BDE Section 37-2.06, Route Continuity). The radii on I-39 through the interchange are 1,161-ft and 1,146-ft. This is less than the 1,200-ft minimum radii allowed to remain in place for a 60 mph design speed (see BDE Figure 44-5.D, Alignment Criteria for Freeways). Because of the less than minimum radii, the northbound to eastbound and westbound to southbound ramps are currently posted at 55 mph.

- The profile of I-39/US 20 and the ramps at the Harrison Avenue interchange meet the current design criteria for maximum grade and minimum vertical curve "K" values. The maximum grade allowed to remain in place is 4.0%. The minimum vertical curve "K" values along I-39/US 20 are 247 for a crest curve and 181 for a sag curve. The minimum vertical curve "K" values for a 50 mph ramp design are 84 for a crest curve and 96 for a sag curve. (see BDE Figure 44-5.D, Alignment Criteria for Freeways, and Figure 37-4.F, Summary of Roadway Design Criteria for Interchange Ramps).

- The profile of northbound and southbound I-39 through the I-39/US 20 system interchange meets the maximum grade requirement of 4.0% to remain in place. The maximum grade on I-39 through the I-39/US 20 system interchange is 3.8% which is less than the maximum 4.0% allowed to remain in place (see BDE Figure 44-5.D, Alignment Criteria for Freeways). The minimum vertical curve "K" value is not met on the eastbound US 20 to southbound I-39 exit ramp (Ramp AD, see Figure 7). Ramp AD at Station 55+90 has a "K" value of 75. The minimum required for a design speed of 50 mph is 96 (see BDE Figure 37-4.F, Summary of Roadway Design Criteria for Interchange Ramps).

- The loop ramps at the I-39/Harrison Avenue interchange do not meet current BDE Manual design standards. The minimum design speed for rural loop ramps or loop ramps with a high amount of truck traffic is 30 mph (see BDE Section 37-4.04, Design Speed). The BDE Manual, Figure 37-4.F, shows a minimum radius of 231-ft for a 30 mph design speed and 6.0% maximum super-elevation for snow and ice conditions. Two of the existing loop ramps have radii of 186-ft which is less than the 231-ft radius specified in BDE Figure 37-4.F. Also, all the loop ramps were built with 8.0% super-elevation not 6.0% as specified in BDE Figure 37-4.F. The loop ramps in the northeast and southwest quadrants are posted with advisory speeds of 25 mph. Figure 8 shows the existing interchange at I-39/Harrison Avenue.

- Three of the four outer connector ramps at the I-39/Harrison Avenue interchange do not meet current BDE Manual design standards. The minimum design speed for the first curve after the exit terminal or before the entrance terminal for outer connector ramps is 50 mph (see BDE Section 37-4.04, Design Speed, and Figure 37-4.E, Ramp Design Speeds). The BDE Manual, Figure 37-4.F, shows a minimum radius of 833-ft for a 50 mph design speed. The initial ramp radii along three of the four outer connector ramps are 695-ft, 760-ft and 522-ft which are all less than the 833-ft radius specified in BDE Figure 37-4. Figure 8 shows the existing interchange at I-39/Harrison Avenue.

- Weaving segments exist within the I-39/Harrison Avenue interchange because of the cloverleaf interchange design. Weaving is a situation in which entering or exiting traffic must cross paths within a limited distance to merge with traffic on the through lanes. Special operational problems exist with traffic in a weaving segment that normally are not present on a basic highway segment. The weave distance between the loop ramps along I-39 northbound is 640-ft. The weave distance between the loop ramps along I-39 southbound is 650-ft. BDE Figure 37-3.N shows a weave distance of 750-ft with loop ramp radii designed to 35 mph and greater. As discussed in the fourth bullet point above, two of the existing loop ramps have design speeds less than 30 mph. The existing weave distances do not meet current BDE Manual design standards. Increased weave lengths are needed to provide longer acceleration/deceleration distance to accommodate the ramp versus mainline design speeds.

  Weaving segments also exist between interchanges. The I-39/I-90 tollway interchange is approximately 0.68 miles north of the I-39/Harrison Avenue interchange. The weaving distance between the US 20 westbound to I-39 northbound ramp and the I-90 eastbound ramp is 700-ft. The relatively short distance between these two interchanges creates concerns regarding acceleration, deceleration and weaving.

- Lane balance is a design principle that applies along freeways in advance of an interchange and after an interchange. It helps minimize the required number of lane shifts by providing the proper arrangement of traffic lanes on freeways. This improves safety by allowing for more efficient traffic operations.

  Lane balance is not achieved at the I-39/US 20 system interchange south of the I-39/Harrison Avenue interchange. Two I-39 lanes combine with two US 20 lanes into a two-lane section in each direction. These connections take place on one lane ramps which is contrary to current policy (see BDE Section 37-2.06, Route Continuity).

- IDOT has projected traffic growth for an anticipated design year of 2040. The design year traffic will have a LOS F on the northbound and southbound lanes of the I-39/US 20 mainline between the I-39/US 20 system interchange and the I-39/Harrison Avenue interchange (see Table 3 in Section II-B of this report). LOS F represents forced flow and traffic travels at low speeds with some stoppages. The severity of this congestion warrants widening of I-39/US 20. The projected design year LOS on I-39/US 20 at the Harrison Avenue interchange is F which is lower than required by policy for reconstruction of the existing cloverleaf interchange. According to the BDE Manual, a

LOS C in the design year is required for a proposed reconstruction configuration. The LOS for through traffic on I-39/US 20 is not dependent on the type of interchange configuration at Harrison Avenue; however, a poorly functioning interchange can back up traffic onto the interstate and reduce the LOS of the interstate.

III. EXISTING SETTINGS OR CONDITIONS

A. Description of Study Area

The study area is located primarily in rural and suburban areas surrounding Rockford and Cherry Valley, IL. The City of Rockford is located halfway between Galena, IL and Chicago, IL and is about 12 miles south of the Illinois/Wisconsin border. The Village of Cherry Valley is located just south of Rockford. Rockford has a population of 152,871 while Cherry Valley has a population of 3,162 (according to the 2010 census data). The Rockford area has a population of about 339,000 people. Rockford is home to many manufacturing facilities, is a regional leader in health care, and the surrounding area has some of the most fertile farmland in the country.

Two major interstates provide access to the Rockford area. I-39 comes up from the south and provides a bypass around the east side of Rockford. I-90 comes from the east and joins with I-39 on the east side of Rockford. The I-39/I-90 tollway interchange is just to the north of the I-39/Harrison Avenue interchange. I-39/I-90 then heads north into Wisconsin (see Existing Roadway Network, Figure 3).

US 20 provides access to the Rockford area from the west. Business 20 goes directly through the City of Rockford while US 20 turns south and eventually joins with I-39. The I-39/US 20 system interchange is the interchange just to the south of the I-39/ Harrison Avenue interchange. Harrison Avenue/US 20 then continues east to Chicago (see Existing Roadway Network, Figure 3).

Rockford is home to the Chicago Rockford International Airport located on the south side of the city along the Rock River. The airport served over 100,000 passengers in 2015 with up to 31 passenger flights departing from the airport each week. It is an international airport capable of landing any jet aircraft operating in the world today and is a United States Customs Port of Entry.

The UP and CN railroads both run east/west through the Rockford area. Recently it was announced that passenger rail service will be restored from Rockford to Chicago. There has not been passenger rail service between the two cities since 1981. The new Amtrak service is proposed to begin in the near future and will provide one roundtrip daily between Union Station in downtown Chicago and a temporary 7th Street station in downtown Rockford. A permanent station along the Rock River is proposed but will be constructed at a later date.

Two rivers traverse the Rockford area, the Rock River and the Kishwaukee River. The Rock River runs directly through the City of Rockford. The Kishwaukee River is located on the southeast side of the city through the Village of Cherry Valley. The Kishwaukee River is just east of the study area for this project. US 20 crosses the Kishwaukee River east of Mill Road.

Interstate access, a growing airport, and recently expanded rail service allows the Rockford area to have easy access to regional, national, and international markets.

There has been development in the area over the last decade, but much of the study area remains undeveloped. Land use plans for Cherry Valley and Rockford are shown in Figures 14 and 15.

B. Logical Termini

The west terminus of the US 20 improvement is the west ramp terminals of the I-39/US 20 system interchange. The south terminus of the I-39 improvement is the south ramp terminals of the I-39/US 20 system interchange. The north terminus of the I-39 improvement is the south ramp terminal of the I-39/I-90 tollway interchange. The construction limits on Linden Road, Mulford Road and Perryville Road are the touchdown points for the grade separations. The limits of the Harrison Avenue improvements are the beginning of improvements just west of the South Mall Drive intersection and the end of improvements just east of the Mill Road/US 20 intersection.

C. Land Use (Fire Districts, School Bus, and Mail Routes)

Land use in the study area is mostly residential with some industrial and commercial. There are also some undeveloped areas in the study area especially along the west side of I-39/US 20. Figures 14 and 15 show land use in the study area.

The study area is on the edge of two fire districts, the Rockford Fire District to the north and west and the Cherry Valley Fire District to the south and east. Figure 16 shows the fire districts in Winnebago County.

Rockford Public School District 205 has different zones for high school, middle school, and elementary school. Figures 17, 18, and 19 show the zones for each level. The project study area is mostly in the East High School Zone, Flinn Middle School Zone, and Cherry Valley/White Swan Elementary School Zone. School buses travel through the study area on Harrison Avenue/US 20, Mulford Road, Perryville Road, and Linden Road.

Mail routes that traverse the project study area are along Linden, Mulford, and Perryville Roads. These arterial roadways are all grade separated at I-39/US 20 and will remain that way with this project.

D. Environmental Resources

Examples of environmental resources within the study area may include parks and recreational areas, waterways and floodplains, wetlands, cultural resource sites, special waste sites, threatened and endangered species locations, natural areas, air quality, and noise. This report describes the findings of the field surveys and studies conducted to date.

1. Parks and Recreational Areas

Parks and recreational areas include, but are not limited to, state, county, or city-owned parks; school-owned or community recreational facilities, such as sports parks; publicly-owned golf courses; bicycle, walking, nature, or multi-use trails; and publicly-owned wildlife viewing sites. These resources are important for economic value, social importance, and health and environmental benefits. Aerial mapping, literature research, and field surveys were used to identify parks and recreational areas within the study area. These areas are shown on the Environmental Resources Maps in Appendix B and include:

- Magic Waters Waterpark – Rockford Park District
    - Main attractions of the waterpark include the Tsunami Bay, the largest wave pool in Illinois; the Splash Magic River; and the Tiki Island, which features interactive water toys and is topped off by a 1,000 gallon water bucket.
- Butler Park – Village of Cherry Valley
    - This 1.3-ac. recreation park features a playground and a basketball court. It is located along State Street southeast of the I-39/Harrison Avenue interchange.
- Southeast Community Park – Rockford Park District
    - This recreation park features open fields for kite flying, soccer and frisbee among other recreational activities.
- Cherry Valley Path (also called the Swanson Park Recreation Path) – Village of Cherry Valley
    - This paved pedestrian/bicycle path is along tree-lined Madigan Creek through open green space and is within easy reach of housing developments. The trail offers access to other recreational areas and activities such as birdwatching. The 2.4-mile path continues along Southeast Community Park, past a few small ponds, and under I-39 through one side of a double 12-foot x 10-foot box culvert just south of the I-39/Harrison Avenue interchange. From the culvert, users can follow street signs to connect to the Baumann Park Recreation Path.

The proposed project is not anticipated to impact the Magic Waters Waterpark or the Southeast Community Park. However, the proposed project will impact the Cherry Valley Path. The path will be relocated to a new location as shown on the Environmental Resource Maps in Appendix B (and on the plan sheets in Volume II) to accommodate the proposed improvements. As part of this project, alternatives were considered to re-design and/or relocate the multi-use path crossing in order to remove it from the floodplain of Madigan Creek. The Cherry Valley Path is intermittently flooded after rain events, making passage through the culvert difficult and unsafe. Impacts to the multi-use path will be minimized to the extent practicable during design and construction phases and consultation with the Village of Cherry Valley will be required. The

Village of Cherry Valley is in favor of relocating the multi-use path above flood levels to address flooding and drainage problems. The proposed relocation of the Cherry Valley Path may be considered a Section 4(f) *de minimis* impact by the Federal Highway Administration (FHWA). Cherry Valley Path alternatives and meeting minutes from a conference call with the Village of Cherry Valley are included in Appendix B. The path typical section is shown on Figure 31.

2. Waterways and Floodplains

Three waterways were identified on June 13, 2007 by the Illinois Natural History Survey (INHS) field surveys. One small unnamed tributary of the Kishwaukee River drains underneath I-39/US 20 at the Canadian National (CN) Railroad crossing. This stream is entrenched, shallow, has pools and riffles, and flows at a slow to moderate rate. Madigan Creek, located south of the Harrison Avenue interchange, is located in a more disturbed area with suburban development. This stream also has pools and riffles and flows at a slow to moderate rate. The Kishwaukee River, located near Mill Road and US 20, is a large permanent river that flows underneath US 20 near the east terminus of the project. The waterway locations are shown on the Environmental Resource Maps and are described in the wetland survey report in Appendix B.

The proposed project would impact each of these waterways. Approximately 260-ft. of the Kishwaukee River, 300-ft. of Madigan Creek and 420-ft. of the unnamed tributary of the Kishwaukee River would potentially be disturbed during construction. Unavoidable waterways impacts will be minimized to the extent practicable during design and construction phases. Compensatory mitigation will be developed for unavoidable impacts to waterways as required by the Clean Water Act (CWA) in consultation with the Illinois Department of Transportation (IDOT) and the U.S. Army Corps of Engineers (USACE).

Under Section 303(d) of the CWA, states are required to develop lists of impaired waters. These waters are too polluted or otherwise degraded to meet certain water quality standards. Each state must assess the degree to which waters (streams and lakes) attain beneficial uses, also called designated uses. The Illinois Environmental Protection Agency (IEPA) is responsible to provide regular updates to the United States Environmental Protection Agency (USEPA) on the quality of waters in Illinois. Types of designated uses are aquatic life, fish consumption, public and food processing, water supply (drinking water), primary contact (swimming), secondary contact (fishing and boating) and aesthetic quality. IEPA reports the resource quality of its waters in terms of the degree to which a set of defined beneficial uses are supported by evaluated waters, and the reasons (causes and sources) beneficial uses may not be supported. Waters determined not meet their designated beneficial uses must be reported as 'impaired' on the 303(d) list. The law requires that Total Maximum Daily Loads (TMDLs) be developed for these impaired waters. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.

Within the study area, Madigan Creek and the unnamed tributary of the Kishwaukee River were not listed on the IEPA Section 303(d) list for water quality impairments, according to the 2016 Illinois Integrated Water Quality Report and Section 303(d) list. Within the study area, the Kishwaukee River was listed on the IEPA Section 303(d) list. This river does not meet designmated beneficial uses of fish consumption and primary contact recreation (swimming).

Causes of impairment include mercury, fecal coliform and polychlorinated biphenyls (PCBs). No TMDL data have been recorded for this waterbody.

The Federal Emergency Management Agency (FEMA) flood insurance rate maps (FIRM) were used to identify floodplains and floodways within the study area. The FEMA has identified the base (100-year) flood as the flood having a one percent probability of being equaled or exceeded in any given year. The base floodplain is the area of 100-year flood hazard within a county or community. The regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that projects cannot cause a rise in the regulatory floodway, and one foot cumulative rise for all projects in the base (100-year) floodplain. Illinois mandates that a project shall not cause more than a 0.1-foot rise in floodways.

According to FIRMs (Panel Numbers: 17201C0401D and 17201C0402D, effective 9/6/06), the project crosses the 100-year floodplain and regulatory floodway near an unnamed tributary to the Kishwaukee River, Madigan Creek, and the Kishwaukee River. Some areas throughout the study area are mapped as either 0.2 percent annual chance flood hazard (i.e., the 500-year floodplain) or area of minimal flood hazard. The 100-year floodplain and regulatory floodway are shown on the Environmental Resources Maps in Appendix B.

Federal Executive Order 11988, Floodplain Management, and subsequent federal floodplain management guidelines, mandate an evaluation of floodplain impacts. Filling for roadway widening or other construction projects would impact approximately 2.3 acres of 100-year floodplain and 0.5 acres of regulatory floodway areas. Authorization will be required from the Illinois Department of Natural Resources (IDNR) – Office of Water Resources (OWR) for encroachment on any public body of water with mapped floodway or an upstream drainage area greater than one square mile in urban areas.

3. Wetlands

The INHS identified three wetlands within the study area during a field survey on June 13, 2007. These wetland determination sites have the capacity to store floodwaters and filter sediments and are located in the Kishwaukee River watershed (United States Geological Survey (USGS) Hydrologic Unit 07090006). The wetland locations are shown on the Environmental Resource Maps and additional information about the specific site characteristics are described in the wetland survey report in Appendix B.

Site 1, wet shrubland, is located at the head of a drainageway and is about 30 feet south of I-39 and 1,000 feet east of Milford Road. Dominant vegetation observed at this site includes sandbar willow (*Salix exigua*) and reed canary grass (*Phalaris arundinacea*). Due to a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology, the site was classified as a wetland.

Site 2, wet shrubland, is located along an unnamed tributary of the Kishwaukee River and is about 82 feet south of I-39 and 30 feet west of the CN railroad tracks. Dominant vegetation observed at this site includes box elder (*Acer negundo*), sandbar willow (*Salix exigua*), sedge

(*Carex trichocarpa*), Rugel's plantain (*Plantago rugelii*), and late goldenrod (*Solidago gigantea*). Due to a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology, the site was classified as a wetland.

Site 3, wet meadow, is located along an unnamed tributary of the Kishwaukee River and is about 105 feet north of I-39 and 105 feet east of the CN railroad tracks. Dominant vegetation observed at this site includes Canada anemone (*Anemone candensis*) and reed canary grass (*Phalaris arundinacea*). Due to a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology, the site was classified as a wetland.

The proposed project would impact 0.03 acre of Wetland Site 1, 0.17 acre of Wetland Site 2, and 0.04 acre of Wetland Site 3, for a total of 0.24 acre of impacts to jurisdictional wetlands. Unavoidable wetland impacts will be minimized to the extent practicable during design and construction phases. Compensatory mitigation will be developed for unavoidable impacts to wetlands as required by the CWA in consultation with IDOT and the USACE.

4. Cultural Resource Sites

Cultural, archaeological, architectural, and historic resources include, but are not limited to, archaeologically significant sites or other objects on or eligible for listing on the National Register of Historic Places, as well as either public or private architecturally significant features or structures, historic landmarks, historic and prehistoric features. These resources often yield unique information about past societies and environments, and provide answers for modern day social and conservation problems.

The Illinois Transportation Archaeological Research Program conducted an archeological and architectural survey and no archaeological, architectural, or historic sites were identified within the proposed project right-of-way. On October 30, 2008, the Illinois Historic Preservation Agency (IHPA) concurred that no historic properties subject to protection under Section 106 of the Natural Historic Preservation Act of 1966 as amended, will be affected by the proposed construction activities. On November 17, 2008, the Cultural Resources Concurrence Memorandum from IDOT stated that the proposed project will have no effect on significant cultural resources and coordination was completed. Phase II investigations will be required should any resources be discovered during either the design or construction phases of the project. Letters of correspondence are included in Appendix B.

5. Special Waste Sites

The project failed both a Level 1 and Level 2 Special Waste Screening and a Preliminary Environmental Site Assessment (PESA) was required. A PESA identifies and evaluates the presence or likely presence of potential occurrences of regulated substances and natural hazards. A PESA prepared by the Illinois State Geological Survey (ISGS) identified 29 sites along the project route that were determined to contain recognized environmental conditions (RECs) and are listed in Table 9.

Among the 29 sites identified, a majority of the RECs were due to underground storage tanks (USTs), evidence of chemical use, transformers, monitoring wells, and potential asbestos containing materials (ACM) and lead paint. Commercial and industrial land uses make up a majority of the properties identified; however, other land uses were also listed. Additional information about the PESA results is included in the PESA Review Memorandum included in Appendix B.

Although RECs are present, this project was cleared for Special Waste Coordination. A copy of the Special Waste Clearance Memorandum is included in Appendix B. A Preliminary Site Investigation (PSI) is required if any site identified in Table 9 involves any of the following situations:

- New right-of-way or easement (temporary or permanent);
- Railroad right-of-way (ROW), other than single rail rural with no maintenance facilities; or
- Building demolition / modification.

Additionally, a PSI is required if the project will have excavation or subsurface utility relocation on existing right-of-way adjoining a site identified in Table 9. However, if all sites containing RECs are avoided, then a PSI is not required.

Table 9 - The following sites along the project were determined to contain RECs

Property Name IDOT Parcel Number	ISGS Site Number	REC(s), including de minimis conditions	Regulatory Database(s)	Land Use
ROW NA	1681V2-1	Evidence of chemical use; spills; former drum; petroleum pipeline; natural gas pipelines; potential ACM	RCRA, BOL, IEMA	Transportation
Schnucks NA	1681V2-2	USTs; monitoring wells; evidence of chemical use' transformers; potential ACM and lead paint	RCRA, BOL, UST	Commercial
Kegel Harley-Davidson NA	1681V2-4	Potential UST(s); evidence of chemical use; transformers; potential ACM and lead paint	RCRA, BOL	Commercial
Wheels by RT NA	1681V2-8	AST; potential UST(s); evidence of chemical use; potential ACM and lead paint	BOL	Commercial
FasMart/Subway NA	1681V2-9	USTs; monitoring wells; transformer; potential ACM and lead paint	UST	Commercial
Collier RV NA	1681V2-11	Former USTs; potential UST(s); evidence of chemical use; transformer; potential ACM and lead paint	BOL, UST	Commercial
Vacant land NA	1681V2-13	Former USTs with documented releases; potential UST(s); former monitoring well; potential monitoring well; evidence of former chemical use; spills; fill;	BOL, LUST, UST, IEMA	Vacant

		transformer		
Commercial building NA	1681V2-14	AST; potential ACM and lead paint	None	Commercial
Magic Waters Waterpark NA	1681V2-16	Evidence of chemical use; spill; transformers; potential ACM and lead paint	RCRA, BOL, ERNS	Commercial
Vacant land NA	1681V2-19	Fill	None	Vacant
Kishwaukee River NA	1681V2-24	Non-attainment of water quality	None	River
Andy's Professional Landscaping NA	1681V2-37	ASTs; evidence of chemical use; potential herbicide and/or fertilizer presence; potential ACM and lead paint	BOL	Commercial
Atlas Components NA	1681V2-38	AST; drums; potential chemical use; potential ACM and lead paint	None	Commercial
Unnamed tributary to the Kishwaukee River NA	1681V2-41	Non-attainment of water quality	None	Stream
The Landscape Connection NA	1681V2-45	Evidence of former chemical use; transformers; potential herbicide and/or fertilizer presence; potential ACM and lead paint	BOL	Commercial
Greater Rockford Auto Auction NA	1681V2-47	Former USTs with documented release; potential UST(s); evidence of chemical use; potentially impacted soil and groundwater; transformers; potential natural gas pipeline; potential ACM and lead paint	NPL SEMS, LUST, BOL, UST, IEMA	Commercial
Kadon Precision Machining NA	1681V2-49	Evidence of chemical use; potentially impacted soil and groundwater; transformers; potential ACM and lead paint	NPL SEMS, RCRA, BOL	Industrial
RJ Link NA	1681V2-50	Evidence of chemical use; spill; potentially impacted soil and groundwater; transformers; potential ACM and lead paint	NPL SEMS, SRP, RCRA, BOL, IEMA	Industrial
Sheet Metal Connectors NA	1681V2-51	Evidence of former chemical use; potential chemical use; potentially impacted soil and groundwater; transformers; potential ACM and lead paint	NPL SEMS, RCRA, BOL	Industrial
Action Tool and Die NA	1681V2-52	Evidence of chemical use; potentially impacted soil and groundwater; transformer; potential ACM and lead paint	NPL SEMS, RCRA, BOL	Industrial
Commercial buildings NA	1681V2-53	Former UST; potential UST(s); evidence of chemical use; potentially impacted soil and groundwater; transformer; potential ACM and lead paint	NPL SEMS, RCRA, BOL, UST	Commercial
Agricultural land NA	1681V2-54	Potentially impacted soil and groundwater; transformer; likely	NPL SEMS	Commercial

		pesticide and/or herbicide use		
A Place for Space NA	1681V2-55	Potentially impacted soil and groundwater; potential ACM and lead paint	NPL SEMS	Commercial
Pond NA	1681V2-56	Potentially impacted soil and groundwater	NPL SEMS	Pond
A Place for Space NA	1681V2-57	Evidence of chemical use; potential natural gas pipeline; potential ACM and lead paint	BOL	Commercial
Commercial buildings NA	1681V2-58	Potential UST(s); evidence of former chemical use; potential natural gas pipeline; potential ACM and lead paint	BOL	Commercial
Agricultural land NA	1681V2-61	Petroleum pipeline; likely pesticide and/or herbicide use	None	Agricultural
Vacant land NA	1681V2-62	Petroleum pipeline	None	Vacant
Vacant land NA	1681V2-63	Petroleum pipeline	None	Vacant

6. Threatened & Endangered Species Locations

Potential sensitive species and sensitive ecological areas were examined using the IDNR Ecological Compliance Assessment Tool (EcoCAT) for project planning purposes only. The Natural Heritage Database identified three species as threatened in the vicinity of the study area. The EcoCAT results are presented in Table 10 below and the report is included in Appendix B.

Table 10: State Listed Threatened and Endangered Species

Common Name	Scientific Name	Threatened or Endangered	Habitat Description	Habitat Present in Study area
American Brook Lamprey	*Lethenteron appendix*	Threatened	Adults are found in clear brooks with fast flowing water and either sand or gravel bottoms. Juveniles are found in slow moving water buried in soft substrate of medium to large streams.	Potential habitat present
Black Sandshell	*Ligumia recta*	Threatened	Found in rivers, lakes, and large streams, usually in riffles or raceways with good current. Substrates it inhabits include sandy mud, firm sand, or gravel.	Potential habitat present
Gravel Chub	*Erimystax x-punctatus*	Threatened	Found in small rivers and medium to large creeks and streams. It is found in riffles over fine gravel and over pea-sized limestone gravel in clear to slightly turbid waters.	Potential habitat present

The United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) tool was also utilized and identified four species as threatened or endangered in Winnebago County, Illinois. There is no critical habitat or refuges for any of the identified species within the study area. The IPaC results are presented in Table 11 and the report is included in Appendix B.

Table 11: Federally Listed Threatened and Endangered Species

Common Name	Scientific Name	Threatened or Endangered	Habitat Description	Habitat Present in Study area
Indiana Bat	*Myotis sodalis*	Endangered	Hibernates in caves and mines, roosts and forages in upland forests and woods	Potential roost and forage habitat present
Northern Long-eared Bat	*Myotis septentrionalis*	Threatened	Hibernates in caves and mines, roosts and forages in upland forests and woods	Potential roost and forage habitat present
Eastern Prairie Fringed Orchid	*Platanthera leucophaea*	Threatened	Moderate to high quality wetlands, sedge meadows, and marshes	Potential habitat present
Prairie Bush Clover	*Lespedeza leptosachya*	Threatened	Dry to mesic prairies with gravelly soil	No habitat present

Further coordination with the USFWS and IDNR will be conducted for potential impacts to these federally and state-listed species.

7. Natural Areas

The Illinois Natural Heritage Database is a central location of information on significant natural features within the state. Based on a review of the Illinois Natural Heritage Database through the EcoCAT review described in Section 6, one natural area is near the study area. The County Line Forest Preserve is located north of the study area between US 20 and Highway 90 and is shown on the Environmental Resource Maps in Appendix B. The Kishwaukee River borders the west side of the forest preserve. This natural area is 158.2 acres and features two miles of hiking trails, canoe access, birdwatching, and prairie restoration including wet mesic prairie and mesic prairie habitats. No impacts to the County Line Forest Preserve are anticipated for this project.

8. Air Quality

The study area for this project is located on the south and east sides of Rockford, Illinois in Winnebago County. The National Ambient Air Quality Standards (NAAQS) established by the

USEPA, set criteria for the maximum allowable concentration limits for six air criteria pollutants. These standards were established in order to protect public health, safety, and welfare from known or anticipated effects of air pollutants. Areas in which air pollution levels persistently exceed the NAAQS may be designated as "non-attainment". States in which a non-attainment area is located must develop and implement a State Implementation Plan (SIP) containing policies and regulations that will bring about attainment of the NAAQS. No portion of this project is located within a designated non-attainment or maintenance area for which USEPA has established standards. Accordingly, a conformity determination under 40 CFR Part 93 ("Determining Conformity of Federal Actions to State or Federal Implementation Plans") is not required.

Mobile source air toxics (MSAT) are pollutants emitted from highway vehicles and non-road equipment that are known to cause or suspected to cause health and environmental effects. Examples of MSAT include acrolein, benzene, 1,3-butidiene, diesel particular matter, formaldehyde, polycyclic organic matter and naphthalene. The MSAT Memorandum dated May 6, 2008 stated that the project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions relative to the no-build alternative. As such, the FHWA has determined that the project will generate minimal air quality impacts for Clean Air Act (CAA) criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSATs. A copy of the memorandum is included in Appendix B.

Moreover, the USEPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. Even after accounting for a 64 percent increase in vehicle-miles travelled (VMT), the FHWA predicts MSATs will decline in the range of 57 to 87 percent, from 2000 to 2020, based on regulations now in effect, even with a projected 64 percent increase in VMT. This will both reduce the background level of MSATs as well as the possibility of even minor MSAT emissions from this project.

9. Noise

Traffic noise is considered unwanted sound from cars and trucks that may interfere with normal human activities. Traffic noise policy has been developed to identify when detailed analysis is required and what levels of noise trigger the investigation for noise abatement. Noise levels are measured on a logarithmic scale using units of decibels (dB(A)). All references to noise level values for this project are stated as an equivalent A-weighted sound level (L_{eq}dB(A)). The L_{eq} descriptor A-weighting is the generally accepted representation in decibels of the range of human hearing and its response to varying frequencies and loudness of traffic noise. The L_{eq} dB(A) is a single number indicator used to describe the mean energy or intensity level over a specified period of time during which the sound level fluctuated. Because the L_{eq} dB(A) is not influenced by the variability of the noise-time pattern, it is an effective way to compare or combine noises with differing time histories.

Traffic noise can affect noise-sensitive land uses, called receptors, which typically are homes, parks, schools and other noise sensitive areas where frequent outdoor human use occurs. Similar receptors in an area are grouped into common noise environments (CNEs). Once sensitive land

use areas were identified, the receptors were grouped into CNEs. Each CNE has common characteristics such as exposure to noise sources and levels, general topography, and exposure to similar traffic speeds and volumes and assigned codes "A"-"G" to represent the quietest to noisiest types of outdoor environments. One receptor within the CNE is selected as the representative worst-case receptor.

Consideration for investigation of abatement occurs when the primary ambient noise source is from a traffic source and the sound during the peak traffic hours is measured / modeled as approaching the federal Noise Abatement Criteria (NAC). IDOT defines "approach the NAC" as one dB(A) less than the NAC for Activity Categories A-E. Based on land use, seven separate activity categories are used by the FHWA to assess potential noise impacts. Five of the seven activity categories have NACs that establishes noise levels where noise abatement needs to be evaluated. The NAC are noise impact thresholds for considering abatement when they are approached, met or exceeded.

The existing land use in the study area is mostly residential with some industrial and commercial areas. Noise analysis was completed for 29 receptors, representing 174 individual properties located within the 500-foot offset from the edge of shoulder: 165 residential properties (Category B), two public parks (Category C), and seven undeveloped agricultural lands (Category G). Each receptor was analyzed for three scenarios: existing conditions, design year no-action, and design year build. A Noise Technical Report was completed as part of this project.

Noise level results for the existing condition ranged from 58 dB(A) to 76 dB(A) and include nine sensitive receptors that approached, met or exceeded the NAC with a modeled design year Leq(h) of 66 dB(A) or greater. The nine receptors represent 111 residential properties. An existing 14-foot high noise barrier is located on the eastern side of the I-39/US 20 interchange and provides between 5 and 9 dB(A) reduction for five CNEs.

Noise level results for the design year no action condition ranged from 61 dB(A) to 78 dB(A) and include 12 sensitive receptors that approached, met or exceeded the NAC with a modeled design year Leq(h) of 66 dB(A) or greater. The 12 receptors represent 119 residential properties and a public park. The increases in noise levels are due to an increase in traffic volumes.

Noise level results for the design year build condition ranged from 61 dB(A) to 79 dB(A). Based on the design year build conditions analysis, 15 sensitive receptors approached, met or exceeded the NAC with a modeled design year Leq(h) of 66 dB(A) or greater. The 15 receptors represent 142 residential properties and two public parks. The change in noise levels from the existing condition to the build condition ranged from minus one to an increase of 11 dB(A).

Traffic noise abatement evaluation is used to identify potential noise abatement measures for impacted receptors. Noise abatement measures were considered only when the existing or predicted future traffic noise levels approach, meet or exceed the NAC, or when the predicted future noise levels of the build alternative result in a substantial increase over existing noise levels. When traffic noise impacts are identified, then noise abatement was considered and evaluated for feasibility and reasonableness.

Noise barriers are typically the most practicable noise abatement measures due to their cost effectiveness and ability to be implemented on ROW and along existing roadways. Noise barriers include noise walls, earth berms or a combination of both.

Eight locations covering 17 CNEs warranted a noise barrier analysis. The noise barriers were first evaluated for feasibility in accordance with the IDOT noise policy. All eight noise barriers could be feasibly constructed with respect to construction, maintenance, safety, utility, drainage, and each achieving a minimum five dB(A) reduction for at least one benefited receptor. However, two barriers for Receptors/CNEs R2, R21 and R22 and R10 and R11 could not achieve a minimum of eight dB(A) reduction for at least one benefited receptor location, which does not meet the IDOT noise reduction goal for the abatement to be considered reasonable. It was concluded that noise barriers at the other six locations would be unreasonable due to the cost per benefited sensitive receptor (that is, greater than the calculated allowable cost per receptor). However, an existing noise barrier is already in place for Receptors R2, R21 and R22. Further consideration is needed to determine if the existing barrier should remain or be replaced if the barrier has exceeded its structural life. Removing an existing noise barrier, even though it may not be needed based upon the new alignment, would likely elicit a negative public reaction from residents.

If during final design, constraints not foreseen in the preliminary design subsequently develops, or public input substantially changes reasonableness, abatement measures may need to be reassessed. A final decision on the installation of abatement measure(s) will be made upon completion of the project's final design and the public involvement process.

IV. ALTERNATIVES CONSIDERED

The purpose and need shows that additional lanes will be needed on I-39/US 20 by the design year, that reconfiguration of the I-39/US 20 system interchange is needed, and that reconstruction of the I-39/Harrison Avenue interchange will be required. Build alternatives were considered for each of these locations as follows:

- I-39/US 20 mainline – Cross section alternatives to add lanes in the median.
- I-39/US 20 System Interchange – Alternatives to add lanes for through traffic on I-39 and to eliminate the substandard horizontal curves.
- I-39/Harrison Avenue Interchange – Alternatives to reconfigure the interchange to improve the poor level of service at the ramp weaving sections.

The No-Action Alternative was also considered for each location.

A. Transportation Demand Strategies

Strategic planning of traffic demand for the project area has been under the direction of the local planning organizations. This project is included in the long range plan.

B. Proposed Highway Design Guidelines

Design criteria for the project was developed from the BDE Manual and from the Bureau of Local Roads and Streets Manual (BLRS Manual). The BDE Manual was used to develop design criteria along I-39/US 20, for the interchanges, and along Harrison Avenue/US 20. Design criteria for Linden, Mulford, and Perryville Roads at the I-39/US 20 grade separations were developed from the BLRS Manual.

None of the roads under local jurisdiction (Linden, Mulford, and Perryville) have sufficient lanes to accommodate the design year traffic. The existing roadways will be improved where necessary to accommodate construction on I-39/US 20. Since the necessary improvement length is relatively short and the local agencies do not have lane addition projects programmed, the improvements will be made to match the existing number of lanes.

Design criteria for the project is included in Appendix A.

1. Alternative Typical Sections for I-39/US 20

Three build alternatives and the No-Action Alternative were considered for the I-39/US 20 mainline. All of the build alternatives would include widening I-39/US 20 to three lanes in each direction using a median barrier.

Alternative 1 – 10-Ft Shoulder Width
This alternative consists of constructing three 12-ft wide lanes in each direction with 10-ft wide inside and outside shoulders. Northbound and southbound traffic would be separated by a 3-ft wide concrete barrier. The 10-ft shoulder is the minimum width required (see Figure 20A).

The distance from the centerline to the outside of the shoulder would be 57.50-ft, compared to 54.00-ft for the existing. This widening, combined with the current requirements for 6:1 slopes within the clear zone, will likely result in the need for additional right-of-way or retaining walls at some locations along I-39.

Advantage:

- Meets current IDOT policy.

Disadvantage:

- Some additional right-of-way or retaining walls may be required.

Alternative 2 – Narrow Median Shoulders
This alternative consists of constructing three 12-ft wide lanes in each direction with a 10-ft wide outside shoulder and a 6.50-ft wide inside shoulder (see Figure 20A). Northbound and southbound traffic would be separated by a 3-ft wide concrete barrier. The additional lanes

would be constructed entirely in the existing median, and the existing lanes and outside shoulder would remain at their current location. The existing 4:1 slopes would also remain in place.

A variance would be required for the 6.5-ft inside shoulder. The 4:1 existing slopes would be allowed to remain in place under current policy.

Advantages:

- Lowest cost 6-lane alternative.
- No additional right-of-way required for six lanes.
- Simplifies stage construction if existing pavement is not removed.

Disadvantage:

- A 6.5-ft wide inside shoulder does not meet current policy, does not provide room for a disabled vehicle, and could complicate future construction staging.

Alternative 3 – 12-Ft Shoulder Width
For this alternative, three 12-ft wide lanes would be constructed in each direction with 12-ft wide inside and outside paved shoulders (see Figure 20B). Fill slopes would be flattened to 6:1 in the clear zone. Current policy indicates that 12-ft wide shoulders are preferred in areas of heavy truck traffic. The projected ADT on I-39/US 20 in the design year is 106,610 with 25% trucks, yielding an ADTT of 26,650.

The distance from the centerline to the outside of the shoulder would be 61.5-ft compared to 54.00-ft for the existing. This widening, combined with flattening the slopes within the clear zone to 6:1, will likely result in the need for additional right-of-way or retaining walls at some locations along I-39.

Advantages:

- Meets current design criteria.
- Provides 12-ft shoulders in areas of heavy truck traffic.
- Additional width could simplify future construction staging.

Disadvantages:

- Highest cost.
- More additional right-of-way or retaining walls.

2. Design Speed

Table 12 summarizes the design speeds used for all of the roadways. Included in Appendix C is a memorandum dated March 13, 2015, that discusses keeping the design speed of I-39/US 20 at 70 mph.

Table 12: Design Speeds

ROADWAY	DESIGN SPEED
I-39/US 20	70 mph
Harrison Ave./US 20	35 to 45 mph
Mulford at I-39/US 20	45 mph
Linden at I-39	45 mph
Perryville at I-39/US 20	45 mph
Mill Road at Harrison Ave.	40 mph
Perryville at Harrison Ave.	40 mph
South Mall Drive at Harrison Ave.	30 mph

C. No-Action Alternative

The No-Action Alternative would consist of maintaining the existing roadway, including routine maintenance and minor improvements. Some improvements could require the acquisition of small amounts of land for such items as drainage improvements. No residences or commercial businesses would likely be taken for highway use, and access to adjacent properties and travel patterns would remain unchanged.

The No-Action Alternative would fail to meet most of the items of the Purpose and Need Statement. Traffic on the existing interstate would continue to increase, and levels of service would deteriorate. The level of service on I-39/US 20 would be F in the design year.

D. I-39/US 20 System Interchange Alternatives

The existing I-39/US 20 system interchange was constructed as a three-legged trumpet with future plans to be extended to the north. The northbound extension was never constructed, and subsequent development makes it clear that extension will never occur. Through traffic on I-39 northbound travels on a one-lane ramp and merges with US 20 eastbound traffic on a standard entrance ramp. Through traffic on I-39 southbound exits on a one-lane standard exit ramp then joins the US 20 to I-39 southbound traffic creating one of the two lanes along I-39 southbound. Eastbound US 20 to southbound I-39 exits on a one-lane standard exit ramp then joins the I-39 southbound traffic creating the second of the two lanes along I-39 southbound. Northbound I-39 traffic accessing westbound US 20 uses a one-lane loop ramp with a design speed of 30 mph in the northeast quadrant of the interchange. This interchange has seven single lane structures. Figure 7 shows the existing I-39/US 20 system interchange.

1. Build Alternative A – Add Lanes to I-39

A new lane would be added to northbound and to southbound I-39 resulting in two lanes in each direction. The substandard horizontal curves would be improved to a 60 mph design speed. The existing ramp terminal at US 20 would be reconstructed to a major convergence/major divergence (see Figure 21). The construction and right-of-way cost for Alternative A are anticipated to be in the range of $10 to $15 million.

Advantages:

- Provides improved level of service.
- Provides a second lane in each direction on I-39 to facilitate future maintenance.
- Lowest cost build alternative.
- Simplified stage construction.

Disadvantages:

- Does not provide 70 mph design speed radius curves on I-39 as required by policy.
- Residential property impacts.

2. Build Alternative B – Realign and Add Lanes to I-39

This alternative is similar to Alternative A, except that I-39 northbound and southbound are realigned to eliminate the short tangent section, increase the radius of the horizontal curves and provide a 70 mph design speed (see Figure 22). The construction and right-of-way cost for Alternative B is estimated to be in the range of $25 to $30 million.

Advantages:

- Provides improved level of service.
- Provides a second lane in each direction on I-39.
- Provides a preferred alignment and highway design speed on I-39.
- Requires less right-of-way than Alternative A.

Disadvantages:

- Higher cost than Alternative A.
- More complex stage construction than Alternative A.

3. Build Alternative C – Eliminate Loop Ramp, Realign, and Add Lanes to I-39

In this alternative, lanes are added to I-39 and the alignment improved to the design standards. In addition, the 30 mph design speed north to west loop ramp is eliminated, and a free flow ramp provided (see Figure 23). The construction and right-of-way cost for Alternative C is estimated to be in the range of $30 to $35 million.

Advantages:

- Same as Alternative B.
- Eliminate loop ramp.

Disadvantages:

- Highest cost.
- Most complex staging.
- Significant ROW required.

E. I-39/Harrison Avenue Interchange Alternatives

The existing I-39/Harrison Avenue interchange is a full cloverleaf interchange that provides free-flow connections for all traffic movements. All ramps are one lane with 14-ft to 16-ft wide pavement, 4-ft paved inside shoulders, and 8-ft paved outside shoulders. The existing dual interchange structures carrying I-39 over Harrison Avenue are three-lane structures including an auxiliary lane. The I-39/Harrison Avenue interchange is one of three primary local access interchanges with I-39 on the east side of Rockford. It provides connections to Perryville Road and the City of Rockford to the west and to Mill Road and the Village of Cherry Valley to the east. It also serves as the through route for US 20 and its connections east to Chicago and west to Galena. The interchange also provides access to a large shopping area at South Mall Drive and the Magic Waters Waterpark immediately north. Figure 8 shows the existing I-39/Harrison Avenue interchange.

1. Build Alternative A – Diamond Interchange

The existing full cloverleaf interchange would be replaced by a diamond interchange (see Figure 24). Both ramp intersections at Harrison Avenue would be signalized. This can be constructed within the existing ROW. However, the required LOS C rating cannot be achieved in the design year. The estimated construction cost is in the range of $35 to $40 million.

Advantages:

- No ROW is required.
- All BDE geometric requirements can be met.
- Bridges over Harrison will not carry auxiliary lanes.
- Simplified, standard interchange type.
- Eliminates weaving on I-39 and US 20 (except NB transition to I-90 interchange).

Disadvantages:

- Even with triple left-turn lanes for the northbound off-ramp, the LOS at the Harrison Avenue intersection is D. The west ramp terminal signalized intersection with Harrison Avenue operates at LOS F in the design year as does the southbound merge with I-39.
- Construction would involve re-grading most of the interchange.
- Free flow movements only at northbound right and southbound right.

2. Build Alternative B – Four-Quadrant, Partial Cloverleaf Interchange

This alternative eliminates the 185-ft radius loop ramps in the northeast and southwest quadrants and eliminates the weaving sections within the interchange (see Figure 25). Both ramp terminal intersections at Harrison Avenue would be signalized. The northbound exit ramp will be constructed as a two-lane exit, terminating with dual left-turn lanes perpendicular to Harrison Avenue and a free-flow right-turn lane. The free-flow right turn will include a large island and parallel type acceleration lane.

The southbound exit ramp will be constructed as a standard one-lane exit ramp terminating perpendicular to Harrison Avenue. The loop ramps in the northwest and southeast quadrants would be rebuilt to better reflect current guidelines. The westbound to southbound loop will include an auxiliary acceleration lane terminating prior to structure 101-0069 (SB I-39 over the Union-Pacific Railroad). AASHTO standards can be met where it is not possible to meet all of the requirements of the BDE Manual and stay within existing ROW.

This alternative will allow improvements to ramps DB and BC (constructed with the Illinois State Toll Highway Authority, or ISTHA, improvement to I-39/I-90 tollway interchange) to remain in service (see Figure 25). Additionally, right-turn lanes can be constructed near the current alignment and some of the existing grading can be utilized in the new construction. The estimated construction cost is in the range of $33 to $38 million.

Advantages:

- Meets BDE requirement for improved LOS during design year.
- Eliminates weaving sections.
- Does not require purchase of private property for additional ROW.
- Can use much of existing grading with construction of new ramps.
- Simplifies stage construction.

Disadvantage:

- Geometrics can meet AASHTO, but not all BDE requirements, without purchase of ROW.

3. Build Alternative C – Single-Point, Urban Interchange

The existing full cloverleaf interchange would be replaced by a single-point, urban interchange (see Figure 26). The existing outer ramps would be reconstructed to meet current BDE standards. This can be constructed within the existing ROW. However, the required LOS C rating cannot be achieved in the design year. The estimated construction cost is in the range of $50 to $55 million.

Advantages:

- Little or no ROW is required.

- Only one signalized intersection.
- Bridges do not carry auxiliary lanes.
- Maximizes distance from ramp terminal on Harrison Avenue to first points of access at South Mall Drive and Mill Road.

Disadvantages:

- Signalized intersection with Harrison Avenue operates at LOS E in the design year and the southbound merge operates at LOS F.
- Structures would be larger and more complex than other alternatives.
- Complex construction staging.
- High cost.

4. Build Alternative D – Full Cloverleaf Interchange with Collector-Distributor Roadways

The existing full cloverleaf interchange would be replaced by a full cloverleaf interchange with collector-distributor roadways parallel to both I-39 and Harrison Avenue (see Figure 27). A collector-distributor roadway system will necessitate the purchase of substantial ROW to meet geometric standards. Residential displacement would be anticipated with this alternative. Using minimum separation of the C-D roadways (17-ft with concrete barrier), at least 28 parcels are affected. The structures will be longer and wider than several other alternatives. Also, the required LOS C rating cannot be achieved for the westbound weaving movement in the design year. The estimated construction and right-of-way cost is in the range of $75 to $80 million.

Advantage:

- Free-flow movements will require no signalization.

Disadvantages:

- Substantial ROW will be required, necessitating residential displacements.
- Structures would be longer and wider than other alternatives.

  Not compatible with system interchange to the north because there is not enough distance between Harrison Avenue and I-90 interchanges to provide termination and weave length for NB and SB C-D roadways.
- Complex construction staging.
- High cost.

Due to the high cost, the right-of-way required, and that there is not enough distance between the I-39/Harrison Avenue interchange and the I-39/I-90 tollway interchange to provide proper weave and termination lengths for the collector-distributor roads, Alternative D is not considered feasible and was eliminated from further study.

5. Build Alternative E – Diverging Diamond Interchange (DDI)

The existing full cloverleaf interchange would be replaced by a diverging diamond interchange (see Figure 28). The DDI is a fairly new interchange design type that improves capacity by eliminating the need for left turn lanes and long queue distances. It does this by modifying the traditional diamond interchange by crossing the through lanes along the minor route (Harrison Avenue/US 20) at each ramp terminal, resulting in through traffic traveling on the left side of the road between the ramp terminals. The through lanes are crossed back over at the other ramp terminal. The estimated construction and right-of-way cost is in the range of $40 to $45 million.

Advantages:

- Little or no ROW is required
- Eliminates loop ramps in all quadrants.
- Eliminates weaving sections within the interchange.
- Compatible with tollway interchange to the north because it maximizes the weaving distances between the two interchanges.
- Increases left turn lane capacity without needing more lanes.
- All but two movements operate at a LOS C or better in the design year. NB weave with I-90 and SB merge with I-39 are at a LOS D.

Disadvantages:

- Complex construction staging.
- Unfamiliar interchange type.
- Requires two traffic signals along Harrison Avenue.

F. Pavement Alternatives

Based on analysis in the February 2007 Soils Report, three options were evaluated for pavement replacement or rehabilitation for I-39/US 20:

- total pavement reconstruction,
- unbonded concrete overlay, or
- crack and seal with bituminous overly

Total reconstruction of either concrete pavement with full width, full depth shoulders or full depth bituminous pavement with full width, full depth shoulders was analyzed in accordance with guidelines found in Chapter 54 of the BDE Manual. The unbonded concrete overlay with a full width, full depth outside shoulder, and a full depth, 6.5-ft wide median shoulder was analyzed using the guidelines found in the Bureau of Materials and Physical Research (BMPR) Pavement Technical Advisory, M2. The crack and seal pavement with bituminous overlay with full width, full depth outside shoulder and full depth, 6.5-ft. wide median shoulder was analyzed using the guidelines found in BMPR Reports #104 and #137.

Traffic factors were calculated using a projected ADT of the following traffic types:

PV=60655; SU=17495; MU=3600 and a design lane split of PV=8%, SU=MU=37%;
Rigid Pavement Traffic Factor = 37.2
Flexible Pavement Traffic Factor = 30.0

From these factors the pavement options to be considered include several rigid and flexible choices.

Rigid Pavement Options: 10.75-in. Jointed Reinforced Concrete Pavement (JCRP) with tied shoulders (BDE Manual Fig. 54-4D) or 10.75-in. Continuously Reinforced Concrete Pavement (CRCP) or 13.5-in. JRCP (BDE Manual Fig. 54-4J)

Flexible Pavement Options: 20-in. Full-Depth Bituminous (FD) (PG 58) or 18.5-in. FD (using PG 64, 70, 74) (BDE Manual Fig. 54-5F) or 15.75-in. FD (BDE Manual Fig. 54-5L)

Other Pavement Options: Unbonded concrete overlay. According to BMPR, PTA-M2, thickness of an unbonded overlay would be 1-in. less than new pavement. Therefore, 9.75-in. CRCP will be used for the comparison.

Crack and Seal with Bituminous overlay. According to BMPR Research Report #137, the overlay thickness would be 13.5-in.

In order to reduce the number of options to be analyzed, the jointed concrete pavements and the 20-in. full-depth bituminous pavement were eliminated.

For the cost comparison the following assumptions were made:

1. The existing pavement is 24-ft. wide with 6-ft. inside and 10-ft. outside shoulders. The pavement structure consists of an average 3.5-in. bituminous overlay, 10-in. of concrete and 4-in. of stabilized subbase.
2. The existing median will need barrier wall and some sort of drainage provisions, but this work will be the same for all the options so these costs were ignored in this comparison.
3. A section length of 3.5 miles was used.
4. The median has 4:1 foreslopes with a 2-ft. ditch bottom. The outside slopes were assumed to be 6:1 for 18-ft.; 4:1 for 12-ft. with a 2-ft. ditch bottom and 3:1 backslopes.
5. The 10.75-in. CRCP, 15.75-in. and 18.5-in. FD bituminous pavements would be constructed with full width, full depth shoulders on both sides. The unbonded overlay and crack & seal overlay would be constructed with full depth shoulders 12-ft. outside width and a 6.5-ft. median side width.
6. A 4-in stabilized subbase is provided under the concrete paving options.
7. Recycled pavement can be used as aggregate subbase.

Quantities were calculated and prices estimated for the initial construction costs. The maintenance costs were calculated using the models in the BDE Life Cycle Cost Analysis spreadsheets. The unbonded 9.75 inch CRCP pavement was the least expensive option with the Crack and Seal pavement option being about 3% more. The 10.75 inch CRCP Pavement and the 15.75 inch FD Bituminous Pavement options were both similar to each other in overall cost and were approximately 12% to 14% more expensive than the unbonded 9.75 inch CRCP pavement and the Crack and Seal pavement options. The most expensive pavement option was the 18.5 inch FD Bituminous pavement option which was approximately 6% more than the 10.75 inch CRCP pavement and the 15.75 inch FD Bituminous pavement options.

V. DESCRIPTION AND ANALYSIS OF ALTERNATIVES STUDIED IN DETAIL

Three typical section alternatives were identified for I-39/US 20 (see Figure 20A & 20B). All three sections include three lanes in each direction with a concrete barrier median. The alternatives are:

A. Alternative *1* - 10 ft. shoulders
B. Alternative *2* - Narrow shoulder in median
C. Alternative *3* - 12 ft. shoulders

Three alternatives were identified for the I-39/US 20 system interchange (see Figures 21, 22, & 23):

A. Build Alternative A - Add lanes to I-39
B. Build Alternative B - Realign and add lanes to I-39
C. Build Alternative C - Eliminate loop ramp, realign and add lanes to I-39

Four feasible alternatives were identified for the I-39/Harrison Avenue interchange (see Figures 24, 25, 26, & 28):

A. Build Alternative A - Diamond
B. Build Alternative B - Partial cloverleaf
C. Build Alternative C - Single point, urban
D. Build Alternative E - Diverging Diamond

A. Attainment of Purpose and Need

All of the alternatives would satisfy the project purpose and need by improving operating conditions at the interchanges, reducing congestion in the study area, and providing geometric modifications that improve safety and provide continuity with adjacent roadway segments. As discussed below, some alternatives satisfy the project purpose and need better than other alternatives.

Of the I-39/US 20 typical section alternatives, Alternative 3 would be most effective in improving safety and operations by providing a 12-ft shoulder on a route with heavy truck traffic. Wider shoulders are also helpful during maintenance or construction activities along the interstate. In order to achieve the desired LOS C in the design year along the I-39/US 20 mainline, it was determined that it would be necessary to include auxiliary lanes on I-39/US 20 between the system interchange with US 20 and the interchange at Harrison Avenue. One auxiliary lane in each direction would be added to the proposed three lanes in each direction. A typical section is shown on Figure 29. Alternative 2, the narrow shoulder in the median, does not meet current design policy and would require a design exception.

Of the I-39/US 20 system interchange alternatives, Alternative A does not provide a 70 mph design speed as required by policy. Eliminating the loop ramp as in Alternative C provides only a marginal improvement in operation over Alternative B but this does not justify the high cost and necessary right-of-way acquisition. Alternative B would be fully compatible with a potential future project to improve the northbound I-39 to westbound US 20 movement to a 50 mph (minimum) directional ramp.

Of the four feasible I-39/Harrison Avenue interchange alternatives, Alternatives B (four quadrant partial cloverleaf) and E (diverging diamond, DDI) provide the best LOS ratings in the design year. Even with triple left–turn lanes for the northbound off-ramp, Alternative A – Diamond, only provides a LOS D at the east ramp terminal intersection with Harrison Avenue. The west ramp terminal intersection and the southbound merge are both LOS F in the design year. The signalized intersection in Alternative C – Single point, urban operates at a LOS E in the design year while the southbound merge, like the diamond type interchange, operates at LOS F. This alternative would also have complex staging and a high cost to construct.

B. Traffic Service to Region

The proposed improvement is expected to improve safety and operating conditions within the study area as well as provide continuity with adjacent roadway segments. The additional lanes and 12-ft. shoulders on the I-39/US 20 mainline will improve the LOS along the interstate, as well as simplify future traffic control for maintenance and construction.

C. Engineering Considerations Including Aesthetics

The Illinois State Toll Highway Authority (ISTHA) completed reconstruction of the I-39/I-90 tollway interchange during this Phase I study. Between the I-39/Harrison Avenue interchange and the I-39/I-90 tollway interchange, ISTHA has provided a 700 ft. northbound weaving section between the nose of the existing westbound to northbound ramp and the nose of the divergence of I-90 westbound and eastbound. The recommended alternative should maintain or increase this weaving length.

At the I-39/US 20 system interchange, the northbound I-39 and eastbound US 20 design year traffic volumes are both greater than 2000 DHV. A major convergence will be provided where these movements merge. Conversely, a major divergence will be provided for the southbound I-39 and westbound US 20 split.

The project limits do not include improvements to US 20 west of the I-39/US 20 system interchange. However, it is likely that additional lanes will be warranted in the design year. IDOT is planning to study the segment to the west as part of a future project. The structure for the southbound I-39 ramp crossing of US 20 will be designed to accommodate a six-lane cross section.

In order to provide the necessary vertical clearance at the CN and UP Railroad overpasses and at the Harrison Avenue overpass, it will be necessary to raise the I-39 profile at those locations. The minimum policy K values for sag and crest vertical curves will be provided.

At locations where structures are on horizontal and crest vertical curves there is that potential for the bridge parapets to reduce sight distance to less than minimum stopping sight distance. The sight distance at these locations were checked and inside shoulders were widened where necessary.

As part of this project, it is necessary to widen Harrison Avenue to accommodate design year traffic. Harrison Avenue will be widened to a three-lane section in each direction with curb and gutter and separated by an 18-ft raised concrete median (see Figure 30). At the interchange with I-39, Harrison Avenue will have two eastbound lanes and three westbound lanes separated by a 14-ft. raised concrete median (see Figure 30).

The intersections of Harrison Avenue with South Mall Drive and Mill Road will be improved as part of this project as well. In order to accommodate the design year traffic at the Mill Road intersection it will be necessary to widen US 20 east of Mill Road. Rather than construct lane tapers across the US 20 bridge over the Kishwaukee River, the full six-lane improvement will be extended across the bridge and the lane tapers constructed east of the bridge. Figure 31 shows the proposed typical sections at South Mall Drive and Mill Road.

None of the roads under local jurisdiction (Linden, Mulford, and Perryville) have sufficient lanes to accommodate the design year traffic. The existing roadways will be improved where necessary to accommodate construction on I-39/US 20. Since the necessary improvement length is relatively short and the local agencies do not have lane addition projects programmed, the improvements will be made to match the existing number of lanes. Figure 32 shows the proposed typical sections at Linden, Mulford, and Perryville Roads.

New two-lane grade separations will be provided along Mulford and Perryville Roads over I-39/US 20. Due to the heavy traffic volumes along Mulford and Perryville Roads, both roadways will be re-aligned at their crossing over I-39/US 20 to allow the existing structure to remain open during construction.

Guardrail will be placed along I-39 and US 20 at bridge approaches and at other locations where the embankment slope is steeper than what is required by IDOT policy.

The culvert carrying Madigan Creek beneath I-39/US 20 (SN 101-2025) was inspected in the field and an analysis of the loading on the culvert was performed (see bridge condition report approval memorandum in Appendix C). The analysis indicates that the reinforcement in the top of the slab of the structure is overstressed for the design loads. The structure is shown on the existing plans as a rigid frame. The culvert was analyzed both as a continuous slab with non-rigid connections and as a rigid frame. The calculated stresses are shown as follows:

	Bottom Reinf.	Top Reinf.	Sidewall Reinf.
Non-rigid continuous	fs = 21 ksi	fs = 32.6 ksi	N/A
Rigid frame	fs = 15.7 ksi	fs = 25.5 ksi	fs = 27.7 ksi

The structure was built in 1963 and the allowable stress in the reinforcement is shown on the existing plans as 20 ksi. There was no indication of overstress in the inspection, but cracking would most likely initiate in the top of the slab over the exterior or center wall. These areas cannot be easily inspected. Even though the culvert seems to be performing adequately, use of the culvert for the proposed construction is not recommended. At the median and ends of the culvert the fill is currently less than the design depth, but these areas will be filled to the design depth for the proposed construction. This will increase the loading above the current conditions. Without load testing or further evaluation of the as-built conditions, it is hard to predict if the culvert would continue to carry the loads without failure; therefore, replacement of the culvert is recommended.

Bridge condition report approval memorandums are included in Appendix C. The approvals are for SN 101-0067 & 0068, I-39 over Canadian National Railroad, SN 101-0069 & 0070, I-39 over Union Pacific Railroad, SN 101-0071 & 0072, I-39 over Harrison Avenue, SN 101-0098, Perryville Road over I-39/US 20, and SN 101-0131 Mulford Road over I-39/US 20.

D. Important Social Economic and Environmental Effects

The proposed project may result in impacts to the Cherry Valley Path (also called the Swanson Park Recreation Path). Unavoidable park and recreational area impacts will be minimized to the extent practicable during design and construction phases and further consultation with the Village of Cherry Valley will be required. The proposed relocation of the Cherry Valley Path may be considered a Section 4(f) *de minimis* impact by the FHWA.

Filling for roadway widening or other construction projects would impact floodplain resources. Coordination and authorization will be required from the IDNR-OWR for encroachment on any public body of water with mapped floodway or an upstream drainage area greater than one square mile in urban areas.

The proposed project would impact several identified waterways and wetlands in the study area. Madigan Creek, an unnamed tributary of the Kishwaukee River, the Kishwaukee River and three wetlands are within the study area. Impacts to waterways and wetlands will be minimized to the

extent practicable during design and construction phases. Compensatory mitigation will be developed for unavoidable impacts to waterways and wetlands as required by the CWA in consultation with IDOT and the USACE.

No effect on cultural resource sites were identified within the proposed project ROW. Phase II investigations will be required should any resources be discovered during either the design or construction phases of the project.

The PESA identified 29 sites along the project route that were determined to contain RECs. Although RECs are present, this project has been cleared for Special Waste Coordination. If all sites containing RECs are avoided, then a PSI is not required.

No impacts to threatened or endangered species locations and natural areas are anticipated for this project.

The project will generate minimal air quality impacts for criteria pollutants compared to the no-build alternative and has not been linked with any special MSAT concerns.

A noise analysis indicates that eight locations covering 17 CNEs warranted a noise barrier analysis. However, two barriers for Receptors/CNEs R2, R21 and R22 and R10 and R11 could not achieve a minimum of eight dB(A) reduction to at least one benefited receptor location, which does not meet the IDOT noise reduction goal for the abatement to be considered reasonable. The noise barriers at the other six locations would be unreasonable due to the cost per benefited sensitive receptor (that is, greater than the calculated allowable cost per receptor).

Table 13 summarizes the potential environmental impacts and recommended mitigation.

Table 13: Environmental Impact Matrix for the Recommended Alternative

Sensitive Environmental Areas	Potential Impacts of the Proposed Improvements (1)	Recommended Mitigation
Parks & Recreational Areas		
Magic Waters	No impact	-
Southeast Community Park	No impact	-
Cherry Valley Path	Potential *de minimis* 4(f) impact	Bike path relocation and improved drainage
Butler Park	No impact	
Waterways & Floodplains		
Madigan Creek	300 ft.	Permit/coordinate with USACE, IEPA
Unnamed Tributary	420 ft.	Permit/coordinate with USACE, IEPA
Kishwaukee River	260 ft.	Permit/coordinate with USACE, IEPA
Floodplains & Floodways	2.3 ac. & 0.5 ac.	Permit/coordinate with IDNR-OWR
Wetlands		
Site 1	0.03 acre	Permit/coordinate with USACE, IEPA
Site 2	0.17 acre	Permit/coordinate with USACE, IEPA

Site 3	0.04 acre	Permit/coordinate with USACE, IEPA
Cultural Resource Sites	No impact	-
Special Waste Sites	TBD during design phase	If RECs are not avoided, a PSI is required
Threatened & Endangered Species Locations	No impact	-
Natural Areas		
County Line Forest Preserve	No impact	-
Air Quality	No impact	-
Noise	17 CNEs	Noise barriers did not meet the feasible and reasonable abatement criteria

1. Final impacts to be revised with updated surveys and design.

E. Utility Involvement/Drainage Considerations

1. Utilities

Utilities in the project area include underground fiber optic, telephone, sanitary sewer, water and gas and underground and above ground electric. Fiber optic and electric are located along most of I-39/US 20 along the south and east side of the roadway. The existing utilities are shown on Figure 33.

2. Drainage

The drainage study began with requests for information from various bureaus and agencies. These included:

1. Copies of construction plans for the I-39/U.S. 20 south interchange.
2. Copies of construction plans for I-39.
3. Copies of construction plans for the I-39/Harrison Avenue interchange.
4. Copies of construction plans for the structure conveying Madigan Creek under I-39.
5. Copies of construction plans for the structure carrying U.S. 20 over the Kishwaukee River.
6. Aerial survey of the project area.
7. Requests for flooding information from the Village of Cherry Valley, City of Rockford, and Winnebago County through IDOT District 2.
8. Requests for flooding information from IDOT District 2.

Existing Drainage

Surface topography through the project area is rolling. Roadway elevations vary from 738-ft. to 852-ft. above sea level. The soil categories encountered, generally from south to north, include Fayette-Palsgrove, Flagler-Warsaw-Hononegah, and Tama-Ogle-Plano. The area soils are predominately silt loam.

Land use east and west of the I-39/US 20 system interchange is residential. The land use on the north side of this interchange is industrial. Along the I-39/US 20 corridor, between the south interchange with US 20 and the interchange with I-90, the land use along the west side is primarily agricultural, with pockets of residential and commercial. Magic Waters Park is also located at the north end of the project. The east side of I-39/US 20 is primarily residential, with pockets of commercial and agricultural. Harrison Avenue, west of the I-39 interchange, is commercial. US 20, east of the I-39/Harrison Avenue interchange, is suburban residential.

The general drainage pattern throughout the project area is from west to east, towards the Kishwaukee River. Flow to the river through the project area is collected and conveyed by Madigan Creek, various smaller unnamed streams, and roadside ditches.

In addition to 41 culverts, ranging in size from 24-in. to 84-in. pipe culverts, there are 3 structures that will be affected by this project. Structure 101-2025, a twin 12-ft.X10-ft. box culvert, carries Madigan Creek and the Cherry Valley Path under I-39/US 20 at the southern tip of the I-39/Harrison Avenue interchange. The natural flow of Madigan Creek was re-routed to the structure when the I-39/Harrison Avenue interchange was constructed in 1963. Structures 101-0073 and 101-0074 carry US 20 over the Kishwaukee River east of Mill Road.

A small (15-in.) storm sewer currently exists under Harrison Avenue, through the I-39 interchange limits. The pipes drain to 24-in. culverts, which subsequently outlet to roadside ditches. This system was constructed as part of the interchange construction project in 1963.

The existing roadside ditches through the project limits generally meet current design criteria. Except in areas surrounding structures, the fore-slopes are 4:1 and back-slopes are 3:1 (except in areas of rock cut). Ditches are generally constructed with a flat bottom, though in many areas the ditches have since become silted.

The median ditch at the southern edge of the I-39/US 20 system interchange (sta. 2529+50 to sta. 2552+75) is used to provide stormwater detention prior to its release to an unnamed stream conveying the flow to the Kishwaukee River. This detention reduces the rate of flow through a residential area on the east side of I-39.

The General Location Drainage Map and Existing Drainage Plan are included in Appendix D, Figures D-1, D-2, and D-3.

Identified Drainage Problems

Officials were contacted at the City of Rockford, the Village of Cherry Valley, Winnebago County, and IDOT regarding previous flooding within the project limits. This information was evaluated in addition to the available published information provided in the Winnebago County Flood Insurance Study and the applicable Flood Insurance Rate Maps.

Major flooding has been observed in Cherry Valley due to high waters of the Kishwaukee River. Madigan Creek has a history of overflowing its banks during major storm events. Evacuation of homes along Mill Road (near the eastern terminus of the project limits) was necessary during the flood of July 3, 1978.

On September 4, 2006, and during August 7-8, 2007, Rockford and Cherry Valley were sites of severe flooding. Surveillance reports for both events were obtained from the Illinois Department of Natural Resources (IDNR). Commercial areas south and west of Cherry Vale Mall, within the Madigan Creek drainage basin, experienced overbank flooding and channel bank erosion along Madigan Creek. About 20 residences were damaged by floodwaters east of I-39 and north of the Union-Pacific Railroad embankment. Vandiver Road (south of Harrison Avenue) in the vicinity of South Mall Drive was overtopped during both events. Additionally, the Union-Pacific Railroad embankment experienced a catastrophic failure after headwaters increased to 6-ft over the top of the corrugated metal pipe (CMP) culvert under the railroad on August 7, 2007. It is believed that damage from these floods was partially due to debris and obstructions present in and adjacent to drainage structures.

The Village of Cherry Valley reported that Harrison Avenue was overtopped west of South Mall Drive during both of these flood events. The Village is also concerned about erosion and capacity in the ditch along the north side of Harrison Avenue west of I-39, draining to the culvert identified as Culvert 24 on the Existing Drainage Plan (see Appendix D). The Village also expressed concerns regarding debris and ice collection in the box culvert and ditch on the south side of Harrison Avenue immediately west of Ramp CA (eastbound to southbound) and the capacity of the concrete ditch along the west side of Ramp CA to Culvert 23 (Structure 101-2025, conveying Madigan Creek and the Cherry Valley Path under I-39).

Concerns have been raised with both IDOT and the City of Rockford regarding discharges from the I-39 corridor potentially affecting the residential area east of I-39 along Rainbow Ridge Drive and Brookdale Road, though specific locations could not be recalled, nor could a direct relationship to I-39/US 20 be shown. However, limiting the flow rate out of IDOT right-of-way to current levels will not worsen existing drainage problems downstream.

Identified Base Floodplains
FEMA Flood Insurance Rate Maps indicate floodways crossing the corridor at 3 locations:

Canadian-National Railroad grade separation
Madigan Creek
Kishwaukee River

Limits of floodway zones are shown on the general location drainage map in Appendix D.

Existing Culverts
Existing drainage areas were delineated on USGS topographic maps and basin design flows were determined using the Rational Method (or USGS Method) as shown in the IDOT Drainage Manual. Existing culverts were identified from survey information, construction plans, and site inspection. Existing culvert locations, sizes and drainage areas are shown on the Existing Drainage Plan (see Appendix D) and in Table 14. Table 14 also shows the basin design flows used to evaluate if the existing culvert has adequate capacity. More detailed information is included in the small culvert reports for this project.

Table 14: Existing Culverts

Culvert	Station	Chain	Existing Culvert Size	Basin	Drainage Area (Acres)	Basin Design Flow (cfs)
1	2516+85	EXI39	60"	A	164	443.21
2	2538+90	EXI39	60"	B+B1+C+C1	159	355.64
3	88+55	SBRBD	53"X34"	B	115	229.25
4			Abandoned			0.00
5A	82+97	SBRBD	36"	(C+C1)/2	14.5	54.29
5B	83+09	SBRBD	36"	(C+C1)/2	14.5	54.29
5C	40+03	NBRDB	36"	(C3)/2	5	18.72
6	72+99	SBRBD	48"	C1	12.6	37.88
7	103+31	LINDENRD	24"	C4	4	12.50
8	2560+98	EXI39	36"	C5	13	50.50
8A	65+46	SBRBD	36"	C5+C4+C2+(C3)/2	30	57.80
9	1153+87	EXUS20	48"	D	39	126.71
10	2570+03	EXI39	60"	D+D2	53	168.14
11			Abandoned			0.00
12	75+02	WBRDA	24"	E	14	55.00
13	2581+08	EXI39	30"	E+H1	31	119.83
14	55+73	SBRBD	54"	D+D2+E+H1+F	103	289.84
15	58+40	NBRDB	54"	D+D2+E+H1+F+(C3)/2	108	289.84
16	51+42	MULFORD	36"	H	16	44.71
16A	52+50	MULFORD	36"	E1	8	27.08
17	49+09	MULFORD	36"	E2	13	43.24
18	2616+63	EXI39	48"	H2+E1+H	42	118.41
19	2618+11	EXI39	48"	H3	19	58.32
20	2641+83	EXI39	40"	H4	42	116.05
21	2649+94	EXI39	2@84"	G+H5	1361	721.50
22	30+51	PERRYVILL	36"	H5	16	55.74
23	2708+96	EXI39	2 @ 12'X10'	see hydraulic report	3712	1382.00
24	139+52	HARRISON	4'X4'	I12	246	285.00
24A	298+49	PBELLRD	24"		4	16.70
25	19+01	HARRBC	24"	I5	7	27.22
26	150+17	HARRISON	36"	I1+I2	10	36.80
27	8+94	HARRCA	24"	I11	3	12.64
28	10+95	HARRCA	36"	I4	4	30.30
29	13+94	HARRCA	24"	I10	4	16.85
30	9+00	HARRAD	24"	I9	5	21.06
31	2723+63	EXI39	36"	I3	7	32.80
32	2725+32	EXI39	36"	I2	4	18.10
33	17+50	HARRDB	24"	I6	3	12.64
34	8+03	HARRDB	24"	I7	5	19.44
35	21+01	HARRAD	24"	I8	4	16.85
36	1336+43	HARRISON	6'X4'	I6+I7+I13+I15	151	321.50
36A	405+01	PRMILL3	6'X4'	I6+I7+I13+I15+I16	171	372.20
36B	500+11	RELFRONT	6'X4'	I6+I7+I13	143	306.50
37	1355+24	HARRISON	36"	J	90	147.50

Some features of the existing culverts include the following:

- Culvert 2 restricts outflow from IDOT right-of-way, purposely detaining storm water within the 15 acre infield area. This appears to function satisfactory and reduces the flow rate into the residential area east of I-39.

- Culverts 14 and 15 restrict outflows from IDOT right-of-way, purposely detaining storm water within the 13.5 acre infield area (see drainage basin F on Existing Drainage Plan, Appendix D). This appears to function satisfactory and reduces the flow rate into the residential area east of I-39.

- Culvert 21, a double 84" diameter pipe culvert, carries an unnamed tributary under I-39/US 20 and the CN railroad.

- A hydraulic report was completed for Culvert 23, a double 12-ft.X10-ft. box culvert, which carries Madigan Creek and the Cherry Valley Path under I-39/US 20.

F. Possible Mitigation Measures

Mitigation for the proposed improvement includes erosion and sediment control. IDOT standard procedures will be followed for compliance with NPDES permits.

Other mitigation issues are addressed in Section V.–D. Important Social, Economic, and Environmental Effects of this report and include potential impacts to the Cherry Valley Path, floodplains, waterways, wetlands, and noise abatement.

G. Discussion of Costs and Benefits

A preliminary cost estimate for the improvement is included in the Conclusions/Recommendations Section of this report.

The benefits of the project are improved levels of service for the mainline and interchanges, a reduction in congestion in the study area, and improved system continuity. Additional lanes on I-39/US 20 will also simplify traffic control during future maintenance and construction work.

H. Priority of Implementation

Level of service in the study area will continue to deteriorate until this improvement is made. The first construction segment would be the widening of I-39/US 20 between the I-39/US 20 system interchange and the I-39/Harrison Avenue interchange. The next construction segment would include reconstruction of the I-39/Harrison Avenue interchange and all improvements along Harrison Avenue to the intersections on either side of its interchange with I-39. The improvements to the I-39/US 20 system interchange would be the final construction segment.

VI. COORDINATION ACTIVITIES

A. Local Government/Metropolitan Planning Organizations

The Rockford Metropolitan Agency for Planning (RMAP) has included widening I-39/US 20 and reconstructing the interchanges in their Year 2040 Long Range Transportation Plan (see Figure 6).

Meeting were held with representatives from the Village of Cherry Valley, the Winnebago County Highway Department and the Rockford Park District to discuss various aspects of the project. Meeting minutes are included in Appendix C.

B. State and Federal Agencies

The project has been presented to the FHWA at bi-monthly coordination meetings on October 10, 2007, June 4, 2008, December 2, 2010 and December 7, 2018. Meeting minutes for these meetings are included in Appendix C.

VII. PUBLIC INVOLVEMENT ACTIVITIES

A. Informational Meetings/Property Owner Contacts

Public Meeting No. 1
A public informational meeting for the I-39/US 20 project was held at the Cherry Valley Village Hall on October 25, 2007. A total of 72 persons attended the meeting. The meeting was held in an open house format with representatives from the Illinois Department of Transportation and the consulting firm of Hanson Professional Services Inc. These representatives were on hand to answer questions and review comments.

On display at the public informational meeting was an aerial photo of the project area and maps showing existing traffic, projected traffic, and accident history. Alternatives for widening the interstate and for reconstructing the I-39 interchanges with US 20 and with Harrison Avenue were available for viewing and discussion. A computer simulation model was used to show anticipated traffic congestion on the interstate both with and without the proposed improvements.

Public response to the project was received following the public informational open house meeting. Responses included statements of support as well as criticisms with most common point expressed being concern over excess noise and noise abatement. A noise study will be completed as part of the preliminary engineering study for this improvement. The results of the noise study will be reviewed with affected property owners. Other issues from the public informational meeting were project schedule and need for additional right-of-way. It is anticipated that at least one additional public informational meeting will be held prior to completion of Phase I. There is no organized public opposition to the project.

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A newsletter was prepared prior to the public meeting and mailed to property owners and concerned citizens (see Appendix E). Comments received and responses are included in Appendix E.

Public Meeting No. 2

A second public meeting for the I-39/US 20 project was held at the Christ the Rock Lutheran Church on March 23, 2017. A total of 80 persons attended the meeting. The meeting was held in an open house format with representatives from the Illinois Department of Transportation and the consulting firm of Hanson Professional Services Inc. These representatives were on hand to answer questions and review comments.

On display at the second public informational meeting was an aerial photo of the project showing the proposed improvements, proposed right-of-way, permanent and temporary easements, wetlands, and floodplains. Other displays showed crash data, typical sections, lane configuration through the Harrison Avenue interchange, noise analysis process and results, and the relocation of the Cherry Valley Path. A computer simulation was on display as well showing how traffic travels through a diverging diamond interchange.

Public response to the project was received following the public informational open house meeting. Responses included statements of support as well as criticisms with most common point expressed being concern over excess noise and noise abatement. A noise analysis was completed for this project and a summary of the results of this analysis is included in Section III.D of this report. Other issues from the second public informational meeting were project schedule and need for additional right-of-way. It is anticipated that Phase I will be completed by the end of 2017. There is no organized public opposition to the project.

A project mailer was prepared prior to the second public meeting and mailed to property owners and concerned citizens (see Appendix E). Comments received and responses are included in Appendix E as well.

Other Public Involvement: Other correspondence with various members of the public are also included in Appendix E

C. Commitments

A commitment for this project is to provide an additional public informational meeting prior to the beginning of construction specifically for the purpose of educating the general public with respect to the operation of and navigation through this new type of interchange (DDI, see VIII. Conclusions/Recommendations).

A second commitment for this project is to re-evaluate the bridge condition report (BCR) at the Kishwaukee River bridge just east of the US 20/Mill Road intersection during Phase 2 of the project. The Phase 1 BCR recommends structure widening and deck replacement over a complete replacement. A 0.1% grade will be retained across the structure for the Phase 1 study. When funding is available for Phase 2, the Phase 1 BCR will be re-evaluated. If the BCR then shows a complete replacement is recommended, a hydraulic report and new structure will be

designed to accommodate raising the profile grade as necessary hydraulically to achieve the required 0.5% grade for new structures. Figures 34A and 34B show proposed structure sketches for US 20 over the Kishwaukee River (SN 101-0073 and SN 101-0074).

A third commitment for this project is to conduct additional noise testing and analysis during Phase II, the detailed design and plan preparation phase of this project. This commitment was made in response to concerns voiced by several property owners during the second public informational meeting. The commitment is documented in various response letters provided in Appendix E.

VIII. CONCLUSIONS/RECOMMENDATIONS

A. Recommended Design Alternative

The recommended I-39/US 20 mainline typical section alternative is Alternative 3. This alternative meets current design criteria, provides 12-ft shoulders in an area of heavy truck traffic, and will simplify future construction staging. In addition to the three lanes in each direction, northbound and southbound auxiliary lanes are included between the I-39/US 20 system interchange and the I-39/Harrison Avenue interchange (see Figure 29). The auxiliary lane is necessary to provide a LOS C in the design year.

At the I-39/US 20 system interchange, Alternative B is the recommended alternative (see Figure 35A & 35B). Alternative B which realigns and adds lanes to I-39 meets the project purpose and need and the current design criteria without any alignment or profile variances. Alternative A was eliminated because it does not meet the design criteria. Eliminating the loop ramp as in Alternative C would be advantageous, but does not justify the high cost and necessary ROW acquisition. The recommended alternative will be fully compatible with a potential future project to improve northbound I-39 to westbound US 20 movement to a 50 mph (minimum) directional ramp. The interchange design study for I-39/US 20 system interchange is included in Volume II of this report.

At the I-39/Harrison Avenue interchange, two alternatives, the four-quadrant partial cloverleaf type A and the DDI, were carried forward for further study. Both alternatives can be constructed within existing right-of-way and both would improve the LOS of the interchange. With the partial cloverleaf alternative, two loop ramps still remain. Although the weaving movements between the loop ramps are removed with this interchange type, a low design speed of 30 mph is still necessary at the loop ramps to avoid encroachment onto residential parcels in the northwest quadrant of the interchange and to avoid conflicts with the outer connector ramp and Tuggle Drive in the southeast quadrant of the interchange. With the DDI alternative, all loop ramps are eliminated. The existing northbound weaving distance between the I-39/Harrison Avenue

interchange and the I-39/I-90 tollway interchange is 700-ft. Both alternatives increase the northbound weaving distance. The partial cloverleaf alternative increases this distance to 995-ft while the DDI increases this distance to 1,300-ft. As with the existing cloverleaf interchange, the DDI has no left turn conflicts while the partial cloverleaf alternative would introduce two left

turn movements onto Harrison Avenue. The DDI would be slightly more expensive to construct, $42 million for the DDI compared to $38 million for the partial cloverleaf.

It was proposed that the DDI replace the existing cloverleaf interchange because it eliminates the loop ramps in all quadrants, it eliminates the weaving sections within the interchange, it increases the left turn lane capacity without the need for additional lanes, and it works best with the close proximity of the I-39/I-90 tollway interchange to the north by maximizing the weaving distances between the interchanges. The Missouri Department of Transportation (MoDOT) noted that the DDI geometry also has calming features that reduce speeds while maintaining capacity (Double Crossover Diamond Interchange, Federal Highway Administration Publication No.: FHWA-HRT-09-054). Figure 28 shows a schematic of the proposed DDI alternative and the interchange design study for the DDI is included in Volume II of this report.

The overall proposed improvements include converting the existing cloverleaf layout at the I-39 and Harrison Avenue interchange to a diverging diamond interchange (DDI) and modifying the I-39/US 20 system interchange to two lanes in each direction and a 70 mph design speed along the I-39 mainline through the interchange. As part of the improvements, there will be three lanes in each direction along Harrison Avenue from west of South Mall Drive to east of Mill Road and I-39/US 20 will be widened to three lanes plus an auxiliary lane in each direction from south of the I-39/Harrison Avenue interchange to the I-39/US 20 system interchange. The additional right-of-way required for this project is anticipated to be 7.31 acres. The additional temporary easement required for this project is anticipated to be 2.09 acres. The additional permanent easement required for this project is anticipated to be 0.26 acres.

Plan and profile drawings for the recommended alternative are included in Volume II of this report. Interchange design studies at the I-39/US 20 system interchange and at I-39/Harrison Avenue interchange along with intersection design studies at Harrison Avenue/South Mall Drive and at US 20/Mill Road are also included in Volume II of this report. The existing and proposed geometry sheets are also included in Volume II.

B. Design Features

1. I-39/US 20 System Interchange

For details of the proposed interchange, see the Interchange Design Study in Volume II. Type, size, and location (TS&L's) studies were prepared for several structures within this interchange including I-39 northbound (Ramp DB) over Linden, I-39 northbound to US 20 westbound (Ramp DA) over I-39 southbound (Ramp BD), I-39 southbound (Ramp BD) over US 20, and Linden Road over I-39 southbound (Ramp BD). These TS&L's are included in Volume II of this report.

Design Criteria
The interchange will be designed in accordance with the interchange design criteria contained in Appendix A. The design speed will be 70 mph. Typical sections for the interchange ramps are shown in Figure 36A and 36B.

Right-of-Way

Additional right-of-way required at the I-39/US 20 system interchange is estimated to be approximately 0.88 acres along the I-39 southbound ramp (Ramp BD) near Sta. 118+00 to Sta. 129+42 and near Sta. 192+00 to Sta. 203+00. There are no anticipated displacements.

Major Divergence – Northbound and Southbound
A major divergence is proposed where I-39 and US 20 traffic split, both for northbound and southbound traffic. The BDE Manual (Section 37-6.03(a)) states that a major divergence should be provided where two freeways separate. I-39 and US 20 are both freeways at this location. Since the interstate is considered the preferred route, a two-lane exit would require that US 20 be marked on the exit ramp. In each case this would result in a left-hand exit, or a right-hand exit and flyover. The BDE manual (37-6.01(a) 2.) states that interchange designs should not use left-hand exit terminals.

Major Convergence - Northbound
A major convergence is proposed where northbound I-39 and eastbound US 20 merge. The BDE Manual (Section 37-6.04(a)) states that a major convergence should be provided where two freeways merge. I-39 and US 20 are both freeways at this location. Since the interstate is considered the preferred route a two-lane entrance ramp would require that U.S. 20 be marked on the entrance ramp. This would require a left-hand entrance or realignment or a right-hand entrance and flyover. A left-hand entrance is not consistent with BDE requirements.

Standard Entrance - Southbound
A standard entrance ramp terminal is proposed for eastbound US 20 to southbound I-39 traffic merging with I-39 southbound traffic. The US 20 to I-39 traffic volume is relatively low. Eastbound US 20 to southbound I-39 is one-lane and can use a standard right-hand entrance to merge with I-39 southbound.

Profile of Southbound I-39
Southbound I-39 (Ramp BD) crosses US 20, the northbound I-39 to westbound US 20 ramp (Ramp DA), and Linden Road. Three profile alternatives were evaluated for these grade separated crossings:

- Alternative 1 – I-39 over all three
- Alternative 2 – I-39 under all three
- Alternative 3 – I-39 over US 20, under Ramp DA and under Linden Road.

The criteria used for evaluating the alternatives was a 70 mph design speed and 16 ft.-9 in. vertical clearance for all grade separations.

Alternative 1 – This alternative meets the required design criteria but requires construction of embankments up to 60-ft. high. The total earthwork would exceed 800,000 cy. Most of this material could be provided from within the interchange.

Alternative 2 – The minimum profile elevation for the alternative would be at the US 20 underpass at an elevation of approximately 798-ft. This is below the elevation of the available drainage outlets. A significant drainage easement and drainage ditch across adjacent property, or a pump station, would be required.

Alternative 3 – This alternative meets the required design criteria, but requires temporary runarounds at Linden Road and the ramp during construction. Some temporary closures or one-lane traffic may be required at Linden Road.

Alternative 2 was eliminated due to the need for a drainage easement or pump station.

Alternative 1 was eliminated due to the cost and potential settlement associated with the high embankment.

Alternative 3 is the recommended alternative. Alternative 3 may require shoulder widening at structures for sight distance at bridge parapets on horizontal curves.

Southbound I-39 Structure over US 20 (Ramp BD)
The curved structure for Ramp BD over US 20 crosses US 20 at a high skew angle. While highly skewed structures are normally avoided, this represents the best available solution at this location.

A typical layout would place a pier in the median parallel to existing US 20 and a parallel pier on either side of US 20 outside the clear zone. The bridge would be skewed approximately 65.5 degrees to the local tangent of the alignment at the station of the median pier. However, in order to minimize the effects of the skew we propose the use of two straddle bent piers set radially. Each pier will have two columns and a cap which will support the curved girder superstructure. Pier 1's northerly column will be set behind a concrete barrier for the westbound lanes. Its southerly column will be located in the median of US 20. Pier 2's southerly column will be located outside the clear zone of the eastbound lanes. Its northerly column will be located in the median of US 20. The abutments will be supported on piles but will be constructed on MSE embankment. The closest points of the north MSE wall would be located behind a concrete barrier for westbound lanes. The south MSE wall would be located outside the clear zones of US 20. The abutments, like the piers will be constructed such that the bearing lines for the curved girders will be radial to the curve.

The total structure depth (including super elevation) would be approximately 10.5-ft, requiring an adjustment to the existing ramp profile. Since the bridge is on a horizontal curve and a crest vertical curve it will be necessary to widen the shoulder to 18-ft to prevent the parapet from blocking the sight distance. The bridge shoulders were widened at I-39 southbound (Ramp BD) over US 20. This information is shown on the I-39/US 20 system interchange design study in Volume II of this report.

IDOT has plans to add lanes to US 20 west of our project study area. This is part of a future IDOT project. The anticipated typical section will have three lanes in each direction. This was used to set the bridge width for southbound I-39 over US 20.

Northbound I-39(Ramp DB) Structure over Linden Road
Bridge shoulders were also widened along I-39 northbound (Ramp DB) over Linden Road. To improve the sight distance at this location the inside shoulders were widened to 18-ft. This information is shown on the I-39/US 20 system interchange design study in Volume II of this report.

Weaving
The distance between the I-39/Harrison Avenue interchange and the I-39/US 20 system interchange to the south is 2.84 miles. This allows adequate distance for acceleration, deceleration, and weaving to take place between interchanges and was not analyzed further. In addition, an auxiliary lane is included in each direction between the I-39/US 20 system interchange and the I-39/Harrison Avenue interchange creating four lanes in each direction.

2. I-39/US 20 Mainline

Design Criteria
The interstate will be designed in accordance with the design criteria contained in Appendix A. The design speed will be 70 mph.

Typical Section
Additional lanes along I-39/US 20 are important for increased capacity and continuity with adjacent sections. In addition to the three lanes in each direction along I-39/US 20, northbound and southbound auxiliary lanes will be included between the US 20 system interchange and the Harrison Avenue interchange. The proposed typical section will have 48-ft. pavement in each direction with 12-ft. inside and outside shoulders. The through lanes will be separated by a 27-ft. median with a 3-ft. wide concrete median barrier (see Figure 29).

Retaining Walls
Retaining walls will be constructed along I-39/US 20 where shown on the plan and profile sheets (see Volume II). The retaining walls are used to avoid taking right-of-way in residential areas. Material selection for retaining walls will be based on an economic analysis at the time of design.

Mulford Road Grade Separation
Due to widening of I-39/US 20, it will be necessary to replace the Mulford Road structure over I-39/US 20. A proposed plan and profile drawing for Mulford Road is included in Volume II. In order to maintain two-way traffic on Mulford Road during construction, the new structure is offset from the existing alignment. Approximately 1.28 acres of right-of-way is needed along the east side of Mulford Road (see plan sheet, Volume II). Figure 32 shows the proposed Mulford Road typical section. The TS&L for Mulford Road over I-39/US 20 is included in Volume II of this report.

Perryville Road Grade Separation

The existing Perryville road structure has a substandard vertical clearance. This structure will be replaced during widening. A proposed plan and profile drawing for Perryville Road is included in Volume II. Approximately 2.26 acres of right-of-way and 0.12 acres of temporary easement are needed along Perryville Road (see plan sheet, Volume II). Figure 32 shows the proposed Perryville Road typical section. The TS&L for Perryville Road over I-39/US 20 is included in Volume II of this report.

Right-of-way
Besides the right-of-way needed along Mulford and Perryville Roads, additional right-of-way, approximately 0.78 acres, is needed along the south side (right side) of I-39/US 20 between Sta. 2638+00 and Sta. 2655+00. A temporary easement of 0.10 acres is needed near the UP railroad crossing (see plan sheets, Volume II).

Shoulder Pavement
In accordance with BDE Provisions Memorandum 15-02, the shoulders on I-39/US 20 will be built as pavement using the same material, details, and design as the mainline pavement. This will also apply to the segments of I-39 through the interchanges and to US 20 east of the I-39/Harrison Avenue interchange.

I-39/US 20 Structures Over CN & UP Railroads
The length of the structures over the CN railroad near I-39 Sta. 2648+00 will include space for an additional track. The I-39/US 20 profile at this location was raised to accommodate the vertical clearance over the CN tracks. The proposed profile is shown on the profile sheets and on the TS&L for these structures included in Volume II of this report. A permanent easement of 0.19 acres is needed at the CN Railroad.

The length of the structures over the UP railroad near I-39 Sta. 2684+59.76 will be increased to provide space for an additional track and an access road. To provide the appropriate vertical clearance the mainline profile was raised by decreasing the vertical curve length at Sta. 2684+10.60 from 1000-ft. vertical curve to 700-ft. vertical curve. The approach grades remained unchanged. The meeting minutes for this conference call are included in Appendix C. Type, Size, and Location studies were prepared for these structures and are included in Volume II of this report. A permanent easement of 0.07 acres is needed at the UP Railroad.

3. I-39/Harrison Avenue Interchange

The DDI presents a modern interchange design that has some similarities with the design of a conventional diamond interchange. The main differences are in the manner left turn and through movements navigate between the crossroad intersections with ramps. On the crossroad, traffic crosses over to the left side of the roadway between the intersections of the interchange. Once on the left side of the roadway, vehicles can turn left onto freeway entrance ramps without stopping and without conflicting with through movements. This interchange utilizes typical diamond type ramps, modified at the crossroad intersections.

The primary elements of a DDI are:

- Left-turn and through movements are relocated to the opposite side of the roadway. Relocating traffic to the left side of the roadway creates unopposed left turns at the ramp intersections with the minor route.

- Median width is increased to allow for flaring required for reverse curves on the approaches to the signalized ramp terminal intersections.

- Pedestrian crossings are accommodated by installing cross walks and signals with pedestrian signal heads at the intersections. The arterial median within the interchange can be utilized for pedestrians and bikes; paths can also be built along the outside.

- The DDI interchange type has diverge, merge, and crossing conflict points, 18 conflict points in total. Four of these conflict points are located on the interstate and the remaining 14 points are located on the lower speed cross road, Harrison Avenue, where traffic speed is somewhat controlled by traffic signals and proper curvature of the median/islands through the interchange area.

The DDI and the interstate were studied in more detail to determine the lane and ramp layout. The northbound exit ramp will be constructed as a two-lane exit ramp terminal. The southbound exit ramp is a standard exit ramp terminal. The northbound and southbound entrance ramps will be constructed as entrance ramp terminals with an auxiliary lane. Mainline I-39/US 20 will be three lanes in the southbound direction and two lanes in the northbound direction through the interchange (see Figure 29). South of the interchange, and continuing to the I-39/US 20 system interchange, there will be three-lanes each direction and an auxiliary lane in each direction. These auxiliary lanes will terminate as southbound entrance and northbound exit ramps. Proposed ramp typical sections are shown in Figures 36A and 36B. Figure 37 shows the lane configuration of the DDI at I-39 and Harrison Avenue. The I-39/Harrison Avenue Interchange Design Study is included in Volume II of this report.

Design Criteria

The interchange will be designed in accordance with the interchange design criteria contained in Appendix A. The design speed will be 70 mph along I-39, 35 to 45 mph along Harrison Avenue, and 35 to 50 mph for the interchange ramps.

Right-of-way

Approximately 0.08 acres of right-of-way will be needed in the northwest quadrant of the I-39/Harrison Avenue interchange to accommodate the I-39 southbound exit ramp (Ramp C). As discussed in the Environmental Resources section of this report, the Cherry Valley Path will be relocated as shown on the plan sheets included in Volume II of this report. Approximately, 1.74 acres of temporary easement is necessary to remove the existing path and relocate the path to its proposed location.

Weaving movements

Reconstructing the existing cloverleaf interchange to a DDI eliminates the weaving movements within the interchange but not with the I-39/I-90 tollway interchange to the north which is only 0.68 miles north of the I-39/Harrison Avenue interchange. The Illinois State Toll Highway Authority (ISTHA) completed reconstruction of the I-39/I-90 tollway interchange in 2009. Between the existing I-39/Harrison Avenue interchange and the reconstructed I-39/I-90 tollway interchange, the ISTHA has constructed a 700-ft northbound weaving section between the nose of westbound to northbound ramp and the nose of the divergence of I-90 westbound and eastbound. The proposed DDI when compared to other alternatives considered, maximizes these weave distances to 1300-ft in the northbound direction and 1700-ft in the southbound direction.

Lane Balance

Increasing the number of northbound through lanes from 2 to 3 creates some challenges with respect to lane balance and lane tapers from the north side of the I-39/Harrison Avenue interchange through the divergence of ramps G and H at the I-39/I-90 tollway interchange, regardless of the alternative selected. There is not enough distance between the interchanges to adequately develop standard configurations. The DDI reduces the weaving activity to the traffic entering on ramp A that will exit on ramp G to westbound I-90. Further, the arrangement can meet most AASHTO minimum recommendations. The item not able to meet AASHTO minimum recommendations is the distance beyond the I-39/Harrison Avenue interchange for the lane drops on ramps G and H (I-90 tollway westbound and eastbound ramps).

Proposed Traffic

The proposed DDI at I-39 and Harrison Avenue removes the loop ramps from within the interchange area which eliminates the weaving movements between these ramps. The remaining movements are the two weaves with I-90, the northbound major diverge, and the southbound major merge. The remaining movements within the DDI were then analyzed to determine the LOS along with the ramp terminal signals with Harrison Avenue. HCS 2010 software program was used to determine LOS for the two weave segments on I-39 and the major merge and diverge. Since HCS 2010 software program cannot accurately model the lane placement and unique signal timing of the ramp terminal signals, the VISSIM model was used to determine the LOS along Harrison Avenue. The year 2040 modeling information for the proposed DDI is shown in Table 15. The VISSIM model is discussed further in the *System Operations* section of the Access Justification Report (AJR) for I-39 at US 20 (Harrison Avenue) which was completed as part of this project and approved in May of 2016.

Table 15: I-39/Harrison Avenue Design Year Movement LOS – 2040 Build

Movement	Type of Maneuver	2040 Build	
		Peak Hour LOS	PC/MI/LN
Northbound I-39 to Harrison Avenue	Major Diverge	C	22.7
Northbound I-39 from Harrison Avenue	One-Sided Weave with I-90	D	30.4
Southbound I-39 to Harrison Avenue	One-Sided Weave with I-90	C	23.4

Southbound I-39 from Harrison Avenue	Major Merge	D	33.7
Northbound I-39 On/Off Ramp	Signal	C	24.0
Southbound I-39 On/Off Ramp	Signal	B	17.4

As shown in Table 15 above, the northbound weave with I-90 remained a LOS D (see Table 6 for No Build weave LOS) while the southbound weave with I-90 improved from a LOS E in the 2040 no build (see Table 6) to a LOS C with the 2040 build conditions. With the DDI, the weaving lengths between the two interchanges were maximized as compared to other interchange types considered. Figure 38 shows the proposed weaving traffic and proposed ramp traffic of the DDI. Seventy-three percent (73%) of the northbound entrance ramp traffic weaves to the left to continue on I-39 northbound. In the southbound direction, only 13% of I-90 westbound to I-39 southbound traffic weaves to the right to exit at Harrison Avenue. Again, maximizing this weaving distance with the DDI alternative creates the best LOS.

With the 2040 no build conditions, the northbound I-39 diverge ramp for the existing cloverleaf was a LOS F (first line in Table 5) and the southbound I-39 merge ramp was a LOS F as well (fourth line in Table 5). With the DDI, the northbound I-39 major diverge improved to a LOS C (first line in Table 15 above) and the southbound I-39 major merge improved to a LOS D (fourth line in Table 15 above). As shown in Table 15, the ramp terminal signals with Harrison Avenue have LOS of C and B for the 2040 build condition.

I-39 over Harrison Avenue
The proposed I-39 structures over Harrison Avenue are 2-lanes in the northbound direction and 3-lanes in the southbound direction with 12-ft. inside and outside shoulders provided. IDOT District 2 recommended increasing the vertical clearance at this location to 16-ft. due to several instances of the bridge being struck by trucks. To provide this 16-ft. vertical clearance the I-39 profile was adjusted to the minimum vertical curve length and a 4-span bridge was proposed. The 4-span bridge allows shallower beams to be used also increasing the vertical clearance. A TS&L was prepared for these structures and is included in Volume II of this report.

4. Harrison Avenue/US 20

Harrison Avenue will be improved from South Mall Drive to Mill Road. These are the first points of access on either side of the I-39/Harrison Avenue interchange. Lanes will be added to Harrison Avenue and to the crossroads at the intersections to improve capacity. Figure 37 shows the proposed lane configuration along Harrison Avenue from South Mall Drive to Mill Road.

Typical Section
Harrison Avenue will be widened to a three-lane section in each direction with curb and gutter and separated by an 18-ft raised concrete median. Figure 30 shows the Harrison Avenue/US 20 proposed typical section.

Design Criteria
Harrison Avenue/US 20 will be designed in accordance with the design criteria contained in Appendix A. The design speed will be 35 to 45 mph along Harrison Avenue/US 20.

Intersections with Harrison Avenue/US 20
Intersection design studies were completed for South Mall Drive/Harrison Avenue and for Mill Road/US 20 and are included in Volume II of this report. Proposed typical sections for South Mall Drive and Mill Road are shown in Figure 31. Additional right-of-way, approximately 2.03 acres, is needed in the northwest quadrant of the Mill Road/US 20 intersection for the re-alignment of the frontage road and is shown on the plan sheet included in Volume II of this report. Also shown on the Mill Road plan sheet is the temporary easement in the northeast quadrant of the Mill Road intersection with US 20. A temporary easement of approximately 0.13 acres is needed so the two existing cemetery entrances can be closed but connected with an access road and a new cemetery entrance provided further north along Mill Road opposite the frontage road intersection.

C. Proposed Drainage

The proposed improvement will widen existing I-39/US 20 from the I-39/US 20 system interchange to the I-39/Harrison Avenue interchange. The design criteria used for drainage items is included in Appendix A. The proposed drainage plan is included in Appendix D. The area currently serving as the existing grass median will be filled to accommodate some of the widening and the inside shoulders. A concrete barrier will be installed to separate the northbound and southbound lanes.

The proposed reconstruction of the I-39/US 20 system interchange will be drained by an open drainage system with culverts, where necessary, to maintain existing flow patterns. Basin B1, comprising the median between stations 2527+00 and 2558+50, will be used for drainage detention, significantly expanding the current area of detention provided between stations 2530+00 and 2550+00. The new basin created will be approximately 29 acres, compared to the existing basin area of approximately 15 acres. It is anticipated that this basin can provide 58 acre-feet of storage, with additional storage available in basins C, C5, and C5A west and north of basin B1. This will maintain the discharge rate from the median to the southeast at its present rate.
The re-alignment of the northbound and southbound I-39 ramps will change the character and size of several drainage basins within the right-of-way. It will also create several additional sub-basins. Table 16 shows the size, station, contributing basins for each culvert, drainage area, and basin design flow. Culverts 4 and 11 have been previously abandoned. Culverts 6 and 10 will remain in place. Culverts 5A, 5B, 5C, 7, 8, 8A, 14, 15 and 16 will be removed. New culverts include 5D, 8B, 8C, 8D, 14A, and 16B. The remaining culverts surrounding the I-39/US 20 system interchange will be removed and replaced as shown on the proposed drainage plan sheets 1 and 2 (see Appendix D) and Table 16 and include the following: 1, 2, 3, 9, 12, 13, 14/15, and 16A. Also, shown in the table below is the use of restrictors or future liners on most of the proposed culverts. Restrictors were proposed on culverts that outlet to residential areas where the flow needed to remain unchanged. Future liners were proposed at culverts that were longer in length and that were located under roadways carrying large amounts of traffic.

Table 16: Proposed Culverts

Culvert	Station	Chain	Proposed Culvert Size	Basin	Drainage Area (Acres)	Basin Design Flow (cfs)

1	2516+85	EXI39	84"	A	164	443.21
2	2538+90	EXI39	72" w/ 60" restrictor	B+B1+C+C1+C5+C5A	178	355.64
3	185+17	SBRBD	72"	B	115	229.25
4			Abandoned			0.00
5A	82+97	SBRBD	36", Existing Removed	(C+C1)/2	14.5	54.29
5B	83+09	SBRBD	36", Existing Removed	(C+C1)/2	14.5	54.29
5C	40+03	NBRDB	36", Existing Removed	(C3)/2	5	18.72
5D	169+65	PRAMPBD	48"	C+C1	18.3	54.02
6	72+99	RAMPAD	48" Existing to remain	C1	12.6	37.88
7	103+31	LINDENRD	24", Existing Removed	C4	4	12.50
8	2560+98	EXI39	36", Existing Removed	C5	13	50.50
8A	65+46	SBRBD	36", Existing Removed	C5+C4+C2+(C3)/2	30	57.80
8B	48+55	PRAMPDB	48" w/ 36" restrictor	C2A	8.12	21.19
8C	163+61	PRAMPBD	66" w/ 60" future liner	C5	16.9	62.89
8D	99+20	LINDENRD	66" w/ 60" future liner	C5+C5A	19.3	70.61
9	1153+87	EXUS20	66" w/ 60" future liner	D	39	126.71
10	2570+03	EXI39	60", Existing to remain	D+D2	53	168.14
11			Abandoned			0.00
12	75+02	WBRDA	54" w/ 48" future liner	E	14	55.00
13	2581+08	EXI39	54" w/ 48" future liner	E+H1	31	120.53
14	55+73	SBRBD	54", Existing Removed	D+D2+E+H1+F	103	289.84
15	58+40	NBRDB	54", Existing Removed	D+D2+E+H1+F+(C3)/2	108	289.84
14A	151+39	PRAMPBD	66" w/ 60" future liner	F+D2+D	58.3	176.3
14/15	59+47	PRAMPDB	60" w/ 54" restrictor	C3+H1+E+F+D2+D	97	290.71
16	51+42	MULFORD	36", Existing Removed	H	16	44.71
16A	52+50	MULFORD	Double 48" w/ 36" future liners	E1	8	27.08
16B	51+61	MULFORD	Double 54" w/ 48" future liners	H	16	44.71
17	49+05	MULFORD	Double 48" w/ 36" future liners	E2	13.2	43.24
18	2616+63	EXI39	Double 54" w/ 48" future liners	H2+E1+H	42.1	118.41
19	2618+11	EXI39	Double 48" w/ 36" future liners	H3	19.46	58.32
20	2641+83	EXI39	54" w/ 48" future liner	H4	42	116.05
21	2649+94	EXI39	2@84"	G+H5	1361	721.50
22	30+51	PERRYVILL	Double 48" w/ 36" future liners	H5	15.6	55.74
23	2708+96	EXI39	3 @ 9'X9'	see hydraulic report	3712	1382.00
24	139+52	HARRISON	60"	I12+I5	250	227.52
24A	298+49	PBELLRD	24"	I15	4	15.03
25	19+01	HARRBC	24", Existing	I5	7	27.22

			Removed			
26	150+17	HARRISON	48" w/ 36" future liner	I1+I2+J1+J2	13.4	46.31
27	8+94	HARRCA	24", Existing Removed	I11	3	12.64
28	403+57	RAMPD	48" w/ 36" future liner	I4+I1+I2+I3+J1+J2	27.18	108.37
29	13+94	HARRCA	24", Existing Removed	I10	4	16.85
30	9+00	HARRAD	24", Existing Removed	I9	5	21.06
31	2723+63	EXI39	54" w/ 48" future liner	I3	6.14	17.96
32	2725+32	EXI39	48" w/ 36" future liner	I2+J1	4.43	17.46
33	17+50	HARRDB	24", Existing Removed	I6	3	12.64
34	8+03	HARRDB	24", Existing Removed	I7	5	19.44
35	21+01	HARRAD	24", Existing Removed	I8	4	16.85
36	1336+38	HARRISON	8'X6' Box	I6+I7+I13+I15	146.43	337.37
36A	405+01	PRMILL3	8'X6' Box	I6+I7+I8+I13+I15+I16	169.6	386.18
36B	500+13	RELFRONT	8'X6' Box	I6+I13	135.2	312.11
37	1355+24	HARRISON	54" w/ 48" future liner	J	59.3	145.43
39	317+51	RAMPC	36"	J2	2.1	8.12
40	102+00	RAMPA	36"	J1	1.77	7.70
41	217+00	RAMPB	48" w/ 36" future liner	I9	1.59	6.39

Culverts 18, 19, 20, 21, 22, and 23 are located along I-39/US 20 between the system interchange and the Harrison Avenue interchange. Culverts 18, 19, 20 and 22 will be removed and replaced as shown on the proposed drainage plan sheet 3 and Table 16. Culvert 21 is a double 84-in diameter culvert with junction box that then goes under the CN railroad. IDOT District 2 will work with the CN railroad to determine what is necessary at this culvert location. Culvert 23 (SN 101-2025) is a double 12-ft X 10-ft box culvert that carries Madigan Creek under I-39/US 20 near Sta. 2708+96. It also carries the Cherry Valley Path under I-39/US 20. A hydraulic report was completed for Culvert 23 as part of this project and recommends the existing culvert be removed and replaced with a triple box culvert, 3 at 9-ft. span by 9-ft. rise. It is proposed that the Cherry Valley Path then be relocated (see more path discussion in Section III.D.1).

The median within the 8-lane section of I-39/US 20 will be paved, necessitating a storm sewer system. A preliminary layout of inlets and storm sewer was prepared for the I-39/US 20 corridor, accommodating a 50-year storm event without encroachment onto the travel lanes. Drainage structures type 4 or 5 will be used. The proposed outlets for this system will primarily be at the locations which presently outlet drainage from the existing median. The side slopes of I-39/US 20 will follow the approved design criteria and will tie into the existing slopes.

The proposed reconstruction of Harrison Avenue, with curbs and gutters and 18-ft. raised median between South Mall Drive and Mill Road requires a storm sewer which will replace and expand the existing closed drainage system. Outlet pipes into the roadside ditches and open interchange areas will generally be in similar locations. Some existing culverts may be able to remain in service, depending on their condition. Though there will be curb and gutter in this segment, the

drainage ditch locations will not change significantly due to the location of existing culverts conveying drainage out of the IDOT right-of-way.

The proposed layout of the I-39/Harrison Avenue interchange will change the ramp configurations from a cloverleaf to a diverging diamond. The existing embankments of the original ramps will remain in place where possible. The result of this proposed change is that new drainage basins are created and therefore new culverts are required (see Table 16 and Appendix D). Culverts 25, 27, 29, 30, 33, 34, and 35 will be removed. New culverts will be placed under each of the proposed ramps. These culverts are 39, 40, 41, and 42. These culverts direct the storm water to the same drainage basins as the existing culverts. All the other culverts draining the I-39/Harrison Avenue interchange will be removed and replaced as shown on the proposed drainage plan sheet 4 (see Appendix D) and Table 16 and include culverts 24A, 24, 26, 28, 31, 32, 36, 36A, 36B, and 37.

The proposed reconstruction of US 20 east of Mill Road will require a drainage system comprised of median inlets, culverts, and roadside ditches similar to the existing system. Drainage structures type 4 or 5 will be used. Drainage from the paved median will be collected in inlets and conveyed to the roadside ditches at locations similar to the existing system. Some culvert pipes may be able to be left in place and remain in service, with pipe extensions to the proposed ditch line.

Roadside Ditches

Proposed roadside ditches along I-39/US 20 are trapezoidal, with a 4-ft. wide bottom. In some areas, existing ditches of 1.5-ft. width can be maintained. Ditches will be a minimum of 3-ft. deep. The ditches will collect runoff from the highway and the enclosed median storm sewer and will outlet at crossroad culverts. The proposed ditch designs follow the existing drainage patterns.

Harrison Avenue, between South Mall Drive and Mill Road will be a curbed section. However, ditches will remain outside the curb to accept and convey the interchange ramp area drainage and the outlets from the enclosed drainage system.

US 20 east of Mill Road will be reconstructed with roadside ditches that will follow the existing drainage patterns. Trapezoidal ditches will be constructed with a 4-ft. bottom width. The ditches will carry the discharge from the culverts carrying the median drainage and the sheet flow from the travel lanes. The ditches in this segment drain to the Kishwaukee River.

Drainage easements are not anticipated for this project. Drainage from the right-of-way will continue to outlet at the existing locations.

Outlet Treatments

Construction of the proposed facilities will not alter the outlet locations. Culverts that need replaced will be sized to retain the existing flow rates at the outlet locations.

Culvert 2 is undersized for the area it drains. Upon communication with IDOT District 2, it was determined that at this location the pipe was deliberately sized to restrict the outflow rate and

detain drainage in the interchange infield. The area of this detention basin within the infield will be increased with the proposed construction due to the realignment of the south interchange of I-39 and US 20.

Floodplain Encroachments
The existing corridor currently crosses two identified Floodway Zones and one Special Flood Hazard Area according to a review of the most recent published Flood Insurance Rate Maps (FIRM) covering the project area:

Kishwaukee River floodway
Madigan Creek floodway
Unnamed Tributary of Kishwaukee River flood zone

The crossing of the Kishwaukee River floodway is a transverse crossing. However, from Mill Road to the east Winnebago County line, the north side-slope of US 20 is a boundary of the Kishwaukee River flood plain area. The area is designated Zone AE, and the base flood elevation is 727-ft.

The crossings of the Madigan Creek floodway and the Unnamed Tributary of Kishwaukee River flood zone are both transverse crossings. The Madigan Creek floodway is designated Zone AE and the base flood elevation on the west side of I-39/US 20 is 745-ft. On the east side of I-39/US 20, the base flood elevation is 741-ft. The Unnamed Tributary of Kishwaukee River flood zone is designated Zone A, and no base flood elevation has been established.

Each of the three floodway and floodplain crossings identified above cross under the existing corridor through existing structures. The hydraulic capacities of these structures will not be affected by the proposed construction.

Culvert 2 currently conveys storm water from the I-39 right-of-way to an adjacent unnamed ditch flowing to the Kishwaukee River. The culvert currently drains basins B, B1, C, and C1 totaling 159 acres. The culvert was undersized to restrict the outflow to the unnamed ditch, due to the proximity of residential developments in the adjacent area.

Under the current proposal, southbound I-39 will be routed over US 20, under the I-39 northbound to US 20 westbound ramp (Ramp DA), and under Linden Road. This scenario creates a low point elevation of 820.50-ft. on southbound I-39 at station 165+50. Drainage of this low point will be toward Culvert 2. The proposed area drained by Culvert 2 includes proposed basins B, B1, C, C1, C5, and C5A, totaling 178 acres. Basins C5 and C5A drain toward Culvert 2 due to the routing of Ramp BD under Linden Road. The median area included in basin B1 will be enlarged from 15 to 29 acres and will provide over 58 acre-ft of available detention capacity to restrict the outflow. During the design storm, 9.2 acre-ft of storm water detention capacity is required. Culvert 2 can remain a 60-in diameter pipe at its current elevation.

Basin I-12 currently drains to the ditch on the north side of Harrison Avenue just west of the I-39/Harrison Avenue interchange. Drainage from the north enters the ditch from the ditch line

parallel to the southbound-westbound I-39 off-ramp (Ramp BC) and from culverts from South Bell School Road. A 4-ft. X 4-ft. box culvert (Culvert 24) conveys this drainage under Harrison Avenue and toward a series of ditches and culverts ultimately draining to Madigan Creek (Culvert 23, Str. 101-2025, 12-ft. X 10-ft. twin box culvert under I-39/US 20). Based on an analysis of sheet flow in this basin, Culvert 24 appears to be undersized. However, given the flood surveillance information presented in Appendix F, it appears that Culvert 24 was not damaged in either storm.

Resolution of Identified Drainage Problems
The sizing and maintenance of the culvert under the Union Pacific Railroad, the culvert running south under the parking lot on the south side of Harrison Avenue just west of the eastbound-southbound ramp (Ramp D), and Harrison Avenue west of South Mall Drive all affect the ability of IDOT rights-of-way to drain adequately.

The culvert heading south under the parking lot on the south side of Harrison Avenue just west of the eastbound-southbound ramp (Ramp D) runs across private property toward Madigan Creek. Maintenance personnel from local and state jurisdictions can keep the culvert entrance free of debris and ice. The ditch along the south side of Harrison is also proposed to be a 4-ft. wide trapezoidal ditch, which would also improve ditch capacity at this location. Under the proposed design, runoff from Harrison Avenue will be captured in an enclosed storm sewer. East of Station 141+50 (about 200-ft. east of Culvert 24), the storm water will be routed to the infield area of Ramp D (the SW quadrant of the I-39/Harrison Avenue interchange). With the removal of the interior ramp (existing Ramp BD), this area can be re-graded to become a detention area.

Erosion and capacity concerns along the ditch on the north side of Harrison Avenue can be addressed in several ways. First, the existing ditch has accumulated silt in the years since it was constructed. The proposed ditch will be a 4-ft. wide trapezoidal ditch. Areas along this ditch which are subject to frequent high-velocity flows can be lined with riprap. A curb and gutter typical section is proposed for this segment of Harrison Avenue which will eliminate the runoff from the westbound lanes of Harrison Avenue.

The paved ditch on the west side of I-39/US 20 immediately north of Madigan Creek will be removed and a new ditch will be constructed. The proposed ditch should be designed to accommodate the flows from Culverts 24 and 28 and should be constructed to accommodate the high flow rates expected during the design storm event.

Waterway and Floodplain Permits
As previously described, the existing corridor currently crosses two areas identified as Floodway Zones and one area identified as a Special Flood Hazard Area. Proposed work in these areas includes widening of the existing roadways from two lanes in each direction to four lanes in each direction. This project will require U.S. Corps of Engineers (USCOE) Section 404 Permits, Illinois Environmental Protection Agency (IL EPA) 401 Water Quality Permits, and Illinois Department of Natural Resources-Office of Water Quality (IDNR-OWR) Permits. Areas where permits are likely required are described below.

Culvert 21, a double 84-in. diameter culvert conveying an unnamed tributary to the Kishwaukee River under I-39/US 20, will require an IDNR-OWR Statewide Permit #12 since the drainage area is greater than 640 acres and will most likely be considered "urban" or "urbanizing".

A hydraulic report was prepared for Culvert 23 (Structure 101-2025), a 12-ft. X 10-ft. twin box culvert conveying Madigan Creek under I-39/US 20, as a part of this project. Results of the hydraulic analysis indicate that the proposed 9-ft X 9-ft triple box culvert meets the requirements of IDNR-OWR Statewide Permit #12.

All other culverts will require a USCOE Section 404 Permit and an IL EPA 401 Water Quality Permit. This includes any fill material, culvert extensions, and bridge piers placed within waters of the United States.

D. Design Exceptions

The design exceptions for the project are listed in Table 17 below. This project has been presented at four bi-monthly meetings, October 10, 2007, June 4, 2008, December 2, 2010, and December 7, 2018. The meeting minutes from these meetings are included in Appendix C. Design Criteria Checklists (BDE 3107:Level 1 and BDE 3108 : Level 2) and Design Exception Request Forms (BDE 3100) are included in Appendix G.

Table 17. Proposed Design Exceptions

LEVEL 1 DESIGN EXCEPTIONS

	LOCATION (AGENCY JURISDICTION)	BDE MIN.	AASHTO MIN. (IF DIFFERENT)	PROPOSED DESIGN	JUSTIFICATION
Design Speed	I-39	75mph		LOS E	EXISTING POSTED SPEED LIMIT OF 65 MPH IS APPROPRIATE FOR THIS URBAN FRINGE AREA AND WILL REMAIN. GEOMETRY REQUIRED FOR 75 MPH DESIGN SPEED WOULD RESULT IN NINE DISPLACEMENTS. CONTINUITY WITH TOLLWAY SPEED LIMIT TO NORTH
STOPPING SIGHT DISTANCE	RAMP BD (IDOT)	730'		645'	STOPPING SIGHT DISTANCE LESS THAN REQUIRED FOR 70 MPH DUE TO THE COMBINATION OF HORIZONTAL AND VERTICAL CURVATURE. AN 18' WIDE LEFT SHOULDER ON THE STRUCTURE OVER US 20 IS PROPOSED TO PROVIDE SSD REQUIRED FOR A 65 MPH DESIGN.
STOPPING SIGHT DISTANCE	RAMP DB (IDOT)	730'		637'	STOPPING SIGHT DISTANCE LESS THAN REQUIRED FOR 70 MPH DUE TO THE COMBINATION OF HORIZONTAL AND VERTICAL CURVATURE. AN 18' WIDE LEFT SHOULDER ON STRUCTURE OVER LINDEN RD. IS PROPOSED TO PROVIDE SSD OF 637', 8' LESS THAN 65 MPH DESIGN.
NONE					

LEVEL 2 DESIGN EXCEPTIONS

I-39/Harrison Avenue Interchange

INTERCHANGES: LEVEL OF SERVICE-- WEAVING AREA	I39SB WEAVE NORTH OF HARRISON AVE. (TOLLWAY)	LOS C		LOS E	THE CONSTRAINTS IMPOSED BY THE EXISTING SOUTHBOUND CONVERGENCE IN TOLLWAY'S JURISDICTION MAKE INCREASING THE WEAVE LENGTH INFEASIBLE.
INTERCHANGES: LEVEL OF SERVICE-- WEAVING AREA	I39NB WEAVE NORTH OF HARRISON AVE. (TOLLWAY)	LOS C		LOS D	THE CONSTRAINTS IMPOSED BY THE EXISTING DIVERGENCE IN TOLLWAY'S JURISDICTION MAKE INCREASING THE WEAVE LENGTH INFEASIBLE.
LANE BALANCE	I39NB APPROACHING HARRISON AVE. (IDOT)	BDE MANUAL SECTION 37-2.03		4-LANE SECTION WILL DROP TO A 2-LANE SECTION AT EXIT RAMP TERMINAL	LANE BALANCE IS NOT ACHIEVED ON I39NB APPROACHING HARRISON AVENUE. THE 4-LANE SECTION WILL DROP TO 2 MAINLINE LANES AND A 2-LANE EXIT RAMP AT THE TERMINAL. THIS IS NECESSARY TO AVOID MAJOR OPERATIONAL CONCERNS FURTHER NORTH. ADEQUATE SIGNING WILL BE PROVIDED AHEAD OF DIVERGENCE.

I-39/US 20 System Interchange

DISTANCE BETWEEN CRITICAL SECTION C-C AND PT	CURVE DB-3 (IDOT)	200'		135'	THIS IS TO FACILITATE THE CHANGE IN CROSS SLOPE PRECEDING THE CURVE.

US 20/ Mill Road Intersection

SHOULDER WIDTH	ON US 20 EAST OF MILL ROAD	10'		8.5'	TO MATCH EXISTING. SEE BI-MONTHLY MEETING MINUTES, JUNE 2008, IN APPENDIX D.
TURN LANE DECELERATION DISTANCE	US 20WB AT MILL ROAD	570'		465' RT TURN 395' LT TURN	THE WESTBOUND TURN LANE DECELERATION DISTANCES ARE FOR A 50 MPH DESIGN SPEED INSTEAD OF 65 MPH. THE PLANNED POSTED SPEED WILL BE 50 MPH THUS POLICY WILL BE MET.

E. Stage Construction

The proposed improvements will be completed in three construction phases. The first construction segment (Phase 1) will include widening of I-39/US 20 from its current 4-lane section with depressed median to an 8-lane section with a concrete barrier median. The second construction segment (Phase 2) will include the re-construction of the I-39/Harrison Avenue interchange along with all improvements along Harrison Avenue. The third and final construction segment (Phase 3) will include the modifications to the I-39/US 20 system interchange. Stage Construction plans and figures for the proposed improvement are included in Volume II of this report. The Work Zone Safety and Mobility Transportation Management Plan for the proposed improvement is included in Appendix C.

F. Estimate of Cost

A preliminary estimate of cost was prepared for the project and was divided into the same construction segments/phases as discussed in Section E. above. Appendix H shows the estimate of cost for each construction segment/phase and for the overall project as well.

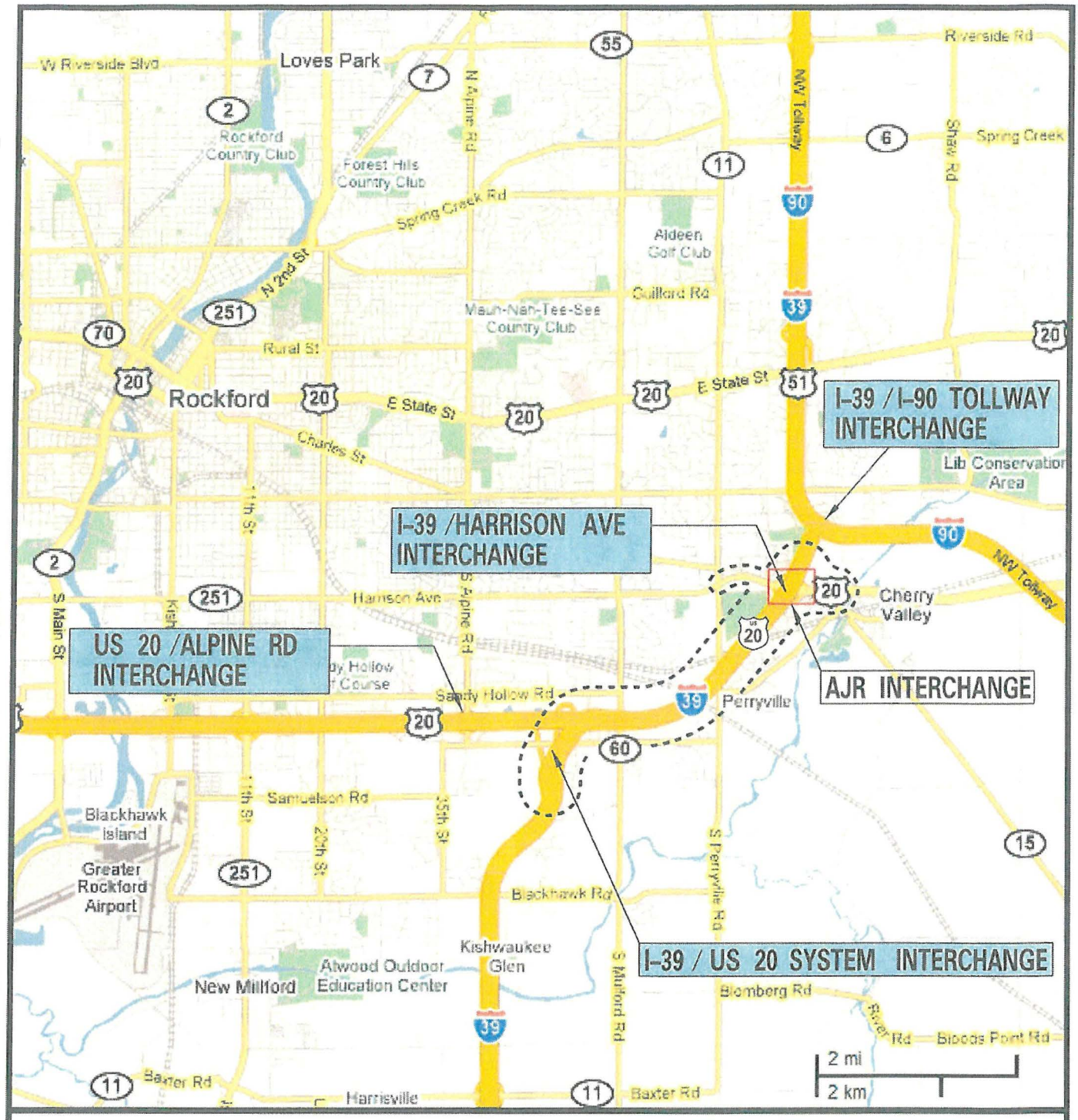
INTERSTATE 39

US 20

LOCATION MAP

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 1



= STUDY AREA

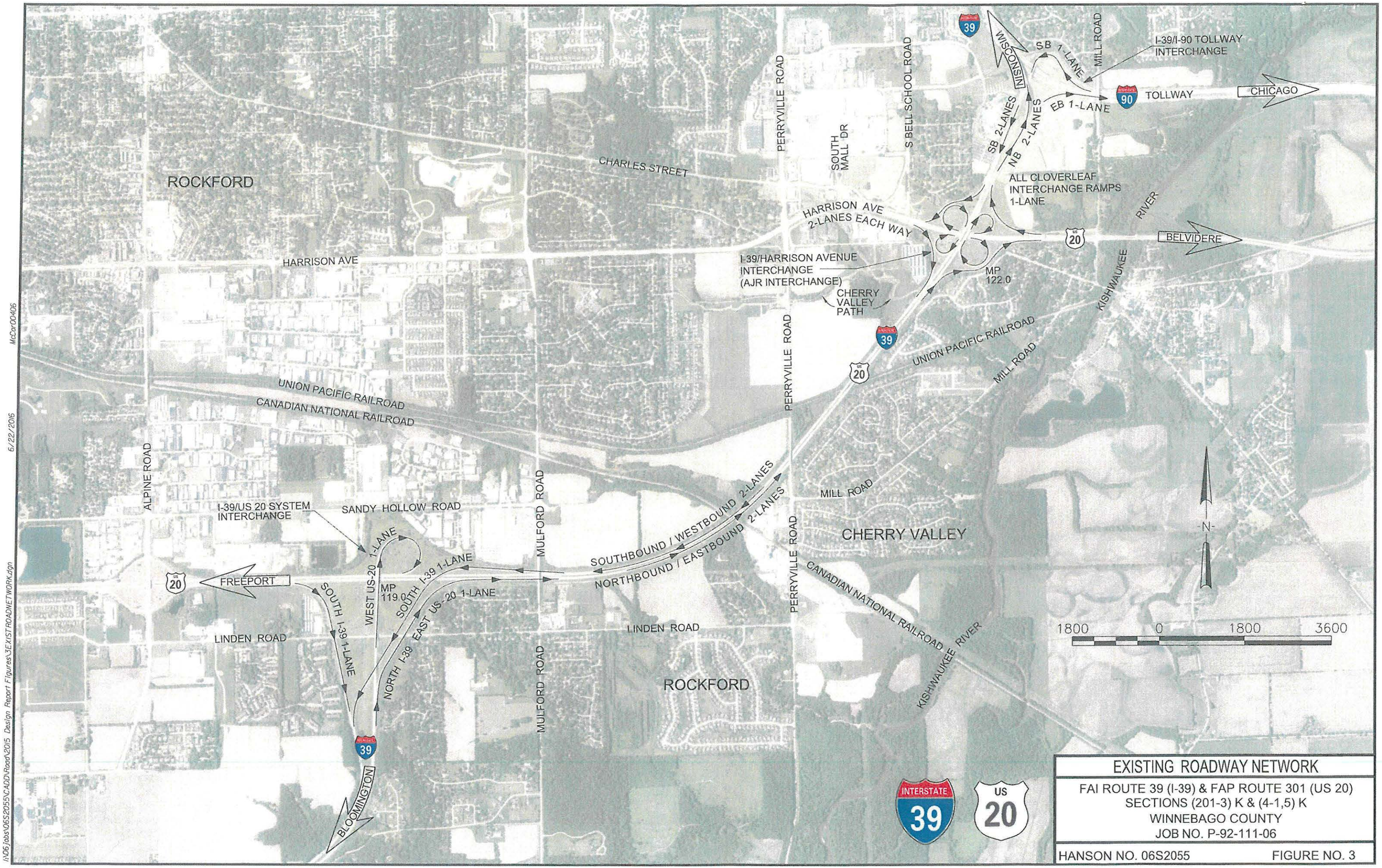
INTERSTATE 39

US 20

STUDY AREA

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 2



EXISTING ROADWAY NETWORK

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 3

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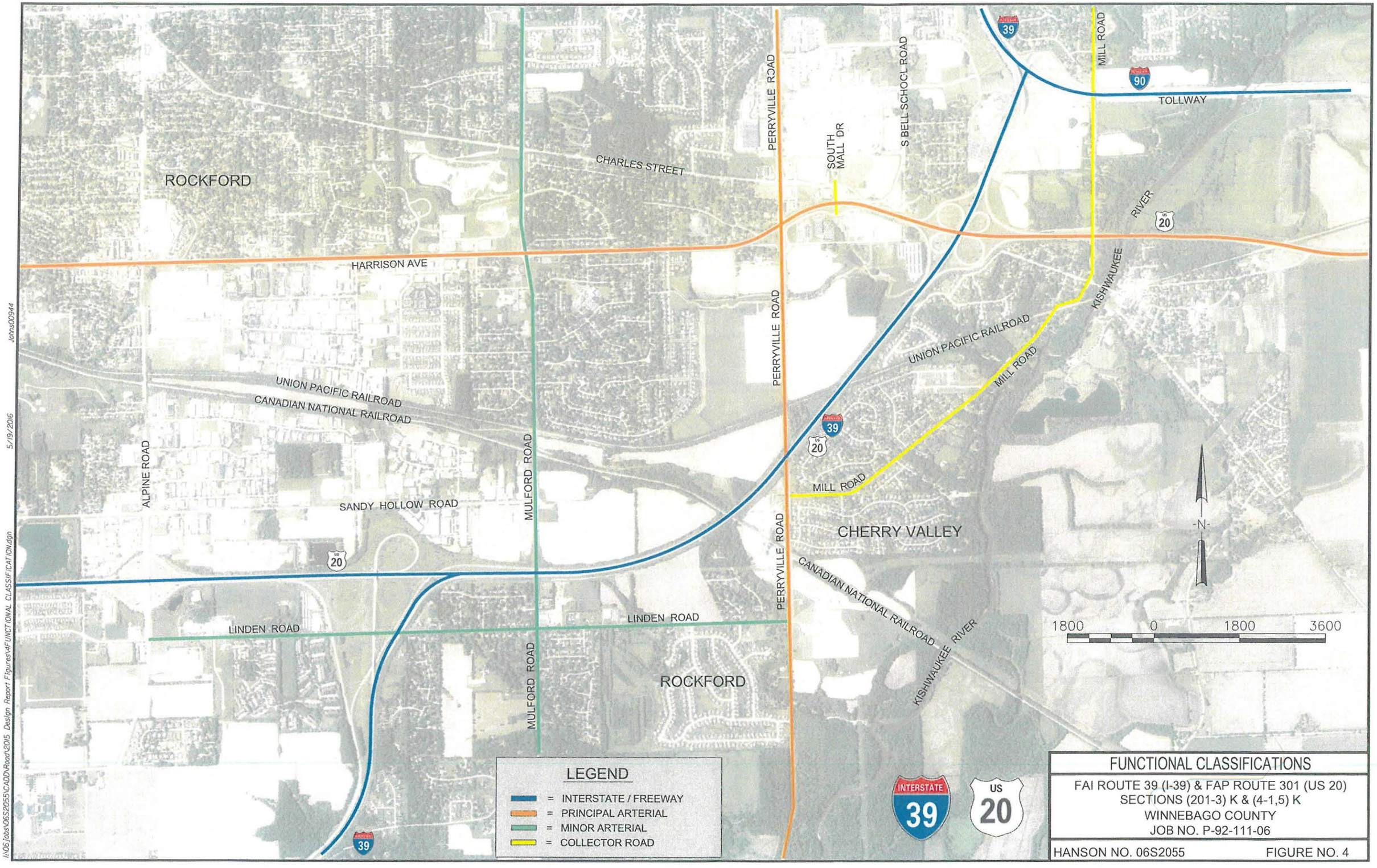

FUNCTIONAL CLASSIFICATIONS

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 4

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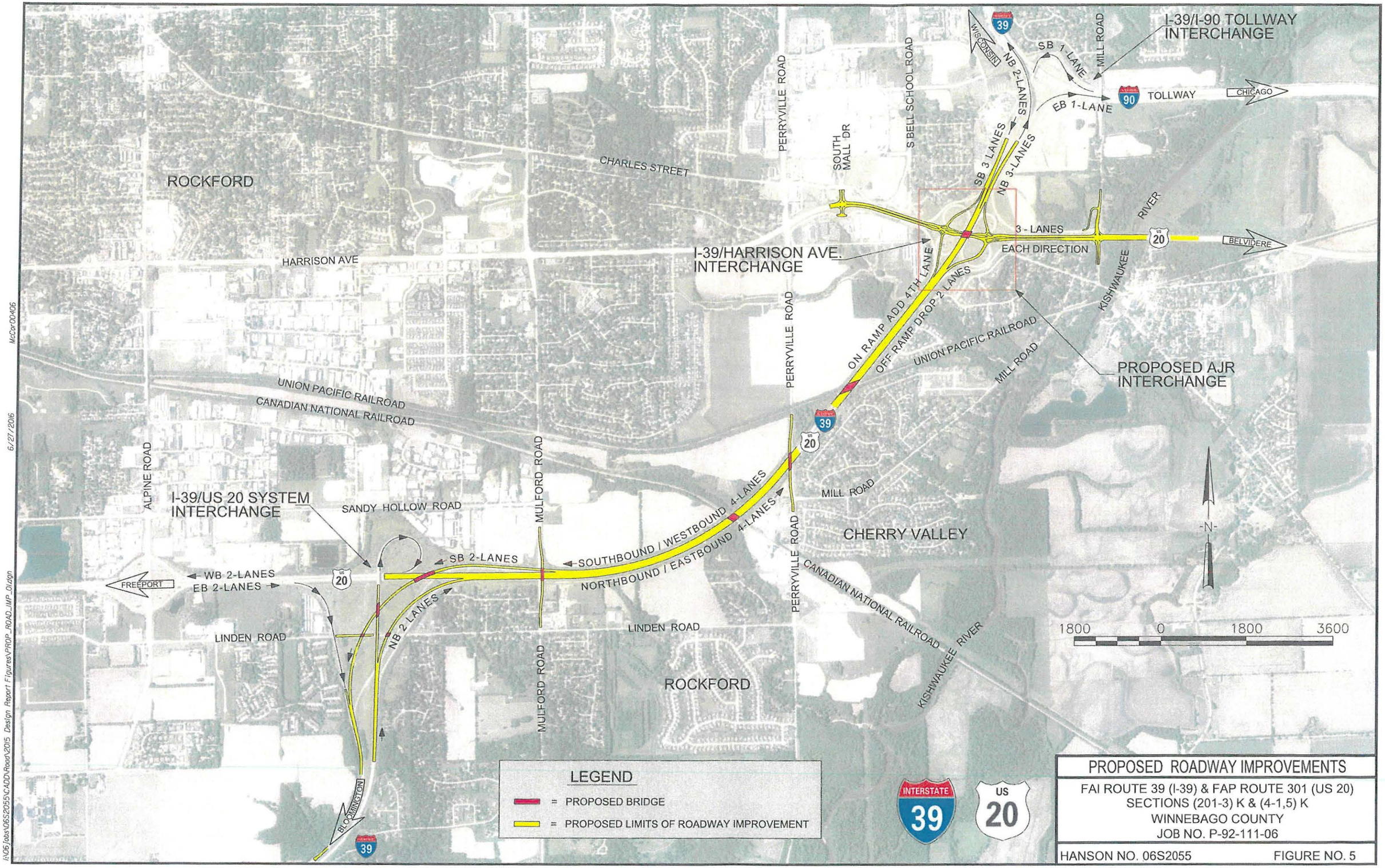

PROPOSED ROADWAY IMPROVEMENTS

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 5

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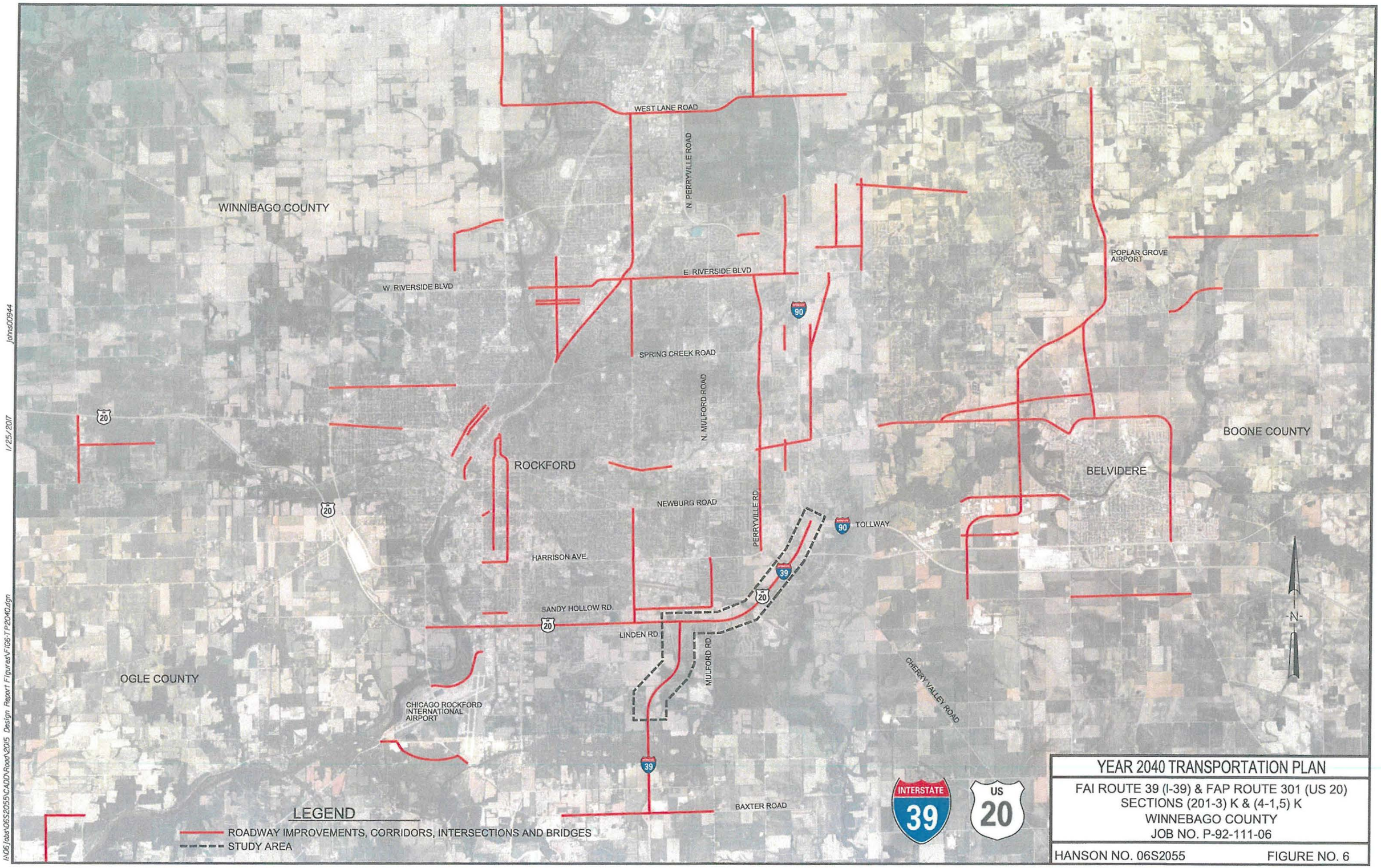

YEAR 2040 TRANSPORTATION PLAN

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 6

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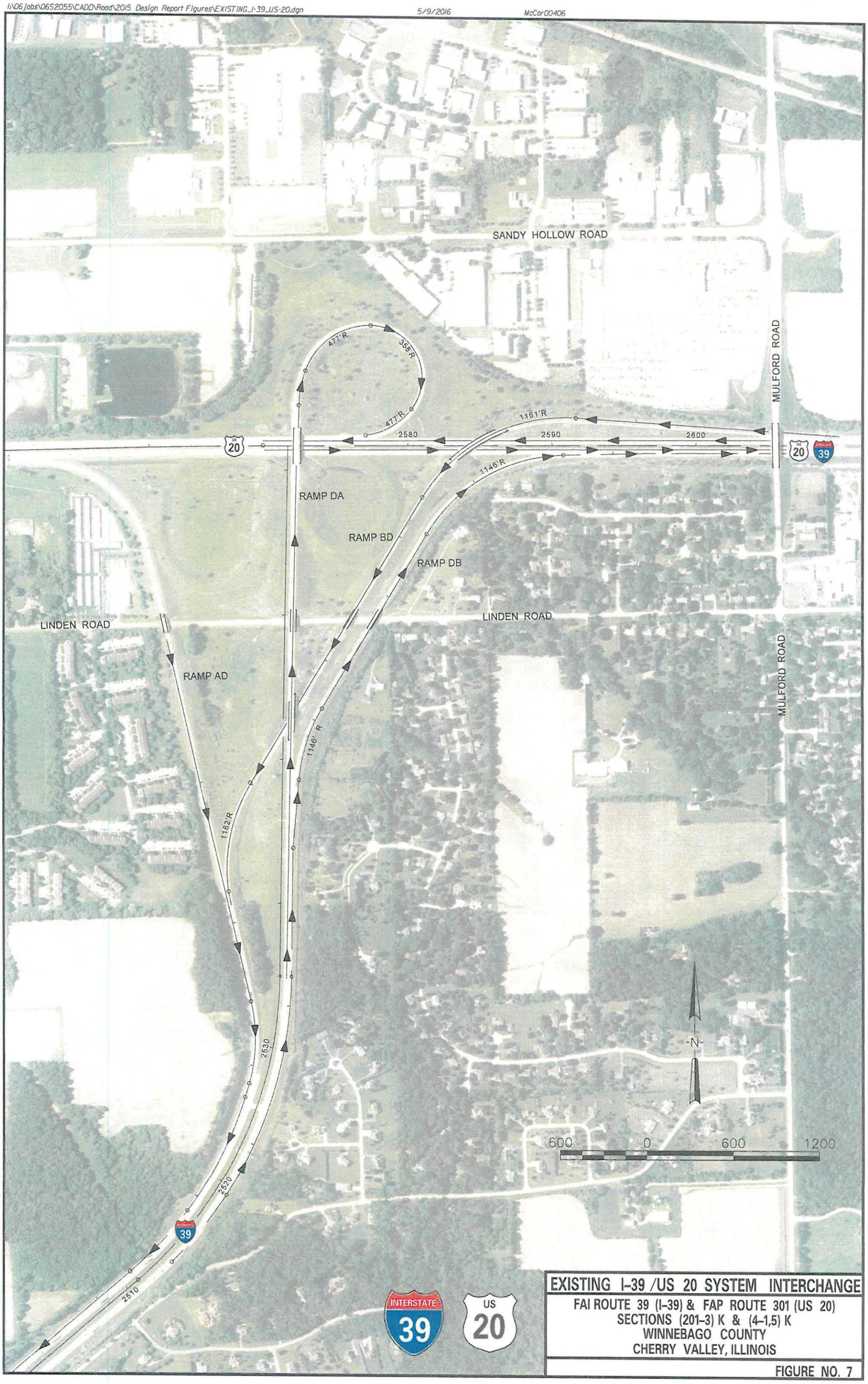
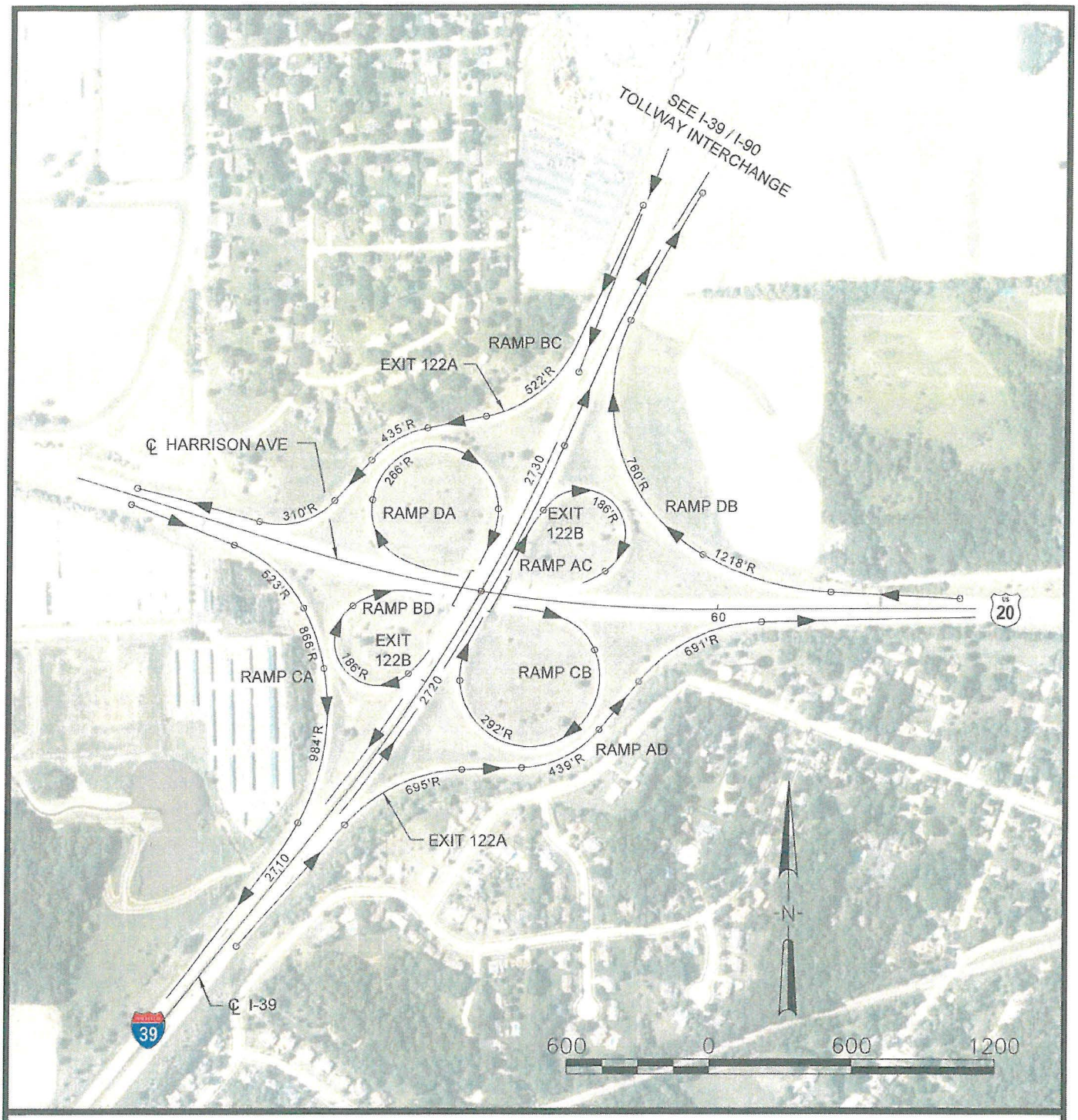


EXISTING I-39 /US 20 SYSTEM INTERCHANGE

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
CHERRY VALLEY, ILLINOIS

FIGURE NO. 7



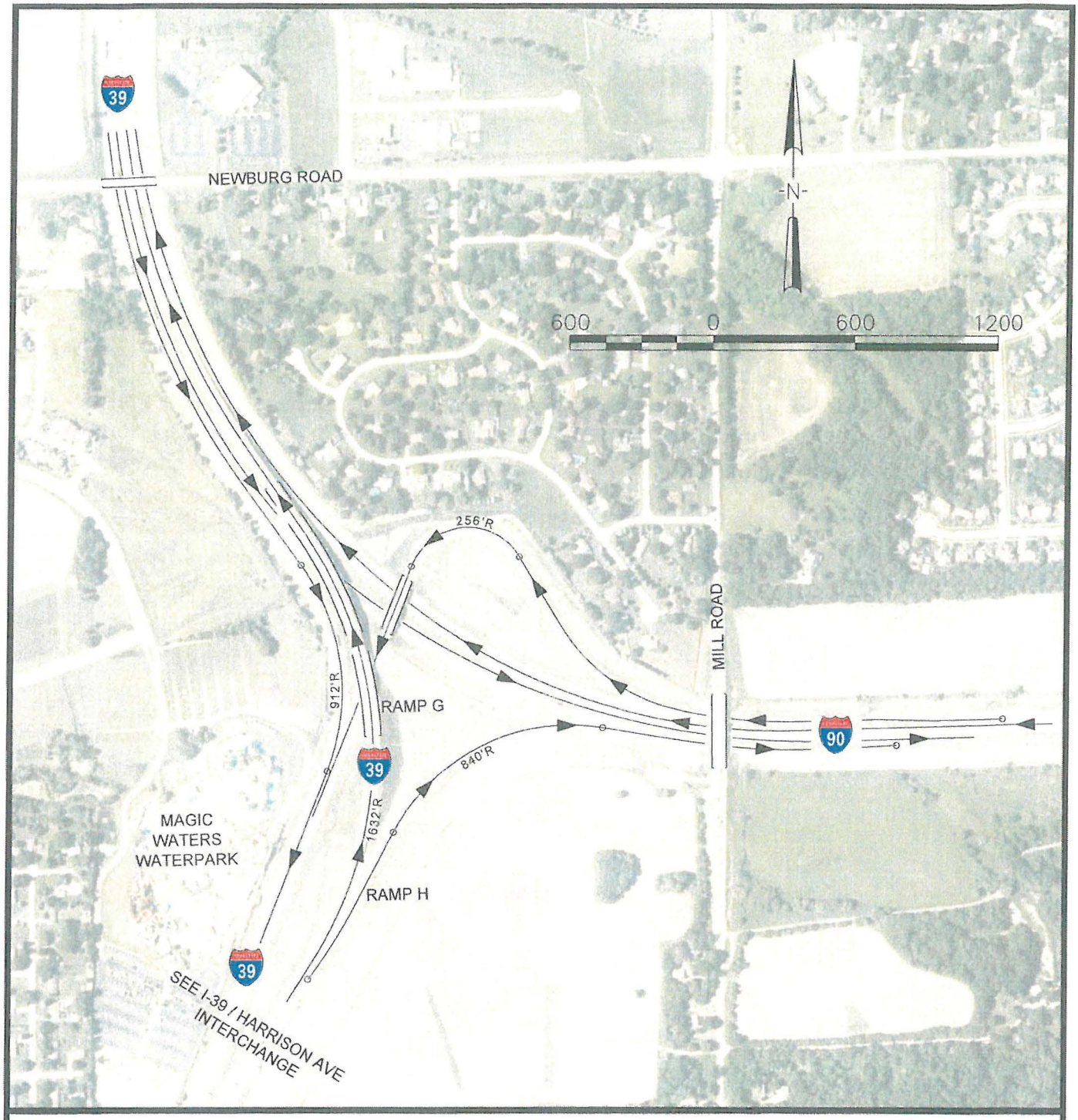
INTERSTATE 39

US 20

EXISTING I-39 /HARRISON AVE INTERCHANGE

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
CHERRY VALLEY, ILLINOIS

FIGURE NO. 8



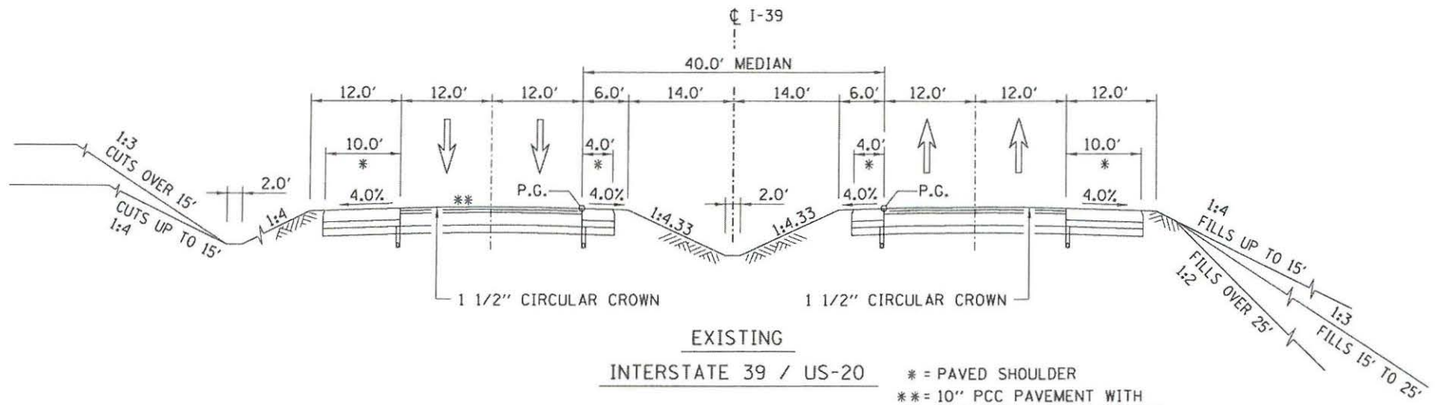
INTERSTATE 39

US 20

EXISTING I-39 /I-90 TOLLWAY INTERCHANGE

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
CHERRY VALLEY, ILLINOIS

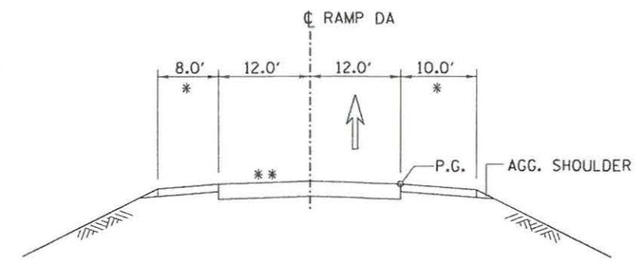
FIGURE NO. 9



EXISTING

INTERSTATE 39 / US-20

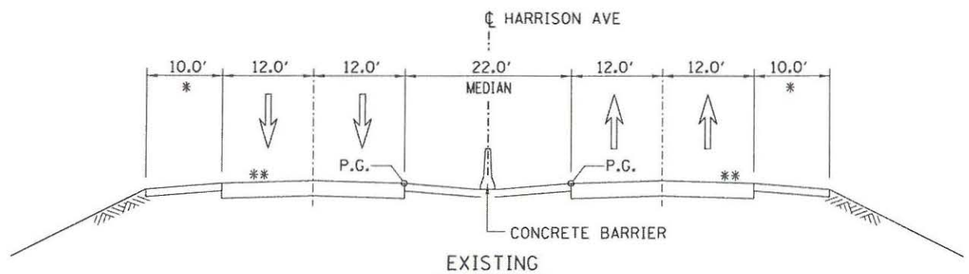
* = PAVED SHOULDER
** = 10" PCC PAVEMENT WITH TWO BITUMINOUS OVERLAYS ON 6" SUB-BASE



EXISTING RAMP DA

I-39/US 20 SYSTEM INTERCHANGE

* = PAVED SHOULDER
** = 10" PCC PAVEMENT

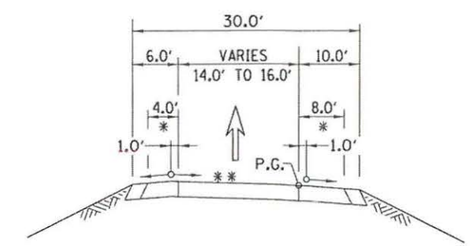


EXISTING

HARRISON AVENUE/US 20

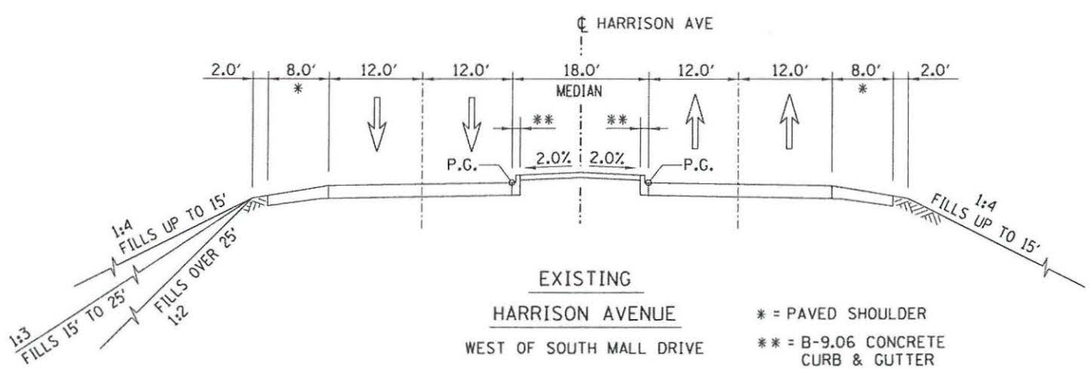
SOUTH MALL DRIVE TO MILL ROAD
(EAST OF I-39 INTERCHANGE = US 20)

* = PAVED SHOULDER
** = 10" PCC PAVEMENT



EXISTING RAMP

* = PAVED SHOULDER
** = 10" PCC PAVEMENT



EXISTING

HARRISON AVENUE

WEST OF SOUTH MALL DRIVE

* = PAVED SHOULDER
** = B-9.06 CONCRETE CURB & GUTTER

INTERSTATE 39

US 20

EXISTING TYPICAL SECTIONS

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 10A

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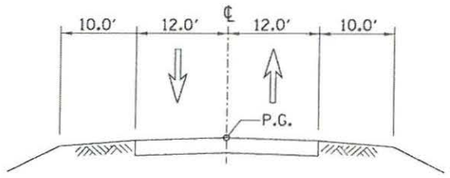
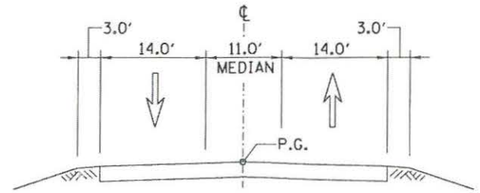


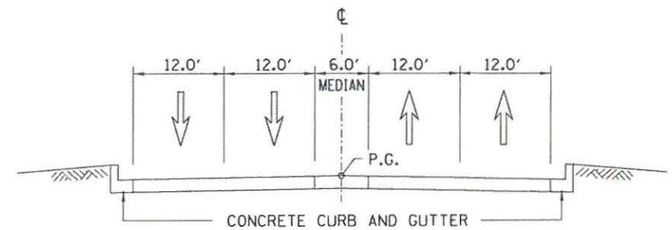
EXISTING
LINDEN ROAD

SOUTH OF HARRISON AVE



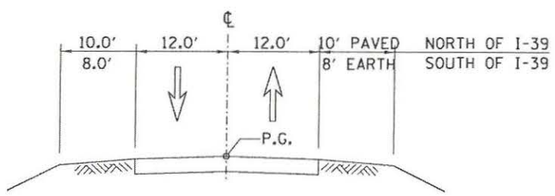
EXISTING
PERRYVILLE ROAD

SOUTH OF I-39

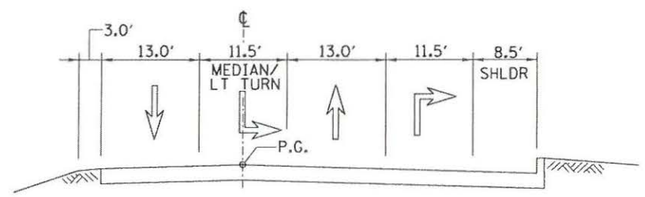


EXISTING
SOUTH MALL DRIVE

SOUTH OF HARRISON AVE

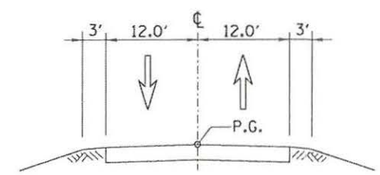


EXISTING
MULFORD ROAD



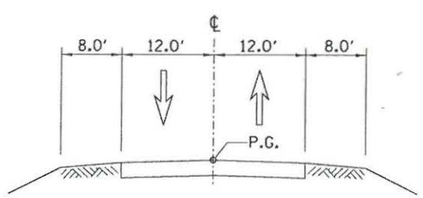
EXISTING
PERRYVILLE ROAD

SOUTH APPROACH TO MILL RD



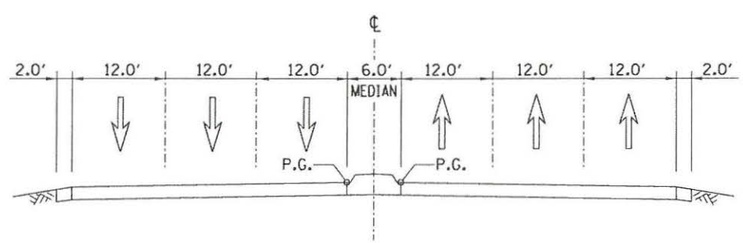
EXISTING
MILL ROAD

NORTH OF US 20



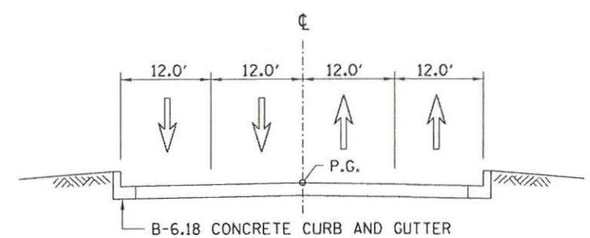
EXISTING
PERRYVILLE ROAD

NORTH OF I-39



EXISTING
SOUTH MALL DRIVE

NORTH OF HARRISON AVE



EXISTING
MILL ROAD

SOUTH OF US 20

INTERSTATE 39

US 20

EXISTING TYPICAL SECTIONS

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 10B

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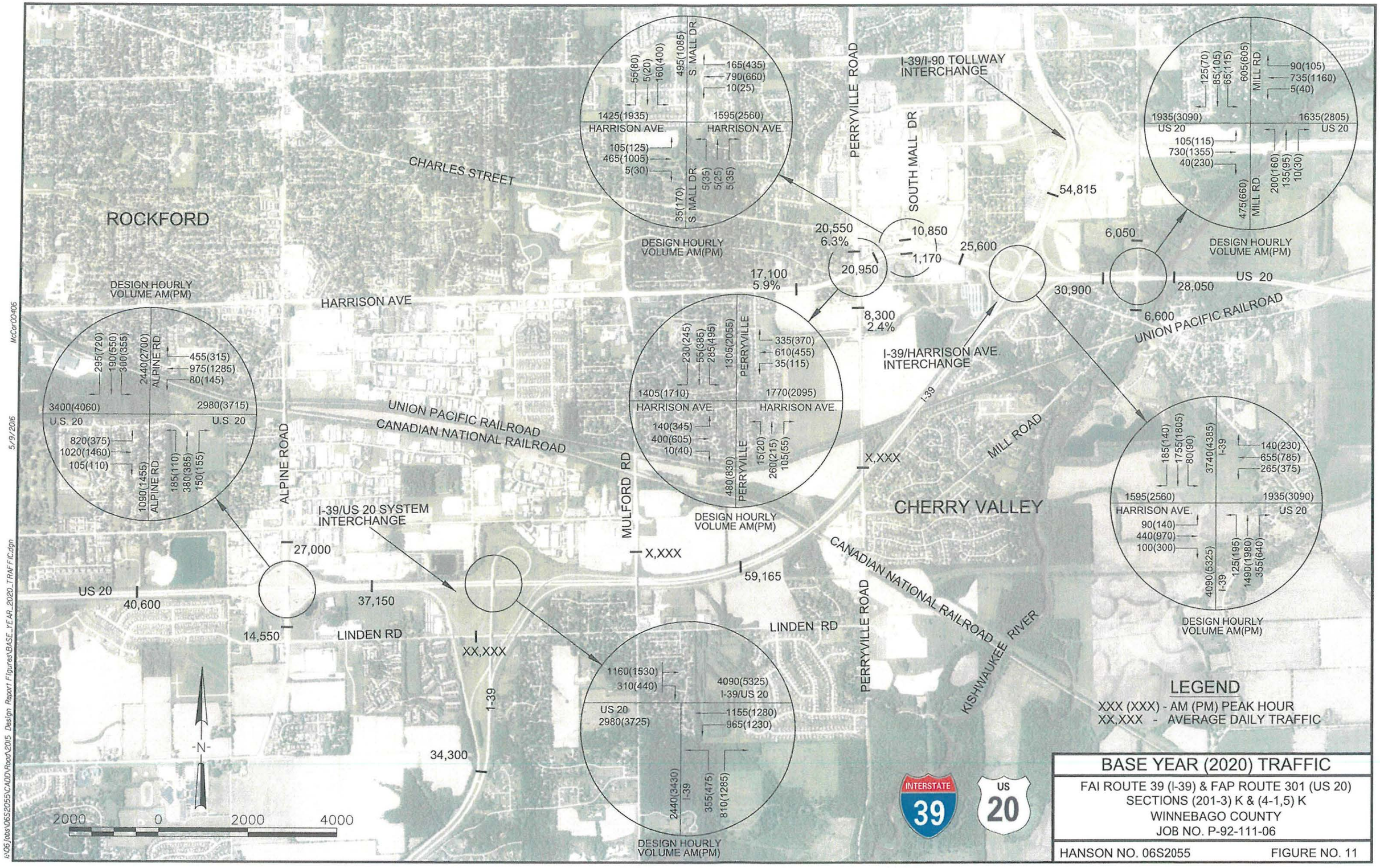

BASE YEAR (2020) TRAFFIC

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 11

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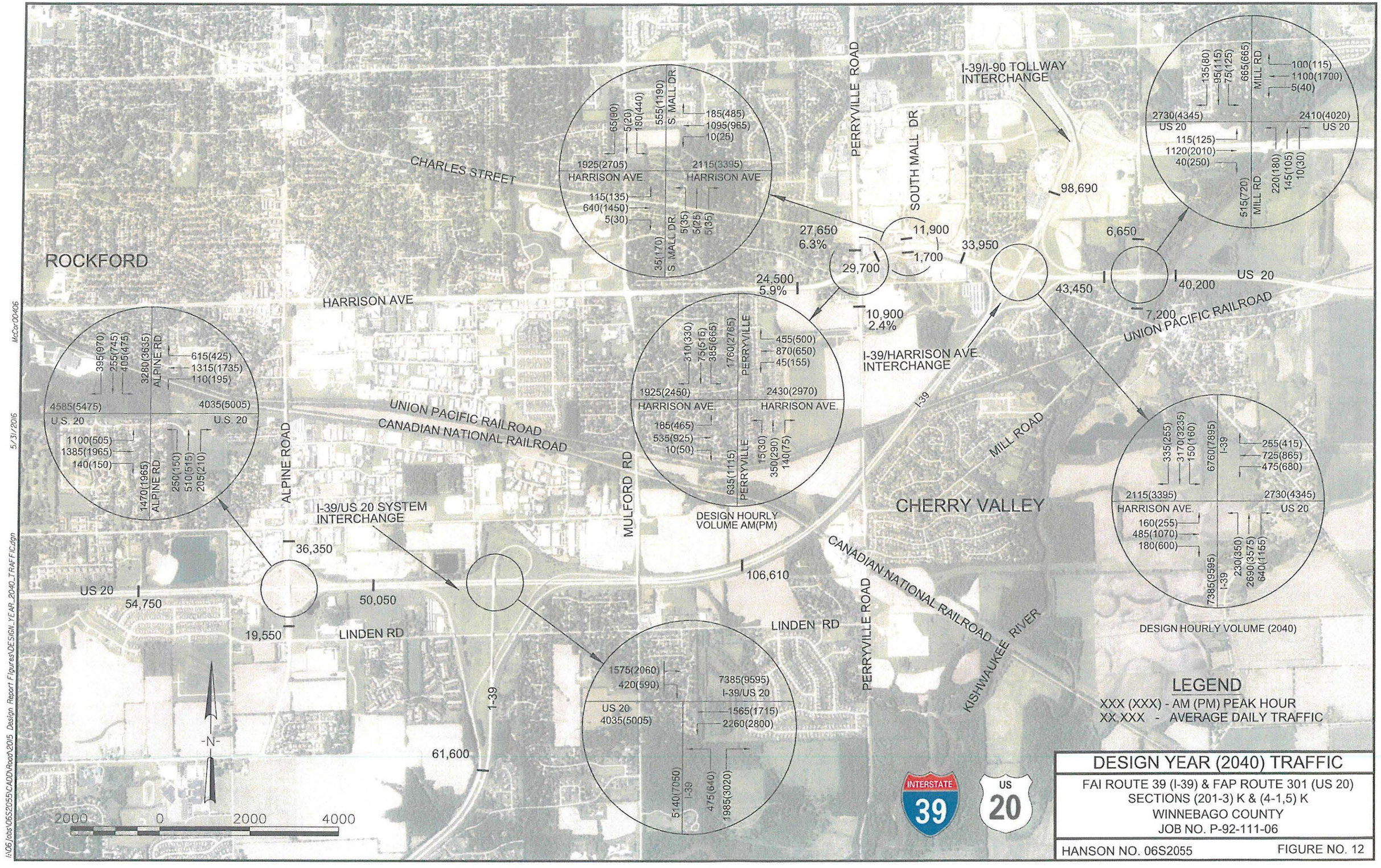

DESIGN YEAR (2040) TRAFFIC

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 12

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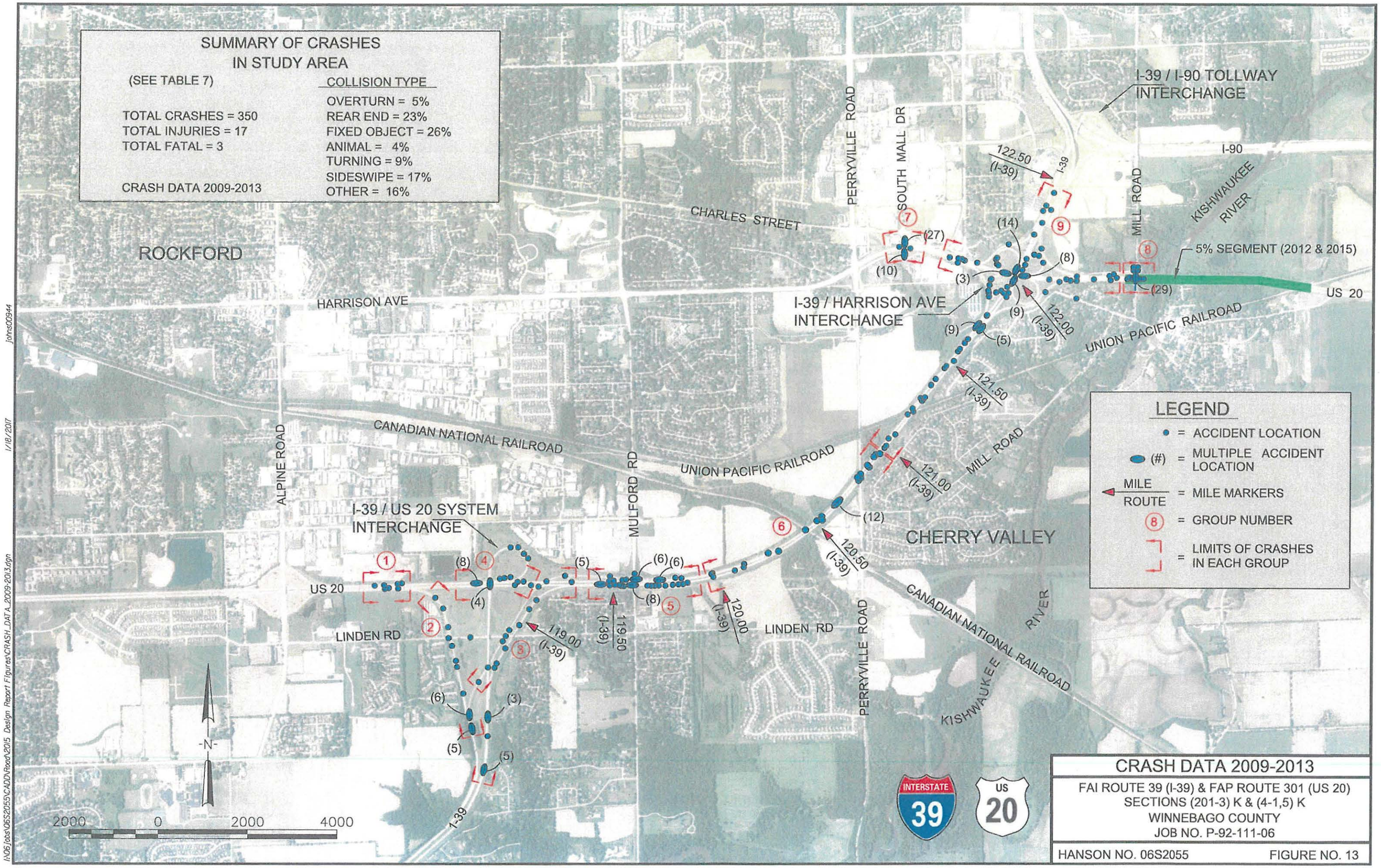

SUMMARY OF CRASHES
IN STUDY AREA
(SEE TABLE 7)
TOTAL CRASHES = 350
TOTAL INJURIES = 17
TOTAL FATAL = 3
CRASH DATA 2009-2013
COLLISION TYPE
OVERTURN = 5%
REAR END = 23%
FIXED OBJECT = 26%
ANIMAL = 4%
TURNING = 9%
SIDESWIPE = 17%
OTHER = 16%
ROCKFORD
CHARLES STREET
HARRISON AVE
PERRYVILLE ROAD
SOUTH MALL DR
I-39 / I-90 TOLLWAY
INTERCHANGE
I-90
MILL ROAD
KISHWAUKEE
RIVER
5% SEGMENT (2012 & 2015)
US 20
I-39 / HARRISON AVE
INTERCHANGE
UNION PACIFIC RAILROAD
CANADIAN NATIONAL RAILROAD
ALPINE ROAD
MULFORD RD
I-39 / US 20 SYSTEM
INTERCHANGE
LINDEN RD
CHERRY VALLEY
LEGEND
= ACCIDENT LOCATION
(#) = MULTIPLE ACCIDENT LOCATION
MILE / ROUTE = MILE MARKERS
8 = GROUP NUMBER
= LIMITS OF CRASHES IN EACH GROUP
-N-
2000 0 2000 4000
INTERSTATE 39
US 20
CRASH DATA 2009-2013
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06
HANSON NO. 06S2055
FIGURE NO. 13

Village of Cherry Valley Comprehensive Plan Land Use Map Adopted: 1989

Revised: 1995, 2000, 2004

Residential

Yellow; Urban Residential
Brown; Urban Multi-Family
Gray; Rural Residential

Business

Red; Commercial Retail
Purple; Office
Orange; Lt. Industrial
Orange Line; General Industrial
Blue; Central Business District

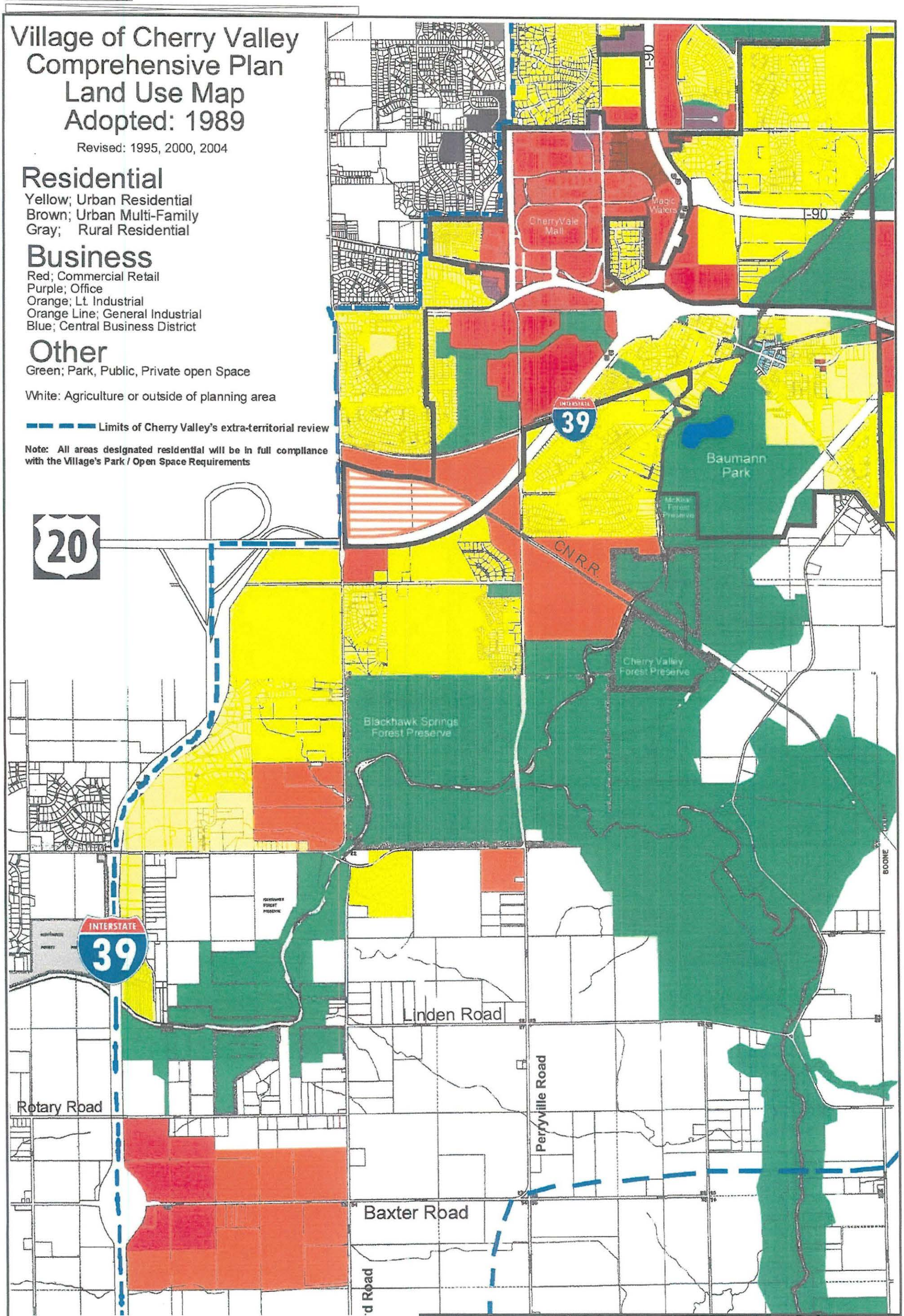
Other

Green; Park, Public, Private open Space

White: Agriculture or outside of planning area

Limits of Cherry Valley's extra-territorial review

Note: All areas designated residential will be in full compliance with the Village's Park / Open Space Requirements

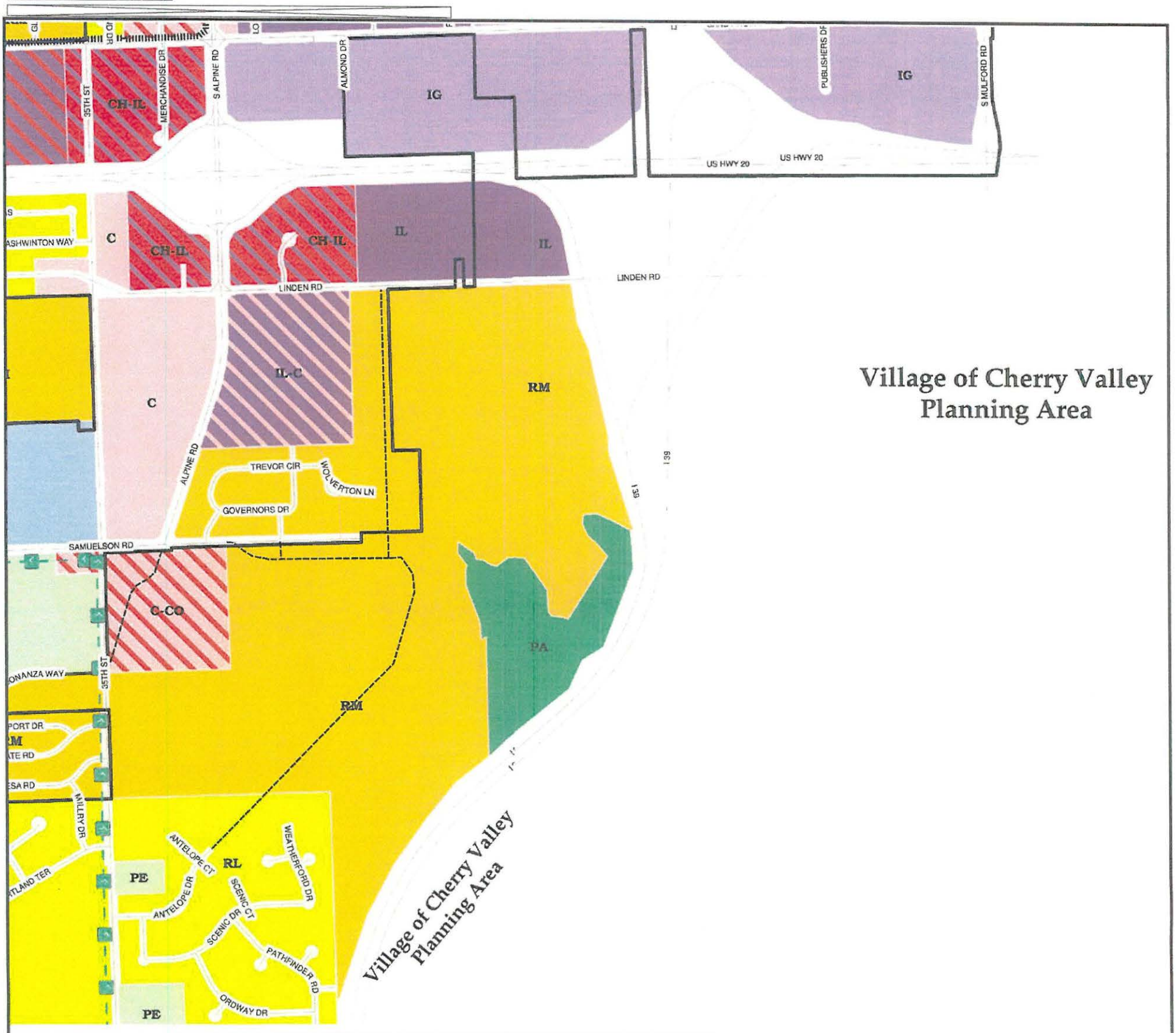


HANSON
Hanson Professional Services Inc.

EXISTING LAND USE

FAU ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 14



2020 Plan - Rockford, Illinois

0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

Land Use

- C- Retail
- CD- Mixed Use
- CH- Heavy Commercial
- CO- Office
- CO/O- Office Overlay
- CR- Recreation/Entertainment/Tourism
- PA- Priority Park Acquisition
- PE- Existing (Quasi-) Public Facility
- U- Area Unsuitable for Development
- IG- General Industry
- IL- Light Industry
- IH- Heavy Industry
- T- Tech Industry
- RL- Light Residential
- RM- Medium Residential
- RH- Heavy Residential
- FUD- Future Urban Development
- SRA- Subdivision Review Area
- RH-CBD- Central Business District Overlay

Multiple Designation Areas

- C-CO
- C-CO/O
- C-CR
- CH-IL
- CH-RL
- CO-CR
- U-PA
- IG-C
- IG-CD
- IG-CR
- IL-C
- IL-CO
- T-IG
- T-IL
- T-CO
- T-C-IL
- T-C-CO
- RL-C
- RM-C
- RM-CO
- RH-CO
- RL-CO/O
- RM-CO/O
- RH-CO/O

		1	2	3			
		4	5	6	7	8	9
40		15	14	13	12	11	10
41		16	17	18	19	20	21
42		26	25	24	23	22	
		27	28	29	30	31	
		35	34	33	32		
		36	37	38	39		

43

Transportation

- Freeway (Proposed)
- Arterial (Proposed)
- Collector (Proposed)
- Pathway (Existing)
- Pathway (Proposed)
- Existing Parks
- Infill Areas
- Rockford City Limits

N W E S

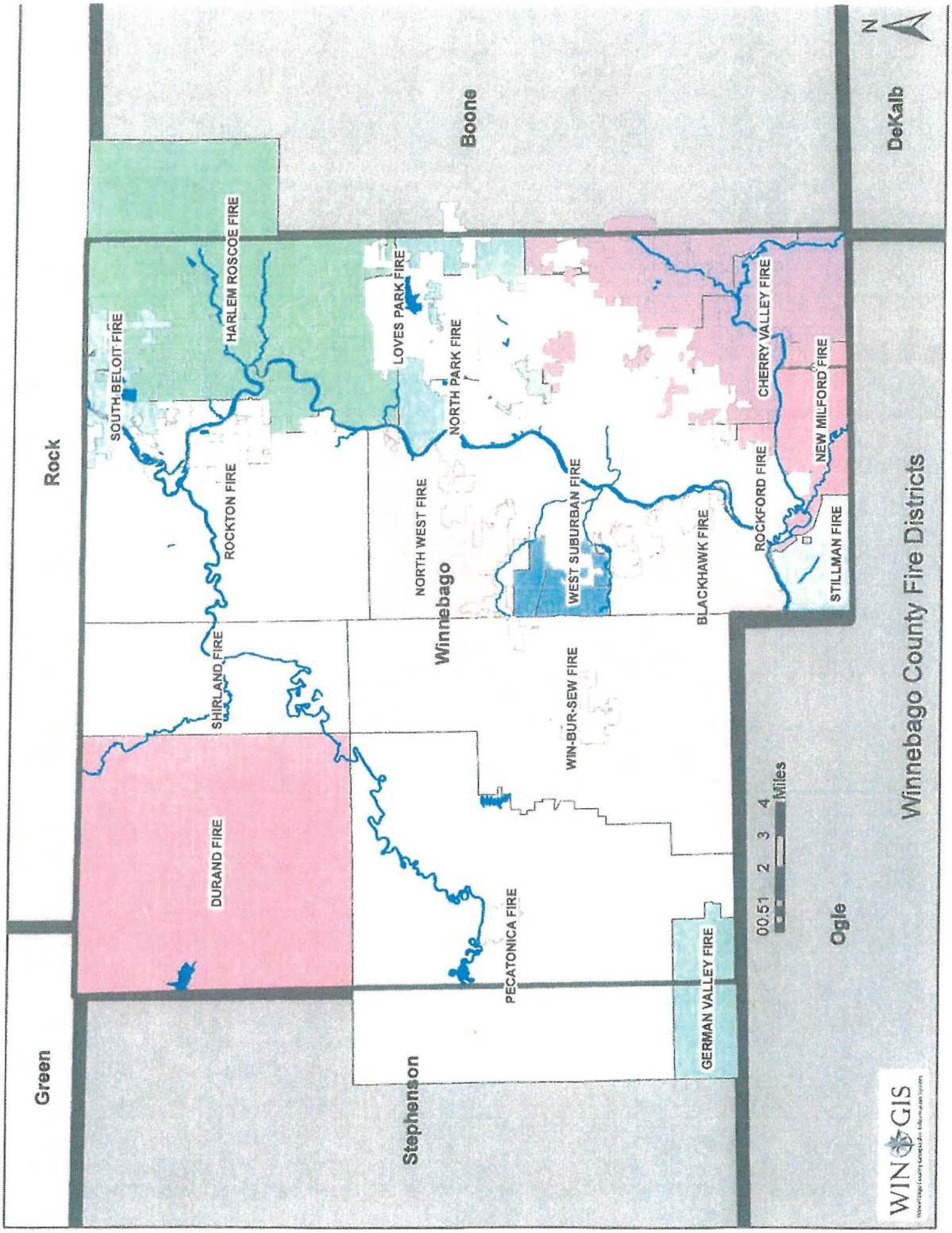
Map Prepared By:
City of Rockford
Community Development Department
Planning Division
As Adopted by City Council, Sept. 13, 2004

HANSON
Hanson Professional Services Inc.

EXISTING LAND USE PLAN

FAU ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 15



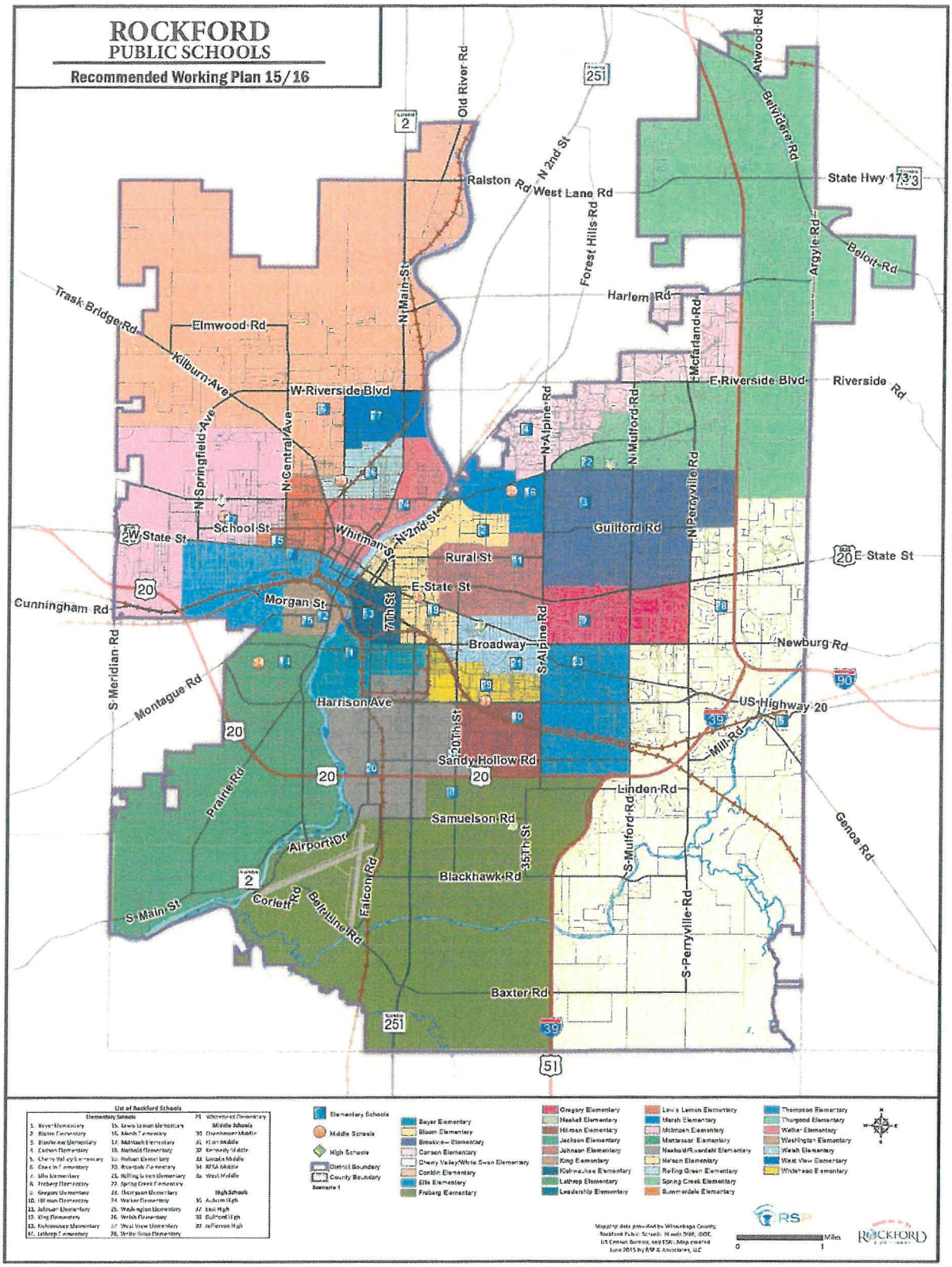
INTERSTATE 39

US 20

WINNEBAGO COUNTY FIRE DISTRICTS

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
CHERRY VALLEY, ILLINOIS

FIGURE NO. 16



List of Rockford Schools

Elementary Schools		
1. Beyer Elementary	15. Lewis Lemon Elementary	29. Whitehead Elementary
2. Bloom Elementary	16. Marsh Elementary	Middle Schools
3. Brookview Elementary	17. Mattoon Elementary	30. Chamberlain Middle
4. Carson Elementary	18. Marshall Elementary	31. Flinn Middle
5. Cherry Valley Elementary	19. Nelson Elementary	32. Kennedy Middle
6. Conklin Elementary	20. Riverdale Elementary	33. Lincoln Middle
7. Ellis Elementary	21. Rolling Green Elementary	34. RFSA Middle
8. Froberg Elementary	22. Spring Creek Elementary	35. West Middle
9. Gregory Elementary	23. Thompson Elementary	High Schools
10. Hillman Elementary	24. Walker Elementary	36. Auburn High
11. Johnson Elementary	25. Washington Elementary	37. East High
12. King Elementary	26. Welsh Elementary	38. Guilford High
13. Kishwaukee Elementary	27. West View Elementary	39. Jefferson High
14. Lathrop Elementary	28. White Swan Elementary	

Elementary Schools
Middle Schools
High Schools
District Boundary
County Boundary
Scenario 1

Beyer Elementary
Bloom Elementary
Brookview Elementary
Carson Elementary
Cherry Valley/White Swan Elementary
Conklin Elementary
Ellis Elementary
Froberg Elementary
Gregory Elementary
Heskett Elementary
Hillman Elementary
Jackson Elementary
Johnson Elementary
King Elementary
Kishwaukee Elementary
Lathrop Elementary
Leadership Elementary
Lewis Lemon Elementary
Marsh Elementary
Mattoon Elementary
Montessori Elementary
Nashold/Riverdahl Elementary
Nelson Elementary
Rolling Green Elementary
Spring Creek Elementary
Summerdale Elementary
Thompson Elementary
Thurgood Elementary
Walker Elementary
Washington Elementary
Welsh Elementary
West View Elementary
Whitehead Elementary

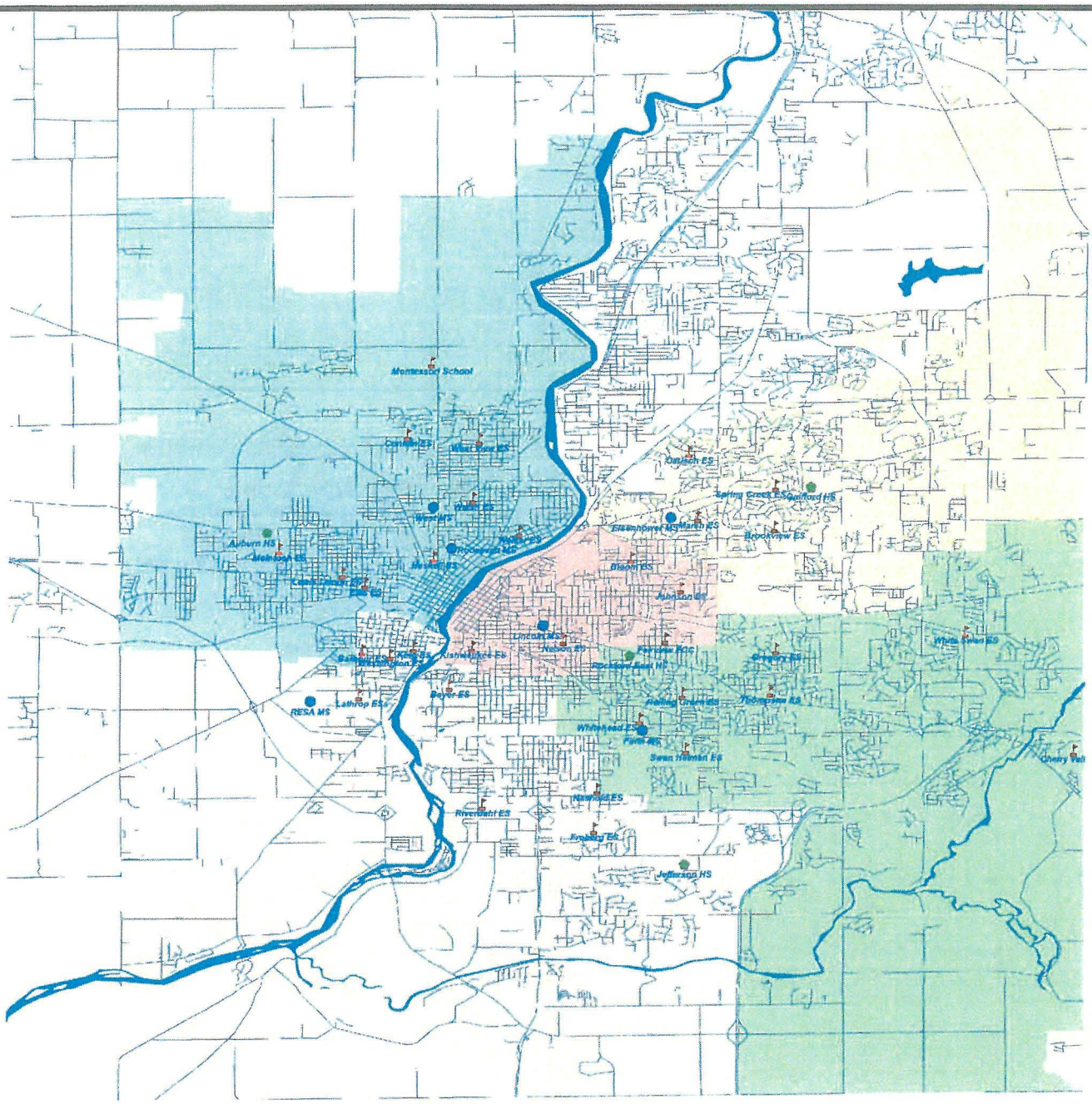
Mapping data provided by Winnebago County, Rockford Public Schools, Illinois DNR, IDOT, US Census Bureau, and ESRI. Map created June 2015 by RSP & Associates, LLC

RSP
Miles
0 1
ROCKFORD

ELEMENTARY SCHOOL BOUNDARIES

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
CHERRY VALLEY, ILLINOIS

FIGURE NO. 17



Rockford School District 205
Middle School Zones - 3/29/11

Legend

schools

LEVEL

- ECC
- ES
- MS
- HS
- Roads
- Rivers

School Zones

MS1

- Eisenhower
- Flinn
- Kennedy
- Lincoln
- RESA
- West

INTERSTATE 39

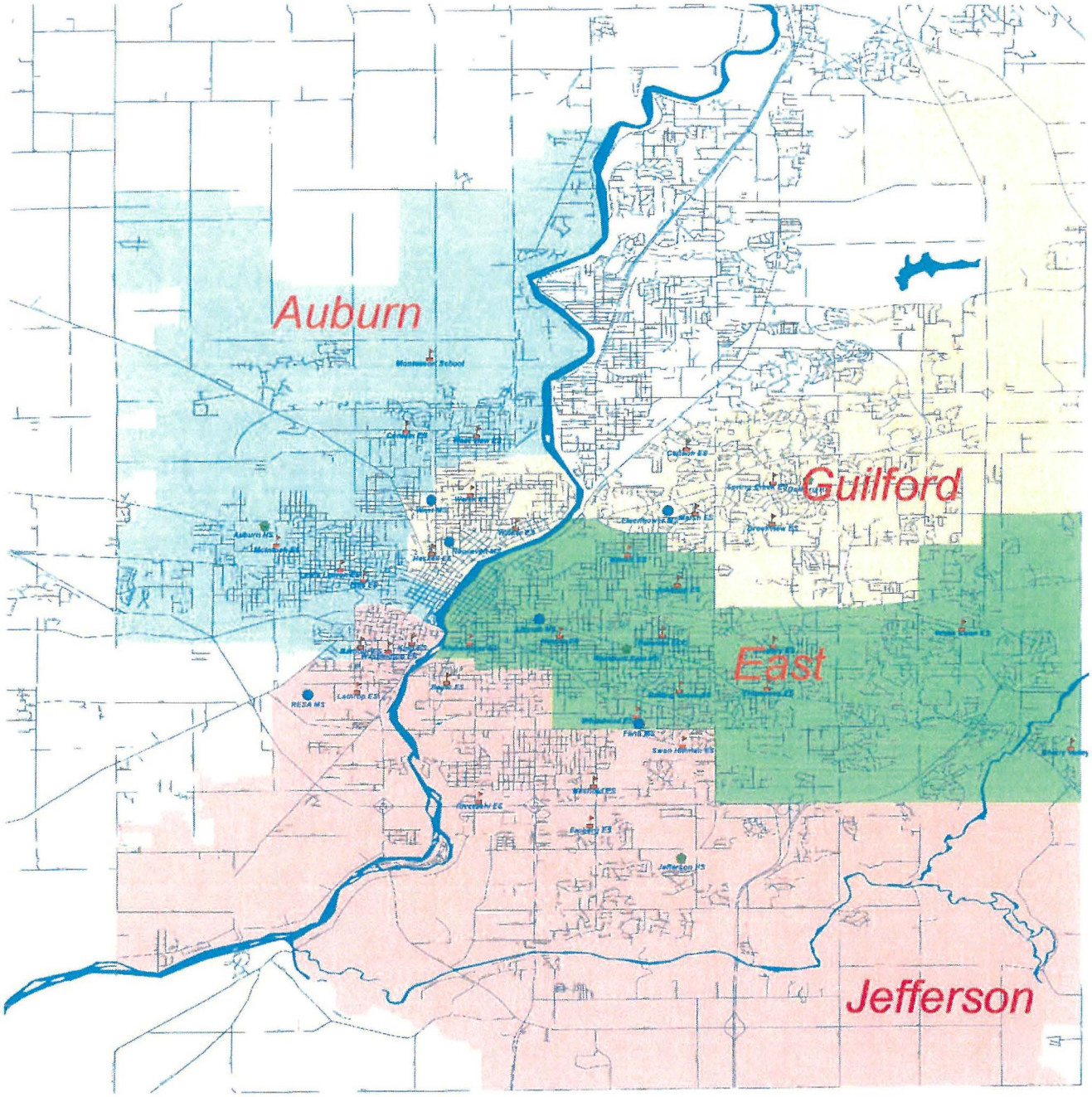
US 20

N

MIDDLE SCHOOL BOUNDARIES

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
CHERRY VALLEY, ILLINOIS

FIGURE NO. 18



Rockford School District 205
High School Zones - 3/29/11

Legend

schools

LEVEL

- ECC
- ES
- HS
- MS
- Roads
- Rivers

High School Zones

NAME

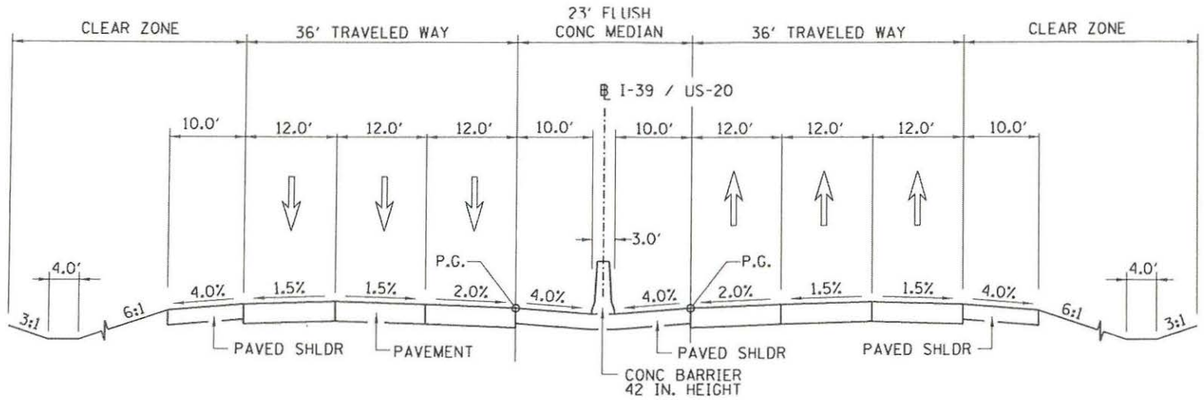
- Auburn
- East
- Guilford
- Jefferson

INTERSTATE 39

US 20

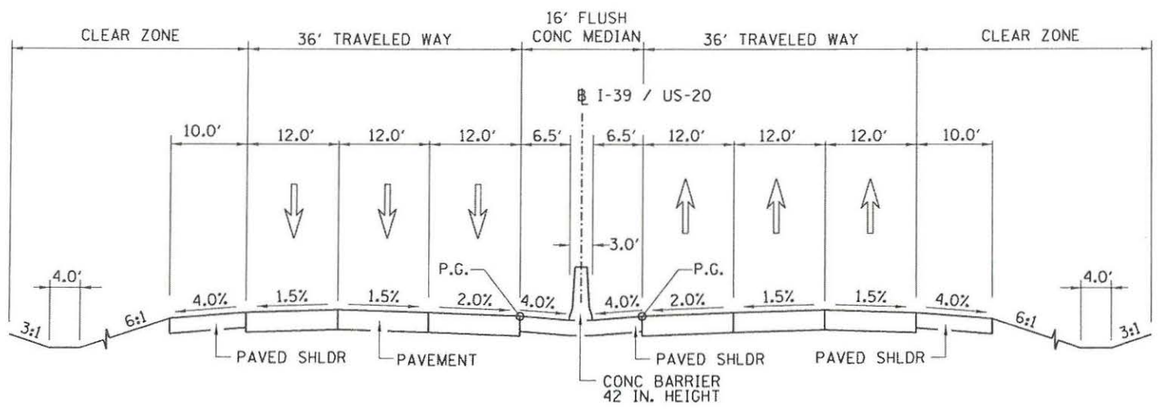
N

HIGH SCHOOL BOUNDARIES
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY CHERRY VALLEY, ILLINOIS
FIGURE NO. 19



PROPOSED I-39 / US-20

ALTERNATIVE 1 - 10 FT. SHOULDERS

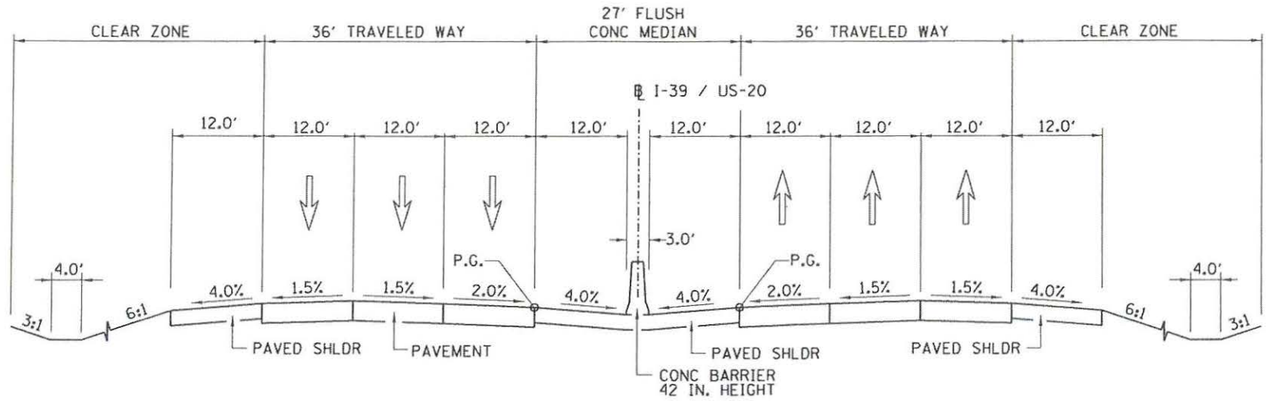


PROPOSED I-39 / US-20

ALTERNATIVE 2 - NARROW MEDIAN SHOULDER

ALTERNATIVE TYPICAL SECTIONS	
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06	
HANSON NO. 06S2055	FIGURE NO. 20A

I:\06Jobs\06S2055\CADD\Road\2015 Design Report Figures\ALT_PROP_TYP_I39US20_MLINE.dgn 5/9/2016 McCor00406



PROPOSED I-39 / US-20

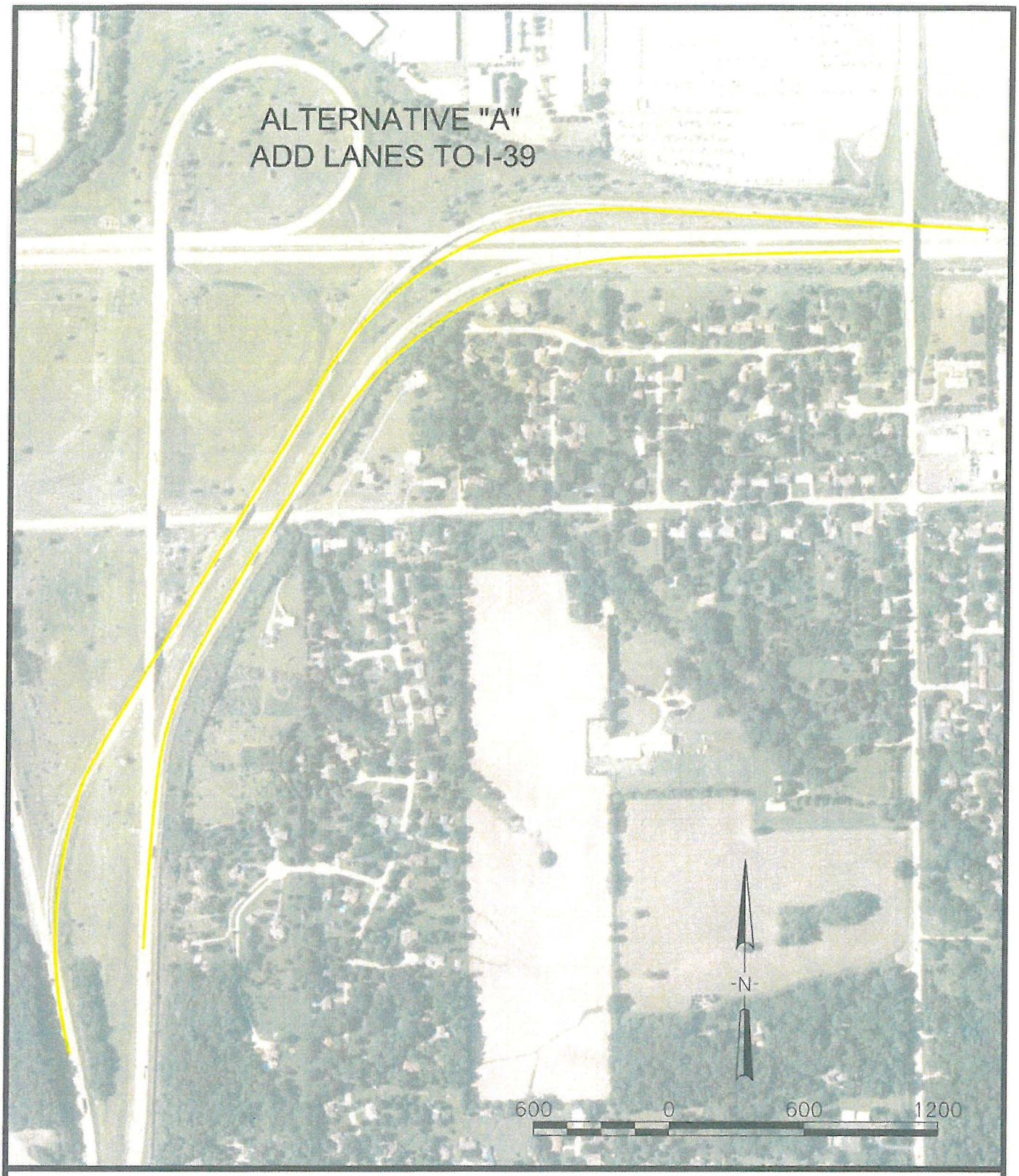
ALTERNATIVE 3 - 12 FT. SHOULDERS

ALTERNATIVE TYPICAL SECTIONS

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 20B

I:\06Jobs\06S2055\CADD\Road\2015 Design Report Figures\ALT_PROP_TYP_I39US20_MLINE.dgn 5/9/2016 McCor00406



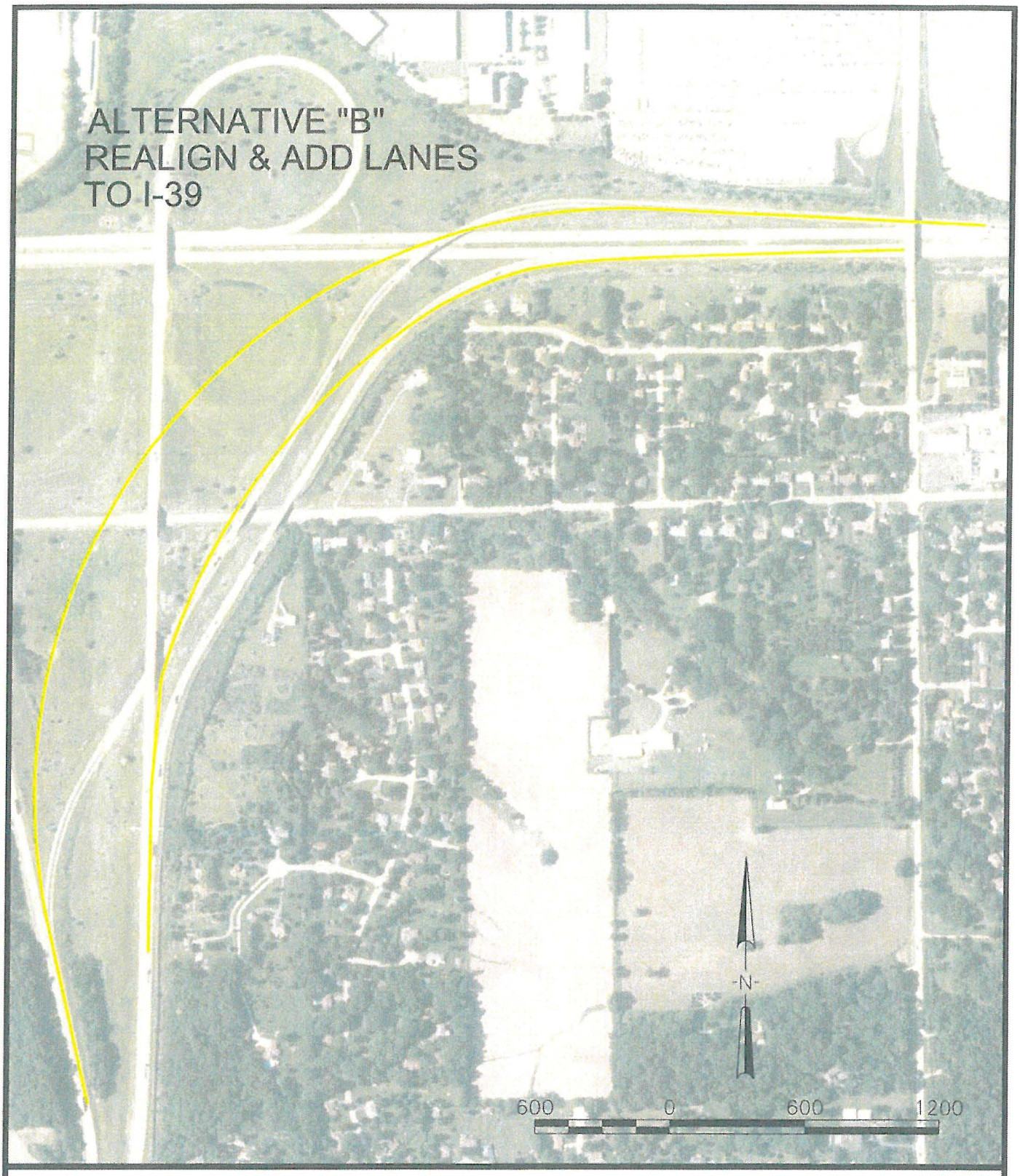
INTERSTATE 39

US 20

I-39 /US 20 SYSTEM INTERCHANGE - ALT. A

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

FIGURE NO. 21



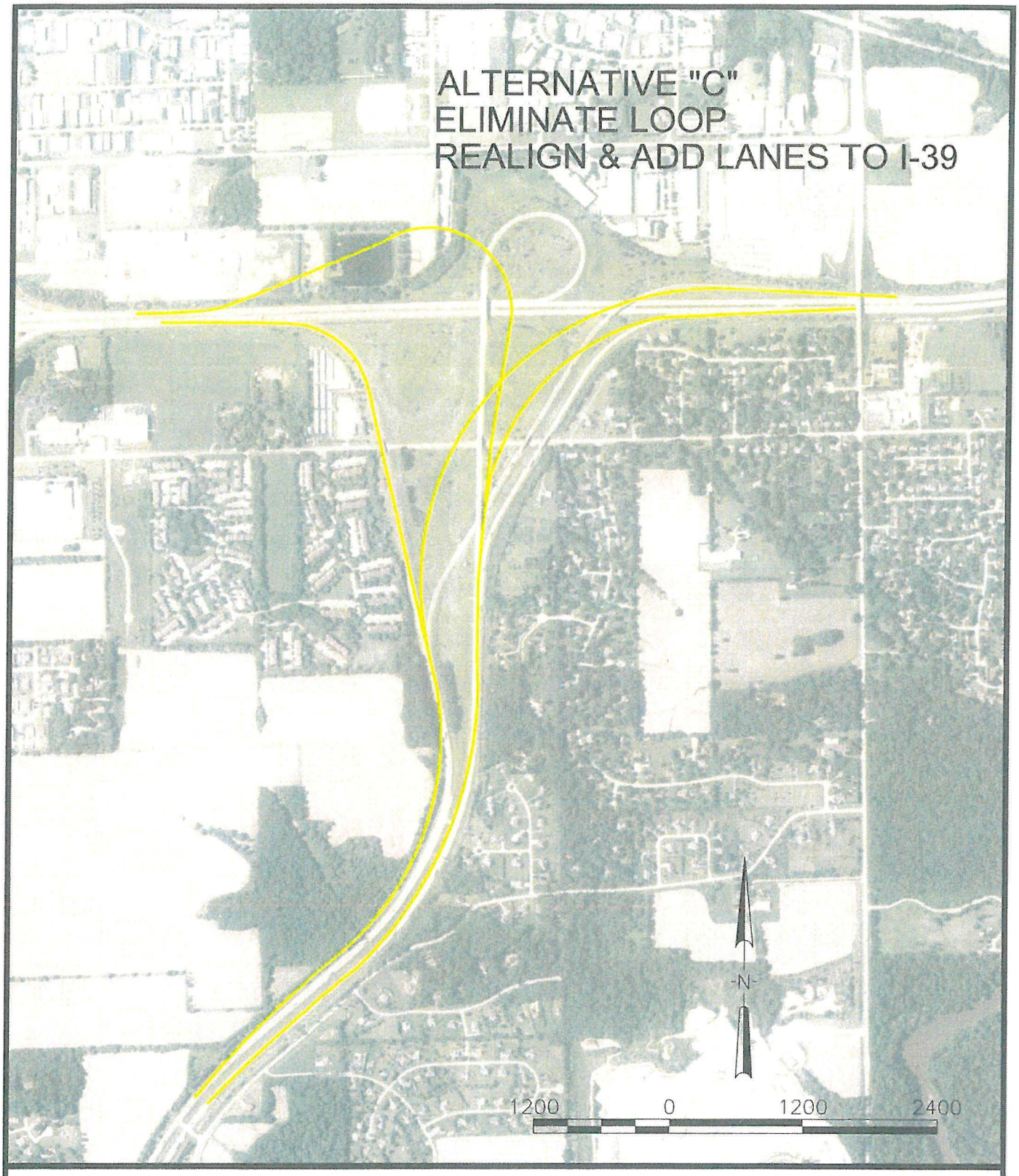
INTERSTATE 39

US 20

I-39 /US 20 SYSTEM INTERCHANGE - ALT. B

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

FIGURE NO. 22



INTERSTATE 39

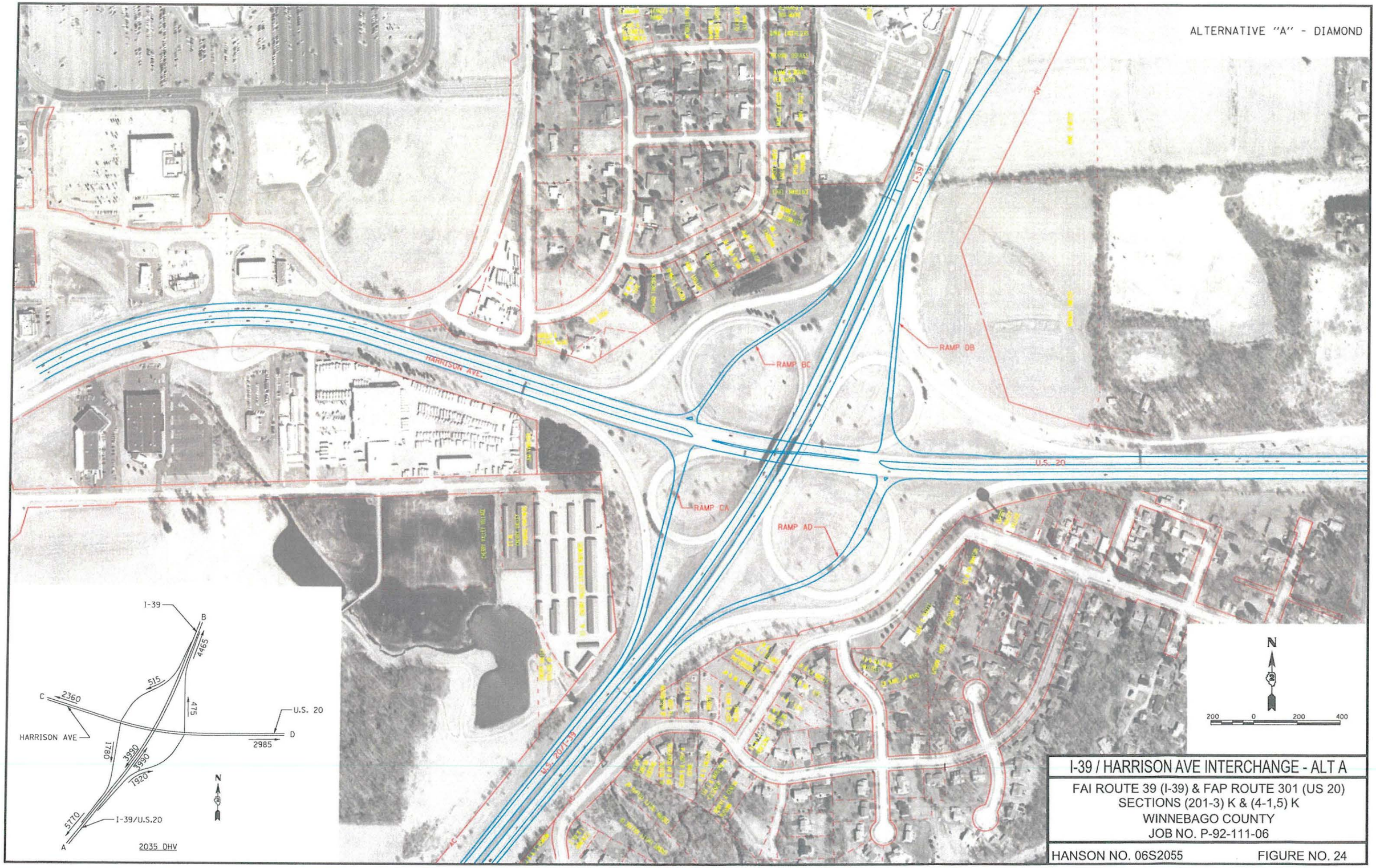
US 20

I-39 /US 20 SYSTEM INTERCHANGE - ALT. C

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

FIGURE NO. 23

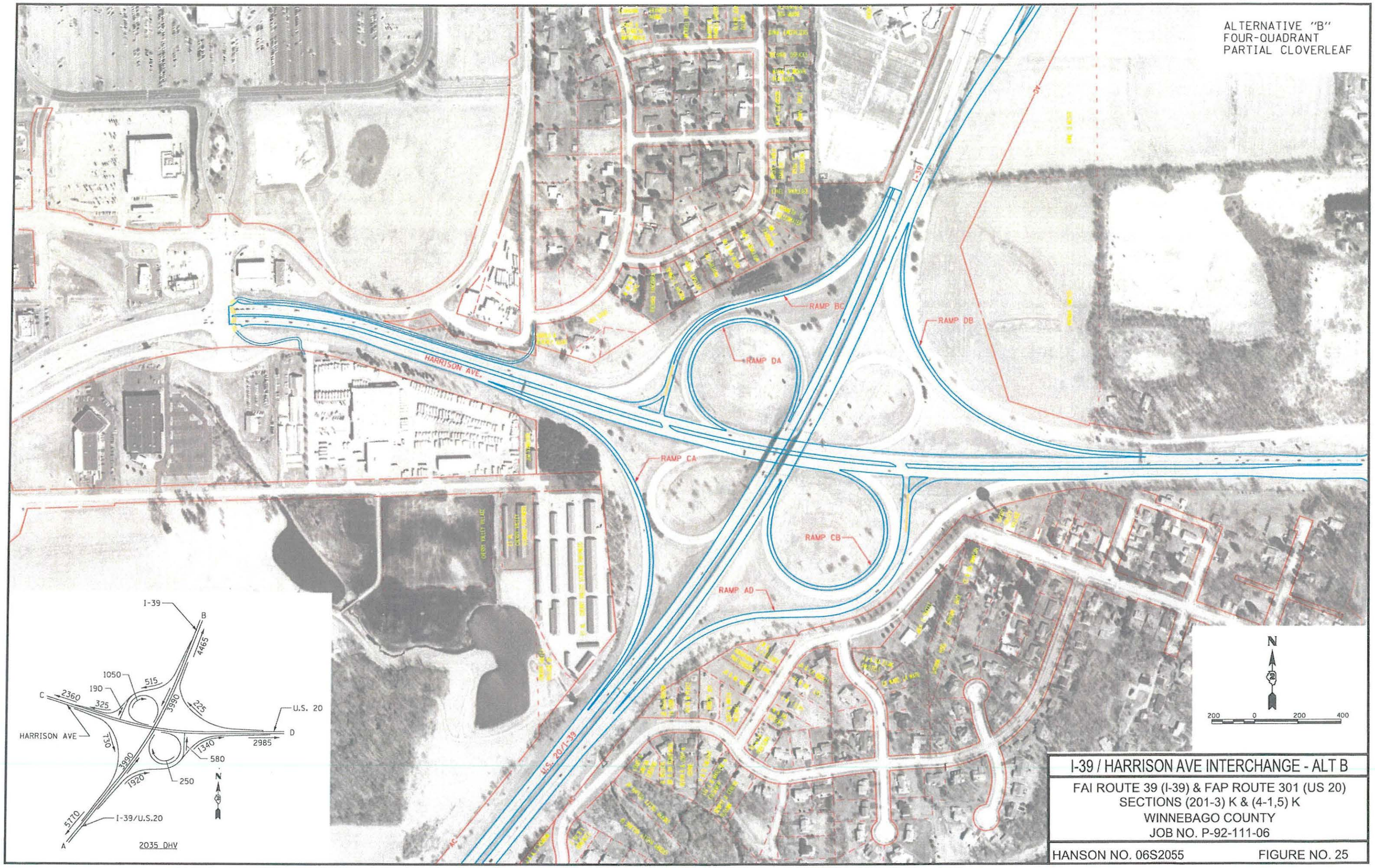
ALTERNATIVE "A" - DIAMOND



I-39 / HARRISON AVE INTERCHANGE - ALT A

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

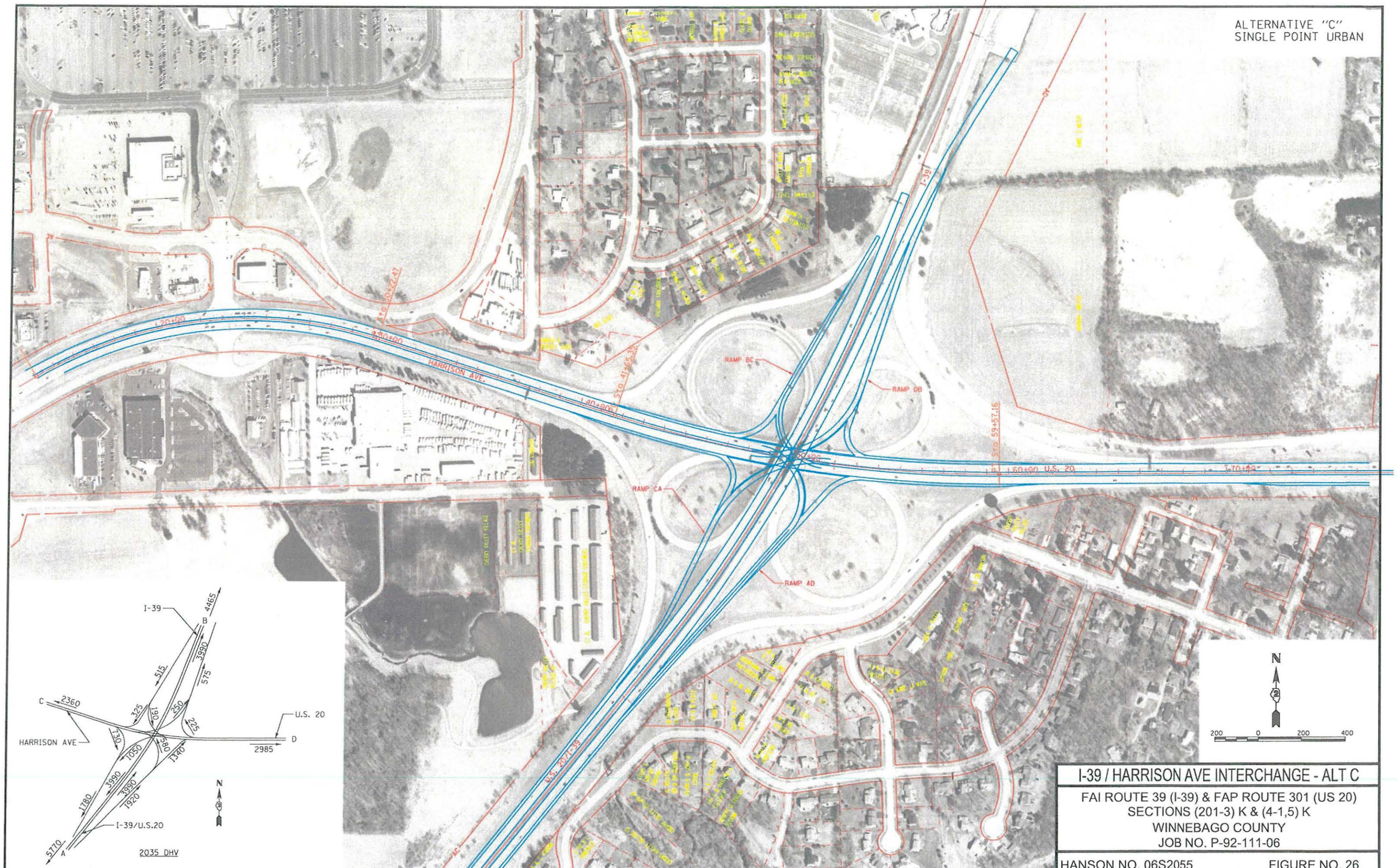
HANSON NO. 06S2055 FIGURE NO. 24



I-39 / HARRISON AVE INTERCHANGE - ALT B

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

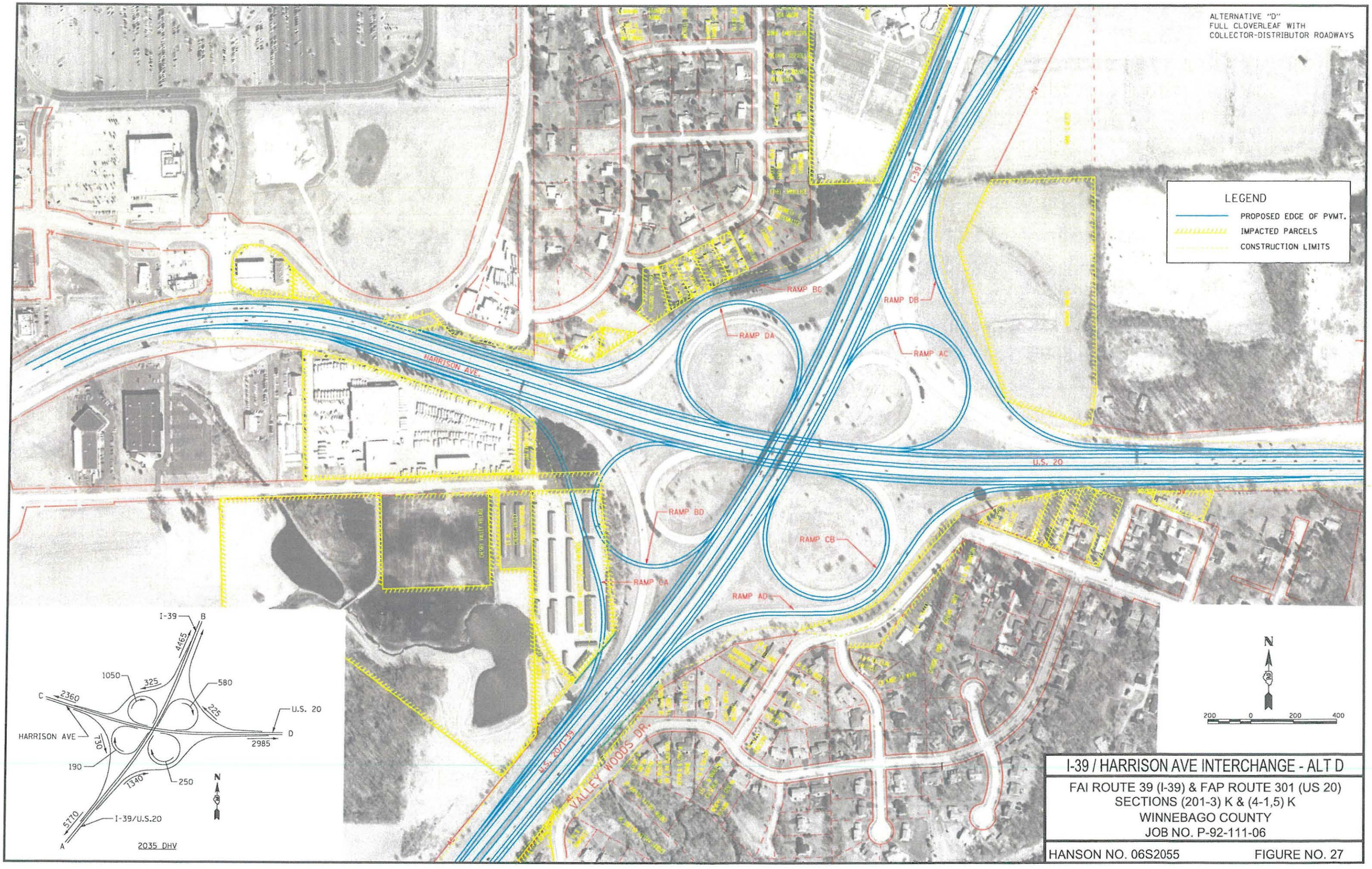
HANSON NO. 06S2055 FIGURE NO. 25



I-39 / HARRISON AVE INTERCHANGE - ALT C

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

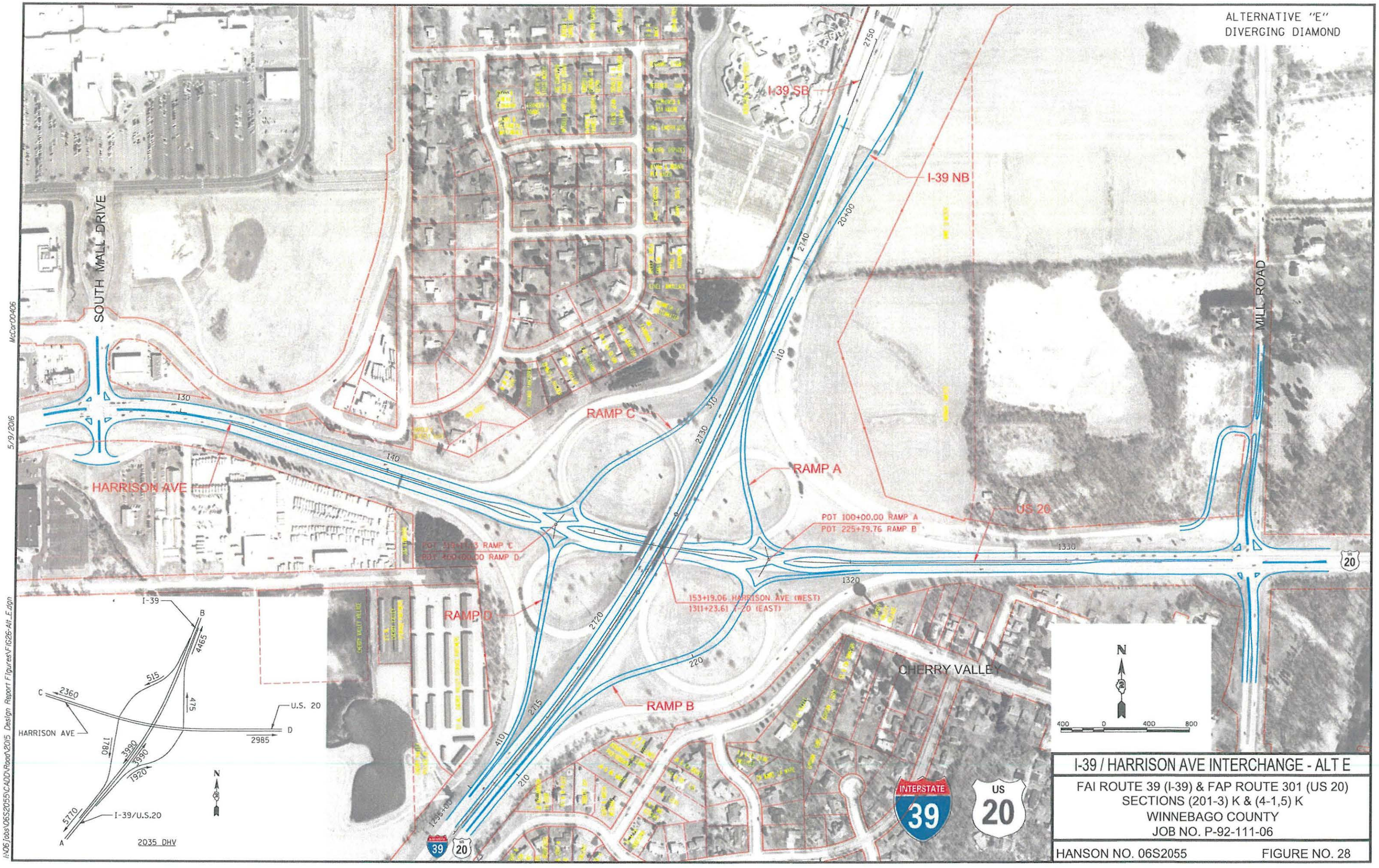
HANSON NO. 06S2055 FIGURE NO. 26



I-39 / HARRISON AVE INTERCHANGE - ALT D

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 27

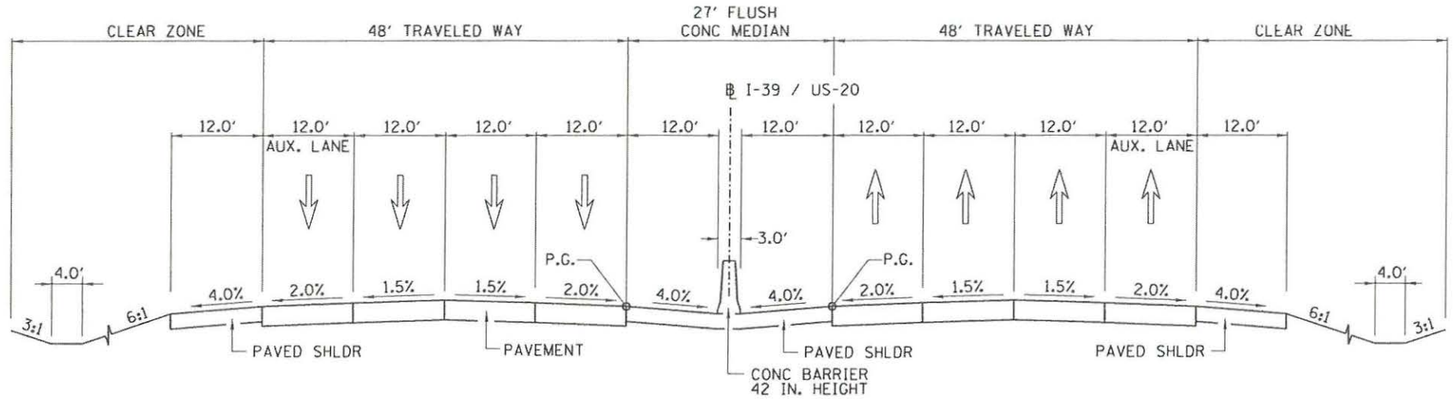


I-39 / HARRISON AVE INTERCHANGE - ALT E

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

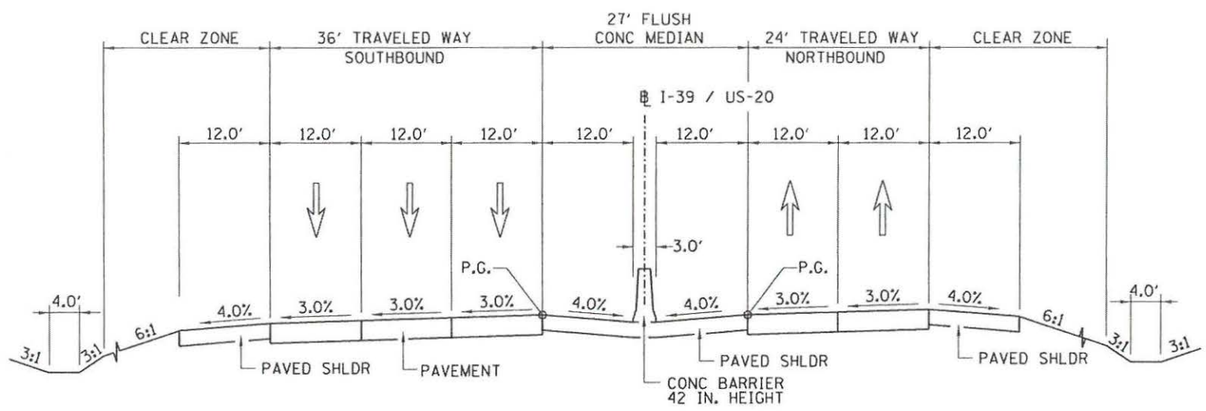
HANSON NO. 06S2055 FIGURE NO. 28

I:\06jobs\06S2055\CADD\Road\2015 Design Report Figures\FIG26-Alt_E.dgn 5/9/2016 McCor00406



PROPOSED I-39 / US-20

SOUTH OF HARRISON AVE INTERCHANGE



PROPOSED I-39

THROUGH THE HARRISON AVE INTERCHANGE

INTERSTATE 39

US 20

PROPOSED TYPICAL SECTIONS	
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06	
HANSON NO. 06S2055	FIGURE NO. 29

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1/16/2017
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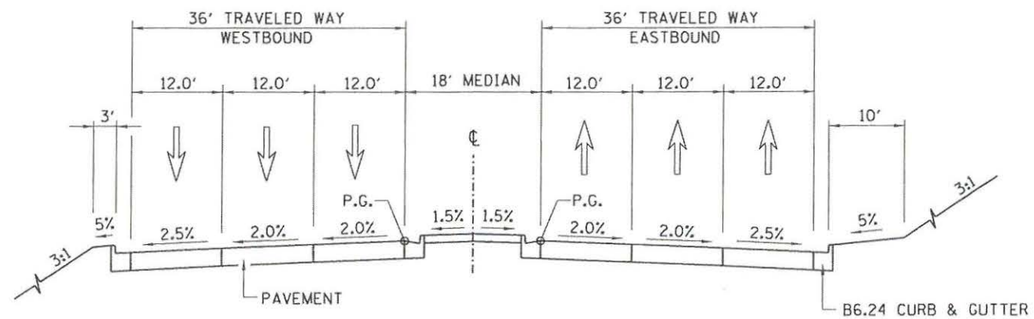
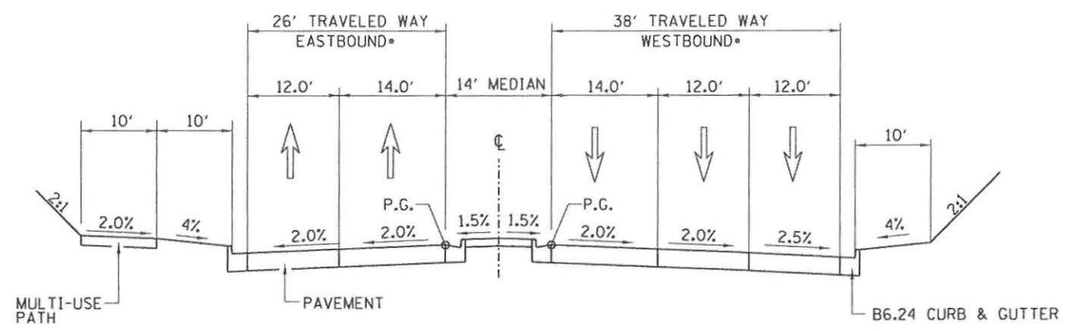


PROPOSED
HARRISON AVE/US 20 APPROACH
TO I-39 INTERCHANGE



PROPOSED
HARRISON AVE UNDER
I-39 INTERCHANGE STRUCTURES

*WITH THE DIVERGING DIAMOND INTERCHANGE TYPE TRAFFIC DRIVES ON THE OPPOSITE SIDE OF THE ROAD BETWEEN RAMP TERMINALS.

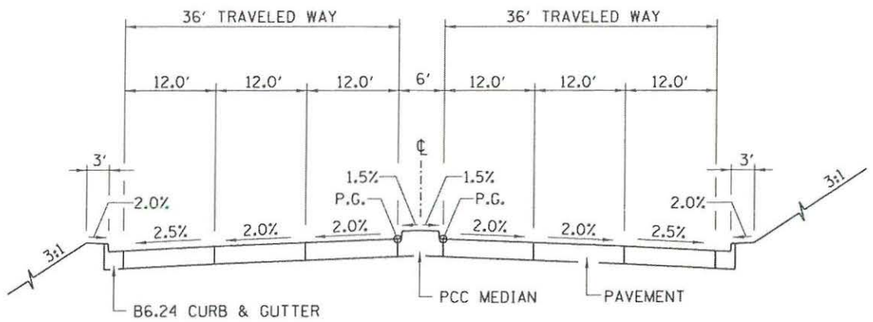
NOTE: SEE INTERCHANGE DESIGN STUDY (IDS) AND FIGURE 37 FOR MORE DETAILED LANE CONFIGURATION THROUGH THE I-39/HARRISON AVE. INTERCHANGE.

INTERSTATE 39

US 20

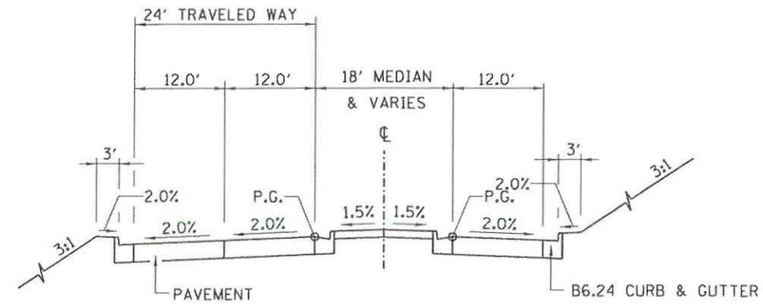
PROPOSED TYPICAL SECTIONS	
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06	
HANSON NO. 06S2055	FIGURE NO. 30

I:\06jobs\06S2055\CADD\Road\2015 Design Report Figures\PROPOSED_TYPICALS.dgn 1/16/2017 mcarr00406



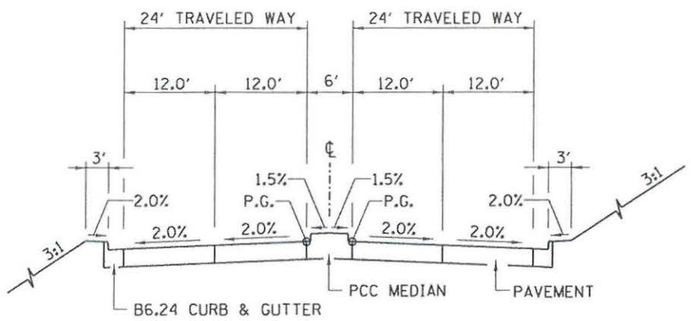
PROPOSED
SOUTH MALL DRIVE
(NORTH LEG)

NOTE: SEE INTERSECTION DESIGN STUDY FOR INTERSECTION LAYOUT.



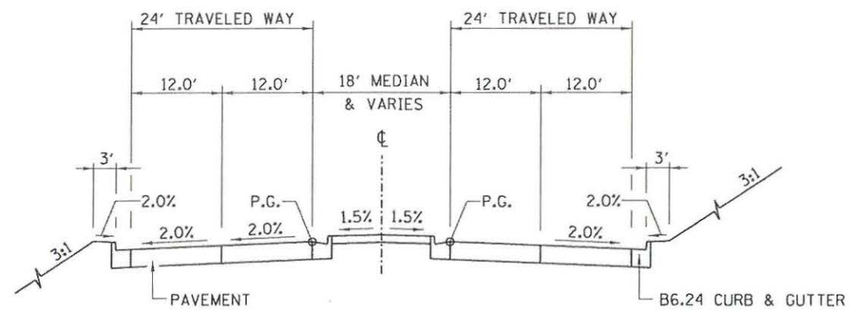
PROPOSED MILL ROAD
NORTH OF HARRISON AVENUE
INTERSECTION

NOTE: SEE INTERSECTION DESIGN STUDY FOR INTERSECTION LAYOUT.



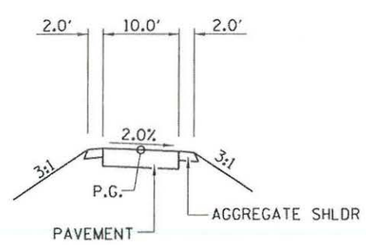
PROPOSED
SOUTH MALL DRIVE
(SOUTH LEG)

NOTE: SEE INTERSECTION DESIGN STUDY FOR INTERSECTION LAYOUT.



PROPOSED MILL ROAD
SOUTH OF HARRISON AVENUE
INTERSECTION

NOTE: SEE INTERSECTION DESIGN STUDY FOR INTERSECTION LAYOUT.



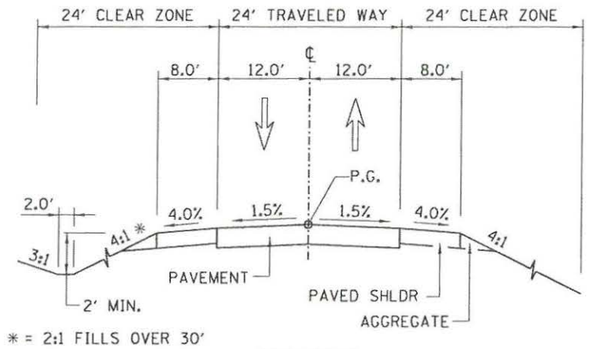
PROPOSED CHERRY VALLEY PATH

PROPOSED TYPICAL SECTIONS

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

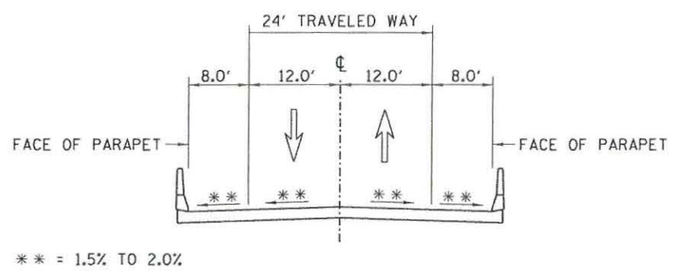
HANSON NO. 06S2055 FIGURE NO. 31

I:\06jobs\06S2055\CADD\Road\2015 Design Report Figures\PROPOSED_TYPICALS.dgn 3/30/2017 mcsar004f06



PROPOSED

LINDEN ROAD, MULFORD ROAD & PERRYVILLE ROAD



PROPOSED

MULFORD ROAD & PERRYVILLE ROAD STRUCTURES OVER I-39 / US-20

INTERSTATE 39

US 20

PROPOSED TYPICAL SECTIONS	
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06	
HANSON NO. 06S2055	FIGURE NO. 32

I:\06Jobs\06S2055\CADD\Road\2015 Design Report Figures\PROPOSED_TYPICALS.dgn 3/30/2017
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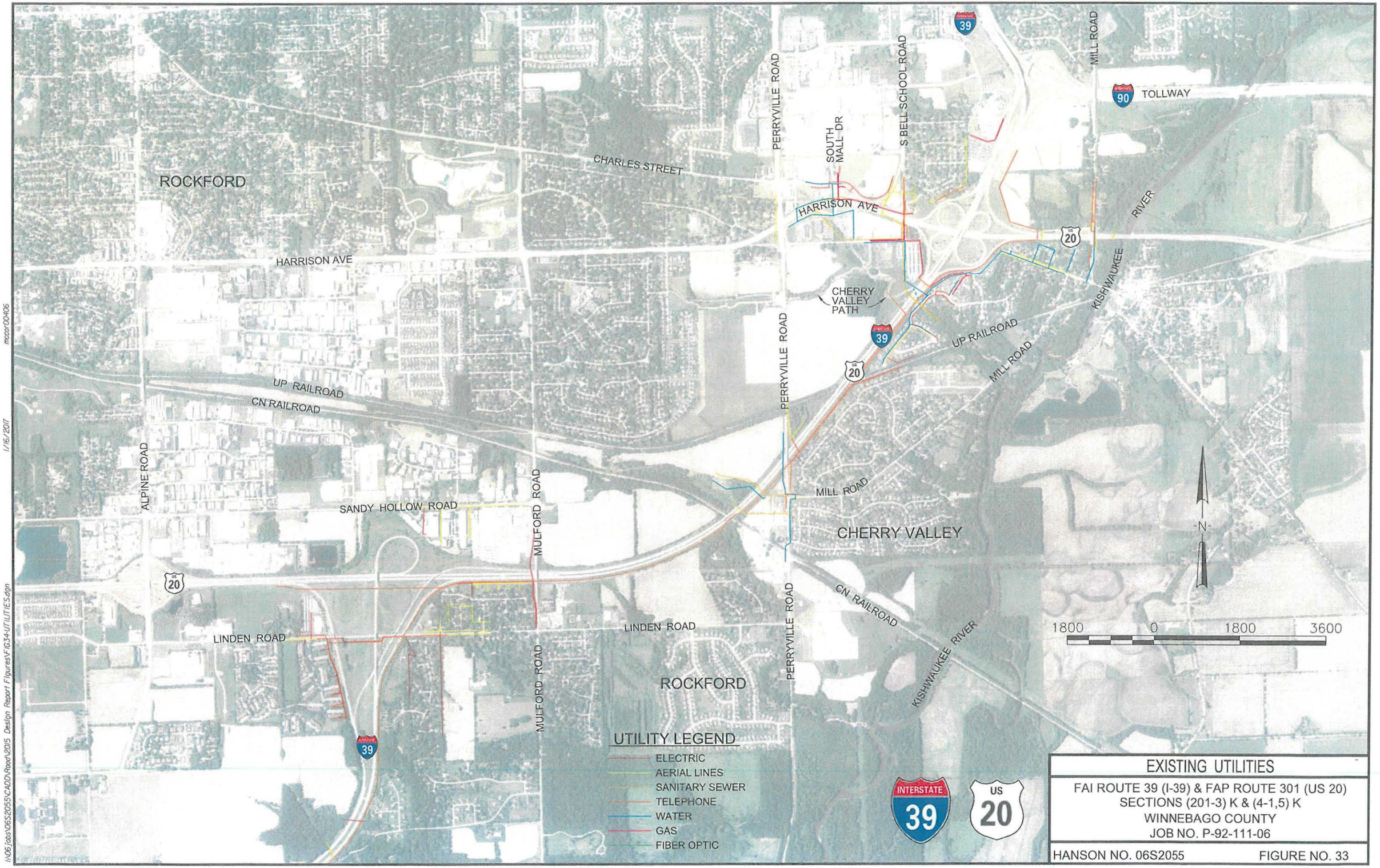
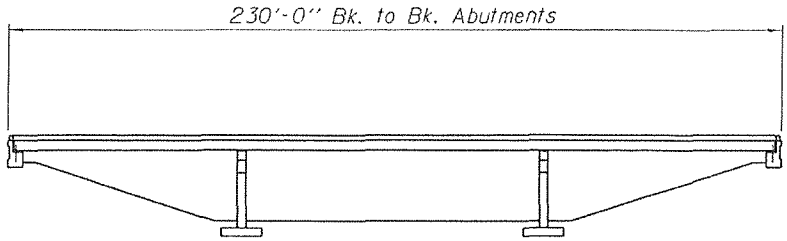


EXISTING UTILITIES

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

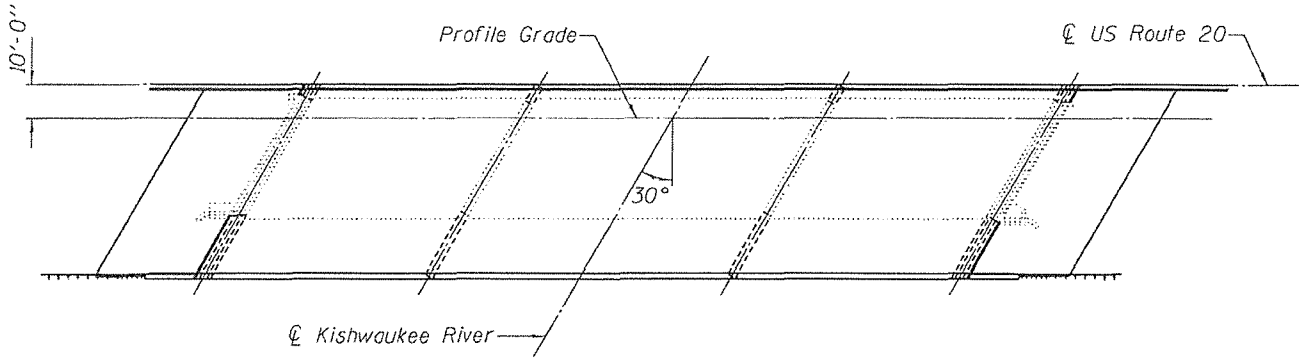
HANSON NO. 06S2055 FIGURE NO. 33

I:\06 Jobs\06S2055\CADD\Road\2015 Design Report Figures\FIG34-UTILITIES.dgn 1/16/2017 mccor00406

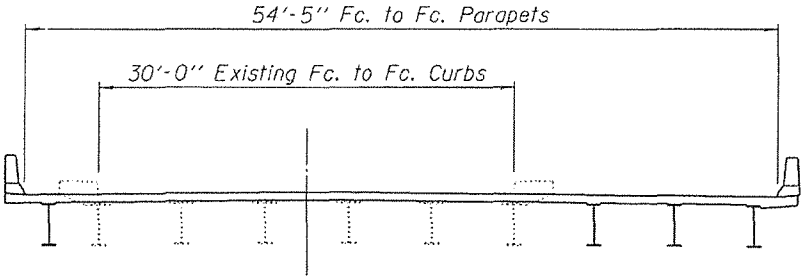


N

ELEVATION



PLAN



PROPOSED STRUCTURE WIDTH

Notes:
The profile grade and bridge length are subject to refinement in the TSL phase.
Superstructure type, beam spacing and rail type to be determined during the TSL phase.

PROPOSED STRUCTURE SKETCH	
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06	
HANSON NO. 06S2055	FIGURE NO. 34A

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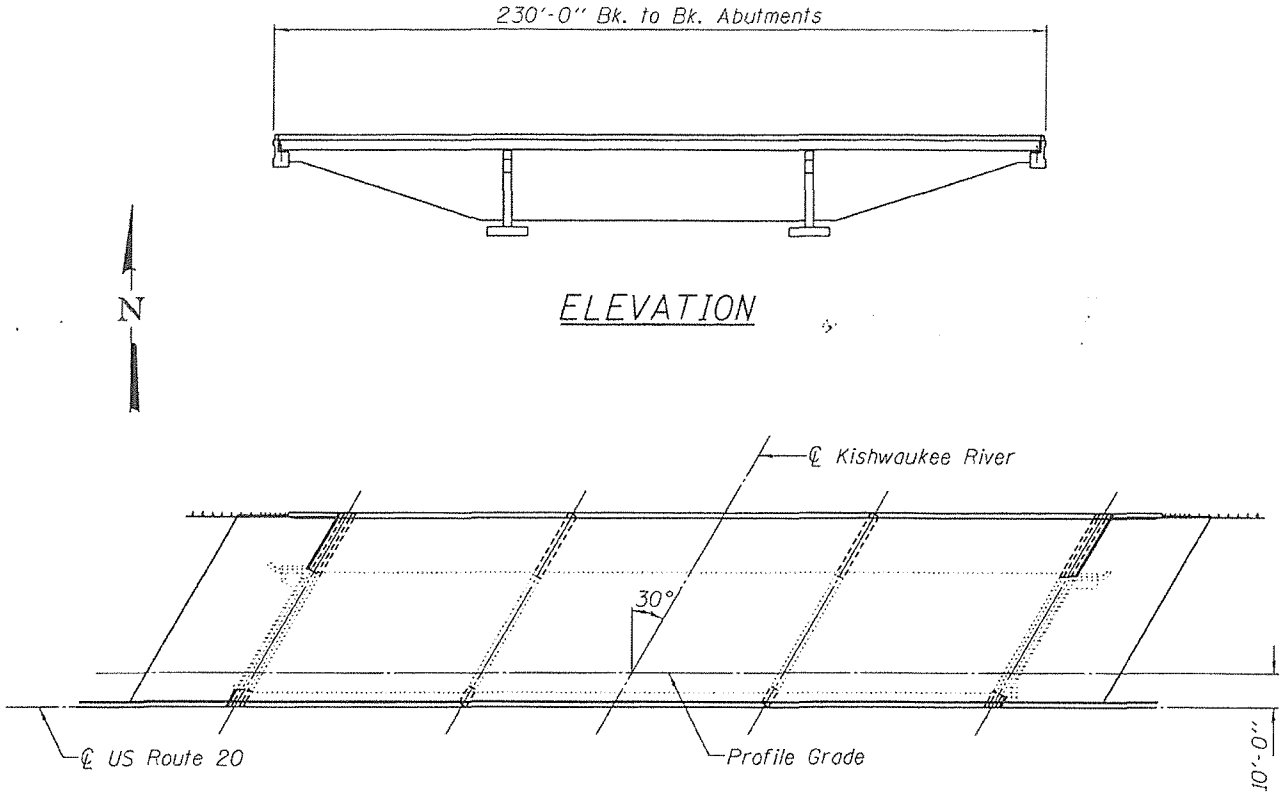

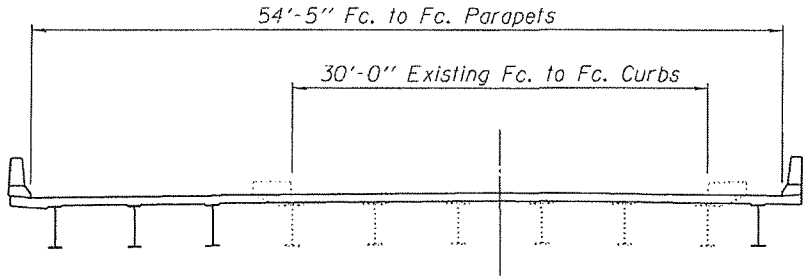

PROPOSED STRUCTURE WIDTH

Notes:
The profile grade and bridge length are subject to refinement in the TSL phase.
Superstructure type, beam spacing and rail type to be determined during the TSL phase.

PROPOSED STRUCT. SKETCH, SN 101-0074	
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06	
HANSON NO. 06S2055	FIGURE NO. 34B

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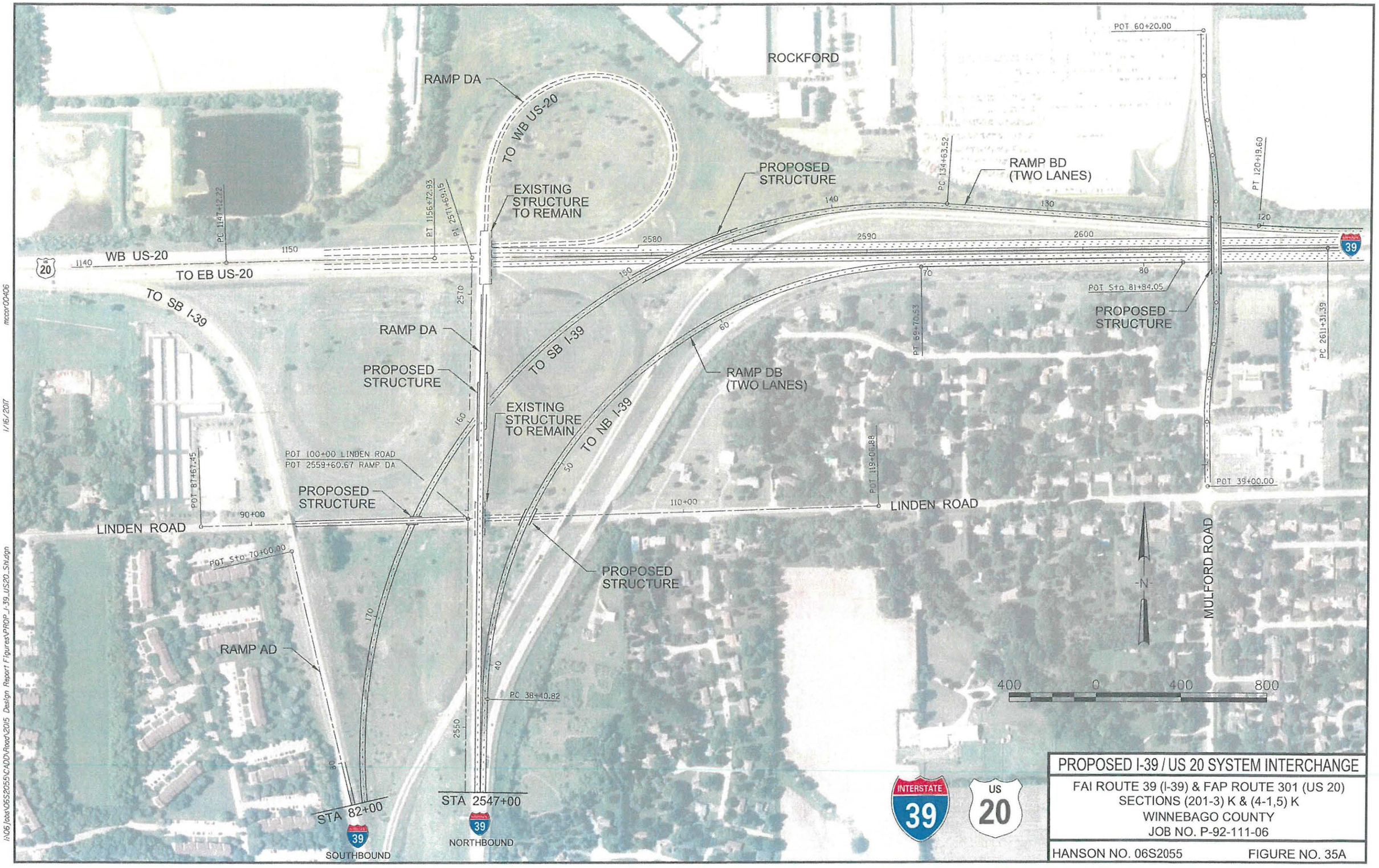

PROPOSED I-39 / US 20 SYSTEM INTERCHANGE

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 35A

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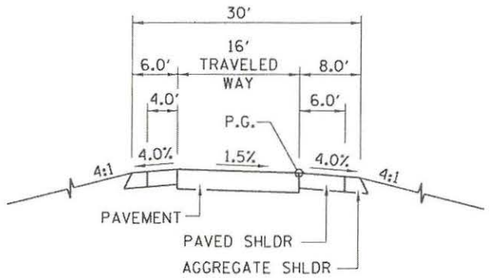
PROPOSED I-39 / US 20 SYSTEM INTERCHANGE

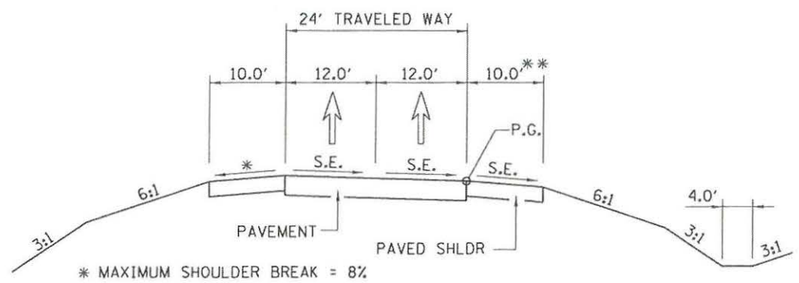
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 35B

I:\06Jobs\06S2055\CADD\Road\2015 Design Report Figures\PROP_I-39_US20_Sh2.dgn 1/16/2017 mccor00406



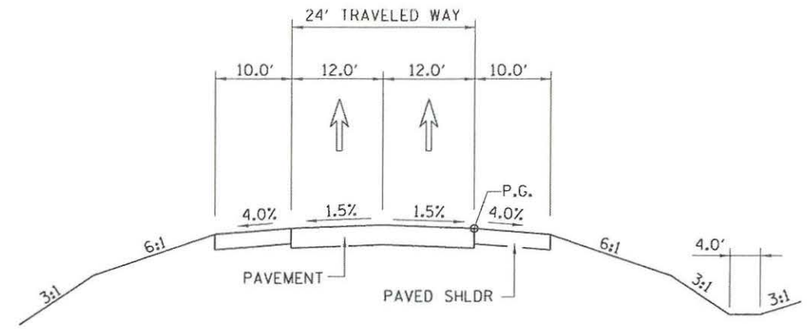
PROPOSED
ONE LANE RAMP TYPICAL SECTION
TANGENT SECTION



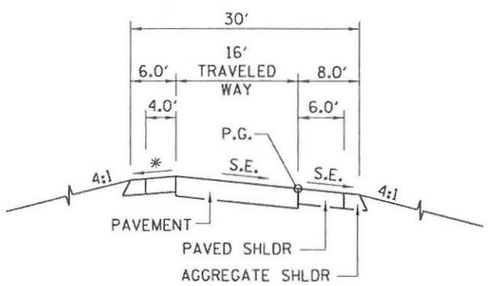
* MAXIMUM SHOULDER BREAK = 8%

PROPOSED
TWO LANE RAMP TYPICAL SECTION
SUPERELEVATED SECTION
RAMP DB (SYSTEM INTERCHANGE)

** SEE IDS SHEETS FOR WIDENING OF INSIDE SHOULDER AT RAMP DB OVER LINDEN ROAD.

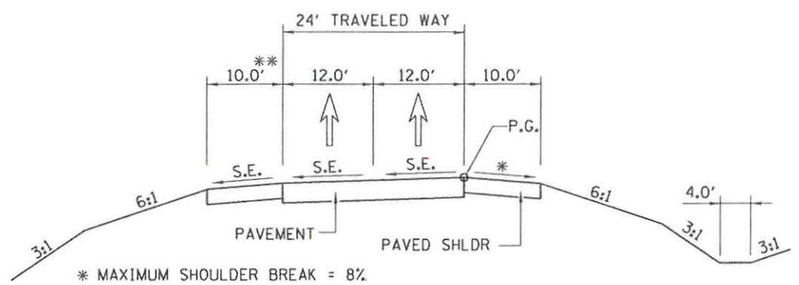


PROPOSED
TWO LANE RAMP TYPICAL SECTION
TANGENT SECTION
RAMP BD
(SYSTEM INTERCHANGE)



PROPOSED
ONE LANE RAMP TYPICAL SECTION
SUPERELEVATED SECTION

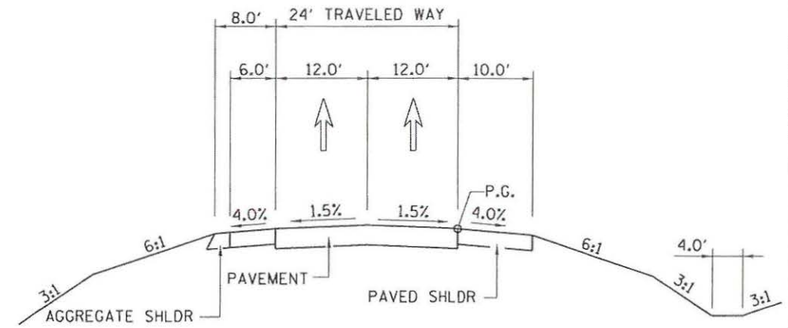
* MAXIMUM SHOULDER BREAK = 8%



* MAXIMUM SHOULDER BREAK = 8%

PROPOSED
TWO LANE RAMP TYPICAL SECTION
SUPERELEVATED SECTION
RAMP BD (SYSTEM INTERCHANGE)

** SEE IDS SHEETS FOR WIDENING OF INSIDE SHOULDER AT RAMP BD OVER US 20.



RAMP DA (SYSTEM INTERCHANGE) MATCHES
THE EXISTING TYPICAL SECTION

INTERSTATE 39

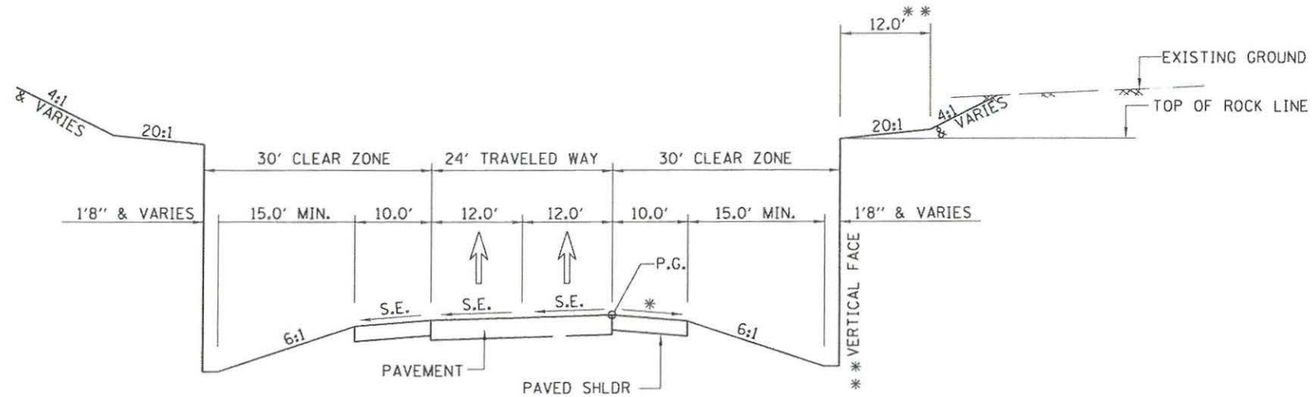
US 20

PROPOSED RAMP TYPICAL SECTIONS

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 36A

I:\06Jobs\06S2055\CADD\Road\2015 Design Report Figures\PROPOSED_TYPICALS.dgn 1/16/2017 mcoor00406



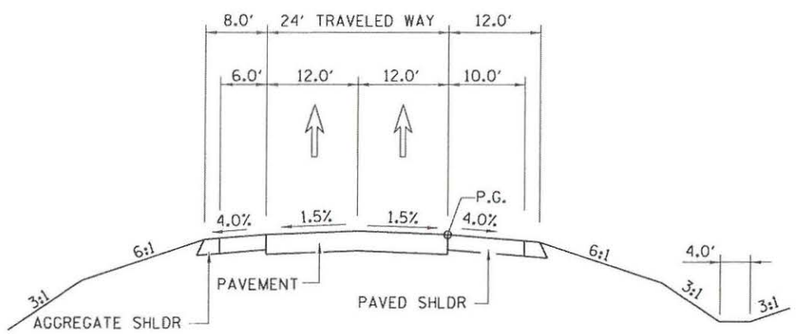
* MAXIMUM SHOULDER BREAK = 8%

** OR AS INDICATED ON THE CROSS SECTIONS OR BY THE ENGINEER.

PROPOSED

TWO LANE RAMP TYPICAL SECTION IN ROCK CUT

SUPERELEVATED SECTION
RAMP BD
(SYSTEM INTERCHANGE)

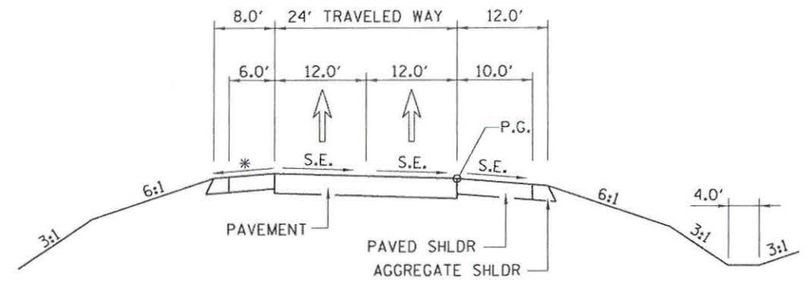


NOTE: SEE INTERSECTION DESIGN STUDY FOR MORE DETAILED TYPICAL SECTION INFORMATION.

PROPOSED

TWO LANE RAMP TYPICAL SECTION

TANGENT SECTION
RAMP B
(HARRISON AVE. INTERCHANGE)



* MAXIMUM SHOULDER BREAK = 8%

NOTE: SEE INTERSECTION DESIGN STUDY FOR MORE DETAILED TYPICAL SECTION INFORMATION.

PROPOSED

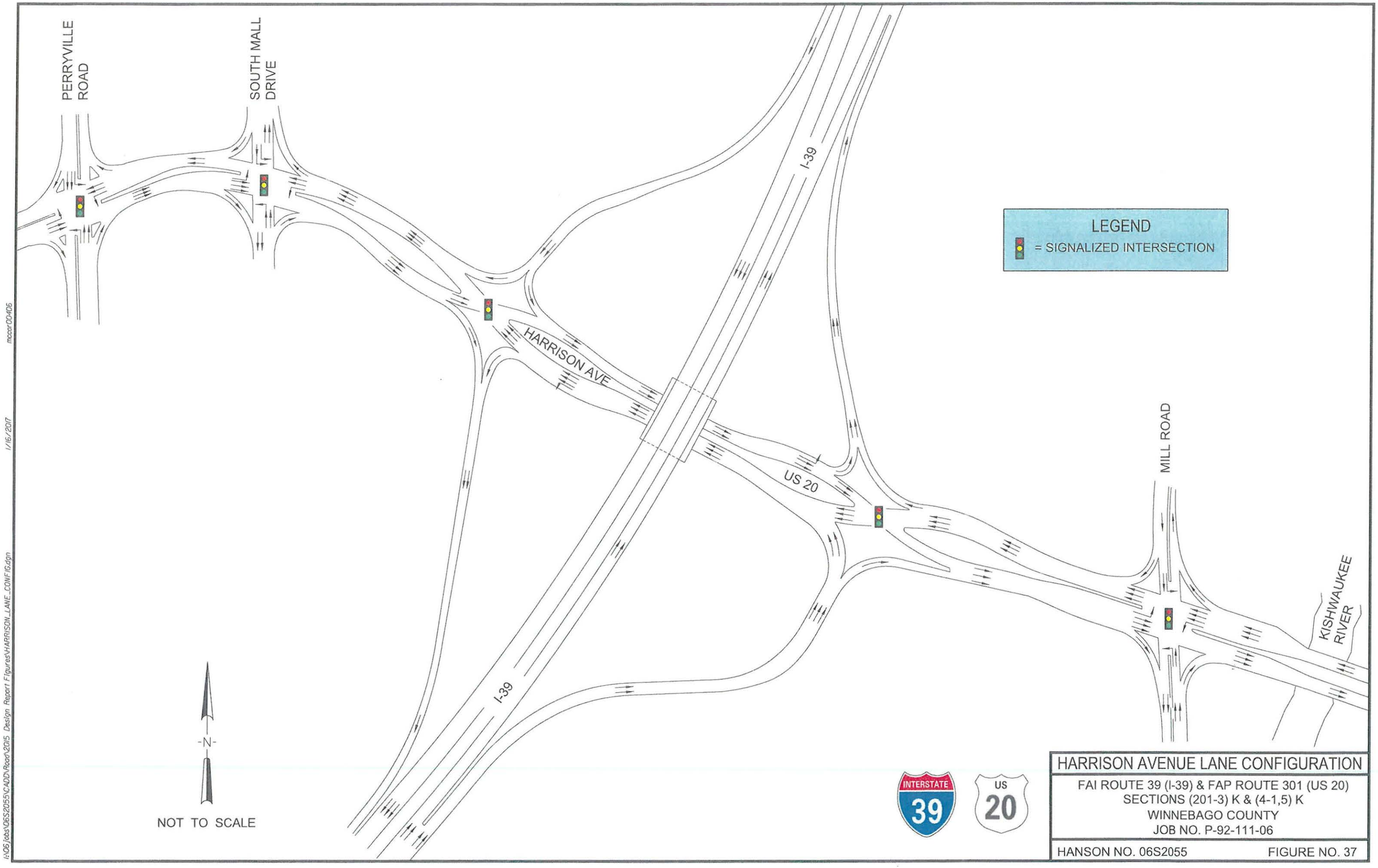
TWO LANE RAMP TYPICAL SECTION

SUPERELEVATED SECTION
RAMP B
(HARRISON AVE. INTERCHANGE)

INTERSTATE 39 US 20

PROPOSED RAMP TYPICAL SECTIONS	
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06	
HANSON NO. 06S2055	FIGURE NO. 36B

I:\06Jobs\06S2055\CADD\Road\2015 Design Report Figures\PROPOSED_TYPICALS.dgn 1/16/2017 mccor00406



HARRISON AVENUE LANE CONFIGURATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 37

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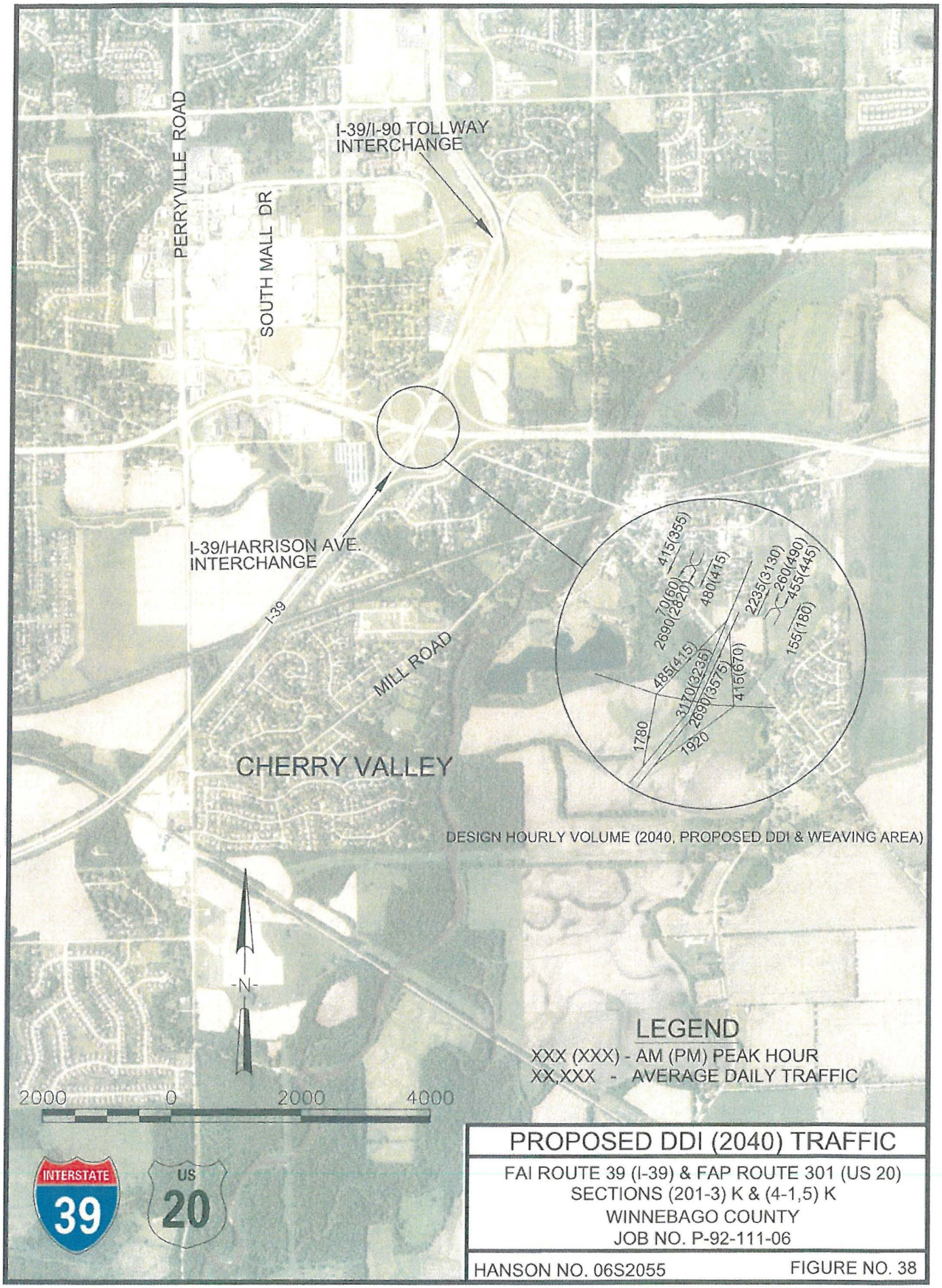


PROPOSED DDI (2040) TRAFFIC

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 FIGURE NO. 38

I:\06jobs\06S2055\CADD\Road\2015 Design Report Figures\FIG38- 2040 Traffic.dgn

INDEX OF SHEETS

	Sh. #/Fig.#
EXISTING GEOMETRY -	2 THRU 6
PROPOSED GEOMETRY -	7 THRU 11
EXISTING RIGHT-OF-WAY-	12 THRU15
PROPOSED PLAN SHEETS-	16 THRU 39
PROPOSED PROFILE SHEETS-	40 THRU 53
STAGE CONSTRUCTION PLANS-	54 THRU 70
STAGE CONSTRUCTION FIGURES-	1 THRU 16
INTERCHANGE & INTERSECTION DESIGN STUDIES-	NOT NUMBERED
TYPE, SIZE, LOCATION {TSL) STUDIES-	NOT NUMBERED

VOLUME II

FAI RTE 39 {1-39) AND FAP RTE 301 (US 20)
SECTION {201-3)K AND {4-1,5)R
WINNEBAGO COUNTY, IL

EXISTING GEOMETRY

I-39 C-1
PI STA. = 2523+70.41
Δ = 48°02′45″ (LT)
D = 2°00′00″
R = 2,864.85′
T = 1,276.89′
L = 2,402.34′
E = 271.68′
P.C. STA. = 2510+93.52
P.T. STA. = 2534+95.86

I-39 C1		
POINT	NORTHING	EASTING
P.I.	2,019,933.450	2,609,454.939
P.C.	2,019,093.894	2,608,492.867
P.T.	2,021,210.196	2,609,473.760
C.C.	2,021,252.423	2,606,609.219

I-39 C-4
PI STA. = 2482+69.55
Δ = 50° 10′ 11″ (RT)
D = 1° 30′ 00″
R = 3,819.80′
T = 1,788.09′
L = 3,344.71′
E = 397.80′
P.C. STA. = 2464+81.46
P.T. STA. = 2498+26.17

I-39 C4		
POINT	NORTHING	EASTING
P.I.	2,017,084.937	2,606,190.744
P.C.	2,015,297.292	2,606,230.665
P.T.	2,018,260.612	2,607,537.985
C.C.	2,015,382.573	2,610,049.516

RAMP DB AUX C-1
PI STA. = 3+01.05
Δ = 11°41′36″ (LT)
D = 1°56′56″
R = 2,939.98′
T = 301.05′
L = 600.01′
E = 15.37′
P.C. STA. = 0+00.00
P.T. STA. = 6+00.01

RAMP DB AUX C-1		
POINT	NORTHING	EASTING
P.I.	2,019,435.721	2,608,939.452
P.C.	2,019,222.231	2,608,727.194
P.T.	2,019,687.798	2,609,104.036
C.C.	2,021,295.092	2,606,642.306

RAMP DB AUX C-2
PI STA. = 14+23.59
Δ = 31°14′58″ (LT)
D = 1°56′44″
R = 2,944.86′
T = 823.58′
L = 1,606.13′
E = 113.00′
P.C. STA. = 6+00.01
P.T. STA. = 22+06.14

RAMP DB AUX C-2		
POINT	NORTHING	EASTING
P.I.	2,020,385.522	2,609,541.614
P.C.	2,019,687.798	2,609,104.036
P.T.	2,021,209.017	2,609,553.753
C.C.	2,021,252.423	2,606,609.220

RAMP ABD C-1
PI STA. = 114+11.71
Δ = 11°56′48″ (RT)
D = 2°03′27″
R = 2,784.84′
T = 291.39′
L = 580.66′
E = 15.20′
P.C. STA. = 111+20.32
P.T. STA. = 117+00.98

RAMP ABD C-1		
POINT	NORTHING	EASTING
P.I.	2,019,345.760	2,608,659.813
P.C.	2,019,578.645	2,608,834.946
P.T.	2,019,154.172	2,608,440.267
C.C.	2,021,252.417	2,606,609.226

RAMP ABD C-2
PI STA. = 106+77.82
Δ = 19°11′57″ (RT)
D = 2°08′56″
R = 2,666.30′
T = 450.95′
L = 893.45′
E = 37.87′
P.C. STA. = 102+26.87
P.T. STA. = 111+20.32

RAMP ABD C-2		
POINT	NORTHING	EASTING
P.I.	2,019,942.624	2,609,101.171
P.C.	2,020,373.908	2,609,232.894
P.T.	2,019,578.645	2,608,834.946
C.C.	2,021,152.734	2,606,682.878

POT'S ABD		
POINT	NORTHING	EASTING
1097	2,021,541.370	2,609,156.961
1096	2,018,483.932	2,607,672.218

RAMP ABD C-3
PI STA. = 101+76.88
Δ = 2°09′38″ (RT)
D = 2°09′39″
R = 2,651.46′
T = 50.00′
L = 99.99′
E = 0.47′
P.C. STA. = 101+26.88
P.T. STA. = 102+26.86

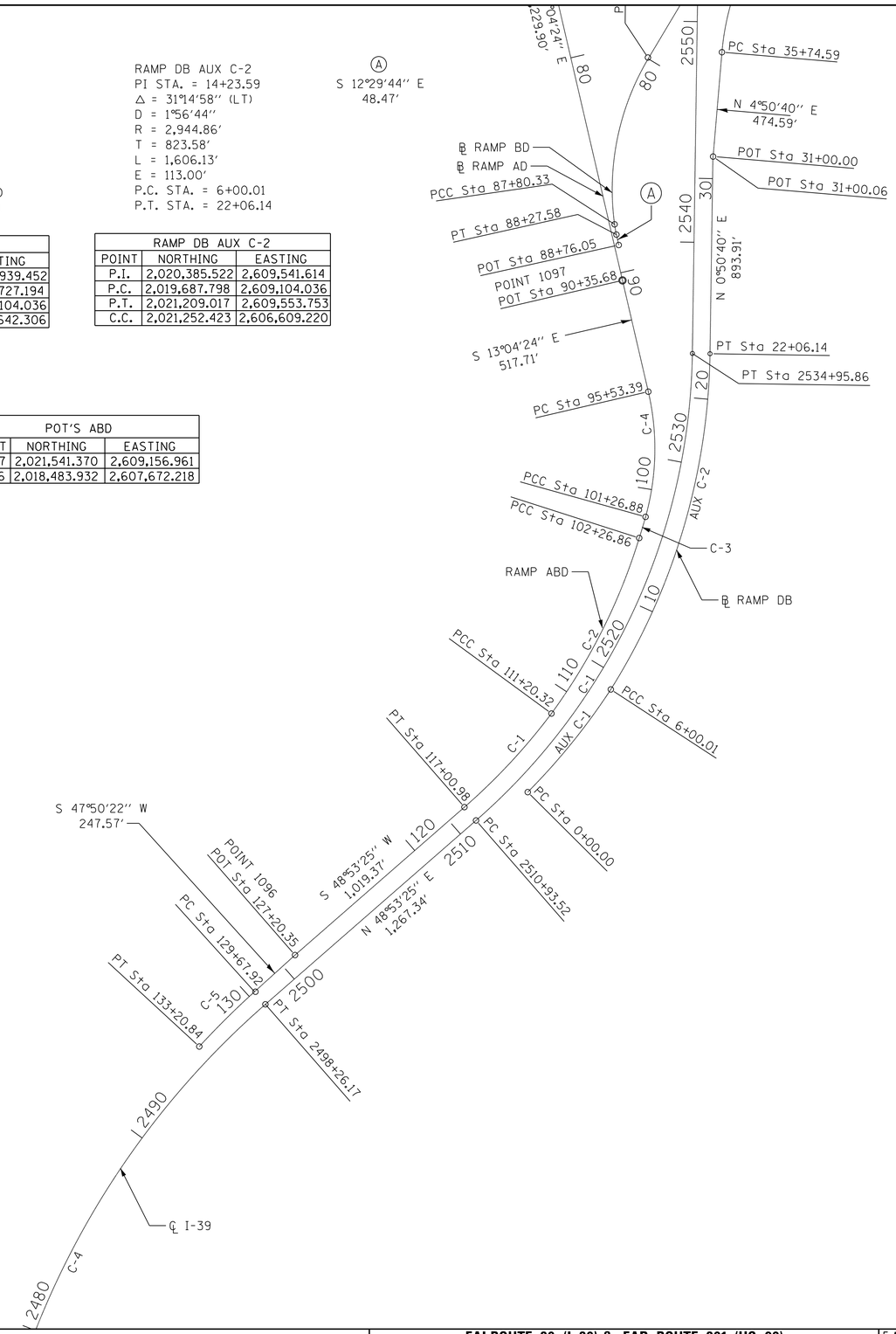
RAMP ABD C-3		
POINT	NORTHING	EASTING
P.I.	2,020,421.534	2,609,248.143
P.C.	2,020,469.692	2,609,261.584
P.T.	2,020,373.916	2,609,232.897
C.C.	2,021,182.444	2,606,707.715

RAMP ABD C-4
PI STA. = 98+46.27
Δ = 28°40′01″ (RT)
D = 4°59′55″
R = 1,146.21′
T = 292.88′
L = 573.49′
E = 36.83′
P.C. STA. = 95+53.39
P.T. STA. = 101+26.88

RAMP ABD C-4		
POINT	NORTHING	EASTING
P.I.	2,020,751.790	2,609,340.313
P.C.	2,021,037.077	2,609,274.065
P.T.	2,020,469.692	2,609,261.584
C.C.	2,020,777.809	2,608,157.566

RAMP ABD C-5
PI STA. = 131+44.50
Δ = 5° 11′ 54″ (LT)
D = 1° 28′ 23″
R = 3,889.91′
T = 176.58′
L = 352.92′
E = 4.01′
P.C. STA. = 129+67.92
P.T. STA. = 133+20.84

RAMP ABD C-5		
POINT	NORTHING	EASTING
P.I.	2,018,199.265	2,607,357.788
P.C.	2,018,317.762	2,607,488.704
P.T.	2,018,069.395	2,607,238.147
C.C.	2,015,433.796	2,610,099.090



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SHEET 1	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
EXISTING GEOMETRY – 1
JOB NO. P-92-111-06

SCALE: 1″=300′ | SHEET NO. 1 OF 5 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	2
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

I-39 C-2
PI STA. = 2638+44.91
Δ = 50°41′00″ (LT)
D = 1°00′00″
R = 5,729.70′
T = 2,713.52′
L = 5,068.45′
E = 610.07′
P.C. STA. = 2611+31.39
P.T. STA. = 2661+99.84

I-39 C2		
POINT	NORTHING	EASTING
P.I.	2,024,959.002	2,616,203.233
P.C.	2,024,928.146	2,613,489.890
P.T.	2,027,077.747	2,617,898.551
C.C.	2,030,657.480	2,613,424.736

RAMP DB C-1
PI STA. = 38+39.16
Δ = 26°00′00″ (RT)
D = 4°59′59″
R = 1,145.96′
T = 264.57′
L = 520.02′
E = 30.14′
P.C. STA. = 35+74.59
P.T. STA. = 40+94.61

RAMP DB C-1		
POINT	NORTHING	EASTING
P.I.	2,022,839.344	2,609,630.353
P.C.	2,022,575.724	2,609,608.010
P.T.	2,023,066.490	2,609,765.999
C.C.	2,022,478.945	2,610,749.877

RAMP DB C-2
PI STA. = 61+34.74
Δ = 57°21′47″ (RT)
D = 5°00′00″
R = 1,145.94′
T = 626.90′
L = 1,147.29′
E = 160.27′
P.C. STA. = 55+07.83
P.T. STA. = 66+55.12

RAMP DB C-2		
POINT	NORTHING	EASTING
P.I.	2,024,818.060	2,610,811.989
P.C.	2,024,279.824	2,610,490.569
P.T.	2,024,837.669	2,611,438.586
C.C.	2,023,692.289	2,611,474.429

RAMP DB AUX C-3
PI STA. = 91+15.13
Δ = 5°56′46″ (LT)
D = 0°59′28″
R = 5,781.75′
T = 300.28′
L = 600.02′
E = 7.79′
P.C. STA. = 88+14.85
P.T. STA. = 94+14.86

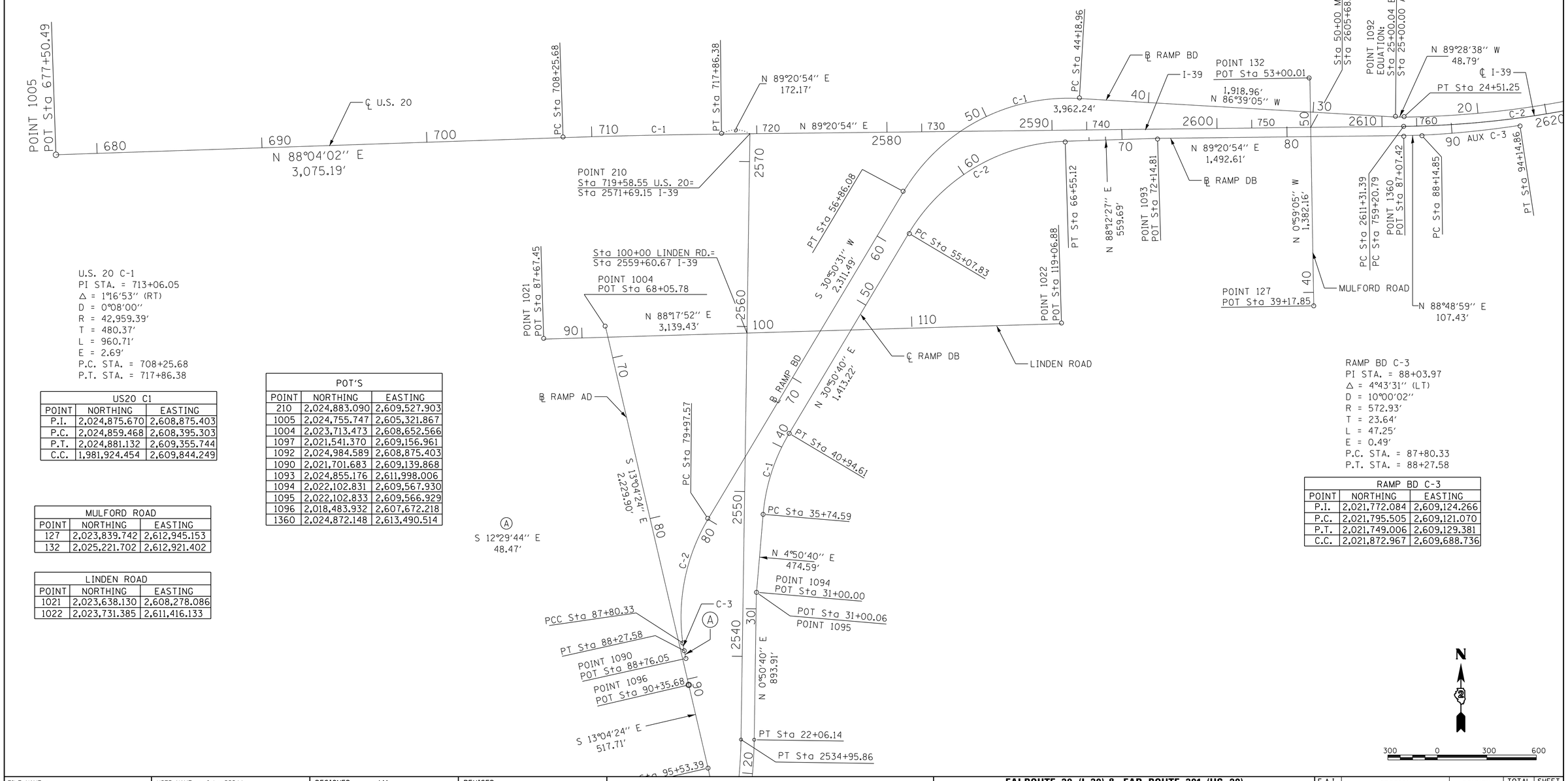
RAMP DB AUX C-3		
POINT	NORTHING	EASTING
P.I.	2,024,888.854	2,613,897.858
P.C.	2,024,874.367	2,613,597.931
P.T.	2,024,934.332	2,614,194.671
C.C.	2,030,649.382	2,613,318.998

RAMP BD C-1
PI STA. = 51+23.86
Δ = 62°30′23″ (LT)
D = 4°55′59″
R = 1,161.48′
T = 704.90′
L = 1,267.11′
E = 197.16′
P.C. STA. = 44+18.96
P.T. STA. = 56+86.08

RAMP BD C-1		
POINT	NORTHING	EASTING
P.I.	2,025,137.847	2,610,821.080
P.C.	2,025,096.675	2,611,524.772
P.T.	2,024,532.635	2,610,459.700
C.C.	2,023,937.175	2,611,456.931

RAMP BD C-2
PI STA. = 84+04.47
Δ = 38°36′45″ (LT)
D = 4°55′58″
R = 1,161.52′
T = 406.90′
L = 782.76′
E = 69.21′
P.C. STA. = 79+97.57
P.T. STA. = 87+80.33

RAMP BD C-2		
POINT	NORTHING	EASTING
P.I.	2,022,198.668	2,609,066.056
P.C.	2,022,548.025	2,609,274.662
P.T.	2,021,795.505	2,609,121.070
C.C.	2,021,952.547	2,610,271.924



U.S. 20 C-1
PI STA. = 713+06.05
Δ = 1°16′53″ (RT)
D = 0°08′00″
R = 42,959.39′
T = 480.37′
L = 960.71′
E = 2.69′
P.C. STA. = 708+25.68
P.T. STA. = 717+86.38

US20 C1		
POINT	NORTHING	EASTING
P.I.	2,024,875.670	2,608,875.403
P.C.	2,024,859.468	2,608,395.303
P.T.	2,024,881.132	2,609,355.744
C.C.	1,981,924.454	2,609,844.249

MULFORD ROAD		
POINT	NORTHING	EASTING
127	2,023,839.742	2,612,945.153
132	2,025,221.702	2,612,921.402

LINDEN ROAD		
POINT	NORTHING	EASTING
1021	2,023,638.130	2,608,278.086
1022	2,023,731.385	2,611,416.133

POT'S		
POINT	NORTHING	EASTING
210	2,024,883.090	2,609,527.903
1005	2,024,755.747	2,605,321.867
1004	2,023,713.473	2,608,652.566
1097	2,021,541.370	2,609,156.961
1092	2,024,984.589	2,608,875.403
1090	2,021,701.683	2,609,139.868
1093	2,024,855.176	2,611,998.006
1094	2,022,102.831	2,609,567.930
1095	2,022,102.833	2,609,566.929
1096	2,018,483.932	2,607,672.218
1360	2,024,872.148	2,613,490.514

RAMP BD C-3
PI STA. = 88+03.97
Δ = 4°43′31″ (LT)
D = 10°00′02″
R = 572.93′
T = 23.64′
L = 47.25′
E = 0.49′
P.C. STA. = 87+80.33
P.T. STA. = 88+27.58

RAMP BD C-3		
POINT	NORTHING	EASTING
P.I.	2,021,772.084	2,609,124.266
P.C.	2,021,795.505	2,609,121.070
P.T.	2,021,749.006	2,609,129.381
C.C.	2,021,872.967	2,609,688.736

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SHEET 2	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
EXISTING GEOMETRY – 2
JOB NO. P-92-111-06

SCALE: 1″=300′ | SHEET NO. 2 OF 5 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	3
06S2055		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

RAMP DB
PI STA. = 3+01.05
Δ = 11°41′36″ (LT)
D = 1°56′56″
R = 2,939.98′
T = 301.05′
L = 600.01′
E = 15.37′
P.C. STA. = 0+00.00
P.T. STA. = 6+00.01

RAMP BCD AUX C-1
PI STA. = 3+00.28
Δ = 6°03′12″ (RT)
D = 1°00′32″
R = 5,679.23′
T = 300.28′
L = 600.01′
E = 7.93′
P.C. STA. = 0+00.00
P.T. STA. = 6+00.01

RAMP BCD AUX C-2
PI STA. = 12+45.05
Δ = 24°45′14″ (RT)
D = 1°00′35″
R = 5,673.70′
T = 1,245.05′
L = 2,451.25′
E = 135.00′
P.C. STA. = 0+00.00
P.T. STA. = 24+51.25

U.S. 20 C-2
PI STA. = 786+34.31
Δ = 50°41′00″ (LT)
D = 1°00′00″
R = 5,729.70′
T = 2,713.52′
L = 5,068.45′
E = 610.07′
P.C. STA. = 759+20.79
P.T. STA. = 809+89.24

RAMP DB		
POINT	NORTHING	EASTING
P.I.	2,019,435.721	2,608,939.452
P.C.	2,019,222.231	2,608,727.194
P.T.	2,019,687.798	2,609,104.036
C.C.	2,021,295.092	2,606,642.306

RAMP BCD AUX C-1		
POINT	NORTHING	EASTING
P.I.	2,025,656.289	2,616,132.430
P.C.	2,025,808.282	2,616,391.406
P.T.	2,025,532.453	2,615,858.870
C.C.	2,030,706.256	2,613,516.783

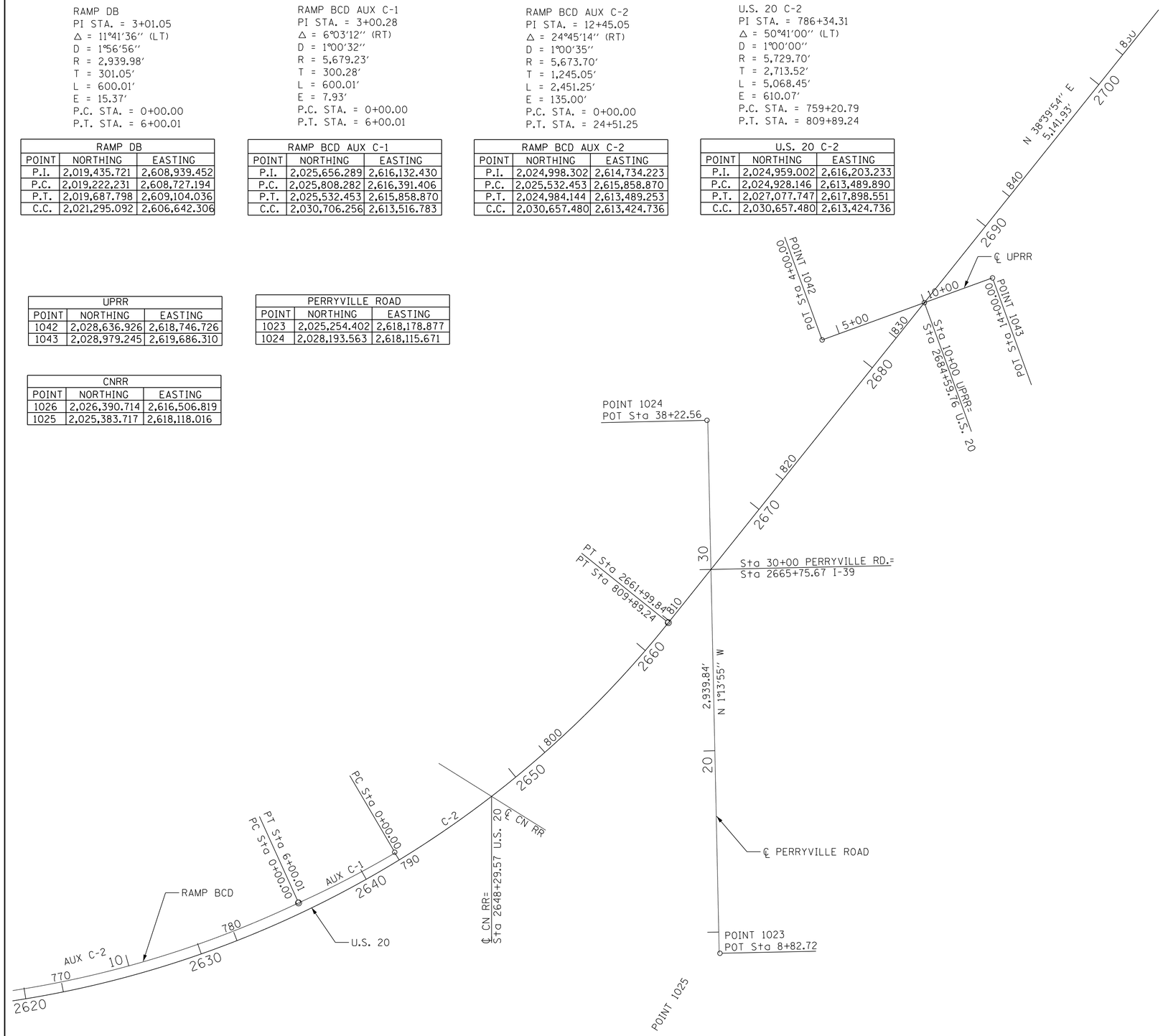
RAMP BCD AUX C-2		
POINT	NORTHING	EASTING
P.I.	2,024,998.302	2,614,734.223
P.C.	2,025,532.453	2,615,858.870
P.T.	2,024,984.144	2,613,489.253
C.C.	2,030,657.480	2,613,424.736

U.S. 20 C-2		
POINT	NORTHING	EASTING
P.I.	2,024,959.002	2,616,203.233
P.C.	2,024,928.146	2,613,489.890
P.T.	2,027,077.747	2,617,898.551
C.C.	2,030,657.480	2,613,424.736

UPRR		
POINT	NORTHING	EASTING
1042	2,028,636.926	2,618,746.726
1043	2,028,979.245	2,619,686.310

PERRYVILLE ROAD		
POINT	NORTHING	EASTING
1023	2,025,254.402	2,618,178.877
1024	2,028,193.563	2,618,115.671

CNRR		
POINT	NORTHING	EASTING
1026	2,026,390.714	2,616,506.819
1025	2,025,383.717	2,618,118.016



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FILE NAME = I:\06jobs\06S2055\CADD\Road\Sheet\centerline geometric 3.dgn	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -
		DRAWN - R.S.J.	REVISED -
	PLOT SCALE = 300.0000 ′ / in.	CHECKED - S.M.	REVISED -
SHEET 3	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
EXISTING GEOMETRY – 3
JOB NO. P–92–111–06

SCALE: 1″=300′ | SHEET NO. 3 OF 5 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	4
06S2055		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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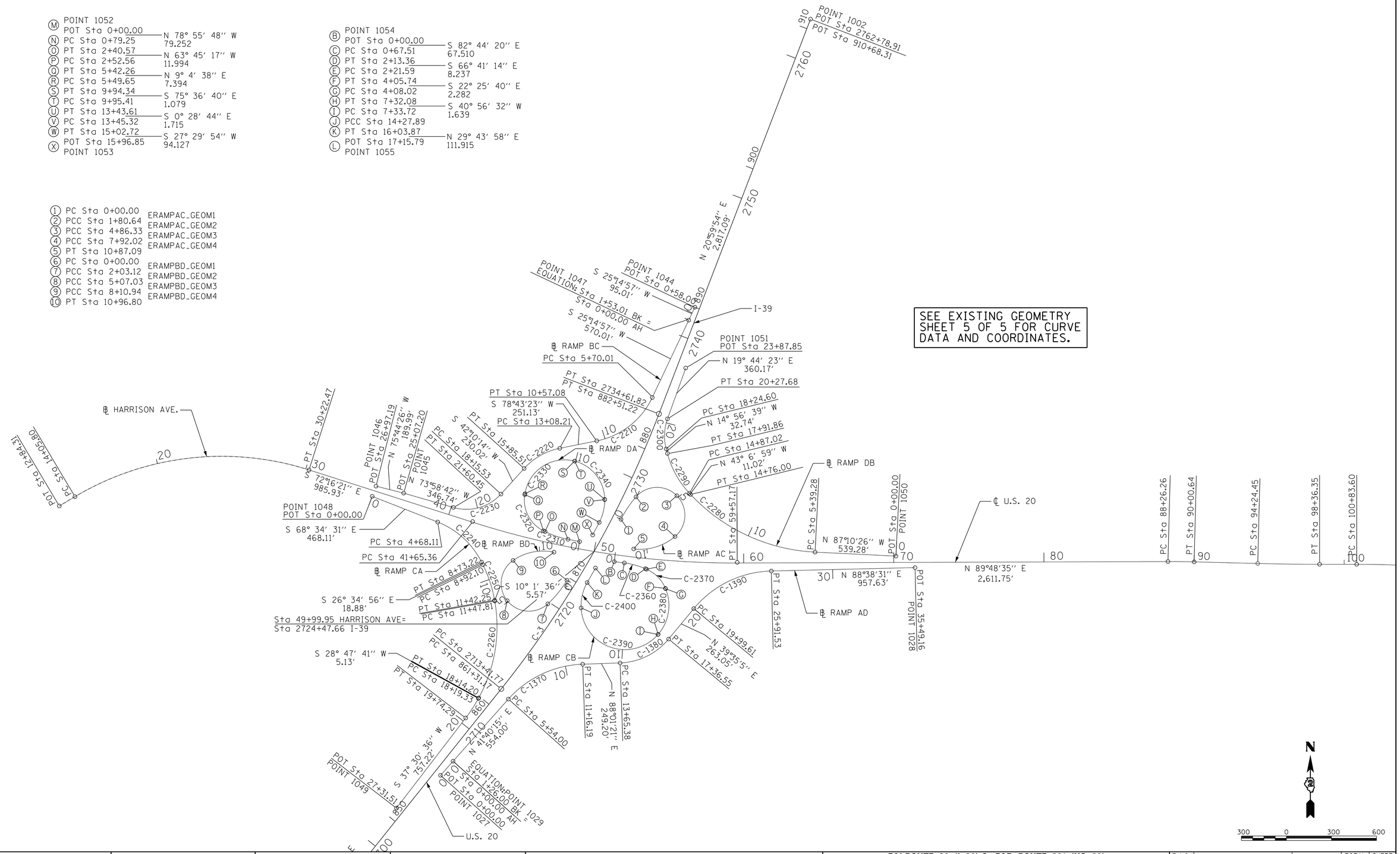
Ⓜ POINT 1052
POT Sta 0+00.00
N 78° 55′ 48″ W 79.252
Ⓝ PC Sta 0+79.25
Ⓞ PT Sta 2+40.57
N 63° 45′ 17″ W 11.994
Ⓟ PC Sta 2+52.56
Ⓠ PT Sta 5+42.26
N 9° 4′ 38″ E 7.394
Ⓡ PC Sta 5+49.65
Ⓢ PT Sta 9+94.34
S 75° 36′ 40″ E 1.079
Ⓣ PC Sta 9+95.41
Ⓤ PT Sta 13+43.61
S 0° 28′ 44″ E 1.715
Ⓥ PC Sta 13+45.32
Ⓦ PT Sta 15+02.72
S 27° 29′ 54″ W 94.127
Ⓧ POT Sta 15+96.85
POINT 1053

Ⓑ POINT 1054
POT Sta 0+00.00
S 82° 44′ 20″ E 67.510
Ⓒ PC Sta 0+67.51
Ⓓ PT Sta 2+13.36
S 66° 41′ 14″ E 8.237
Ⓔ PC Sta 2+21.59
Ⓕ PT Sta 4+05.74
S 22° 25′ 40″ E 2.282
Ⓖ PC Sta 4+08.02
Ⓗ PT Sta 7+32.08
S 40° 56′ 32″ W 1.639
Ⓘ PC Sta 7+33.72
Ⓙ PCC Sta 14+27.89
Ⓚ PT Sta 16+03.87
N 29° 43′ 58″ E 111.915
Ⓛ POT Sta 17+15.79
POINT 1055

① PC Sta 0+00.00
② PCC Sta 1+80.64
③ PCC Sta 4+86.33
④ PCC Sta 7+92.02
⑤ PT Sta 10+87.09
ERAMPAC_GEOM1
ERAMPAC_GEOM2
ERAMPAC_GEOM3
ERAMPAC_GEOM4
⑥ PC Sta 0+00.00
⑦ PCC Sta 2+03.12
⑧ PCC Sta 5+07.03
⑨ PCC Sta 8+10.94
⑩ PT Sta 10+96.80
ERAMPBD_GEOM1
ERAMPBD_GEOM2
ERAMPBD_GEOM3
ERAMPBD_GEOM4



SEE EXISTING GEOMETRY SHEET 5 OF 5 FOR CURVE DATA AND COORDINATES.

FILE NAME = I:\06_jobs\06S2055\CADD\Road\Sheet\centerline geometric 4.dgn	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) EXISTING GEOMETRY – 4 JOB NO. P-92-111-06
		DRAWN - R.S.J.	REVISED -		
	PLOT SCALE = 300.0000 ′ / in.	CHECKED - S.M.	REVISED -		
SHEET 4	PLOT DATE = 3/30/2017	DATE -	REVISED -		SCALE: 1″=300′ SHEET NO. 4 OF 5 SHEETS STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	5
06S2055		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

RAMP CA C-2240
PI STA. = 6+80.24
Δ = 41°59′34″ (RT)
D = 10°21′57″
R = 522.74′
T = 212.14′
L = 405.11′
E = 39.31′
P.C. STA. = 4+68.11
P.T. STA. = 8+73.22

RAMP CA C-2240		
POINT	NORTHING	EASTING
P.I.	2,032,126.529	2,620,885.194
P.C.	2,032,204.019	2,620,687.714
P.T.	2,031,936.816	2,620,980.122
C.C.	2,031,689.473	2,620,485.809

RAMP CA C-2250
PI STA. = 10+18.05
Δ = 16°33′20″ (RT)
D = 6°37′06″
R = 865.70′
T = 125.95′
L = 250.14′
E = 9.11′
P.C. STA. = 8+92.10
P.T. STA. = 11+42.25

RAMP CA C-2250		
POINT	NORTHING	EASTING
P.I.	2,031,807.292	2,621,044.933
P.C.	2,031,919.928	2,620,988.572
P.T.	2,031,683.266	2,621,066.861
C.C.	2,031,532.542	2,620,214.383

RAMP CA C-2260
PI STA. = 14+94.37
Δ = 38°49′17″ (RT)
D = 5°49′32″
R = 983.52′
T = 346.56′
L = 666.39′
E = 59.27′
P.C. STA. = 11+47.81
P.T. STA. = 18+14.20

RAMP CA C-2260		
POINT	NORTHING	EASTING
P.I.	2,031,336.522	2,621,128.168
P.C.	2,031,677.785	2,621,067.830
P.T.	2,031,032.816	2,620,961.242
C.C.	2,031,506.548	2,620,099.337

RAMP CA C-2270
PI STA. = 18+96.96
Δ = 8°42′56″ (RT)
D = 5°37′27″
R = 1,018.72′
T = 77.63′
L = 154.96′
E = 2.95′
P.C. STA. = 18+19.33
P.T. STA. = 19+74.29

RAMP CA C-2270		
POINT	NORTHING	EASTING
P.I.	2,030,960.294	2,620,921.381
P.C.	2,031,028.325	2,620,958.773
P.T.	2,030,898.714	2,620,874.112
C.C.	2,031,519.014	2,620,066.016

RAMP AD C-1370
PI STA. = 8+51.50
Δ = 46°21′05″ (RT)
D = 8°14′41″
R = 649.93′
T = 297.50′
L = 562.19′
E = 61.00′
P.C. STA. = 5+54.00
P.T. STA. = 11+16.19

RAMP AD C-1370		
POINT	NORTHING	EASTING
P.I.	2,031,246.636	2,621,356.296
P.C.	2,031,024.410	2,621,158.503
P.T.	2,031,256.902	2,621,653.619
C.C.	2,030,562.384	2,621,677.601

RAMP AD C-1380
PI STA. = 15+62.87
Δ = 48°26′16″ (LT)
D = 13°03′00″
R = 439.05′
T = 197.49′
L = 371.17′
E = 42.37′
P.C. STA. = 13+65.38
P.T. STA. = 17+36.55

RAMP AD C-1380		
POINT	NORTHING	EASTING
P.I.	2,031,272.317	2,622,100.038
P.C.	2,031,265.502	2,621,902.667
P.T.	2,031,424.519	2,622,225.882
C.C.	2,031,704.286	2,621,887.516

RAMP AD C-1390
PI STA. = 23+15.08
Δ = 49°03′27″ (RT)
D = 8°17′16″
R = 691.33′
T = 315.48′
L = 593.93′
E = 68.58′
P.C. STA. = 19+99.61
P.T. STA. = 25+91.53

RAMP AD C-1390		
POINT	NORTHING	EASTING
P.I.	2,031,870.382	2,622,594.530
P.C.	2,031,627.249	2,622,393.503
P.T.	2,031,877.858	2,622,909.918
C.C.	2,031,186.720	2,622,926.302

RAMP CB C-2360
PI STA. = 1+40.91
Δ = 16°03′06″ (RT)
D = 11°00′21″
R = 520.60′
T = 73.40′
L = 145.85′
E = 5.15′
P.C. STA. = 0+67.51
P.T. STA. = 2+13.36

RAMP CB C-2360		
POINT	NORTHING	EASTING
P.I.	2,031,922.210	2,622,003.789
P.C.	2,031,931.488	2,621,930.973
P.T.	2,031,893.161	2,622,071.200
C.C.	2,031,415.065	2,621,865.174

RAMP CB C-2370
PI STA. = 3+18.54
Δ = 44°15′34″ (RT)
D = 24°02′06″
R = 238.39′
T = 96.94′
L = 184.15′
E = 18.96′
P.C. STA. = 2+21.59
P.T. STA. = 4+05.74

RAMP CB C-2370		
POINT	NORTHING	EASTING
P.I.	2,031,851.536	2,622,167.792
P.C.	2,031,889.901	2,622,078.764
P.T.	2,031,761.926	2,622,204.778
C.C.	2,031,670.977	2,621,984.423

RAMP CB C-2380
PI STA. = 5+88.88
Δ = 63°22′13″ (RT)
D = 19°33′18″
R = 293.00′
T = 180.85′
L = 324.06′
E = 51.32′
P.C. STA. = 4+08.02
P.T. STA. = 7+32.08

RAMP CB C-2380		
POINT	NORTHING	EASTING
P.I.	2,031,592.643	2,622,274.648
P.C.	2,031,759.817	2,622,205.648
P.T.	2,031,456.032	2,622,156.135
C.C.	2,031,648.033	2,621,934.814

RAMP CB C-2390
PI STA. = 14+60.93
Δ = 136°15′38″ (RT)
D = 19°37′45″
R = 291.89′
T = 727.21′
L = 694.17′
E = 491.71′
P.C. STA. = 7+33.72
P.T. STA. = 14+27.89

RAMP CB C-2390		
POINT	NORTHING	EASTING
P.I.	2,030,905.484	2,621,678.522
P.C.	2,031,454.795	2,622,155.061
P.T.	2,031,631.825	2,621,643.033
C.C.	2,031,646.070	2,621,934.576

RAMP CB C-2400
PI STA. = 15+18.32
Δ = 32°31′48″ (RT)
D = 18°29′07″
R = 309.95′
T = 90.43′
L = 175.98′
E = 12.92′
P.C. STA. = 14+27.89
P.T. STA. = 16+03.87

RAMP CB C-2400		
POINT	NORTHING	EASTING
P.I.	2,031,722.149	2,621,638.620
P.C.	2,031,631.826	2,621,643.033
P.T.	2,031,800.674	2,621,683.470
C.C.	2,031,646.952	2,621,952.616

RAMP DA C-2310
PI STA. = 1+60.39
Δ = 15°10′31″ (RT)
D = 9°24′25″
R = 609.07′
T = 81.13′
L = 161.32′
E = 5.38′
P.C. STA. = 0+79.25
P.T. STA. = 2+40.57

RAMP DA C-2310		
POINT	NORTHING	EASTING
P.I.	2,032,104.499	2,621,475.768
P.C.	2,032,088.921	2,621,555.392
P.T.	2,032,140.378	2,621,402.997
C.C.	2,032,686.661	2,621,672.338

RAMP DA C-2320
PI STA. = 4+20.68
Δ = 72°49′56″ (RT)
D = 25°08′27″
R = 227.90′
T = 168.12′
L = 289.70′
E = 55.30′
P.C. STA. = 2+52.56
P.T. STA. = 5+42.26

RAMP DA C-2320		
POINT	NORTHING	EASTING
P.I.	2,032,220.027	2,621,241.452
P.C.	2,032,145.682	2,621,392.240
P.T.	2,032,386.041	2,621,267.976
C.C.	2,032,350.086	2,621,493.020

RAMP DA C-2330
PI STA. = 8+42.98
Δ = 95°18′42″ (RT)
D = 21°26′01″
R = 267.32′
T = 293.32′
L = 444.68′
E = 129.54′
P.C. STA. = 5+49.65
P.T. STA. = 9+94.34

RAMP DA C-2330		
POINT	NORTHING	EASTING
P.I.	2,032,682.991	2,621,315.419
P.C.	2,032,393.342	2,621,269.142
P.T.	2,032,610.099	2,621,599.540
C.C.	2,032,351.168	2,621,533.111

RAMP DA C-2340
PI STA. = 11+99.65
Δ = 75°07′56″ (RT)
D = 21°34′40″
R = 265.53′
T = 204.24′
L = 348.19′
E = 69.46′
P.C. STA. = 9+95.41
P.T. STA. = 13+43.61

RAMP DA C-2340		
POINT	NORTHING	EASTING
P.I.	2,032,559.078	2,621,798.415
P.C.	2,032,609.821	2,621,600.585
P.T.	2,032,354.849	2,621,800.122
C.C.	2,032,352.629	2,621,534.600

RAMP DA C-2350
PI STA. = 14+25.62
Δ = 27°58′38″ (RT)
D = 17°46′30″
R = 322.34′
T = 80.30′
L = 157.40′
E = 9.85′
P.C. STA. = 13+45.32
P.T. STA. = 15+02.72

RAMP DA C-2350		
POINT	NORTHING	EASTING
P.I.	2,032,272.836	2,621,800.808
P.C.	2,032,353.134	2,621,800.137
P.T.	2,032,201.608	2,621,763.731
C.C.	2,032,350.440	2,621,477.806

RAMP DB C-2280
PI STA. = 10+30.17
Δ = 44°03′27″ (RT)
D = 4°42′12″
R = 1,218.18′
T = 492.89′
L = 936.72′
E = 95.94′
P.C. STA. = 5+39.28
P.T. STA. = 14+76.00

RAMP DB C-2280		
POINT	NORTHING	EASTING
P.I.	2,032,028.004	2,622,709.142
P.C.	2,032,003.701	2,623,201.432
P.T.	2,032,387.797	2,622,372.261
C.C.	2,033,220.404	2,623,261.496

RAMP DB C-2290
PI STA. = 16+42.59
Δ = 28°10′20″ (RT)
D = 9°14′30″
R = 619.98′
T = 155.57′
L = 304.84′
E = 19.22′
P.C. STA. = 14+87.02
P.T. STA. = 17+91.86

RAMP DB C-2290		
POINT	NORTHING	EASTING
P.I.	2,032,509.399	2,622,258.402
P.C.	2,032,395.839	2,622,364.731
P.T.	2,032,659.706	2,622,218.285
C.C.	2,032,819.585	2,622,817.297

RAMP DB C-2300
PI STA. = 19+29.36
Δ = 34°41′01″ (RT)
D = 17°04′45″
R = 335.47′
T = 104.76′
L = 203.08′
E = 15.98′
P.C. STA. = 18+24.60
P.T. STA. = 20+27.68

RAMP DB C-2300		
POINT	NORTHING	EASTING
P.I.	2,032,792.553	2,622,182.828
P.C.	2,032,691.340	2,622,209.842
P.T.	2,032,891.153	2,622,218.209
C.C.	2,032,777.850	2,622,533.965

RAMP BC C-2210
PI STA. = 8+23.91
Δ = 53°28′26″ (RT)
D = 10°58′43″
R = 521.89′
T = 262.90′
L = 487.07′
E = 62.48′
P.C. STA. = 5+70.01
P.T. STA. = 10+57.08

RAMP BC C-2210		
POINT	NORTHING	EASTING
P.I.	2,032,795.893	2,622,044.831
P.C.	2,033,033.679	2,622,116.974
P.T.	2,032,744.482	2,621,747.003
C.C.	2,033,256.293	2,621,644.947

RAMP BC C-2220
PI STA. = 14+51.76
Δ = 36°33′09″ (LT)
D = 13°10′54″
R = 434.67′
T = 143.55′
L = 277.30′
E = 23.09′
P.C. STA. = 13+08.21
P.T. STA. = 15+85.51

RAMP BC C-2220		
POINT	NORTHING	EASTING
P.I.	2,032,667.302	2,621,359.945
P.C.	2,032,695.374	2,621,500.725
P.T.	2,032,560.909	2,621,263.573
C.C.	2,032,269.100	2,621,585.725

RAMP BC C-2230
PI STA. = 20+08.38
Δ = 63°51′04″ (RT)
D = 18°30′43″
R = 309.51′
T = 192.84′
L = 344.92′
E = 55.16′
P.C. STA. = 18+15.53
P.T. STA. = 21+60.45

RAMP BC C-2230		
POINT	NORTHING	EASTING
P.I.	2,032,247.502	2,620,979.686
P.C.	2,032,390.428	2,621,109.149
P.T.	2,032,300.727	2,620,794.333
C.C.	2,032,598.213	2,620,879.757

RAMP AC_GEOM1
PI STA. = 0+90.84
Δ = 15°00′00″ (RT)
D = 8°18′13″
R = 690.00′
T = 90.84′
L = 180.64′
E = 5.95′
P.C. STA. = 0+00.00
P.T. STA. = 1+80.64

RAMP AC_GEOM1		
POINT	NORTHING	EASTING
P.I.	2,032,303.297	2,621,948.877
P.C.	2,032,221.801	2,621,908.749
P.T.	2,302,371.630	2,622,008.730
C.C.	2,031,916.993	2,622,527.774

RAMP AC_GEOM2
PI STA. = 3+80.87
Δ = 94°18′08″ (RT)
D = 30°50′56″
R = 185.73′
T = 200.23′
L = 305.69′
E = 87.38′
P.C. STA. = 1+80.64
P.T. STA. = 4+86.33

RAMP AC_GEOM2		
POINT	NORTHING	EASTING
P.I.	2,032,522.248	2,622,140.659
P.C.	2,032,371.630	2,622,008.730
P.T.	2,032,379.392	2,622,280.956
C.C.	2,032,249.253	2,622,148.443

RAMP AC_GEOM3
PI STA. = 6+86.56
Δ = 94°18′08″ (RT)
D = 30°50′56″
R = 185.73′
T = 200.23′
L = 305.69′
E = 87.38′
P.C. STA. = 4+86.33
P.T. STA. = 7+92.02

RAMP AC_GEOM3		
POINT	NORTHING	EASTING
P.I.	2,032,236.537	2,622,421.252
P.C.	2,032,379.392	2,622,280.956
P.T.	2,032,107.352	2,622,268.275
C.C.	2,032,249.253	2,622,148.443

RAMP AC_GEOM4
PI STA. = 9+48.41
Δ = 46°57′43″ (RT)
D = 15°54′56″
R = 360.00′
T = 156.39′
L = 295.07′
E = 32.50′
P.C. STA. = 7+92.02
P.T. STA. = 10+87.09

RAMP AC_GEOM4		
POINT	NORTHING	EASTING
P.I.	2,032,006.450	2,622,148.790
P.C.	2,032,107.352	2,622,268.275
P.T.	2,032,024.918	2,621,993.494
C.C.	2,032,382.399	2,622,036.006

RAMP BD_GEOM1
PI STA. = 1+02.30
Δ = 16°52′00″ (RT)
D = 8°18′13″
R = 690.00′
T = 102.30′
L = 203.12′
E = 7.54′
P.C. STA. = 0+00.00
P.T. STA. = 2+03.12

RAMP BD_GEOM1		
POINT	NORTHING	EASTING
P.I.	2,032,792.553	2,622,182.828
P.C.	2,032,691.340	2,622,209.842
P.T.	2,032,891.153	2,622,218.209
C.C.	2,032,777.850	2,622,533.965

RAMP BD_GEOM2
PI STA. = 4+01.56
Δ = 93°50′39″ (RT)
D = 30°52′44″
R = 185.55′
T = 198.44′
L = 30.91′
E = 86.12′
P.C. STA. = 2+03.12
P.T. STA. = 5+07.03

RAMP BD_GEOM2		
POINT	NORTHING	EASTING
P.I.	2,031,525.106	2,621,275.021
P.C.	2,031,659.160	2,621,421.329
P.T.	2,031,680.072	2,621,151.076
C.C.	2,031,795.968	2,621,295.980

RAMP BD_GEOM3
PI STA. = 7+05.47
Δ = 93°50′39″ (RT)
D = 30°52′44″
R = 185.55′
T = 198.44′
L = 303.91′
E = 86.12′
P.C. STA. = 5+07.03
P.T. STA. = 8+10.94

RAMP BD_GEOM3		
POINT	NORTHING	EASTING
P.I.	2,031,835.038	2,621,027.132
P.C.	2,031,680.072	2,621,151.076
P.T.	2,031,948.315	2,621,190.059
C.C.	2,031,795.968	2,621,295.980

RAMP BD_GEOM4
PI STA. = 9+62.38
Δ = 46°47′45″ (RT)
D = 16°22′13″
R = 350.00′
T = 151.44′
L = 285.86′
E = 31.36′
P.C. STA. = 8+10.94
P.T. STA. = 10+96.80

RAMP BD_GEOM4		
POINT	NORTHING	EASTING
P.I.	2,032,034.766	2,621,314.403
P.C.	2,031,948.315	2,621,190.059
P.T.	2,032,003.314	2,621,462.545
C.C.	2,031,660.945	2,621,389.855

POT'S		
POINT	NORTHING	EASTING
1002	2,035,554.474	2,623,171.003
1010	2,032,503.480	2,619,979.981
1008	2,031,939.910	2,625,294.488
1027	2,030,516.468	2,620,706.405
1029	2,030,610.587	2,620,790.176
1028	2,031,900.553	2,623,867.279
1054	2,031,940.021	2,621,864.004
1055	2,031,897.856	2,621,738.975
1052	2,032,073.704	2,621,633.170
1053	2,032,118.115	2,621,720.271
1050	2,031,977.111	2,623,977.111
1051	2,033,230.158	2,622,339.854
1044	2,033,635.164	2,622,400.642
1047	2,033,549.231	2,622,360.115
1045	2,032,396.428	2,620,461.058
1046	2,032,443.226	2,620,276.920
1048	2,032,375.009	2,620,251.955
1049	2,030,298.049	2,620,413.037

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PROPOSED GEOMETRY

PRAMPDB-2
PI STA. = 14+23.59
Δ = 31°14'58'' (LT)
D = 1°56'44''
R = 2,944.85
T = 823.58'
L = 1,606.13'
E = 113.00'
P.C. STA. = 6+00.01
P.T. STA. = 22+06.14
DESIGN SPEED = 70 MPH
S.E. = S.E. FOR CURVE I39C1

PRAMPDB-2		
POINT	NORTHING	EASTING
P.I.	2,020,385.521	2,609,541.613
P.C.	2,019,687.797	2,609,104.035
P.T.	2,021,209.016	2,609,553.752
C.C.	2,021,252.422	2,606,609.219

125001200
PI STA. = 2482+69.55
Δ = 50° 10' 11'' (RT)
D = 1° 30' 00''
R = 3,819.80'
T = 1,788.09'
L = 3,344.71'
E = 397.80'
P.C. STA. = 2464+81.46
P.T. STA. = 2498+26.17
DESIGN SPEED = 70 MPH

125001200		
POINT	NORTHING	EASTING
P.I.	2,017,084.937	2,606,190.744
P.C.	2,015,297.292	2,606,230.665
P.T.	2,018,260.612	2,607,537.985
C.C.	2,015,382.573	2,610,049.516

PRAMPBD-4
PI STA. = 202+05.68
Δ = 61° 57' 49'' (RT)
D = 2° 23' 14''
R = 2,400.00'
T = 1,441.03'
L = 2,595.52'
E = 399.39'
P.C. STA. = 187+64.65
P.T. STA. = 213+60.17
DESIGN SPEED = 70 MPH
S.E. = 5.8%
S.E. RUNOFF = 225'
TR = 39'
STA 185+65 N.C. - STA 188+68 MATCH EX. S.E.
STA 212+72 5.8% - STA 215+75 MATCH EX. S.E.

PRAMPBD-4		
POINT	NORTHING	EASTING
P.I.	2,020,081.086	2,609,520.698
P.C.	2,021,484.764	2,609,194.743
P.T.	2,019,133.607	2,608,434.954
C.C.	2,020,941.892	2,606,856.947

PRAMPBD-3
PI STA. = 169+10.06
Δ = 107° 00' 23'' (LT)
D = 2° 14' 49''
R = 2,550.00'
T = 3,446.54'
L = 4,762.42'
E = 1,737.32'
P.C. STA. = 134+63.52
P.T. STA. = 182+25.95
DESIGN SPEED = 70 MPH
S.E. = 5.7%
S.E. RUNOFF = 221'
TR = 40'
STA 132+50 N.C. - STA 135+50 5.8%
STA 181+39 5.8% - STA 184+40 N.C.

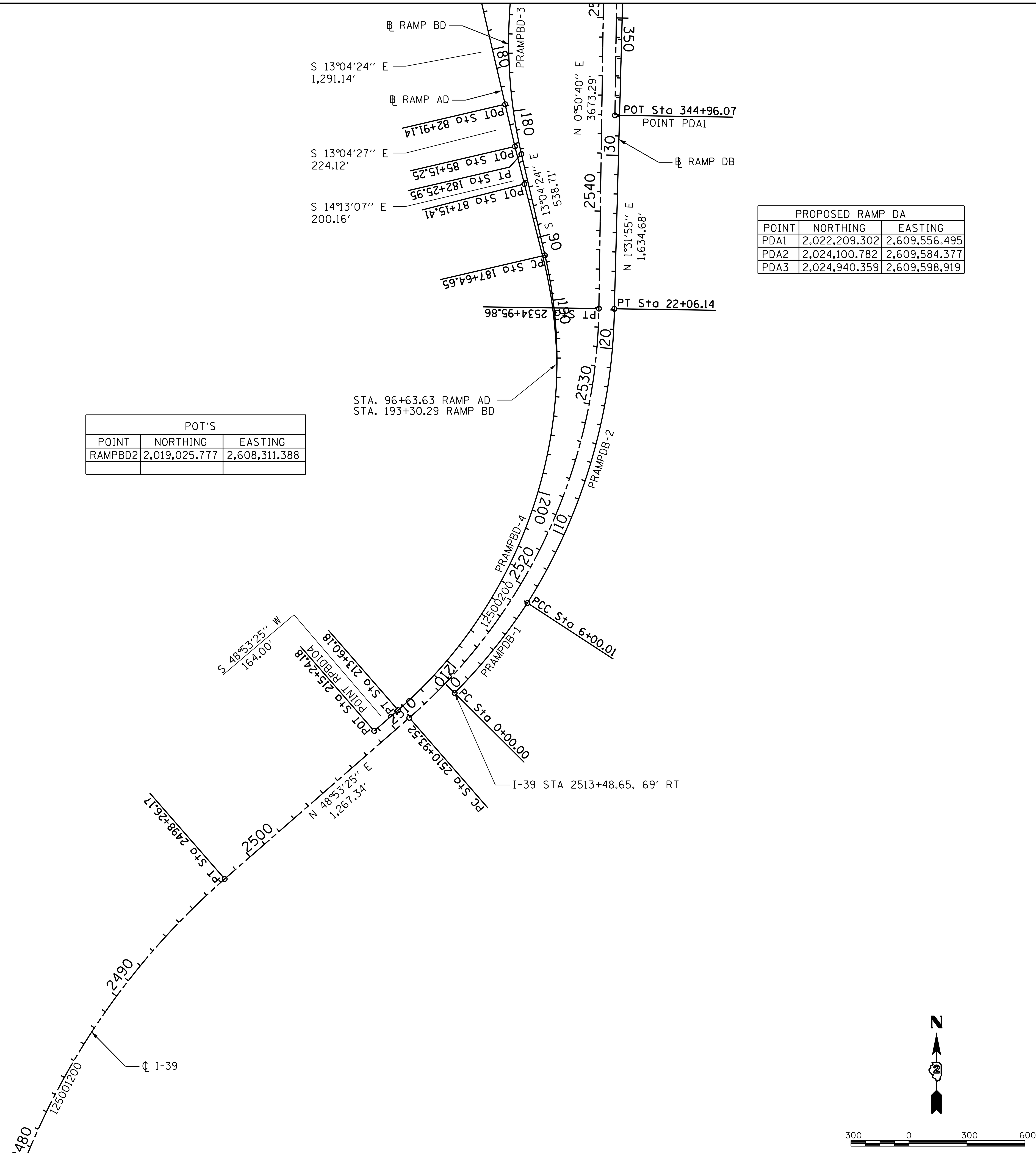
PRAMPBD-3		
POINT	NORTHING	EASTING
P.I.	2,025,366.723	2,608,293.295
P.C.	2,025,130.305	2,611,731.718
P.T.	2,022,009.510	2,609,072.890
C.C.	2,022,586.311	2,611,556.799

PRAMPDB-1
PI STA. = 3+01.05
Δ = 11°41'36'' (LT)
D = 1°56'56''
R = 2,939.98
T = 301.05'
L = 600.01'
E = 15.37'
P.C. STA. = 0+00.00
P.T. STA. = 6+00.01

PRAMPDB-1		
POINT	NORTHING	EASTING
P.I.	2,019,435.720	2,608,939.451
P.C.	2,019,222.230	2,608,727.193
P.T.	2,019,687.797	2,609,104.035
C.C.	2,021,295.091	2,626,642.305

12500200
PI STA. = 2523+70.40
Δ = 48°02'45'' (LT)
D = 2°00'00''
R = 2,864.85'
T = 1,276.89'
L = 2,402.34'
E = 271.68'
P.C. STA. = 2510+93.52
P.T. STA. = 2534+95.86
DESIGN SPEED = 70 MPH
S.E. = 6.0%
S.E. RUNOFF = 285'
TR = 75'

12500200		
POINT	NORTHING	EASTING
P.I.	2,019,933.450	2,609,454.939
P.C.	2,019,093.894	2,608,492.867
P.T.	2,021,210.196	2,609,473.760
C.C.	2,021,252.423	2,606,609.219



POT'S		
POINT	NORTHING	EASTING
RAMPBD2	2,019,025.777	2,608,311.388

PROPOSED RAMP DA		
POINT	NORTHING	EASTING
PDA1	2,022,209.302	2,609,556.495
PDA2	2,024,100.782	2,609,584.377
PDA3	2,024,940.359	2,609,598.919

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FILE NAME = I:\06jobs\06S2055\CADD\Road\Sheet\centerline geometric 6.dgn	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -
		DRAWN - R.S.J.	REVISED -
	PLOT SCALE = 300.0000 ' / in.	CHECKED - S.M.	REVISED -
SHEET 1	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
PROPOSED GEOMETRY - 1
JOB NO. P-92-111-06

SCALE: 1''=300' | SHEET NO. 1 OF 5 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	7
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

B.M. 316 - N-2024939.81, E-2612940.03 ELEV - 805.75
MCCLURE B.M. 2" ALUMINUM DISK ON APPROX. ℄ OF U.S. 20
ON PIER BASE UNDER MULFORD ROAD

PRAMPDB-3
PI STA. = 58+02.34
Δ = 87°28'22" (RT)
D = 2°47'42"
R = 2,050.00'
T = 1,961.51'
L = 3,129.71'
E = 787.26'
P.C. STA. = 38+40.82
P.T. STA. = 69+70.53
DESIGN SPEED = 70 MPH
S.E. = 6.0%
S.E. RUNOFF = 230'
TR = 40'

PRAMPDB-3		
POINT	NORTHING	EASTING
P.I.	2,024,803.923	2,609,649.894
P.C.	2,022,843.110	2,609,597.454
P.T.	2,024,837.995	2,611,611.112
C.C.	2,022,788.304	2,611,646.721

PRAMPBD-3
PI STA. = 169+10.06
Δ = 107° 00' 23" (LT)
D = 2° 14' 49"
R = 2,550.00'
T = 3,446.54'
L = 4,762.42'
E = 1,737.32'
P.C. STA. = 134+63.52
P.T. STA. = 182+25.95
DESIGN SPEED = 70 MPH
S.E. = 5.7%
S.E. RUNOFF = 221'
TR = 40'
STA 132+50 N.C. - STA 135+50 5.8%
STA 181+39 5.8% - STA 184+40 N.C.

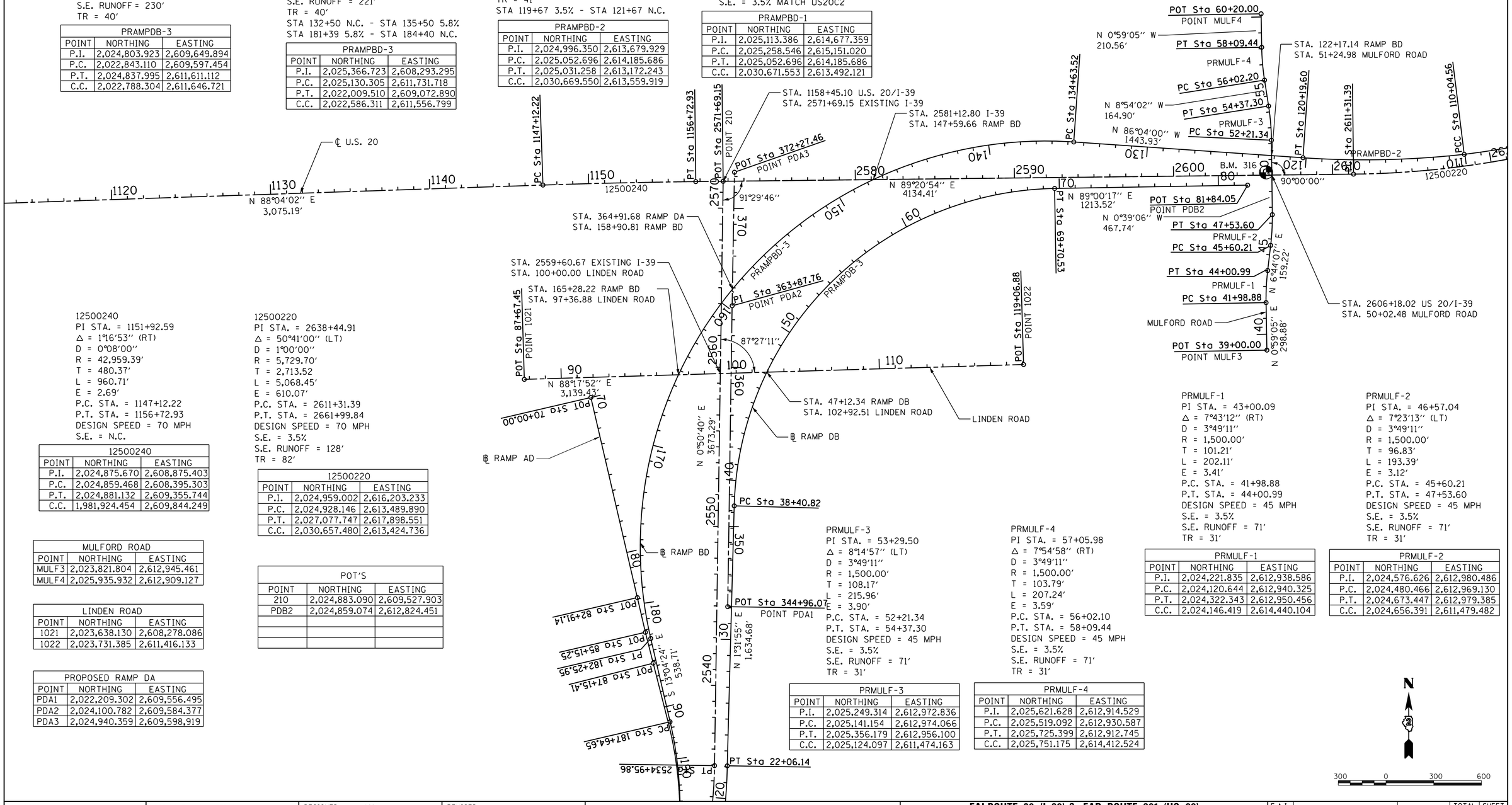
PRAMPBD-3		
POINT	NORTHING	EASTING
P.I.	2,025,366.723	2,608,293.295
P.C.	2,025,130.305	2,611,731.718
P.T.	2,022,009.510	2,609,072.890
C.C.	2,022,586.311	2,611,556.799

PRAMPBD-2
PI STA. = 115+13.45
Δ = 10° 17' 25" (RT)
D = 1° 00' 50"
R = 5,651.60'
T = 508.89'
L = 1,015.03'
E = 22.86'
P.C.C. STA. = 110+04.56
P.T. STA. = 120+19.60
DESIGN SPEED = 70 MPH
S.E. = 3.5%
S.E. RUNOFF = 118'
TR = 41'
STA 119+67 3.5% - STA 121+67 N.C.

PRAMPBD-2		
POINT	NORTHING	EASTING
P.I.	2,024,996.350	2,613,679.929
P.C.	2,025,052.696	2,614,185.686
P.T.	2,025,031.258	2,613,172.243
C.C.	2,030,669.550	2,613,559.919

PRAMPBD-1
PI STA. = 105+11.67
Δ = 10° 00' 06" (RT)
D = 1° 00' 43"
R = 5,661.50'
T = 495.40'
L = 998.29'
E = 21.63'
P.C. STA. = 100+16.27
P.C.C. STA. = 110+04.56
DESIGN SPEED = 70 MPH
S.E. = 3.5% MATCH US20C2

PRAMPBD-1		
POINT	NORTHING	EASTING
P.I.	2,025,113.386	2,614,677.359
P.C.	2,025,258.546	2,615,151.020
P.T.	2,025,052.696	2,614,185.686
C.C.	2,030,671.553	2,613,492.121



12500240
PI STA. = 1151+92.59
Δ = 1°16'53" (RT)
D = 0°08'00"
R = 42,959.39'
T = 480.37'
L = 960.71'
E = 2.69'
P.C. STA. = 1147+12.22
P.T. STA. = 1156+72.93
DESIGN SPEED = 70 MPH
S.E. = N.C.

12500240		
POINT	NORTHING	EASTING
P.I.	2,024,875.670	2,608,875.403
P.C.	2,024,859.468	2,608,395.303
P.T.	2,024,881.132	2,609,355.744
C.C.	1,981,924.454	2,609,844.249

12500220
PI STA. = 2638+44.91
Δ = 50°41'00" (LT)
D = 1°00'00"
R = 5,729.70'
T = 2,713.52
L = 5,068.45'
E = 610.07'
P.C. STA. = 2611+31.39
P.T. STA. = 2661+99.84
DESIGN SPEED = 70 MPH
S.E. = 3.5%
S.E. RUNOFF = 128'
TR = 82'

12500220		
POINT	NORTHING	EASTING
P.I.	2,024,959.002	2,616,203.233
P.C.	2,024,928.146	2,613,489.890
P.T.	2,027,077.747	2,617,898.551
C.C.	2,030,657.480	2,613,424.736

MULFORD ROAD		
POINT	NORTHING	EASTING
MULF3	2,023,821.804	2,612,945.461
MULF4	2,025,935.932	2,612,909.127

LINDEN ROAD		
POINT	NORTHING	EASTING
1021	2,023,638.130	2,608,278.086
1022	2,023,731.385	2,611,416.133

POT'S		
POINT	NORTHING	EASTING
210	2,024,883.090	2,609,527.903
PDB2	2,024,859.074	2,612,824.451

PROPOSED RAMP DA		
POINT	NORTHING	EASTING
PDA1	2,022,209.302	2,609,556.495
PDA2	2,024,100.782	2,609,584.377
PDA3	2,024,940.359	2,609,598,919

PRMULF-3
PI STA. = 53+29.50
Δ = 8°14'57" (LT)
D = 3°49'11"
R = 1,500.00'
T = 108.17'
L = 215.96'
E = 3.90'
P.C. STA. = 52+21.34
P.T. STA. = 54+37.30
DESIGN SPEED = 45 MPH
S.E. = 3.5%
S.E. RUNOFF = 71'
TR = 31'

PRMULF-3		
POINT	NORTHING	EASTING
P.I.	2,025,249.314	2,612,972.836
P.C.	2,025,141.154	2,612,974.066
P.T.	2,025,356.179	2,612,956.100
C.C.	2,025,124.097	2,611,474.163

PRMULF-4
PI STA. = 57+05.98
Δ = 7°54'58" (RT)
D = 3°49'11"
R = 1,500.00'
T = 103.79'
L = 207.24'
E = 3.59'
P.C. STA. = 56+02.10
P.T. STA. = 58+09.44
DESIGN SPEED = 45 MPH
S.E. = 3.5%
S.E. RUNOFF = 71'
TR = 31'

PRMULF-4		
POINT	NORTHING	EASTING
P.I.	2,025,621.628	2,612,914.529
P.C.	2,025,519.092	2,612,930.587
P.T.	2,025,725.399	2,612,912.745
C.C.	2,025,751.175	2,614,412.524

PRMULF-1
PI STA. = 43+00.09
Δ = 7°43'12" (RT)
D = 3°49'11"
R = 1,500.00'
T = 101.21'
L = 202.11'
E = 3.41'
P.C. STA. = 41+98.88
P.T. STA. = 44+00.99
DESIGN SPEED = 45 MPH
S.E. = 3.5%
S.E. RUNOFF = 71'
TR = 31'

PRMULF-1		
POINT	NORTHING	EASTING
P.I.	2,024,221.835	2,612,938.586
P.C.	2,024,120.644	2,612,940.325
P.T.	2,024,322.343	2,612,950.456
C.C.	2,024,146.419	2,614,440.104

PRMULF-2
PI STA. = 46+57.04
Δ = 7°23'13" (LT)
D = 3°49'11"
R = 1,500.00'
T = 96.83'
L = 193.39'
E = 3.12'
P.C. STA. = 45+60.21
P.T. STA. = 47+53.60
DESIGN SPEED = 45 MPH
S.E. = 3.5%
S.E. RUNOFF = 71'
TR = 31'

PRMULF-2		
POINT	NORTHING	EASTING
P.I.	2,024,576.626	2,612,980.486
P.C.	2,024,480.466	2,612,969.130
P.T.	2,024,673.447	2,612,979.385
C.C.	2,024,656.391	2,611,479.482

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FILE NAME = I:\06jobs\06S2055\CADD\Road\Sheet\centerline geometric 7.dgn	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -
		DRAWN - R.S.J.	REVISED -
	PLOT SCALE = 300.0000 ' / in.	CHECKED - S.M.	REVISED -
SHEET 2	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
PROPOSED GEOMETRY – 2
JOB NO. P-92-111-06

SCALE: 1"=300' | SHEET NO. 2 OF 5 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	8
06S2055		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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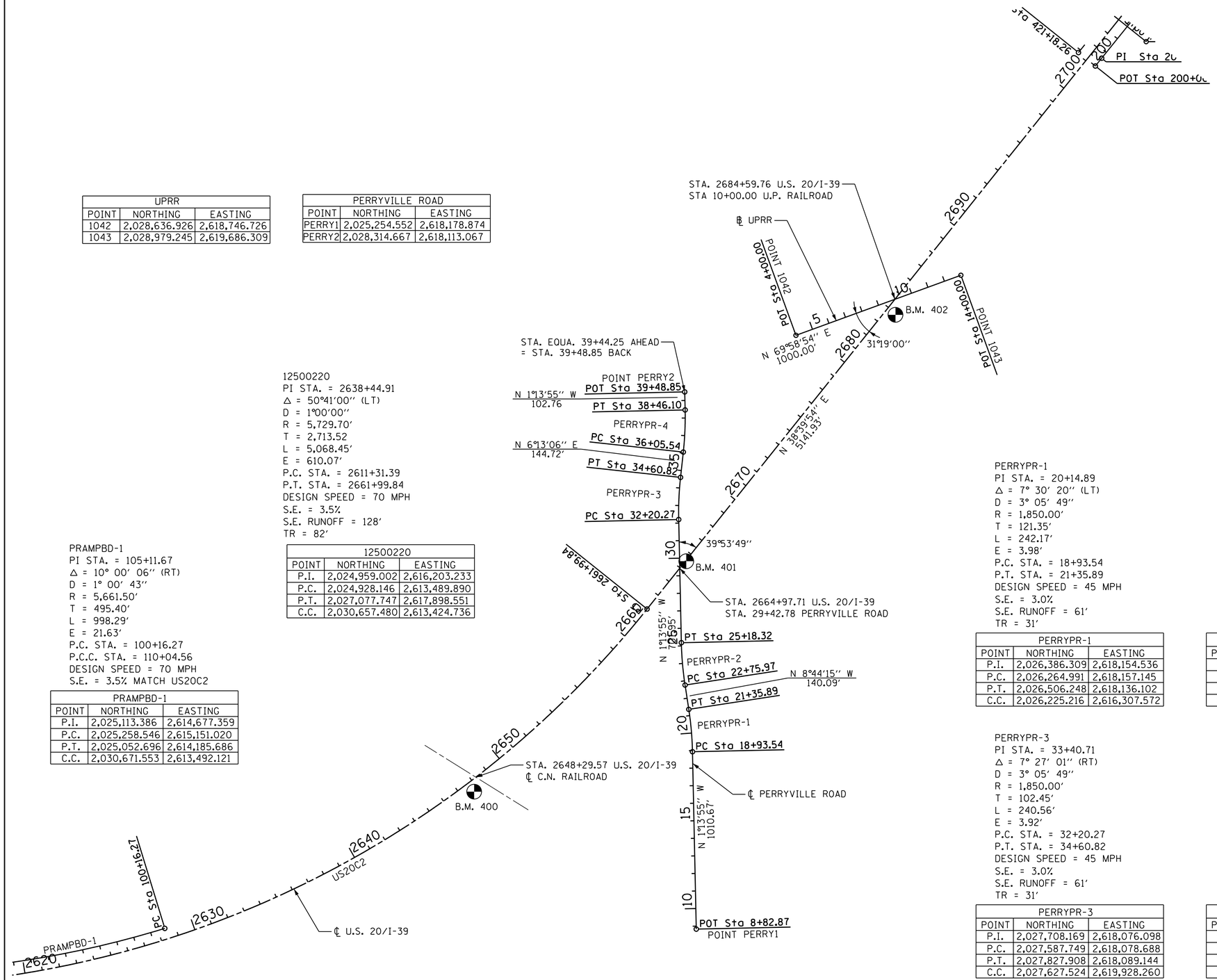
B.M. 400 - N-2026037.41, E-2616913.38 ELEV - 800.52
CUT SQUARE ON S.E. CORNER OF N.B. BRIDGE OF I-39 OVER C.N. RAILROAD

B.M. 401 - N-2027350.15, E-2618121.72 ELEV - 788.53
CUT SQUARE ON SOUTHERLY END OF CENTER CRASH WALL OF BRIDGE UNDER PERYVILLE ROAD

B.M. 402 - N-2028753.85, E-2619313.60 ELEV - 796.69
CUT SQUARE ON S.E. CORNER OF N.B. I-39 OVER U.P. RAILROAD



UPRR		
POINT	NORTHING	EASTING
1042	2,028,636.926	2,618,746.726
1043	2,028,979.245	2,619,686.309

PERRYVILLE ROAD		
POINT	NORTHING	EASTING
PERRY1	2,025,254.552	2,618,178.874
PERRY2	2,028,314.667	2,618,113.067

12500220
PI STA. = 2638+44.91
Δ = 50°41'00" (LT)
D = 1°00'00"
R = 5,729.70'
T = 2,713.52
L = 5,068.45'
E = 610.07'
P.C. STA. = 2611+31.39
P.T. STA. = 2661+99.84
DESIGN SPEED = 70 MPH
S.E. = 3.5%
S.E. RUNOFF = 128'
TR = 82'

12500220		
POINT	NORTHING	EASTING
P.I.	2,024,959.002	2,616,203.233
P.C.	2,024,928.146	2,613,489.890
P.T.	2,027,077.747	2,617,898.551
C.C.	2,030,657.480	2,613,424.736

PRAMPBD-1
PI STA. = 105+11.67
Δ = 10° 00' 06" (RT)
D = 1° 00' 43"
R = 5,661.50'
T = 495.40'
L = 998.29'
E = 21.63'
P.C. STA. = 100+16.27
P.C.C. STA. = 110+04.56
DESIGN SPEED = 70 MPH
S.E. = 3.5% MATCH US20C2

PRAMPBD-1		
POINT	NORTHING	EASTING
P.I.	2,025,113.386	2,614,677.359
P.C.	2,025,258.546	2,615,151.020
P.T.	2,025,052.696	2,614,185.686
C.C.	2,030,671.553	2,613,492.121

PERRYPR-1
PI STA. = 20+14.89
Δ = 7° 30' 20" (LT)
D = 3° 05' 49"
R = 1,850.00'
T = 121.35'
L = 242.17'
E = 3.98'
P.C. STA. = 18+93.54
P.T. STA. = 21+35.89
DESIGN SPEED = 45 MPH
S.E. = 3.0%
S.E. RUNOFF = 61'
TR = 31'

PERRYPR-1		
POINT	NORTHING	EASTING
P.I.	2,026,386.309	2,618,154.536
P.C.	2,026,264.991	2,618,157.145
P.T.	2,026,506.248	2,618,136.102
C.C.	2,026,225.216	2,616,307.572

PERRYPR-2
PI STA. = 23+97.32
Δ = 7° 30' 20" (RT)
D = 3° 05' 49"
R = 1,850.00'
T = 121.35'
L = 242.35'
E = 3.98'
P.C. STA. = 22+75.97
P.T. STA. = 25+18.32
DESIGN SPEED = 45 MPH
S.E. = 3.0%
S.E. RUNOFF = 61'
TR = 31'

PERRYPR-2		
POINT	NORTHING	EASTING
P.I.	2,026,764.646	2,618,096.388
P.C.	2,026,644.708	2,618,114.822
P.T.	2,026,885.965	2,618,093.779
C.C.	2,026,925.740	2,619,943.352

PERRYPR-3
PI STA. = 33+40.71
Δ = 7° 27' 01" (RT)
D = 3° 05' 49"
R = 1,850.00'
T = 102.45'
L = 240.56'
E = 3.92'
P.C. STA. = 32+20.27
P.T. STA. = 34+60.82
DESIGN SPEED = 45 MPH
S.E. = 3.0%
S.E. RUNOFF = 61'
TR = 31'

PERRYPR-3		
POINT	NORTHING	EASTING
P.I.	2,027,708.169	2,618,076.098
P.C.	2,027,587.749	2,618,078.688
P.T.	2,027,827.908	2,618,089.144
C.C.	2,027,627.524	2,619,928.260

PERRYPR-4
PI STA. = 37+25.99
Δ = 7° 27' 01" (LT)
D = 3° 05' 49"
R = 1,850.00'
T = 120.45'
L = 250.56'
E = 3.92'
P.C. STA. = 36+05.54
P.T. STA. = 38+46.10
DESIGN SPEED = 45 MPH
S.E. = 3.0%
S.E. RUNOFF = 61'
TR = 31'

PERRYPR-4		
POINT	NORTHING	EASTING
P.I.	2,028,091.512	2,618,117.866
P.C.	2,027,971.773	2,618,104.820
P.T.	2,028,211.932	2,618,115.276
C.C.	2,028,172.157	2,616,265.704

N

300 0 300 600

FILE NAME = I:\06_jobs\06S2055\CADD\Road\Sheet\centerline geometric 8.dgn	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -
		DRAWN - R.S.J.	REVISED -
	PLOT SCALE = 300.0000 ' / in.	CHECKED - S.M.	REVISED -
SHEET 3	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
PROPOSED GEOMETRY - 3
JOB NO. P-92-111-06

SCALE: 1"=300' | SHEET NO. 3 OF 5 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	9
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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I39NB-1
PI STA. = 4+17.53
Δ = 6° 56′ 11″ (LT)
D = 0° 49′ 54″
R = 6,889.15′
T = 417.53′
L = 834.03′
E = 12.64′
P.C. STA. = 0+00.00
P.T. STA. = 8+34.03
DESIGN SPEED = 70 MPH
S.E. = 3.0%
S.E. RUNOFF = 175′
TR = N/A

I39NB-1		
POINT	NORTHING	EASTING
P.I.	2,032,152.707	2,621,838.842
P.C.	2,031,796.421	2,621,621.151
P.T.	2,032,532.675	2,622,011.912
C.C.	2,035,388.305	2,615,742.483

I39NB-2
PI STA. = 17+55.89
Δ = 7° 37′ 58″ (RT)
D = 1° 08′ 45″
R = 5,000.00′
T = 333.54′
L = 666.09′
E = 11.11′
P.C. STA. = 14+22.36
P.T. STA. = 20+88.44
DESIGN SPEED = 50 MPH
S.E. = 3.7%
S.E. RUNOFF = 191′ & 223′
TR = N/A

I39NB-2		
POINT	NORTHING	EASTING
P.I.	2,033,371.608	2,622,394.033
P.C.	2,033,068.075	2,622,255.778
P.T.	2,033,654.088	2,622,571.379
C.C.	2,030,995.519	2,626,805.999

I39NB-3
PI STA. = 25+95.82
Δ = 10° 47′ 58″ (LT)
D = 3° 33′ 55″
R = 1,607.02′
T = 151.90′
L = 302.90′
E = 7.16′
P.C. STA. = 24+43.92
P.T. STA. = 27+46.82
DESIGN SPEED = 50 MPH
S.E. = 5.9%
S.E. RUNOFF = 311′
TR = N/A′

I39NB-3		
POINT	NORTHING	EASTING
P.I.	2,034,083.797	2,622,841.158
P.C.	2,033,955.148	2,622,760.390
P.T.	2,034,225.301	2,622,896.390
C.C.	2,034,809.625	2,621,399.363

PRAMPG-1
PI STA. = 1103+02.65
Δ = 20° 52′ 28″ (LT)
D = 3° 29′ 14″
R = 1,643.01′
T = 302.65′
L = 598.59′
E = 27.64′
P.C. STA. = 1100+00.00
P.T. STA. = 1105+98.59
DESIGN SPEED = 50 MPH
S.E. = 5.9%
S.E. RUNOFF = N/A
TR = N/A

PRAMPG-1		
POINT	NORTHING	EASTING
P.I.	2,034,494.151	2,623,039.958
P.C.	2,034,212.216	2,622,929.913
P.T.	2,034,796.793	2,623,042.322
C.C.	2,034,809.625	2,621,399.363

12500230
PI STA. = 2724+10.28
Δ = 17° 40′ 00″ (LT)
D = 0° 50′ 00″
R = 6,875.65′
T = 1,068.50′
L = 2,120.05′
E = 82.53′
P.C. STA. = 2713+41.77
P.T. STA. = 2734+61.82
DESIGN SPEED = 70 MPH
S.E. = 3.0%
S.E. RUNOFF = 175′
TR = 82′

12500230		
POINT	NORTHING	EASTING
P.I.	2,031,926.923	2,621,778.630
P.C.	2,031,092.624	2,621,111.064
P.T.	2,032,924.468	2,622,161.521
C.C.	2,035,388.304	2,615,742.486

70200
PI STA. = 501+36.99
Δ = 75° 54′ 26″ (LT)
D = 52° 05′ 13″
R = 110.00′
T = 85.80′
L = 145.73′
E = 29.50′
P.C. STA. = 500+51.20
P.T. STA. = 501+96.93
DESIGN SPEED = N/A
S.E. = N.C.
S.E. RUNOFF = N/A

70200		
POINT	NORTHING	EASTING
P.I.	2,032,098.560	2,624,242.906
P.C.	2,032,092.672	2,624,157.310
P.T.	2,032,183.013	2,624,258.037
C.C.	2,032,202.413	2,624,149.762

70210
PI STA. = 505+77.33
Δ = 86° 36′ 35″ (RT)
D = 81° 51′ 04″
R = 70′
T = 65.98′
L = 105.81′
E = 26.19′
P.C. STA. = 505+11.35
P.T. STA. = 506+17.16
DESIGN SPEED = N/A
S.E. = N.C.
S.E. RUNOFF = N/A

70210		
POINT	NORTHING	EASTING
P.I.	2,032,557.448	2,624,325.127
P.C.	2,032,492.507	2,624,313.491
P.T.	2,032,549.673	2,624,390.643
C.C.	2,032,480.161	2,624,382.394

POT'S		
POINT	NORTHING	EASTING
BELL1	2,032,362.490	2,619,133.178
BELL2	2,033,007.615	2,619,109.701
70001	2,032,085.060	2,624,046.635
70220	2,032,539.146	2,624,479.352
PRMILL1	2,031,310.105	2,624,451.517
PRMILL2	2,032,981.848	2,624,506.771
PRAMPA1	2,031,947.95	2,622,226.02
HARR12	2,031,922.599	2,626,822.584
1010	2,032,503.480	2,619,979.981
BIKE1	2,030,682.564	2,620,229.298

POT'S		
POINT	NORTHING	EASTING
PRAMPB1	2,030,170.97	2,620,452.36
PRAMPB2	2,030,215.75	2,620,488.19
PRAMPB3	2,031,947.95	2,622,226.02
PRAMPC1	2,033,588.70	2,622,374.76
PRAMPC2	2,032,110.74	2,621,240.65
PRAMPD1	2,032,110.74	2,621,240.65
PRAMPD2	2,030,546.66	2,620,595.44
PRAMPD3	2,030,247.82	2,620,356.32
SB2	2,033,995.27	2,622,577.56

HARRISON2-2
PI STA. = 1316+03.33
Δ = 9° 34′ 19″ (LT)
D = 1° 00′ 00″
R = 5,729.71′
T = 479.73′
L = 957.22′
E = 20.05′
P.C. STA. = 1311+23.61
P.T. STA. = 1320+80.83
DESIGN SPEED = 45 MPH
S.E. = N/A

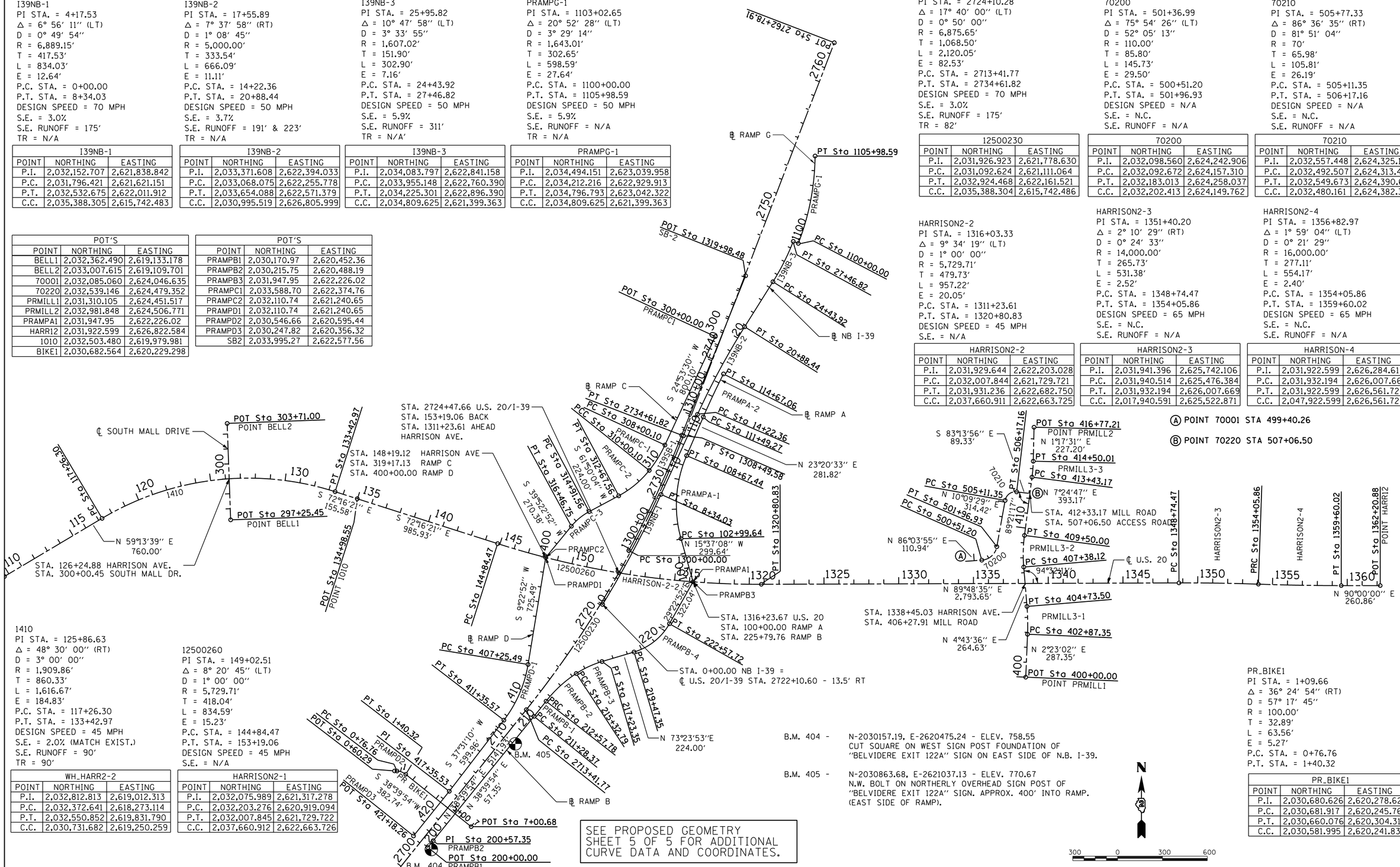
HARRISON2-2		
POINT	NORTHING	EASTING
P.I.	2,031,929.644	2,622,203.028
P.C.	2,032,007.844	2,621,729.721
P.T.	2,031,931.236	2,622,682.750
C.C.	2,037,660.911	2,622,663.725

HARRISON2-3
PI STA. = 1351+40.20
Δ = 2° 10′ 29″ (RT)
D = 0° 24′ 33″
R = 14,000.00′
T = 265.73′
L = 531.38′
E = 2.52′
P.C. STA. = 1348+74.47
P.T. STA. = 1354+05.86
DESIGN SPEED = 65 MPH
S.E. = N.C.
S.E. RUNOFF = N/A

HARRISON2-3		
POINT	NORTHING	EASTING
P.I.	2,031,941.396	2,625,742.106
P.C.	2,031,940.514	2,625,476.384
P.T.	2,031,932.194	2,626,007.669
C.C.	2,017,940.591	2,625,522.871

HARRISON2-4
PI STA. = 1356+82.97
Δ = 1° 59′ 04″ (LT)
D = 0° 21′ 29″
R = 16,000.00′
T = 277.11′
L = 554.17′
E = 2.40′
P.C. STA. = 1354+05.86
P.T. STA. = 1359+60.02
DESIGN SPEED = 65 MPH
S.E. = N.C.
S.E. RUNOFF = N/A

HARRISON-4		
POINT	NORTHING	EASTING
P.I.	2,031,922.599	2,626,284.613
P.C.	2,031,932.194	2,626,007.669
P.T.	2,031,922.599	2,626,561.724
C.C.	2,047,922.599	2,626,561.724



1410
PI STA. = 125+86.63
Δ = 48° 30′ 00″ (RT)
D = 3° 00′ 00″
R = 1,909.86′
T = 860.33′
L = 1,616.67′
E = 184.83′
P.C. STA. = 117+26.30
P.T. STA. = 133+42.97
DESIGN SPEED = 45 MPH
S.E. = 2.0% (MATCH EXIST.)
S.E. RUNOFF = 90′
TR = 90′

WH_HARR2-2		
POINT	NORTHING	EASTING
P.I.	2,032,812.813	2,619,012.313
P.C.	2,032,372.641	2,618,273.114
P.T.	2,032,550.852	2,619,831.790
C.C.	2,030,731.682	2,619,250.259

12500260
PI STA. = 149+02.51
Δ = 8° 20′ 45″ (LT)
D = 1° 00′ 00″
R = 5,729.71′
T = 418.04′
L = 834.59′
E = 15.23′
P.C. STA. = 144+84.47
P.T. STA. = 153+19.06
DESIGN SPEED = 45 MPH
S.E. = N/A

HARRISON2-1		
POINT	NORTHING	EASTING
P.I.	2,032,075.989	2,621,317.278
P.C.	2,032,203.276	2,620,919.094
P.T.	2,032,007.845	2,621,729.722
C.C.	2,037,660.912	2,622,663.726

B.M. 404 - N-2030157.19, E-2620475.24 - ELEV. 758.55
CUT SQUARE ON WEST SIGN POST FOUNDATION OF "BELVIDERE EXIT 122A" SIGN ON EAST SIDE OF N.B. I-39.

B.M. 405 - N-2030863.68, E-2621037.13 - ELEV. 770.67
N.W. BOLT ON NORTHERLY OVERHEAD SIGN POST OF "BELVIDERE EXIT 122A" SIGN. APPROX. 400′ INTO RAMP. (EAST SIDE OF RAMP).

SEE PROPOSED GEOMETRY SHEET 5 OF 5 FOR ADDITIONAL CURVE DATA AND COORDINATES.

PR_BIKE1
PI STA. = 1+09.66
Δ = 36° 24′ 54″ (RT)
D = 57° 17′ 45″
R = 100.00′
T = 32.89′
L = 63.56′
E = 5.27′
P.C. STA. = 0+76.76
P.T. STA. = 1+40.32

PR_BIKE1		
POINT	NORTHING	EASTING
P.I.	2,030,680.626	2,620,278.628
P.C.	2,030,681.917	2,620,245.761
P.T.	2,030,660.076	2,620,304.311
C.C.	2,030,581.995	2,620,241.835

N

300 0 300 600

FILE NAME = I:\06jobs\06S2055\CADD\Road\Sheet\centerline geometric 9.dgn	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -
		DRAWN - R.S.J.	REVISED -
	PLOT SCALE = 300.0000 ′ / in.	CHECKED - S.M.	REVISED -
SHEET 4	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
PROPOSED GEOMETRY – 4
JOB NO. P-92-111-06

SCALE: 1″=300′ | SHEET NO. 4 OF 5 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	10
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PRAMPA-1
PI STA. = 105+95.01
Δ = 38° 57′ 41″ (RT)
D = 6° 51′ 42″
R = 835.00′
T = 295.37′
L = 567.80′
E = 50.70′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192′
P.C. STA. = 102+99.64
P.T. STA. = 108+67.44

PRAMPA-1		
POINT	NORTHING	EASTING
P.I.	2,032,520.99	2,622,065.82
P.C.	2,032,236.53	2,622,145.35
P.T.	2,032,492.19	2,622,182.86
C.C.	2,032,461.34	2,622,949.52

PRAMPA-2
PI STA. = 113+08.22
Δ = 3° 40′ 46″ (RT)
D = 1° 09′ 28″
R = 4,948.52′
T = 158.95′
L = 317.79′
E = 2.55′
S.E. = VARIABLE
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 111+49.27
P.T. STA. = 114+67.06

PRAMPA-2		
POINT	NORTHING	EASTING
P.I.	2,033,196.88	2,622,357.50
P.C.	2,033,050.94	2,622,294.52
P.T.	2,033,338.48	2,622,429.72
C.C.	2,031,090.20	2,626,838,02

PRAMPB-1
PI STA. = 211+93.08
Δ = 1° 01′ 29″ (LT)
D = 0° 47′ 31″
R = 7,235.28′
T = 64.70′
L = 129.40′
E = 0.29′
S.E. = 2.0%
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 211+28.37
P.R.C. STA. = 212+57.78

PRAMPB-1		
POINT	NORTHING	EASTING
P.I.	2,031,098.26	2,621,203.07
P.C.	2,031,047.99	2,621,162.34
P.T.	2,031,149.26	2,621,242.89
C.C.	2,035,602,07	2,615,540.30

PRAMPB-2
PI STA. = 213+96.54
Δ = 18° 52′ 14″ (RT)
D = 6° 51′ 42″
R = 835.00′
T = 138.76′
L = 275.01′
E = 11.45′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 210′
P.R.C. STA. = 212+57.78
P.C.C. STA. = 215+32.79

PRAMPB-2		
POINT	NORTHING	EASTING
P.I.	2,031,258.63	2,621,328.29
P.C.	2,031,149.26	2,621,242.89
P.T.	2,031,334.50	2,621,444.47
C.C.	2,030,635.37	2,621,901.02

PRAMPB-3
PI STA. = 216+28.74
Δ = 16° 32′ 34″ (RT)
D = 8° 40′ 52″
R = 660.00′
T = 95.95′
L = 190.56′
E = 6.94′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 180′
P.C.C. STA. = 215+32.79
P.T. STA. = 217+23.35

PRAMPB-3		
POINT	NORTHING	EASTING
P.I.	2,031,386.96	2,621,524.81
P.C.	2,031,334.50	2,621,444.47
P.T.	2,031,414.38	2,621,616.76
C.C.	2,030,781.89	2,621,805.34

PRAMPB-4
PI STA. = 221+10.64
Δ = 44° 00′ 59″ (LT)
D = 14° 10′ 56″
R = 404.00′
T = 163.29′
L = 310.37′
E = 31.75′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 156′
P.C. STA. = 219+47.35
P.T. STA. = 222+57.72

PRAMPB-4		
POINT	NORTHING	EASTING
P.I.	2,031,525.04	2,621,987.91
P.C.	2,031,478.38	2,621,831.42
P.T.	2,031,667.33	2,622,068.02
C.C.	2,031,865.54	2,621,715.99

PRMILL3-1
PI STA. = 403+80.54
Δ = 7° 06′ 38″ (LT)
D = 3° 49′ 11″
R = 1500.00′
T = 93.20′
L = 186.15′
E = 2.89′
P.C. STA. = 402+87.35
P.T. STA. = 404+73.50
DESIGN SPEED = 45 MPH
S.E. = N.C.
S.E. RUNOFF = N/A
TR = N/A

PRMILL3-1		
POINT	NORTHING	EASTING
P.I.	2,031,690.317	2,624,467.345
P.C.	2,031,597.202	2,624,463.469
P.T.	2,031,783.196	2,624,459.666
C.C.	2,031,659.594	2,622,964.767

PRMILL3-2
PI STA. = 408+44.46
Δ = 12° 08′ 22″ (RT)
D = 5° 43′ 46″
R = 1000.00′
T = 106.34′
L = 211.88′
E = 5.64′
P.C. STA. = 407+38.12
P.T. STA. = 409+50.00
DESIGN SPEED = 45 MPH
S.E. = N.C.
S.E. RUNOFF = N/A
TR = N/A

PRMILL3-2		
POINT	NORTHING	EASTING
P.I.	2,032,152.897	2,624,429.098
P.C.	2,032,046.922	2,624,437.860
P.T.	2,032,258.344	2,624,442.818
C.C.	2,032,129.324	2,625,434.460

PRMILL3-3
PI STA. = 413+96.64
Δ = 6° 07′ 16″ (LT)
D = 5° 43′ 46″
R = 1000.00′
T = 53.47′
L = 106.83′
E = 1.43′
P.C. STA. = 413+43.17
P.T. STA. = 414+50.01
DESIGN SPEED = 45 MPH
S.E. = N.C.
S.E. RUNOFF = N/A
TR = N/A

PRMILL3-3		
POINT	NORTHING	EASTING
P.I.	2,032,701.250	2,624,500.443
P.C.	2,032,648.230	2,624,493.545
P.T.	2,032,754.704	2,624,501.648
C.C.	2,032,777.250	2,623,501.903

PRAMPC-1
PI STA. = 309+00.58
Δ = 13° 43′ 25″ (RT)
D = 6° 51′ 42″
R = 835.00′
T = 100.48′
L = 200.00′
E = 6.02′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 210′
P.C. STA. = 308+00.10
P.C.C. STA. = 310+00.10

PRAMPC-1		
POINT	NORTHING	EASTING
P.I.	2,032,771.78	2,621,995.71
P.C.	2,032,862.93	2,622,038.00
P.T.	2,032,693.27	2,621,933.00
C.C.	2,033,214.38	2,621,280.57

PRAMPC-2
PI STA. = 311+35.69
Δ = 23° 13′ 09″ (RT)
D = 8° 40′ 52″
R = 660.00′
T = 135.59′
L = 267.47′
E = 13.78′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 180′
P.C.C. STA. = 310+00.10
P.T. STA. = 312+67.56

PRAMPC-2		
POINT	NORTHING	EASTING
P.I.	2,032,587.32	2,621,848.38
P.C.	2,032,693.27	2,621,933.00
P.T.	2,032,523.32	2,621,728.84
C.C.	2,033,105.17	2,621,417.30

PRAMPC-3
PI STA. = 315+70.17
Δ = 22° 27′ 12″ (LT)
D = 14° 28′ 07″
R = 396.00′
T = 78.60′
L = 155.19′
E = 7.73′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 156′
P.C. STA. = 314+91.56
P.T. STA. = 316+46.75

PRAMPC-3		
POINT	NORTHING	EASTING
P.I.	2,032,380.49	2,621,462.07
P.C.	2,032,417.59	2,621,531.36
P.T.	2,032,319.73	2,621,412.20
C.C.	2,032,068.48	2,621,718.28

PRAMPD-1
PI STA. = 409+34.75
Δ = 28° 08′ 18″ (RT)
D = 6° 51′ 42″
R = 835.00′
T = 209.26′
L = 410.07′
E = 25.82′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192′
P.C. STA. = 407+25.49
P.T. STA. = 411+35.57

PRAMPD-1		
POINT	NORTHING	EASTING
P.I.	2,031,188.49	2,621,088.28
P.C.	2,031,394.95	2,621,122.39
P.T.	2,031,022.52	2,0620,960.84
C.C.	2,031,531.06	2,620,298.56

POT'S		
POINT	NORTHING	EASTING
CA1	2,032,369.756	2,620,250.512
CA101	2,030,457.993	2,620,538.901
AD100	2,030,590.174	2,620,787.791
AD101	2,031,942.556	2,622,303.256
BC100	2,033,868.341	2,622,486.816
BC101	2,032,139.055	2,621,134.469
DB1	2,031,978.401	2,623,334.467
DB101	2,033,197.210	2,622,370.360
PRMILL1	2,031,310.105	2,624,451.517
PRMILL2	2,032,981.848	2,624,506.771

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	PLOT SCALE = 300.0000 ′ / in.	CHECKED - S.M.	REVISED -
SHEET 5	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
PROPOSED GEOMETRY – 5
JOB NO. P-92-111-06

SCALE: 1″=300′ | SHEET NO. 5 OF 5 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	11
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

EXISTING RIGHT-OF-WAY

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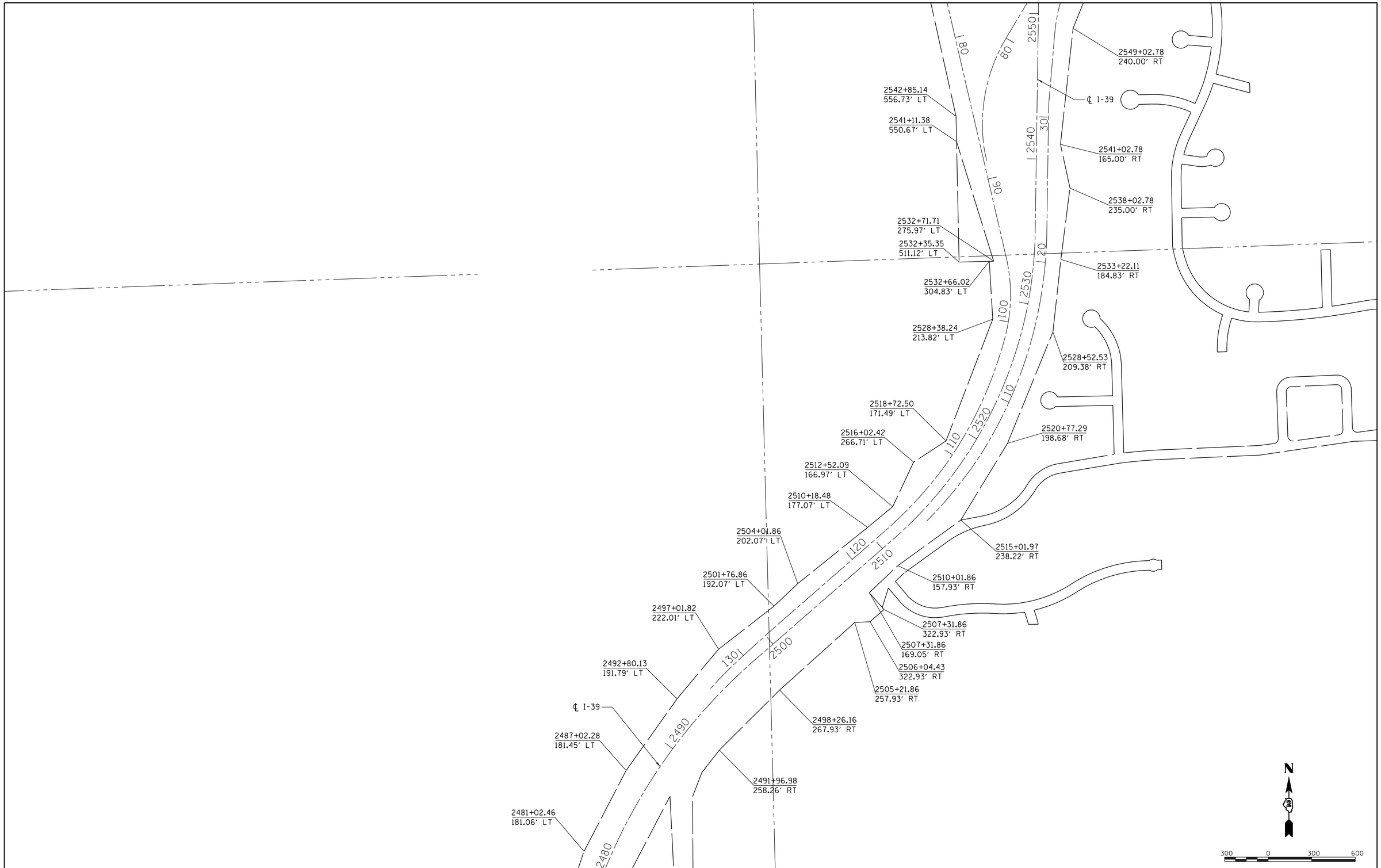

FILE NAME =	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) EXISTING RIGHT OF WAY - 1 JOB NO. P-92-111-06	F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
I:\06_jobs\06S2055\CADD\Road\Sheet\c-101	erow.dgn	DRAWN - R.S.J.	REVISED -			39	(201-3)K & (4-1,5)R	WINNEBAGO	xx / 12
	PLOT SCALE = 300.0000 ' / in.	CHECKED - S.M.	REVISED -			06S2055		CONTRACT NO.	
SHEET 1	PLOT DATE = 3/30/2017	DATE -	REVISED -		SCALE: 1"=300' SHEET NO. 1 OF 4 SHEETS STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

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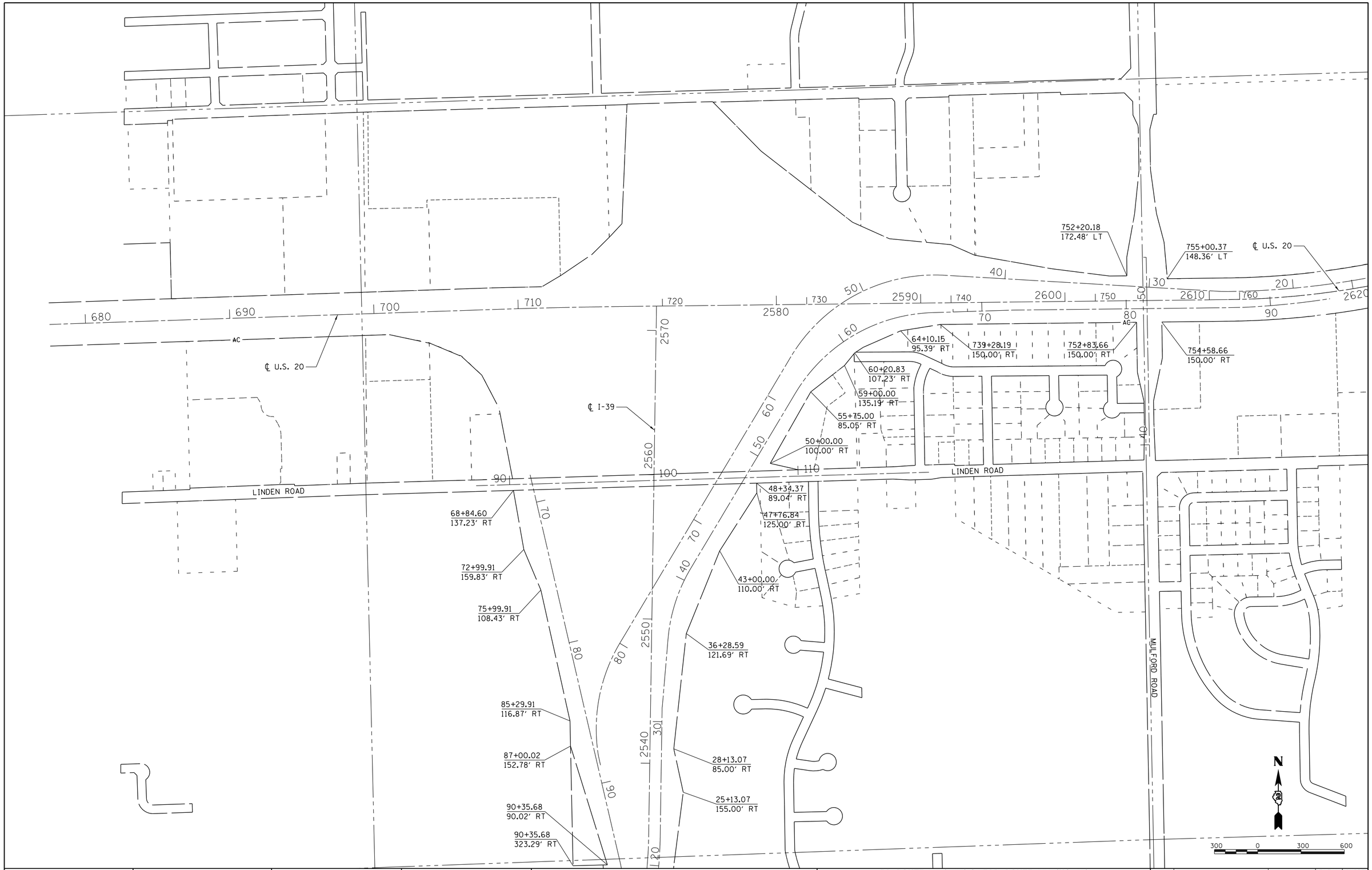

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	PLOT SCALE = 300.0000 ' / in.	DRAWN - R.S.J.	REVISED -			39	(201-3)K & (4-1.5)R	WINNEBAGO	xx / 13
SHEET 2	PLOT DATE = 3/30/2017	CHECKED - S.M.	REVISED -			06S2055		CONTRACT NO.	
		DATE -	REVISED -		SCALE: 1"=300' SHEET NO. 2 OF 4 SHEETS STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

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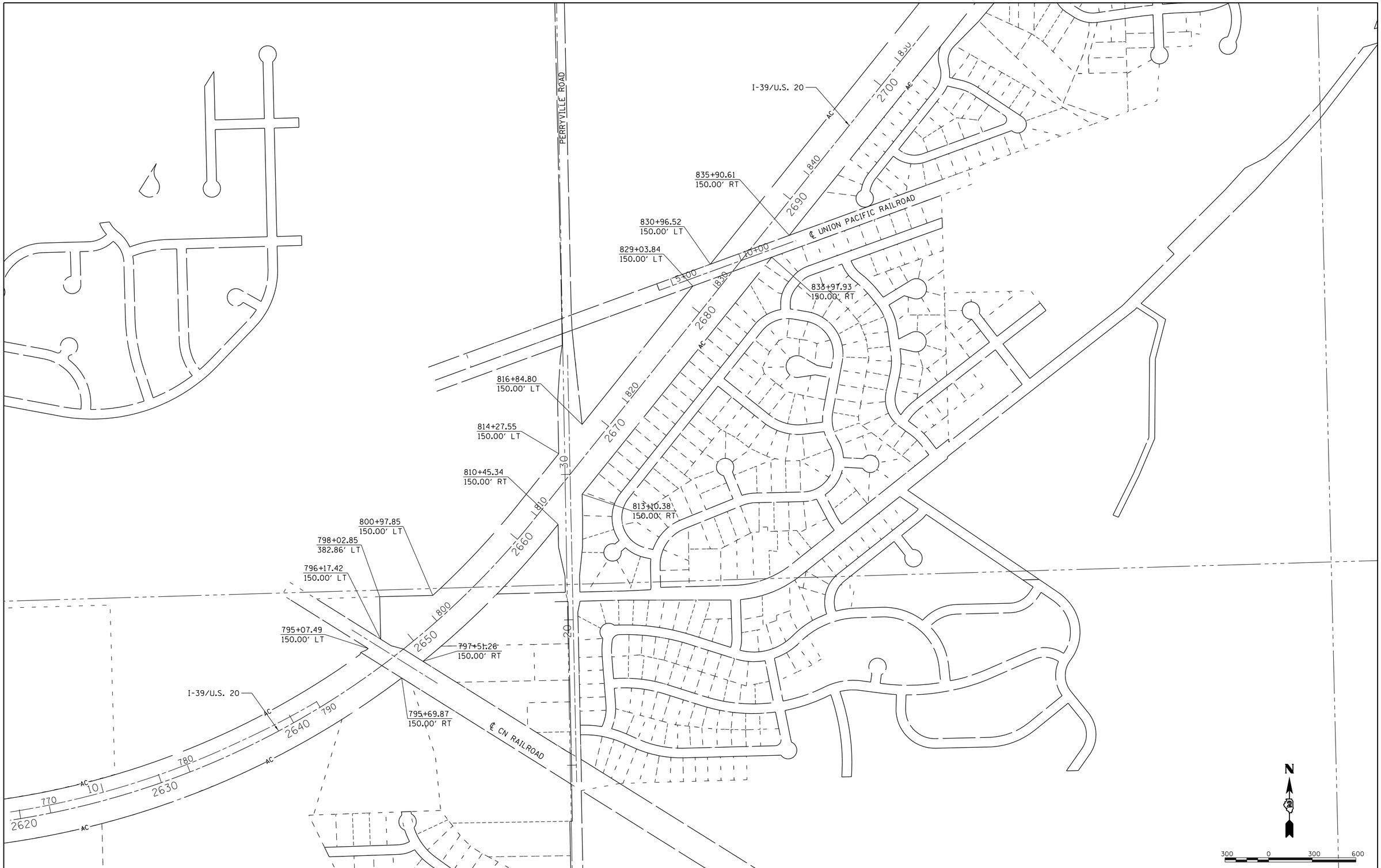

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SHEET 3	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
EXISTING RIGHT OF WAY – 3
JOB NO. P–92–111–06

SCALE: 1"=300' | SHEET NO. 3 OF 4 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	14
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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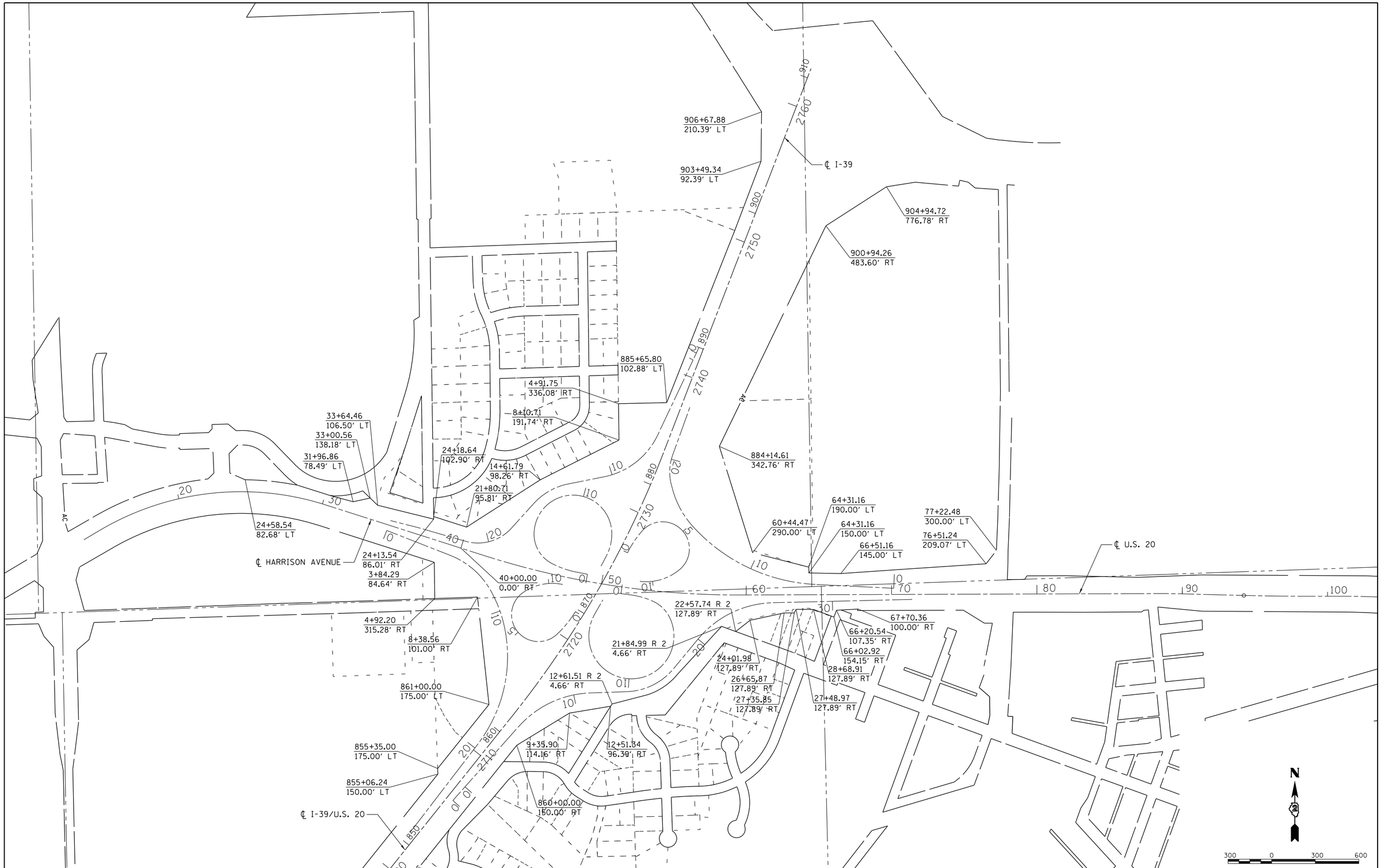

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	PLOT SCALE = 300.0000 ' / in.	CHECKED - S.M.	REVISED -
SHEET 4	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
EXISTING RIGHT OF WAY - 4
JOB NO. P-92-111-06

SCALE: 1"=300' | SHEET NO. 4 OF 4 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	15
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PROPOSED PLAN SHEETS

• EXISTING NOISE WALL TO BE REMOVED AND REPLACED.
CONSTRUCTION DETAILS AND WALL LOCATION TO BE FURTHER STUDIED IN PHASE II.

SECTION 9 T.44N., R.2E.

POINT NO.	PROPERTY OWNER
1	STANLEY & DELCIE MILLER
2	A PLACE FOR SPACE SELF STORAGE LLC.
3	ACTION TOOL CO.
4	JAMES W. & MARY KAY MYERS
5	ANNETTE D. LINK
6	JEFFREY FRANKIN
7	GREGORY D. & PATRICIA G. FITZGERALD
8	VAUGHN J. & BETTY J. FITZGERALD
9	MICHAEL J. TURMAN
10	BRADLEY WHEELOCK
11	SOUPHON NOI VONGSAPHAY
12	MARIA CARDONA

STA 1153+87
EXISTING PIPE CULVERT 48"
REMOVE AND REPLACE W/
66" CONCRETE PIPE CULVERT
W/ 60" FUTURE LINER

STA 75+02
EXISTING PIPE CULVERT 24"
REMOVE AND REPLACE WITH
54" DIA CONCRETE PIPE
CULVERT W/ 48" FUTURE LINER

840' PAINTED LANE DROP TAPER

STA 2581+08
EXISTING PIPE CULVERT 30"
REMOVE AND REPLACE WITH
54" DIA CONCRETE PIPE
W/ 48" FUTURE LINER

EXISTING PAVEMENT REMOVAL

EXISTING STRUCTURE #101-0136

℄ U.S. 20

PT Sta 1156+72.93

STA. 2573+45
40' MEDIAN

STA. 2575+78
27" MEDIAN

STA. 2593+00 MATCH LINE

PT Sta 69+70.53

STA 151+39
PROPOSED CONCRETE PIPE
CULVERT, 66" W/ 60"
FUTURE LINER

PROPOSED STRUCTURE #101-0215
484'-0" BACK TO BACK ABUTS.
55'-2" OUT TO OUT

STA 2570+03
EXISTING PIPE CULVERT 60"
TO REMAIN IN PLACE

RAMP DA

REMOVE EXISTING
CULVERT

STA 59+47
EXISTING PIPE CULVERT 54"
REMOVE AND REPLACE W/
60" DIA CONCRETE PIPE
W/ +/- 5' OF PLASTIC PIPE
AS RESTRICTOR

EXISTING NOISE WALL•

℄ RAMP BD
I-39 S.B.

PROPOSED STRUCTURE #101-0204
350'-8 5/8" BK. TO BK. ABUTS.
43'-5" OUT TO OUT

LIMITS OF CONSTRUCTION

℄ RAMP DB
I-39 N.B.

PI Sta 363+87.76

EXISTING PAVEMENT REMOVAL

LIMITS OF CONSTRUCTION

EXISTING R.O.W.

N

100 0 100 200

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US20 Sheet 1	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
U.S. 20 PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 7 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	16
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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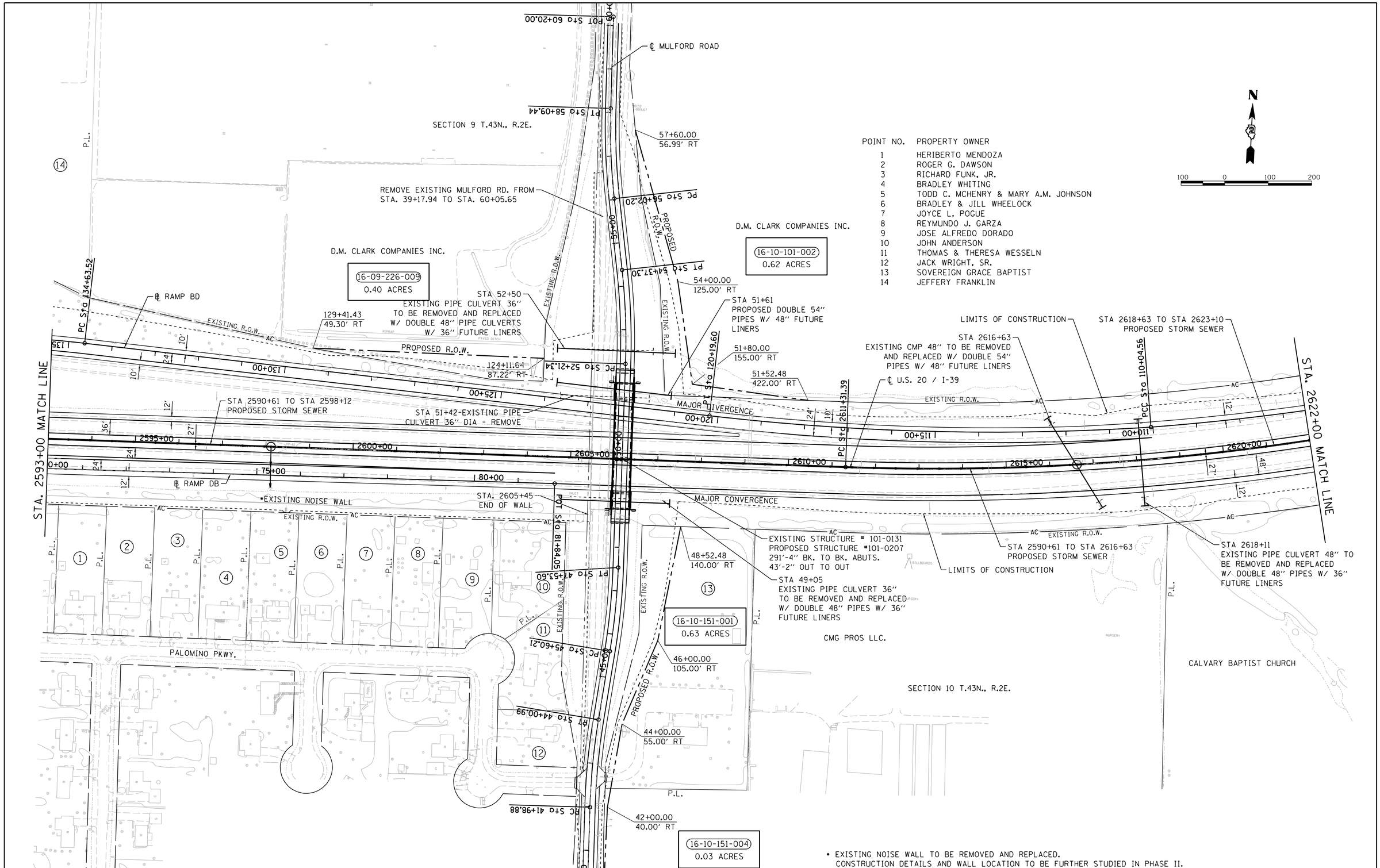

POINT NO.	PROPERTY OWNER
1	HERIBERTO MENDOZA
2	ROGER G. DAWSON
3	RICHARD FUNK, JR.
4	BRADLEY WHITING
5	TODD C. MCHENRY & MARY A.M. JOHNSON
6	BRADLEY & JILL WHEELOCK
7	JOYCE L. POGUE
8	REYMUNDO J. GARZA
9	JOSE ALFREDO DORADO
10	JOHN ANDERSON
11	THOMAS & THERESA WESSELN
12	JACK WRIGHT, SR.
13	SOVEREIGN GRACE BAPTIST
14	JEFFERY FRANKLIN

• EXISTING NOISE WALL TO BE REMOVED AND REPLACED.
CONSTRUCTION DETAILS AND WALL LOCATION TO BE FURTHER STUDIED IN PHASE II.

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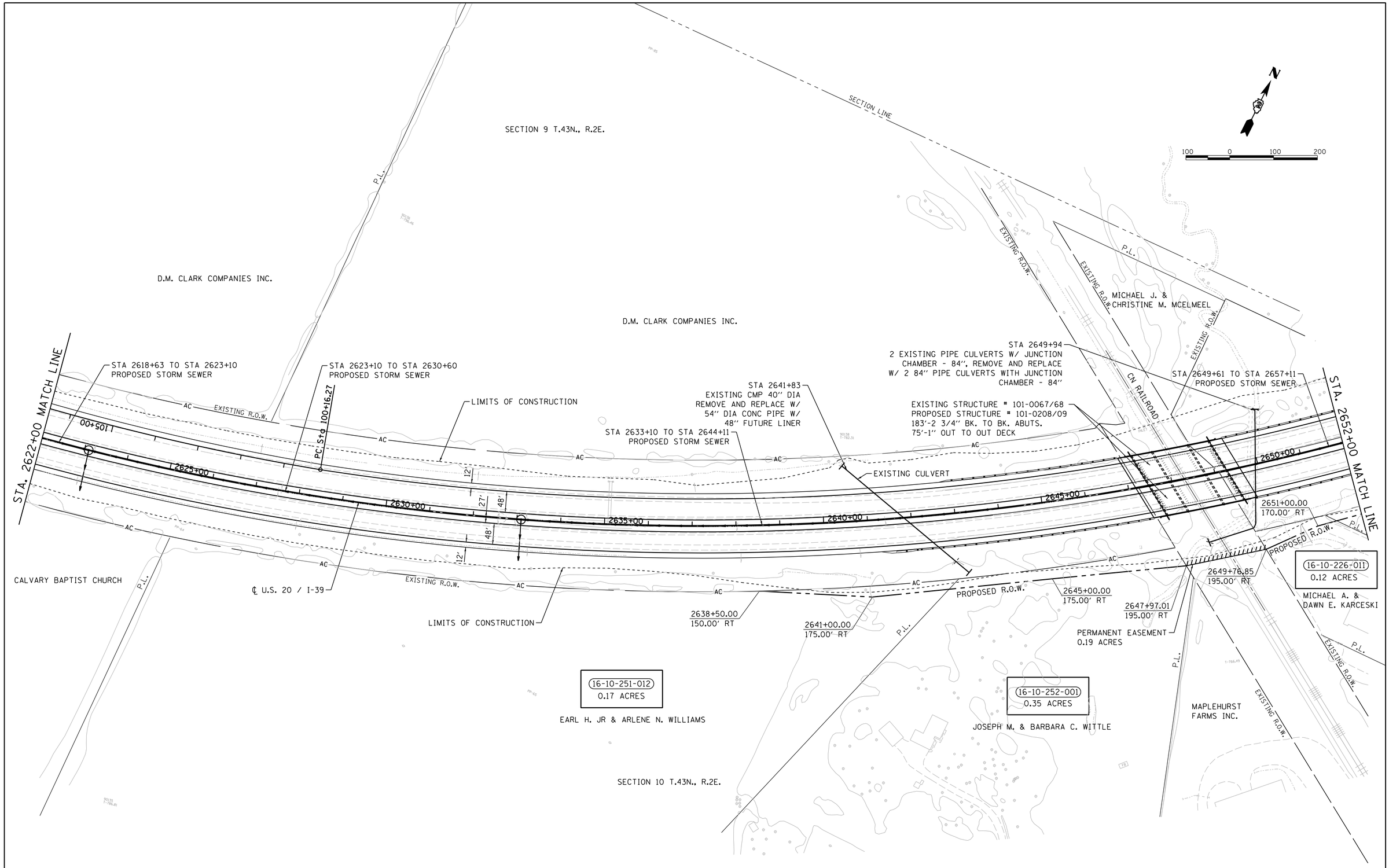
US20 Sheet 2	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
U.S. 20 PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 2 OF 7 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	17
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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us20 sheet3	PLOT DATE = 3/30/2017	DATE -	REVISED -

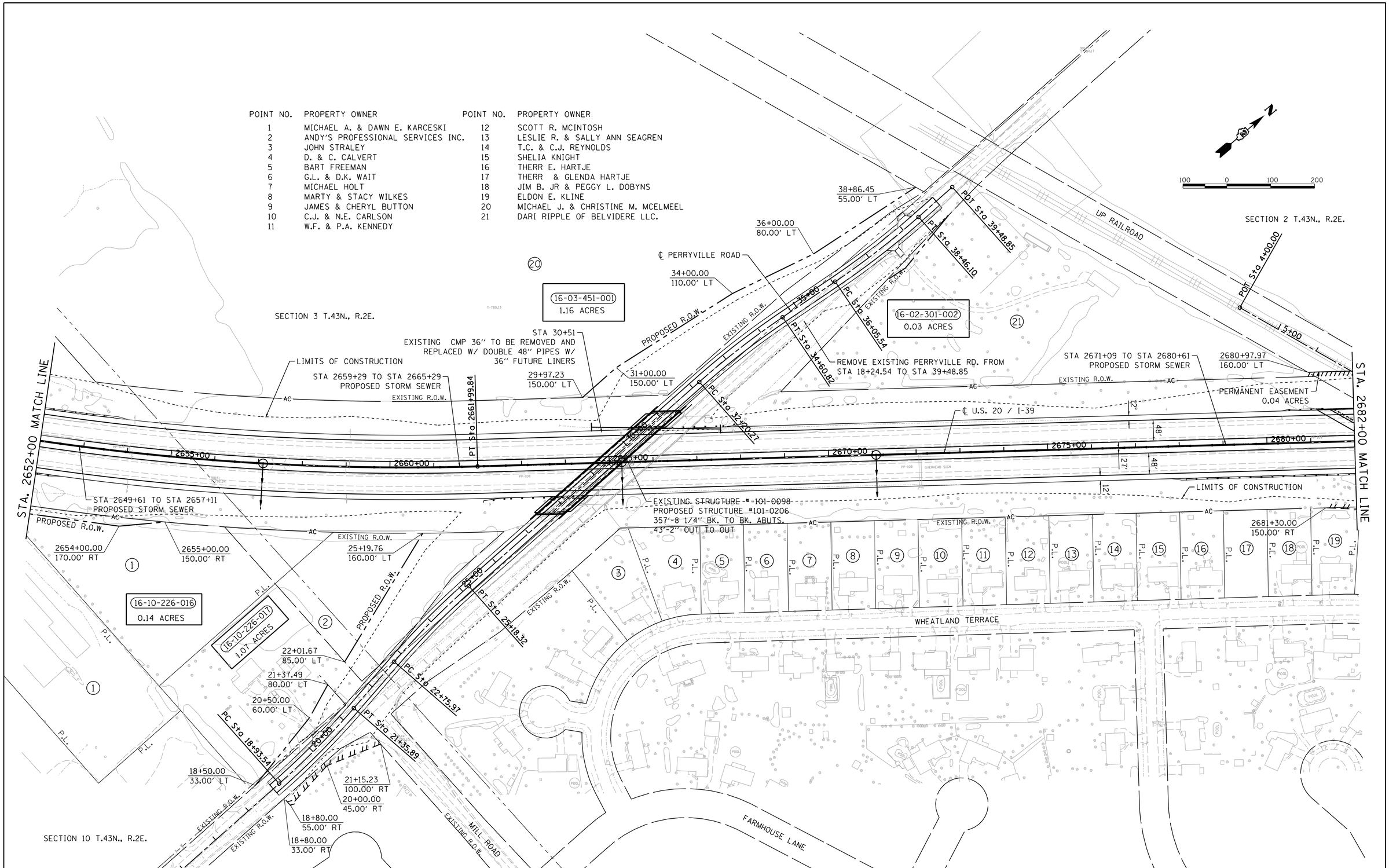
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
U.S. 20 PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 3 OF 7 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1.5)R	WINNEBAGO	xx	18
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

POINT NO.	PROPERTY OWNER	POINT NO.	PROPERTY OWNER
1	MICHAEL A. & DAWN E. KARCESKI	12	SCOTT R. MCINTOSH
2	ANDY'S PROFESSIONAL SERVICES INC.	13	LESLIE R. & SALLY ANN SEAGREN
3	JOHN STRALEY	14	T.C. & C.J. REYNOLDS
4	D. & C. CALVERT	15	SHELIA KNIGHT
5	BART FREEMAN	16	THERR E. HARTJE
6	G.L. & D.K. WAIT	17	THERR & GLENDA HARTJE
7	MICHAEL HOLT	18	JIM B. JR & PEGGY L. DOBYNS
8	MARTY & STACY WILKES	19	ELDON E. KLINE
9	JAMES & CHERYL BUTTON	20	MICHAEL J. & CHRISTINE M. MCELMEEL
10	C.J. & N.E. CARLSON	21	DARI RIPPLE OF BELVIDERE LLC.
11	W.F. & P.A. KENNEDY		



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Sheet 4	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
U.S. 20 PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 4 OF 7 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	19
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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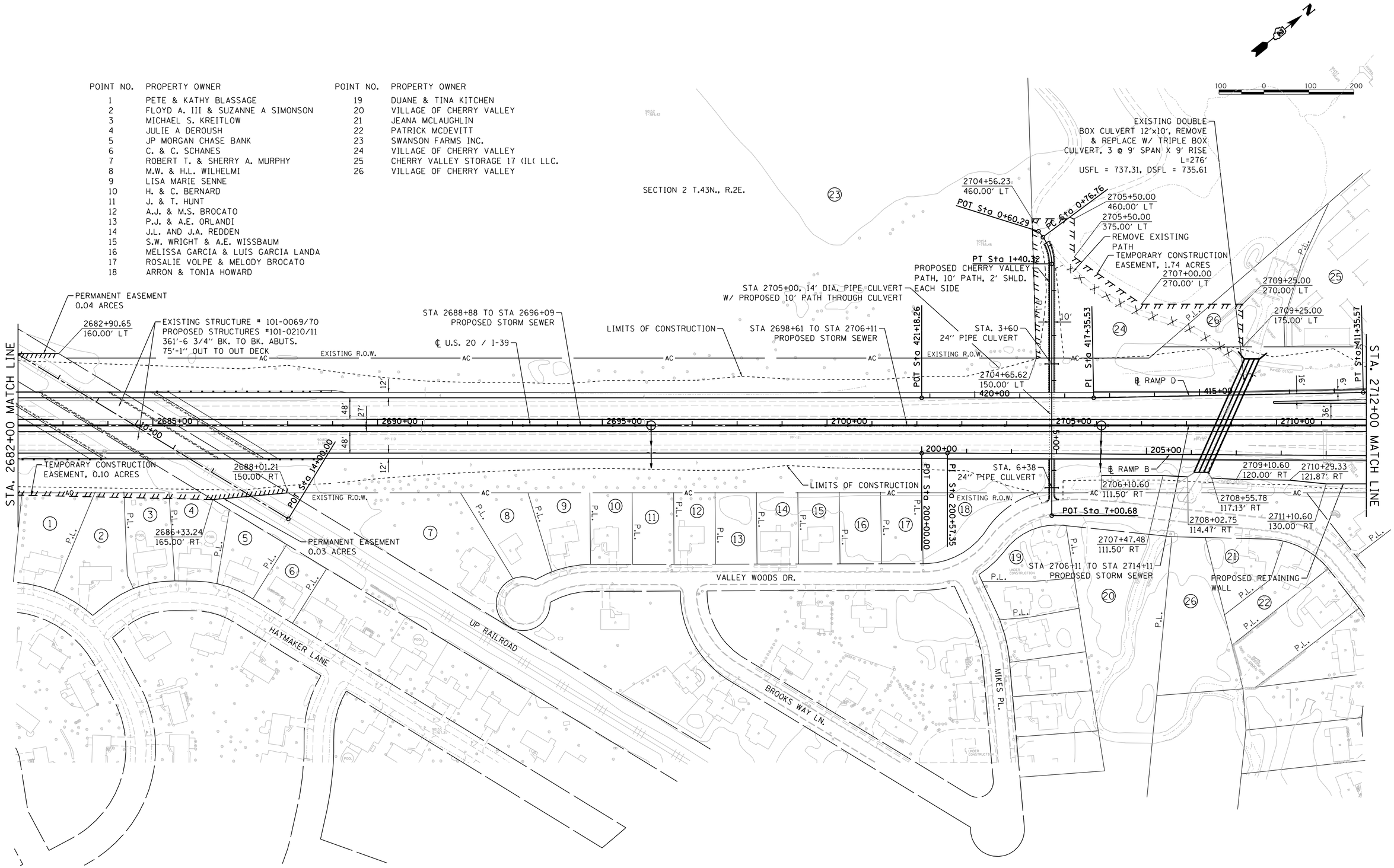
POINT NO.	PROPERTY OWNER	POINT NO.	PROPERTY OWNER
1	PETE & KATHY BLASSAGE	19	DUANE & TINA KITCHEN
2	FLOYD A. III & SUZANNE A SIMONSON	20	VILLAGE OF CHERRY VALLEY
3	MICHAEL S. KREITLOW	21	JEANA MCLAUGHLIN
4	JULIE A DEROUSH	22	PATRICK MCDEVITT
5	JP MORGAN CHASE BANK	23	SWANSON FARMS INC.
6	C. & C. SCHANES	24	VILLAGE OF CHERRY VALLEY
7	ROBERT T. & SHERRY A. MURPHY	25	CHERRY VALLEY STORAGE 17 (IL(LLC.
8	M.W. & H.L. WILHELMI	26	VILLAGE OF CHERRY VALLEY
9	LISA MARIE SENNE		
10	H. & C. BERNARD		
11	J. & T. HUNT		
12	A.J. & M.S. BROCATO		
13	P.J. & A.E. ORLANDI		
14	J.L. AND J.A. REDDEN		
15	S.W. WRIGHT & A.E. WISSBAUM		
16	MELISSA GARCIA & LUIS GARCIA LANDA		
17	ROSALIE VOLPE & MELODY BROCATO		
18	ARRON & TONIA HOWARD		



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Sheet 5	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
U.S. 20 PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 5 OF 7 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	20
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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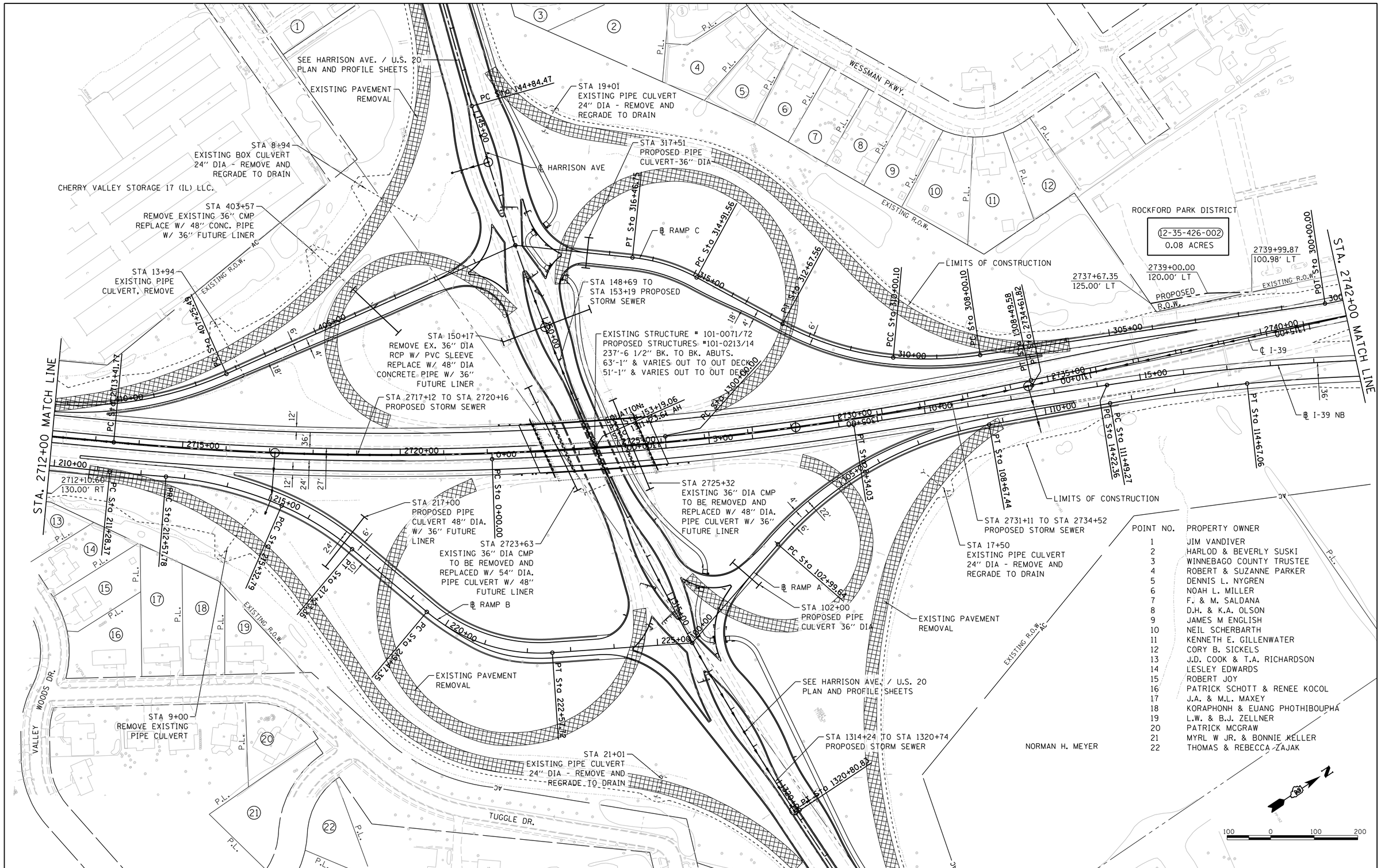

POINT NO.	PROPERTY OWNER
1	JIM VANDIVER
2	HARLOD & BEVERLY SUSKI
3	WINNEBAGO COUNTY TRUSTEE
4	ROBERT & SUZANNE PARKER
5	DENNIS L. NYGREN
6	NOAH L. MILLER
7	F. & M. SALDANA
8	D.H. & K.A. OLSON
9	JAMES M ENGLISH
10	NEIL SCHERBARTH
11	KENNETH E. GILLENWATER
12	CORY B. SICKELS
13	J.D. COOK & T.A. RICHARDSON
14	LESLEY EDWARDS
15	ROBERT JOY
16	PATRICK SCHOTT & RENEE KOCOL
17	J.A. & M.L. MAXEY
18	KORAPHONH & EUANG PHOTHIBOUPHA
19	L.W. & B.J. ZELLNER
20	PATRICK MCGRAW
21	MYRL W JR. & BONNIE KELLER
22	THOMAS & REBECCA ZAJAK

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Sheet 6	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
U.S. 20 PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 6 OF 7 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	21
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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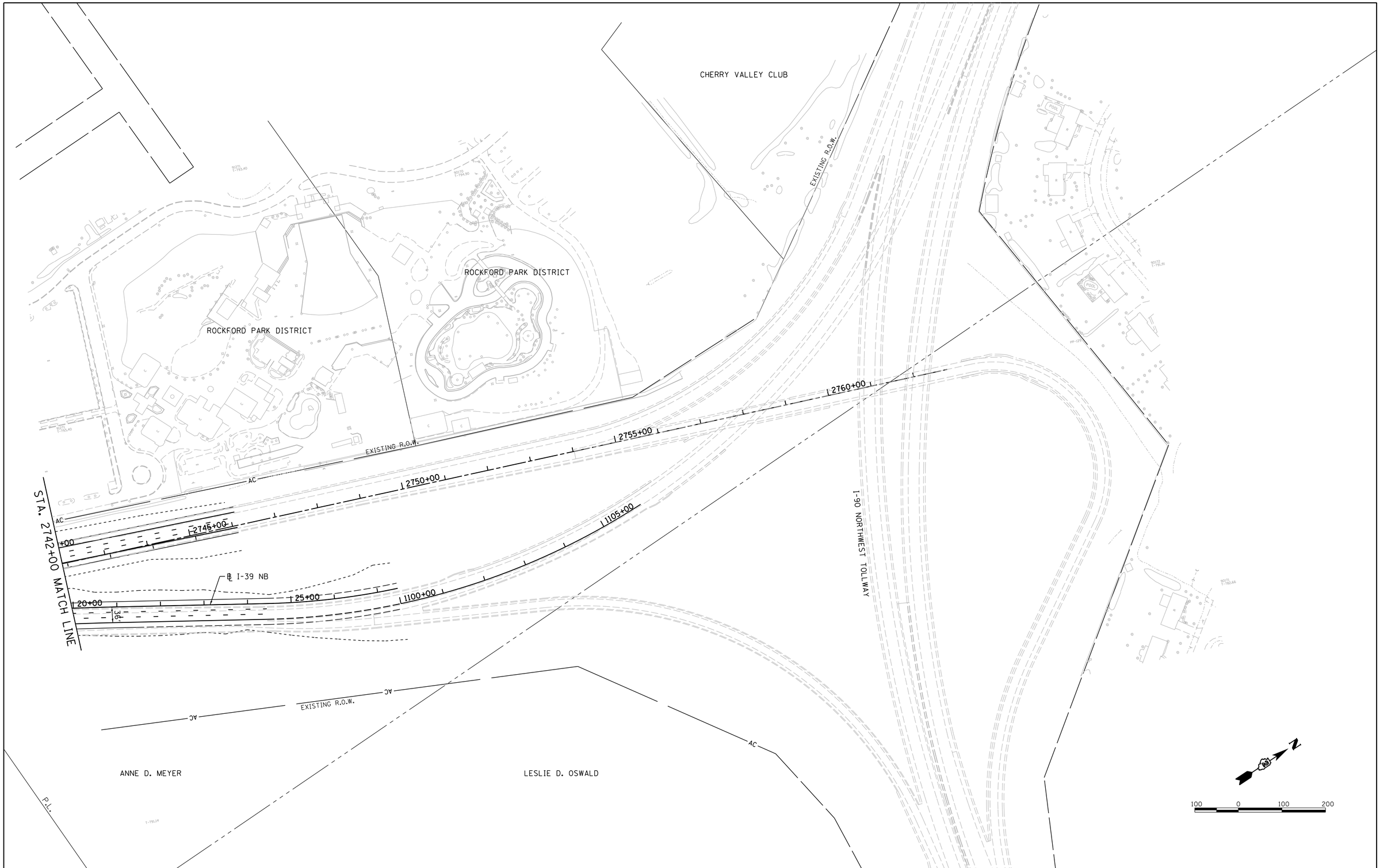

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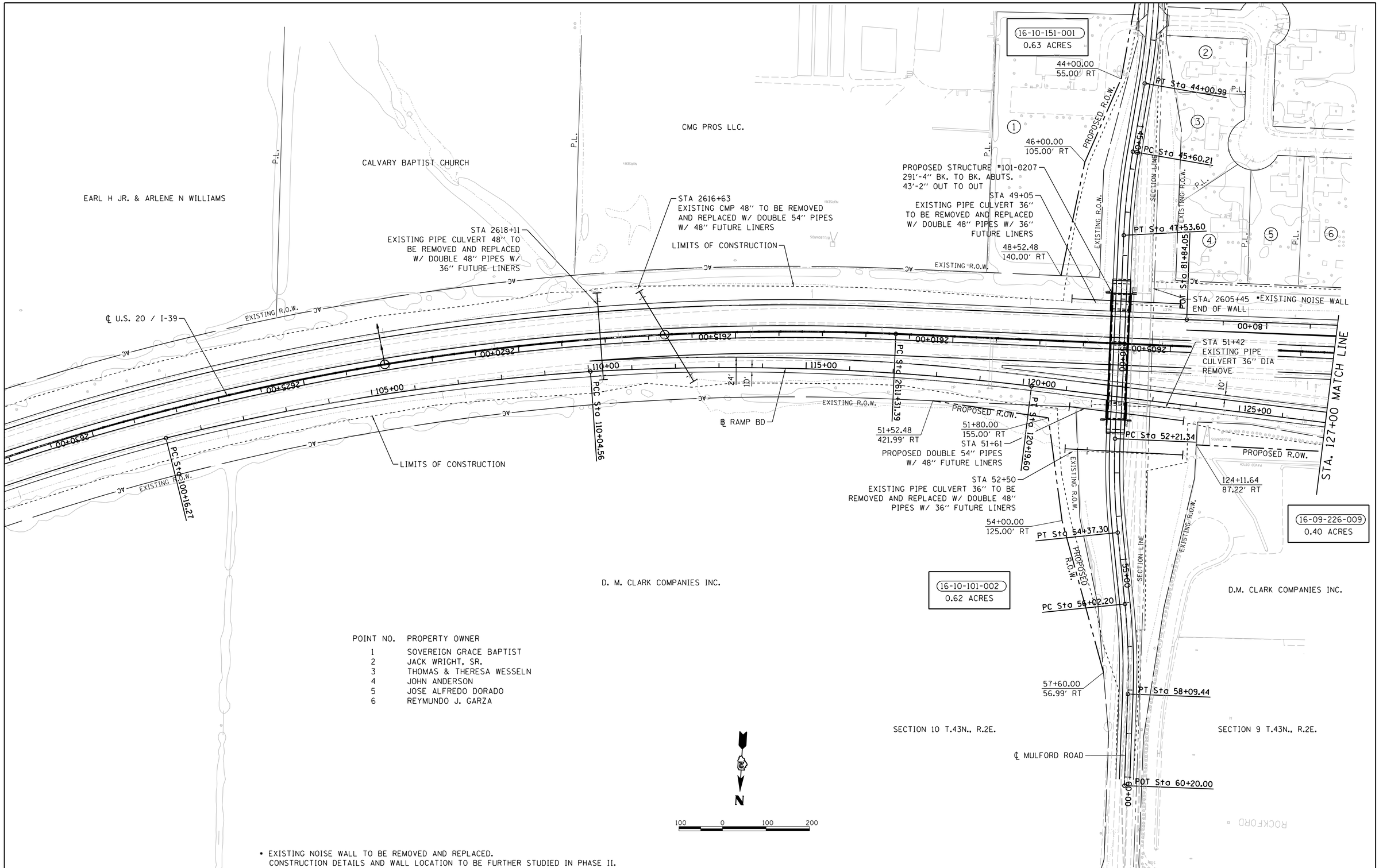
	PLOT SCALE = 100.0000 ' / in.	DRAWN - R.S.J.	REVISED -			39	(201-3)K & (4-1,5)R	WINNEBAGO	xx / 22
Sheet 7	PLOT DATE = 3/30/2017	CHECKED - S.M.	REVISED -			06S2055		CONTRACT NO.	
		DATE -	REVISED -		SCALE: 1"=100' / SHEET NO. 7 OF 7 SHEETS / STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	



POINT NO.	PROPERTY OWNER
1	SOVEREIGN GRACE BAPTIST
2	JACK WRIGHT, SR.
3	THOMAS & THERESA WESSELN
4	JOHN ANDERSON
5	JOSE ALFREDO DORADO
6	REYMUNDO J. GARZA

• EXISTING NOISE WALL TO BE REMOVED AND REPLACED.
CONSTRUCTION DETAILS AND WALL LOCATION TO BE FURTHER STUDIED IN PHASE II.

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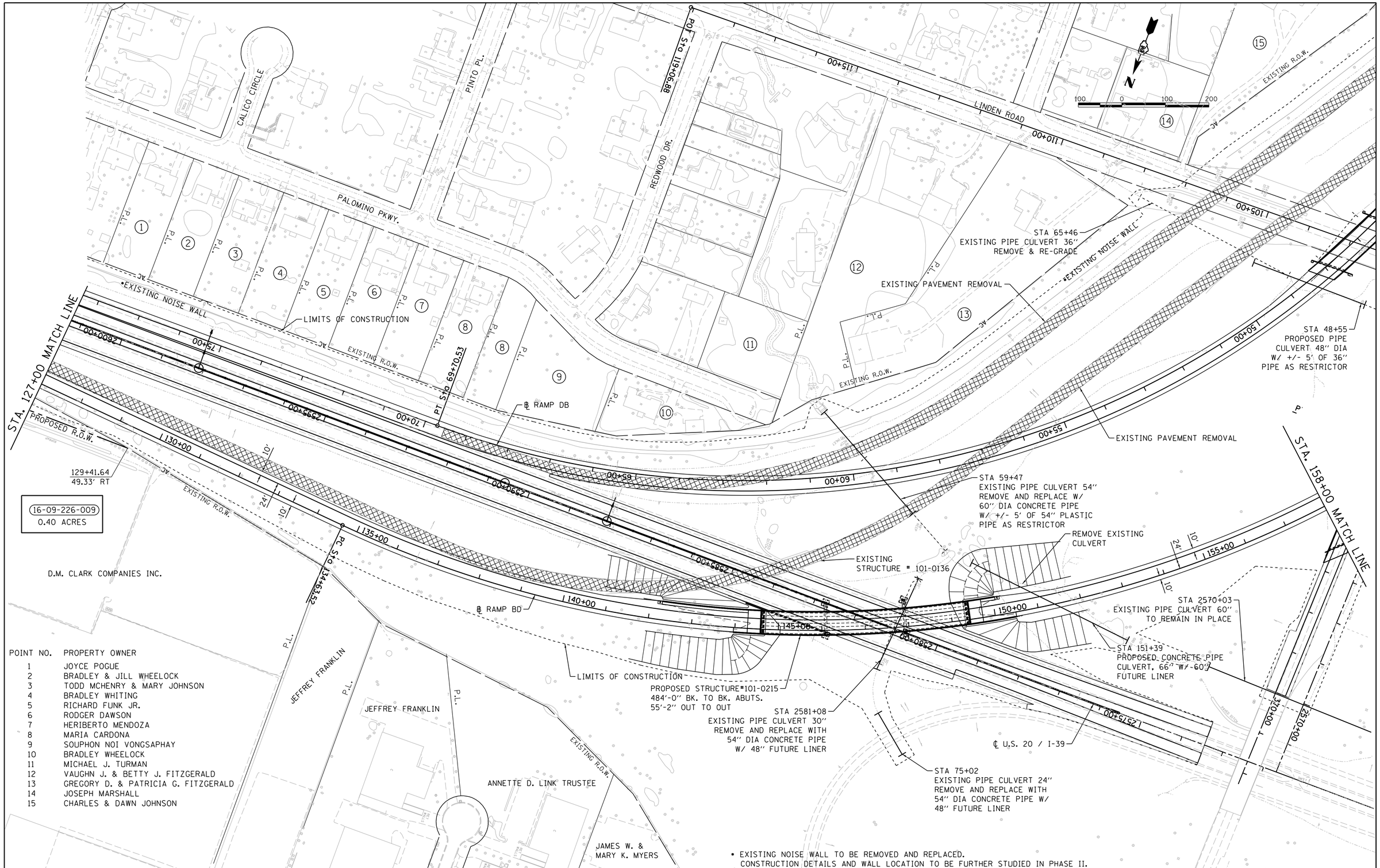
FILE NAME =	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -
I:\06_jobs\06S2055\CADD\Road\Sheet\C-7RampBD-1.dgn		DRAWN - R.S.J.	REVISED -
	PLOT SCALE = 100.0000 ' / in.	CHECKED - S.M.	REVISED -
Untitled Sheet	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP BD PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 4 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	23
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



POINT NO.	PROPERTY OWNER
1	JOYCE POGUE
2	BRADLEY & JILL WHEELOCK
3	TODD MCHENRY & MARY JOHNSON
4	BRADLEY WHITING
5	RICHARD FUNK JR.
6	RODGER DAWSON
7	HERIBERTO MENDOZA
8	MARIA CARDONA
9	SOUPHON NOI VONGSAPHAY
10	BRADLEY WHEELOCK
11	MICHAEL J. TURMAN
12	VAUGHN J. & BETTY J. FITZGERALD
13	GREGORY D. & PATRICIA G. FITZGERALD
14	JOSEPH MARSHALL
15	CHARLES & DAWN JOHNSON

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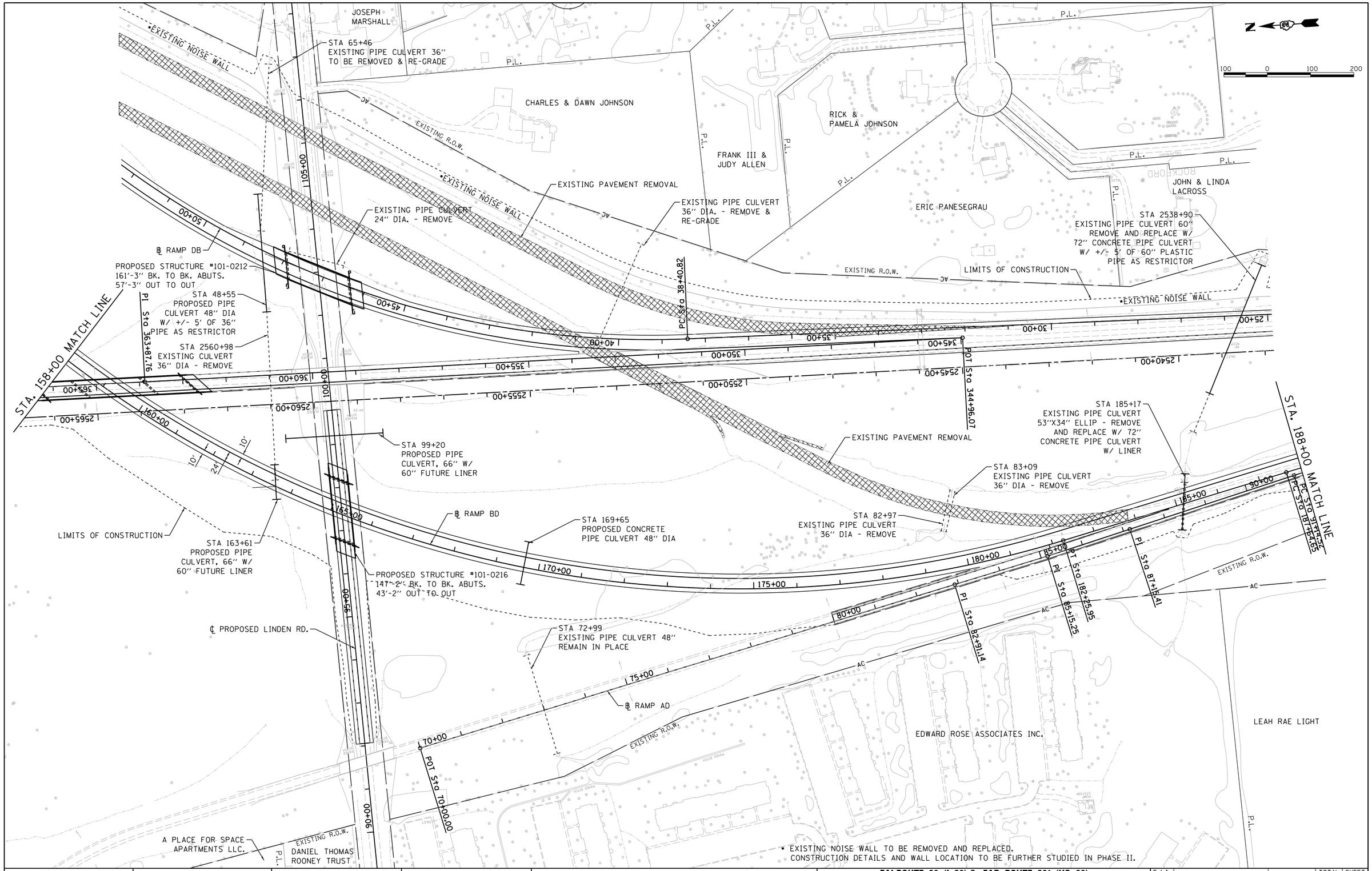
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP BD PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 2 OF 4 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	24
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



• EXISTING NOISE WALL TO BE REMOVED AND REPLACED.
CONSTRUCTION DETAILS AND WALL LOCATION TO BE FURTHER STUDIED IN PHASE II.

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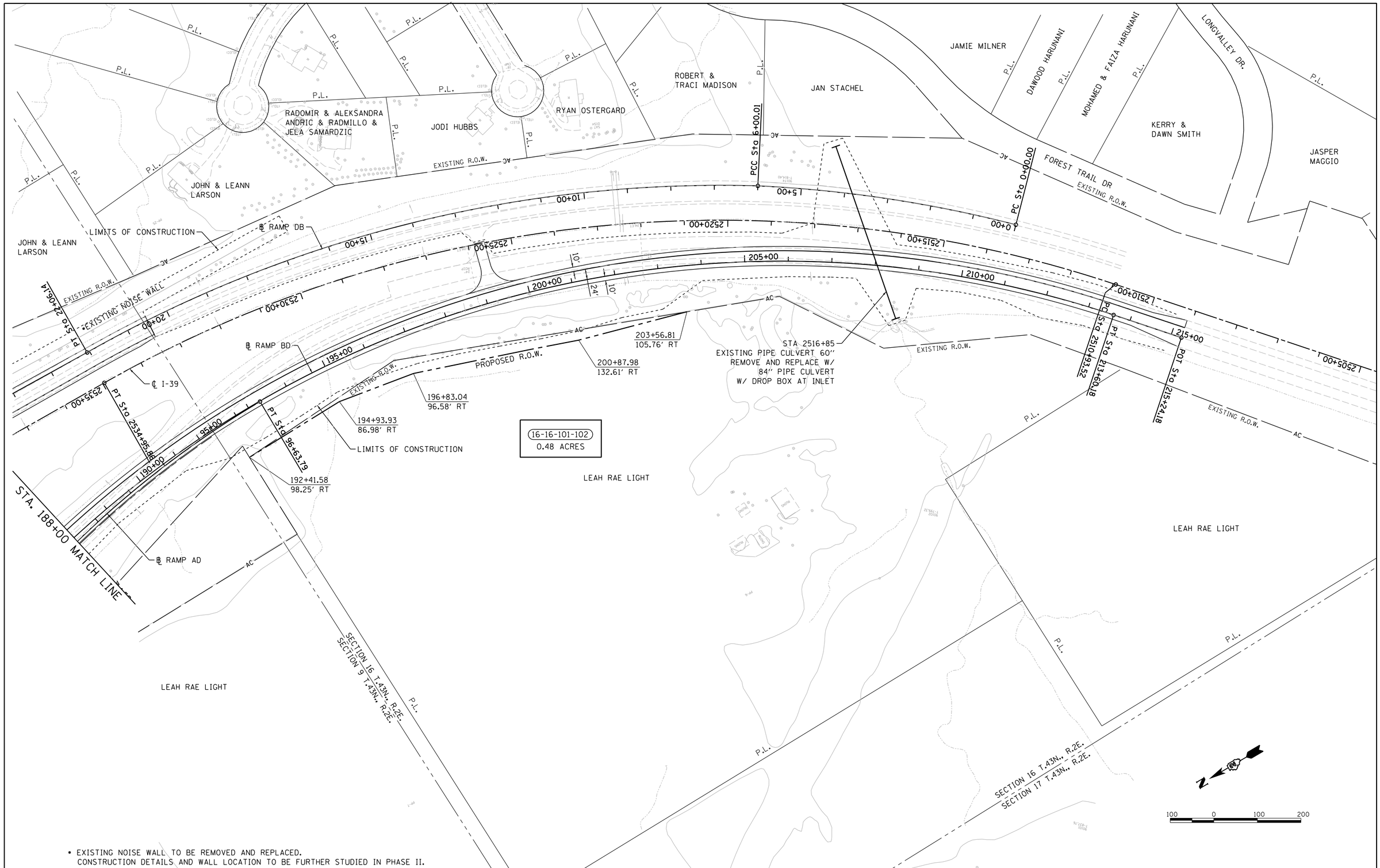
Untitled Sheet	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP BD PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 3 OF 4 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1.5)R	WINNEBAGO	xx	25
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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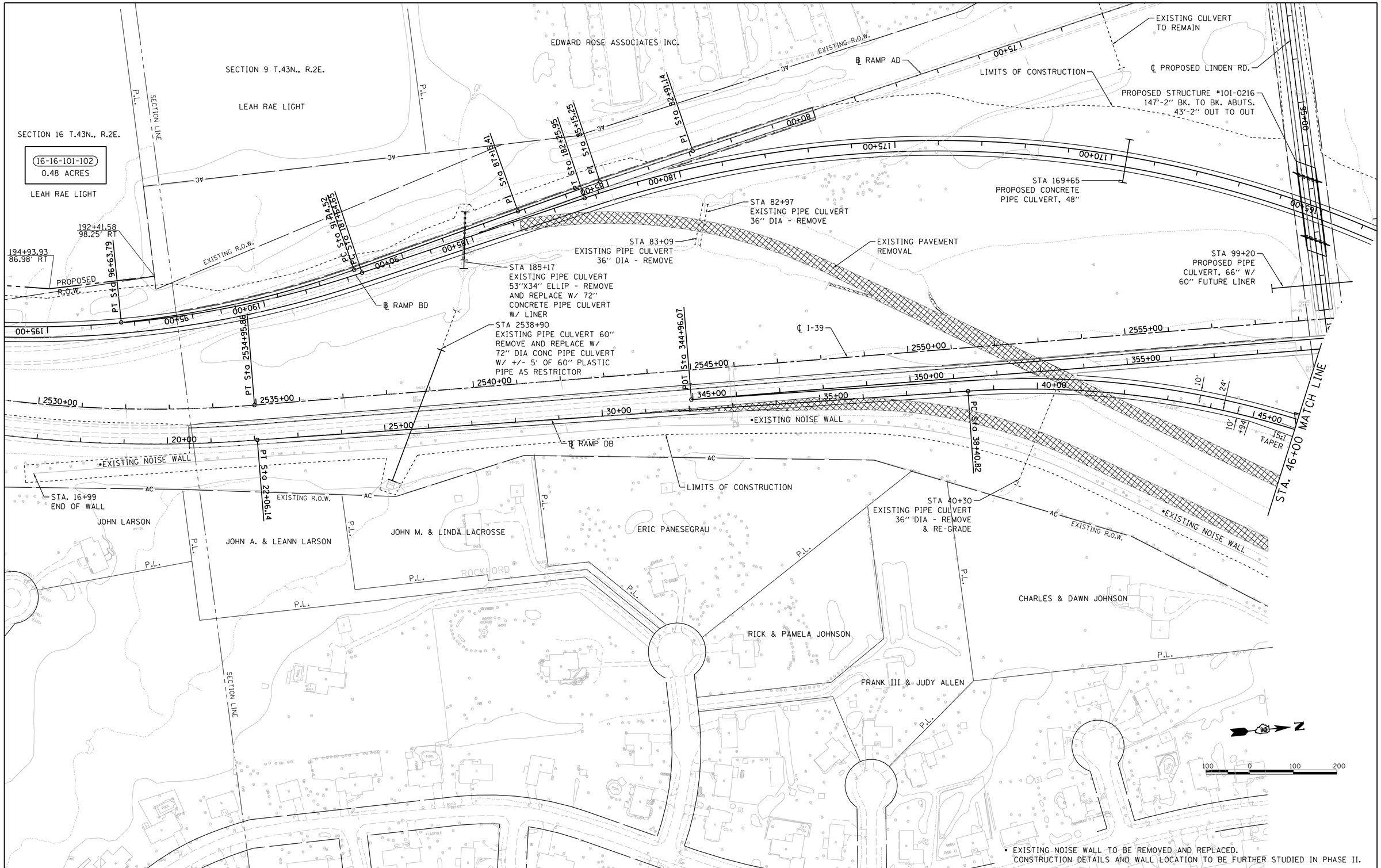
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP BD PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 4 OF 4 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	26
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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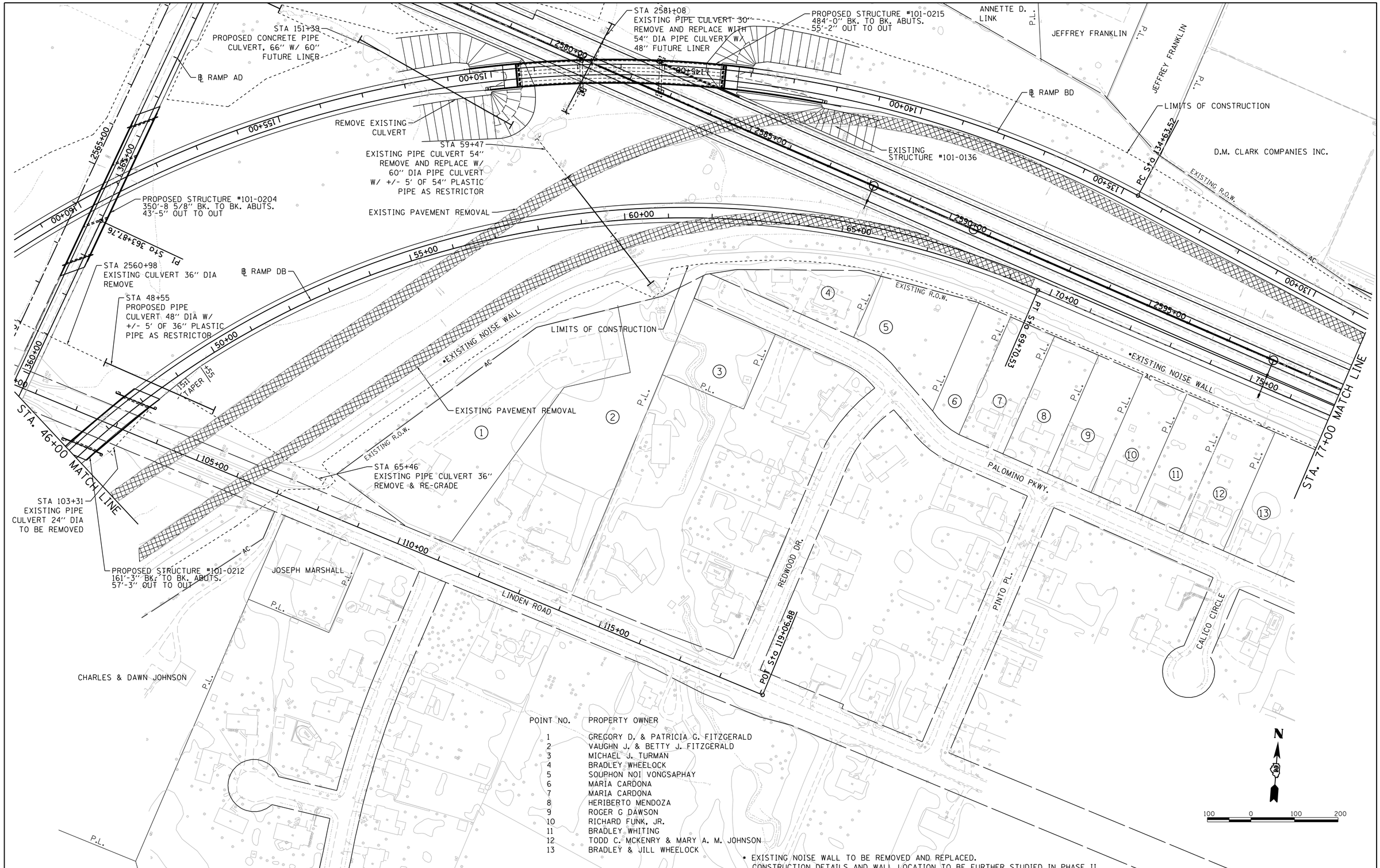
Untitled Sheet	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP DB PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 3 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	27
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



POINT NO.	PROPERTY OWNER
1	GREGORY D. & PATRICIA G. FITZGERALD
2	VAUGHN J. & BETTY J. FITZGERALD
3	MICHAEL J. TURMAN
4	BRADLEY WHEELOCK
5	SOUPHON NOI VONGSAPHAY
6	MARIA CARDONA
7	MARIA CARDONA
8	HERIBERTO MENDOZA
9	ROGER G DAWSON
10	RICHARD FUNK, JR.
11	BRADLEY WHITING
12	TODD C. MCKENRY & MARY A. M. JOHNSON
13	BRADLEY & JILL WHEELOCK

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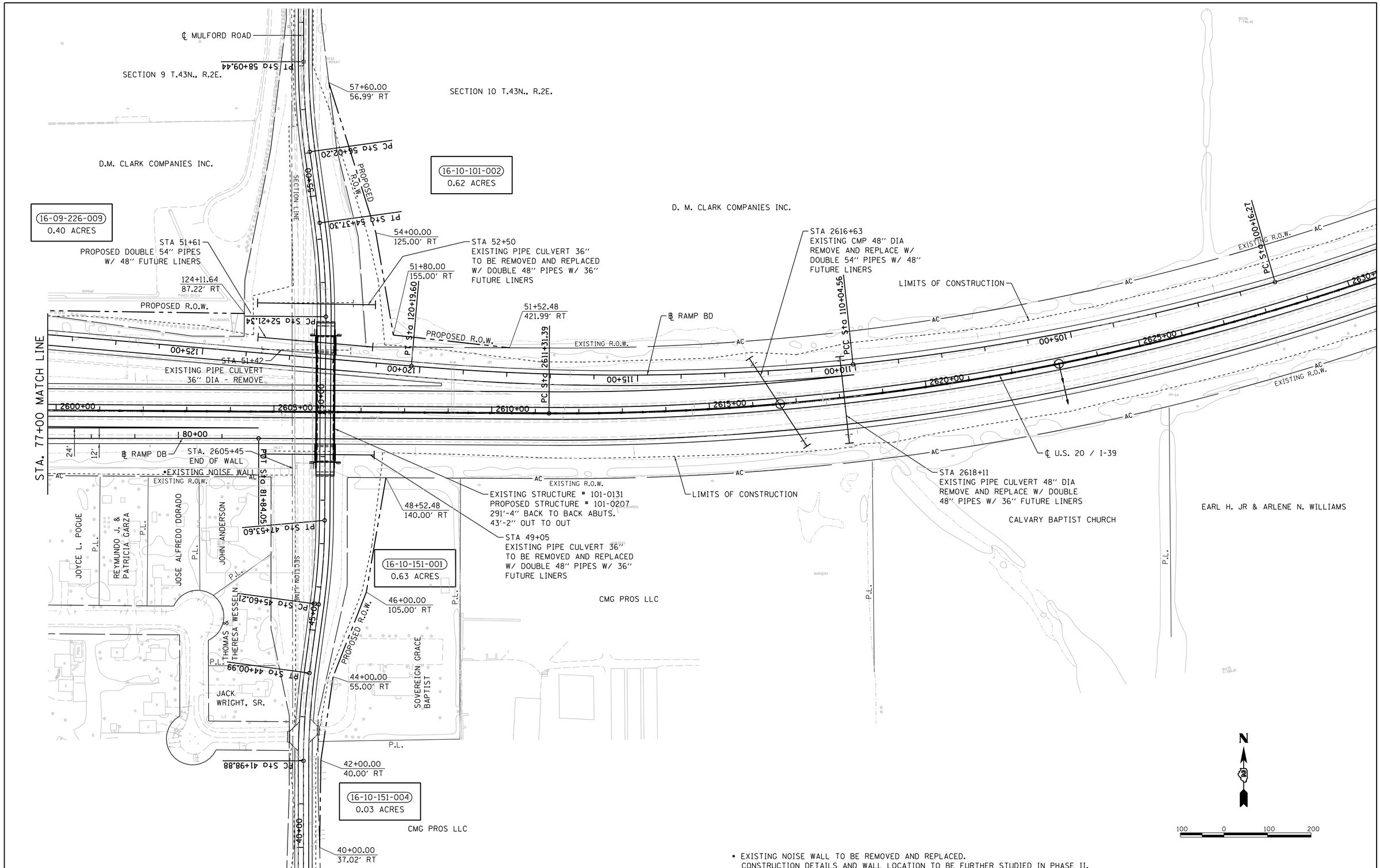
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP DB PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 2 OF 3 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	28
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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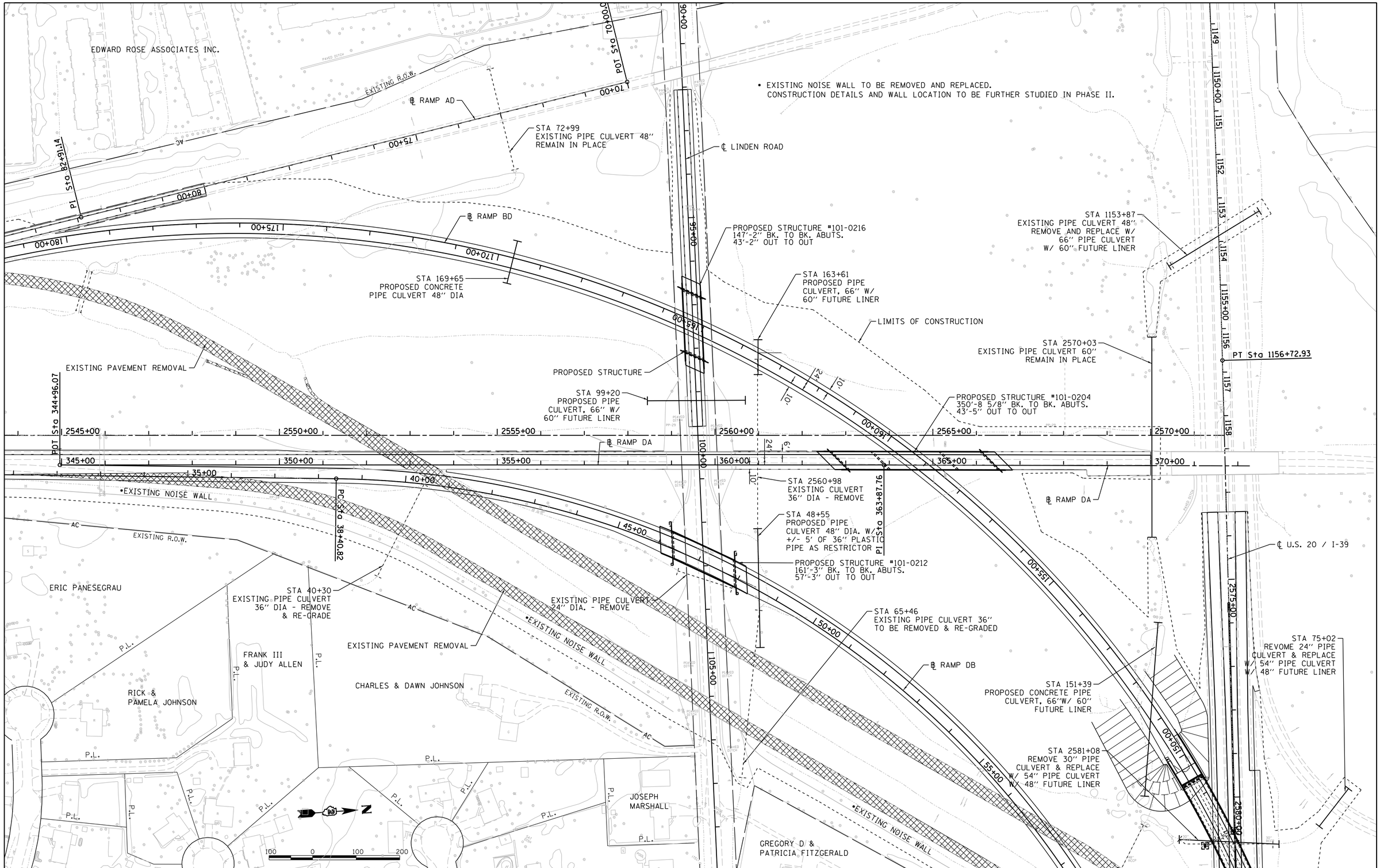
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP DB PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 3 OF 3 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	29
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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Untitled Sheet		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP DA PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	30
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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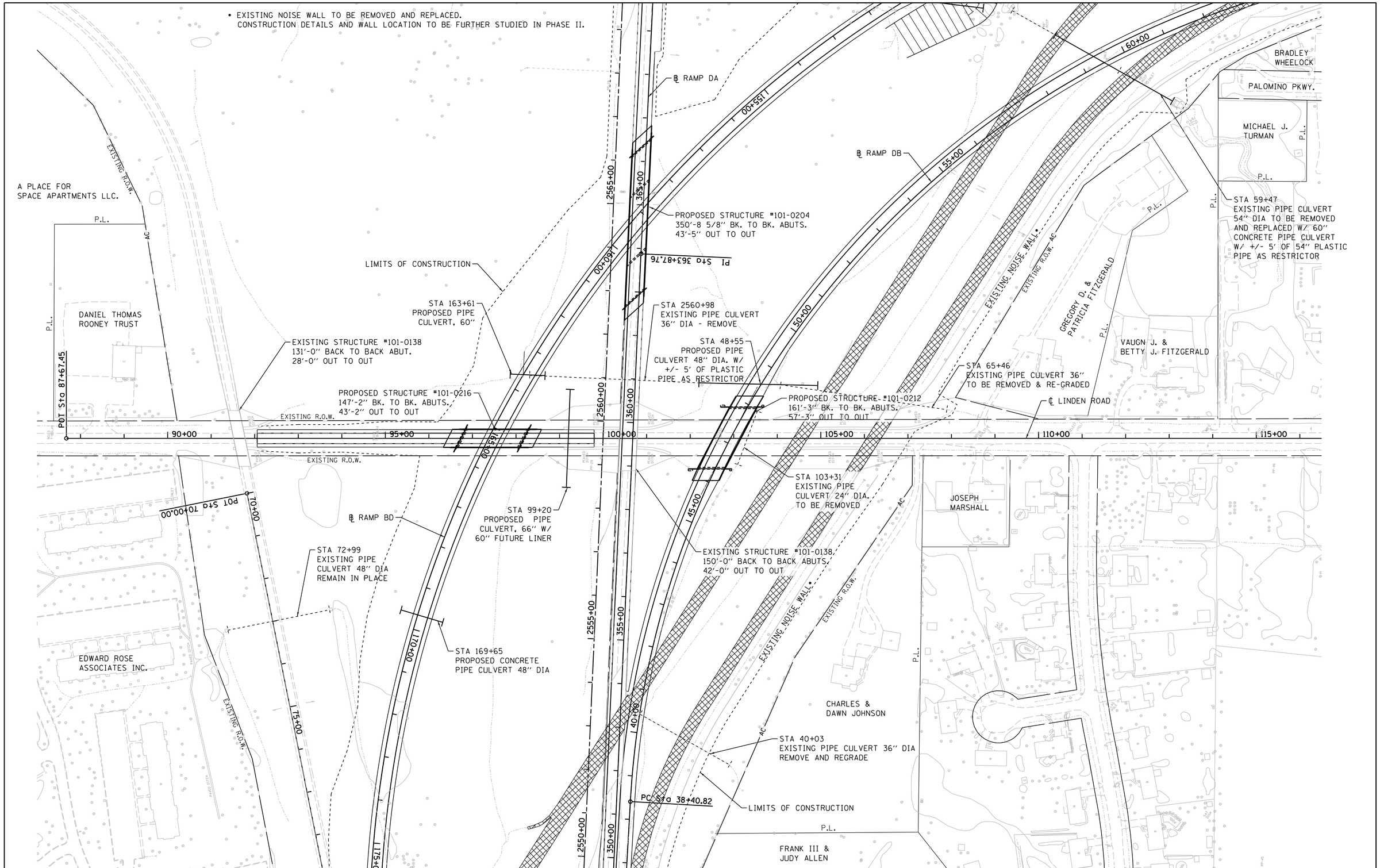

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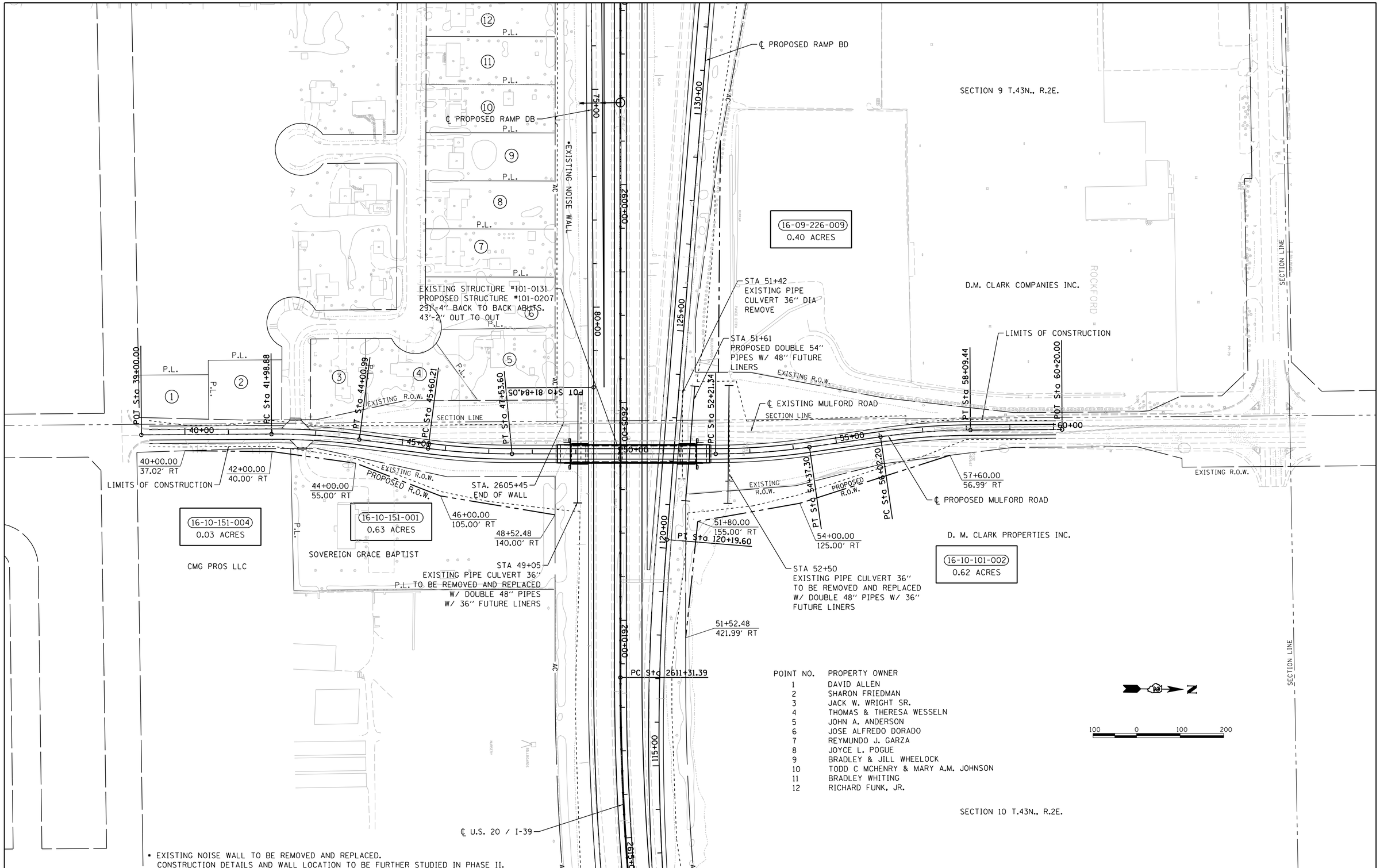
Untitled Sheet	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
LINDEN ROAD PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	31
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



POINT NO.	PROPERTY OWNER
1	DAVID ALLEN
2	SHARON FRIEDMAN
3	JACK W. WRIGHT SR.
4	THOMAS & THERESA WESSELN
5	JOHN A. ANDERSON
6	JOSE ALFREDO DORADO
7	REYMUNDO J. GARZA
8	JOYCE L. POGUE
9	BRADLEY & JILL WHEELOCK
10	TODD C MCHENRY & MARY A.M. JOHNSON
11	BRADLEY WHITING
12	RICHARD FUNK, JR.

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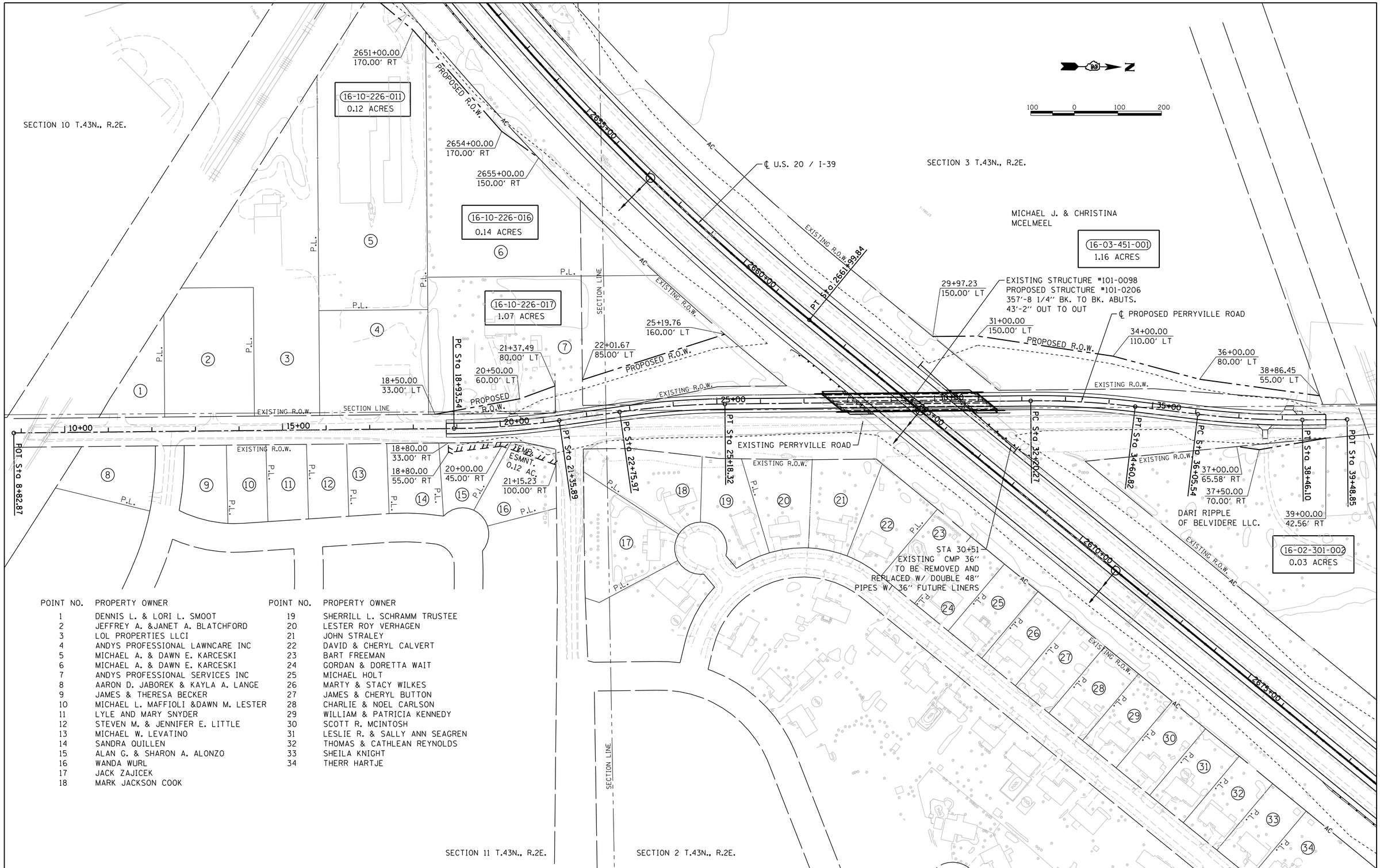
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
MULFORD ROAD PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	32
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



POINT NO.	PROPERTY OWNER	POINT NO.	PROPERTY OWNER
1	DENNIS L. & LORI L. SMOOT	19	SHERRILL L. SCHRAMM TRUSTEE
2	JEFFREY A. &JANET A. BLATCHFORD	20	LESTER ROY VERHAGEN
3	LOL PROPERTIES LLCI	21	JOHN STRALEY
4	ANDYS PROFESSIONAL LAWNCARE INC	22	DAVID & CHERYL CALVERT
5	MICHAEL A. & DAWN E. KARCESKI	23	BART FREEMAN
6	MICHAEL A. & DAWN E. KARCESKI	24	GORDAN & DORETTA WAIT
7	ANDYS PROFESSIONAL SERVICES INC	25	MICHAEL HOLT
8	AARON D. JABOREK & KAYLA A. LANGE	26	MARTY & STACY WILKES
9	JAMES & THERESA BECKER	27	JAMES & CHERYL BUTTON
10	MICHAEL L. MAFFIOLI &DAWN M. LESTER	28	CHARLIE & NOEL CARLSON
11	LYLE AND MARY SNYDER	29	WILLIAM & PATRICIA KENNEDY
12	STEVEN M. & JENNIFER E. LITTLE	30	SCOTT R. MCINTOSH
13	MICHAEL W. LEVATINO	31	LESLIE R. & SALLY ANN SEAGREN
14	SANDRA QUILLEN	32	THOMAS & CATHLEAN REYNOLDS
15	ALAN G. & SHARON A. ALONZO	33	SHEILA KNIGHT
16	WANDA WURL	34	THERR HARTJE
17	JACK ZAJICEK		
18	MARK JACKSON COOK		

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
PERRYVILLE ROAD PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 1 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	33
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
HARRISON AVE PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 3 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	34
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

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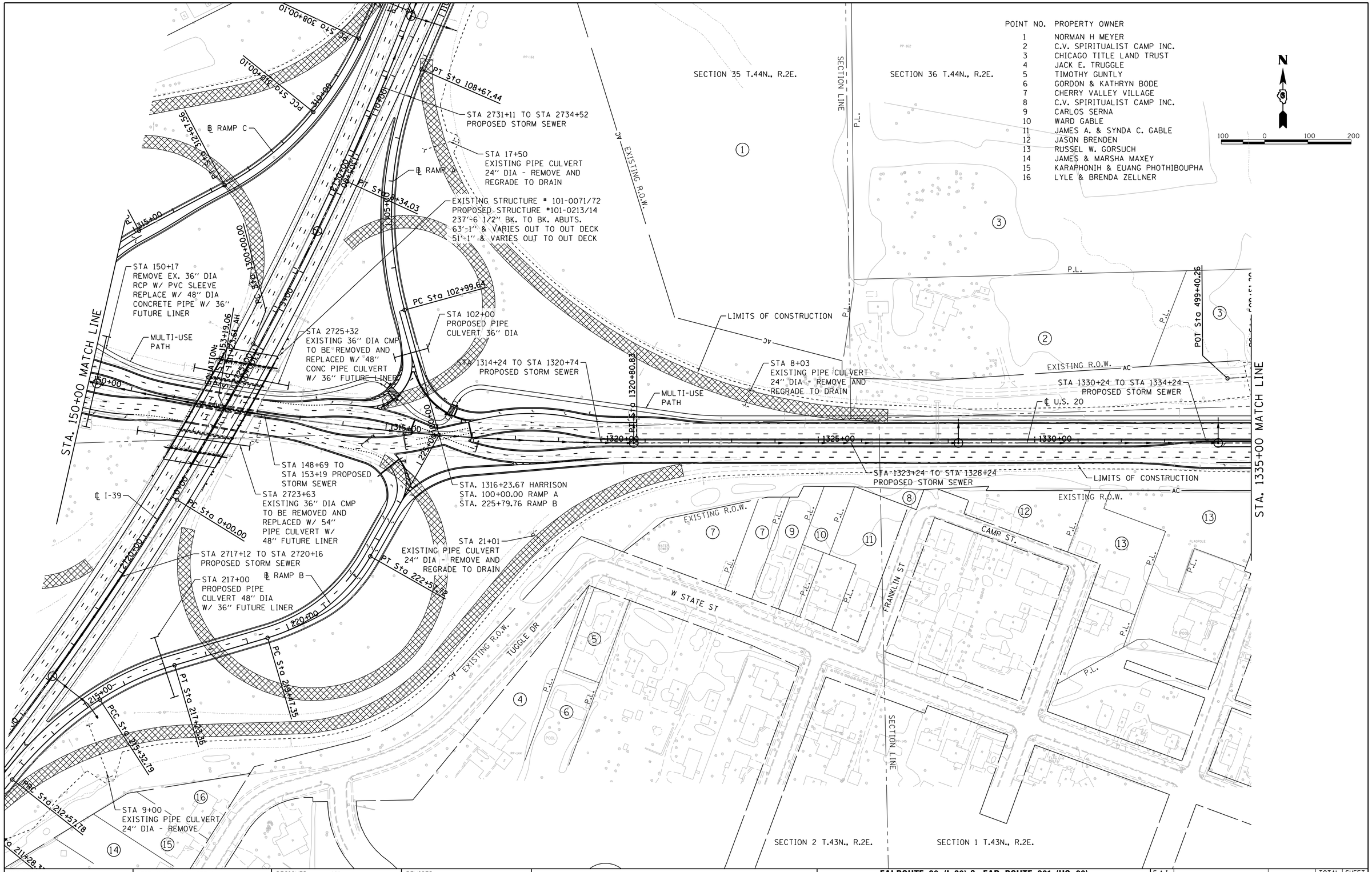

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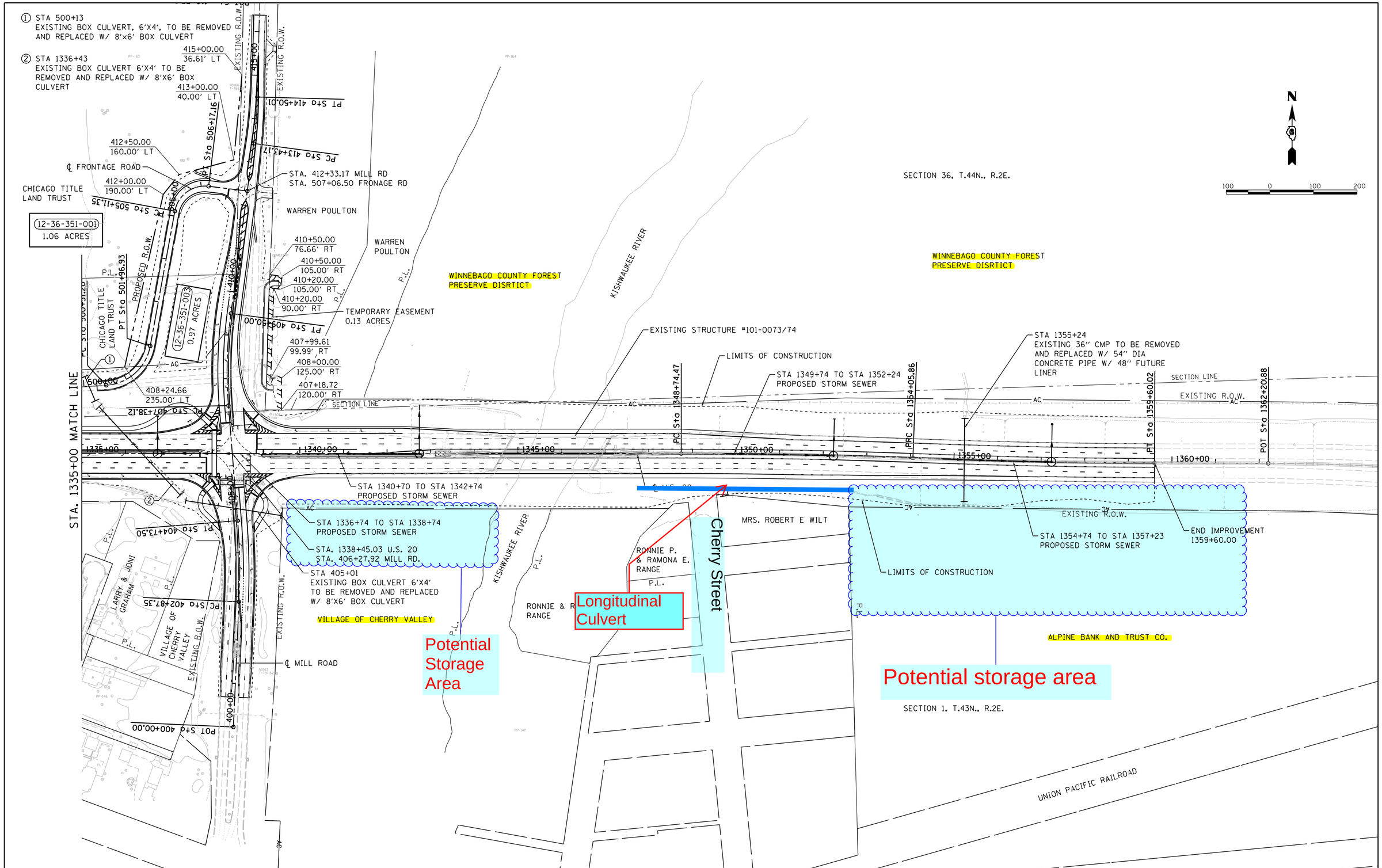
Untitled Sheet	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
HARRISON AVE PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 2 OF 3 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	35
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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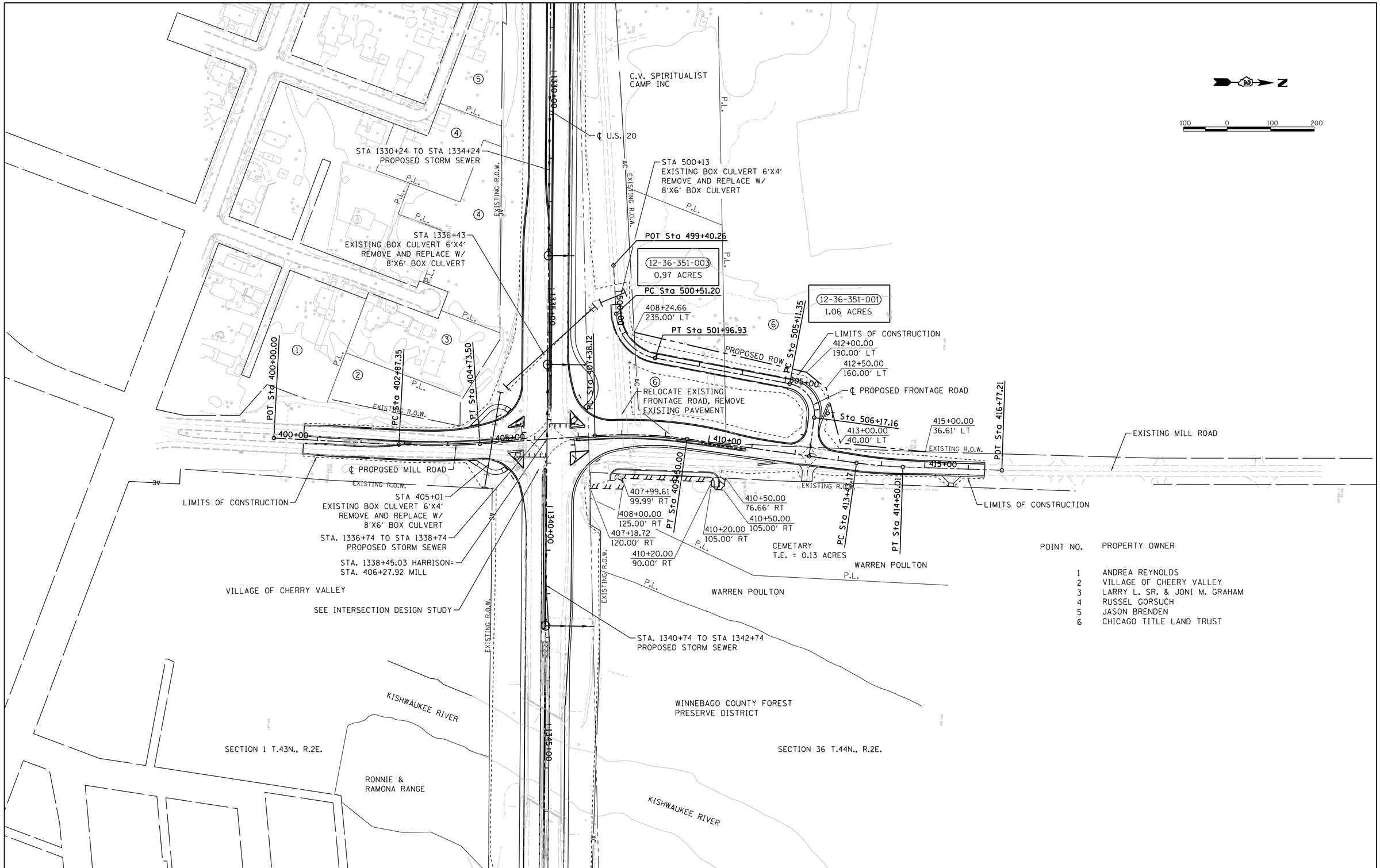
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
HARRISON AVE PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 3 OF 3 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	36
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



POINT NO.	PROPERTY OWNER
1	ANDREA REYNOLDS
2	VILLAGE OF CHEERY VALLEY
3	LARRY L. SR. & JONI M. GRAHAM
4	RUSSEL GORSUCH
5	JASON BRENDEN
6	CHICAGO TITLE LAND TRUST

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Untitled Sheet	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
MILL ROAD PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	37
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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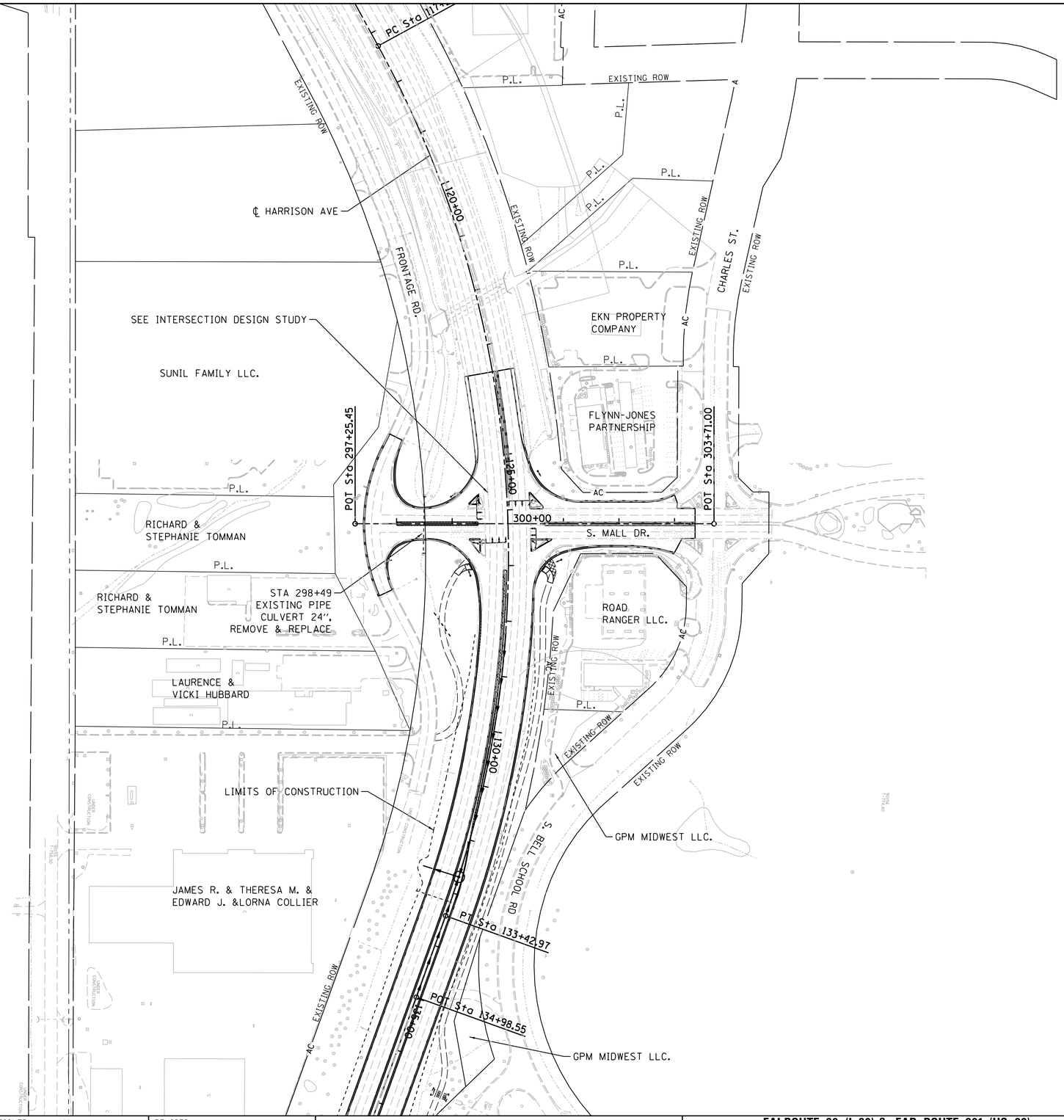

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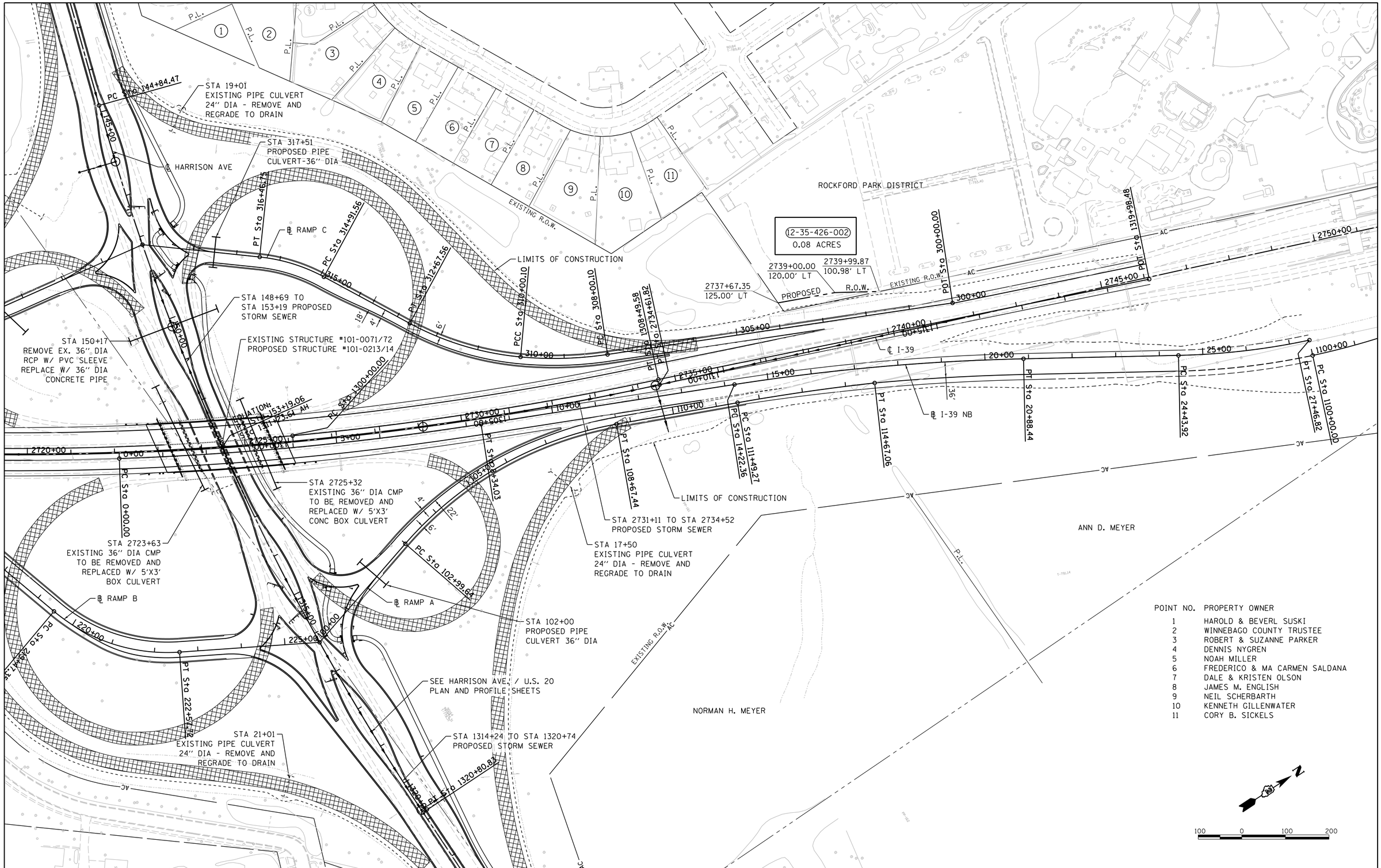
Untitled Sheet	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
SOUTH MALL ROAD PLAN SHEET
JOB NO. P–92–111–06

SCALE: 1"=100' | SHEET NO. 1 OF 1 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	38
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



POINT NO.	PROPERTY OWNER
1	HAROLD & BEVERL SUSKI
2	WINNEBAGO COUNTY TRUSTEE
3	ROBERT & SUZANNE PARKER
4	DENNIS NYGREN
5	NOAH MILLER
6	FREDERICO & MA CARMEN SALDANA
7	DALE & KRISTEN OLSON
8	JAMES M. ENGLISH
9	NEIL SCHERBARTH
10	KENNETH GILLENWATER
11	CORY B. SICKELS

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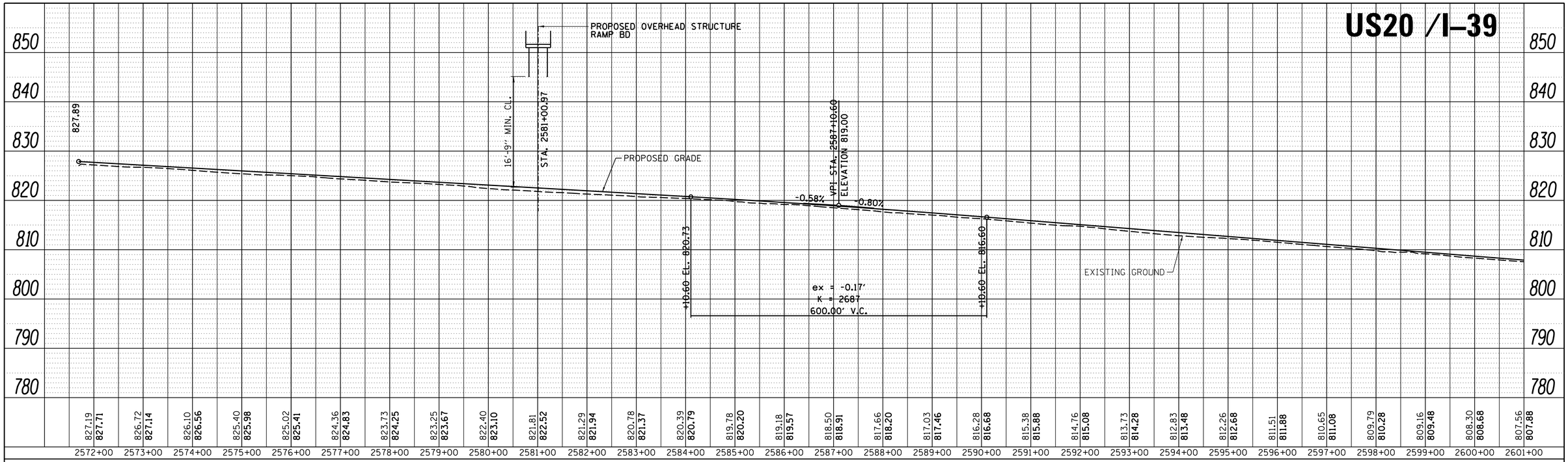
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
I-39 NB PLAN SHEET
JOB NO. P-92-111-06

SCALE: 1"=100' | SHEET NO. 1 OF 1 SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	39
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PROPOSED PROFILE SHEETS



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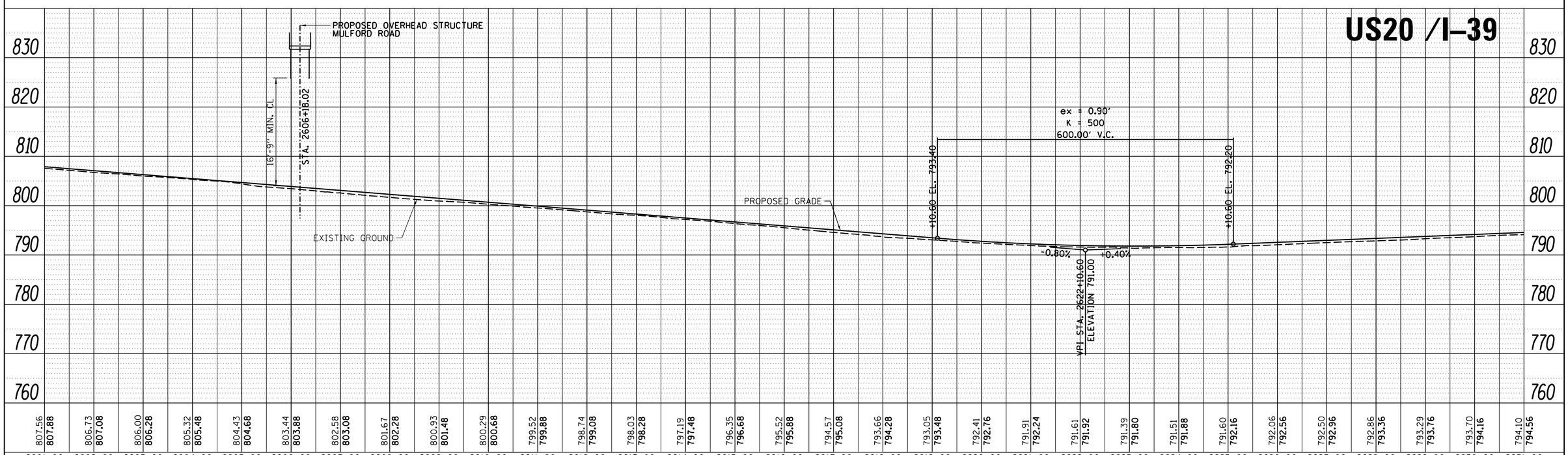

PROFILE	BY	DATE
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BLM. NOTED		
STRUCTURE NOTATNS CHKD		
NOTE BOOK NO.		

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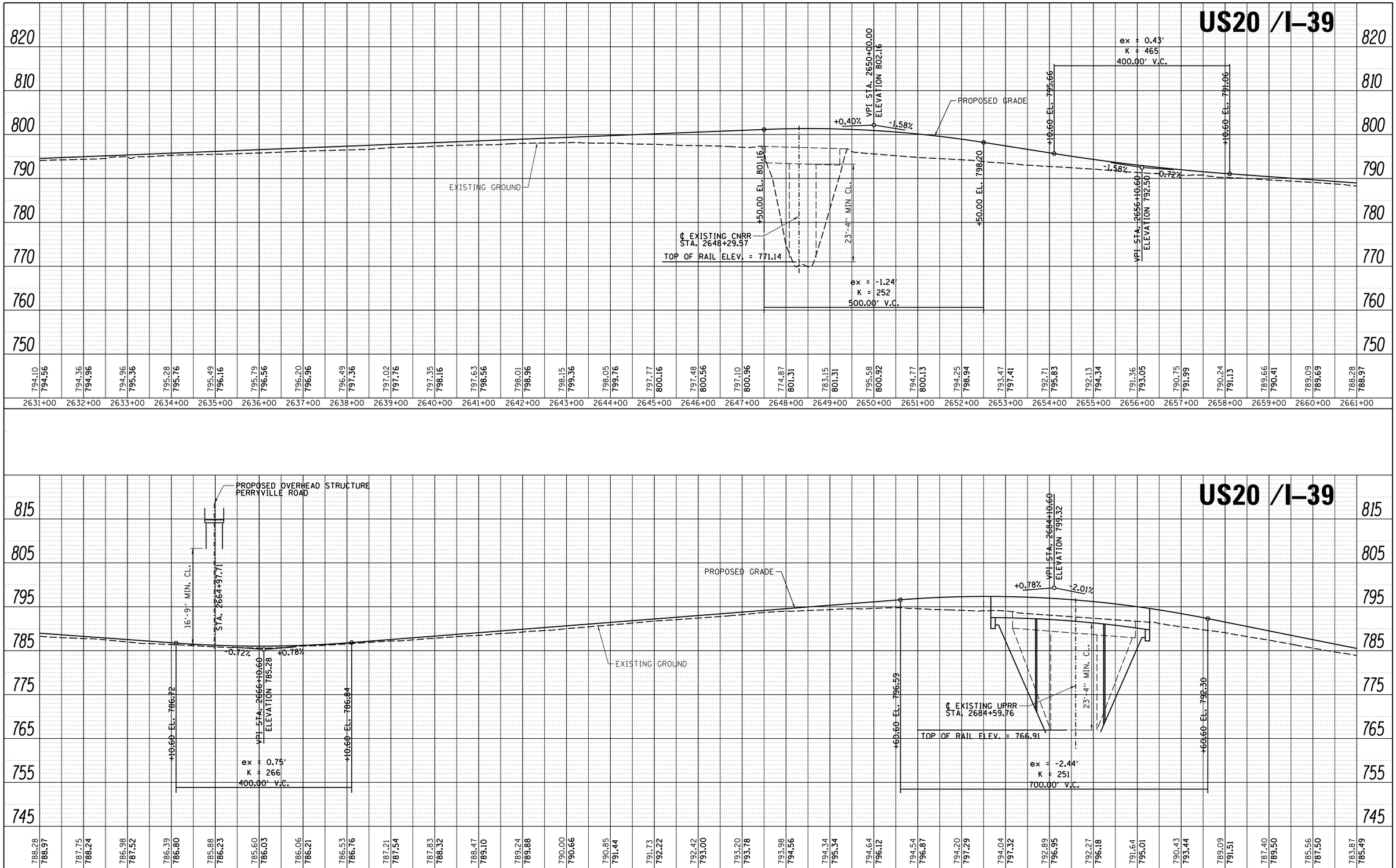
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
U.S. 20 PROFILE SHEET
JOB NO. P–92–111–06

SCALE: | SHEET NO. 1 OF 4 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	40
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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GRADES CHECKED		
B.M. NOTED		
STRUCTURE NOTATNS CHKD		
NOTE BOOK NO.		

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
U.S. 20 PROFILE SHEET
JOB NO. P–92–111–06

SCALE: | SHEET NO. 2 OF 4 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	41
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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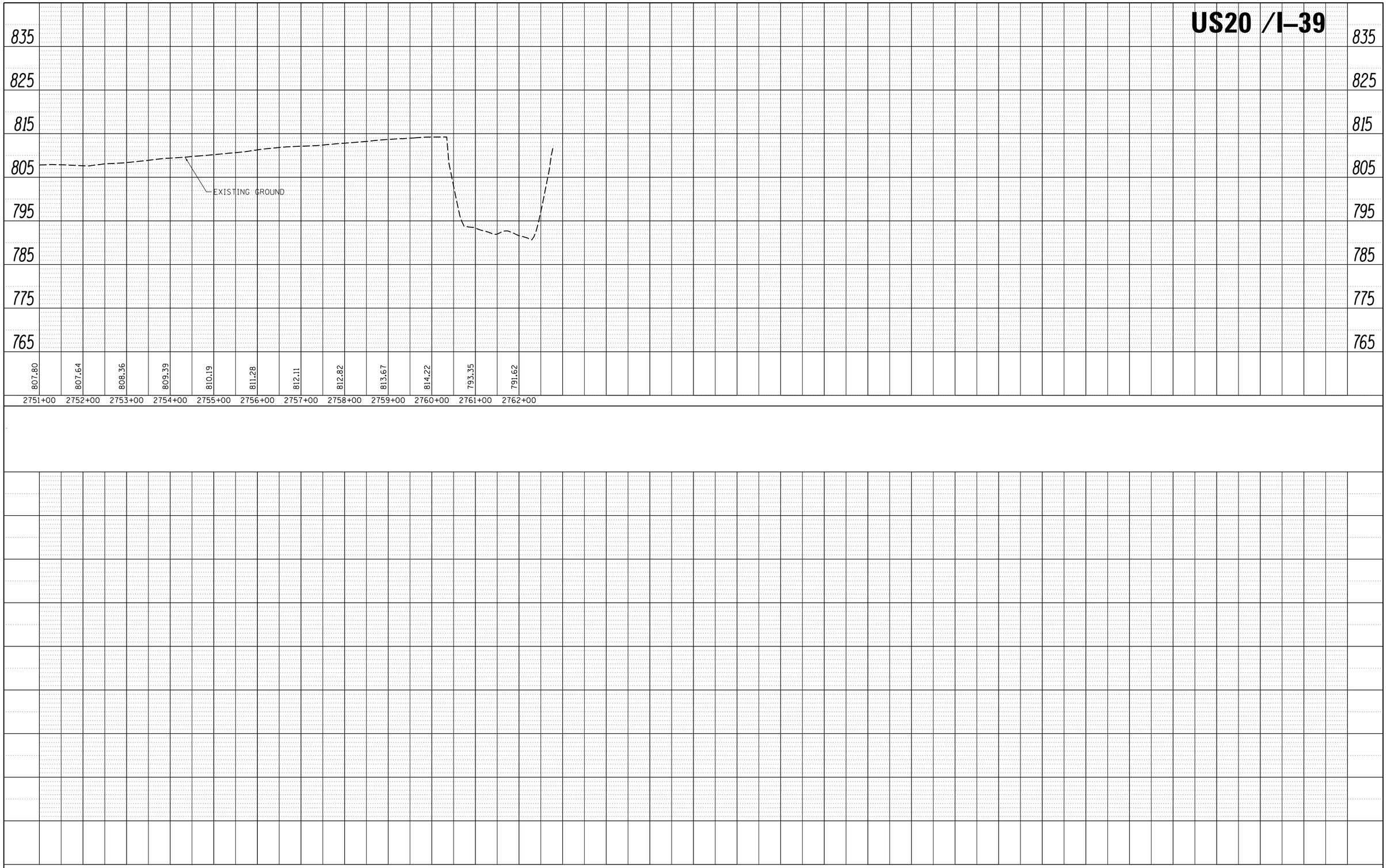
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
U.S. 20 PROFILE SHEET
JOB NO. P-92-111-06

SCALE: | SHEET NO. 3 OF 4 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	42
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

US20 /I–39



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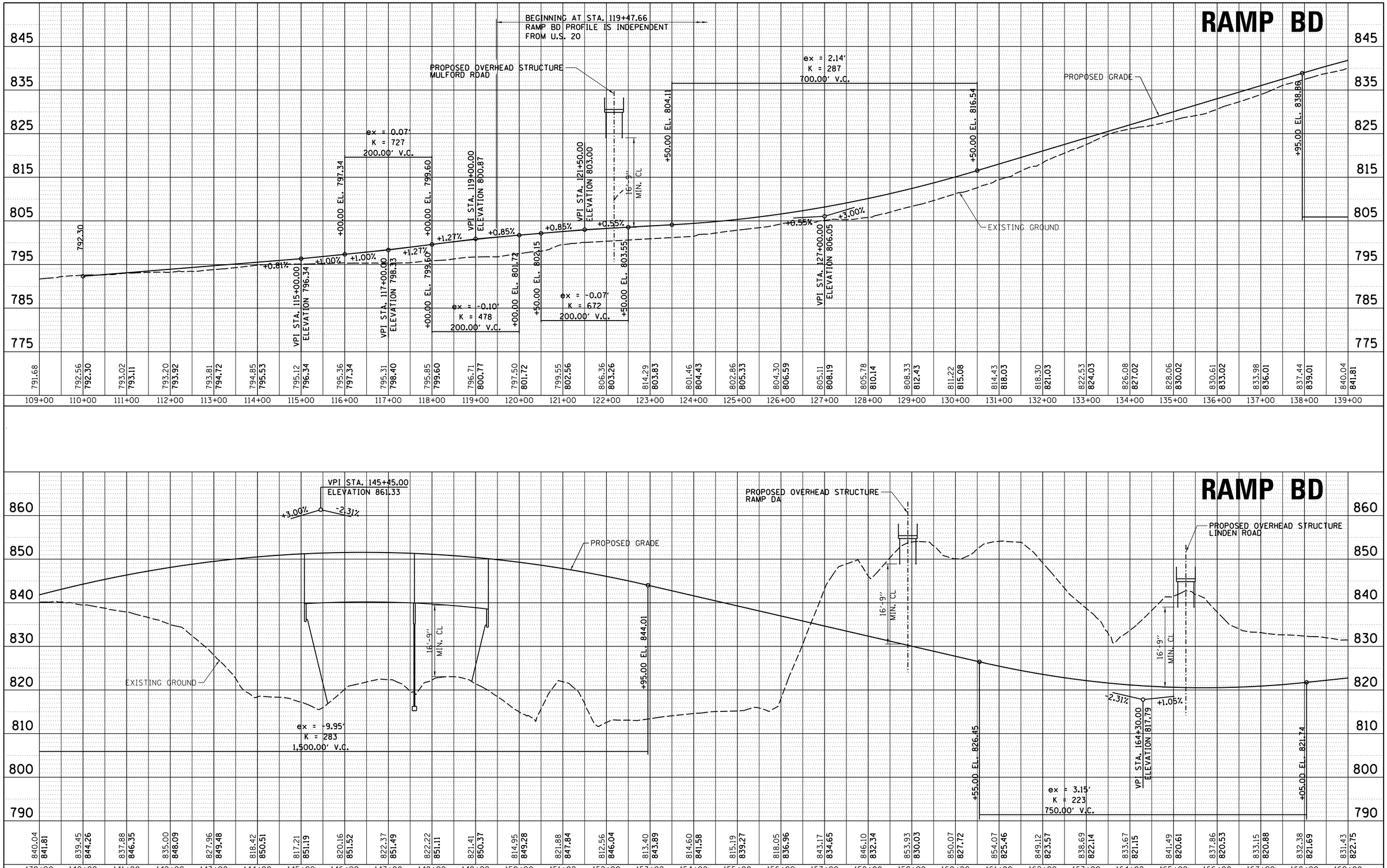
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
U.S. 20 PROFILE SHEET
JOB NO. P–92–111–06

SCALE: | SHEET NO. 4 OF 4 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	43
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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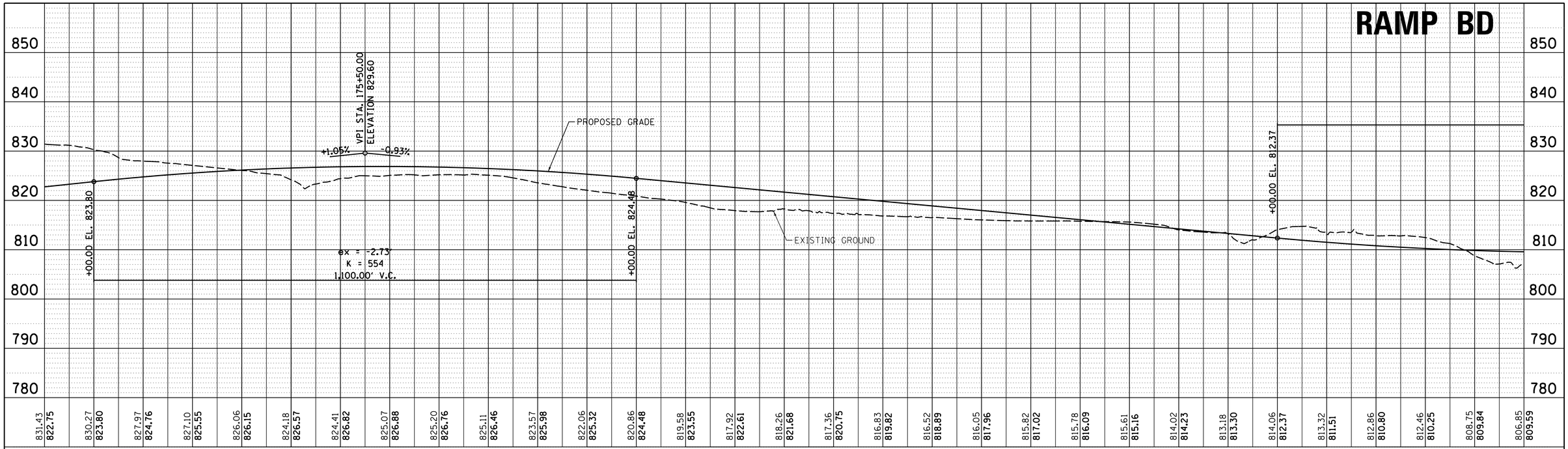
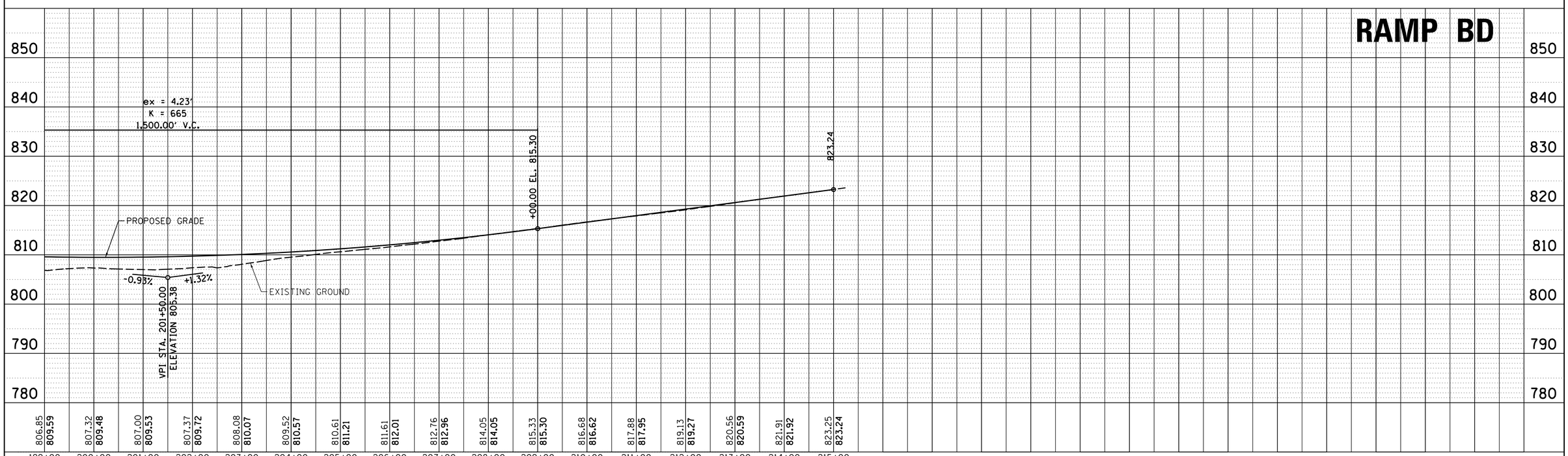
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP BD PROFILE SHEET
JOB NO. P-92-111-06

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	44
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		





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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP BD PROFILE SHEET
JOB NO. P-92-111-06

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	45
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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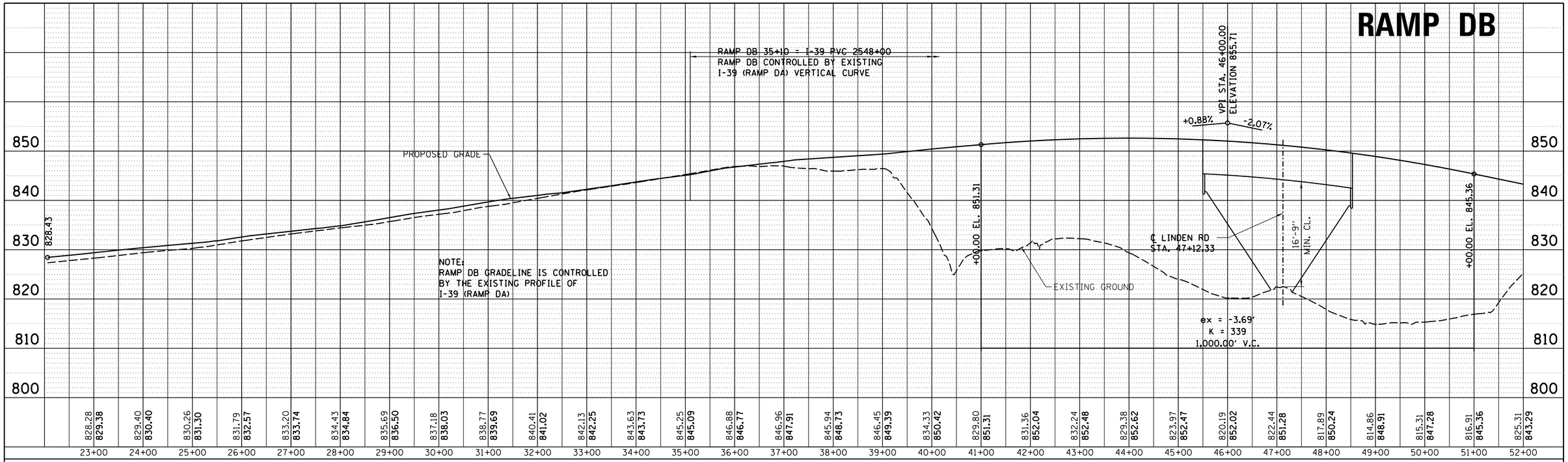

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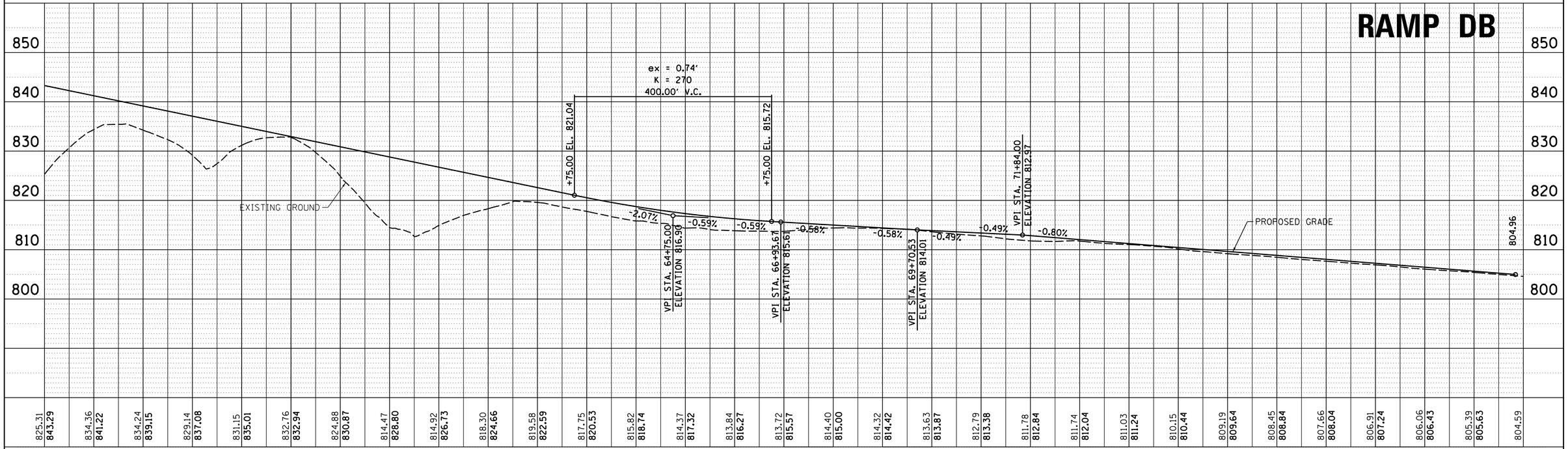

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NOTE BOOK NO.		

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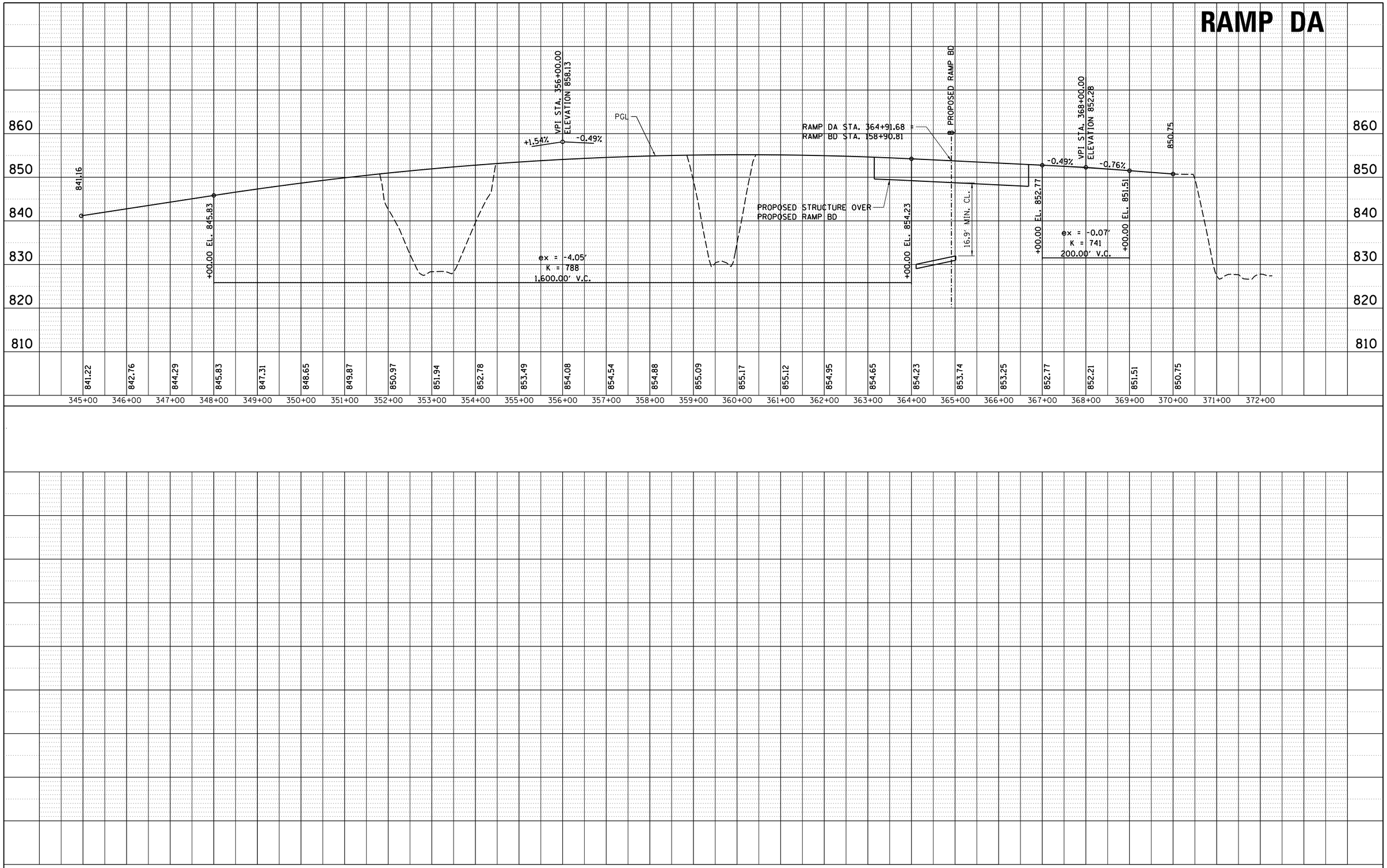
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
RAMP DB PROFILE SHEET
JOB NO. P-92-111-06

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	46
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

RAMP DA



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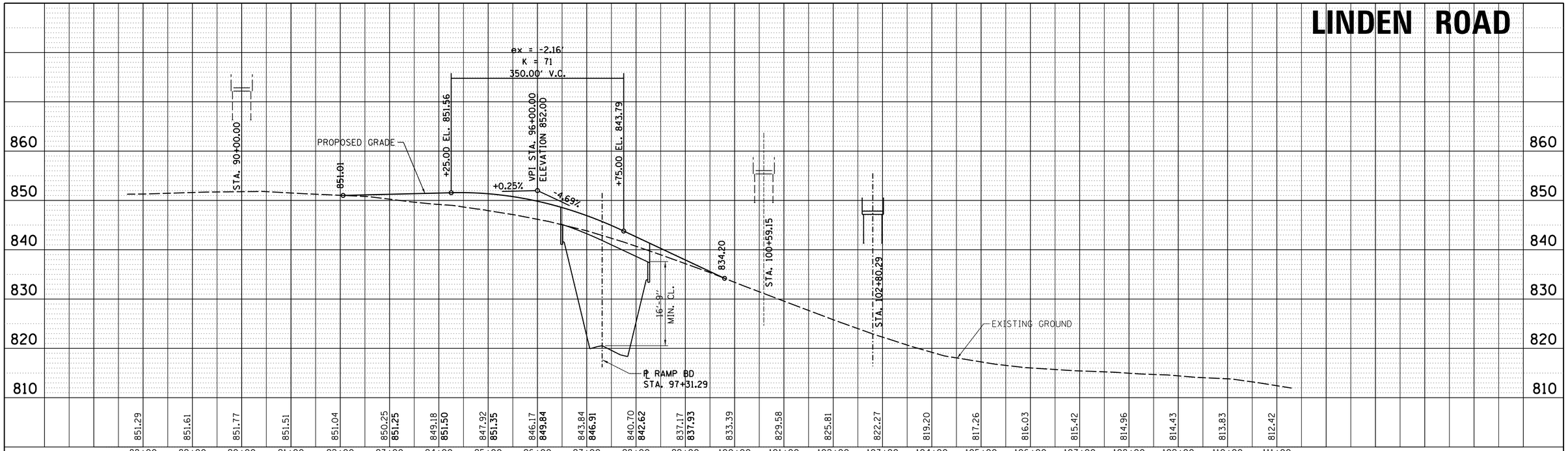
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
RAMP DA PROFILE SHEET
JOB NO. P–92–111–06

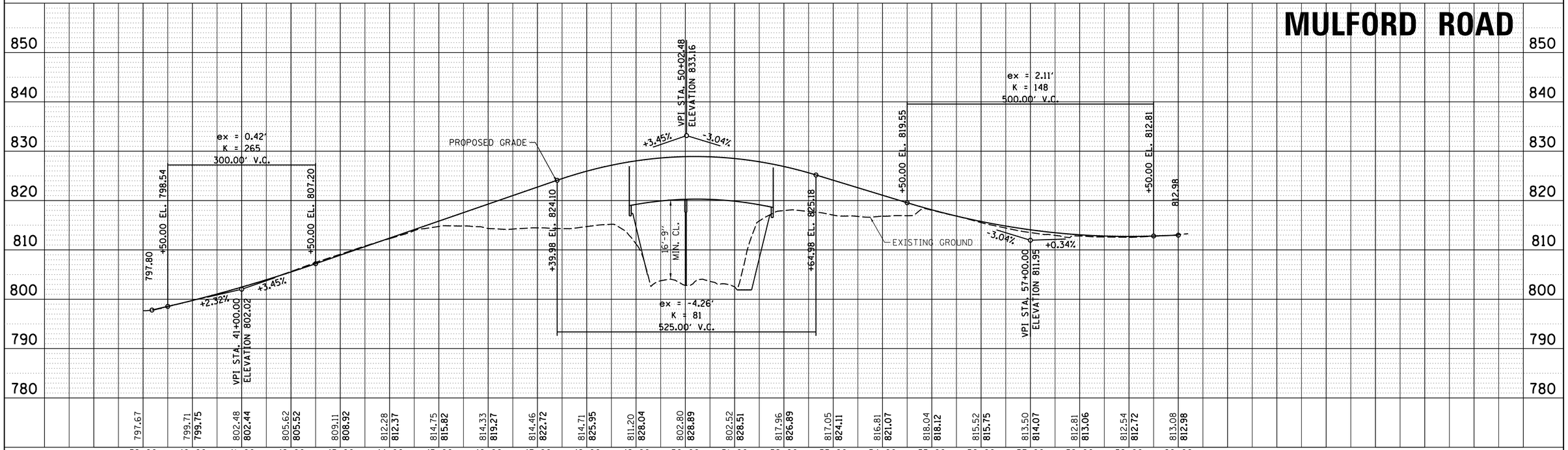
SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	47
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LINDEN ROAD



MULFORD ROAD



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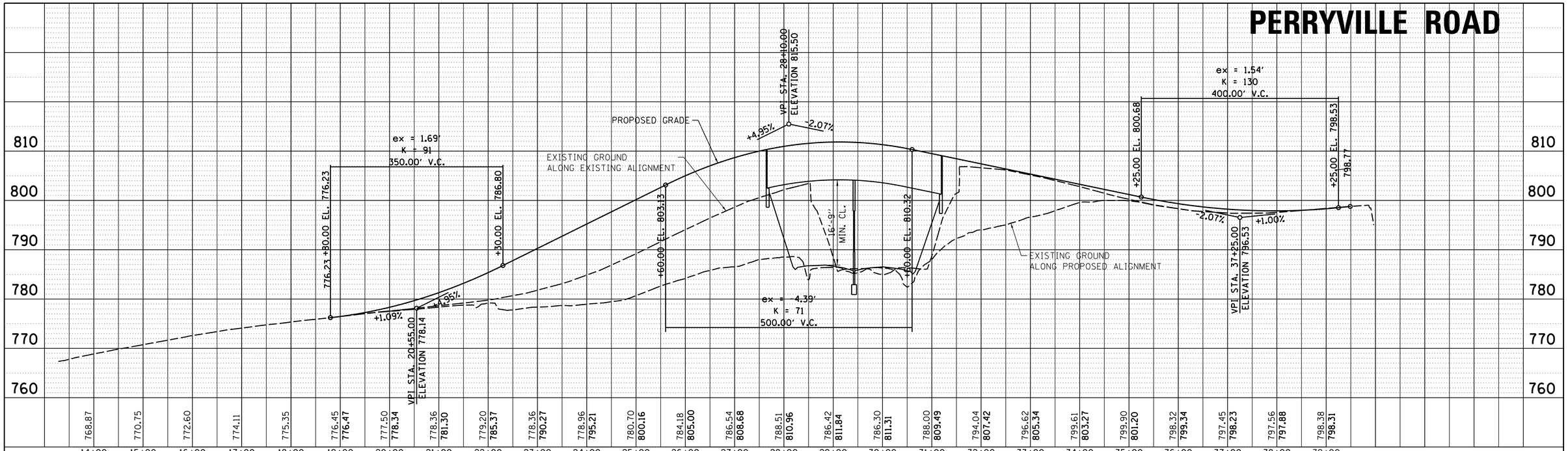
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
LINDEN RD /MULFORD RD PROFILE SHEET
JOB NO. P-92-111-06

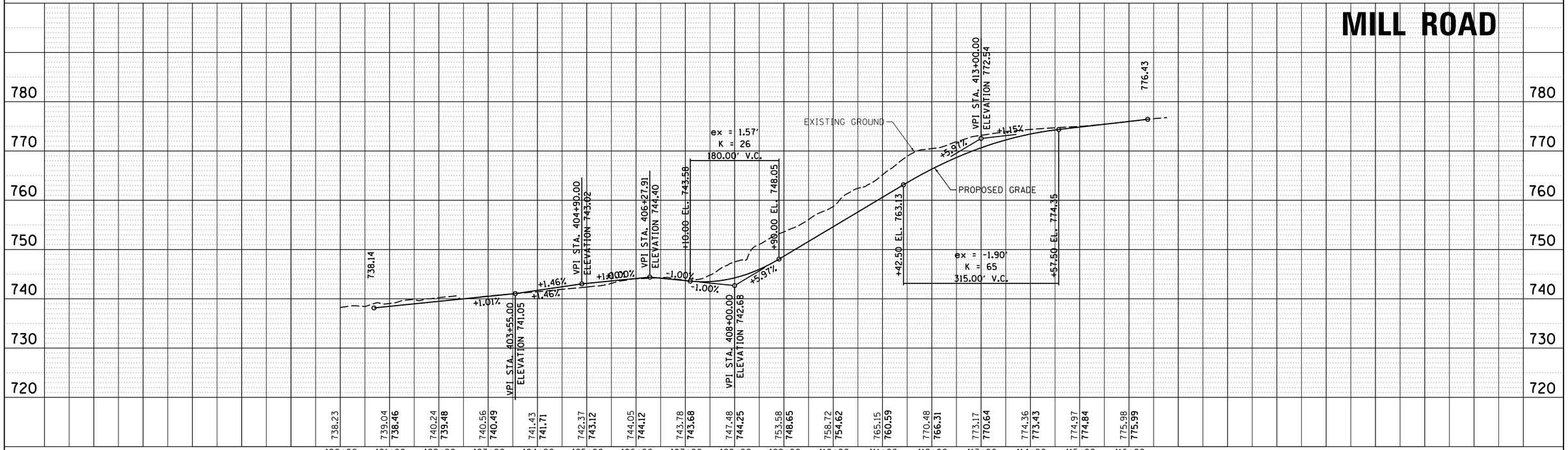
SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	48
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PERRYVILLE ROAD



MILL ROAD



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NOTE BOOK NO.		

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
PERRYVILLLE RD /MILL RD PROFILE SHEET
JOB NO. P-92-111-06

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	49
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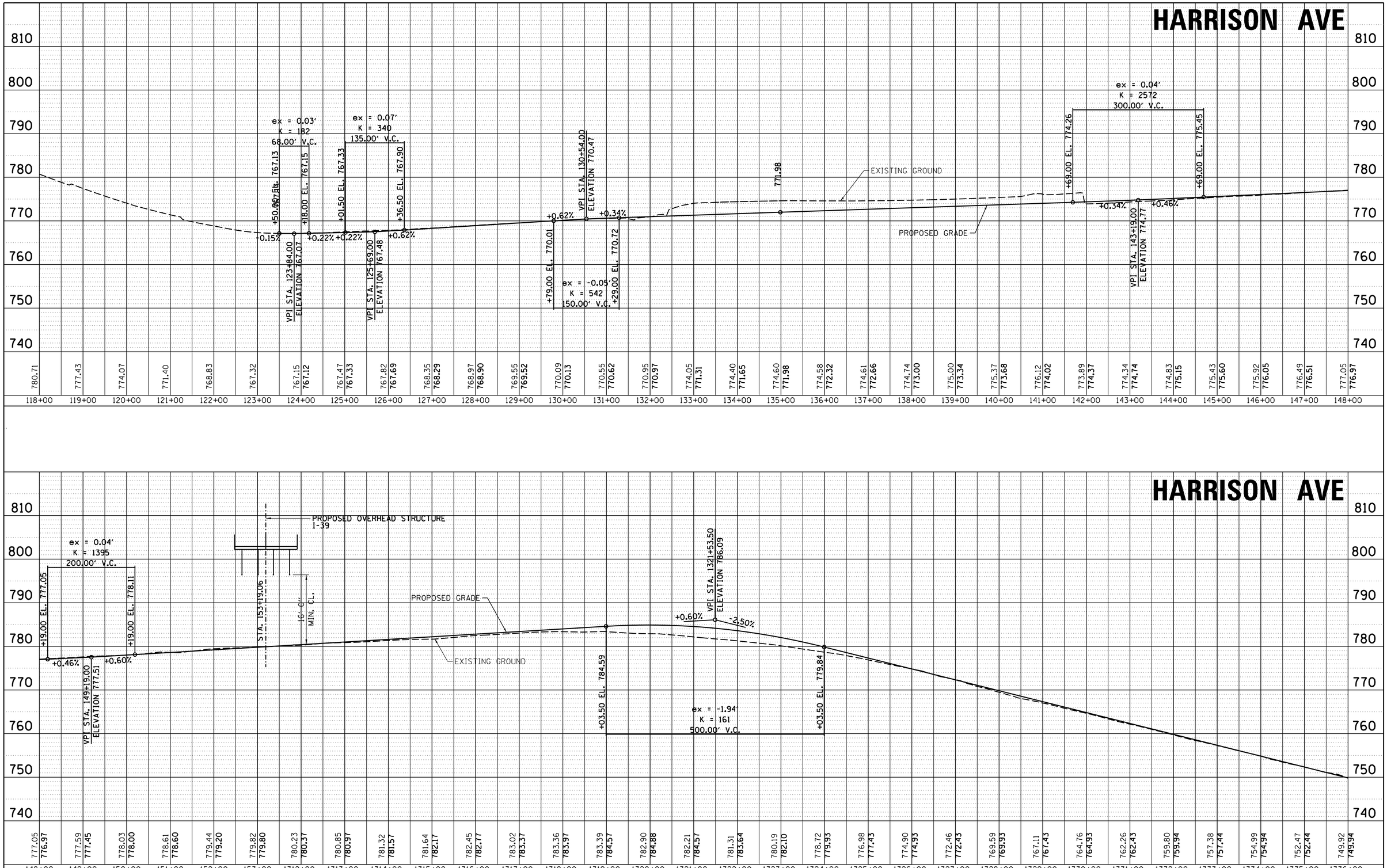
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
HARRISON AVE PROFILE SHEET
JOB NO. P-92-111-06

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	50
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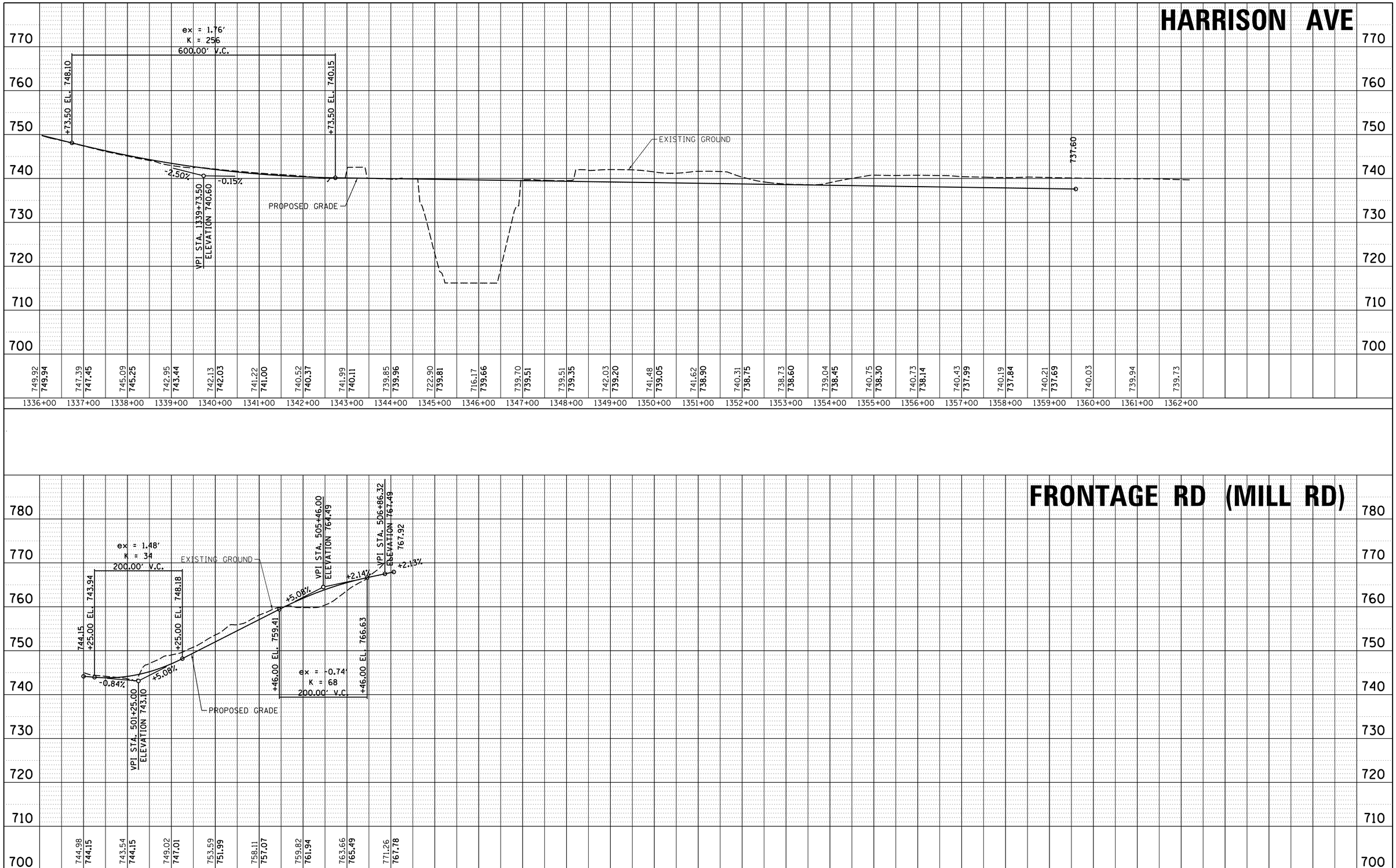
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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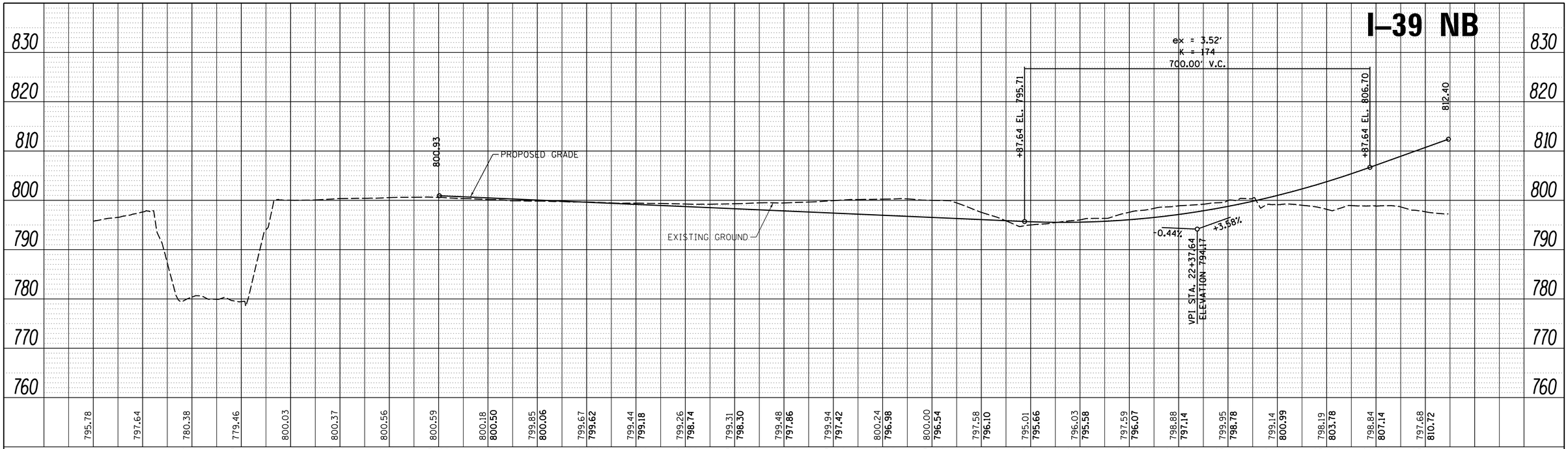
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
HARRISON AVE /FRONTAGE RD PROFILE SHEET
JOB NO. P-92-111-06

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	51
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

I–39 NB



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	GRADES CHECKED		
	B.M. NOTED		
	STRUCTURE NOTATNS CH'KD		

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Default	PLOT DATE = 3/30/2017	DATE -	REVISED -

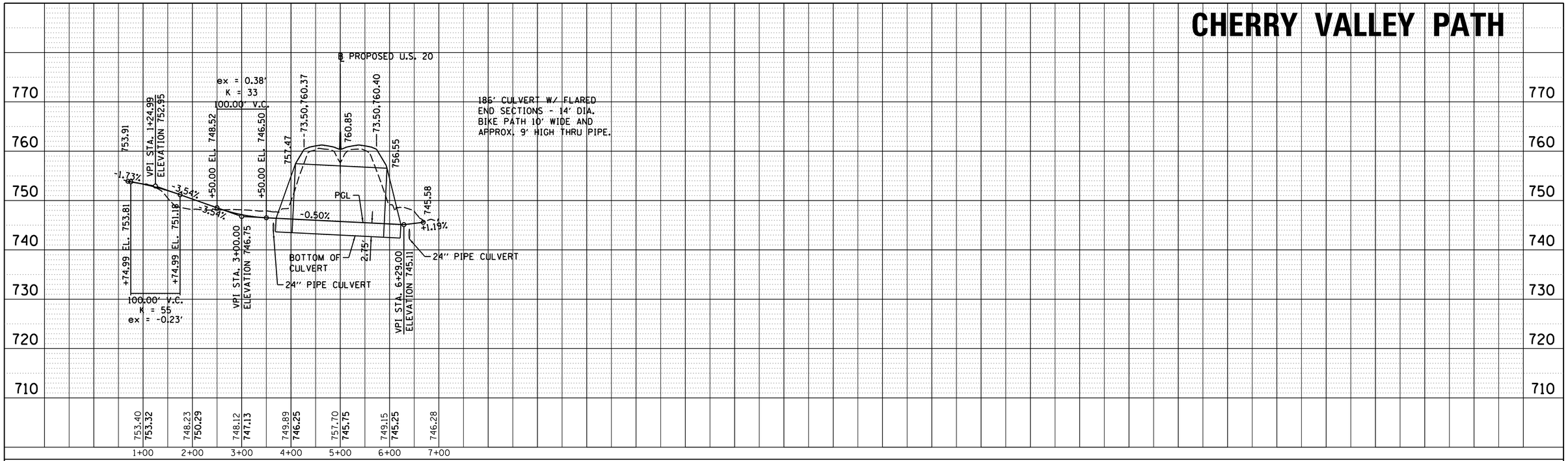
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
I–39 NB PROFILE SHEET
JOB NO. P–92–111–06

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	52
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CHERRY VALLEY PATH



PLAN	BY	DATE
SURVEYED		
PLOTTED		
ALIGNMENT CHECKED		
RT. OF WAY CHECKED		
CADD FILE NAME		
NOTE BOOK NO.		

PROFILE	BY	DATE
SURVEYED		
PLOTTED		
GRADES CHECKED		
B.M. NOTED		
STRUCTURE NOTAT'NS CH'KD		
NOTE BOOK NO.		

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Default	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
CHERRY VALLEY PATH
JOB NO. P-92-111-06

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	53
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STAGE CONSTRUCTION PLANS & FIGURES

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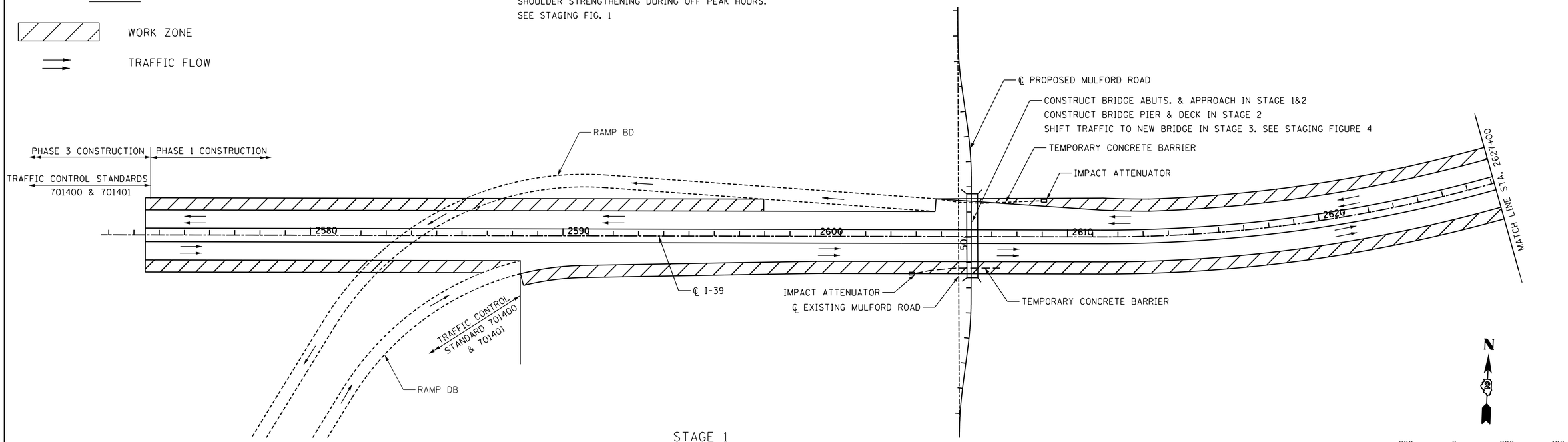
LEGEND

WORK ZONE

TRAFFIC FLOW

NOTE: CLOSE OUTSIDE LANE AND CONSTRUCT
SHOULDER STRENGTHENING DURING OFF PEAK HOURS.
SEE STAGING FIG. 1



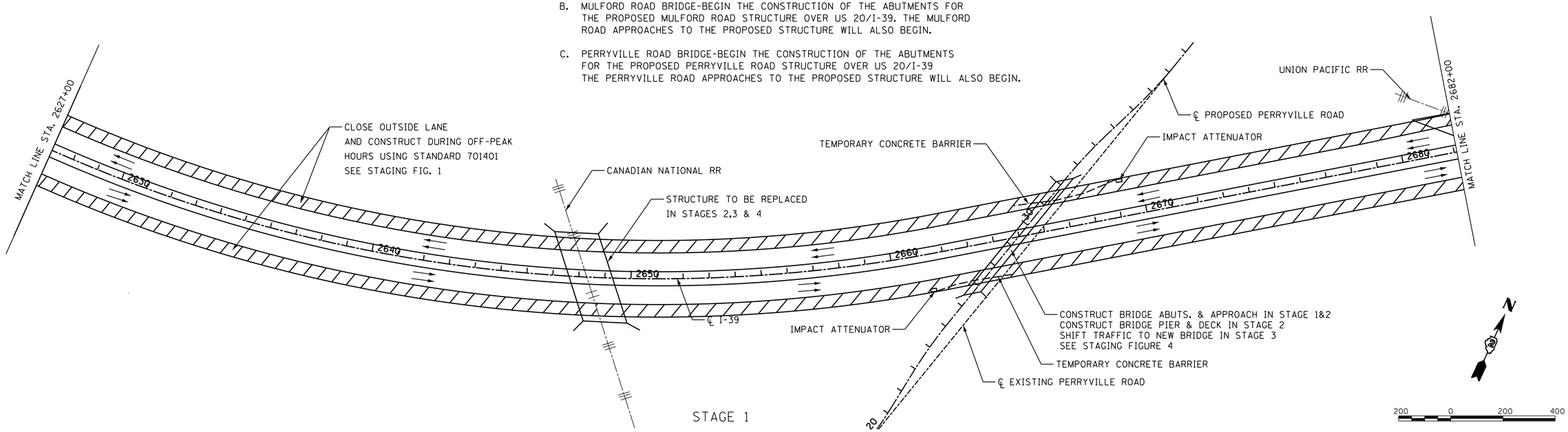
STAGE 1

CONSTRUCTION SUMMARY

A. US 20/I-39 - THE OUTSIDE LANES OF US 20/I-39 WILL BE CLOSED DURING OFF PEAK HOURS TO STRENGTHEN THE OUTSIDE SHOULDERS.

B. MULFORD ROAD BRIDGE-BEGIN THE CONSTRUCTION OF THE ABUTMENTS FOR THE PROPOSED MULFORD ROAD STRUCTURE OVER US 20/I-39. THE MULFORD ROAD APPROACHES TO THE PROPOSED STRUCTURE WILL ALSO BEGIN.

C. PERRYVILLE ROAD BRIDGE-BEGIN THE CONSTRUCTION OF THE ABUTMENTS FOR THE PROPOSED PERRYVILLE ROAD STRUCTURE OVER US 20/I-39 THE PERRYVILLE ROAD APPROACHES TO THE PROPOSED STRUCTURE WILL ALSO BEGIN.



STAGE 1

FILE NAME = I:\06jobs\06S2055\CADD\Road\Sheet\c-7mot_phlstl-01.dgn	USER NAME = Johns00944	DESIGNED - J.M.	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) STAGE CONSTRUCTION PHASE 1 STAGE 1 JOB NO. P-92-111-06	F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 200.0000 ' / in.	DRAWN - R.S.J.	REVISED -			39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	54
stage	PLOT DATE = 3/30/2017	CHECKED - S.M.	REVISED -			06S2055		CONTRACT NO.		
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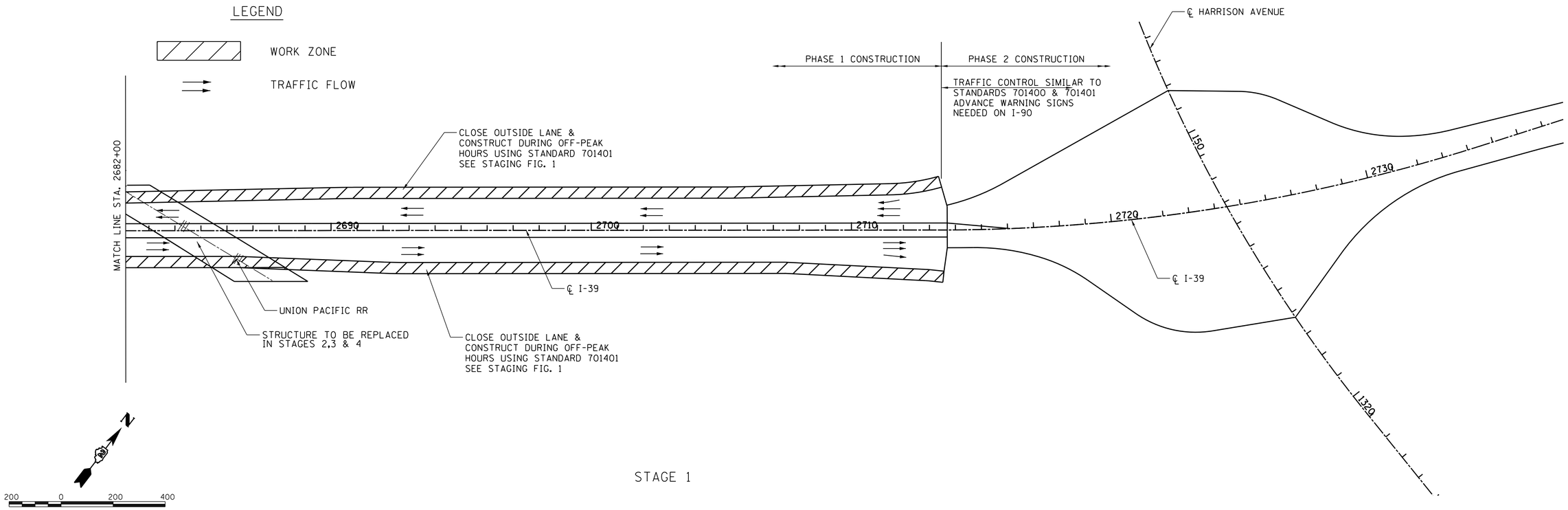

STAGE 1

CONSTRUCTION SUMMARY

A. US 20/I-39 - THE OUTSIDE LANES OF US 20/I-39 WILL BE CLOSED DURING OFF PEAK HOURS TO STRENGTHEN THE OUTSIDE SHOULDERS.

B. MULFORD ROAD BRIDGE-BEGIN THE CONSTRUCTION OF THE ABUTMENTS FOR THE PROPOSED MULFORD ROAD STRUCTURE OVER US 20/I-39. THE MULFORD ROAD APPROACHES TO THE PROPOSED STRUCTURE WILL ALSO BEGIN.

C. PERRYVILLE ROAD BRIDGE-BEGIN THE CONSTRUCTION OF THE ABUTMENTS FOR THE PROPOSED PERRYVILLE ROAD STRUCTURE OVER US 20/I-39 THE PERRYVILLE ROAD APPROACHES TO THE PROPOSED STRUCTURE WILL ALSO BEGIN.

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stage	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 1 STAGE 1
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	55
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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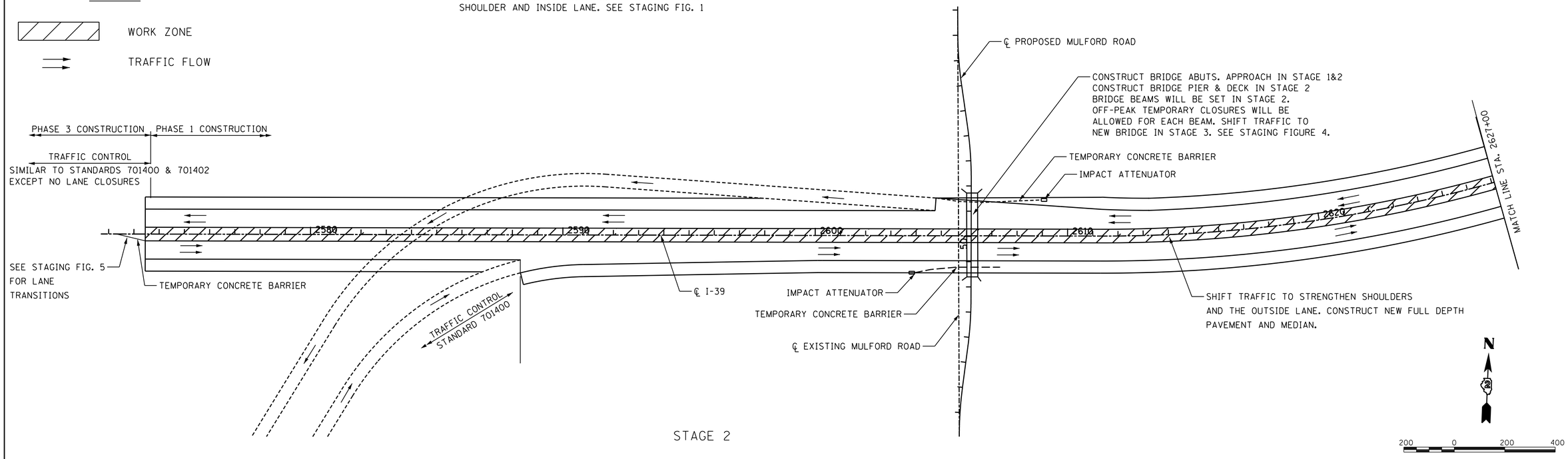
LEGEND

WORK ZONE

TRAFFIC FLOW

NOTE: SHIFT TRAFFIC TO STRENGTHENED OUTSIDE SHOULDER AND OUTSIDE LANE. CONSTRUCT PROPOSED INSIDE SHOULDER AND INSIDE LANE. SEE STAGING FIG. 1



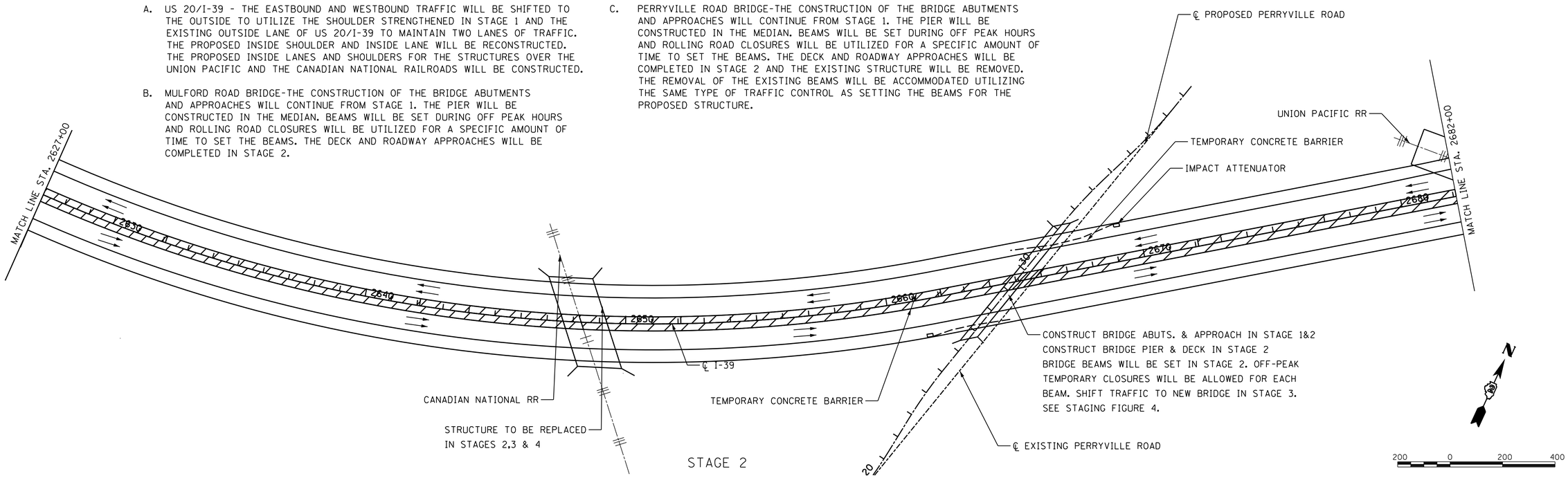
STAGE 2

CONSTRUCTION SUMMARY

A. US 20/I-39 - THE EASTBOUND AND WESTBOUND TRAFFIC WILL BE SHIFTED TO THE OUTSIDE TO UTILIZE THE SHOULDER STRENGTHENED IN STAGE 1 AND THE EXISTING OUTSIDE LANE OF US 20/I-39 TO MAINTAIN TWO LANES OF TRAFFIC. THE PROPOSED INSIDE SHOULDER AND INSIDE LANE WILL BE RECONSTRUCTED. THE PROPOSED INSIDE LANES AND SHOULDERS FOR THE STRUCTURES OVER THE UNION PACIFIC AND THE CANADIAN NATIONAL RAILROADS WILL BE CONSTRUCTED.

B. MULFORD ROAD BRIDGE-THE CONSTRUCTION OF THE BRIDGE ABUTMENTS AND APPROACHES WILL CONTINUE FROM STAGE 1. THE PIER WILL BE CONSTRUCTED IN THE MEDIAN. BEAMS WILL BE SET DURING OFF PEAK HOURS AND ROLLING ROAD CLOSURES WILL BE UTILIZED FOR A SPECIFIC AMOUNT OF TIME TO SET THE BEAMS. THE DECK AND ROADWAY APPROACHES WILL BE COMPLETED IN STAGE 2.

C. PERRYVILLE ROAD BRIDGE-THE CONSTRUCTION OF THE BRIDGE ABUTMENTS AND APPROACHES WILL CONTINUE FROM STAGE 1. THE PIER WILL BE CONSTRUCTED IN THE MEDIAN. BEAMS WILL BE SET DURING OFF PEAK HOURS AND ROLLING ROAD CLOSURES WILL BE UTILIZED FOR A SPECIFIC AMOUNT OF TIME TO SET THE BEAMS. THE DECK AND ROADWAY APPROACHES WILL BE COMPLETED IN STAGE 2 AND THE EXISTING STRUCTURE WILL BE REMOVED. THE REMOVAL OF THE EXISTING BEAMS WILL BE ACCOMMODATED UTILIZING THE SAME TYPE OF TRAFFIC CONTROL AS SETTING THE BEAMS FOR THE PROPOSED STRUCTURE.



STAGE 2

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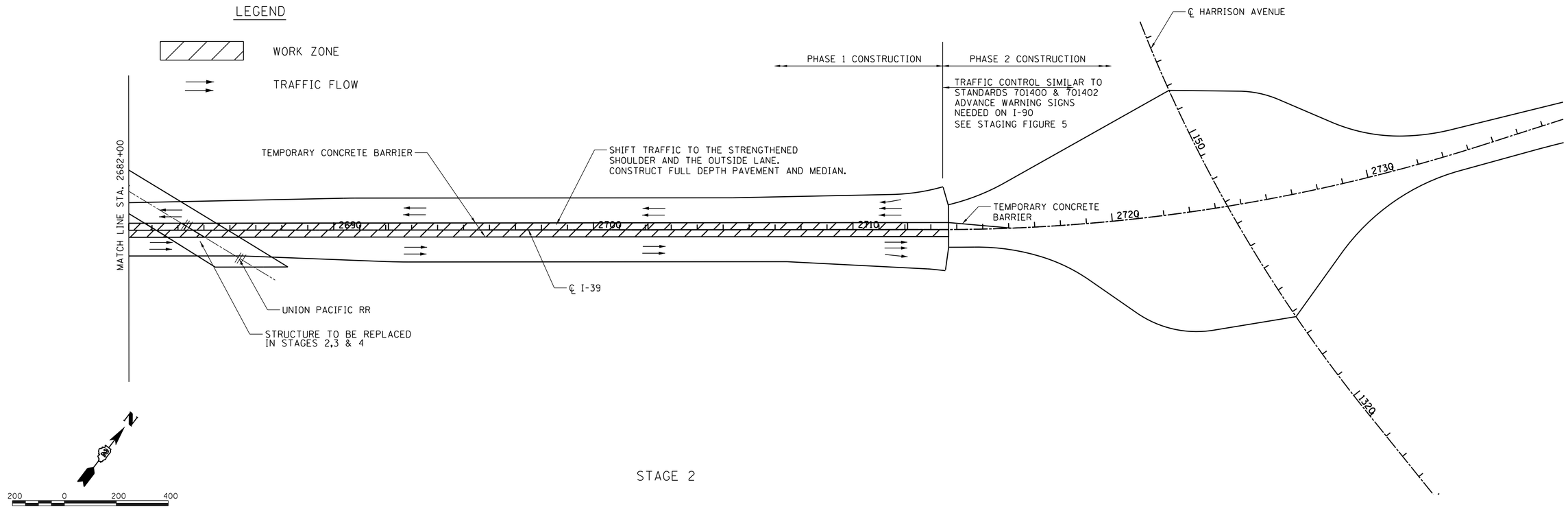
		DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 1 STAGE 2
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	56
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



STAGE 2

CONSTRUCTION SUMMARY

A. US 20/I-39 - THE EASTBOUND AND WESTBOUND TRAFFIC WILL BE SHIFTED TO THE OUTSIDE TO UTILIZE THE SHOULDER STRENGTHENED IN STAGE 1 AND THE EXISTING OUTSIDE LANE OF US 20/I-39 TO MAINTAIN TWO LANES OF TRAFFIC. THE PROPOSED INSIDE SHOULDER AND INSIDE LANE WILL BE RECONSTRUCTED. THE PROPOSED INSIDE LANES AND SHOULDERS FOR THE STRUCTURES OVER THE UNION PACIFIC AND THE CANADIAN NATIONAL RAILROADS WILL BE CONSTRUCTED.

B. MULFORD ROAD BRIDGE-THE CONSTRUCTION OF THE BRIDGE ABUTMENTS AND APPROACHES WILL CONTINUE FROM STAGE 1. THE PIER WILL BE CONSTRUCTED IN THE MEDIAN. BEAMS WILL BE SET DURING OFF PEAK HOURS AND ROLLING ROAD CLOSURES WILL BE UTILIZED FOR A SPECIFIC AMOUNT OF TIME TO SET THE BEAMS. THE DECK AND ROADWAY APPROACHES WILL BE COMPLETED IN STAGE 2.

C. PERRYVILLE ROAD BRIDGE-THE CONSTRUCTION OF THE BRIDGE ABUTMENTS AND APPROACHES WILL CONTINUE FROM STAGE 1. THE PIER WILL BE CONSTRUCTED IN THE MEDIAN. BEAMS WILL BE SET DURING OFF PEAK HOURS AND ROLLING ROAD CLOSURES WILL BE UTILIZED FOR A SPECIFIC AMOUNT OF TIME TO SET THE BEAMS. THE DECK AND ROADWAY APPROACHES WILL BE COMPLETED IN STAGE 2 AND THE EXISTING STRUCTURE WILL BE REMOVED. THE REMOVAL OF THE EXISTING BEAMS WILL BE ACCOMMODATED UTILIZING THE SAME TYPE OF TRAFFIC CONTROL AS SETTING THE BEAMS FOR THE PROPOSED STRUCTURE.

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stage	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 1 STAGE 2
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

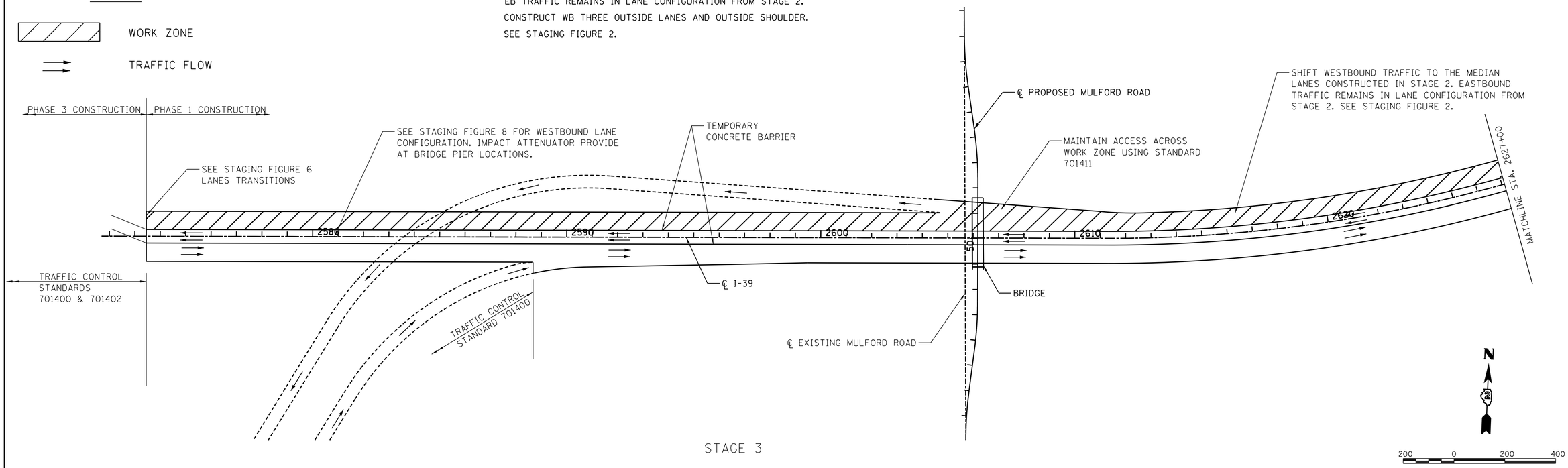
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	57
06S2055		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LEGEND

WORK ZONE

TRAFFIC FLOW

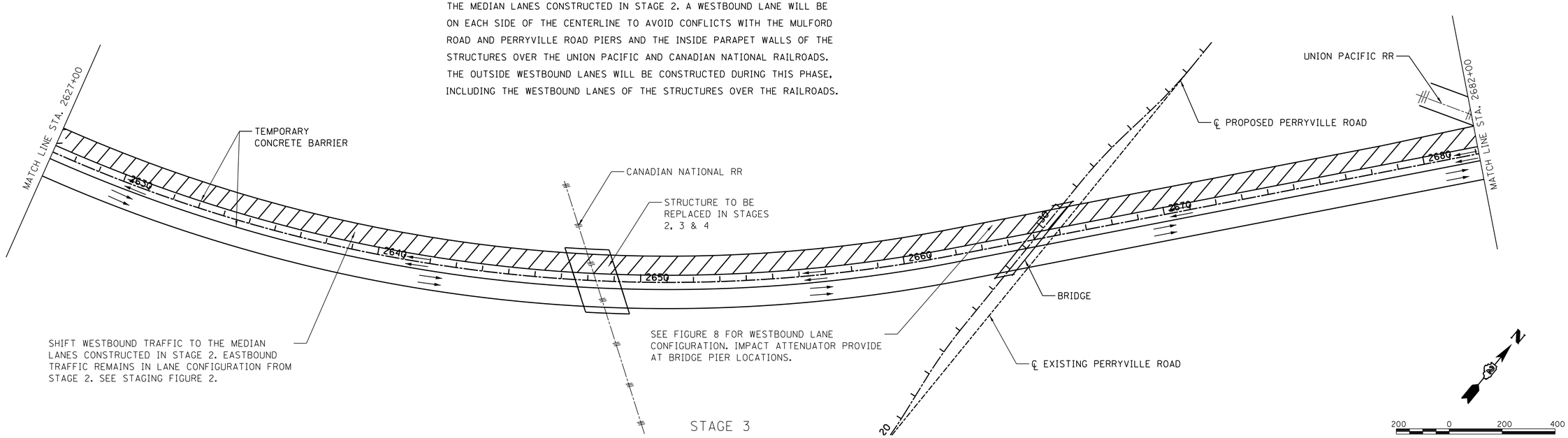
NOTE: SHIFT WB TRAFFIC TO MEDIAN LANES CONSTRUCTED IN STAGE 2.
EB TRAFFIC REMAINS IN LANE CONFIGURATION FROM STAGE 2.
CONSTRUCT WB THREE OUTSIDE LANES AND OUTSIDE SHOULDER.
SEE STAGING FIGURE 2.



STAGE 3

CONSTRUCTION SUMMARY

A US 20/I-39 - THE EASTBOUND TRAFFIC WILL REMAIN IN THE LANE CONFIGURATION FROM STAGE 2. THE WESTBOUND TRAFFIC WILL BE SHIFTED TO THE MEDIAN LANES CONSTRUCTED IN STAGE 2. A WESTBOUND LANE WILL BE ON EACH SIDE OF THE CENTERLINE TO AVOID CONFLICTS WITH THE MULFORD ROAD AND PERRYVILLE ROAD PIERS AND THE INSIDE PARAPET WALLS OF THE STRUCTURES OVER THE UNION PACIFIC AND CANADIAN NATIONAL RAILROADS. THE OUTSIDE WESTBOUND LANES WILL BE CONSTRUCTED DURING THIS PHASE, INCLUDING THE WESTBOUND LANES OF THE STRUCTURES OVER THE RAILROADS.



STAGE 3

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stage		DATE -	REVISED -		SCALE: 1"=200' SHEET NO. OF SHEETS STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	58
06S2055		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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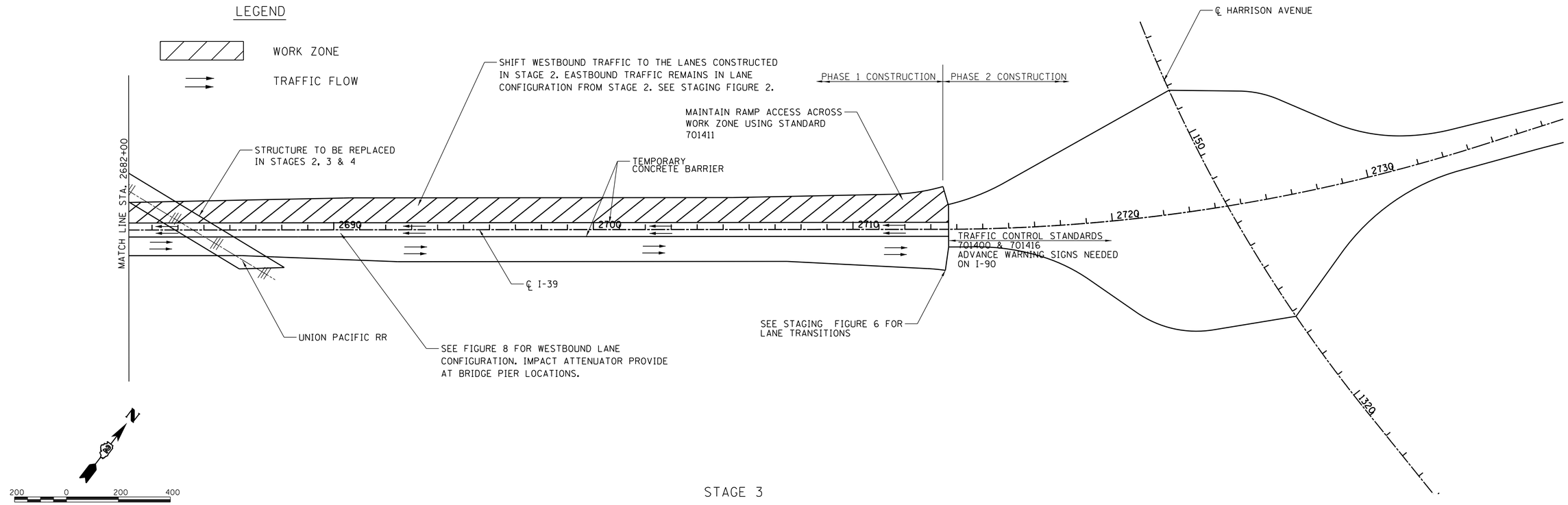

STAGE 3

CONSTRUCTION SUMMARY

A US 20/I-39 - THE EASTBOUND TRAFFIC WILL REMAIN IN THE LANE CONFIGURATION FROM STAGE 2. THE WESTBOUND TRAFFIC WILL BE SHIFTED TO THE MEDIAN LANES CONSTRUCTED IN STAGE 2. A WESTBOUND LANE WILL BE ON EACH SIDE OF THE CENTERLINE TO AVOID CONFLICTS WITH THE MULFORD ROAD AND PERRYVILLE ROAD PIERS AND THE INSIDE PARAPET WALLS OF THE STRUCTURES OVER THE UNION PACIFIC AND CANADIAN NATIONAL RAILROADS. THE OUTSIDE WESTBOUND LANES WILL BE CONSTRUCTED DURING THIS PHASE, INCLUDING THE WESTBOUND LANES OF THE STRUCTURES OVER THE RAILROADS.

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stage	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I–39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 1 STAGE 3
JOB NO. P–92–111–06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	59
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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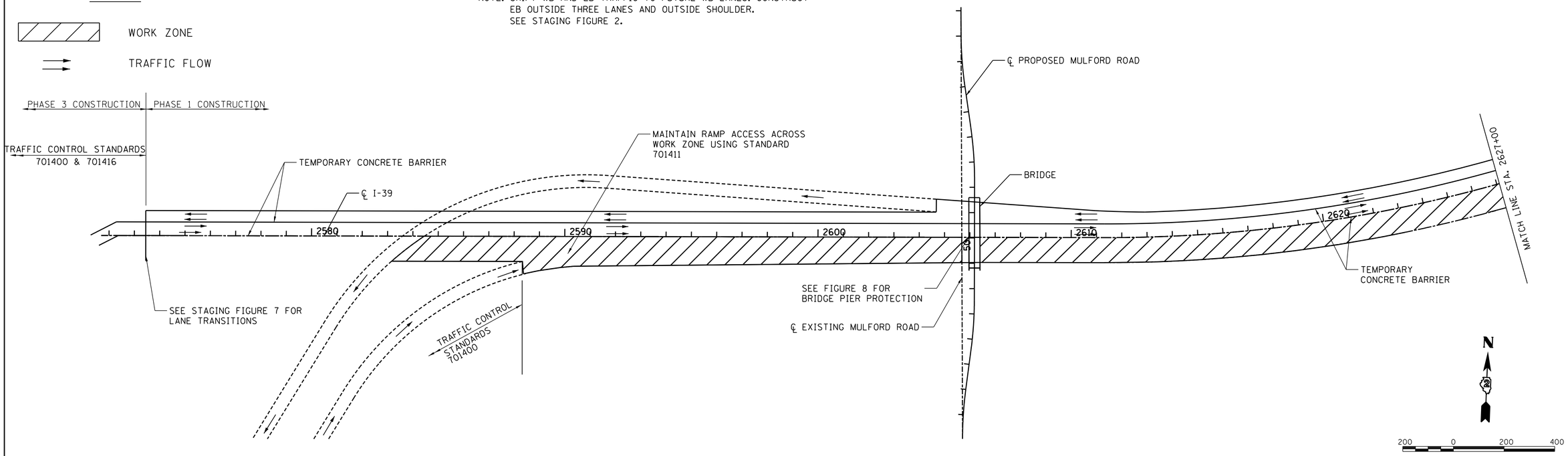
LEGEND

WORK ZONE

TRAFFIC FLOW

NOTE: SHIFT WB AND EB TRAFFIC TO FUTURE WB LANES. CONSTRUCT EB OUTSIDE THREE LANES AND OUTSIDE SHOULDER. SEE STAGING FIGURE 2.

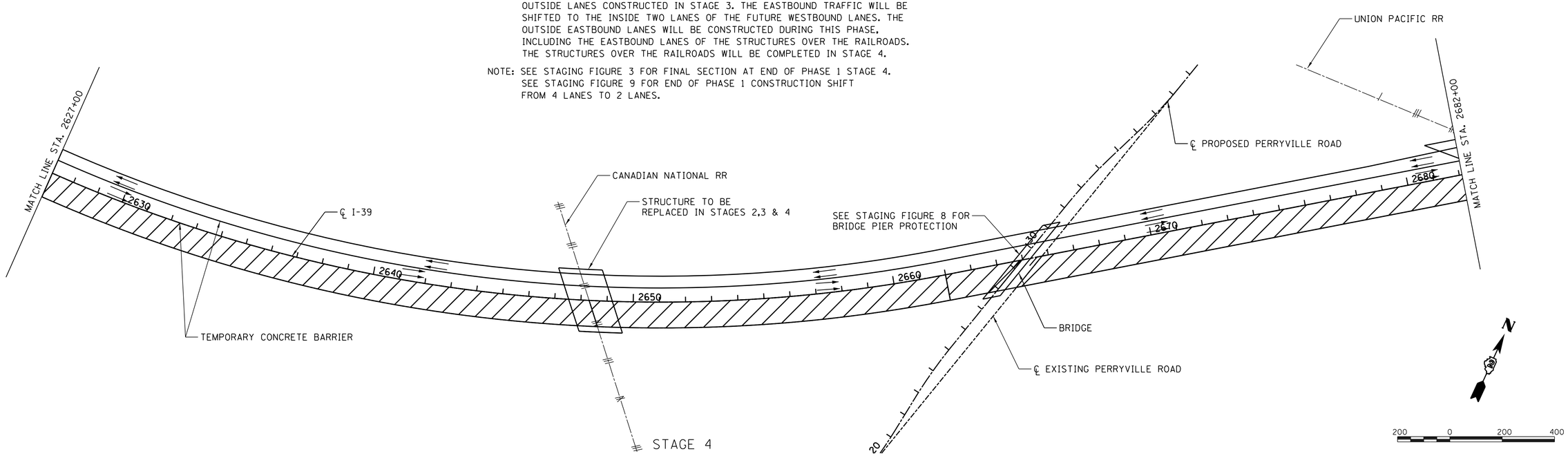


STAGE 4

CONSTRUCTION SUMMARY

A. US 20/I-39 - THE WESTBOUND TRAFFIC IS SHIFTED TO THE WESTBOUND OUTSIDE LANES CONSTRUCTED IN STAGE 3. THE EASTBOUND TRAFFIC WILL BE SHIFTED TO THE INSIDE TWO LANES OF THE FUTURE WESTBOUND LANES. THE OUTSIDE EASTBOUND LANES WILL BE CONSTRUCTED DURING THIS PHASE, INCLUDING THE EASTBOUND LANES OF THE STRUCTURES OVER THE RAILROADS. THE STRUCTURES OVER THE RAILROADS WILL BE COMPLETED IN STAGE 4.

NOTE: SEE STAGING FIGURE 3 FOR FINAL SECTION AT END OF PHASE 1 STAGE 4. SEE STAGING FIGURE 9 FOR END OF PHASE 1 CONSTRUCTION SHIFT FROM 4 LANES TO 2 LANES.



STAGE 4

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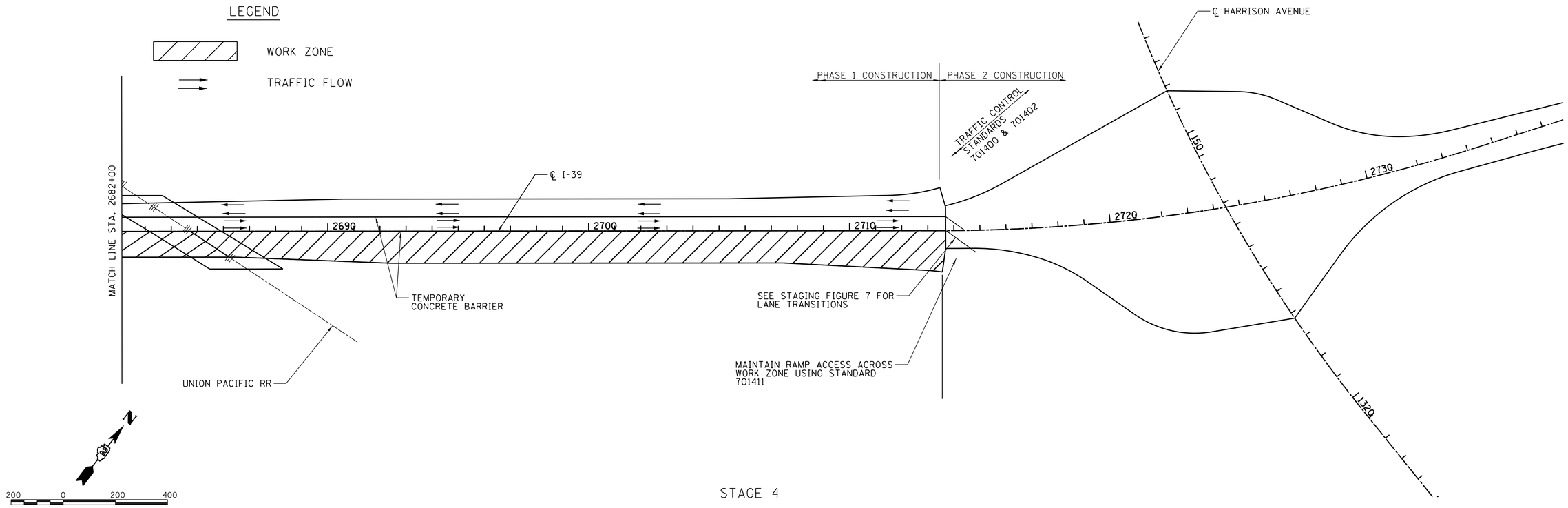
stage	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 1 STAGE 4
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	60
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



STAGE 4

CONSTRUCTION SUMMARY

A. US 20/I-39 - THE WESTBOUND TRAFFIC IS SHIFTED TO THE WESTBOUND OUTSIDE LANES CONSTRUCTED IN STAGE 3. THE EASTBOUND TRAFFIC WILL BE SHIFTED TO THE INSIDE TWO LANES OF THE FUTURE WESTBOUND LANES. THE OUTSIDE EASTBOUND LANES WILL BE CONSTRUCTED DURING THIS PHASE, INCLUDING THE EASTBOUND LANES OF THE STRUCTURES OVER THE RAILROADS. THE STRUCTURES OVER THE RAILROADS WILL BE COMPLETED IN STAGE 4.

NOTE: SEE STAGING FIGURE 3 FOR FINAL SECTION AT END OF PHASE 1 STAGE 4. SEE STAGING FIGURE 9 FOR END OF PHASE 1 CONSTRUCTION SHIFT FROM 4 LANES TO 2 LANES.

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	PLOT SCALE = 200.0000 ' / in.	CHECKED - S.M.	REVISED -
stage	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 1 STAGE 4
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	61
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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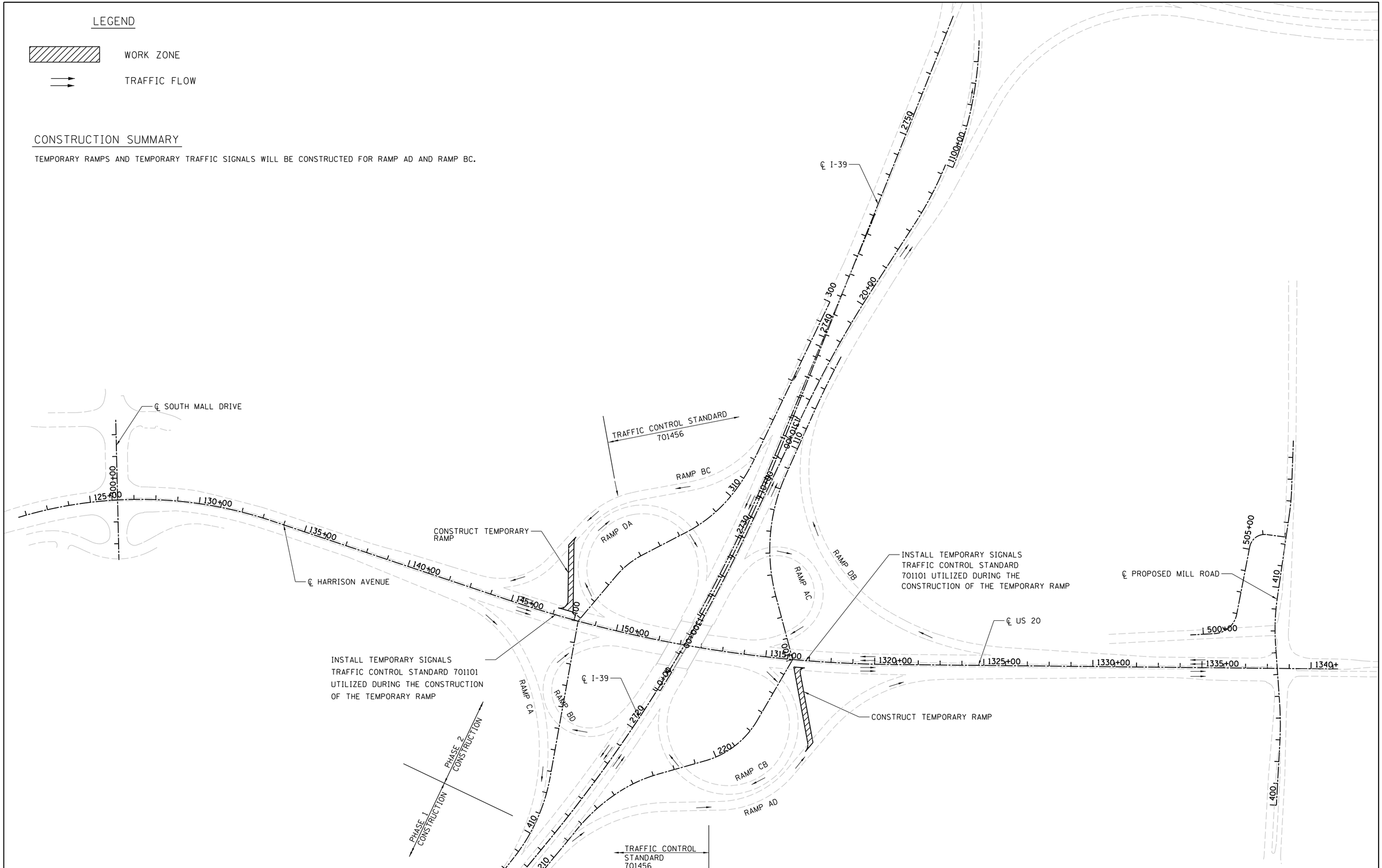
LEGEND

WORK ZONE

TRAFFIC FLOW

CONSTRUCTION SUMMARY

TEMPORARY RAMPS AND TEMPORARY TRAFFIC SIGNALS WILL BE CONSTRUCTED FOR RAMP AD AND RAMP BC.



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stage	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 2 STAGE 1
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	62
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LEGEND

WORK ZONE

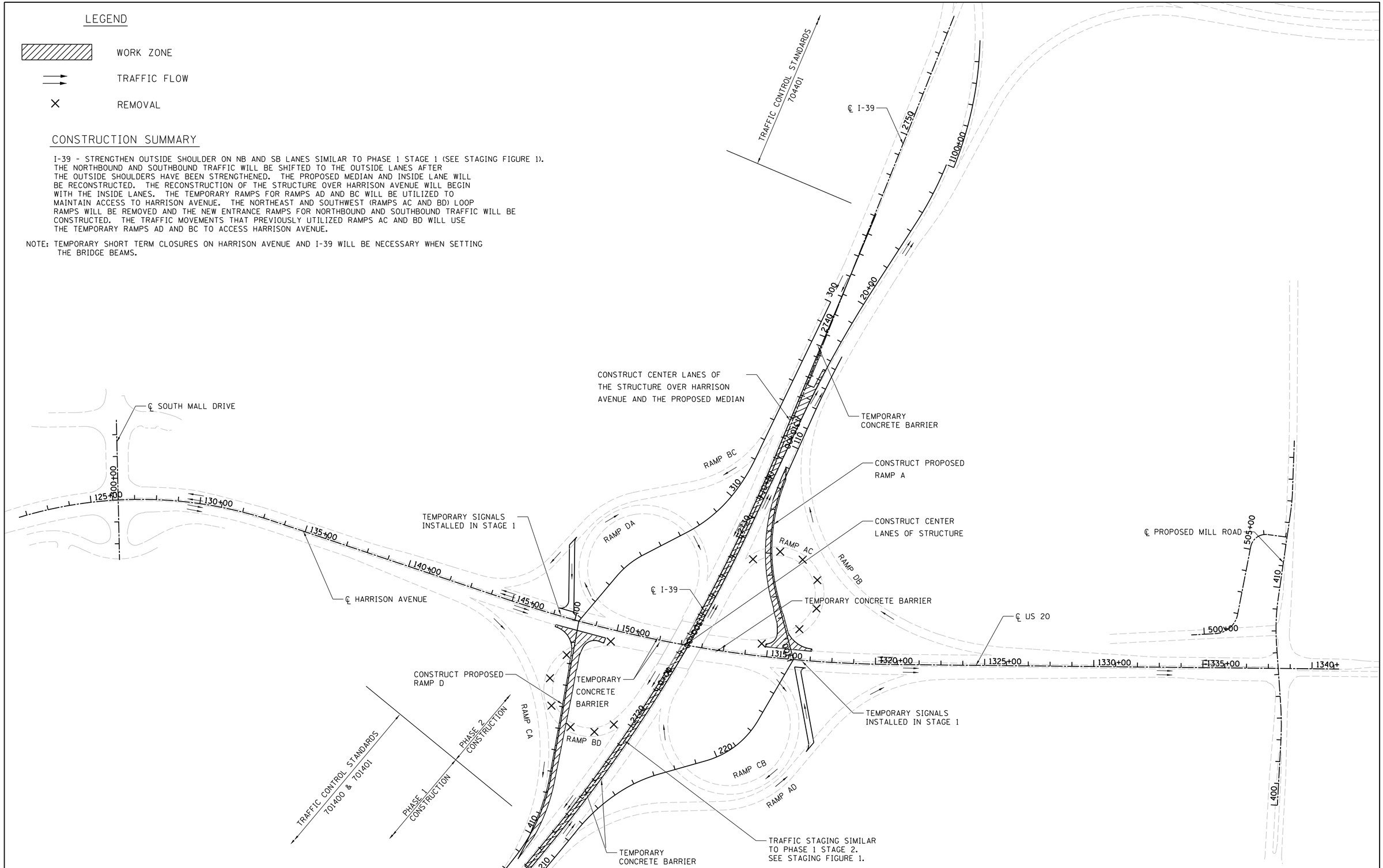
TRAFFIC FLOW

REMOVAL

CONSTRUCTION SUMMARY

I-39 - STRENGTHEN OUTSIDE SHOULDER ON NB AND SB LANES SIMILAR TO PHASE 1 STAGE 1 (SEE STAGING FIGURE 1). THE NORTHBOUND AND SOUTHBOUND TRAFFIC WILL BE SHIFTED TO THE OUTSIDE LANES AFTER THE OUTSIDE SHOULDERS HAVE BEEN STRENGTHENED. THE PROPOSED MEDIAN AND INSIDE LANE WILL BE RECONSTRUCTED. THE RECONSTRUCTION OF THE STRUCTURE OVER HARRISON AVENUE WILL BEGIN WITH THE INSIDE LANES. THE TEMPORARY RAMPS FOR RAMPS AD AND BC WILL BE UTILIZED TO MAINTAIN ACCESS TO HARRISON AVENUE. THE NORTHEAST AND SOUTHWEST (RAMPS AC AND BD) LOOP RAMPS WILL BE REMOVED AND THE NEW ENTRANCE RAMPS FOR NORTHBOUND AND SOUTHBOUND TRAFFIC WILL BE CONSTRUCTED. THE TRAFFIC MOVEMENTS THAT PREVIOUSLY UTILIZED RAMPS AC AND BD WILL USE THE TEMPORARY RAMPS AD AND BC TO ACCESS HARRISON AVENUE.

NOTE: TEMPORARY SHORT TERM CLOSURES ON HARRISON AVENUE AND I-39 WILL BE NECESSARY WHEN SETTING THE BRIDGE BEAMS.



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 2 STAGE 2
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	63
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LEGEND

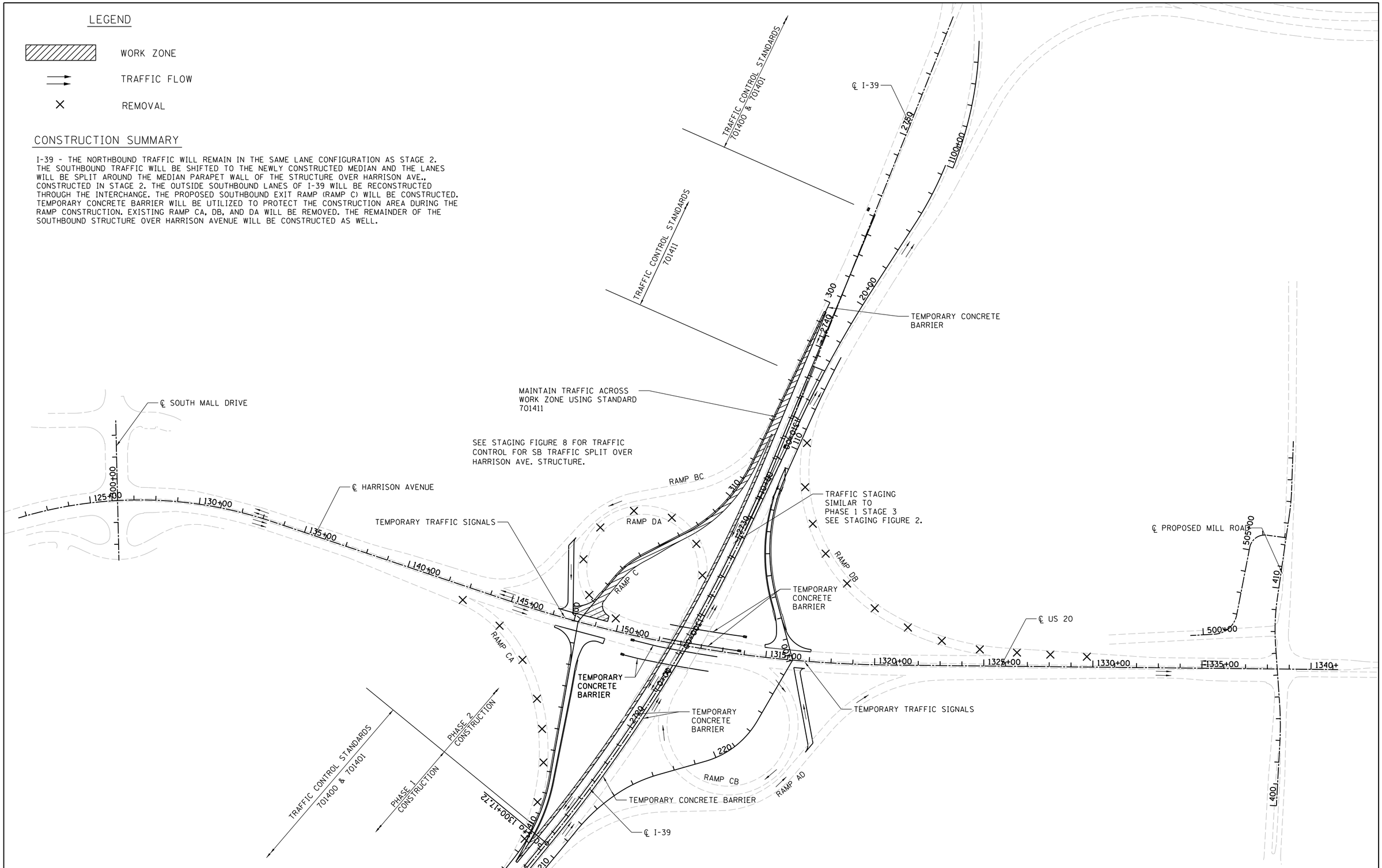
WORK ZONE

TRAFFIC FLOW

REMOVAL

CONSTRUCTION SUMMARY

I-39 - THE NORTHBOUND TRAFFIC WILL REMAIN IN THE SAME LANE CONFIGURATION AS STAGE 2. THE SOUTHBOUND TRAFFIC WILL BE SHIFTED TO THE NEWLY CONSTRUCTED MEDIAN AND THE LANES WILL BE SPLIT AROUND THE MEDIAN PARAPET WALL OF THE STRUCTURE OVER HARRISON AVE., CONSTRUCTED IN STAGE 2. THE OUTSIDE SOUTHBOUND LANES OF I-39 WILL BE RECONSTRUCTED THROUGH THE INTERCHANGE. THE PROPOSED SOUTHBOUND EXIT RAMP (RAMP C) WILL BE CONSTRUCTED. TEMPORARY CONCRETE BARRIER WILL BE UTILIZED TO PROTECT THE CONSTRUCTION AREA DURING THE RAMP CONSTRUCTION. EXISTING RAMP CA, DB, AND DA WILL BE REMOVED. THE REMAINDER OF THE SOUTHBOUND STRUCTURE OVER HARRISON AVENUE WILL BE CONSTRUCTED AS WELL.



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stage	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 2 STAGE 3
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	64
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LEGEND

WORK ZONE

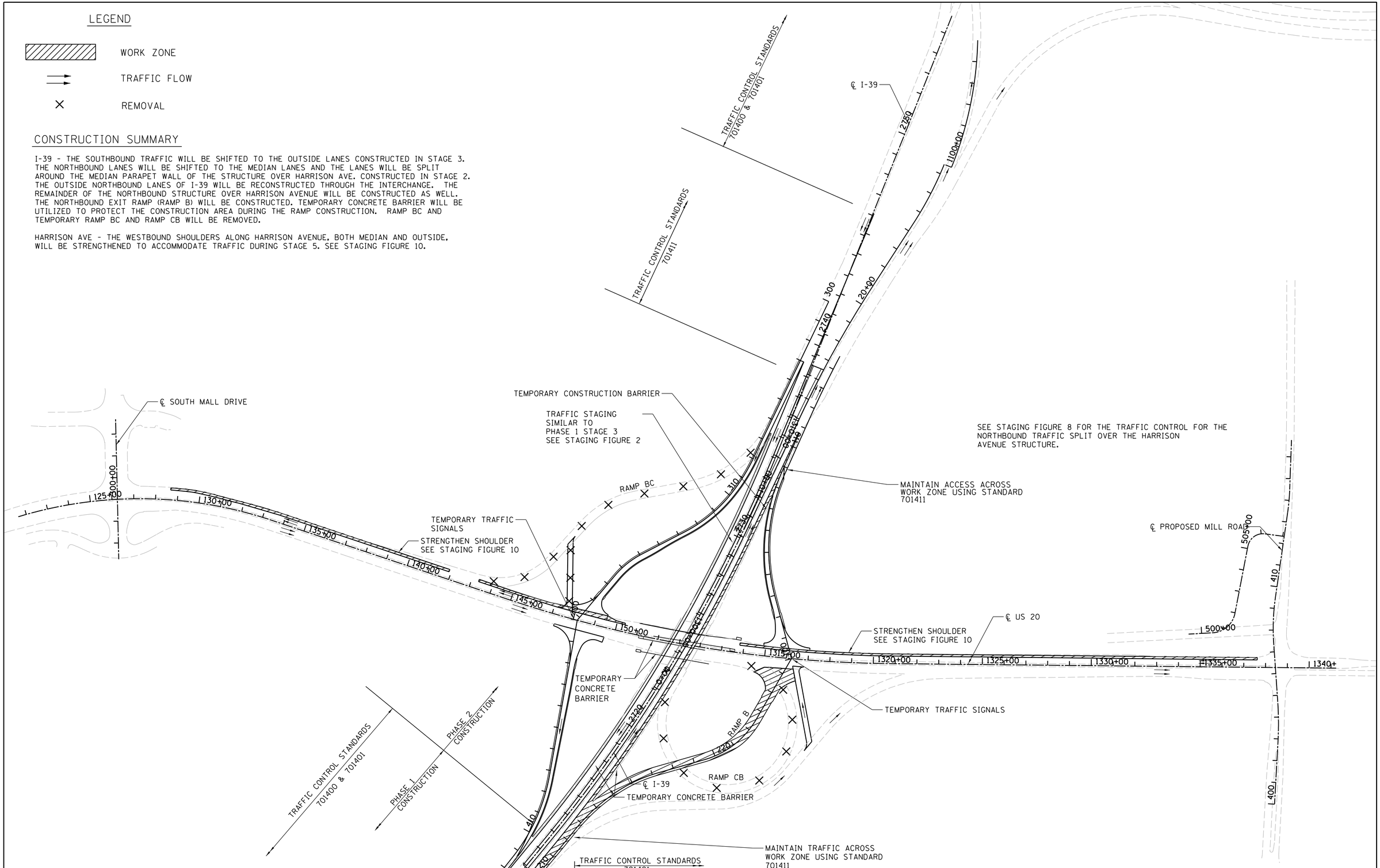
TRAFFIC FLOW

REMOVAL

CONSTRUCTION SUMMARY

I-39 - THE SOUTHBOUND TRAFFIC WILL BE SHIFTED TO THE OUTSIDE LANES CONSTRUCTED IN STAGE 3. THE NORTHBOUND LANES WILL BE SHIFTED TO THE MEDIAN LANES AND THE LANES WILL BE SPLIT AROUND THE MEDIAN PARAPET WALL OF THE STRUCTURE OVER HARRISON AVE. CONSTRUCTED IN STAGE 2. THE OUTSIDE NORTHBOUND LANES OF I-39 WILL BE RECONSTRUCTED THROUGH THE INTERCHANGE. THE REMAINDER OF THE NORTHBOUND STRUCTURE OVER HARRISON AVENUE WILL BE CONSTRUCTED AS WELL. THE NORTHBOUND EXIT RAMP (RAMP B) WILL BE CONSTRUCTED. TEMPORARY CONCRETE BARRIER WILL BE UTILIZED TO PROTECT THE CONSTRUCTION AREA DURING THE RAMP CONSTRUCTION. RAMP BC AND TEMPORARY RAMP BC AND RAMP CB WILL BE REMOVED.

HARRISON AVE - THE WESTBOUND SHOULDERS ALONG HARRISON AVENUE, BOTH MEDIAN AND OUTSIDE, WILL BE STRENGTHENED TO ACCOMMODATE TRAFFIC DURING STAGE 5. SEE STAGING FIGURE 10.



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stage	PLOT DATE = 3/30/2017	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 2 STAGE 4
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	65
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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LEGEND

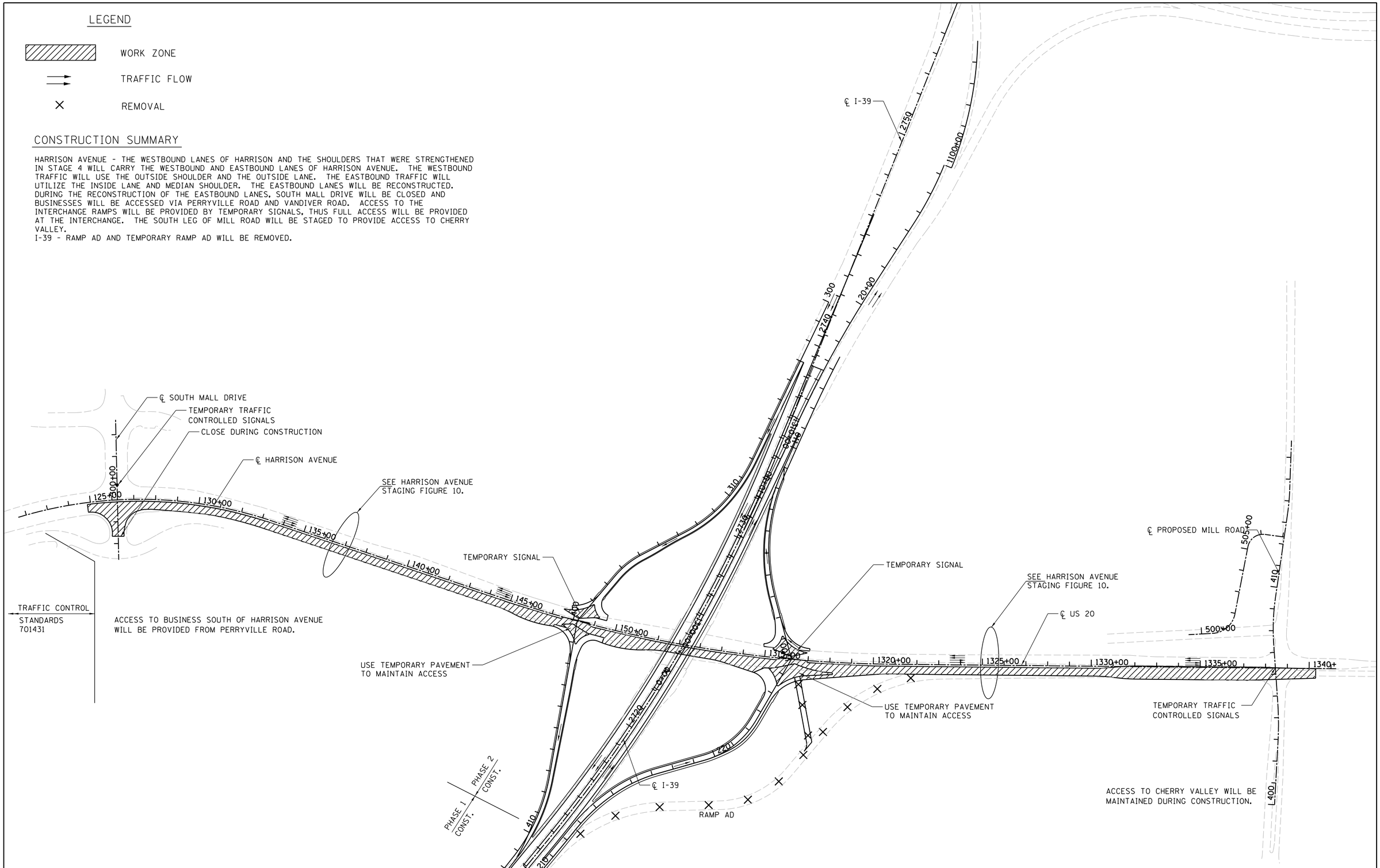
WORK ZONE

TRAFFIC FLOW

REMOVAL

CONSTRUCTION SUMMARY

HARRISON AVENUE - THE WESTBOUND LANES OF HARRISON AND THE SHOULDERS THAT WERE STRENGTHENED IN STAGE 4 WILL CARRY THE WESTBOUND AND EASTBOUND LANES OF HARRISON AVENUE. THE WESTBOUND TRAFFIC WILL USE THE OUTSIDE SHOULDER AND THE OUTSIDE LANE. THE EASTBOUND TRAFFIC WILL UTILIZE THE INSIDE LANE AND MEDIAN SHOULDER. THE EASTBOUND LANES WILL BE RECONSTRUCTED. DURING THE RECONSTRUCTION OF THE EASTBOUND LANES, SOUTH MALL DRIVE WILL BE CLOSED AND BUSINESSES WILL BE ACCESSED VIA PERRYVILLE ROAD AND VANDIVER ROAD. ACCESS TO THE INTERCHANGE RAMPS WILL BE PROVIDED BY TEMPORARY SIGNALS, THUS FULL ACCESS WILL BE PROVIDED AT THE INTERCHANGE. THE SOUTH LEG OF MILL ROAD WILL BE STAGED TO PROVIDE ACCESS TO CHERRY VALLEY.
I-39 - RAMP AD AND TEMPORARY RAMP AD WILL BE REMOVED.



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 2 STAGE 5
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	66
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LEGEND

WORK ZONE

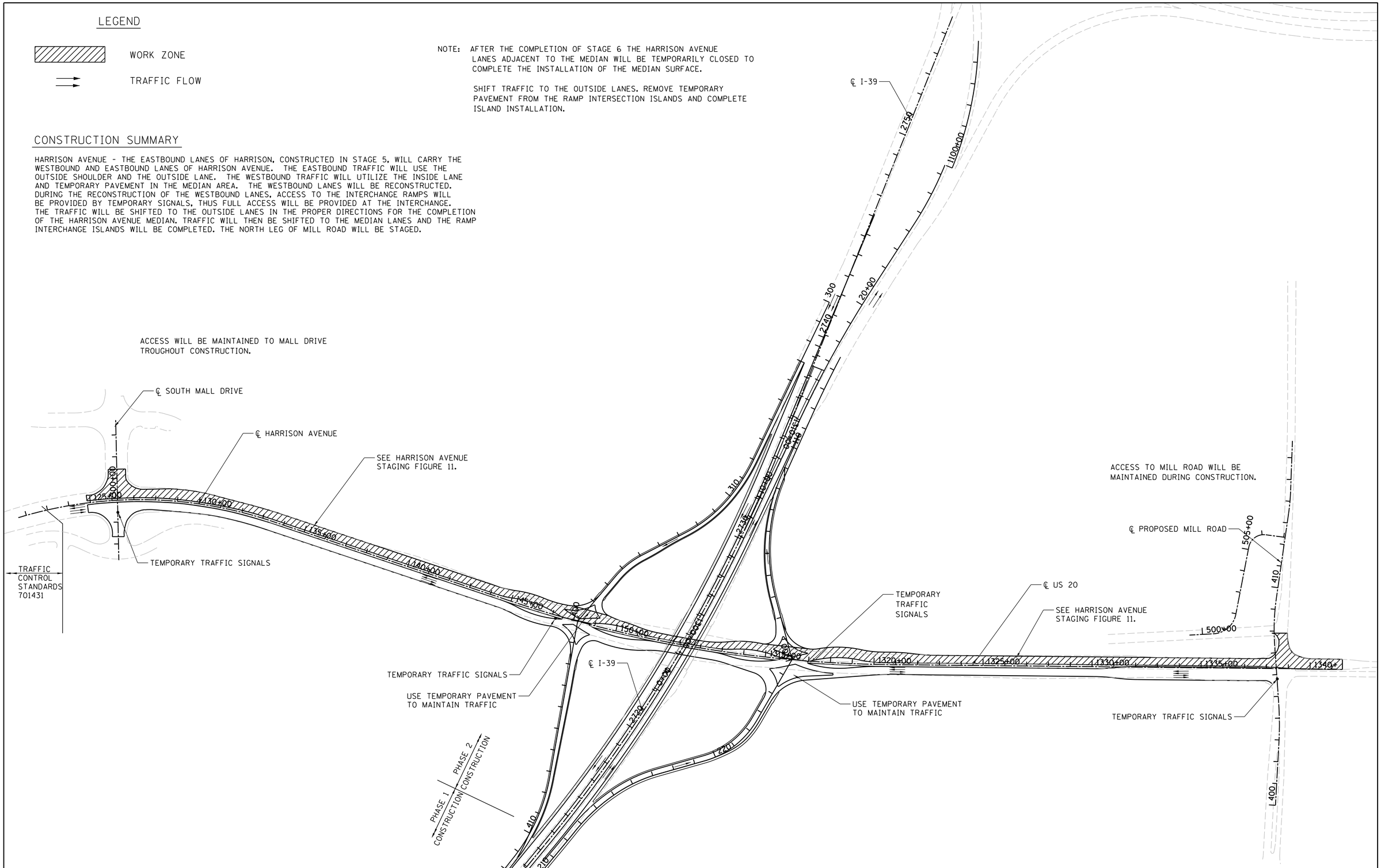
TRAFFIC FLOW

NOTE: AFTER THE COMPLETION OF STAGE 6 THE HARRISON AVENUE LANES ADJACENT TO THE MEDIAN WILL BE TEMPORARILY CLOSED TO COMPLETE THE INSTALLATION OF THE MEDIAN SURFACE.

SHIFT TRAFFIC TO THE OUTSIDE LANES. REMOVE TEMPORARY PAVEMENT FROM THE RAMP INTERSECTION ISLANDS AND COMPLETE ISLAND INSTALLATION.

CONSTRUCTION SUMMARY

HARRISON AVENUE - THE EASTBOUND LANES OF HARRISON, CONSTRUCTED IN STAGE 5, WILL CARRY THE WESTBOUND AND EASTBOUND LANES OF HARRISON AVENUE. THE EASTBOUND TRAFFIC WILL USE THE OUTSIDE SHOULDER AND THE OUTSIDE LANE. THE WESTBOUND TRAFFIC WILL UTILIZE THE INSIDE LANE AND TEMPORARY PAVEMENT IN THE MEDIAN AREA. THE WESTBOUND LANES WILL BE RECONSTRUCTED. DURING THE RECONSTRUCTION OF THE WESTBOUND LANES, ACCESS TO THE INTERCHANGE RAMPS WILL BE PROVIDED BY TEMPORARY SIGNALS, THUS FULL ACCESS WILL BE PROVIDED AT THE INTERCHANGE. THE TRAFFIC WILL BE SHIFTED TO THE OUTSIDE LANES IN THE PROPER DIRECTIONS FOR THE COMPLETION OF THE HARRISON AVENUE MEDIAN. TRAFFIC WILL THEN BE SHIFTED TO THE MEDIAN LANES AND THE RAMP INTERCHANGE ISLANDS WILL BE COMPLETED. THE NORTH LEG OF MILL ROAD WILL BE STAGED.



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
STAGE CONSTRUCTION PHASE 2 STAGE 6
JOB NO. P-92-111-06

SCALE: 1"=200' | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO	xx	67
	06S2055	CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

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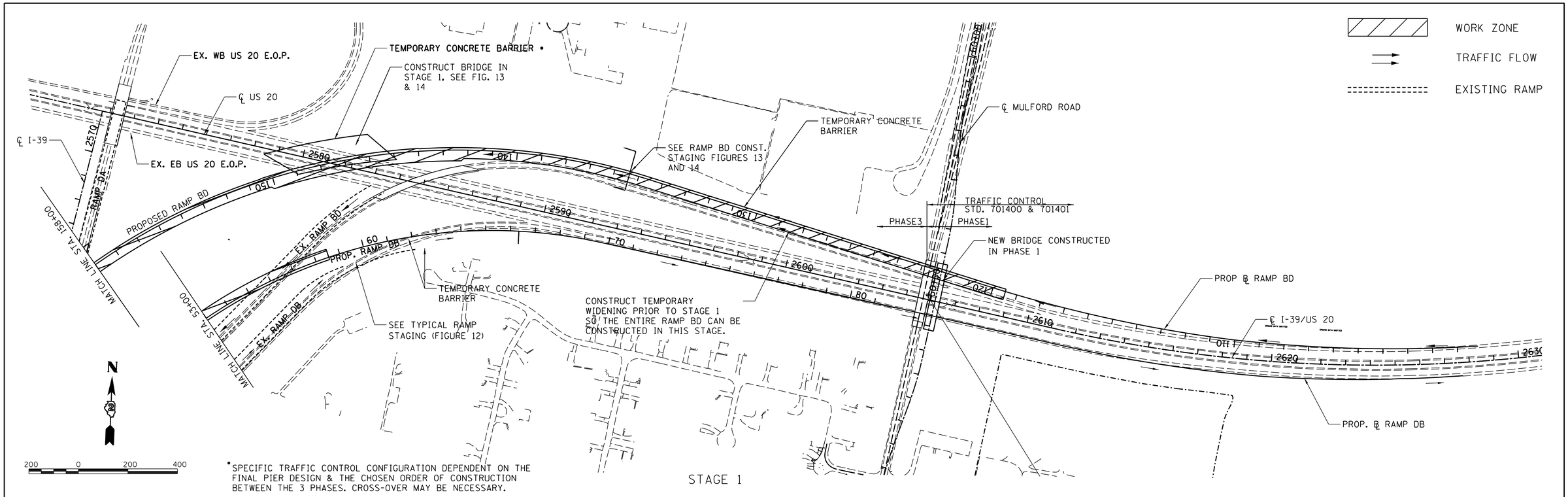
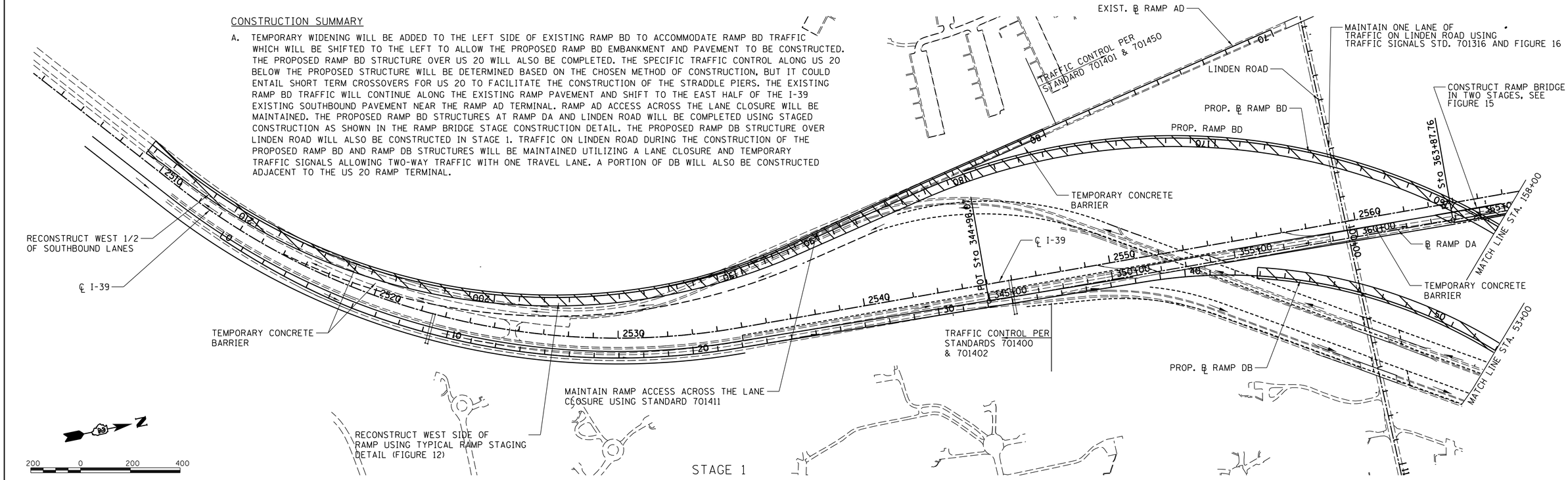


CONSTRUCTION SUMMARY

A. TEMPORARY WIDENING WILL BE ADDED TO THE LEFT SIDE OF EXISTING RAMP BD TO ACCOMMODATE RAMP BD TRAFFIC WHICH WILL BE SHIFTED TO THE LEFT TO ALLOW THE PROPOSED RAMP BD EMBANKMENT AND PAVEMENT TO BE CONSTRUCTED. THE PROPOSED RAMP BD STRUCTURE OVER US 20 WILL ALSO BE COMPLETED. THE SPECIFIC TRAFFIC CONTROL ALONG US 20 BELOW THE PROPOSED STRUCTURE WILL BE DETERMINED BASED ON THE CHOSEN METHOD OF CONSTRUCTION, BUT IT COULD ENTAIL SHORT TERM CROSSOVERS FOR US 20 TO FACILITATE THE CONSTRUCTION OF THE STRADDLE PIERS. THE EXISTING RAMP BD TRAFFIC WILL CONTINUE ALONG THE EXISTING RAMP PAVEMENT AND SHIFT TO THE EAST HALF OF THE I-39 EXISTING SOUTHBOUND PAVEMENT NEAR THE RAMP AD TERMINAL. RAMP AD ACCESS ACROSS THE LANE CLOSURE WILL BE MAINTAINED. THE PROPOSED RAMP BD STRUCTURES AT RAMP DA AND LINDEN ROAD WILL BE COMPLETED USING STAGED CONSTRUCTION AS SHOWN IN THE RAMP BRIDGE STAGE CONSTRUCTION DETAIL. THE PROPOSED RAMP DB STRUCTURE OVER LINDEN ROAD WILL ALSO BE CONSTRUCTED IN STAGE 1. TRAFFIC ON LINDEN ROAD DURING THE CONSTRUCTION OF THE PROPOSED RAMP BD AND RAMP DB STRUCTURES WILL BE MAINTAINED UTILIZING A LANE CLOSURE AND TEMPORARY TRAFFIC SIGNALS ALLOWING TWO-WAY TRAFFIC WITH ONE TRAVEL LANE. A PORTION OF DB WILL ALSO BE CONSTRUCTED ADJACENT TO THE US 20 RAMP TERMINAL.



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stage	PLOT DATE = 3/30/2017	DATE -	REVISED -		SCALE: 1"=200' SHEET NO. OF SHEETS STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

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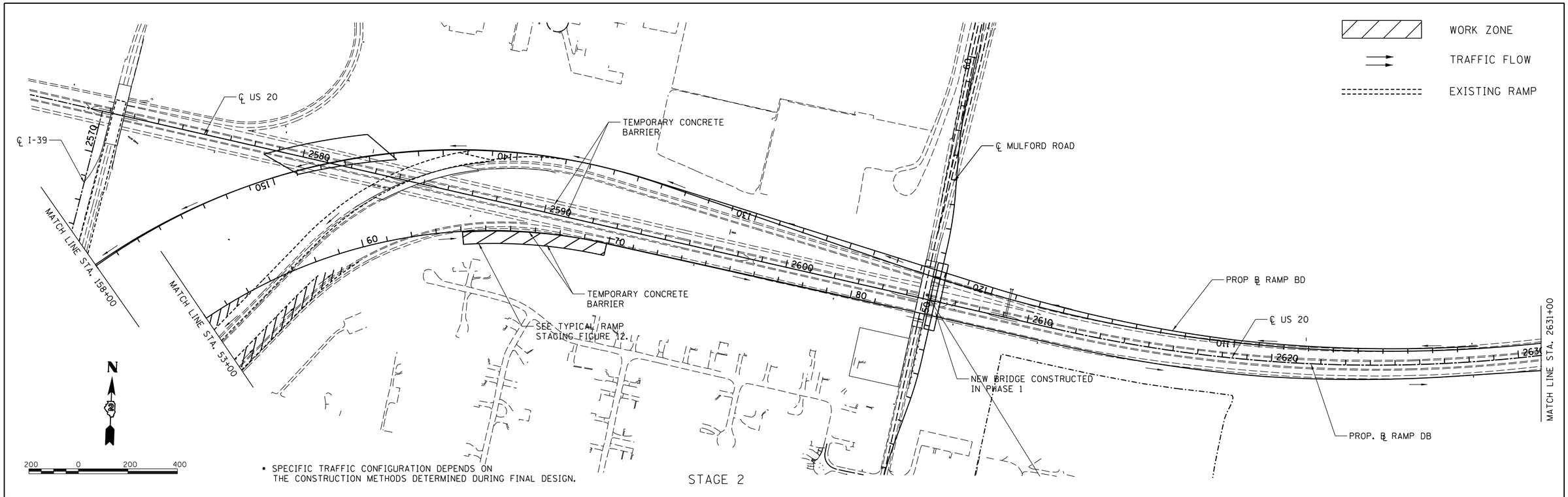
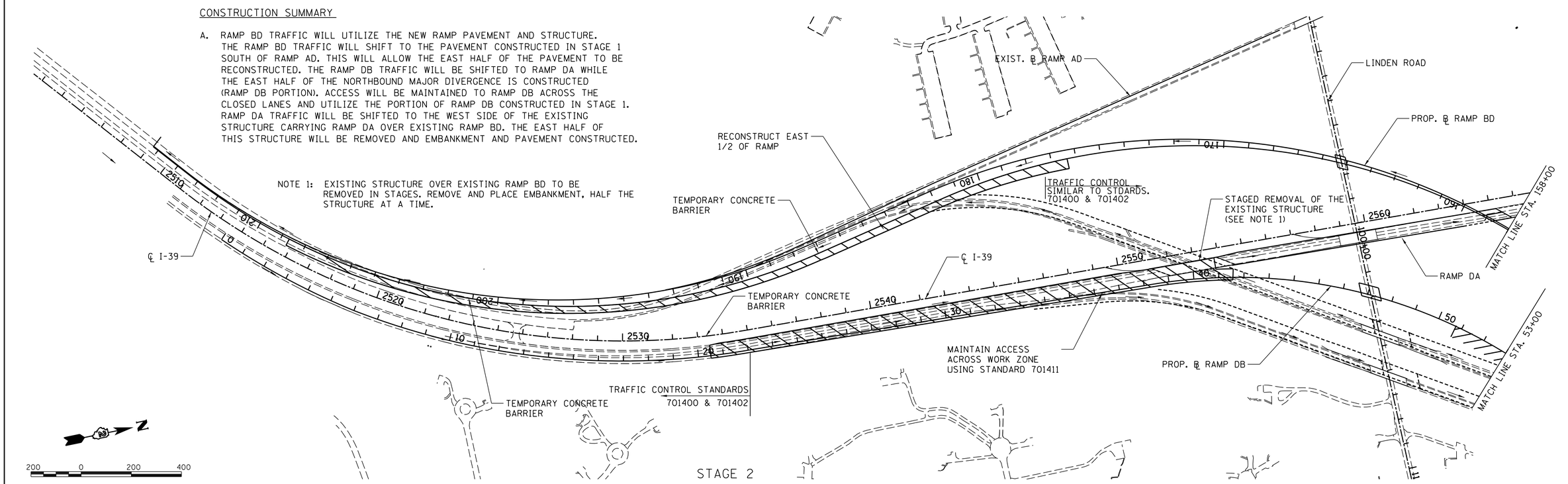


CONSTRUCTION SUMMARY

A. RAMP BD TRAFFIC WILL UTILIZE THE NEW RAMP PAVEMENT AND STRUCTURE. THE RAMP BD TRAFFIC WILL SHIFT TO THE PAVEMENT CONSTRUCTED IN STAGE 1 SOUTH OF RAMP AD. THIS WILL ALLOW THE EAST HALF OF THE PAVEMENT TO BE RECONSTRUCTED. THE RAMP DB TRAFFIC WILL BE SHIFTED TO RAMP DA WHILE THE EAST HALF OF THE NORTHBOUND MAJOR DIVERGENCE IS CONSTRUCTED (RAMP DB PORTION). ACCESS WILL BE MAINTAINED TO RAMP DB ACROSS THE CLOSED LANES AND UTILIZE THE PORTION OF RAMP DB CONSTRUCTED IN STAGE 1. RAMP DA TRAFFIC WILL BE SHIFTED TO THE WEST SIDE OF THE EXISTING STRUCTURE CARRYING RAMP DA OVER EXISTING RAMP BD. THE EAST HALF OF THIS STRUCTURE WILL BE REMOVED AND EMBANKMENT AND PAVEMENT CONSTRUCTED.

NOTE 1: EXISTING STRUCTURE OVER EXISTING RAMP BD TO BE REMOVED IN STAGES. REMOVE AND PLACE EMBANKMENT, HALF THE STRUCTURE AT A TIME.



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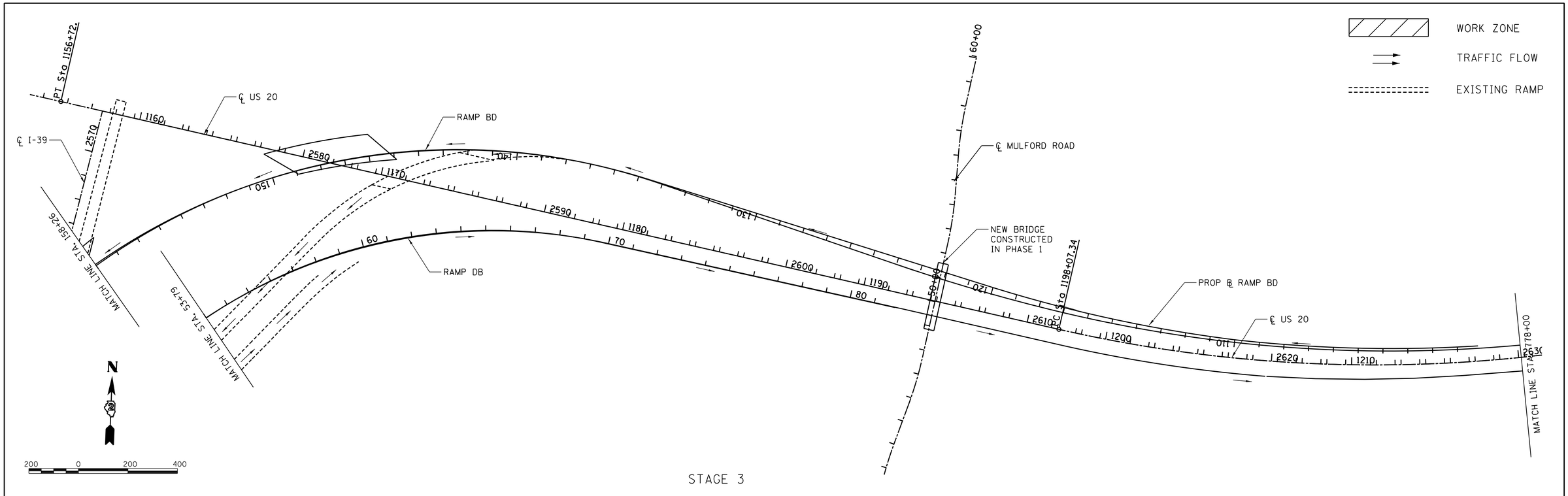
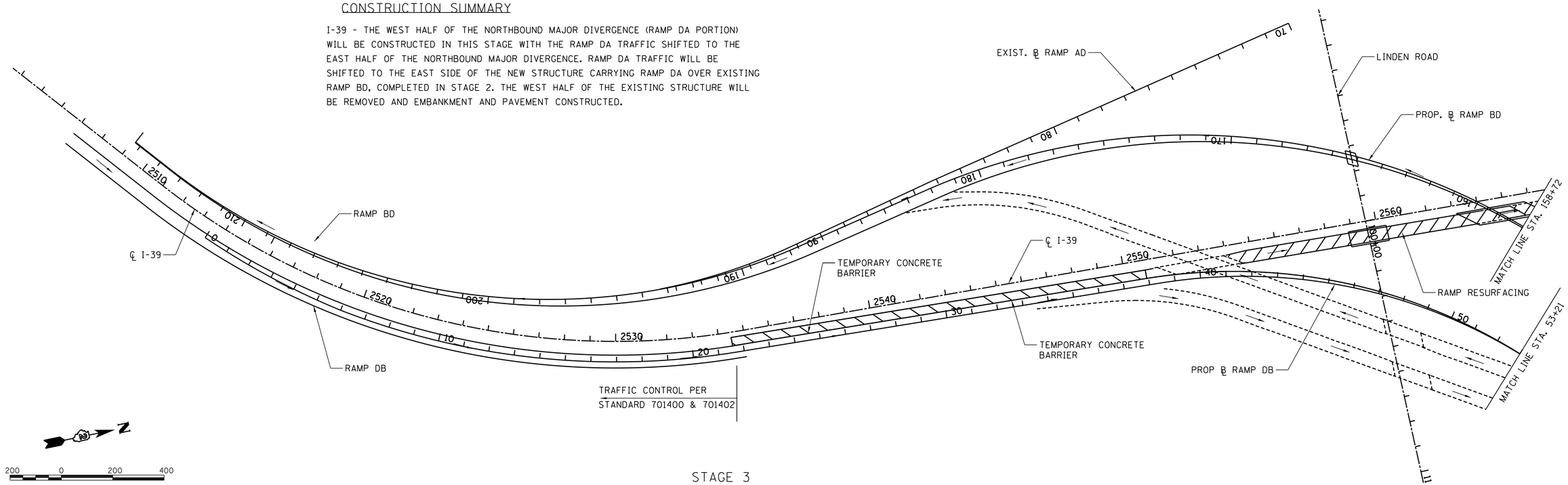


STAGE 3

CONSTRUCTION SUMMARY

I-39 - THE WEST HALF OF THE NORTHBOUND MAJOR DIVERGENCE (RAMP DA PORTION) WILL BE CONSTRUCTED IN THIS STAGE WITH THE RAMP DA TRAFFIC SHIFTED TO THE EAST HALF OF THE NORTHBOUND MAJOR DIVERGENCE. RAMP DA TRAFFIC WILL BE SHIFTED TO THE EAST SIDE OF THE NEW STRUCTURE CARRYING RAMP DA OVER EXISTING RAMP BD, COMPLETED IN STAGE 2. THE WEST HALF OF THE EXISTING STRUCTURE WILL BE REMOVED AND EMBANKMENT AND PAVEMENT CONSTRUCTED.



STAGE 3

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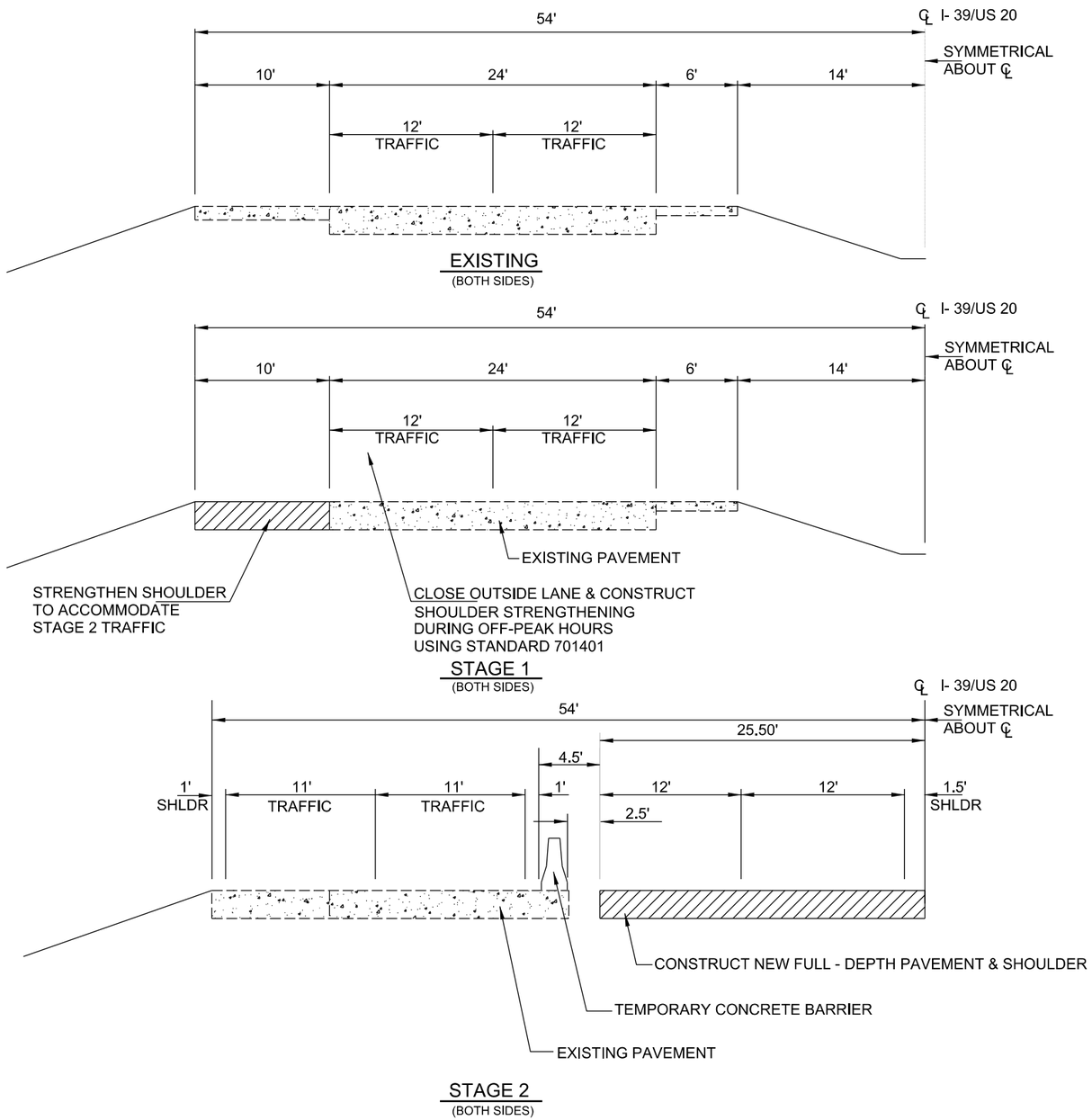

TYPICAL SECTIONS

INTERSTATE 39

US 20

STAGE CONSTRUCTION PHASE 1

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 STAGING FIGURE NO. 1

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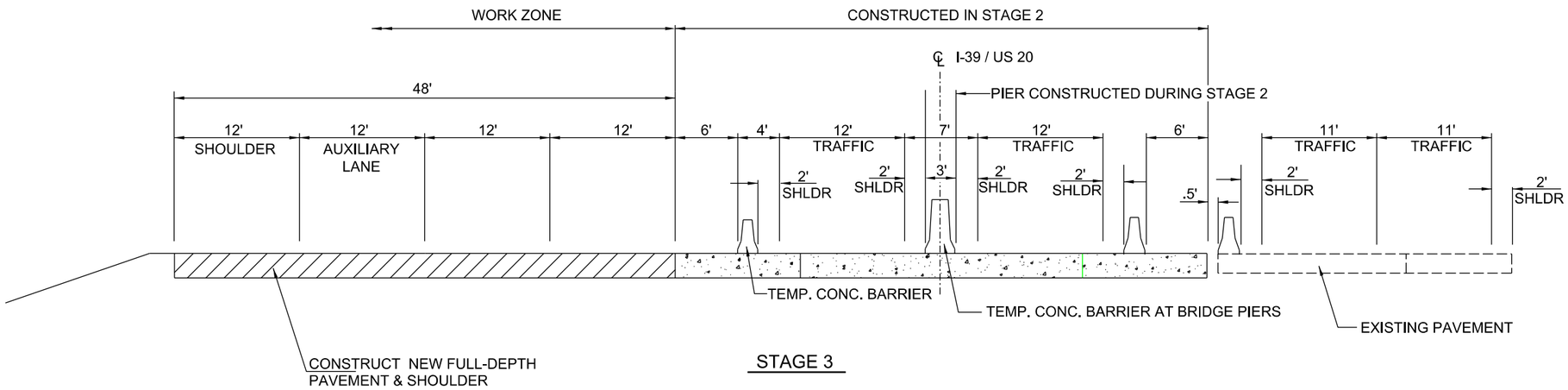
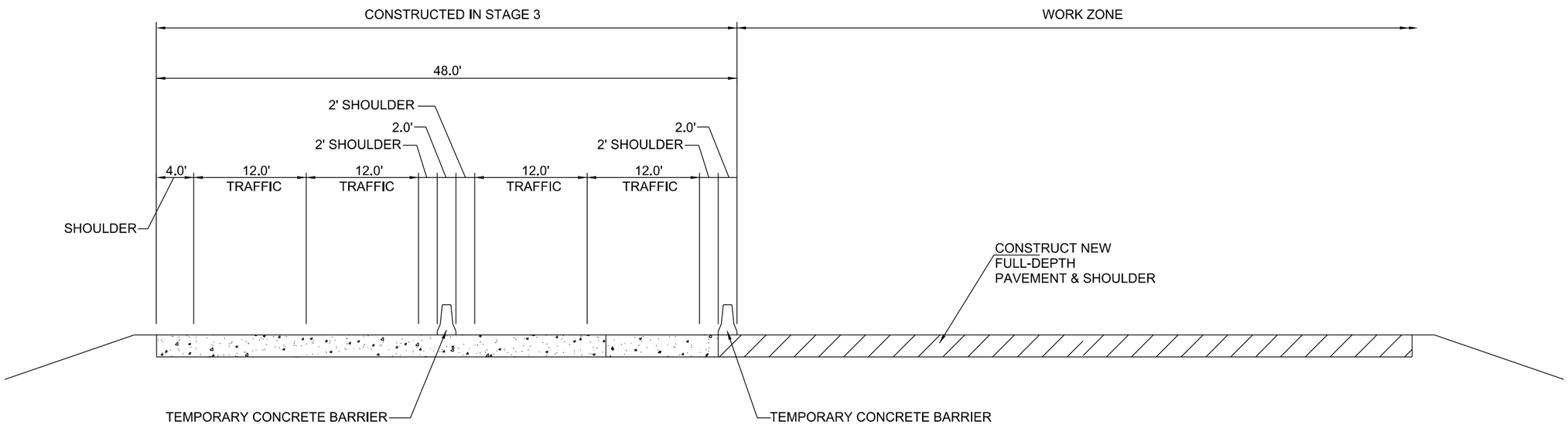


STAGE 3



STAGE 4

INTERSTATE 39

US 20

STAGE CONSTRUCTION PHASE 1	
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06	
HANSON NO. 06S2055	STAGING FIGURE NO. 2

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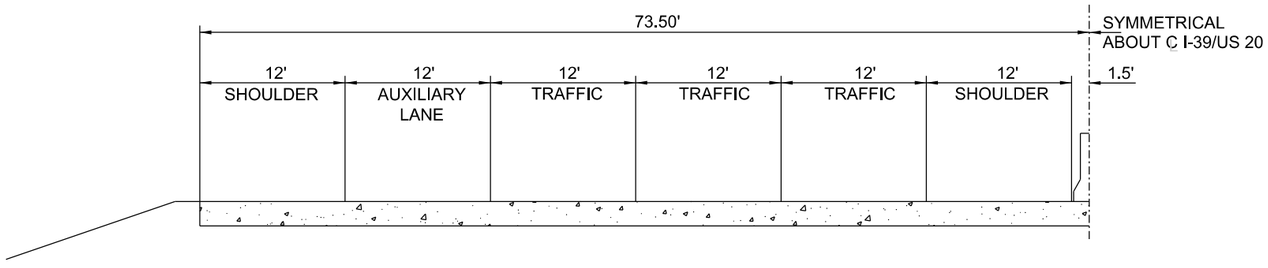

FINAL
END OF PHASE 1

STAGE CONSTRUCTION PHASE 1

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 STAGING FIGURE NO. 3

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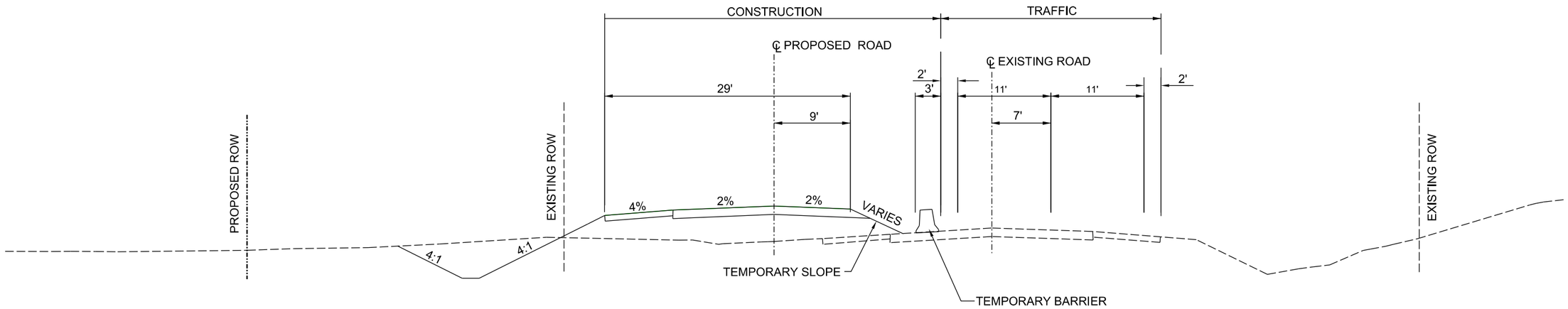
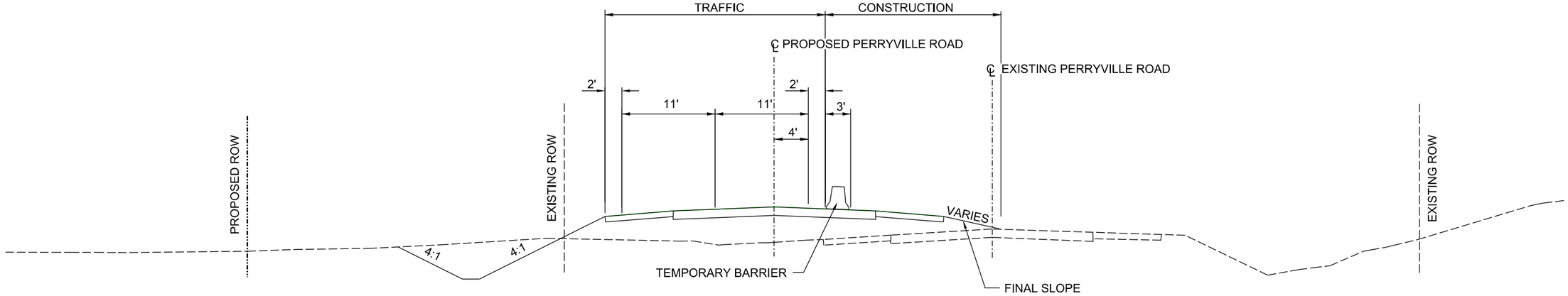


PERRYVILLE & MULFORD ROAD - STAGE 1



PERRYVILLE ROAD - STAGE 2
MULFORD ROAD SIMILAR

INTERSTATE 39

US 20

STAGE CONSTRUCTION PHASE 1

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 STAGING FIGURE NO. 4

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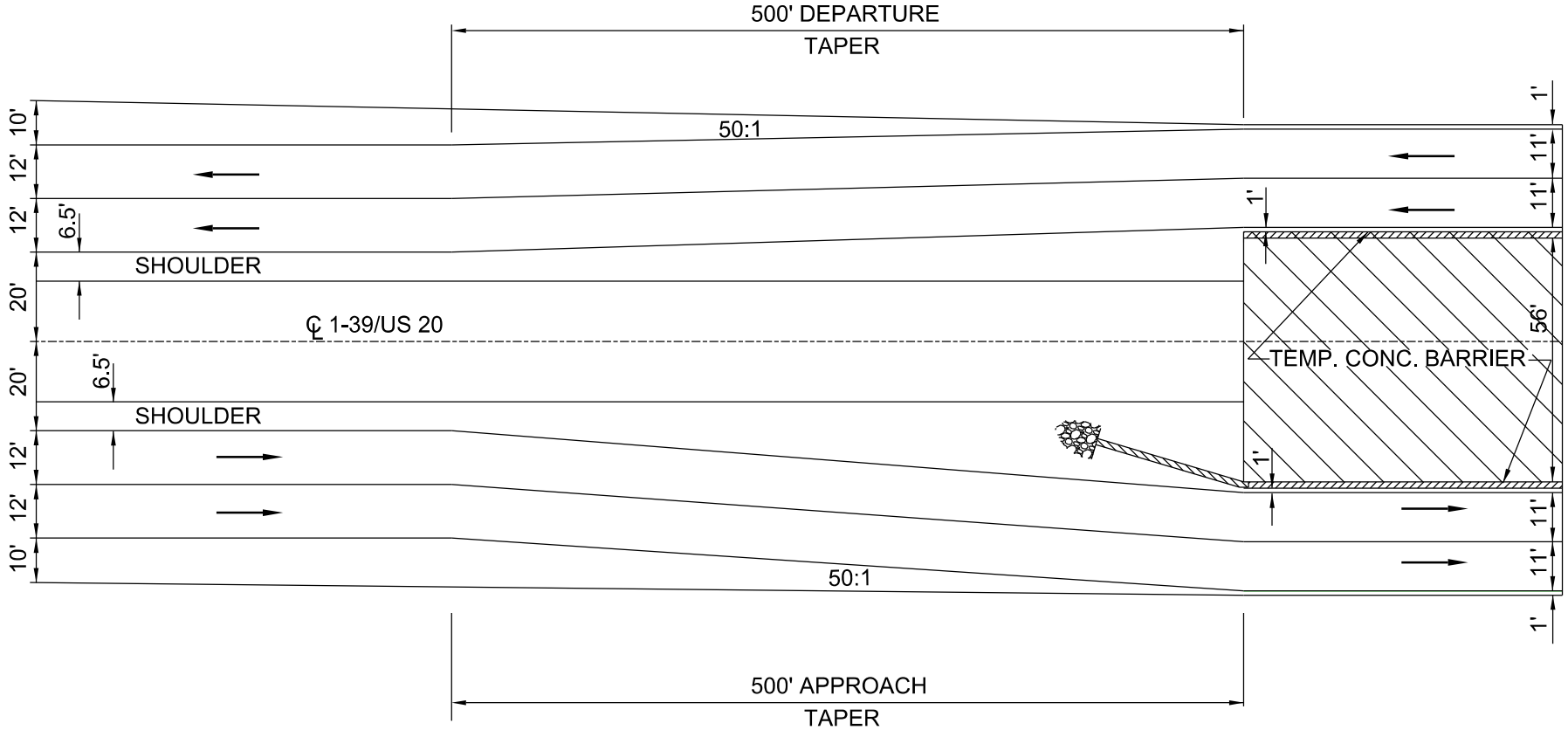


TRAFFIC CONTROL BEGIN & END PHASE 1

STAGE 2

TRAFFIC CONTROL SIMILAR TO STANDARDS
701400 & 701402 WITH NO LANE CLOSURE

LEGEND

- TRAFFIC
- WORK ZONE
- ATTENUATOR

INTERSTATE 39

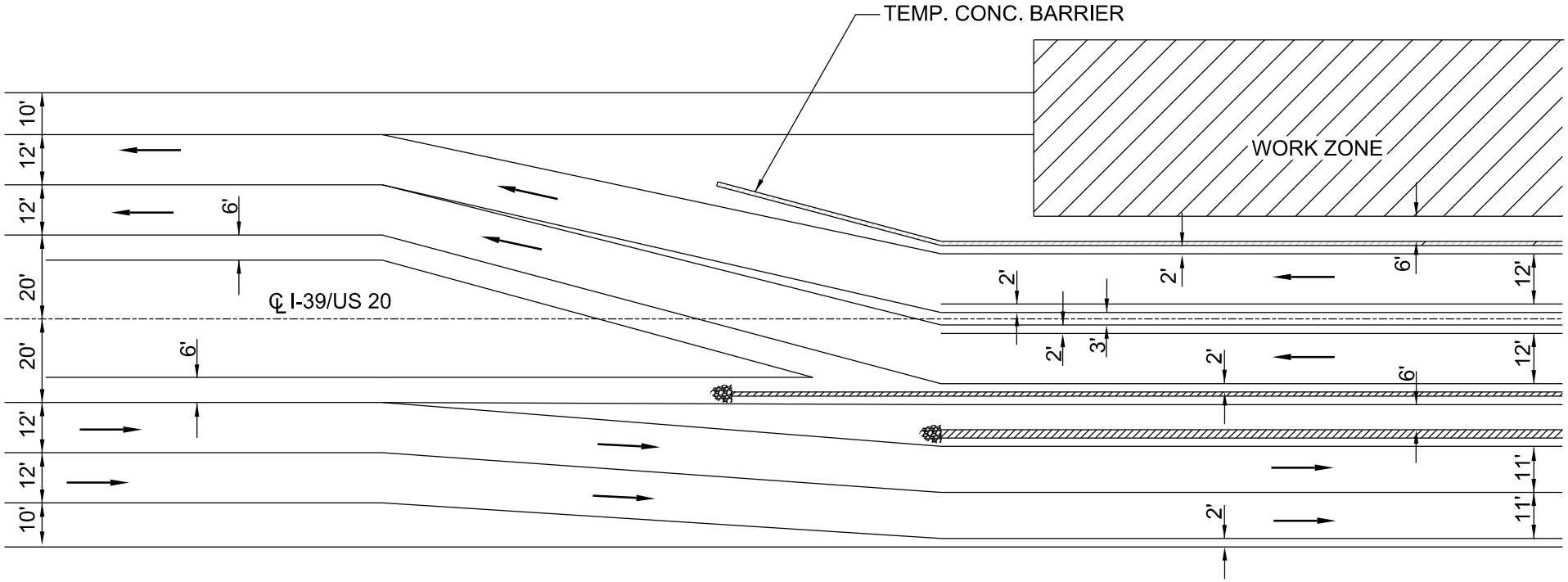
US 20

STAGE CONSTRUCTION PHASE 1

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

STAGING FIGURE NO. 5

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 5 - CONST PH 1.dgn 6/1/2016 Johns00944



TRAFFIC CONTROL BEGIN AND END PHASE 1

STAGE 3

TRAFFIC CONTROL SIMILAR TO STANDARDS
701400 & 701416 WITH NO LANE CLOSURE

LEGEND

- TRAFFIC
- WORK ZONE
- IMPACT ATTENUATOR

INTERSTATE 39

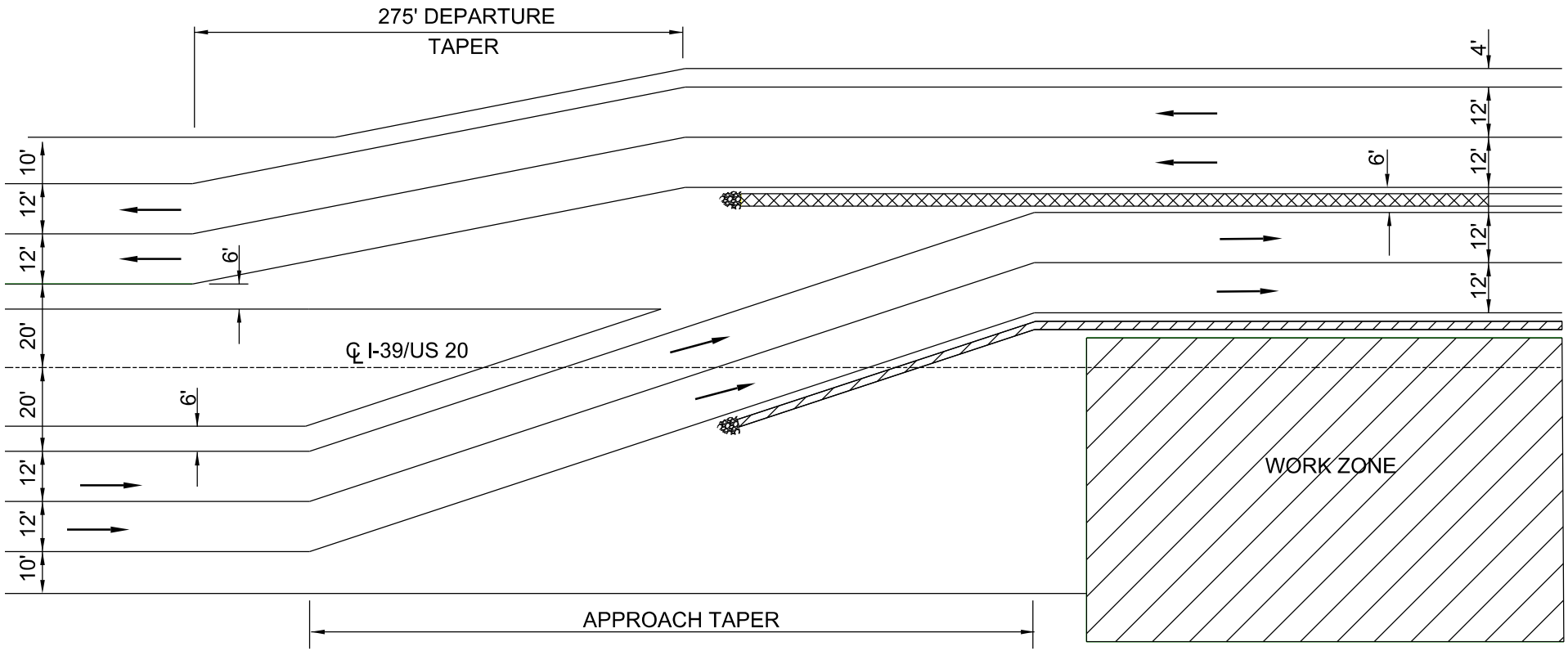
US 20

STAGE CONSTRUCTION PHASE 1

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

STAGING FIGURE NO. 6

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 6 - CONST PH 1.dgn 6/1/2016 Johns00944



TRAFFIC CONTROL BEGIN & END PHASE 1

STAGE 4

TRAFFIC CONTROL SIMILAR TO STANDARDS
701400 & 701416 WITH NO LANE CLOSURE

LEGEND

- TRAFFIC
- WORK ZONE
- TEMPORARY BARRIER
- IMPACT ATTENUATOR

INTERSTATE 39

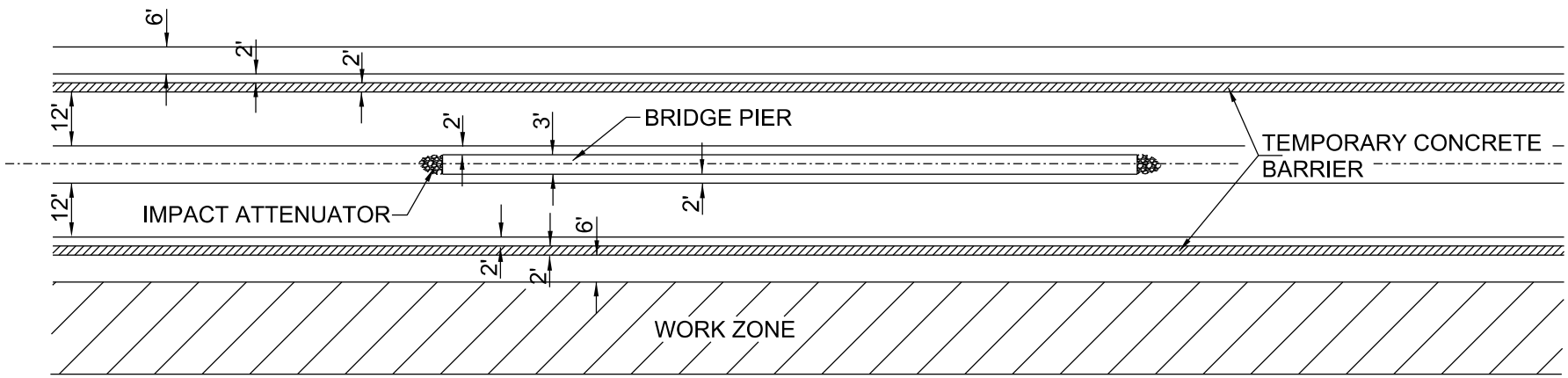
US 20

STAGE CONSTRUCTION PHASE 1

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

STAGING FIGURE NO. 7

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 7 - CONST PH 1.dgn 6/1/2016 Johns00944



USE TEMPORARY CONCRETE BARRIER &
IMPACT ATTENUATOR AT BRIDGE PIER.

STAGE 3

LEGEND

- TRAFFIC
- WORK ZONE
- TEMPORARY BARRIER
- IMPACT ATTENUATOR

INTERSTATE 39

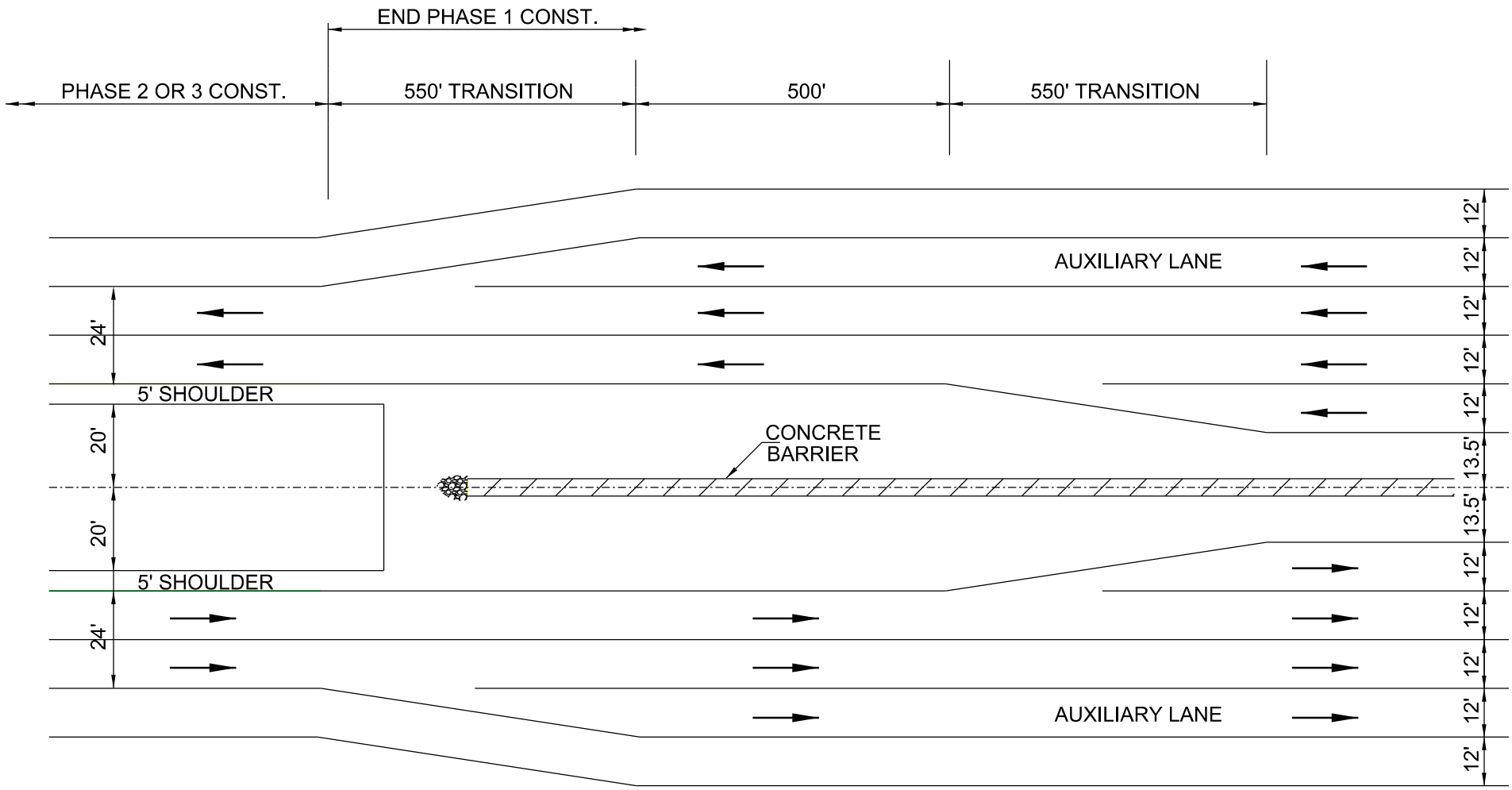
US 20

STAGE CONSTRUCTION PHASE 1

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

STAGING FIGURE NO. 8

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 8 - CONST PH 1.dgn 6/1/2016 Johns00944



LANE TRANSITIONS AT EACH END OF THE PHASE 1 CONSTRUCTION PRIOR TO CONSTRUCTION OF PHASE 2 OR 3. SHOWS TRANSITION FROM PROPOSED 4 LANE SECTION TO EXISTING 2 LANE SECTION.

LEGEND

- TRAFFIC
- WORK ZONE
- IMPACT ATTENUATOR

INTERSTATE 39

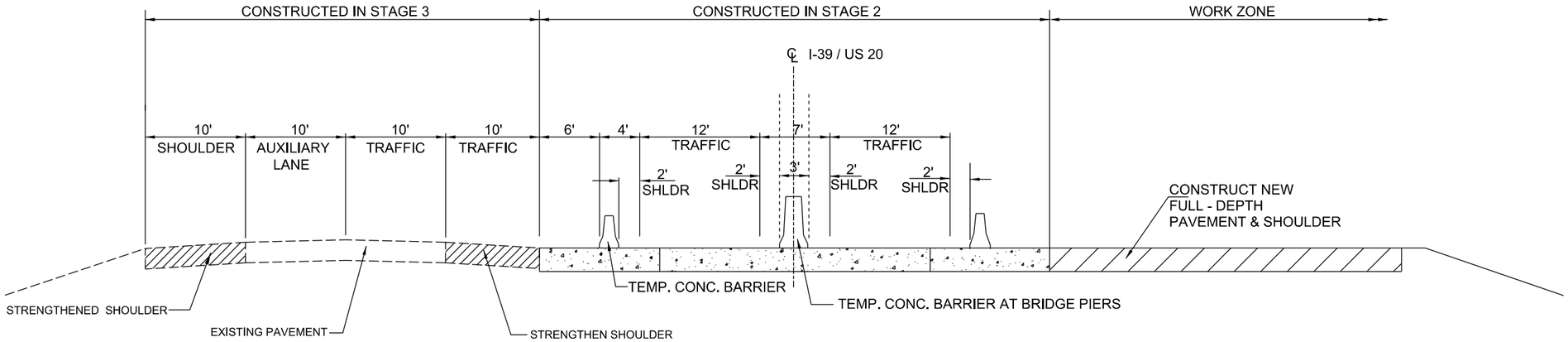
US 20

STAGE CONSTRUCTION PHASE 1

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

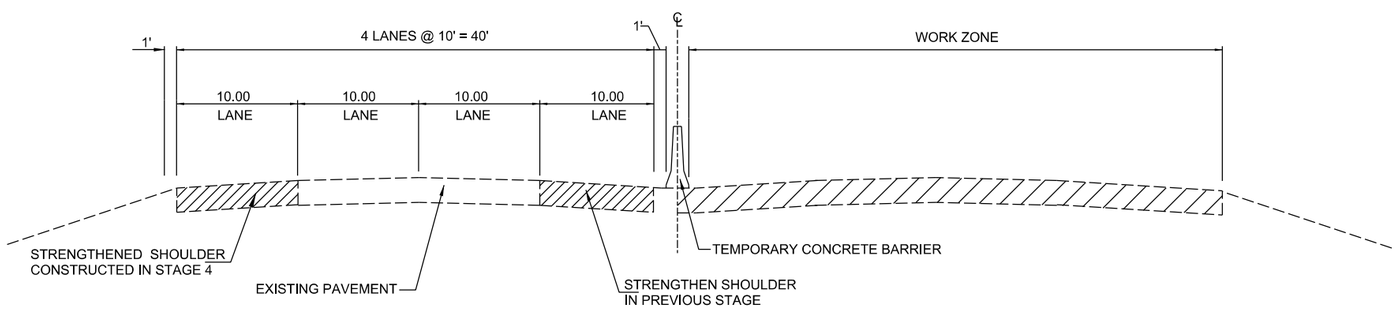
STAGING FIGURE NO. 9

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 9 - CONST PH I.dgn 6/1/2016 Johns00944



HARRISON AVENUE

STAGE CONSTRUCTION PHASE 2 - STAGE 4



HARRISON AVENUE

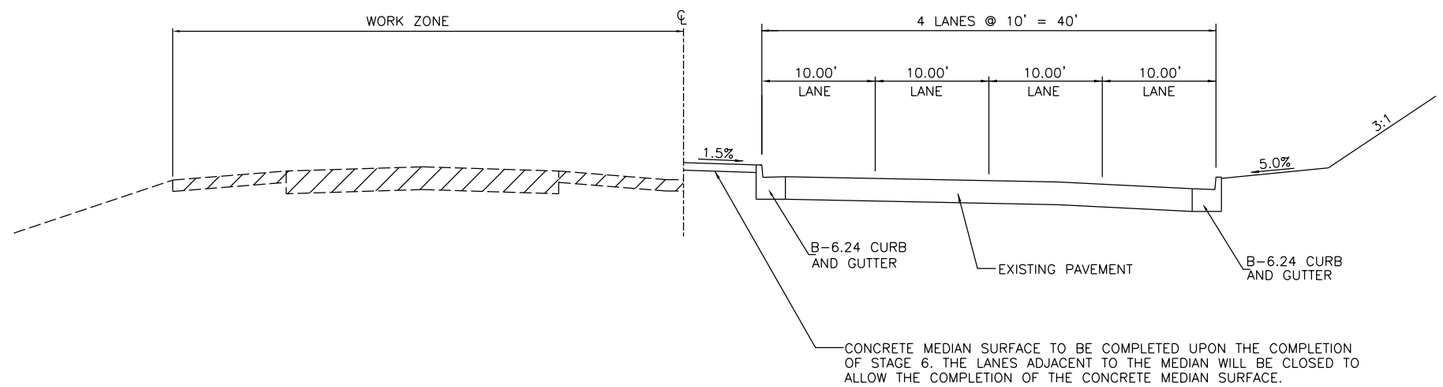
STAGE CONSTRUCTION PHASE 2 - STAGE 5

INTERSTATE 39

US 20

STAGE CONSTRUCTION PHASE 2
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20) SECTIONS (201-3) K & (4-1,5) K WINNEBAGO COUNTY JOB NO. P-92-111-06
HANSON NO. 06S2055 STAGING FIGURE NO. 10

I:\06 Jobs\06S2055\Admin\4-Reports\STAGING\FIGURE 10 - TYPICAL PH 2.dgn 6/2/2016 Johns00944



HARRISON AVENUE

STAGE CONSTRUCTION PHASE 2 - STAGE 6

INTERSTATE 39

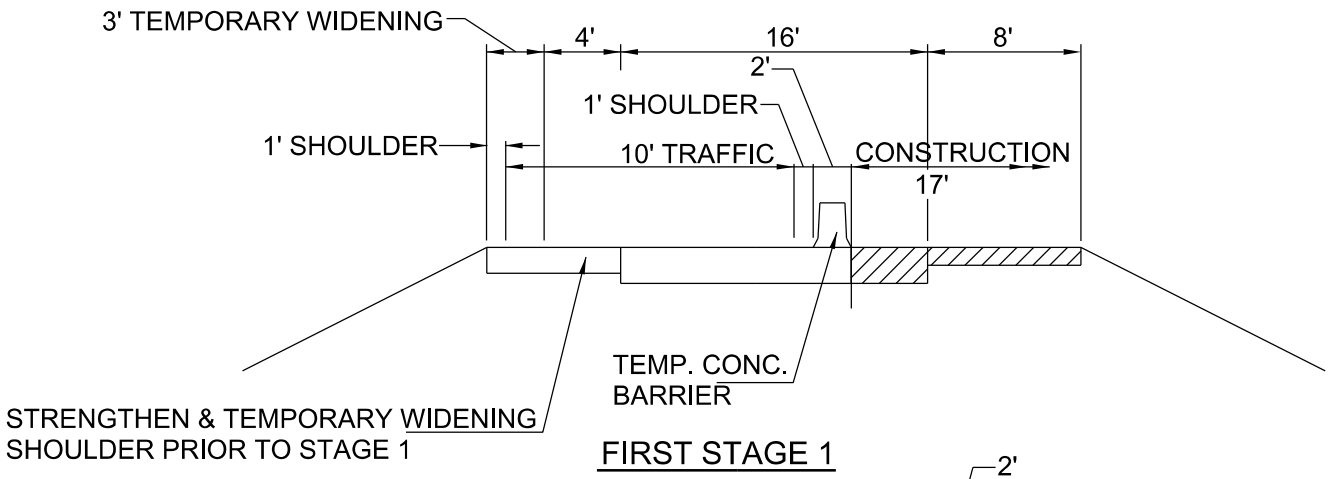
US 20

STAGE CONSTRUCTION PHASE 2

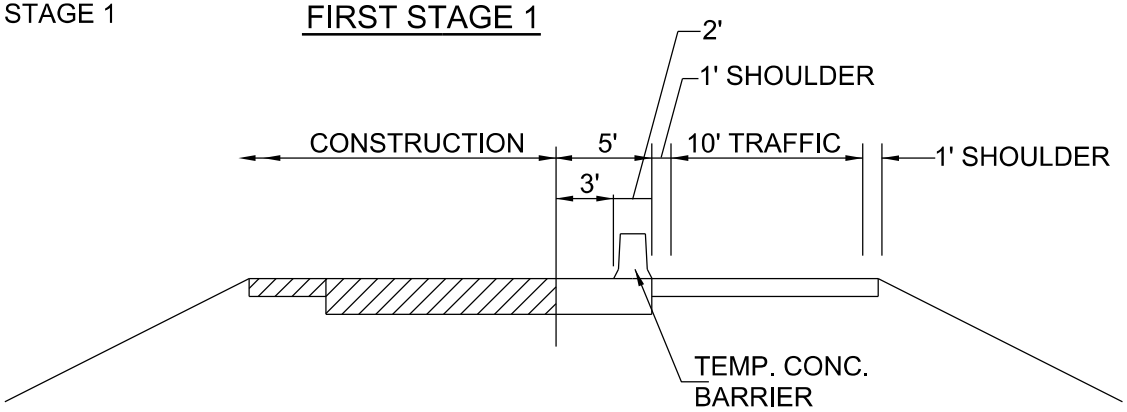
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 STAGING FIGURE NO. 11

I:\06jobs\06S2055\Admin\4-Reports\STAGINGFIGURE 11-TYPICAL PH 2.dgn 6/1/2016 Johns00944



FIRST STAGE 1



SECOND STAGE 2

TYPICAL RAMP STAGING

LEGEND

TRAFFIC

CONSTRUCTION ZONE

INTERSTATE 39

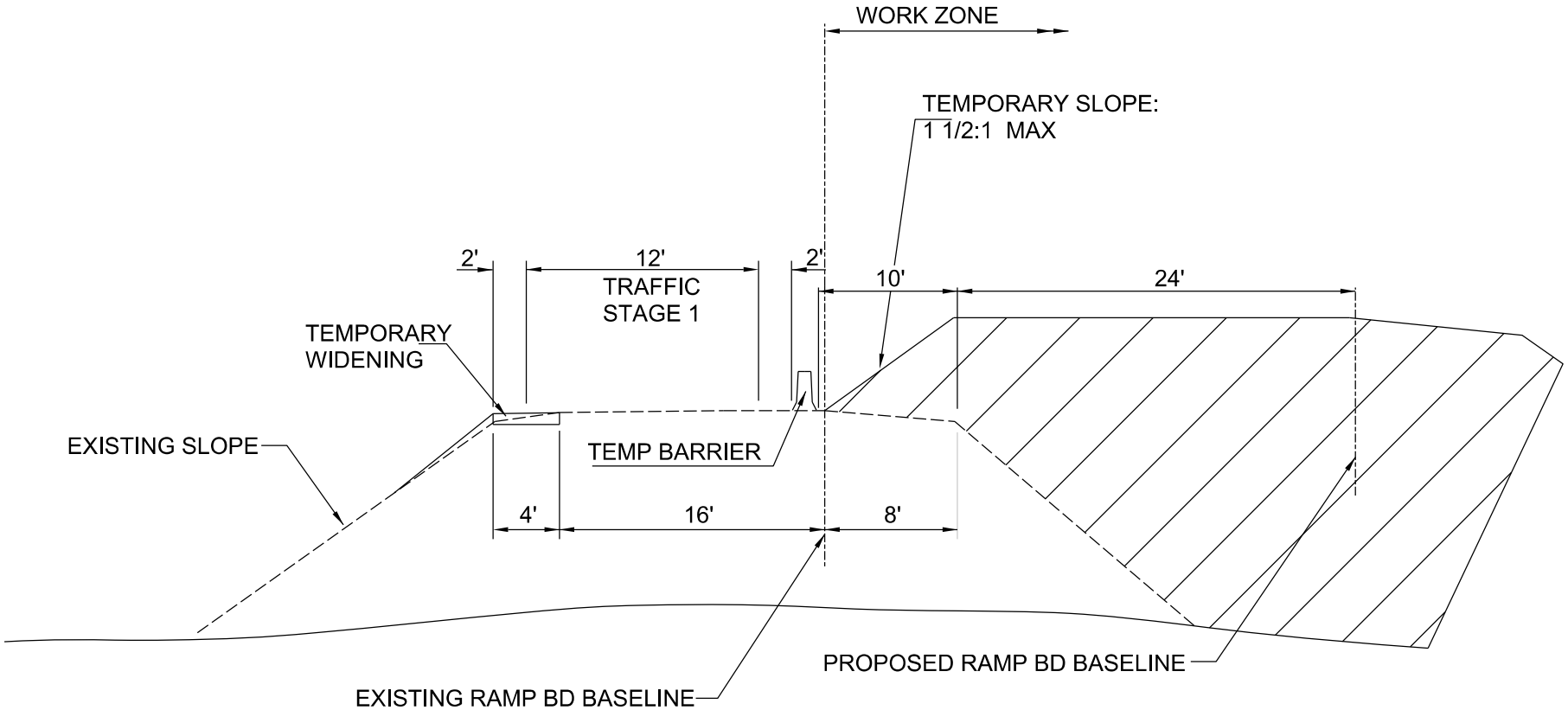
US 20

STAGE CONSTRUCTION PHASE 3

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

STAGING FIGURE NO. 12

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 12 - CONST PH 3.dgn 6/2/2016 Johns00944



RAMP BD STAGE 1A

LEGEND

TRAFFIC

CONSTRUCTION ZONE

INTERSTATE 39

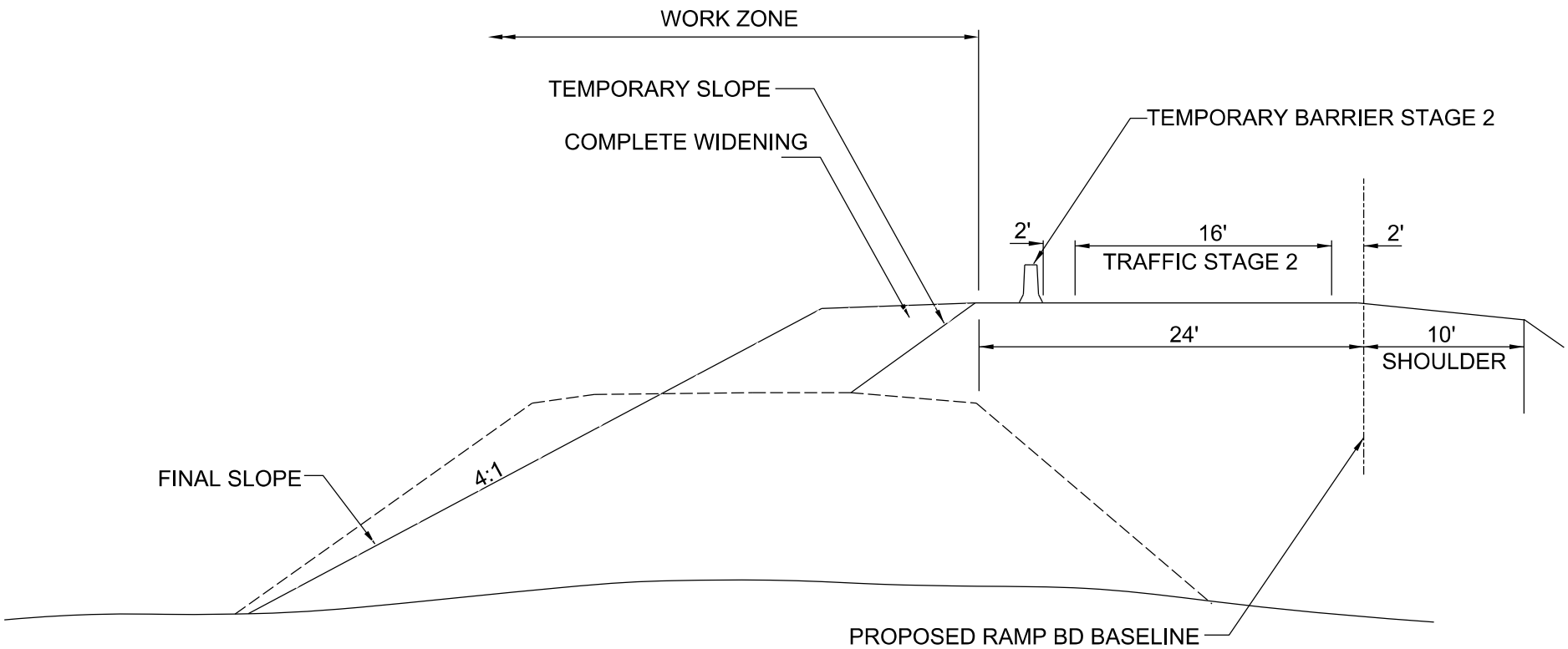
US 20

STAGE CONSTRUCTION PHASE 3

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

STAGING FIGURE NO. 13

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 13 - CONST PH 3.dgn 6/2/2016 Johns00944



RAMP BD STAGE IB

LEGEND

TRAFFIC

CONSTRUCTION ZONE

INTERSTATE 39

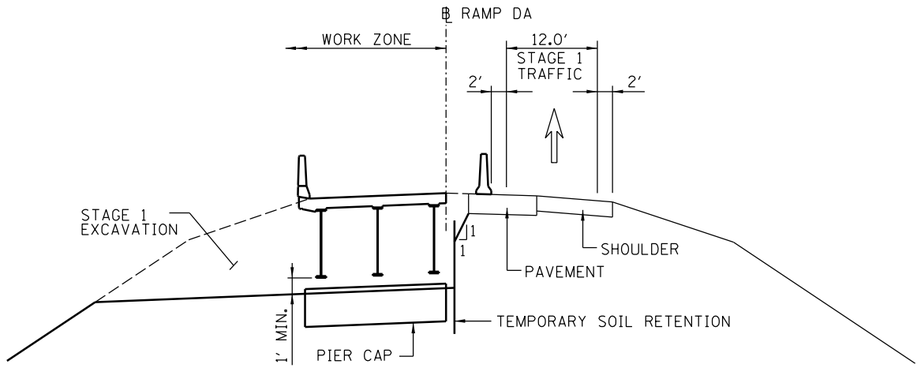
US 20

STAGE CONSTRUCTION PHASE 3

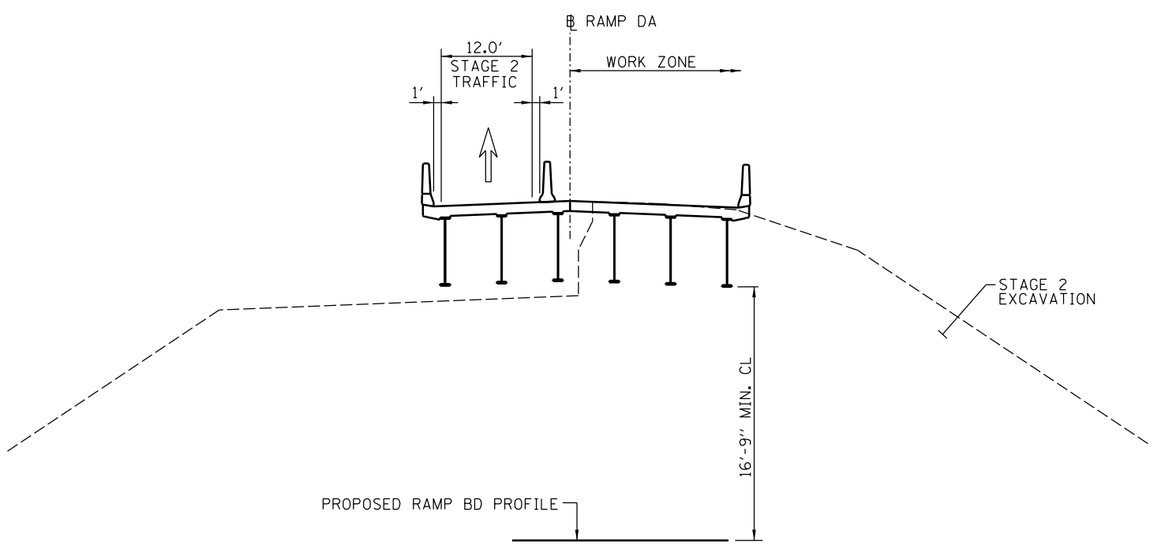
FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

STAGING FIGURE NO. 14

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 14 - CONST PH 3.dgn 6/2/2016 Johns00944



STAGE 1 TYPICAL
RAMP DA OVER RAMP BD



STAGE 2 TYPICAL
RAMP DA OVER RAMP BD

INTERSTATE 39

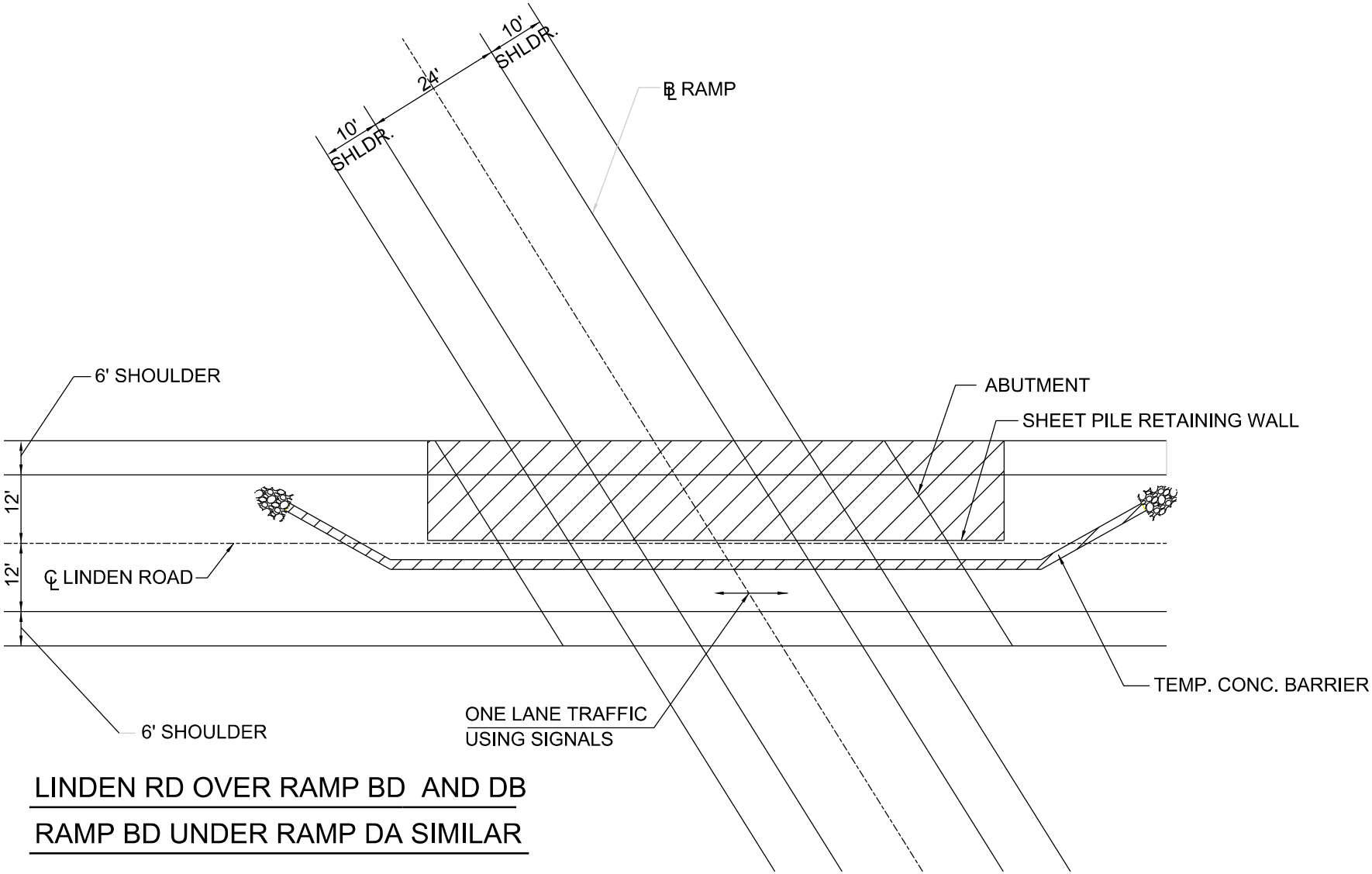
US 20

STAGE CONSTRUCTION PHASE 3

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

HANSON NO. 06S2055 STAGING FIGURE NO. 15

I:\06Jobs\06S2055\Admin\4-Reports\STAGING\FIGURE 15 - TYPICAL PH 3.dgn 6/2/2016 Johns00944



LINDEN RD OVER RAMP BD AND DB

RAMP BD UNDER RAMP DA SIMILAR

LEGEND

- TRAFFIC
- CONSTRUCTION ZONE
- IMPACT ATTENUATOR

INTERSTATE 39

US 20

STAGE CONSTRUCTION PHASE 3

FAI ROUTE 39 (I-39) & FAP ROUTE 301 (US 20)
SECTIONS (201-3) K & (4-1,5) K
WINNEBAGO COUNTY
JOB NO. P-92-111-06

STAGING FIGURE NO. 16

I:\06Jobs\06S2055\AdminV4-Reports\STAGING\FIGURE 16 - CONST PH 3.dgn 6/2/2016 Johns00944

INTERCHANGE & INTERSECTION DESIGN STUDIES

PLOT DATE = 08\14\2012
FILE NAME = I:\0Jobs\06S2055\CADD\Road\Sheet\C-IDS-01.dgn
PLOT SCALE = 200.0000 ' / in.
USER NAME = alingo1230

EXIST. CURVE I39C4
PI STA. = 2482+69.55
Δ = 50° 10′ 11″ (RT)
D = 1° 30′ 00″
R = 3,819.80′
T = 1,788.09′
L = 3,344.71′
E = 397.80′
P.C. STA. = 2464+81.46
P.T. STA. = 2498+26.17

EXIST. CURVE I39C1
PI STA. = 2523+70.40
Δ = 48° 02′ 45″ (LT)
D = 2° 00′ 00″
R = 2,864.85′
T = 1,276.89′
L = 2,402.34′
E = 271.68′
P.C. STA. = 2510+93.52
P.T. STA. = 2534+95.86
e = 6%
L_{ML} = 360′
TR_{ML} = 54′
STA. 2533+75 6%
- 2538+11 N.C.

EXIST. CURVE PRAMPDB-1
PI STA. = 3+01.05
Δ = 11° 41′ 36″ (LT)
D = 1° 56′ 56″
R = 2,939.98′
T = 301.05′
L = 600.01′
E = 15.37′
P.C. STA. = 0+00.00
P.C.C. STA. = 6+00.01

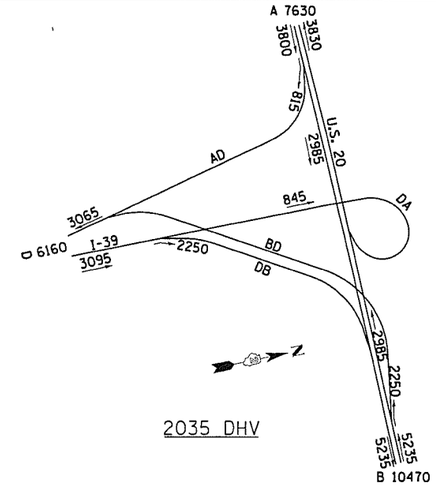
PROP. CURVE PRAMPDB-2
PI STA. = 14+23.59
Δ = 31° 14′ 58″ (LT)
D = 1° 56′ 44″
R = 2,944.85′
T = 823.58′
L = 1,606.13′
E = 113.00′
P.C.C. STA. = 6+00.01
P.T. STA. = 22+06.14
e = 6%
L_{ML} = 360′
TR_{ML} = 54′
STA. 20+81.91 6%
- 25+20.30 N.C.

PROP. CURVE PRAMPDB-3
PI STA. = 58+02.34
Δ = 87° 28′ 22″ (RT)
D = 2° 47′ 42″
R = 2,050.00′
T = 1,961.51′
L = 3,129.71′
E = 787.26′
P.C. STA. = 38+40.82
P.T. STA. = 69+70.53
e = 6%
L_{ML} = 270′
TR_{ML} = 40′
STA. 37+51 2%
- STA. 39+31 6%
STA. 68+81 6%
- STA. 70+61 2%

PROP. CURVE PRAMPAD-1
PI STA. = 93+90.51
Δ = 13° 54′ 21″ (RT)
D = 2° 31′ 54″
R = 2,263.12′
T = 275.99′
L = 549.27′
E = 16.77′
P.C. STA. = 91+14.52
P.T. STA. = 96+63.79
e = MATCH CURVE
- PRAMPBD-4
SE TRANSITIONS MATCH
- PRAMPBD-4

PROP. CURVE PRAMPBD-3
PI STA. = 169+10.06
Δ = 107° 00′ 23″ (LT)
D = 2° 14′ 49″
R = 2,550.00′
T = 3,446.54′
L = 4,762.42′
E = 1,737.32′
P.C. STA. = 134+63.52
P.T. STA. = 182+25.95
e = 5.8%
L_{ML} = 261′
TR_{ML} = 40′
STA. 132+50 N.C.
- STA. 135+50 5.8%
STA. 181+39 5.8%
- STA. 184+40 N.C.

PROP. CURVE PRAMPBD-4
PI STA. = 202+05.68
Δ = 61° 57′ 49″ (RT)
D = 2° 23′ 14″
R = 2,400.00′
T = 1,441.03′
L = 2,595.52′
E = 399.39′
P.C. STA. = 187+64.65
P.T. STA. = 213+60.17
e = 5.8%
L_{ML} = 264′
TR_{ML} = 39′
STA. 185+65 N.C.
- 188+68 5.8%
STA. 212+72 5.8%
- 215+75 N.C.



SHEET NUMBER

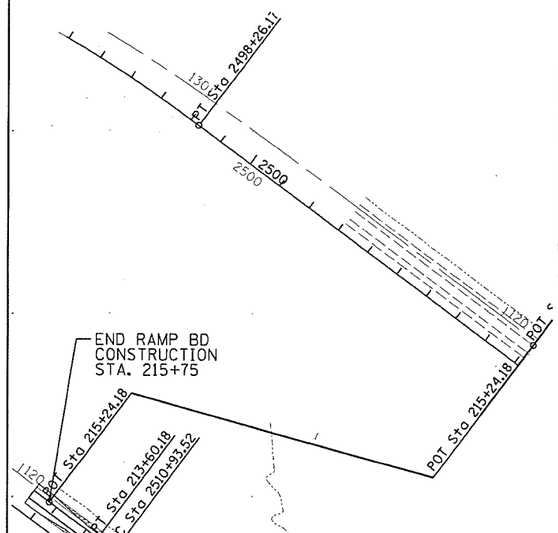
ELEMENTS CONTROLLING DESIGN

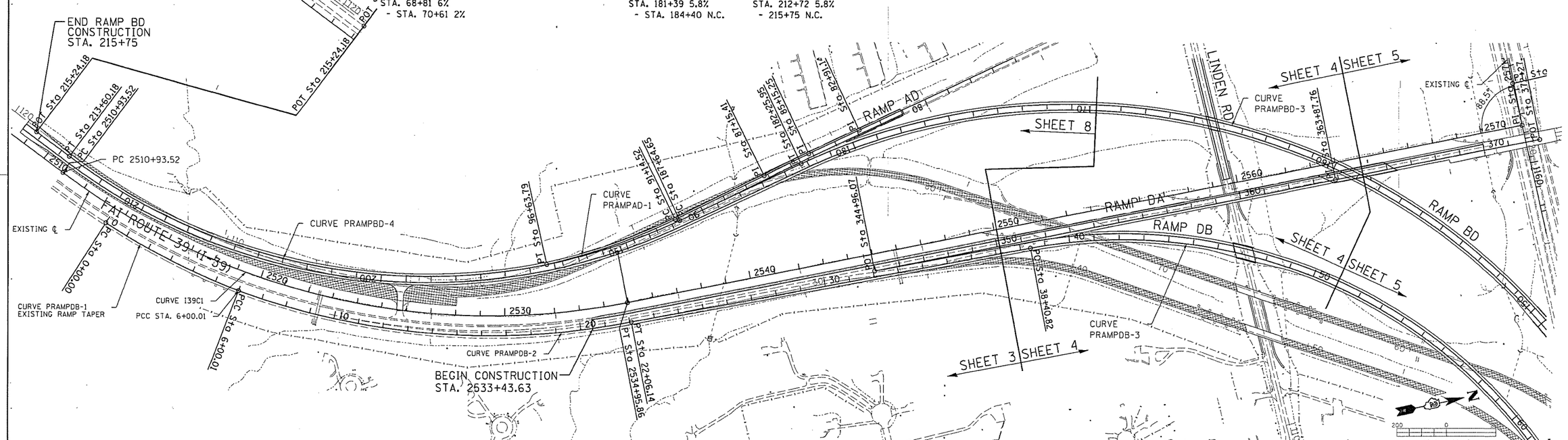
1. DESIGN DESIGNATION FAI ROUTE 39 (INTERSTATE 39) - INTERSTATE FREEWAY
   FAP ROUTE 301 (US ROUTE 20 BYPASS) - MAJOR ARTERIAL/FREEWAY
2. FAI 39 IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION 2015
4. TRAFFIC CONTROL TO BE N/A
5. DESIGN CRITERIA NEW CONSTRUCTION - CHAPTER 37 AND CHAPTER 44 BDE MANUAL
6. DESIGN VEHICLE : WB-65
7. TRUCK ROUTE DESIGNATION : INTERSTATE 39 & US ROUTE 20 ARE CLASS I TRUCK ROUTES

	FAI ROUTE 39	FAP ROUTE 301	RAMPS	RAMP AD (EXIST)	RAMP DA (EXIST)
8. DESIGN SPEED	70 MPH	70 MPH	70 MPH	50 MPH	50 MPH
9. POSTED SPEED	65 MPH	65 MPH	65 MPH	45 MPH	45 MPH

GENERAL NOTES

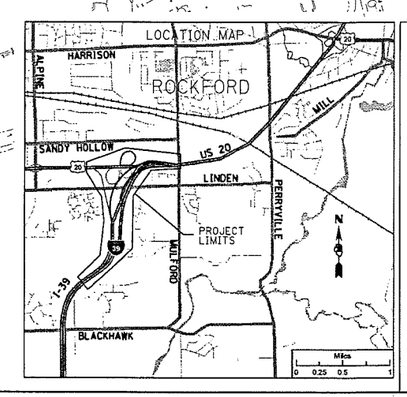
1. PROFILES ARE/NOT PROVIDED, SINCE APPROACH GRADES ARE ON NEW ALIGNMENTS
2. TYPE N/A CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT
3. TYPE N/A CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND
4. ALL DIMENSIONS ARE SHOWN F-F OF CURB
5. ALL ROUTES ARE FULLY ACCESS CONTROLLED
6. PROPOSED RIGHT-OF-WAY IS PRELIMINARY AND SUBJECT TO REVISION DURING PREPARATION OF THE FINAL PLANS.
7. NO SECTION OF THE INTERCHANGE HAS BEEN IDENTIFIED AS A TOP 5% CRASH LOCATION BETWEEN 2008 AND 2010.
8. SCOPE OF WORK : RECONSTRUCTION OF THE INTERCHANGE AT I-39 AND US 20 TO ACCOMMODATE HIGH SPEED MOVEMENT ON NORTHBOUND AND SOUTHBOUND I-39





TRAFFIC VOLUMES

MOVEMENT	YEAR 2015 30TH MAXIMUM HOUR TRAFFIC (EXISTING)		PERCENT TRUCK TRAFFIC IN 30TH	ESTIMATED PERCENT INCREASE BY 2025		YEAR 2025 30TH MAXIMUM HOUR TRAFFIC (FORECASTED)		ESTIMATED PERCENT INCREASE BY 2035		YEAR 2035 30TH MAXIMUM HOUR TRAFFIC (FORECASTED)	
	AM	PM	MAX. HOUR	AM	PM	AM	PM	AM	PM	AM	PM
AB	1820	1820	9%	28%	28%	2330	2330	64%	64%	2985	2985
AD	495	495	15%	28%	28%	635	635	65%	65%	815	815
AC											
BA	1820	1820	11%	28%	28%	2330	2330	64%	64%	2985	2985
BC											
BD	1370	1370	40%	28%	28%	1755	1755	64%	64%	2250	2250
CD											
CA											
CB											
DC											
DB	1370	1370	40%	28%	28%	1755	1755	64%	64%	2250	2250
DA	515	515	17%	28%	28%	660	660	64%	64%	845	845
TOTAL A	4650	4650				5955	5955			7630	7630
TOTAL B	6380	6380				8170	8170			10470	10470
TOTAL C											
TOTAL D	3750	3750				4805	4805			6160	6160



INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. 20 BYPASS)

SEC. NO. (201-3)K & (4-1,5)K — PROJ. NO. P-92-111-06
SCALE 1"=200′ — COUNTY WINNEBAGO
SJN : — REV. NO. —

DESIGNED BY HANSON PROFESSIONAL SERVICES DATE 06-13-12
SATISFACTORY — DISTRICT GEOMETRICS ENGINEER — 9/27/12 DATE
SATISFACTORY — DISTRICT PROGRAM DEVELOPMENT ENGINEER — 10/1/12 DATE
SATISFACTORY — DISTRICT OPERATIONS ENGINEER — 10-2-12 DATE
APPROVED — DEPUTY DIRECTOR OF HIGHWAYS, REGION TWO ENGINEER — 10/12/12 DATE

CADD FILE NAME : (_____)_____ I.D.S. SHEET 1 OF 23

BDE-9909

PLOT DATE = 08\14\2012
FILE NAME = I:\95Jobs\095S2055\CADD\Road\Sheets\C-IDS-02.dgn
PLOT SCALE = 200.0000 ' / in.
USER NAME = alingu12.30

INTERCHANGE TYPE STUDY

PROGRAM USED HCS+ 5.21

Weaving Section		U.S. 20 EASTBOUND
Terrain/Grade		Level
Type of Weave		Type A
Number of Total Lanes		3
Length of Weaving (ft(m))		1444' (440m)
Volume 1 (Through Volume)	AM	2201
	PM	2201
Volume 2 (Exit Weave)	AM	619
	PM	619
Volume 3 (Entrance Weave)	AM	784
	PM	784
Volume 4 (Ramp-Ramp)	AM	196
	PM	196
TRUCK TYPES		Trucks & Busses, RV
% Trucks		9%
% Other Vehicles		2%
Population Factor		1%
Level of Service (Weaving Vehicles)	AM	D
	PM	D
Level of Service (Non-Weaving Vehicles)	AM	C
	PM	C
Weaving Speed	AM	42.1
	PM	42.1
Non-Weaving Speed	AM	48.1
	PM	48.1
Constrained/Unconstrained		Unconstrained

INTERCHANGE TYPE STUDY

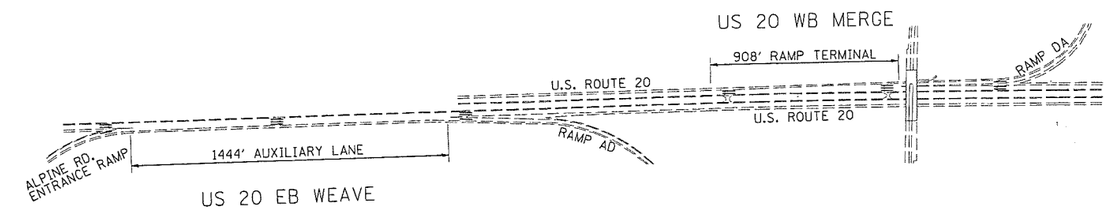
PROGRAM USED HCS+ 5.21

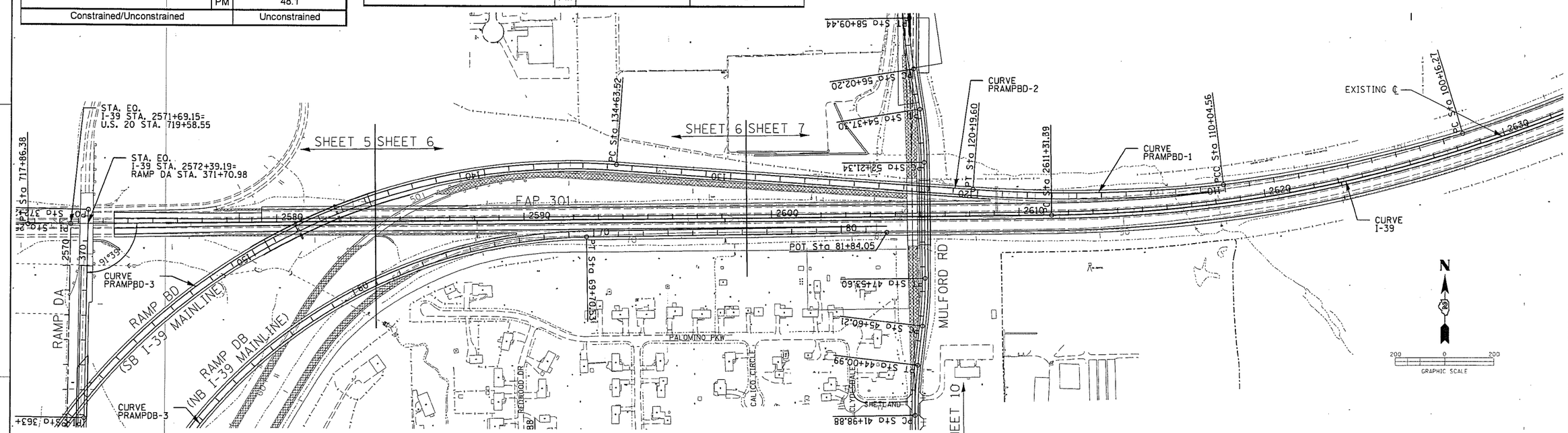
APPROACH		U.S. 20 WESTOUND	I-39 SOUTHBOUND
RAMP TYPE		MERGE	MERGE
DISTANCE TO ADJACENT RAMPS (ft (m))		3926' (1,197m)	6880' (2,097m)
TERRAIN/GRADE		LEVEL	LEVEL
FREEWAY VOLUME	AM	2985	2250
	PM	2985	2250
RAMP VOLUME	AM	845	815
	PM	845	815
TRUCK TYPES		Trucks & Busses, RV	Trucks & Busses, RV
% OF TRUCKS ON FREEWAY		11%	40%
PEAK HOUR FACTOR		0.90	0.90
% TRUCKS ON RAMP		17%	15%
NUMBER OF LANES ON FREEWAY		2	2
DESIGN SPEED		35	45
CHECKPOINT VOLUME (FREEWAY + RAMP)	AM	3830	3065
	PM	3830	3065
DENSITY/SPEED * (PC/mi/LN)/(mph) (FREEWAY)	AM	34.4 / 53.0 mph	30.8 / 57.0 mph
	PM	34.4 / 53.0 mph	30.8 / 57.0 mph
LEVEL OF SERVICE (RAMP)	AM	D	D
	PM	D	D

SHEET NUMBER

ELEMENTS CONTROLLING DESIGN

9. DESIGN EXCEPTIONS : U.S. 20 WESTBOUND MERGE IS LOS E THE MERGE IS OUTSIDE THE PROJECT LIMITS OF THIS IMPROVEMENT. AN ADJACENT ONGOING IMPROVEMENT STUDY WILL ADDRESS THIS LOCATION.
THE DISTANCE BETWEEN CRITICAL SECTION C-C AND THE PT FOR CURVE DB-3 IS LESS THAN 200'. THIS IS TO FACILITATE THE CHANGE IN CROSS SLOPE PRECEDING THE CURVE. US 20 EASTBOUND WEAVE, ALPINE ROAD TO I-39 RAMP AD IS LOS E. THE WEAVE AREA IS OUTSIDE THE PROJECT LIMITS OF THIS IMPROVEMENT AND WILL BE ADDRESSED IN A SEPARATE PROJECT.
STOPPING SIGHT DISTANCE FOR RAMP BD IS LESS THAN REQUIRED FOR 70 MPH (730 FEET) DUE TO THE COMBINATION OF HORIZONTAL AND VERTICAL CURVATURE. AN 18' WIDE LEFT SHOULDER ON THE STRUCTURE OVER US 20 IS PROPOSED TO PROVIDE SSD REQUIRED FOR A 65 MPH DESIGN (645 FEET).
STOPPING SIGHT DISTANCE FOR RAMP DB IS LESS THAN REQUIRED FOR 70 MPH (730 FEET) DUE TO THE COMBINATION OF HORIZONTAL AND VERTICAL CURVATURE. AN 18' WIDE LEFT SHOULDER ON THE STRUCTURE OVER LINDEN RD IS PROPOSED TO PROVIDE SSD OF637 FEET, 8 FEET LESS THAN 65 MPH SSD.





I-39
PI STA. = 2638+44.91
Δ = 50°41'00" (LT)
D = 1°00'00"
R = 5,729.70'
T = 2,713.52'
L = 5,068.45'
E = 610.07'
P.C. STA. = 2611+31.39
P.T. STA. = 2661+99.84
e = 3.50%
L_{ML} = 210'
TR_{ML} = 82'
STA. 756+98 N.C.
- STA. 759+90 3.5%

PROP. CURVE PRAMPBD-1
PI STA. = 105+11.67
Δ = 10° 00' 06" (RT)
D = 1° 00' 43"
R = 5,661.50'
T = 495.40'
L = 988.29'
E = 21.63'
P.C. STA. = 100+16.27
P.C.C. STA. = 110+04.56
e = 3.5% MATCH US20C2

PROP. CURVE PRAMPBD-2
PI STA. = 115+13.45
Δ = 10° 17' 25" (RT)
D = 1° 00' 50"
R = 5,651.60'
T = 508.89'
L = 1,015.03'
E = 22.86'
P.C.C. STA. = 110+04.56
P.T. STA. = 120+19.60
e = 3.5%
L_{ML} = 159'
TR_{ML} = 41'
STA. 119+67 3.5%
- STA. 121+67 N.C.

PROP. CURVE PRAMPBD-3
PI STA. = 169+10.06
Δ = 107° 00' 24" (LT)
D = 2° 14' 49"
R = 2,550.00'
T = 3,446.54'
L = 4,762.42'
E = 1,737.32'
P.C. STA. = 134+63.52
P.T. STA. = 182+25.95
e = 5.8%
L_{ML} = 261'
TR_{ML} = 40'
STA. 132+50 N.C.
- STA. 135+51 5.8%
STA. 181+39 5.8%
- STA. 184+40 N.C.

PROP. CURVE PRAMPDB-3
PI STA. = 58+02.34
Δ = 87° 28' 22" (RT)
D = 2° 47' 42"
R = 2,050.00'
T = 1,961.51'
L = 3,129.71'
E = 787.26'
P.C. STA. = 38+40.82
P.T. STA. = 69+70.53
e = 6%
L_{ML} = 270'
TR_{ML} = 40'
STA. 37+51 2%
- STA. 39+31 6%
STA. 68+81 6%
- STA. 70+61 2%

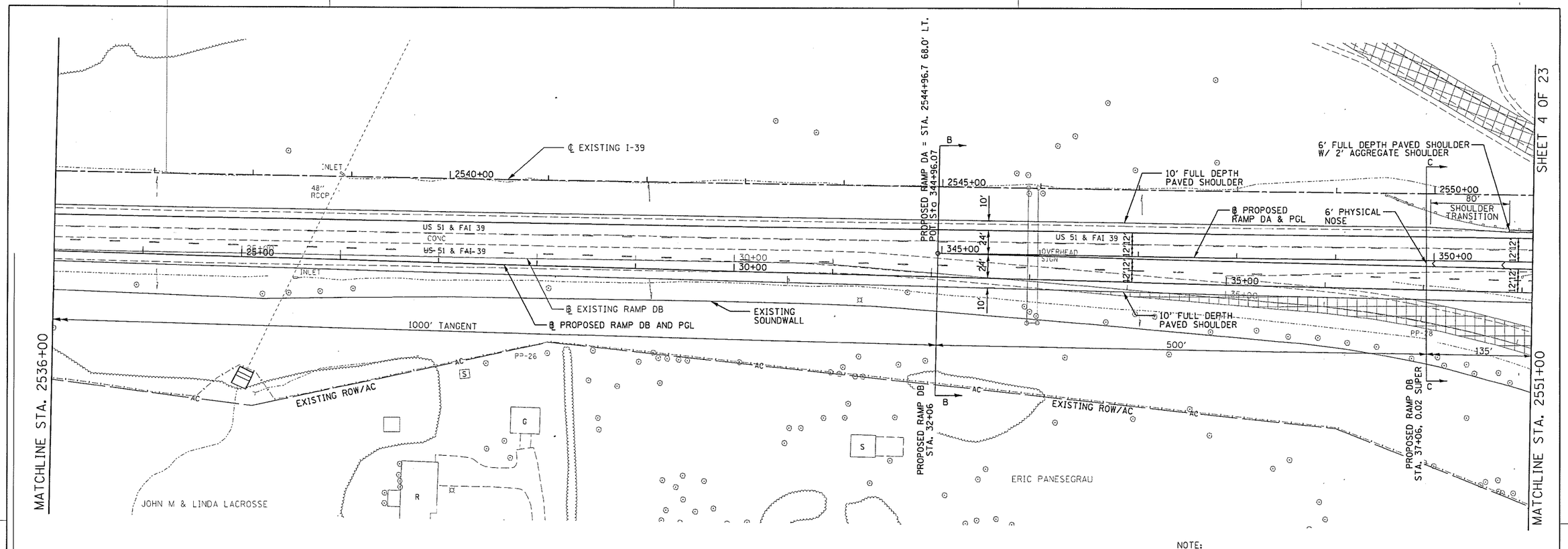
INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. ROUTE 20 BYPASS)

SEC. NO. (201-3)K&(4-1,5)K PROJ. NO. P-92-111-06
SCALE 1"=200' COUNTY WINNEBAGO
SJN : _____ REV. NO.___

I.D.S. SHEET 2 OF 23

BDE-9908

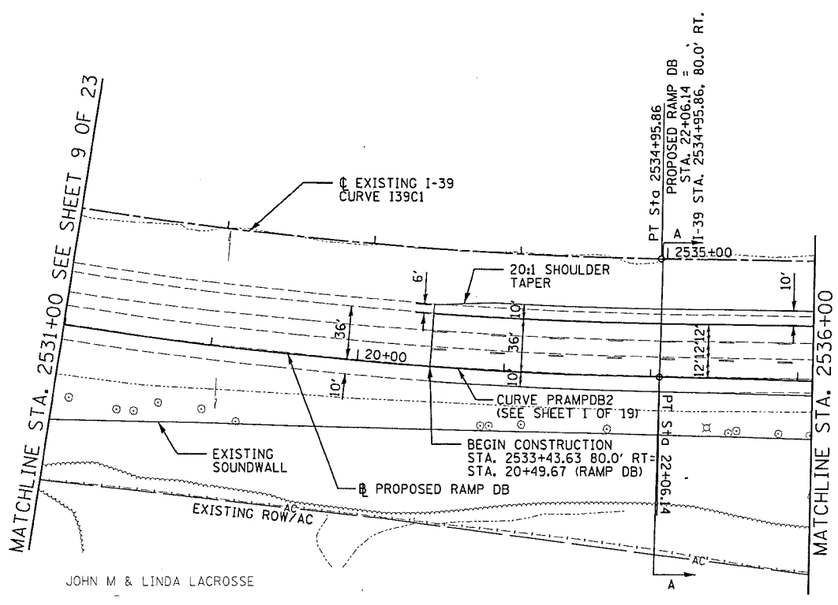


NOTE:

EXISTING AUXILIARY LANE TAPER AND AUXILIARY LANE FOR RAMP DB TO REMAIN.

EXISTING RAMP TAPER FROM STA 2513+45.96 TO STA 2519+30.65 TO REMAIN

AUXILIARY LANE FROM STA 2519+30.65 TO STA 2534+96.28



EXIST. CURVE 139C1
PI STA. = 2523+70.40
Δ = 48° 02' 45" (LT)
D = 2° 00' 00"
R = 2,864.85'
T = 1,276.89'
L = 2,402.34'
E = 271.68'
P.C. STA. = 2510+93.52
P.T. STA. = 2534+95.86
e = 6%
L_{VL} = 360'
TR = 75'
STA. 2533+75 6%
- 2538+11 N.C.

50 0 50 100

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
FAP ROUTE 301 WITH (U.S. ROUTE 20 BYPASS)

SEC. NO. (201-3)K&(4-1,5)K

SCALE 1"=50' COUNTY WINNEBAGO

SJN : _____ PROJ. NO. P-92-111-06

I.D.S. SHEET 3 OF 23

PLOT DATE = 09\14\2012
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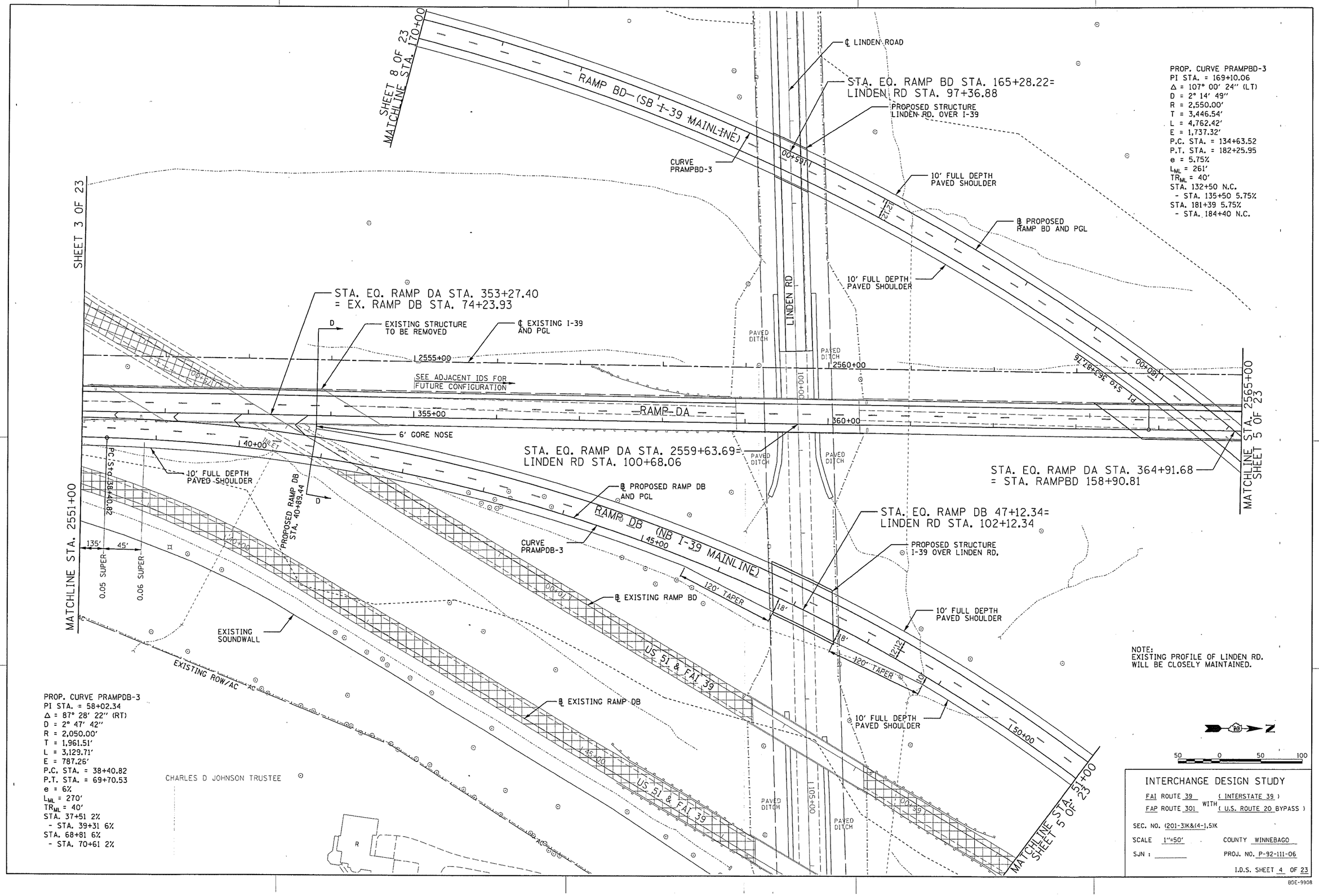
USER NAME = alm01238

BDE-9908



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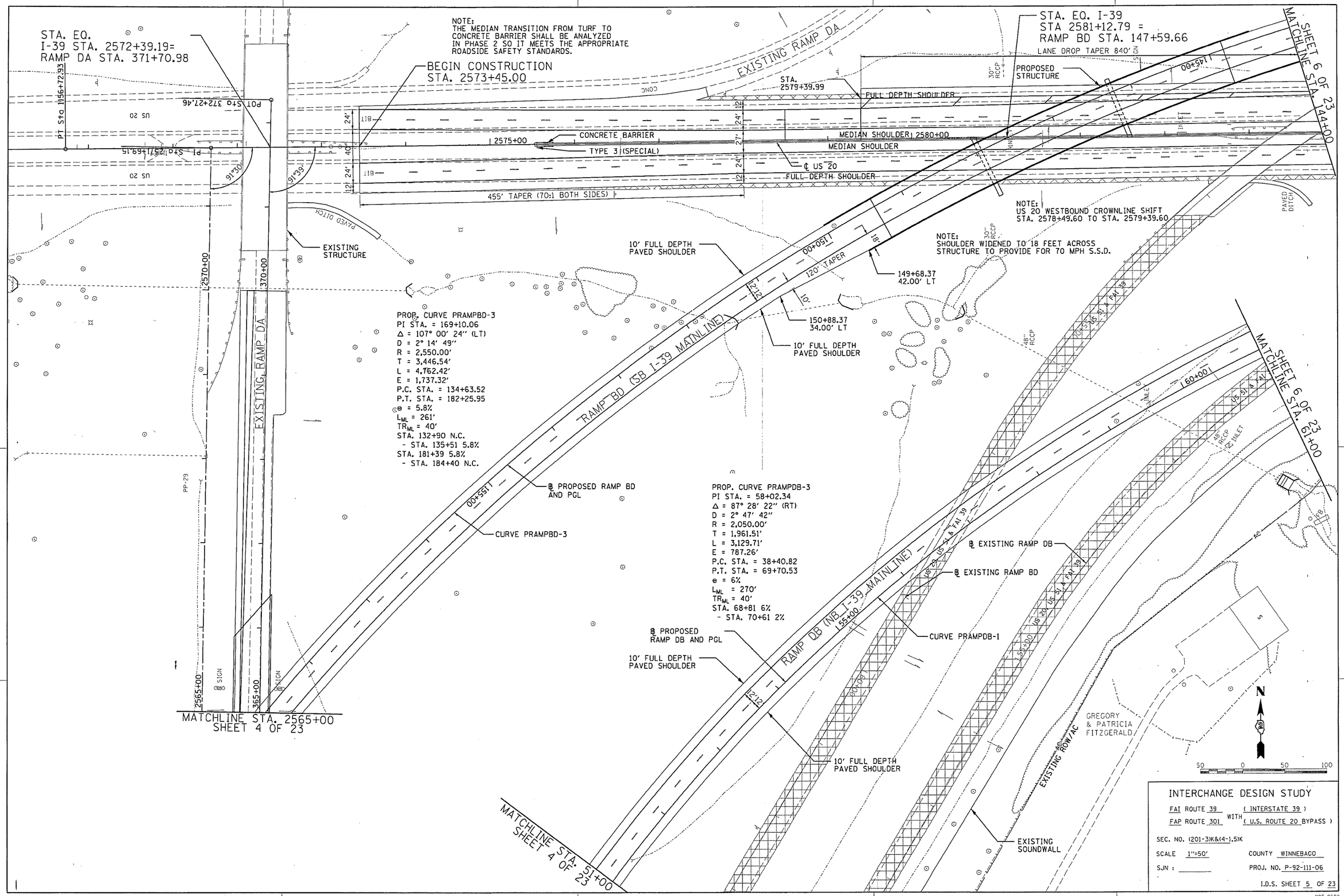
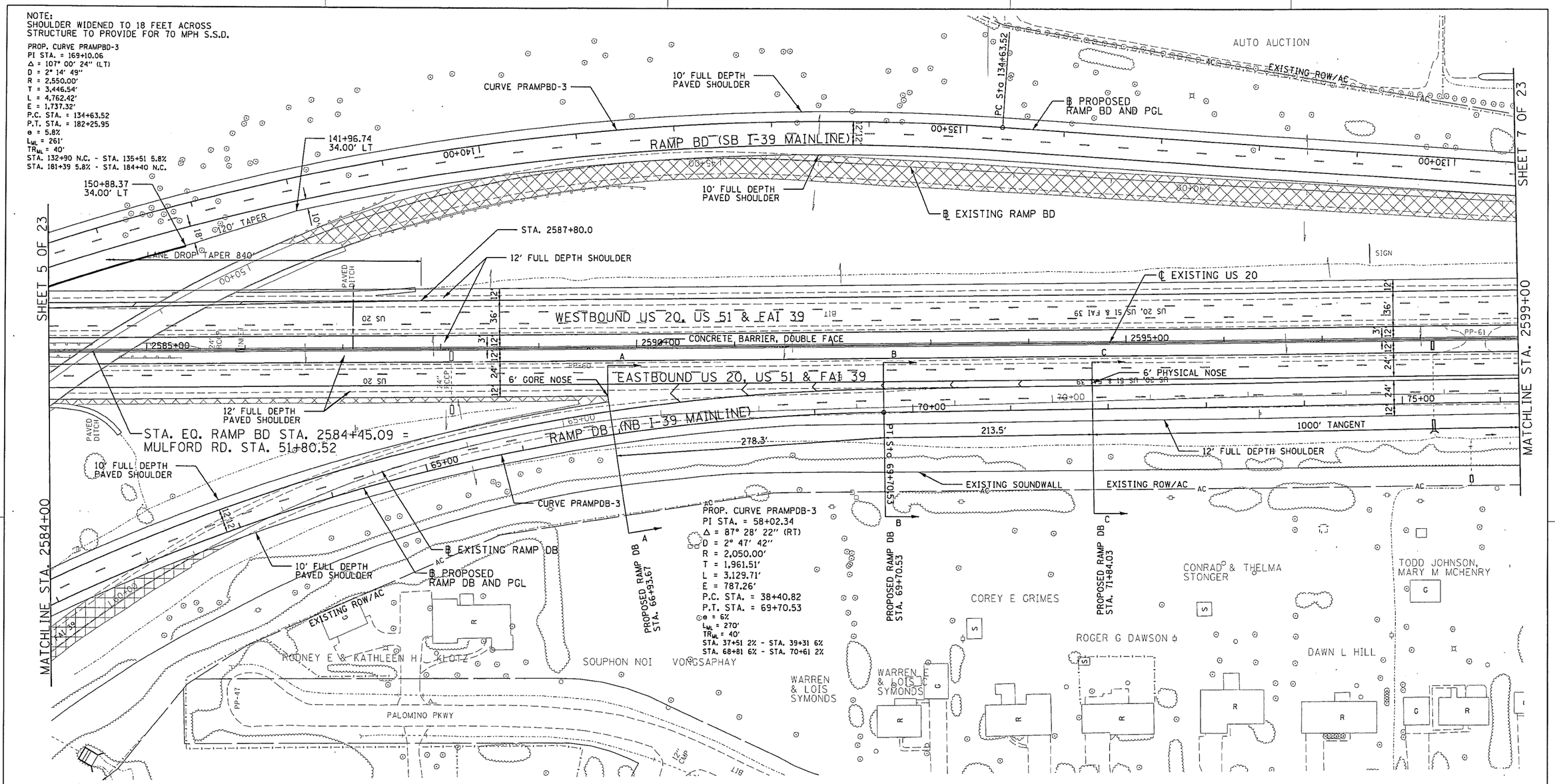


PLOT DATE = 08\14\2012
FILE NAME = I:\06Jobs\06S2055\CADD\Road\Sheet\C-IDS-P105.dgn
PLOT SCALE = 50.0000 ' / in.
USER NAME = olmg01238

NOTE:
SHOULDER WIDENED TO 18 FEET ACROSS
STRUCTURE TO PROVIDE FOR 70 MPH S.S.D.

PROP. CURVE PRAMPBD-3
PI STA. = 169+10.06
Δ = 107° 00' 24" (LT)
D = 2° 14' 49"
R = 2,550.00'
T = 3,446.54'
L = 4,762.42'
E = 1,737.32'
P.C. STA. = 134+63.52
P.T. STA. = 182+25.95
e = 5.8%
L_{ML} = 261'
TR_{ML} = 40'
STA. 132+90 N.C. - STA. 135+51 5.8%
STA. 181+39 5.8% - STA. 184+40 N.C.



NOTE: US 20 EASTBOUND CROWNLINE SHIFT STA. 736+70 - 737+60

50 0 50 100

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
FAP ROUTE 301 WITH (U.S. ROUTE 20 BYPASS)

SEC. NO. (201-3)K&(4-1,5)K

SCALE 1"=50' COUNTY WINNEBAGO

SJN : PROJ. NO. P-92-111-06

I.D.S. SHEET 6 OF 23

PLOT DATE = 08\14\2012
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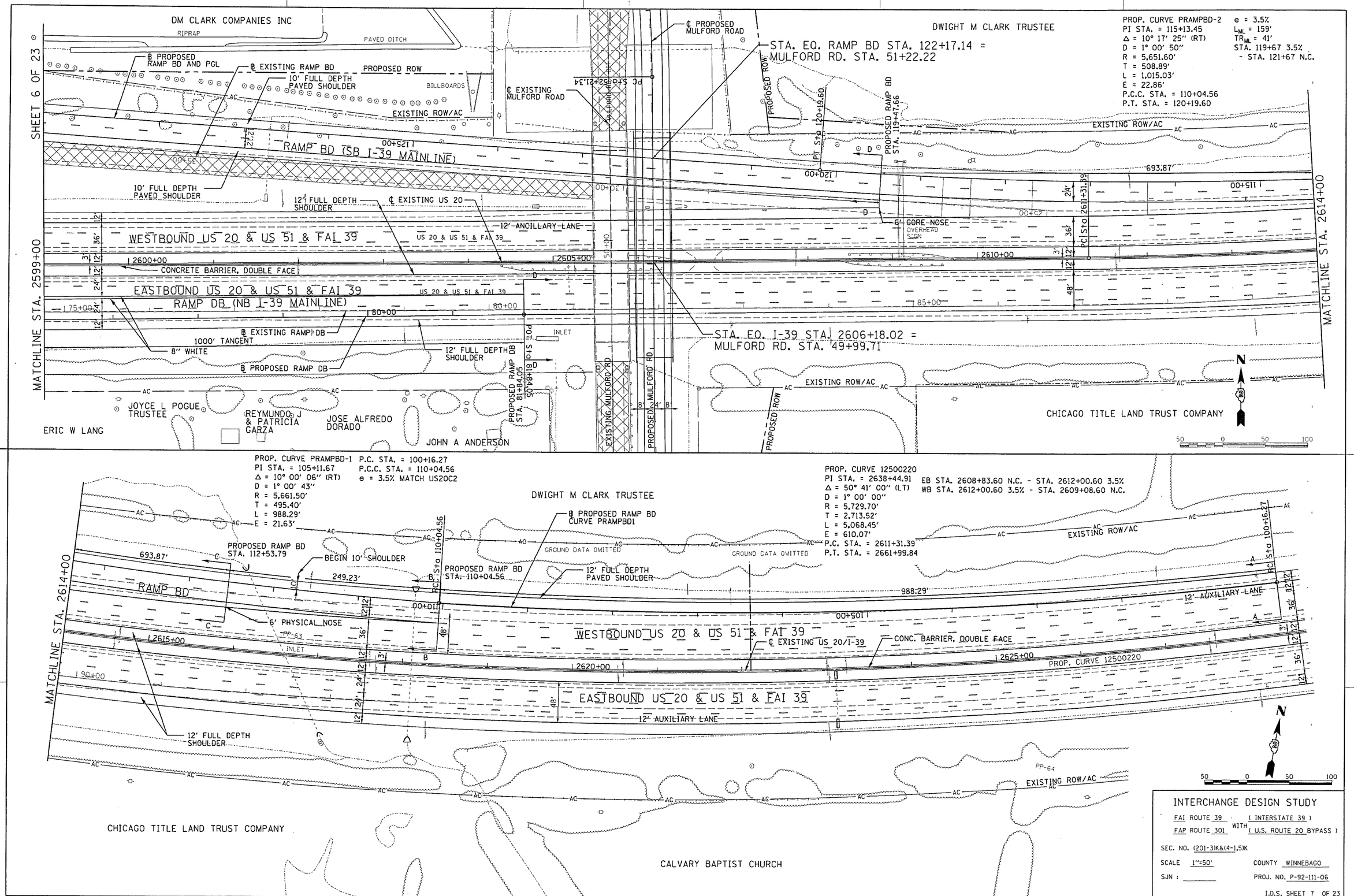
USER NAME = elmg0128

BDE-9908



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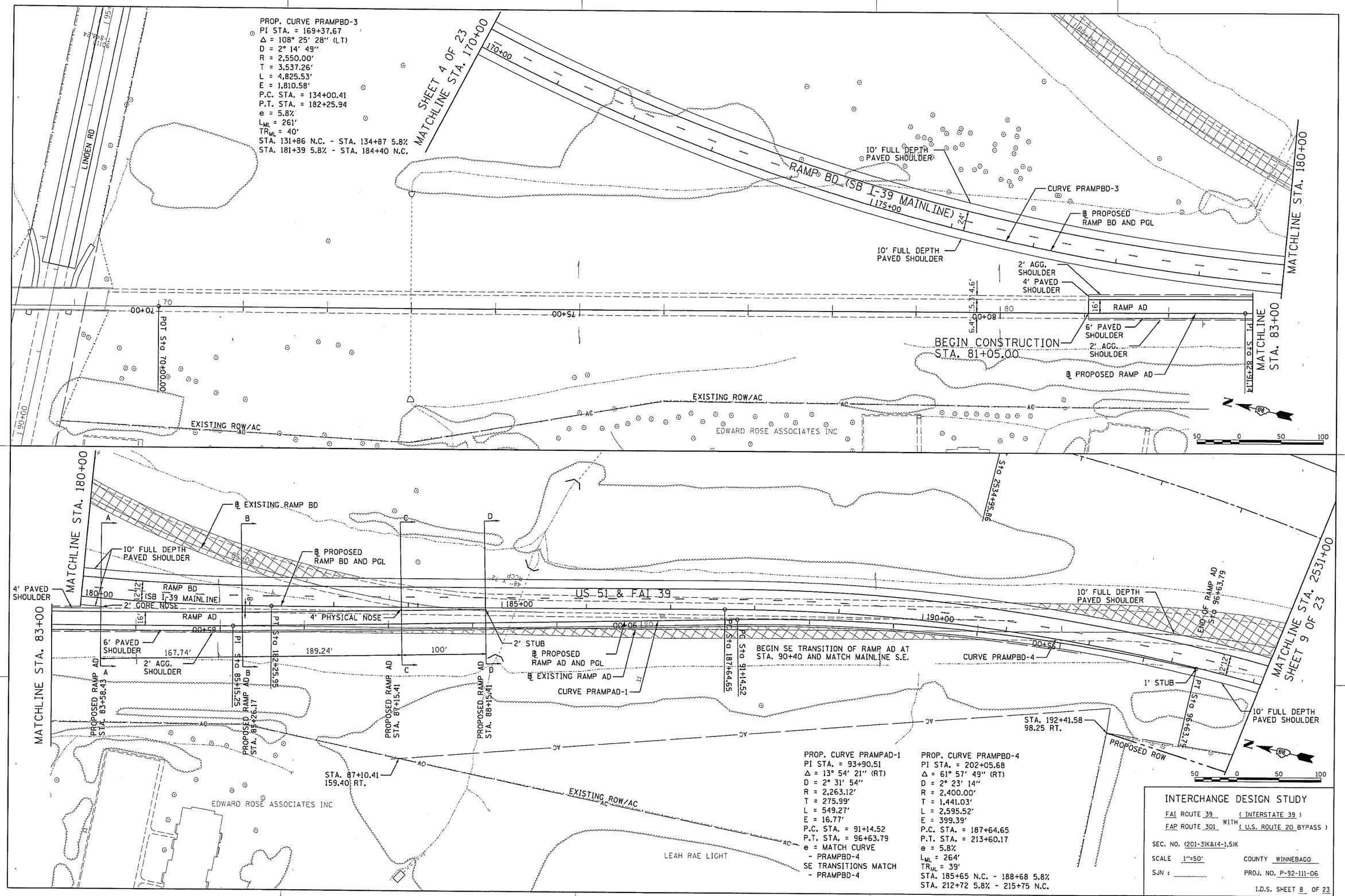
PROP. CURVE PRAMPBD-3
PI STA. = 169+37.67
Δ = 108° 25′ 28″ (LT)
D = 2° 14′ 49″
R = 2,550.00′
T = 3,537.26′
L = 4,825.53′
E = 1,810.58′
P.C. STA. = 134+00.41
P.T. STA. = 182+25.94
e = 5.8%
L_{ML} = 261′
TR_{ML} = 40′
STA. 131+86 N.C. - STA. 134+87 5.8%
STA. 181+39 5.8% - STA. 184+40 N.C.



PROP. CURVE PRAMPAD-1
PI STA. = 93+90.51
Δ = 13° 54′ 21″ (RT)
D = 2° 31′ 54″
R = 2,263.12′
T = 275.99′
L = 549.27′
E = 16.77′
P.C. STA. = 91+14.52
P.T. STA. = 96+63.79
e = MATCH CURVE - PRAMPBD-4
SE TRANSITIONS MATCH - PRAMPBD-4

PROP. CURVE PRAMPBD-4
PI STA. = 202+05.68
Δ = 61° 57′ 49″ (RT)
D = 2° 23′ 14″
R = 2,400.00′
T = 1,441.03′
L = 2,595.52′
E = 399.39′
P.C. STA. = 187+64.65
P.T. STA. = 213+60.17
e = 5.8%
L_{ML} = 264′
TR_{ML} = 39′
STA. 185+65 N.C. - 188+68 5.8%
STA. 212+72 5.8% - 215+75 N.C.

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. ROUTE 20 BYPASS)

SEC. NO. (201-3)K&(4-1,5)K

SCALE 1″=50′ COUNTY WINNEBAGO

SJN : _____ PROJ. NO. P-92-111-06

I.D.S. SHEET 8 OF 23

BDE-9906

PLOT DATE = 8/9/14\2012
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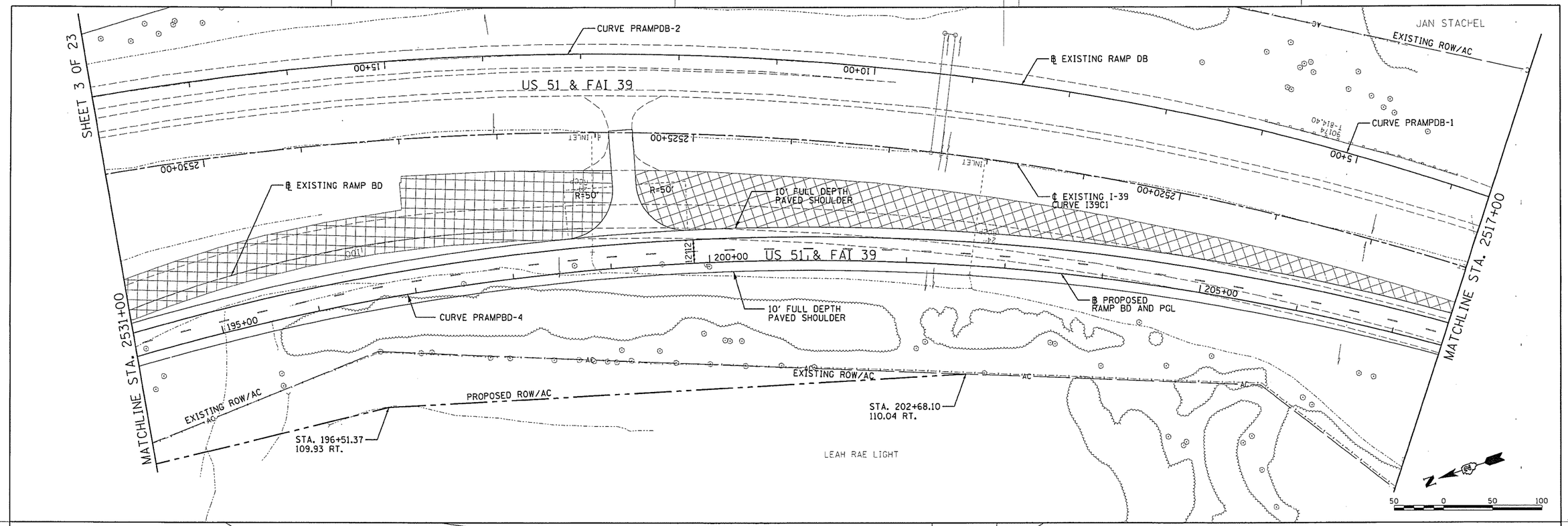

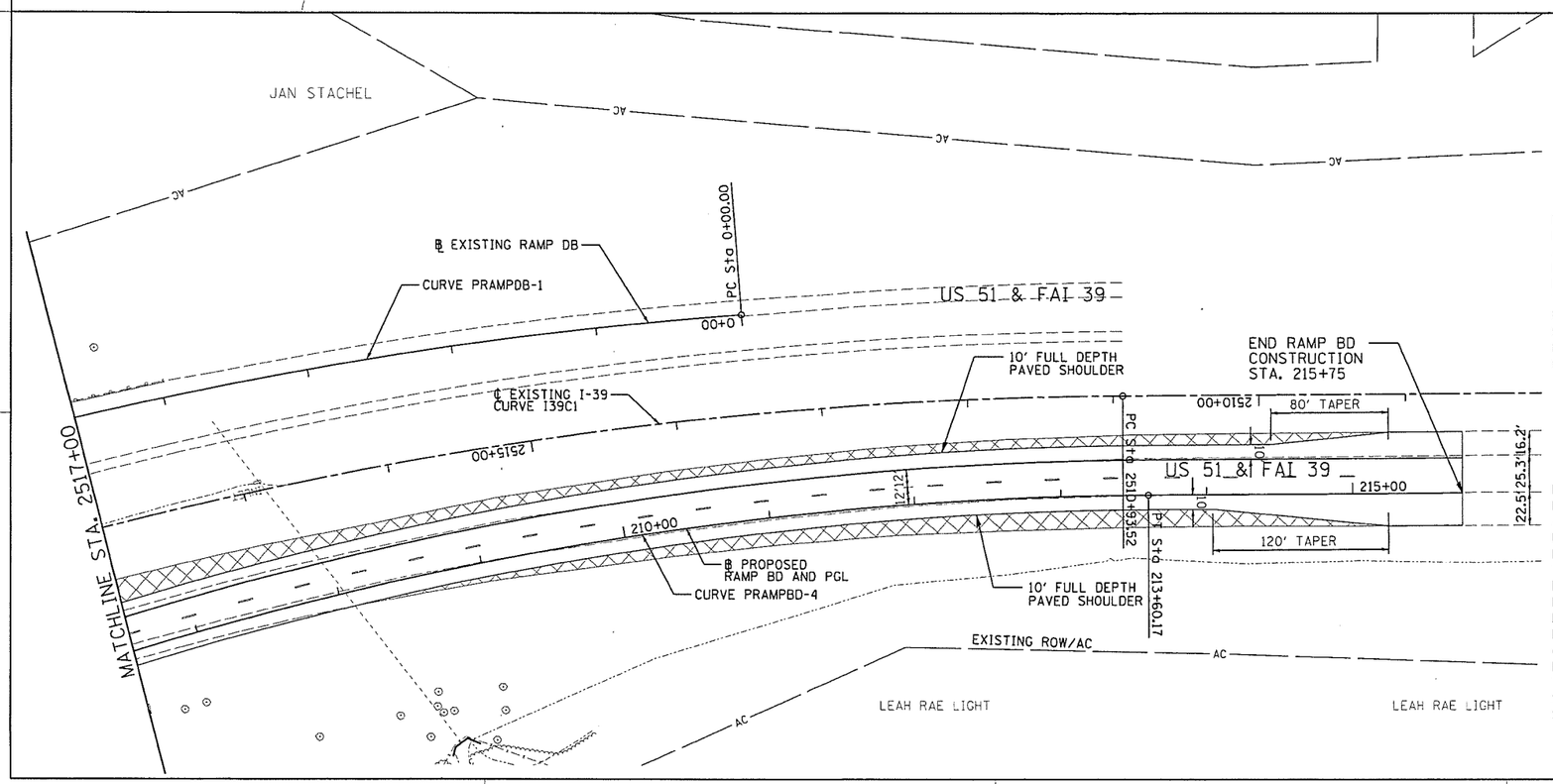

NOTE:

EXISTING AUXILIARY LANE TAPER AND AUXILIARY LANE FOR RAMP DB TO REMAIN.

EXISTING RAMP TAPER FROM STA 2513+45.96 TO STA 2519+30.65 TO REMAIN

AUXILIARY LANE FROM STA 2519+30.65 TO STA 2534+96.28

EXIST. CURVE PRAMPDB-1
PI STA. = 3+01.05
Δ = 11° 41' 36" (LT)
D = 1° 56' 56"
R = 2,939.98'
T = 301.05'
L = 600.01'
E = 15.37'
P.C. STA. = 0+00.00
P.C.C. STA. = 6+00.01

PROP. CURVE PRAMPDB-2
PI STA. = 14+23.59
Δ = 31° 14' 58" (LT)
D = 1° 56' 44"
R = 2,944.85'
T = 823.58'
L = 1,606.13'
E = 113.00'
P.C.C. STA. = 6+00.01
P.T. STA. = 22+06.14
e = 6%
L_{ML} = 360'
TR_{ML} = 54'
STA. 20+81.91 6%
- STA. 25+20.30 N.C.

PROP. CURVE PRAMPBD-4
PI STA. = 202+05.68
Δ = 61° 57' 49" (RT)
D = 2° 23' 14"
R = 2,400.00'
T = 1,441.03'
L = 2,595.52'
E = 399.39'
P.C. STA. = 187+64.65
P.T. STA. = 213+60.17
e = 5.8%
L_{ML} = 264'
TR_{ML} = 39'
STA. 185+65 N.C. - 188+68 5.8%
STA. 212+725 5.8% - 215+75 N.C.

EXIST. CURVE I39C1
PI STA. = 2523+70.40
Δ = 48° 02' 45" (LT)
D = 2° 00' 00"
R = 2,864.85'
T = 1,276.89'
L = 2,402.34'
E = 271.68'
P.C. STA. = 2510+93.52
P.T. STA. = 2534+95.86
e = 6%
L_{ML} = 360'
TR_{ML} = 54'
STA. 2533+75 6%
- STA. 2538+11 N.C.

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. ROUTE 20 BYPASS)

SEC. NO. (201-3)K&(4-1,5)K

SCALE 1"=50' COUNTY WINNEBAGO

SJN : PROJ. NO. P-92-111-06

I.D.S. SHEET 9 OF 23

BDE-9908

PLOT DATE = 08\14\2012
FILE NAME = I:\06Jobs\06S2055\CADD\Road\Sheet\C-IDS-P109.dgn
PLOT SCALE = 50.0000 ' / in.
USER NAME = almy01238

PROP. CURVE PRMULF-4
PI STA. = 57+05.98
Δ = 7° 54′ 58″ (RT)
D = 3° 49′ 11″
R = 1,500.00′
T = 103.79′
L = 207.24′
E = 3.59′
e = 3.5%
T.R. = 31′
S.E. RUN = 71′
P.C. STA. = 56+02.20
P.T. STA. = 58+09.44
45 MPH DESIGN SPEED
STA. 55+19.75 0%
- STA. 56+27.70 3.5%
STA. 57+83.94 3.5%
- STA. 58+85.94 N.C.

PROP. CURVE PRMULF-3
PI STA. = 53+29.50
Δ = 8° 14′ 57″ (LT)
D = 3° 49′ 11″
R = 1,500.00′
T = 108.17′
L = 215.96′
E = 3.90′
e = 3.5%
T.R. = 31′
S.E. RUN = 71′
P.C. STA. = 52+21.34
P.T. STA. = 54+37.30
45 MPH DESIGN SPEED
STA. 51+44.84 N.C.
- STA. 52+46.84 3.5%
STA. 54+11.80 3.5%
- STA. 55+19.75 0%

PROP. CURVE PRMULF-2
PI STA. = 46+57.04
Δ = 7° 23′ 13″ (LT)
D = 3° 49′ 11″
R = 1,500.00′
T = 96.83′
L = 193.39′
E = 3.12′
e = 3.5%
T.R. = 31′
S.E. RUN = 71′
P.C. STA. = 45+60.21
P.T. STA. = 47+53.60

STA. 44+80.60 0%
- STA. 45+85.71 3.5%
STA. 47+28.10 3.5%
- STA. 48+30.10 N.C.

PROP. CURVE PRMULF-1
PI STA. = 43+00.09
Δ = 7° 43′ 12″ (RT)
D = 3° 49′ 11″
R = 1,500.00′
T = 101.21′
L = 202.11′
E = 3.41′
e = 3.5%
T.R. = 31′
S.E. RUN = 71′
P.C. STA. = 41+98.88
P.T. STA. = 44+00.99

STA. 41+22.38 N.C.
- STA. 42+24.38 3.5%
STA. 43+75.49 3.5%
- STA. 44+80.60 0%

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. ROUTE 20 BYPASS)

SEC. NO. (201-3)K&(4-1,5)K

SCALE 1″=50′ COUNTY WINNEBAGO

SJN : PROJ. NO. P-92-111-06

I.D.S. SHEET 10 OF 23

BDE-9908

PLOT DATE = 08/14/2012
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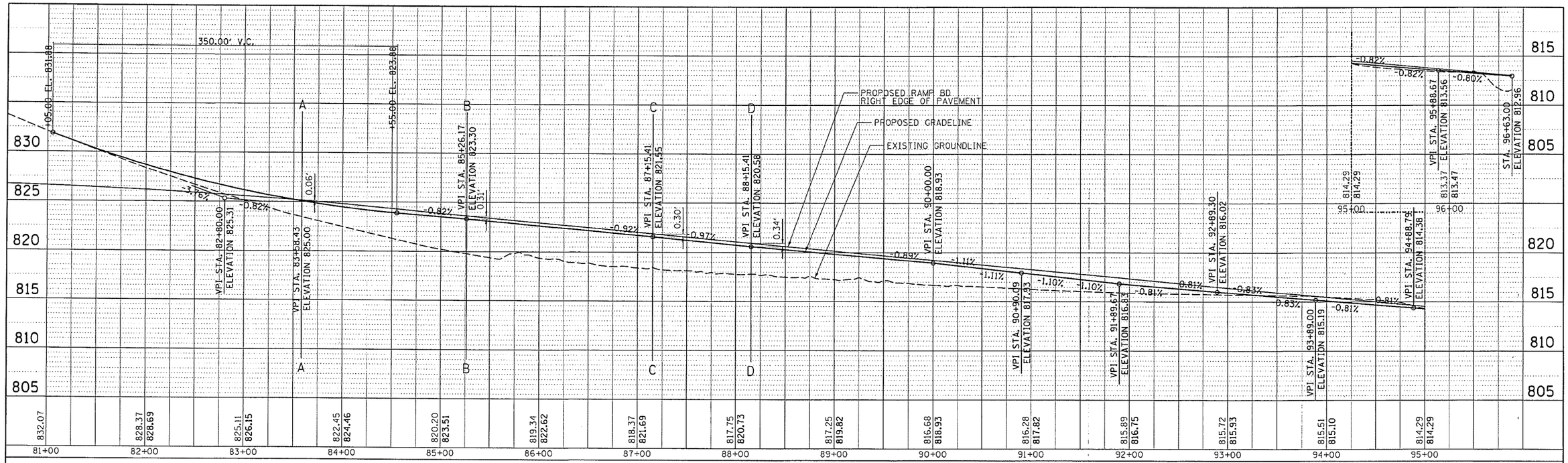
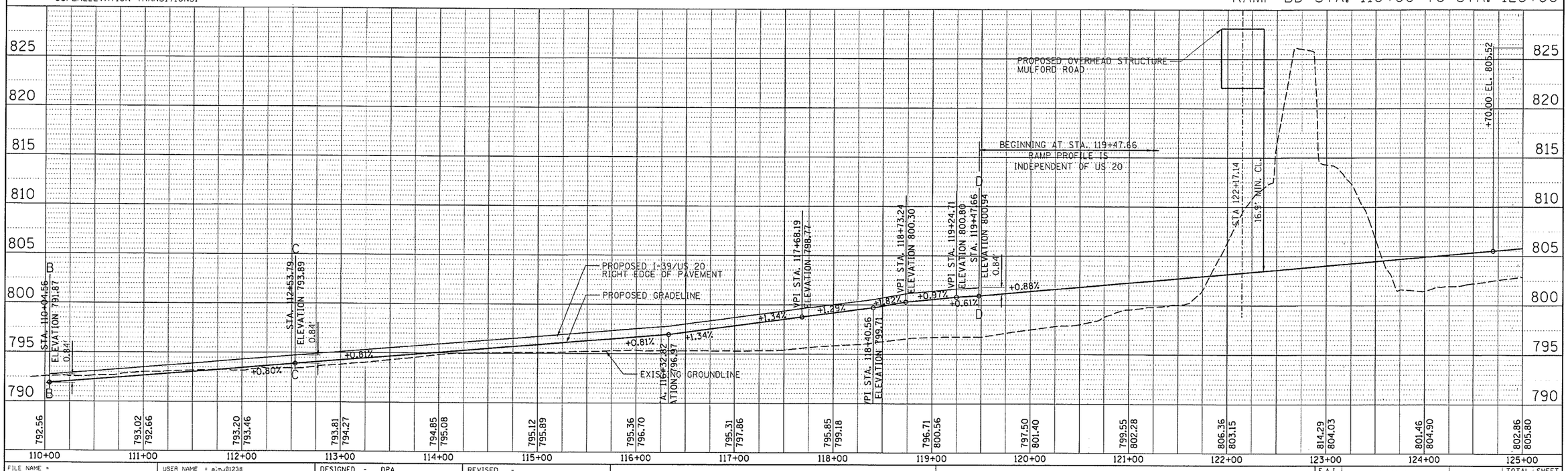


RAMP AD STA. 81+00 TO STA. 96+63

NOTE:
PROFILE OF RAMP BD FROM STA. 110+00 TO 119+47.66 IS CONTROLLED BY THE MAINLINE PROFILE AND SUPERELEVATION TRANSITIONS.

RAMP BD STA. 110+00 TO STA. 125+00



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	PLOT DATE = 08\14\2012	CHECKED - DPA	REVISED -
		DATE - 01/28/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

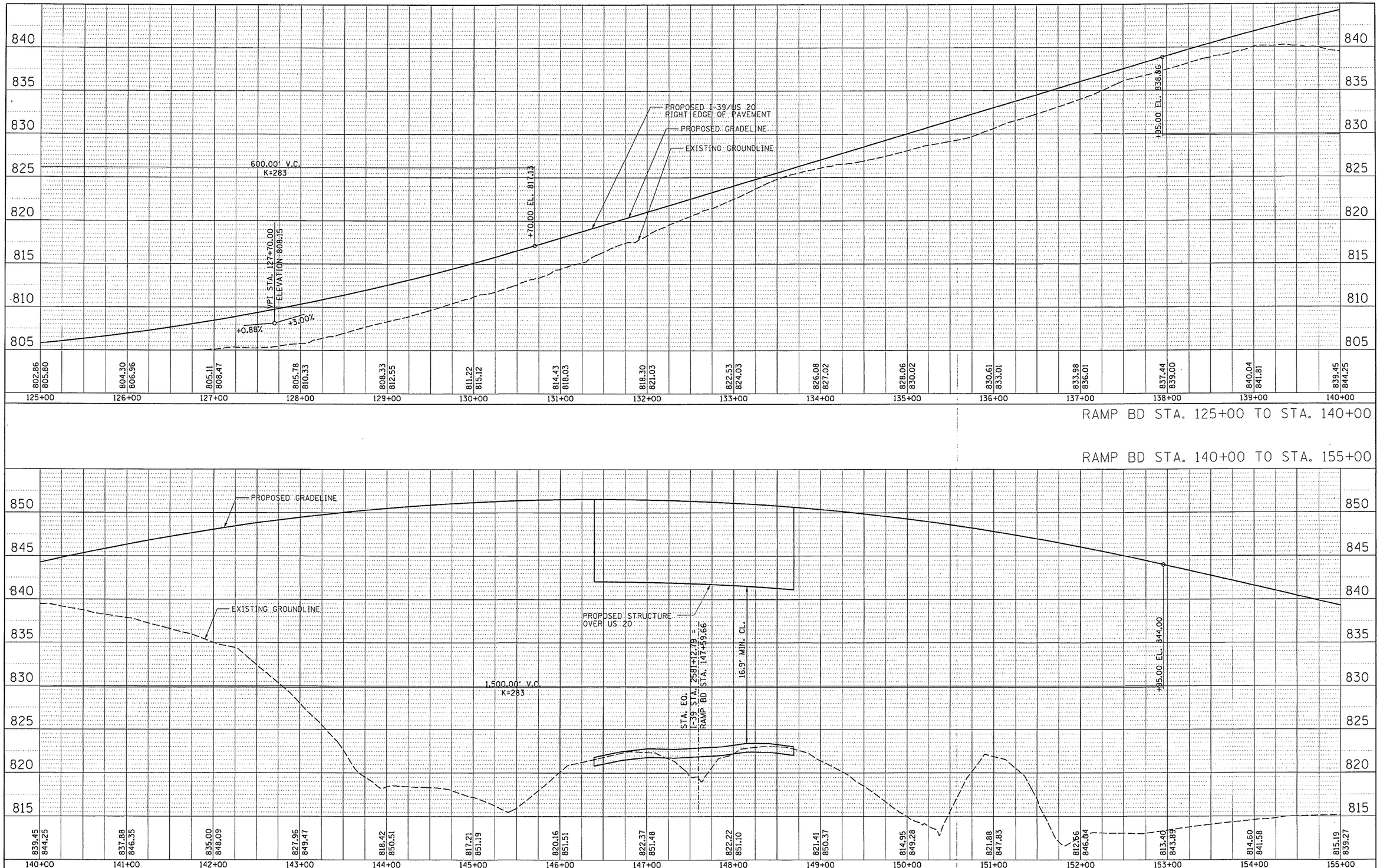
RAMP AD STA. 81+00 – 96+63 PROFILE
RAMP BD (SB I-39 MAINLINE) STA. 110+00 – 125+00 PROFILE

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	11
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PLAN — NOTE BOOK NO. — SURVEYED / PLOTTED / ALIGNMENT CHECKED / RT. OF WAY CHECKED / CADD FILE NAME — BY — DATE

PROFILE — NOTE BOOK NO. — SURVEYED / PLOTTED / GRADES CHECKED / B.M. NOTED / STRUCTURE NOTATIONS CHKD — BY — DATE



PLAN — SURVEYED / PLOTTED / ALIGNMENT CHECKED / RT. OF WAY CHECKED / CADD FILE NAME — NOTE BOOK NO. — BY — DATE

PROFILE — SURVEYED / PLOTTED / GRADES CHECKED / B.M. NOTED / STRUCTURE NOTATIONS CHKD — NOTE BOOK NO. — BY — DATE

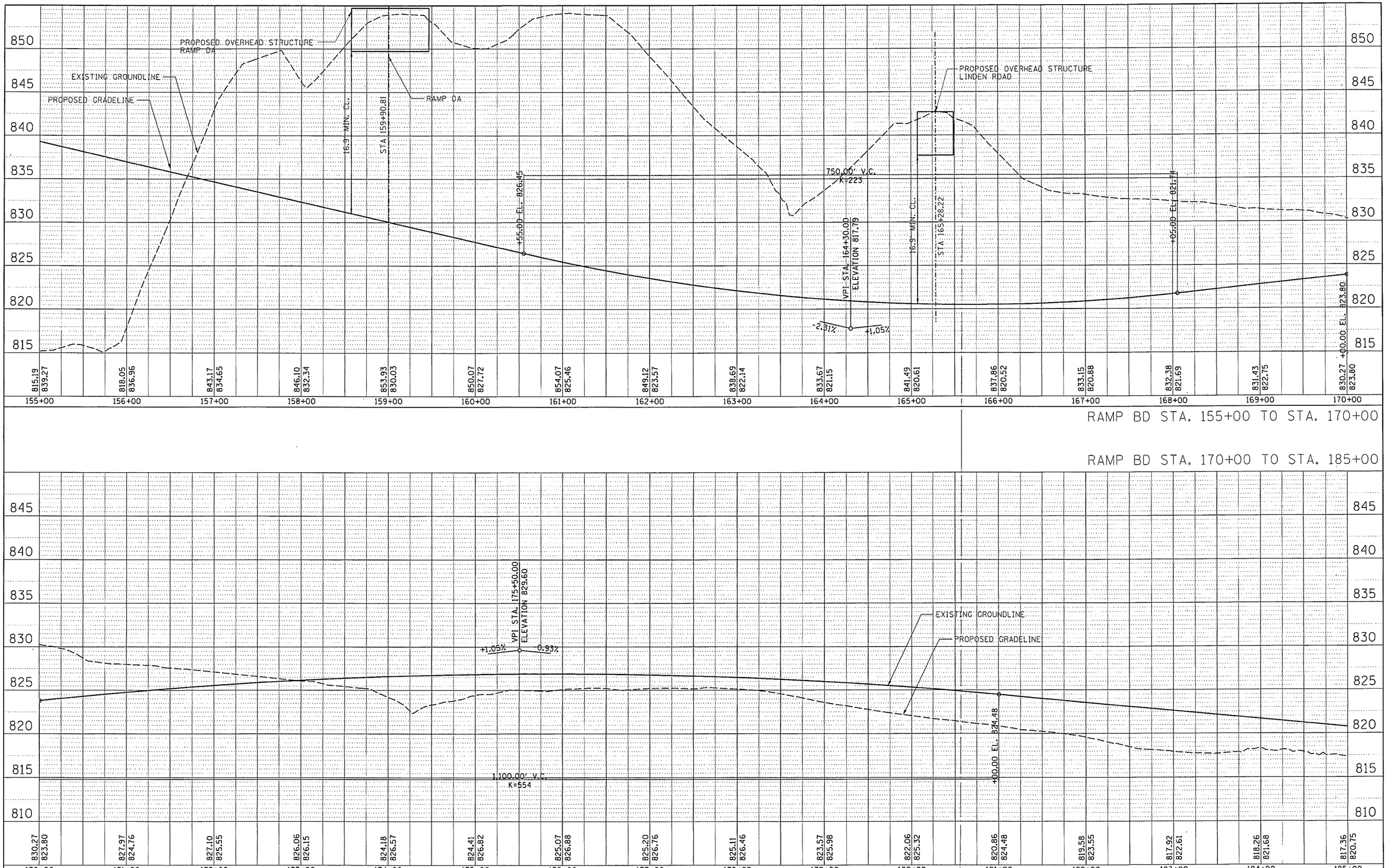
FILE NAME = :\06Jobs\06S2055\CADD\Road\Sheet\C-PF-11L.dgn	USER NAME = plmy81238	DESIGNED - DPA	REVISED -
		DRAWN - JDM	REVISED -
	PLOT SCALE = 50.0000 ' / in.	CHECKED - DPA	REVISED -
	PLOT DATE = 08\14\2012	DATE - 01/28/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RAMP BD (SB MAINLINE I-39) STA. 125+00 TO STA. 155+00 PROFILE

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	12
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN
NOTE BOOK NO. ____
SURVEYED ____
PLOTTED ____
ALIGNMENT CHECKED ____
RT. OF WAY CHECKED ____
CADD FILE NAME ____
BY ____ DATE ____

PROFILE
NOTE BOOK NO. ____
SURVEYED ____
PLOTTED ____
GRADES CHECKED ____
B.M. NOTED ____
STRUCTURE NOTATNS CHKD ____
BY ____ DATE ____

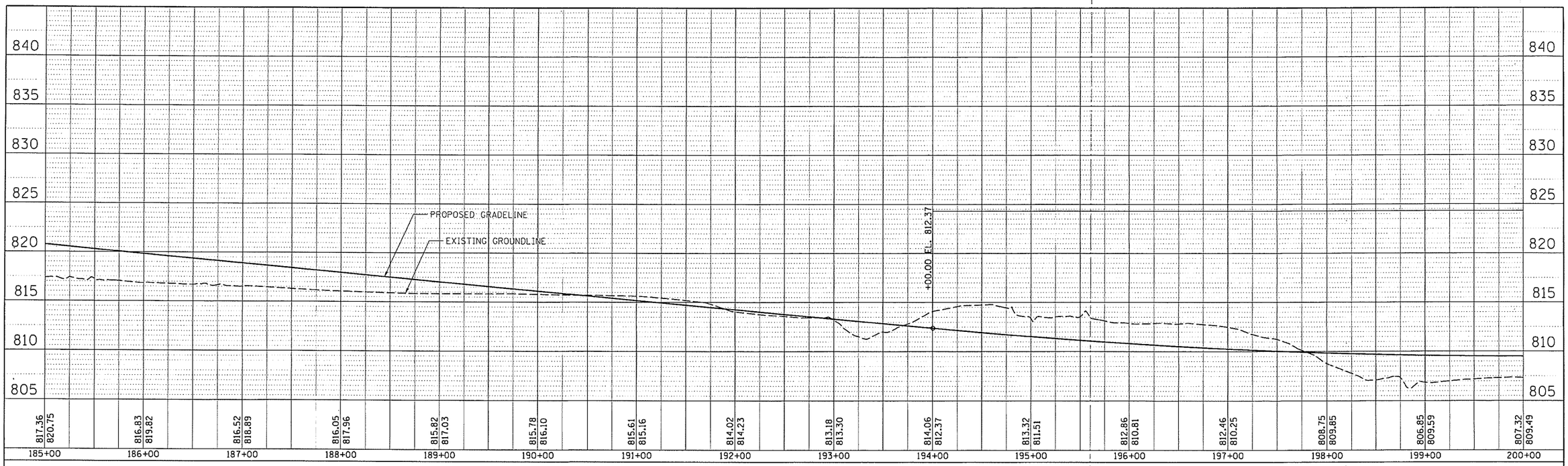
FILE NAME = 1:\06Jobs\06S2055\CADD\Road\Sheet\C-PF-113.dgn	USER NAME = slmy01238	DESIGNED - DPA	REVISED -
		DRAWN - JDM	REVISED -
	PLOT SCALE = 50.0000 ' / in.	CHECKED - DPA	REVISED -
	PLOT DATE = 08\14\2012	DATE - 01/28/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RAMP BD (SB I-39 MAINLINE) STA. 155+00 TO STA. 185+00 PROFILE

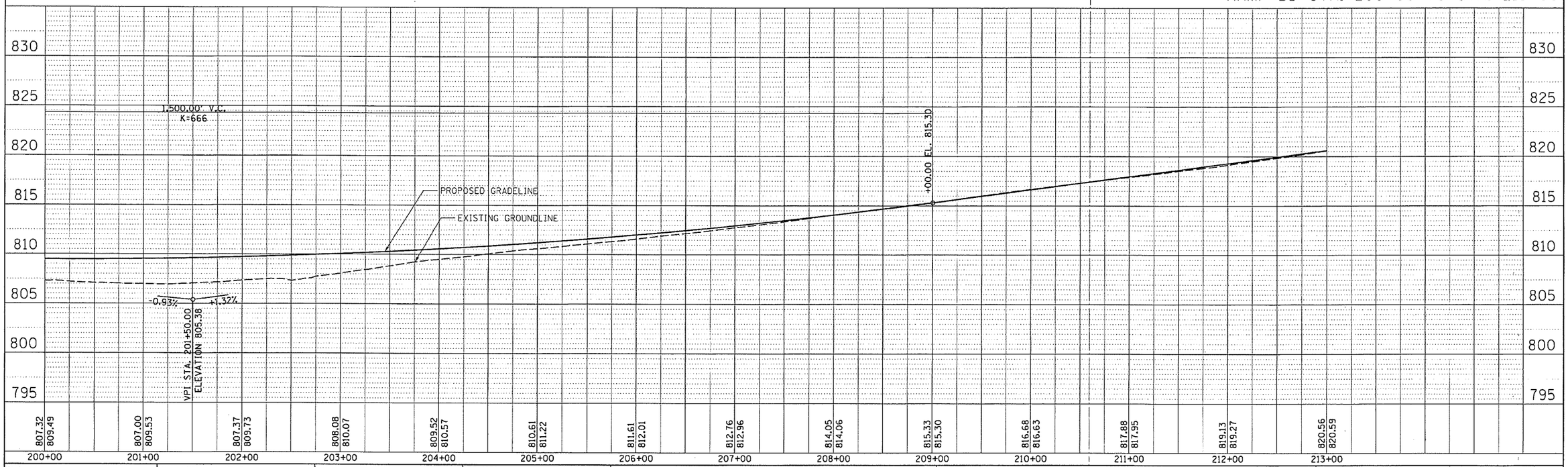
SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	13
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



RAMP BD STA. 175+00 TO STA. 200+00

RAMP BD STA. 200+00 TO STA. 215+00



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SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
BY
DATE

PROFILE
NOTE BOOK NO.
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
BY
DATE

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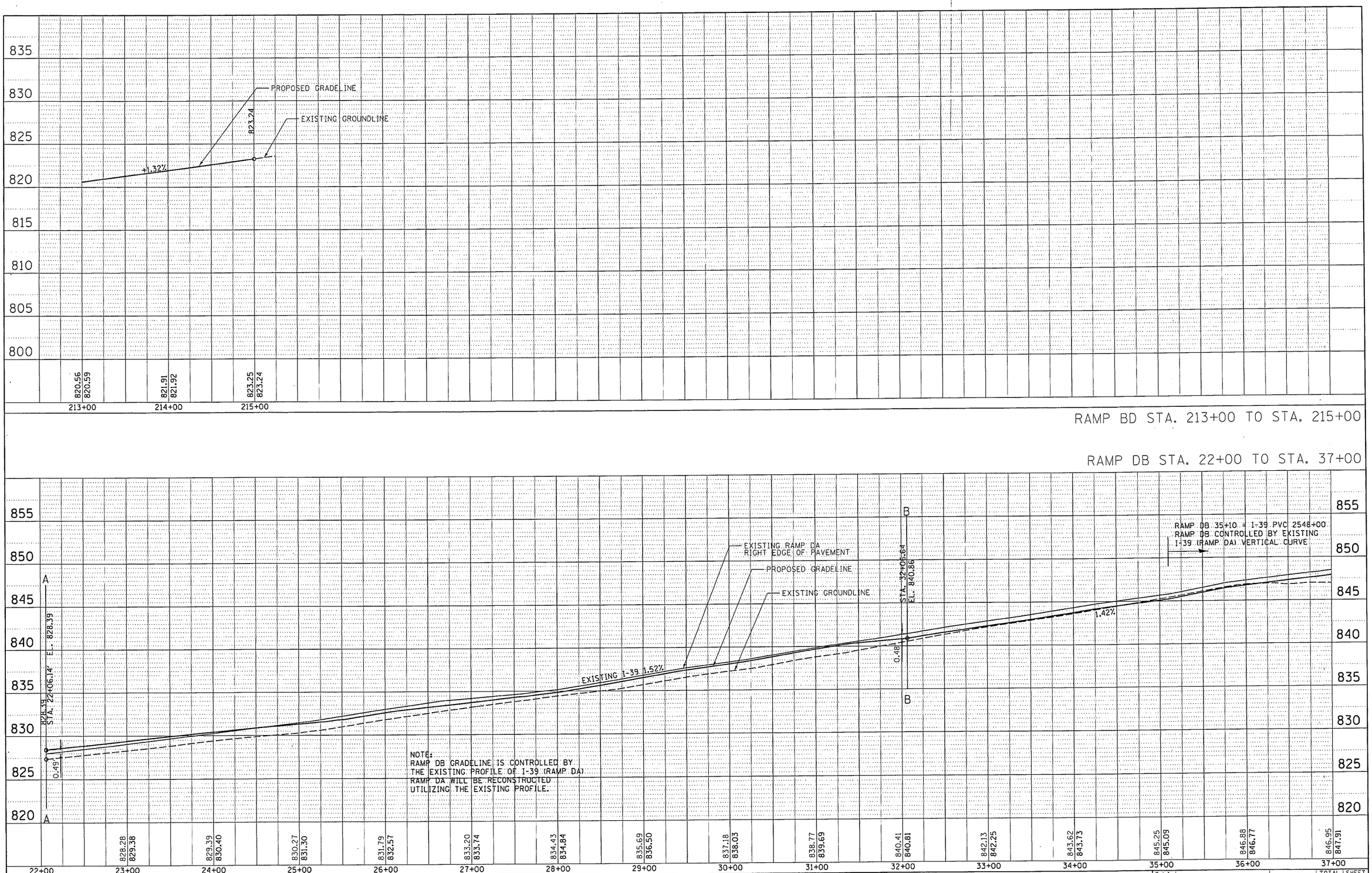
		DATE - 01/28/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RAMP BD (SB I-39 MAINLINE) STA. 175+00 TO 215+00 PROFILE

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	14
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE

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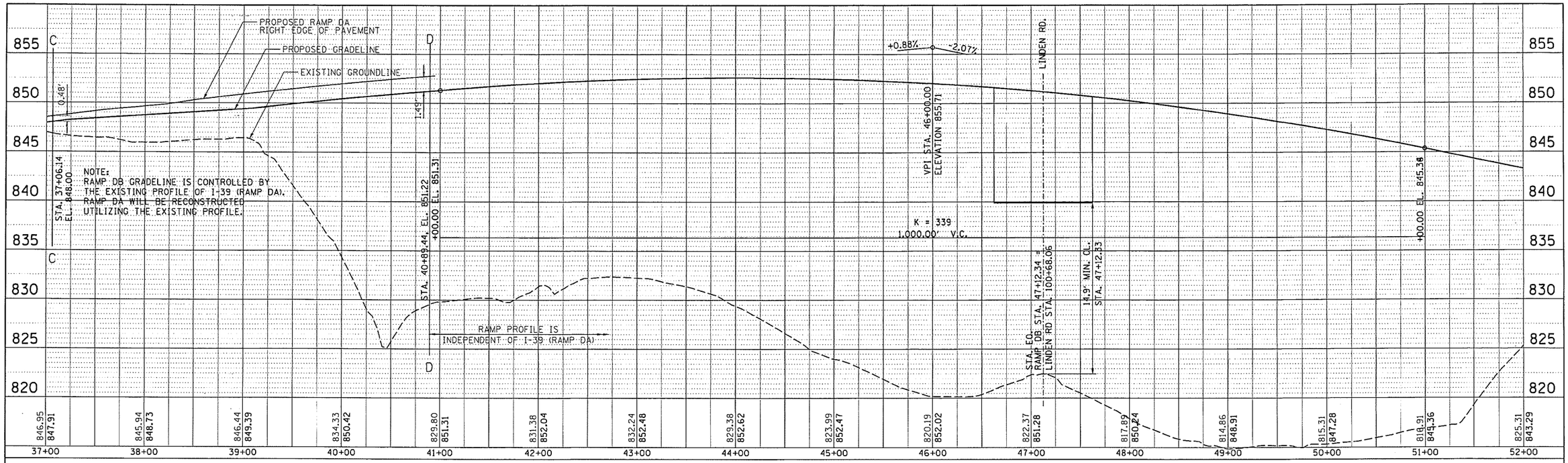
	PLOT DATE = 08\14\2012	DATE - 01/28/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RAMP BD (SB I-39 MAINLINE) STA. 213+00 TO STA. 215+00 PROFILE
RAMP DB (NB I-39 MAINLINE) STA. 22+00 TO STA. 37+00 PROFILE

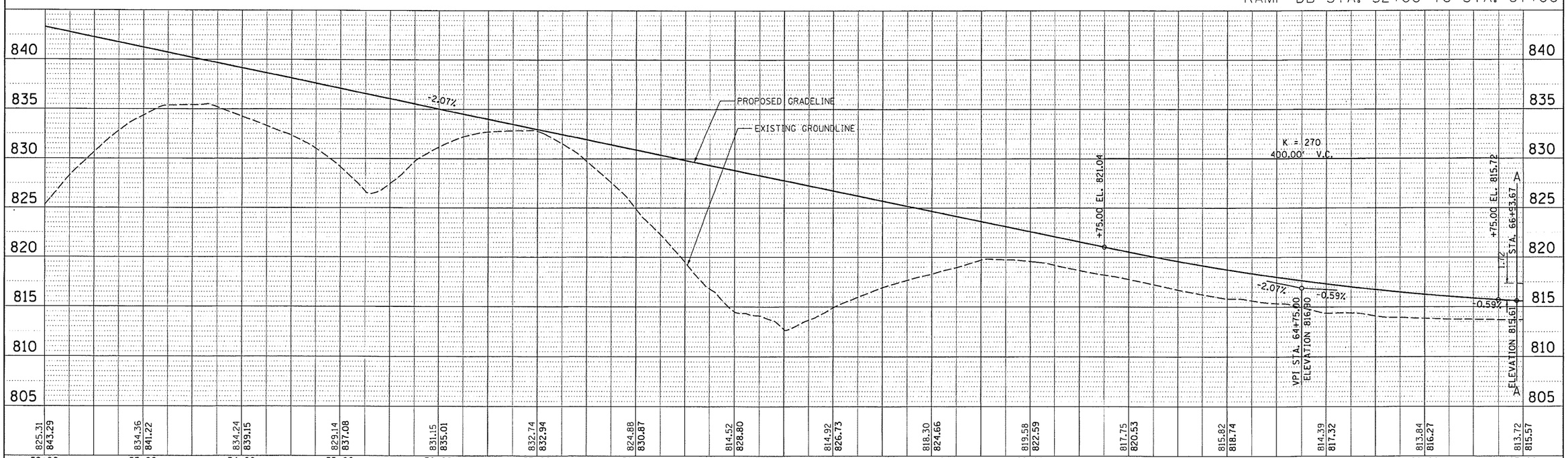
SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	15
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



RAMP DB STA. 37+00 TO STA. 52+00

RAMP DB STA. 52+00 TO STA. 67+00



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		DATE - 01/28/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RAMP DB (NB I-39 MAINLINE) STA. 37+00 TO STA. 67+00 PROFILE

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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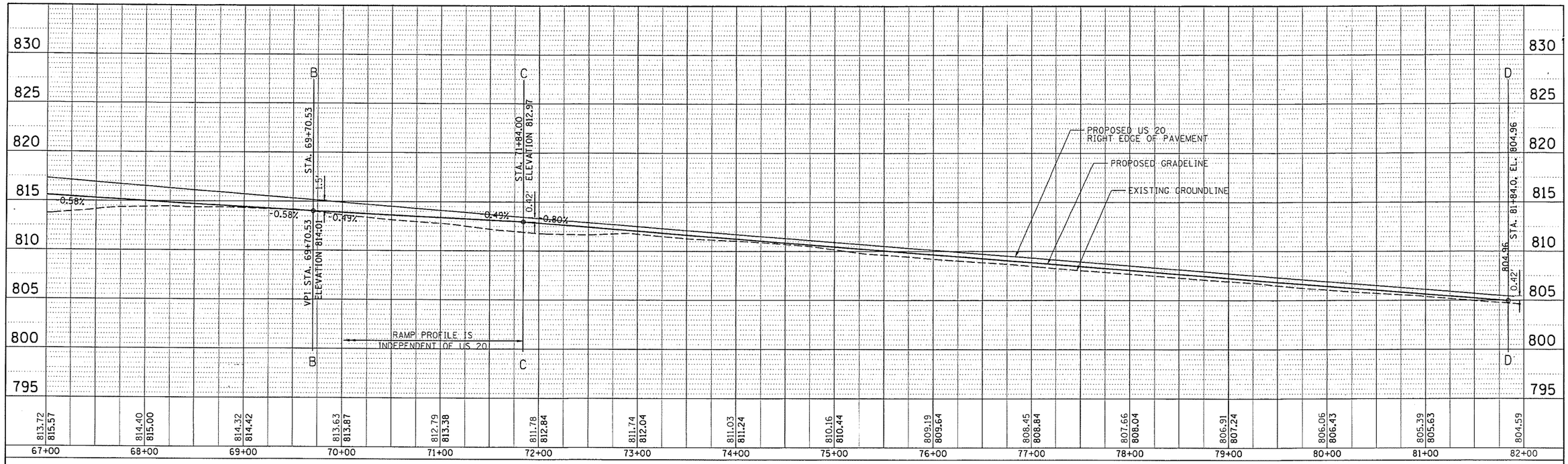
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



RAMP DB STA. 67+00 TO STA. 82+00

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
B.M. NOTED
STRUCTURE NOTATIONS CHKD
NOTE BOOK
NO.
BY
DATE

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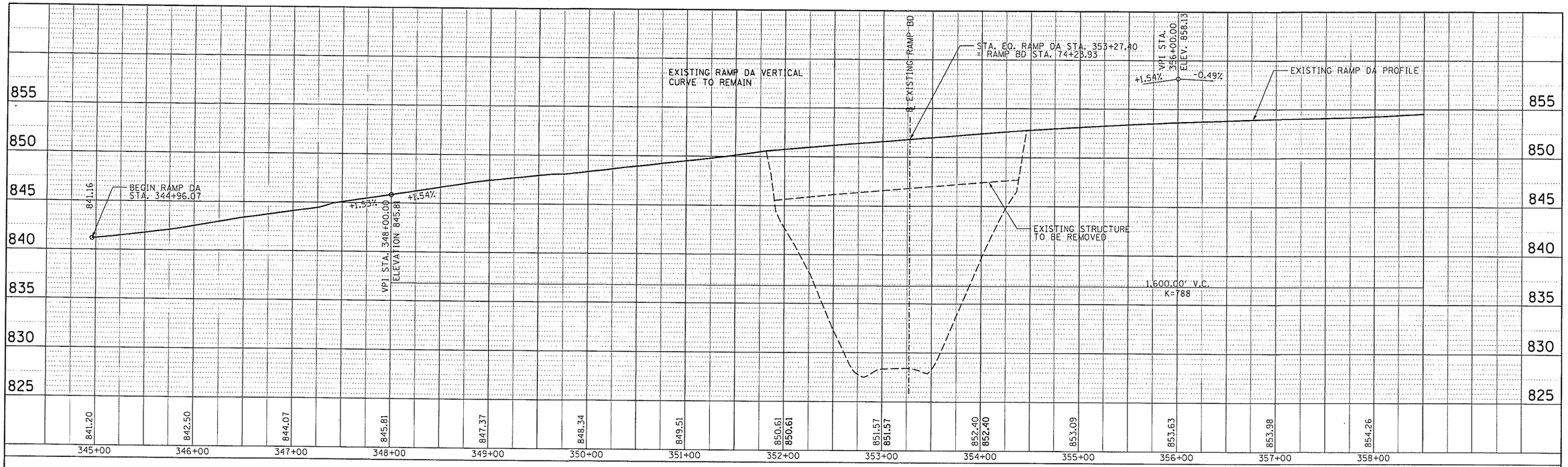
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RAMP DB (NB I-39 MAINLINE) STA. 67+00 TO STA. 82+00

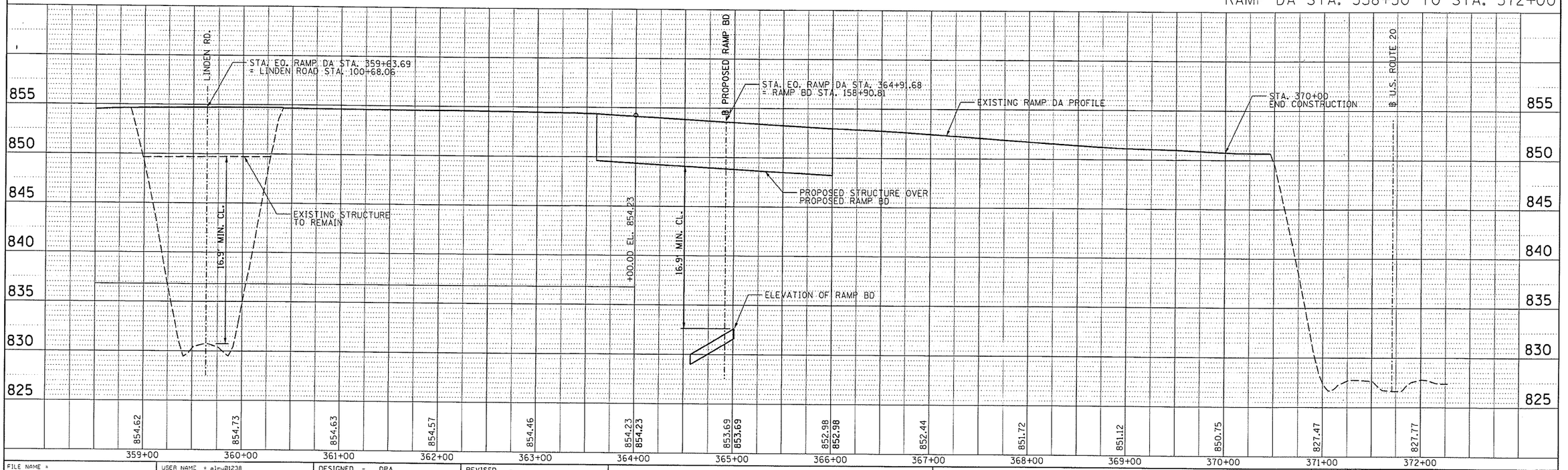
SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	17
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



RAMP DA STA. 344+96.07 TO STA. 358+50

RAMP DA STA. 358+50 TO STA. 372+00



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RAMP DA STA. 344+96.07 TO STA. 372+00 PROFILE

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1.5)K	WINNEBAGO	23	18
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
R/W MAP CHECKED
CADD FILE NAME
NOTE BOOK
NO.
BY
DATE

PROFILE
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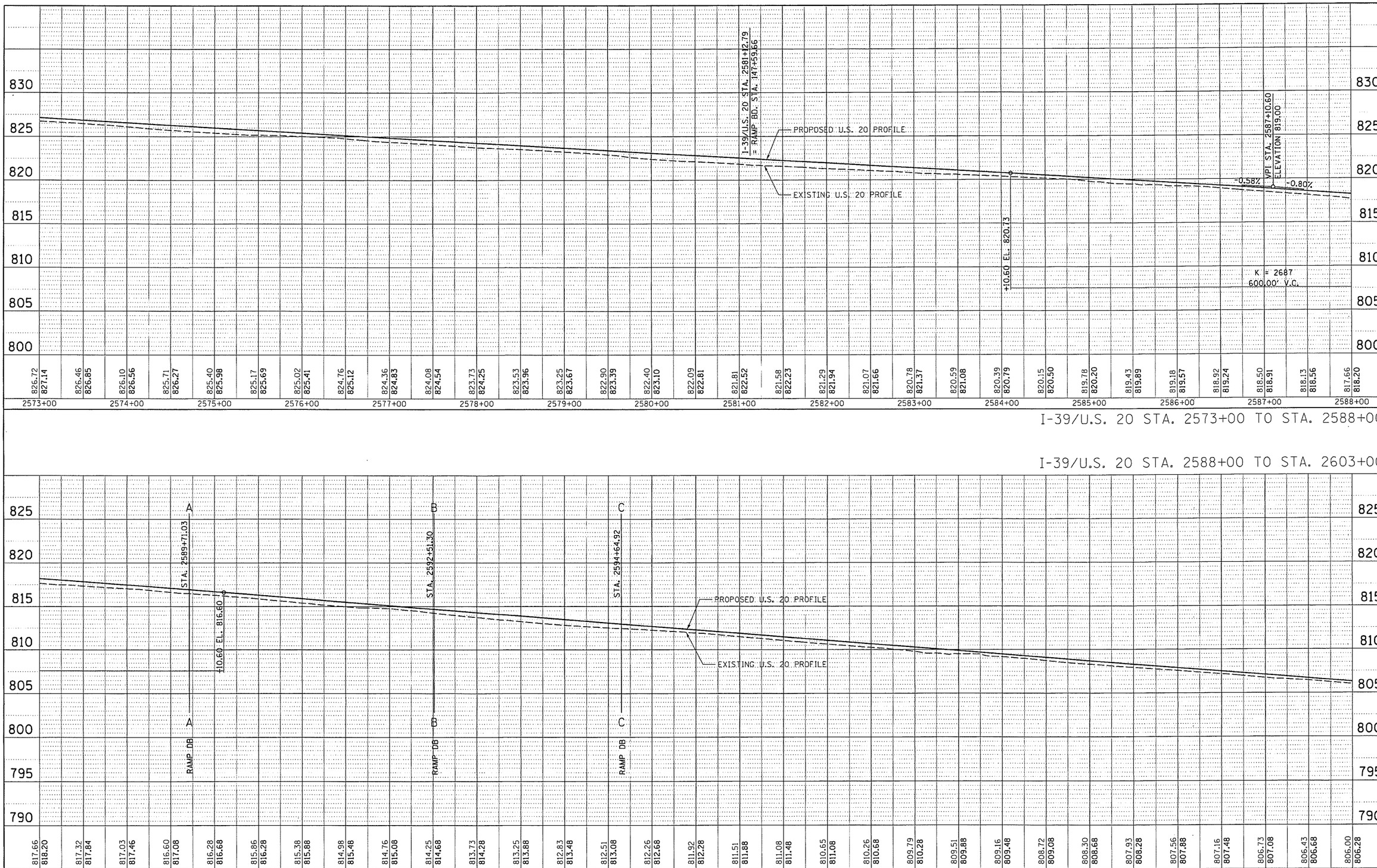
R/W MAP
STRUCTURE NOTATNS CHKD
NOTE BOOK
NO.
BY
DATE



I-39/U.S. 20 STA. 2573+00 TO STA. 2588+00

I-39/U.S. 20 STA. 2588+00 TO STA. 2603+00

PLAN — NOTE BOOK NO. — SURVEYED — PLOTTED — ALIGNMENT CHECKED — RT. OF WAY CHECKED — CADD FILE NAME — BY — DATE

PROFILE — NOTE BOOK NO. — SURVEYED — PLOTTED — GRADES CHECKED — B.M. NOTED — STRUCTURE NOTATIONS CHKD — BY — DATE

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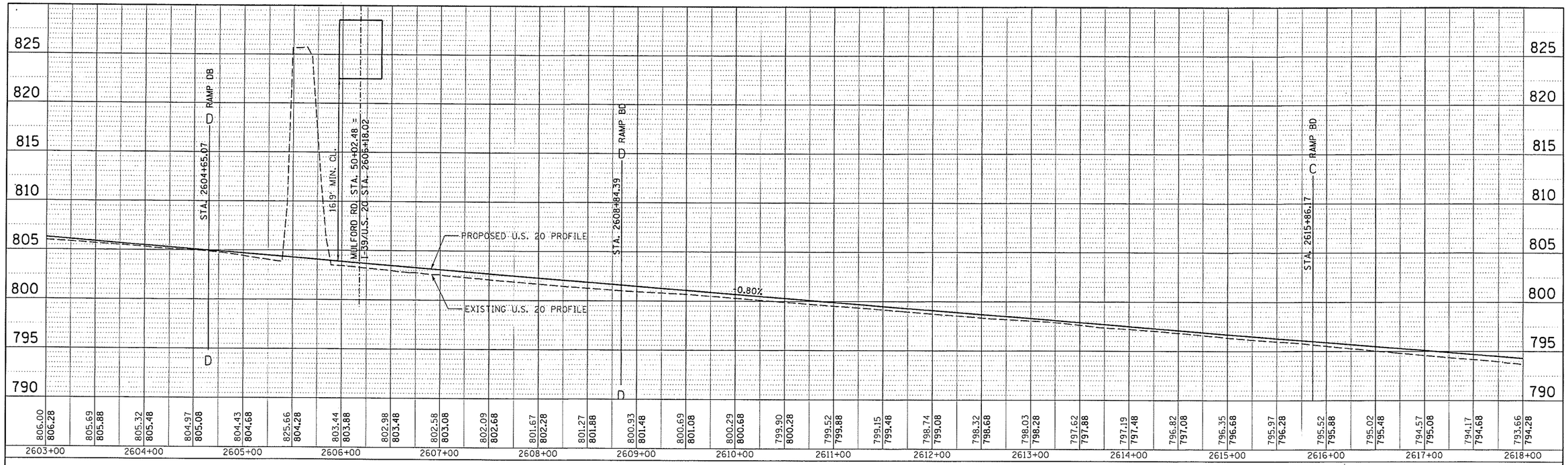
	PLOT DATE = 08\14\2012	DATE - 01/28/11	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-39/U.S. 20 STA. 2573+00 TO STA. 2603+00 PROFILE

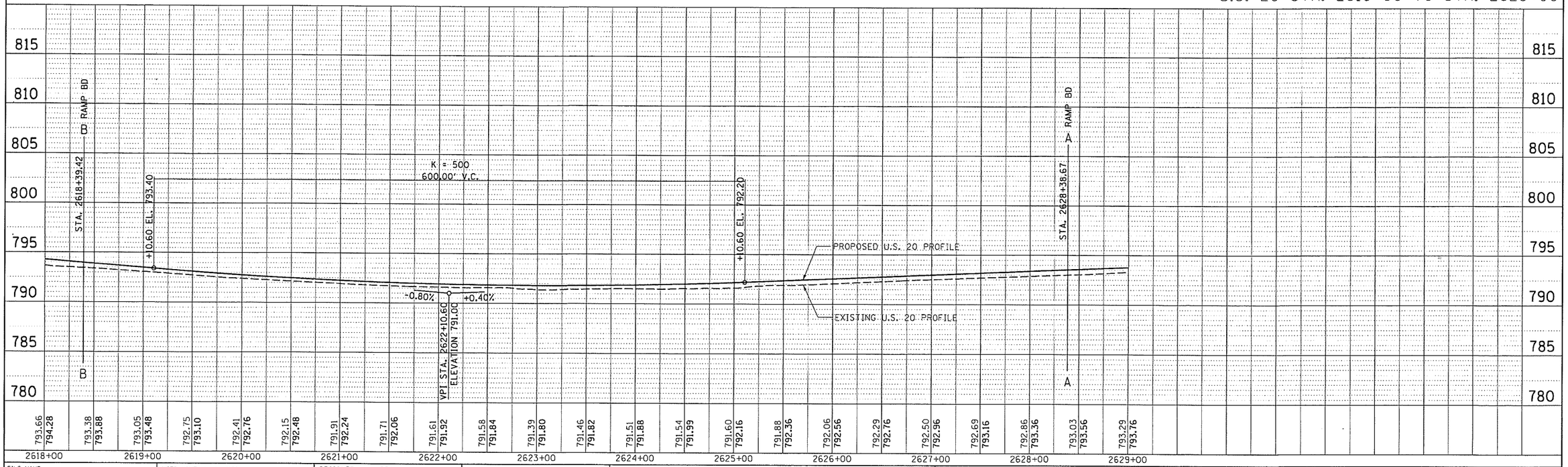
SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	19
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



U.S. 20 STA. 2603+00 TO STA. 2618+00

U.S. 20 STA. 2618+00 TO STA. 2629+00



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PROFILE — NOTE BOOK NO. ____ — SURVEYED ____ PLOTTED ____ GRADES CHECKED ____ B.M. NOTED ____ STRUCTURE NOTATIONS CHKD ____ — BY ____ DATE ____

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	PLOT DATE = 08\14\2012	DATE - 01/28/11	REVISED - ___

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

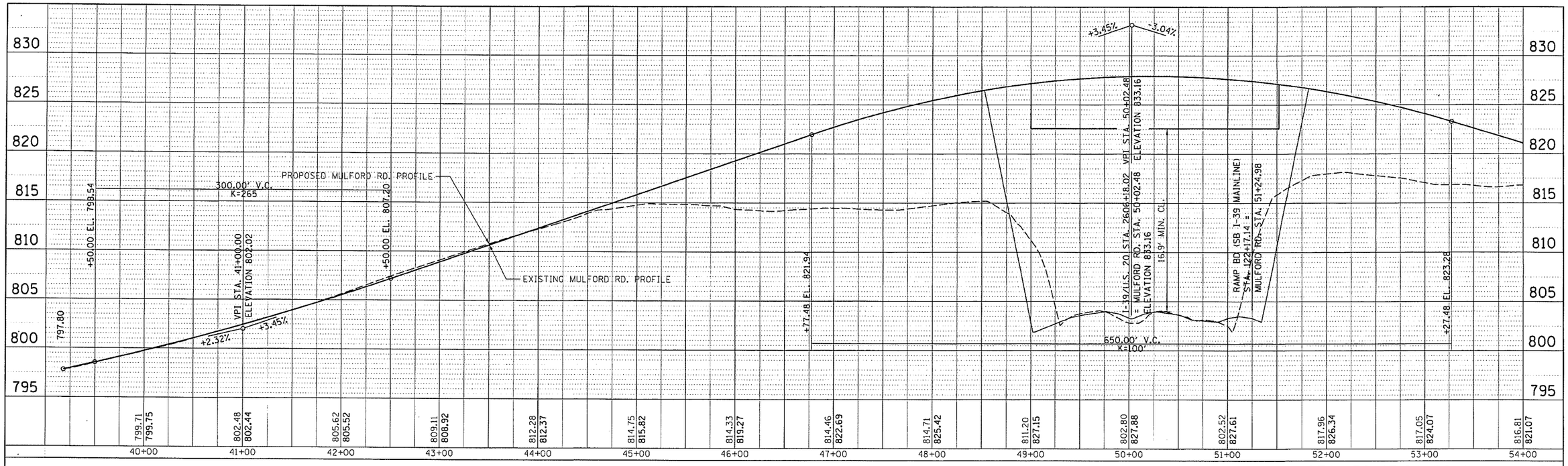
U.S. 20 STA. 2573+00 TO STA. 2629+00 PROFILE

SCALE: ____ SHEET NO. __ OF __ SHEETS STA. ____ TO STA. ____

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	20

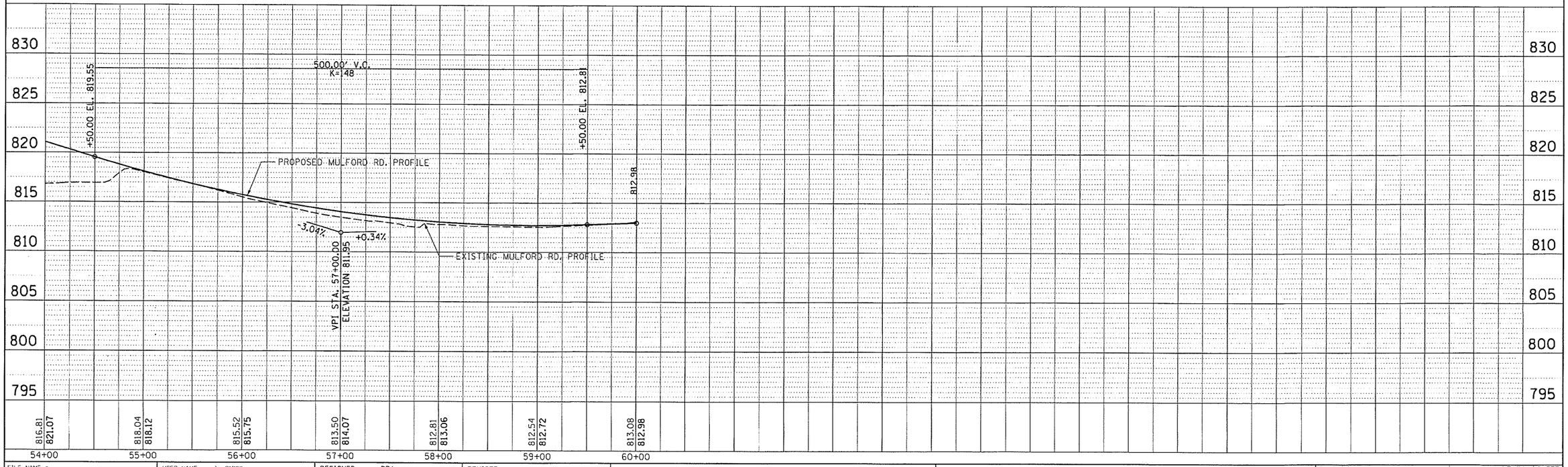
CONTRACT NO. ____

FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT



MULFORD RD. STA. 39+17.94 TO STA. 54+00

MULFORD RD. STA. 54+00 TO STA. 60+00



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PROFILE — SURVEYED / PLOTTED / GRADES CHECKED / DATA VERIFIED / STRUCTURE NOTATNS CHKD — NOTE BOOK NO. — BY — DATE

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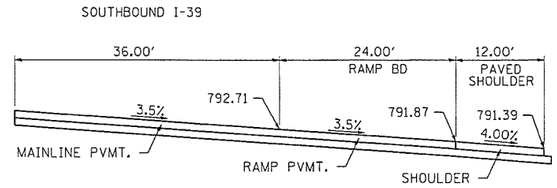
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

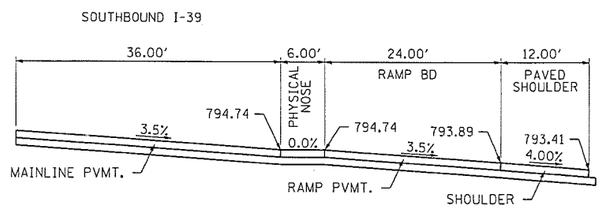
MULFORD RD. STA. 39+17.94 TO STA. 54+00 PROFILE
MULFORD RD. STA. 54+00 TO STA. 60+00 PROFILE

SCALE: | SHEET NO. OF SHEETS | STA. TO STA.

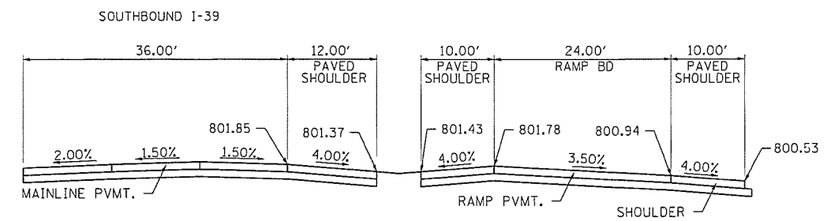
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO	23	21
		CONTRACT NO.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION B-B
RAMP BD STA. 110+04.56
I-39 STA. 2518+39

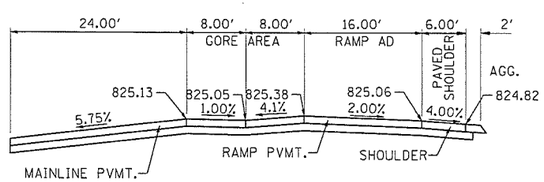


SECTION C-C
RAMP BD STA. 112+53.79
I-39 STA. 2615+86.90

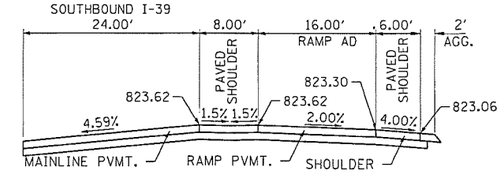


SECTION D-D
RAMP BD STA. 119+47.66
I-39 STA. 2608+86.68

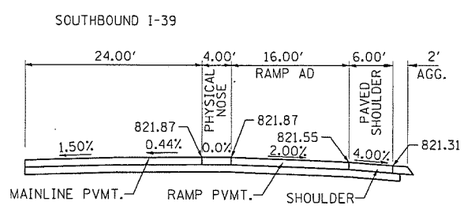
"RAMP BD"
SOUTHBOUND I-39
ONE SIDED MAJOR DIVERGENCE



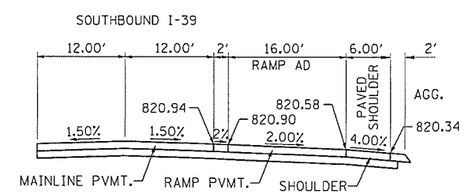
SECTION A-A
RAMP AD STA. 83+58.43
RAMP BD STA. 180+24.37



SECTION B-B
RAMP AD STA. 85+26.17
RAMP BD STA. 181+91.78



SECTION C-C
RAMP AD STA. 87+15.41
RAMP BD STA. 183+80.26



SECTION D-D
RAMP AD STA. 88+15.41
RAMP BD STA. 184+80.28

"RAMP AD"
U.S. ROUTE 20 SOUTHBOUND ENTRANCE RAMP
WITH SOUTHBOUND I-39 (RAMP BD)

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
FAP ROUTE 301 WITH (U.S. ROUTE 20 BYPASS)

SEC. NO. (201-3)K&(4-1,5)K

SCALE 1"=50' COUNTY WINNEBAGO

SJN : PROJ. NO. P-92-111-06

I.D.S. SHEET 22 OF 23

BDE-9908

PLOT DATE = 08\14\2012
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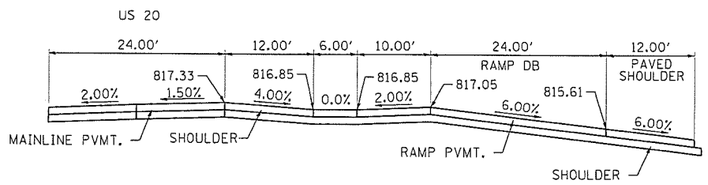
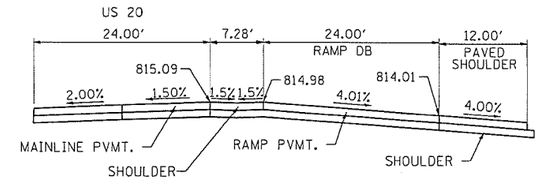
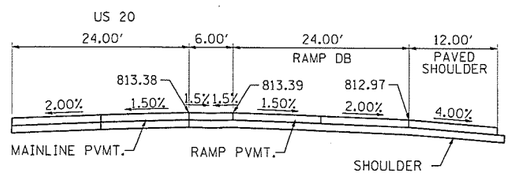


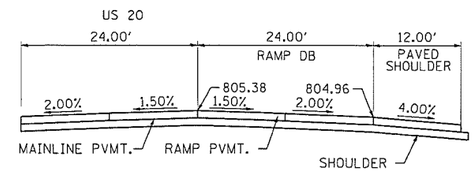
SECTION A-A
RAMP DB STA. 66+93.67
US 20 737+60.43



SECTION B-B
RAMP DB STA. 69+70.53
US 20 740+40.93

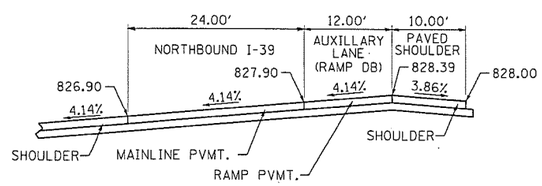


SECTION C-C
RAMP DB STA. 71+84.03
US 20 742+54.24

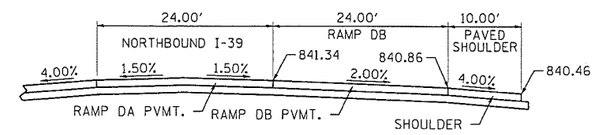


SECTION D-D
RAMP DB STA. 81+84.05
US 20 752+54.47

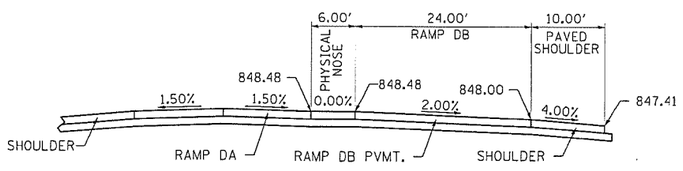
"RAMP DB"
NORTHBOUND I-39
MAJOR CONVERGENCE



SECTION A-A
RAMP DB STA. 22+06.14
I-39 STA. 2534+95.86

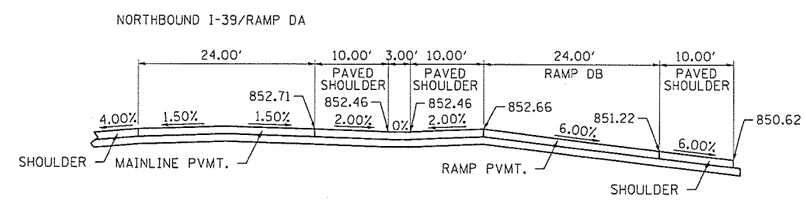


SECTION B-B
RAMP DB STA. 32+06.64
I-39 STA. 2544+96.28



SECTION C-C
RAMP DB STA. 37+06.14
I-39 STA. 2549+95.75

"RAMP DB"
NORTHBOUND I-39
ONE SIDED MAJOR DIVERGENCE



SECTION D-D
RAMP DB STA. 40+89.44
I-39 STA. 2553+83.15

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
FAP ROUTE 301 WITH (U.S. ROUTE 20 BYPASS)

SEC. NO. (201-3)K&(4-1,5)K

SCALE 1"=50' COUNTY WINNEBAGO

SJN : _____ PROJ. NO. P-92-111-06

I.D.S. SHEET 23 OF 23

BDE-9908

PLOT DATE = 08\14\2012
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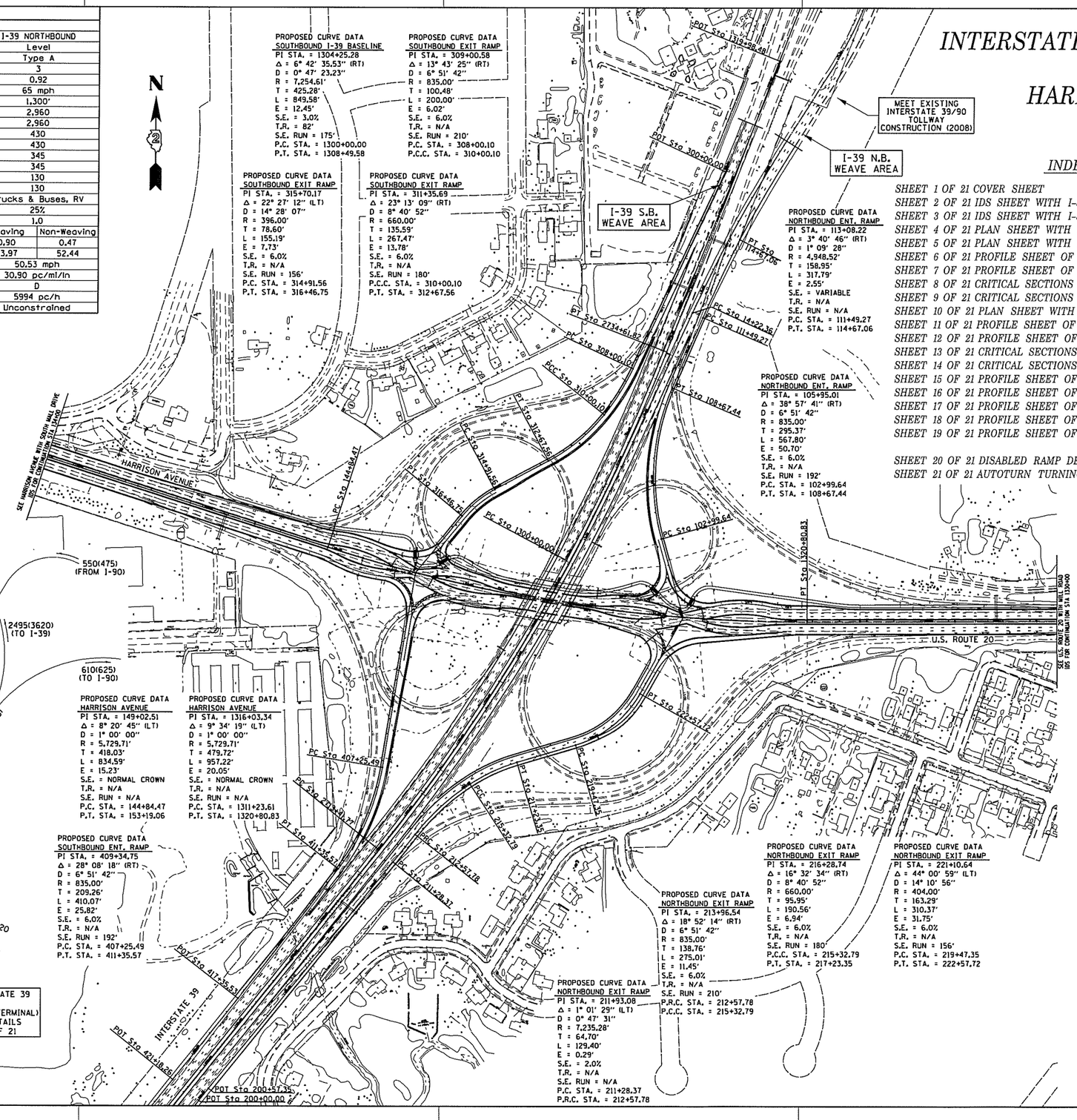
PLOT SCALE = 10.0000 ' / in.
USER NAME = almy01238

INTERSTATE 39 & U.S. ROUTE 20 WITH HARRISON AVENUE

INTERCHANGE DESIGN STUDY

WEAVING ANALYSIS - PROGRAM USED HCS V5.4

Weaving Section		I-39 SOUTHBOUND		I-39 NORTHBOUND	
Terrain/Grade		Level		Level	
Type of Weave		Type C		Type A	
Number of Total Lanes		3		3	
Peak Hour Factor		0.92		0.92	
Free Flow Speed (FFS)		65 mph		65 mph	
Length of Weaving (ft)		1,700'		1,300'	
Volume 1 (Through Volume)	AM	920		2,960	
	PM	920		2,960	
Volume 2 (Exit Weave)	AM	140		430	
	PM	140		430	
Volume 3 (Entrance Weave)	AM	2470		345	
	PM	2470		345	
Volume 4 (Ramp-Ramp)	AM	375		130	
	PM	375		130	
TRUCK TYPES		Trucks & Buses, RV		Trucks & Buses, RV	
% Trucks		25%		25%	
Population Factor		1.0		1.0	
		Weaving	Non-Weaving	Weaving	Non-Weaving
Weaving Intensity Factor, WI		1.09	1.66	0.90	0.47
Weaving and Non-weaving Speeds, Si		41.34	35.68	43.97	52.44
Weaving Segment Speed, S		39.30 mph		50.53 mph	
Weaving Segment Density, D		40.12 pc/mi/ln		30.90 pc/mi/ln	
Level of Service A.M. = P.M.		E		D	
Capacity of Base Condition, cb		5496 pc/h		5994 pc/h	
Constrained/Unconstrained		Unconstrained		Unconstrained	



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1"= 200' 0 100' 200' 300' 400'

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. 20/HARRISON AVE.)

I.D.S. SHEET 1 OF 21

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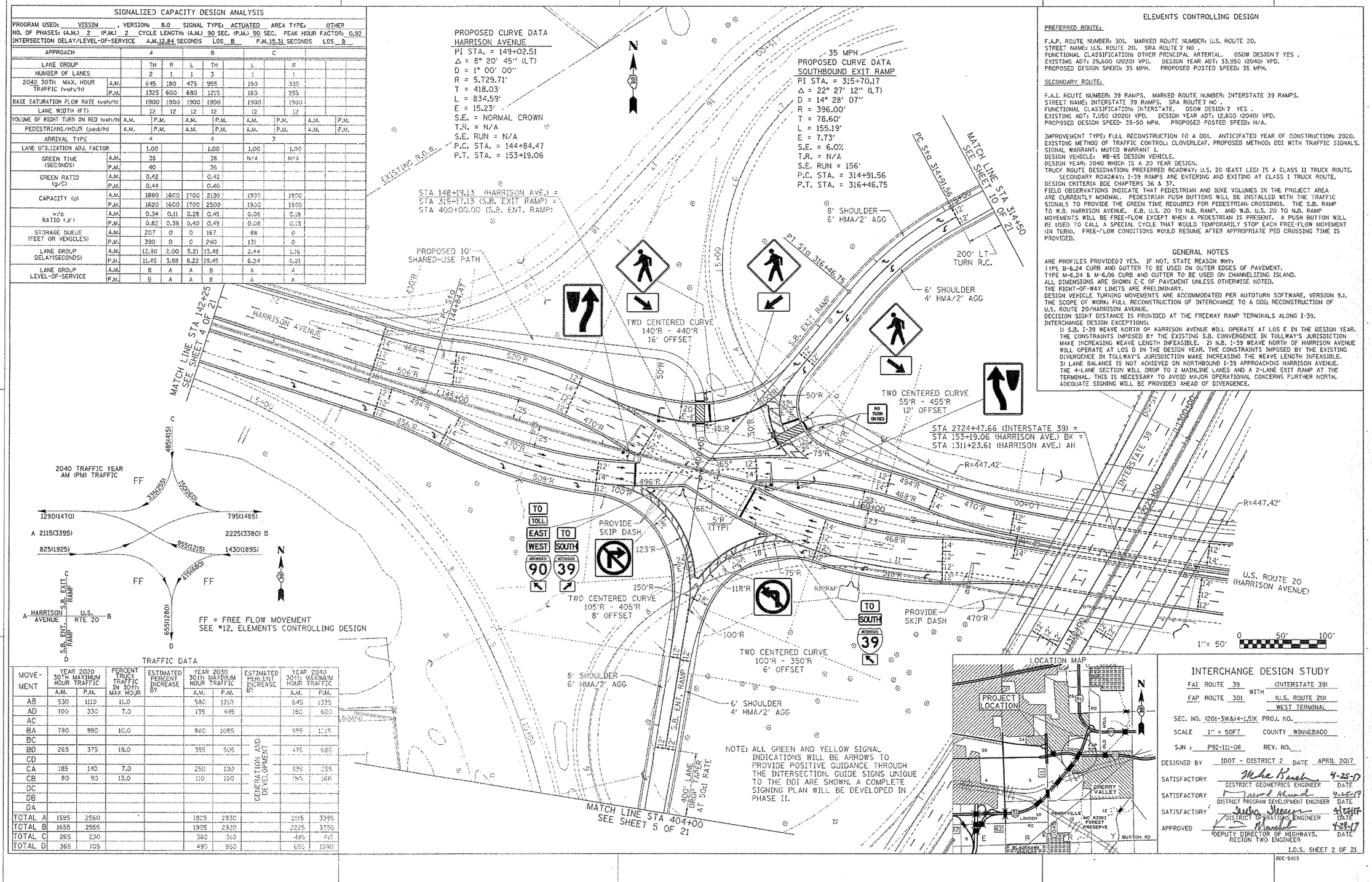
SIGNALIZED CAPACITY DESIGN ANALYSIS

PROGRAM USED: VISSIM , VERSION: 8.0 SIGNAL TYPE: ACTUATED AREA TYPE: OTHER
NO. OF PHASES: (A.M.) 2 (P.M.) 2 CYCLE LENGTH: (A.M.) 90 SEC. (P.M.) 90 SEC. PEAK HOUR FACTOR: 0.92
INTERSECTION DELAY/LEVEL-OF-SERVICE A.M. 12.84 SECONDS LOS B P.M. 15.31 SECONDS LOS B

APPROACH		A		B		C			
LANE GROUP		TH	R	L	TH	L	R		
NUMBER OF LANES		2	1	1	3	1	1		
2040 30TH MAX. HOUR TRAFFIC (veh/h)	A.M.	645	180	475	955	150	335		
	P.M.	1325	600	680	1215	180	255		
BASE SATURATION FLOW RATE (veh/h)		1900	1900	1900	1900	1900	1900		
LANE WIDTH (FT)		12	12	12	12	12	12		
VOLUME OF RIGHT TURN ON RED (veh/h)	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
PEDESTRIANS/HOUR (ped/h)	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
ARRIVAL TYPE		4		4		3			
LANE UTILIZATION ADJ. FACTOR		1.00		1.00		1.00	1.00		
GREEN TIME (SECONDS)	A.M.	36		38		N/A	N/A		
	P.M.	40		36					
GREEN RATIO (g/C)	A.M.	0.42		0.42					
	P.M.	0.44		0.40					
CAPACITY (c)	A.M.	1880	1600	1700	2130	1900	1900		
	P.M.	1620	1600	1700	2500	1900	1900		
v/c RATIO (X)	A.M.	0.34	0.11	0.28	0.45	0.08	0.18		
	P.M.	0.82	0.38	0.40	0.49	0.08	0.13		
STORAGE QUEUE (FEET OR VEHICLES)	A.M.	207	0	0	167	88	0		
	P.M.	390	0	0	240	131	0		
LANE GROUP DELAY(SECONDS)	A.M.	12.90	2.00	5.21	13.48	2.44	1.16		
	P.M.	11.45	3.68	8.22	19.45	6.24	0.21		
LANE GROUP LEVEL-OF-SERVICE	A.M.	B	A	A	B	A	A		
	P.M.	B	A	A	B	A	A		



TRAFFIC DATA

MOVEMENT	YEAR 2020 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2020 30TH MAXIMUM HOUR TRAFFIC P.M.	PERCENT TRUCK TRAFFIC IN 30TH MAX HOUR	ESTIMATED PERCENT INCREASE BY	YEAR 2030 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2030 30TH MAXIMUM HOUR TRAFFIC P.M.	ESTIMATED PERCENT INCREASE BY	YEAR 2040 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2040 30TH MAXIMUM HOUR TRAFFIC P.M.
AB	530	1110	11.0		580	1210		645	1325
AD	100	330	7.0		135	445		180	600
AC									
BA	780	980	10.0		860	1085		955	1215
BC									
BD	265	375	19.0		355	505	GENERATION AND DEVELOPMENT	475	680
CD									
CA	185	140	7.0		250	190		335	255
CB	80	95	13.0		110	120		150	160
DC									
DB									
DA									
TOTAL A	1595	2560			1825	2930		2115	3395
TOTAL B	1655	2555			1905	2920		2225	3350
TOTAL C	265	230			360	310		485	415
TOTAL D	365	705			490	950		655	1280

ELEMENTS CONTROLLING DESIGN

PREFERRED ROUTE:

F.A.P. ROUTE NUMBER: 301. MARKED ROUTE NUMBER: U.S. ROUTE 20.
STREET NAME: U.S. ROUTE 20. SRA ROUTE? NO .
FUNCTIONAL CLASSIFICATION: OTHER PRINCIPAL ARTERIAL. OSOW DESIGN? YES .
EXISTING ADT: 25,600 (2020) VPD. DESIGN YEAR ADT: 33,950 (2040) VPD.
PROPOSED DESIGN SPEED: 35 MPH. PROPOSED POSTED SPEED: 35 MPH.

SECONDARY ROUTE:

F.A.I. ROUTE NUMBER: 39 RAMPS. MARKED ROUTE NUMBER: INTERSTATE 39 RAMPS.
STREET NAME: INTERSTATE 39 RAMPS. SRA ROUTE? NO .
FUNCTIONAL CLASSIFICATION: INTERSTATE. OSOW DESIGN? YES .
EXISTING ADT: 7,050 (2020) VPD. DESIGN YEAR ADT: 12,800 (2040) VPD.
PROPOSED DESIGN SPEED: 35-50 MPH. PROPOSED POSTED SPEED: N/A.

IMPROVEMENT TYPE: FULL RECONSTRUCTION TO A DDI. ANTICIPATED YEAR OF CONSTRUCTION: 2020.
EXISTING METHOD OF TRAFFIC CONTROL: CLOVERLEAF. PROPOSED METHOD: DDI WITH TRAFFIC SIGNALS.
SIGNAL WARRANT: MUTCD WARRANT 1.
DESIGN VEHICLE: WB-65 DESIGN VEHICLE.
DESIGN YEAR: 2040 WHICH IS A 20 YEAR DESIGN.
TRUCK ROUTE DESIGNATION: PREFERRED ROADWAY: U.S. 20 (EAST LEG) IS A CLASS II TRUCK ROUTE.
SECONDARY ROADWAY: I-39 RAMPS ARE ENTERING AND EXITING AT CLASS I TRUCK ROUTE.
DESIGN CRITERIA BDE CHAPTERS 36 & 37.
FIELD OBSERVATIONS INDICATE THAT PEDESTRIAN AND BIKE VOLUMES IN THE PROJECT AREA ARE CURRENTLY MINIMAL. PEDESTRIAN PUSH BUTTONS WILL BE INSTALLED WITH THE TRAFFIC SIGNALS TO PROVIDE THE GREEN TIME REQUIRED FOR PEDESTRIAN CROSSINGS. THE S.B. RAMP TO W.B. HARRISON AVENUE, E.B. U.S. 20 TO N.B. RAMP, AND W.B. U.S. 20 TO N.B. RAMP MOVEMENTS WILL BE FREE-FLOW EXCEPT WHEN A PEDESTRIAN IS PRESENT. A PUSH BUTTON WILL BE USED TO CALL A SPECIAL CYCLE THAT WOULD TEMPORARILY STOP EACH FREE-FLOW MOVEMENT (IN TURN). FREE-FLOW CONDITIONS WOULD RESUME AFTER APPROPRIATE PED CROSSING TIME IS PROVIDED.

GENERAL NOTES

ARE PROFILES PROVIDED? YES. IF NOT, STATE REASON WHY:
TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
TYPE M-6.24 & M-6.06 CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND.
ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED.
THE RIGHT-OF-WAY LIMITS ARE PRELIMINARY.
DESIGN VEHICLE TURNING MOVEMENTS ARE ACCOMMODATED PER AUTOTURN SOFTWARE, VERSION 9.1.
THE SCOPE OF WORK: FULL RECONSTRUCTION OF INTERCHANGE TO A DDI; RECONSTRUCTION OF U.S. ROUTE 20/HARRISON AVENUE.
DECISION SIGHT DISTANCE IS PROVIDED AT THE FREEWAY RAMP TERMINALS ALONG I-39.
INTERCHANGE DESIGN EXCEPTIONS:
1) S.B. I-39 WEAVE NORTH OF HARRISON AVENUE WILL OPERATE AT LOS E IN THE DESIGN YEAR. THE CONSTRAINTS IMPOSED BY THE EXISTING S.B. CONVERGENCE IN TOLLWAY'S JURISDICTION MAKE INCREASING WEAVE LENGTH INFEASIBLE. 2) N.B. I-39 WEAVE NORTH OF HARRISON AVENUE WILL OPERATE AT LOS D IN THE DESIGN YEAR. THE CONSTRAINTS IMPOSED BY THE EXISTING DIVERGENCE IN TOLLWAY'S JURISDICTION MAKE INCREASING THE WEAVE LENGTH INFEASIBLE. 3) LANE BALANCE IS NOT ACHIEVED ON NORTHBOUND I-39 APPROACHING HARRISON AVENUE. THE 4-LANE SECTION WILL DROP TO 2 MAINLINE LANES AND A 2-LANE EXIT RAMP AT THE TERMINAL. THIS IS NECESSARY TO AVOID MAJOR OPERATIONAL CONCERNS FURTHER NORTH. ADEQUATE SIGNING WILL BE PROVIDED AHEAD OF DIVERGENCE.

INTERCHANGE DESIGN STUDY

FAI ROUTE 39 WITH (INTERSTATE 39)
FAP ROUTE 301 (U.S. ROUTE 20) WEST TERMINAL
SEC. NO. (20)-31K&(4-1.5)K PROJ. NO.
SCALE 1" = 50FT COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO.
DESIGNED BY IDOT - DISTRICT 2 DATE APRIL 2017
SATISFACTORY Mike Bruch 4-25-17 DISTRICT GEOMETRICS ENGINEER DATE
SATISFACTORY Fareed Ahmad 4-25-17 DISTRICT PROGRAM DEVELOPMENT ENGINEER DATE
SATISFACTORY Jeffrey Steuer 4/27/17 DISTRICT OPERATIONS ENGINEER DATE
APPROVED 4-28-17 DEPUTY DIRECTOR OF HIGHWAYS, REGION TWO ENGINEER DATE

I.D.S. SHEET 2 OF 21

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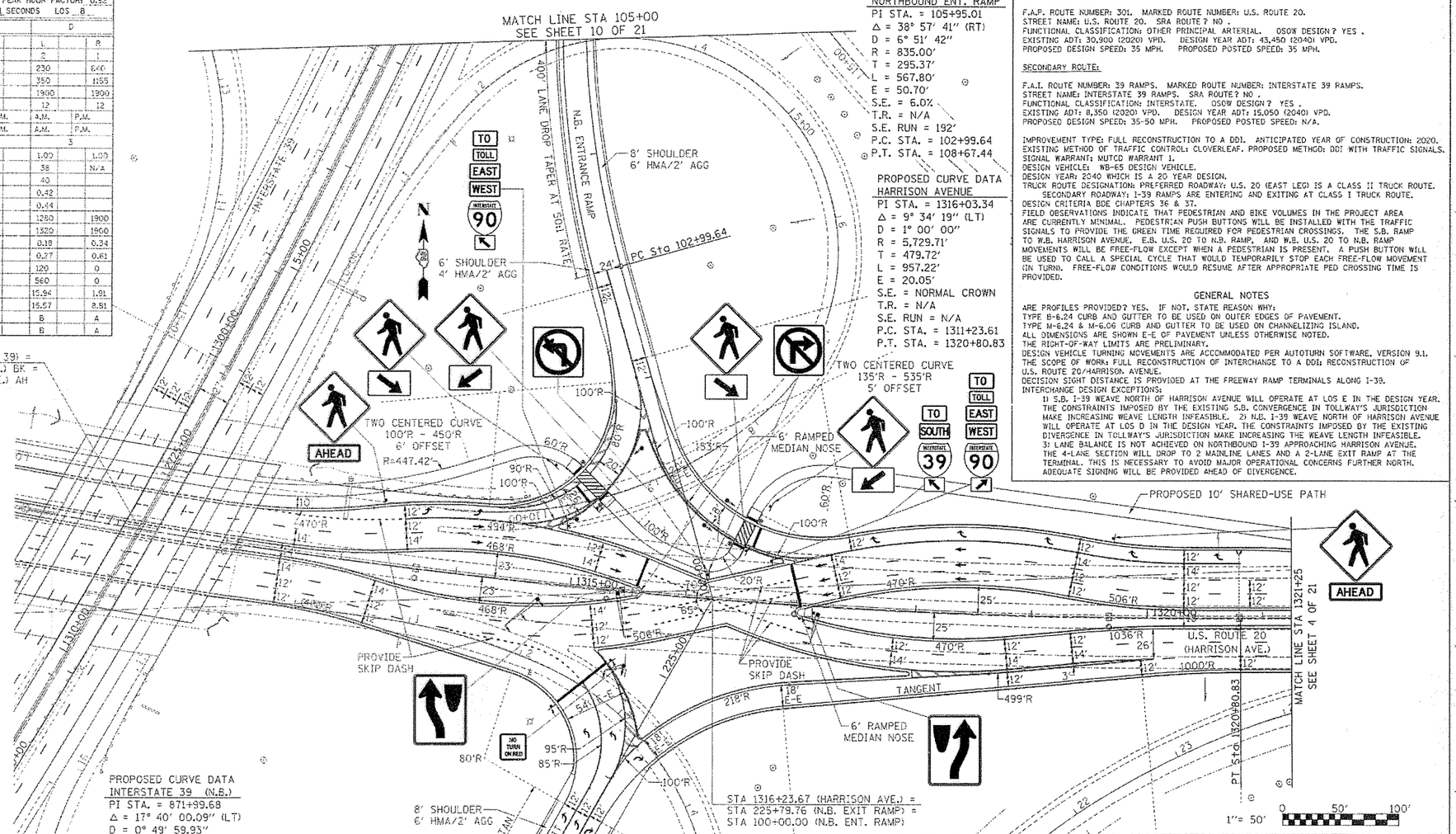
SIGNALIZED CAPACITY DESIGN ANALYSIS

PROGRAM USED: VISSIM , VERSION: 8.0 SIGNAL TYPE: ACTUATED AREA TYPE: OTHER
NO. OF PHASES: (A.M.) 2 (P.M.) 2 CYCLE LENGTH: (A.M.) 90 SEC. (P.M.) 90 SEC. PEAK HOUR FACTOR: 0.92
INTERSECTION DELAY/LEVEL-OF-SERVICE A.M. 12.84 SECONDS LOS B P.M. 15.31 SECONDS LOS B

APPROACH		A		B				D	
LANE GROUP		L	TH	TH	R			L	R
NUMBER OF LANES		1	2	3	1			2	1
2040 30TH MAX. HOUR TRAFFIC (veh/h)	A.M.	160	635	1200	255			230	640
	P.M.	255	1230	1545	415			350	1155
BASE SATURATION FLOW RATE (veh/h)		1900	1900	1900	1900			1900	1900
LANE WIDTH (FT)		12	12	12	12			12	12
VOLUME OF RIGHT TURN ON RED (veh/h)		A.M.	P.M.	A.M. P.M.		A.M. P.M.		A.M.	P.M.
PEDESTRIANS/HOUR (ped/h)		A.M.	P.M.	A.M. P.M.		A.M. P.M.		A.M.	P.M.
ARRIVAL TYPE		4		4				3	
LANE UTILIZATION ADJ. FACTOR		1.00	1.00	1.00				1.00	1.00
GREEN TIME (SECONDS)	A.M.		38	38				38	N/A
	P.M.		40	36				40	
GREEN RATIO (g/C)	A.M.		0.42	0.42				0.42	
	P.M.		0.44	0.40				0.44	
CAPACITY (c)	A.M.	1700	1520	2130	1600			1280	1900
	P.M.	1700	1470	2500	1600			1320	1900
v/c RATIO (X)	A.M.	0.09	0.42	0.56	0.16			0.18	0.34
	P.M.	0.15	0.84	0.62	0.26			0.27	0.61
STORAGE QUEUE (FEET OR VEHICLES)	A.M.	0	139	209	0			120	0
	P.M.	0	251	308	0			560	0
LANE GROUP DELAY(SECONDS)	A.M.	2.28	10.64	6.70	2.70			15.94	1.91
	P.M.	2.46	14.56	6.41	3.32			15.57	8.91
LANE GROUP LEVEL-OF-SERVICE	A.M.	A	B	A	A			B	A
	P.M.	A	B	A	A			B	A



PROPOSED CURVE DATA NORTHBOUND ENT. RAMP

PI STA. = 105+95.01
Δ = 38° 57' 41" (RT)
D = 6° 51' 42"
R = 835.00'
T = 295.37'
L = 567.80'
E = 50.70'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192'
P.C. STA. = 102+99.64
P.T. STA. = 108+67.44

PROPOSED CURVE DATA HARRISON AVENUE

PI STA. = 1316+03.34
Δ = 9° 34' 19" (LT)
D = 1° 00' 00"
R = 5,729.71'
T = 479.72'
L = 957.22'
E = 20.05'
S.E. = NORMAL CROWN
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 1311+23.61
P.T. STA. = 1320+80.83

ELEMENTS CONTROLLING DESIGN

PREFERRED ROUTE:

F.A.P. ROUTE NUMBER: 301. MARKED ROUTE NUMBER: U.S. ROUTE 20.
STREET NAME: U.S. ROUTE 20. SRA ROUTE? NO .
FUNCTIONAL CLASSIFICATION: OTHER PRINCIPAL ARTERIAL. OSOW DESIGN? YES .
EXISTING ADT: 30,900 (2020) VPD. DESIGN YEAR ADT: 43,450 (2040) VPD.
PROPOSED DESIGN SPEED: 35 MPH. PROPOSED POSTED SPEED: 35 MPH.

SECONDARY ROUTE:

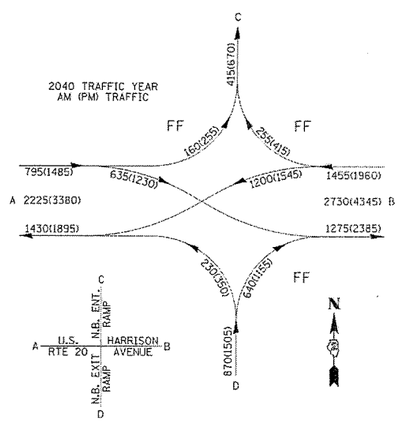
F.A.I. ROUTE NUMBER: 39 RAMPS. MARKED ROUTE NUMBER: INTERSTATE 39 RAMPS.
STREET NAME: INTERSTATE 39 RAMPS. SRA ROUTE? NO .
FUNCTIONAL CLASSIFICATION: INTERSTATE. OSOW DESIGN? YES .
EXISTING ADT: 8,350 (2020) VPD. DESIGN YEAR ADT: 15,050 (2040) VPD.
PROPOSED DESIGN SPEED: 35-50 MPH. PROPOSED POSTED SPEED: N/A.

IMPROVEMENT TYPE: FULL RECONSTRUCTION TO A DDI. ANTICIPATED YEAR OF CONSTRUCTION: 2020.
EXISTING METHOD OF TRAFFIC CONTROL: CLOVERLEAF. PROPOSED METHOD: DDI WITH TRAFFIC SIGNALS.
SIGNAL WARRANT: MUTCD WARRANT 1.
DESIGN VEHICLE: WB-65 DESIGN VEHICLE.
DESIGN YEAR: 2040 WHICH IS A 20 YEAR DESIGN.
TRUCK ROUTE DESIGNATION: PREFERRED ROADWAY: U.S. 20 (EAST LEG) IS A CLASS II TRUCK ROUTE.
SECONDARY ROADWAY: I-39 RAMPS ARE ENTERING AND EXITING AT CLASS I TRUCK ROUTE.
DESIGN CRITERIA BDE CHAPTERS 36 & 37.
FIELD OBSERVATIONS INDICATE THAT PEDESTRIAN AND BIKE VOLUMES IN THE PROJECT AREA ARE CURRENTLY MINIMAL. PEDESTRIAN PUSH BUTTONS WILL BE INSTALLED WITH THE TRAFFIC SIGNALS TO PROVIDE THE GREEN TIME REQUIRED FOR PEDESTRIAN CROSSINGS. THE S.B. RAMP TO W.B. HARRISON AVENUE, E.B. U.S. 20 TO N.B. RAMP, AND W.B. U.S. 20 TO N.B. RAMP MOVEMENTS WILL BE FREE-FLOW EXCEPT WHEN A PEDESTRIAN IS PRESENT. A PUSH BUTTON WILL BE USED TO CALL A SPECIAL CYCLE THAT WOULD TEMPORARILY STOP EACH FREE-FLOW MOVEMENT (IN TURN). FREE-FLOW CONDITIONS WOULD RESUME AFTER APPROPRIATE PED CROSSING TIME IS PROVIDED.

GENERAL NOTES

ARE PROFILES PROVIDED? YES. IF NOT, STATE REASON WHY:
TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
TYPE M-6.24 & M-6.06 CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND.
ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED.
THE RIGHT-OF-WAY LIMITS ARE PRELIMINARY.
DESIGN VEHICLE TURNING MOVEMENTS ARE ACCOMMODATED PER AUTOTURN SOFTWARE, VERSION 9.1.
THE SCOPE OF WORK: FULL RECONSTRUCTION OF INTERCHANGE TO A DDI; RECONSTRUCTION OF U.S. ROUTE 20/HARRISON AVENUE.
DECISION SIGHT DISTANCE IS PROVIDED AT THE FREEWAY RAMP TERMINALS ALONG I-39.
INTERCHANGE DESIGN EXCEPTIONS:
1) S.B. I-39 WEAVE NORTH OF HARRISON AVENUE WILL OPERATE AT LOS E IN THE DESIGN YEAR. THE CONSTRAINTS IMPOSED BY THE EXISTING S.B. CONVERGENCE IN TOLLWAY'S JURISDICTION MAKE INCREASING WEAVE LENGTH INFEASIBLE. 2) N.B. I-39 WEAVE NORTH OF HARRISON AVENUE WILL OPERATE AT LOS D IN THE DESIGN YEAR. THE CONSTRAINTS IMPOSED BY THE EXISTING DIVERGENCE IN TOLLWAY'S JURISDICTION MAKE INCREASING THE WEAVE LENGTH INFEASIBLE. 3) LANE BALANCE IS NOT ACHIEVED ON NORTHBOUND I-39 APPROACHING HARRISON AVENUE. THE 4-LANE SECTION WILL DROP TO 2 MAINLINE LANES AND A 2-LANE EXIT RAMP AT THE TERMINAL. THIS IS NECESSARY TO AVOID MAJOR OPERATIONAL CONCERNS FURTHER NORTH. ADEQUATE SIGNING WILL BE PROVIDED AHEAD OF DIVERGENCE.

2040 TRAFFIC YEAR
AM (PM) TRAFFIC



PROPOSED CURVE DATA INTERSTATE 39 (N.B.)

PI STA. = 871+99.68
Δ = 17° 40' 00.09" (LT)
D = 0° 49' 59.93"
R = 6875.65'
T = 1068.50'
L = 2120.05'
E = 82.53'
S.E. = 3.0%
T.R. = 86' at P.T.
S.E. RUN = 132' at P.T.
P.C. STA. = 861+31.17
P.T. STA. = 882+51.22

PROPOSED CURVE DATA NORTHBOUND EXIT RAMP

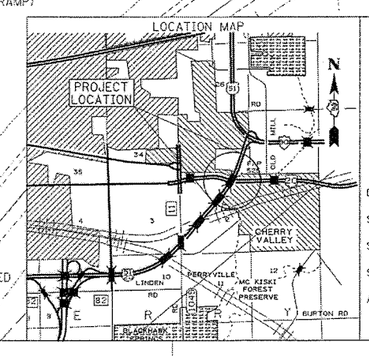
PI STA. = 221+10.64
Δ = 44° 00' 59" (LT)
D = 14° 10' 56"
R = 404.00'
T = 163.29'
L = 310.37'
E = 31.75'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 156'
P.C. STA. = 219+47.35
P.T. STA. = 222+57.72

TRAFFIC DATA

MOVEMENT	YEAR 2020 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2020 30TH MAXIMUM HOUR TRAFFIC P.M.	PERCENT TRUCK TRAFFIC IN 30TH MAX HOUR	ESTIMATED PERCENT INCREASE BY	YEAR 2030 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2030 30TH MAXIMUM HOUR TRAFFIC P.M.	ESTIMATED PERCENT INCREASE BY	YEAR 2040 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2040 30TH MAXIMUM HOUR TRAFFIC P.M.
AB	520	1060	11.0		570	1140	GENERATION AND DEVELOPMENT	635	1230
AD									
AC	90	140	11.0		120	190		160	255
BA	920	1160	16.0		1045	1330		1260	1545
BC	140	230	13.0		190	310		255	415
BD									
CD									
CA									
CB									
DC									
DB	355	640	14.0		475	860		640	1155
DA	125	195	8.0		170	260		230	350
TOTAL A	1655	2555			1905	2920		2225	3380
TOTAL B	1935	3090			2280	3640		2730	4345
TOTAL C	230	370			310	500		415	670
TOTAL D	480	835			645	1120		870	1505

NOTE: ALL GREEN AND YELLOW SIGNAL INDICATIONS WILL BE ARROWS TO PROVIDE POSITIVE GUIDANCE THROUGH THE INTERSECTION. GUIDE SIGNS UNIQUE TO THE DDI ARE SHOWN. A COMPLETE SIGNING PLAN WILL BE DEVELOPED IN PHASE II.

LOCATION MAP



INTERCHANGE DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. ROUTE 20)
EAST TERMINAL

SEC. NO. (20)-3K&(14-1.5)K PROJ. NO.
SCALE 1" = 50FT COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO.

DESIGNED BY IDOT - DISTRICT 2 DATE APRIL 2017
SATISFACTORY — DISTRICT GEOMETRICS ENGINEER — DATE 4-25-17
SATISFACTORY — DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE 4-25-17
SATISFACTORY — DISTRICT OPERATIONS ENGINEER — DATE 4-25-17
APPROVED — DEPUTY DIRECTOR OF HIGHWAYS, REGION TWO ENGINEER — DATE 4-28-17

I.D.S. SHEET 3 OF 21

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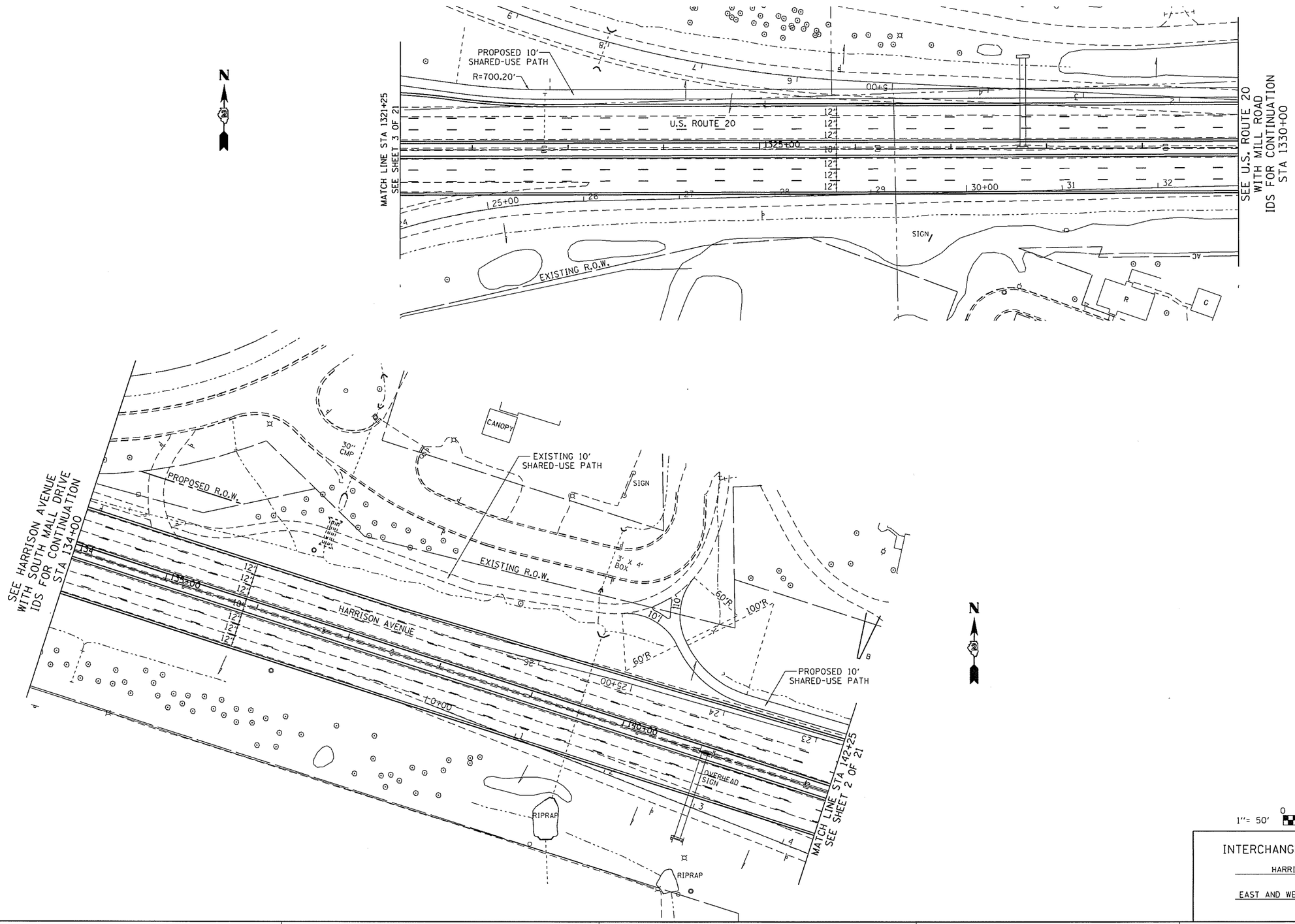
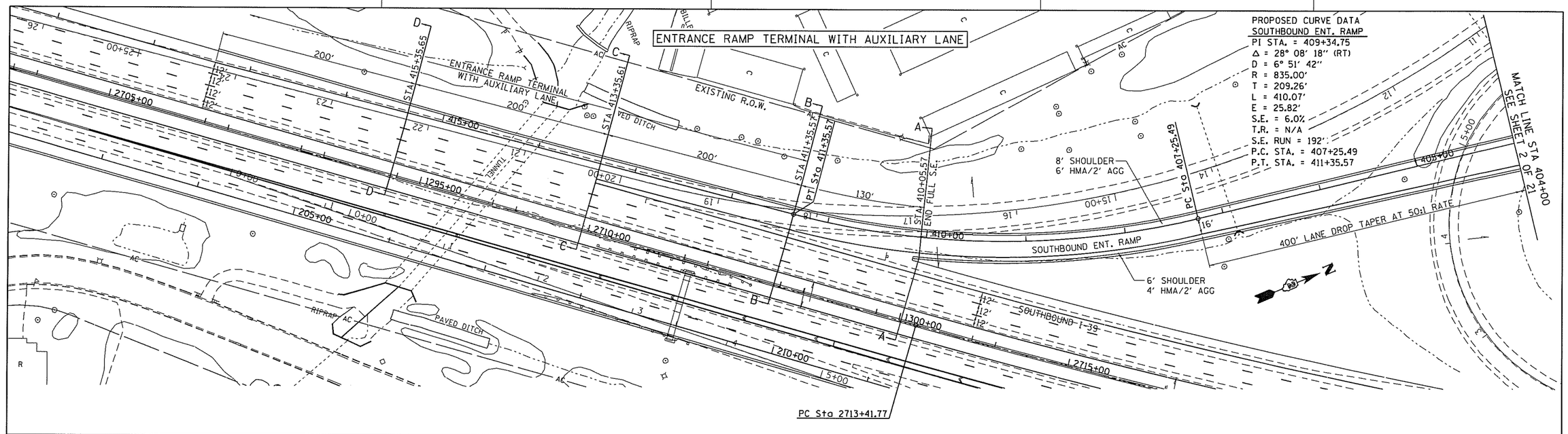


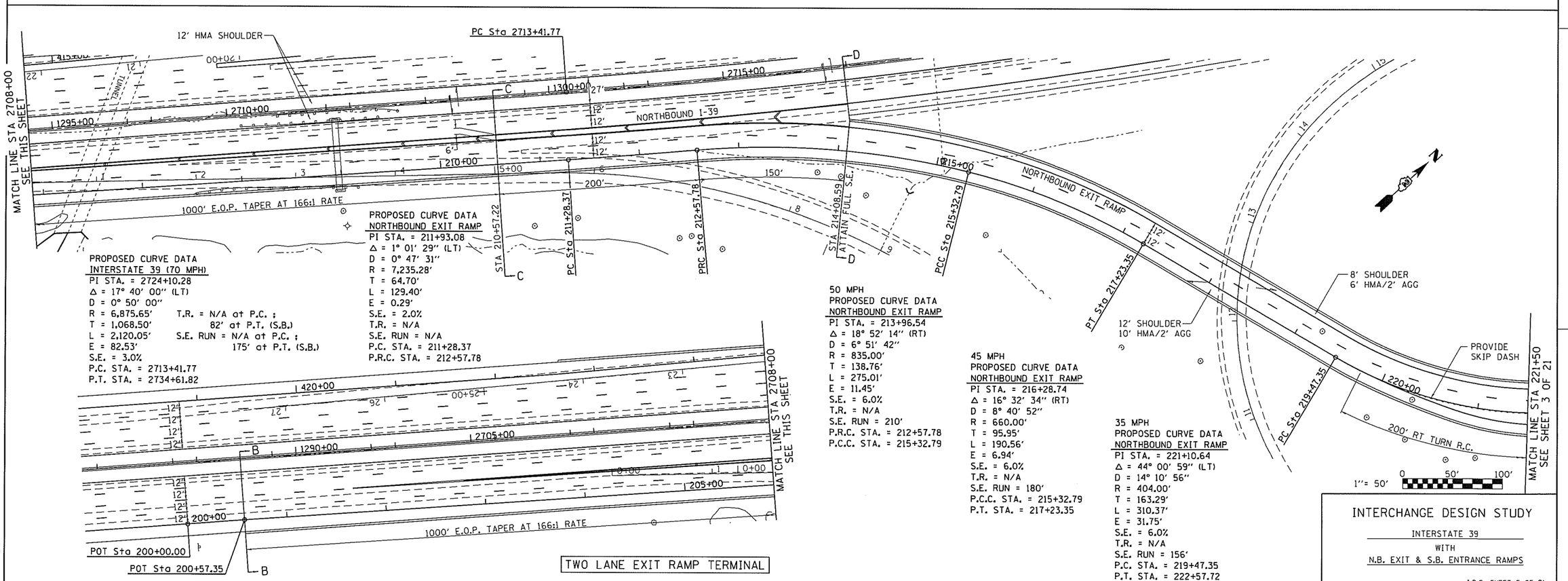
INTERCHANGE DESIGN STUDY

HARRISON AVENUE
WITH
EAST AND WEST PROJECT LIMITS

I.D.S. SHEET 4 OF 21



PROPOSED CURVE DATA
SOUTHBOUND ENT. RAMP
PI STA. = 409+34.75
Δ = 28° 08' 18" (RT)
D = 6° 51' 42"
R = 835.00'
T = 209.26'
L = 410.07'
E = 25.82'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192'
P.C. STA. = 407+25.49
P.T. STA. = 411+35.57



PROPOSED CURVE DATA
INTERSTATE 39 (70 MPH)
PI STA. = 2724+10.28
Δ = 17° 40' 00" (LT)
D = 0° 50' 00"
R = 6,875.65'
T = 1,068.50'
L = 2,120.05'
E = 82.53'
S.E. = 3.0%
P.C. STA. = 2713+41.77
P.T. STA. = 2734+61.82
T.R. = N/A at P.C. ; 82' at P.T. (S.B.)
S.E. RUN = N/A at P.C. ; 175' at P.T. (S.B.)

PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP
PI STA. = 211+93.08
Δ = 1° 01' 29" (LT)
D = 0° 47' 31"
R = 7,235.28'
T = 64.70'
L = 129.40'
E = 0.29'
S.E. = 2.0%
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 211+28.37
P.R.C. STA. = 212+57.78

50 MPH
PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP
PI STA. = 213+96.54
Δ = 18° 52' 14" (RT)
D = 6° 51' 42"
R = 835.00'
T = 138.76'
L = 275.01'
E = 11.45'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 210'
P.R.C. STA. = 212+57.78
P.C.C. STA. = 215+32.79

45 MPH
PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP
PI STA. = 216+28.74
Δ = 16° 32' 34" (RT)
D = 8° 40' 52"
R = 660.00'
T = 95.95'
L = 190.56'
E = 6.94'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 180'
P.C.C. STA. = 215+32.79
P.T. STA. = 217+23.35

35 MPH
PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP
PI STA. = 221+10.64
Δ = 44° 00' 59" (LT)
D = 14° 10' 56"
R = 404.00'
T = 163.29'
L = 310.37'
E = 31.75'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 156'
P.C. STA. = 219+47.35
P.T. STA. = 222+57.72

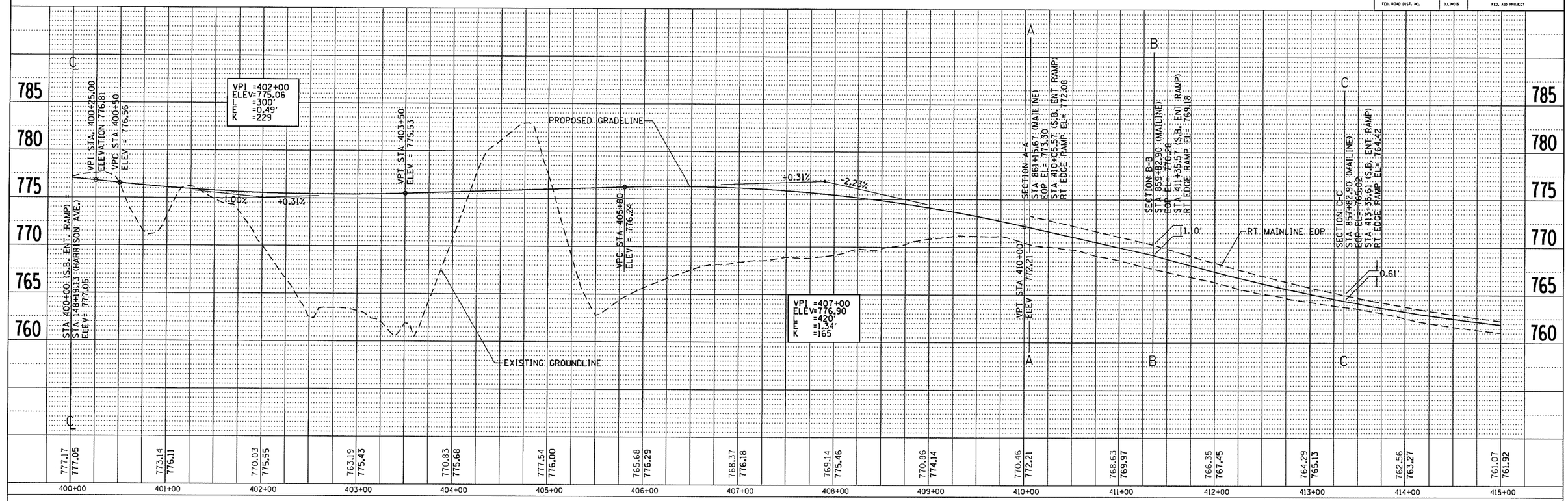
INTERCHANGE DESIGN STUDY
INTERSTATE 39
WITH
N.B. EXIT & S.B. ENTRANCE RAMPS

I.D.S. SHEET 5 OF 21

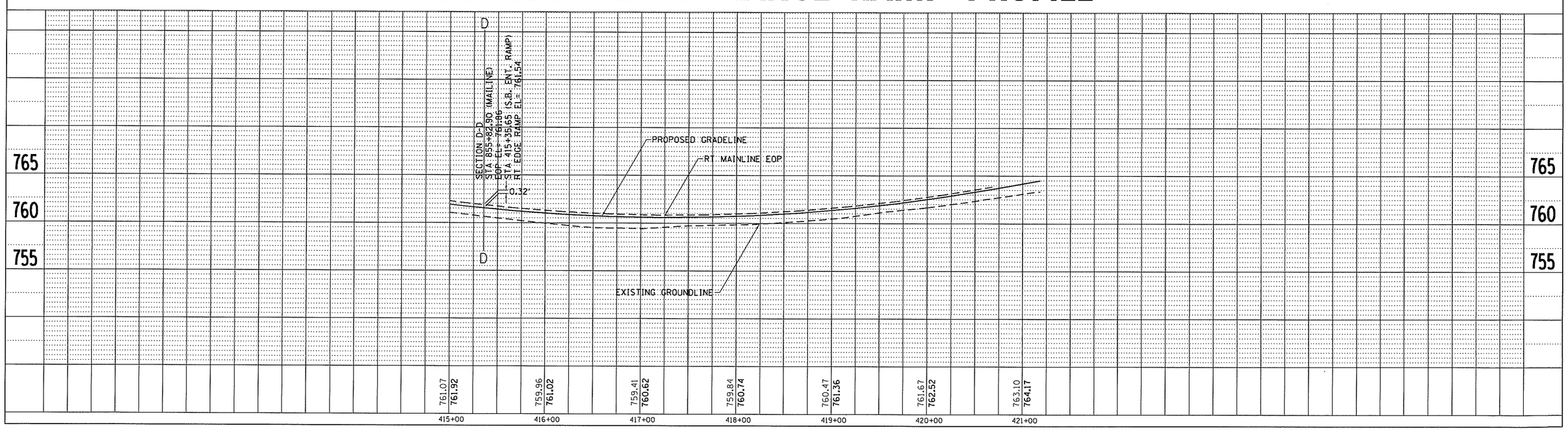
c:\pw_work\pwidot\tgr f11hdd\d0350459\d1105051.pif.dgn
Mar-10-2017 08:23:33 AM
+REF-
+REF-
+REF-

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	21	6
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SOUTHBOUND ENTRANCE RAMP PROFILE

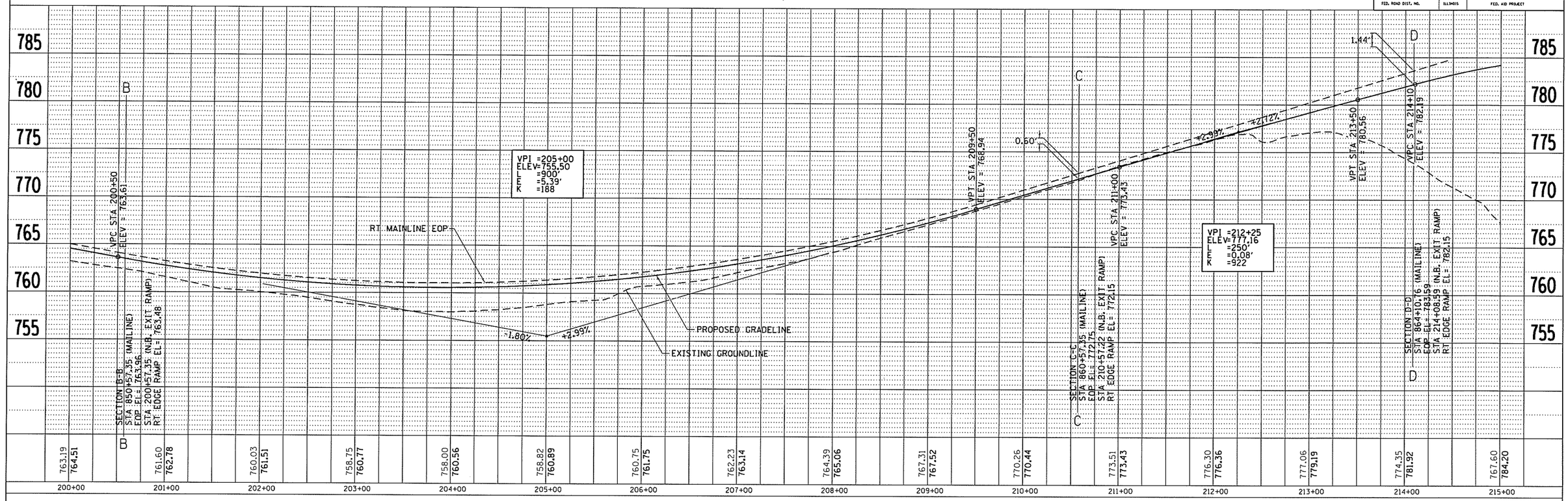


SOUTHBOUND ENTRANCE RAMP PROFILE

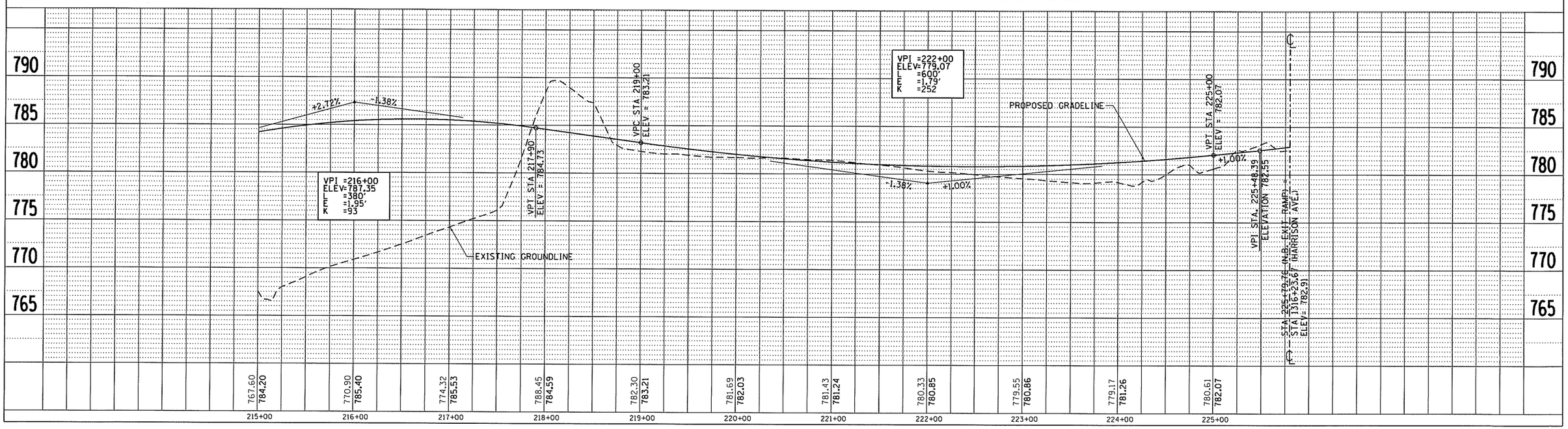


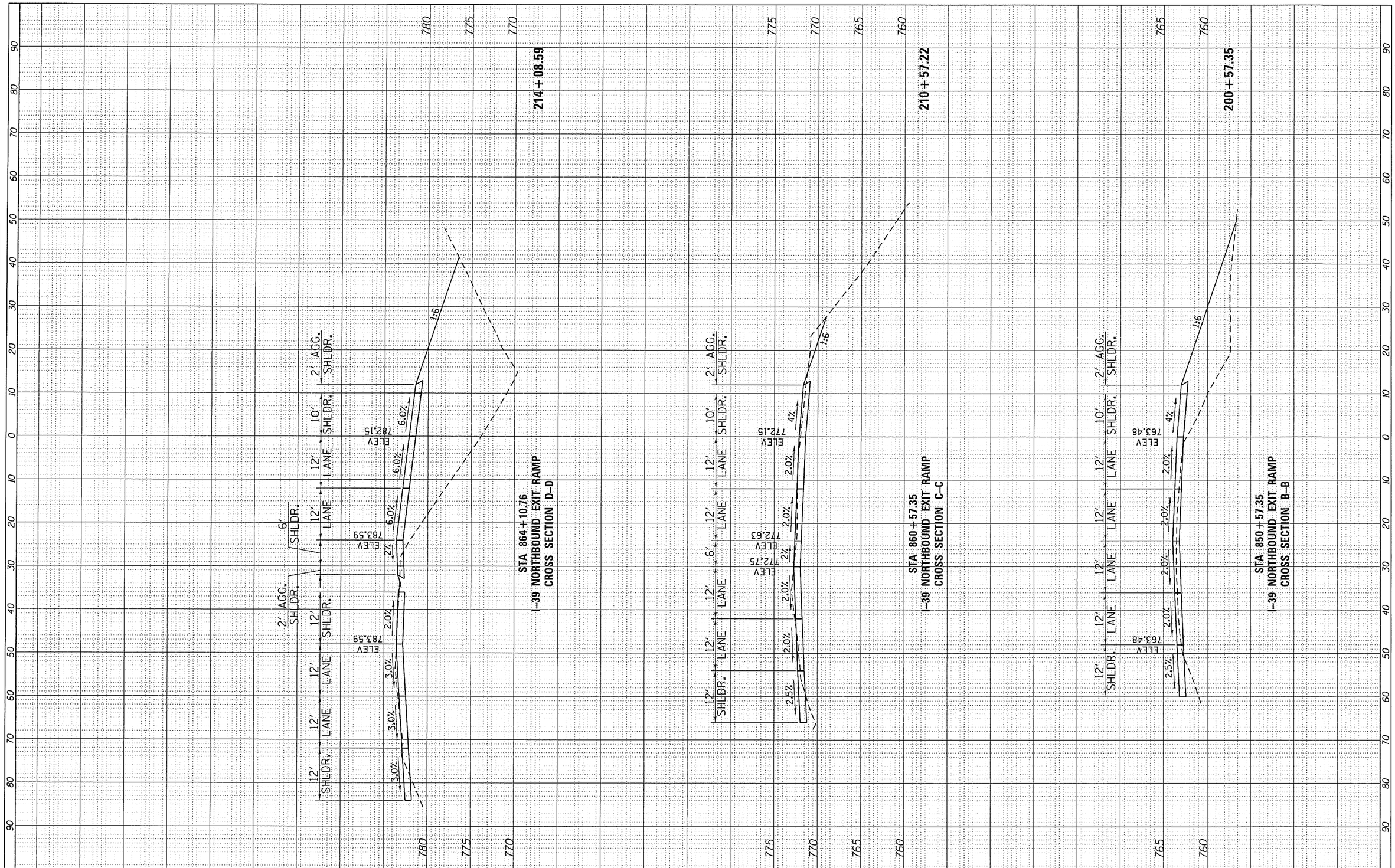
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	(201-3)K&(4-1,5)K	WINNEBAGO	21	7
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

NORTHBOUND EXIT RAMP PROFILE



NORTHBOUND EXIT RAMP PROFILE





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		DRAWN -	REVISED -
	PLOT SCALE = 1" = 5ft VERT. / 1" = 10ft HORIZ.	CHECKED -	REVISED -
	PLOT DATE = Mar-10-2017 08:28:53 AM	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

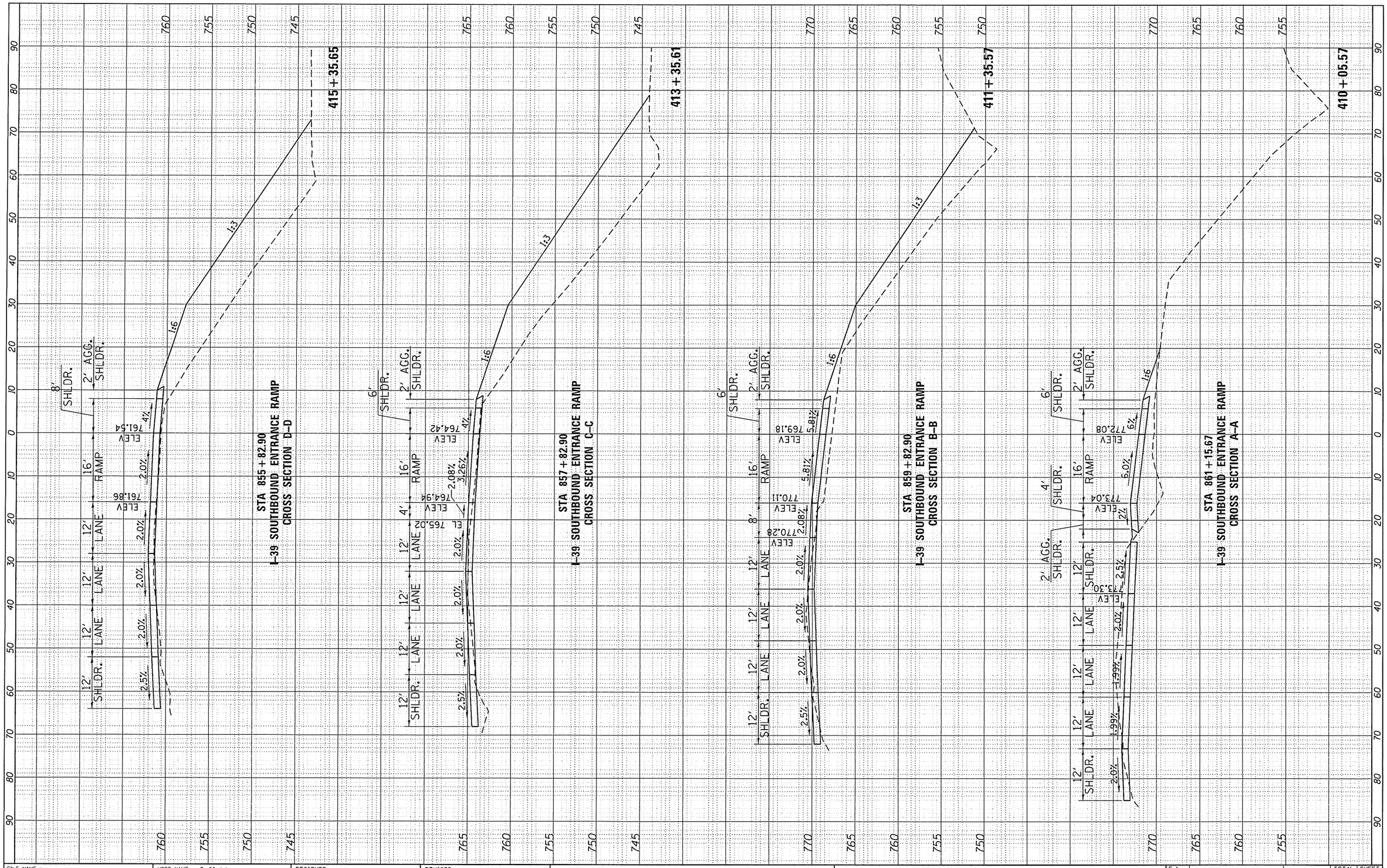
I-39 NORTHBOUND EXIT RAMP
CRITICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | STA. 200+57.35 TO STA. 214+08.59

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	(201-3)K (4-1.5)K	WINNEBAGO	21	8

CONTRACT NO.

ILLINOIS FED. AID PROJECT



FINAL SURVEY	BY	DATE
NOTE BOOK NO.	SURVEYED	
	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	BY	DATE
NOTE BOOK NO.	SURVEYED	
	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

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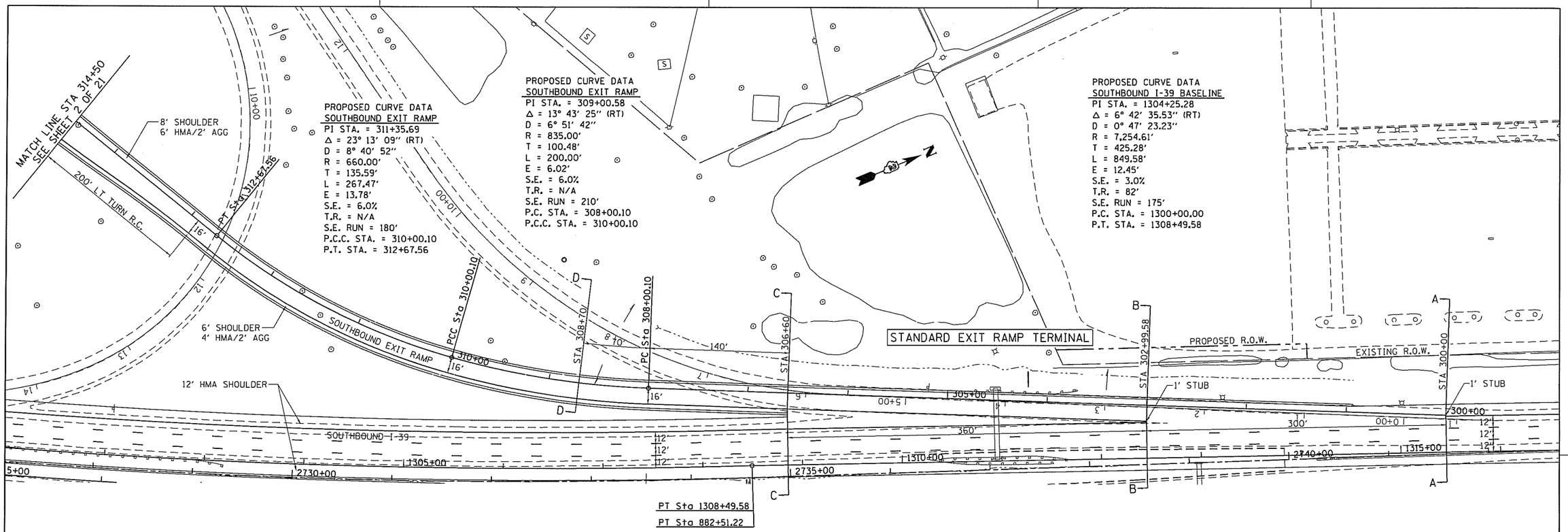
	PLOT DATE = Mar-10-2017 08:29:24 AM	DATE -	REVISED -
			REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-39 SOUTHBOUND ENTRANCE RAMP
CRITICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | STA. 410+05.57 TO STA. 415+35.65

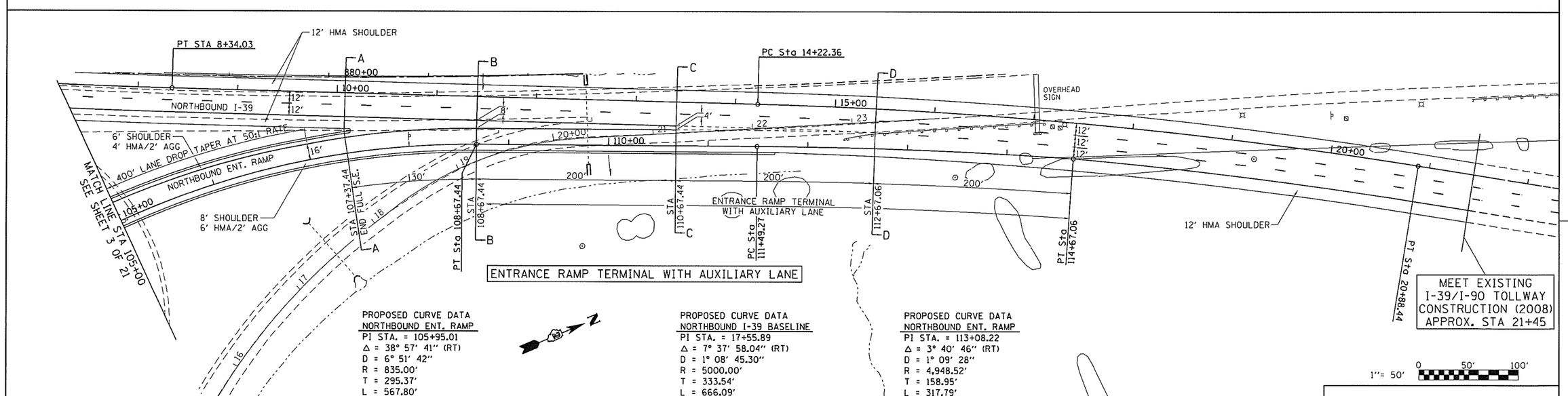
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	(201-3)K (4-1.5)K	WINNEBAGO	21	9
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		



PROPOSED CURVE DATA
SOUTHBOUND EXIT RAMP
PI STA. = 311+35.69
Δ = 23° 13' 09" (RT)
D = 8° 40' 52"
R = 660.00'
T = 135.59'
L = 267.47'
E = 13.78'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 180'
P.C.C. STA. = 310+00.10
P.T. STA. = 312+67.56

PROPOSED CURVE DATA
SOUTHBOUND EXIT RAMP
PI STA. = 309+00.58
Δ = 13° 43' 25" (RT)
D = 6° 51' 42"
R = 835.00'
T = 100.48'
L = 200.00'
E = 6.02'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 210'
P.C. STA. = 308+00.10
P.C.C. STA. = 310+00.10

PROPOSED CURVE DATA
SOUTHBOUND I-39 BASELINE
PI STA. = 1304+25.28
Δ = 6° 42' 35.53" (RT)
D = 0° 47' 23.23"
R = 7,254.61'
T = 425.28'
L = 849.58'
E = 12.45'
S.E. = 3.0%
T.R. = 82'
S.E. RUN = 175'
P.C. STA. = 1300+00.00
P.T. STA. = 1308+49.58



PROPOSED CURVE DATA
NORTHBOUND ENT. RAMP
PI STA. = 105+95.01
Δ = 38° 57' 41" (RT)
D = 6° 51' 42"
R = 835.00'
T = 295.37'
L = 567.80'
E = 50.70'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192'
P.C. STA. = 102+99.64
P.T. STA. = 108+67.44

PROPOSED CURVE DATA
NORTHBOUND I-39 BASELINE
PI STA. = 17+55.89
Δ = 7° 37' 58.04" (RT)
D = 1° 08' 45.30"
R = 5000.00'
T = 333.54'
L = 666.09'
E = 11.11'
S.E. = 3.7%
T.R. = N/A
S.E. RUN = 191' & 223'
P.C. STA. = 14+22.36
P.T. STA. = 20+88.44

PROPOSED CURVE DATA
NORTHBOUND ENT. RAMP
PI STA. = 113+08.22
Δ = 3° 40' 46" (RT)
D = 1° 09' 28"
R = 4,948.52'
T = 158.95'
L = 317.79'
E = 2.55'
S.E. = VARIABLE
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 111+49.27
P.T. STA. = 114+67.06

1"= 50' 0 50' 100'

INTERCHANGE DESIGN STUDY

INTERSTATE 39

WITH

N.B. ENTRANCE & S.B. EXIT RAMPS

I.D.S. SHEET 10 OF 21

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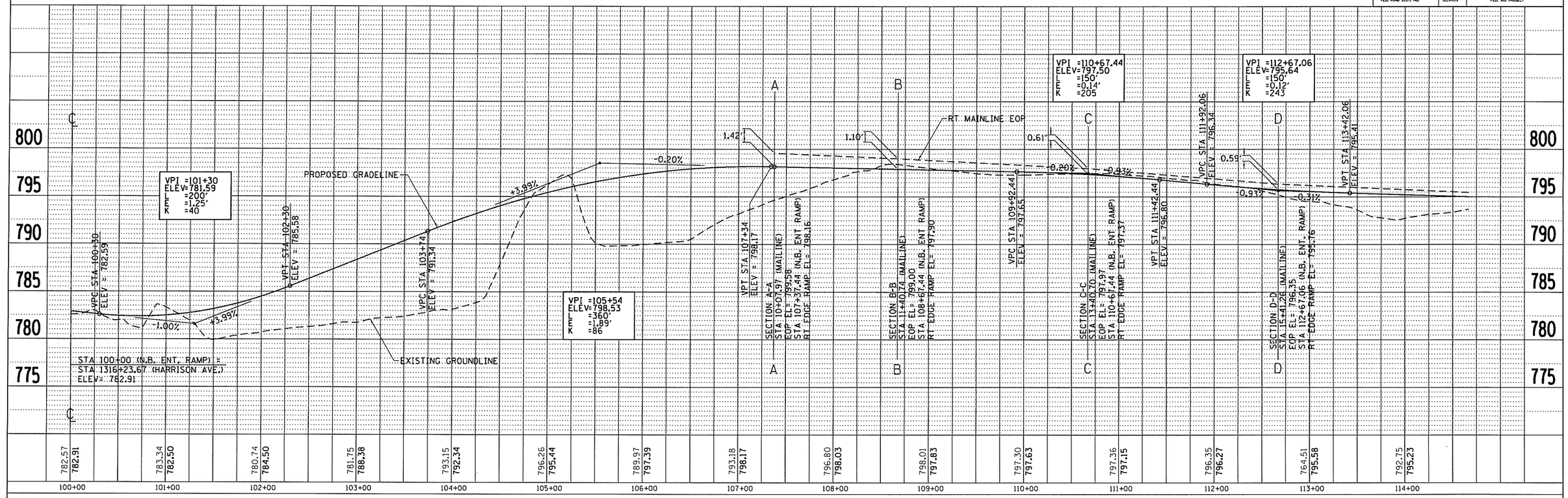
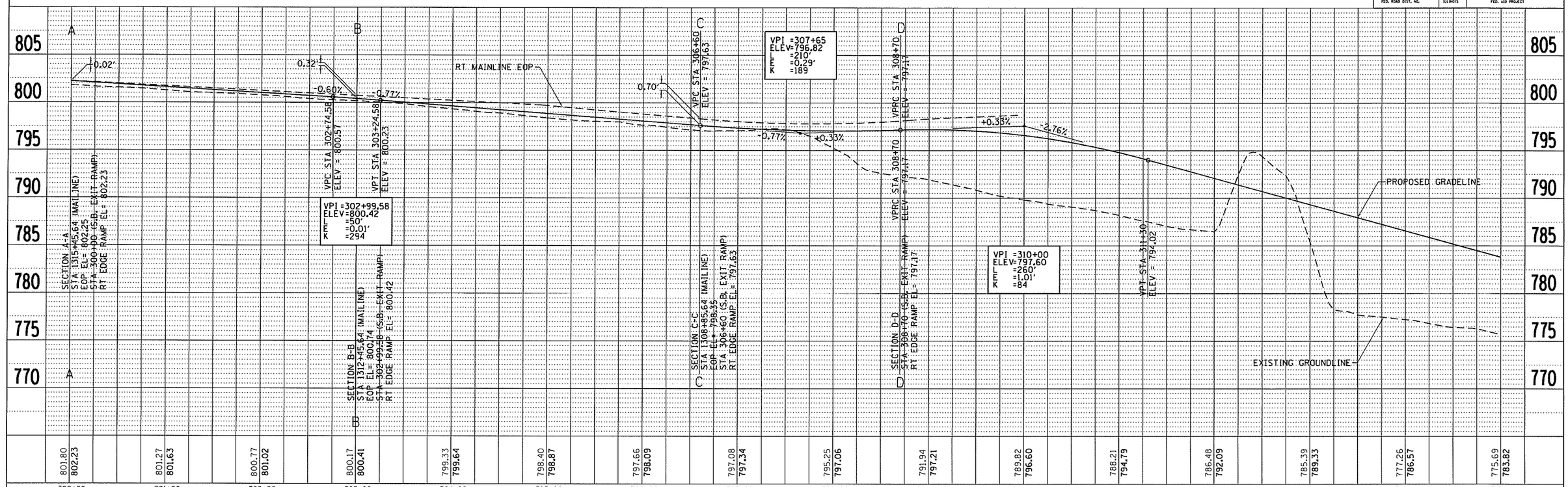
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(20)-3)K&(4-1,5)K	WINNEBAGO	21	11
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

NORTHBOUND ENTRANCE RAMP PROFILE

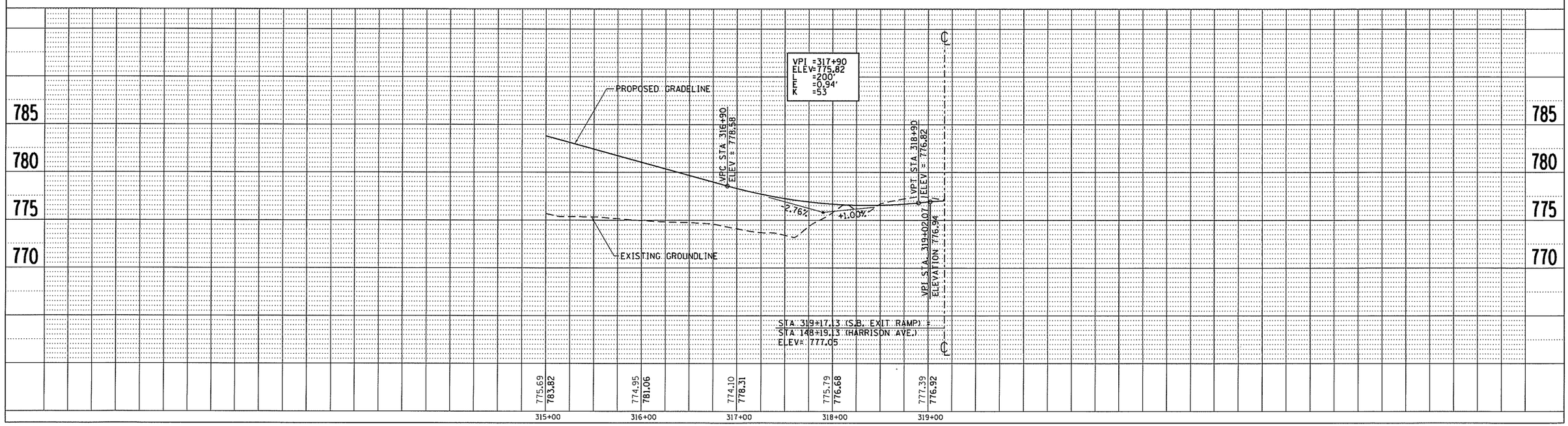


F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	21	12
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SOUTHBOUND EXIT RAMP PROFILE

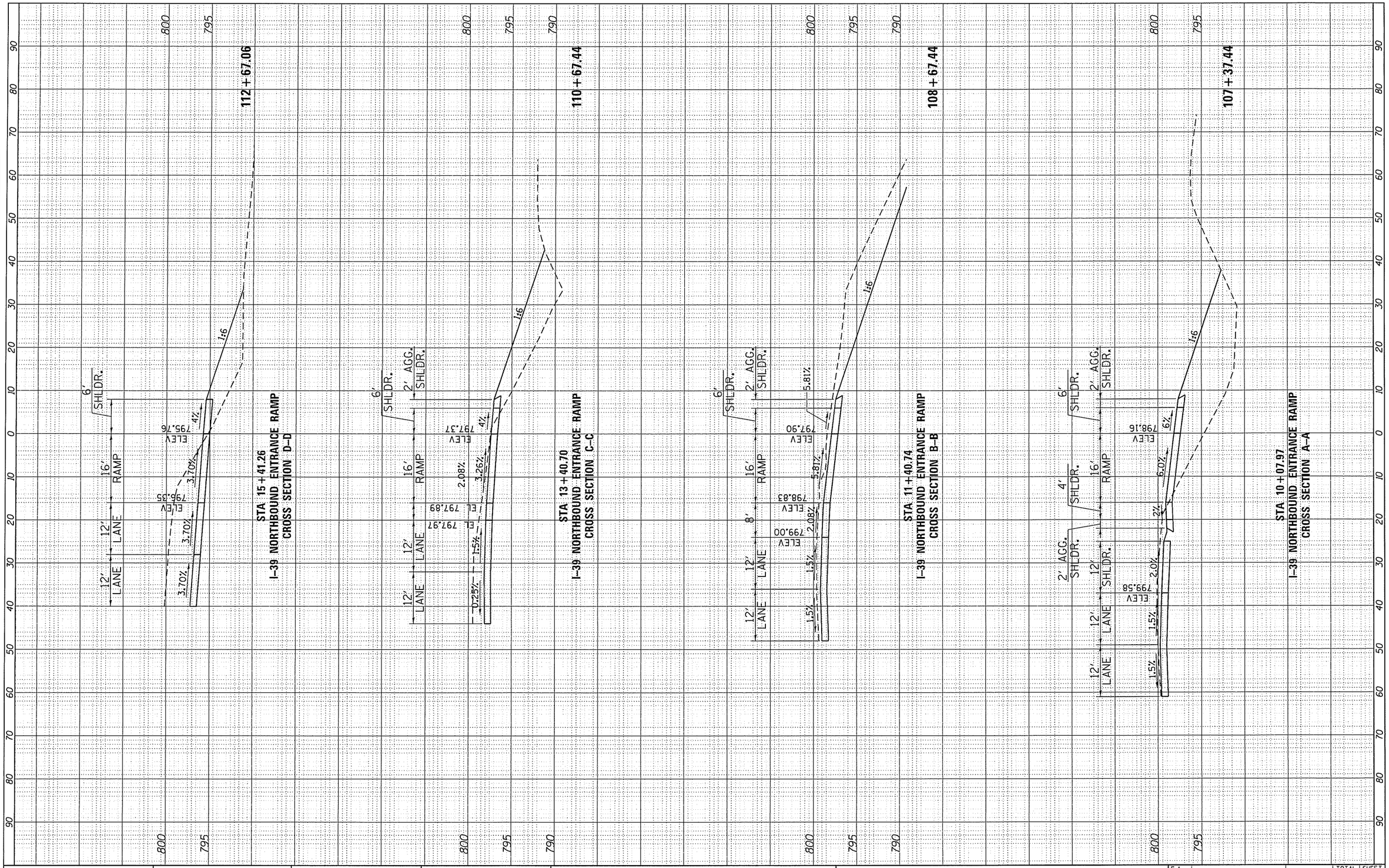


SOUTHBOUND EXIT RAMP PROFILE



FINAL SURVEY	BY	DATE
NOTE BOOK NO.	SURVEYED	
	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	BY	DATE
NOTE BOOK NO.	SURVEYED	
	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	



FILE NAME =	USER NAME = Griffithdj	DESIGNED -	REVISED -
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	PLOT SCALE = 1" = 5ft VERT. / 1" = 10ft HORIZ.	CHECKED -	REVISED -
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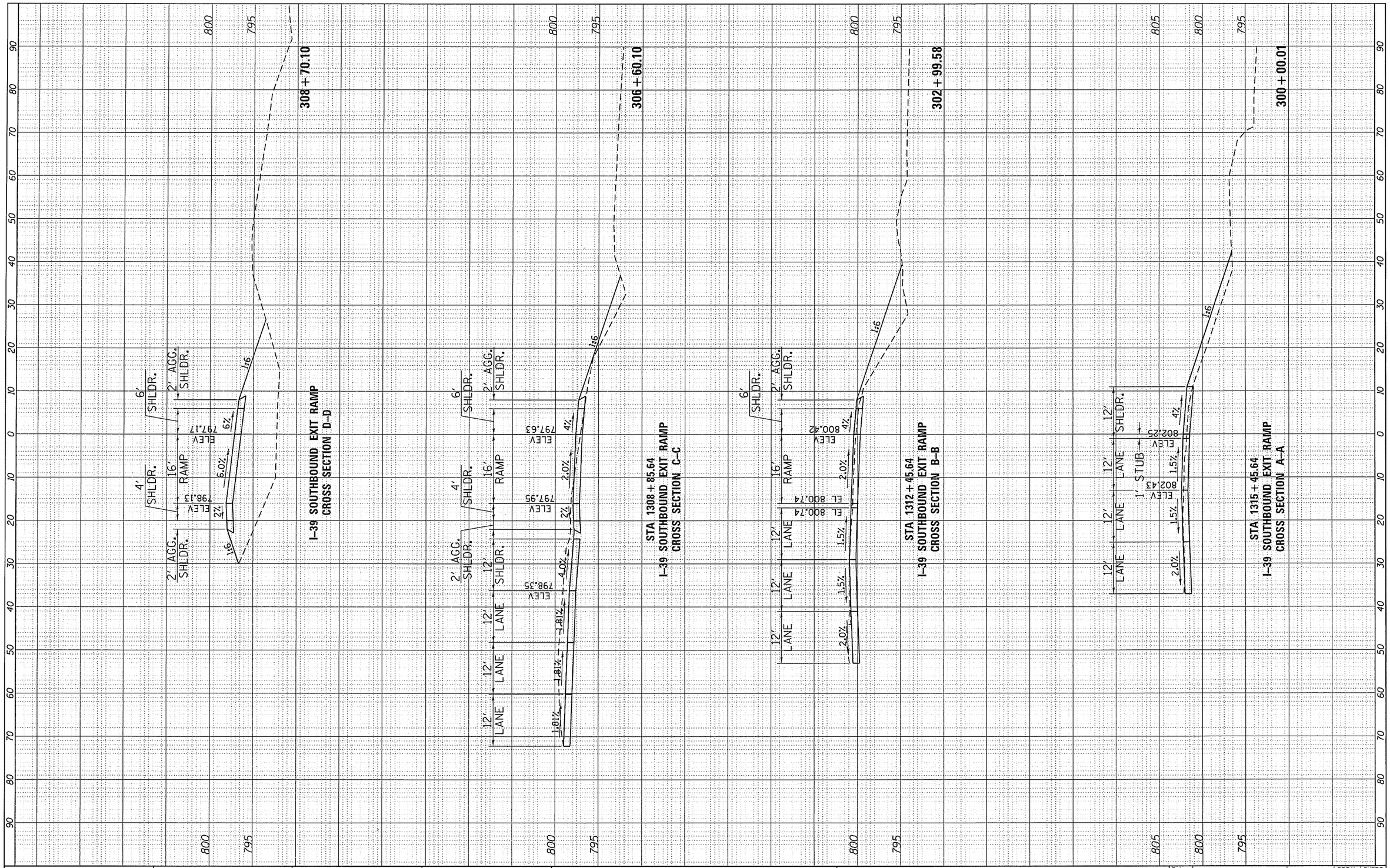
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-39 NORTHBOUND ENTRANCE RAMP
CRITICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | STA. 107+37.44 TO STA. 112+67.06

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	(201-3)K (4-1,5)K	WINNEBAGO	21	13
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		



FINAL SURVEY		BY	DATE
NOTE BOOK NO.	SURVEYED		
	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		

ORIGINAL SURVEY		BY	DATE
NOTE BOOK NO.	SURVEYED		
	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		

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PLOT SCALE = 1" = 5ft VERT. 1" = 10ft HORIZ.

PLOT DATE = Mar-10-2017 08:34:05 AM

USER NAME = Griffithdj

DESIGNED - | REVISED -
CHECKED - | REVISED -
DATE - | REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

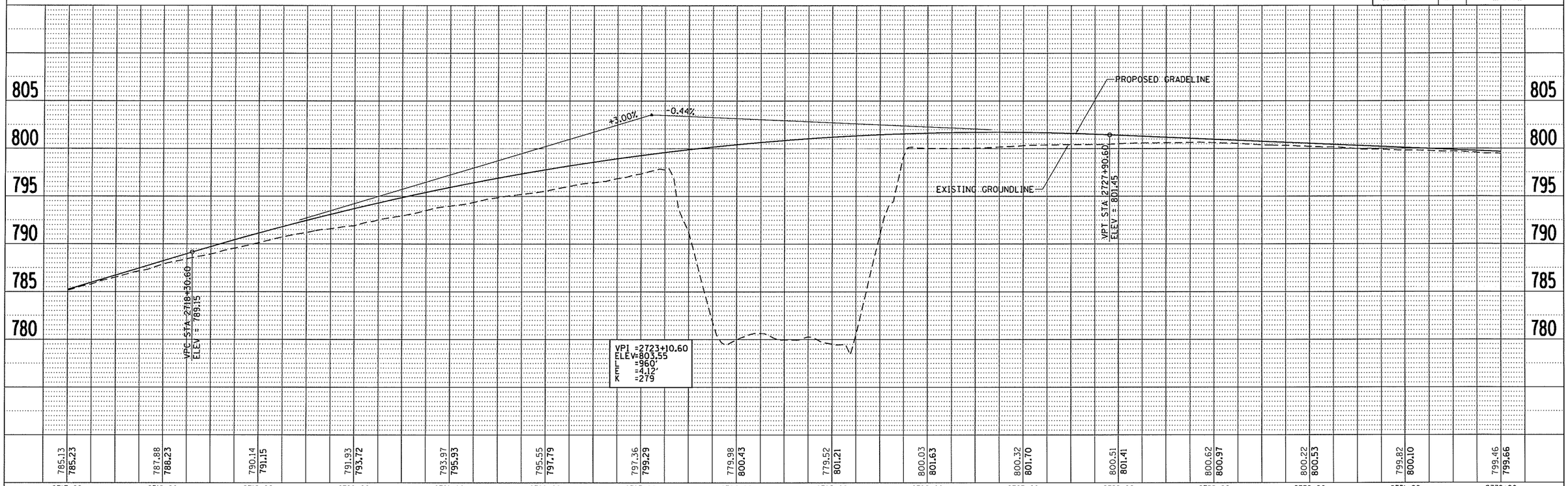
I-39 SOUTHBOUND EXIT RAMP
CRITICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | STA. 300+00.01 TO STA. 308+70.10

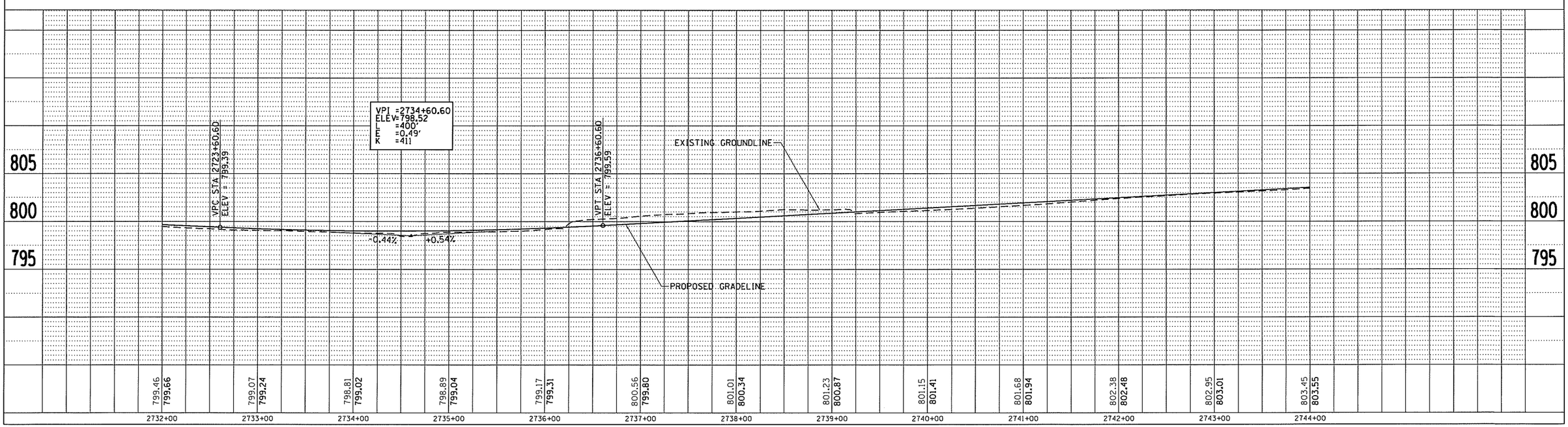
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	(201-3)K (4-1,5)K	WINNEBAGO	21	14
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	21	15
STA. 2717+00		TO STA. 2744+00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

INTERSTATE 39 PROFILE

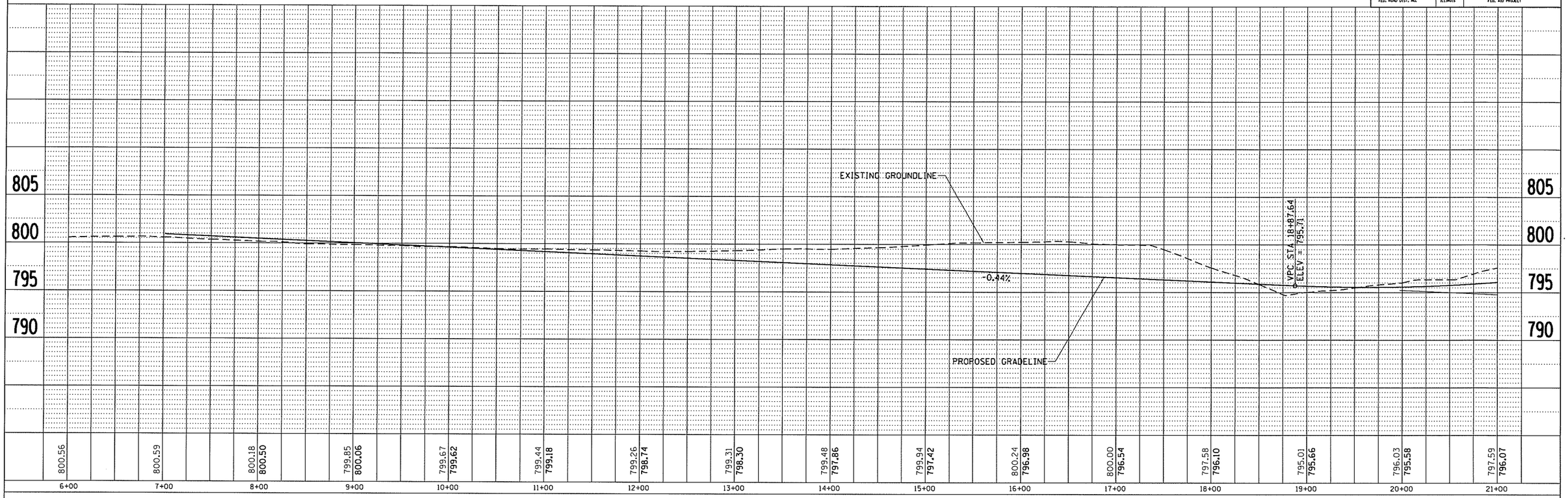


INTERSTATE 39 PROFILE

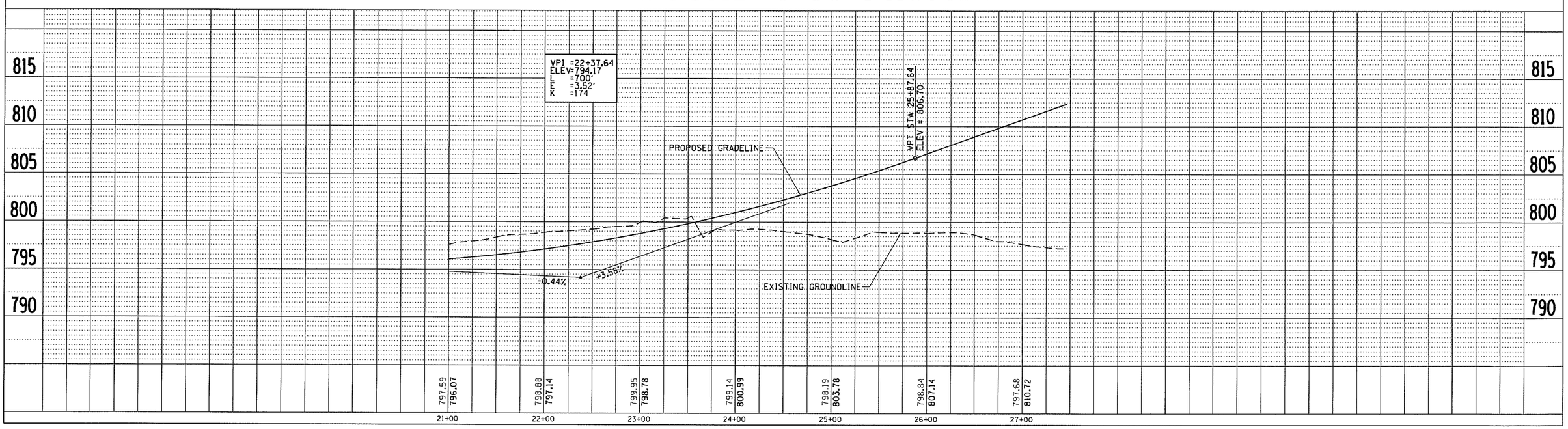


FA RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	21	16
STA. 6+00		TO STA. 27+00		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

NORTHBOUND I–39 PROFILE



NORTHBOUND I–39 PROFILE

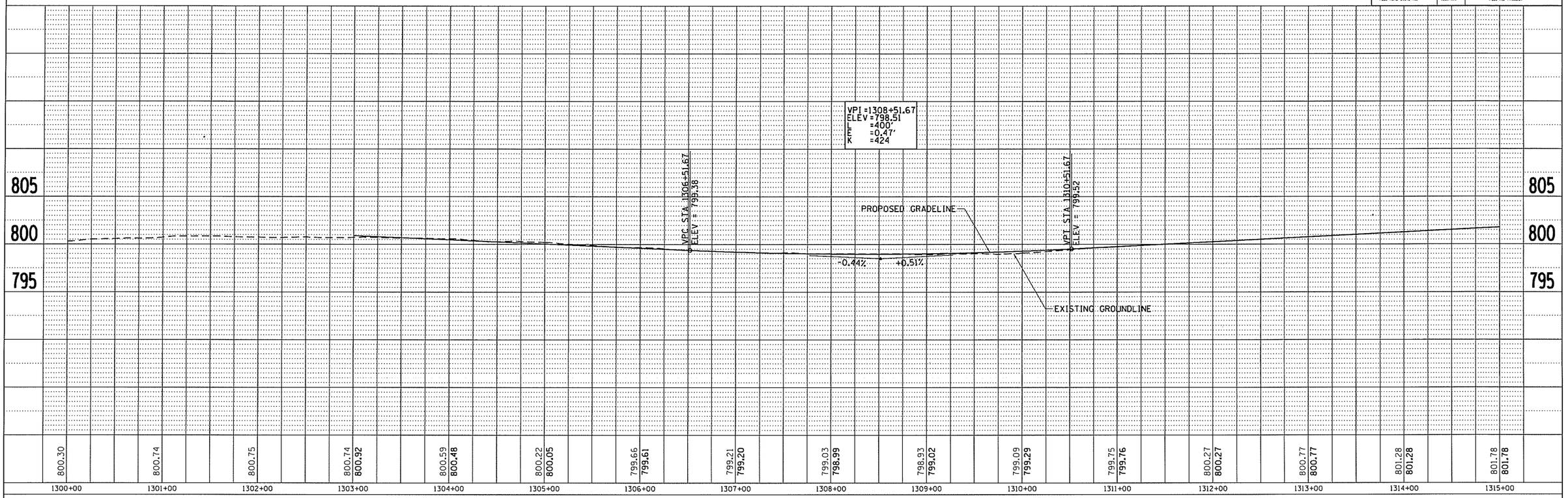


F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	21	17

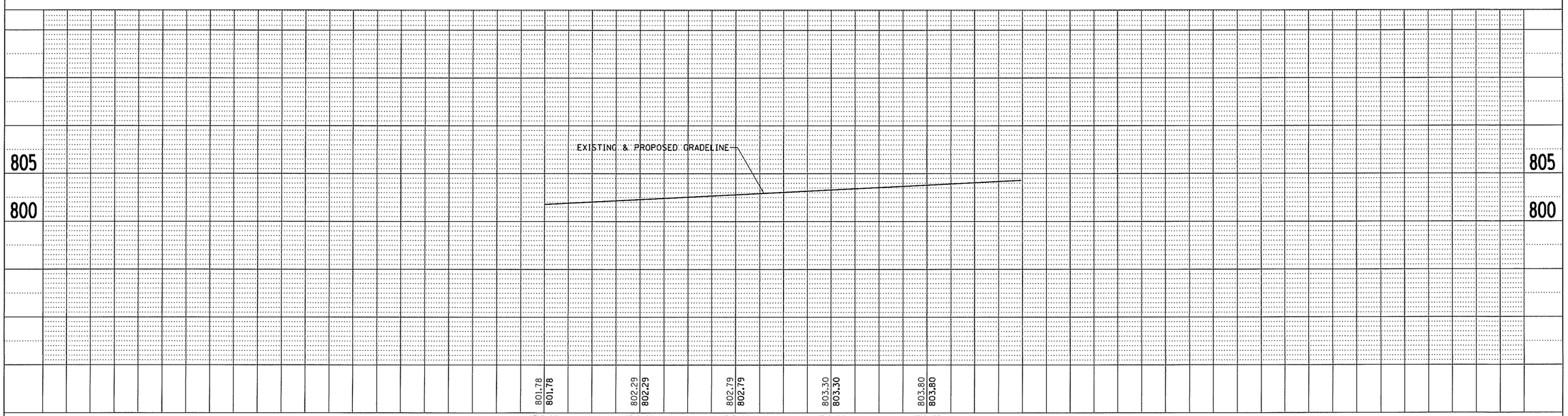
STA. 1300+00 TO STA. 1319+00

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

SOUTHBOUND I–39 PROFILE



SOUTHBOUND I–39 PROFILE

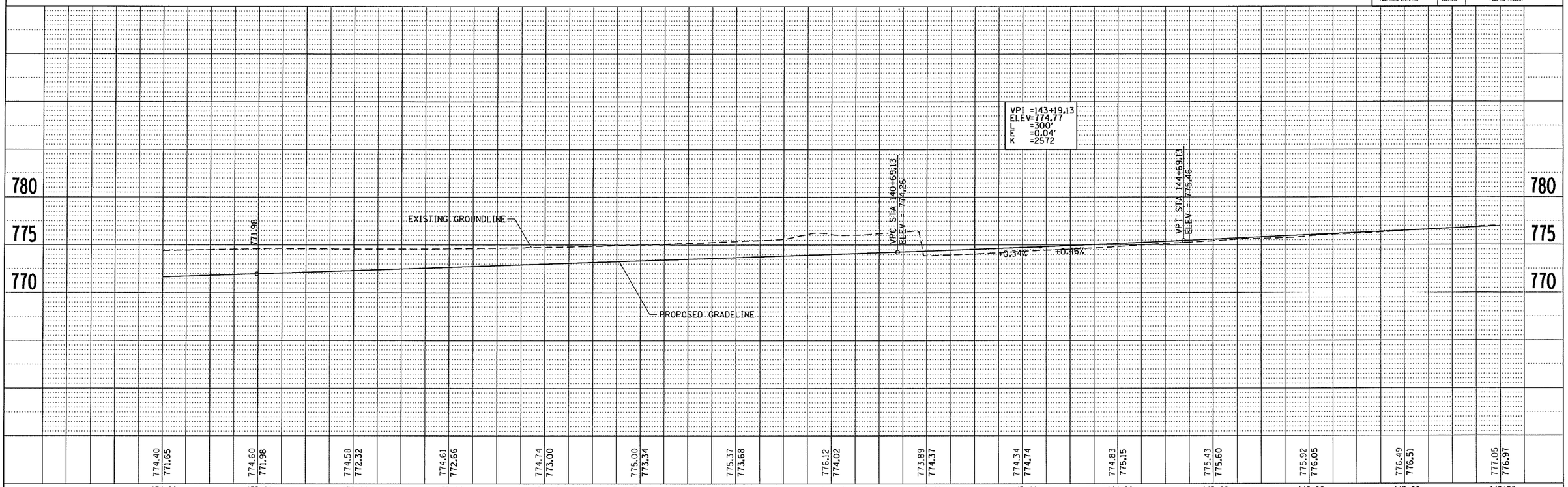


F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	21	18

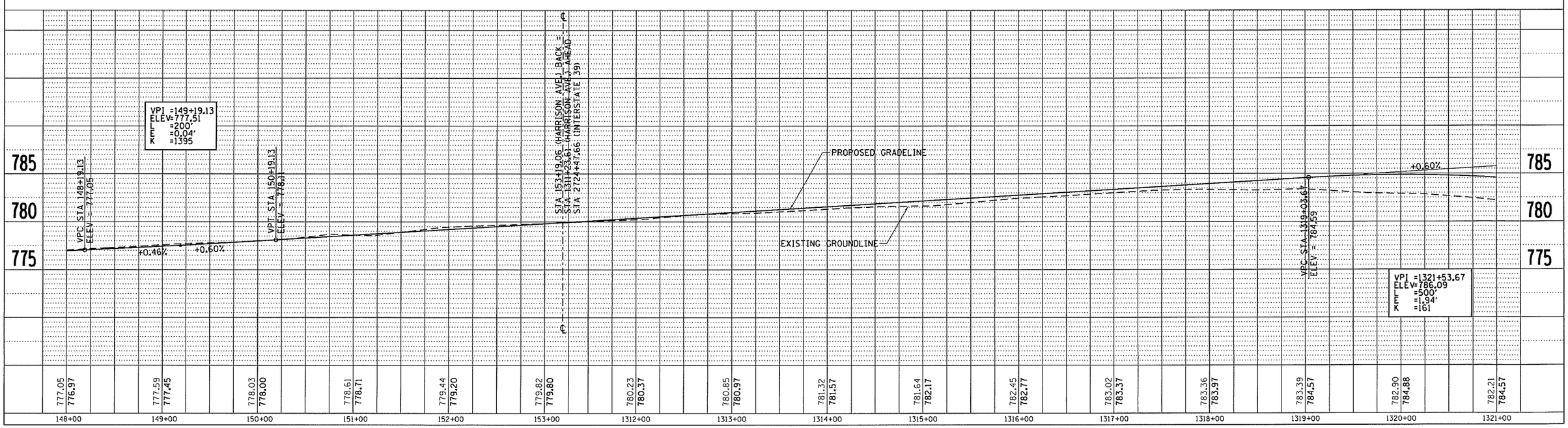
STA. 134+00 TO STA. 1321+00

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

HARRISON AVENUE PROFILE



HARRISON AVENUE PROFILE

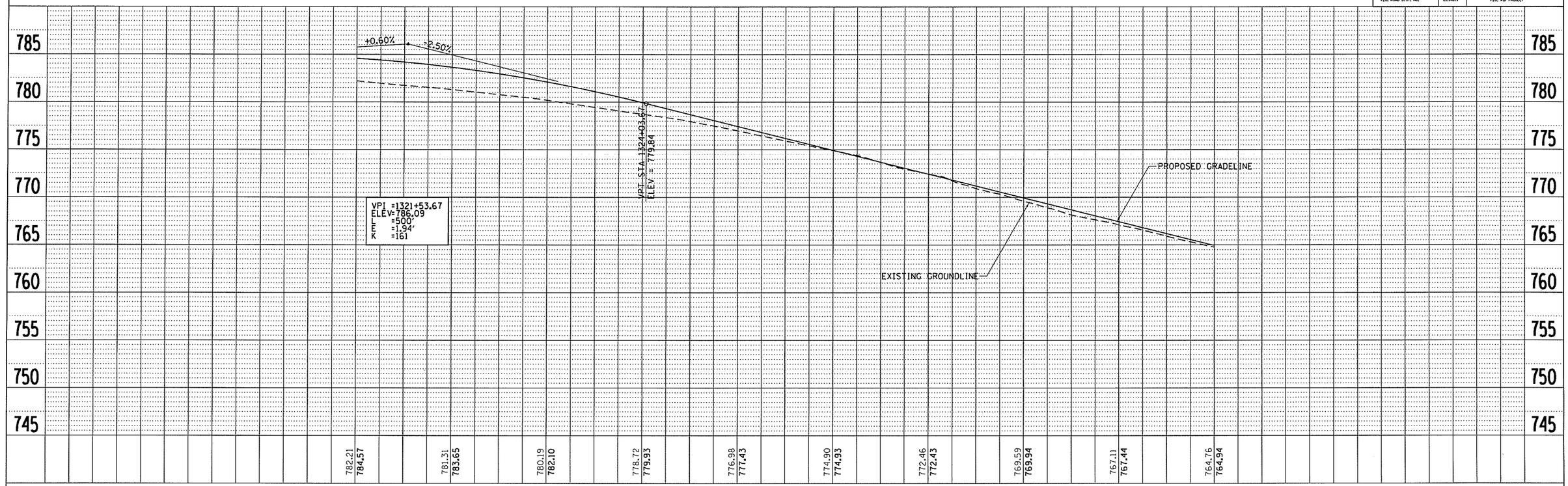


F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	21	19

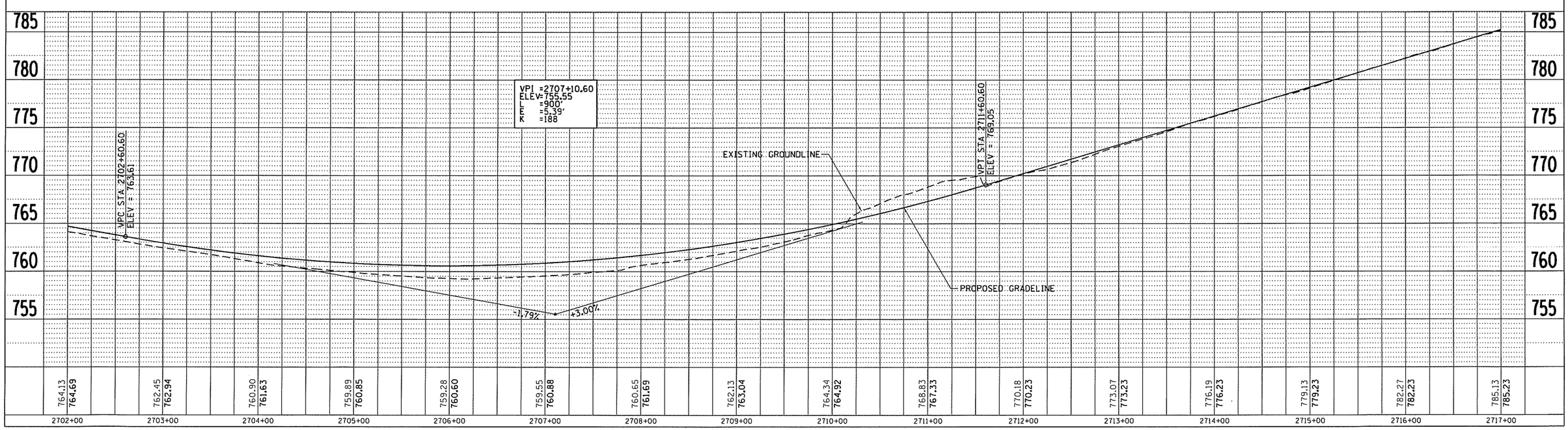
STA. TO STA.

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

HARRISON AVENUE PROFILE



I–39 / U.S. ROUTE 20 PROFILE



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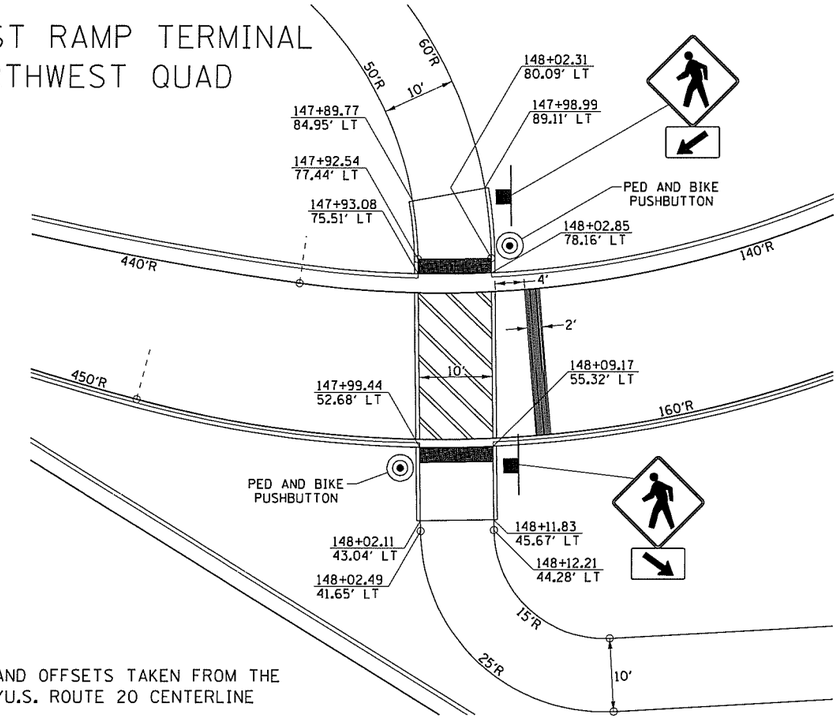
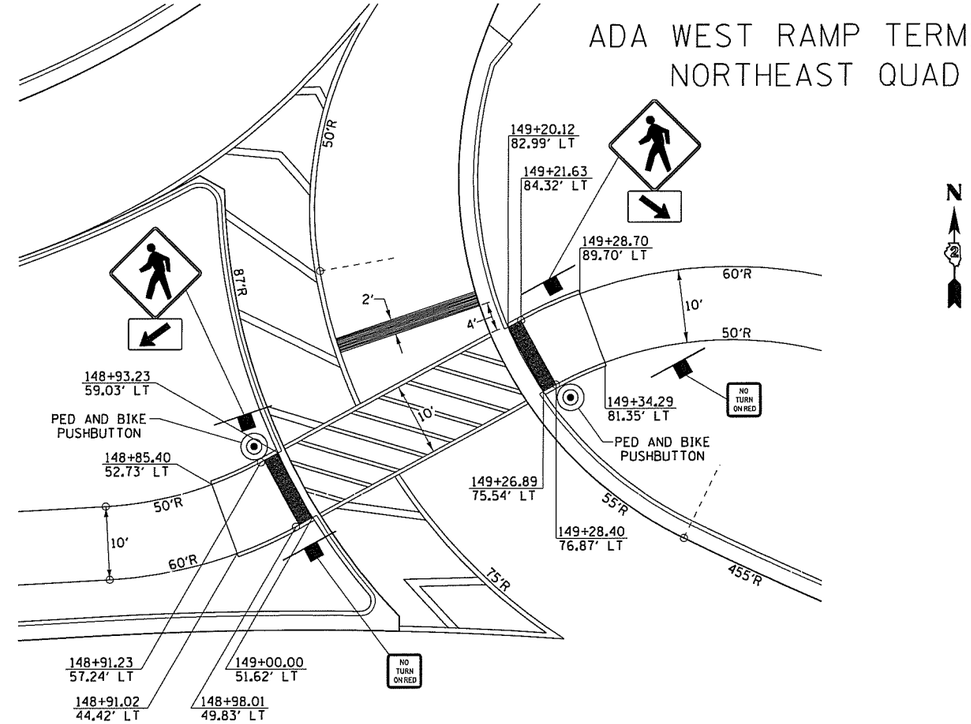
USER NAME = Griffiohdj

ADA WEST RAMP TERMINAL NORTHWEST QUAD

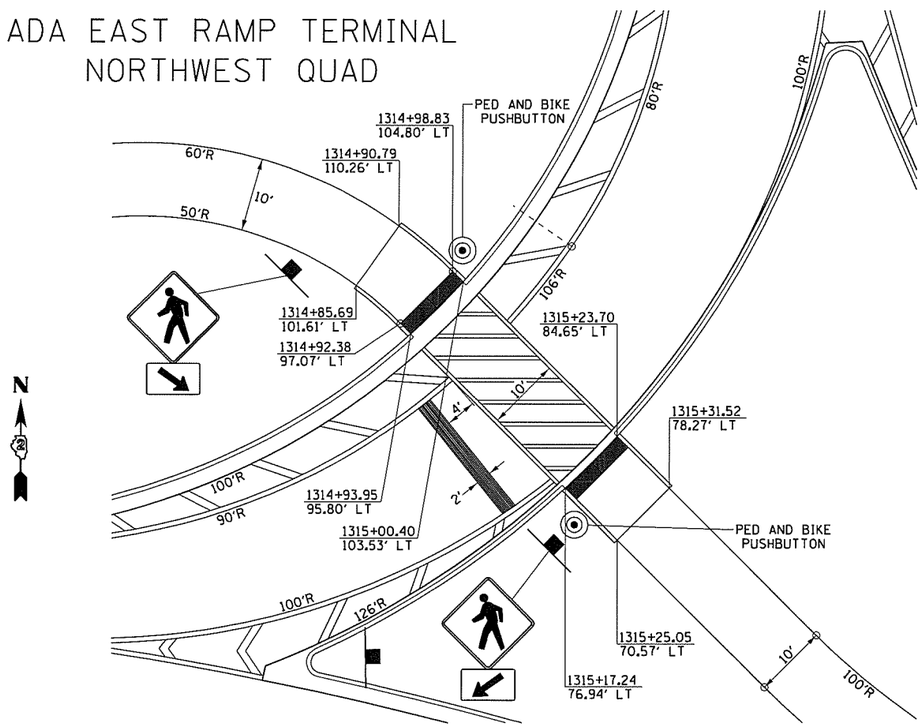


NOTE: ALL STATION AND OFFSETS TAKEN FROM THE HARRISON AVE/U.S. ROUTE 20 CENTERLINE

ADA WEST RAMP TERMINAL NORTHEAST QUAD



ADA EAST RAMP TERMINAL NORTHWEST QUAD



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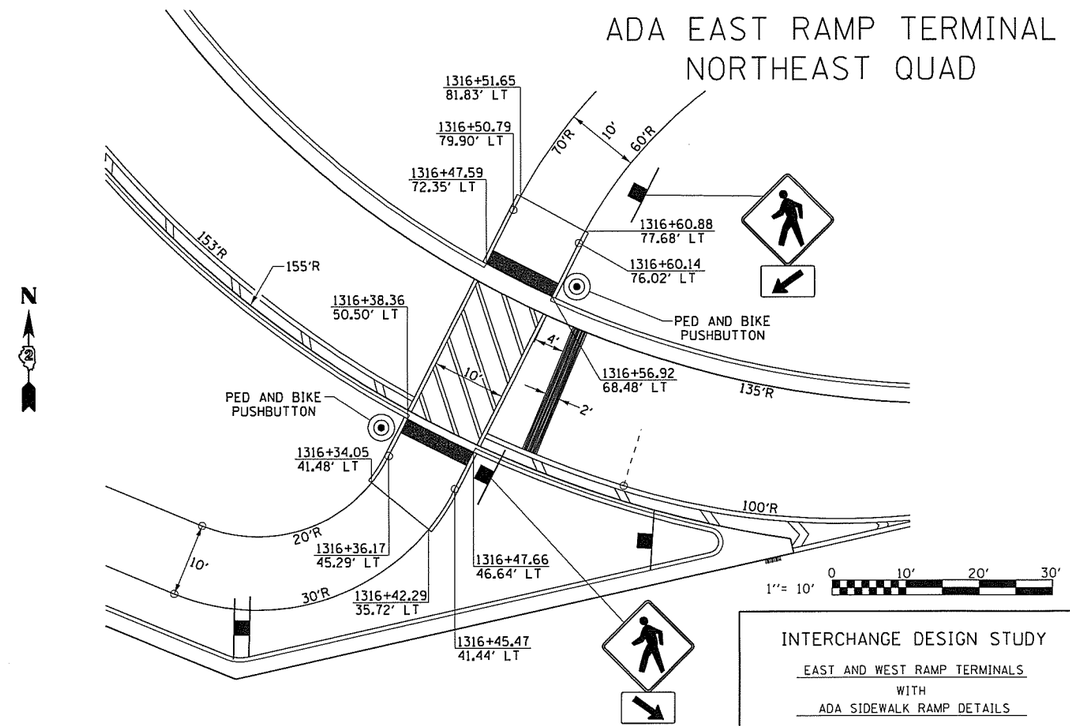

INTERCHANGE DESIGN STUDY

EAST AND WEST RAMP TERMINALS
WITH
ADA SIDEWALK RAMP DETAILS

I.D.S. SHEET 20 OF 21

BDE-9908

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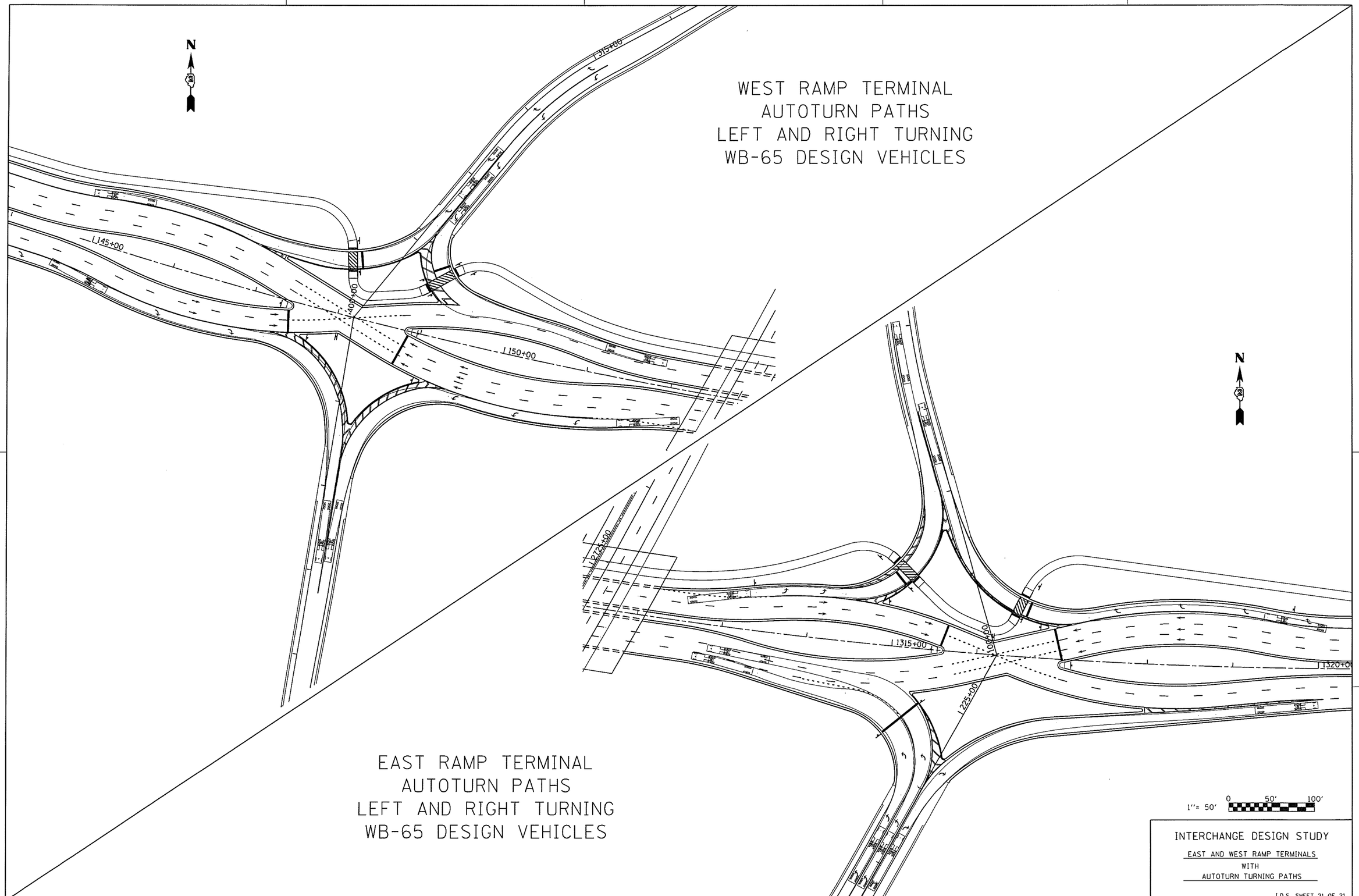
WEST RAMP TERMINAL
AUTOTURN PATHS
LEFT AND RIGHT TURNING
WB-65 DESIGN VEHICLES



EAST RAMP TERMINAL
AUTOTURN PATHS
LEFT AND RIGHT TURNING
WB-65 DESIGN VEHICLES

INTERCHANGE DESIGN STUDY

EAST AND WEST RAMP TERMINALS
WITH
AUTOTURN TURNING PATHS

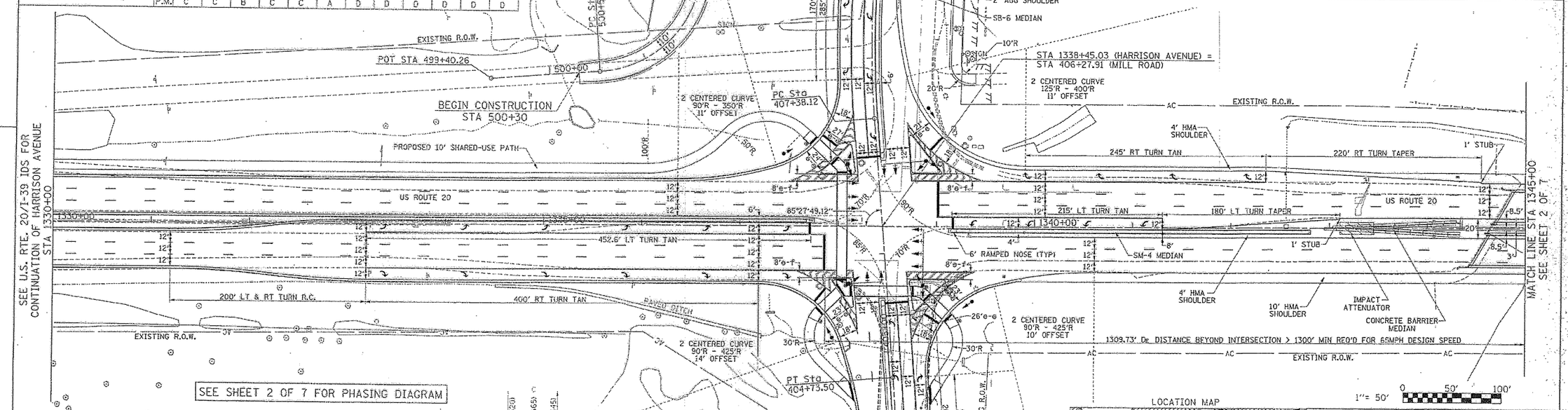
I.D.S. SHEET 21 OF 21

BDE-9908

SIGNALIZED CAPACITY DESIGN ANALYSIS

PROGRAM USED: HCS 2010 , VERSION: 6.65 SIGNAL TYPE: ACTUATED AREA TYPE: OTHER
NO. OF PHASES: (A.M.) 5 (P.M.) 5 CYCLE LENGTH: (A.M.) 120 SEC. (P.M.) 120 SEC. PEAK HOUR FACTOR: 0.92
INTERSECTION DELAY/LEVEL-OF-SERVICE A.M. 22.8 SECONDS LOS C P.M. 25.8 SECONDS LOS C

APPROACH		A (EB)			B (WB)			C (SB)			D (NB)		
LANE GROUP		L	TH	R	L	TH	R	L	TH	R	L	TH	R
NUMBER OF LANES		1	3	1	1	3	1	1	1	1	1	1	1
2040 30TH MAX. HOUR TRAFFIC (veh/h)	A.M.	115	1120	40	5	1100	100	75	95	135	220	145	10
	P.M.	125	2010	250	40	1700	115	25	115	80	180	105	30
BASE SATURATION FLOW RATE (veh/h)		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
LANE WIDTH (FT)		12	12	12	12	12	12	12	12	12	12	12	12
VOLUME OF RIGHT TURN ON RED (veh/h)		A.M. 0	P.M. 0		A.M. 0	P.M. 0		A.M. 0	P.M. 0		A.M. 0	P.M. 0	
PEDESTRIANS/HOUR (ped/h)		A.M. 0	P.M. 0		A.M. 0	P.M. 0		A.M. 0	P.M. 0		A.M. 0	P.M. 0	
ARRIVAL TYPE		3			3			3			3		
LANE UTILIZATION ADJ. FACTOR		1.000	.908	1.000	1.000	.908	1.000	1.000	1.000	1.000	1.000	1.000	1.000
GREEN TIME (SECONDS)	A.M.	7	65	78	7	65	78	8	19	31	14	20	32
	P.M.	7	65	78	7	65	85	15	20	37	8	13	25
GREEN RATIO (g/C)	A.M.	0.60	0.54	0.62	0.60	0.54	0.61	0.22	0.16	0.22	0.23	0.17	0.23
	P.M.	0.60	0.54	0.61	0.60	0.54	0.67	0.25	0.17	0.23	0.18	0.11	0.17
CAPACITY (c)	A.M.	340	2670	983	340	2596	970	272	295	342	336	317	362
	P.M.	224	2670	970	195	2596	1063	350	310	355	294	206	268
v/c RATIO (X)	A.M.	0.368	0.456	0.044	0.016	0.461	0.112	0.300	0.350	0.429	0.712	0.498	0.030
	P.M.	0.606	0.818	0.280	0.223	0.712	0.118	0.388	0.403	0.245	0.665	0.554	0.122
STORAGE QUEUE (FEET OR VEHICLES)	A.M.	182	299	24	5	468	59	118	136	170	327	201	12
	P.M.	198	537	24	63	303	56	154	163	100	283	156	40
LANE GROUP DELAY(SECONDS)	A.M.	12.9	17.3	9.1	11.3	17.4	10.1	38.4	45.3	40.9	49.2	45.9	36.3
	P.M.	25.1	25.6	11.8	21.5	22.2	7.5	37.1	45.0	38.3	51.4	52.7	42.6
LANE GROUP LEVEL-OF-SERVICE	A.M.	B	B	A	B	B	B	D	D	D	D	D	D
	P.M.	C	C	B	C	C	A	D	D	D	D	D	D



RELOC. SERVICE DRIVE
PROPOSED CURVE DATA
PI STA. = 501+36.99
Δ = 75° 54' 26" (LT)
D = 52° 05' 13"
R = 110.00'
T = 85.80'
L = 145.73'
E = 29.50'
S.E. = N.C.
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 500+51.20
P.T. STA. = 501+96.93

MILL ROAD
PROPOSED CURVE DATA
PI STA. = 408+44.46
Δ = 12° 08' 22" (RT)
D = 5° 43' 46"
R = 1,000.00'
T = 106.34'
L = 211.88'
E = 5.64'
S.E. = N.C.
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 407+38.12
P.T. STA. = 409+50.00

MILL ROAD
PROPOSED CURVE DATA
PI STA. = 403+80.54
Δ = 7° 06' 38" (LT)
D = 3° 49' 11"
R = 1,500.00'
T = 93.20'
L = 186.15'
E = 2.89'
S.E. = N.C.
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 402+87.35
P.T. STA. = 404+73.50

ELEMENTS CONTROLLING DESIGN

PREFERRED ROUTE:

F.A.P. ROUTE NUMBER: 301. MARKED ROUTE NUMBER: U.S. ROUTE 20.
STREET NAME: U.S. ROUTE 20. SRA ROUTE ? NO.
FUNCTIONAL CLASSIFICATION: OTHER PRINCIPAL ARTERIAL. OSOW DESIGN ? NO.
EXISTING ADT: 30,900 VPD. DESIGN YEAR ADT: 43,450 VPD.
PROPOSED DESIGN SPEED: 45 MPH. PROPOSED POSTED SPEED: 45 MPH.

SECONDARY ROUTE:

F.A. ROUTE NUMBER: N/A. MARKED ROUTE NUMBER: N/A.
STREET NAME: MILL ROAD. SRA ROUTE ? NO.
FUNCTIONAL CLASSIFICATION: MINOR ARTERIAL (N) ; MAJOR COLLECTOR (S). OSOW DESIGN ? NO.
EXISTING ADT: 6,600 VPD. DESIGN YEAR ADT: 7,200 VPD.
PROPOSED DESIGN SPEED: 45 MPH (N); 30 MPH (S). PROPOSED POSTED SPEED: 45 MPH (N); 25 MPH (S).

IMPROVEMENT TYPE: RECONSTRUCTION. ANTICIPATED YEAR OF CONSTRUCTION: 2020 .
EXISTING METHOD OF TRAFFIC CONTROL: TRAFFIC SIGNALS. PROPOSED METHOD: TRAFFIC SIGNALS.
SIGNAL WARRANT: EXISTING SIGNALS.
DESIGN VEHICLE: INTERSECTION DESIGNED FOR A WB-65 DESIGN VEHICLE.
DESIGN YEAR: 2040 WHICH IS A 20 YEAR DESIGN.
TRUCK ROUTE DESIGNATION: PREFERRED ROADWAY: U.S. ROUTE 20 IS A CLASS II TRUCK ROUTE.
SECONDARY ROADWAY: MILL ROAD, NONE.
DESIGN CRITERIA: BDE MANUAL - CHAPTER 36.

GENERAL NOTES

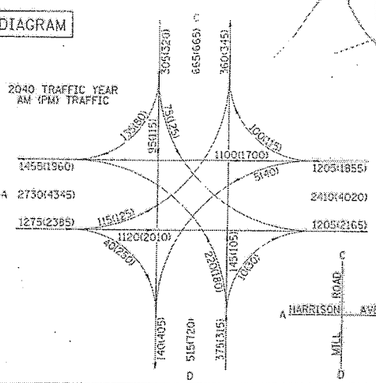
ARE PROFILES PROVIDED? YES. IF NOT, STATE REASON WHY:
TYPE B6.24 CURB AND GUTTER ON THE OUTSIDE OF THE ROADWAY/SHOULDERS.
TYPE B6.06 & B6.24 CURB AND GUTTER ON THE APPROACH MEDIAN; (EXCEPT EAST LEG - SM-4).
TYPE M6.06 & M6.24 CURB AND GUTTER ON THE CORNER ISLANDS.
ALL DIMENSIONS SHOWN ARE (E-E), UNLESS OTHERWISE NOTED
THE RIGHT-OF-WAY LIMITS ARE PRELIMINARY.
DESIGN VEHICLE TURNING MOVEMENTS ARE ACCOMMODATE PER AUTOTURN SOFTWARE, VERSION 9.0.1.256.
THE SCOPE OF WORK: RECONSTRUCTION OF U.S. ROUTE 20 TO SIX LANES PLUS AUXILLIARY LANES THROUGH THE MILL ROAD INTERSECTION, AND REALIGNMENT OF MILL ROAD WITH TURN LANES. NEW SIGNALS TO BE INSTALLED AND PED/BIKE FACILITIES COMPLETED ON THE WEST LEG FULLY ADA/ PROWAG COMPLIANT. SIGNALS TO BE INTERCONNECTED WITH SIGNALS TO THE WEST.
INTERSECTION DESIGN EXCEPTIONS: W.B. THROUGH STORAGE QUEUES IN THE AM PEAK WILL OBSTRUCT THE W.B. LEFT & RIGHT TURN LANES IN THE AM PEAK HOUR. DUE TO ENVIRONMENTAL ISSUES, THE ADJACENT BRIDGE IS UNABLE TO BE WIDENED TO EXTEND THE W.B. TURN LANES.

SEE SHEET 2 OF 7 FOR PHASING DIAGRAM

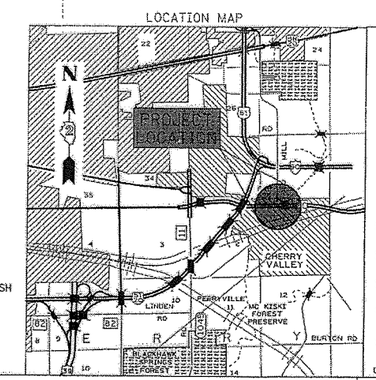
TRAFFIC DATA

MOVEMENT	YEAR 2020 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2020 30TH MAXIMUM HOUR TRAFFIC P.M.	PERCENT TRUCK TRAFFIC IN 30TH MAX HOUR	ESTIMATED PERCENT INCREASE BY	YEAR 20 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 20 30TH MAXIMUM HOUR TRAFFIC P.M.	ESTIMATED PERCENT INCREASE BY	YEAR 2040 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2040 30TH MAXIMUM HOUR TRAFFIC P.M.
AB	730	1355	5.0					1120	2010
AD	40	230	1.0					40	250
AC	105	115	1.0					115	125
BA	735	1160	8.0					1100	1700
BC	90	105	1.0					100	115
BD	5	40					GENERATION AND DEVELOPMENT	5	40
CD	85	105	2.0					95	115
CA	125	70	2.0					135	80
CB	65	115	1.0					75	125
DC	135	95						145	105
DB	10	30						10	30
DA	200	160	1.0					220	180
TOTAL A	1935	3090						2730	4345
TOTAL B	1635	2805						2410	4020
TOTAL C	605	605						665	665
TOTAL D	475	660						515	720

2040 TRAFFIC YEAR AM (PM) TRAFFIC



LOCATION MAP



INTERSECTION DESIGN STUDY

FAP ROUTE 301 (US ROUTE 20)
WITH
MILL ROAD

SEC. NO. (201-3K&(4-1.5)R PROJ. NO. ____
SCALE 1" = 50' COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO. ____

DESIGNED BY IDOT - DISTRICT 2 DATE APRIL 2017
SATISFACTORY ____ DISTRICT GEOMETRICS ENGINEER DATE 4-25-17
SATISFACTORY ____ DISTRICT PROGRAM DEVELOPMENT ENGINEER DATE 4-25-17
SATISFACTORY ____ DISTRICT OPERATIONS ENGINEER DATE 4-25-17
APPROVED ____ DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER DATE 4-28-17

CADD FILE NAME : E] I.D.S. SHEET 1 OF 7

BDE-5908

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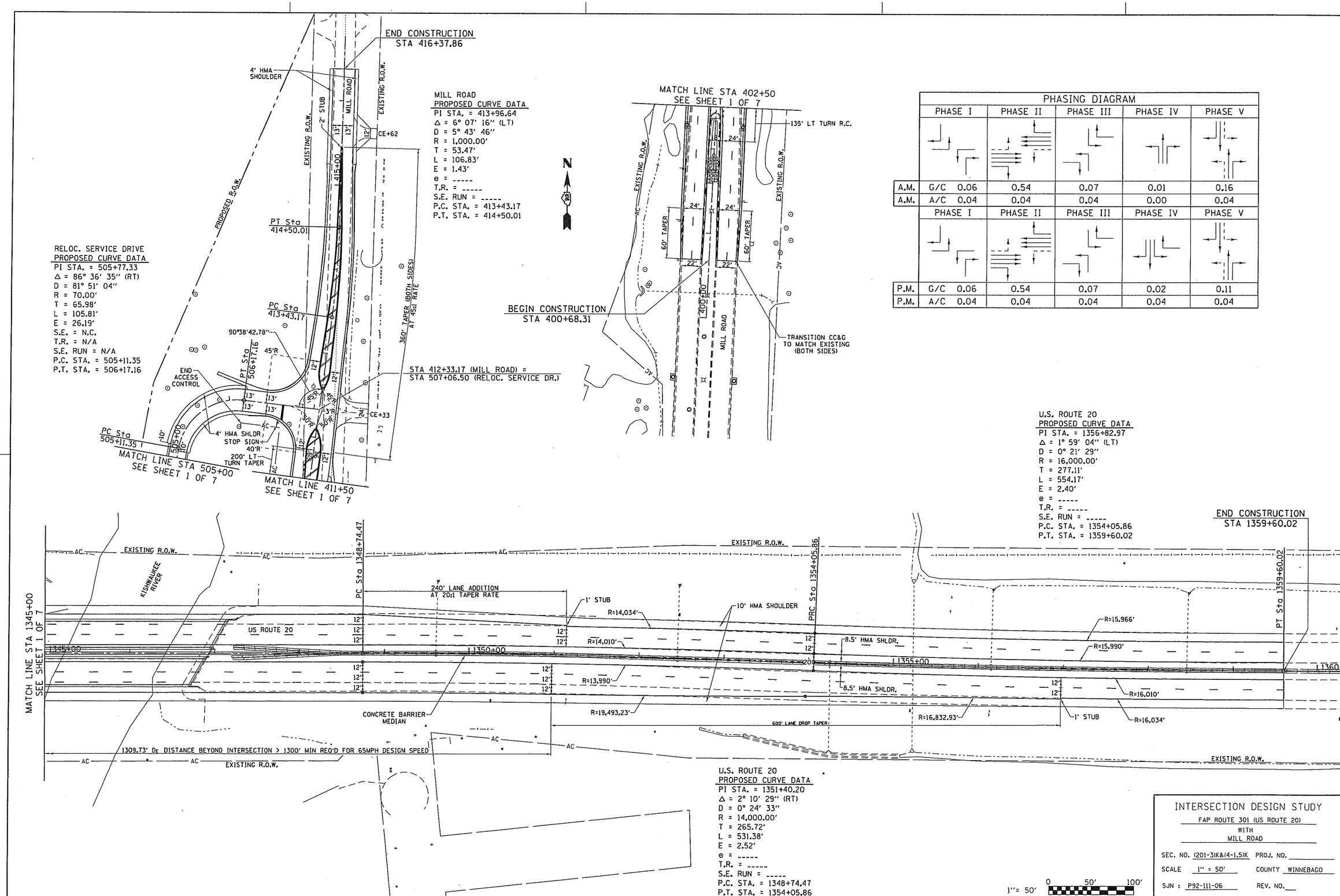

RELOC. SERVICE DRIVE
PROPOSED CURVE DATA
PI STA. = 505+77.33
Δ = 86° 36' 35" (RT)
D = 81° 51' 04"
R = 70.00'
T = 65.98'
L = 105.81'
E = 26.19'
S.E. = N.C.
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 505+11.35
P.T. STA. = 506+17.16

MILL ROAD
PROPOSED CURVE DATA
PI STA. = 413+96.64
Δ = 6° 07' 16" (LT)
D = 5° 43' 46"
R = 1,000.00'
T = 53.47'
L = 106.83'
E = 1.43'
e = -----
T.R. = -----
S.E. RUN = -----
P.C. STA. = 413+43.17
P.T. STA. = 414+50.01

PHASING DIAGRAM

	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V
A.M.	G/C 0.06	0.54	0.07	0.01	0.16
A.M.	A/C 0.04	0.04	0.04	0.00	0.04
	PHASE I	PHASE II	PHASE III	PHASE IV	PHASE V
P.M.	G/C 0.06	0.54	0.07	0.02	0.11
P.M.	A/C 0.04	0.04	0.04	0.04	0.04

U.S. ROUTE 20
PROPOSED CURVE DATA
PI STA. = 1356+82.97
Δ = 1° 59' 04" (LT)
D = 0° 21' 29"
R = 16,000.00'
T = 277.11'
L = 554.17'
E = 2.40'
e = -----
T.R. = -----
S.E. RUN = -----
P.C. STA. = 1354+05.86
P.T. STA. = 1359+60.02

END CONSTRUCTION
STA 1359+60.02

U.S. ROUTE 20
PROPOSED CURVE DATA
PI STA. = 1351+40.20
Δ = 2° 10' 29" (RT)
D = 0° 24' 33"
R = 14,000.00'
T = 265.72'
L = 531.38'
E = 2.52'
e = -----
T.R. = -----
S.E. RUN = -----
P.C. STA. = 1348+74.47
P.T. STA. = 1354+05.86

INTERSECTION DESIGN STUDY
FAP ROUTE 301 (US ROUTE 20)
WITH
MILL ROAD

SEC. NO. (201-3)K&(4-1,5)K PROJ. NO. _____
SCALE 1" = 50' COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO. ___

I.D.S. SHEET 2 OF 7

BDE-9908

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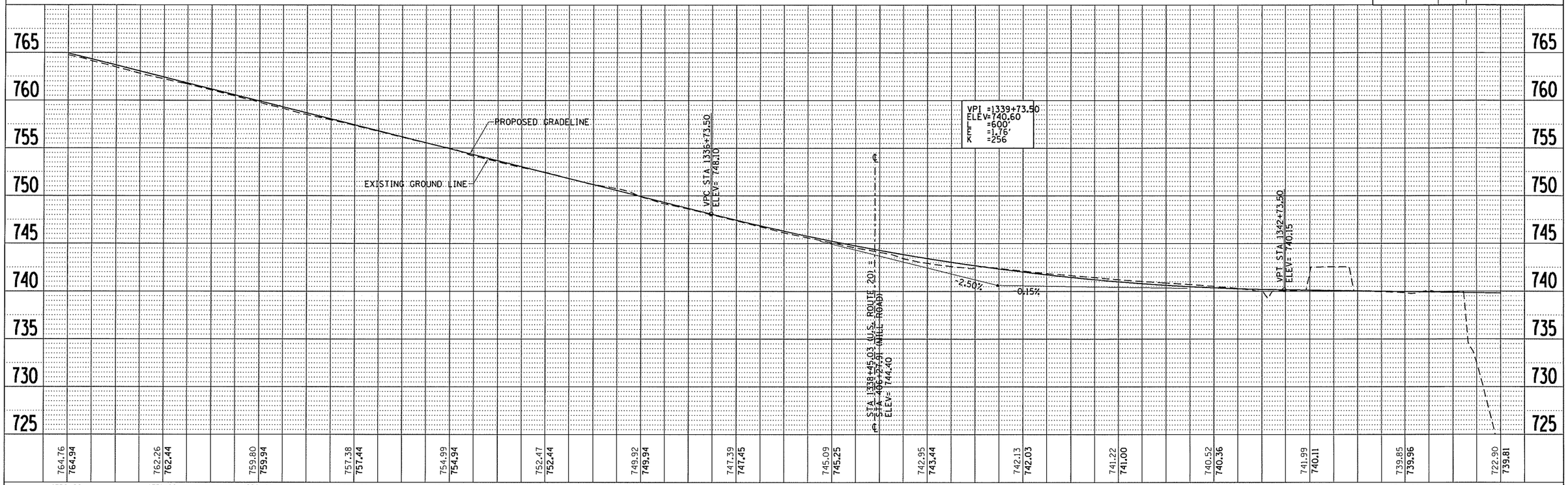
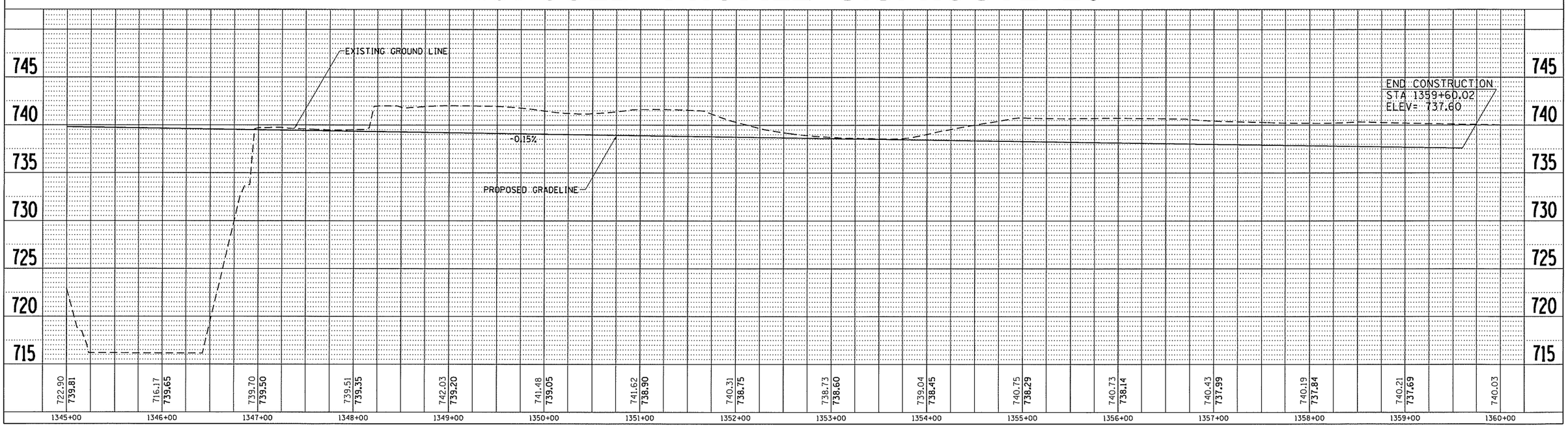
FAP RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
301	(201-3)K&(4-1,5)R	WINNEBAGO	7	3
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PROPOSED PROFILE U.S. ROUTE 20

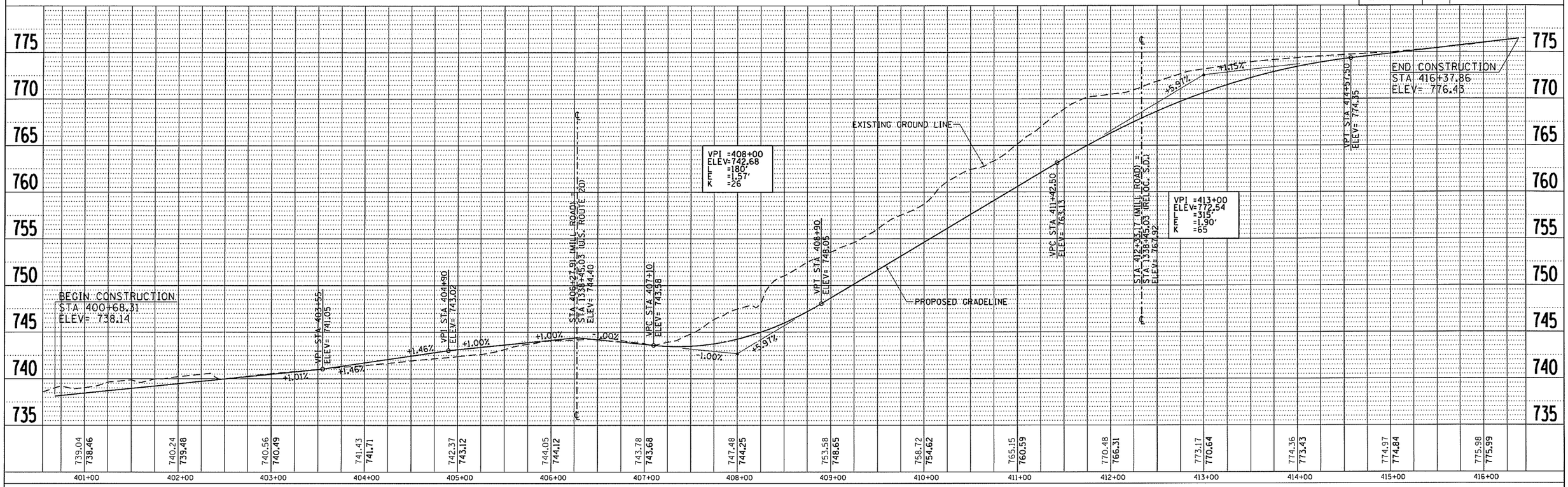


PROPOSED PROFILE U.S. ROUTE 20

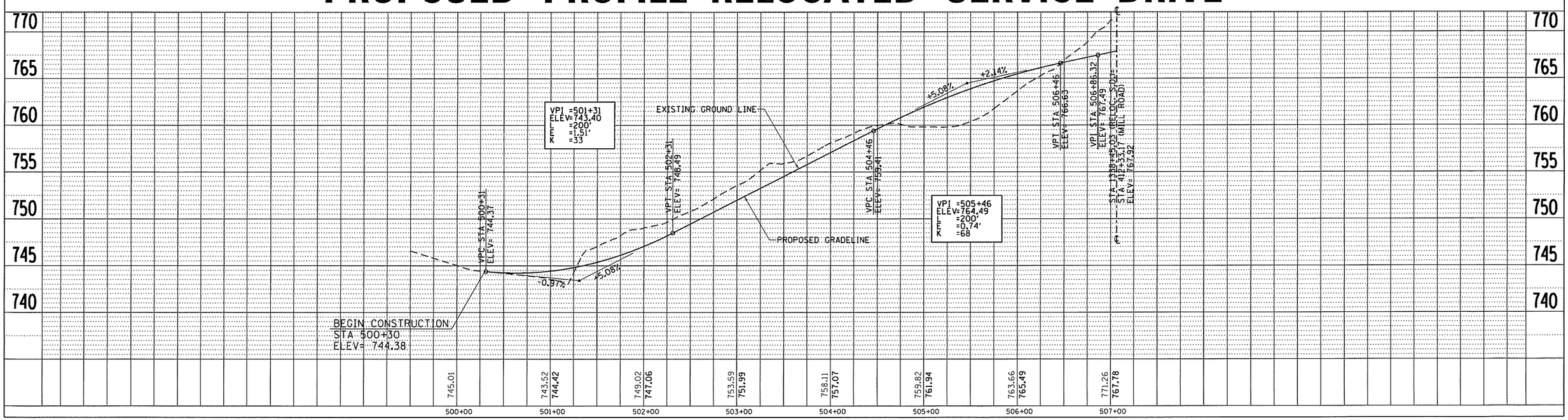


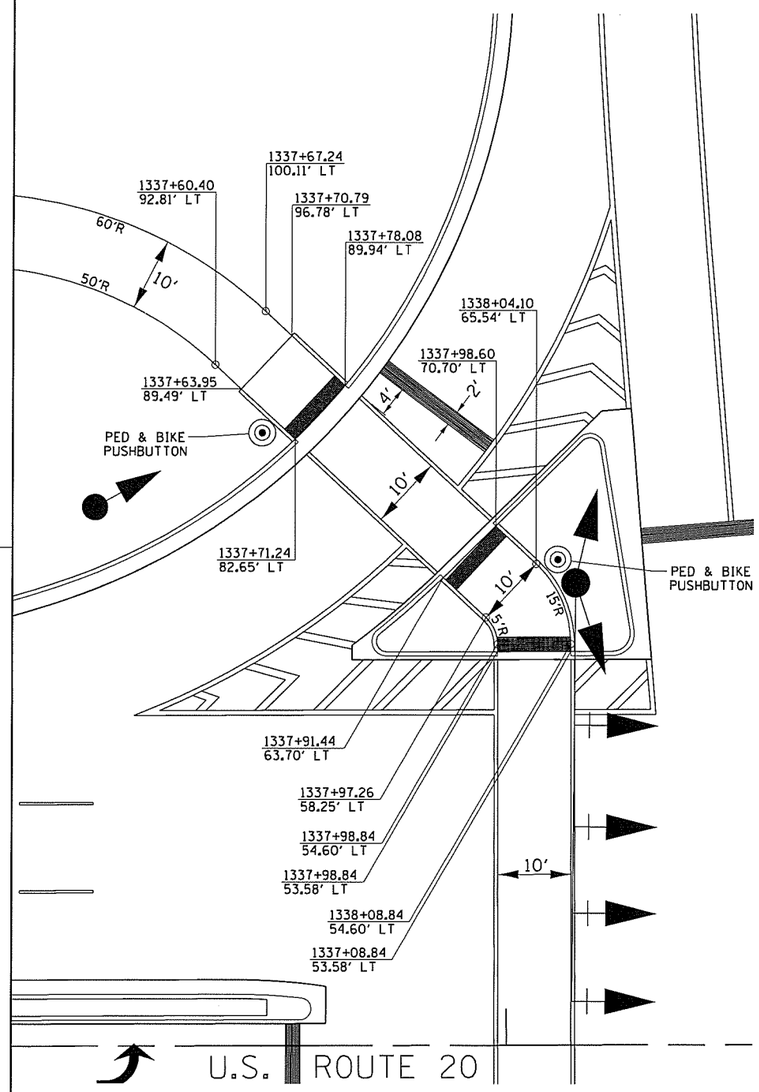
FAP RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
301	(201-3)K&(4-1,5)R	WINNEBAGO	7	4
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PROPOSED PROFILE MILL ROAD

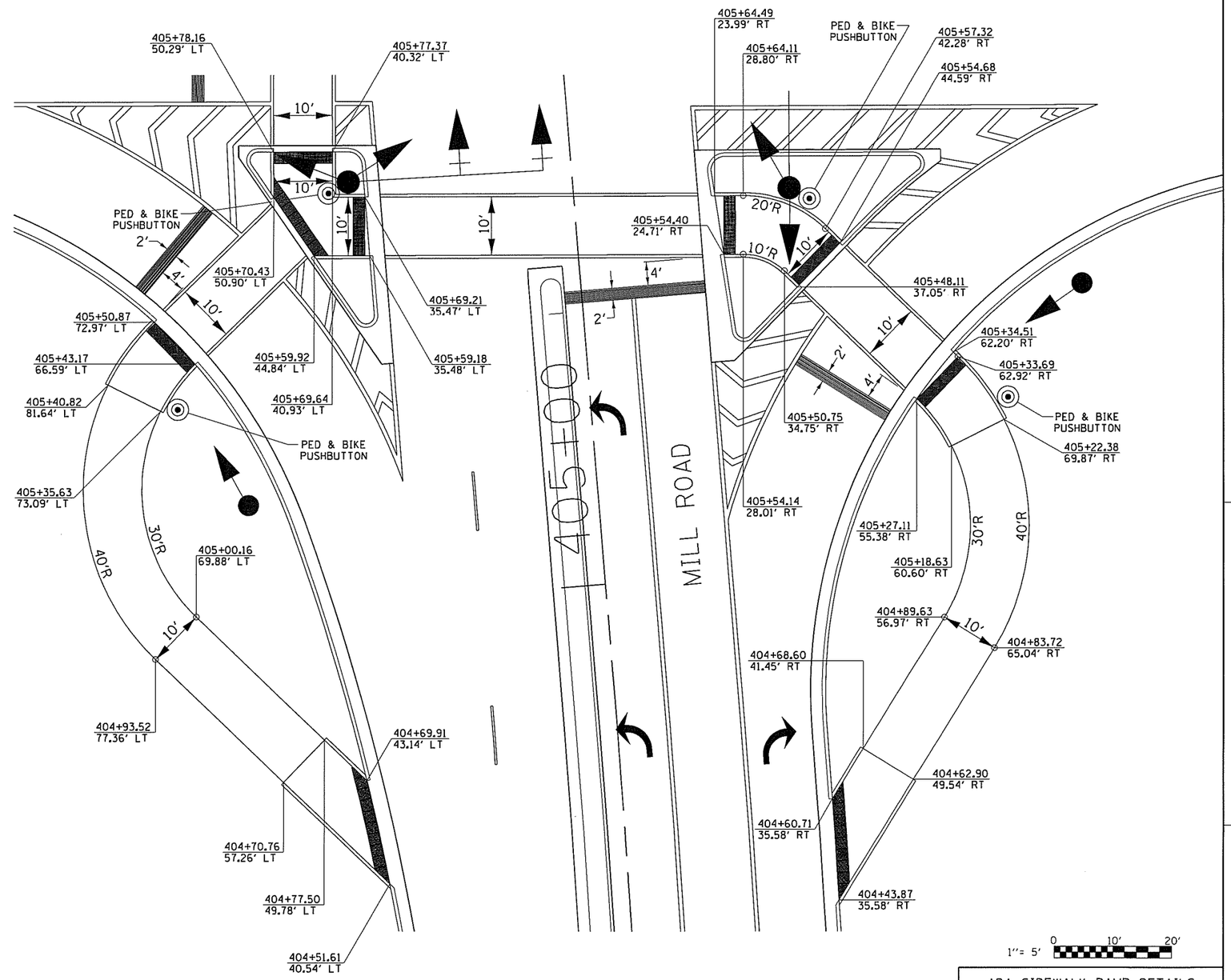


PROPOSED PROFILE RELOCATED SERVICE DRIVE





NOTE: ALL STATION AND OFFSETS TAKEN FROM THE U.S. ROUTE 20 CENTERLINE



NOTE: ALL STATION AND OFFSETS TAKEN FROM THE MILL ROAD CENTERLINE

ADA SIDEWALK RAMP DETAILS

FAP ROUTE 301 (US ROUTE 20)

WITH

MILL ROAD

SEC. NO. (201-3)K&(4-1,5)K PROJ. NO. _____

SCALE 1" = 5' COUNTY WINNEBAGO

SJN : P92-111-06 REV. NO. ___

I.D.S. SHEET 5 OF 7

BDE-9908

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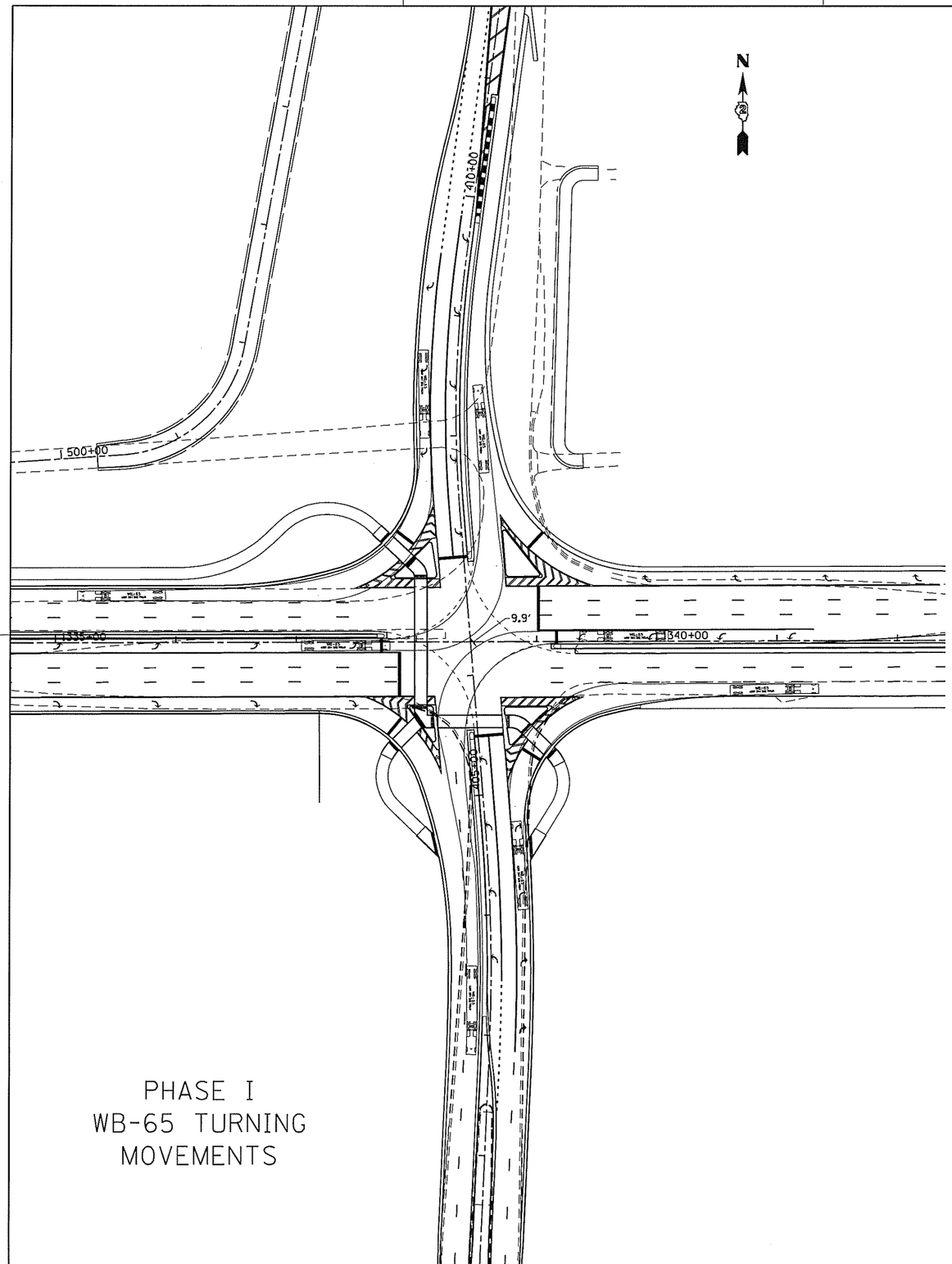
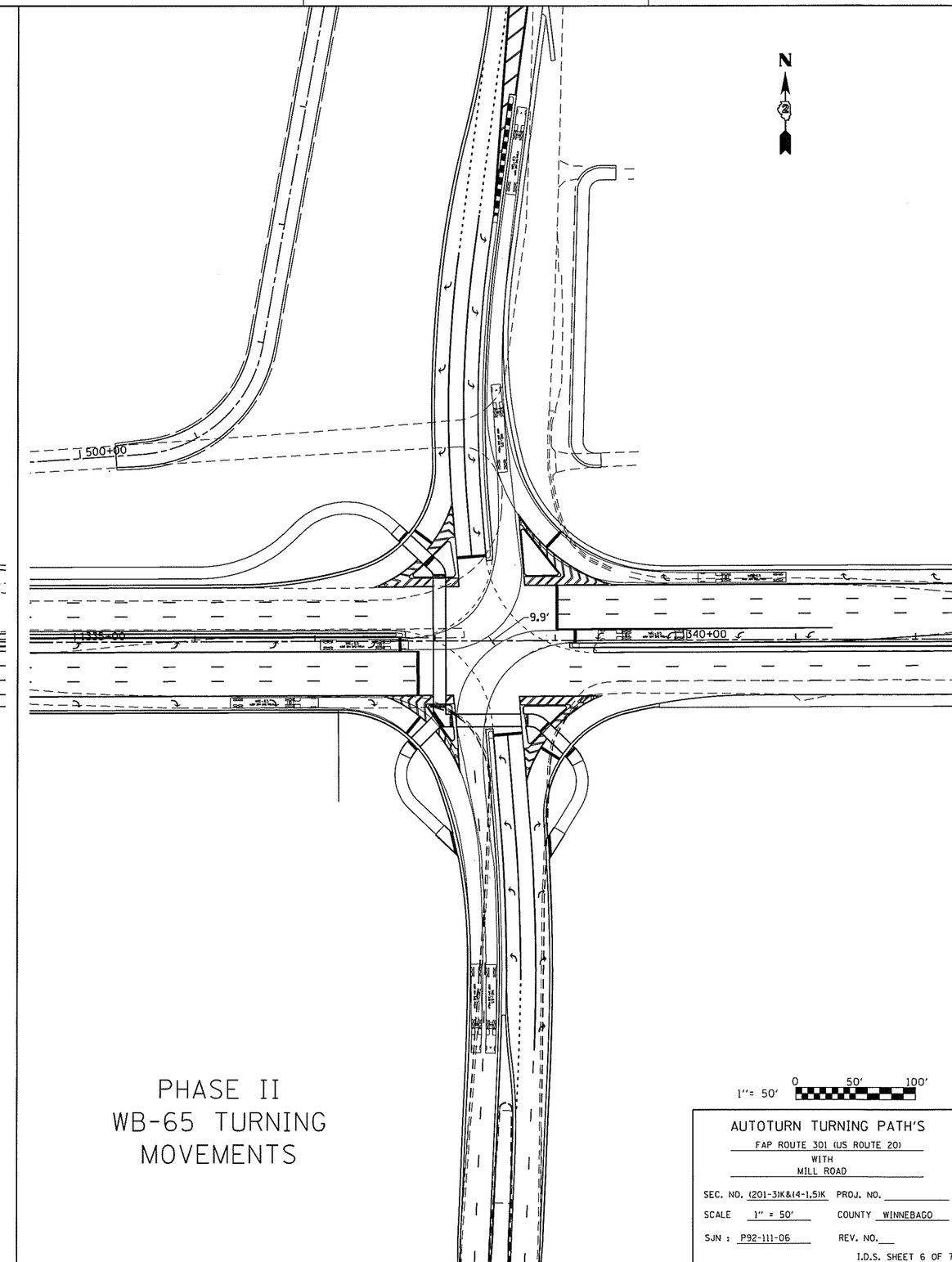


PHASE I
WB-65 TURNING
MOVEMENTS



PHASE II
WB-65 TURNING
MOVEMENTS

1"= 50' 0 50' 100'

AUTOTURN TURNING PATH'S
FAP ROUTE 301 (US ROUTE 20)
WITH
MILL ROAD

SEC. NO. (201-3)K&(4-1,5)K PROJ. NO. _____
SCALE 1" = 50' COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO. ___

I.D.S. SHEET 6 OF 7

BDE-9908

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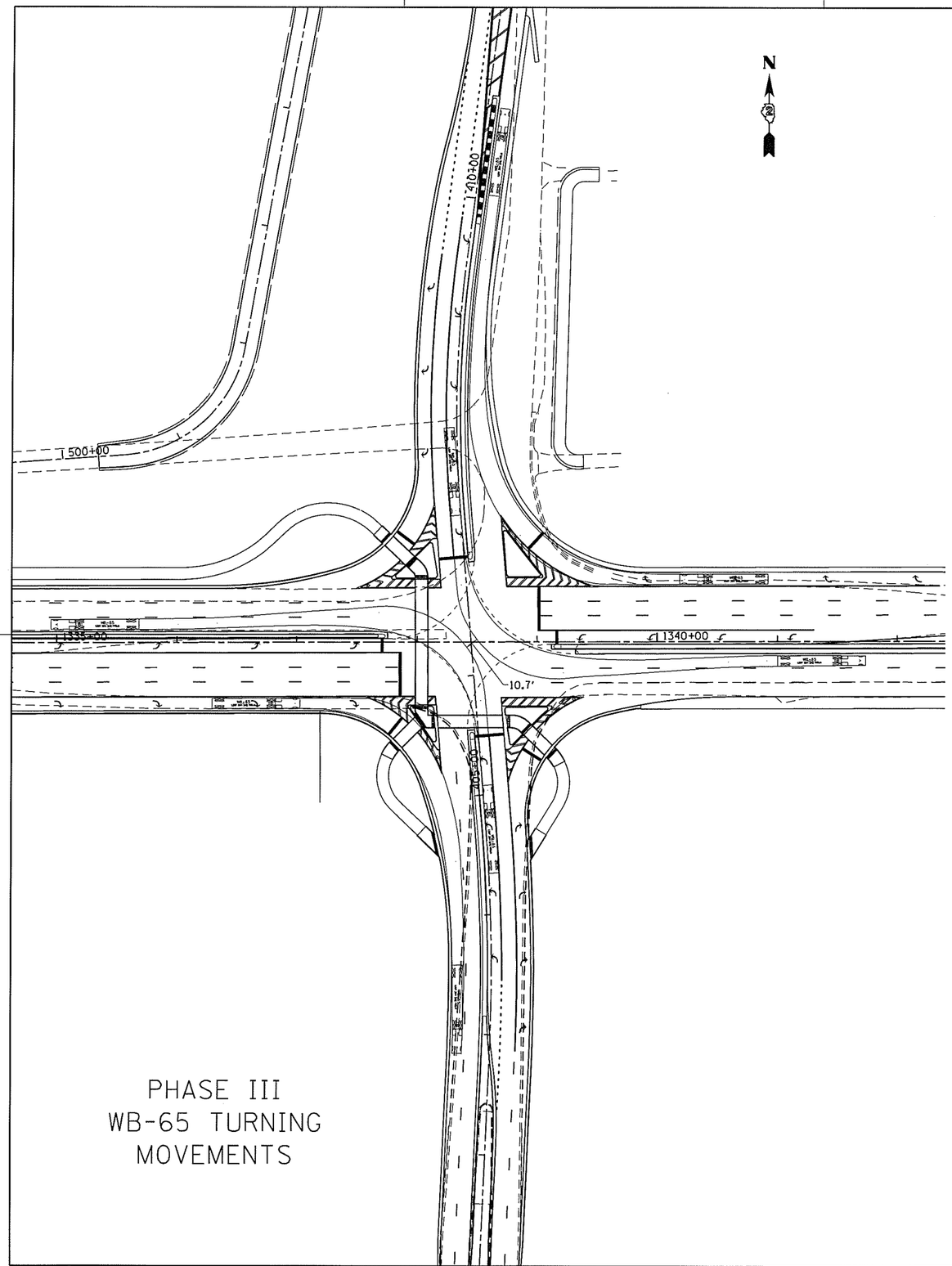
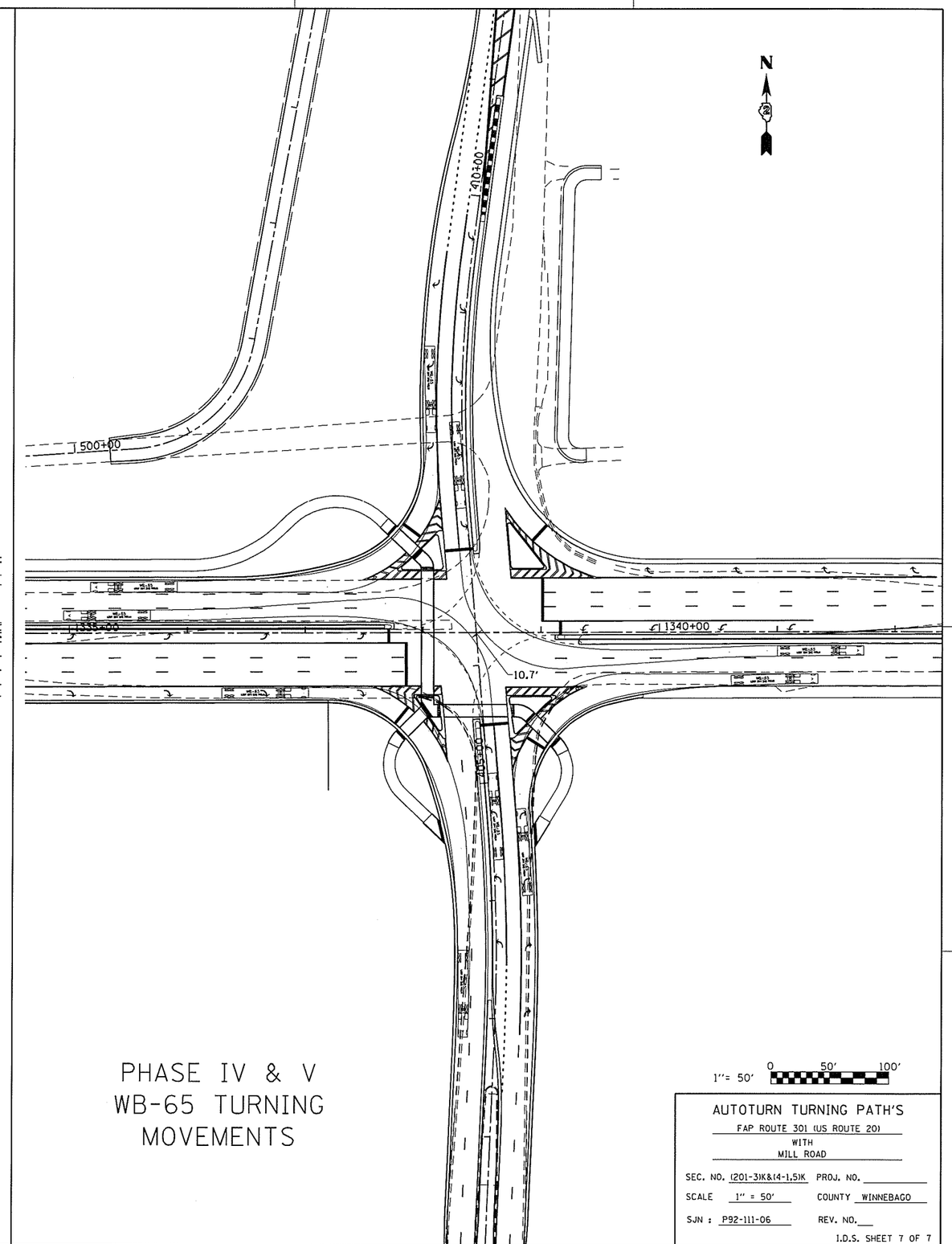


PHASE III
WB-65 TURNING
MOVEMENTS



PHASE IV & V
WB-65 TURNING
MOVEMENTS

1"= 50' 0 50' 100'

AUTOTURN TURNING PATH'S
FAP ROUTE 301 (US ROUTE 20)
WITH
MILL ROAD

SEC. NO. (201-3)K&(4-1.5)K PROJ. NO. _____
SCALE 1" = 50' COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO. ___

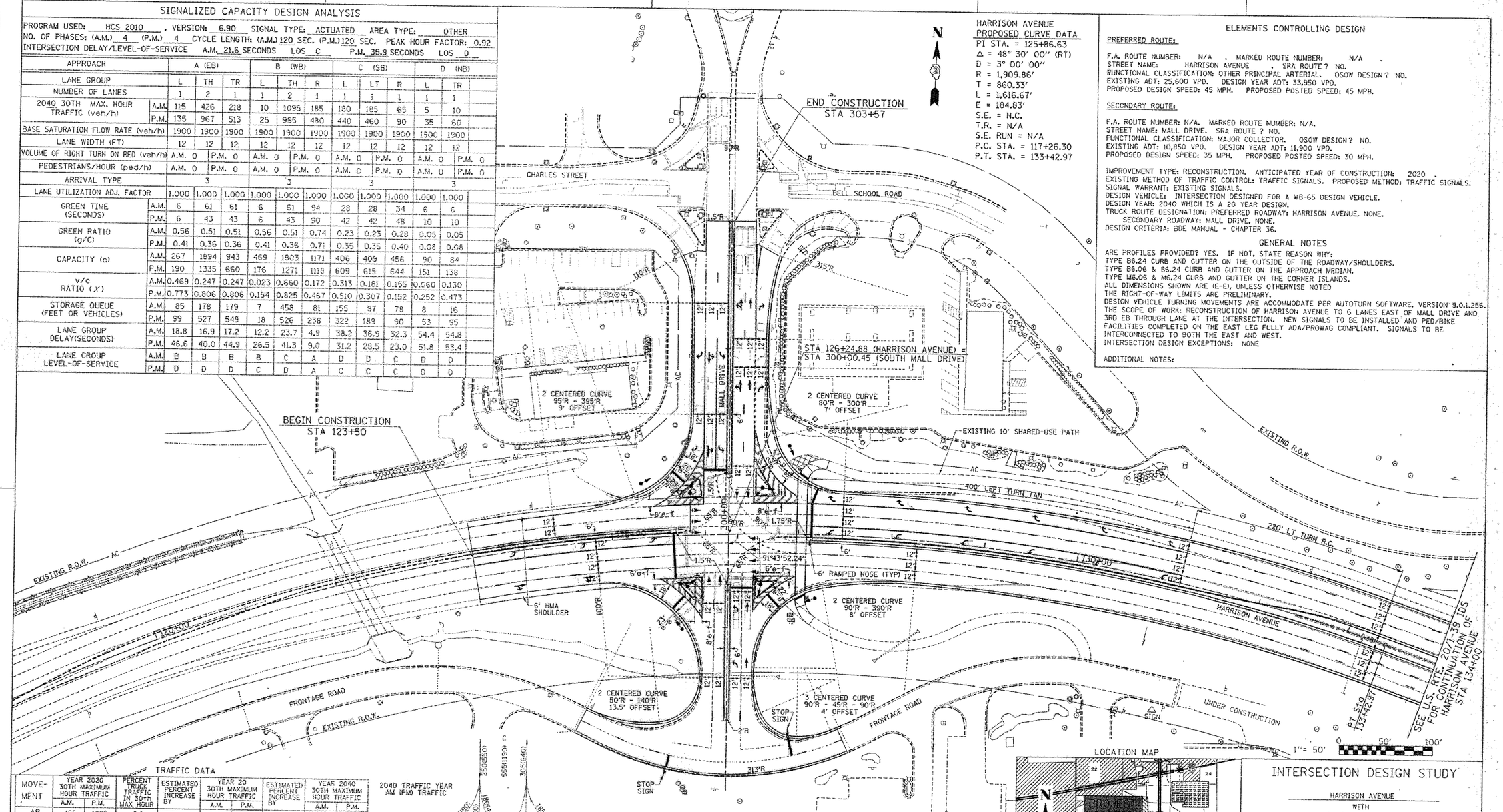
I.D.S. SHEET 7 OF 7

BDE-9908

SIGNALIZED CAPACITY DESIGN ANALYSIS

PROGRAM USED: HCS 2010 , VERSION: 6.90 SIGNAL TYPE: ACTUATED AREA TYPE: OTHER
NO. OF PHASES: (A.M.) 4 (P.M.) 4 CYCLE LENGTH: (A.M.) 120 SEC. (P.M.) 120 SEC. PEAK HOUR FACTOR: 0.92
INTERSECTION DELAY/LEVEL-OF-SERVICE A.M. 21.6 SECONDS LOS C P.M. 35.9 SECONDS LOS D

APPROACH		A (EB)			B (WB)			C (SB)			D (NB)	
LANE GROUP		L	TH	TR	L	TH	R	L	LT	R	L	TR
NUMBER OF LANES		1	2	1	1	2	1	1	1	1	1	1
2040 30TH MAX. HOUR TRAFFIC (veh/h)	A.M.	115	426	218	10	1095	185	180	185	65	5	10
	P.M.	135	967	513	25	965	480	440	460	90	35	60
BASE SATURATION FLOW RATE (veh/h)		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
LANE WIDTH (FT)		12	12	12	12	12	12	12	12	12	12	12
VOLUME OF RIGHT TURN ON RED (veh/h)		A.M. 0		P.M. 0	A.M. 0		P.M. 0	A.M. 0		P.M. 0	A.M. 0	P.M. 0
PEDESTRIANS/HOUR (ped/h)		A.M. 0		P.M. 0	A.M. 0		P.M. 0	A.M. 0		P.M. 0	A.M. 0	P.M. 0
ARRIVAL TYPE		3			3			3			3	
LANE UTILIZATION ADJ. FACTOR		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
GREEN TIME (SECONDS)	A.M.	6	61	61	6	61	94	28	28	34	6	6
	P.M.	6	43	43	6	43	90	42	42	48	10	10
GREEN RATIO (g/C)	A.M.	0.56	0.51	0.51	0.56	0.51	0.74	0.23	0.23	0.28	0.05	0.05
	P.M.	0.41	0.36	0.36	0.41	0.36	0.71	0.35	0.35	0.40	0.08	0.08
CAPACITY (c)	A.M.	267	1894	943	469	1803	1171	406	409	456	90	84
	P.M.	190	1335	660	176	1271	1118	609	615	644	151	138
v/c RATIO (X)	A.M.	0.469	0.247	0.247	0.023	0.660	0.172	0.313	0.161	0.155	0.060	0.130
	P.M.	0.773	0.806	0.806	0.154	0.825	0.467	0.510	0.307	0.152	0.252	0.473
STORAGE QUEUE (FEET OR VEHICLES)	A.M.	85	178	179	7	458	81	155	87	78	8	16
	P.M.	99	527	549	18	526	238	322	189	90	53	95
LANE GROUP DELAY(SECONDS)	A.M.	18.8	16.9	17.2	12.2	23.7	4.9	38.2	36.9	32.3	54.4	54.8
	P.M.	46.6	40.0	44.9	26.5	41.3	9.0	31.2	28.5	23.0	51.8	53.4
LANE GROUP LEVEL-OF-SERVICE	A.M.	B	B	B	B	C	A	D	D	C	D	D
	P.M.	D	D	D	C	D	A	C	C	C	D	D



HARRISON AVENUE PROPOSED CURVE DATA

PI STA. = 125+86.63
Δ = 48° 30' 00" (RT)
D = 3° 00' 00"
R = 1,909.86'
T = 860.33'
L = 1,616.67'
E = 184.83'
S.E. = N.C.
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 117+26.30
P.T. STA. = 133+42.97

ELEMENTS CONTROLLING DESIGN

PREFERRED ROUTE:

F.A. ROUTE NUMBER: N/A . MARKED ROUTE NUMBER: N/A .
STREET NAME: HARRISON AVENUE . SRA ROUTE ? NO.
FUNCTIONAL CLASSIFICATION: OTHER PRINCIPAL ARTERIAL. OSOW DESIGN ? NO.
EXISTING ADT: 25,600 VPD. DESIGN YEAR ADT: 33,950 VPD.
PROPOSED DESIGN SPEED: 45 MPH. PROPOSED POSTED SPEED: 45 MPH.

SECONDARY ROUTE:

F.A. ROUTE NUMBER: N/A. MARKED ROUTE NUMBER: N/A.
STREET NAME: MALL DRIVE. SRA ROUTE ? NO.
FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR. OSOW DESIGN ? NO.
EXISTING ADT: 10,850 VPD. DESIGN YEAR ADT: 11,900 VPD.
PROPOSED DESIGN SPEED: 35 MPH. PROPOSED POSTED SPEED: 30 MPH.

IMPROVEMENT TYPE: RECONSTRUCTION. ANTICIPATED YEAR OF CONSTRUCTION: 2020 .
EXISTING METHOD OF TRAFFIC CONTROL: TRAFFIC SIGNALS. PROPOSED METHOD: TRAFFIC SIGNALS.
SIGNAL WARRANT: EXISTING SIGNALS.
DESIGN VEHICLE: INTERSECTION DESIGNED FOR A WB-65 DESIGN VEHICLE.
DESIGN YEAR: 2040 WHICH IS A 20 YEAR DESIGN.
TRUCK ROUTE DESIGNATION: PREFERRED ROADWAY: HARRISON AVENUE, NONE.
SECONDARY ROADWAY: MALL DRIVE. NONE.
DESIGN CRITERIA: BDE MANUAL - CHAPTER 36.

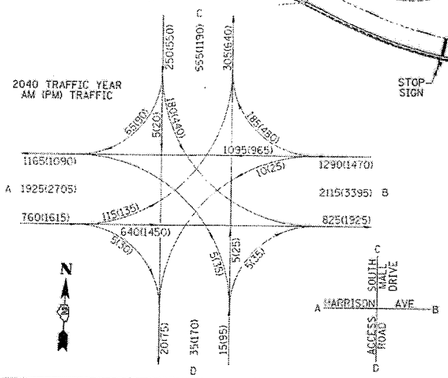
GENERAL NOTES

ARE PROFILES PROVIDED? YES. IF NOT, STATE REASON WHY:
TYPE B6.24 CURB AND GUTTER ON THE OUTSIDE OF THE ROADWAY/SHOULDERS.
TYPE B6.06 & B6.24 CURB AND GUTTER ON THE APPROACH MEDIAN.
TYPE M6.06 & M6.24 CURB AND GUTTER ON THE CORNER ISLANDS.
ALL DIMENSIONS SHOWN ARE (E-E), UNLESS OTHERWISE NOTED
THE RIGHT-OF-WAY LIMITS ARE PRELIMINARY.
DESIGN VEHICLE TURNING MOVEMENTS ARE ACCOMMODATE PER AUTOTURN SOFTWARE, VERSION 9.0.1.256.
THE SCOPE OF WORK: RECONSTRUCTION OF HARRISON AVENUE TO 6 LANES EAST OF MALL DRIVE AND 3RD EB THROUGH LANE AT THE INTERSECTION. NEW SIGNALS TO BE INSTALLED AND PED/BIKE FACILITIES COMPLETED ON THE EAST LEG FULLY ADA/PROWAG COMPLIANT. SIGNALS TO BE INTERCONNECTED TO BOTH THE EAST AND WEST.
INTERSECTION DESIGN EXCEPTIONS: NONE

ADDITIONAL NOTES:

TRAFFIC DATA

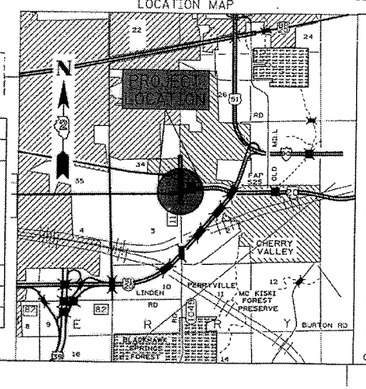
MOVEMENT	YEAR 2020 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2020 30TH MAXIMUM HOUR TRAFFIC P.M.	PERCENT TRUCK TRAFFIC IN 30TH MAX HOUR	ESTIMATED PERCENT INCREASE BY	YEAR 20 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 20 30TH MAXIMUM HOUR TRAFFIC P.M.	ESTIMATED PERCENT INCREASE BY	YEAR 2040 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2040 30TH MAXIMUM HOUR TRAFFIC P.M.
AB	465	1005	2.0				GENERATION AND DEVELOPMENT	640	1450
AD	5	30						5	30
AC	105	125						115	135
BA	790	660	2.0					1095	965
BC	165	435	2.0					155	480
BD	10	25						10	25
CD	5	20						5	20
CA	55	80						65	90
CB	160	400	4.0					180	440
DC	5	25	4.0					5	25
DB	5	35	7.0					5	35
DA	5	35						5	35
TOTAL A	1425	1935						1925	2705
TOTAL B	1595	2560						2115	3395
TOTAL C	495	1085						555	1190
TOTAL D	35	170						35	170



PHASING DIAGRAM

	PHASE I	PHASE II	PHASE III	PHASE IV
A.M.	G/C 0.05	0.51	0.23	0.05
P.M.	G/C 0.05	0.36	0.35	0.08
	A/C 0.034	0.042	0.042	0.042

LOCATION MAP



INTERSECTION DESIGN STUDY

HARRISON AVENUE
WITH
SOUTH MALL DRIVE

SEC. NO. (201-3)K&(4-1,5)R PROJ. NO.
SCALE 1" = 50' COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO.

DESIGNED BY IDOT - DISTRICT 2 DATE APRIL 2017
SATISFACTORY — DISTRICT GEOMETRICS ENGINEER — DATE 4-25-17
SATISFACTORY — DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE 4-25-17
SATISFACTORY — DISTRICT OPERATIONS ENGINEER — DATE 4/27/17
APPROVED — DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER — DATE 4-27-17

CADD FILE NAME : [ ] I.D.S. SHEET 1 OF 4

BDE-9908.

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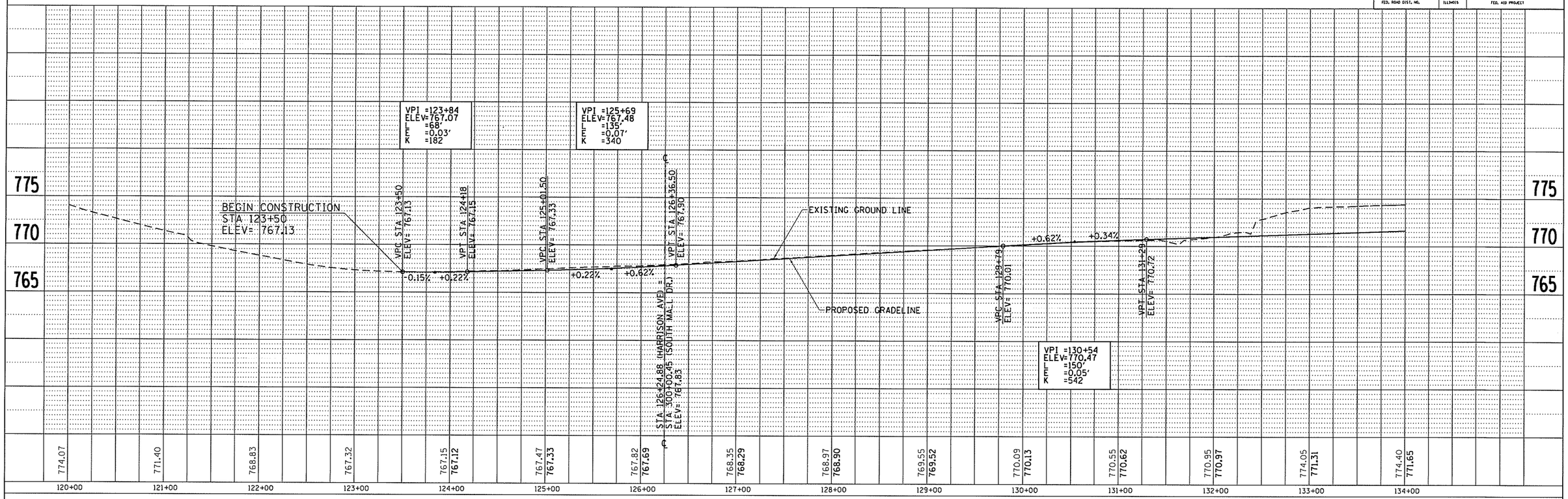
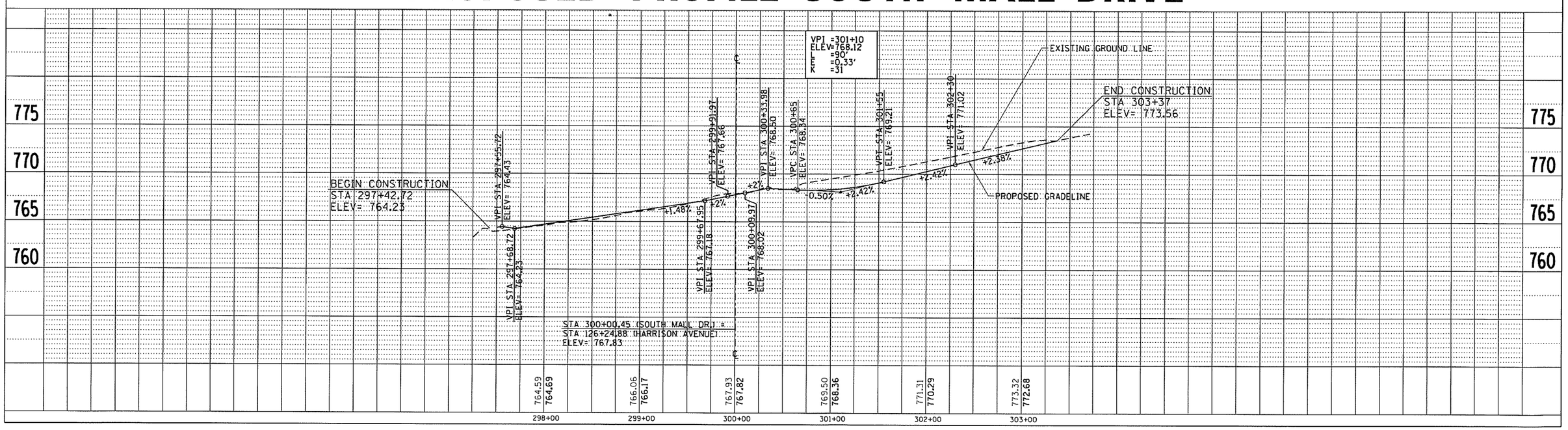
USER NAME = Griffin, Doug

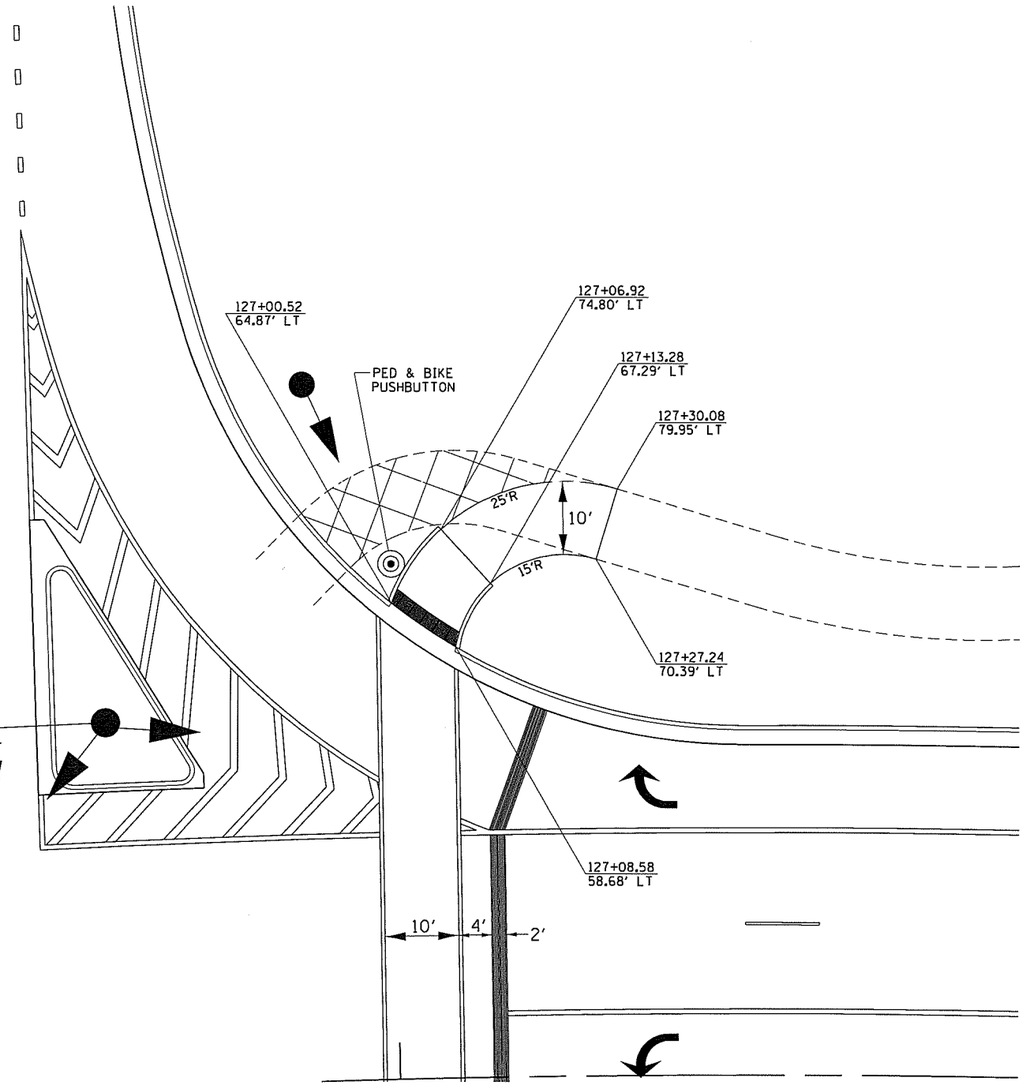
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	(201-3)K&(4-1,5)R	WINNEBAGO	4	2
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

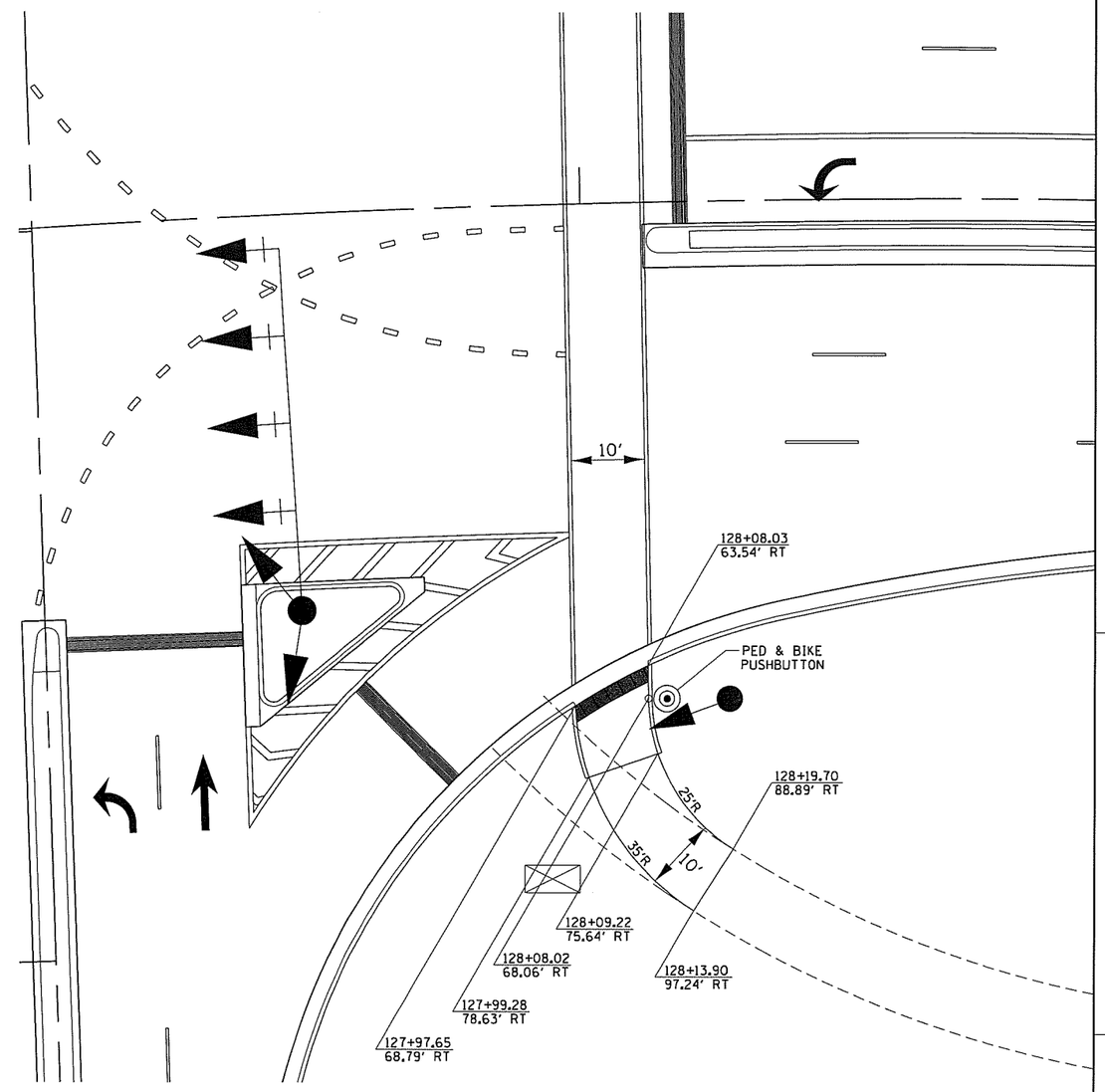
PROPOSED PROFILE HARRISON AVENUE



PROPOSED PROFILE SOUTH MALL DRIVE







1"= 5' 0 10' 20'

NOTE: ALL STATION AND OFFSETS TAKEN FROM THE HARRISON AVENUE CENTERLINE

ADA SIDEWALK RAMP DETAILS

FAP ROUTE 301 (US ROUTE 20)
WITH
SOUTH MALL DRIVE

SEC. NO. (201-3)K&(4-1,5)K PROJ. NO. ____

SCALE 1" = 5' COUNTY WINNEBAGO

SJN : P92-111-06 REV. NO. ____

I.D.S. SHEET 3 OF 4

BDE-9908

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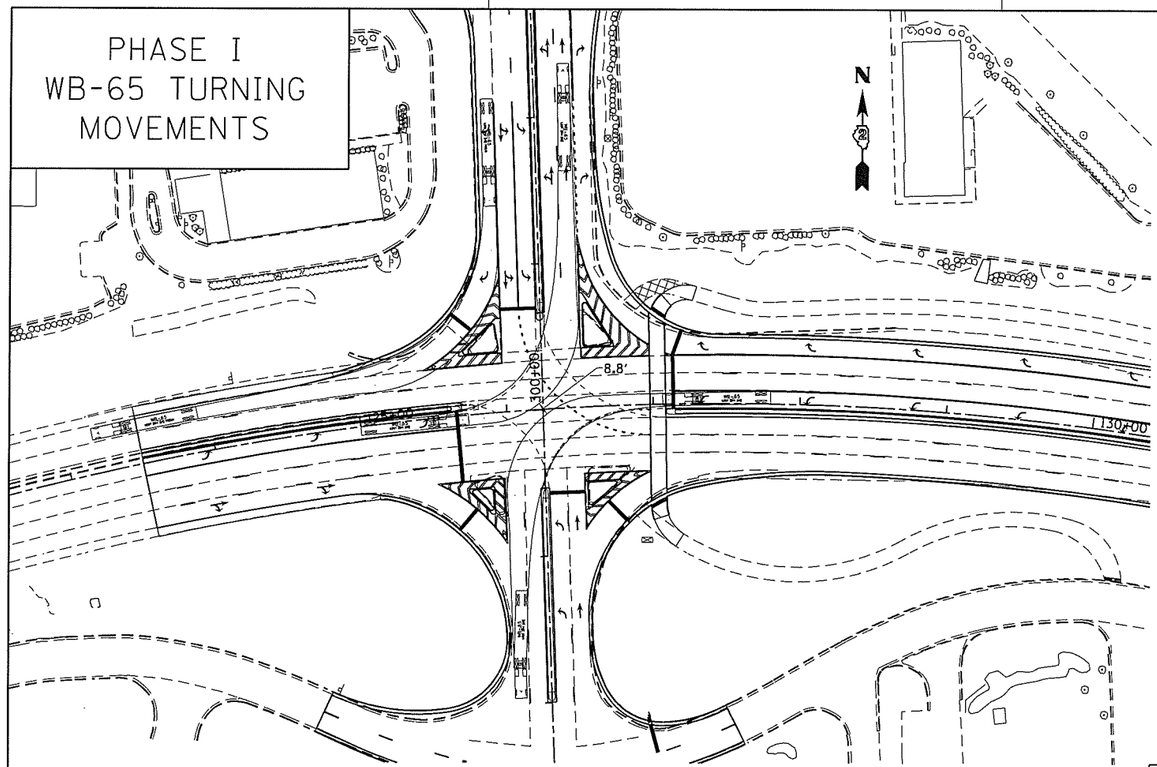

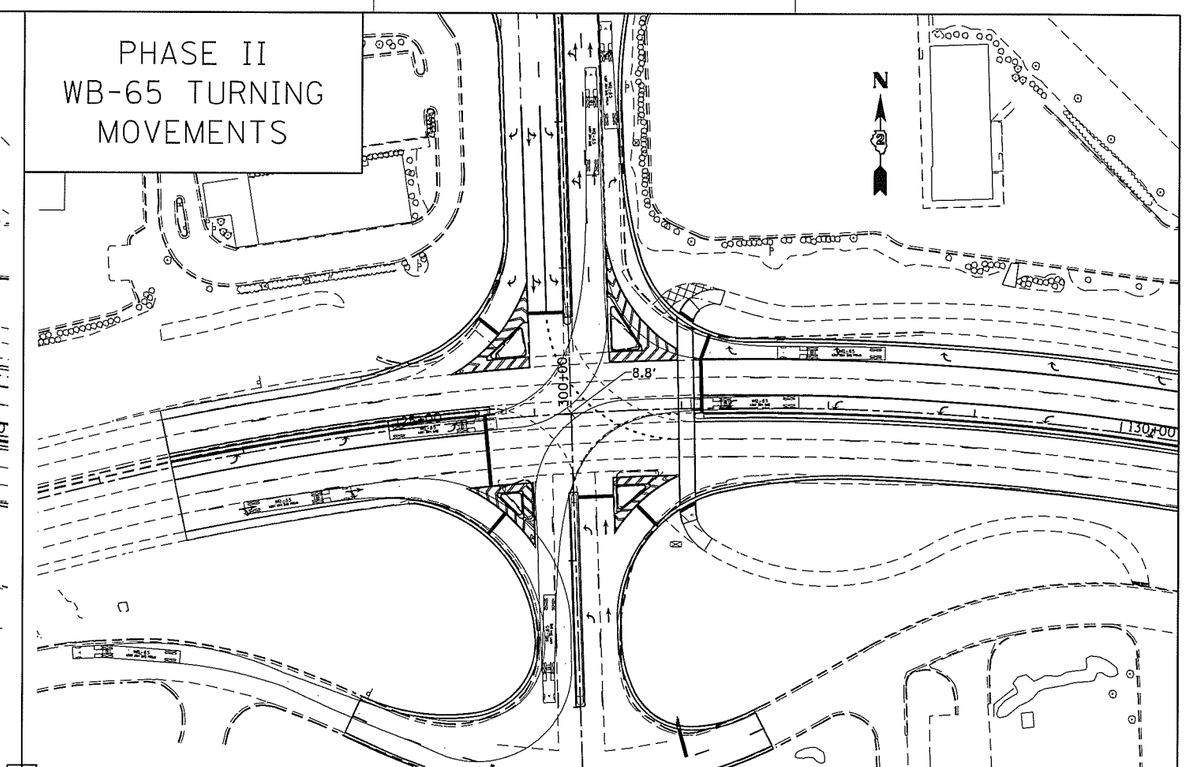

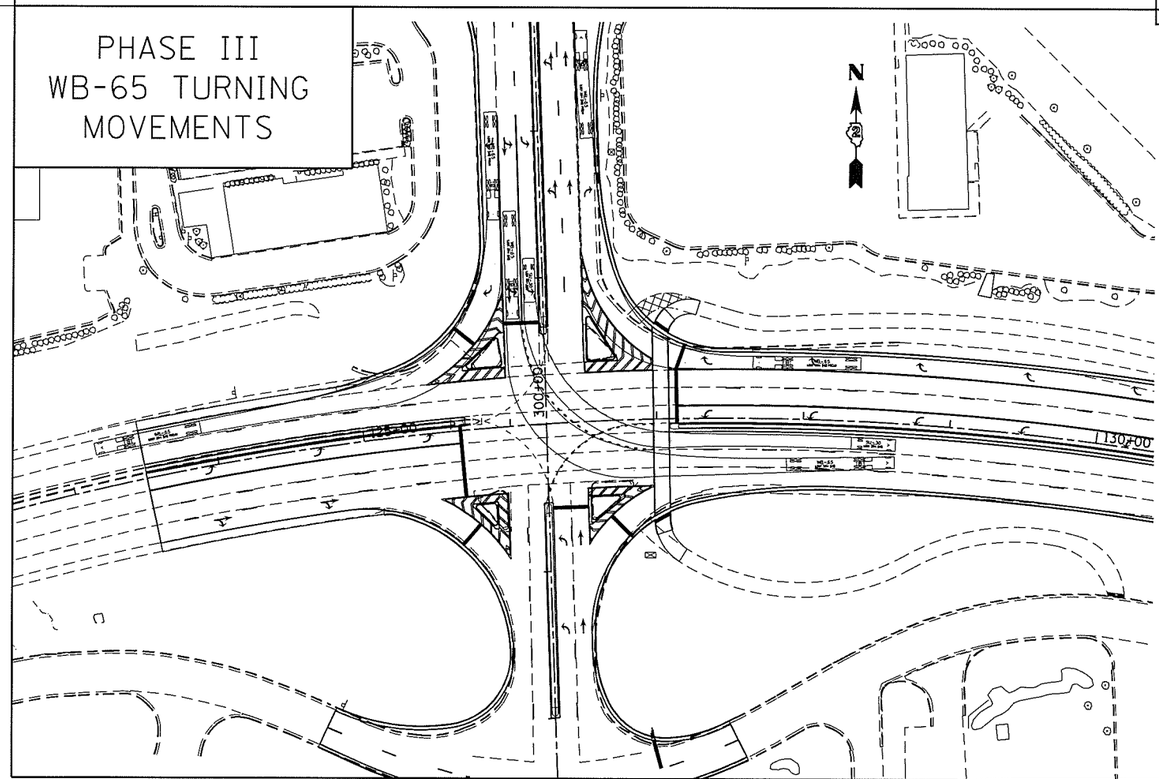

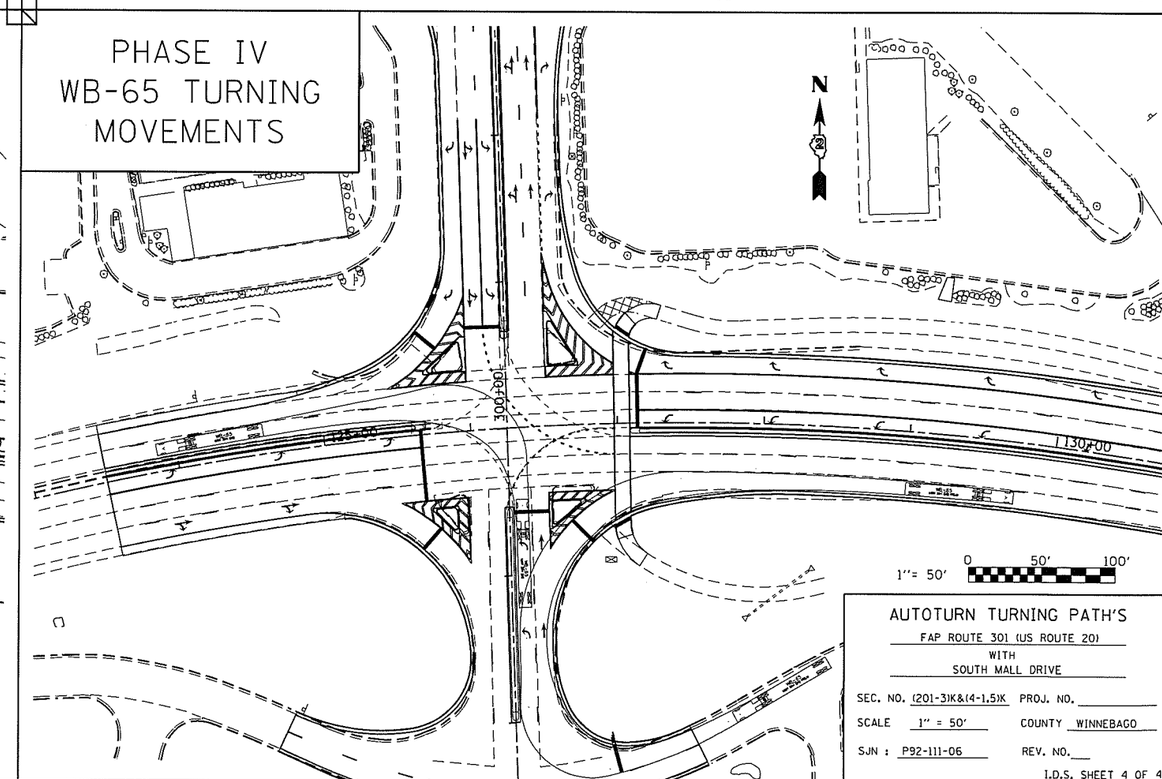

1"= 50' 0 50' 100'

AUTOTURN TURNING PATH'S

FAP ROUTE 301 (US ROUTE 20)

WITH

SOUTH MALL DRIVE

SEC. NO. (201-3)K&(4-1.5)K PROJ. NO. _____

SCALE 1" = 50' COUNTY WINNEBAGO

SJN : P92-111-06 REV. NO. ___

I.D.S. SHEET 4 OF 4

BDE-9908

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USER NAME = Griffithdj

TYPE, SIZE, & LOCATION STUDIES

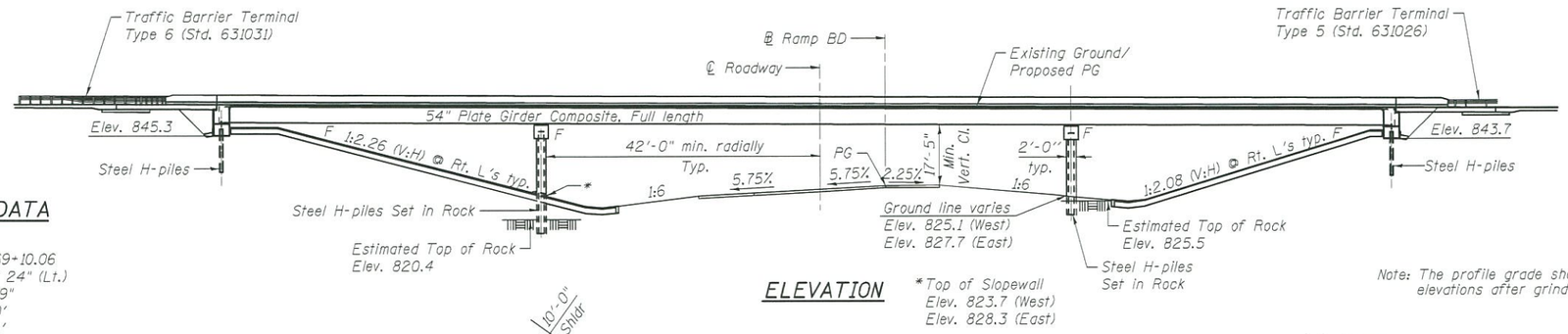
FAI 39 (I-39) and FAP 301 (US 20)
Section (201-3)K and (4-1, 5)R
Winnebago County
Job No. P-92-111-06
Contract No. 64C62 & 64B13
PTB 141/004
Consultant: Hanson Professional Services Inc.

Proposed SN	Existing SN	Description	Action	Contract No.	TSL	SGR	Designer	TSL & SGR Submitted	TSL Comments	SGR Comments	TSL & SGR Resub.	TSL Approved	SGR Approved	TSL Status	SGR Status	Action	ETC
101-0204	none	I-39 NB (Ramp DA) over I-39 SB (Ramp BD	new structure due to ramp BD realignment	64C62	x	x	Fehr Graham	4/20/2016	6/2/2016	6/6/2016	10/4/2016 3/8/2017	1/11/2017 3/8/2017	1/9/2017	completed, stamped Approved TSL received on 3/8/2017	completed		
101-0206	101-0098	Perryville Road over I-39 & US 20	Complete Replacement - realignment	64C24	x	x	Hanson	2/17/2016	8/2/2016	4/14/2016	9/7/2016 3/7/2017	X	11/3/2016	completed, waiting on approval of integral abutment policy change	completed	IDOT	
101-0207	101-0131	Mulford Road over I-39 & US 20	Complete Replacement - realignment	64C24	x	x	Hanson	2/17/2016	8/2/2016	5/4/2016	9/7/2016 3/7/2017	X	11/3/2016	completed, waiting on approval of integral abutment policy change	completed	IDOT	
101-0208/09	101-0067/68	US-20 over CNRR	Complete Replacement	64C24	x	x	Infrastructure	2/17/2017	3/23/2017	3/23/2017	3/24/2017		3/31/2017	completed, waiting on RR approval	completed	IDOT	
101-0210/11	101-0069/70	I-39/US 20 over Union Pacific Railroad	Complete Replacement	64C24	x	x	Infrastructure	8/18/2016	11/11/2016	11/18/2016	1/19/2017 3/7/2017	X	2/2/2017	IDOT approved, waiting on RR approval	completed	IDOT	
101-0212	none	NB I-39 (Ramp DB) over Linden Rd.	new structure due to ramp DB realignment	64C62	x	x	Fehr Graham	6/30/2016	8/8/2016	10/11/2016	12/1/2016 2/13/2017 3/8/2017	1/24/2017 3/8/2017	2/14/2017	completed, stamped Approved TSL received on 3/8/2017	completed		
101-0213/14	101-0071/72	I-39/US 20 over Harrison Ave.	Complete Replacement	64C24	x	x	Hanson	10/5/2016	11/29/2016	11/23/2016 2/6/2017	12/27/2016 3/17/2017	3/7/2017	3/22/2017	completed	completed	IDOT	
101-0215	none	I-39 SB (Ramp BD) over US 20	new structure due to ramp BD realignment	64C62	x	x	Hanson	1/16/2017	3/3/2017	3/28/2017	4/5/2017			completed, need IDOT approval	completed, need IDOT approval	IDOT	
101-0216	none	Linden Road over I-39 SB (Ramp BD)	new structure due to ramp BD realignment	64C62	x	x	Fehr Graham	8/18/2016	10/20/2016	10/6/2016	12/1/2016 12/13/2016 3/8/2017	12/15/2016 3/8/2012	12/21/2016	completed, stamped Approved TSL received on 3/8/2017	completed		
101-2053	101-2025	I-39 over Madigan Creek	Remove and replace culvert	64C24 & 64B13	x	x	Fehr Graham							no TSL required per IDOT			
101-0073/74	101-0073/74	US 20 over Kishwaukee	deck replacement with structure widening	64C24 & 64B13	x		Fehr Graham							design deferred to Phase II			
~~N/A~~	~~101-0136~~	~~Ramp BD over US 20 Bypass~~	~~to be removed- ramp realignment~~														
~~N/A~~	~~101-0139~~	~~Ramp BD : US 20 WB to I-39 SB over Lind~~	~~to be removed- ramp realignment~~														
~~N/A~~	~~101-0140~~	~~Ramp DB: I-39 NB to US 20 EB over Linde~~	~~to be removed- ramp realignment~~														

Benchmark: Cut "□" south side of eastern base of 30 mph ramp sign located east of the ramp connecting I-39 NB to US 20 West (Ramp DA) 0.1 mile north of the centerline of Linden Road. Elev. 851.37, 42°-13'-06.37" N. 89°-00'-39.64" W.

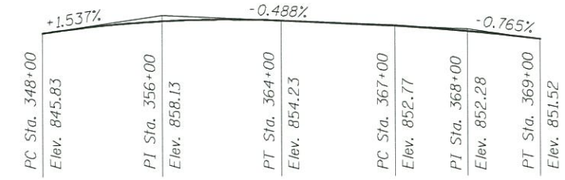
Existing Structure: None

Stage Construction will be utilized to maintain one lane of traffic at all times. Stage I Traffic will be maintained on existing Ramp DA.



ELEVATION

Note: The profile grade shows the final elevations after grinding



PROFILE GRADE

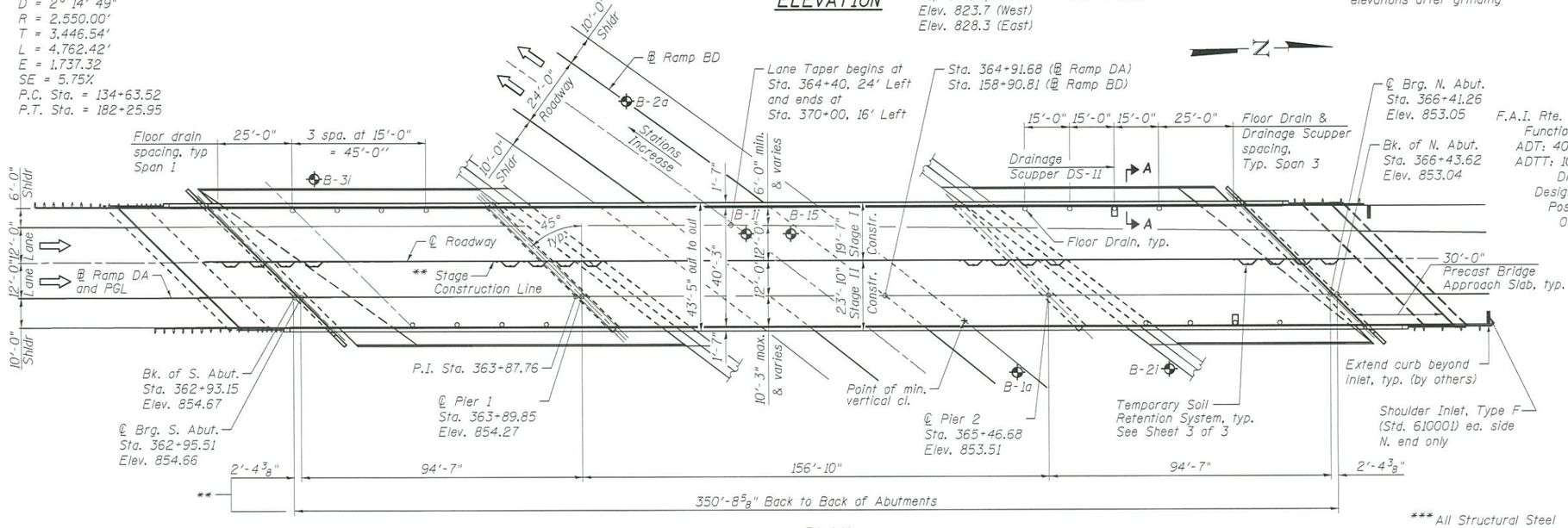
(Along ℄ Ramp DA)

PROFILE GRADE

(Along ℄ Ramp BD)

CURVE DATA

Ramp BD
P.I. Sta. = 169+10.06
Δ = 107° 00' 24" (Lt.)
D = 2° 14' 49"
R = 2,550.00'
T = 3,446.54'
L = 4,762.42'
E = 1,737.32
SE = 5.75%
P.C. Sta. = 134+63.52
P.T. Sta. = 182+25.95



PLAN

** Along a line parallel to the Structure Reference Line

Note: Up to 1/4 inch may be ground off the bridge deck and the bridge approach slabs.

*** All Structural Steel shall be metalized

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39 - I-39 NB Ramp DA
Functional Class: Interstate
ADT: 4050(2013); 6400(2040)
ADTT: 1000(2013); 1600(2040)
DHV: 640 (2040)
Design Speed: 50 m.p.h.
Posted Speed: 45 m.p.h.
One-Way Traffic

F.A.I. Rte. 39 - I-39 SB Ramp BD
Functional Class: Interstate
ADT: 10,000(2013); 28,000(2040)
ADTT: 4200(2013); 11,700(2040)
DHV: 2250 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
One-Way Traffic

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interims

DESIGN STRESSES

FIELD UNITS

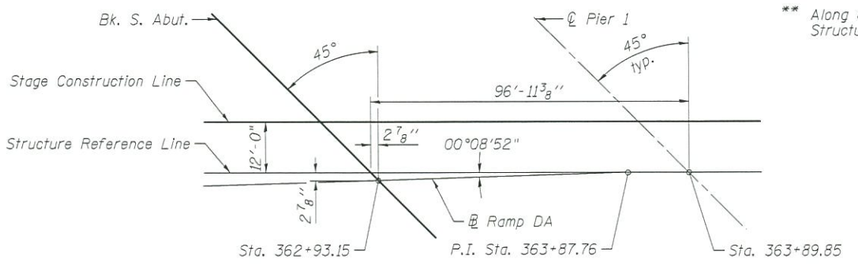
f'c = 3,500 psi
f'c = 4,000 (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50) ***

PRECAST UNITS

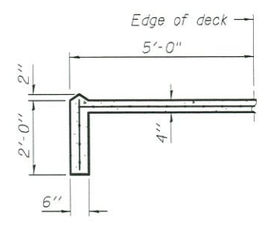
f'c = 6,000 psi

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.056 g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.10 g
Soil Site Class = C

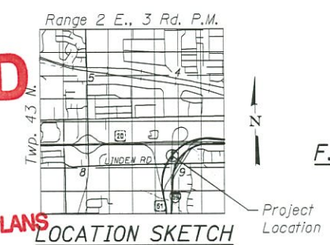


OFFSET SKETCH



SECTION A-A

APPROVED
MAR 08 2017
AS A BASIS FOR PREPARATION OF DETAILED PLANS



LOCATION SKETCH

GENERAL PLAN
I-39 NB (RAMP DA) OVER
I-39 SB (RAMP BD)
F.A.I. RTE. 39 SEC. (201-3)K & (4-1,5)R
WINNEBAGO COUNTY
STATION 364+91.68
STRUCTURE NO. 101-0204

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FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003525	USER NAME = myoung	DESIGNED - GB/CME	REVISED -
		CHECKED - MCB	REVISED -
	PLOT SCALE = 42.6667 ' / in.	DRAWN - MMY	REVISED -
	PLOT DATE = 3/8/2017	CHECKED - MCB	REVISED -

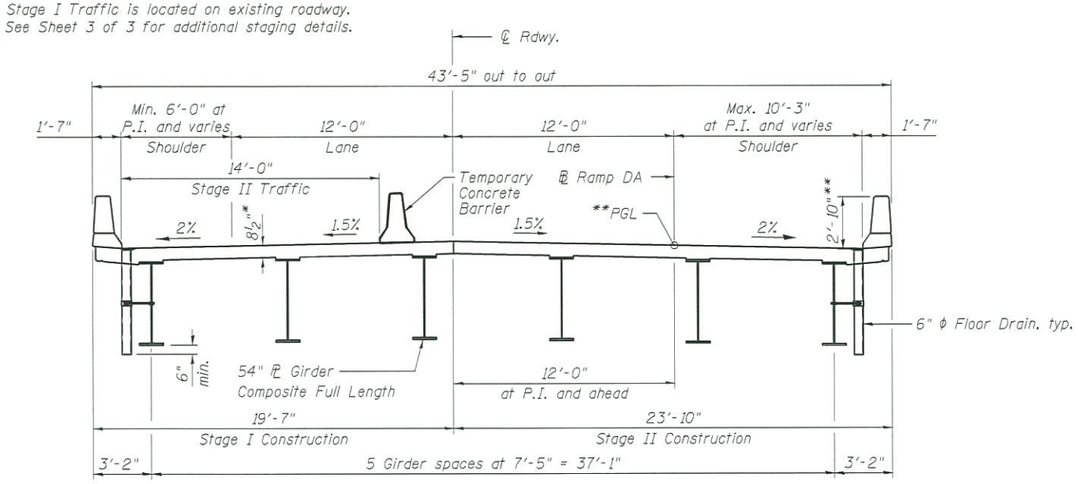
FEHR GRAHAM PROJECT NUMBER: 15-1002 CB PROJ. NO.: 06085

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 3 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)R	WINNEBAGO		
		CONTRACT NO. 64C62		
	ILLINOIS FED. AID PROJECT			

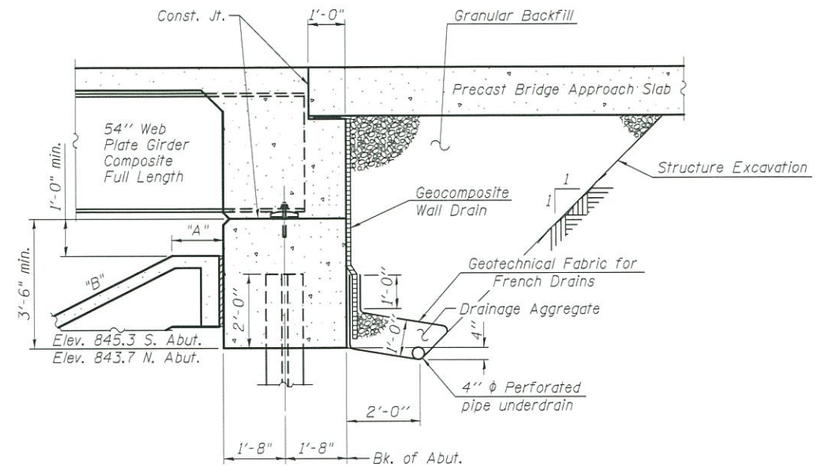
Note: Stage I Traffic is located on existing roadway.
See Sheet 3 of 3 for additional staging details.



CROSS SECTION

(Looking North)
Dimensions at rt. L's to structure

*Prior to Grinding
**After Grinding

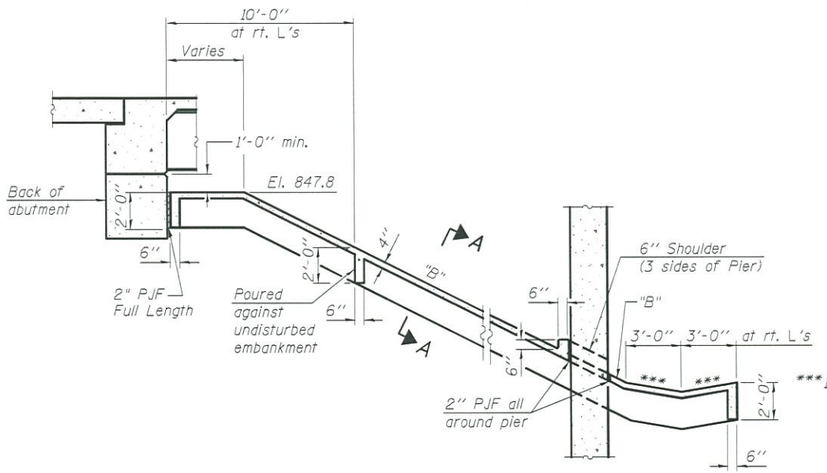


SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. L's)

"A" - Berm width Varies
0" to 12'-3½" S. Abut.
0" to 7'-9⅝" N. Abut.

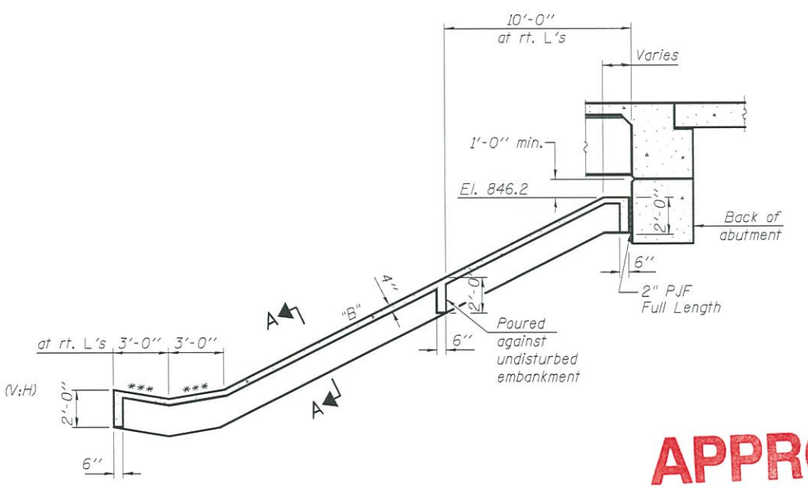
"B" - Slope at right angles
1:2.26 (V:H) S. Abut.
1:2.08 (V:H) N. Abut.



SECTION THRU CONCRETE SLOPEWALL

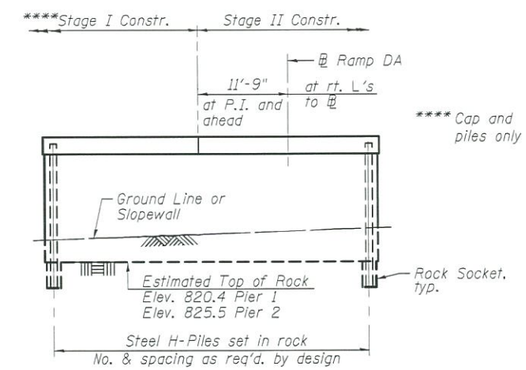
South Abutment

Note: See Sheet 1 of 3 for Section A-A.



SECTION THRU CONCRETE SLOPEWALL

North Abutment



PIER SKETCH

(Looking North)

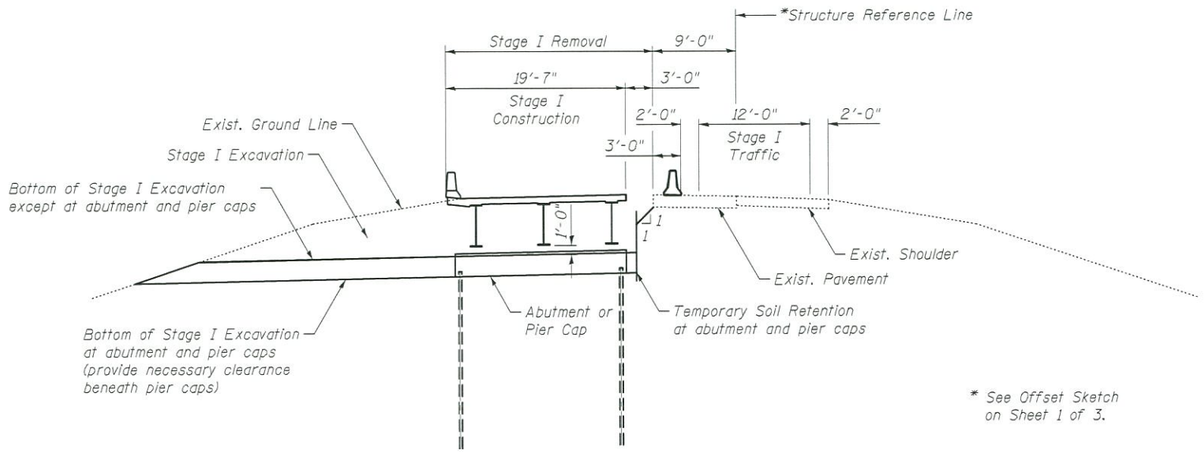
APPROVED
MAR 08 2017
AS A BASIS FOR PREPARATION OF DETAILED PLANS

GENERAL PLAN
I-39 NB (RAMP DA) OVER
I-39 SB (RAMP BD)
F.A.I. RTE. 39 SEC. (201-3)K & (4-1,5)R
WINNEBAGO COUNTY
STATION 364+91.68
STRUCTURE NO. 101-0204

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003525	USER NAME = myoung	DESIGNED - GB/CME	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		F.A.I RTE. 39	SECTION (201-3)K & (4-1,5)R	COUNTY WINNEBAGO	TOTAL SHEETS	SHEET NO.
		CHECKED - MCB	REVISED -					CONTRACT NO. 64C62	
	PLOT SCALE = 8:0.00 ':' / in.	DRAWN - MMY	REVISED -						
	PLOT DATE = 3/8/2017	CHECKED - MCB	REVISED -		SHEET NO. 2 OF 3 SHEETS		ILLINOIS FED. AID PROJECT		

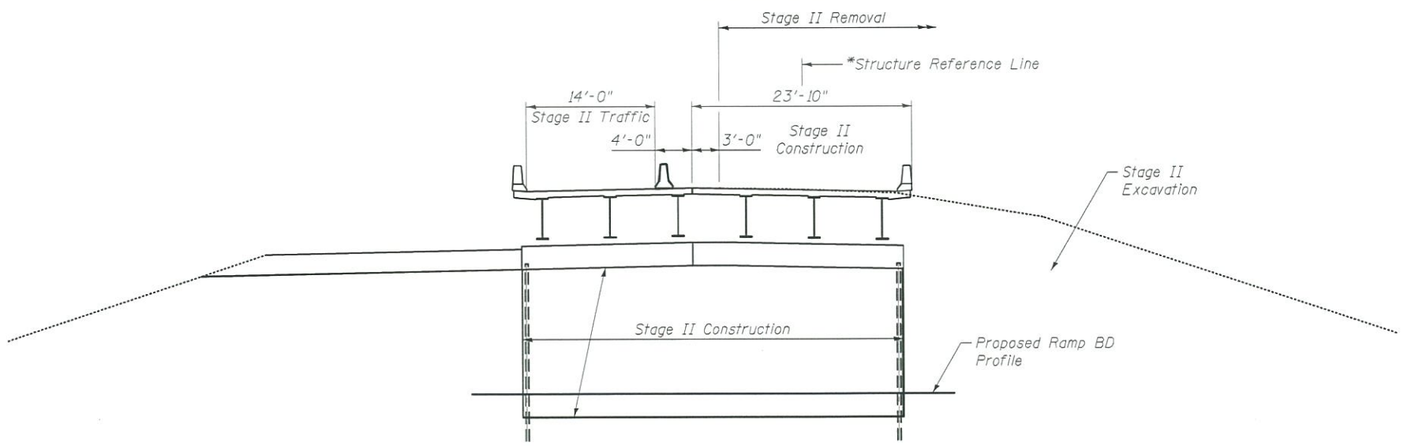
FEHR GRAHAM PROJECT NUMBER: 15-1002 CB PROJ. NO.: 06085

FILE NAME = ...\1010204-64C62-002-tsl.dgn



* See Offset Sketch on Sheet 1 of 3.

STAGE I CONSTRUCTION



STAGE II CONSTRUCTION

(Showing Pier construction, abutment construction similar)

CONSTRUCTION SEQUENCE

Ramp DA over Ramp BD will be constructed using a top-down construction method to maintain one lane of traffic on existing/proposed Ramp DA at all times as indicated below.

1. Direct Ramp DA traffic to Stage I Traffic.
2. Proceed with Stage I Excavation to 1'-0" below the bottom of the proposed girders across the spans using slopes laid back at 1:1 as shown on Stage I Construction Detail.
3. Install Temporary Soil Retention System as required at the abutments and piers and excavate as required to construct the caps.
4. Install Stage I piles per SGR recommendations.
5. Proceed with Stage I Construction of abutment and pier caps, superstructure and approach slabs.
6. Direct Ramp DA traffic to Stage II Traffic.
7. Proceed with Stage II Excavation beneath Stage I Construction and as required for Stage II Construction.
8. Proceed with Stage II Construction.

APPROVED

MAR 08 2017

AS A BASIS FOR PREPARATION OF DETAILED PLANS

GENERAL PLAN
I-39 NB (RAMP DA) OVER
I-39 SB (RAMP BD)
F.A.I. RTE. 39 SEC. (201-3)K & (4-1,5)R
WINNEBAGO COUNTY
STATION 364+91.68
STRUCTURE NO. 101-0204

FILE NAME = ...\1010204-64C62-003-staging.dgn

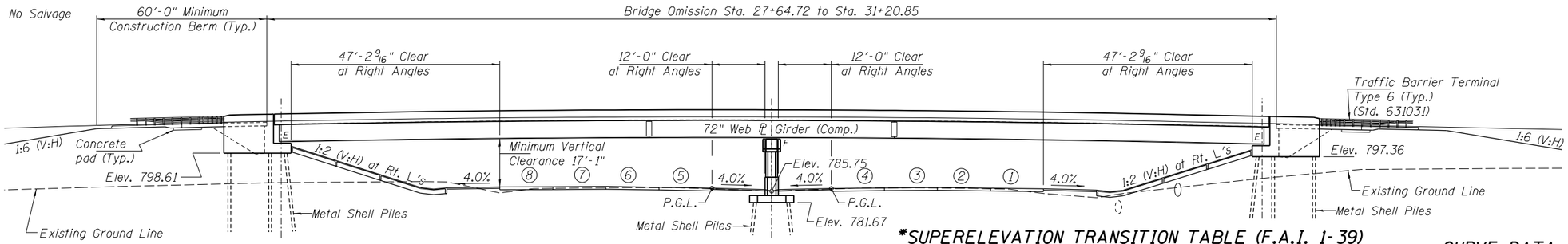
FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003525	USER NAME = myoung	DESIGNED - CME	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
		CHECKED - MCB	REVISED -			39	(201-3)K & (4-1,5)R	WINNEBAGO	
	PLOT SCALE = 16:0.000120 ':' / in.	DRAWN - CFC	REVISED -					CONTRACT NO. 64C62	
	PLOT DATE = 3/8/2017	CHECKED - MCB	REVISED -		SHEET NO. 3 OF 3 SHEETS			ILLINOIS FED. AID PROJECT	

FEHR GRAHAM PROJECT NUMBER: 15-1002 CB PROJ. NO.: 06085

BM: #401 - Cut square on Southerly of center crash wall of bridge under Perryville Rd. - Elevation = 788.53

Note: Up to 1/4 inch may be ground off the bridge deck and the approach slabs.

Existing Structure (No. 101-0098)
Originally constructed in 1963 under FAP 194, Section 4-HB-3, the structure is a 4 span, concrete deck on continuous steel beam superstructure with concrete piers and pile bent abutments. The structure was repainted in 1980. The west fascia beam between piers 2 and 3 was replaced in 1999 and again in 2007.
The structure has a Bk. to Bk.= 304'-6" with an out-out of deck of 33'-8".
Traffic shall be maintained on the existing structure during construction of new structure.



ELEVATION

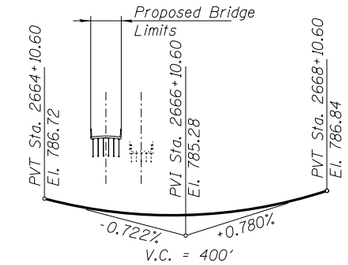
*SUPERELEVATION TRANSITION TABLE (F.A.I. 1-39)

Lane Designation	Superelevation -3.5%	Superelevation 3.5%	Re-Establish Normal Crown -2.0%	Re-Establish Normal Crown -1.5%	Re-Establish Normal Crown 1.5%	Re-Establish Normal Crown 2.0%
①	2661+19.80	-	2662+03.20	-	-	-
②	2661+19.80	-	-	2662+86.50	-	-
③	2661+19.80	-	-	-	2664+04.80	-
④	2661+19.80	-	-	-	-	2664+39.80
⑤	-	2661+19.80	-	-	-	2662+03.20
⑥	-	2661+19.80	-	-	2662+86.50	-
⑦	-	2661+19.80	-	2664+04.80	-	-
⑧	-	2661+19.80	2664+39.80	-	-	-

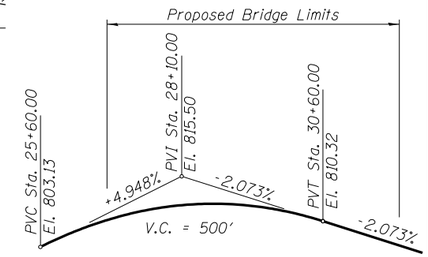
* Positive Cross Slopes Slope Upward from the P.G.L.
Negative Cross Slopes Slope Downward from the P.G.L.

CURVE DATA
F.A.I. 1-39

Δ = 50°-41'-00"
D = 0°-59'-59.92"
T = 2713.52'
L = 5068.45'
E = 610.07'
R = 5729.70'
S.E. = 3.5% (See Table)
P.C. = Sta. 2611+31.39
P.T. = Sta. 2661+99.84
P.I. = Sta. 2638+44.91

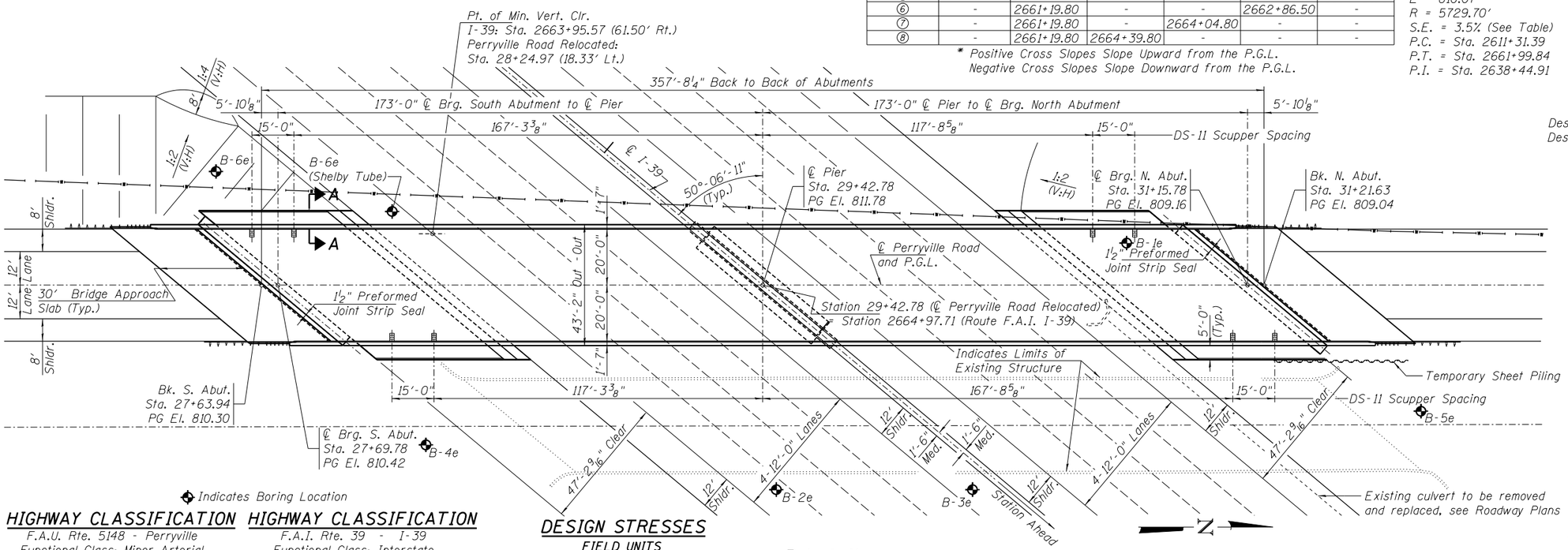


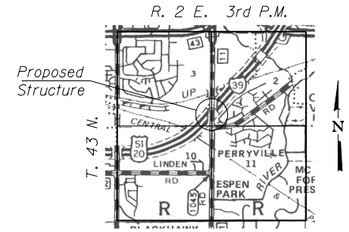
PROPOSED PROFILE
Along I-39 Inside E.O.P.



PROPOSED PROFILE
Along ℄ Perryville Road Relocated.
The profile grade shows the final elevations after grinding.

SEISMIC DATA
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.06
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.10
Soil Site Class = C





LOCATION SKETCH

Indicates Boring Location

HIGHWAY CLASSIFICATION

F.A.U. Rte. 5148 - Perryville
Functional Class: Minor Arterial
ADT: 8150 (2013); 15550 (2040)
ADTT: 489 (2013); 933 (2040)
DHV: 1555 (2040)
Design Speed: 45 m.p.h.
Posted Speed: 45 m.p.h.
2 -Way Traffic
Directional Distribution: 50:50

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39 - I-39
Functional Class: Interstate
ADT: 44600 (2013); 106610 (2040)
ADTT: 12950 (2013); 32000 (2040)
DHV: 10600 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
2 -Way Traffic
Directional Distribution: 50:50

DESIGN STRESSES
FIELD UNITS

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)*
* All Structural Steel shall be Metalized.

LOADING HL-93
Allow 50#/sq. ft. for future wearing surface.

P L A N

DESIGN SPECIFICATIONS
2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2016 Interims

GENERAL PLAN
PERRYVILLE ROAD over I-39 & U.S.20
F.A.U. 5148 - SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STA. 29+42.78
STRUCTURE NUMBER -101-0206

DESIGNED	MNM	02/14/08
DRAWN	RAH	02/14/08
REVIEWED	MNM	12/05/15

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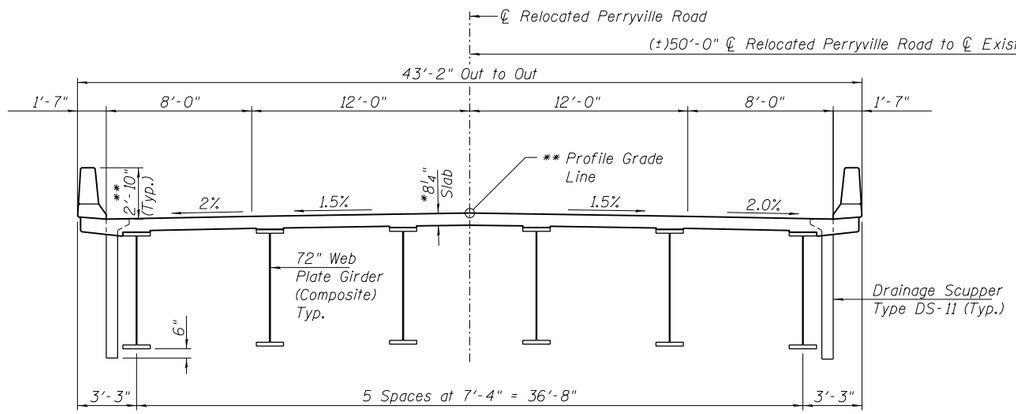
USER NAME = Johns00944	DESIGNED - MNM	REVISED	
	CHECKED - TEH	REVISED	
PLOT SCALE = 0.166667 ' / in.	DRAWN - RAH/RSJ	REVISED	
PLOT DATE = 3/7/2017	CHECKED - MNM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NUMBER 101-0206

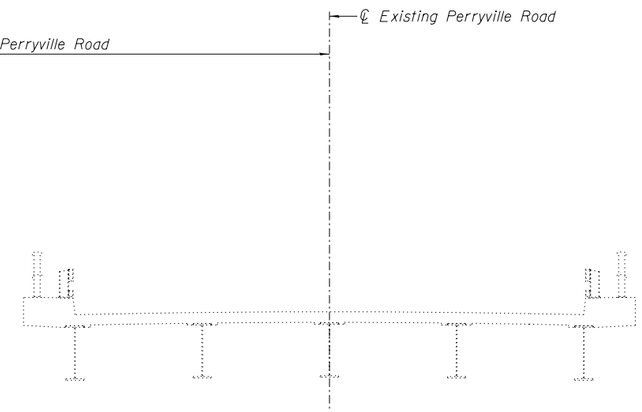
SHEET NO. 1 OF 2 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5148	(201-3)K & (4-1, 5)R	WINNEBAGO	2	1
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

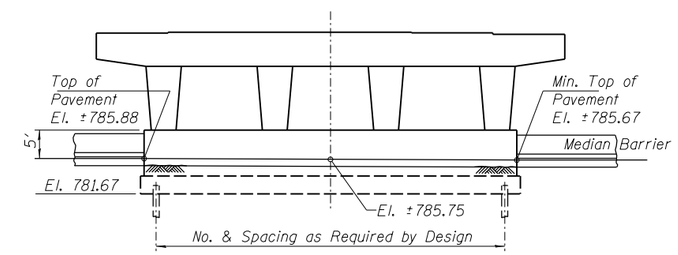


PROPOSED CROSS SECTION

* Prior to Grinding
** After Grinding

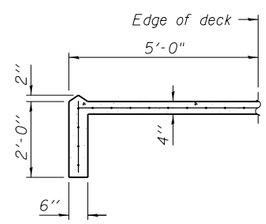


EXISTING CROSS SECTION

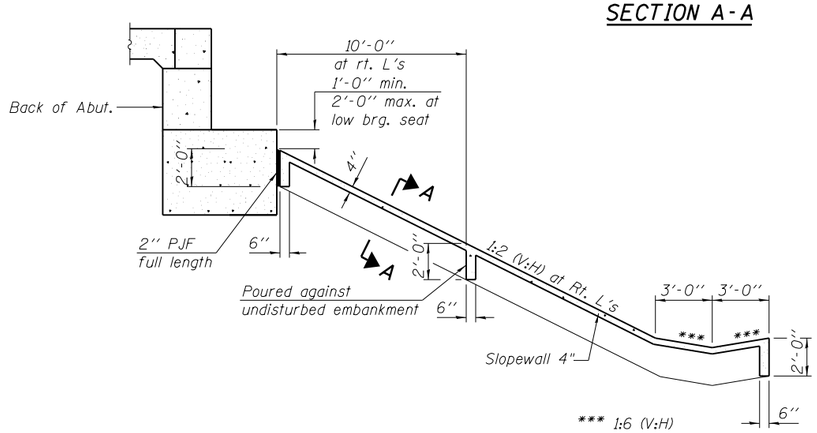


PIER SKETCH

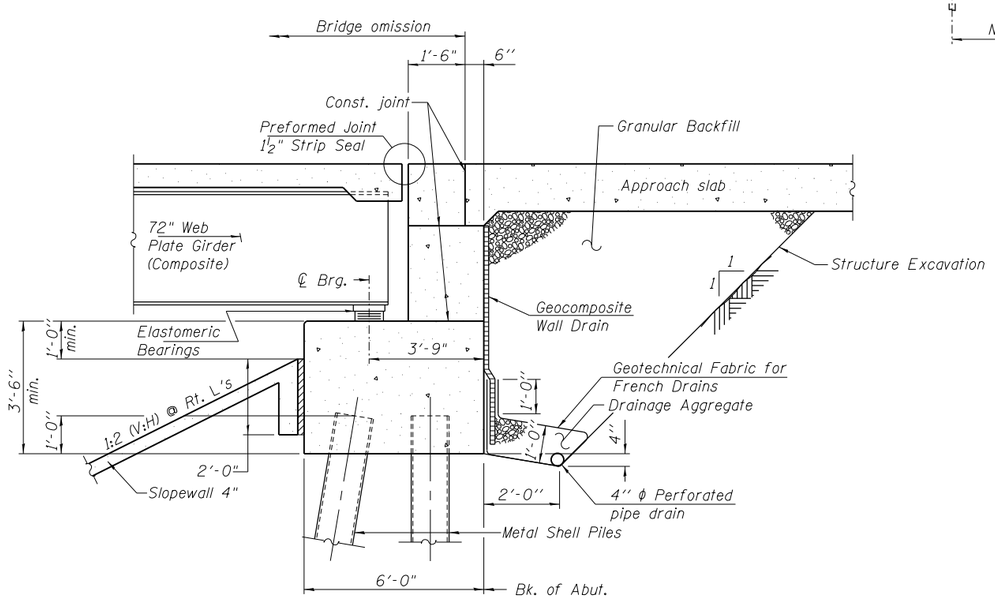
(Looking West)



SECTION A-A



SECTION THRU CONCRETE SLOPEWALL



SECTION THRU ABUTMENT

(Horiz. dim. @ Rt. L's)

DETAILS
PERRYVILLE ROAD over
I-39 & U.S.20
F.A.U. 5148 - SECTION (201-3)K & (4-1,5)R
WINNEBAGO COUNTY
STA. 29+42.78
STRUCTURE NUMBER -101-0206

DESIGNED	MNM	02/14/08
DRAWN	RAH	02/14/08
REVIEWED	MNM	12/05/15

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USER NAME = Johns00944	DESIGNED - MNM	REVISED ___	
	CHECKED - TEH	REVISED ___	
PLOT SCALE = 0.166667 ' / in.	DRAWN - RAH/RSJ	REVISED ___	
PLOT DATE = 3/7/2017	CHECKED - MNM	REVISED ___	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NUMBER 101-0206

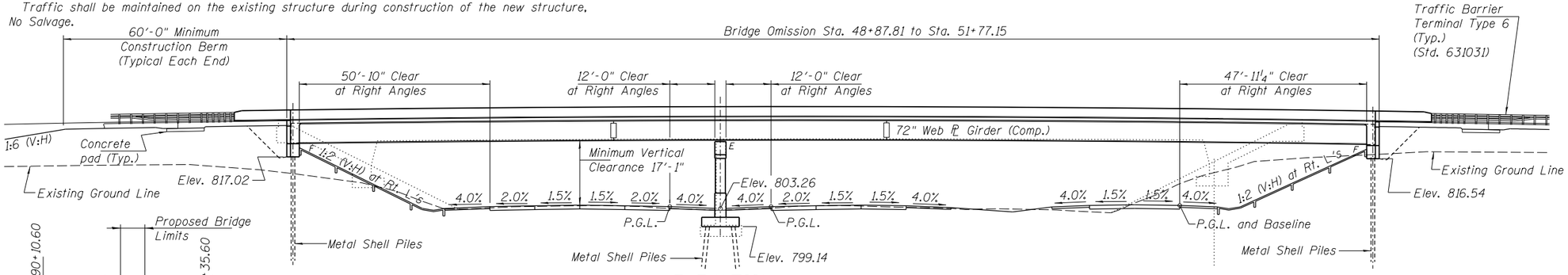
SHEET NO. 2 OF 2 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5148	(201-3)K & (4-1, 5)R	WINNEBAGO	2	2
		CONTRACT NO. ____		
		ILLINOIS FED. AID PROJECT		

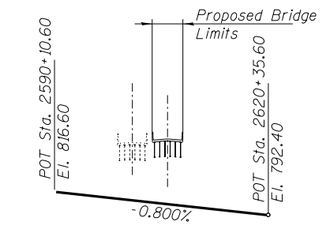
BM: # 316 2" Aluminum Disk on Approx. C/L of U.S. 20 - on pier base under Mulford Rd. - Elevation 805.75

Note: Up to ¼ inch may be ground off the bridge deck and the approach slabs.

Existing Structure (No. 101-0131)
Originally constructed in 1963 under FA 194, Section 4-HB-2, the structure was a 4 span, concrete deck on steel beam superstructure with concrete piers and pile bent abutments.
The structure was reconstructed in 1976 under FA 194, Section 201-3HB-3 as a 2 span concrete deck on continuous steel girder superstructure with concrete piers and closed sand filled pile bent abutments. The structure has a Bk. to Bk. = 274'-0" with an out-out of deck of 42'-0". The structure was repainted in 1999.
Traffic shall be maintained on the existing structure during construction of the new structure.
No Salvage.

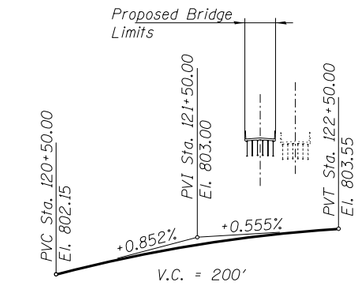


ELEVATION



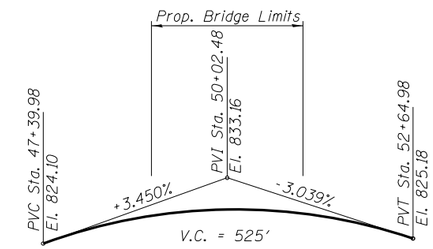
PROPOSED PROFILE

Along I-39 NBL and US-20 Inside E.O.P.



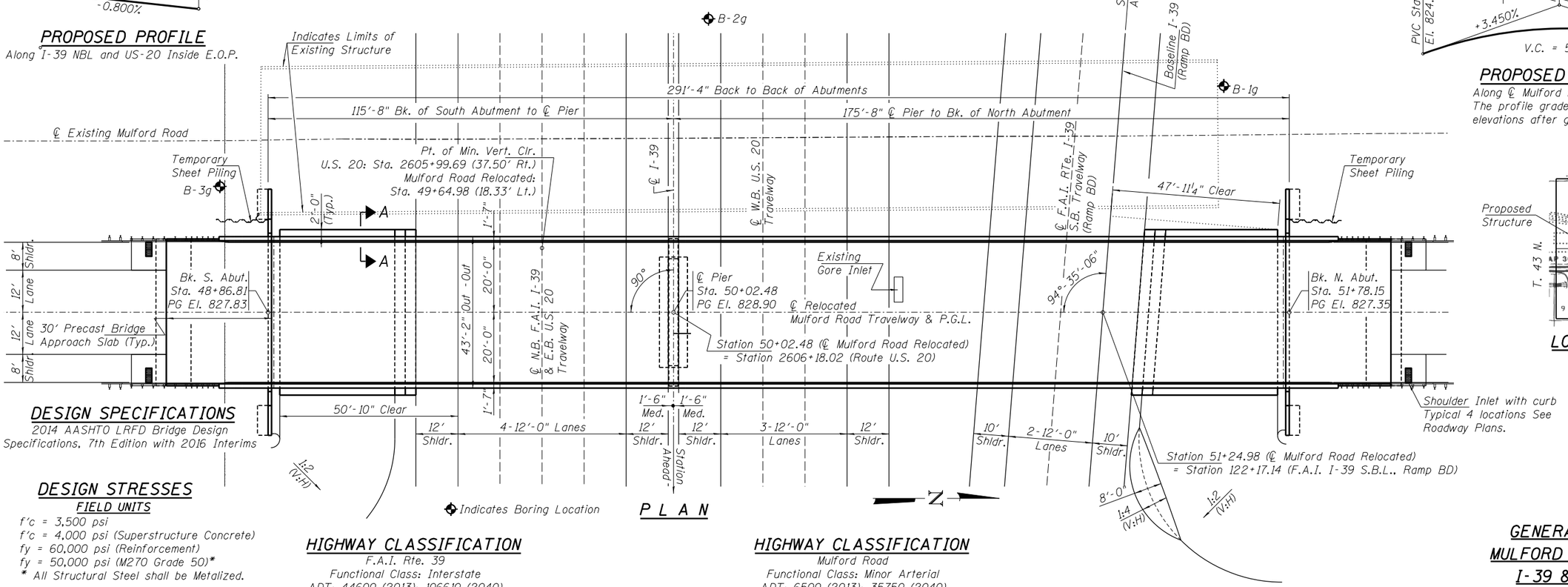
PROPOSED PROFILE

Along I-39 S.B.L. (Ramp BD) Outside E.O.P.

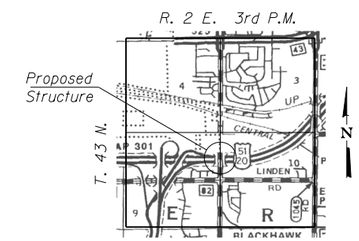


PROPOSED PROFILE

Along ℄ Mulford Road Relocated.
The profile grade shows the final elevations after grinding.



PLAN



LOCATION SKETCH

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2016 Interims

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)*
* All Structural Steel shall be Metalized.

PRECAST UNITS

f'c = 6,000 psi (Precast Bridge Approach Slab)

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39
Functional Class: Interstate
ADT: 44600 (2013); 106610 (2040)
ADTT: 12950 (2013); 32000 (2040)
DHV: 10600 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
2 -Way Traffic
Directional Distribution: 50/50

HIGHWAY CLASSIFICATION

Mulford Road
Functional Class: Minor Arterial
ADT: 6500 (2013); 35750 (2040)
ADTT: 520 (2013); 2860 (2040)
DHV: 3575 (2040)
Design Speed: 45 m.p.h.
Posted Speed: 45 m.p.h.
2 -Way Traffic
Directional Distribution: 50/50

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.080
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.135
Soil Site Class = D

GENERAL PLAN
MULFORD ROAD over
I-39 & U.S.20
F.A.U. 5147 - SECTION (201-3)K & (4-1,5)R
WINNEBAGO COUNTY
STA. 50+02.48
STRUCTURE NUMBER -101-0207

DESIGNED	MNM	02/14/08
DRAWN	RAH	02/14/08
REVIEWED	MNM	12/05/15

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USER NAME = Johns00944	DESIGNED - MNM	REVISED	
	CHECKED - TEH	REVISED	
PLOT SCALE = 0.166667 ' / in.	DRAWN - RAH/RSJ	REVISED	
PLOT DATE = 3/7/2017	CHECKED - MNM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NUMBER 101-0207

SHEET NO. 1 OF 2 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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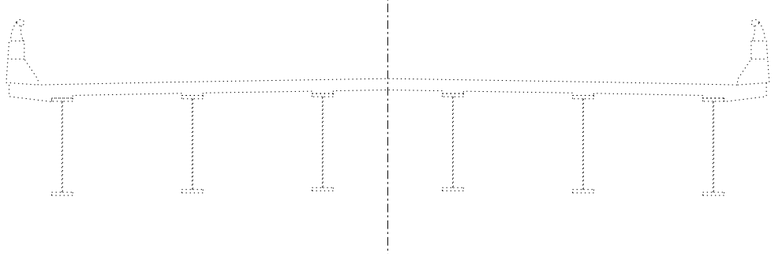
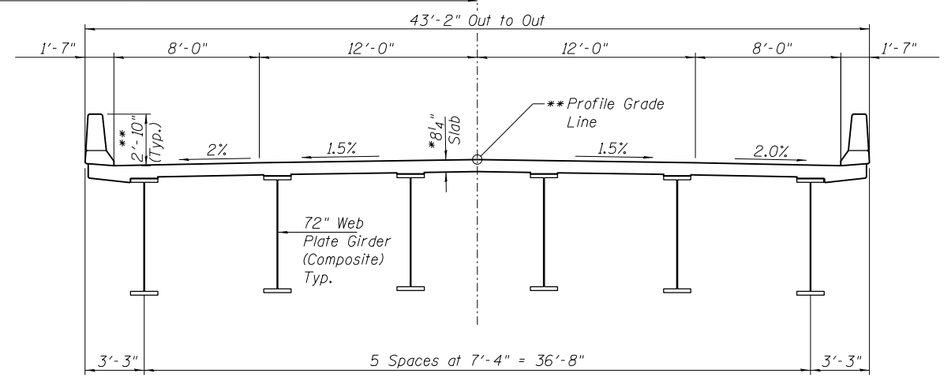
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

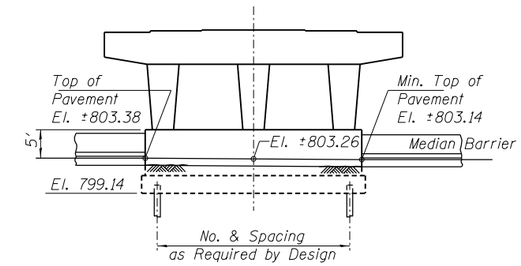


EXISTING CROSS SECTION



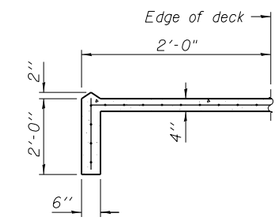
PROPOSED CROSS SECTION

* Prior to Grinding
** After Grinding

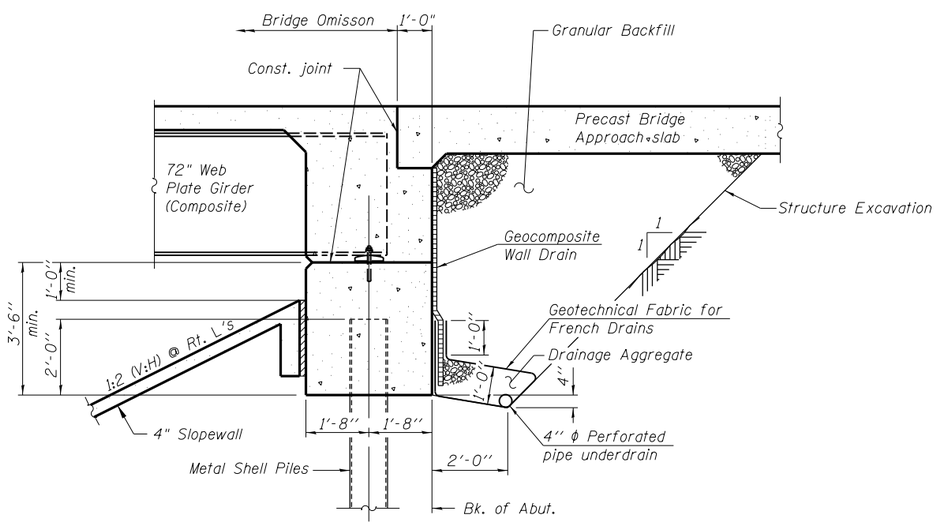


PIER SKETCH

(Looking North)

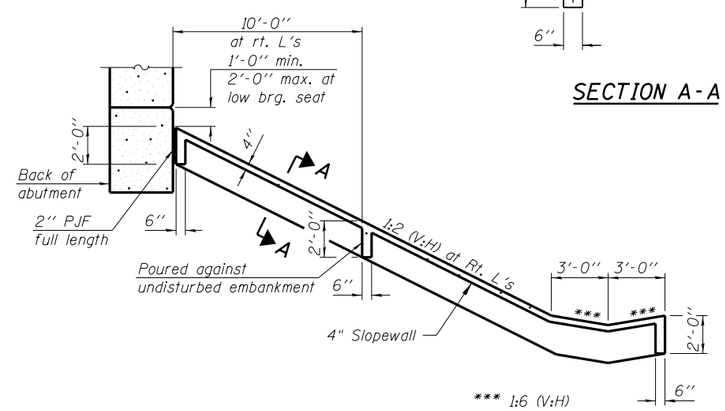


SECTION A-A



SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. L's)



SECTION THRU CONCRETE SLOPEWALL

DETAILS
MULFORD ROAD over
I-39 & U.S.20
F.A.U. 5147 SECTION (201-3)K & (4-1,5)R
WINNEBAGO COUNTY
STA. 50+02.48
STRUCTURE NUMBER -101-0207

DESIGNED	MNM	02/14/08
DRAWN	RAH	02/14/08
REVIEWED	MNM	12/05/15

I:\06jobs\06S2055\CADD\Struct\Sheet\1010207-XXXXX-TSL-Mulford.dgn

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HANSON
PROFESSIONAL DESIGN FIRM LICENSE #184-001984

USER NAME = Johns00944	DESIGNED - MNM	REVISED	
	CHECKED - TEH	REVISED	
PLOT SCALE = 0.166667 ′ / in.	DRAWN - RAH/RSJ	REVISED	
PLOT DATE = 3/7/2017	CHECKED - MNM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NUMBER 101-0207

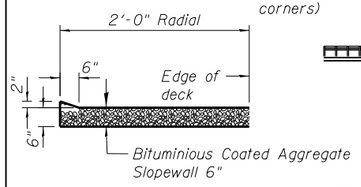
SHEET NO. 2 OF 2 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5147	(201-3)K & (4-1, 5)R	WINNEBAGO	2	2
		CONTRACT NO.		
		ILLINOIS FED. AID PROJECT		

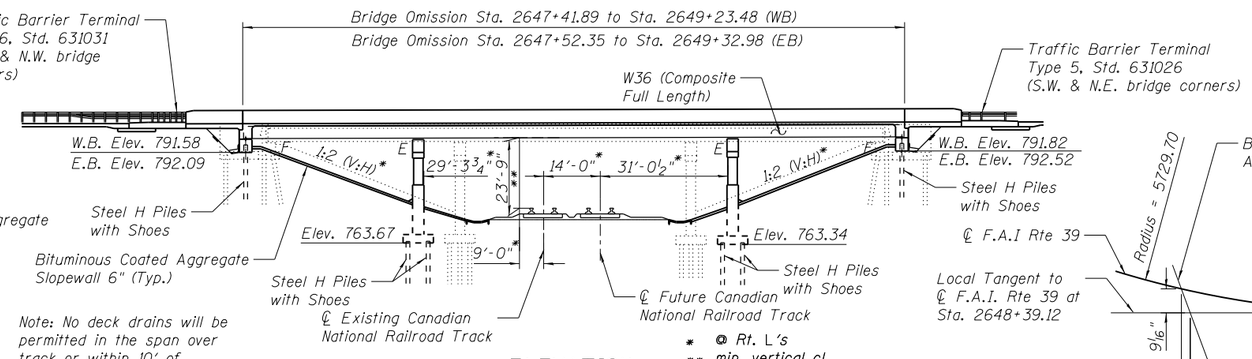
Bench Mark: B.M. 400-Cut "□" on southeast corner of S.N. 101-0067. Elevation = 800.52

Exisiting Structure: S.N. 101-0067 (E.B.) and S.N. 101-0068 (W.B.) built as F.A. Route 194, Section 4 VB at Station 796 +28.52 in 1963. Bridges widened and deck replaced in 1991 as F.A.I. Route 39, Section 4 VBY. Each superstructure consists of 3 spans of continous composite rolled steel beams. Each substructure consists of concrete stub abutments and concrete hammerhead piers supported on piles. Length = 169'-8" (back-to-back of abutments). Width of Eastbound Bridge = 42'-3" (out-to-out deck). Width of Westbound Bridge = 43'-2" (out to out deck). Traffic is to be maintained utilizing stage construction.

No Salvage

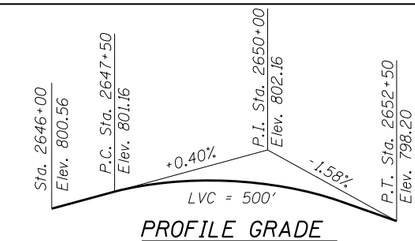


SECTION B-B



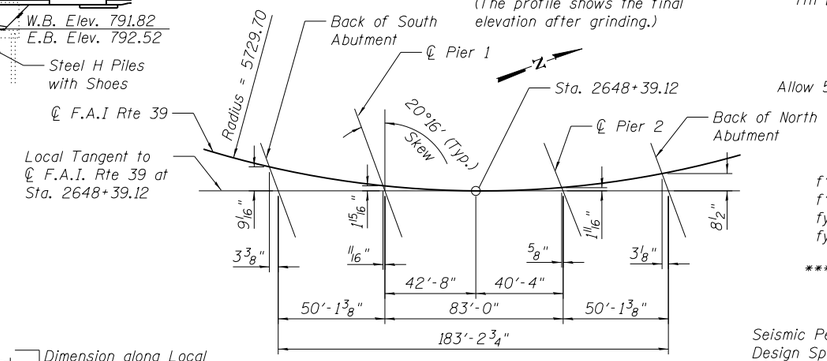
Note: No deck drains will be permitted in the span over track or within 10' of crossarms of a railraod pole line.

ELEVATION

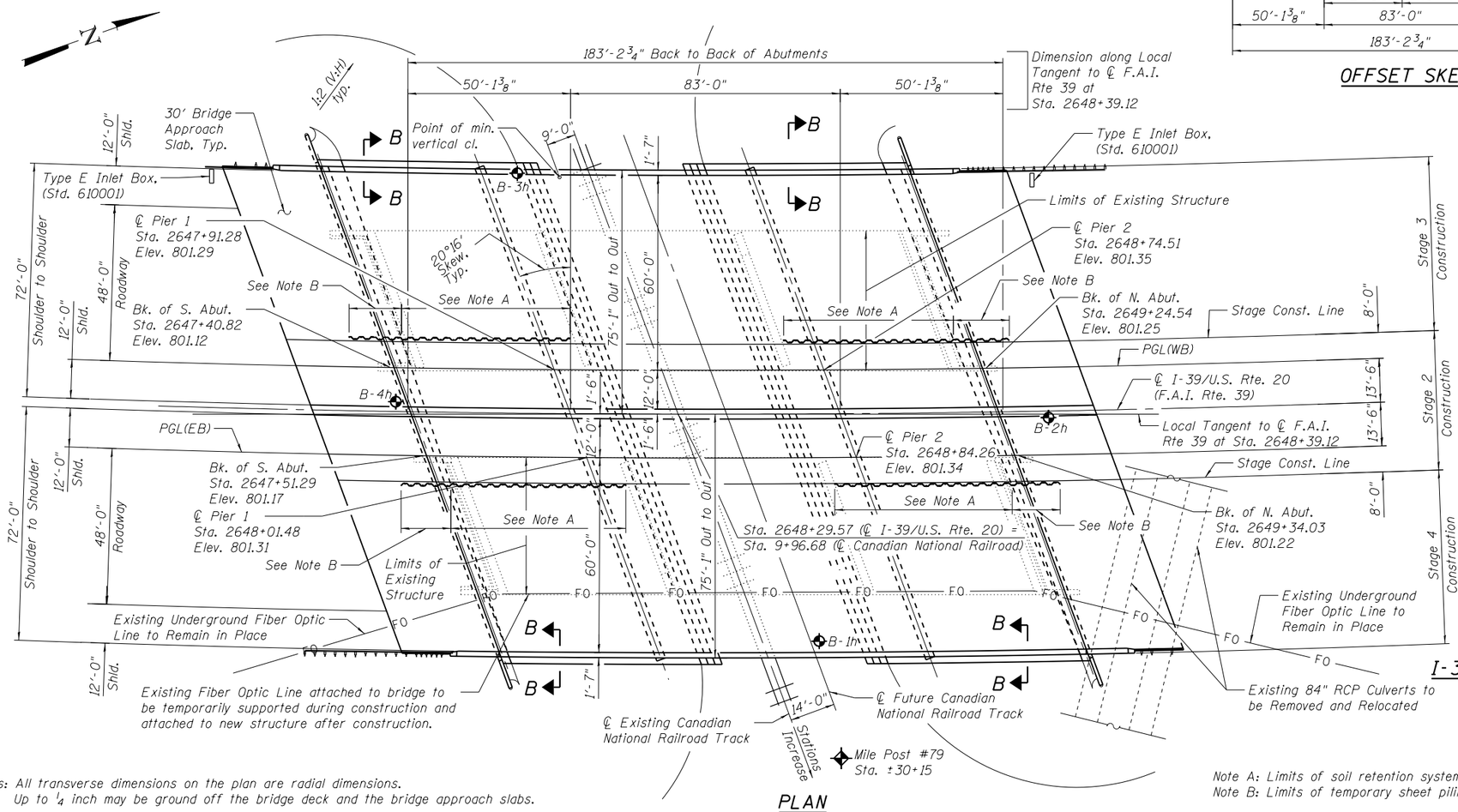


PROFILE GRADE

(Along Inside Edge of Roadways)
(The profile shows the final elevation after grinding.)



OFFSET SKETCH



PLAN

Notes: All transverse dimensions on the plan are radial dimensions.
Up to 1/4 inch may be ground off the bridge deck and the bridge approach slabs.

Note A: Limits of soil retention system
Note B: Limits of temporary sheet piling

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39 - I-39/U.S. Rte. 20
Functional Class: Interstate
ADT: 44,600 (2013); 106,610 (2040)
ADTT: 12,950 (2013); 32,000 (2040)
DHV: 10,600 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interims

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)***

*** Structural steel to be metalized.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.056g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.101g
Soil Site Class = C

TOP OF RAIL ELEVATIONS

(Canadian National Railroad)

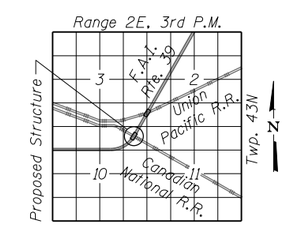
Sta. 7+37.75	Sta. 8+37.75	Sta. 9+37.75	Sta. 9+97.63	Sta. 10+57.35	Sta. 11+57.35	Sta. 12+57.35
Elev. 772.45	Elev. 771.95	Elev. 771.49	Elev. 771.14	Elev. 770.93	Elev. 770.49	Elev. 770.12

Indicates Soil Boring

HORIZ. CURVE DATA

℄ I-39/US Rte 20 (Exist.)

Δ = 50° 41' 00" (Lt)
D = 1° 00' 00"
R = 5,729.70'
T = 2713.52'
L = 5,068.45'
E. = 610.07'
S.E. = 3.5%
P.C. Sta. = 2611+31.39
P.I. Sta. = 2638+44.91
P.T. Sta. = 2661+99.84



LOCATION SKETCH

GENERAL PLAN & ELEVATION
I-39/U.S. ROUTE 20 OVER CANADIAN NATIONAL RAILROAD
F.A.I. RTE. 39 - SECTION (4-1,5)R
WINNEBAGO COUNTY
STA. 2648+29.57
STRUCTURE NUMBER 101-0208 (EB)
STRUCTURE NUMBER 101-0209 (WB)

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P 312.435.9966 | F 312.435.9964 | www.infrastructure-eng.com

USER NAME =	DESIGNED - SPK	REVISED -	
	CHECKED - PK	REVISED -	
PLOT SCALE =	DRAWN - RD/PK	REVISED -	
PLOT DATE =	CHECKED - SPK	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 3 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(4-1,5)R	WINNEBAGO		
		CONTRACT NO. 64C24		
		ILLINOIS FED. AID PROJECT		

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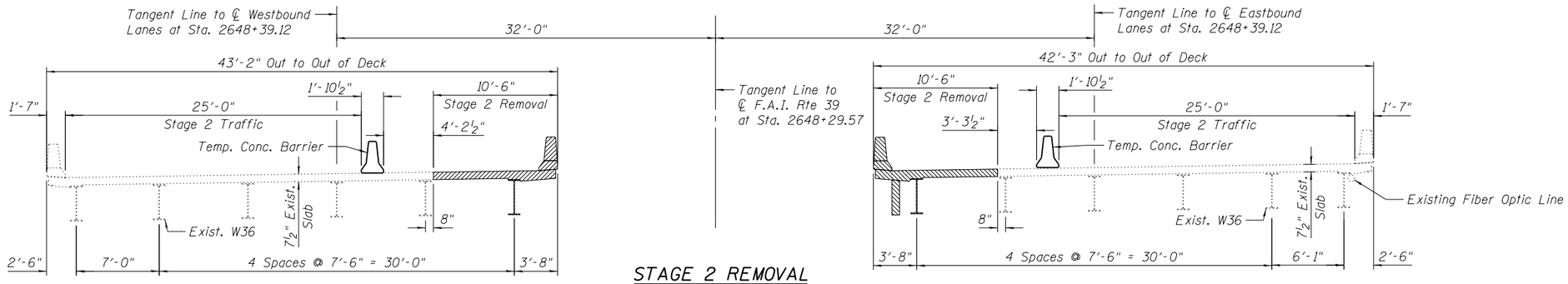
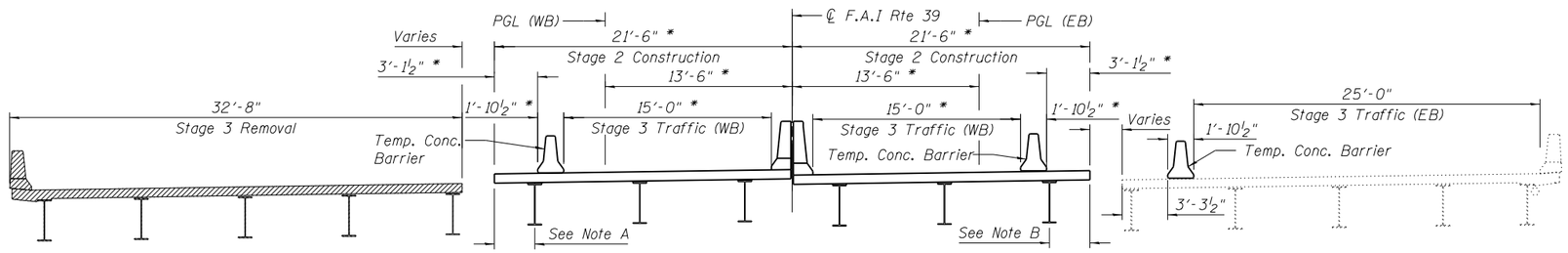
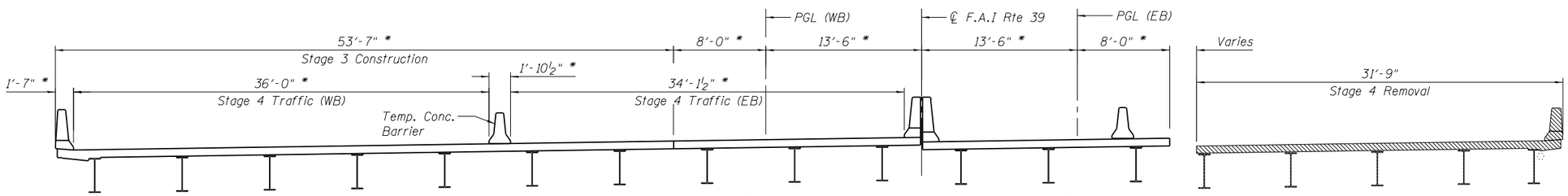
3/24/2017



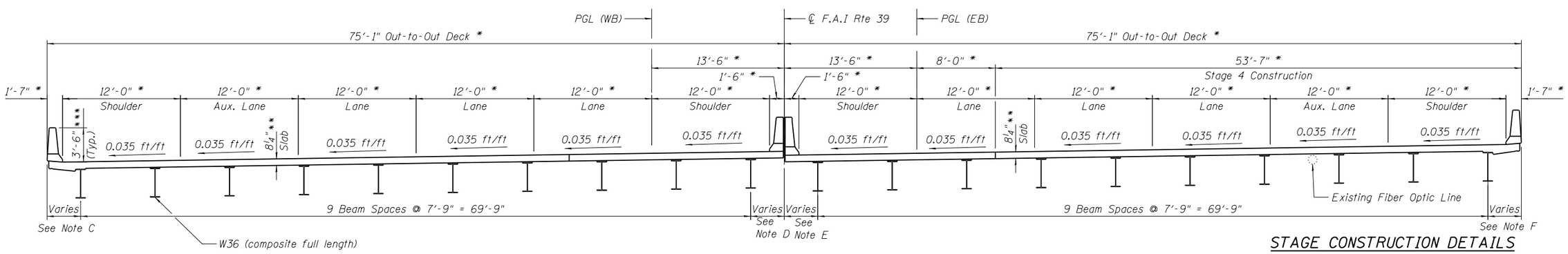
STAGE 2 REMOVAL



STAGE 3 REMOVAL & STAGE 2 CONSTRUCTION



STAGE 4 REMOVAL & STAGE 3 CONSTRUCTION



STAGE 4 CONSTRUCTION

Notes:

All staging cross sections are looking North. Hatched area indicates Removal of Existing Structure. Stage I construction consists of strengthening the outside shoulders adjacent to the existing roadway pavement.

Note A: 3'-4⅝" at ℄ Bearing Abutments
2'-8" at Center of Bridge

Note B: 2'-8" at ℄ Bearing Abutments
3'-4⅝" at Center of Bridge

Note C: 2'-8⅝" at ℄ Bearing Abutments
2'-0" at Center of Bridge

Note D: 2'-7⅜" at ℄ Bearing Abutments
3'-4" at Center of Bridge

Note E: 3'-4" at ℄ Bearing Abutments
2'-7⅜" at Center of Bridge

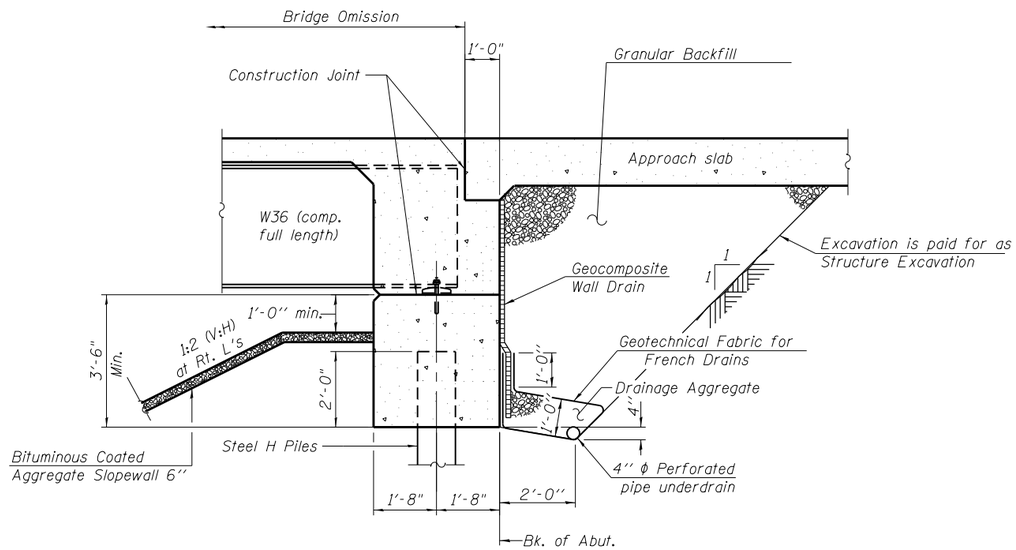
Note F: 2'-0" at ℄ Bearing Abutments
2'-8⅝" at Center of Bridge

* Radial dimension

** Prior to grinding

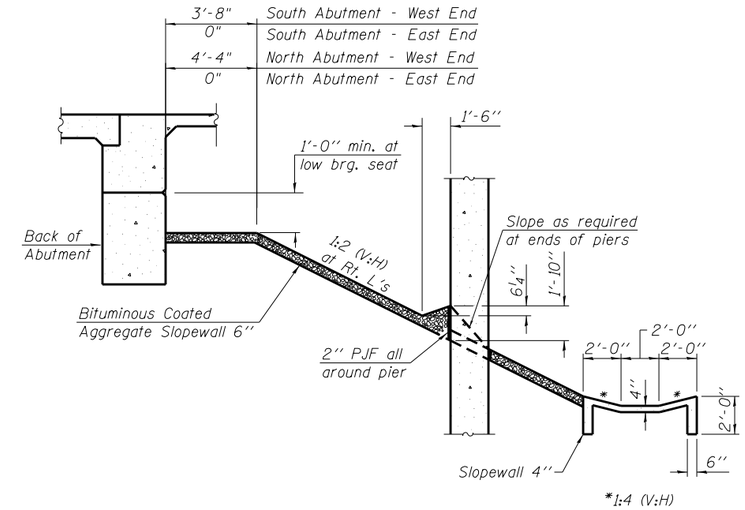
*** After grinding

STAGE CONSTRUCTION DETAILS
I-39/U.S. ROUTE 20 OVER CANADIAN NATIONAL RAILROAD
F.A.I. RTE. 39 - SECTION (4-1,5)R
WINNEBAGO COUNTY
STA. 2648+29.57
STRUCTURE NUMBER 101-0208 (EB)
STRUCTURE NUMBER 101-0209 (WB)



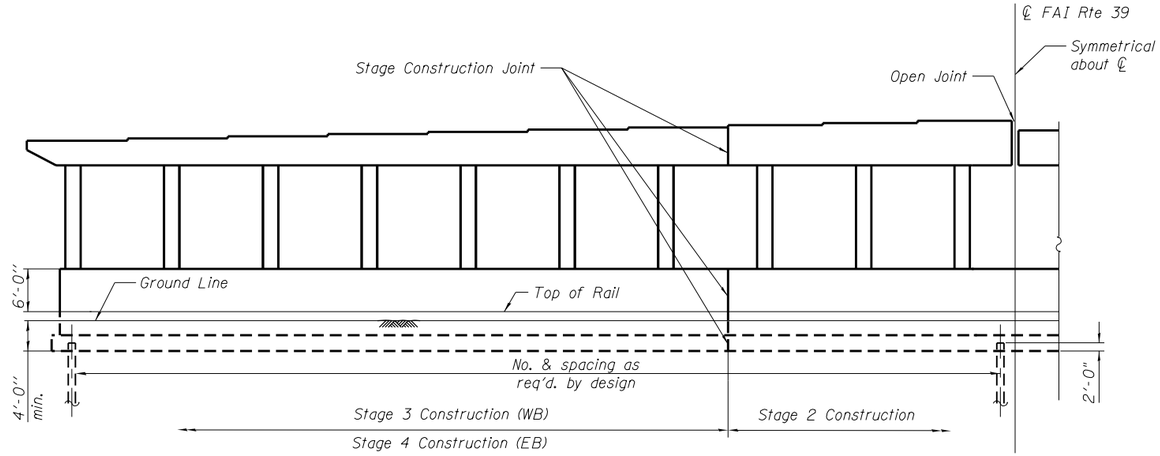
SECTION THRU ABUTMENT

(Horiz. dim. @ Rt. L's)



SECTION THRU BITUMINOUS COATED AGGREGATE SLOPEWALL

(Horiz. dim. @ Rt. L's)



PIER SKETCH

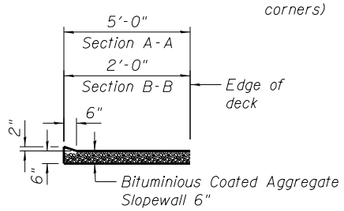
Note: Number of columns to be determined in design phase.

MISCELLANEOUS DETAILS
I-39/U.S. ROUTE 20 OVER CANADIAN NATIONAL RAILROAD
F.A.I. RTE. 39 - SECTION (4-1,5)R
WINNEBAGO COUNTY
STA. 2648+29.57
STRUCTURE NUMBER 101-0208 (EB)
STRUCTURE NUMBER 101-0209 (WB)

Bench Mark: BM#402 - Cut square in southeast wingwall of S.N. 101-0070. Elevation 796.69

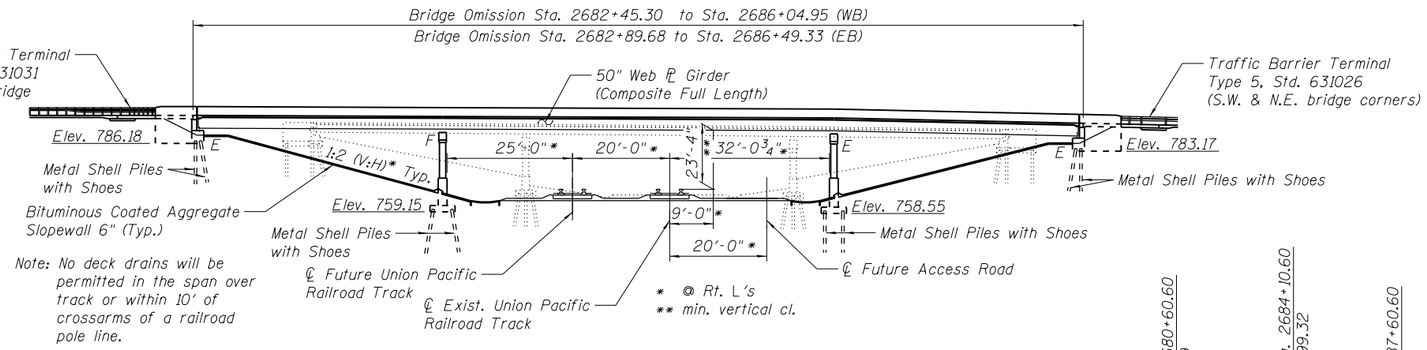
Exisiting Structure: S.N. 101-0069 (W.B.) and S.N. 101-0070 (E.B.) built as F.A. Route 194, Section 4 VB-1 at Station 832 +49.16 in 1963. Bridges widened and deck replaced in 1991 as F.A.I. Route 39, Section 4 VBY-1. Each superstructure consists of 3 spans of continous composite rolled steel beams with partial length flange cover plates. Each substructure consists of concrete stub abutments and concrete 5 column piers supported on piles. Length = 279'-8½" (back-to-back of abutments). Width = 42'-2" (out-to-out deck). Traffic is to be maintained utilizing stage construction.

No Salvage



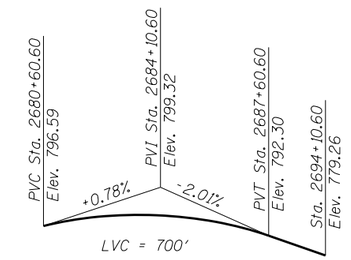
SECTION A-A

SECTION B-B



ELEVATION

Note A: Limits of soil retention system
Note B: Limits of temporary sheet piling



PROFILE GRADE F.A.I. RTE 39

(Along Inside Edge of Roadways)

(The profile grade shows the final elevation after grinding.)

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39 - I-39/U.S. Rte. 20
Functional Class: Interstate
ADT: 44,600 (2013); 106,610 (2040)
ADTT: 12,950 (2013); 32,000 (2040)
DHV: 10,600 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interims

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50) ***

*** Structural steel to be metalized.

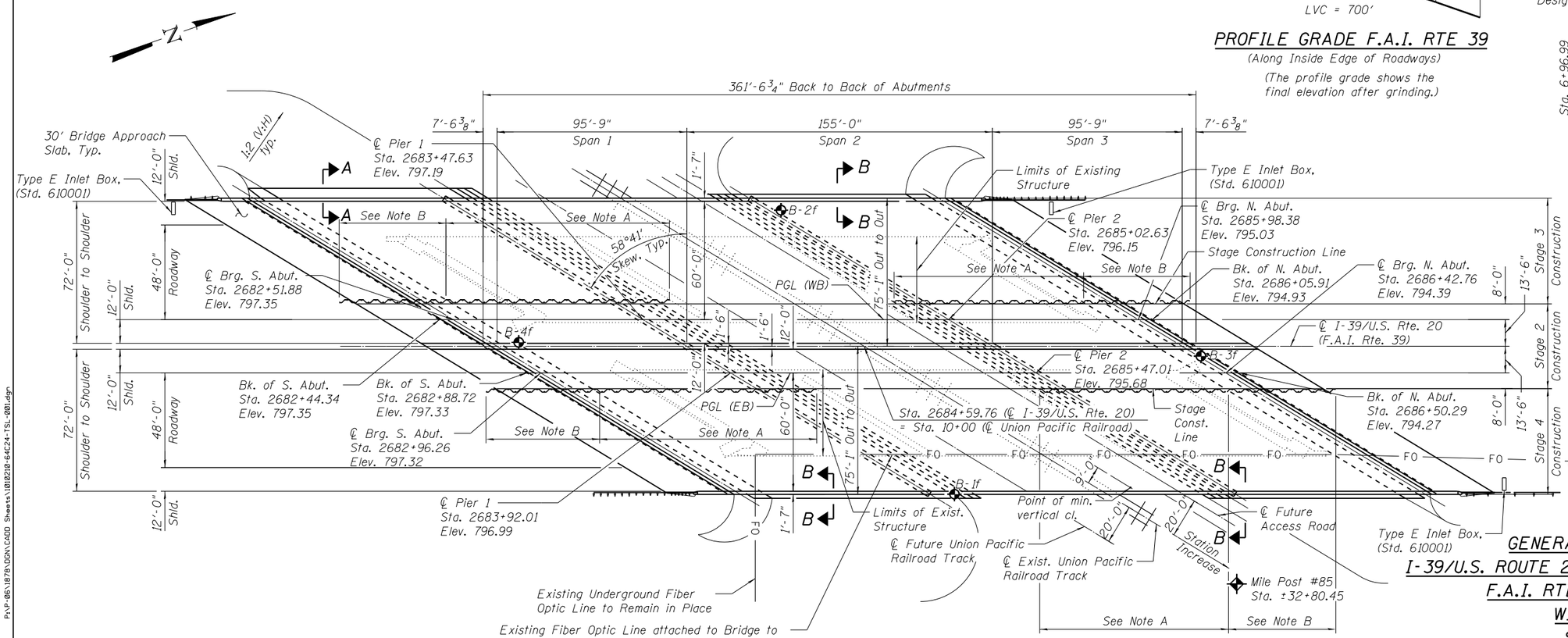
SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.079g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) =0.135g
Soil Site Class = D

Sta. 6+96.99	Elev. 768.46
Sta. 7+96.99	Elev. 767.91
Sta. 8+96.99	Elev. 767.47
Sta. 10+04.09	Elev. 766.91
Sta. 11+11.79	Elev. 766.23
Sta. 12+11.79	Elev. 765.88
Sta. 13+11.79	Elev. 765.47

TOP OF RAIL ELEVATIONS

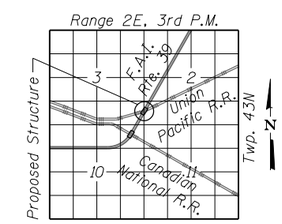
(Union Pacific Railroad)



PLAN

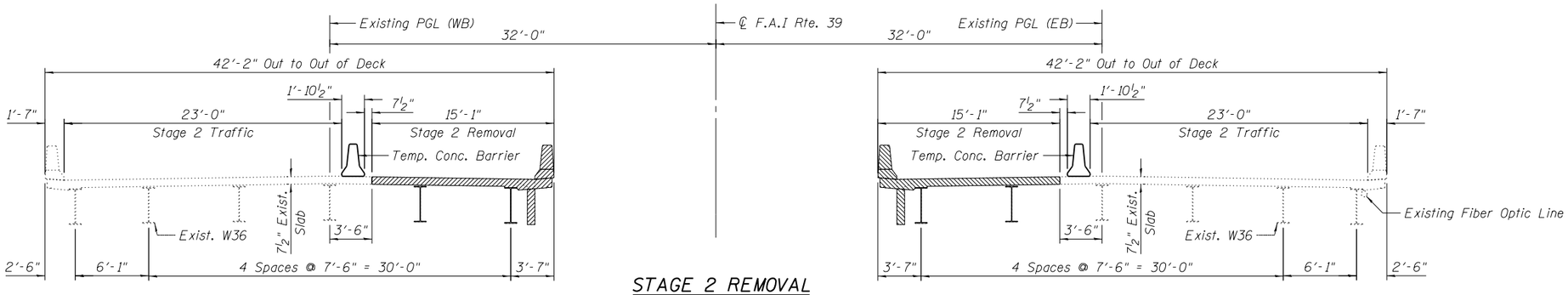
Note: Up to ¼ inch may be ground off the bridge deck and the bridge approach slabs.

Indicates Soil Boring Location

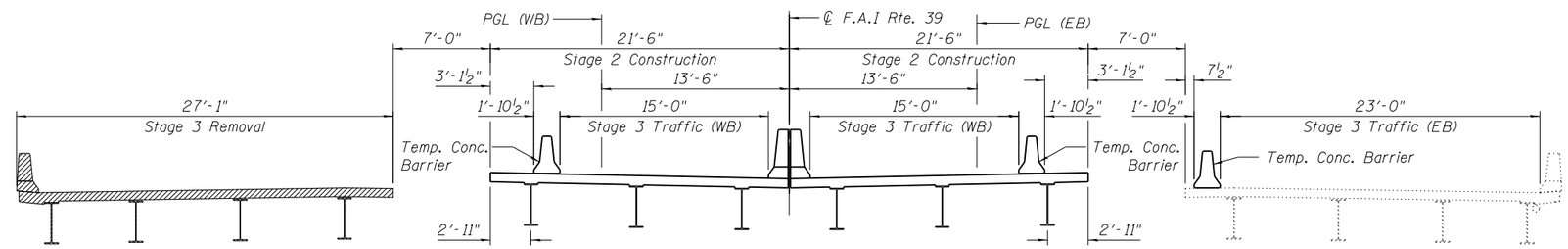


LOCATION SKETCH

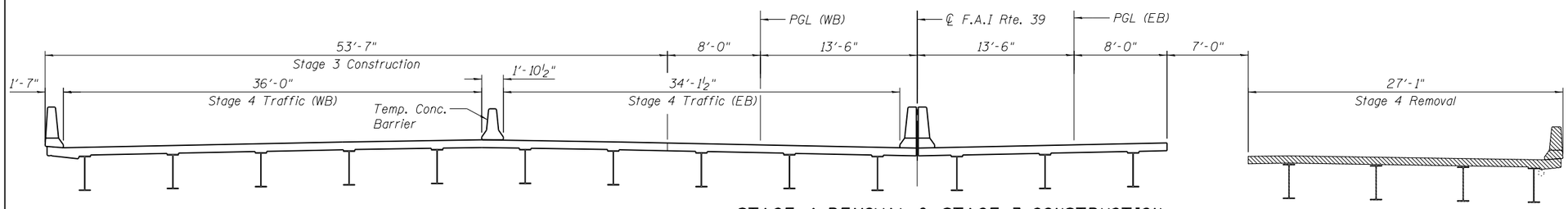
GENERAL PLAN & ELEVATION
I-39/U.S. ROUTE 20 OVER UNION PACIFIC RAILROAD
F.A.I. RTE. 39 - SECTION (4-1,5)R
WINNEBAGO COUNTY
STA. 2684+59.76
STRUCTURE NUMBER 101-0210 (WB)
STRUCTURE NUMBER 101-0211 (EB)



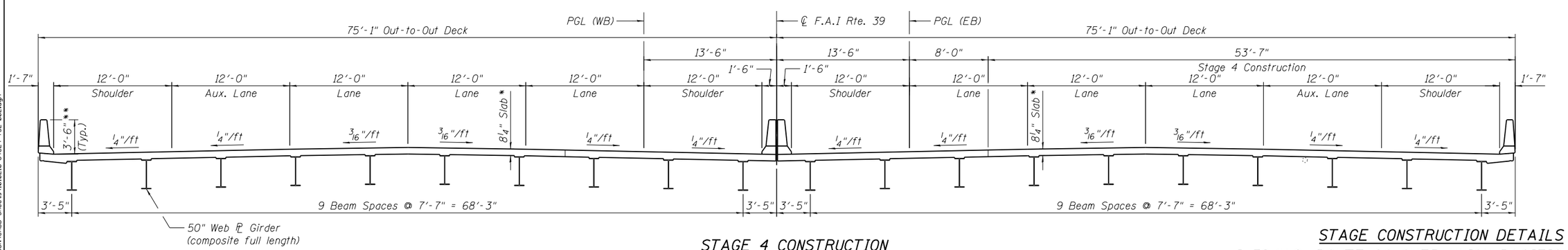
STAGE 2 REMOVAL



STAGE 3 REMOVAL & STAGE 2 CONSTRUCTION



STAGE 4 REMOVAL & STAGE 3 CONSTRUCTION



STAGE 4 CONSTRUCTION

Notes:

All staging cross sections are looking North.
Hatched area indicates Removal of Existing Structure.
Stage I consists of strengthening the outside shoulders adjacent to the existing roadway pavement.

Existing piers supporting the westbound lanes are to remain in place until Stage 3 superstructure removal has been completed.

Existing piers supporting the eastbound lanes are to remain in place until Stage 4 superstructure removal has been completed.

* Prior to grinding
** After grinding

STAGE CONSTRUCTION DETAILS
I-39/U.S. ROUTE 20 OVER UNION PACIFIC RAILROAD
F.A.I. RTE. 39 - SECTION (4-1,5)R
WINNEBAGO COUNTY
STA. 2684+59.76
STRUCTURE NUMBER 101-0210 (WB)
STRUCTURE NUMBER 101-0211 (EB)

INFRASTRUCTURE ENGINEERING | INCORPORATED
33 West Monroe | Suite 1540 | Chicago, IL 60603
P 312.425.9560 | F 312.425.9564 | www.infrastructure-eng.com

USER NAME = ____	DESIGNED - SPK	REVISED - ____
	CHECKED - PK	REVISED - ____
PLOT SCALE = ____	DRAWN - PK	REVISED - ____
PLOT DATE = ____	CHECKED - SPK	REVISED - ____

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 2 OF 3 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(4-1,5)R	WINNEBAGO	____	____
		CONTRACT NO. 64C24		
		ILLINOIS FED. AID PROJECT		

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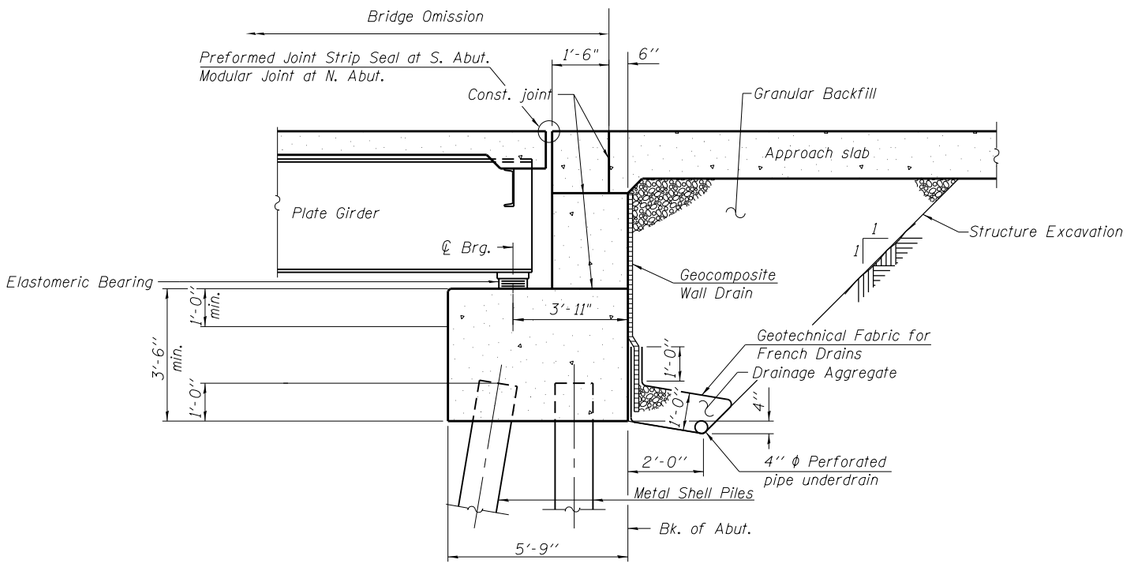
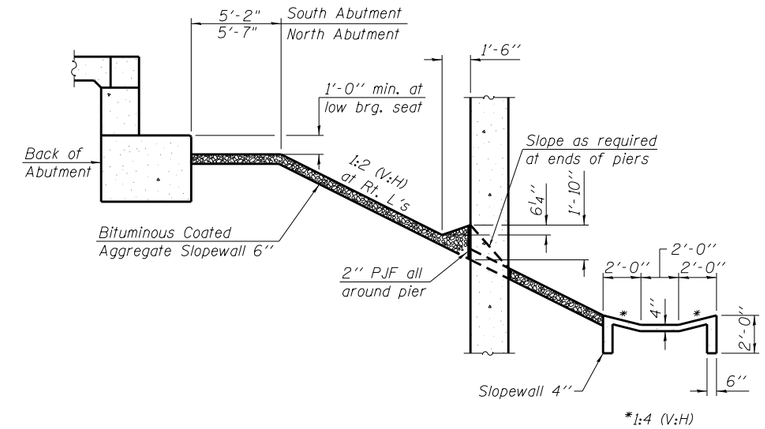


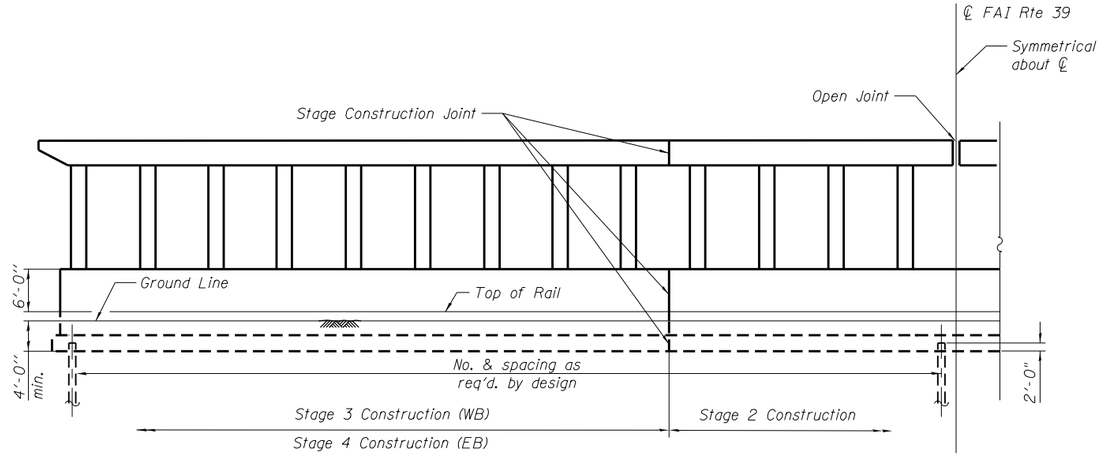
SECTION THRU ABUTMENT

(Horiz. dim. @ Rt. L's)



SECTION THRU BITUMINOUS COATED AGGREGATE SLOPEWALL

(Horiz. dim. @ Rt. L's)

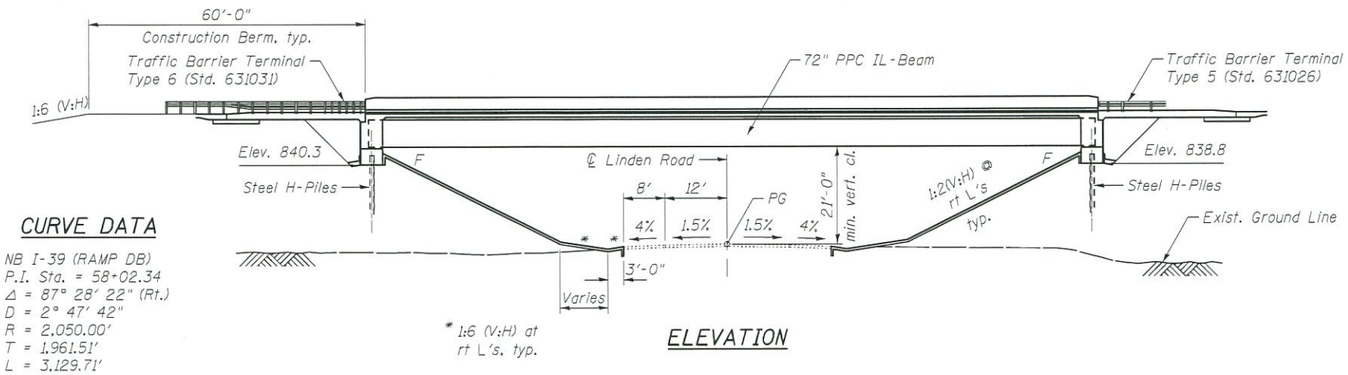


PIER SKETCH

MISCELLANEOUS DETAILS
I-39/U.S. ROUTE 20 OVER UNION PACIFIC RAILROAD
F.A.I. RTE. 39 - SECTION (4-1,5)R
WINNEBAGO COUNTY
STA. 2684+59.76
STRUCTURE NUMBER 101-0210 (WB)
STRUCTURE NUMBER 101-0211 (EB)

Benchmark: Cut "□" south side of eastern base of 30 mph ramp sign located east of the ramp connecting I-39 NB to US 20 West (Ramp DA) 0.1 mile north of the centerline of Linden Road. Elev. 851.37. 42°-13'-06.37" N. 89°-00'-39.64" W.

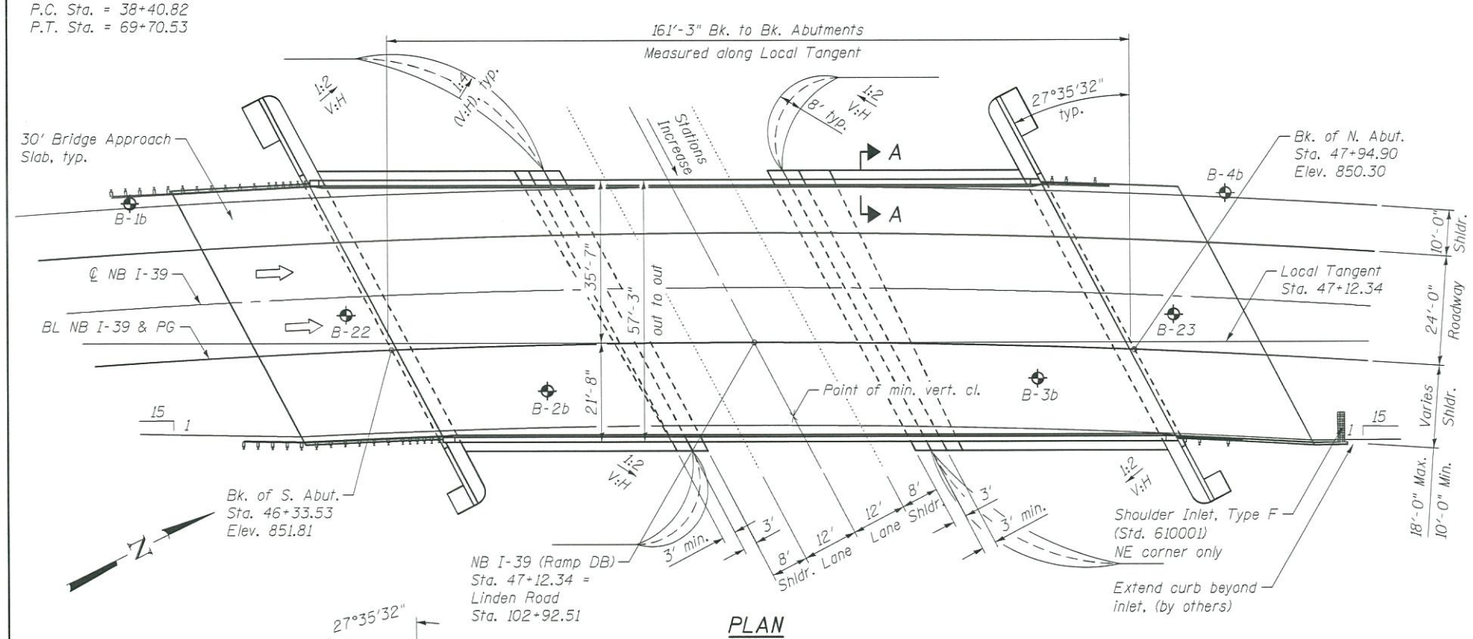
Existing Structure: None



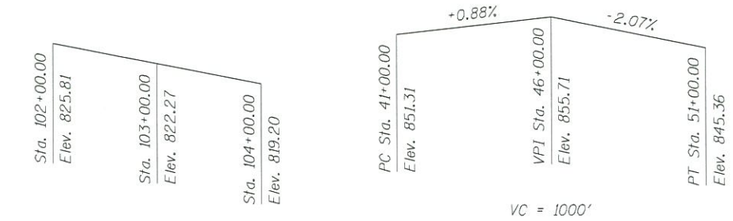
ELEVATION

CURVE DATA

NB I-39 (RAMP DB)
P.I. Sta. = 58+02.34
Δ = 87° 28' 22" (Rt.)
D = 2° 47' 42"
R = 2,050.00'
T = 1,961.51'
L = 3,129.71'
E = 787.26
SE = 6%
P.C. Sta. = 38+40.82
P.T. Sta. = 69+70.53



PLAN



EXISTING PROFILE GRADE
Along ℄ Linden Road

PROFILE GRADE
Along BL NB I-39 (Ramp DB)

Note: The profile grade shows the final elevations after grinding

HIGHWAY CLASSIFICATION

F.A.U. Rte. 5118 - Linden Road
Functional Class: Minor Arterial
ADT: 6650 (2013); 18,000 (2040)
ADTT: 330 (2013); 900 (2040)
DHV: 1805 (2040)
Design Speed: 45 m.p.h.
Posted Speed: 45 m.p.h.
Two-Way Traffic
Directional Distribution: 50/50

F.A.I. Rte. 39 - NB I-39 Ramp DB
Functional Class: Interstate
ADT: 10,500 (2013); 30,200 (2040)
ADTT: 4400 (2013); 12,700 (2040)
DHV: 3000 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
One-Way Traffic

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interims

DESIGN STRESSES

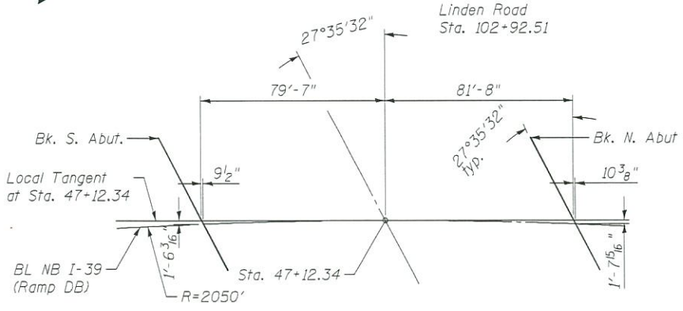
FIELD UNITS
f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS
f'c = 8,500 psi
f'ci = 7,000 psi
fpu = 270,000 psi (0.6" Φ low lax. strands)
fpbt = 202,300 psi (0.6" Φ low lax. strands)

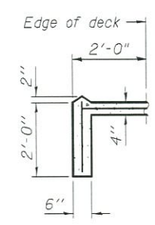
SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.056 g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.102 g
Soil Site Class = C

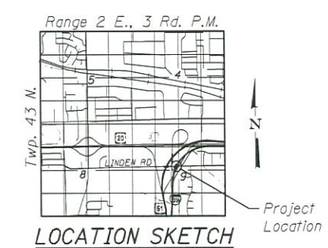
Note: Up to 1/4 inch may be ground off the bridge deck and the bridge approach slabs.



OFFSET SKETCH



SECTION A-A



LOCATION SKETCH

APPROVED
MAR 08 2017
AS A BASIS FOR PREPARATION OF DETAILED PLANS

GENERAL PLAN
NB I-39 (RAMP DB) OVER LINDEN ROAD
F.A.I. RTE. 39 SEC. (201-3)K & (4-1,5)K
WINNEBAGO COUNTY
STATION 47+12.34
STRUCTURE NO. 101-0212

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003525

USER NAME = myoung	DESIGNED - CME	REVISED -	
	CHECKED - MCB	REVISED -	
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PLOT DATE = 3/8/2017	CHECKED - MCB	REVISED -	

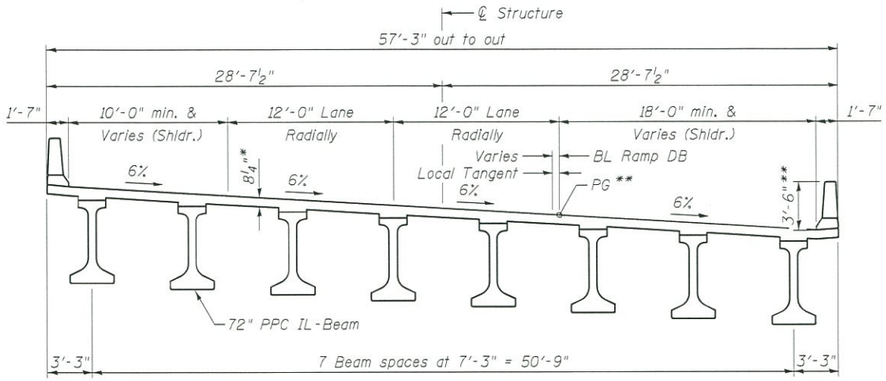
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 2 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1,5)K	WINNEBAGO		
		CONTRACT NO. 64C62		
	ILLINOIS FED. AID PROJECT			

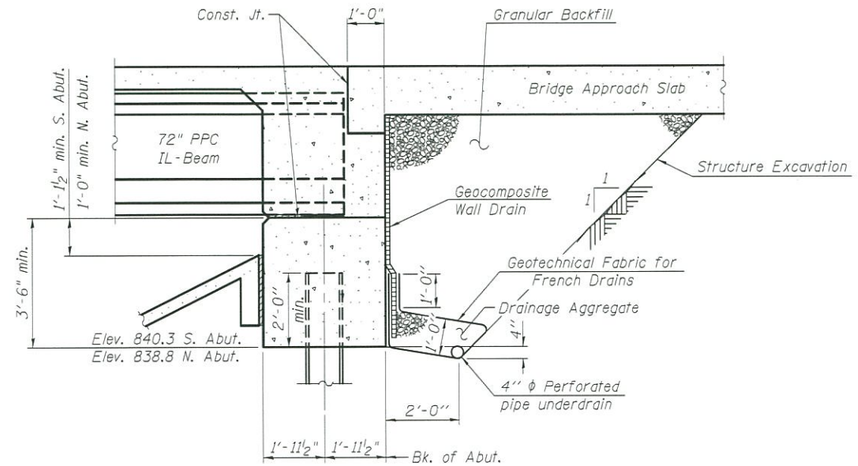
FEHR GRAHAM PROJECT NUMBER: 15-1002 CB PROJ. NO.: 06085

FILE NAME = ...\sn101-0212\101212-001-ts1.dgn



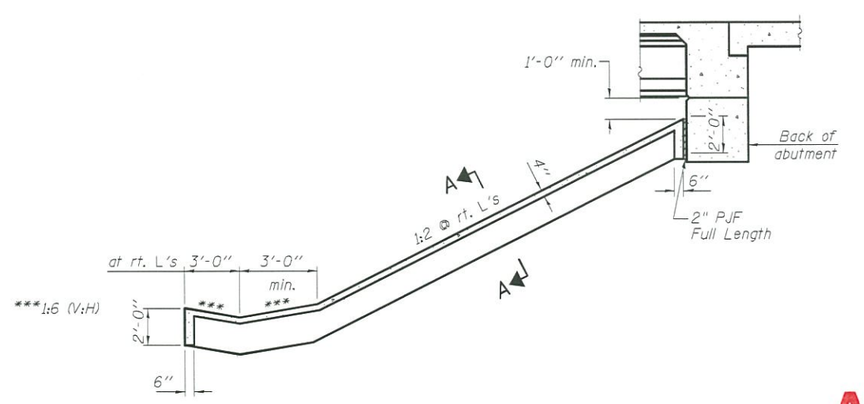
CROSS SECTION
(Looking North)

*Prior to Grinding
**After Grinding



SECTION THRU INTEGRAL ABUTMENT
(Horiz. dim. @ Rt. L's)

Note:
Pile embedment depth may need to be increased due to superelevation increasing cap depth.



Note: See Sheet 1 of 2 for Section A-A.

SECTION THRU
CONCRETE SLOPEWALL

APPROVED
MAR 08 2017
AS A BASIS FOR
PREPARATION OF DETAILED PLANS

GENERAL PLAN
NB I-39 (RAMP DB) OVER LINDEN ROAD
F.A.I. RTE. 39 SEC. (201-3)K & (4-1,5)K
WINNEBAGO COUNTY
STATION 47+12.34
STRUCTURE NO. 101-0212

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003525	USER NAME = myoung	DESIGNED - CME	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
		CHECKED - MCB	REVISED -			39	(201-3)K & (4-1,5)K	WINNEBAGO	
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	PLOT DATE = 3/8/2017	CHECKED - MCB	REVISED -		SHEET NO. 2 OF 2 SHEETS			ILLINOIS FED. AID PROJECT	

FEHR GRAHAM PROJECT NUMBER: 15-1002 CB PROJ. NO.: 06085

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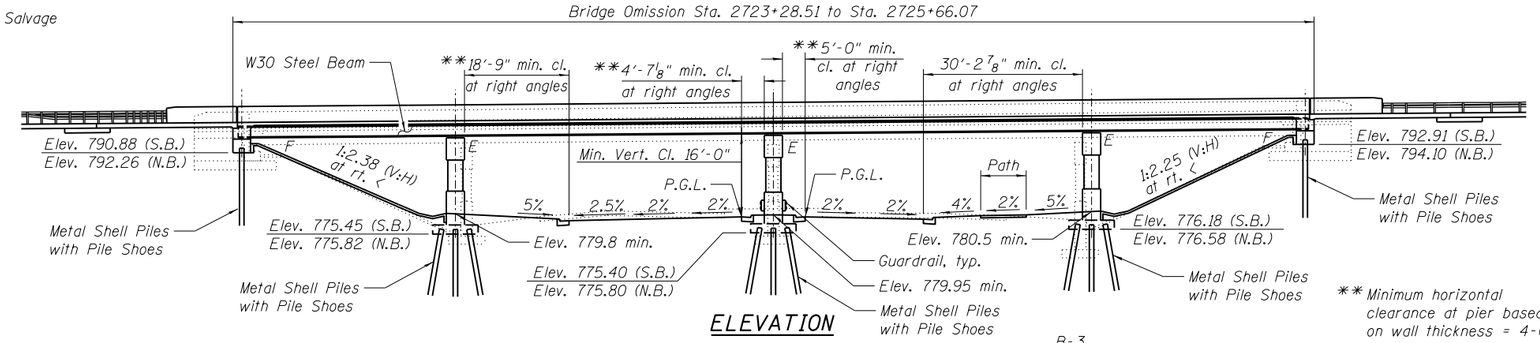
Bench Mark: B.M. 405 - N-2030863.68, E-2621037.13 - Elev. 770.67 - N.W. bolt on northerly overhead sign post of "Belvidere Exit 122A" sign. Approx. 400' into ramp. (East side of Ramp).

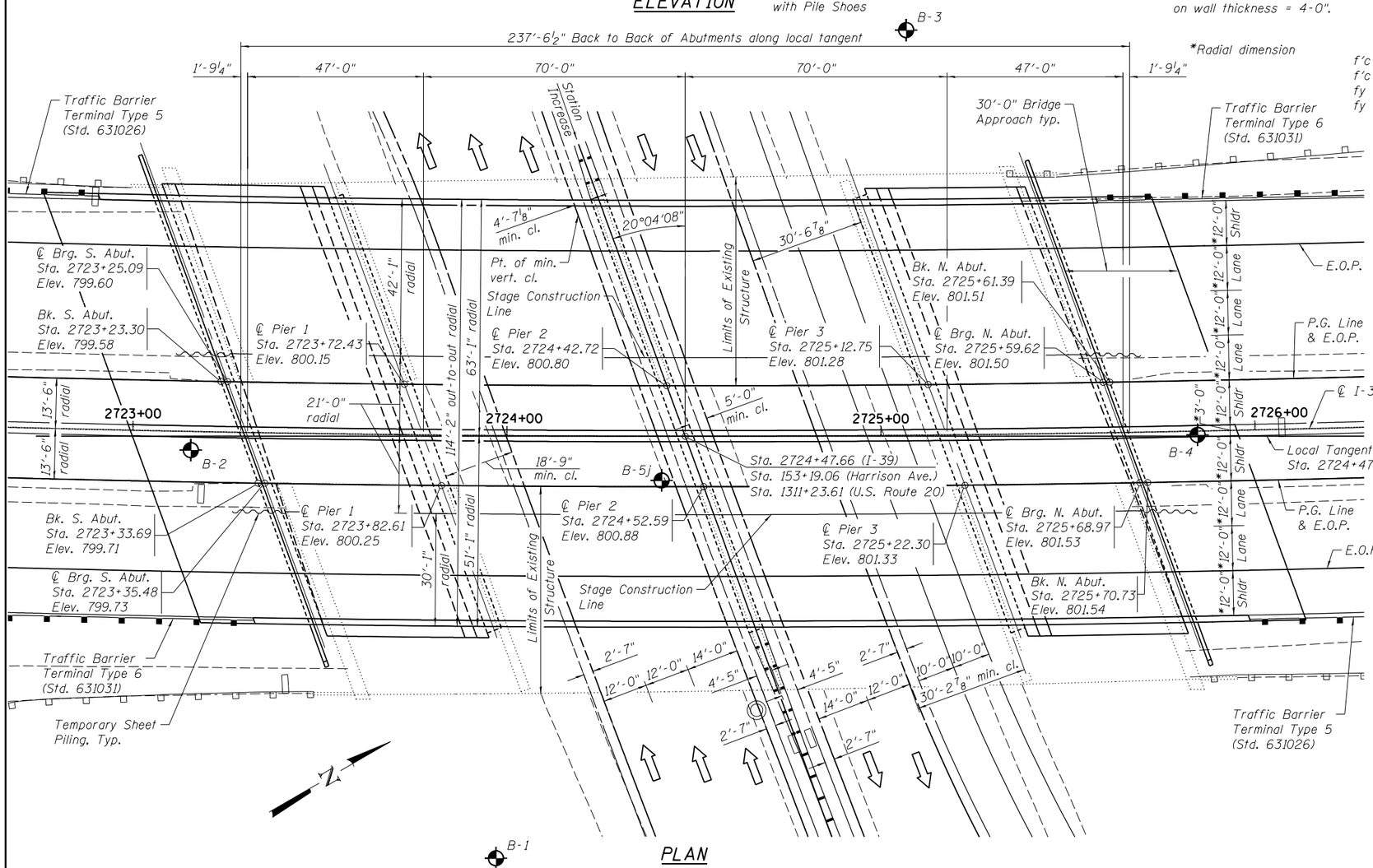
Existing SN 101-0071 & SN 101-0072 built as Section 5-HB in 1963. In 1990 the dual structures were widened and rehabilitated. Both structures consist of four span concrete deck on continuous steel wide flange superstructures supported by concrete piers and spill through abutments. Both structures are 228'-1" back to back abutments. SN 101-0071 width varies from 52'-8" to 56'-7". SN 101-0072 width varies from 52'-10" to 56'-4 3/4". Traffic to be maintained utilizing staged construction.

No Salvage



ELEVATION

** Minimum horizontal clearance at pier based on wall thickness = 4-0".



PLAN

HIGHWAY CLASSIFICATION

F.A.P. Rte. 0525 - Harrison
Functional Class: Other Principal Arterial
ADT: 29,000 (2015); 41,250 (2035)
ADTT: 2,610 (2015); 3,713 (2035)
DHV: 4,125 (2035)
Design Speed: 35 m.p.h.
Posted Speed: 35 m.p.h.
2 -Way Traffic
Directional Distribution: 50:50

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39 - I-39/U.S. 20
Functional Class: Interstate
ADT: 63,800 (2015); 104,800 (2035)
ADTT: 18,502 (2015); 30,392 (2035)
DHV: 10,480 (2035)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
2 -Way Traffic
Directional Distribution: 50:50

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi (Substructure Concrete)
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (Structural Steel) ***
(M270 Grade 50)

*** All structural steel shall be metalized.

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interims

SEISMIC DATA

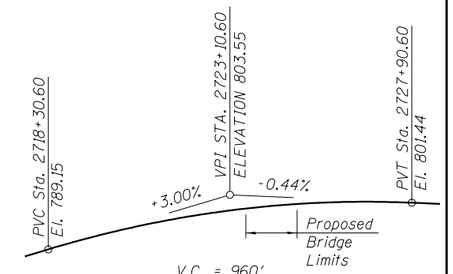
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.056g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.101g
Soil Site Class = C

CURVE DATA
HARRISON AVE.

PI STA. = 149+02.51	PI STA. = 1316+03.34
Δ = 8° 20' 45" (LT)	Δ = 9° 34' 19" (LT)
D = 1° 00' 00"	D = 1° 00' 00"
R = 5,729.71'	R = 5,729.71'
T = 418.03'	T = 479.72'
L = 834.59'	L = 957.22'
E = 15.23'	E = 20.05'
P.C. STA. = 144+84.47	P.C. STA. = 1311+23.61
P.T. STA. = 153+19.06	P.T. STA. = 1320+80.83

CURVE DATA
F.A.I. I-39

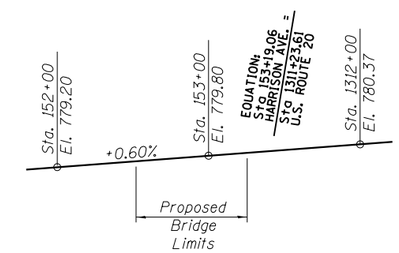
PI STA. = 2724+10.28
Δ = 17° 40' 00" (LT)
D = 0° 50' 00"
R = 6,875.65'
T = 1,068.50'
L = 2,120.05'
E = 82.53'
S.E. = 3.0%
P.C. STA. = 2713+41.77
P.T. STA. = 2734+61.82



PROPOSED PROFILE

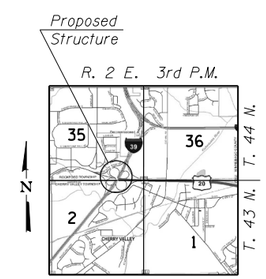
Along I-39/U.S. 20

Note: The profile grade shows the final elevations after grinding. Up to 1/4 inch may be ground off the bridge deck and the bridge approach slabs.



PROPOSED PROFILE

Along Harrison Ave.



LOCATION SKETCH

GENERAL PLAN
I-39/U.S. 20 over HARRISON AVE.
F.A.I. RTE. 39
SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STATION 2724+47.66
STRUCTURE NUMBER 101-0213 (N.B.)
STRUCTURE NUMBER 101-0214 (S.B.)

DESIGNED	JKL	05/25/16
DRAWN	MGM	12/06/16
REVIEWED	FLN	12/06/16

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	CHECKED - FLN	REVISED
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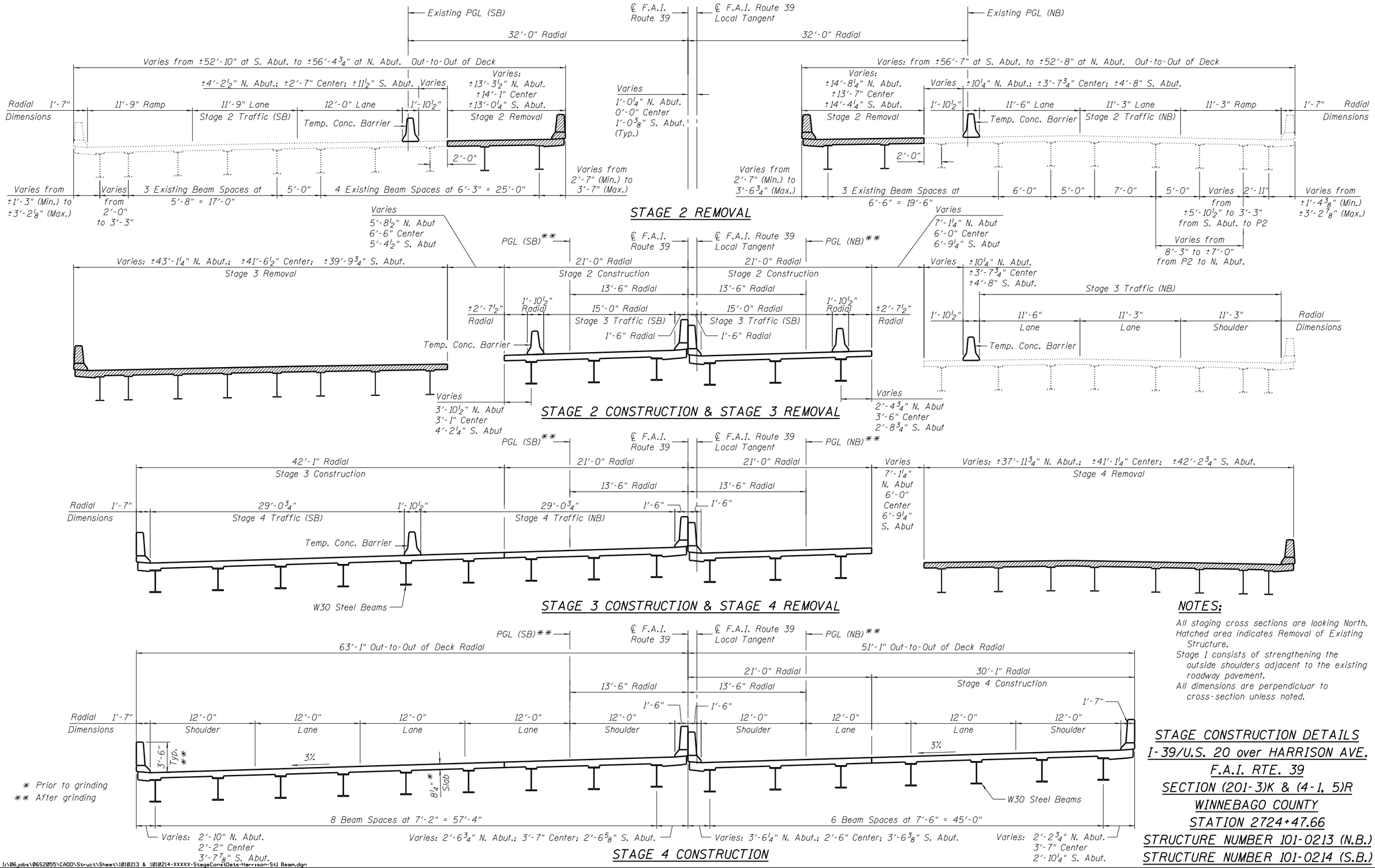
PLOT DATE = 3/16/2017	CHECKED - JKL	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
STRUCTURE NO. 101-0213 & STRUCTURE NO. 101-0214
SHEET NO. 1 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	3	1
		CONTRACT NO. 64C24		
		ILLINOIS FED. AID PROJECT		



NOTES:

All staging cross sections are looking North.
Hatched area indicates Removal of Existing Structure.
Stage 1 consists of strengthening the outside shoulders adjacent to the existing roadway pavement.
All dimensions are perpendicluar to cross-section unless noted.

STAGE CONSTRUCTION DETAILS
I-39/U.S. 20 over HARRISON AVE.
F.A.I. RTE. 39
SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STATION 2724+47.66
STRUCTURE NUMBER 101-0213 (N.B.)
STRUCTURE NUMBER 101-0214 (S.B.)

DESIGNED	JKL	05/25/16
DRAWN	MGM	12/06/16
REVIEWED	FLN	12/06/16

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USER NAME =	DESIGNED - JKL	REVISED -
	CHECKED - FLN	REVISED -
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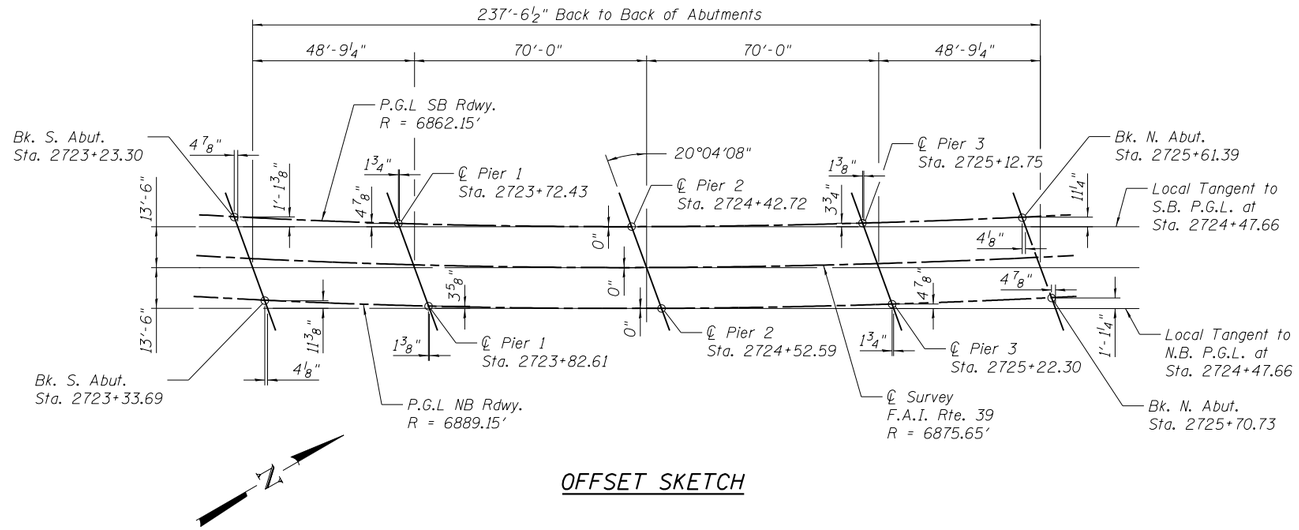
PLOT DATE =	CHECKED - JKL	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

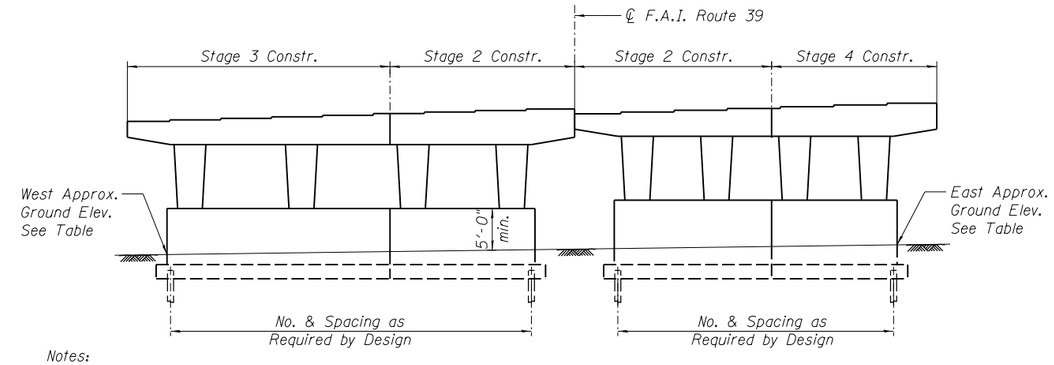
STAGE CONSTRUCTION DETAILS
STRUCTURE NO. 101-0213 & STRUCTURE NO. 101-0214

SHEET NO. 2 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	3	2
		CONTRACT NO. 64C24		
		ILLINOIS FED. AID PROJECT		



OFFSET SKETCH



Notes:

Provide two columns minimum per structure per stage.

All cap cantilevers created by partial removal of existing piers shall be evaluated and temporarily supported to the crashwall below, as required.

PIER SKETCH

(Looking North)

DIMENSION "A"

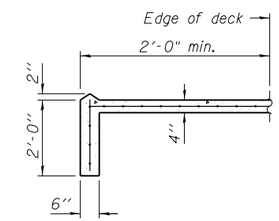
Abut.	End	Value
South	East	0'-0"
	West	3'-2⅞"
North	East	0'-0"
	West	2'-2½"

APPROX. GROUND ELEV.

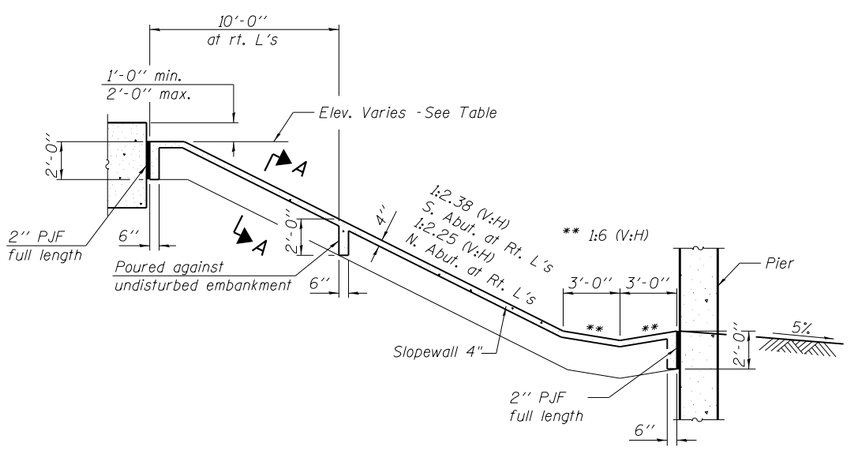
Pier	End	Elev.
Pier 1	East	780.5
	West	779.8
Pier 2	East	780.7
	West	780.0
Pier 3	East	781.2
	West	780.5

TOP OF BERM ELEVATIONS

Abut.	End	Elev.
South	East	795.31
	West	793.38
North	East	797.02
	West	795.41

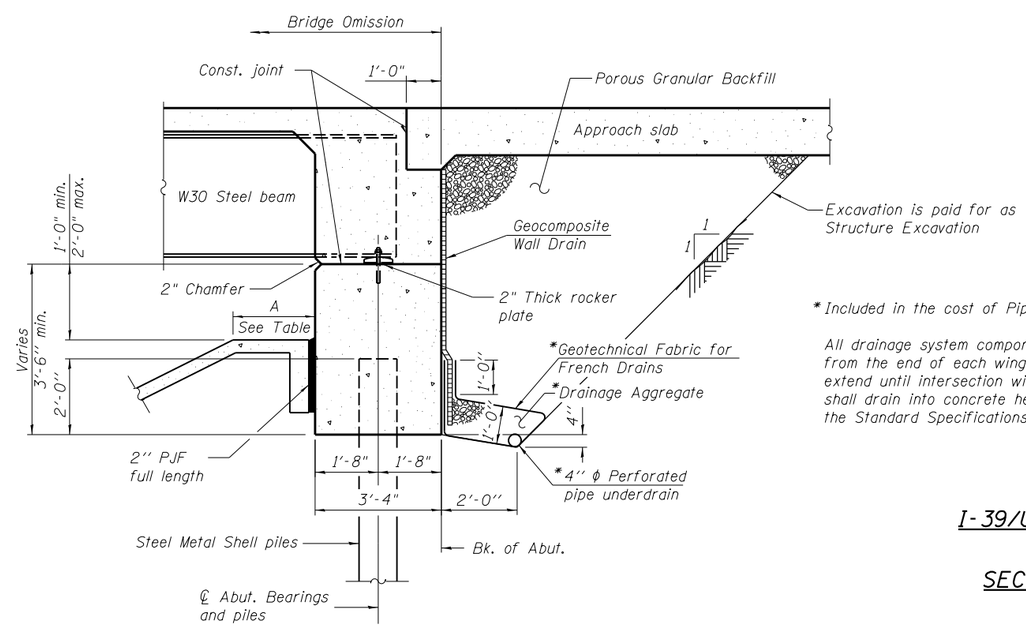


SECTION A-A



SECTION THRU CONCRETE SLOPEWALL

(Horiz. dim. @ Rt. L's)



SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. L's)

* Included in the cost of Pipe Underdrains for structures.

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersection with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101)

GENERAL DETAILS
I-39/U.S. 20 over HARRISON AVE.
F.A.I. RTE. 39
SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STATION 2724+47.66
STRUCTURE NUMBER 101-0213 (N.B.)
STRUCTURE NUMBER 101-0214 (S.B.)

DESIGNED	JKL	05/25/16
DRAWN	MGM	12/06/16
REVIEWED	FLN	12/06/16

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PLOT DATE = 3/16/2017	CHECKED - JKL	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DETAILS
STRUCTURE NUMBER 101-0213 & 101-0214

SHEET NO. 3 OF 3 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	3	3

CONTRACT NO. 64C24

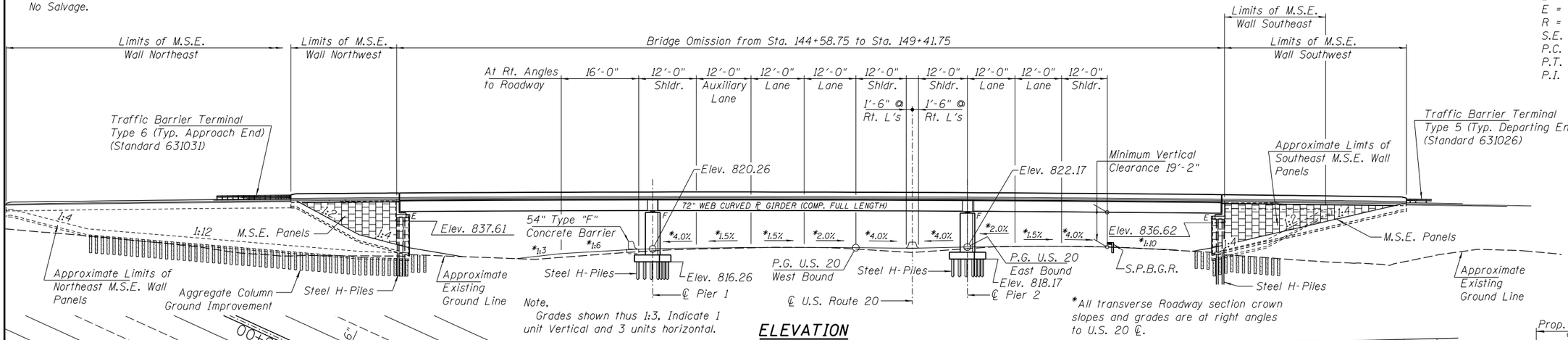
ILLINOIS FED. AID PROJECT

BM: #454 - Cut Square South side of Westerly sign base for a 30MPH ramp 0.1 miles North of the Centerline of Linden Rd. - West side of I-39 Elevation = 850.53
#455 - Cut Square South side of Easterly sign base for a 30MPH ramp 0.1 miles North of the Centerline of Linden Rd. - East side of I-39 Elevation = 851.37

Existing Structure (SN 101-0136)
Originally constructed in 1981 as F.A. Route 194, Section 201-3HB-2.
The structure consists of a 3 Span, 56°-25'-55" Rt Fwd. Skewed, concrete deck on curved steel girders, supported on pile bent concrete abutments and 2 (4 Trapazoidal columns) concrete piers on pile supported foundations. The deck width is 28'-0", and the span lengths are 86'-0", 143'-6" and 155'-0" developing a back to back length of 397'-8½".
Traffic shall be maintained on the existing structure during construction of the new structure. See Maintenance of Traffic Plans for more staging information.
No Salvage.

CURVE DATA - I-39 SBL

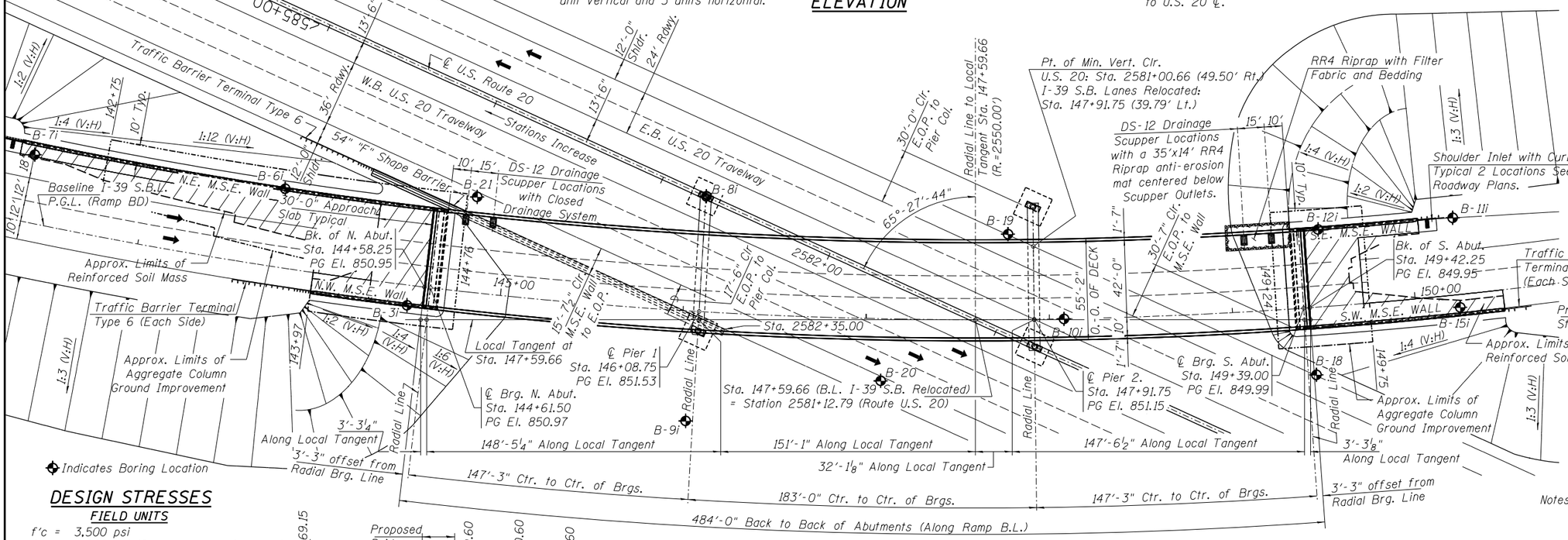
Δ = 107°00'-24" (Lt.)
D = 2°-14'-49"
T = 3446.54'
L = 4762.42'
E = 1737.32'
R = 2550.00'
S.E. = 5.75%
P.C. = Sta. 134+63.52
P.T. = Sta. 182+25.95
P.I. = Sta. 169+10.06



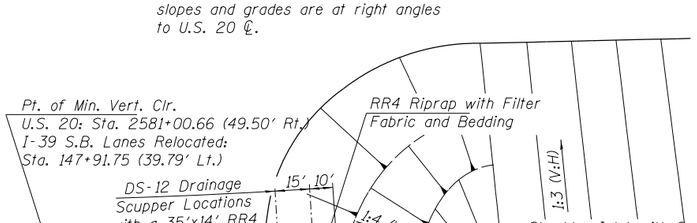
Note, Grades shown thus 1:3, Indicate 1 unit Vertical and 3 units horizontal.

*All transverse Roadway section crown slopes and grades are at right angles to U.S. 20 ℄.

ELEVATION

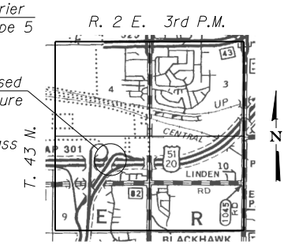


PLAN



PROPOSED PROFILE

Along B.L. I-39 S.B.L. Relocated. The Profile Grade shows the Final Elevations after grinding.



LOCATION SKETCH

Notes: All Structural Steel shall be Metalized. Up to ¼" may be ground off of the bridge deck and the approach slab.

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

PRECAST UNITS

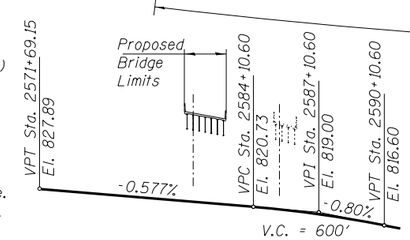
f'c = 4,500 psi (Precast Panels)

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition, with 2015 and 2016 Interims



PROPOSED PROFILE

Along US-20 Inside E.O.P.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.056
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.101
Soil Site Class = C

HIGHWAY CLASSIFICATION

F.A.I. Rte. 39 - I-39 S.B. Lanes
Functional Class: Interstate
ADT: 10,000 (2013); 28,000 (2040)
ADTT: 4,200 (2013); 11,700 (2040)
DHV: 2250 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
1 -Way Traffic

HIGHWAY CLASSIFICATION

FAP Rte 301 - U.S. Route 20
Functional Class: Freeway and Expressway (Urban)
ADT: 33,400 (2013); 50,050 (2040)
ADTT: 6,000 (2013); 9,000 (2040)
DHV: 5970 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
2 -Way Traffic
Directional Distribution: 50:50

GENERAL PLAN

I-39 S.B.L. (Ramp BD) over U.S.20

F.A.I. 39 - SECTION (201-3)K & (4-1, 5)R

WINNEBAGO COUNTY

STA. 147+59.66

STRUCTURE NUMBER -101-0215

DESIGNED	//	//	//
DRAWN	//	//	//
REVIEWED	//	//	//

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HANSON

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USER NAME =	DESIGNED - MNM	REVISED -	
	CHECKED - TEH	REVISED -	
PLOT SCALE =	DRAWN - ROD	REVISED -	
PLOT DATE =	CHECKED - MNM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

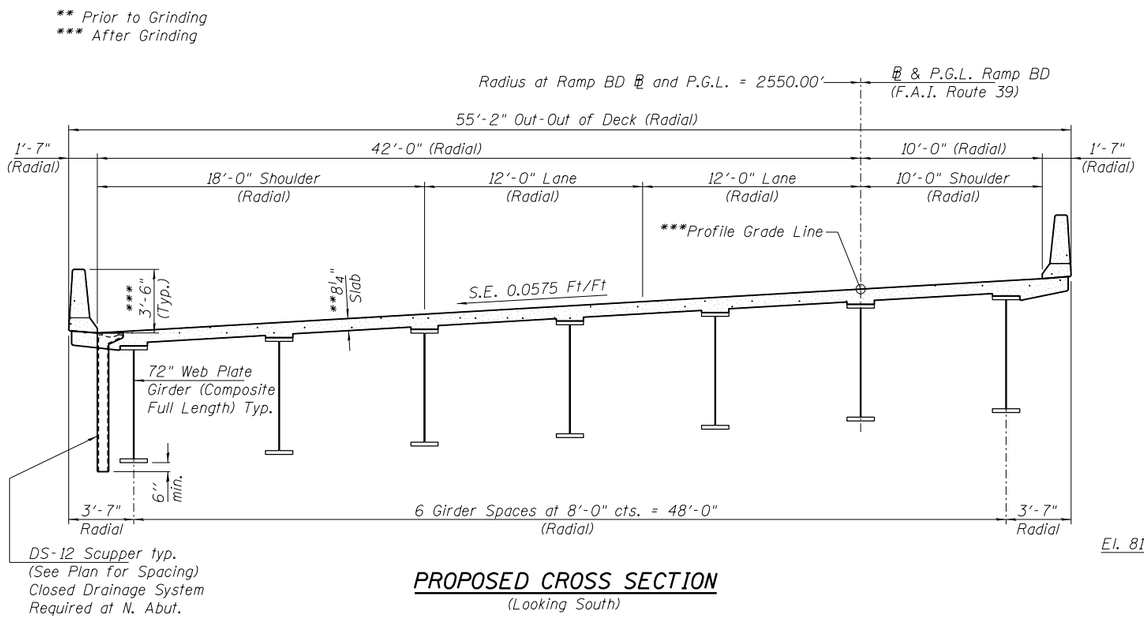
STRUCTURE NO. 101-0215

SHEET NO. 01 OF 04 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	4	1

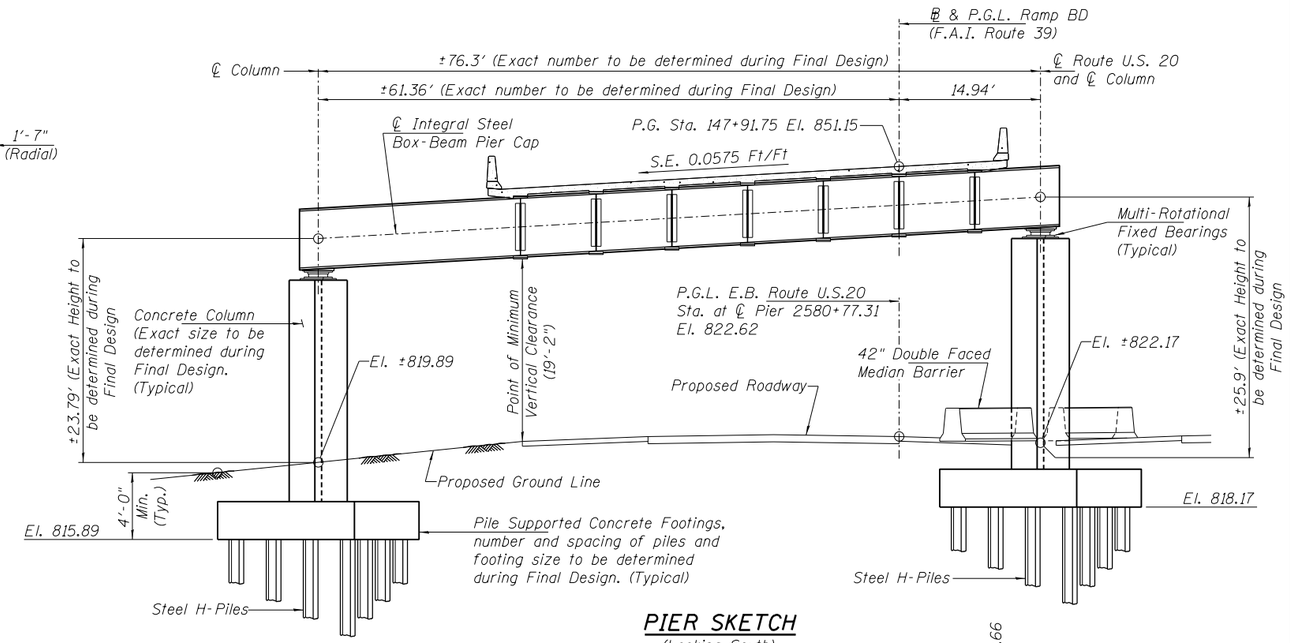
CONTRACT NO. 64C62

ILLINOIS FED. AID PROJECT



PROPOSED CROSS SECTION

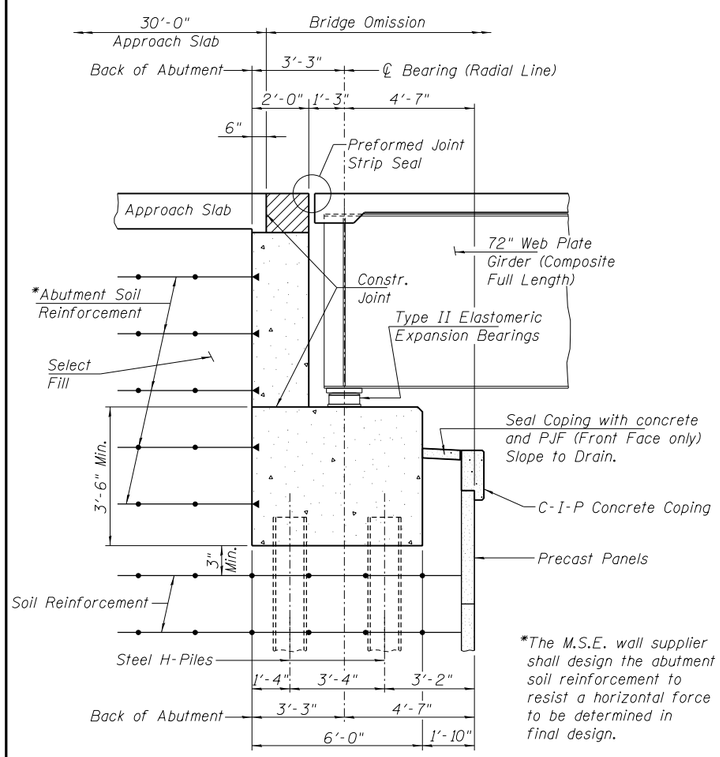
(Looking South)



PIER SKETCH

(Looking South)

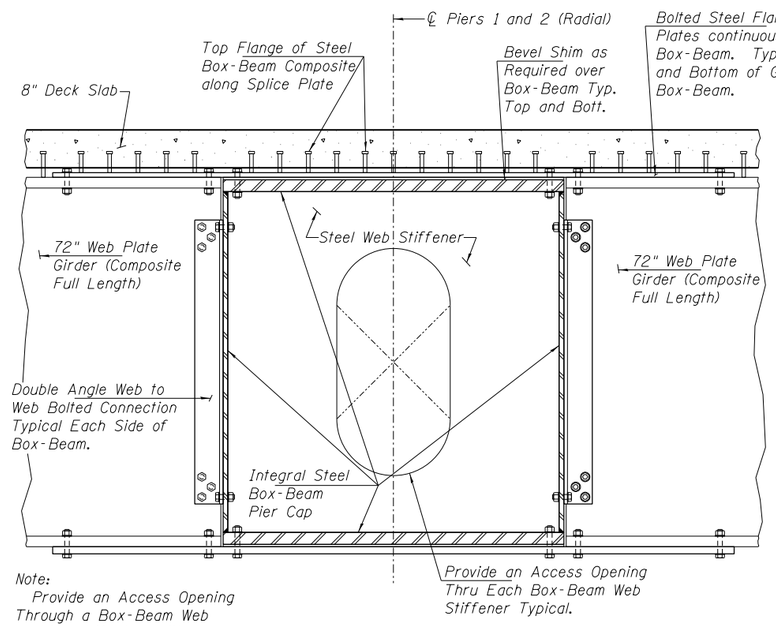
(Pier No. 2 Dimensions and Elevations Shown, Pier No. 1 Similar)



*The M.S.E. wall supplier shall design the abutment soil reinforcement to resist a horizontal force to be determined in final design.

SECTION THRU ABUTMENT

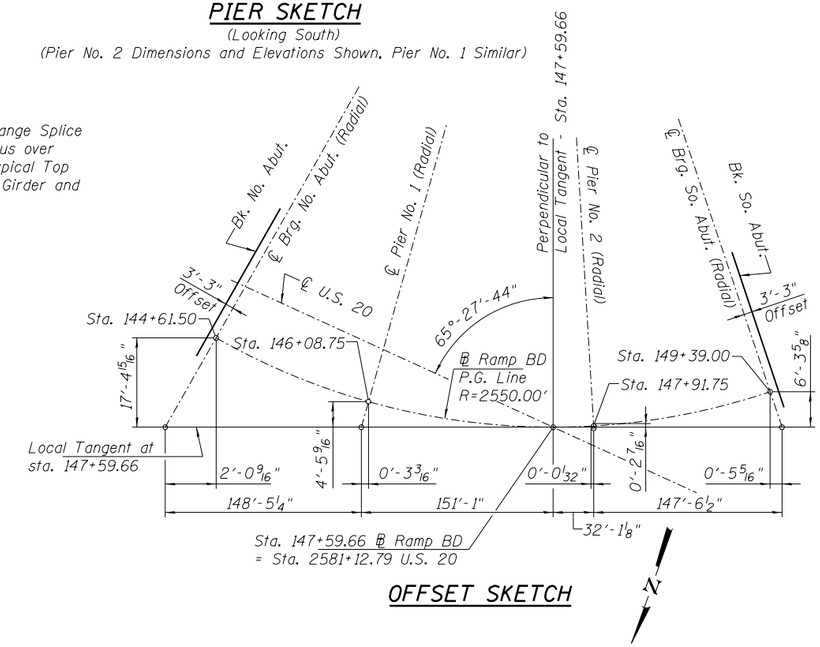
(Horiz. dim. @ Rt. L's)



Note:
Provide an Access Opening Through a Box-Beam Web or Flange Member with a Bolted and Sealed Cover.
Provide Drain Hole in the Bottom Flange of the Box-Beam at the low end. Bird screens are required over the drain hole.

SECTION THRU BOX-BEAM PIER CAP

(Horiz. dim. @ Rt. L's)



OFFSET SKETCH

DETAILS
I-39 S.B.L. (Ramp BD) over U.S.20
F.A.I. 39 - SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STA. 147+59.66
STRUCTURE NUMBER -101-0215

DESIGNED	//	
DRAWN	//	
REVIEWED	//	

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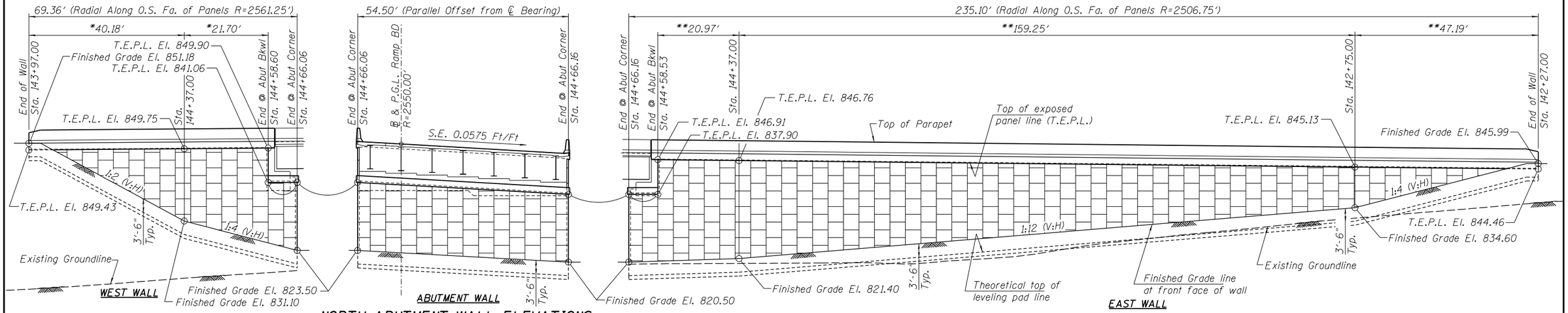
	CHECKED - TEH	REVISED -	
PLOT SCALE =	DRAWN - ROD	REVISED -	
PLOT DATE =	CHECKED - MNM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 101-0215

SHEET NO. 02 OF 04 SHEETS

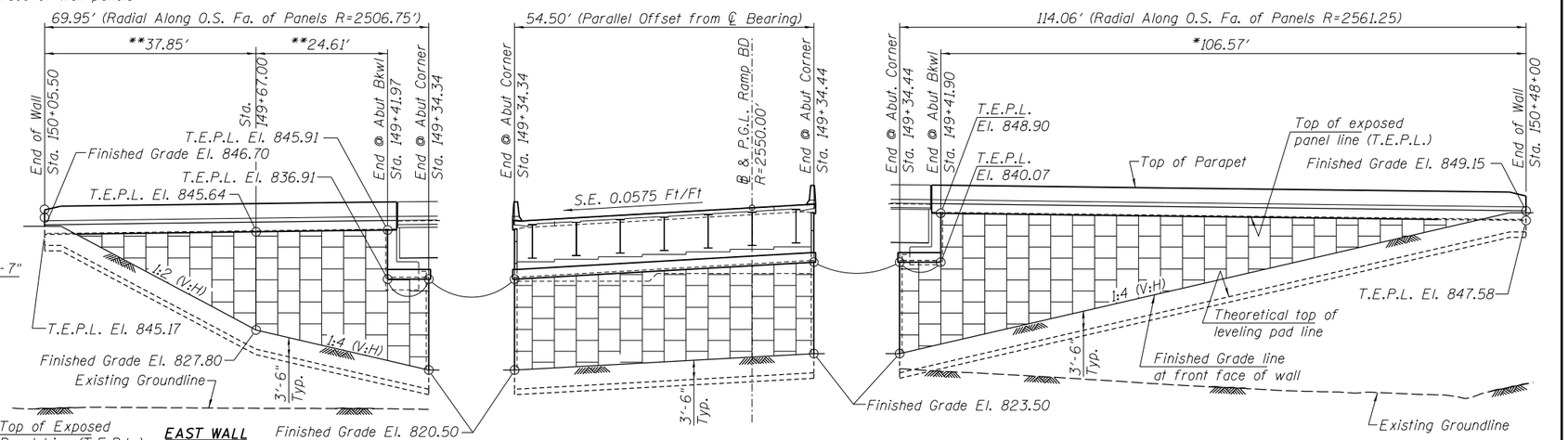
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	4	2
		CONTRACT NO. 64C62		
		ILLINOIS FED. AID PROJECT		



NORTH ABUTMENT WALL ELEVATIONS

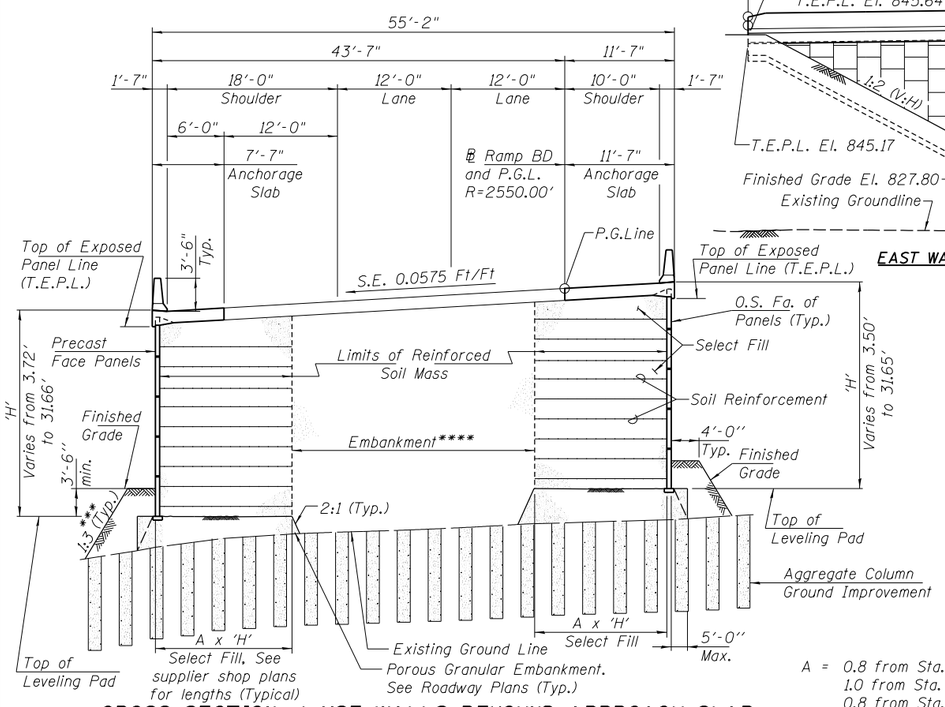
Developed along front face of wall panels

* Radial along O.S. Face - R=2561.25'
** Radial along O.S. Face - R=2506.75'
*** 1:2 max. Near End of Wall
**** Embankment Material between MSE Walls from Sta. 143+97 to Sta. 150+05.50 Shall be Restricted to the same material as used for select fill in MSE Wall.



SOUTH ABUTMENT WALL ELEVATIONS

Developed along front face of wall panels



A = 0.8 from Sta. 142+27 to 143+50
1.0 from Sta. 143+50 to 149+67
0.8 from Sta. 149+67 to 150+48

CROSS SECTION at MSE WALLS BEYOUND APPROACH SLAB

Looking South - Upstation
(Horizontal Dimensions Measured Radially)

M.S.E. WALL DETAILS
I-39 S.B.L. (Ramp BD) over U.S.20
F.A.I. 39 - SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STA. 147+59.66
STRUCTURE NUMBER -101-0215

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HANSON	USER NAME =	DESIGNED - MNM	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STRUCTURE NO. 101-0215	F.A.I. RTE. 39	SECTION (201-3)K & (4-1, 5)R
		CHECKED - TEH	REVISED -			COUNTY WINNEBAGO	TOTAL SHEETS 4
	PLOT SCALE =	DRAWN - ROD	REVISED -			CONTRACT NO. 64C62	SHEET NO. 3
	PLOT DATE =	CHECKED - MNM	REVISED -		SHEET NO. 03 OF 04 SHEETS	ILLINOIS FED. AID PROJECT	

DESIGNED / DRAWN / REVIEWED

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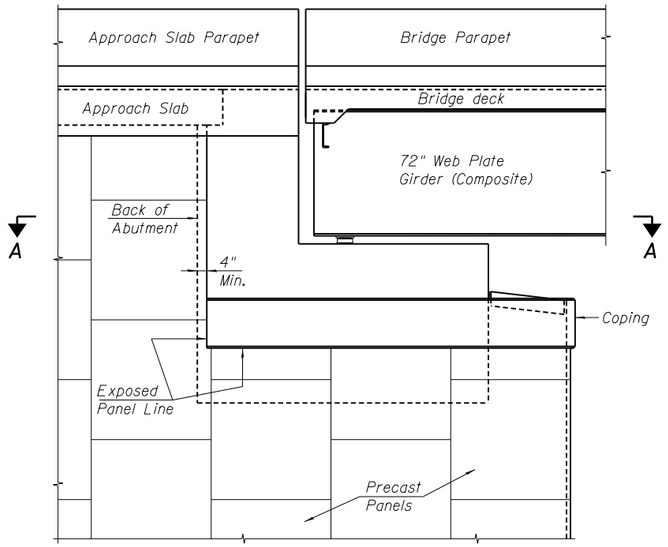
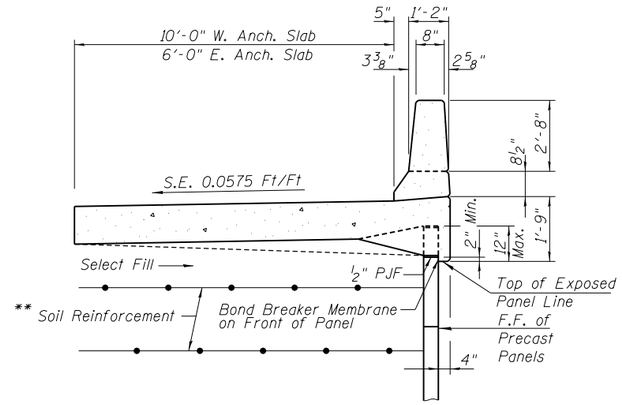
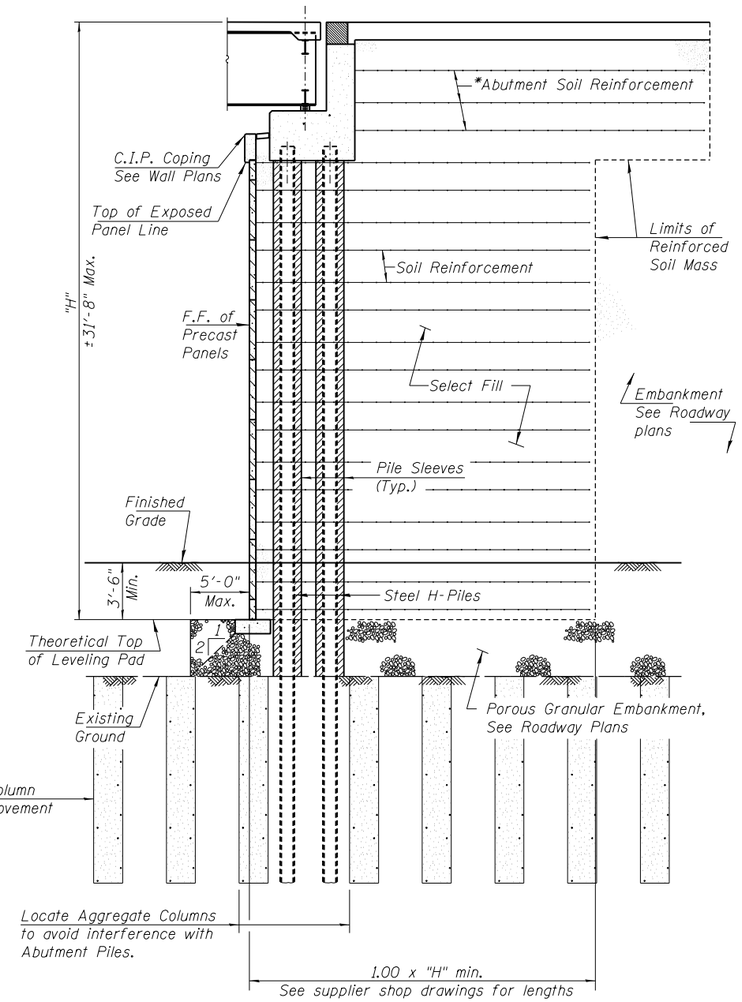


ABUTMENT END VIEW

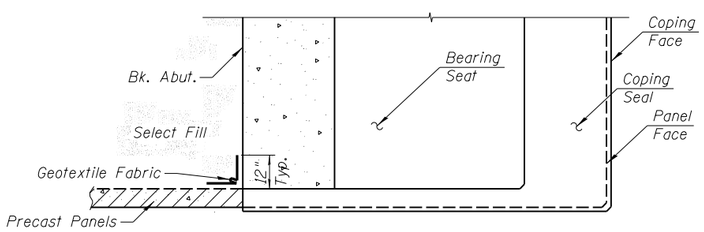


SECTION THRU C.I.P. PARAPET AND ANCHORAGE SLAB

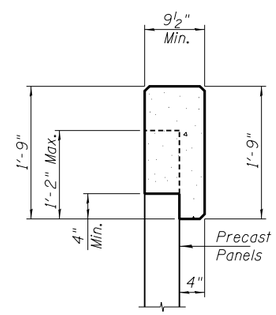
** The M.S.E. Wall supplier's internal stability design shall account for the anchorage slab's bearing pressure surcharge of 1.0 ksf and horizontal sliding force of 0.5 kips/ft. of wall.



TYPICAL M.S.E. WALL
SECTION AT ABUTMENT
(Section at Rt. L's)



SECTION A-A



SECTION THRU C.I.P. COPING

* The MSE wall supplier shall design the abutment soil reinforcement to resist a horizontal force to be determined during final design.

M.S.E. WALL DETAILS
I-39 S.B.L. (Ramp BD) over U.S.20
F.A.I. 39 - SECTION (201-3)K & (4-1, 5)R
WINNEBAGO COUNTY
STA. 147+59.66
STRUCTURE NUMBER -101-0215

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PLOT SCALE =	DRAWN - ROD	REVISED -	
PLOT DATE =	CHECKED - MNM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 101-0215

SHEET NO. 04 OF 04 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
39	(201-3)K & (4-1, 5)R	WINNEBAGO	4	4

CONTRACT NO. 64C62

ILLINOIS FED. AID PROJECT

DESIGNED / DRAWN / REVIEWED

Benchmark: Cut "□" south side of eastern base of 30 mph ramp sign located east of the ramp connecting I-39 NB to US 20 West (Ramp DA) 0.1 mile north of the centerline of Linden Road. Elev. 851.37, 42°-13'-06.37" N. 89°-00'-39.64" W.

Existing Structure: None

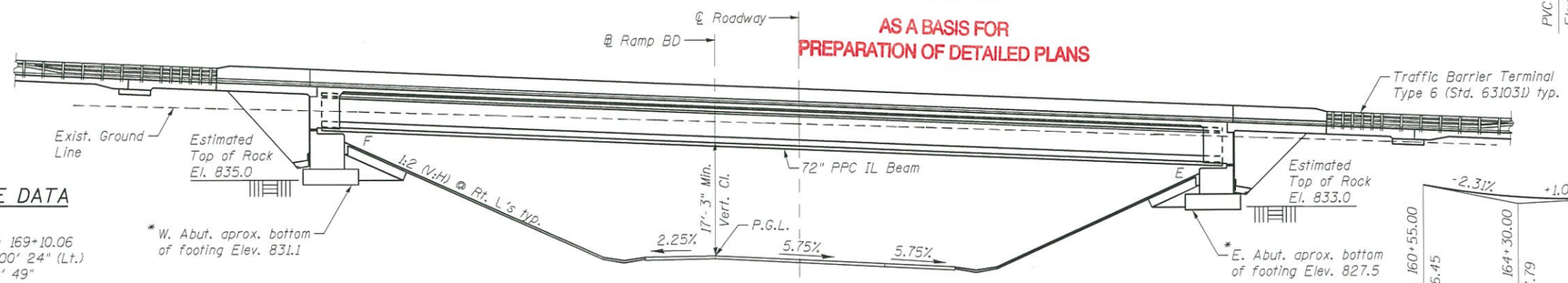
Stage Construction will be utilized to maintain one lane of traffic at all times. Stage I Traffic will be maintained on existing Linden Rd.

APPROVED

MAR 08 2017

AS A BASIS FOR PREPARATION OF DETAILED PLANS

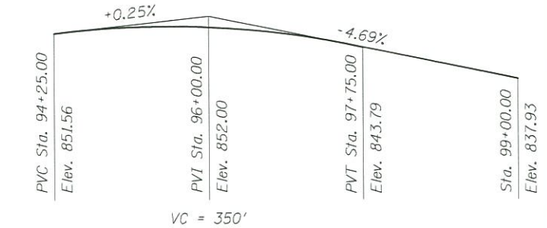
Note: Up to ¼ inch may be ground off the bridge deck and the bridge approach slabs.



ELEVATION

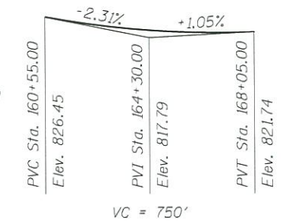
CURVE DATA

Ramp BD
P.I. Sta. = 169+10.06
Δ = 107° 00' 24" (Lt.)
D = 2° 14' 49"
R = 2,550.00'
T = 3,446.54'
L = 4,762.42'
E = 1,737.32
SE = 5.75%
P.C. Sta. = 134+63.52
P.T. Sta. = 182+25.95



PROFILE GRADE
(Along ℄ Linden Rd.)

Note: The profile grade shows the final elevatons after grinding

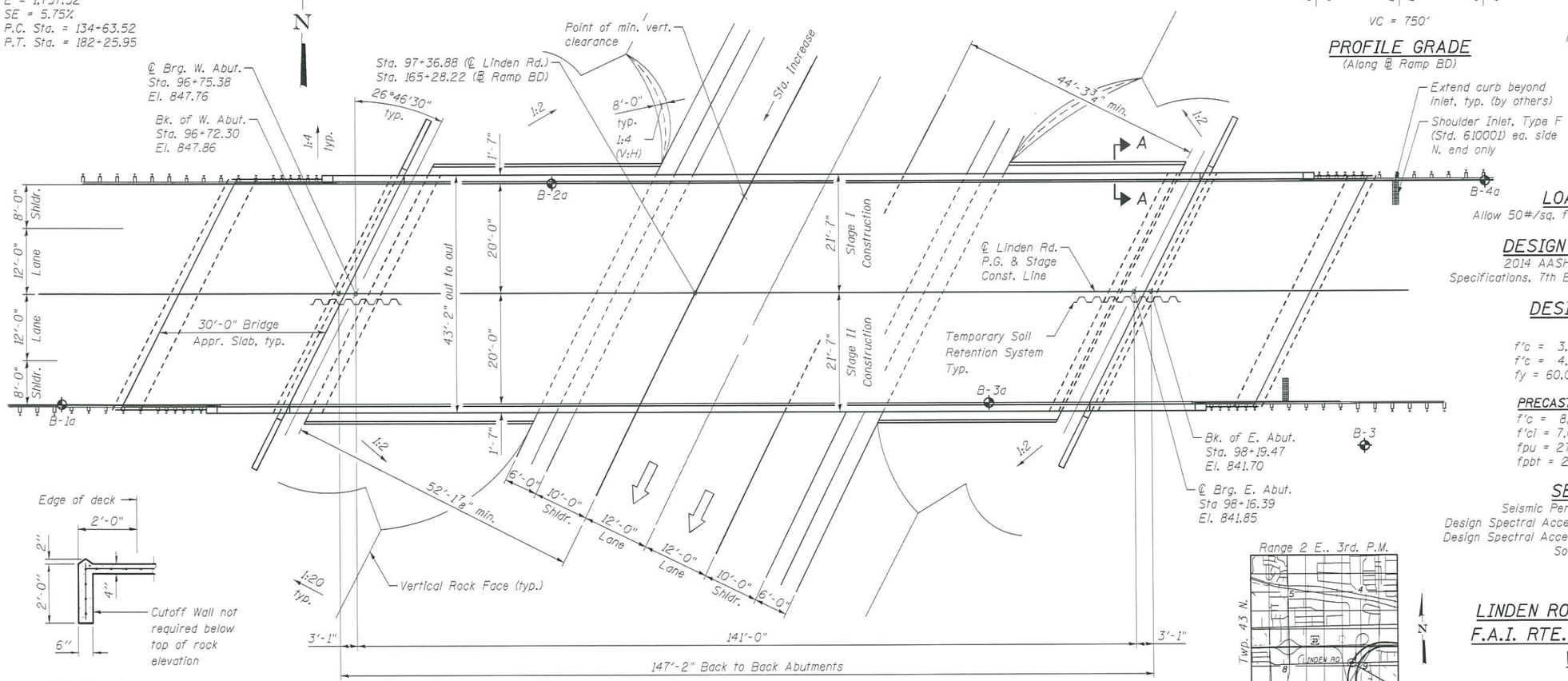


PROFILE GRADE
(Along ℄ Ramp BD)

HIGHWAY CLASSIFICATION

F.A.U. Rte. 5118 - Linden Road
Functional Class: Minor Arterial
ADT: 6650 (2013); 18,000 (2040)
ADTT: 330 (2013); 900 (2040)
DHV: 1805 (2040)
Design Speed: 45 m.p.h.
Posted Speed: 45 m.p.h.
Two-Way Traffic
Directional Distribution: 50:50

F.A.I. Rte. 39 - I-39 SB (Ramp BD)
Functional Class: Interstate
ADT: 10,000 (2013); 28,000 (2040)
ADTT: 4200 (2013); 11,700 (2040)
DHV: 2250 (2040)
Design Speed: 70 m.p.h.
Posted Speed: 65 m.p.h.
One-Way Traffic



PLAN

SECTION A-A

LOADING HL-93
Allow 50#/sq. ft. for future wearing surface.

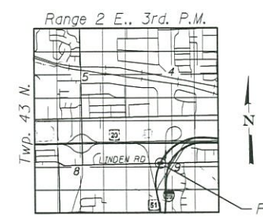
DESIGN SPECIFICATIONS
2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 & 2016 Interims

DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi
f'c = 4,000 psi (Superstructure Concrete)
fy = 60,000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS
f'c = 8,500 psi
f'ci = 7,000 psi
fpu = 270,000 psi (0.6" ϕ low lax. strands)
fpbt = 202,300 psi (0.6" ϕ low lax. strands)

SEISMIC DATA
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.033 g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.085 g
Soil Site Class = B



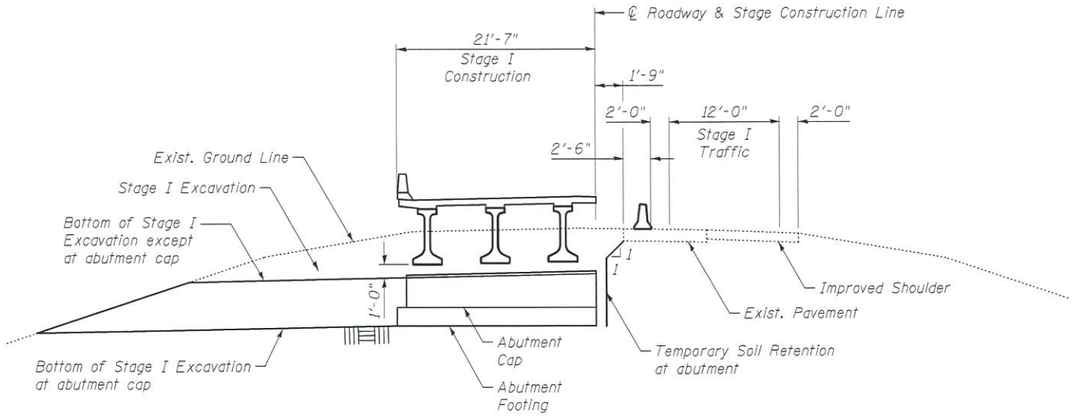
LOCATION SKETCH

GENERAL PLAN
LINDEN ROAD OVER I-39 SB (RAMP BD)
F.A.I. RTE. 39 SEC. (201-3)K & (4-1,5)R
WINNEBAGO COUNTY
STATION 97+36.88
STRUCTURE NO. 101-0216

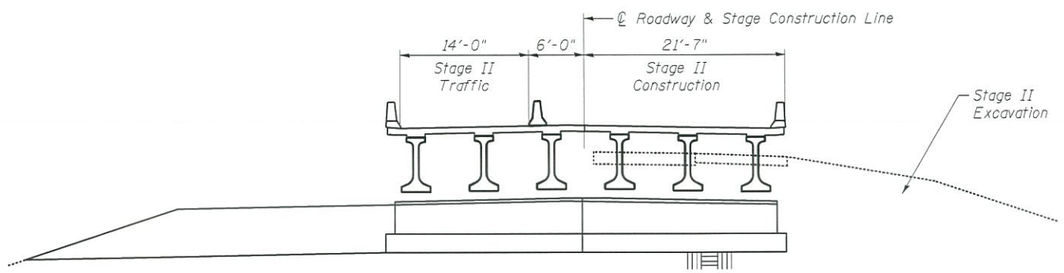
FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003525	USER NAME = myoung	DESIGNED - CME	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - MCB	REVISED -			39	(201-3)K & (4-1,5)R	WINNEBAGO		
	PLOT SCALE = 2:14.000001 '/ in.	DRAWN - CFC	REVISED -					CONTRACT NO. 64C62		
	PLOT DATE = 3/8/2017	CHECKED - MCB	REVISED -		SHEET NO. 1 OF 2 SHEETS			ILLINOIS FED. AID PROJECT		

FILE NAME = ...\sn101-0216\101-0216-001-tsl.dgn

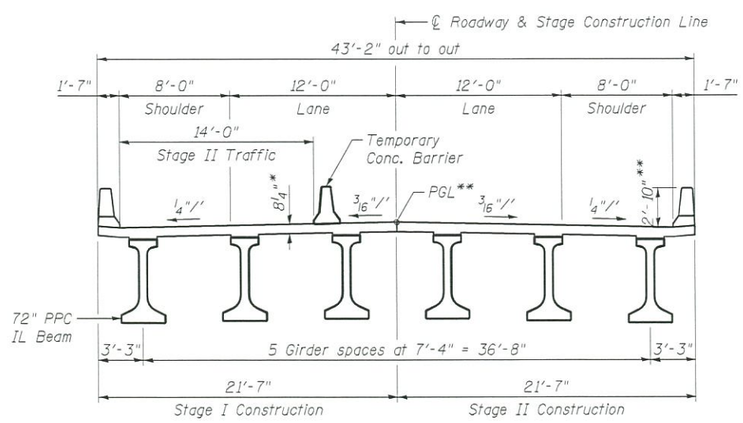
FEHR GRAHAM PROJECT NUMBER: 15-1002 CB PROJ. NO.: 06085



STAGE I CONSTRUCTION



STAGE II CONSTRUCTION



CROSS SECTION

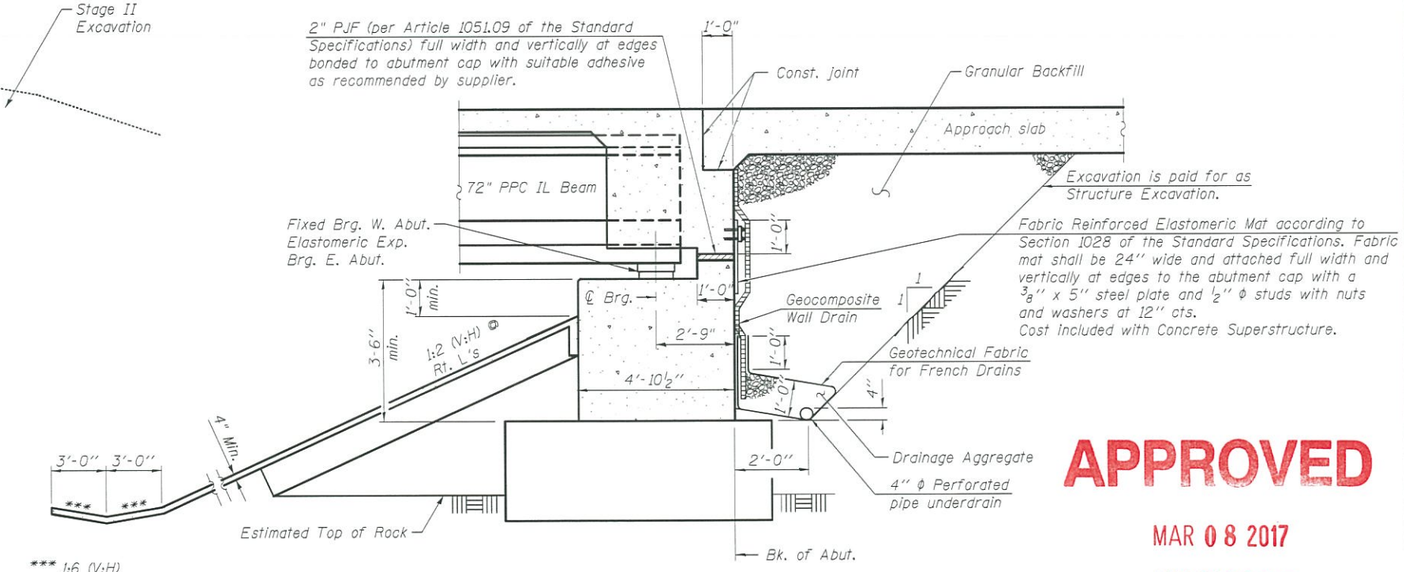
Looking East

* Prior to Grinding
** After Grinding

CONSTRUCTION SEQUENCE

Linden Road over Ramp BD will be constructed using a top-down construction method to maintain one lane of traffic on existing/proposed Linden Road at all times as indicated below.

1. Direct Linden Road traffic to Stage I Traffic.
2. Proceed with Stage I Excavation to 1'-0" below the bottom of the proposed beams across the span using slopes laid back at 1:1 as shown on Stage I Construction Detail.
3. Install Temporary Soil Retention System and excavate as required to construct the abutments.
4. Proceed with Stage I Construction of abutments, superstructure and approach slabs.
5. Direct Linden Road traffic to Stage II Traffic.
6. Proceed with Stage II Excavation beneath Stage I Construction and as required for Stage II Construction.
7. Proceed with Stage II Construction.



SECTION THRU SEMI-INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. L's)

Note:
Cast slopewall onto rock and terminate cutoff wall below top of rock elevation.
Embed footing 6" into non-weathered rock.

APPROVED
MAR 08 2017
AS A BASIS FOR
PREPARATION OF DETAILED PLANS

DETAILS
LINDEN ROAD OVER I 39 SB (RAMP BD)
F.A.I. RTE. 39 SEC. (201-3)K & (4-1,5)R
WINNEBAGO COUNTY
STATION 97+36.88
STRUCTURE NO. 101-0216

FEHR GRAHAM ENGINEERING & ENVIRONMENTAL ILLINOIS DESIGN FIRM NO. 184-003525	USER NAME = myoung	DESIGNED - CME	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		F.A.I RTE. 39	SECTION (201-3)K & (4-1,5)R	COUNTY WINNEBAGO	TOTAL SHEETS	SHEET NO.
		CHECKED - MCB	REVISED -					CONTRACT NO. 64C62	
	PLOT SCALE = 16:0.000000 ':' / in.	DRAWN - CFC	REVISED -						
	PLOT DATE = 3/8/2017	CHECKED - MCB	REVISED -		SHEET NO. 2 OF 2 SHEETS		ILLINOIS FED. AID PROJECT		

FEHR GRAHAM PROJECT NUMBER: 15-1002 CB PROJ. NO.: 06085

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