

## **SUPPLEMENTS**





# ENVIRONMENTAL ASSESSMENT

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ROUTE: FAP 326 Illinois Route 47  
Section: US Route 14 to Charles Road  
McHenry County

Job No: P-91-007-09  
PTB #: 149-008



Illinois Department of Transportation  
District 1

**VOLUME 1**

March 2018



# Environmental Assessment

FAP 326 (Illinois Route 47)  
US Route 14 to Charles Road  
Woodstock, Illinois  
McHenry County

## ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to 42 USC 4332 (2)(c)  
by the

U. S. Department of Transportation  
Federal Highway Administration

and

Illinois Department of Transportation

### Cooperating Agencies

Illinois Department of Natural Resources

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For FHWA

The following persons may be contacted for additional information concerning this document:

Catherine A. Batey  
Division Administrator (HDA-IL)  
Federal Highway Administration  
3250 Executive Park Drive  
Springfield, Illinois 62703  
Telephone: 217-492-4640

Anthony Quigley, PE  
Illinois Department of Transportation  
Region One Engineer  
201 West Center Court  
Schaumburg, IL 60196-1096  
Telephone: 847-705-4000

This Environmental Assessment (EA) documents the impacts with the proposed action to reconstruct a five-mile section along Illinois Route 47 from US Route 14 to Charles Road (Project). The purpose of the Project is to address transportation safety, capacity, access management, pedestrian and bicycle needs, and geometric deficiencies. The existing roadway is primarily one lane in each direction separated by a two-way left-turn lane. The proposed action consists of two through-lanes in each direction separated by a barrier or mountable median. Roundabouts are proposed at five intersections within the project study area. A total of 33.055 acres of permanent right-of-way will be acquired and a total of 15.593 acres of temporary easements are proposed as part of this Project. 0.310 acre of wetlands and 17.90 acres of farmland will be impacted as part of this Project. The proposed improvements will require a total of 10 buildings to be relocated. These buildings include six individual businesses, three residential homes, and two business complexes containing four businesses.

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AAI	All appropriate inquiry
ADA	Americans with Disabilities Act
ADID	advanced identification
ADT	average daily traffic
BDE	Bureau of Design and Environment
BMP	Best Management Practices
CFR	Code of Federal Regulations
CMAP	Chicago Metropolitan Agency for Planning
CMP	Congestion Management Process
CNE	Common Noise Environment
CRP	Comprehensive Regional Plan
CSS	context sensitive solutions
CWA	Clean Water Act
dB (A)	decibels
DCEO	Department of Commerce and Economic Opportunity
DOE	Determination of Eligibility
DSS	Decent, Safe, Sanitary
EA	Environmental Assessment
EO	Executive Order
EPFO	platantera leucophaea
FHWA	Federal Highway Administration
FIRM	National Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
FQI	Floristic Quality Assessment
FTA	Federal Transit Administration
GIS	geographic information systems
HEI	Health Effects Institute
HQAR	high quality aquatic resource
HSM	Highway Safety Manual
IDNR	Illinois Department of Natural Resources
IDOT	Illinois Department of Transportation
INAI	Illinois Natural Areas Inventory
INHS	Illinois Natural Historical Society
IRIS	Integrated Risk Information System
ISGS	Illinois State Geological Survey
ITS	Intelligent Transportation System
LAWCON	Land and Water Conservation
LESA	Land Evaluation and Site Assessment
LOS	level of service
MFR	multi-family residence
mph	miles per hour
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MOU	Memorandum of Understanding
NAC	Noise Abatement Criteria
NAAQS	National Ambient Air Quality
NEPA	National Environmental Policy Act
NHRP	National Register of Historic Places
NRCS	National Resources Conservation Service
OSLAD	Open Space Lands Acquisition Development

PESA	Preliminary Environmental Assessment
PM	particulate matter
PSI	Preliminary Site Investigation
REC	Recognized environmental concern
SFR	single-family residence
SIP	State Implementation Plan
SOV	single-occupancy vehicle
SRA	Strategic Regional Arterial
TIP	Transportation Improvement Program
TWLTL	Two-Way Left-Turn Lane
TMA	transportation management areas
UP	Union Pacific
URA	Uniform Relocation Assistance and Real Property Acquisition Act
USDOT	United States Department of Transportation
USGS	United States Geological Survey
USACE	United States Army Corp of Engineers
USEPA	United States Environmental Protection Agency
VMT	vehicle miles traveled
vpd	vehicles per day
WOUS	Waters of the United States

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Environmental Coordination

FHWA

CMAP

Legislative

Municipal

County

PACE

Railroad

#### **APPENDIX B—FARMLAND CONVERSION IMPACT**

#### **APPENDIX C—PUBLIC INVOLVEMENT**

Public Meetings

Corridor Advisory Group Meetings

Other Meetings

Other Correspondence

**CHAPTER 1**  
**INTRODUCTION**

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## 1.1 INTRODUCTION

### 1.1.1 Description and Location of Project

The Illinois Department of Transportation (IDOT) is managing this Project in partnership with the Federal Highway Administration (FHWA). This Environmental Assessment (EA) is being conducted to assess potential impacts that could result from a proposed widening of Illinois Route 47. Illinois Route 47 is a Strategic Regional Arterial (SRA) and a Class II truck route running north-south through the City of Woodstock and unincorporated McHenry County, Illinois. The limits for this study extend from US Route 14 approximately five miles north to Charles Road. These represent logical termini because US Route 14 is an arterial and a major source of traffic for the corridor. Charles Road, the northern terminus, also is a designated SRA route and represents the northern edge of the urban area beyond which corridor traffic volumes decrease substantially.

US Route 14, the southern terminus, matches an existing Phase I study immediately south of this Project that extends from Reed Road to US Route 14. Illinois Route 47 has two locally recognized alternate names; Eastwood Drive from US Route 14 to Illinois Route 120 and Seminary Avenue from Illinois Route 120 to Ware Road. A Project location map is included in Figure 1.1-1 and Exhibit 1.1-1.

Land use is diverse along the corridor and is split into three distinct sections. The southern section, from US Route 14 to Illinois Route 120, is an urban section with primarily commercial and industrial buildings. In this section, Illinois Route 47 passes under the Union Pacific (UP) Railroad bridge that also carries the Metra UP/Northwest line. The middle section, extending from Illinois Route 120 to Ware Road, is an urban section of primarily residential neighborhoods mixed with commercial, healthcare, and institutional usage.

#### What is an Environmental Assessment?

An EA is a document prepared for a proposed project under the National Environmental Policy Act. The EA describes the purpose and need for the project, the alternatives considered, the existing socioeconomic and environmental conditions in the project vicinity, and any anticipated impacts on socioeconomics or environmental resources. The EA serves to advise the public and stakeholders on the project and help make a decision as to the desirability of the project.

If the EA determines that there are no significant impacts anticipated from the project, a Finding of No Significant Impact (FONSI) can be issued. If a FONSI cannot be concluded, additional studies or an Environmental Impact Statement may be warranted.

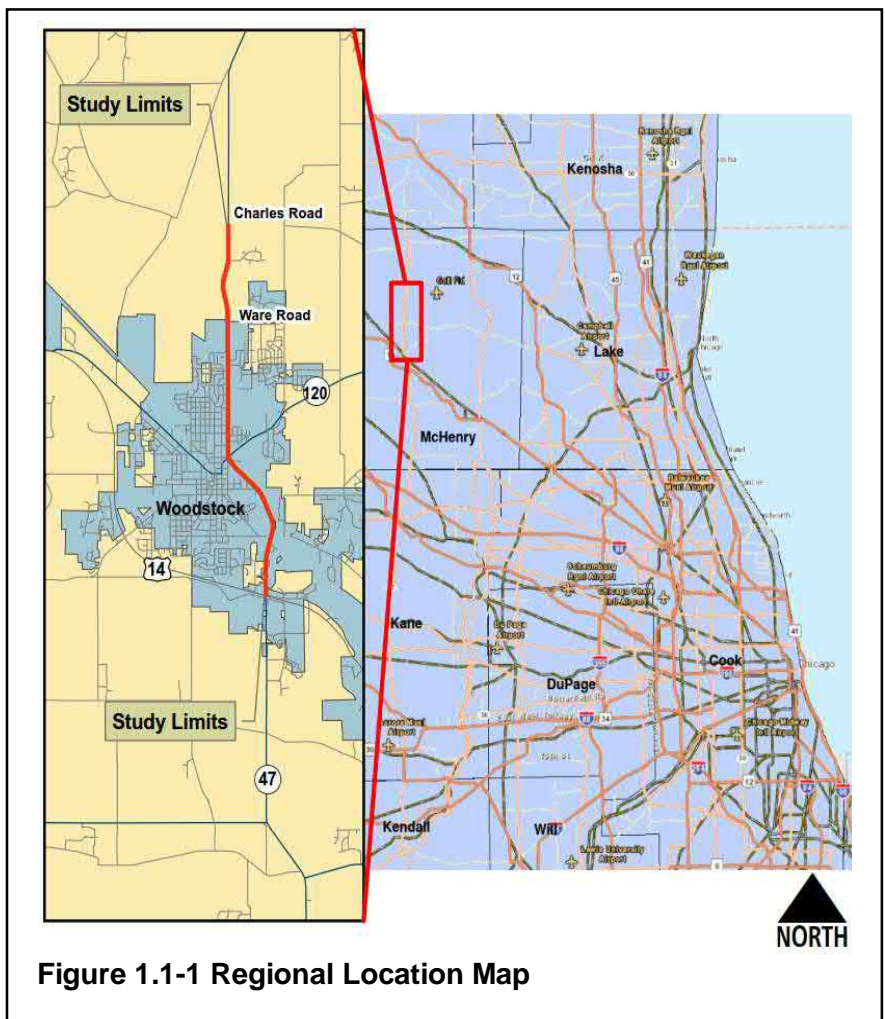


Figure 1.1-1 Regional Location Map



The northern section, from Ware Road to Charles Road, is a rural section with residential and agricultural usage.

Illinois Route 47 is the only continuous north-south route and arterial roadway in the City of Woodstock. It also is one of only three continuous north-south routes in McHenry County. As a result, this roadway is a major component of the local and regional transportation system and is vital to the economic development of the area. In addition to being an important route for through-traffic, the roadway provides local access to businesses and residents fronting the roadway. Commercial business is located in two primary areas in the City of Woodstock. The first area is Woodstock Square, a downtown business district that relies on Illinois Route 47 for access. The second commercial area is along Illinois Route 47 in the southern and middle sections of the corridor.

Although the project study area is located primarily in an urban setting, the roadway crosses or is adjacent to several natural areas. Illinois Route 47 passes over Silver Creek just north of St. Johns Road. Additionally, there are three minor culvert crossings within the project study area and wetland areas along the corridor.

1.1.2 History of Project

Illinois Route 47 was first constructed in the 1930s as a two-lane roadway. The UP Railway bridge was constructed in 1936 with a clear opening of 55 feet. A widening project added a center two-way turn lane in the mid-1980s, which expanded the typical section to three lanes from US Route 14 to Ware Road. Over time, various smaller projects incorporated geometric improvements throughout the corridor to accommodate growing capacity needs. The roadway was expanded to two lanes in each direction with a center median from US Route 14 to Catalpa Lane. An additional southbound lane was added from Country Club Road to a point one-quarter-mile south of the intersection, and there are two lanes in each direction with a flush two-way turn lane from Country Club Road north to Calhoun Street.

Location	Year				Percent Growth 1980-2010
	1980	1990	2000	2010	
City of Woodstock	11,725	14,353	19,668	24,770	111
McHenry County	86,745	183,241	260,077	308,760	256

**Table 1.1-1 Regional Population Growth 1980 to 2010**

The population of the City of Woodstock and McHenry County has continued to grow, as shown in Table 1.1-1. The population of Woodstock increased from 11,725 in 1980 to 24,770 in 2010. This is a growth of 111 percent. The population of McHenry County has grown 256 percent. Traffic volumes on Illinois Route 47 have increased proportionally. Despite localized roadway improvements, traffic delays and congestion negatively impact mobility and safety for roadway users. Because of these deficiencies, the Illinois Department of Transportation (IDOT) initiated a Phase I study of the Illinois Route 47 corridor. Phase II (Design) of the Project is funded. Construction funding for this Project is not included in IDOT's *Fiscal Year 2017-2022 Proposed Highway Improvement Program*. However, this Project will be evaluated for inclusion in future highway programs.

### 1.1.3 Previous Studies

Previous studies were initiated locally to study the future needs of Illinois Route 47 through the City of Woodstock. A study sponsored by the City of Woodstock in 1995 made several recommendations ultimately incorporating two lanes in each direction throughout the entire corridor with a center flush median from US Route 14 to Ware Road and a raised median from Ware Road to Charles Road. The study concluded the section from Illinois Route 120 to Charles Road would require a three-lane cross section in the interim. However, the study noted traffic volumes would increase and would ultimately require a five-lane cross section. This study also recommended the implementation of access control strategies, various intersection improvements to increase roadway capacity, and replacement of the UP Railway bridge. The IDOT 1995 *Strategic Regional Arterial Planning Study for Illinois Route 47* recommended the same measures. An additional study was conducted by the City of Woodstock in 2006. A five-lane cross section was recommended from US Route 14 to Illinois Route 120 and from Ware Road to Charles Road with flush and raised medians, access control, various local improvements, and replacement of the railroad bridge. In this study, a three-lane cross section was recommended through the residential section of the corridor from Illinois Route 120 to Ware Road.

## Chapter 2

### Purpose and Need

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## 2.1 PURPOSE OF THE PROJECT

The purpose of the Project is to address transportation safety, capacity, access management, pedestrian and bicycle needs, and geometric deficiencies.

## 2.2 NEED FOR THE PROJECT

Increased travel demands on Illinois Route 47 are creating safety and operational deficiencies along the immediate roadway and adjacent arterials and intersections. The insufficient capacity of the roadway to manage travel demands creates congestion, limits mobility, hinders safe access to adjacent properties and businesses, and leads to safety issues for motorists, bicyclists, and pedestrians. Pedestrian access to adjacent land and bicycle accessibility through and across the corridor are limited.

The Project was presented for a second time at the June 28, 2011 National Environmental Policy Act (NEPA) 404 Merger Meeting. At this meeting the Project received purpose and need concurrence.

### 2.2.1 Safety Deficiencies

Crash data was collected from IDOT for years 2010, 2011, and 2012. The total number of crashes for the study period was 399, as shown in Figure 2.2-1.

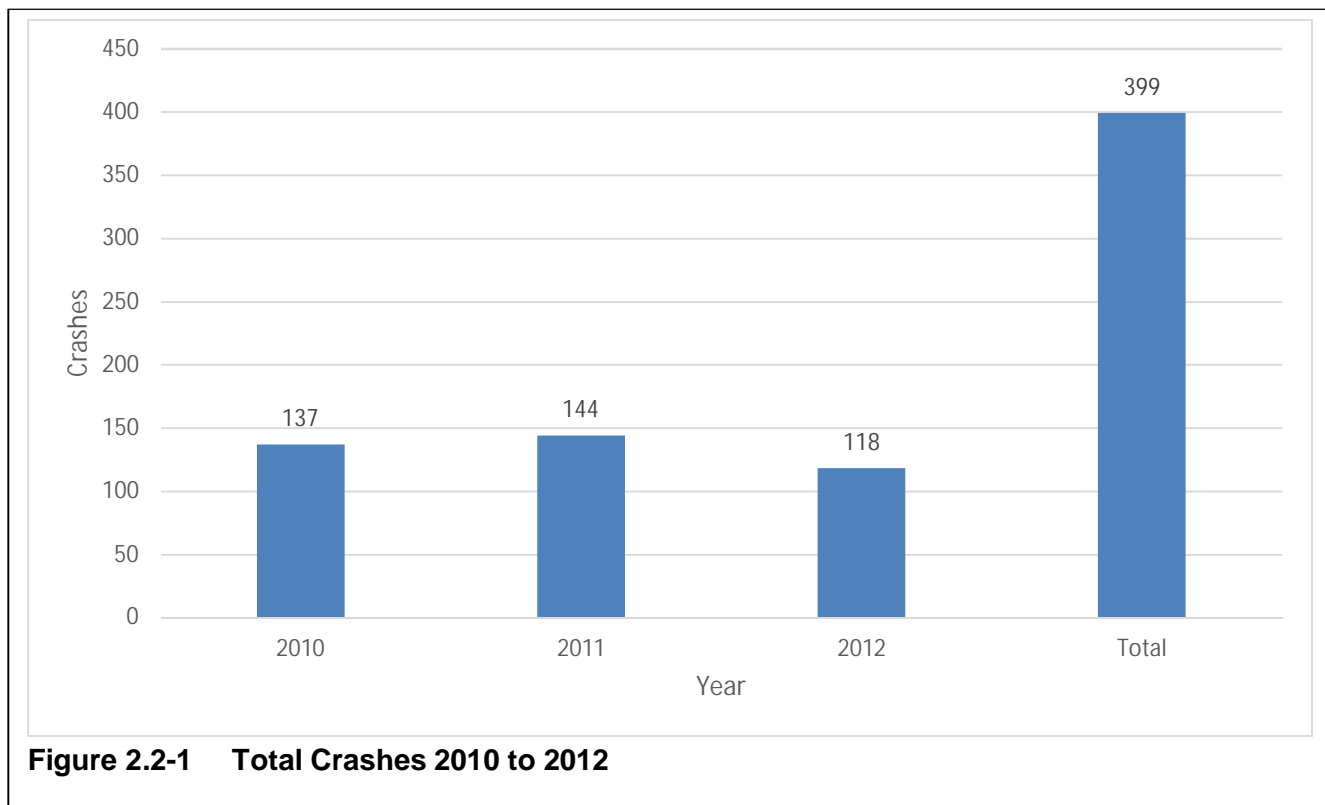
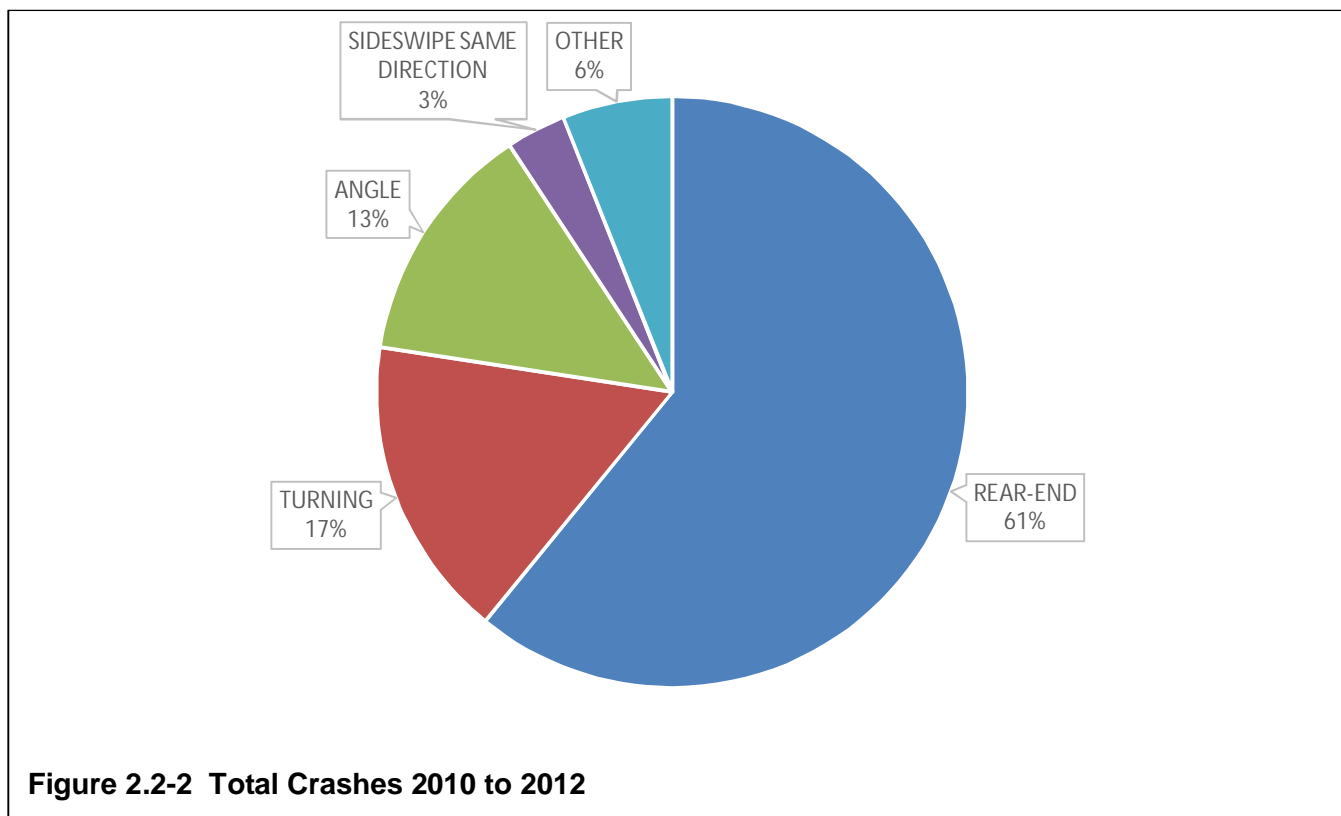


Figure 2.2-2 describes the 399 crashes by crash type. The predominant crash types for the study period were rear-end (61 percent), turning (17 percent), angle (13 percent), and sideswipe of cars traveling in the same direction (3 percent). Other types of crashes included animal, head-on, sideswipe of vehicles in opposite directions, and fixed objects.

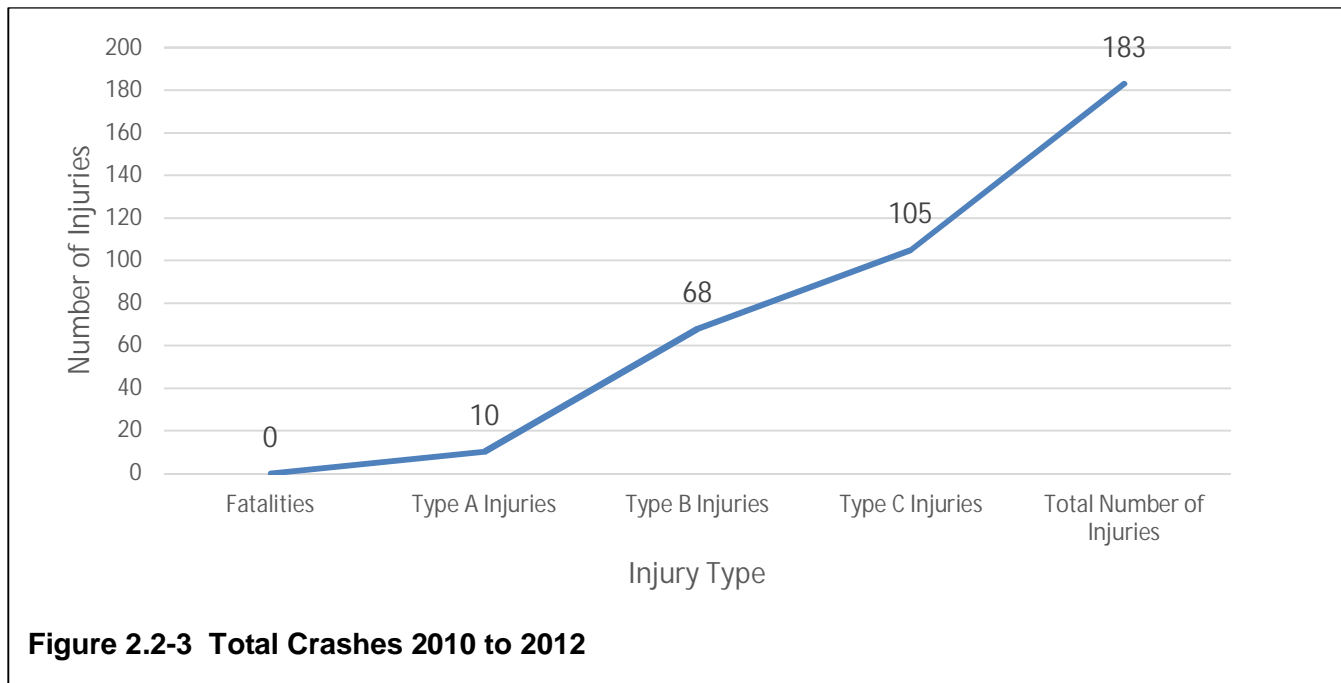


Rear-end, turning, and angle crashes are usually caused by several factors, such as deficiency in the capacity of the roadway, signal timing issues because of lack of signal modernization, improper design of the roadway leading to incomplete channelization of traffic, lack of barrier medians, and insufficient drainage of the pavement. The lack of capacity on this two-lane roadway, coupled with the numerous entrances, leads to conflicts that result in crashes.

Of the crashes, 75.9 percent occurred during the day and 72.7 percent occurred during clear weather. This indicates that lighting conditions, weather, and wet pavement do not appear to substantially contribute to crashes.

Of the total crashes, 120 (30.1 percent) were injury crashes that resulted in 183 injuries. There were no fatalities recorded during the study period; however, there were 10 incapacitating type “A” injuries, which are the most severe injury type that is not a fatality. There were two crashes involving a pedestrian and three crashes involving a bicyclist. The first pedestrian crash occurred during the 11 A.M. hour at the intersection with Lake Avenue and resulted in a reported type “C” injury. The second pedestrian crash occurred during the 8 P.M. hour at the intersection with Judd Street and Irving Avenue and resulted in a type “B” injury. Two bicyclist crashes occurred between the intersections of Lake Avenue and McConnell Drive. Both resulted in type “B” injuries. The first crash involving a bicyclist occurred during the 10 A.M. hour and the second crash involving a bicyclist occurred during the 3 P.M. hour. The third crash involving a bicyclist occurred between Illinois Route 120 and St. Johns Road during the 6 P.M. hour and it also resulted in a type “B” injury.

Figure 2.2-3 presents the number of injuries by severity for all 399 crashes. Some crashes resulted in more than one injury.



The intersection of Lake Avenue and Illinois Route 47 is one of the busiest in the corridor and it experienced an elevated number of crashes. There were 56 crashes within the three-year study period. The majority of crashes at this location were rear-end crashes. Signal timing issues or the permitted turn on red could have been contributing factors. The angle of skew of this intersection also could have been a factor causing reduced visibility that led to crashes.

The high incidence of crashes in the study period indicates that safety is an issue in the corridor. The number of rear-end crashes indicates that high traffic volumes, insufficient roadway capacity, and poor access management may be contributing to crashes.

### 2.2.2 Capacity Deficiencies

This Project is also needed to address capacity deficiencies in the corridor. The 2009 Average Daily Traffic (ADT) varies throughout the corridor carrying 16,300 vehicles per day (vpd) at US Route 14, increasing to 26,200 vpd at Country Club Road, before gradually decreasing to 8,100 vpd at Charles Road. 2009 ADT was used since it is found to be consistent with a more broad historical average.

Projected traffic volumes were generated by the Chicago Metropolitan Agency for Planning (CMAP) for the 2040 design year based on the No-Action scenario (i.e., no capacity improvements, only routine maintenance). These future traffic volumes are expected in the range of 17,000 vpd at US Route 14, increasing to 27,000 vpd at Country Club Road, and decreasing to 16,000 vpd south of Charles Road. A letter from CMAP detailing projected traffic volumes is dated November 14, 2011, and is shown in Appendix A. Updated traffic projections were requested from CMAP in 2015 because of the time elapsed. After comparing the revised traffic projections to the original traffic projections in 2011, it was determined the original traffic projections developed in 2011 were sufficiently accurate to complete a traffic analysis

and develop signal timing. The traffic projections sent by CMAP in a letter, dated October 28, 2015, can be found in Appendix A.

Increasing traffic volumes will lead to traffic congestion and delay. A schematic of the Illinois Route 47 corridor showing the relationship between these ADTs and the operational characteristics of the roadway is shown in Figure 2.2-4.

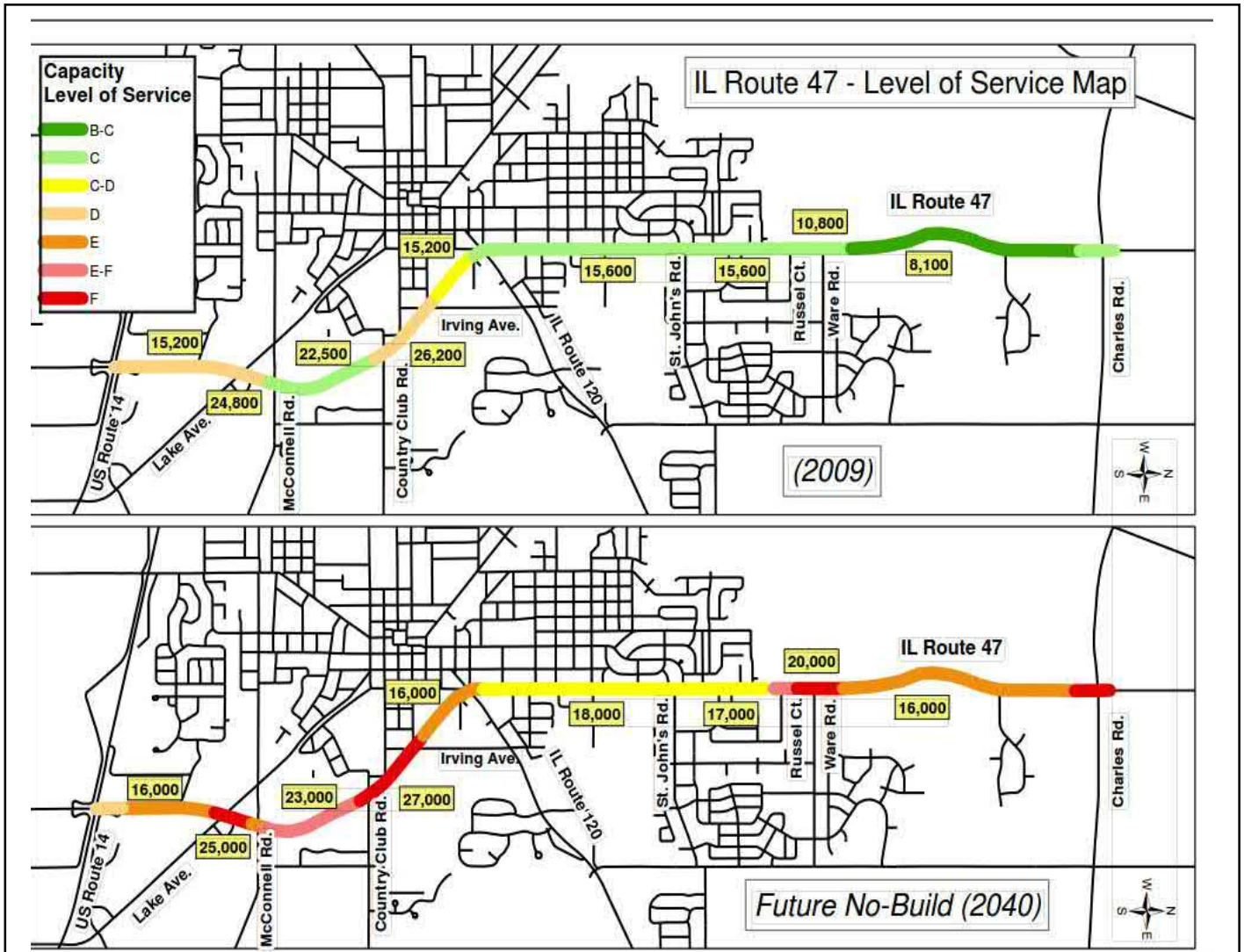


Figure 2.2-4 2009 and Projected ADT and the Resulting Impact on Congestion and Delay

Figure 2.2-4 shows the ADT of the corridor and its relation to the Level of Service (LOS). The LOS of an intersection rates the operational characteristics of traffic volumes to give a measure of traffic flow. The LOS rating is a scale from A to F, with A being optimal free-flow conditions and F indicating the intersection no longer operates properly because demand exceeds capacity. See Figure 2.2-5 for further detail of LOS. Sections between intersections were given a transitional LOS value. For example, LOS C-D indicates the section is between an intersection with LOS C and another intersection with LOS D. This figure shows increasing congestion in the 2040 design year, primarily from Lake Avenue to Ware Road.

**What is Level of Service?**

Level of Service (LOS) is a measurement used to describe traffic flow or the amount of congestion a section of roadway experiences. It can be used to determine speed, travel time, and amount of delay, and traffic-related safety issues can be implied. There are six LOS, each given a letter designation. LOS A represents low volumes and higher speeds of traffic associated with free-flowing traffic.

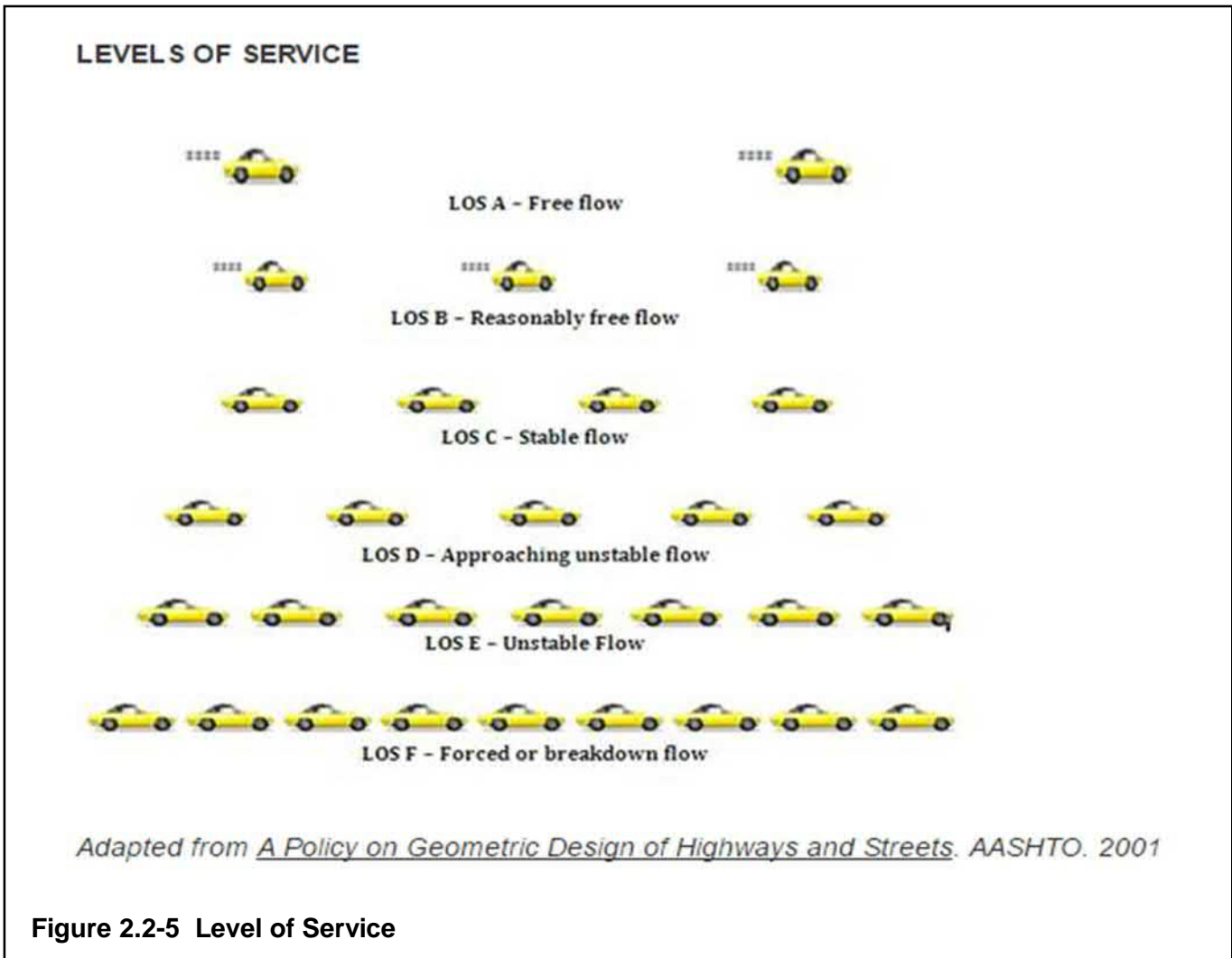
LOS B has stable flow but operating speeds are beginning to be restricted because of traffic conditions.

LOS C still has stable flow but speeds and maneuverability are restricted.

LOS D is the level of service where traffic becomes unstable. There is little freedom to maneuver and there are substantial drops in speed.

LOS E has lower operating speeds, the flow is unstable, and there may be momentary halts in traffic.

LOS F has low operating speeds and traffic often stops, forming vehicle backups.





A distinct area of concern exists between Lake Avenue and McConnell Road. At this location, Illinois Route 47 passes under the UP Railway bridge, shown in Figure 2.2-6. This section currently carries 24,800 vpd and is projected to have 25,000 vpd in the 2040 design year. The bridge opening may no longer be adequate to accommodate the number of lanes required to handle growing traffic demand. Because there are no other direct north-south routes in the City of Woodstock that cross the railway, this deficiency contributes



**Figure 2.2-6 UP Railway Bridge Over Illinois Route 47**

to traffic delay at the intersections immediately north and south of the bridge and to the corridor as a whole. The traffic delays and congestion is a problem for emergency response vehicles that need to travel along Illinois Route 47. The nearest alternative crossing is an at-grade crossing on Madison Street, approximately one mile west via Lake Avenue. Expansion of the current roadway could necessitate reconstruction of the bridge. Because this dual-track rail line carries frequent commuter and freight traffic, the railroad bridge must remain open at all times. A temporary “shoo-fly” railroad bridge and track adjacent to the existing tracks may be required for this location.

Intersection	AM Peak Hour				PM Peak Hour			
	2009		2040 No-Action		2009		2040 No-Action	
	Delay (seconds/vehicle)	LOS	Delay (seconds/vehicle)	LOS	Delay (seconds/vehicle)	LOS	Delay (seconds/vehicle)	LOS
US Route 14	32.7	C	45.7	D	35.8	D	45.6	D
Lake Avenue	34.2	C	100.8	F	41.8	D	135.4	F
McConnell Road	24.8	C	56.3	E	22.9	C	50.0	D
Country Club Road	32.5	C	99.2	F	37.9	D	131.7	F
Judd Street/ Irving Avenue	31.9	C	136.9	F	38.4	D	184.2	F
IL Route 120/ McHenry Avenue	34.6	C	53.8	D	34.0	C	41.4	D
Russel Court	22.9	C	53.7	D	20.8	C	25.4	C

**Table 2.2-1 AM and PM 2009 and Future No-Action (2040) LOS and Delay by Intersection**

Overall, the existing intersection geometry and 2009 traffic volumes result in intersection LOS ranges from C to D. The 2040 no-action scenario intersection LOS ranges from C to F. A summary of the AM and PM LOS and delay for 2009 and the future no-action scenario at each intersection is provided in Table 2.2-1.

In the PM peak hour, four of the seven intersections currently experience LOS D. By 2040, three of the seven intersections will experience LOS D, and three signalized intersections will experience LOS F. As a result, the future no-action PM peak hour queues and delays become excessive. For example, the northbound queue at Country Club Road and Judd Street/Irving Avenue are both over 4,000 feet. This decrease in LOS indicates excessive traffic congestion and travel times.

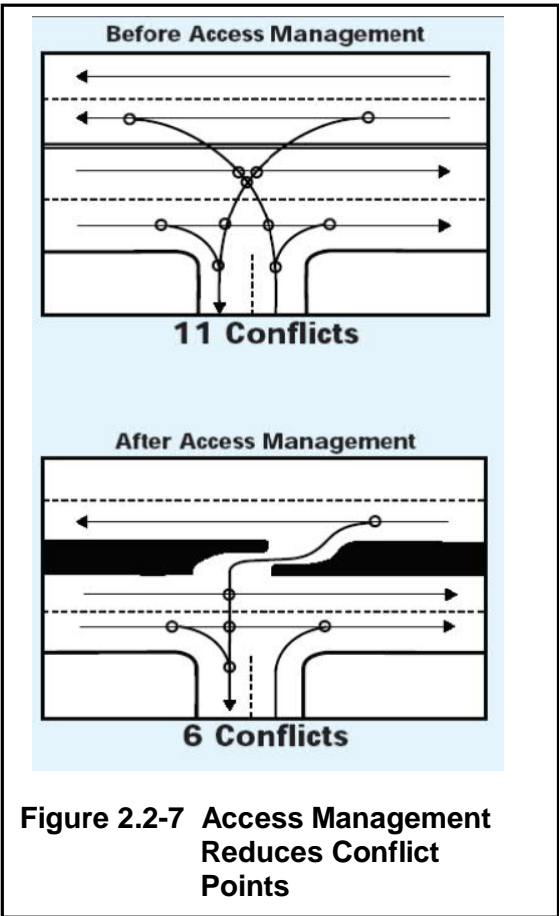
### 2.2.3 Access Management

There is generally no access management along Illinois Route 47. This leads to approximately 190 driveways and 31 intersections along the route. Several businesses have multiple, closely spaced entrances serving the same parking lot. Right-in-right-out access points have only been constructed at three driveways throughout the entire five-mile corridor. There is only one side street, East Calhoun Street, where drivers are prevented from turning left onto Illinois Route 47. There are no barrier medians present in the corridor; therefore, left turns are not physically restricted at any point. The high number of access points fosters unprotected mid-block turning, including left turns.

Providing barrier median and using access management strategies reduces the number of conflict points at an intersection. This is illustrated in Figure 2.2-7, which was taken from the Federal Highway Administration (FHWA) brochure *Safe Access is Good for Business*. As shown in this figure, a three-leg intersection with no access management results in 11 vehicle conflict points while a three-leg intersection restricting left turns out of the side street results in only six vehicle conflict points.

From 2010 to 2012, there were 210 mid-block crashes in the Illinois Route 47 corridor. Of these, 62.4 percent were rear-end or turning crashes. The lack of access management on Illinois Route 47 negatively affects operations and leads to a high incidence of conflicts and, ultimately, crashes.

**What is Access Management?**  
Access management are safe traffic control methods such as the use of: dedicated right and left turn lanes; efficient distances between traffic signals; efficient distances between driveways; the use of raised medians between lanes; and sufficient sight distance between access points.



### 2.2.4 Pedestrian and Bicycle Accommodations

The presence of pedestrian facilities varies in this corridor. Exhibit 2.2-1 shows the locations of existing sidewalk and bicycle facilities in the project study area. There are no existing bicycle paths or bicycle accommodations within the corridor. Bicyclists must travel on Illinois Route 47 with its heavy traffic volumes, high truck volumes, and high turning movements. In the south section, there is 5- to 6-foot-wide sidewalk on both sides of the road at irregular intervals from Catalpa Lane to Country Club Road. There is no sidewalk from Country Club Road to Illinois Route 120. There are 5- to 6-foot-wide sidewalks on both sides of the road through much of the area from Illinois Route 120 to Ware Road. The noncontiguous nature of pedestrian facilities in the corridor means pedestrians must walk through parking lots, along grass parkways, and even on roadway shoulders, as shown in Figure 2.2-8. The intersections of Illinois Route 120 and Russel Court are the only locations with striped pedestrian crossings and pedestrian signals. There are no pedestrian facilities north of Ware Road.



There are several bike and pedestrian generators located along or near the corridor. In addition to the residential and commercial properties immediately adjacent to the roadway, there are several unique land uses with regional significance that generate pedestrian traffic, including the McHenry County Fairgrounds (immediately east of the intersection of Illinois Route 47 and Country Club Road), a Metra train station (approximately 0.4 mile west of Illinois Route 47 in downtown Woodstock), and the McHenry County Government Center Campus (at the intersection of Illinois Route 47 and Ware Road). Other generators include Silver Creek Park (south of St. Johns Road), one learning center at the intersection of Illinois Route 47 and Russel Court, and two schools at the intersection of Illinois Route 47 and Ware Road. Alternate routes to Illinois Route 47 are limited. Potential secondary roads are not continuous and do not provide a direct north-south route to these destinations.

Without improvements, Illinois Route 47's limited pedestrian and bicycle accommodations will remain. Increased motor vehicle traffic will magnify the effect of these deficiencies. It will become more difficult for pedestrians and bicyclists to cross Illinois Route 47 or to use the corridor for travel.

### 2.2.5 Geometric and Design Deficiencies

Geometric and design deficiencies along Illinois Route 47 contribute to safety deficiencies and also to reduced roadway capacity. The overall horizontal and vertical geometrics generally fall within IDOT standards, except as noted in this section.

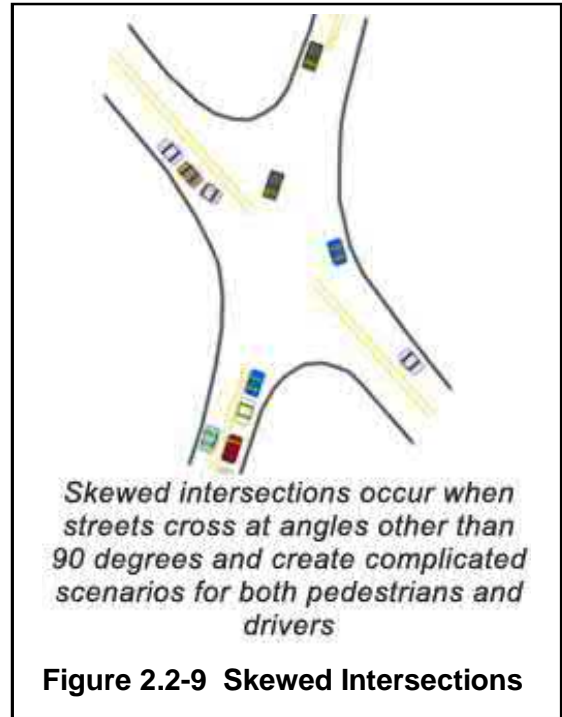
As detailed previously, there are several skewed intersections in the corridor. IDOT recommends that roadways intersect at an angle within 15 degrees of perpendicular to maintain visibility. IDOT allows a maximum skew of 30 degrees where correcting the skew would be impractical (see Figure 2.2-9).



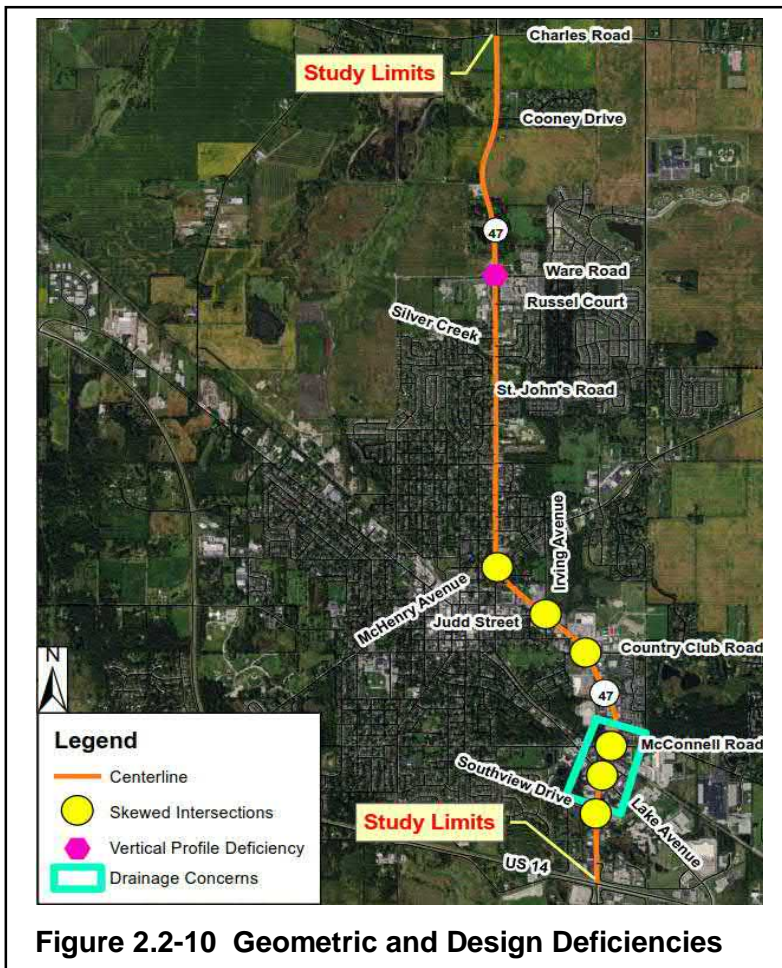
The six intersections that exceed a 15-degree skew are shown in yellow in Figure 2.2-10: Southview Drive, Lake Avenue, McConnell Road, Country Club Road, Judd Street/Irving Avenue, and McHenry Avenue. The skew of three of these intersections exceeds the maximum 30 degrees: Lake Avenue, Country Club Road, and Judd Street/Irving Avenue. Intersection sight distance is also restricted at the intersection of Judd Street and Irving Avenue because of its irregular alignment and the building at the northwest corner of the intersection.

A vertical curve located just north of Ware Road is the only profile vertical deficiency within the corridor. The recommended intersection sight distance is not achieved because of this curve and the 45 mile per hour posted speed limit.

Illinois Route 47 has had consistent reports of poor drainage between the intersections at Lake Avenue and



**Figure 2.2-9 Skewed Intersections**



**Figure 2.2-10 Geometric and Design Deficiencies**

McConnell Road. These intersections flood during heavy rain events. Specifically, in the area underneath the UP Railway bridge, water ponds on the roadway and creates a hazard.

These geometric and design deficiencies contribute to mobility, safety, and operational issues, which will only worsen as traffic volumes increase.



This chapter describes the methodology for the development of alternatives, screening methods used for the evaluation of alternatives, a description of each alternative, and the comparative analysis results that led to the determination of the Preferred Alternative.

### 3.0 DESIGN CRITERIA

Illinois Route 47 is listed as a Strategic Regional Arterial (SRA) within the project study area, which requires specific design criteria (see Table 3.0-1). Illinois Route 47 existing ADT varies from 8,100 vpd at the north end of the project to 26,200 vpd between Country Club Road and Irving Avenue.

Illinois Route 47 has two different roadway classifications within the project study area. From US Route 14 at the south to Ware Road at the north, Illinois Route 47 is classified as an urban corridor, with businesses or residential houses continuous along most of the section. A representative section of the urban SRA along Illinois Route 47 is shown in Figure 3.0-1.

Existing Illinois Route 47 is classified as a rural corridor from Ware Road to Charles Road, with sporadic businesses and residential houses located along the corridor. A majority of the land from

Ware Road to Charles Road is wetlands or farmland. A representative section of the rural SRA along Illinois Route 47 is shown in Figure 3.0-2. The possibility of converting Illinois Route 47 from a rural cross section to an urban or suburban cross section from Ware Road to Charles Road was evaluated as a part of this project and is further discussed in Section 3.6.3.



Figure 3.0-1 Illinois Route 47 Urban SRA

SRA design criteria in accordance with IDOT Bureau of Design and Environment (BDE) Manual, Chapter 46 was used to design Illinois Route 47.



Figure 3.0-2 Illinois Route 47 Rural SRA

Table 3.0-1 presents the controlling geometric design criteria items as recommended by the BDE Manual. Criteria is presented for urban, suburban, and rural cross sections because of the varying cross section alternatives from Ware Road to Charles Road.

Design Criteria	Urban SRA	Suburban SRA	Rural SRA
Design Speed Limit	30 to 40 mph	45 mph	60 mph
Number of Lanes	2 or 3 for each travel direction	2 or 3 for each direction of travel	2 or 3 for each direction of travel
Lane Width	11' restricted ROW 12' desired	12'	12'
Median Width and Type	18-22' with concrete barrier 11-14' flush median	18-30' with concrete barrier 12-14' flush median	50' with depressed median 22' with concrete barrier
Profile Grade	7% maximum 0.3% minimum (0.5% desired)	6% maximum 0.3% minimum (0.5% desired)	4% maximum 0% minimum (0.5% desired)
Edge Treatment	Curb and Gutter	10' wide shoulder or curb and gutter	10' wide shoulder

**Table 3.0-1 Illinois Route 47 Geometric Design Criteria**

The existing speed limit along Illinois Route 47 varies within the project study area. Illinois Route 47 from US Route 14 to Illinois Route 120 and from Greenwood Circle to Ware Road has an existing posted speed limit of 35 mph. Illinois Route 47 from Illinois Route 120 to Greenwood Circle has an existing posted speed limit of 30 mph. Illinois Route 47 from Ware Road to 0.5 mile north of Ware Road has an existing speed limit of 45 mph, and Illinois Route 47 from 0.5 mile north of Ware Road to Charles Road has an existing speed limit of 55 mph. Illinois Route 47 will maintain existing speed limits from US Route 14 to Ware Road and a design speed of 5 mph greater than the posted speed limit will be used. Multiple proposed posted and design speeds were evaluated as a part of this project and are discussed further in Section 3.6.5.1. A map of the existing speed limits and proposed design speeds along Illinois Route 47 is shown in Figure 3.0-3.



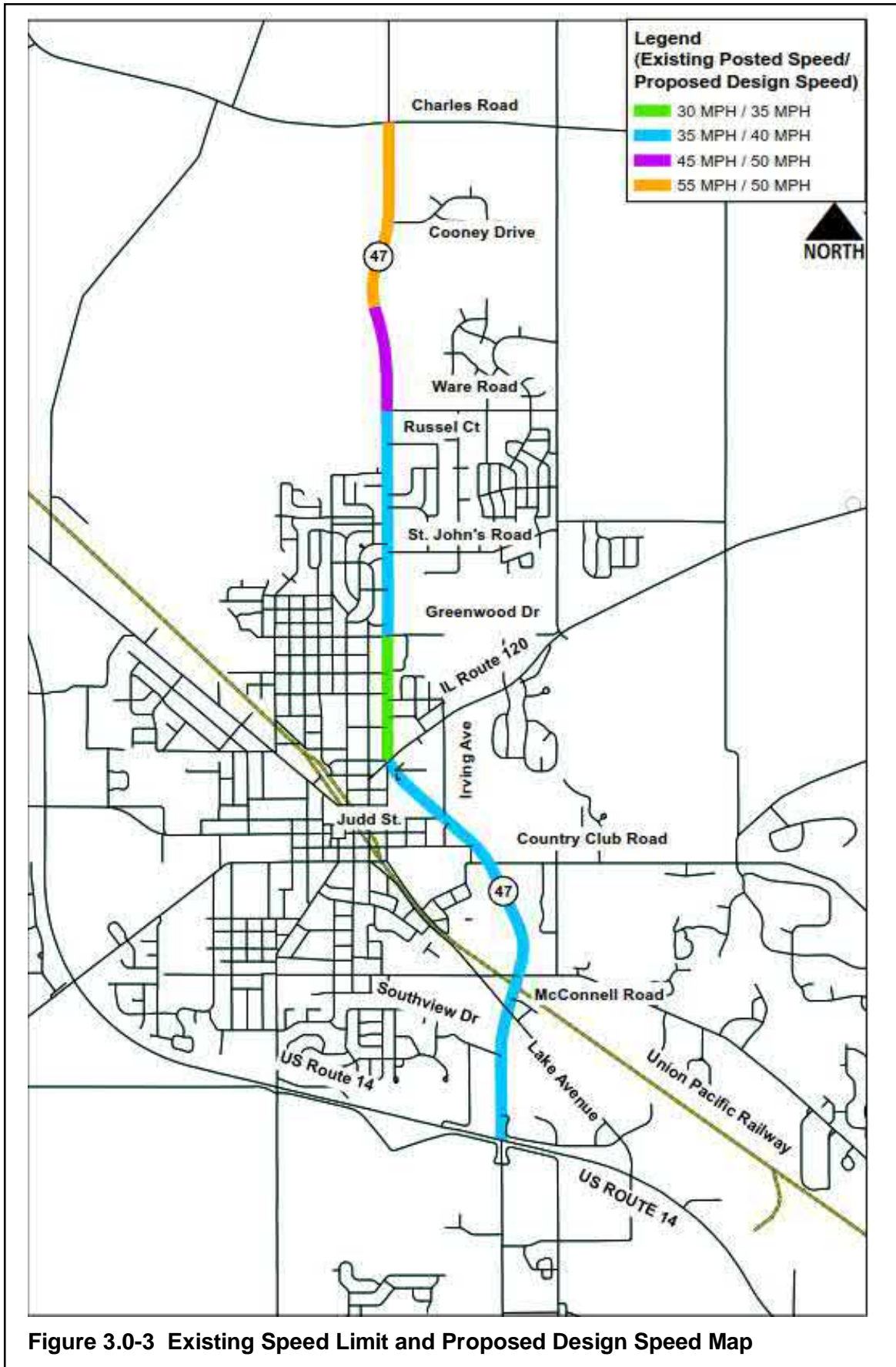


Figure 3.0-3 Existing Speed Limit and Proposed Design Speed Map



### 3.1 ALTERNATIVES DEVELOPMENT PROCESS

The **Purpose** and **Need** for this project described in Chapter 2 summarizes the existing Illinois Route 47 deficiencies and demonstrates the need for action. Deficiencies identified in the **Purpose** and **Need** include safety, traffic operations, access management, pedestrian accommodations, and geometrics.

Establishment of the project **Purpose** and **Need** aided in the identification of project alternatives. Additional input on alternatives resulted from the overall agency and public involvement process described in Chapter 6 using a Context Sensitive Solutions (CSS) project development process. The CSS project development process gathered public input to assist in identification of deficiencies and corridor needs, alternative concepts, and specific project elements. Public input was received from a variety of sources including the Project Study Group, Corridor Advisory Group, public meetings, NEPA/404 merger meetings, one-on-one stakeholder meetings, small group business meetings, and comments received through the project website and mailings. The Illinois Route 47 Corridor Advisory Group comprises many local officials, business owners, adjacent property owners, and other interested persons.

**What is the National Environmental Policy Act (NEPA)?**

The Federal law, NEPA, requires that FHWA consider the environmental consequences of a project to make a fully informed decision. NEPA prescribes three milestones during a project's study: (1) Purpose and Need, (2) Alternatives to be Carried Forward, and (3) Preferred Alternative.

The culmination of this effort combined with the technical evaluation of the Purpose and Need, resulted in the identification of a reasonable range of build alternatives to be considered.

The No-Action Alternative and Build Alternatives developed are presented in the following sections. Included for each alternative is a description of the alternative, its ability to meet the Purpose and Need, the environmental impacts associated with the alternative, and an overview of the initial feedback received from the Corridor Advisory Group on each alternative. Each alternative presents a discussion of the impact to the existing UP Railway bridge or impact to the UP Railway line, as applicable.

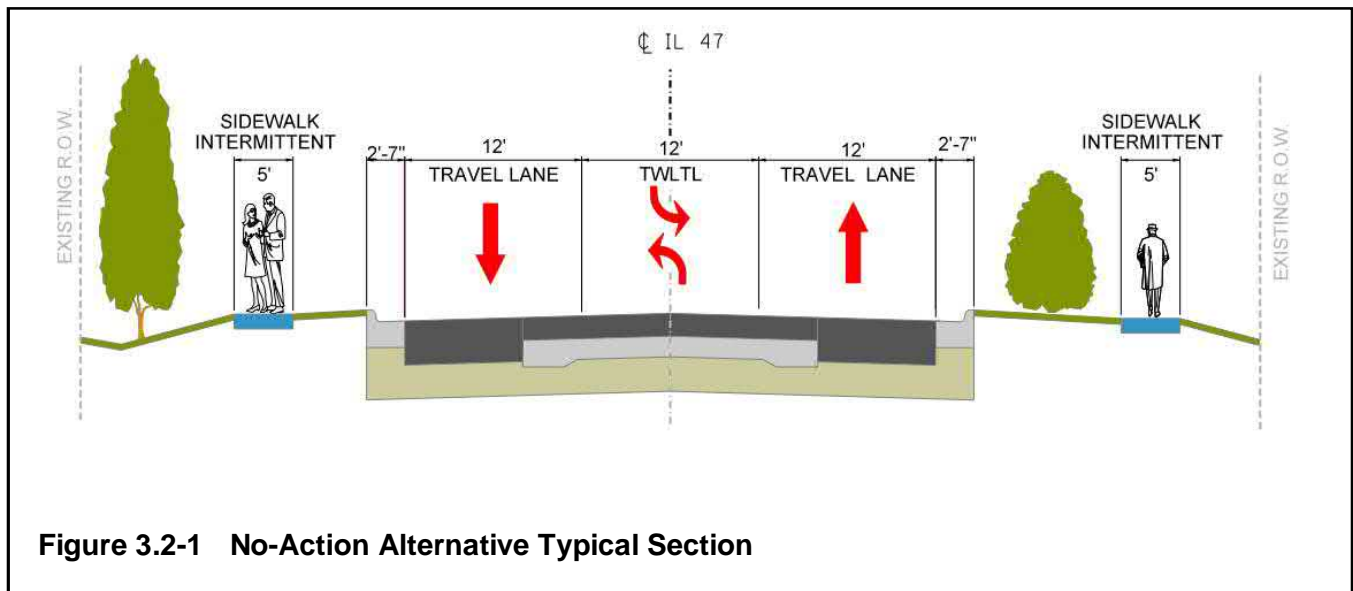
### 3.2 "NO-ACTION" ALTERNATIVE

The "No-Action" alternative does not change the existing Illinois Route 47 corridor or other suitable nearby corridors to address the needs of the existing Illinois Route 47. No upgrades would be made to the existing roadway geometry. This alternative focuses on routine pavement maintenance to keep the roadway operational. No right-of-way acquisition would be required from adjacent properties or areas with potential environmentally-sensitive resources. Figure 3.2-1 shows a typical section of the existing roadway corridor.

The "No-Action" alternative will be carried forward, as required by NEPA, to be used as a benchmark for evaluating the benefits and impacts of the build alternatives.

**What is a No-Action Alternative?**

The No-Action Alternative is one that would occur if the proposed project was not constructed. This provides a baseline of conditions against which the build alternatives can be compared, allowing for a comparison of socioeconomic and environmental impacts, as well as the failure to meet the Purpose and Need of the project. The No-Action Alternative is defined as the transportation facility that is most likely to exist in the forecast year without the proposed improvements.



**Figure 3.2-1 No-Action Alternative Typical Section**

### 3.3 CONGESTION MANAGEMENT PROCESS ALTERNATIVE

The provisions of 23 CFR 450.320 place restrictions on the use of Federal funds for projects in Transportation Management Areas (TMAs) designated as nonattainment for carbon monoxide and/or ozone. In these areas, Federal funds may not be programmed for any project that will considerably increase capacity for single-occupancy vehicles (SOVs) unless the project is addressed through a Congestion Management Process (CMP). The CMP is required to provide an appropriate analysis of alternatives to the proposal for adding SOV capacity including all reasonable congestion management strategies. If the analysis demonstrates that other alternatives or congestion management strategies cannot fully satisfy the need for additional capacity and that the additional SOV capacity is warranted, the CMP must identify all reasonable strategies that will maintain the functional integrity of the additional lanes. All identified reasonable strategies must be incorporated into the project. The CMP for each affected TMA is addressed in materials available from the metropolitan planning organization responsible for the area.

Individual projects involving addition of SOV capacity were evaluated, selected, and prioritized in the course of developing the *Fiscal Year 2017-2022 Transportation Improvement Program (TIP)* and the *GO TO 2040 Comprehensive Regional Plan (CRP)* for Northeastern Illinois. The Northeastern Illinois CMP is documented via various materials that are available through CMAP. The following are examples of such documentation.

1. *Congestion Mitigation Handbook*, September 1998.
2. *Congestion Management System for Northeastern Illinois*, 2006 Annual Status Report.
3. *2040 Regional Transportation Plan for Northeastern Illinois*.
4. *Arterials and Streets Infrastructure and Operations for Mobility, Access, and Community in Metropolitan Chicago*, January 2009.
5. *Travel Demand Management, Strategy Paper*, March 2009.

6. *Congestion Reduction Demonstration for Northeastern Illinois A Proposal for Direct Highway Pricing, Transit, Technology, and Supporting Strategies*, December 31, 2007.

The development process for the TIP and CRP constitutes the CMP for Northeastern Illinois. The CMP process documents warranted projects for adding SOV capacity and, where applicable, also documents whether regional or project-specific alternatives, such as transportation demand management measures, high occupancy vehicle measures, transit capital improvements, congestion pricing, growth management, and incident management, would obviate the need for adding SOV capacity. Planned projects resulting from the CMP are documented in the annual CMP status report referenced above. For this project, it has been determined that stand-alone CMP alternatives will not satisfy the project Purpose and Need and, therefore, this undertaking is a warranted project for adding SOV capacity.

Reasonable project-specific CMP strategies including Traffic Operational Improvements, Transit Operational Improvements, non-motorized modes and measures (pedestrian/bicycle), Intelligent Transportation System (ITS), and Access Management, have been incorporated into this project to the extent practicable. Specific strategies incorporated include adding turn lanes, increased turn lane storage capacity, modernized signals, signal interconnects, sidewalk and bicycle accommodations, and barrier medians.

As previously documented, this project results from the CMP for Northeastern Illinois as a warranted project for adding SOV capacity, and all reasonable congestion management strategies have been incorporated into the project to sustain its effectiveness.

### 3.4 BUILD ALTERNATIVES

The general build alternatives considered can be categorized as the existing Illinois Route 47 alignment alternative (Alternative A), bypass alternatives (Alternatives B1 and B2), and one-way couplet alternatives (Alternatives C1 through C4), as shown in Figure 3.4-1.

**What is a Build Alternative?**

A Build Alternative is one that includes the design and construction of improvements needed to meet the Purpose and Need of the project.

CMAQ projections show the 2040 ADT averaging 26,000 vpd, which is generally within the capacity limit for a roadway with two lanes in each direction. For this reason, Illinois Route 47 build alternatives will consider construction of a four-lane roadway. A discussion of the resulting ADT and LOS for each alternative is provided later in this report.

Evaluation of initial alternatives included determining approximate impacts to environmental resources such as wetlands and floodplain areas. Limits of the environmental resources were taken from the McHenry County Geographical Information Systems (GIS) database. If an alternative is carried forward for further investigation, a project alternative-specific environmental survey will be conducted to determine the exact limits of the environmental resources. Figure 3.4-1 shows these delineated areas.



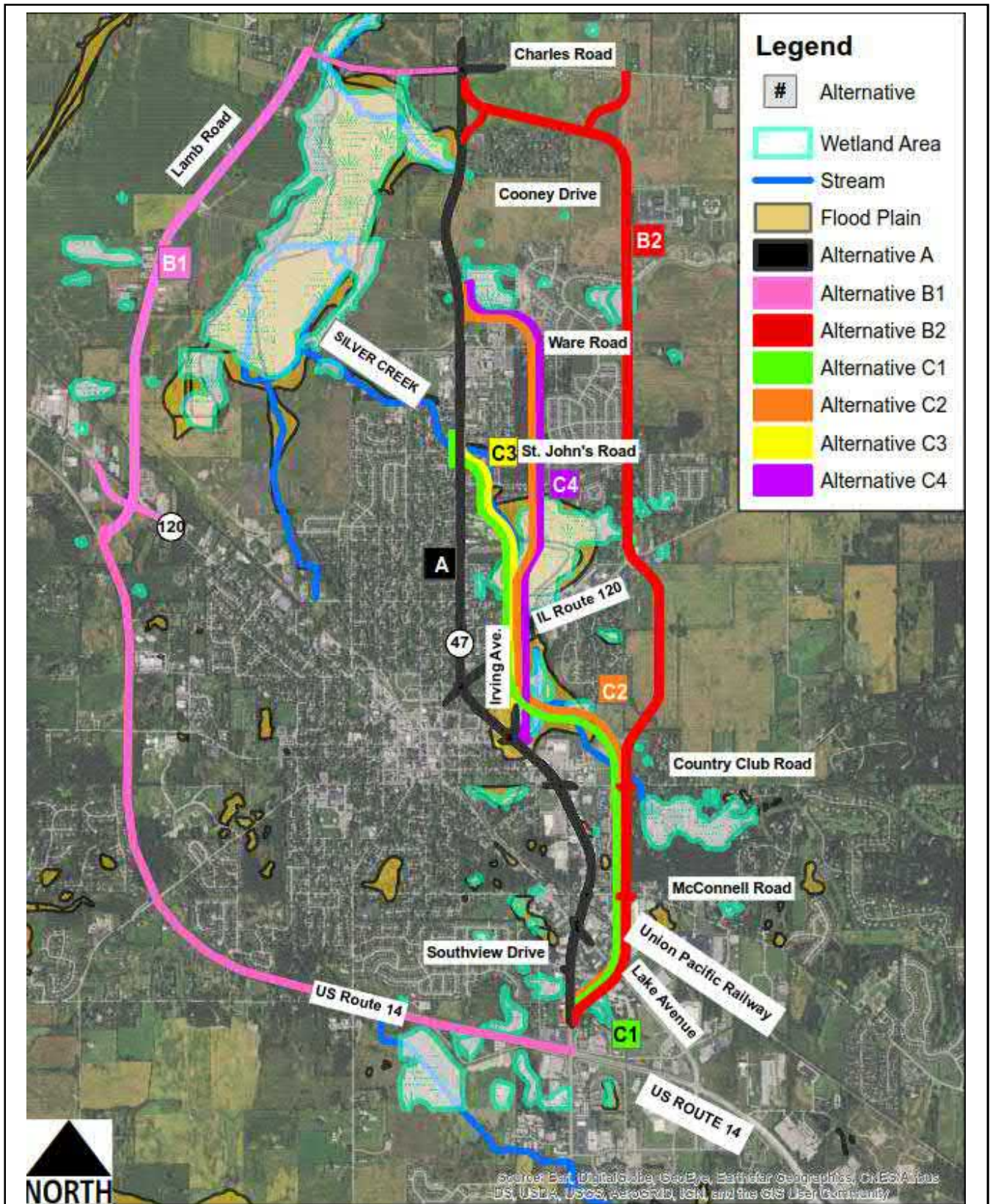


Figure 3.4-1 Illinois Route 47 Full Range of Alternatives with Environmental Resources

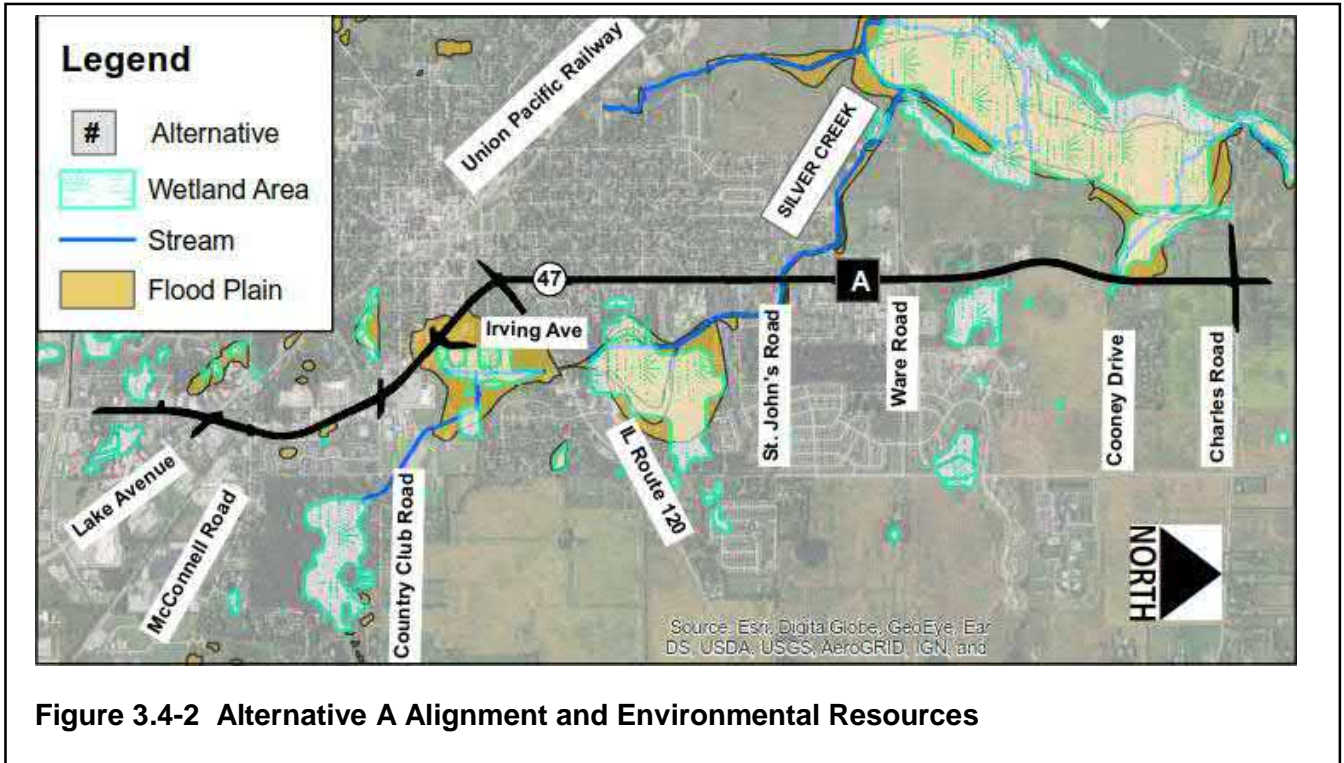


A description of each alternative, preliminary impacts, and the associated traffic modeling results are contained in the following sections.

### 3.4.1 Existing Alignment Alternative

#### 3.4.1.1 Description of Alternative

The existing alignment Alternative A uses the current Illinois Route 47 corridor for improvements. The alignment compared to the delineated environmental resources is shown in Figure 3.4-2.



**Figure 3.4-2 Alternative A Alignment and Environmental Resources**

For this alternative, widening was considered along the existing centerline. The existing Illinois Route 47 corridor is characterized by numerous business and residential access points with several properties close to the existing edge of pavement. To avoid impacts, the final centerline location may shift several feet east or west of the existing centerline.

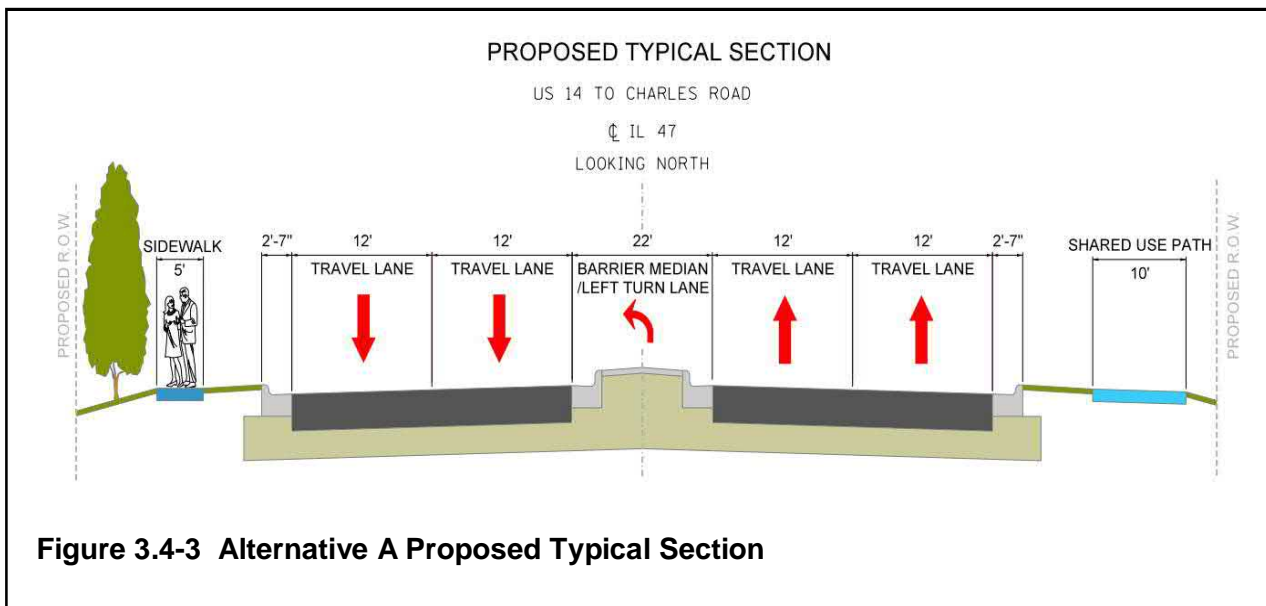
The typical section of the roadway was developed using IDOT's BDE Manual Chapter 46 criteria for SRA routes. The typical section consists of two 11- or 12-foot lanes in each direction separated by a center median.

For the initial build alternative, a proposed typical section consisting of two through-lanes in each direction separated by a 22-foot center barrier median with curb and gutter running along the outside edge of pavement was selected throughout the length of the project. It was assumed 60 feet of right-of-way would be necessary on each side of the Illinois Route 47 centerline. Traditional channelized intersections were used at all intersections for the preliminary analysis.

Also included in this alternative are provisions for pedestrian and bicycle access along the corridor. Initially chosen accommodations include a 10-foot shared-use path on the east side and a 5-foot sidewalk on the west side of the roadway. The resulting typical section is shown in Figure 3.4-3.

**What is a Shared-Use Path?**  
 A shared-use path is a multi-use path physically separated from motorized vehicular traffic by an open space or barrier, to be used by pedestrians, bicyclists, and other non-motorized users.

If it is determined the on-alignment alternative should be carried forward for further analysis, subalternatives will be developed for certain features of the alternative. Potential options for the center median vary and can include a 13-foot center two-way left-turn lane (TWLTL) or an 18- or 22-foot barrier median. Potential typical sections vary and include outside paved shoulders or outside curb and gutter running along the pavement from Ware Road to Charles Road.



**Figure 3.4-3 Alternative A Proposed Typical Section**

Intersection subalternatives include the possibility of six roundabouts located at the intersections of Lake Avenue, McConnell Road, Judd Street/Irving Avenue, Illinois Route 120, Ware Road, and Charles Road. Because of the similarity between the roundabout and traditional intersection on-alignment alternatives, differences in preliminary impacts were assumed to be negligible for the intersection alternatives.

For the purposes of developing this preliminary alternative, it is assumed all existing posted speed limits along Illinois Route 47 will be maintained and all design speeds along Illinois Route 47 will be 5 mph greater than the posted speed limit. Access management will be implemented for this alternative. Entrances to adjacent properties will be consolidated where feasible with consideration for conversion to right-in/right-out operation at the remaining driveways.

### 3.4.1.2 Preliminary Impacts

Alternative A impacts were determined to compare the associated impacts to the bypass and couplet alternatives. Preliminary impacts for the existing alignment alternative using traditional channelized intersections include right-of-way acquisition of approximately 18.9 acres from 505 parcels, five commercial property relocations, and three residential property relocations.

Total disturbed area within the floodplain for this alternative is 5.8 acres and total wetland area affected is 0.2 acre.

#### 3.4.1.3 Initial Public Comments

Preliminary feedback was received from the Corridor Advisory Group on the existing alignment alternative. The Corridor Advisory Group identified positive aspects as barrier median for aesthetic options, increase in roadway capacity, safety improvements, minimizing environmental impacts by using existing right-of-way, less disruption to businesses and region, improvements to skewed intersections and geometry, and pedestrian accommodations. The Corridor Advisory Group identified negative aspects as off-road bicycle accommodations, impacts to right-of-way, potential impacts to parking lots, barrier median limiting access, potential cost of replacing the UP Railway bridge, and truck traffic remaining on existing Illinois Route 47.

### 3.4.2 Bypass Alternatives

#### 3.4.2.1 West Bypass (Alternative B1)

##### 3.4.2.1.1 Description of Alternative

This alternative begins at the southern project limit and establishes a western bypass around the City of Woodstock. This alignment is designated as Illinois Route 47 and uses the existing alignment of US Route 14 westbound for approximately 3.5 miles, at which point the highway would travel north off US Route 14 establishing a new 0.4-mile connection with existing Lamb Road. The roadway would continue in the northeast direction along Lamb Road for 2.25 miles before using Charles Road to travel 0.78 mile east to match the existing Illinois Route 47. The proposed typical section for the west bypass is similar to the on-alignment alternative, consisting of two 12-foot lanes in each direction with a 22-foot center barrier median. It was assumed 60 feet of right-of-way would be required on each side of the new roadway centerline.

The CMAP model shows the western bypass draws traffic and reduces traffic volume on existing Illinois Route 47. For example, between McConnell Road and Country Club Road, the 2040 projected ADT is reduced from 31,000 to 29,000 vpd. However, this projected ADT still greatly exceeds the capacity of the existing roadway. Improvements would still be required to existing Illinois Route 47 to meet the traffic demand.

It is assumed that improvements to Illinois Route 47 also would require 60 feet of right-of-way on each side of the centerline.

The alignment compared to the delineated environmental resources is shown in Figure 3.4-4.

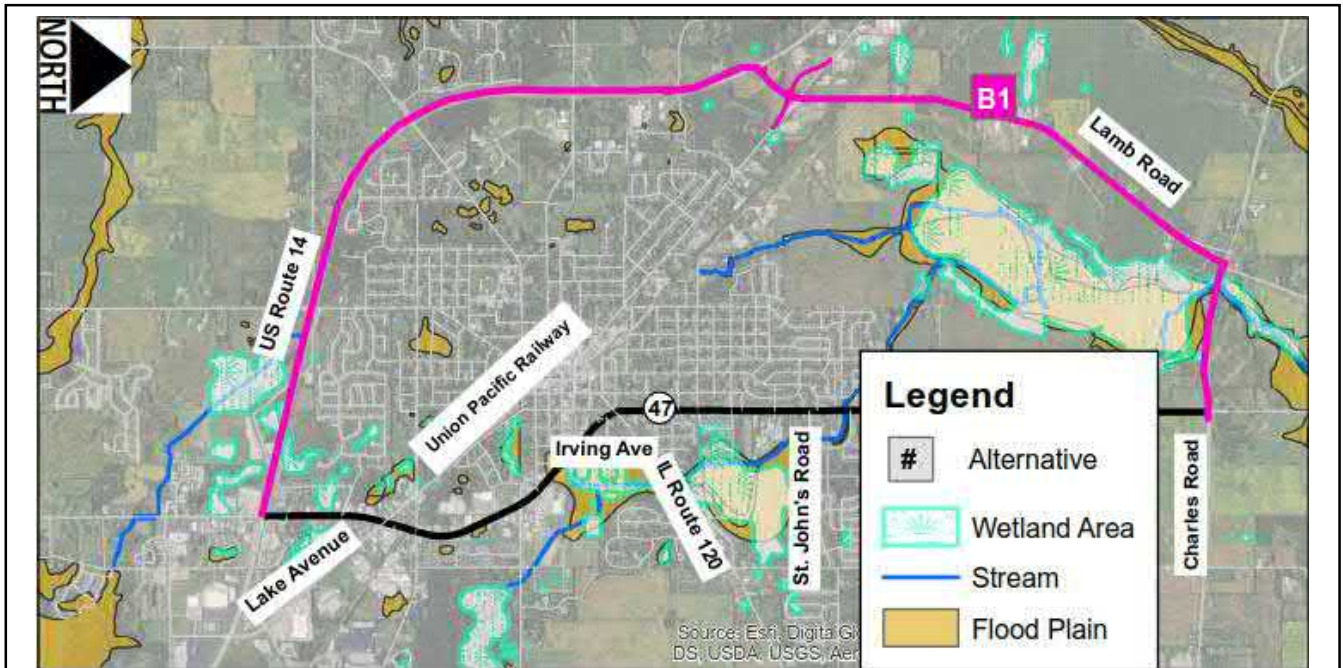


Figure 3.4-4 Alternative B1 Alignment and Environmental Resources

#### 3.4.2.1.2 Preliminary Impacts

Preliminary impacts for the west bypass alternative include right-of-way acquisition of approximately 25.5 acres from 42 parcels, one commercial property relocation, and two residential property relocations. This alternative would require a new grade-separated railroad crossing. Work associated with establishing this new grade-separated crossing results in additional impacts to approximately four properties.

Environmental impacts include impacts to the stream crossing, wetland, and floodplain. Total disturbed area within floodplain for this alternative is 0.3 acre, and total wetland area affected is 0.4 acre.

#### 3.4.2.1.3 Initial Public Comments

Preliminary feedback was received from the Corridor Advisory Group on the west bypass alternative. The Corridor Advisory Group identified positive aspects including some traffic relief to existing Illinois Route 47, diversion of truck traffic, and a possible new economic development corridor. The Corridor Advisory Group identified negative aspects that included required improvements to existing Illinois Route 47 to accommodate traffic volumes, the City of Woodstock assuming maintenance responsibility for existing Illinois Route 47, negative impacts to businesses because of diverted traffic, the added cost of a second railroad bridge, and a west bypass that would not address the bicycle and pedestrian needs of the existing corridor.



3.4.2.2 East Bypass (Alternative B2)

3.4.2.2.1 Description of Alternative

This alternative begins approximately 0.15 mile north of the intersection of Illinois Route 47 and US Route 14 and establishes an eastern bypass around the City of Woodstock. The newly designated Illinois Route 47 would travel off the existing roadway alignment to the northeast for 0.3 mile. This new roadway would then continue north for approximately 0.3 mile, crossing the UP Railway with a new grade-separated crossing and matching the existing alignment of Zimmerman Road. The roadway then travels north along Zimmerman Road for 0.5 mile. At Country Club Road, the roadway continues north along a new roadway for approximately 1.15 miles using horizontal curves to avoid impacts to adjacent land users and ultimately aligning with Raffel Road. The roadway continues north along Raffel Road for 1.75 miles before using one mile of reverse curves to realign with existing Illinois Route 47. The proposed typical section for the east bypass also contains two 12-foot lanes in each direction with a 22-foot center barrier median. All existing roadways used must be widened. It is assumed 60 feet of right-of-way will be required on each side of the centerlines of all roadways to be constructed/widened. The alignment compared to the delineated environmental resources is shown in Figure 3.4-5.

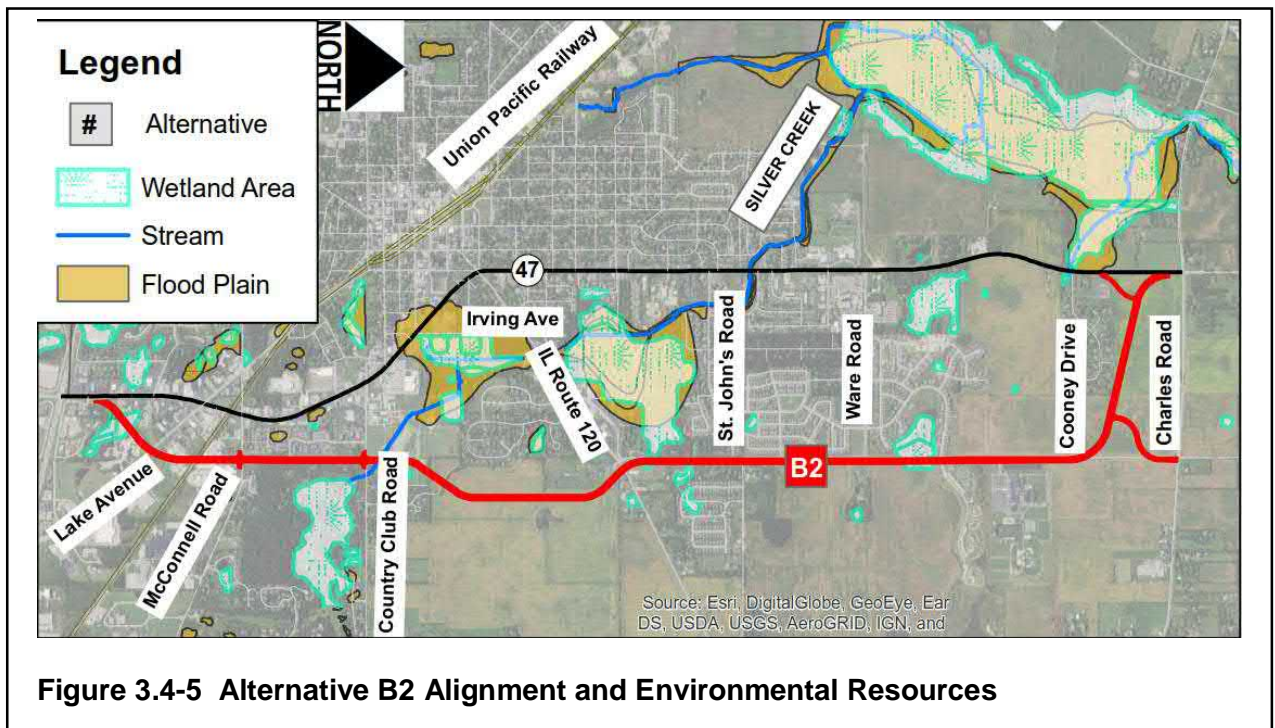


Figure 3.4-5 Alternative B2 Alignment and Environmental Resources

The CMAP model shows the eastern bypass draws traffic from and reduces traffic volume on existing Illinois Route 47. For example, between Country Club Road and Irving Avenue, the 2040 projected ADT is reduced from 33,000 to 21,000 vpd. This alternative provides more congestion relief than the western bypass alternative. However, the projected ADT does exceed the capacity of the existing three-lane roadway. Improvements would still be required to existing Illinois Route 47 to meet the traffic demand.

#### 3.4.2.2 Preliminary Impacts

Preliminary impacts for the east bypass alternative include right-of-way acquisition of approximately 68.1 acres from 209 properties, four commercial property relocations, and six residential property relocations. A portion of the alignment would require right-of-way from the McHenry County Fairgrounds. A baseball field would need to be acquired from a private high school south of Illinois Route 120. This alternative would require a new grade-separated railroad crossing between Lake Avenue and McConnell Road. Work associated with establishing this new grade-separated crossing results in impacts to approximately 6 to 14 properties.

This alternative would require two new stream crossings north of Country Club Road. Total wetland area affected for this alternative is 3.1 acres.

#### 3.4.2.2.3 Initial Public Comments

Preliminary feedback was received from the Corridor Advisory Group on the east bypass alternative. The Corridor Advisory Group identified positive aspects that include some traffic relief to existing Illinois Route 47 and a possible new economic development corridor. The Corridor Advisory Group identified negative aspects that include required improvements to existing Illinois Route 47 to accommodate traffic volumes, the City of Woodstock assuming maintenance responsibility for existing Illinois Route 47, negative impacts to businesses because of diverted traffic, the added cost of a second railroad bridge, property acquisition, and difficult geometry and impacts at the beginning and end of the bypass.

### 3.4.3 One-Way Couplet Alternatives

Four one-way couplet alternatives were considered. The typical section for this alternative would be different for the two directions of traffic. The newly established northbound leg of traffic would be an urban two-lane cross section, requiring 33 feet of right-of-way on each side of the centerline. Existing Illinois Route 47 would remain three lanes within the one-way couplet limits. All other two-way sections of existing Illinois Route 47 would need to be expanded to two lanes in each direction with a 22-foot center barrier median requiring 60 feet of right-of-way on each side of the centerline.

The CMAP model generally shows that one-way couplet options split traffic in half and will reduce traffic volume on existing Illinois Route 47. Improvements to existing Illinois Route 47 and the associated impacts could be avoided at various sections when using the one-way couplet alternatives.

A description of each couplet alternative and the associated preliminary impacts is included in the following sections.

3.4.3.1 Southview Drive to North of St. Johns Road (Alternative C1)

3.4.3.1.1 Description of Alternative

This alternative begins approximately 0.15 mile north of the intersection of Illinois Route 47 and US Route 14. The highway splits northbound traffic off the existing roadway alignment to the northeast for approximately 0.3 mile. This new roadway then continues north for approximately 0.3 mile, crossing the UP Railway and matching the existing alignment of Zimmerman Road. The roadway then travels north along Zimmerman Road for 0.5 mile. At Country Club Road, the roadway continues north along a new roadway for approximately 0.75 mile using horizontal curves to align with Irving Avenue. The roadway continues north along existing Irving Avenue for 0.25 mile. Irving Avenue is extended northward and to the west of Silver Creek for approximately 0.85 mile before merging back into two-way traffic along existing Illinois Route 47 just north of St. Johns Road. Illinois Route 47 would be widened to two lanes in each direction from north of St. Johns Road to Charles Road. The alignment compared to the delineated environmental resources is shown in Figure 3.4-6.

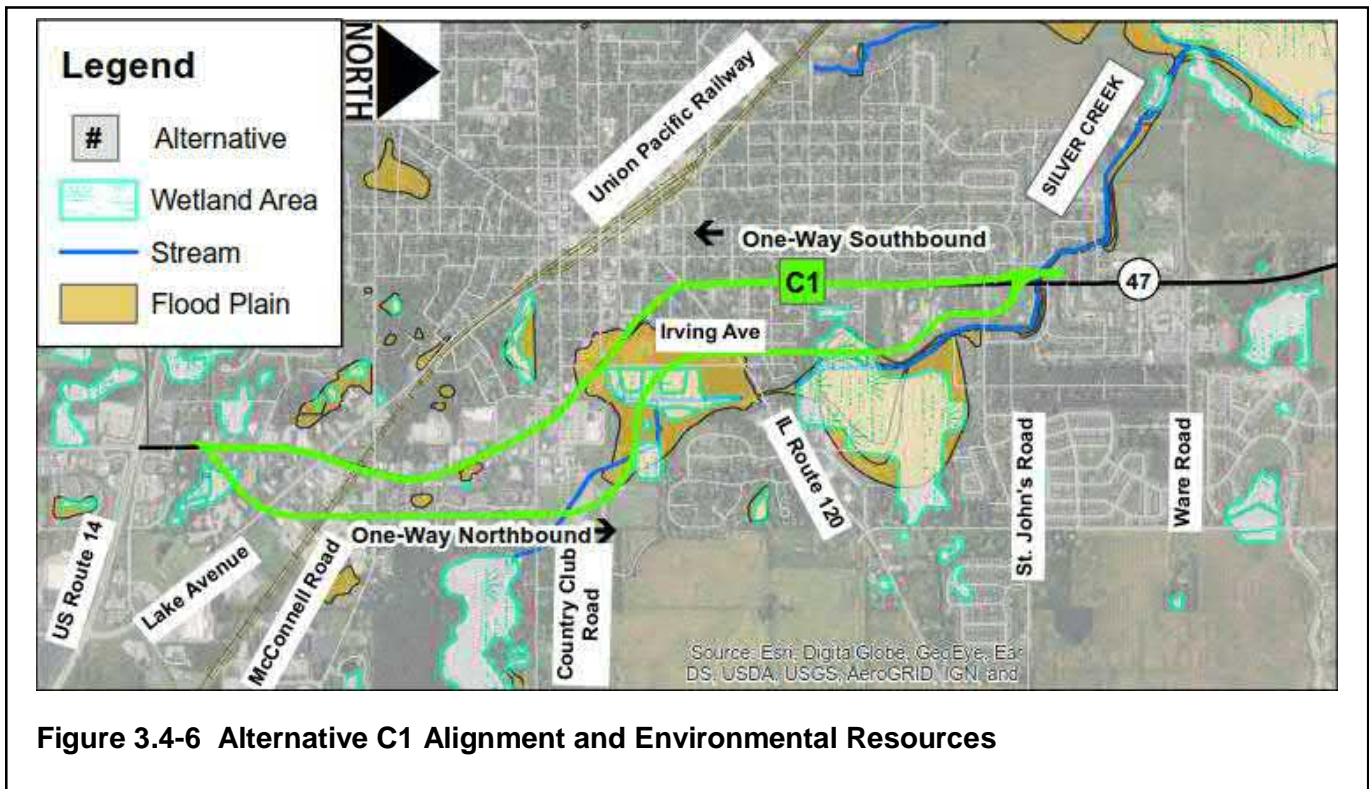


Figure 3.4-6 Alternative C1 Alignment and Environmental Resources



3.4.3.1.2 Preliminary Impacts

Preliminary impacts for one-way couplet Alternative C1 include right-of-way acquisition of approximately 46.9 acres from 143 properties, including the necessary expansion of existing Illinois Route 47 south and north of the couplet. Potential relocations may be necessary for two residential and three business properties. A portion of the alignment would require right-of-way from the McHenry County Fairgrounds, essentially splitting the parcel in two. Two tennis courts and two baseball fields would be acquired from Silver Creek Park. This alternative would require a new grade-separated railroad crossing between Lake Avenue and McConnell Road. Work associated with establishing this new grade-separated crossing would result in additional impacts to approximately 6 to 14 properties.

Total disturbed area within floodplain for this alternative is 7.5 acres and total wetland area affected is 4.1 acres.

3.4.3.2 Southview Drive to North of Ware Road (Alternative C2)

3.4.3.2.1 Description of Alternative

This alternative is similar to Alternative C1 from the southern limit at Southview Drive to Illinois Route 120. North of Illinois Route 120, the northbound lanes of traffic continue east and align with existing Hickory Road. The roadway travels north for 0.7 mile before merging back into two-way traffic along existing Illinois Route 47 just north of Ware Road. Illinois Route 47 would be widened to two lanes in each direction from north of Ware Road to Charles Road. The alignment compared to the delineated environmental resources are shown in Figure 3.4-7.

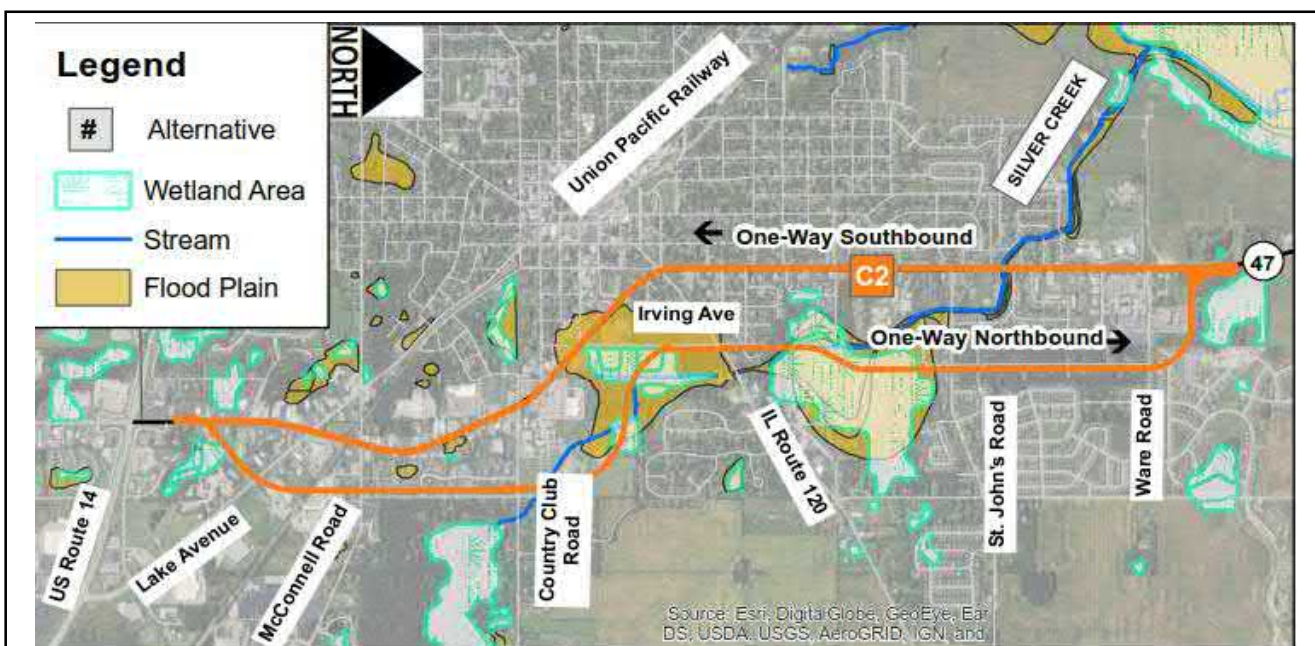


Figure 3.4-7 Alternative C2 Alignment and Environmental Resources

3.4.3.2.2 Preliminary Impacts

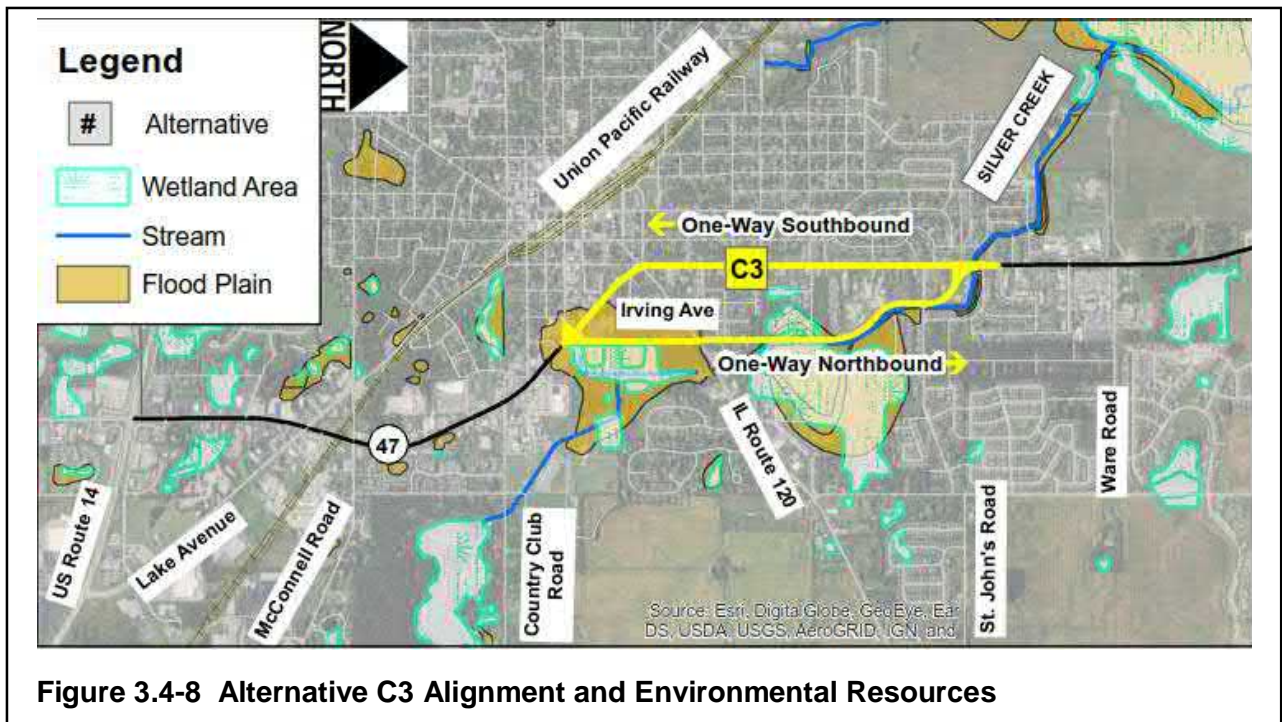
Preliminary impacts for one-way couplet Alternative C2 include right-of-way acquisition of approximately 38.7 acres from 134 properties, including the necessary expansion of existing Illinois Route 47 south and north of the couplet. Potential relocations may be necessary for three residential and three business properties. A portion of the alignment would require right-of-way from the McHenry County Fairgrounds, essentially splitting the parcel in two. This alternative would require a new railroad crossing between Lake Avenue and McConnell Road. Work associated with establishing this new grade separated crossing results in additional impacts to approximately 6 to 14 properties.

Total disturbed area within floodplain for this alternative is nine acres and total wetland area affected is six acres.

3.4.3.3 Irving Avenue to North of St. Johns Road (Alternative C3)

3.4.3.3.1 Description of Alternative

This alternative begins at the intersection of Illinois Route 47 and Irving Avenue. The highway splits northbound traffic along Irving Avenue for 0.45 mile. Irving Avenue is extended northward and to the west of Silver Creek for approximately 0.85 mile before merging back into two-way traffic along existing Illinois Route 47 just north of St. Johns Road. Illinois Route 47 would be widened to two lanes in each direction from US Route 14 to Irving Avenue and from north of St. Johns Road to Charles Road. The alignment compared to the delineated environmental resources is shown in Figure 3.4-8.



#### 3.4.3.3.2 Preliminary Impacts

Preliminary impacts for one-way couplet Alternative C3 include right-of-way acquisition of approximately 36.5 acres from 139 properties, including the necessary expansion of existing Illinois Route 47. Potential relocations may be necessary for two residential buildings and one business property. Two tennis courts and two baseball fields would be acquired from Silver Creek Park.

This alternative would require replacement of the existing Illinois Route 47 UP Railway bridge to accommodate the expanded roadway width. This may require a temporary shoo-fly railroad bridge and track adjacent to the existing tracks.

If this work occurs north of the tracks, there are additional possible impacts to five parcels and potential relocations of two businesses. If this work occurs south of the tracks, there are additional possible impacts to 14 parcels and the potential for relocations of 5 businesses.

Total disturbed area within floodplain for this alternative is 9 acres and total wetland area affected is 1.5 acres.

#### 3.4.3.4 Irving Avenue to North of Ware Road (Alternative C4)

##### 3.4.3.4.1 Description of Alternative

This alternative is similar to Alternative C3 from the southern limit at Irving Avenue to Illinois Route 120. North of Illinois Route 120, the northbound lanes of traffic continue east and align with existing Hickory Road. The roadway travels north for 0.7 mile before merging back into two-way traffic along existing Illinois Route 47 just north of Ware Road. Illinois Route 47 would be widened to two lanes in each direction from US Route 14 to Irving Avenue and from north of Ware Road to Charles Road. The alignment compared to the delineated environmental resources is shown in Figure 3.4-9.

##### 3.4.3.4.2 Preliminary Impacts

Preliminary impacts for one-way couplet Alternative C4 include right-of-way acquisition of approximately 28.3 acres from 116 properties, including the necessary expansion of existing Illinois Route 47. Potential relocations may be necessary for three residential and one business property.

This alternative would require replacement of the existing Illinois Route 47 UP Railway bridge to accommodate the expanded roadway width. This may require a temporary shoo-fly railroad bridge and track adjacent to the existing tracks. If this work occurs north of the tracks, there are additional possible impacts to five parcels and potential relocations of two businesses. If this work occurs south of the tracks, there are additional possible impacts to 14 parcels and the potential for relocation of five businesses.



Total disturbed area within floodplain for this alternative is 10.5 acres and total wetland area affected is 3.4 acres.

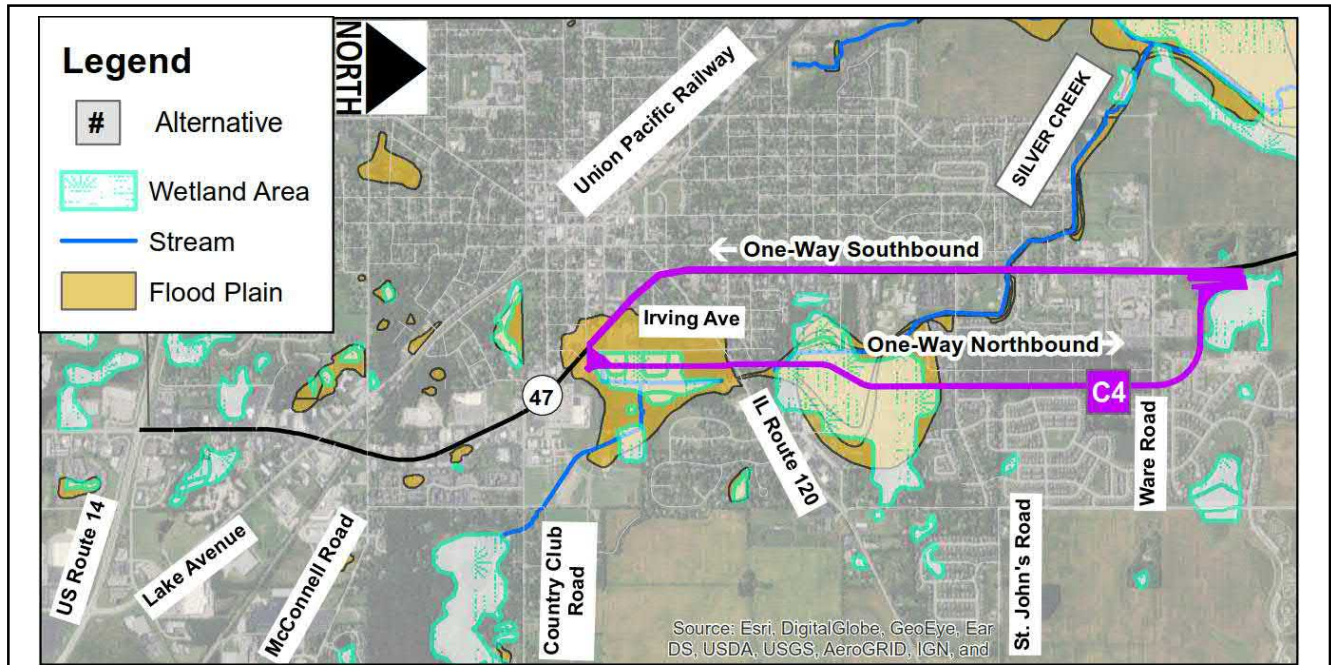


Figure 3.4-9 Alternative C4 Alignment and Environmental Resources

### 3.4.3.5 Couplet Initial Public Feedback

Preliminary feedback was received from the Corridor Advisory Group on the one-way couplet alternatives. The Corridor Advisory Group identified positive aspects that include no need to widen the existing Illinois Route 47 UP Railway bridge (Alternatives C1 and C2 only), IDOT continuing to maintain both roadways, relief of traffic on existing Illinois Route 47 (in adjacent one-way areas), increased safety by reducing left turn conflicts and, when compared to other bypass alternatives, the couplet has more access to businesses. The Corridor Advisory Group-identified negative aspects include increased cost for improving two roadways, the cost of a second railroad bridge (Alternatives C3 and C4 only), right-of-way acquisition and cost, complex traffic pattern and resulting adverse travel, negative impact on existing businesses, impacts to local zoning and land use plans, and impacts to environmental areas.

### 3.5 EVALUATION AND SCREENING OF ALTERNATIVES

Alternatives were evaluated for their ability to meet the Purpose and Need of the project. Those that met the Purpose and Need were carried forward for further evaluation. This evaluation consisted of detailed analysis of impacts for each alternative and public feedback on the alternatives. The goal of the analysis was to select a preferred alternative for the project.

A summary of this process is displayed in Figure 3.5-1.

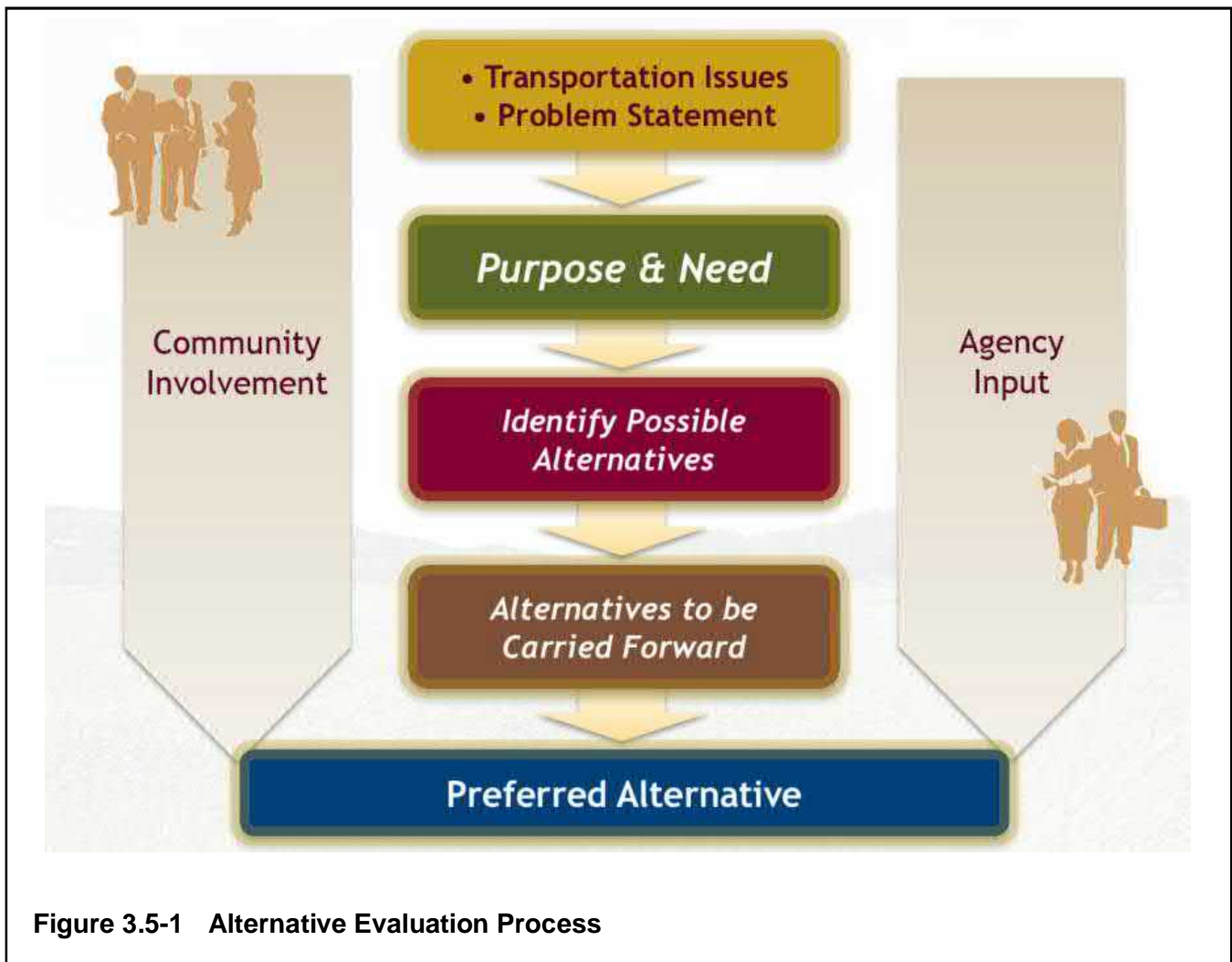
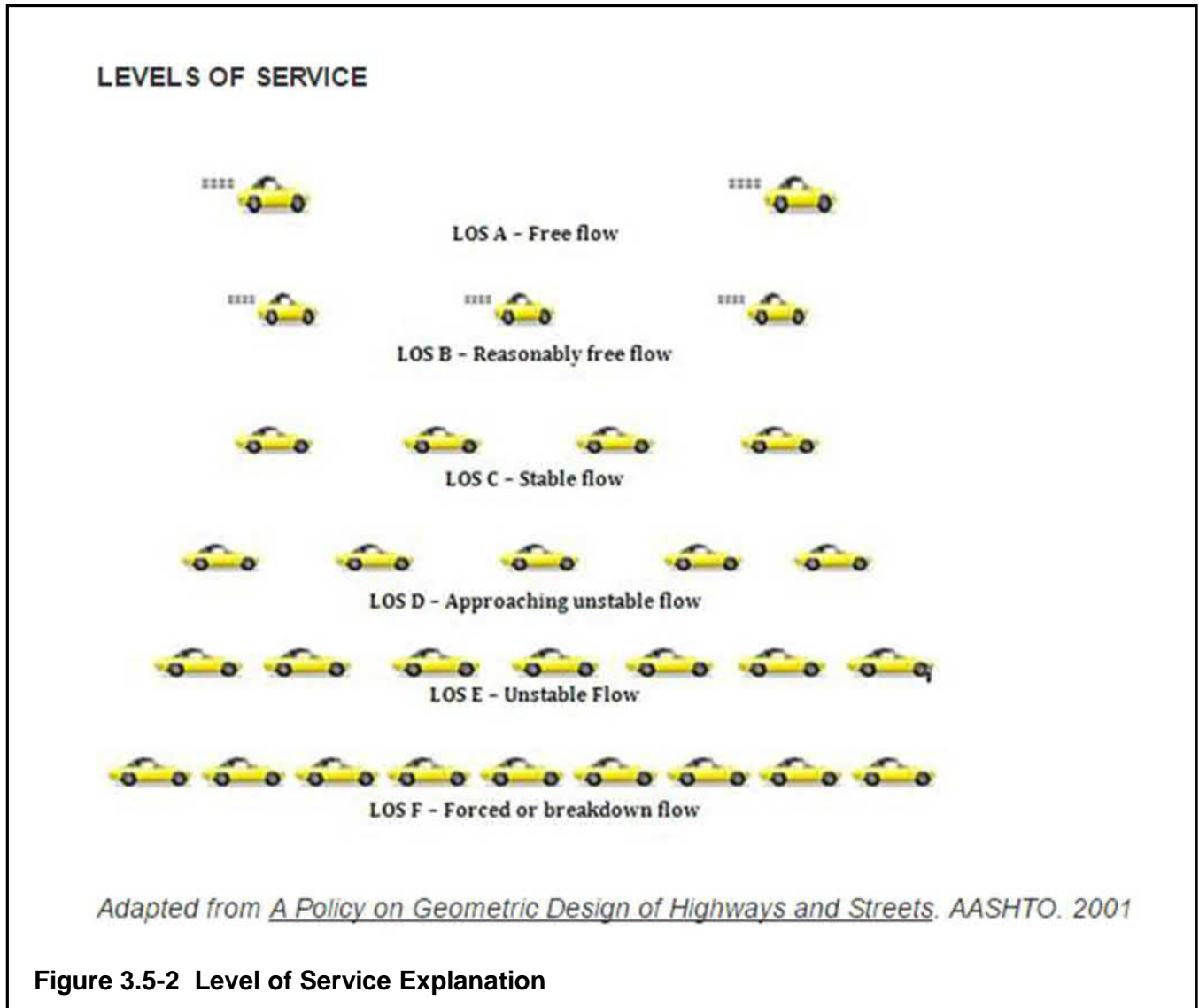


Figure 3.5-1 Alternative Evaluation Process



Level of Service (LOS) is a measurement used to describe traffic flow or the amount of congestion a section of roadway experiences. There are six LOS, each given a letter designation. See Figure 3.5-2 for further detail of LOS.



ADT values and the resulting LOS were used to predict the amount of congestion Illinois Route 47 would experience for the alternatives. The results of the traffic analysis for the no-action alternative are shown in Figure 3.5-3.

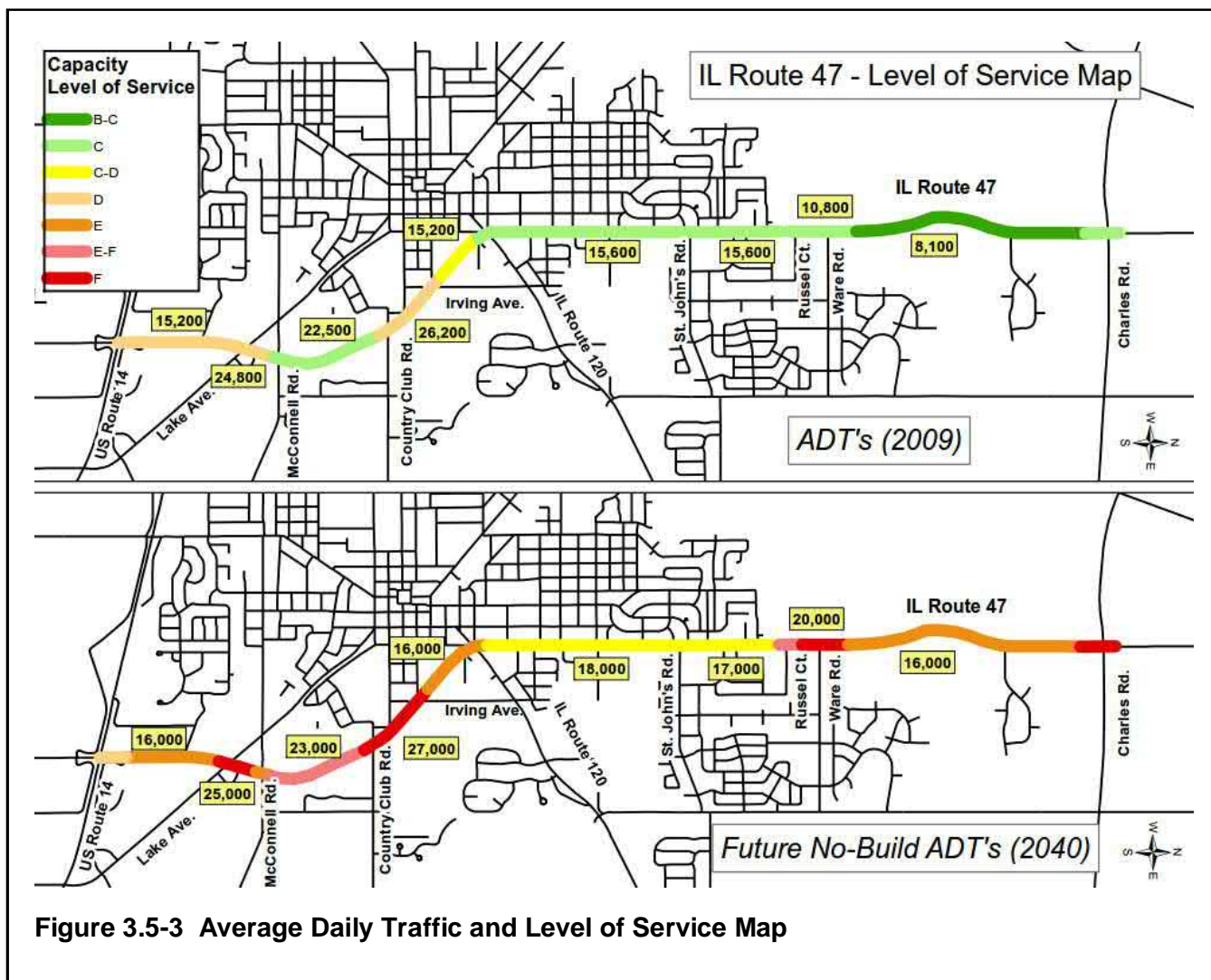
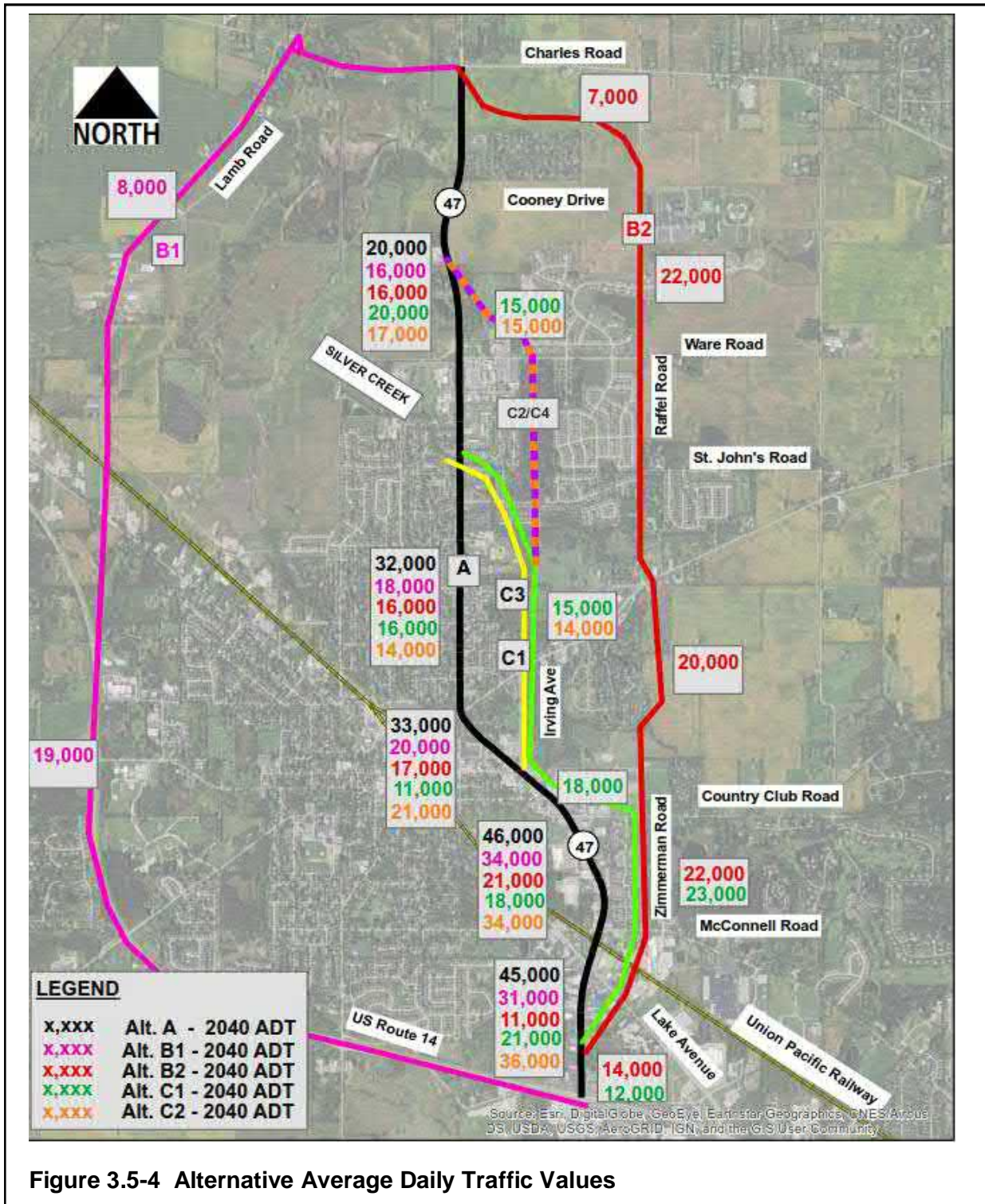


Figure 3.5-3 Average Daily Traffic and Level of Service Map

As can be seen in Figure 3.5-3, 2040 LOS for the future no-action varies from C to F. This LOS range is not acceptable for IDOT highways. IDOT guidelines for an urban SRA such as Illinois Route 47 recommend consideration of expansion to a four-lane section when the ADT reaches approximately 16,000 to 18,000 vpd in the design year. The design year for this project is 2040, and parts of the corridor have already surpassed this ADT threshold.

Given the deficiencies of the roadway in its existing condition and continued increases in traffic volume in the future, the “No-Action” alternative is not a viable option to address the Purpose and Need of the corridor. The “No-Action” alternative would result in increased congestion and travel delays and would contribute to decreased safety by increasing the incidence of traffic conflicts. Additionally, this alternative does not address the need for access management, pedestrian and bicycle accommodations, or any of the identified geometric deficiencies.

To determine the effectiveness of each preliminary build alternative from a capacity standpoint, traffic projections were needed. CMAP developed a sub-area traffic model of the Woodstock area. This model was used to develop 2040 ADT volumes for each scenario. The model output shows how each bypass and couplet scenario would affect local and regional traffic patterns, and also shows the feasibility of each bypass to alleviate traffic demand on the existing Illinois Route 47 roadway. The resulting ADTs are shown in Figure 3.5-4.





A summary of the preliminary potential impacts of each build alternative is shown in Table 3.5-1. Wetland, floodplain, and stream crossing impacts for the bypass and couplet alternatives were determined using National Wetland Inventory maps. No survey on site was completed for the bypass and couplet alternatives.

Alternative	Property Impacts				Environmental Impacts		
	Right-of-Way (acres)	Potential Relocated Residences	Potential Relocated Businesses	Additional Properties Affected by Railroad Work	Wetland (acres)	Floodplain (acres)	Stream Crossings
A	18.9	11	3	5 to 14	0.2	5.8	2
B1	25.5	3	0	4	0.4	0.3	1
B2	68.1	6	4	6 to 14	3.1	0.0	1
C1	46.9	2	3	6 to 14	4.1	7.5	3
C2	38.7	3	3	6 to 14	6.0	9.0	3
C3	36.5	2	1	5 to 14	1.5	9.0	2
C4	28.3	3	1	5 to 14	3.4	10.5	2

**Table 3.5-1 Impacts Summary Table**

As shown in Table 3.5-1, Alternative A requires the least amount of right-of-way to be acquired. Alternative A also has the most potential relocated residences and a high number of potential relocated businesses. Alternative B1 involves the second least amount of right-of-way acquisition. Alternative B1 also involves the least overall property and environmental impacts. Alternatives B2, C1, C2, C3, and C4 all involve additional right-of-way acquisition and environmental impacts when compared to Alternatives A and B1.

This existing alignment build alternative (Alternative A) meets the project Purpose and Need. It will increase roadway capacity. Because many of the crashes in the corridor appear to be congestion related, the increased capacity combined with improved access management will likely reduce traffic conflicts and therefore reduce crashes. Pedestrian and bicycle accommodations are included. This alternative also will provide feasible and practical repairs to geometric deficiencies. Therefore, this alternative is recommended to be carried forward.

The bypass alternatives (Alternatives B1 and B2) do not satisfy the Purpose and Need, as traffic congestion and related safety deficiencies on existing Illinois Route 47 would continue. Additionally, designating a bypass route does not address access management, pedestrian and bicycle accommodations, or the geometric needs of the existing Illinois Route 47 corridor. Therefore, this alternative is not being carried forward for further analysis.

Each of the one-way couplet alternatives could satisfy the project Purpose and Need because both existing Illinois Route 47 and the new corridor would be improved. The traffic model showed that traffic congestion and delay would be reduced and, therefore, would improve safety. The existing Illinois Route 47 edge of pavement would be sufficient in the adjacent one-way couplet areas, but work

would be required to implement access management, provide pedestrian accommodations, and address the geometric issues. In discussions with the Illinois Route 47 Corridor Advisory Group, there was no support for the one-way couplet alternatives. While the alternatives meet the Purpose and Need, the lack of support for the one-way couplet alternatives means they will not be carried forward for further consideration.

Based on the above analysis, it is recommended that Bypass Alternatives B1 and B2, and Couplet Alternatives C1, C2, C3, and C4 not be carried forward. Alternative A, the existing alignment alternative with pedestrian accommodations, will be carried forward for further analysis.

### 3.6 FURTHER EVALUATION OF EXISTING ALIGNMENT ALTERNATIVE

As previously discussed, Alternative A, the on-alignment alternative, was the only alternative carried forward for further evaluation. This section of the report evaluates different subalternatives of Alternative A to determine a preferred alternative. Each subalternative consists of two lanes in each direction with a shared-use path on the east side and sidewalk on the west side of Illinois Route 47.

#### 3.6.1 Median Selection—US Route 14 to Ware Road

A 13-foot-wide two-way left-turn lane (TWLTL), 18-foot-wide barrier median, and 22-foot-wide barrier median are all possible subalternatives for the median along Illinois Route 47.

A TWLTL consists of a flush pavement median separating travel directions. Illinois Route 47 currently has a TWLTL from US Route 14 to Ware Road. A TWLTL allows vehicles to enter the TWLTL whenever desired and turn left across oncoming traffic to their desired destination. Vehicles can also turn left out of all driveways onto Illinois Route 47. Figure 3.6-1 is a typical section of the TWLTL median alternative.

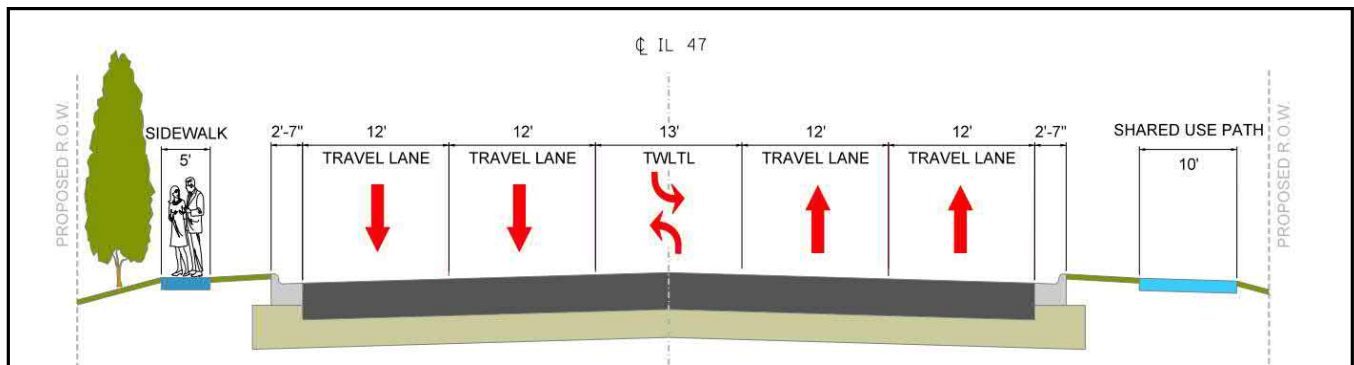
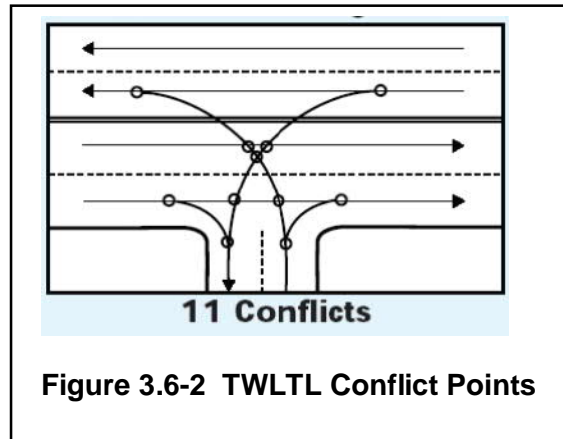
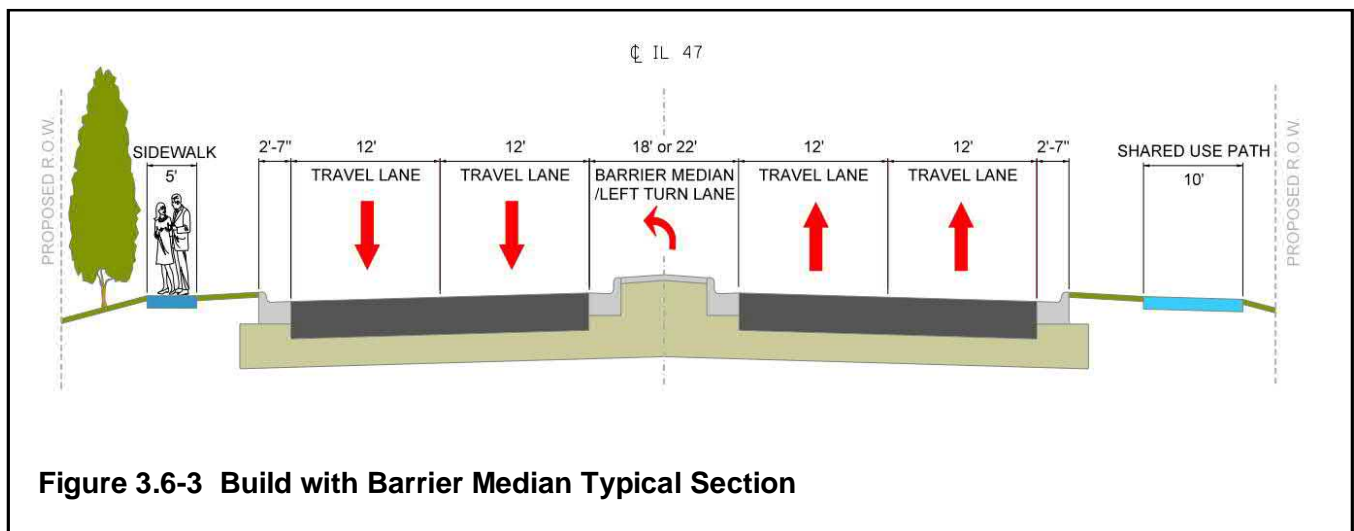


Figure 3.6-1 TWLTL Alternative Typical Section

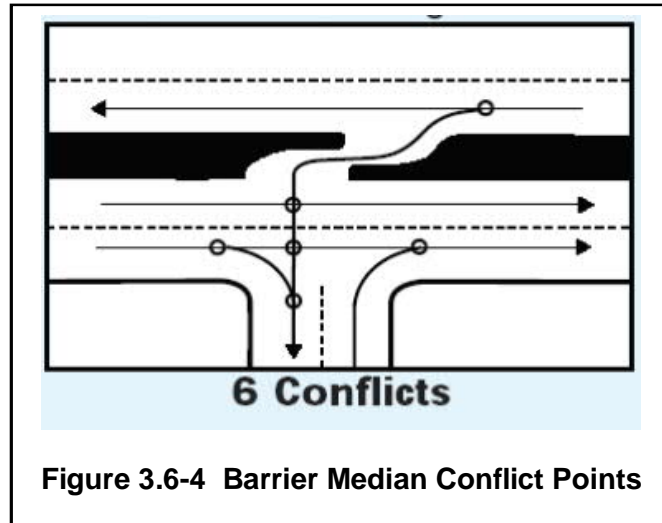
Access is not controlled through a TWLTL. This creates an increased number of conflict points along Illinois Route 47. The 11 total conflict points created by a TWLTL are shown in Figure 3.6-2, taken from the FHWA *Safe Access is Good for Business* pamphlet.



A barrier median consists of barrier curb with grass or paved median separating travel directions. The purpose of the barrier median is to limit the number of access points, thereby limiting the number of conflict points and potential crash locations. Median breaks would be provided sporadically throughout the corridor at key access locations. Left-turn lane tapers and storage would be provided for these median breaks. Figure 3.6-3 is a typical section of the barrier median alternative.



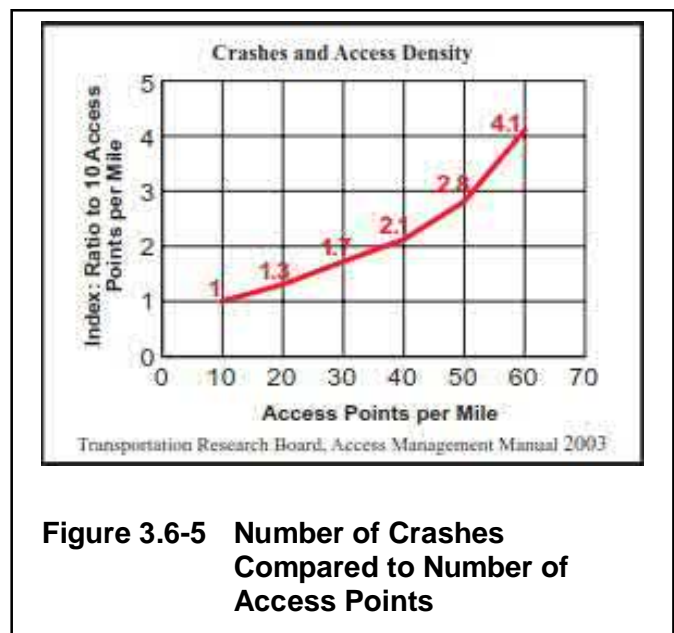
Barrier median with median breaks allows vehicles to exit the travel lanes safely and turn left without having to be concerned about oncoming vehicles also using the lane. Barrier median also prevents vehicles out of control from crossing over into oncoming traffic, resulting in decreased predicted number of dangerous head-on collisions. Figure 3.6-4 displays the six total conflict points created by barrier median, as presented in FHWA's *Safe Access is Good for Business* pamphlet.



As the number of conflict points indicates, safety is the major factor when evaluating a barrier median and a TWLTL for a corridor. National, regional, and local studies were conducted comparing the number of crashes at each of these levels for both the barrier median and TWLTL. The findings were used to help evaluate the median alternatives and are summarized in the following.

### 3.6.1.1 Barrier Median Versus TWLTL Crashes–National Level

The FHWA completed a study comparing corridors with barrier median and TWLTLs at a national level and results were included in the *Safe Access is Good for Business* pamphlet in Exhibit 3.6-1. The FHWA found that increasing the number of access points per mile on a major arterial road increases the crash rate by about 30 percent. The study also found that adding a barrier median where a TWLTL previously existed can reduce the crash rate by approximately 37 percent and the injury rate by approximately 48 percent. Figure 3.6-5 shows the number of crashes reported compared to the number of access points per mile.



3.6.1.2 Barrier Median Versus TWLTL Crashes—Regional Level

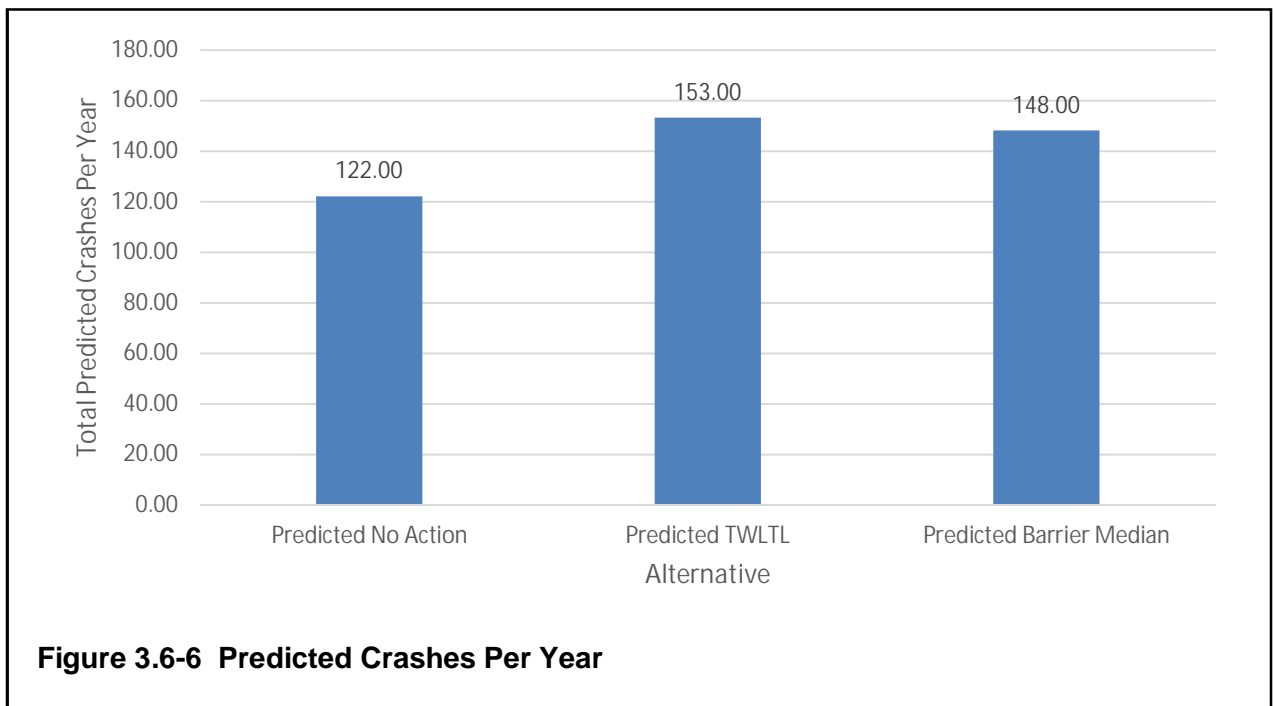
IDOT hired an independent consultant to study the number of crashes reported for different corridors in the Chicagoland region. The study included a total of 13 corridors with similar land use to the Illinois Route 47 project study area. Of the 13 corridors, seven have a TWLTL and six have a barrier median. Crash data from 2009 to 2013 was studied and measured using number of crashes per mile per year. The study found the corridors with barrier median had 72 percent fewer crashes when compared to the corridors with TWLTL and 85 percent fewer crashes involving pedestrians and bicyclists. Table 3.6-1 shows the percent reduction in types of crashes for the barrier median compared to the TWLTL corridors.

Type	Fatal	A Injury	B Injury	C Injury	PDO	Total
Percent Reduction for Barrier Median versus TWLTL	69	71	71	72	73	72

**Table 3.6-1 Regional Barrier Median Crash Reduction**

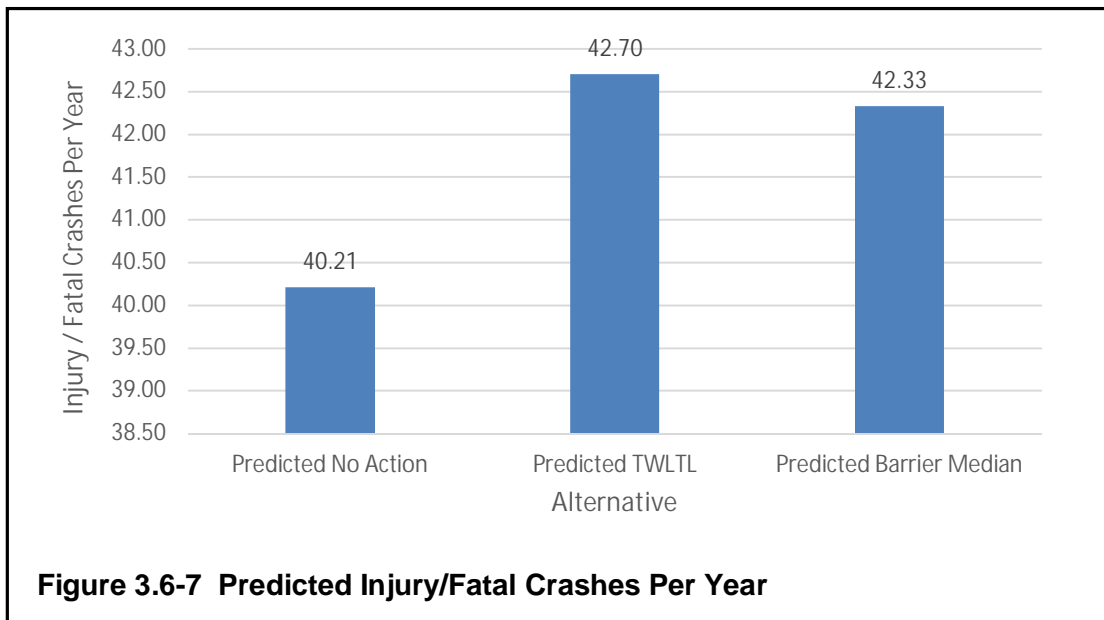
3.6.1.3 Barrier Median Versus TWLTL Crashes—Local Level

The Highway Safety Manual (HSM) was used to quantitatively predict the number of crashes per year that would result along Illinois Route 47 from each typical section alternative. Roadway characteristics including ADT, number of driveways, section length, and more were put into the HSM program for several sections of Illinois Route 47 within the project study area for each of the median alternatives. Figure 3.6-6 presents the total number of predicted crashes per year for the 2040 no-action alternative (baseline), 2040 TWLTL, and 2040 barrier median.





The total number of predicted crashes resulting in an injury or fatality was also analyzed for the no action, TWLTL, and barrier median alternatives. The predicted number of injury/fatal crashes is shown in Figure 3.6-7.



As Figure 3.6-6 and 3.6-7 show, the predicted no action alternative has the fewest predicted total number of crashes per year, as well as the fewest predicted injury/fatal crashes per year. This is expected because the roadway consists of only one lane in each direction and a lower ADT. However, as discussed previously in this report, the no-action alternative was only carried forward as a baseline to compare other alternatives, but it is not considered a potential alternative because of its inability to satisfy the Purpose and Need.

The predicted total number of crashes and injury/fatal crashes per year for the barrier median alternative is slightly lower than the predicted number of crashes for the TWLTL alternative.

#### 3.6.1.4 Barrier Median Selection and Median Break Locations

Because of the results found in the national, regional, and local studies for crashes with each median alternative, it is recommended the barrier median be carried forward as the preferred alternative from US Route 14 to Ware Road. The national and regional studies found fewer crashes occur along corridors with barrier median compared to corridors with TWLTLs and the local analysis predicted a fewer number of crashes along Illinois Route 47 with the proposed barrier median compared to a TWLTL. U-turn bump-outs will be provided at a majority of median breaks to allow passenger cars to U-turn. According to IDOT BDE Manual Chapter 34, the minimum median width for urban barrier medians is 18 feet. A 22-foot median is recommended if many intersections do not need to be signalized. Since several signalized intersections exist along Illinois Route 47, an 18-foot barrier median is being carried forward as part of the preferred median alternative to meet BDE requirements and minimize right-of-way impacts in the restricted corridor. Meetings were held with the Woodstock Police Department, Woodstock Fire/Rescue District, City of Woodstock, and Woodstock Community School District 200 following the selection of the barrier median as part of the preferred alternative. All agencies understood the reasoning

for proceeding with the barrier median and expressed no critical concerns regarding the barrier median. Minutes from meetings with these agencies can be found in Appendix A.

















Selecting median break locations throughout the corridor required maintaining access control along the corridor for safety purposes, accommodating access to busy streets and businesses, and satisfying turn lane development criteria presented in the BDE Manual. Median breaks from US Route 14 to Illinois Route 120 were provided at all major intersections and at select businesses between intersections based on property needs and size and discussions at various meetings with business owners. Median breaks from Illinois Route 120 to Ware Road are provided at select side street intersections based on requested locations from the Woodstock Police Department, Woodstock Fire/Rescue District, and Woodstock Community School District 200. All median break locations have been discussed with City of Woodstock representatives.




### 3.6.2 Intersection Alternatives

Roundabout intersections were evaluated at the following six locations:

- Illinois Route 47 and Lake Avenue
- Illinois Route 47 and McConnell Road
- Illinois Route 47 and Irving Avenue/Judd Street
- Illinois Route 47 and Illinois Route 120
- Illinois Route 47 and Ware Road
- Illinois Route 47 and Charles Road

The intersections of Lake Avenue, McConnell Road, Judd Street/Irving Avenue, and Illinois Route 120 are currently signalized intersections. Ware Road is a minor stop controlled intersection and Charles Road is an all-way stop-controlled intersection. Analysis found that all six intersections should be replaced with the same type of intersection as the existing intersection if roundabouts are not selected. All other intersections within the corridor will also be replaced with the same traffic control as existing except the intersection of St. Johns Road. Signal warrant analysis determined the existing minor leg, stop-controlled intersection will operate more efficiently as a signalized intersection.

INTERSECTION	EXISTING	PROPOSED ALTERNATIVES
Lake Avenue		 or 
McConnell Road		 or 
Irving Avenue/Judd Street		 or 
IL Route 120		 or 
Ware Road	<b>MS</b>	 or <b>MS</b>
Charles Road		 or 

 Roundabout Alternative    **MS** Minor Stop  
 Potential Traffic Signal     All-Way Stop

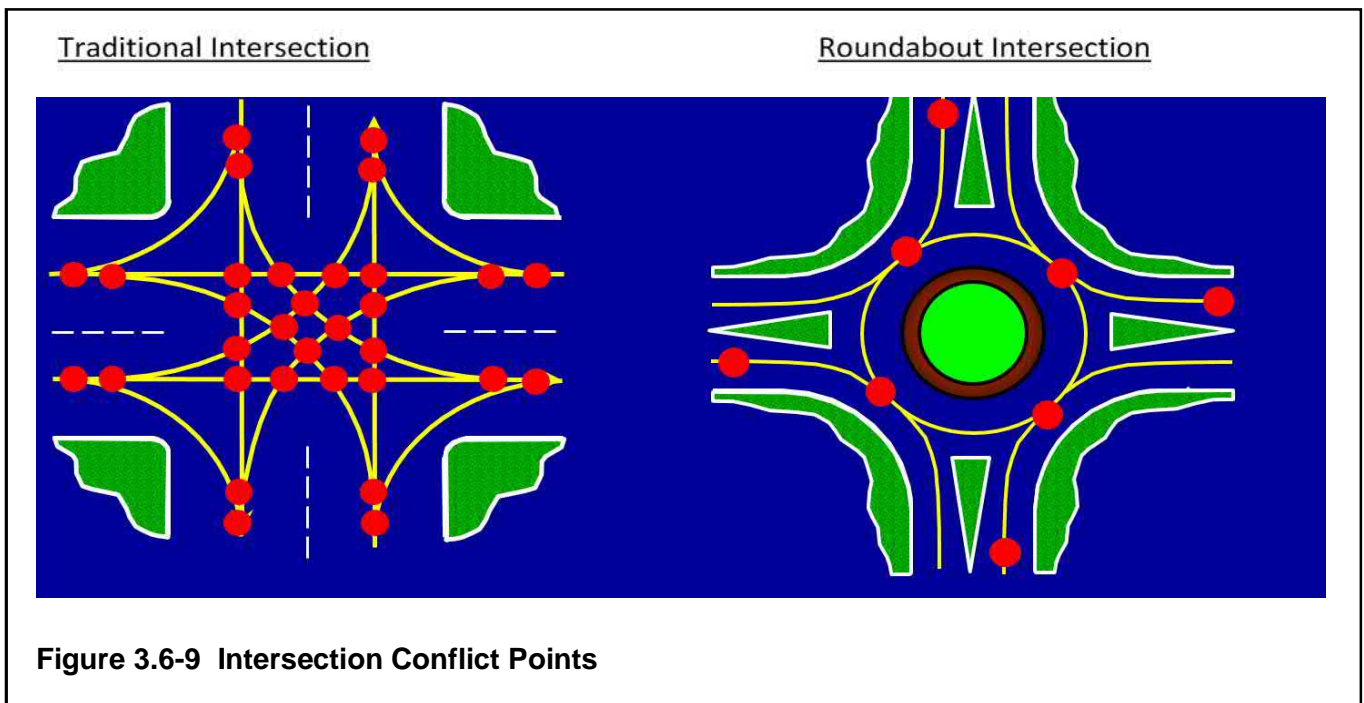
**Figure 3.6-8 Intersection Alternatives Evaluated**

All six intersections are able to act independently, except for the intersections of Lake Avenue and McConnell Road. Because of their proximity, for the Lake Avenue and McConnell Road intersections to operate properly, the two intersections must have the same type of traffic control. Therefore, both intersections must have either roundabouts or traffic signals. A summary of the intersection alternatives is shown in Figure 3.6-8.

In general, roundabouts typically reduce the rate of angle crashes and injury crashes. The lower speeds at which a roundabout operates will likely result in less severe crashes. One study showed that conversion to roundabout control has reduced an average of 39 percent of the total crashes and 76 percent of the injury crashes at 24 intersections studied (From IHS Status Report Vol. 35, No 5).

Roundabouts also increase the safety of skewed intersections. The intersections of Lake Avenue, McConnell Road, and Judd Street/Irving Avenue all exceed the maximum recommended intersection skew of 15 degrees. Roundabouts help eliminate the skew of the intersection, lowering the sight angle required by drivers. Roundabouts also only require drivers to look in one direction when entering the intersection.

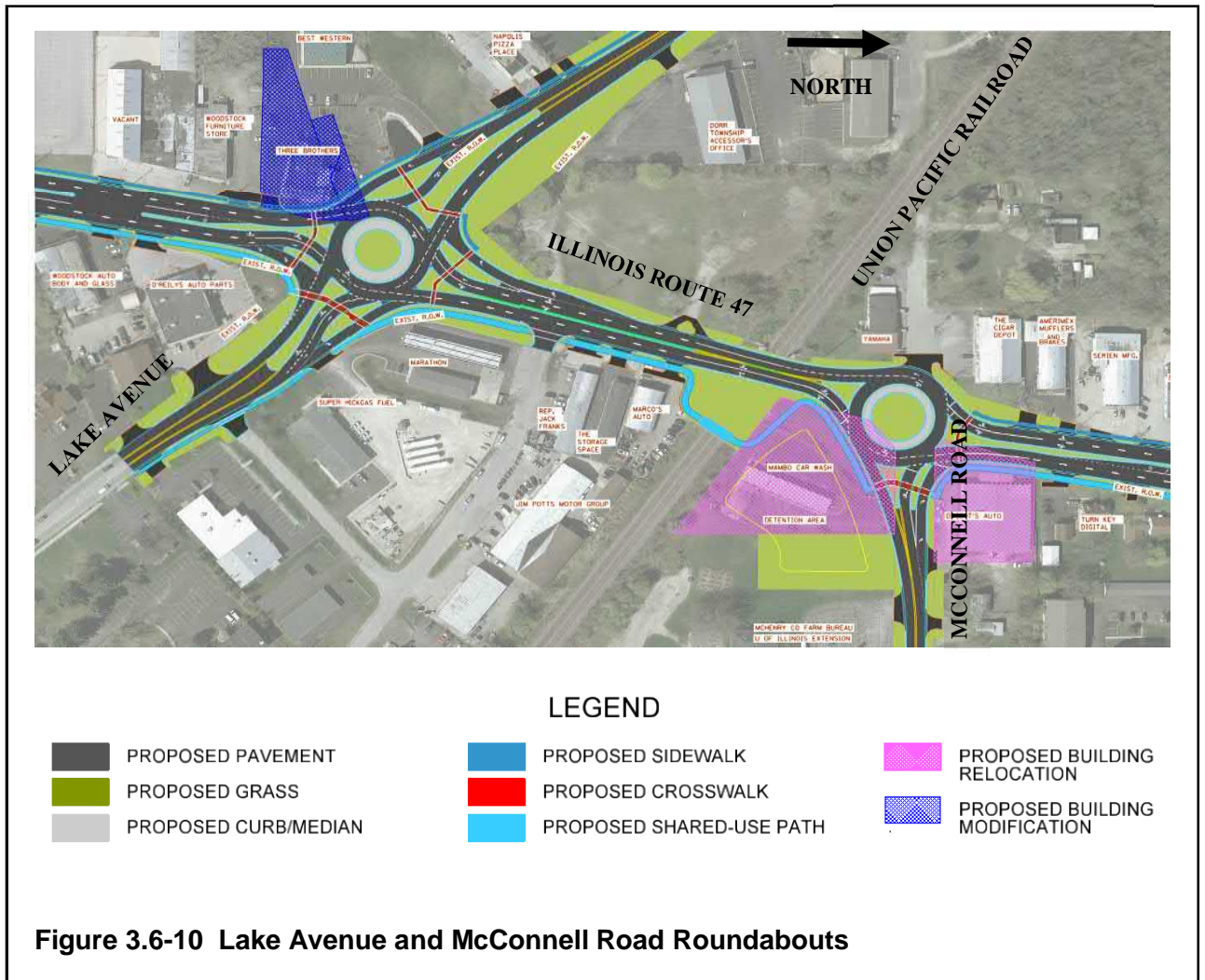
Finally, roundabouts reduce the number of conflict points when compared to a traditional signalized intersection. A traditional signalized intersection has 32 conflict points while a roundabout intersection only has eight conflict points. Figure 3.6-9 shows the conflict points in red for traditional and roundabout intersections.



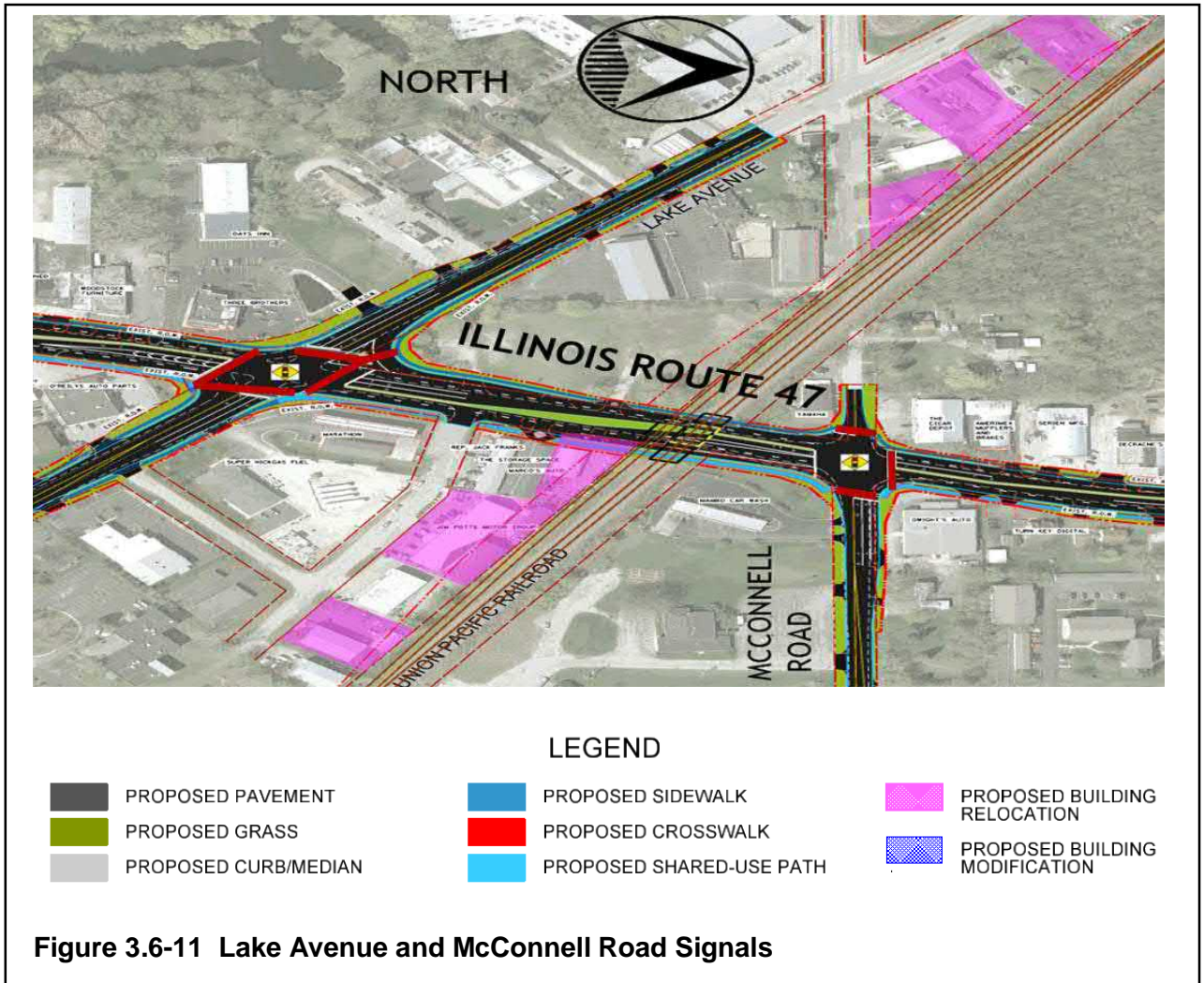
### 3.6.2.1 Lake Avenue and McConnell Road

Figures 3.6-10 and 3.6-11 show the proposed roundabout and signalized intersection alternatives for the Lake Avenue and McConnell Road intersections. Proposed building relocations are highlighted in pink. A proposed building modification is highlighted in blue and discussed further

in Section 4.2.5. If the signalized intersection design is selected, the existing bridge for the UP Railway over Illinois Route 47 must be replaced. This would require a temporary shoo-fly railroad bridge and track adjacent to the existing tracks. Because of the existing railroad track alignment, the shoo-fly would only be feasible south of the existing track. There are possible impacts to 14 parcels and the potential for relocation of four businesses. This design increases the cost of the construction by approximately \$30 million. The proposed roundabout alternative allows the existing bridge to remain in place and proposes a pedestrian tunnel to be built east of the roadway bridge to accommodate pedestrians and bicyclists.







A summary of the impacts associated with each intersection alternative at Lake Avenue and McConnell Road is shown in Table 3.6-2.

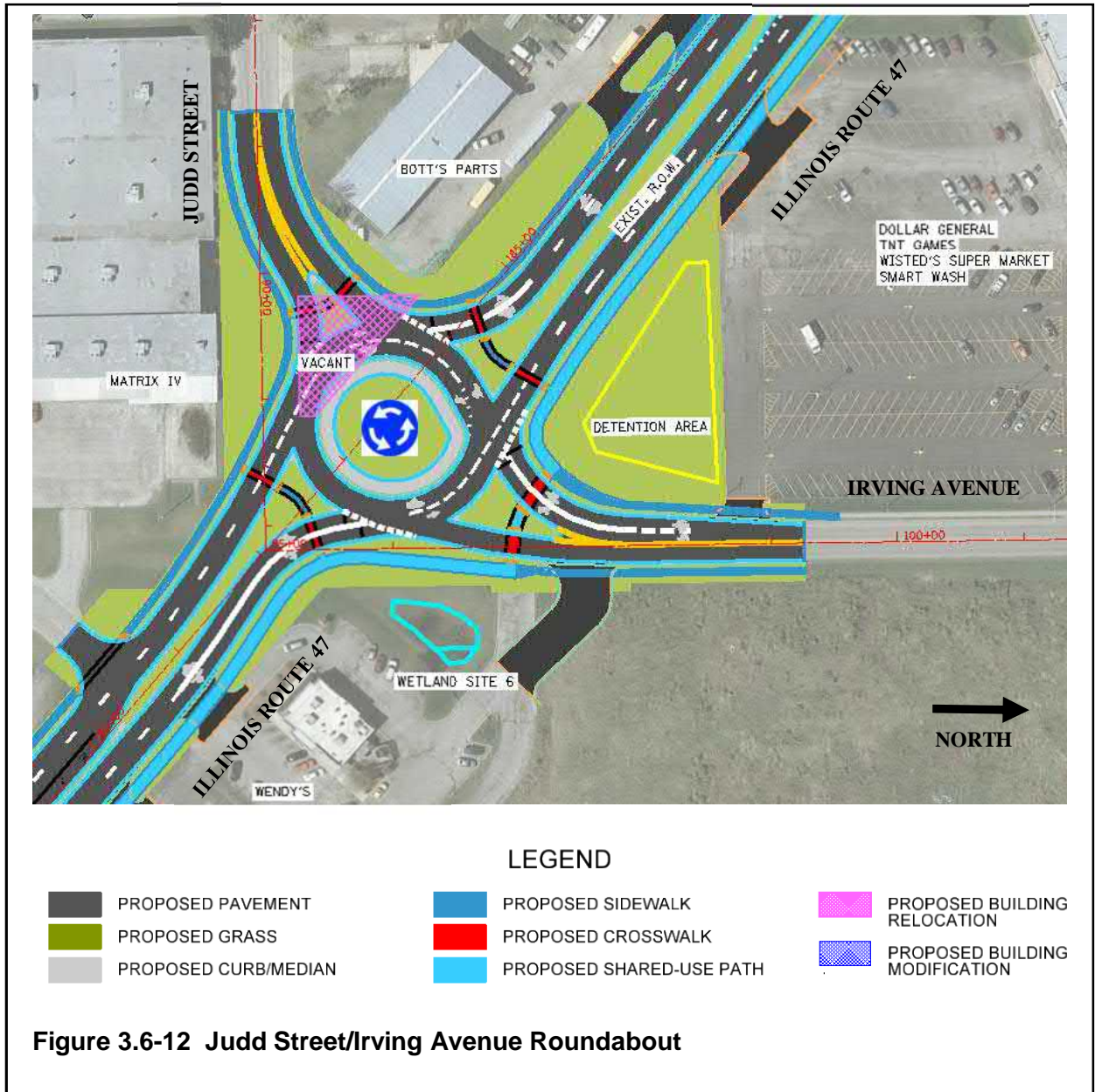
As can be seen in Table 3.6-2, the roundabout alternative at Lake and McConnell requires less right-of-way, fewer relocations, a lower cost, and operates more efficiently. Because of these reasons, the roundabout intersection alternative at Lake Avenue and McConnell Road is being carried forward as the part of the preferred alternative.

Impact	Roundabout	Signalized
Right-of-Way (acre)	2.93	5.13
Affected Parcels	35	42
Commercial Relocations	2	4
Commercial Building Modifications	1	0
Residential Relocations	0	2
Wetland Impacts (ac.)	0.080	0
Delay-Lake (seconds)/LOS	20.7-C	37.4-D
Delay-McConnell (seconds)/LOS	11.1-B	18.5-B
Cost	\$\$	\$\$\$\$\$

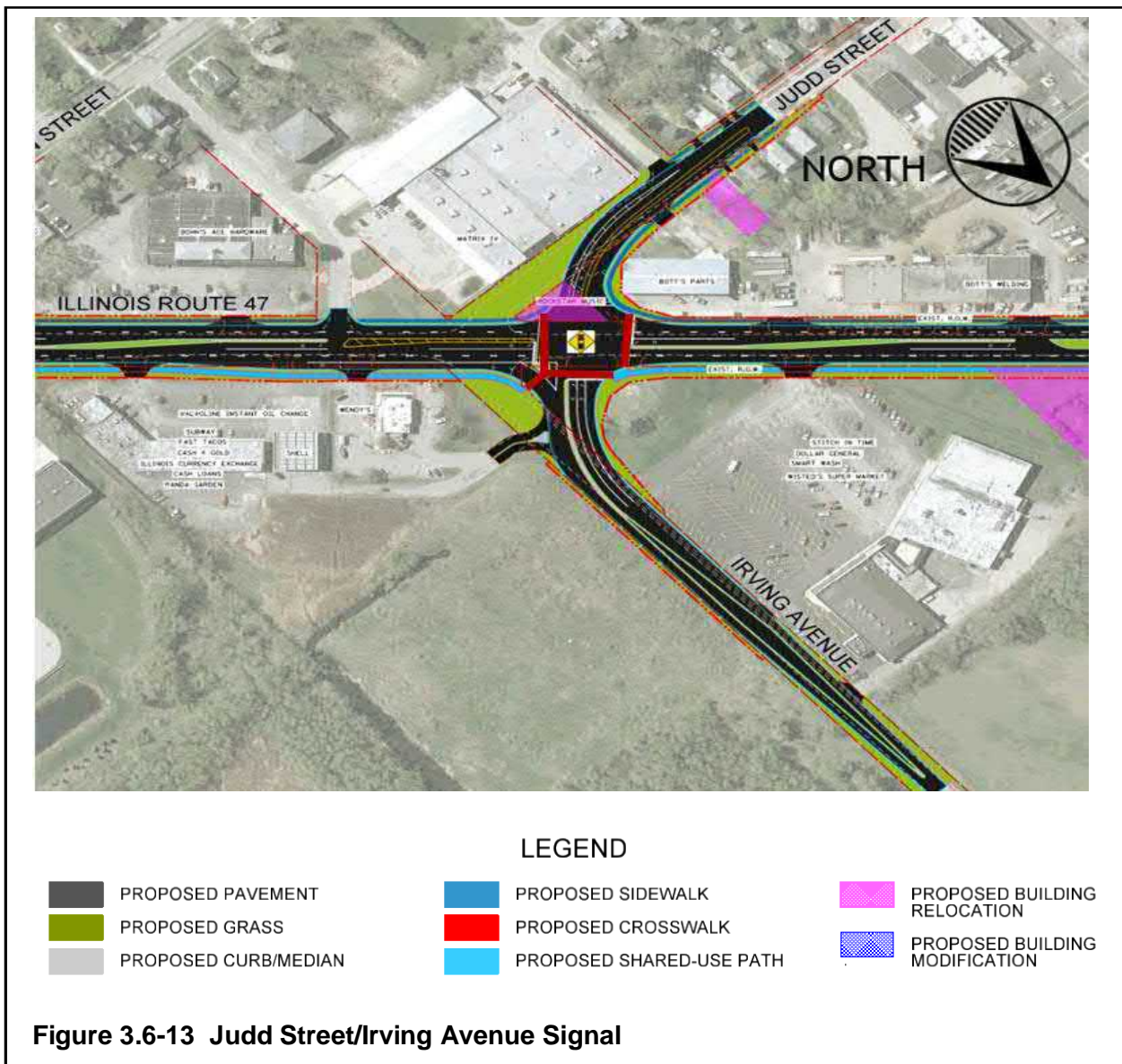
**Table 3.6-2 Lake Avenue and McConnell Road Roundabout Versus Signal Impacts**

3.6.2.2 Judd Street/Irving Avenue

Figures 3.6-12 and 3.6-13 display the roundabout and signalized intersection alternatives for Judd Street/Irving Avenue.







A summary of the impacts associated with each intersection alternative at Judd Street/Irving Avenue is shown in Table 3.6-3.

Table 3.6-3 shows the roundabout intersection alternative at Judd Street/Irving Avenue requires less right-of-way acquisition, fewer property relocations, and operates more efficiently. For these reasons, the roundabout intersection alternative is being carried forward as part of the preferred alternative.

Impact	Roundabout	Signalized
Right-of-Way (acre)	2.16	1.84
Affected Parcels	14	15
Commercial Relocations	1	1
Residential Relocations	0	1
Delay (seconds)	11.1-B	30.4-C

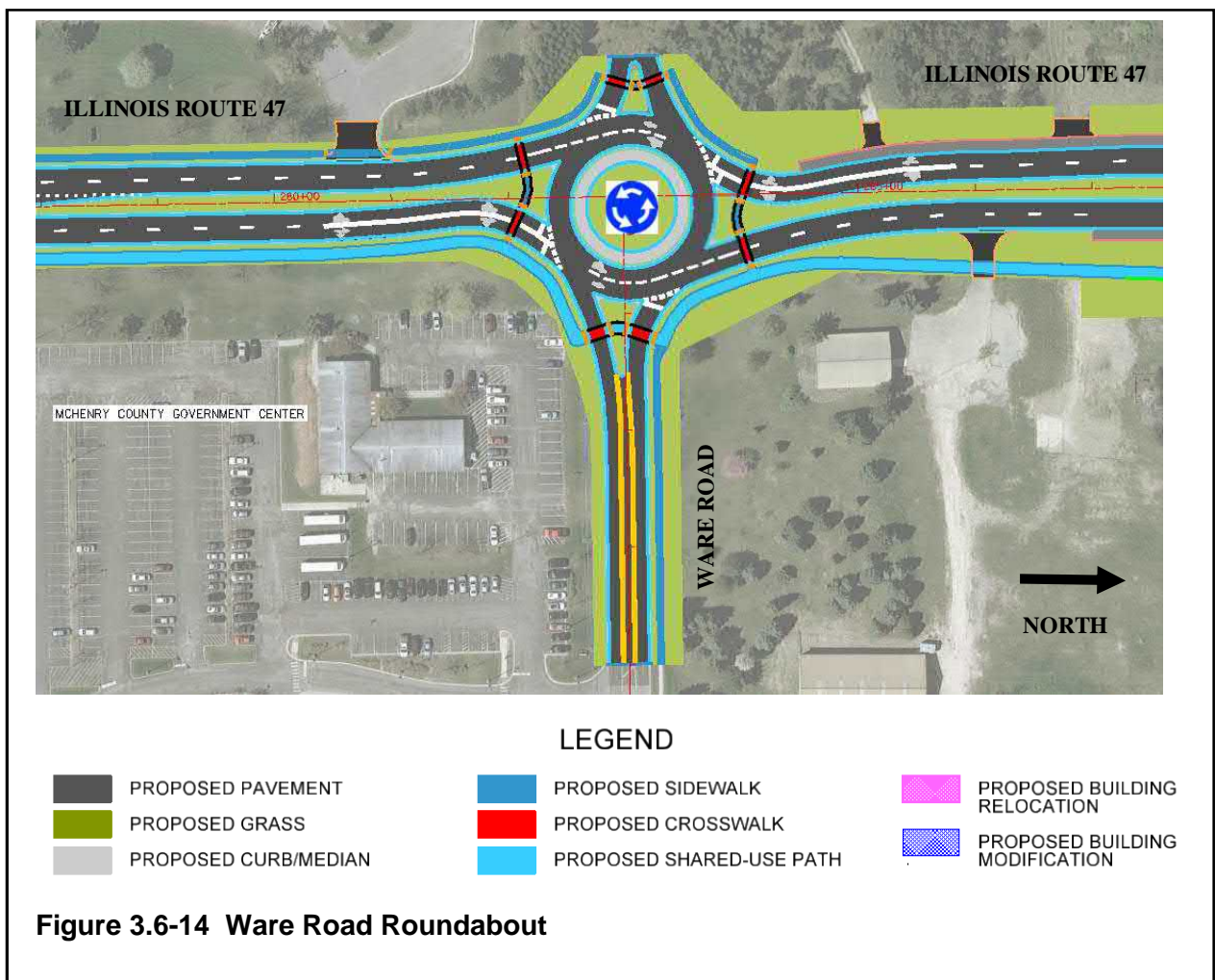
**Table 3.6-3 Judd Street/Irving Avenue Roundabout Versus Signal Impacts**

3.6.2.3 Illinois Route 120

The number of left-turning movements and the large roundabout footprint resulted in a roundabout being ineffective at the intersection of Illinois Route 47 and Illinois Route 120. Therefore, the roundabout alternative at this intersection was eliminated from consideration and the signalized intersection is being carried forward as part of the preferred alternative.

3.6.2.4 Ware Road

Figures 3.6-14 and 3.6-15 present the roundabout and minor leg stop-controlled intersection alternatives for the intersection of Illinois Route 47 and Ware Road. A signal could not be considered because warrants were not met and the Ware Road proximity to the Russel Court signalized intersection.







A summary of the impacts associated with each intersection alternative at Ware Road is shown in Table 3.6-4.

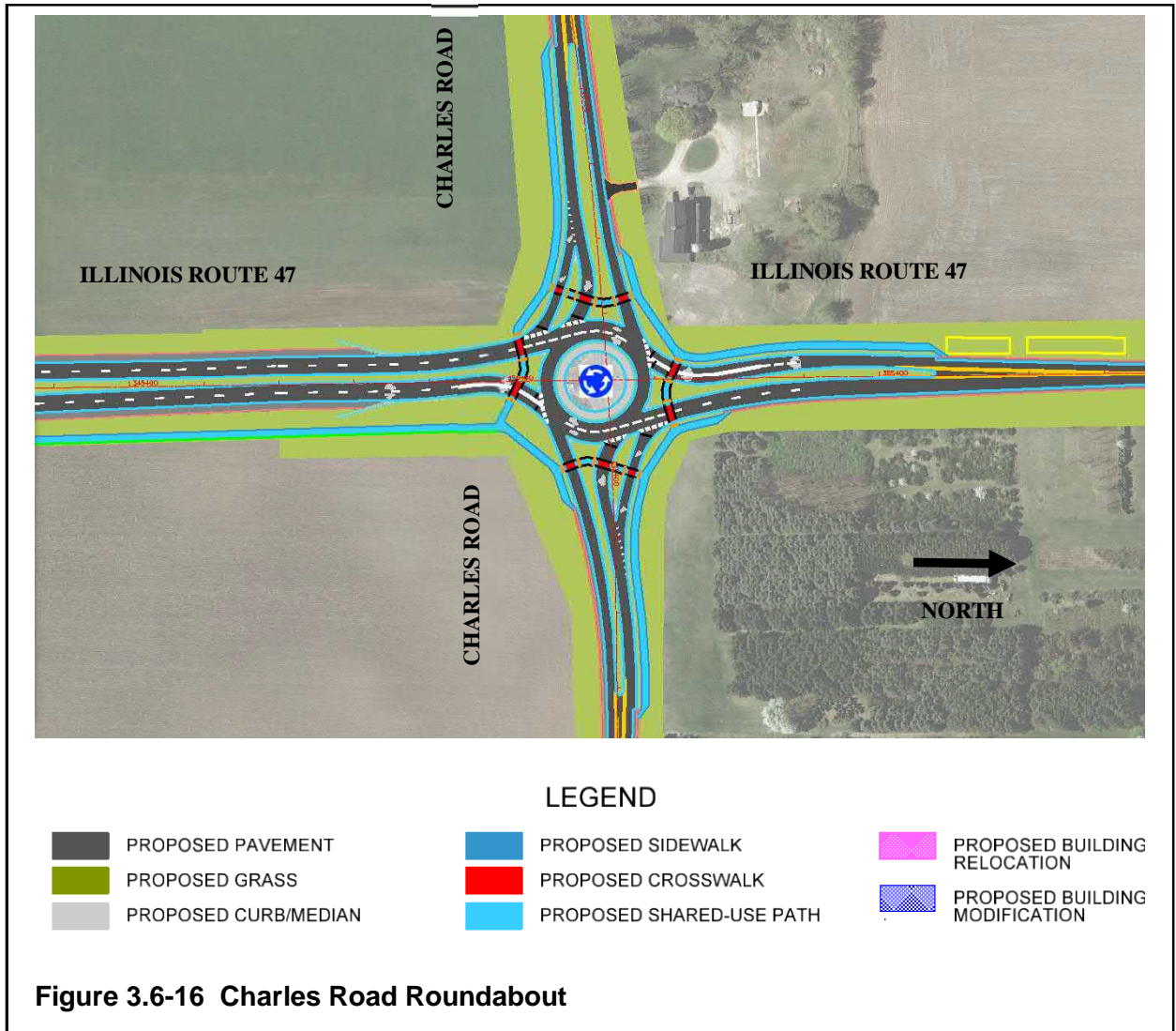
Impact	Roundabout	Minor Stop
Right-of-Way (acre)	1.15	0.83
Affected Parcels	5	5
Relocations	0	0
Delay (seconds)	16-B	>300-F

**Table 3.6-4 Ware Road Roundabout Versus Signal Impacts**

The minor stop-controlled alternative at Ware Road operates at LOS F, and is therefore not functional. Although the roundabout alternative requires slightly more right-of-way than the traditional alternative, the roundabout intersection at Ware Road will be carried forward as part of the preferred alternative.

3.6.2.5 Charles Road

Figures 3.6-16 and 3.6-17 present the roundabout and all-way stop-controlled intersection alternatives for the intersection of Illinois Route 47 and Charles Road. A signal could not be considered because warrants were not met.





A summary of the impacts associated with each intersection alternative at Charles Road is shown in Table 3.6-5.













Impact	Roundabout	All Way Stop
Right-of-Way (acre)	4.1	1.2
Affected Parcels	6	4
Relocations	0	0
Delay (s)	21.4-B	220-F




**Table 3.6-5 Charles Road Roundabout Versus All-Way Stop Impacts**

The all-way stop-controlled alternative at Charles Road operates at LOS F and is therefore not functional. Although the roundabout alternative requires more right-of-way than the traditional intersection alternative, the roundabout intersection at Charles Road will be carried forward as the part of the preferred alternative.

3.6.2.6 Summary

A summary of the preferred intersection alternative at each of the intersections discussed is shown in Figure 3.6-18. All other existing intersection control along the corridor will remain the same as existing.

INTERSECTION	EXISTING	PREFERRED ALTERNATIVE
Lake Avenue		
McConnell Road		
Irving Avenue/Judd Street		
IL Route 120		
St. John's Road	MS	
Ware Road	MS	
Charles Road		

 Roundabout  
 Traffic Signal  
MS  
 All-Way Stop  
Minor Stop

**Figure 3.6-18 Preferred Intersection Alternatives**

3.6.3 Detailed Alignments—US Route 14 to Ware Road

A majority of the Illinois Route 47 corridor and side streets use the existing alignment as the proposed alignment design. This section discusses two locations where the proposed alignment does not follow the existing alignment.



### 3.6.3.1 Illinois Route 47 at Illinois Route 120

Illinois Route 47 is on a horizontal curve as it intersects with Illinois Route 120. The existing alignment radius is approximately 573 feet. This tight horizontal curve limits sight distance at the intersection and requires superelevation. The horizontal curve radius was increased to 818.5 feet, increasing the sight distance and eliminating the need for superelevation. The proposed alignment also eliminates the need to relocate one residential property at the northwest corner of the intersection and one residential garage located at the southwest corner of the intersection. Figure 3.6-19 shows the proposed Illinois Route 47 at Illinois Route 120 intersection.



Figure 3.6-19 Illinois Route 47 at Illinois Route 120

### 3.6.3.2 Greenwood Avenue

The existing west leg of Greenwood Avenue intersects Illinois Route 47 approximately 30 feet south of where the east leg intersects Illinois Route 47 at Greenwood Circle. This offset complicates the intersection geometry, particularly for vehicles attempting to go straight through Greenwood Avenue/Circle. Realigning the east leg of Greenwood Circle to the south was initially considered. However, this realignment would require relocation of the Mobil gas station located at the southeast corner of the intersection. Therefore, the project team investigated the possibility of realigning the west leg of Greenwood Avenue to the north to better align with Greenwood Circle. This realignment was carried forward as part of the preferred alternative.



Realignment of the west leg of Greenwood Avenue results in the proposed roadway being shifted closer to the Schneider, Leucht, Merwin, and Cooney Funeral Home located at the northwest corner of the intersection and impacts its parking lot. The funeral home owners requested the roadway remain as far as possible from the building. A taper is provided through the intersection with Illinois Route 47 and 11-foot lanes were used along Greenwood Avenue to minimize impacts to the funeral home. Figure 3.6-20 shows the proposed Illinois Route 47 at Greenwood Avenue intersection.



### 3.6.4 Cross Section Modifications

The preferred alternative consists of two 12-foot lanes in each direction. Lane widths were modified at two locations along the corridor to accommodate sight constraints and reduce impacts. Although the BDE Manual recommends 12-foot lanes along urban corridors, if right-of-way is restricted, the BDE does allow 11-foot lanes. The 10-foot shared-use path width along the east side of Illinois Route 47 was also reduced to an 8-foot width at two locations. Locations where lane widths other than 12 feet are proposed are presented in the following.

#### 3.6.4.1 UP Railway Bridge

Because the roundabout alternative was selected as part of the preferred alternative at Lake Avenue and McConnell Road, the UP Railway bridge running over Illinois Route 47 will not be replaced. The railroad bridge has a 52-foot clear width for Illinois Route 47. Providing the corridor typical section of four 12-foot lanes and standard B-6.24 curb and gutter requires 53.2 feet of clear width, which is not available. The typical section under the bridge consists of two 11-foot through-lanes in each direction. Providing this lane configuration also allows for a 2-foot clearance on each side from the face of curb to the railroad bridge abutment. As discussed in Section 3.6.2.1, a new tunnel underneath the UP Railway will be constructed east of the existing railroad bridge to accommodate the proposed 10-foot shared-use path.

#### 3.6.4.2 Judd Street to Christian Way

Illinois Route 47 from Judd Street to Christian Way is a narrow urban section of the corridor with several residential houses and commercial properties. To minimize the number of relocated residential houses and reduce the right-of-way impacts associated with the improvements, all lane widths will be reduced to 11 feet in this section. Sidewalk located on the west side of Illinois Route 47 will begin at the back of curb and increase to a 7-foot width. These changes to the cross section reduce the permanent right-of-way width by 5 feet.

#### 3.6.5 Alternatives from Ware Road to Charles Road

Illinois Route 47 from Ware Road to Charles Road is located at the north end of the project and is approximately 1.3 miles in length. The existing roadway consists of one 12-foot lane in each direction with no median. A 1-foot-wide hot-mix asphalt shoulder and 8-foot-wide aggregate shoulder run along each side of the travel lanes. The existing posted speed limit south of Ware Road is 35 miles per hour (mph). The existing posted speed limit from Ware Road to approximately 0.5 mile north of Ware Road is 45 mph. The existing posted speed limit from approximately 0.5 mile north of Ware Road to Charles Road is 55 mph. This speed limit continues north of Charles Road for approximately seven miles. Three horizontal curves exist between Ware Road and Charles Road. They meet the current design speed criteria of 45 mph without the need for superelevation. The three curves do not meet the current design criteria for a 55 mph design speed.

Current land use from Ware Road to Charles Road is primarily agricultural. Future land use is anticipated to be zoned residential at a density of up to three units per acre in accordance with the City of Woodstock 2008 Comprehensive Plan. There are a few existing residential homes and businesses on each side of the road in this section.

Four delineated wetland sites, Sites 8, 9, 11, and 12, exist on the west side of Illinois Route 47 between Ware Road and Charles Road. Wetland Sites 11 and 12 are classified as high functioning wetlands. All four of the wetland sites will be impacted by the proposed improvements, regardless of which speed limit alternative is chosen. The severity of the impacts is dependent on the chosen speed limit and its corresponding cross section. A deep water aquatic habitat pond is located approximately 100 feet south of Cooney Drive and is considered to be Waters of the United States (WOUS) regulated by the U.S. Army Corps of Engineers. Impacts to the pond are dependent on the chosen speed limit and its corresponding cross section.

##### 3.6.5.1 Speed Limit/Design Speed Alternatives from Ware Road to Charles Road

A speed study not related to the Illinois Route 47 Phase I Study was conducted on April 9, 2014. A total of 400 spot speeds around IDOT District 1 were collected and analyzed. The results of the spot speed analysis along Illinois Route 47 north of Ware Road yielded a prevailing speed of 50.5 mph in the 45 mph posted speed limit section and a prevailing speed of 52.5 mph in the 55 mph posted speed limit section. The speed study recommended a 50 mph posted speed from Ware Road to Charles Road. A transitional posted speed limit section would be required between the 35 mph speed limit area south of Ware Road and the 50 mph speed limit area north of Ware Road because the difference is greater than 15 mph.

Three alternatives were considered for the posted and design speed limits between Ware Road and Charles Road. These alternatives are explained in detail following.

#### 3.6.5.1.1 Alternative 1—Match Existing Posted and Design Speeds

The first speed limit alternative is to proceed with the existing posted speed limits used in the corridor. This consists of a 45 mph posted speed limit (50 mph design speed) from Ware Road to 0.5 mile north of Ware Road and a 55 mph posted speed limit (60 mph design speed) from 0.5 mile north of Ware Road to Charles Road. The 55 mph posted speed from 0.5 mile north of Ware Road to Charles Road would require a rural cross section. The typical section for this alternative developed according to Rural SRA design criteria (BDE Chapter 46) consists of two 12-foot lanes in each direction, 10-foot paved outside shoulders, 4-foot paved median shoulders, and a 50-foot-wide depressed median. Ditches would be required for stormwater detention, conveyance, and water quality purposes. Horizontal and vertical curves would be lengthened and adjusted to meet this design criteria.

The increased roadway width would result in increased impact (when compared to Speed Alternatives 2 and 3) to an additional 0.021 acre (900 square feet) of wetlands, the full acquisition of one residential property, grading within 6 feet of one residence, and creating substandard driveways throughout the section. This alternative would require the most right-of-way from current property owners and would impact the most wetlands.

#### 3.6.5.1.2 Alternative 2—45 to 50 mph Posted Speed, 50 mph Design Speed

The second alternative consists of a 45 mph posted speed limit (50 mph design speed) from Ware Road to 0.5 mile north of Ware Road and a 50 mph posted speed limit (50 mph design speed) from 0.5 mile north of Ware Road to Charles Road. These posted and design speed limits match the recommendations of the speed study.

The typical section for this alternative is two 12-foot lanes in each direction and a 22-foot-wide median with M-4.24 curb and gutter along the median perimeter. Typical section elements at the outside edge of pavement can vary and will be discussed further if this alternative is carried forward.

The required clear zone for suburban SRA routes with the projected ADT volumes of this corridor is 18 to 20 feet according to BDE Manual Figure 38-3A. The proposed median is wider than the required clear zone, allowing drivers to regain control of a vehicle that has left the traveled way.

Three horizontal curves would require superelevation to prevent the need to realign the existing horizontal alignment. The curve beginning at Station 290+97.61 would be superelevated 2.1 percent, the curve at Station 307+09.63 would be superelevated 3.5 percent and the curve at Station 320+74.54 would be superelevated 2.6 percent. The currently proposed vertical curves would be lengthened to provide proper stopping sight distance within the corridor.

The amount of right-of-way required and amount of wetlands impacted is less than Alternative 1 and greater than Alternative 3.

#### 3.6.5.1.3 Alternative 3—45 mph Posted Speed, 50 mph Design Speed

The third alternative consists of a 45 mph posted speed limit (50 mph design speed) from Ware Road to Charles Road. This speed limit is lower than the recommendations of the speed study conducted. This would not meet the current state statutes for determining and posting speed limits.

The typical section for this alternative would be two 12-foot lanes in each direction and a 22-foot-wide raised median with B-6.24 curb and gutter along the median perimeter and at the outside edge of pavement. Intermittent ditches behind the back of curb and back of path would also be included for storm sewer outlets and water quality best management practices (BMPs).

A 45 mph speed limit would not require superelevated horizontal curves between Ware Road and Charles Road. The existing vertical curves meet the design criteria for 45 mph speed limits.

This alternative would require the least amount of right-of-way to be acquired and impact the least amount of wetlands. However, the speed limit proposed would be lower than the prevailing speed limit found during the speed study.

#### 3.6.5.1.4 Speed Limit/Design Speed to be Carried Forward

Based on the findings presented above, Speed Alternative 2, consisting of a 45 mph proposed posted speed limit (50 mph design speed) from Ware Road to 0.5 mile north of Ware Road and a 50 mph proposed posted speed (50 mph design speed) from 0.5 mile north of Ware Road to Charles Road was carried forward as the preferred alternative. This alternative matches the recommendations provided in the speed study. This alternative also has significantly less right-of-way and wetland impacts when compared to Speed Alternative 1.

#### 3.6.5.2 Typical Section Alternatives from Ware Road to Charles Road

Three different typical section alternatives were considered for the section along Illinois Route 47 from Ware Road to Charles Road. This typical section alternative evaluation was completed to select the alternative that best meets the needs of the Illinois Route 47 section, satisfies design criteria, and minimizes impacts to the surrounding environment. All three typical section alternatives are shown in Exhibit 3.6-2 and include two 12-foot lanes in each direction and a 22-foot-wide median with M-4.24 curb and gutter. Typical sections of all three alternatives are shown in Figure 3.6-2. When the typical section alternatives were developed, it was assumed the roadway would be constructed with Hot-Mix Asphalt pavement. However, it has since been determined that Portland Cement Concrete pavement will be used throughout the corridor. This revision in the typical section does not affect the typical section alternative analysis. Impacts associated with each alternative and selection of the preferred alternative follow the alternative descriptions.

### 3.6.5.2.1 Alternative 1—Smallest Footprint, Closed Drainage System

The first typical section alternative consists of a closed drainage system. The typical section includes a 10-foot paved outside shoulder and Type M-4.24 curb and gutter outside the paved shoulder on each side. On the west side of Illinois Route 47 and behind the mountable curb and gutter, a ditch is proposed with 1:4 foreslope, a 4-foot ditch bottom, and a 1:3 backslope. No sidewalk or sidewalk shelf is included on the west side of Illinois Route 47. On the east side of Illinois Route 47 behind the mountable curb, a 6-foot swale, a 10-foot shared-use path behind the swale, and a full drainage ditch behind the path is proposed. The proposed ditch has a 1:4 foreslope, a 4-foot ditch bottom, and a 1:3 backslope. Storm sewer is proposed along a significant portion of the roadway. This alternative has a small footprint compared to Alternative 3 and similar footprint to Alternative 2.

### 3.6.5.2.2 Alternative 2—Smallest Footprint, Open Drainage System

The second typical section alternative consists of an open drainage system and small corridor footprint. The typical section includes a 10-foot paved outside shoulder with no outside curb and gutter. On the west side of Illinois Route 47 behind the paved shoulder, a ditch is proposed with 1:4 foreslope, a 4-foot ditch bottom, and a 1:3 backslope. No sidewalk or sidewalk shelf is included on the west side of Illinois Route 47. On the east side of Illinois Route 47 behind the paved shoulder, a drainage ditch is proposed. The proposed ditch has a 1:4 foreslope, a 4-foot ditch bottom, and a 1:3 backslope. Behind the drainage ditch, a 10-foot shared use path is proposed. A small swale is proposed behind the path to collect any offsite water prior to draining over the path into the roadway drainage ditch. For this alternative, the corridor consists of an open drainage system where feasible. Sporadic storm sewer will be required to maintain positive drainage to the detention basins within the section.

### 3.6.5.2.3 Alternative 3—Largest Footprint, Open Drainage System

The third typical section alternative consists of an open drainage system and large corridor footprint. The typical section includes a 10-foot paved outside shoulder with no outside curb and gutter. On the west side of Illinois Route 47 behind the paved shoulder, a ditch is proposed with 1:6 foreslope, a 4-foot ditch bottom, and a 1:3 backslope. Behind the ditch on the west side of Illinois Route 47, a 5-foot sidewalk shelf is included to accommodate future development and sidewalk along the section. A small swale is proposed behind the sidewalk shelf to collect any offsite water prior to draining over the shelf into the roadway drainage ditch. On the east side of Illinois Route 47 behind the paved shoulder, a drainage ditch is proposed. The proposed ditch has a 1:6 foreslope, a 4-foot ditch bottom, and a 1:3 backslope. Behind the drainage ditch, a 10-foot shared use path is proposed. A small swale is proposed behind the path to collect any offsite water prior to draining over the path into the roadway drainage ditch. For this alternative, the corridor consists of an open drainage system where feasible. Sporadic storm sewer will be required to maintain positive drainage to the detention basins within the section. This alternative matches the footprint presented in the BDE manual for the given design speed of 50 mph.



3.6.5.2.4 Typical Section Alternative Impacts and Preferred Alternative Selection

Impacts within the section were determined for each of the three alternatives. Impacts for each of the alternatives are shown in Table 3.6-6.

Alternative	Right-of-Way (Acres)	Wetlands (Acres)	Relocations
1	13.51	0.27	0
2	12.68	0.23	0
3	17.20	0.44	0

**Table 3.6-6 Typical Section Alternative Impacts - Ware Road to Charles Road**

As shown in Table 3.6-6, impacts associated with Alternatives 1 and 2 are similar, while impacts associated with Alternative 3 are relatively higher. This was expected based on the elements included in each typical section. Based on impacts associated with each alternative, the design criteria for the section, and the future anticipated use of the section, it was agreed that Alternative 2 would be carried forward as the preferred alternative. Following the selection of Alternative 2 as the preferred alternative, the small swale on the east side of Illinois Route 47 proposed behind the shared-use path was removed to further reduce environmental/right-of-way impacts.

3.6.5.3 Proposed Alignment from Ware Road to Charles Road

A proposed alignment, not following the existing centerline alignment, was also developed from 425 feet north of Ware Road to 3,530 feet north of Ware Road. The purpose of the proposed alignment is to further reduce impacts to environmentally sensitive areas such as buildings and wetlands. At the south end of the section, the proposed alignment is east of the existing centerline alignment. The offset varies from 0 feet to 12 feet. This alignment reduces impacts to Wetland Site 8. Approximately 1,765 feet north of Ware Road, the proposed alignment is west of the existing alignment for approximately 340 feet. The offset varies from 0 feet to 3 feet. The proposed alignment could not differ from the existing alignment in this area because of the residential houses located near the roadway on each side of Illinois Route 47. From 2,105 feet north of Ware Road to 3,530 feet north of Ware Road, the proposed alignment is again east of the existing alignment. The offset varies from 0 feet to 13 feet. This alignment reduces impacts to the two commercial businesses located on the west side of Illinois Route 47.

**3.7 IDENTIFICATION OF THE PREFERRED ALTERNATIVE**

Based on the alternative analysis discussed in this chapter, Alternative A (the on-alignment alternative) is being carried forward as the preferred alternative. The preferred alternative also includes barrier median from US Route 14 to Ware Road and roundabouts at Lake Avenue, McConnell Road, Judd Street/Irving Avenue, Ware Road, and Charles Road. The preferred alternative will consist of a rural cross section from Ware Road to Charles Road with mountable curb median and outside shoulders. Exhibit 3.7-1 shows the Preferred Alternative plan view drawings and Exhibit 3.7-2 shows the Preferred Alternative typical sections.

**Chapter 4**  
**Environmental Resources, Impacts, and Mitigation**

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**4.1 INTRODUCTION**

The project study area was inventoried for environmental resources. The Environmental Inventory Map, shown in Exhibit 4.1-1, identifies the sensitive natural areas in the project study area. Sensitive natural areas include nature preserves, ponds, wetland sites, parks, and streams. Resources potentially impacted by the proposed action or that require discussion pursuant to applicable laws and regulations are addressed in this chapter.

Table 4.1-1 is a summary of environmental resources and indicates whether a specific resource is present or not present in the project study area. The table also indicates whether present resources are impacted. The remainder of Section 4 discusses each specific resource.

Environmental Resources/Conditions	Resource/Condition Present?		
	Yes	No	Present But Not Affected
<b>I. <u>Social/Economic</u></b>			
1. Community Cohesion	X		
2. Environmental Justice and Title VI	X		
3. Public Facilities and Services	X		
4. Changes in Travel Patterns and Access	X		
5. Relocations (Business and Residential)	X		
6. Economic Impacts	X		
7. Land Use	X		
8. Growth and Economic Development	X		
9. Pedestrian and Bicycle Facilities	X		
<b>II. <u>Agricultural</u></b>			
1. Farms and Farmland Conversion	X		
2. Prime and Important Soils	X		
3. Severed/Landlocked Parcels		X	
4. Adverse Travel		X	
<b>III. <u>Cultural Resources (Historic Properties)</u></b>			
1. Archeological Sites		X	
2. Historic Bridges		X	
3. Historic Districts		X	
4. Historic Buildings		X	

**Table 4.1-1 Environmental Resources/Conditions Table**

Environmental Resources/Conditions	Resource/Condition Present?		
	Yes	No	Present But Not Affected
<b>IV. Air Quality</b>			
1. Microscale Analysis			
a. Does project add through lanes or auxiliary turning lanes?	X		
b. Has COSIM 4.0 been used?		X	
2. Air Quality Conformity			
a. Is project in a non-attainment or maintenance area?	X		
3. Is project located in a PM 2.5 or PM 10 non-attainment or maintenance area?	X		
4. Construction-Related Particulate Matter	X		
5. Mobile Source Air Toxics	X		
<b>V. Noise</b>			
1. Is this a Type I project?	X		
a. Noise impacts	X		
b. Does abatement meet feasibility and reasonableness criteria?		X	
2. Is this a Type III project?		X	
<b>VI. Natural Resources</b>			
1. Upland Plant Communities			
a. Does the project impact wooded areas (Trees)?		X	
b. Does the project area contain Prairie?			X
c. Does the project occur within an Illinois Department of Agriculture quarantine area for an invasive species?		X	
2. Wildlife Resources			
a. Does the project area contain Wildlife Habitat?			X
b. Does the project area contain breeding habitat for neotropical migrant species of birds?		X	
c. Does the project area contain nesting Bald Eagles?		X	
3. Threatened and Endangered Species			
a. Does habitat exist for Federally listed species in the project area?			X
b. Does habitat exist for Illinois listed species in the project area?			X

**Table 4.1-1 Environmental Resources/Conditions Table (cont.)**

Environmental Resources/Conditions	Resource/Condition Present?		
	Yes	No	Present But Not Affected
<b>VII. <u>Water Quality/Resources/ Aquatic Habitats</u></b>			
1. Does the project involve a waterbody?	X		
2. Does the project affect the physical features of a stream?	X		
3. Does the project affect the fish and/or mussels within the stream?		X	
4. Does the project affect either the narrative or numeric water quality standards?		X	
5. Does the project occur within an area listed as a navigable stream, nationwide river inventory, ADID stream, or have a rating under the Biological Stream rating system?	X		
6. Is a stream listed by IEPA as impaired and is it subject to TMDLs?		X	
<b>VIII. <u>Groundwater Resources</u></b>			
1. Is groundwater the primary source of potable water in the area?	X		
2. Does the project occur within an area of karst topography?		X	
3. Does the project occur within a watershed that has been designated by the IEPA as vital for a particularly sensitive ecological system?		X	
4. Does the project impact a Wellhead Protection Area?	X		
5. Does the project occur within an area where potable water supply wells are present?	X		
6. Does the project contribute to degradation of the areas Groundwater Quality?		X	
7. Does the project occur within an area designated as a special resources groundwater?		X	

**Table 4.1-1 Environmental Resources/Conditions Table (continued)**



Environmental Resources/Conditions	Resource/Condition Present?		
	Yes	No	Present But Not Affected
<b>IX. Floodplains</b>			
1. Does the project occur within a 100-year floodplain?	X		
2. Does the project occur within the Regulated Floodway?	X		
3. Is a Floodplain Finding required?		X	
<b>X. Wetlands</b>			
1. Does the project impact Wetlands?	X		
2. Do the wetlands have an FQI of 20 or greater?			X
3. Are any of the wetlands listed as an ADID Site?			X
4. Wetlands Finding	X		
<b>XI. Special Waste</b>			
1. Did project pass Level I screening?		X	
2. Did project pass Level II screening?		X	
3. Was a Preliminary Environmental Site Assessment (PESA) required?	X		
a. Is All Appropriate Inquiry (AAI) required?		X	
b. Were REC(s) identified in the PESA?	X		
4. Was a Preliminary Site Investigation required?	X		
<b>XII. Special Lands</b>			
1. Section 4(f)			
a. De Minimis, Programmatic, or Individual		X	
2. Section 6(f)			X
3. OSLAD Act Lands		X	
4. INAI Sites			X
5. Nature Preserves		X	X
6. Land and Water Reserves		X	
<b>XIII. Indirect and Cumulative Impacts</b>			
1. Indirect Impacts	X		
2. Cumulative Impacts	X		

**Table 4.1-1 Environmental Resources/Conditions Table (continued)**

Additional Information	Yes	No	Present But Not Affected
<b>XIV. Environmental Commitments</b>			
<b><u>Permits/Certifications Required</u></b>			
1. Does the project require Section 404 Permit(s)?	X		
a. Is an individual, nationwide, or regional permit anticipated?	Regional		
2. Will an individual Water Quality Certification from IEPA be required?		X	
3. Will a Coast Guard Bridge Permit be required?		X	
<b>XV. Public Involvement</b>	X		
<b>XVI. Agency Coordination</b>	X		

**Table 4.1-1 Environmental Resources/Conditions Table (cont.)**

**4.2 SOCIOECONOMIC**

4.2.1 Community Cohesion

The project study area of Illinois Route 47 (Illinois Route 47) is in Woodstock, Illinois, located at the center of McHenry County, and are part of the Greater Chicago Metropolitan Area. The 2010 Census determined that the City of Woodstock had a population of 24,770. The 2012-2016 U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates determined that the City of Woodstock has a population of 25,232.

Land use along the Illinois Route 47 corridor is mixed between commercial, industrial, and residential zones. The majority of the residential neighborhoods are located along Illinois Route 47 between Illinois Route 120 (Illinois Route 120), and Ware Road. Currently, Illinois Route 47 within the project study area divides the City of Woodstock into east and west sides. The existing corridor is characterized by limited pedestrian facilities, particularly the lack of crossings at signalized intersections, to connect adjacent neighborhoods across Illinois Route 47. Presently, subdivisions have multiple ways of entry and exit where vehicles are permitted to perform both left- and right-hand turns onto Illinois Route 47. Known residential subdivisions and their populations are shown in Table 4.2-1.

There are no significant physical barriers that exist within the project study area. A railroad bridge exists just south of McConnell Road with the roadway traveling underneath, which will be discussed in greater detail in Section 4.4.2. This structure is not expected to be a physical barrier. Illinois Route 47 crosses Silver Creek south of Birch Road and crosses a tributary to Silver Creek south of Cooney Drive. Although the proposed improvements in this area maintain the general alignment, widening the roadway will require replacement of these box culverts, but will not inhibit traffic flow.

The proposed improvements will not divide or isolate the community or surrounding neighborhoods. Constructing sidewalks and a shared-use path along the corridor will serve to connect adjacent neighborhoods and facilitate community cohesion.

Subdivision	Population	Location
Oakwood Hills Subdivision	15	Edgewood Drive and Southview Drive
Centerville Plaza	20	South Eastwood Drive
Country Club Hills Subdivision	124	Country Club Road to Leah Lane
Emerson Lofts Subdivision	99	North Seminary Avenue and Church Court
Todd School Subdivision	119	North Seminary Avenue and McHenry Avenue
Fuller & Wheats	504	Todd Avenue to North Street
Mansfield (North Woodstock)	526	Christian Way to Greenwood Circle
Spring City Subdivision	562	Greenwood Avenue to Todd Avenue
Greenwood Place Circle	91	North Seminary Avenue to Greenwood Circle
Woodstock Senior Apartments	69	Spring Creek Lane
Greenwood Park Subdivision	1,239	Greenwood Avenue to Terry Court
Creekside at St. Johns	50	North Seminary Avenue and St. Johns Road
Fox Meadows Subdivision	146	West Meadow Avenue to Terry Court
Meadows Subdivision	25	Wheeler Street to Ash Avenue
Greenwood Meadows Subdivision	202	Terry Court to Joseph Street
Northwood Estates	81	Peach Tree Lane to West Melody Lane
Todd Woods Subdivision	561	St. Johns Road to Ware Road
Sonatas Subdivision	11	Ware Road to Verdi Street
Justice Hill Subdivision	111	Illinois Route 47 to Cooney Drive

Source: 2010 Census Bureau

**Table 4.2-1 Subdivisions and Their Populations**

4.2.2 Title VI and Environmental Justice

4.2.2.1 Title VI

Title VI (Civil Rights Act of 1964) prohibits discrimination against people based upon age, handicap, color, sex, national origin, and race. Distribution of the elderly and disabled population was taken from the 2010 Census Data for the project study area, the City of Woodstock, and Illinois, collectively. This data was supplemented by 2012-2016 U.S. Census Bureau, 2012-2016 American Survey 5-Year Estimates for the city of Woodstock and state of Illinois. Population data is included in Table 4.2-2.

	Total Population	Elderly Population	Percent Elderly	Disabled Population	Percent Disabled
2010 Project Study Area	8,639	901	10.43	N/A	N/A
2010 Woodstock	24,770	2,500	10.1	2,792	11.1
2016 Woodstock	25,232	2,347	9.3	2,810	11.1
2010 Illinois	12,830,632	1,603,829	12.5	1,199,762	10.2
2016 Illinois	12,851,684	1,719,667	13.4	1,376,858	10.7

Source: Census Bureau

**Table 4.2-2 Elderly and Disabled Population**

On the east side of Illinois Route 47, the project study area was found to have an elderly percentage of population of 26.1 percent from Country Club Road to Greenwood Avenue and 18.9 percent from Ware Road to Charles Road. On the west side of Illinois Route 47, the project study area was found to have an elderly percentage of population of 25.1 percent from US Route 14 to Lake Avenue, and 20 percent from Ware Road to Charles Road. A total of 21.64 acres of permanent right-of-way is proposed to be acquired as part of the project within these sections.

The project study area and the City of Woodstock have a smaller percentage of elderly population compared to the State of Illinois and a slightly higher percentage of disabled persons. The elderly population is mainly concentrated in the areas with nursing homes and assisted care facilities, which are shown in the Environmental Resource Map in Exhibit 4.2-1. The City of Woodstock has five nursing homes, three of which are located along the Illinois Route 47 within the project study area and have a combined capacity of 250 residents. There is no specific data about the locations of the disabled population within the project study area. All practical and feasible measures will be considered to not negatively impact the elderly population. Proposed sidewalk and shared-use paths compliant with the Americans with Disabilities Act (ADA) are part of this entire project, including the frontage of the nursing homes. Permanent right-of-way will be required at the frontage of the nursing homes along Illinois Route 47. No nursing homes will be relocated as a part of the project.

No religious minorities were found within the project study area. According to the City of Woodstock’s website, Woodstock has one Zen Buddhist place of worship, one Mormon place of worship, one Christian Science church, one Assembly of God church, one Roman Catholic church, and one Greek Orthodox church. None of these places of worship are located within the project study area.

Based on the census data available and the current land uses adjacent to Illinois Route 47, groups of ethnic, religious, elderly, and handicapped people are present within the project study area. No groups or individuals have been or will be excluded from participation in public involvement activities, denied the benefit of the project, or subjected to discrimination in any way on the basis of race, color, age, sex, national origin, or religion.

#### 4.2.2.2 Environmental Justice

The project study area was evaluated in accordance with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, to determine whether there is a potential for disproportionate and adverse impacts to low-income or minority populations. The 2010 Census indicates that residents of the project study area are 77.12 percent white, 4.36 percent black, 1.94 percent Asian, and 32.7 percent Hispanic. The median family income for the project study area is \$57,120. The *2010 US Census Data Poverty Guidelines* states the median income for a family of four is \$22,314. Based on the demographic information of the project study area, this Project does not contain a low-income population.

The Racial and Ethnic Minority Population Map shown in Exhibit 4.2-2 displays the percentage of minorities throughout the corridor.

There is a high concentration of minorities between McConnell Road and Country Club Road and intermittent sections of Illinois Route 47 between Country Club Road and Ware Road.

The project study area has a higher percentage of ethnic minorities than the City of Woodstock, but the percentage is lower than the state as a whole. All practical and feasible measures will be considered to not disproportionately affect the minority population.

Frontage right-of-way is required from a majority of the properties along Illinois Route 47 within the project study area because of roadway widening and pedestrian accommodations. In total, right-of-way is required from 151 commercial properties, 100 single-family residential properties, 16 agricultural properties, 13 governmental/institutional properties, 11 multi-family residential properties, and 3 industrial properties. This totals 294 properties. In general, 12 feet of permanent right-of-way is required on the west side along Illinois Route 47, and 19 feet of permanent right-of-way is required on the east side along Illinois Route 47. The 19 feet of right-of-way on the east side of Illinois Route 47 is needed as a result of the shared-use path that will be built and located on the east side of Illinois Route 47. The 12 feet of right-of-way on the west side of Illinois Route 47 is needed as a result of the sidewalk that will be built and located on the west side of Illinois Route 47. The shared-use path is proposed on the east side of Illinois Route 47 because of the narrow residential parkway on the west side of Illinois Route 47 from Illinois Route 120 to Russel Court and pedestrian generators on the east side of Illinois Route 47 such as Bates Park and the McHenry County Fairgrounds. Public facilities near the project study area are discussed further in Section 4.2.3. As shown in the *Racial and Ethnic Minority Population Map*, a larger percentage of minorities are located on the west side of Illinois Route 47 compared to the east side.

The project study team surveyed the owners of the displaced properties along the corridor to determine how many are minority owned. Out of those who responded, two were found to be minority and one declined to answer. No public entities that primarily serve a minority or low-income population will be relocated as a part of this Project.

Based on the demographic information and field observations of the project study area, this Project will not result in disproportionately adverse impacts to minority or low-income populations.



Several outreach methods were utilized in an attempt to increase participation for the project, including input from minority and low-income populations. A project website was created with the ability to submit comments/questions and view Project-related documents. Other outreach methods included public meetings, one-on-one meetings at the request of an individual, and small group meetings. Information regarding upcoming meetings was made available via the project website, a project mailing list, flyers at public facilities, newspaper articles, and door-to-door invitations. Certified mail invitations to the Public Hearing will be sent to all property owners who will be relocated as a part of the Project. Relocated properties are discussed further in Section 4.2.5.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, reinforces the concept of Title VI and the Civil Rights Act and extends the legislation to low-income populations.

### 4.2.3 Public Facilities and Services

Public facilities and services, including churches, schools, public areas, and police and fire protection, are shown in the Environmental Resource Map found in Exhibit 4.2-1 and in Table 4.2-3.

Major community facilities along the project study area are schools and government buildings that are located at the intersection of Illinois Route 47 and Ware Road. The schools are a part of Public School District No. 200. The district has a total enrollment of 5,735 and is responsible for 1,065 teaching jobs, according to the Department of Commerce and Economic Opportunity (DCEO). The schools generate considerable bus and vehicular traffic before and after school hours.

The City of Woodstock is the county seat of McHenry County. The Government Center is located on Ware Road toward the north end of the project study area. The McHenry County Government Center is responsible for providing 1,200 jobs in the City of Woodstock according to the DCEO. Traffic to and from the McHenry County Government Center is present during working-day hours.

Bates Park (originally known as Silver Creek Park) is a 23-acre park located on the east side of Illinois Route 47 between East Beech Avenue and Maple Avenue. The park includes restrooms, a playground, basketball courts, and softball and baseball fields. The park is bordered by Silver Creek, which is adjacent to the Silver Creek Conservation Area.

The McHenry County fairgrounds are located on Country Club Road two blocks east of Illinois Route 47. The fairgrounds host major entertainment events that draw large crowds and considerable vehicular traffic.

The public buildings and community facilities within the project study area and the associated impacts are listed in Table 4.2-3.

<b>Public/Community Facility</b>	<b>Address</b>	<b>Impact</b>
<b>US 14 to Country Club Road</b>		
McHenry County Farm Bureau	1102 McConnell Road	Frontage
Woodstock Bible Church	770 East Kimball Avenue	None
Woodstock Police Department	656 Lake Avenue	None
Raintree Park	320 East South Street	None
Kingdom Hall	1320 Catalpa Lane	None
US Post Office	1050 Country Club Road	None
<b>Country Club Road to Ware Road</b>		
Woodstock Fire Department	435 East Judd Street	None
Clay Academy	112 Grove Street	Left in and out access removed at Grove Street
Woodstock Christian Church	1132 North Madison Street	Frontage, east entrance from Greenwood Avenue removed.
Calvary Baptist Church	1903 North Seminary Avenue	Frontage
Verda Dierzen Early Learning Center	2045 North Seminary Avenue	Frontage
Northwood Middle School	2121 North Seminary Avenue	Frontage, Left in and out access removed at north entrance
Mary Endres Elementary	2181 North Seminary Avenue	Frontage, Left in and out access removed at north entrance
Challenger Learning Center	222 East Church Street	None
Olson Park	Intersection of Bagley Street and Clay Street	None
McHenry County Fairgrounds	1051 Country Club Road	None
Free Methodist Church	934 North Seminary Avenue	Frontage, Loss of 3 parking spaces
Bates Park	1550 North Seminary Avenue	Temporary easement to construct path
McHenry County Courthouse	2200 North Seminary Avenue	Frontage
McHenry County Government Center	2200 North Seminary Avenue	Frontage
McHenry County Health Department	2200 North Seminary Avenue	Frontage
McHenry County Administration	667 Ware Road	None
Woodstock Early Learning Center	350 Christian Way	None
St. John's Lutheran Church	401 St. Johns Road	Frontage, Loss of 14 parking spaces, west entrance from St. Johns Road removed at owner's request
Marian Central Catholic High School	1001 McHenry Avenue	None
<b>Ware Road to Charles Road</b>		
First Presbyterian Church	2018 North Illinois Route 47	None

Source: City of Woodstock website

**Table 4.2-3 Public Facilities/Services**

Impacts to public and community facilities involve obtaining proposed right-of-way or temporary grading easements from their frontages and occur in three project census tract areas. Three parking spaces are proposed to be removed from the Free Methodist Church because of roadway widening. The Free Methodist Church currently has approximately 68 parking spots. Fourteen parking spaces are proposed to be removed from St. John's Lutheran Church. St. John's Lutheran Church currently has approximately 103 parking spots. A retaining wall is proposed along the east side of Illinois Route 47 near St. John's Lutheran Church to minimize impacts. All median openings accommodate passenger car U-turn movements. No permanent right-of-way will be taken from Bates Park. Bates Park is further discussed in Section 4.13. No public facilities are anticipated to be relocated. As part of the Land Acquisition process, IDOT will determine whether the loss of 14 parking spaces would require relocation of St. John's Lutheran Church.

#### 4.2.4 Changes in Travel Pattern and Access

The preferred alternative will include a barrier median and will only permit left turns at designated median breaks. Left-turn lanes will be used at major entrances, intersections, and other designated locations. If a median break is not provided at a given location, a right-in/right-out option will be the proposed access for parcels along the corridor. After completion of the Project, traffic patterns for drivers will change, as will access along Illinois Route 47. The Illinois Route 47 corridor will continue to be the main thoroughfare for the City of Woodstock, but left-turn movement restrictions will increase U-turn movements and adverse driving distances for some along the corridor. Access management by using a median increases the flow of traffic along a roadway and typically reduces the number of crashes. The greater the flow of traffic, the higher the vehicle capacity, and the greater number of drivers traveling past businesses along Illinois Route 47 within the project study area. Individuals who previously avoided Illinois Route 47 because of congestion may begin using this corridor.

The turning bays and median openings will allow drivers to safely perform U-turns to access businesses and driveways on the opposing side of the roadway. According to the FHWA, studies have shown that a median break U-turn is approximately 25 percent safer than a left turn onto a corridor. The study also shows that drivers approve of the safer roads and will change driving and shopping habits. New and safer travel routes will be achieved through the proposed improvements.

Many properties along the corridor have several driveways to enter and leave the property. The proposed design reduces the number of driveways at many properties. Decreasing the number of driveways along Illinois Route 47 will increase the flow of traffic and decrease the number of crash conflict points.

The preferred alternative includes roundabouts at the intersections of Illinois Route 47 with Lake Avenue, McConnell Road, Judd Street/Irving Avenue, Ware Road, and Charles Road. Roundabouts are typically safer than traditional intersections. According to the project study team's analysis, the five proposed roundabouts yield a better LOS than the traditional intersection alternative.

Northwood Middle School, Verda Dierzen Early Learning Center, and Mary Endres Elementary School are all located along the west side of Illinois Route 47 near Russel Court and Ware Road. Meetings were held with the Woodstock Community School District 200 (School District) to discuss the proposed improvements and learn more about the School District's bus operations. Representatives from the School District also were included in the Corridor Advisory Group (Corridor Advisory Group). The School District currently has bus stop locations along Illinois Route 47 that will likely remain following Project completion. However, during construction there may be temporary delays to traffic similar to existing

conditions. The School District does use Illinois Route 47 for bus routes but designs its routes to minimize left turns due to congestion. Proposed median break locations were discussed with the School District to maximize bus route efficiency. The School District understood the reasoning for proposing a barrier median and was supportive of the roundabout intersections. School buses will be able to navigate the roundabout intersections. Minutes from meetings with the School District can be found in Appendix A.

Meetings were held with the Woodstock Police Department and Woodstock Fire/Rescue District to discuss the Project, particularly the barrier median and roundabouts. Both agencies were supportive of the barrier median and roundabout intersections due to their increased safety. Proposed median break locations were discussed with the agencies and finalized based on streets commonly used by the agencies. Agency vehicles will be able to navigate the roundabout intersections. Minutes from meetings with these two agencies can be found in Appendix A.

Two Pace Bus (Pace) routes use Illinois Route 47 and include stops along Illinois Route 47. No future bus routes are proposed for the project study area. Meetings were held with Pace representatives to discuss the Project and impacts to the bus routes. Pace buses will be able to navigate the roundabout intersections. Pace requested six concrete loading pads be included as a part of the Project between the proposed sidewalk/shared-use path and the proposed back of curb. They will be located at current Pace bus stop locations. Pace also requested a larger PCC pad with overhead shelter be constructed behind the shared-use path near the McHenry County Housing Authority to replace the existing Pace shelter that will be impacted as a part of this Project. All pads and the one shelter requested are being included as part of the preferred alternative. Minutes from meetings with Pace can be found in Appendix A.

The nearest Metra stop to the project study area is located approximately 1800 feet west of the Project, at the intersection of Illinois Route 120 and N Benton Street in Woodstock. The preferred alternative will not impact the existing Metra stop.

After the Project is complete, pedestrian and bicycle travel will increase because of the addition of a shared-use path and sidewalk. Currently, there is no adequate sidewalk or on-road facilities to accommodate pedestrian and bicycle traffic along the entire corridor.

During construction of Illinois Route 47, disruptions to traffic patterns will occur, particularly for business adjacent to Illinois Route 47.

#### 4.2.5 Relocations (Business and Residential)

The proposed action will require the acquisition of right-of-way from the frontage of properties along the corridor. The transportation improvements will require a total of 10 buildings on 9 properties to be relocated. Seven of these buildings will need to be taken completely because they will no longer be functional after the transportation improvements. These properties include two businesses, two business complexes occupied by four total businesses, and three residential homes. The remaining three properties requiring building relocations will still be functional and will allow the buildings to be rebuilt at a different location on the property. All three of these buildings are commercial businesses. The proposed action will also require one commercial building modification.

The *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended, and the *IDOT Land Acquisition Procedures Manual* will be followed. All housing resources are available to all relocates without discrimination. Housing of last resort will be provided if necessary.

According to the Uniform Act of 1970 (49 CFR 24), Decent, Safe, and Sanitary (DSS) housing must be available prior to requiring those effected by the Project to leave their existing dwelling. DSS residential properties of various sizes within the project study area were identified by the Department in accordance with relocation planning procedures under 49 CFR 24.205 and can be found in Exhibit 4.2-3. Relocated residents and businesses may be able to relocate within the City of Woodstock along Illinois Route 47 if they so desire.

#### 4.2.5.1 Business Relocations:

Mambo Car Wash is located at 1100 McConnell Road in Woodstock at Station 137+50 RT. The property is currently owned by DLIT Holdings, Inc. The property has a total lot area of approximately 52,167 square feet (1.20 acres). Mambo Car Wash currently has approximately four full- and part-time employees and eight parking spaces. The entire building is proposed to be acquired because the building is in conflict with the jacking pit necessary to construct the pedestrian tunnel underneath the UP Railway bridge. The property will no longer be functional once the necessary land is acquired because the property is proposed to be used as a detention basin. The property owner is aware of the proposed property relocation and supports the property relocation.

Dwight's Auto Body is located at 999 South Eastwood Drive in Woodstock at Station 140+00 RT. The property is currently owned by Chamberlain Associates, Inc. The property has a total lot area of approximately 31,564 square feet (0.72 acre). Dwight's Auto Body currently has approximately eight full- and part-time employees and 20 parking spaces. The owner of the property has requested that only the westernmost part of the building, which is the portion that is in conflict with the proposed improvements, be removed as part of the Project. The owner desires that the remaining portion of the building not in conflict not be removed. Because the westernmost part of the building being removed should not affect the structural integrity of the building or the property's functionality, the remaining portion of the building is proposed to remain in place and ownership of the property will remain with Chamberlain Associates, Inc.

Gas Cap Fuels is located at 401 South Eastwood Drive is located in Woodstock at Station 160+00 RT. The property is currently owned by LGP Realty Holdings, LP and has a total lot area of approximately 29,128 square feet (0.67 acre). Gas Cap Fuels currently has approximately five full- and part-time employees. Gas Cap Fuels currently has eight vehicle fueling pumps located on the west side of the property and a convenience store located on the east side of the property. The fuel pumps and fueling station awning are in conflict with the proposed shared-use path on the east side of Illinois Route 47. As a result, the eight fuel pumps will be acquired and removed as part of the Project. The convenience store and the parking adjacent to the building located on the east side of the property will not be impacted by the Project. The property will remain functional once the necessary land is acquired.

A vacant commercial building is located at 641 East Judd Street in Woodstock at Station 185+00 LT. The property is currently owned by James Helin and Clifford Heverly. When the current owners purchased the property, they were aware of the proposed improvements and associated impacts to the property. The property has a total lot area of approximately 5,122 square feet (0.12 acre) and has approximately five parking spaces. The entire building will need to be acquired because the building is in conflict with the proposed pavement and shared-use path and the property will no longer be functional once the necessary land is acquired.



A. Hartlett & Son, Inc. Heating and Cooling is located at 406 North Eastwood Drive in Woodstock at Station 192+00 RT. The property is currently owned by Thomas Hartlett and has a total lot area of approximately 73,500 square feet (1.69 acres). A. Hartlett & Son, Inc. Heating and Cooling currently has approximately 14 full- and part-time employees, two parking spaces, and a dirt area behind the building that can be used for additional parking. The building is in conflict with the proposed grading behind the shared-use path on the east side of Illinois Route 47. The entire property will not be acquired. After the right-of-way is acquired and the building is removed, the property will be functional. A building can be built within the new property limits. The property owner has been informed of the proposed improvements and supports the idea of constructing a new building within the new property limits.

Two small business complexes are located at 1212 and 1214 North Seminary Avenue in Woodstock at Station 231+00 RT. The property is currently owned by Andrew Roy Lago. Four businesses currently occupy the complexes: Robert T Evens Law, Botanica La Milagrosa, Sunderlage Insurance, and X-Vaganza Hair Studio. Several sections of the complexes are currently vacant. The four businesses combined have approximately 10 full- and part-time employees. The property has approximately 36 parking spaces. The entire complex will need to be acquired because the buildings are in conflict with the proposed shared-use path and curb on the east side of Illinois Route 47 and a detention basin is proposed on this property. The property will no longer be functional for a business once the necessary land is acquired.

#### 4.2.5.2 Residential Relocations:

A residential house is located at 404 Center Street in Woodstock at Station 197+00 RT. The property has a total lot area of approximately 5,203 square feet (0.12 acre). The entire residential dwelling and parcel will need to be acquired due to impacts incurred by the proposed shared-use path on the east side of Illinois Route 47. The property will no longer be functional once the necessary land is acquired.

A residential house is located at 511 North Eastwood Drive in Woodstock at Station 197+50 LT. The property has a total lot area of approximately 1,927 square feet (0.04 acre). The entire residential dwelling and parcel will need to be acquired due to impacts incurred by the proposed sidewalk and grading on the west side of Illinois Route 47. The property will no longer be functional once the necessary land is acquired.

A residential house is located at 302 McHenry Avenue in Woodstock at Station 200+00 RT. The property has a total lot area of approximately 7,247 square feet (0.17 acre). The entire residential dwelling and parcel will need to be acquired due to impacts incurred by the proposed shared-use path on the east side of Illinois Route 47.

#### 4.2.5.3 Commercial Building Modifications:

The 3 Brothers Restaurant is located at 1220 South Eastwood Drive in Woodstock at Station 129+00 LT. The property is currently owned by 3 Brothers Restaurant. The property has a total lot area of approximately 29,051 square feet (0.67 acre). 3 Brothers Restaurant currently has approximately 35 full- and part-time employees and 32 parking spaces. The front entrance awning of the building is in conflict with the proposed sidewalk. One-on-one meetings were held with representatives of 3 Brothers Restaurant on August 21, 2014, January 17, 2017, and

October 19, 2017. The purpose of the meetings was to update the owners on the status of the Project, explain the property acquisition process, and answer any questions they had regarding the process. The project study team also met with the City of Woodstock to discuss the proposed impacts to the building. Both the City of Woodstock and the property owners requested the building not be relocated as part of the Project. The preferred alternative consists of removing the existing front entrance awning of the building and allowing the rest of the building to remain in place. The proposed sidewalk will be located approximately two feet from the existing building that remains after the awning removal. During land acquisition, if it is determined the impacts to the building or costs associated with the building modifications are too large, the entire building will be relocated.

#### 4.2.6 Economic Impacts

The City of Woodstock is home to local businesses and major corporations. Examples of business types along the Illinois Route 47 corridor include shopping centers, chain restaurants, gas stations, and specialty healthcare offices.

The addition of access control along the corridor will increase safety for customers who are exiting and entering the businesses. Right-ins and right-outs will be used, restricting left-turning movements in an attempt to decrease turning crashes and rear end collisions that are currently common along Illinois Route 47. Other changes in access were discussed in greater detail in Section 4.2.4.

Tax revenue loss is likely to occur because of the amount of land that will be taken. Sales tax revenue loss is likely to occur during construction because of road detours and difficulty accessing properties along the corridor. However, the construction is only temporary. Businesses along past projects similar to the Illinois Route 47 widening project have reported a return of customers and business after completion of the projects.

As discussed in Section 4.2.5, three businesses and two business complexes occupied by five businesses are proposed to be completely taken in the preferred alternative.

Widening the corridor results in parking spaces for businesses being diminished or relocated to the extent possible. A list of businesses and the quantity of lost parking caused by the Project improvement can be found in Table 4.2-4. In total, 34 properties have a change in the number of parking spaces. There are 221 parking spaces being removed, an average of approximately 6.5 spaces per business.

Property	Property Address	Number of Parking Spaces Lost
<b>US 14 to Country Club Road</b>		
Rosati's Pizza	1652 South Eastwood Drive	3
Vacant	1648 South Eastwood Drive	10
Bull Valley Ford Mercury	1460 South Eastwood Drive	32
Woodstock Furniture	1280 South Eastwood Drive	4
Yamaha	1000 South Eastwood Drive	2
Vaughans Family Restaurant	790 South Eastwood Drive	10
Best Western Woodstock Inn	990 Lake Ave	19
Napoli's Pizza Place	930 Lake Avenue	8
Bob's Woodstock Motel	930 Lake Avenue	2
Colonial Antique Mall Restoration Center	890 Lake Avenue	12
Murphy's Flooring	2104 South Eastwood Drive	3
Woodstock Farm and Lawn Center	2020 South Eastwood Drive	1
Marco's Auto	1175 South Eastwood Drive	8
Turn Key Digital	995 South Eastwood Drive	1
Woodstock Auto Body	1295 South Eastwood Drive	10
Citgo	501 South Eastwood Drive	4
Goodyear	681 South Eastwood Drive	2
Cost Cutters	677 South Eastwood Drive	2
Dental Center	669 South Eastwood Drive	2
Quiznos Subs	667 South Eastwood Drive	2
Pro Nails Spa	665 South Eastwood Drive	2
Family Dentistry of Woodstock	651 South Eastwood Drive	2
State Farm	717 South Eastwood Drive	5
Universal Cash Express	713 South Eastwood Drive	5
Nails 2000	709 South Eastwood Drive	5
Domino's Pizza	701 South Eastwood Drive	5
Gas Cap Fuels	401 South Eastwood Drive	4

**Table 4.2-4 Impacted Parking Spaces**

Property	Property Address	Number of Parking Spaces Lost
<b>Country Club Road to Ware Road</b>		
Great Lakes Credit Union	180 South Eastwood Drive	6
Matrix IV	610 East Judd Street	4
Bott's Parts	315 North Eastwood Drive	3
Beef Village	1125 North Seminary Avenue	2
RD Signs	1143 North Seminary Avenue	1
RDS Cycling	1143 North Seminary Avenue	1
Calligraphy Studio	1143 North Seminary Avenue	1
Schneider Leucht Merwin & Cooney Funeral Home	1211 North Seminary Avenue	16
Artistica Wave Beauty Salon	1317 North Seminary Avenue	1
Universal Travel	1317 North Seminary Avenue	1
Wisted's Super Market	330 North Eastwood Drive	2
McHenry County Housing Authority	1018 North Seminary Avenue	3
Free Methodist Church	934 North Seminary Avenue	3
Farmers Insurance Boe Hanlin & Emery Group LLC McHenry County USBS Assoc.	1216 North Seminary Avenue	1
Michel J Mcnerney Attorney at Law	1320 North Seminary Avenue	2
Crossroads Care Center	309 McHenry Avenue	11
Mapletree Apartments	1917 Sheila Street	12
St. John's Lutheran Church	401 St. Johns Road	14
<b>Ware Road to Charles Road</b>		
None	-	-
<b>Total Stalls Impacted</b>	-	<b>221</b>

**Table 4.2-4 Impacted Parking Spaces (Continued)**

4.2.7 Land Use

Current land use along the Illinois Route 47 corridor is shown in Table 4.2-5.

Current land usage along Illinois Route 47 consists of residential homes, commercial businesses, light manufacturing industries, and agriculture. The City of Woodstock Zoning Map can be found in Exhibit 4.2-4. The Land Use Map can be found in Exhibit 4.2-5.

US Route 14 to Lake Avenue is zoned mainly as commercial with a manufacturing/industrial district at

Type of Land Use	Land Use Percentage
Agriculture	38.3
Parks/ Resource Conservation	3.0
Resource Conservation Corridor	5.3
Neighborhood Development	0.0
Civic	3.8
Central Business District	0.0
Industrial	0.0
Commercial	49.6
Commercial, Industrial, and Office Mixed Use	0.0

Source: Woodstock Land Use Map

**Table 4.2-5 Existing Land Use Along the Project Study Area**

the southeast corner of Illinois Route 47 and Lake Avenue. Businesses along this route include car dealerships, car repair centers, professional offices, and fast food chains.

Lake Avenue to Country Club Road is zoned for commercial businesses, multi-family residential, and one parcel of light manufacturing. Businesses along this portion of the corridor include grocery stores, major retail, banks, and one trucking business.

Land use along Illinois Route 47 between Country Club Road and Illinois Route 120 is zoned as a commercial district consisting of service and retail, offices, and shopping centers. There are single- and multi-family homes near the south end of the Illinois Route 120 and Illinois Route 47 intersection.

Illinois Route 120 to St. Johns Road is a mix of commercial shopping centers, elderly care, offices, and single- and multi-family homes.

The land use between St. Johns Road to Ware Road along Illinois Route 47 consists mainly of single-family residential homes on the west side and mixed commercial businesses on the east side. There is a middle school located west of the intersection of Ware Road and Illinois Route 47. The McHenry County Government Center and other related offices are located directly east of the intersection.

North of Ware Road is primarily open space, agricultural farm land, and farm houses. There is one neighborhood of single family homes east of the Illinois Route 47 and Cooney Drive intersection that has access to Illinois Route 47.

The majority of existing land adjacent to Illinois Route 47 falls within an urbanized classification. After completion of the project, the land use adjacent to Illinois Route 47 could change depending on Woodstock's coordination with local agencies. Right-of-way will be acquired from the frontage of residential areas, decreasing property values, and may be converted to another land use in the future. It is expected that the area on the west side of Illinois Route 47 north of Ware Road will be developed in the future. The proposed roundabout at the intersection includes a west leg to accommodate this future growth.

#### 4.2.8 Growth and Economic Development

The 2010 population for the City of Woodstock is 24,770, which is 22.9 percent higher than the 2000 population of 20,151 (United States Census 2012). This increase is greater than the 3.3 percent increase in growth of the State of Illinois' population between 2000 and 2010. Improving the roadway and welcoming more travelers also allows for future growth.

After the Illinois Route 47 Project has been completed, there will still be opportunity for growth in the number of businesses adjacent to the corridor. Traveling on the road will be safer and pedestrian and bicycle traffic will increase as a result of the improved safety. The proposed sidewalk and shared-use path will encourage pedestrians to use the corridor and allow them to reach businesses they were unable to access before the improvements.

4.2.9 Pedestrian and Bicycle Facilities

This Project will cause temporary disruptions and a permanent change in pedestrian and bicycle access but will improve these accommodations upon Project completion. There are existing sidewalks along Illinois Route 47 in intermittent locations. There are only striped crosswalk facilities located at the intersections of Illinois Route 47 and Illinois Route 120 and Illinois Route 47 and Russel Court. Exhibit 2.2-1 shows the locations of sidewalk within the project study area. Table 4.2-6 illustrates the breakdown of existing sidewalk along Illinois Route 47 in the project study area.

Limits	Sidewalk Present Left Side (Y/N)	With Sidewalk (Percentage)	Sidewalk Present Right Side (Y/N)	With Sidewalk (Percentage)
US Route 14 to Lake Avenue	Y	42.1	Y	39.5
Lake Road to McConnell Road	N	---	Y	48.1
McConnell Road to Country Club Road	Y	26.8	Y	65.8
Country Club Road to IL Route 120	N	---	Y	40.4
IL Route 120 to St. Johns Road	Y	60.7	Y	82.3
St. Johns Road to Ware Road	Y	19.3	Y	94.5

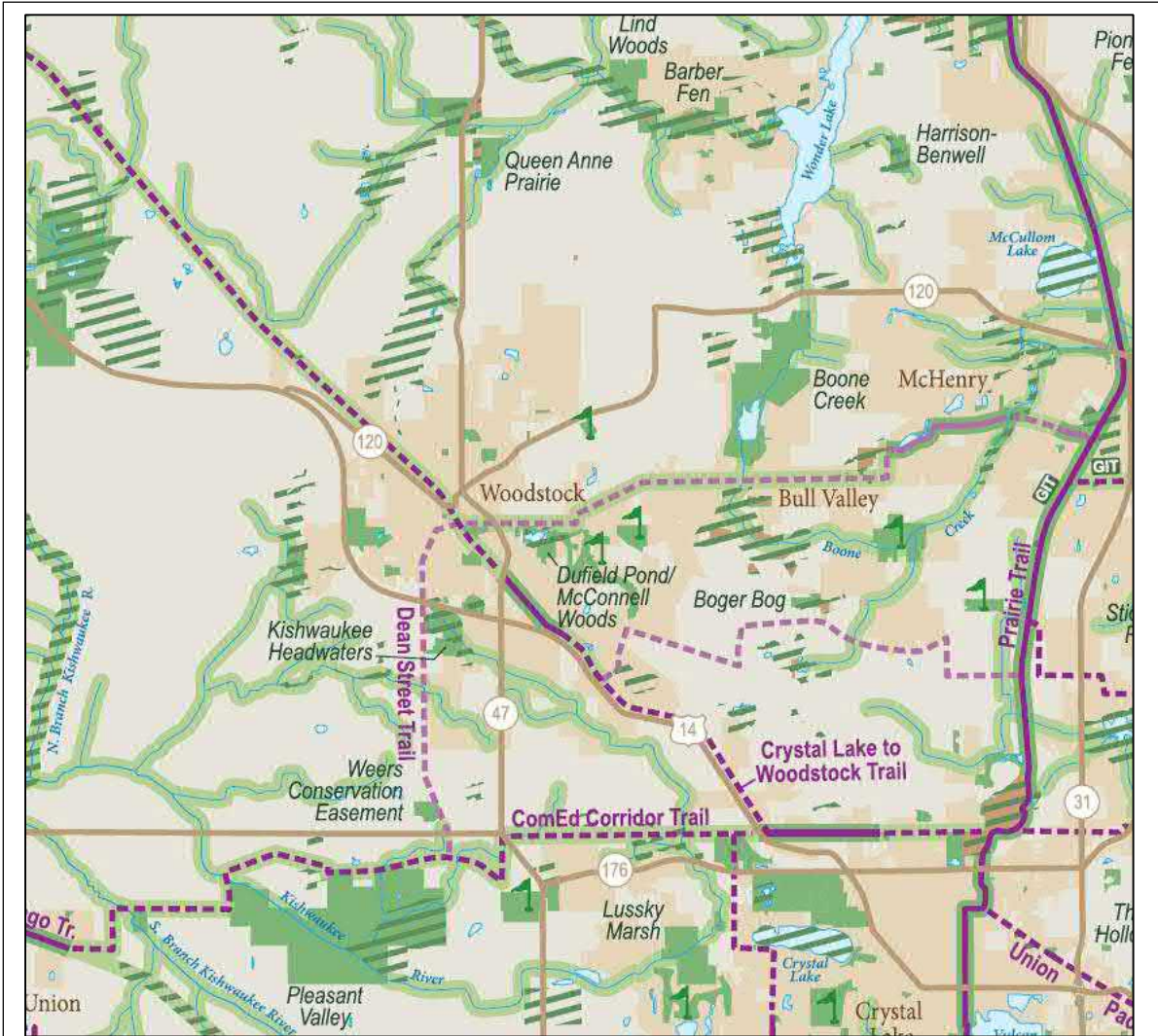
**Table 4.2-6 Existing Sidewalk Limits**

Figure 4.2-1 illustrates both the existing and proposed trails. There are currently no on- or off-road bicycle facilities along Illinois Route 47. There are bicycle facilities near the corridor at the northeast section along Ware Road and Raffel Road, as shown in Figure 4.2-1. The City of Woodstock has a comprehensive bicycle plan that includes bicycle paths along Illinois Route 47. The City also plans to develop additional parks and recreation areas in Woodstock and along Illinois Route 47 that are known as generators, places that encourage bicycle travel and serve as destinations for bicycle users.

In 2009, the Northeastern Illinois Regional Greenways and Trails Plan envisioned a network of continuous greenway and trail corridors providing recreational and transportation opportunities for nearby communities according to CMAP.

An existing primary regional trail is located south of McConnell Road to connect with a proposed regional trail along US Route 14 extending northwest along Illinois Route 120. The Dean Street Trail is proposed to cross the primary regional trail and Illinois Route 47, and to run along Country Club Road. The trail will extend east along Bull Valley Road connecting into an existing regional trail and the existing Prairie Trail.





Source: Chicago Metropolitan Agency for Planning

**Figure 4.2-1 Existing and Proposed Trails**

Proposed improvements will include construction of a 5-foot-wide sidewalk on the west side of Illinois Route 47 from US Route 14 to Ware Road. The sidewalk will typically be offset 3 feet from the back of curb. Where the sidewalk is required to be located at the back of the curb because of right-of-way constraints or obstructions, the sidewalk is widened to 7 feet. Existing sidewalk will be replaced on side roads within the construction limits. High-visibility pedestrian crosswalks will be provided on the side streets at all intersections. On the east side of Illinois Route 47, a 10-foot-wide shared-use path will be constructed the entire length of the Project. The path will be offset 5 feet from the face of the curb. The splitter islands of roundabouts will provide a place of refuge for pedestrians crossing the intersections.

A pedestrian tunnel is proposed east of the roadway bridge to cross under the UP Railway between Lake Avenue and McConnell Drive.

Constructing sidewalks and a shared-use path improves community cohesion and provides easier access to businesses.

### 4.3 AGRICULTURAL

#### 4.3.1 Farms and Farmland Conversion

IDOT and the Natural Resources Conservation Service (NRCS) use the Land Evaluation and Site Assessment (LESA) to assess the viability of agricultural land for continued agricultural production when such land may be affected by state and federal projects. The results of the LESA evaluation are provided on the NRCS's *Farmland Conversion Impact Rating Form AD-1006*, included as Appendix B. The NRCS evaluates the quality (productivity of the soils that will be affected), and the Illinois Department of Agriculture rates site-specific factors, including:

1. The amount of agricultural land required.
2. The proximity of the land to be acquired to existing highway right-of-way.
3. Off-site land required for borrow materials and wetland mitigation.
4. Creation of severed parcels, uneconomical remnants, landlocked parcels, and adverse travel.
5. Relocations of rural residents and farm buildings.
6. Whether highway design standards will be used that minimize impacts to agricultural land.
7. LESA scores of 0 to 175 points indicate a low rating of protection, scores of 176 to 225 indicate a moderate rating for protection, and scores of 226 to 300 indicate the land should be retained for agricultural use and an alternative alignment should be considered. The higher the LESA score, the more viable the farmland is for long-term agricultural use.

County zoning maps indicate that the majority of McHenry County is zoned agricultural, except within municipalities. McHenry County's *Agricultural Conservation Easement and Farmland Protection Program* includes the following objectives for agricultural protection and preservation: Providing farmland owners with new options for the preservation of farms and not coercing farmers to sell land to developers for future improvements. However, because this program is not currently funded, the program does not affect this Project. The McHenry County Farm Bureau does not have an ordinance or program related to farmland that affects this Project. Communication with McHenry County and McHenry County Farm Bureau can be found in Appendix C.

The area between Ware Road and Charles Road is unincorporated McHenry County and is classified as agricultural land. The total area of adjacent farmland within the project study area is approximately 389 acres that is actively used for farming purposes. According to the CMAP Memorandum, the agricultural area within the project study area is within a subzone considered for farmland protection.

The primary land use in the project study area is an urban developed area with the majority of agricultural land use located north of the Illinois Route 47 and Ware Road intersection. In 2007, the number of farms in McHenry County was 1,035. Between 2002 and 2007, the number of farms increased 19 percent;

however, farm acreage per farm decreased 22 percent. Corn and soybeans are the dominant crops accounting for 87 percent of the total farmed area and total farm revenues. Remaining agricultural land uses include forage, wheat for grain, and nursery stock. Livestock operations account for 19 percent of the total farm revenue in McHenry County.

Table 4.3-1 presents farm characteristics for McHenry County. In McHenry County, the most common farm size is 10 to 49 acres with 375 farms in this range.

	<b>McHenry County</b>
Total number of farms (2007)	1,035
Total acres in farms (2007)	215,584 acres
Average size of farm in acres (2007)	208 acres
Cropland as percent of total farmland	92.2 percent
Farm revenues (000 dollars in 2007)	\$156,524,000
Corn (percent of total revenue)	64.5 percent
Soybeans (percent of total revenue)	22.2 percent
All livestock and products (thousands of dollars in 2007)	\$29,898
Cattle and calves (percent of total revenue)	7.4 percent
Hogs and pigs (percent of total revenue)	3.2 percent
Other livestock and products (percent of total revenue)	1.7 percent

*Source: 2007 Census of Agriculture, USDA 2009*

**Table 4.3-1 Farm Characteristics for McHenry County**

The preferred alternative requires permanent right-of-way acquisition of 17.90 acres of land currently used for farming purposes. All the farmland impacts are to frontage property on Illinois Route 47 between Ware Road to Charles Road in unincorporated McHenry County. Because of the size of the existing farms within the project study area, it is not anticipated that impacting 17.90 acres of farmland will substantially affect farming operations or land use for any individual property. No farm residences or buildings will require relocation because of the Project. No centennial or sesquicentennial farms will be impacted as a part of this Project.

Farms will continue to operate; however, these impacts will reduce total revenue to existing operations. Because farm production is an important source of total revenue generated in McHenry County, the reduction in farm acreage may temporarily reduce total County farm revenue. However, future development in the County may offset the losses in overall County revenues.

An e-mail was sent to NRCS on November 8, 2017, stating that farmland will be converted to non-agricultural use. The proposed Project was given a LESA score of 161, indicating a low rate of protection. Because the Project was designed to acquire the least possible amount of land to meet the safety needs of the public, the IDOA determined that the Project complies with IDOT’s Agricultural Land Preservation Policy and Illinois; Farmland Preservation Act. No further coordination will be necessary with NRCS because the Project impacts less than 10 acres of farmland per linear mile per Other Exemptions of the Farmland Protection Policy Act, 7 CFR 658, Part 523.11 (E)(1). Any farmland converted to transportation use will be reported to the Illinois Department of Agriculture.

#### 4.3.2 Prime and Important Soils

The *Code of Federal Regulations* (CFR) Title 7, Volume 6, Section 657.5(a) defines prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Prime farmland has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods. To be considered prime farmland, the land does not have to be cleared; however, it cannot be urbanized, paved, or permanently under water.

McHenry County is composed of over 60 percent prime farmland (United States Department of Agriculture, NRCS, *Soil Data Mart*, 2009). A total of 146,597 acres of prime farmland exist in McHenry County. A map of the locations of prime farmland based on soil data within the project study area can be found in Exhibit 4.3-1. Only land north of Ware Road is included in the Prime Farmland Map because no farmland is located along the corridor south of Ware Road. Some areas are prime farmland at all times and others are only prime farmland when drained. The 86.37 percent of farmland that will be converted by the preferred alternative from agricultural use is classified as prime farmland.

There are no unique farmland soils in Illinois.

Farmland of statewide importance is land other than prime farmland that is considered valuable for the production of food, forage, and oilseed crops (CFR Title 7, Volume 6, Section 657.5 (c)). Important farmland includes prime farmland soils with steep slopes or eroded farmland (CFR Title 7, Volume 6, Section 657.5 (c)). McHenry County is composed of 14 percent important farmland.

Highly erodible soils are determined by slope and include soils with slopes of four percent or greater. These soils typically occur near streams and areas with changes in topography. Highly erodible soils are located near the tributary south of Cooney Drive. Soil erosion control measures at the banks of the creek will be implemented to minimize sedimentation in the creek.

#### 4.3.3 Severed/Landlocked Parcels

There will be no severances, landlocked parcels, or uneconomic remnants. The agricultural land loss represents 0.0075 percent of the total land in farms for the entire county.

#### 4.3.4 Adverse Travel

All farmland within the corridor is north of Ware Road. Roundabouts are proposed at the intersections of Illinois Route 47 with Ware Road and Charles Road. The roundabouts are designed to be traversable for farming equipment.

## 4.4 CULTURAL RESOURCES

- No Historic Properties Affected - See letter from SHPO
- Historic Properties Affected - See below

There are no historic properties in the Project area, and therefore there are no properties subject to protection under Section 106 of the National Historic Preservation Act of 1966. Letters related to the cultural clearance of the Project can be found in Appendix A. The Environmental Survey Request limits are included in Exhibit 4.4-1.

### 4.4.1 Archeological Properties

- Project will not affect Archeological Properties
- Project will affect Archeological Properties

### 4.4.2 Historic Bridges

- Project will not affect a bridge listed in the Illinois Historic Bridge Survey
- Project will affect a bridge listed in the Illinois Historic Bridge Survey

A UP Railway bridge runs over Illinois Route 47 between Lake Avenue and McConnell Road. This bridge was built in 1935 and is approximately 65 feet long. The bridge is not included in the National Registry of Historic Places (NRHP). The roadway beneath the bridge has two lanes of traffic delineated by a painted median. The proposed design will not affect the bridge in any major way. The proposed roadway cross section consists of two lanes in each direction separated by a painted median beneath the bridge. Minor enhancements can be done to the bridge as a part of this Project.

### 4.4.3 Historic District

- Project will not affect a Historic District
- Project will affect a Historic District

### 4.3.4 Historic Buildings

- Project will not affect any Historic Buildings
- Project will affect Historic Buildings

A memo from the IDOT Cultural Resources Unit, dated March 8, 2012, identified eight potentially historic properties within the project study area. The memo was later amended in a letter from the Cultural Resources Unit, dated May 18, 2015, which identified seven properties potentially eligible for the NRHP within the project corridor following a more detailed review as a result of Addendum A to the Environmental Survey Request. Because of the potentially eligible classification of the properties, a Determination of Eligibility (DOE) was completed for the Project on September 18, 2015. In a letter, dated January 29, 2016, State Historic Preservation Office concurred with the DOE that all the resources

previously identified were deemed ineligible for the NRHP and therefore no historic properties were affected as part of the Project. An additional letter confirming the findings was sent on September 16, 2016. This concurrence completed the necessary cultural resource coordination for the Project. Letters related to the cultural clearance of the Project can be found in Appendix A. No mitigation is necessary as part of this Project.

## 4.5 AIR QUALITY

Information included in this section were obtained from:

1. National Ambient Air Quality Standards
2. BDE Manual Chapter 26

### 4.5.1 Carbon Monoxide Microscale Analysis

Project Type:

- Project does not add Through Lanes or Auxillary Turning Lanes
- Project does not involve any sensitive receptors and is not suitable for using COSIM 4.0
- Project is subject to COSIM Pre-screen
- Project is subject COSIM screening analysis

In accordance with the IDOT-IEPA *Agreement on Microscale Air Quality Assessments for IDOT Sponsored Transportation Projects*, this Project is exempt from a project-level carbon monoxide air quality analysis because the highest design-year approach volume is less than 5,000 vehicles per hour or 62,500 ADT.

### 4.5.2 Air Quality Conformity

Project Type:

- Project is outside of Nonattainment or Maintenance Area
- Exempt Project in Nonattainment or Maintenance Area
- Project is within a portion of a Nonattainment or Maintenance Area where CMAP is the MPO
- Project is within a Nonattainment or Maintenance area served by an MPO other than CMAP
- Project is within a Nonattainment or Maintenance area not served by an MPO
- Regionally Significant Non-Federal project within a Nonattainment or Maintenance Area.

The National Ambient Air Quality Standards (NAAQS), established by the United States Environmental Protection Agency (USEPA), set maximum allowable concentration limits for six criteria air pollutants. Areas in which air pollution levels persistently exceed the NAAQS may be designated as “nonattainment.” States where a nonattainment area is located must develop and implement a State Implementation Plan (SIP) containing policies and regulations that will bring about attainment of the NAAQS. Areas that have



been designated as nonattainment, but that have attained the NAAQS for the criteria pollutants associated with the nonattainment designation, will be designated as maintenance areas.

All areas of Illinois currently are in attainment of the standards for four of the six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead.

For the 8-hour ozone and particulate matter (PM)<sub>2.5</sub> standards, Cook, DuPage, Kane, Lake, McHenry, and Will Counties, the Aux Sable and Goose Lake Townships in Grundy County, and Oswego Township in Kendall County have been designated as nonattainment areas. Jersey, Madison, Monroe, and St. Clair Counties in the St. Louis area also have been designated as moderate nonattainment areas for the 8-hour ozone standard. In addition, Madison, Monroe, St Clair, and Baldwin Township in Randolph County are nonattainment for PM<sub>2.5</sub>.

The Lake Calumet area and Lyons Township in Cook County have been designated as maintenance areas for the PM<sub>10</sub> standard. In addition, Oglesby and several adjacent townships in LaSalle County, and Granite City and Nameoki Townships in Madison County have been designated as maintenance areas for the PM<sub>10</sub> standard. All other areas of Illinois currently are in attainment for the ozone and PM<sub>10</sub> standards.

This Project is included in the FY 2014-2019 TIP endorsed by the Metropolitan Planning Organization Policy Committee of CMAP for the region in which the Project is located. Projects in the TIP are considered to be consistent with the 2040 regional transportation plan endorsed by CMAP. The Project is within the fiscally constrained portion of the plan.

On October 9, 2014, the FHWA and the Federal Transit Administration (FTA) determined that the 2040 regional transportation plan conforms with the SIP and the transportation-related requirements of the 1990 Clean Air Act Amendments. On October 9, 2014, the FHWA and the FTA determined that the TIP also conforms with the SIP and the Clean Air Act Amendments. These findings were in accordance with 40 CFR Part 93, *Determining Conformity of Federal Actions to State or Federal Implementation Plans*.

The Project's design concept and scope are consistent with the project information used for the TIP conformity analysis. Therefore, this Project conforms to the existing SIP and the transportation-related requirements of the 1990 Clean Air Act Amendments.

The TIP number for this Project is 11-06-0018.

#### 4.5.3 PM<sub>2.5</sub> and PM<sub>10</sub> Nonattainment and Maintenance Areas

##### Project-Type

- Exempt Project
- Nonexempt project that is not an Air Quality Concern
- Nonexempt project that is an Air Quality Concern

This Project is not an air quality concern under 40 CFR 93.123(b)(1). Because the Project does not have a significant number of or a significant increase in diesel vehicles, it has been determined that the Project will not cause or contribute to any new localized PM<sub>2.5</sub> or PM<sub>10</sub> violations or increase the frequency or

severity of any PM<sub>2.5</sub> or PM<sub>10</sub> violations. USEPA has determined that such projects meet the Clean Air Act's requirements without any further hot-spot analysis.

#### 4.5.4 Construction-Related Particulate Matter

Demolition and construction activities can result in short-term increases in fugitive dust and equipment-related particulate emissions in and around the project study area. The potential air quality impacts will occur only while construction work is in progress and when conditions are appropriate.

The potential for fugitive dust emissions typically is associated with ground clearing, site preparation, grading, stockpiling of materials, on-site movement of equipment, and transportation of materials. The potential is greatest during dry periods, periods of intense construction activity, and during high winds.

The Department's *Standard Specifications for Road and Bridge Construction (2012)* includes provisions on dust control. Under these provisions, dust and airborne dirt generated by construction activities will be controlled through dust control procedures or a specific dust control plan, when warranted. The contractor and the Department will meet to review the nature and extent of dust-generating activities and will cooperatively develop specific types of control techniques appropriate to the situation. Techniques that may warrant consideration include such measures as minimizing track-out of soil onto nearby publicly traveled roads, reducing speed on unpaved roads, covering haul vehicles, and applying chemical dust suppressants or water to exposed surfaces, particularly those on which construction vehicles travel. With the application of appropriate measures to limit dust emissions during construction, this Project will not cause any significant, short-term, PM air quality impacts.

#### 4.5.5 Mobile Source Air Toxics (MSAT)

Project-Type:

- Project is exempt
- Project has no meaningful potential MSAT effects
- Project has low meaning potential MSAT effects and is one of the following types below:
  - A minor widening project
  - A new interchange connecting an existing roadway with a new roadway
  - A new interchange connecting new roadways
  - Minor improvements or expansions to intermodal centers or other projects that affect truck traffic
- Project has high potential MSAT effects

Most air toxics are formed from human-made sources resulting from burning fossil fuels for energy production, transportation, and food processing. The EPA is the main regulator of the 189 air toxins defined by the Clean Air Act of 1990.

For each build alternative carried forward in this Environmental Assessment, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables (e.g., fleet mix)

are the same for each alternative. The VMT estimated for each of the build alternatives carried forward is slightly higher than that for The No-Build Alternative because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor and a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates from increased speeds. According to USEPA's MOVES 2010b model, the priority MSAT emissions decrease as speed increases.

Because the estimated VMT under each of the build alternatives carried forward are nearly the same, varying by less than two percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce annual MSAT emissions by more than 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great, even after accounting for VMT growth, that MSAT emissions in the project study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each Build Alternative carried forward there may be localized areas where ambient concentrations of MSAT could be higher under certain Build Alternatives than the No-Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be built at major signalized intersections under the on-alignment alternatives. However, the magnitude and the duration of these potential increases compared to the No-Action alternative cannot be reliably quantified from the incomplete or unavailable information in forecasting project-specific MSAT health impacts.

In summary, where a highway is widened, the localized level of MSAT emissions for the Build Alternative carried forward could be higher relative to the No-Build Alternative, but this could be offset by increases in speeds and reductions in congestion, which are associated with lower MSAT emissions. Also, MSAT will be lower in other locations from which traffic shifts. However, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover will, over time, cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than they are currently.

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts from changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The USEPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. It is the lead authority for administering the Clean Air Act and its amendments and it has specific statutory obligations with respect to hazardous air pollutants and MSAT. The USEPA continually assesses human health effects, exposures, and risks posed by air pollutants. It maintains the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects." The IRIS can be accessed through the USEPA website. Each report contains assessments of noncancerous and

cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning possibly an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings, cancer in animals, and irritation to the respiratory tract including the exacerbation of asthma. Less obvious are the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease. See research reports available through the HEI website.

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts. Each step in the process builds on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology, which affects emissions rates over that timeframe because such information is not available. The results produced by the USEPA's MOBILE6.2 model, the California Environmental Protection Agency's Emfac2007 model, and the USEPA's Draft MOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel PM emissions and significantly overestimates benzene emissions. Regarding air dispersion modeling, an extensive evaluation of USEPA's guideline CAL3QHC model was conducted in a National Cooperative Highway Research Program study, available through the USEPA website, which documents poor model performance at ten sites across the country where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and to underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short timeframes than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways and to determine the portion of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds and in particular for diesel PM. The USEPA and the HEI have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the USEPA, as provided by the Clean Air Act, to determine whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, (e.g., benzene emissions from refineries). The decision framework is a two-step process. The

first step requires USEPA to determine a “safe” or “acceptable” level of risk for emissions from a source, which is generally no greater than approximately 100 in 1 million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in 1 million from emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in 1 million. In some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in 1 million. In a June 2008 decision, the United States Court of Appeals for the District of Columbia Circuit Court upheld USEPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers who would need to weigh this information against project benefits, (e.g., reducing traffic congestion, crash rates, and fatalities plus improved access for emergency response), that are better suited for quantitative analysis.

## 4.6 NOISE

Type I Project

Type III Project

### 4.6.1 Impacts

Pursuant to 23 CFR 772, FHWA “Procedures for Abatement of Highway Traffic Noise and Construction Noise” the proposed Project is a Type I Project requiring traffic noise to be studied.

A traffic noise study has been conducted to evaluate traffic noise for the Illinois Route 47 proposed improvements. The traffic noise study evaluated a total of 32 representative receptors located within 32 Common Noise Environments (CNE). A CNE is a group of receptors within the same noise category that are exposed to similar noise sources and traffic noise levels. For developed land use categories, a representative receptor was chosen for each CNE. The selected representative receptor was generally chosen as the closest receptor to Illinois Route 47, and therefore the worst-case traffic noise condition. Figure 4.6-1 lists the locations of the 32 CNEs and their locations.



Figure 4.6-1 Noise Receptor Locations

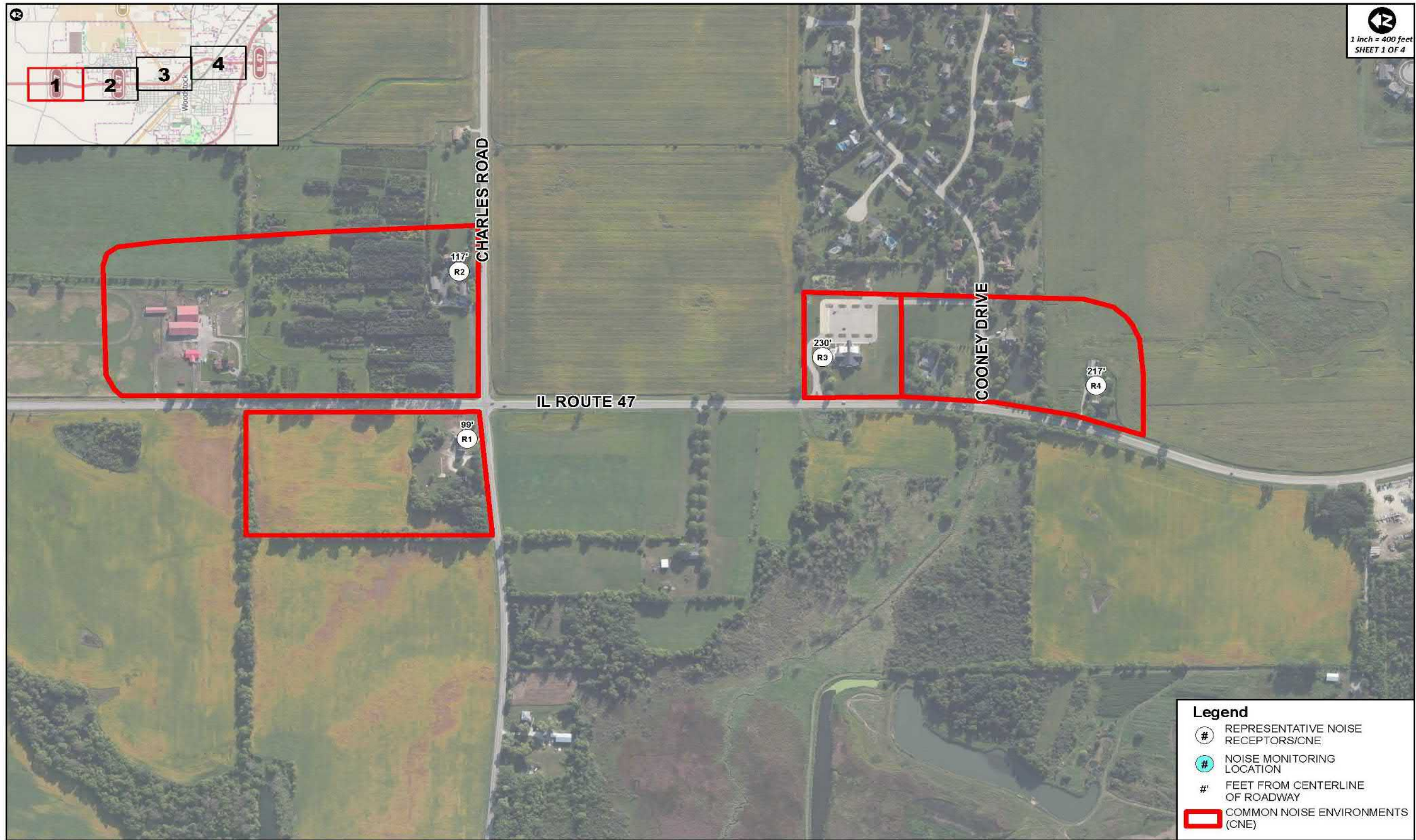
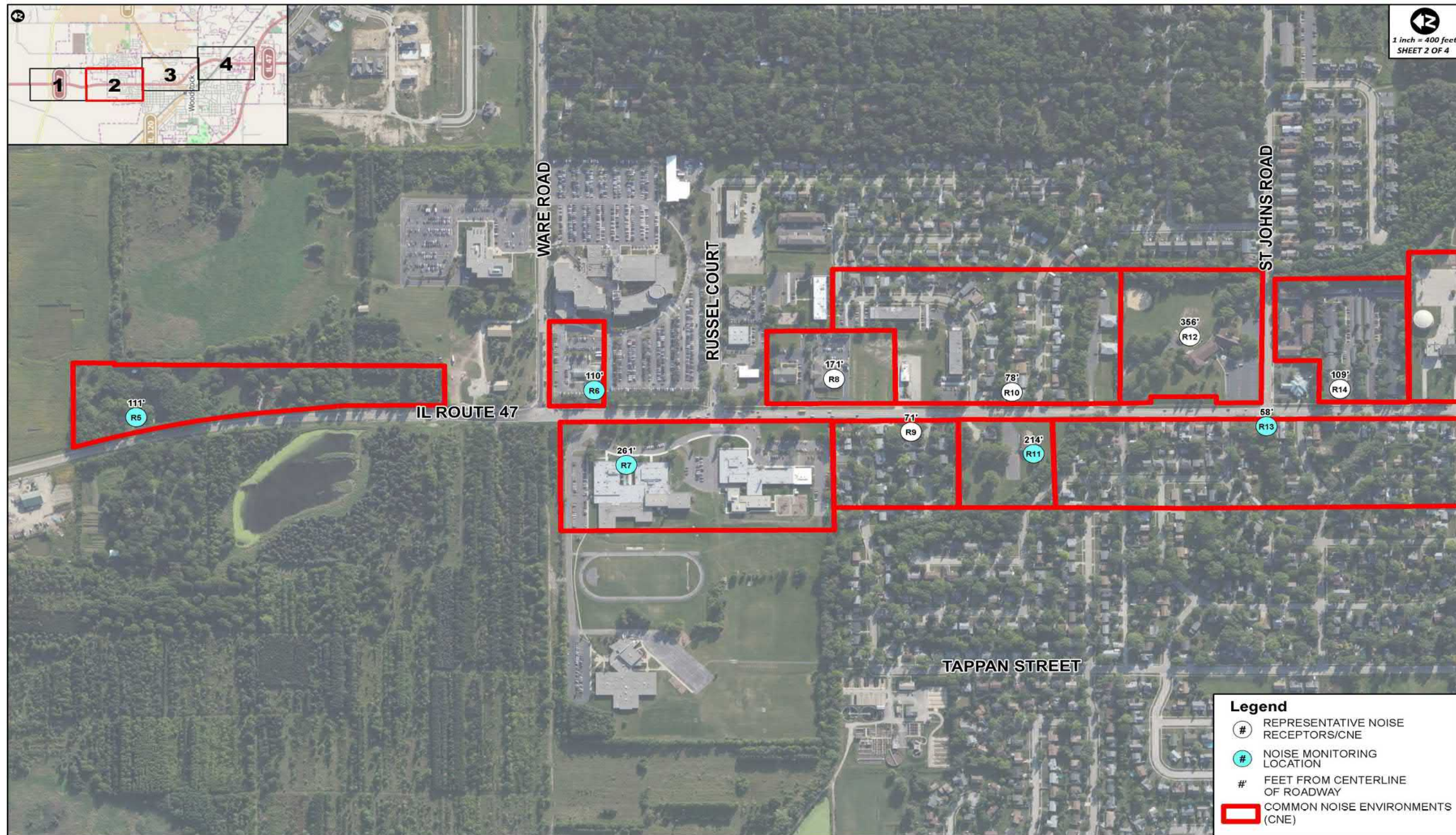




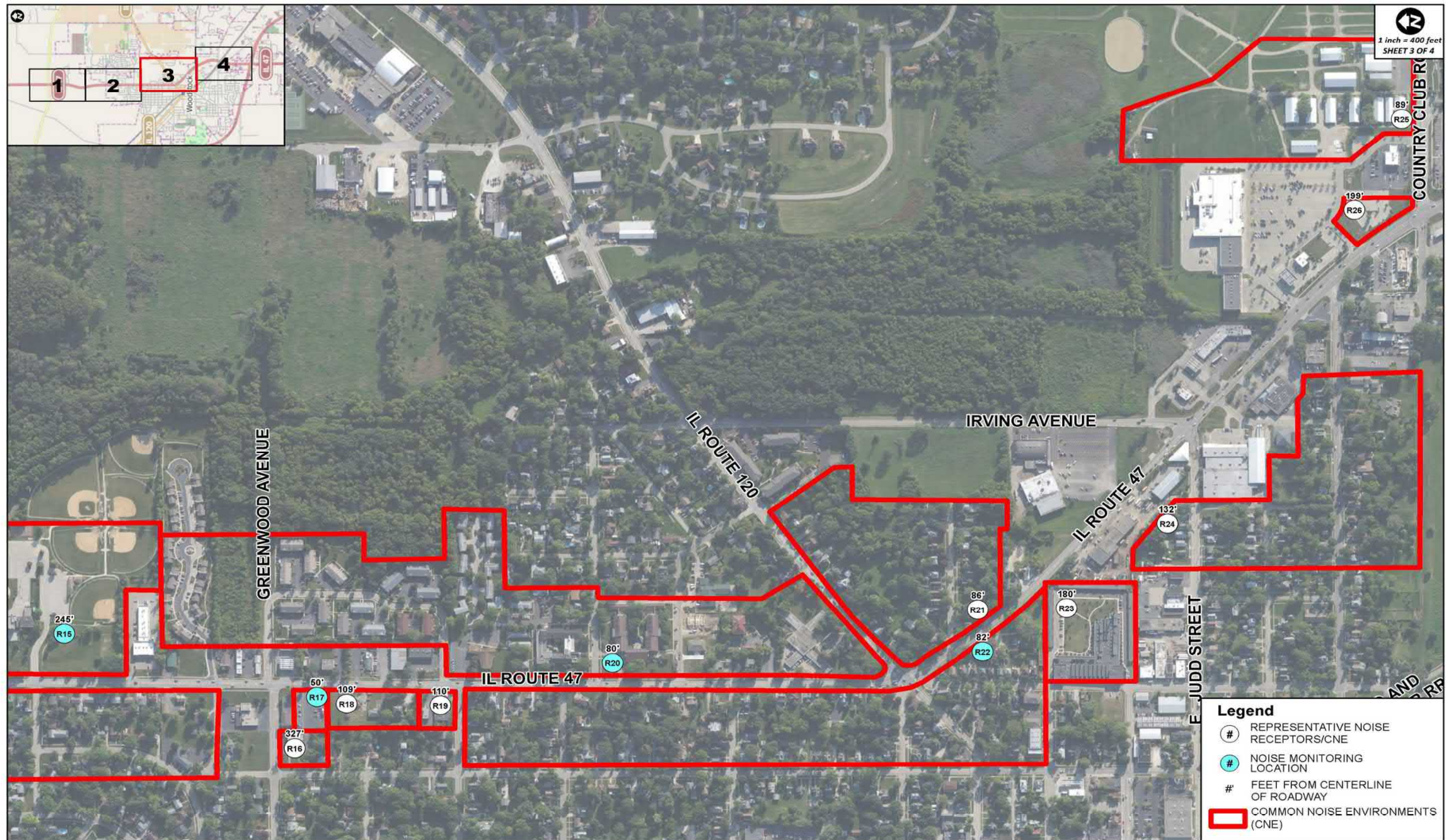
Figure 4.6-1 Noise Receptor Locations (Continued)



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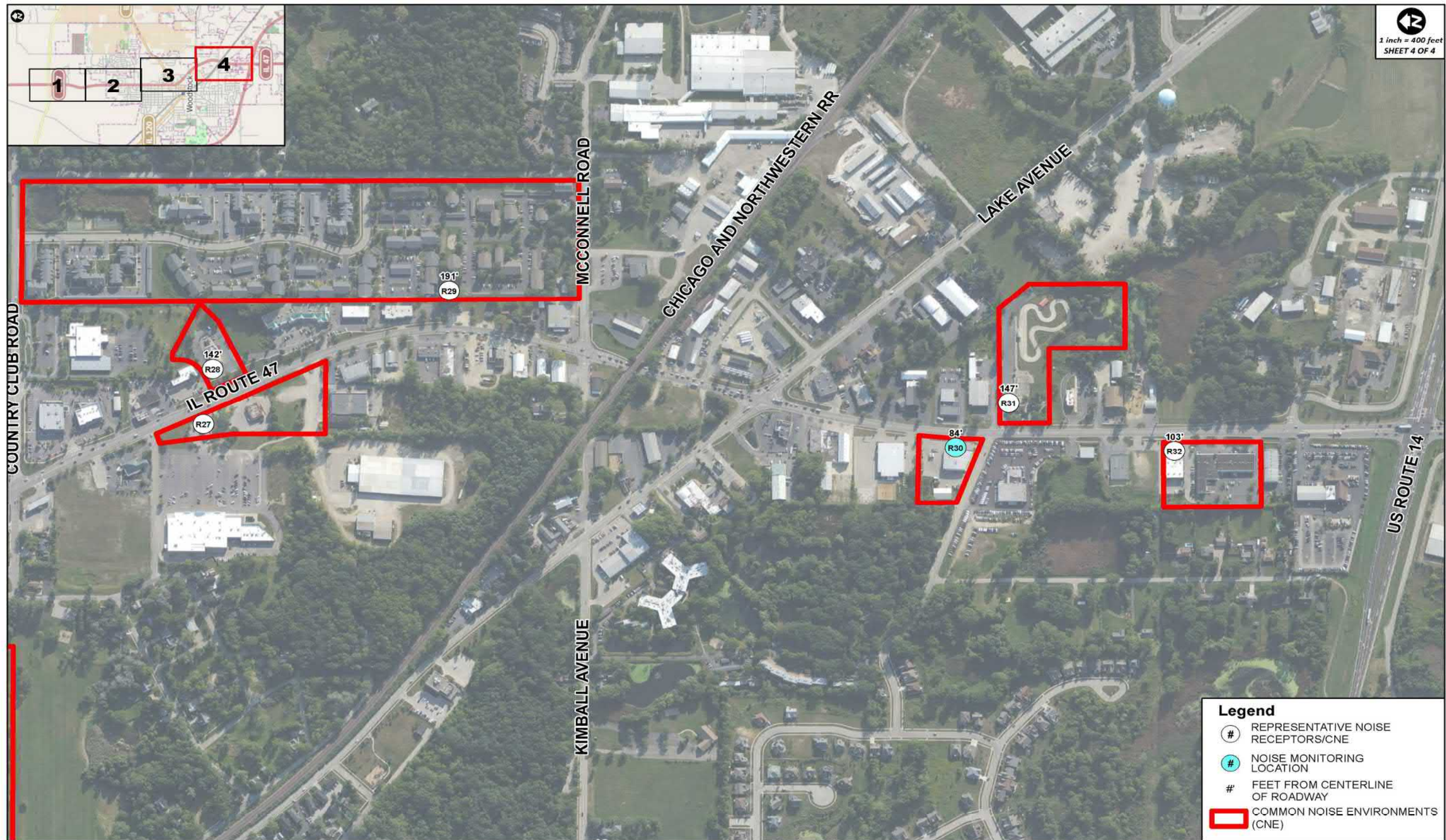
Figure 4.6-1 Noise Receptor Locations (Continued)



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Figure 4.6-1 Noise Receptor Locations (Continued)



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A traffic noise impact occurs on a project when predicted build noise levels approach, meet or exceed the Noise Abatement Criteria (NAC) listed in Table 4.6-1 or when the predicted noise levels are substantially higher than the existing noise level.

Activity Category	Leq(h)	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	Exterior	Residential.
C	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	---	---	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	---	---	Undeveloped lands that are not permitted.

**Table 4.6-1 Noise Abatement Criteria - Hourly Weighted Sound Level**

Based on the FHWA regulations, State Highway Authorities are allowed to establish the noise level determined to approach the NAC and the increase in noise levels determined to be a substantial increase. IDOT has established the following criteria, in the IDOT Highway Traffic Noise Assessment Manual 2017 Edition, to define the occurrence of a traffic noise impact.

- Design year (typically 20 years into the future) traffic noise levels are predicted to approach, meet, or exceed the NAC, with approach defined as 1 decibel (dB)(A) less than NAC; or
- Design year (typically 20 years into the future) traffic noise levels are predicted to substantially increase (15 dB(A) or greater) over existing noise levels.

The existing noise levels range from 51 decibels (dB)(A) at R12 and R16 to 67 dB(A) at R13 and R17. The projected 2040 No-Action traffic noise levels range from 51 dB(A) at R16 to 68 dB(A) at R13 and

R22. Generally, receptor noise levels increase approximately 0 to 4 dB(A) from the existing scenario to the No-Action scenario from an increase in traffic volumes.

The projected 2040 Build traffic noise levels range from 54 dB(A) at R16 to 72 dB(A) at R13. Generally, receptor noise levels increase between 1 dB(A) to 5 dB(A) from the existing scenario due to an increase in traffic volumes and roadway widening. Nine receptor locations (R6, R9, R10, R13, R14, R17, R20, R21, and R22) approach, meet, or exceed the FHWA NAC, and therefore warrant a noise abatement analysis. In addition to traffic noise levels approaching the NAC, a noise abatement analysis is warranted if traffic noise levels increase more than 14 dB(A) between the existing and build scenarios at a receptor, regardless if the NAC is approached. None of the receptors meet this criteria as the largest increase is 5 dB(A). CNEs and predicted noise impacts are summarized in Table 4.6-2.

Receptor / CNE	Receptor Type 2	Activity Category/ Noise Abatement Criterion (dB(A))	Distance from Existing IL Route 47 Centerline (ft)	Existing Noise Level, dB(A)	2040 No-Action Noise Level, dB(A)	2040 Build Noise Level, dB(A) 1	Increase in Build Noise Levels over Existing Noise Levels, dB(A)
1	SFR	B/67	99	60	61	61	1
2	SFR	B/67	117	56	59	58	2
3	Church	B/67	230	59	63	64	5
4	SFR	B/67	217	60	64	65	5
5	SFR	B/67	111	56	60	60	4
<b>6</b>	<b>Civic</b>	<b>C/67</b>	<b>110</b>	<b>62</b>	<b>64</b>	<b>66</b>	<b>4</b>
7	School	C/67	261	56	59	61	5
8	Adult Daycare	E/72	171	60	61	64	4
<b>9</b>	<b>SFE</b>	<b>C/67</b>	<b>71</b>	<b>65</b>	<b>66</b>	<b>69</b>	<b>4</b>
<b>10</b>	<b>SFR/MFR</b>	<b>C/67</b>	<b>78</b>	<b>64</b>	<b>65</b>	<b>68</b>	<b>4</b>
11	Church	C/67	214	56	57	58	2
12	Church	C/67	356	51	52	55	4
<b>13</b>	<b>SFR</b>	<b>B/67</b>	<b>58</b>	<b>67</b>	<b>68</b>	<b>72</b>	<b>5</b>
<b>14</b>	<b>MFR</b>	<b>B/67</b>	<b>109</b>	<b>63</b>	<b>64</b>	<b>67</b>	<b>4</b>
15	Park	C/67	245	56	57	60	4
16	Church	C/67	327	51	51	54	3
<b>17</b>	<b>Restaurant</b>	<b>E/72</b>	<b>50</b>	<b>67</b>	<b>67</b>	<b>70</b>	<b>3</b>
18	SFR	B/67	109	62	62	64	2
19	Restaurant	E/72	110	61	61	63	2
<b>20</b>	<b>MFR</b>	<b>B/67</b>	<b>80</b>	<b>64</b>	<b>64</b>	<b>66</b>	<b>2</b>
<b>21</b>	<b>SFR</b>	<b>B/67</b>	<b>86</b>	<b>65</b>	<b>66</b>	<b>67</b>	<b>2</b>
<b>22</b>	<b>SFR</b>	<b>B/67</b>	<b>82</b>	<b>66</b>	<b>68</b>	<b>68</b>	<b>2</b>
23	MFR	E/72	180	58	59	59	1
24	SFR/MFR	E/72	132	59	61	61	2
25	Fairgrounds	E/72	89 <sup>2</sup>	59	60	60	1
26	Restaurant	E/72	199	59	60	61	2
27	Restaurant	E/72	60	65	65	68 <sup>3</sup>	3
28	Restaurant	E/72	142	59	59	63	4
29	MFR	B/67	191	58	58	62	4
30	Restaurant	E/72	84	65	65	68 <sup>3</sup>	3
31	Restaurant	E/72	147	64	64	66 <sup>3</sup>	2
32	Restaurant	E/72	103	62	62	65	3

**Table 4.6-2 CNEs and Predicted Noise Impacts**

1. **Boldface** indicates the noise levels approach, meet or exceed the NAC in the 2040 Build condition
2. SFR = Single-Family Residence; MFR = Multi-Family Residence



4.6.2 Noise Abatement Analysis

IDOT policy identifies general criteria that must be met before a noise barrier shall be recommended for implementation. These include the following:

- Noise barriers shall be evaluated to address the identified traffic noise impacts;
- Noise barriers shall be feasible (can be built and can achieve the traffic noise reduction feasibility criterion of at least 5 dB(A) for at least two **impacted** receptors);
- Noise barriers shall achieve the noise reduction design goal of at least 8 dB(A) for at least one **benefited** receptor (Reasonableness Criterion 1);
- Noise barriers shall be cost effective (i.e., may not exceed the allowable noise abatement cost) (Reasonableness Criterion 2); and
- Noise barriers shall be deemed desired by the benefited receptors (Reasonableness Criterion 3).

Noise walls were considered feasible noise abatement measures at two locations (R9 and R10) of these nine locations since each provides at least a 5 dB(A) traffic noise reduction at two impacted receptors.

With regard to reasonableness, noise walls would provide at least an 8 dB(A) traffic noise reduction for at least one benefited receptor at R9 and R10. However, based on the evaluations of CNE 9 and CNE 10, the noise walls would not be economically reasonable since the estimated cost per benefited receptor exceeds the average adjusted allowable cost per benefited receptor, as shown in Table 4.6-3.

Noise Impacted Receptor/CNE	Barrier Height	Barrier Length	Total Cost	Does the Barrier Meet NRDG? <sup>1</sup>	Estimated Build Cost per Benefited Receptor <sup>2</sup>	Will the Barrier Likely be Implemented?	If No, Reasons Why
9	10	240	\$60,000	Yes	\$30,000	No	Not Cost Effective
10	10	240	\$60,000	Yes	\$30,000	No	Not Cost Effective

<sup>1</sup> There must be at least one benefited receptor that has noise levels reduced at least 8 dB(A) to meet the Noise Reduction Design Goal (NRDG).

<sup>2</sup> The allowable cost is calculated based on the IDOT Noise Policy.

**Table 4.6-3 Noise Abatement Cost Reasonableness Evaluation**

An overall noise abatement summary table is provided as Table 4.6-4.

Noise Impacted Receptor/CNE	Feasibility	Reasonability	Noise Wall To Be Implemented
6	No	-	No
9	Yes	No	No
10	Yes	No	No
13	No	-	No
14	No	-	No
17	No	-	No
20	No	-	No
21	No	-	No
22	No	-	No

**Table 4.6-4 Noise Abatement Summary Table**

Based on this noise analysis, no noise walls would be feasible and reasonable for this project. Therefore, highway traffic noise abatement measures are not likely for the proposed Illinois Route 47 project based on preliminary design. If the project’s final design is different from the preliminary design, IDOT will determine if revisions to the traffic noise analysis are necessary. A final decision on noise abatement will not be made until the project’s final design is approved and the public involvement processes is complete.

4.6.3 Undeveloped Areas Traffic Noise Coordination

Undeveloped areas were reviewed to determine whether there are any existing permits for development. According to the City of Woodstock Department for Community and Economic Development, a proposed retail site is being processed through permitting. The proposed development is located on the east side of Illinois Route 47 between McConnell Road and Country Club Road in an existing commercial area. According to the McHenry County Planning and Development Department, there are no plans for development in unincorporated areas at this time. While the existing land use is agricultural with scattered residential north of Ware Road, the future land use is primarily zoned for residential along Illinois Route 47 with commercial zoning centered at the intersection with Charles Road.

Traffic noise levels were estimated for undeveloped areas to determine the distance from the roadway under the 2040 Build condition for which the activity Category B or C NAC (67 dB(A)) or Category E NAC (72 dB(A)) is approached for the appropriate land use. Therefore, the 66 dB(A) noise level contour was estimated for undeveloped activity category B and C land uses and the 71 dB(A) noise level contour was estimated for undeveloped activity category E land uses. Coordination with local officials having jurisdiction over adjacent lands within the project study area will occur before the Public Hearing to present the results of the traffic noise study.

4.6.4 Construction Noise

Trucks and machinery used for construction produce noise that may affect some land uses and activities during the construction period. Residents along the alignment would at some time experience perceptible construction noise from implementation of the proposed improvements. To minimize or eliminate the effect of construction noise on these receptors, mitigation measures have been incorporated into the

currently adopted IDOT *Standard Specifications for Road and Bridge Construction*, Article 107.35, Construction Noise Restrictions.

Construction methods to be used for proposed improvements are considered and determined in the final engineering design with the preparation of contract drawings and specifications. Depending on the construction methods and potential for construction noise impacts, there are several potential abatement options that might be considered if they are warranted.

#### 4.6.4.1 Construction Staging

Options for minimizing noise impacts during construction could include installation of temporary barriers, such as temporary walls, stockpiles of materials, equipment enclosures for noisy equipment such as shields or heavy curtains, routing construction equipment away from identified sensitive receptors, or operating equipment as far from any identified sensitive receptors as is feasible and practical.

#### 4.6.4.2 Sequence of Operations

Options for minimizing noise impacts could include scheduling and conducting louder construction operations during the day and not during the night, when people are much more sensitive to noise, or conducting multiple loud operations at one time. The total noise level from multiple activities would not substantially increase the overall noise level. Its effect is that it would reduce the total duration of that noise level in the defined area.

#### 4.6.4.3 Alternative Construction Methods

Options for minimizing noise impacts include the evaluation of alternative pile driving methods as this is a major noise contributor and can generate vibration complaints. The project could also consider quieter demolition methods or pavement removal methods, such as using special muffler systems, shields (such as structural barriers), or enclosing equipment (such as portable curtains).

## 4.7 NATURAL RESOURCES

### 4.7.1 Upland Plant Communities

Land use data within the project study area was obtained from United States Geological Survey (USGS) and is included in Exhibit 4.2-5. The highest percentage of land cover is Developed, low intensity (29.2 percent) and agricultural/cultivated crops (28.4 percent). Less than one percent of the project study area is classified as forest. USGS defines Developed, low intensity land as areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20 to 49 percent of total cover. These areas most commonly include single-family housing units.

A botanical survey conducted by the Illinois Natural History Survey (INHS) in 2011 identified two prairie sites located near the project study area. The first prairie site is a Dry Gravel Prairie site within the UP Railway right-of-way, approximately 1,750 feet west of Illinois Route 47. This habitat was extremely small (0.02 acre) and highly degraded (grade C- to D), with a FQI of 14.3 (11.2 with adventives). Diversity in this remnant community was low.

The second prairie site is a Dry-mesic Prairie consisting of two small sections along the UP Railway, approximately 1,500 feet east of Illinois Route 47. A narrow section of this remnant (0.02 acre) is on the north side of the railroad tracks, while a larger portion (0.1 acre) is on the south side. Both areas were highly degraded (grade C- to D), with a combined FQI of 16.3 (14.0 with adventives). Neither prairie site located near the project study area will be impacted as part of this Project.

Survey, identification, and a health study of trees were performed in 2010 along the project study area. The review found approximately 1,600 trees along the Illinois Route 47 corridor. The most common species of trees along the corridor include Honey Locust (11 percent), Green Ash (8 percent), Blue Spruce (7 percent) and Box Elder (7 percent). Trees surveyed were found to be in a typical condition and of typical to above-average form. Of the 1,600 trees found along the Illinois Route 47 corridor, 1,260 trees will be impacted as a part of this Project.

Noxious weeds and invasive species are plants that are not native to the project study area. Approximately 21 percent of trees found in the tree survey are considered invasive species. The most common invasive trees were Siberian Elm and Norway Maple trees making up 14 percent of all invasive trees found within the project study area. If noxious weeds/invasive species are found adjacent to construction areas, precautions will be taken to ensure the Project does not result in noxious weed and/or invasive species impacts to sensitive areas. IDOT has procedures and requirements regarding soil and seed qualities to prevent placing or spreading noxious weeds. If species are found that are on the IDOT List of Species Under Management, the species will be exterminated.

The Division of Highways recognizes the important functions and values that trees contribute to the roadside environment such as aesthetic/wildlife values, sight screening of objectionable views, windbreaks for open rural areas, shading for urban heat reduction, and air quality enhancement.

Widening the roadway will result in several hundred trees being removed. The highest percentage of trees being removed are Green Ash and Honey Locust, neither of which are native to the area. No forested blocks of trees greater than 20 acres in size are being removed. Trees will be replaced in accordance with IDOT Departmental Policy D&E-18, which requires all trees along state highways be protected and preserved to the fullest extent possible consistent with standards of highway safety. Where trees must be removed, the Division of Highways shall pursue opportunities for providing replacement trees.

Diameter of Removed Tree	Replacement Trees
4 inches	2 trees at 2 1/2 inches
5 to 6 inches	3 trees at 2 inches
7 to 8 inches	4 trees at 2 inches or 3 trees at 2 1/2 inches
9 to 10 inches	5 trees at 2 inches or 4 trees at 2 1/2 inches
11 to 12 inches	6 trees at 2 inches or 5 trees at 2 1/2 inches
13 to 25 inches	Minimum 12 trees at 2 inches or 10 trees at 2 1/2 inches
26 or more inches	Minimum 15 trees at 2 inches or 12 trees at 2 1/2 inches

*Source: McHenry County Subdivision Ordinance*

**Table 4.7-1 Tree Replacement**

The McHenry County subdivision ordinance has a tree replacement plan for various diameters of tree removal that must be replaced with a specific number and diameter of trees. These values are indicated in Table 4.7-1.

Trees prohibited from being used as replacement trees due to their invasive nature include Box Elder, Norway Maple, Silver Maple, Tree of Heaven, Russian Olive, Autumn Olive, Ash species, Honey Locust, Red Cedar, Poplar species, Common Buckthorn, Glossy Buckthorn, Black Locust, Bald Cypress, Arbor Vitae, and Siberian Elm.

The City of Woodstock enacted a Good Neighbor Program outlining general guidelines and requirements for planting new trees (City of Woodstock website). Planting new trees in the public right-of-way is allowed for certain species of trees because it can add value to homes, but must be approved by the City of Woodstock before planting. Trees are anticipated to be planted in new locations consistent with the guidelines outlined in the Good Neighbor Program. Sight distance will be considered so new trees do not adversely affect travelers.

The following restrictions apply:

1. J.U.L.I.E. should be contacted before excavation.
2. Planting trees near streetlights should be avoided.
3. Trees should be at least 6 feet from the back of curb and 100 feet away from an intersection.
4. Evergreen trees should not be planted within the public right-of-way.

All existing vegetation not being removed will be protected and pruned for safety and equipment clearance during the construction phase. Trees and shrubs may also be preserved with fertilizer nutrients, but measures must be considered so fertilizer nutrients do not run off into existing waters.

Forests are a large and important environmental resource in Illinois. Forests provide a considerable economic contribution, providing timber, employment, outdoor recreation, protection of soil and water resources, and habitat for many plant and animal species. Wildlife within forested areas may consist of white-tailed deer, common raccoon, and various species of birds, and a variety of other species.

In Illinois, a Memorandum of Understanding (MOU) between the Illinois DNR and IDOT requires IDOT to determine whether an alignment bisects or fragments forested areas greater than 20 acres. No forested areas greater than 20 acres will be impacted as a part of this Project.

#### 4.7.2 Wildlife Resources

According to the USGS North American Breeding Bird Survey, the Union breeding bird survey route runs along Charles Road at Illinois Route 47. The birds included in this route are primarily European starlings, American robins, common grackles, and red-winged blackbirds. The birds on the Union route are commonly found in crops and pastures.

Vehicle accident data was collected along Illinois Route 47 with the intention of locating areas with high animal to vehicle crashes. The area between Ware Road and Charles Road is rural and is dominated by cultivated crops, forest, and grassland cover. The *Illinois Comprehensive Wildlife Conservation Plan and Strategy* states the white-tailed deer has a large population in Illinois and the deer are becoming more tolerant of proximity to people, which then results in more animal to vehicle accidents and crop damage.



Data was collected from 2010 through 2012 regarding the location of vehicle to animal accidents along Illinois Route 47. It was determined that, during the project study period, there were four vehicle to animal crashes. There were no injuries resulting from these crashes. One vehicle to animal crash occurred between the intersection of Illinois Route 120 and St. Johns Road. The other three vehicle to animal crashes occurred between Ware Road and Charles Road. The three vehicle to animal crashes between Ware Road and Charles Road account for 75 percent of all crashes in the section. The crash rate for the section between Ware Road and Charles Road is far below the critical crash rate for similar sections.

#### 4.7.3 Threatened and Endangered Species

The Federal Endangered Species Act protects species of plants and animals that are threatened or endangered within the United States. The Illinois Endangered Species Protection Act protects species of plants and animals that are listed under the Federal act plus additional plants and animals. Both acts provide for the conservation of threatened and endangered species and the ecosystems upon which they depend. 17 Illinois Administrative Code (IAC) Part 1075 requires consultation for the protection of state-listed species.

##### 4.7.3.1 Federally-listed Species/Habitat

A list of endangered or threatened proposed and candidate species, and proposed and designated critical habitats that could be present within McHenry County from the United States Fish and Wildlife Service was used to identify possible species in the project study area. A threatened species is one that is likely to become endangered in the near future. An endangered species is any species in danger of becoming extinct. A letter, dated December 16, 2013, was sent from the Illinois Department of Transportation central office to the District summarizing these findings and can be found in Appendix A. The preferred habitat of federally-listed species was cross referenced with the characteristics of the project study area.

It was determined that there may be suitable habitat for the northern long-eared bat. Since the trees in the project study area are mostly urban residential landscape trees, the suitability of habitat for this species is low and there are no records of the northern long-eared bat in the vicinity of the project study area. Therefore, it was concluded there is no effect on the northern long-eared bat.

Wetland No. 18 within the project study area had an FQI above 20 and a mean C over 3.5, thus providing potential habitat for *platanthera leucophaea*, the Eastern Prairie Fringed Orchid (EPFO). A botanical survey was conducted in August 2011 and a survey specific to EPFO was conducted in 2012 and no EPFO was found. Therefore, it was concluded EPFO is not within the project study area and there is no effect on EPFO.

A botanical survey conducted in August 2011 identified four prairie sites near the project study area. None of these prairie sites will be impacted as a part of this Project and therefore, there is no effect.

Correspondence from the U.S. Fish and Wildlife dated September 21, 2017 states "There are no critical habitats within your project area under this office's jurisdiction." This correspondence can be found in Appendix A.

Impacts

- No Effect
- May Effect
  - Informal Consultation
  - Formal Consultation

4.7.3.2 State-Listed Species

A botanical survey for the *Helianthus giganteus* was conducted due to proximity of nearby records. No *Helianthus giganteus* were found at the time of the botanical survey and it was determined *Helianthus giganteus* is not present and there is no effect.

A survey was conducted for Blanding's Turtle within the project study area in September 2017 due to the proximity of nearby records. A marsh with suitable habitat for the Blanding's Turtle is located along Charles Road approximately 0.65 mile west of Illinois Route 47. This suitable habitat is approximately 0.44 mile outside the Project limits. Therefore, there is no effect on Blanding's Turtle.

Because there are no impacts to the marsh areas identified in the Project botanical survey, it is concluded that there is no effect on nesting of the Least Bittern.

This Project has no effect on the Iowa Darter.

- Closed
- Open

Incidental Take Authorization

- Yes
  - Species -
- No

**4.8 WATER QUALITY/RESOURCES/AQUATIC HABITATS**

The Wetland Science program from the INHS conducted a *Wetland Delineation Report* resulting in the identification of streams and ponds within the Illinois Route 47 project study area. The delineation was performed at four locations to determine the type, quality, and function of each site.

Table 4.8-1 summarizes the streams and ponds within the project study area that are considered Waters of the United States (WOUS). In accordance with the Wild and Scenic Rivers Act (16 U.S.C.1271-1287), no streams within the project study area are part of the National Wild and Scenic Rivers System or under study for designation to the system.

Site No.	Site Name	Community Type	Size Within Project (acres)	NWI Code	Waters Type
W1	East Branch Silver Creek	Stream	0.02	U	RPW
W2	Unnamed Tributary to Silver Creek	Stream	0.04	PEMCd	RPW
W3	Silver Creek	Stream	0.05	PEMC	RPW
W4	Deepwater Aquatic Habitat	Deepwater Aquatic Habitat	0.53	POWGx	RPW
W5	Ditch	Ditch	0.12	U	RPW

**Table 4.8-1 Waters of the US Site Summary**

These locations are specified on the Water Resources Map, Exhibit 4.8-1.

The East Branch of Silver Creek crosses under Illinois Route 47 approximately 200 feet south of Birch Road through a 7-foot-wide by 8-foot-tall box culvert. The East Branch of Silver Creek is a permanent body of water that has an approximate 4.36-square-mile watershed and is 62 linear feet wide. The Illinois Department of Natural Resources (IDNR) does not classify the stream as a biologically significant stream, nor did it receive an integrity or diversity rating. The East Branch of Silver Creek is a portion of the West Nippersink Creek Watershed area and there are neither riffles nor pools present. Approximately 0.02 acre of the site will be impacted as a part of this Project. Impacts are necessary to widen the roadway to the proposed cross section, remove the existing box culvert, construct a new, longer, 16-foot-wide by 9-foot tall box culvert, and complete necessary grading.

An unnamed tributary to Silver Creek crosses Illinois Route 47, approximately 100 feet south of Cooney Drive. The tributary is approximately 58 feet wide. The IDNR does not classify it as a biologically significant stream and it has neither a stream integrity nor a diversity rating. In addition, no riffles or pools exist in the tributary. The tributary is a High Quality Aquatic Resource (HQAR) and Advanced Identification (ADID) site. It is a portion of the West Nippersink Creek Watershed area. The culvert carrying the unnamed tributary underneath Illinois Route 47 has a drainage area of 6.48 square miles. Approximately 0.006 acre of the site will be impacted as a part of this Project. Impacts are necessary to widen the roadway to the proposed cross section, remove the existing box culvert, construct a new, longer culvert, and complete necessary grading.

Silver Creek is primarily located along either side of Charles Road, approximately 375 feet east of Raycraft Road. It is approximately 107 feet wide and is a portion of the West Nippersink Creek Watershed area. The culvert carrying Silver Creek underneath Charles Road has a drainage area of 15.4 square

miles. Silver Creek is classified as a permanent body of water with a stream integrity and diversity rating of D. IDNR states that integrity ratings are based on a letter scale from A to E, with A being the highest integrity. No riffles or pools are present, and the IDNR classifies it as a significant stream. Silver Creek will not be negatively impacted as part of this Project.

Lakes surrounding the project study area are primarily manmade lakes and private detention ponds. A manmade deep-water aquatic habitat is located on the east side of Illinois Route 47 approximately 100 feet south of Cooney Drive. The pond flows into the unnamed tributary to Silver Creek via an 18 inch diameter pipe and an emergency overflow berm. Because it flows directly into a relatively permanent water source, it is considered to be a Water of the United States. It has a total watershed area of less than one square mile and is a portion of the West Nippersink Creek Watershed area. The proposed widening impacts the existing berm on the west side of the pond, which controls the water elevation in the pond. The preferred alternative includes a proposed retaining wall at the back of the shared-use path on the east side of Illinois Route 47 and a weir wall east of the retaining wall that will replace the existing berm. The weir wall will have the same overtopping elevation as the existing berm to maintain the existing pond elevation. The Illinois Route 47 improvements will require regrading area to the west and north of the existing pond to maintain the pond capacity. The preferred alternative results in approximately 0.099 acre of site impacts.

A ditch is located approximately 1,500 feet north of McConnell Road on the east side of Illinois Route 47. Water is carried beneath Illinois Route 47 from the west side of the roadway to the east side of the roadway via an 8-foot-high by 10-foot wide box culvert. Because of the overall good condition of the structure and the limited amount of repairs needed, the culvert is proposed to be extended as part of the Project. The ditch flows south along the east side of Illinois Route 47 for approximately 125 feet before crossing beneath a private driveway via dual corrugated metal pipe culverts. The ditch then flows east away from Illinois Route 47. These culverts are not proposed to be impacted by the Project. However the ditches upstream and downstream of the culverts are proposed to be regraded for detention purposes. Approximately 0.119 acre of the site will be impacted as part of this Project. Impacts are necessary to widen the roadway to the proposed cross section and regrade the ditch to accommodate the detention basin proposed at the site.

Erosion control measures will be required to avoid construction runoff. Necessary permits for the Project are discussed in the Permits/Certifications Required Section of this report.

#### **4.9 GROUNDWATER RESOURCES**

All Woodstock's drinking water comes from community and personal wells that tap into alluvial and glacial origin aquifers.

The aquifers affecting Woodstock's groundwater systems are from large, soft rock, carbonate-rich aquifers. These aquifers provide groundwater at a shallow depth under 200 feet from the surface. The water moves through fractures and cavities within the limestone and dolomite rocks. Groundwater quality for the City of Woodstock is considered hard water because of the high concentrations of dissolved calcium magnesium bicarbonate. The dissolved solids are a result of the movement of water against the dolomite rock within the shallow aquifers.

The Illinois State Geological Survey (ISGS) indicates there are fewer than 30 public and private water wells within the project study area. The Woodstock community well is located approximately 500 feet east of the existing right-of-way limits and 700 feet south of St. Johns Road. The community well and facilities can hold up to a maximum storage of 3.3 million gallons per day and they fulfill the average daily demand for the City of Woodstock of 2.4 million gallons per day.

The shallow depth of the groundwater poses a threat to possible groundwater contamination. According to a 1992 Groundwater Protection Needs Assessment for the City of Woodstock, the highest concern for groundwater contamination resides within the sand and gravel aquifers that generally lie 20 feet or less from the surface. The entire project study area lies within this class of contamination concern. Groundwater degradation from contamination is a concern for the City of Woodstock because of the increase in population in the City of Woodstock and lack of any other source of drinking water for the City of Woodstock.

The City of Woodstock does not have any “regulated aquifer recharge areas,” but it is classified as a Sensitive Aquifer Recharge Area. Because of the presence of aquifers, signs within Woodstock notify its residents they are entering a “Woodstock Water Protection Area.” The water protection area is explained in an amendment to the zoning law that prohibits certain industries, such as a bottled water industry, and activities in the water supply protection district (Water Supply Protection Overlay District).

According to the USEPA, there are no sole source aquifers, as designated under Section 1424(e) of the Safe Drinking Water Act, within the Illinois Route 47 project study area.

The widening Project may create a new potential route or source for groundwater pollution for the community well.

The Project is not expected to impact groundwater pumping rates. The addition of extra impervious areas may result in a minor decrease in the amount of recharge for the aquifers of McHenry County.

Groundwater pollution mitigation includes restricting storage of hazardous and special waste along the construction site and prohibiting dumping of extra or unwanted construction materials along the corridor.

## **4.10 FLOODPLAINS**

National Flood Insurance Rate Maps (FIRM) have been collected to identify the 100-year floodplain within the project study area, shown in Exhibit 4.10-1.

### **4.10.1 East Branch Silver Creek**

East Branch Silver Creek crosses Illinois Route 47 through an existing 7-foot-wide by 8-foot-tall box culvert between Cherry Court and Birch Street. The floodway for this section of the creek extends up to 50 feet beyond the channel limits during the 100-year storm event. The floodplain for this section of the creek extends beyond the north side of the channel east of Illinois Route 47 during the 100-year storm event. The existing culvert is being replaced with a proposed 16-foot wide by 9-foot tall box culvert. Proposed within the floodway and floodplain at this location are 0.13 acre of temporary easement and permanent right-of-way impacts longitudinal to the floodplain. Impacts are necessary to widen the roadway to the proposed cross section, remove the existing box culvert, construct a new, longer, 16-foot-



wide by 9-foot tall box culvert, provide right-of-way for maintenance of the new culvert, and complete necessary grading. The area beyond the roadway typical section will be restored similar to existing conditions to minimize floodway/floodplain impacts.

#### 4.10.2 Tributary to East Branch Silver Creek

An unnamed tributary to the East Branch of Silver Creek starts at an unnamed residential detention pond approximately 100 feet south of Cooney Drive along the Illinois Route 47 corridor. The 100-year floodplain extends along ditches on the west side of Illinois Route 47 for approximately 1,000 feet and continues west of the project study area. The preferred alternative impacts 1.21 acres of existing floodplain longitudinally along Illinois Route 47. The impacts are necessary to construct the roadway cross section and develop proposed drainage ditches. Of the 1.21 acres of floodplain impacts, 0.52 acre is within existing Illinois Route 47 right-of-way and 0.69 acre is outside the existing Illinois Route 47 right-of-way.

#### 4.10.3 Floodplain Finding of Significant Encroachment

No

Yes

#### 4.10.4 Required Statement

This Project will not cause significant encroachment because there is no potential for interruption of the facility, there is no significant risk, and there are no significant adverse impacts on natural and beneficial floodplain values.

### 4.11 WETLANDS

Wetland are protected by Executive Order (EO) 11990, the Illinois' Interagency Wetland Protection Act of 1989, and regulated by the United States Army Corp of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). In order to comply with these requirements, the Illinois National Historical Survey (INHS) conducted a *Wetland Delineation Report* resulting in the identification of wetlands along the Illinois Route 47 project study area. This wetland delineation replaced the findings from the McHenry County GIS data used in the Alternative Development phase of the Project. The wetland delineation was performed at 23 locations to determine the wetland type, the quality of the wetland, and the function for each site. Eighteen sites met the wetland criteria set forth by the 1987 Army Corps of Engineers *Wetlands Delineation Manual*. Table 4.11-1 shows the Wetland Impact Summary Table for the Wetland Delineation Report correlating to the Exhibit 4.11-1 Wetland Inventory Map. The wetland size included in Table 4.11-1 occurs within the project study areas and is not necessarily the entire wetland size.

Wetland Site No.	Aerial Exhibit Sheet	Wetland Community Type	Wetland Size (Acres)	NWI Code	ADID/HQAR	FQI	Mean C	Area of Impact (Acres)	Mitigation Ratio
1	1	Shrub-scrub Wetland	0.00	U		16.1	3.2		
2	1	Wet floodplain forest	0.00	PEMC		9.2	2.0		
3	1	Wetland pond	0.08	U		7.0	2.3	All (0.08)	1.5:1
4	1	Shrub-scrub Wetland	0.02	U		5.7	2.3		
6	2	Wet meadow	0.04	PEMC d		4.0	1.8		
8	3	Wetland pond	0.41	POWH x		9.6	2.6	0.151	1.5:1
9	3	Marsh	0.02	U		5.0	1.4	0.004	1.5:1
11	3	Wet meadow	0.07	PEMC d	ADID/HQAR	7.8	2.2	0.017	3:1
12	3	Wet meadow	0.16	PEMC d	ADID/HQAR	4.1	1.7	0.048	3:1
13	4	Wet meadow	0.19	PEMC	ADID/HQAR	7.2	2.2		
14	4	Shrub-scrub wetland	<0.01	PEMC/PEMAf	ADID/HQAR	7.2	1.9		
16	5	Wetland pond	0.00	POWF x	ADID	7.5	2.3		
17	5	Wet floodplain forest	0.08	PEMC	ADID	10.8	2.6		
18	5	Marsh	0.19	PEMC	ADID/HQAR	26.9	3.8		
19	5	Shrub-scrub wetland	0.11	PEMC	ADID	15.6	3.3		
21	6	Wet meadow	0.08	U	ADID	4.5	2.0		
22	6	Marsh	0.23	U		10.0	2.1		
23	2	Wet floodplain	<0.01	POWF x		2.3	1.3	0.01	1.5:1
<b>TOTAL</b>								<b>0.31</b>	

**Table 4.11-1 Wetland Impact Summary**

4.11.1 Proposed Mitigation

Proposed Mitigation

- On-site
- Off-site
- Wetland Bank

Measures were taken to minimize the amount of wetlands affected by the Project. Temporary fencing may be used to identify right-of-way limits during construction near wetlands to prevent additional impacts to these sites.

Wetland impacts were included in the PowerPoint presentation and displayed on figures at Public Meeting No. 3 on July 9, 2014. Wetland impacts were also mentioned in the newsletter inviting the public to the Public Meeting.

#### 4.11.2 Wetland Finding

The total wetland impact for the preferred alternative is estimated to be 0.310 acre.

Wetland Sites 11 and 12 are located on the west side of Illinois Route 47 near Cooney Drive. Proposed grading will impact Wetland 11 because the wetland is located directly behind the proposed back of curb. The proposed curb and gutter will impact Wetland 12. The alignment cannot be moved further east because a pond and house are located adjacent to the roadway on the east side of Illinois Route 47. A retaining wall is utilized on the east and west sides of Illinois Route 47 in order to minimize impacts. Both Wetland Sites 11 and 12 are classified as ADID wetlands with high habitat value and classified as HQAR. No other ADID or HQAR sites will be impacted as a part of this Project.

All of Wetland 3 will be impacted as a result of the proposed roundabout at Illinois Route 47 and Lake Avenue. Several iterations for location of the roundabout were completed, balancing many Project objectives. Moving the roundabout would result in other additional impacts, including those to businesses. The proposed roundabout also allows the existing UP Railway bridge between Lake Avenue and McConnell Road to remain in place.

A portion of Wetland 8 is proposed to be impacted as part of the Project. This wetland site will be impacted by the proposed curb and pavement of the Illinois Route 47 widening. The roadway alignment was shifted approximately 10 feet east at this location to reduce impacts to the wetland, but could not be shifted further because of the proximity to buildings on the east side of the roadway and the proximity to the roundabout at Ware Road. No sidewalk is currently proposed on the west side of Illinois Route 47 between Ware Road and Charles Road to further reduce wetland impacts.

A portion of Wetland 9 is proposed to be impacted as part of this Project. This wetland is in conflict with the proposed grading and ditching behind the curb. The roadway alignment was shifted approximately one foot east at this location to reduce impacts to the wetland, but could not be shifted further because of the proximity to buildings on the east side of the roadway. No sidewalk is proposed on the west side of Illinois Route 47 between Ware Road and Charles Road to help reduce wetland impacts.

Executive Order No. 11990, given by President Carter in 1977, states that the agency "...shall provide leadership and shall take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities."

It is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use, which satisfies the requirement of the Federal Executive Order 11990.

## 4.12 SPECIAL WASTE

A Preliminary Environmental Site Assessment (PESA) for special waste was conducted by the ISGS for IDOT (PESA Reports ISGS #2279). It was determined the proposed improvements to Illinois Route 47 could involve sites potentially impacted with special wastes and regulated substances. In addition, the findings indicated many of these could not be avoided.

**What is a Preliminary Environmental Site Assessment (PESA)?**

A PESA is a study conducted to determine if there is a potential for contaminated soils or groundwater in the project vicinity. Public records are examined and a site visit conducted to assess the right-of-way and adjacent properties to determine if there are any natural or manmade hazards that might have resulted in contamination.

The PESA Report identified 214 recognized environmental conditions (REC) sites. The preferred alternative includes taking permanent right-of-way from 118 contaminated sites and temporary right-of-way takings from 14 contaminated sites. Nine contaminated sites are proposed to be relocated, as noted in Section 4.2.5. These sites are Mambo Car Wash located at 1100 McConnell Road, Dwight's Auto Body located at 999 South Eastwood Drive, Gas Cap Fuels located at 401 South Eastwood Drive, a vacant commercial building located at 641 East Judd Street, A Hartlett & Son located at 406 N Eastwood Drive, a residential property located at 511 N Eastwood Drive, a residential property located at 404 Center Street, and 1212 N Seminary Avenue. Pre-demolition building surveys will be conducted

prior to building demolition to ensure that proper abatement of asbestos-containing materials (including appropriate regulatory notifications) is completed and to help limit the amount of materials that would need to be removed and placed in permitted landfills. Six of the contaminated sites with right-of-way takings along the corridor are gas stations, including Gas Cap Fuels proposed to be relocated. Table 4.12-1 conveys the breakdown of RECs in the PESA Study Limits. REC sites are summarized in Exhibit 4.12-1.

Identified REC	Percent of Total
Aboveground Storage Tank	0.9
Chemical Use	9.8
Not Leaking Underground Storage Tanks	0.9
Former Monitoring Well	0.5
Potentially Impacted Groundwater	50.0
More than 1 REC per site	37.9

**Table 4.12-1 RECs in PESA Study Limits**

It is determined the purchase of additional right-of-way cannot be avoided; therefore, a Preliminary Site Investigation (PSI) is required. In some cases, the portion of the Project that involves the REC can be risk managed and would not require additional assessment. If the affected property containing the REC is a full take, then the property is ineligible to be risk managed. If risk managing is not possible, further environmental study is required, specifically a PSI, to determine the nature and extent of possible contamination. The PSI will include assessments for lead-based paint and asbestos containing materials.

It is the responsibility of Phase II to complete a PESA update for the entire Project.

## 4.13 SPECIAL LANDS

### 4.13.1 Section 4(f)

Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966 (23 CFR 774) protects publicly owned wildlife and waterfowl refuges, parks, or recreational areas. No de Minimis, Programmatic, or Individual Section 4(f) coordination is necessary for this Project. Bates Park is a 23-

acre park located between Maple Avenue and East Beech Avenue on the east side of Illinois Route 47 that was purchased using Land and Water Conservation Fund program funds. This park is adjacent to the Silver Creek Conservation Area. On June 11, 2014, the FHWA determined that, since the proposed roadway improvements are constructed within the existing right-of-way and the only impact to Bates Park would be to upgrade the existing sidewalk to a shared-use path, no Section 4(f) or Section 6(f) evaluation is required for the property. The FHWA determined that the shared-use path could be constructed under temporary occupancy as no other right-of-way was necessary. The shared-use path will replace the sidewalk on the same alignment. Meeting minutes from the FHWA meeting can be found in Appendix A. The project study team met with the City of Woodstock on June 10, 2014. The City of Woodstock was supportive of the shared-use path providing connectivity throughout the corridor, including at Bates Park. A letter was sent to the City of Woodstock on January 11, 2018 requesting the City of Woodstock officially support the improvements to Bates Park property by sending a letter of support to IDOT. This letter was signed and returned by the City of Woodstock. Correspondence with the City of Woodstock can be found in Appendix A. The contractor shall receive four weeks of temporary occupancy on Bates Park property to construct the proposed shared-use path.

#### 4.13.2 Section 6(f)

Section 6(f) of the Land and Water Conservation (LAWCON) Fund Act requires that any property using LAWCON money be used for public outdoor recreation unless otherwise approved by the National Park Service. As mentioned in Section 4.13.1, Bates Park is classified as a Section 6(f) property. There will be a beneficial effect to the recreational value of the property. No other Section 6(f) properties are within the project study area. The Illinois Department of Natural Resources (IDNR) concurred that there is no Section 6(f) conversion therefore, no Section 6(f) evaluation will be required. Correspondence with the IDNR can be found in Appendix A.

#### 4.13.3 Open Space Lands Acquisition and Development (OSLAD) Act Lands

There are no lands within the project study area that were purchased as part of the OSLAD program.

#### 4.13.4 Illinois Natural Areas Inventory (INAI) Sites

Three Illinois Natural Areas Inventory (INAI) sites are present in the vicinity of the project study area. Woodstock Marsh INAI site is located approximately 1,300 feet west of the project limits at the northeast corner of Illinois Route 47 and US Route 14. West Woodstock Prairie INAI is located approximately 2.5 miles west of the project study area. Boone Creek Fen and Seep is located approximately 2.5 miles east of the project study area. None of the three INAI sites will be impacted as a part of this Project.

#### 4.13.5 Nature Preserves

Yonder Prairie Nature Preserve is located approximately 2.5 miles west of the project study area. Boone Creek Fen and Seep is located approximately 2.5 miles east of the project study area. Neither site will be impacted as a part of this Project.

#### 4.13.6 Land and Water Reserves

The Illinois Natural Heritage database contains no record of registered Land and Water Reserves in the vicinity of the project study area.



## 4.14 INDIRECT AND CUMULATIVE IMPACTS

The previous sections considered mainly the direct impacts of the Project. Direct impacts are created by the construction of the Project. IDOT is also required to consider potential indirect and cumulative effects, which are impacts not directly related to the construction of the Project.”

### 4.14.1 Indirect Impacts

Indirect effects are impacts caused by a project, but they occur later in time or in an area that is farther away from the project. Indirect effects could be a lot of different things, but they must be “reasonably foreseeable,” or highly likely to occur because the project was built. Illinois Route 47 is currently extremely congested through the City of Woodstock, causing many drivers to avoid using the roadway. Widening the roadway will increase the capacity of the roadway and will likely increase the use of Illinois Route 47. This could, in turn, increase the value of businesses in the corridor. Development could increase more rapidly than it would if the No-Build scenario was implemented. This results in a decreased amount of farmland and residential land along Illinois Route 47. The decrease in farmland and residential land with the preferred alternative will be somewhat offset by mitigation and ordinances already in place, such as wetland mitigation and tree replacement requirements.

A shared-use path is proposed throughout the length of the Project on the east side of the roadway, and a sidewalk is proposed from US Route 14 to Ware Road on the west side of the roadway. This will result in increased pedestrian traffic. The shared-use path access could result in additional bicyclists desiring to use the roadway. The path and sidewalk could possibly increase the amount of delay at traffic signals and roundabouts because of pedestrian traffic.

### 4.14.2 Cumulative Impacts

Cumulative effects are effects on the community or natural environment that occur from adding the impacts of one project with other past, present and likely-to-occur projects. When added together, minor impacts from several different and somewhat small projects could result in a greater impact on the community and natural environment. Construction of the shared-use path throughout the length of the Project could result in additional shared-use paths proposed throughout the City of Woodstock with the purpose of increasing connectivity throughout the city.

Few multilane roundabouts have been proposed in the State of Illinois. Five multilane roundabouts are proposed in this Project. If the roundabouts prove to be effective and are supported by the public, roundabouts could become a more common intersection alternative for future projects to increase capacity and safety.

## 4.15 PERMITS AND CERTIFICATIONS REQUIRED

### 4.15.1 Section 404

This Project will require a Section 404 permit of the Clean Water Act because it involves discharging of dredged or fill material into waters (including wetlands) of the United States.

#### 4.15.2 401 Water Quality Certification

This Project will require a Section 401 Water Quality Certification because a Section 404 permit is necessary.

#### 4.15.3 National Pollutant Discharge Elimination System Construction Permit

A permit is required from the USEPA, coordinated through the IEPA, because the proposed improvements disturb one acre or more of land area.

# Chapter 5

## Environmental Commitments and Mitigation

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## 5.1 ENVIRONMENTAL COMMITMENTS AND MITIGATION

An environmental commitment is any action that represents a condition that must be put in place to receive Project approval or has been committed to as part of the environmental review process.”

1. As mentioned in Section 4.13.1, the contractor shall receive four weeks of temporary occupancy to construct the shared-use path on the Bates Park property.
2. A PSI will be conducted prior to acquisition of any contaminated parcel, and/or required temporary or permanent easements, and if the proposed improvements require excavation on or adjacent to a property identified with a REC or requires excavation, including subsurface utility relocation, on a property with an easement. The PSI will include assessment for lead-based paint- and asbestos-containing materials.
3. Special waste issues encountered during construction will be managed in accordance with the IDOT “Standard Specifications for Road and Bridge Construction and the Supplemental Specifications and Recurring Special Provisions”.
4. Accidental spills of hazardous materials and wastes during construction or operation of the transportation system require special response measures. Occurrences will be handled in accordance with local government response procedures. Refueling, storage of fuels, or maintenance of construction equipment will not be allowed within 100 feet of wetlands or water bodies to avoid accidental spills impacting these resources.

## Chapter 6

# Coordination and Public Involvement

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## 6.1 PUBLIC INVOLVEMENT

IDOT designated the Illinois Route 47 Phase I Study as a CSS project. CSS is a collaborative approach that involves all stakeholders to develop a facility that fits into its surroundings and preserves scenic, aesthetic, historic, and environmental resources while maintaining safety and mobility. In accordance with IDOT's CSS procedures, a stakeholder is anyone who could be affected by the Project and has a stake in its outcome.

A website containing information regarding the Project was made available to the public. The website is located at <http://www.il47woodstockstudy.com>.

Brief summaries of the Corridor Advisory Group and public meetings follow. Meeting minutes for the meetings described below can be found in the Combined Design Report.

### What is CSS?

CSS is an interdisciplinary approach that seeks effective, multi-modal transportation solutions by working with stakeholders to develop, build, and maintain cost-effective transportation facilities that fit into and reflect the project's surroundings—its "context." Through early, frequent, and meaningful communication with stakeholders, and a flexible and creative approach to design, the resulting projects should improve safety and mobility for the traveling public, while seeking to preserve and enhance the scenic, economic, historic, and natural qualities of the settings through which they pass.

All comments received at the Public Meetings were noted, investigated, and responded to. Common comment themes included congestion on the existing roadway, safety concerns, drainage and flooding issues, property acquisition, the possibility of bypasses, support of the roundabouts, pedestrian accommodations, and access management. The general public and agencies have primarily shown definite support and agree with the need for the Project. Questions or concerns brought up by businesses and agencies were also discussed and responses provided. Public involvement completed can be found in Appendix C.

### 6.1.1 Corridor Advisory Group

IDOT established a Corridor Advisory Group to provide a forum for discussion of details for the planning and design of Illinois Route 47. The Corridor Advisory Group consists of representatives from IDOT and its consultant staff, governmental bodies, transportation agencies, project study area elected officials, interested groups or organizations, local businesses, and residents. The Corridor Advisory Group met seven times and has provided technical input and broad perspectives as well as community level input regarding various aspects of Illinois Route 47. A summary of the seven Corridor Advisory Group meetings follows.

6.1.1.1 Corridor Advisory Group Meeting No. 1: The first Corridor Advisory Group meeting for Illinois Route 47 was held on January 21, 2010, at Bull Valley Golf Club in Woodstock, Illinois, from 9 A.M. to 11:30 A.M. The meeting included a PowerPoint presentation focusing on the study process, schedule, public outreach program, and Corridor Advisory Group member roles and responsibilities. The second portion of the meeting was an interactive workshop used to identify transportation issues and concerns regarding the corridor and Project objectives for issues and concerns, goals, and an objectives summary.

6.1.1.2 Corridor Advisory Group Meeting No. 2: The second Corridor Advisory Group meeting for the Illinois Route 47 Phase I Study was held on March 18, 2010, at Bull Valley Golf Club in Woodstock, Illinois, from 9 A.M. to 12 P.M. The meeting included a PowerPoint

presentation that reiterated Corridor Advisory Group Meeting No. 1 and Public Meeting No. 1, discussed the Draft Problem Statement created from stakeholder feedback from the Corridor Advisory Group Meeting No. 1 and Public Meeting No. 1 comment period, and reviewed the existing conditions and deficiencies in the corridor.

- 6.1.1.3 Corridor Advisory Group Meeting No. 3: The third Corridor Advisory Group meeting for the Illinois Route 47 Phase 1 Study was held on September 1, 2010, at Bull Valley Golf Club in Woodstock, Illinois, from 9 A.M. to 12 P.M. The meeting included a PowerPoint presentation that reiterated previous Corridor Advisory Group Meeting Nos. 1 and 2 and Public Meeting No. 1, confirmed the Project Problem Statement, presented the draft Purpose and Need, and included an alternatives workshop to seek input on potential improvements to the corridor.
- 6.1.1.4 Corridor Advisory Group Meeting No. 4: The fourth Corridor Advisory Group meeting for the Illinois Route 47 Phase I Study was held on May 12, 2011, at Bull Valley Golf Club in Woodstock, Illinois, from 9 A.M. to 12 P.M. The meeting included a PowerPoint presentation that reiterated the results and project milestones achieved at previous Corridor Advisory Group Meeting Nos. 1, 2, and 3, and Public Meeting Nos. 1 and 2. The study team also provided an overview of the CMAP modeling that occurred during the past several months specifically for this Project. The alternatives development process was explained, including a discussion and acceptance of alternatives evaluation criteria, and a presentation of the initial conceptual Project alternatives. This was followed by a workshop seeking Corridor Advisory Group input on the presented alternatives.
- 6.1.1.5 Corridor Advisory Group Meeting No. 5: The fifth Corridor Advisory Group meeting for the Illinois Route 47 Phase I Study was held on March 21, 2012, at Bull Valley Golf Club in Woodstock, Illinois, from 9 A.M. to 11:30 A.M. The meeting included a PowerPoint presentation that reiterated the results and project milestones achieved at previous Corridor Advisory Group and Public Meetings, including a review of the alternatives development process and the previously presented range of preliminary alternatives. The study team then presented the Refined On-Alignment Alternative, which was developed as a result of stakeholder input and technical analysis compiled to date, followed by a workshop for Corridor Advisory Group members to review and comment on the proposed improvement plan.
- 6.1.1.6 Corridor Advisory Group Meeting No. 6: The sixth Corridor Advisory Group meeting for the Illinois Route 47 Phase I Study was held on May 15, 2014, at the Bull Valley Golf Club in Woodstock, Illinois, from 1 P.M. to 3:30 P.M. The meeting included a PowerPoint presentation that showed a Project update and an overview of the on-alignment alternatives. An on-alignment alternatives workshop followed with a discussion of the next steps to be taken.
- 6.1.1.7 Corridor Advisory Group Meeting No. 7: The seventh Corridor Advisory Group meeting for the Illinois Route 47 Phase I Study was held on October 19, 2017, at Bull Valley Golf Club in Woodstock, Illinois, from 1 P.M. to 3 P.M. The meeting included a PowerPoint presentation presenting the Refined On-Alignment Alternative that was developed as a result of stakeholder input and technical analysis compiled to date.

### 6.1.2 Public Meetings

A total of three public meetings have been held for the Project. All public meetings were in open house format with a continuous PowerPoint presentation, exhibit boards for review, and aerials of the Project for which meeting attendees could provide comments suggestions, issues, and concerns. Brief summaries of each meeting follow.

6.1.2.1 Public Meeting No. 1: The first public meeting was held on February 3, 2010, from 4 P.M. to 7 P.M. at Challenger Learning Center in Woodstock, Illinois. Various methods were used to inform the public about the meeting and its purpose. The purpose of the meeting was to identify current and future transportation issues and needs for the Illinois Route 47 project. A total of 59 people attended the meeting, and a total of 29 comment forms were received at the public meeting or within the comment period, which continued until February 18, 2010. Common comment themes included property acquisition, congestion, safety, bypass alternatives, drainage and flooding, and opinions on widening Illinois Route 47.

6.1.2.2 Public Meeting No. 2: The second public meeting was held on September 15, 2010, from 4 P.M. to 7 P.M. at Challenger Learning Center in Woodstock, Illinois. Various methods were used to inform the public about the meeting and its purpose. The purpose of the meeting was to present a general overview of the Project's Purpose and Need and to solicit input and ideas to begin the development of potential alternatives. A total of 64 people attended the meeting and a total of nine comment forms were received at the public meeting or within the comment period, which continued until September 30, 2010. Common comment themes included discussion of potential bypass routes, pedestrian desires, and Illinois Route 47 widening impacts.

6.1.2.3 Public Meeting No. 3: The third public meeting was held on July 9, 2014, from 4 P.M. to 7 P.M. at Challenger Learning Center in Woodstock, Illinois. Various methods were used to inform the public about the meeting and its purpose. The purpose of the meeting was to solicit input on the intersection and roadway alternatives. A total of 75 people attended the meeting and a total of 27 comment forms were received at the public meeting or within the comment period, which continued until July 23, 2014. Common comment themes included pedestrian accommodations, roundabout support, roundabout safety, and access management.

### 6.1.3 Business Meetings

Two business meetings and ten small group business meetings were held as part of the public involvement process.

The first meeting was held on July 26, 2012. The purpose of the meeting was to introduce the Project to business owners and solicit input on individual businesses' needs and access. A total of 95 letters were mailed to business owners inviting them to the meeting and explaining the Project. The meeting included a PowerPoint presentation summarizing the Project purpose, need, schedule, and design alternatives. Businesses were provided questionnaires regarding delivery truck sizes, delivery truck schedules, delivery truck travel directions, and business hours.

The second meeting was held on October 23, 2014. The City of Woodstock Chamber of Commerce went door-to-door before the meeting inviting all businesses within the corridor to the meeting. The purpose of the meeting was to reintroduce the Project to business owners, present the preferred alternative, and solicit input on the alternative. The meeting included a PowerPoint presentation summarizing the Project and extended roll plot drawings of the preferred alternative with sticky notes available for comments. A total of 66 people attended the meeting and 11 comment forms were received along with sticky note comments on the drawings. Common concerns about the Project included access management and the implementation of barrier median.

In December 2016 through February 2017, a total of ten small group meetings were conducted for business and property owners located adjacent to the corridor, starting from the southern part of the project study area and moving north. Two meetings were held per meeting day. The intent was to review the preliminary preferred alternative, to discuss opportunities for cross access along the corridor and to provide business and property owners an opportunity to provide feedback in a smaller group setting. All meetings were held at the Woodstock Public Library. Each meeting consisted of a 20-minute PowerPoint presentation followed by a 65-minute breakout session to discuss individual property concerns at smaller tables. An initial list of property and business owners, including current tenants, was developed by the project study team. The list was then vetted by the City of Woodstock. An e-mail invitation was sent to the business or property owner. Each invitee on the list was followed up with a personal phone call by the project team if they did not respond to the e-mail invitation. A total of 121 individual business/property owners attended one of the meetings. Comments received from the meetings included concerns regarding access, property impacts, and the land acquisition process.

## **6.2 AGENCY COORDINATION**

Agencies were included in coordination throughout the duration of Phase I of the Project. Agency coordination can be found in Appendix A. A summary of agency meetings follows.

### **6.2.1 National Environmental Policy Act (NEPA)/404 Merger Meetings**

Two meetings took place between the project study team and the NEPA/404 Merger Team. The purpose of these meetings included an opportunity for the consulting firm to meet the merger team, provide project progress, and identify future merger team coordination plans. The Project was following the NEPA/404 guidance because of the wide range of alternatives considered, including bypasses and couplets. The Project withdrew from the NEPA process after receiving concurrence on the Project purpose and need and presenting all bypass and couplet alternatives. Once all bypass and couplet alternatives were eliminated and all alternatives remaining were on-alignment alternatives. It was then determined impacts to wetlands would be less than 1 Acre and no further coordination with the NEPA/404 merger team was necessary.

### **6.2.2 FHWA**

The project study team met with the FHWA a total of ten times. The purpose of these meetings included introducing the FHWA to the Project and discussing the Project Purpose and Need, Project design criteria, public involvement plans, environmental documentation, and agreement on the preferred alternative.

### 6.2.3 State Representative Jack Franks

The consulting firm met with State Representative Jack Franks on July 7, 2014. The purpose of the meeting was to provide a progress update for the Project and to discuss the roundabout and signalized intersection alternatives, proposed barrier median, proposed pedestrian accommodations, and next steps for the Project.

### 6.2.4 City of Woodstock

Various meetings were held with the City of Woodstock. The purpose of these meetings was to inform the City of the progress of the Project and solicit input on various design considerations.

### 6.2.5 McHenry County

A meeting was held with McHenry County officials on December 7, 2009. The purpose of the meeting was to introduce the Project, explain the public involvement process, and ask for recommendations for the Corridor Advisory Group.

### 6.2.6 Dorr Township

A meeting was held with Dorr Township officials on January 13, 2010. The purpose of the meeting was to introduce the Project to the township, receive comments and concerns about the corridor, and invite the officials to join the Corridor Advisory Group.

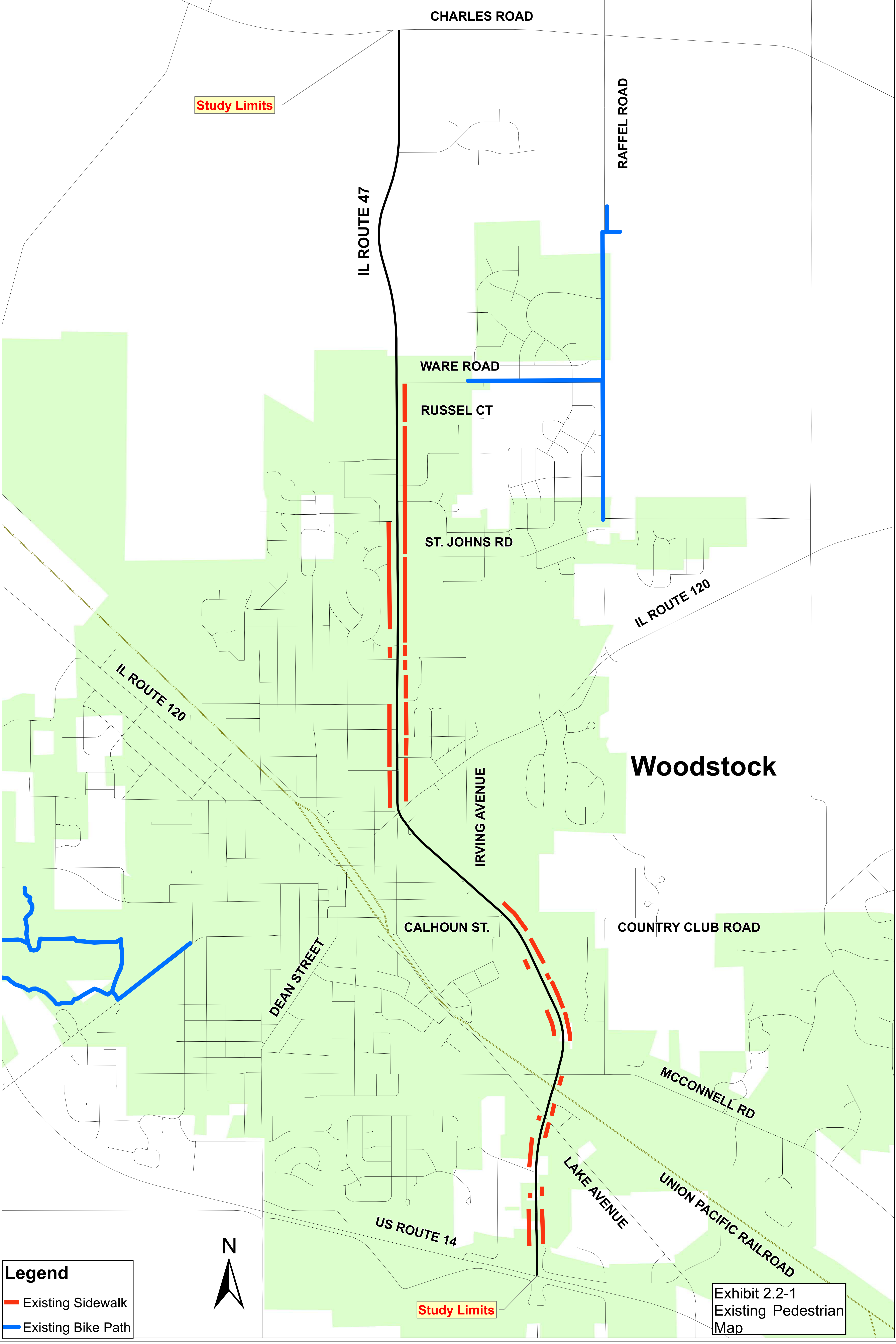
## **EXHIBITS**





**PROJECT LOCATION MAP**  
**ILLINOIS ROUTE 47 - US ROUTE 14 TO CHARLES ROAD**





Study Limits

CHARLES ROAD

RAFFEL ROAD

IL ROUTE 47

WARE ROAD

RUSSEL CT

ST. JOHNS RD

IL ROUTE 120

IL ROUTE 120

Woodstock

IRVING AVENUE

CALHOUN ST.

COUNTRY CLUB ROAD

DEAN STREET

MCCONNELL RD

LAKE AVENUE

US ROUTE 14

UNION PACIFIC RAILROAD

Study Limits

**Legend**

- Existing Sidewalk
- Existing Bike Path

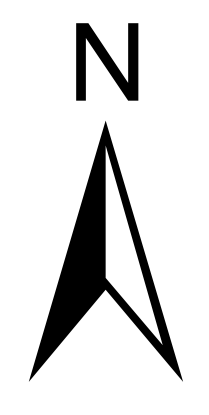


Exhibit 2.2-1  
Existing Pedestrian  
Map



# SAFE ACCESS IS GOOD FOR BUSINESS



U.S. Department of Transportation  
Federal Highway Administration



You may be reading this primer because your state transportation agency or local government has told you about plans that will affect access to your business. They may be planning to install a raised median on your roadway, to close a median opening, or to reconfigure your driveway. Perhaps your request for a driveway is under review or the regulating agency has imposed conditions on its approval. Or, maybe the state or local agency is planning a new access policy and you have questions or concerns about the economic effects of these changes.



**Whatever the reason, it is important for you to understand the basis for these changes and how they might affect your business.** This primer will address questions you may have about access management and its effect on business activity and the local economy. It focuses on economic concerns that may arise in response to proposed access changes or policies, including potential impacts on business activity, freight and deliveries, parking for customers, and property or resale value of affected property.



Exhibit 3.6-1

Safe Access is Good for Business



## Why is my access being changed or reviewed?

The access changes being proposed for your business or road are part of a growing effort by government agencies to improve how major transportation corridors are managed. These efforts, known as access management, involve the careful planning of the location and spacing of driveways, street connections, median openings and traffic signals. Access management can also involve using medians to channel left-turns to safe locations, and providing dedicated turn lanes at intersections and access points to remove turning vehicles from through lanes. The combined purpose of these strategies is to reduce crashes and traffic delay.

To understand access management, it is important to know that roads have different primary functions; either to provide access or move traffic.

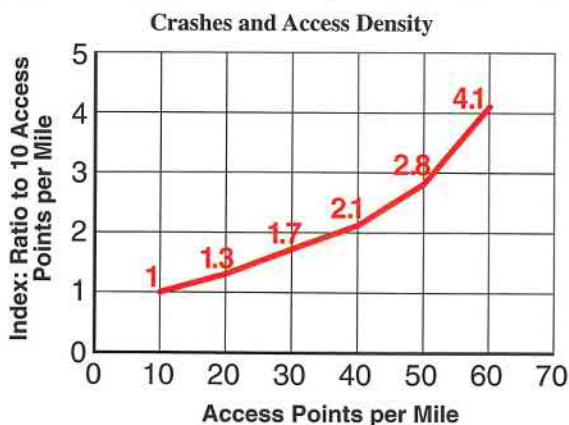
- The main function of *minor roads*, like neighborhood collectors and local streets, is to provide access. Minor roads must operate at slower speeds so people can enter and exit homes and businesses safely and conveniently.
- The main function of *major roads*, like interstate freeways and regional highways, is to move traffic over long distances at higher speeds. Access to these roads must be carefully managed so requests for new access to development do not contribute to unsafe or congested conditions.

## How exactly does this improve the situation on my road?

One reason managing access on major roads is so important is that driver safety is reduced when access is not properly located and designed. Imagine, for example, a driveway on an interstate freeway – it would certainly cause serious safety concerns. These same safety problems occur with improperly designed access to major arterial roads.

"In the four years I have lived here we at times have seen a lot of rear end collisions here, and we haven't seen one now for a long time."

— E. Stanley Tripp of Tripp's Auto Sales in Spencer, Iowa, commenting on a median project in his area.



Transportation Research Board, Access Management Manual 2003

Managing access on your road can result in better traffic flow, fewer crashes, and a better shopping experience for you and your neighboring businesses.

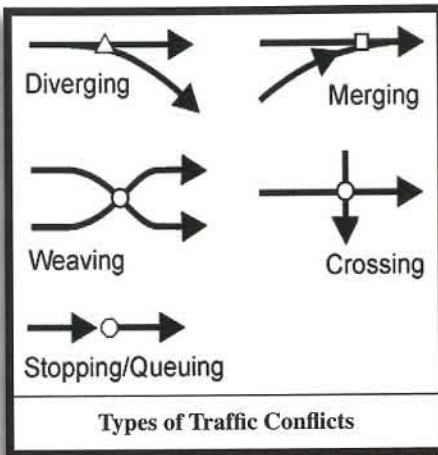
Consider the effects of adding more access points to a highway. A national study in the late 1990s looked at nearly 40,000 crashes and data from previous studies to determine the crash rate associated with adding access points to major roads. It found that an increase from 10 to 20 access points per mile on major arterial roads increases the crash rate by about 30% (1). The crash rate continues to rise as more access is permitted. This is why studies consistently show that well-managed arterials are often 40 to 50 percent safer than poorly managed routes (2).





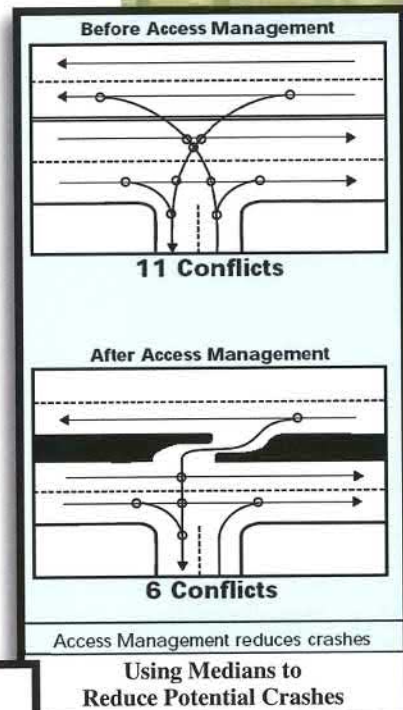
Example of Crash Involving Left-Turn Movement from Driveway

## How does access management improve safety?



Each access point creates potential conflicts between through traffic and traffic using that access. Each conflict is a potential crash. **Access management improves safety by separating access points so that turning and crossing movements occur at fewer locations.** This allows drivers passing through an area to predict where other drivers will turn and cross, and also provides space to add turn lanes.

The figure to the right shows how basic changes in access design, such as incorporating a median or changing a full median opening to a directional opening, can reduce traffic conflicts and the potential for crashes.



**If crashes and congestion become frequent on your roadway, people will seek out other routes. Bear in mind that a single crash can tie up traffic and potential customers for hours.**

## What about congestion and the effect it has on my market area?

Access management not only improves roadway safety, it also helps reduce the growing problem of traffic congestion. Frequent access and closely spaced signals increase congestion on major roads. **As congestion increases, so does delay, which is bad for the economy and frustrating to your customers.** Well-managed arterials can operate at speeds well above poorly managed roadways – up to 15 to 20 miles per hour faster. **This means more traffic past your door and better exposure for your business. It also means a more convenient shopping experience for your customers.**



## How will a change in access affect the success of my business?

To address this question, it's important to first determine the type of business that you own – drive-by or destination.

- **“Destination businesses”** are businesses that customers plan to visit in advance of the trip. Examples include electronics stores, doctor or dentist offices (in fact most offices), major retailers, insurance agencies, sit down restaurants, etc.
- **“Drive-by businesses”** are those that customers frequent more on impulse or while driving by, such as convenience stores, gas stations, or fast food restaurants.

**If you own a drive-by business, your clients will expect to get in and out easily from the highway. For you, the critical issues are *visibility, signage, and convenient access.*** If your site is relatively small, a driveway connecting to the highway may not be your best option. A driveway on a highway service road or a private circulation lane serving several properties can increase the convenience of your access and the volume of customers you can accommodate. Convenient access can be provided by periodic connections between the service road and the highway, or through the shared private access points. Short driveways or open frontages not only cause safety hazards for pedestrians and traffic, but have less capacity than local roads or long driveways.

**Access management has no impact on the demand for goods and services.**

*“Our business has increased about 20% in customer count.”*

— C. Randy Rosenburger  
of City Looks in Ankeny  
Iowa.

**If you are the owner of a destination business, your customers are planning their trips in advance. A driveway on a congested highway or a highway that is perceived as unsafe may actually intimidate customers from making the trip.** Most small destination businesses or specialty stores benefit more from access to a lower speed minor road, such as a neighborhood collector road. The greater exposure that a major road provides is an advantage for larger destination businesses, but it's a good idea to have access from more than one roadway. Allowing customers to enter and exit from different directions will increase safety and convenience.



## How important is access to the success of my business?

Location and access are factors, but not the most important factors that determine whether businesses succeed or fail. The main reason that businesses fail is lack of management expertise (3). The main reasons that businesses succeed include (4):

- the experience of management,
- how well customers are served,
- the quality of the product or service provided,
- adequate financing and investment,
- well-trained employees,
- the level and nature of competition, and
- keeping costs competitive.

Given that access is not the primary reason that businesses survive or fail, it follows that a change in access will not be the primary cause of whether a business will survive or fail. In fact, access is one of the lesser factors that customers will consider when weighed against price, service, product, and store amenities.

This is not to say that good access is not important to your business. **Whether your business is large or small, it is important that you can handle customer traffic demand.** If you operate or develop major retail centers, factories, or campuses, proper location and design of access is essential to customers and employees. For shopping centers, the Urban Land Institute's Shopping Center Development Handbook states "poorly designed entrances and exits not only present a traffic hazard, but also cause congestion that can create a negative image of the center (5)." This is also true for small businesses, especially those on the intersection of busy roads. If your business is difficult or unsafe to enter or exit, then customers may be dissuaded from visiting.

**Just think about the roads in your community where access has been carefully planned and compare them to those having lots of driveways, open frontages, and no median. Which roads do you prefer to travel on and which corridors have the most vibrant businesses?**

**Small corner properties are more difficult to access.**



**This queue is blocking street traffic and additional customers**

**Is this a sign of a store doing great business, or one that is telling customers to try the next guy down the street?**



## What has been the impact to businesses where this type of thing has been done?

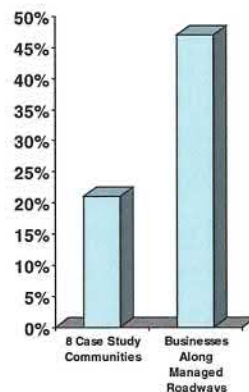
Studies of the business impacts of access management projects in Florida, Iowa, Minnesota, Kansas and Texas have consistently found that most businesses continue to do well when the project is completed. These results are particularly true for destination businesses. However, most drive-by oriented businesses are not unduly affected either. Drive-by businesses have been adversely affected by reconstruction projects that reduce their visibility from the major road or cause them to have highly circuitous or inconvenient access. However, these are not typical impacts of access management projects and where they do occur, it is not uncommon for transportation agencies to compensate business owners for losses.

**Business activity:** Access management projects alone do not appear to increase or decrease business failure rates (6). This makes sense considering that many factors other than highway access can affect business success. **“Before and after” studies of businesses in Florida, Iowa, Minnesota, and Texas along highways where access has been managed found that the vast majority of businesses do as well or better after the access management projects are completed.** The turnover rate (the proportion of businesses that close or move out each year) of businesses in Iowa and Minnesota was studied along newly access-managed corridors and was similar to or lower than that of the surrounding area. For example:

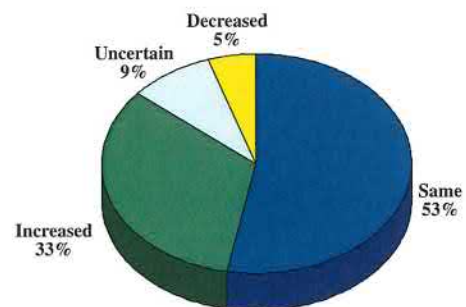
Businesses affected by access management projects in Iowa tended to do at least as well in terms of growth in retail sales, but usually better than those in surrounding communities, after the projects were completed. Most of these Iowa business proprietors said that sales were similar or greater following the completion of the projects. Only five percent reported a sales decrease (6).

### Impact of Access Management on Retail Sales Growth

- In the 1990s, retail businesses along eight recently access managed roadways in Iowa were compared to their surrounding communities.
- The businesses along the managed corridors experienced much higher retail sales growth during the decade than those businesses in other locations in these eight communities.



### Business Proprietors' Reported Sales Comparisons





**Business owners report that the actual impacts to their businesses were much less than they anticipated. Most adverse impacts were due to construction and not to access changes.**

*"If anything, our business has increased, which very much surprised me."*

— D. Stanley Tripp of Tripp's Auto Sales in Spencer, Iowa

**Property values:** Most property owners surveyed following an access management project do not report any adverse effect of the project on property values. Often, such projects can have a positive effect by cleaning up the patchwork of driveways and curb cuts. For example:

A study of property values on **Texas** corridors with access management projects found that land values stayed the same or increased, with very few exceptions (7).

More than 70% of the businesses impacted by a project in **Florida** involving several median opening closures reported no change in property value, while 13% reported some increase in value (8).

A 2005 study of commercial property values along a major access management project in **Minnesota** found that property values depend more on the strength of the local economy and the general location of the property in the metropolitan area; changes in access seemed to have little or no effect on the value of parcels (9).

A study of **Kansas** properties impacted by access changes found that the majority were suitable for the same types of commercial uses after the access management project was completed. This was true even for businesses that had direct access before the project and access only via frontage roads after project completion (10).

**Customers and deliveries:** The majority of customers and truck drivers surveyed in before-and-after studies have reacted positively to access management projects as improving both safety and traffic flow. Business customers surveyed about access management projects in Iowa, Texas and Florida overwhelmingly supported the projects because their drive became quicker, easier and safer (6).



## What are some common types of access management projects and what are the impacts?

There are many access management techniques, each with a specific purpose and different type of impact. One common type of access change is the building of a **median** on a road or closing existing median openings. Another common type of project is providing a **frontage road** or a rear service road along a highway for access to businesses. Below is an overview of these strategies, the types of issues or impacts associated with these projects, and how you can work with the agency to adjust to these changes.

## MEDIANS and MEDIAN OPENINGS

*A median is a grass or raised divider in the center of a road that separates opposing traffic and discourages or prevents vehicles from crossing the divider.*

Openings in the median provide for different turning or crossing maneuvers, depending on how they are designed.

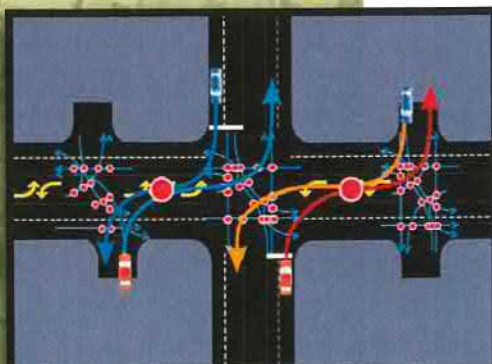
- A **directional median opening** only allows certain movements, usually a left-turn in or U-turn.
- A **full median opening** allows all turning and crossing movements and is often signalized.

Where too many full median openings exist, agencies may reconstruct the median and close the excess median openings.



Turn lanes at median openings provide a safe haven for turning vehicles.

## Why use a median and not a two-way left turn lane?



Conflicts and potential crashes associated with continuous two-way left turn lanes

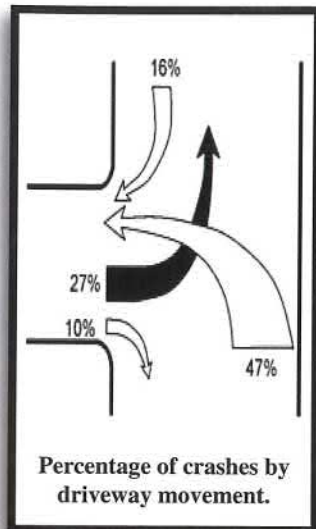
Medians can have a profound effect on driver safety compared to two-way left-turn lanes. Adding a median to a road that previously had a continuous two-way left turn lane can reduce the crash rate about 37% and the injury rate about 48% (11). **For example, when a continuous two-way left turn lane was replaced with a median on Atlanta's Memorial Drive, the crash rate was cut in half (12).**

One reason a two-way left turn lane is less safe than a median is that a driver who is turning left must be able to ensure that the traffic is clear from two directions in multiple lanes. When this is not quite possible, drivers will sometimes use a two-way left-turn lane in the middle of the road while attempting to merge into traffic. Such maneuvers can lead to serious crashes and become more frequent as traffic volumes increase.



## Won't I lose customers if they can't turn left into my business anymore?

The number of your customers making left turns into your business is likely already very low during peak travel periods or if you are on a congested roadway. This is because left turns into any business become increasingly difficult as traffic volumes in the opposing lanes increase.



Perhaps today your customers wait with apprehension to turn left as cars queue behind them, or must shoot across a busy road to complete a left turn out. A turn lane at a median opening or signalized intersection will allow them to wait safely to complete a U-turn when traffic clears, and that is truly a safer option on a busy road. **In fact, the left-turn into and out of a driveway is less safe than a U-turn and comprises the majority of driveway crashes.** Studies have shown that making a U-turn at a median opening to get to the opposite side of a busy highway is about 25% safer than a direct left turn from a side street or other access point (13).

Surveys show that a majority of drivers have no problem making U-turns at median openings to get to businesses on the opposite side of the road. Where direct left-turns are prohibited, studies show that motorists will change their driving or shopping patterns to continue patronizing specific establishments. In fact, most drivers are reporting that access management improvements made the roads safer and that they approve of the changes, despite minor inconveniences associated with U-turns.

Some owners of drive-by businesses have reported a loss of customers following a median project or other change that has eliminated the left-turn-in opportunity (and less often left-turn-out), although the majority do not. For example, a before-and-after study of a median reconstruction project in Florida involving numerous median-opening closures found that **the majority of surveyed merchants, 68% of the 96 respondents, reported little or no economic impact to their businesses, although 27% reported some type of loss (14).** Generally, businesses that feel they were adversely impacted also have competition nearby or may have experienced reduced visibility of signage.

*"Because of the design of the roads, the timing of the traffic signals, and the way the traffic is broken up, it has become very convenient for people to pull into a safe haven, or storage lane within the raised median, take their time and make a safe and convenient u-turn to access properties that were concerned about that problem."*

— Kurt Easton, Executive Director of Merritt Island Redevelopment Agency, Florida



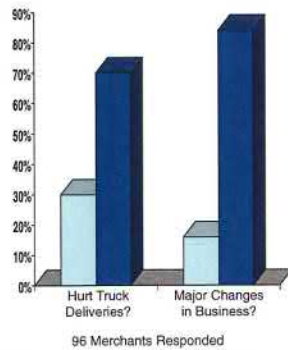
## Why not just signalize all median openings and high volume driveways?

The decision on whether or not to signalize a median opening or access point depends on many factors, including the volume of traffic using the access, the proximity of other traffic signals, and the potential impact on public safety and traffic congestion. Most signal warrants are related to traffic volumes, but some consider school crossings, crash history, pedestrian crossings, “factory” peaks, and other situations. Unwarranted signals cause undue delays as motorists wait at a red light while little or no cross traffic exists. Worse, unwarranted signals may eventually be disobeyed or ignored by frustrated motorists who are only one reckless incident away from causing an accident or emerging as a casualty themselves. For these reasons, median openings and driveways should not be signalized where they do not meet the requirements of a traffic signal study.

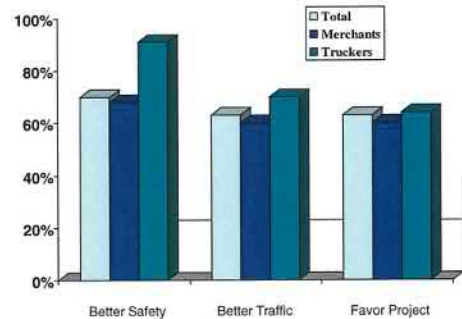
## What about impacts on truck deliveries?

The limited number of before-and-after studies have found that truck deliveries may be inconvenienced, at worst, but may in fact benefit from improved opportunities resulting from a change in access. And while the actual studies may be few, the anecdotal comments are many and favorable.

Merchant opinions of median changes on Oakland Park Blvd., Florida



Merchant and trucker opinions about a median project in Ft. Lauderdale, Florida



## What are the other issues with medians and median opening closures?

- Alternative access through side streets, service roads, or internal connections with neighboring developments helps increase accessibility on busy or median separated roads – especially if the result allows several properties access to a signal.
- Minor roadway improvements, such as additional pavement on the shoulder, may be needed to accommodate U-turning traffic.
- Some trucks and large vehicles may need to take alternate routes as U-turns can be difficult to negotiate.
- Medians can be landscaped to enhance the image of an area and help attract investment and customers.



# FRONTAGE or SERVICE ROADS

*A frontage road is a type of service road that parallels a major road or freeway and is located between the road and building sites abutting the road. Service roads can also run behind businesses.*

The purpose of these roads is to provide lower-speed access to commercial sites along a major roadway and to separate business traffic from higher-speed through traffic. Connections of frontage or service roads to side streets or onto the highway must be well away from signalized intersections, so entering and exiting traffic doesn't conflict with traffic queuing at signals.



Rear service roads providing access to highway commercial properties.



A frontage road.

## How will I get access while I'm waiting for a frontage or service road to be finished?

Some sites may need to be given temporary access to the major roadway until the service road system is complete. This is typically needed when a service road is being constructed in segments through the development process, rather than built by a transportation agency as part of a road construction project. Most agencies will require you to remove your temporary driveway and build a driveway to the frontage or service road at a later time, so it's important to design your site access and circulation to accommodate that change.

## How will people know how to get to my business from the highway?

Frontage roads maintain good visibility for businesses along a major road and typically it is apparent how to enter and exit the road to get to a business. Points of entry can be signed to identify businesses that can be accessed from that entrance, if it is not already apparent. **It's a good idea to provide signs where a service road or frontage road connects at a side street, so customers know they can obtain access to businesses that may not be visible from the side street.**



## What are the other issues with frontage or service roads?

- Service roads that run behind highway properties are often less disruptive to existing businesses than frontage roads, less costly for an agency, and more functional than a frontage road.
- Rear service roads can provide access to businesses on each side and can operate safely from both directions. Frontage roads provide access only to businesses fronting on the highway and are much safer when designed for one-way traffic.
- Additional right-of-way will be needed for the frontage or service road and for connecting a service road back to the highway or side street. If your site will be impacted, it is important to work with the agency on how to reduce adverse effects. For example, if your site becomes nonconforming under local zoning regulations because of a smaller setback or other change, ask the local agency if they will waive that status, given that it was caused by a government right-of-way taking.

## What are other commonly used access management techniques?

Regulate minimum spacing of median openings and access connections (driveways and street connections).	Limit the number of access points per property, or consolidating access points and encouraging shared driveways.	Establish standards for driveway width, driveway throat length and internal drive aisles to move traffic smoothly off of the adjacent street.
Move access points away from signalized intersections and freeway ramps.	Incorporate right- and left-turn lanes into roadways.	Close or replace a full median opening with a directional opening.
Provide a service road or parallel collector roads and side streets for site access along an arterial roadway.	Promote interconnection of parking lots and unified on-site circulation systems.	Install a median on an undivided roadway or replace a continuous two-way left-turn lane with a median.



## So what's the bottom line on access management?

Efforts by government agencies to manage access in site development and road projects can help businesses, even those operating on older highway corridors, in a variety of ways. Here are some specific benefits to you and your customers:

- **Fewer roadway delays and better traffic flow will result, which will preserve and possibly even enhance the market reach of businesses in your corridor;**
- Safer approaches to businesses result from installation of medians, which can also be landscaped to improve the image of the area;
- Properly designed entrances shared by multiple businesses allow more site area for parking, more customer options to access your site, and improved landscaping or other site amenities;
- Service roads along the highway allow customers to enter and exit businesses conveniently and safely, away from faster moving through-traffic;
- Internal connections between businesses allow customers to circulate easily, without reentering a busy road; and/or
- Driveways and service road entrances farther away from signalized intersections allow easy access for customers, even during times of peak congestion.

*"It has been a very positive thing all the way around, from the economic, and the community sides. We have improved our tax base, we have improved our traffic problem, and plus we have improved our business community."*

— **Chuck Fisher, Supt. Public Works  
Ankeny, Iowa**

**In brief, minimizing the number of curb cuts, consolidating driveways, constructing landscaped medians, and coordinating internal site circulation and parking among several businesses results in a visually pleasing and more functional corridor. That protects your investment in your business, the public investment in the roadway, and can even help attract new investment into the area.**



*"There are a lot of beautification projects going on, tree plantings and what have you. I think the landscaping in the medians has very much added to the very nice decorum of Ankeny. It will make a nice impression for those visiting Ankeny, or living here."*

— **Andy Kasper, Iowa Realty, Ankeny, Iowa**



## What can be done to keep my business going during construction?

There's no doubt about it, road construction can disrupt customers and drivers, but there are ways adverse impacts can be minimized. **Two key issues during construction are maintaining open access to businesses for customers and deliveries, and having sufficient sign visibility so your customers know you are open, and know how to enter and exit your site during this period.**

When your road is scheduled for reconstruction, your transportation agency will initially notify you about what to expect in terms of traffic, duration of construction, any foreseeable disruptions, and so on. It is important for you to respond to them about your special needs and concerns. Below are some of the things that you can ask of the agency:

- Provide clear signs from the roadway to business entrances;
- Provide temporary and/or secondary business access points, where feasible;
- Schedule construction for after business hours or to occur during times of low usage for seasonally-oriented businesses;
- Provide alternative parking, if possible and avoid taking or blocking parking spaces;
- Stagger construction along a corridor so impacts are localized and staged;
- Expedite construction through incentive/disincentive programs;
- Avoid blocking business entrances with construction equipment or construction barriers;
- Establish a single point of contact in the agency about the construction project to communicate with property and business owners and help address issues that may arise;
- Provide regular project progress reports to business and property owners.

Business owners certainly may see drops in gross revenues during construction. But these are not unlike drops you may routinely experience during expansions, remodeling, seasonal variations, or other self-initiated management. Experience has shown that "construction" drops are temporary too, and that retail sales typically return to pre-construction levels or greater. Research findings from corridors in Texas indicate that businesses did not change employment levels during construction periods. This finding indicates that retailers understand that construction projects are a temporary and perhaps even an inevitable disruption to business, and that loyal patrons will return to stable businesses. The same research found that gross revenues typically either returned to pre-construction levels or were higher after construction was complete (7).



**YES,  
WE ARE  
OPEN**



## How can I have a say in the access management project on my road?

**Get involved!** All government agencies are required to involve the public in transportation policy and project decisions. Most state transportation agencies offer open house meetings during transportation project planning and design, and both state and local government agencies conduct public meetings and hearings when making important policy or regulatory changes that involve access management. Prospective business owners can also review area master plans to research potential changes.

**It is important for you as a stakeholder in an access management project to attend public meetings and hearings and to voice your ideas and concerns.**

These meetings are opportunities for you to hear more about an access management project or plan and to make the planners and engineers aware of how it impacts your business. This might involve issues related to internal traffic circulation and parking, deliveries, plans for expansion, etc. Knowing this information early in project planning or design allows them to make better project decisions and can result in changes that reduce or avoid adverse impacts on your business.

For example, many businesses depend on trucks for deliveries and other functions. Larger trucks are not typically able to make certain movements (such as U-turns). It is important to work with agency staff to develop a plan that will accommodate truck access to your business in a manner as convenient as possible. Sometimes this will require that trucks follow a slightly different route to arrive at the property. Project planners can work with you to assure that trucks will be able to access your business. This is just one of many ways your input is important.

## Where can I go to learn more about access management?

Hopefully this primer has answered some of the questions that you, as a business or property owner, may have. Your state or local transportation agency or your state's Federal Highway Division office (on larger projects) are other excellent resources to point you to the right project manager, or to answer your general questions concerning access changes. These transportation agencies need and value your input as they strive to provide a safe and efficient highway system.

For the latest information on access management or to order the latest Access Management Library CD/DVD collection, go to [www.accessmanagement.gov](http://www.accessmanagement.gov). Other important sources for information on the economic effects of access management include the TRB Access Management Manual, and NCHRP Report 420: Impacts of Access Management Techniques, which are both available from the Transportation Research Board at [www.trb.org](http://www.trb.org).



## References

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  - 2 Preston, H., et al. *Statistical Relationship between Vehicular Crashes and Highway Access*, Minnesota Department of Transportation, Report MN-RC-1998-27, August 1998.
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U.S. Department of Transportation  
Federal Highway Administration  
Office of Operations

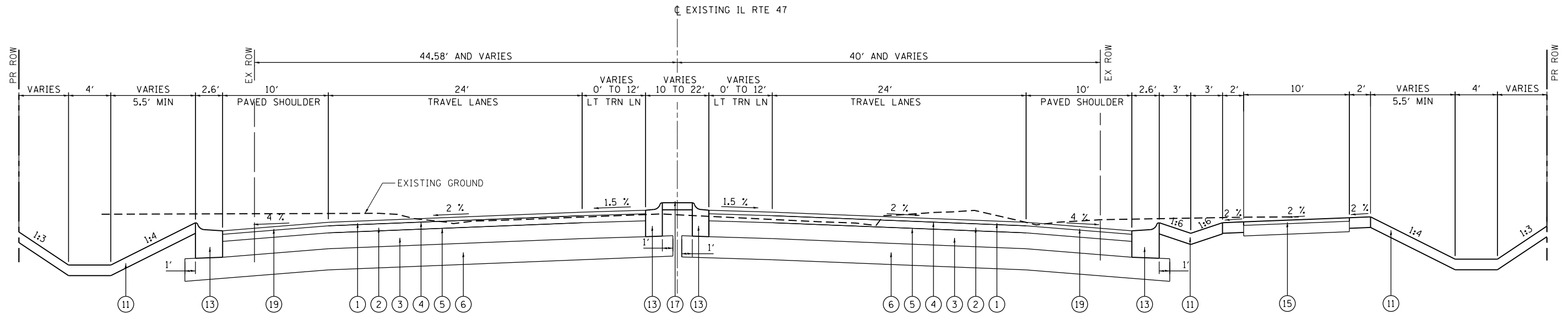
400 Seventh Street, SW  
Washington, DC 20590

[www.ops.fhwa.dot.gov/access\\_management](http://www.ops.fhwa.dot.gov/access_management)

August, 2006

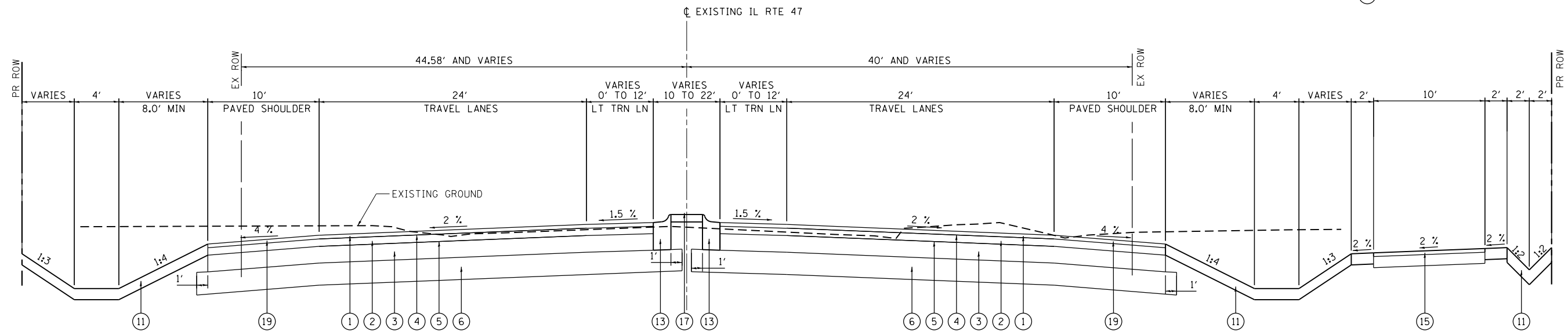
FHWA-HOP-06-107

EDL 14294



**ALTERNATIVE 1**  
SMALLEST FOOTPRINT (CLOSED DRAINAGE SYSTEM)

- ① HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50, 2"
- ② HOT-MIX ASPHALT BINDER COURSE, IL19.0, N50, 4"
- ③ HOT-MIX ASPHALT BASE COURSE, 9"
- ④ BITUMINOUS MATERIALS (PRIME COAT)
- ⑤ AGGREGATE (PRIME COAT)
- ⑥ AGGREGATE SUBGRADE, 12"
- ⑦ AGGREGATE SHOULDERS, TYPE B, 6"
- ⑧ HOT-MIX ASPHALT SHOULDERS, 6"
- ⑨ STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS
- ⑩ SUBBASE GRANULAR MATERIAL, TYPE B 6"
- ⑪ TOPSOIL FURNISH AND PLACE, 6"
- ⑫ EMBANKMENT
- ⑬ COMBINATION CONCRETE CURB AND GUTTER, TYPE M-4.24
- ⑭ COMBINATION CURB AND GUTTER, B-6.24
- ⑮ SHARED USE PATH  
HOT-MIX ASPHALT SURFACE COURSE, 3"  
AGGREGATE BASE COURSE, 6"
- ⑯ PORTLAND CEMENT CONCRETE SIDEWALK, 5"
- ⑰ CONCRETE MEDIAN SURFACE, 4"
- ⑱ ROUNDABOUT TRUCK APRON
- ⑲ HOT-MIX ASPHALT SHOULDERS



**ALTERNATIVE 2**  
SMALLEST FOOTPRINT (OPEN DRAINAGE SYSTEM)

**Exhibit 3.6-2**  
North Typical Section Alternatives

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**SA STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

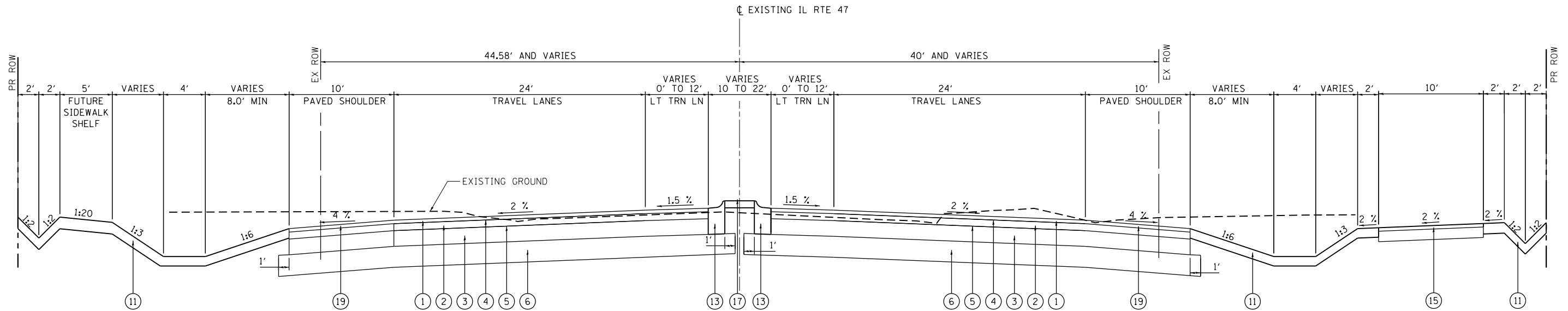
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TYPICAL SECTIONS**

SCALE: N-T-S    SHEET 3 OF 8 SHEETS    STA.    TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



**ALTERNATIVE 3**  
LARGEST FOOTPRINT (OPEN DRAINAGE SYSTEM)  
BDE STANDARD FOOTPRINT

**PROPOSED LEGEND**

- |  |  |
|--|--|
| ① HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50, 2" | ⑪ TOPSOIL FURNISH AND PLACE, 6"  |
| ② HOT-MIX ASPHALT BINDER COURSE, IL19.0, N50, 4"   | ⑫ EMBANKMENT   |
| ③ HOT-MIX ASPHALT BASE COURSE, 9"                  | ⑬ COMBINATION CONCRETE CURB AND GUTTER, TYPE M-4.24                                  |
| ④ BITUMINOUS MATERIALS (PRIME COAT)                | ⑭ COMBINATION CURB AND GUTTER, B-6.24  |
| ⑤ AGGREGATE (PRIME COAT)                           | ⑮ SHARED USE PATH<br>HOT-MIX ASPHALT SURFACE COURSE, 3"<br>AGGREGATE BASE COURSE, 6" |
| ⑥ AGGREGATE SUBGRADE, 12"                          | ⑯ PORTLAND CEMENT CONCRETE SIDEWALK, 5"  |
| ⑦ AGGREGATE SHOULDERS, TYPE B, 6"                  | ⑰ CONCRETE MEDIAN SURFACE, 4"  |
| ⑧ HOT-MIX ASPHALT SHOULDERS, 6"                    | ⑱ ROUNDABOUT TRUCK APRON   |
| ⑨ STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS | ⑲ HOT-MIX ASPHALT SHOULDERS  |
| ⑩ SUBBASE GRANULAR MATERIAL, TYPE B 6"             |  |

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**TYPICAL SECTIONS**

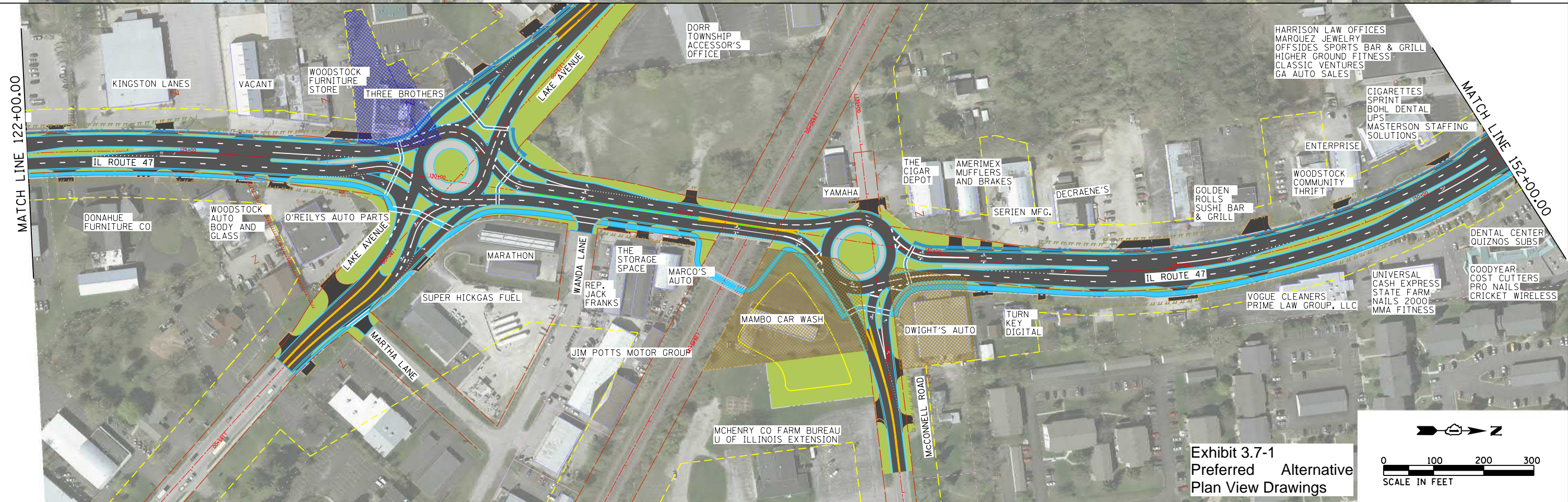
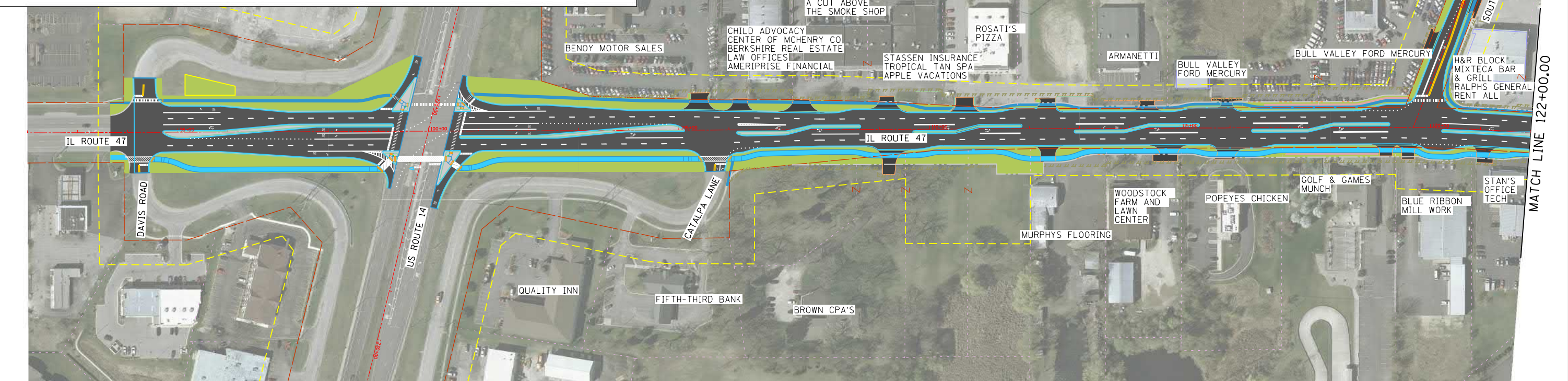
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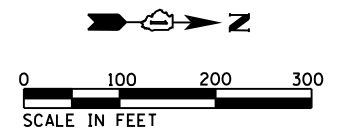


**LEGEND**

	ROADWAY CENTERLINE		PROPOSED PAVEMENT		PROPOSED GRASS
	EXISTING RIGHT-OF-WAY		PROPOSED SHARED-USE PATH		PROPOSED BUILDING RELOCATION
	PROPOSED RIGHT-OF-WAY		PROPOSED SIDEWALK		PROPOSED BUILDING MODIFICATION
	TEMPORARY EASEMENT				
	ENVIRONMENTAL SURVEY REQUEST LIMITS				



**Exhibit 3.7-1**  
Preferred Alternative  
Plan View Drawings



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JOLIET, ILLINOIS 60431  
(815) 744-4200

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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47**

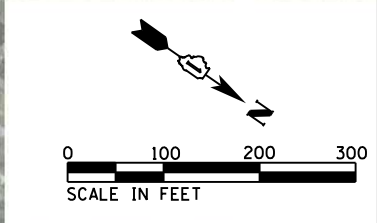
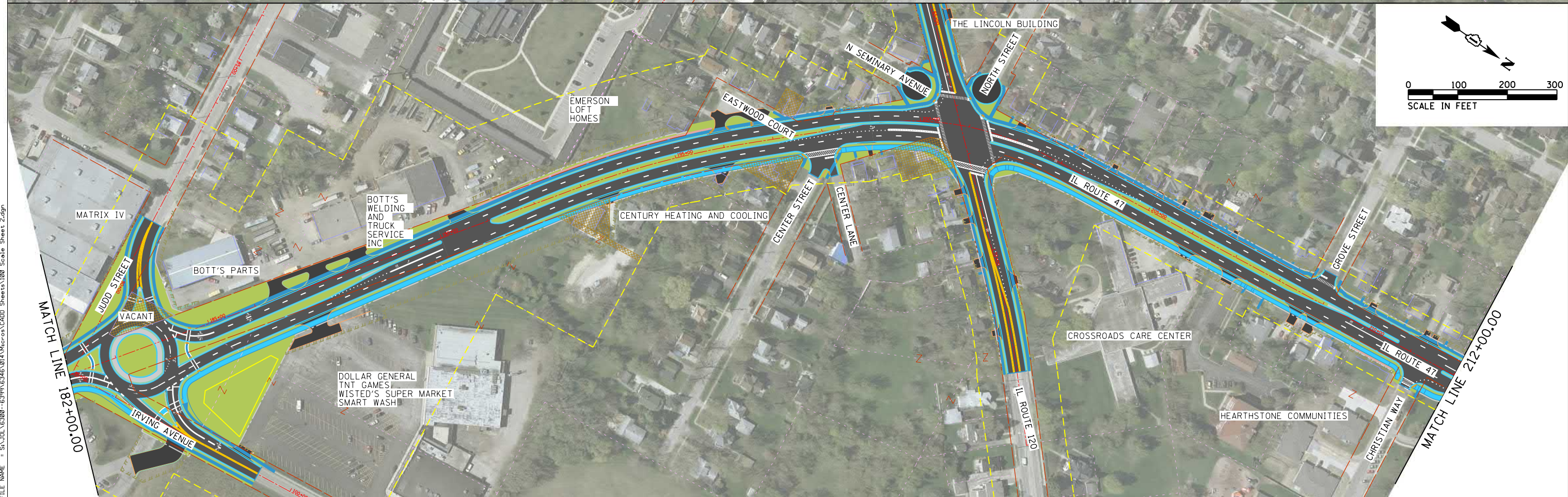
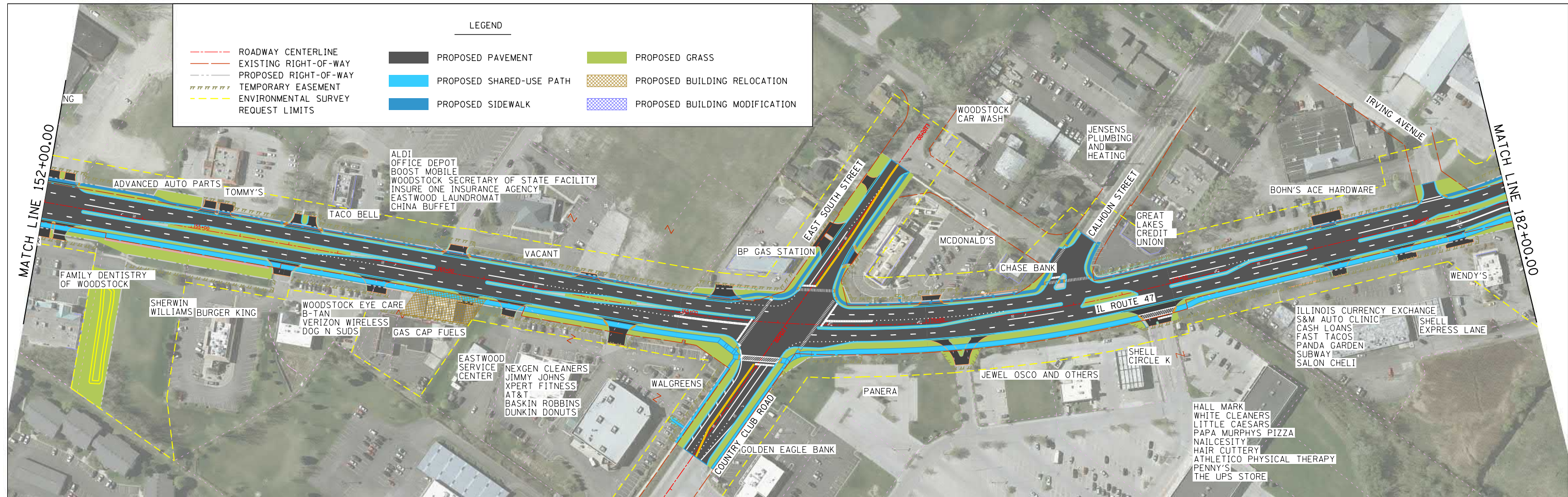
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CONTRACT NO.			ILLINOIS FED. AID PROJECT	



**LEGEND**

- ROADWAY CENTERLINE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- TEMPORARY EASEMENT
- ENVIRONMENTAL SURVEY REQUEST LIMITS
- PROPOSED PAVEMENT
- PROPOSED SHARED-USE PATH
- PROPOSED SIDEWALK
- PROPOSED GRASS
- PROPOSED BUILDING RELOCATION
- PROPOSED BUILDING MODIFICATION



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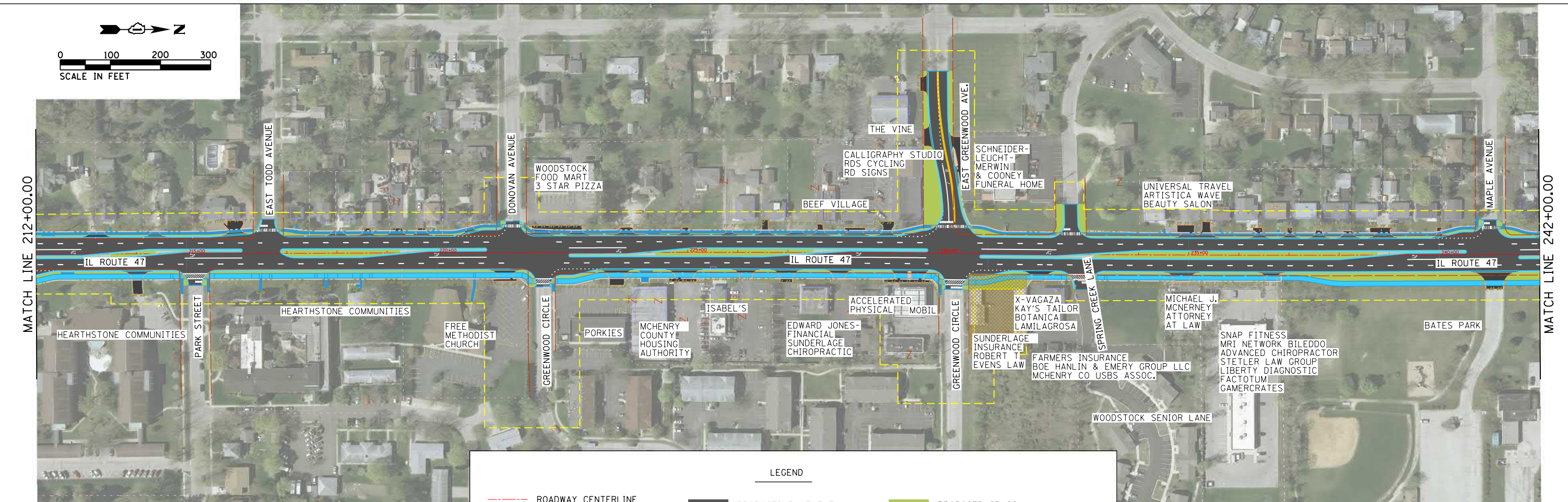
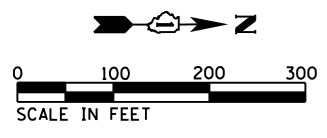
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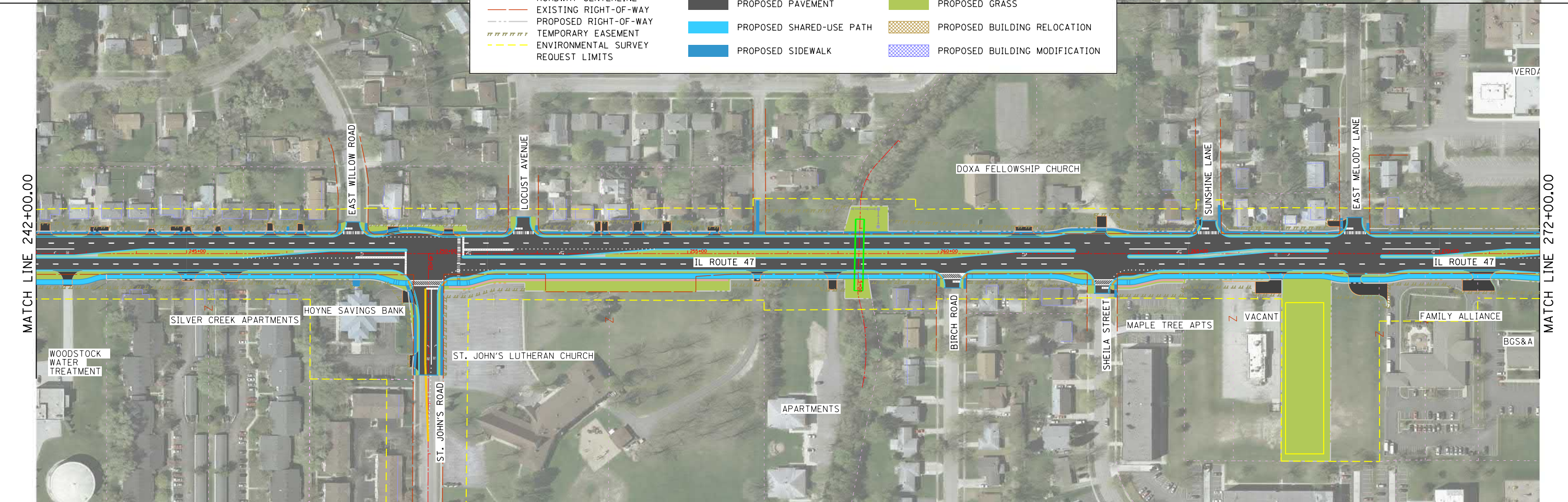
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CONTRACT NO.			ILLINOIS FED. AID PROJECT	





**LEGEND**

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	EXISTING RIGHT-OF-WAY		PROPOSED SHARED-USE PATH		PROPOSED BUILDING RELOCATION
	PROPOSED RIGHT-OF-WAY		PROPOSED SIDEWALK		PROPOSED BUILDING MODIFICATION
	TEMPORARY EASEMENT				
	ENVIRONMENTAL SURVEY REQUEST LIMITS				



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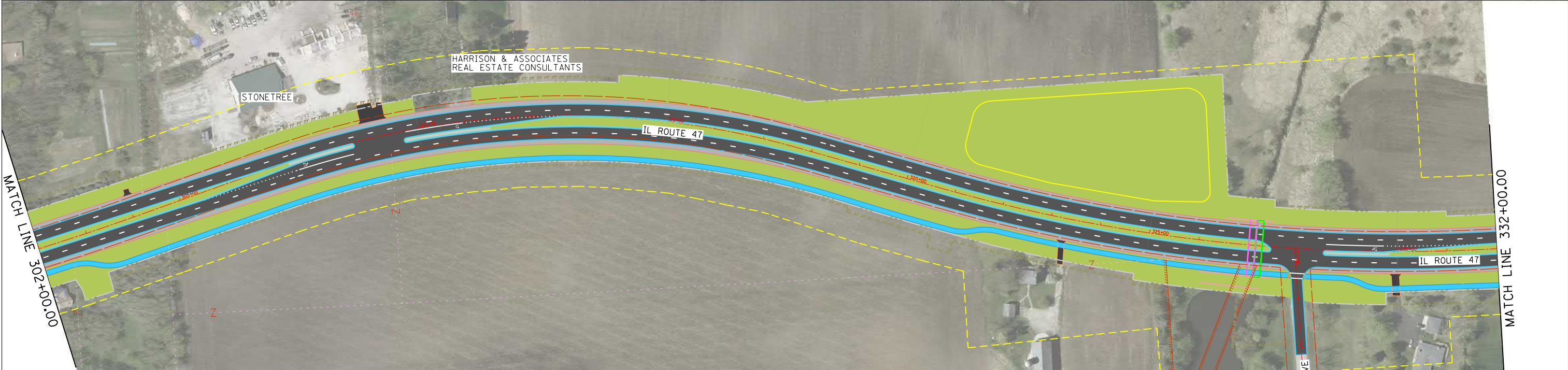
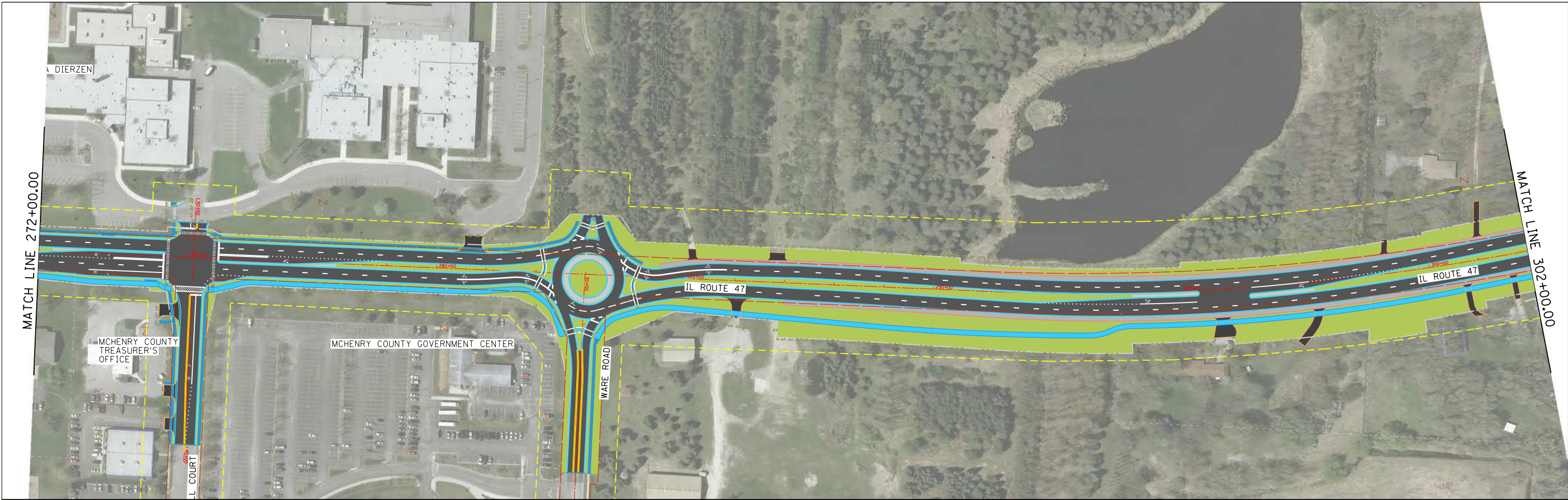
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DEPARTMENT OF TRANSPORTATION**

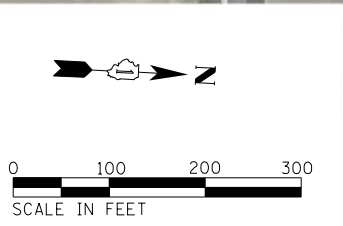
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CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





LEGEND					
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	PROPOSED RIGHT-OF-WAY		PROPOSED SIDEWALK		PROPOSED BUILDING MODIFICATION
	TEMPORARY EASEMENT				
	ENVIRONMENTAL SURVEY REQUEST LIMITS				



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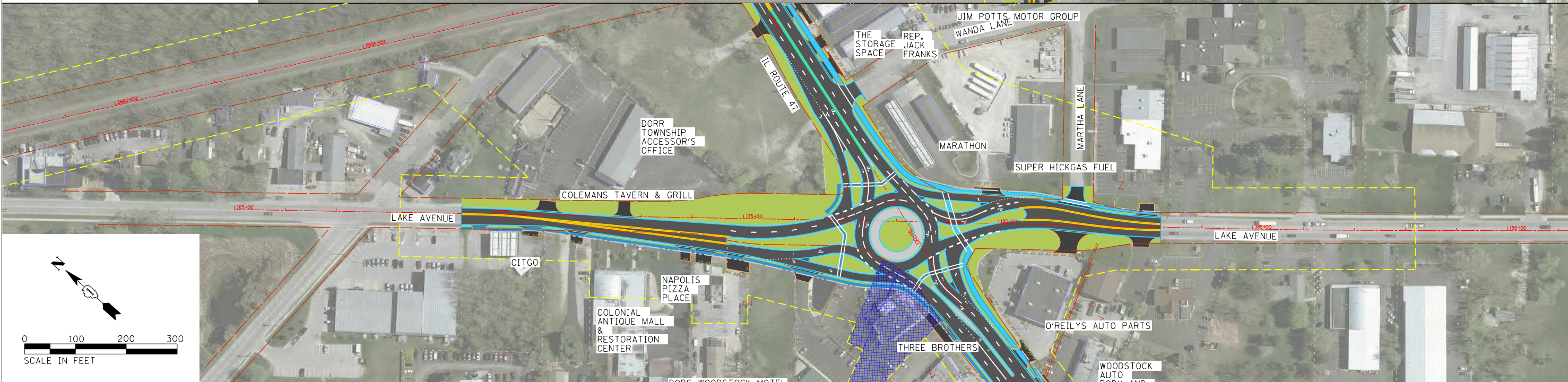
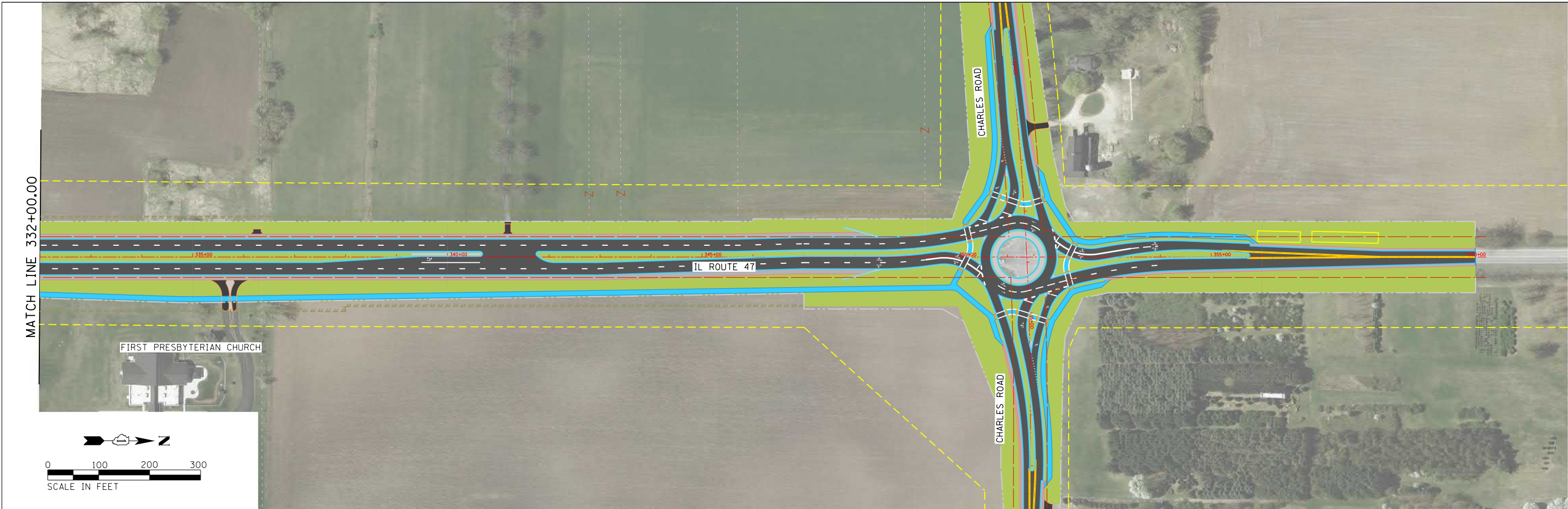
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

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F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS 6	SHEET NO. 4
CONTRACT NO.			ILLINOIS FED. AID PROJECT	





LEGEND			
	ROADWAY CENTERLINE		PROPOSED GRASS
	EXISTING RIGHT-OF-WAY		PROPOSED SHARED-USE PATH
	PROPOSED RIGHT-OF-WAY		PROPOSED BUILDING RELOCATION
	TEMPORARY EASEMENT		PROPOSED BUILDING MODIFICATION
	ENVIRONMENTAL SURVEY REQUEST LIMITS		
	PROPOSED PAVEMENT		
	PROPOSED SIDEWALK		

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 (815) 744-4200

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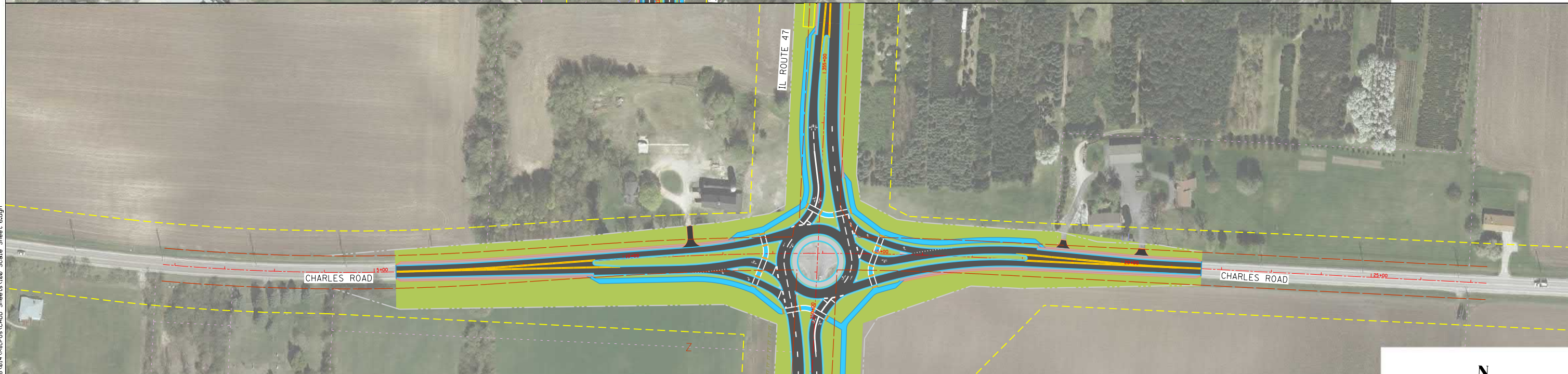
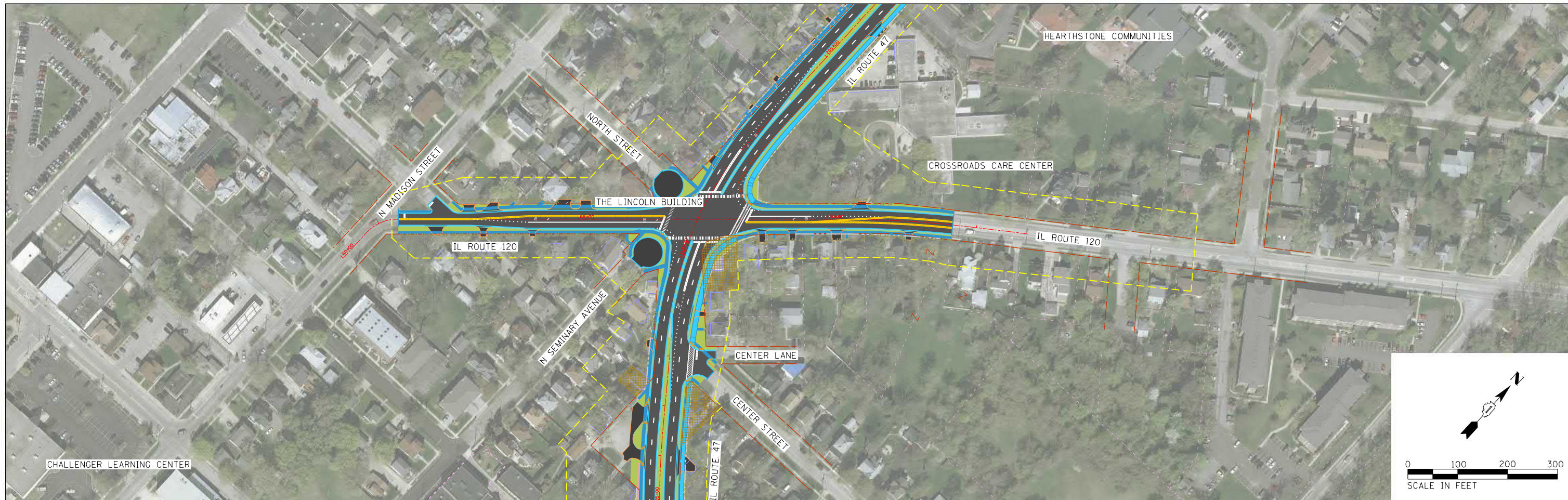
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

ILLINOIS ROUTE 47 AND LAKE AVENUE	
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COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO.		
ILLINOIS FED. AID PROJECT		

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EXISTING RIGHT-OF-WAY	PROPOSED SHARED-USE PATH	PROPOSED BUILDING RELOCATION
PROPOSED RIGHT-OF-WAY	PROPOSED SIDEWALK	PROPOSED BUILDING MODIFICATION
TEMPORARY EASEMENT		
ENVIRONMENTAL SURVEY REQUEST LIMITS		

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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

<b>ILLINOIS ROUTE 120 AND CHARLES ROAD</b>			
SCALE: 100	SHEET 6	OF 6 SHEETS	STA. TO STA.

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS 6	SHEET NO. 6
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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Typical Section - US 14 to Ware Road - Looking North from IL 120



Exhibit 3.7-2 - Preferred Alternative Typical Sections

Typical Section - Ware Road to Charles Road - Looking North from Ware Road



Drainage Ditch	10'	12'	12'	22'	12'	12'	10'	Drainage Ditch	10'
	Paved shoulder	Travel Lane	Travel Lane	Mountable Median/ Turn Lane	Travel Lane	Travel Lane	Paved shoulder		Shared-use path



# Environmental Inventory Map

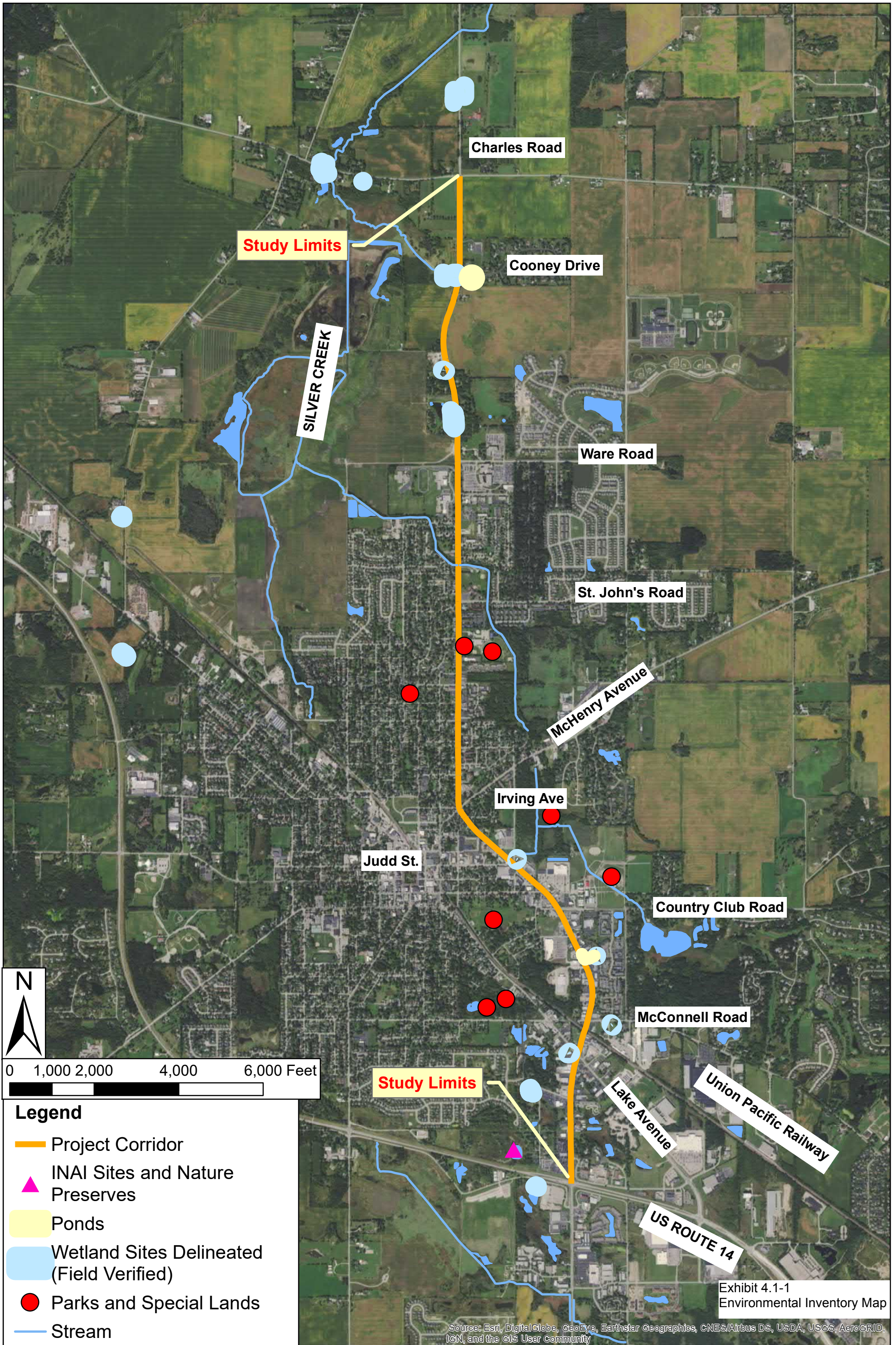
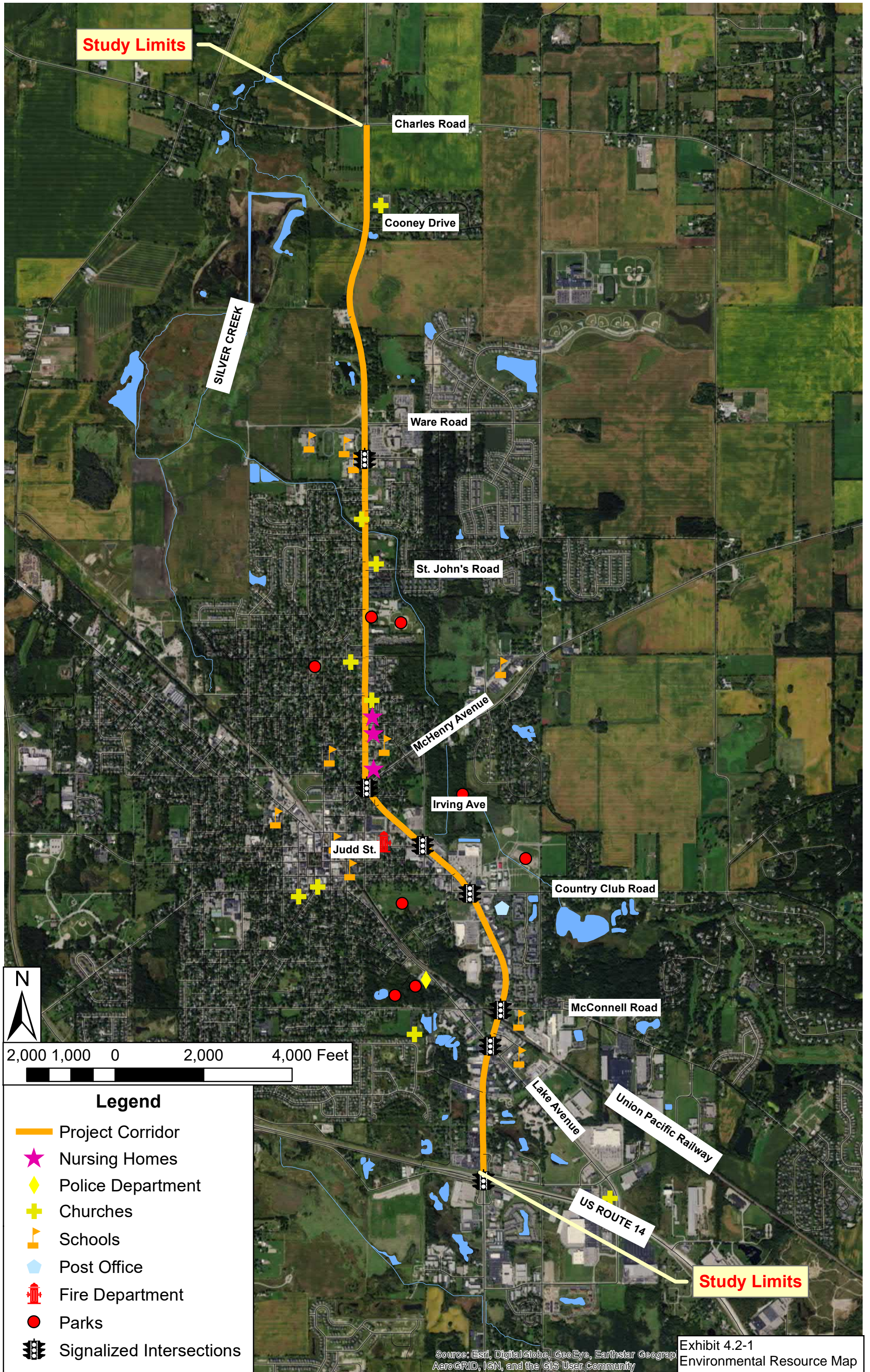


Exhibit 4.1-1  
Environmental Inventory Map

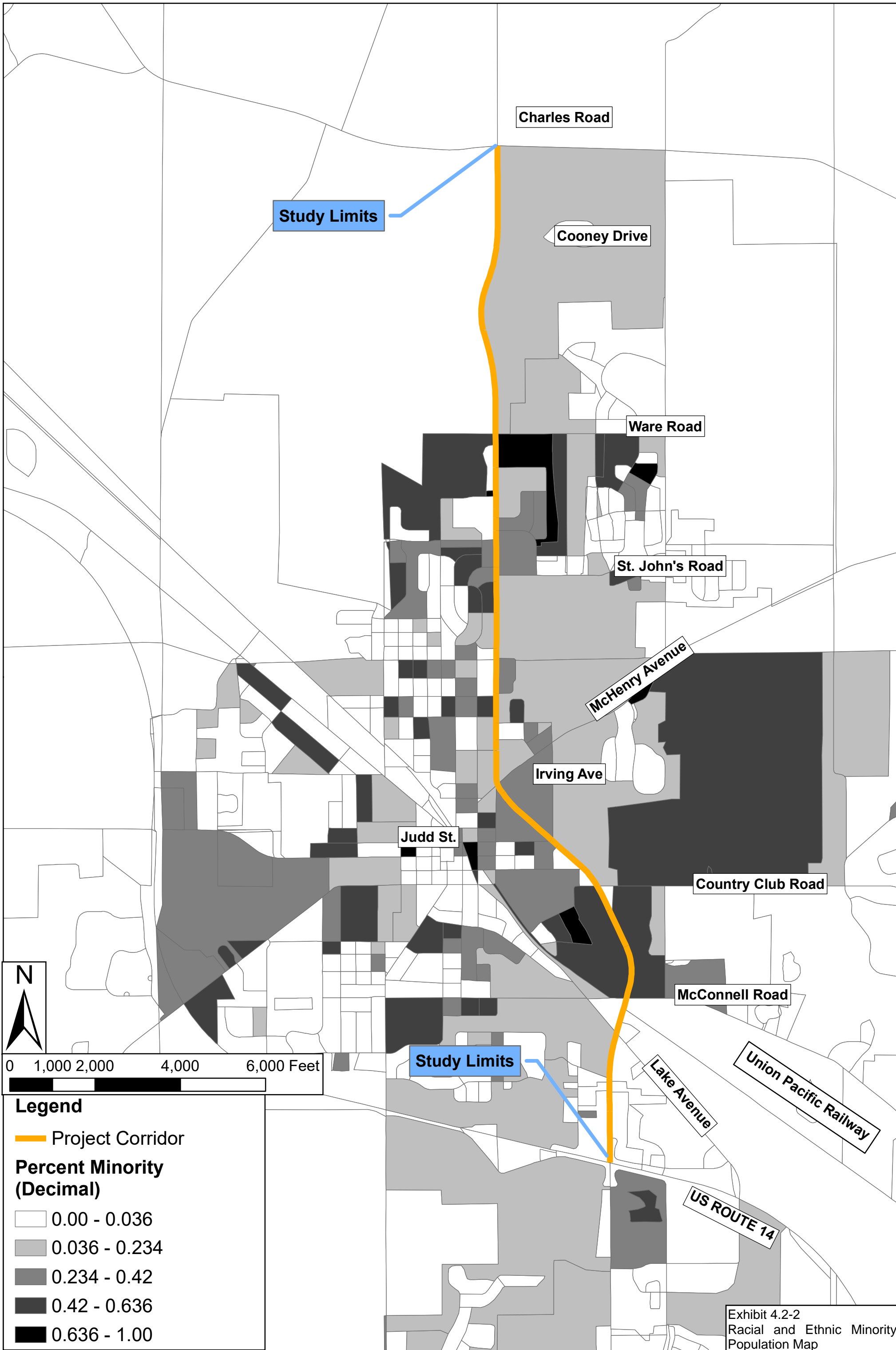


# Environmental Resource Map





# Racial and Ethnic Minority Population Map





To:	John McDonough
Bureau:	Land Acquisition
Attn:	Mike Cullian

From:	J.Baczek/S.Schilke/J.Baldauf/K.Bochte
Bureau:	Programming
Subject:	IL 47   P-91-007-09
	Potential Relocations

Date:	7/21/2014
-------	-----------

Please check appropriate box below:

- |   |  |  |
|---|--|--|
| <input checked="" type="checkbox"/> Take Necessary Action | <input type="checkbox"/> For Your Information                  | <input checked="" type="checkbox"/> Reply  |
| <input checked="" type="checkbox"/> For Your Comments     | <input type="checkbox"/> See Me About the Attached             | <input checked="" type="checkbox"/> Return |
| <input type="checkbox"/> Per Your Request                 | <input type="checkbox"/> Draft (Letter)(Memo) For my signature | <input type="checkbox"/> Route             |
| <input type="checkbox"/> For Your Approval                |  | <input type="checkbox"/> File              |

Message

IL 47  
 From U.S. 14 to Charles Road  
 P-91-007-09  
 McHenry County

Attached is a list of potential building displacements for the subject project. Per FHWA's request, can you please provide perspective/potential relocation sites? This information will then be used to update the socio/economic findings document.

If you have any questions or need additional information please contact John Baldauf, P.E., Project Manager at (847) 705-4103 or Kyle Bochte, Project Engineer at (847) 705-4678.

Thanks,  
 Kyle Bochte

*Kyle Bochte*  
 Signature

Copies to

Response

*3/25/2015*

*Kyle -*

*Attached are listings of single family residences 'for sale' in Woodstock, per your request. Also attached are various types of non-residential properties (retail/commercial, office space, industrial, etc.) listed 'for sale' and 'for rent/lease' as potential replacement properties for the non-residential occupants impacted by the proposed improvement to IL 47 thru the City of Woodstock. Please contact me w/any questions or if you need additional information.*

*Mike Cullian x4271*  
 Signature

*Thanks, Mike*



available residential

	MLS #	Stat	Street #	CP	Str Name	Sfx	Area	LP/SP	# Rms	All Beds	Baths	Type	SCI
1	08682866	ACTV	621		Washington	St	98	\$89,900	7	4	1.1	2 Stories	N
2	08841082	PCHG	626		Blakely	St	98	\$89,900	7	3	2	1 Story	N
3	08844718	ACTV	417		Highland	Ave	98	\$100,000	6	3	1.1	2 Stories	N
4	08596548	ACTV	751		Washington	St	98	\$119,900	7	3	2	2 Stories	S
5	08862709	ACTV	664	N	Sharon	Dr	98	\$119,900	7	4	1.1	1 Story	N
6	08667089	ACTV	408		Becking	Ave	98	\$134,900	9	3+1 bsmt	2.1	1 Story	S
7	08831440	ACTV	1801		Quail	Ct	98	\$139,000	6	3	2	1.5 Story	S
8	08792789	ACTV	2219		Aspen	Dr	98	\$144,900	11	4	2.1	2 Stories	S
9	08750236	PCHG	816	S	Sharon	Dr	98	\$144,900	8	3	2	1 Story	N
10	08572910	ACTV	522		Dean	St	98	\$149,900	6	3	2	1.5 Story	S
11	08816064	ACTV	311		Redwing	Dr	98	\$150,999	8	4	2.1	2 Stories	S
12	08824552	ACTV	948		Saint Johns	Rd	98	\$154,900	8	4	3	Raised Ranch	N
13	08773298	ACTV	157		Bloomfield	Dr	98	\$155,000	6	3	2.1	2 Stories	S
14	08852995	ACTV	2120		Aspen	Dr	98	\$155,000	7	3	1.1	2 Stories	N
15	08863223	ACTV	1431		Cord Grass	Trl	98	\$166,900	6	3	1.1	2 Stories	N
16	08848243	PCHG	1692		Woodside	Dr	98	\$166,990	6	3	2.1	2 Stories	N
17	08867473	NEW	420	E	Calhoun	St	98	\$169,000	7	4	2	2 Stories	N
18	08735298	ACTV	2030		Joseph	St	98	\$169,500	8	3	2	1 Story	N
19	08670437	PCHG	9001		Thompson	Rd	98	\$169,500	6	3	2.1	1 Story	N
20	08845911	ACTV	2115		Tina	Dr	98	\$169,900	8	4	2.1	Split Level w/ Sub	N
21	08863002	ACTV	329	S	Tryon	St	98	\$219,900	7	3	2	2 Stories	N
22	08848961	ACTV	2421		Vivaldi	St	98	\$220,000	10	4	2.1	2 Stories	N
23	08658224	ACTV	3908		Dean	St	98	\$224,900	8	3	2.1	1 Story	M
24	08850381	ACTV	261		Martin	Dr	98	\$234,900	10	4	2.1	2 Stories	N
25	08788422	ACTV	250		Burbank	Ave	98	\$242,500	9	4	2.1	2 Stories	N
26	08686149	ACTV	16516		Nelson	Rd	98	\$250,000	9	3+1 bsmt	3	1.5 Story	N
27	08830201	ACTV	2411		Haydn	St	98	\$254,000	11	3+2 bsmt	2	1 Story	N
28	08845864	ACTV	861		Dakota	Dr	98	\$255,000	10	4	2.1	2 Stories	N
29	08712868	ACTV	15108		Kishwaukee Valley	Rd	98	\$259,000	8	4	3	1 Story, Hillside	N
30	08863457	ACTV	2631		Haydn	St	98	\$262,900	10	4	2.1	2 Stories	N
31	08721770	ACTV	408	S	Shannon	Dr	98	\$265,000	8	3	3	1 Story, Hillside	V
32	08809976	ACTV	1022		Powers	Rd	98	\$284,900	11	4	2.2	1.5 Story	N
33	08859777	ACTV	9201		Pine Needle Pass		98	\$294,900	9	4	2.1	2 Stories	N
34	08726990	ACTV	12403		Cooney	Dr	98	\$300,000	8	3	2.1	2 Stories	N
35	08728959	ACTV	11211		Dorham	Ln	98	\$325,000	9	4	3	1.5 Story	N
36	08865103	ACTV	4508		McCauley	Rd	98	\$325,000	9	4	2.1	2 Stories	N
37	08859425	ACTV	2719	S	Country Club	Rd	98	\$330,000	8	4	2.1	1 Story	N
38	08844603	ACTV	10302		Arabian	Trl	98	\$334,900	6	3	2	1 Story	N
39	08826361	ACTV	10619		Deerpath	Rd	98	\$339,900	10	4	2.1	2 Stories	N
40	08673348	ACTV	14916		Route 176		98	\$345,000	7	4	2.1	1 Story	V
41	08770421	ACTV	402		Marawood	Dr	98	\$349,000	9	4	2.1	1.5 Story	N
42	08830612	ACTV	1340		Redtail	Ln	98	\$350,000	8	4	2.1	2 Stories	N
43	08752493	ACTV	213		Westgate	St	98	\$359,900	9	3	3	2 Stories	N
44	08820756	ACTV	601		Handel	Ln	98	\$359,900	8	3	3	1.5 Story	N
45	08854602	ACTV	10900		Bull Valley	Dr	98	\$395,000	9	4	2.1	2 Stories	N
46	08701654	ACTV	14206		Sunset Ridge	Rd	98	\$450,000	7	3	2	1 Story	N
47	08671495	ACTV	2709		Chatham	Ln	98	\$459,900	10	4	2.1	2 Stories	N
48	08734167	ACTV	17515		Deep Cut	Rd	98	\$539,000	9	3	2	2 Stories	N
49	08759286	ACTV	2510		Maritime	Ln	98	\$540,000	10	4	2.2	2 Stories	N

50	08743574	ACTV	14912		Pleasant Valley	Rd	98	\$599,000	7	3	2	1 Story	N
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Copyright 2015 MRED LLC - The accuracy of all information, regardless of source, including but not limited to square footages and lot sizes, is deemed reliable but not guaranteed and should be personally verified through personal inspection by and/or with the appropriate professionals.

Prepared By: Michael Harris | Coldwell Banker Honig-Bell | Office: (847) 658-5000 | 03/24/2015 12:26 PM



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## Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois

Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois

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Woodstock, IL

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Welcome to the LoopNet.com Woodstock Commercial Real Estate page. Find Woodstock, Illinois commercial real estate for sale and for lease on the Internet's largest commercial real estate marketplace online. LoopNet's Woodstock listings cover all desired property types, including Land for Sale, Multifamily Apartments, Retail, Office Space, Industrial Property and much more. Find Woodstock commercial real estate brokers, learn about the Woodstock commercial real estate market, or find a loan at the leading commercial real estate marketplace - LoopNet.com!

Below are 126 Woodstock commercial real estate listings out of over nearly 800,000 total properties available on LoopNet.com.

Register for FREE and get Access to all LoopNet Premium Properties.



**Restaurant & Coffee Shop**  
**Woodstock, Illinois**  
THIS RESTAURANT AND COFFEE SHOP IS FOR LEASE OR SALE!!! GREAT OPPORTUNITY!!! 4550 SF RESTAURANT & COFFEE SHOP FULLY EQUIPPED AND READY TO OPEN!!!...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$20.00  
**Space Available:** 4,550 SF  
**Bldg. Size:** 18,000 SF  
**Primary Type:** Retail  
**Sub-Type:** Restaurant



**333 E. Judd Street**  
**Woodstock, Illinois**  
Clear span industrial building just blocks from Woodstock Square. 4 offices, quality control w/ separate heat & A/C. Additional storage on...

**Status:** Active  
**Price:** \$525,000  
**Bldg. Size:** 10,103 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing



**Woodstock Center**  
**Woodstock, Illinois**  
Jewel/Osco anchored strip center located on the main retail corridor of Route 47 in Woodstock

**Status:** Active  
**No. Spaces:** 4  
**Rental Rate:** \$12.50 - \$17.50  
**Space Available:** 1,125 - 10,500 SF  
**Bldg. Size:** 10,500 SF  
**Primary Type:** Retail  
**Sub-Type:** Strip Center



**CHICAGO CONSUMABLES**  
**Woodstock, Illinois**  
WELL POSITIONED WOODSTOCK LOCATION ON STATE RT 47 ON THE SOUTH END OF TOWN. EASY ACCESS IN AND OUT WITH AMPLE PARKING. WELL BUILT VARCO-PRUDEN...

**Status:** Active  
**Price:** \$1,020,000  
**Bldg. Size:** 15,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Flex Space



**1061 Wanda Lane**  
**Woodstock, Illinois**  
Rare size freestanding engineered steel industrial building with 3 phase power. Ideal for small trades or light manufacturing. 300 SF office and...

**Status:** Active  
**Price:** \$219,000  
**Bldg. Size:** 3,728 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Warehouse



**Industrial Property**  
**Woodstock, Illinois**  
7 units total, 6 units currently vacant & available. Units are from 1000sf - 4000sf and configured as mixed % of office/warehouse. Lease rates are...

**Status:** Active  
**No. Spaces:** 7  
**Rental Rate:** N/A  
**Space Available:** N/A  
**Bldg. Size:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Warehouse

### Search Woodstock Commercial Real Estate by Property Type

Woodstock Industrial Properties for Lease  
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Woodstock Office Space for Lease  
Woodstock Office Space for Sale  
Woodstock Restaurants for Sale  
Woodstock Retail Space for Lease  
Woodstock Retail Space for Sale  
Woodstock Shopping Centers for Lease  
Woodstock Warehouses for Lease  
Woodstock Warehouses for Sale

### Popular Searches in and around Woodstock

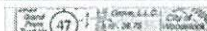
Addison Warehouses for Lease  
Algonquin Restaurants for Sale  
Algonquin Retail Space for Lease  
Algonquin Shopping Centers for Lease  
Barrington Office Space for Lease  
Bloomington Shopping Centers for Lease  
Buffalo Grove Warehouses for Lease  
Chicago Apartment Buildings for Sale  
Chicago Automotive Properties for Lease  
Chicago Duplexes/Fourplexes for Sale  
Chicago Industrial Properties for Sale  
Chicago Land for Sale  
Chicago Restaurants for Lease  
Chicago Restaurants for Sale  
Chicago Retail Space for Lease  
Chicago Retail Space for Sale  
Chicago Shopping Centers for Sale  
Chicago Warehouses for Lease  
Chicago Warehouses for Sale  
Crystal Lake Industrial Properties for Lease

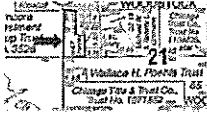


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Elgin Warehouses for Lease  
Elk Grove Village Warehouses for Lease





**15 Acres - Rte 47 & Hercules Rd.**  
Woodstock, Illinois  
15 Acres

**Status:** Active  
**Price:** \$995,500  
**Lot Size:** 15.00 Acres  
**Primary Type:** Agricultural  
**Sub-Type:** Agricultural

Fox River Grove Retail Space for Lease  
Gurnee Warehouses for Lease  
Gurnee Warehouses for Sale  
Huntley Flex Space for Lease  
Huntley Land for Sale



**Jewel Center**  
Woodstock, Illinois  
Jewel/Osco anchored strip center located on the main retail corridor of Route 47 in Woodstock

**Status:** Active  
**No. Spaces:** 4  
**Rental Rate:** \$17.00  
**Space Available:** 1,125 - 10,500 SF  
**Bldg. Size:** 28,280 SF  
**Primary Type:** Retail  
**Sub-Type:** Strip Center

Huntley Retail Space for Lease  
Lake in the Hills Warehouses for Lease  
Libertyville Warehouses for Lease  
McHenry Flex Space for Lease  
McHenry Office Space for Lease  
McHenry Retail Space for Lease  
McHenry Retail Space for Sale  
McHenry Shopping Centers for Lease  
McHenry Warehouses for Lease  
Naperville Flex Space for Lease  
Naperville Retail Space for Sale  
Rockford Shopping Centers for Lease  
Schaumburg Office Space for Lease  
Schaumburg Warehouses for Lease  
Streamwood Retail Space for Sale  
Waukegan Retail Space for Sale  
Waukegan Warehouses for Lease



**10200 Route 14**  
Woodstock, Illinois  
3 INDUSTRIAL BUILDINGS 28,800 SF  
Total Get the exposure your business needs with this complex of 3 industrial buildings. 14,400 SF steel building...

**Status:** Active  
**Price:** \$1,250,000  
**Bldg. Size:** 28,800 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing

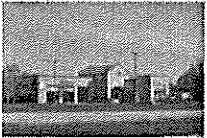
**Commercial Real Estate in Popular Cities**



**Office Space For Lease**  
Woodstock, Illinois  
950 sq. ft. of office space. Starbuck anchored building. Located at southwest corner of Square in Woodstock. This excellent location is...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$9.47  
**Space Available:** 950 SF  
**Bldg. Size:** NaN SF  
**Primary Type:** Office  
**Sub-Type:** Office-R&D

Addison  
Algonquin  
Alsip  
Arlington Heights  
Atlanta  
Aurora  
Bakersfield  
Barrington  
Bensenville  
Bloomingdale  
Buffalo Grove  
Cary  
Charlotte  
Chicago  
Crystal Lake  
Dallas  
Des Plaines  
Downers Grove  
Elgin  
Elk Grove Village  
Gurnee  
Harvard  
Houston  
Huntley  
Indianapolis  
Jacksonville  
Joliet  
Lake in the Hills  
Lake Zurich  
Las Vegas  
Libertyville  
Long Beach  
Los Angeles  
Macon  
McHenry  
Memphis  
Mokena  
Mundelein  
Naperville  
Orland Park  
Phoenix



**Fully Leased Auto Service Building**  
Woodstock, Illinois  
Fully leased auto service building for sale in Woodstock. The 11,300 square foot, two-tenant building is located along Route 14 with exposure to...

**Status:** Active  
**Price:** \$1,799,000  
**Bldg. Size:** 11,300 SF  
**Cap Rate:** 12.70%  
**Primary Type:** Retail  
**Sub-Type:** Vehicle Related



**3,950 SF Warehouse**  
Woodstock, Illinois  
3,950SF Warehouse Space in Excellent Condition. Full service lease includes all CAM's, Equip. Maint., Taxes, and Gas Heat is included (!) ...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$6.00  
**Space Available:** 1,975 - 3,950 SF  
**Bldg. Size:** 10,000 SF  
**Primary Type:** Industrial  
**Sub-Type:** Warehouse



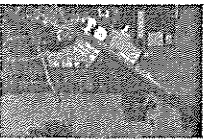
**RETAIL / STORES / OFFICE / TECH**  
Woodstock, Illinois  
BUY or LEASE THIS PROPERTY! Great Opportunity for a Retail store, Commercial Office, or Food Service Business. This Location offers High...

**Status:** Active  
**No. Spaces:** 3  
**Rental Rate:** \$7.87 - \$20.00  
**Space Available:** 4,550 SF  
**Bldg. Size:** 4,550 SF  
**Primary Type:** Retail  
**Sub-Type:** Strip Center



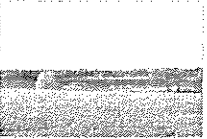
**RESTAURANT & COFFEE SHOP**  
Woodstock, Illinois  
THIS RESTAURANT AND COFFEE SHOP IS FOR LEASE OR SALE!!! GREAT OPPORTUNITY!!! 4550 SF RESTAURANT & COFFEE SHOP FULLY EQUIPPED AND READY TO OPEN!!!...

**Status:** Active  
**Price:** \$955,500  
**Bldg. Size:** 4,550 SF  
**Cap Rate:** N/A  
**Primary Type:** Retail  
**Sub-Type:** Restaurant



**Auction: 18.87 Acres of Vacant Land**  
Woodstock, Illinois  
18.87 acres (per taxes) of vacant land adjacent to lumber yard with 1,200 feet of rail road frontage. Nice location with approx 450 feet of road...

**Status:** Active  
**Price:** \$895,000  
**Lot Size:** 18.87 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



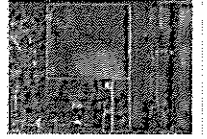
**3.5 Acres Home Site**  
Woodstock, Illinois  
Water views, fantastic sunsets and a perfect elevation for a walk out basement make this spectacular 3.5 acres lot the home site of a lifetime. ...

**Status:** Active  
**Price:** \$64,900  
**Lot Size:** 3.50 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)



**641 E. Judd Street**  
Woodstock, Illinois  
5,300 SF masonry free standing zero lot line, industrial building with 9x10 DID, air lines, 1,000 SF office. Ideal for vehicle storage or...

**Status:** Active  
**Price:** \$169,000  
**Bldg. Size:** 5,300 SF  
**Cap Rate:** N/A  
**Primary Type:** industrial  
**Sub-Type:** Warehouse



**16.5 Acres - Woodstock**  
Woodstock, Illinois  
16.5 buildable acres in unincorporated Mc Henry County zoned Agriculture (A-1) This non-conforming parcel was deeded before June 1978 making it a...

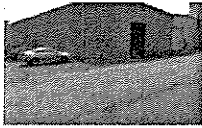
**Status:** Active  
**Price:** \$169,000  
**Lot Size:** 5,300 SF  
**Primary Type:** industrial  
**Sub-Type:** Warehouse



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Sycamore  
Tampa





**320 E. Church Street**  
Woodstock, Illinois  
Blocks from the square, this metal building can be divided into two 5,000 SF warehouses, each with separate utilities. Tall ceilings make this...

**Status:** Active  
**Price:** \$350,000  
**Bldg. Size:** 10,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing

Wauconda  
Waukegan

**Commerical Real Estate in Popular States**

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Nevada  
New Jersey  
New York  
North Carolina  
Ohio  
Oregon  
Pennsylvania  
South Carolina  
Tennessee  
Texas  
Virginia  
Wisconsin



**12724 Wagner Ln**  
Woodstock, Illinois  
11.1 ACRES WITH DEVELOPMENT/COMMERCIAL POTENTIAL. 1.29 MILES TO WOODSTOCK TRAIN STATION, UNDER AN HOUR TO EITHER OHARE OR ROCKFORD AIRPORTS..

**Status:** Active  
**Price:** \$399,900  
**Lot Size:** 11.10 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



**4,000 SF FOR LEASE OR FOR SALE**  
Woodstock, Illinois  
Nice and clean and ready today!! 4,000 sf building has separate office and bathroom Service door and 10' x 10' overhead door on north side. ...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$6.60  
**Space Available:** 4,000 SF  
**Bldg. Size:** 4,000 SF  
**Primary Type:** Industrial  
**Sub-Type:** Warehouse



**FOR SALE OR FOR LEASE**  
Woodstock, Illinois  
Nice building with office and bathroom in the unit. 10' x 10' overhead and separate service door to the office area. Is ready for you to move...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$6.60  
**Space Available:** 2,000 SF  
**Bldg. Size:** 2,000 SF  
**Primary Type:** Industrial  
**Sub-Type:** Warehouse



**6 Acres / 230' frontage on Route 47**  
Woodstock, Illinois  
Value in the land. This 261,360 sf. parcel current has 2 businesses on site totaling over 4200 sf. of buildings. Service / Retail District w/ B3...

**Status:** Active  
**Price:** \$1,200,000  
**Lot Size:** 6.00 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



**Prime Parcel**  
Woodstock, Illinois  
Prime Parcel on Rte 120 in Woodstock. Great traffic counts on the corner of Raffel and Rte 120. 3 Pins make up the 10 acres, willing to split sale...

**Status:** Active  
**Price:** \$995,000  
**Lot Size:** 10.00 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



**Former Fast Food with Drive Thru**  
Woodstock, Illinois  
62-seat former Kentucky Fried Chicken with drive-thru window on 1.7 acre site just south of the McHenry County Government Center. Great potential...

**Status:** Active  
**Price:** \$415,000  
**Bldg. Size:** 2,728 SF  
**Cap Rate:** N/A  
**Primary Type:** Retail  
**Sub-Type:** Restaurant

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More brokers, property owners and other commercial real estate investors come to use LoopNet.com for selling and buying commercial real estate online. This is what makes LoopNet the professional's choice for finding Woodstock, Illinois commercial real estate. LoopNet has a broad selection of properties for sale and the largest viewership of commercial real estate buyers, investors and other professionals. To access all of the hundreds of thousands of commercial properties for sale and for lease in Woodstock and throughout the U.S. and Internationally, become a LoopNet member today. LoopNet is also the best source online for finding land for sale for your commercial project.

LoopNet operates the most heavily trafficked listing service for Woodstock commercial real estate and other markets in the U.S. and Canada with more than \$425 billion of total commercial real estate for sale and 6.3 billion sq. ft. of commercial real estate space for lease. LoopNet also attracts a large community of Woodstock commercial real estate professionals with more than 7 million members comprised of brokers, corporate executives, service providers, and more than 3 million buyers, tenants and other principals throughout the U.S. and Canada.

LoopNet's Woodstock commercial real estate listings include farms, multifamily apartments, office buildings, retail space, vacant land, hotels and motels, gas stations, warehouses, restaurants for lease and much more.

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Find Commercial Real Estate by ZIP Code



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Atlanta Apartment Buildings for Sale  
Bakersfield Apartment Buildings for Sale

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- Anchor Properties for Sale
- Apartment Buildings for Sale
- Automotive Properties for Lease
- Automotive Properties for Sale
- Churches for Sale
- Day Care Centers for Sale
- Duplexes/Fourplexes for Sale
- Farms for Sale
- Flex Space for Lease
- Flex Space for Sale
- Gas Stations for Sale
- Golf Courses for Sale
- Health Care Properties for Sale
- Hotels/Motels for Sale
- Industrial Properties for Lease
- Industrial Properties for Sale
- Land for Lease
- Land for Sale
- Marinas for Sale
- Medical Offices for Lease
- Medical Offices for Sale
- Mobile Home/RV Parks for Sale
- Office Space for Lease
- Office Space for Sale
- Residential Income Properties for Sale
- Restaurants for Lease
- Restaurants for Sale
- Retail Space for Lease
- Retail Space for Sale
- Self Storage Facilities for Sale
- Senior Housing Facilities for Sale
- Shopping Centers for Lease



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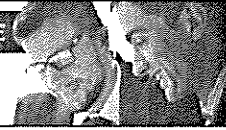
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Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois



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All Property Types Illinois McHenry County Woodstock

Sort

Welcome to the LoopNet.com Woodstock Commercial Real Estate page. Find Woodstock, Illinois commercial real estate for sale and for lease on the Internet's largest commercial real estate marketplace online. LoopNet's Woodstock listings cover all desired property types, including Land for Sale, Multifamily Apartments, Retail, Office Space, Industrial Property and much more. Find Woodstock commercial real estate brokers, learn about the Woodstock commercial real estate market, or find a loan at the leading commercial real estate marketplace - LoopNet.com!

Below are 126 Woodstock commercial real estate listings out of over nearly 800,000 total properties available on LoopNet.com.

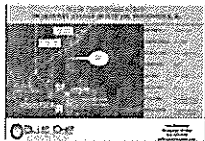
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#### Search Woodstock Commercial Real Estate by Property Type

- Woodstock Industrial Properties for Lease
- Woodstock Land for Sale
- Woodstock Office Space for Lease
- Woodstock Office Space for Sale
- Woodstock Restaurants for Sale
- Woodstock Retail Space for Lease
- Woodstock Retail Space for Sale
- Woodstock Shopping Centers for Lease
- Woodstock Warehouses for Lease
- Woodstock Warehouses for Sale

#### Popular Searches in and around Woodstock

- Addison Warehouses for Lease
- Algonquin Restaurants for Sale
- Algonquin Retail Space for Lease.
- Algonquin Shopping Centers for Lease
- Barrington Office Space for Lease
- Bloomington Shopping Centers for Lease
- Buffalo Grove Warehouses for Lease
- Chicago Apartment Buildings for Sale
- Chicago Automotive Properties for Lease
- Chicago Duplexes/Fourplexes for Sale
- Chicago Industrial Properties for Sale
- Chicago Land for Sale
- Chicago Restaurants for Lease
- Chicago Restaurants for Sale
- Chicago Retail Space for Lease
- Chicago Retail Space for Sale
- Chicago Shopping Centers for Sale
- Chicago Warehouses for Lease
- Chicago Warehouses for Sale
- Crystal Lake Industrial Properties for Lease



\$95,000 / 6.84 Acres

Woodstock, Illinois

Bank Owned Vacant Land. Consisting of 6.84 gross acres at \$95,000. Situated along Route 120 (McHenry Avenue) in a mixed use neighborhood of...

Status: Active  
Price: \$95,000  
Lot Size: 6.84 Acres  
Primary Type: Land  
Sub-Type: Commercial/Other (land)



Office Property

Woodstock, Illinois

1,800 square feet of Classic retail/gallery/studio space on the Square. Lower level entry square-side and ground level access in the rear of the...

Status: Active  
No. Spaces: 2  
Rental Rate: \$8.00 - \$12.00  
Space Available: 1,800 SF  
Bldg. Size: 3,600 SF  
Primary Type: Office  
Sub-Type: Creative/Loft

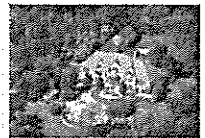


Route 14 and Lily Pond Road

Woodstock, Illinois

5.803 Acres Development land on Route 14 with 842' of frontage currently zoned AG in the county. Well and septic required. Nice traffic count of...

Status: Active  
Price: \$493,000  
Lot Size: 5.80 Acres  
Primary Type: Land  
Sub-Type: Commercial/Other (land)



Glacier's End

Woodstock, Illinois

PRICE REDUCTION\*\*\*\*Glaciers End Estate, sophisticated, sleek, stunning. Noteworthy grand masterpiece of extraordinary quality construction &...

Status: Active  
Price: \$4,995,000  
Bldg. Size: 20,000 SF  
Cap Rate: N/A  
Primary Type: Special Purpose  
Sub-Type: Special Purpose (Other)



Fully Lease Office Building

Woodstock, Illinois

Fully leased office building in prime Route 47 location. Rent roll available upon request as well as all matters of income expense. Priced for...

Status: Active  
Price: \$895,000  
Bldg. Size: 47,501 SF  
Cap Rate: 8.00%  
Primary Type: Office  
Sub-Type: Office Building



Catalpa Commons

Woodstock, Illinois

The subject property consists of a 13,915 square foot multi-tenant shopping center located at 11620 Catalpa Lane in Woodstock, IL. The site is 79%...

Status: Active  
No. Spaces:  
Rental Rate:  
Space Available:  
Bldg. Size:  
Primary Type:  
Sub-Type:



18,000 Sq. Ft. Modern Warehouse Facility

Status: Active  
Price: \$750,000

- Elgin Warehouses for Lease
- Elk Grove Village Warehouses for Lease



#### WANT COMPLETE MAP SUPPORT?

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**Woodstock, Illinois**  
Free standing steel structure. Great access, just off the Route 14 Bypass. Four overhead doors, 3 with recessed docks. Perfect for user,...

**Bldg. Size:** 18,000 SF  
**Cap Rate:** 8.00%  
**Primary Type:** Industrial  
**Sub-Type:** Warehouse

Fox River Grove Retail Space for Lease  
Gurnee Warehouses for Lease  
Gurnee Warehouses for Sale  
Huntley Flex Space for Lease



**Centerville Plaza (Route 47)**  
**Woodstock, Illinois**  
Retail/office space in Centerville Plaza on heavily traveled Route 47, just across from Taco Bell. Formerly cellular phone store. Equipped for...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$12.00  
**Space Available:** 1,750 SF  
**Bldg. Size:** 1,750 SF  
**Primary Type:** Retail  
**Sub-Type:** Strip Center

Huntley Land for Sale  
Huntley Retail Space for Lease  
Lake in the Hills Warehouses for Lease  
Libertyville Warehouses for Lease  
McHenry Flex Space for Lease



**9.5 Acres Rt.120**  
**Woodstock, Illinois**  
Here is a beautiful place to build a seclude home in the country. It is almost 10 acres with a scenic spring fed pond. The home site is set back...

**Status:** Active  
**Price:** \$279,000  
**Lot Size:** 9.50 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)

McHenry Office Space for Lease  
McHenry Retail Space for Lease  
McHenry Retail Space for Sale  
McHenry Shopping Centers for Lease  
McHenry Warehouses for Lease  
Naperville Flex Space for Lease  
Naperville Retail Space for Sale



**ROSE FARM ESTATES**  
**Woodstock, Illinois**  
Rose Farm Estates Subdivision! Beautiful 2 Acre Home Site with Walkout Potential! Enjoy county taxes, country views. Located Near Historic...

**Status:** Active  
**Price:** \$50,000  
**Lot Size:** 2.13 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)

Rockford Shopping Centers for Lease  
Schaumburg Office Space for Lease  
Schaumburg Warehouses for Lease  
Streamwood Retail Space for Sale  
Waukegan Retail Space for Sale  
Waukegan Warehouses for Lease



**ROSE FARM ESTATES**  
**Woodstock, Illinois**  
Rose Farm Estates Subdivision! Beautiful 2 Acre Home Site located in a Cul-de-sac with Walkout Potential! Enjoy county taxes, country views...

**Status:** Active  
**Price:** \$50,000  
**Lot Size:** 2.00 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)

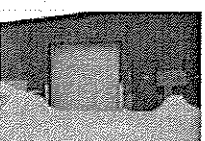
**Commercial Real Estate in Popular Cities**



**ROSE FARM ESTATES**  
**Woodstock, Illinois**  
Rose Farm Estates Subdivision! Beautiful 2 Acre Home Site located in a Cul-de-sac with Walkout Potential! Enjoy county taxes, country views...

**Status:** Active  
**Price:** \$50,000  
**Lot Size:** 2.16 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)

Addison  
Algonquin  
Alsip  
Arlington Heights



**Industrial Property**  
**Woodstock, Illinois**  
Nice building with office and bathroom in the unit. 10' x 10' overhead door and separate service door to the office area. Currently a machine...

**Status:** Active  
**Price:** \$89,000  
**Bldg. Size:** 2,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Industrial Condo

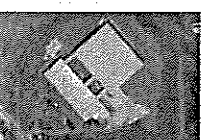
Atlanta  
Aurora  
Bakersfield  
Barrington  
Bensenville  
Bloomingdale  
Buffalo Grove  
Cary  
Charlotte  
Chicago  
Crystal Lake  
Dallas



**UP Rail Served Manufacturing and Warehouse Space**  
**Woodstock, Illinois**  
This former Silgan Plastics Plant is a functional 187,850 SF of manufacturing and warehouse space, which is rail served by Union Pacific. The...

**Status:** Active  
**Price:** Not Disclosed  
**Bldg. Size:** 187,850 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing

Des Plaines  
Downers Grove  
Elgin  
Elk Grove Village  
Gurnee  
Harvard  
Houston



**UP Rail Served Manufacturing and Warehouse Space**  
**Woodstock, Illinois**  
This former Silgan Plastics Plant is a functional 187,850 SF of manufacturing and warehouse space, which is rail served by Union Pacific. The...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$3.95  
**Space Available:** 76,471 - 187,850 SF  
**Bldg. Size:** 187,850 SF  
**Primary Type:** Industrial  
**Sub-Type:** Warehouse

Huntley  
Indianapolis  
Jacksonville  
Joliet  
Lake in the Hills



**400 Russel Court**  
**Woodstock, Illinois**  
Ideal space and location for Law Firm, Counselor, Financial Advisor, etc. Landlord will build to suit your needs. Lease part or all of this...

**Status:** Active  
**No. Spaces:** 4  
**Rental Rate:** \$16.00  
**Space Available:** 1,040 - 8,100 SF  
**Bldg. Size:** 8,100 SF  
**Primary Type:** Office  
**Sub-Type:** Office Building

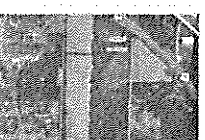
Lake Zurich  
Las Vegas  
Libertyville  
Long Beach  
Los Angeles  
Macon



**Office Property**  
**Woodstock, Illinois**  
1,800 square feet of Classic retail/gallery/studio space on the Square. Dual access: Lower level entry square-side and ground level access in the...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$8.00  
**Space Available:** 1,800 SF  
**Bldg. Size:** 3,600 SF  
**Primary Type:** Office  
**Sub-Type:** Creative/Loft

Memphis  
Mokena  
Mundelein  
Naperville  
Orland Park  
Phoenix



**95.8 Acres MOL**  
**Woodstock, Illinois**  
Zoned AG This Parcel of land has approx. 95+ acres subject to survey. There are approximately 38 acres of tillable and the balance in scattered...

**Status:** Active  
**Price:**  
**Lot Size:**  
**Primary Type:**  
**Sub-Type:**



**WANT COMPLETE MAP SUPPORT?**  
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**Horizon Center**  
**Woodstock, Illinois**  
 Great Location in the center of Woodstock's Retail. Site is surrounded by rooftops. The site is located in a neighborhood convenience center...

**Status:** Active  
**No. Spaces:** 3  
**Rental Rate:** \$15.00  
**Space Available:** 1,000 - 3,700 SF  
**Bldg. Size:** 3,700 SF  
**Primary Type:** Retail  
**Sub-Type:** Neighborhood Center

Wauconda  
 Waukegan

**Commerical Real Estate In Popular States**

- Alabama
- Arizona
- California
- Colorado
- Florida
- Georgia
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Maryland
- Michigan
- Missouri
- Nevada
- New Jersey
- New York
- North Carolina
- Ohio
- Oregon
- Pennsylvania
- South Carolina
- Tennessee
- Texas
- Virginia
- Wisconsin



**1725 Kilkenny Court**  
**Woodstock, Illinois**  
 17,6000 Square foot industrial building on 7.51 acres with city sewer and water. Railroad tracks run along the North end of the property. Building...

**Status:** Active  
**Price:** \$1,170,000  
**Bldg. Size:** 17,600 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Flex Space



**Victorian Manor**  
**Woodstock, Illinois**  
 The bed & breakfast from the movie, "Groundhog Day". A grand Victorian built in 1895 and totally renovated. 6 bedrooms ensuite plus innkeeper's...

**Status:** Active  
**Price:** \$985,000  
**Bldg. Size:** 6,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Special Purpose  
**Sub-Type:** Special Purpose (Other)



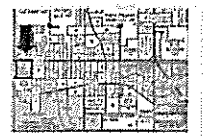
**1065 Lake OFFICE SUITES**  
**Woodstock, Illinois**  
 Executive office building with first floor office available. Suite B : (2,225 SF). \$2,225/mo. owner will provide basic build out. Lower level...

**Status:** Active  
**No. Spaces:** 2  
**Rental Rate:** \$10.00 - \$12.00  
**Space Available:** 2,225 - 6,715 SF  
**Bldg. Size:** 9,060 SF  
**Primary Type:** Office  
**Sub-Type:** Office Building



**743-45 McHenry Ave.**  
**Woodstock, Illinois**  
 4,600 SF freestanding masonry industrial building formerly used as a machine shop. 800 SF finished mezzanine above office/showroom (not included...

**Status:** Active  
**Price:** \$200,000  
**Bldg. Size:** 4,600 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing



**Agricultural Property**  
**Woodstock, Illinois**  
 Looking for location and high viability? Look no further. This 40+ acres is minutes from I-90, Woodstock, Crystal Lake and Marengo. There is...

**Status:** Active  
**Price:** \$500,000  
**Lot Size:** 40.82 Acres  
**Primary Type:** Agricultural  
**Sub-Type:** Agricultural



**Agricultural Property**  
**Woodstock, Illinois**  
 Futura developmental potential!!! 123.94 Acres (MOL). Former tree nursery; some stock still present. Natural gas pipeline at southern edge of...

**Status:** Active  
**Price:** \$1,115,460  
**Lot Size:** 123.94 Acres  
**Primary Type:** Agricultural  
**Sub-Type:** Agricultural

**See the Latest Woodstock Commercial Real Estate Listings.**  
 Start a search to see ALL Woodstock Commercial MLS listings for sale and lease.  
[Start a New Search](#)

**About LoopNet Woodstock Commercial Real Estate**

More brokers, property owners and other commercial real estate investors come to use LoopNet.com for selling and buying commercial real estate online. This is what makes LoopNet the professional's choice for finding Woodstock, Illinois commercial real estate. LoopNet has a broad selection of properties for sale and the largest viewership of commercial real estate buyers, investors and other professionals. To access all of the hundreds of thousands of commercial properties for sale and for lease in Woodstock and throughout the U.S. and Internationally, become a LoopNet member today. LoopNet is also the best source online for finding land for sale for your commercial project.

LoopNet operates the most heavily trafficked listing service for Woodstock commercial real estate and other markets in the U.S. and Canada with more than \$425 billion of total commercial real estate for sale and 6.3 billion sq. ft. of commercial real estate space for lease. LoopNet also attracts a large community of Woodstock commercial real estate professionals with more than 7 million members comprised of brokers, corporate executives, service providers, and more than 3 million buyers, tenants and other principals throughout the U.S. and Canada.

LoopNet's Woodstock commercial real estate listings include farms, multifamily apartments, office buildings, retail space, vacant land, hotels and motels, gas stations, warehouses, restaurants for lease and much more.

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## Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois

Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois



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### Search for Woodstock Commercial Real Estate for Sale or Lease

For Sale

For Lease

All properties for sale

Woodstock, IL

Search

Advanced search

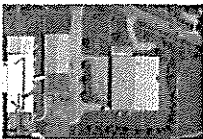
All Property Types Illinois McHenry County Woodstock

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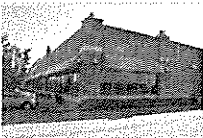
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**15,200 Sq. Ft. Manufacturing Woodstock, Illinois**  
15,200 00 sq.ft., pre-engineered "Varco Pruden" steel building. Immediate possession, fully air conditioned and sprinklered. Rental rate \$3.95 per...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$3.95  
**Space Available:** 15,200 SF  
**Bldg. Size:** 15,200 SF  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing



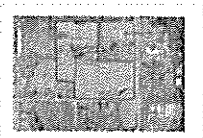
**RETAIL / STORES / OFFICE / TECH Woodstock, Illinois**  
Great Opportunity for a Retail Store, Commercial Office, Medical Office, or Food Service Business. This Location offers High Visibility, Easy in...

**Status:** Active  
**Price:** \$638,000  
**Bldg. Size:** 4,550 SF  
**Cap Rate:** N/A  
**Primary Type:** Retail  
**Sub-Type:** Strip Center



**Industrial Property Woodstock, Illinois**  
Very well maintained industrial building with an outstanding location. Approx. 178,000 sq. ft. of manufacturing space and 9,000 sq. ft. of office...

**Status:** Active  
**Price:** \$2,950,000  
**Bldg. Size:** 187,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing



**105 ACRES at Route 14 and Kishwaukee Valley Rd Woodstock, Illinois**  
PRICE REDUCED! 105 Acres! Retail & Residential Potential! Great location for Development ~ Water and Sewer close by ~ Income Producing ~ Offers...

**Status:** Active  
**Price:** \$3,750,000  
**Lot Size:** 105.00 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



**RETAIL SPACE FOR LEASE- HEAVY TRAFFIC Woodstock, Illinois**  
CLOSE TO COURT HOUSE, HEAVY TRAFFIC, ACROSS FROM HOUSING, GREAT LOCATION. ONLY ONE RETAIL UNIT LEFT, BRING YOUR BUSINESS OR IDEAS GREAT RENT RATE...

**Status:** Active  
**No. Spaces:** 2  
**Rental Rate:** \$10.00 - \$12.00  
**Space Available:** 622 - 2,490 SF  
**Bldg. Size:** 14,850 SF  
**Primary Type:** Retail  
**Sub-Type:** Street Retail



**Lot 9 Trakk Lane Woodstock, Illinois**  
1.19 acre site available in Woodstock's Trakk Industrial Park. Deed covenants available from listing office. Possible rail siding available.

**Status:** Active  
**Price:** \$10.00  
**Lot Size:** 1.19 Acres  
**Primary Type:** Land  
**Sub-Type:** Industrial

### Search Woodstock Commercial Real Estate by Property Type

- Woodstock Industrial Properties for Lease
- Woodstock Land for Sale
- Woodstock Office Space for Lease
- Woodstock Office Space for Sale
- Woodstock Restaurants for Sale
- Woodstock Retail Space for Lease
- Woodstock Retail Space for Sale
- Woodstock Shopping Centers for Lease
- Woodstock Warehouses for Lease
- Woodstock Warehouses for Sale

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- Chicago Restaurants for Lease
- Chicago Restaurants for Sale
- Chicago Retail Space for Lease
- Chicago Retail Space for Sale
- Chicago Shopping Centers for Sale
- Chicago Warehouses for Lease
- Chicago Warehouses for Sale
- Crystal Lake Industrial Properties for Lease



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Elgin Warehouses for Lease

Elk Grove Village Warehouses for Lease



**Lot 8 Trakk Lane**  
Woodstock, Illinois  
1.08 acre site available in Woodstock's Trakk Industrial Park. Deed covenants available from the listing office. Possible rail siding

**Status:** Active  
**Price:** \$75,000  
**Lot Size:** 1.08 Acres  
**Primary Type:** Land  
**Sub-Type:** Industrial (land)



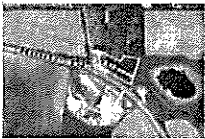
**Cobblestone Square**  
Woodstock, Illinois  
SEC of Route 47 & Cobblestone Way  
Great commercial lot with excellent visibility on busy Route 471 Zoned B-3 Service & Retail, allowing a wide...

**Status:** Active  
**Price:** \$149,900  
**Lot Size:** 1.00 - 2.78 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



**Office Property**  
Woodstock, Illinois  
Available NOW ready for your finishing touches. 1st floor is 3,473 sq. ft., handicap accessible & has abundant natural lighting plus 1,746 sq. ft...

**Status:** Active  
**Price:** \$279,000  
**Bldg. Size:** 5,220 SF  
**Cap Rate:** N/A  
**Primary Type:** Office  
**Sub-Type:** Office Building



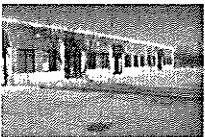
**9604 Route 14 (Northwest Highway)**  
Woodstock, Illinois  
2.12 acre commercial corner on Route 14 at Lily Pond Road. Only \$2.87 psf! Former location of La Tejanita restaurant, which has been razed...

**Status:** Active  
**Price:** \$265,000  
**Lot Size:** 2.12 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



**Rare Combination of Lovely House and Barn**  
Woodstock, Illinois  
REDUCED!!!! Very nice 2 story house with wrap around porch, maintenance free exterior and 4 Bedrooms, 2.1 Baths. The home features kitchen with...

**Status:** Active  
**Price:** \$425,000  
**Lot Size:** 20.00 Acres  
**Primary Type:** Agricultural  
**Sub-Type:** Pasture/Ranch



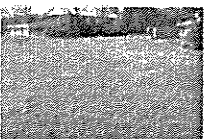
**OFFICE/RETAIL FOR LEASE- CLOSE TO COURTHOUSE**  
Woodstock, Illinois  
4 Office Units still available for rent- close to Woodstock Civic Center, busy road, with high traffic count on Route 47 (Seminary), small office...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$10.00  
**Space Available:** 622 - 3,702 SF  
**Bldg. Size:** 14,850 SF  
**Primary Type:** Office  
**Sub-Type:** Office-R&D



**28,200 sf Manufacturing Space for Lease**  
Woodstock, Illinois  
Ideal light manufacturing facility below market rate rent. Heavy duty sprinkler with 75 H.P. booster pump. Additional parking available

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$3.95  
**Space Available:** 28,200 SF  
**Bldg. Size:** 28,200 SF  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing



**Commercial Lot**  
Woodstock, Illinois  
Just over 1/2 acre vacant land in the city of Woodstock. Sewer, water and utilities to site. B3 zoning allows many uses...

**Status:** Active  
**Price:** \$249,000  
**Lot Size:** 0.69 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



**38 & 40 Pleasant Valley Rd.**  
Woodstock, Illinois  
Country home site with stocked 2.5 acre pond. Wooded with large willow and pine trees. Quiet setting adjoins forest preserve. Large open grassy...

**Status:** Active  
**Price:** \$149,900  
**Lot Size:** 5.69 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)



**325 Irving Ave**  
Woodstock, Illinois  
Retail / shopping center with space available for lease. Anchored by Wisler's Grocery Store and Dollar General.

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** N/A  
**Space Available:** 2,150 SF  
**Bldg. Size:** 29,940 SF  
**Primary Type:** Retail  
**Sub-Type:** Strip Center



**118 E. Calhoun Street**  
Woodstock, Illinois  
Two individual offices, 16 x 12 & 12 x 12, plus reception area available for lease in larger established professional insurance office...

**Status:** Active  
**No. Spaces:** 2  
**Rental Rate:** \$14.00  
**Space Available:** 144 - 192 SF  
**Bldg. Size:** NaN SF  
**Primary Type:** Office  
**Sub-Type:** Office Building



**10 acres in McHenry County, IL**  
Woodstock, Illinois  
Turn-key Horse Training farm on 10 acres w/28 fully-matted "warm-blood sized" stalls, 60x160 indoor arena w/rubber/sand footing & heated viewing...

**Status:** Active  
**Price:** \$149,900  
**Lot Size:** 10.00 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)

Fox River Grove Retail Space for Lease  
Gurnee Warehouses for Lease  
Gurnee Warehouses for Sale  
Huntley Flex Space for Lease  
Huntley Land for Sale  
Huntley Retail Space for Lease  
Lake in the Hills Warehouses for Lease  
Libertyville Warehouses for Lease  
McHenry Flex Space for Lease  
McHenry Office Space for Lease  
McHenry Retail Space for Lease  
McHenry Retail Space for Sale  
McHenry Shopping Centers for Lease  
McHenry Warehouses for Lease  
Naperville Flex Space for Lease  
Naperville Retail Space for Sale  
Rockford Shopping Centers for Lease  
Schaumburg Office Space for Lease  
Schaumburg Warehouses for Lease  
Streamwood Retail Space for Sale  
Waukegan Retail Space for Sale  
Waukegan Warehouses for Lease

**Commercial Real Estate in Popular Cities**

Addison  
Algonquin  
Alsip  
Arlington Heights  
Atlanta  
Aurora  
Bakersfield  
Barrington  
Bensenville  
Bloomingdale  
Buffalo Grove  
Cary  
Charlotte  
Chicago  
Crystal Lake  
Dallas  
Des Plaines  
Downers Grove  
Elgin  
Elk Grove Village  
Gurnee  
Harvard  
Houston  
Huntley  
Indianapolis  
Jacksonville  
Joliet  
Lake in the Hills  
Lake Zurich  
Las Vegas  
Libertyville  
Long Beach  
Los Angeles  
Macon  
McHenry  
Memphis  
Mokena  
Mundelein  
Naperville  
Orland Park  
Phoenix



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Sycamore  
Tampa





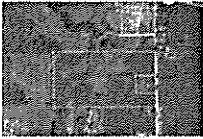
**Woodstock VFW Hall**  
Woodstock, Illinois  
Wonderful business location, adjacent to Woodstock Historical Square. Behind Movie theatre. Turnkey Banquet/Restaurant opportunity with plenty of...

**Status:** Active  
**Price:** \$399,900  
**Bldg. Size:** 11,202 SF  
**Cap Rate:** N/A  
**Primary Type:** Retail  
**Sub-Type:** Restaurant

Wauconda  
Waukegan

**Commerical Real Estate in Popular States**

Alabama  
Arizona  
California  
Colorado  
Florida  
Georgia  
Illinois  
Indiana  
Iowa  
Kansas  
Kentucky  
Maryland  
Michigan  
Missouri  
Nevada  
New Jersey  
New York  
North Carolina  
Ohio  
Oregon  
Pennsylvania  
South Carolina  
Tennessee  
Texas  
Virginia  
Wisconsin



**80 acres in McHenry County, IL**  
Woodstock, Illinois  
Total Acres: There are a total of 80.25 acres, more or less, according to the McHenry County Assessor's Office. There are approximately 60...

**Status:** Active  
**Price:** \$1,115,475  
**Lot Size:** 80.25 Acres  
**Primary Type:** Agricultural  
**Sub-Type:** Pasture/Ranch



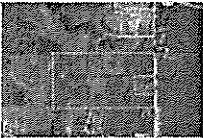
**Multifamily Apartment**  
Woodstock, Illinois  
The LHTC Group is proud to present this well maintained 10-unit apartment complex located in Woodstock, IL. This building shows a true pride of...

**Status:** Active  
**Price:** \$670,000  
**Bldg. Size:** 8,000 SF  
**Units:** 10  
**Cap Rate:** 6.80%  
**Primary Type:** Multifamily  
**Sub-Type:** Garden/Low-Rise



**Retail Property**  
Woodstock, Illinois  
Prime retail 1,500 square-foot store on the Woodstock Square will be available June 1, 2015, includes 1,500 square-foot lower level with staircase...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$9.00  
**Space Available:** 3,000 SF  
**Bldg. Size:** 25,000 SF  
**Primary Type:** Retail  
**Sub-Type:** Retail (Other)



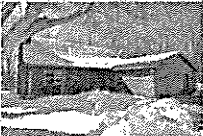
**The Doty Road Property**  
Woodstock, Illinois  
Total Acres: There are a total of 80.25 acres, more or less, according to the McHenry County Assessor's Office. There are approximately 60...

**Status:** Active  
**Price:** \$1,115,475  
**Lot Size:** 80.25 Acres  
**Primary Type:** Agricultural  
**Sub-Type:** Agricultural



**Retail Property**  
Woodstock, Illinois  
Excellent repositioning opportunity for user or investor. Zoning: B2C. 2 story building with lower level: rentable bldg size ±27,591 SF. The...

**Status:** Active  
**Price:** \$1,645,000  
**Bldg. Size:** 30,683 SF  
**Cap Rate:** N/A  
**Primary Type:** Retail  
**Sub-Type:** Free Standing Bldg



**10 acres in McHenry**  
Bull Valley, Illinois  
Charming log cabin on 9.6 acres in the perfect setting. That perfect setting includes this custom log home set back on a long, picturesque drive...

**Status:** Active  
**Price:** \$385,000  
**Lot Size:** 9.60 Acres  
**Primary Type:** Agricultural  
**Sub-Type:** Pasture/Ranch

**Popular Property Type Searches**

Anchor Properties for Lease  
Anchor Properties for Sale  
Apartment Buildings for Sale  
Automotive Properties for Lease  
Automotive Properties for Sale  
Churches for Sale  
Day Care Centers for Sale  
Duplexes/Fourplexes for Sale  
Farms for Sale  
Flex Space for Lease  
Flex Space for Sale  
Gas Stations for Sale  
Golf Courses for Sale  
Health Care Properties for Sale  
Hotels/Motels for Sale  
Industrial Properties for Lease  
Industrial Properties for Sale  
Land for Lease  
Land for Sale  
Marinas for Sale  
Medical Offices for Lease  
Medical Offices for Sale  
Mobile Home/RV Parks for Sale  
Office Space for Lease  
Office Space for Sale  
Residential Income Properties for Sale  
Restaurants for Lease  
Restaurants for Sale  
Retail Space for Lease  
Retail Space for Sale  
Self Storage Facilities for Sale  
Senior Housing Facilities for Sale  
Shopping Centers for Lease

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Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois

Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois



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All Property Types Illinois McHenry County Woodstock

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Welcome to the LoopNet.com Woodstock Commercial Real Estate page. Find Woodstock, Illinois commercial real estate for sale and for lease on the Internet's largest commercial real estate marketplace online.

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Search Woodstock Commercial Real Estate by Property Type

- Woodstock Industrial Properties for Lease
Woodstock Land for Sale
Woodstock Office Space for Lease
Woodstock Office Space for Sale
Woodstock Restaurants for Sale
Woodstock Retail Space for Lease
Woodstock Retail Space for Sale
Woodstock Shopping Centers for Lease
Woodstock Warehouses for Lease
Woodstock Warehouses for Sale

Popular Searches in and around Woodstock

- Addison Warehouses for Lease
Algonquin Restaurants for Sale
Algonquin Retail Space for Lease
Algonquin Shopping Centers for Lease
Barrington Office Space for Lease
Bloomingdale Shopping Centers for Lease
Buffalo Grove Warehouses for Lease
Chicago Apartment Buildings for Sale
Chicago Automotive Properties for Lease
Chicago Duplexes/Fourplexes for Sale
Chicago Industrial Properties for Sale
Chicago Land for Sale
Chicago Restaurants for Lease
Chicago Restaurants for Sale
Chicago Retail Space for Lease
Chicago Retail Space for Sale
Chicago Shopping Centers for Sale
Chicago Warehouses for Lease
Chicago Warehouses for Sale
Crystal Lake Industrial Properties for Lease
Crystal Lake Land for Sale
Crystal Lake Office Space for Lease
Crystal Lake Retail Space for Lease
Crystal Lake Shopping Centers for Lease
Crystal Lake Warehouses for Lease
Elgin Warehouses for Lease
Elk Grove Village Warehouses for Lease



1143 Seminary Ave
Woodstock, Illinois
LEASE FROM 337 TO 6700 SQ FT OR
FOR SALE \$645,000 ATTRACTIVE
BRICK QUAD LEVEL OFFICE
BUILDING WITH OVER 6700SQ FT
LOCATED ON BUSY ILLINOIS
ROUTE...

Status: Active
Price: Not Disclosed
Bldg. Size: 337 SF
Cap Rate: N/A
Primary Type: Office
Sub-Type: Office Building



1143 Seminary Ave
Woodstock, Illinois
OFFICE/MEDICAL FOR SALE/LEASE
ATTRACTIVE BRICK & CONCRETE
QUAD/4 LEVEL BUILDING WITH OVER
6703 SF. W/MEETING/CONFERENCE
ROOMS. LOCATED ON BUSY...

Status: Active
Price: \$645,000
Bldg. Size: 6,703 SF
Cap Rate: N/A
Primary Type: Office
Sub-Type: Office Building



No Photo

701 S. Eastwood Drive
Woodstock, Illinois
Great exposure along Route 47 in the
heart of Woodstock. Approx. 2,000
square feet of open span retail or office
space...Building face will allow...

Status: Active
No. Spaces: Fully Leased
Rental Rate: N/A
Space Available: Fully Leased
Bldg. Size: 2,000 SF
Primary Type: Retail
Sub-Type: Retail (Other)



Office Property
Woodstock, Illinois
FOR SALE/ LEASE
MEDICAL/PROFESSIONAL
BUILDING/CONDOS FOR LEASE
FROM 150sf UP TO 6703sf OR FOR
SALE \$645,000 ATTRACTIVE BRICK
AND CONCRETE QUAD...

Status: Active
No. Spaces: 2
Rental Rate: \$11.00 - \$14.24
Space Available: 337 - 6,703 SF
Bldg. Size: 6,703 SF
Primary Type: Office
Sub-Type: Office Building



1143 Seminary
Woodstock, Illinois
FOR SALE/ LEASE
MEDICAL/PROFESSIONAL
BUILDING/CONDOS FOR LEASE
FROM 150sf UP TO 6703sf OR FOR
SALE \$645,000 ATTRACTIVE BRICK
AND CONCRETE QUAD...

Status: Active
Price: \$645,000
Bldg. Size: 6,703 SF
Cap Rate: N/A
Primary Type: Office
Sub-Type: Office Building



Office Building
Woodstock, Illinois
Very well maintained Office Building.
Located in Lakeshore Business Park
with easy access to Route 14 between
Woodstock and Crystal Lake...

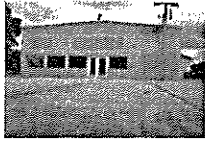
Status: Active
Price: \$495,000
Bldg. Size: 5,322 SF
Cap Rate: N/A
Primary Type: Office
Sub-Type: Office Building



**Industrial Property**  
Woodstock, Illinois  
540,000 square foot industrial warehouse and manufacturing facility on approximately 30 acres.

**Status:** Active  
**Price:** Not Disclosed  
**Bldg. Size:** 540,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing

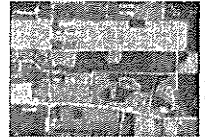
Fox River Grove Retail Space for Lease  
Gurnee Warehouses for Lease  
Gurnee Warehouses for Sale  
Huntley Flex Space for Lease  
Huntley Land for Sale



**Industrial Property**  
Woodstock, Illinois  
Single story warehouse with 4 drive-in doors and 20 surface parking spaces. Property sits on just under 1 acre of land. The property is in good...

**Status:** Active  
**Price:** \$325,000  
**Bldg. Size:** 16,771 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Distribution Warehouse

Huntley Retail Space for Lease  
Lake in the Hills Warehouses for Lease  
Libertyville Warehouses for Lease  
McHenry Flex Space for Lease  
McHenry Office Space for Lease  
McHenry Retail Space for Lease



**63.77 Acres - Development Parcel**  
Woodstock, Illinois  
Choice development parcel directly across from Thoroughbred Estates. Zoning is presently E - 1 in McHenry County. Additional PIN 08-26-100-025.

**Status:** Active  
**Price:** \$449,000  
**Lot Size:** 63.77 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)

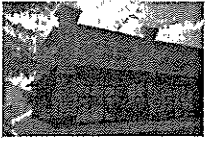
McHenry Retail Space for Sale  
McHenry Shopping Centers for Lease  
McHenry Warehouses for Lease  
Naperville Flex Space for Lease  
Naperville Retail Space for Sale



**140 S Cass St**  
Woodstock, Illinois  
Best use for restaurant. Can be converted to office or retail as well.

**Status:** Active  
**Price:** \$350,000  
**Bldg. Size:** 7,440 SF  
**Cap Rate:** N/A  
**Primary Type:** Retail  
**Sub-Type:** Retail (Other)

Rockford Shopping Centers for Lease  
Schaumburg Office Space for Lease  
Schaumburg Warehouses for Lease  
Streamwood Retail Space for Sale  
Waukegan Retail Space for Sale  
Waukegan Warehouses for Lease



**Retail Property**  
Woodstock, Illinois  
Three prime commercial spaces available. Ideal for office / retail use. Brick building. Awnings over entrances. Separate utilities. Space 1200...

**Status:** Active  
**No. Spaces:** 3  
**Rental Rate:** \$12.00  
**Space Available:** 1,156 - 2,312 SF  
**Bldg. Size:** 3,944 SF  
**Primary Type:** Retail  
**Sub-Type:** Strip Center

**Commercial Real Estate in Popular Cities**

Addison  
Algonquin  
Alsip  
Arlington Heights  
Atlanta  
Aurora  
Bakersfield  
Barrington  
Bensenville  
Bloomingdale  
Buffalo Grove



**6 - Unit Rental**  
Woodstock, Illinois  
This 6 unit rental building is a great investment opportunity. Well maintained, there is a newer roof, vinyl siding, newer decks, a large 3 car...

**Status:** Active  
**Price:** \$384,000  
**Bldg. Size:** 3,608 SF  
**Units:** 6  
**Cap Rate:** N/A  
**Primary Type:** Multifamily  
**Sub-Type:** Mid/High-Rise

Cary  
Charlotte  
Chicago  
Crystal Lake  
Dallas  
Des Plaines  
Downers Grove  
Elgin  
Elk Grove Village



**Land**  
Woodstock, Illinois  
37 rolling acres with two ponds, outbuildings, and upscale, 1,660 sq. ft. double-wide mobile home. Zoned Ag and currently used as a landscape...

**Status:** Active  
**Price:** \$450,000  
**Lot Size:** 37.00 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)

Gurnee  
Harvard  
Houston  
Huntley  
Indianapolis  
Jacksonville  
Joliet  
Lake in the Hills



**Industrial Property**  
Woodstock, Illinois  
Nice and clean ready today. 4,000 square foot building. Has separate office and bathroom. Service door and 10' x 10' overhead door on north...

**Status:** Active  
**Price:** \$172,000  
**Bldg. Size:** 4,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing

Lake Zurich  
Las Vegas  
Libertyville  
Long Beach  
Los Angeles  
Macon  
McHenry  
Memphis



**Office Condo**  
Woodstock, Illinois  
For Sale Office Condo Unit! 2,058 square foot office. Convenient West side location, close to schools, shopping. \*\*\*Commission is also is -\$250...

**Status:** Active  
**Price:** \$285,000  
**Bldg. Size:** 2,058 SF  
**Cap Rate:** N/A  
**Primary Type:** Office  
**Sub-Type:** Office Condo

Mokena  
Mundelein  
Naperville  
Orland Park  
Phoenix  
Plainfield  
Racine  
Rockford  
Saint Charles  
Schaumburg  
Sycamore  
Tampa



**Industrial Property**  
Woodstock, Illinois  
5,000 square foot industrial space or storage space. Open floor plan with no columns. 2 - 12 foot overhead doors. Completely insulated. ...

**Status:** Active  
**Price:** \$175,000  
**Bldg. Size:** 5,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing



**Shoppes of Centerville**  
Woodstock, Illinois  
1,640 sf of prime retail space available in this 9,740 sf retail center. Vanilla box condition. Open area is 27' wide x 50' deep. Back area has...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$15.00  
**Space Available:** 1,600 SF  
**Bldg. Size:** 1,600 SF  
**Primary Type:** Retail  
**Sub-Type:** Neighborhood Center



**Industrial Property**  
Woodstock, Illinois  
6,000 square foot industrial space or storage space. Open floor plan with no columns. 2 - 12 ft. overhead doors. Completely insulated. ...

**Status:** Active  
**Price:** \$375,000  
**Bldg. Size:** 6,000 SF  
**Cap Rate:** N/A  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing





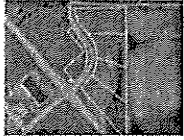
**Provident Building**  
Woodstock, Illinois  
Commercial Building - Retail | Office | Storage  
Provident Building 2 Street  
Retail units with long term lease 6 Small  
Office units with long term...

**Status:** Active  
**Price:** \$438,400  
**Bldg. Size:** 6,400 SF  
**Cap Rate:** 8.20%  
**Primary Type:** Retail  
**Sub-Type:** Street Retail

Wauconda  
Waukegan

**Commerical Real Estate in Popular States**

- Alabama
- Arizona
- California
- Colorado
- Florida
- Georgia
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Maryland
- Michigan
- Missouri
- Nevada
- New Jersey
- New York
- North Carolina
- Ohio
- Oregon
- Pennsylvania
- South Carolina
- Tennessee
- Texas
- Virginia
- Wisconsin



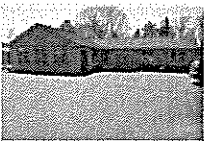
**7+ Acres on Route 14**  
Woodstock, Illinois  
7+ acres with frontage on Rt. 14. This will be a lighted corner with a traffic light and turn lanes. There are several lots so division or...

**Status:** Active  
**Price:** \$325,000  
**Lot Size:** 7.93 Acres  
**Primary Type:** Land  
**Sub-Type:** Commercial/Other (land)



**Agricultural Property**  
Woodstock, Illinois  
Zoned A-1 this beautiful 26 acre parcel is on IL Rt 47 just south of Woodstock and minutes to I-90. Bring your imagination, the property includes...

**Status:** Active  
**Price:** \$235,000  
**Lot Size:** 26.00 Acres  
**Primary Type:** Agricultural  
**Sub-Type:** Agricultural



**Office Property**  
Woodstock, Illinois  
Prime location in Woodstock on Lake Avenue! Plenty of parking, office building in perfect condition, large reception area, basement increases...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$12.00  
**Space Available:** 2,525 SF  
**Bldg. Size:** 2,525 SF  
**Primary Type:** Office  
**Sub-Type:** Office-R&D



**Office Property**  
Woodstock, Illinois  
A sharp 800 sf office space ready to move in to. Features a large front office space of 16 x 35, a handicap accessible washroom and spacious...

**Status:** Active  
**No. Spaces:** Fully Leased  
**Rental Rate:** N/A  
**Space Available:** Fully Leased  
**Bldg. Size:** 5,000 SF  
**Primary Type:** Office  
**Sub-Type:** Office-R&D



**9.52 Acres ~ Trakk Industrial Park**  
Woodstock, Illinois  
9.52 acres site available in Woodstock's Trakk Industrial Park. Covenants available from listing office. Excellent location with direct access...

**Status:** Active  
**Price:** \$1,565,000  
**Lot Size:** 9.52 Acres  
**Primary Type:** Land  
**Sub-Type:** Industrial (land)



**13814 Washington St.**  
Woodstock, Illinois  
Modern industrial building in good location on state highway. 4 - 3,000 square foot units available. Each has 600 square feet of office space...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$3.00  
**Space Available:** 3,000 - 12,000 SF  
**Bldg. Size:** 12,000 SF  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing

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- Automotive Properties for Sale
- Churches for Sale
- Day Care Centers for Sale
- Duplexes/Fourplexes for Sale
- Farms for Sale
- Flex Space for Lease
- Flex Space for Sale
- Gas Stations for Sale
- Golf Courses for Sale
- Health Care Properties for Sale
- Hotels/Motels for Sale
- Industrial Properties for Lease
- Industrial Properties for Sale
- Land for Lease
- Land for Sale
- Marinas for Sale
- Medical Offices for Lease
- Medical Offices for Sale
- Mobile Home/RV Parks for Sale
- Office Space for Lease
- Office Space for Sale
- Residential Income Properties for Sale
- Restaurants for Lease
- Restaurants for Sale
- Retail Space for Lease
- Retail Space for Sale
- Self Storage Facilities for Sale
- Senior Housing Facilities for Sale
- Shopping Centers for Lease
- Shopping Centers for Sale
- Warehouses for Lease
- Warehouses for Sale

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- Bakersfield Apartment Buildings for Sale



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## Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois

Woodstock Commercial Real Estate for Sale and Lease - Woodstock, Illinois



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For Sale For Lease

All properties for sale Woodstock, IL Search Advanced search

All Property Types Illinois McHenry County Woodstock Sort

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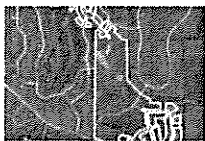
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- Woodstock Office Space for Lease
- Woodstock Office Space for Sale
- Woodstock Restaurants for Sale
- Woodstock Retail Space for Lease
- Woodstock Retail Space for Sale
- Woodstock Shopping Centers for Lease
- Woodstock Warehouses for Lease
- Woodstock Warehouses for Sale

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- Algonquin Restaurants for Sale
- Algonquin Retail Space for Lease
- Algonquin Shopping Centers for Lease
- Barrington Office Space for Lease
- Bloomington Shopping Centers for Lease
- Buffalo Grove Warehouses for Lease
- Chicago Apartment Buildings for Sale
- Chicago Automotive Properties for Lease
- Chicago Duplexes/Fourplexes for Sale
- Chicago Industrial Properties for Sale
- Chicago Land for Sale
- Chicago Restaurants for Lease
- Chicago Restaurants for Sale
- Chicago Retail Space for Lease
- Chicago Retail Space for Sale
- Chicago Shopping Centers for Sale
- Chicago Warehouses for Lease
- Chicago Warehouses for Sale
- Crystal Lake Industrial Properties for Lease
- Crystal Lake Land for Sale
- Crystal Lake Office Space for Lease
- Crystal Lake Retail Space for Lease
- Crystal Lake Shopping Centers for Lease
- Crystal Lake Warehouses for Lease
- Elgin Warehouses for Lease
- Elk Grove Village Warehouses for Lease



**Sanctuary of Bull Valley**  
Woodstock, Illinois  
92 finished single-family residential lots and 77 unfinished single-family residential lots.

**Status:** Active  
**Price:** Not Disclosed  
**Lot Size:** 70.70 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)



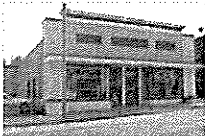
**Bull Valley Greens**  
Woodstock, Illinois  
Finished residential lots planned for 22 duplex units.

**Status:** Active  
**Price:** Not Disclosed  
**Lot Size:** 3.50 Acres  
**Primary Type:** Land  
**Sub-Type:** Residential (land)



**Industrial Property**  
Woodstock, Illinois  
Great opportunity at this sprinklered, southside location with an owner that will work with you! Units available IMMEDIATELY are 2302 & 2304. ...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$8.00  
**Space Available:** 2,100 - 4,200 SF  
**Bldg. Size:** 18,532 SF  
**Primary Type:** Industrial  
**Sub-Type:** Manufacturing



**Retail Property**  
Woodstock, Illinois  
1800 Sq. Ft. commercial, retail/office space downtown Woodstock. Front showroom is full of natural light and there is an office (12 x 12) and...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$8.00  
**Space Available:** 1,800 SF  
**Bldg. Size:** N/A  
**Primary Type:** Retail  
**Sub-Type:** Street Retail



**Office Property**  
Woodstock, Illinois  
The ultimate gross rental! This \$12.00 sq. ft. rental includes all the utilities - gas, electric, water, sewer, scavenger service and no CAM...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$12.00  
**Space Available:** 1,300 SF  
**Bldg. Size:** N/A  
**Primary Type:** Office  
**Sub-Type:** Office-R&D



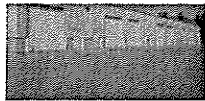
**Office Property**  
Woodstock, Illinois  
Overlooking the Woodstock Square, this building offers loads of second floor office space ranging from 150 - 3000 sf. A true gross lease, your...

**Status:** Active  
**No. Spaces:** 1  
**Rental Rate:** \$10.00  
**Space Available:** 150 - 3,000 SF  
**Bldg. Size:** N/A  
**Primary Type:** Office  
**Sub-Type:** Office-R&D



**1257 Cobblestone**  
Woodstock, Illinois

**Status:** Active  
**No. Spaces:** Fully Leased



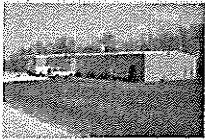
Industrial condo's available for lease. Municipal water and sewer, 200 amp three phase, gas heat, sprinkled building. 19 foot ceiling height, 12 x...

Rental Rate: N/A  
Space Available: Fully Leased  
Bldg. Size: 16,000 SF  
Primary Type: Industrial  
Sub-Type: Manufacturing



Office Property  
Woodstock, Illinois  
1200 SF Class "A" office space ready for occupancy. Included are 2 baths, kitchenette, 2 private offices & store room, fully carpeted & central...

Status: Active  
No. Spaces: 1  
Rental Rate: \$10.00  
Space Available: 1,200 SF  
Bldg. Size: 5,299 SF  
Primary Type: Office  
Sub-Type: Office-R&D



L & M Sheetmetal  
Woodstock, Illinois  
RARE FIND! Two large industrial buildings on 4.2 acres includes a single family rental property & barn. Main bldg.= 9000 sq ft (2000 sq ft...

Status: Active  
Price: \$799,900  
Bldg. Size: 12,000 SF  
Cap Rate: N/A  
Primary Type: Industrial  
Sub-Type: Manufacturing



L & M Sheetmetal  
Woodstock, Illinois  
RARE FIND! Two large industrial buildings on 4.2 acres includes a single family rental property & barn. Main bldg.= 9000 sq ft (2000 sq ft...

Status: Active  
Price: \$799,990  
Bldg. Size: 12,000 SF  
Cap Rate: N/A  
Primary Type: Industrial  
Sub-Type: Manufacturing



Northwest Suburbs Office Building  
Woodstock, Illinois  
Single story office building conveniently located between Woodstock and Crystal Lake, IL. This 7,600 sq. ft. office building is configured with...

Status: Active  
No. Spaces: 1  
Rental Rate: \$12.00  
Space Available: 7,600 SF  
Bldg. Size: 7,600 SF  
Primary Type: Office  
Sub-Type: Office Building



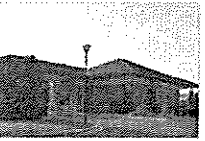
Office Property  
Woodstock, Illinois  
Single story office building conveniently located between Woodstock and Crystal Lake IL. This 7,600 sq ft office building is configured with six...

Status: Active  
Price: \$750,000  
Bldg. Size: 7,600 SF  
Cap Rate: N/A  
Primary Type: Office  
Sub-Type: Office Building



Centerville Plaza  
Woodstock, Illinois  
Centerville Plaza is a very busy retail center and home to Quizno's, Cost Cutters, Goodyear Tire, two dental offices and Blue Rose clothing store...

Status: Active  
No. Spaces: 1  
Rental Rate: \$12.00  
Space Available: 1,500 SF  
Bldg. Size: 1,500 SF  
Primary Type: Retail  
Sub-Type: Neighborhood Center



Former Bank Building near Jewel-Osco  
Woodstock, Illinois  
3,603 SF building with 4 drive thru lanes

Status: Active  
Price: Not Disclosed  
Bldg. Size: 4,043 SF  
Cap Rate: N/A  
Primary Type: Retail  
Sub-Type: Free Standing Bldg



2292 CASTLE Rd  
WOODSTOCK, Illinois  
One of a kind lot in prime location. South side of Woodstock, behind Menards. This lot is ideal for 13,000 sq. ft. industrial building. City...

Status: Active  
Price: \$198,000  
Lot Size: N/A  
Primary Type: Agricultural  
Sub-Type: Agricultural



1150-1530 Mc Connell Road  
Woodstock, Illinois  
Large land site, heavy power, divisible (10,000 SF; 20,000 SF; 40,000 SF; 50,000; 100,000 SF) Flexible on lease terms.

Status: Active  
No. Spaces: 1  
Rental Rate: \$24.00  
Space Available: 10,000 - 204,642 SF  
Bldg. Size: 204,642 SF  
Primary Type: Industrial  
Sub-Type: Warehouse



1150-1530 Mc Connell Road  
Woodstock, Illinois  
Large land site, heavy power, divisible (10,000 SF; 20,000 SF; 40,000 SF; 50,000; 100,000 SF) Flexible on lease terms.

Status: Active  
Price: \$2,855,000  
Bldg. Size: 204,642 SF  
Cap Rate: N/A  
Primary Type: Industrial  
Sub-Type: Warehouse



140 S Cass St  
Woodstock, Illinois  
Owner would consider Selling; Banquet space also available

Status: Active  
No. Spaces: 1  
Rental Rate: \$7.50  
Space Available: 7,440 SF  
Bldg. Size: 7,440 SF  
Primary Type: Retail  
Sub-Type: Retail (Other)

Fox River Grove Retail Space for Lease  
Gurnee Warehouses for Lease  
Gurnee Warehouses for Sale  
Huntley Flex Space for Lease  
Huntley Land for Sale  
Huntley Retail Space for Lease  
Lake in the Hills Warehouses for Lease  
Libertyville Warehouses for Lease  
McHenry Flex Space for Lease  
McHenry Office Space for Lease  
McHenry Retail Space for Lease  
McHenry Retail Space for Sale  
McHenry Shopping Centers for Lease  
McHenry Warehouses for Lease  
Naperville Flex Space for Lease  
Naperville Retail Space for Sale  
Rockford Shopping Centers for Lease  
Schaumburg Office Space for Lease  
Schaumburg Warehouses for Lease  
Streamwood Retail Space for Sale  
Waukegan Retail Space for Sale  
Waukegan Warehouses for Lease

Commercial Real Estate in Popular Cities

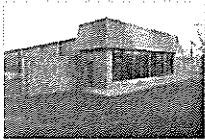
Addison  
Algonquin  
Alsip  
Arlington Heights  
Atlanta  
Aurora  
Bakersfield  
Barrington  
Bensenville  
Bloomingdale  
Buffalo Grove  
Cary  
Charlotte  
Chicago  
Crystal Lake  
Dallas  
Des Plaines  
Downers Grove  
Elgin  
Elk Grove Village  
Gurnee  
Harvard  
Houston  
Huntley  
Indianapolis  
Jacksonville  
Joliet  
Lake in the Hills  
Lake Zurich  
Las Vegas  
Libertyville  
Long Beach  
Los Angeles  
Macon  
McHenry  
Memphis  
Mokena  
Mundelein  
Naperville  
Orland Park  
Phoenix  
Plainfield  
Racine  
Rockford  
Saint Charles  
Schaumburg  
Sycamore  
Tampa





**Woodstock Retail Center**  
Woodstock, Illinois  
Jewel/Osco is now open as the anchor at this new retail development located at Route 47 and Country Club Road in Woodstock, Illinois.

Status: Active  
No. Spaces: 3  
Rental Rate: N/A  
Space Available: 1,340 - 6,400 SF  
Bldg. Size: 122,086 SF  
Primary Type: Retail  
Sub-Type: Neighborhood Center



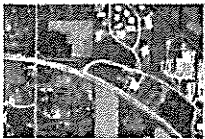
**Benoy Motors**  
Woodstock, Illinois  
The property is a triangular site containing 37,897 sf. The site is improved with a 9,519sf metal panel building that has been used as additional...

Status: Active  
Price: \$700,000  
Bldg. Size: 9,159 SF  
Cap Rate: N/A  
Primary Type: Industrial  
Sub-Type: Distribution Warehouse



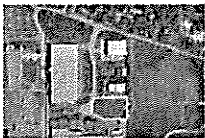
**Cold Headers Indl Park**  
Woodstock, Illinois  
Cold Header Industrial Park - 4 Lots available. Will divide down to 1.1 acres. Fully Improved.

Status: Active  
Price: \$696,960  
Lot Size: 6.40 Acres  
Primary Type: Land  
Sub-Type: Commercial/Other (land)



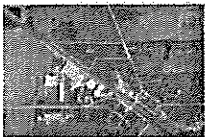
**Commercial Highway Intersection Land**  
Woodstock, Illinois  
Big price cut! Corner exposure at the intersection of two highways! 4.046-acre vacant site at the northeast corner of US Route 14 and IL Route...

Status: Active  
Price: \$299,000  
Lot Size: 4.05 Acres  
Primary Type: Land  
Sub-Type: Commercial/Other (land)



**Woodstock Industrial Lot**  
Woodstock, Illinois  
This 1.25 acre, fully improved vacant industrial lot is now priced at only \$3.49 per SF. Lot is located in a well-established industrial park...

Status: Active  
Price: \$190,000  
Lot Size: 1.25 Acres  
Primary Type: Land  
Sub-Type: Industrial (land)



**17.35 Vacant Industrial Acres**  
Woodstock, Illinois  
Rare county zoned industrial parcel. Total of 17.35 acres available at \$2.32 per SF. Rear of property backs up to Union Pacific RR tracks --...

Status: Active  
Price: \$1,750,000  
Lot Size: 2.00 - 17.35 Acres  
Primary Type: Land  
Sub-Type: Industrial (land)



**Cold Headers Industrial Park**  
Woodstock, Illinois  
FULLY IMPROVED INDUSTRIAL PARK. READY TO BUILD SITES. LOW McHENRY COUNTY TAXES. ACROSS FROM BULL VALLEY 18 HOLE GOLF COURSE. CHOICE LOTS...

Status: Active  
Price: \$1,840,000  
Lot Size: 11.25 Acres  
Primary Type: Land  
Sub-Type: Industrial (land)

Page: 1 | 2 | 3 | 4 | 5 | 6 [NEXT PAGE](#)

## See the Latest Woodstock Commercial Real Estate Listings:

Start a search to see ALL Woodstock Commercial MLS listings for sale and lease.

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### About LoopNet Woodstock Commercial Real Estate

More brokers, property owners and other commercial real estate investors come to use LoopNet.com for selling and buying commercial real estate online. This is what makes LoopNet the professional's choice for finding Woodstock, Illinois commercial real estate. LoopNet has a broad selection of properties for sale and the largest viewership of commercial real estate buyers, investors and other professionals. To access all of the hundreds of thousands of commercial properties for sale and for lease in Woodstock and throughout the U.S. and Internationally, become a LoopNet member today. LoopNet is also the best source online for finding land for sale for your commercial project.

LoopNet operates the most heavily trafficked listing service for Woodstock commercial real estate and other markets in the U.S. and Canada with more than \$425 billion of total commercial real estate for sale and 6.3 billion sq. ft. of commercial real estate space for lease. LoopNet also attracts a large community of Woodstock commercial real estate professionals with more than 7 million members comprised of brokers, corporate executives, service providers, and more than 3 million buyers, tenants and other principals throughout the U.S. and Canada.

LoopNet's Woodstock commercial real estate listings include farms, multifamily apartments, office buildings, retail space, vacant land, hotels and motels, gas stations, warehouses, restaurants for lease and much more.

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See Illinois Commercial Real Estate for Sale

Find Commercial Real Estate by ZIP Code

Wauconda  
Waukegan

### Commercial Real Estate in Popular States

Alabama  
Arizona  
California  
Colorado  
Florida  
Georgia  
Illinois  
Indiana  
Iowa  
Kansas  
Kentucky  
Maryland  
Michigan  
Missouri  
Nevada  
New Jersey  
New York  
North Carolina  
Ohio  
Oregon  
Pennsylvania  
South Carolina  
Tennessee  
Texas  
Virginia  
Wisconsin

### Popular Property Type Searches

Anchor Properties for Lease  
Anchor Properties for Sale  
Apartment Buildings for Sale  
Automotive Properties for Lease  
Automotive Properties for Sale  
Churches for Sale  
Day Care Centers for Sale  
Duplexes/Fourplexes for Sale  
Farms for Sale  
Flex Space for Lease  
Flex Space for Sale  
Gas Stations for Sale  
Golf Courses for Sale  
Health Care Properties for Sale  
Hotels/Motels for Sale  
Industrial Properties for Lease  
Industrial Properties for Sale  
Land for Lease  
Land for Sale  
Marinas for Sale  
Medical Offices for Lease  
Medical Offices for Sale  
Mobile Home/RV Parks for Sale  
Office Space for Lease  
Office Space for Sale  
Residential Income Properties for Sale  
Restaurants for Lease  
Restaurants for Sale  
Retail Space for Lease  
Retail Space for Sale  
Self Storage Facilities for Sale  
Senior Housing Facilities for Sale  
Shopping Centers for Lease  
Shopping Centers for Sale  
Warehouses for Lease  
Warehouses for Sale

### Search by Property Type in Other Locations

Atlanta Apartment Buildings for Sale  
Bakersfield Apartment Buildings for Sale



# CITY OF WOODSTOCK, ILLINOIS OFFICIAL ZONING MAP

NORTH PROJECT LIMITS  
EXTEND OUTSIDE MAP INTO  
UNINCORPORATED  
MCHENRY COUNTY

PROJECT  
LIMITS

**THE OFFICIAL ZONING MAP  
OF THE CITY OF WOODSTOCK, ILLINOIS  
(As Amended)**

Approved and Adopted by City Council of the City of Woodstock, Illinois this 5<sup>th</sup> of December 2006 as part of the Ordinance Number 06-Q-93.

Zoning Categories and Districts	Abbreviation	Minimum Lot Size
• Agriculture District	AG	5 acres
• Estate District	E	1 acre
• Single Family Detached Residential District	R	7,200
• Single Family Detached Residential District	R1B	8,500 s.f.
• Single Family Detached Residential District	R1C	10,000 s.f.
• Single Family Detached Residential District	R1D	20,000 s.f.
• Single Family Attached Residential District	R3	(see Table 7A.2 of Unified Development Ordinance)
• Multiple Family Residential District	R4	(see Table 7A.2 of Unified Development Ordinance)
• Neighborhood Business District	B1	5,000 s.f.
• General Business District	B2	10,000 s.f.
• Central Business District	B2C	2,000 s.f.
• Service & Retail District	B3	5,000 s.f.
• Office District	B4	10,000 s.f.
• Shopping Center District	B5	20,000 s.f.
• Light Manufacturing District	M1	20,000 s.f.
• Heavy Manufacturing District	M2	40,000 s.f.
• Planned Unit Development	PUD	-
• Special Unit Permit	S	-

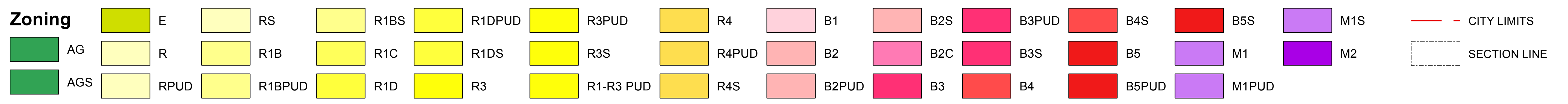
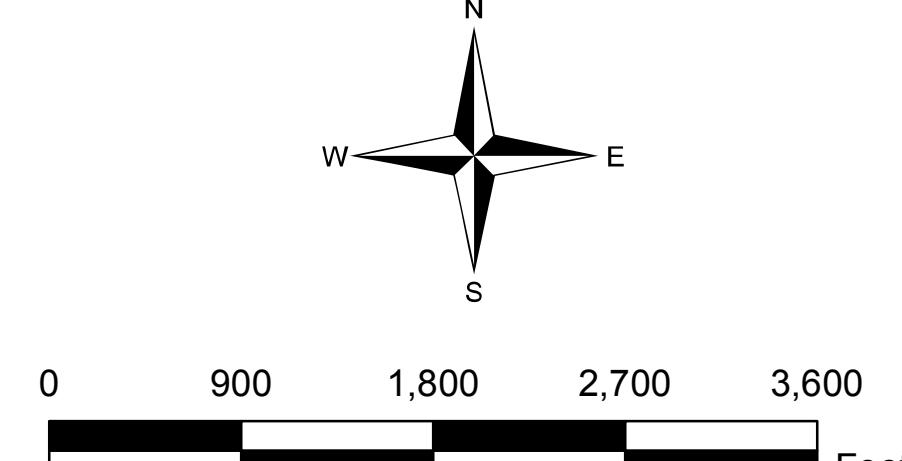


Exhibit 4.2-4  
Woodstock Zoning Map

I:\City\GIS\WOODSTOCK\General\GIS\WOODSTOCK\_Zoning\_color.mxd 5/2/2015 9:28:20 AM



# Land Use Map

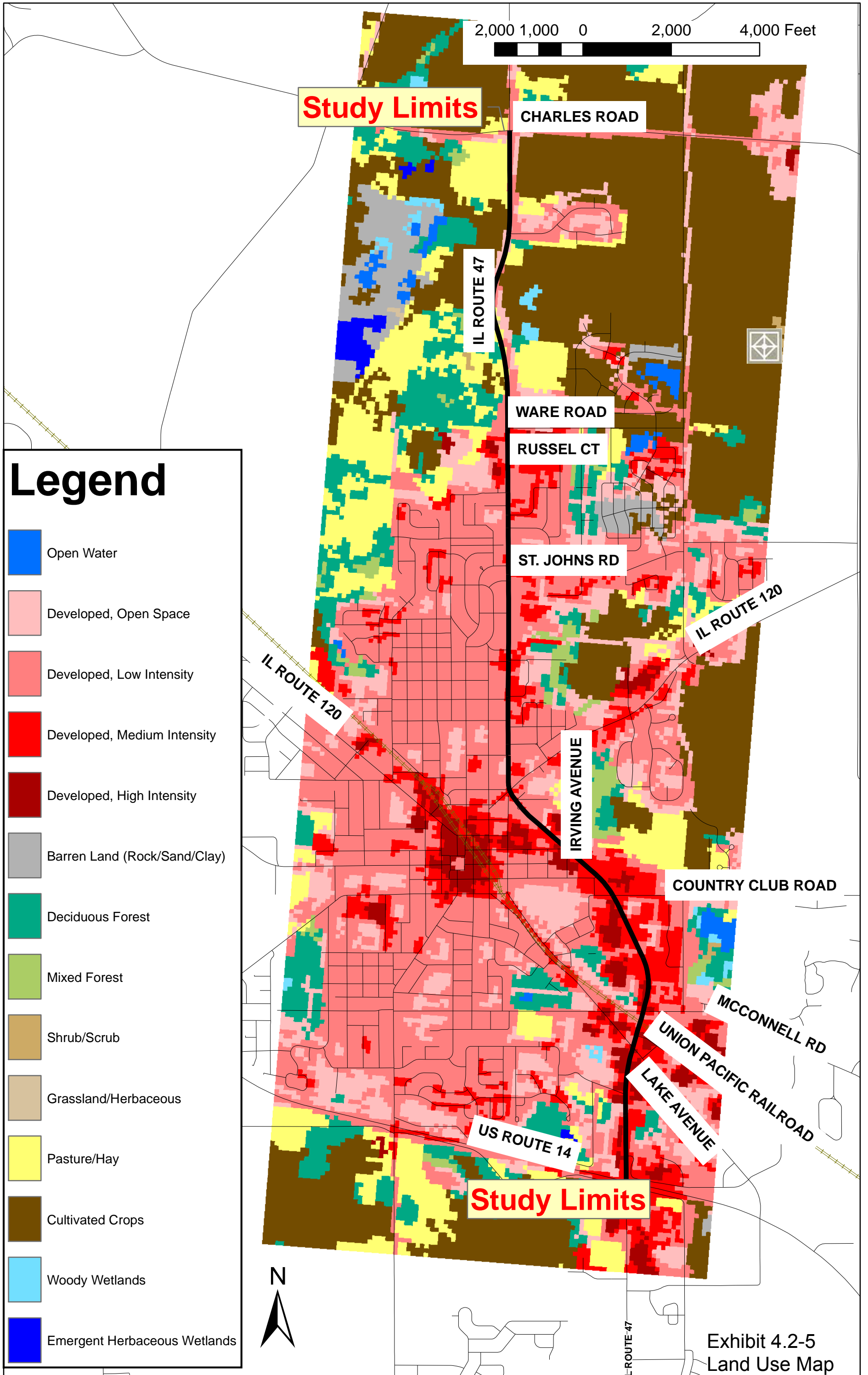
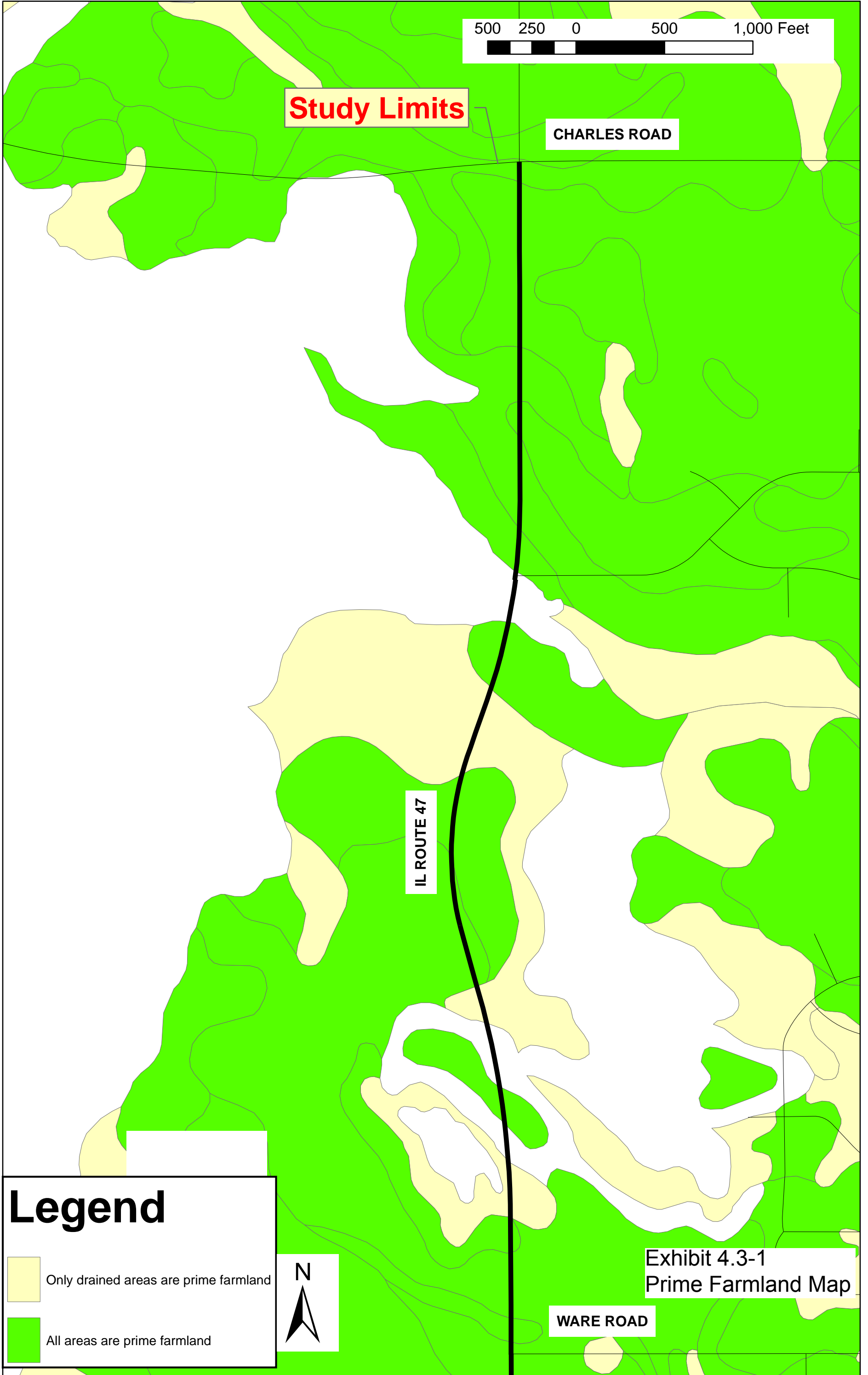


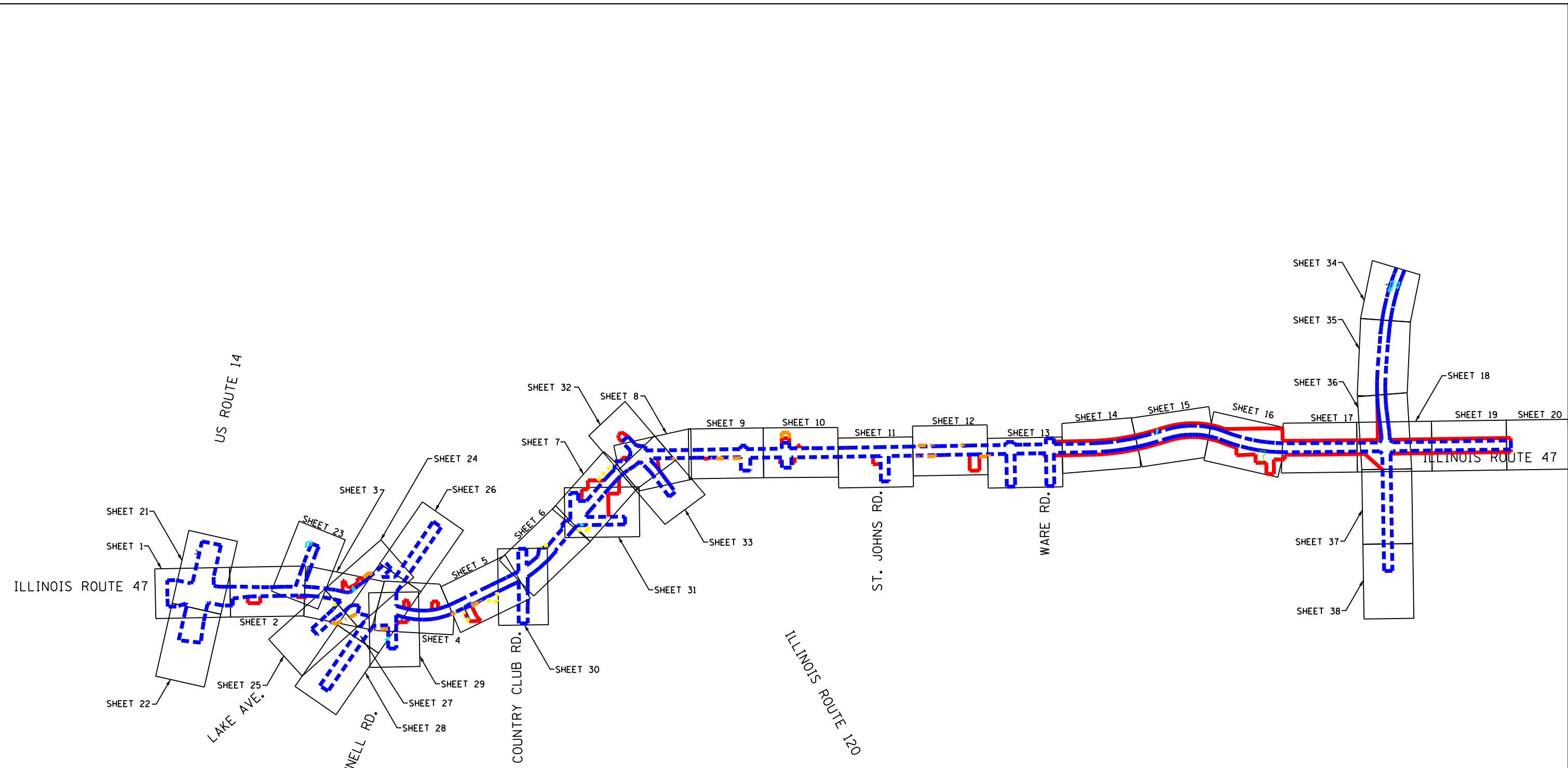
Exhibit 4.2-5  
Land Use Map



# Prime Farmland Map



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LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 2000.0000' / in.	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

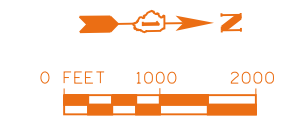
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

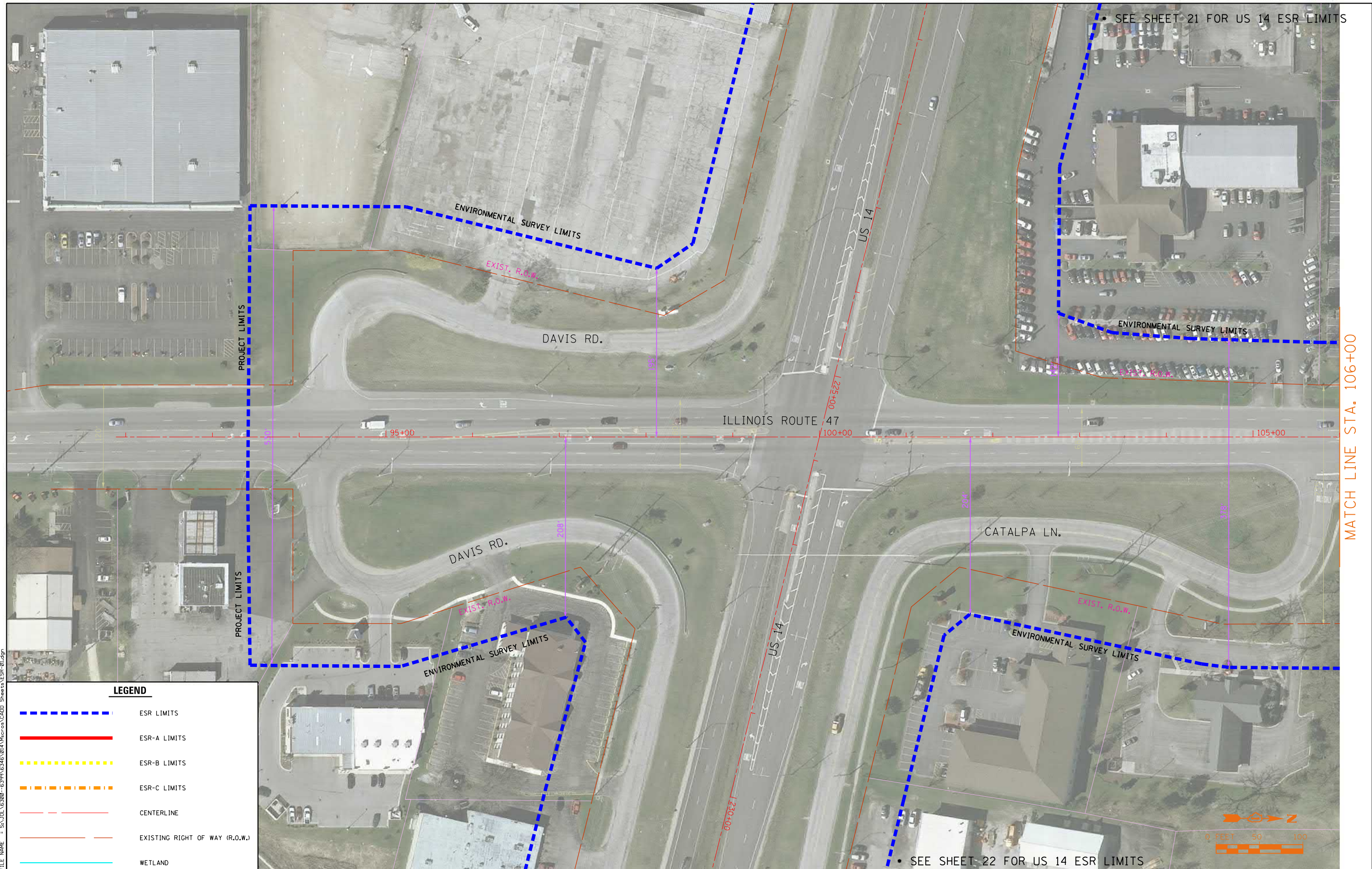
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

Exhibit 4.4-1  
 Environmental Survey  
 Request Limits





SEE SHEET 21 FOR US 14 ESR LIMITS



MATCH LINE STA. 106+00

SEE SHEET 22 FOR US 14 ESR LIMITS

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**LEGEND**

- - - - - ESR LIMITS
- - - - - ESR-A LIMITS
- - - - - ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- - - - - WETLAND

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JULIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	1
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



• SEE SHEET 23 FOR SOUTHVIEW ESR LIMITS

MATCH LINE STA. 106+00

MATCH LINE STA. 121+00

ENVIRONMENTAL SURVEY LIMITS

EXIST. R.O.W.

ILLINOIS ROUTE 47

110+00

115+00

120+00

EXIST. R.O.W.

ENVIRONMENTAL SURVEY LIMITS







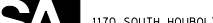
ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

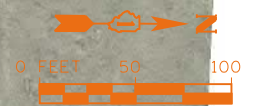
ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

135

249

**LEGEND**

-  ESR LIMITS
-  ESR-A LIMITS
-  ESR-B LIMITS
-  ESR-C LIMITS
-  CENTERLINE
-  EXISTING RIGHT OF WAY (R.O.W.)
-  WETLAND



FILE NAME = SA\JOL\63800-6399\6346\014\Micro\CA00 Sheets\ESR-02.dgn



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

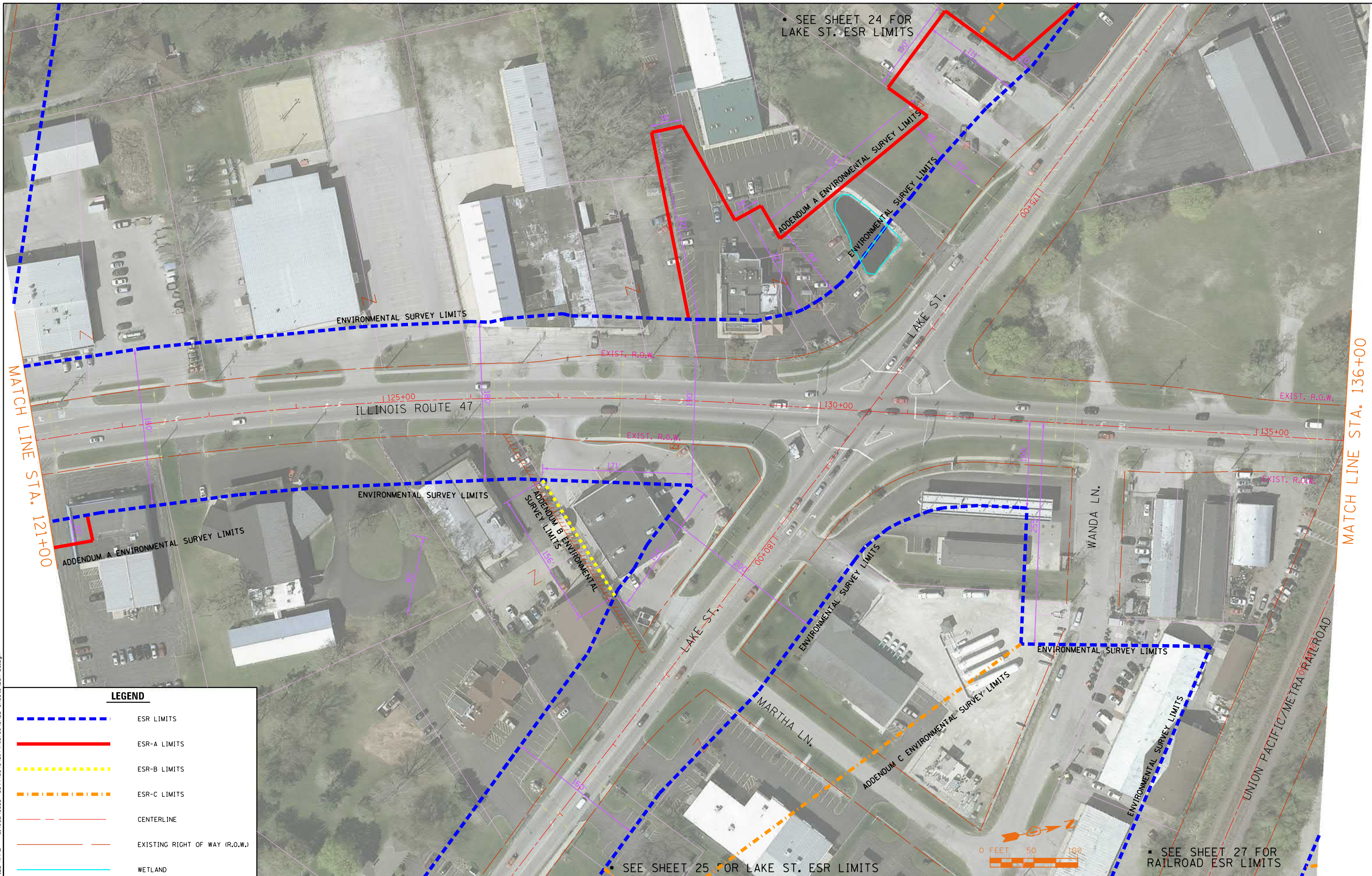
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	2
CONTRACT NO.			ILLINOIS FED. AID PROJECT	





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**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JULIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

DESIGNED -	REVISED -
DRAWN -	REVISED -
CHECKED -	REVISED -
DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	3
CONTRACT NO.			ILLINOIS FED. AID PROJECT	

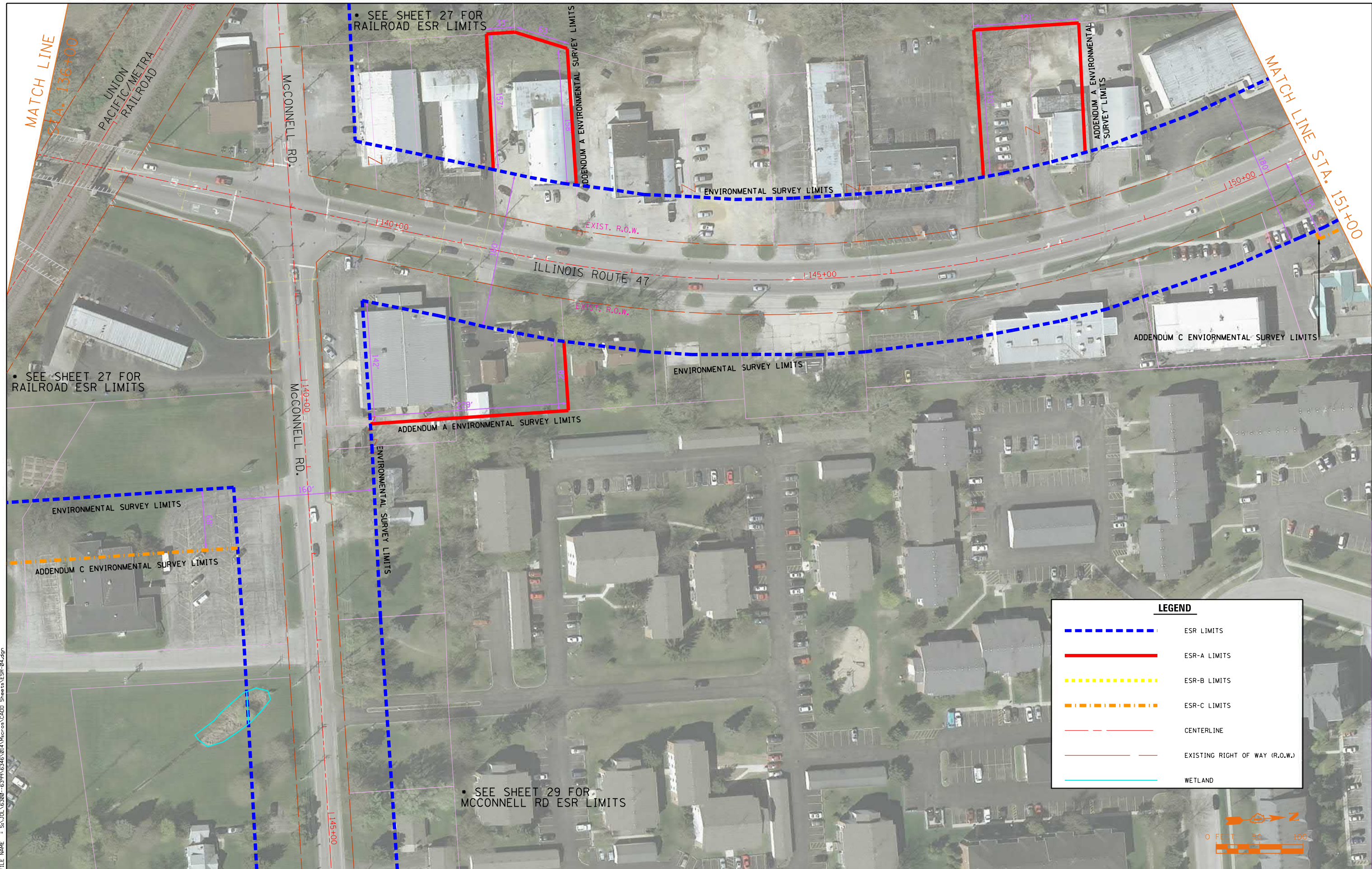
• SEE SHEET 24 FOR LAKE ST. ESR LIMITS

• SEE SHEET 25 FOR LAKE ST. ESR LIMITS

• SEE SHEET 27 FOR RAILROAD ESR LIMITS







\* SEE SHEET 27 FOR RAILROAD ESR LIMITS

\* SEE SHEET 27 FOR RAILROAD ESR LIMITS

\* SEE SHEET 27 FOR RAILROAD ESR LIMITS

\* SEE SHEET 29 FOR MCCONNELL RD ESR LIMITS

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CA0D Sheets\ESR-04.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

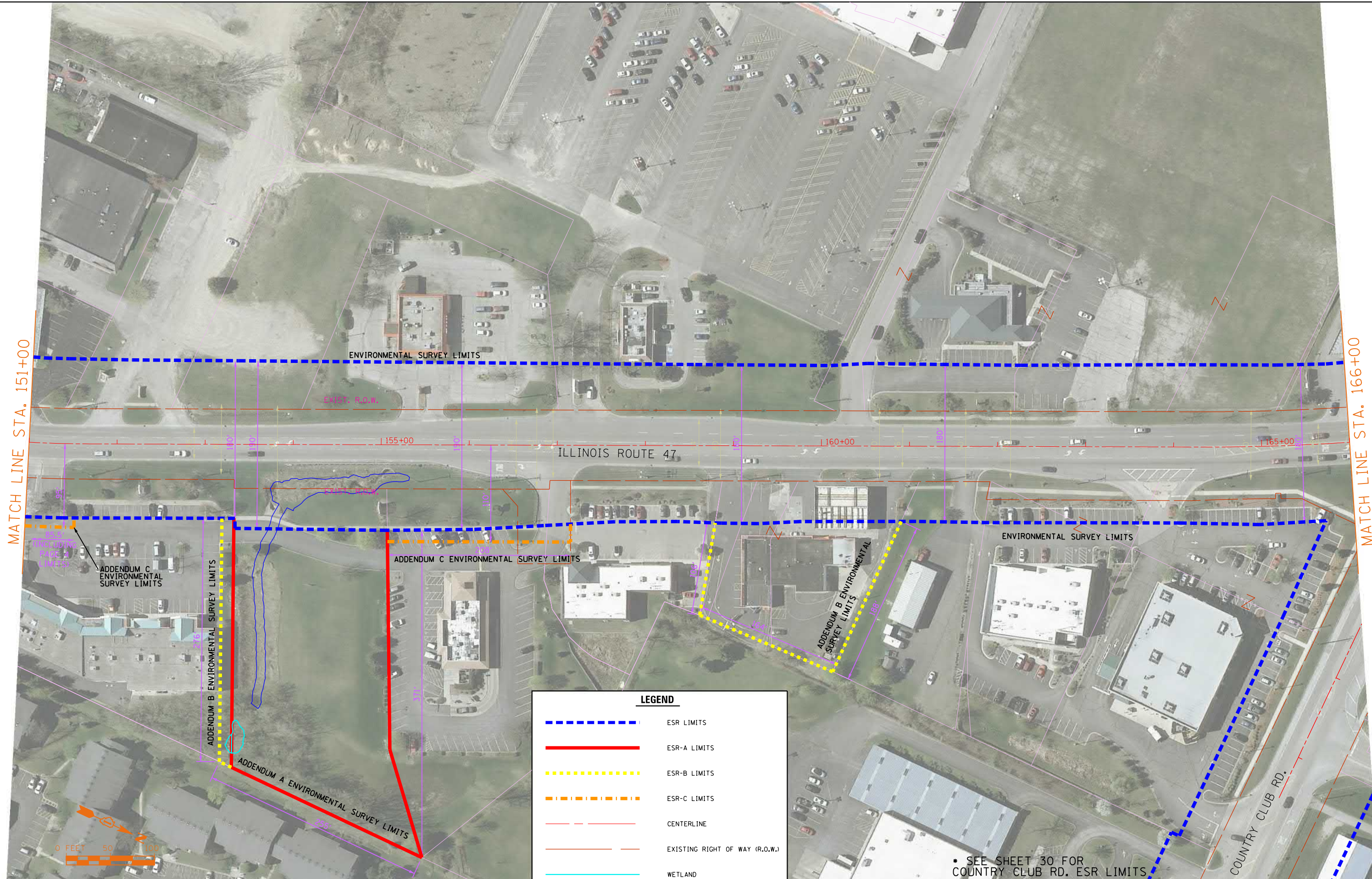
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PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

<b>ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST</b>			
SCALE: N-T-S	SHEET	OF SHEETS	STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	4
CONTRACT NO.			ILLINOIS FED. AID PROJECT	





FILE NAME = SA\JUL16300-6399\6346\014\Micro\CA00 Sheets\ESR-05.dgn

**SA**  
**STRAND**  
 ASSOCIATES

1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P  
 DESIGNED -  
 DRAWN -  
 CHECKED -  
 DATE -  
 PLOT SCALE = 100.0000' / 1" =  
 PLOT DATE = 5/26/2017

DESIGNED -  
 DRAWN -  
 CHECKED -  
 DATE -

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

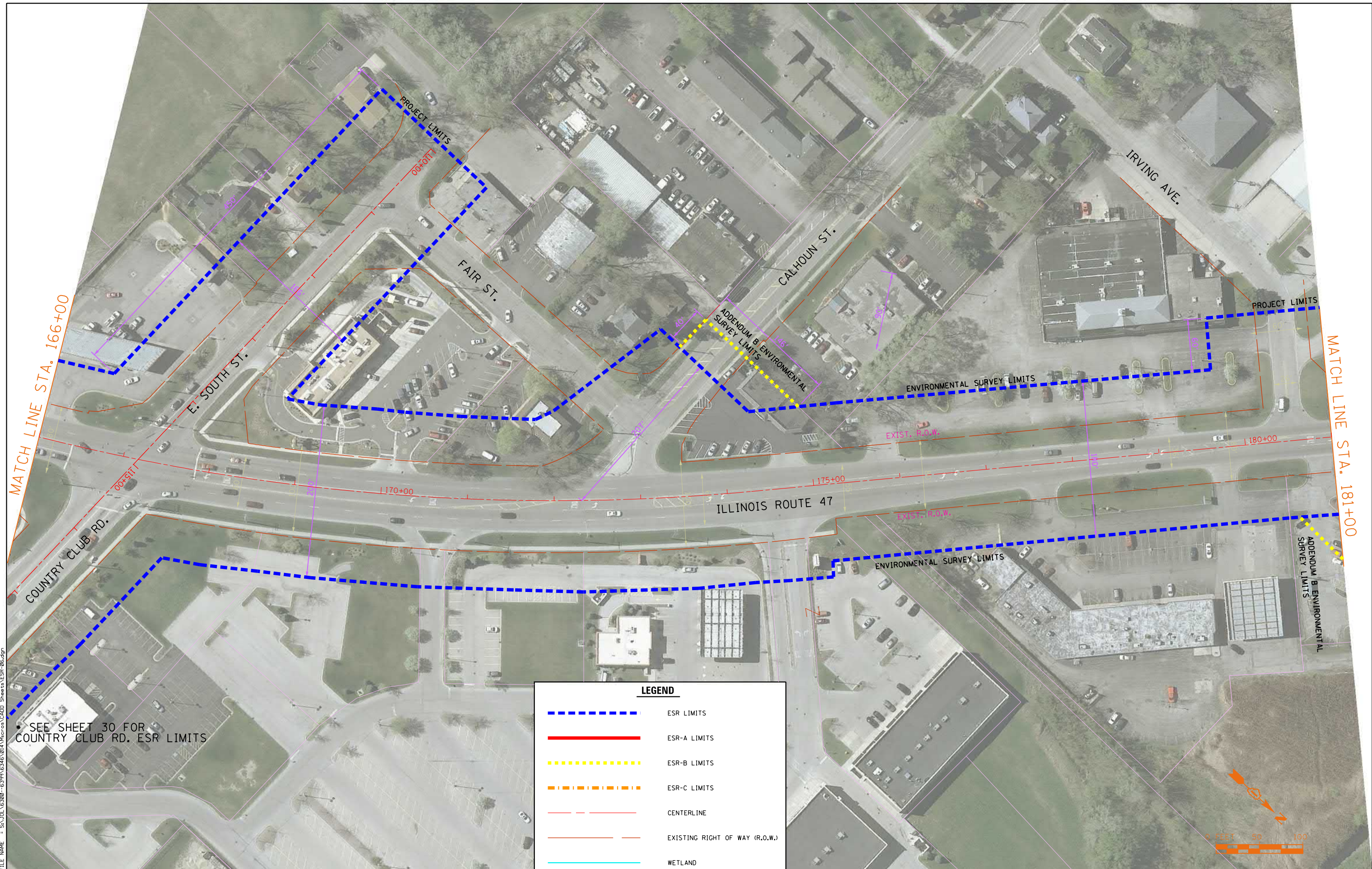
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**  
 SCALE: N-T-S SHEET OF SHEETS STA. TO STA.

SEE SHEET 30 FOR COUNTRY CLUB RD. ESR LIMITS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	5
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





FILE NAME = SA\JUL163800-6399\6346\014\Micro\CAD\ Sheets\ESR-06.dgn

SEE SHEET 30 FOR COUNTRY CLUB RD. ESR LIMITS

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	6
CONTRACT NO.			ILLINOIS FED. AID PROJECT	







• SEE SHEET 32 FOR  
IL 120/McHENRY AVE.  
ESR LIMITS

ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

ENVIRONMENTAL SURVEY LIMITS

ENVIRONMENTAL SURVEY LIMITS

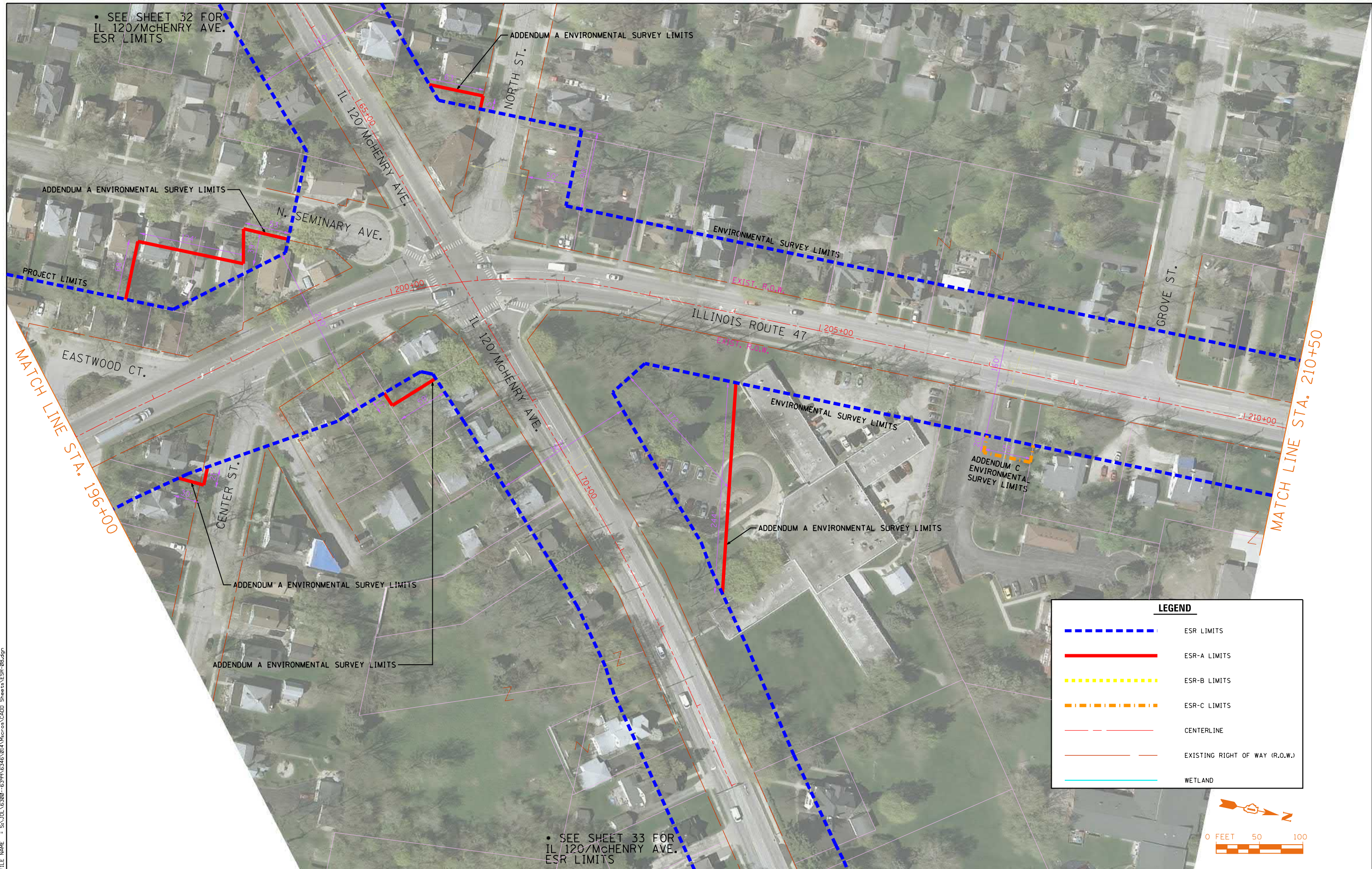
ADDENDUM C  
ENVIRONMENTAL  
SURVEY LIMITS

ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

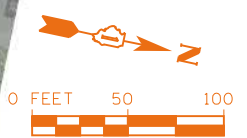
ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

• SEE SHEET 33 FOR  
IL 120/McHENRY AVE.  
ESR LIMITS



LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



FILE NAME = SA\JOL\63800-6399\6346\014\Micro\CaDD Sheets\ESR-08.dgn

**SA STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

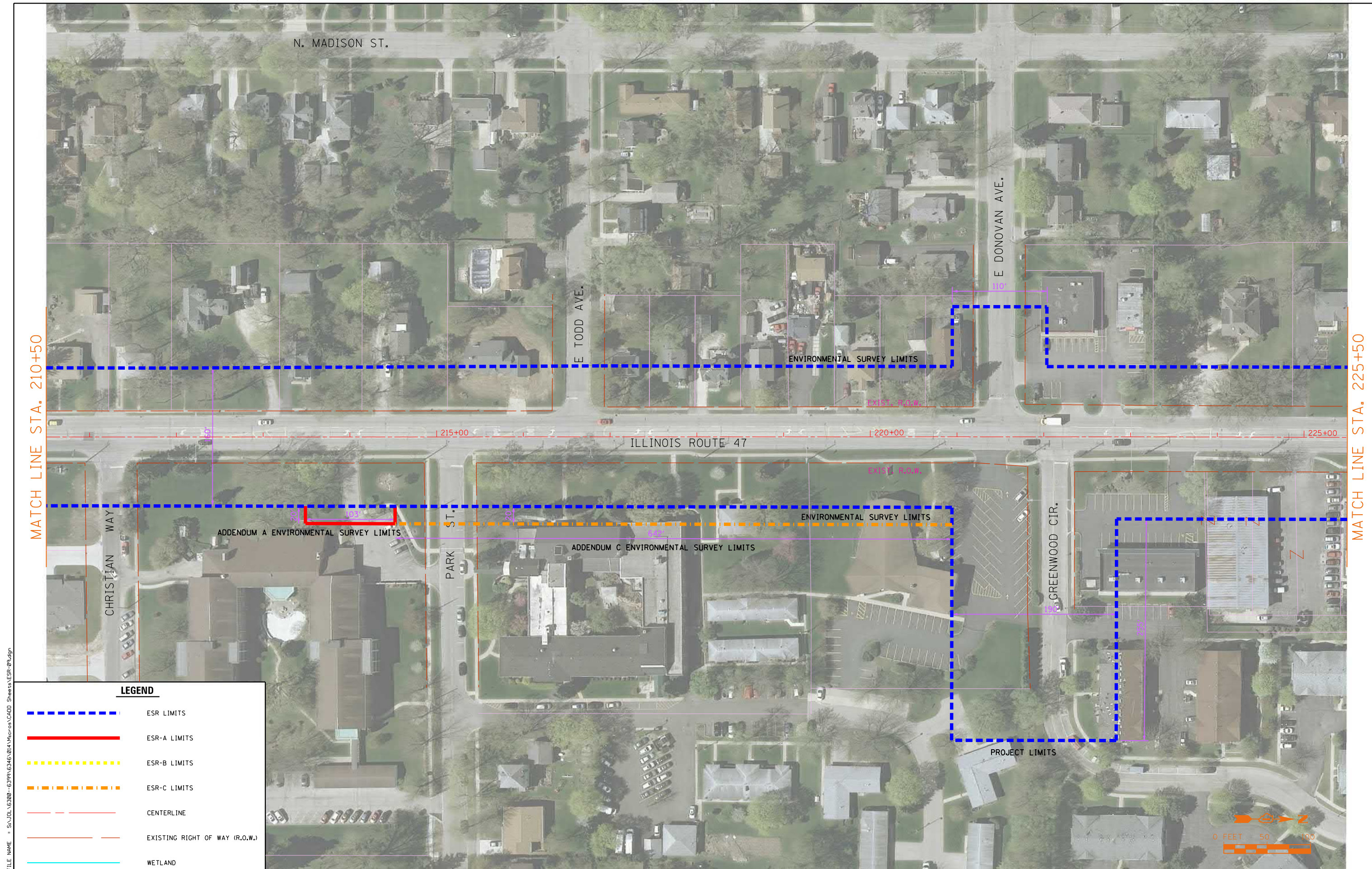
USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST</b>			
SCALE: N-T-S	SHEET	OF SHEETS	STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	8
CONTRACT NO.			ILLINOIS FED. AID PROJECT	





FILE NAME = SA\JUL163800-6399\6346\014\Micro\CAD\ Sheets\ESR-09.dgn

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

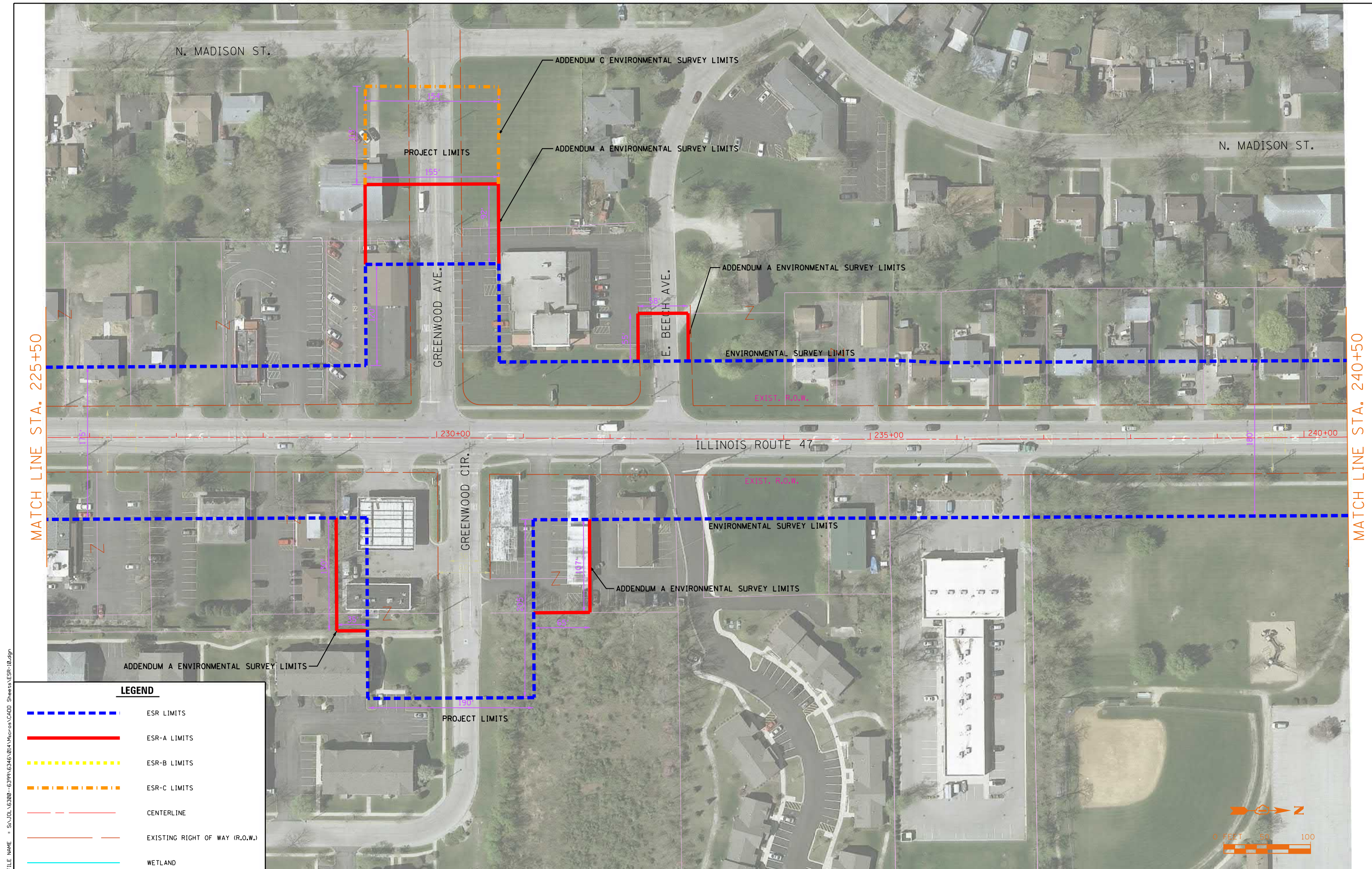
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S      SHEET      OF      SHEETS      STA.      TO      STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	9
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





MATCH LINE STA. 225+50

MATCH LINE STA. 240+50

FILE NAME = SA\JUL163800-6399\6346\014\Micro\CAD Sheets\ESR-10.dgn

**LEGEND**

- - - - - ESR LIMITS
- - - - - ESR-A LIMITS
- - - - - ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- - - - - WETLAND

1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

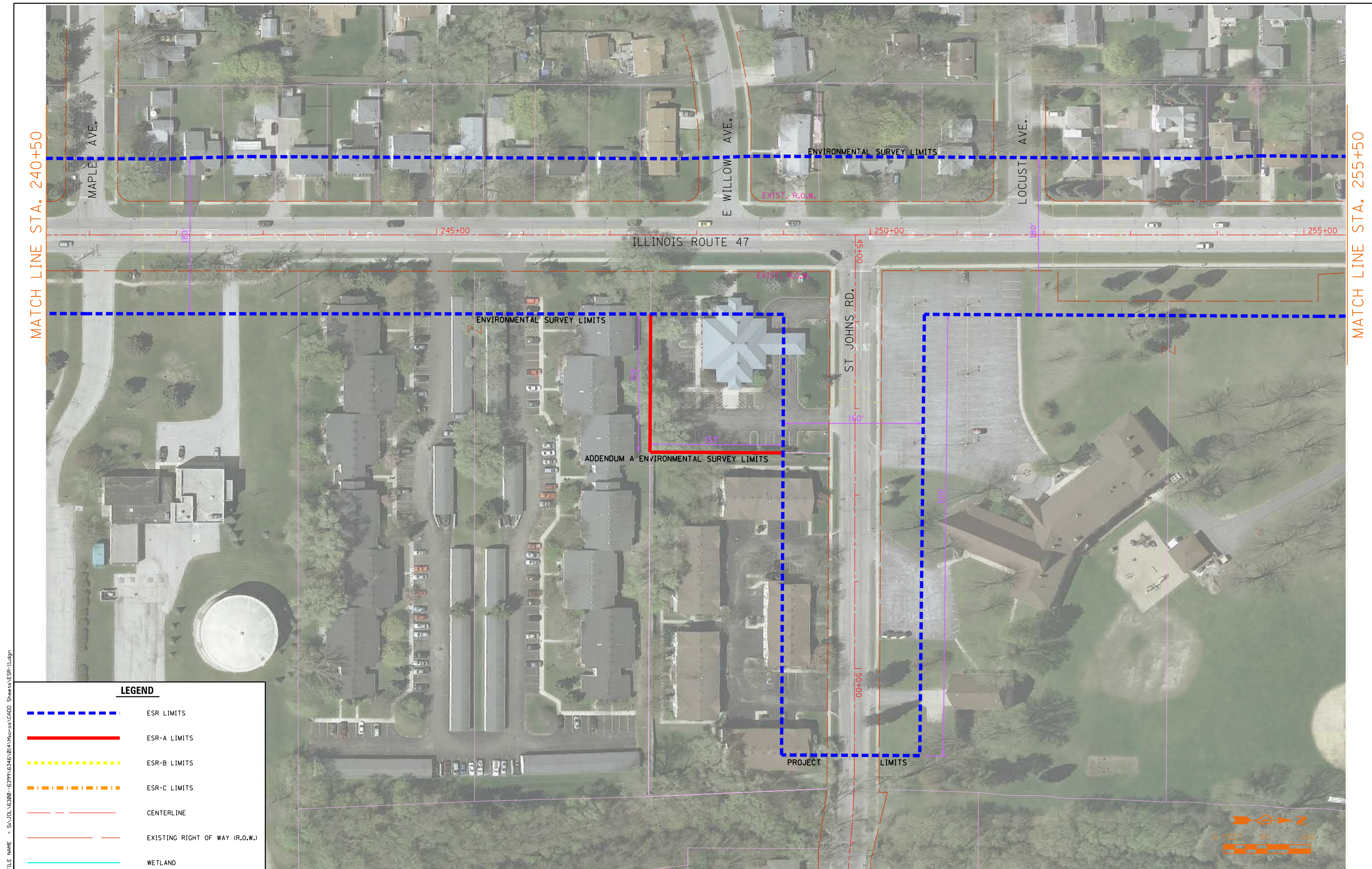
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S      SHEET      OF      SHEETS      STA.      TO      STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	10
CONTRACT NO.			ILLINOIS FED. AID PROJECT	





MATCH LINE STA. 240+50

MATCH LINE STA. 255+50

FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-11.dgn

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

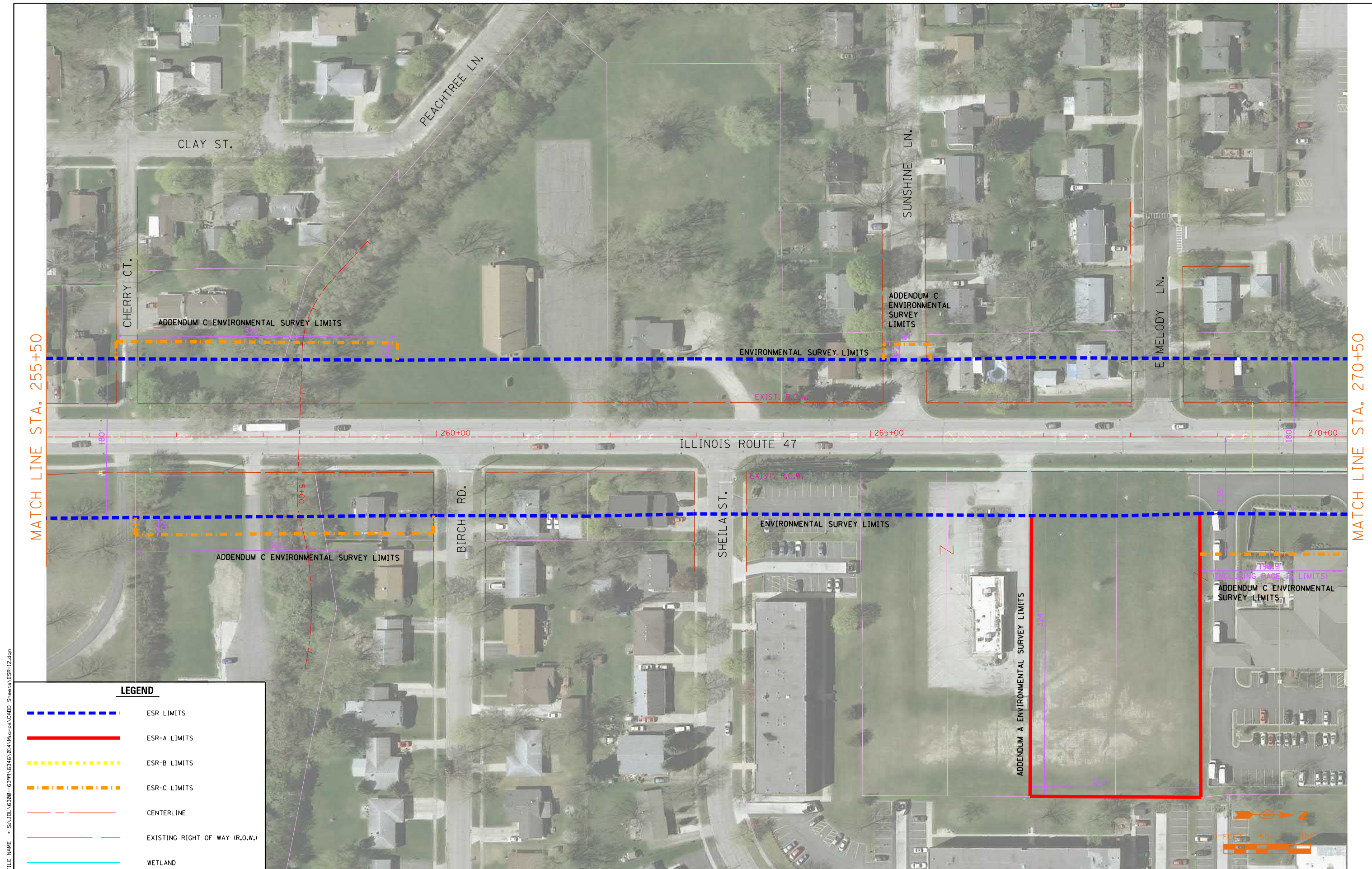
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	11
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





MATCH LINE STA. 255+50

MATCH LINE STA. 270+50

FILE NAME = SA\JOL\63800-6399\6346\014\Micro\CA00D Sheets\ESR-12.dgn

**LEGEND**

- - - - - ESR LIMITS
- ESR-A LIMITS
- . . . . . ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- EXISTING RIGHT OF WAY (R.O.W.)
- WETLAND

1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

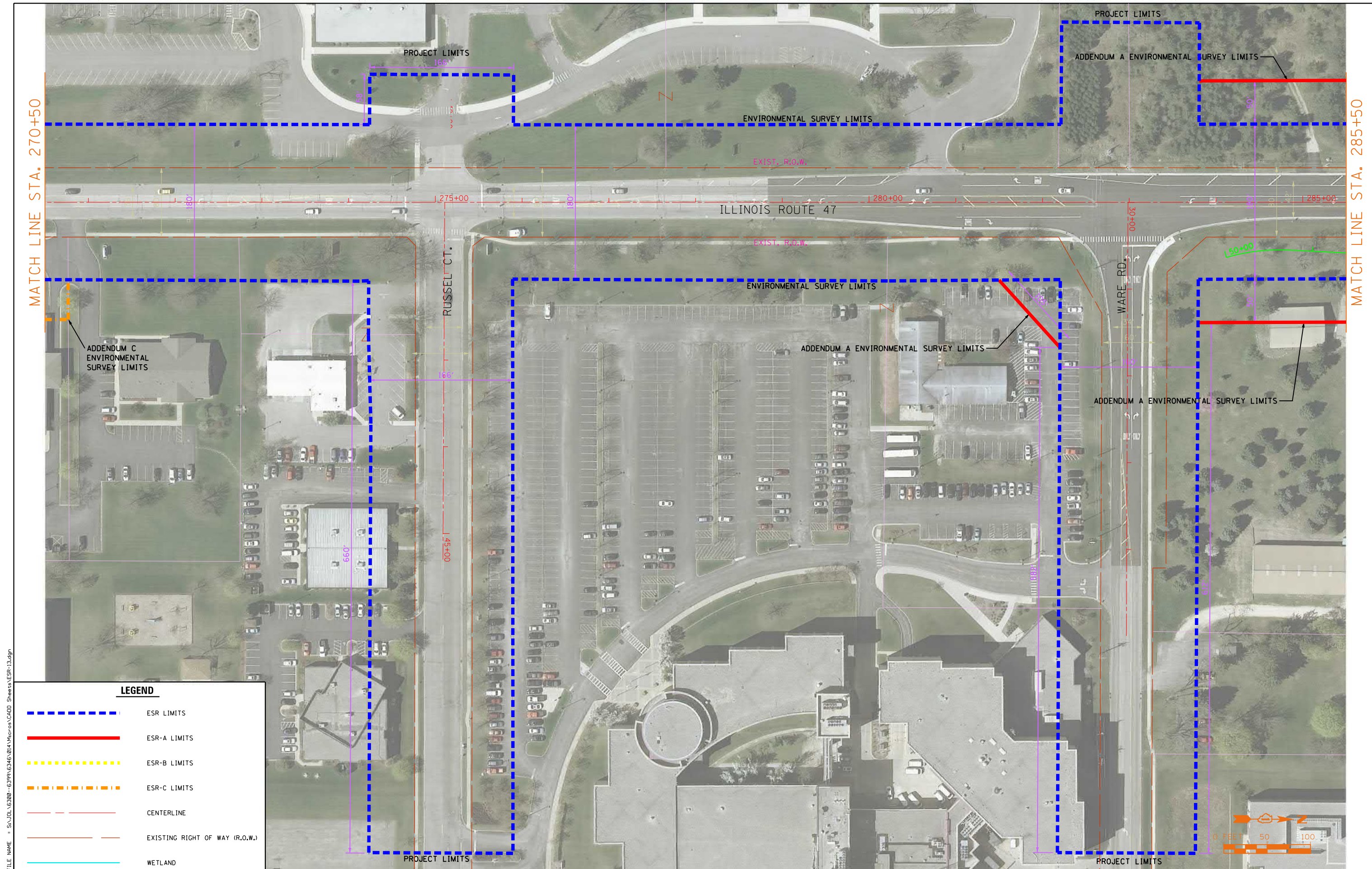
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S      SHEET      OF      SHEETS      STA.      TO      STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	12
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





FILE NAME = SA\JUL16300-6399\6346\014\Micros\CADD Sheets\ESR-13.dgn

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000' / 1"	CHECKED -	REVISED -
PLOT DATE = 5/26/2017	DATE -	REVISED -

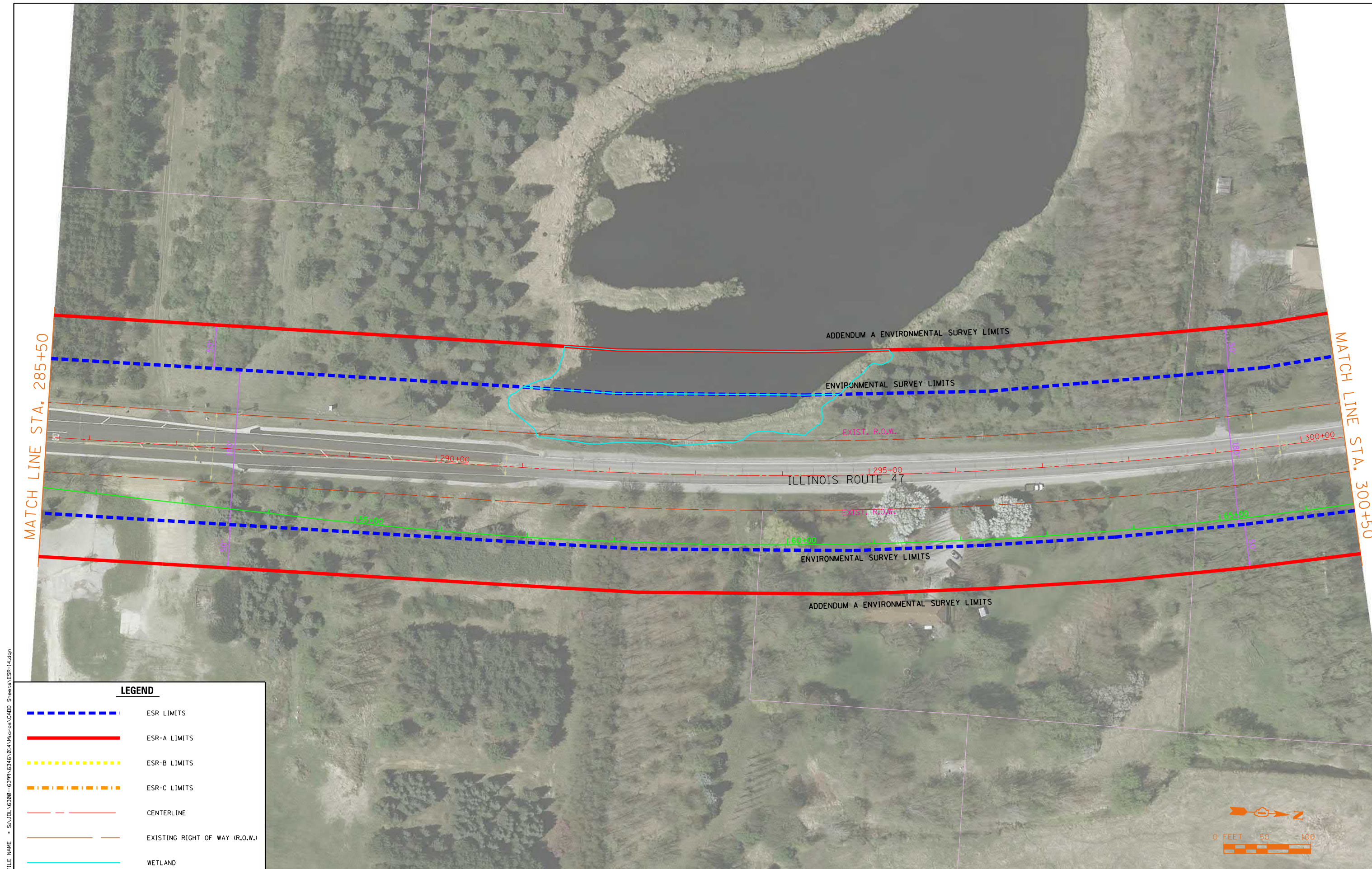
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S      SHEET    OF    SHEETS    STA.            TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	13
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-14.dgn

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

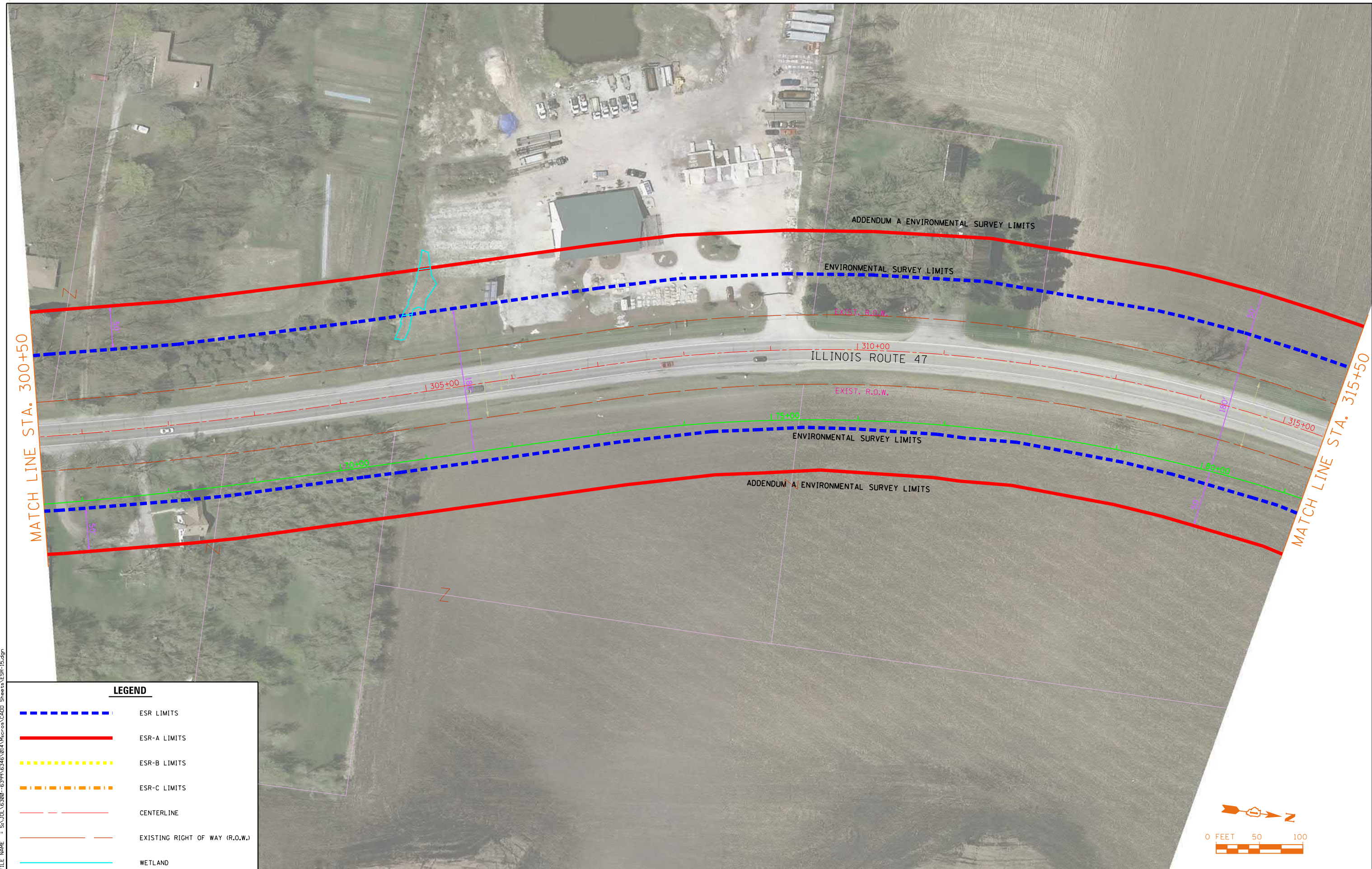
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

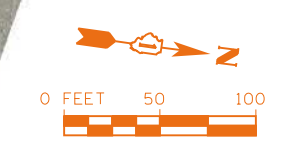
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	14
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-15.dgn

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

<b>ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST</b>			
SCALE: N-T-S	SHEET	OF SHEETS	STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	15
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





MATCH LINE STA. 315+50

MATCH LINE STA. 330+50

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

FILE NAME = SA\JOL\63800-6399\6346\014\Micro\CA00D Sheets\ESR-16.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B.IIP	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	16
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



MATCH LINE STA. 330+50

MATCH LINE STA. 345+50

ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

ENVIRONMENTAL SURVEY LIMITS

EXIST. R.O.W.

ILLINOIS ROUTE 47

335+00

340+00

345+00

EXIST. R.O.W.

100+00

105+00

110+00

ENVIRONMENTAL SURVEY LIMITS

ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

**LEGEND**

- - - - - ESR LIMITS
- ESR-A LIMITS
- . . . . . ESR-B LIMITS
- . - . - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- WETLAND



FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-17.dgn

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 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S      SHEET      OF      SHEETS      STA.      TO      STA.

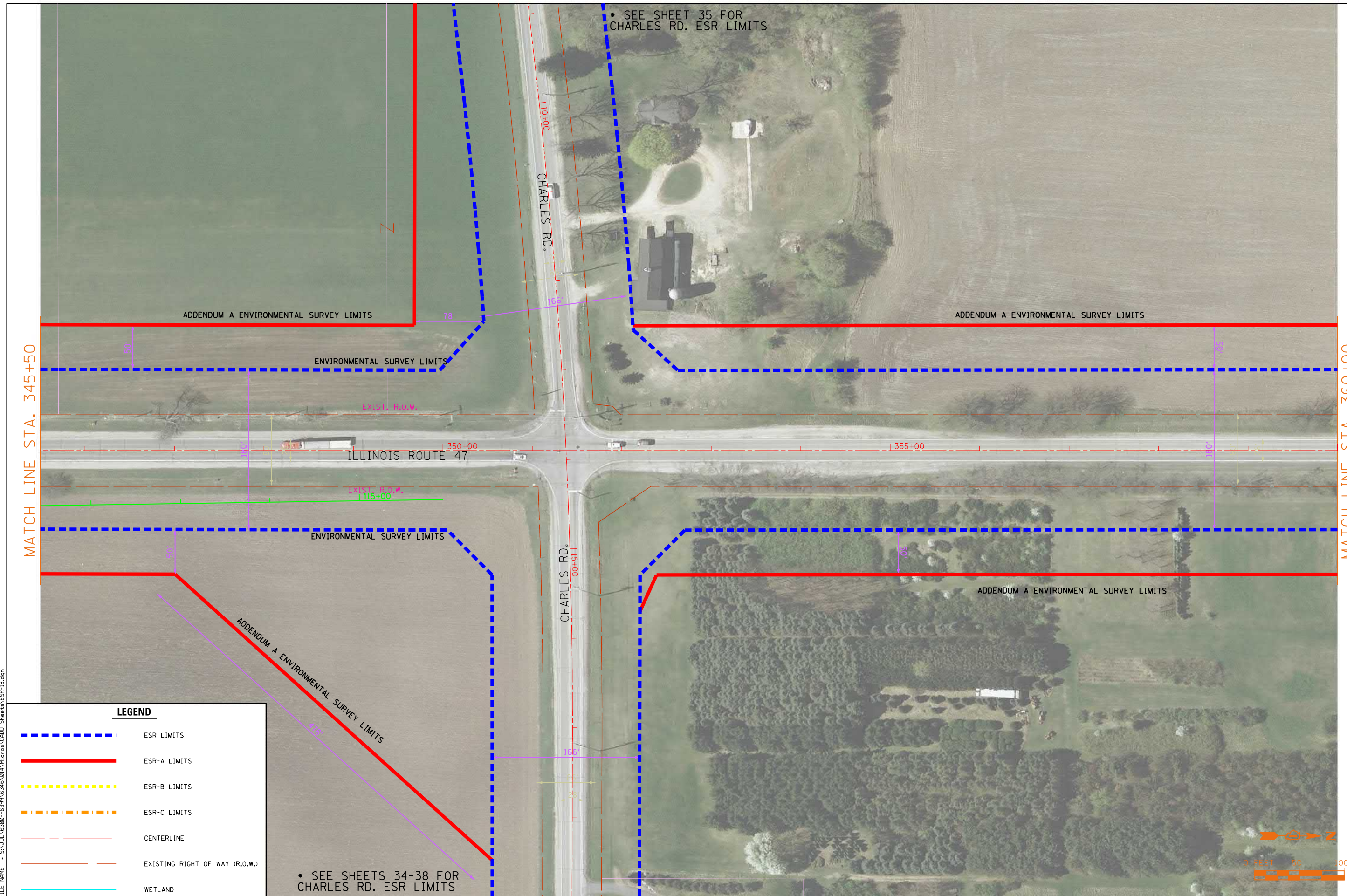
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	17
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



• SEE SHEET 35 FOR CHARLES RD. ESR LIMITS

MATCH LINE STA. 345+50

MATCH LINE STA. 360+00



**LEGEND**

- - - - - ESR LIMITS
- ESR-A LIMITS
- · · · · ESR-B LIMITS
- · - · - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- WETLAND

• SEE SHEETS 34-38 FOR CHARLES RD. ESR LIMITS

FILE NAME = SA\JOL\63800-6399\6346\014\Micro\CA00 Sheets\ESR-18.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

DESIGNED -	REVISED -
DRAWN -	REVISED -
CHECKED -	REVISED -
DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

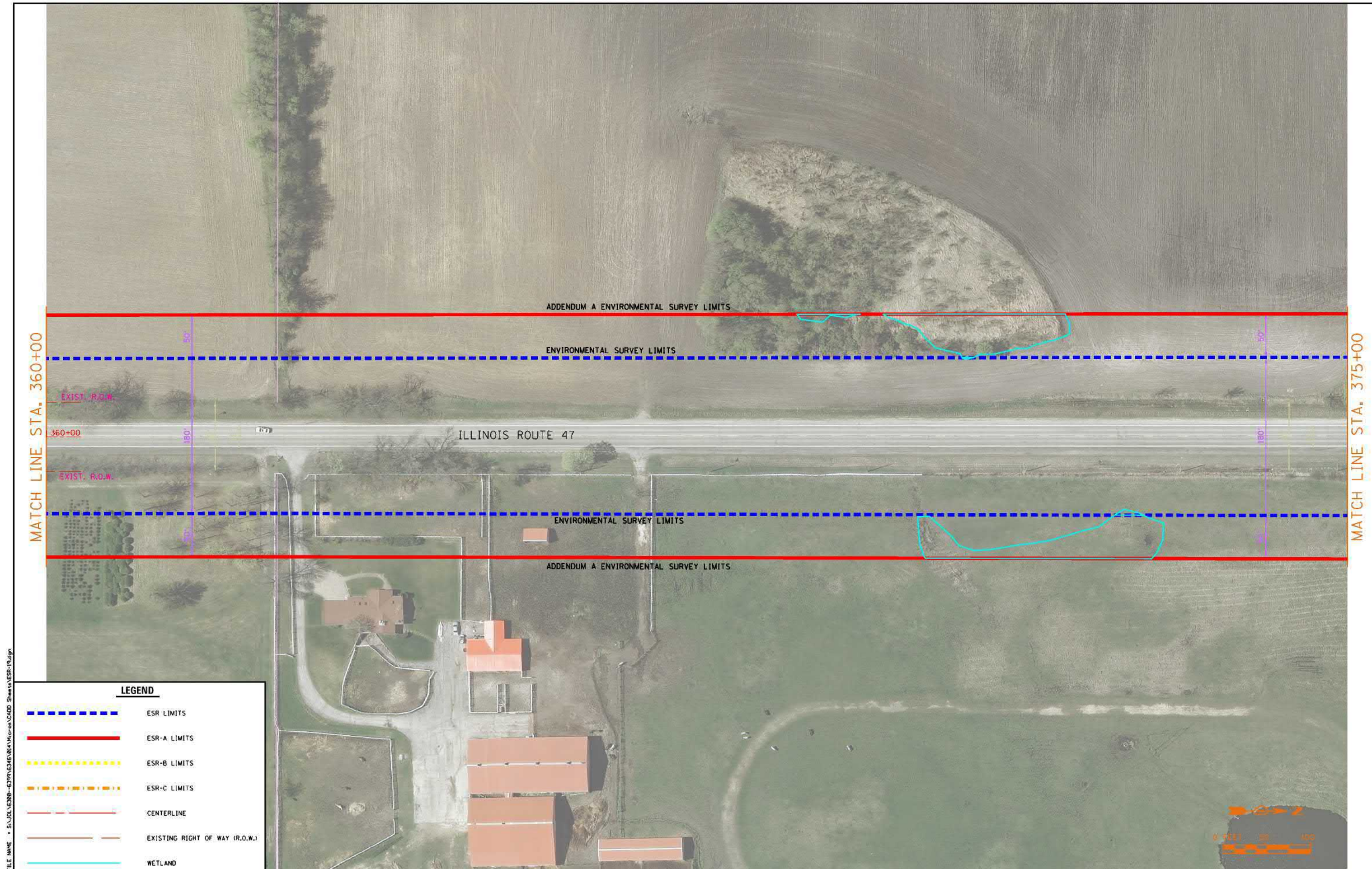
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	18
CONTRACT NO.			ILLINOIS FED. AID PROJECT	







FILE NAME = S:\JUL16300-63916346\814\Micro\CoRD Sheets\ESR-R.dgn

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUGHTON ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = BillP	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / in.	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	19
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



MATCH LINE STA. 375+00



**LEGEND**

- ESR LIMITS
- ESR-A LIMITS
- ESR-B LIMITS
- ESR-C LIMITS
- CENTERLINE
- EXISTING RIGHT OF WAY (R.O.W.)
- WETLAND



FILE NAME = S:\JUL16300-63916346\814\Micro\CoRD Sheets\ESR-20.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUGHT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = BillP	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000' / 1"	CHECKED -	REVISED -
PLOT DATE = 5/26/2017	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

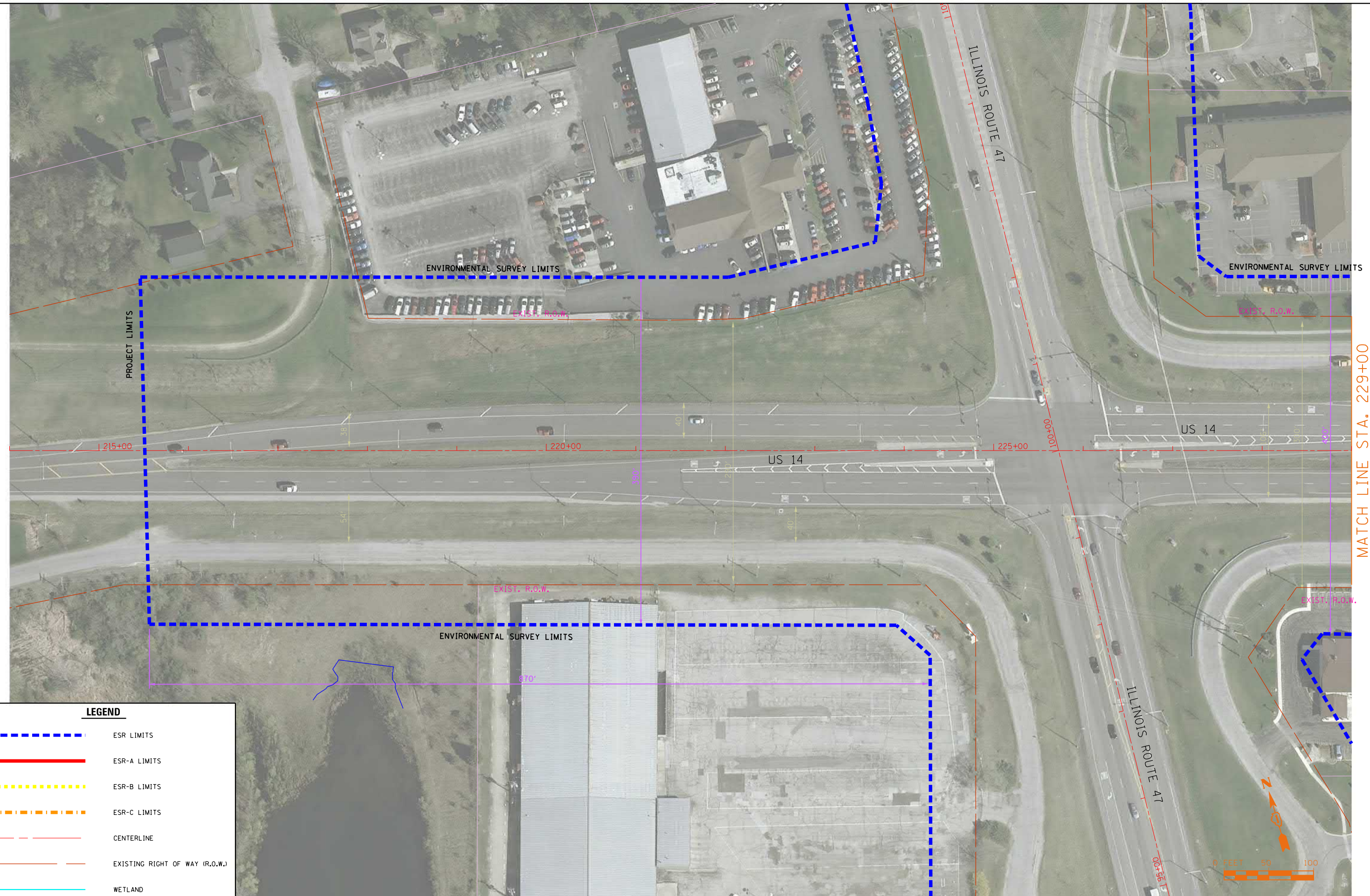
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S	SHEET	OF	SHEETS	STA.	TO	STA.
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	20
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JOL\63800-6399\6346\014\Micro\CA00D Sheets\ESR-21-US14.dgn



**LEGEND**

- - - - - ESR LIMITS
- - - - - ESR-A LIMITS
- - - - - ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- - - - - WETLAND

MATCH LINE STA. 229+00

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

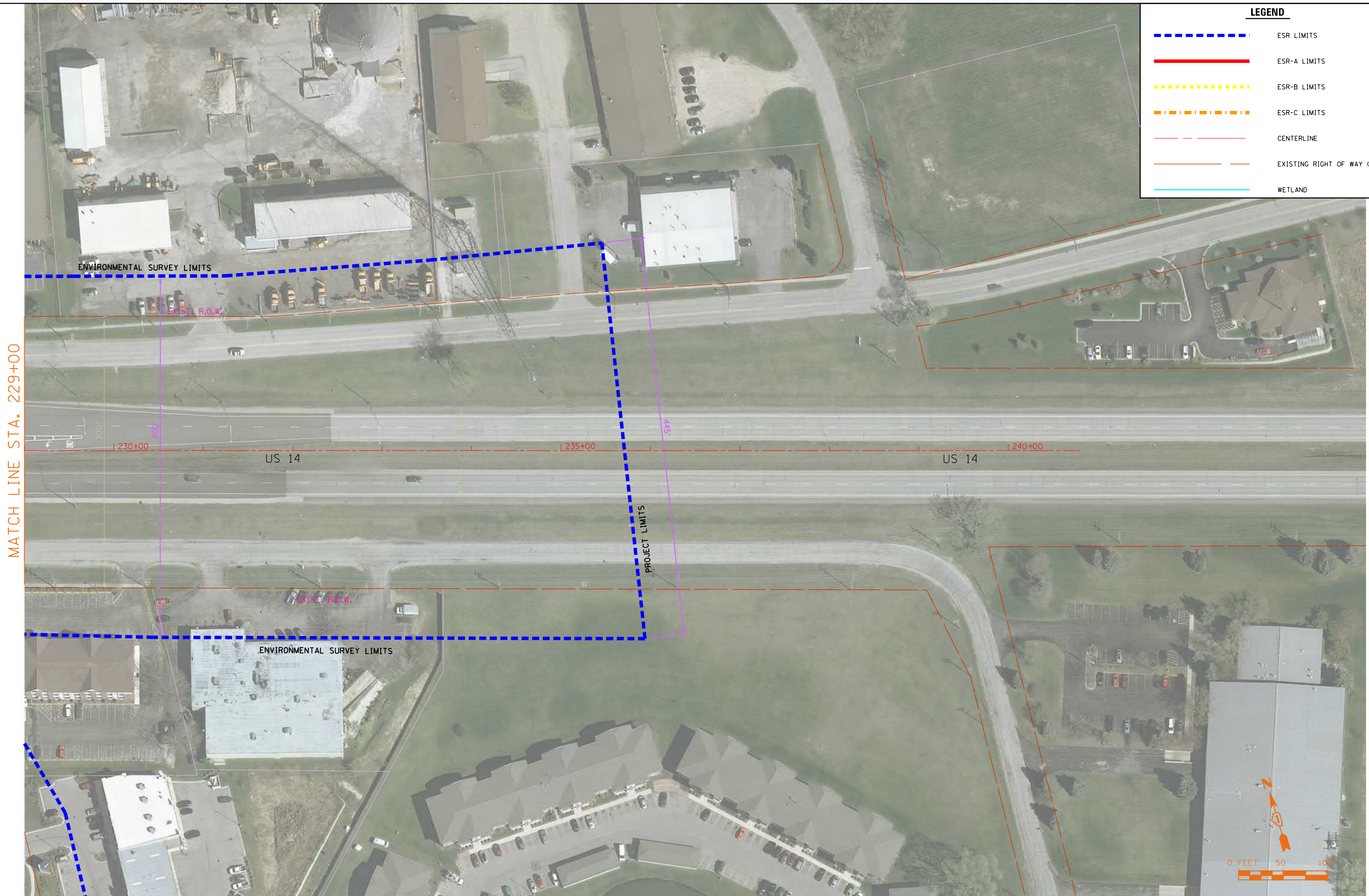
SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	21
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



**LEGEND**

- - - - - ESR LIMITS
- - - - - ESR-A LIMITS
- - - - - ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- - - - - WETLAND



MATCH LINE STA. 229+00

FILE NAME = S:\JOLI\63800-6399\6346\014\Micros\CADD Sheets\ESR-22-US14.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	22
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JOL\63800-6399\6346\014\Micro\CA00 Sheets\ESR-23-SOUTHVIEW.dgn



LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

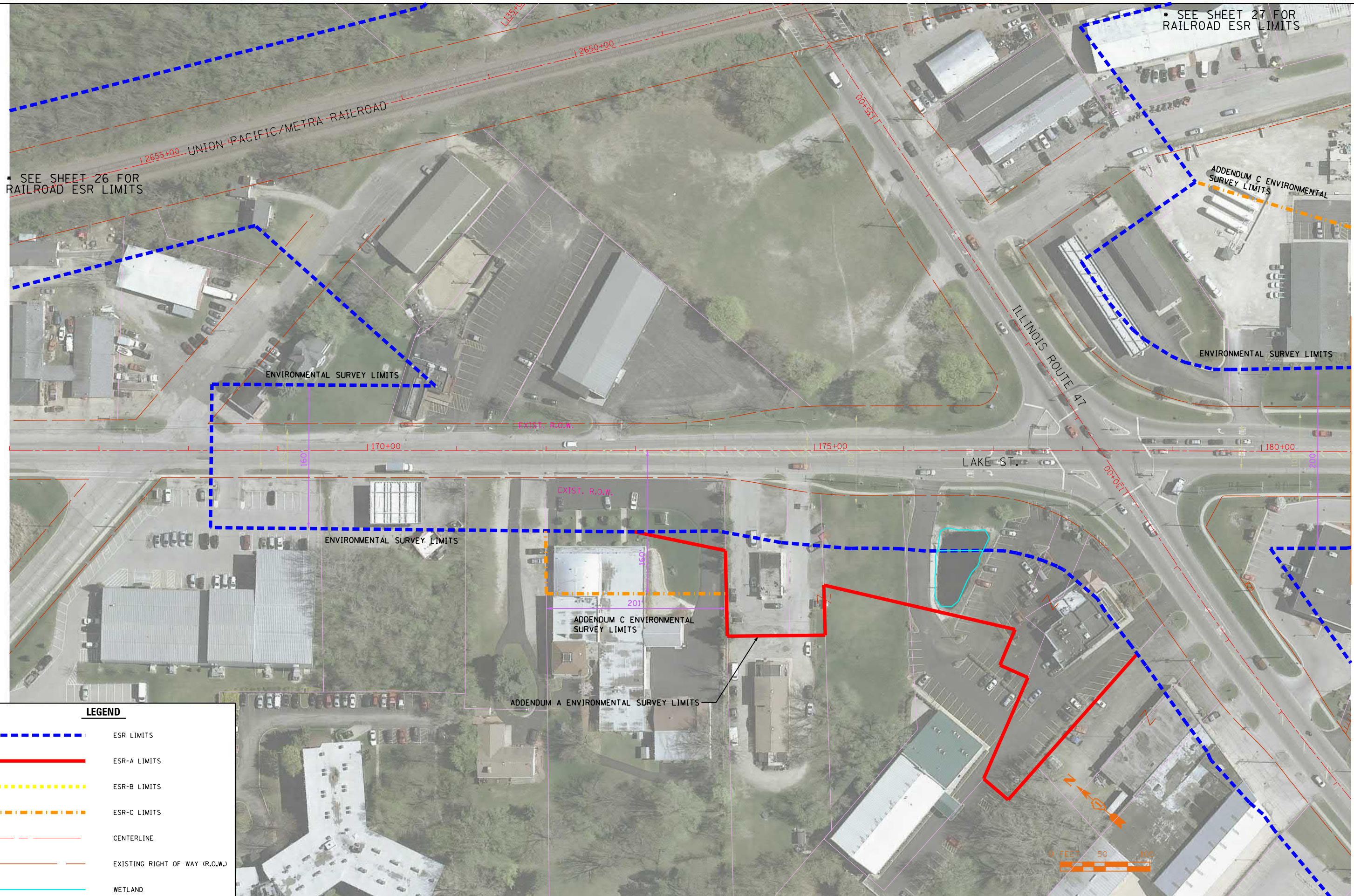
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PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

<b>ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST</b>			
SCALE: N-T-S	SHEET	OF SHEETS	STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	23
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





SEE SHEET 26 FOR RAILROAD ESR LIMITS

SEE SHEET 27 FOR RAILROAD ESR LIMITS

ENVIRONMENTAL SURVEY LIMITS

ADDENDUM C ENVIRONMENTAL SURVEY LIMITS

ENVIRONMENTAL SURVEY LIMITS

ENVIRONMENTAL SURVEY LIMITS

ADDENDUM C ENVIRONMENTAL SURVEY LIMITS

ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

MATCH LINE STA. 181+00

FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-24-LAME.dgn

**LEGEND**

- - - - - ESR LIMITS
- ESR-A LIMITS
- . . . . . ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- WETLAND

1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -








**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

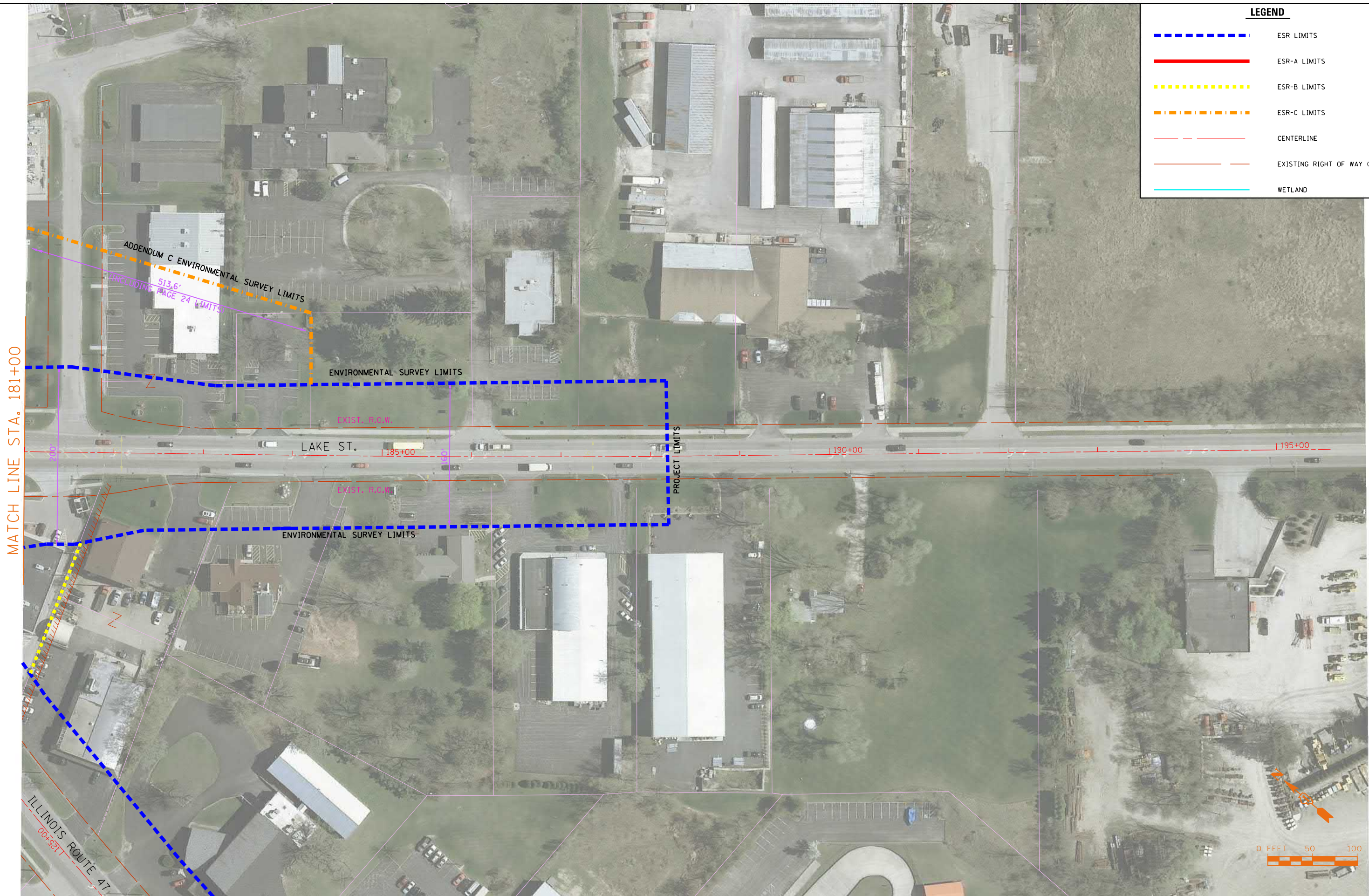
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	24
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CAD\ Sheets\ESR-25-LAKE.dgn



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

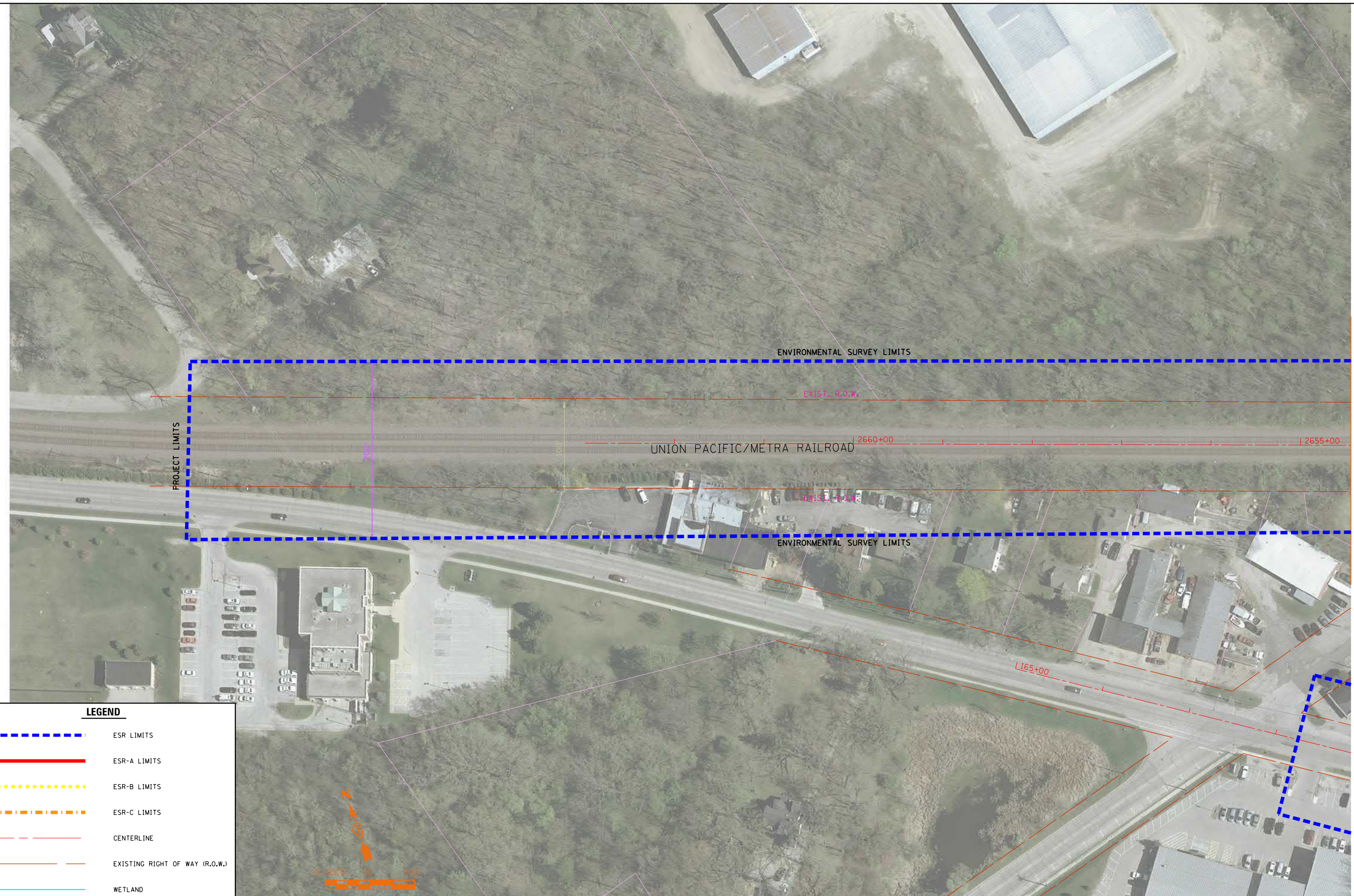
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	25
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-26-RAILROAD.dgn



MATCH LINE STA. 113+00

**LEGEND**

- - - - - ESR LIMITS
- - - - - ESR-A LIMITS
- - - - - ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- - - - - WETLAND



**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -








**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

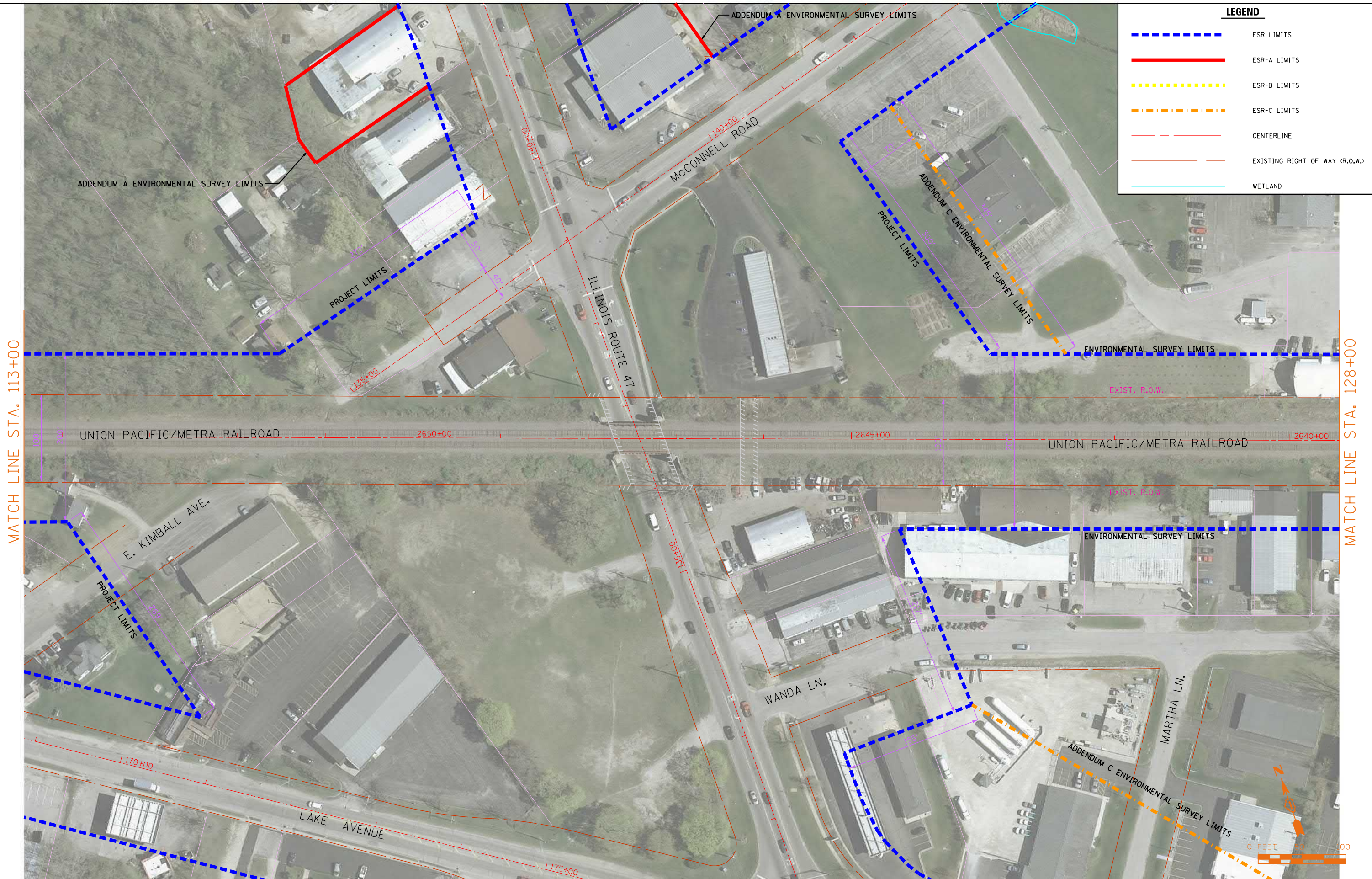
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	26
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



FILE NAME = SA\JUL163800-6399\6346\014\Micro\CA00 Sheets\ESR-27-RAILROAD.dgn



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

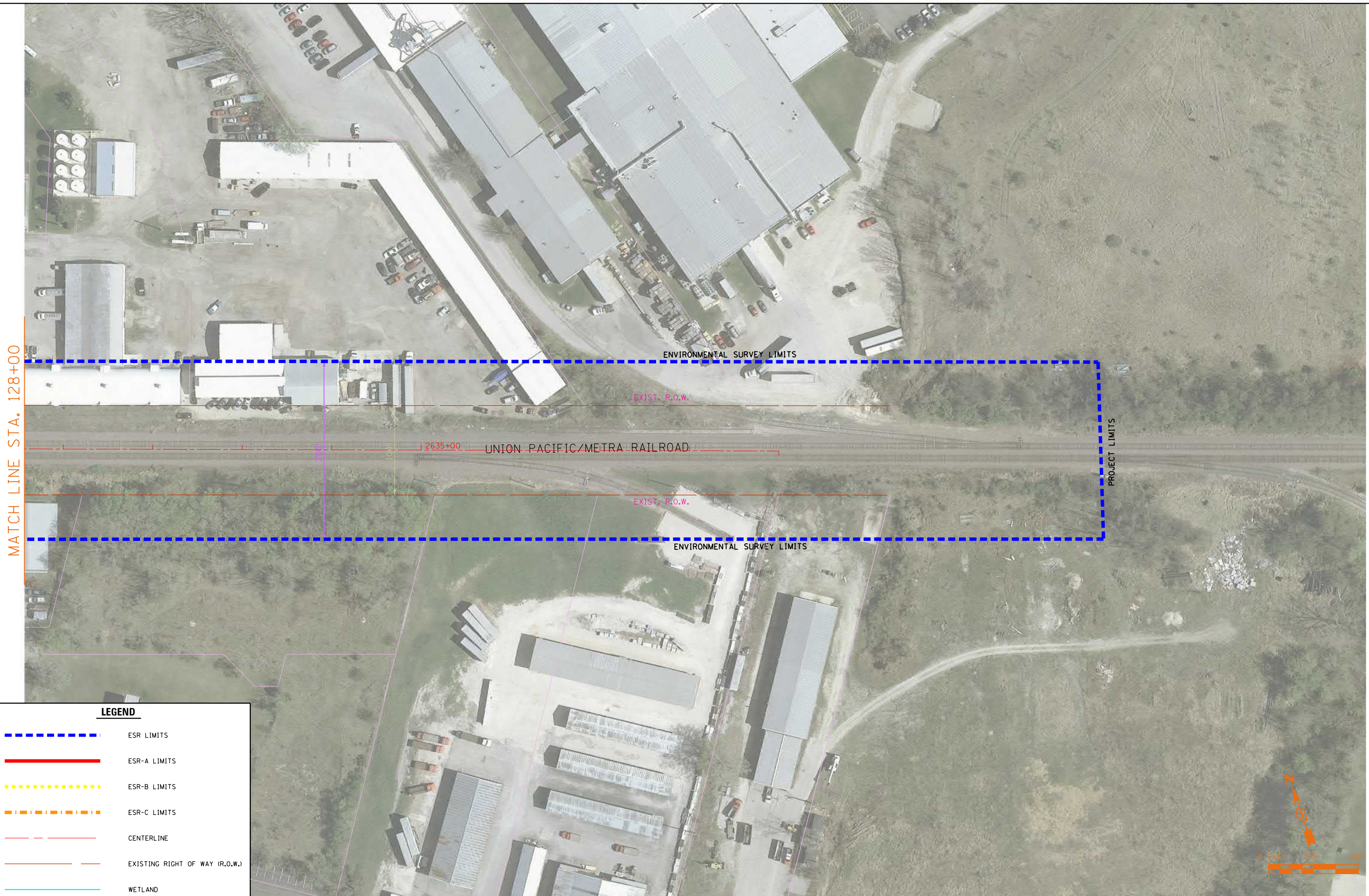
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	27
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JUL\63800-6399\6346\014\Micros\CADD Sheets\ESR-28-RAILROAD.dgn



MATCH LINE STA. 128+00

ENVIRONMENTAL SURVEY LIMITS

EXIST. R.O.W.

2635+00








UNION PACIFIC/METRA RAILROAD

EXIST. R.O.W.

ENVIRONMENTAL SURVEY LIMITS

PROJECT LIMITS

**LEGEND**

-  ESR LIMITS
-  ESR-A LIMITS
-  ESR-B LIMITS
-  ESR-C LIMITS
-  CENTERLINE
-  EXISTING RIGHT OF WAY (R.O.W.)
-  WETLAND



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000' / 1"	CHECKED -	REVISED -
PLOT DATE = 5/26/2017	DATE -	REVISED -








**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

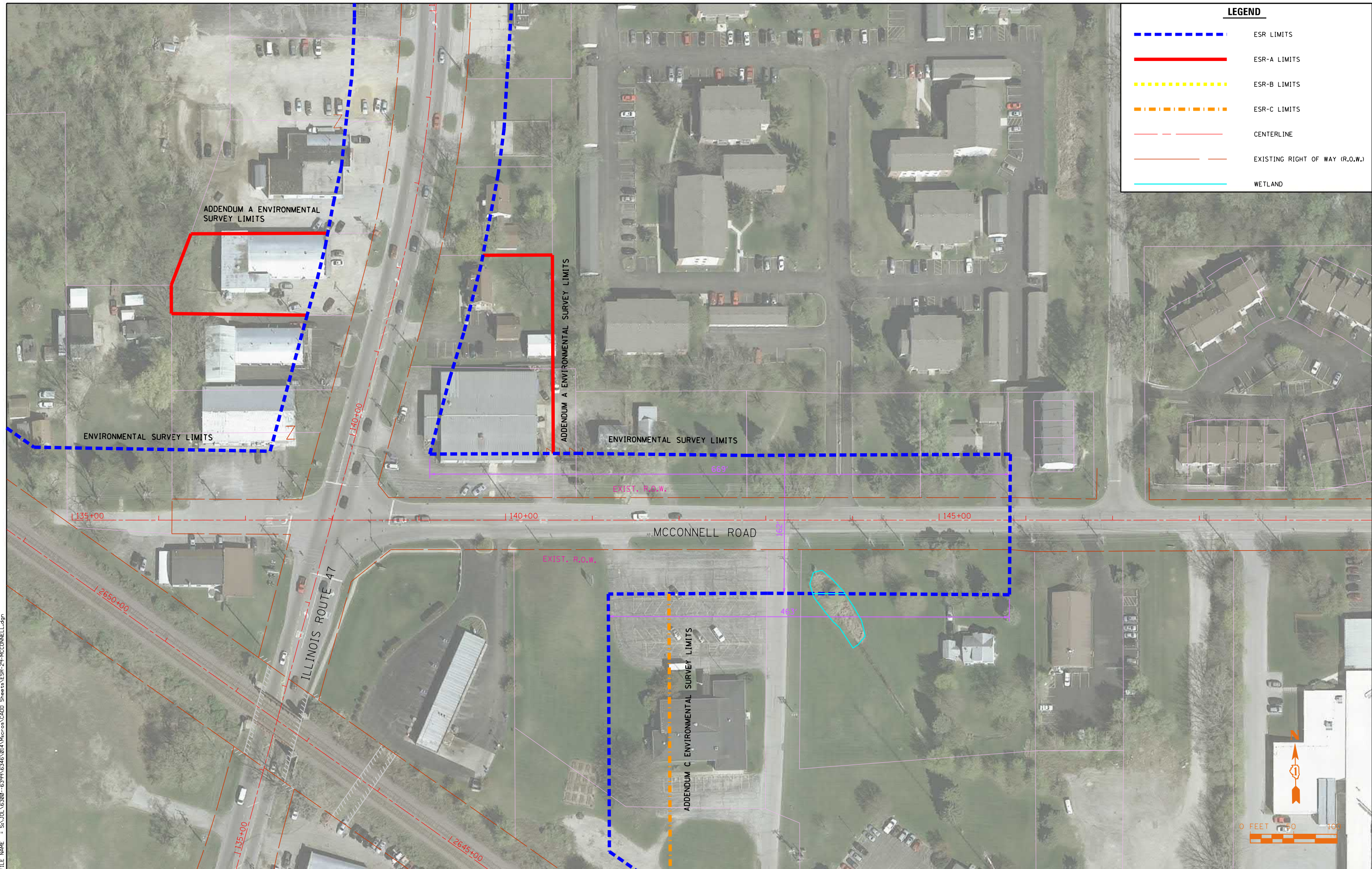
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	28
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



FILE NAME = SA\JUL16380-6399\6346\014\Micro\CA00 Sheets\ESR-29-MCCONNELL.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

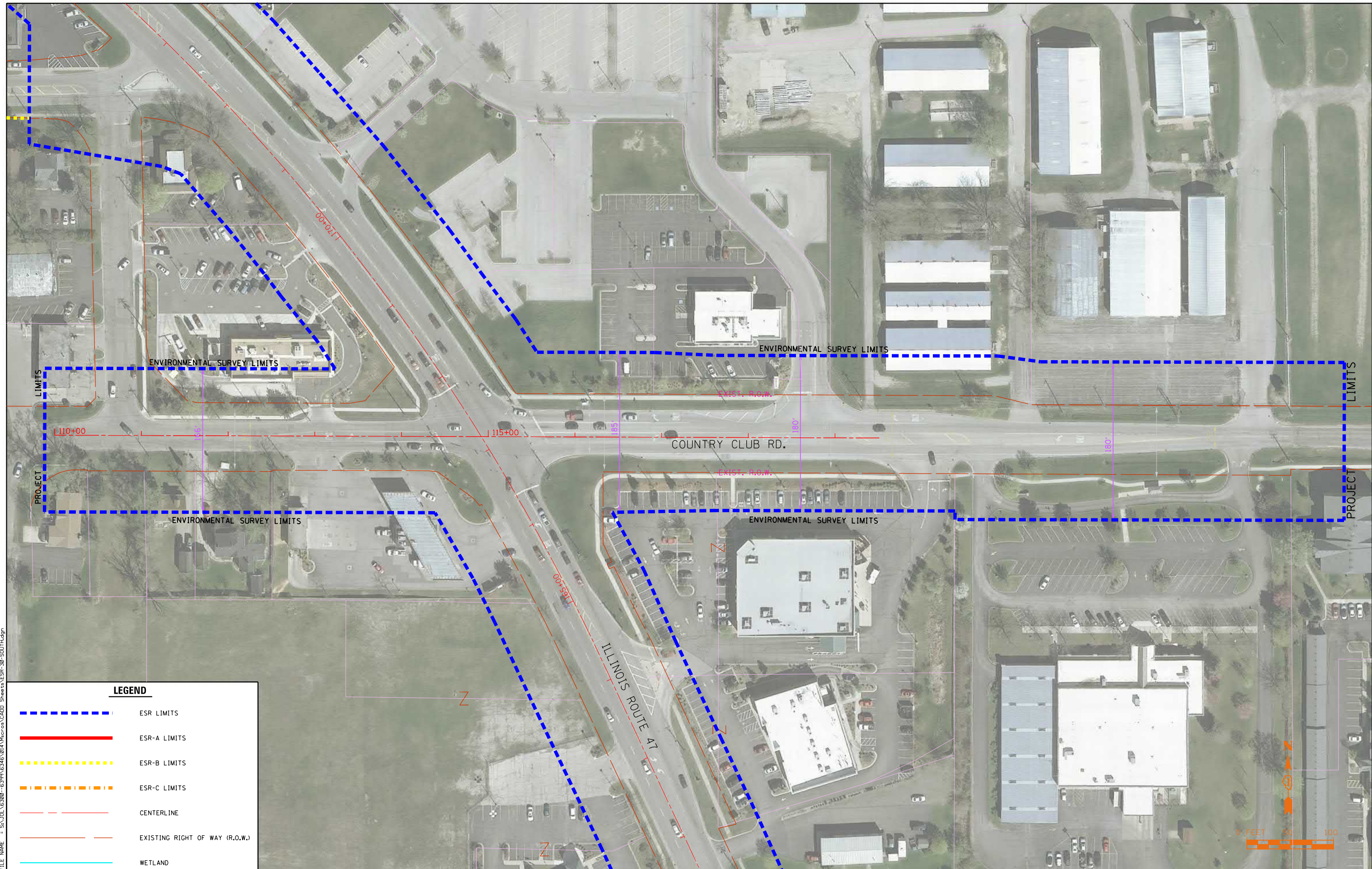
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

<b>ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST</b>			
SCALE: N-T-S	SHEET	OF SHEETS	STA. TO STA.

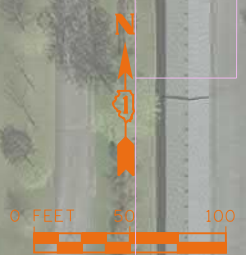
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	29
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -








**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

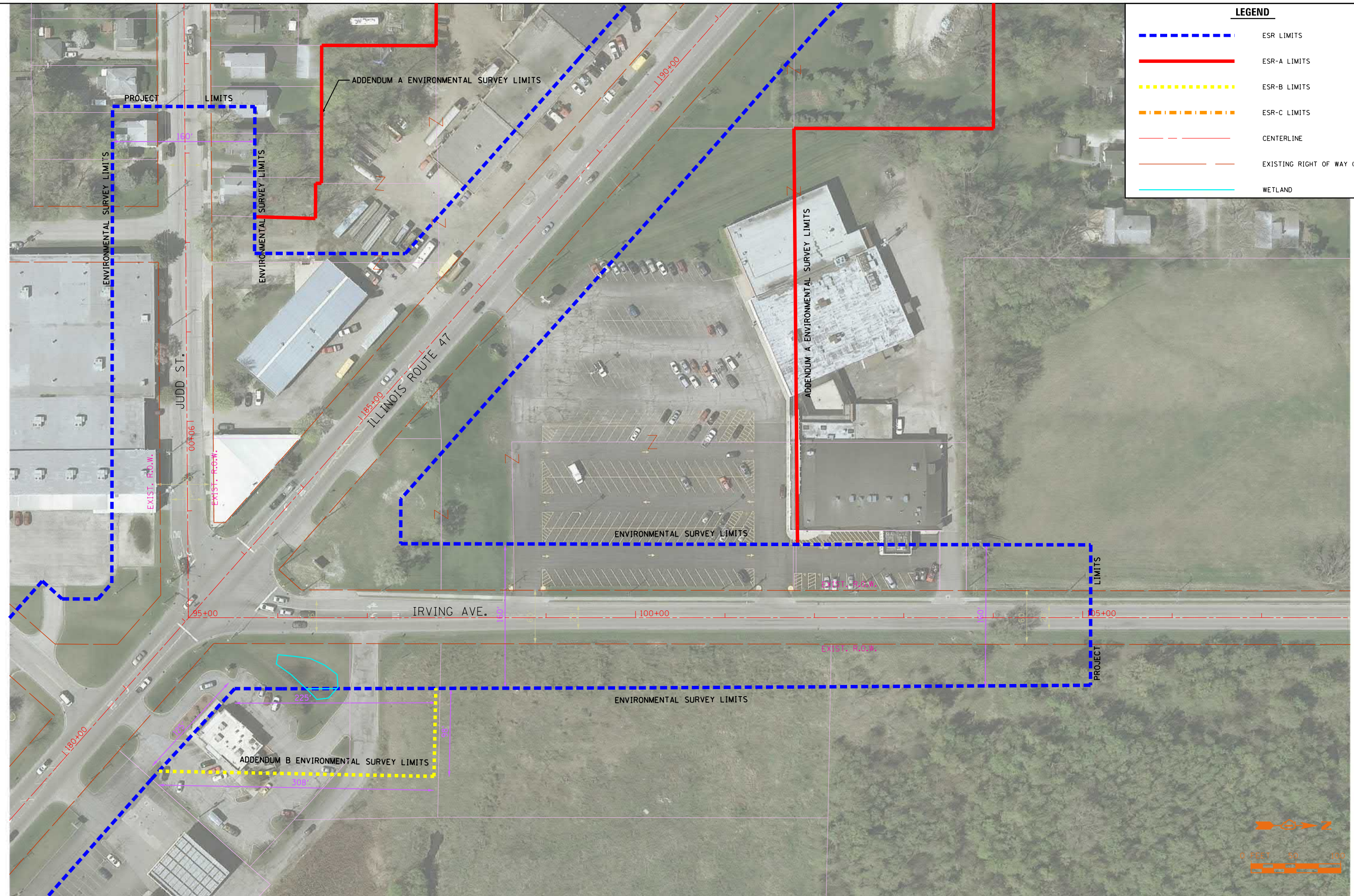
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S      SHEET    OF    SHEETS    STA.                    TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	30
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



FILE NAME = SA\JOL\63800-6399\6346\014\Micro\Coadd Sheets\ESR-31-IRVING.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

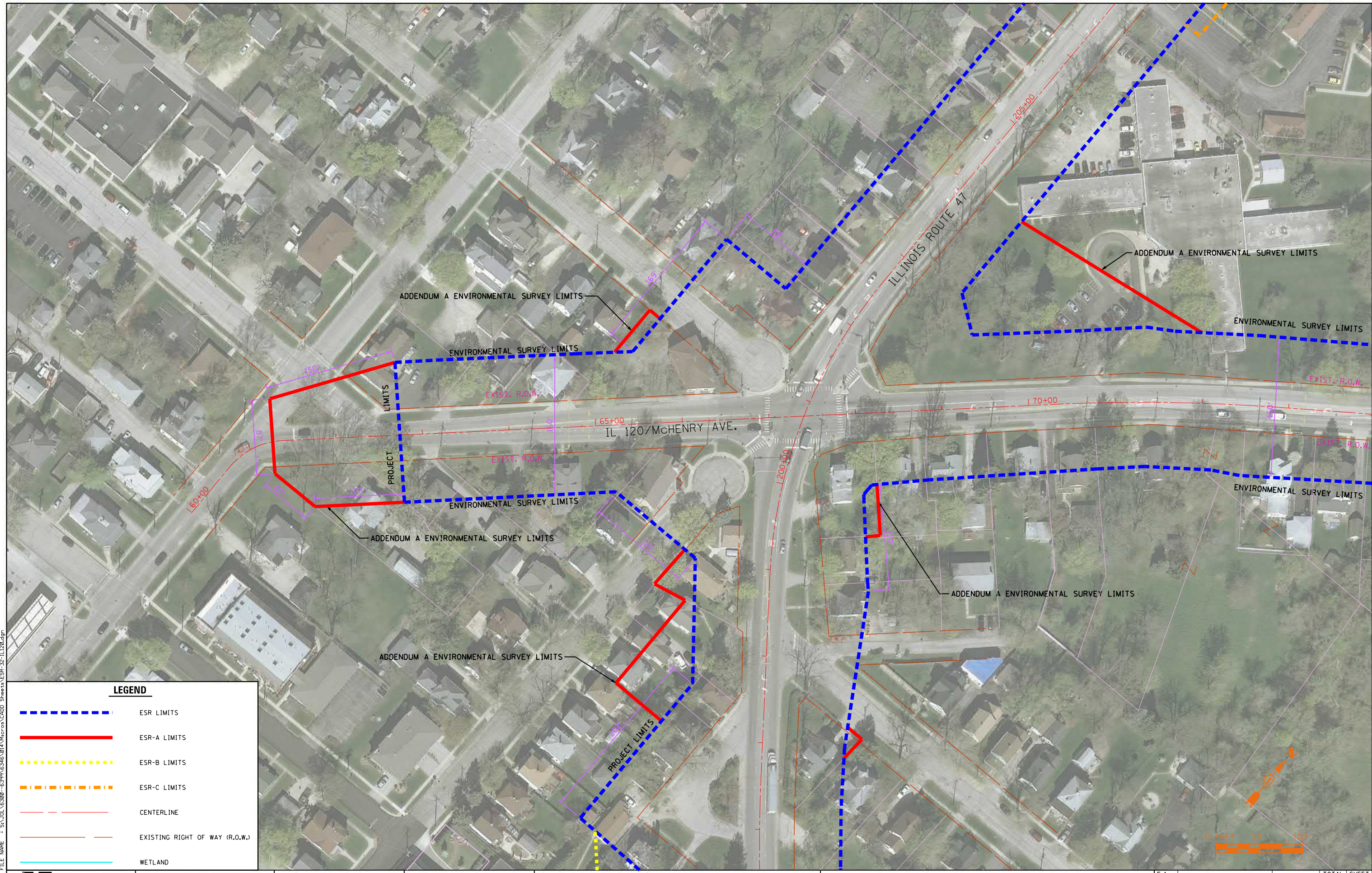
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S      SHEET      OF      SHEETS      STA.      TO      STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	31
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JOL\63800-6399\6346\014\Micro\CA0D Sheets\ESR-32-IL120.dgn



**LEGEND**

- - - - - ESR LIMITS
- ESR-A LIMITS
- . . . . . ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- - - - - EXISTING RIGHT OF WAY (R.O.W.)
- WETLAND

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**  
 SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	32
CONTRACT NO.			ILLINOIS FED. AID PROJECT	





LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

FILE NAME = SA\JUL16380-6399\6346\014\Micro\CA0D Sheets\ESR-33-IL120.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1"	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

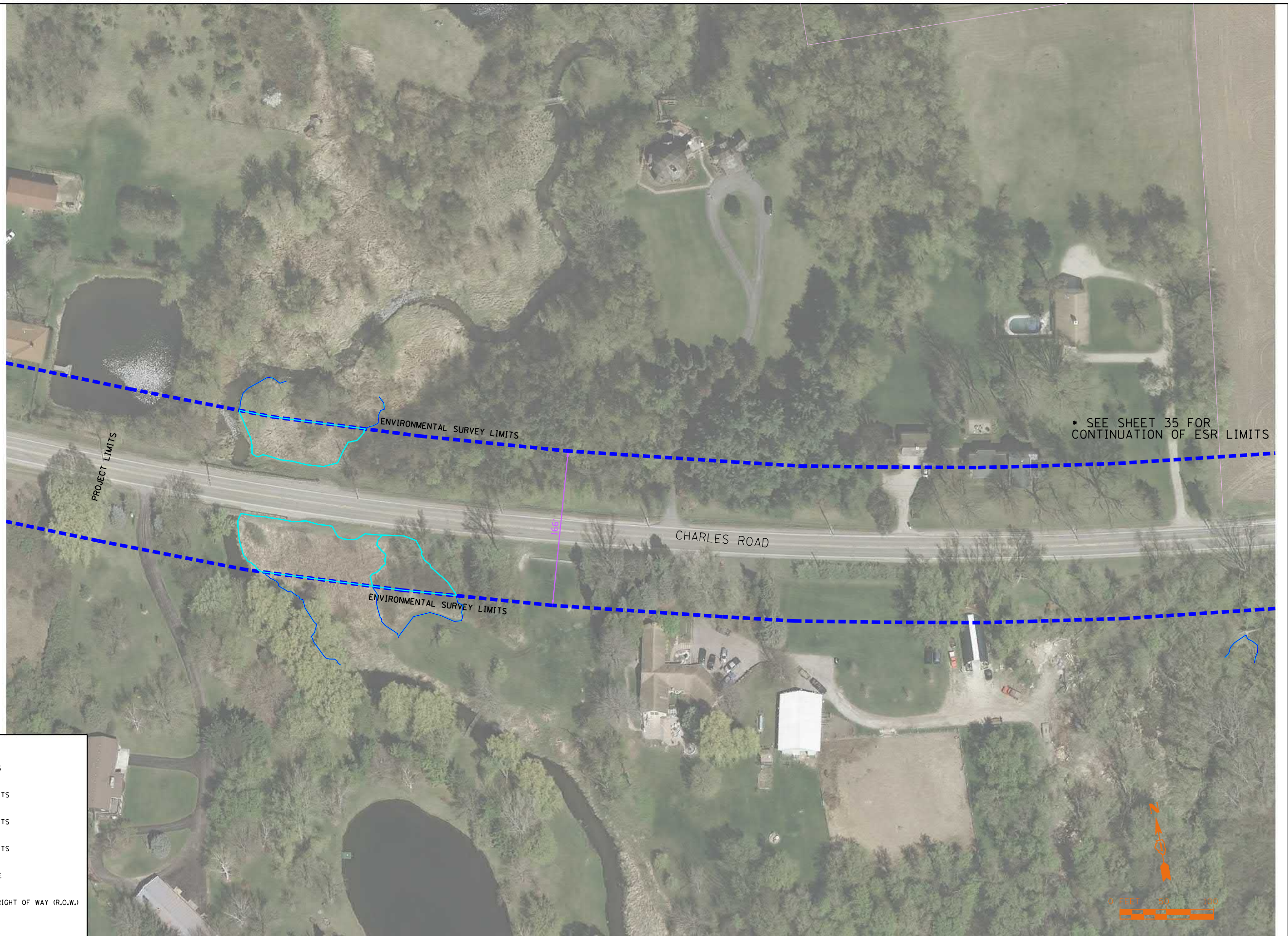
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	33
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-34-CHARLES.dgn



**LEGEND**

- - - - - ESR LIMITS
- ESR-A LIMITS
- - - - - ESR-B LIMITS
- - - - - ESR-C LIMITS
- - - - - CENTERLINE
- EXISTING RIGHT OF WAY (R.O.W.)
- WETLAND

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000' / 1" =	CHECKED -	REVISED -
PLOT DATE = 5/26/2017	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S    SHEET    OF    SHEETS    STA.    TO    STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	34
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JUL16300-6399\6346\014\Micro\CA00 Sheets\ESR-35-CHARLES.dgn



\* SEE SHEET 34 FOR CONTINUATION OF ESR LIMITS

ENVIRONMENTAL SURVEY LIMITS

CHARLES ROAD








ENVIRONMENTAL SURVEY LIMITS

EXIST. R.O.W.

CENT. R.O.W.

MATCH LINE STA. 3+00

**LEGEND**

-  ESR LIMITS
-  ESR-A LIMITS
-  ESR-B LIMITS
-  ESR-C LIMITS
-  CENTERLINE
-  EXISTING RIGHT OF WAY (R.O.W.)
-  WETLAND



**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JULIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	35
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-36-CHARLES.dgn



MATCH LINE STA. 3+00

MATCH LINE STA. 18+00

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND

1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S	SHEET	OF	SHEETS	STA.	TO	STA.
--------------	-------	----	--------	------	----	------

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	36
CONTRACT NO.			ILLINOIS FED. AID PROJECT	



MATCH LINE STA. 18+00

• SEE SHEET 38 FOR CONTINUATION OF ESR LIMITS

ENVIRONMENTAL SURVEY LIMITS

CHARLES ROAD

ENVIRONMENTAL SURVEY LIMITS

ADDENDUM A ENVIRONMENTAL SURVEY LIMITS

**LEGEND**

- ESR LIMITS
- ESR-A LIMITS
- ESR-B LIMITS
- ESR-C LIMITS
- CENTERLINE
- EXISTING RIGHT OF WAY (R.O.W.)
- WETLAND



FILE NAME = SA\JOL\63800-6399\6346\014\Micros\CADD Sheets\ESR-37-CHARLES.dgn

**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

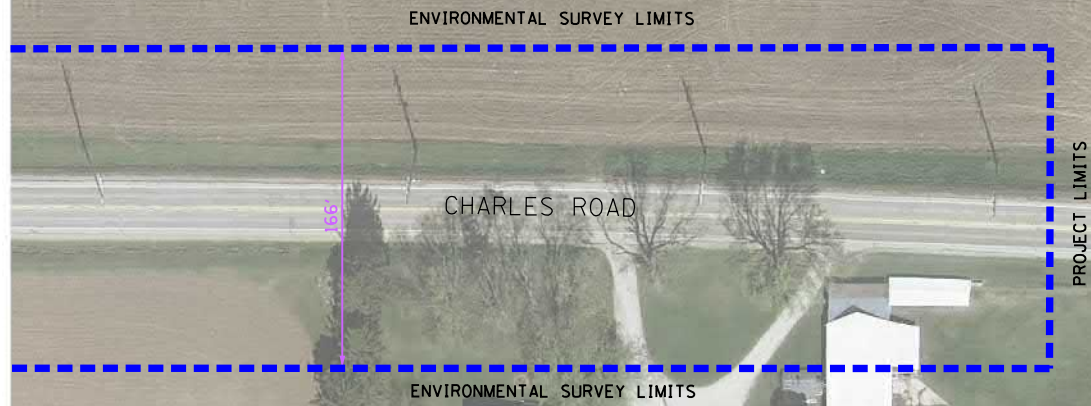
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	37
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

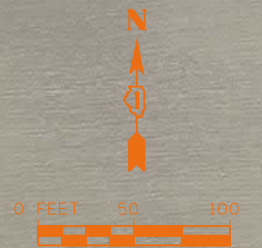


• SEE SHEET 37 FOR CONTINUATION OF ESR LIMITS



FILE NAME = SA\JOL\63800-6399\6346\014\Micro\ESR-38-CHARLES.dgn

LEGEND	
	ESR LIMITS
	ESR-A LIMITS
	ESR-B LIMITS
	ESR-C LIMITS
	CENTERLINE
	EXISTING RIGHT OF WAY (R.O.W.)
	WETLAND



**SA STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = B:11P	DESIGNED -	REVISED -
PLOT SCALE = 100.0000' / 1" =	DRAWN -	REVISED -
PLOT DATE = 5/26/2017	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

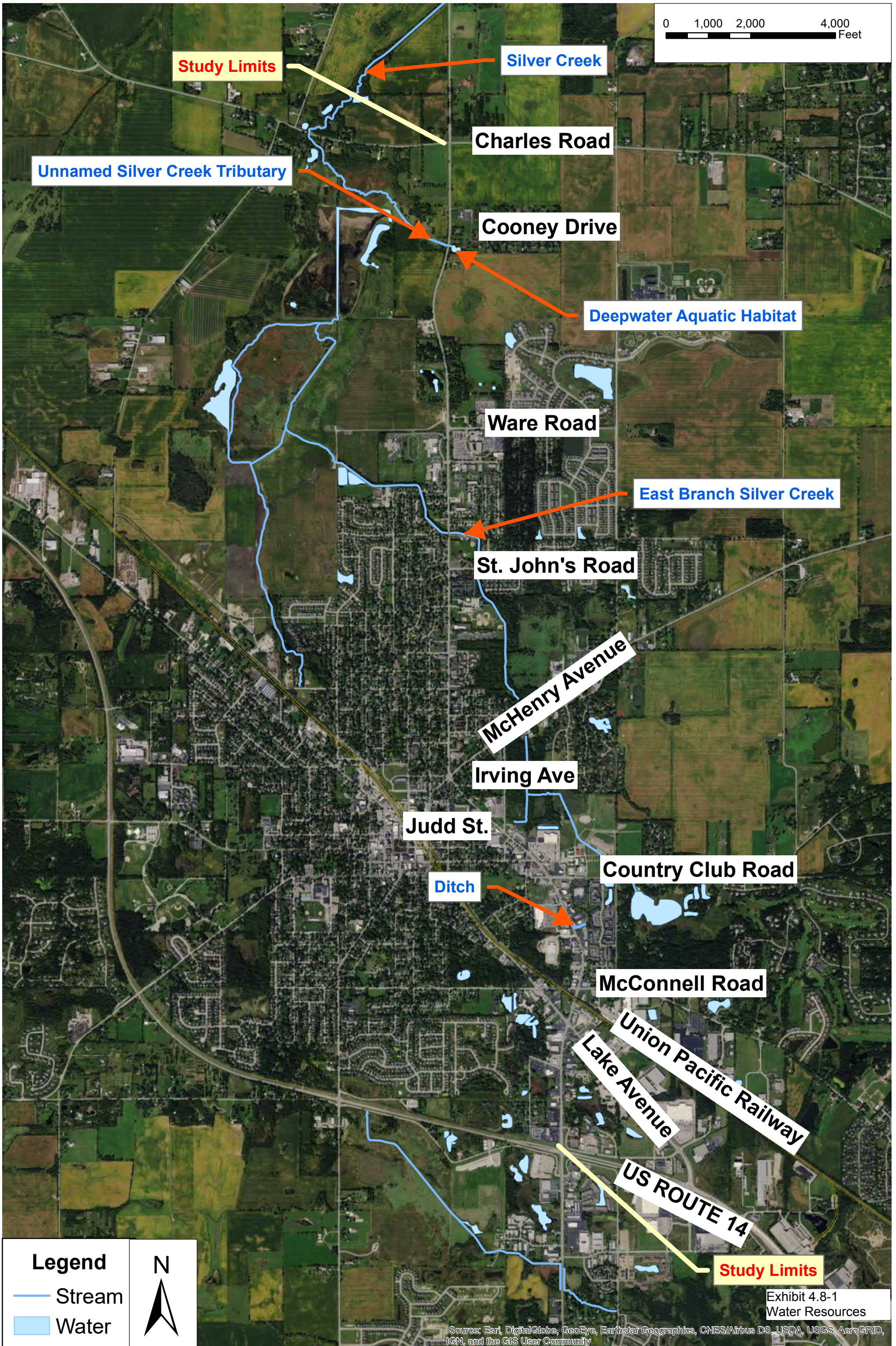
**ILLINOIS ROUTE 47 ADDENDUM C ENVIRONMENTAL SURVEY REQUEST**

SCALE: N-T-S SHEET OF SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			38	38
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



# Water Resources







# Federal Emergency Management Agency

Washington, D.C. 20472

AUG 26 2010

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

The Honorable Dr. Brian Sager  
Mayor, City of Woodstock  
811 Regina Court  
Woodstock, IL 60098

IN REPLY REFER TO:

Case No.: 10-05-3025P  
Community Name: City of Woodstock, IL  
Community No.: 170488  
Effective Date of  
This Revision: January 20, 2011

Dear Mayor Sager:

The Flood Insurance Study Report and Flood Insurance Rate Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel(s) revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Chicago, Illinois, at (312) 408-5529, or the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

Sincerely,

David N. Bascom, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate

For: Kevin C. Long, Acting Chief  
Engineering Management Branch  
Mitigation Directorate

List of Enclosures:

Letter of Map Revision Determination Document  
Annotated Flood Insurance Rate Map  
Annotated Flood Insurance Study Report

Exhibit 4.10-1  
FIRM

cc: Mr. Alan E. Wilson  
City of Woodstock  
Department of Public Works  
326 Washington Street  
Woodstock, IL 60098

Mr. Mark Phipps, P.E., CFM  
McHenry County  
Department of Planning & Development  
2200 North Seminary Avenue  
Woodstock, IL 60098

Mr. Carl Kupfer, P.E.  
IG Consulting, Inc.  
300 Marquardt Drive  
Suite 101  
Wheeling, IL 60090

Mr. Ken A. Koehler  
Chairman, McHenry County Board  
2200 North Seminary Avenue  
Woodstock, IL 60098





# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Woodstock McHenry County Illinois	NO PROJECT	HYDRAULIC ANALYSIS HYDROLOGIC ANALYSIS
	COMMUNITY NO.: 170488		
IDENTIFIER	Basin - Headwaters of Silver Creek Tributary 1	APPROXIMATE LATITUDE & LONGITUDE: 42.319, -88.436 SOURCE: USGS QUADRANGLE DATUM: NAD 27	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM* NO.: 17111C0183J DATE: November 16, 2006 TYPE: FIRM* NO.: 17111C0179J DATE: November 16, 2006		DATE OF EFFECTIVE FLOOD INSURANCE STUDY: November 16, 2006 STILLWATER ELEVATION TABLE: TABLE 5	

Enclosures reflect changes to flooding sources affected by this revision.

\* FIRM - Flood Insurance Rate Map

### FLOODING SOURCE(S) & REVISED REACH(ES)

See Page 2 for Additional Flooding Sources

Unnamed Ponding Area 9 - From approximately 750 feet downstream to approximately 3,050 feet upstream of McHenry Avenue/State Highway 120

### SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Unnamed Ponding Area 9	Zone A	Zone A	NONE	YES
	Zone A	Zone AE	NONE	YES
	Zone A	Zone X (shaded)	NONE	YES
	Zone X (unshaded)	Zone X (unshaded)	YES	YES
	No BFEs	BFEs	YES	NONE

\* BFEs - Base Flood Elevations

### DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

David N. Bascom, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate

Exhibit 4.10-1  
FIRM

10-05-3025P

.02-1-A-C



Federal Emergency Management Agency  
Washington, D.C. 20472

**LETTER OF MAP REVISION  
DETERMINATION DOCUMENT (CONTINUED)**

**OTHER COMMUNITIES AFFECTED BY THIS REVISION**

**CID Number:** 170732      **Name:** McHenry County, Illinois

**AFFECTED MAP PANELS**

**AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT**

TYPE: FIRM\*      NO.: 17111C0183J      DATE: November 16, 2006

DATE OF EFFECTIVE FLOOD INSURANCE STUDY: November 16, 2006  
STILLWATER ELEVATION TABLE: TABLE 5

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

David N. Bascom, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate

Exhibit 4.10-1  
FIRM





# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

### COMMUNITY INFORMATION

#### APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

#### COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance discharges computed in the submitted hydrologic model. Future development of projects upstream could cause increased discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on discharges and could, therefore, indicate that greater flood hazards exist in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

A handwritten signature in black ink, appearing to read "David N. Bascom".

David N. Bascom, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate

Exhibit 4.10-1  
FIRM



Federal Emergency Management Agency  
Washington, D.C. 20472

**LETTER OF MAP REVISION  
DETERMINATION DOCUMENT (CONTINUED)**

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Norbert Schwartz  
Director, Mitigation Division  
Federal Emergency Management Agency, Region V  
536 South Clark Street, Sixth Floor  
Chicago, IL 60605  
IN,MI,OH:(312)408-5364 WI:(312) 408-5529 MN,IL:(312)408-5245

**STATUS OF THE COMMUNITY NFIP MAPS**

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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David N. Bascom, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate

Exhibit 4.10-1  
FIRM

10-05-3025P

.02-I-A-C





Federal Emergency Management Agency  
Washington, D.C. 20472

LETTER OF MAP REVISION  
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NAVD 88)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Unnamed Ponding Area 9	Entire ponding area	None	882	17111C0183J 17111C0179J

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised BFEs presented in this LOMR may be changed.

A notice of changes will be published in the *Federal Register*. A short notice also will be published in your local newspaper on or about the dates listed below. Please refer to FEMA's website at [https://www.floodmaps.fema.gov/fhm/Scripts/bfe\\_main.asp](https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp) for a more detailed description of proposed BFE changes, which will be posted approximately within two weeks of the date of this letter




LOCAL NEWSPAPER      Name: *The Woodstock Independent*  
Dates: September 15, 2010 and September 22, 2010

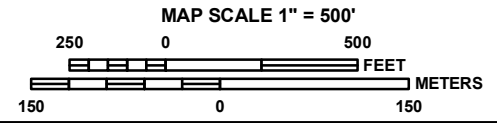
This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 6730 Santa Barbara Court, Elkridge, MD 21075. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

David N. Bascom, CFM, Program Specialist  
Engineering Management Branch  
Mitigation Directorate

Exhibit 4.10-1  
FIRM



- Legend
-  1% annual chance (100-Year) Floodplain
  -  1% annual chance (100-Year) Floodway
  -  0.2% annual chance (500-Year) Floodplain



**NFIP**

PANEL 0179J

**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**MCHENRY COUNTY,**  
**ILLINOIS**  
**AND INCORPORATED AREAS**

**PANEL 179 OF 365**  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MCHENRY COUNTY, Unincorporated Areas	170732	0179	J
WOODSTOCK, CITY OF	170488	0179	J

**REVISED TO**  
**REFLECT LOMR**  
**EFFECTIVE**  
**JAN 20, 2011**

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



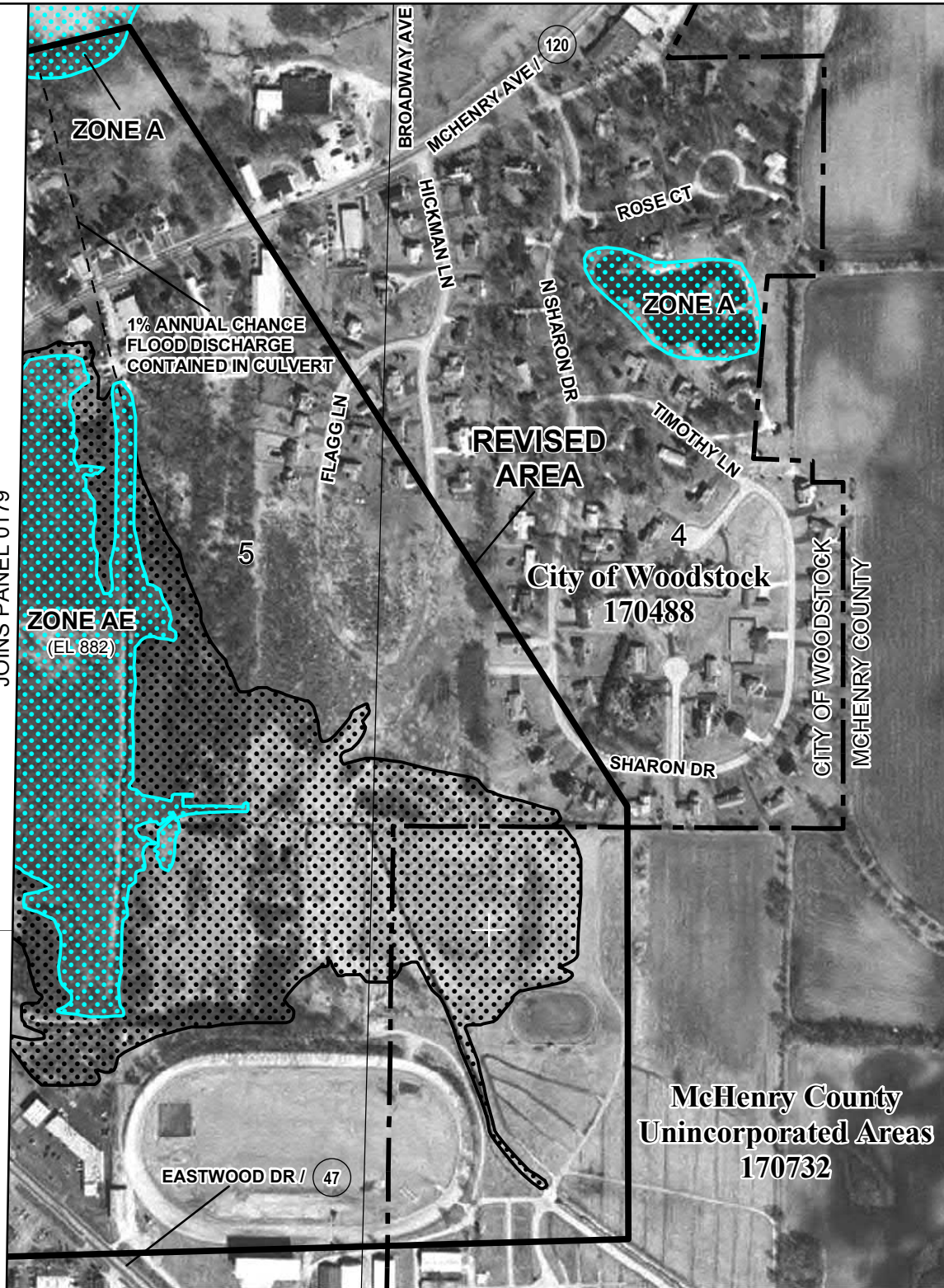
**MAP NUMBER**  
**17111C0179J**  
**EFFECTIVE DATE**  
**NOVEMBER 16, 2006**

Federal Emergency Management Agency

Exhibit 4.10-1  
 FIRM

JOINS PANEL 0183





Legend

- 1% annual chance (100-Year) Floodplain
- 1% annual chance (100-Year) Floodway
- 0.2% annual chance (500-Year) Floodplain



MAP SCALE 1" = 500'



**NFIP**

PANEL 0183J

**FIRM**  
**FLOOD INSURANCE RATE MAP**  
**MCHENRY COUNTY,**  
**ILLINOIS**  
**AND INCORPORATED AREAS**

**PANEL 183 OF 365**  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BULL VALLEY, VILLAGE OF	170977	0183	J
MCHENRY COUNTY, Unincorporated Areas	170732	0183	J
WOODSTOCK, CITY OF	170488	0183	J

**REVISED TO REFLECT LOMR EFFECTIVE JAN 20, 2011**

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



**MAP NUMBER**  
**17111C0183J**  
**EFFECTIVE DATE**  
**NOVEMBER 16, 2006**

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

JOINS PANEL 0179

46° 86' 00" N

Table 5 – Summary of Stillwater Elevations (Continued)

Flooding Source	Elevation (feet NAVD)			
	10-Percent- Annual-Chance	2-Percent- Annual-Chance	1-Percent- Annual-Chance	0.2-Percent- Annual-Chance
Unnamed Ponding Area 8 Located south of Chicago and North Western Railroad, approximately 3,400 feet east of Prospect Street and north of Grant Highway	*	*	818.1	*
Unnamed Ponding Area 9 Located north of Union Pacific Railroad, just south of McHenry avenue/State Highway 120 and just north of North Eastwood Drive/State Highway 47	*	*	882.0	*

AREA  
REVISED



\*Data not available

### 3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the Flood Insurance Rate Map (FIRM) represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data Table in the FIS report. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use flood elevation data presented in this FIS report in conjunction with the data shown on the FIRM.

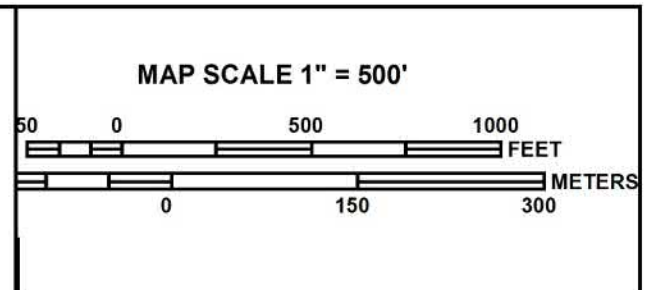
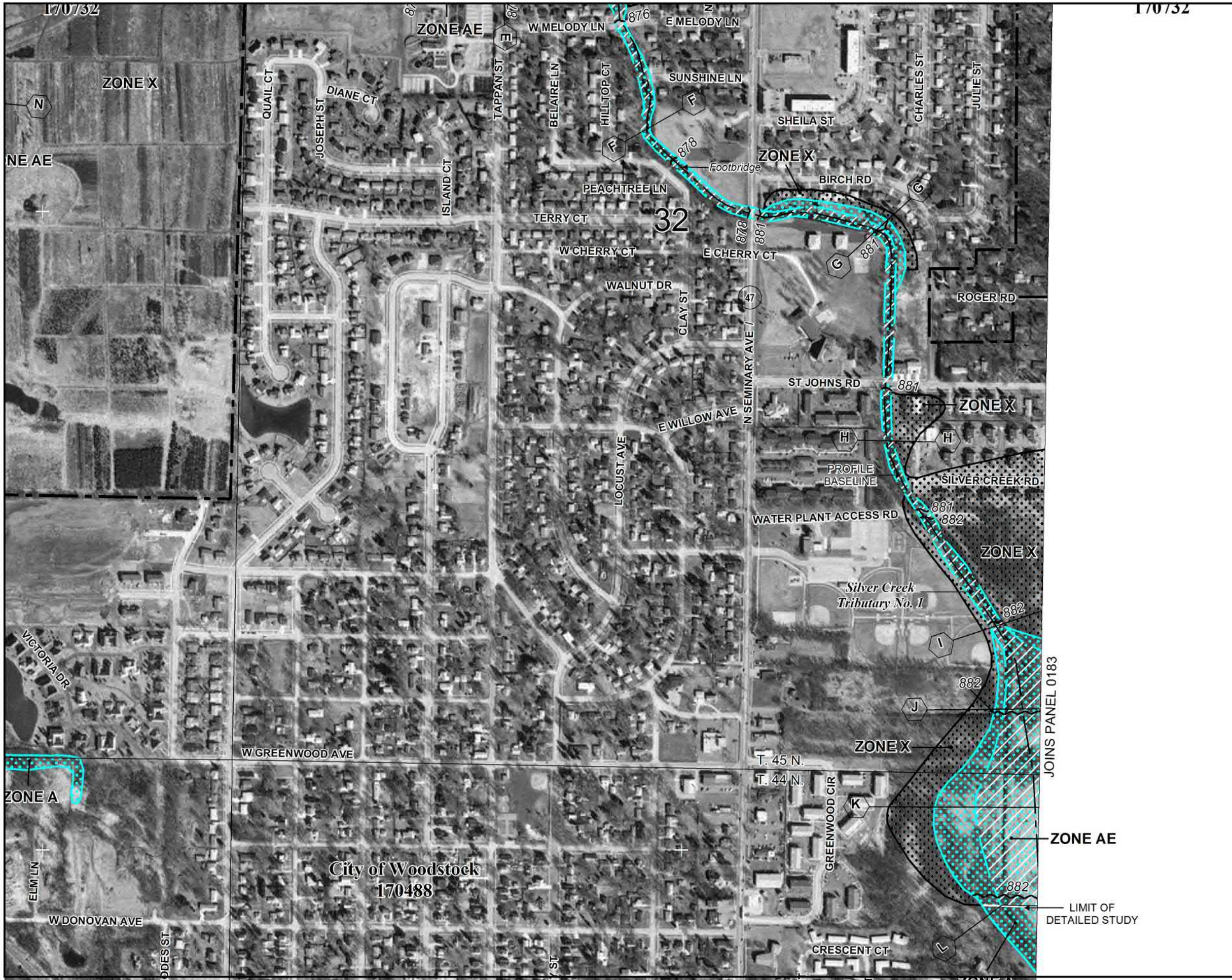
Most cross sections for South Branch Kishwaukee River and Kishwaukee Creek were determined from field surveys, though some overbank portions were determined from field surveys and topographic maps (Reference 43). Some Kishwaukee Creek cross-section information was obtained from Cowhey, Gudmundson, Leder, Ltd. WSELs were computed using the HEC-2 computer program (Reference 42). The starting WSELs for South Branch Kishwaukee River at Seeman Road as well as for Kishwaukee Creek were computed using slope-area method.

Cross section data for, Silver Creek and Mokeler Creek were obtained by field survey. All bridges and culverts were also surveyed to obtain elevation data and structural geometry. WSELs were developed using the HEC-2 computer step-backwater model (Reference 42). The HEC-2 model on Silver Creek was calibrated using known stage-discharge relationships from the flood of February 1966.

Cross sections for the backwater analyses for Cotton Creek, Eakin Creek, Fox River, Nippersink Creek, North Branch Nippersink Creek, Elizabeth Lake Drain, Dutch Creek, Dutch Creek-North Branch, Dutch Creek-Branch to Northwest, Dutch Creek-North Fork of Branch to Northwest, Dutch Creek-West Fork of North Fork of Branch to Northwest, Slough Creek, South Branch Slough Creek, Silver Creek Tributary No. 1, Silver Creek Tributary No. 2, and Cary Creek were determined from field surveys, with some overbank sections determined from

REVISED TO  
REFLECT LOMR  
EFFECTIVE  
JAN 20, 2011





**NFP** PANEL 0179J

**FIRM**  
FLOOD INSURANCE RATE MAP

**McHENRY COUNTY, ILLINOIS AND INCORPORATED AREAS**

PANEL 179 OF 365  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
McHENRY COUNTY	170732	0179	J
WOODSTOCK, CITY OF	170488	0179	J

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
17111C0179J

**EFFECTIVE DATE**  
NOVEMBER 16, 2006

Federal Emergency Management Agency

**NATIONAL FLOOD INSURANCE PROGRAM**

JOINS PANEL 0183

ZONE AE

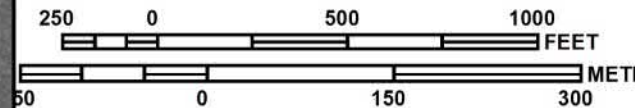
LIMIT OF DETAILED STUDY

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)





MAP SCALE 1" = 500'



NFIP

PANEL 0177J

# FIRM

FLOOD INSURANCE RATE MAP

McHENRY COUNTY,  
ILLINOIS  
AND INCORPORATED AREAS

PANEL 177 OF 365

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
McHENRY COUNTY	170732	0177	J
WOODSTOCK, CITY OF	170488	0177	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER  
17111C0177J



EFFECTIVE DATE  
NOVEMBER 16, 2006

Federal Emergency Management Agency

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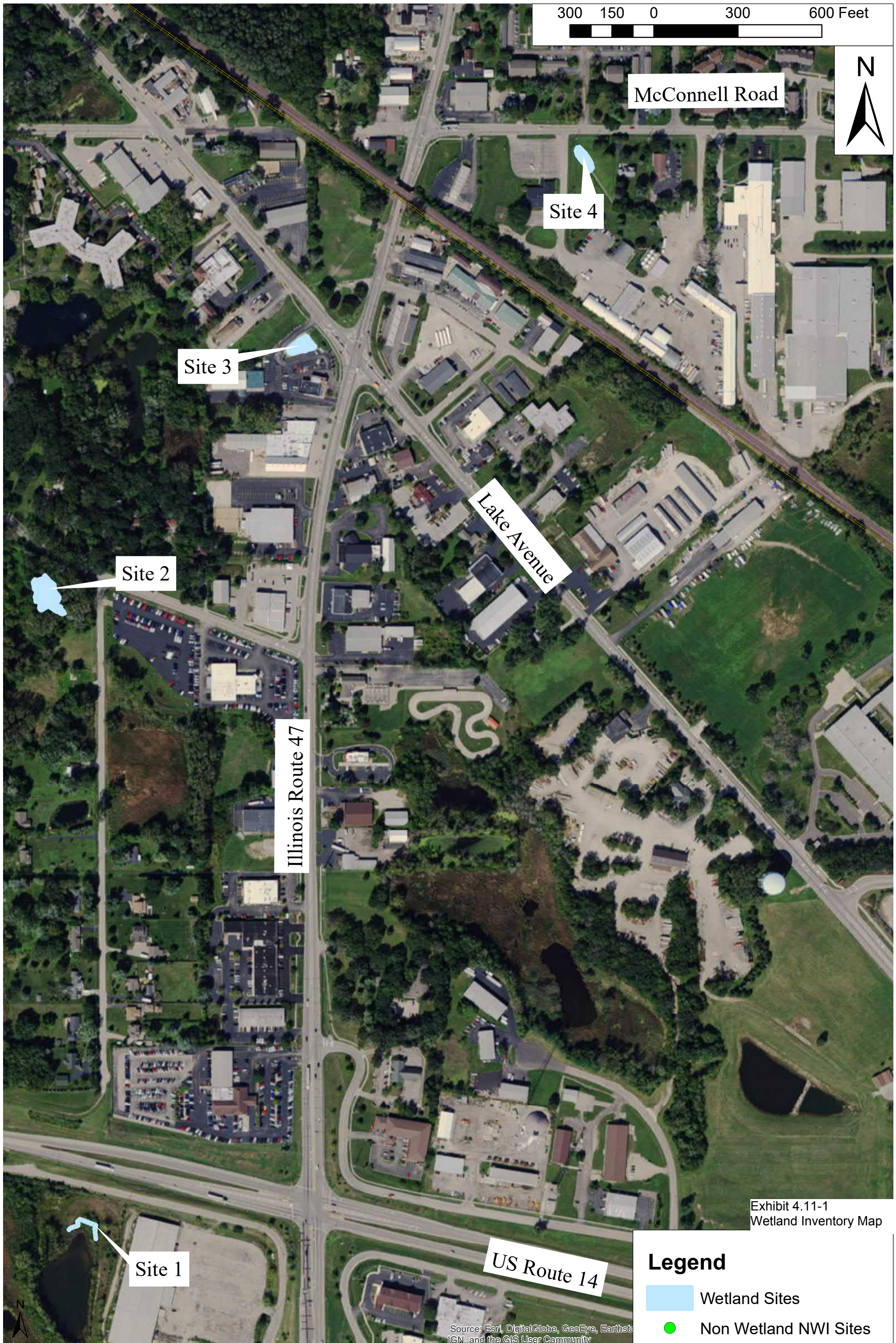
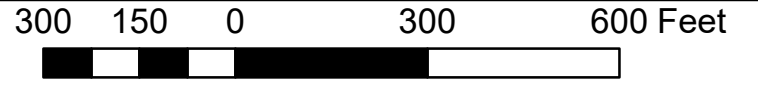


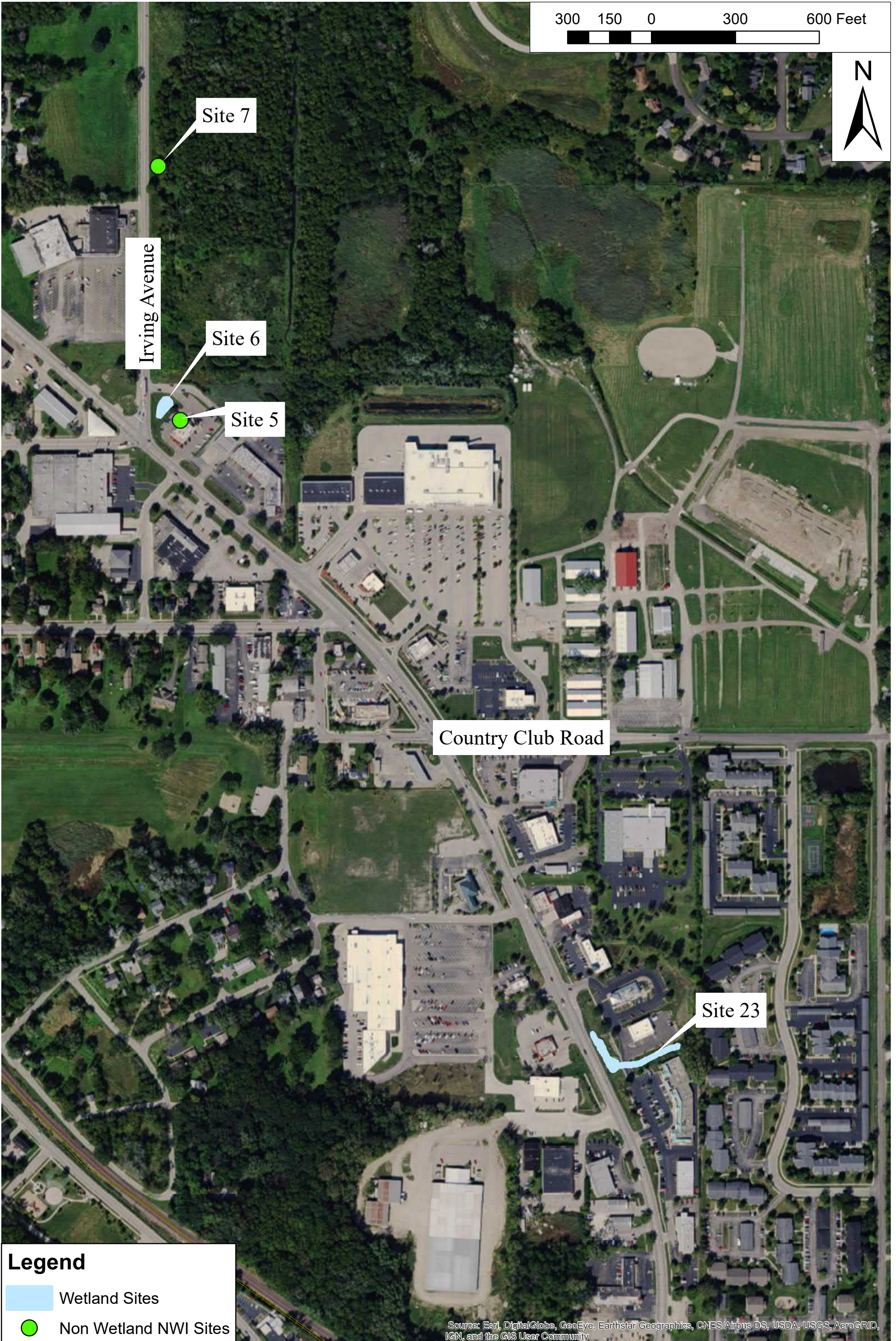
Exhibit 4.11-1  
Wetland Inventory Map

**Legend**

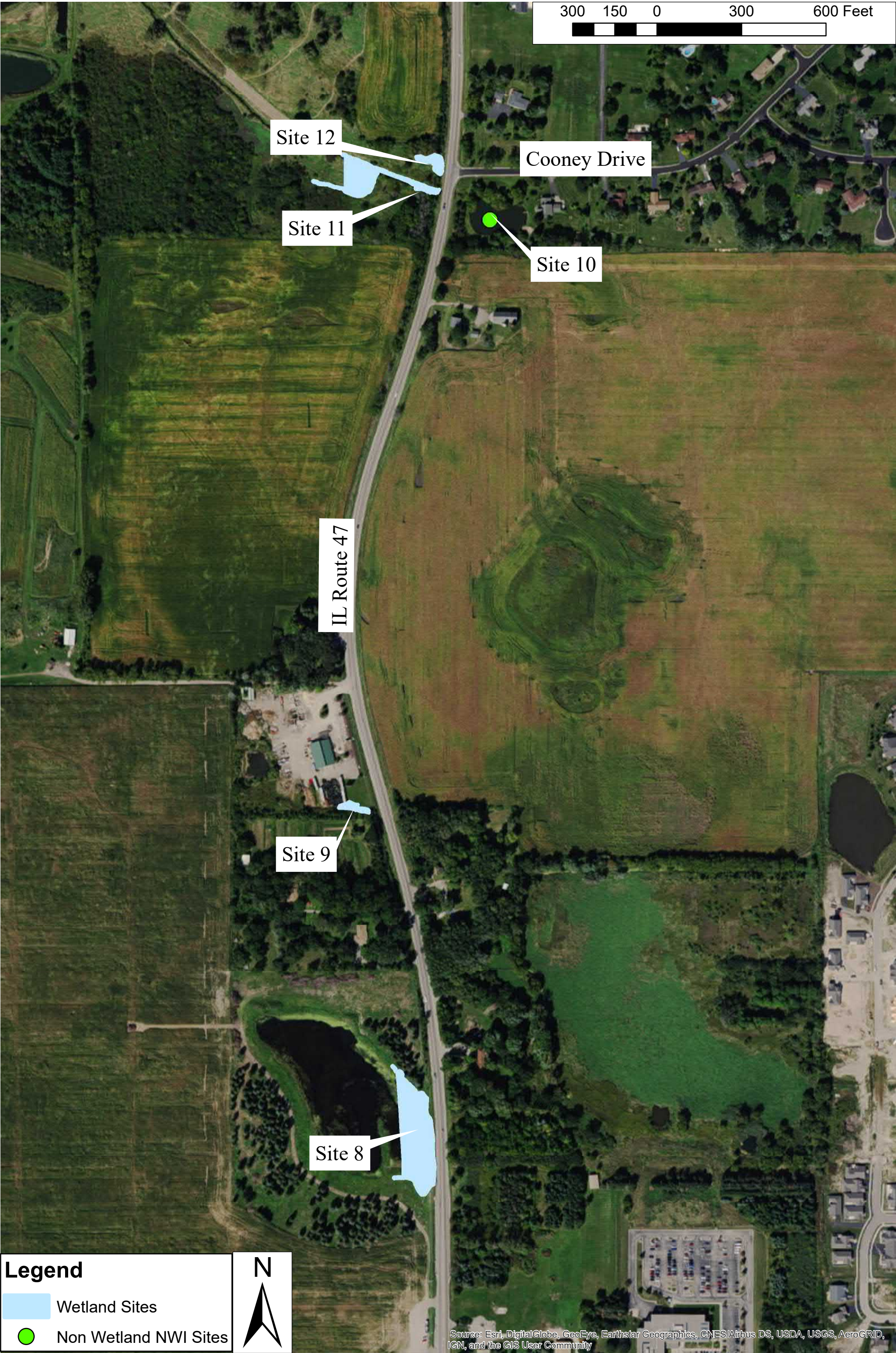
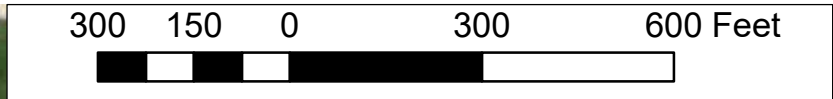
-  Wetland Sites
-  Non Wetland NWI Sites

Source: Esri, DigitalGlobe, GeoEye, Earthstar, IGN, and the GIS User Community









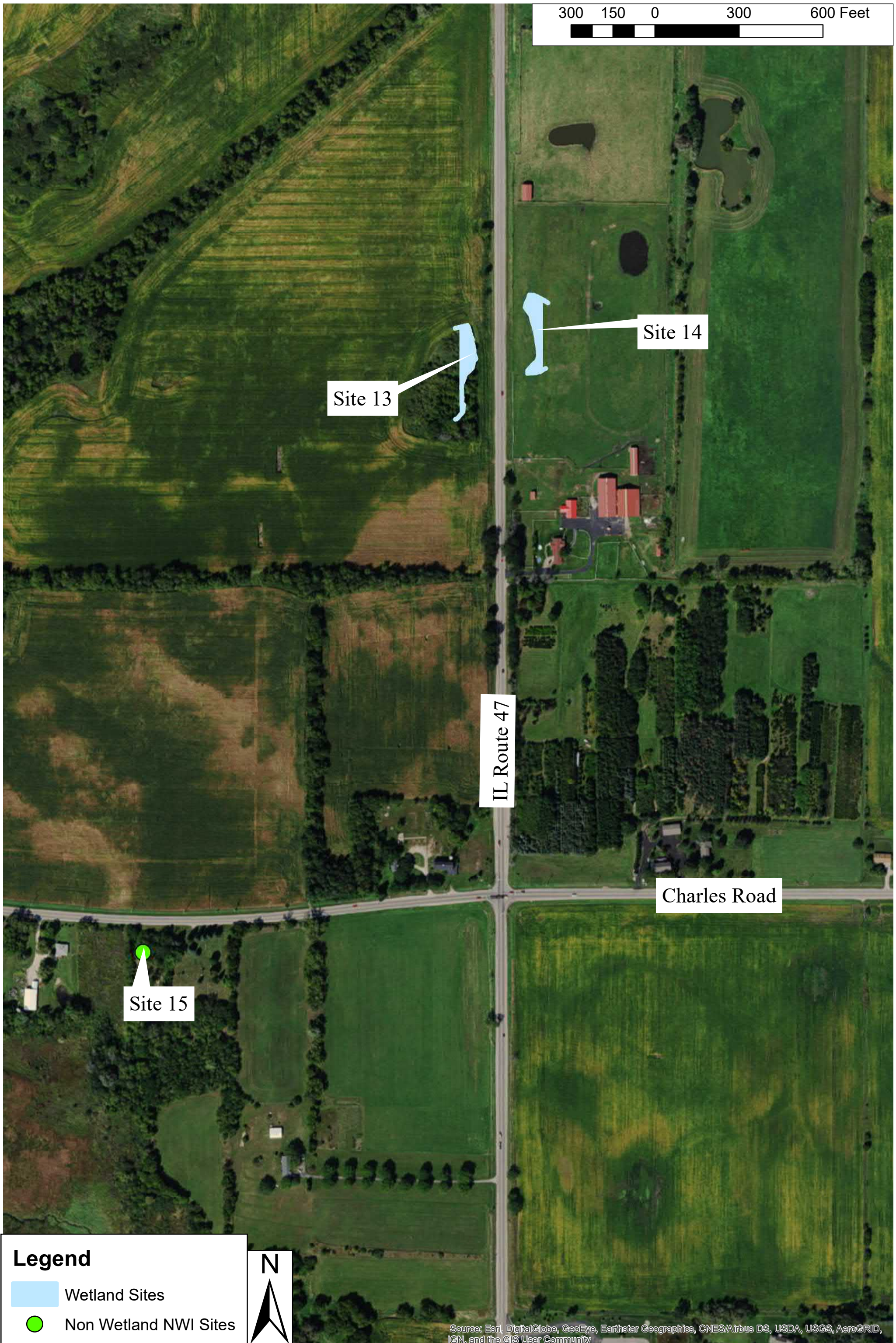
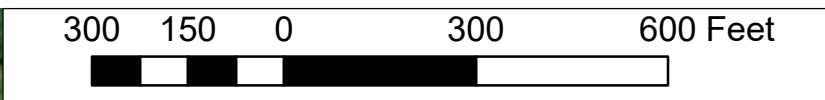
**Legend**

-  Wetland Sites
-  Non Wetland NWI Sites



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community





Site 13

Site 14

IL Route 47

Charles Road

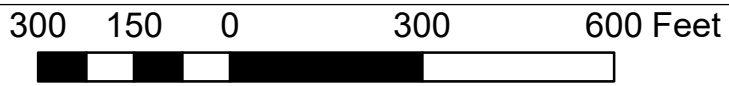
Site 15

**Legend**

-  Wetland Sites
-  Non Wetland NWI Sites







**Legend**

-  Wetland Sites
-  Non Wetland NWI Sites








Site 21

Lamb Road

IL Route 120

Site 22

**Legend**

-  Wetland Sites
-  Non Wetland NWI Sites





## EXECUTIVE SUMMARY

This report presents the results of an environmental site assessment for the improvements to IL 47 from US 14 to Charles Road, Woodstock, McHenry County. This report was prepared on behalf of the Illinois Department of Transportation (IDOT) by the Illinois State Geological Survey (ISGS).

The following sites were examined for this project. The tables below list sites along the project for which recognized environmental conditions (RECs)\* were identified for each address or address range (Table 1); sites along the project for which only de minimis conditions were identified (Table 2); sites along the project for which no RECs or de minimis conditions were identified (Table 3); and sites adjoining but not on the project that were identified on environmental databases (Table 4). Further investigation of sites with RECs may be desired.

**Table 1. The following sites along the project were determined to contain RECs:**

Property name IDOT parcel #	ISGS site #	REC(s), including de minimis conditions	Regulatory database(s)	Land use
First Presbyterian Church of Woodstock NA	2279V-6	AST; potential ACM and lead paint	None	Church
Stonetree Nursery and Garden Center NA	2279V-12	AST; transformers; potential pesticide and/or herbicide presence; potential ACM and lead paint	None	Commercial
McHenry County Administrative Building NA	2279V-18	Evidence of chemical use; transformer; potential ACM and lead paint	BOL	Government
Northwood Middle School NA	2279V-19	Evidence of chemical use; potential ACM and lead paint	BOL	Educational
McHenry County Government Center NA	2279V-20	USTs; former USTs with documented releases; evidence of chemical use; spill; transformers; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA,	Government
Verda Dierzen Early Learning Center NA	2279V-21	Former UST with a documented release; potential ACM and lead paint	UST, LUST, BOL, IEMA	Educational

City of Woodstock NA	2279V-39	Evidence of chemical use; spill; transformer; potential ACM and lead paint	RCRA, BOL, IEMA	Government
Law Office of Michael J. McNerney NA	2279V-42	Potential former chemical use; transformer; potential ACM and lead paint	None	Commercial
Schneider, Leucht, Merwin and Cooney Funeral Home NA	2279V-45	Potential chemical use; transformers; potential ACM and lead paint	None	Commercial
Commercial building NA	2279V-49	Former monitoring well; potentially impacted groundwater	None	Commercial
Commercial building NA	2279V-51	Former USTs; potential chemical use; transformer; potential ACM and lead paint	UST	Commercial
The Vine NA	2279V-52	Former monitoring well; potential ACM and lead paint	None	Church
Mobil gasoline station NA	2279V-53	USTs; former USTs with a documented release; potential UST(s); monitoring wells; former monitoring wells; impacted soil; transformer; potential ACM and lead paint	UST, LUST, BOL, IEMA, AULs	Commercial
Woodstock Court NA	2279V-61	Potential UST(s); potential former chemical use; transformer; potential ACM and lead paint	None	Commercial
Residence NA	2279V-65	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Woodstock Free Methodist Church NA	2279V-66	Former monitoring well; potentially impacted groundwater; potential ACM and lead paint	AUL	Church



Residence NA	2279V-67	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-68	Potentially impacted groundwater; potential ACM	AUL	Residential
Residence NA	2279V-69	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-70	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-71	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-72	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-73	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-74	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-75	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Senior Living Center NA	2279V-76	Potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial
Heartstone Manor NA	2279V-77	Former drums; potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial
Residence NA	2279V-78	Former monitoring well; potentially impacted groundwater; potential ACM and lead paint	AUL	Residential

Residence NA	2279V-79	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-80	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-81	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-82	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-83	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-84	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Prairie Homes of Hearthstone NA	2279V-85	Potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial
Residential building NA	2279V-86	Potentially impacted groundwater; transformer; potential ACM	AUL	Residential
Residence NA	2279V-87	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-88	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-89	Former monitoring well; potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-90	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential



Residence NA	2279V-91	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-92	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-93	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-94	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-95	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-96	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-97	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-98	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-99	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Crossroads Care Center NA	2279V-100	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Success Reality NA	2279V-101	Potential UST(s); potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Church NA	2279V-102	Potentially impacted groundwater; potential ACM and lead paint	AUL	Church
Residence NA	2279V-103	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential

Residence NA	2279V-104	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-105	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-106	Potentially impacted groundwater; potential ACM	AUL	Residential
Residence NA	2279V-107	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-108	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-109	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-110	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-111	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
SVB Home Loans NA	2279V-112	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Residential building NA	2279V-113	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-114	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-115	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-116	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential



Residence NA	2279V-117	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-118	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-119	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-120	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-121	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-122	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-123	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-124	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-125	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-126	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-127	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-128	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-129	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential

Residence NA	2279V-130	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-131	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-132	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-133	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-134	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-135	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-136	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-137	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-138	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-139	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-140	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-141	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-142	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential



Residence NA	2279V-143	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-144	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-145	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-146	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-147	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-148	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-149	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
A Hartlett & Son NA	2279V-150	Potential chemical use; potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Residential
Emerson Lofts NA	2279V-151	UST; evidence of former chemical use; former chemical tanks; potentially impacted groundwater; transformers; potential ACM and lead paint	RCRA, UST, BOL, AUL	Residential
Vacant lot NA	2279V-152	Potentially impacted groundwater	AUL	Vacant

Botts Welding and Truck Services NA	2279V-153	Former USTs with a documented release; potential UST(s); evidence of chemical use; AST; drums; potential monitoring wells; impacted soil and groundwater; transformers; solid waste; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA, AULs	Commercial
Woodstock Fire Rescue NA	2279V-154	Potential UST(s); potential chemical use; potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Municipal
Commercial building NA	2279V-155	Potential UST(s); potential former chemical use; potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Residence NA	2279V-156	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-157	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-158	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-159	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Botts Parts Department NA	2279V-160	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial



Commercial building NA	2279V-161	Potential former chemical use; monitoring well; potentially impacted groundwater; potential ACM and lead paint	AUL	Industrial
Shopfresh Market NA	2279V-162	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Commercial building NA	2279V-163	Evidence of chemical use; potentially impacted groundwater; potential ACM and lead paint	RCRA, BOL, AUL	Commercial
Vacant lot NA	2279V-164	Former USTs with a documented release; potential UST(s); potential former chemical use; monitoring wells; former monitoring wells; potential monitoring well; impacted soil and groundwater; transformers	UST, LUST, BOL, IEMA, AULs	Vacant
Vacant land NA	2279V-165	Potentially impacted groundwater; likely past pesticide and/or herbicide use	AUL	Vacant
Residence NA	2279V-166	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Allstate NA	2279V-167	Potential former chemical use; potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Matrix IV NA	2279V-168	Evidence of chemical use; spill; potentially impacted groundwater; transformers; potential ACM and lead paint	ERNS, BOL, AUL	Industrial

Vacant land NA	2279V-169	Impacted groundwater; potential monitoring wells; likely past pesticide and/or herbicide use	AUL	Vacant
Wendy's NA	2279V-170	Monitoring well; former monitoring wells; impacted soil and groundwater; potential ACM and lead paint	AUL	Commercial
Shell NA	2279V-171	USTs with documented releases; potential UST(s); evidence of chemical use; former monitoring wells; impacted soil and groundwater; transformers; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA, AULs	Commercial
Commercial building NA	2279V-172	Potential UST(s); evidence of former chemical use; potential chemical use; former monitoring wells; transformer; potential ACM and lead paint	BOL, AUL	Commercial
Ace Hardware NA	2279V-173	Potentially impacted groundwater; transformers; potential ACM and lead paint	AUL	Commercial
Great Lakes Credit Union NA	2279V-174	Former USTs; potential UST(s); potential former chemical use; former drums; potentially impacted groundwater; potential ACM and lead paint	UST, BOL, IEMA, AUL	Commercial
Commercial building NA	2279V-175	Potential chemical use; potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial



Commercial building NA	2279V-176	Evidence of chemical use; potentially impacted groundwater; transformers; potential ACM and lead paint	RCRA, BOL, AUL	Commercial
Shell NA	2279V-177	USTs; monitoring wells; potentially impacted groundwater; transformers; potential ACM and lead paint	UST, AUL	Commercial
Commercial building NA	2279V-178	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Harmony Falls NA	2279V-179	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Chase NA	2279V-180	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Woodstock Car Wash NA	2279V-181	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Northwest Health Care Center NA	2279V-182	Potentially impacted groundwater; potential ACM and lead paint	AUL	Commercial
Residence NA	2279V-183	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
Residence NA	2279V-184	Potentially impacted groundwater; potential ACM and lead paint	AUL	Residential
McDonalds NA	2279V-185	Potentially impacted groundwater; transformers; potential ACM and lead paint	AUL	Commercial

BP gasoline station NA	2279V-186	USTs; potential UST(s); evidence of chemical use; potentially impacted groundwater; VOCs, SVOCs, and metals; potential ACM and lead paint	RCRA, UST, BOL, AUL	Commercial
Panera NA	2279V-187	Former USTs with a documented release; evidence of former chemical use; former monitoring wells; impacted soil and groundwater; VOCs; HAA; transformer; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA, AULs, HAA	Commercial
Golden Eagle Community Bank of Woodstock NA	2279V-188	Former USTs with a documented release; potential UST(s); evidence of former chemical use; potentially impacted groundwater; transformer; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA, AULs,	Commercial
McHenry County Fair Grounds NA	2279V-189	ASTs; potentially impacted groundwater; transformers; potential ACM and lead paint	AUL	Recreational
Residential building NA	2279V-190	Potentially impacted groundwater; transformers; potential ACM	AUL	Residential
US Post Office NA	2279V-191	Potentially impacted groundwater; potential ACM and lead paint	AUL	Government
Walgreens NA	2279V-192	Potentially impacted groundwater; transformers; potential ACM and lead paint	AUL	Commercial
Vacant land NA	2279V-193	Potentially impacted groundwater	AUL	Vacant



Commercial building NA	2279V-194	Evidence of chemical use; potentially impacted groundwater; transformers; potential ACM and lead paint	RCRA, BOL, AUL	Commercial
Commercial building NA	2279V-195	Potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial
Eastwood Service Center NA	2279V-196	Potential UST(s); potential chemical use; AST; former AST; drums; presence on BOL list; potentially impacted groundwater; transformers; potential ACM and lead paint	BOL, AUL	Commercial
Gas Cap NA	2279V-197	USTs with a documented release; potential UST(s); potential chemical use; monitoring wells; potential injection well; impacted soil and groundwater; transformer; potential ACM and lead paint	UST, LUST, BOL, IEMA, UIC, AUL	Commercial
Taco Bell NA	2279V-198	Potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial
Commercial building NA	2279V-199	Monitoring well; potentially impacted groundwater; transformers; potential ACM and lead paint	AUL	Commercial
Tommy's Red Hots NA	2279V-200	Potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial

Advanced Auto Parts NA	2279V-201	Evidence of chemical use; potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial
Burger King NA	2279V-202	Potentially impacted groundwater; transformer; potential ACM and lead paint	AUL	Commercial
Sherwin-Williams Paints NA	2279V-203	Potential chemical use; potentially impacted groundwater; transformers; potential ACM and lead paint	AUL	Commercial
Residential building NA	2279V-204	Potentially impacted groundwater; potential ACM	AUL	Residential
Residential building NA	2279V-205	Potentially impacted groundwater; transformer; potential ACM	AUL	Residential
Centerville Plaza NA	2279V-206	Potential UST(s); potential chemical use; presence on BOL list; potentially impacted groundwater; potential ACM and lead paint	BOL, AUL	Commercial
Commercial building NA	2279V-207	Potential former chemical use; potential ACM and lead paint	None	Commercial
Eastwood Plaza NA	2279V-208	Potential chemical use; transformer; potential ACM and lead paint	None	Commercial
Enterprise Rent-A-Car NA	2279V-209	Potential former chemical use; potential ACM and lead paint	None	Commercial
Woodstock Community Thrift NA	2279V-211	Potential former chemical use; potential ACM and lead paint	None	Commercial



Woodstock Business Center NA	2279V-212	Evidence of chemical use; spill; former monitoring wells; potential monitoring well; potential drum; impacted soil and groundwater; transformer; potential ACM and lead paint	RCRA, BOL, SRP, IEMA, AULs	Commercial
Commercial buildings NA	2279V-213	Potential former chemical use; potential ACM and lead paint	None	Commercial
Commercial building NA	2279V-214	Former UST; potential UST(s); potential former chemical use; monitoring wells; potential monitoring wells; impacted soil and groundwater; VOCs; potential ACM and lead paint	RCRA, BOL, SRP, municipal	Commercial
DeCraene's Service Center NA	2279V-215	Former USTs with documented a release; potential UST(s); evidence of chemical use; monitoring well; potential monitoring wells; former monitoring well; impacted soil and groundwater; VOCs; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA	Commercial
Serien Manufacturing NA	2279V-218	Evidence of former chemical use; potential chemical use; VOCs and metals; transformers; potential ACM and lead paint	RCRA, BOL	Industrial
Turnkey Digital NA	2279V-219	Former UST; potential ACM and lead paint	UST	Commercial

Amerimex NA	2279V-220	Potential UST(s); evidence of former chemical use; potential chemical use; metals; potential ACM and lead paint	BOL	Commercial
Quick Beverage Mart NA	2279V-221	Potential UST(s); potential former chemical use; potential ACM and lead paint	None	Commercial
Dwight's Autobody NA	2279V-223	Potential UST(s); evidence of chemical use; potential ASTs; potential drums; potential ACM and lead paint	RCRA, BOL	Commercial
Cycle Craft NA	2279V-224	Potential UST(s); evidence of chemical use; VOCs, SVOCs, and metals; potential ACM and lead paint	BOL	Commercial
Mambo Wash NA	2279V-225	Evidence of chemical use; transformer; potential ACM and lead paint	BOL	Commercial
McHenry County Farm Bureau NA	2279V-226	Former UST; presence on BOL list; potential ACM and lead paint	UST, BOL	Government
Conserv FS NA	2279V-228	Former USTs with a documented release; ASTs; evidence of chemical use; monitoring wells; surface staining; spill; impacted soil and groundwater; transformers; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA	Commercial
Commercial building NA	2279V-229	Evidence of former chemical use; transformer; potential ACM and lead paint	RCRA, BOL	Commercial



Commercial building NA	2279V-230	Evidence of former chemical use; potential chemical use; transformers; potential ACM and lead paint	RCRA, BOL	Commercial
Flocon, Inc. NA	2279V-231	Evidence of former chemical use; potential chemical use; transformers; potential ACM and lead paint	RCRA, BOL	Industrial
Union Pacific Railroad NA	2279V-232	Fill; potential ACM	None	Transportation
Woodstock Police Department NA	2279V-234	Potential UST(s); evidence of chemical use; potential ACM and lead paint	BOL	Municipal
Gavers Automotive Service NA	2279V-237	Former USTs with a documented release; potential UST(s); potential chemical use; transformer; potential ACM and lead paint	UST, LUST, BOL, IEMA	Commercial
Sno-Belt Industries NA	2279V-238	Evidence of chemical use; potential ACM and lead paint	BOL	Industrial
Commercial building NA	2279V-241	Potential former chemical use; potential ACM and lead paint	None	Commercial
Commercial building NA	2279V-243	USTs with a documented release; potential UST(s); evidence of former chemical use; impacted soil; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA	Commercial
Commercial building NA	2279V-246	Potential UST(s); potential former chemical use; transformer; potential ACM and lead paint	None	Commercial

Colonial Antique Mall and Restoration Center NA	2279V-247	Former USTs; potential chemical use; potential ACM and lead paint	UST	Commercial
Vacant lot NA	2279V-250	Evidence of former chemical use; transformers	RCRA, BOL	Vacant
Marco Auto Mechanics NA	2279V-251	Potential UST(s); evidence of chemical use; transformers; potential ACM and lead paint	BOL	Commercial
Commercial building NA	2279V-253	Potential UST(s); potential former chemical use; potential ACM and lead paint	None	Commercial
Jim Potts Motor Group NA	2279V-254	Evidence of chemical use; transformers; potential ACM and lead paint	BOL	Commercial
Potts and Pans NA	2279V-255	Potential UST(s); evidence of former chemical use; drums; potential ACM and lead paint	RCRA, BOL	Commercial
Car Quest Auto Parts NA	2279V-256	Potential former chemical use; potential ACM and lead paint	None	Commercial
Delaware Electric NA	2279V-257	Potential former chemical use; potential ACM and lead paint	None	Commercial
Marathon gasoline station NA	2279V-260	USTs; former USTs; potential UST(s); evidence of chemical use; monitoring wells; former monitoring wells; potential ACM and lead paint	UST, BOL, SRP	Commercial



O'Reilly Auto Parts NA	2279V-261	Former USTs with a documented release; potential UST(s); evidence of former chemical use; transformers; potential ACM and lead paint	UST, LUST, BOL, SRP, IEMA	Commercial
Plum Tree Industrial Tool & Supply NA	2279V-263	Potential chemical use; potential ACM and lead paint	None	Commercial
Commercial building NA	2279V-268	Evidence of chemical use; drums; transformer; potential ACM and lead paint	BOL	Industrial/ commercial
Commercial building NA	2279V-269	Potential former chemical use; transformers; potential ACM and lead paint	None	Commercial
Commercial building NA	2279V-270	Former USTs with a documented release; impacted soil; transformers; potential ACM and lead paint	UST, LUST, BOL, IEMA	Commercial
Woodstock Autobody NA	2279V-271	Potential UST(s); evidence of chemical use; potential ACM and lead paint	RCRA, BOL	Commercial
Commercial buildings NA	2279V-277	Former USTs with a documented release; evidence of former chemical use; transformer; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA	Commercial
Bull Valley Ford NA	2279V-281	Former USTs; potential UST(s); ASTs; evidence of former chemical use; potential chemical use; impacted soil; transformers; potential ACM and lead paint	RCRA, UST, BOL, SRP, AULs	Commercial

Commercial building NA	2279V-284	Potential chemical use; potential ACM and lead paint	None	Commercial
Armanetti Wine and Spirits NA	2279V-287	Evidence of former chemical use; potential ACM and lead paint	BOL	Commercial
Murphy's Flooring NA	2279V-289	Former USTs with a documented release; potential UST(s); potential former chemical use; transformers; potential ACM and lead paint	UST, LUST, BOL, IEMA	Commercial
Commercial building NA	2279V-290	Former USTs; potential UST(s); potential former chemical use; transformer; potential ACM and lead paint	UST	Commercial
Commercial building NA	2279V-293	Former USTs with a documented release; potential UST(s); former monitoring wells; former AST; evidence of former chemical use; transformer; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA, municipal	Commercial
Benoy Motor Sales NA	2279V-295	Former USTs with a documented release; potential UST(s); AST; former ASTs; evidence of chemical use; presence on SRP list; VOCs; transformer; potential ACM and lead paint	RCRA, UST, LUST, BOL, SRP, IEMA	Commercial



IDOT maintenance facility #117 NA	2279V-298	USTs; former USTs with a documented release; potential UST(s); monitoring wells; former monitoring wells; evidence of chemical use; former dumping; impacted soil; road salt; transformers; potential ACM and lead paint	RCRA, UST, LUST, BOL, IEMA	Government
Commercial building NA	2279V-303	Presence on BOL list; SVOCs, VOCs, and metals; transformers; potential ACM and lead paint	BOL	Commercial
Lake Marine and RV NA	2279V-304	Potential UST(s); potential chemical use; potential ASTs; potential drums; potential chemical container; transformer; potential ACM and lead paint	BOL	Commercial
Mobil gasoline station NA	2279V-305	USTs; potential UST(s); evidence of chemical use; spill; transformers; potential ACM and lead paint	BOL, UST, IEMA	Commercial
Commercial building NA	2279V-306	Potential UST(s); potential chemical use; presence on BOL list; transformer; potential ACM and lead paint	BOL	Commercial
Commercial building NA	2279V-308	Former UST; potential UST(s); potential former chemical use; transformers; potential ACM and lead paint	UST	Commercial
ROW NA	2279V-310	Former monitoring well; transformer	None	Transportation

Cell phone tower NA	2279V-314	AST; transformer; potential ACM and lead paint	None	Utility
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**Table 2. The following sites along the project were determined to contain de minimis conditions only:**

Property name IDOT parcel #	ISGS site #	De minimis condition(s)	Land use
Agricultural land NA	2279V-1	Likely pesticide and/or herbicide use	Agricultural
Red Top Barn NA	2279V-2	Potential ACM and lead paint	Commercial/ residential
Vacant land NA	2279V-3	Likely past pesticide and/or herbicide use	Vacant
Residence NA	2279V-4	Potential ACM and lead paint	Residential
Agricultural land NA	2279V-5	Transformers; likely pesticide and/or herbicide use	Agricultural
Residences NA	2279V-7	Transformer; potential ACM and lead paint	Residential
Farmstead NA	2279V-9	Potential pesticide and/or herbicide presence; potential ACM and lead paint	Farmstead
Agricultural land NA	2279V-10	Transformers; likely pesticide and/or herbicide use	Agricultural
Harrison & Associates NA	2279V-11	Potential ACM and lead paint	Commercial
Residences NA	2279V-13	Transformer; potential ACM and lead paint	Residential
Residences NA	2279V-14	Potential ACM and lead paint	Residential
Agricultural land NA	2279V-15	Transformers; likely pesticide and/or herbicide use	Agricultural
Storage units NA	2279V-16	Potential past pesticide and/or herbicide presence; Potential ACM and lead paint	Government



Garage NA	2279V-17	Potential ACM and lead paint	Residential
Russel Court Office Plaza NA	2279V-22	Transformer; potential ACM and lead paint	Commercial
McHenry County Workforce Center NA	2279V-23	Transformer; potential ACM and lead paint	Government
Commercial building NA	2279V-24	Transformer; potential ACM and lead paint	Commercial
McHenry County Treasurer's Office NA	2279V-25	Transformer; potential ACM and lead paint	Government
Commercial building NA	2279V-26	Transformers; potential ACM and lead paint	Commercial
Family Alliance NA	2279V-27	Transformer; potential ACM and lead paint	Commercial
Residences NA	2279V-28	Potential ACM and lead paint	Residential
Vacant lot NA	2279V-29	Likely past pesticide and/or herbicide use	Vacant
Commercial building NA	2279V-30	Potential ACM and lead paint	Commercial
Residential buildings NA	2279V-31	Transformer; potential ACM and lead paint	Residential
Doxa Fellowship NA	2279V-32	Transformers; potential ACM and lead paint	Church
Residential buildings NA	2279V-34	Potential ACM and lead paint	Residential
Residences NA	2279V-35	Potential ACM and lead paint	Residential
St. John's Evangelical Lutheran Church NA	2279V-36	Transformer; potential ACM and lead paint	Church
Residential buildings NA	2279V-37	Transformers; potential ACM and lead paint	Residential

Home Savings Bank NA	2279V-38	Transformer; potential ACM and lead paint	Commercial
Bates Park NA	2279V-40	Potential ACM and lead paint	Recreational
Silver Creek Commons NA	2279V-41	Potential ACM and lead paint	Commercial
Mixed-use building NA	2279V-43	Potential ACM and lead paint	Commercial/ residential
Vacant lot NA	2279V-44	Likely past pesticide and/or herbicide use; transformer	Vacant
Vacant lot NA	2279V-46	Likely past pesticide and/or herbicide use	Vacant
Commercial building NA	2279V-47	Potential ACM and lead paint	Commercial
Commercial building NA	2279V-48	Transformer; potential ACM and lead paint	Commercial
Vacant land NA	2279V-50	Likely past pesticide and/or herbicide use	Vacant
Residential buildings NA	2279V-54	Potential ACM	Residential
Beef Village NA	2279V-55	Potential ACM and lead paint	Commercial
Cooper Barnette Consulting, LLC NA	2279V-56	Potential ACM and lead paint	Commercial
Commercial building NA	2279V-57	Potential ACM and lead paint	Commercial
Residences NA	2279V-58	Transformers; potential ACM and lead paint	Residential
Isabel's Family Restaurant NA	2279V-59	Transformers; potential ACM and lead paint	Commercial
McHenry County Housing Authority NA	2279V-60	Transformers; potential ACM and lead paint	Government
3 Stars Pizza NA	2279V-62	Potential ACM and lead paint	Commercial



Woodstock Food Mart NA	2279V-63	Potential ACM and lead paint	Commercial
Residential building NA	2279V-64	Potential ACM	Residential
Commercial building NA	2279V-210	Transformer; potential ACM and lead paint	Commercial
Residence NA	2279V-217	Transformer; potential ACM and lead paint	Residential
Residences NA	2279V-222	Potential ACM and lead paint	Residential
Residential buildings NA	2279V-227	Transformers; potential ACM and lead paint	Residential
Woodstock Veterinary Clinic NA	2279V-235	Potential ACM and lead paint	Commercial
Residences NA	2279V-236	Potential ACM and lead paint	Residential
Residences NA	2279V-239	Transformers; potential ACM and lead paint	Residential
Commercial building NA	2279V-240	Potential ACM and lead paint	Commercial
Woodstock Recreation Department NA	2279V-242	Transformer; potential ACM and lead paint	Government
Colman's Tavern & Grill NA	2279V-244	Transformer; potential ACM and lead paint	Commercial
Residence NA	2279V-245	Potential ACM and lead paint	Residential
Bob's Woodstock Motel NA	2279V-248	Potential ACM and lead paint	Commercial
Napoli Pizza Place NA	2279V-249	Potential ACM and lead paint	Commercial
Storage Space NA	2279V-252	Potential ACM and lead paint	Commercial
Best Western NA	2279V-258	Potential ACM and lead paint	Commercial

3 Brothers Restaurant NA	2279V-259	Potential ACM and lead paint	Commercial
Commercial building NA	2279V-262	Potential ACM and lead paint	Commercial
Commercial building NA	2279V-264	Potential ACM and lead paint	Commercial
Niko's Red Mill Tavern NA	2279V-265	Transformers; potential ACM and lead paint	Commercial
Miro Motors NA	2279V-266	Potential ACM and lead paint	Commercial
Commercial building NA	2279V-267	Potential ACM and lead paint	Commercial
Keystone Lanes NA	2279V-272	Transformer; potential ACM and lead paint	Commercial
Donahue Furniture NA	2279V-273	Potential ACM and lead paint	Commercial
Allendale-Stepping Stone West NA	2279V-274	Potential ACM and lead paint	Educational
Commercial building NA	2279V-275	Potential ACM and lead paint	Commercial
Woodstock Lumber Company NA	2279V-276	Potential ACM and lead paint	Commercial
Commercial building NA	2279V-278	Potential ACM and lead paint	Commercial
Stan's-LPS Midwest NA	2279V-279	Potential ACM and lead paint	Commercial
Blue Ribbon Millwork NA	2279V-280	Transformers; potential ACM and lead paint	Commercial
Residences NA	2279V-282	Potential ACM and lead paint	Residential
Popeyes NA	2279V-285	Transformer; potential ACM and lead paint	Commercial
Commercial building NA	2279V-286	Potential ACM and lead paint	Commercial



Woodstock Farm & Lawn Center NA	2279V-288	Transformer; potential ACM and lead paint	Commercial
Southwood Center NA	2279V-291	Transformers; potential ACM and lead paint	Commercial
Brown & Company CPAs NA	2279V-294	Potential ACM and lead paint	Commercial
Fifth Third Bank NA	2279V-296	Transformer; potential ACM and lead paint	Commercial
Quality Inn NA	2279V-297	Transformer; potential ACM and lead paint	Commercial
Antenna NA	2279V-299	Transformer; potential ACM and lead paint	Utility
Commercial building NA	2279V-300	Transformer; potential ACM and lead paint	Commercial
Residence NA	2279V-301	Transformer; potential ACM	Residential
Vacant land NA	2279V-302	Likely past pesticide and/or herbicide use	Vacant
Super 8 NA	2279V-307	Transformers; potential ACM and lead paint	Commercial
Residential buildings NA	2279V-309	Transformers; potential ACM and lead paint	Residential
Farmstead NA	2279V-311	Potential pesticide and/or herbicide presence; potential ACM and lead paint	Farmstead
Agricultural land NA	2279V-312	Transformer; likely pesticide and/or herbicide use	Agricultural
Residence NA	2279V-313	Transformer; potential ACM and lead paint	Residential
Farmstead NA	2279V-315	Potential pesticide and/or herbicide presence; transformer; potential ACM and lead paint	Farmstead
Farmstead NA	2279V-316	Potential pesticide and/or herbicide presence; transformer; potential ACM and lead paint	Farmstead

Agricultural land NA	2279V-318	Transformer; likely pesticide and/or herbicide use	Agricultural
Residences NA	2279V-319	Potential ACM and lead paint	Residential
Residences NA	2279V-321	Transformer; potential ACM and lead paint	Residential
Vacant land NA	2279V-322	Likely past pesticide and/or herbicide use	Vacant
Agricultural land NA	2279V-323	Transformer; likely pesticide and/or herbicide use	Agricultural
Residence NA	2279V-324	Potential former pesticide and/or herbicide presence; potential ACM and lead paint	Residential

**Table 3. The following sites along the project were determined not to contain RECs or de minimis conditions:**

Property name IDOT parcel #	ISGS site #	Land use
Silver Creek NA	2279V-8	Creek
Silver Creek tributary NA	2279V-33	Creek
Vacant lot NA	2279V-216	Vacant
Vacant land NA	2279V-233	Vacant
Vacant land NA	2279V-283	Vacant
Vacant land NA	2279V-292	Vacant
Scandinavian Cemetery NA	2279V-317	Cemetery
Silver Creek NA	2279V-320	Creek

**Table 4. The following additional sites, adjoining but not on the project, were identified on environmental databases:**



Property name	ISGS site #	Regulatory database(s)	Land use
Woodstock Municipal Landfill	2279V-A	Archived SEMS, RCRA, BOL	Recreational
TK Coatings LLC	2279V-B	RCRA, BOL	Commercial
Peet Frate Line Inc.	2279V-C	RCRA, BOL	Commercial
R&I Spring Co.	2279V-D	RCRA, BOL	Industrial
Suma Corp	2279V-E	RCRA, BOL	Commercial
Lemke Machine Products	2279V-F	BOL, AUL	Commercial
JC Auto & Truck Repair	2279V-G	BOL, AUL	Commercial
Residence	2279V-H	AUL	Residential
Residence	2279V-I	AUL	Residential
Residence	2279V-J	AUL	Residential
Residence	2279V-K	AUL	Residential
Residence	2279V-L	AUL	Residential
Residence	2279V-M	AUL	Residential
Residence	2279V-N	AUL	Residential
Residence	2279V-O	AUL	Residential
Residence	2279V-P	AUL	Residential
Residence	2279V-Q	AUL	Residential
Residence	2279V-R	AUL	Residential
Residence	2279V-S	AUL	Residential
Residence	2279V-T	AUL	Residential
Residence	2279V-U	AUL	Residential
Residence	2279V-V	AUL	Residential
Residence	2279V-W	AUL	Residential
Residence	2279V-X	AUL	Residential
Residence	2279V-Y	AUL	Residential
Residence	2279V-Z	AUL	Residential
Residence	2279V-AA	AUL	Residential

Residence	2279V-AB	AUL	Residential
Residence	2279V-AC	AUL	Residential
Residence	2279V-AD	AUL	Residential
Residence	2279V-AE	AUL	Residential
Residence	2279V-AF	AUL	Residential
Residence	2279V-AG	AUL	Residential
Residence	2279V-AH	AUL	Residential
Residence	2279V-AI	AUL	Residential
Woodstock Early Learning Center	2279V-AJ	AUL	Commercial
Residence	2279V-AK	AUL	Residential
Residence	2279V-AL	AUL	Residential
Residence	2279V-AM	AUL	Residential
Residential building	2279V-AN	AUL	Residential
Residence	2279V-AO	AUL	Residential
Residence	2279V-AP	AUL	Residential
Residence	2279V-AQ	AUL	Residential
Residence	2279V-AR	AUL	Residential
Residence	2279V-AS	AUL	Residential
Residence	2279V-AT	AUL	Residential
Residence	2279V-AU	AUL	Residential
Residence	2279V-AV	AUL	Residential
Residence	2279V-AX	AUL	Residential
Residence	2279V-AY	AUL	Residential
Residence	2279V-AZ	AUL	Residential
Residence	2279V-BA	AUL	Residential
Residence	2279V-BB	AUL	Residential
Residence	2279V-BC	AUL	Residential
Residence	2279V-BD	AUL	Residential



Residential building	2279V-BE	AUL	Residential
Residence	2279V-BF	AUL	Residential
Residence	2279V-BG	AUL	Residential
Residence	2279V-BH	AUL	Residential
Residence	2279V-BI	AUL	Residential
Residence	2279V-BJ	AUL	Residential
Residence	2279V-BK	AUL	Residential
Residential building	2279V-BL	AUL	Residential
Vacant land	2279V-BM	AUL	Vacant
Residence	2279V-BN	AUL	Residential
Residence	2279V-BO	AUL	Residential
Residence	2279V-BP	AUL	Residential
Residence	2279V-BQ	AUL	Residential
Residence	2279V-BR	AUL	Residential
Residence	2279V-BS	AUL	Residential
Residence	2279V-BT	AUL	Residential
Residence	2279V-BU	AUL	Residential
Residence	2279V-BV	AUL	Residential
Residence	2279V-BW	AUL	Residential
Residence	2279V-BX	AUL	Residential
Residence	2279V-BY	AUL	Residential
Residence	2279V-BZ	AUL	Residential
Residence	2279V-CA	AUL	Residential
Residence	2279V-CB	AUL	Residential
Residence	2279V-CC	AUL	Residential
Residence	2279V-CD	AUL	Residential
Residence	2279V-CE	AUL	Residential
Residence	2279V-CF	AUL	Residential

Residence	2279V-CG	AUL	Residential
Residence	2279V-CH	AUL	Residential
Commercial building	2279V-CI	AUL	Commercial
Jensens Plumbing and Heating	2279V-CJ	AUL	Commercial
Woodstock Family Pride Laundry	2279V-CK	AUL	Commercial
Utility	2279V-CL	AUL	Utility
Pond	2279V-CM	AUL	Pond
Residential buildings	2279V-CN	AUL	Residential
Commercial building	2279V-CO	AUL	Commercial
Commercial building	2279V-CP	AUL	Commercial
Residential building	2279V-CQ	AUL	Residential
Residential building	2279V-CR	AUL	Residential

\* For all sites:

Where REC(s) are indicated as present, a condition was noted that may be indicative of releases or potential releases of hazardous substances on, at, in, or to the site, as discussed in the text. Potential hazards were not verified by ISGS testing. Radon, biological hazards (such as mold, medical waste, or septic waste), and non-agricultural pesticides and/or herbicides may also be of concern. No further investigation concerning the presence or use of these factors was conducted for this PESA.

Where RECs are not indicated as present, radon, biological hazards (such as mold, medical waste, or septic waste), and non-agricultural pesticides and/or herbicides may still be of concern. No further investigation concerning the presence or use of these factors was conducted for this PESA.

For the purposes of this report, the following are considered to be de minimis conditions:

- Normal use of lead-based paint on exteriors and interiors of buildings and structures.
- Use of asbestos-containing materials in building construction.
- Transformers in normal use, unless the transformers were observed to be leaking, appear on an environmental regulatory list, or were otherwise determined to pose a hazard not related to normal use.
- Agricultural use of pesticides and herbicides. In addition, most land in Illinois was under agricultural use prior to its conversion to residential, industrial, or commercial development. Pesticides, both regulated and otherwise, may have been used throughout the project area at any time. Unless specifically discussed elsewhere in this report, no information regarding



past pesticide use that would be subject to enforcement action was located for this project, and such use is considered a de minimis condition.

The following data gaps exist for all PESAs:

- For residences, only areas visible from public roads are inspected.
- Interiors of buildings are not inspected.
- Interiors of agricultural areas are not inspected during growing seasons.

Radon and biological hazards are not considered in this PESA unless specifically noted.

NA = No parcel number was supplied by IDOT for this site.

Although potential natural hazards and undermining, if present, are described in this report, they are not considered as RECs or de minimis conditions for the purposes of this report, and are therefore not listed in the tables above. Wetlands and flooding hazards are not evaluated as part of this report.





**ERRATA**  
**for**  
**Illinois Route 47 (FAP 326)**  
**US Route 14 to Charles Road**  
**McHenry County, Illinois**

**Job No. P-91-007-09**

**September 20, 2018**

This Errata includes corrections, revisions, and/or additions to the Environmental Assessment (EA), dated March 2018, for the proposed Project for Illinois Route 47 (FAP 326) US Route 14 to Charles Road, Woodstock Illinois, McHenry County. The Environmental Assessment was approved for public release by the Federal Highway Administration on April 16, 2018. Corrections, revisions, and/or additions are shown in italics.

**Signature Page**

Page 2, last paragraph. Remove “A total of 33.055 acres of permanent right-of-way will be acquired and a total of 15.593 acres of temporary easements are proposed as part of this Project. 0.310 acre of wetlands and 17.90 acres of farmland will be impacted as part of this Project. The proposed improvements will require a total of 10 buildings to be relocated. These buildings include six individual businesses, three residential homes, and two business complexes containing four businesses.”

Replace with “*A total of 33.088 acres of permanent right-of-way will be acquired and a total of 16.428 acres of temporary and permanent easements are proposed as part of this Project. 0.310 acre of wetlands and 17.90 acres of farmland will be impacted as part of this Project. The proposed improvements will require a total of 10 buildings to be displaced. These buildings include five individual businesses, three residential homes, and two business complexes containing four businesses. The proposed action will also require one commercial building modification.*”

**Table of Contents**

Page 7. Insert “*6.1.4 Public Hearing.....6-4*”

**1.1.2 History of Project**

Page 1-2, last paragraph. Remove “Construction funding for this Project is not included in IDOT’s *Fiscal Year 2017-2022 Proposed Highway Improvement Program*. However, this Project will be evaluated for inclusion in future highway programs.”

Replace with “*Construction funding for this Project is not included in IDOT’s Fiscal Year 2019-2024 Proposed Highway Improvement Program. However, this Project will be evaluated for inclusion in future highway programs.*”

### **3.6.2 Intersection Alternatives**

Page 3-30, last paragraph. Remove “Figures 3.6-10 and 3.6-11 show the proposed roundabout and signalized intersection alternatives for the Lake Avenue and McConnell Road intersections. Proposed building relocations are highlighted in pink. A proposed building modification is highlighted in blue and discussed further in Section 4.2.5.”

Replace with “*Figures 3.6-10 and 3.6-11 show the proposed roundabout and signalized intersection alternatives for the Lake Avenue and McConnell Road intersections. Proposed business relocations are highlighted in pink. A proposed building modification is highlighted in blue and discussed further in Section 4.2.5.*”

### **3.7 Identification of the Preferred Alternative**

Page 3-46, last paragraph. Remove “Based on the alternative analysis discussed in this chapter, Alternative A (the on-alignment alternative) is being carried forward as the preferred alternative. The preferred alternative also includes barrier median from US Route 14 to Ware Road and roundabouts at Lake Avenue, McConnell Road, Judd Street/Irving Avenue, Ware Road, and Charles Road. The preferred alternative will consist of a rural cross section from Ware Road to Charles Road with mountable curb median and outside shoulders. Exhibit 3.7-1 shows the Preferred Alternative plan view drawings and Exhibit 3.7-2 shows the Preferred Alternative typical sections.”

Replace with “*Based on the alternative analysis discussed in this chapter, Alternative A (the on-alignment alternative) is being carried forward as the preferred alternative. The preferred alternative also includes roundabouts at Lake Avenue, McConnell Road, Judd Street/Irving Avenue, Ware Road, and Charles Road. The Preferred Alternative for the Illinois Route 47 Mainline from US Route 14 to Ware Road generally consists of an urban cross section with two 12-foot lanes in each direction and an 18-foot median with raised curb and gutter. This section also includes a 5-foot sidewalk on the west side and a 10-foot multi-use path on the east side. Illinois Route 47 Mainline from Ware Road to Charles Road generally consists of a rural cross section with two 12-foot lanes in each direction, a 22-foot wide median that includes 4-foot inside shoulders with rumble strips and mountable curb, and 10-foot outside shoulders. This section includes a 10-foot multi-use path on the east side. Exhibit 3.7-1 shows the Preferred Alternative plan view drawings and Exhibit 3.7-2 shows the Preferred Alternative typical sections.*”

### **4.2.5 Relocations (Business and Residential)**

Page 4-12, second to last paragraph. Remove “The proposed action will require the acquisition of right-of-way from the frontage of properties along the corridor. The transportation improvements”



will require a total of 10 buildings on 9 properties to be relocated. Seven of these buildings will need to be taken completely because they will no longer be functional after the transportation improvements. These properties include two businesses, two business complexes occupied by four total businesses, and three residential homes. The remaining three properties requiring building relocations will still be functional and will allow the buildings to be rebuilt at a different location on the property. All three of these buildings are commercial businesses. The proposed action will also require one commercial building modification.”

*Replace with “The proposed action will require the acquisition of right-of-way from the frontage of properties along the corridor. The transportation improvements will require a total of 10 buildings on 9 properties be displaced. Eight of these buildings will need to be taken completely because they will no longer be functional after the transportation improvements. These properties include three businesses, two business complexes occupied by four total businesses, and three residential homes. The remaining two properties requiring building displacements will still be functional and will allow the buildings to be rebuilt at a different location on the property. Both of these buildings are commercial businesses. The proposed action will also require one commercial building modification.”*

#### **4.2.5.1 Business Relocations:**

Page 4-13, first paragraph, last sentence. Remove “The property owner is aware of the proposed property relocation and supports the property relocation.”

*Replace with “The property owner is aware of the proposed business relocation and supports the relocation.”*

Page 4-13, second paragraph. Remove “Dwight’s Auto Body is located at 999 South Eastwood Drive in Woodstock at Station 140+00 RT. The property is currently owned by Chamberlain Associates, Inc. The property has a total lot area of approximately 31,564 square feet (0.72 acre). Dwight’s Auto Body currently has approximately eight full- and part-time employees and 20 parking spaces. The owner of the property has requested that only the westernmost part of the building, which is the portion that is in conflict with the proposed improvements, be removed as part of the Project. The owner desires that the remaining portion of the building not in conflict not be removed. Because the westernmost part of the building being removed should not affect the structural integrity of the building or the property’s functionality, the remaining portion of the building is proposed to remain in place and ownership of the property will remain with Chamberlain Associates, Inc.”

*Replace with “Dwight’s Auto Body is located at 999 South Eastwood Drive in Woodstock at Station 140+00 RT. The property is currently owned by Chamberlain Associates, Inc. The property has a total lot area of approximately 31,564 square feet (0.72 acre). Dwight’s Auto Body currently has approximately eight full- and part-time employees and 20 parking spaces. The entire*

*building is proposed to be displaced because the westernmost part of the building being removed is the primary access to the business and will affect the business viability. Additionally, the elimination of the driveway affects circulation on the property and prohibits access to the overhead doors also on the westside of the building.”*

#### **4.2.5.3 Commercial Building Modifications:**

Page 4-15, first paragraph. Remove “October 19, 2017. The purpose of the meetings was to update the owners on the status of the Project, explain the property acquisition process, and answer any questions they had regarding the process. The project study team also met with the City of Woodstock to discuss the proposed impacts to the building. Both the City of Woodstock and the property owners requested the building not be relocated as part of the Project. The preferred alternative consists of removing the existing front entrance awning of the building and allowing the rest of the building to remain in place. The proposed sidewalk will be located approximately two feet from the existing building that remains after the awning removal. During land acquisition, if it is determined the impacts to the building or costs associated with the building modifications are too large, the entire building will be relocated.”

*Replace with “October 19, 2017. The purpose of the meetings was to update the owners on the status of the Project, explain the property acquisition process, and answer any questions they had regarding the process. The project study team also met with the City of Woodstock to discuss the proposed impacts to the building. Both the City of Woodstock and the property owners requested the business not be relocated as part of the Project. The preferred alternative consists of removing the existing front entrance awning of the building and allowing the rest of the building to remain in place. The proposed sidewalk will be located approximately two feet from the existing building that remains after the awning removal. During land acquisition, if it is determined the impacts to the building or costs associated with the building modifications are too large, the business will be relocated.”*

#### **4.7.3.1 Federally-listed Species/Habitat**

Page 4-43, second to last paragraph. Remove “A botanical survey conducted in August 2011 identified four prairie sites near the project study area. None of these prairie sites will be impacted as a part of this Project and therefore, there is no effect.”

*Replace with “A botanical survey conducted in August 2011 identified four prairie sites near the project study area. None of these prairie sites will be impacted as a part of this Project and therefore, there is no effect on the Prairie Bush-clover.*

*The project is located outside the High Potential Zone of the Rusty Patched Bumble Bee (Bombus affinis). Therefore, the project will not affect the Rusty Patched Bumble Bee.”*



#### **4.12 Special Waste**

Page 4-51, first paragraph. Remove “The PESA Report identified 214 recognized environmental conditions (REC) sites. The preferred alternative includes taking permanent right-of-way from 118 contaminated sites and temporary right-of-way takings from 14 contaminated sites. Nine contaminated sites are proposed to be relocated, as noted in Section 4.2.5.”

Replace with “*The PESA Report identified 214 recognized environmental conditions (REC) sites. The preferred alternative includes taking permanent right-of-way from 118 contaminated sites and temporary right-of-way takings from 14 contaminated sites. The businesses located on nine contaminated sites are proposed to be relocated, as noted in Section 4.2.5.*”

#### **6.1 Public Involvement**

Page 6-4 insert the following.

##### *“6.1.4 Public Hearing*

*The Public Hearing was held Thursday, June 7, 2018, from 4:00 P.M. to 7:00 P.M. at the Challenger Learning Center in Woodstock, IL. Advertisement for the meeting was published in the Daily Herald (Fox Valley) on May 17, 2018 and May 31, 2018, in the Northwest Herald on May 17, 2018 and May 31, 2018, and in The Woodstock Independent on May 16, 2018 and May 30, 2018. In addition, meeting invitations/brochures were sent out in the mail. The meeting was attended by 131 people. At the Public Forum, three people participated. Twelve comment forms were received at the meeting. By the end of the public comment period, 3 letters and a total of 35 comments were received. Attendees signed in and a brochure was provided. There were two rooms for attendees to learn more about the Project. The first room contained a continuous audio-visual presentation that described the project summary, provided the study process and schedule, purpose and need, preferred alternative, environmental impacts, and opportunity of input. The second room contained more detailed information, comment forms, a court reporter, and project study team representatives. Information in the second room included exhibit boards, a video of the roundabout intersection at Lake Avenue intersection, drainage plans, and roll plot maps.*

*The first room was also utilized for the public forum. A court reporter for verbal comments was available in the second room from 4:00 to 6:00 P.M., and the court reporter recorded verbal comments at the public forum from 6:00 to 7:00 P.M.*

*The purpose of the meeting was to obtain public input on the project study including the Environmental Assessment (EA). Public involvement information can be found in Appendix C.”*

#### **APPENDIX A—AGENCY COORDINATION:**

Insert June 15, 2018 letter from U.S. Army Corps of Engineers to the Federal Highway Administration regarding information to be provided in future 404 permitting applications.

Insert May 30, 2018 letter from U.S. Environmental Protection Agency to the Federal Highway Administration–Illinois Division recommending the shared use path and sidewalks be constructed of permeable pavement where appropriate and feasible.

**APPENDIX C–PUBLIC INVOLVEMENT:**

Insert Public Hearing Detailed Summary, Court Reporter transcript, Public Hearing Comment Forms, Comment Letter, Response to Comments from Public Hearing and EA, and supporting documentation.



**SUPPLEMENT 1.2-3  
FINDING OF NO SIGNIFICANT IMPACT**

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## **Federal Highway Administration**

### **FINDING OF NO SIGNIFICANT IMPACT**

for

Illinois Route 47 (FAP 326)  
US Route 14 to Charles Road  
McHenry County, Illinois

#### **INTRODUCTION**

The Illinois Department of Transportation (IDOT) proposes widening and reconstruction of Illinois Route 47. Illinois Route 47 is a Strategic Regional Arterial (SRA) and a Class II truck route running north-south through the City of Woodstock and unincorporated McHenry County, Illinois. The limits extend from US Route 14 approximately five miles north to Charles Road. These represent logical termini because US Route 14 is an arterial and a major source of traffic for the corridor. Charles Road, the northern terminus, also is a designated SRA route and represents the northern edge of the urban area beyond which corridor traffic volumes decrease substantially. The purpose of the Project is to address transportation safety, capacity, access management, pedestrian and bicycle needs, and geometric deficiencies.

The Preferred Alternative meets the purpose and need, while minimizing impacts where possible. The Preferred Alternative for the Illinois Route 47 Mainline from US Route 14 to Ware Road generally consists of an urban cross section with two 12-foot lanes in each direction and an 18-foot median with raised curb and gutter. This section also includes a 5-foot sidewalk on the west side and a 10-foot multi-use path on the east side. Illinois Route 47 Mainline from Ware Road to Charles Road generally consists of a rural cross section with two 12-foot lanes in each direction, a 22-foot wide median that includes 4-foot inside shoulders with rumble strips and mountable curb, and 10-foot outside shoulders. This section includes a 10-foot multi-use path on the east side.

This Project is included in the FY 2019-2024 Transportation Improvement Program (TIP) endorsed by the Metropolitan Planning Organization Policy Committee of Chicago Metropolitan Agency for Planning (CMAP) for the region in which the Project is located. Projects in the TIP are considered to be consistent with the ON TO 2050 Regional Transportation Plan endorsed by CMAP. The Project is within the fiscally constrained portion of the plan. The ON TO 2050 Regionally Significant Project number is 110 and the TIP number is 11-06-0018.



## ENVIRONMENTAL IMPACTS

The direct result of implementing these improvements will result in the following impacts:

**Right-of-Way:** Construction of the proposed improvement will require approximately 33.088 acres of permanent right-of-way and approximately 16.428 acres of temporary and permanent easements.

**Displacements:** The proposed improvements will result in a total of 10 buildings to be displaced. These buildings include five individual businesses, three residential homes, and two business complexes containing four businesses. The proposed action will also require one commercial building modification.

**Agricultural Lands:** The proposed improvements would convert 17.90 acres of land currently used for farming. Because of the size of the existing farms within the project study area, it is not anticipated that impacting 17.90 acres of farmland will substantially affect farming operations or land use for any individual property. No farm residences or buildings will require relocation because of the Project. No centennial or sesquicentennial farms will be impacted as a part of this Project.

An e-mail was sent to National Resources Conservation Service (NRCS) on November 8, 2017, stating that farmland will be converted to non-agricultural use. The proposed Project was given a Land Evaluation and Site Assessment (LESA) score of 161, indicating a low rate of protection. Because the Project was designed to acquire the least possible amount of land to meet the safety needs of the public, the Illinois Department of Agriculture determined that the Project complies with IDOT's Agricultural Land Preservation Policy and Illinois' Farmland Preservation Act. No further coordination will be necessary with NRCS because the Project impacts less than 10 acres of farmland per linear mile.

**Historic Properties:** There are three archaeological sites within the study area that do not warrant National Register consideration. Six properties in the study area warrant National Register consideration. These sites were assessed for National Register eligibility. None were found to be eligible. The State Historic Preservation Officer concurred with a "no historic properties affected" finding on August 30, 2017.

**Air Quality:** All areas of Illinois currently are in attainment of the standards for four of the six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. McHenry County is designated as a nonattainment area for the 2008 ozone standard and attainment for the 2015 standard. For the eight-hour ozone (PM)<sub>2.5</sub> standard, McHenry County is designated as an attainment area.

This Project is included in the FY 2019-2024 TIP endorsed by the Metropolitan Planning Organization Policy Committee of the CMAP for the region in which the Project is located. Projects in the TIP are considered to be consistent with the 2050 regional transportation plan endorsed by CMAP. The Project is within the fiscally-constrained portion of the plan.

On October 24, 2018, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) determined that the 2050 regional transportation plan conforms with the SIP and the transportation-related requirements of the 1990 Clean Air Act Amendments. On October 24, 2018, the FHWA and the FTA determined that the TIP also conforms with the SIP and the Clean Air Act Amendments. These findings were in accordance with 40 CFR Part 93, *Determining Conformity of Federal Actions to State or Federal Implementation Plans*.

The Project's design concept and scope are consistent with the Project information used for the TIP conformity analysis. Therefore, this Project conforms to the existing State Implementation Plan and the transportation-related requirements of the 1990 Clean Air Act Amendments.

**Noise:** The traffic noise study evaluated a total of 32 representative receptors located within 32 Common Noise Environments (CNE). A CNE is a group of receptors within the same noise category that are exposed to similar noise sources and traffic noise levels. For developed land use categories, a representative receptor was chosen for each CNE. The selected representative receptor was generally chosen as the closest receptor to Illinois Route 47, and therefore the worst-case traffic noise condition.

Nine receptor locations approach, meet, or exceed the FHWA Noise Abatement Criteria (NAC), and therefore warrant a noise abatement analysis. In addition to traffic noise levels approaching the NAC, a noise abatement analysis is warranted if traffic noise levels increase more than 14 dB(A) between the existing and build scenarios at a receptor, regardless if the NAC is approached. Nowhere in the project study area is there an increase of more than 14 dB(A). The largest increase is 5 dB(A). Noise walls were considered feasible noise abatement measures at two of the nine locations since they would provide at least a 5 dB(A) traffic noise reduction at two impacted receptors.

With regard to reasonableness, noise walls would provide at least an 8 dB(A) traffic noise reduction for at least one benefited receptor. However, based on the evaluations, the noise walls would not be economically reasonable since the estimated cost per benefited receptor, \$30,000, exceeds the average adjusted allowable cost per benefited receptor, \$24,000, the threshold in place based on the 2011 IDOT Highway Traffic Noise Assessment Manual.

Based on this noise analysis, no noise walls would be feasible **and** reasonable for this Project. Therefore, highway traffic noise abatement measures are not likely for the proposed Illinois Route 47 Project based on preliminary design. If the Project's final design is different from the preliminary design, IDOT will determine if revisions to the traffic noise analysis are necessary.



A final decision on noise abatement will not be made until the Project's final design is approved and the public involvement process is complete.

**Threatened and Endangered Species:** According to the U.S. Fish and Wildlife Service, four federally-protected species are known to occur within McHenry County; the Eastern Prairie Fringed Orchid (*Platanthaera leucophaea*) (EPFO), Prairie Bush-clover (*Lespedeza leptostachya*), Northern Long-eared Bat (*Myotis septentrionalis*), and the Rusty Patched Bumble Bee (*Bombus affinis*).

Wetland No. 18 within the project study area had an FQI above 20 and a mean C over 3.5, thus providing potential habitat for the EPFO. A botanical survey was conducted in August 2011 and a survey specific to EPFO was conducted in 2012, and no EPFO were found. Therefore, it was concluded EPFO is not within the project study area and there is no effect on EPFO.

A botanical survey conducted in August 2011 identified four prairie sites near the project study area. None of these prairie sites will be impacted as a part of this Project and therefore, there is no effect on the Prairie Bush-clover.

It was determined that there may be suitable habitat for the northern long-eared bat. Since the trees in the project study area are mostly urban residential landscape trees, the suitability of habitat for this species is low and there are no records of the northern long-eared bat in the vicinity of the project study area. Therefore, it was concluded there is no effect on the northern long-eared bat.

The project is located outside the High Potential Zone of the Rusty Patched Bumble Bee (*Bombus affinis*). Therefore, the project will not affect the Rusty Patched Bumble Bee.

Correspondence from the U.S. Fish and Wildlife, dated September 21, 2017 states "There are no critical habitats within your project area under this office's jurisdiction."

Four state protected species were identified in the project study area: The Giant Sunflower (*Helianthus giganteus*), Blanding's Turtle (*Emydoidea blandingii*), Least Bittern (*Ixobrychus exilis*), and the Iowa Darter.

A botanical survey for the Giant Sunflower was conducted due to proximity of nearby records. No Giant Sunflowers were found at the time of the botanical survey and it was determined the Giant Sunflower is not present and there is no effect.

A survey was conducted for Blanding's Turtle within the project study area in September 2017 due to the proximity of nearby records. A marsh with suitable habitat for the Blanding's Turtle is located along Charles Road approximately 0.65 mile west of Illinois Route 47. This suitable habitat is approximately 0.44 mile outside the Project limits. Therefore, there is no effect on Blanding's Turtle.

Because there are no impacts to the marsh areas identified in the Project botanical survey, it is concluded that there is no effect on nesting of the Least Bittern.

This Project has no effect on the Iowa Darter.

No state-listed species are anticipated to be impacted by the proposed improvements.

**Wetlands:** The proposed improvements will impact a total of 0.310 acre of wetlands. Impacts were calculated based on proposed construction limits. The proposed improvements were designed to minimize the amount of wetland impacts to the greatest extent practicable. Once the alternatives were selected, they were further refined to minimize impacts.

For those wetland impacts that cannot be avoided, compensatory mitigation must be provided. IDOT will provide compensatory mitigation through coordination with and approval from USACE during the Clean Water Act Section 404 Permitting process. Wetland mitigation will also be in compliance under the Interagency Wetland Policy Act.

Federal Executive Order 11990 requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. The proposed improvements were designed to avoid and minimize wetland impacts to the greatest extent possible. There are no practicable alternatives that could avoid wetland impacts entirely. All impacts have been avoided and minimized to the greatest extent practicable, as discussed above. Based upon these considerations, there is no practicable alternative to the proposed construction in wetlands and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

**Floodplains:** The proposed improvements will impact two regulatory floodplains.

The East Branch Silver Creek crosses Illinois Route 47 through an existing 7-foot-wide by 8-foot-tall box culvert between Cherry Court and Birch Street. The floodway for this section of the creek extends up to 50 feet beyond the channel limits during the 100-year storm event. The floodplain for this section of the creek extends beyond the north side of the channel east of Illinois Route 47 during the 100-year storm event. The existing culvert is being replaced with a proposed 16-foot wide by 9-foot tall box culvert. Proposed within the floodway and floodplain at this location are 0.13 acre of temporary easement and permanent right-of-way impacts longitudinal to the floodplain. Impacts are necessary to widen the roadway to the proposed cross section, remove the existing box culvert, construct a new, longer, 16-foot-wide by 9-foot tall box culvert, provide right-of-way for maintenance of the new culvert, and complete necessary grading. The area beyond the roadway typical section will be restored similar to existing conditions to minimize floodway/floodplain impacts.



An unnamed tributary to the East Branch of Silver Creek starts at an unnamed residential detention pond approximately 100 feet south of Cooney Drive along the Illinois Route 47 corridor. The 100-year floodplain extends along ditches on the west side of Illinois Route 47 for approximately 1,000 feet and continues west of the project study area. The preferred alternative impacts 1.21 acres of existing floodplain longitudinally along Illinois Route 47. The impacts are necessary to construct the roadway cross section and develop proposed drainage ditches. Of the 1.21 acres of floodplain impacts, 0.52 acre is within existing Illinois Route 47 right-of-way and 0.69 acre is outside the existing Illinois Route 47 right-of-way. The compensatory storage will be provided within the proposed ditch/basin.

**Water Resources:** The project area contains five streams or creeks identified as Waters of the US (WOUS). There are no wild or scenic rivers located within the project study area.

The East Branch of Silver Creek crosses under Illinois Route 47 approximately 200 feet south of Birch Road through a 7-foot-wide by 8-foot-tall box culvert. The East Branch of Silver Creek is a permanent body of water that has an approximate 4.36-square-mile watershed and is 62 linear feet wide. The Illinois Department of Natural Resources (IDNR) does not classify the stream as a biologically significant stream, nor did it receive an integrity or diversity rating. The East Branch of Silver Creek is a portion of the West Nippersink Creek Watershed area and there are neither riffles nor pools present. Approximately 0.02 acre of the site will be impacted as part of this Project. Impacts are necessary to widen the roadway to the proposed cross section, remove the existing box culvert, construct a new, longer, 16-foot-wide by 9-foot tall box culvert, and complete necessary grading.

An unnamed tributary to Silver Creek crosses Illinois Route 47, approximately 100 feet south of Cooney Drive. The tributary is approximately 58 feet wide. The IDNR does not classify it as a biologically significant stream and it has neither a stream integrity nor a diversity rating. In addition, no riffles or pools exist in the tributary. The tributary is a High Quality Aquatic Resource (HQAR) and Advanced Identification (ADID) site. It is a portion of the West Nippersink Creek Watershed area. The culvert carrying the unnamed tributary underneath Illinois Route 47 has a drainage area of 6.48 square miles. Approximately 0.006 acre of the unnamed tributary will be impacted as part of this Project. Impacts are necessary to widen the roadway to the proposed cross section, remove the existing box culvert, construct a new, longer culvert with an overflow structure, and complete necessary grading.

Silver Creek is primarily located along either side of Charles Road, approximately 3,300 feet west of Illinois Route 47. It is approximately 107 feet wide and is a portion of the West Nippersink Creek Watershed area. The culvert carrying Silver Creek underneath Charles Road has a drainage area of 15.4 square miles. Silver Creek is classified as a permanent body of water with a stream integrity and diversity rating of D. IDNR states that integrity ratings are based on a letter scale from A to E, with A being the highest integrity. No riffles or pools are present, and the IDNR classifies it as a significant stream. Silver Creek will not be impacted as part of this Project.

Lakes surrounding the project study area are primarily manmade lakes and private detention ponds. A manmade deep-water aquatic habitat is located on the east side of Illinois Route 47 approximately 100 feet south of Cooney Drive. The pond flows into the unnamed tributary to Silver Creek via an 18-inch-diameter pipe and an emergency overflow berm. Because it flows directly into a relatively permanent water source, it is considered to be a WOUS. It has a total watershed area of less than one square mile and is a portion of the West Nippersink Creek Watershed area. The proposed widening impacts the existing berm on the west side of the pond, which controls the water elevation in the pond. The preferred alternative includes a proposed retaining wall at the back of the shared-use path on the east side of Illinois Route 47 and a weir wall east of the retaining wall that will replace the existing berm. The weir wall will have the same overtopping elevation as the existing berm to maintain the existing pond elevation. The Illinois Route 47 improvements will require regrading area to the west and north of the existing pond to maintain the pond capacity. The preferred alternative results in approximately 0.099 acre of impacts to the pond.

A ditch is located approximately 1,500 feet north of McConnell Road on the east side of Illinois Route 47. Water is carried beneath Illinois Route 47 from the west side of the roadway to the east side of the roadway via an 8-foot-high by 10-foot wide box culvert. Because of the overall good condition of the structure and the limited amount of repairs needed, the culvert is proposed to be extended as part of the Project. The ditch flows south along the east side of Illinois Route 47 for approximately 125 feet before crossing beneath a private driveway via dual corrugated metal pipe culverts. The ditch then flows east away from Illinois Route 47. These culverts are not proposed to be impacted by the Project. However, the ditches upstream and downstream of the culverts are proposed to be regraded for detention purposes. Approximately 0.119 acre of the site will be impacted as part of this Project. Impacts are necessary to widen the roadway to the proposed cross section and regrade the ditch to accommodate the detention basin proposed at the site.

A total of 0.24 acres of WOUS will be impacted within the project study area. Impacts to the streams are not avoidable as the proposed road improvements are adjacent to or crossing these water bodies. Impacts were minimized by reducing the median width.

**Special Waste:** The Illinois State Geological Survey (ISGS) performed a preliminary environmental site assessment (PESA) for the project study area, ISGS PESA #2279V, dated December 15, 2017. Several Recognized Environmental Concerns (RECs) were identified through the assessment. Per the PESA, 214 properties were identified with RECs. The preferred alternative includes taking permanent right-of-way from 118 REC sites and temporary right-of-way takings from 14 additional REC sites. Nine sites are proposed to be relocated.



Based on the results from the PESA, it has been determined that a preliminary site investigation (PSI) is required if any identified REC involves any of the following situations:

- New right-of-way or easement (temporary or permanent);
- Railroad right-of-way, other than single rail rural with no maintenance facilities;
- Building demolition/modification; or
- Excavation or subsurface utility relocation on existing right-of-way adjoining a REC site.

It is determined the purchase of additional right-of-way cannot be avoided; therefore, a PSI is required. Phase II will update the PESA and complete a PSI for the Project.

**Section 4(f):** The project will not convert any property from a Section 4(f) resource to transportation use. Bates Park is a 23-acre park located between Maple Avenue and East Beech Avenue on the east side of Illinois Route 47 that was purchased using Land and Water Conservation Fund program funds. This park is adjacent to the Silver Creek Conservation Area. On June 11, 2014, the FHWA determined that there is no Section 4(f) use of land because the proposed roadway improvements will be constructed within the existing right-of-way and there will be no transfer of ownership of land from Bates Park for a transportation use. IDOT will temporarily occupy land in Bates Park to construct the shared-use path on the same alignment as the sidewalk and there will be no transfer of ownership of park land. The project study team met with the City of Woodstock on June 10, 2014. The City of Woodstock was supportive of the shared-use path providing connectivity throughout the corridor, including at Bates Park. On January 11, 2018, IDOT sent the City of Woodstock a letter requesting concurrence that they believe this Project will meet the regulatory conditions for temporary occupancy. On February 16, 2018, the City signed and returned the letter in agreement.

**Section 6(f):** Section 6(f) of the Land and Water Conservation (LAWCON) Fund Act requires that any property using LAWCON money be used for public outdoor recreation unless otherwise approved by the National Park Service. Bates Park was purchased using Land and Water Conservation Fund program funds and is classified as a Section 6(f) property. There will be a beneficial effect to the recreational value of the property. No other Section 6(f) properties are within the project study area. The IDNR concurred that there is no Section 6(f) conversion, and therefore, no Section 6(f) conversion approval is required.

**Public Involvement:** The Public Hearing was held Thursday, June 7, 2018 from 4:00 to 7:00 P.M. at the Challenger Learning Center in Woodstock, IL. The public hearing was conducted in an open house format with a public comment forum. A court reporter was present to record verbal comments from 4:00 to 6:00 P.M., and then recorded comments at the public forum from 6:00 to 7:00 P.M.

The Project comment period was open from May 7, 2018 to June 21, 2018. Throughout the public comment period, hard copies of the Environmental Assessment (EA) were available for public review at the IDOT District 1 office in Schaumburg, Woodstock City Hall, and Woodstock Public Library. The EA was also available on the Project website.

The hearing was attended by 131 people including public officials from the City of Woodstock, McHenry County, City of McHenry, businesses, media, and local residents. Within the comment period, 12 comment forms were received at the meeting, 8 court reporter comments, 3 public forum comments, 9 emailed comments, and 3 letters. In total, 35 comments were submitted during the public comment period. The comments received during the public comment period are summarized below and addressed in the Errata.

- Support for the project including bicycle and pedestrian accommodations, Three Brothers restaurant, and roundabouts
- Concern regarding property impacts, access, raised median, driveways, emergency service and roundabouts
- Suggestions including pedestrian crosswalks, driveways, access, bike racks, on street bike lanes and widening under railroad bridge
- Questions including property impacts, right-of-way, driveway access and fitting four lanes under the railroad bridge

## **ENVIRONMENTAL COMMITMENTS**

1. As mentioned in Section 4.13.1, the contractor shall receive four weeks of temporary occupancy to construct the shared-use path on the Bates Park property.
2. A PSI will be conducted prior to acquisition of any contaminated parcel, and/or required temporary or permanent easements, and if the proposed improvements require excavation on or adjacent to a property identified with a REC or requires excavation, including subsurface utility relocation on a property with an easement. The PSI will include assessment for lead-based paint- and asbestos-containing materials.
3. Special waste issues encountered during construction will be managed in accordance with the IDOT *Standard Specifications for Road and Bridge Construction and the Supplemental Specifications and Recurring Special Provisions*.
4. Accidental spills of hazardous materials and wastes during construction or operation of the transportation system require special response measures. Occurrences will be handled in accordance with local government response procedures. Refueling, storage of fuels, or maintenance of construction equipment will not be allowed within 100 feet of wetlands or water bodies to avoid accidental spills impacting these resources.



## **AGENCY FINDINGS**

The following findings establish the Project's adherence to applicable laws intended to protect sensitive environmental and socioeconomic resources.

### **Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended**

The *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended, and the *IDOT Land Acquisition Procedures Manual* will be followed. All housing resources are available to all relocates without discrimination. Housing of last resort will be provided if necessary.

According to the Uniform Act of 1970 (49 CFR 24), Decent, Safe, and Sanitary (DSS) housing must be available prior to requiring those affected by the Project to leave their existing dwelling. DSS residential properties of various sizes within the project study area were identified by the Department in accordance with relocation planning procedures under 49 CFR 24.205 and can be found in Exhibit 4.2-3. Relocated residents and businesses may be able to relocate within the City of Woodstock along Illinois Route 47, if they so desire.

### **Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations***

Based on the demographic information and field observations of the project study area, this Project will not result in disproportionately adverse impacts to minority or low-income populations.

### **Section 106 of the National Historic Preservation Act of 1966**

There are no historic properties in the Project area, and therefore, there are no properties subject to protection under Section 106 of the National Historic Preservation Act of 1966. The State Historic Preservation Officer concurred with a "no historic properties affected" finding on August 30, 2017.

### **Federal Executive Order 11988, *Floodplain Management***

The Project will impact two regulatory floodplains for a total of 1.34 acres. Compensatory storage for impacts to regulatory floodplains will be provided at the East Branch of Silver Creek crossing and upstream ditch and the Tributary to the East Branch of Silver Creek crossing. Impacts from the loss of floodplain will not result in increased flood risks due to the incorporation of detention and compensatory storage. Natural and beneficial values, such as wildlife habitat and water quality functions, will not be substantially impacted because these values are already minimized due to the presence of the existing road. The proposed roadway improvements will not promote incompatible floodplain development.

### **Section 176(c) of the Clean Air Act Amendments of 1990**

This Project is located in a nonattainment area for transportation-related criteria pollutants; therefore, the transportation conformity requirements of the Clean Air Act apply. FHWA has determined that the preferred alternative meets project level conformity requirements because it is

included in the conforming metropolitan transportation plans and transportation improvement programs of the appropriate metropolitan planning organization.

This Project was determined to be a project that is not an air quality concern under 40 CFR 93.123(b)(1), because it primarily services gasoline operated vehicular traffic. None of the roadways in the study area carry a substantial amount of diesel truck traffic currently, nor are they expected to under the 2040 No-Build or Build condition. It has been determined that the Project will not cause or contribute to any new localized PM<sub>2.5</sub> or PM<sub>10</sub> violations or increase the frequency or severity of any PM<sub>2.5</sub> or PM<sub>10</sub> violations.

#### **Federal Executive Order 11990, *Protection of Wetlands***

The Project will impact 0.31 acre of wetlands. Because wetlands exist on both sides of the roadway, complete avoidance was not practicable. However, the Preferred Alternative was designed to minimize impacts to wetlands. Mitigation for these impacts will be based on the Programmatic Agreement that IDOT has with the IDNR for compliance with the Interagency Wetland Protection Act. Mitigation ratios are determined based on whether or not the mitigation is provided within the watershed basin of the impacted wetland and the quality of the wetlands impacted. Wetland mitigation ratios can range from 1.5 to 1.0, up to 6.0 to 1.0 for higher quality wetlands.

#### **Endangered Species Act of 1973**

Threatened and endangered species are known to exist within McHenry County. A botanical survey was conducted in August 2011. The project area had a survey specific to the EPFO (*Platanthera leucophaea*) in July 2012 and none were located. Therefore, the Project will have “no effect” on the EPFO.

A botanical survey conducted in August 2011 identified four prairie sites near the project study area, but no Prairie Bush-clover (*Lespedeza leptostachya*) was identified. Additionally, none of these prairie sites will be impacted as a part of this Project and therefore, there is no effect.

It was determined that there may be suitable habitat for the Northern Long-eared Bat (*Myotis septentrionalis*). Since the trees in the project study area are mostly urban residential landscape trees, the suitability of habitat for this species is low, and there are no records of the Northern Long-eared Bat in the vicinity of the project study area. Therefore, it was concluded there is no effect on the Northern Long-eared Bat.

#### **Section 4(f) of the U.S.DOT Act of 1966**

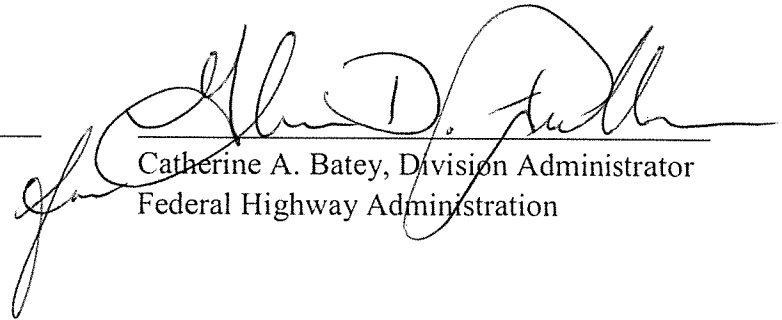
The project will not convert any property from a Section 4(f) resource to a transportation use.



## CONCLUSION

The FHWA has determined that the Project will not have a significant impact on the human environment. This Finding of No Significant Impact (FONSI) is based on the attached Environmental Assessment and associated Errata that have been independently evaluated by the FHWA and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed Project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the accuracy, scope, and content of the attached Environmental Assessment and associated Errata.

10/24/2018  
Date

  
Catherine A. Batey, Division Administrator  
Federal Highway Administration

**SUPPLEMENT 1.2-4  
SOIL SURVEY**

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United States  
Department of  
Agriculture



NRCS

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for McHenry County, Illinois



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nracs>) or your NRCS State Soil Scientist ([http://soils.usda.gov/contact/state\\_offices/](http://soils.usda.gov/contact/state_offices/)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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## Custom Soil Resource Report

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# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.






# Custom Soil Resource Report

## MAP LEGEND






















### Area of Interest (AOI)


 Area of Interest (AOI)


### Soils


 Soil Map Units

### Special Point Features




-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

 Very Stony Spot

 Wet Spot

 Other

### Special Line Features

-  Gully
-  Short Steep Slope
-  Other





### Political Features

 Cities

### Water Features

 Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads

## MAP INFORMATION

Map Scale: 1:39,800 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: UTM Zone 16N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: McHenry County, Illinois  
 Survey Area Data: Version 8, Jan 20, 2012

Date(s) aerial images were photographed: 7/21/2007; 7/7/2007; 7/31/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Map Unit Legend

McHenry County, Illinois (IL111)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
59A	Lisbon silt loam, 0 to 2 percent slopes	14.3	2.2%
59B	Lisbon silt loam, 2 to 4 percent slopes	1.2	0.2%
62A	Herbert silt loam, 0 to 2 percent slopes	4.0	0.6%
103A	Houghton muck, 0 to 2 percent slopes	26.4	4.1%
148A	Proctor silt loam, 0 to 2 percent slopes	9.4	1.5%
149A	Brenton silt loam, 0 to 2 percent slopes	24.5	3.9%
153A	Pella silty clay loam, 0 to 2 percent slopes	31.6	5.0%
153A+	Pella silt loam, 0 to 2 percent slopes, overwash	10.0	1.6%
198A	Elburn silt loam, 0 to 2 percent slopes	31.6	5.0%
210A	Lena muck, 0 to 2 percent slopes	6.9	1.1%
219A	Millbrook silt loam, 0 to 2 percent slopes	2.4	0.4%
297B	Ringwood silt loam, 2 to 4 percent slopes	20.9	3.3%
310B	McHenry silt loam, 2 to 4 percent slopes	88.1	13.8%
323C2	Casco loam, 4 to 6 percent slopes, eroded	9.0	1.4%
323D2	Casco loam, 6 to 12 percent slopes, eroded	1.0	0.2%
325B	Dresden silt loam, 2 to 4 percent slopes	2.1	0.3%
327B	Fox silt loam, 2 to 4 percent slopes	15.8	2.5%
327C2	Fox silt loam, 4 to 6 percent slopes, eroded	23.8	3.7%
327D2	Fox loam, 6 to 12 percent slopes, eroded	0.6	0.1%
343A	Kane silt loam, 0 to 2 percent slopes	16.1	2.5%
344A	Harvard silt loam, 0 to 2 percent slopes	12.6	2.0%
361C	Kidder loam, 4 to 6 percent slopes	4.8	0.8%
361C2	Kidder loam, 4 to 6 percent slopes, eroded	20.9	3.3%
361D2	Kidder loam, 6 to 12 percent slopes, eroded	2.8	0.4%
363C2	Griswold loam, 4 to 6 percent slopes, eroded	21.9	3.4%
363D2	Griswold loam, 6 to 12 percent slopes, eroded	4.4	0.7%
488A	Hooppole loam, 0 to 2 percent slopes	1.9	0.3%
523A	Dunham silty clay loam, 0 to 2 percent slopes	2.2	0.4%
527B	Kidami silt loam, 2 to 4 percent slopes	58.8	9.2%
527C	Kidami silt loam, 4 to 6 percent slopes	4.9	0.8%
527C2	Kidami loam, 4 to 6 percent slopes, eroded	13.3	2.1%
527D2	Kidami loam, 6 to 12 percent slopes, eroded	14.2	2.2%
626A	Kish loam, 0 to 2 percent slopes	37.9	6.0%
656B	Octagon silt loam, 2 to 4 percent slopes	43.0	6.8%
791B	Rush silt loam, 2 to 4 percent slopes	0.4	0.1%

## Custom Soil Resource Report

<b>McHenry County, Illinois (IL111)</b>			
<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
802B	Orthents, loamy, undulating	25.7	4.0%
969E2	Casco-Rodman complex, 12 to 20 percent slopes, eroded	0.2	0.0%
1103A	Houghton muck, 0 to 2 percent slopes, undrained	8.5	1.3%
1210A	Lena muck, 0 to 2 percent slopes, undrained	3.7	0.6%
1626A	Kish loam, 0 to 2 percent slopes, undrained	9.2	1.5%
8776A	Comfrey loam, 0 to 2 percent slopes, occasionally flooded	1.3	0.2%
W	Water	3.9	0.6%
<b>Totals for Area of Interest</b>		<b>636.2</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments



## Custom Soil Resource Report

on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## McHenry County, Illinois

### 59A—Lisbon silt loam, 0 to 2 percent slopes

#### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 165 to 180 days

#### Map Unit Composition

*Lisbon and similar soils:* 85 percent

#### Description of Lisbon

##### Setting

*Landform:* Ground moraines, end moraines

*Parent material:* Loess over loamy till

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* About 12 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 40 percent

*Available water capacity:* High (about 9.9 inches)

##### Interpretive groups

*Land capability (nonirrigated):* 1

##### Typical profile

*0 to 11 inches:* Silt loam

*11 to 36 inches:* Silty clay loam

*36 to 39 inches:* Clay loam

*39 to 69 inches:* Loam

### 59B—Lisbon silt loam, 2 to 4 percent slopes

#### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 165 to 180 days

#### Map Unit Composition

*Lisbon and similar soils:* 85 percent



## Description of Lisbon

### Setting

*Landform:* Ground moraines, end moraines  
*Parent material:* Loess over loamy till

### Properties and qualities

*Slope:* 2 to 4 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* About 12 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* High (about 9.9 inches)

### Interpretive groups

*Land capability (nonirrigated):* 2e

### Typical profile

*0 to 11 inches:* Silt loam  
*11 to 36 inches:* Silty clay loam  
*36 to 39 inches:* Clay loam  
*39 to 69 inches:* Loam

## 62A—Herbert silt loam, 0 to 2 percent slopes

### Map Unit Setting

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 30 to 35 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 155 to 170 days

### Map Unit Composition

*Herbert and similar soils:* 85 percent

## Description of Herbert

### Setting

*Landform:* Ground moraines, end moraines  
*Parent material:* Till loess

### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* About 12 to 30 inches  
*Frequency of flooding:* None

## Custom Soil Resource Report

*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* Moderate (about 9.0 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 2w

### **Typical profile**

*0 to 8 inches:* Silt loam  
*8 to 12 inches:* Silt loam  
*12 to 26 inches:* Silty clay loam  
*26 to 36 inches:* Clay loam  
*36 to 60 inches:* Loam

## **103A—Houghton muck, 0 to 2 percent slopes**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 30 to 42 inches  
*Mean annual air temperature:* 46 to 54 degrees F  
*Frost-free period:* 140 to 180 days

### **Map Unit Composition**

*Houghton and similar soils:* 85 percent

### **Description of Houghton**

#### **Setting**

*Landform:* Potholes  
*Parent material:* Herbaceous organic material

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.20 to 6.00 in/hr)  
*Depth to water table:* About 0 to 12 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Available water capacity:* Very high (about 23.9 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 3w

### **Typical profile**

*0 to 7 inches:* Muck  
*7 to 60 inches:* Muck



## 148A—Proctor silt loam, 0 to 2 percent slopes

### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 38 inches

*Mean annual air temperature:* 45 to 54 degrees F

*Frost-free period:* 150 to 185 days

### Map Unit Composition

*Proctor and similar soils:* 85 percent

### Description of Proctor

#### Setting

*Landform:* Outwash plains, stream terraces

*Parent material:* Loess over outwash

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Available water capacity:* High (about 10.1 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 1

#### Typical profile

*0 to 11 inches:* Silt loam

*11 to 27 inches:* Silty clay loam

*27 to 38 inches:* Clay loam

*38 to 73 inches:* Stratified loam to sand

## 149A—Brenton silt loam, 0 to 2 percent slopes

### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 29 to 40 inches

*Mean annual air temperature:* 45 to 57 degrees F

*Frost-free period:* 150 to 190 days

**Map Unit Composition**

*Brenton and similar soils: 85 percent*

**Description of Brenton**

**Setting**

*Landform: Outwash plains, stream terraces*

*Parent material: Loess over loamy outwash*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Somewhat poorly drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.60 to 2.00 in/hr)*

*Depth to water table: About 12 to 30 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 20 percent*

*Available water capacity: High (about 10.7 inches)*

**Interpretive groups**

*Land capability (nonirrigated): 1*

**Typical profile**

*0 to 13 inches: Silt loam*

*13 to 35 inches: Silty clay loam*

*35 to 43 inches: Loam*

*43 to 60 inches: Stratified loamy sand to silt loam*

**153A—Pella silty clay loam, 0 to 2 percent slopes**

**Map Unit Setting**

*Elevation: 680 to 1,020 feet*

*Mean annual precipitation: 28 to 40 inches*

*Mean annual air temperature: 45 to 54 degrees F*

*Frost-free period: 160 to 180 days*

**Map Unit Composition**

*Pella and similar soils: 85 percent*

**Description of Pella**

**Setting**

*Landform: Flats, outwash plains*

*Parent material: Loess over loamy outwash*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Poorly drained*



## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* About 0 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 40 percent

*Available water capacity:* Very high (about 12.4 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 2w

### **Typical profile**

*0 to 14 inches:* Silty clay loam

*14 to 39 inches:* Silty clay loam

*39 to 50 inches:* Stratified silty clay loam to sandy loam

*50 to 60 inches:* Stratified sandy loam to silty clay loam

## **153A+—Pella silt loam, 0 to 2 percent slopes, overwash**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 28 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 180 days

### **Map Unit Composition**

*Pella, overwash, and similar soils:* 90 percent

### **Description of Pella, Overwash**

#### **Setting**

*Landform:* Ground moraines, outwash plains, end moraines

*Landform position (two-dimensional):* Toeslope

*Parent material:* Loess or other silty material and in the underlying outwash

#### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* About 0 to 12 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 40 percent

*Available water capacity:* Very high (about 13.3 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 2w

### **Typical profile**

*0 to 16 inches:* Silt loam

*16 to 30 inches:* Silty clay loam

## Custom Soil Resource Report

30 to 53 inches: Silty clay loam  
53 to 62 inches: Silt loam  
62 to 80 inches: Stratified loamy sand to silty clay loam

### 198A—Elburn silt loam, 0 to 2 percent slopes

#### Map Unit Setting

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 29 to 35 inches  
*Mean annual air temperature:* 46 to 54 degrees F  
*Frost-free period:* 160 to 180 days

#### Map Unit Composition

*Elburn and similar soils:* 85 percent

#### Description of Elburn

##### Setting

*Landform:* Ground moraines, outwash plains  
*Parent material:* Loess over loamy outwash

##### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* About 12 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 20 percent  
*Available water capacity:* High (about 10.3 inches)

##### Interpretive groups

*Land capability (nonirrigated):* 1

##### Typical profile

0 to 12 inches: Silt loam  
12 to 42 inches: Silty clay loam  
42 to 48 inches: Loam  
48 to 60 inches: Sandy loam

### 210A—Lena muck, 0 to 2 percent slopes

#### Map Unit Setting

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 30 to 42 inches  
*Mean annual air temperature:* 45 to 54 degrees F



## Custom Soil Resource Report

*Frost-free period:* 140 to 180 days

### Map Unit Composition

*Lena and similar soils:* 85 percent

### Description of Lena

#### Setting

*Landform:* Potholes

*Parent material:* Herbaceous organic material

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)

*Depth to water table:* About 0 to 12 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 30 percent

*Available water capacity:* Very high (about 23.9 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 3w

#### Typical profile

*0 to 11 inches:* Muck

*11 to 60 inches:* Muck

## 219A—Millbrook silt loam, 0 to 2 percent slopes

### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 29 to 40 inches

*Mean annual air temperature:* 48 to 54 degrees F

*Frost-free period:* 140 to 190 days

### Map Unit Composition

*Millbrook and similar soils:* 85 percent

### Description of Millbrook

#### Setting

*Landform:* Outwash plains, stream terraces

*Parent material:* Loess over loamy outwash

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* About 12 to 30 inches

## Custom Soil Resource Report

*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 20 percent  
*Available water capacity:* High (about 10.6 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 1

### **Typical profile**

*0 to 8 inches:* Silt loam  
*8 to 12 inches:* Silt loam  
*12 to 26 inches:* Silty clay loam  
*26 to 41 inches:* Loam  
*41 to 65 inches:* Stratified loamy sand to clay loam

## **297B—Ringwood silt loam, 2 to 4 percent slopes**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 29 to 35 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 140 to 170 days

### **Map Unit Composition**

*Ringwood and similar soils:* 85 percent

### **Description of Ringwood**

#### **Setting**

*Landform:* Ground moraines, end moraines  
*Landform position (two-dimensional):* Summit, backslope  
*Landform position (three-dimensional):* Interfluve  
*Parent material:* Loess over till

#### **Properties and qualities**

*Slope:* 2 to 4 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 30 percent  
*Available water capacity:* High (about 9.8 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 2e

### **Typical profile**

*0 to 12 inches:* Silt loam  
*12 to 20 inches:* Silty clay loam  
*20 to 36 inches:* Sandy clay loam



36 to 60 inches: Sandy loam

### **310B—McHenry silt loam, 2 to 4 percent slopes**

#### **Map Unit Setting**

*Elevation:* 680 to 1,200 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 180 days

#### **Map Unit Composition**

*Mchenry and similar soils:* 90 percent

#### **Description of Mchenry**

##### **Setting**

*Landform:* Ground moraines, end moraines

*Landform position (two-dimensional):* Backslope, summit

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loess or other silty material and in the underlying till

##### **Properties and qualities**

*Slope:* 2 to 4 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 30 percent

*Available water capacity:* High (about 9.2 inches)

##### **Interpretive groups**

*Land capability (nonirrigated):* 2e

##### **Typical profile**

*0 to 5 inches:* Silt loam

*5 to 10 inches:* Silt loam

*10 to 22 inches:* Silty clay loam

*22 to 32 inches:* Loam

*32 to 37 inches:* Fine sandy loam

*37 to 60 inches:* Gravelly sandy loam

### **323C2—Casco loam, 4 to 6 percent slopes, eroded**

#### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 28 to 40 inches

*Mean annual air temperature:* 46 to 57 degrees F

*Frost-free period:* 135 to 200 days

#### **Map Unit Composition**

*Casco and similar soils:* 85 percent

#### **Description of Casco**

##### **Setting**

*Landform:* Kames, end moraines, outwash plains

*Parent material:* Loamy drifts over sandy and gravelly deposits

##### **Properties and qualities**

*Slope:* 4 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 25 percent

*Available water capacity:* Low (about 4.3 inches)

##### **Interpretive groups**

*Land capability (nonirrigated):* 3e

##### **Typical profile**

*0 to 8 inches:* Loam

*8 to 17 inches:* Gravelly loam

*17 to 60 inches:* Error

### **323D2—Casco loam, 6 to 12 percent slopes, eroded**

#### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 28 to 40 inches

*Mean annual air temperature:* 46 to 57 degrees F

*Frost-free period:* 135 to 200 days

#### **Map Unit Composition**

*Casco and similar soils:* 85 percent



## Description of Casco

### Setting

*Landform:* Kames, end moraines, outwash plains

*Parent material:* Loamy drifts over sandy and gravelly deposits

### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 25 percent

*Available water capacity:* Low (about 4.3 inches)

### Interpretive groups

*Land capability (nonirrigated):* 4e

### Typical profile

*0 to 8 inches:* Loam

*8 to 17 inches:* Gravelly loam

*17 to 60 inches:* Error

## 325B—Dresden silt loam, 2 to 4 percent slopes

### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 54 degrees F

*Frost-free period:* 140 to 180 days

### Map Unit Composition

*Dresden and similar soils:* 85 percent

## Description of Dresden

### Setting

*Landform:* Kames, outwash plains, end moraines

*Parent material:* Loamy drifts over sandy and gravelly deposits

### Properties and qualities

*Slope:* 2 to 4 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

## Custom Soil Resource Report

*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* Moderate (about 6.6 inches)

### Interpretive groups

*Land capability (nonirrigated):* 2e

### Typical profile

*0 to 7 inches:* Silt loam  
*7 to 27 inches:* Silty clay loam  
*27 to 32 inches:* Very gravelly loam  
*32 to 60 inches:* Sand and gravel

## 327B—Fox silt loam, 2 to 4 percent slopes

### Map Unit Setting

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 27 to 44 inches  
*Mean annual air temperature:* 46 to 57 degrees F  
*Frost-free period:* 125 to 190 days

### Map Unit Composition

*Fox and similar soils:* 85 percent

### Description of Fox

#### Setting

*Landform:* Kames, outwash plains, end moraines  
*Parent material:* Loamy drifts over sandy and gravelly deposits

#### Properties and qualities

*Slope:* 2 to 4 percent  
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 45 percent  
*Available water capacity:* Low (about 5.7 inches)

### Interpretive groups

*Land capability (nonirrigated):* 2e

### Typical profile

*0 to 10 inches:* Silt loam  
*10 to 21 inches:* Silt loam  
*21 to 33 inches:* Gravelly loam  
*33 to 60 inches:* Sand



### **327C2—Fox silt loam, 4 to 6 percent slopes, eroded**

#### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 27 to 44 inches

*Mean annual air temperature:* 46 to 57 degrees F

*Frost-free period:* 125 to 190 days

#### **Map Unit Composition**

*Fox and similar soils:* 85 percent

#### **Description of Fox**

##### **Setting**

*Landform:* Kames, outwash plains, end moraines

*Parent material:* Loamy drifts over sandy and gravelly deposits

##### **Properties and qualities**

*Slope:* 4 to 6 percent

*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 45 percent

*Available water capacity:* Low (about 5.7 inches)

##### **Interpretive groups**

*Land capability (nonirrigated):* 2e

##### **Typical profile**

*0 to 10 inches:* Silt loam

*10 to 21 inches:* Silt loam

*21 to 33 inches:* Gravelly loam

*33 to 60 inches:* Sand

### **327D2—Fox loam, 6 to 12 percent slopes, eroded**

#### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 27 to 44 inches

*Mean annual air temperature:* 46 to 57 degrees F

*Frost-free period:* 125 to 190 days

**Map Unit Composition**

*Fox and similar soils: 85 percent*

**Description of Fox**

**Setting**

*Landform: Kames, outwash plains, end moraines*

*Parent material: Loamy drifts over sandy and gravelly deposits*

**Properties and qualities**

*Slope: 6 to 12 percent*

*Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification*

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 45 percent*

*Available water capacity: Low (about 5.7 inches)*

**Interpretive groups**

*Land capability (nonirrigated): 3e*

**Typical profile**

*0 to 10 inches: Loam*

*10 to 21 inches: Silt loam*

*21 to 33 inches: Gravelly loam*

*33 to 60 inches: Sand*

**343A—Kane silt loam, 0 to 2 percent slopes**

**Map Unit Setting**

*Elevation: 680 to 1,020 feet*

*Mean annual precipitation: 29 to 40 inches*

*Mean annual air temperature: 45 to 54 degrees F*

*Frost-free period: 140 to 180 days*

**Map Unit Composition**

*Kane and similar soils: 85 percent*

**Description of Kane**

**Setting**

*Landform: Outwash plains, stream terraces*

*Parent material: Loamy drifts over sandy and gravelly deposits; loamy drifts over sandy and gravelly deposits; loamy drifts over sandy and gravelly deposits*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*



## Custom Soil Resource Report

*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* About 12 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* Moderate (about 6.4 inches)

### Interpretive groups

*Land capability (nonirrigated):* 2s

### Typical profile

*0 to 12 inches:* Silt loam  
*12 to 22 inches:* Silty clay loam  
*22 to 29 inches:* Sandy clay loam  
*29 to 60 inches:* Gravelly loamy sand

## 344A—Harvard silt loam, 0 to 2 percent slopes

### Map Unit Setting

*Elevation:* 620 to 1,020 feet  
*Mean annual precipitation:* 30 to 40 inches  
*Mean annual air temperature:* 45 to 52 degrees F  
*Frost-free period:* 140 to 180 days

### Map Unit Composition

*Harvard and similar soils:* 90 percent

### Description of Harvard

#### Setting

*Landform:* Outwash plains, stream terraces  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Loess or other silty material and in the underlying outwash

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 20 percent  
*Available water capacity:* High (about 10.5 inches)

### Interpretive groups

*Land capability (nonirrigated):* 1

**Typical profile**

*0 to 9 inches:* Silt loam  
*9 to 36 inches:* Silty clay loam  
*36 to 56 inches:* Clay loam  
*56 to 60 inches:* Stratified loamy sand to clay loam

**361C—Kidder loam, 4 to 6 percent slopes**

**Map Unit Setting**

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 30 to 40 inches  
*Mean annual air temperature:* 45 to 52 degrees F  
*Frost-free period:* 140 to 180 days

**Map Unit Composition**

*Kidder and similar soils:* 85 percent

**Description of Kidder**

**Setting**

*Landform:* Ground moraines, end moraines  
*Parent material:* Loamy till

**Properties and qualities**

*Slope:* 4 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 30 percent  
*Available water capacity:* Moderate (about 8.3 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 2e

**Typical profile**

*0 to 11 inches:* Loam  
*11 to 28 inches:* Loam  
*28 to 60 inches:* Sandy loam

**361C2—Kidder loam, 4 to 6 percent slopes, eroded**

**Map Unit Setting**

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 30 to 40 inches



## Custom Soil Resource Report

*Mean annual air temperature:* 45 to 52 degrees F  
*Frost-free period:* 140 to 180 days

### Map Unit Composition

*Kidder and similar soils:* 85 percent

### Description of Kidder

#### Setting

*Landform:* Ground moraines, end moraines  
*Parent material:* Loamy till

#### Properties and qualities

*Slope:* 4 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 30 percent  
*Available water capacity:* Moderate (about 8.3 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 2e

#### Typical profile

*0 to 11 inches:* Loam  
*11 to 28 inches:* Loam  
*28 to 60 inches:* Sandy loam

## 361D2—Kidder loam, 6 to 12 percent slopes, eroded

### Map Unit Setting

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 30 to 40 inches  
*Mean annual air temperature:* 45 to 52 degrees F  
*Frost-free period:* 140 to 180 days

### Map Unit Composition

*Kidder and similar soils:* 85 percent

### Description of Kidder

#### Setting

*Landform:* Ground moraines, end moraines  
*Parent material:* Loamy till

#### Properties and qualities

*Slope:* 6 to 12 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 30 percent

*Available water capacity:* Moderate (about 8.3 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 3e

### **Typical profile**

*0 to 11 inches:* Loam

*11 to 28 inches:* Loam

*28 to 60 inches:* Sandy loam

## **363C2—Griswold loam, 4 to 6 percent slopes, eroded**

### **Map Unit Setting**

*Elevation:* 680 to 1,150 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 180 days

### **Map Unit Composition**

*Griswold, eroded, and similar soils:* 92 percent

### **Description of Griswold, Eroded**

#### **Setting**

*Landform:* Ground moraines, end moraines

*Landform position (two-dimensional):* Backslope, shoulder

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Till

#### **Properties and qualities**

*Slope:* 4 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 40 percent

*Available water capacity:* Moderate (about 8.3 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 3e



**Typical profile**

*0 to 10 inches:* Loam  
*10 to 24 inches:* Clay loam  
*24 to 27 inches:* Sandy loam  
*27 to 60 inches:* Gravelly sandy loam

**363D2—Griswold loam, 6 to 12 percent slopes, eroded**

**Map Unit Setting**

*Elevation:* 680 to 1,150 feet  
*Mean annual precipitation:* 30 to 40 inches  
*Mean annual air temperature:* 45 to 52 degrees F  
*Frost-free period:* 140 to 180 days

**Map Unit Composition**

*Griswold and similar soils:* 90 percent

**Description of Griswold**

**Setting**

*Landform:* End moraines, ground moraines  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Till

**Properties and qualities**

*Slope:* 6 to 12 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* Moderate (about 8.5 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 3e

**Typical profile**

*0 to 8 inches:* Loam  
*8 to 23 inches:* Clay loam  
*23 to 27 inches:* Sandy loam  
*27 to 60 inches:* Gravelly sandy loam

## **488A—Hooppole loam, 0 to 2 percent slopes**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 24 to 45 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 110 to 200 days

### **Map Unit Composition**

*Hooppole and similar soils:* 85 percent

### **Description of Hooppole**

#### **Setting**

*Landform:* Flats

*Parent material:* Calcareous loamy outwash

#### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* About 0 to 12 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 18 percent

*Available water capacity:* High (about 9.6 inches)

#### **Interpretive groups**

*Land capability (nonirrigated):* 2w

#### **Typical profile**

*0 to 17 inches:* Loam

*17 to 44 inches:* Clay loam

*44 to 60 inches:* Loamy sand

## **523A—Dunham silty clay loam, 0 to 2 percent slopes**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 180 days

### **Map Unit Composition**

*Dunham and similar soils:* 85 percent



## Description of Dunham

### Setting

*Landform:* Flats

*Parent material:* Loess over outwash

### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* About 0 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 40 percent

*Available water capacity:* High (about 9.3 inches)

### Interpretive groups

*Land capability (nonirrigated):* 2w

### Typical profile

*0 to 12 inches:* Silty clay loam

*12 to 35 inches:* Silty clay loam

*35 to 44 inches:* Loam

*44 to 60 inches:* Gravelly sand

## 527B—Kidami silt loam, 2 to 4 percent slopes

### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 180 days

### Map Unit Composition

*Kidami and similar soils:* 85 percent

## Description of Kidami

### Setting

*Landform:* Ground moraines, end moraines

*Parent material:* Loess over loamy till

### Properties and qualities

*Slope:* 2 to 4 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to  
0.60 in/hr)

*Depth to water table:* About 24 to 42 inches

*Frequency of flooding:* None

## Custom Soil Resource Report

*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* High (about 10.7 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 2e

### **Typical profile**

*0 to 10 inches:* Silt loam  
*10 to 37 inches:* Clay loam  
*37 to 45 inches:* Loam  
*45 to 60 inches:* Loam

## **527C—Kidami silt loam, 4 to 6 percent slopes**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 30 to 40 inches  
*Mean annual air temperature:* 45 to 52 degrees F  
*Frost-free period:* 140 to 180 days

### **Map Unit Composition**

*Kidami and similar soils:* 85 percent

### **Description of Kidami**

#### **Setting**

*Landform:* Ground moraines, end moraines  
*Parent material:* Loess over loamy till

#### **Properties and qualities**

*Slope:* 4 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)  
*Depth to water table:* About 24 to 42 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* High (about 10.7 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 2e

### **Typical profile**

*0 to 10 inches:* Silt loam  
*10 to 37 inches:* Clay loam  
*37 to 45 inches:* Loam  
*45 to 60 inches:* Loam



## **527C2—Kidami loam, 4 to 6 percent slopes, eroded**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 180 days

### **Map Unit Composition**

*Kidami and similar soils:* 85 percent

### **Description of Kidami**

#### **Setting**

*Landform:* Ground moraines, end moraines

*Parent material:* Loess over loamy till

#### **Properties and qualities**

*Slope:* 4 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* About 24 to 42 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 40 percent

*Available water capacity:* High (about 10.7 inches)

#### **Interpretive groups**

*Land capability (nonirrigated):* 2e

#### **Typical profile**

*0 to 10 inches:* Loam

*10 to 37 inches:* Clay loam

*37 to 45 inches:* Loam

*45 to 60 inches:* Loam

## **527D2—Kidami loam, 6 to 12 percent slopes, eroded**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 180 days

**Map Unit Composition**

*Kidami and similar soils: 85 percent*

**Description of Kidami**

**Setting**

*Landform: Ground moraines, end moraines*

*Parent material: Loess over loamy till*

**Properties and qualities**

*Slope: 6 to 12 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Moderately well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)*

*Depth to water table: About 24 to 42 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 40 percent*

*Available water capacity: High (about 10.7 inches)*

**Interpretive groups**

*Land capability (nonirrigated): 3e*

**Typical profile**

*0 to 10 inches: Loam*

*10 to 37 inches: Clay loam*

*37 to 45 inches: Loam*

*45 to 60 inches: Loam*

**626A—Kish loam, 0 to 2 percent slopes**

**Map Unit Setting**

*Elevation: 680 to 1,020 feet*

*Mean annual precipitation: 30 to 40 inches*

*Mean annual air temperature: 45 to 52 degrees F*

*Frost-free period: 140 to 180 days*

**Map Unit Composition**

*Kish and similar soils: 85 percent*

**Description of Kish**

**Setting**

*Landform: Depressions*

*Parent material: Calcareous outwash*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Poorly drained*



## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* About 0 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 40 percent

*Available water capacity:* High (about 10.2 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 2w

### **Typical profile**

*0 to 11 inches:* Loam

*11 to 47 inches:* Loam

*47 to 60 inches:* Stratified sandy loam to silt loam

## **656B—Octagon silt loam, 2 to 4 percent slopes**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 30 to 40 inches

*Mean annual air temperature:* 45 to 52 degrees F

*Frost-free period:* 140 to 180 days

### **Map Unit Composition**

*Octagon and similar soils:* 85 percent

### **Description of Octagon**

#### **Setting**

*Landform:* Ground moraines, end moraines

*Parent material:* Loess over till

#### **Properties and qualities**

*Slope:* 2 to 4 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* About 24 to 42 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 35 percent

*Available water capacity:* Moderate (about 8.1 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 2e

### **Typical profile**

*0 to 13 inches:* Silt loam

*13 to 30 inches:* Loam

*30 to 60 inches:* Loam

## 791B—Rush silt loam, 2 to 4 percent slopes

### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 28 to 45 inches

*Mean annual air temperature:* 46 to 55 degrees F

*Frost-free period:* 130 to 190 days

### Map Unit Composition

*Rush and similar soils:* 85 percent

### Description of Rush

#### Setting

*Landform:* Outwash plains, stream terraces

*Parent material:* Loess over gravelly outwash

#### Properties and qualities

*Slope:* 2 to 4 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 35 percent

*Available water capacity:* High (about 9.3 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 2e

#### Typical profile

*0 to 11 inches:* Silt loam

*11 to 38 inches:* Silt loam

*38 to 45 inches:* Loam

*45 to 60 inches:* Stratified sand to extremely gravelly coarse sand

## 802B—Orthents, loamy, undulating

### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 29 to 48 inches

*Mean annual air temperature:* 50 to 57 degrees F

*Frost-free period:* 160 to 210 days



**Map Unit Composition**

*Orthents, loamy, and similar soils:* 100 percent

**Description of Orthents, Loamy**

**Setting**

*Landform:* Outwash plains, ground moraines

*Parent material:* Mine spoil or earthy fill

**Properties and qualities**

*Slope:* 1 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)

*Depth to water table:* About 48 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 20 percent

*Available water capacity:* High (about 10.9 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 2e

**Typical profile**

*0 to 8 inches:* Loam

*8 to 60 inches:* Loam

**969E2—Casco-Rodman complex, 12 to 20 percent slopes, eroded**

**Map Unit Setting**

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 28 to 55 inches

*Mean annual air temperature:* 46 to 57 degrees F

*Frost-free period:* 130 to 200 days

**Map Unit Composition**

*Casco and similar soils:* 50 percent

*Rodman and similar soils:* 40 percent

**Description of Casco**

**Setting**

*Landform:* Outwash plains, kames, end moraines

*Parent material:* Loamy drift over gravelly deposits

**Properties and qualities**

*Slope:* 12 to 20 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)

## Custom Soil Resource Report

*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 25 percent  
*Available water capacity:* Low (about 4.3 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 6e

### **Typical profile**

*0 to 8 inches:* Loam  
*8 to 17 inches:* Gravelly loam  
*17 to 60 inches:* Error

## **Description of Rodman**

### **Setting**

*Landform:* Outwash plains, kames, end moraines  
*Parent material:* Gravelly drift

### **Properties and qualities**

*Slope:* 12 to 20 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 45 percent  
*Available water capacity:* Very low (about 2.9 inches)

### **Interpretive groups**

*Land capability (nonirrigated):* 6s

### **Typical profile**

*0 to 11 inches:* Gravelly loam  
*11 to 14 inches:* Gravelly loam  
*14 to 60 inches:* Stratified sand to extremely gravelly coarse sand

## **1103A—Houghton muck, 0 to 2 percent slopes, undrained**

### **Map Unit Setting**

*Elevation:* 680 to 1,020 feet  
*Mean annual precipitation:* 28 to 40 inches  
*Mean annual air temperature:* 45 to 54 degrees F  
*Frost-free period:* 140 to 180 days

### **Map Unit Composition**

*Houghton and similar soils:* 85 percent



### Description of Houghton

#### Setting

*Landform:* Potholes

*Parent material:* Grassy organic material

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.20 to 6.00 in/hr)

*Depth to water table:* About 0 to 12 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Available water capacity:* Very high (about 23.9 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 5w

#### Typical profile

*0 to 7 inches:* Muck

*7 to 60 inches:* Muck

### 1210A—Lena muck, 0 to 2 percent slopes, undrained

#### Map Unit Setting

*Elevation:* 680 to 1,020 feet

*Mean annual precipitation:* 24 to 42 inches

*Mean annual air temperature:* 45 to 54 degrees F

*Frost-free period:* 125 to 190 days

#### Map Unit Composition

*Lena and similar soils:* 85 percent

### Description of Lena

#### Setting

*Landform:* Potholes

*Parent material:* Herbaceous organic material

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* High (2.00 to 6.00 in/hr)

*Depth to water table:* About 0 to 12 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 30 percent

*Available water capacity:* Very high (about 23.9 inches)

**Interpretive groups**

*Land capability (nonirrigated): 5w*

**Typical profile**

*0 to 11 inches: Muck*

*11 to 60 inches: Muck*

**1626A—Kish loam, 0 to 2 percent slopes, undrained**

**Map Unit Setting**

*Elevation: 680 to 1,020 feet*

*Mean annual precipitation: 24 to 42 inches*

*Mean annual air temperature: 45 to 54 degrees F*

*Frost-free period: 125 to 190 days*

**Map Unit Composition**

*Kish and similar soils: 85 percent*

**Description of Kish**

**Setting**

*Landform: Depressions*

*Parent material: Calcareous loamy outwash*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Poorly drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.60 to 2.00 in/hr)*

*Depth to water table: About 0 to 18 inches*

*Frequency of flooding: None*

*Frequency of ponding: Frequent*

*Calcium carbonate, maximum content: 40 percent*

*Available water capacity: High (about 10.2 inches)*

**Interpretive groups**

*Land capability (nonirrigated): 5w*

**Typical profile**

*0 to 11 inches: Loam*

*11 to 47 inches: Loam*

*47 to 60 inches: Stratified sandy loam to silt loam*

**8776A—Comfrey loam, 0 to 2 percent slopes, occasionally flooded**

**Map Unit Setting**

*Elevation: 440 to 1,020 feet*



## Custom Soil Resource Report

*Mean annual precipitation:* 30 to 40 inches  
*Mean annual air temperature:* 45 to 52 degrees F  
*Frost-free period:* 140 to 180 days

### Map Unit Composition

*Comfrey and similar soils:* 90 percent

### Description of Comfrey

#### Setting

*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* About 0 to 12 inches  
*Frequency of flooding:* Occasional  
*Frequency of ponding:* Frequent  
*Calcium carbonate, maximum content:* 20 percent  
*Available water capacity:* High (about 11.0 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 2w

#### Typical profile

*0 to 8 inches:* Loam  
*8 to 29 inches:* Loam  
*29 to 49 inches:* Clay loam  
*49 to 65 inches:* Clay loam

## W—Water

### Map Unit Composition

*Water:* 100 percent

### Description of Water

#### Interpretive groups

*Land capability (nonirrigated):* 8w

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# **CRASH ANALYSIS REPORT**

Route 2-326, Illinois Route 47  
US 14 to Charles Road  
Job No. P-91-007-09  
City of Woodstock  
McHenry County, Illinois

May 2018

**INTRODUCTION**

This crash analysis report is for the Illinois Route 47 (IL 47) Phase I project from US Route 14 (US 14) to Charles Road. The IL 47 study corridor is a three-lane, undivided, 5-mile segment between US 14 and Charles Road in the City of Woodstock, McHenry County, Illinois (shown in Figure 1).

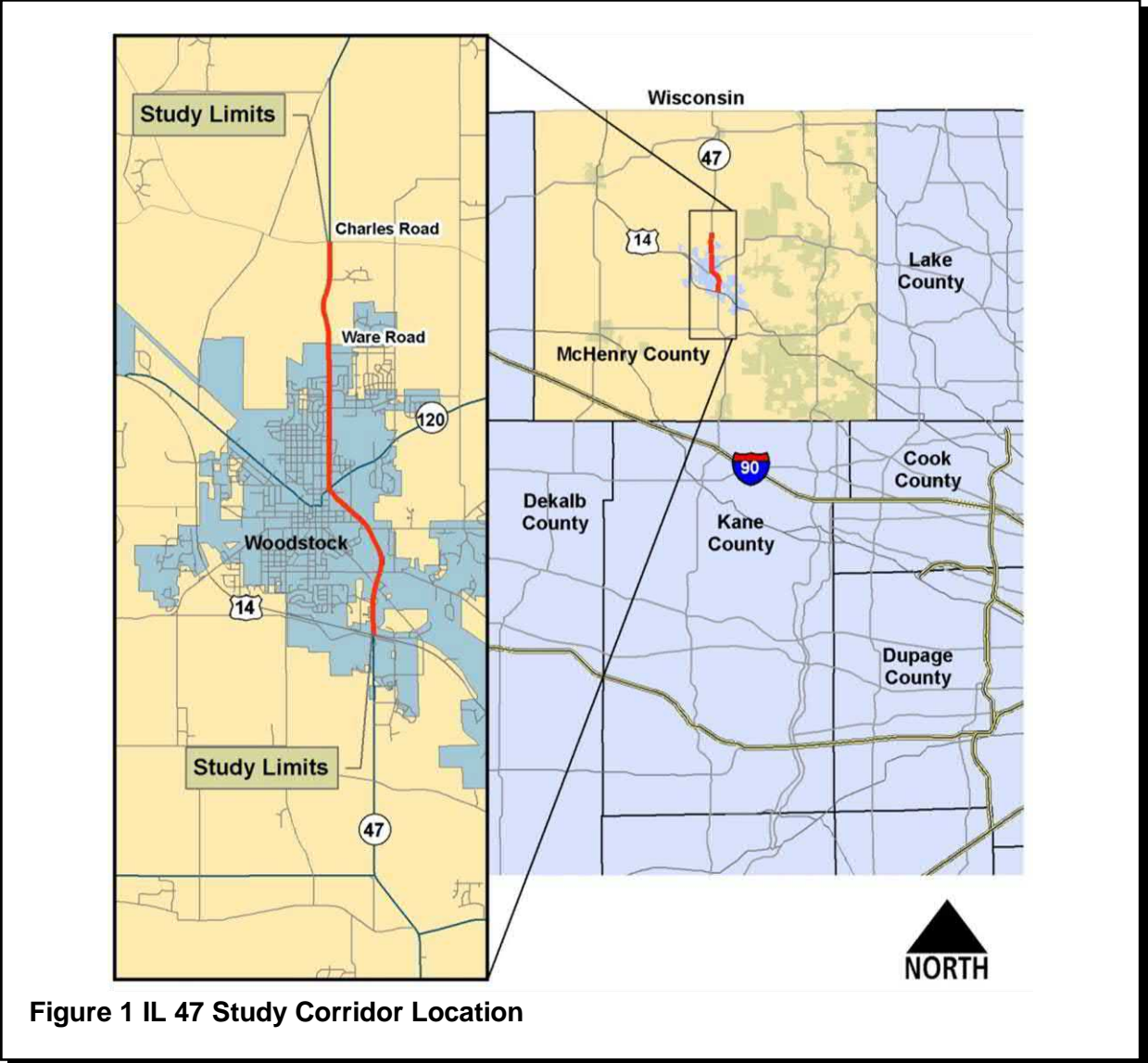


Figure 1 IL 47 Study Corridor Location



## **CORRIDOR CHARACTERISTICS**

Land use is diverse along the corridor and is split into three distinct sections. The southern section, from US 14 to Illinois Route 120, is an urban section with primarily commercial and light industrial buildings. In this southern section, IL 47 passes under the Union Pacific (UP) Railroad Bridge, which also carries the Metra UP/Northwest line. The middle section, extending from Illinois Route 120 to Ware Road, is an urban section exhibiting primarily residential neighborhoods mixed with commercial, healthcare, and institutional usage. The northern section from Ware Road to Charles Road is located in a rural setting with residential and agricultural usage.

The roadway from US 14 to Ware Road is an urban cross section with one lane in each direction and a center two-way turn lane. From Ware Road to Charles Road, there is a two-lane rural cross section with aggregate shoulders on both sides. There are approximately 31 intersections and 190 driveways in the five-mile section of roadway. Access management principles, such as barrier medians or limiting driveway movements to right-in/right-out only, are generally not used.

Detailed location maps of the project corridor can be found in Appendix A.

## **METHODOLOGY**

Crash data used for this report was collected from the Illinois Department of Transportation (IDOT) Division of Traffic Safety. Crash data was collected for the years 2010 through 2014.

### **A. Crash Placement**

Information for crashes was received in tabular format from IDOT's Crash Information System (CIS). These CIS presents data for each crash, including crash characteristics and location based on Safety Mile Station. This system was used to place each crash within the corridor, either at one of the 11 major intersections or in the mid-block segments between intersections. The major intersections and their corresponding Safety Mile Stations are:

US 14	Safety Mile Station 155.12
Southview Drive	Safety Mile Station 155.48
Lake Avenue	Safety Mile Station 155.69
McConnell Road	Safety Mile Station 155.85
Country Club Road	Safety Mile Station 156.44
Irving Avenue	Safety Mile Station 156.67

Illinois Route 120	Safety Mile Station 157.20
St. Johns Road	Safety Mile Station 157.96
Russel Court	Safety Mile Station 158.44
Ware Road	Safety Mile Station 158.58
Charles Road	Safety Mile Station 159.87

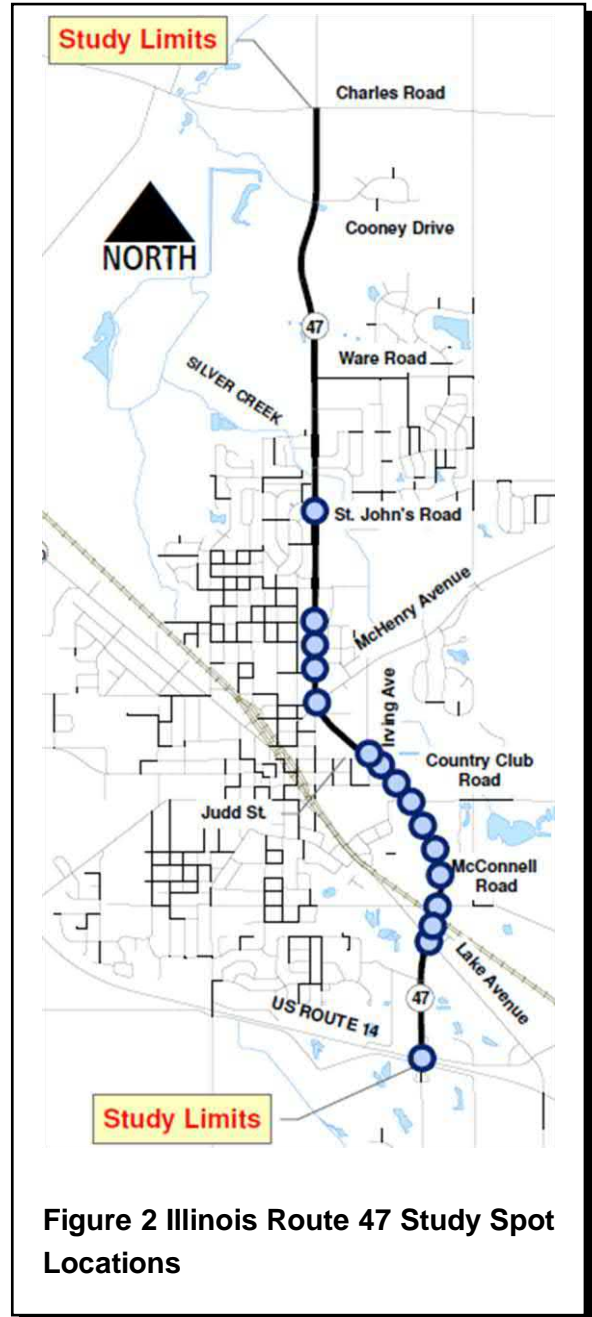
The Safety Mile Stations used in this report were based on 2011 stationing. Mid-block segments were defined as all stations between the intersections. The safety mileposts at intersections varied for the 2012-2014 data. It was assumed the mile stations were renumbered at the beginning of July 2012.

The Safety Mile Station for each crash is approximated to the nearest 0.01-mile. Individual Illinois Crash Reports were not available; therefore, crash locations were approximated based on the station and direction of travel.

**B. Spot Location Identification**

The crash locations from the IDOT CIS output were analyzed to aid in identifying specific locations in the corridor where crashes are more prevalent and potentially demonstrate roadway safety deficiencies.

Preliminary spot locations were identified as any 0.1-mile segment with at least 10 crashes in the five-year study period. This process resulted in 16 spot locations along the corridor as shown in Figure 2. These areas will be further analyzed as part of this report.



**Figure 2 Illinois Route 47 Study Spot Locations**



C. Average Annual Daily Traffic Volumes

The traffic volumes used to calculate corridor and spot crash rates were derived from the 2009 average daily traffic volumes from the IL 47 Phase I report.

**ILLINOIS 5% REPORT**

The Federal Highway Administration's *Illinois 5% Report* details locations where crash characteristics are considerably worse than those of other sites on the road network. These locations are identified as having poor performance in relationship to other similar locations in any one of four areas: 1) frequency of crashes, 2) rate of crashes, 3) Equivalent Property Damage Only measurements, and 4) year-to-year changes in crash frequencies (delta).

There were no areas along IL 47 from US 14 to Charles Road identified in the *Illinois 5% Report*.

**WET-WEATHER CLUSTER LOCATIONS**

Wet-weather cluster locations are defined as roadway locations where wet and/or icy pavement likely contributed to an increased incidence of crashes.

No high or abnormal concentrations of crashes on wet or icy pavements exist within the project limits. Therefore, there are no wet-weather cluster locations.

**CRASH ANALYSIS RESULTS FOR YEARS 2010 to 2014**

Crash statistics were calculated for the corridor at each of the intersections and mid-block segments and at the identified spot crash locations. A summary of these statistics is provided in this section. Detailed crash statistics at each intersection and mid-block segment with a description of each location can be found in Appendix C.

A. Corridor Summary

Corridor-wide crashes were analyzed for several factors including crash type, crash severity, lighting conditions, weather/pavement conditions, drug and alcohol involvement, and pedestrian crashes.

The 2008 Illinois Crash Facts and Statistics publication was used to compare corridor data from this study to the state averages to measure significance. The Crash Rate Method was used to determine crash rates in crashes per hundred million vehicle miles traveled (HMVMT).

The 651 crashes in the study period result in an average corridor-wide crash rate of 461.1 crashes per HMVMT. The state average in 2008 was 276.26 crashes per HMVMT. The IL 47 corridor has a crash rate 1.67 times greater than the state average. A crash cluster diagram can be found in Appendix B.

1. Crash Type

Table 1 summarizes the number of crashes during the study period by crash type and year.

Crash Type	Year					Total	Percent
	2010	2011	2012	2013	2014		
Rear End	75	97	71	82	65	390	59.9%
Turning	38	12	16	26	27	119	18.3%
Angle	14	22	17	12	9	74	11.4%
Sideswipe Same	6	3	4	3	4	20	3.1%
Fixed Objects	0	3	2	3	5	13	2.0%
Animals	0	2	2	1	5	10	1.5%
Others	4	5	6	3	7	25	3.8%
<b>Total</b>	<b>137</b>	<b>144</b>	<b>118</b>	<b>130</b>	<b>122</b>	<b>651</b>	<b>100.0%</b>

**Table 1 Crash Frequency by Type of Crash and Year**

The predominant crash types were rear-end, turning, and angle crashes. Rear-end crashes were the most frequent type with 390 crashes, accounting for 59.9 percent of the total. The percentage of rear-end crashes for this corridor was 2.11 times higher than the state average. The percentage of angle crashes is 1.11 times higher than the state average, and the percentage of turning crashes is 1.24 times higher than the state average. All other crash types were lower than the state average.



## 2. Crash Severity

Crashes were also analyzed for injuries. Table 2 summarizes the number of crashes during the study period by crash severity.

During the study period, 202 crashes resulted in an injury, approximately 31 percent of the total. These crashes resulted in 306 injuries. Of these, 195 were type 'C' injuries. There were 97 type 'B' injuries, 14 type 'A' injuries, and no fatalities recorded.

Type	2010	2011	2012	2013	2014	Total	Percent
Total Number of Injury Crashes	35	44	41	43	39	202	-
Fatalities	0	0	0	0	0	0	0.00%
Type A Injuries	3	2	5	1	3	14	4.58%
Type B Injuries	29	17	22	19	10	97	31.70%
Type C Injuries	25	45	35	49	41	195	63.73%
<b>Total Number of Injuries</b>	<b>57</b>	<b>64</b>	<b>62</b>	<b>69</b>	<b>54</b>	<b>306</b>	<b>100.00%</b>

**Table 2 Crash Severity by Type and Year**

## 3. Lighting Conditions

There were 506 crashes that occurred during daylight conditions (77.7 percent) and 52 crashes that occurred in darkness (8.0 percent). The resultant lighted to darkness ratio is 9.73:1. Darkness crashes do not include areas with on-street lighting. Separately, 91 crashes occurred during darkness on a lighted road and two occurred in unknown lighting conditions.

The majority of crashes (92.0 percent) occurred during the day or in lighted road conditions. The state average for crashes in these conditions is 90 percent.

## 4. Weather/Pavement Conditions

Roadway pavement condition was analyzed and included 136 wet surface crashes, 471 dry surface crashes, and 33 ice and snow crashes. Wet surface crashes accounted for 20.9 percent of all crashes.

The state average for crashes on wet pavement is 16.1 percent. Therefore, the percentage for this corridor is 1.30 times higher than the state average.

5. Pedestrian Crashes

There were three crashes involving a pedestrian and three crashes involving a bicyclist. The first pedestrian crash occurred during the 11 A.M. hour at the intersection with Lake Avenue and resulted in a reported type 'C' injury. The second pedestrian crash occurred during the 8 P.M. hour at the intersection with Judd Street/Irving Avenue and resulted in a type 'B' injury. The third pedestrian crash occurred during the 11 P.M. hour at the intersection with Illinois Route 120 and resulted in a type 'B' injury. Two bicyclist crashes occurred between the intersections of Lake Avenue and McConnell Drive. Both resulted in a type 'B' injury. The first crash occurred during the 10 A.M. hour and the second crash involving a bicyclist occurred during the 3 P.M. hour. The third crash involving a bicyclist occurred between IL Route 120 and St. John's Road during the 6 P.M. hour and resulted in a type 'B' injury.

B. Intersection Summary

This section analyzes individual crash characteristics at the intersections within the IL 47 project limits. Table 3 summarizes the frequency of crashes and injury crashes at each intersection.

Intersection	Year					Total Crashes	% of Total Crashes	Total Injury Crashes	% of Total Intersection Crashes	Total Injuries
	2010	2011	2012	2013	2014					
US Route 14	14	5	5	6	4	34	5.2%	15	44.1%	22
Southview Drive	2	1	2	4	4	13	2.0%	6	46.2%	13
Lake Avenue	14	25	17	18	20	94	14.4%	28	29.8%	42
McConnell Road	7	8	10	11	4	40	6.1%	10	25.0%	15
Country Club Road	11	12	8	6	6	43	6.6%	9	20.9%	19
Judd Street/Irving Ave.	6	3	4	5	5	23	3.5%	6	26.1%	12
Illinois Route 120	2	8	4	2	5	21	3.2%	4	19.0%	4
St. John's Road	5	1	2	2	1	11	1.7%	1	9.1%	1
Russel Court	1	0	0	3	6	10	1.5%	2	20.0%	2
Ware Road	1	1	1	1	2	6	0.9%	2	33.3%	2
Charles Road	3	3	3	5	5	19	2.9%	4	21.1%	5
<b>TOTALS</b>	<b>66</b>	<b>67</b>	<b>56</b>	<b>63</b>	<b>62</b>	<b>314</b>	<b>48.2%</b>	<b>87</b>	<b>27.7%</b>	<b>137</b>

**Table 3 Frequency of Crashes and Injury Crashes at Each Intersection**

There were 314 intersection crashes during the study period, accounting for 48.2 percent of the total crashes in the corridor. The location with the most crashes was Lake Avenue with 94 crashes or 29.9 percent of all intersection crashes. There were 87 injury crashes, which resulted



in 137 injuries. 27.7 percent of all intersection crashes resulted in an injury. The intersection with the most injury crashes and injuries was Lake Avenue with 28 crashes resulting in 42 injuries. Thirty percent of the crashes at Lake Avenue involved an injury. Southview Drive had the highest percentage of crashes resulting in an injury of 46.2 percent.

There were eight type 'A' injuries. One type 'A' crash was at the intersection of US 14 and resulted in three type 'A' injuries. It was an angle crash on wet pavement. Two type 'A' crashes occurred at the intersection with Lake Avenue and were turning crashes. The fourth type 'A' crash occurred at the intersection with Country Club Road, it was a rear-end crash resulting in two type 'A' injuries. The final intersection-related type 'A' crash occurred at the intersection with Charles Road, it was an angle crash and occurred on wet pavement.

The predominant intersection crash types are the same as the corridor as a whole. Rear-end crashes account for 61.1 percent of the total, followed by turning and angle crashes.

There were 60 wet surface crashes, accounting for 19.1 percent of the total number of intersection crashes. These numbers are similar to the corridor-wide findings.

There was one crash that involved a driver under the influence of alcohol or drugs. This accident occurred at the intersection with Judd Street/Irving Avenue.

The computed crash rate and injury crash rate for each intersection can be found in Table 4.

Crash rates at intersections were calculated in crashes per Million Entering Vehicles (MEV).

The intersection with Lake Avenue has a crash rate of 1.86 crashes per MEV, the highest among all intersections in the study. The average intersection crash rate was determined with the same formula by using a sum of all crashes and number of entering vehicles. This average rate was 0.70 crashes per MEV. For this study, the critical intersection crash rate for the corridor is recognized as two times the average rate. Therefore, the critical intersection crash rate for this study is 1.40 crashes per MEV. The intersection of Lake Avenue exceeds this critical rate, which indicates it may be an area of concern.

Intersection	Average Daily Traffic (all legs)	Total Crashes	Crash Rate	Total Injury Crashes	Injury Crash Rate
US Route 14	29,750	34	0.63	15	0.28
Southview Drive	16,700	13	0.43	6	0.20
Lake Avenue	27,750	94	1.86	28	0.55
McConnell Road	27,150	40	0.81	10	0.20
Country Club Road	31,900	43	0.74	9	0.15
Judd Street/Irving Ave.	26,100	23	0.48	6	0.13
Illinois Route 120	25,000	21	0.46	4	0.09
St. John's Road	18,100	11	0.33	1	0.03
Russel Court	17,300	10	0.32	2	0.06
Ware Road	12,950	6	0.25	2	0.08
Charles Road	12,650	19	0.82	4	0.17
<b>TOTALS</b>	<b>245,350</b>	<b>314</b>	<b>0.70</b>	<b>87</b>	<b>0.19</b>

**Table 4 Crash Rates at Each Intersection**

The average injury crash rate is 0.19 crashes per MEV, yielding a critical intersection injury crash rate of 0.38 crashes per MEV. The intersection of Lake Avenue exceeds this value.

C. Mid-Block Summary

This section analyzes individual crash characteristics along mid-block segments within the IL 47 project limits. Table 5 summarizes the frequency of crashes within each mid-block segment.

There were 337 mid-block crashes (51.8 percent of all crashes). The predominant mid-block crash types are the same as the corridor as a whole. Rear-end crashes account for 62.3 percent of the total, followed by turning crashes at 13.4 percent and angle crashes at 10.7 percent. The mid-block segment with the most crashes was McConnell Road to Country Club Road with 95 crashes.

There were 102 wet surface crashes accounting for 30.3 percent of the total number of mid-block crashes. These numbers are similar to the corridor-wide findings.



MIDBLOCK SEGMENT	Distance (miles)	Year					Total Crashes	% of Total Crashes
		2010	2011	2012	2013	2014		
US Route 14 to Southview Drive	0.36	3	2	5	4	3	17	2.6%
Southview Drive to Lake Avenue	0.21	3	1	2	1	3	10	1.5%
Lake Avenue to McConnell Road	0.16	12	19	11	7	4	53	8.1%
McConnell Road to Country Club Road	0.59	20	21	19	19	16	95	14.6%
Country Club Road to Judd/Irving	0.23	15	12	7	6	13	53	8.1%
Judd/Irving to IL Route 120	0.35	3	1	4	9	4	21	3.2%
IL Route 120 to St. John's Road	0.94	14	13	10	12	9	58	8.9%
St. John's Road to Russel Court	0.48	1	5	0	3	0	9	1.4%
Russel Court to Ware Road	0.15	0	1	2	0	0	3	0.5%
Ware Road to Charles Road	1.28	0	2	2	6	8	18	2.8%
<b>Total</b>	<b>4.75</b>	<b>71</b>	<b>77</b>	<b>62</b>	<b>67</b>	<b>60</b>	<b>337</b>	<b>51.8%</b>

**Table 5 Frequency of Crashes at Each Mid-Block Segment**

Table 6 summarizes the injury crashes and injuries at each mid-block section.

MIDBLOCK SEGMENT	Distance (miles)	Injury Crashes	% of Midblock Crashes	Total Injuries
US Route 14 to Southview Drive	0.36	4	23.5%	6
Southview Drive to Lake Avenue	0.21	1	10.0%	1
Lake Avenue to McConnell Road	0.16	23	43.4%	40
McConnell Road to Country Club Road	0.59	38	40.0%	52
Country Club Road to Judd/Irving	0.23	14	26.4%	21
Judd/Irving to IL Route 120	0.35	8	38.1%	10
IL Route 120 to St. John's Road	0.94	17	29.3%	26
St. John's Road to Russel Court	0.48	4	44.4%	5
Russel Court to Ware Road	0.15	1	33.3%	3
Ware Road to Charles Road	1.28	5	27.8%	4
<b>Total</b>	<b>4.75</b>	<b>115</b>	<b>34.1%</b>	<b>168</b>

**Table 6 Frequency of Injury Crashes at Each Mid-Block Segment**

There were 115 injury crashes, which resulted in 168 injuries. Of all mid-block crashes, 34.1 percent resulted in an injury. The segment with the most injury crashes was McConnell Road to Country Club Road, with 38 crashes. The segment with the most resulting injuries was McConnell Road to Country Club Road with 52 injuries occurred.

There were five type 'A' injuries. The first was a rear-end crash occurring between McConnell Road and Country Club Road. The second was a turning crash between

Country Club Road and Judd Street/Irving Avenue on wet pavement. The third was a motorcycle hitting a median island while making a left-turn between Illinois Route 120 and St. Johns Road. The fourth and fifth were a rear-end and a head-on crash between Ware Road and Charles Road.

The computed crash rate and injury crash rate for each mid-block section can be found in Table 7.

MIDBLOCK SEGMENT	Distance	Average Daily Traffic (vpd)	Total Crashes	Crash Rate (crashes/H MVMT)	Total Injury Crashes	Injury Crash Rate (crashes/HMVMT)
US Route 14 to Southview Drive	0.36	14,650	17	176.6	4	41.6
Southview Drive to Lake Avenue	0.21	14,650	10	178.1	1	17.8
Lake Avenue to McConnell Road	0.16	23,850	53	761.0	23	330.3
McConnell Road to Country Club Road	0.59	21,650	95	407.5	38	163.0
Country Club Road to Judd/Irving	0.23	25,200	53	501.1	14	132.4
Judd/Irving to IL Route 120	0.35	14,650	21	224.4	8	85.5
IL Route 120 to St. John's Road	0.94	15,000	58	225.4	17	66.1
St. John's Road to Russel Court	0.48	15,000	9	68.5	4	30.4
Russel Court to Ware Road	0.15	10,400	3	105.4	1	35.1
Ware Road to Charles Road	1.28	7,800	18	98.8	5	27.4
<b>Total</b>	<b>4.75</b>	<b>16,285</b>	<b>337</b>	<b>238.7</b>	<b>115</b>	<b>81.5</b>

**Table 7 Crash Rates and Injury Crash Rates at Each Mid-Block Segment**

Crash rates at mid-block segments were calculated in crashes per HMVMT.

Several segments have a relatively high crash rate, including Lake Avenue to McConnell Road at 761.0 crashes per HMVMT, Country Club Road to Judd Street/Irving Avenue at 501.1 crashes per HMVMT, and McConnell Road to Country Club Road at 407.5 crashes per HMVMT.

The critical mid-block crash rate for the corridor was calculated using the critical crash rate method, the Illinois state average, and a 99.95 percent confidence level. The critical mid-block crash rate for this study is 349.9 crashes per HMVMT. The mid-block segments from Lake Avenue to McConnell Road, from McConnell Road to Country Club Road, and from Country Club Road to Judd Street/Irving Avenue exceed this critical rate, which indicates these segments may be areas of concern.

The calculated critical injury crash rate was determined to be 123.3 crashes per HMVMT. The mid-block segments from Lake Avenue to McConnell Road, McConnell Road to Country Club



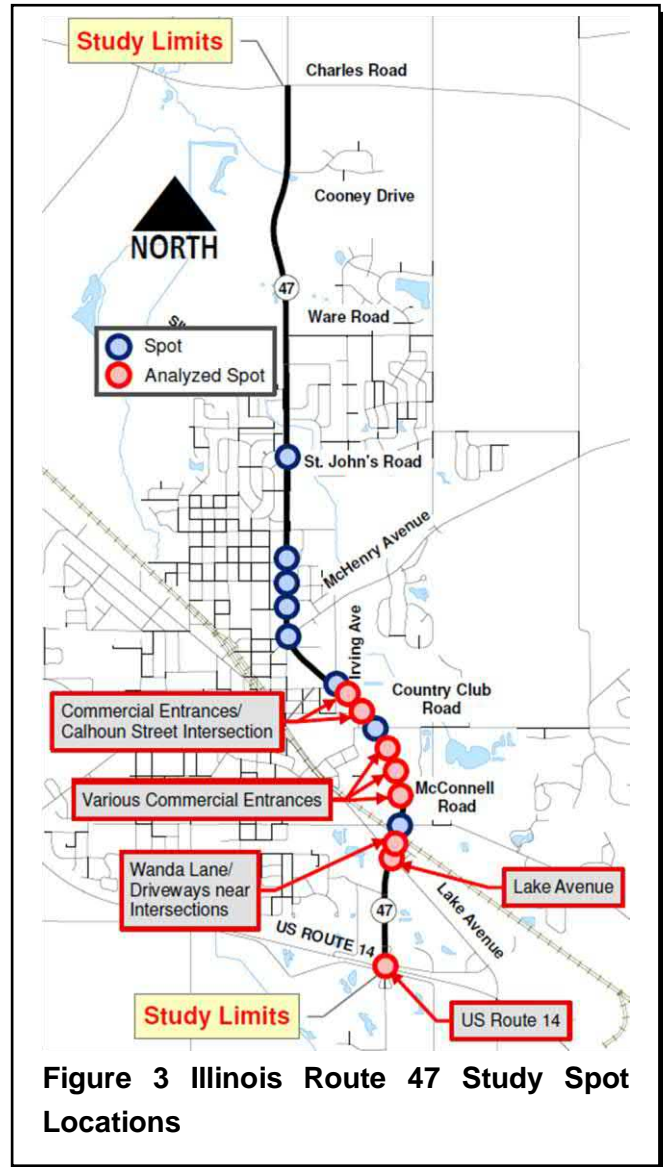
Road, and from Country Club Road to Judd Street/Irving Avenue exceed this critical rate, which indicates these segments may be areas of concern.

### SPOT LOCATION SUMMARY

Sixteen spot crash locations were identified as having ten or more crashes within a tenth of a mile along the corridor. Of these 16 spots, eight were carried forward for further analysis based on their location within a segment that exceeds the critical crash rates identified in the previous sections. These 10 spot crash locations are shown in Figure 3 and discussion of each follows in this section. A detailed aerial map of each location can be found in Appendix E.

#### A. US 14 Intersection

The intersection of IL 47 and US 14 had 34 crashes during the study period. This yielded a crash rate of 0.63 crashes per MEV. This is below the critical average crash rate of 1.40 crashes per MEV. However, a total of 15 crashes, 44.1 percent of all crashes in this location, resulted in an injury. The 15 injury crashes resulted in 22 injuries in this location. This yielded an injury crash rate of 0.28 injury crashes per MEV, which is below the critical injury crash rate of 0.38 injury crashes per MEV. Of the 34 crashes at the intersection, 17 were rear-end (50.0 percent), ten were angle (29.4 percent), five were turning (14.7 percent), and two were other types of crashes (5.9 percent). Crash diagrams of the intersection can be found in Appendix D. Ten of the 15 injury crashes involved a turning or angle crash. Sixty-seven percent of all turning and angle crashes resulted in at least one injury. The turning and angle crashes often involved one vehicle on IL 47 and one vehicle on US 14. The high injury crash rate could be caused by the high average daily traffic (ADT) at the intersection and the high speed limit on US 14 (55 miles per hour).



B. Lake Avenue Intersection

The intersection of IL 47 and Lake Avenue had 94 crashes during the study period. This yielded a crash rate of 1.86 crashes per MEV, which is 1.32 times greater than the critical crash rate for the corridor. There were 28 reported injury crashes resulting in 42 total injuries. This returns an injury crash rate of 0.55 injury crashes per MEV, which is 1.45 times larger than the critical injury crash rate. There were 70 rear-end crashes (74.5 percent), 18 turning crashes (19.1 percent), three angle crashes (3.2 percent), one pedestrian crash (1.1 percent), one other crash (1.1 percent), and one head on crash (1.1 percent). Crash diagram of this intersection can be found in Appendix D. Forty-nine crashes (52.1 percent) occurred in the northbound direction on IL 47 and were classified as rear-end or turning crashes. Many of the turning crashes were rear-end type involving vehicles turning right onto eastbound Lake Avenue. One contributing cause could be the skew of the intersection. The 33.8° skew leads to diminished sight distance for turning vehicles. Occurrence of conflicts because of poor intersection geometry is further intensified by the high ADTs at this intersection. Another 27 rear-end or turning crashes occurred on southbound IL 47.

C. Wanda Lane/Commercial Entrances

This location is just north of the intersection of Lake Avenue and south of McConnell Road. There were 53 crashes in the study period. This yielded a crash rate of 761.0 crashes per HVMVT, which is 2.17 times greater than the critical crash rate. A total of 23 injury crashes were reported in the study for this location yielding an injury crash rate of 330.3 injury crashes per HVMVT, which is 2.68 times the critical injury crash rate of 123.3 injury crashes per HVMVT. There were 45 rear-end crashes (84.9 percent), two turning crashes (3.8 percent), and three angle crashes (5.7 percent). In this section, there is a stretch of 230 feet that contains an intersection (Wanda Lane) and three business entrances, all on the east side of the road. These closely-spaced entrances potentially contribute to crashes in this section by causing slowing in the northbound lanes and increasing the number of conflicts. Thirty-two of the rear-end crashes (60.4 percent) occurred in the northbound direction.

D. Various Commercial Entrances

There are three consecutive 0.1-mile segments between McConnell Road and Country Club Road that met the criteria to be considered a spot location. These spot locations have similar characteristics and a high number of commercial entrances. There were 95 crashes in the study



period. This yielded a crash rate of 407.5 crashes per HMVMT, which is 1.16 times greater than the critical crash rate. Thirty-eight injury crashes were reported in this location during the study period, yielding an injury crash rate of 163.0 injury crashes per HMVMT, which is 1.33 times the critical injury crash rate. Of the crashes, there were 63 rear-end (66.3 percent), 13 angle (13.7 percent), 11 turning (11.6 percent), six sideswipe (6.3 percent) and two fixed object (2.1 percent) crashes. The majority of the crashes in this section appear to relate to the entrances. Closely-spaced entrances potentially contribute to crashes in this section by causing slowing in the lanes and increasing the number of conflicts.

E. Commercial Entrances/Calhoun Street Intersection

There are two consecutive 0.1-mile segments between Country Club Road and Judd Street/Irving Avenue that met the criteria to be considered a spot location. These spot locations have similar characteristics and a high number of commercial entrances. There were 53 crashes in the study period. This yielded a crash rate of 501.1 crashes per HMVMT, which is 1.43 times greater than the critical crash rate. The 14 injury crashes in this location yielded an injury crash rate of 132.4 injury crashes per HMVMT, which is 1.07 times the critical injury crash rate of 123.3 injury crashes per HMVMT. Of the crashes, there were 27 rear-end (50.9 percent), 15 turning (28.3 percent), 5 angle (9.4 percent), 2 fixed objects (3.8 percent), and 2 sideswipe (3.8 percent) crashes. The majority of the crashes in this section appear to relate to the commercial entrances and the intersection of Calhoun Street. This segment has an increased incidence of turning crashes. One reason for this increase may be that vehicles entering or exiting the driveways must cross additional lanes of traffic as compared to the rest of the corridor. Also, there is a high frequency of vehicles that make uncontrolled left turns across multiple lanes of traffic onto Calhoun Street.

## **SUMMARY AND CONCLUSIONS**

The IL 47 corridor from US 14 to Charles Road experienced a high number of crashes between 2010 and 2014. The crash rate in the corridor was 1.67 times greater than the state average. The predominant types of crashes, generally rear-end, turning, and angle, are often caused by conflicting movements that impair the smooth flow of traffic. This disruptive movement usually occurs in the proximity of the numerous driveways to businesses and residences that are present throughout the IL 47 corridor. These crashes are also caused by high traffic volumes exceeding roadway capacity. This is illustrated by the high incidence of rear-end and turning crashes in the identified intersection and mid-block spot segments.

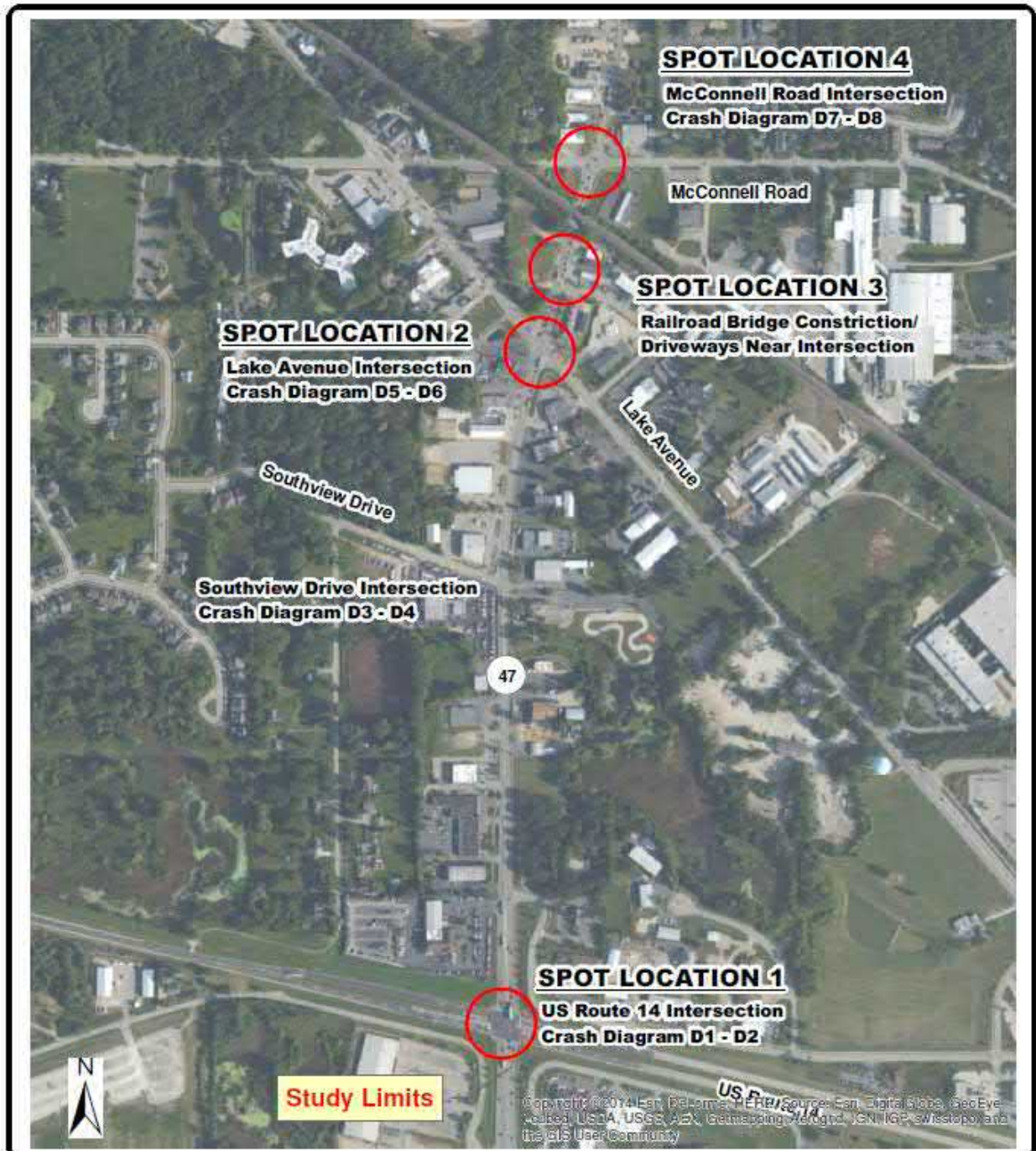
Implementing access management principles throughout the corridor could reduce the incidence of these crash types. This can include closing specific driveways or side streets that

can be served with shared access drives or other side roads. Adding lanes to create a four-lane cross section on IL Route 47 would provide two benefits: 1) increasing the roadway capacity to reduce congestion-related crashes, and 2) allows drivers to avoid slowing vehicles in the right lane. Turning vehicles can also be removed from through-lanes by providing designated turn lanes in the high density areas. A raised median can be used in key locations (for example at intersections) to prevent left turns and thereby reduce the incidence of turning crashes. Improving visibility at the skewed intersections, particularly at the Lake Avenue intersection, by means of geometric improvements could also mitigate crashes at this location. Other intersection improvements can include lighting, signal modernization and/or signal timing coordination, or modifications to phasing. Without any improvements, it is likely that increasing traffic volumes will lead to increased incidence of crashes.



**APPENDIX A**  
**DETAILED LOCATION MAPS**

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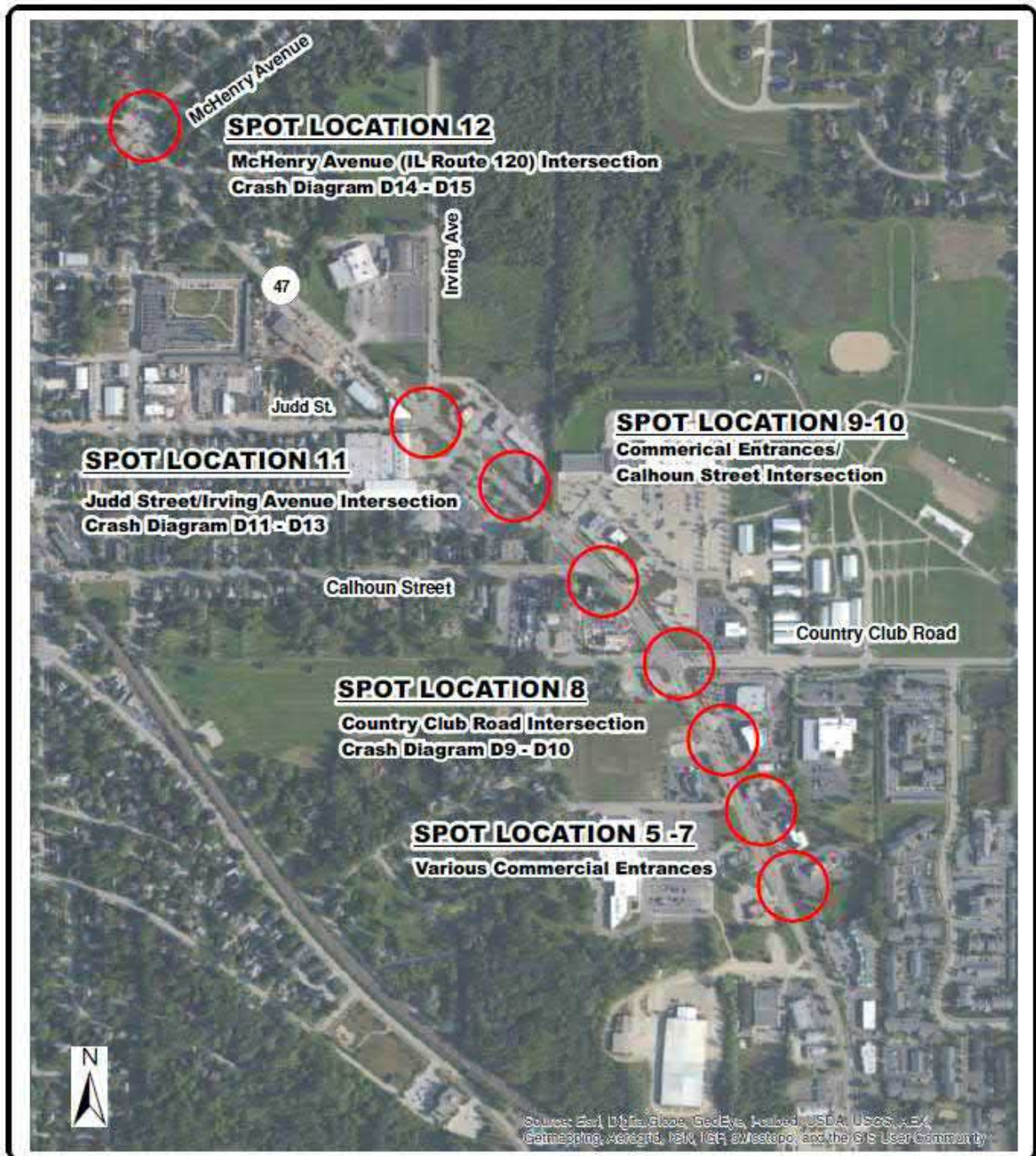
**ILLINOIS ROUTE 47 CRASH ANALYSIS  
APPENDIX A - CORRIDOR MAP**

ILLINOIS ROUTE 47 - US 14 TO CHARLES ROAD  
ILLINOIS DEPARTMENT OF TRANSPORTATION



FIGURE A1  
6346.014



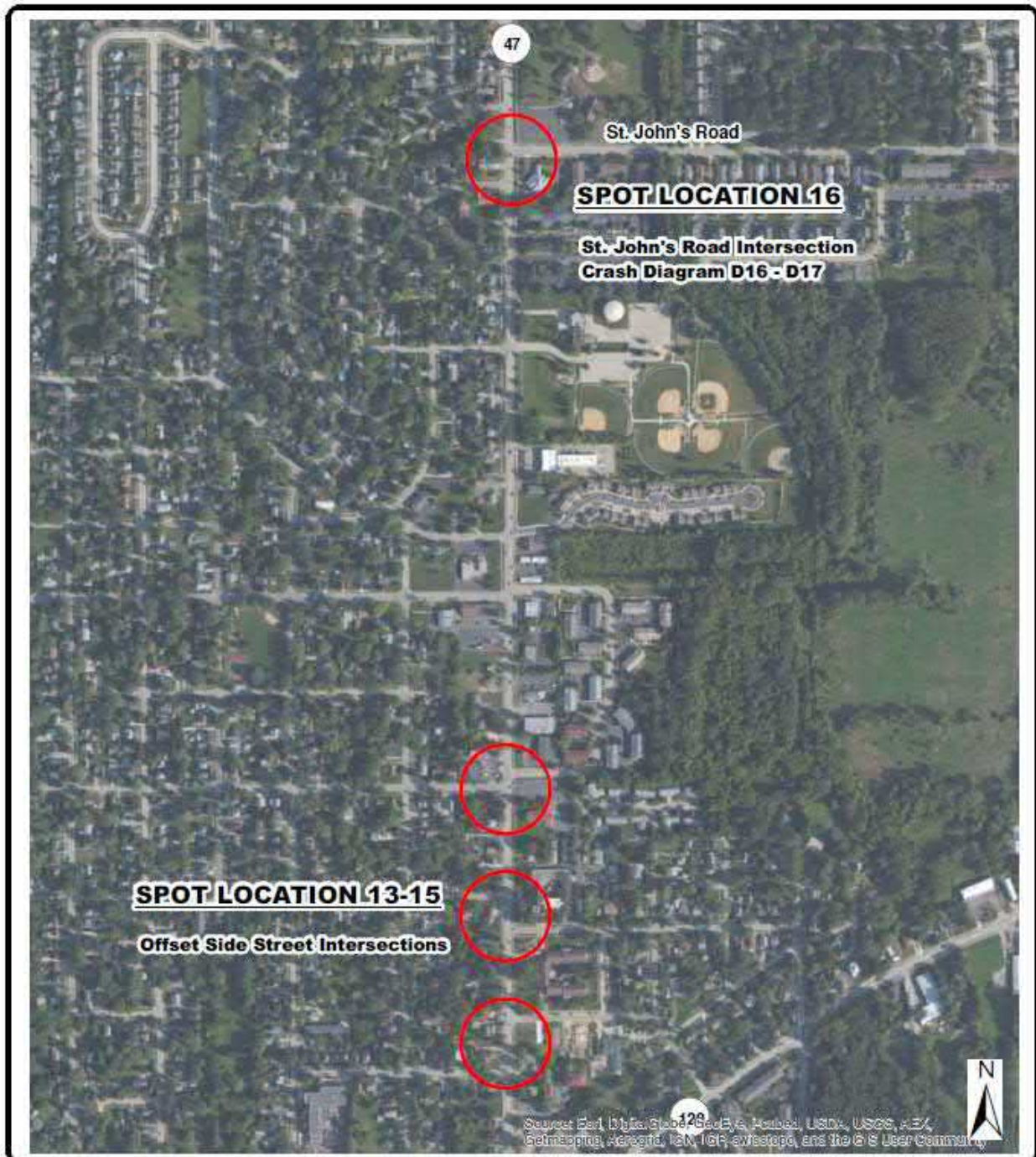


**ILLINOIS ROUTE 47 CRASH ANALYSIS**  
**APPENDIX A - CORRIDOR MAP**  
ILLINOIS ROUTE 47 - US 14 TO CHARLES ROAD  
ILLINOIS DEPARTMENT OF TRANSPORTATION

**SA**  
**STRAND**  
ASSOCIATES

FIGURE A2  
6346.014





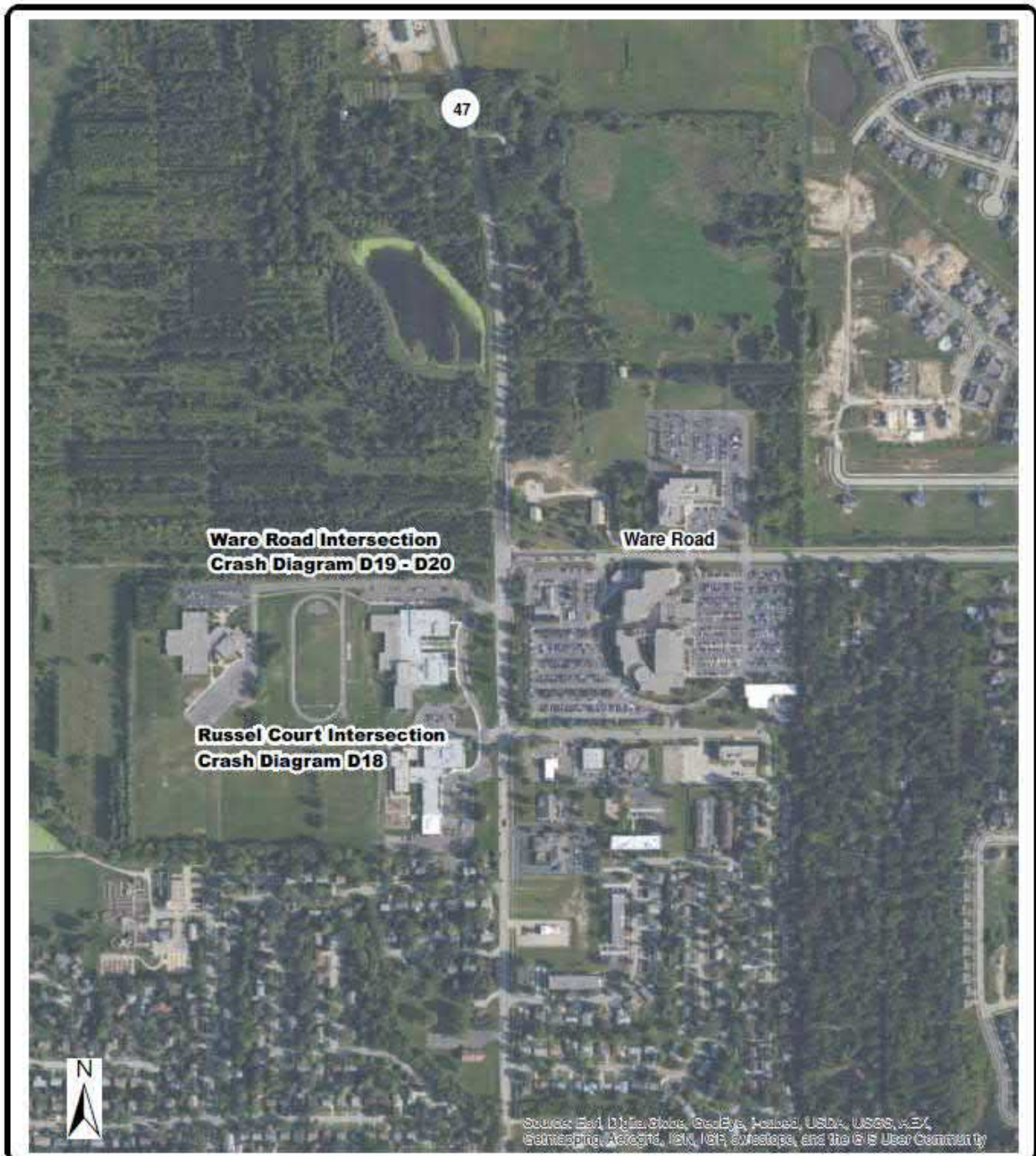
**ILLINOIS ROUTE 47 CRASH ANALYSIS  
APPENDIX A - CORRIDOR MAP**

**ILLINOIS ROUTE 47 - US 14 TO CHARLES ROAD  
ILLINOIS DEPARTMENT OF TRANSPORTATION**



**FIGURE A3  
6346.014**



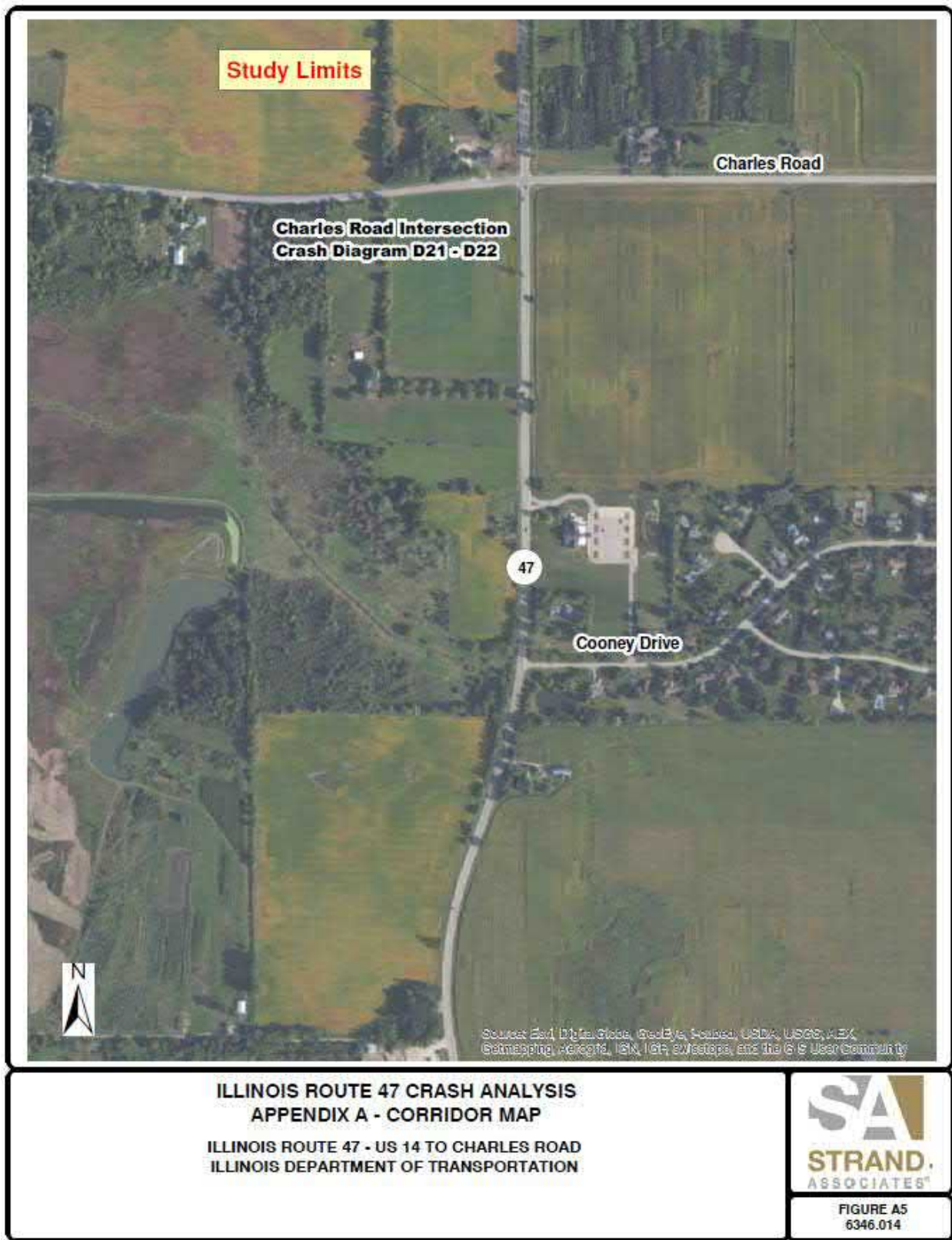


**ILLINOIS ROUTE 47 CRASH ANALYSIS  
APPENDIX A - CORRIDOR MAP**

**ILLINOIS ROUTE 47 - US 14 TO CHARLES ROAD  
ILLINOIS DEPARTMENT OF TRANSPORTATION**

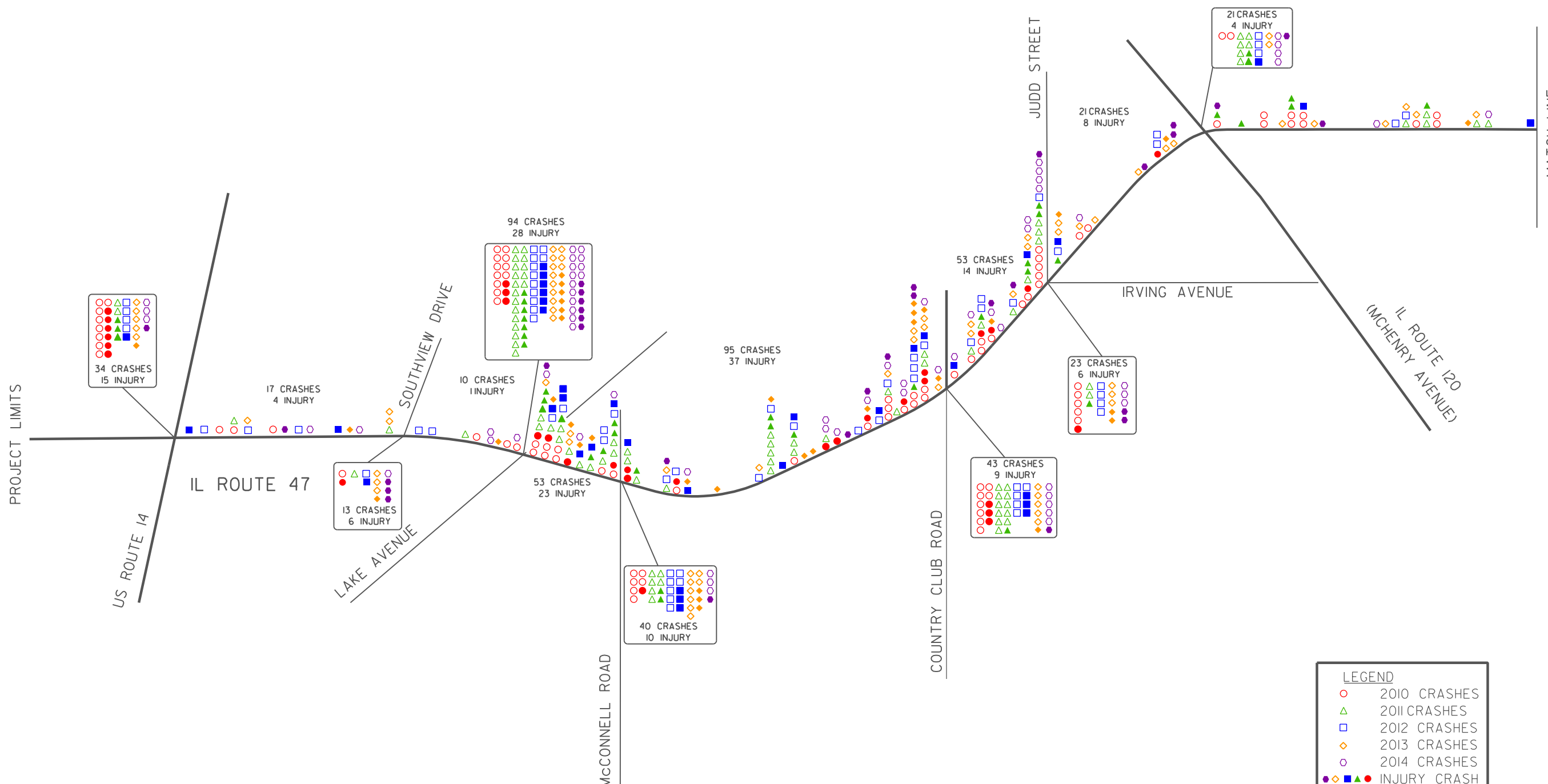


**FIGURE A4  
6346.014**









**LEGEND**

- 2010 CRASHES
- △ 2011 CRASHES
- 2012 CRASHES
- ◇ 2013 CRASHES
- 2014 CRASHES
- ■ ▲ ◆ ● INJURY CRASH



**CRASH CLUSTER DIAGRAM**

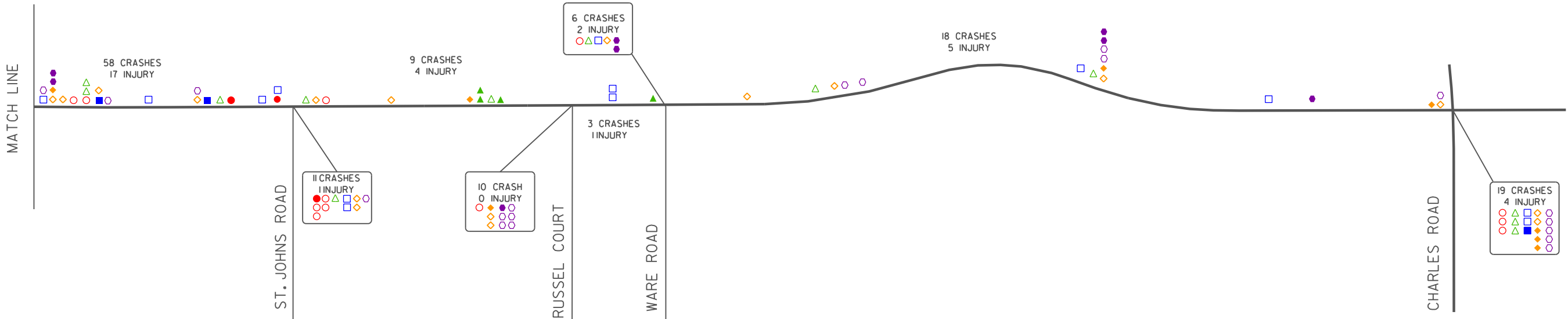
**ILLINOIS ROUTE 47 - US ROUTE 14 TO CHARLES ROAD**

**ILLINOIS DEPARTMENT OF TRANSPORTATION**

**WOODSTOCK, IL**







**LEGEND**

○	2010 CRASHES
△	2011 CRASHES
□	2012 CRASHES
◇	2013 CRASHES
○	2014 CRASHES
◆ ● ▲ ■	INJURY CRASH



**CRASH CLUSTER DIAGRAM**  
 ILLINOIS ROUTE 47 - US ROUTE 14 TO CHARLES ROAD  
 ILLINOIS DEPARTMENT OF TRANSPORTATION  
 WOODSTOCK, IL







**C.01 INTERSECTION STATISTICS**

The following sections summarize the existing geometry and the predominant crash types at each intersection. Corresponding collision diagrams can be found in Exhibit D, sheets D1 through D15.

**A. US Route 14 (US 14)**

This intersection is a signalized four-legged intersection. US 14 is a divided highway with an urban cross section. The eastbound and westbound approaches have two through-lanes, a channelized left-turn lane, and a right-turn lane. The northbound and southbound approaches have two through-lanes and one dedicated left-turn lane. The centerline of US 14 is on a skew of approximately 13.5 degrees. The most common crash types are described Table 1.

Type	Number	Percentage
Rear End	17	50.0%
Angle	10	29.4%
Turning	5	14.7%
Sideswipe Same	1	2.9%
Other	1	2.9%
<b>Total</b>	<b>34</b>	<b>100.0%</b>

**Table 1 US 14 Crash Summary**

There were 34 crashes during the study period, with the majority being rear-end crashes. Twenty of the 34 crashes (58.8 percent) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.2:1. Three crashes occurred in snow or icy conditions.

**B. Southview Drive**

This intersection is a three-legged intersection where only the eastbound leg is stop controlled. There is a westbound approach to the intersection, comprised of a parking lot driveway. The eastbound approach has one shared right-turn/through-lane and one left-turn lane. The northbound approach has one through-lane and one left-turn lane. The southbound approach has one through-lane, one left-turn lane and one right-turn lane. The centerline of Southview Drive is on a skew of approximately 20.9 degrees. The most common crash types are described in Table 2.

Type	Number	Percentage
Rear End	3	23.1%
Turning	8	61.5%
Angle	2	15.4%
<b>Total</b>	<b>13</b>	<b>100.0%</b>

**Table 2 Southview Drive Crash Summary**

There were 13 crashes during the study period, with the majority being turning crashes. Eight of the thirteen crashes (61.5 percent) occurred in daylight. All crashes but one occurred on dry pavement.

C. Lake Avenue

This intersection is a signalized four-legged intersection. All approaches have one through lane, one left turn lane, and one channelized right turn lane. The centerline of Lake Avenue is on a skew of approximately 33.8 degrees. The most common crash types are described in Table 3.

There were 94 crashes during the study period, with the majority being rear-end crashes. Seventy of the 94 crashes (74.5 percent) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.23:1.

Type	Number	Percentage
Rear End	70	74.5%
Turning	18	19.1%
Angle	3	3.2%
Pedestrian	1	1.1%
Head On	1	1.1%
Sideswipe Same Direction	1	1.1%
<b>Total</b>	<b>94</b>	<b>100.0%</b>

**Table 3 Lake Avenue Crash Summary**

D. McConnell Road

This intersection is a signalized four-legged intersection. The eastbound and westbound approaches have one shared through/right turn lane and one left turn lane. The northbound approach has one through lane, one left turn lane, and one right turn lane. The southbound approach has one shared through/right turn lane and one left turn lane. The centerline of McConnell Road is on a skew of approximately 20.9 degrees. The most common crash types are described in Table 4.

Type	Number	Percentage
Rear End	32	80.0%
Turning	5	12.5%
Angle	2	5.0%
Fixed Object	1	2.5%
<b>Total</b>	<b>40</b>	<b>100.0%</b>

**Table 4 McConnell Road Crash Summary**

There were 40 crashes during the study period, with the majority being rear-end crashes. Thirty-two of the 40 crashes (80 percent) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.28:1.

E. Country Club Road

This intersection is a signalized four-legged intersection. The eastbound approach has one shared through/right-turn lane and one left-turn lane. The westbound approach has one through-lane, one right-turn lane, and one left-turn lane. The northbound approach has one shared through/right-turn lane and one left-turn lane. The southbound approach has one through-lane, one shared through/right-turn lane and one left-turn lane. The centerline of Country Club Road is on a skew of approximately 31.8 degrees. The most

Type	Number	Percentage
Rear End	23	53.5%
Turning	13	30.2%
Angle	4	9.3%
Sideswipe Same Direction	2	4.7%
Other	1	2.3%
<b>Total</b>	<b>43</b>	<b>100.0%</b>

**Table 5 County Club Road Crash Summary**



common crash types are described in Table 5.

There were 43 crashes during the study period, with the majority being rear-end crashes. Twenty-four of the 43 crashes (55.8 percent) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.28:1.

F. East Judd Street/Irving Avenue

This intersection is a signalized four-legged intersection. This intersection is on a skewed and irregular alignment as the east and west legs intersect at very short horizontal curves. The eastbound approach on East Judd Street has one shared through/left-turn lane and one right-turn lane. The westbound approach on Irving Avenue has one shared through/right-turn lane and one left-turn lane. The northbound and southbound approaches have one shared through/right-turn lane and one left-turn lane. The centerline of East Judd Street/Irving Avenue is on a skew of approximately 48.1 degrees. The most common crash types are described in Table 6.

Type	Number	Percentage
Rear End	13	56.5%
Turning	6	26.1%
Angle	2	8.7%
Fixed Object	1	4.3%
Pedestrian	1	4.3%
<b>Total</b>	<b>23</b>	<b>100.0%</b>

**Table 6 East Judd Street/Irving Avenue Crash Summary**

There were 23 crashes during the study period, with the majority being rear-end crashes. Seventeen of the 23 crashes (73.9 percent) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.22:1.

G. Illinois Route 120

This intersection is a signalized four-legged intersection. The eastbound and westbound approaches have one through-lane, one left-turn lane, and one channelized right-turn lane. The northbound and southbound approaches have one shared through/right-turn lane and one left-turn lane. The centerline of Illinois Route 120 is on a skew of approximately 24.4 degrees. The most common crash types are described in Table 7.

Type	Number	Percentage
Rear End	8	38.1%
Turning	5	23.8%
Angle	4	19.0%
Other	2	9.5%
Pedestrian	1	4.8%
Fixed Object	1	4.8%
<b>Total</b>	<b>21</b>	<b>95.2%</b>

**Table 7 Illinois Route 120 Crash Summary**

There were 21 crashes during the study period, with the majority being rear-end crashes. Fourteen of the 21 crashes (66.7 percent) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.12:1.

H. St. John’s Road

This intersection is a three-legged intersection where only the westbound leg is stop-controlled. The westbound approach has one left-turn lane and one right-turn lane. The northbound approach has one shared through/right-turn lane. The southbound approach has one through-lane and one left-turn lane. The most common crash types are described in Table 8.

Type	Number	Percentage
Rear End	3	27.3%
Turning	4	36.4%
Angle	2	18.2%
Overtaken	1	9.1%
Other	1	9.1%
<b>Total</b>	<b>11</b>	<b>100.0%</b>

**Table 8 St. Johns Road Crash Summary**

There were eleven crashes during the study period. Several different types of crashes were reported. Nine of the eleven crashes (81.8%) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.27:1.

I. Russel Court

This intersection is a signalized three-legged intersection. There is an eastbound approach to the intersection comprised of a school parking lot driveway. The eastbound and westbound approaches have one shared lane. The northbound and southbound approaches have one shared through/ right-turn lane and one left-turn lane.

Type	Number	Percentage
Rear End	6	60.0%
Angle	1	10.0%
Turning	2	20.0%
Fixed Object	1	10.0%
<b>Total</b>	<b>10</b>	<b>60.0%</b>

**Table 9 St. Johns Road Crash Summary**

There were 10 crashes during the study period, with the majority being rear-end crashes. Nine of the 10 crashes (90.0 percent) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.10:1.

J. Ware Road

This intersection is a three-legged intersection where only the westbound leg is stop-controlled. The westbound approach has one left-turn lane and one right-turn lane. The northbound approach has one shared through/right-turn lane. The southbound approach has one through-lane and one left-turn lane. The most common crash types are described in Table 9.

Type	Number	Percentage
Turning	4	66.7%
Angle	2	33.3%
<b>Total</b>	<b>6</b>	<b>100.0%</b>

**Table 10 Ware Road Crash Summary**

There were six crashes during the study period. All crashes occurred in daylight. The wet pavement to dry pavement crash ratio was 0.5:1.



1.4.11 Charles Road

This intersection is a four-way stop controlled intersection. All approaches have one shared lane. The most common crash types are described in Table 10.

There were 19 crashes during the study period. Ten of the crashes were angle or turning crashes. Ten of the 19 crashes (52.6 percent) occurred in daylight. The wet pavement to dry pavement crash ratio was 0.11:1.

Type	Number	Percentage
Rear End	5	26.3%
Angle	6	31.6%
Turning	4	21.1%
Fixed Object	1	5.3%
Animal	1	5.3%
Other	2	10.5%
<b>Total</b>	<b>19</b>	<b>100.0%</b>

**Table 11 Charles Road Crash Summary**

C.02 MID-BLOCK STATISTICS

The following sections summarize the existing geometry and the predominant crash types at each mid-block segment.

A. US 14 to Southview Drive (Milepost 155.12 to 155.48)

This segment is an urban section with one lane in each direction and a center two way left turn lane. The roadway is four lanes from US Route 14 to a point approximately 0.15 miles to the north. As a result there is a lane drop heading northbound in this section. The most common crash types are described in Table 1.5.1-1.

There were 17 crashes during the study period, with the majority being rear-end crashes. Fourteen of the 17 crashes occurred in daylight. The wet pavement to dry pavement crash ratio was 0.41:1.

Type	Number	Percentage
Rear End	10	58.8%
Turning	1	5.9%
Angle	0	0.0%
Sideswipe	5	29.4%
Parked	1	5.9%
<b>Total</b>	<b>17</b>	<b>100.0%</b>

**Table 12 Mid-Block Crash Summary  
US 14 to Southview Drive**

B. Southview Drive to Lake Avenue (Milepost 155.48 to 155.69)

This segment is an urban section with one lane in each direction and a center two way left turn lane. This section is located on a horizontal curve. The most common crash types are described in Table 12.

There were ten crashes during the study period, with the majority being rear-end crashes. Six of the ten crashes occurred in daylight. The wet pavement to dry pavement crash ratio was 0.2:1.

Type	Number	Percentage
Rear End	7	70.0%
Turning	1	10.0%
Angle	1	10.0%
Sideswipe	0	0.0%
Other	1	10.0%
<b>Total</b>	<b>10</b>	<b>100.0%</b>

**Table 13 Mid-Block Crash Summary  
Southview Drive to Lake Avenue**

C. Lake Avenue to McConnell Road (Milepost 155.69 to 155.85)

This segment is an urban section with one lane in each direction and a center two way left turn lane. The most common crash types are described in Table 13.

There were 53 crashes during the study period, with the majority being rear-end crashes. There were 23 injury crashes with 40 injuries during the study period. Forty-eight of the 53 crashes occurred in daylight. The wet to dry ratio is 0.28:1.

Type	Number	Percentage
Rear End	45	84.9%
Turning	2	3.8%
Angle	3	5.7%
SSD	1	1.9%
Pedacyclist	2	3.8%
<b>Total</b>	<b>53</b>	<b>100.0%</b>

**Table 14 Mid-Block Crash Summary  
 Lake Avenue to McConnell Road**

D. McConnell Road to Country Club Road (Milepost 155.85 to 156.44)

This segment is an urban section with one lane in each direction and a center two way left turn lane. At the intersection of Country Club Road (Milepost 156.35 to 156.52) there is one northbound through lane and two southbound through lanes with a center two way left turn lane. A portion of this section is located on a horizontal curve. The most common crash types are described in Table 14.

There were 95 crashes during the study period, with the majority being rear-end crashes. There were 38 injury crashes with 52 injuries during the study period. Sixty-eight of the 95 crashes occurred in daylight. The wet to dry ratio is 0.29:1.

Type	Number	Percentage
Rear End	63	66.3%
Turning	11	11.6%
Angle	13	13.7%
SSD	5	5.3%
SOD	1	1.1%
Fixed Object	2	2.1%
<b>Total</b>	<b>95</b>	<b>100.0%</b>

**Table 15 Mid-Block Crash Summary  
 McConnell to Country Club Road**

E. Country Club Road to Judd Street/Irving Avenue (Milepost 156.44 to 156.67)

This segment is an urban section with one lane in each direction and a center two-way left-turn lane. At the intersection of Country Club Road (Milepost 156.65 to 156.75), there are two through-lanes in each direction with a center two-way left-turn lane. A portion of this section is located on a horizontal curve. The most common crash types are described in Table 15.

There were 53 crashes during the study period, with the majority being rear-end crashes. There is a higher percentage of turning crashes here than

Type	Number	Percentage
Rear End	27	51.9%
Turning	15	28.8%
Angle	5	9.6%
SSD	2	3.8%
Parked	1	1.9%
Fixed Object	2	3.8%
Other	1	1.9%
<b>Total</b>	<b>53</b>	<b>100.0%</b>

**Table 16 Mid-Block Crash Summary Country Club Road to Judd Street/ Irving Avenue**



in other mid-block segments. There were 14 injury crashes with 21 injuries during the study period. Thirty-six of the 53 crashes occurred in daylight. The wet to dry ratio is 0.47:1.

F. Judd Street/Irving Avenue to IL Route 120 (Milepost 156.67 to 157.02)

This segment is an urban section with one lane in each direction and a center two-way left-turn lane. A portion of this section is located on a horizontal curve. The most common crash types are described in Table 16.

There were 21 crashes during the study period, with the majority being rear-end crashes. Nineteen of the 21 crashes (0.90 percent) occurred during the daylight. The wet to dry ratio is 0.19:1.

Type	Number	Percentage
Rear End	10	47.6%
Turning	4	19.0%
Angle	3	14.3%
SSD	1	4.8%
Head on	1	4.8%
Fixed Object	2	9.5%
<b>Total</b>	<b>21</b>	<b>100.0%</b>

**Table 17 Mid-Block Crash Summary  
 Judd Street/Irving Avenue to**

G. IL Route 120 to St. John’s Road (Milepost 157.02 to 157.96)

This segment is an urban section with one lane in each direction and a center two-way left-turn lane. The most common crash types are described in Table 17.

There were 58 crashes during the study period, with the majority being rear-end crashes. There were 17 injury crashes with 26 injuries during the study period. Fifty-four of the 58 crashes occurred in daylight. The wet to dry ratio is 0.22:1.

Type	Number	Percentage
Rear End	36	62.1%
Turning	6	10.3%
Angle	10	17.2%
SSD	1	1.7%
Animal	1	1.7%
Fixed Object	2	3.4%
Pedacyclist	1	1.7%
Parked	1	1.7%
<b>Total</b>	<b>58</b>	<b>100.0%</b>

**Table 18 Mid-Block Crash Summary  
 IL Route 120 to St. Johns Road**

H. St. John’s Road to Russel Court (Milepost 157.96 to 158.44)

This segment is an urban section with one lane in each direction and a center two-way left-turn lane. The most common crash types are described in Table 18.

There were nine crashes during the study period, with the majority being rear-end crashes. Seven of the nine crashes occurred in daylight. Four crashes occurred on dry pavement, three on wet pavement, one in the snow, and one with unknown roadway conditions.

Type	Number	Percentage
Rear End	4	44.4%
Turning	3	33.3%
Overtuned	1	11.1%
Other	1	11.1%
<b>Total</b>	<b>9</b>	<b>100.0%</b>

**Table 19 Mid-Block Crash Summary  
 St. Johns Road to Russel Court**

I. Russel Court to Ware Road (Milepost 158.44 to 158.58)

This segment is an urban section with one lane in each direction and a center two-way left-turn lane. The most common crash types are described in Table 19.

There were three crashes during the study period. There was one rear-end crash, one turning crash, and one angle crash. Two of the three crashes occurred in daylight and two of the three crashes occurred on dry pavement.

Type	Number	Percentage
Rear End	1	33.3%
Turning	1	33.3%
Angle	1	33.3%
Sideswipe	0	0.0%
Other	0	0.0%
<b>Total</b>	<b>3</b>	<b>100.0%</b>

**Table 20 Mid-Block Crash Summary  
 Russel Court to Ware Road**

J. Ware Road to Charles Road (Milepost 158.58 to 159.87)

This segment is a rural section with one lane in each direction. A portion of this section is located on a horizontal curve. The most common crash types are described in Table 20.

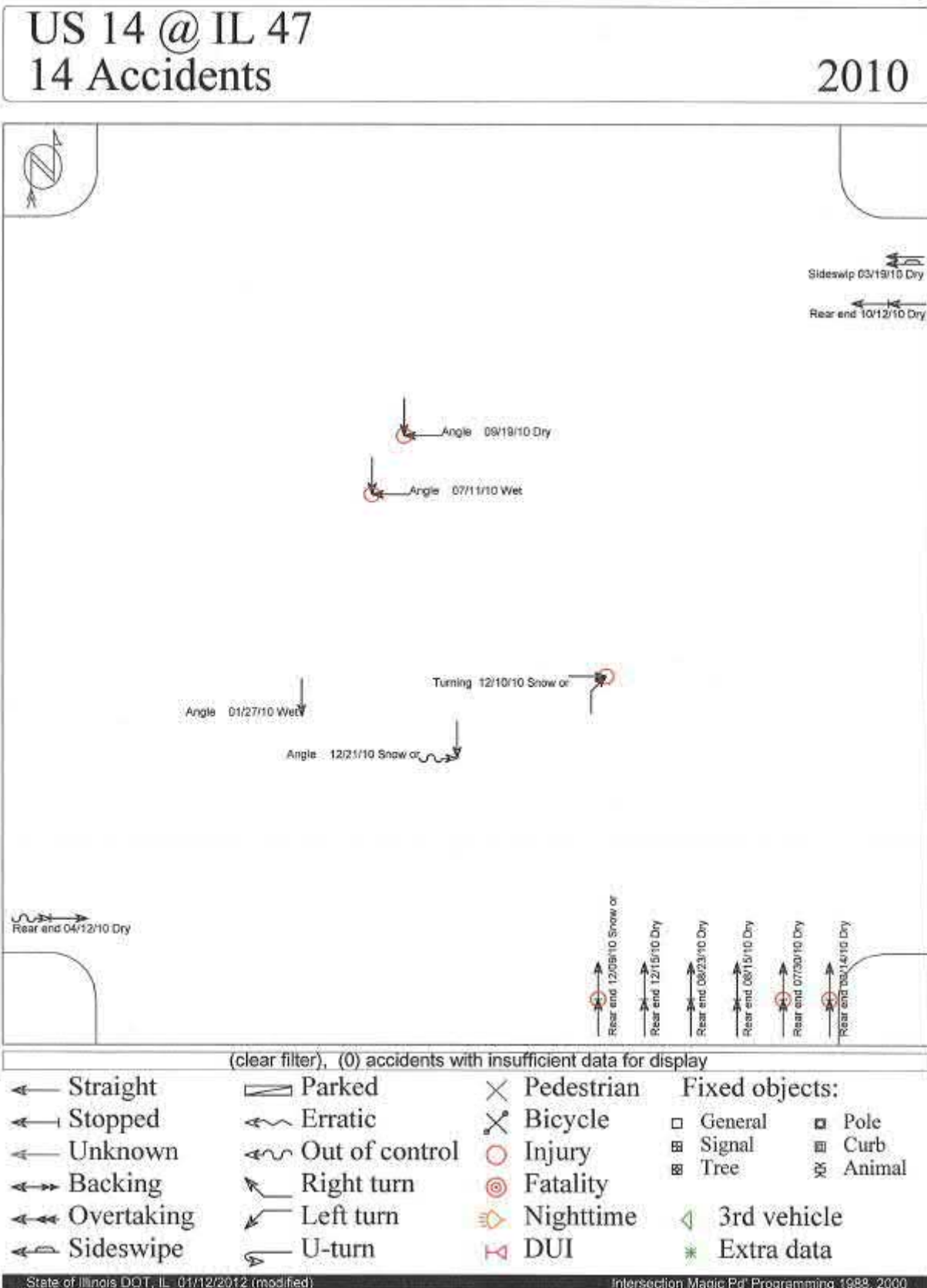
There were 18 crashes during the study period. Eight were caused by conflicts with an animal. Eleven crashes occurred in the daylight, one occurred in the dark on a lit section of roadway, and six occurred in the dark. All crashes occurred on dry pavement.

Type	Number	Percentage
Rear End	7	38.9%
Turning	1	5.6%
Head-on	1	5.6%
Animal	8	44.4%
SOD	1	5.6%
<b>Total</b>	<b>18</b>	<b>100.0%</b>

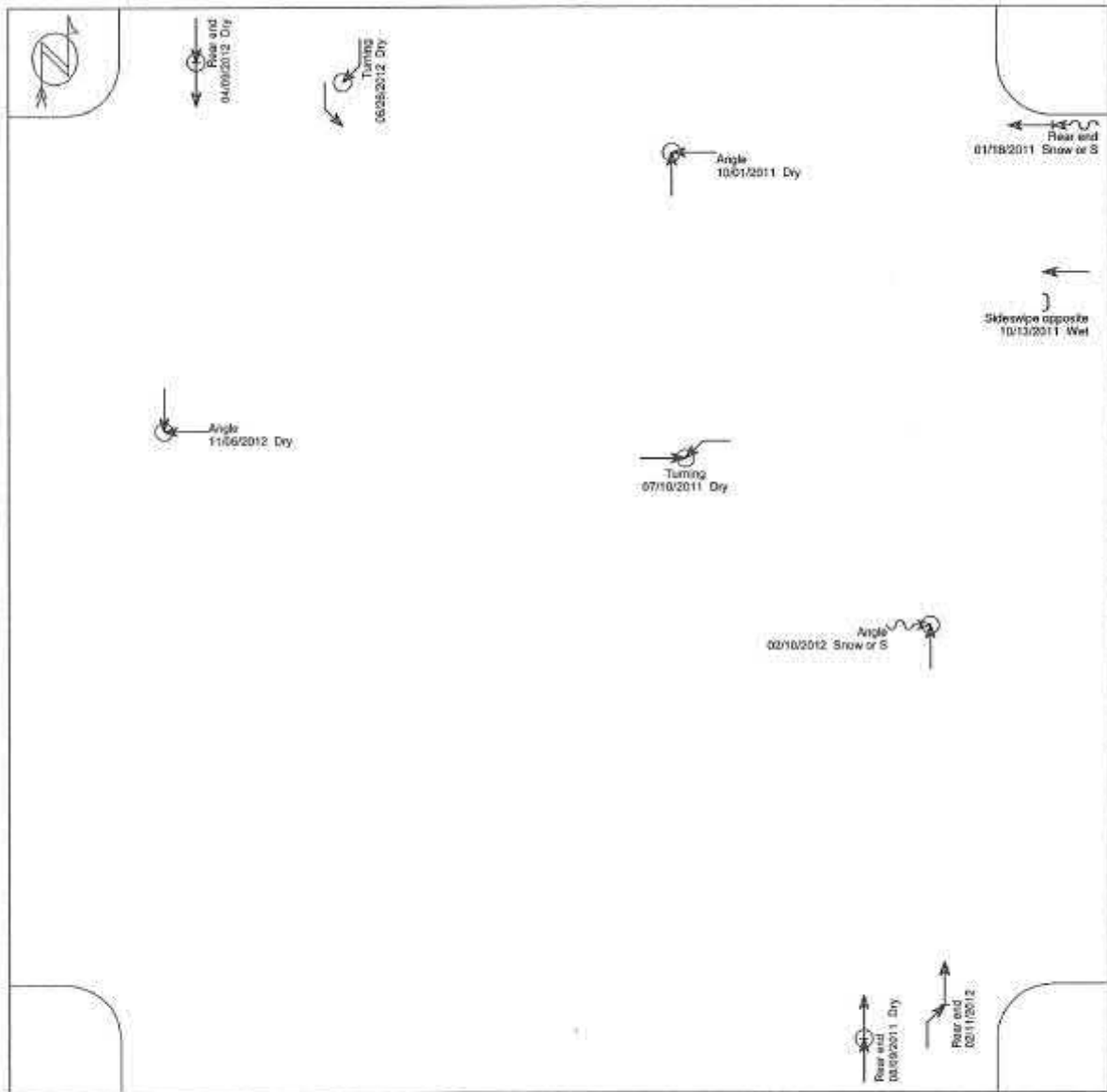
**Table 21 Mid-Block Crash Summary  
 Ware Road to Charles Road**







**US RTE 14 @ IL RTE 47**  
**10 Accidents** **2011-2012**



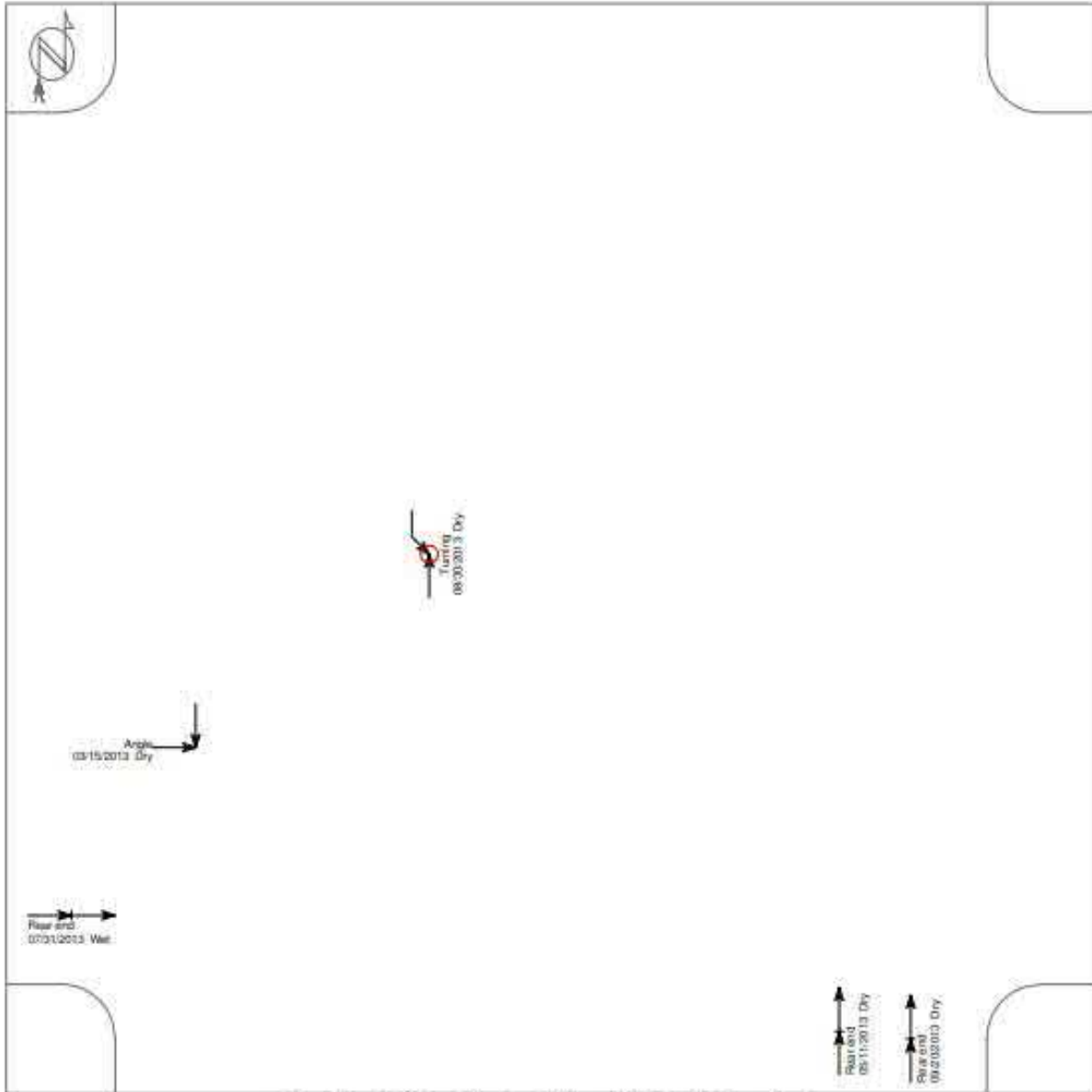
(clear filter), (0) accidents with insufficient data for display

← Straight	▭ Parked	× Pedestrian	Fixed objects:
← Stopped	⚡ Erratic	⊗ Bicycle	□ General    ▣ Pole
← Unknown	⚡ Out of control	○ Injury	▣ Signal    ▣ Curb
← Backing	↘ Right turn	⊙ Fatality	▣ Tree    ⊗ Animal
← Overtaking	↙ Left turn	⊙ Nighttime	◁ 3rd vehicle
← Sideswipe	↻ U-turn	⊙ DUI	* Extra data

State of Illinois DOT, IL, 02/13/2014 (modified)      Intersection/Magic Pd Programming, 1983, 2000

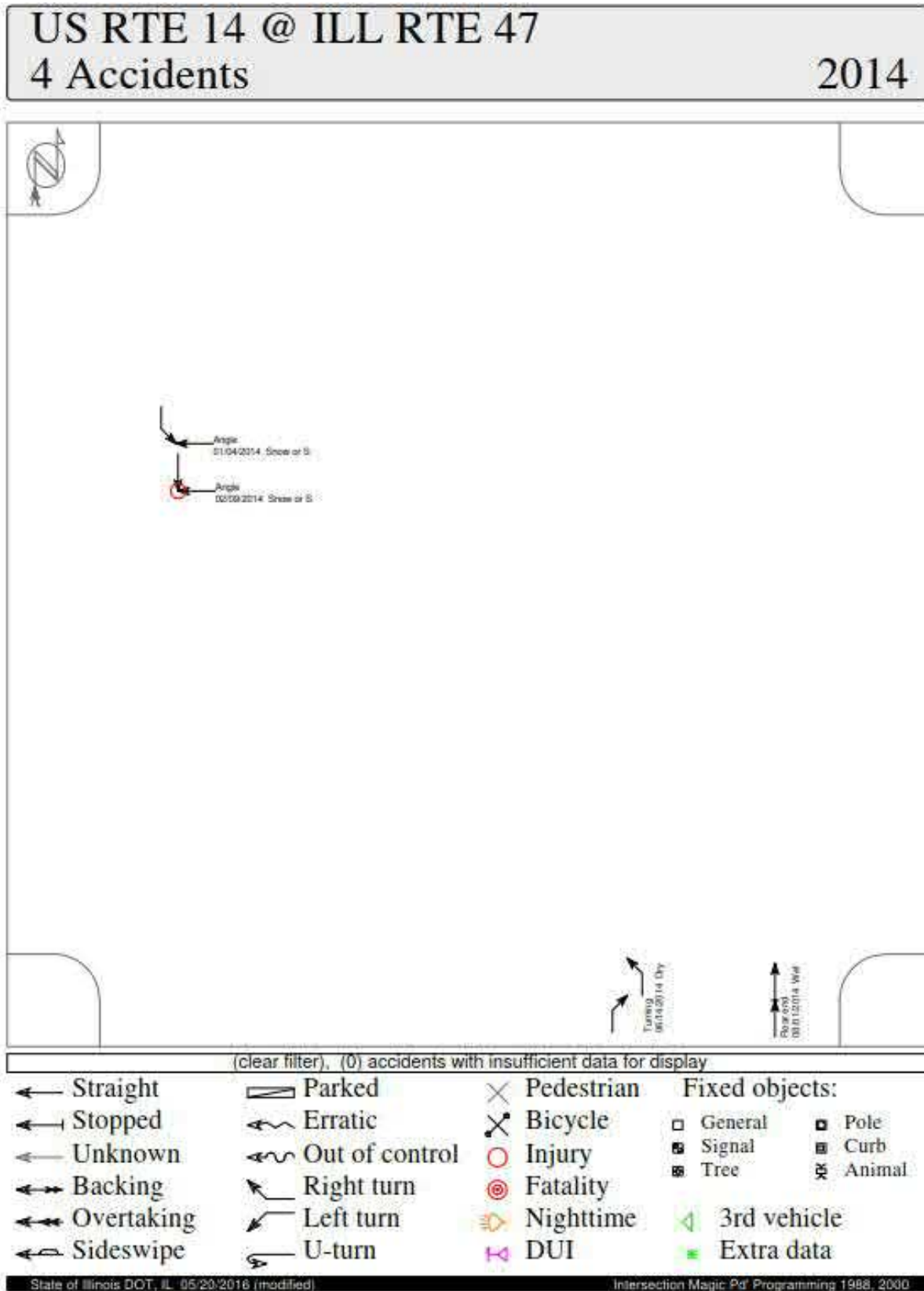


**US RTE 14 @ ILL RTE 47**  
**5 Accidents** **2013**

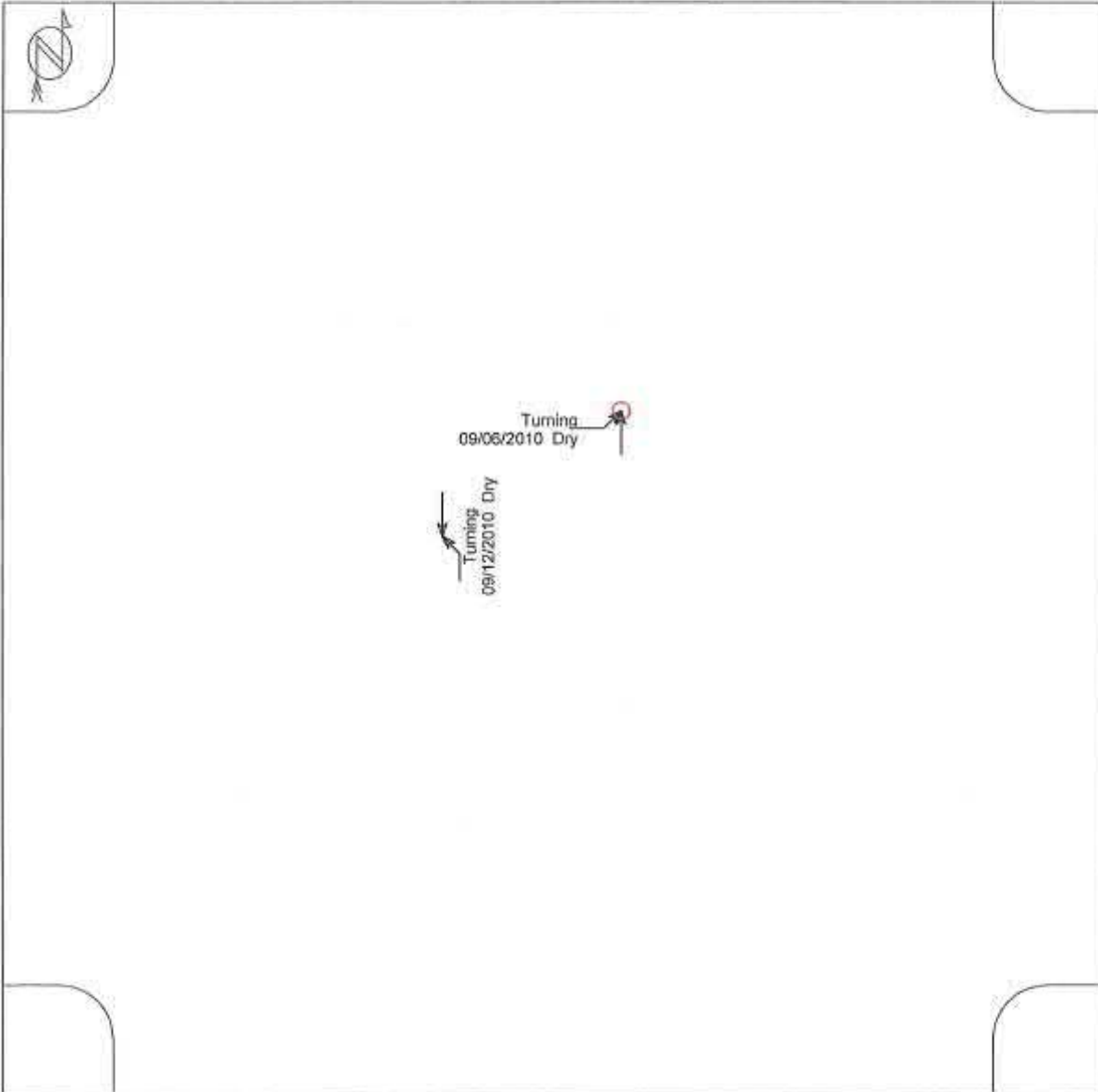


(clear filter), (0) accidents with insufficient data for display

← Straight	▭ Parked	× Pedestrian	Fixed objects:
← Stopped	↪ Erratic	⊗ Bicycle	□ General
← Unknown	↪ Out of control	○ Injury	■ Signal
↔ Backing	↘ Right turn	⊙ Fatality	■ Tree
↔ Overtaking	↙ Left turn	👁 Nighttime	◀ 3rd vehicle
↔ Sideswipe	↻ U-turn	🚔 DUI	■ Extra data
			▣ Pole
			▣ Curb
			🐾 Animal



**ILL 47 @ SOUTHVIEW DR**  
**2 Accidents** **2010**

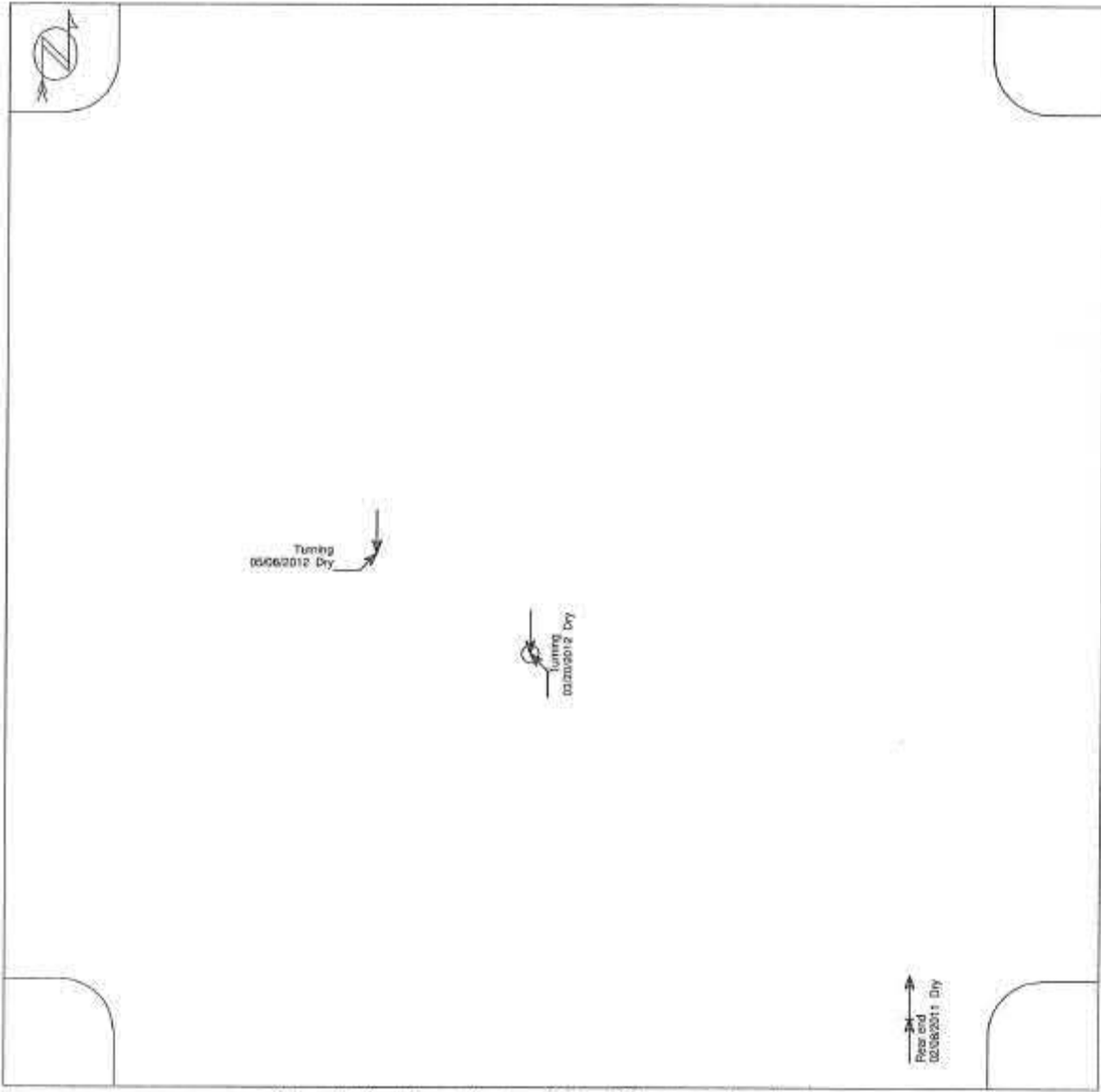


(clear filter), (0) accidents with insufficient data for display

- |              |                   |              |                |
|--------------|-------------------|--------------|----------------|
| ← Straight   | ▭ Parked          | × Pedestrian | Fixed objects: |
| ← Stopped    | ←~ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ←~ Out of control | ○ Injury     | ▣ Signal       |
| ↔ Backing    | ↗ Right turn      | ⊙ Fatality   | ▣ Tree         |
| ↔ Overtaking | ↙ Left turn       | 👁 Nighttime  | ◁ 3rd vehicle  |
| ↔ Sideswipe  | ↺ U-turn          | 🚔 DUI        | * Extra data   |
|              |                   |              | ▣ Pole         |
|              |                   |              | ▣ Curb         |
|              |                   |              | ⊗ Animal       |



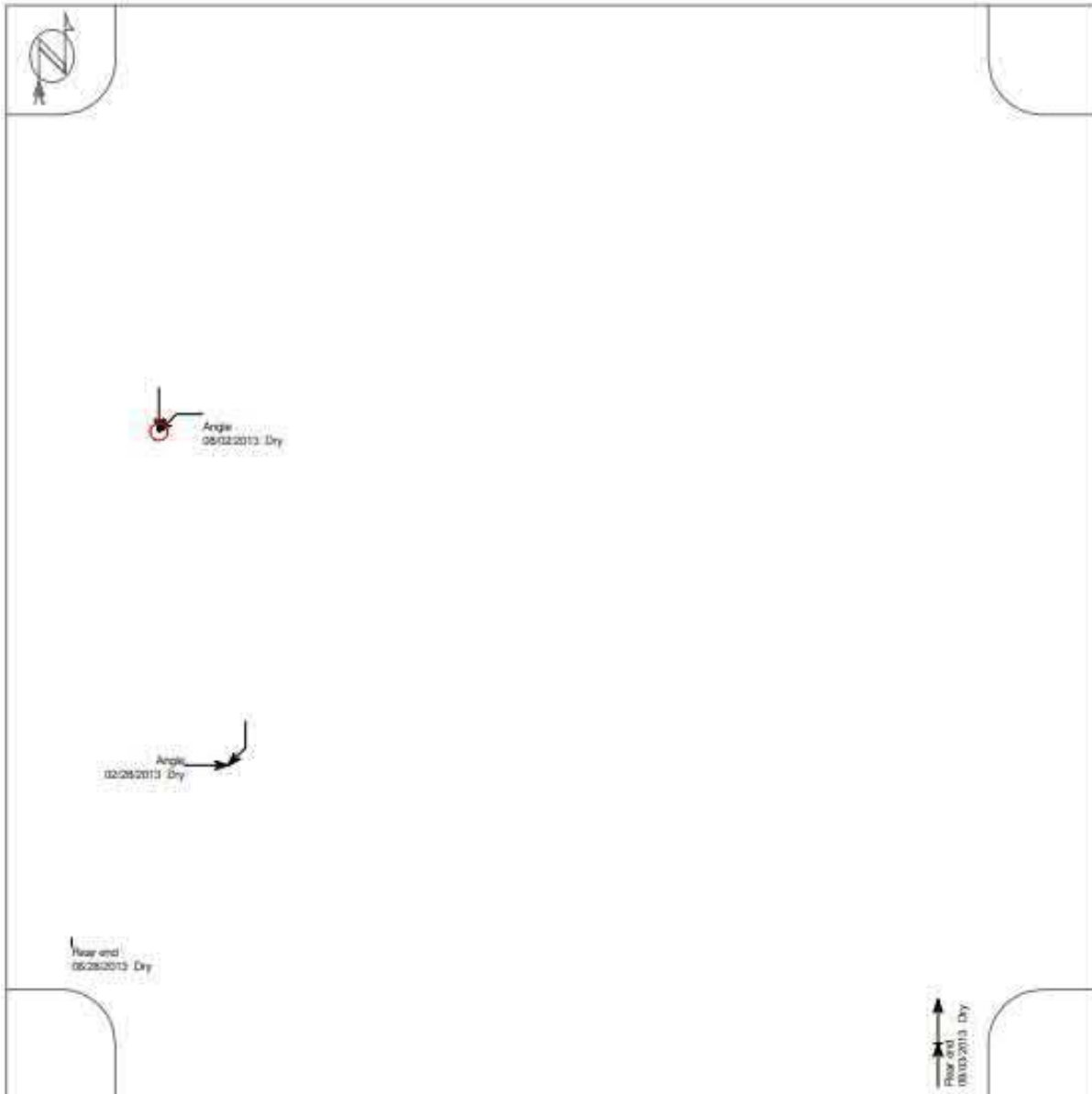
**ILL RTE 47 @ SOUTHVIEW DRIVE**  
**3 Accidents** **2011-2012**



(clear filter), (0) accidents with insufficient data for display

- |               |                  |              |                       |
|---------------|------------------|--------------|-----------------------|
| ← Straight    | ▭ Parked         | × Pedestrian | <b>Fixed objects:</b> |
| ←→ Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General             |
| ← Unknown     | ⚡ Out of control | ○ Injury     | ▣ Signal              |
| ←→ Backing    | ↘ Right turn     | ⊙ Fatality   | ▣ Tree                |
| ←→ Overtaking | ↙ Left turn      | ⊙ Nighttime  | ⊗ Pole                |
| ←↔ Sideswipe  | ↻ U-turn         | ⊙ DUI        | ⊗ Curb                |
|               |                  |              | ⊗ Animal              |
|               |                  |              | ◁ 3rd vehicle         |
|               |                  |              | * Extra data          |

**ILL RTE 47 @ SOUTHVIEW DRIVE**  
**4 Accidents** **2013**

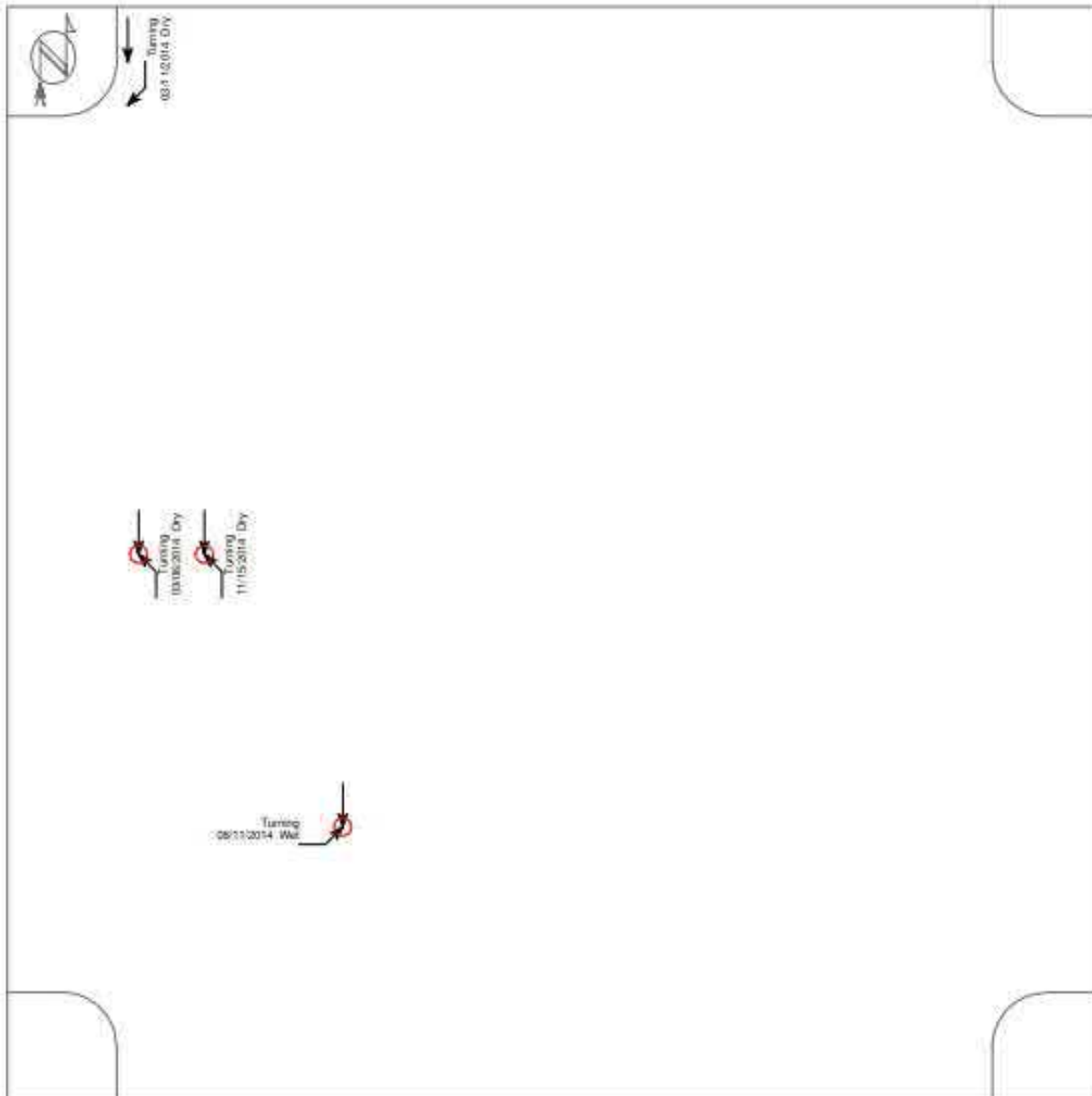


(clear filter), (0) accidents with insufficient data for display

← Straight	▬ Parked	× Pedestrian	Fixed objects:
← Stopped	⚡ Erratic	⚡ Bicycle	□ General
← Unknown	⚡ Out of control	○ Injury	■ Signal
↔ Backing	↘ Right turn	⊙ Fatality	■ Tree
↔ Overtaking	↙ Left turn	🕒 Nighttime	■ Pole
↔ Sideswipe	↩ U-turn	🚔 DUI	■ Curb
			■ Animal
			◀ 3rd vehicle
			★ Extra data

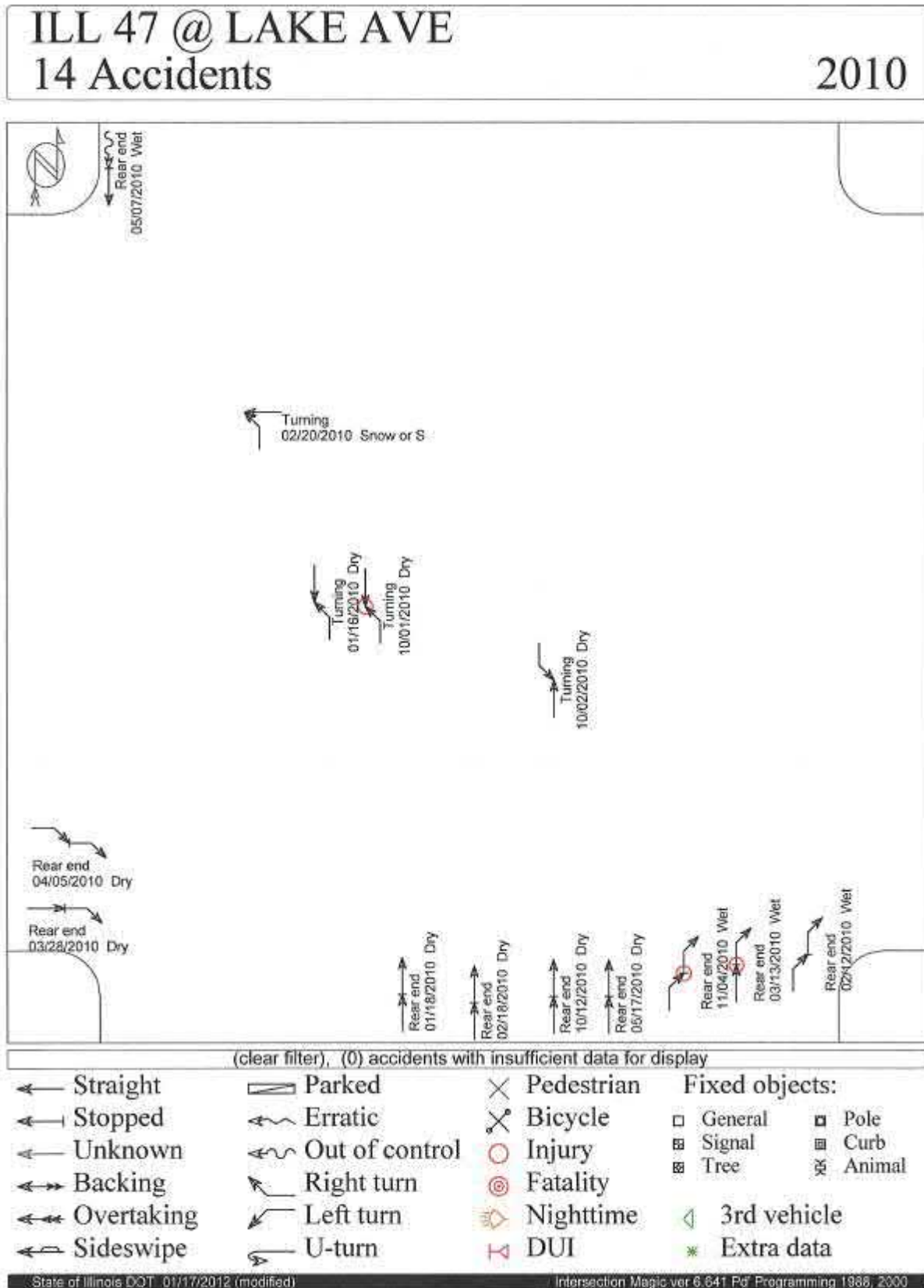
# ILL RTE 47 @ SOUTHVIEW DRIVE

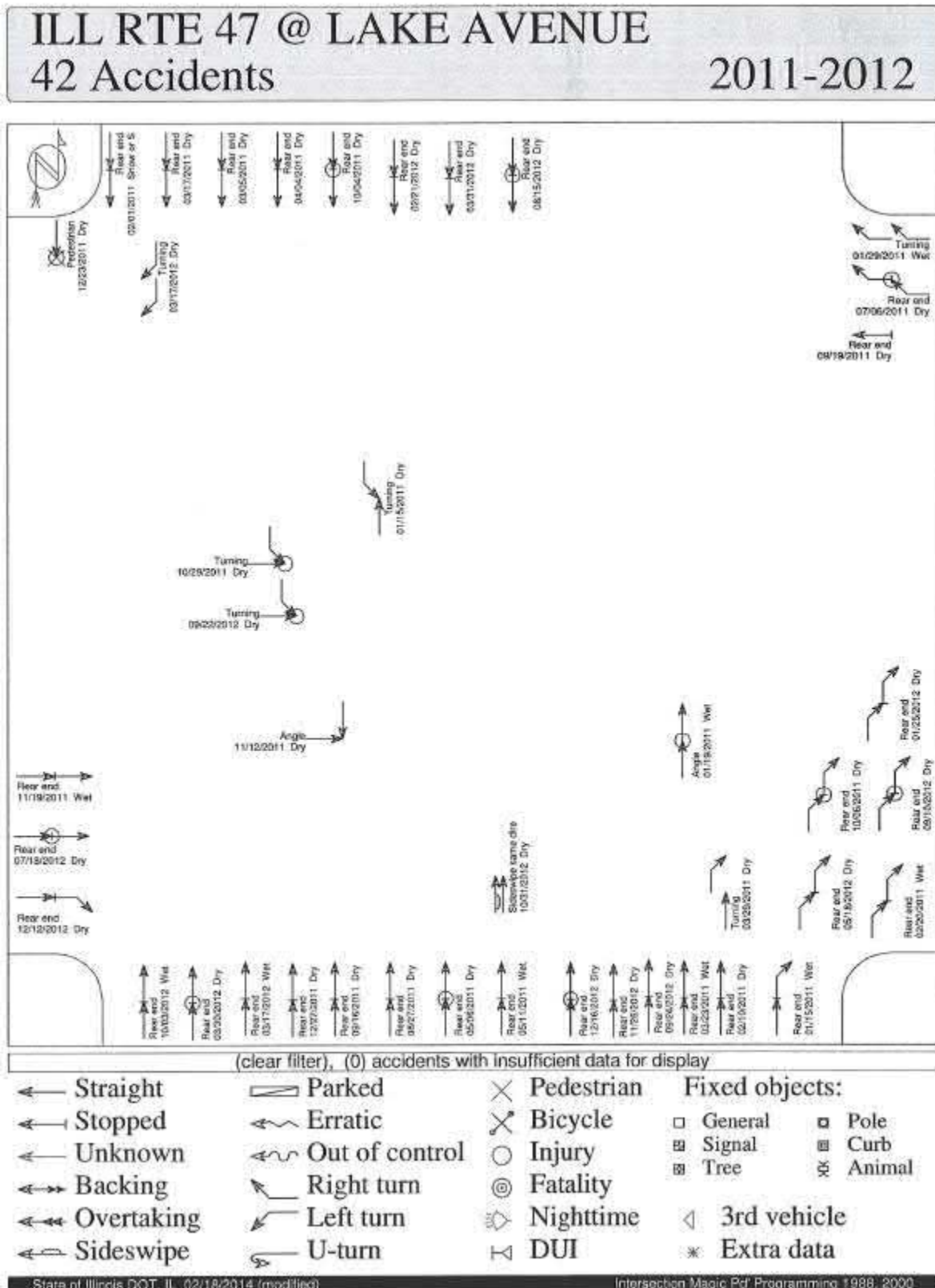
## 4 Accidents

2014


← Straight	▭ Parked	× Pedestrian	Fixed objects:
← Stopped	← Erratic	⊗ Bicycle	□ General
← Unknown	← Out of control	○ Injury	■ Signal
← Backing	↘ Right turn	⊙ Fatality	■ Tree
← Overtaking	↙ Left turn	👁 Nighttime	◀ 3rd vehicle
← Sideswipe	↺ U-turn	🚔 DUI	★ Extra data
			■ Pole
			■ Curb
			☞ Animal



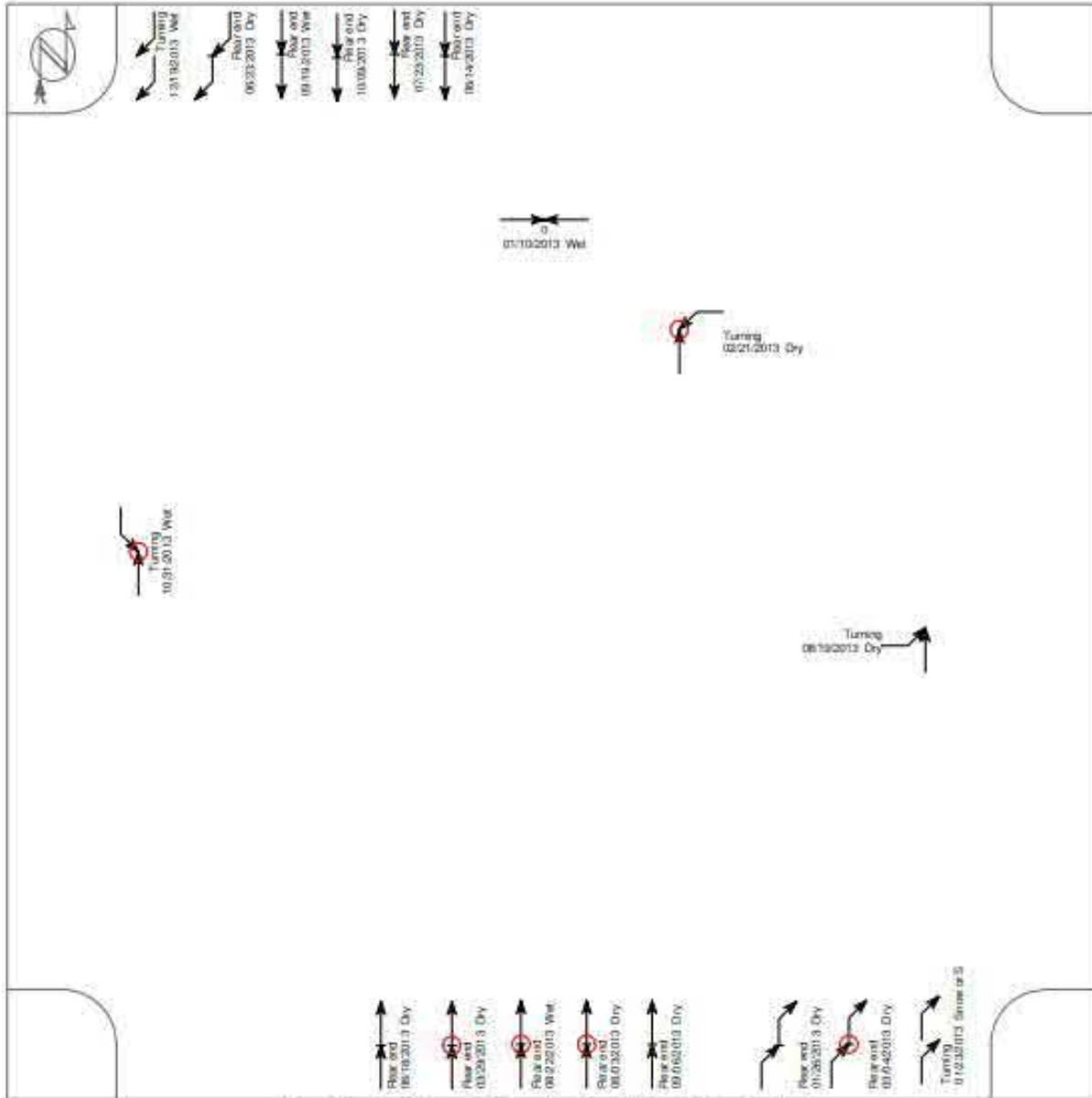




# ILL RTE 47 @ LAKE AVENUE

## 18 Accidents

### 2013



(clear filter), (0) accidents with insufficient data for display

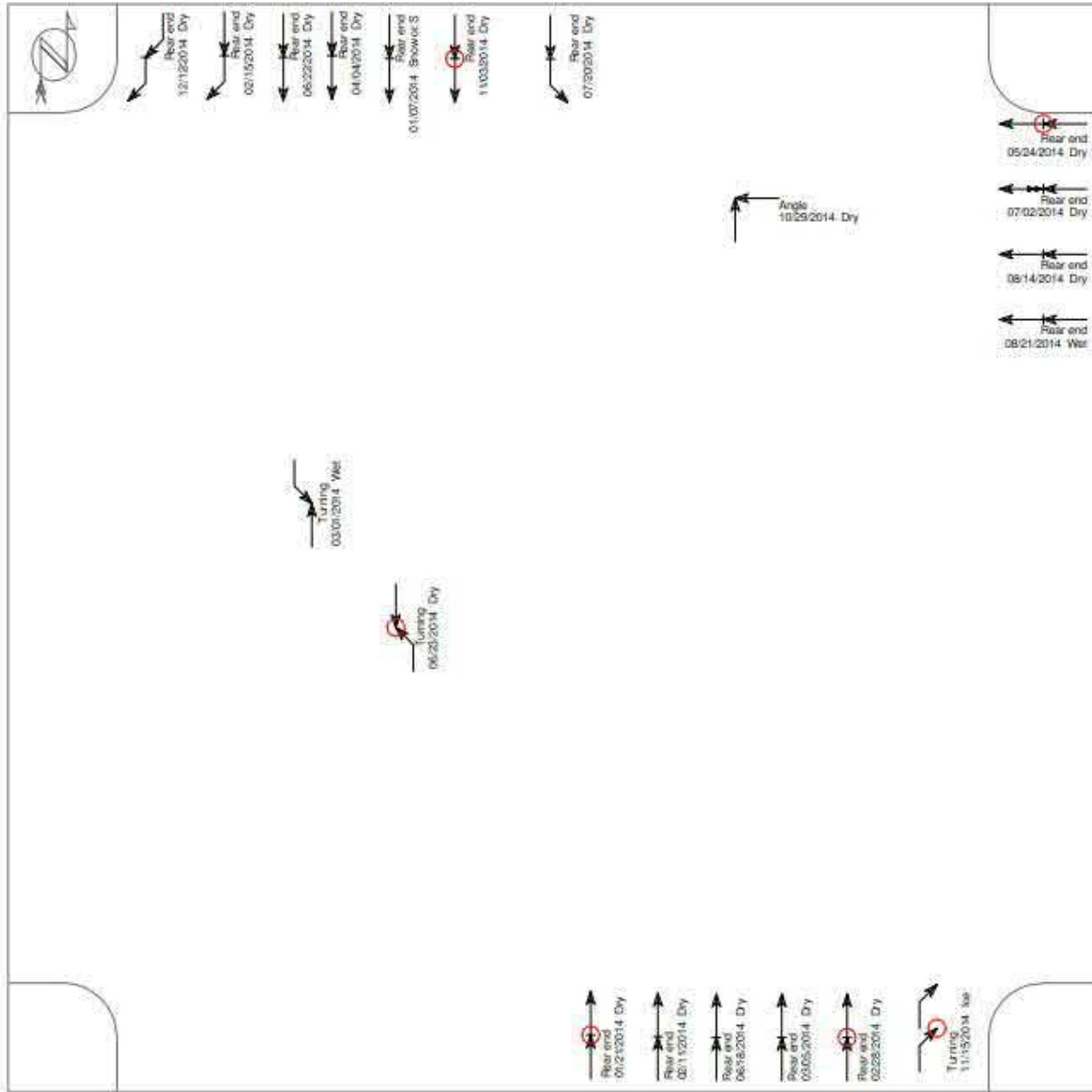
- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ← Stopped    | ↗ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ⚡ Out of control | ○ Injury     | ■ Signal       |
| ← Backing    | ↘ Right turn     | ⊙ Fatality   | ■ Tree         |
| ← Overtaking | ↙ Left turn      | ⚡ Nighttime  | ■ Pole         |
| ← Sideswipe  | ↻ U-turn         | ⚡ DUI        | ■ Curb         |
|              |                  |              | ■ Animal       |
|              |                  |              | ◀ 3rd vehicle  |
|              |                  |              | ● Extra data   |



# ILL RTE 47 @ LAKE AVENUE

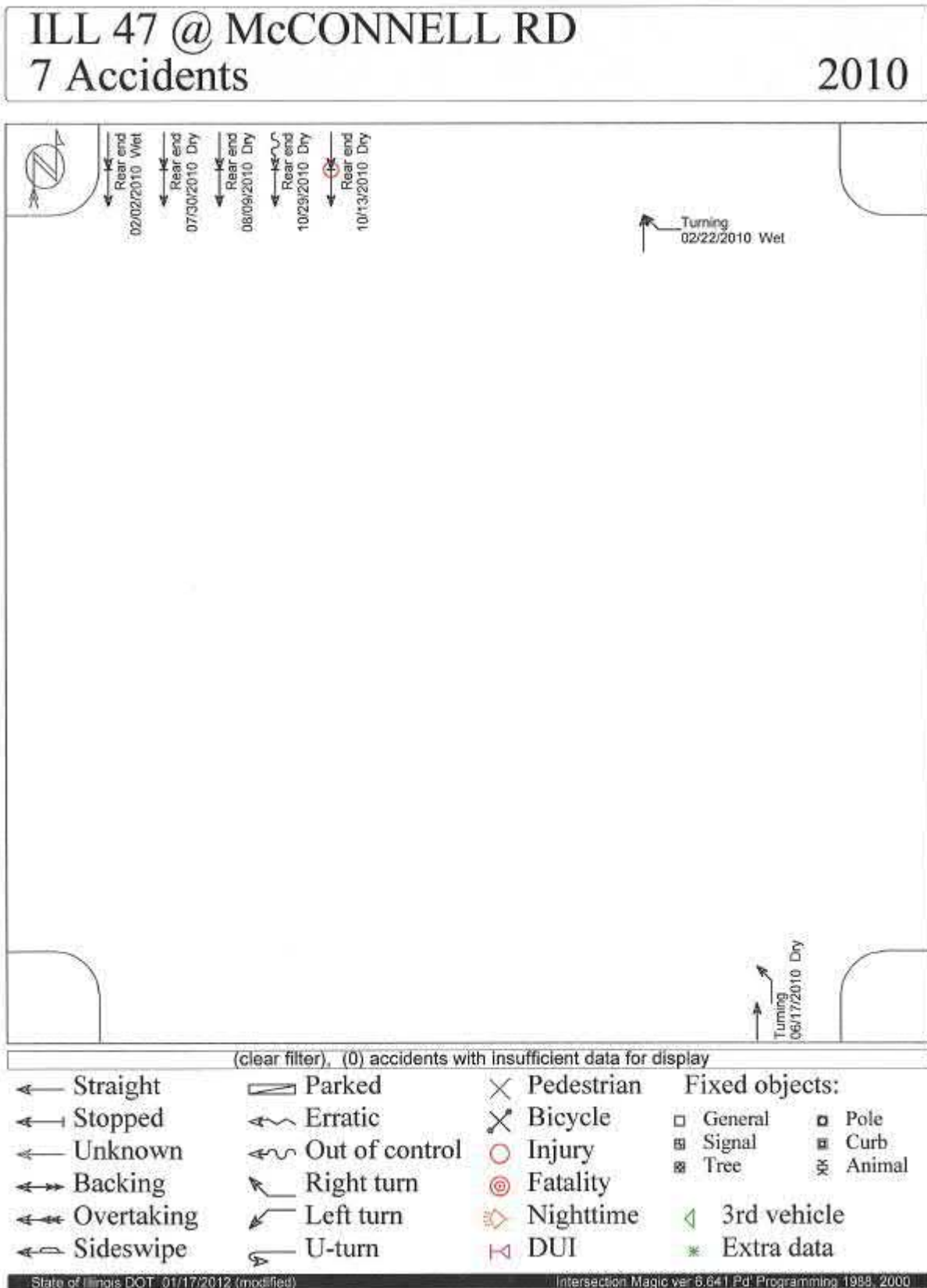
## 20 Accidents

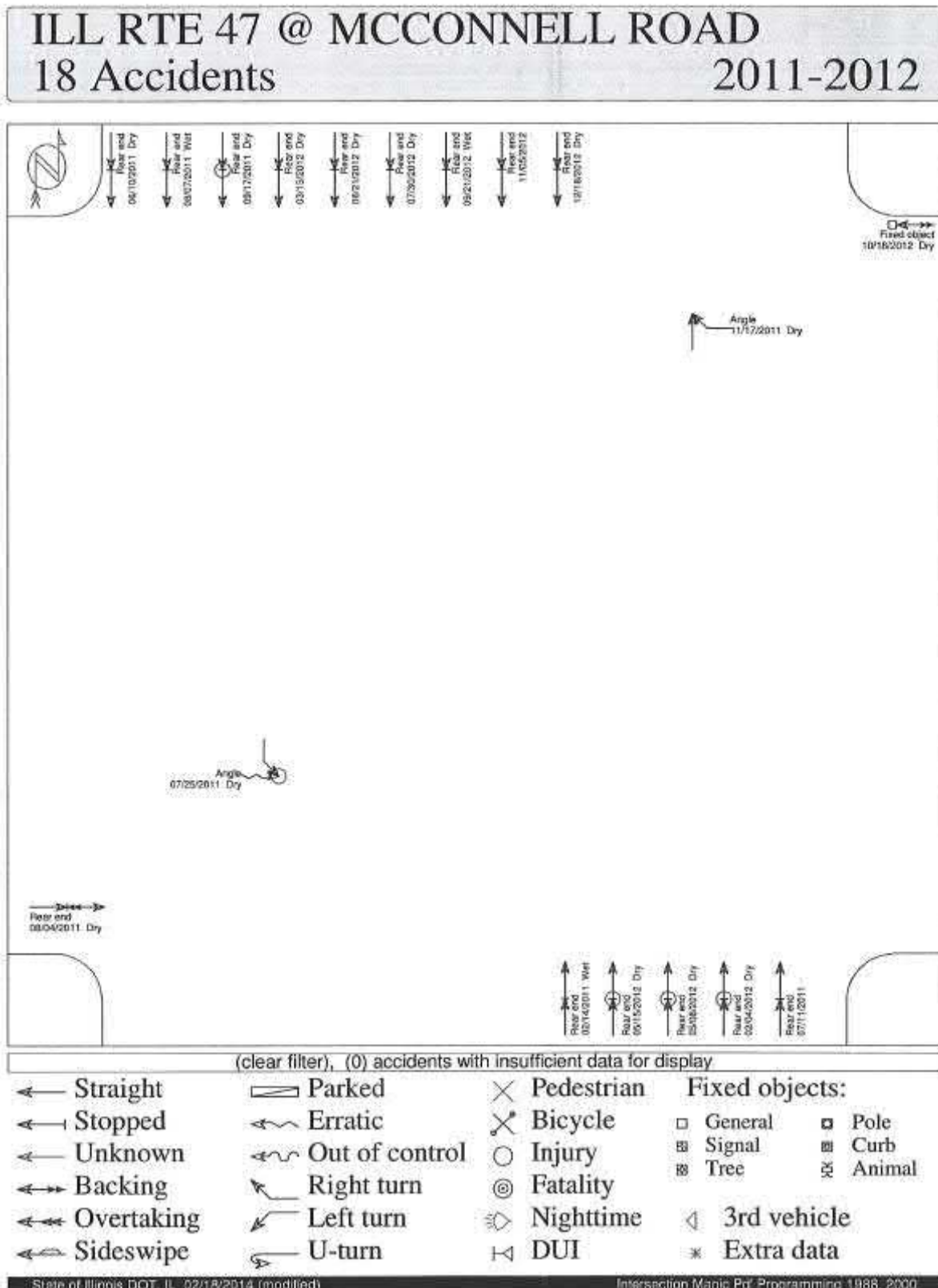
## 2014



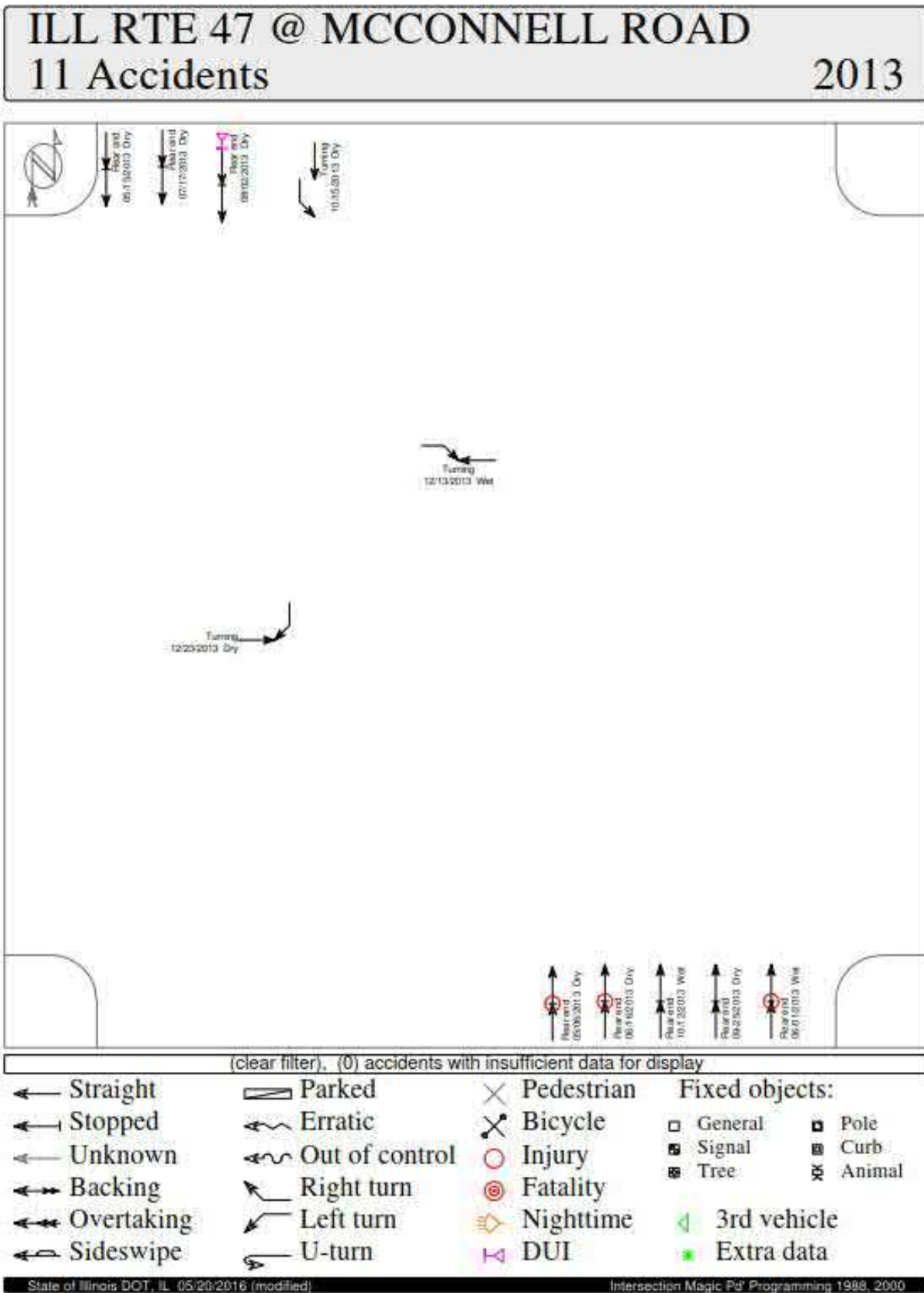
(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | ⊗ Pedestrian | Fixed objects: |
| ↔ Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General      |
| ↔ Unknown    | ⚡ Out of control | ⊗ Injury     | ▣ Signal       |
| ↔ Backing    | ↘ Right turn     | ⊗ Fatality   | ▣ Tree         |
| ↔ Overtaking | ↙ Left turn      | 👤 Nighttime  | ◀ 3rd vehicle  |
| ↔ Sideswipe  | ↻ U-turn         | 🚔 DUI        | ★ Extra data   |
|              |                  |              | ▣ Pole         |
|              |                  |              | ▣ Curb         |
|              |                  |              | ⊗ Animal       |



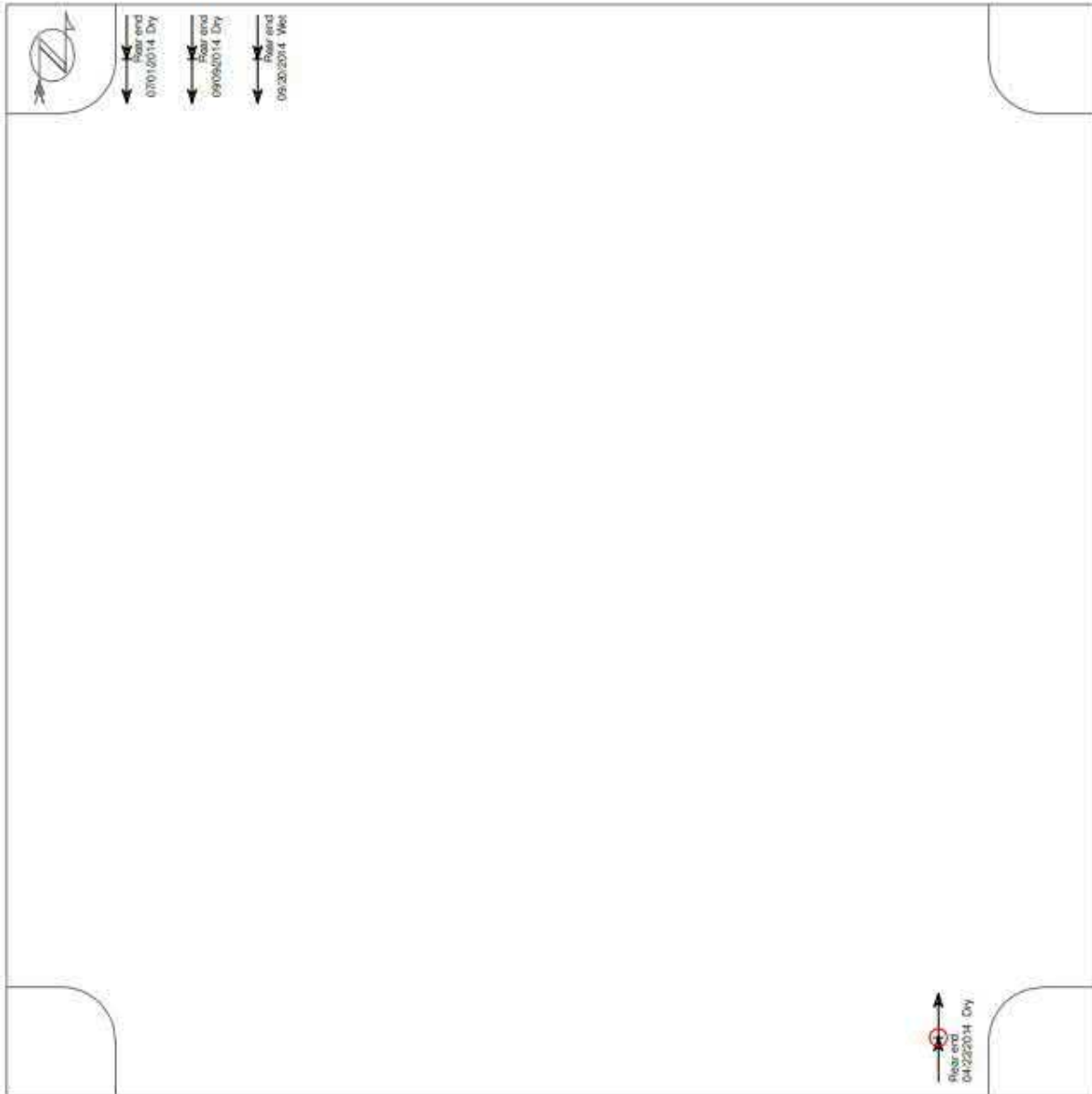






# ILL RTE 47 @ MCCONNELL ROAD

## 4 Accidents 2014

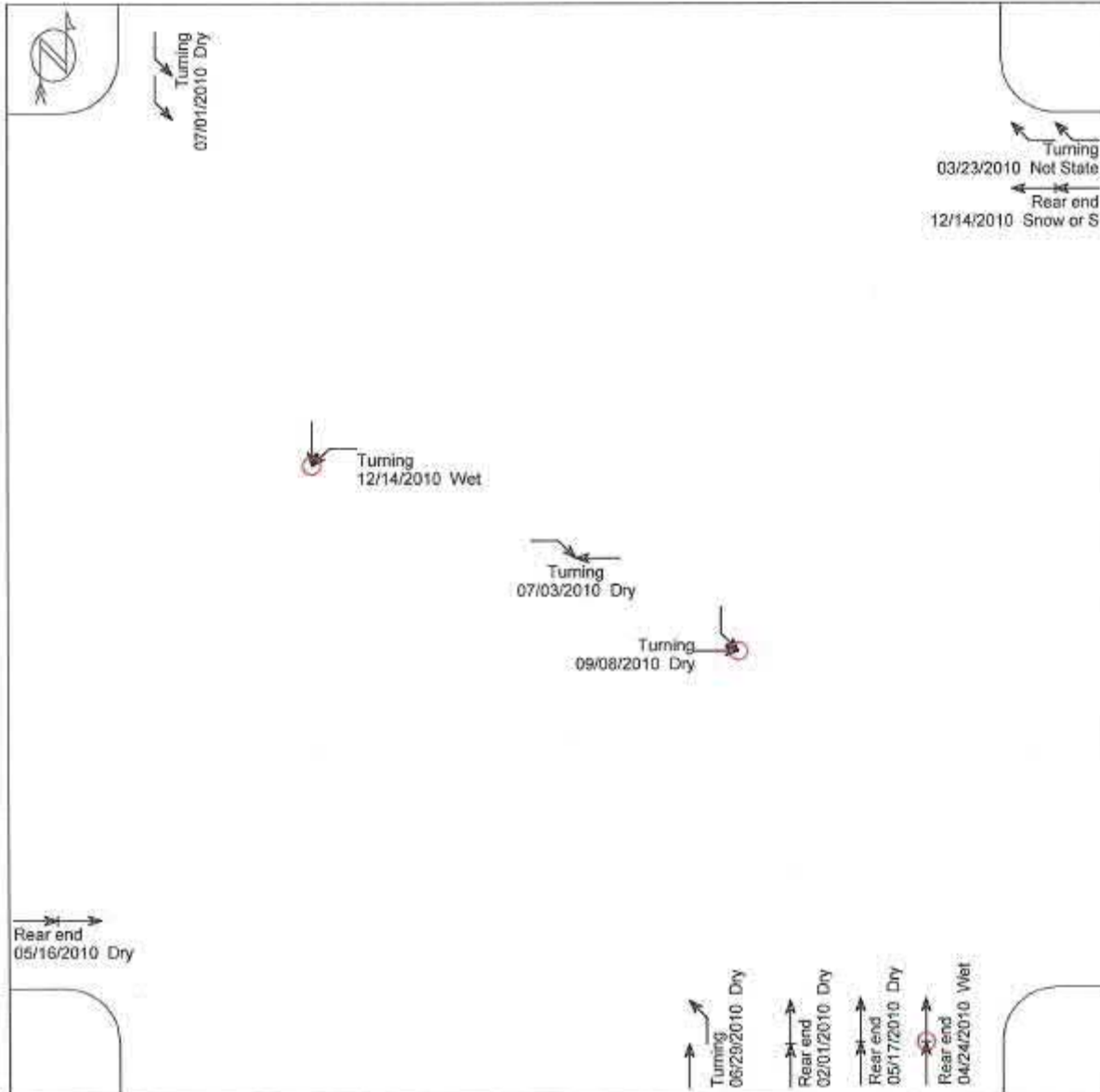


(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                |          |
|--------------|------------------|--------------|----------------|----------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |          |
| ← Stopped    | ← Erratic        | ⊗ Bicycle    | □ General      | ▣ Pole   |
| ← Unknown    | ⚡ Out of control | ○ Injury     | ⊞ Signal       | ⊞ Curb   |
| ↔ Backing    | ↘ Right turn     | ⊙ Fatality   | ⊞ Tree         | ⊞ Animal |
| ↔ Overtaking | ↙ Left turn      | 👁 Nighttime  | ◀ 3rd vehicle  |          |
| ↔ Sideswipe  | ↺ U-turn         | 🚔 DUI        | ★ Extra data   |          |

# ILL 47 @ E. SOUTH ST / COUNTRY CLUB

## 11 Accidents 2010

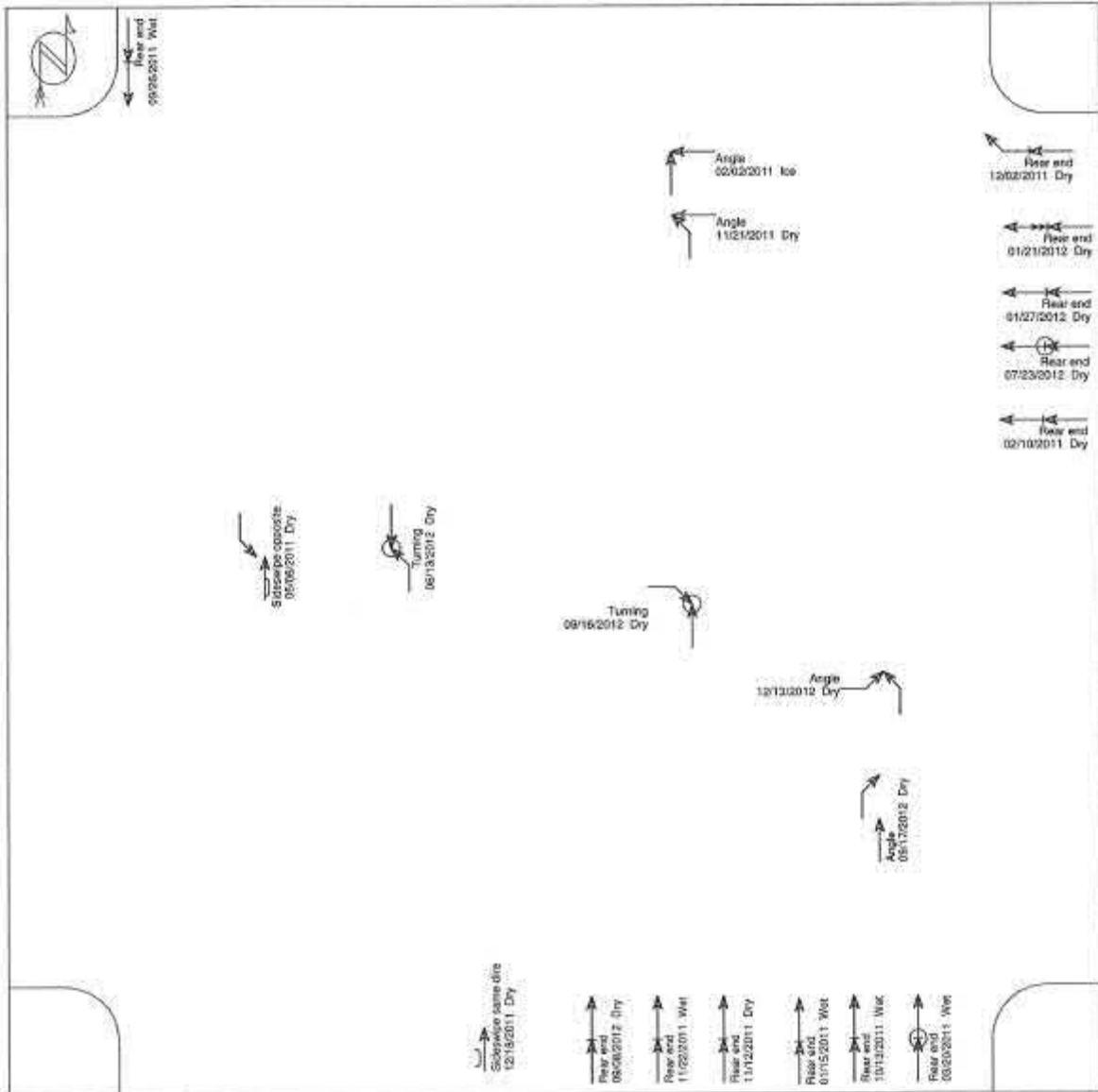


(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ← Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ⚡ Out of control | ○ Injury     | ▣ Signal       |
| ← Backing    | ↘ Right turn     | ⊙ Fatality   | ▣ Tree         |
| ← Overtaking | ↙ Left turn      | 🕒 Nighttime  | ◁ 3rd vehicle  |
| ← Sideswipe  | ↺ U-turn         | 🚔 DUI        | ★ Extra data   |
|              |                  |              | ▣ Pole         |
|              |                  |              | ▣ Curb         |
|              |                  |              | ⊗ Animal       |



# ILL RTE 47 @ COUNTRY CLUB RD/SOUTH 21 Accidents 2011-2012

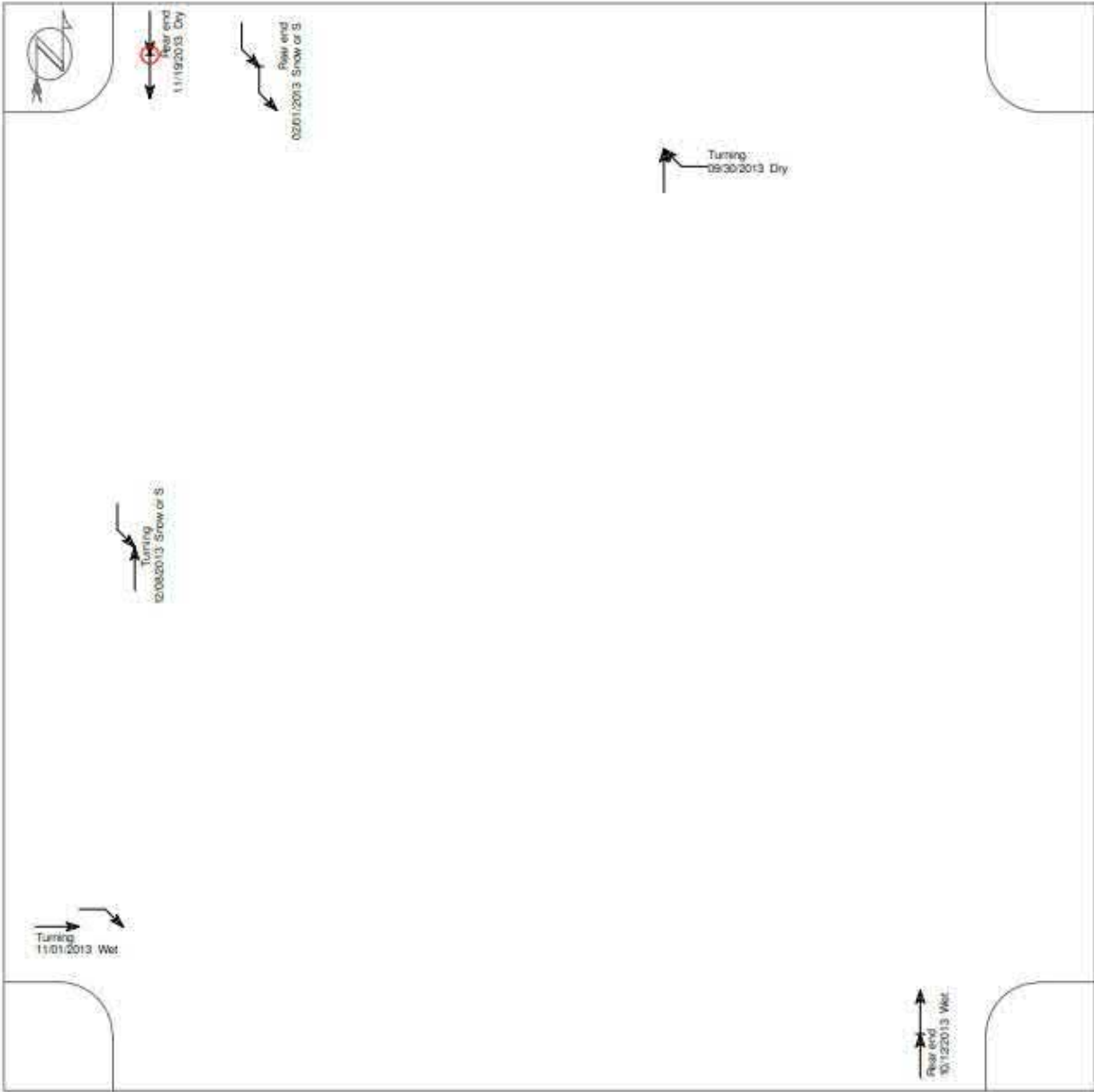


(clear filter), (0) accidents with insufficient data for display

← Straight	▭ Parked	× Pedestrian	Fixed objects:
← Stopped	↘ Erratic	⊗ Bicycle	□ General    □ Pole
← Unknown	↗ Out of control	○ Injury	▣ Signal    ▣ Curb
↔ Backing	↖ Right turn	⊙ Fatality	▣ Tree    ⊗ Animal
↔ Overtaking	↙ Left turn	⊙ Nighttime	◁ 3rd vehicle
↔ Sideswipe	↘ U-turn	⊙ DUI	* Extra data

# ILL RTE 47 @ COUNTRY CLUB/SOUTH ST

## 6 Accidents 2013

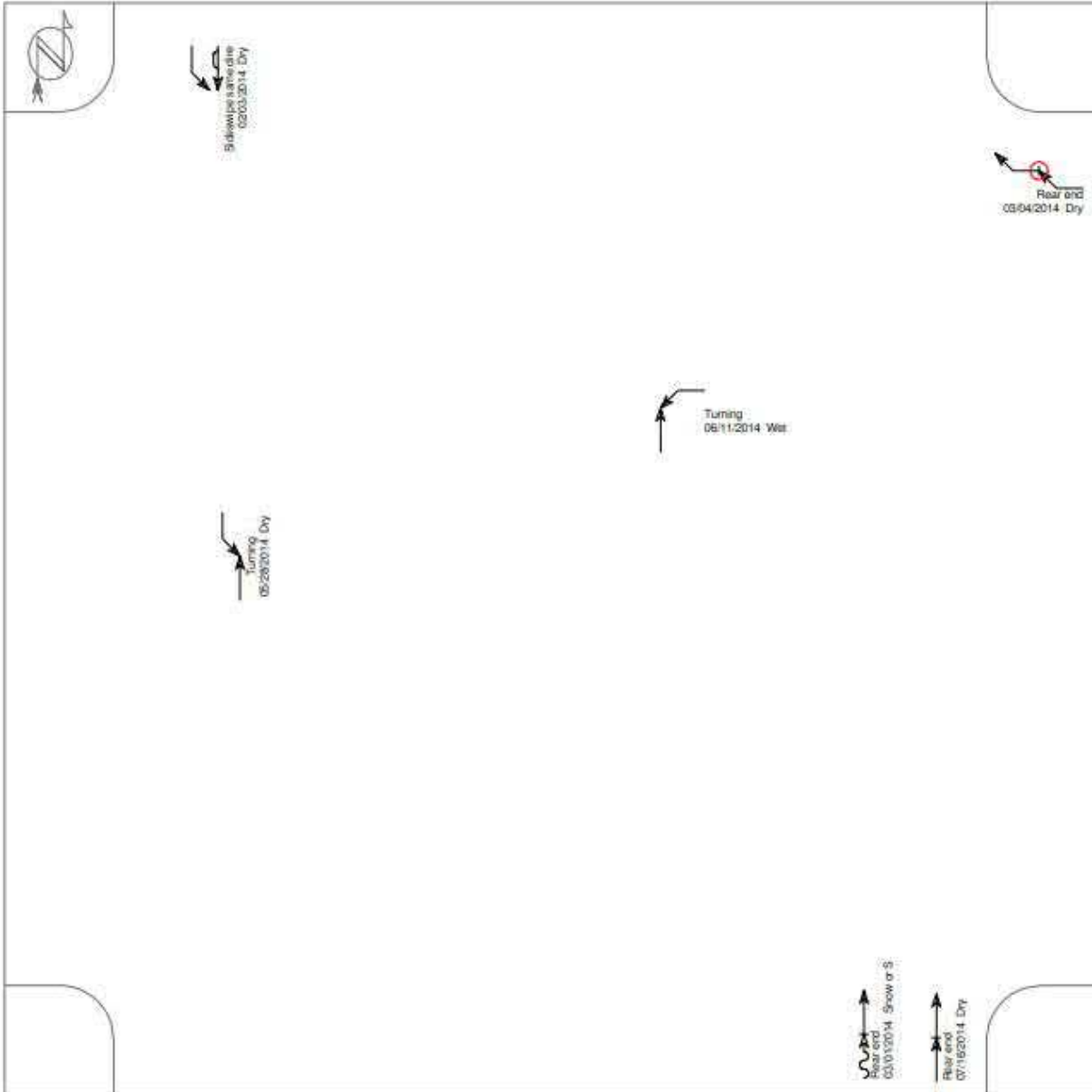


(clear filter), (0) accidents with insufficient data for display

← Straight	▭ Parked	× Pedestrian	Fixed objects:
← Stopped	⚡ Erratic	⊗ Bicycle	□ General
← Unknown	⚡ Out of control	○ Injury	▣ Signal
← Backing	↘ Right turn	⊙ Fatality	⊞ Tree
← Overtaking	↙ Left turn	👤 Nighttime	◀ 3rd vehicle
← Sideswipe	↺ U-turn	🚔 DUI	★ Extra data
			▣ Pole
			▣ Curb
			⊗ Animal

# ILL RTE 47 @ COUNTRY CLUB/SOUTH ST

## 6 Accidents 2014



(clear filter), (0) accidents with insufficient data for display

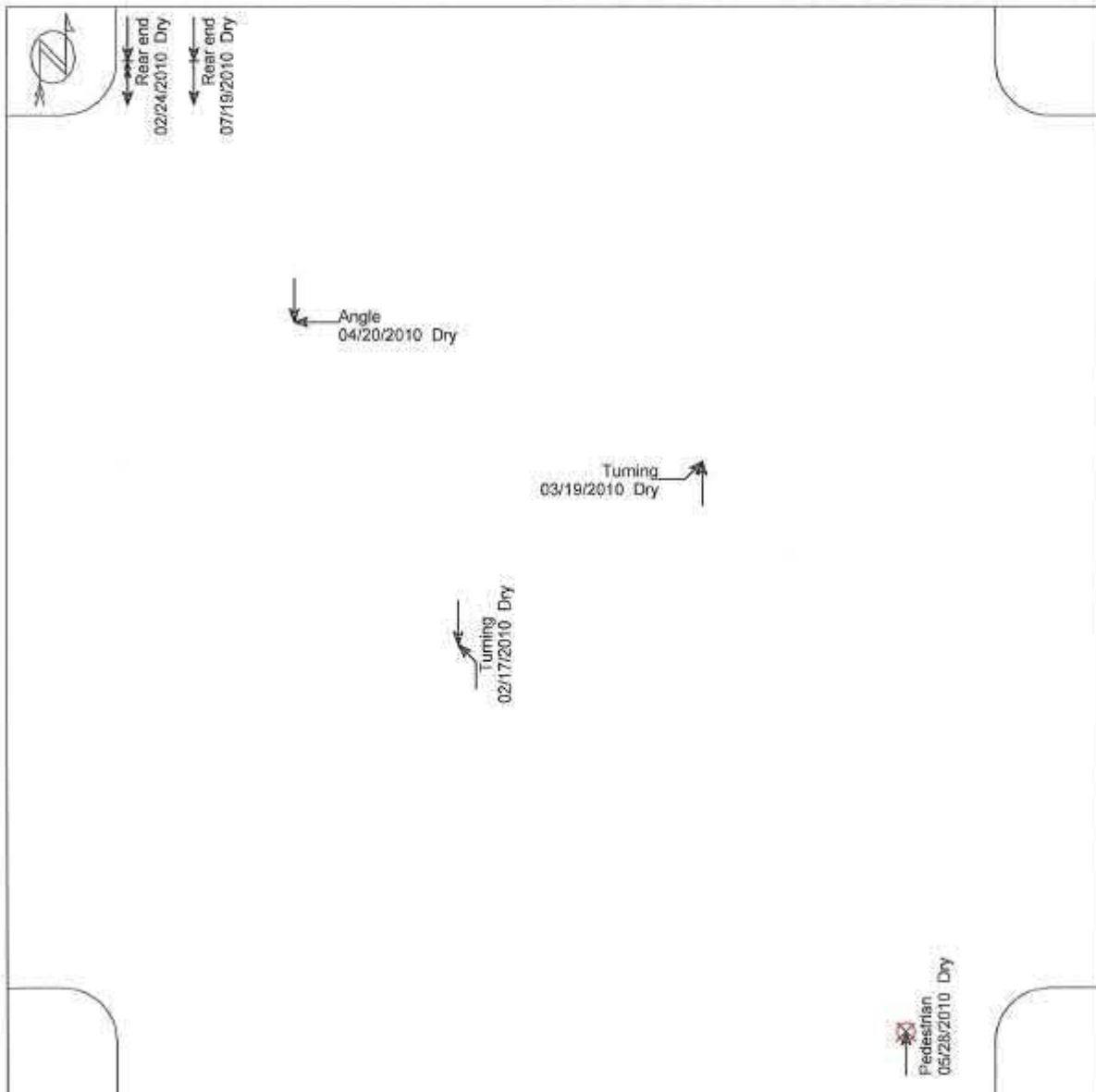
← Straight	▭ Parked	× Pedestrian	Fixed objects:
↔ Stopped	↪ Erratic	⊗ Bicycle	□ General
↔ Unknown	↪ Out of control	○ Injury	▣ Signal
↔ Backing	↪ Right turn	⊙ Fatality	▣ Tree
↔ Overtaking	↪ Left turn	💡 Nighttime	◀ 3rd vehicle
↔ Sideswipe	↪ U-turn	🚫 DUI	⬢ Extra data
			▣ Pole
			▣ Curb
			⊗ Animal



# ILL 47 @ IRVING

## 6 Accidents

## 2010



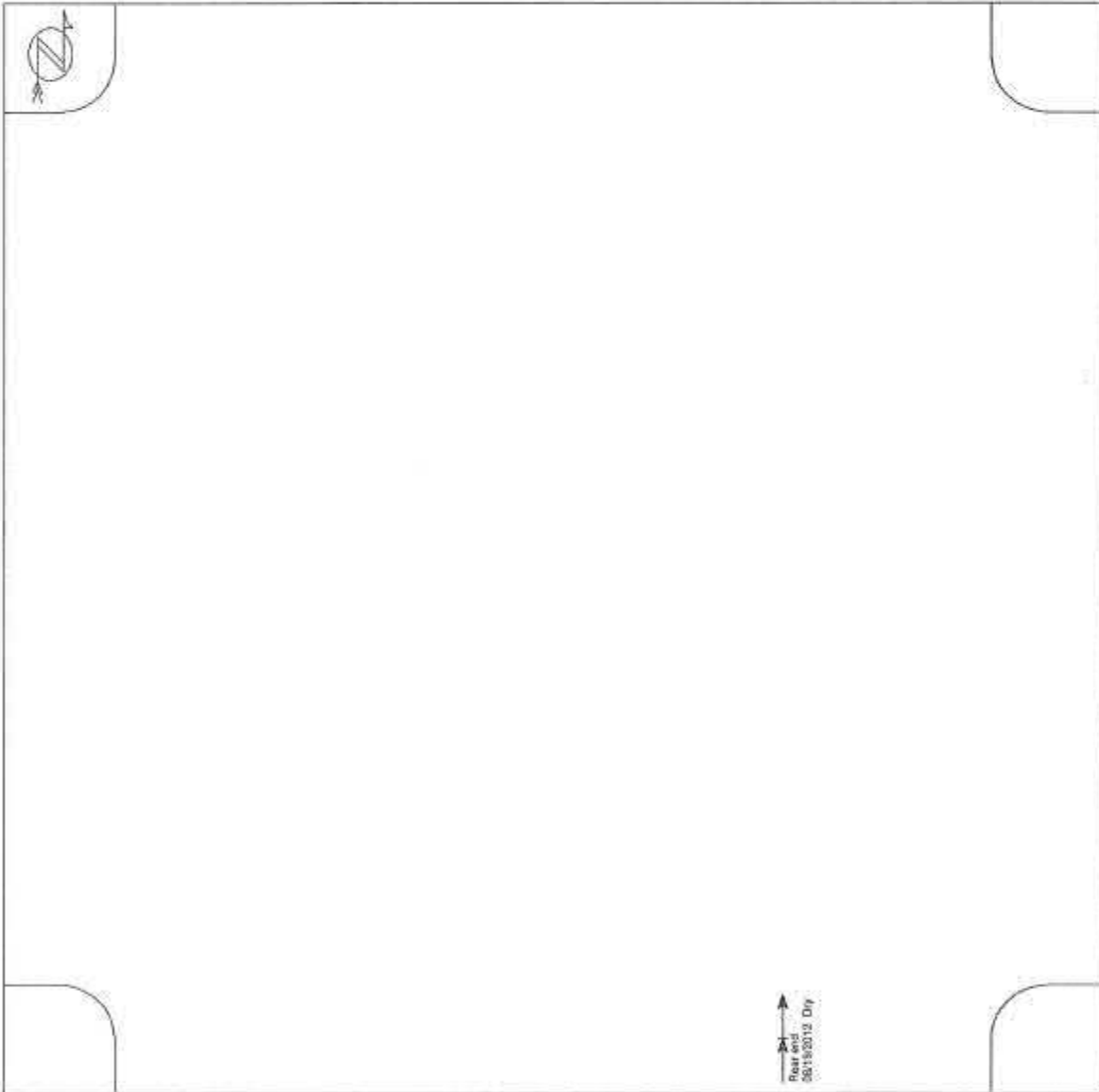
(clear filter). (0) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ← Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ⚡ Out of control | ○ Injury     | ▣ Signal       |
| ↔ Backing    | ↘ Right turn     | ⊙ Fatality   | ▣ Tree         |
| ↔ Overtaking | ↙ Left turn      | ⌚ Nighttime  | ◁ 3rd vehicle  |
| ↔ Sideswipe  | ↺ U-turn         | ⚠ DUI        | ★ Extra data   |
|              |                  |              | ▣ Pole         |
|              |                  |              | ▣ Curb         |
|              |                  |              | ⊗ Animal       |

State of Illinois DDT - 01/17/2012 (modified)

Intersection Magic ver 6.641 Pd Programming 1988-2000

**ILL RTE 47 @ IRVING AVENUE**  
**1 Accidents** **2011-2012**



(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                     |
|--------------|------------------|--------------|---------------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects:      |
| ← Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General    □ Pole |
| ← Unknown    | ⚡ Out of control | ○ Injury     | ▣ Signal    ▣ Curb  |
| ↔ Backing    | ↘ Right turn     | ⊙ Fatality   | ▣ Tree    ⌘ Animal  |
| ↔ Overtaking | ↙ Left turn      | ⌘ Nighttime  | ◁ 3rd vehicle       |
| ↔ Sideswipe  | ↻ U-turn         | ⊏ DUI        | * Extra data        |

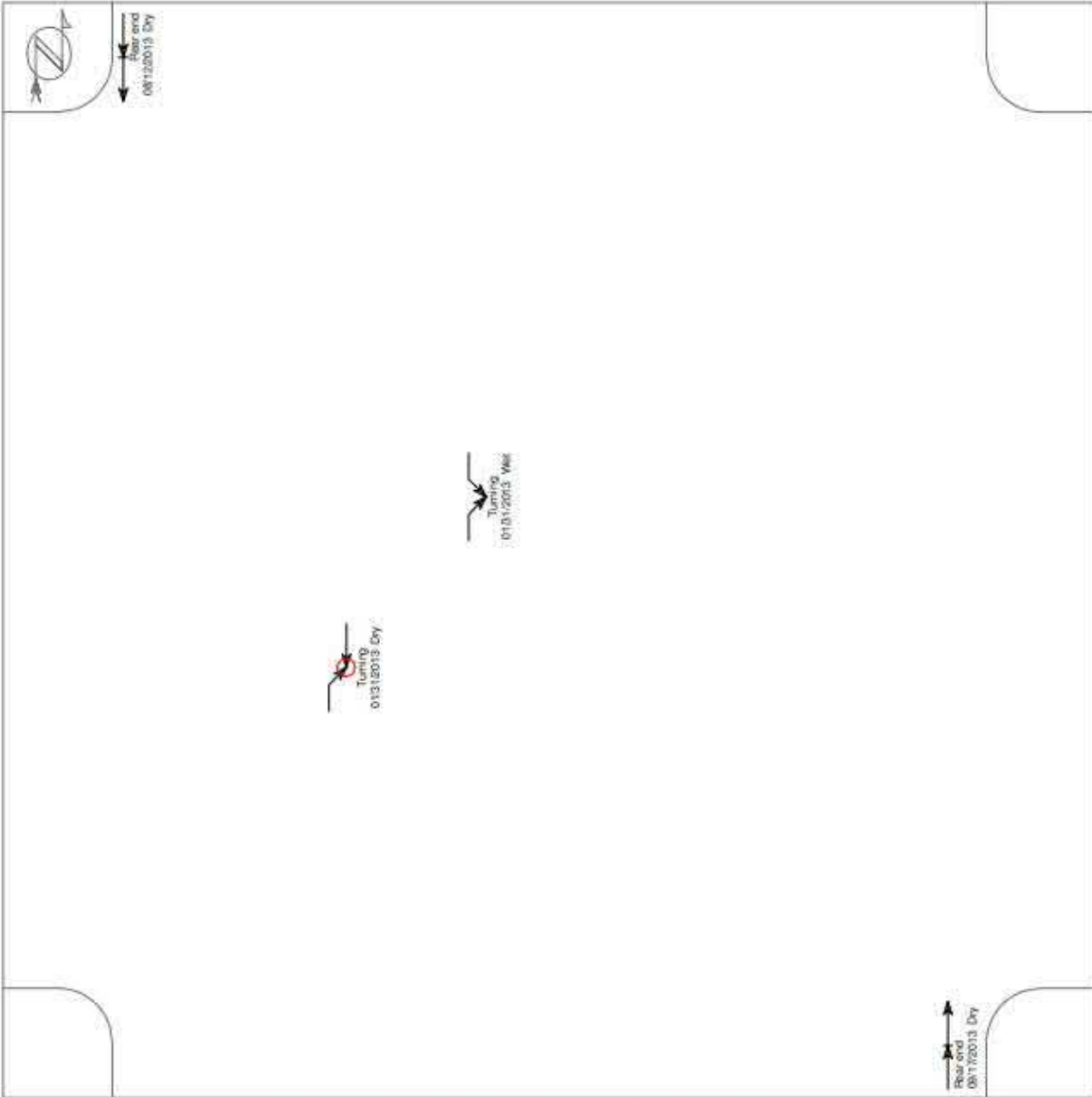
State of Illinois DOT, IL 02/18/2014 (modified)

Intersection Magic Pdf Programming 1988, 2000

# ILL RTE 47 @ IRVING AVENUE

## 4 Accidents

## 2013

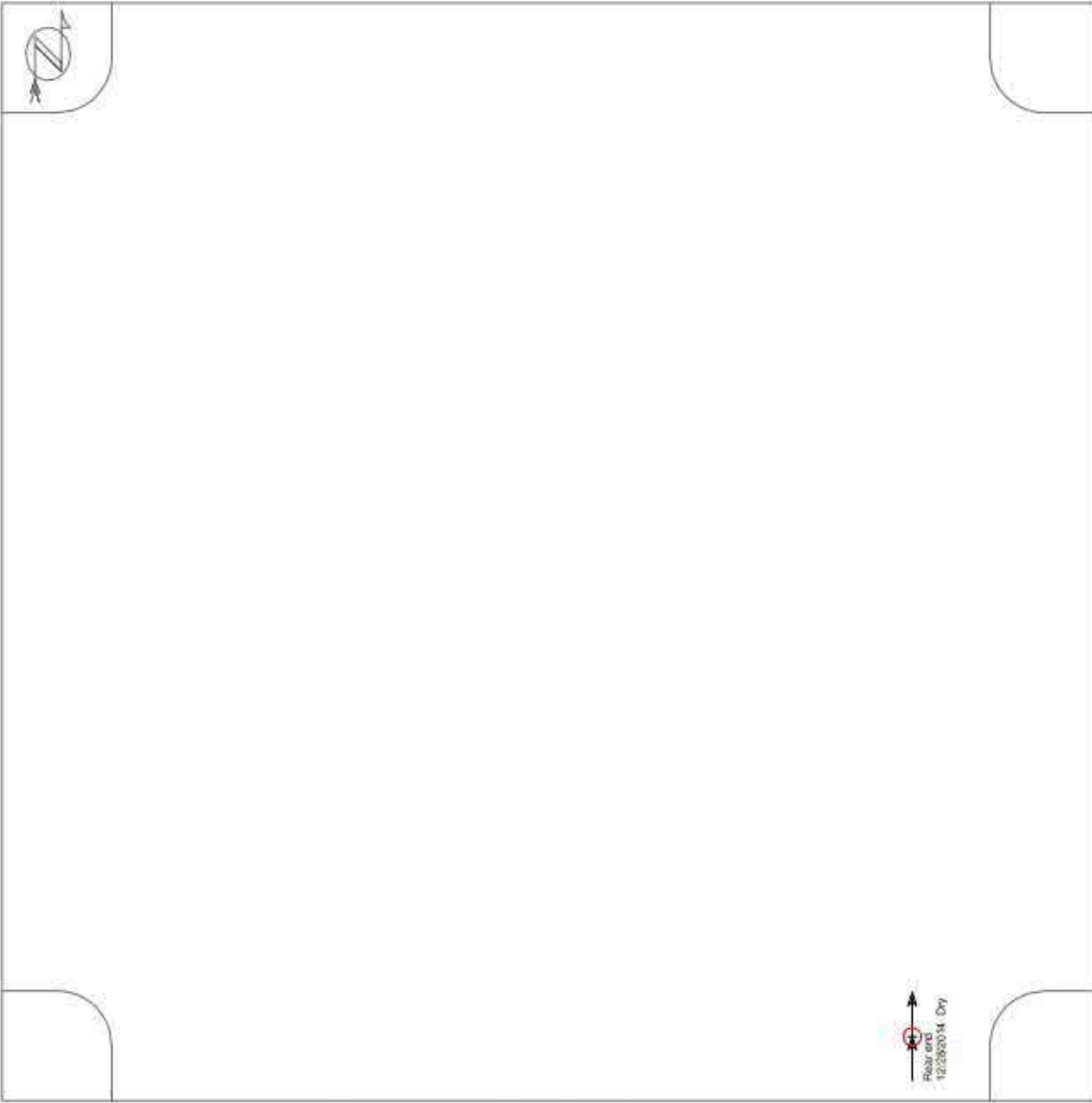


(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ← Stopped    | ← Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ← Out of control | ○ Injury     | ▣ Signal       |
| ← Backing    | ↘ Right turn     | ⊙ Fatality   | ▣ Tree         |
| ← Overtaking | ↙ Left turn      | ⌚ Nighttime  | ◀ 3rd vehicle  |
| ← Sideswipe  | ↻ U-turn         | ⚠ DUI        | ★ Extra data   |
|              |                  |              | ▣ Pole         |
|              |                  |              | ▣ Curb         |
|              |                  |              | ⊗ Animal       |



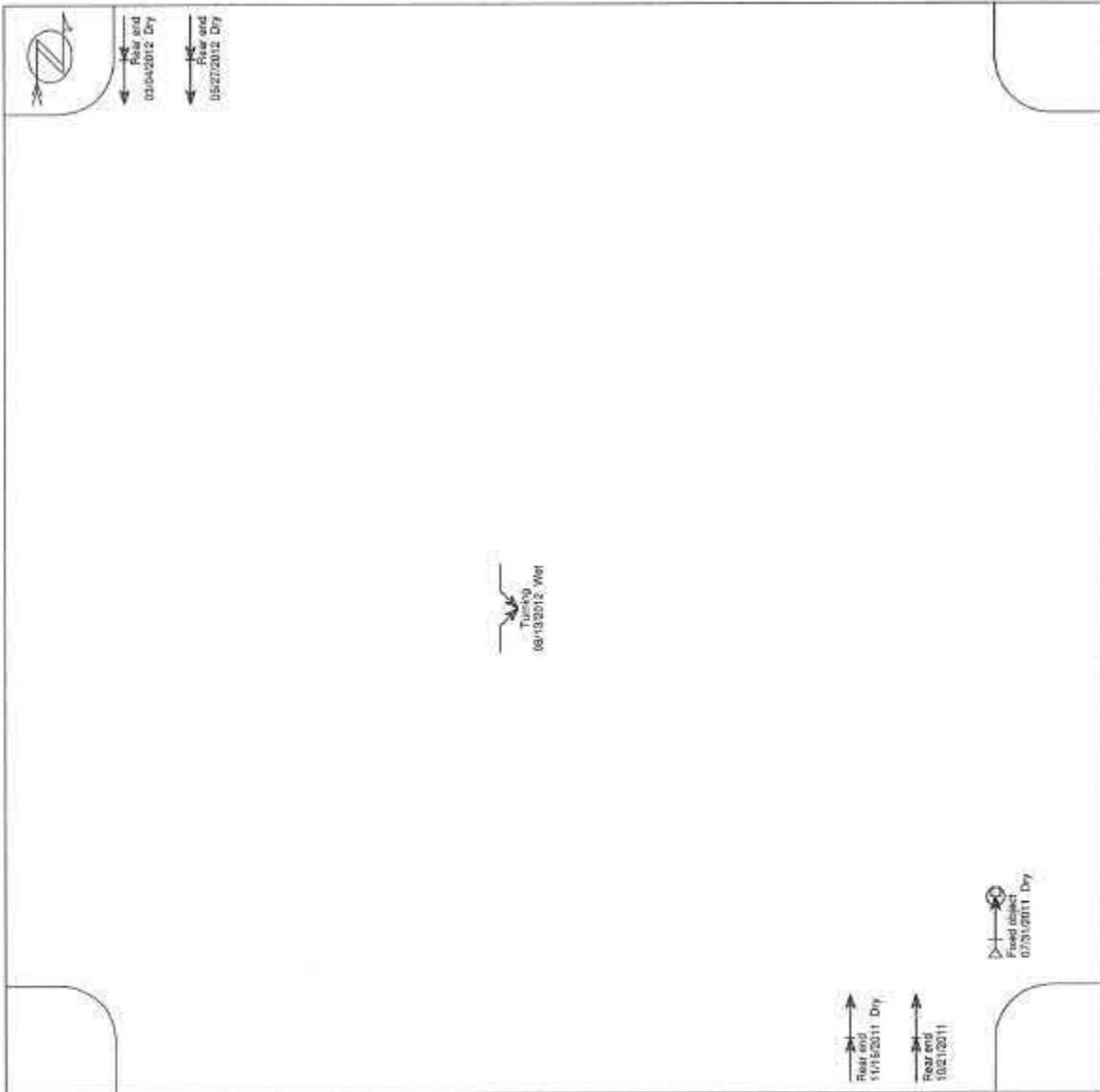
**ILL RTE 47 @ IRVING AVENUE**  
**1 Accidents** **2014**



(clear filter), (0) accidents with insufficient data for display

- |                |                   |              |                |
|----------------|-------------------|--------------|----------------|
| ← Straight     | ▭ Parked          | × Pedestrian | Fixed objects: |
| ← Stopped      | ←~ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown      | ←~ Out of control | ○ Injury     | ▣ Signal       |
| ←↔ Backing     | ↘ Right turn      | ⊙ Fatality   | ▣ Tree         |
| ←↔↔ Overtaking | ↙ Left turn       | ⚡ Nighttime  | ▣ Pole         |
| ←↔ Sideswipe   | ↪ U-turn          | ⚡ DUI        | ▣ Curb         |
|                |                   |              | ⊗ Animal       |
|                |                   |              | ◀ 3rd vehicle  |
|                |                   |              | ★ Extra data   |

**ILL RTE 47 @ JUDD STREET**  
**6 Accidents** **2011-2012**

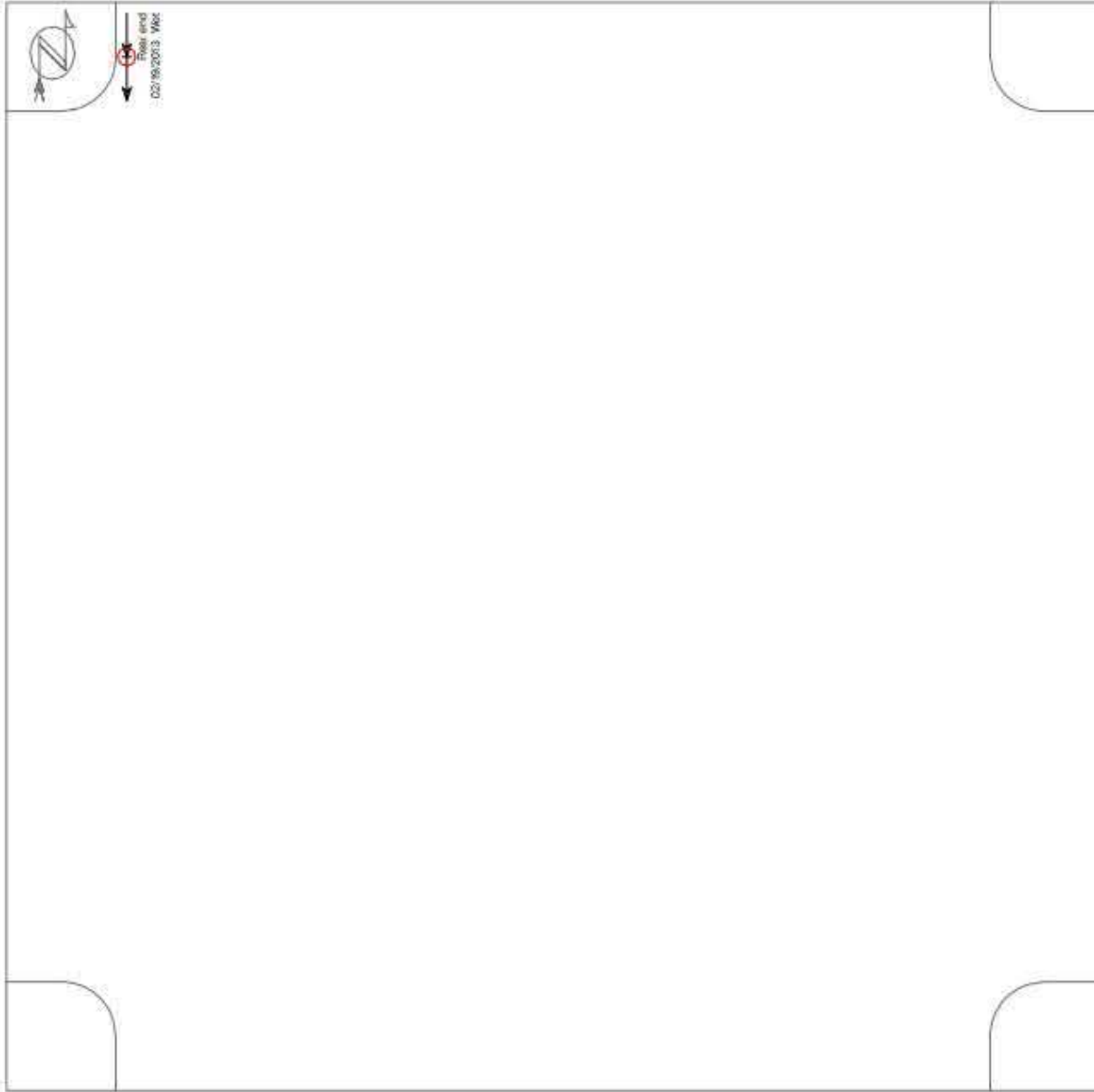


(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ← Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ⚡ Out of control | ○ Injury     | ▣ Signal       |
| ↔ Backing    | ↗ Right turn     | ⊙ Fatality   | ⊗ Tree         |
| ↔ Overtaking | ↖ Left turn      | ⌚ Nighttime  | ◁ 3rd vehicle  |
| ↔ Sideswipe  | ↻ U-turn         | ⚠ DUI        | * Extra data   |
|              |                  |              | □ Pole         |
|              |                  |              | ▣ Curb         |
|              |                  |              | ⊗ Animal       |

# ILL RTE 47 @ EAST JUDD ST/IRVING AVE

## 1 Accidents 2013



(clear filter), (0) accidents with insufficient data for display

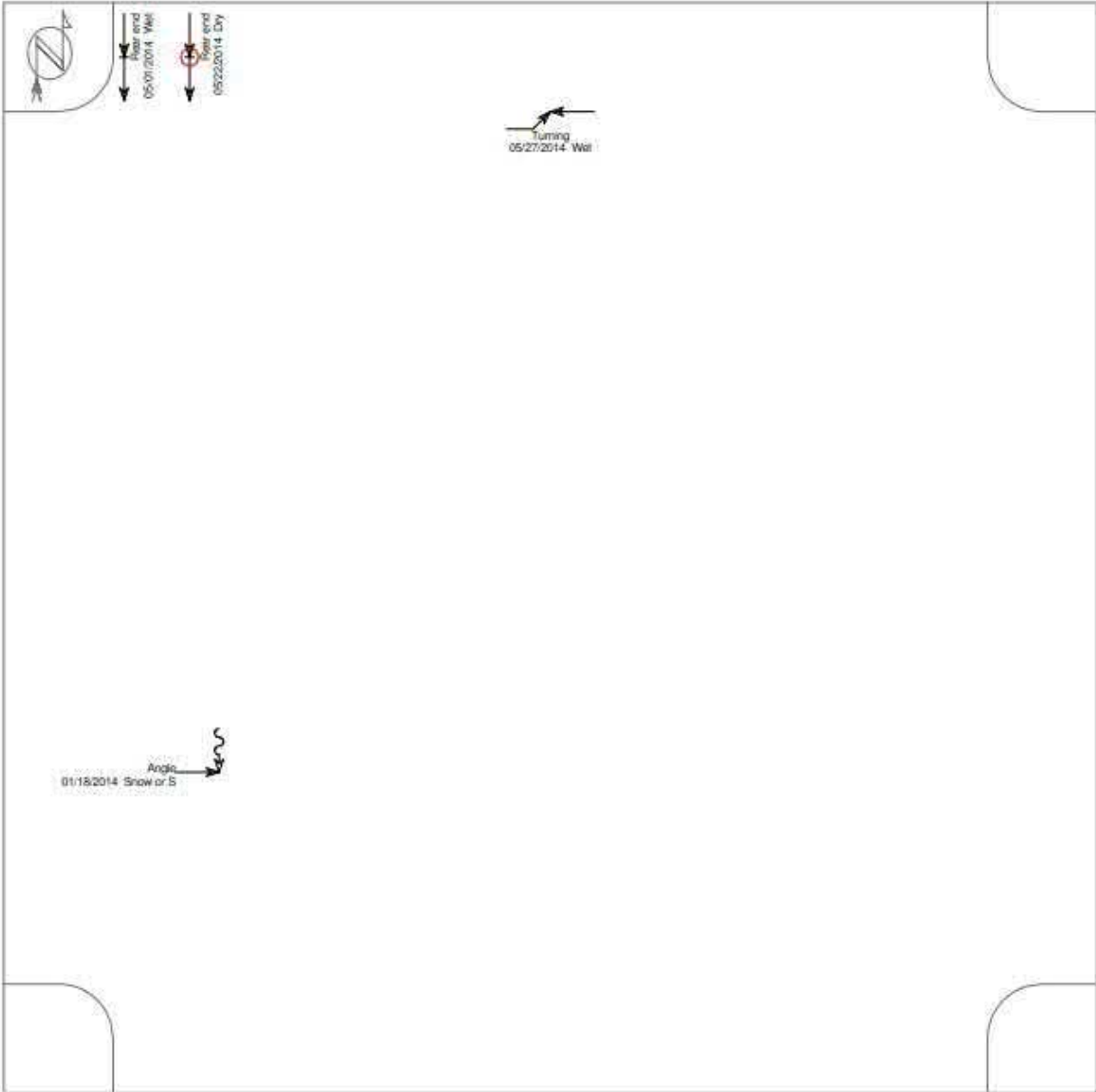
- |  |  |   |  |
|--|--|---|--|
| <ul style="list-style-type: none"> <li>← Straight</li> <li>← Stopped</li> <li>← Unknown</li> <li>↔ Backing</li> <li>↔ Overtaking</li> <li>↔ Sideswipe</li> </ul> | <ul style="list-style-type: none"> <li>▭ Parked</li> <li>↪ Erratic</li> <li>↪ Out of control</li> <li>↪ Right turn</li> <li>↪ Left turn</li> <li>↪ U-turn</li> </ul> | <ul style="list-style-type: none"> <li>× Pedestrian</li> <li>⊗ Bicycle</li> <li>○ Injury</li> <li>⊙ Fatality</li> <li>👁 Nighttime</li> <li>🚔 DUI</li> </ul> | <p>Fixed objects:</p> <ul style="list-style-type: none"> <li>□ General</li> <li>▣ Signal</li> <li>▣ Tree</li> <li>▣ Pole</li> <li>▣ Curb</li> <li>⊗ Animal</li> <li>◀ 3rd vehicle</li> <li>★ Extra data</li> </ul> |
|--|--|---|--|



# ILL RTE 47 @ EAST JUDD ST/IRVING AVE

## 4 Accidents

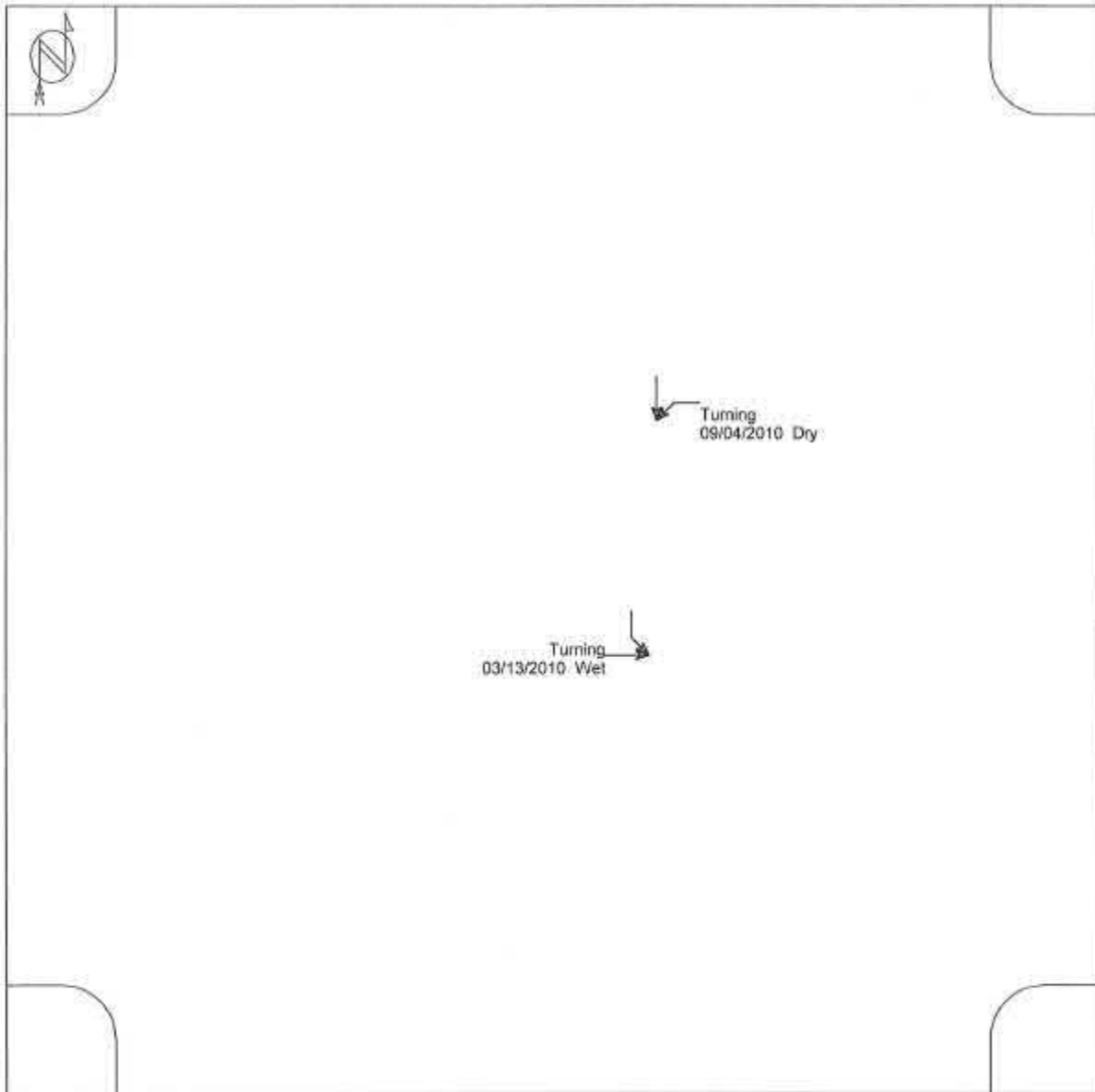
## 2014



(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ← Stopped    | ← Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ← Out of control | ○ Injury     | ▣ Signal       |
| ← Backing    | ↘ Right turn     | ⊙ Fatality   | ▣ Tree         |
| ← Overtaking | ↙ Left turn      | 👁 Nighttime  | ▣ Pole         |
| ← Sideswipe  | ↻ U-turn         | 🚫 DUI        | ▣ Curb         |
|              |                  |              | ▣ Animal       |
|              |                  |              | ◀ 3rd vehicle  |
|              |                  |              | ✳ Extra data   |

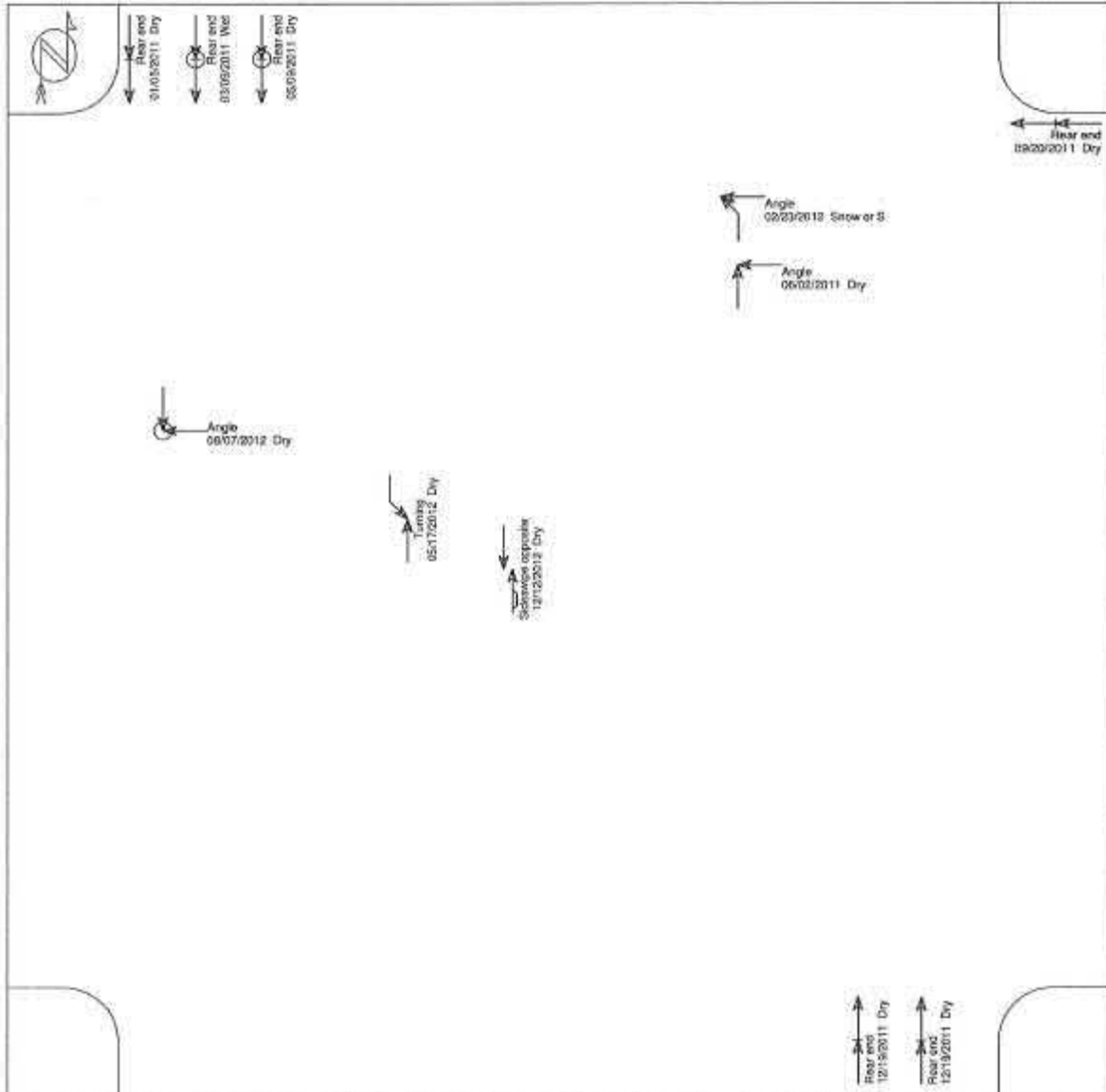
ILL 47 @ ILL 120  
 2 Accidents 2010



(clear filter), (0) accidents with insufficient data for display

- |               |                   |              |                |
|---------------|-------------------|--------------|----------------|
| ← Straight    | ▭ Parked          | × Pedestrian | Fixed objects: |
| ←  Stopped    | ↪ Erratic         | ⊗ Bicycle    | □ General      |
| ← Unknown     | ↪~ Out of control | ○ Injury     | ▣ Signal       |
| ↔ Backing     | ↪ Right turn      | ⊙ Fatality   | ▣ Tree         |
| ←← Overtaking | ↪ Left turn       | ⊙ Nighttime  | ◁ 3rd vehicle  |
| ←  Sideswipe  | ↪ U-turn          | ⊙ DUI        | * Extra data   |
|               |                   |              | ▣ Pole         |
|               |                   |              | ▣ Curb         |
|               |                   |              | ⊗ Animal       |

# ILL RTE 47 @ ILL RTE 120/MCHENRY AVE 12 Accidents 2011-2012



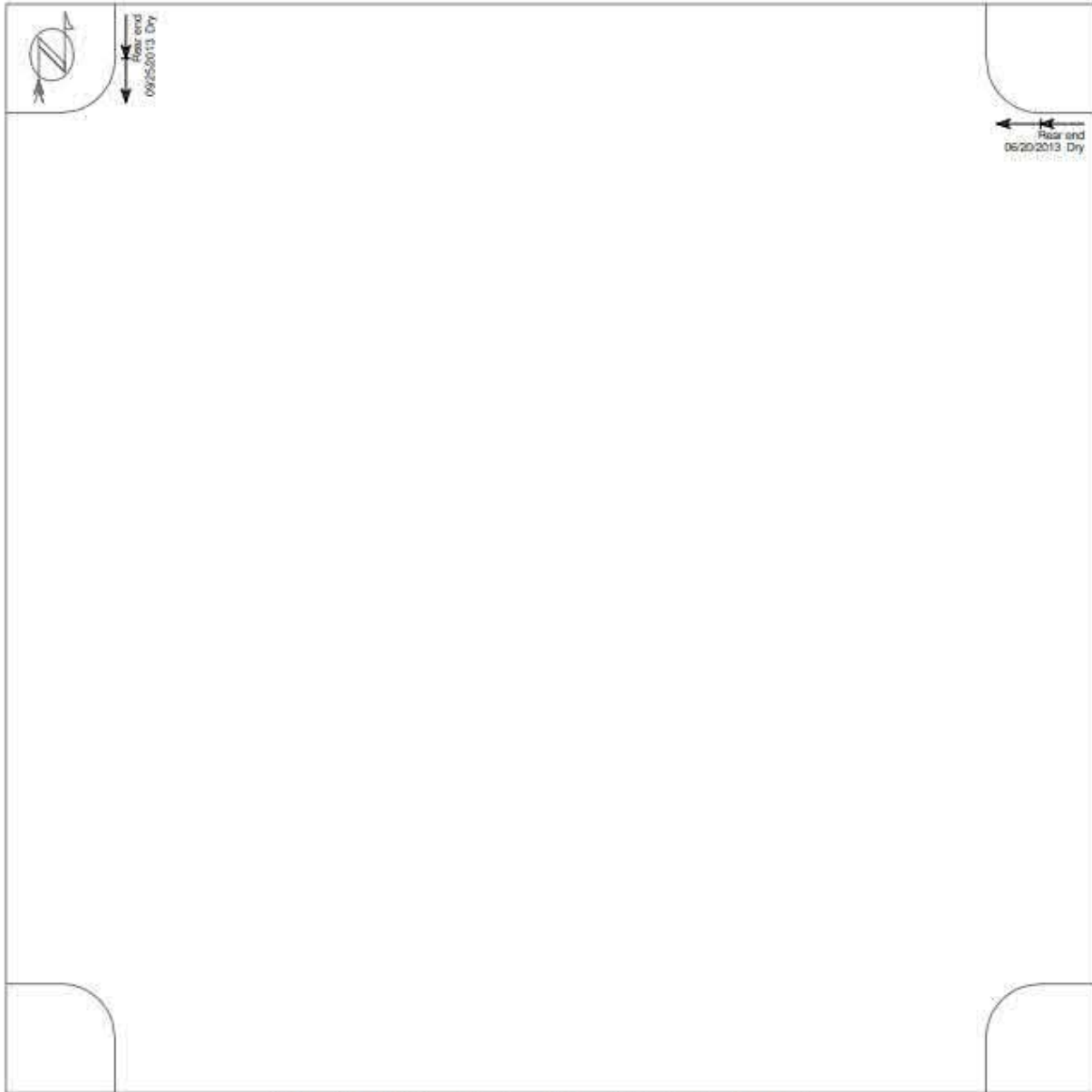
(clear filter), (1) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ← Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ⚡ Out of control | ○ Injury     | ▣ Signal       |
| ↔ Backing    | ↘ Right turn     | ⊙ Fatality   | ▣ Tree         |
| ↔ Overtaking | ↙ Left turn      | ⚡ Nighttime  | ◁ 3rd vehicle  |
| ↔ Sideswipe  | ↻ U-turn         | ⚡ DUI        | * Extra data   |
|              |                  |              | □ Pole         |
|              |                  |              | ▣ Curb         |
|              |                  |              | ⊗ Animal       |



# ILL RTE 47 @ ILL RTE 120/MCHENRY AVE

## 2 Accidents 2013

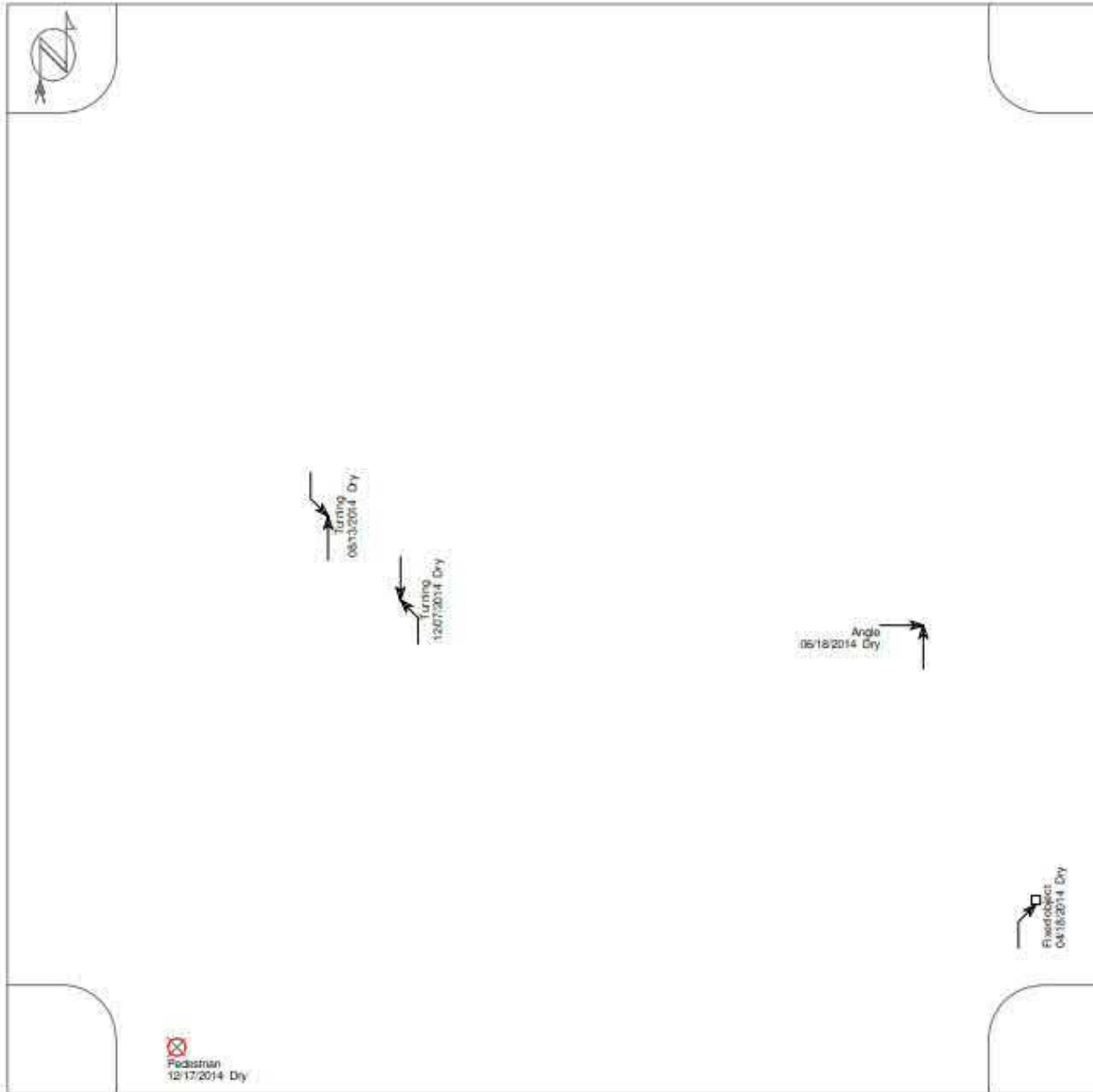


(clear filter), (0) accidents with insufficient data for display

- |               |                   |              |                |
|---------------|-------------------|--------------|----------------|
| ← Straight    | ▭ Parked          | × Pedestrian | Fixed objects: |
| ←→ Stopped    | ←~ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown     | ←~ Out of control | ○ Injury     | ▣ Signal       |
| ←↔ Backing    | ↘ Right turn      | ⊙ Fatality   | ⊞ Tree         |
| ←↔ Overtaking | ↙ Left turn       | ⚡ Nighttime  | ◀ 3rd vehicle  |
| ←↔ Sideswipe  | ↪ U-turn          | ⚠ DUI        | ★ Extra data   |
|               |                   |              | ▣ Pole         |
|               |                   |              | ▣ Curb         |
|               |                   |              | ⊘ Animal       |

# ILL RTE 47 @ ILL RTE 120/MCHENRY AVE

## 5 Accidents 2014



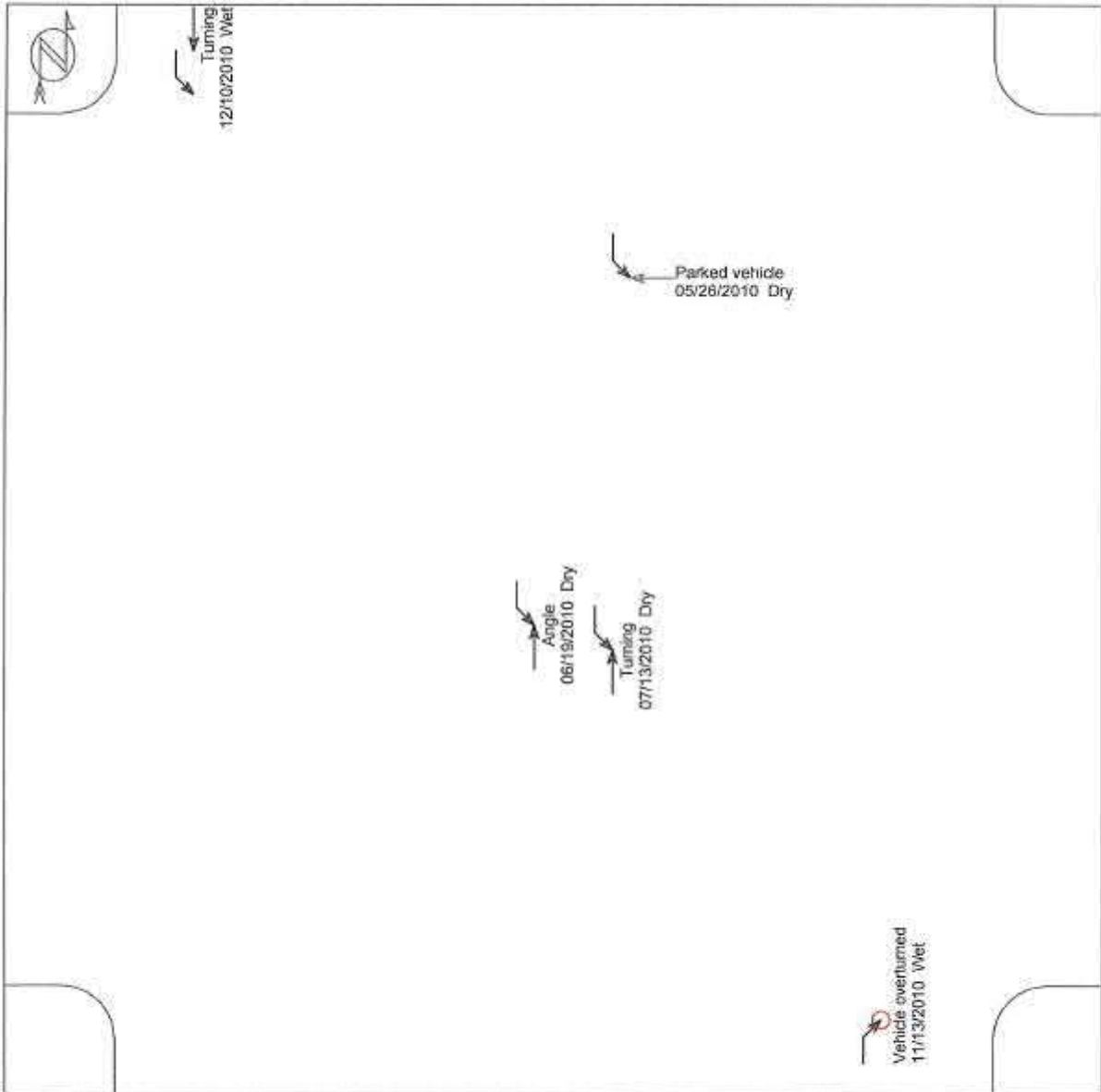
(clear filter), (0) accidents with insufficient data for display

- |  |  |   |  |
|--|--|---|--|
| <ul style="list-style-type: none"> <li>← Straight</li> <li>← Stopped</li> <li>← Unknown</li> <li>↔ Backing</li> <li>↔ Overtaking</li> <li>↔ Sideswipe</li> </ul> | <ul style="list-style-type: none"> <li>▭ Parked</li> <li>↪ Erratic</li> <li>↪ Out of control</li> <li>↪ Right turn</li> <li>↪ Left turn</li> <li>↪ U-turn</li> </ul> | <ul style="list-style-type: none"> <li>× Pedestrian</li> <li>⊗ Bicycle</li> <li>○ Injury</li> <li>⊙ Fatality</li> <li>👁 Nighttime</li> <li>🚔 DUI</li> </ul> | <p>Fixed objects:</p> <ul style="list-style-type: none"> <li>□ General</li> <li>▣ Signal</li> <li>▣ Tree</li> <li>▣ Pole</li> <li>▣ Curb</li> <li>⊗ Animal</li> <li>◀ 3rd vehicle</li> <li>■ Extra data</li> </ul> |
|--|--|---|--|

# ILL 47 @ ST JOHNS ROAD

## 5 Accidents

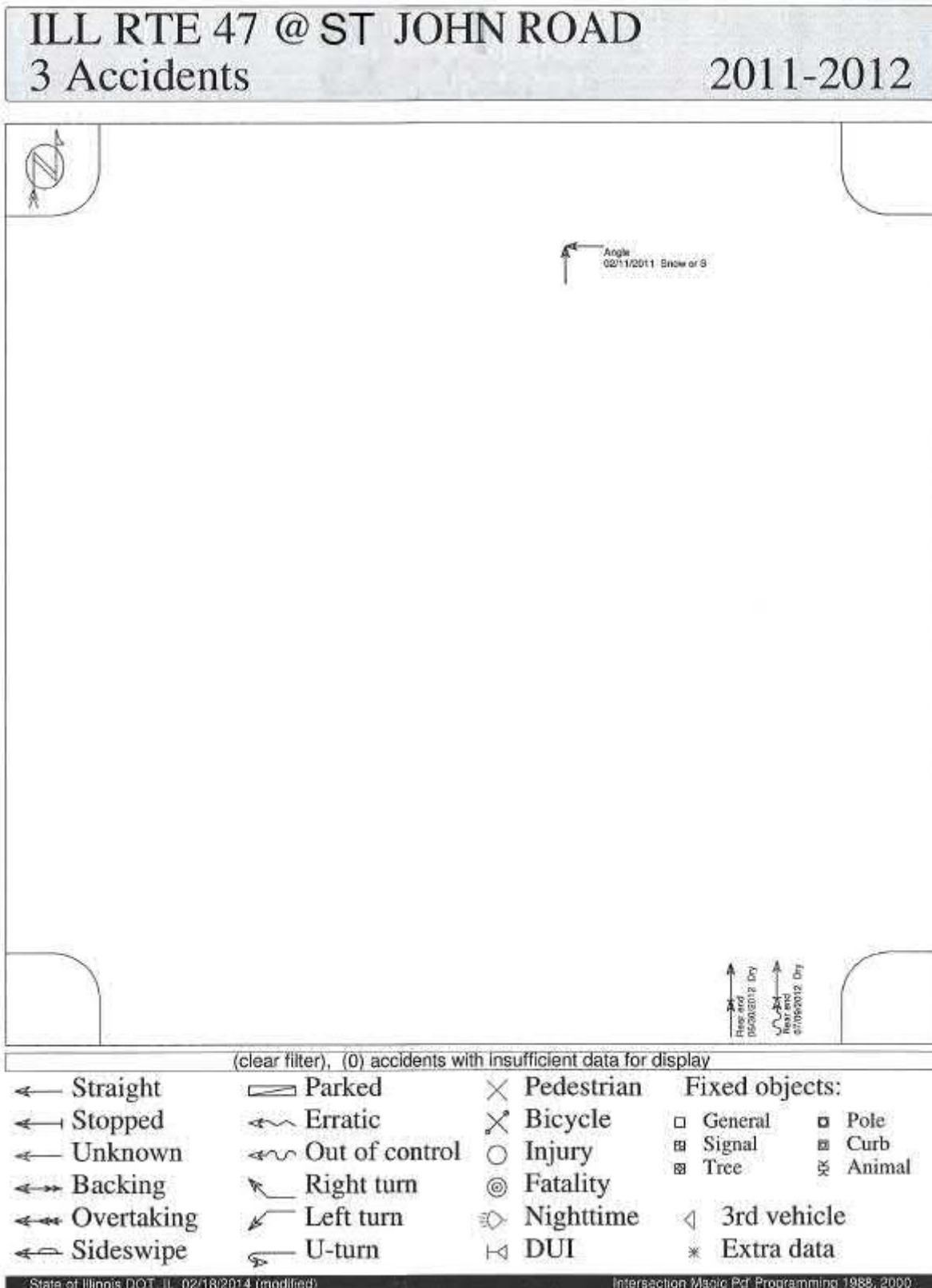
### 2010



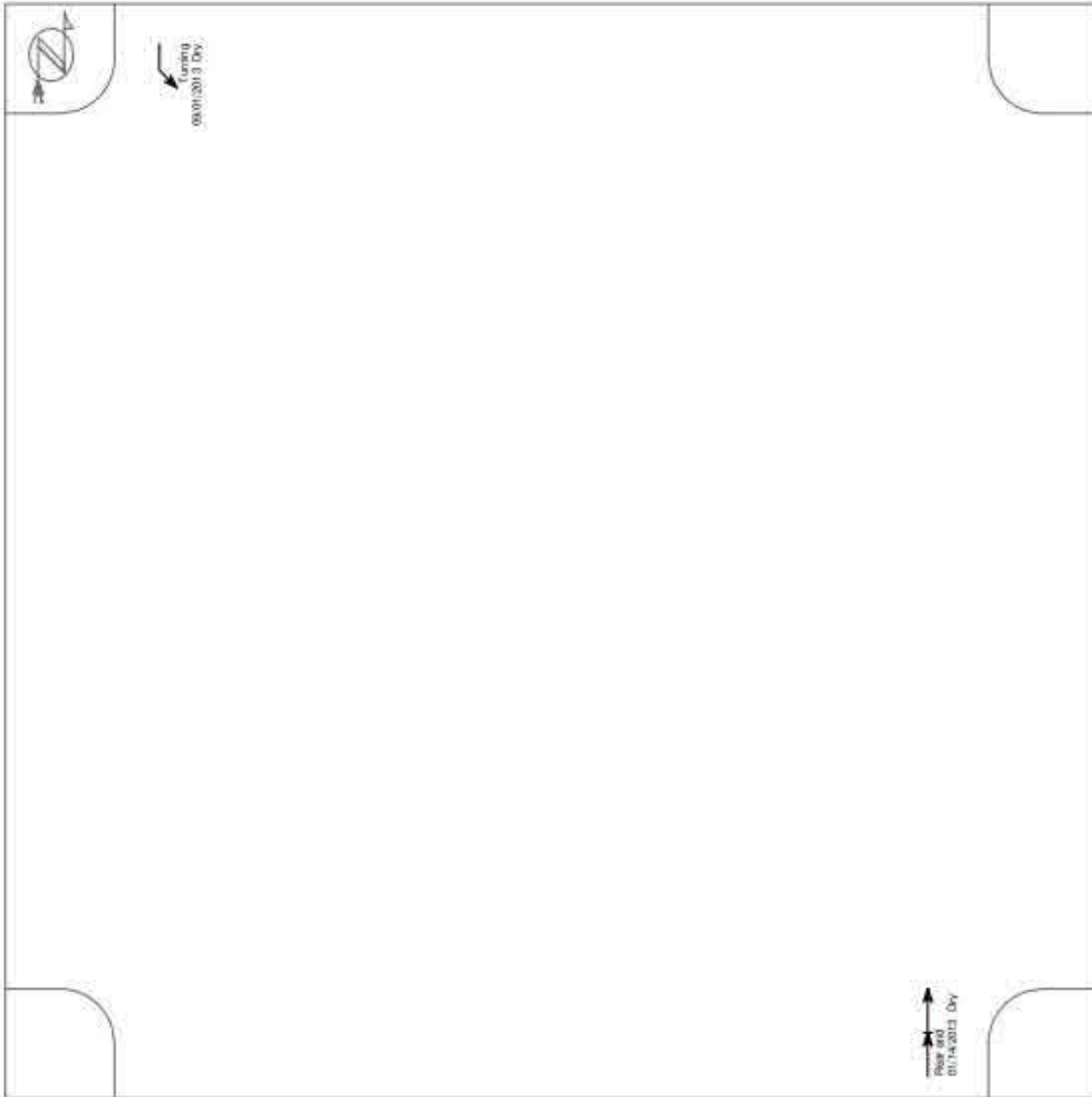
(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ← Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ⚡ Out of control | ○ Injury     | ▣ Signal       |
| ↔ Backing    | ↘ Right turn     | ⊙ Fatality   | ▣ Tree         |
| ↔ Overtaking | ↙ Left turn      | 🕒 Nighttime  | ⊠ Pole         |
| ↔ Sideswipe  | ↺ U-turn         | 🚔 DUI        | ⊠ Curb         |
|              |                  |              | ⊠ Animal       |
|              |                  |              | ◁ 3rd vehicle  |
|              |                  |              | * Extra data   |





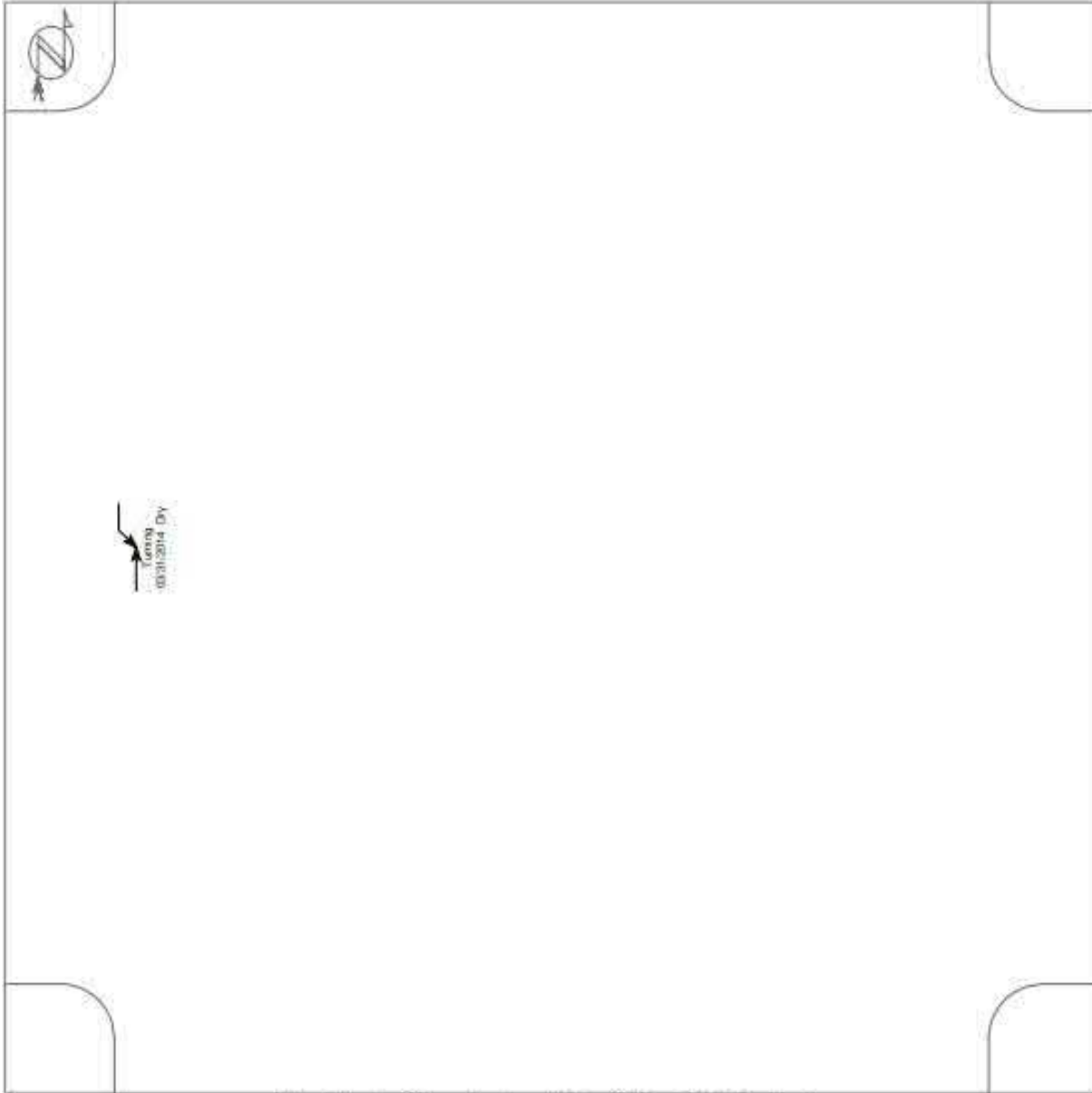
**ILL RTE 47 @ ST JOHNS ROAD**  
**2 Accidents** **2013**



(clear filter), (0) accidents with insufficient data for display

- |               |                   |              |                |
|---------------|-------------------|--------------|----------------|
| ← Straight    | ▭ Parked          | × Pedestrian | Fixed objects: |
| ← Stopped     | ←~ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown     | ←~ Out of control | ○ Injury     | ▣ Signal       |
| ←↔ Backing    | ↘ Right turn      | ⊙ Fatality   | ▣ Tree         |
| ←↔ Overtaking | ↙ Left turn       | 👤 Nighttime  | ▣ Pole         |
| ←↔ Sideswipe  | ↺ U-turn          | 🚔 DUI        | ▣ Curb         |
|               |                   |              | ▣ Animal       |
|               |                   |              | ◀ 3rd vehicle  |
|               |                   |              | ★ Extra data   |

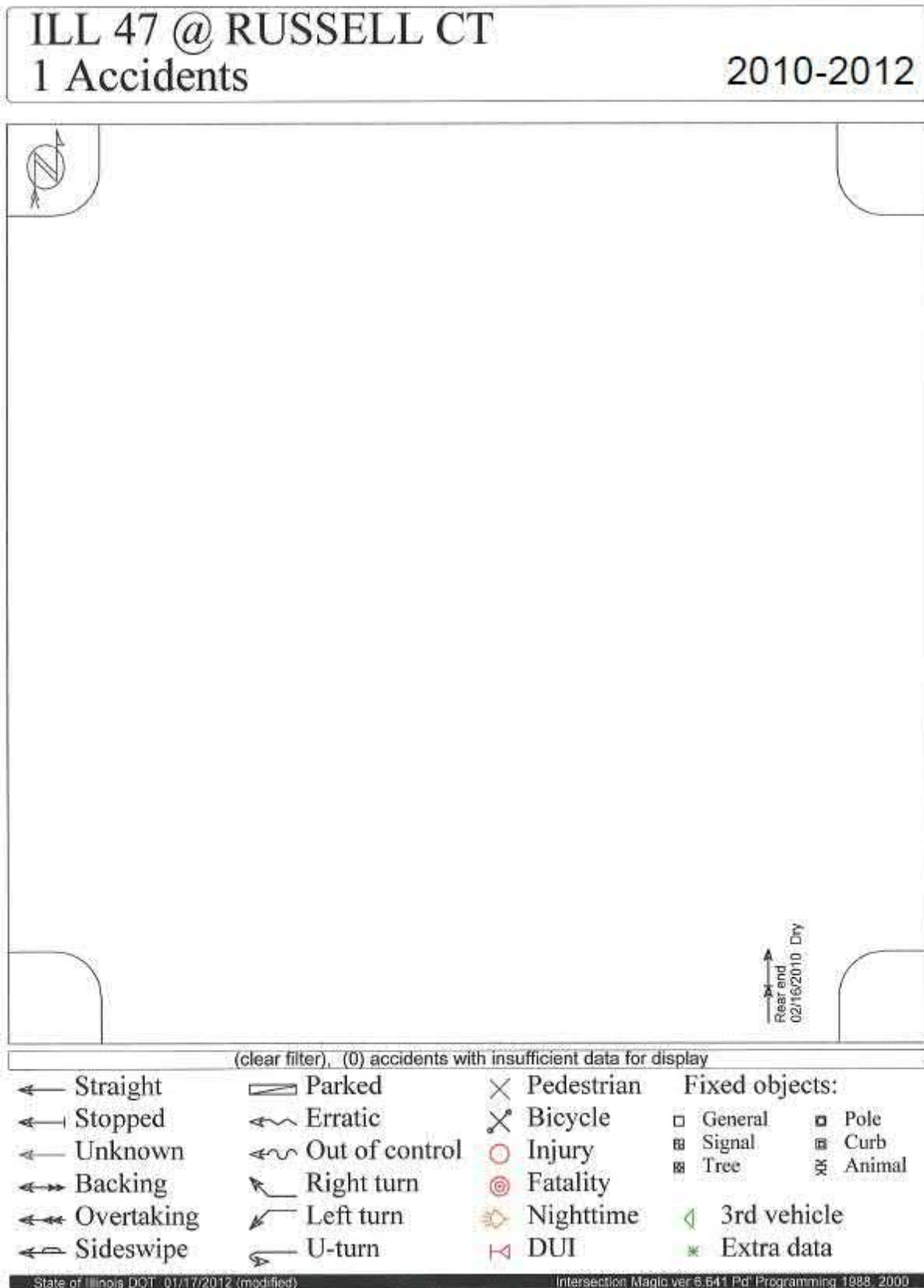
**ILL RTE 47 @ ST JOHNS ROAD**  
**1 Accidents** **2014**



(clear filter), (0) accidents with insufficient data for display

← Straight	▭ Parked	× Pedestrian	Fixed objects:
← Stopped	← Erratic	⊗ Bicycle	□ General
← Unknown	← Out of control	○ Injury	■ Signal
← Backing	↘ Right turn	⊙ Fatality	■ Tree
← Overtaking	↙ Left turn	🕒 Nighttime	◀ 3rd vehicle
← Sideswipe	↺ U-turn	🚔 DUI	★ Extra data
			■ Pole
			■ Curb
			☒ Animal



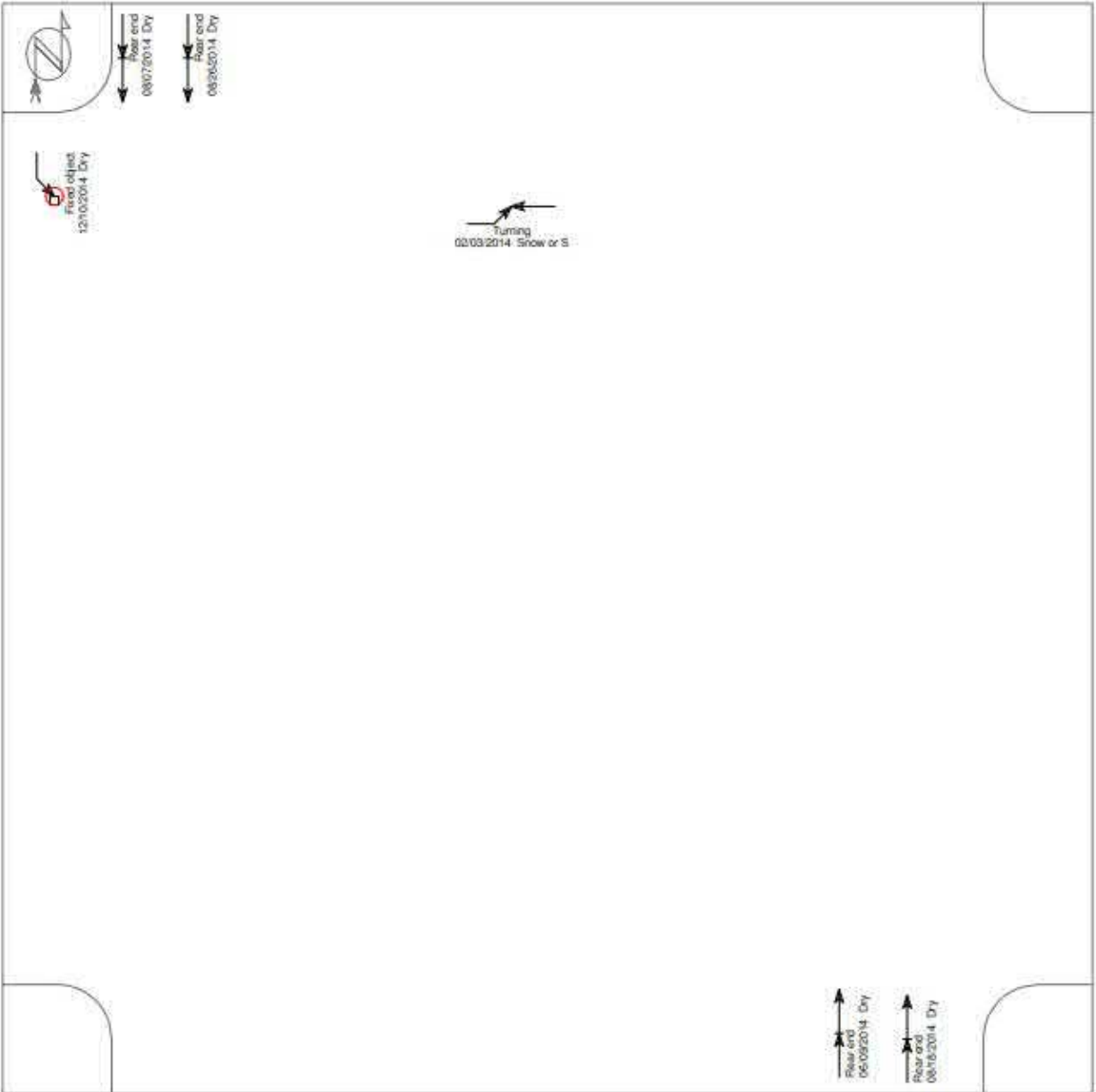




# ILL RTE 47 @ RUSSELL COURT

## 6 Accidents

## 2014

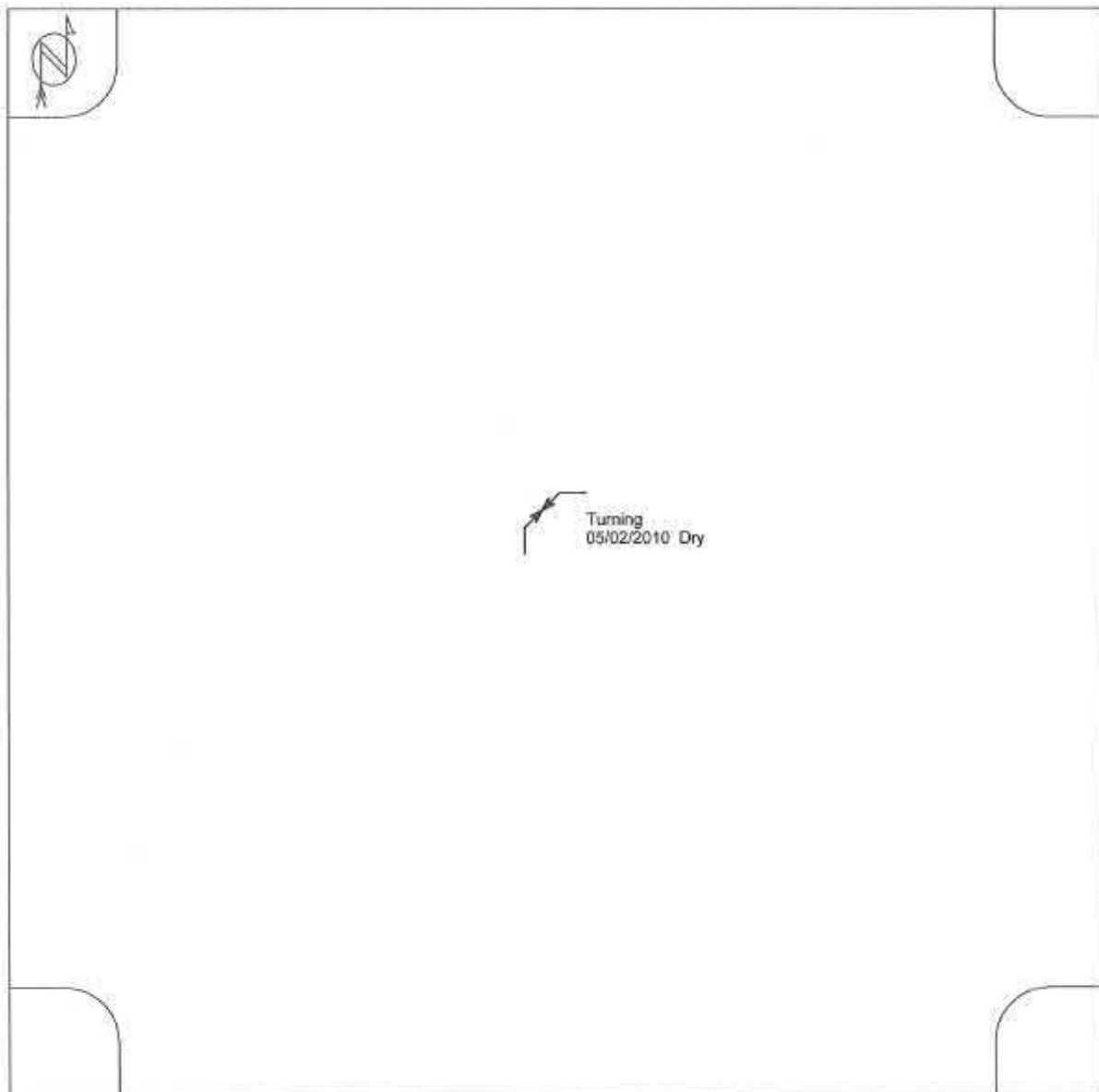


(clear filter), (0) accidents with insufficient data for display

← Straight	▭ Parked	× Pedestrian	Fixed objects:
← Stopped	← Erratic	⊗ Bicycle	□ General
← Unknown	← Out of control	○ Injury	▣ Signal
← Backing	↘ Right turn	⊙ Fatality	▣ Tree
← Overtaking	↙ Left turn	👁 Nighttime	◀ 3rd vehicle
← Sideswipe	↺ U-turn	🚔 DUI	★ Extra data
			▣ Pole
			▣ Curb
			⊗ Animal

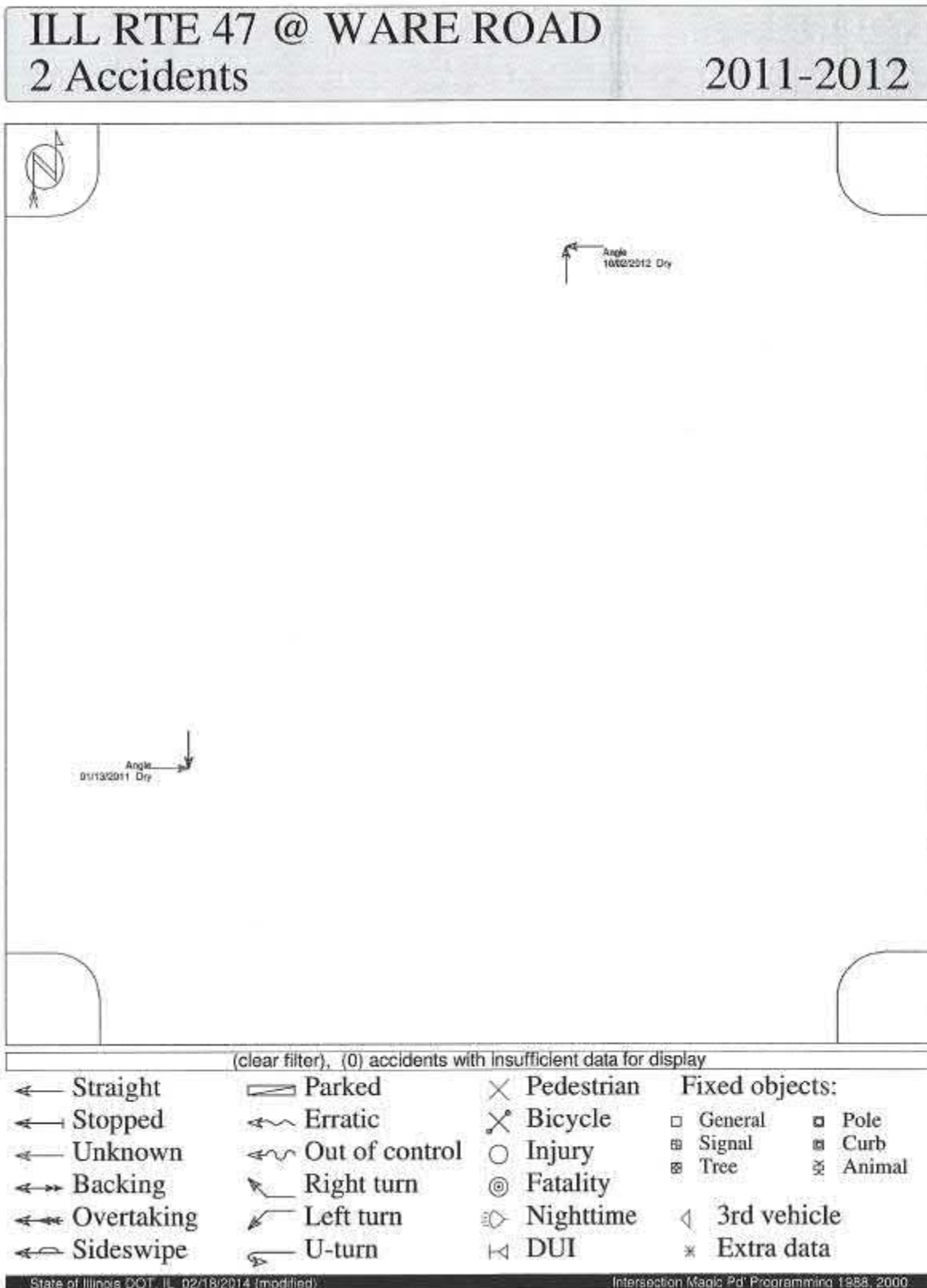


**ILL 47 @ WARE RD**  
**1 Accidents** **2010**

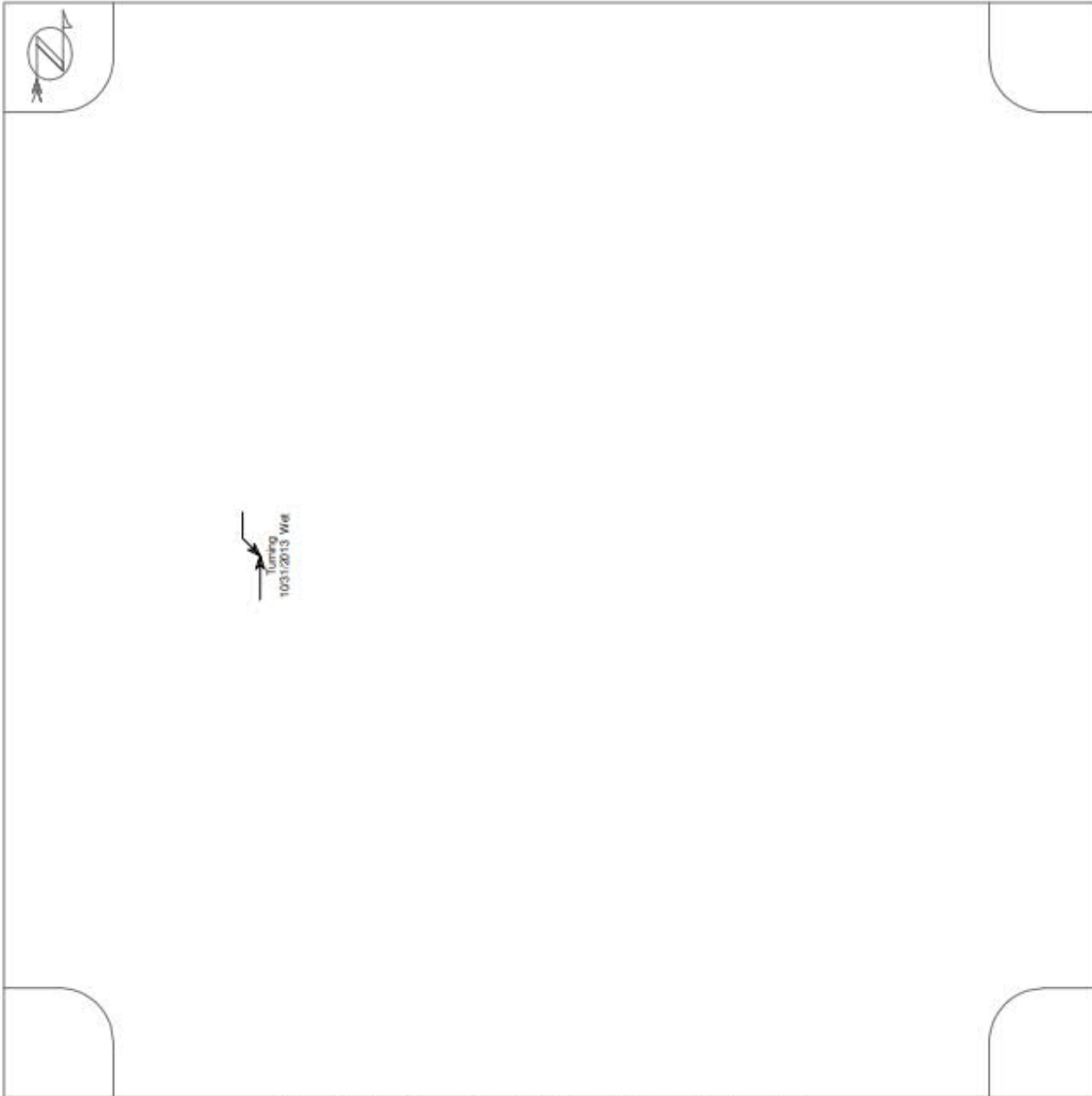


(clear filter), (0) accidents with insufficient data for display

- |               |                  |              |                |
|---------------|------------------|--------------|----------------|
| ← Straight    | ▭ Parked         | × Pedestrian | Fixed objects: |
| ←  Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown     | ⚡ Out of control | ○ Injury     | ▣ Signal       |
| ↔ Backing     | ↘ Right turn     | ⊙ Fatality   | ▣ Tree         |
| ↔↔ Overtaking | ↙ Left turn      | 👤 Nighttime  | ▣ Pole         |
| ↔↔ Sideswipe  | ↺ U-turn         | 🚔 DUI        | ▣ Curb         |
|               |                  |              | ⊗ Animal       |
|               |                  |              | ◁ 3rd vehicle  |
|               |                  |              | * Extra data   |



**ILL RTE 47 @ WARE ROAD**  
**1 Accidents** **2013**



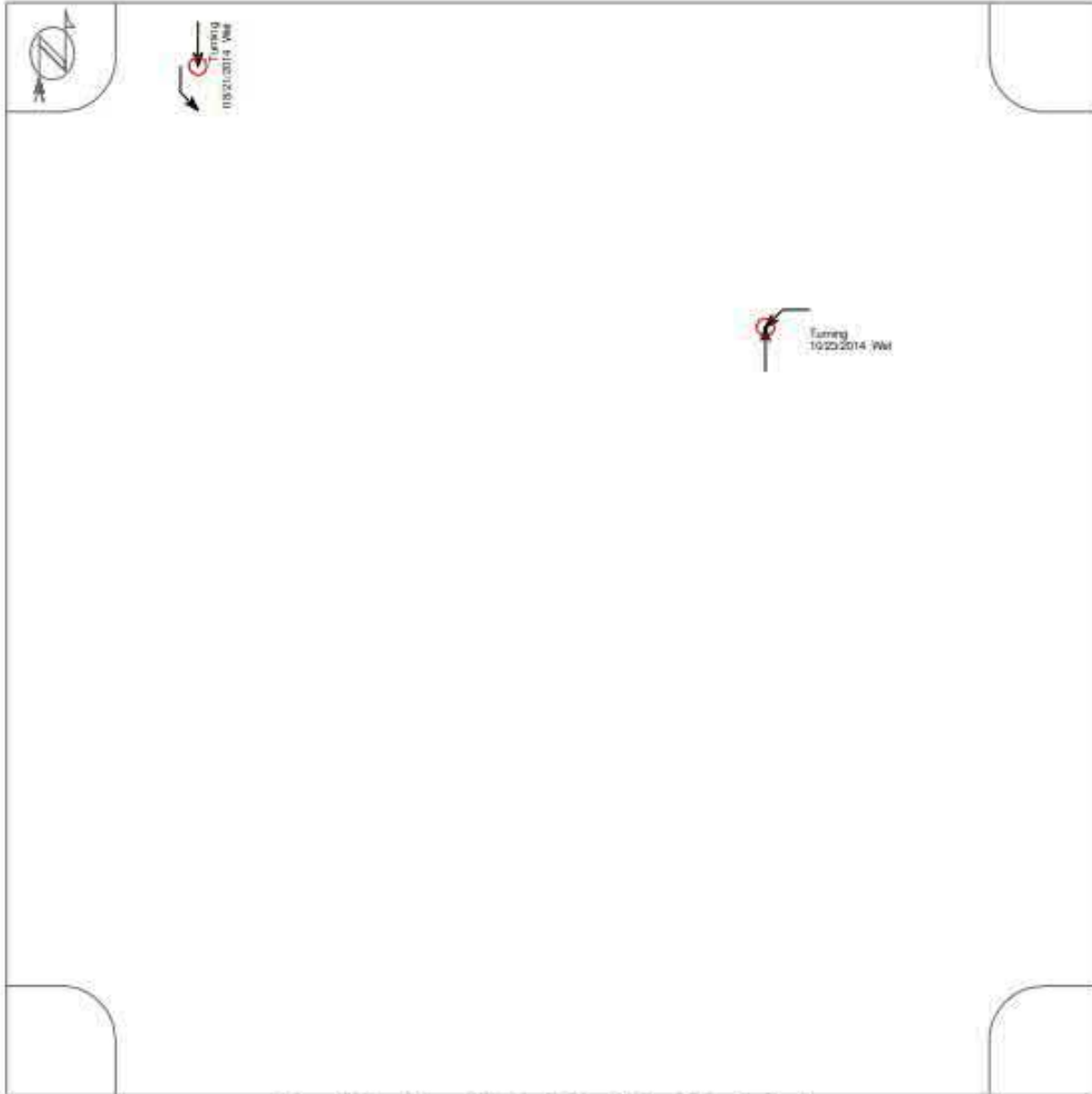
(clear filter), (0) accidents with insufficient data for display

- |              |                  |              |                |
|--------------|------------------|--------------|----------------|
| ← Straight   | ▭ Parked         | × Pedestrian | Fixed objects: |
| ←→ Stopped   | ↪ Erratic        | ⊗ Bicycle    | □ General      |
| ← Unknown    | ↪ Out of control | ○ Injury     | ▣ Signal       |
| ↔ Backing    | ↪ Right turn     | ⊙ Fatality   | ▣ Tree         |
| ↔ Overtaking | ↪ Left turn      | 🕒 Nighttime  | ◀ 3rd vehicle  |
| ↔ Sideswipe  | ↪ U-turn         | 🚔 DUI        | * Extra data   |
|              |                  |              | ▣ Pole         |
|              |                  |              | ▣ Curb         |
|              |                  |              | ⊗ Animal       |



# ILL RTE 47 @ WARE ROAD

## 2 Accidents

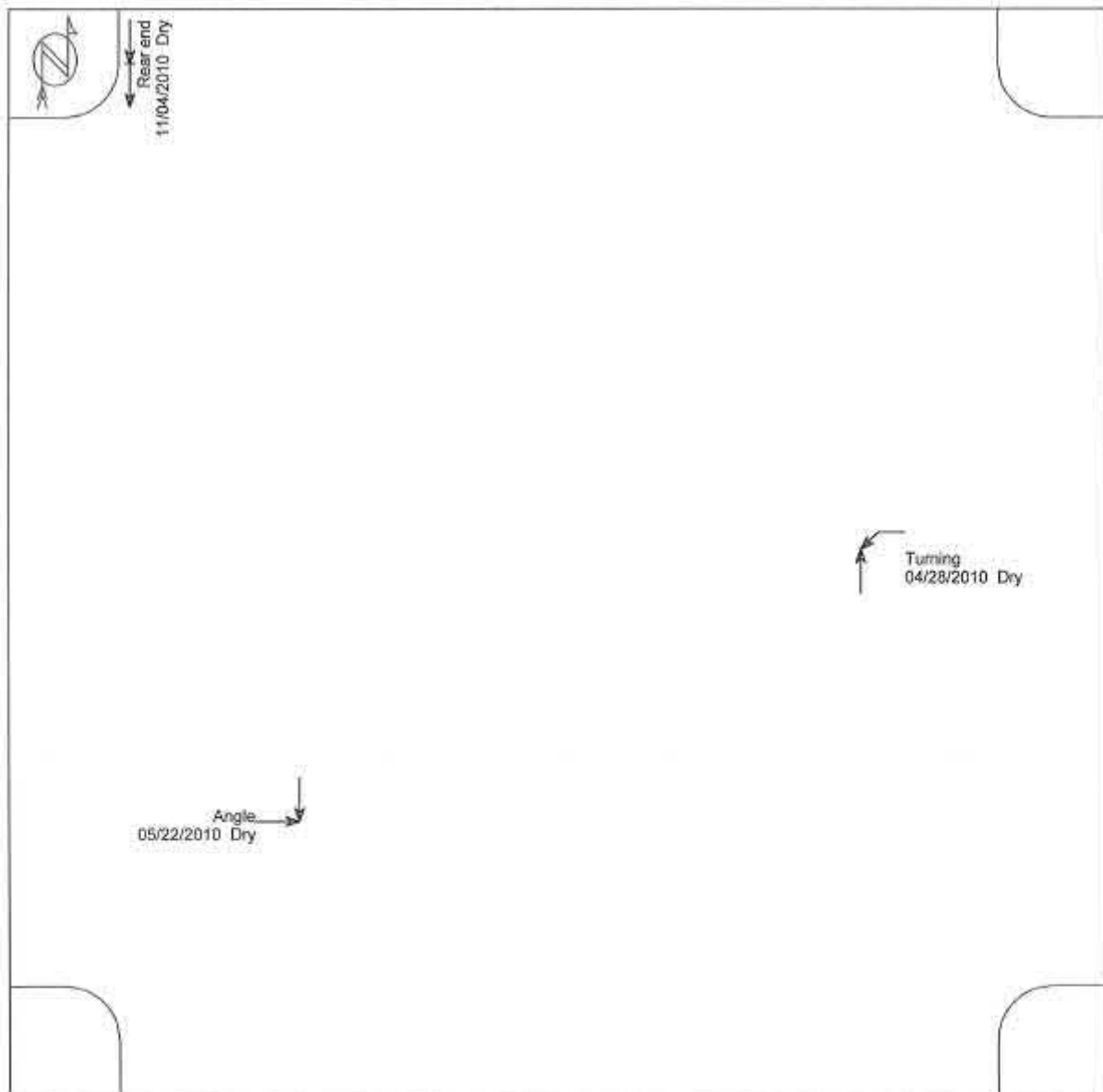
2014


(clear filter), (0) accidents with insufficient data for display

- |   |  |   |  |
|---|--|---|--|
| <ul style="list-style-type: none"> <li>← Straight</li> <li>←  Stopped</li> <li>← Unknown</li> <li>←↔ Backing</li> <li>←↔↔ Overtaking</li> <li>←↔ Sideswipe</li> </ul> | <ul style="list-style-type: none"> <li>▭ Parked</li> <li>←~ Erratic</li> <li>←~ Out of control</li> <li>↘ Right turn</li> <li>↙ Left turn</li> <li>↻ U-turn</li> </ul> | <ul style="list-style-type: none"> <li>× Pedestrian</li> <li>⊗ Bicycle</li> <li>○ Injury</li> <li>⊙ Fatality</li> <li>👤 Nighttime</li> <li>🚔 DUI</li> </ul> | <p>Fixed objects:</p> <ul style="list-style-type: none"> <li style="width: 50%;">▣ General</li> <li style="width: 50%;">▣ Pole</li> <li style="width: 50%;">▣ Signal</li> <li style="width: 50%;">▣ Curb</li> <li style="width: 50%;">▣ Tree</li> <li style="width: 50%;">🐾 Animal</li> <li style="width: 50%;">◀ 3rd vehicle</li> <li style="width: 50%;">★ Extra data</li> </ul> |
|---|--|---|--|

# ILL 47 @ CHARLES RD

## 3 Accidents

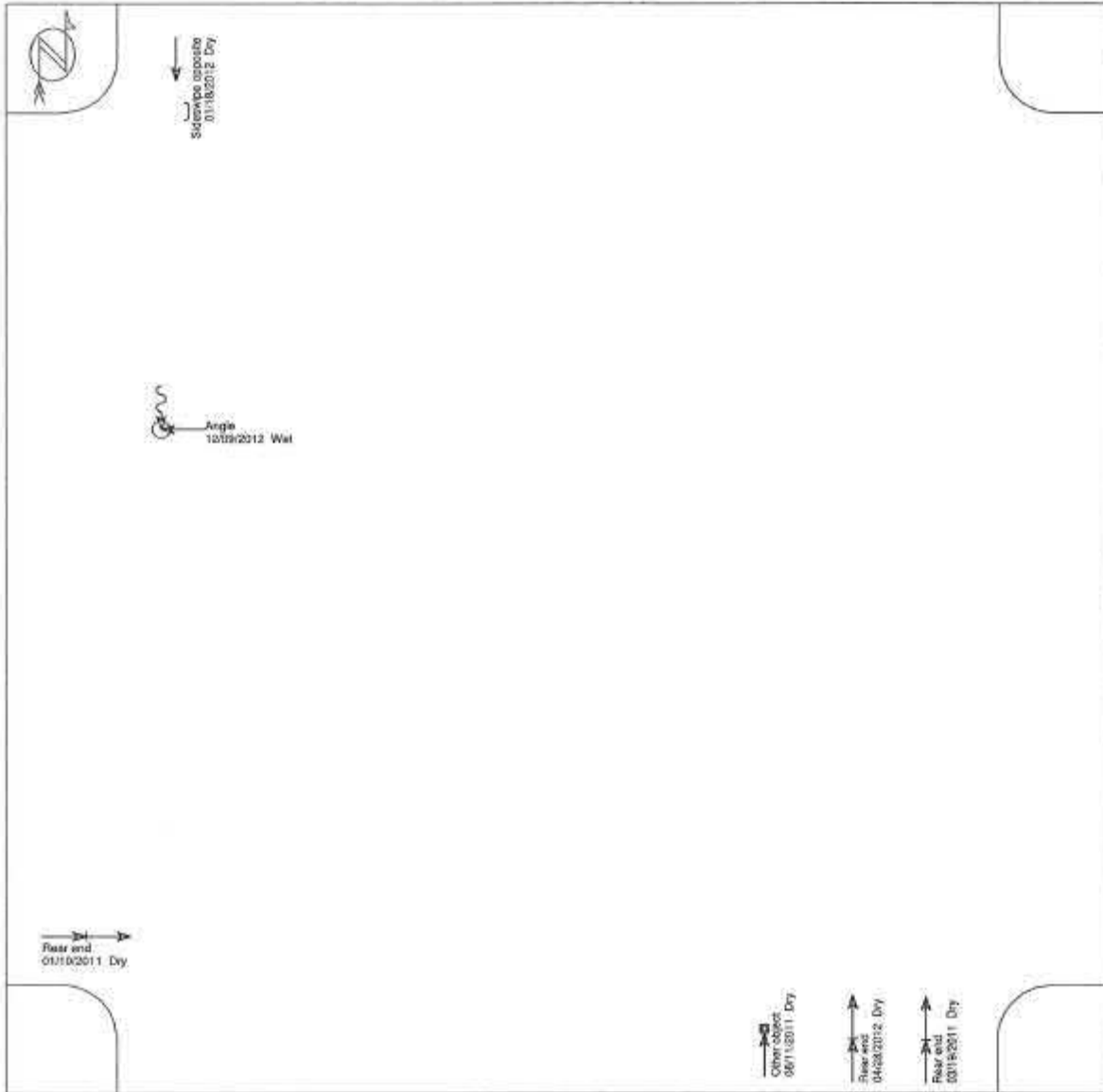


(clear filter), (0) accidents with insufficient data for display

- |               |                  |              |                |          |
|---------------|------------------|--------------|----------------|----------|
| ← Straight    | ▭ Parked         | × Pedestrian | Fixed objects: |          |
| ←  Stopped    | ⚡ Erratic        | ⊗ Bicycle    | □ General      | ▣ Pole   |
| ← Unknown     | ⚡ Out of control | ○ Injury     | ▣ Signal       | ▣ Curb   |
| ↔ Backing     | ↘ Right turn     | ⊙ Fatality   | ▣ Tree         | ⊗ Animal |
| ↔↔ Overtaking | ↙ Left turn      | 👤 Nighttime  | ◀ 3rd vehicle  |          |
| ↔↔ Sideswipe  | ↺ U-turn         | 🚔 DUI        | ✱ Extra data   |          |

# ILL RTE 47 @ CHARLES ROAD

## 6 Accidents 2011-2012



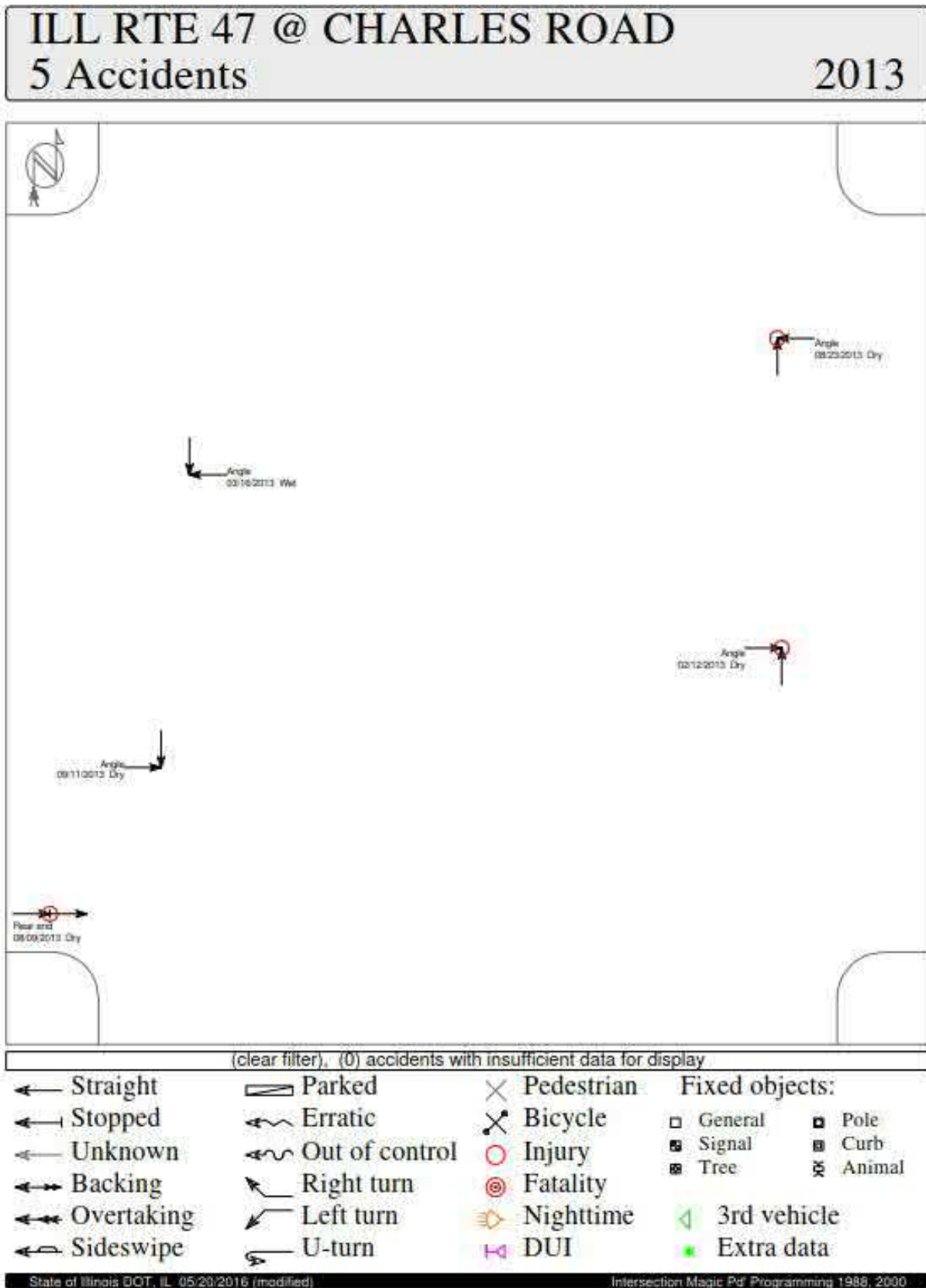
(clear filter), (0) accidents with insufficient data for display

← Straight	▭ Parked	× Pedestrian	Fixed objects:	
← Stopped	↪ Erratic	⊗ Bicycle	□ General	□ Pole
← Unknown	⚡ Out of control	○ Injury	▣ Signal	▣ Curb
↔ Backing	↘ Right turn	⊙ Fatality	▣ Tree	⊗ Animal
↔ Overtaking	↙ Left turn	⌚ Nighttime	◁ 3rd vehicle	
↔ Sideswipe	↻ U-turn	⚠ DUI	* Extra data	

State of Illinois DOT, IL-02/18/2014 (modified)

Intersection Mapic Pdf Programming 1988, 2000

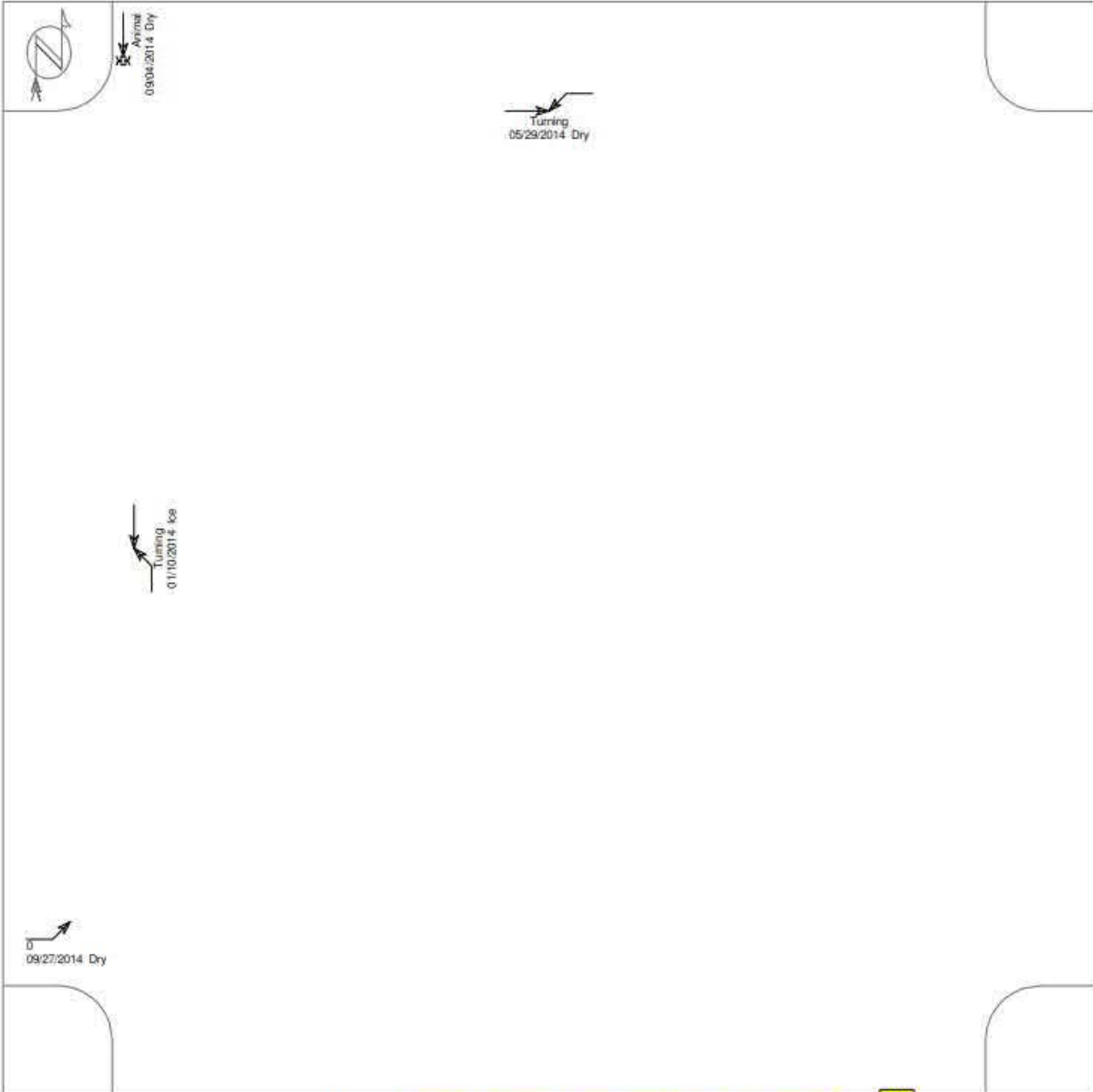




# ILL RTE 47 @ CHARLES ROAD

## 5 Accidents

### 2014



(clear filter), (1) accidents with insufficient data for display

← Straight	▭ Parked	× Pedestrian	Fixed objects:
←→ Stopped	⚡ Erratic	⊗ Bicycle	□ General
← Unknown	⚡ Out of control	○ Injury	▣ Signal
↔ Backing	↘ Right turn	⊙ Fatality	⊗ Tree
↔ Overtaking	↙ Left turn	🌙 Nighttime	◀ 3rd vehicle
↔ Sideswipe	↺ U-turn	🚔 DUI	★ Extra data
			▣ Pole
			▣ Curb
			☞ Animal

**APPENDIX E**  
**DETAILED SPOT LOCATION AERIAL MAPS**

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**ILLINOIS ROUTE 47 CRASH ANALYSIS  
APPENDIX E - SPOT LOCATION AERIAL MAPS  
ILLINOIS ROUTE 47 - US 14 TO CHARLES ROAD  
ILLINOIS DEPARTMENT OF TRANSPORTATION**



**FIGURE E1  
6346.014**





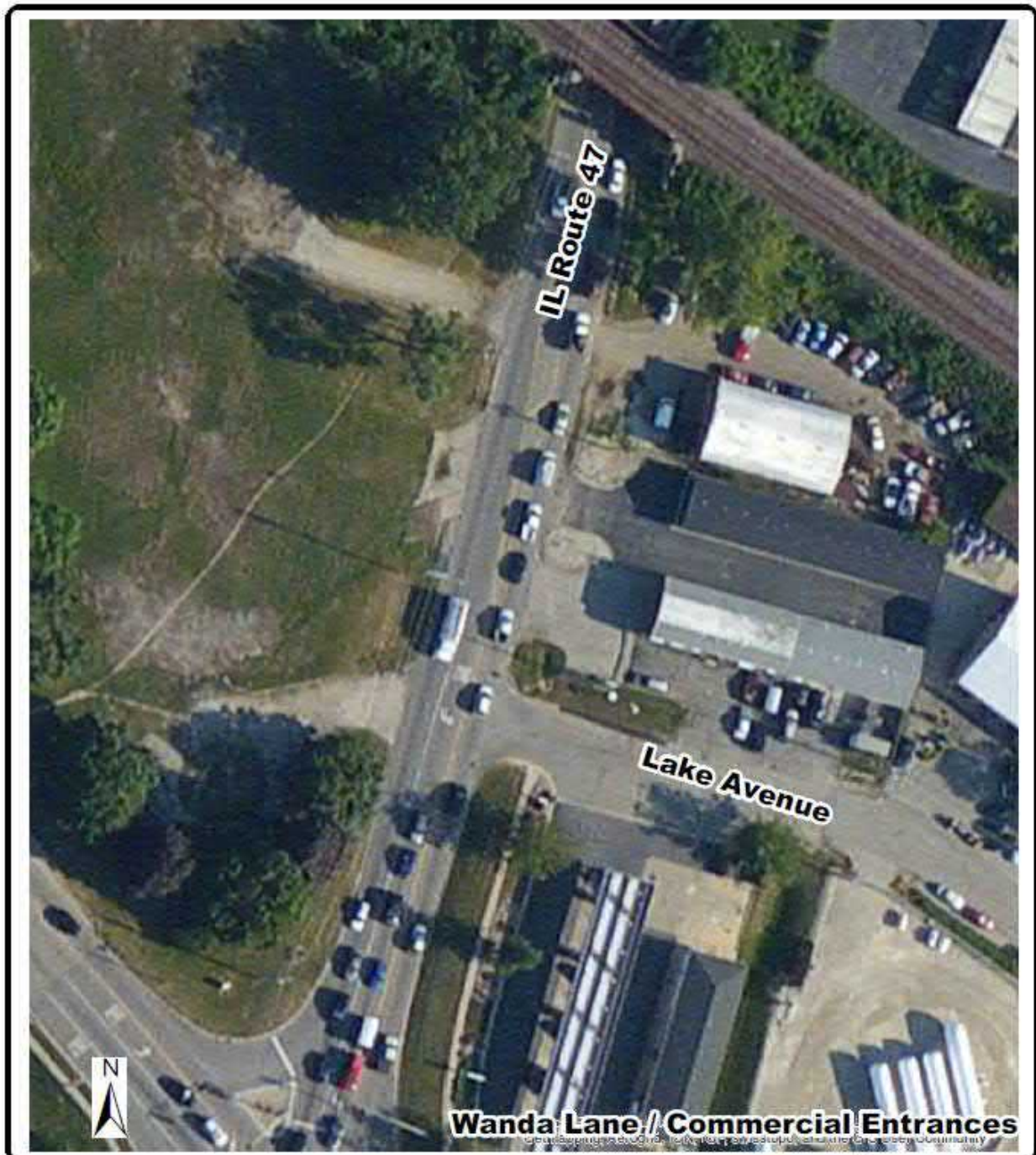
**ILLINOIS ROUTE 47 CRASH ANALYSIS  
APPENDIX E - SPOT LOCATION AERIAL MAPS**

**ILLINOIS ROUTE 47 - US 14 TO CHARLES ROAD  
ILLINOIS DEPARTMENT OF TRANSPORTATION**



**FIGURE E2  
6346.014**





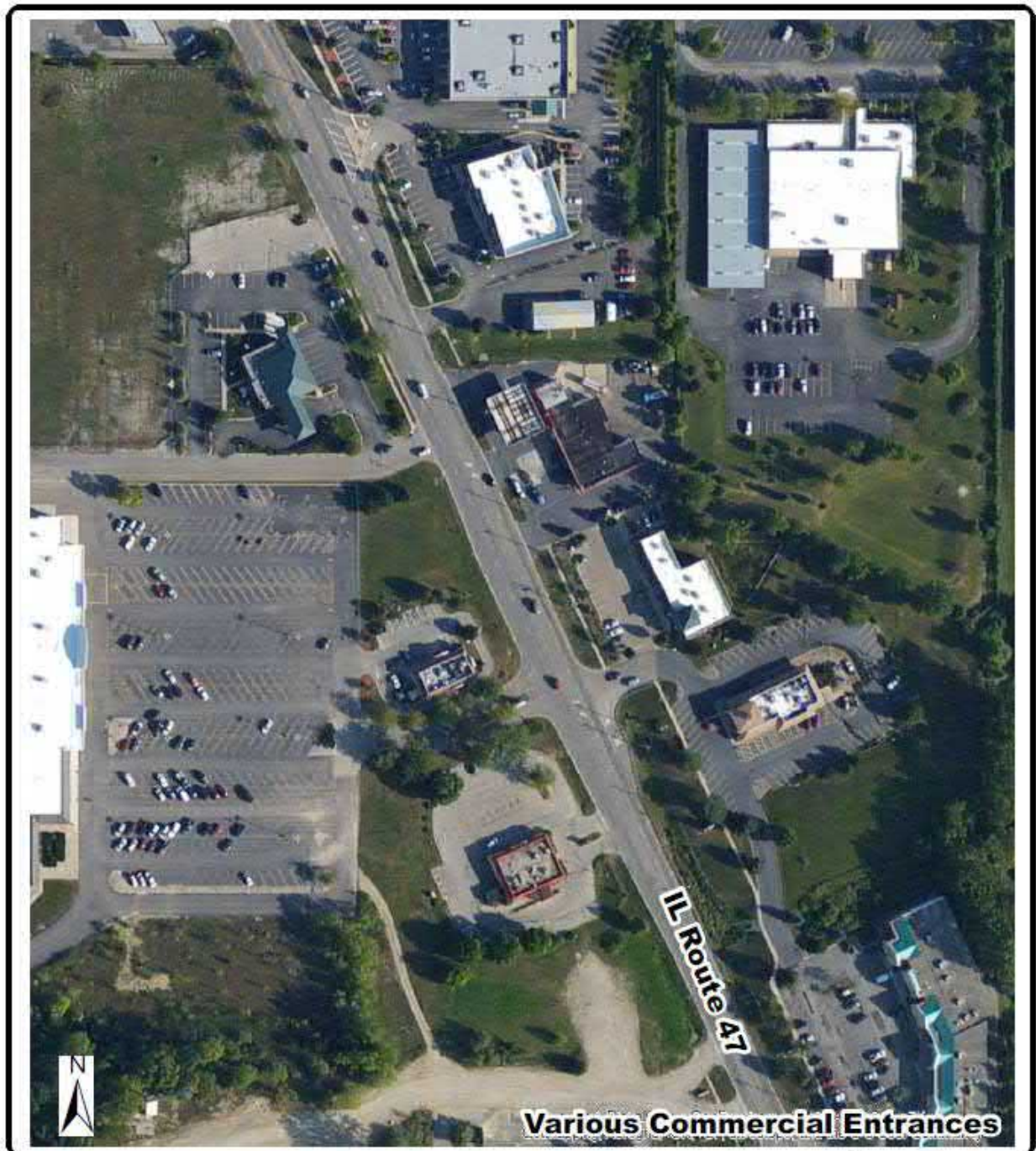
**ILLINOIS ROUTE 47 CRASH ANALYSIS  
APPENDIX E - SPOT LOCATION AERIAL MAPS**

ILLINOIS ROUTE 47 - US 14 TO CHARLES ROAD  
ILLINOIS DEPARTMENT OF TRANSPORTATION



FIGURE E3  
6346.014



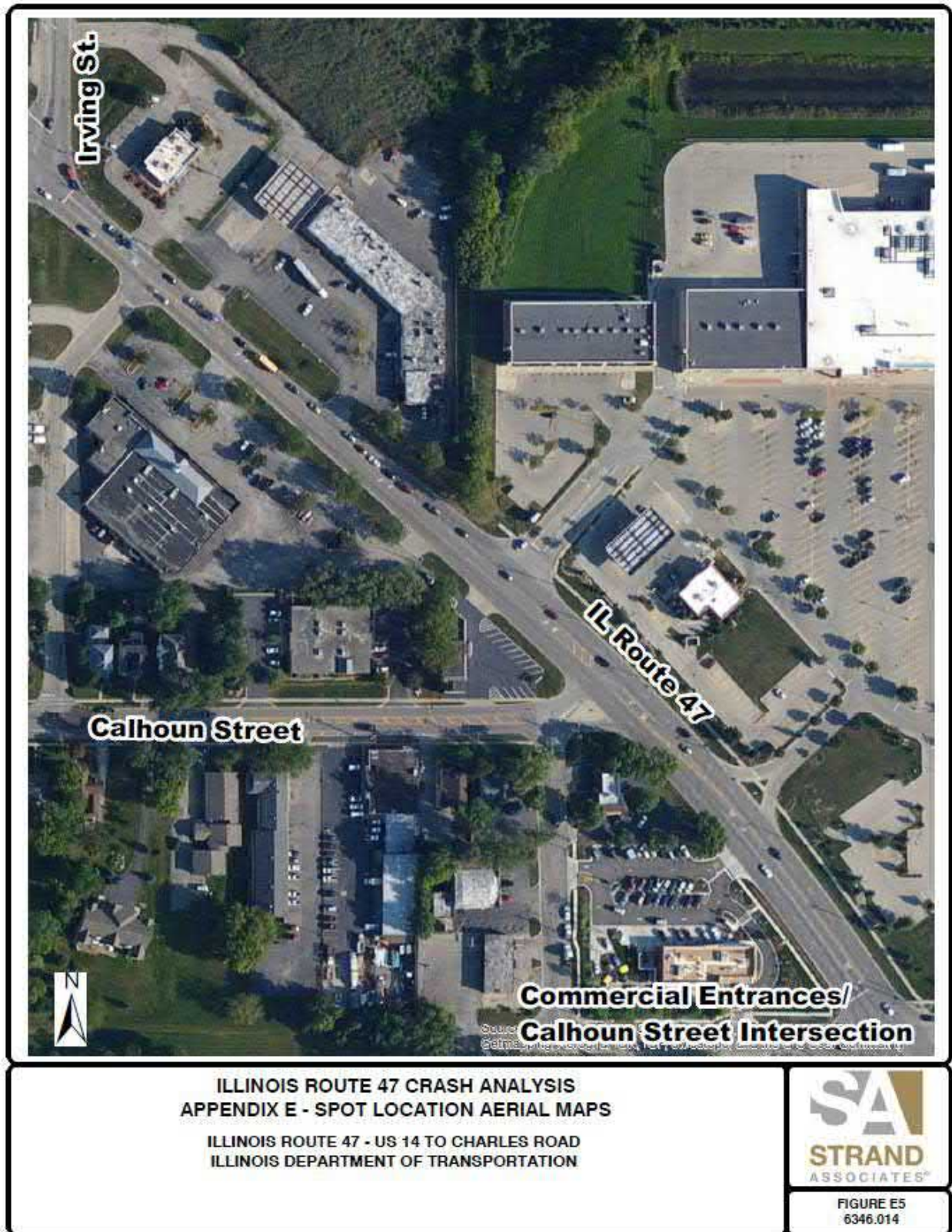


ILLINOIS ROUTE 47 CRASH ANALYSIS  
APPENDIX E - SPOT LOCATION AERIAL MAPS  
ILLINOIS ROUTE 47 - US 14 TO CHARLES ROAD  
ILLINOIS DEPARTMENT OF TRANSPORTATION



FIGURE E4  
6346.014

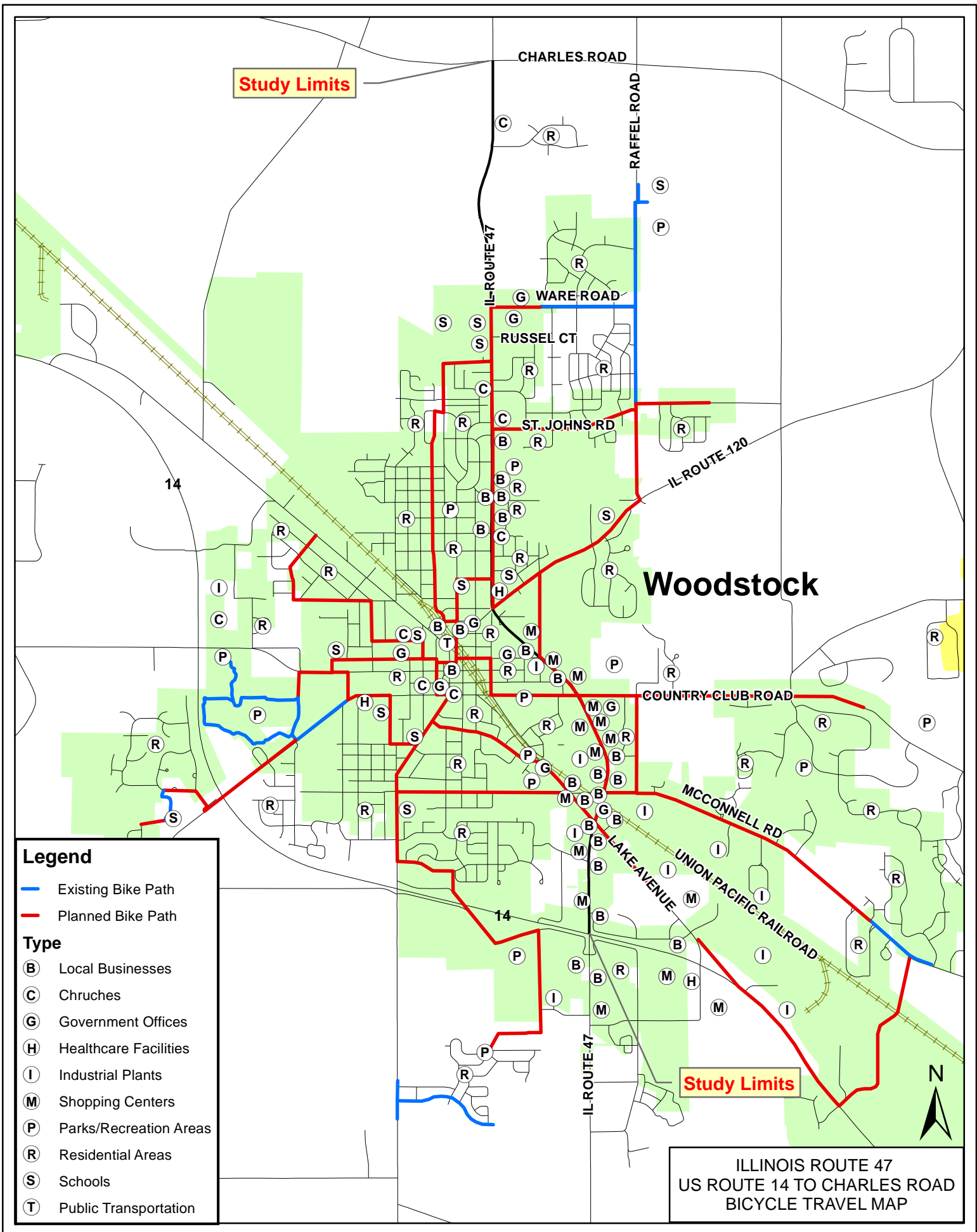




**SUPPLEMENT 1.3-2  
BICYCLE AND PEDESTRIAN CHECKLIST**

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**Study Limits**

CHARLES ROAD

RAFFEL ROAD

IL ROUTE 47

WARE ROAD

RUSSEL CT

ST. JOHNS RD

IL ROUTE 120

**Woodstock**

COUNTRY CLUB ROAD

MCCONNELL RD

LAKE AVENUE

UNION PACIFIC RAILROAD

IL ROUTE 47

**Study Limits**



**Legend**

- Existing Bike Path
- Planned Bike Path

**Type**

- (B)** Local Businesses
- (C)** Churches
- (G)** Government Offices
- (H)** Healthcare Facilities
- (I)** Industrial Plants
- (M)** Shopping Centers
- (P)** Parks/Recreation Areas
- (R)** Residential Areas
- (S)** Schools
- (T)** Public Transportation

ILLINOIS ROUTE 47  
US ROUTE 14 TO CHARLES ROAD  
BICYCLE TRAVEL MAP

# BICYCLE CHECKLIST

## 1. CHECKLIST FOR BICYCLE TRAVEL GENERATORS IN PROJECT VICINITY

Review and record the potential bicycle travel generators in the vicinity of the project, such as those shown in the checklist. Note on the checklist the types of generators within 1 mile of the project corridor.

Generators	Yes	N/A	Generators	Yes	N/A
Residential Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Shopping Centers	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Parks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hospitals	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Recreation Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Employment Center	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Churches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Government Offices	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Local Businesses	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Libraries	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Industrial Plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Existing Bicycle Trails	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Public Transportation Facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Planned Bicycle Trails	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Other (Forest Preserves, etc.)	<input type="checkbox"/>	<input type="checkbox"/>

Attach a map of the project area showing the general location of these generators. Sections of Municipal or Township maps are acceptable, as well as photocopies of aerial photos. The map will serve to indicate where bicyclists will cross or ride along the corridor.

## 2. CHECKLIST FOR ORGANIZATIONS AND PUBLIC COORDINATION

The organizations presented in the checklist have been contacted to assess any nearby bicycle travel or planned development of recreational trails or other generators. Documentation of coordination, if any, is included in the Phase I report.

Organization	Yes	N/A	Organization	Yes	N/A
Chicago Metropolitan Agency for Planning (CMAP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Ride Illinois <sup>1</sup>	<input type="checkbox"/>	<input type="checkbox"/>
Local Municipalities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Illinois Department of Natural Resources <sup>2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Park or Forest Preserve Districts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Illinois Trails Conservancy <sup>3</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sub-Regional Planning Council	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Active Transportation Alliance <sup>4</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Local Bicycle Clubs, Advocacy Groups	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

<sup>1</sup> Ride Illinois, 2550 Cheshire Drive, Aurora, IL 60504 – info@rideillinois.org

<sup>2</sup> Illinois Department of Natural Resources – Office of Planning & Realty, One Natural Resources Way, Springfield, IL 62702 – Amy.Madigan@illinois.gov

<sup>3</sup> Illinois Trails Conservancy – 142 West Main Street, PO Box 10, Capron, IL 61012 – rhonda@railtrails.org

<sup>4</sup> Active Transportation Alliance – 9 W. Hubbard Street, Suite 402, Chicago, IL 60654-6545 – ron@activetrans.org

## FORM FOR BICYCLE TRAVEL ASSESSMENT

**ROUTE:** Illinois Route 47  
**SECTION:** P-91-007-09  
**COUNTY:** McHenry

<p>1) Where would bicyclists cross the project?</p> <p><b>Currently, there are no designated bike paths/trails within the project limits. The intersections of Illinois Route 120 and Russel Court are the only locations with striped pedestrian crossings and pedestrian signals. Bicyclists could also cross Illinois Route 47 at one of the seven existing, at-grade, signalized intersections (US Route 14, Lake Avenue, McConnell Road, Country Club Road, Judd Street/Irving Avenue, Illinois Route 120, or Russel Court). From Illinois Route 120 to Russel Court, there is a 1.4 mile stretch with no signalized crossings. This increases the likelihood of crossing at random points in between these intersections.</b></p>
<p>2) Where would bicyclists need to ride parallel to the project<sup>5</sup>?</p> <p><b>The corridor can be split into three sections. US Route 14 to Illinois Route 120 is generally comprised of commercial and industrial land uses. Illinois Route 120 to Ware Road is mostly residential and local businesses. Ware Road to Charles Road is rural agricultural with a few businesses and residents.</b></p> <p><b>Bicyclists would need to ride parallel to the project to access the numerous businesses and residences fronting on Illinois Route 47.</b></p>
<p>3) Does the project provide unique or primary access<sup>6</sup> across a river, railroad, highway corridor or other natural or man-made barrier?</p> <p><b>Yes, Illinois Route 47 passes under the Union Pacific Railroad between Lake Avenue and McConnell Road. There are two alternate crossings west of Illinois Route 47 (1 at-grade and one grade separation). These alternates are 0.5 miles west of the corridor and 0.65 miles north of the railroad grade crossing. The nearest alternate crossing to the east is 3 miles away.</b></p>
<p>4) Will the highway project negatively affect the recreational or transportation utility of an independent bikeway or trail? Highway projects will negatively affect at-grade paths and trails when they are severed, when the projected roadway traffic volumes increase to a level that prohibits safe crossings at-grade, or when the widening of the roadway prohibits sufficient time for safe crossing.</p> <p><b>The project will not negatively affect the recreational or transportation utility of an independent bikeway or trail. There are no existing bikeways or trails along or intersecting the project corridor. The bikepath will enhance the use of and access to the project corridor.</b></p>
<p>5) Does the route provide primary access to a park, recreational area, school, or other significant destination?</p> <p><b>In addition to the residential and commercial properties immediately adjacent to the roadway, there are several unique land uses with regional significance that generate bicycle and pedestrian traffic, including the McHenry County Fairgrounds (immediately east of the intersection of Illinois Route 47 and Country Club Road), a Metra train station (approximately 0.4 mile west of Illinois Route 47 in downtown Woodstock), and the McHenry County Government Center Campus (at the intersection of Illinois Route 47 and Ware Road). Other generators include Bates Park (south of St. Johns Road), a learning center at the intersection of Illinois Route 47 and Russel Court, and two schools at the intersection of Illinois Route 47 and Ware Road.</b></p>

<sup>5</sup> Secondary roads that could be used as alternate routes are usually within 2-3 blocks of projects in urban areas, within 0.5 miles (1 km) in suburban areas, and within 1 mile (2 km) in rural areas.

<sup>6</sup> Unique or primary access is defined as access which is not otherwise available within a reasonable riding distance of 1 mile (2 km).



6) Is the highway or street designated as a bikeway in a regionally or locally adopted bike plan or is published in a regionally or locally adopted map as a recommended bike route?

**According to the City of Woodstock's bike plan, there are several planned bike paths within the corridor limits and along Illinois Route 47. Woodstock's comprehensive plan includes the development of parks, recreational areas and other travel generators. This development is likely to occur in areas north of Ware Road between Illinois Route 47 and Raffle Road. There are plans for a new Metra train station and baseball stadium south and east of the city along US Route 14.**

7) Will the projected two-way bicycle traffic volume (see Section 17-1.04) approximate 25 ADT or more during the peak three months of the bicycling season at a highway or street location where the current vehicular traffic volume will exceed 1000 ADT?. Estimate the bicycle ADT projection based on a five-year time frame from completion of the project.

**It is anticipated two-way bicycle traffic volumes will exceed the 25 ADT.**

**SUPPLEMENT 3.2-1  
DESIGN CRITERIA CHECKLIST**

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Level Two Design Criteria Checklist

Key Route: FAP 326
Marked Route/Road Name: Illinois Route 47
State Job No.: P-91-007-09 Contract No.:
Functional Classification: Urban and Rural SRA Highway Type: Strategic Regional Arterial
County(ies): McHenry Project Length: 26,600 feet (5 miles)
City: Woodstock Section:
Project Location: Illinois Route 47 from US Route 14 to Charles Road

Project Scope of Work

a. Check the appropriate box. See Section 31-6 for definitions.

- Checkboxes for New construction, \*Reconstruction, \*3R (non-freeway), \*3R (freeway), 3P, SMART, HSIP, Other

\*Note: May include "Allowed to Remain in Place" criteria. This form is required for all new construction, reconstruction, and 3R projects.

b. Provide a brief project description:

The proposed improvement consists of reconstructing and widening approximately five miles of Illinois Route 47 from US Route 14 to Charles Road. From US Route 14 to Ware Road, the roadway will consist of two lanes in each direction separated by a raised median. From Ware Road to Charles Road, the roadway will consist of two lanes in each direction with inside and outside shoulders, separated by a mountable median. A shared-use path will run along the east side of the roadway the entire length of the project. A sidewalk is proposed along the west side of the roadway from US Route 14 to Ware Road.





Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
f. "Breakover" of outside shoulder on super-elevated curves (percent) 8%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Relative longitudinal slope of shoulder to edge of traveled way on high side of S.E. curve adjacent to bridge with S.E.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Superelevation development at reverse curves	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Is superelevation transition length located off of bridges and bridge approach pavements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Horizontal stopping sight distance on inside of horizontal curves (Level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Vertical Alignment (mainline) (Chapter 33)			
a. Maximum grades (in percent) 6-7%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. SSD at crest vertical curves (level SSD for passenger cars) 250-425 feet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. SSD at sag vertical curves (level SSD for passenger cars) 250-425 feet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Minimum grades (in percent) considering drainage 0.5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Critical length of grade	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Truck-climbing lanes/critical grade analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Design criteria for truck-climbing lanes (e.g., lane width and shoulder width)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Minimum length of vertical curves for selected design speed 105 - 150 feet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Maximum length of vertical curves (drainage of curbed facilities and bridges) $K < 167$	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cross Section Elements (mainline) (Chapter 34)			
a. Lane widths 11-12 feet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
b. Traveled way widening	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Cross-slopes on through lanes (in percent): Inside lane    Lane 1 <u>2%</u> Outside lanes Lane 2 <u>2%</u> Lane 3    _____ Lane 4    _____	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
d. Shoulder widths <u>4</u> feet (meters)(inside) <u>10</u> feet (meters)(outside)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
e. Design of parking lanes: • Cross-slope                    _____ % • Width                            _____ feet (meters)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
f. Type of curb and gutter used on median B-6.24 and M-4.24	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Drainage of raised curb medians: • Direction of flow of median surface or pavement <u>Slope Median Inward (&gt;=6')</u> • Direction of cross-slope on gutter <u>2.0</u> %	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
h. Type of curb and gutter used along outside edges of pavement <u>B-6.24</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Two Way Left Turn Lane (TWLTL) width: • Flush type                    _____ feet (meters) • Traversable type            _____ feet (meters)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
j. Median widths: • Urban <u>18.0</u> feet (meters) • Suburban                _____ feet (meters) • Rural <u>22.0</u> feet (meters)	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
k. Shoulder cross slopes <u>4</u> %	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Fill slopes <u>1:4</u> (V:H)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
m. Outside roadway ditch:			
• Slopes <u>1:4</u> • Depth <u>varies</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Widths <u>2'</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Median ditch:			
• Slopes _____ • Depth _____ :	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Width _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
n. Cross-section transitions into bridges/ underpasses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
o. Use of mountable curbs (V > 45 mph (70 km/h)) Yes, in median from Ware Road to Charles Road	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
p. Cross-section transition details (e.g., four-lane to two-lane)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Intersections (Chapter 36)			
a. Accommodation of design vehicle From local to SRA - SU From Collector to SRA - WB-55 From Arterial to SRA - WB-65 (identify vehicle) From SRA to Local - WB-50 From SRA to Local (residential) - SU, WB-50 should be able to make turn From SRA to Collector - WB-55 From SRA to Arterial/SRA - WB-65 <u>All WB65 with encroachment.</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Level of service: • Through lanes <u>C</u> • Turn <u>D</u>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
c. Skew angle 30 Degrees	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Profiles 0.5% min	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Volume guidelines for turn-lanes: • Right-turns • Left turns	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
f. Design of right-turn lanes Design of left-turn lanes	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)		Does the proposed design meet the criteria?		
		Yes	No	N/A
g. Turn-lane tapers	Approach taper 155-300	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Departure taper	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Bay taper	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Turning roadway widths		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Turn-lane lengths	Deceleration (rural) 150	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Storage (urban) Varies	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. Intersection sight distance: List criteria and type <u>30 mph - 335', 40 mph - 445', 50 mph - 500'</u> <u>Passenger Cars</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Median opening length <u>100' and varies</u> feet (meters)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Minimum corner island size _____ sq. ft (sq. m)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
m. Does right-turn radius accommodate design vehicle without encroachment?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Driveway widths Varies, minimum 12, maximum 35 feet (meters)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Type of traffic control:				
• Two-way stop Many intersections		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• One-way stop Many intersections		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Traffic signals Many intersection		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. Is maximum grade exceeded on any approach? No 8% max		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Max. superelevation "e" (in percent) for intersections on curve		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Interchanges (Chapter 37)				
a. Exit terminal	Standard type	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Design speed of first curve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Are any exit terminals located on mainline horizontal curve?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)		Does the proposed design meet the criteria?		
		Yes	No	N/A
b. Entrance terminal	Standard type	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Length of tangent after the entering curve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Design speed of entering curve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Design speed of ramp proper _____ mph (km/h)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Design speed of crossroad _____ mph (km/h)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Maximum ramp grades:		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Exit ramp _____ %		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Entrance ramp _____ %		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Ramp pavement width _____ feet (meters)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Ramp shoulder widths:		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Left _____ feet (meters)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Right _____ feet (meters)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Horizontal ramp curvature in conjunction with selected design speeds		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Superelevation development on ramps	Superelevation rate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Transition length	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Distribution between tangent & curve	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Vertical curvature compliance with selected design speed on ramp		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
k. Length of access control at crossroad		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
l. Type of traffic control at crossroad:		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Stop signs		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Traffic signals		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Free flow		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
m. Is length of crest vertical curve used on crossroad $\geq$ that required by the selected design speed of crossroad?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Design Criteria (Provide numerical values, where indicated.)			Does the proposed design meet the criteria?		
			Yes	No	N/A
n. Are crossroad approach grades through ramp/ crossroad intersections $\leq 2\%$ ?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
o. Are ramp/crossroad intersections located on a tangent section of crossroad alignment?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
p. Is decision sight distance available in advance of exit gore?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
q. Is clear recovery area available beyond gore nose?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
r. Level of service:					
• Exit terminal _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Entrance terminal _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Ramp proper _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Weaving area _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Ramp/crossroad intersection _____			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
s. Freeway lane drops	Location	Upgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Downgrade	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Inside lane	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Outside lane	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		At exit terminal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Beyond exit terminal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		Taper length	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Roadside Safety (Chapter 38)					
a. Horizontal clearances:					
• Clear zones on tangent sections 16-28 feet			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Clear zones on outside of horizontal curves based on radii			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Barrier warrants			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Barrier length of need			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
d. Deceleration criteria for impact attenuators	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Structure Planning/Geometrics (Chapter 39)			
a. Clear roadway bridge widths                      feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Structural capacity of bridges	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Vertical clearances 14'                                      feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Pavement Design (Chapter 54)			
a. Structural capacity of roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Use multiple forms for each roadway within the project.

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_  
Designer (IDOT or Consultant) Signature






**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
8.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 134+43.00 RT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
53 total crashes from 2010 to 2014 along Illinois Route 47 between Lake Avenue and McConnell Road. 23 of the 53 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$15,000.00	<b>Cost of Using Proposed Exception Value</b> \$10,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	<b>Design Traffic DHV</b> PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
8.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 135+26.00 RT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
53 total crashes from 2010 to 2014 along Illinois Route 47 between Lake Avenue and McConnell Road. 23 of the 53 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$15,000.00	<b>Cost of Using Proposed Exception Value</b> \$10,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

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**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
10.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 146+95.00 LT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
95 total crashes occurred between McConnell Road and Country Club Road between 2010 and 2014. Of those 95 crashes, 38 had injuries. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$10,000.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

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<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Matt Gazdziak, Strand Associates, Inc.	11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
9.92%

**Location(s) of Exception**  
Driveway Profile Grade at Station 150+92.04 LT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
95 total crashes occurred between McConnell Road and Country Club Road between 2010 and 2014. Of those 95 crashes, 38 had injuries. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$10,000.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
8.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
9.86%

**Location(s) of Exception**  
Driveway Profile Grade at Station 214+00.57 RT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
37 total crashes from 2010 to 2014 along Illinois Route 47 between Illinois Route 120 and St. John's Road. 11 of the 37 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$7,500.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**



### Design Exception Request Project Identification

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

#### EXCEPTION DOCUMENTATION

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
10.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 215+93.57 LT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
37 total crashes from 2010 to 2014 along Illinois Route 47 between Illinois Route 120 and St. John's Road. 11 of the 37 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$7,500.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway. There is also extra pavement provided as part of the East Todd Avenue intersection that will allow cars to leave the travel lane when turning into the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**





### Design Exception Request Project Identification

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

#### EXCEPTION DOCUMENTATION

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
8.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 222+08.46 LT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
37 total crashes from 2010 to 2014 along Illinois Route 47 between Illinois Route 120 and St. John's Road. 11 of the 37 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$15,000.00	<b>Cost of Using Proposed Exception Value</b> \$10,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped away from Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Matt Gazdziak, Strand Associates, Inc.	11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
8.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 223+59.90 RT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
37 total crashes from 2010 to 2014 along Illinois Route 47 between Illinois Route 120 and St. John's Road. 11 of the 37 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$15,000.00	<b>Cost of Using Proposed Exception Value</b> \$10,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped away from Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
8.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
10.3%

**Location(s) of Exception**  
Driveway Profile Grade at Station 226+53.68 LT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
37 total crashes from 2010 to 2014 along Illinois Route 47 between Illinois Route 120 and St. John's Road. 11 of the 37 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$13,000.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The existing radii are being removed and flared aprons are provided to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
9.85%

**Location(s) of Exception**  
Driveway Profile Grade at Station 227+64.36 LT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
37 total crashes from 2010 to 2014 along Illinois Route 47 between Illinois Route 120 and St. John's Road. 11 of the 37 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$13,000.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
8.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
9.4%

**Location(s) of Exception**  
Driveway Profile Grade at Station 242+17.66 LT along Illinois Route 47

**Crash History and Potential of Exception Location(s)**  
37 total crashes from 2010 to 2014 along Illinois Route 47 between Illinois Route 120 and St. John's Road. 11 of the 37 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$60,000.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Providing the policy value for the driveway profile grade at this location would require raising the roadway profile on Illinois Route 47. There is no additional room to extend the driveway without relocating the house.

**Proposed Mitigation to Address Exception**  
The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**  
Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**  
No impacts are anticipated in regards to other design elements due to this design exception.



**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade at this location would require raising the roadway profile on Illinois Route 47. There is no additional room to extend the driveway without relocating the house. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Matt Gazdziak, Strand Associates, Inc	<b>Date</b> 12/11/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
8.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
10.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 64+67.28 LT along Illinois Route 120

**Crash History and Potential of Exception Location(s)**  
21 total crashes occurred at the Illinois Route 120 and Illinois Route 47 intersection from 2010 to 2014. Of the 21 crashes, there were 4 with injuries. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$67,500.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
8.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 204+19.00 RT along Southview Drive

**Crash History and Potential of Exception Location(s)**  
13 total crashes occurred at Illinois Route 47 and Southview Drive between 2010 and 2014. 6 crashes had injuries. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$7,500.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped away from Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be lowered to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Matt Gazdziak, Strand Associates, Inc.	11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

- New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU
<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>				

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
8.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 112+86.74 RT along South Street

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road/South Street from 2010-2014. Of the 43 crashes, 9 resulted in injuries. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$7,500.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Matt Gazdziak, Strand Associates, Inc.

11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvements consist of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Driveway Profile Grade

**Design Element Policy Value**  
6.0% (BDE Figure 36-7.01(f) Figure 36-7.B)

**Proposed Design Element Value**  
8.0%

**Location(s) of Exception**  
Driveway Profile Grade at Station 113+06.75 RT along South Street

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road/South Street from 2010-2014. Of the 43 crashes, 9 resulted in injuries. It is unknown how many crashes occurred at this driveway specifically.

<b>Cost of Using Policy Value</b> \$7,500.00	<b>Cost of Using Proposed Exception Value</b> \$5,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value for the driveway profile grade at this location would require extending the driveway reconstruction limits and expanding the temporary easement limits. The existing driveway is sloped towards Illinois Route 47 at a higher than compliant slope, so the driveway limits would have to be extended to be compliant. Otherwise, the Illinois Route 47 roadway profile would have to be raised to allow for a driveway profile grade that meets the policy value.

**Proposed Mitigation to Address Exception**

The proposed radius are being increased to allow easier access into and out of the driveway.

**Geometric Compatibility with Adjacent Sections**

Raising the Illinois Route 47 roadway profile to allow for a lower driveway profile grade would create grading and right-of-way problems for the surrounding area along Illinois Route 47. The proposed slope value is compatible with adjacent sections as is.

**Potential Effects on Other Design Elements**

No impacts are anticipated in regards to other design elements due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated in regards to mobility or traffic operations due to this design exception.

**Summary of Justification for Exception**

Providing the policy value for the driveway profile grade is not feasible at this location. The driveway reconstruction limits would have to be extended to meet the policy value, impacting the property that this driveway leads to. The proposed value is geometrically compatible with adjacent sections as is, and no impacts are anticipated in regard to other design elements, mobility, or traffic operations due to this design exception.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Matt Gazdziak, Strand Associates, Inc.	11/20/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**





### Design Exception Request Project Identification

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

#### EXCEPTION DOCUMENTATION

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Intersection Sight Distance

**Design Element Policy Value**  
716 feet (BDE Manual 36-6)

**Proposed Design Element Value**  
560 feet

**Location(s) of Exception**  
Christian Way Left-Turn Sight Distance at Station 211+22

**Crash History and Potential of Exception Location(s)**  
37 total crashes from 2010 to 2014 along Illinois Route 47 between Illinois Route 120 and St. John's Road. 11 of the 37 crashes in this segment resulted in an injury. It is unknown how many crashes occurred at Christian Way specifically.

<b>Cost of Using Policy Value</b> \$2,150,000.00	<b>Cost of Using Proposed Exception Value</b> \$2,000,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the proper sight distance for trucks at this location would require lowering the Illinois Route 47 roadway profile approximately 2 additional feet. The proposed roadway profile is already 0.5 feet lower than the existing roadway profile to accommodate drainage and grading. Lowering the roadway profile an additional 2 feet would increase right-of-way needs and likely require additional property relocations.

**Proposed Mitigation to Address Exception**

"Trucks Entering and Leaving Highway" signs will be added for traffic traveling on Illinois Route 47 in the southbound direction.

**Geometric Compatibility with Adjacent Sections**

Lowering the Illinois Route 47 roadway profile to meet the sight distance would create grading problems for the surrounding area along Illinois Route 47.

**Potential Effects on Other Design Elements**

Lowering the Illinois Route 47 roadway profile to meet the sight distance would increase the driveway slope of several driveways along Illinois Route 47 to above the accepted maximum.

**Potential Impacts on Mobility or Traffic Operations**

Trucks attempting to turn left out of Christian Way onto Illinois Route 47 may be hesitant to turn due to the shortened sight distance. This could increase the delay for other drivers attempting to turn left from Christian Way at the intersection. Once a truck does decide to turn, if a vehicle headed southbound on Illinois Route 47 was outside of the truck sight distance, the vehicle may be required to slow down to allow the truck to turn left, slowing down the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing the proper sight distance for trucks at this location would require lowering the Illinois Route 47 roadway profile approximately 2 additional feet. The proposed roadway profile is already 0.5 feet lower than the existing roadway profile to accommodate drainage and grading. Lowering the roadway profile an additional foot would increase right-of-way needs and likely require additional property relocations. The sight distance of 560 feet proposed meets passenger vehicle sight distance requirements for the 35 mph design speed and meets truck sight distance requirements for a 30 mph design speed.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A
<b>Project Limits</b> Illinois Route 47 from US Route 14 to to Charles Road			
<b>Project Length</b> 26,600 feet (5 miles)		<b>Current Posted Speed</b> 30/35/45/55 mph	
<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Rural	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)
		<b>Design Traffic DHV</b> AM 2495 (IL 47) PM 3120 (IL 47)	
<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction	

**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Horizontal Clearances

**Design Element Policy Value**  
18 feet (BDE Figure 38-3.A)

**Proposed Design Element Value**  
15 feet

**Location(s) of Exception**  
Retaining Wall along IL Route 47 between Station 591+00 and Station 594+50 LT.

**Crash History and Potential of Exception Location(s)**  
There were four total crashes along Illinois Route 47 between Ware Road to Charles Road from 2010 to 2014. None of these crashes resulted in injuries.

<b>Cost of Using Policy Value</b> \$200,000.00	<b>Cost of Using Proposed Exception Value</b> \$50,000.00
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**Impacts Other Than Cost of Using Policy Value**  
To provide the required clear zone along Illinois Route 47, additional right-of-way, impacts to wetlands, and impacts to a stream, would be required.

**Proposed Mitigation to Address Exception**  
Guardrail will be used to protect vehicles from the retaining wall.

**Geometric Compatibility with Adjacent Sections**  
No geometric compatibility issues are anticipated due to using the design value.

**Potential Effects on Other Design Elements**  
N/A



**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated to mobility or traffic operations due to using the design value.

**Summary of Justification for Exception**

The retaining walls are being proposed to reduce impacts to wetlands and a stream. To provide the required clear zone along Illinois Route 47, additional right-of-way, impacts to wetlands, and impacts to a stream, would be required.

**Coordination Meeting Date**

02/05/2019

**Prepared By**

Jennifer Kobryn, Strand Associates, Inc

**Date**

01/15/2019

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

**Location(s) of Exception**

Cost of Using Policy Value	Cost of Using Proposed Element Value

**Summary of Justification**

Prepared By	Date

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Rural	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Horizontal Clearances

**Design Element Policy Value**  
18 feet (BDE Figure 38-3.A)

**Proposed Design Element Value**  
14.5 feet

**Location(s) of Exception**  
Retaining Wall along IL Route 47 between Station 326+50 and Station 327+50 LT.

**Crash History and Potential of Exception Location(s)**  
There were four total crashes along Illinois Route 47 between Ware Road to Charles Road from 2010 to 2014. None of these crashes resulted in injuries.

<b>Cost of Using Policy Value</b> \$200,000.00	<b>Cost of Using Proposed Exception Value</b> \$50,000.00
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**Impacts Other Than Cost of Using Policy Value**  
To provide the required clear zone along Illinois Route 47, additional right-of-way, impacts to wetlands, and impacts to a stream, would be required.

**Proposed Mitigation to Address Exception**  
Guardrail will be used to protect vehicles from the retaining wall.

**Geometric Compatibility with Adjacent Sections**  
No geometric compatibility issues are anticipated due to using the design value.

**Potential Effects on Other Design Elements**  
N/A

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated to mobility or traffic operations due to using the design value.

**Summary of Justification for Exception**

The retaining walls are being proposed to reduce impacts to wetlands and a stream. To provide the required clear zone along Illinois Route 47, additional right-of-way, impacts to wetlands, and impacts to a stream, would be required.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

01/15/2019

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
SRA Suburban LOS

**Design Element Policy Value**  
LOS C (BDE Figure 46-3.E)

**Proposed Design Element Value**  
LOS D

**Location(s) of Exception**  
Illinois Route 47 Roundabout at Lake Avenue Northbound Through Movement (AM & PM)

**Crash History and Potential of Exception Location(s)**  
There were 94 total crashes at this intersection between 2010 and 2014. Of those 94 crashes, 28 had injuries.

<b>Cost of Using Policy Value</b> \$3,300,000.00	<b>Cost of Using Proposed Exception Value</b> \$2,500,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Providing the policy value for the Level of Service would require expanding the roundabout to a 3-lane roundabout and the relocation of a business in the southwest quadrant.

**Proposed Mitigation to Address Exception**  
No mitigation is proposed to address this exception.

**Geometric Compatibility with Adjacent Sections**  
The 2-lane roundabout matches into the proposed 4-lane roadway. Providing a 3-lane roundabout would require the addition of a lane in each direction on Illinois Route 47.

**Potential Effects on Other Design Elements**  
No impacts are anticipated in regards to mobility due to this design exception.

**Potential Impacts on Mobility or Traffic Operations**

Having Illinois Route 47 and Lake Street become a roundabout will help improve traffic flow within the segment.

**Summary of Justification for Exception**

The level of service at Lake Street is an LOS D because the intersection will be a 2-lane roundabout. Impacts to adjacent businesses would include relocations and additional right of way.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 11/21/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
SRA Suburban LOS

**Design Element Policy Value**  
LOS D (BDE Figure 46-3.E)

**Proposed Design Element Value**  
LOS E

**Location(s) of Exception**  
Illinois Route 47 Roundabout at Lake Avenue Northbound Left-Turn Movement (AM & PM)

**Crash History and Potential of Exception Location(s)**  
There were 94 total crashes at this intersection between 2010 and 2014. Of those 94 crashes, 28 had injuries.

<b>Cost of Using Policy Value</b> \$3,300,000.00	<b>Cost of Using Proposed Exception Value</b> \$2,500,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Providing the policy value for the Level of Service would require expanding the roundabout to a 3-lane roundabout and relocation a business in the southwest quadrant.

**Proposed Mitigation to Address Exception**  
No mitigation is proposed to address this exception.

**Geometric Compatibility with Adjacent Sections**  
The 2-lane roundabout matches into the proposed 4-lane roadway. Providing a 3-lane roundabout would require the addition of a lane in each direction on Illinois Route 47.

**Potential Effects on Other Design Elements**  
No impacts are anticipated in regards to mobility due to this design exception.



**Potential Impacts on Mobility or Traffic Operations**

Having Illinois Route 47 and Lake Street become a roundabout will help improve traffic flow within the segment.

**Summary of Justification for Exception**

The level of service at Lake Street is an LOS D because the intersection will be a 2-lane roundabout. Impacts to adjacent businesses would include relocations and additional right of way.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 11/21/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
SRA Suburban LOS

**Design Element Policy Value**  
LOS C (BDE Figure 46-3.E)

**Proposed Design Element Value**  
LOS D

**Location(s) of Exception**  
US Route 14 at Illinois Route 47 Westbound Through Movement (PM Only)

**Crash History and Potential of Exception Location(s)**  
34 total crashes occurred at the intersection of Illinois Route 47 and US Route 14 between 2010 and 2014. Of those 34 crashes, 15 were injuries.

<b>Cost of Using Policy Value</b> \$800,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**

The proposed design exception is anticipated to provide an increased level of service along Illinois Route 47 and an increased level of service for the US Route 14 left turning movement. This will result in less congestion. Changing the signal timings will result in other level of service design exceptions. To have all movements at an acceptable LOS an additional southbound through lane would need to be added.

**Proposed Mitigation to Address Exception**  
No mitigation is proposed to address this exception.

**Geometric Compatibility with Adjacent Sections**  
N/A

**Potential Effects on Other Design Elements**  
N/A

**Potential Impacts on Mobility or Traffic Operations**

A traffic signal currently exists at the intersection of Illinois Route 47 and US Route 14. Changing the signal timings at this intersection will decrease the Level of Service along Illinois Route 47 and for the US Route 14 turning movements.

**Summary of Justification for Exception**

No work is proposed on US Route 14 for this project. Changing of the signal timings at this intersection to improve the US Route 14 through movement will decrease the level of service along Illinois Route 47 and for the US Route 14 turning movements.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jennifer Kobryn, Strand Associates, Inc	11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Shared Use Path Width

**Design Element Policy Value**  
10 feet (BDE Figure 17-2.X)

**Proposed Design Element Value**  
8 feet

**Location(s) of Exception**  
Shared-Use Path from from Station 122+00 to 128+00 RT

**Crash History and Potential of Exception Location(s)**  
No crash data was collected for the proposed shared use path.

<b>Cost of Using Policy Value</b> \$600,000.00	<b>Cost of Using Proposed Exception Value</b> \$200,000.00
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**Impacts Other Than Cost of Using Policy Value**  
The proposed design exception is anticipated to cause less impacts to the businesses already being impacted by the shared use path. A wider shared use path would cause more parking loss, relocations, and impacts to the businesses.

**Proposed Mitigation to Address Exception**  
There is no proposed mitigation to address this exception.

**Geometric Compatibility with Adjacent Sections**  
N/A

**Potential Effects on Other Design Elements**  
N/A

**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated to the mobility on the 8 foot shared use path.

**Summary of Justification for Exception**

The proposed design exception is anticipated to cause less impacts to the businesses already being impacted by the shared use path. A wider shared use path would cause more parking loss, relocations, and impacts to the businesses.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/05/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Shared Use Path Width

**Design Element Policy Value**  
10 feet (BDE Figure 17-2.X)

**Proposed Design Element Value**  
8 feet

**Location(s) of Exception**  
Shared-Use Path from IL Route 120 to Christian Way (Station 802+00 to 211+00 RT)

**Crash History and Potential of Exception Location(s)**  
No crash data was collected for the proposed shared use path.

<b>Cost of Using Policy Value</b> \$600,000.00	<b>Cost of Using Proposed Exception Value</b> \$200,000.00
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**Impacts Other Than Cost of Using Policy Value**

The proposed design exception is anticipated to cause less impacts to the businesses already being impacted by the shared use path. A wider shared use path would cause more parking loss, relocations, and impacts to the businesses.

**Proposed Mitigation to Address Exception**  
There is no proposed mitigation to address this exception.

**Geometric Compatibility with Adjacent Sections**  
N/A

**Potential Effects on Other Design Elements**  
N/A



**Potential Impacts on Mobility or Traffic Operations**

No impacts are anticipated to the mobility on the 8 foot shared use path.

**Summary of Justification for Exception**

The proposed design exception is anticipated to cause less impacts to the businesses already being impacted by the shared use path. A wider shared use path would cause more parking loss, relocations, and impacts to the businesses.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/05/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

**Location(s) of Exception**

Cost of Using Policy Value	Cost of Using Proposed Element Value

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Intersection Skew Angle

**Design Element Policy Value**  
30 degrees (BDE Manual Section 36-1.05(a))

**Proposed Design Element Value**  
44 degrees

**Location(s) of Exception**  
Illinois Route 47 and Calhoun Street intersection.

**Crash History and Potential of Exception Location(s)**  
Crash data at the Calhoun Street intersection was not available. The corridor had 651 crashes from 2010-2014.

<b>Cost of Using Policy Value</b> \$500,000.00	<b>Cost of Using Proposed Exception Value</b> \$200,000.00
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**Impacts Other Than Cost of Using Policy Value**  
The proposed intersection is designed using the same alignment as the existing intersection. Improving the skew of the intersection would require additional right-of-way acquisition. The intersection skew angle only affects the eastbound right turn. The current design skew promotes the efficiency of this movement; however, the angle of sight will be below standards.

**Proposed Mitigation to Address Exception**  
Left-turns from Calhoun Street are prohibited. Vehicles can take Fair Street to South Street and utilize the Signals at Illinois Route 47.

**Geometric Compatibility with Adjacent Sections**  
The proposed design follows the existing alignment and ties into existing pavement and driveways.

**Potential Effects on Other Design Elements**  
N/A

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. A minor stop control, which matches existing conditions, is proposed at the intersection.

**Summary of Justification for Exception**

Following the existing alignment minimizes the amount of right-of-way and property relocations. Realignment the intersection to decrease skew angle would complicate roadway geometry approaching the intersection.

**Coordination Meeting Date**

02/05/2019

**Prepared By**

Jennifer Kobryn, Strand Associates, Inc

**Date**

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

**New Pavement**       **Pavement Widening**       **Resurfacing**

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Intersection Skew Angle

**Design Element Policy Value**  
30 degrees (BDE Manual Section 36-1.05(a))

**Proposed Design Element Value**  
32 degrees

**Location(s) of Exception**  
Illinois Route 47 and Country Club Road.

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road from 2010-2014. Of the 43 crashes, 9 resulted in injuries.

<b>Cost of Using Policy Value</b> \$350,000.00	<b>Cost of Using Proposed Exception Value</b> \$200,000.00
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**Impacts Other Than Cost of Using Policy Value**  
The proposed intersection is designed using the same alignment as the existing intersection. Improving the skew of this signalized intersection would require additional right-of-way acquisition.

**Proposed Mitigation to Address Exception**  
The Country Club Road intersection is designed to accommodate a WB-65 design vehicle along Illinois Route 47 and the east leg of Country Club Road. A WB-55 design vehicle was used along the west leg of Country Club Road (South Street). All movements can be completed at the intersection without encroachment.

**Geometric Compatibility with Adjacent Sections**  
The proposed design follows the existing alignment and ties into existing pavement and driveways.

**Potential Effects on Other Design Elements**  
N/A

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. Drivers on Illinois Route 47 may be more cautious when turning right. Traffic signals are proposed at the intersection of Country Club Road, matching existing traffic control.

**Summary of Justification for Exception**

Following the existing alignment minimizes the amount of right-of-way and property relocations. Realignment the intersection to decrease skew angle would require additional impacts and complicate roadway geometry approaching the intersection.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jennifer Kobryn, Strand Associates, Inc	11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Rural	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Median Treatment

**Design Element Policy Value**  
Raised median only allowed at intersection approaches (BDE Manual 36-4.02(b))

**Proposed Design Element Value**  
Mountable median proposed along Illinois Route 47 from Ware Road to Charles Road. Mountable median is located inside of the 4-foot wide paved inside shoulder.

**Location(s) of Exception**  
Along Illinois Route 47 from Ware Road to Charles Road (Station 284+00 to Station 350+50).

**Crash History and Potential of Exception Location(s)**  
There were four total crashes along Illinois Route 47 between Ware Road to Charles Road from 2010 to 2014. None of these crashes resulted in injuries.

<b>Cost of Using Policy Value</b> \$6,177,000.00	<b>Cost of Using Proposed Exception Value</b> \$2,530,000.00
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**Impacts Other Than Cost of Using Policy Value**

The BDE recommends including a 50-foot wide depressed median for four lane reconstruction projects. The proposed median is currently 22 feet wide. Using a depressed median increases the roadway footprint, increasing right-of-way needs and wetland impacts.

**Proposed Mitigation to Address Exception**

Four-foot wide paved inside shoulders with rumble strips will be adjacent to the travel lane prior to the mountable median. This gives drivers some space for recovery prior to the mountable median. Reduced wetland and prime farmland impacts.

**Geometric Compatibility with Adjacent Sections**

Curb and gutter is proposed along the median throughout the corridor.

**Potential Effects on Other Design Elements**

N/A

**Potential Impacts on Mobility or Traffic Operations**

Mountable median will still be grass when the median is wider than 6 feet.

**Summary of Justification for Exception**

Using a depressed median increases the roadway footprint, increasing right-of-way needs and wetland impacts. Mountable curb is proposed to reduce the possibility of cars vaulting.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jenny Kobryn, Strand Associates, Inc	12/04/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	<b>Design Traffic DHV</b> PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
95 feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Storage Length at Catalpa Lane (Station 106+50)

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$29,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Illinois Route 47 southbound left turn lane provides access to Catalpa Lane and allows u-turns for access northbound on Illinois Route 47. This intersection is stop controlled on Catalpa Lane. Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

**Coordination Meeting Date**

02/05/2019

**Prepared By**

Jennifer Kobryn, Strand Associates, Inc

**Date**

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
95 feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left Turn Lane Storage Length (Station 107+70).

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$29,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Illinois Route 47 northbound left turn lane provides access to area businesses and allows u-turns for access southbound on Illinois Route 47. Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

**Coordination Meeting Date**

02/05/2019

**Prepared By**

Jennifer Kobryn, Strand Associates, Inc

**Date**

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
--	--

<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	<b>Design Traffic DHV</b> PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
81 feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Storage Length (Station 110+00).

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$29,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Illinois Route 47 southbound left turn lane access to area businesses and allows u-turns for access northbound Illinois Route 47. Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

**Coordination Meeting Date**

02/05/2019

**Prepared By**

Jennifer Kobryn, Strand Associates, Inc

**Date**

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	<b>Design Traffic DHV</b> PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
81 feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left Turn Lane Storage Length (Station 111+50)

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$29,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Illinois Route 47 northbound left turn lane provides access to area businesses and allows u-turns for access southbound on Illinois Route 47. Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

**Coordination Meeting Date**

02/05/2019

**Prepared By**

Jennifer Kobryn, Strand Associates, Inc

**Date**

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**





### Design Exception Request Project Identification

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

#### EXCEPTION DOCUMENTATION

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
97 feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Storage Length (Station 113+25)

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$29,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
97 feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left Turn Lane Storage Length (Station 114+50)

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$29,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	<b>Design Traffic DHV</b> PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
110 feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Storage Length (Station 117+60)

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$29,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Illinois Route 47 southbound left turn lane provides access to area businesses and allows u-turns for access northbound on Illinois Route 47. Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jennifer Kobryn, Strand Associates, Inc	11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	<b>Design Traffic DHV</b> PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
110 feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left-Turn Lane Storage Length at Southview Drive (Station 118+00).

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$29,000.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Illinois Route 47 northbound left turn lane provides access to Southview Drive, area businesses, and allows u-turns for access southbound on Illinois Route 47. Providing the policy value will affect the ability to provide additional left turn/u-turn movements for driveway access. This will impact the businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

**Coordination Meeting Date**

02/05/2019

**Prepared By**

Jennifer Kobryn, Strand Associates, Inc

**Date**

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
150 feet (BDE 36-3.02(b) 2.C.) - SRA

**Proposed Design Element Value**  
95 feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Storage Length (Station 127+00).

**Crash History and Potential of Exception Location(s)**  
10 total crashes occurred between Southview Drive and Lake Avenue between 2010 and 2014. Of the 10 total crashes, there was one injury crash in this area.

<b>Cost of Using Policy Value</b> \$14,500.00	<b>Cost of Using Proposed Exception Value</b> \$14,500.00
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**Impacts Other Than Cost of Using Policy Value**

Providing the policy value will affect the roundabout at Illinois Route 47 and Lake Avenue.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed south of the project limits. The project will include 185 foot storage lengths. The reconstruction to the south will increase the traffic along the corridor and increase the number of vehicles using the left turn lanes.

**Potential Effects on Other Design Elements**

Providing the policy value would require changes to the roundabout at Illinois Route 47 and Lake Avenue that could reduce level of service and/or require additional right of way impacts.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. This is a minor intersection and should not result in the turn lane storage filling and backing cars up onto the Illinois Route 47 through lanes.

**Summary of Justification for Exception**

Providing shorter storage lengths helps drivers distinguish between major and minor intersections and increases access to corridor businesses.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

**Location(s) of Exception**

Cost of Using Policy Value	Cost of Using Proposed Element Value

**Summary of Justification**

Prepared By	Date

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	<b>Design Traffic DHV</b> PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
193 feet (BDE Manual (PM) Section 36-3.02.b, 3.03.a. Red-time Queue)

**Proposed Design Element Value**  
150 feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left Turn Lane Storage Length at Country Club Road (Station 166+00)

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road from 2010-2014. Of the 43 crashes, 9 resulted in injuries.

<b>Cost of Using Policy Value</b> \$19,300.00	<b>Cost of Using Proposed Exception Value</b> \$15,000.00
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**Impacts Other Than Cost of Using Policy Value**

Using 193 foot storage length will affect the ability to provide a compliant amount of storage at a median crossing. This will impact businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed north and south of this location. This design exception will allow for a compliant amount of storage to be provided at the left turn provided for commercial access, located to the south.

**Potential Effects on Other Design Elements**

Illinois Route 47 northbound left turn lane provides access to South Street and allows u-turns for access southbound on Illinois Route 47. Using 193 foot storage length will affect the ability to provide a compliant amount of storage at the commercial properties south of the intersection. This will impact businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Using 193 foot storage length will affect the ability to provide a compliant amount of storage at the intersection commercial left turn access to the south at Station 161+50. This will impact businesses and residents along the corridor.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
381 feet (BDE Manual (AM) Section 36-3.02.b, 3.03.a. Red-time Queue)

**Proposed Design Element Value**  
230 feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Storage Length at Country Club Road (Station 168+00)

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road from 2010-2014. Of the 43 crashes, 9 resulted in injuries.

<b>Cost of Using Policy Value</b> \$38,100.00	<b>Cost of Using Proposed Exception Value</b> \$38,100.00
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**Impacts Other Than Cost of Using Policy Value**

Using 381 foot storage length will affect the ability to provide a compliant amount of storage at the intersection of Illinois Route 47 and Calhoun Street. This will impact businesses and residents along the corridor.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

Illinois Route 47 will be reconstructed north and south of this location. This design exception will allow for a compliant amount of storage to be provided at the intersection of Illinois Route 47 and Calhoun Street.

**Potential Effects on Other Design Elements**

Illinois Route 47 southbound left turn lane provides access to Country Club Road and allows u-turns for access northbound on Illinois Route 47. Using 381 foot storage length will affect the ability to provide a compliant amount of storage at the intersection of Illinois Route 47 and Calhoun Street. This will impact businesses and residents along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions. Reducing this storage length will allow for a compliant storage length to be provided at the intersection of Illinois Route 47 and Calhoun Street, which will overall provide for better traffic flow.

**Summary of Justification for Exception**

Using 381 foot storage length will affect the ability to provide a compliant amount of storage at the intersection of Illinois Route 47 and Calhoun Street. This will impact businesses and residents along the corridor.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Matthew Gazdziak, Strand Associates, Inc	11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
536 feet (BDE Manual (PM) Section 36-3.02.b Red-time Queue)

**Proposed Design Element Value**  
135 feet

**Location(s) of Exception**  
Country Club Road Westbound Right Turn Lane Storage Length (Station 116+50).

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road from 2010-2014. Of the 43 crashes, 9 resulted in injuries.

<b>Cost of Using Policy Value</b> \$53,600.00	<b>Cost of Using Proposed Exception Value</b> \$13,500.00
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**Impacts Other Than Cost of Using Policy Value**  
Using 536 foot storage length will affect a commercial driveway entrance. This will impact the businesses and residents that access these properties from Country Club Road.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
There is no other work proposed on Country Club Road.

**Potential Effects on Other Design Elements**  
This right turn lane provides access to Illinois Route 47 northbound. Using 536 foot storage length will affect the ability to maintain access at the commercial properties along the corridor.



**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Using 536 foot storage length will affect the ability of residents to access a commercial property at the intersection of Country Club Road and Illinois Route 47.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 11/21/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
290 feet (BDE Manual (PM) Section 36-3.02.b, 3.03.a. Red-time Queue)

**Proposed Design Element Value**  
160 feet

**Location(s) of Exception**  
Country Club Road Westbound Left Turn Lane Storage Length (Station 116+50).

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road from 2010-2014. Of the 43 crashes, 9 resulted in injuries.

<b>Cost of Using Policy Value</b> \$29,000.00	<b>Cost of Using Proposed Exception Value</b> \$16,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Using 290 foot storage length will affect a commercial driveway entrance. This will impact the businesses and residents that access these properties from Country Club Road.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
There is no other work proposed on Country Club Road.

**Potential Effects on Other Design Elements**  
This left turn lane provides access to Illinois Route 47 southbound. Using 290 foot storage length will affect the ability to maintain access at the commercial properties along the corridor.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Using 290 foot storage length will affect the ability of residents to access a commercial property at the intersection of Country Club Road and Illinois Route 47.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 11/21/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Storage Length

**Design Element Policy Value**  
547 feet (BDE Manual (AM) Section 36-3.02.b, 3.03.a. Red-time Queue)

**Proposed Design Element Value**  
270 feet

**Location(s) of Exception**  
Illinois Route 120 Eastbound Left Turn Lane Storage Length (Station 66+00).

**Crash History and Potential of Exception Location(s)**  
There were 21 crashes at intersection of Illinois Route 47 and Illinois Route 120 from 2010-2014. Of the 21 crashes, 4 resulted in injuries.

<b>Cost of Using Policy Value</b> \$54,700.00	<b>Cost of Using Proposed Exception Value</b> \$27,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Using 547 foot storage length will affect the existing intersections to the southwest. The turn lane would need to be provided through the Newell Street intersection and end at the Madison Street intersection.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
There is no other work proposed on Illinois Route 120.

**Potential Effects on Other Design Elements**  
This left turn lane provides access to Illinois Route 47 northbound. Using 547 foot storage length will affect the intersections to the southwest.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less storage available in the proposed conditions.

**Summary of Justification for Exception**

Using 547 foot storage length will affect the ability to provide a compliant amount of storage at the intersection of Illinois Route 120 and Illinois Route 47.

**Coordination Meeting Date**

02/05/2019

**Prepared By**

Jennifer Kobryn, Strand Associates, Inc

**Date**

11/21/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Dual Left-Turn Lane Taper Length

**Design Element Policy Value**  
300 feet (BDE Manual Section 36-3.05(b))

**Proposed Design Element Value**  
255 Feet

**Location(s) of Exception**  
Illinois Route 47 northbound dual left-turn lane (Station 95+20) at the intersection of Illinois Route 47 and US Route 14.

**Crash History and Potential of Exception Location(s)**  
34 total crashes occurred at the intersection of Illinois Route 47 and US Route 14 between 2010 and 2014. Of those 34 crashes, 15 were injuries.

<b>Cost of Using Policy Value</b> \$60,000.00	<b>Cost of Using Proposed Exception Value</b> \$60,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 300 foot taper length will affect the storage length for the southbound left turn lane at Illinois Route 47 and Davis Street and the northbound left turn lane at Illinois Route 47 and Catalpa Lane.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
The proposed design exception will allow median breaks at the intersections of Illinois Route 47 and Davis Road and Illinois Route 47 and Catalpa Lane.



**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception, existing left turn access into Davis Road will be below 3R standards. Access in this area is important for the side street and access to businesses.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two  
**Design Element for Which an Exception is Requested**  
Dual Left-Turn Lane Taper Length

**Design Element Policy Value**  
300 feet (BDE Manual Section 36-3.05(b))

**Proposed Design Element Value**  
258 Feet

**Location(s) of Exception**  
Illinois Route 47 southbound dual left-turn lane (Station 102+60) at the intersection of Illinois Route 47 and US Route 14.

**Crash History and Potential of Exception Location(s)**  
34 total crashes occurred at the intersection of Illinois Route 47 and US Route 14 between 2010 and 2014. Of those 34 crashes, 15 were injuries.

<b>Cost of Using Policy Value</b> \$60,000.00	<b>Cost of Using Proposed Exception Value</b> \$60,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 300 foot taper length will affect the storage length for the southbound left turn lane at Illinois Route 47 and Davis Street and the northbound left turn lane at Illinois Route 47 and Catalpa Lane.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
The proposed design exception will allow median breaks at the intersections of Illinois Route 47 and Davis Road and Illinois Route 47 and Catalpa Lane.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception, existing left turn access into Catalpa Lane will be below 3R standards. Access in this area is important for the side street and access to businesses.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
53 Feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left-Turn Lane Taper at Station 107+10

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$35,000.00	<b>Cost of Using Proposed Exception Value</b> \$35,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
The proposed design exception will allow access breaks for businesses. Reducing this left turn storage to meet taper length would negatively affect the level of service.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
53 Feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left-Turn Lane Taper at Catalpa Lane (Station 107+60).

**Crash History and Potential of Exception Location(s)**  
17 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 17 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$35,000.00	<b>Cost of Using Proposed Exception Value</b> \$35,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
The proposed design exception will allow access breaks for businesses. Reducing this left turn storage to meet taper length would negatively affect the level of service.



**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
50 Feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left Turn Lane Taper at Station 110+50.

**Crash History and Potential of Exception Location(s)**  
13 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 13 crashes, 6 had injuries.

<b>Cost of Using Policy Value</b> \$52,500.00	<b>Cost of Using Proposed Exception Value</b> \$52,500.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

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The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
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All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
50 Feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Taper at Station 110+75.

**Crash History and Potential of Exception Location(s)**  
13 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 13 crashes, 6 had injuries.

<b>Cost of Using Policy Value</b> \$52,500.00	<b>Cost of Using Proposed Exception Value</b> \$52,500.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
The proposed design exception will allow access breaks for businesses. Reducing this left turn storage to meet taper length would negatively affect the level of service.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
50 Feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left Turn Lane Taper at Station 113+90

**Crash History and Potential of Exception Location(s)**  
13 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 13 crashes, 6 had injuries.

<b>Cost of Using Policy Value</b> \$52,500.00	<b>Cost of Using Proposed Exception Value</b> \$52,500.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

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**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
50 Feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Taper at Station 114+25.

**Crash History and Potential of Exception Location(s)**  
13 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 13 crashes, 6 had injuries.

<b>Cost of Using Policy Value</b> \$52,500.00	<b>Cost of Using Proposed Exception Value</b> \$52,500.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

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Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
50 Feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left Turn Lane Taper at Station 117+50.

**Crash History and Potential of Exception Location(s)**  
13 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 13 crashes, 6 had injuries.

<b>Cost of Using Policy Value</b> \$52,500.00	<b>Cost of Using Proposed Exception Value</b> \$52,500.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

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**Summary of Justification for Exception**

Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jennifer Kobryn, Strand Associates, Inc	12/03/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two  
**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
50 Feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Taper at Station 117+75.

**Crash History and Potential of Exception Location(s)**  
13 total crashes occurred between US Route 14 and Southview Drive between 2010 and 2014. Of those 13 crashes, 6 had injuries.

<b>Cost of Using Policy Value</b> \$52,500.00	<b>Cost of Using Proposed Exception Value</b> \$52,500.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
The proposed design exception will allow access breaks for businesses. Reducing this left turn storage to meet taper length would negatively affect the level of service.



**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

12/03/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**



### Design Exception Request Project Identification

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
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<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock
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<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A
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**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

#### EXCEPTION DOCUMENTATION

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
135 Feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Taper at Country Club Road (Station 170+27).

**Crash History and Potential of Exception Location(s)**  
43 total crashes occurred at the Illinois Route 47 and Country Club Road intersection between 2010 and 2014. Of those 43 crashes, 9 had injuries.

<b>Cost of Using Policy Value</b> \$17,500.00	<b>Cost of Using Proposed Exception Value</b> \$17,500.00
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**Impacts Other Than Cost of Using Policy Value**

Using the 175 foot taper length will affect the storage length for the northbound left turn lane at Illinois Route 47 and Calhoun Street, which is currently only 115 feet. The current storage length for the Illinois Route 47 and Country Club Road intersection meets standards.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**

The proposed design exception will allow desirable left turn lane storage for the Illinois Route 47 and Country Club Road intersection and will allow minimum left turn lane storage for the Illinois Route 47 and Calhoun Street intersection. Reducing these storage lengths to meet taper length would negatively affect the level of service at these two intersections.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception, level of service at the Illinois Route 47 and County Club Road and/or the level of service at the Illinois Route 47 and Calhoun Street intersection would be negatively affected.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jennifer Kobryn, Strand Associates, Inc	1/14/2019

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
70 Feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Taper at Station 128+25.

**Crash History and Potential of Exception Location(s)**  
10 total crashes occurred between Southview Drive and Lake Avenue between 2010 and 2014. There was one injury crashes in this area.

<b>Cost of Using Policy Value</b> \$340,000.00	<b>Cost of Using Proposed Exception Value</b> \$7,000.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
The proposed design exception will allow access breaks for businesses. Reducing this left turn storage to meet taper length would negatively affect the level of service.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
53 Feet

**Location(s) of Exception**  
Illinois Route 47 Northbound Left Turn Lane Taper at Station 176+25.

**Crash History and Potential of Exception Location(s)**  
53 total crashes occurred between Country Club Road and Judd Street between 2010 and 2014. Of those 53 crashes, 8 had injuries.

<b>Cost of Using Policy Value</b> \$35,000.00	<b>Cost of Using Proposed Exception Value</b> \$22,800.00
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**Impacts Other Than Cost of Using Policy Value**

Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses. Using the 175 foot taper length at Station 180+25 will affect the storage length for the southbound left turn lane or could affect the roundabout at Illinois Route 47 and Judd Road which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**

The proposed design exception will allow access breaks for businesses. Reducing the left turn storage to meet taper length would negatively affect the level of service.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jennifer Kobryn, Strand Associates, Inc	12/03/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
53 Feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Taper at Station 176+65.

**Crash History and Potential of Exception Location(s)**  
53 total crashes occurred between Country Club Road and Judd Street between 2010 and 2014. Of those 53 crashes, 8 had injuries.

<b>Cost of Using Policy Value</b> \$35,000.00	<b>Cost of Using Proposed Exception Value</b> \$22,800.00
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**Impacts Other Than Cost of Using Policy Value**

Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses. Using the 175 foot taper length at Station 180+25 will affect the storage length for the southbound left turn lane or could affect the roundabout at Illinois Route 47 and Judd Road which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**

The proposed design exception will allow access breaks for businesses. Reducing the left turn storage to meet taper length would negatively affect the level of service.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

12/03/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**





### Design Exception Request Project Identification

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

#### EXCEPTION DOCUMENTATION

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn Lane Taper Length

**Design Element Policy Value**  
175 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
53 Feet

**Location(s) of Exception**  
Illinois Route 47 Southbound Left Turn Lane Taper at Station 180+60.

**Crash History and Potential of Exception Location(s)**  
53 total crashes occurred between Country Club Road and Judd Street between 2010 and 2014. Of those 53 crashes, 8 had injuries.

<b>Cost of Using Policy Value</b> \$35,000.00	<b>Cost of Using Proposed Exception Value</b> \$22,800.00
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**Impacts Other Than Cost of Using Policy Value**

Using the 175 foot taper length will affect the storage length for the adjacent left turn lanes on Illinois Route 47 which will negatively affect access to businesses. Using the 175 foot taper length at Station 180+25 will affect the storage length for the southbound left turn lane or could affect the roundabout at Illinois Route 47 and Judd Road which will negatively affect access to businesses.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**

The proposed design exception will allow access breaks for businesses. Reducing the left turn storage to meet taper length would negatively affect the level of service.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

Without this design exception business access would be reduced.

**Coordination Meeting Date**

**Prepared By**

**Date**

02/05/2019

Jennifer Kobryn, Strand Associates, Inc

12/03/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

**Design Period/ Expected Service Life**

**Design Year**

**Structural Design Traffic**

**%PV**

**%SU**

**%MU**

**Design Element Policy Value**

**Proposed Design Element Value**

**Location(s) of Exception**

**Cost of Using Policy Value**

**Cost of Using Proposed Element Value**

**Summary of Justification**

**Prepared By**

**Date**

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	<b>Design Traffic DHV</b> PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
155 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
60 feet

**Location(s) of Exception**  
Country Club Road Westbound Left Turn Taper Rate (Station 117+00).

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road from 2010-2014. Of the 43 crashes, 9 resulted in injuries.

<b>Cost of Using Policy Value</b> \$15,500.00	<b>Cost of Using Proposed Exception Value</b> \$15,500.00
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**Impacts Other Than Cost of Using Policy Value**

There is a eastbound left turn lane that access businesses in the northeast quadrant of the Illinois Route 47 and Country Club Road intersection. Providing 155 feet would remove the current left turn lane for access to these businesses and would require either a shorter storage length at IL 47 and County Club Road or a turn lane taper through the intersection with the businesses.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

The traffic signal at Illinois Route 47 and Country Club Road is not synchronized with any other traffic signal on the project.

**Potential Effects on Other Design Elements**

None. A design exception allows the existing short left turn lane into the existing commercial business entrance and shortens construction limits along Country Club Road.

**Potential Impacts on Mobility or Traffic Operations**

According to the traffic analysis, the westbound Country Club Road left turn storage length requires 160 feet to account for the 95th percentile traffic. Only 160 feet of storage is provided at the intersection; therefore, the entire storage length could be at capacity during the peak hour. Not providing sufficient taper lengths for the left turn lane when the turn lane is at capacity could result in vehicles needing to decelerate prior to the start of the turn lane taper, resulting in the trough travel lanes decelerating.

**Summary of Justification for Exception**

A design exception is necessary for the storage length taper at westbound Country Club Road left turn lane to allow for a left turn lane at the commercial entrance located in the northeast quadrant of the Illinois Route 47 and County Club Road intersection.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jennifer Kobryn, Strand Associates, Inc	12/03/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
155 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
100 feet

**Location(s) of Exception**  
Country Club Road Westbound Right Turn Lane Taper Rate (Station 117+00).

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road from 2010-2014. Of the 43 crashes, 9 resulted in injuries.

<b>Cost of Using Policy Value</b> \$15,500.00	<b>Cost of Using Proposed Exception Value</b> \$15,500.00
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**Impacts Other Than Cost of Using Policy Value**  
There is a business entrance in the northeast quadrant of the Illinois Route 47 and Country Club Road intersection. Providing 155 feet would require the right turn taper to continue through this entrance or less storage at the IL Route 47 and Country Club Road intersection.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The traffic signal at Illinois Route 47 and Country Club Road is not synchronized with any other traffic signal on the project.

**Potential Effects on Other Design Elements**  
N/A

**Potential Impacts on Mobility or Traffic Operations**

Not providing sufficient taper lengths for the right turn lane when the turn lane is at capacity could result in vehicles needing to decelerate prior to the start of the turn lane taper, resulting in the trough travel lane decelerating.

**Summary of Justification for Exception**

A design exception is necessary for the storage length taper at westbound Country Club Road right turn lane to prevent the need for the taper to continue through the commercial entrance located in the northeast quadrant of the Illinois Route 47 and County Club Road intersection. This taper matches the existing conditions.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
02/05/2019	Jennifer Kobryn, Strand Associates, Inc	12/03/2018

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn-Lane Taper Length

**Design Element Policy Value**  
155 feet (BDE Manual Figure 36-3.1)

**Proposed Design Element Value**  
115 Feet

**Location(s) of Exception**  
Illinois Route 120 Eastbound Left Turn Lane Tape Rate (Station 66+00).

**Crash History and Potential of Exception Location(s)**  
21 total crashes occurred at the Illinois Route 120 and Illinois Route 47 intersection from 2010 to 2014. Of the 21 crashes, there were 4 with injuries.

<b>Cost of Using Policy Value</b> \$15,500.00	<b>Cost of Using Proposed Exception Value</b> \$15,500.00
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**Impacts Other Than Cost of Using Policy Value**  
Using the 155 foot taper length will increase impacts down the side street and potentially cause issues with the business entrances.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
The proposed design exception will increase impacts down the side street and potentially cause issues with the business entrances.

**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

A 115 foot storage length taper helps drivers distinguish between major and minor intersections.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Jennifer Kobryn, Strand Associates, Inc	<b>Date</b> 12/03/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b>	<b>Marked Route/Road Name</b>	<b>Contract #</b>	<b>State Job #</b>	
FAP 326	Illinois Route 47		P-91-007-09	
<b>Section</b>	<b>County(ies)</b>	<b>Municipality</b>		
	McHenry	City of Woodstock		
<b>Local Agency</b>	<b>LRS Section #</b>	<b>Permit Applicant</b>	<b>Permit #</b>	
		N/A	N/A	
<b>Project Limits</b>				
Illinois Route 47 from US Route 14 to to Charles Road				
<b>Project Length</b>		<b>Current Posted Speed</b>		
26,600 feet (5 miles)		30/35/45/55 mph		
<b>Estimate of Cost</b>	<b>Functional Classification</b>	<b>Design Yr</b>	<b>Design Traffic ADT</b>	<b>Design Traffic DHV</b>
84000000	SRA Urban	2040	35,000 (IL 47)	AM 2495 (IL 47) PM 3120 (IL 47)
<b>On the NHS System?</b>	<b>Structure Numbers</b>	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b>		
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	N/A	Reconstruction		

**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

Level of Exception  Level One  Level Two

**Design Element for Which an Exception is Requested**

Right-Turn Lane Taper Length

**Design Element Policy Value**

265 feet (BDE Manual Section 36-3.1)

**Proposed Design Element Value**

240 Feet

**Location(s) of Exception**

Westbound US Route 14 at Illinois Route 47 Right-Turn Lane Taper Length (Station 230+00)

**Crash History and Potential of Exception Location(s)**

34 total crashes occurred at the intersection of Illinois Route 47 and US Route 14 between 2010 and 2014. Of those 34 crashes, 15 were injuries.

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Exception Value</b>
\$30,000.00	\$0.00

**Impacts Other Than Cost of Using Policy Value**

Using the 265 foot taper length will require additional pavement to be added and ditches to be regraded outside the project's construction limits. No other work is proposed along US Route 14, other than the addition of a right-turn corner island.

**Proposed Mitigation to Address Exception**

Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**

The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**

There are no anticipated impacts on other design elements due to using the proposed design element value.



**Potential Impacts on Mobility or Traffic Operations**

All movements can be performed by the design vehicle. There will be less deceleration distance in the proposed conditions.

**Summary of Justification for Exception**

A design exception is necessary for the turn lane taper length because the existing taper of 240 feet is insufficient and no work is being proposed along US Route 14, outside adding a right-turn corner island.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Matt Gazdziak, Strand Associates, Inc	<b>Date</b> 12/10/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn Lane Approach Taper Rate

**Design Element Policy Value**  
35:1 (BDE Manual Section 36-3.J) - Shadowed

**Proposed Design Element Value**  
Un-Shadowed

**Location(s) of Exception**  
Westbound Russel Court at Illinois Route 47, Left Turn Lane Approach Taper Rate (Station 45+00)

**Crash History and Potential of Exception Location(s)**  
9 total crashes occurred near the intersection of Illinois Route 47 and Russel Court between 2010 and 2014. Of those 9 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$25,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
Extending the approach taper at the Design Element Policy Value would result in additional roadway reconstruction and a longer approach taper that extends past additional commercial entrances. This would result in additional confusion for drivers.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
There are no anticipated impacts on other design elements due to using the proposed design element value.

**Potential Impacts on Mobility or Traffic Operations**

The design element value reduces the opportunity for vehicles in the taper waiting to turn into the entrances to delay traffic.

**Summary of Justification for Exception**

A design exception is necessary for the approach taper rate to reduce driver confusion by not having the taper extend past additional commercial entrances, which could cause traffic delays as drivers try to enter/exit the entrances.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Matt Gazdziak, Strand Associates, Inc	<b>Date</b> 12/10/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**




**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**

The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn Lane Approach Taper Rate

**Design Element Policy Value**  
35:1 (BDE Manual Section 36-3.J) - Shadowed

**Proposed Design Element Value**  
Un-Shadowed

**Location(s) of Exception**  
Westbound St Johns Road at Illinois Route 47, Left Turn Lane Approach Taper Rate (Station 49+00)

**Crash History and Potential of Exception Location(s)**  
9 total crashes occurred near the intersection of Illinois Route 47 and St Johns Road between 2010 and 2014. Of those 9 crashes, 4 had injuries.

<b>Cost of Using Policy Value</b> \$25,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
Extending the approach taper at the Design Element Policy Value would result in additional roadway reconstruction and a longer approach taper that extends past additional commercial entrances. This would result in additional confusion for drivers.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
There are no anticipated impacts on other design elements due to using the proposed design element value.

**Potential Impacts on Mobility or Traffic Operations**

The design element value reduces the opportunity for vehicles in the taper waiting to turn into the entrances to delay traffic.

**Summary of Justification for Exception**

A design exception is necessary for the approach taper rate to reduce driver confusion by not having the taper extend past additional commercial entrances, which could cause traffic delays as drivers try to enter/exit the entrances.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Matt Gazdziak, Strand Associates, Inc	<b>Date</b> 12/10/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn Lane Approach Taper Rate

**Design Element Policy Value**  
40:1 (BDE Manual Section 36-3.J) - Shadowed

**Proposed Design Element Value**  
Un-Shadowed

**Location(s) of Exception**  
Eastbound Illinois Route 120 at Illinois Route 47, Left Turn Lane Approach Taper Rate (Station 63+00)

**Crash History and Potential of Exception Location(s)**  
21 total crashes occurred at the Illinois Route 120 and Illinois Route 47 intersection from 2010 to 2014. Of the 21 crashes, there were 4 with injuries.

<b>Cost of Using Policy Value</b> \$25,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
Extending the approach taper at the Policy Value would result in additional roadway reconstruction and a longer approach taper extending past additional residential entrances / side streets This would result in additional confusion for drivers.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
There are no anticipated impacts on other design elements due to using the proposed design element value.



**Potential Impacts on Mobility or Traffic Operations**

The design element value reduces the opportunity for vehicles in the taper waiting to turn into the entrances to delay traffic.

**Summary of Justification for Exception**

A design exception is necessary for the approach taper rate to reduce driver confusion by not having the taper extend past additional residential entrances and side streets.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Matt Gazdziak, Strand Associates, Inc	<b>Date</b> 12/10/2018
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**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

<b>Design Period/ Expected Service Life</b>	<b>Design Year</b>	<b>Structural Design Traffic</b>	<b>%PV</b>	<b>%SU</b>	<b>%MU</b>

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**


**Design Exception Request Project Identification**

<b>Key Route</b> FAP 326	<b>Marked Route/Road Name</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-007-09
<b>Section</b> 	<b>County(ies)</b> McHenry	<b>Municipality</b> City of Woodstock	
<b>Local Agency</b> 	<b>LRS Section #</b> 	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A

**Project Limits**  
Illinois Route 47 from US Route 14 to to Charles Road

<b>Project Length</b> 26,600 feet (5 miles)	<b>Current Posted Speed</b> 30/35/45/55 mph
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<b>Estimate of Cost</b> 84000000	<b>Functional Classification</b> SRA Urban	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 35,000 (IL 47)	<b>Design Traffic DHV</b> AM 2495 (IL 47)	PM 3120 (IL 47)
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<b>On the NHS System?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>Structure Numbers</b> N/A	<b>Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.)</b> Reconstruction
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**Brief Project Description**  
The proposed improvement consists of widening the existing Illinois Route 47 corridor from US Route 14 to Charles Road. The cross section of the roadway will consist of two lanes in each direction. The northbound and southbound lanes will be separated by an 18 feet wide raised median from US Route 14 to Ware Road and a 22 foot wide mountable median from Ware Road to Charles Road. Pedestrian accommodations are also included as a part of this project.

**EXCEPTION DOCUMENTATION**

**Level of Exception**  Level One  Level Two

**Design Element for Which an Exception is Requested**  
Turn Lane Approach Taper Rate

**Design Element Policy Value**  
40:1 (BDE Manual Section 36-3.J) - Shadowed

**Proposed Design Element Value**  
Un-Shadowed

**Location(s) of Exception**  
Eastbound Country Club Road (South Street) at Illinois Route 47, Left Turn Lane Approach Taper Rate (Station 111+00)

**Crash History and Potential of Exception Location(s)**  
There were 43 crashes at intersection of Illinois Route 47 and Country Club Road from 2010-2014. Of the 43 crashes, 9 resulted in injuries.

<b>Cost of Using Policy Value</b> \$25,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
Extending the approach taper at the Policy Value would result in additional roadway reconstruction and a longer approach taper extending past additional residential entrances / side streets This would result in additional confusion for drivers.

**Proposed Mitigation to Address Exception**  
Pavement marking, lighting, and signing will be included along IL Route 47 to differentiate between the through lanes and turn lane.

**Geometric Compatibility with Adjacent Sections**  
The proposed design exception bears no impact on compatibility with adjacent sections.

**Potential Effects on Other Design Elements**  
There are no anticipated impacts on other design elements due to using the proposed design element value.

**Potential Impacts on Mobility or Traffic Operations**

The design element value reduces the opportunity for vehicles in the taper waiting to turn into the entrances to delay traffic.

**Summary of Justification for Exception**

A design exception is necessary for the approach taper rate to reduce driver confusion by not having the taper extend past additional residential entrances and side streets.

<b>Coordination Meeting Date</b> 02/05/2019	<b>Prepared By</b> Matt Gazdziak, Strand Associates, Inc	<b>Date</b> 12/10/2018
--	---	---------------------------

**PAVEMENT/RESURFACING EXCEPTIONS**

New Pavement     Pavement Widening     Resurfacing

<b>Design Period/ Expected Service Life</b>	<b>Design Year</b>	<b>Structural Design Traffic</b>	<b>%PV</b>	<b>%SU</b>	<b>%MU</b>

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>

**APPROVAL/DISAPPROVAL**

**BDE Approval Date**

02/05/2019

**FHWA Approval Date (Level One)**

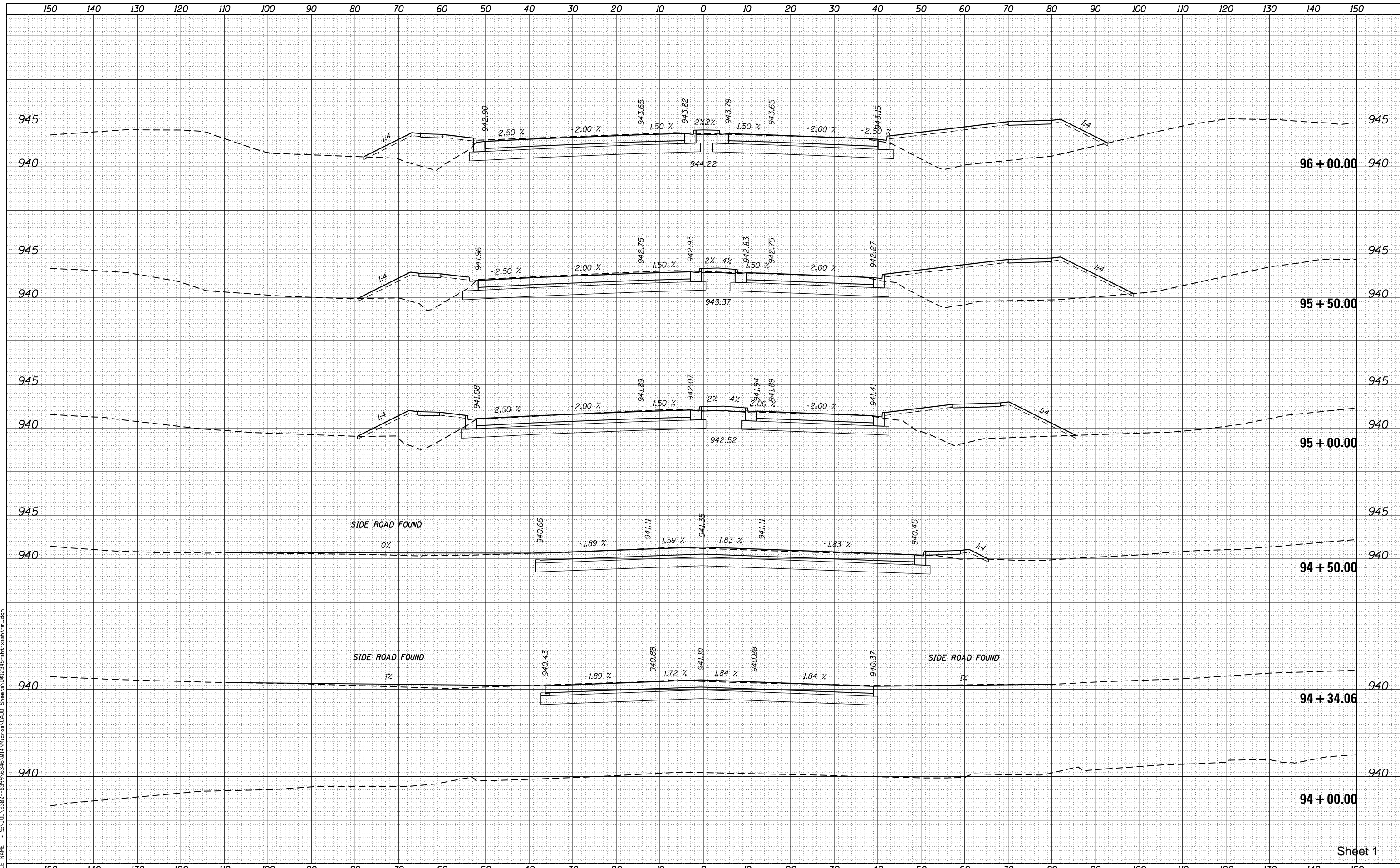




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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISD -
MODEL NAME = Default	DRAWN - DJW	REVISD -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISD -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISD -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

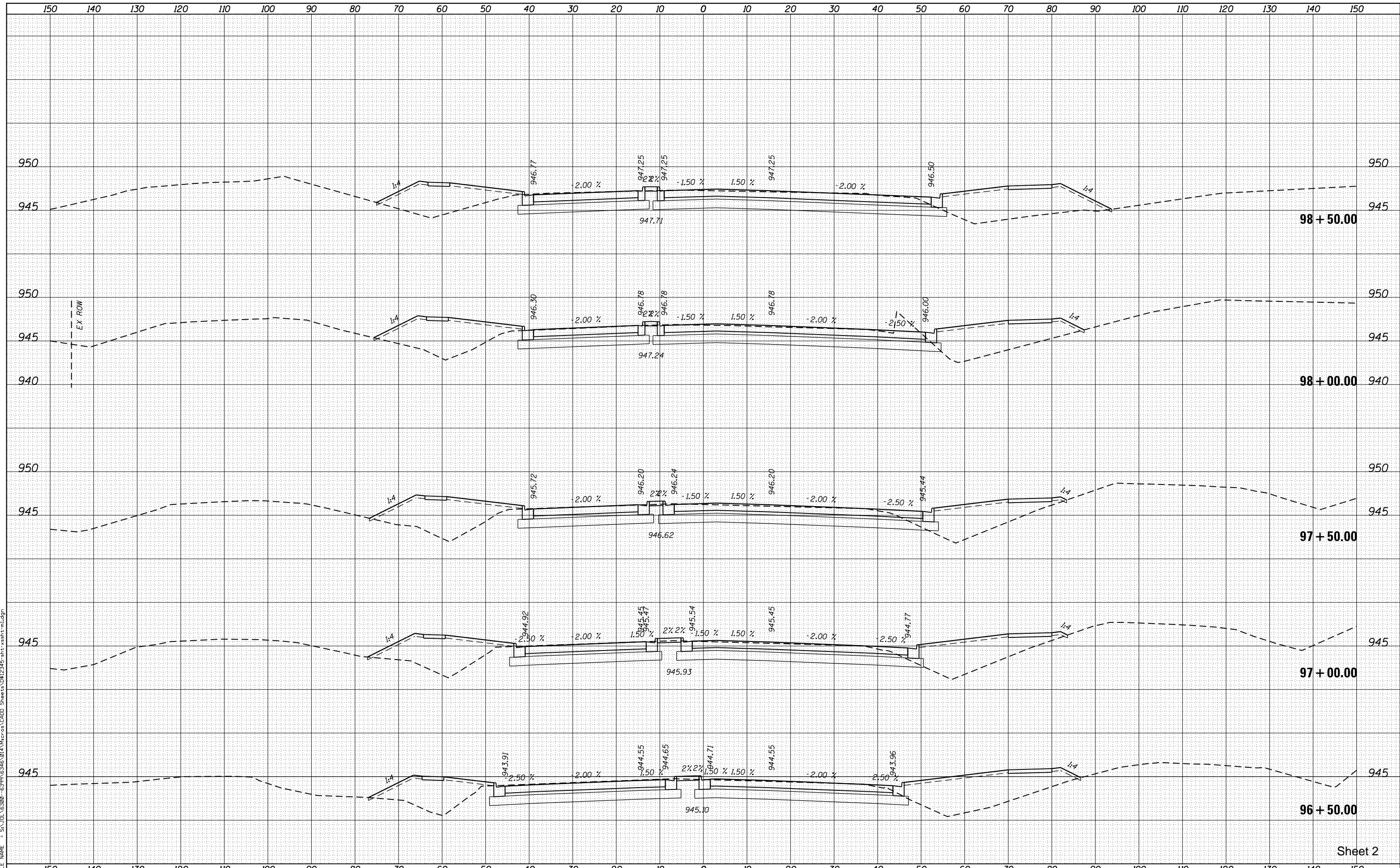
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 96+50.00 TO STA. 98+50.00

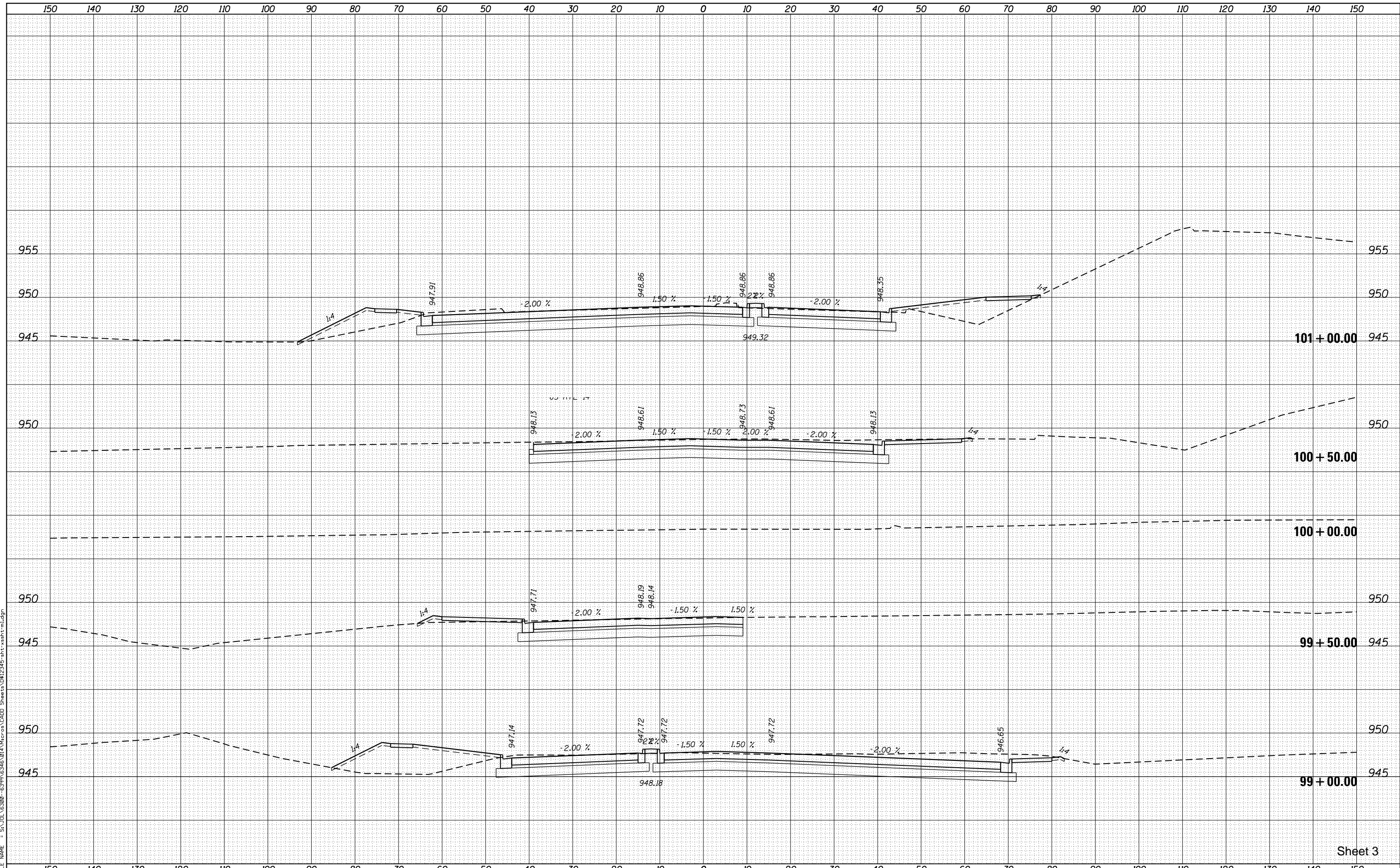
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



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Sheet 3



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PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 77 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 99+00.00 TO STA. 101+00.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



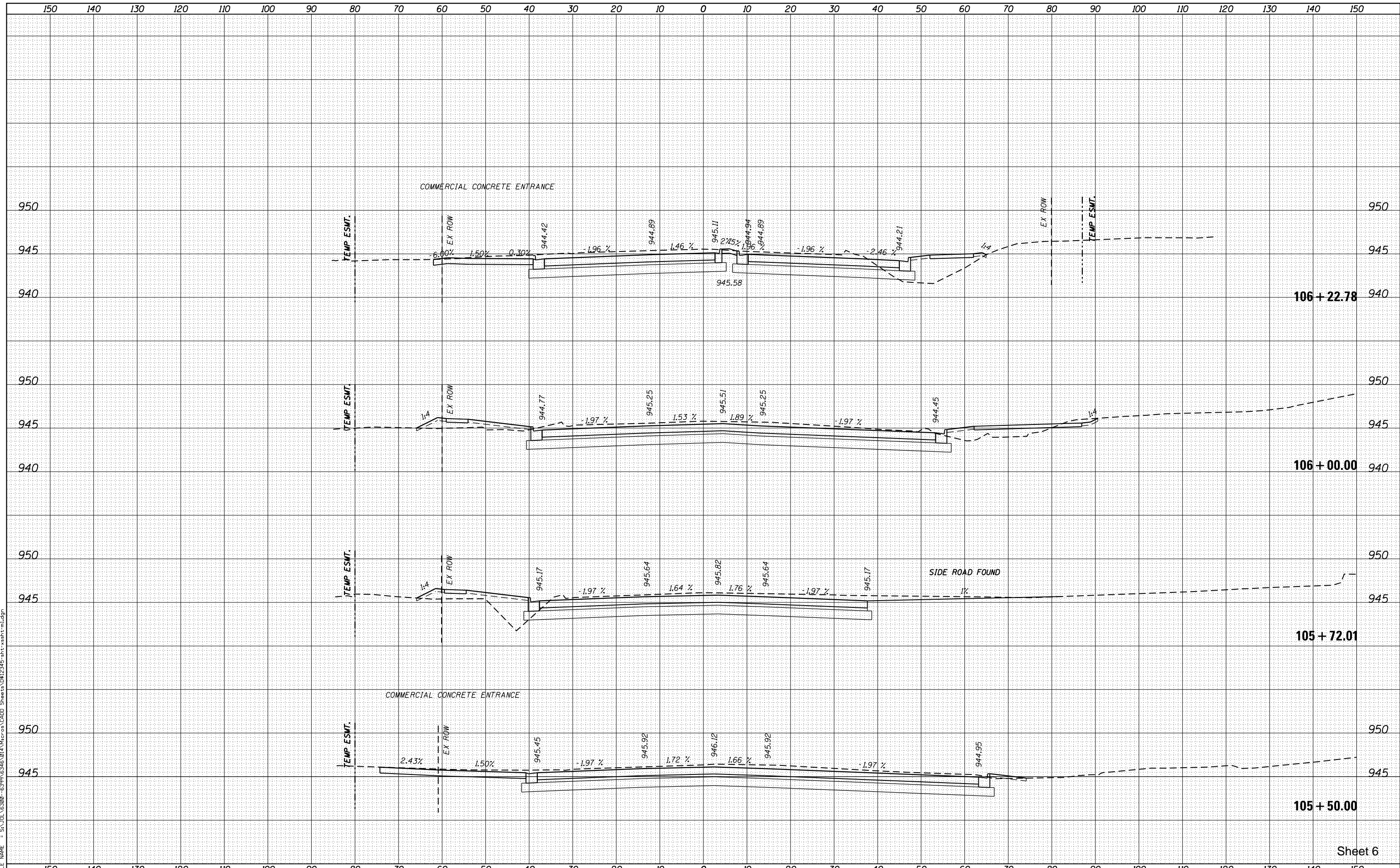




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Sheet 6



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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 105+50.00 TO STA. 106+22.78

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO.				

ILLINOIS FED. AID PROJECT





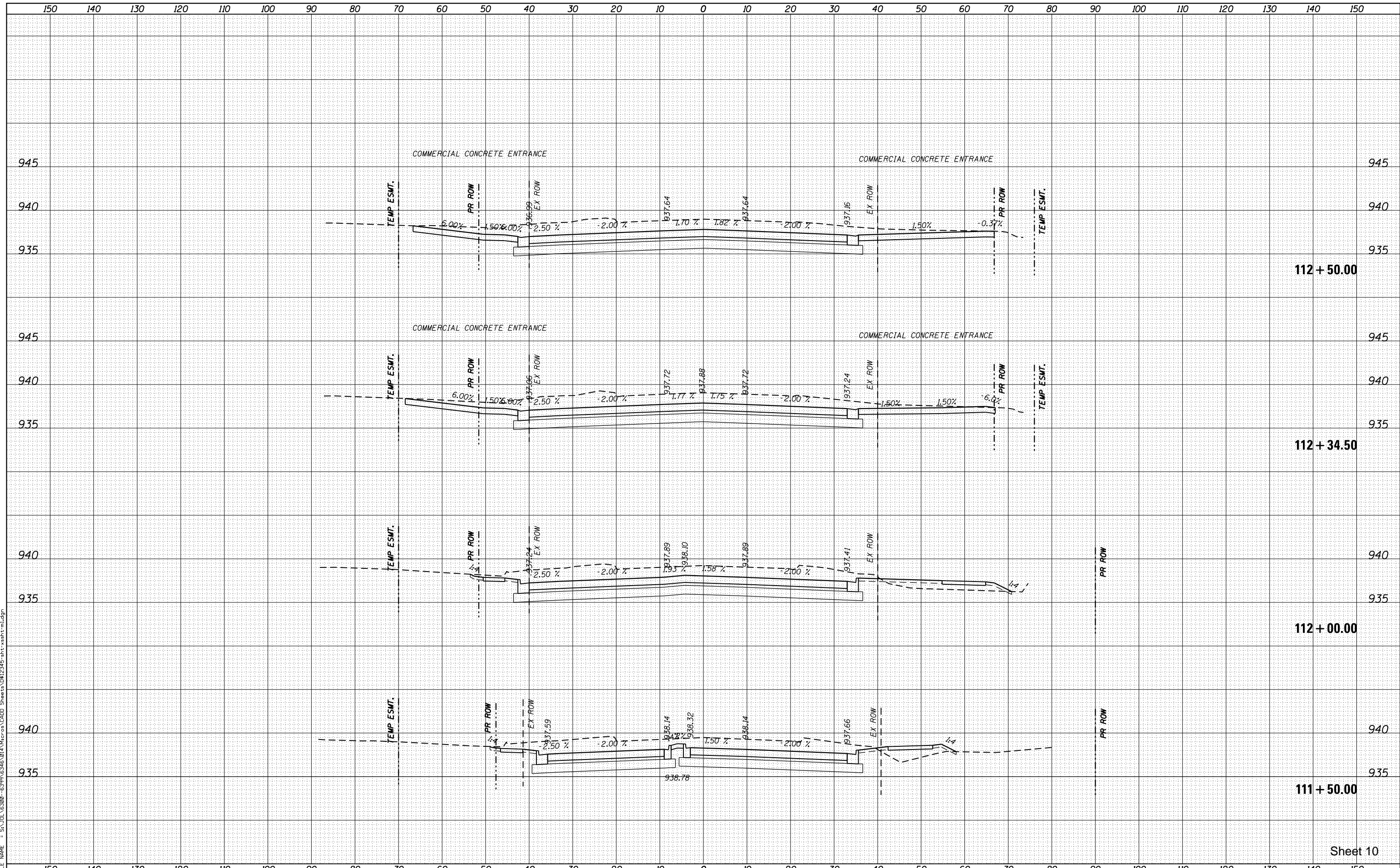




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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

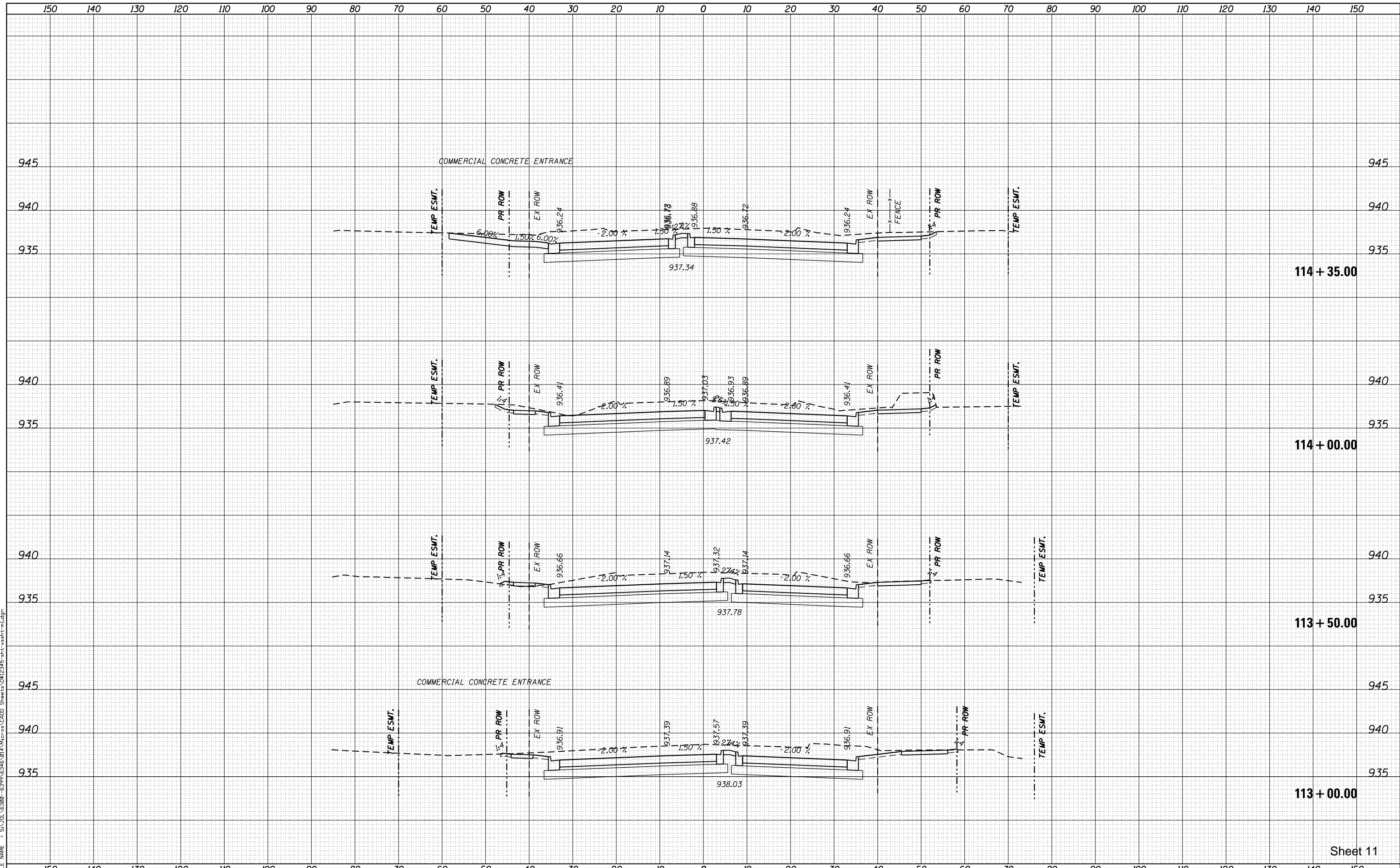
SCALE: 10H-5V SHEET OF SHEETS STA. 111+50.00 TO STA. 112+50.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 113+00.00 TO STA. 114+35.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

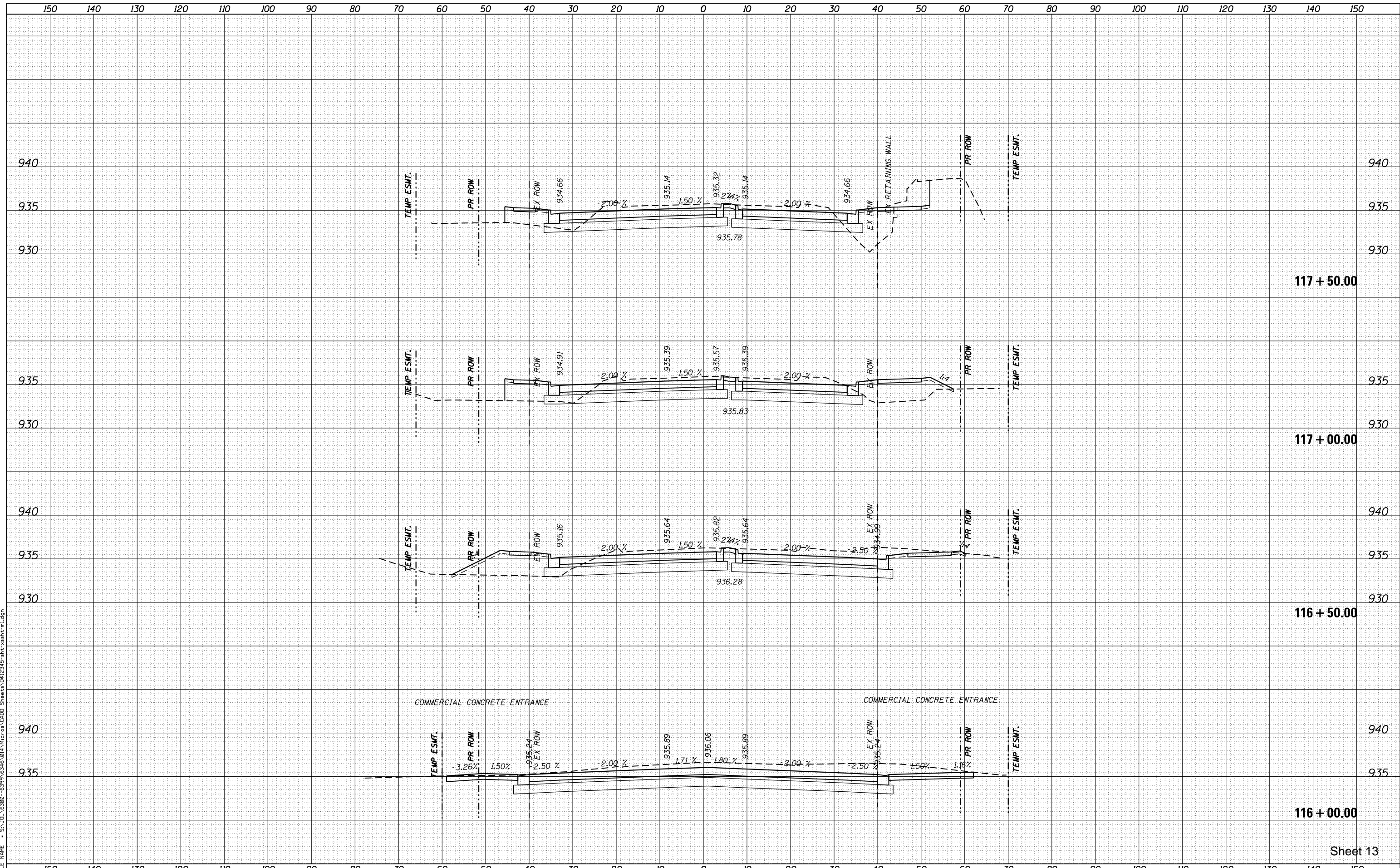




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117 + 50.00

117 + 00.00

116 + 50.00

116 + 00.00

Sheet 13



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
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PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 116+00.00 TO STA. 117+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				

ILLINOIS FED. AID PROJECT



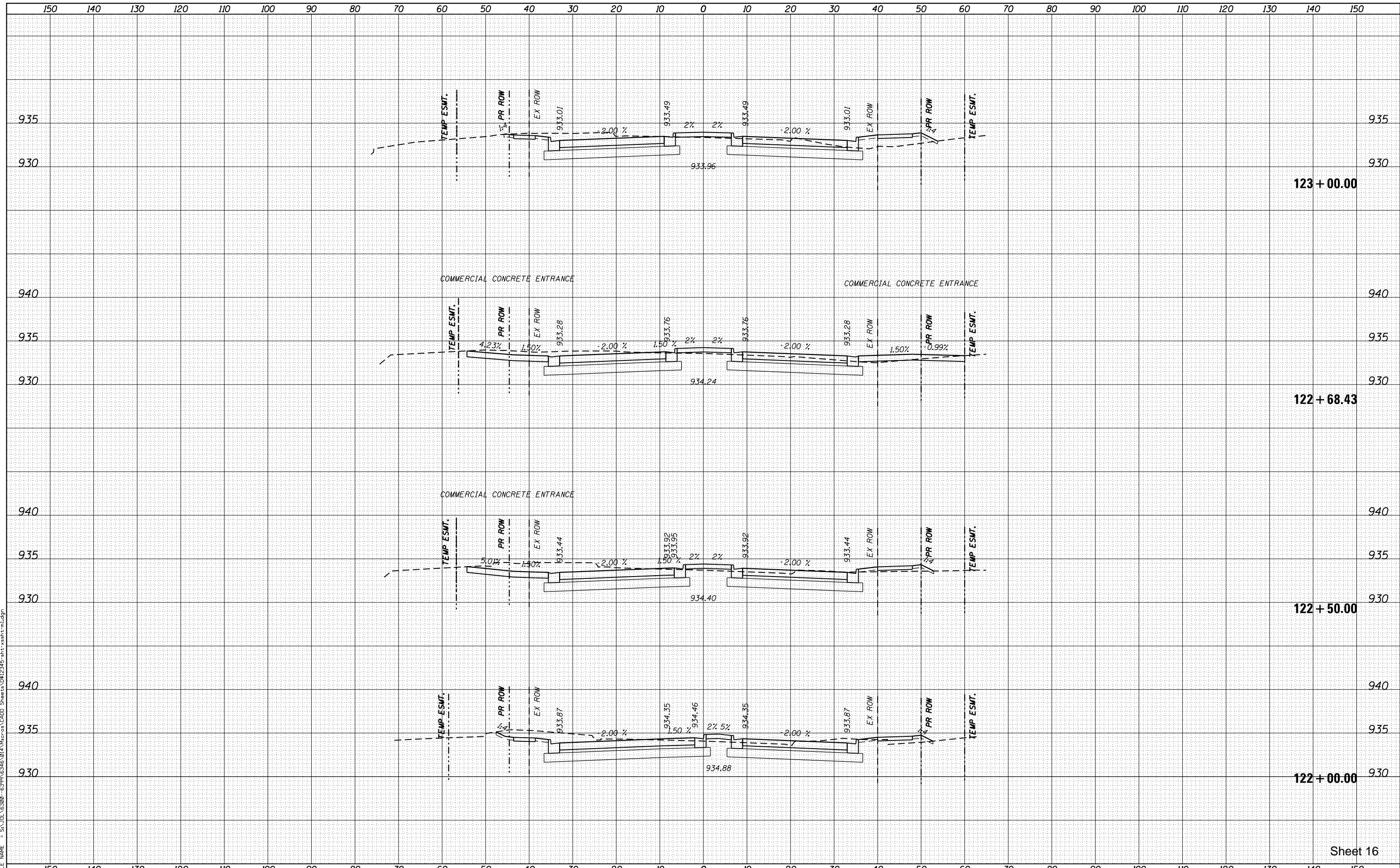




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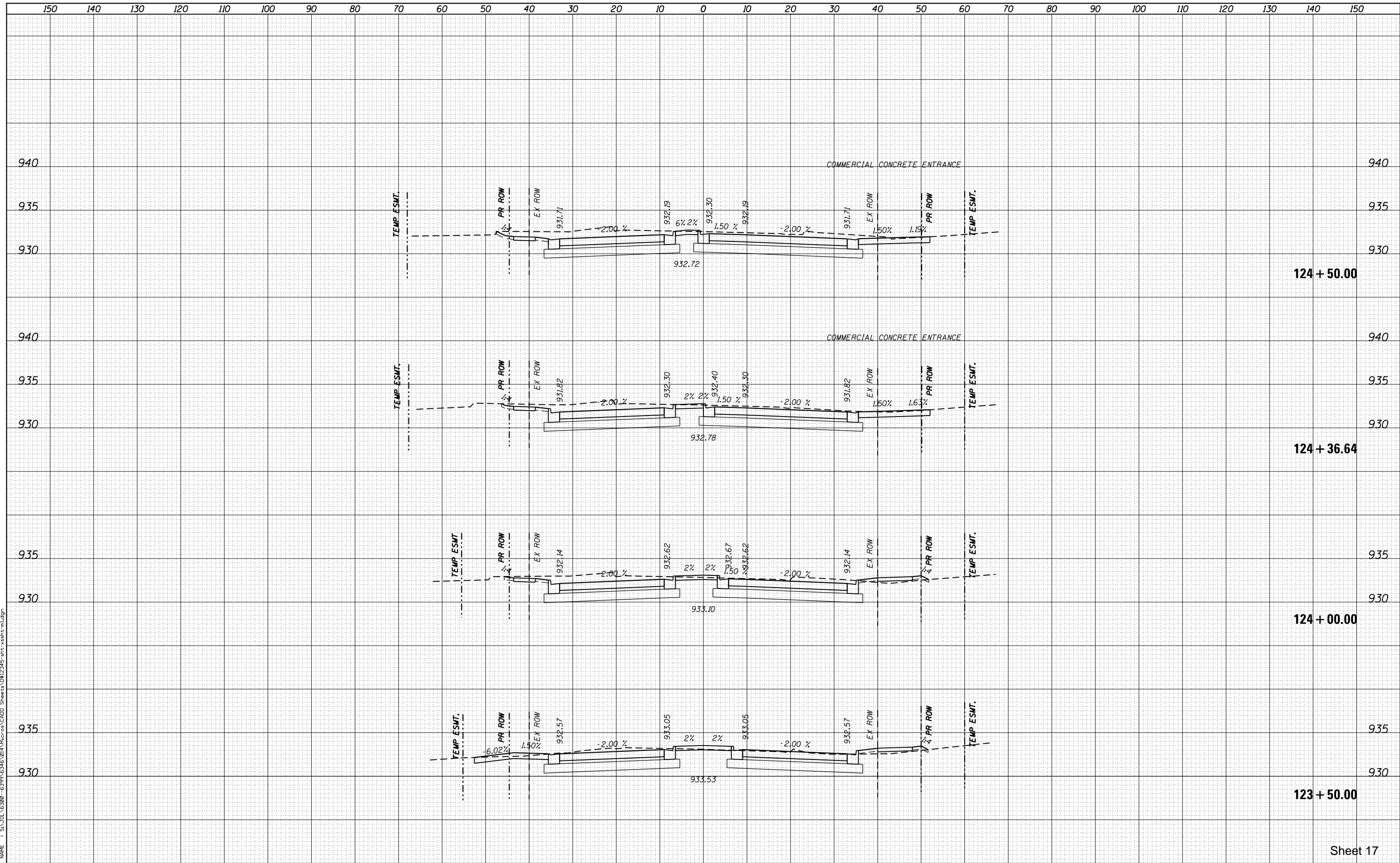
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Sheet 17

**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 123+50.00 TO STA. 124+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

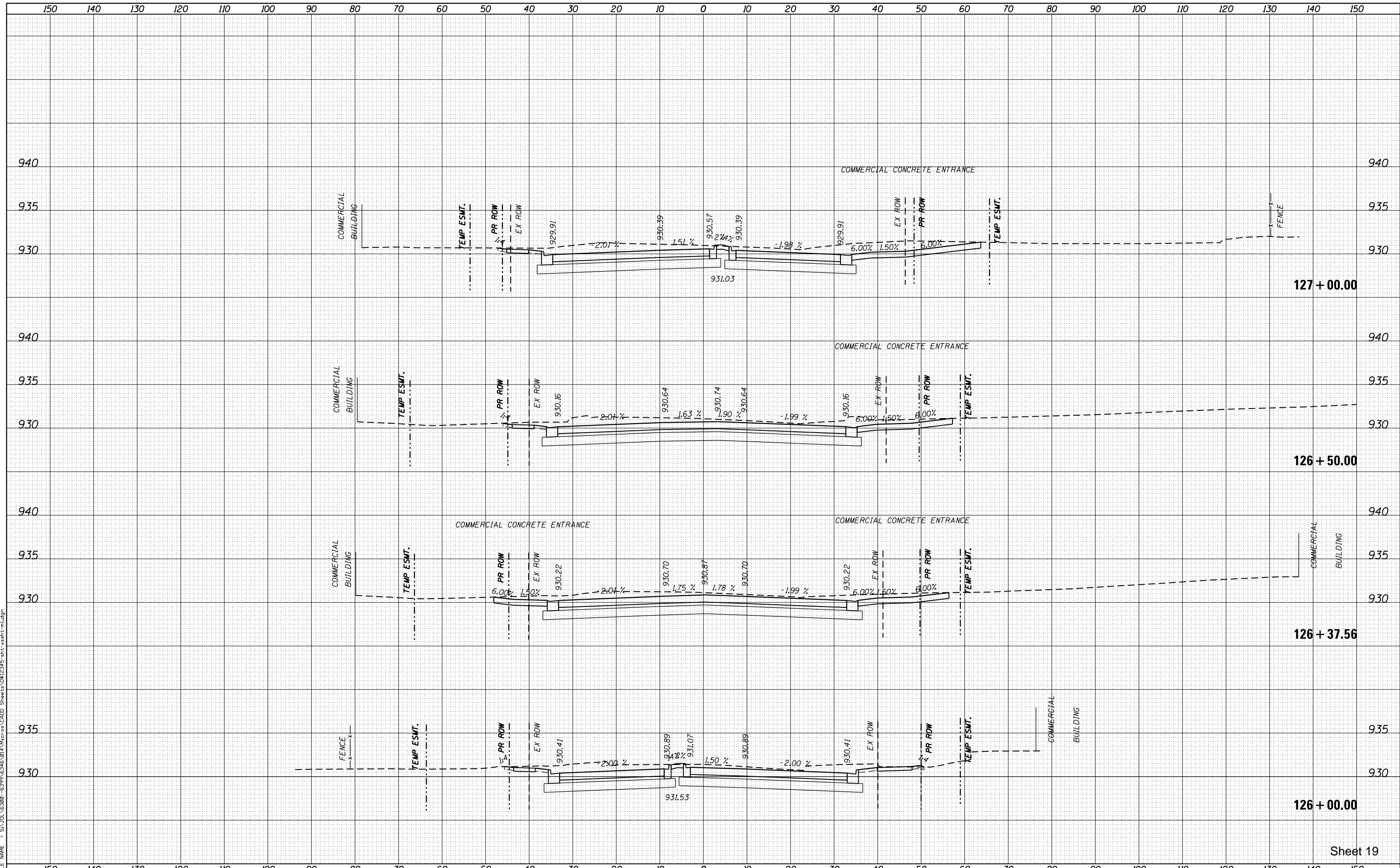




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Sheet 19

**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

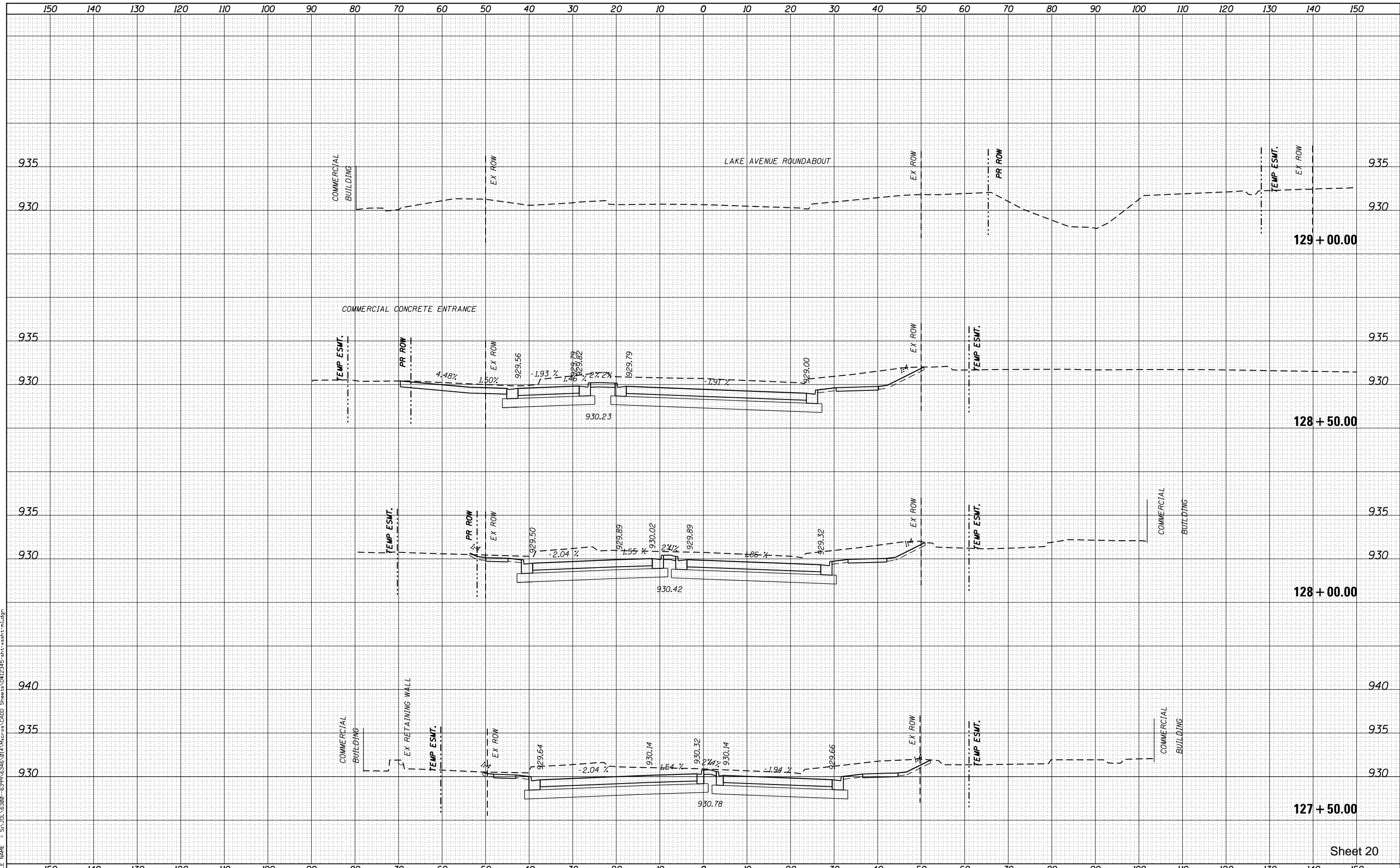
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

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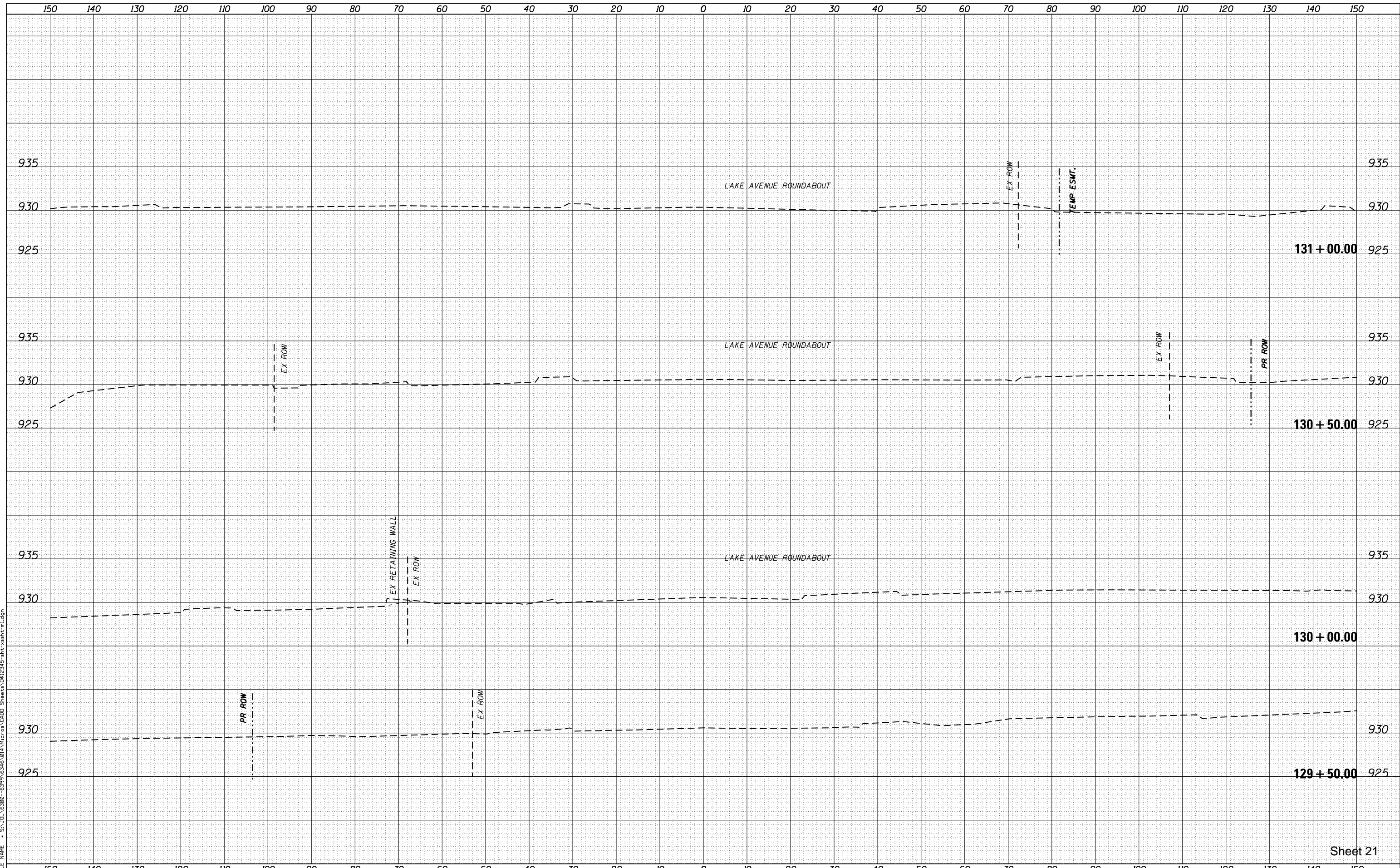




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**STRAND ASSOCIATES\***  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**  
 SCALE: 10H-5V    SHEET    OF    SHEETS    STA. 129+50.00    TO    STA. 131+00.00

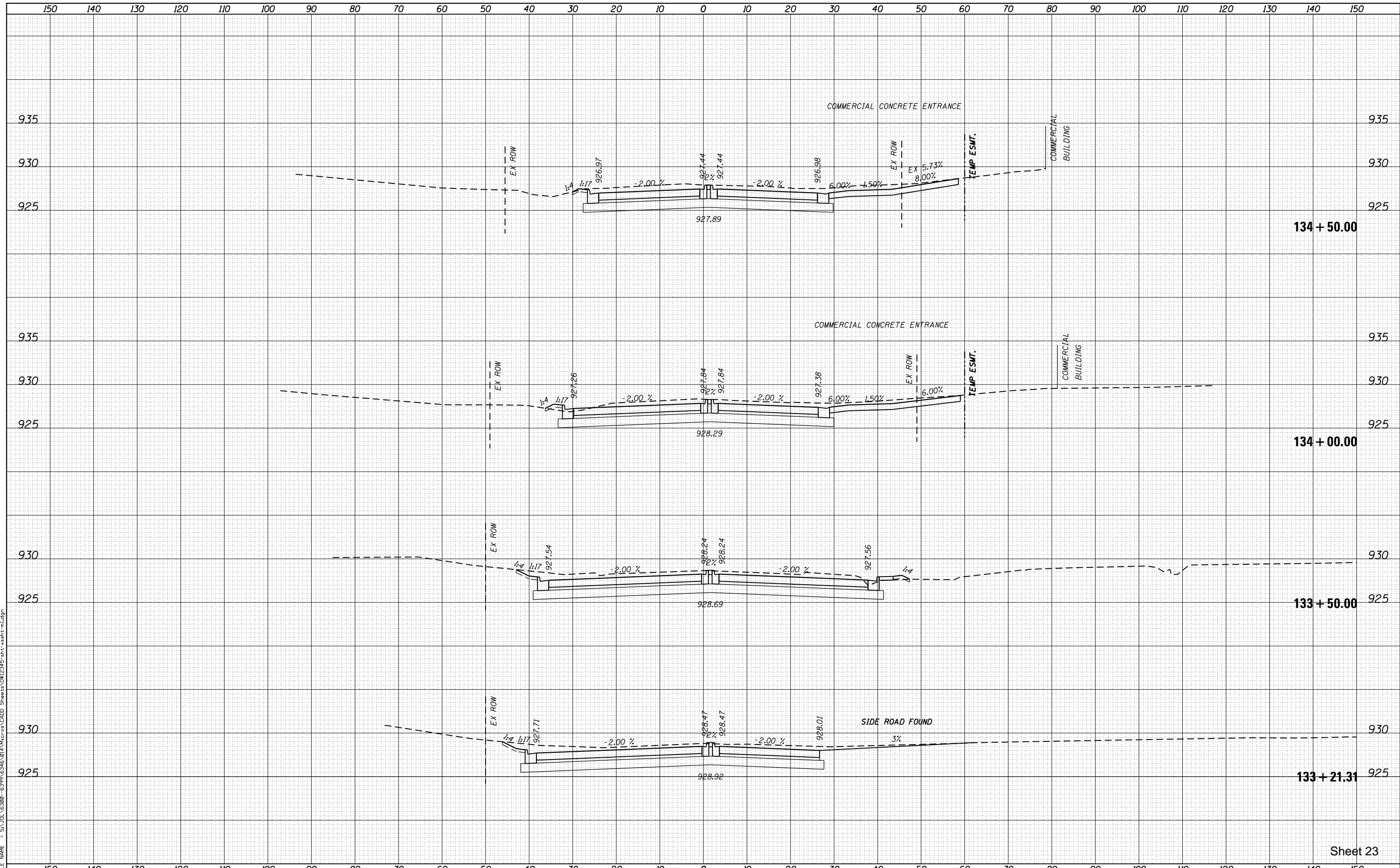
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ILLINOIS FED. AID PROJECT				



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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
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 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
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**STATE OF ILLINOIS  
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**IL ROUTE 47 CROSS SECTIONS**  
 SCALE: 10H-5V SHEET OF SHEETS STA. 133+21.31 TO STA. 134+50.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



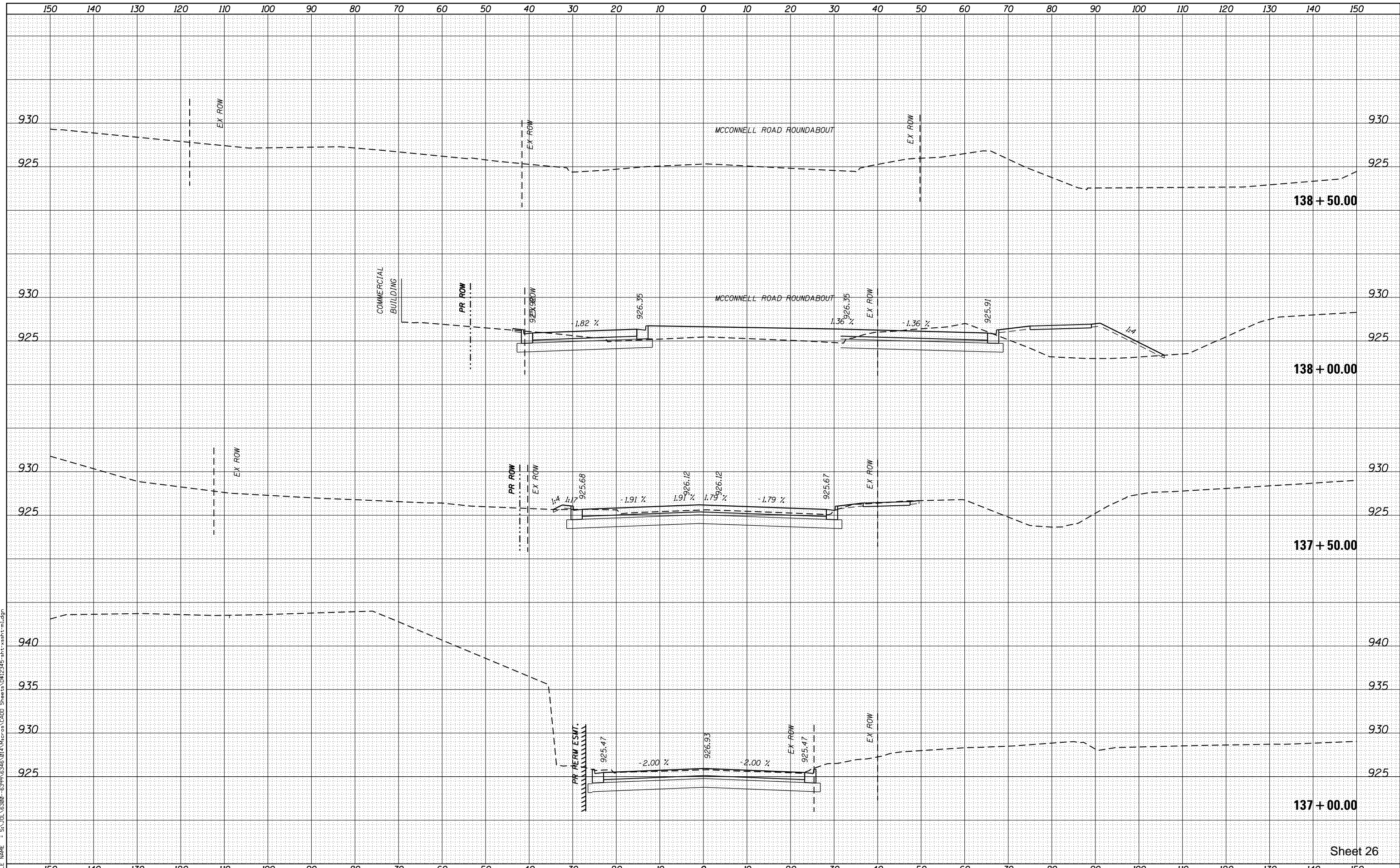




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1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
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PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V      SHEET      OF      SHEETS      STA. 137+00.00      TO STA. 138+50.00

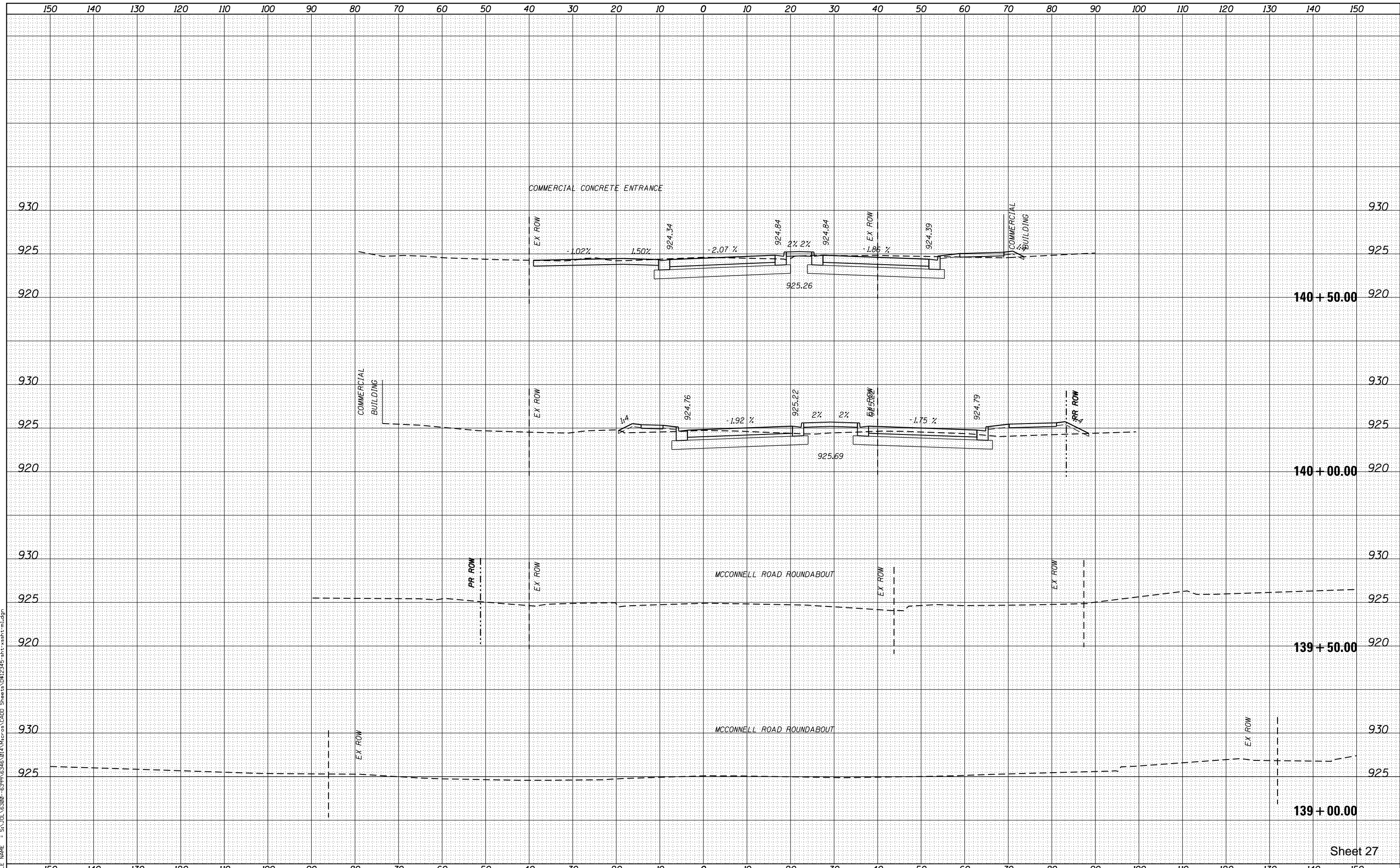
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1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
STRAND ASSOCIATES\* (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

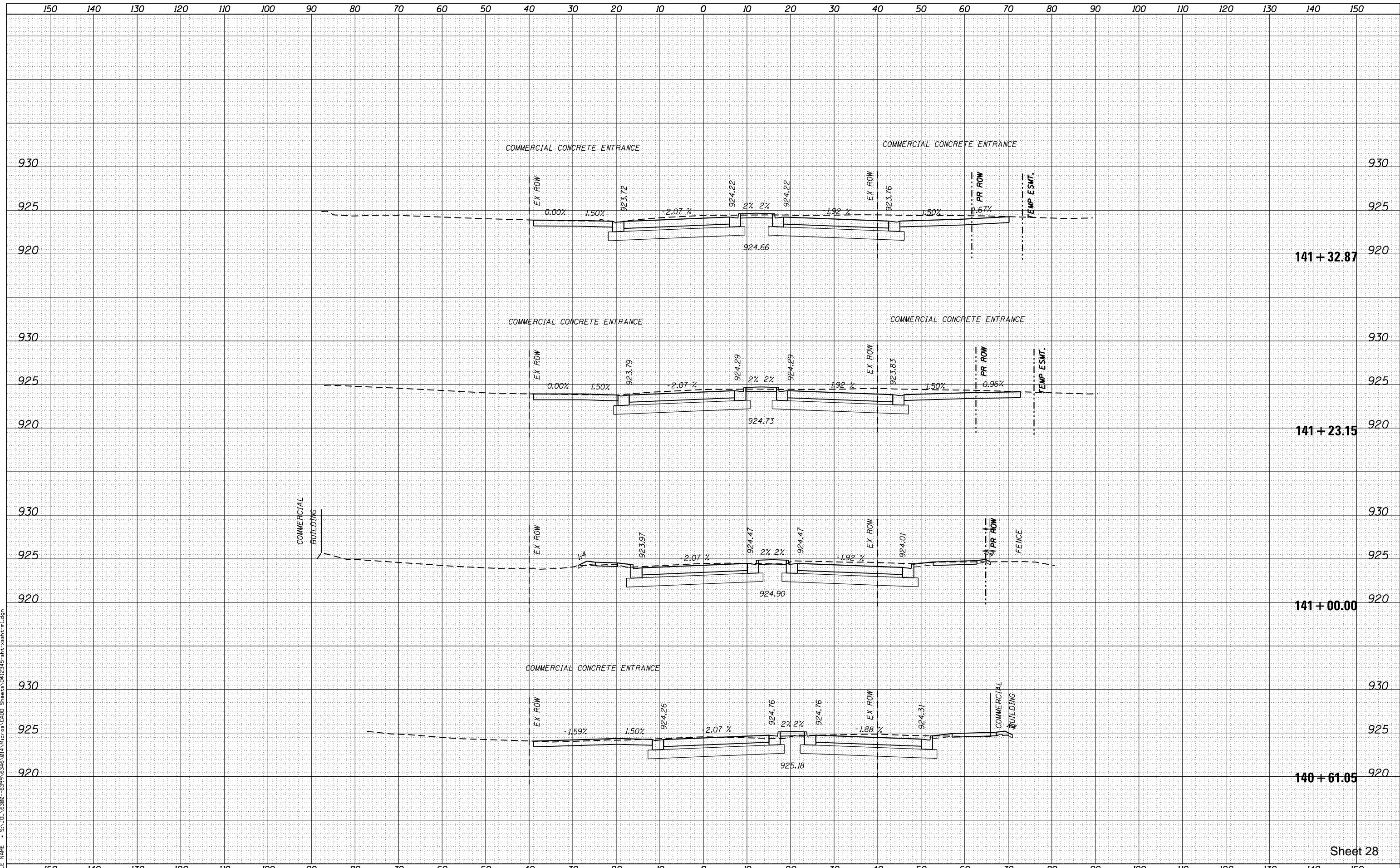
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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141 + 32.87

141 + 23.15

141 + 00.00

140 + 61.05

Sheet 28

**STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc  
MODEL NAME = Default  
PLOT SCALE = 20.0000' / in.  
PLOT DATE = 1/23/2019

DESIGNED - WRP  
DRAWN - DJW  
CHECKED - DWG  
DATE - 05/25/2018

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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

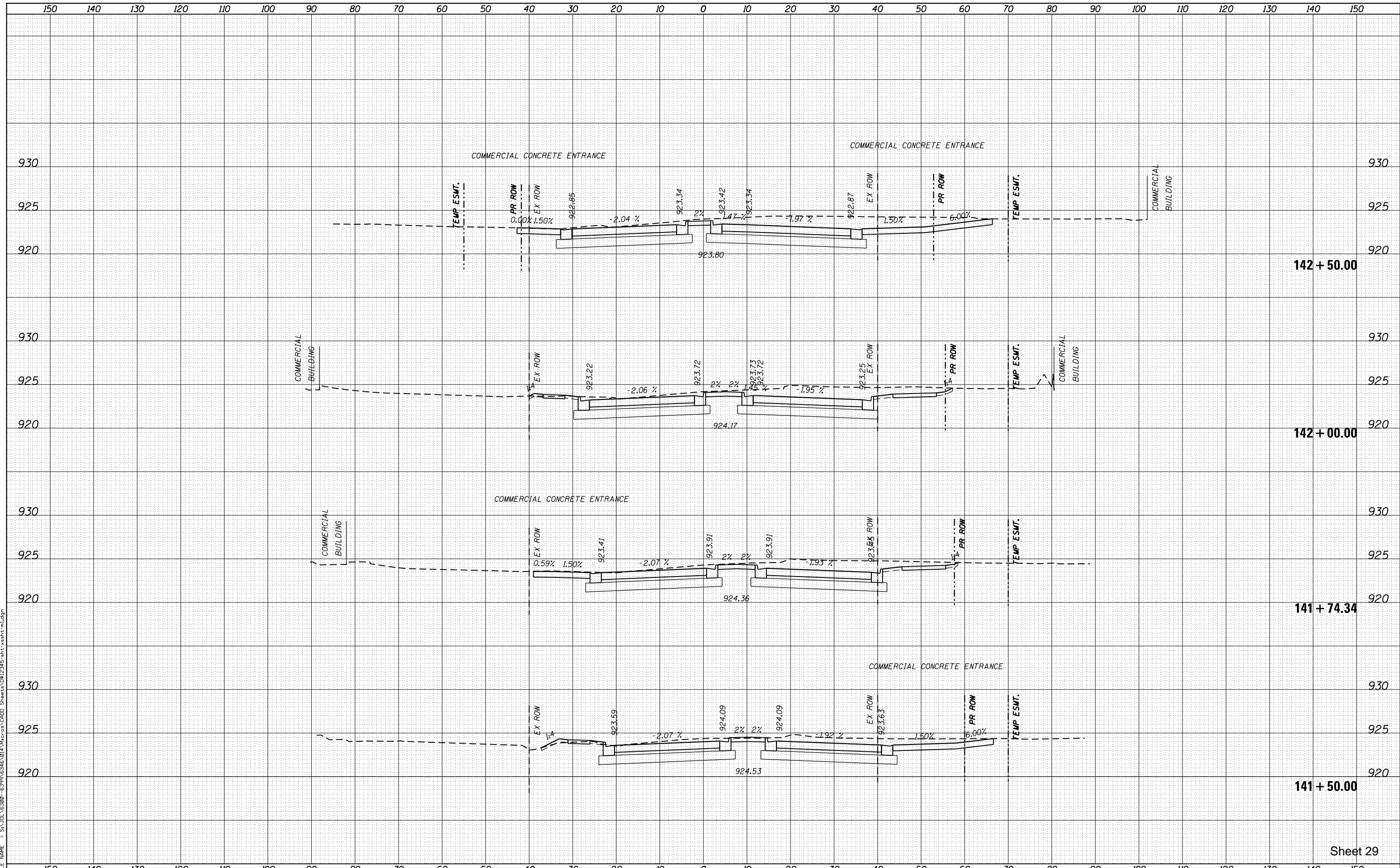
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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Sheet 29

**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 141+50.00 TO STA. 142+50.00

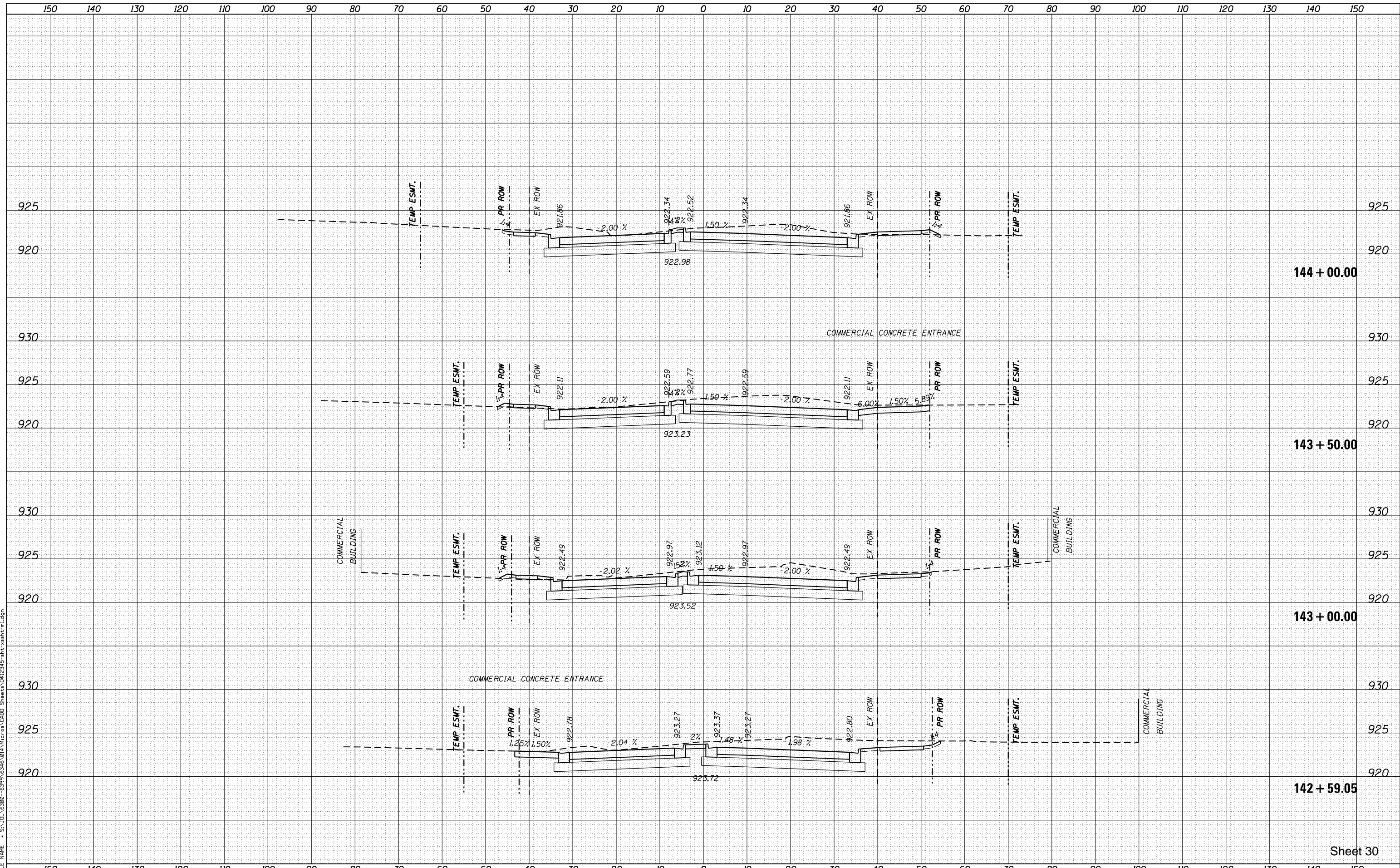
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED
	AREAS CHECKED

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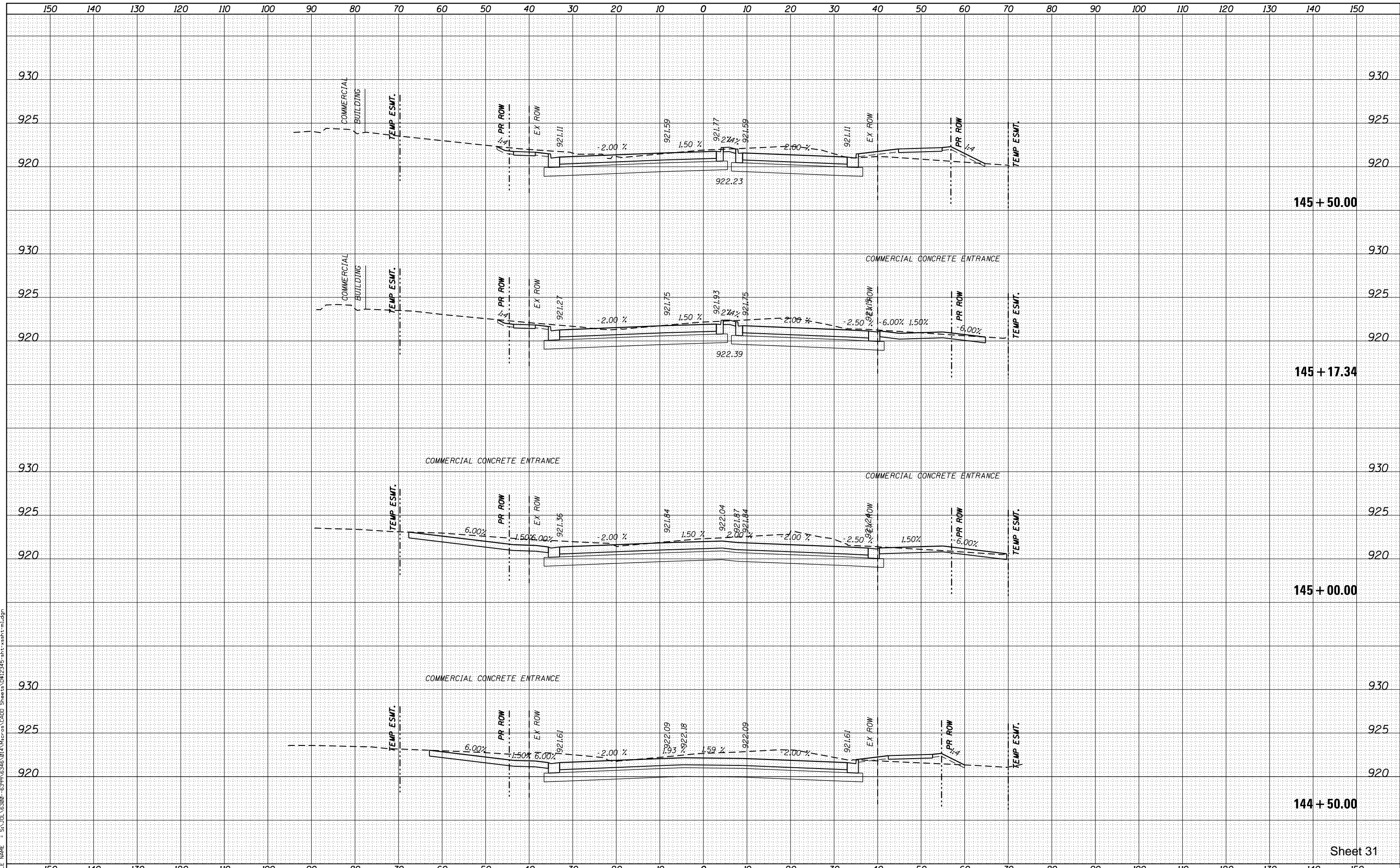
Sheet 30

1170 SOUTH HOUBOLT ROAD JOLIET, ILLINOIS 60431 (815) 744-4200	USER NAME = JakeSc MODEL NAME = Default PLOT SCALE = 20.0000' / in. PLOT DATE = 1/23/2019	DESIGNED - WRP DRAWN - DJW CHECKED - DWG DATE - 05/25/2018	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>		<b>IL ROUTE 77 CROSS SECTIONS</b>		F.A.P. RTE. 326 SECTION COUNTY MCHENRY CONTRACT NO.	TOTAL SHEETS SHEET NO.
	SCALE: 10H-5V      SHEET      OF      SHEETS      STA. 142+59.05      TO STA. 144+00.00				ILLINOIS FED. AID PROJECT				

DATE	
BY	
FINAL SURVEY	
PLOTTED	
TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
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ORIGINAL SURVEY	
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TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
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145 + 50.00

145 + 17.34

145 + 00.00

144 + 50.00

Sheet 31

**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 144+50.00 TO STA. 145+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				

ILLINOIS FED. AID PROJECT



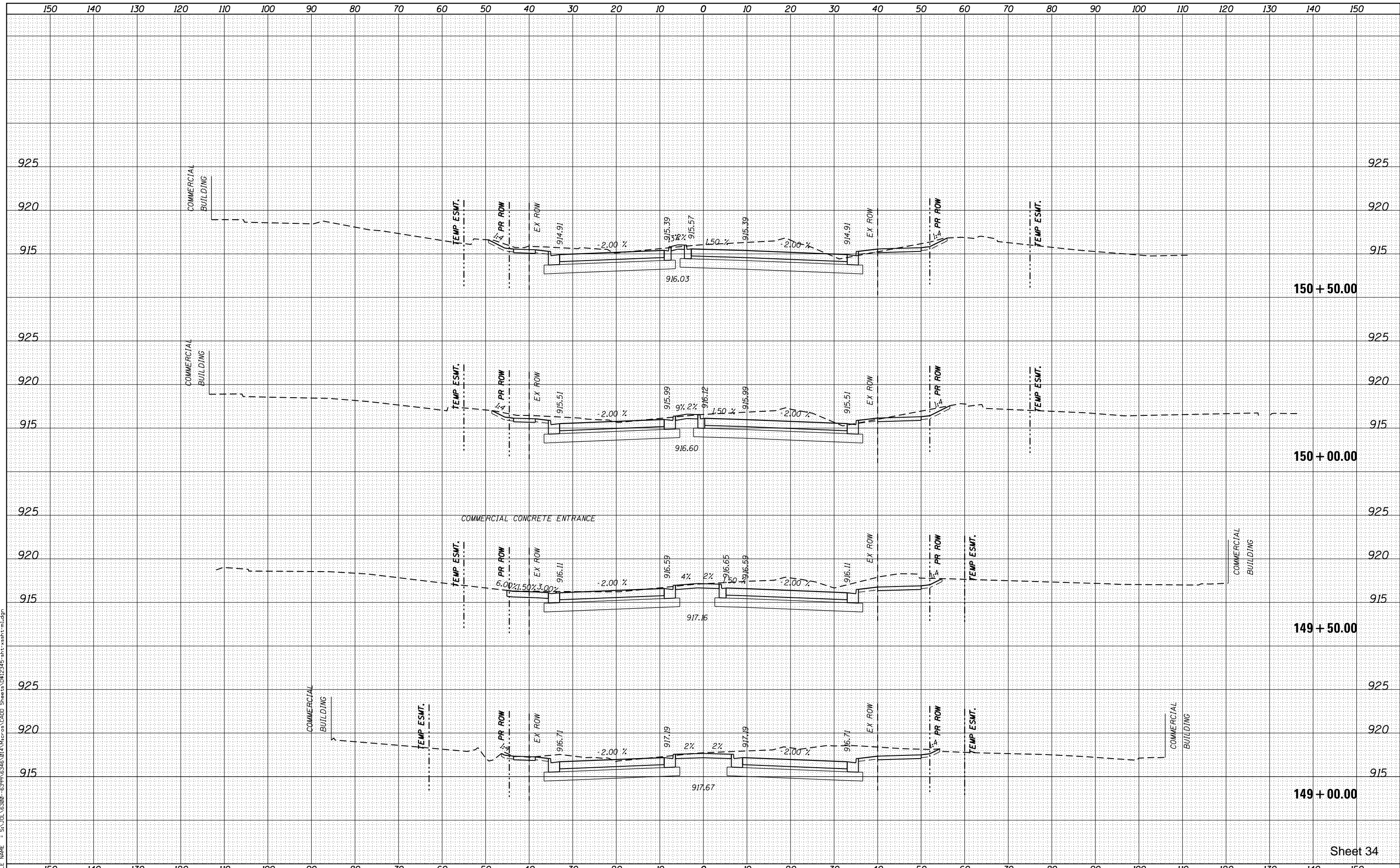




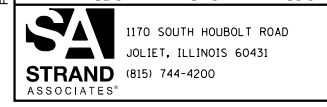
DATE	
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FINAL SURVEY	
NOTE BOOK	
AREAS CHECKED	
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ORIGINAL SURVEY	
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AREAS CHECKED	
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FINAL SURVEY	
NOTE BOOK	
AREAS CHECKED	
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FILE NAME = S:\JL\_63800-6399\6346\01A\Work\CAD Sheets\0812345-sh1-vssht.mxd



Sheet 34



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

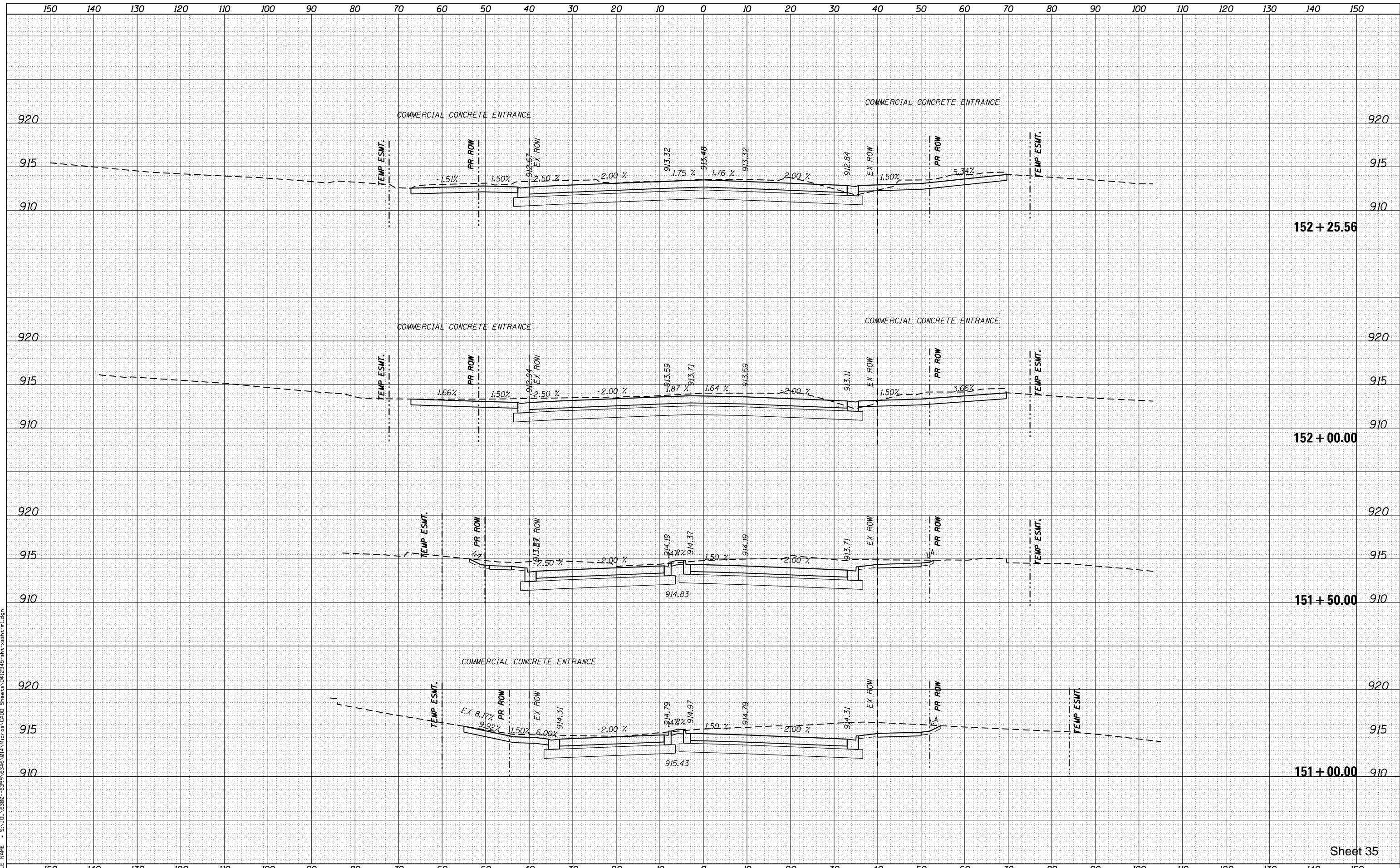
SCALE: 10H-5V SHEET OF SHEETS STA. 149+00.00 TO STA. 150+50.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

DATE	
BY	
ORIGINAL SURVEY	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
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DATE	
BY	
ORIGINAL SURVEY	
PLOTTED	
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AREAS CHECKED	
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FILE NAME = S:\JL\_63800 - 6399\6346\01A\Work\63800\_Sheets\0812345-sh1-vssht.mxd



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 151+00.00 TO STA. 152+25.56

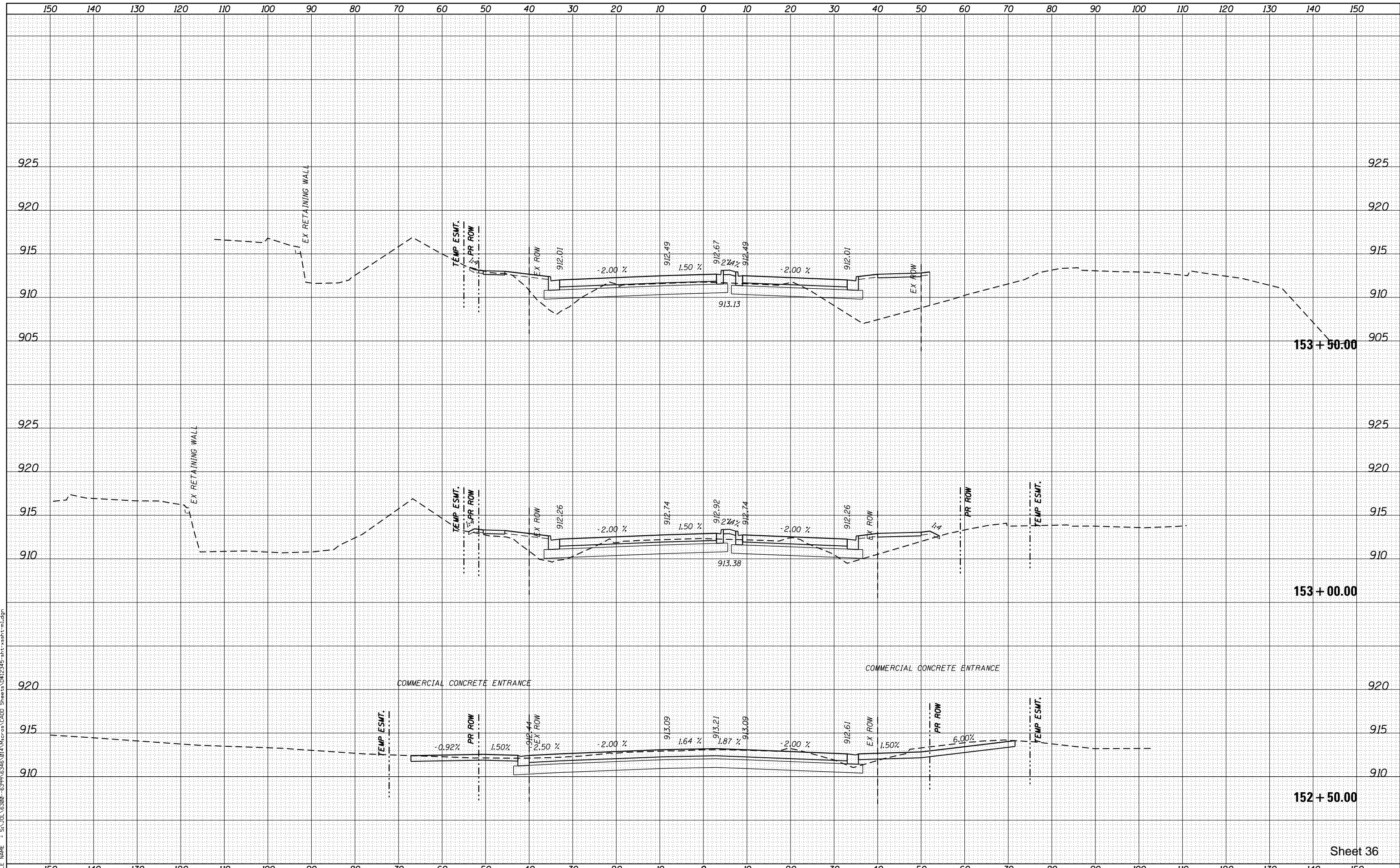
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
BY	
FINISHED SURVEY	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
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ORIGINAL SURVEY	
NOTE BOOK	
AREAS CHECKED	
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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

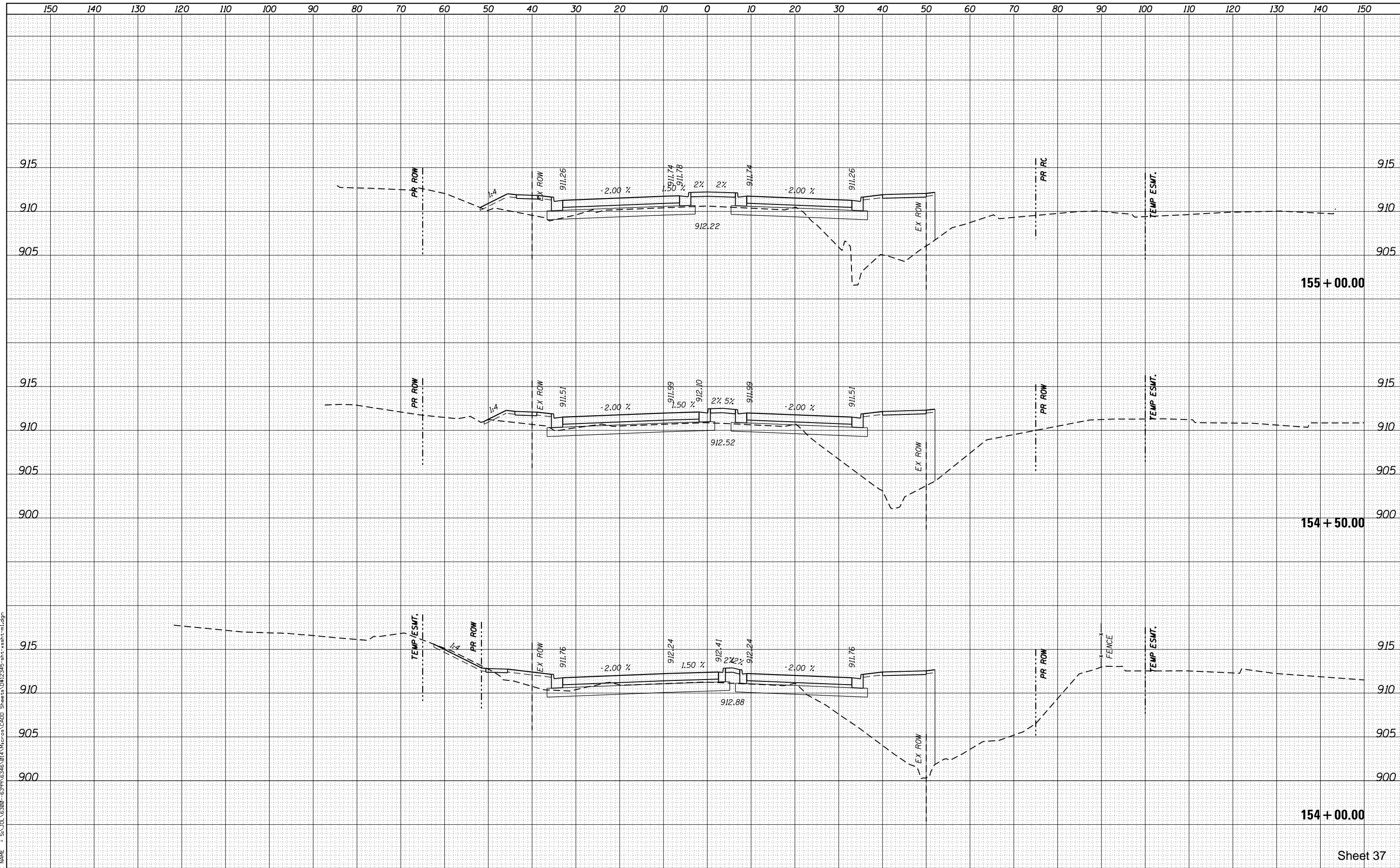
SCALE: 10H-5V SHEET OF SHEETS STA. 152+50.00 TO STA. 153+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

DATE	
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ORIGINAL SURVEY	
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ORIGINAL SURVEY	
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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

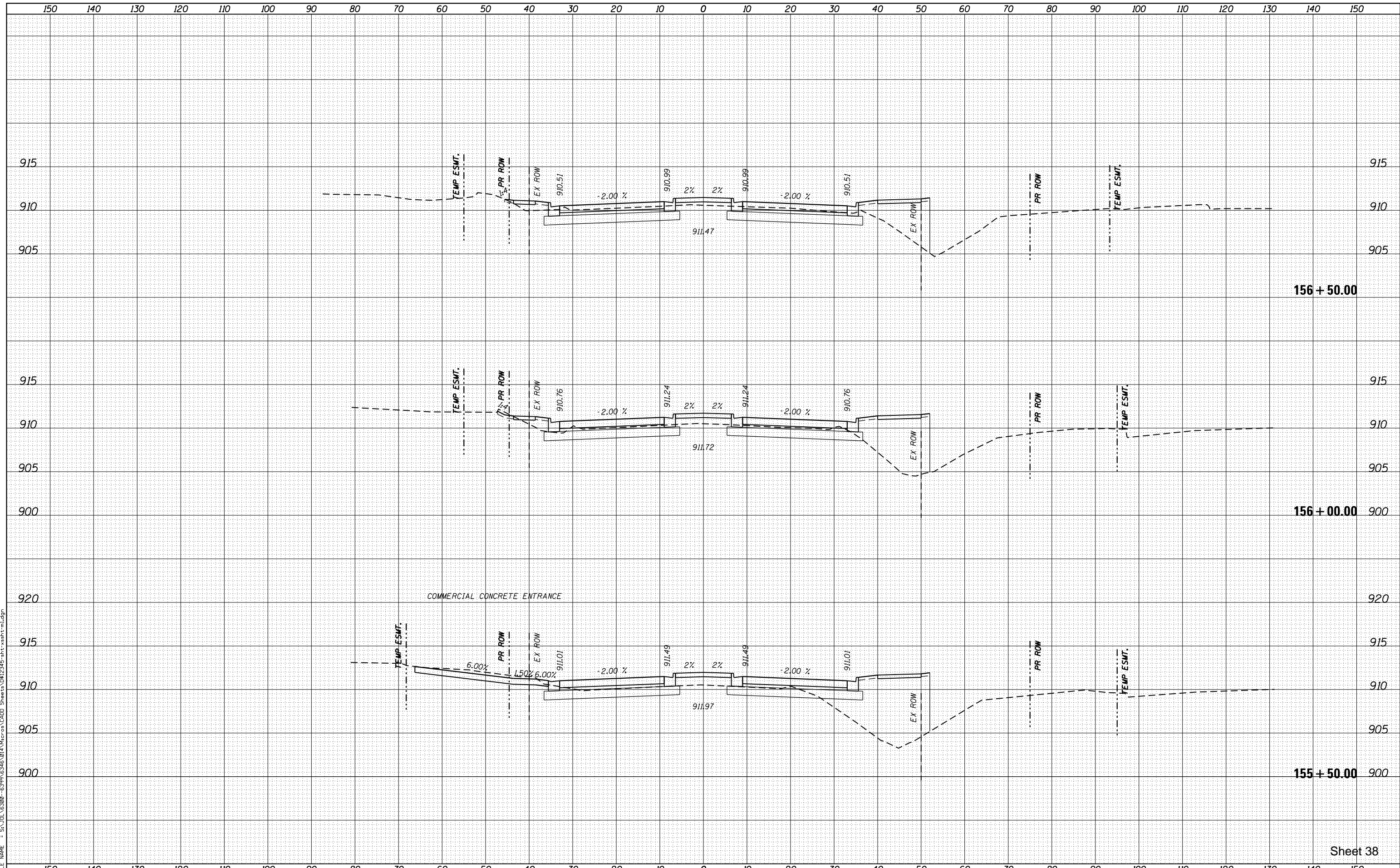
SCALE: 10H-5V SHEET OF SHEETS STA. 154+00.00 TO STA. 155+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

DATE	
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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

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156 + 50.00

156 + 00.00

155 + 50.00

Sheet 38



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 155+50.00 TO STA. 156+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

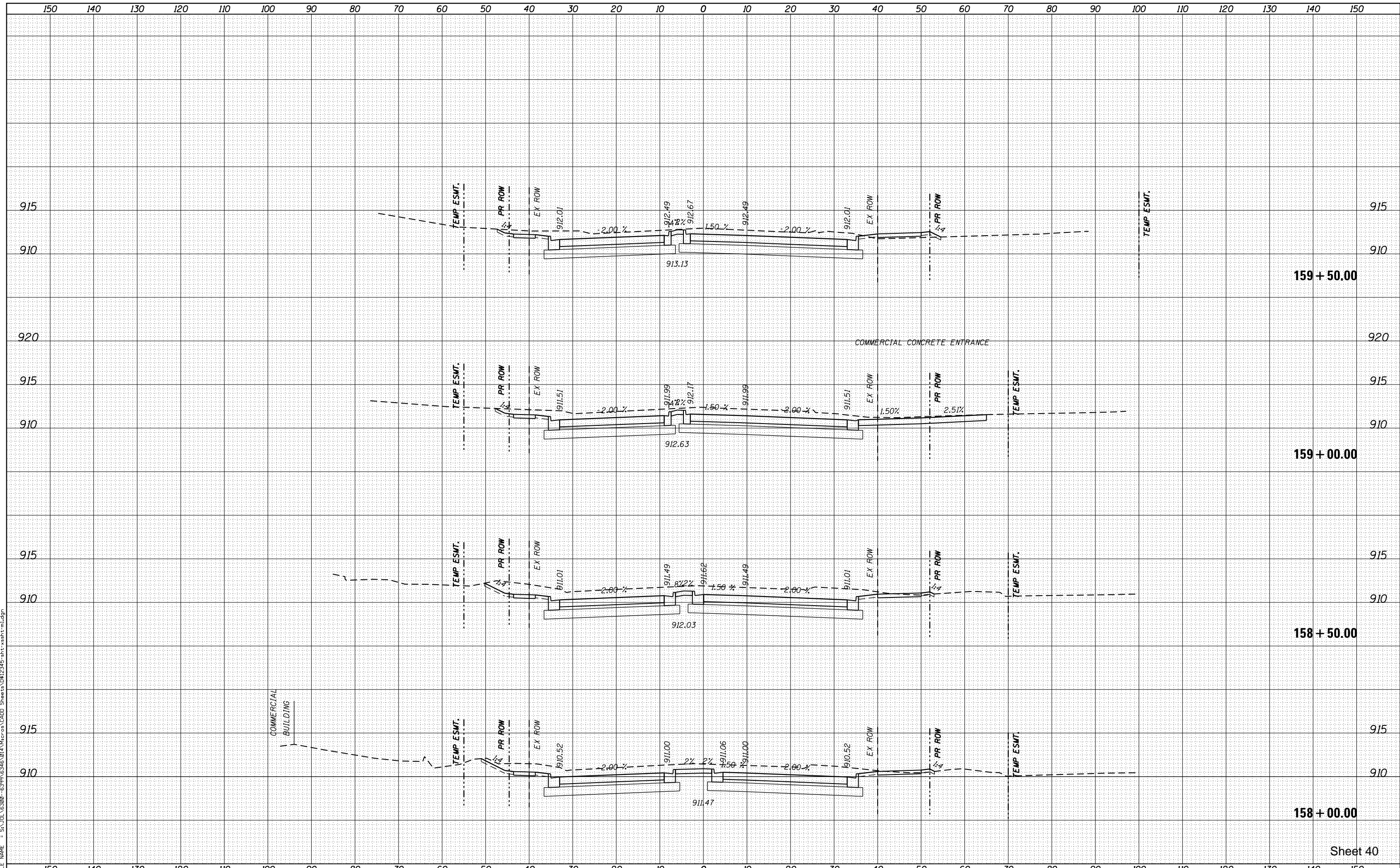




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ORIGINAL SURVEY	
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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 158+00.00 TO STA. 159+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





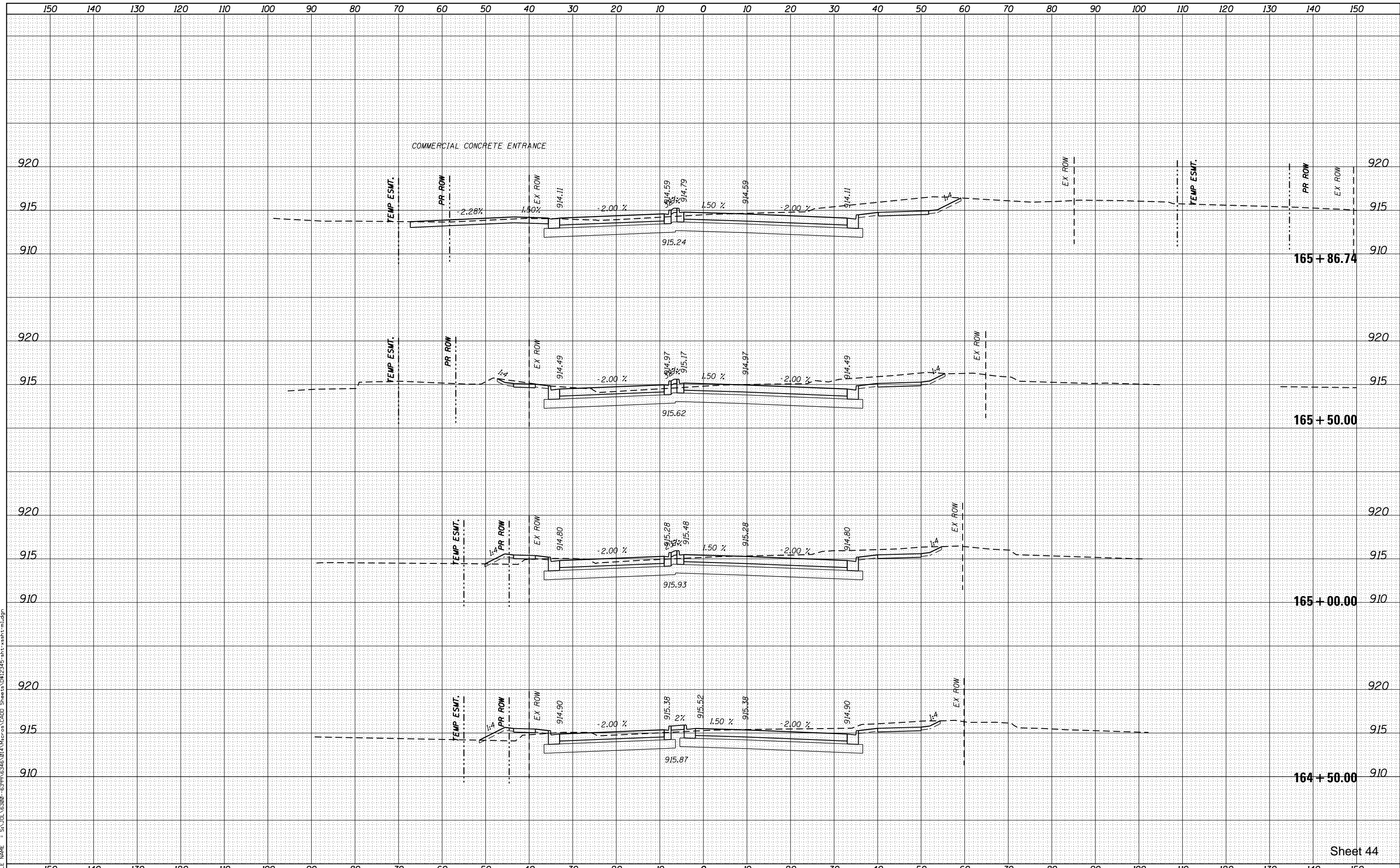




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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED

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Sheet 44



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 164+50.00 TO STA. 165+86.74

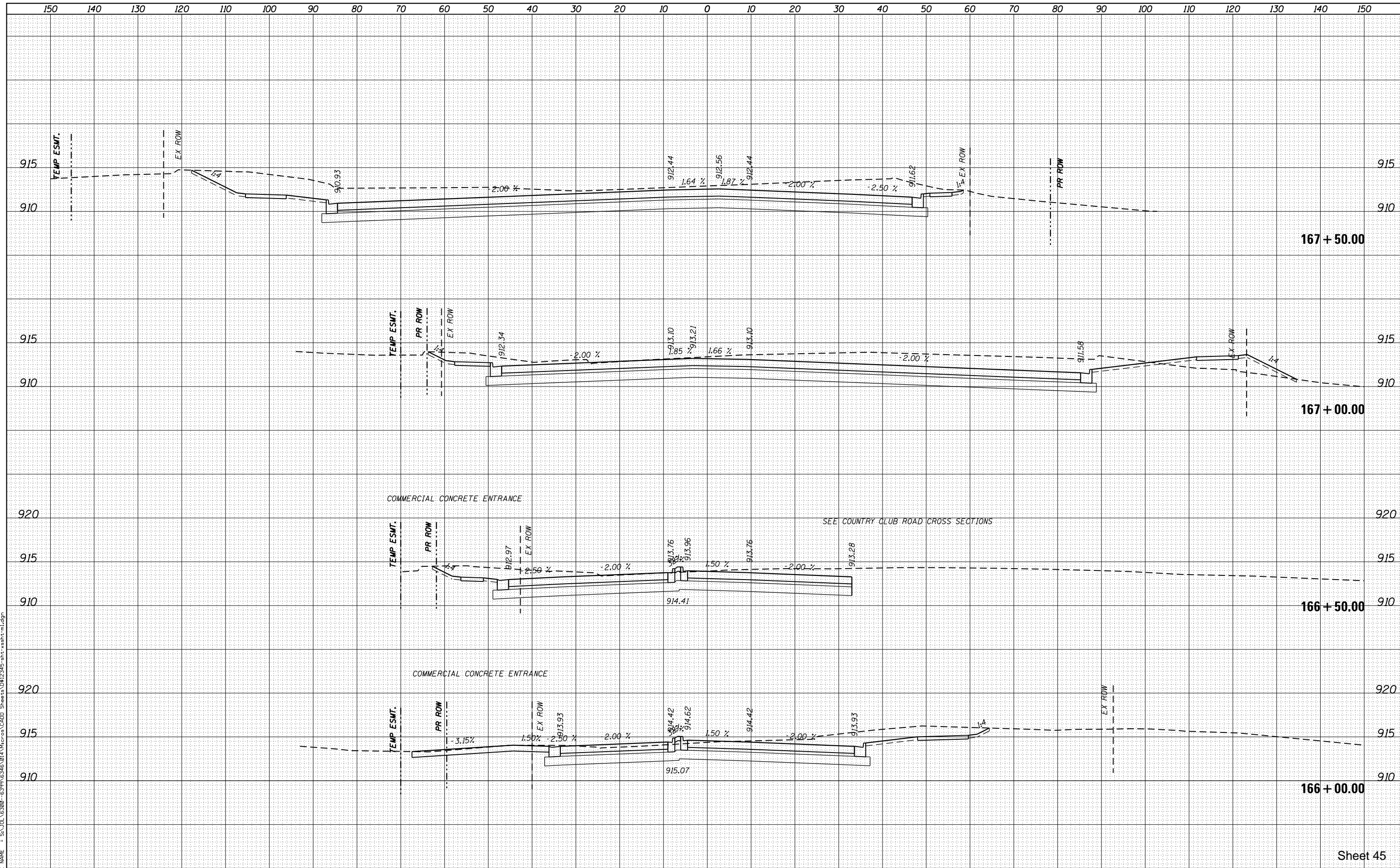
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED

DATE	
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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

FILE NAME = S:\JL\63800-6399\6346\01A\Vic\05\CADD Sheets\0812345-sh1-vssht.mxd



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 166+00.00 TO STA. 167+50.00

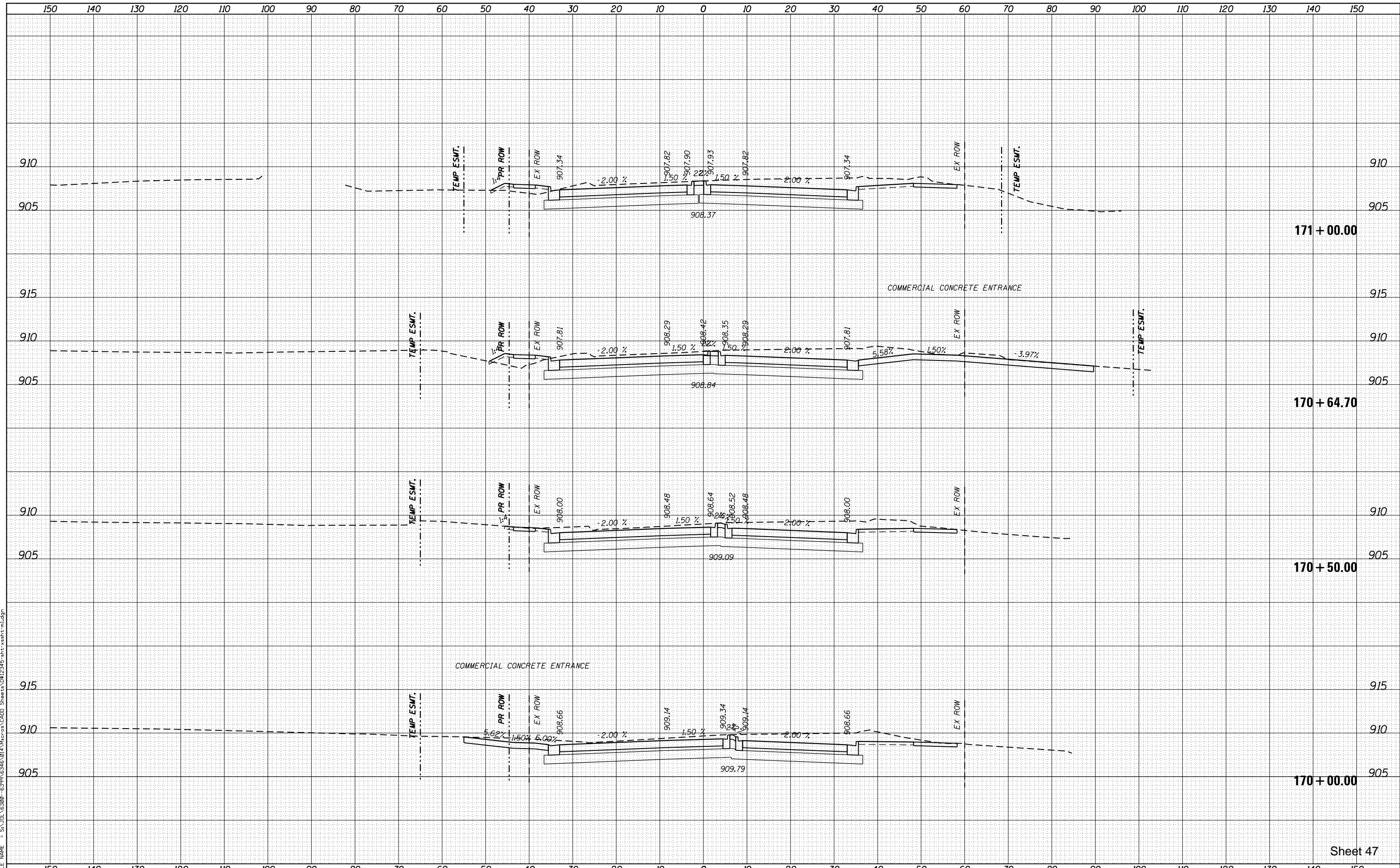
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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TEMPLATE	
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FINAL SURVEY	
NOTE BOOK	
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ORIGINAL SURVEY	
NOTE BOOK	
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Sheet 47



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 170+00.00 TO STA. 171+00.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



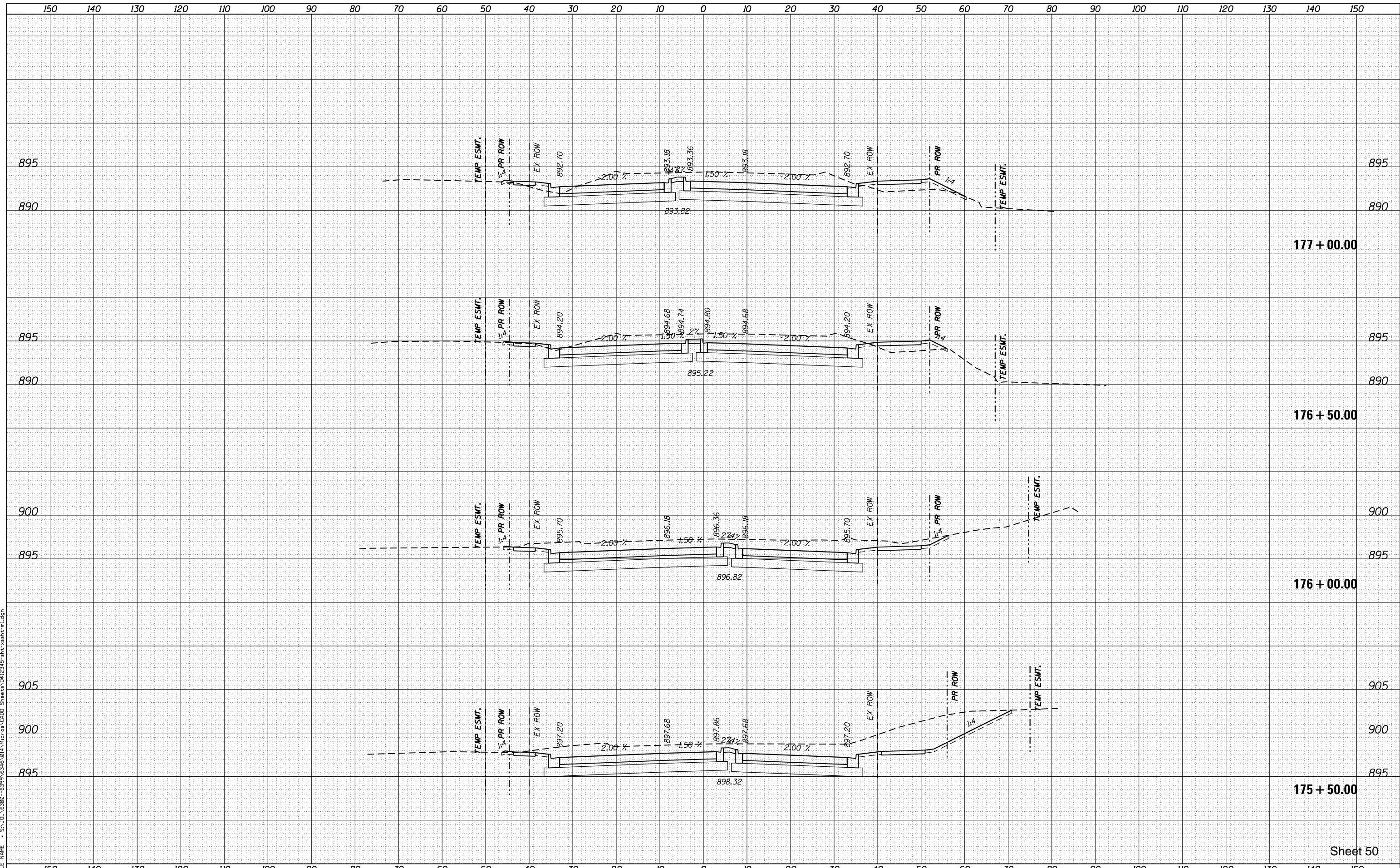




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BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED

FILE NAME = S:\JL\_63800 - 6399\6346\01A\Work\63800\_CADD\_Sheets\0812345-sh1-vssht.mxd



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 175+50.00 TO STA. 177+00.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



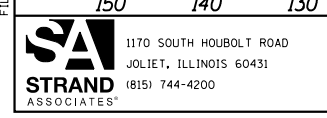
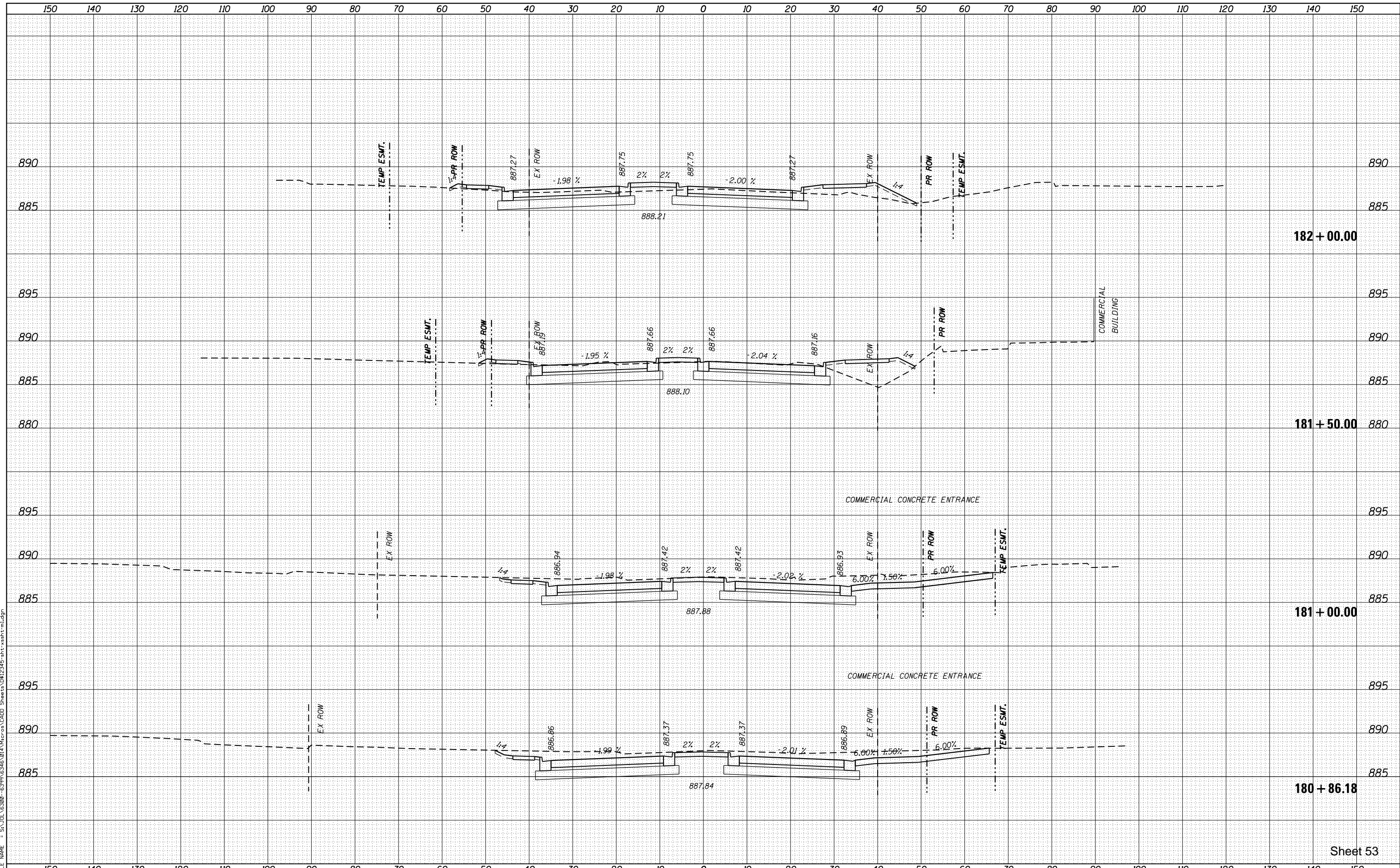




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ORIGINAL SURVEY	
NOTED SURVEY	
PLOTTED SURVEY	
TEMPLATE SURVEY	
AREAS SURVEY	
CHECKED SURVEY	

DATE	
BY	
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NOTED SURVEY	
PLOTTED SURVEY	
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USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V      SHEET      OF      SHEETS      STA. 180+86.18      TO STA. 182+00.00

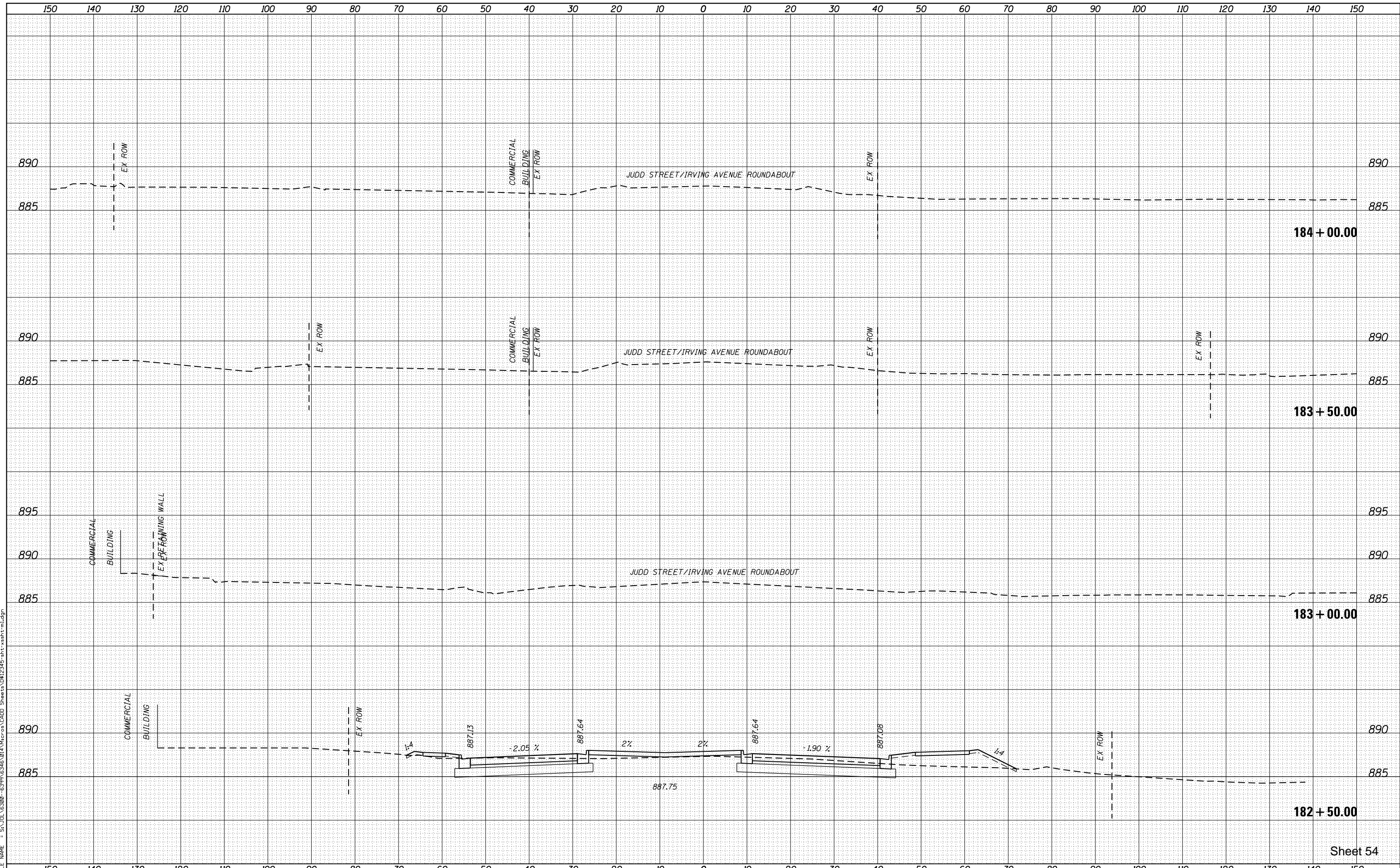
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS	
CHECKED	
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SURVEYED	
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FILE NAME = S:\JL\63800-6399\6346\01A\Vic\05\_CADD\_Sheets\0812345-sh1-vssht.mxd



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V    SHEET    OF    SHEETS    STA. 182+50.00    TO    STA. 184+00.00

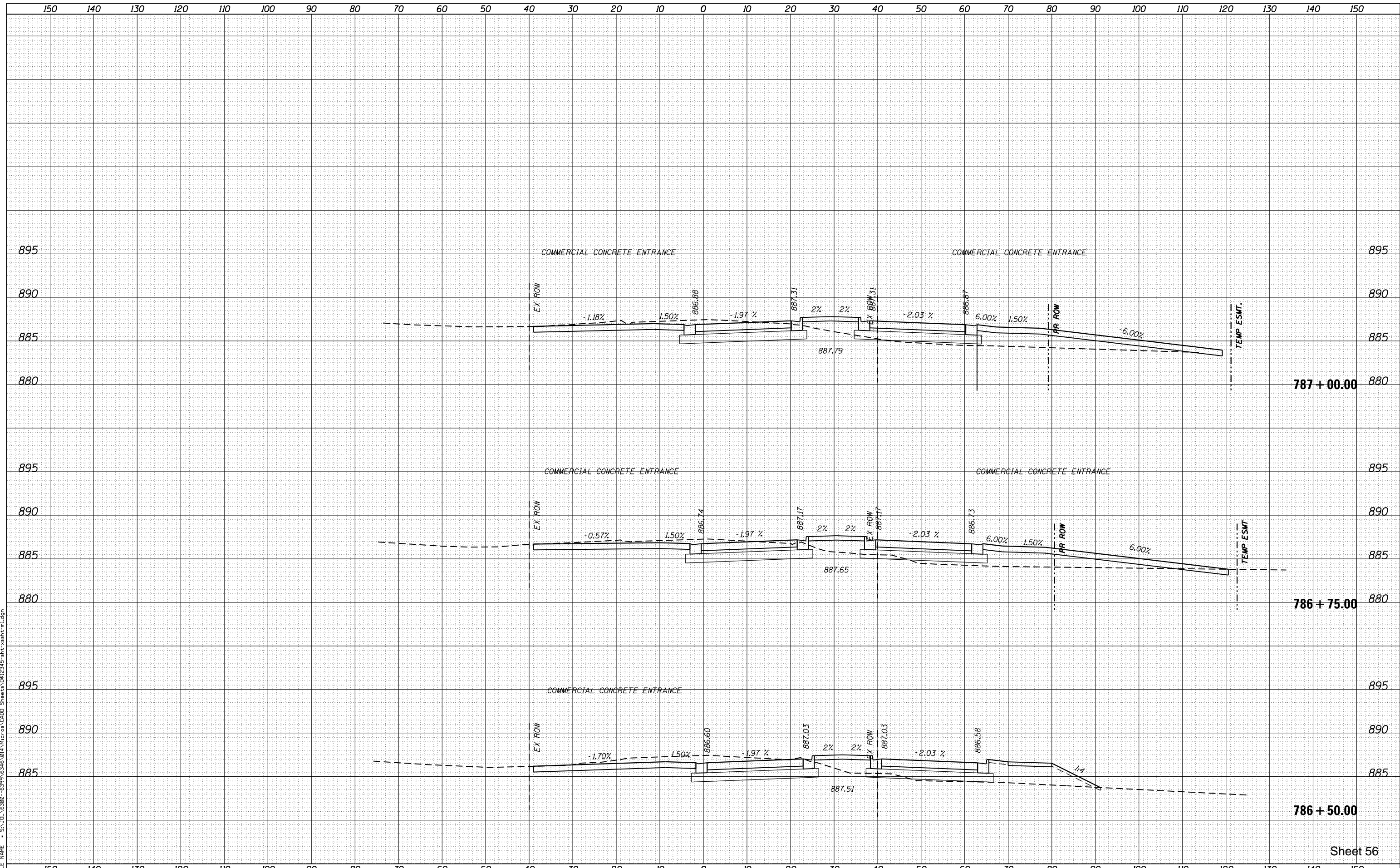
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



DATE	
BY	
FINAL SURVEY	
PLOTTED	
NOTE BOOK	
AREAS CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
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NOTE BOOK	
AREAS CHECKED	
NO.	

FILE NAME = S:\JL\63800-6399\6346\01A\Work\63800\_CADD\_Sheets\0812345-sh1-vssht.mxd



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V    SHEET    OF    SHEETS    STA. 186+50.00    TO    STA. 187+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				









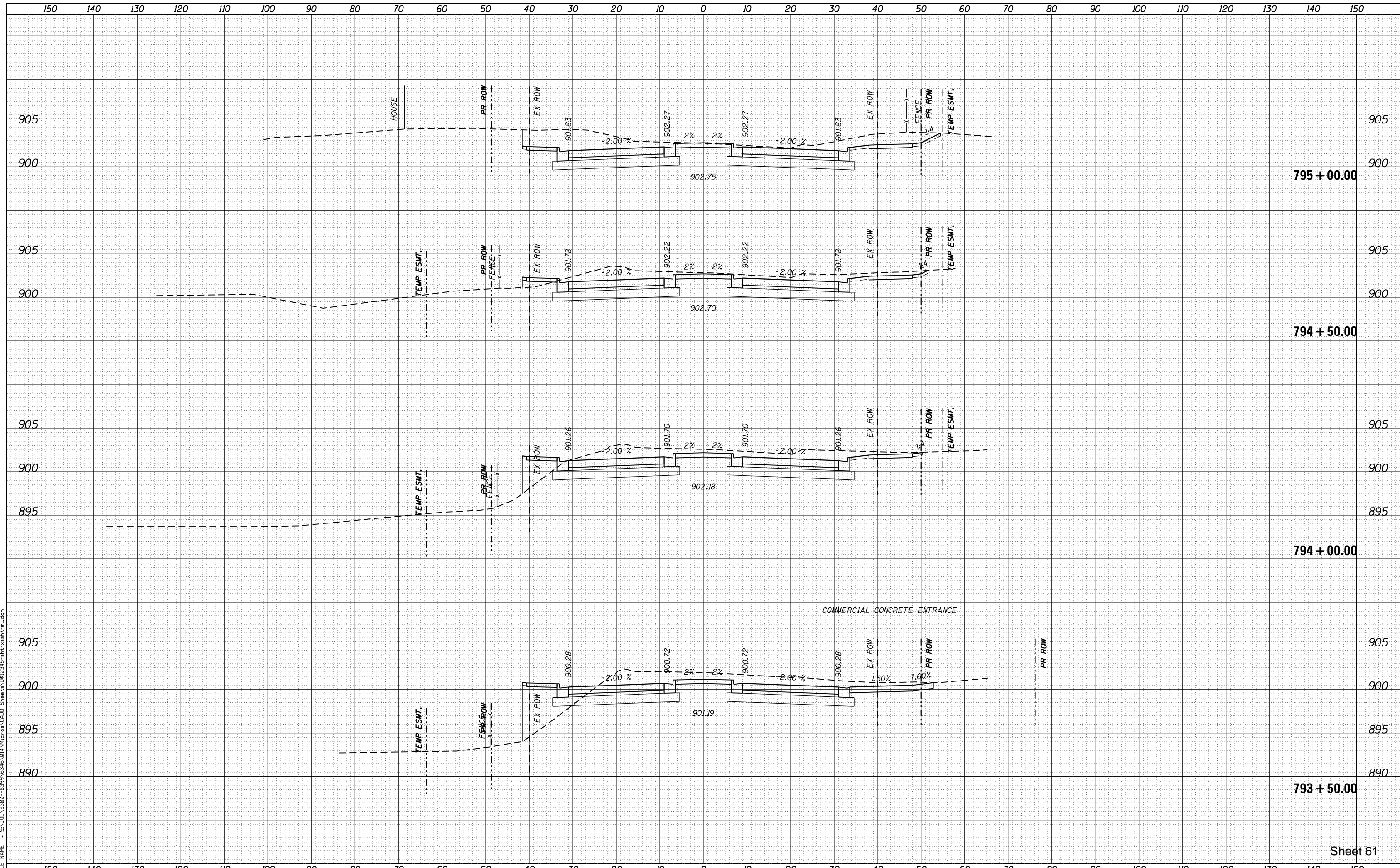




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BY	
FINAL SURVEY	
SURVEYED	
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TEMPLATE	
NOTE BOOK	
AREAS CHECKED	
AREAS CHECKED	

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BY	
ORIGINAL SURVEY	
SURVEYED	
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NOTE BOOK	
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AREAS CHECKED	

FILE NAME = S:\JL\63800-6399\6346\01A\Work\63800 CAD Sheets\082345-sh1-vssht.mxdgn



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

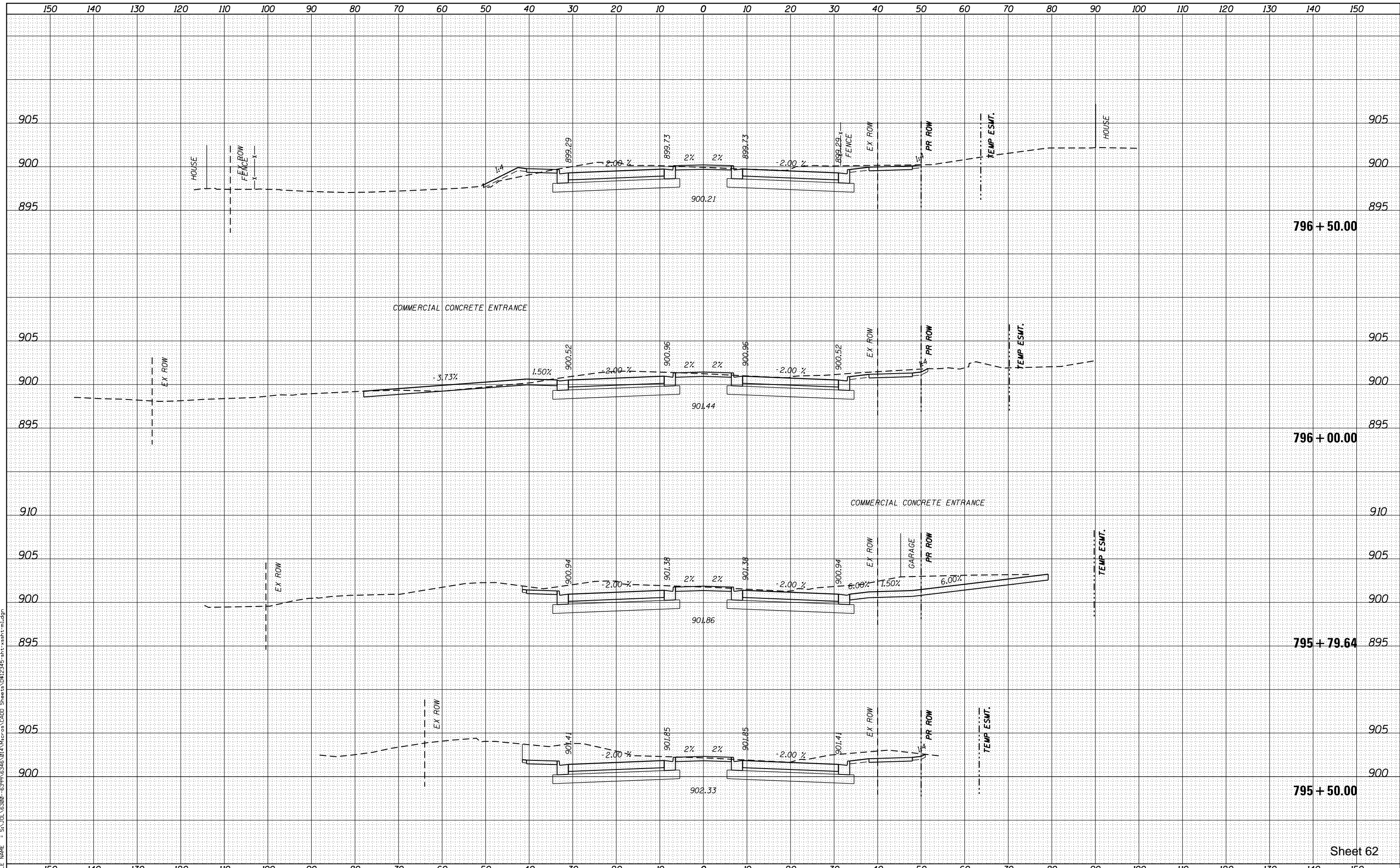
SCALE: 10H-5V SHEET OF SHEETS STA. 193+50.00 TO STA. 195+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

DATE	
BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED
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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED

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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 195+50.00 TO STA. 796+50.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				







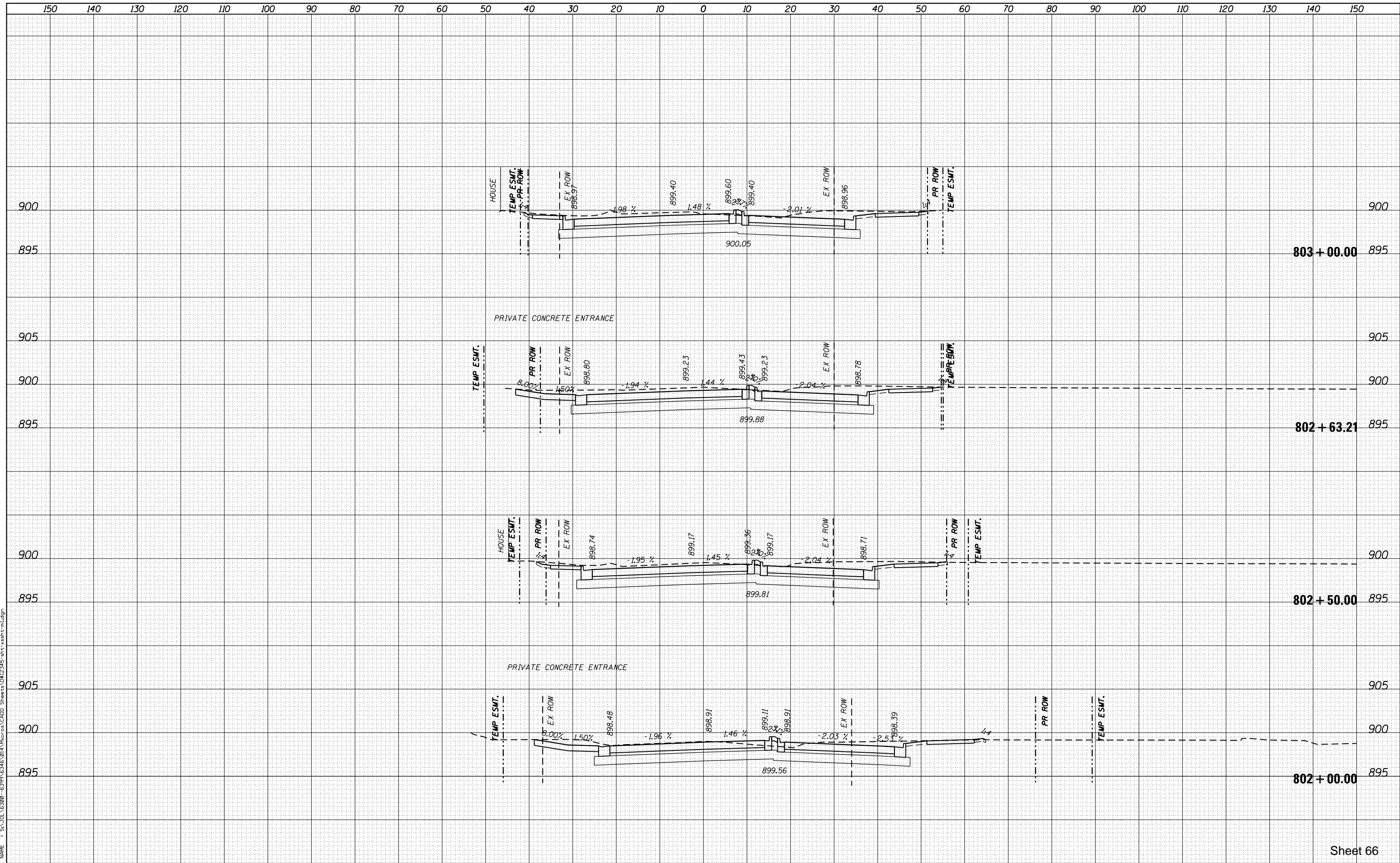




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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISD -
MODEL NAME = Default	DRAWN - DJW	REVISD -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISD -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISD -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 802+00.00 TO STA. 803+00.00

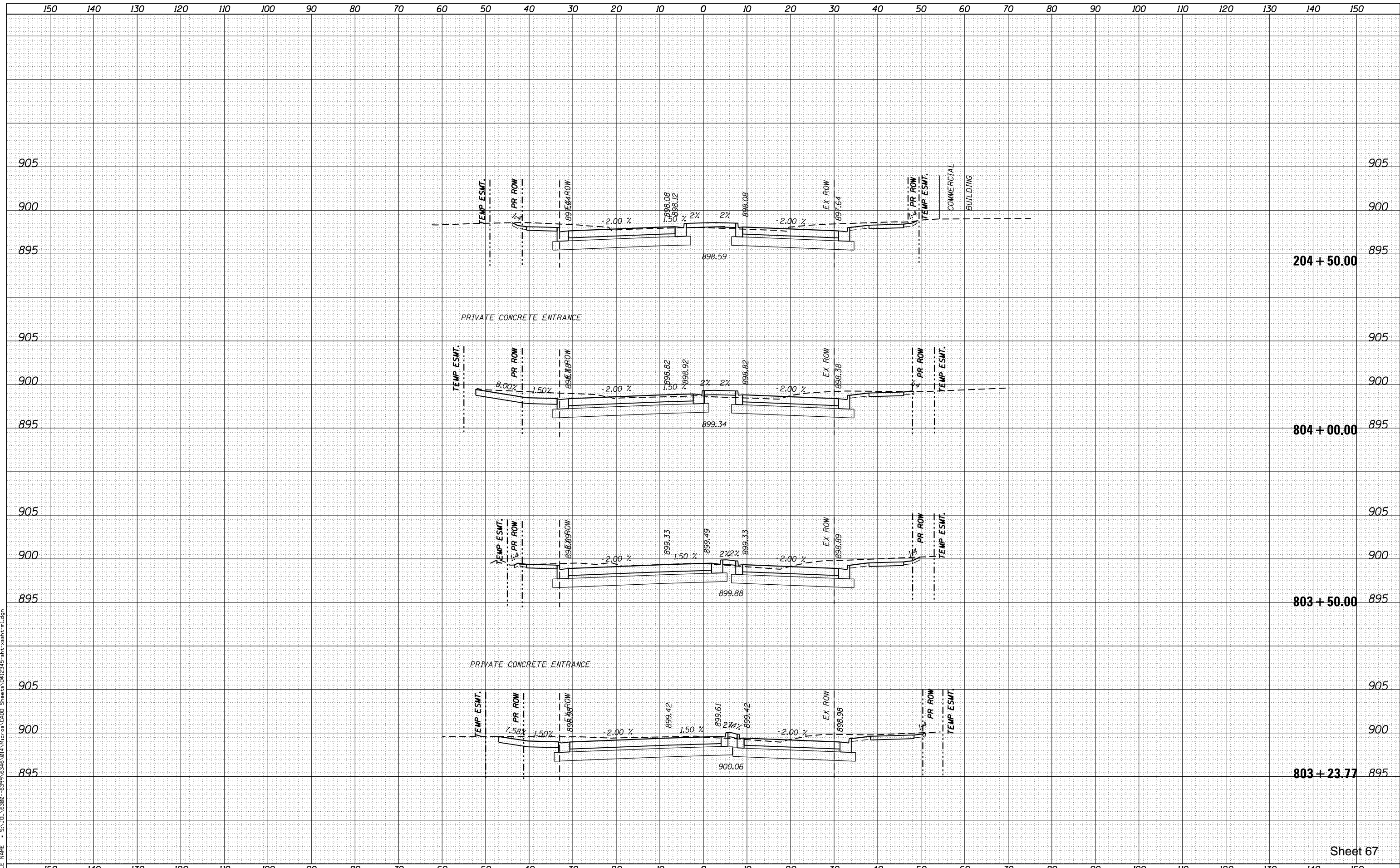
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		

ILLINOIS FED. AID PROJECT

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SURVEYED	
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204 + 50.00

804 + 00.00

803 + 50.00

803 + 23.77

Sheet 67

**STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

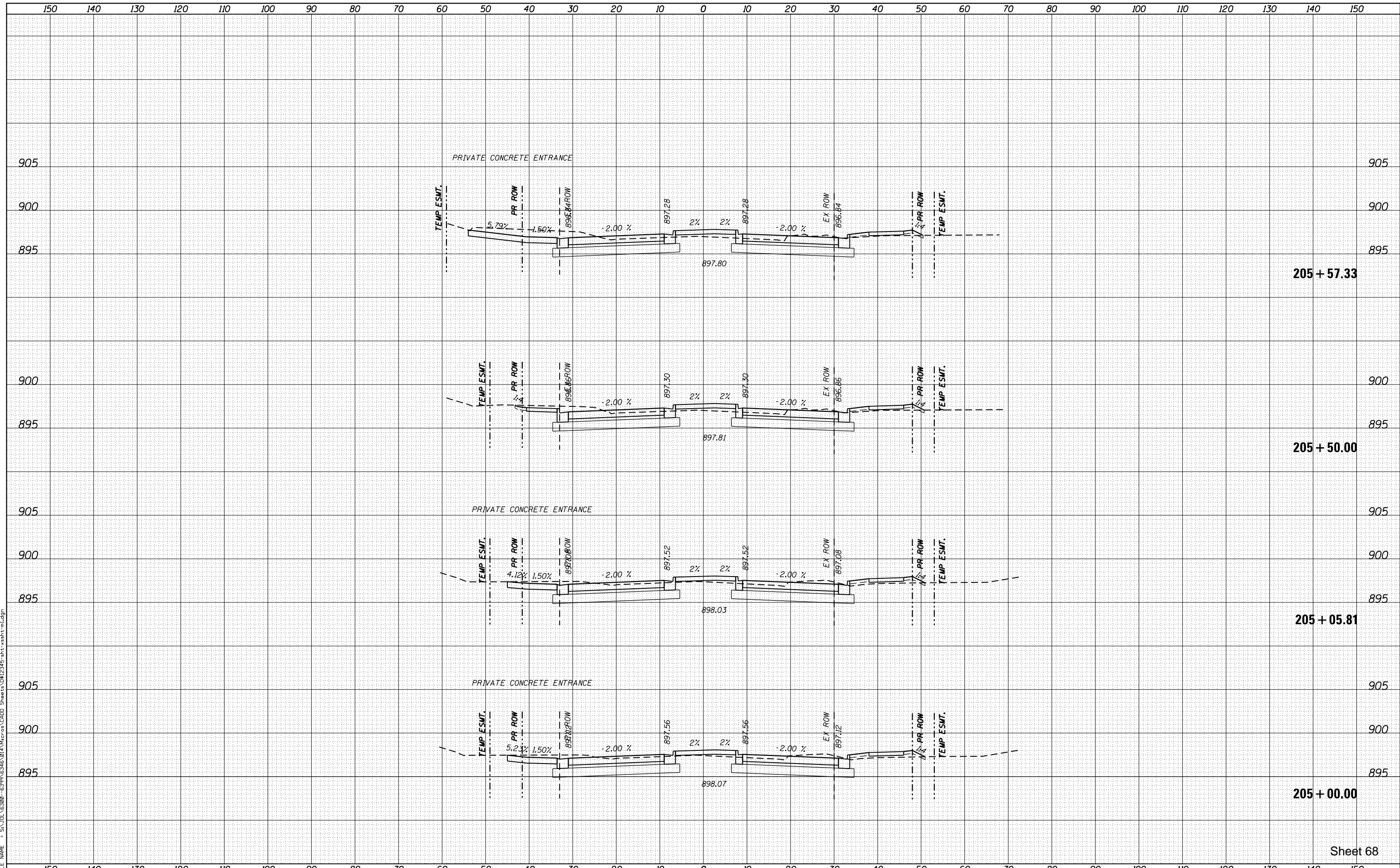
SCALE: 10H-5V SHEET OF SHEETS STA. 803+23.77 TO STA. 204+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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NOTE BOOK	PLOTTED
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NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

FILE NAME = S:\JL\63800-6399\6346\01\A\Vic\05\CADD Sheets\0812345-sh1-vssht.mxd



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 205+00.00 TO STA. 205+57.33

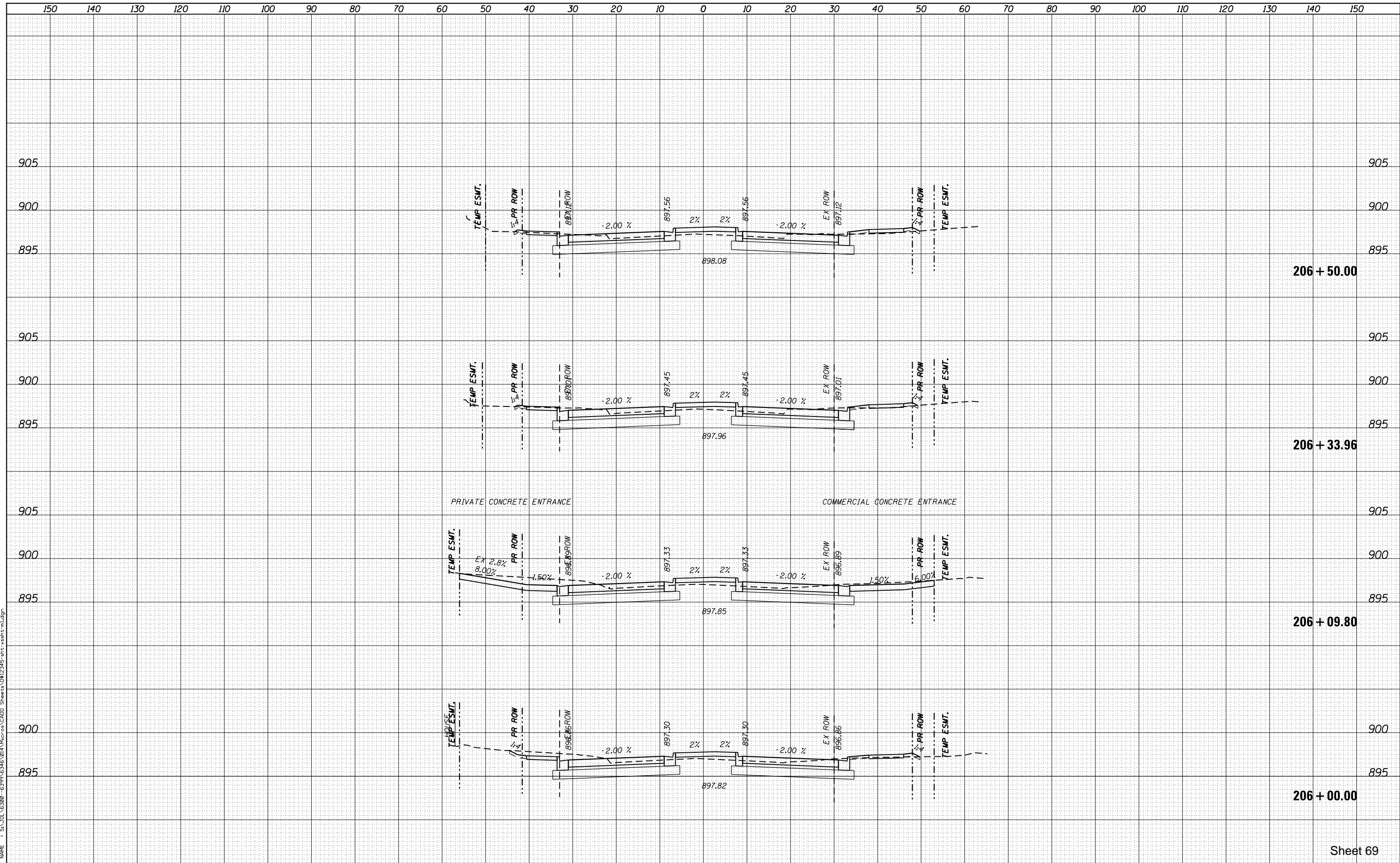
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
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FINAL SURVEY NO.	
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ORIGINAL SURVEY NO.	
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Sheet 69



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 206+00.00 TO STA. 206+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				











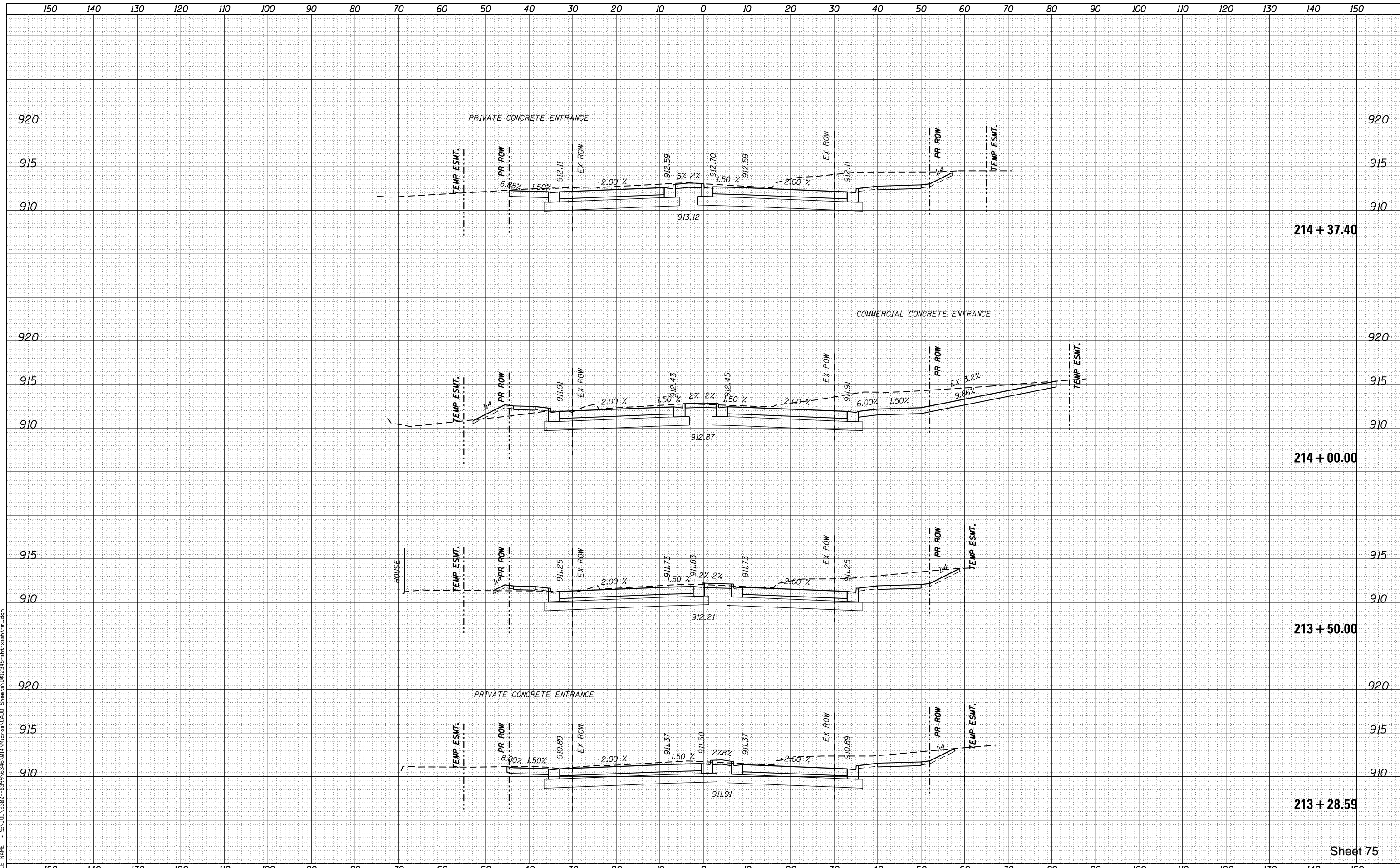




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214 + 37.40

214 + 00.00

213 + 50.00

213 + 28.59

Sheet 75



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 213+28.59 TO STA. 214+37.40

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





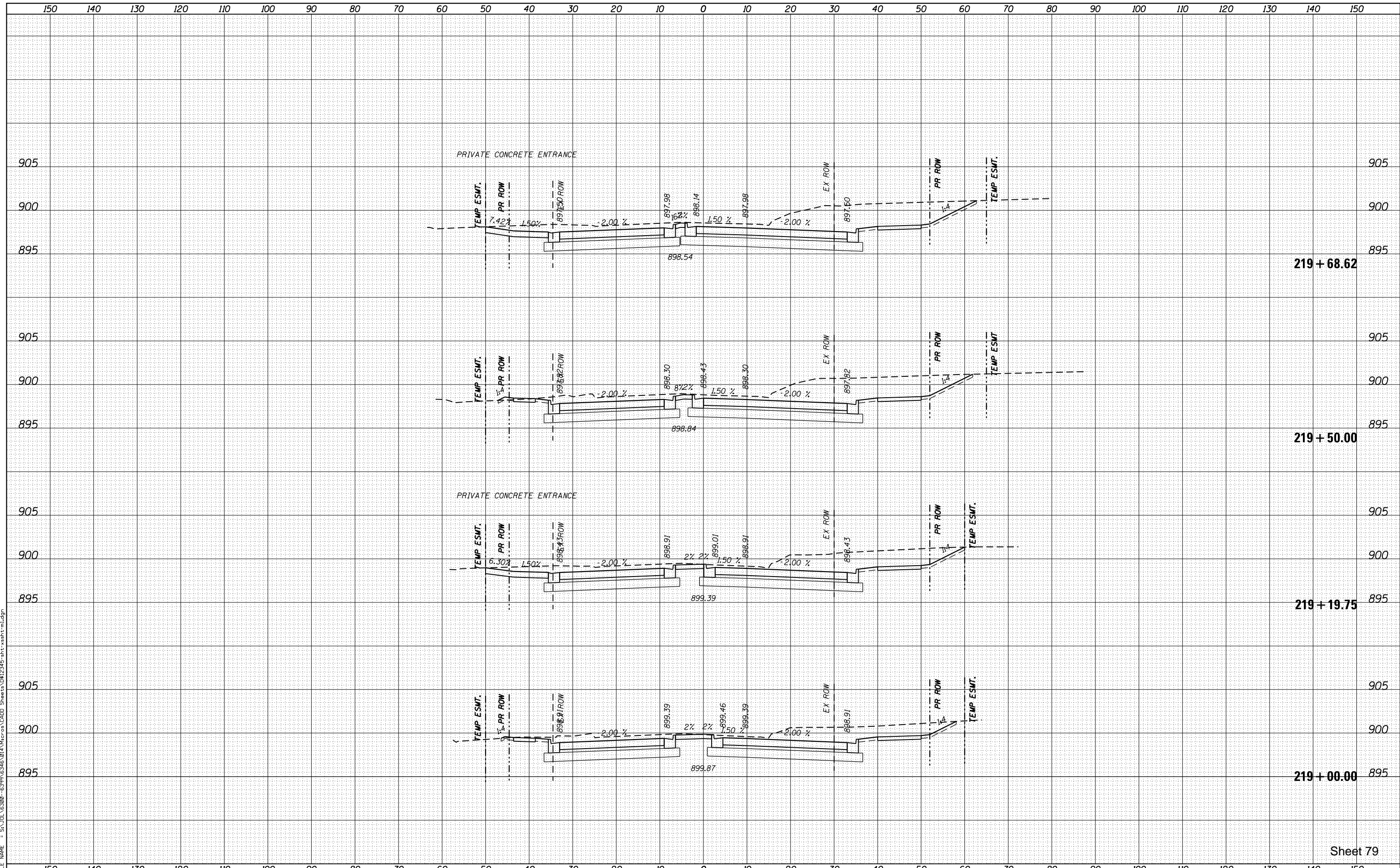




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FILE NAME = S:\JL\63800-6399\6346\01A\Micro\CAD Sheets\082345-sh1-vssht.mxd



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

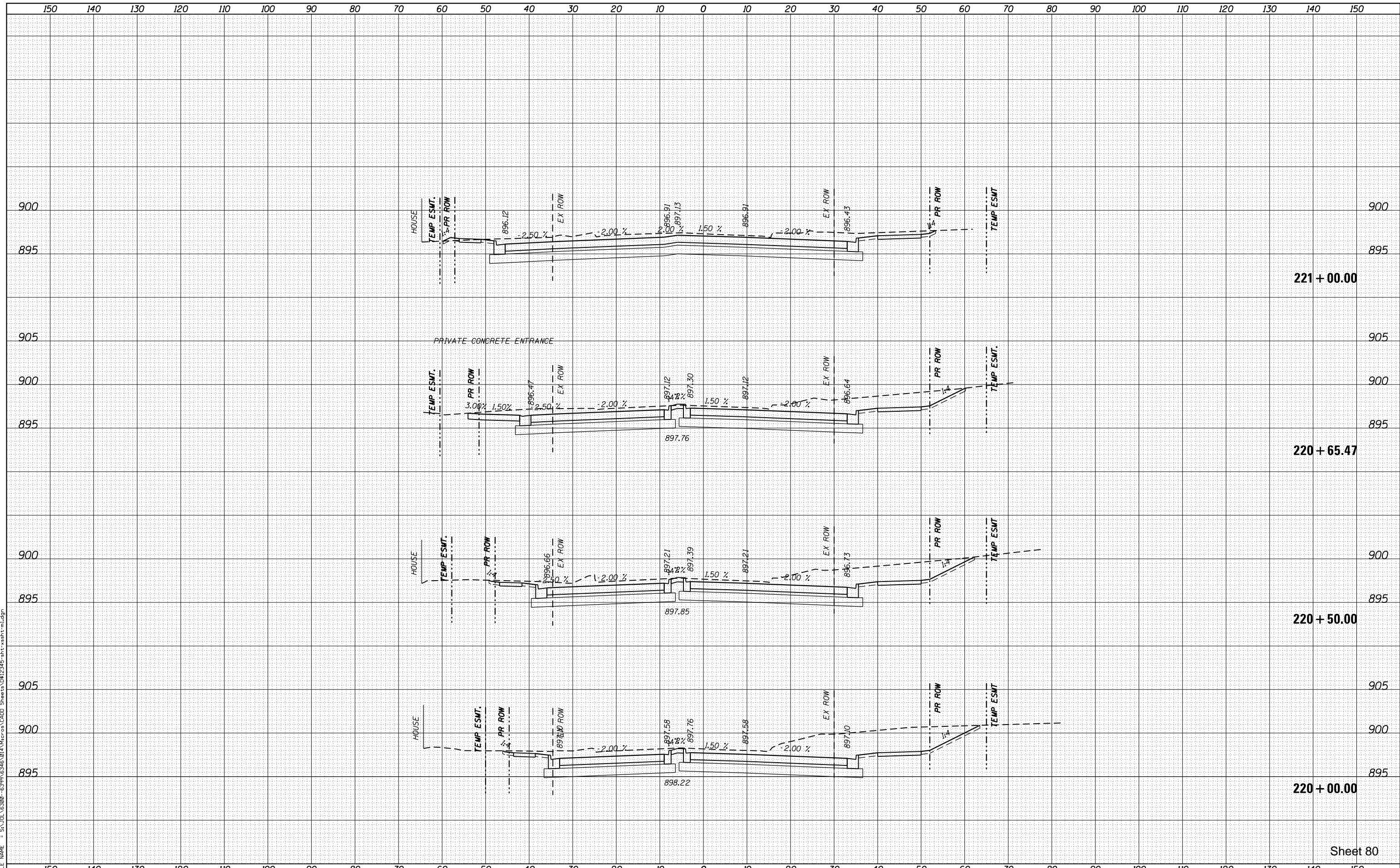
SCALE: 10H-5V SHEET OF SHEETS STA. 219+00.00 TO STA. 219+68.62

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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NOTE BOOK	PLOTTED
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	AREAS CHECKED

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**STRAND ASSOCIATES\***  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 220+00.00 TO STA. 221+00.00

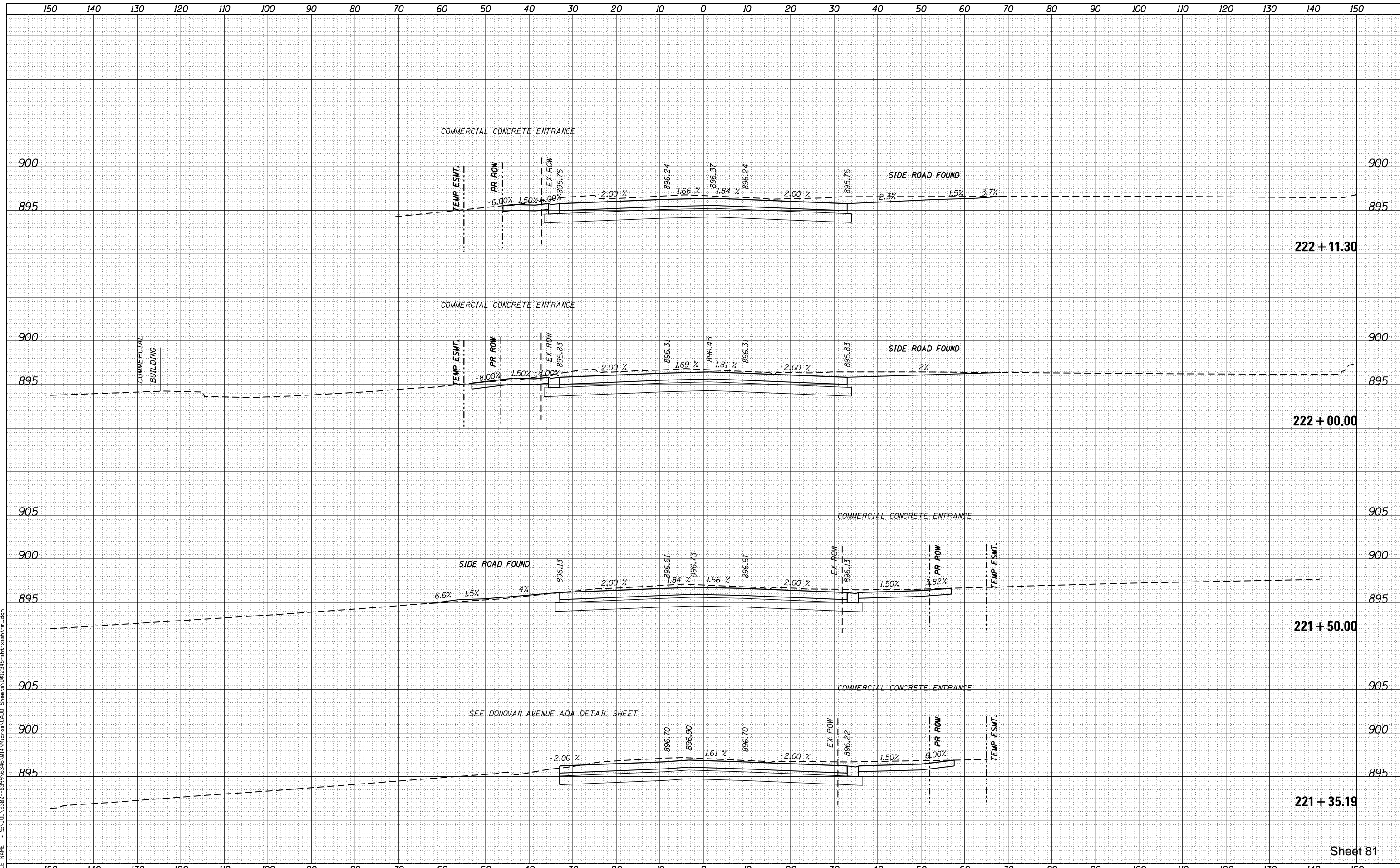
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

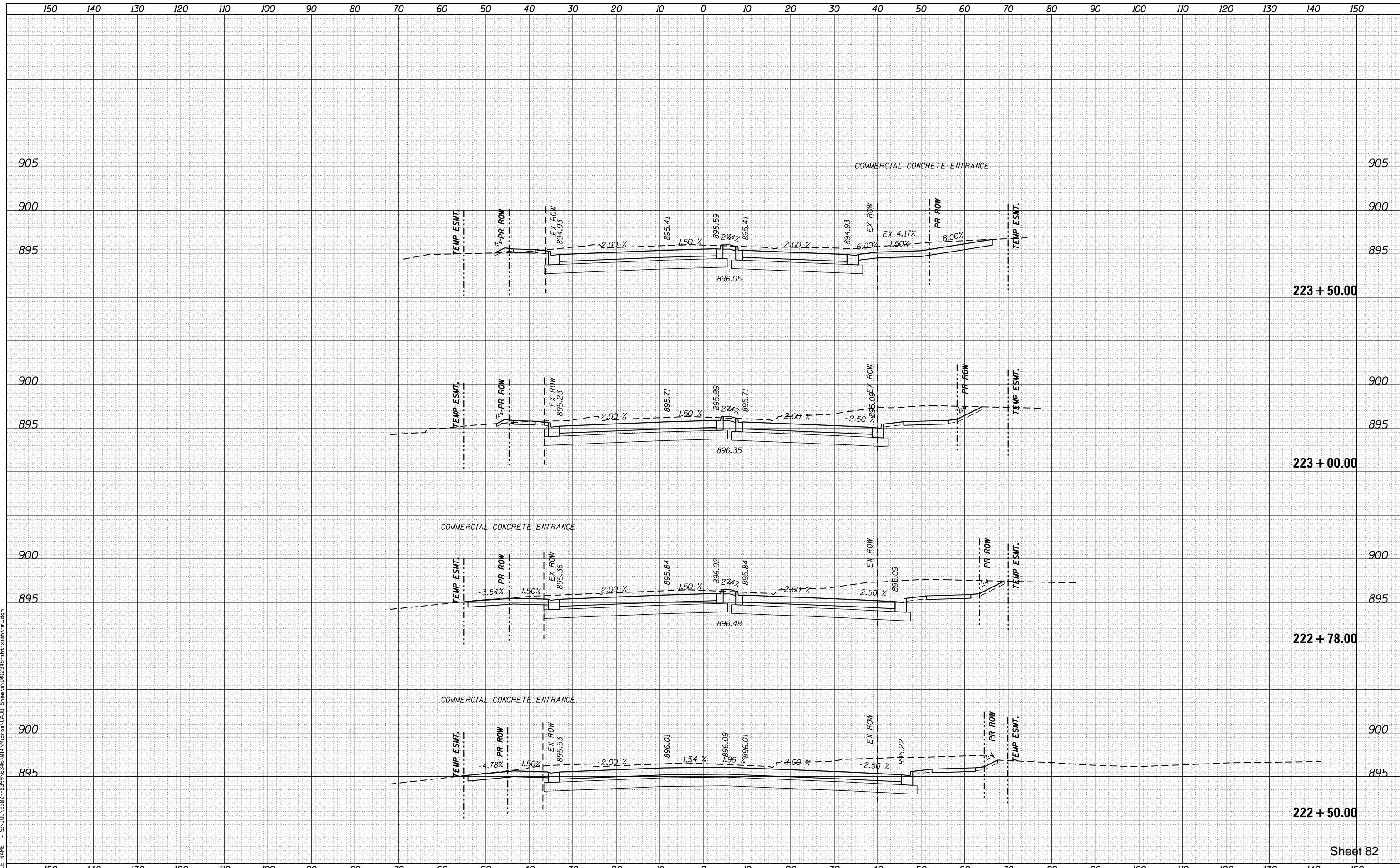
SCALE: 10H-5V SHEET OF SHEETS STA. 221+35.19 TO STA. 222+11.30

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

DATE	
BY	
ORIGINAL SURVEY	
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ORIGINAL SURVEY	
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223 + 50.00

223 + 00.00

222 + 78.00

222 + 50.00

Sheet 82



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 222+50.00 TO STA. 223+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

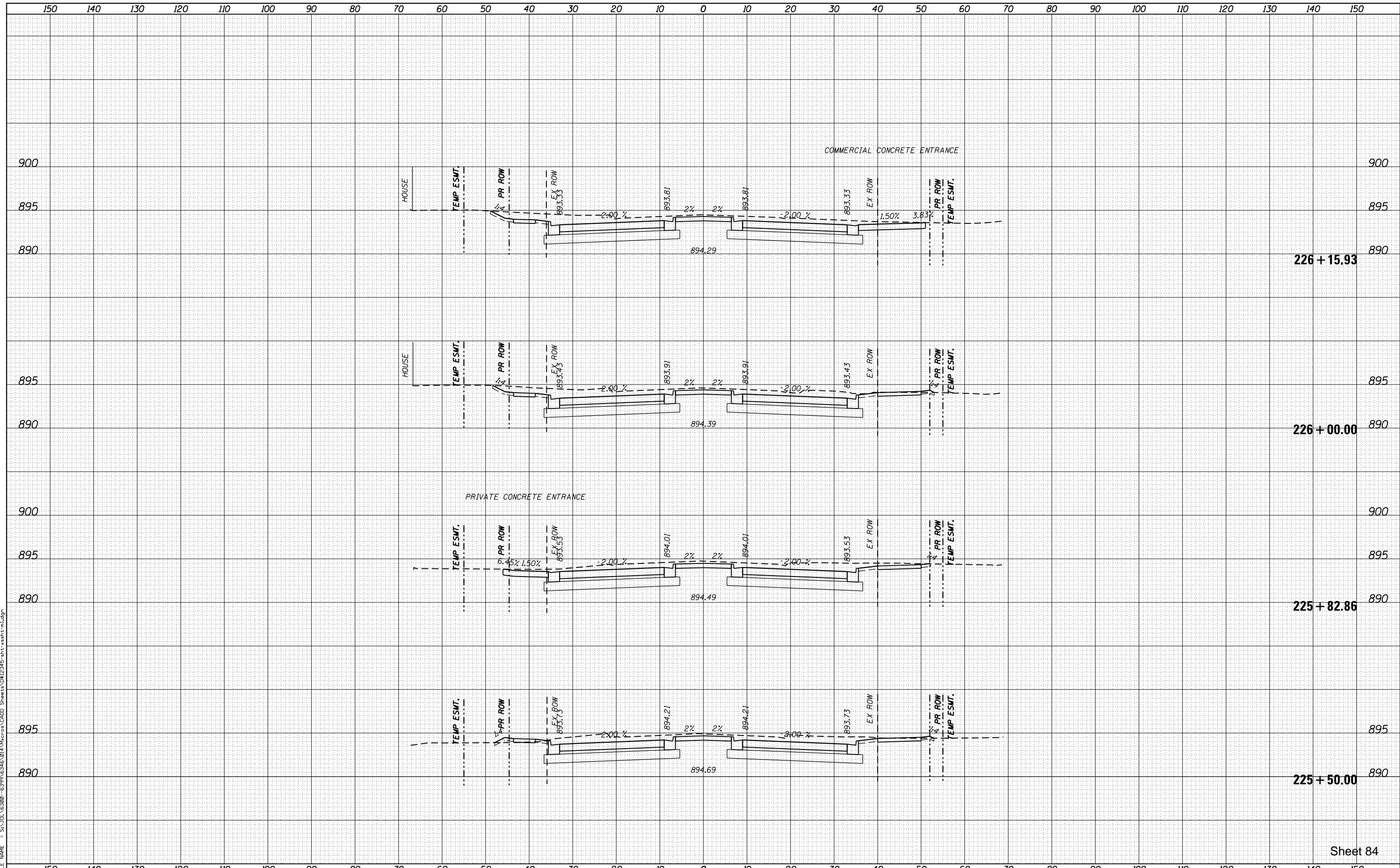




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FINAL SURVEY	
NOTE BOOK	
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DATE	
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FINAL SURVEY	
NOTE BOOK	
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226 + 15.93

226 + 00.00

225 + 82.86

225 + 50.00

Sheet 84



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 225+50.00 TO STA. 226+15.93

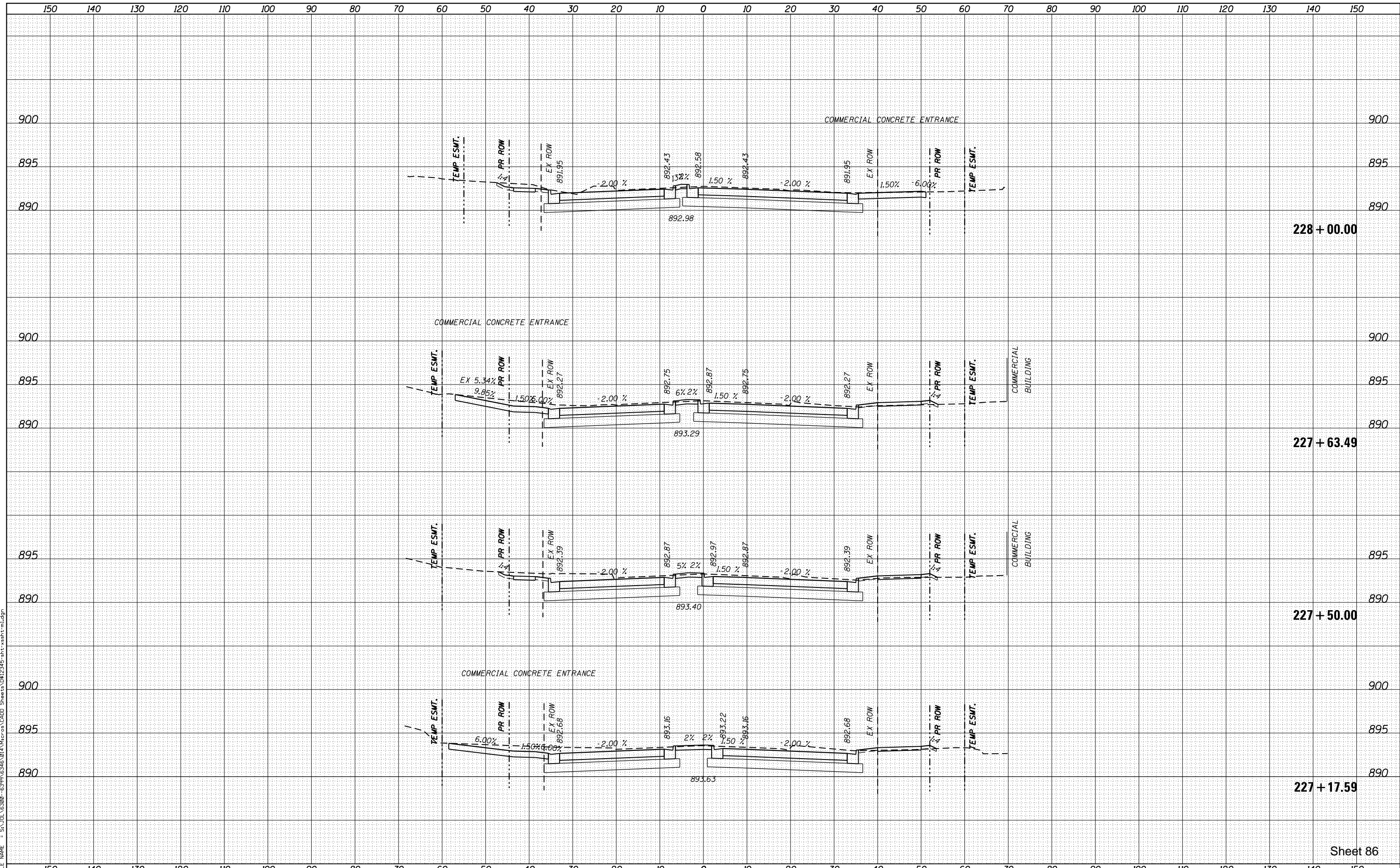
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 227+17.59 TO STA. 228+00.00

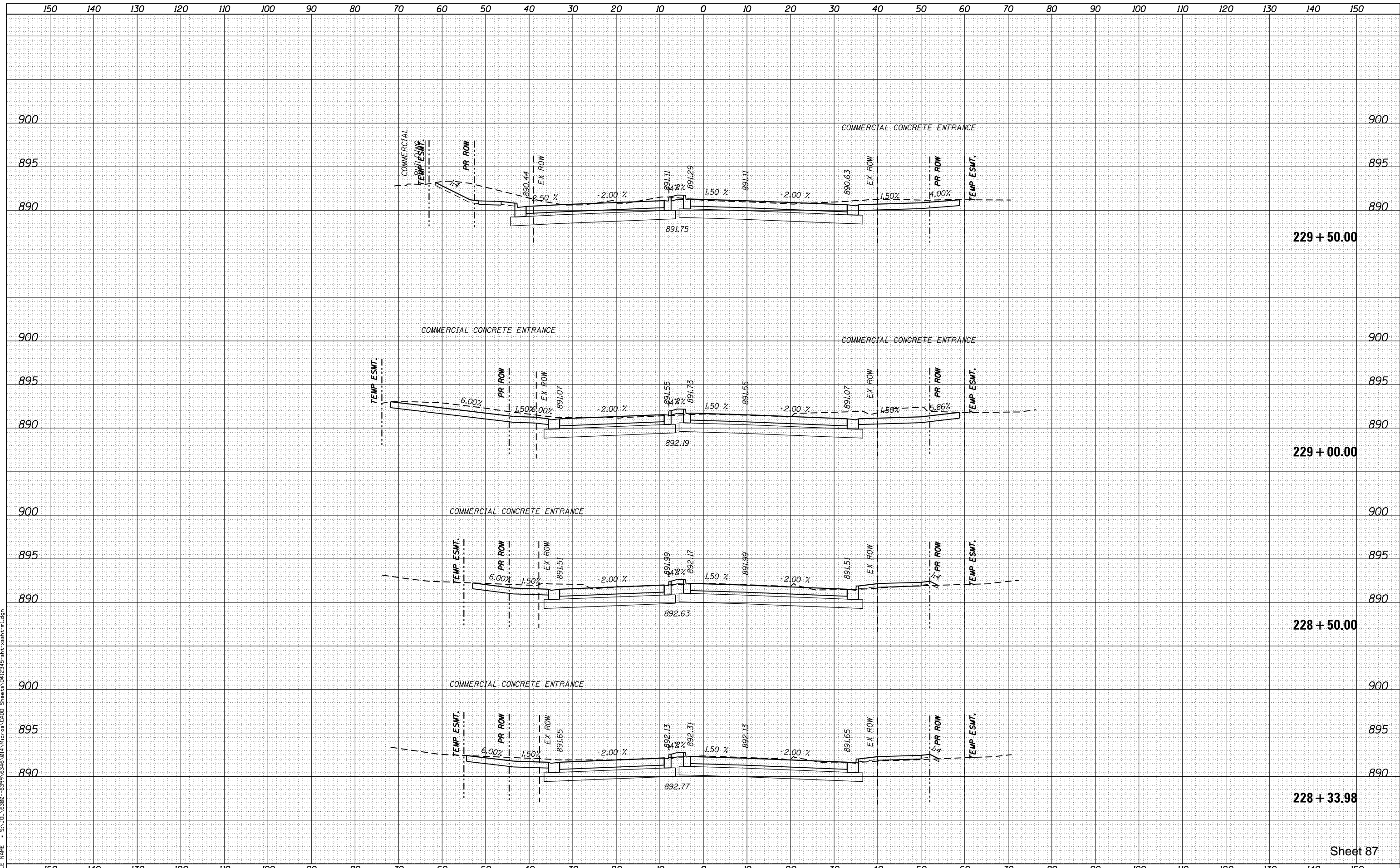
F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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229 + 50.00

229 + 00.00

228 + 50.00

228 + 33.98

Sheet 87

**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 228+33.98 TO STA. 229+50.00

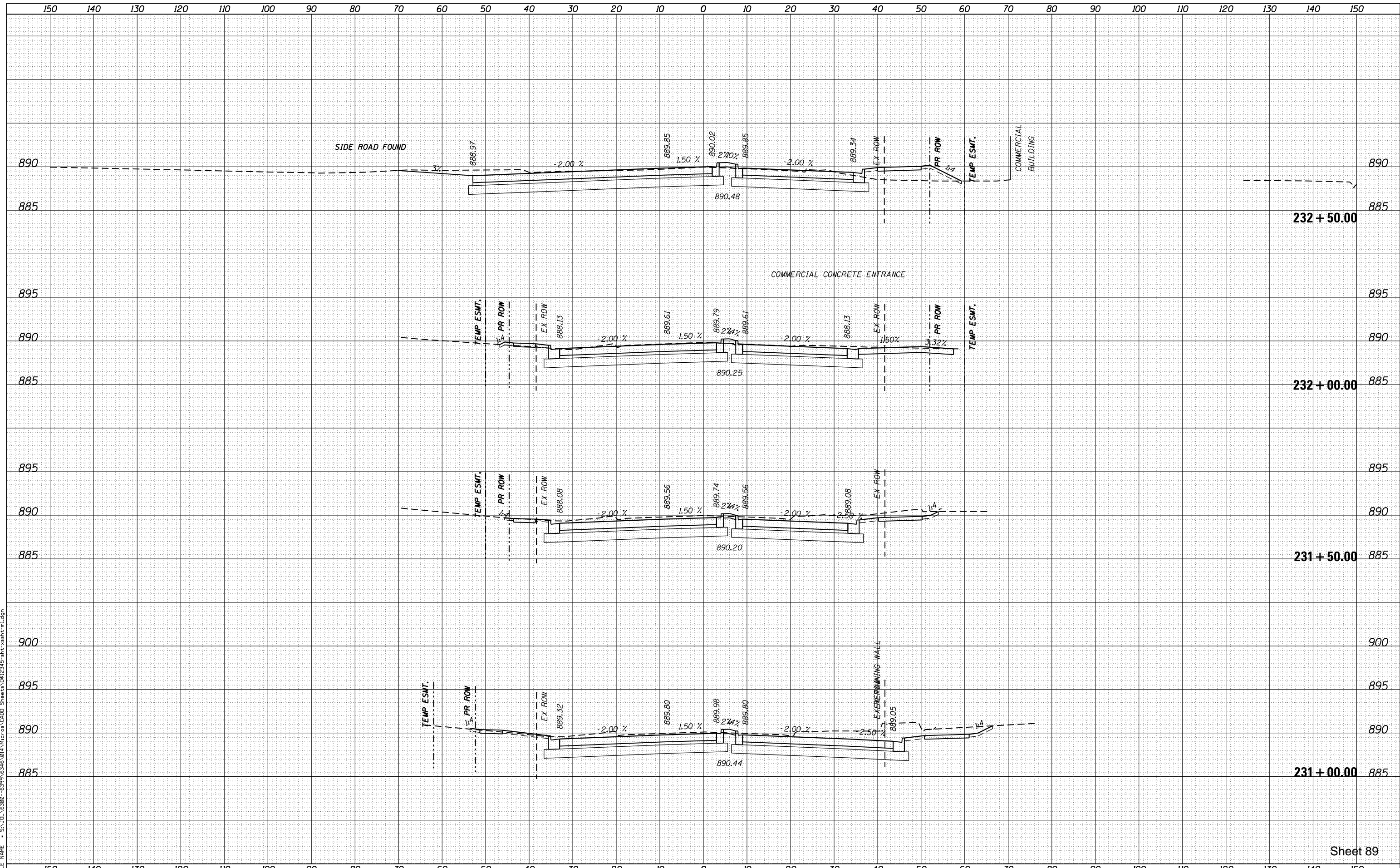
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
BY	
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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 231+00.00 TO STA. 232+50.00

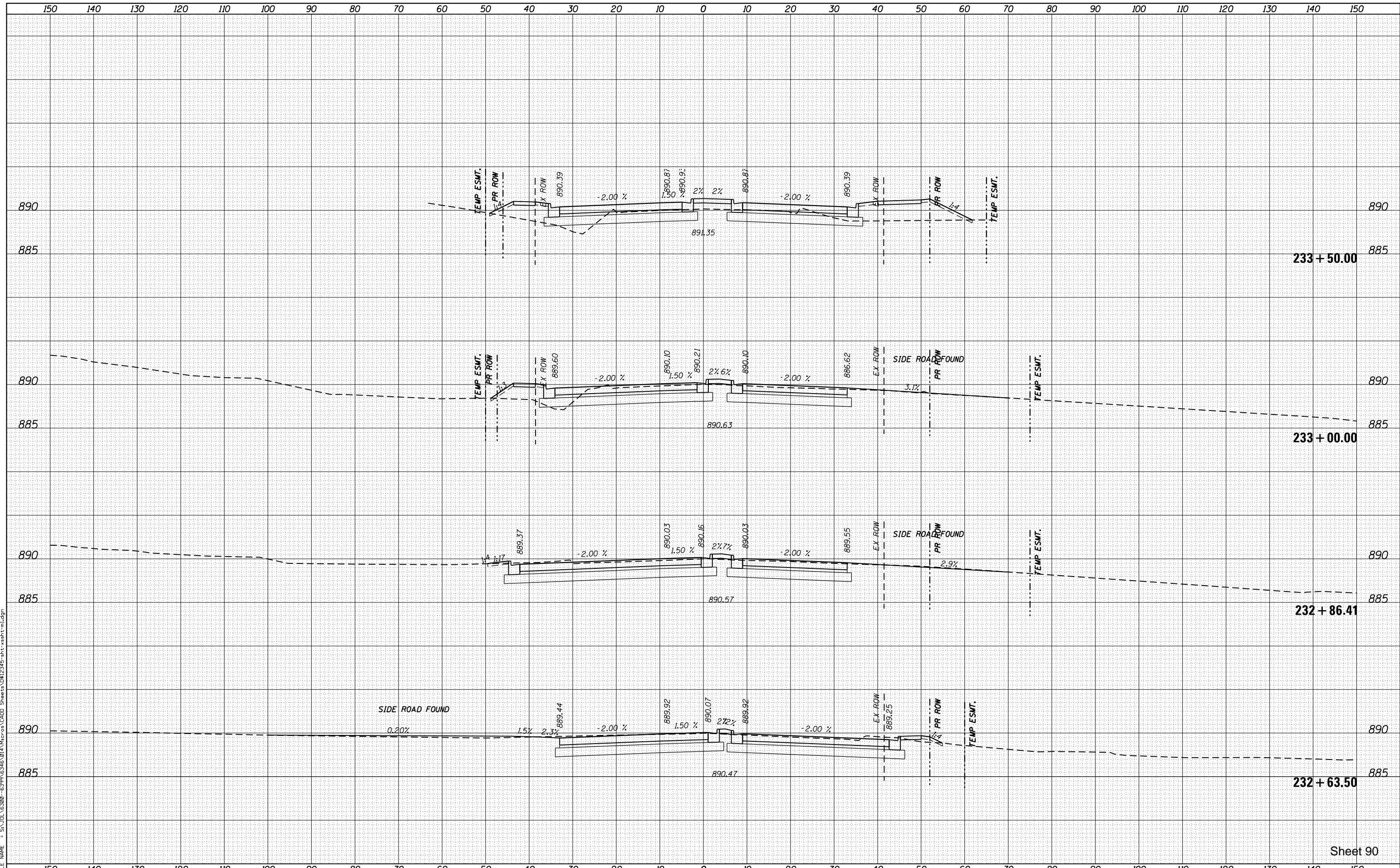
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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FINAL SURVEY	
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PLOTTED	
TEMPLATE	
AREAS CHECKED	
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ORIGINAL SURVEY	
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Sheet 90



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

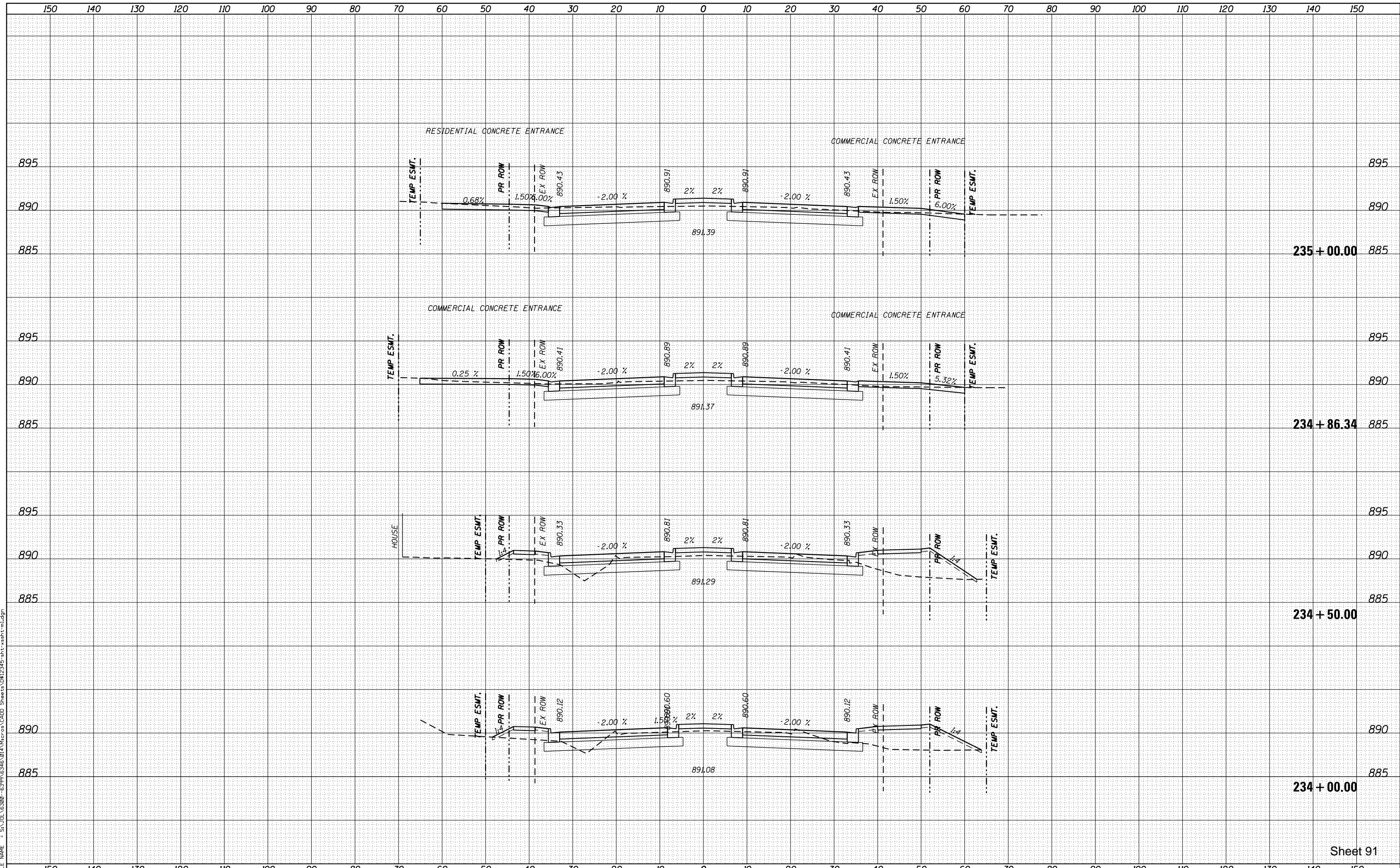
SCALE: 10H-5V SHEET OF SHEETS STA. 232+63.50 TO STA. 233+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

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FINAL SURVEY	
NOTE BOOK	
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235 + 00.00

234 + 86.34

234 + 50.00

234 + 00.00

Sheet 91



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

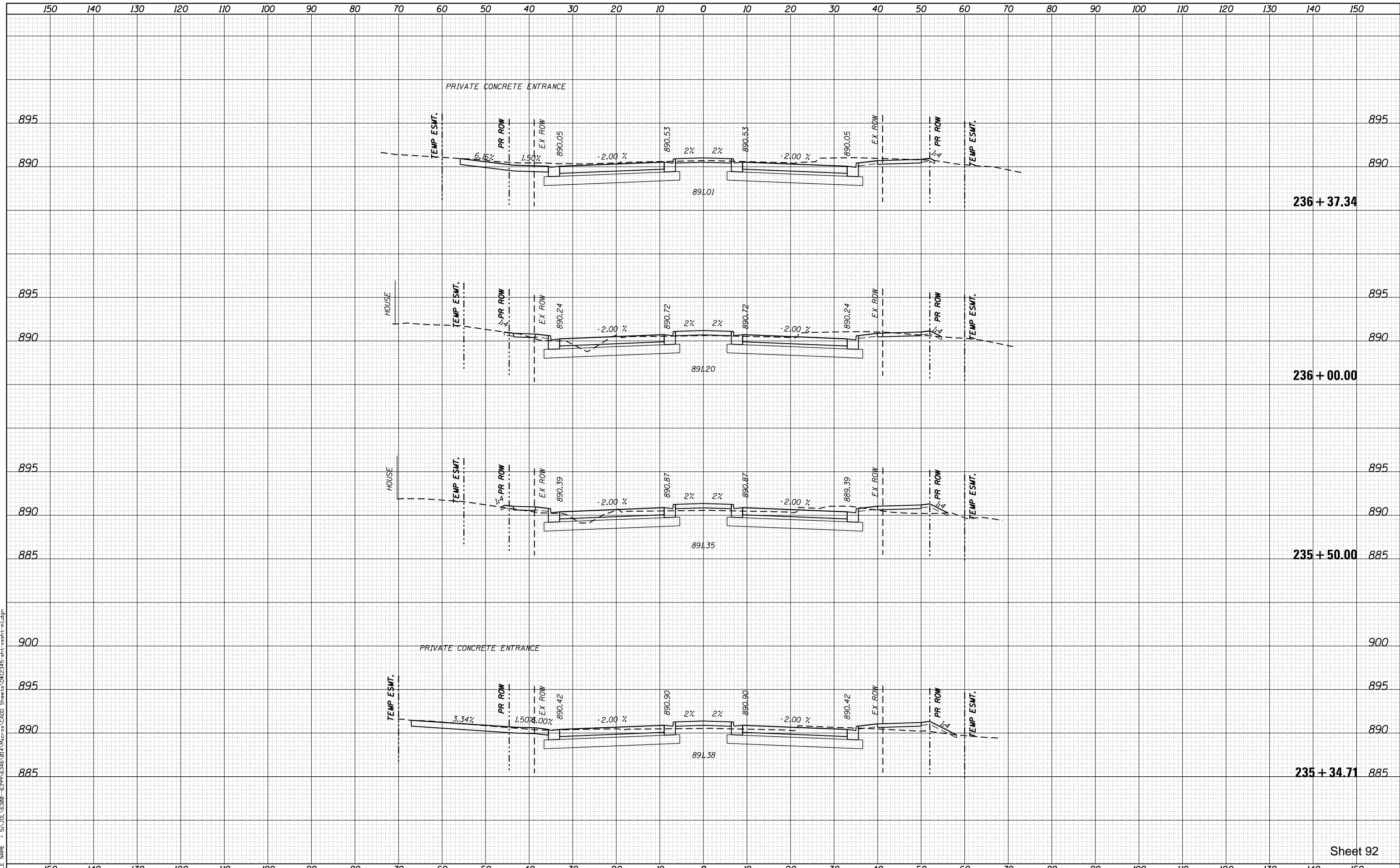
SCALE: 10H-5V SHEET OF SHEETS STA. 234+00.00 TO STA. 235+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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**STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 235+34.71 TO STA. 236+37.34

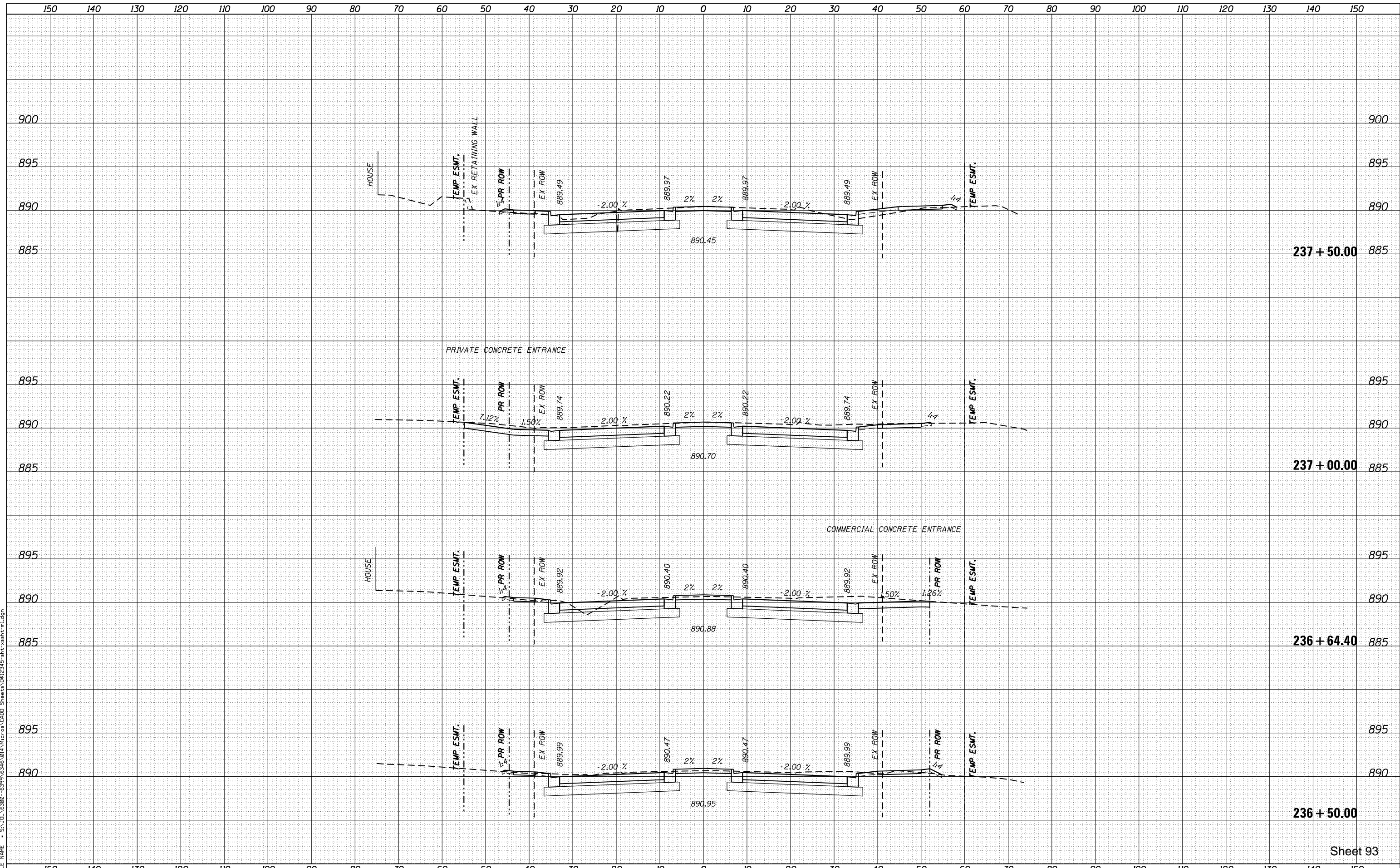
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
BY	
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1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
STRAND ASSOCIATES\*

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

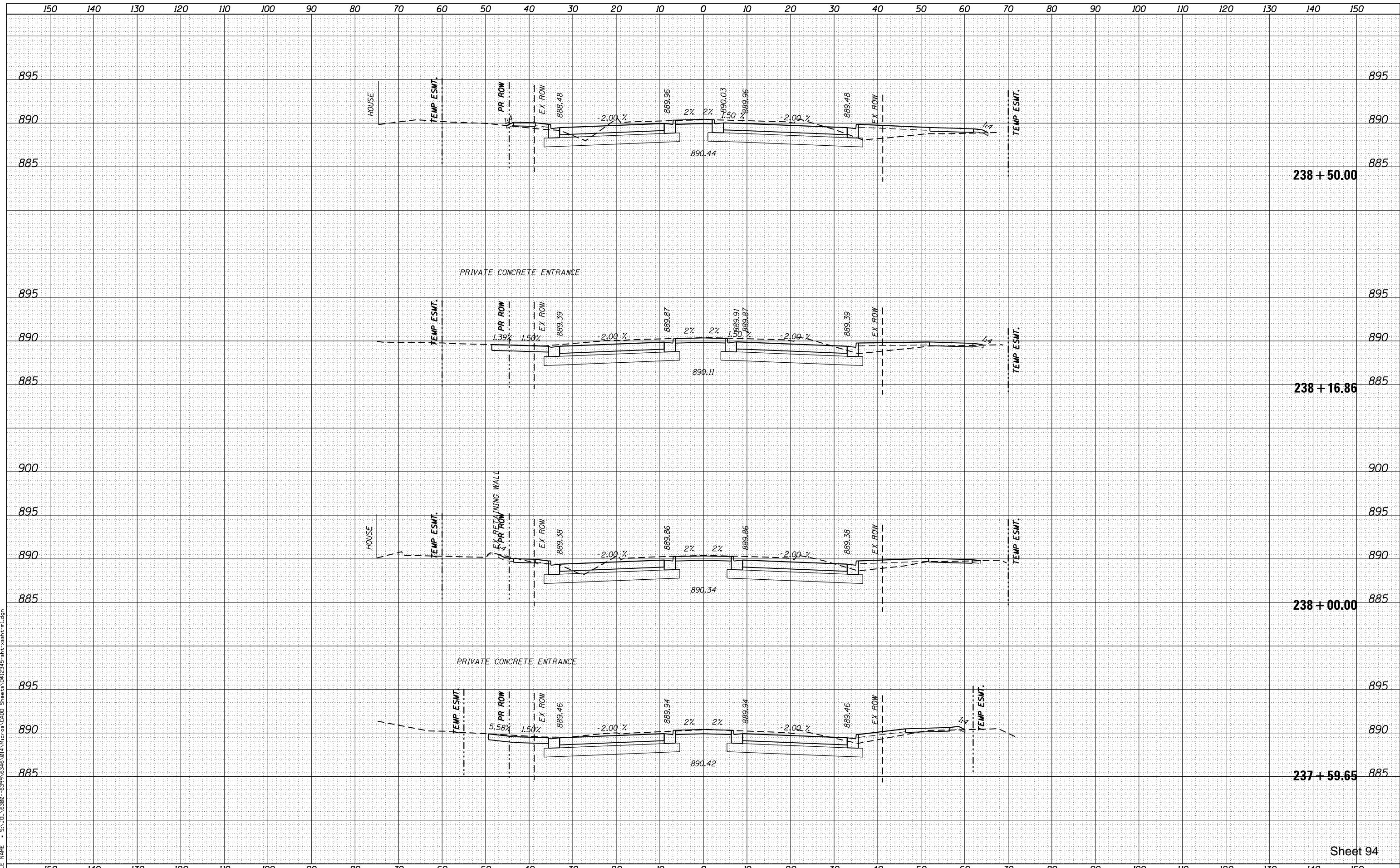
SCALE: 10H-5V SHEET OF SHEETS STA. 236+50.00 TO STA. 237+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

DATE	
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1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V    SHEET    OF    SHEETS    STA. 237+59.65    TO    STA. 238+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

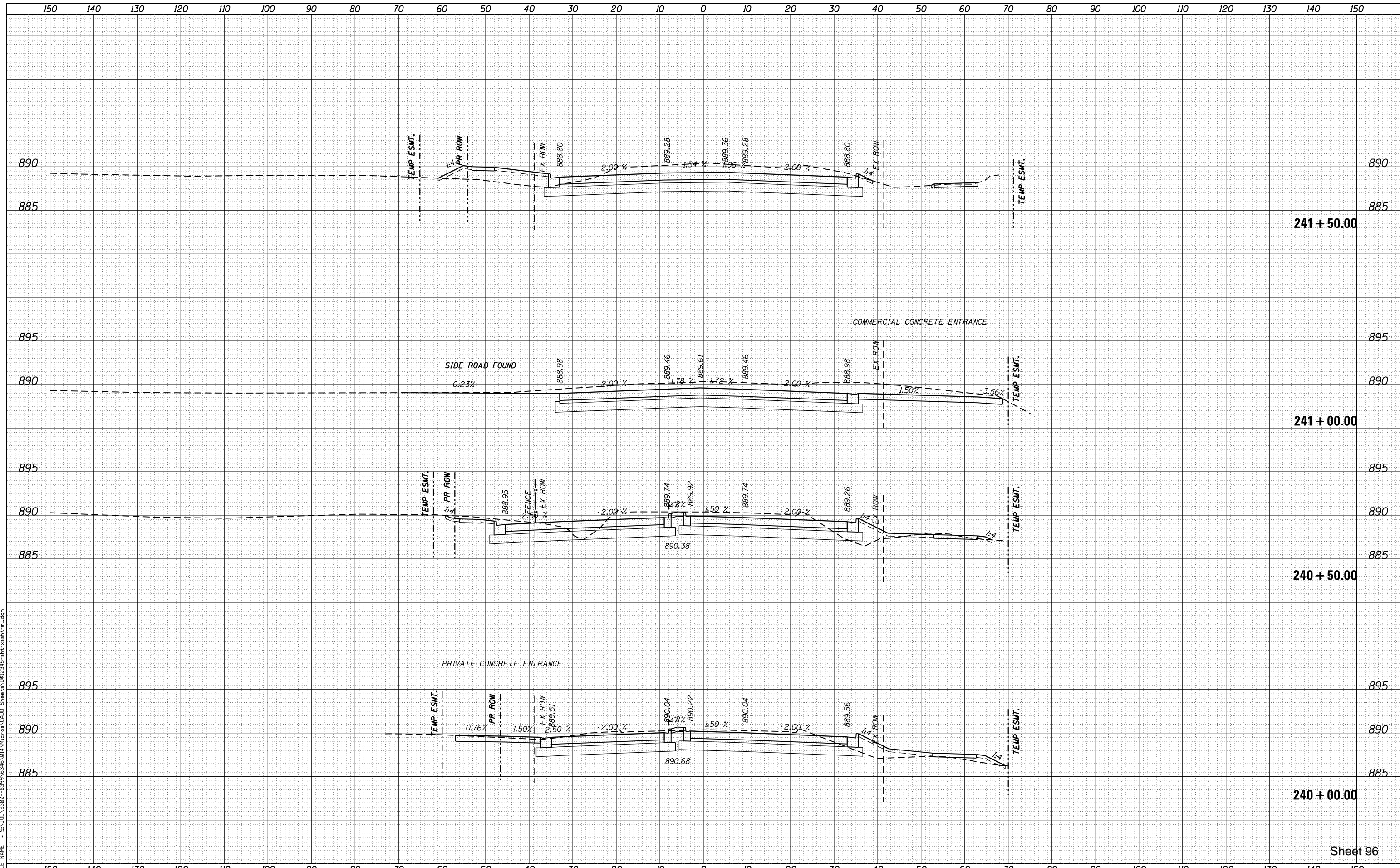




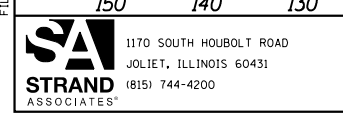
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Sheet 96



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
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PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

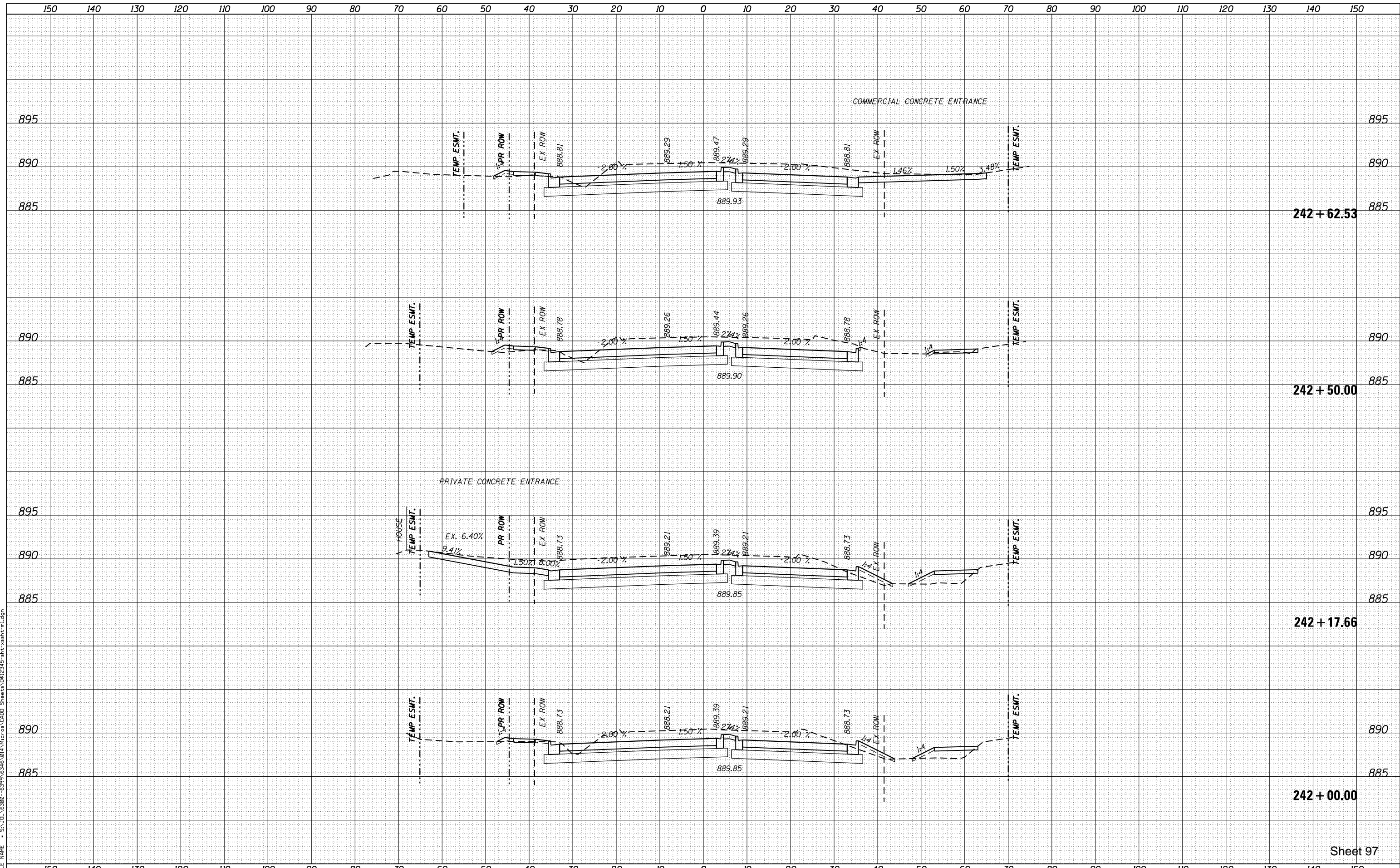
SCALE: 10H-5V SHEET OF SHEETS STA. 240+00.00 TO STA. 241+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

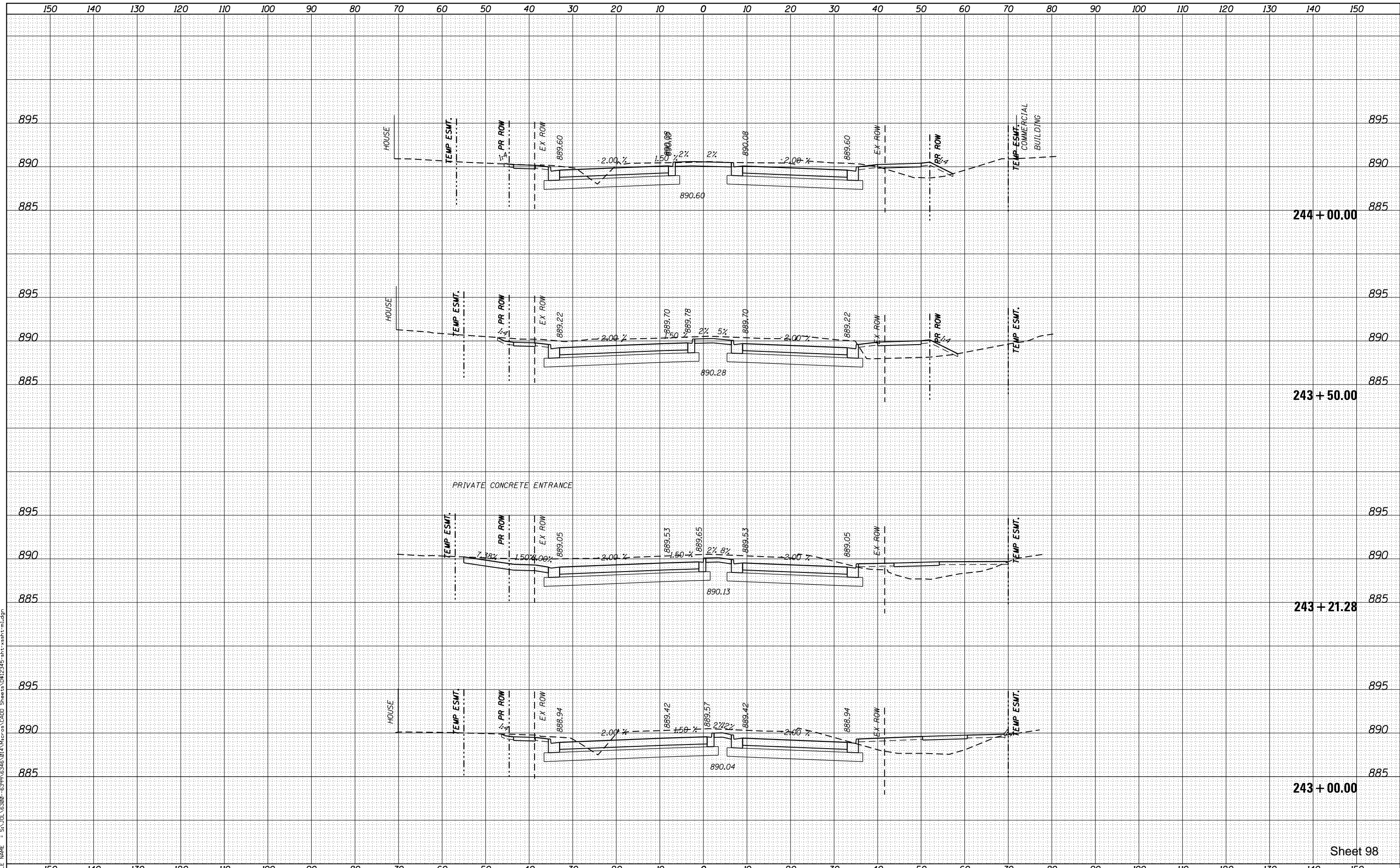
SCALE: 10H-5V SHEET OF SHEETS STA. 242+00.00 TO STA. 242+62.53

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 243+00.00 TO STA. 244+00.00

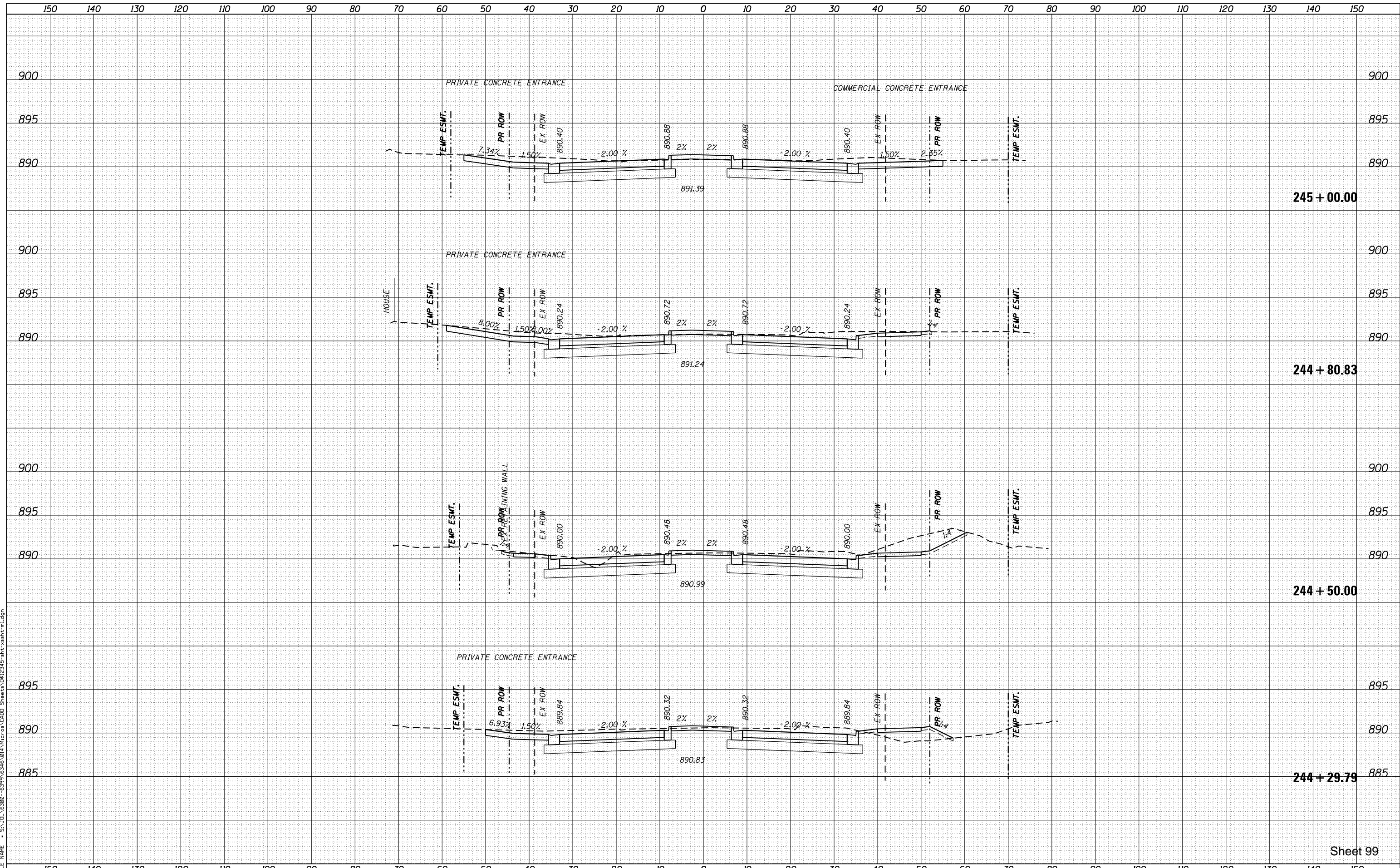
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 244+29.79 TO STA. 245+00.00

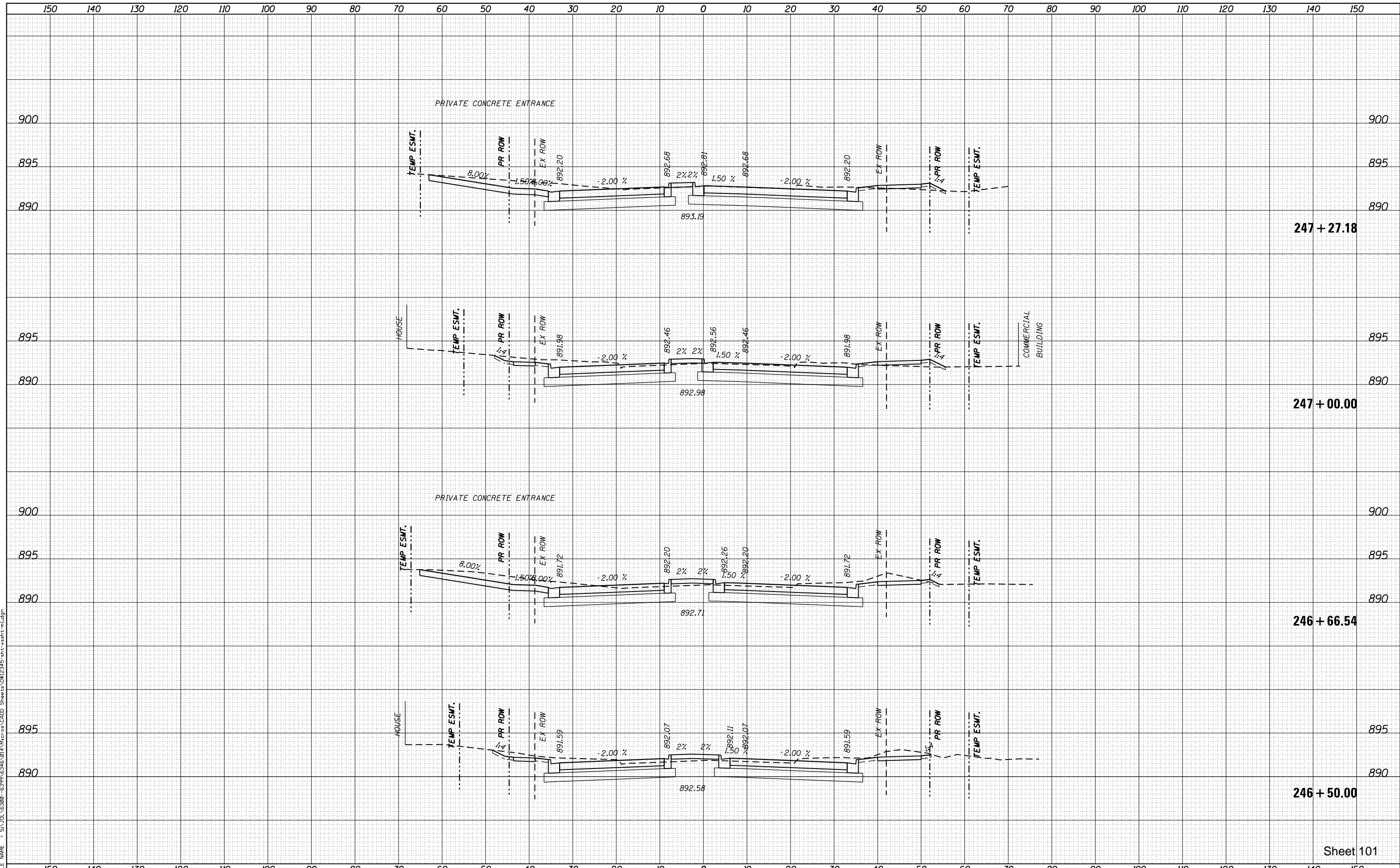
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 246+50.00 TO STA. 247+27.18

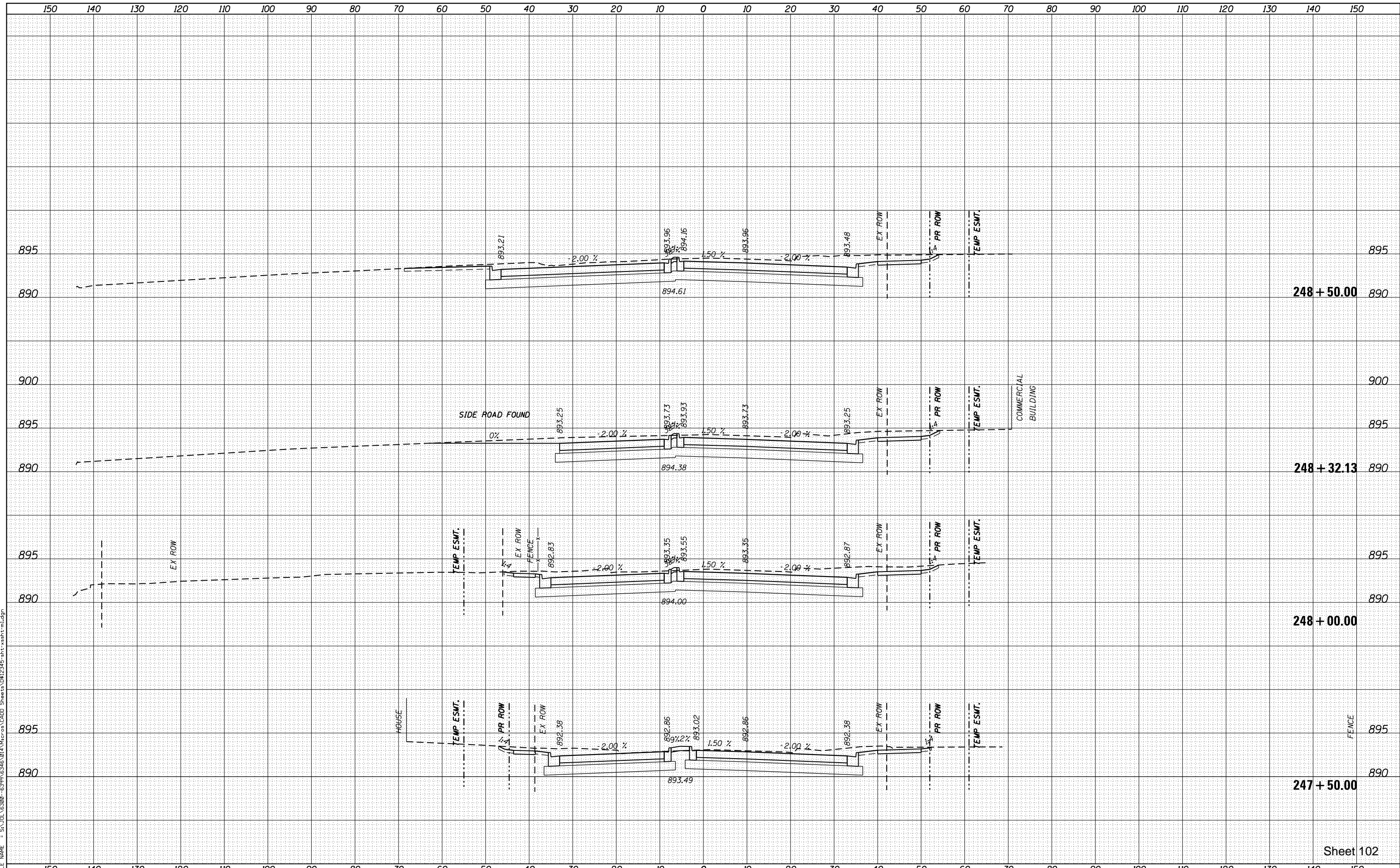
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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FILE NAME = S:\JL\63800-6399\6346\01A\Work\CAD\Sheets\0812345-sh1-vssht.mxd



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 247+50.00 TO STA. 248+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				





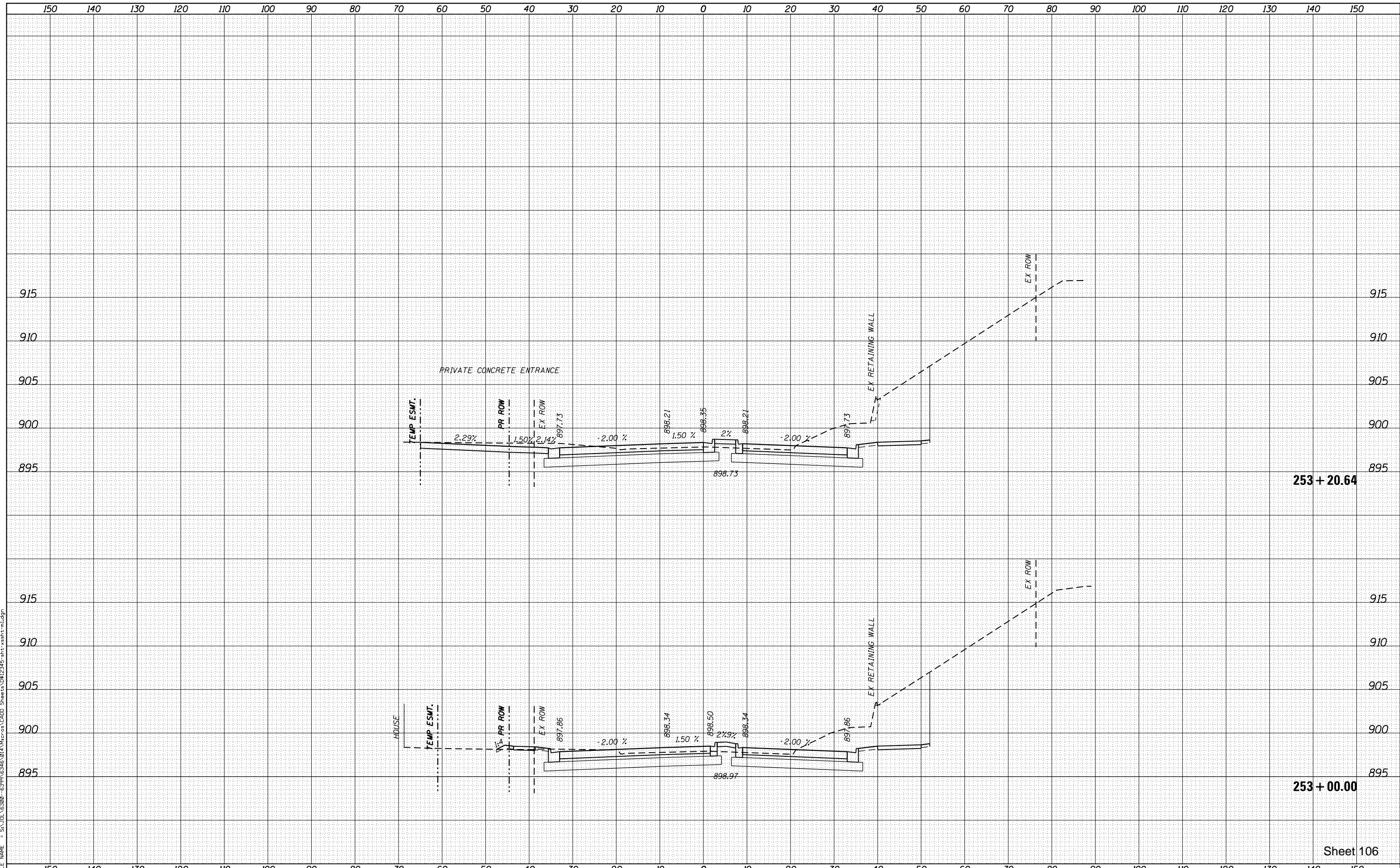




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253 + 20.64

253 + 00.00

Sheet 106



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 253+00.00 TO STA. 253+20.64

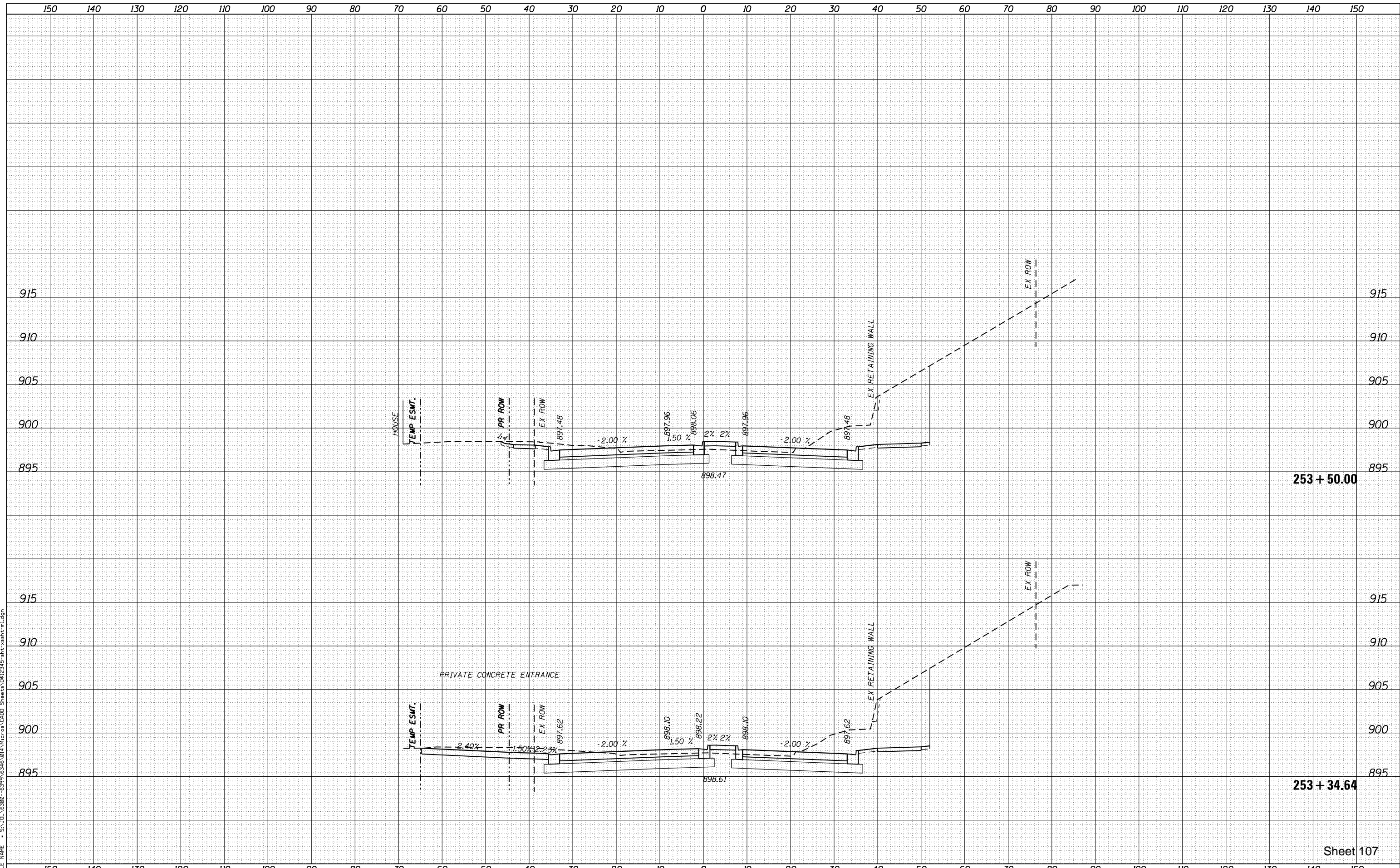
F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				

ILLINOIS FED. AID PROJECT

DATE	
BY	
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NOTE BOOK	PLOTTED
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NOTE BOOK	PLOTTED
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253 + 50.00

253 + 34.64

Sheet 107



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 253+34.64 TO STA. 253+50.00

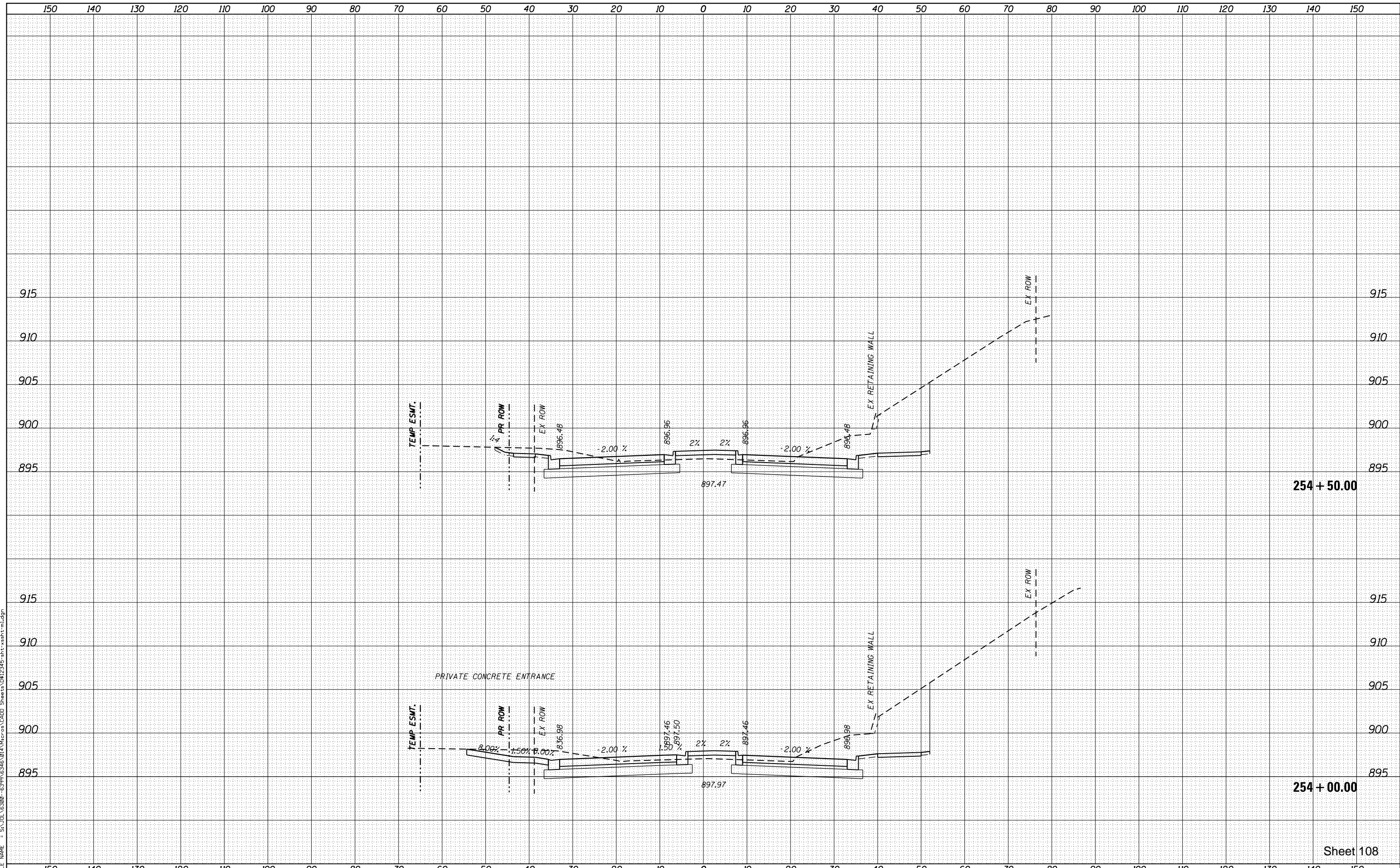
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
BY	
FINAL SURVEY NO.	
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ORIGINAL SURVEY NO.	
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**STRAND ASSOCIATES\***  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISIED -
MODEL NAME = Default	DRAWN - DJW	REVISIED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISIED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISIED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 254+00.00 TO STA. 254+50.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				













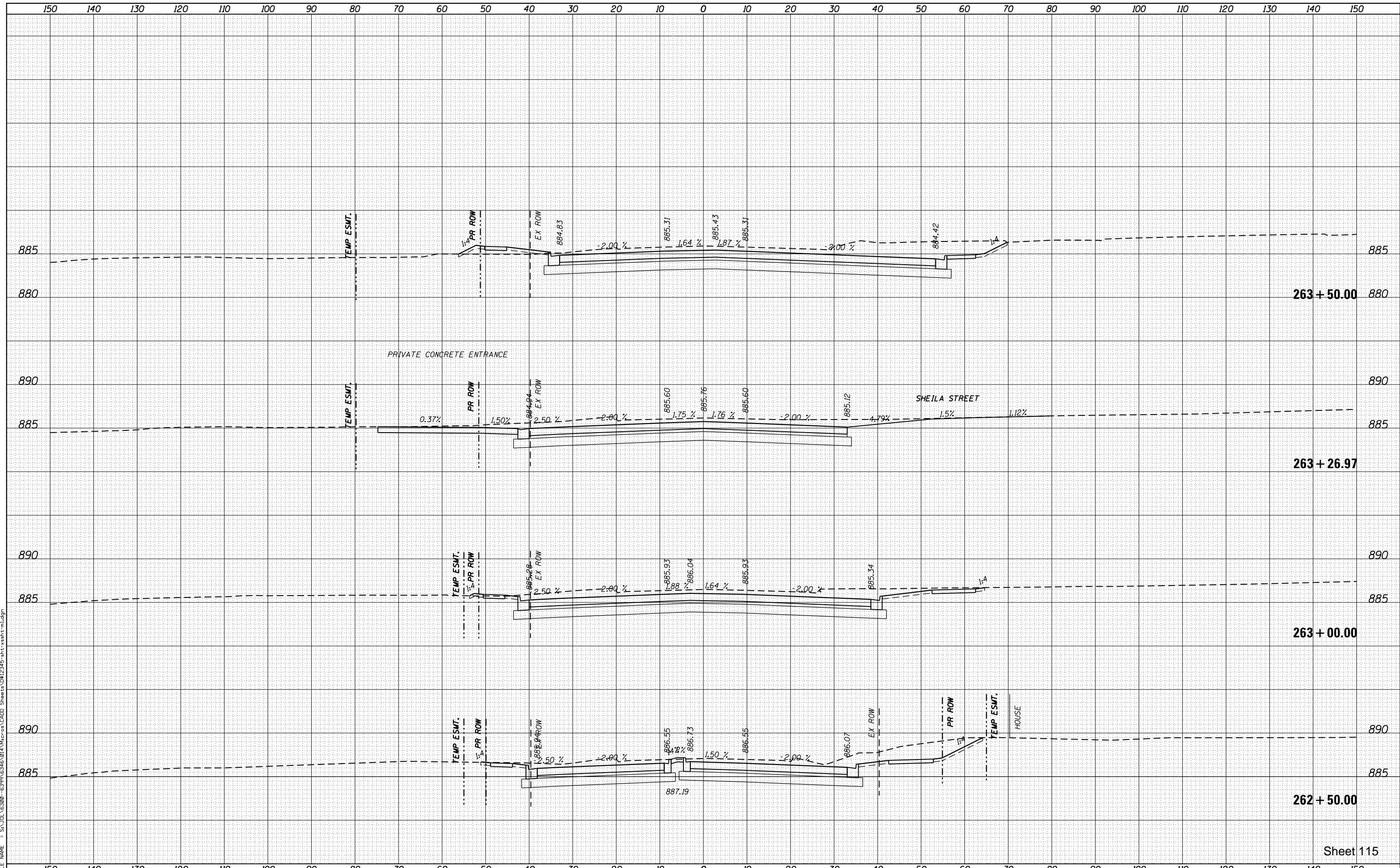




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263 + 50.00

263 + 26.97

263 + 00.00

262 + 50.00

Sheet 115



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc  
MODEL NAME = Default  
PLOT SCALE = 20.0000' / in.  
PLOT DATE = 1/23/2019

DESIGNED - WRP  
DRAWN - DJW  
CHECKED - DWG  
DATE - 05/25/2018

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 262+50.00 TO STA. 263+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

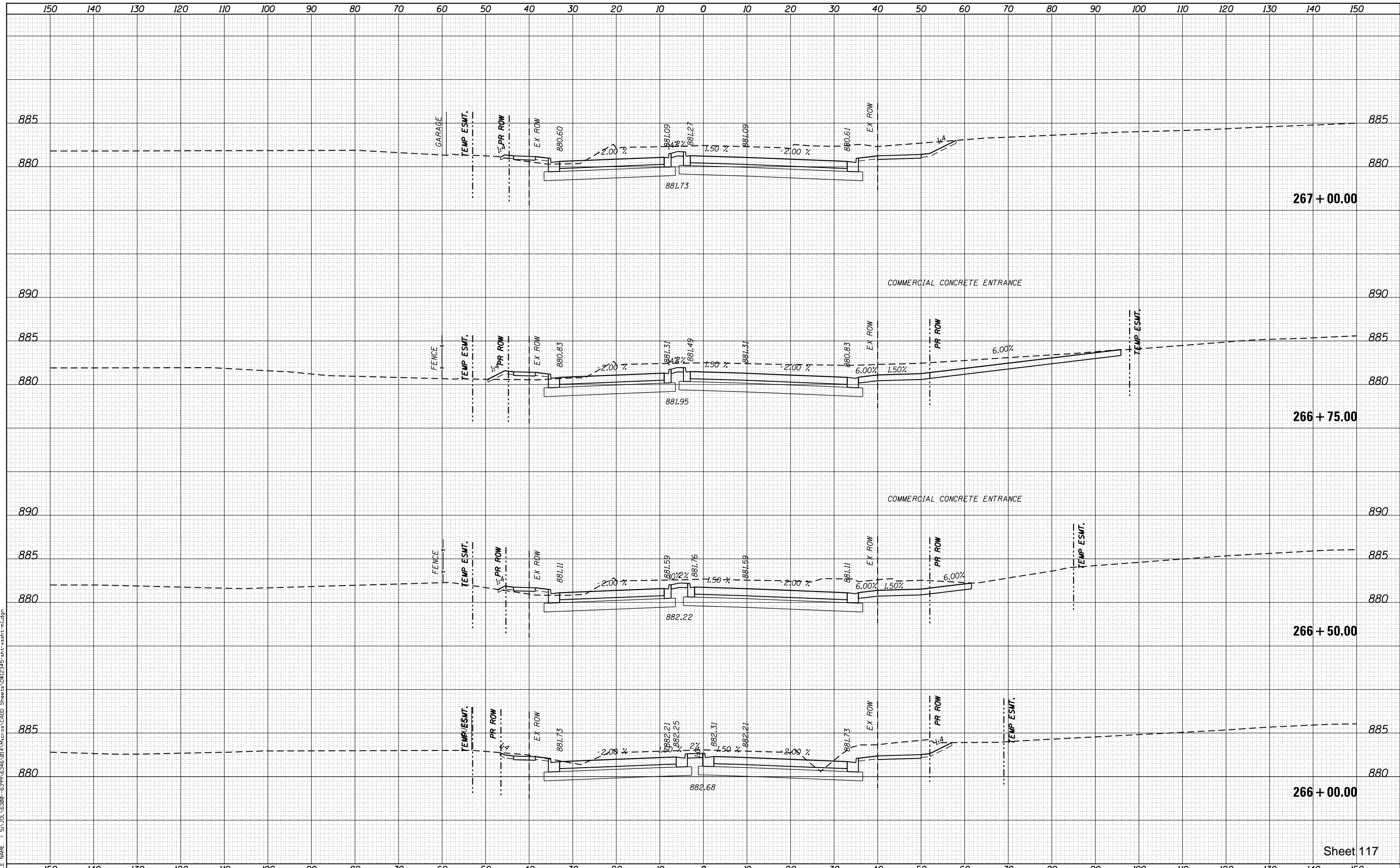




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DATE	
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NOTE BOOK	
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**STRAND ASSOCIATES\***  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

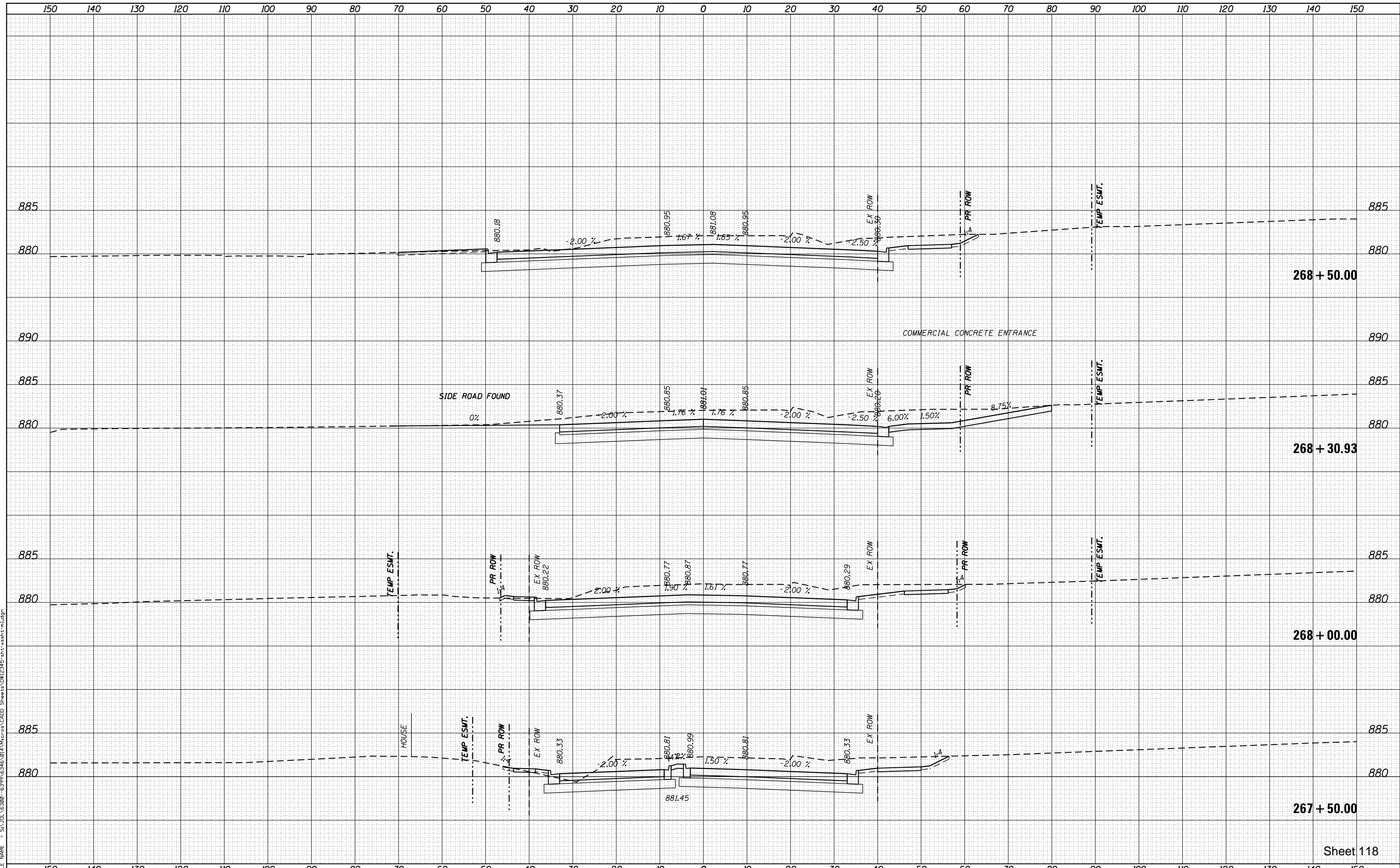
SCALE: 10H-5V SHEET OF SHEETS STA. 266+00.00 TO STA. 267+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

DATE	
BY	
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TEMPLATE	
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FINAL SURVEY	
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**STRAND ASSOCIATES\***  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 267+50.00 TO STA. 268+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

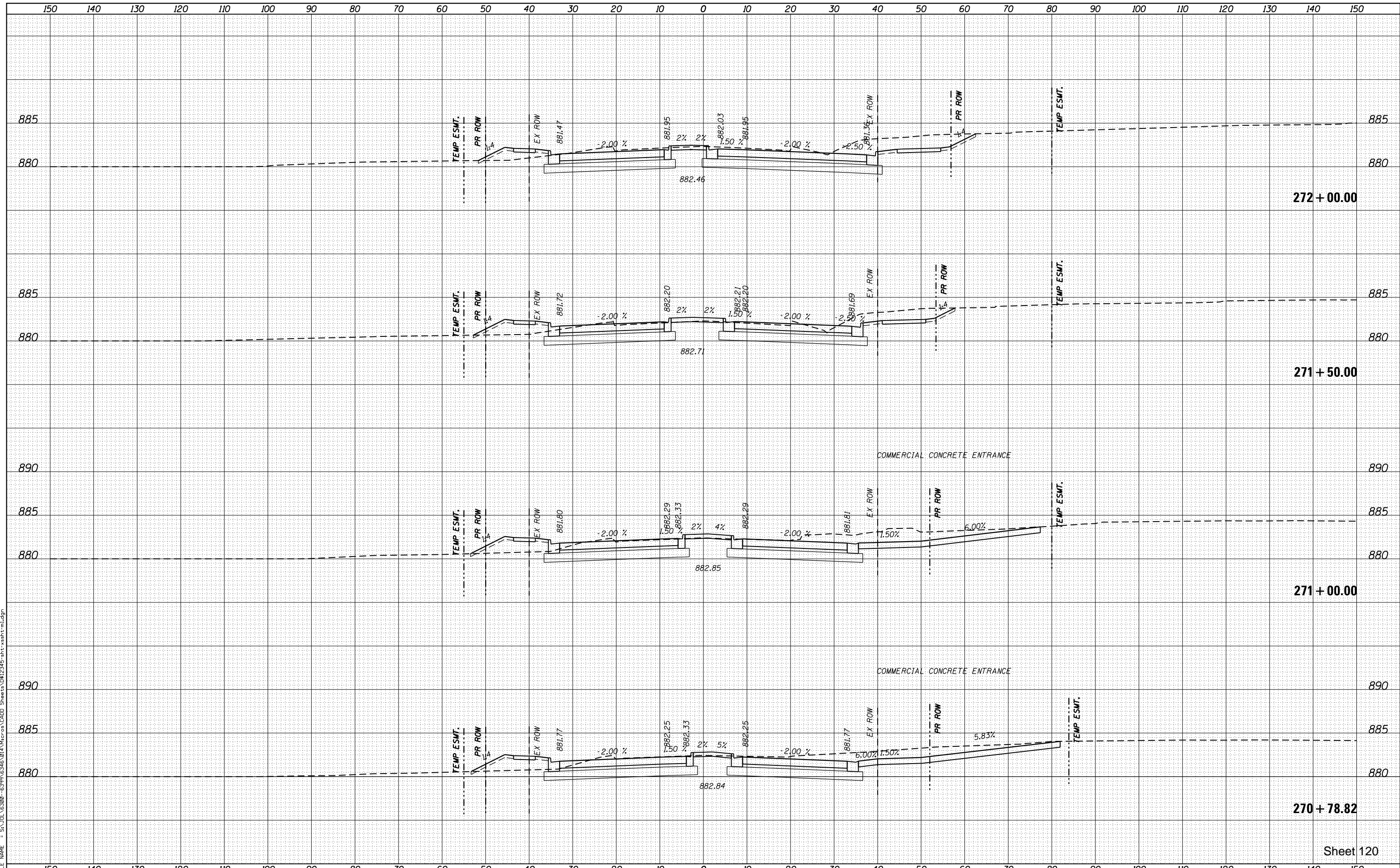




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1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
STRAND ASSOCIATES® (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 270+78.82 TO STA. 272+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				











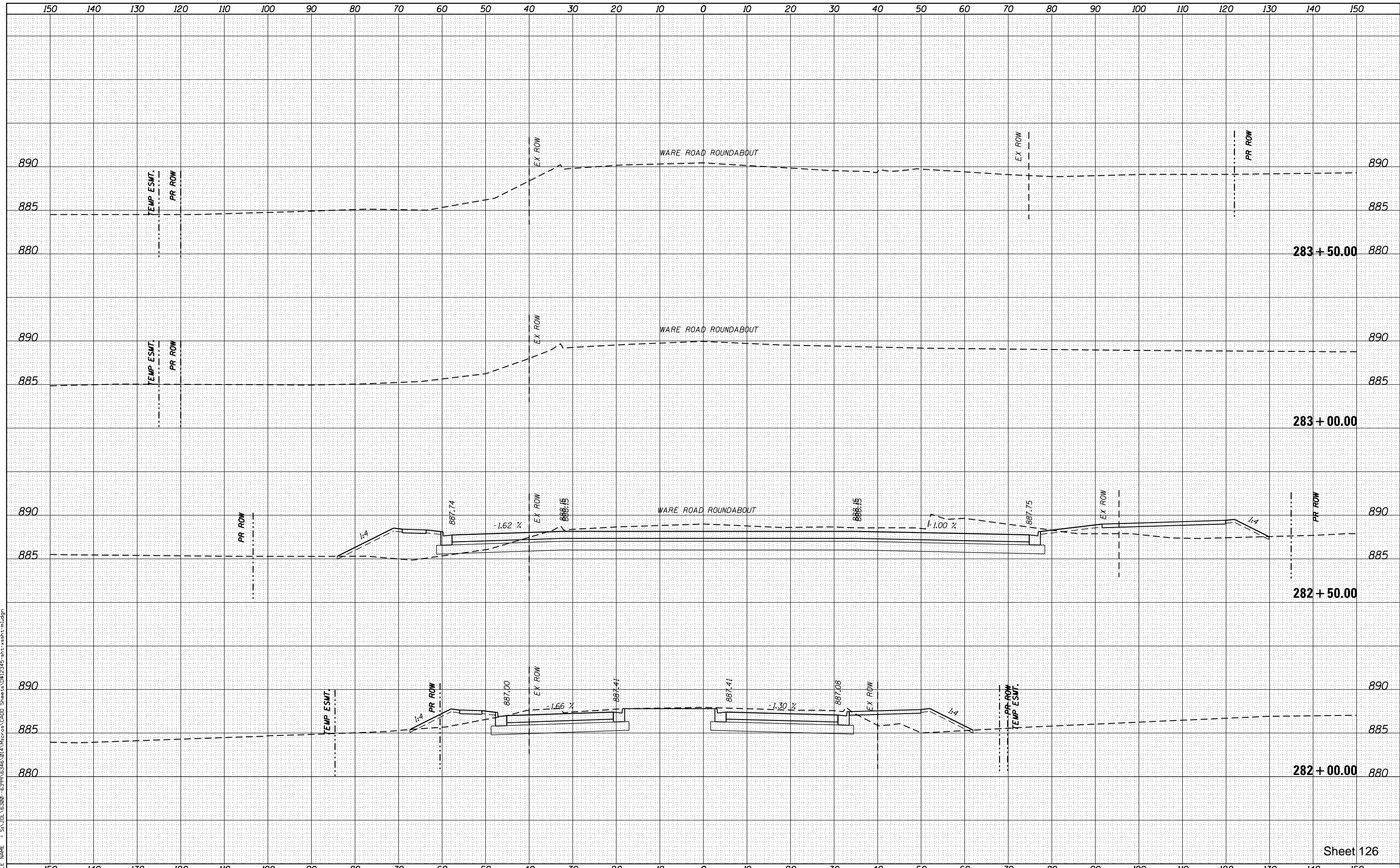




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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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FILE NAME = S:\JL\_63800\_6399\6346\01A\Micro\CAD Sheets\0812345-sh1-vssht.mxdgn



Sheet 126



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

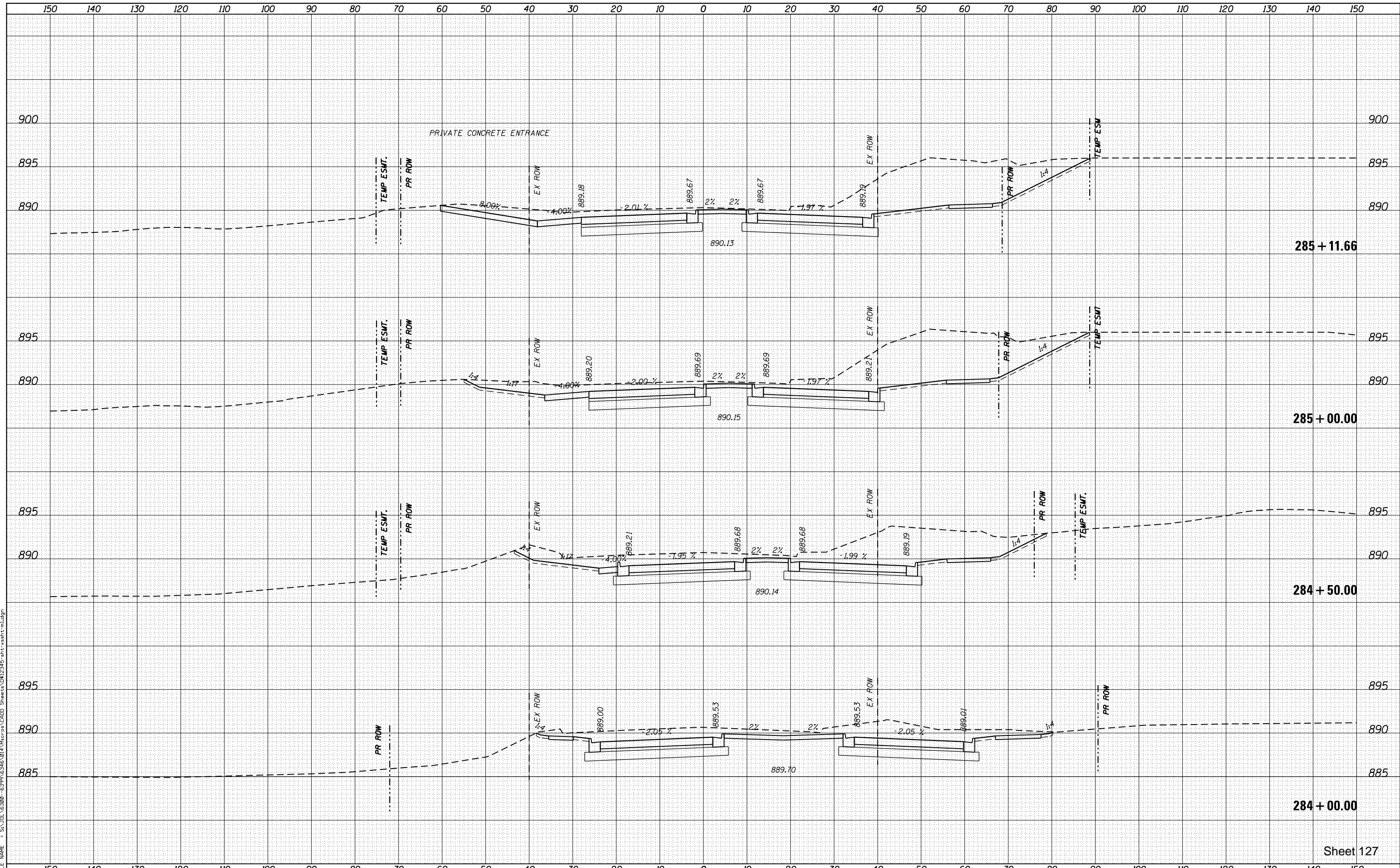
SCALE: 10H-5V SHEET OF SHEETS STA. 282+00.00 TO STA. 283+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

DATE	
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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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ORIGINAL SURVEY	SURVEYED
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FILE NAME = S:\JL\63800 - 6399\6346\01A\Micro\CAD Sheets\0812345-sh1-vssht.mxd



Sheet 127



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 47 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 284+00.00 TO STA. 285+11.66

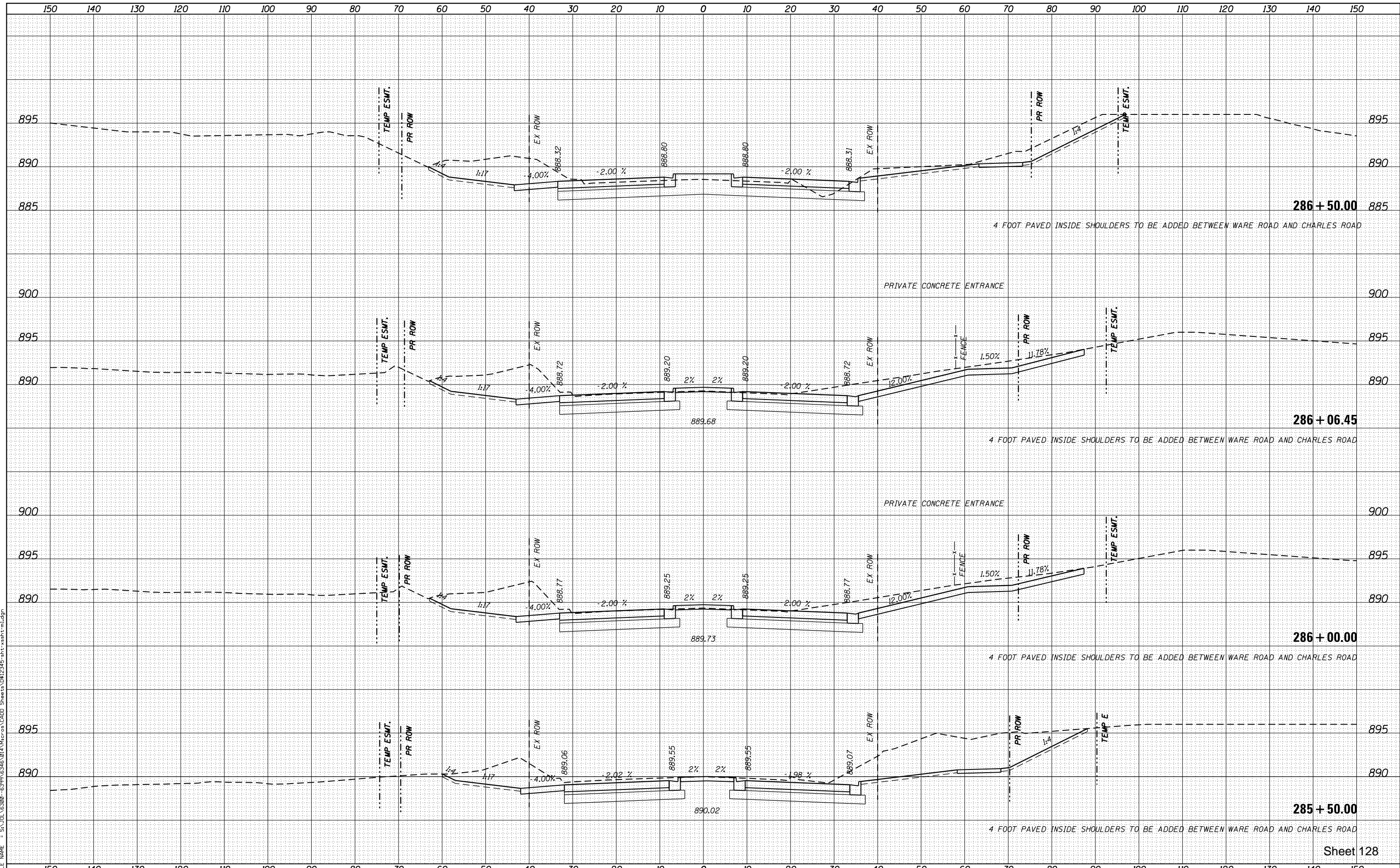
F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		

ILLINOIS FED. AID PROJECT

DATE	
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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

FILE NAME = S:\JL\63800-6397\6346\01\A\Vic\05\CADD Sheets\0812345-sh1-vssht.mxd



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 285+50.00 TO STA. 286+50.00

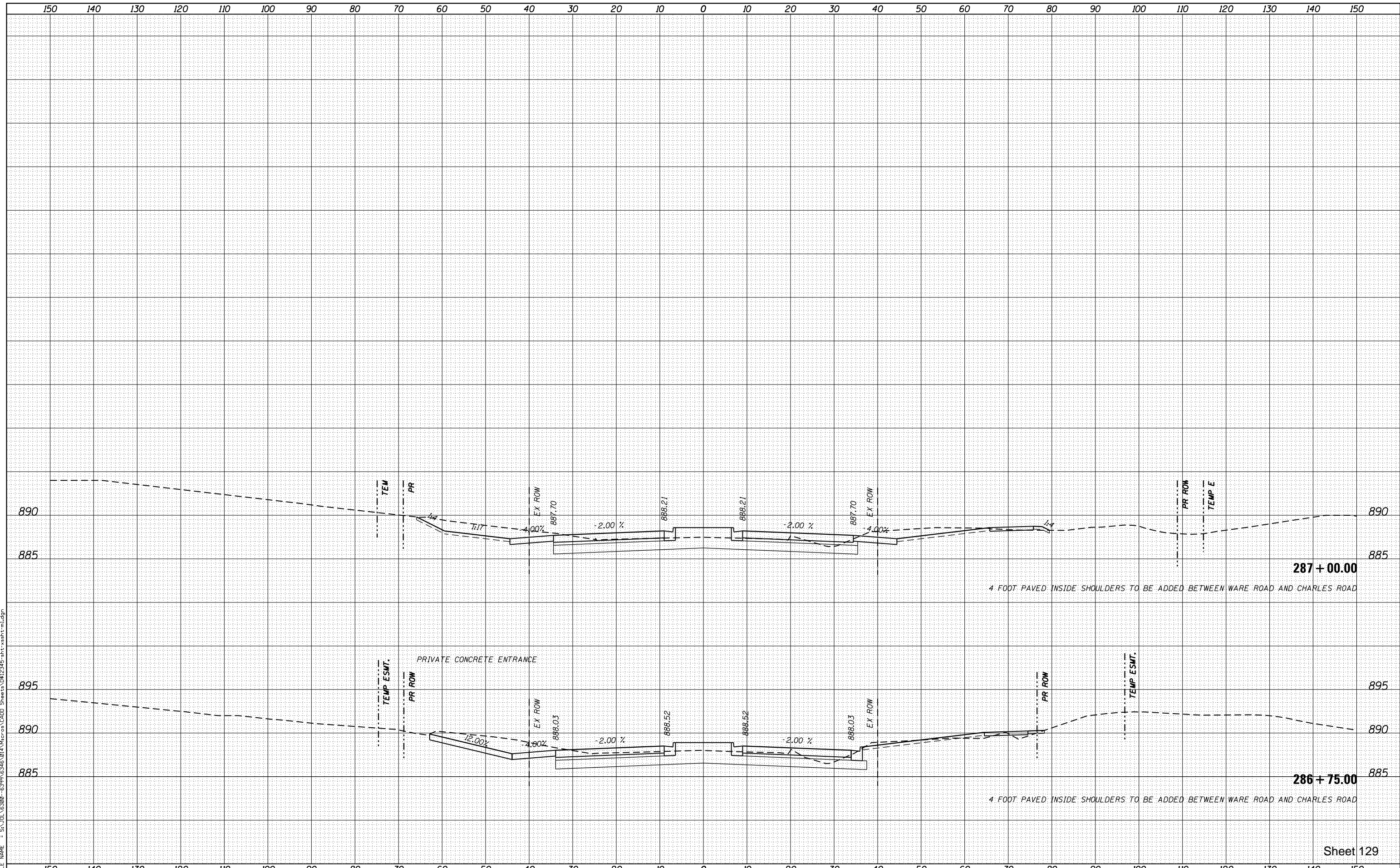
F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



DATE	
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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
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	AREAS CHECKED

FILE NAME = S:\\_D\16380 - 6399\6346\01A\Work\CAD Sheets\0812345-sh1-vssht.mxd



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

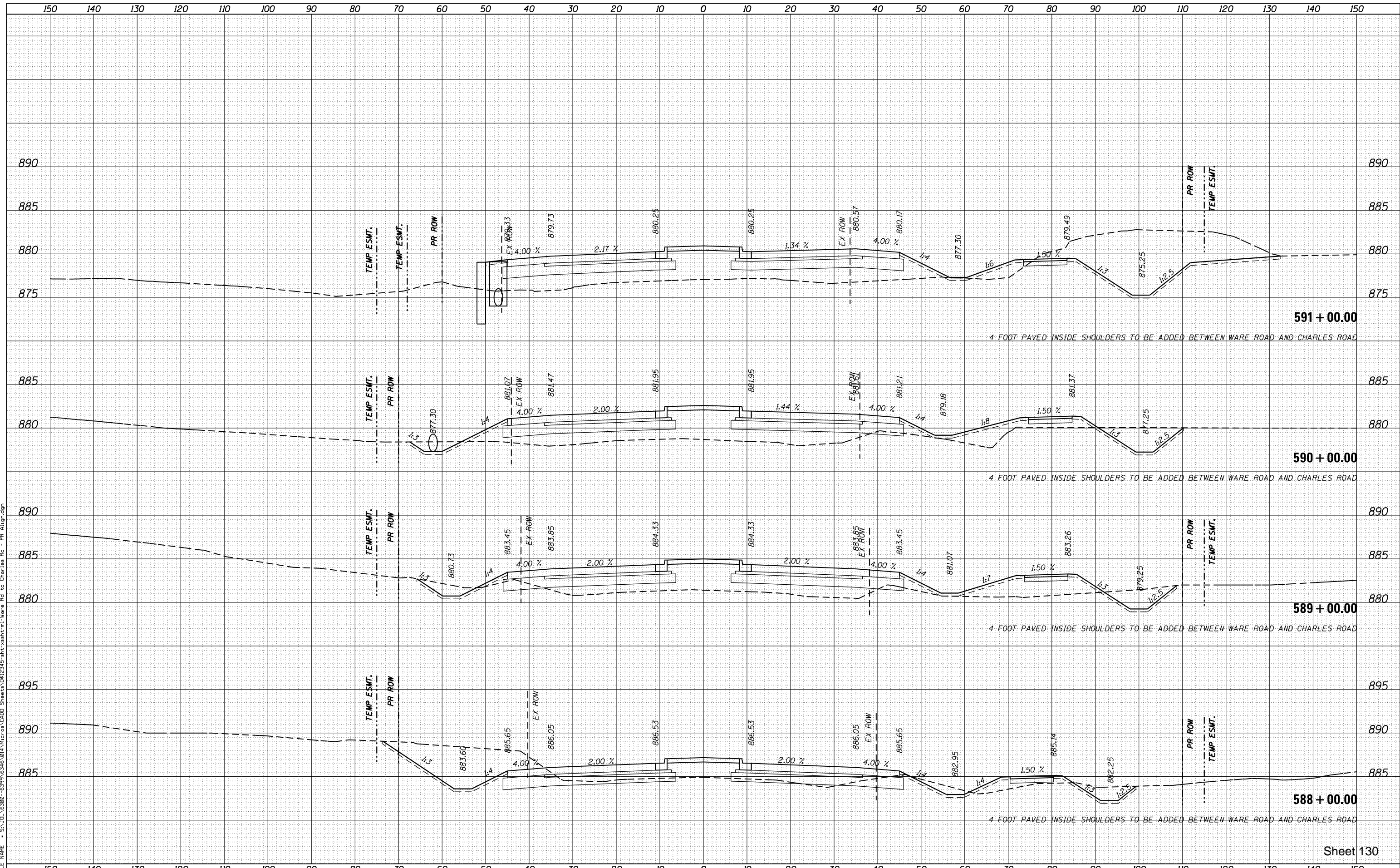
SCALE: 10H-5V    SHEET    OF    SHEETS    STA. 286+75.00    TO    STA. 287+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

DATE	
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FINAL SURVEY	
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ORIGINAL SURVEY	
NOTE BOOK	
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FILE NAME = S:\JUL 16380 - 6399\6346\01A\Micro\CAD Sheets\0812345-sh1-vssht.mxd Ware Rd to Charles Rd - PR Alignment



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

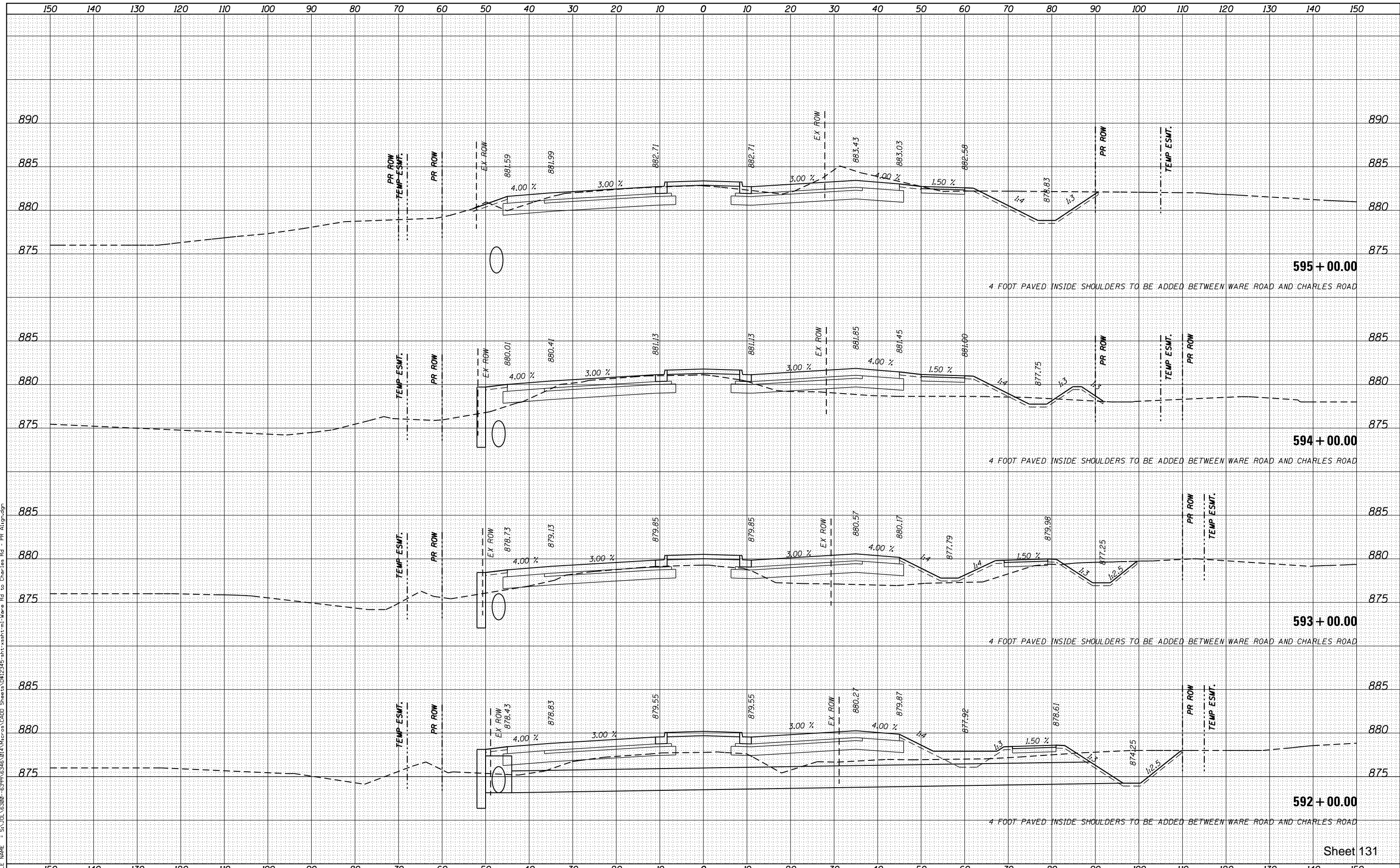
SCALE: 10H-5V      SHEET      OF      SHEETS      STA. 588+00.00      TO      STA. 591+00.00

F.A.P. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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FILE NAME = S:\JUL\_63800 - 6399\6346\01\A\Micro\CAD Sheets\082345-sh1-vssht.mxd Ware Rd to Charles Rd - PR Alignment



**STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 592+00.00 TO STA. 595+00.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				







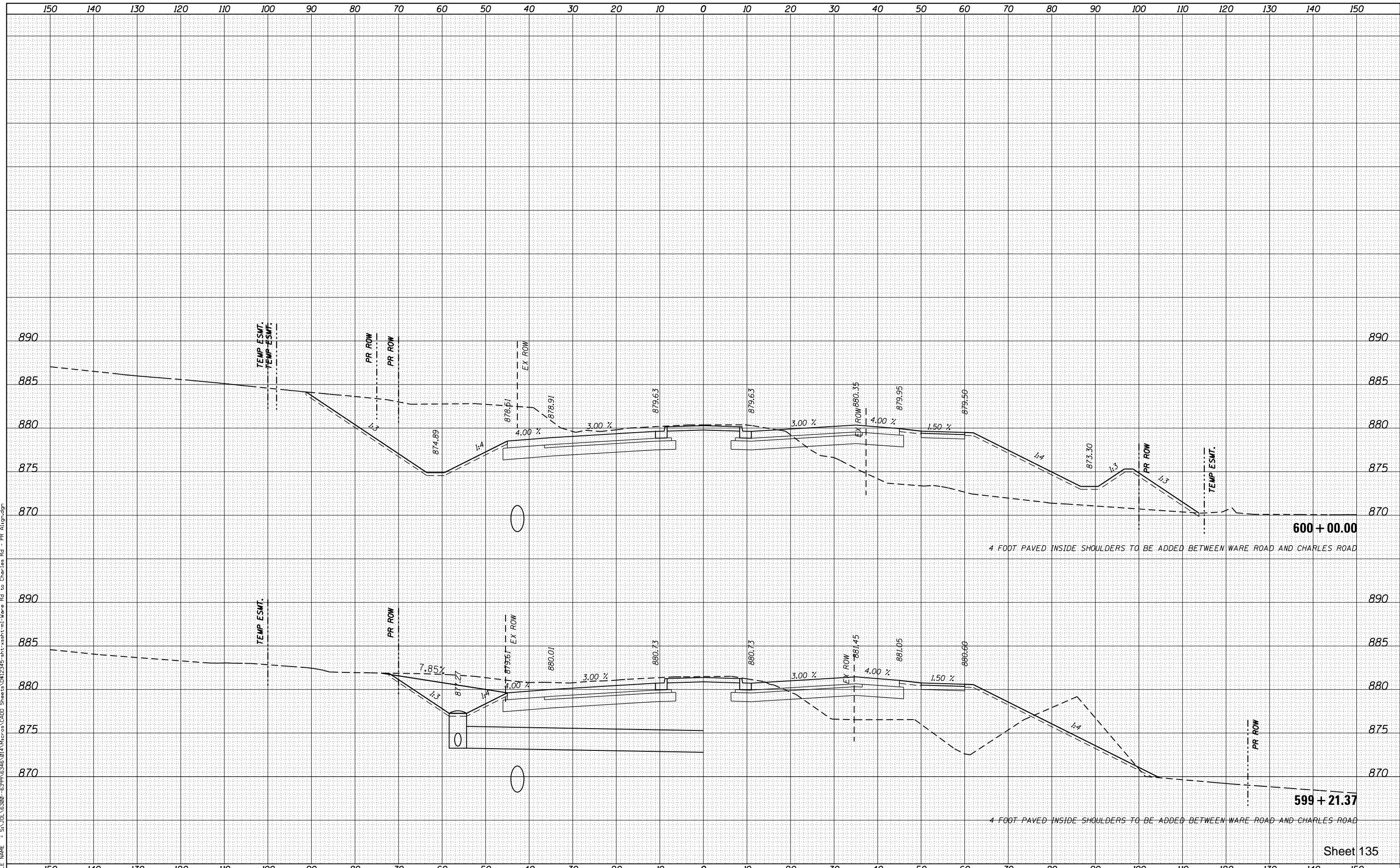




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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED
	AREAS CHECKED

FILE NAME = S:\JUL 16380 - 6399\6346\01A\Micro\CAD Sheets\082345-shr+ssht+ml+Ware Rd to Charles Rd - PR Alignment.dgn



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

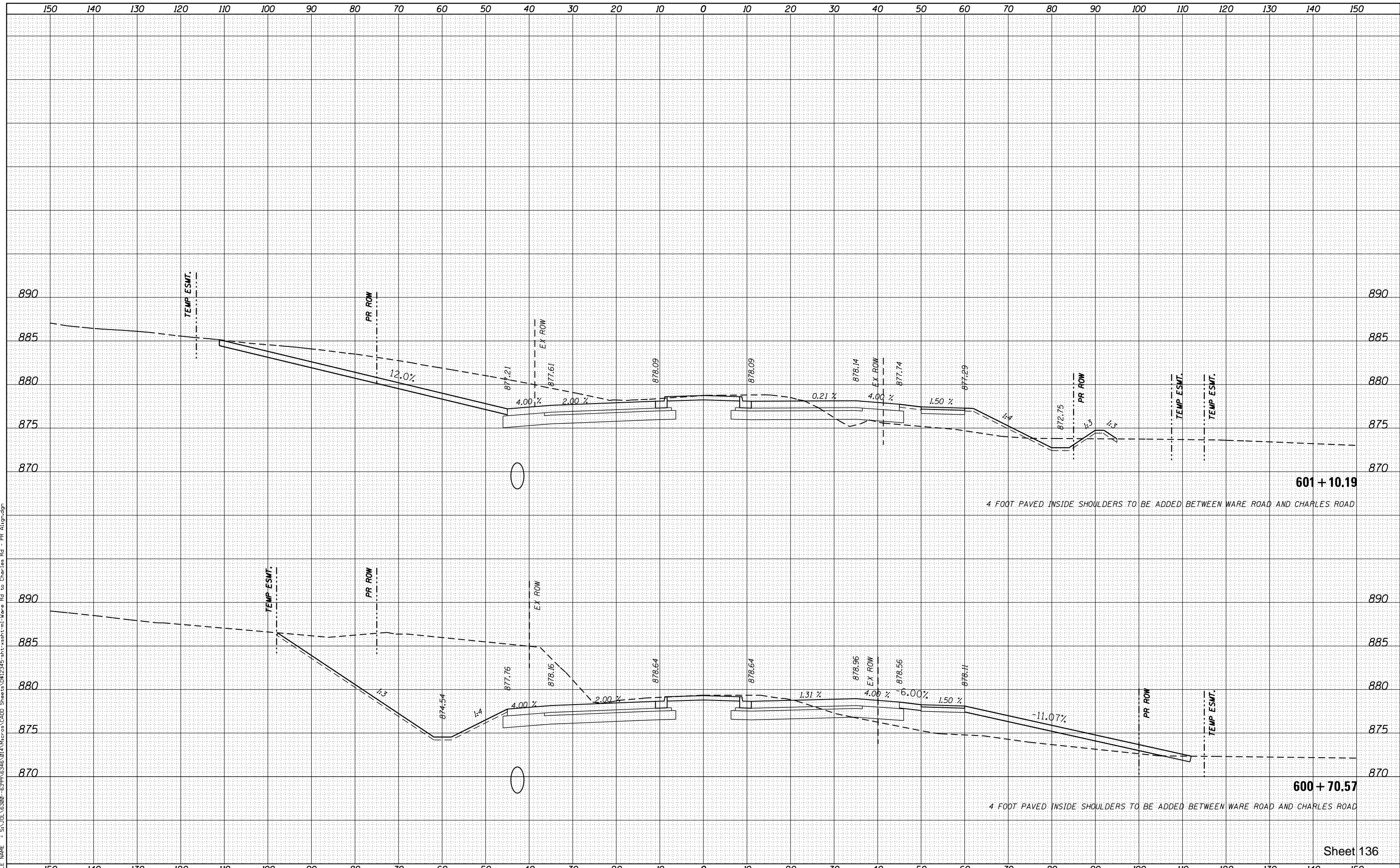
SCALE: 10H-5V      SHEET      OF      SHEETS      STA. 599+21.37      TO      STA. 600+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

DATE	
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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
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	AREAS CHECKED

FILE NAME = S:\JL\63800-6399\6345\01A\Work\CAD Sheets\082345-shr-ssht-ml-Ware Rd to Charles Rd - PR Alignment



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = MattG	DESIGNED - MJG	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 2/11/2019	DATE - 02/06/2019	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 600+70.57 TO STA. 601+10.19

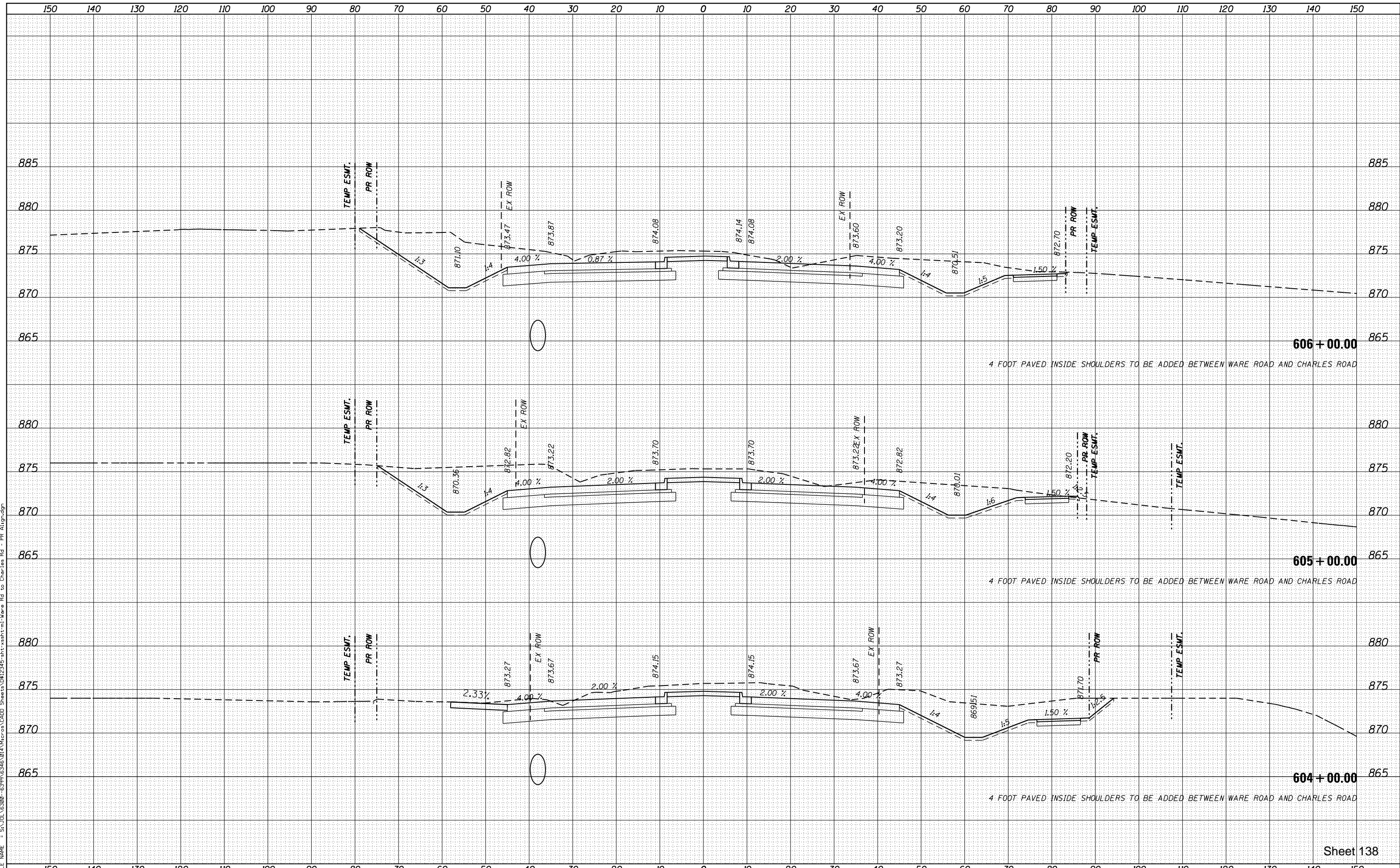
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED

FILE NAME = S:\JL\63800-6399\6345\01A\Micro\CAD Sheets\082345-shr-vssht.mxd Ware Rd to Charles Rd - PR Alignment



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 604+00.00 TO STA. 606+00.00

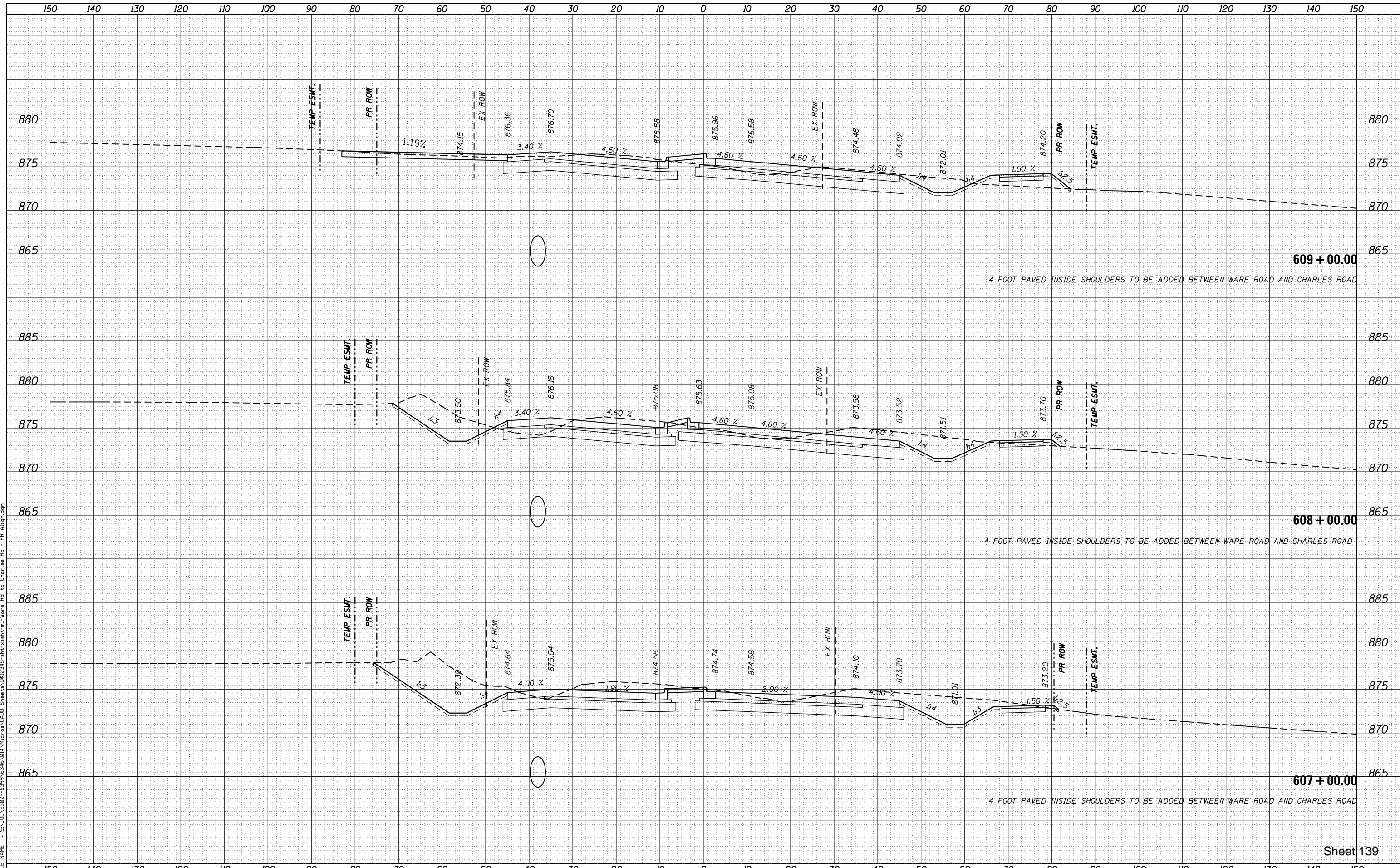
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED

FILE NAME = S:\JL\63800-6399\6345\01A\Micro\CAD Sheets\0812345-sh1-vssht.m\Ware Rd to Charles Rd - PR Alignment.dgn



**STRAND ASSOCIATES**  
1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 607+00.00 TO STA. 609+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

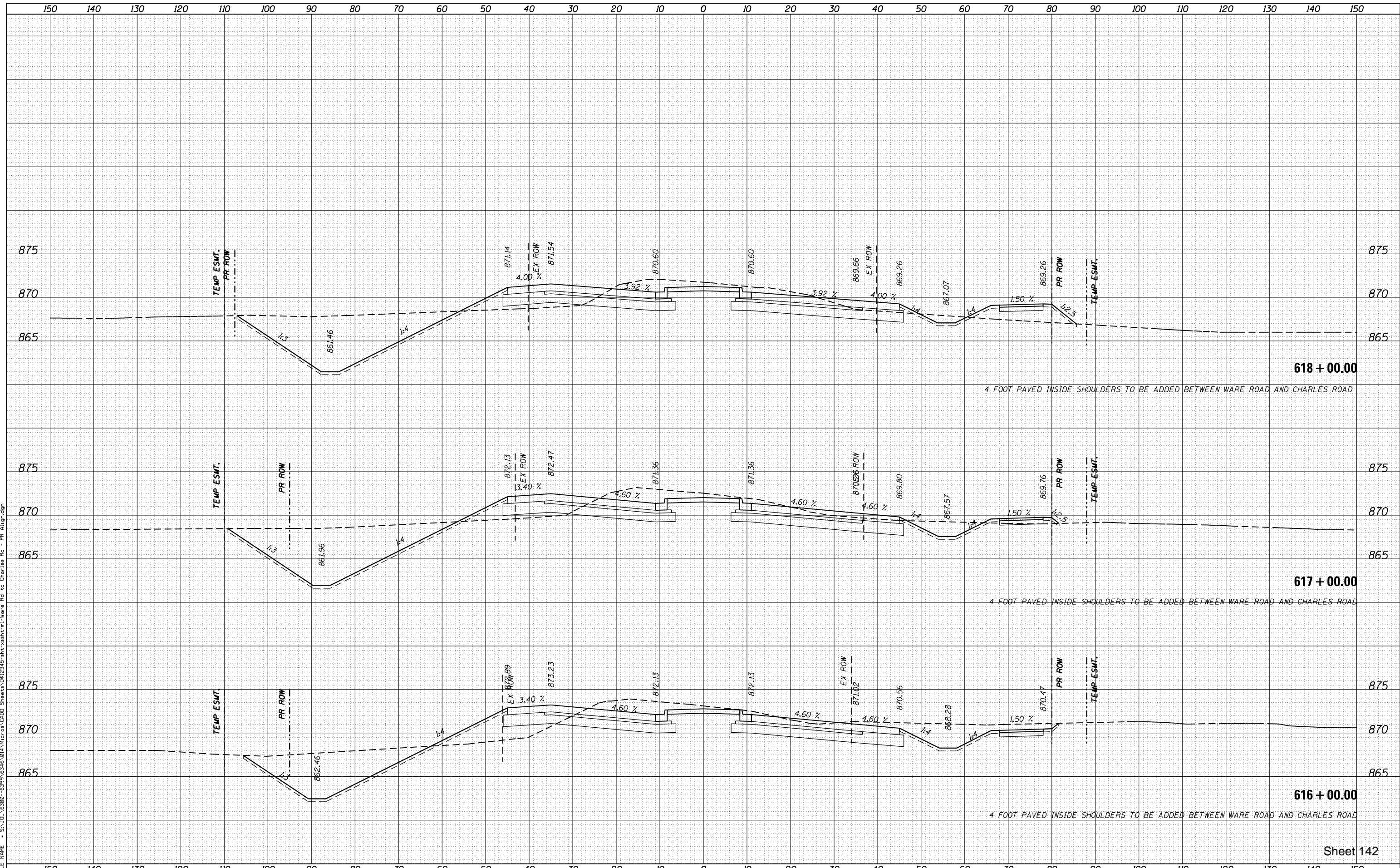




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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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FILE NAME = S:\JUL\_163800\_6399\6345\01A\Micro\CAD Sheets\01A2345-sh1-vssht.m\Ware Rd to Charles Rd - PR Alignment.dwg



**STRAND ASSOCIATES**  
 1170 SOUTH HOBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 616+00.00 TO STA. 618+00.00

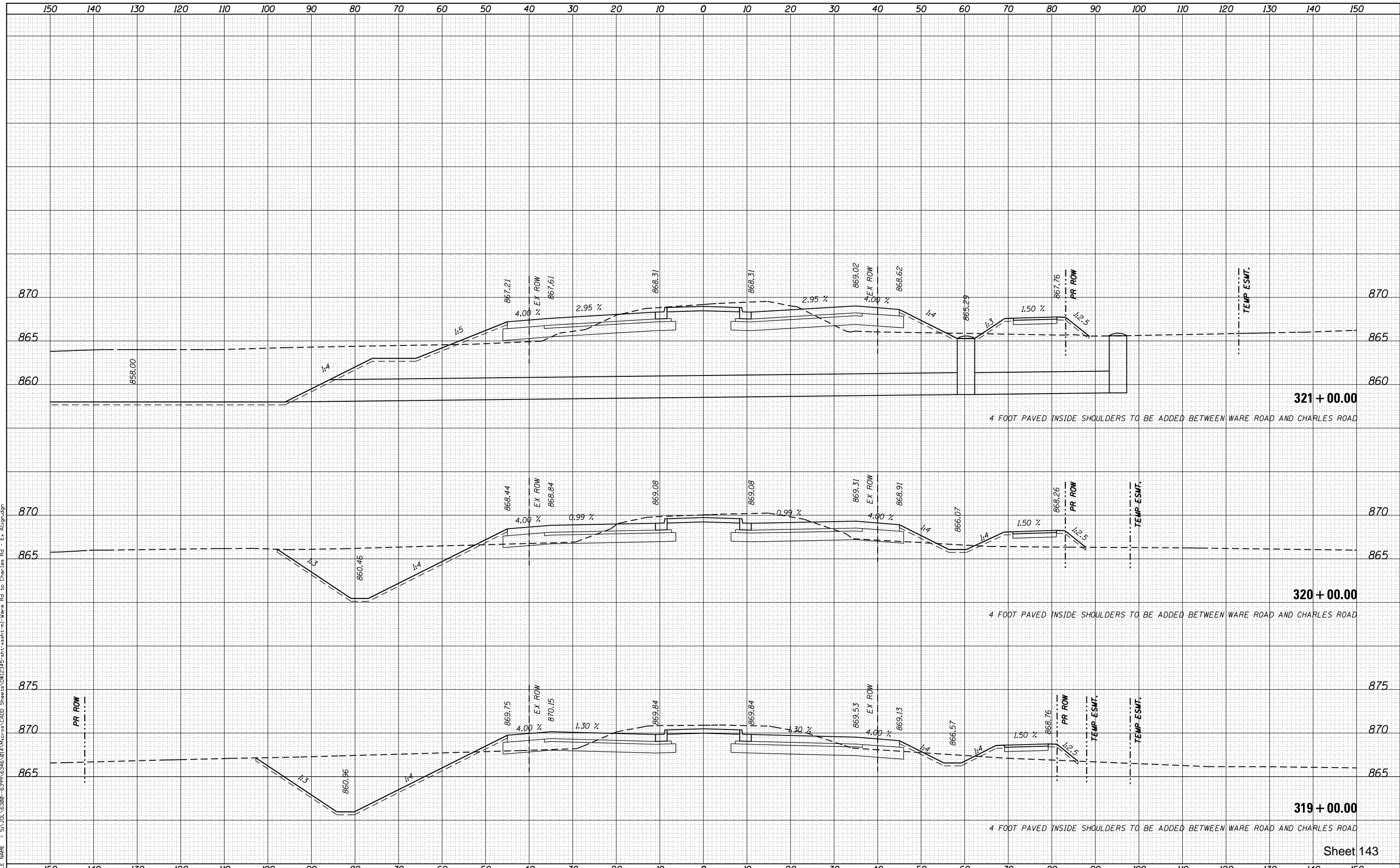
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



DATE	
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FINAL SURVEY	
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NOTE BOOK	
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ORIGINAL SURVEY	
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FILE NAME = S:\JUL 16380 - 6399\6346\01A\Micro\CAD Sheets\0812345-sh1-vssht.mxd Ware Rd to Charles Rd - Ex Alignment



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

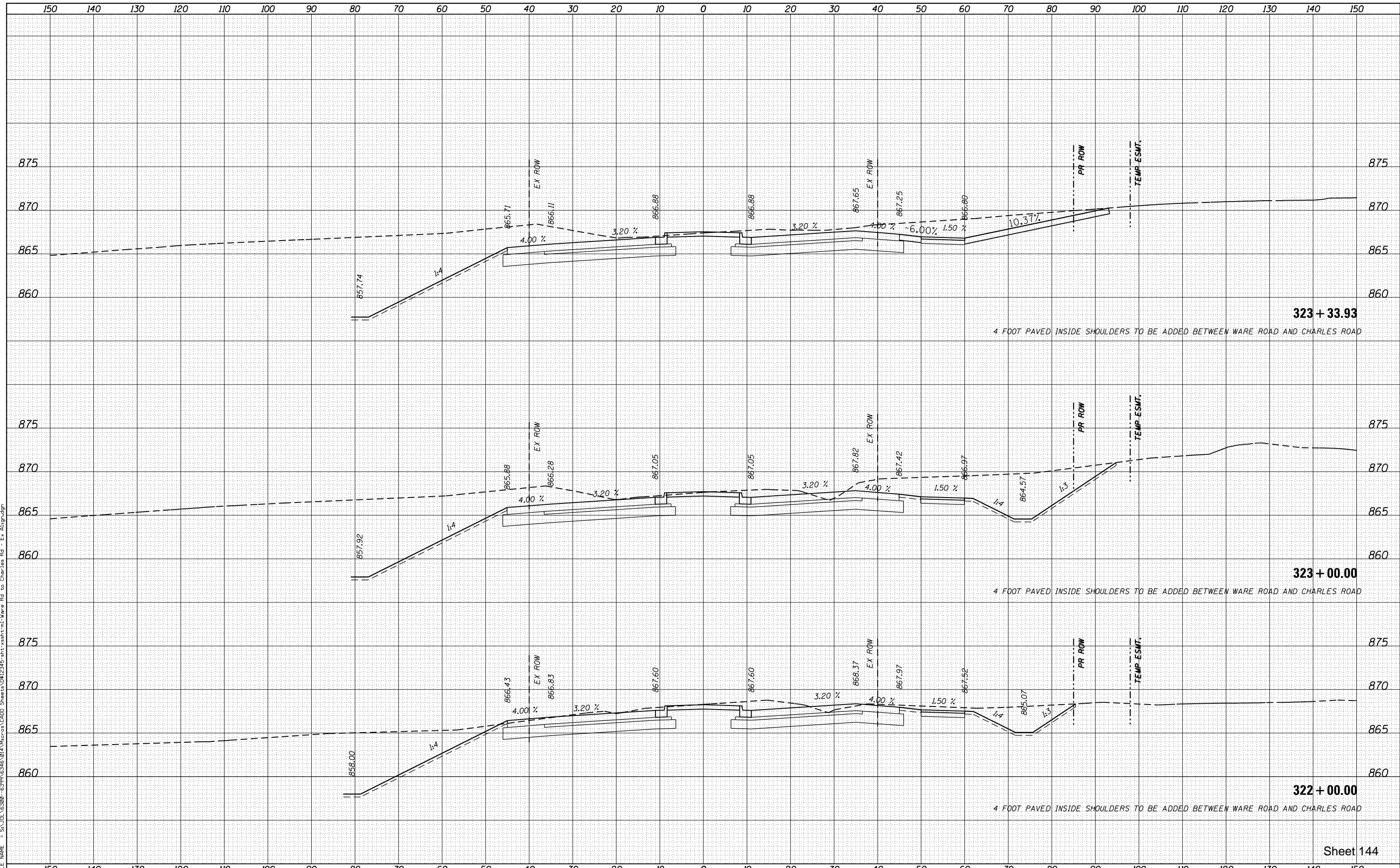
SCALE: 10H-5V SHEET OF SHEETS STA. 319+00.00 TO STA. 321+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
	AREAS CHECKED
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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

FILE NAME = S:\JL 16380 - 6399\6346\01A\Micro\CAD Sheets\0812345-sh1-vssht.m\Ware Rd to Charles Rd - Ex Alignment



**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 77 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 322+00.00 TO STA. 323+33.93

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				















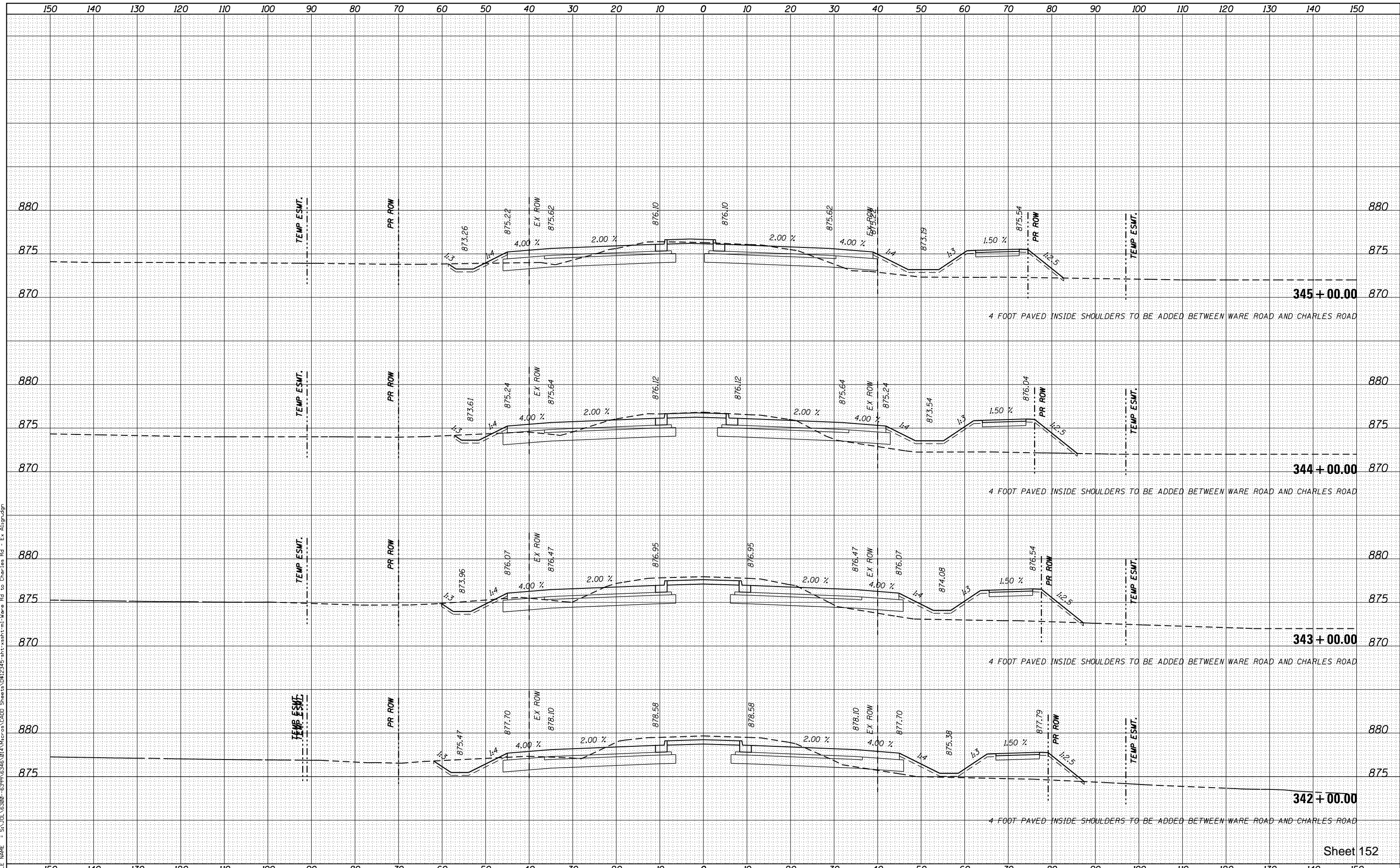




DATE	
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ORIGINAL SURVEY	
PLOTTED TEMPLATE	
AREAS CHECKED	
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FINAL SURVEY	
NOTE BOOK	
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DATE	
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ORIGINAL SURVEY	
PLOTTED TEMPLATE	
AREAS CHECKED	
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FINAL SURVEY	
NOTE BOOK	
AREAS CHECKED	
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FILE NAME = S:\JUL\_163800 - 6399\6346\01\A\Micro\CAD Sheets\0812345-sh1-vssht.m\Ware Rd to Charles Rd - Ex Alignment



1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
STRAND ASSOCIATES\* (815) 744-4200

USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

IL ROUTE 77 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 342+00.00 TO STA. 345+00.00

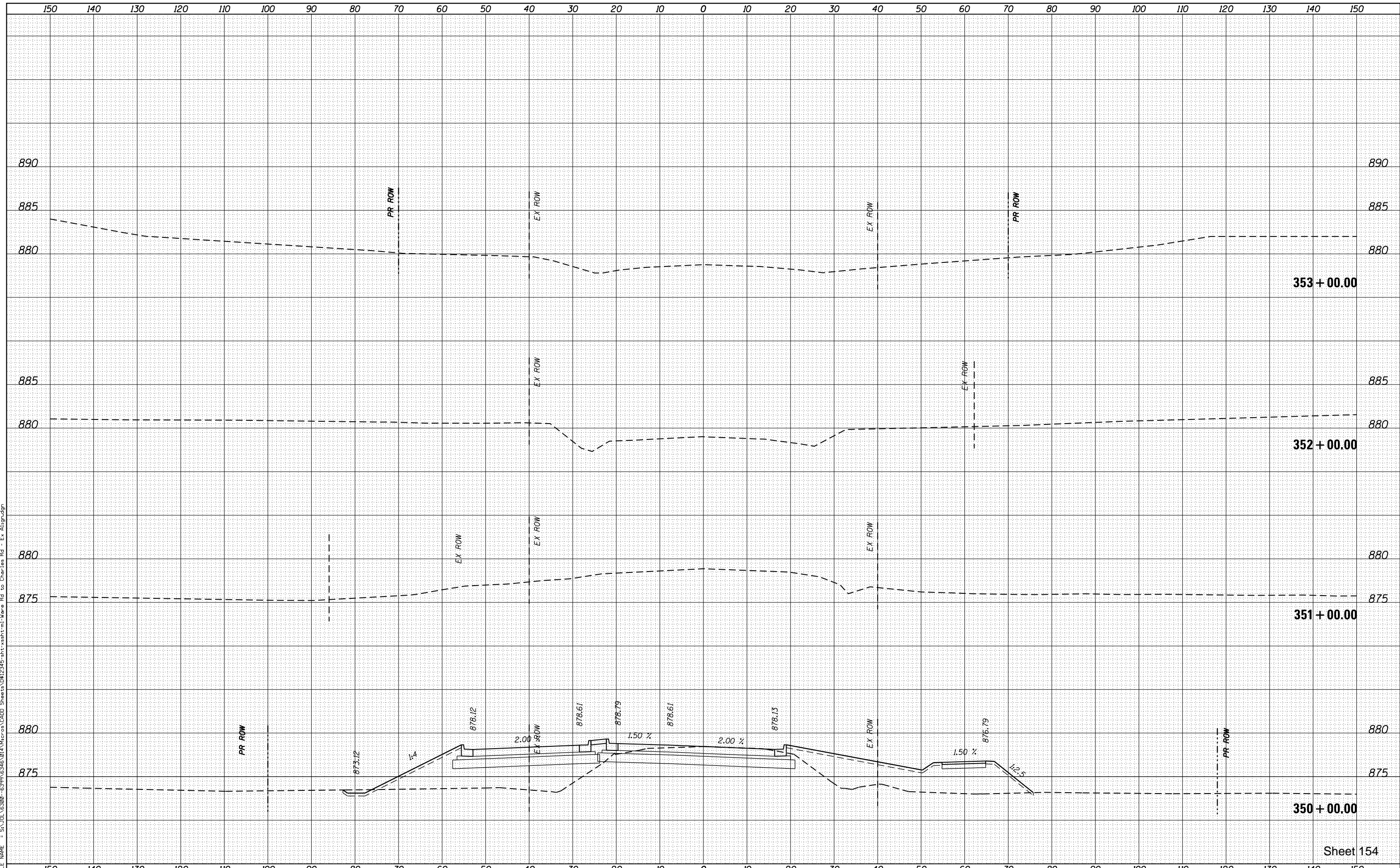
F.A.P. RFE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				



DATE	
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FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
NO.	TEMPLATE
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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED

FILE NAME = S:\JUL\_63800\_6399\6346\01\A\Micro\CAD Sheets\082345-sh1-vssht.m\Wet Rd to Charles Rd - Ex Alignment



Sheet 154

**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200

USER NAME = JakeSc  
 MODEL NAME = Default  
 PLOT SCALE = 20.0000' / in.  
 PLOT DATE = 1/23/2019

DESIGNED - WRP  
 DRAWN - DJW  
 CHECKED - DWG  
 DATE - 05/25/2018

REVISED -  
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 350+00.00 TO STA. 353+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				







150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

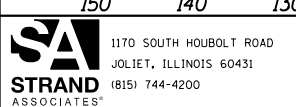
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NOTE BOOK	PLOTTED	
NO.	TEMPLATE	
	AREAS	
	CHECKED	

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	
NO.	TEMPLATE	
	AREAS	
	CHECKED	

FILE NAME = S:\JL\_63800 - 6399\6345\01A\Work\6345\6345.dwg



Sheet 157



USER NAME = JakeSc	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/23/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**IL ROUTE 47 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 360+39.00 TO STA. 360+39.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

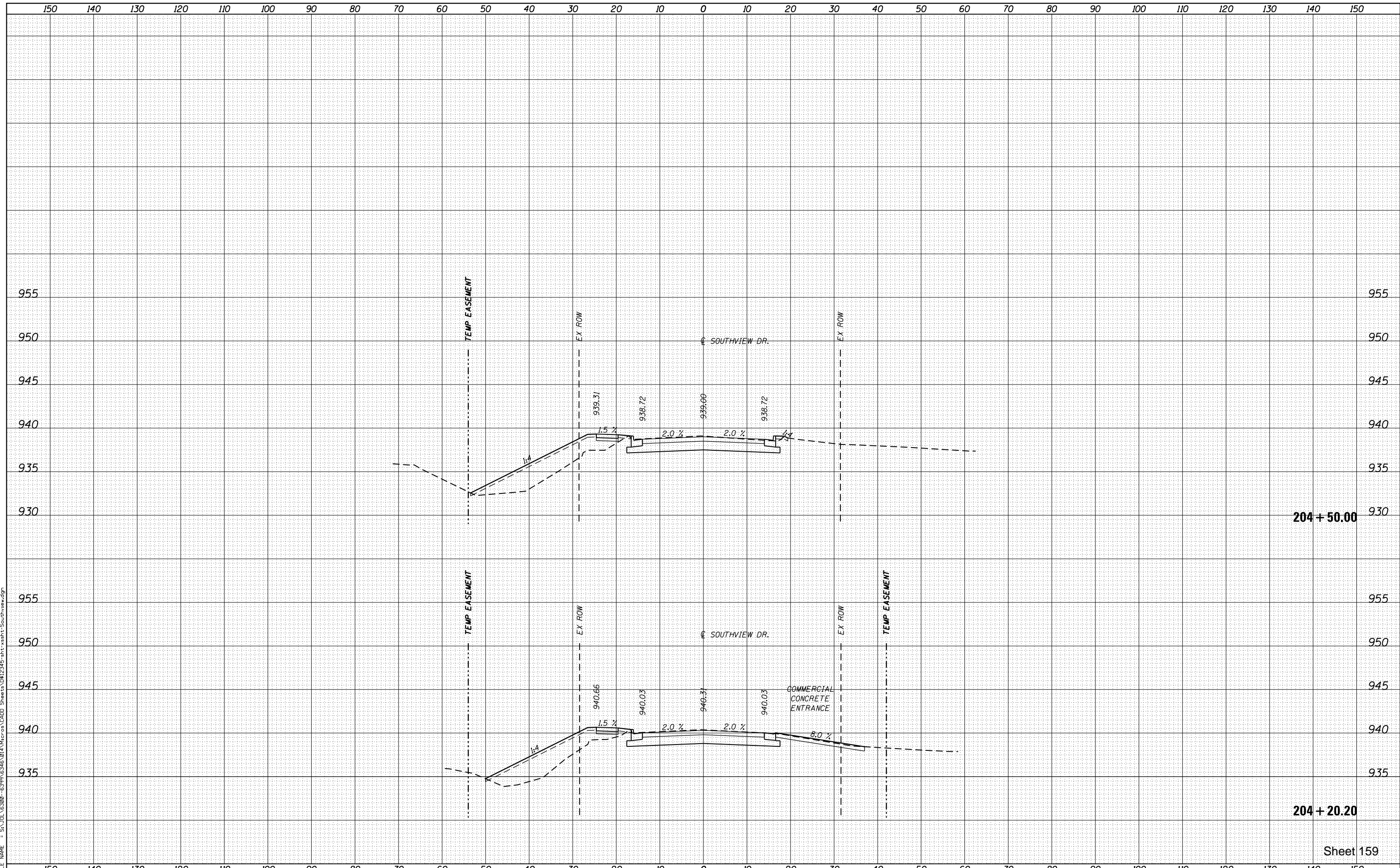




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BY	
FINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

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ORIGINAL SURVEY	SURVEYED
NOTE BOOK	PLOTTED
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	AREAS CHECKED
	AREAS CHECKED

FILE NAME = S:\JL\63800-6399\6345\01A\Work\63800 CAD Sheets\082345-shr-vssht-Southview.dgn



204 + 50.00

204 + 20.20

Sheet 159



USER NAME = MattG	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/3/2019	DATE - 05/25/2018	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SOUTHVIEW DRIVE CROSS SECTIONS**

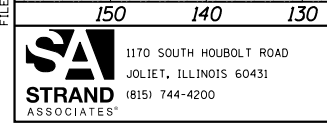
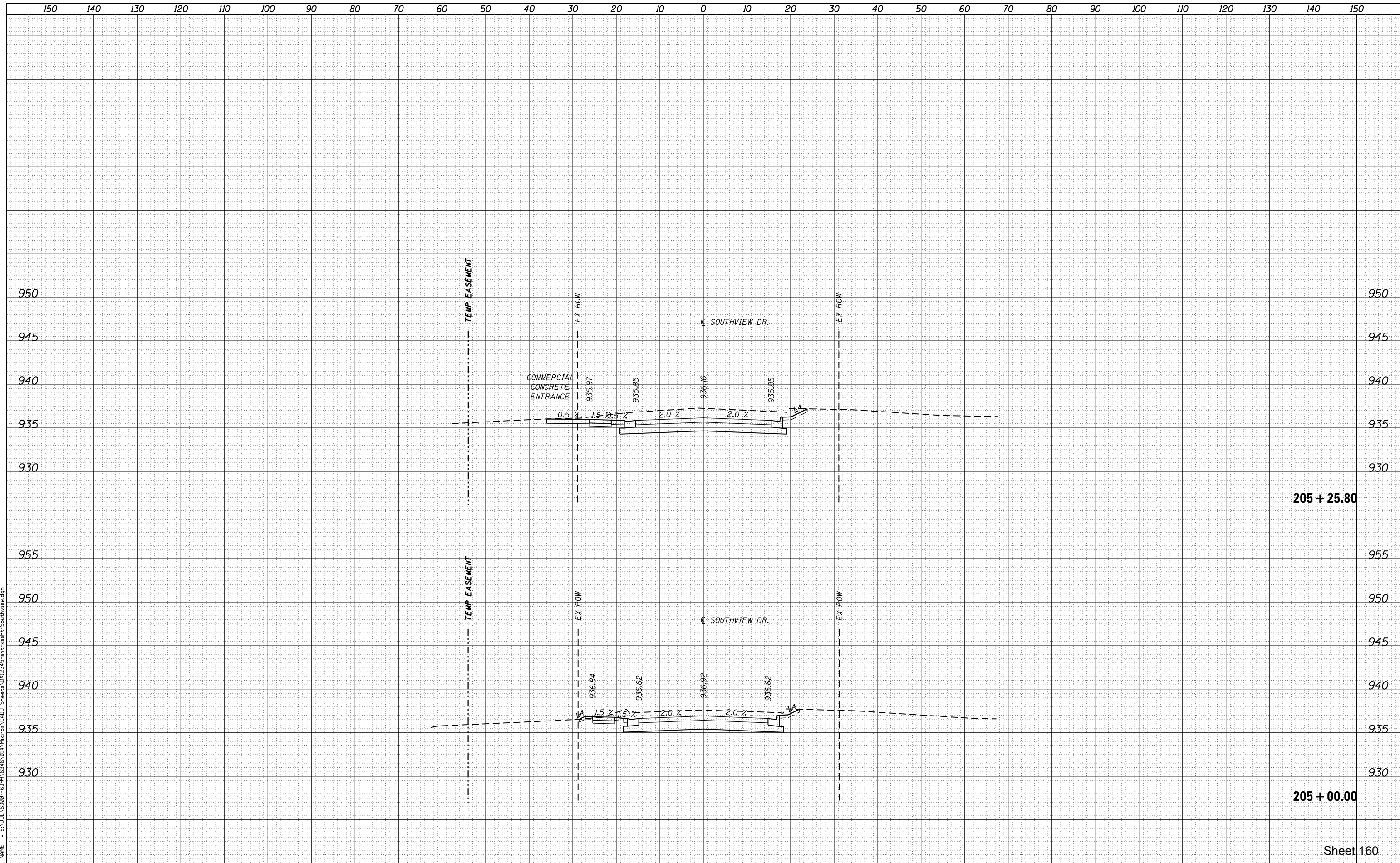
SCALE: 10H-5V    SHEET    OF    SHEETS    STA. 204+20.20    TO    STA. 204+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

DATE	
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SURVEYED	
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FINAL SURVEY NOTE BOOK NO.	

DATE	
BY	
SURVEYED	
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AREAS CHECKED	
ORIGINAL SURVEY NOTE BOOK NO.	

FILE NAME = S:\JL\_63800 - 6399\6346\01A\Work\CAD Sheets\0812345-shr-ssht-Southview.dgn



USER NAME = MattG	DESIGNED - WRP	REVISED -
MODEL NAME = Default	DRAWN - DJW	REVISED -
PLOT SCALE = 20.0000' / in.	CHECKED - DWG	REVISED -
PLOT DATE = 1/3/2019	DATE - 05/25/2018	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SOUTHVIEW DRIVE CROSS SECTIONS

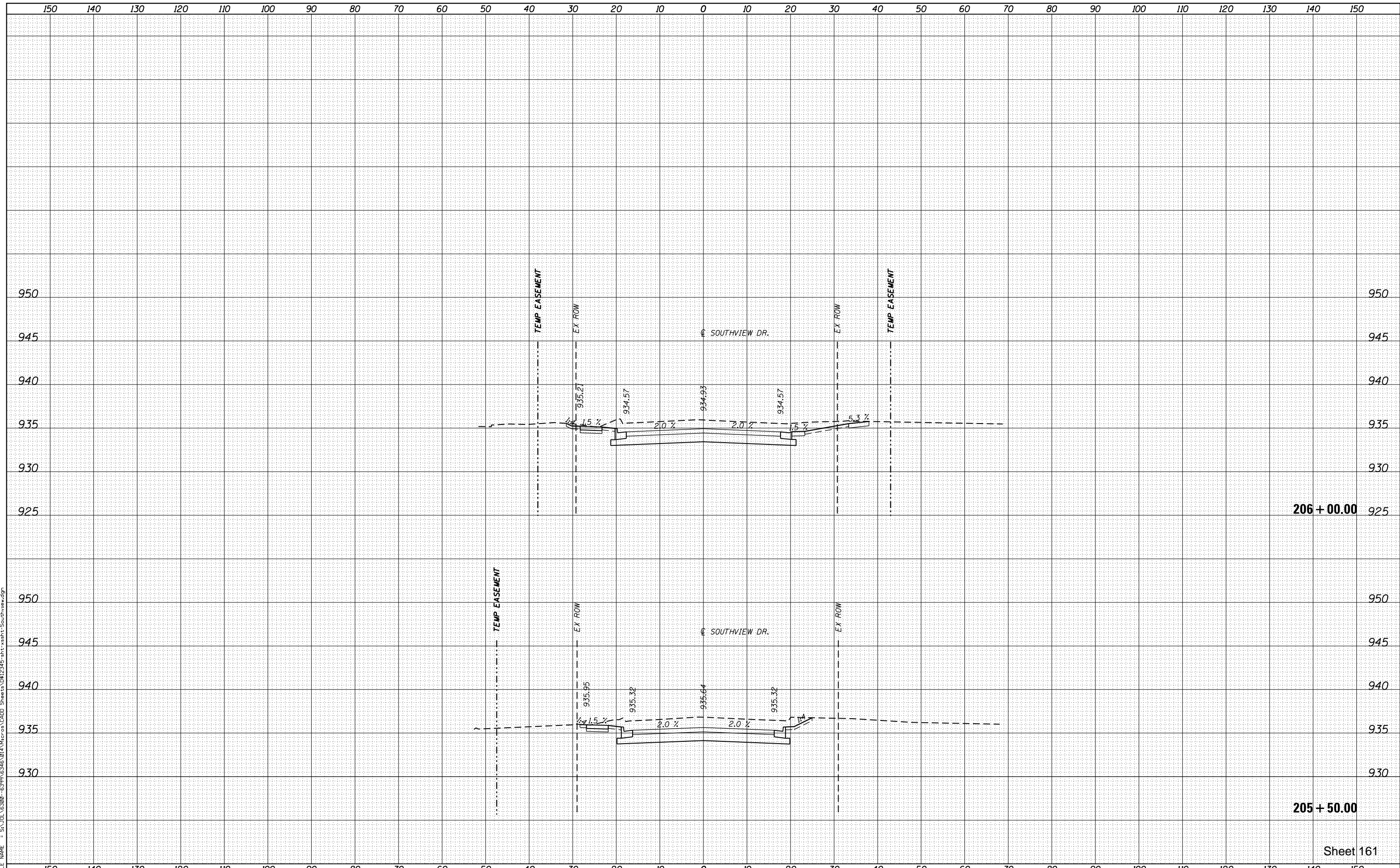
SCALE: 10H-5V SHEET OF SHEETS STA. 205+00.00 TO STA. 205+25.80

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
FINAL SURVEY NOTE BOOK NO.	

DATE	
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SURVEYED	
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**SOUTHVIEW DRIVE CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 205+50.00 TO STA. 206+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
		CONTRACT NO.		
ILLINOIS FED. AID PROJECT				

206 + 00.00

205 + 50.00



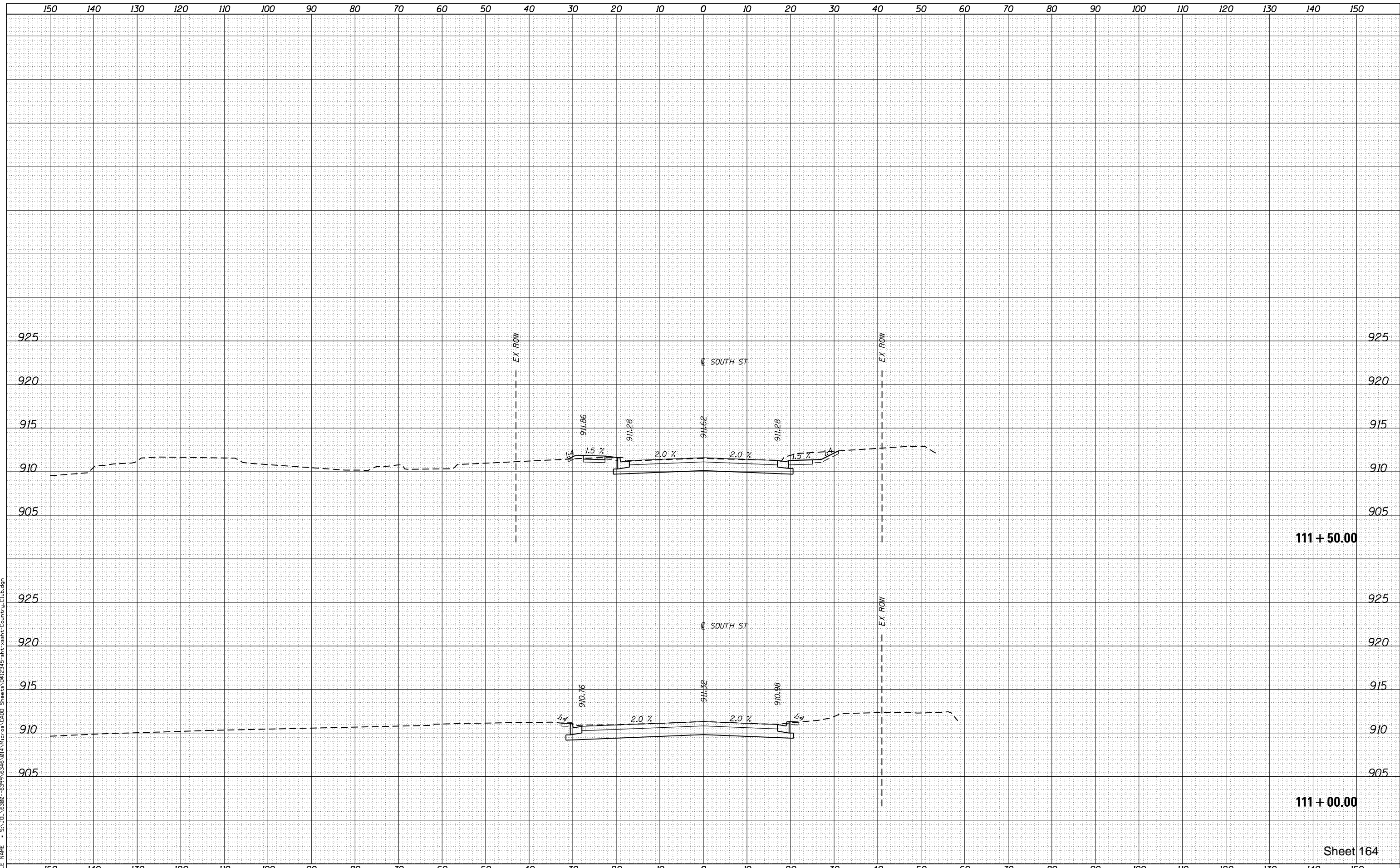




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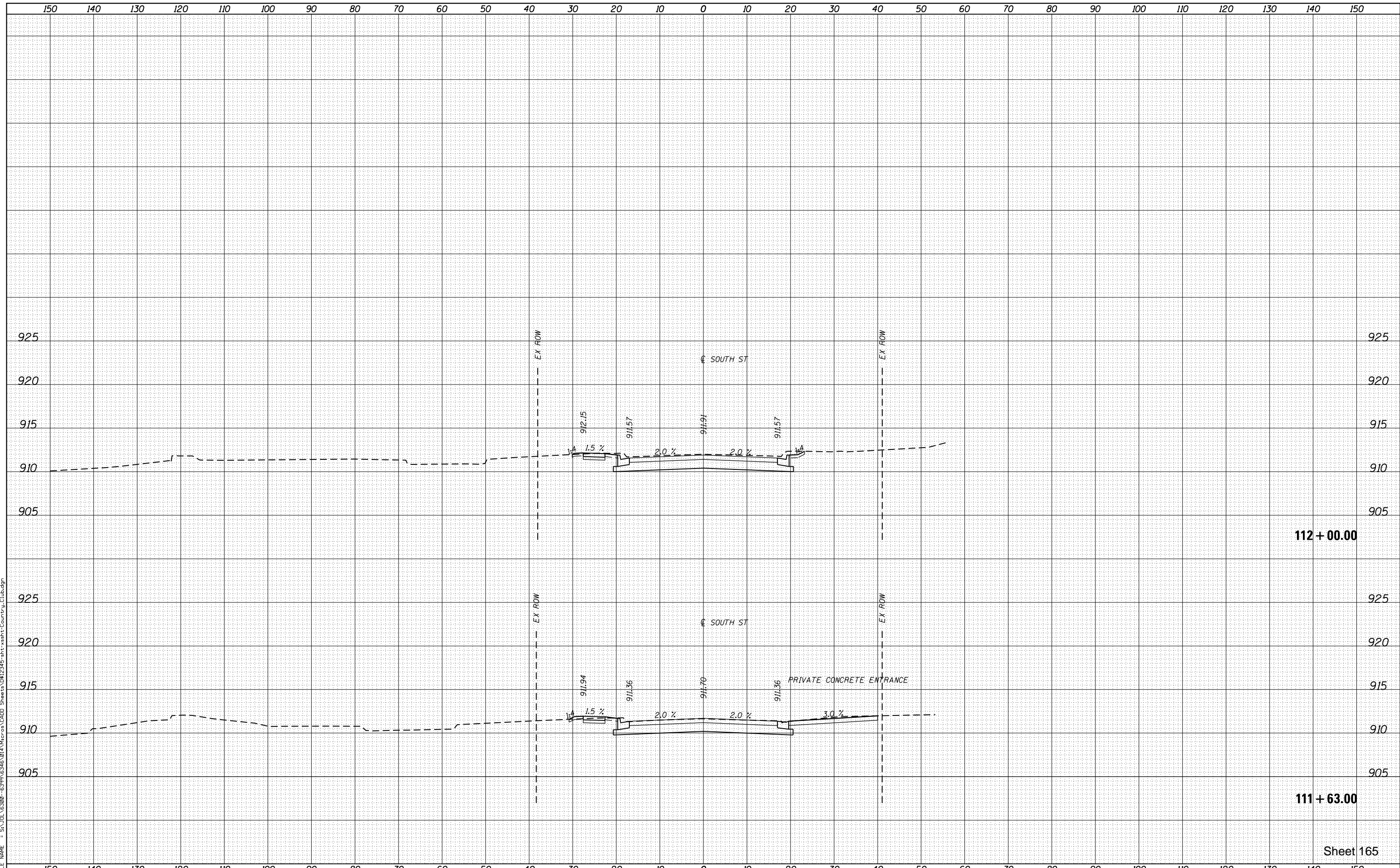
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112 + 00.00

111 + 63.00

Sheet 165



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STATE OF ILLINOIS  
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COUNTRY CLUB ROAD CROSS SECTIONS

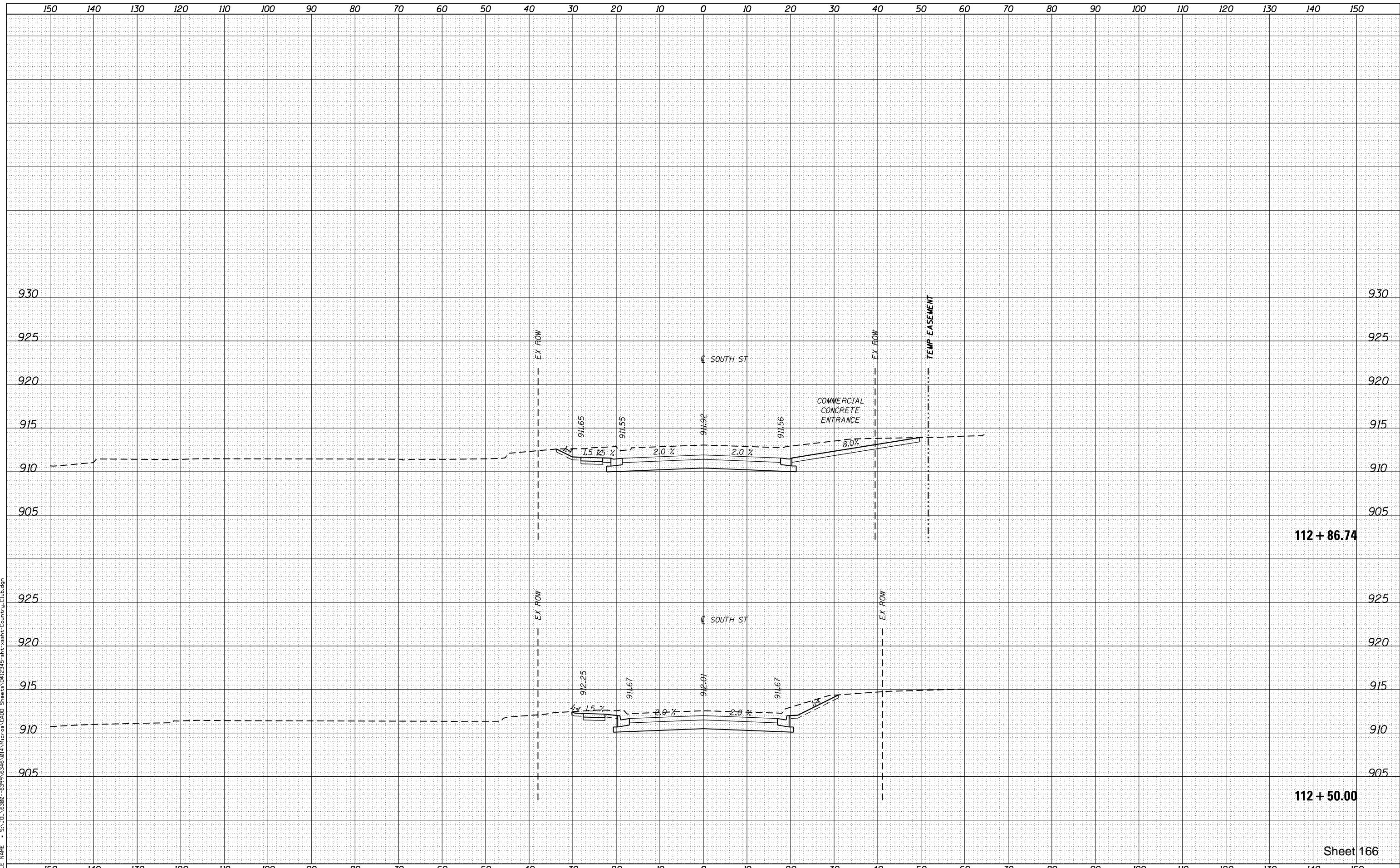
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**COUNTRY CLUB ROAD CROSS SECTIONS**

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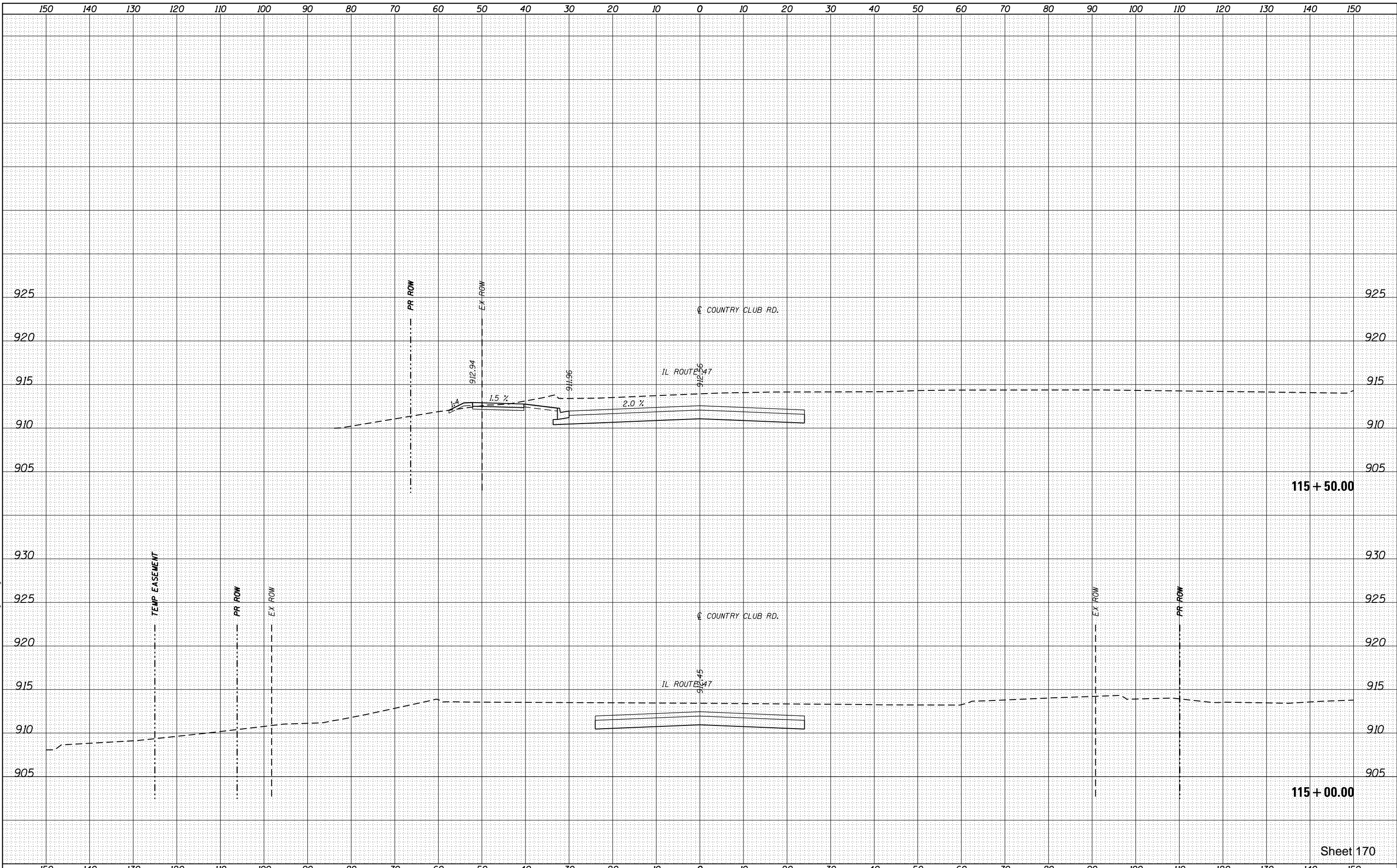




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115 + 50.00

115 + 00.00

Sheet 170



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COUNTRY CLUB ROAD CROSS SECTIONS

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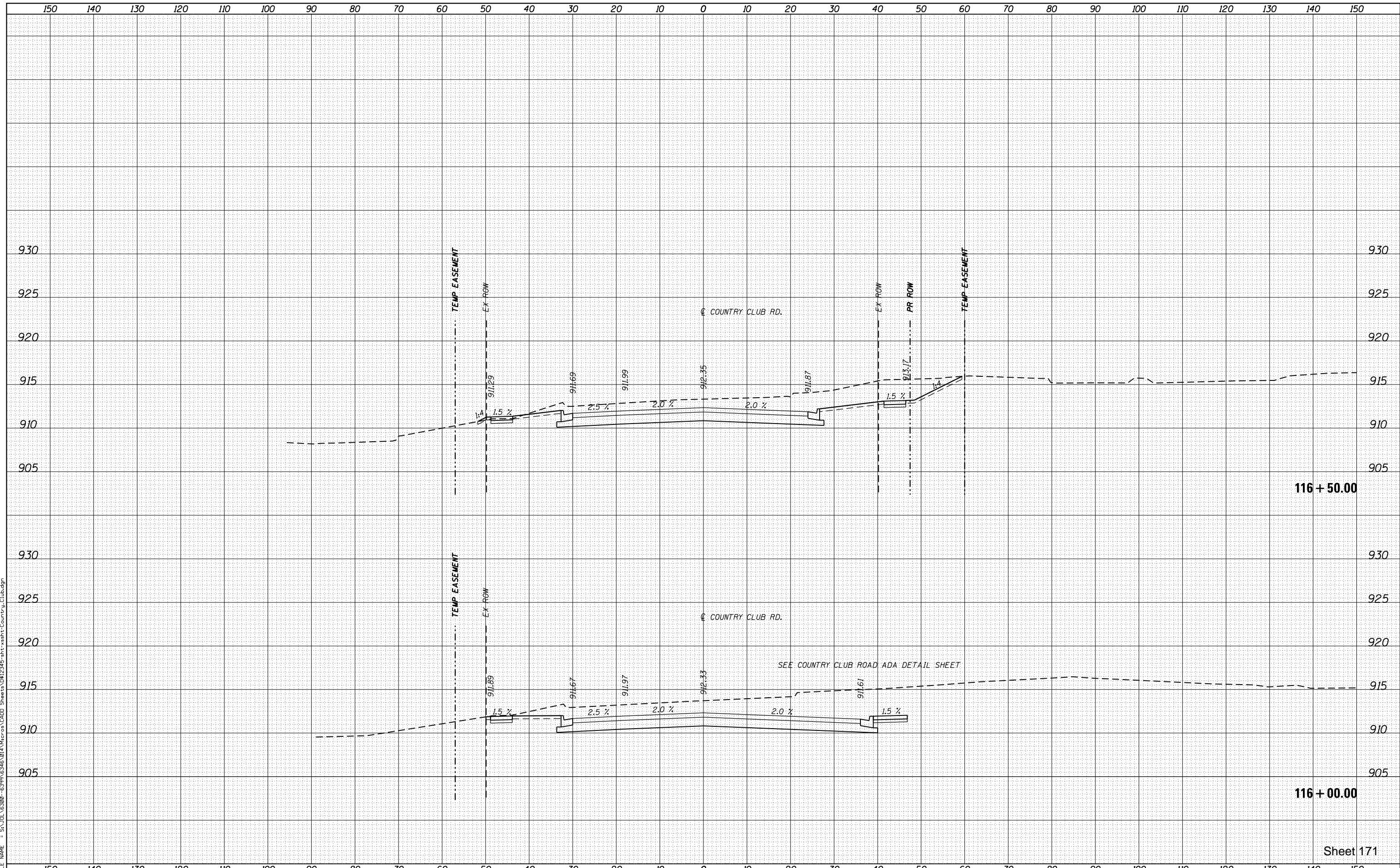
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 JOLIET, ILLINOIS 60431  
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**COUNTRY CLUB ROAD CROSS SECTIONS**  
 SCALE: 10H-5V SHEET OF SHEETS STA. 116+00.00 TO STA. 116+50.00

F.A.P. RTE. 326	SECTION	COUNTY MCHENRY	TOTAL SHEETS	SHEET NO.
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

116 + 50.00

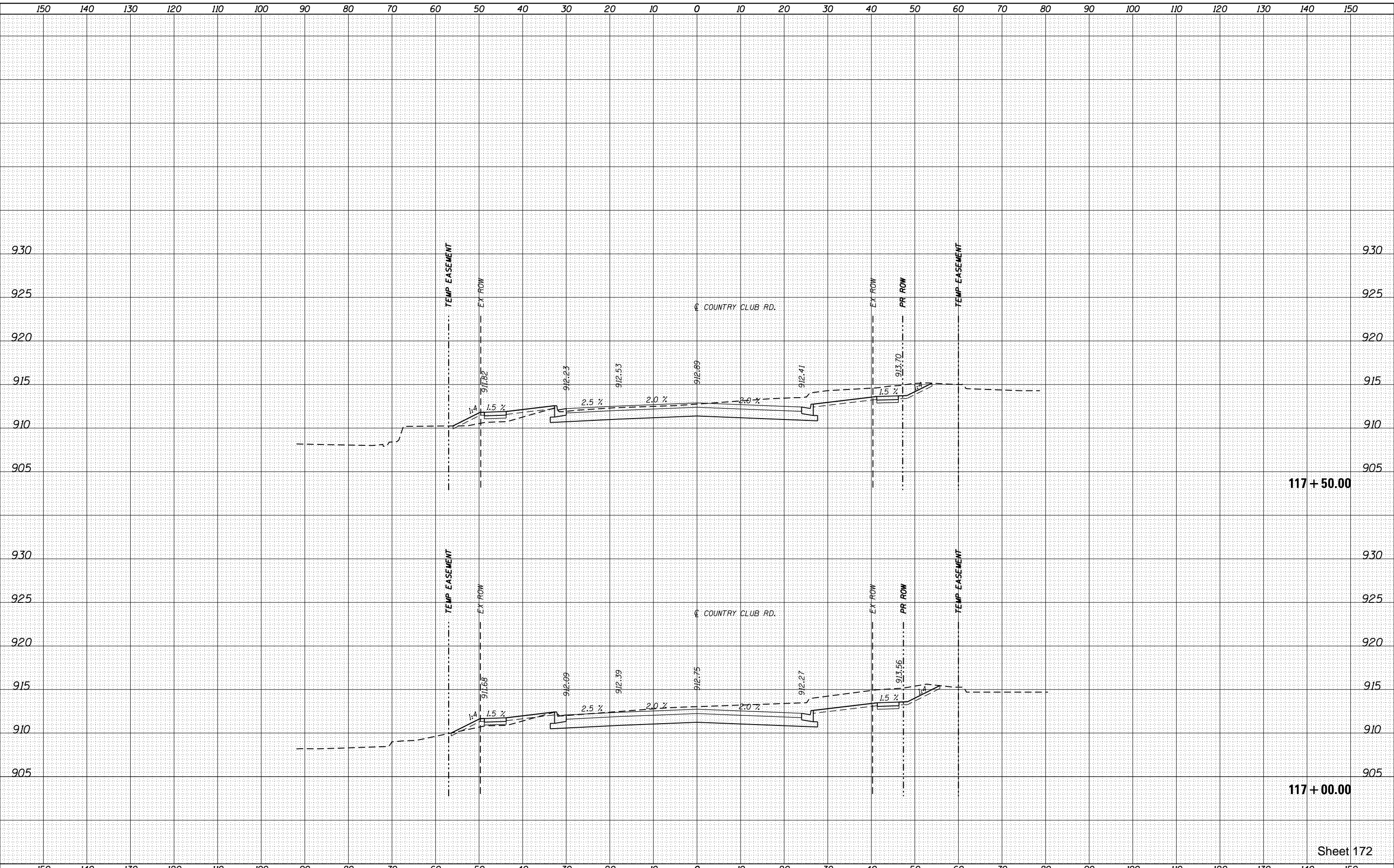
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Sheet 171

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 (815) 744-4200

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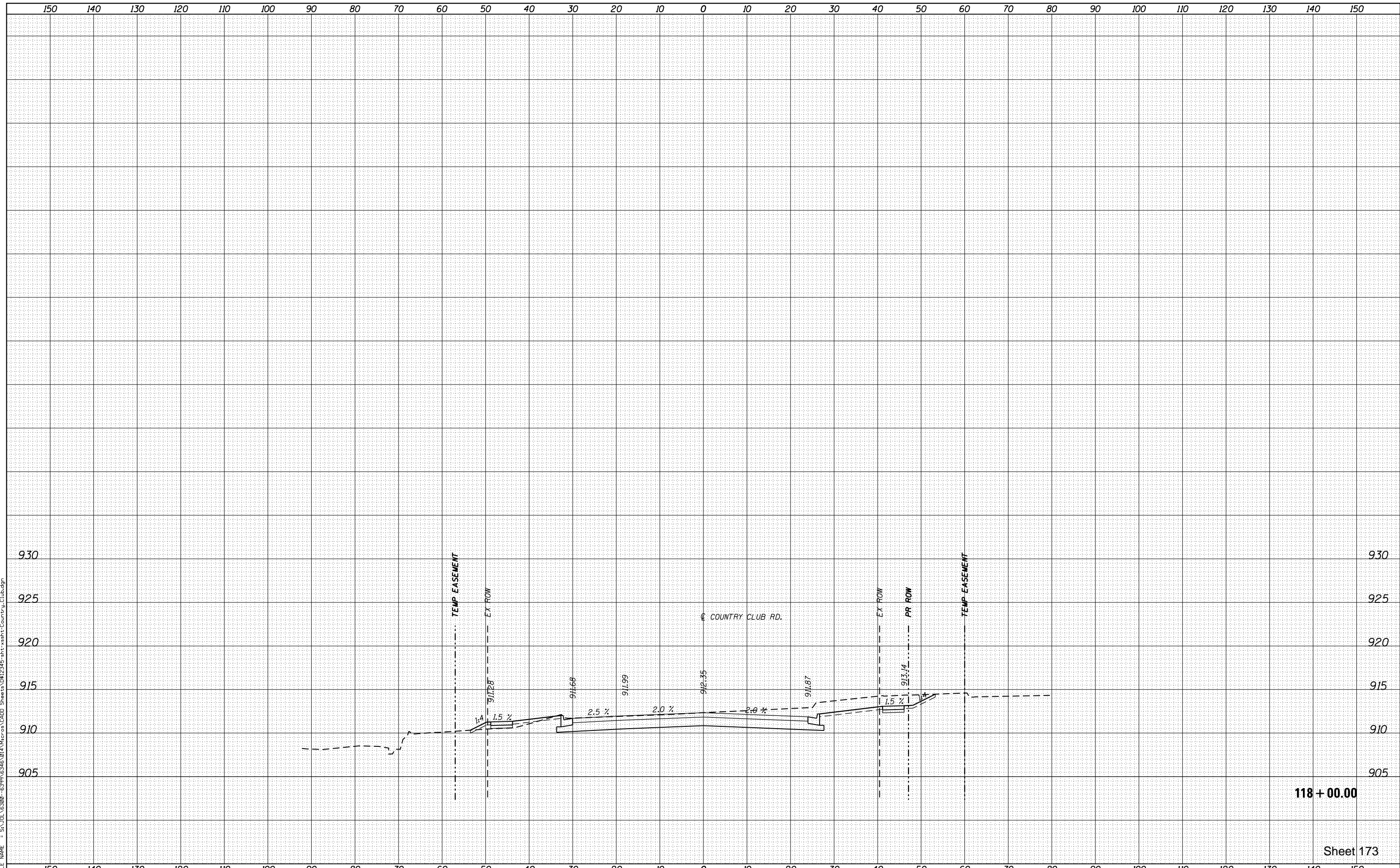
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118 + 00.00

Sheet 173



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DEPARTMENT OF TRANSPORTATION**

**COUNTRY CLUB ROAD CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 118+00.00 TO STA. 118+00.00

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ILLINOIS FED. AID PROJECT				

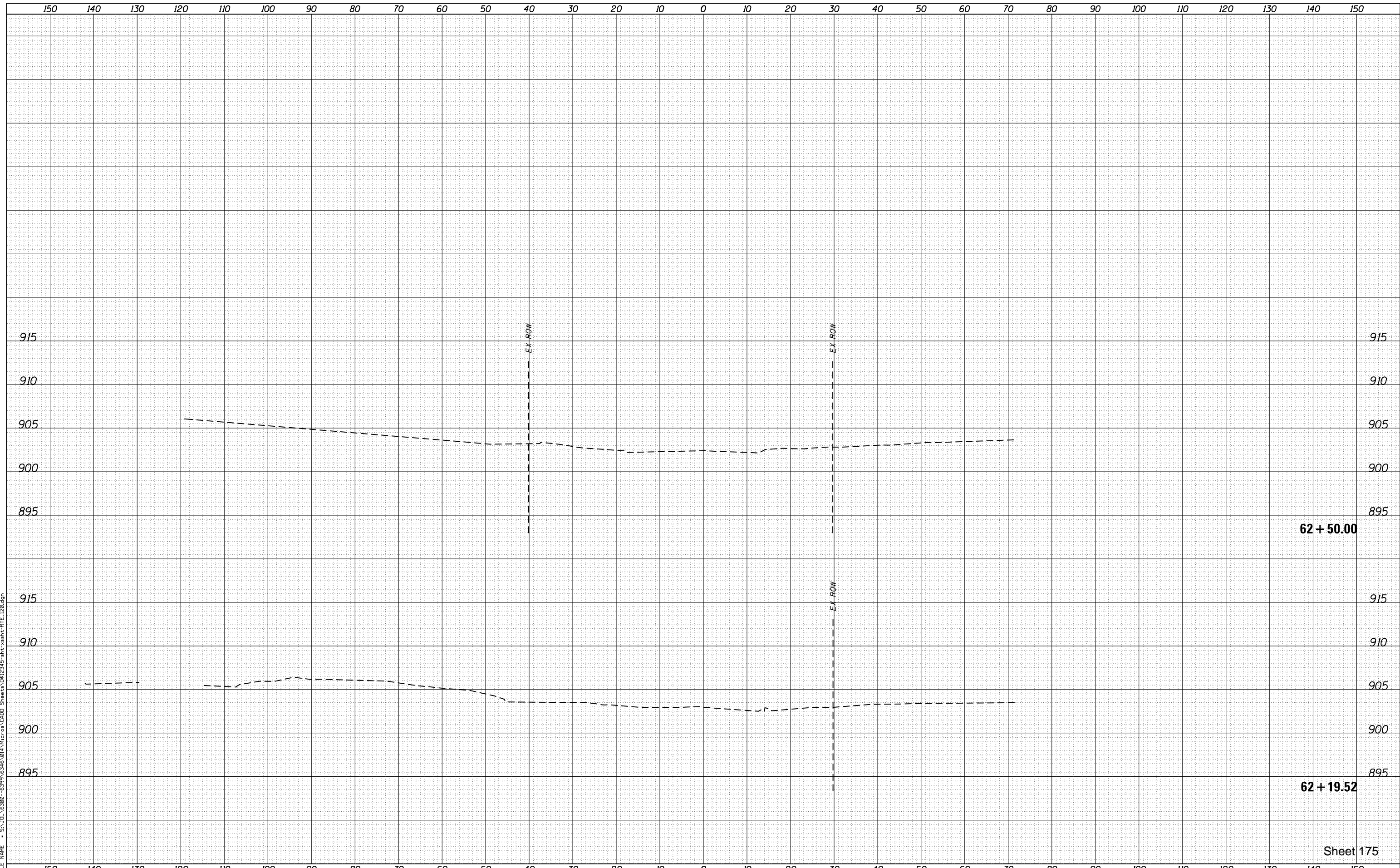




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**STATE OF ILLINOIS  
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**IL ROUTE 120 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 62+19.52 TO STA. 62+50.00

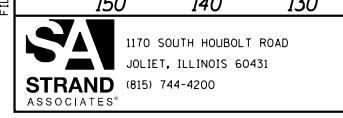
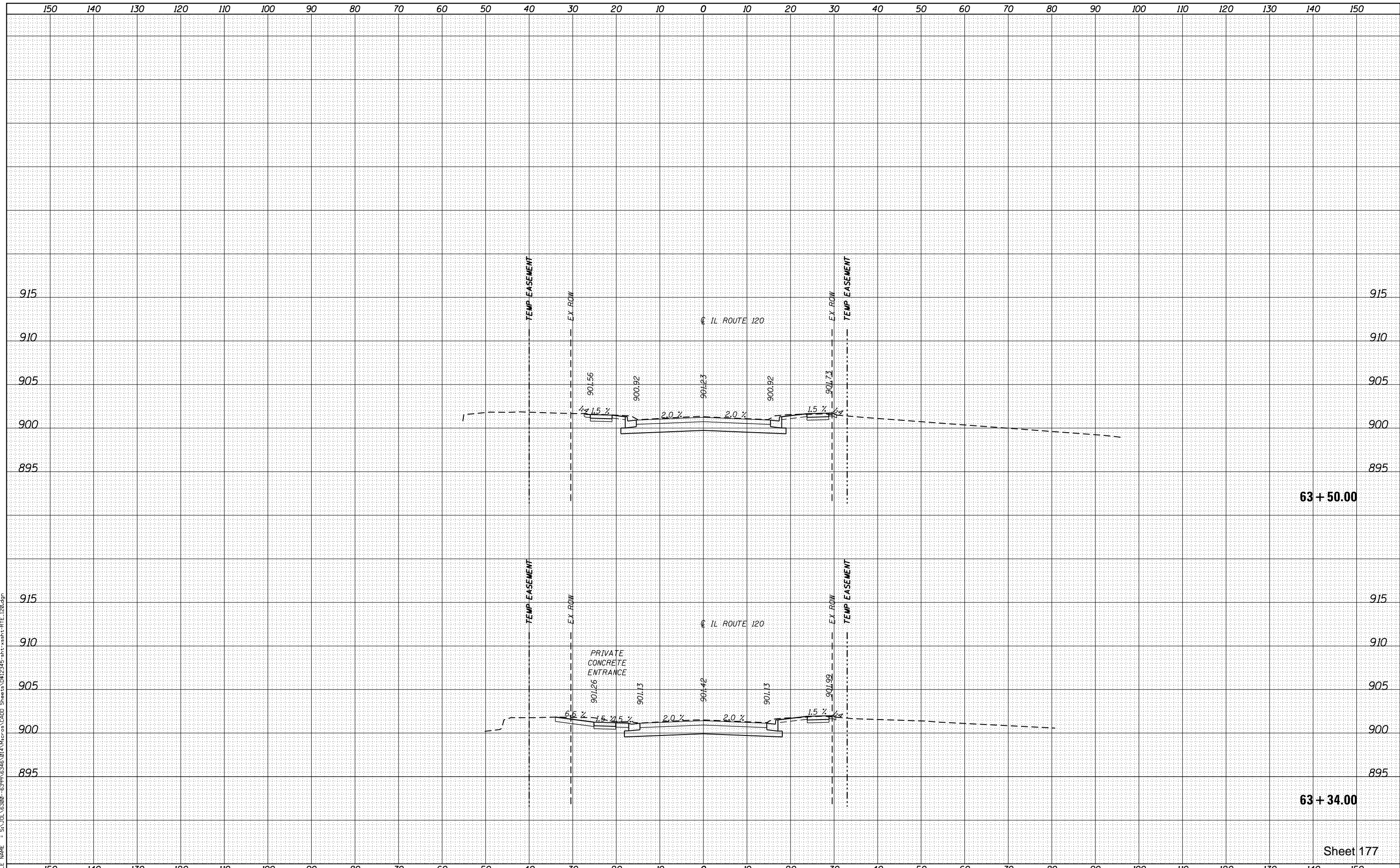
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ILLINOIS FED. AID PROJECT				



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STATE OF ILLINOIS  
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IL ROUTE 120 CROSS SECTIONS

SCALE: 10H-5V SHEET OF SHEETS STA. 63+34.00 TO STA. 63+50.00

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CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



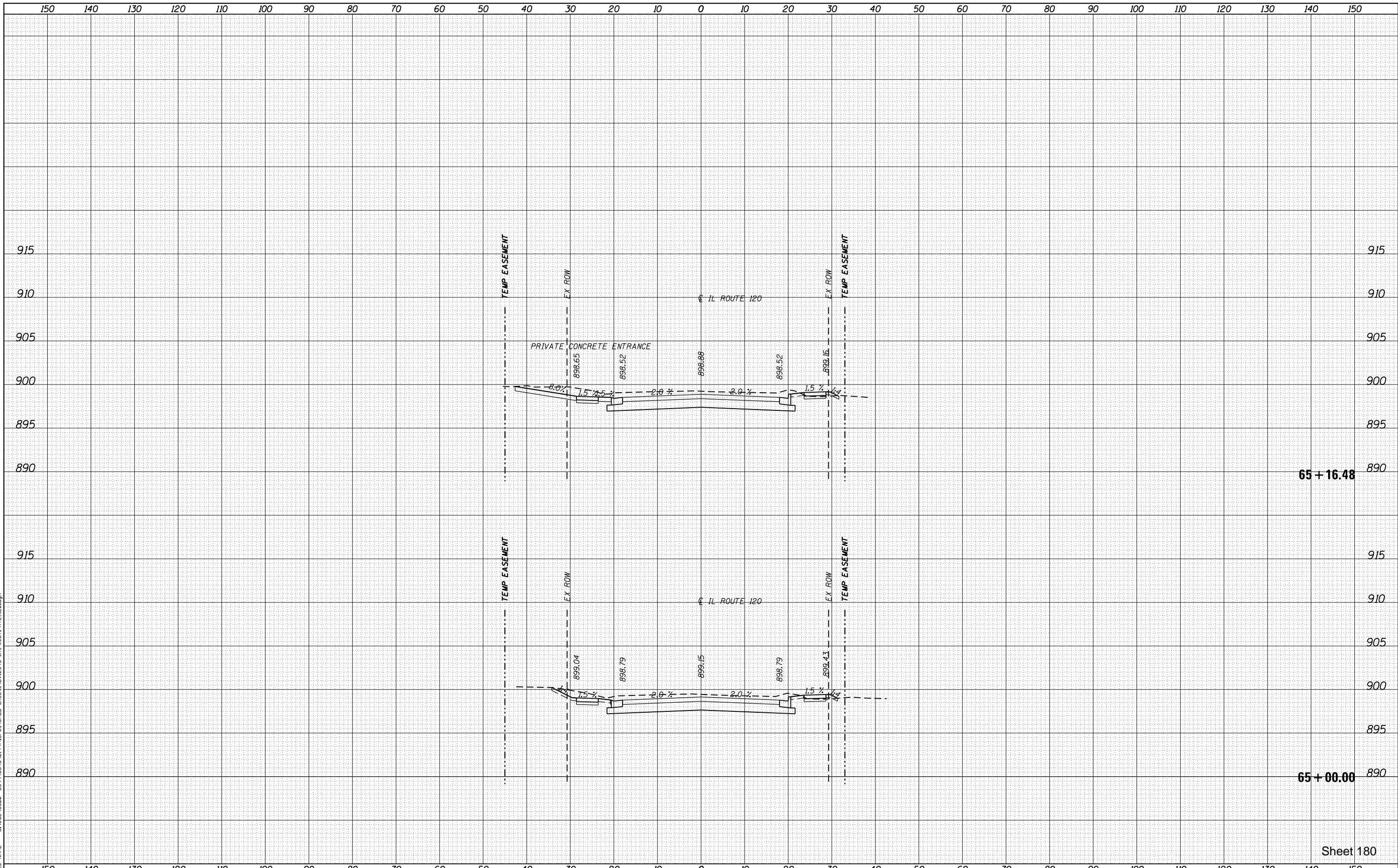




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 JOLIET, ILLINOIS 60431  
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**STATE OF ILLINOIS  
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**IL ROUTE 120 CROSS SECTIONS**

SCALE: 10H-5V      SHEET      OF      SHEETS      STA. 65+00.00      TO STA. 65+16.48

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ILLINOIS FED. AID PROJECT				

**65 + 16.48**

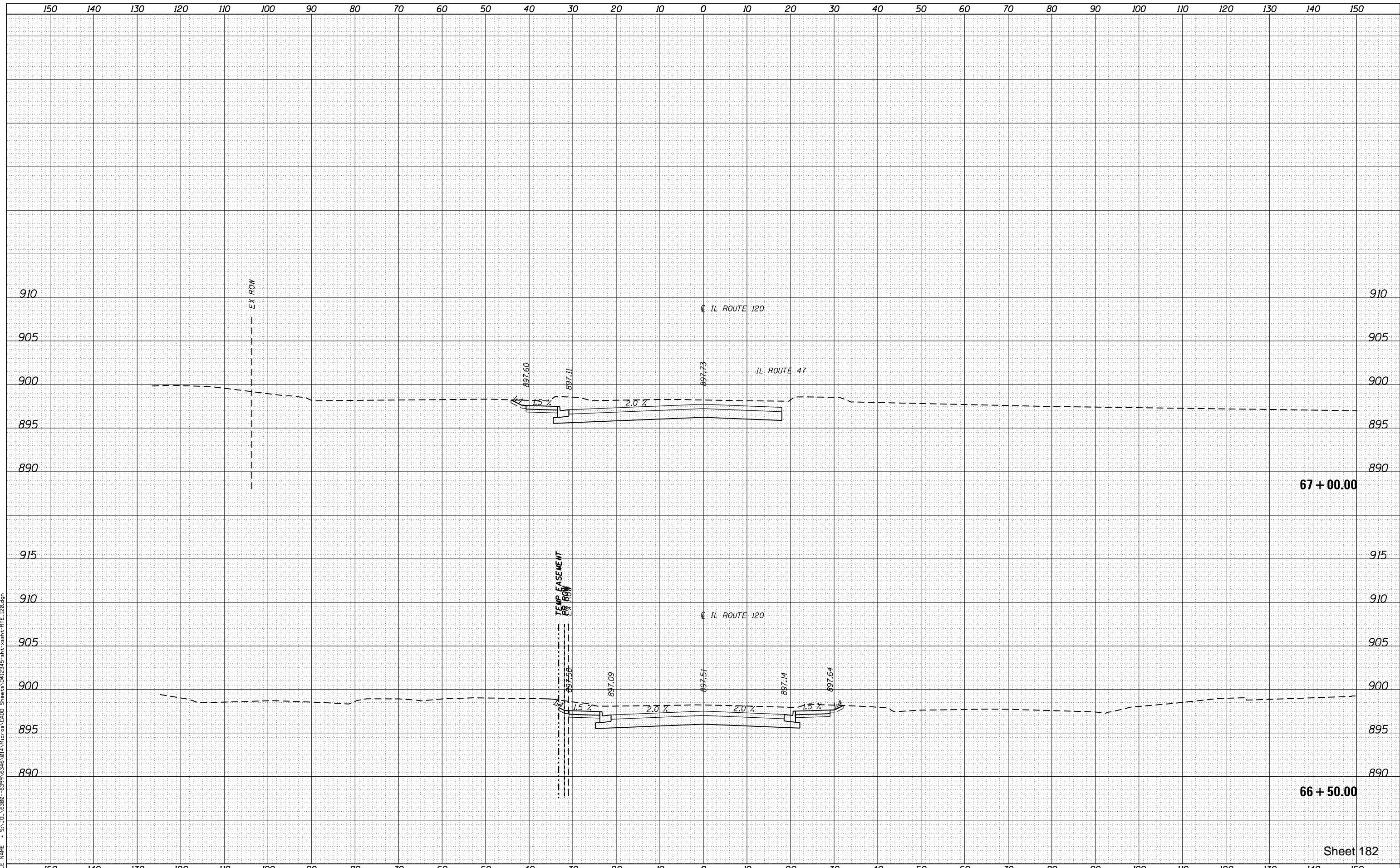
**65 + 00.00**



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**IL ROUTE 120 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 66+50.00 TO STA. 67+00.00

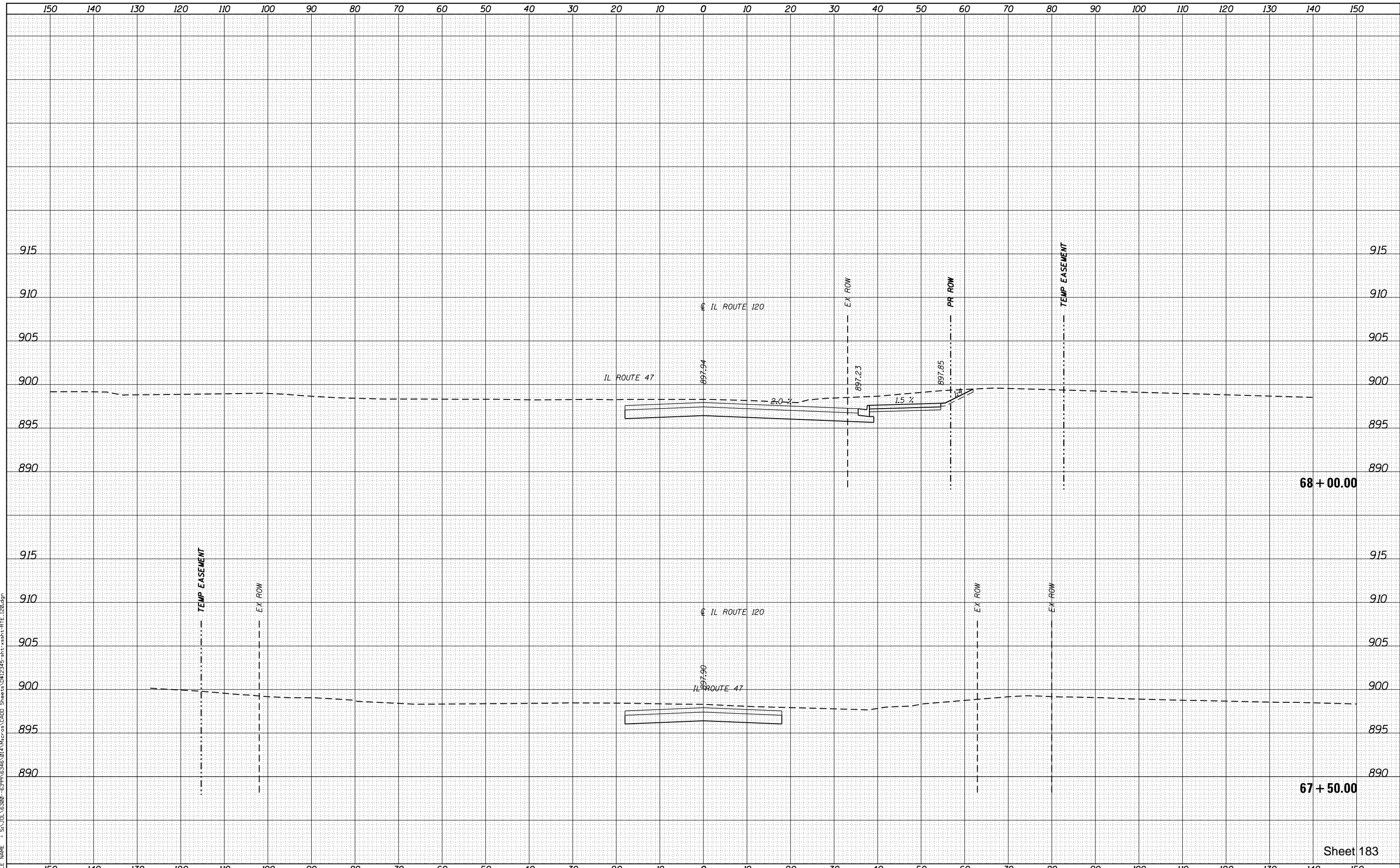
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ILLINOIS FED. AID PROJECT				



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**STATE OF ILLINOIS  
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**IL ROUTE 120 CROSS SECTIONS**

SCALE: 10H-5V SHEET OF SHEETS STA. 67+50.00 TO STA. 68+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



















**SUPPLEMENT 3.7-1  
STRUCTURE CONDITION REPORTS**

---



# *Bridge Condition Report*

REGION: One

DISTRICT: One

ROUTE: FAP 326 (IL Route 47)

LOCATION: Union Pacific Railroad over IL  
Route 47, 0.04 miles south of  
McConnell Road

COUNTY: McHenry

JOB NUMBER: P-91-007-0044

STRUCTURE NUMBER: 056-0044 (Existing)

STRUCTURE NUMBER: 056-0044 (Proposed)

---



PREPARED BY: Strand Associates, Inc.®

DATE PREPARED: July 2013

PROPOSED LETTING DATE: TBD

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I. ADMINISTRATIVE DATA..... 1

II. ROADWAY/STRUCTURE DATA..... 1

III. STRUCTURE CONDITION DATA..... 1

IV. DISCUSSION OF RECOMMENDED SCOPE OF WORK..... 3

ATTACHMENTS:

- A. Photographs
- B. Existing and Proposed Typical Sections
- C. Location Map
- D. IDOT ISIS Master Structure Report
- E. Substructure Condition Survey
- F. Opinion of Probable Cost

**ABBREVIATED BRIDGE CONDITION REPORT**

**I. Administrative Data**

REGION:	1
DISTRICT:	1
COUNTY:	McHenry
FEATURE CARRIED:	Union Pacific Railroad
ROUTE CROSSED:	FAP 326, IL Route 47
SECTION:	N/A
JOB NUMBER:	P-91-007-09
PROPOSED LETTING DATE:	TBD
STRUCTURE NUMBER:	056-0044 (Existing)
LOCATION:	Union Pacific Railroad over IL Route 47 0.04 miles South of McConnell Road.

**II. Roadway/Structure Data**

Roadway Classification:	Railroad
ADT Feature Carried (2010):	22 passenger*/ 8 freight*
ADT Route Crossed (2010/2040):	24,800/35,000
Inventory Rating HS:	Not Available
Operating Rating HS:	Not Available
Sufficiency Rating:	Not Available

\*Based on information provided by Union Pacific Railroad.

**Construction, Reconstruction, and Repair History:**

The existing structure was built in 1936 as Bridge Number 65 1/4 over Route SBI-47 at Station 207+47.50. The main steel thru-girders appear to have recently been cleaned and painted. No other repairs are known.

**III. Structure Condition Data**

The existing structure is a single-span steel thru-girder bridge carrying two sets of railroad tracks over IL Route 47 (see Attachment A, Photographs 1 and 2). The superstructure is supported by closed, fully-retaining concrete abutments supported on timber piles. The bridge has a skew of 19°47', a span of 60'-5 5/8" (centerline-to-centerline of bearing), and a width of 31'-6" (centerline-to-centerline of thru girders). Both sets of tracks are located on a bed of ballast that is placed directly on steel floor plates attached to the floor beams that span between the thru-girders. There are two sets of steel cross braces, made up of channel sections, attached to the bottom of the steel floor beams (see Attachment A, Photograph 3). The structure provides approximately 52'-0" (face-to-face of abutment) of horizontal clearance and 14'-2" of vertical clearance. There are stepped, concrete wingwalls in each corner of the bridge (see Attachment C, Photograph 4). There are also decorative columns at the ends of both abutments and terraced timber retaining walls behind the northwest and northeast wingwalls that run parallel to the railroad tracks. See Attachment A, Photographs 5 and 6. There are two aerial utility lines near the structure, one crossing over the railroad behind the west abutment and one running parallel to the railroad on the south side (see Attachment A, Photographs 7 and 8). There is a gas pipeline utility marker near the southwest wingwall (see Attachment A, Photograph 9). IL Route 47 is 40'-0" wide at right angles face-to-face of curbs and



consists of a northbound lane, a southbound lane, a variable width median, and sidewalks on each side of the roadway. Benchmarks are located on the southeast and southwest wingwalls (see Attachment A, Photographs 10 and 11). A typical section is shown in Attachment B.

As shown in the Location Map in Attachment C, there are properties with one or more buildings in the northeast, northwest, and southeast corners of the structure. There is a vacant property southwest of the structure.

### **Inspection History (NBIS Ratings)**

The IDOT ISIS Master Report and abbreviated existing plans are shown in Attachment D . NBIS ratings were not made available by the Union Pacific Railroad.

The existing structure was observed from ground level. As the bridge is owned and maintained by the Union Pacific Railroad and the scope of the project would likely include keeping the bridge in place, more detailed observation was not included in the original project scope. The following is a summary of the observations:

#### Deck:

As the structure is owned and maintained by the Union Pacific Railroad, the railroad ballast, track, and top of deck were not observed. However, the bottoms of the steel floor plates were observed between beams. The floor plates exhibit surface rust throughout but there was no noticeable section loss (see Attachment A, Photograph 12).

#### Joints:

Bridge joints are covered in ballast and were not observed.

#### Bearings:

There are four bearings (two for each abutment) that support the ends of the thru-girders and ten smaller bearings (five for each abutment) that seat the abutment end of the skewed floor beams. The bridge bearings appear to be in good condition. Surface rust was observed throughout the castings. No other anomalies were observed.

#### Superstructure:

Overall, the steel superstructure appears to be in good condition. The floor beams exhibit paint peeling and surface rust throughout, but there was no noticeable section loss. The steel plate thru-girders also exhibit surface rust on the bottom of the bottom flange. However, the outside faces of the thru-girders have been recently painted and are free of any noticeable rust (see Attachment A, Photograph 13). The flanges of the protruding leg of each cross brace appear to have collision damage as they are warped near the midpoint of the brace (see Attachment A, Photographs 14 and 15).

#### Substructure:

*East Abutment:* There are delaminated areas or spalls on approximately 15 percent of the front face of the east abutment. The majority of the spalls are shallow (less than 5" in depth) and exhibit efflorescence (see Attachment A, Photograph 16). The largest delaminated region is a 10'-0" x 9'-6" area in the southeast corner of the abutment face (see Attachment A, Photograph 17). This region wraps around the corner of

the abutment where there is a spall with exposed reinforcement on the south face (see Attachment A, Photograph 18). There are also four open cracks ranging from approximately 3'-0" to 11'-0" in length and a few hairline cracks scattered throughout the abutment (see Attachment A, Photograph 19). There are also spalls at the top corner of the east abutment in front of the thru-girder bearing seats (see Attachment A, Photographs 20 and 21).

The northeast wingwall is in good overall condition. There is one-1'-9" x 4'-6" deep (greater than 5" in depth) spall at the bottom of the third step from the north (see Attachment A, Photograph 26). The southeast wingwall exhibits more anomalies than the northeast wingwall. There is one-1'-0" x 4'-0" deep (greater than 5" in depth) spall in the fourth step from the south (see Attachment A, Photograph 27). There is also a deep (greater than 5" in depth) spall along the entire top and south face of the first step from the south (see Attachment A, Photograph 28).

*West Abutment:* There are delamination areas or spalls on approximately 2% of the front face of the west abutment. The largest is a 1'-4" x 5'-0" spall adjacent to the construction joint near the center of the abutment. See Attachment A, Photographs 22-23. There are two open cracks with efflorescence that extend the full height of the abutment and three-3'-0" long open cracks on the front face of the abutment. See Attachment A, Photograph 24. There are also spalls at the top corner of the west abutment in front of the thru-girder bearing seats. See Attachment A, Photograph 25.

The northwest wingwall is in good overall condition. There is a horizontal open crack and one 9" x 2'-6" shallow spall (less than 5" in depth) at the bottom of the fourth step from the north (see Attachment A, Photograph 29). There is also a 2'-0" x 6" shallow spall (less than 5" in depth) at the bottom of the first step from the north. The southwest wingwall exhibits more anomalies than the northwest wingwall. There is one 2'-6"x7'-0" delaminated and spalled area with efflorescence in the third step from the south (see Attachment A, Photograph 30). The top of the third step is also completely spalled away (see Attachment A, Photograph 31).

See Attachment F for a Substructure Condition Survey.

#### **IV. Discussion and Recommended Scope of Work.**

##### Bridge Repairs:

The bridge is in a condition suitable to remain in place. As the proposed geometric improvements to IL 47 do not warrant a wider bridge opening, it is suggested that the bridge owner (Union Pacific Railroad) develop a bridge rehabilitation program that covers the following:

1. Surface repairs (crack sealing and formed concrete repairs) at the abutments and wingwalls.
2. Painting floor beams.
3. Replacing cross bracing.

Repairs can be performed using staged construction.

The existing vertical clearance is 14'-2". Currently, there is approximately 1'-0" of cover between the roadway and the top of footing that protrudes under the pavement structure. There is potential to increase the vertical clearance by lowering the profile of IL 47 under the bridge. This will require incorporation of the proposed pavement into the existing footing.

The total estimated cost of the repairs is \$155,000. See Attachment F for the Opinion of Probable Construction Cost.

## **ATTACHMENTS**

Attachment A	Photographs
Attachment B	Existing and Proposed Typical Sections
Attachment C	Location Map
Attachment D	IDOT ISIS Master Structure Report and Abbreviated Existing Plans
Attachment E	Substructure Condition Survey
Attachment F	Opinion of Probable Construction Cost

ATTACHMENT A  
PHOTOGRAPHS





Photograph 1. Union Pacific Railroad Bridge looking north



Photograph 2. Union Pacific Railroad Bridge looking south



Photograph 3. Cross bracing fixed to bottom of steel floor stringers



Photograph 4. Stepped wingwall, typical at each corner of the bridge



Photograph 5. Decorative column, typical at the ends of both abutments



Photograph 6. Terraced retaining walls, typical of the northwest and northeast corners of the bridge





Photograph 7. Aerial utility lines crossing over the railroad behind the west abutment



Photograph 8. Aerial utility lines running parallel to the railroad on the south side





Photograph 9. Gas pipeline utility marker near southwest wingwall



Photograph 10. Benchmark on southeast wingwall



Photograph 11. Benchmark on southwest wingwall



Photograph 12. Surface rust on steel floor plates (between beams), viewed from beneath the bridge





Photograph 13. Rust on bottom of bottom flange and recently painted outside face, typical of both exterior thru-girders



Photograph 14. Damaged flanges on continuous leg of "X-brace" near midpoint of brace



Photograph 15. Close-up view of damaged flanges on continuous leg of cross brace

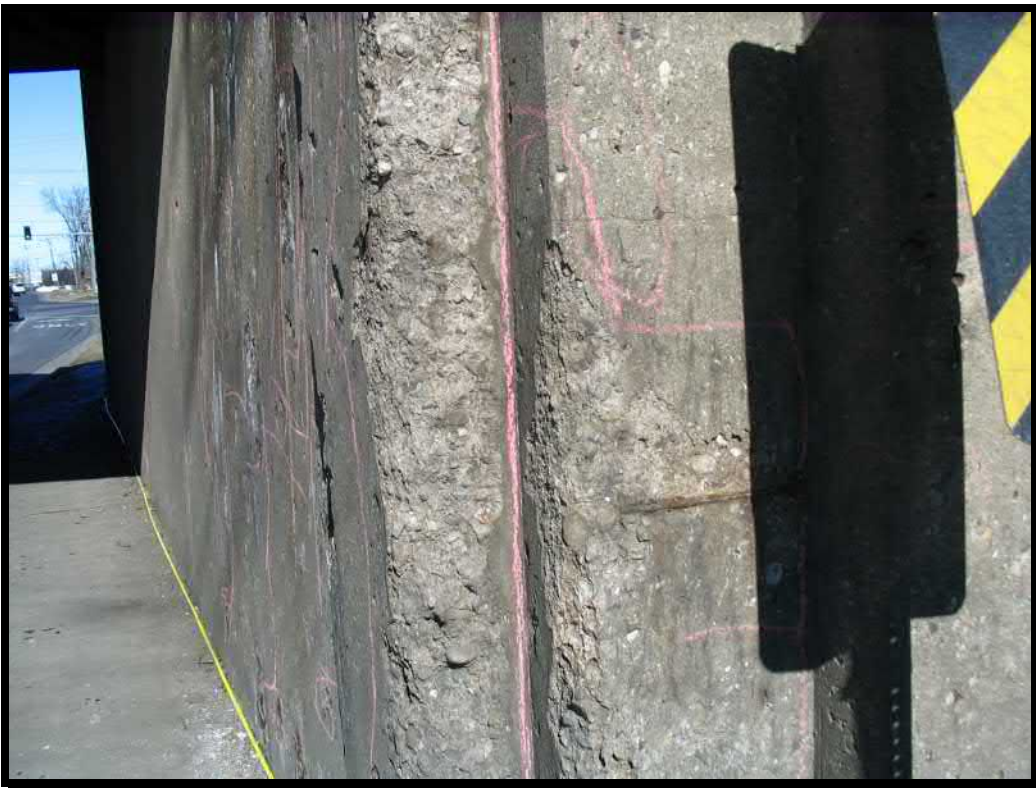


Photograph 16. Spalls along vertical construction joint in front face of the east abutment





Photograph 17. Delamination and spalls with efflorescence, typical of approximately 15% of front face of the east abutment



Photograph 18. Spall with exposed reinforcement on the south face of the east abutment.



Photograph 19. Full height open crack on front face of the east abutment, typical of four locations



Photograph 20. Spall at top of the east abutment in front of north bearing seat





Photograph 21. Spall at top of the east abutment in front of south bearing seat



Photograph 22. Spalled area, typical of approximately 2% of the front face of the west abutment



Photograph 23. Spalls along vertical construction joint in front face of the east abutment



Photograph 24. Full height open crack with efflorescence, typical of three locations in front face of the west abutment





Photograph 25. Spall at top of the west abutment in front of north bearing seat



Photograph 26. Deep (greater than 5" in depth) spall in the northeast wingwall.



Photograph 27. Deep (greater than 5" in depth) spall in the southeast wingwall



Photograph 28. Deep (greater than 5" in depth) spall in the first step of the southeast wingwall



Photograph 29. Shallow (less than 5" in depth) spall in the northwest wingwall



Photograph 30. Spalled and delaminated area in the third step of the southwest wingwall





Photograph 31. Deep (greater than 5" in depth) spall at the top of the third step of the southwest wingwall



Photo 32. East Abutment Face—South Side





Photo 33. East Abutment Face—North Side



Photo 34. East Abutment—Spalling at south corner



Photo 35. East Abutment—Spalling at south corner



Photo 36. East Abutment—Spalling at abutment side





Photo 37. East Abutment–Exposed reinforcement



Photo 38. East Abutment–Exposed reinforcement



Photo 39. Southeast Wingwall–Spalled section



Photo 40. Southeast Wingwall–Spalled section





Photo 41. Southeast Wingwall–Benchmark 403



Photograph 42. Benchmark on southwest wingwall



Photo 43. Southeast Wingwall–Spalled section



Photo 44. Northwest Wingwall and side of west abutment





Photo 45. Northwest Wingwall



Photo 46. West abutment face



Photo 47. West Abutment-South bearing seat



Photo 48. West Abutment-Full height crack





Photo 49. West Abutment—Full height crack



Photo 50. West Abutment—Spalling at construction joint



Photo 51. West Abutment–Full height crack

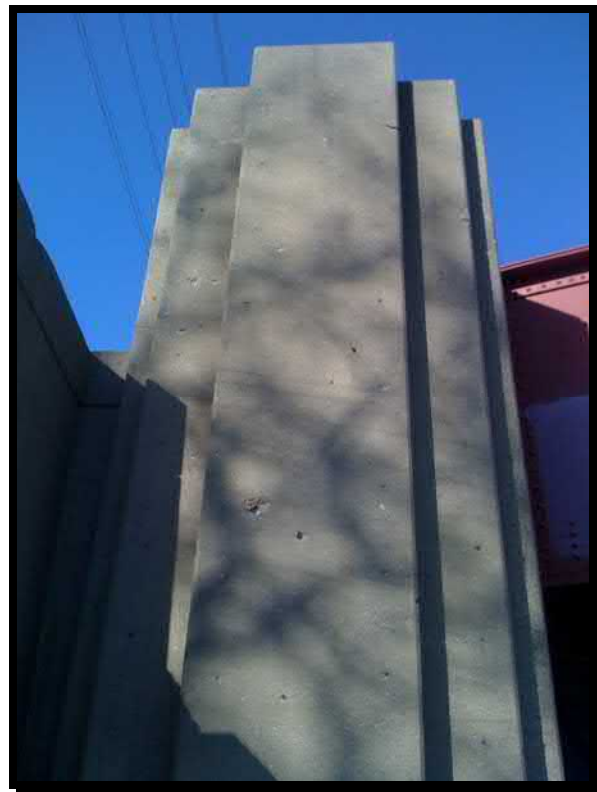


Photo 52. West Abutment south side



Photo 53. Southwest Wingwall spalling



Photo 54. Southwest Wingwall benchmark





Photo 55. Floor beams depicting rust and paint peeling



Photo 56. Girders depicting new paint on side with rust and paint peeling on base





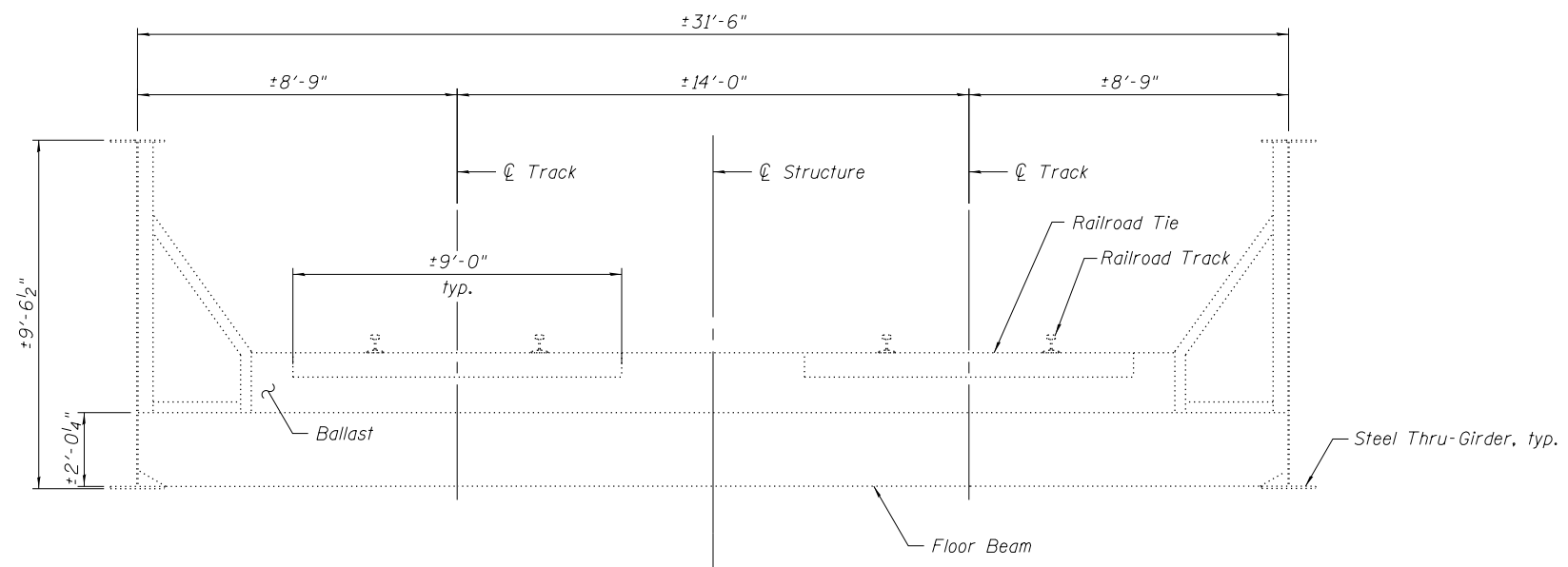
Photo 57. Girders depicting new paint on side with rust and paint peeling on base



Photo 58. Cracks in sidewalk and chunks of curb missing below UPRR bridge

ATTACHMENT B  
EXISTING TYPICAL SECTION

FILE NAME = S:\JOL\6300-6399\6346\014\Micros\CADD Sheets\Structural\RR Bridge BCR - Bridge Cross Sections.dgn



EXISTING CROSS SECTION

**SA**  
**STRAND**  
ASSOCIATES

1170 SOUTH HOUBOLT ROAD  
JOLIET, ILLINOIS 60431  
(815) 744-4200  
IDFPR NO. 184-001273

USER NAME = dennisw  
PLOT SCALE =  
PLOT DATE = 8/8/2013

DESIGNED - KDH  
CHECKED - RRD  
DRAWN - BJF  
CHECKED - KDH

REVISED  
REVISED  
REVISED  
REVISED

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**EXISTING BRIDGE TYPICAL SECTION**  
**STRUCTURE NO. 056-0044**

SHEET NO. X OF X SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

ATTACHMENT C

LOCATION MAP





McConnell Road

Mambo Car Wash

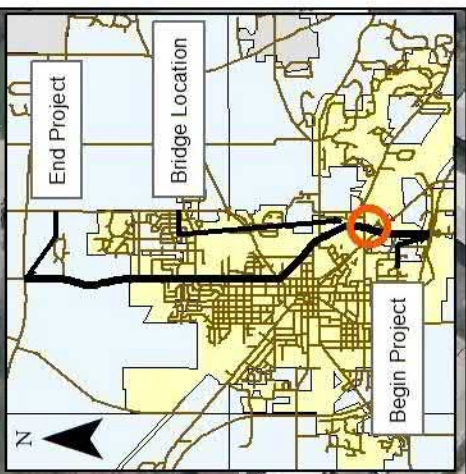
Yamaha

Union Pacific Railroad

Union Pacific Railroad  
over IL Route 47

Lake Avenue

IL Route 47



End Project

Bridge Location

Begin Project

ATTACHMENT D

IDOT ISIS MASTER STRUCTURE REPORT  
and  
ABBREVIATED EXISTING PLANS

**Illinois Department of Transportation  
Structures Information Management System  
Structure Summary Report**

Date: 06/18/2013

Page: 1

Structure Number: 056-0044

District: 1

**Inventory Data**

<b>Facility Carried:</b> CHIGO NORTH WESTERN	<b>Bridge Name:</b>	<b>Sufficiency Rating:</b>	<b>Structure Length:</b> 66.0
<b>Feature Crossed:</b> ILL 47	<b>Location:</b> ILL 47 WOODSTOCK	<b>HBP Eligible:</b> Yes	<b>AASHTO Bridge Length:</b> 65.5
<b>Bridge Remarks:</b>		<b>Replaced By:</b> -	<b>Length of Long Span:</b> 65.0
<b>Bridge Status:</b> 1 OPEN - NO RESTRICT	<b>Status Date:</b> 04/1988	<b>Replaces:</b> -	<b>Bridge Roadway Width:</b> 0.0
<b>Status Remarks:</b>		<b>Last Update Date:</b> 07/05/2012	<b>Appr Roadway Width:</b> 0.0
<b>Maint County:</b> 056 MCHENRY	<b>Maint Township:</b>	<b>Parallel Structure:</b> None	<b>Deck Width:</b> 0.0
<b>Maint Responsibility:</b> 06 RAILROAD		<b>Multi-Level Structure Nbr:</b>	<b>Sidewalk Width Right:</b> 0.0
<b>Service On/Under:</b> 2 RAILROAD	1 / HIGHWAY	<b>Skew Direction:</b> N	<b>Sidewalk Width Left:</b> 0.0
<b>Reporting Agency:</b> 6 RAILROAD		<b>Skew Angle:</b> 0 D 0 M 0 S	<b>Navigation Control:</b> N N/A
<b>Main Span Matl/Type:</b> 3 STEEL	/ 03 GIRDER AND FLOORBEAM SYSTEM	<b>Structure Flared:</b> No	<b>Navigation Horiz Clear:</b> 0
<b>Nbr Of Main Spans:</b> 1	<b>Nbr Of Approach Spans:</b> 0	<b>Historical Significance:</b> No	<b>Navigation Vert Clear:</b> 0
<b>***Approaches***</b>		<b>Border Bridge State:</b>	<b>Culvert Fill Depth:</b> 0.0
<b>Near #1 Matl/Type:</b> /		<b>Bdr State SN:</b>	<b>Number Culvert Cells:</b> 0
<b>Near #2 Matl/Type:</b> /		<b>Bdr State % Responsibility:</b> 0	<b>Culvert Opening Area:</b> 0.0
<b>Far #1 Matl/Type:</b> /		<b>Structural Steel Wt:</b> 0	<b>Culvert Cell Height:</b> 0.00
<b>Far #2 Matl/Type:</b> /		<b>Substructure Material:</b>	<b>Culvert Cell Width:</b> 0.00
<b>Median Width/Type:</b> 0 Ft. / 0 None		<b>Rated By:</b>	<b>Rate Method:</b>
<b>Guardrail Type L/R:</b> 0None / 0 None		<b>Inventory Rating:</b> ( )	<b>Load Rating Date:</b>
<b>Toll Facility Indicator:</b> 0 No Toll		<b>Operating Rating:</b> ( )	<b>Railroad Crossing Info</b>
			<b>Crossing 1 Nbr:</b> 176982
			M
<b>Latitude:</b> 42 D 18 M 18.48 S	<b>Longitude:</b> 88 D 25 M 55.19 S	<b>Design Load:</b> 99 UNKNOWN	<b>Crossing 1 Nbr:</b>
<b>Deck Structure Type:</b>	<b>Deck Structure Thickness:</b> 0 SD:	<b>FO:</b>	<b>RR Lateral Underclear:</b> 0.0
<b>Sidewalks Under Structure:</b> 1 One Side Not Separate			<b>RR Vertical Underclear:</b> 0 Ft 0 In

**Key Route On Data**

<b>Key Route Nbr:</b>	<b>Station:</b>
<b>Appurtenances</b>	<b>Segment:</b>
<b>Inventory County:</b>	<b>Linked:</b>
<b>Township/Road Dist</b>	<b>Natl. Hwy System:</b>
<b>Municipality</b>	<b>Inventory Direction:</b>
<b>Urban Area:</b>	<b>Curr AADT Yr/Count:</b> /
<b>Functional Class:</b>	<b>Est Truck Percentage:</b>
<b>** CLEARANCES **</b> South/East North/West	<b>Number Of Lanes:</b>
<b>Max Rdwy Width:</b>	<b>One Or Two Way:</b>
<b>Horizontal:</b>	<b>Bypass Length:</b>
	<b>Future AADT Yr/Cnt:</b> /
	<b>Designated Truck Rte:</b>
<b>Lateral:</b>	<b>Special Systems:</b>

**Key Route Under Data**

FEDERAL-AID PRIMARY	0326	<b>Station:</b> 11.8800
Main Route	00000	<b>Segment:</b>
056		<b>Linked:</b> Y
06 DORR		<b>Natl. Hwy System:</b> On NHS
6365 WOODSTOCK		<b>Inventory Direction:</b>
1051 1051		<b>Curr AADT Yr/Count:</b> 2011 / 14900
3 OTHER PRINCIPAL ARTERIAL		<b>Est Truck Percentage:</b> 5
<b>South/East North/West</b>		<b>Number Of Lanes:</b> 2
43.0		<b>One Or Two Way:</b> 2 Two-Way
52.0 0.0		<b>Bypass Length:</b> 0
		<b>Future AADT Yr/Cnt:</b> 2021 / 23220
		<b>Designated Truck Rte:</b> CLASS II
		<b>Special Systems:</b> Yes

**\*\*\* Marked Route On Data \*\*\***

Designation	Kind	Number
Route #1:		
Route #2:		
Route #3:		

**\*\*\* Marked Route Under Data \*\*\***

Designation	Kind	Number
1 Mainline	3 State Highway	047
1 Mainline		
1 Mainline		

**Illinois Department of Transportation  
Structures Information Management System  
Structure Summary Report**

Date: 06/18/2013

Page: 2

Structure Number: 056-0044

District: 1

**Data Related to Inspection Information**

\*\*\* Inspection Intervals \*\*\*

\*\*\* Maximum Allowable Posting Limits \*\*\*

Bridge Posting Level:

Routine NBIS:	24 MOS	Underwater:	0 MOS	One Truck At A Time:	Combination Type 3S-1:	Tons
		Special:	N	Single Unit Vehicles:	Combination Type 3S-2:	Tons

**Inspection/Appraisal Information**

Inspection Date:	Inspection Temperature:	Deg. F	<b>** Actual Posted Limits **</b>
Deck:			Single Unit Vehicles: Tons
Superstructure:			Combination Type 3S-1: Tons
Substructure:			Combination Type 3S-2: Tons
Culvert:			One Truck At A Time:
Channel and Protection:		Deck Wearing Surf:	Last Paint Type:
Structural Evaluation:		Deck Membrane:	
Deck Geometry:		Deck Protection:	
Underclearance-Vert/Lat.:		Total Deck Thick:	
Waterway Adequacy:		Last Paint Date:	
Approach Roadway Align:			
Bridge Railing Appraisal:			
Approach Guardrail:			
Pier Navig Protection:			

**Underwater Inspection/Appraisal Information**

Inspection Date:	Inspection Category:
Temperature:	Inspection Method:
	Appraisal Rating:

**Scour Critical Information**

**Miscellaneous**

Rating:	Evaluation Method:	Microfilm Data Recorded:	Yes
Analysis Date:			

**Construction Information**

**Waterway Information**

Year:	1936	Original	Reconstructed	Flood Design Frequency:	YRS	Drainage Area:	Acre
Route:	SBI-47	Sta: 207+47.5	Sta:	Flood Design Q (CFS):		Flood Base Q (CFS):	
Section Nbr:	105-SB			Flood Design Nat H W E:		Flood Base Nat H W E:	
Contract Nbr:				Flood Des Open Prop:	SF		
Fed Aid Pr#:	WPGH119D000000						
Built By:	6	RAILROAD					

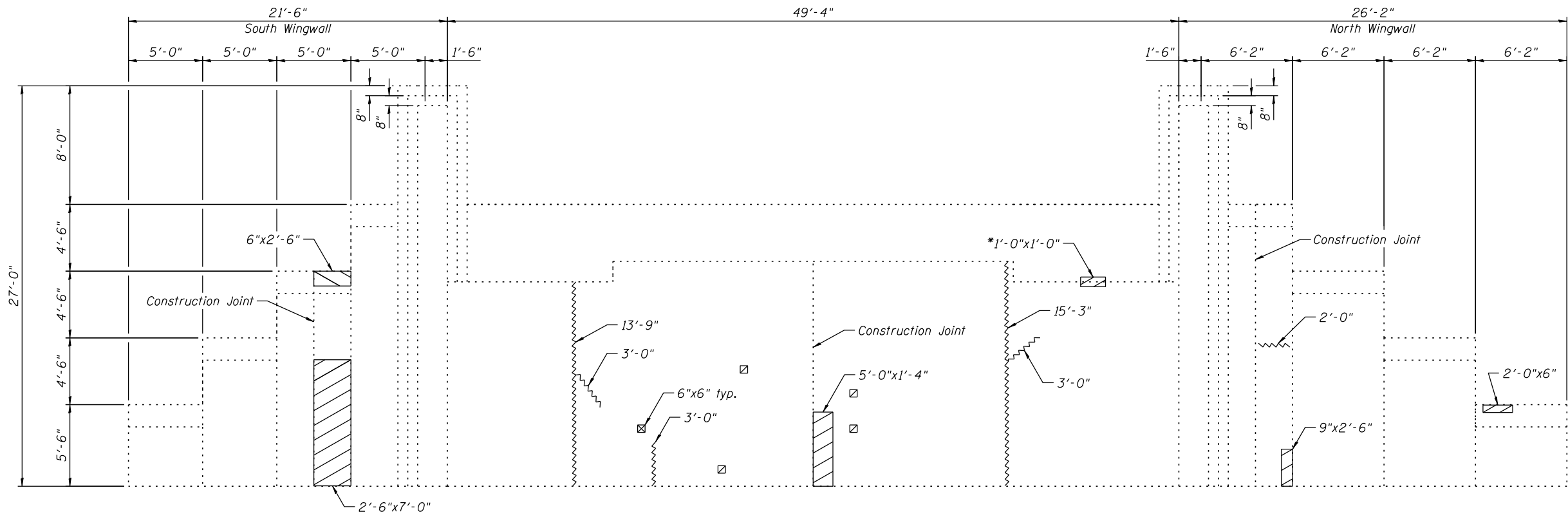












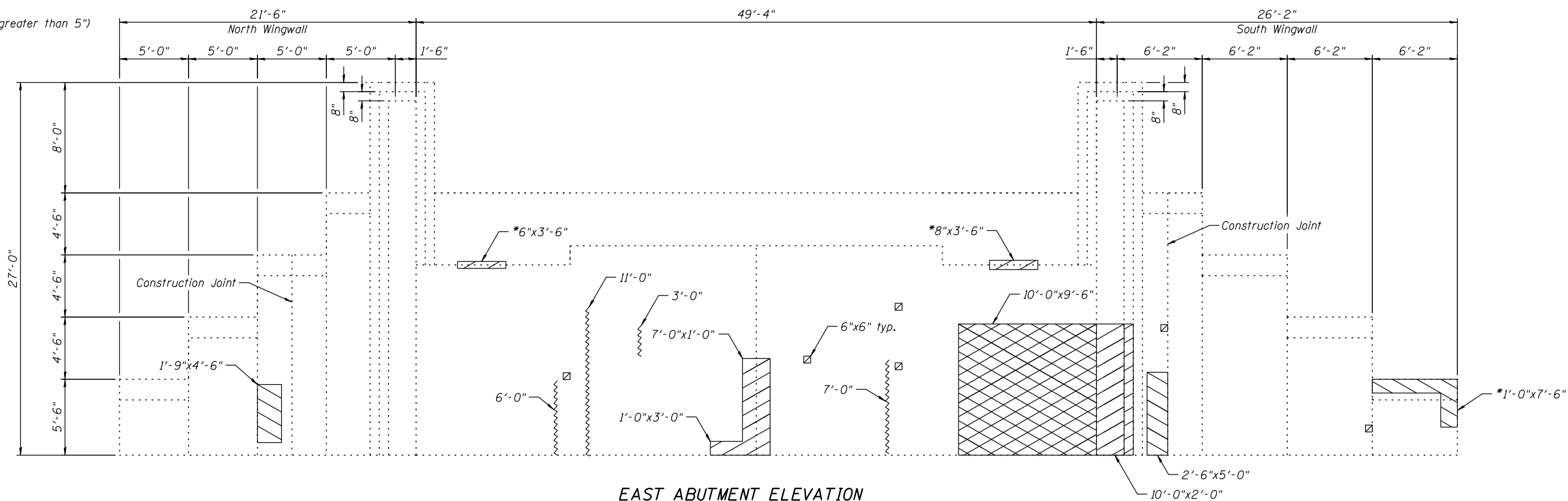
ATTACHMENT E  
SUBSTRUCTURE CONDITION SURVEY



**WEST ABUTMENT ELEVATION**

**LEGEND**

-  Spall (Depth less than or equal to 5") with Delamination
-  Spall (Depth less than or equal to 5")
-  Spall (Depth greater than 5")
-  Open Crack



**EAST ABUTMENT ELEVATION**

\*Indicates quantity is partially on horizontal surface

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**STRAND ASSOCIATES**  
 1170 SOUTH HOUBOLT ROAD  
 JOLIET, ILLINOIS 60431  
 (815) 744-4200  
 IDPR NO. 184-001273

USER NAME = kylehu	DESIGNED - KDH	REVISED
PLOT SCALE =	CHECKED - RRD	REVISED
PLOT DATE = 5/24/2012	DRAWN - BJF	REVISED
	CHECKED - KDH	REVISED

DESIGNED - KDH	REVISED
CHECKED - RRD	REVISED
DRAWN - BJF	REVISED
CHECKED - KDH	REVISED

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**RAILROAD BRIDGE DETAILS**  
**STRUCTURE NO. 056-0044**  
 SHEET NO. X OF X SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		MCHENRY		
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				



ATTACHMENT F  
OPINION OF PROBABLE CONSTRUCTION COST

<b>Existing Structure Repair</b>				
<i>Existing Single-span steel thru-girder structure on high wall abutments</i>				
Span	60.56 ft			
# Tracks	2			
Out to Out Width	31.5 ft			
Skew	19.8 deg			
<b>Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>
Structural Repair of Concrete (Depth < 5")*				
East Abutment	265	Sq Ft	\$ 120.00	\$ 31,800.00
West Abutment	75	Sq Ft	\$ 120.00	\$ 9,000.00
Structural Repair of Concrete (Depth > 5")*				
East Abutment	40	Sq Ft	\$ 160.00	\$ 6,400.00
West Abutment	5	Sq Ft	\$ 160.00	\$ 800.00
Epoxy Crack Injection*				
East Abutment	30	Ft	\$ 75.00	\$ 2,250.00
West Abutment	60	Ft	\$ 75.00	\$ 4,500.00
Cleaning and Painting Structural Steel	1	Each	\$ 25,000.00	\$ 25,000.00
Furnishing and Erecting Structural Steel	1050	Pound	\$ 10.00	\$ 10,500.00
Temporary Support	1	Each	\$ 2,000.00	\$ 2,000.00
			<b>Sub Total</b>	<b>\$ 92,250.00</b>
			<b>25% Contingency</b>	<b>\$ 23,100.00</b>
			<b>Present Total</b>	<b>\$ 115,350.00</b>
			<b>Future Total**</b>	<b>\$ 155,000.00</b>

\*Quantities increased to account for time difference between inspection and anticipated construction

\*\*Assuming 3% Inflation for 10 years



# *Culvert Condition Memorandum*

REGION: One

DISTRICT: One

ROUTE: FAP 326 (IL Route 47)

LOCATION: IL Route 47 over drainage ditch,  
south of South Street

COUNTY: McHenry

JOB NUMBER: P-91-007-09

STRUCTURE NUMBER: 056-0241 (Existing)

STRUCTURE NUMBER: 056-0241 (Proposed)

---



PREPARED BY:

Strand Associates, Inc.®

DATE PREPARED:

December 2014

PROPOSED LETTING DATE:

TBD

# Table of Contents

BACKGROUND INFORMATION AND PROJECT PURPOSE..... 1  
SITE VISIT INFORMATION..... 1  
PHYSICAL DESCRIPTION AND USAGE..... 1  
EXISTING CONDITION..... 1  
DISCUSSION..... 2  
SUMMARY AND RECOMMENDATION..... 2

ATTACHMENTS:

- 1. Location Map
- 2. Photographs
- 3. Opinions of Probable Construction Cost



## **BACKGROUND INFORMATION AND PROJECT PURPOSE**

The Illinois Department of Transportation (Department) requested engineering services for observation and documentation to determine the scope of work for incorporating existing culverts into final design of the IL Route 47 proposed improvements. In addition to an overall condition assessment, this report compares opinions of probable cost for complete reconstruction versus culvert lengthening for the structure carrying IL Route 47 over Drainage Ditch, south of South Street.

## **SITE VISIT INFORMATION**

On Tuesday, March 4, 2010, Strand Associates, Inc.<sup>®</sup> (Strand) conducted field observations of the box culvert. A subsequent field visit was made on June 7, 2013. Strand visually observed and photographed the structure, performed field measurements, and sounded the structure to estimate the extent of surface deterioration.

## **PHYSICAL DESCRIPTION AND USAGE**

The physical properties of the structure are based on information gathered during the site visit. The existing structure is a cast-in-place, reinforced, single-cell box culvert carrying IL Route 47 over a drainage ditch. It is located approximately 1,200 feet south of South Street, as shown in the Location Map in Attachment 1. The culvert has an approximate length of 60'-0" and the east barrel opening is 8'-0" high by 10'-0" wide. The east wingwalls angle out at 45° and are approximately 8'-0" long. Photographs 1 through 4 in Attachment 2 show overall views of the east end of the culvert. There is a 15"-diameter inlet pipe approximately 2' into the culvert from the east end (see Photograph 5 in Attachment 2). The west end of the culvert is the upstream end and connects with a 28"-diameter storm sewer (see Photographs 6 through 8 in Attachment 2). There is also a 12"-diameter inlet pipe in the wall of the west end and a 4'-6" x 1'-8" inlet drain in the top slab of the west end (see Photographs 9 and 10 in Attachment 2). A drainage ditch with dense plant growth connects the east end of the culvert to a dual pipe culvert that runs beneath a private drive. There is a clogged storm sewer intake a few feet away from the southeast wingwall (see Photographs 11 and 12 in Attachment 2). Also, there is a benchmark on the southeast wingwall, as shown in Photograph 13 in Attachment 2.

## **EXISTING CONDITION**

The existing single-cell concrete box culvert carrying the drainage ditch beneath IL Route 47 appears to be in good condition overall. However, there are open map cracks and spalls in four locations throughout the culvert at approximately 17 feet (Photographs 14 and 15 in Attachment 2), 21 feet (Photographs 16 and 17 in Attachment 2), 26 feet (Photographs 18 and 19 in Attachment 2) and 51 feet (Photograph 20 in Attachment 2) into the culvert from the east end. There are also two groups of spalls in the top slab with exposed reinforcement at approximately 20 feet (Photograph 21 in Attachment 2) and 54 feet (Photograph 22 in Attachment 2) from the east end.

## DISCUSSION

The two alternatives available to accommodate IL Route 47 improvements are culvert rehabilitation and extension, and culvert replacement. Opinions of probable construction costs for both alternatives are shown in Attachment 3 and were developed under the following assumptions:

1. The hydraulic capacity of the existing culvert is adequate.
2. The proposed culvert (extended or replaced) will need to be approximately 95'-0" long.

The costs provided are not comprehensive and do not include all items associated with each alternative. Rather, they provide substantial information to develop a comparison between the two alternatives since overlapping costs (such as maintenance of traffic, new pavement, etc.) are excluded.

Costs associated with the two alternatives are as follows:

- |  |           |
|--|-----------|
| 1. Alternative No. 1: Culvert Rehabilitation and Extension | \$131,575 |
| 2. Alternative No. 2: Culvert Replacement                  | \$343,320 |

## SUMMARY AND RECOMMENDATION

Due to the overall good condition of the structure, the limited amount of repairs needed, the lower cost (38% of replacement), and the feasibility of the proposed culvert improvements while maintaining the existing structure, it is recommended that the existing culvert be repaired and extended. This scenario also significantly reduces maintenance of traffic costs and enhances constructability while maintaining traffic.

**ATTACHMENT 1-LOCATION MAP**



**ATTACHMENT 2-PHOTOGRAPHS**



1. Culvert location on east side of IL Route 47



2. East end culvert face





3. East end culvert face south wingwall



4. East end culvert face north wingwall



5. Inlet drain 2'-0" into the east side of the culvert



6. Storm sewer and inlet pipe at west end box of culvert





7. North facing outlet pipe in west end of culvert



8. South facing outlet pipe in west end of culvert



9. Inside view of inlet drain grate in top slab of west end culvert



10. Outside view of inlet drain grate in top slab of west end of culvert





11. Clogged storm sewer intake near the southeast wingwall



12. Drainage ditch with dense plant growth leading from east end of culvert to dual pipe culvert under Private Drive.



13. Benchmark on southeast wingwall



14. Exposed reinforcement and open map cracks  
located approximately 17 feet into culvert from the east end

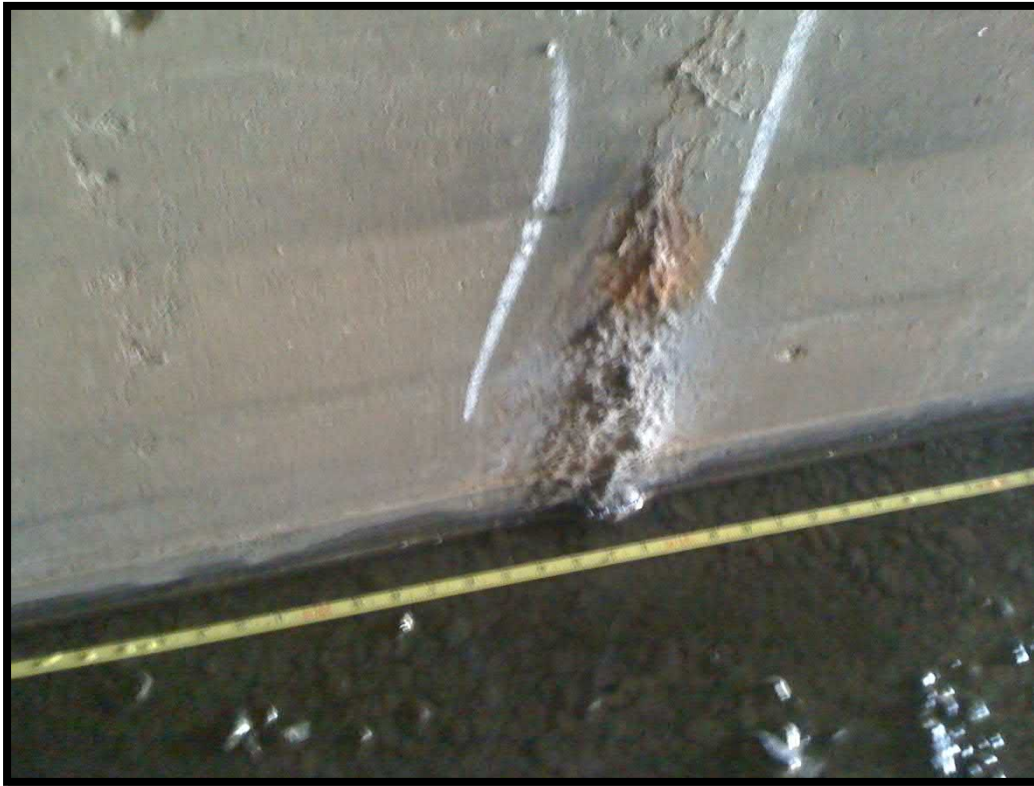




15. Open map cracks with moisture and efflorescence located approximately 17 feet into culvert from the east end



16. Open map cracks with moisture and rust located approximately 21 feet into the culvert from the east end

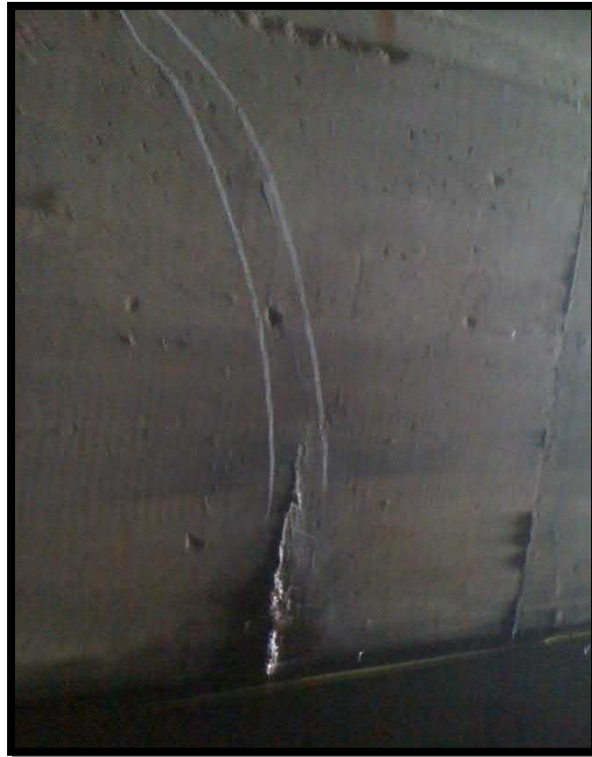


17. Spalls adjacent to map cracks approximately 21 feet into the culvert from the east end



18. Open map cracks with efflorescence  
located approximately 26 feet into the culvert from the east end





19. Spall with efflorescence adjacent to map cracks located approximately 26 feet into the culvert from the east end



20. Delamination and map cracks in top slab at approximately 51 feet into the culvert from the east end



21. Group of spalls with exposed reinforcement located approximately 20 feet into the culvert from the east end



22. Group of spalls with exposed reinforcement located approximately 54 feet into the culvert from the east end

**ATTACHMENT 3–OPINIONS OF PROBABLE CONSTRUCTION COST**

<b>Alternative No. 1–Culvert Rehabilitation and Extension</b>				
<b>Pay Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Structural Repair of Concrete (Depth Equal to or Less than 5 In)	30	SQ FT	\$120.00	\$3,600.00
Epoxy Crack Injection	185	FT	\$75.00	\$13,875.00
Concrete Box Culverts	40	CU YD	\$1,400.00	\$56,000.00
Reinforcement Bars, Epoxy Coated	5,400	POUND	\$3.00	\$16,200.00
Concrete Removal	1	LS	\$20,000.00	\$20,000.00
<b>Sub Total</b>				<b>\$109,675.00</b>
20 % Contingency				\$21,900.00
<b>Total</b>				<b>\$131,575.00</b>

<b>Alternative No. 2–Culvert Replacement</b>				
<b>Pay Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Removal of Existing Structures	1	EACH	\$75,000.00	\$75,000.00
Concrete Box Culverts	105	CU YD	\$1,300.00	\$136,500.00
Reinforcement Bars, Epoxy Coated	14,200	POUND	\$3.00	\$42,600.00
Adjust Existing Utilities & Reconnect	1	LS	\$32,000.00	\$32,000.00
<b>Sub Total</b>				<b>\$286,100.00</b>
20 % Contingency				\$57,220.00
<b>Total</b>				<b>\$343,320.00</b>



# *Culvert Condition Memorandum*

REGION: One

DISTRICT: One

ROUTE: FAP 326 (IL Route 47)

LOCATION: Private drive over drainage ditch  
south of South Street

COUNTY: McHenry

JOB NUMBER: P-91-007-09

STRUCTURE NUMBER: NA (Existing)

STRUCTURE NUMBER: NA (Proposed)



PREPARED BY: Strand Associates, Inc.®

DATE PREPARED: December 2014

PROPOSED LETTING DATE: TBD





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BACKGROUND INFORMATION/PROJECT PURPOSE..... 1  
SITE VISIT INFORMATION..... 1  
PHYSICAL DESCRIPTION/USAGE..... 1  
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DISCUSSION..... 1  
SUMMARY/RECOMMENDATION..... 2

**ATTACHMENTS:**

- 1. Location Map
- 2. Photographs
- 3. Opinions of Probable Construction Cost

## **BACKGROUND INFORMATION/PROJECT PURPOSE**

The Illinois Department of Transportation (Department) requested engineering services for observation and documentation to determine the scope of work for incorporating existing culverts into the final design of the IL Route 47 proposed improvements. In addition to an overall condition assessment, this report compares opinions of probable cost for complete reconstruction versus culvert widening for the structure carrying a Private Drive over Drainage Ditch south of South Street.

## **SITE VISIT INFORMATION**

On Tuesday, March 4, 2010, Strand Associates, Inc.<sup>®</sup> (Strand) conducted field observations of the dual pipe culvert structure. Strand visually observed and photographed the structure, measured and dimensioned the barrels and headwalls, and sounded the structure to estimate the extent of surface deterioration.

## **PHYSICAL DESCRIPTION/USAGE**

Record drawings or “as-built” plans for the structure were not available. The physical properties of the structure are based on information gathered during the site visit. The existing structure is a dual corrugated metal pipe culvert carrying a private drive over the drainage ditch. It is located approximately 1,290'-0" south of South Street, and 100'-0" east of IL Route 47 as shown in the Location Map in Attachment 1. The culvert has an approximate length of 68'-0" with an additional 8'-0" flared end section on each end. The west end of the culvert has a concrete headwall between the top of the pipes and a sidewalk (see Attachment 2, Photographs 1 and 2). A drainage ditch with dense plant growth connects the west end of the culvert to a cast-in-place, reinforced, single-cell box culvert beneath IL Route 47 (see Attachment 2, Photograph 3). The east end of the culvert only has embankment above the pipes (see Attachment 2, Photographs 4 and 6). The east end of the culvert also outfalls into a drainage ditch (see Attachment 2, Photograph 7).

## **EXISTING CONDITION**

The existing dual corrugated metal pipe culvert carrying the private drive over the drainage ditch appears to be in good condition overall. See Attachment 2, Photographs 6 and 7 for general views of the pipe interiors. The concrete headwall on the west end of the pipes has three open cracks exhibiting moisture and a few other hairline cracks (see Attachment 2, Photographs 8 through 10). Two separate groups of rusted bolts were found in the south pipe (see Attachment 2, Photographs 11 and 12). No rusted bolts were observed in the north pipe.

## **DISCUSSION**

The dual pipe culvert beneath the Private Drive does not need to be extended to accommodate IL Route 47 improvements. Although the culvert appears to be in good overall condition, an opinion of probable construction cost for minor rehabilitation is shown in Attachment 3. It was developed under the following assumptions:

- The hydraulic capacity of the existing culvert is adequate.

- The ditch connecting the west end of the dual pipe culvert to the east end of the nearby box culvert can be re-graded or relocated so that the dual pipe culverts do not need to be extended toward the nearby box culvert.

The estimated cost associated with rehabilitation of the dual pipe culverts is \$1,800.

#### **SUMMARY/RECOMMENDATION**

Given that the culvert is in good condition overall and does not need to be extended to accommodate the IL Route 47 improvements, Strand Associates, Inc.® recommends that repairs be undertaken since it conveys roadway drainage to the proposed detention pond.

**ATTACHMENT 1: LOCATION MAP**





**ATTACHMENT 2–PHOTOGRAPHS**



Photograph 1. West end of culvert looking south



Photograph 2. West end of culvert looking east





Photograph 3. West end of culvert looking north



Photograph 4. East end of culvert looking west



Photograph 5. North pipe at east end



Photograph 6. South pipe at east end





Photograph 7. East end of culvert looking east



Photograph 6. Interior of north pipe culvert barrel





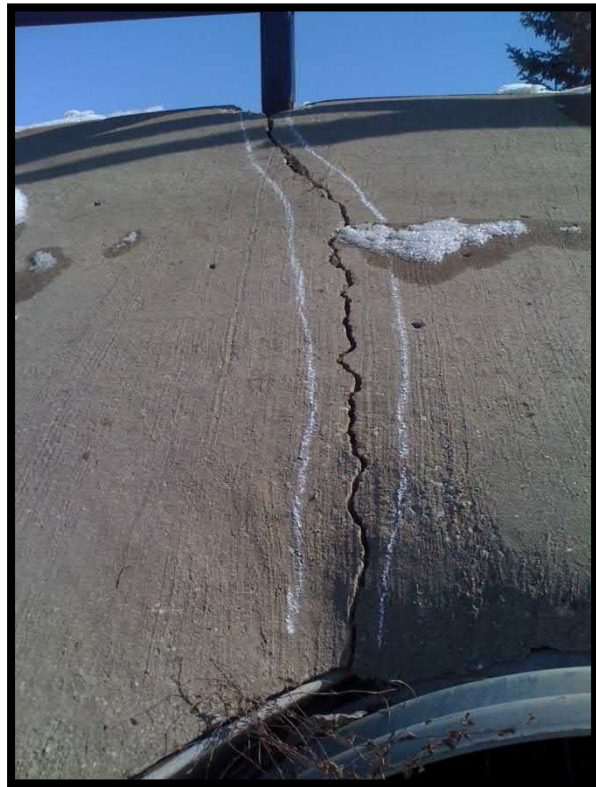
Photograph 7. Interior of south pipe culvert barrel



Photograph 8. Open crack in cast-in-place concrete headwall on west end of culvert

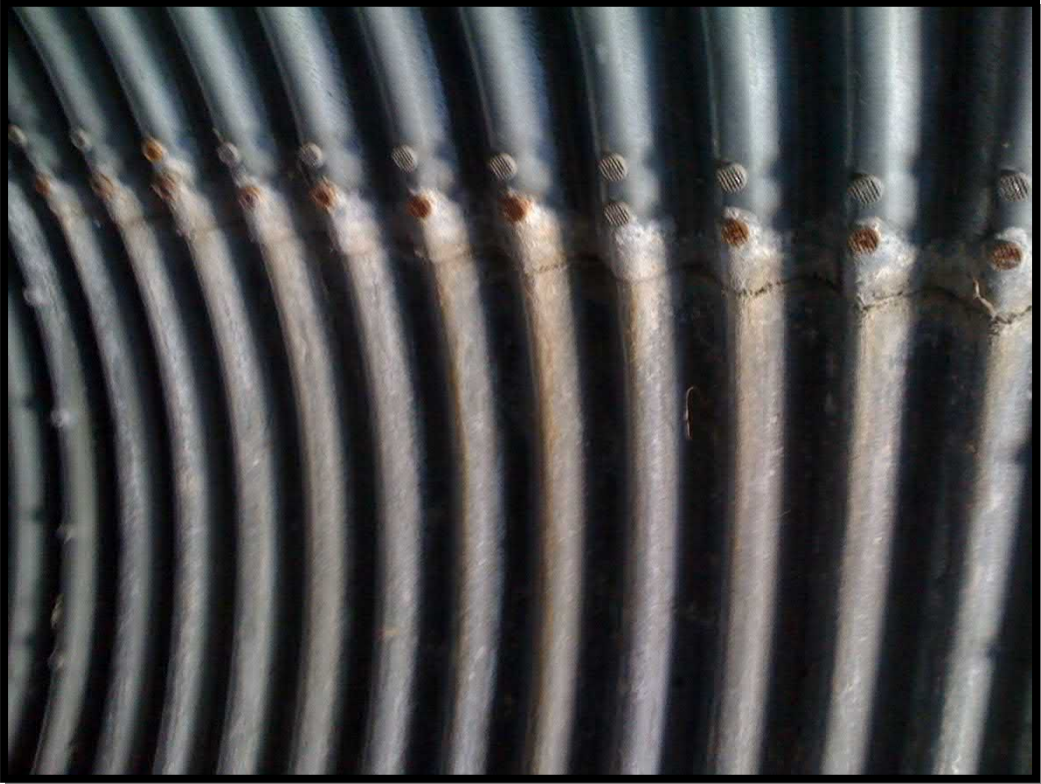


Photograph 9. Open crack in cast-in-place concrete headwall on west end of culvert

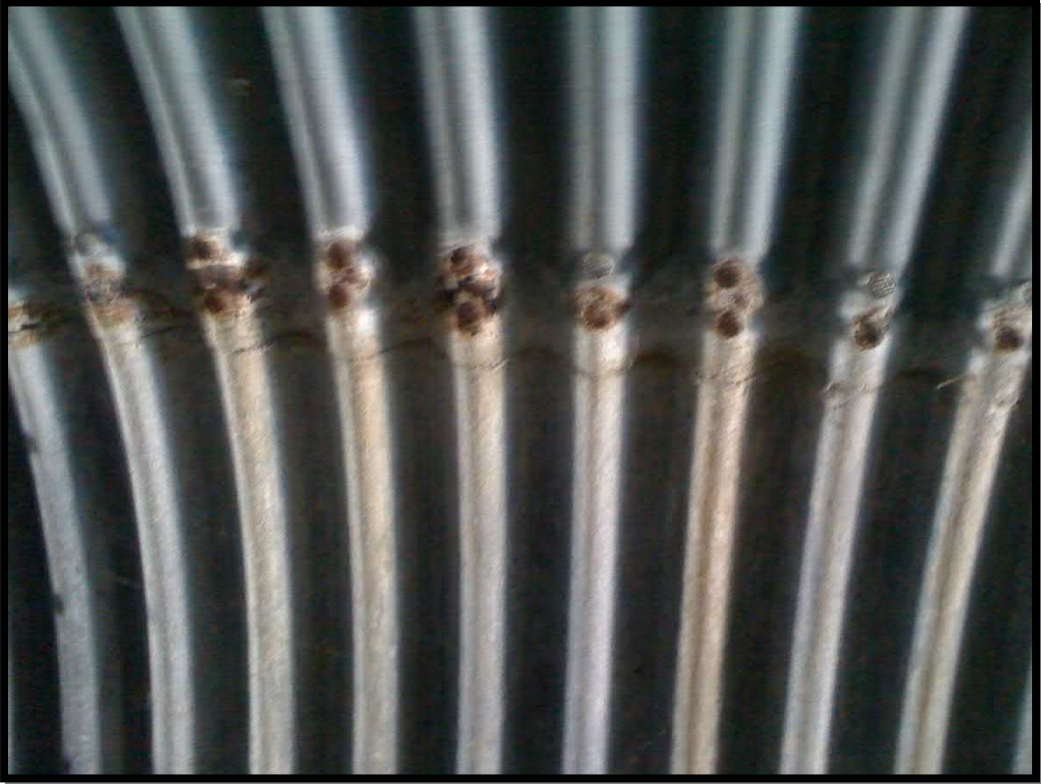


Photograph 10. Open crack in cast-in-place concrete headwall on west end of culvert





Photograph 11. First of two locations with rusted bolts in south pipe



Photograph 12. Second of two locations with rusted bolts in south pipe

**ATTACHMENT 3–OPINIONS OF PROBABLE CONSTRUCTION COST**

<b>Culvert Rehabilitation*</b>				
<b>Pay Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Epoxy Crack Injection	25	FT	\$60.00	\$1,500.00
<b>Subtotal</b>				<b>\$1,500.00</b>
20% Contingency				\$300.00
<b>Total</b>				<b>\$1,800.00</b>

\* Excludes any work required to relocate the following:

1. The sign structure located approximately 125'-0" to the north of the existing dual pipe culvert.
2. The drainage ditch connecting the west end of the dual pipe culvert to the east end of the nearby box culvert.



# **CULVERT CONDITION MEMORANDUM**

REGION: 1  
DISTRICT: 1  
ROUTE: FAP 326 (IL Route 47)  
COUNTY: McHenry  
JOB NUMBER: P-91-007-09  
STRUCTURE NUMBER: N/A

LOCATION: IL Route 47 Over Silver Creek, South of Birch Road

PREPARED BY: Strand Associates, Inc.<sup>®</sup>  
DATE PREPARED: July 2013  
PROPOSED LETTING DATE: TBD

## **BACKGROUND INFORMATION AND PROJECT PURPOSE**

The Illinois Department of Transportation requested engineering services for observation and documentation to determine the scope of work for incorporating existing culverts into the final design of the IL Route 47 proposed improvements. In addition to an overall condition assessment, this report compares opinions of probable construction cost for complete reconstruction versus culvert lengthening for the structure carrying IL Route 47 over Silver Creek.

## **SITE VISIT INFORMATION**

On Tuesday, March 4, 2010, Strand Associates, Inc.<sup>®</sup> conducted field observations of the box culvert. A subsequent field visit was made on June 7, 2013. Strand visually observed and photographed the structure, performed field measurements, and sounded the structure to estimate the extent of surface deterioration.

## **PHYSICAL DESCRIPTION AND USAGE**

Record drawings or “as-built” plans for the structure were not available. The physical properties of the structure are based on information gathered during the site visit. The existing structure is a cast-in-place, reinforced, single-cell box culvert carrying IL Route 47 over Silver Creek. It is located approximately 200 feet south of Birch Road, as shown on the Location Map in Attachment 1. The culvert has an approximate length of 100 feet and the barrel opening is 8'-0" high. The width of the culvert varies from 12'-0" at the east end to 7'-0" at the west end. The transition is located approximately 16'-0" from the east end. Photographs 1 through 8 in Attachment 2 show overall views of the east end of the culvert, and Photographs 9 through 13 show overall views of the west end of the culvert.

## **EXISTING CONDITION**

The 16'-0"-long section at the east end of the barrel is newer than the west portion of the culvert and appears in good condition. There are only a few hairline cracks scattered throughout the walls and top slab of the east barrel. The west portion of the culvert is older and shows some deterioration throughout the barrel walls and top slab, but appears in good overall condition. There are open cracks with efflorescence and spalls on the south transition wall at the bend point and an open crack on the north transition wall between the east and west barrels (see Photographs 14 through 16 in Attachment 2). The west end of the barrel is older and exhibits hairline cracks, open cracks with efflorescence, delamination, and small spalls with exposed reinforcement scattered throughout the walls (see Photographs 17 through 19 in Attachment 2). There are also spalls at the base of the structure beneath the water line approximately 37 feet to 44 feet into the culvert from the east end (see Photograph 20 in Attachment 2). There are two locations of delamination with exposed reinforcement in the top slab at approximately 64 feet and 76 feet into the culvert from the east end (see Photographs 21 and 22 in Attachment 2). There are spalls around the construction joint in the north wall on the west end, approximately 84 feet into the culvert from the east end (see Photograph 23 in Attachment 2). The southwest and northwest wingwalls have a full-height open crack near the middle of the wingwalls (see Photographs 24 and 25 in Attachment 2). There is also delamination with exposed rebar at the corners of the northwest and southwest wingwalls (see Photographs 26 and 27 in Attachment 2). The west end of the culvert exhibits open cracks and spalls with exposed reinforcement near the headwall (see Photographs 28 and 29 in Attachment 2).

## DISCUSSION

The two alternatives available to accommodate the proposed IL Route 47 improvements are culvert rehabilitation and extension, and culvert replacement. Opinions of probable construction costs for both alternatives are shown in Attachment 3 and were developed under the following assumptions:

1. The hydraulic capacity of the existing culvert is adequate.
2. The proposed culvert (extended or replaced) will need to be approximately 150'-0" long.

The costs provided are not comprehensive and do not include all items associated with each alternative. Rather, they provide substantial information to develop a comparison between the two alternatives since overlapping costs (such as maintenance of traffic, new pavement, etc.) are excluded.

Costs associated with the two alternatives are as follows:

- Alternative No. 1: Culvert Rehabilitation and Extension \$280,675
- Alternative No. 2: Culvert Replacement \$591,400

## SUMMARY AND RECOMMENDATION

Because of the extensive scope of work proposed for IL 47 (widening and reconstruction) and because the repair cost is nearly 50 percent of the replacement cost, it is recommended that the proposed culvert be replaced. A new culvert will provide an improvement that will age in similar fashion as the overall corridor improvements.

# ATTACHMENT 1-LOCATION MAP





## ATTACHMENT 2-PHOTOGRAPHS



1. East end of culvert with headwalls parallel to IL Route 47



2. East end of culvert looking west into barrel





3. East end of culvert looking west at IL Route 47



4. East end of culvert looking south





5. East end of culvert looking north



6. East end of culvert looking east (downstream)





7. Southeast wingwall



8. Northeast wingwall





9. West end of culvert with wingwalls



10. West end of culvert looking west (upstream)





11. Northwest wingwall and nearby drainage culvert



12. Northwest wingwall



13. Water level gauge on structure's southwest wingwall



14. East end entrance of culvert looking south



15. Open cracks, efflorescence, and spalls at the south transition wall bend



16. East end entrance of culvert looking north





17. Delamination and exposed reinforcement, typical throughout west barrel walls



18. Hairline cracks, typical throughout west barrel walls



19. Open crack with spalls, typical of multiple locations on west barrel walls



20. Spalls beneath the waterline at the base of structure's south wall in the west barrel





21. Exposed reinforcement on west barrel, top slab



22. Delamination and exposed reinforcement on west barrel, top slab





23. Spalls in the north wall around construction joint approximately 84 feet into the culvert from the east end



24. Full-height open crack in southwest wingwall



25. Full-height open crack in the northwest wingwall



26. Delamination at corner of northwest wingwall



27. Delamination and exposed reinforcement at corner of southwest wingwall



28. Exposed reinforcement at structure's west end, top slab





29. Open cracks and spalls propagating from west headwall

**ATTACHMENT 3–OPINIONS OF PROBABLE CONSTRUCTION COST**

<b>Alternative No. 1–Culvert Rehabilitation and Extension</b>				
<b>Pay Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Structural Repair of Concrete (Depth Equal to or Less than 5 In)	120	SQ FT	\$120.00	\$14,400.00
Epoxy Crack Injection	225	FT	\$75.00	\$16,875.00
Concrete Box Culverts	90	CU YD	\$1,400.00	\$126,000.00
Reinforcement Bars, Epoxy Coated	12,200	POUND	\$3.00	\$36,600.00
Concrete Removal	1	LS	\$40,000.00	\$40,000.00
<b>Sub Total</b>				<b>\$233,875.00</b>
20 % Contingency				\$46,800.00
<b>Total</b>				<b>\$280,675.00</b>
<b>Alternative No. 2–Culvert Replacement</b>				
<b>Pay Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Removal of Existing Structures	1	EACH	\$75,000.00	\$75,000.00
Concrete Box Culverts	245	CU YD	\$1,300.00	\$318,500.00
Reinforcement Bars, Epoxy Coated	33,100	POUND	\$3.00	\$99,300.00
<b>Sub Total</b>				<b>\$492,800.00</b>
20 % Contingency				\$98,600.00
<b>Total</b>				<b>\$591,400.00</b>

# **CULVERT CONDITION MEMORANDUM**

REGION: 1  
DISTRICT: 1  
ROUTE: FAP 326 (IL Route 47)  
COUNTY: McHenry  
JOB NUMBER: P-91-007-09  
STRUCTURE NUMBER: N/A

LOCATION:IL Route 47 Over Drainage Ditch South of Cooney Drive

PREPARED BY: Strand Associates, Inc.<sup>®</sup>  
DATE PREPARED: July 2013  
PROPOSED LETTING DATE: TBD



## **BACKGROUND INFORMATION AND PROJECT PURPOSE**

The Illinois Department of Transportation requested engineering services for observation and documentation to determine the scope of work for incorporating existing culverts into the final design of the IL Route 47 proposed improvements. In addition to an overall condition assessment, this report compares opinions of probable construction cost for complete reconstruction versus culvert widening for the structure carrying IL Route 47 over Drainage Ditch, south of Cooney Drive.

## **SITE VISIT INFORMATION**

On Tuesday, March 4, 2010, Strand Associates, Inc.<sup>®</sup> conducted field observations of the box culvert. A subsequent field visit was made on June 7, 2013. Strand visually observed and photographed the structure, performed field measurements, and sounded the structure to estimate the extent of surface deterioration.

## **PHYSICAL DESCRIPTION AND USAGE**

Record drawings or “as-built” plans for the structure were not available. The physical properties of the structure are based on information gathered during the site visit. The existing structure is a cast-in-place, reinforced, single-cell box culvert carrying IL Route 47 over a drainage ditch. It is located approximately 80 feet south of Cooney Drive, as shown in the Location Map in Attachment 1. The culvert has an approximate length of 46'-6" and the barrel opening is 5'-0" high by 6'-0" wide. Photographs 1 and 2 in Attachment 2 show overall views of the east end of the culvert, and Photographs 3 and 4 show overall views of the west end of the culvert. A large residential pond also overflows in the east end of the culvert via dual 2'-0"-diameter pipes (see Photographs 5 and 6 in Attachment 2). There is also a 1'-6"-diameter corrugated metal pipe that drains into the east culvert apron and two plastic pipe drains protruding through the top slab of the culvert (see Photographs 7 and 8 in Attachment 2).

## **EXISTING CONDITION**

The culvert walls and top slab exhibit small hairline and open cracks with efflorescence throughout. There are also delaminated and spalled areas scattered throughout the barrel (see Photograph 9 in Attachment 2). There are map cracks and spalls at three locations throughout the culvert at approximately 24 feet, 36 feet, and 45 feet into the culvert from the east end (see Photographs 10 through 12 in Attachment 2). The east wingwalls and headwall are in good condition (see Photographs 13 and 14 in Attachment 2). The west headwall and wingwalls exhibit cracks and spalls with exposed reinforcement (see Photographs 15 and 16 in Attachment 2). The corners of the west wingwalls at the headwall exhibit full length spalls (see Photograph 17 in Attachment 2). There are exposed reinforcement and spalls surrounding both plastic pipe protrusions (see Photograph 18 in Attachment 2).

## DISCUSSION

The two alternatives available to accommodate the proposed IL Route 47 improvements are culvert rehabilitation and extension, and culvert replacement. Opinions of probable construction costs for both alternatives are shown in Attachment 3 and were developed under the following assumptions:

1. The hydraulic capacity of the existing culvert is adequate.
2. The proposed culvert (extended or replaced) will need to be approximately 99'-0" long.

The costs provided are not comprehensive and do not include all items associated with each alternative. Rather, they provide substantial information to develop a comparison between the two alternatives since overlapping costs (such as maintenance of traffic, new pavement, etc.) are excluded.

Costs associated with the two alternatives are as follows:

- |  |           |
|--|-----------|
| 1. Alternative No. 1: Culvert Rehabilitation and Extension | \$120,150 |
| 2. Alternative No. 2: Culvert Replacement                  | \$172,800 |

## SUMMARY AND RECOMMENDATION

Because of the extensive scope of work proposed for IL 47 (widening and reconstruction) and because the repair cost is nearly 70 percent of the replacement cost, it is recommended that the proposed culvert be replaced. A new culvert will provide an improvement that will age in similar fashion as the overall corridor improvements.

**ATTACHMENT 1 - LOCATION MAP**





**ATTACHMENT 2–PHOTOGRAPHS**



1. East end of culvert looking west

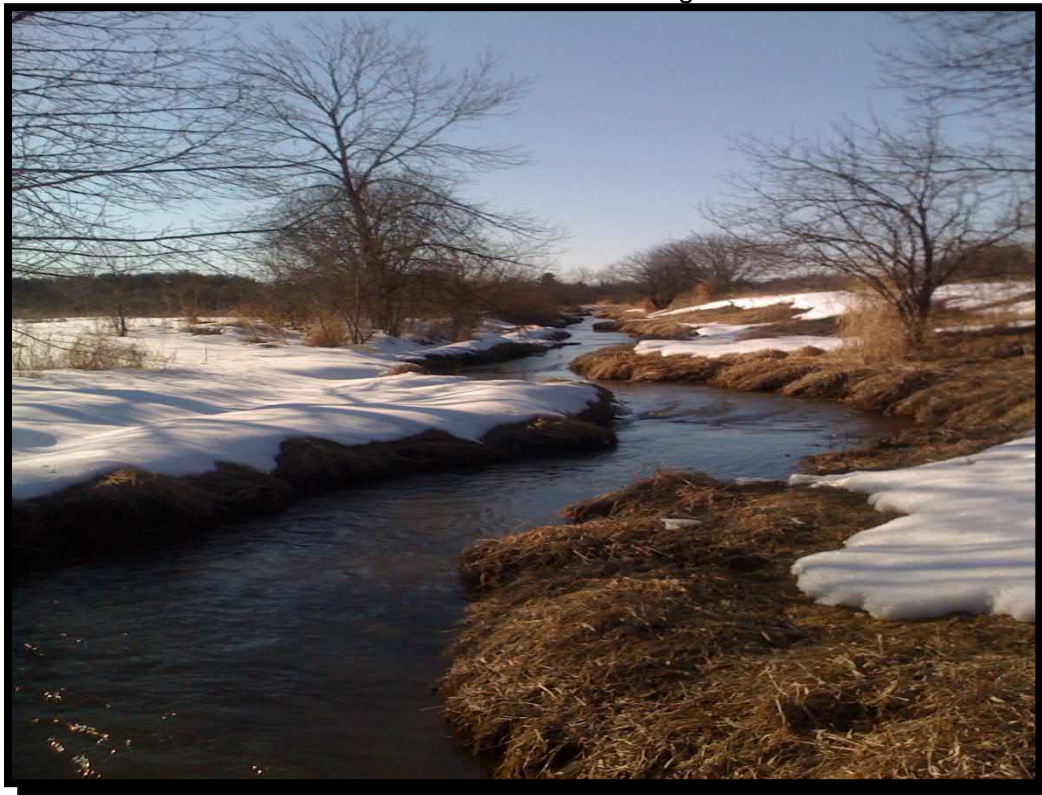


2. Large pond east of culvert





3. West end of culvert looking east



4. West end of culvert looking west





5. West end of dual drain pipes feeding pond overflow into east end of culvert



6. East end of dual drain pipes feeding pond overflow into east end of culvert





7. 1'-6"-diameter corrugated metal drain pipe outside east end of culvert



8. Hole in the top slab with exposed reinforcement and protruding drain pipe



9. Delaminated and spalled top slab with exposed reinforcement

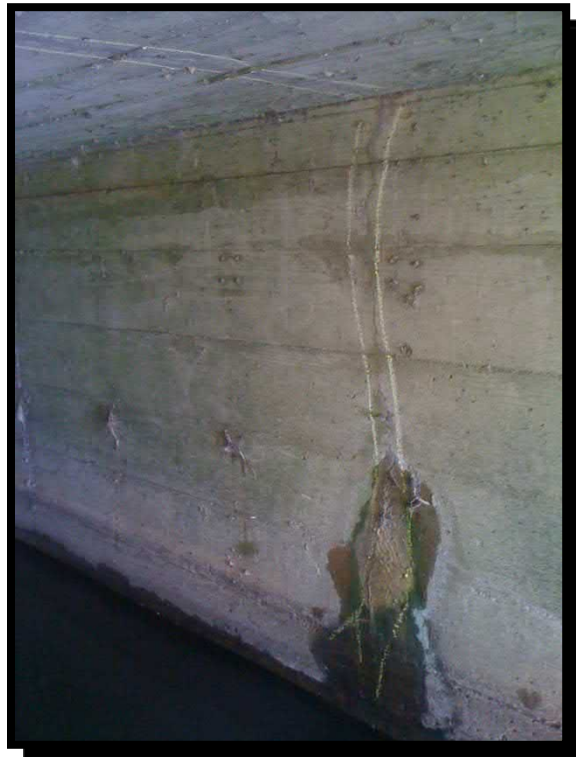


10. Open cracks with efflorescence, typical of three locations along walls





11. Delamination and map cracks with efflorescence, typical of three locations along walls



12. Open cracks with efflorescence and a spall, typical of three locations along barrel walls





13. Southeast wingwall



14. Northeast wingwall



15. Cracks and spalls at north corner of west headwall



16. Cracks and spalls at south corner of west headwall





17. Spalls and open cracks at corner of southwest wingwall, typical of both wings



18. Hole in top slab with exposed reinforcement and protruding drain pipe



**ATTACHMENT 3—OPINIONS OF PROBABLE CONSTRUCTION COST**

<b>Alternative No. 1—Culvert Rehabilitation and Extension</b>				
<b>Pay Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Structural Repair of Concrete (Depth Equal to or Less than 5 In)	80	SQ FT	\$120.00	\$9,600.00
Structural Repair of Concrete (Depth Greater than 5 In)	50	SQ FT	\$160.00	\$8,000.00
Epoxy Crack Injection	110	FT	\$75.00	\$8,250.00
Concrete Box Culverts	30	CU YD	\$1,400.00	\$42,000.00
Reinforcement Bars, Epoxy Coated	4100	POUND	\$3.00	\$12,300.00
Concrete Removal	1	LS	\$20,000.00	\$20,000.00
			<b>Subtotal</b>	<b>\$100,150.00</b>
			20% Contingency	\$20,000.00
			<b>Total</b>	<b>\$120,150.00</b>
<b>Alternative No. 2—Culvert Replacement</b>				
<b>Pay Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Cost</b>
Removal of Existing Structures	1	EACH	\$50,000.00	\$50,000.00
Concrete Box Culverts	55	CU YD	\$1,300.00	\$71,500.00
Reinforcement Bars, Epoxy Coated	7500	POUND	\$3.00	\$22,500.00
			<b>Subtotal</b>	<b>\$144,000.00</b>
			20% Contingency	\$28,800.00
			<b>Total</b>	<b>\$172,800.00</b>





# Illinois Department of Transportation

## Memorandum

---

To:	D. Carl Puzey	Attn:	Neil Vanbebber
From:	Issam Rayyan	By:	Perry Masouridis
Subject:	*Hydraulic Report		
Date:	January 4, 2019		

---

*Route:	Illinois Route 47 (IL 47)
County:	McHenry
Job No.:	P-91-007-09
Structure No.:	056-0240 (EX), 056-0334 (PR)
Over:	Silver Creek

Attached for your use are excerpts from the Hydraulic Report for the subject structure as prepared by the consultant, Lin Engineering, Ltd. A PDF copy of the report and the hydraulic models will be uploaded onto the SharePoint site. Attached are paper copies of excerpts from the Hydraulic Report:

1. Waterway Information Table (WIT)
2. Sketch showing existing and proposed waterway openings

The scope of work for this project consists of removal and replacement of the existing structure over Silver Creek to accommodate the widening of IL 47 and to provide additional hydraulic capacity. As part of these improvements, IL 47 will be widened in this location from a two-lane section with 12-foot median to four lanes with an 18-foot median and 10-foot shared use path.

The existing structure is a reinforced concrete box culvert, 8 feet wide by 7 feet high, with a 16-foot extension on the upstream end which is 11 feet and 10 inches wide by 8 feet high. The stream channel is well defined upstream and downstream of the project site. The channel upstream is straight with a wide bottom and steep side slopes.

The proposed improvement includes a single 16 feet wide by 9 feet high box culvert, with the bottom 1 foot of the culvert to be embedded. The culvert will be placed at a skew of 1.2 degrees which matches the streambed and mitigates the amount of floodway fill and bank grading needed.

The proposed improvements meet created head and freeboard criteria. The proposed freeboard is 10.7 feet per the design model and meets the IDOT freeboard policy.



D. Carl Puzey  
January 4, 2019  
Page two

Attn: Neil Vanbebber

The project limits are within a regulatory floodway with a tributary area greater than one square mile. The site is within a Zone AE floodplain. Due to the widening of the roadway, there will be fill in the floodway on the upstream and downstream end of the culvert. Compensatory storage is proposed to be provided within the additional opening area of the proposed culvert. The project will have 64.2 cubic yards of fill for the normal to 10-year flood profile and 64.0 cubic yards for the 10 to 100-year profile. The project will provide 146.4 cubic yards of compensatory storage between the normal to 10-year flood profile and 67.3 cubic yards between the 10 to 100-year flood profile.

An IDNR-OWR Part 3708 Individual Floodway Permit will be required. To receive a Part 3708 permit, the proposed structure must meet the following criteria:

- a) Backwater increase limited to 0.1 feet over the exiting 100-year flood profile;
- b) If damages occur for existing conditions, backwater must be reduced to point of non-damage or to 0.1 feet over natural conditions;
- c) Compensatory storage must be provided for fill placed between the normal water and the 10-year flood profile, and between the 10-year and 100-year flood profile.

The structure is not a source of flood damage and meets created head criteria. As described above, compensatory storage is to be provided within the increased opening area. Therefore, the proposed structure has been designed in accordance with the IDNR-OWR Part 3708 rules, and the permit can be issued by the District. This permit should be processed by IDOT District 1, Bureau of Design through the Hydraulics Section.

If you have any questions or need additional information, please contact Michelle Lewis, P.E., Hydraulics and Hydrology Engineer, at (847) 705-4098.

By:   
E. Perry Masouridis, P.E.  
Hydraulics Section Chief

Attachment

cc: Ken Eng – Bureau of Design (2 copies)  
Steve Schilke (memo only)

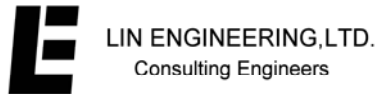
# HYDRAULIC REPORT

**ROUTE:** FAP 326 / ILLINOIS ROUTE 47  
**WATERWAY:** SILVER CREEK  
**COUNTY:** MCHENRY  
**EX STRUCTURE #:** 056-0240  
**PR STRUCTURE #:** 056-0334  
**PTB/ITEM#:** 149-008  
**JOB NO.:** P-91-007-09

**Prepared for:**

**Illinois Department of Transportation**  
Division of Highways – District 1  
Bureau of Programming  
Hydraulic Section

**Prepared By:**



**3261 S. Meadowbrook Rd.**  
**Springfield, IL 62711**  
**Phone: (217) 679-2928**  
**Fax: (217) 679-2736**

**October 8, 2018**

**HYDRAULIC REPORT**  
**IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK**  
**JOB NO. P-91-007-09**

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• Table 1.1a – Back-up Calculations for Design WIT	
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• Table 1.2 – Permit WIT; original FIS model with surveyed IL-47 added.	
• Table 1.2a – Back-up Calculations for Permit WIT	
• Table 1.2b - Created head calculation for the Permit WIT	
<b>V. Hydraulic Report Data Sheets</b>	
<b>VI. Exhibits (Supporting Calculations)</b>	
Exhibit A	Location Map – USGS Hydrologic Atlas Map HA-256
Exhibit B	Photographs of the Structure and Surrounding Area
Exhibit C	Hydrology:
	• FEMA Flood Insurance Rate Map, Floodway Data Tables, and Flood Profile From FEMA Study
	• FEMA Flood Insurance HEC-2 Water Surface Profiles Run of Jan. 1977.
	• Stream Stats Data



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**VI. Exhibits (Supporting Calculations) (continued...)**

- Exhibit C Hydrology:
- Table 1: FIS Regulatory Model, (HEC-2 vs. HEC-RAS)
  - Table 2: FIS Model (HEC-2) vs. Modified FIS Model (HEC-RAS)
- Exhibit D Streambed Profile Based on STRAND Survey Data
- Exhibit E IL-47 Road Plan and Profile (existing and proposed)
- Exhibit F Cross Sections:
- Aerial Topography with Cross Section Locations
  - Surveyed Cross Sections
- Exhibit G Culvert Opening Plots (existing and proposed)
- Existing Culvert Plan and Openings
  - Proposed Culvert Plan an Openings
- Exhibit H Natural Conditions Hydraulic Model and Results
- HEC-RAS input and output data
- Exhibit I Existing Conditions Hydraulic Model and Results
- HEC-RAS input and output data
- Exhibit J Proposed Conditions Hydraulic Model and Results
- HEC-RAS input and output data
- Exhibit K Permit Summary
- Exhibit L Compensatory Storage Calculations
- Floodway Compensatory Storage Plan
  - Net Compensatory Storage Provided Calculations
  - Floodway Fill Calculations
- Exhibit M Survey Notes
- Exhibit N Correspondence
- Exhibit O Computer Disk of Hydraulic Models

### **III. NARRATIVE**

# HYDRAULIC REPORT

## IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK

### a. Project Description

The Illinois Department of Transportation is expanding Illinois Route 47 (IL-47) to four lanes through the city of Woodstock in McHenry County. As a result, a 7' wide by 8' high reinforced concrete box culvert carrying IL-47 over Silver Creek is subject to replacement. This report analyzes the natural, existing, and proposed hydraulic conditions for the Illinois Route 47 culvert at Silver Creek. **Exhibit A** shows the project location on Hydrologic Investigations Atlas Map HA-256.

The culvert is located approximately 870 feet north of the St. John's Road / IL-47 intersection in Woodstock Illinois. The structure number is 056-0240; however, the section and contract number of the existing culvert is unknown. Maintenance of the culvert is the responsibility of the Illinois Department of Transportation (IDOT).

Due to the lack of existing plans, the age of the existing culvert is unknown. The upstream (east) face of the structure consists of an approximately 16' long extension that is 11'-10" wide by 8'-0" high. This extended section may be the result of expansion of IL-47, with the addition of a sidewalk along the east side.

Silver Creek, within the study area, flows in a northwestern direction to a marshy swampland located approximately 1.5 miles northwest of Woodstock. Silver Creek eventually flows north to Nippersink Creek which drains to Wonder Lake in Greenwood Illinois.

At Illinois Route 47, Silver Creek drains approximately 4.2 square miles of urbanized area. Silver Creek has a defined floodway and floodplain for both upstream and downstream of the project crossing. Silver Creek is approximately 50' to 65' wide from top of bank to top of bank at the project crossing and has a regulatory floodplain between 60 feet to 75 feet wide.

The Flood Insurance Rate Map and FEMA Flood Insurance Study with gage station data are included in this report as **Exhibit C**.

### **Structure Description**

The existing IL-47 box culvert is 11'-10" wide by 8' high for 16 feet on the upstream end, and 7' wide by 8' high for the remaining 84 plus feet on the downstream end. The downstream face has a headwall with 10 foot wing walls at approximately 45° angles to the centerline of the culvert. The upstream face is a headwall of approximately 44'-9" in length without wing walls. The pavement thickness above the culvert and foundation/apron details of the culvert is unknown.

IL Route 47 above the culvert is approximately 41'-9" wide consisting of two 12' lanes, a 12' turn lane with concrete curb and gutter along both edges of pavement. The culvert length is 100.7' long from face of headwall to face of headwall. The skew of the culvert is 2.3° Ahead Left with a negative 1.1% vertical grade going upstation along IL-47 (N. Seminary Rd.). IL-47 over the box culvert is on a normal crown with 2% cross-slope. The east edge of pavement, located approx. 75' north of the culvert, was used as the existing low grade elevation location with an elevation of 890.75.

In addition to the subject culvert carrying IL-47 over Silver Creek, there were three other structures, within the study limits, included in the hydraulic analysis. The first is a simple-span pedestrian footbridge over Silver Creek, located approximately 500' downstream of the IL-47 box culvert. The deck of the footbridge is 26' long from front to front of abutments, 6' wide with a depth of 1.15'. There are



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## IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK

currently no existing plans available for this bridge; however, there are pictures shown in **Exhibit B** (Photographs), and a field sketch in **Exhibit M** (Survey Notes).

The second structure is a 16' x 11' concrete box culvert, located approximately 1500' upstream of the IL-47 box culvert, carrying Silver Creek through St. John's Road. The culvert has four wing walls that are around 18' in length and are approximately 45° to the culvert's centerline. The construction depth from the profile of St. John's Rd. to the top of the box culvert is approx. 2.35'. There are currently no existing plans available for this structure; however, there are pictures shown in **Exhibit B** (Photographs), and a field sketch in Exhibit M (Survey Notes).

The Melody Lane Bridge over Silver Creek is located approximately 1200' downstream of the IL-47 culvert, and it is the furthest downstream structure in the hydraulic analysis. The bridge is a simple span bridge with a 26' opening width between abutment faces. It has concrete slope walls between the abutments and toes of slope and the bridge deck is approximately 41' wide. See **Exhibit B** (Photographs) and a field sketch in **Exhibit M** (Survey Notes) for more information about the Melody Lane Bridge.

### **b. Historical Observations / Records**

The water depth of Silver Creek was between one and two feet during the field survey of the culvert and study area conducted by American Surveying and Engineering in November of 2009. Photographs of the culvert and surrounding area are included in **Exhibit B**.

At this time, there aren't any records of flood waters overtopping IL Route 47; however, flooding problems have been reported along St. John's Road. A St. John's Road resident claimed that in August of 2008, an eight inch rainstorm flooded the basement of a residential property to the northeast of the St. John's Rd. culvert. This same storm caused severe bank erosion adjacent to the property southeast of the St. John's Road culvert. Also, a separate storm, between 2009 and 2010, knocked trees into Silver Creek, just upstream of the St. John's Road culvert. The resident stated that the fallen timber acted as a dam and caused the water elevation to rise.

### **Stream Survey**

Strand & Associates completed a stream and hydraulic survey for the Silver Creek study limits in November of 2009. Strand also picked up the Melody Lane structure and cross-sections at 143.5, 51.9, and 2.5 in November of 2016. Survey elevations are correlated with North American Vertical Datum (NAVD) 88. Field survey notes are included in **Exhibit M**.

### **Background Data**

The following documents were utilized in developing this report:

- Flood Insurance Rate Map, McHenry County, Illinois and Incorporated Areas, Map No. 17111C0179J, Panel 179 of 365; November 16, 2006.
- HUD Flood Insurance Study – City of Woodstock, Chicago Office 2-77, FIS 4740-11-06 HEC-2 Model
- United States Department of the Interior Geological Survey Water Resources Division, Woodstock 7.5 Minute Quad, Description of Gaging Station on Silver Creek at Woodstock, Ill., 1977

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## IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK

- Excerpts from FEMA Flood Insurance Study Number 17111CV001A, annotated by Bill Saylor of ISWS

### **USGS Stream Gage**

A stream gage station USGS 05548040 Silver Creek at Woodstock, IL used to be located on the left downstream wing wall. The gage datum is 875.60 ft. above mean sea level, NGVD 29. The peak gage height (during recording years of 1965 to 1977) is 3.92 (1966). The projected peak water surface elevation (directly downstream of the IL-47 culvert) is therefore  $875.60 + 3.92 = 879.52$  (NGVD 29) = 879.35 (NAVD 88). See **Exhibit M** for documentation pertaining to this stream gage station.

### **c. Datum Correlation**

American Surveying and Engineering completed the hydraulic survey for this project in November of 2009. The elevations are based on the NAVD 88 vertical datum. The FEMA FIS study was done in the vertical datum of NGVD 29. The re-creation of the original FIS study in HECRAS used the NGVD 29 for informational and comparison purposes.

The hydraulic report analysis including all HEC-RAS models, Waterway Information Tables, and all exhibits were prepared using the NAVD 88. When FIS model data was used in the HEC-RAS models, the subsequent elevations were converted to NAVD 88 by subtracting 0.17' from the elevations. The vertical conversion from NGVD29 to NAVD88 was done by entering the longitude (88°26'35.37"W) and latitude (42°20'06.61"N) at the IL-47 culvert into the orthometric height conversion tool at the following website: [https://www.ngs.noaa.gov/cgi-bin/VERTCON/vert\\_con.pr1](https://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.pr1).

### **d. Sensitive Flood Receptors**

The presence of all buildings, apartments, and houses adjacent to the Silver Creek floodplain were entered into their corresponding cross-section in the HEC-RAS model. None of the buildings were located within the 100-yr flood elevations; therefore, sensitive flood receptors are not present within the study area.

### **e. Hydrologic Methodology**

The discharges and known water surface elevation data used in the hydraulic analysis were based on the regulatory model entitled: HUD Flood Insurance Study – City of Woodstock, Chicago Office 2-77 HEC-2 Model. The Flood Insurance Study (FIS) regulatory model was purchased from Bill Saylor of ISWS, and used in the hydraulic analyses (See **Exhibit N** Correspondence). There is a small discrepancy between Table 4 – Summary of Discharges (excerpt from the FEMA Flood Insurance Study) for Silver Creek crossing IL-47 and the discharges shown at the upstream face of the IL-47 culvert in the FIS regulatory (HEC-2) model. Peak discharges shown in the original Regulatory FIS model were used in the hydraulic analyses.

The peak flows shown (10, 50, 100, and 500-yr) in the HEC-2 (FIS) model were determined using the rainfall-runoff computer program “HEC-1, Flood Hydrograph Package”, January 1978, with hourly rainfall

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amounts for hypothetical 24-hour storms derived from U.S. Weather Bureau TP-40 values. The SCS method was used to create the peak flow hydrographs. Loss rates were determined using the SCS equation which computes the loss rate as a function of total precipitation, initial abstraction, and curve number. Curve numbers were based on soil types obtained from 1978 survey data provided by the McHenry County Planning Commission.

The discharges used in the HEC-2 regulatory model, obtained from HEC-1, were compared to discharges generated by Streamstats as a check, and the results were very similar. All hydrologic data including the HEC-2 regulatory model, StreamStats data, and excerpts from the FEMA FIS study are in **Exhibit C**.

### f. **Hydraulic Methodology**

Chapter 2 (Section 2-601) of the IDOT Drainage Manual (2011), and The IDOT District One Drainage Manual states that when a site has been previously modeled in a FEMA Flood Insurance Study, it is preferable to use the FIS data in subsequent hydraulic analyses. If the FIS model can be re-created using modern modeling techniques (such as HEC-RAS) with all four flood profiles matching the original model (HEC-2) profiles at all cross-sections to within 0.1 ft., then the original model can be used for the natural existing and proposed conditions. If the FIS model cannot be matched at every cross-section to within 0.1 ft., then two analyses have to be performed rendering two waterway information tables. One WIT is for permitting purposes and is based on the original FIS geometric data with surveyed data added at the studied crossing only. The second WIT is for checking IDOT design criteria (Design WIT) and is based on all surveyed data combined with all viable FIS cross-sections, including the upstream and downstream bounding sections of the model.

All hydraulic analyses were performed using HEC-RAS version 4.1.0 hydraulic modeling software. Known water surface elevations and discharges from the original FIS model were used in HEC-RAS as the boundary conditions and flow data respectively. The original FIS model extends well beyond the study limits in both the upstream and downstream directions. The first task was to identify the range of data within the FIS model that pertained to the study limits of this project IL-47 crossing at Silver Creek. Cross-sections in the FIS model were re-stationed so that the furthest downstream section, within the study limits (4.907), would begin at station 0.0. The furthest upstream section used from the HEC-2 model is at River Sta. 5.578 (re-named 3520 in HEC-RAS). See **Exhibit C** for a summary of the cross-section naming convention. Cross section locations used in the HEC-RAS models are shown on the Cross Section Location Plan in **Exhibit F**.

The first HEC-RAS model was a re-creation of the original FIS HEC-2 model (vertical datum of NGVD29). The target was to match the water surface elevations of every cross section in every profile to within 0.1'. The results of this comparison are given in **Table 1, Exhibit C**. Since an approximate match between the models was achievable, the next step was to insert the survey information into the FIS Model. This model is known as the Modified Existing Model.

It should be noted that the original FIS model analyzed the St. John's Rd. and IL-47 crossings as bridges (evaluated using the bridge routine) rather than culverts. The bridge modeling approach was used for all crossings in the re-creation of the HEC-2 FIS Model, the Modified Existing Model, and the Permit Models; however the existing and proposed IL-47 crossing was analyzed as a culvert in the Design Models.



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### Modified Existing Model

The Modified Existing Model is the original FIS Regulatory Model with the updated survey information inserted into the FIS Model. The original FIS model cross-sections at the upstream (sta. 1440) and downstream (sta. 1340) faces of the IL-47 and St. John's Road culverts were replaced with surveyed cross-sections at approximately the same locations. Station 1435.9 is the surveyed upstream face cross section and Sta. 1322.2 is the surveyed downstream cross section. The existing surveyed culvert is also  $\pm 16.7'$  longer than the FIS Regulatory culvert, which would indicate that the FIS Regulatory Model was completed before the culvert was extended on the upstream side. It should be noted that Station 1435.9 and Sta. 1322.2 are used for the next upstream and next downstream sections for both the Permit and Design existing conditions models.

The upstream opening of the IL-47 culvert was revised to match the current existing condition of 11'-10" wide by 8' high. The surveyed crossings at St. John's Road, the Pedestrian Bridge, and the Melody Lane Bridge were also included in the modified existing model. For the purposes of matching the FIS Regulatory model, all crossings were modeled as bridges.

The Manning's "n" values for the surveyed cross-sections were set to match the channel, LOB, and ROB n values of the corresponding FIS model cross-sections. Matching the water surface profiles of the FIS Regulatory Model would not have been possible if the surveyed cross-sections did not have approximately the same Manning's "n" values as the cross-sections in the FIS Regulatory Model. See **Table 2, Exhibit C** for a comparison of water surface profiles of the Modified Existing Model and the HEC-2 FIS Regulatory Model.

In most cases, the differences in water surface profiles were minor (0.1' to 0.2'); however, the modified existing model had higher profiles (between 0.2' and 0.5') downstream of the IL-47 crossing. In addition, the modified existing flood profiles upstream of IL-47 (Sta. 1490 and Sta. 2170) were within 0.1' tolerance of the FIS Regulatory model, with the exception of the 10-year flood at Sta. 2170.

Slightly different opening areas at all the crossings may account for some of the discrepancies in profiles between the two models. Overall, the Modified Existing Model seemed to match up well with the FIS Regulatory Model; however, the differences were beyond the 0.1' tolerance for all profiles at all cross-sections. As a result, two waterway information tables (WITs) will need to be created. The first is the Permit WIT, which only uses Regulatory model data with the addition of the surveyed IL-47 crossing and the proposed structure and roadway profile into the regulatory model. The IL-47 crossings are modeled as bridges in the existing and proposed Permit Models. The second is the Design WIT, which incorporates the current survey data to update the regulatory study. The existing and proposed design models will model the IL-47 crossing as a culvert instead of a bridge.

### **g. Summary of Natural and Existing Hydraulic Analyses**

#### **Natural Conditions**

The natural conditions involve the removal of the IL-47 culvert, pavement and embankment from the existing model to gage the culvert's effect on the water surface, velocity and created head. The first step in analyzing the natural models was to calculate the natural high water elevations at the upstream face of the proposed IL-47 culvert at River Station 1448 (See WIT back-up calcs.). This could not be done by directly reading the water surface elevation at the upstream face cross section; for that section is removed from the natural model to eliminate constricting effects caused by roadway embankment.

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The natural high water elevation was calculated by interpolating between the closest upstream and downstream sections beyond the influence of the culvert. For the “Design WIT”, the approach and departing sections are Sta. 1528.6 and Sta. 1115.3, respectively. Sections 1528.6 (upstream) and 1115.3 were the nearest surveyed sections to the proposed crossing. For the “Permit WIT”, the approach and departing sections are Sta. 1490 and Sta. 1290, respectively. The natural high water elevations for each flood profile are shown on the Waterway Information Tables at the end of the Narrative (See tables 1.1a, 1.1b, 1.2a, and 1.2b).

### Existing Conditions

Two existing models were used in the hydraulic analysis. The first model (Existing – FIS) is the HEC-2 regulatory model recreated in HEC-RAS with all elevations set at NAVD88. Existing – FIS is the existing condition for the Permit WIT. It contains all FIS model cross-sections except for the surveyed IL-47 road profile, culvert and structure openings. The second model (Modified Existing Model) combines FIS regulatory model data with the hydraulic survey data, and is used as the existing condition for the Design WIT. As stated in the last paragraph of Section f., the existing Design Model

The contraction and expansion coefficients of the cross-sections near the existing Silver Creek crossings were 0.3 and 0.5, respectively; the rest of the cross-sections that were beyond the influence of the crossings had expansion and contraction ratios of 0.1 and 0.3, respectively. Ineffective area offsets for cross-sections within the influence of the crossings were computed by using 1:1 contraction rate upstream and a 2:1 expansion rate downstream of crossings. The ineffective area offsets, Manning’s ‘n’ Values, and expansion and contraction cones were set to match what was shown in the FIS regulatory model for the “Permit” natural and existing models.

With the IL-47 culvert and embankment in place, the effect of the culvert on the natural condition is measured by comparing the existing water surface elevations at the approach section(s) with the corresponding water surface elevations under the natural condition. The greatest difference between these elevations at all upstream cross sections is the existing created head. The existing created head values plus the natural high water elevations at the face of the culvert yields the existing headwater elevations at the culvert.

The following is a list of HEC-RAS plans under the natural and existing conditions:

**Plan: FIS - Regulatory** – FIS HEC-2 model data entered into HEC-RAS. All road crossings modeled as bridges. Boundary conditions include known water surface elevations and discharges with appropriate flow change location from original HEC-2 model. All data is in NGVD29 datum, per original model. This model represents the first attempt at matching the flood profiles of the original HEC-2 model.

**Plan: Modified Existing Model** – All data from the original FIS HEC-2 model is combined with hydraulic survey data. All crossings within the study limits including Melody Lane, the pedestrian Bridge, IL-47, and St. Johns Road were edited to match surveyed data. The goal was to match the flood profiles of the Modified Existing Model to all profiles at all FIS – Regulatory Model cross-sections. A match was not achievable within the tolerance of 0.1’ for all profiles at all sections. This model is used as a comparison to the FIS – Regulatory Model (see Table 2 at the end of **Exhibit C**). Vertical datum of this model is NAVD88.

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**Plan: Design-Existing** – Everything is the same as the Modified Existing Model except the IL-47 crossing is modeled as a culvert instead of a bridge. This model is used as the existing condition for the Design Waterway Information Table.

**Plan: Existing – FIS (Permit)** – This plan is the same as the FIS – Regulatory plan except the surveyed IL-47 crossing was added to the model and all cross-section and bridge data was converted to NAVD88. Similar to the FIS Regulatory Model, all crossings including IL-47 are modeled as bridges. This model is used as the existing condition for the Permit Waterway Information Table.

**Plan: Natural – FIS (Permit)** – This plan is the same as the Existing – FIS plan except the IL-47 Bridge data was removed from the geometric model. This model is used as the natural condition for the Permit Waterway Information Table.

**Plan: Design-Natural** – This plan is the same as the Design-Existing plan except the IL-47 Bridge data was removed from the geometric model. This model is used as the natural condition for the Design Waterway Information Table.

Printouts of HEC-RAS input and output data of the Natural and Existing models can be found in **Exhibit H** and **Exhibit I**, respectively. Electronic files of all existing and natural models can be found in the CD appended in **Exhibit O**

### **h. Description of Proposed Structure**

The proposed replacement culvert is a 16' wide by 9' high reinforced concrete box culvert. The culvert will be approximately 142.7' long with a skew of 1.2° ahead left to the centerline of IL-47. The slight skew matches with the streambed that crosses IL-47, and it allows for the upstream and downstream openings to be placed in a manner that mitigates the amount of floodway fill placement and bank grading. All culvert elements will likely be cast-in-place, and the headwall / wing-wall details will be determined in phase 2. Upstream and downstream inverts of the 4-sided box will have elevations of 869.75 (U/S) and 868.50 (D/S). The top of the bottom slab will be placed at approximately 1 foot below the existing flow line elevations of the streambed. The culvert will be embedded 1 foot with natural channel material, and the upstream and downstream openings will match the existing channel of Silver Creek; therefore, the proposed culvert has a proposed effective opening of 16'w x 8'h.

### **Alternative Structure**

A three-sided pre-cast concrete culvert placed on concrete footings could be considered as an option for the replacement structure. The footings of the three-sided culvert would require additional structural/geotechnical analysis to mitigate settlement potential. If the soil isn't suitable for strip footings, piling would have to be incorporated into the substructure design, which may be too costly for this project. The effective opening would have to at least match that of the 16' x 9 box culvert, since the proposed culvert barrel provides all compensatory storage. Three-sided structures also require a scour analysis.



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### i. Proposed Hydraulic Analysis

Two proposed models were created in HEC-RAS, one for each WIT. The Proposed – FIS (Permit) model consists of all HEC-2 regulatory model data (in NAVD88 datum), and it includes the proposed crossing at IL-47, modeled as a bridge. The Design - Proposed Model combines FIS regulatory model data with the hydraulic survey data. Proposed IL-47 over Silver Creek geometric data is the same for both models; however the Design-Proposed model evaluates the IL-47 crossing as a culvert instead of a bridge.

The ineffective area offsets, contraction/expansion ratios, and Manning's 'n' values were addressed in the same fashion as the existing conditions.

With a longer proposed culvert, the existing upstream and downstream face cross-sections had to be removed from the proposed geometric models. The River station of the proposed upstream face is station 1448, and the river station of the proposed downstream face is 1305.8; therefore, the existing upstream (1435.9) and downstream (1322.2) face sections are covered over. The proposed upstream and downstream invert and flow-line elevations were determined using the stream bed profile **Exhibit D**, and the hydraulic survey topo file.

The proposed created head was calculated using the same method described on page 5 under Natural **Conditions**. See back-up calculations for the waterway information tables at the end of the narrative. All water surface elevations used in the WIT computations can be found in the HEC-RAS output tables attached in **Exhibit J** for the proposed conditions.

The following is a summary of the proposed HEC-RAS plans used in the hydraulic analysis:

**Plan: Design-Proposed** – All data from the original FIS HEC-2 model is combined with hydraulic survey data. All crossings within the study limits including Melody Lane, the pedestrian Bridge, and St. Johns Road were edited to match surveyed data. The proposed crossing at IL-47 is incorporated into the geometric data, and the proposed culvert is modeled as a culvert. This model is used as the proposed condition for the Design Waterway Information Table. Vertical datum of this model is NAVD88.

**Plan: Proposed – FIS** – This plan is the same as the FIS – Regulatory plan except the elevations of all cross-section and bridge data was converted to NAVD88. Also, the proposed structure and crossing is incorporated into the geometric model, and the proposed culvert is modeled as a bridge similar to the FIS Regulatory model methodology. This model is used as the proposed conditions for the Permit Waterway Information Table.

Electronic files of the proposed models can be found in the CD appended in **Exhibit O**

### j. Compensatory Storage

The widening of IL-47 results in transverse floodway encroachments on the upstream (south) and downstream (north) sides of IL-47. For the purposes of this analysis, the compensatory storage design follows IDOT policy of compensating at a 1(compensation):1(fill) ratio.

The required compensation has to be at the same relative elevations as the fill; from normal water surface elevation to the 10-yr flood profile, and from the 10-yr flood profile to the 100-yr flood profile.

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For Silver Creek, the normal water surface elevation at the IL-47 box culvert is 871.40, which corresponds to the edge of water surface elevations taken during the hydraulic survey. The 10-yr and 100-yr flood profile elevations are taken as the 10-yr and 100-yr natural high water elevations as determined by the Permit Natural Model (Plan: Natural – FIS). These elevations are 876.19 for the permit 10-year natural and 878.21 for the permit 100-year natural.

The floodway boundaries were taken from the Flood Insurance Rate Map 17111C0179J, Panel 179 of 365; November 16, 2006. Correlating the FIRM to the project site renders the following floodway boundaries:

- Upstream floodway – Sta. 258+24 to Sta. 258+57
- Downstream floodway – Sta. 258+28 to Sta. 258+71

The amount of fill placed in the floodway was calculated by measuring the surface areas of the fill over normal flow, 10-yr, and 100-yr elevations, and calculating the volumes using the average end area method (See **Exhibit L**).

The following is a summary of the estimated fill within the floodway boundaries caused by the widening of IL-47. It should be noted the 100-yr floodway and 100-yr floodplain share the same boundary within the construction limits of the project.

Upstream Silver Creek Floodway		Downstream Silver Creek Floodway	
<i>Floodway Fill Normal to 10-yr (Yd<sup>3</sup>)</i>	<i>Floodway Fill 10-yr to 100-yr (Yd<sup>3</sup>)</i>	<i>Floodway Fill Normal to 10-yr (Yd<sup>3</sup>)</i>	<i>Floodway Fill 10-yr to 100-yr (Yd<sup>3</sup>)</i>
19.4	22.8	44.8	41.2

*Total Fill (Normal to 10-yr)* = 64.2 cubic yards  
*Total Fill (10-yr to 100-yr)* = 64.0 cubic yards

The design alternative for providing the required compensatory storage is storage volume within the proposed 16' x 9' culvert. Storage volume in the new culvert is limited to the total length of the existing culvert being replaced. In addition, the volume of the existing culvert was subtracted from the volume of the new culvert to get the net additional compensatory storage volume (See **Exhibit L** for the calculations). The following is a summary of the net compensatory storage volume calculations.

*Comp. Storage (Normal to 10-yr)* = 146.4 cubic yards  
*Comp. Storage (10-yr to 100-yr )* = 67.3 cubic yards

Other viable alternatives to providing additional compensatory storage would include grading and shaping the banks of Silver Creek, or grading a ditch or basin adjacent to the floodway of Silver Creek along the proposed retaining wall located along the west side of IL-47, southwest of the culvert.

In summary, the recommended compensatory storage alternative (storage volume in the culvert) provides volumes that exceed a compensatory storage requirement for a 1:1 fill/comp ratio for all displaced floodway volume. The proposed culvert (16'w x 9'h) with an effective height of 8' fits well within the Silver Creek Floodway, and theoretically reduces the 100-yr created head by 2.5 feet in the

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Design analysis (i.e. 2.9' existing created head for 100-year flood compared to 0.4' proposed created head for 100-year flood).

### **k. DNR Permit Requirements**

The widening of IL-47 and replacement of the box culvert involves construction within Regulatory Floodways of Cook, DuPage, Kane, Lake, McHenry, and Will Counties. The permit type for this project is Floodway Part 3708. The permit criteria for culvert construction include:

- A. Backwater increase limited to 0.1 ft. over existing 100 year flood profile.
- B. If damages occur for existing conditions, backwater must be reduced to point of non-damage or to 0.1 ft. over natural conditions.
- C. Compensatory storage must be provided for fill placed between the normal water and the 10 year flood, and between the 10 year and 100 year flood profile.

The results of the hydraulic analysis indicate that item A. is met since the proposed created head is less than the existing created head. Item B is not applicable since there haven't been any flooding damages occur during the existing condition. The preceding section on compensatory storage, along with the exhibit and calculations shown in **Exhibit L**, demonstrate how this project provides the required amount of compensatory storage. See **Exhibit K** for the Permit Summary Form.

### **l. Freeboard / Clearance**

The two(2) feet low beam clearance does not apply to this project because the existing and proposed structures at IL-47 are culverts. The "Design" analysis shows the existing culvert with 10.7' of freeboard between the 50-year headwater elevation and the low edge of pavement within the floodplain. The proposed culvert has 10.64' of freeboard between the proposed low edge of pavement and the 50-year headwater elevation. The profile and roadway configuration for IL-47 changes so that the proposed low edge of pavement (888.81) is lower than the existing low edge of pavement (890.75). It should be noted that the design (50-year) headwater elevation for the proposed condition is two feet lower than the existing.

### **m. Conclusions and Design Recommendations**

It is recommended that the Silver Creek crossing at IL-47 be designed as shown in the proposed conditions analysis with all floodway compensation provided within the 16'w x 9'h concrete box culvert. This approach will lower Silver Creek flow velocity through the culvert, lower the amount of created head, and prevent the compensatory storage being provided by other means such as Silver Creek Bank grading, ditch/basin grading, and other methods that would require additional land acquisition and labor. The expansion of IL-47, along with the additional pedestrian accommodations should help relieve congestion, encourage citizens to travel by bicycle, and meet the travel demands of future development.

## **IV. WATERWAY INFORMATION TABLES**





**Culvert Waterway Information Table**  
**DESIGN WIT TABLE 1.1**

**Illinois Department of Transportation**

Route: IL Route 47 / N. Seminary Ave.  
Waterway: Silver Creek  
Section:  
County: McHenry

Existing SN: 056-0240  
Proposed SN: 056-0334  
Prepared by: SGL  
Checked by: FML

Date: 11/18/2014  
Date: 11/20/2014

Flood Event	Freq. Yr.	Discharge ft <sup>3</sup> /s	Waterway Opening - ft <sup>2</sup>		Natural H.W.E. - ft	Head - ft		Existing Overtopping Elev. = 890.90 at Sta. 259+15		Proposed Overtopping Elev. = 889.94 at Sta. 259+15	
			Existing	Proposed		Existing	Proposed	Existing	Proposed	Existing	Proposed
Design	10	320	40	91	876.4	1.3	0.1	877.7	876.5		
Base	50	510	50	114	877.9	2.3	0.3	880.2	878.2		
Scour Design Check	100	600	54	123	878.5	2.9	0.4	881.4	878.9		
Overtop Existing											
Overtop Proposed											
Max. Calc.	500	830	56	128	879.9	5.7	1.0	885.6	880.9		

**Datum: NAVD88**

All-Time H.W.E. & Date: 879.35 ft H.W. (2/10/1966)

Surveyed Normal Water Level: 871.4 ft

10-Year Velocity through Existing Structure = 6.90 ft/s  
10-Year Velocity through Proposed Structure = 2.92 ft/s  
2-Yr. Flow Rate = 100 ft<sup>3</sup>/s

**EXISTING STRUCTURE**

Culvert Type: Reinforced Concrete Box Culvert  
Cell Dimensions (WxH): 7' x 8'  
# Spans/Cells: 1  
Length: 100.7'  
Skew: 2.3° AH LT (relative to road)  
Clearance:  
Bridge Flow Line: (u/s) (d/s)  
Low E.O.P.: 890.75  
Freeboard: 10.64'  
Culvert Inverts: 870.72 (u/s) 869.74 (d/s)

Culvert Type: Reinforced Concrete Box Culvert  
Cell Dimensions (WxH): 16' x 9'  
# Spans/Cells: 1  
Length: 142.7'  
Skew: 1.2° AH LT (relative to road)  
Culvert Invert Elev.: 869.75(u/s) 868.50(d/s)  
Low E.O.P.: 888.81  
Freeboard: 10.70'

**EXISTING EMBEDMENT**

Depth: \_\_\_\_\_  
U/S Streambed Elev.: \_\_\_\_\_  
D/S Streambed Elev.: \_\_\_\_\_

**PROPOSED EMBEDMENT**

Depth: 1'  
U/S Streambed Elev.: 870.75  
D/S Streambed Elev.: 869.50

NOTE: Proposed Structure Details Are Preliminary; Subject To Refinement In TSL Stage.

# BACK-UP CALCULATIONS FOR WIT - Table 1.1a (Design WIT)

Route: IL Route 47 / N. Seminary Ave  
 Waterway: Silver Creek

Computed: SGL  
 Checked: FML  
 Revised: SGL

Date: 11/17/2014  
 Date: 11/20/2014  
 Date: 5/11/2018

## CALCULATE CREATED HEAD

Frequency	Natural H.W.E. (ft)		Exist. Headwater Elev. (ft)		Prop. Headwater Elev. (ft)		Created Head (ft)	
	Approach Sect. (100' U/S) 1528.6	Depart Sect. (180' D/S) 1115.3	U/S Face of PR Structure 1448	U/S Face of Structure	Approach Sect. (100' U/S) 1528.6	U/S Face of Structure	Approach Sect. (100' U/S) 1528.6	@ Approach Section
10-Year	876.48	876.26	876.44	877.74	877.78	876.54	876.58	Existing 1.30
50-Year	877.91	877.67	877.86	880.11	880.16	878.11	878.16	Proposed 2.25
100-Year	878.50	878.25	878.45	881.32	881.37	878.84	878.89	Proposed 2.87
500-Year	879.91	879.68	879.87	885.52	885.56	880.86	880.90	Proposed 5.65

### PR Upstream Face Cross-Section Sta. 1448

Exist. Headwater Elev. at Approach Sect. is from Plan: Design - Existing

Nat H.W.E. for Approach and Depart Sections are from Plan: Design - Natural

PR Headwater Elev. at Approach Sect. is from Plan: Design - Proposed

## CALCULATE FREEBOARD AND CLEARANCE

Low Edge of Pavement Elevation (ft)		
Existing	Proposed	Station
890.75	888.81	259+15
Existing Freeboard (ft)		
10-Year	100-Year	500-Year
13.01	9.43	5.23
Proposed Freeboard (ft)		
10-Year	100-Year	500-Year
12.27	9.97	7.95

2 ft. clearance policy does not apply to culvert and three-sided precast concrete structures per 1-305 IDOT D.M.

All opening areas were measured in Microstation using Natural H.W.E.

## CALCULATE EFFECTIVE WATERWAY OPENING AREA FOR CULVERT

Ex Structure Size 7'W x 8'H		
Existing	Proposed	Proposed
Existing Width	Existing Height	Proposed Height
7	8	9
Culvert Flowline Elevation (ft)		
Existing		
U/S	D/S	Proposed
870.72	869.74	870.75
Waterway Opening Area (ft <sup>2</sup> )		869.50
Waterway Opening Area (ft <sup>2</sup> )		
Frequency	Existing	Proposed
10-Year	40.0	90.99
50-Year	50.0	113.81
100-Year	54.1	123.22
500-Year	56.0	128.00

**CREATED HEAD CALCULATIONS - Table 1.1b (DESIGN WIT)**

Route: IL Route 47 / Seminary Ave.  
 Waterway: Silver Creek

Computed: SGL  
 Checked: FML  
 Revised: SGL

Date: 11/17/2014  
 Date: 11/20/2014  
 Date: 5/11/2018

**10-Year Frequency**

<b>River Sta.</b>	<b>Natural WSE</b>	<b>Existing WSE</b>	<b>Proposed WSE</b>	<b>Existing Created Head</b>	<b>Proposed Created Head</b>
1528.6	876.48	877.78	876.58	1.30	0.10
1642.6	876.62	877.85	876.71	1.23	0.09
1750.4	876.71	877.89	876.80	1.18	0.09
1939.0	876.92	877.98	876.99	1.06	0.07
2072.3	877.09	878.07	877.15	0.98	0.06
2170.0	877.13	878.10	877.19	0.97	0.06
2505.7	877.29	878.19	877.35	0.90	0.06

**50-Year Frequency**

<b>River Sta.</b>	<b>Natural WSE</b>	<b>Existing WSE</b>	<b>Proposed WSE</b>	<b>Existing Created Head</b>	<b>Proposed Created Head</b>
1528.6	877.91	880.16	878.16	2.25	0.25
1642.6	878.06	880.20	878.28	2.14	0.22
1750.4	878.16	880.24	878.37	2.08	0.21
1939.0	878.36	880.31	878.55	1.95	0.19
2072.3	878.55	880.38	878.72	1.83	0.17
2170.0	878.59	880.40	878.76	1.81	0.17
2505.7	878.76	880.46	878.92	1.70	0.16

**100-Year Frequency**

<b>River Sta.</b>	<b>Natural WSE</b>	<b>Existing WSE</b>	<b>Proposed WSE</b>	<b>Existing Created Head</b>	<b>Proposed Created Head</b>
1528.6	878.50	881.37	878.89	2.87	0.39
1642.6	878.64	881.40	879.00	2.76	0.36
1750.4	878.74	881.43	879.08	2.69	0.34
1939.0	878.94	881.49	879.25	2.55	0.31
2072.3	879.14	881.55	879.42	2.41	0.28
2170.0	879.18	881.57	879.45	2.39	0.27
2505.7	879.35	881.62	879.60	2.27	0.25

**500-Year Frequency**

<b>River Sta.</b>	<b>Natural WSE</b>	<b>Existing WSE</b>	<b>Proposed WSE</b>	<b>Existing Created Head</b>	<b>Proposed Created Head</b>
1528.6	879.91	885.56	880.90	5.65	0.99
1642.6	880.04	885.57	880.97	5.53	0.93
1750.4	880.14	885.59	881.05	5.45	0.91
1939.0	880.33	885.61	881.17	5.28	0.84
2072.3	880.53	885.65	881.32	5.12	0.79
2170.0	880.57	885.65	881.34	5.08	0.77
2505.7	880.73	885.66	881.45	4.93	0.72



**Illinois Department of Transportation**

**Culvert Waterway Information Table**  
**PERMIT WIT TABLE 1.2**

Route: IL Route 47 / N. Seminary Ave.  
 Waterway: Silver Creek  
 Section:  
 County: McHenry

Existing SN: 056-0240  
 Proposed SN: 056-0334  
 Prepared by: SGL  
 Checked by: FML

Date: 11/18/2014  
 Date: 11/20/2014

Flood Event	Freq. Yr.	Discharge ft <sup>3</sup> /s	Waterway Opening - ft <sup>2</sup>		Natural H.W.E. - ft	Head - ft		Existing Overtopping Elev. = 890.90 at Sta. 259+15		Proposed Overtopping Elev. = 889.94 at Sta. 259+15	
			Existing	Proposed		Existing	Proposed	Existing	Proposed	Existing	Proposed
Design	10	320	38	87	876.2	0.8	0.0	877.0	876.2	877.0	876.2
Base	50	510	48	110	877.6	1.5	0.1	879.1	877.7	879.1	877.7
Scour Design Check	100	600	52	119	878.2	2.1	0.1	880.3	878.3	880.3	878.3
Overtop Existing											
Overtop Proposed											
Max. Calc.	500	830	56	128	879.4	3.6	0.4	883.0	879.8	883.0	879.8

**Datum: NAVD88**

All-Time H.W.E. & Date: 879.35 ft H.W. (2/10/1966)

Surveyed Normal Water Level: 871.4 ft

10-Year Velocity through Existing Structure = 8.16 ft/s  
 10-Year Velocity through Proposed Structure = 3.06 ft/s  
 2-Yr. Flow Rate = 100 ft<sup>3</sup>/s

**EXISTING STRUCTURE**

Culvert Type: Reinforced Concrete Box Culvert  
 Cell Dimensions (WxH): 7' x 8'  
 # Spans/Cells: 1  
 Length: 100.7'  
 Skew: 2.3° AH LT (relative to road)  
 Clearance:  
 Bridge Flow Line: (u/s) (d/s)  
 Low E.O.P.: 890.75  
 Freeboard: 11.66'  
 Culvert Inverts: 870.72 (u/s) 869.74 (d/s)

**EXISTING EMBEDMENT**

Depth:  
 U/S Streambed Elev.:  
 D/S Streambed Elev.:

**PROPOSED STRUCTURE**

Culvert Type: Reinforced Concrete Box Culvert  
 Cell Dimensions (WxH): 16' x 9'  
 # Spans/Cells: 1  
 Length: 142.7'  
 Skew: 1.2° AH LT (relative to road)  
 Culvert Invert Elev.: 869.75(u/s)868.50(d/s)  
 Low E.O.P.: 888.81  
 Freeboard: 11.13'

**PROPOSED EMBEDMENT**

Depth: 1'  
 U/S Streambed Elev.: 870.75  
 D/S Streambed Elev.: 869.50

NOTE: Proposed Structure Details Are Preliminary; Subject To Refinement In TSL Stage.



# BACK-UP CALCULATIONS FOR WIT - Table 1.2a (Permit WIT)

Route: IL Route 47 / N. Seminary Ave  
 Waterway: Silver Creek

Computed: SGL  
 Checked: FML  
 Revised: SGL

Date: 11/17/2014  
 Date: 11/20/2014  
 Date: 8/9/2017

## CALCULATE CREATED HEAD

Frequency	Natural H.W.E. (ft)		Exist. Headwater Elev. (ft)		Prop. Headwater Elev. (ft)		Created Head (ft)	
	Approach Sect. (50' U/S) 1490	Depart Sect. (50' D/S) 1290	U/S Face of Structure	Approach Sect. (50' U/S) 1490	U/S Face of Structure	Approach Sect. (50' U/S) 1490	Existing	Proposed
10-Year	876.22	876.09	876.19	877.01	876.98	876.20	0.79	0.00
50-Year	877.65	877.52	877.62	879.12	879.09	877.71	1.47	0.06
100-Year	878.24	878.10	878.21	880.29	880.26	878.35	2.05	0.11
500-Year	879.41	879.28	879.38	883.00	882.97	879.80	3.59	0.39

### PR Upstream Face Cross-Section Sta. 1448

Exist. Headwater Elev. at Approach Sect. is from Plan: Existing - Permit

Nat H.W.E. for Approach and Depart Sections are from Plan: Natural - Permit

PR Headwater Elev. at Approach Sect. is from Plan: Proposed - Permit

All opening areas were measured in Microstation using Natural H.W.E.

## CALCULATE FREEBOARD AND CLEARANCE

Low Road Elevation (ft)		
Existing	Proposed	Station
890.75	888.81	259+15
Existing Freeboard (ft)		
10-Year	10.49	500-Year
13.77	11.66	7.78
Proposed Freeboard (ft)		
10-Year	10.49	500-Year
12.62	11.13	9.04

2 ft. clearance policy does not apply to culvert and three-sided precast concrete structures per 1-305 IDOT D.M.

## CALCULATE EFFECTIVE WATERWAY OPENING AREA FOR CULVERT

Structure Size 8'H x 7'W			
Existing Width	Existing Height	Proposed Width	Proposed Height
7	8	16	9
Culvert Flowline Elevation (ft)			
Existing		Proposed	
U/S	D/S	U/S	D/S
870.72	869.74	870.75	869.50
Waterway Opening Area (ft <sup>2</sup> )			
Frequency	Existing	Proposed	
10-Year	38.31	87.08	
50-Year	48.32	109.96	
100-Year	52.43	119.37	
500-Year	56.00	128.00	

**CREATED HEAD CALCULATIONS - Table 1.2b (PERMIT WIT)**

Route: IL Route 47 / N. Seminary Ave  
 Waterway: Silver Creek

Computed: SGL  
 Checked: FML  
 Revised: SGL

Date: 11/17/2014  
 Date: 11/20/2014  
 Date: 8/9/2017

**10-Year Frequency**

<i>River Sta.</i>	<i>Natural WSE</i>	<i>Existing WSE</i>	<i>Proposed WSE</i>	<i>Existing Created Head</i>	<i>Proposed Created Head</i>
1490	876.22	877.01	876.20	0.79	-0.02
2170	876.64	877.28	876.63	0.64	-0.01
2815	877.03	877.55	877.01	0.52	-0.02

**50-Year Frequency**

<i>River Sta.</i>	<i>Natural WSE</i>	<i>Existing WSE</i>	<i>Proposed WSE</i>	<i>Existing Created Head</i>	<i>Proposed Created Head</i>
1490	877.65	879.12	877.71	1.47	0.06
2170	878.11	879.34	878.15	1.23	0.04
2815	878.52	879.56	878.55	1.04	0.03

**100-Year Frequency**

<i>River Sta.</i>	<i>Natural WSE</i>	<i>Existing WSE</i>	<i>Proposed WSE</i>	<i>Existing Created Head</i>	<i>Proposed Created Head</i>
1490	878.24	880.29	878.35	2.05	0.11
2170	878.70	880.46	878.79	1.76	0.09
2815	879.11	880.63	879.18	1.52	0.07

**500-Year Frequency**

<i>River Sta.</i>	<i>Natural WSE</i>	<i>Existing WSE</i>	<i>Proposed WSE</i>	<i>Existing Created Head</i>	<i>Proposed Created Head</i>
1490	879.41	883.00	879.8	3.59	0.39
2170	879.89	883.09	880.20	3.20	0.31
2815	880.32	883.18	880.56	2.86	0.24

## **V. HYDRAULIC REPORT DATA SHEETS**



Route F.A.P. 326 (IL-47) P or D # P-91-007-09  
 Section \_\_\_\_\_ PTB # 149-008  
 County McHenry  
 Exist SN 056-0240  
 Prop SN 056-0334

General Information

1. Stream name: Silver Creek

2. Structure location: SE ¼ of the NW ¼ of Section 32, Township 45N, Range 7E of the 3rd P.M.

3. Hydraulic Report Prepared By:  Consultant Lin Engineering, Ltd.  Prime  Sub  
 District

4. Hydraulic Report Approval Authority:  District – Post PDF of HR to BBS Hydraulics SharePoint Server  
 BBS Hydraulics - Submit 2 hard copies of HR to BBS Hydraulics

Site Design Data

5. Drainage Area (sq. mi.): 4.19

6. Highway Classification:  Rural  Principal Arterial  
 Urban  Minor Arterial  
 Other  Collector  
 Local

7. Design Frequency:  30 yr  50 Yr.  Other \_\_\_\_\_

8. Number of Waterway Information Tables (WIT): 2  
 If more than one, explain: Design WIT with all surveyed data entered into FIS Reg. model for entire study limit. Permit WIT with only the surveyed crossing at IL-47 entered into the FIS Reg. model.

Hydrologic & Hydraulic Analysis

9. Hydrology Modeling (check all that apply):  USGS/Stream Stats  FIS  Gage Data  
 Other USGS/Streamstats included for comparison to FIS

10. Hydraulic Modeling (check all that apply):  
 a. Method:  HEC-RAS  WSPRO  Other HEC-2; Original Regulatory Model  
 b. Manning's "n" values determined per IDOT Drainage Manual Chap. 5?  Yes  No  
 If no, explain: Manning's "n" values are based on FIS Regulatory Model  
 c. Source of Starting WSE: FIS Regulatory Model – Known Water Surface Elevations  
 d. Non- IDOT encroachments in Survey?  Yes  No  
 If yes, are they accounted for?  Yes  No  
 e. Does a Tailwater Control exist?  Yes  No  
 If yes, list: \_\_\_\_\_

f. Were the Expansion/Contraction cones properly addressed?  Yes  No  N/A  
 If No or N/A, explain: \_\_\_\_\_





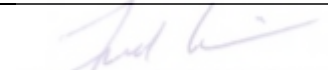
22. Scour/ Migration Problems:  None/Minimal  Significant  Severe  
 Comments:
- Ice Concerns:  None/Minimal  Significant  Severe  
 Comments:
- Debris Concerns:  None/Minimal  Significant  Severe  
 Comments: Debris was a concern by the City Engineer

Proposed or Identified Countermeasures: The proposed culvert provides a larger effective waterway opening.

**Existing Structure Data**

	Structure U/S	Subject Structure	Structure D/S
23. Distance from proposed (subject) structure: (ft.)	1370	N/A	1196
24. Type of structure:	RC Box 16'X11'	RC Box 7'x8'	Simple Span Bridge
25. Low beam elevation:	883.1	878.72	876.25
26. Flow line elevation:	872.0	870.72	869.48
27. Maximum known high water elevation:	N/A	879.35	N/A
28. Date of maximum high water:	N/A	Feb. 1966	N/A
29. Cause (backwater, headwater, etc.):	N/A	N/A	N/A
30. Does structure carry entire design flood flow? If not, state area of additional waterway opening: (ft <sup>2</sup> )	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
31. Type and size of existing overflow structures:	N/A	N/A	N/A
32. Has adverse scour occurred under or adjacent to the structure?	No	No	No
33. Classify type of scour and/or aggradation / degradation:	N/A	N/A	N/A

**Required Additional Data**

34. Deviations from the General Procedures presented in IDOT Drainage Manual CH. 2, CH.6, and CH.7:  
None
35. Information regarding high water from other streams, reservoirs, flood control projects, proposed channel changes, or other controls affecting proposed waterway area:  
None
36. Site Inspection made by: Sam Lahniers Date: 11/10/2010  
 Remarks:
37. Prepared by: Sam Lahniers Date 5/11/2018  
 Signed (QA/QC):  Date 10/8/2018

## Hydraulic Report Checklist

The District or Consultant should complete the following checklist before submitting the Hydraulic Report for approval.

1.  Title Page
2.  Table of Contents
3.  Narrative - (as outlined in Section 2-601.01 Item #3)
4.  Waterway Information Table (WIT) - (as outlined in Section 2-601.01 Item #4)
5.  Hydraulic Report Data Sheets
6.  Location Map - should show the subject structure along with nearby location defining landmarks (cities, roads, highways, nearby structures over same stream, etc.)
7.  USGS Hydrologic Atlas (historical data available on selected streams- District 1 only)
8.  Photographs - (Minimum: U/S & D/S structure faces, U/S & D/S channel, U/S & D/S roadway across structure)
9.  Hydrology (map, calculations and related exhibits)
10.  Streambed Profile
11.  Roadway Profile (existing and proposed)
12.  Cross Section Plots - with plan layout preferably overlaid upon an aerial photo with the contours
13.  Bridge Opening Plots
14.  Natural Condition Analysis
15.  Existing Condition Analysis
16.  Proposed Condition Analysis
17.  Scour Analysis – Existing and Proposed Conditions
18.  Compensatory Storage Calculations (if required- District 1 only. Include permit summary form and related attachments. )
19.  Survey Notes (if available, CADD plot of survey points. No Electronic Point Files)
20.  EWSE Data - (per Section 2-402.06)
21.  Correspondence Notes
22.  CD with Project Files (Include pdf copy of the Hydraulic Report and working files for the hydrology and hydraulic analyses.)

When HEC-RAS modeling is being used, ALL Plans (Natural, Existing, & Proposed) shall be included in ONE Project File.

## **VI. EXHIBITS**



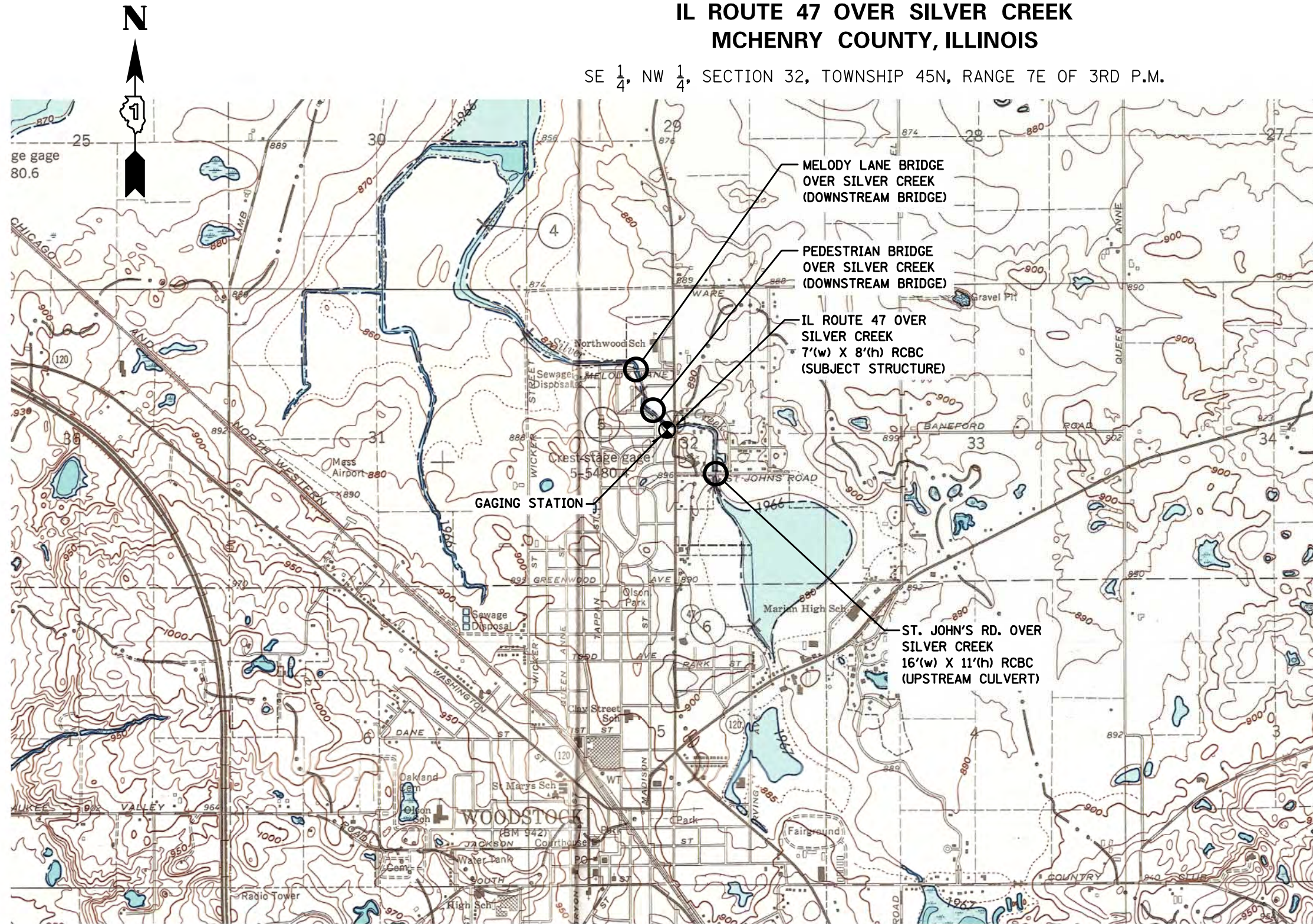
# **EXHIBIT A**

**PROJECT LOCATION MAP  
USGS HYDROLOGIC ATLAS MAP HA-256**



# IL ROUTE 47 OVER SILVER CREEK MCHENRY COUNTY, ILLINOIS

SE  $\frac{1}{4}$ , NW  $\frac{1}{4}$ , SECTION 32, TOWNSHIP 45N, RANGE 7E OF 3RD P.M.



The Woodstock quadrangle location is shown in figure 1.

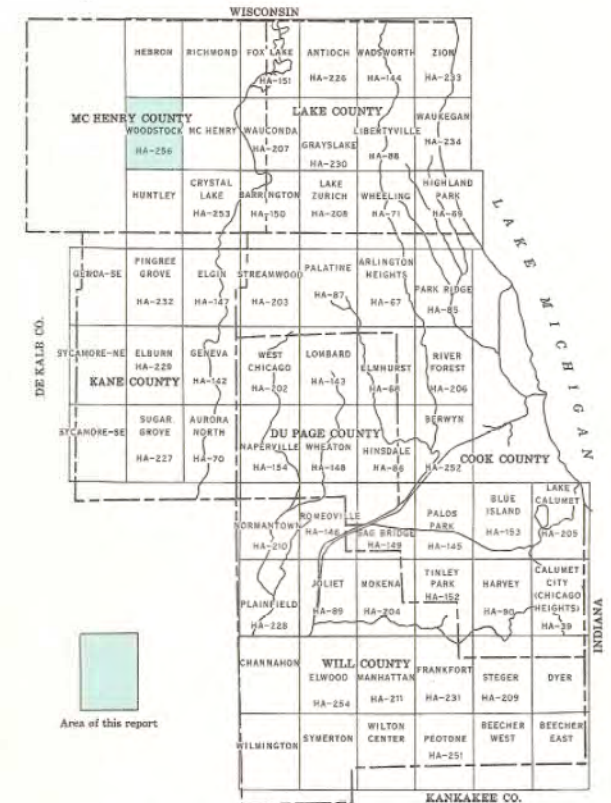


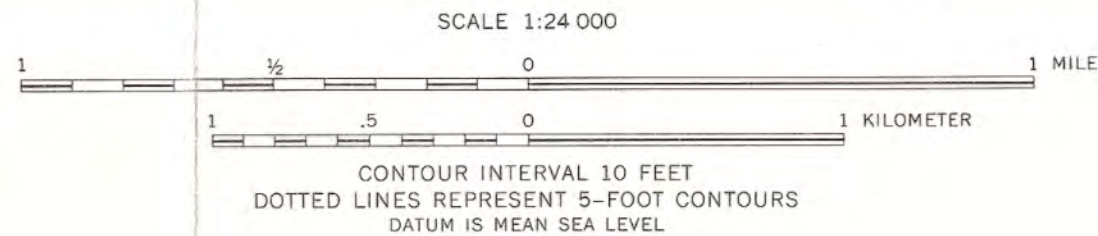
FIGURE 1.—Index map of northeastern Illinois showing location of quadrangles included in flood-hazard mapping program.

### FLOOD DATA FOR SILVER CREEK AT WOODSTOCK ILLINOIS

WATER YEAR	DATE	GAGE HEIGHT (FOOT)
1965	02-06	2.80
1966	02-10	3.92
1967	06-11	1.49
1968	08-17	2.45
1969	06-09	1.00
1970	07-23	1.25
1971	02-19	1.25
1972	07-14	1.81
1973	04-22	1.63
1974	05-16	2.21
1975	---	b
1976	---	c
1977		

#### GAGE STATION:

CREST-STAGE GAGE; 6 FT. LENGTH OF 2-INCH GALVANIZED PIPE MOUNTED ON LEFT DOWNSTREAM WINGWALL. DATUM OF GAGE, TOP OF BOTTOM CAP, IS 875.60 FT. ABOVE MEAN SEA LEVEL, DATUM OF 1929.



**LIN ENGINEERING, LTD.**  
Consulting Engineers

**PROJECT LOCATION MAP  
ON HYDROLOGIC INVESTIGATIONS MAP HA-256**



# **EXHIBIT B**

## **PHOTOGRAPHS OF SUBJECT STRUCTURE & STUDY LIMITS**

**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 42 – Looking upstream (south) at downstream face of St. Johns Rd. Culvert**



**Photo 43 – Standing at downstream face of St. Johns Rd, Culvert looking downstream**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 44 – Standing at upstream face of St. Johns Rd. Culvert looking upstream (south)**



**Photo 45 – Looking downstream (north) at upstream face of St. Johns Rd. Culvert**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



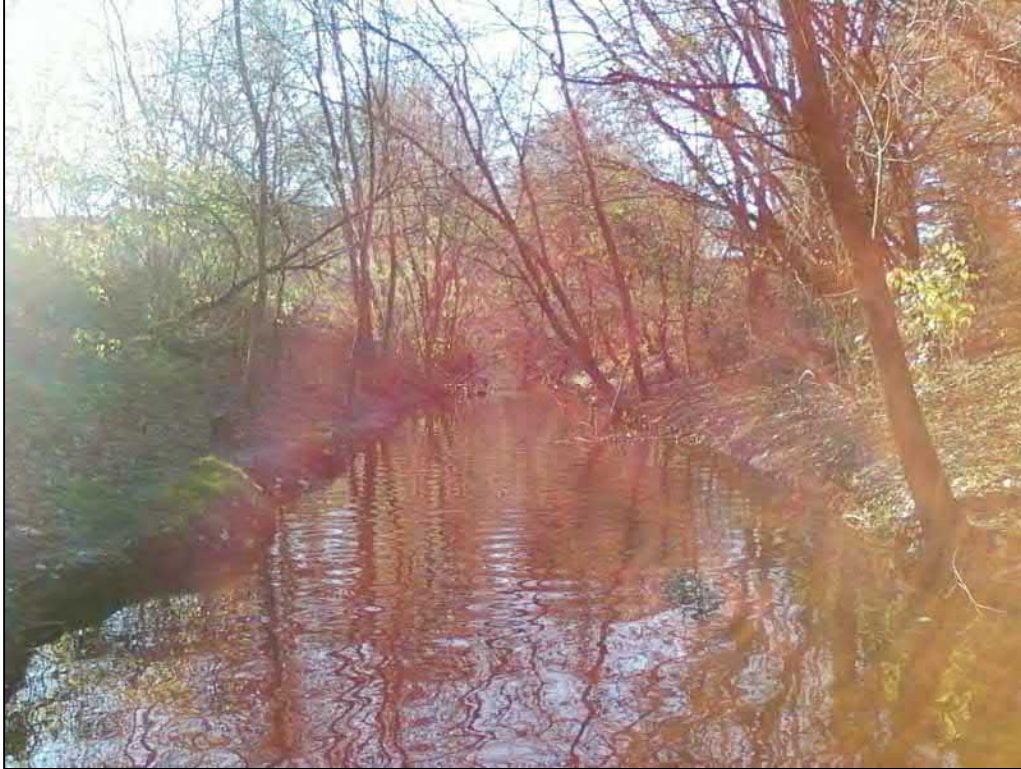
**Photo 019 – 1000' upstream section looking downstream (north)**



**Photo 020 – 1000' upstream section looking east**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 021 – 1000' upstream section looking upstream (south)**



**Photo 022 – 1000' upstream section looking west**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 023 – 600' upstream section looking downstream (north)**



**Photo 024 – 600' upstream section looking east**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 025 – 600' upstream section looking upstream (south)**



**Photo 026 – 600' upstream section looking west**

**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 027 – 500' upstream section looking downstream (west)**



**Photo 028 – 500' upstream section looking north**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 029 – 500' upstream section looking upstream (east)**



**Photo 030 – 500' upstream section looking south**

**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 031 – 300' upstream section looking downstream (west)**



**Photo 032 – 300' upstream section looking north**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 033 – 300' upstream section looking upstream (east)**



**Photo 034 – 300' upstream section looking south**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 46 – Looking downstream (west) at the upstream face of IL 47 Culvert**



**Photo 47 – Standing at the upstream face of IL 47 Culvert looking upstream (east)**

**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 48 – Standing above culvert on IL 47 looking north**



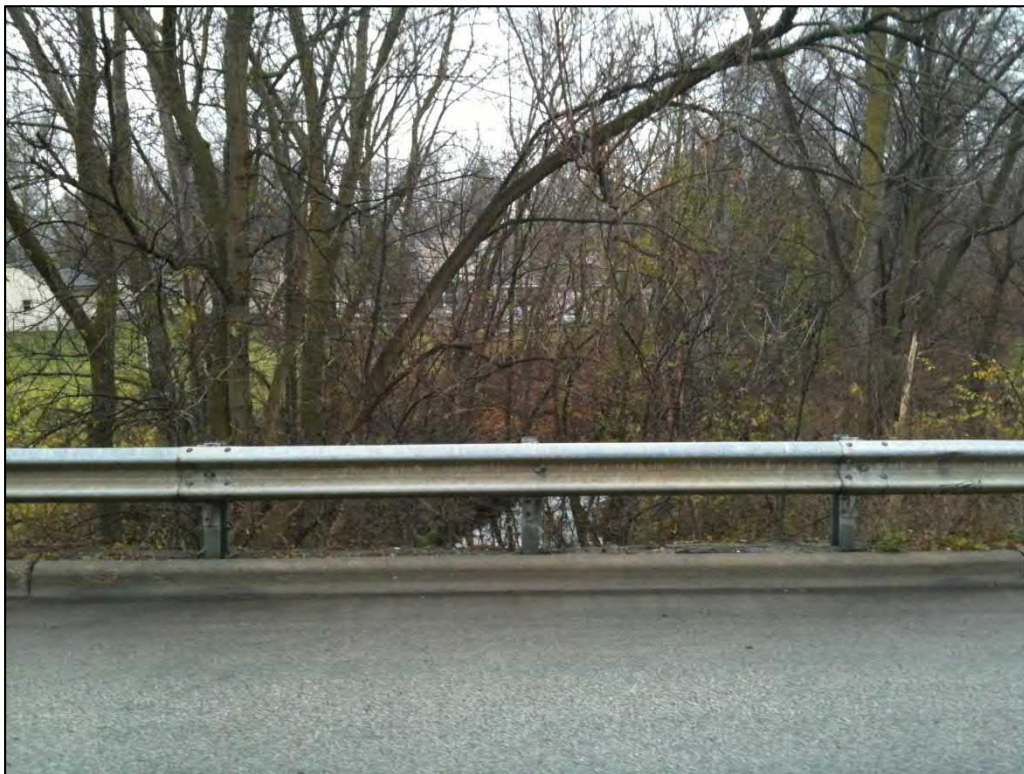
**Photo 49 – Standing above culvert on IL 47 looking east (upstream)**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 50 – Standing above culvert on IL 47 looking south**



**Photo 51 – Standing above culvert on IL 47 looking west (downstream)**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 52 – Standing at downstream face of IL 47 Culvert looking downstream (west)**



**Photo 53 – Looking upstream (east) at the downstream face of IL 47 Culvert**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 035 – 300' downstream section looking downstream (west)**



**Photo 036 – 300' downstream section looking north**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 037 – 300' downstream section looking upstream (east)**



**Photo 038 – 300' downstream section looking south**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 039 – 500' downstream section looking downstream (west)**



**Photo 040 – 500' downstream section looking north**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 041 – 500' downstream section looking upstream (east)**



**Photo 042 – 500' downstream section looking south**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 043 – 1000' downstream section looking downstream (west)**



**Photo 044 – 1000' downstream section looking north**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



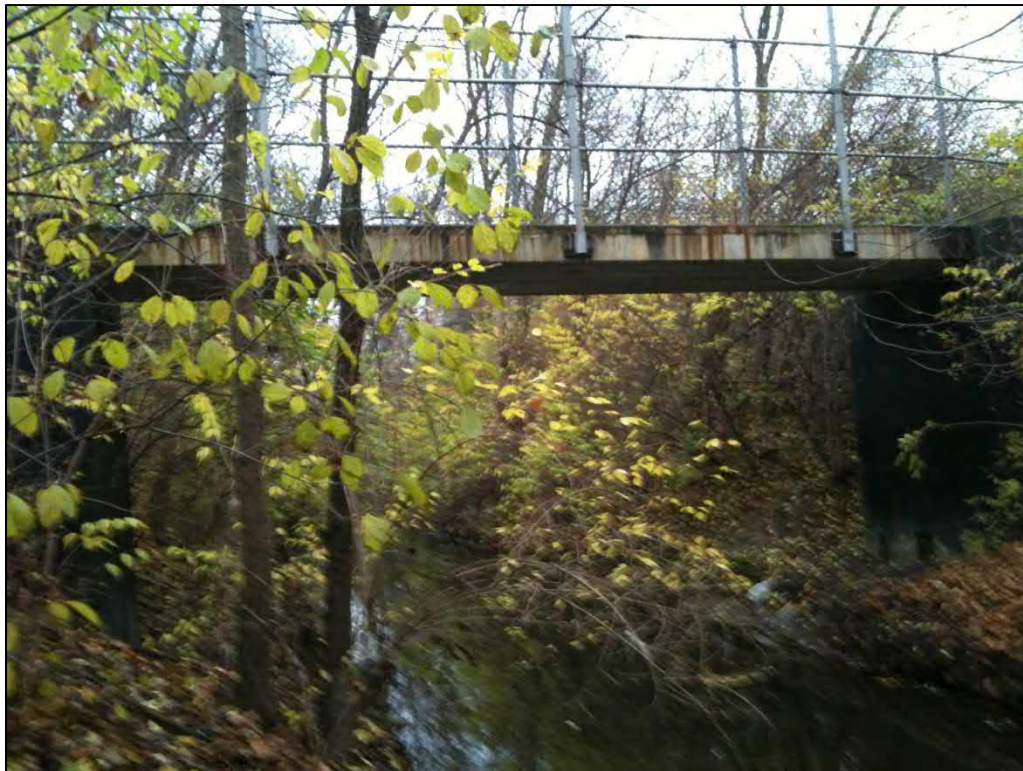
**Photo 045 – 1000' downstream section looking upstream (east)**



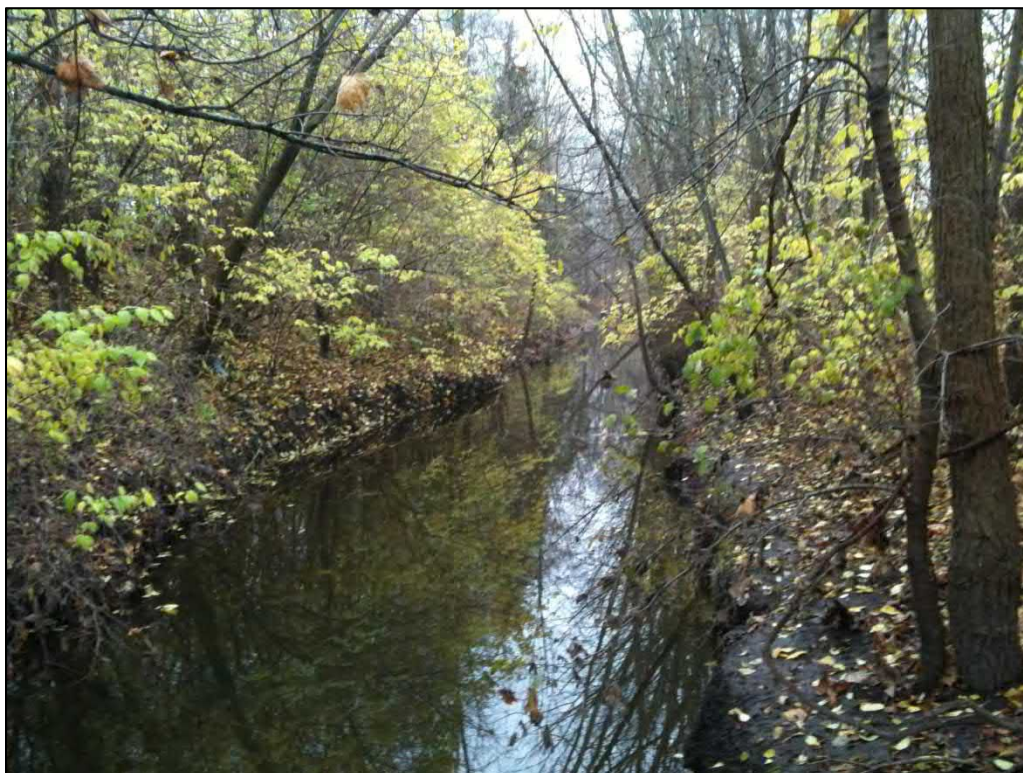
**Photo 046 – 1000' downstream section looking south**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 54 – Looking downstream (north) at upstream face of Pedestrian Bridge**



**Photo 55 – Standing at upstream face of Pedestrian Bridge looking upstream (south)**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 24-27, 2009**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**Photo 56 – Looking upstream (south) at downstream face of Pedestrian Bridge**



**Photo 57 – Standing at downstream face of Pedestrian Bridge looking downstream**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 18, 2016**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**000N – 1260' downstream section looking north (downstream)**



**000E – 1260' downstream section looking east**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 18, 2016**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**000S – 1260' downstream section looking south (upstream) at Melody Lane Bridge**



**000W – 1260' downstream section looking west**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 18, 2016**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**050N – 1210' downstream section looking north (downstream)**



**050E – 1210' downstream section looking east**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 18, 2016**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**050S – 1210' downstream section looking south (upstream) at Melody Lane Bridge**



**050W – 1210' downstream section looking west**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 18, 2016**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**140N – 1120' downstream looking north (downstream) at Melody Lane Bridge**



**140E – 1120' downstream looking east**



**EXHIBIT B**  
**PHOTOGRAPHS TAKEN NOVEMBER 18, 2016**  
**SN 056-0240: IL 47 (N. SEMINARY AVE.) OVER SILVER CREEK CULVERT**



**140S – 1120' downstream looking south (upstream)**



**140W – 1120' downstream looking west**

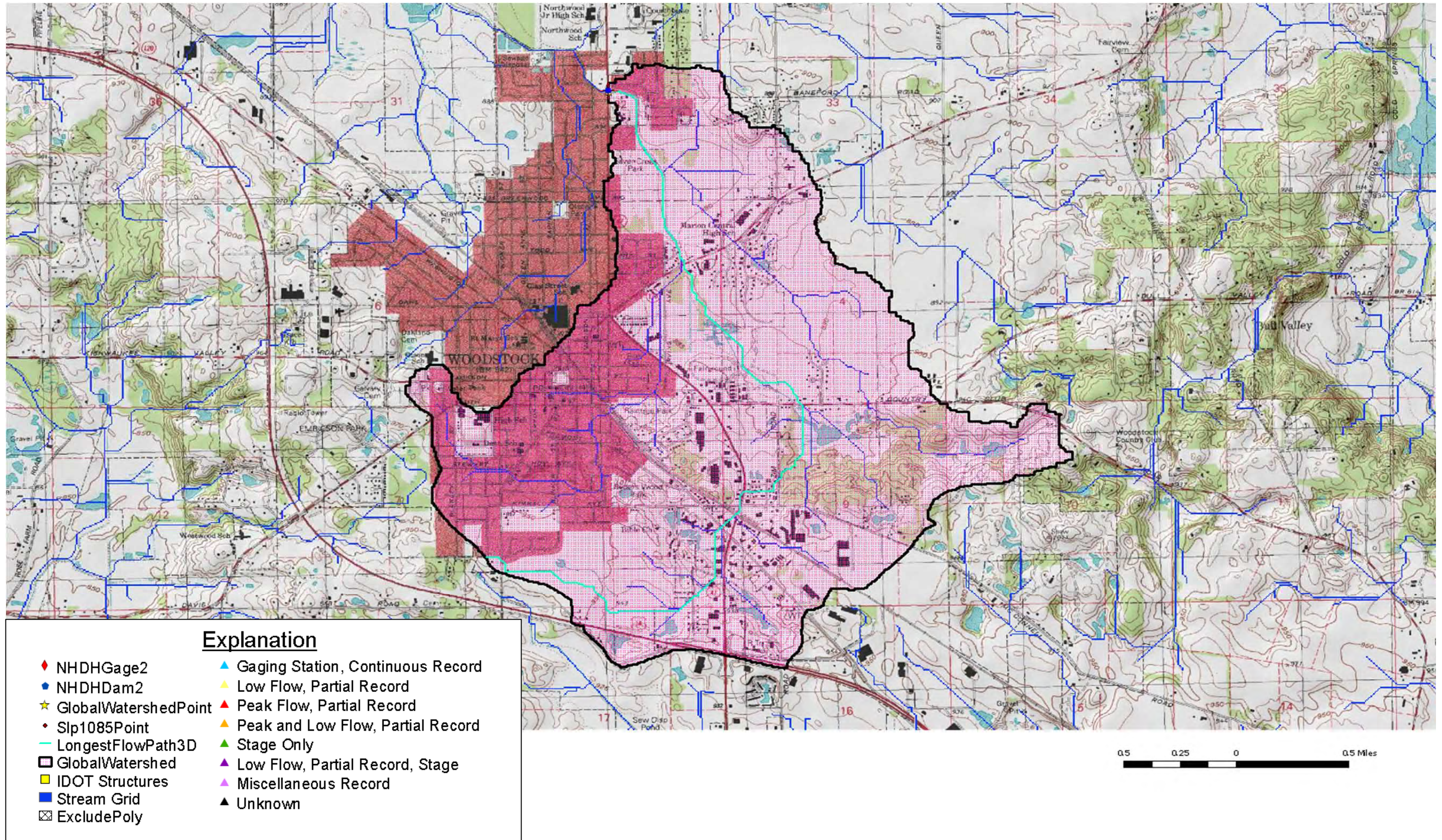


# **EXHIBIT C**

## **HYDROLOGY**



# STREAM STATS DRAINAGE BOUNDARY DELINEATION







## Streamstats Ungaged Site Report

Date: Thu Apr 11 2013 09:36:06 Mountain Daylight Time  
 Site Location: Illinois  
 NAD27 Latitude: 42.3351 (42 20 06)  
 NAD27 Longitude: -88.4430 (-88 26 35)  
 NAD83 Latitude: 42.3352 (42 20 07)  
 NAD83 Longitude: -88.4431 (-88 26 35)  
 Drainage Area: 4.28 mi<sup>2</sup>

Peak Flow Basin Characteristics			
100% Region 2 AMS (4.28 mi <sup>2</sup> )			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	4.28	0.03	9554
Stream Slope 10 and 85 Method (feet per mi)	18.554	0.81	317
Percent Open Water AND Herb Wetland (percent)	1.646	0	8

Peak Flow Streamflow Statistics					
Statistic	Flow (ft <sup>3</sup> /s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	175	40	2.6	92.7	331
PK5	295	41	3.1	155	559
PK10	379	42	3.8	196	734
PK25	483	45	4.6	240	970
PK50	563	47	5.2	271	1170
PK100	636	49	5.6	297	1360
PK500	810	55	6.2	349	1880









# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL) ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

### **PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)**

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.



### **ZONE A (This Additional Consideration applies to the preceding 1 Property.)**

The National Flood Insurance Program map affecting this property depicts a Special Flood Hazard Area that was determined using the best flood hazard data available to FEMA, but without performing a detailed engineering analysis. The flood elevation used to make this determination is based on approximate methods and has not been formalized through the standard process for establishing base flood elevations published in the Flood Insurance Study. This flood elevation is subject to change.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, 3601 Eisenhower Avenue, Suite 130, Alexandria, VA 22304-6439.

A handwritten signature in cursive script that reads "William R. Blanton Jr." followed by a flourish.

William R. Blanton Jr., CFM, Chief  
Engineering Management Section  
Mitigation Division

Page 1 of 2		Date: January 30, 2007	Case No.: 07-05-1891A	LOMA				
		<b>Federal Emergency Management Agency</b> Washington, D.C. 20472						
<b>LETTER OF MAP AMENDMENT          DETERMINATION DOCUMENT (REMOVAL)</b>								
COMMUNITY AND MAP PANEL INFORMATION			LEGAL PROPERTY DESCRIPTION					
COMMUNITY	CITY OF WOODSTOCK, MCHENRY COUNTY, ILLINOIS		A portion of Section 5, Township 44 North, Range 7 East, Third Principal Meridian, as described in the Warranty Deed recorded as Document No. 2006R0034540, in the Office of the Recorder, McHenry County, Illinois					
	COMMUNITY NO.: 170488							
AFFECTED MAP PANEL	NUMBER: 17111C0179J							
	DATE: 11/16/2006							
FLOODING SOURCE: SILVER CREEK TRIBUTARY NO. 1			APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 42.323, -88.438 SOURCE OF LAT & LONG: PRECISION MAPPING STREETS 4.0      DATUM: NAD 83					
<b>DETERMINATION</b>								
LOT	BLOCK/SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
--	--	--	604 McHenry Avenue	Structure	X (unshaded)	--	889.0 feet	--
<b>Special Flood Hazard Area (SFHA)</b> - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).								
<b>ADDITIONAL CONSIDERATIONS</b> (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)								
PORTIONS REMAIN IN THE SFHA ZONE A								
<p>This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.</p> <p>This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, 3601 Eisenhower Avenue, Suite 130, Alexandria, VA 22304-6439.</p>								
 William R. Blanton Jr., CFM, Chief Engineering Management Section Mitigation Division								





# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF WOODSTOCK, MCHENRY COUNTY, ILLINOIS	Lot 4, Block 2, Bi-Centennial Estates, as described in the Warranty Deed Joint Tenancy Illinois Statutory recorded as Document No. 1999R0051609, in the Office of the Recorder, McHenry County, Illinois
	COMMUNITY NO.: 170488	
AFFECTED MAP PANEL	NUMBER: 17111C0179J	
	DATE: 11/16/2006	
FLOODING SOURCE: LOCAL FLOODING		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 42.325, -88.467 SOURCE OF LAT & LONG: PRECISION MAPPING STREETS 4.0      DATUM: NAD 83

### DETERMINATION

LOT	BLOCK/SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
4	2	Bi-Centennial Estates	949 West Avenue	Structure	X (unshaded)	--	993.0 feet	--

**Special Flood Hazard Area (SFHA)** - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

**ADDITIONAL CONSIDERATIONS** (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

PORTIONS REMAIN IN THE SFHA  
ZONE A

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, 3601 Eisenhower Avenue, Suite 130, Alexandria, VA 22304-6439.

*William R. Blanton Jr.*

William R. Blanton Jr., CFM, Chief  
Engineering Management Branch  
Mitigation Directorate



# Federal Emergency Management Agency

Washington, D.C. 20472

## LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (REMOVAL) ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

### **PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)**

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

### **ZONE A (This Additional Consideration applies to the preceding 1 Property.)**

The National Flood Insurance Program map affecting this property depicts a Special Flood Hazard Area that was determined using the best flood hazard data available to FEMA, but without performing a detailed engineering analysis. The flood elevation used to make this determination is based on approximate methods and has not been formalized through the standard process for establishing base flood elevations published in the Flood Insurance Study. This flood elevation is subject to change.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, 3601 Eisenhower Avenue, Suite 130, Alexandria, VA 22304-6439.

A handwritten signature in cursive script that reads "William R. Blanton Jr." followed by a flourish.

William R. Blanton Jr., CFM, Chief  
Engineering Management Branch  
Mitigation Directorate



# Federal Emergency Management Agency

Washington, D.C. 20472

DEC 18 2006

The Honorable Brian Sager  
Mayor, City of Woodstock  
121 West Calhoun Street  
Woodstock, IL 60098

Case No: MICS 30278V  
Community: City of Woodstock, IL  
Community No.: 170488  
Effective Date: November 17, 2006  
LOMC-VALID

Dear Mayor Sager:

This letter revalidates the determinations for properties and/or structures in the referenced community as described in the Letters of Map Change (LOMCs) previously issued by the Department of Homeland Security's Federal Emergency Management Agency (FEMA) on the dates listed on the enclosed table. As of the effective date shown above, these LOMCs will revise the effective National Flood Insurance Program (NFIP) map dated November 16, 2006 for the referenced community, and will remain in effect until superseded by a revision to the NFIP map panel on which the property is located. The FEMA case number, property identifier, NFIP map panel number, and current flood insurance zone for the revalidated LOMCs are listed on the enclosed table.

<u>Case No.</u>	<u>Date Issued</u>	<u>Identifier</u>	<u>Map Panel No.</u>	<u>Zone</u>
04-05-4376A	09/17/2004	HOBART'S ADDITION TO WOODSTOCK, BLOCK 3, LOT 11; 277 SCHRYVER	17111C0200J	X
04-05-4582A	10/15/2004	257 & 267 SCHRYVER AVENUE	17111C0200J	X
05-05-2495A	10/04/2005	SAVANNA GROVE SUBDIV & PORT SECTION 21, T44N, R7E	17111C0200J	X

Because these LOMCs will not be printed or distributed to primary map users, such as local insurance agents and mortgage lenders, your community will serve as a repository for this new data. We encourage you to disseminate the information reflected by this letter throughout your community so that interested persons, such as property owners, local insurance agents, and mortgage lenders, may benefit from the information.

For information relating to LOMCs not listed on the enclosed table or to obtain copies of previously issued LOMR-Fs and LOMAs, if needed, please contact our Map Assistance Center, toll free, at 1-877-FEMA-MAP (1-877-336-2627).

Sincerely,

William R. Blanton Jr., CFM, Chief  
Engineering Management Section  
Mitigation Division

Enclosure

cc: Community Map Repository  
James E. Kastner



**REVALIDATED LETTERS OF MAP CHANGE FOR CITY OF WOODSTOCK**

<u>Case No.</u>	<u>Date Issued</u>	<u>Identifier</u>	<u>Map Panel No.</u>	<u>Zone</u>
06-05-B911A	05/02/2006	1310 NORTH SEMINARY LANE -- PORTION OF SECTION 32, T45N, R7E (IL)	17111C0179J	X
95-05-2148A	09/07/1995	262 SCHRYUER	17111C0200J	X
98-05-664A	01/21/1998	GEHRKES ADDITION - LOT 22 - 268 SCHRYVER	17111C0200J	X
05-05-4966A	10/18/2005	GEHRKES ADDITION - LOT 19 - 250 SCHRYVER	17111C0200J	X
06-05-BB97A	04/21/2006	SAVANNA GROVE SUBDIVISION, PHASE 2, LOTS 60-70, 73-78, 81-93, AND 97-106	17111C0200J	X

# FLOOD INSURANCE STUDY

VOLUME 1 OF 2



## MCHENRY COUNTY, ILLINOIS AND INCORPORATED AREAS

<i>Community Name</i>	<i>Community Number</i>	<i>Community Name</i>	<i>Community Number</i>
ALGONQUIN, VILLAGE OF	170474	LAKELAND, VILLAGE OF	170805
BARRINGTON HILLS, VILLAGE OF	170058	MARENGO, CITY OF	170482
BULL VALLEY, VILLAGE OF	170977	MC CULLOM LAKE, VILLAGE OF	170829
CARY, VILLAGE OF	170475	MCHENRY COUNTY	170732
CRYSTAL LAKE, CITY OF	170476	(UNINCORPORATED AREAS)	
*FOX LAKE, VILLAGE OF	170362	MCHENRY, CITY OF	170483
FOX RIVER GROVE, VILLAGE OF	170477	OAKWOOD HILLS, VILLAGE OF	170831
GREENWOOD, VILLAGE OF	171057	PORT BARRINGTON, VILLAGE OF	170478
HARVARD, CITY OF	170479	PRAIRIE GROVE, VILLAGE OF	170975
*HEBRON, VILLAGE OF	170086	RICHMOND, VILLAGE OF	170484
HOLIDAY HILLS, VILLAGE OF	170936	RINGWOOD, VILLAGE OF	170060
HUNTLEY, VILLAGE OF	170480	SPRING GROVE, VILLAGE OF	170485
ISLAND LAKE, VILLAGE OF	170370	TROUT VALLEY, VILLAGE OF	170062
JOHNSBURG, VILLAGE OF	170486	UNION, VILLAGE OF	170487
LAKE-IN-THE-HILLS, VILLAGE OF	170481	WONDER LAKE, VILLAGE OF	170976
LAKEMOOR, VILLAGE OF	170915	WOODSTOCK, CITY OF	170488

McHenry County



\*No Special Flood Hazard Areas Identified

Effective: November 16, 2006



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER  
17111CV001A

Table 4 - Summary of Discharges (Continued)

Peak Discharges (cubic feet per second)

Flooding Source and Location      Drainage Area (square miles)      10-Percent-Annual-Chance      2-Percent-Annual-Chance      1-Percent-Annual-Chance      0.2-Percent-Annual-Chance

Railroad Creek At Main Street	0.65	160	250	290	*	✓
Silver Creek (as in McH. Co. Univ. Fis. orig. FBI 23.78) Approximately 1.5 miles downstream of State Highway 47	34.10	1,801	2,642	3,054	4,586	✓ <i>under Prairie Co.</i>
Just downstream of Charles Road	13.30	849	1,289	1,512 <i>(rounded at 25.25)</i>	2,371	✓ <i>no.</i>
At Wicker Street [uls]	5.38	365	575	680	950	✓ <i>City</i>
At State Highway 47 [uls]	4.19	340	540	635	880	✓ <i>City</i>
Approximately 1,060 feet downstream of State Highway 120	3.53	320	510	600	830	✓ <i>City</i>
(At Private Drive approximately 300 feet) upstream of the confluence of Silver Creek Tributary No. 1	2.80	224	340	400	628	✓
(At Private Drive approximately 300 feet) upstream of the confluence of Silver Creek Tributary No. 1	2.80	224	340	400	628	✓ <i>The CR so nice, they named it twice. Co.</i>
Approximately 1.0 mile upstream of the confluence of Silver Creek Tributary No. 2	1.00	92	139	163	256	✓ <i>Co.</i>
Silver Creek Tributary No. 2 [WEST BRANCH] At the confluence with Silver Creek	1.30	118	179	210	330	✓ <i>Co. as "No. 3"</i>
Silver Creek Tributary No. 1 [EAST BRANCH] At the confluence with Silver Creek [uls]	5.10	370	561	659	1,035	✓ <i>Co. as "No. 2"</i>
Slough Creek						
Approximately 0.3 miles upstream of State Highway 47	16.80	196	273	312	650	<i>Co.</i>
Approximately 200 feet upstream of Rose Farm Road [and D/S So. Br.]	7.60	99	138	158	329	<i>Co.</i>
Approximately 0.5 miles upstream of Rose Farm Road [D/S of pond dam]	5.00	87	125	145	315	<i>Co.</i>
Note: Source FIS also incl. a CR u/s of pond dam (Q <sub>1000</sub> = ).						
South Branch Kishwaukee River At Seeman Road	52.71	3,350	5,670	6,670	10,190	✓

\* Data not computed



# FLOOD INSURANCE STUDY



## McHENRY COUNTY, ILLINOIS (UNINCORPORATED AREAS)

McHENRY  
COUNTY



SUPERSEDED -

SEE COUNTY-WIDE MAP/

FIS  
11/16/2006

REVISED:  
MAY 19, 1997



### Federal Emergency Management Agency

COMMUNITY NUMBER - 170732

ANNOTATIONS  
BY  
BILL SAYLOR,  
ISWS  
↓

TABLE 2 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
<b>DUTCH CREEK - NORTH FORK OF BRANCH TO NORTHWEST</b>					
Approximately 0.019 mile above mouth	1.64	182	285	329	436
Approximately 0.292 mile above mouth	1.29	151	237	274	363
<b>DUTCH CREEK - WEST FORK OF NORTH FORK OF BRANCH TO NORTHWEST</b>					
Approximately 0.089 mile above mouth	0.35	50	*	91	*
Approximately 0.593 mile above mouth	0.26	30	*	54	*
<b>SLOUGH CREEK</b>					
Approximately 25.02 miles above mouth of Nippersink Creek	16.80	196	273	312	650
Approximately 29.05 miles above mouth of Nippersink Creek	7.60	99	138	158	329
Approximately 29.59 miles above mouth of Nippersink Creek	5.00	87	125	145	315
Approximately 29.58 miles above mouth of Nippersink Creek	4.90	446	658	765	116/3
<b>SOUTH BRANCH SLOUGH CREEK</b>					
Approximately 29.20 miles above mouth of Nippersink Creek	2.50	12	13	14	15 15
<b>SILVER CREEK</b>					
Approximately 23.78 miles above mouth of Nippersink Creek	34.10	1,801	2,642	3,054	4,586
Approximately 26.44 miles above mouth of Nippersink Creek	13.30	849	1,289	1,512	2,371
** Approximately 27.29 miles above mouth	2.80	224	340	400	628
*** Approximately 28.25 miles above mouth of Nippersink Creek	1.00	92	139	163	256

all in rest  
from 1981  
FIS

(main) on Woodstock  
FIRM & HA

\*\*\* This Q is for the middle branch, which is mistakenly labelled  
Silver Creek on the County FIRM  
O/PO B

Compare  
D.A.'s:

2  
1.308  
1.308  
5.1

("TRIB No 1" = Silver Creek main on )  
County  
FIRM  
Woodstock FIRM  
& HA

TABLE 2 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
NO: * SILVER CREEK * These are for the trib-labelled TRIB No. 2 on the county FIRM! TRIBUTARY NO. 1 Approximately 28.25 miles above mouth of Nippersink Creek	1.30	118	179	210	330
NO: ** SILVER CREEK ** These are for Silver Creek on Woodstock FIRM! TRIBUTARY NO. 2 Approximately 27.29 miles above mouth of Nippersink Creek	5.10	370	561	659	1,035
✓ CARY CREEK At mouth At River Mile 0.9	3.33 2.97	184 167	300 272	353 320	562 509
FROM 1996 FIS REV. ✓ CRYSTAL CREEK → SEE OUR Q Ltr ← At Dartmouth Drive 7/10/2001	9.54	445	945	1,155*	1,765
✓ KISHWAUKEE CREEK At confluence with South Branch Kishwaukee River At State Route 47 At Huntley-Crystal Lake Road	17.10 6.97 2.74	1,090 340 80	1,880 510 120	2,400 600 150	3,270 930 230
✓ SOUTH BRANCH KISHWAUKEE RIVER At Seeman Road At Chicago and North Western Railroad ✓ At Marengo-Huntley Road	52.71 32.25 25.34	3,350 2,150 1,459	5,670 3,650 2,638	6,670 4,360 <sup>1</sup> 3,470 <sup>1</sup>	10,190 6,740 5,503

FROM 1996 FIS REV.  
 NEW in this revision (1997)

} same as Huntley FIS 1997

<sup>1</sup>Decrease in peak discharge downstream from Marengo-Huntley Road caused by constricting effects of the Chicago and North Western railroad bridge.  
 SEE OUR REVISION 7/15/98

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Water-surface elevations of floods of the selected recurrence intervals on all streams studied in detail were computed using the USACE HEC-2 step-backwater computer program (Reference 17). This program relates stream geometry, characteristics, and discharge to



**State Water Survey Division**

605 East Springfield  
 Champaign, IL 61820  
 Mail: Box 232, Urbana, IL 61801  
 217/333-2210

May 12, 1980

Mr. David Boyce  
 Illinois Department of Transportation  
 Division of Water Resources  
 2300 S. Dirksen Parkway  
 Springfield, IL 62764

Dear Dave:

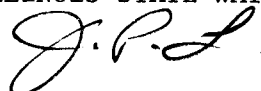
The Chicago District, Corps of Engineers has submitted the following discharges for Slough Creek in McHenry County. The first value replaces a previously approved value because it was developed incorrectly due to a drainage area calculation error. The second value is a new submittal. Since this watershed has significant natural storage, the State Standard Method equations are not applicable. These values are the result of an HEC-1 analysis and are consistent with the remaining certified value on Slough Creek. We, therefore, recommend the following be certified:

<u>Point of Interest</u>	<u>Drainage Area (sq mi)</u>	<u>Q<sub>100</sub> (cfs)</u>
Slough Creek		
a) @ mile 0.9, near Rte. 47	16.8	1590 <sup>1</sup>
b) @ mile 3.6, near Alden Road	10.46	678 <sup>2</sup>

<sup>1</sup>replaces value of 312 cfs  
<sup>2</sup>new value

If there are any questions or comments, please let me know.

Sincerely,  
 ILLINOIS STATE WATER SURVEY



John P. Lardner  
 Assistant Hydrologist  
 Phone: (217) 333-0447

JPL:psl  
 Enclosure

June 12, 1980

Mr. Norbert Schwartz  
Chicago District, Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60546

RE: Flood Discharge Coordination-Slough Creek,  
McHenry County

Dear Mr. Schwartz:

This is in regard to the frequency-discharge estimates for Slough Creek in McHenry County as submitted by your office to the Illinois State Water Survey for review and approval. The values as submitted and listed below were found to be within acceptable limits of the State Standard Method and are herein approved.

<u>Point of Interest</u>	<u>Drainage Area (Sq. Mi.)</u>	<u>Approved Q<sub>100</sub> (C.F.S.)</u>
1. Slough Creek		
a) @ Mi. 0.9, near Rt. 47	16.8	1,590*
b) @ Mi. 3.6, near Alden Road	10.5	678

\*replaces previously approved value

If any questions arise in this matter, please feel free to contact this office.

Sincerely,

David R. Boyce, P.E.  
Chief Flood Plain Management  
Engineer

DRB:MJS:lma  
CC: <sup>vuv</sup> John Lardner  
Northern Area (Kabbes)  
French Wetmore

CARBON COPY ONLY OF  
THIS LETTER (NOT  
LETTERHEAD / SIGNED  
COPY) AVAILABLE AT  
ISWS. - WS/ISWS 4/4/2009



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

REPLY TO  
ATTENTION OF:

NCCED-H

7 APR 1980

Mr. John Lardner  
Hydrologist  
Illinois State Water Survey  
P.O. Box 232  
Urbana, IL 61801

Dear Mr. Lardner:


Reference is made to a submittal letter dated 8 June 1979 that contained Repository Review Forms for Nippersink Creek and Tributaries in McHenry County. As a result of further review of the hydraulic model, two sets of changes have been made to the discharge values in that basin.

At mile 25.02 on Slough Creek, the discharge values for all frequencies have been revised. It was determined that the previous discharges for that point were developed incorrectly due to a calculation error. Also, additional discharge values were developed for mile 27.51 on Slough Creek to allow for a more gradual change in discharges between reaches. The inclosed two Repository Review Forms that represent the changes are for your review and comment.

In order for us to maintain our schedule within FIA, please respond to this office within 30 days after receipt of this letter.

If you have any questions, please call Mr. Norbert Schwartz at (312) 353-6471.

Sincerely,

  
JOHN M. O'FLAHERTY  
Chief, Engineering Division

Incl  
as



**State Water Survey Division**

605 East Springfield  
Champaign, IL

**FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM**

AGENCY OR FIRM ARMY CORPS OF ENGINEERS DATE March 11, 1980  
 SUBMITTED BY NORBERT SCHWARTZ PHONE 353-6471  
 ADDRESS 219 S. Dearborn, Chicago, Ill. ZIP 60546  
 STUDY NAME Nippersink Creek in McHenry Co.

1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Slough Creek  
 QUADRANGLE NAME McHenry COUNTY McHenry  
 1/4 SECTION, TWP & RANGE T. ~~45~~<sup>45N</sup> 7E R. 6E SECTION 8 SW  
 IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. @ mile 25.02 Slough Creek

2. DRAINAGE AREA ABOVE POINT OF INTEREST 16.8 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 7.8 <sup>505</sup> mi 14.59

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

849.7 ft msl @ 10% 935.5 ft msl @ 85%

5. DRAINAGE AREA IMPERVIOUSNESS (If)

PRESENT CONDITIONS \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS (if applicable) \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF DATA USED TO ESTIMATE % IMPERVIOUSNESS \_\_\_\_\_

6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10</u>	<u>978</u>	_____
<u>50</u>	<u>1388</u>	_____
<u>100</u>	<u>1590</u>	_____
<u>500</u>	<u>2431</u>	_____

*Approved previous value of 312*

FLOODPLAIN REPOSITORY  
ILLINOIS STATE WATER SURVEY  
Box 232, Urbana, Illinois, 61801

RETURN COMPLETED FORM TO:

PHONE: (217)-333-0447

Enclosure 1

**State Water Survey Division**

605 East Springfield  
Champaign, IL

**FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM**

AGENCY OR FIRM Army Corps of Engineers DATE March 11, 1980  
 SUBMITTED BY NORBERT SCHWARTZ PHONE 353-6471  
 ADDRESS 219 S. Dearborn, Chicago, Ill. ZIP 60546  
 STUDY NAME Aupperink Creek in McHenry Co.

1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Slough Creek  
 QUADRANGLE NAME McHenry (WOODSTOCK) COUNTY McHenry  
 1/4 SECTION, TWP & RANGE T. 46N, R. 6E, SECTION 24 NE  
 IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. @ mile 27.51 Slough Creek

2. DRAINAGE AREA ABOVE POINT OF INTEREST 10.46 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 5.3 3.98 mi S = 20.48

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

858.5 ft msl @ 10% 940 ft msl @ 85%

5. DRAINAGE AREA IMPERVIOUSNESS (If)

PRESENT CONDITIONS \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS (if applicable) \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF DATA USED TO ESTIMATE % IMPERVIOUSNESS \_\_\_\_\_

6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10</u>	<u>418</u>	_____
<u>50</u>	<u>592</u>	_____
<u>100</u>	<u>678</u>	_____
<u>500</u>	<u>1092</u>	_____



# Illinois Department of Transportation

4F

Division of Water Resources  
2300 South Dirksen Parkway/Springfield, Illinois/62764

July 10, 1979

Norbert Schwartz  
Chicago District Corps of Engineers  
219 South Dearborn St.  
Room 667  
Chicago, Illinois 60604

Dear Mr. Schwartz:

This is in regard to the frequency-discharge estimates for Nippersink Creek and tributaries in McHenry County as submitted by your office to the Illinois State Water Survey for review and approval. The values as submitted and listed below are herein approved:

<u>Point of Interest</u>	<u>Drainage Area (Sq.Mile)</u>	<u>Approved Q100 (C.F.S.)</u>
1. Nippersink Creek		
a) @ mile 6.58	200.5	7681
b) @ confl. w/N. Br.	188	7506
c) @ mile 12.22	119	4678
d) @ mile 14.98	107.6	6150
e) @ D.S. of Wonder Lake	97.4	5641
f) @ mile 21.0	82.7	6073
g) @ confl. w/ Vander Karr	79.3	5862
2. Elizabeth Lake Drain		
a) @ mile 16.5	13.4	117
3. North Branch Nippersink Creek		
a) @ mile 15.1	67	2490
4. Silver Creek		
a) @ mile 26.4	13.3	1512
b) @ mile 27.3	8.0	1000
c) @ confl. of East and West Br.	2.83	400
d) @ mile 28.3	1.0	163
5. East Branch Silver Creek		
a) @ mile 27.3	5.1	659

Final Taxonomic Study



July 10, 1979

6. West Branch Silver Creek		
a) mile 28.25	1.34	210
7. Slough Creek		
a) @ mile 25.02	16.8	312
b) @ mile 29.05	7.61	158
8. North Branch Slough Creek		
a) @ mile 29.6	5.04	145
b) @ mile 29.6 (above 4.9 small dam)	4.9	765
9. South Branch Slough Creek		
a) @ C.&N.W. RR	2.57	14
10. Newman Creek		
a) @ mile 23.78	34.16	3054

[← SUPERSEDED: 6/12/1980  
LETTER ]

The previously approved value on Nippersink Creek at the U.S.G.S. Gage #5548280 (D.A. = 192 sq. mi.) of 7350 cfs remains the certified discharge for that point.

If any questions arise in this matter, please feel free to contact this office.

Sincerely,

*David R. Boyce*

David R. Boyce, P.E.  
Chief Flood Plain Management  
Engineer

**State Water Survey Division**

605 East Springfield  
 Champaign, IL 61802  
 Mail: Box 232, Urbana, IL 61801  
 217/333-2210

June 20, 1979

Mr. David Boyce  
 Illinois Dept. of Transportation  
 Division of Water Resources  
 2300 South Dirksen Parkway  
 Springfield, Illinois 62764

Dear Dave:

The Chicago District, Corps of Engineers, has submitted the following discharges for Nippersink and tributaries in McHenry County. Since this basin has significant natural storage and was omitted from the regional analysis, the values were not compared to the State Standard Method. The values are the result of an HEC-1 analysis and are consistent with a previously approved value. We therefore recommend the following values be approved:

JPL


<u>Point of Interest</u>	<u>Drainage Area</u> (sq. mi.)	<u>Q<sub>100</sub> (c.f.s.)</u>
1) Nippersink Creek		
a) @ mile 6.58	200.5	7681
b) @ confl. w/ North Branch	188	7506
c) @ mile 12.22	119	4678
d) @ mile 14.98	107.6	6150
e) @ D.S. of Wonder Lake	97.4	5641
f) @ mile 21.0	82.6	6073
g) @ confl. w/ Vander Karr	79.3	5862
2) Elizabeth Lake Drain		
a) @ mile 16.5	13.4	117
3) North Branch Nippersink Creek		
a) @ mile 15.1	67	2490
4) Silver Creek		
a) @ mile 26.4	13.3	1512
b) @ mile 27.3	8.0	1000
c) @ confl. of East and West Br.	2.83	400
d) @ mile 28.3	1.0	163

5) East Branch Silver Creek		
a) @ mile 27.3	5.1	659
6) West Branch Silver Creek		
a) @ mile 28.25	1.34	210
7) Slough Creek		
a) @ mile 25.02	16.8	312
b) @ mile 29.05	7.61	158
8) North Branch Slough Creek		
a) @ mile 29.6	5.04	145
b) @ mile 29.6 (above 4.9 small dam)	4.9	765
9) South Branch Slough Creek		
a) @ C. & N.W. R.R.	2.57	14
10) Newman Creek		
a) @ mile 23.78	34.16	3054

← superseded in  
6/12/80  
approved  
etc

If there are any questions, please let me know.

Sincerely,  
ILLINOIS STATE WATER SURVEY



John P. Lardner  
Assistant Hydrologist  
Phone: (217) 333-0447

JPL:to  
Enclosures



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT CORPS OF ENGINEERS  
218 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

4G



REPLY TO  
ATTENTION OF:

NCCED-H

18 SEP 1979

SUBJECT: Type 15 Flood Insurance Study for Unincorporated Areas of  
McHenry County, Illinois

Division Engineer, North Central  
ATTN: NCCED-W

1. References:

a. NCCED-H letter dated 29 March 1978 subject, Type 15 Flood Insurance Study for Unincorporate Areas of McHenry County, Illinois, with inclosure entitled, Tributary Methods, Part 2a.

b. NCCED-W (29 March 78) 1st indorsement to above reference a, dated 18 April 1978.

2. Submitted for your review and approval is part 2f of the hydrology for Nippersink Creek and its upstream drainage area, including: North Branch of Nippersink Creek, Elizabeth Lake Drainage Ditch, Newman Creek, Slough Creek and its branch, and Silver Creek and its middle and west forks. The inclosure may be retained.

3. We request that you complete your review within 30 days in order for us to maintain our schedule.

FOR THE DISTRICT ENGINEER:

1 Incl  
as stated

JOHN M. O'FLAHERTY  
Chief, Engineering Division

NCCED-H

Hydrology for Type 15 Flood Insurance Studies

Nippersink Creek, Mc Henry County, Illinois

GENERAL INFORMATION

1. The purpose of this report is to present the hydrologic analysis for Nippersink Creek and tributaries for the Type 15 Flood Insurance Study for Mc Henry County, Illinois.

2. References:

- a. EM 1110-2-1411, Standard Project Flood Determination, Civil Engineer Bulletin No. 52-8, revised 1965.
- b. SCS National Engineering Handbook, Section 4, Hydrology, NEH-Notice 4-102, August 1972.
- c. Hydrologic Investigation Atlas,  
HA-495, HA-463, HA-253, HA-207,  
HA-493, HA-256, HA-255, HA-151,  
HA-496, HA-351, HA-303, and HA-498; USGS.
- d. USGS 7.5-minute quadrangle sheets:  
Walworth, Silver Lake, Richmond, Woodstock  
Lake Geneva, Harvard, Fox Lake, Mc Henry  
Genoa City, Hebron, Marengo North, Waucando
- e. Floodplain Topographic Map, Fox Chain of Lakes District, Sheets 14 and 15, Mapping 1976, Prepared by Alster & Associates, Inc., Madison, Wisconsin,
- f. Chicago Aerial Survey, Mc Henry County, 1975.
- g. Report 81, University of Illinois, Agriculture Experiment Station, 1965.
- h. Drainage Areas for Illinois Streams,  
U.S.G.S. Water - Resources Investigation 13-75, 1975.

Inclosure 2

## DESCRIPTION OF STUDY AREA

3. Nippersink Creek is located in the northeast portion of Mc Henry County. Nippersink Creek is a tributary to the Illinois Fox River at river mile 107.5 on Fox Lake. The one USGS continuous flow gage is located on the main branch of Nippersink Creek about 7.34 miles upstream of the mouth at Spring Grove, Illinois (#5548280, period of record 1966 to present.) The drainage area for Nippersink Creek and its tributaries is 206.1 square miles. Approximately 75% of the drainage area lies within Mc Henry County, the remaining lies within the State of Wisconsin.

4. In defining the area limits of the study, the area can be divided into three parts:

- a. Main Branch Nippersink Creek from the mouth to Newman Creek.
- b. North Branch Nippersink Creek from the confluence with the Main Branch up to the County line via Elizabeth Lake Drain.
- c. The southern tributaries including Newman Creek, Slough Creek, and Silver Creek. The study area includes all of the Main branch of Newman Creek, Slough Creek up to Nelson Rd., the tributary of Slough Creek to a half mile east of Hartland Rd, the main branch of Silver Creek to Greenwood Avenue, the western tributary of Silver Creek up to the vicinity of North Western RR., and the eastern tributary of Silver Creek up to the vicinity of Route 6.

Plate I shows Nippersink Creek drainage area and the limits of the study area.

5. There are two major reservoirs within or partially within the study area; Wonder Lake and Elizabeth Lake/Marie Lake. Wonder Lake has a surface area of 1.27 square miles at an approximate normal pool elevation of 802 ft-MSL. The lake drains over a 150 ft. spillway located 17 miles upstream of the mouth. Elizabeth Lake & Marie Lake have a combined surface



area of 1.75 square miles. Elizabeth Lake drains over a small weir under low flow conditions. Under high flow conditions the discharge exceeds the top elevation of the control structure and flows over the overbank area.

### ANALYSIS PROCEDURE

6. For purposes of this study, the watershed was divided into nineteen sub-areas as shown on Plate 1. Pertinent data for these subareas are listed in Table 1. These subareas were further subdivided into smaller subareas marked by checkpoints. Discharges were developed at the various checkpoints along the study reaches within the drainage area for the 10, 50, 100, and 500-year recurrence interval peak flood flows. These checkpoints are shown on Plate 1.

#### Routings

7. Reservoir routings were required at six locations listed in Table 2. Storage-discharge rating curves were developed for these storages areas. Storage was determined from USGS quad sheets. Inflow hydrographs above these areas were developed and routed through the storage areas using the modified Puls routing method. In order to take into account lag time and storage in channel and overbank, channel routings were done using the Modified Puls routing methods for all reaches in the study area except through drainage area seven and thirteen. These two reaches were relatively short. The storage in the channel was determine from the HEC 2 backwater model program based on actual cross-sections spaced approximately one-half mile apart.

### Peak-Discharge Frequency

8. Peak flows for the 10, 50, 100, & 500-year storm event have been determined using the rainfall-runoff computer program, "HEC-1, Flood Hydrograph Package," January 1978, with hourly rainfall amounts for hypothetical 24-hour storms derived from U.S. Weather Bureau TP-40 values. The critical precipitation pattern for the 6-hour rainfall blocks (4-2-1-3) (specified in Figure D of Plate 10, reference 2a) has been adopted. The SCS option of the HEC-1 computer model was used to compute the unit hydrographs. Loss rates were determined using a SCS equation. (see Section 4, SCS National Engineering Handbook, reference 2b). The equation states that the loss rate formula is a function of total precipitation, initial abstraction, and curve number. The curve numbers were based on soil types and land usage. The land usage was determined from a 1978 survey data supplied by the Mc Henry County Planning Commission and field inspection. Due to lack of land usage information for the study area within Wisconsin, land use was determined from USGS topo maps, aerial photos, and visual observation.

### Calibration

9. In order to calibrate the hydrology model, a historic reconstitution was done based on a 1972 storm. The precipitation data for the 1972 storm was obtained from National Weather Service Climatological Data Sheets for Northeastern Illinois. Wetness factors (curve number) and recession parameters

there was reasonable agreement between:

- a. predicted & observed flows at the Spring Grove continuous recording gaging station for the May 1972 storm.
- b. the flows for all frequencies as determined by the model and those determined by flow-frequency analysis at the gaging station. (refer to Table 3)
- c. flow volumes for all frequencies resulting from the model and those resulting from volume-frequency analysis at the gaging station. (refer to Table 4)

#### Recommended Discharges

10. The resulting recommended discharges to be used in the HEC-2 Water Surface Profile program for Nippersink Creek and tributaries are listed in Table 5.



Table 1 Listing of drainage areas and pertinent information

Drainage Area Index	Drainage Area		Channel* slope (ft/mi)
	in Square miles	Drainage Area channel length in miles	
1	12.7	6.92	1.9
2	5.8	2.5	5.3
3	2.8	4.2	6.3
4	20.8	6.7	1
5	12.5	1.3	32.05
6	5.2	3.1	4.3
7	.98	1.15	11.5
8	10.1	5	6.7
9	5.0	4.8	11.6
10	2.6	2.9	9.3
11	8.1	3.3	6.1
12	8.3	5.2	11.6
13	1.3	0.96	9.72
14	13.3	1.44	41.67
15	52.4	15.4	8.7
16	15.4	5.2	16.7
17	28.8	14.6	10.5
18	Wonder Lake		
19	Elizabeth & Marie Lake		

\*Slope is the main-channel slope and was determined between points 10% and 85% of the total distance measured along the low-water channel from the site to the basin divide.

Table 2: Listing of Reservoir Routing & Location

Location	Stream	Miles above mouth
Wonder Lake	Main Branch Nippersink	17.00
Elizabeth & Marie Lake	Elizabeth Lake Drain	16.55
Upstream of C&NW R.R, on Main Branch	Main Branch Nippersink	12.22
Private Pond	North Branch of Slough	29.58
Upstream of CNW R.R.	South Branch of Slough	29.27
Private pond north of Woodstock	Main Branch of Silver	27.27

Table 3: Comparison of Expected Flow values at Spring Grove gaging station, determined by a Flood flow frequency analysis, to predicted flows determined by model.

Storm Event	Flow (cfs) Determined by Flow-frequency Analysis	Flow (cfs) Determined by Model	Percent Variation from Expected	95% Confidence Limit	
				Lower	Upper
10 yr	3879.	4280	10.3%	2457	8296
50 yr	7443.	6331	14.9%	4204	21,430
100 yr	9369.	7460	20.4%	5046	30,165
500 yr	14925.	11,839	20.7%	7260	60,635



Table 4: Comparison of 1 & 3 day Volume analysis at Spring Grove

Storm Event (yr)	Flow Volume (cfs) from Model		Flow Volume (cfs) from Vol-Frequency Analysis	
	1 day	3 day	1 day	3 day
10	2829	2306	3951	2714
50	4913	3769	5925	4010
100	5911	4427	6991	4737
500	8033	6000	11176	7611

Table 5: Listing of recommended discharges for synthetic storm events.

Check point ID Code	River mile above mouth	STREAM	Total accumulated drainage area (sq.mi.)	Channel slope (ft/mi)	Flows (cfs)		
					10 yr	50 yr	100 yr
Nippersink-Main Br.							
NH 1	22.49	Main Branch Nippersink	79.33	7.87	3351	5011	5862
NH 2	2102	Nippersink, Main Branch	82.67	10.02	3472	5192	6073
NH 3	17 *	Nippersink, Main Branch	97.4	5.92	3001	4738	5641
NH 4	10.1	Nippersink, Main Branch	188	7.65	4330	6377	7506
NH 5	7.36	Nippersink, Main Branch	194	6.28	4280	6331	7460
NH 6	6.58	Nippersink, Main Branch	200.5	5.45	4407	6819	7681
NH 7	12.22 *	Nippersink, Main Branch	119.0	7.0	2495	3996	4678
NH 8	14.98	Nippersink	107.64	7.02	3270	5164	6150

7.5

Table 5: Listing of recommended discharge for synthetic storm events. (cont.)

Check point ID Code	River mile above mouth	STREAM	Total accumulated drainage area (sq.mi.)	Channel slope (ft/mi)	Flows (cfs)			
					10 yr	50 yr	100 yr	500 yr
Wippersink, North Br.								
NB 1	15.1	Wippersink, North Branch	67	6.5	1480	2115	2490	4145
Elizabeth Lake Drain								
EL 1	16.55 *	Elizabeth Lake Drain	13.4	44.04	30	76	117	355
Newman								
NM 1	23.78	Newman	34.16	8.47	1801	2642	3054	4586
Silver								
SL 1	28.25	Silver, West Branch	1.34	42.45	118	179	210	330
SL 2	28.25	Silver, Main Branch,	1.00	9.23	92	139	163	256
SL 3	27.29	Silver, East Branch	5.1	8.62	370	561	659	1035
SL 4	27.29	Silver, Main Branch	2.83	36.64	224	340	400	628

at private pond



Table 5: Listing of recommended discharges for synthetic storm events (cont.).

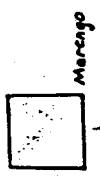
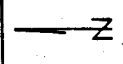
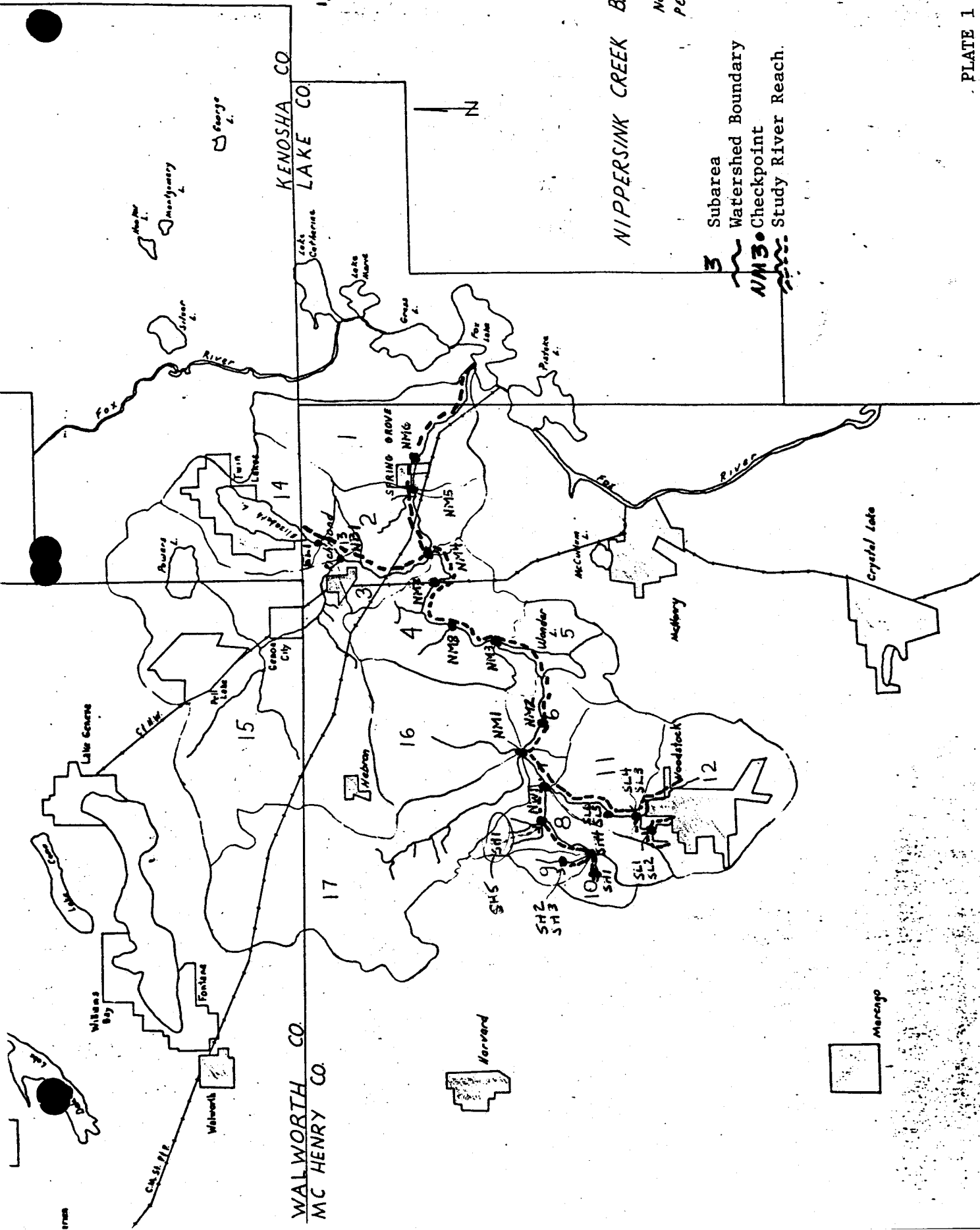
Check point ID Code	River mile above mouth	STREAM	Total accumulated drainage area (sq.mi.)	Channel slope (ft/mi)	10 yr	50 yr	Flows (cfs) 100 yr	500 yr
SL 5	27.25 *	Silver, Main Branch	8.0	25.00	564	856	1000	1575
SL 6	26.44	Silver, Main Branch	13.31	8.28	849	1289	1512	2371
Slough								
SH 1	29.20 *	Slough, South Branch	2.57	6.94	12	13	14	15
SH 2	29.58	Slough, North Branch	4.9	7.72	446	658	765	1163
SH 3	29.59 *	Slough, North Branch	5.04	8.73	87	125	145	315
SH 4	29.05	Slough, Main Branch	7.61	8.05	99	138	158	329
SH 5	25.02	Slough, Main Branch	16.81	8.85	196	273	312	650

\* Reservoir routing was done.

NIPPERSINK CREEK BASIN

Nov '78  
PCC

- 3 Subarea
- Watershed Boundary
- NM3 Checkpoint
- Study River Reach



# Illinois State Water Survey

13.

WATER RESOURCES BUILDING  
605 E. SPRINGFIELD, CHAMPAIGN

MAIL BOX 232 URBANA, ILLINOIS 61801

AREA CODE 217  
PHONE 333-2210

WILLIAM C. ACKERMANN, CHIEF

## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers-Chicago DATE 24 April 1979  
SUBMITTED BY Norbert Schwartz PHONE 312-353-6472  
ADDRESS 219 So. Dearborn, Chicago, Illinois Rm. 667 ZIP 60604  
STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

### 1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Nippersink Creek - Main Branch of Silver  
QUADRANGLE NAME Mc Henry COUNTY Mc Henry  
1/4 SECTION, TWP & RANGE NE-30, T 49N & R 7E  
IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. mile 27.27, confluence with East Branch Silver

2. DRAINAGE AREA ABOVE POINT OF INTEREST 8.0 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 4.06 mi 5.0

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

860 ft msl @ 10% 895 ft msl @ 85%

5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)

PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF FUTURE CONDITION DATA \_\_\_\_\_

### 6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10 yr</u>	<u>564</u>	_____
<u>50 yr</u>	<u>856</u>	_____
<u>100 yr</u>	<u>1000</u>	_____
<u>500 yr</u>	<u>1575</u>	_____

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# Illinois State Water Survey

14.

WATER RESOURCES BUILDING • MAIL BOX 232 URBANA, ILLINOIS 61801 • AREA CODE 217  
 605 E SPRINGFIELD, CHAMPAIGN WILLIAM C. ACKERMANN, CHIEF PHONE 333-2210

## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers-Chicago DATE 24 April 1979  
 SUBMITTED BY Norbert Schwartz PHONE 312-353-6472  
 ADDRESS 219 So. Dearborn, Chicago, Illinois Rm. 667 ZIP 60604  
 STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

1. LOCATION OF POINT OF INTEREST

NAME OF STREAM <sup>(Main)</sup> Nippersink Creek - ~~East Branch of~~ Silver Creek  
 QUADRANGLE NAME Mc Henry COUNTY Mc Henry  
 1/4 SECTION, TWP & RANGE SE-30, T 45N R 7E  
 IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. mile 27.29

2. DRAINAGE AREA ABOVE POINT OF INTEREST 5.1 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM CHANNEL 4.06 3.09 11.48 mi

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3  
860 ft msl @ 10% 895 ft msl @ 85%

5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)

PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA  
 FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA  
 YEAR AND SOURCE OF FUTURE CONDITION DATA \_\_\_\_\_

6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
10 yr	370	
50 yr	561	
100 yr	659	
500 yr	1035	

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# Illinois State Water Survey

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WATER RESOURCES BUILDING  
605 E SPRINGFIELD, CHAMPAIGN

MAIL BOX 232 URBANA, ILLINOIS 61801

AREA CODE 217  
PHONE 333-2210

WILLIAM C. ACKERMANN, CHIEF

## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers-Chicago DATE 24 April 1979  
SUBMITTED BY Norbert Schwartz PHONE 312-353-6472  
ADDRESS 219 So. Dearborn, Chicago, Illinois Rm. 667 ZIP 60604  
STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

### 1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Nippersink Creek - <sup>WEST</sup> ~~Main~~ Branch of Silver  
QUADRANGLE NAME Mc Henry COUNTY Mc Henry  
1/4 SECTION, TWP & RANGE SE-30, T 45N & R 7E  
IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. confluence of Silver west and east

2. DRAINAGE AREA ABOVE POINT OF INTEREST 2.83 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM  
CHANNEL 2.32 mi

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3  
855 ft msl @ 10% 970 ft msl @ 85%

5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)  
PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA  
FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA  
YEAR AND SOURCE OF FUTURE CONDITION DATA \_\_\_\_\_

### 6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10 yr</u>	<u>224</u>	_____
<u>50 yr</u>	<u>340</u>	_____
<u>100 yr</u>	<u>400</u>	_____
<u>500 yr</u>	<u>628</u>	_____

# Illinois State Water Survey

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WATER RESOURCES BUILDING  
605 E SPRINGFIELD, CHAMPAIGN

MAIL BOX 232 URBANA, ILLINOIS 61801  
WILLIAM C. ACKERMANN, CHIEF

AREA CODE 217  
PHONE 333-2210

## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers-Chicago DATE 24 April 1979  
 SUBMITTED BY Norbert Schwartz PHONE 312-353-6472  
 ADDRESS 219 So. Dearborn, Chicago, Illinois Rm. 667 ZIP 60604  
 STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Nippersink Creek - <sup>WEST</sup>~~Main~~ Branch of Silver  
 QUADRANGLE NAME Mc Henry COUNTY Mc Henry  
 1/4 SECTION, TWP & RANGE NE-31, T 45N & R 7E  
 IDENTIFYING LANDMARK, ROAD mile 28.25  
 CROSSING, CONFLUENCE, ETC. \_\_\_\_\_

2. DRAINAGE AREA ABOVE POINT OF INTEREST 1.0 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 1.26 mi *Slope - 4%*

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

855 ft msl @ 10% 885 ft msl @ 85%

5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)

PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF FUTURE CONDITION DATA \_\_\_\_\_

6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10 yr</u>	<u>92</u>	_____
<u>50 yr</u>	<u>139</u>	_____
<u>100 yr</u>	<u>163</u>	_____
<u>500 yr</u>	<u>256</u>	_____

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# Illinois State Water Survey

17.

WATER RESOURCES BUILDING  
605 E SPRINGFIELD, CHAMPAIGN

MAIL BOX 232 URBANA, ILLINOIS 61801  
WILLIAM C. ACKERMANN, CHIEF

AREA CODE 217  
PHONE 333-2210

## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers-Chicago DATE 24 April 1979  
SUBMITTED BY Norbert Schwartz PHONE 312-353-6472  
ADDRESS 219 So. Dearborn, Chicago, Illinois Rm. 667 ZIP 60604  
STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

### 1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Nippersink Creek - West Branch ~~of~~ Silver CREEK TRIB.  
QUADRANGLE NAME Mc Henry COUNTY Mc Henry  
1/4 SECTION, TWP & RANGE NW-31, T 45N & R 7E  
IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. mile 28.25

2. DRAINAGE AREA ABOVE POINT OF INTEREST 1.34 sq mi

### 3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 2.12 mi

### 4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

860 ft msl @ 10% 950 ft msl @ 85%

### 5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)

PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF FUTURE CONDITION DATA \_\_\_\_\_

### 6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10 yr</u>	<u>118</u>	_____
<u>50 yr</u>	<u>179</u>	_____
<u>100 yr</u>	<u>210</u>	_____
<u>500 yr</u>	<u>330</u>	_____

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# Illinois State Water Survey

19

WATER RESOURCES BUILDING  
605 E SPRINGFIELD CHAMPAIGN

MAIL BOX 232, URBANA, ILLINOIS 61801

AREA CODE 217  
PHONE 333-2210

WILLIAM C. ACKERMANN, CHIEF

## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers - Chicago DATE 24 Apr 1979  
SUBMITTED BY Norbert Schwartz PHONE 312-353-6472  
ADDRESS 219 S. Dearborn, Chicago, Ill Rm 667 ZIP 60604  
STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

### 1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Nippersink Creek - Slough  
QUADRANGLE NAME Mc Henry COUNTY Mc Henry  
1/4 SECTION, TWP & RANGE NW-25, T 45N & R 6E  
IDENTIFYING LANDMARK, ROAD  
CROSSING, CONFLUENCE, ETC. mile 29.05

2. DRAINAGE AREA ABOVE POINT OF INTEREST 7.61 sq mi

### 3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 3.85 mi

### 4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

885 ft msl @ 10% 916 ft msl @ 85%

### 5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)

PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF  
FUTURE CONDITION DATA \_\_\_\_\_

### 6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10 Yr</u>	<u>99</u>	_____
<u>50 yr</u>	<u>138</u>	_____
<u>100 yr</u>	<u>158</u>	_____
<u>500 yr</u>	<u>329</u>	_____

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# Illinois State Water Survey

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WATER RESOURCES BUILDING  
605 E SPRINGFIELD CHAMPAIGN

MAIL BOX 232 URBANA, ILLINOIS 61801

AREA CODE 217  
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WILLIAM C. ACKERMANN, CHIEF

## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers - Chicago DATE 24 Apr 1979  
 SUBMITTED BY Norbert Schwartz PHONE 312-353-6472  
 ADDRESS 219 S. Dearborn, Chicago, Ill Rm 667 ZIP 60604  
 STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Nippersink Creek - North Branch of Slough Creek

QUADRANGLE NAME Mc Henry COUNTY Mc Henry

1/4 SECTION, TWP & RANGE SE-23, T 45N & R6E

IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. mile 29.59, just below dam on private Lane off Rose Farm Rd

2. DRAINAGE AREA ABOVE POINT OF INTEREST 5.04 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 4.81 mi *2.73*

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

890 ft msl @ 10% 932 ft msl @ 85%

5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)

PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF FUTURE CONDITION DATA \_\_\_\_\_

6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10 Yr</u>	<u>87</u>	_____
<u>50 yr</u>	<u>125</u>	_____
<u>100 yr</u>	<u>145</u>	_____
<u>500 yr</u>	<u>315</u>	_____

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# Illinois State Water Survey

21-

WATER RESOURCES BUILDING  
605 E. SPRINGFIELD CHAMPAIGN

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WILLIAM C. ACKERMANN, CHIEF

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## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers - Chicago DATE 24 Apr 1979  
SUBMITTED BY Norbert Schwartz PHONE 312-353-6472  
ADDRESS 219 S. Dearborn, Chicago, Ill Rm 667 ZIP 60604  
STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

### 1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Nippersink Creek - [North Branch of] Slough Creek

QUADRANGLE NAME Mc Henry COUNTY Mc Henry

1/4 SECTION, TWP & RANGE 23-SE, T 45N & R 6E

IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. Just above dam on Private Lane off Rose Farm Rd, mile 29.58

2. DRAINAGE AREA ABOVE POINT OF INTEREST 4.9 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 3.86 mi 1.72

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

890 ft msl @ 10% 920 ft msl @ 85%

5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)

PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF FUTURE CONDITION DATA \_\_\_\_\_

### 6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10 Yr</u>	<u>446</u>	_____
<u>50 yr</u>	<u>658</u>	_____
<u>100 yr</u>	<u>765</u>	_____
<u>500 yr</u>	<u>1163</u>	_____

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# Illinois State Water Survey

22-

WATER RESOURCES BUILDING  
605 E. SPRINGFIELD CHAMPAIGN

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AREA CODE 217  
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WILLIAM C. ACKERMANN, CHIEF

## FLOODPLAIN REPOSITORY DISCHARGE REVIEW FORM

AGENCY OR FIRM Army Corps of Engineers - Chicago DATE 24 Apr 1979

SUBMITTED BY Norbert Schwartz PHONE 312-353-6472

ADDRESS 219 S. Dearborn, Chicago, Ill Rm 667 ZIP 60604

STUDY NAME Mc Henry County, Type 15 Flood Insurance Study

### 1. LOCATION OF POINT OF INTEREST

NAME OF STREAM Nippersink Creek - South Branch of Slough *Creek*

QUADRANGLE NAME Mc Henry COUNTY Mc Henry

1/4 SECTION, TWP & RANGE SW-25, T 45N & R6E

IDENTIFYING LANDMARK, ROAD CROSSING, CONFLUENCE, ETC. mile 29.20, Chicago & NW RR

2. DRAINAGE AREA ABOVE POINT OF INTEREST 2.57 sq mi

3. DISTANCE FROM POINT OF INTEREST TO WATERSHED DIVIDE MEASURED ALONG THE STREAM

CHANNEL 2.88 mi

4. ELEVATION OF STREAM BED 10% AND 85% OF THE DISTANCE FROM THE POINT OF INTEREST TO THE BASIN DIVIDE AS MEASURED IN ITEM 3

880 ft msl @ 10% 900 ft msl @ 85%

5. URBANIZED DRAINAGE AREA ABOVE THE POINT OF INTEREST (INCLUDE AS URBAN THE GROSS AREA DEVELOPED FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PURPOSES - OMIT ONLY MAJOR PARKS, GOLF COURSES, FLOODPLAINS, ETC.)

PRESENT CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

FUTURE CONDITIONS \_\_\_\_\_ sq mi \_\_\_\_\_ % OF DRAINAGE AREA

YEAR AND SOURCE OF FUTURE CONDITION DATA \_\_\_\_\_

### 6. DISCHARGES SUBMITTED FOR APPROVAL

RETURN PERIOD (YEARS)	DISCHARGE (cfs)	
	PRESENT CONDITIONS	FUTURE CONDITIONS
<u>10 Yr</u>	<u>12</u>	_____
<u>50 yr</u>	<u>13</u>	_____
<u>100 yr</u>	<u>14</u>	_____
<u>500 yr</u>	<u>15</u>	_____

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SIGB-  
S168-  
S168-

OUTS1538  
OUTS1538  
OUTS1538

8620  
8620  
8620

SYSMSG  
SYSMSG  
SYSMSG

12.45.55 22 MAR 77  
12.45.55 22 MAR 77  
12.45.55 22 MAR 77

HNTR.  
HNTR.  
HNTR.

SIG105.004  
SIG105.004  
SIG105.004

City of Woodstock (Mc Henry Co) - Silver Creek - FIS 4740-11-06

Final Out put for notual floods - 10-yr, 50-yr, 100-yr & 500-yr



\*\*\*\*\*  
 HEC2 VERSION UPDATFD AUG1976 -MOD. JAN 1977  
 ERROR CORRECTIONS 01-02-03-24-05-06-07-08-09-10  
 MODIFICATIONS 52-53-54-55-56-57-58-59  
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T1 HUD FLOOD INSURANCE STUDY - CITY OF WOODSTOCK CHICAGO OFFICE 2 - 77  
 T2 SILVER CREEK - 10YR,50YR,100YR, & 500YR - NATURAL  
 T3 SILVER CREEK - 10 YEAR

J1	ICHECK	INQ	NINV	PRFVS	IDIR	SRT	METPIC	HVINS	Q	WSEL	FG
0.	2.	0.	0.	0.005942	0.0	0.0	0.0	0.0	0.	862.200	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE	
0.0	0.0	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-NC	0.065	0.065	0.045	0.100	0.300	0.0	0.0	0.0	0.0	0.0	0.0
QT	4.000	365.000	575.000	680.000	950.000	0.0	0.0	0.0	0.0	0.0	0.0
X1	4.340	9.000	10048.000	10075.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	863.500	9828.000	861.600	10000.000	862.400	10048.000	858.500	10064.000			
GR	862.700	10075.000	862.900	10095.000	863.000	10147.000	0.0	0.0			
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0			
-X1	4.490	9.000	10047.000	10100.000	800.000	800.000	0.0	0.0	0.0	0.0	0.0
GR	870.000	9700.000	866.900	10000.000	866.000	10047.000	861.900	10050.000	863.000	10058.000	
GR	862.700	10072.000	865.300	10093.000	866.400	10100.000	870.000	10250.000	0.0	0.0	
X1	4.497	15.000	10147.500	10152.500	50.000	50.000	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	864.400	864.400	0.0	0.0
GR	870.000	10030.000	868.600	10050.000	867.500	10133.000	864.400	10139.000	864.400	10147.500	
GR	863.100	10148.797	862.200	10149.797	861.900	10150.000	862.200	10151.199	863.100	10152.199	
GR	864.400	10152.500	864.400	10157.000	867.300	10150.000	856.600	10250.000	870.000	10380.000	
NC	0.025	0.025	0.025	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	4.499	0.0	0.0	0.0	4.000	4.000	0.0	0.0	0.0	0.0	0.0
BT	15.000	10030.000	870.000	870.000	10050.000	868.600	868.600	10133.000	867.600	367.600	
BT	10138.000	867.500	864.400	10147.500	867.400	864.400	10148.797	867.400	865.700	10149.797	
BT	867.400	866.600	10150.000	867.400	866.900	10151.199	867.400	866.600	10152.199	867.400	
BT	855.700	10152.500	867.400	864.400	10157.000	867.400	864.400	10150.000	867.300	867.300	
BT	10250.000	866.600	866.600	10380.000	870.000	870.000	0.0	0.0	0.0	0.0	
-X1	4.501	0.0	0.0	0.0	22.000	22.000	0.0	0.0	0.0	0.0	0.0
X2	0.0	0.0	0.0	865.900	865.600	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.065	0.065	0.045	0.300	0.500	0.0	0.0	0.0	0.0	0.0	0.0
X1	4.503	0.0	0.0	0.0	4.000	4.000	0.0	0.0	0.0	0.0	0.0

X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	854.400	864.400	0.0
X1	4.512	9.900	10133.000	10160.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	870.000	10030.000	868.900	10050.000	867.900	10133.000	864.700	10138.000	862.200	10150.000
GR	864.700	10157.000	867.700	10160.000	866.900	10250.000	870.000	10380.000	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	4.630	10.000	10024.000	10067.000	615.000	615.000	615.000	0.0	0.0	0.0
GR	871.900	10000.000	876.000	10012.000	875.800	10024.000	867.900	10044.000	866.100	10047.000
GR	866.000	10054.000	867.900	10055.000	872.300	10067.000	871.800	10112.000	873.000	10240.000
X1	4.780	7.000	10129.000	10182.000	760.000	760.000	760.000	0.0	0.0	0.0
GR	876.600	10000.000	875.800	10129.000	868.300	10153.000	868.600	10169.000	873.800	10182.000
GP	873.800	10225.000	875.000	10240.000	0.0	0.0	0.0	0.0	0.0	0.0
-NC	0.070	0.070	0.058	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	4.907	8.000	10129.000	10182.000	710.000	710.000	710.000	0.0	0.0	0.0
GR	880.000	10000.000	876.500	10129.000	869.000	10153.000	869.300	10169.000	874.500	10182.000
GR	874.500	10225.000	875.700	10233.000	880.000	10750.000	0.0	0.0	0.0	0.0
X1	4.916	9.000	1136.800	1163.200	50.000	50.000	50.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	876.500	876.500	0.0
GR	881.700	10000.000	877.700	1117.000	876.500	1136.800	869.100	1140.500	869.100	1159.500
GR	876.500	1163.200	877.700	1177.000	877.600	1300.000	880.000	1800.000	0.0	0.0
SB	1.090	1.500	2.500	0.0	19.000	0.0	168.000	0.500	0.0	0.0
X1	4.924	0.0	0.0	0.0	40.000	40.000	40.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	876.500	877.600	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	877.700	877.600	0.0
BT	9.000	10000.000	881.700	881.700	1117.000	877.700	877.700	1136.800	877.700	876.500
BT	1140.500	877.700	876.500	1159.500	877.700	876.500	1163.200	877.700	876.500	1177.000
BT	877.700	877.700	1300.000	877.600	877.600	1800.000	880.000	880.000	0.0	0.0
X1	4.933	6.000	10038.000	10101.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	884.700	10000.000	882.200	10038.000	869.300	10064.000	869.100	10078.000	881.500	10101.000
GR	884.100	10170.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	5.040	0.0	0.0	0.0	530.000	530.000	530.000	0.0	0.300	0.0
NC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.060	0.0	0.0	0.0	136.000	136.000	136.000	0.0	0.300	0.0
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	5.069	8.000	136.750	163.250	50.000	50.000	50.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	882.700	882.700	0.0
GR	884.600	0.0	884.000	114.000	882.700	136.750	869.900	137.800	869.900	162.200
GR	882.700	163.250	884.100	179.000	885.600	300.000	0.0	0.0	0.0	0.0
SB	1.000	1.200	2.500	0.0	24.400	0.0	325.800	0.082	0.0	0.0

X1	5.071	0.0	0.0	8.000	8.000	8.000	0.0	0.0	0.0	0.0	0.0	0.0
-X2	0.0	1.000	882.700	883.900	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	883.900	883.900	883.900	0.0	0.0
BT	8.000	0.0	884.600	114.000	884.000	0.0	0.0	136.750	883.900	883.900	882.700	0.0
BT	137.800	883.900	882.700	883.900	882.700	163.250	883.900	883.900	882.700	882.700	179.000	0.0
BT	884.100	884.100	300.000	885.600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.080	6.000	10038.000	10101.000	50.000	50.000	50.000	0.0	0.0	0.0	0.0	0.0
GR	885.600	10000.000	883.100	10038.000	870.200	10064.000	870.000	10078.000	882.400	10101.000	0.0	0.0
GR	885.000	10170.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.050	0.050	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QT	4.000	320.000	510.000	600.000	830.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.152	0.0	0.0	376.000	376.000	376.000	376.000	0.0	0.0	0.500	0.0	0.0
X1	5.161	8.000	10296.500	10303.500	50.000	50.000	50.000	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	886.200	10230.000	883.700	10268.000	878.600	10296.500	870.600	10296.500	870.600	10303.500	0.0	0.0
GR	878.600	10303.500	883.000	10331.000	885.500	10400.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.015	0.015	0.015	0.010	0.010	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.163	14.000	10296.500	10303.500	8.000	8.000	8.000	0.0	0.0	0.0	0.0	0.0
BT	14.000	10000.000	895.100	895.100	10100.000	893.900	893.900	10118.000	893.700	893.700	893.700	0.0
BT	10200.000	892.700	888.200	10267.500	891.800	883.700	10296.500	891.300	878.600	10296.500	0.0	0.0
BT	891.300	878.600	10303.500	891.300	878.600	10303.500	891.300	878.600	10330.500	891.000	0.0	0.0
BT	883.000	10400.000	890.300	885.700	10493.000	889.300	889.300	10500.000	889.200	889.200	0.0	0.0
BT	10600.000	888.000	888.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	895.100	10000.000	893.900	10100.000	893.700	10118.000	888.200	10200.000	883.700	10267.500	0.0	0.0
GR	878.600	10296.500	870.600	10296.500	870.600	10303.500	878.600	10303.500	883.000	10330.500	0.0	0.0
GR	885.700	10400.000	889.300	10493.000	889.200	10500.000	888.000	10600.000	0.0	0.0	0.0	0.0
X1	5.177	0.0	0.0	84.000	84.000	84.000	84.000	0.0	0.0	0.0	0.0	0.0
X2	0.0	0.0	878.600	888.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.050	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.179	8.000	10296.500	10303.500	8.000	8.000	8.000	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	886.200	10230.000	883.700	10268.000	878.600	10296.500	870.600	10296.500	870.600	10303.500	0.0	0.0
-GR	878.600	10303.500	883.000	10331.000	885.500	10400.000	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.188	7.000	10030.000	10079.000	50.000	50.000	50.000	0.0	0.0	0.0	0.0	0.0
GR	884.500	10000.000	883.700	10030.000	870.500	10054.000	870.500	10067.000	878.200	10079.000	0.0	0.0
GR	879.600	10100.000	883.400	10200.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.320	7.000	10030.000	10079.000	680.000	680.000	680.000	0.0	0.0	0.0	0.0	0.0
GR	884.500	10000.000	883.700	10030.000	870.800	10054.000	869.900	10067.000	878.200	10079.000	0.0	0.0
GR	879.600	10100.000	883.400	10200.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.445	7.000	10030.000	10079.000	645.000	645.000	645.000	0.0	0.0	0.0	0.0	0.0



GR	886.000	10000.000	865.200	10030.000	871.400	10054.000	871.400	10067.000	879.700	10079.200
GR	881.100	10100.000	884.900	10200.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	5.454	10.000	10192.000	10208.297	50.000	50.000	50.000	50.000	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	882.800	882.800	0.0
GR	888.600	10000.000	886.400	10100.000	884.800	10166.000	882.800	10192.000	871.500	10192.000
GR	871.500	10208.297	882.800	10208.297	884.200	10230.000	883.900	10300.000	884.500	10400.000
-SB	1.000	1.200	2.500	0.0	16.300	0.0	184.200	0.0	0.0	0.0
X1	5.466	0.0	0.0	0.0	90.000	90.000	90.000	90.000	0.0	0.0
X2	0.0	0.0	1.000	882.800	883.900	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BT	10.000	10000.000	888.600	0.0	10100.000	886.400	0.0	10166.000	884.800	0.0
BT	10192.000	884.300	882.800	10192.000	884.300	882.800	10208.297	884.300	882.800	10208.297
BT	884.300	882.800	10230.000	884.200	0.0	10300.000	883.900	0.0	10400.000	884.500
BT	884.500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.475	7.000	10040.000	10103.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	887.600	10000.000	887.100	10040.000	871.700	10070.000	871.700	10083.000	883.400	10103.000
GR	883.700	10157.000	884.100	10657.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.065	0.065	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	5.520	0.0	0.0	0.0	205.000	205.000	205.000	0.0	0.900	0.0
X1	5.578	0.0	0.0	0.0	310.000	310.000	310.000	0.0	-0.100	0.0
-X1	5.587	14.000	1092.000	1108.500	50.000	50.000	50.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	880.700	880.700	0.0
GR	884.700	1000.000	885.000	1065.000	872.500	1092.000	871.200	1092.200	871.200	1093.100
GR	871.200	1096.100	871.200	1100.000	871.200	1104.100	871.200	1107.100	871.200	1108.300
GR	872.500	1108.500	884.500	1132.000	883.200	1200.000	884.000	1420.000	0.0	0.0
NC	0.025	0.025	0.025	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.588	0.0	0.0	0.0	3.000	3.000	3.000	0.0	0.0	0.0
BT	14.000	1000.000	884.700	884.700	1065.000	885.000	885.000	1092.000	885.200	872.500
BT	1092.200	885.200	874.600	1093.100	885.200	876.600	1096.100	885.200	879.600	1100.000
BT	885.200	880.700	1104.100	885.200	879.600	1107.100	885.200	876.600	1108.300	885.200
BT	874.600	1108.500	885.200	872.500	1132.000	884.500	884.500	1200.000	883.200	883.200
BT	1420.000	884.000	884.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	5.598	0.0	0.0	0.0	54.000	54.000	54.000	0.0	0.0	0.0
X2	0.0	0.0	0.0	880.700	883.200	0.0	1.000	0.0	0.0	0.0
NC	0.065	0.065	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0
-X1	5.599	0.0	0.0	0.0	3.000	3.000	3.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	880.700	880.700	0.0
X1	5.610	10.000	10041.000	10103.000	50.000	50.000	50.000	0.0	0.0	0.0