



# COMBINED DESIGN REPORT

Volume 2 of 3  
Combined Design Report

## ILLINOIS ROUTE 47 (FAP 326)

### Reed Road to US 14



**P-91-101-07**

**McHenry County, Illinois**

***IDOT – Division of Highways – District One***

***September 2017***

## ENGINEERING DESIGN

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**APPENDIX A-1**  
**DESIGN CRITERIA CHECKLIST**



## Level Two Design Criteria Checklist

Key Route: F.A.P. Route 47

Marked Route/Road Name: Illinois Route 47

State Job No.: P-91-101-07 Contract No.: \_\_\_\_\_

Functional Classification: Strategic Regional Arterial Highway Type: Rural/Suburban Arterial

County(ies): McHenry Project Length: 7.6 miles (40,425 feet)

City: Dorr and Grafton townships Section: \_\_\_\_\_

Project Location: IL Route 47 - Reed Road to U.S. 14

### **Project Scope of Work**

- a. Check the appropriate box. See Section 31-6 for definitions.

☐ 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:

Reconstruction of 7.6 miles with two lanes in each direction separated by a raised-curb median in the suburban section and wide depressed median in rural areas. Accommodations for an 8-foot multi-use path and 5 feet sidewalk are also provided throughout the project limits.

In the suburban area starting at Reed Road to Rainsford Drive, there is a 22 feet raised curb median with 10 feet outside shoulders.

In the rural section from Rainsford Drive to Hercules Road, there is a 30 feet wide depressed median with 6 feet inside shoulders. The two lanes in each direction slopes 1/4"/ft (2.0%) at the center of the two lanes with 10 feet outside shoulders and a M-4.24 curb.

In the suburban section between Hercules Road to US 14, the pavement cross slope is 1/4"/ft sloping away from the 18 feet raised curb (B-6.12) median with B-6.24 combination concrete curb and gutter.



Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
1. Basic Design Controls (Chapter 31)			
a. Design speed 50 (Reed to Rainsford-Suburban) mph 60 (Rainsford to Hercules-Rural) (km/h) 45 (Hercules to US 14-Suburban)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Stopping Sight Distance (SSD) application for vertical curves (downgrade adjusted SSD used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Truck SSD (level) (at specific sites)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Level of service (mainline) The design projects the LOS to be B in 2040.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Horizontal Alignment (mainline) (Chapter 32)			
a. Horizontal curvature (minimum radius for selected design speed) 1330 feet (Rural) and 715 feet (Suburban) feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Superelevation rates ( $e_{\max} = 6\%$ )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Superelevation transition lengths Varies, Tangent Runout + SE Runoff Length	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. SSD application at horizontal curves (downgrade adjusted SSD used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Superelevation distribution between tangent and curve (ratio or percent) 67% tangent and 33% curve	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. "Breakover" of outside shoulder on super-elevated curves (percent) 8%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

Design Criteria (Provide numerical values, where indicated.)	Does the proposed design meet the criteria?		
	Yes	No	N/A
i. Is superelevation transition length located off of bridges and bridge approach pavements? There is no superelevation near the Kishwaukee River crossing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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) 3.96% (Rural) and 1.34% (Suburban)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. SSD at crest vertical curves (level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. SSD at sag vertical curves (level SSD for passenger cars)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Minimum grades (in percent) considering drainage 0.50% (Rural) and 0.40% (Suburban)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Critical length of grade Design per BDE Figure 33-2A	<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 3V, where V is the design speed in mph (km/hr)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Maximum length of vertical curves (drainage of curbed facilities and bridges) 760 feet	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Cross Section Elements (mainline) (Chapter 34)			
a. Lane widths 12 feet (meters)	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Cross-slopes on through lanes (in percent):			
Inside lane    Lane 1 <u>-2.0%</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Outside lanes Lane 2 <u>2.0%</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lane 3    _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Lane 4    _____	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Shoulder widths <u>6</u> feet (meters)(inside)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>10</u> feet (meters)(outside)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Design of parking lanes:			
• Cross-slope _____ %	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Width _____ feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Type of curb and gutter used on median			
B-6.24	<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>Towards Gutter</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Direction of cross-slope on gutter <u>6</u> %	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Type of curb and gutter used along outside edges of pavement <u>M-4.24</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Two Way Left Turn Lane (TWLTL) width:			
• Flush type _____ feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Traversable type _____ feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Median widths:			
• Urban _____ feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Suburban <u>Either 18 or 22</u> feet (meters)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Rural <u>30</u> feet (meters)	<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>3:1</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>3:1</u> • Depth <u>Varies</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Widths <u>4 feet</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Median ditch:			
• Slopes <u>2 feet</u> • Depth <u>4:1</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Width <u>Varies</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Cross-section transitions into bridges/ underpasses	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
o. Use of mountable curbs (V > 45 mph (70 km/h)) M-4.24	<input checked="" type="checkbox"/>	<input 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 (identify vehicle) <u>WB-65</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Level of service:			
• Through lanes <u>C</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Turn lanes <u>D</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Skew angle  The angle is more than 15 degrees at Lucas Road, but less than 30 degrees	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Profiles  All profiles meet design criteria.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Volume guidelines for turn-lanes:			
• Right-turns	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Left turns	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Design of right-turn lanes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design of left-turn lanes	<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
g. Turn-lane tapers	Approach taper		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Departure taper		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Bay taper		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Turning roadway widths 12 feet			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Turn-lane lengths	Deceleration (rural)	530 ft (Stop)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Storage (urban)	The storage length is only 137.4 feet between Willowbrooke and US 14	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j. Intersection sight distance: List criteria and type <u>Minor road turns onto</u> <u>Major roadway; truck (rural) and SU (urban)</u>			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
k. Median opening length <u>Varies, Per BDE Sec 36-4.04(b)</u> feet (meters)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Minimum corner island size <u>100 (Rural) and 50 (Urban)</u> sq. ft (sq. m)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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, however, the minimum width is 12 feet (meters)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. Type of traffic control:			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Two-way stop All except IL Route 176			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• All-way stop			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Traffic signals Illinois Route 176					
p. Is maximum grade exceeded on any approach? The maximum grade does NOT exceed any approach.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. Max. superelevation "e" (in percent) for intersections on curve 5%			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 30 feet			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Clear zones on outside of horizontal curves			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Barrier warrants					
Where clear zone width not met, guardrail was added.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Barrier length of need					
To be designed in Phase II			<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
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                                      feet (meters)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Pavement Design (Chapter 54)			
a. Structural capacity of roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note: Use multiple forms for each roadway within the project.

Prepared by: Stan Wang, AECOM Date: 9/12/17  
 Designer (IDOT) or Consultant Signature

**APPENDIX A-2**  
**DESIGN EXCEPTION FORMS**

**IL Route 47 from Reed Road to US 14  
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<b>Design Exception Table</b>				
<b>Level One Design Exceptions</b>				
<b>#</b>	<b>Proposed Design</b>	<b>BDE Standard</b>	<b>Location</b>	<b>Reason for Exception</b>
1	Lane 1: -2.0%; Lane 2: +2.0%	Through Lane Cross Slopes: Lane 1: +2.0%; Lane 2: +2.0%; (BDE 34-2.01(b)); Travel Lane Cross Slope +2.0% (BDE Figure 46-3E)	IL RTE 47: Sta. 381+00 to 716+00	Sloping of inside lanes to the median improves the water quality in an environmentally sensitive area. The median has shoulders and is depressed. Inlets have been placed in the median to minimize the potential of pavement flooding.
2	R=275-feet	Minimum Radius for Horizontal Curve on Local Street: Rmin=835-feet (50-mph Design Speed) (BLRSM Figure 29-2B)	Pleasant Valley Road: Proposed Curve Pleasant-1; Sta. 2133+27.91 to 2134+49.31	Pleasant Valley Road is a local road that will be reconstructed by the local agency at a future date. The proposed 275-foot curve is necessary in order to avoid the acquisition of a residential property. The proposed curve will be advisory posted for 30-mph. Potential mitigation to address the design exception includes advisory posting Pleasant Valley Road for 30-mph in conformance with Rmin=275-feet for 30-mph design speed.
3	R=120-feet	Minimum Radii for Horizontal Curves on Local Street (BLRSM Figure 29-2C and Figure 29-3C): Rmin=125-feet (20-mph Design Speed; emax=4.0%)	Swanson Road: Proposed Curves: Prswanson-1 Sta. 503+91.66 to 505+27.88 to 104+00.75; Prswanson-2 Sta. 505+85.00 to 507+19.86	Swanson Road is a local street with low traffic volumes. The curves will be advisory posted at 20-mph consistent with the proposed radii of 120-feet. Both curves are proximate to a stop condition at its intersection with IL-176. Right-of-way is constrained by a commercial business and by ComEd transmission line towers. Per BRLSM Section 29-4.03(b), e(max) set at 4.0%. Through lanes are widened to 15-feet through the curves to accommodate turning vehicles. Potential mitigation to address the design exception includes advisory posting Swanson Road for 20-mph consistent with the proposed 120-foot radii for the curves.

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4	Distance between PT and PC of Reverse Curves = 57.12-feet	Minimum Tangent Distance Between PT and PC of Reverse Curves on Local Street: for Continuously Rotating Plane = 121.5-feet – (BLRSM Equation 29-3.4)	Swanson Road: Proposed Curves: Prswanson-1 Sta. 503+91.66 to 505+27.88 to 104+00.75; Prswanson-2 Sta. 505+85.00 to 507+19.86	Swanson Road is a local street with low traffic volumes. The curves will be advisory posted at 20-mph consistent with the proposed radii of 120-feet. Both curves are proximate to a stop condition at its intersection with IL-176. Right-of-way is constrained by a commercial business and by ComEd transmission line towers. Per BRLSM Section 29-4.03(b), e(max) set at 4.0%. Through lanes are widened to 15-feet through the curves to accommodate turning vehicles. Potential mitigation to address the design exception includes advisory posting Swanson Road for 20-mph consistent with the proposed 120-foot radii for the curves.
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**Level 2 Design Exceptions**

#	Proposed Design	BDE Standard	Location	Reason for Exception
5	K=206	Vertical Curve K-values > 167 on Curbed Roadways: Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)	IL RTE 47: VPI Sta. 732+85.00	Longitudinal profile grades of at least 0.3% are provided with 2.0% pavement cross slopes. The potential for travel lane ponding is nonexistent due to the presence of shoulders between the outside travel lanes and the proposed mountable curb and gutters.
6	K=205	Vertical Curve K-values > 167 on Curbed Roadways: Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)	IL RTE 47: VPI Sta. 738+00.00	Longitudinal profile grades of at least 0.3% are provided with 2.0% pavement cross slopes. The potential for travel lane ponding is nonexistent due to the presence of shoulders between the outside travel lanes and the proposed mountable curb and gutters.
7	K=168	Vertical Curve K-values > 167 on Curbed Roadways: Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)	IL RTE 47: VPI Sta. 742+00.00	Longitudinal profile grades of at least 0.3% are provided with 2.0% pavement cross slopes. The potential for travel lane ponding is nonexistent due to the presence of shoulders between the outside travel lanes and the proposed mountable curb and gutters.

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8	K=188	Vertical Curve K-values > 167 on Curbed Roadways: Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)	IL RTE 47: VPI Sta. 744+00.00	Longitudinal profile grades of at least 0.3% are provided with 2.0% pavement cross slopes. The potential for travel lane ponding is nonexistent due to the presence of shoulders between the outside travel lanes and the proposed mountable curb and gutters.
9	30-feet	Depressed Rural Median Width: Greater Than or Equal to 40-feet; (BDE Figure 34-3.A)	IL RTE 47: proposed rural typical section of mainline roadway: Sta. 381+00 to 617+89; Sta. 640+88 to 718+00	Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. Applying the design exception saves approximately 8-acres of wetland impacts. The design exception minimizes the levels of environmental impacts. The proposed 30-foot rural median matches the existing/proposed 18-foot urban median and the project termini when the two 6-foot shoulders are tapered to zero. The clear width between the innermost northbound and southbound travel lanes is 30-feet e-e. Potential mitigation to address the design exception includes the use of cable barrier protection.
10	Back-to-back left turn storage bays of 137.4-feet	Left Turn Lane Storage Lengths: 185-foot minimum storage length (45-mph design speed); (BDE Figure 36-3.I)	IL RTE 47: between US 14 and Willow Brook Drive; Sta. 768+01 to 772+77	It is physically impossible to maintain access to existing roadways and maintain minimum distance between the storage bays due to the location of the existing roadways. Eliminating the southbound to eastbound left turn lane to Willow Brooke Drive, in favor of applying the full design requirements to the northbound to westbound left turn at US-14 would modify traffic patterns in the area, and create a public inconvenience for those users accustomed to full access at Willow Brooke Drive. Potential mitigation to address the design exception includes effective storage of the left turn bays are 204-feet which includes one-third of the 200-foot taper length (66.7-feet). The opening to the left turn storage bays are 8-feet in width at a distance of 66.7-feet from the end of the storage bays. The effective storage of 204-feet meets the minimum 185-foot requirement for the stop condition.

**IL Route 47 from Reed Road to US 14**

**McHenry County**

**Job No. P-91-101-07**

11	14 foot V-shaped drainage swales at 6:1 (16.7%) slopes between back of curb and proposed multi-use path or 5-foot sidewalk	Outside Roadway Ditch: 3 to 10-foot shelves at 5% cross slopes behind back of curb before sidewalk or drainage swale at variable depths; (BDE Figure 34-4.B)	IL-47: Sta. 718+00 to 745+92.31; and Sta. 752.84.98 to 773+19.98	Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. The 14 foot V-shaped drainage swales at 6:1 (16.7%) slopes between back of curb and proposed multi-use path or sidewalk are required to pick up localized drainage.
12	4:1 median slopes	Rural Median Ditch Slopes: 5:1 median slopes; (BDE 34-3.04(c))	IL RTE 47: Regions of the mainline roadway where left-turn channelization is present: Sta. 374+68 to 380+33 Sta. 393+70 to 406+40 Sta. 416+46 to 428+83 Sta. 447+35 to 460+85 Sta. 473+15 to 485+70 Sta. 511+99 to 524+79 Sta. 551+74 to 564+72 Sta. 569+49 to 581+99 Sta. 589+72 to 606+25 Sta. 627+80 to 633+40 Sta. 652+34 to 665+14 Sta. 685+10 to 697+76 Sta. 720+58 to 729+35 Sta. 734+23 to 742+81 Sta. 754+90 to 758+73 Sta. 763+02 to 772+77	Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. Approximately 8-acres of wetland impacts are eliminated. The design exception values minimize the levels of environmental impacts.
13	Intersection Sight Distance: 845 ft (BDE Figure 36-6.E)	530 ft	Rainsford Dr. right-turn onto northbound IL Route 47	Due to the horizontal curve south of this intersection, vehicles turning right from Rainsford Dr. onto northbound IL 47 may not be able to see the approaching vehicles for the entire length of the required ISD. Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic impacts. Adjusting the alignment of IL 47 would require additional ROW from commercial properties adjacent to IL 47 south of Rainsford Dr as well as affecting the signalized intersection of IL 47 and Reed Rd to the south.

**IL Route 47 from Reed Road to US 14**

**McHenry County**

**Job No. P-91-101-07**

14	Intersection Sight Distance: 1350 ft (BDE Figure 36-6.E)	852 ft	Pleasant Valley Road left-turn onto northbound IL 47.	Due to the horizontal curve south of this intersection, vehicles turning right from Pleasant Valley Rd. onto northbound IL 47 may not be able to see the approaching vehicles for the entire length of the required ISD. Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts in order to either re-align Pleasant Valley Rd further to the north or to adjust the IL 47 horizontal curve at the intersection of IL 176.
15	K=180	Maximum K - value for Drainage on Curbed Roadways is 167; BDE 33 - 4.A	IL RTE 47: VPI Sta. 581+60.00	The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and wetlands. The need to have a minimum grade-line of 0.3% grade for drainage purposes is met within this section.
16	K=190	Maximum K - value for Drainage on Curbed Roadways is 167; BDE 33 - 4.A	IL RTE 47: VPI Sta. 630+00.00	The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and wetlands. The need to have a minimum grade-line of 0.3% grade for drainage purposes is met within this section.
17	K=64	Minimum K - value is 151 for 60 mph design speed; BDE 33 - 4.B	IL RTE 176 (East Leg): Sta. 302+10.00	The design of the vertical curve results in a K - value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.
18	SSD = 375'	Minimum sight distance is 570 for 60 mph and level - grade; BDE Figure 33 - 4.B	IL RTE 176 (East Leg): Sta. 302+10.00	The design of the vertical curve results in a stopping sight distance that is less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.
19	K=187	Maximum K - value for Drainage on Curbed Roadways is 167; BDE 33 - 4.A	IL RTE 176 (West Leg): Sta. 416+80.00	The design of the vertical curve results in a K - value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

**IL Route 47 from Reed Road to US 14  
McHenry County  
Job No. P-91-101-07**

20	K=69	Minimum K - value is 151 for 60 mph design speed; BDE 33 - 4.B	IL RTE 176 (West Leg): Sta. 426+75.00	The design of the vertical curve results in a stopping sight distance that is less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.
21	2.7 feet	3.0 feet	Sta. 398+00	Can't raise roadway profile due to wetlands & wildlife impacts. Increasing the proposed structure size will not increase freeboard value due to natural high-water elevation. There are no reports of flooding at this location. 100-year edge of pavement protection will be provided. Sloping of inside lanes to the median improves the water quality in an environmentally sensitive area. The median has shoulders and is depressed. Inlets have been placed in the median to minimize the potential of pavement flooding.





<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**

Reed Road to US-14

**Project Length**

7.6-miles (40,425-feet)

**Current Posted Speed**

40-55-mph

**FHWA Oversight?**

☐ Yes ☒ No

<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 28,000	<b>Design Traffic DHV</b> AM 2,105 PM 2,250
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**

Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

**EXCEPTION DOCUMENTATION**

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Through Lane Cross Slopes

**Design Element Policy Value**

Lane 1: +2.0%; Lane 2: +2.0%; Lane 3+: +2.5% - BDE 34-2.01(b); 2% for Two Lanes Adjacent to Median - BDE Figure 46-3E

**Proposed Design Element Value**

Lane 1: -2.0%; Lane 2: +2.0%

**Location(s) of Exception**

Sta. 381+00 to 716+00

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% segment for 2008 to 2012; however, the split intersection of IL176 was a 5% location in 2010. Proposed scope of work will improve the safety and operations related to this exception request.

**Cost of Using Policy Value**

\$0.00

**Cost of Using Proposed Exception Value**

\$0.00

**Impacts Other Than Cost of Using Policy Value**

Sloping of inside lanes to the median improves the water quality in an environmentally sensitive area.

**Proposed Mitigation to Address Exception**

Use of a skid-resistant pavement surfaces in areas of cross slope design variances; Inlet spacing designed to ensure no standing water encroachments in areas of cross slope variances.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Sloping of inside lanes to the median improves the water quality in an environmentally sensitive area. The median has shoulders and is depressed. Inlets have been placed in the median to minimize the potential of pavement flooding.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**

Reed Road to US-14

**Project Length**

7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 5,000	<b>Design Traffic DHV</b> AM 380 PM 345
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**

Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

**EXCEPTION DOCUMENTATION**

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Minimum Radius for Horizontal Curve on Local Street

**Design Element Policy Value**

Rmin=835-feet for 50-mph Design Speed and e(max)=6.0%; BLRSM Figure 29-2B

**Proposed Design Element Value**

R=275-feet

**Location(s) of Exception**

Proposed Curve Pleasant-1; Sta. 2133+27.91 to 2134+49.31

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

**Cost of Using Policy Value**

\$200,000.00

**Cost of Using Proposed Exception Value**

\$0.00

**Impacts Other Than Cost of Using Policy Value**

None

**Proposed Mitigation to Address Exception**

Curve will be advisory posted for 30-mph in conformance with Rmin=275-feet for 30-mph design speed.

**Geometric Compatibility with Adjacent Sections**

Proposed curve is geometrically compatible with the existing horizontal alignment.

**Potential Effects on Other Design Elements**

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Pleasant Valley Road is a local road that will be reconstructed by the local agency at a future date. The proposed 275-foot curve is necessary in order to avoid the acquisition of a residential property. The proposed curve will be advisory posted for 30-mph.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	
<b>Project Limits</b> Reed Road to US-14				
<b>Project Length</b> 7.6-miles (40,425-feet)		<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 500	<b>Design Traffic DHV</b> AM 40 PM 20
<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction		
<b>Brief Project Description</b> Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.				

**EXCEPTION DOCUMENTATION**

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**  
Minimum Radii for Horizontal Curves on Local Street

**Design Element Policy Value**  
Low Speed Urban (BLRSM 29-4): Rmin=125-feet for 20-mph Design Speed and e(max)=4.0% - BLRSM Figure 29-3C

**Proposed Design Element Value**  
R=120-feet for 20-mph Design Speed and e(max)=4.0%

**Location(s) of Exception**  
Proposed Curves: Prswanson-1 Sta. 503+91.66 to 505+27.88; Prswanson-2 Sta. 505+85.00 to 507+19.86

**Crash History and Potential of Exception Location(s)**  
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b> \$2,000,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
None

**Proposed Mitigation to Address Exception**  
Curve will be advisory posted at 20-mph consistent with the proposed 120-foot radii for the curves.

**Geometric Compatibility with Adjacent Sections**  
Proposed curve is compatible with adjacent sections.

**Potential Effects on Other Design Elements**  
None

**Potential Impacts on Mobility or Traffic Operations**  
None

**Summary of Justification for Exception**  
Right-of-way is constrained by a commercial business and by ComEd power line towers.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

PAVEMENT/RESURFACING EXCEPTIONS

<input type="checkbox"/> New Pavement	<input type="checkbox"/> Pavement Widening	<input type="checkbox"/> 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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**  
Reed Road to US-14

<b>Project Length</b> 7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 500	<b>Design Traffic DHV</b> AM 40 PM 20
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**  
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

#### EXCEPTION DOCUMENTATION

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**  
Minimum Radii for Horizontal Curves on Local Street

**Design Element Policy Value**  
Low Speed Urban (BLRSM 29-4): Minimum Tangent Distance Between PT and PC of Reverse Curves for Continuously Rotating Plane of 121.5-feet – BLRSM Equation 29-3.4

**Proposed Design Element Value**  
Distance between PT and PC of Reverse Curves=57.12-feet

**Location(s) of Exception**  
Proposed Curves: Prswanson-1 Sta. 503+91.66 to 505+27.88; Prswanson-2 Sta. 505+85.00 to 507+19.86

**Crash History and Potential of Exception Location(s)**  
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b> \$2,000,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
None

**Proposed Mitigation to Address Exception**  
Curve will be advisory posted at 20-mph consistent with the proposed 120-foot radii for the curves.

**Geometric Compatibility with Adjacent Sections**  
Proposed curve is compatible with adjacent sections.

**Potential Effects on Other Design Elements**  
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Right-of-way is constrained by a commercial business and by ComEd power line towers.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)





<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**

Reed Road to US-14

**Project Length**

7.6-miles (40,425-feet)

**Current Posted Speed**

40-55-mph

**FHWA Oversight?**

☐ Yes ☒ No

<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 26,000	<b>Design Traffic DHV</b> AM 1,615 PM 1,905
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**

Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

**EXCEPTION DOCUMENTATION**

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Vertical Curve K-values > 167 on Curbed Roadways

**Design Element Policy Value**

Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)

**Proposed Design Element Value**

K=206 L=165-feet

**Location(s) of Exception**

VPI Sta. 732+85.00

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

**Cost of Using Policy Value**

\$200,000.00

**Cost of Using Proposed Exception Value**

\$0.00

**Impacts Other Than Cost of Using Policy Value**

None

**Proposed Mitigation to Address Exception**

Shoulders adjacent to outside travel lanes and mountable curb and gutter.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and the need to to have a minimum gradeline of 0.3% grade for drainager purposes within this urban section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**

Reed Road to US-14

**Project Length**

7.6-miles (40,425-feet)

**Current Posted Speed**

40-55-mph

**FHWA Oversight?**

☐ Yes ☒ No

<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 26,000	<b>Design Traffic DHV</b> AM 1,615 PM 1,905
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**

Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

**EXCEPTION DOCUMENTATION**

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Vertical Curve K-values > 167 on Curbed Roadways

**Design Element Policy Value**

Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)

**Proposed Design Element Value**

K=205 L=165-feet

**Location(s) of Exception**

VPI Sta. 738+00.00

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

**Cost of Using Policy Value**

\$200,000.00

**Cost of Using Proposed Exception Value**

\$0.00

**Impacts Other Than Cost of Using Policy Value**

None

**Proposed Mitigation to Address Exception**

Shoulders adjacent to outside travel lanes and mountable curb and gutter.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and the need to to have a minimum gradeline of 0.3% grade for drainager purposes within this urban section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**  
Reed Road to US-14

<b>Project Length</b> 7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 26,000	<b>Design Traffic DHV</b> AM 1,630 PM 1,900
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**  
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

#### EXCEPTION DOCUMENTATION

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**  
Vertical Curve K-values > 167 on Curbed Roadways

**Design Element Policy Value**  
Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)

**Proposed Design Element Value**  
K=168 L=135-feet

**Location(s) of Exception**  
VPI Sta. 742+00.00

**Crash History and Potential of Exception Location(s)**  
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b> \$200,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
None

**Proposed Mitigation to Address Exception**  
Shoulders adjacent to outside travel lanes and mountable curb and gutter.

**Geometric Compatibility with Adjacent Sections**  
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**  
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and the need to to have a minimum gradeline of 0.3% grade for drainager purposes within this urban section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**

Reed Road to US-14

**Project Length**

7.6-miles (40,425-feet)

**Current Posted Speed**

40-55-mph

**FHWA Oversight?**

☐ Yes ☒ No

<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 26,000	<b>Design Traffic DHV</b> AM 1,630 PM 1,900
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**

Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

**EXCEPTION DOCUMENTATION**

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Vertical Curve K-values > 167 on Curbed Roadways

**Design Element Policy Value**

Maximum K-value for Drainage on Curbed Roadways is 167; BDE 33-4.01(d); BDE 33-4.02(e)

**Proposed Design Element Value**

K=188 L=150-feet

**Location(s) of Exception**

VPI Sta. 744+00.00

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

**Cost of Using Policy Value**

\$200,000.00

**Cost of Using Proposed Exception Value**

\$0.00

**Impacts Other Than Cost of Using Policy Value**

None

**Proposed Mitigation to Address Exception**

Shoulders adjacent to outside travel lanes and mountable curb and gutter.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and the need to to have a minimum gradeline of 0.3% grade for drainager purposes within this urban section.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)





<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**  
Reed Road to US-14

<b>Project Length</b> 7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 28,000	<b>Design Traffic DHV</b> AM 2,105 PM 2,250
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**  
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

#### EXCEPTION DOCUMENTATION

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**  
Depressed Rural Median Width

**Design Element Policy Value**  
Greater Than or Equal to 40-feet; BDE Figure 34-3.A

**Proposed Design Element Value**  
30-feet

**Location(s) of Exception**  
Proposed rural typical section of mainline roadway; Sta. 381+00 to 718+00.

**Crash History and Potential of Exception Location(s)**  
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% segment for 2008 to 2012; however, the split intersection of IL176 was a 5% location in 2010. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b> \$5,000,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
Policy value impacts other than cost for full width medians include additional ROW acquisition that would result in greater socio-economic and wetland impacts. The design exception values minimize the levels of environmental impacts.

**Proposed Mitigation to Address Exception**  
Use of Cable Barrier

**Geometric Compatibility with Adjacent Sections**  
Matches existing and proposed 18-foot urban median at project termini when the shoulders are tapered to zero feet.

**Potential Effects on Other Design Elements**  
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. Applying the design exception saves approximately 8-acres of wetland impacts. The design exception minimizes the levels of environmental impacts.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**

Reed Road to US-14

**Project Length**

7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 27,000	<b>Design Traffic DHV</b> AM 1,765 PM 2,115
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**

Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

**EXCEPTION DOCUMENTATION**

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Left Turn Lane Storage Lengths

**Design Element Policy Value**

185-foot minimum storage length for 45-mph design speed; BDE Figure 36-3.I

**Proposed Design Element Value**

Back-to-back left turn storage bays of 137.4-feet separated by 200' taper.

**Location(s) of Exception**

IL-47 - between US-14 and Willow Brooke Drive; Sta. 768+01 to 772+77

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. Two were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

**Cost of Using Policy Value**

\$500,000.00

**Cost of Using Proposed Exception Value**

\$0.00

**Impacts Other Than Cost of Using Policy Value**

Eliminating the southbound to eastbound left turn lane to Willow Brooke Drive, in favor of applying the full design requirements to the northbound to westbound left turn at US-14 would slightly modify traffic patterns in the area, and create a public inconvenience for those users accustomed to full access at Willow Brooke Drive.

**Proposed Mitigation to Address Exception**

Effective storage of the left turn bays are 204-feet which includes one-third of the 200-foot taper length (66.7-feet). The opening to the left turn storage bays are 8-feet in width at a distance of 66.7-feet from the end of the storage bays. The effective storage of 204-feet meets the minimum 185-foot requirement for the stop condition.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

It is physically impossible to maintain access to existing roadways and maintain minimum distance between the storage bays due to the location of the existing roadways. Eliminating the southbound to eastbound left turn lane to Willow Brooke Drive, in favor of applying the full design requirements to the northbound to westbound left turn at US-14 would modify traffic patterns in the area, and create a public inconvenience for those users accustomed to full access at Willow Brooke Drive.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**  
Reed Road to US-14

<b>Project Length</b> 7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 27,000	<b>Design Traffic DHV</b> AM 1,595 PM 2,025
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**  
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

#### EXCEPTION DOCUMENTATION

**Level of Exception** ☐ Interstate ☒ Non-Interstate

#### Design Element for Which an Exception is Requested

Outside Roadway Fill Section Shelf and Drainage Swale for Curbed Facilities

#### Design Element Policy Value

3 to 10-foot shelves at 5% cross slopes behind back of curb before sidewalk or drainage swale at variable depths; BDE Figure 34-4.B

#### Proposed Design Element Value

14 foot V-shaped drainage swales at 6:1 (16.7%) slopes between back of curb and proposed multi-use path or 5-foot sidewalk

#### Location(s) of Exception

IL-47: Sta. 718+00 to 745+92.31; and Sta. 752.84.98 to 773+19.98

#### Crash History and Potential of Exception Location(s)

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

#### Cost of Using Policy Value

\$500,000.00

#### Cost of Using Proposed Exception Value

\$0.00

#### Impacts Other Than Cost of Using Policy Value

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. The design exception values minimize the levels of environmental impacts.

#### Proposed Mitigation to Address Exception

None

#### Geometric Compatibility with Adjacent Sections

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

#### Potential Effects on Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. The 14 foot V-shaped drainage swales at 6:1 (16.7%) slopes between back of curb and proposed multi-use path or sidewalk are required to pick up localized drainage.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**

Reed Road to US-14
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**Project Length**

7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 28,000	<b>Design Traffic DHV</b> AM 2,105 PM 2,250
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**

Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.
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**EXCEPTION DOCUMENTATION**

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Rural Median Ditch Bottom Widths and Median Slopes.
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**Design Element Policy Value**

2-foot ditch bottom widths, 5:1 median slopes, variable depths; BDE 34-3.04(C)
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**Proposed Design Element Value**

2-foot ditch bottom widths, and 4:1 and steeper/variable slopes, variable depths
--

**Location(s) of Exception**

Sta. 374+68 to 380+33 Sta. 393+70 to 406+40 Sta. 416+46 to 428+83 Sta. 447+35 to 460+85 Sta. 473+15 to 485+70 Sta. 511+99 to 524+79 Sta. 551+74 to 564+72 Sta. 569+49 to 581+99 Sta. 589+72 to 606+25 Sta. 627+80 to 633+40 Sta. 652+34 to 665+14 Sta. 685+10 to 697+76 Sta. 720+58 to 729+35 Sta. 734+23 to 742+81 Sta. 754+90 to 758+73 Sta. 763+02 to 772+77
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**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.
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**Cost of Using Policy Value**

\$1,000,000.00
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**Cost of Using Proposed Exception Value**

\$0.00
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**Impacts Other Than Cost of Using Policy Value**

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. The design exception values minimize the levels of environmental impacts.

**Proposed Mitigation to Address Exception**

Rounding of ditch bottoms to facilitate conveyance. Geo treatments and Bio-swaling should reduce velocities and erosion.

**Geometric Compatibility with Adjacent Sections**

Transitions to match proposed typical section in areas where channelization is not present.

**Potential Effects on Other Design Elements**

None

**Potential Impacts on Mobility or Traffic Operations**

None

**Summary of Justification for Exception**

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts. Approximately 8-acres of wetland impacts are eliminated. The design exception values minimize the levels of environmental impacts. Proposed ditch depths are 2-feet with that depth needed for water storage of the bio swales.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

**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**

<b>BDE Approval Date</b>	<b>BDE Disapproval Date</b>

**BDE Comments on Disapproval**

<b>FHWA Approval Date (Interstate Only)</b>	<b>FHWA Disapproval Date (Interstate Only)</b>





<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**  
Reed Road to US-14

<b>Project Length</b> 7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 2,000	<b>Design Traffic DHV</b> AM 260 PM 360
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**  
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

#### EXCEPTION DOCUMENTATION

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**  
Intersection Sight Distance for right-turning vehicle from minor street to major street

**Design Element Policy Value**  
845 feet per BDE Figure 36-6.E

**Proposed Design Element Value**  
530 feet

**Location(s) of Exception**  
Rainsford Dr. right-turn to northbound IL 47

**Crash History and Potential of Exception Location(s)**  
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b> \$1,000,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
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**Impacts Other Than Cost of Using Policy Value**  
Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic impacts. The design exception values minimize the levels of environmental impacts and avoids changes to the section of IL 47 that has already been widened.

**Proposed Mitigation to Address Exception**  
None

**Geometric Compatibility with Adjacent Sections**  
Proposed design elements transition and match the existing reconstruction of IL 47 south of Rainsford Dr.

**Potential Effects on Other Design Elements**  
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic impacts. Adjusting the alignment of IL 47 would require additional ROW from commercial properties adjacent to IL 47 south of Rainsford Dr as well as affecting the signalized intersection of IL 47 and Reed Rd to the south.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**  
Reed Road to US-14

<b>Project Length</b> 7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 5,000	<b>Design Traffic DHV</b> AM 380 PM 345
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
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**Brief Project Description**  
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

#### EXCEPTION DOCUMENTATION

**Level of Exception** ☐ Interstate ☒ Non-Interstate

**Design Element for Which an Exception is Requested**  
Intersection Sight Distance for right-turning vehicle from minor street to major street

**Design Element Policy Value**  
1350 feet per BDE Figure 36-6.E

**Proposed Design Element Value**  
852 feet

**Location(s) of Exception**  
Pleasant Valley Rd. left-turn to northbound IL 47

**Crash History and Potential of Exception Location(s)**  
368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b> \$1,000,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
---	---

**Impacts Other Than Cost of Using Policy Value**  
Additional right-of-way would be required and additional impacts to wetlands adjacent to the corridor.

**Proposed Mitigation to Address Exception**  
Re-alignment of Pleasant Valley Rd as part of proposed improvements increase ISD compared to existing.

**Geometric Compatibility with Adjacent Sections**  
Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**  
None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Policy value impacts other than cost include additional ROW acquisition that would result in greater socio-economic and substantial wetland impacts in order to either re-align Pleasant Valley Rd further to the north or to adjust the IL 47 horizontal curve at the intersection of IL 176.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	12/24/2015

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b> FAP 0326	<b>Street</b> 	<b>Marked</b> Illinois Route 47	<b>Contract #</b> 	<b>State Job #</b> P-91-101-07
<b>Section</b> 	<b>County</b> McHenry	<b>Municipality</b> **Grafton Township and Dorr Township		
<b>Local Agency</b> N/A	<b>LRS Section #</b> N/A	<b>Permit Applicant</b> N/A	<b>Permit #</b> N/A	

**Project Limits**  
Reed Road to US-14

<b>Project Length</b> 7.6-miles (40,425-feet)	<b>Current Posted Speed</b> 40-55-mph	<b>FHWA Oversight?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--	---

<b>Estimate of Cost</b> 102,235,894	<b>Functional Classification</b> Other Princ. Arterial (SRA)	<b>Design Yr</b> 2040	<b>Design Traffic ADT</b> 26,000	<b>Design Traffic DHV</b> AM 1110 PM 1310
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<b>On the NHS System?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Structure Numbers</b> 056-0025	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b> Reconstruction
--	--------------------------------------	--

**Brief Project Description**  
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

#### EXCEPTION DOCUMENTATION

**Level of Exception** ☐ Interstate ☒ Non-Interstate  
**Design Element for Which an Exception is Requested**  
 Vertical Curve K-values > 167

**Design Element Policy Value**  
 Maximum K-value for Drainage on Curbed Roadways is 167; BDE Figure 33-4.A

**Proposed Design Element Value**  
 K=180 L=190-feet

**Location(s) of Exception**  
 VPI Sta. 630+00.00

**Crash History and Potential of Exception Location(s)**  
 368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b> \$200,000.00	<b>Cost of Using Proposed Exception Value</b> \$0.00
---	---

**Impacts Other Than Cost of Using Policy Value**  
 Impacts to ROW and wetlands.

**Proposed Mitigation to Address Exception**  
 None.

**Geometric Compatibility with Adjacent Sections**  
 Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**  
 None

**Potential Impacts on Mobility or Traffic Operations**

None

**Summary of Justification for Exception**

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and wetlands. The need to have a minimum gradeline of 0.3% grade for drainage purposes is met within this section.

**Coordination Meeting Date****Prepared By****Date**

Kirsten Mawhinney, P.E., AECOM

09-12-2016

**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****BDE Disapproval Date****BDE Comments on Disapproval****FHWA Approval Date (Interstate Only)****FHWA Disapproval Date (Interstate Only)**



<b>Route</b>	<b>Street</b>	<b>Marked</b>	<b>Contract #</b>	<b>State Job #</b>
FAP 0326		Illinois Route 47		P-91-101-07
<b>Section</b>	<b>County</b>	<b>Municipality</b>		
	McHenry	**Grafton Township and Dorr Township		
<b>Local Agency</b>	<b>LRS Section #</b>	<b>Permit Applicant</b>	<b>Permit #</b>	
N/A	N/A	N/A	N/A	
<b>Project Limits</b>				
Reed Road to US-14				
<b>Project Length</b>		<b>Current Posted Speed</b>	<b>FHWA Oversight?</b>	
7.6-miles (40,425-feet)		40-55-mph	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>Estimate of Cost</b>	<b>Functional Classification</b>	<b>Design Yr</b>	<b>Design Traffic ADT</b>	<b>Design Traffic DHV</b>
102,235,894	Other Princ. Arterial (SRA)	2040	26,000	AM 450    PM 785
<b>On the NHS System?</b>	<b>Structure Numbers</b>	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b>		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	056-0025	Reconstruction		

**Brief Project Description**

Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.

**EXCEPTION DOCUMENTATION**

**Level of Exception**    ☐ Interstate    ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Vertical Curve K-values < 151

**Design Element Policy Value**

Minimum K-value for Drainage is 151 BDE Figure 33-4.B

**Proposed Design Element Value**

K= 64 L= 320-feet

**Location(s) of Exception**

VPI Sta. 302+10.00 on IL RTE 176 (east leg)

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Exception Value</b>
\$400,000.00	\$0.00

**Impacts Other Than Cost of Using Policy Value**

Impacts to ROW and wetlands.

**Proposed Mitigation to Address Exception**

None.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

**Potential Impacts on Mobility or Traffic Operations**

None

**Summary of Justification for Exception**

The design of the vertical curve results in a K-value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

Coordination Meeting Date	Prepared By	Date
<input type="text"/>	Kirsten Mawhinney, P.E., AECOM	09-12-2016

**PAVEMENT/RESURFACING EXCEPTIONS**

☐ New Pavement      ☐ Pavement Widening      ☐ Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Design Element Policy Value	Proposed Design Element Value
<input type="text"/>	<input type="text"/>

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value
<input type="text"/>	<input type="text"/>

Summary of Justification

Prepared By	Date
<input type="text"/>	<input type="text"/>

**APPROVAL/DISAPPROVAL**

BDE Approval Date	BDE Disapproval Date
<input type="text"/>	<input type="text"/>

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)
<input type="text"/>	<input type="text"/>





<b>Route</b>	<b>Street</b>	<b>Marked</b>	<b>Contract #</b>	<b>State Job #</b>
FAP 0326		Illinois Route 47		P-91-101-07
<b>Section</b>	<b>County</b>	<b>Municipality</b>		
	McHenry	**Grafton Township and Dorr Township		
<b>Local Agency</b>	<b>LRS Section #</b>	<b>Permit Applicant</b>	<b>Permit #</b>	
N/A	N/A	N/A	N/A	
<b>Project Limits</b>				
Reed Road to US-14				
<b>Project Length</b>		<b>Current Posted Speed</b>	<b>FHWA Oversight?</b>	
7.6-miles (40,425-feet)		40-55-mph	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>Estimate of Cost</b>	<b>Functional Classification</b>	<b>Design Yr</b>	<b>Design Traffic ADT</b>	<b>Design Traffic DHV</b>
102,235,894	Other Princ. Arterial (SRA)	2040	26,000	AM 545    PM 525
<b>On the NHS System?</b>	<b>Structure Numbers</b>	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b>		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	056-0025	Reconstruction		
<b>Brief Project Description</b>				
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.				

**EXCEPTION DOCUMENTATION**

Level of Exception    ☐ Interstate    ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Vertical Curve K-values > 167

**Design Element Policy Value**

Maximum K-value is 167 for drainage on curbed roadways per BDE Figure 33-4.A

**Proposed Design Element Value**

K= 176 L= 190-feet

**Location(s) of Exception**

VPI Sta. 416+80.00 on IL RTE 176 (west leg)

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Exception Value</b>
\$400,000.00	\$0.00

**Impacts Other Than Cost of Using Policy Value**

Impacts to ROW and wetlands.

**Proposed Mitigation to Address Exception**

None.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

**Potential Impacts on Mobility or Traffic Operations**

None

**Summary of Justification for Exception**

The design of the vertical curve results in a K-value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	09-12-2016

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)



<b>Route</b>	<b>Street</b>	<b>Marked</b>	<b>Contract #</b>	<b>State Job #</b>
FAP 0326		Illinois Route 47		P-91-101-07
<b>Section</b>	<b>County</b>	<b>Municipality</b>		
	McHenry	**Grafton Township and Dorr Township		
<b>Local Agency</b>	<b>LRS Section #</b>	<b>Permit Applicant</b>	<b>Permit #</b>	
N/A	N/A	N/A	N/A	
<b>Project Limits</b>				
Reed Road to US-14				
<b>Project Length</b>		<b>Current Posted Speed</b>	<b>FHWA Oversight?</b>	
7.6-miles (40,425-feet)		40-55-mph	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>Estimate of Cost</b>	<b>Functional Classification</b>	<b>Design Yr</b>	<b>Design Traffic ADT</b>	<b>Design Traffic DHV</b>
102,235,894	Other Princ. Arterial (SRA)	2040	26,000	AM 450    PM 785
<b>On the NHS System?</b>	<b>Structure Numbers</b>	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b>		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	056-0025	Reconstruction		
<b>Brief Project Description</b>				
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.				

**EXCEPTION DOCUMENTATION**

**Level of Exception**    ☐ Interstate    ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Stopping sight distance < 570

**Design Element Policy Value**

Minimum stopping sight distance is 570-feet per BDE Figure 33-4.B

**Proposed Design Element Value**

SSD = 385

**Location(s) of Exception**

VPI Sta. 302+10.00 on IL RTE 176 (east leg)

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Exception Value</b>
\$400,000.00	\$0.00

**Impacts Other Than Cost of Using Policy Value**

Impacts to ROW and wetlands.

**Proposed Mitigation to Address Exception**

None.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

**Potential Impacts on Mobility or Traffic Operations**

None

**Summary of Justification for Exception**

The design of the vertical curve results in a K-value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

<b>Coordination Meeting Date</b>	<b>Prepared By</b>	<b>Date</b>
<input type="text"/>	Kirsten Mawhinney, P.E., AECOM	09-12-2016

**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>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

<b>Design Element Policy Value</b>	<b>Proposed Design Element Value</b>
<input type="text"/>	<input type="text"/>

**Location(s) of Exception**

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Element Value</b>
<input type="text"/>	<input type="text"/>

**Summary of Justification**

<b>Prepared By</b>	<b>Date</b>
<input type="text"/>	<input type="text"/>

**APPROVAL/DISAPPROVAL**

<b>BDE Approval Date</b>	<b>BDE Disapproval Date</b>
<input type="text"/>	<input type="text"/>

**BDE Comments on Disapproval**

<b>FHWA Approval Date (Interstate Only)</b>	<b>FHWA Disapproval Date (Interstate Only)</b>
<input type="text"/>	<input type="text"/>



<b>Route</b>	<b>Street</b>	<b>Marked</b>	<b>Contract #</b>	<b>State Job #</b>
FAP 0326		Illinois Route 47		P-91-101-07
<b>Section</b>	<b>County</b>	<b>Municipality</b>		
	McHenry	**Grafton Township and Dorr Township		
<b>Local Agency</b>	<b>LRS Section #</b>	<b>Permit Applicant</b>	<b>Permit #</b>	
N/A	N/A	N/A	N/A	
<b>Project Limits</b>				
Reed Road to US-14				
<b>Project Length</b>		<b>Current Posted Speed</b>	<b>FHWA Oversight?</b>	
7.6-miles (40,425-feet)		40-55-mph	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>Estimate of Cost</b>	<b>Functional Classification</b>	<b>Design Yr</b>	<b>Design Traffic ADT</b>	<b>Design Traffic DHV</b>
102,235,894	Other Princ. Arterial (SRA)	2040	26,000	AM 1080    PM 1140
<b>On the NHS System?</b>	<b>Structure Numbers</b>	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b>		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	056-0025	Reconstruction		
<b>Brief Project Description</b>				
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.				

**EXCEPTION DOCUMENTATION**

**Level of Exception**    ☐ Interstate    ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Vertical Curve K-values > 167

**Design Element Policy Value**

Maximum K-value for Drainage on Curbed Roadways is 167; BDE Figure 33-4.A

**Proposed Design Element Value**

K=180 L=180-feet

**Location(s) of Exception**

VPI Sta. 581+60.00

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Exception Value</b>
\$200,000.00	\$0.00

**Impacts Other Than Cost of Using Policy Value**

Impacts to ROW and wetlands.

**Proposed Mitigation to Address Exception**

None.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

**Potential Impacts on Mobility or Traffic Operations**

None

**Summary of Justification for Exception**

The minimum vertical curve length is proposed at this location, which results in a K-value greater than the maximum. The proposed profile is constrained by ROW limitations, existing development and wetlands. The need to have a minimum gradeline of 0.3% grade for drainage purposes is met within this section.

**Coordination Meeting Date****Prepared By****Date**

Kirsten Mawhinney, P.E., AECOM

09-12-2016

**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****BDE Disapproval Date****BDE Comments on Disapproval****FHWA Approval Date (Interstate Only)****FHWA Disapproval Date (Interstate Only)**



<b>Route</b>	<b>Street</b>	<b>Marked</b>	<b>Contract #</b>	<b>State Job #</b>
FAP 0326		Illinois Route 47		P-91-101-07
<b>Section</b>	<b>County</b>	<b>Municipality</b>		
	McHenry	**Grafton Township and Dorr Township		
<b>Local Agency</b>	<b>LRS Section #</b>	<b>Permit Applicant</b>	<b>Permit #</b>	
N/A	N/A	N/A	N/A	
<b>Project Limits</b>				
Reed Road to US-14				
<b>Project Length</b>		<b>Current Posted Speed</b>	<b>FHWA Oversight?</b>	
7.6-miles (40,425-feet)		40-55-mph	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>Estimate of Cost</b>	<b>Functional Classification</b>	<b>Design Yr</b>	<b>Design Traffic ADT</b>	<b>Design Traffic DHV</b>
102,235,894	Other Princ. Arterial (SRA)	2040	26,000	AM 545    PM 525
<b>On the NHS System?</b>	<b>Structure Numbers</b>	<b>Type of Project (Construction, Reconstruction, 3R, HES, etc.)</b>		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	056-0025	Reconstruction		
<b>Brief Project Description</b>				
Reconstruction of IL-47 from 2-lane undivided to a 4-lane divided highway.				

**EXCEPTION DOCUMENTATION**

Level of Exception    ☐ Interstate    ☒ Non-Interstate

**Design Element for Which an Exception is Requested**

Vertical Curve K-values < 151

**Design Element Policy Value**

Minimum K-value for is 151 per BDE Figure 33-4.B

**Proposed Design Element Value**

K= 69 L= 340-feet

**Location(s) of Exception**

VPI Sta. 426+75.00 on IL RTE 176 (west leg)

**Crash History and Potential of Exception Location(s)**

368 total crashes between 2008 and 2012. None were related to this Design Exception. It was not a 5% location for 2008 to 2012. Proposed scope of work will improve the safety and operations related to this exception request.

<b>Cost of Using Policy Value</b>	<b>Cost of Using Proposed Exception Value</b>
\$400,000.00	\$0.00

**Impacts Other Than Cost of Using Policy Value**

Impacts to ROW and wetlands.

**Proposed Mitigation to Address Exception**

None.

**Geometric Compatibility with Adjacent Sections**

Proposed design elements transition and match the proposed typical sections of the IL-47 project.

**Potential Effects on Other Design Elements**

None

**Potential Impacts on Mobility or Traffic Operations**

None

**Summary of Justification for Exception**

The design of the vertical curve results in a K-value less than the minimum. The proposed profile is constrained by ROW limitations, existing development and wetlands.

Coordination Meeting Date	Prepared By	Date
	Kirsten Mawhinney, P.E., AECOM	09-12-2016

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	BDE Disapproval Date

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)





Key Route FA 326	Marked Route/Road Name IL Route 47	Contract # 	State Job # P-91-101-07
Section 105X-RS-3	County(ies) McHenry	Municipality Village of Huntley	
Local Agency 	LRS Section # 	Permit Applicant 	Permit # 
Project Limits from US Route 14 to Reed Road			
Project Length 		Current Posted Speed 55 MPH	
Estimate of Cost 	Functional Classification 	Design Yr 	Design Traffic ADT AM PM
On the NHS System? <input type="checkbox"/> Yes <input type="checkbox"/> No	Structure Numbers Ex:056-0250 Pr:056-0305	Type of Project (Construction, Reconstruction, 3R, 3P, SMART, HSIP, etc.) Reconstruction	
Brief Project Description 			

EXCEPTION DOCUMENTATION

Level of Exception ☒ Level One ☐ Level Two

Design Element for Which an Exception is Requested  
Low edge of pavement freeboard within the floodplain

Design Element Policy Value  
3.0 feet

Proposed Design Element Value  
2.7 feet

Location(s) of Exception  
Sta. 398+00

Crash History and Potential of Exception Location(s)

Cost of Using Policy Value

Cost of Using Proposed Exception Value

Impacts Other Than Cost of Using Policy Value  
Nearby wetlands and wildlife

Proposed Mitigation to Address Exception  
Proposed design will provide 100-yr low edge of pavement protection

Geometric Compatibility with Adjacent Sections

Potential Effects on Other Design Elements

Potential Impacts on Mobility or Traffic Operations

Summary of Justification for Exception  
Can't raise roadway profile due to wetlands & wildlife impacts. Increasing the proposed structure size will not increase freeboard value due to natural headwater elevation. There are no reports of flooding at this location. 100-year edge of pavement protection will be provided.

Coordination Meeting Date	Prepared By	Date
12/13/16	Francisco Rios / Cary Lewis	11/21/16

**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

FHWA Approval Date (Level One)

**APPENDIX A-3**  
**BICYCLE AND PEDESTRIAN CHECKLIST**

<b>Generators</b>	<b>Yes</b>	<b>NA</b>	<b>Generators</b>	<b>Yes</b>	<b>NA</b>
Residential Areas	★	<input type="checkbox"/>	Shopping Centers	<input type="checkbox"/>	★
Parks	★	<input type="checkbox"/>	Hospitals	<input type="checkbox"/>	★
Recreation Areas	★	<input type="checkbox"/>	Employment Center	<input type="checkbox"/>	★
Churches	<input type="checkbox"/>	★	Government Offices	<input type="checkbox"/>	★
Schools	★	<input type="checkbox"/>	Local Businesses	★	<input type="checkbox"/>
Libraries	<input type="checkbox"/>	★	Industrial Plants	★	<input type="checkbox"/>
Existing Bicycle Trails	★	<input type="checkbox"/>	Public Transportation Facilities	<input type="checkbox"/>	★
Planned Bicycle Trails	★	<input type="checkbox"/>	Other (                      )	<input type="checkbox"/>	★

**CHECKLIST FOR BICYCLE TRAVEL GENERATORS IN PROJECT VICINITY**

**Figure 17-1.A**

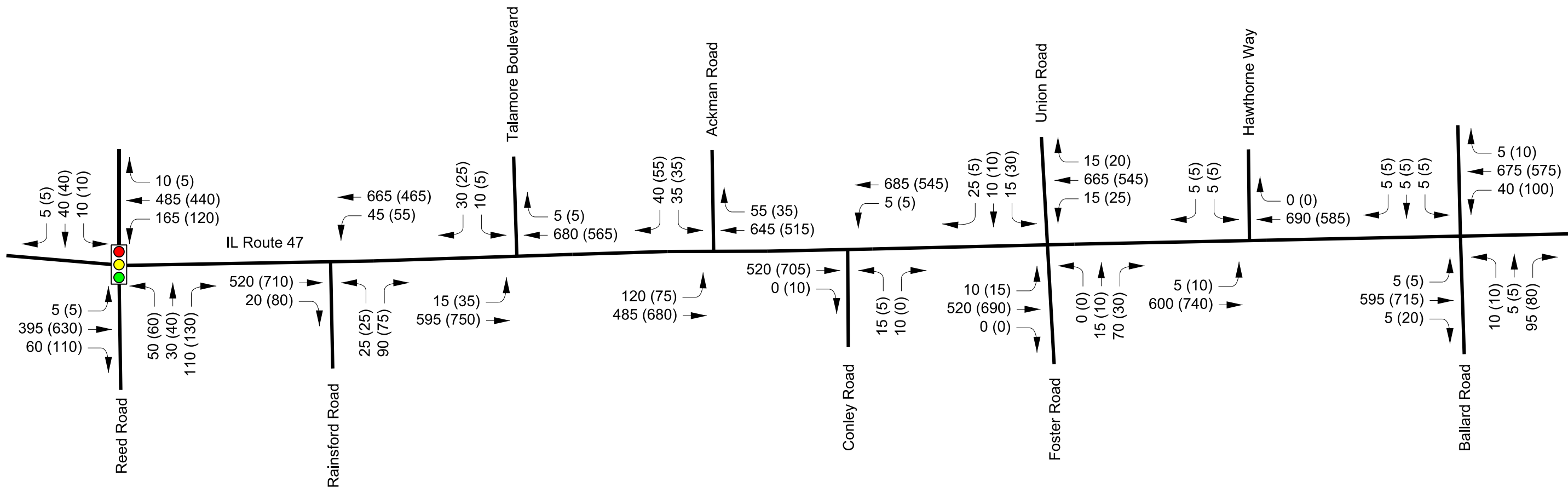
<b>Organization</b>	<b>Yes</b>	<b>NA</b>	<b>Organizations*</b>	<b>Yes</b>	<b>NA</b>
Metropolitan Planning Organization (if applicable)	★	<input type="checkbox"/>	League of Illinois Bicyclists*	★	<input type="checkbox"/>
Local Municipalities	★	<input type="checkbox"/>	Illinois Department of Natural Resources*	★	<input type="checkbox"/>
Park or Forest Preserve Districts	★	<input type="checkbox"/>	Trails for Illinois*	<input type="checkbox"/>	★
Sub-Regional Planning Council (as appropriate)	★	<input type="checkbox"/>	Active Transportation Alliance (District 1 only)*	<input type="checkbox"/>	★
Local Bicycle Clubs, Advocacy Groups	★	<input type="checkbox"/>			

*\*Note: Addresses are presented in Section 17-5.*

**CHECKLIST FOR ORGANIZATIONS AND PUBLIC COORDINATION**

**Figure 17-1.C**

**APPENDIX A-4  
TRAFFIC DIAGRAM**



LEGEND

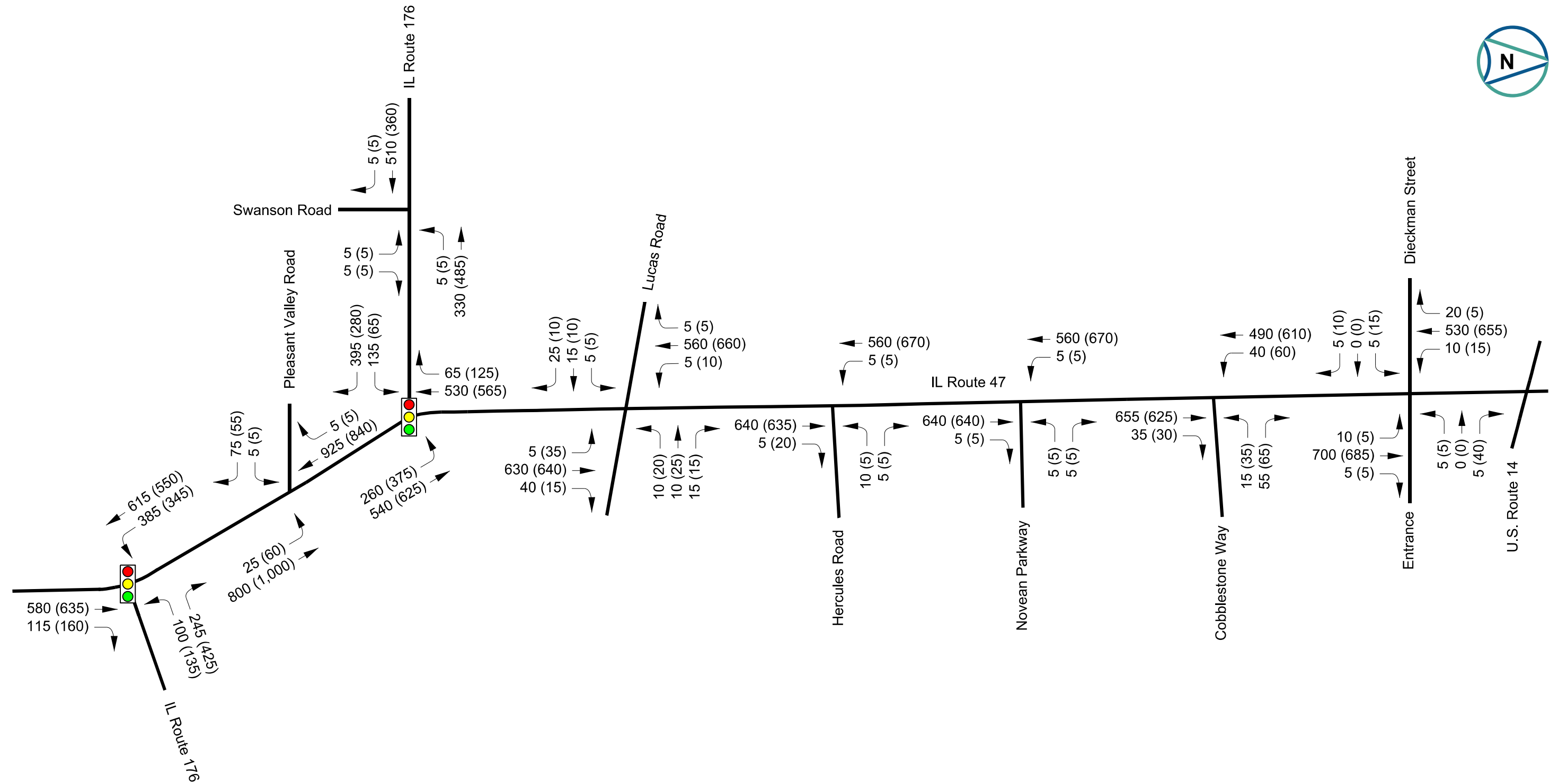
Intersection	Peak Hour		XXX (XXX)	A.M. (P.M.)
	A.M.	P.M.		
Reed Road	8:15 - 9:15	5:45 - 6:45		Signalized Intersection
Rainsford Road	8:15 - 9:15	5:45 - 6:45		
Talamore Boulevard	7:45 - 8:45	5:45 - 6:45		
Ackman Road	7:45 - 8:45	5:15 - 6:15		
Conley Road	7:00 - 8:00	4:30 - 5:30		
Union/Foster Road	7:15 - 8:15	4:30 - 5:30		
Hawthorne Way	8:15 - 9:15	4:30 - 5:30		
Ballard Road	8:15 - 9:15	4:45 - 5:45		

Illinois Department of Transportation  
IL Route 47 Phase I Engineering Services  
Reed Road to Ballard Road

2011 PEAK HOUR TRAFFIC

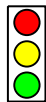


Not to Scale



LEGEND

Intersection	Peak Hour		XXX (XXX)	A.M. (P.M.)
	A.M.	P.M.		
IL Route 176 South	8:00 - 9:00	5:45 - 6:45		
Pleasant Valley Road	7:45 - 8:45	5:45 - 6:45		
IL Route 176 North	7:00 - 8:00	4:30 - 5:30		
Lucas Road	7:15 - 8:15	4:30 - 5:30		
Hercules Road	7:15 - 8:15	4:45 - 5:45		
Novean Parkway	7:00 - 8:00	4:45 - 5:45		
Cobblestone Way	7:15 - 8:15	4:45 - 5:45		
Dieckman Street	7:15 - 8:15	4:45 - 5:45		
Swanson Road	7:15 - 8:15	4:45 - 5:45		



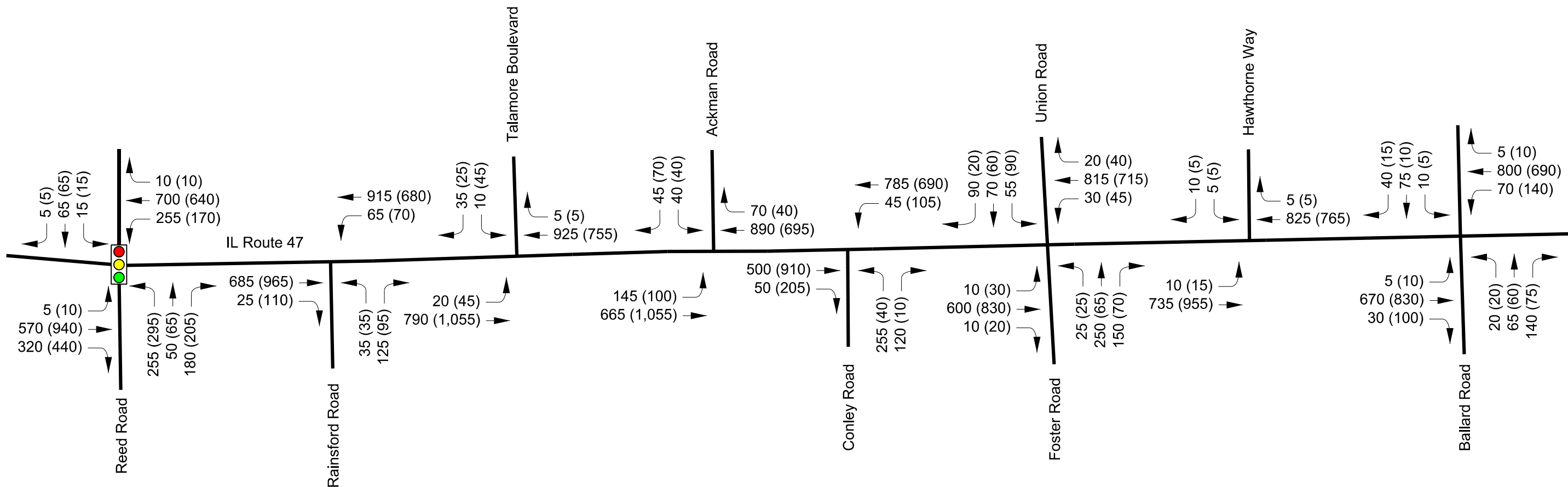
Signalized Intersection

Illinois Department of Transportation  
IL Route 47 Phase I Engineering Services  
IL Route 176 to U.S. Route 14

2011 PEAK HOUR TRAFFIC



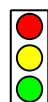
Not to Scale



## LEGEND

XXX (XXX)

A.M. (P.M.)



Signalized Intersection

## Projected ADT

2,000	1,000	2,000	6,000	1,000	1,000
29,000	23,000	24,000	24,000	21,000	21,000
13,000	1,000	4,000	6,000	1,000	21,000

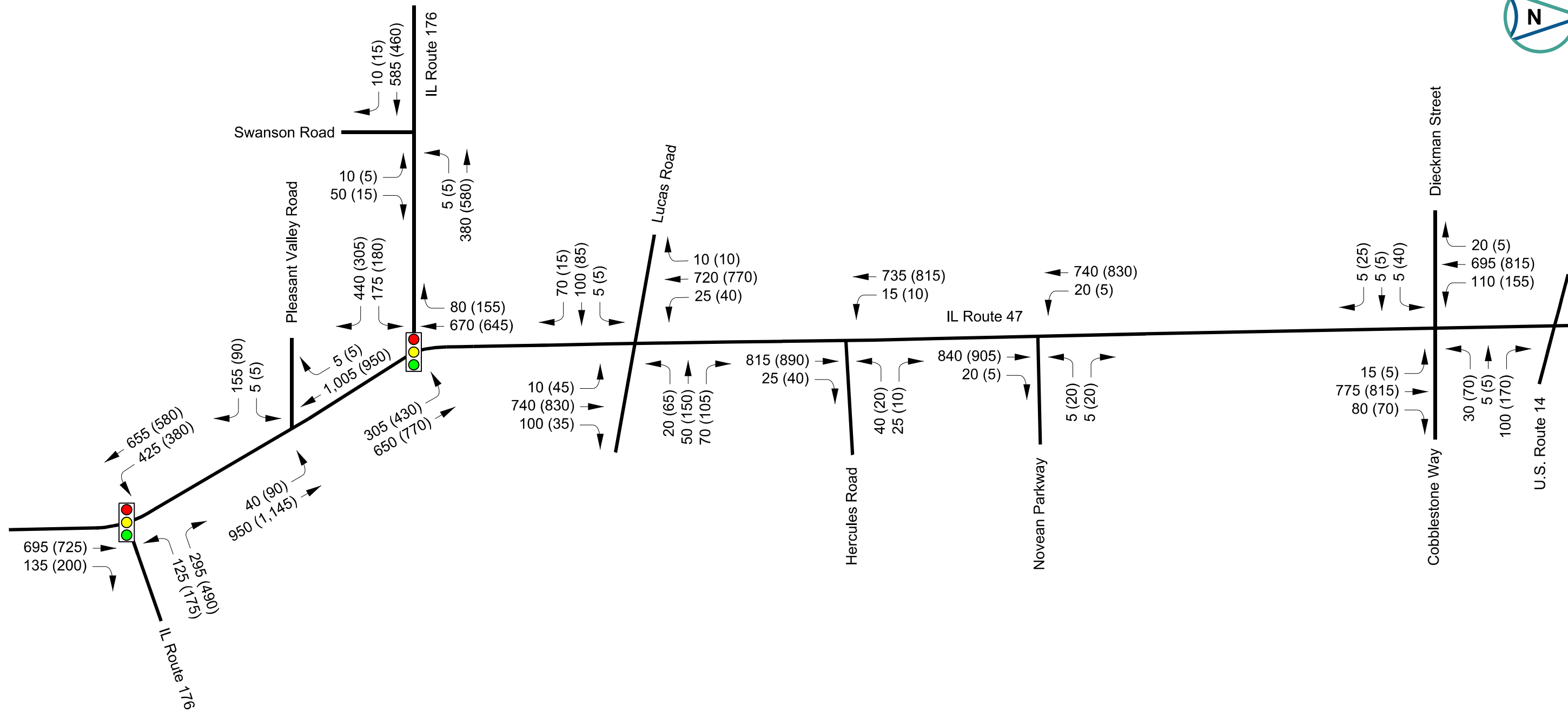
Illinois Department of Transportation  
IL Route 47 Phase I Engineering Services  
Reed Road to Ballard Road

## 2040 PEAK HOUR TRAFFIC



Not to Scale

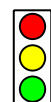




### LEGEND

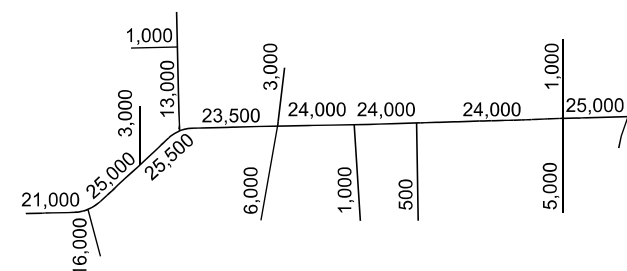
XXX (XXX)

A.M. (P.M.)



Signalized Intersection

### Projected ADT



Illinois Department of Transportation  
IL Route 47 Phase I Engineering Services  
IL Route 176 to U.S. Route 14

### 2040 PEAK HOUR TRAFFIC



Not to Scale

**APPENDIX A-5**  
**INTERSECTION DESIGN STUDIES**

SIGNALIZED INTERSECTION  
CAPACITY ANALYSIS

HIGHWAY CAPACITY SOFTWARE

PROGRAM NAME HCS  
VERSION 2010

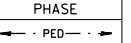
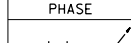
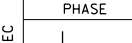





BASIC CONDITIONS

AREA: CBD OTHER (CIRCLE ONE) PHF 0.95

SIGNAL TYPE FULLY ACTUATED ARRIVAL TYPE 3/4

C = SIGNAL CYCLE = 90 SEC.

$\Sigma A/C$  15 / 90 = 0.17

PHASE	PHASE	PHASE	PHASE
			
AMBER= 4.0 SEC ALL RED= 2 SEC	AMBER= 3.5 SEC ALL RED= 1 SEC	AMBER= 4.0 SEC ALL RED= 2 SEC	AMBER= 3.5 SEC ALL RED= 1 SEC
G/C= 0.6 G = 5.8 Sec.	G/C= 0.19 G = 17.2 Sec.	G/C= 0.56 G = 50.4 Sec.	G/C= 0.6 G = 5.8 Sec.
			
AMBER= 4.0 SEC ALL RED= 2 SEC	AMBER= 3.5 SEC ALL RED= 1 SEC	AMBER= 4.0 SEC ALL RED= 2 SEC	AMBER= 3.5 SEC ALL RED= 1 SEC
G/C= 0.10 G = 9.1 Sec.	G/C= 0.18 G = 15.8 Sec.	G/C= 0.54 G = 48.5 Sec.	G/C= 0.6 G = 5.8 Sec.

APPR. A GR= -2 %A.M. T= 7 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0  
P.M. T= 3 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	%RED-TIME QUEUE
A.M. AD	2/12	480	0.95	1900	0.31	0.19	629	0.80	37.2	D	13.8	B	218	257
AB	2/12	830	0.95	2000	0.50	0.80	2825	0.31	0.3	A			25	138
P.M. AD	2/12	450	0.95	1900	0.28	0.18	600	0.79	37.9	D	12.5	B	208	237
AB	2/12	945	0.95	2000	0.54	0.77	2800	0.36	0.4	A			25	174

APPR. B GR= +1 %A.M. T= 8 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0  
P.M. T= 5 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	%RED-TIME QUEUE
A.M. BA	2/12	910	0.95	2000	0.55	0.56	1947	0.49	12.9	B	12.1	B	213	273
BD	1/12	170	0.95	1900	0.11	0.63	982	0.18	7.5	A			53	81
P.M. BA	2/12	925	0.95	2000	0.54	0.54	1946	0.50	14.0	B	12.7	B	225	280
BD	1/12	215	0.95	1900	0.14	0.64	1007	0.23	7.3	A			65	99

APPR. D GR= -4.0 %A.M. T= 3 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0  
P.M. T= 3 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	%RED-TIME QUEUE
A.M. DB	2/12	135	0.95	1900	0.08	0.06	220	0.65	44.2	D	44.2	D	70	84
DA	1/12	315	0.95	1900										
P.M. DB	2/12	245	0.95	1900	0.15	0.10	350	0.74	42.3	D	42.3	D	123	143
DA	1/12	540	0.95	1900										

INTERSECTION DELAY 14.7 (A.M.), 15.2 (P.M.)  
INTERSECTION LOS B (A.M.), B (P.M.)

STA. 300+00.00 IL 176 E  
STA. 589+19.88 IL. 47

PROP. CURVE PRALTO447-5

(DESIGN YEAR) DHV: A.M. (P.M.)

MOVEMENT	YEAR 2011 PEAK HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN PEAK HOUR		ESTIMATED PERCENT INCREASE BY 2040		YEAR 2040 DESIGN PEAK HOUR TRAFFIC	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	524	464	7%	3%	58%	100%	830	945
AD	340	304	6%	2%	41%	48%	480	450
AC								
BA	494	515	9%	5%	84%	80%	910	925
BC								
BD	96	142	2%	2%	82%	51%	175	215
CD								
CA								
CB								
DC								
DB	57	79	6%	4%	137%	210%	135	245
DA	133	221	2%	2%	137%	144%	315	540
TOTAL A	1491	1504			70%	90%	2535	2860
TOTAL B	1171	1200			75%	94%	2050	2330
TOTAL C								
TOTAL D	626	746			77%	94%	1105	1450

APPROACH	8TH MAX. HOUR TRAFFIC
A (NORTH)	422
B (SOUTH)	361
D (EAST)	165

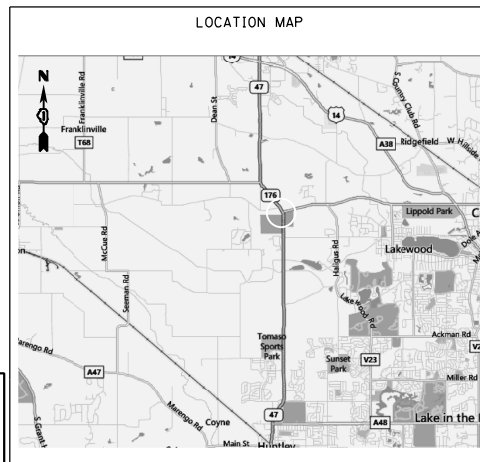
PROP. CURVE PRALTO447-6  
PI STA. = 588+94.07  
 $\Delta$  = 38° 30' 23" (LT)  
D = 3° 22' 13"  
R = 1,700.00'  
T = 593.77'  
L = 1,142.51'  
E = 100.71'  
e = 5.7%  
T.R. ATTAINMENT = 53'  
S.E. RUN ATTAINMENT = 152'  
T.R. REMOVAL = 53'  
S.E. RUN REMOVAL = 152'  
P.C. STA. = 583+00.29  
P.T. STA. = 594+42.80

ELEMENTS CONTROLLING DESIGN

- HIGHWAY DESIGN CLASSIFICATION IL ROUTE 176 EAST - OTHER PRINCIPAL ARTERIAL  
SRA: YES X NO (BOTH ROUTES)
- AVERAGE DAILY TRAFFIC (ADT) DATA: IL 176: EXISTING 10,300 (2011) DESIGN 17,000  
IL 47 (NORTH OF IL 176): EXISTING 20,800 (2011) DESIGN 31,000  
IL 47 (SOUTH OF IL 176): EXISTING 16,300 (2011) DESIGN 28,000
- IL ROUTE 47 IS THE PREFERENCE ROUTE
- ANTICIPATED YEAR OF CONSTRUCTION 2020 DESIGN YEAR 2040
- TRAFFIC CONTROL TO BE SIGNAL MODERNIZATION WARRANTS MET EXISTING TRAFFIC SIGNALS
- DESIGN CRITERIA: BDE CHAPTER 49
- DESIGN VEHICLE: WB-65 TRUCK ROUTE DESIGNATION CLASS II
- DESIGN SPEED 60 MPH POSTED SPEED 55 MPH (BOTH ROUTES)

GENERAL NOTES

- PROFILES ARE NOT PROVIDED, SINCE APPROACH GRADES ARE MORE THAN ONE PERCENT
- TYPE M4.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT
- TYPE M4.24 CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND
- ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED
- INTERSECTION IS A HIGH ACCIDENT LOCATION IL ROUTE 47 & IL ROUTE 176 (EAST LEG) YEAR 2010
- INTERSECTION IS PART OF INTERCONNECTED SYSTEM  
FROM IL 176 (WEST LEG) TO IL 176 (EAST LEG)
- ALL SIDEWALKS AND RAMPS AS SHOWN ARE IN COMPLIANCE WITH THE AMERICAN DISABILITIES ACT.
- EXPECTED PEDESTRIAN/BICYCLE USAGE 50 PEDS/HOUR
- ALL ENTRANCES AS SHOWN ARE IN COMPLIANCE WITH IDOT 'POLICIES ON ACCESS TO STATE HIGHWAYS'.
- SCOPE OF WORK: RECONSTRUCT TO PROVIDE 2 LANES IN EACH DIRECTION ON IL 47, DUAL SB LEFT TURN LANES, & DUAL WB LEFT TURN LANES
- DESIGN EXCEPTIONS: THROUGH LANE CROSS SLOPES: LANE 1 = +2.0% VS. -2.0%, DEPRESSED RURAL MEDIAN WIDTH GREATER THAN OR EQUAL TO 40 FT VS. 30 FT, OUTSIDE ROADWAY DITCH: 3 TO 10 FOOT SHELVES AT 5% CROSS SLOPES VS. 14 FT V-SHAPED DRAINAGE SWALES AT 6:1 SLOPES, RURAL MEDIAN DITCH SLOPES 5:1 VS. 4:1 MEDIAN SLOPES, MAXIMUM K-VALUE FOR DRAINAGE ON CURBED ROADWAYS IS 167 VS. 180, MINIMUM K-VALUE FOR 60MPH DESIGN SPEED IS 167 VS. 64, MINIMUM SIGHT DISTANCE FOR 60MPH AND LEVEL-GRADE IS 570' VS 375'
- HCS2010 VERSION 6.70 SOFTWARE WAS USED FOR THE CAPACITY ANALYSIS.
- ACTUAL TRAFFIC SIGNAL LOCATIONS WILL BE DETERMINED IN THE DESIGN PHASE.



DRAWING NO. \_\_\_\_\_

INTERSECTION DESIGN STUDY

FAP ROUTE 326 \_\_\_\_\_ ILLINOIS ROUTE 47 \_\_\_\_\_

FAP ROUTE 335 \_\_\_\_\_ WITH ILLINOIS ROUTE 176 (EAST LEG) \_\_\_\_\_

SEC. NO. \_\_\_\_\_ PROJ. NO. P-91-101-07 \_\_\_\_\_

SCALE 1"=50' COUNTY MCHENRY \_\_\_\_\_

SJN : \_\_\_\_\_ REV. NO. \_\_\_\_\_

DATE	QA/QC REVIEWER	REMARKS
10/4/13	JDH	FIRST SUBMITTAL
12/20/13	JDH	SECOND SUBMITTAL
12/08/15	KM	THIRD SUBMITTAL
5/09/16	KM	FOURTH SUBMITTAL
3/29/17	AFC	FIFTH SUBMITTAL

CADD FILE NAME \*DGN-SPEC\*

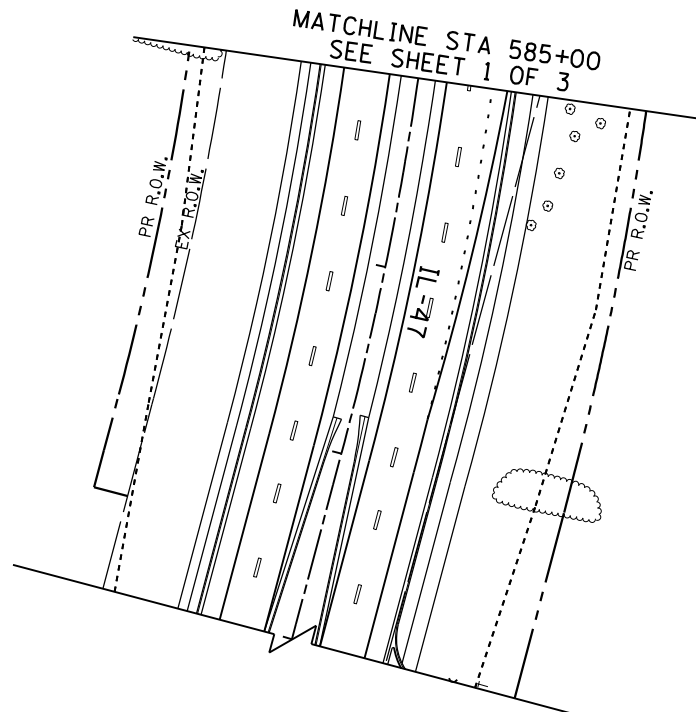
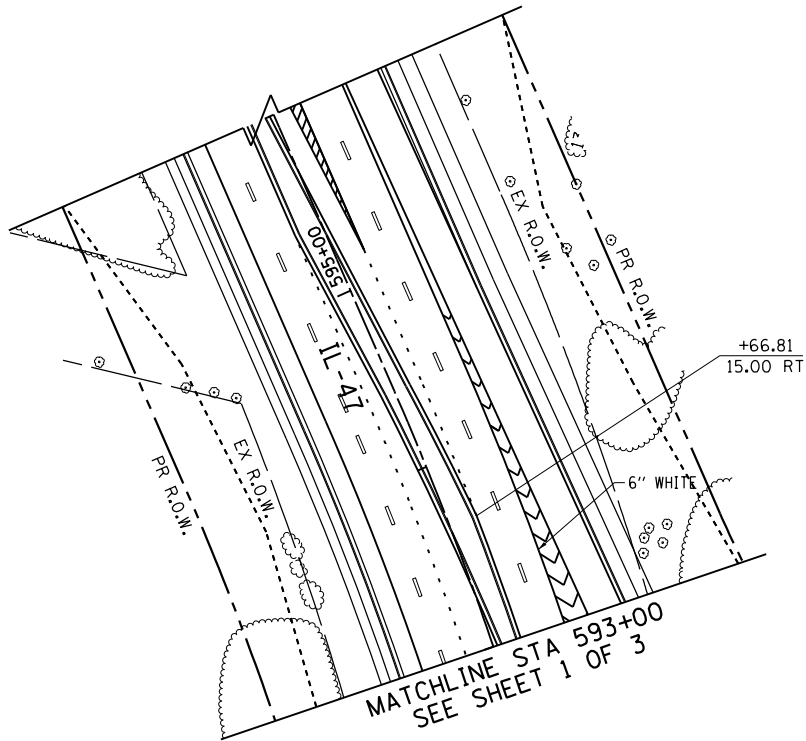
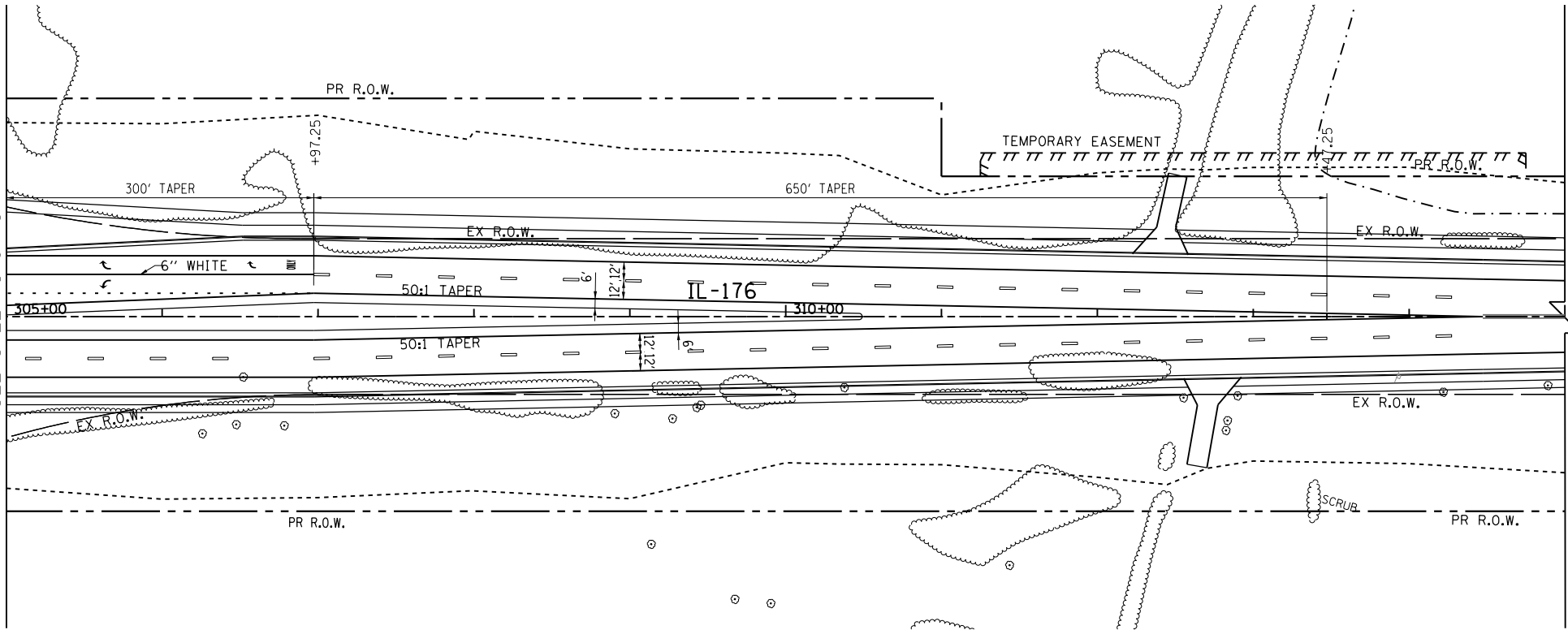
REF FILE NAME \_\_\_\_\_

SHEET NO. 56 I.D.S. SHEET 1 OF 4

PREPARED BY:  
**AECOM**  
303 E. WACKER DRIVE  
SUITE 1400  
CHICAGO, IL 60601  
(312) 373-7700  
FAX (312) 373-6800  
PROJ. MGR. KM PROJ. ENG. AFC

PLOT DATE = 6/19/2017  
FILE NAME = P:\P2020\927\000\_CAD\006\_Civil\Sheets\05\084-105-IL47-IL176E-02.dgn  
PLOT SCALE = 100.000' / 1" =  
USER NAME = hanege@aol

MATCHLINE STA 305+00  
SEE SHEET 1 OF 3



INTERSECTION DESIGN STUDY

FAP ROUTE 326 WITH ILLINOIS ROUTE 47  
FAP ROUTE 335 WITH IL ROUTE 176 (EAST LEG)

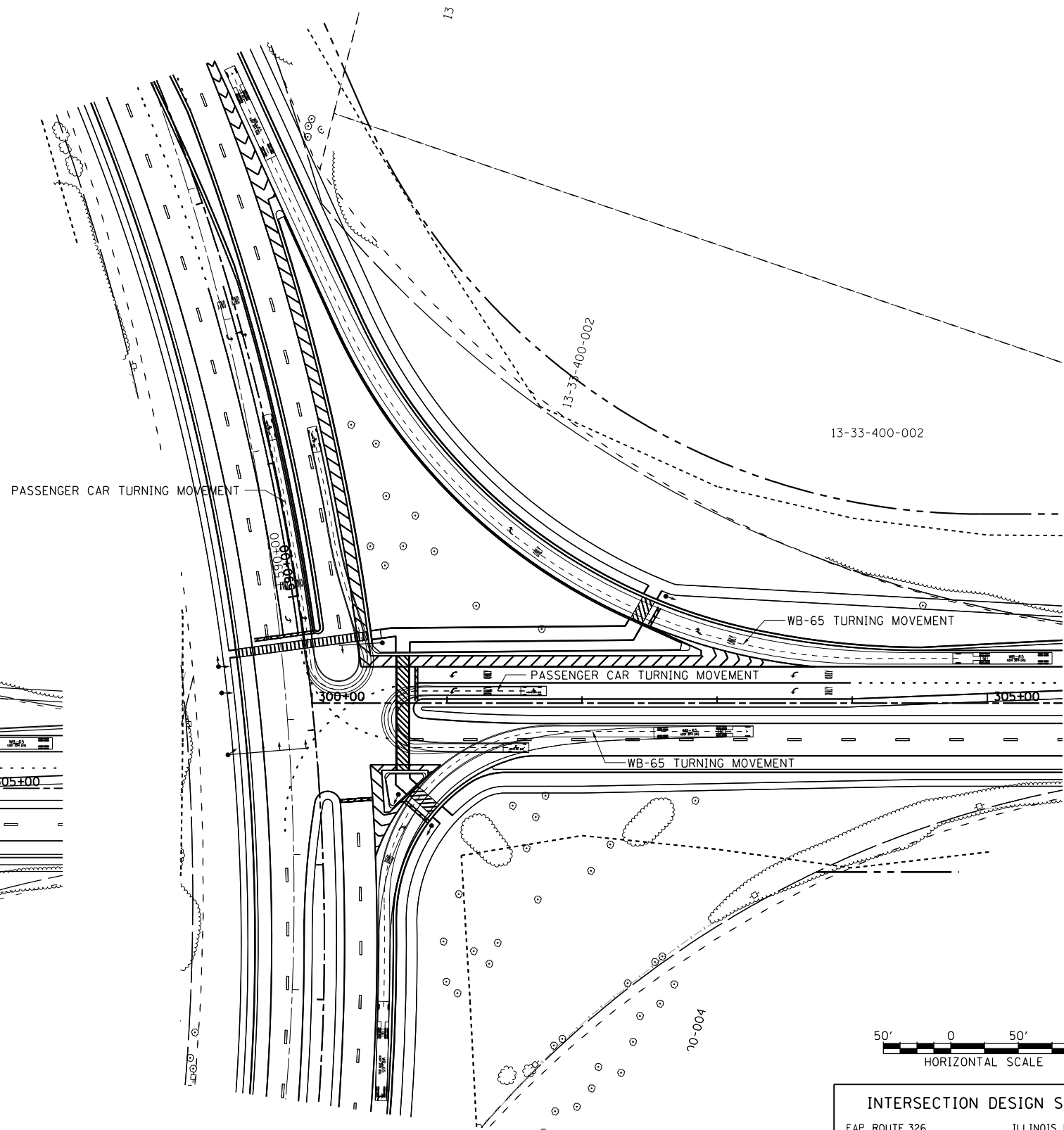
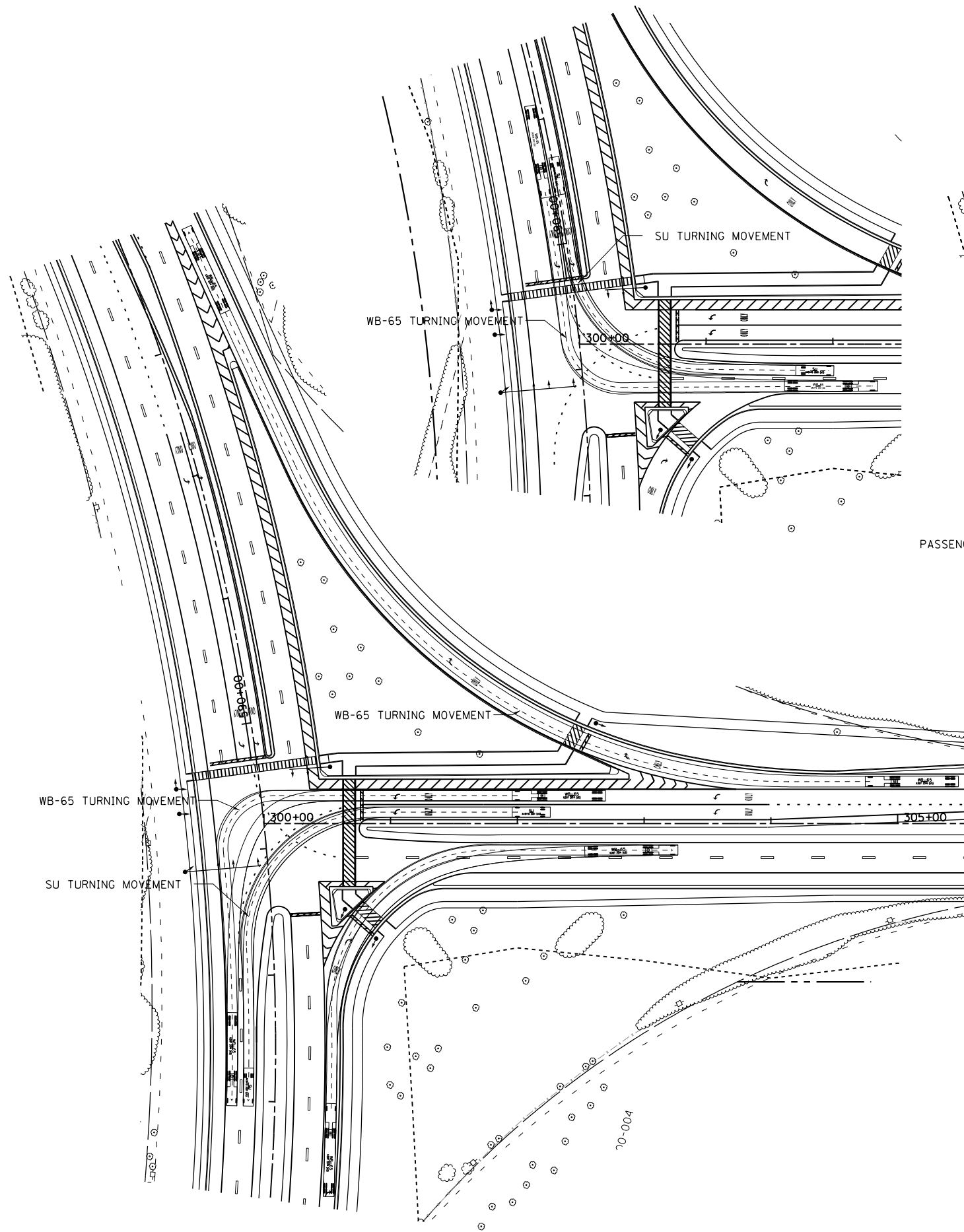
SEC. NO. REED ROAD TO  
US ROUTE 14

SCALE 1" = 50' COUNTY MCHENRY

SJN : PROJ. NO. P-91-101-07

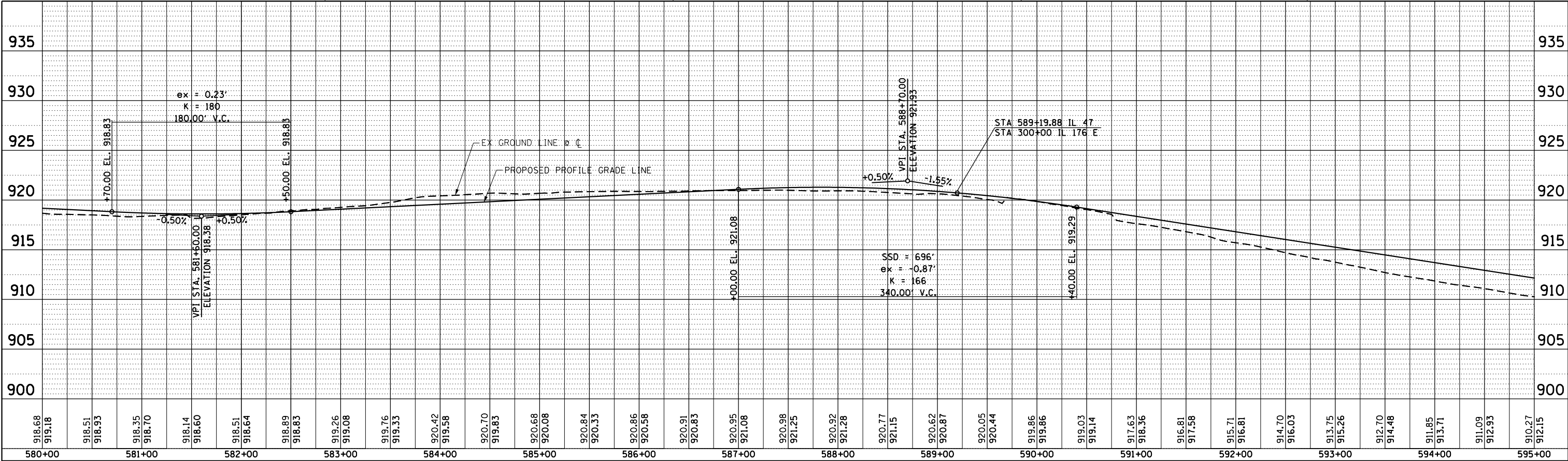
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FILE NAME = P:\P2020\9827\000\_CAD\006\_Civil\Sheets\05\084-IDS-IL47-IL176E-03.dgn  
PLOT SCALE = 100.000' / 1" =  
USER NAME = hanebrafe

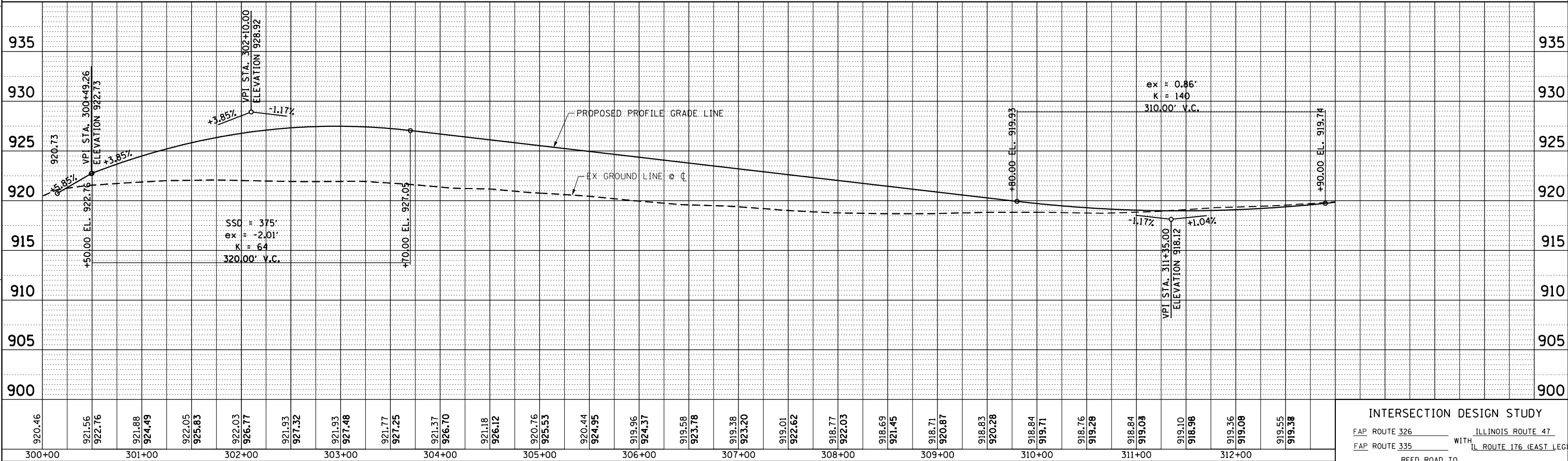


**INTERSECTION DESIGN STUDY**  
FAP ROUTE 326 \_\_\_\_\_ ILLINOIS ROUTE 47  
FAP ROUTE 335 \_\_\_\_\_ WITH IL ROUTE 176 (EAST LEG)  
SEC. NO. REED ROAD TO US ROUTE 14  
SCALE 1" = 50' COUNTY MCHENRY  
SUN : \_\_\_\_\_ PROJ. NO. P-91-101-07  
SHEET NO. 58 I.D.S. SHEET 3 OF 4

PLOT DATE = 4/5/2017  
FILE NAME = \\nas001r001\project\Projects\F60037027\000\_CAD\006\_Civil\Sheets\IDS\004-IDS-IL47-IL176E-04.dgn  
PLOT SCALE = 100.000' / in.  
USER NAME = hanegeaefe



PROPOSED PROFILE IL 47



PROPOSED PROFILE IL 176

INTERSECTION DESIGN STUDY

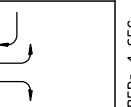

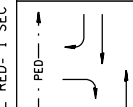
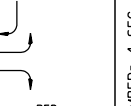
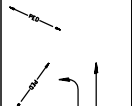
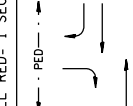
FAP ROUTE 326 ILLINOIS ROUTE 47  
FAP ROUTE 335 WITH IL ROUTE 176 (EAST LEG)  
SEC. NO. REED ROAD TO US ROUTE 14  
SCALE 1" = 50' COUNTY MCHENRY  
SJN : PROJ. NO. P-91-101-07  
SHEET NO. 59 I.D.S. SHEET 4 OF 4

# SIGNALIZED INTERSECTION CAPACITY ANALYSIS

HIGHWAY CAPACITY SOFTWARE  
PROGRAM NAME IL 47 AT IL 176 INTERSECTION IMPROVEMENTS  
INTERSECTION IL 47 AT IL 176 WEST

BASIC CONDITIONS  
AREA: CBD (OTHER) PHF 0.95 (CIRCLE ONE)  
SIGNAL TYPE FULLY ACTUATED ARRIVAL TYPE 3/4

C = SIGNAL CYCLE = 90 SEC.  $\Sigma A/C$  15 / 90 = 0.17

PHASE	PHASE	PHASE
		
AMBER= 4 SEC ALL RED= 2 SEC	AMBER= 4 SEC ALL RED= 2 SEC	AMBER= 4 SEC ALL RED= 2 SEC
G/C= 0.08 G = 7 Sec.	G/C= 0.14 G = 12.8 Sec.	G/C= 0.60 G = 53.7 Sec.
		
AMBER= 4 SEC ALL RED= 2 SEC	AMBER= 4 SEC ALL RED= 2 SEC	AMBER= 4 SEC ALL RED= 2 SEC
G/C= 0.08 G = 7.3 Sec.	G/C= 0.18 G = 16.5 Sec.	G/C= 0.55 G = 49.6 Sec.

APPR. A GR= -1 %A.M. T= 8 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0  
P.M. T= 9 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	RED-TIME QUEUE
A.M. AB	2/12	680	0.95	2000	0.40	0.60	2136	0.34	9.6	A	9.2	A	128	183
A.M. AC	1/12	55	0.95	1900	0.04	0.67	942	0.06	5.1	A			25	26
P.M. AB	2/12	870	0.95	2000	0.53	0.55	1918	0.48	13.1	B	12.3	B	205	268
P.M. AC	1/12	130	0.95	1900	0.09	0.63	976	0.14	7.0	A			38	63

APPR. B GR= -1 %A.M. T= 8 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0  
P.M. T= 6 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	RED-TIME QUEUE
A.M. BC	2/12	345	0.95	1900	0.22	0.14	477	0.76	39.7	D	12.5	B	168	194
A.M. BA	2/12	765	0.95	2000	0.45	0.79	2796	0.29	0.3	A			25	135
P.M. BC	2/12	460	0.95	1900	0.29	0.18	606	0.80	37.6	D	13.4	B	213	251
P.M. BA	2/12	850	0.95	2000	0.50	0.79	2834	0.32	0.3	A			25	150

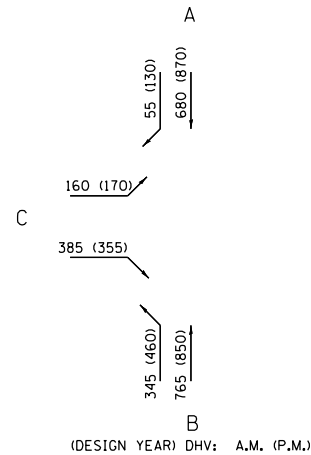
APPR. C GR= -4 %A.M. T= 4 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0  
P.M. T= 5 % R= 0 % L= 0 % PKG 0 (MN/V/HR) BUS 0 (STOP/HR) PEDS/HR 50 BIKES/HR 0

MOVEMENT	L/W	DHV	PHF	BASE SAT.	V/S	USED G/C	CAP C	V/C	DELAY d	LOS	APPR. DELAY	APPR. LOS	95TH QUEUE	RED-TIME QUEUE
A.M. CA	2/12	160	0.95	1900	0.10	0.08	253	0.67	43.4	D	43.4	D	80	100
A.M. CB	1/12	385	0.95	1900										
P.M. CA	2/12	170	0.95	1900	0.11	0.08	261	0.69	43.4	D	43.4	D	85	107
P.M. CB	1/12	355	0.95	1900										

INTERSECTION DELAY 13.8 (A.M.), 15.0 (P.M.)  
INTERSECTION LOS B (A.M.), B (P.M.)

## TRAFFIC DATA

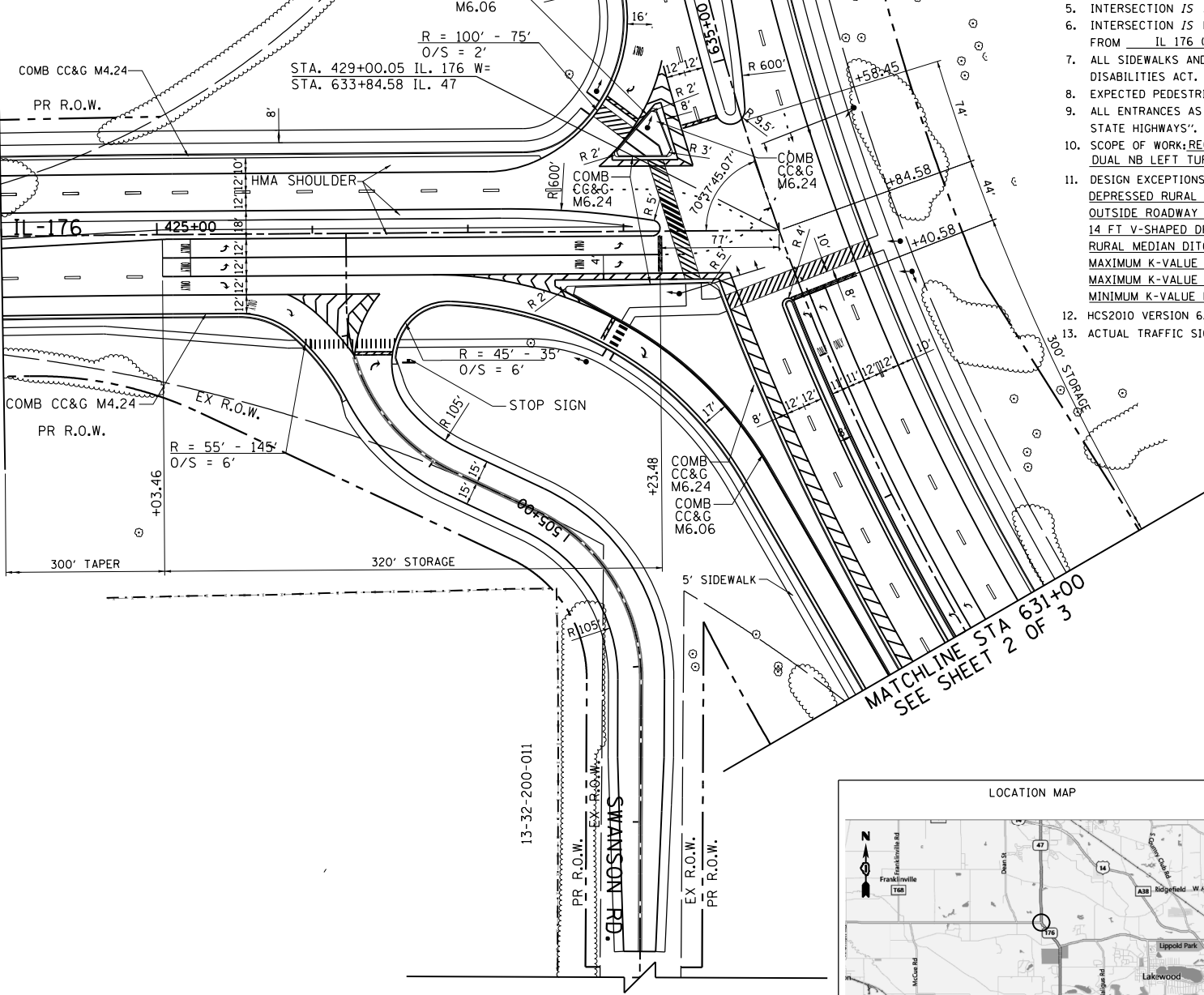
MOVEMENT	YEAR 2011 PEAK HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN PEAK HOUR		ESTIMATED PERCENT INCREASE BY 2040		YEAR 2040 DESIGN PEAK HOUR TRAFFIC	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
AB	242	233	7%	10%	180%	273%	680	870
AD								
AC	29	56	16%	5%	90%	132%	55	130
BA	429	509	8%	6%	78%	67%	765	850
BC	202	284	5%	7%	71%	62%	345	460
BD								
CD								
CA	116	119	8%	10%	38%	43%	160	170
CB	291	202	2%	2%	32%	76%	385	355
DC								
DB								
DA								
TOTAL A	816	917			103%	120%	1660	2020
TOTAL B	1164	1228			87%	106%	2175	2535
TOTAL C	638	661			48%	67%	945	1115
TOTAL D								



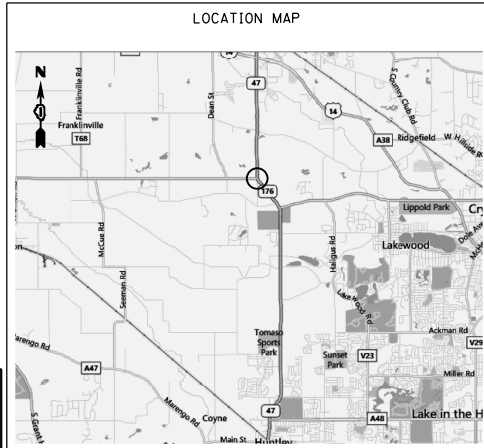
APPROACH	8TH MAX. HOUR TRAFFIC
A (NORTH)	159
B (SOUTH)	436
C (WEST)	177

PROP. CURVE PRALTO447-7  
PI STA. = 634+16.47  
 $\Delta$  = 38° 34' 58" (RT)  
D = 3° 37' 59"  
R = 1,577.12'  
T = 552.03'  
L = 1,062.03'  
E = 93.82'  
 $e$  = 6.0%  
T.R. ATTAINMENT = 53'  
S.E. RUN ATTAINMENT = 160'  
T.R. REMOVAL = 53'  
S.E. RUN REMOVAL = 160'  
P.C. STA. = 628+64.43  
P.T. STA. = 639+26.46

MATCHLINE STA 424+00  
SEE SHEET 2 OF 3



PREPARED BY:  
**AECOM**  
303 E. WACKER DRIVE  
SUITE 1400  
CHICAGO, IL 60601  
(312) 373-7700  
FAX (312) 373-6800  
PROJ. MGR. KM PROJ. ENG. AFC



## ELEMENTS CONTROLLING DESIGN

- HIGHWAY DESIGN CLASSIFICATION IL ROUTE 176 WEST - OTHER PRINCIPAL ARTERIAL  
SRA: YES X NO (BOTH ROUTES)
- AVERAGE DAILY TRAFFIC (ADT) DATA: IL 176: EXISTING 9,700 (2011) DESIGN 12,000  
IL 47 (NORTH OF IL 176): EXISTING 14,300 (2011) DESIGN 25,000  
IL 47 (SOUTH OF IL 176): EXISTING 18,700 (2011) DESIGN 27,000
- IL ROUTE 47 IS THE PREFERENCE ROUTE
- ANTICIPATED YEAR OF CONSTRUCTION 2020 DESIGN YEAR 2040
- TRAFFIC CONTROL TO BE SIGNAL MODERNIZATION WARRANTS MET EXISTING TRAFFIC SIGNALS
- DESIGN CRITERIA: BDE CHAPTER 49
- DESIGN VEHICLE: WB-65 TRUCK ROUTE DESIGNATION CLASS II
- DESIGN SPEED 60 MPH POSTED SPEED 55 MPH (BOTH ROUTES)

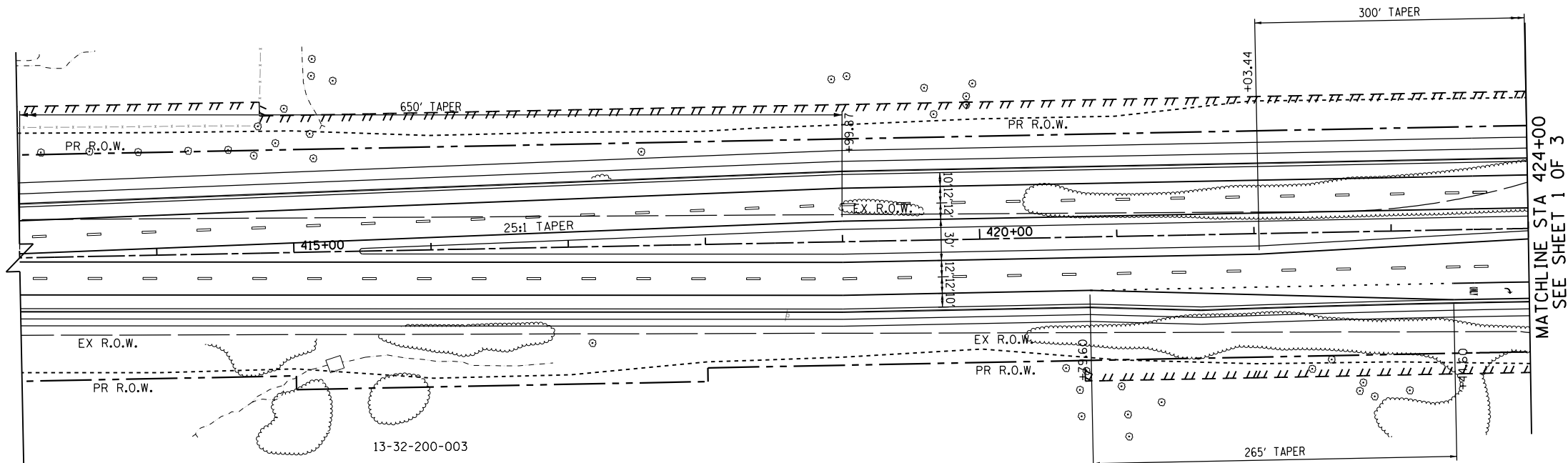
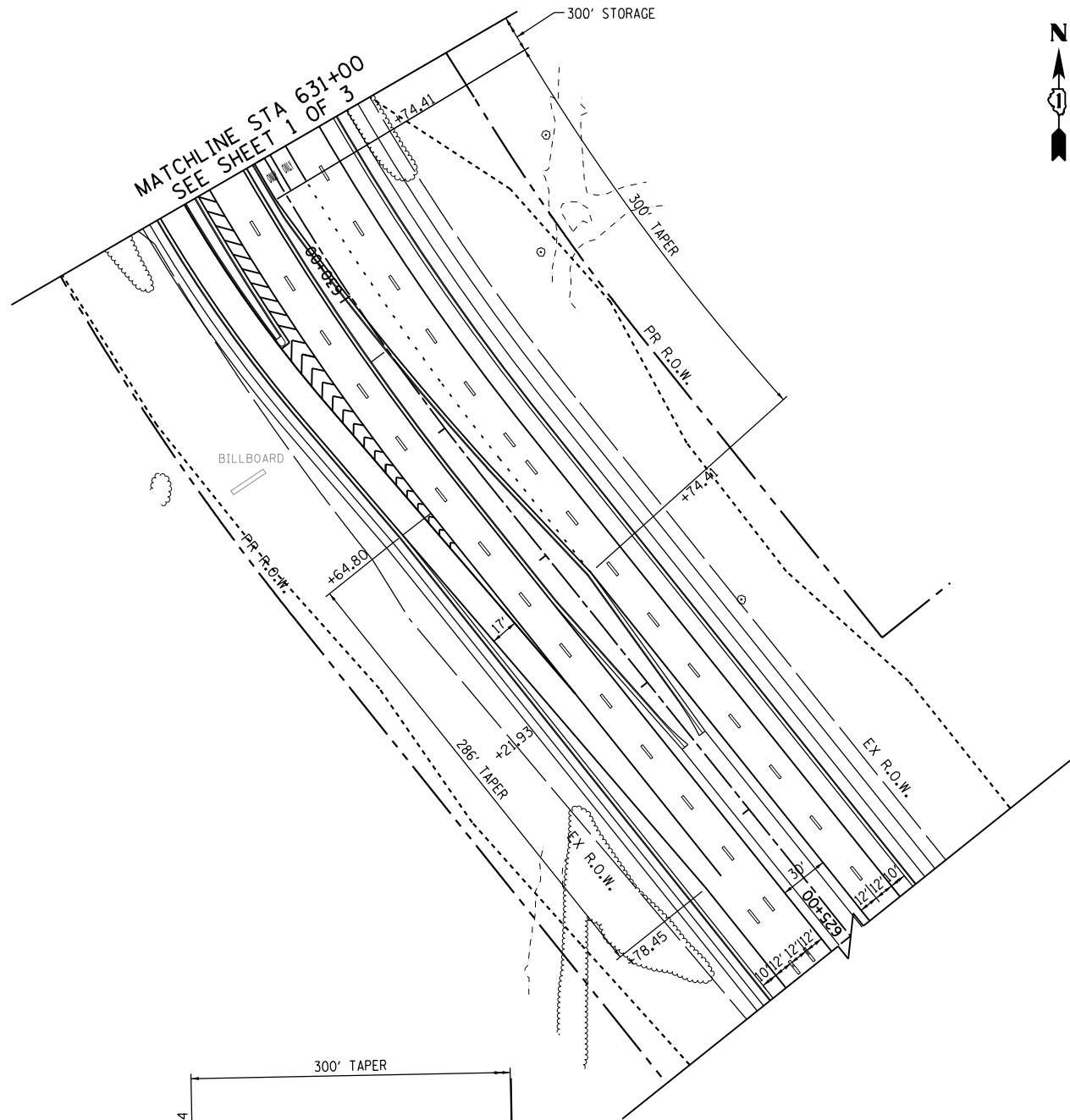
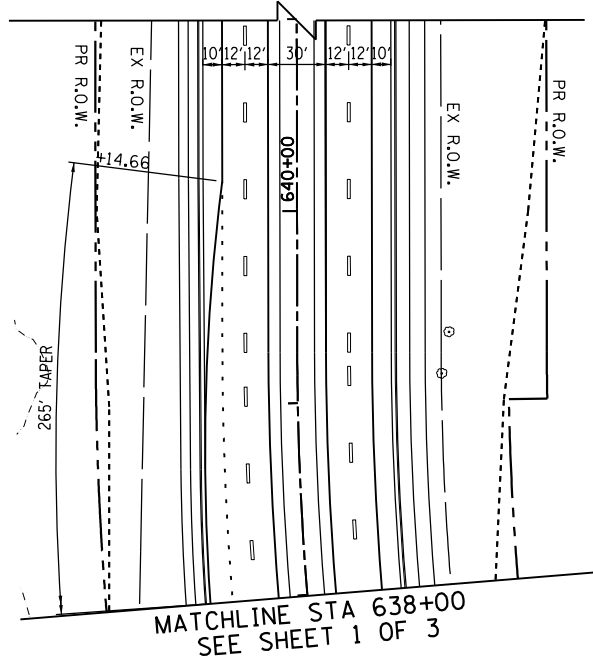
## GENERAL NOTES

- PROFILES ARE PROVIDED, SINCE APPROACH GRADES ARE GREATER THAN ONE PERCENT.
- TYPE M4.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT OR OUTSIDE SHOULDER
- TYPE M4.24 CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND
- ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED
- INTERSECTION IS A HIGH ACCIDENT LOCATION YEAR
- INTERSECTION IS PART OF INTERCONNECTED SYSTEM FROM IL 176 (WEST LEG) TO IL 176 (EAST LEG)
- ALL SIDEWALKS AND RAMPS AS SHOWN ARE IN COMPLIANCE WITH THE AMERICAN DISABILITIES ACT.
- EXPECTED PEDESTRIAN/BICYCLE USAGE 50 PEDS/HOUR
- ALL ENTRANCES AS SHOWN ARE IN COMPLIANCE WITH IDOT "POLICIES ON ACCESS TO STATE HIGHWAYS".
- SCOPE OF WORK: RECONSTRUCT TO PROVIDE 2 LANES IN EACH DIRECTION ON IL 47, DUAL NB LEFT TURN LANES, & DUAL EB LEFT TURN LANES
- DESIGN EXCEPTIONS: THROUGH LANE CROSS SLOPES: LANE 1 = +2.0% VS. -2.0%, DEPRESSED RURAL MEDIAN WIDTH GREATER THAN OR EQUAL TO 40 FT VS. 30 FT, OUTSIDE ROADWAY DITCH: 3 TO 10 FOOT SHELVES AT 5% CROSS SLOPES VS. 14 FT V-SHAPED DRAINAGE SWALES AT 6:1 SLOPES, RURAL MEDIAN DITCH SLOPES 5:1 VS. 4:1 MEDIAN SLOPES, MAXIMUM K-VALUE FOR DRAINAGE ON CURBED ROADWAYS IS 167 VS. 190, MAXIMUM K-VALUE FOR DRAINAGE ON CURBED ROADWAYS IS 167 VS. 187, MINIMUM K-VALUE FOR 60MPH DESIGN SPEED IS 167 VS. 70
- HCS2010 VERSION 6.70 SOFTWARE WAS USED FOR THE CAPACITY ANALYSIS.
- ACTUAL TRAFFIC SIGNAL LOCATIONS WILL BE DETERMINED IN THE DESIGN PHASE.



DRAWING NO. _____		
INTERSECTION DESIGN STUDY		
FAP ROUTE 326	ILLINOIS ROUTE 47	
FAP ROUTE 533	ILLINOIS ROUTE 176 (WEST LEG)	
SEC. NO. _____	PROJ. NO. P-91-101-07	
SCALE 1"=50'	COUNTY MCHENRY	
SJN : _____	REV. NO. _____	
DATE	QA/QC REVIEWER	REMARKS
10/4/13	JDH	FIRST SUBMITTAL
12/20/13	JDH	SECOND SUBMITTAL
12/08/15	KM	THIRD SUBMITTAL
5/09/16	KM	FOURTH SUBMITTAL
3/29/17	AFC	FIFTH SUBMITTAL
CADD FILE NAME *DGN-SPEC*		
REF FILE NAME _____		
SHEET NO. 60		I.D.S. SHEET 1 OF 4

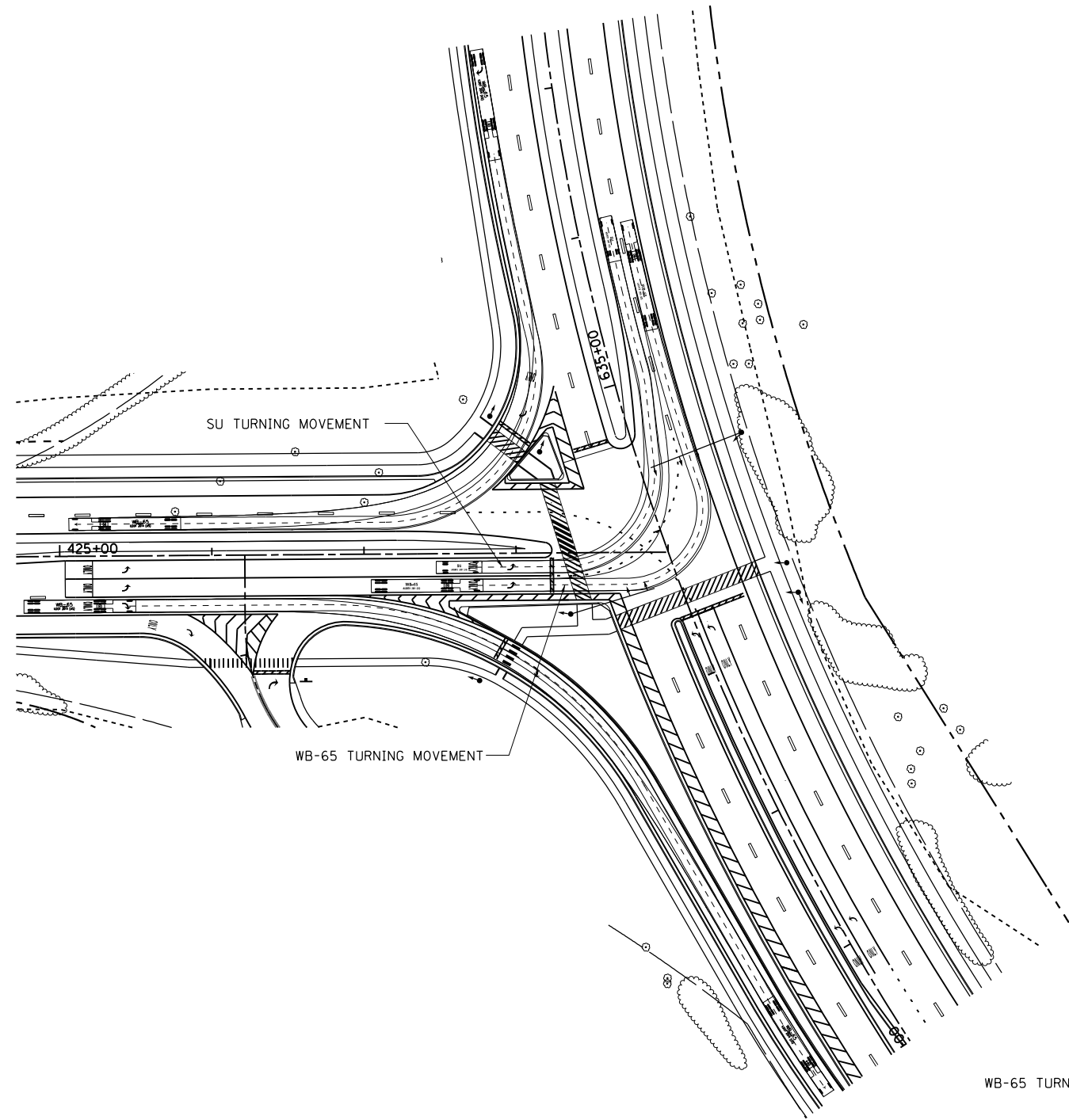
PLOT DATE = 6/19/2017  
FILE NAME = P:\P2020\9027\000\_CAD\006\_Civil\Sheets\05\006-IDS-IL47-IL176W-02.dgn  
PLOT SCALE = 100.000' / 1" =  
USER NAME = hanege@aef



INTERSECTION DESIGN STUDY	
FAP ROUTE 326	ILLINOIS ROUTE 47
FAP ROUTE 533	WITH IL ROUTE 176 (WEST LEG)
SEC. NO. 13-32-200-003	REED ROAD TO US ROUTE 14
SCALE 1" = 50'	COUNTY MCHENRY
SJN :	PROJ. NO. P-91-101-07
SHEET NO. 61	I.D.S. SHEET 2 OF 4

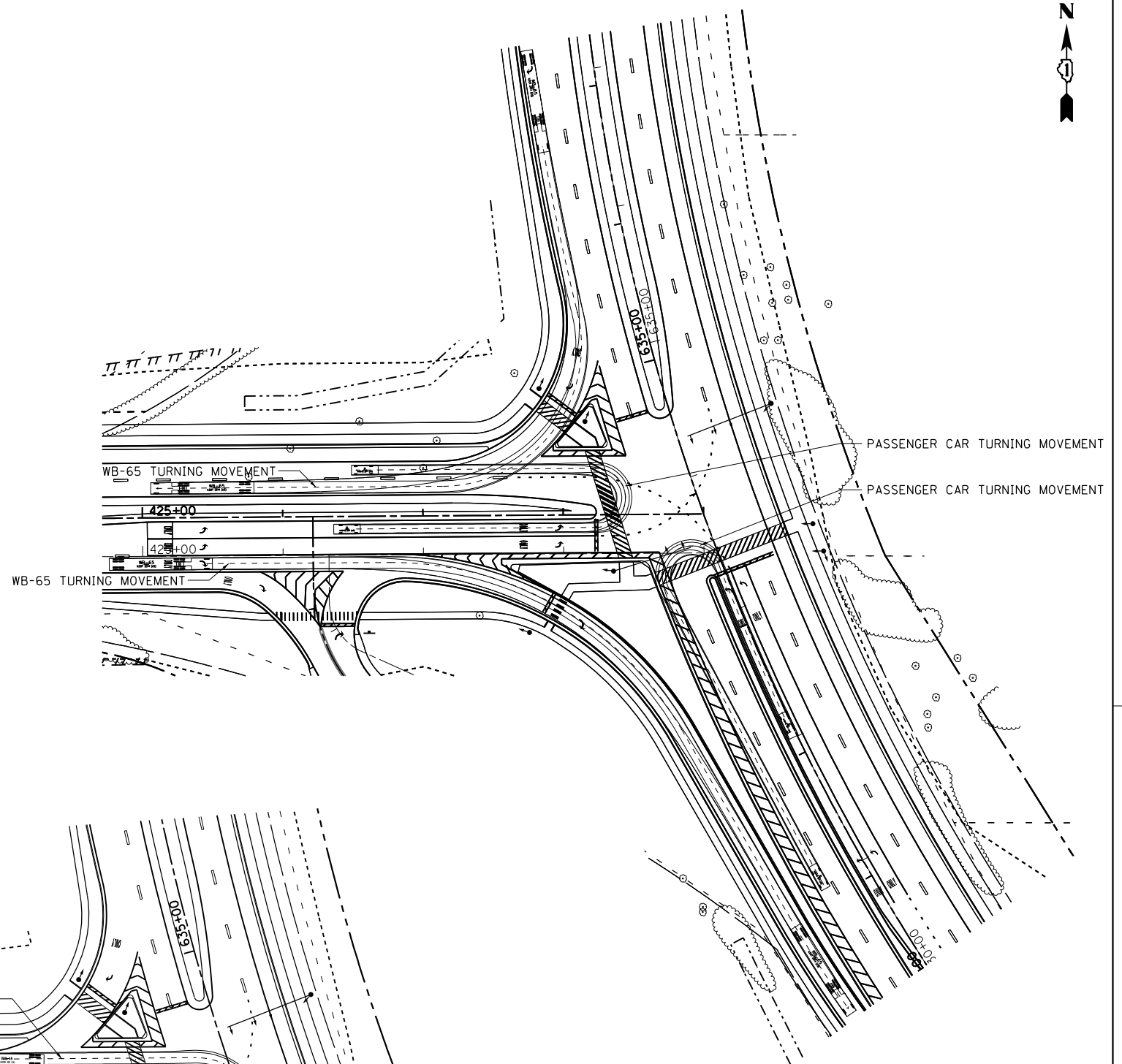


PLOT DATE = 6/19/2017  
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PLOT SCALE = 100.000 / 1" = 50'  
USER NAME = hanege@aol



WB-65 TURNING MOVEMENT

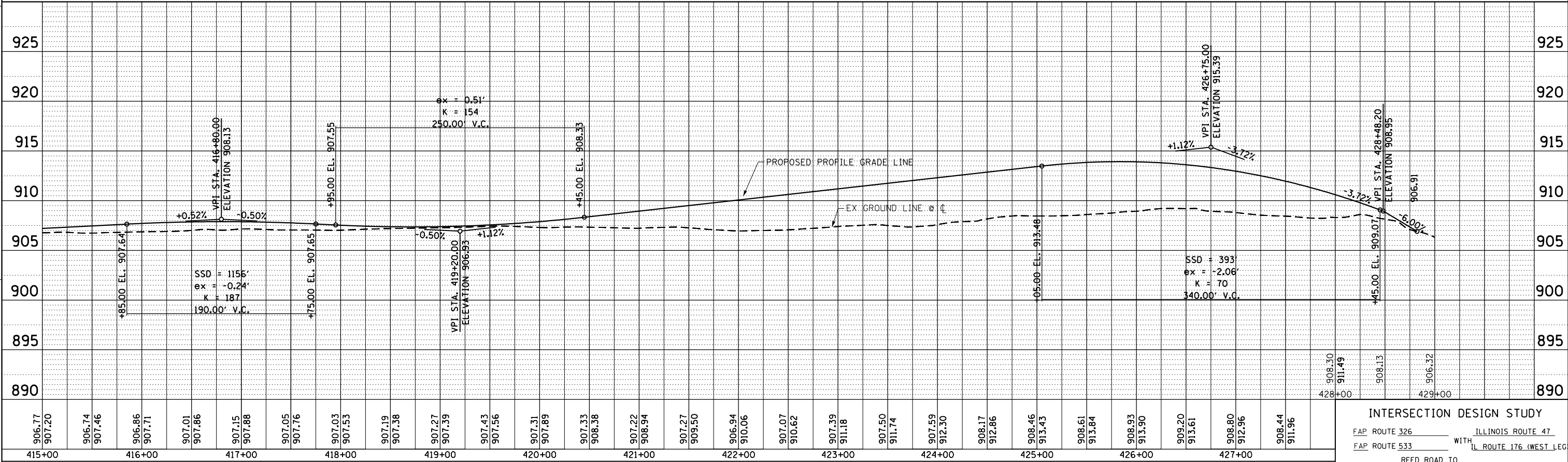
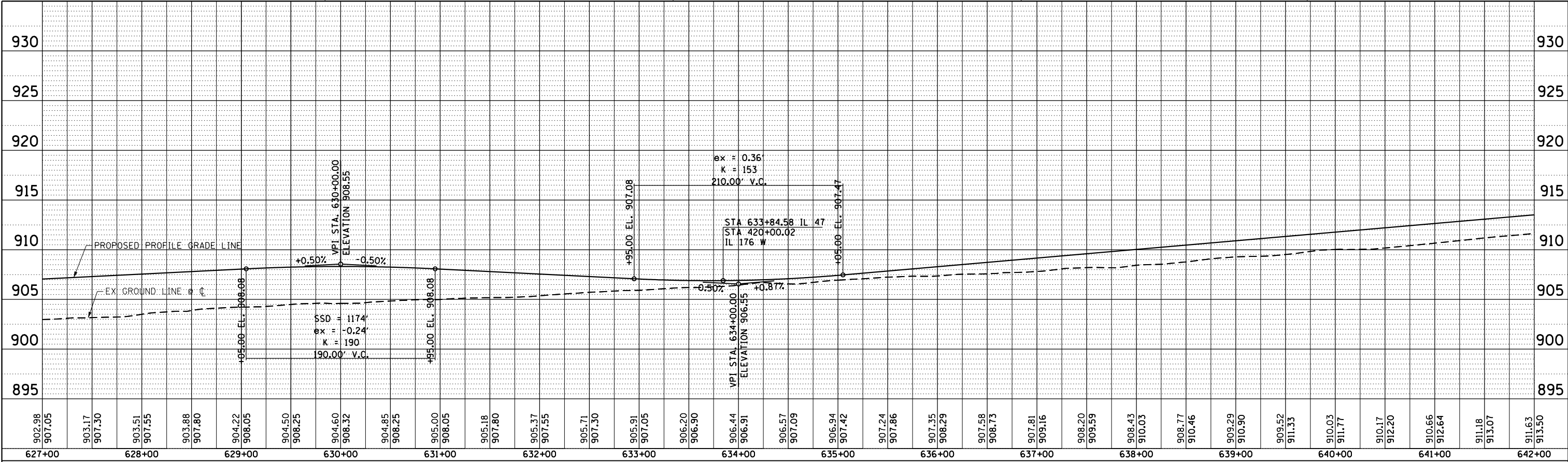
SU TURNING MOVEMENT



INTERSECTION DESIGN STUDY

FAP ROUTE 326 ILLINOIS ROUTE 47  
FAP ROUTE 533 WITH IL ROUTE 176 (WEST LEG)  
SEC. NO. REED ROAD TO US ROUTE 14  
SCALE 1" = 50' COUNTY MCHENRY  
SUN : PROJ. NO. P-91-101-07  
SHEET NO. 62 I.D.S. SHEET 3 OF 4

PLOT DATE = 4/5/2017  
FILE NAME = \\cas001r001\project\Projects\60037027\000\_CAD\006\_Civil\Sheets\IDS\006\_IDS\_IL47\_IL176W-04.dgn  
PLOT SCALE = 100.000' / in.  
USER NAME = hanege@aaf



INTERSECTION DESIGN STUDY

FAP ROUTE 326 WITH ILLINOIS ROUTE 47  
FAP ROUTE 533 WITH IL ROUTE 176 (WEST LEG)

SEC. NO. REED ROAD TO US ROUTE 14

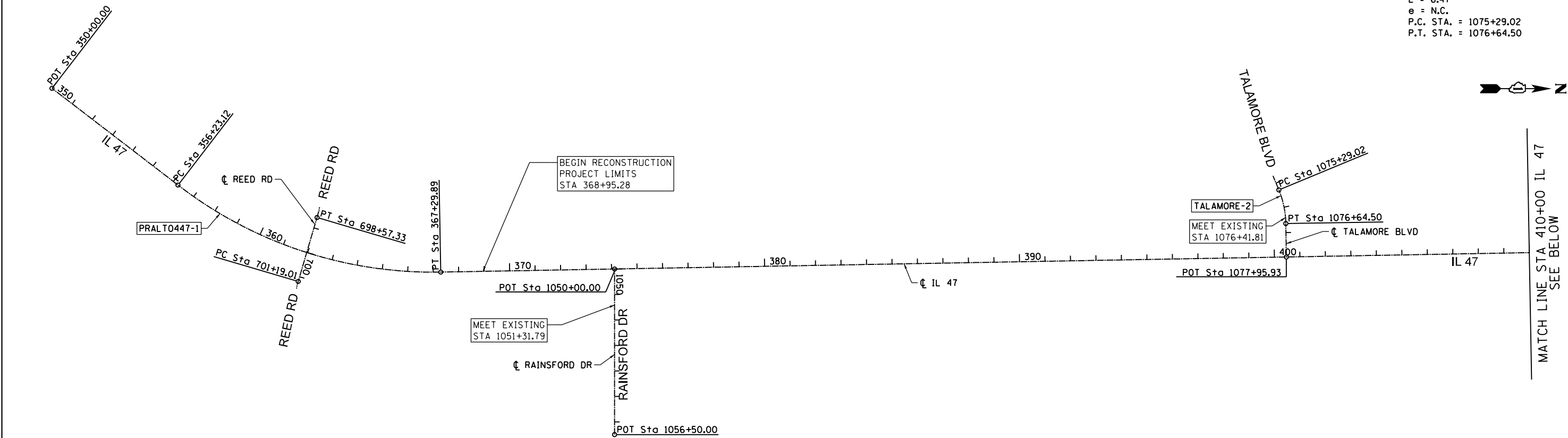
SCALE 1" = 50' COUNTY MCHENRY

SJN : PROJ. NO. P-91-101-07

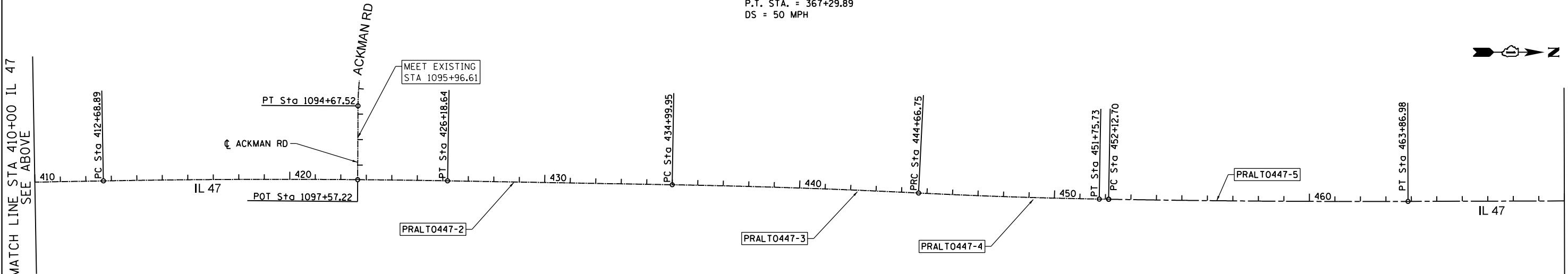
SHEET NO. 63 I.D.S. SHEET 4 OF 4

**APPENDIX A-6  
ALIGNMENT PLAN**

PROP. CURVE TALAMORE-2  
PI STA. = 1075+97.57  
Δ = 21° 33' 43" (RT)  
D = 15° 54' 56"  
R = 360.00'  
T = 68.55'  
L = 135.48'  
E = 6.47'  
e = N.C.  
P.C. STA. = 1075+29.02  
P.T. STA. = 1076+64.50



EX CURVE PRALTO447-1 PI STA. = 361+98.59 Δ = 38° 43' 58" (LT) D = 3° 29' 59" R = 1,637.20' T = 575.47' L = 1,106.77' E = 98.19' T.R. ATTAINMENT = 72' S.E. RUN ATTAINMENT = 122.4' T.R. REMOVAL = 72' S.E. RUN REMOVAL = 122.4' e = 5.0% P.C. STA. = 356+23.12 P.T. STA. = 367+29.89 DS = 50 MPH	PROP. CURVE PRALTO447-2 PI STA. = 419+43.83 Δ = 2° 01' 29" (RT) D = 0° 09' 00" R = 38,197.20' T = 674.95' L = 1,349.75' E = 5.96' e = N.C. P.C. STA. = 412+68.89 P.T. STA. = 426+18.64 DS = 60 MPH	PROP. CURVE PRALTO447-3 PI STA. = 439+83.39 Δ = 1° 50' 47" (RT) D = 0° 11' 28" R = 30,000.00' T = 483.44' L = 966.80' E = 3.89' e = N.C. P.C. STA. = 434+99.95 P.T. STA. = 444+66.75 DS = 60 MPH	PROP. CURVE PRALTO447-4 PI STA. = 448+21.27 Δ = 1° 50' 47" (LT) D = 0° 15' 38" R = 22,000.00' T = 354.52' L = 708.98' E = 2.86' e = N.C. P.C. STA. = 444+66.75 P.T. STA. = 451+75.73 DS = 60 MPH	PROP. CURVE PRALTO447-5 PI STA. = 457+99.86 Δ = 1° 10' 25" (LT) D = 0° 06' 00" R = 57,322.80' T = 587.16' L = 1,174.27' E = 3.01' e = N.C. P.C. STA. = 452+12.70 P.T. STA. = 463+86.98 DS = 60 MPH
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EX CURVE CONLEY-1  
PI STA. = 2015+97.27  
Δ = 13° 28' 19" (LT)  
D = 4° 32' 42"  
R = 1,260.64'  
T = 148.89'  
L = 296.41'  
E = 8.76'  
e = N.C.  
P.C. STA. = 2014+48.37  
P.T. STA. = 2017+44.79  
DS = 20 MPH

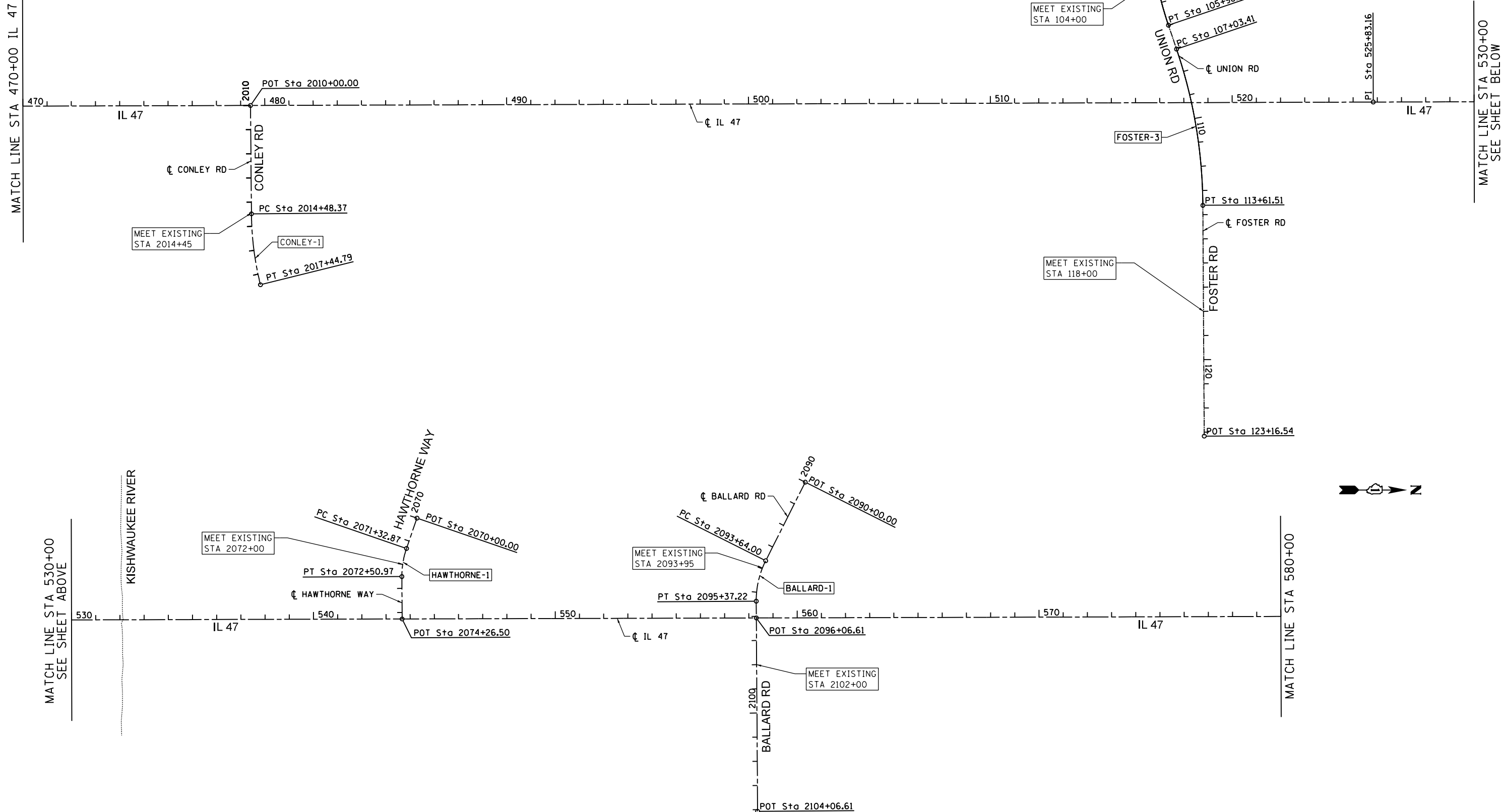
EX CURVE FOSTER-1  
PI STA. = 102+92.59  
Δ = 47° 06' 44" (LT)  
D = 20° 27' 46"  
R = 280.00'  
T = 122.07'  
L = 230.23'  
E = 25.45'  
e = N.C.  
P.C. STA. = 101+70.52  
P.T. STA. = 104+00.75  
DS = 20 MPH

PROP. CURVE FOSTER-2  
PI STA. = 104+99.97  
Δ = 7° 29' 20" (LT)  
D = 3° 46' 46"  
R = 1,516.00'  
T = 99.22'  
L = 198.15'  
E = 3.24'  
e = N.C.  
P.C. STA. = 104+00.75  
P.T. STA. = 105+98.91  
DS = 20 MPH

PROP. CURVE FOSTER-3  
PI STA. = 110+35.32  
Δ = 18° 23' 36" (RT)  
D = 2° 47' 42"  
R = 2,050.00'  
T = 331.90'  
L = 658.10'  
E = 26.69'  
e = N.C.  
P.C. STA. = 107+03.41  
P.T. STA. = 113+61.51  
DS = 20 MPH

EX CURVE HAWTHORNE-1  
PI STA. = 2071+92.49  
Δ = 19° 19' 55" (LT)  
D = 16° 22' 13"  
R = 350.00'  
T = 59.61'  
L = 118.09'  
E = 5.04'  
e = N.C.  
P.C. STA. = 2071+32.87  
P.T. STA. = 2072+50.97  
DS = 20 MPH

EX CURVE BALLARD-1  
PI STA. = 2094+52.26  
Δ = 27° 05' 07" (LT)  
D = 15° 38' 12"  
R = 366.42'  
T = 88.26'  
L = 173.22'  
E = 10.48'  
e = N.C.  
P.C. STA. = 2093+64.00  
P.T. STA. = 2095+37.22  
DS = 20 MPH



FILE NAME = 39027_SHT_Alignment-Ties-02.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ALIGNMENT AND TIES IL ROUTE 47				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - PHP	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	3
	PLOT SCALE = 400.000' / in.	CHECKED - KM	REVISED -		CONTRACT NO.								
	PLOT DATE = 4/5/2017	DATE -	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT								
					SCALE: 1"=100'	SHEET NO. 2 OF 4 SHEETS	STA. 470+00	T00 STA. 580+00					

P:\P60039027\000\_CAD\006\_Civil\Sheets\Alignment\_Ties\39027\_SHT\_Alignment-Ties-02.dgn  
4/5/2017

PROP. CURVE PRALTO447-6  
PI STA. = 588+94.07  
 $\Delta$  = 38° 30' 23" (LT)  
D = 3° 22' 13"  
R = 1,700.00'  
T = 593.77'  
L = 1,142.51'  
E = 100.71'  
e = 5.8%  
T.R. ATTAINMENT = 80'  
S.E. RUN ATTAINMENT = 232'  
T.R. REMOVAL = 80'  
S.E. RUN REMOVAL = 232'  
P.C. STA. = 583+00.29  
P.T. STA. = 594+42.80  
DS = 60 MPH

PROP. CURVE PRALTO447-7  
PI STA. = 634+16.47  
 $\Delta$  = 38° 34' 58" (RT)  
D = 3° 37' 59"  
R = 1,577.12'  
T = 552.03'  
L = 1,062.03'  
E = 93.82'  
e = 6.0%  
T.R. ATTAINMENT = 80'  
S.E. RUN ATTAINMENT = 240'  
T.R. REMOVAL = 80'  
S.E. RUN REMOVAL = 240'  
P.C. STA. = 628+64.43  
P.T. STA. = 639+26.46  
DS = 60 MPH

PROP. CURVE PLEASANT-1  
PI STA. = 2133+89.62  
 $\Delta$  = 25° 17' 36" (LT)  
D = 20° 50' 05"  
R = 275.00'  
T = 61.70'  
L = 121.40'  
E = 6.84'  
e = N.C.  
P.C. STA. = 2133+27.91  
P.T. STA. = 2134+49.31  
DS = 20 MPH

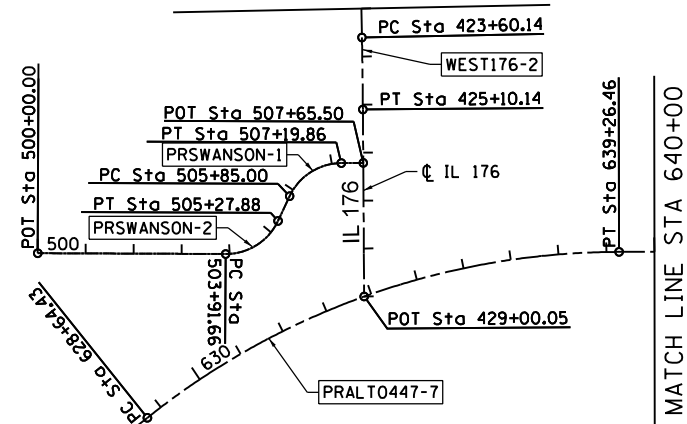
PROP. CURVE WEST176-1  
PI STA. = 404+14.46  
 $\Delta$  = 0° 49' 27" (LT)  
D = 0° 28' 39"  
R = 12,000.00'  
T = 86.30'  
L = 172.60'  
E = 0.31'  
e = N.C.  
P.C. STA. = 403+28.16  
P.T. STA. = 405+00.76  
DS = 60 MPH

PROP. CURVE WEST176-2  
PI STA. = 424+35.14  
 $\Delta$  = 0° 42' 58" (RT)  
D = 0° 28' 39"  
R = 12,000.00'  
T = 75.00'  
L = 150.00'  
E = 0.23'  
e = N.C.  
P.C. STA. = 423+60.14  
P.T. STA. = 425+10.14  
DS = 60 MPH

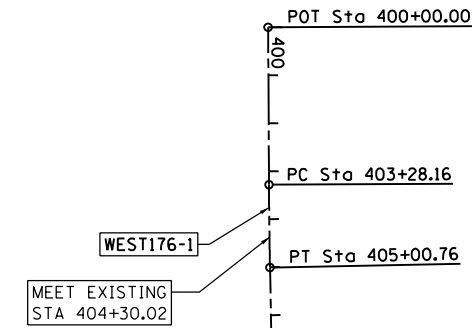
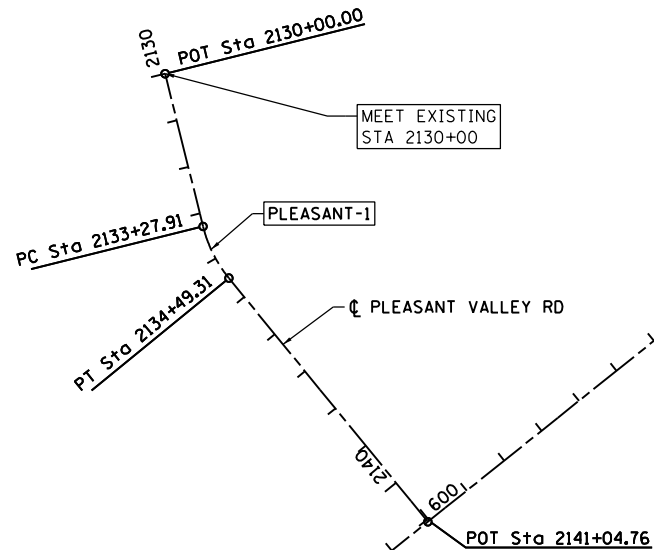
PROP. CURVE PRSWANSON-1  
PI STA. = 504+68.17  
 $\Delta$  = 65° 02' 24" (LT)  
D = 47° 44' 47"  
R = 120.00'  
T = 76.51'  
L = 136.22'  
E = 22.31'  
e = 4.0%  
T.R. ATTAINMENT = 31'  
S.E. RUN ATTAINMENT = 81'  
T.R. REMOVAL = 0'  
S.E. RUN REMOVAL = 69'  
P.C. STA. = 503+91.66  
P.T. STA. = 505+27.88  
DS = 20 MPH

PROP. CURVE PRSWANSON-2  
PI STA. = 506+60.56  
 $\Delta$  = 64° 23' 37" (RT)  
D = 47° 44' 47"  
R = 120.00'  
T = 75.56'  
L = 134.87'  
E = 21.81'  
e = 4.0%  
T.R. ATTAINMENT = 0'  
S.E. RUN ATTAINMENT = 69'  
T.R. REMOVAL = 31'  
S.E. RUN REMOVAL = 81'  
P.C. STA. = 505+85.00  
P.T. STA. = 507+19.86  
DS = 20 MPH

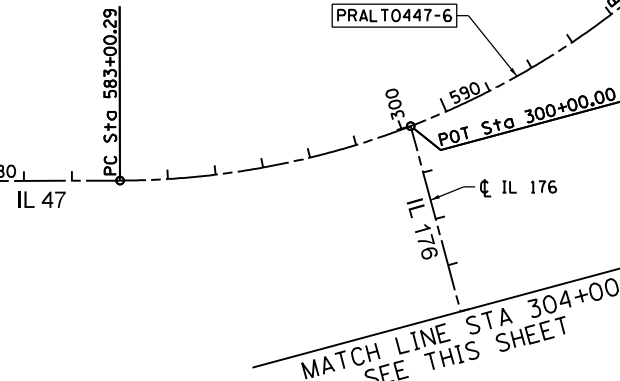
MATCH LINE STA 423+00  
SEE THIS SHEET



MATCH LINE STA 304+00  
SEE THIS SHEET



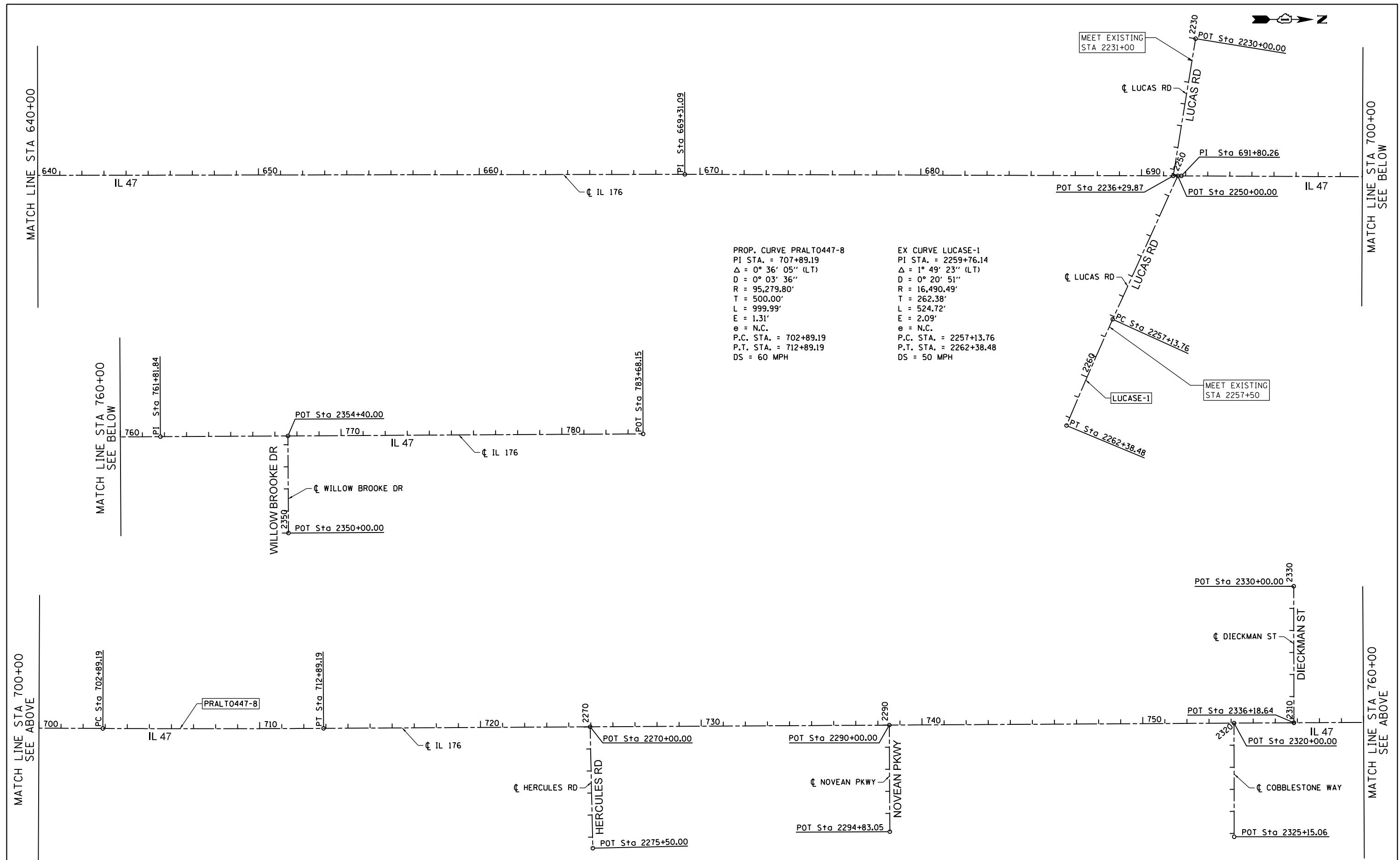
MATCH LINE STA 580+00  
SEE SHEET 2 OF



MATCH LINE STA 304+00  
SEE THIS SHEET

MATCH LINE STA 423+00  
SEE THIS SHEET

FILE NAME : 39027-SHT_Alignment-Ties-03.dgn	USER NAME = hanegraefe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ALIGNMENT AND TIES IL ROUTE 47				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - PHP	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	4
	PLOT SCALE = 400.000 ' / in.	CHECKED - KM	REVISED -		CONTRACT NO.								
	PLOT DATE = 4/5/2017	DATE -	REVISED -		SCALE: 1"=100'	SHEET NO. 3 OF 4 SHEETS	STA. 580+00	T00 STA. 640+00	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		
P:\P0039027\000_CAD\006_Civil\Sheets\Alignment_Ties\39027-SHT_Alignment-Ties-03.dgn 4/5/2017													

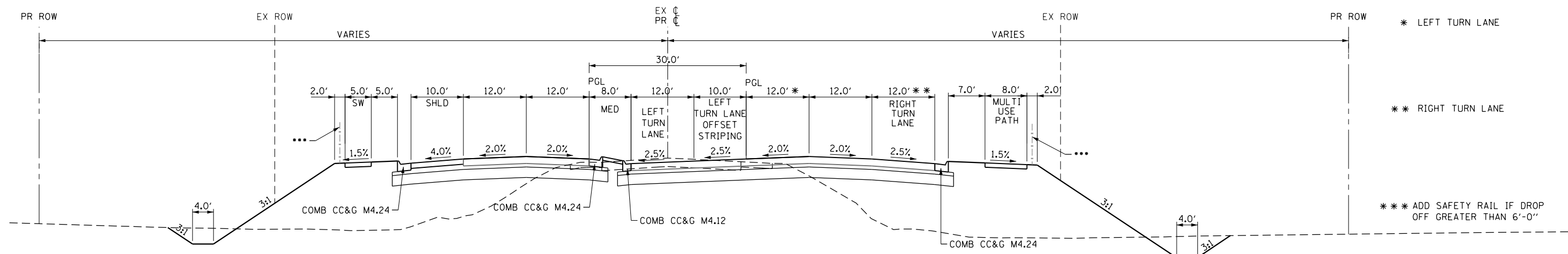


FILE NAME =  39027_SHT_Alignment-Ties-04.dgn	USER NAME = hanegraafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ALIGNMENT AND TIES IL ROUTE 47			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - PHP	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	5
	PLOT SCALE = 400.000' / 1in.	CHECKED - KM	REVISED -		CONTRACT NO.							
	PLOT DATE = 4/5/2017	DATE -	REVISED -		SCALE: 1"=100'	SHEET NO. 4 OF 4 SHEETS	STA. 640+00 TO STA. 783+68.15	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

**APPENDIX A-7**  
**TYPICAL CROSS SECTIONS**







**RIGHT-TURN LANE**  
STA 369+32.23 TO STA 373+67.23  
STA 544+45.20 TO STA 549+75.17

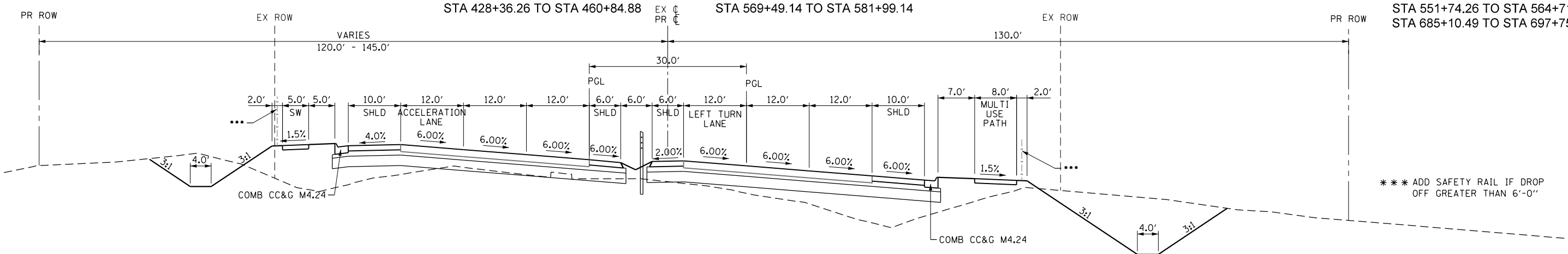
**LEFT-TURN LANE**  
STA 374+60.90 TO STA 380+33.35  
STA 394+30.51 TO STA 399+97.18  
STA 416+45.87 TO STA 422+11.11  
STA 428+36.26 TO STA 460+84.88

**IL 47 WITH TURN LANES**

**LEFT-TURN LANE**  
STA 653+34.08 TO STA 665+14.08  
STA 374+60.90 TO STA 380+33.35  
STA 480+05.54 TO STA 485+70.54  
STA 569+49.14 TO STA 581+99.14

**LEFT-TURN AND RIGHT-TURN LANES**

STA 400+96.41 TO STA 406+61.41  
STA 423+33.13 TO STA 428+98.19  
STA 473+01.78 TO STA 478+66.78  
STA 511+98.48 TO STA 524+78.58  
STA 551+74.26 TO STA 564+71.41  
STA 685+10.49 TO STA 697+75.72

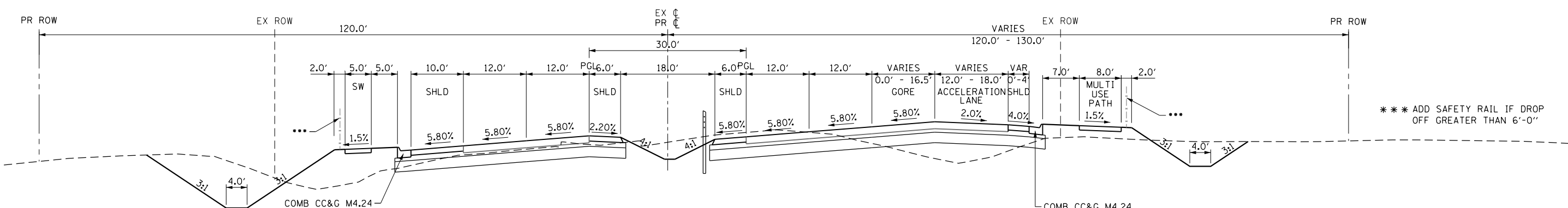


**ACCELERATION LANE**  
NORMAL CROWN: STA 617+88.61 TO STA 627+02.93  
5.80% TO NORMAL CROWN: STA 627+02.93 TO 629+10.93  
FULLY SUPERELEVATED @ (5.80%): STA 629+10.93 TO STA 633+04.64

**IL 47 WITH ACCELERATION LANE**

NOT TO SCALE  
STA 617+88.61 TO STA 640+87.96

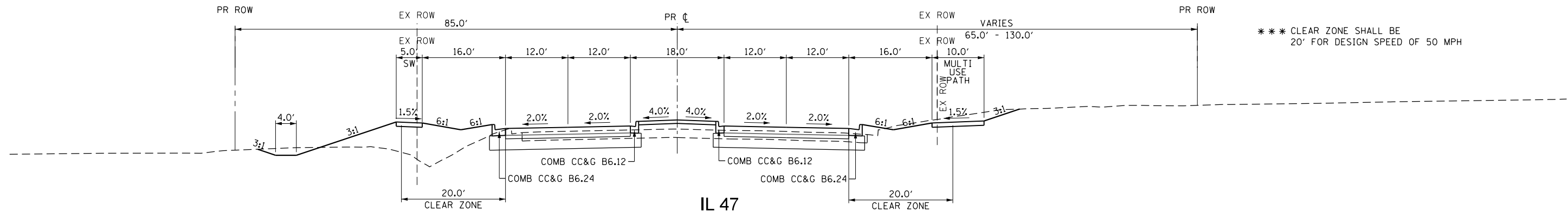
**IL 47**  
NORMAL CROWN TO 6.00%: STA 625+92.43 TO STA 629+12.43  
FULLY SUPERELEVATED @ (6.00%): STA 629+12.43 TO STA 638+78.46  
6.00% TO NORMAL CROWN: STA 638+78.46 TO 641+98.46



**IL 47 WITH ACCELERATION LANE**

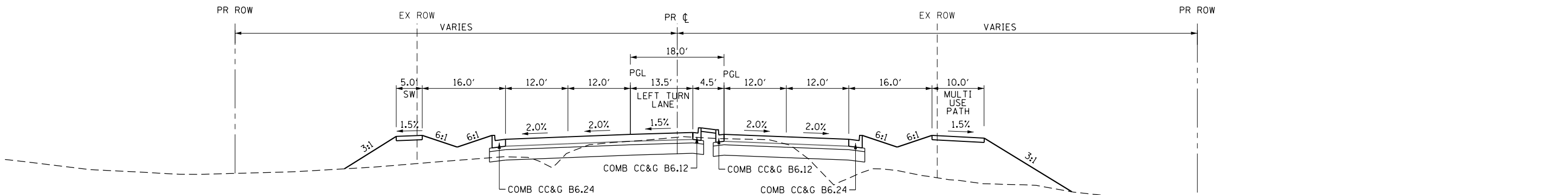
NOT TO SCALE  
STA 581+38.79 TO 604+60.30

**IL 47**  
NORMAL CROWN TO 5.80%: STA 580+34.69 TO STA 583+46.69  
FULLY SUPERELEVATED @ (5.80%): STA 583+46.69 TO STA 593+96.40  
5.80% TO NORMAL CROWN: STA 593+96.40 TO STA 597+08.40



**IL 47**  
NOT TO SCALE  
STA 718+00.00 TO STA 745+92.31  
STA 752+84.98 TO STA 773+19.98

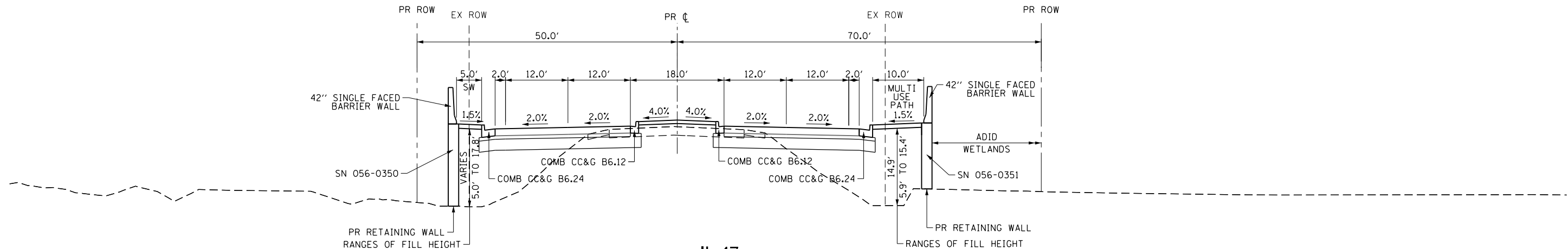
\*\*\* CLEAR ZONE SHALL BE  
20' FOR DESIGN SPEED OF 50 MPH



**IL 47 WITH LEFT TURN LANE**

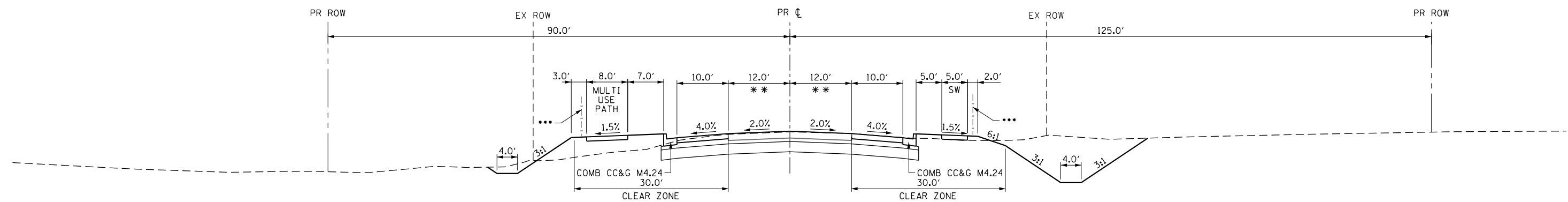
NOT TO SCALE  
LEFT-TURN LANE  
STA 725+49.82 TO STA 729+34.82  
STA 734+23.14 TO STA 742+80.48  
STA 754+87.49 TO STA 758+72.49  
STA 763+02.63 TO STA 772+76.72

LEFT-TURN AND RIGHT-TURN LANES  
STA 719+11.26 TO STA 724+43.48



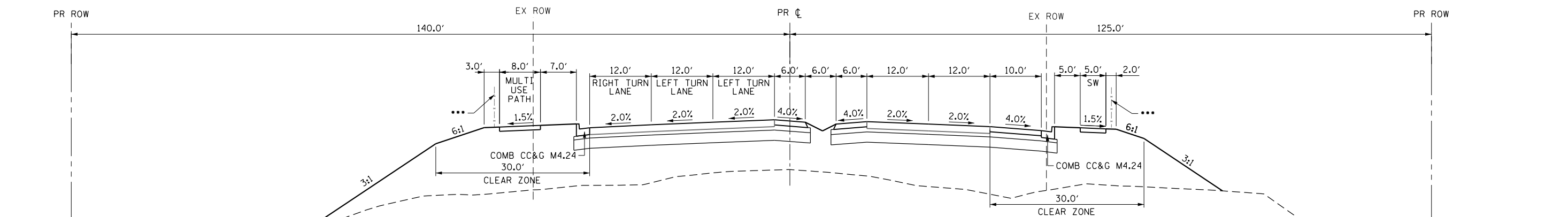
**IL 47**  
NOT TO SCALE  
LT STA 745+92.31 TO LT STA 752+84.98  
RT STA 745+94.76 TO RT STA 751+61.96

FILE NAME = 39027_SHT_TYSEC-03.dgn	USER NAME = haneasafe	DESIGNED - AFC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TYPICAL CROSS SECTIONS IL ROUTE 47					F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - PHP	REVISED -							47	REED ROAD TO US 14	MCHENRY	336	8
	PLOT SCALE = 20.000 ' / in.	CHECKED - KM	REVISED -		CONTRACT NO.									
	PLOT DATE = 4/5/2017	DATE -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



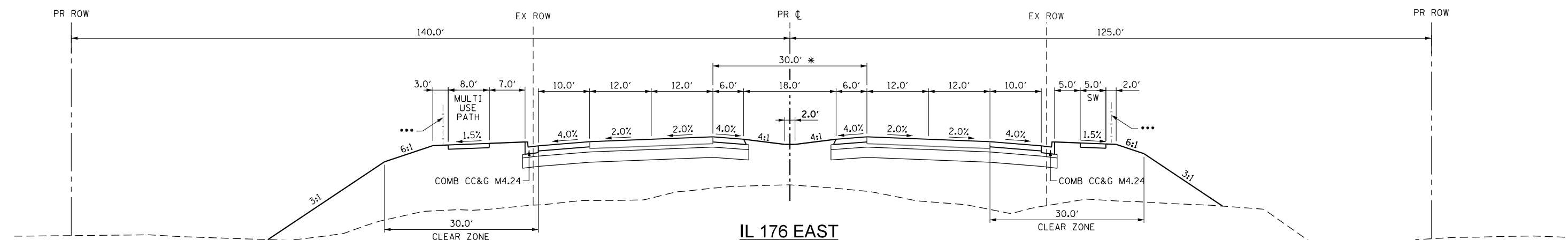
**IL 176 EAST**  
NOT TO SCALE  
STA 314+06.39 TO STA 320+06.39

\*\* FROM STA 314+06.39 TO STA. 320+06.39  
DISTANCE VARIES FROM 24' TO 12'.  
\*\*\* ADD SAFETY RAIL IF DROP  
OFF GREATER THAN 6'-0"



**IL 176 EAST WITH TURN LANES**  
NOT TO SCALE  
LEFT TURN LANE

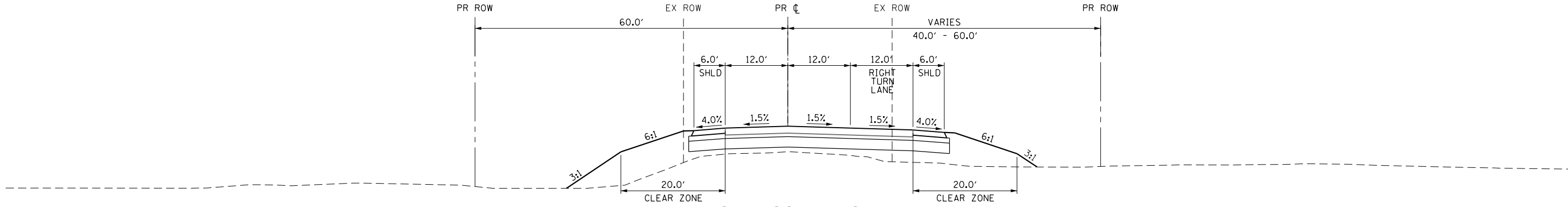
\*\*\* ADD SAFETY RAIL IF DROP  
OFF GREATER THAN 6'-0"



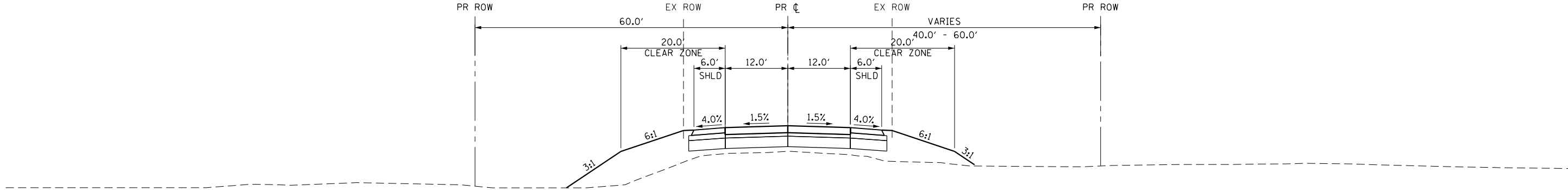
**IL 176 EAST**  
NOT TO SCALE  
STA 308+00.00 TO STA 314+06.39

\* FROM STA 306+56.33 TO STA. 314+06.39  
DISTANCE VARIES FROM 30' TO 0'.  
\*\*\* ADD SAFETY RAIL IF DROP  
OFF GREATER THAN 6'-0"

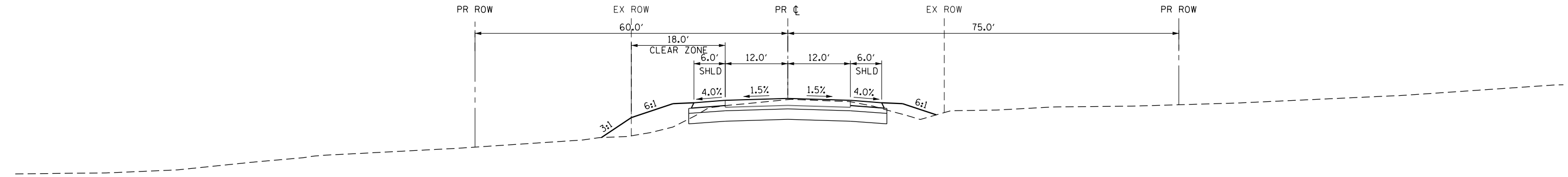




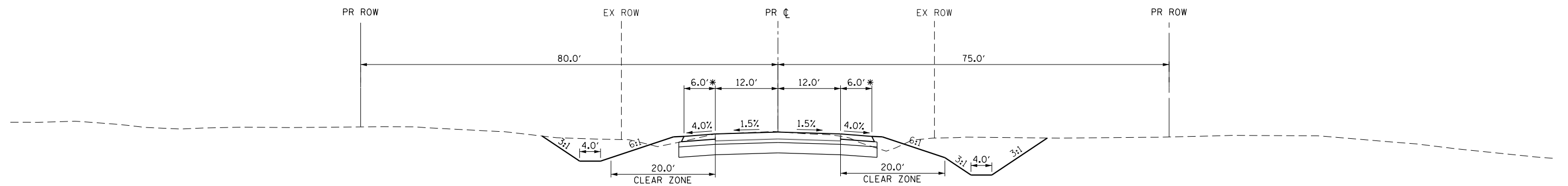
UNION / FOSTER ROAD  
NOT TO SCALE  
RIGHT TURN LANE



UNION / FOSTER ROAD  
NOT TO SCALE  
STA 104+00.00 TO STA 118+00.00

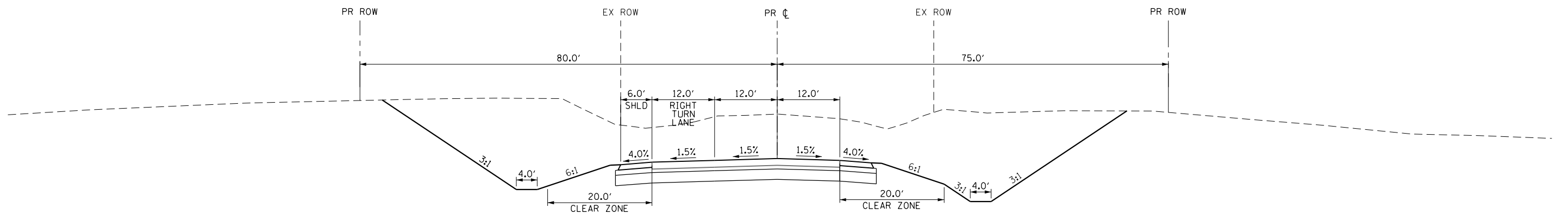


CONLEY RD  
NOT TO SCALE  
STA 2011+58.65 TO STA 2014+45.00



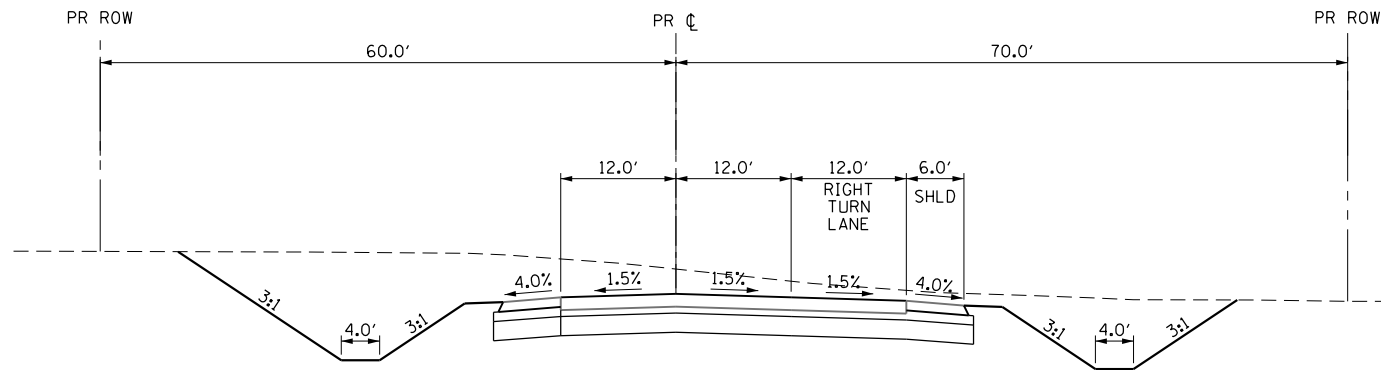
**BALLARD RD**  
NOT TO SCALE  
STA 2093+95.00 TO STA 2102+00.00

\* SHOULDER TAPERS TO NO SHOULDER WEST OF IL 47

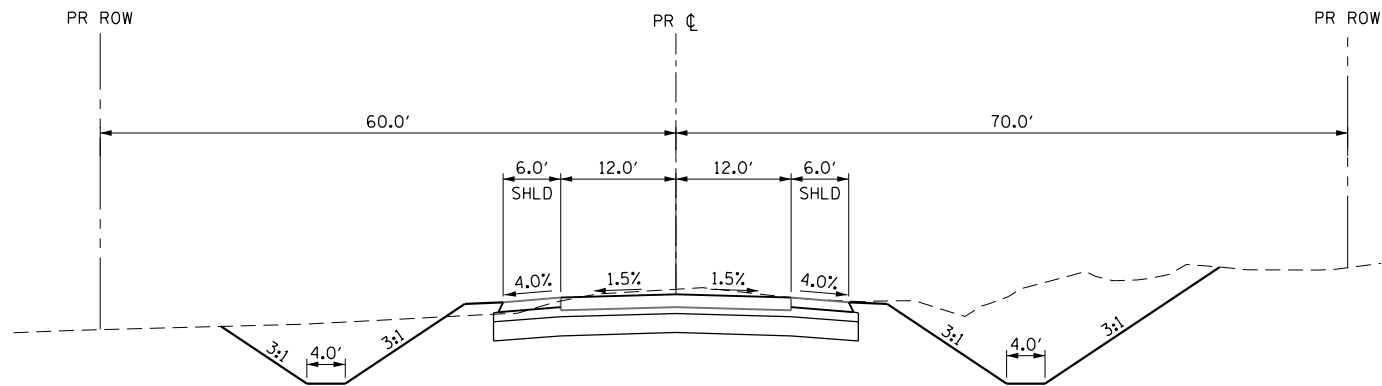


**BALLARD RD WITH RIGHT TURN LANE**  
NOT TO SCALE  
RIGHT TURN LANE

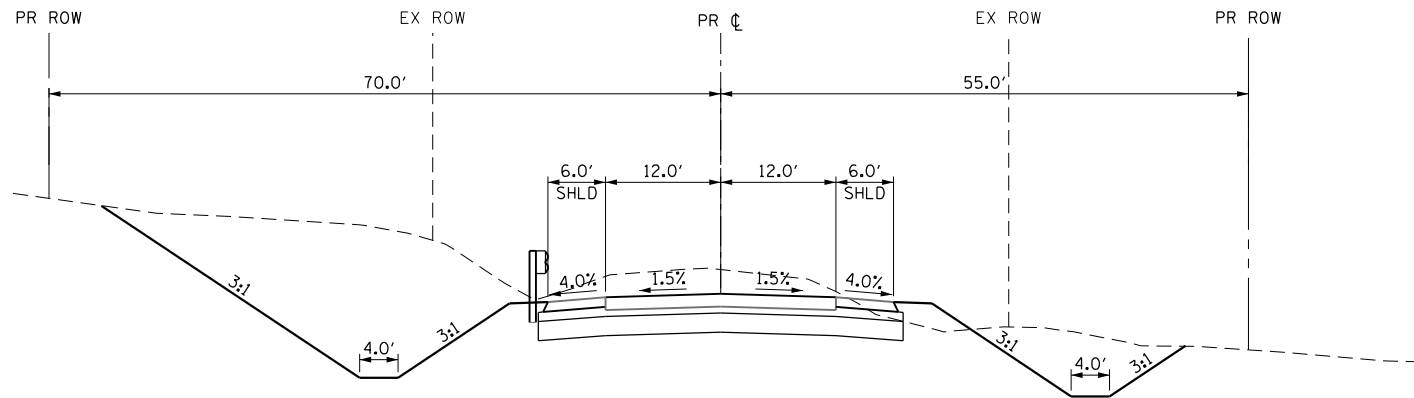
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		DRAWN - PHP	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	12
	PLOT SCALE = 20.000' / in.	CHECKED - KM	REVISED -						CONTRACT NO.				
	PLOT DATE = 4/5/2017	DATE -	REVISED -						FED. ROAD DIST. NO. 1   ILLINOIS   FED. AID PROJECT				
P:\P60039027\000_CAD\006_Civil\Sheets\Typ.Section\39027_SHT_TYPSPEC-07.dgn 4/5/2017					SCALE:	SHEET NO.	OF	SHEETS	STA.	TO	STA.		



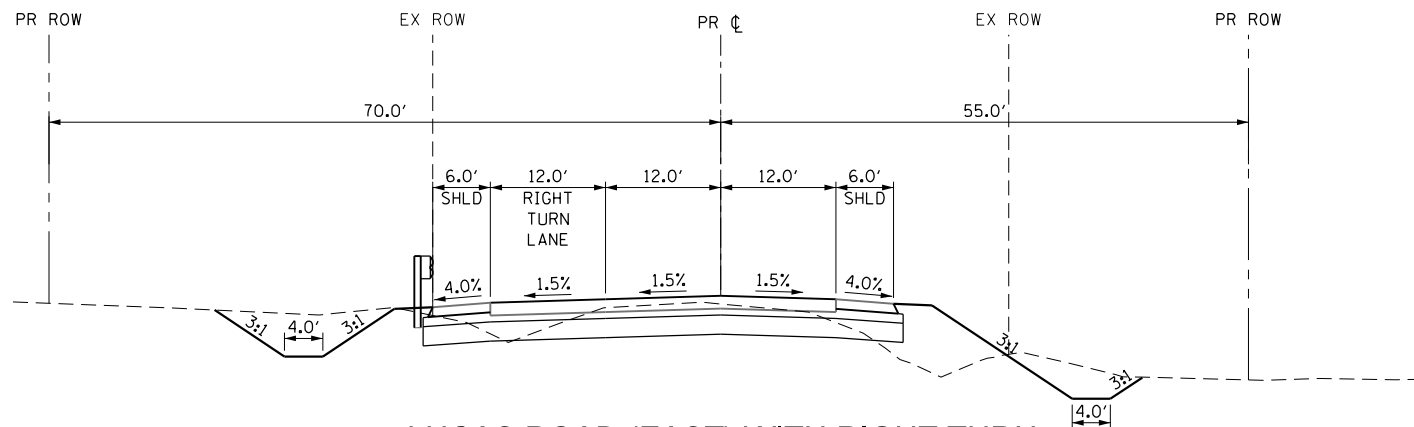
**PLEASANT VALLEY ROAD WITH RIGHT TURN**  
NOT TO SCALE  
RIGHT TURN LANE



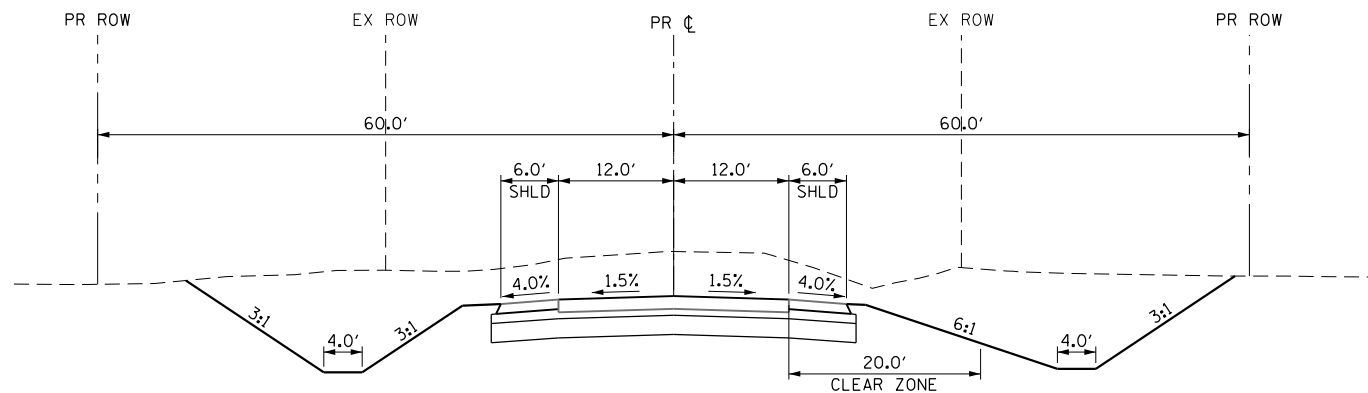
**PLEASANT VALLEY ROAD**  
NOT TO SCALE  
STA 2132+00.00 TO STA 2139+51.67



**LUCAS ROAD (EAST)**  
NOT TO SCALE  
STA 2251+94.48 TO STA 2257+50



**LUCAS ROAD (EAST) WITH RIGHT TURN**  
NOT TO SCALE  
RIGHT TURN LANE

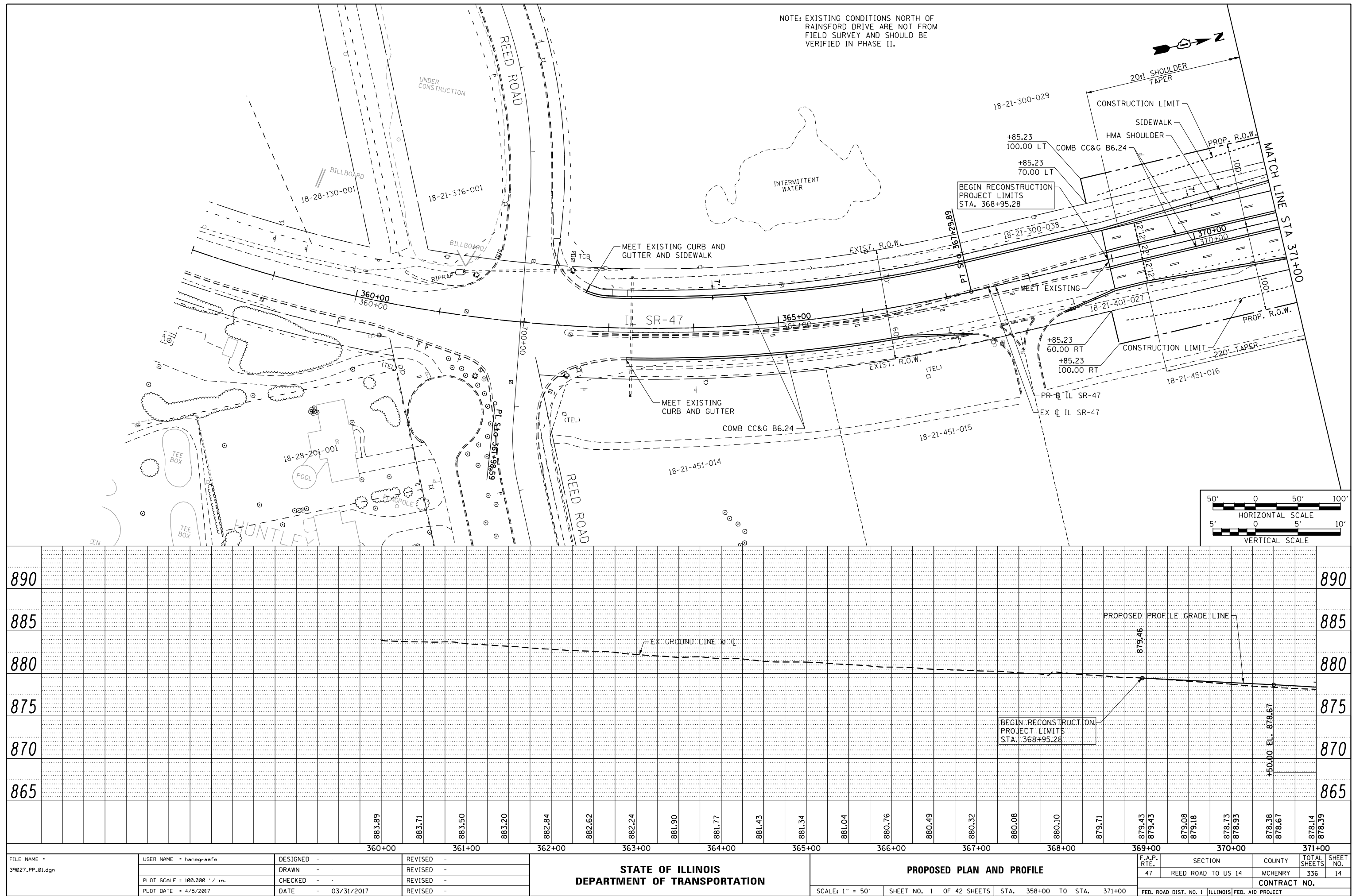


**LUCAS ROAD (WEST)**  
NOT TO SCALE  
STA 2231+00.00 TO STA 2235+00.67



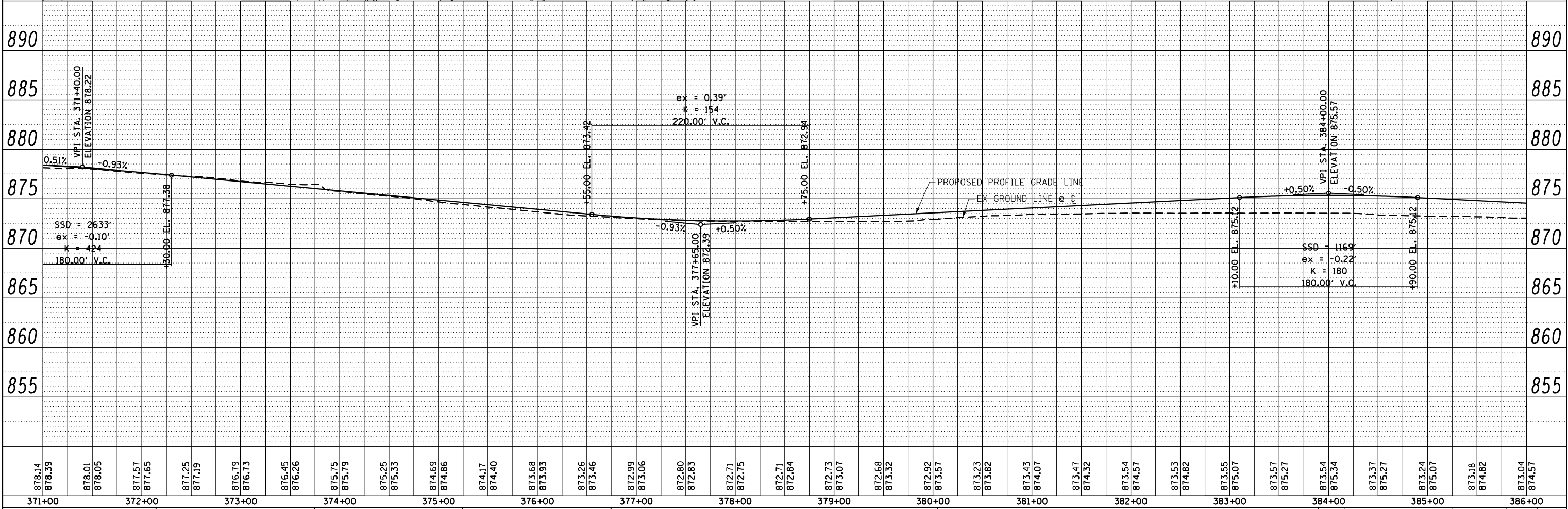
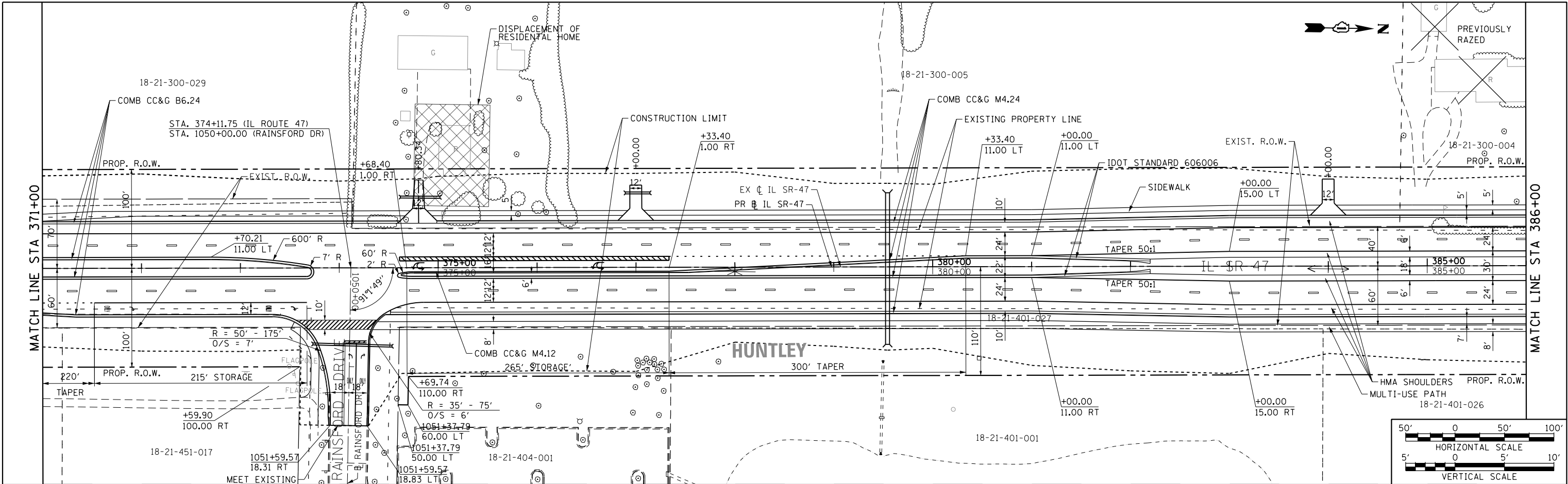
**APPENDIX A-8**  
**PLAN AND PROFILE**

PROFILE	SURVEYED _____	BY _____	DATE _____
NOTE BOOK	PLOTTED _____		
NO. _____	GRADES CHECKED _____		
	B.M. NOTED _____		
	STRUCTURE NOTATIONS CHKD _____		



PLAN	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	CHECKED		
	FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	CHECKED		
	STRUCTURE NOTATIONS CHKD		

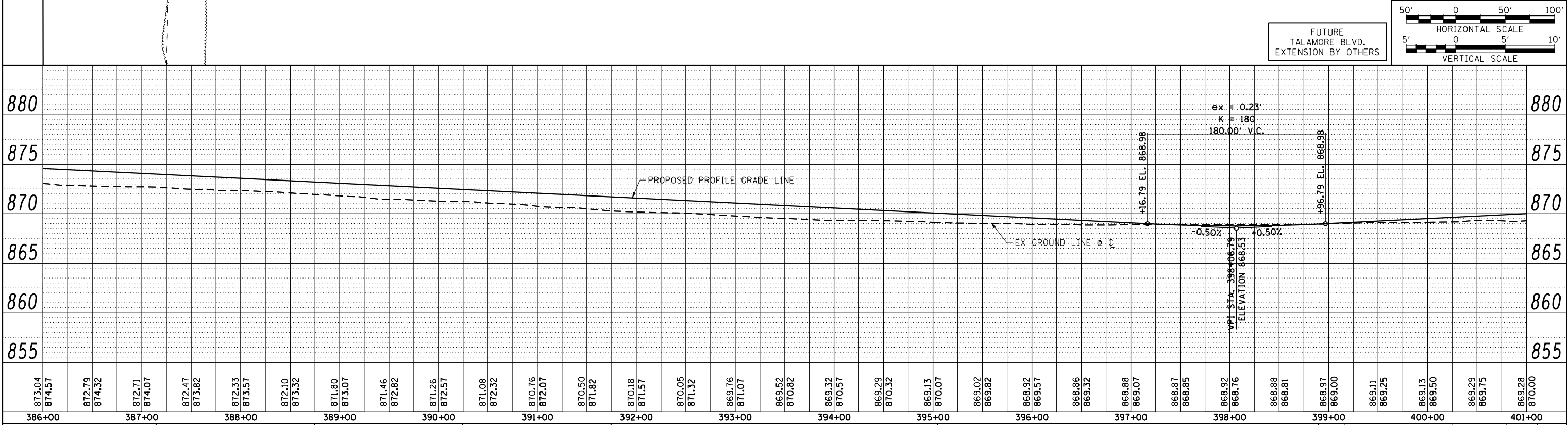
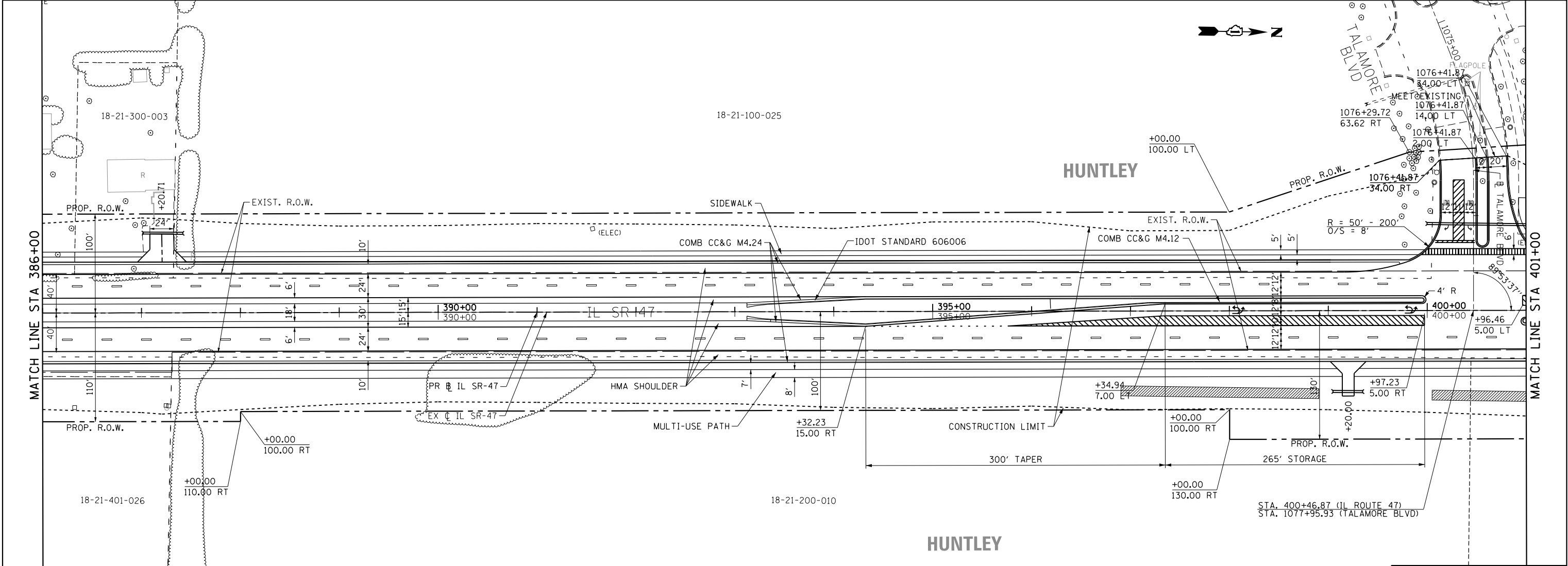


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	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 2 OF	SHEETS	STA. 371+00 TO STA. 386+00					
	PLOT DATE = 8/29/2017	DATE = 08/24/2017	REVISED -										

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8/29/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK NO.	PLOTTED		
	ALIGNED		
	CHECKED		
	FILE NAME		

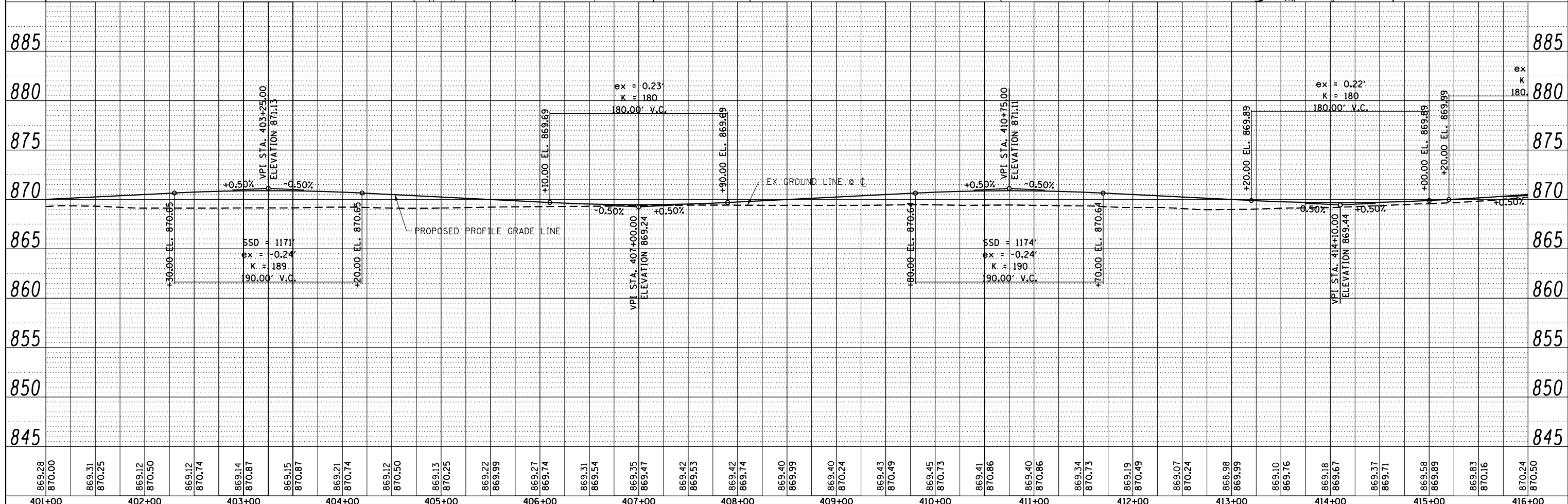
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NOTE BOOK NO.	PLOTTED		
	GRADES		
	CHECKED		
	STRUCTURE		
	NOTATIONS		



FILE NAME =  39027_PP_03.dgn	USER NAME = hanegraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS  DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	16
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		CONTRACT NO.								
	PLOT DATE = 4/5/2017	DATE - 03/31/2017	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT								
				SCALE: 1" = 50'		SHEET NO. 3 OF 42 SHEETS		STA. 386+00 TO STA. 401+00					

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4/5/2017

PROFILE	SURVEYED _____	BY _____	DATE _____
	PLOTTED _____		
NOTE BOOK	GRADES CHECKED _____		
	B.M. NOTED _____		
NO. _____	STRUCTURE NOTAT'NS CH'KD _____		

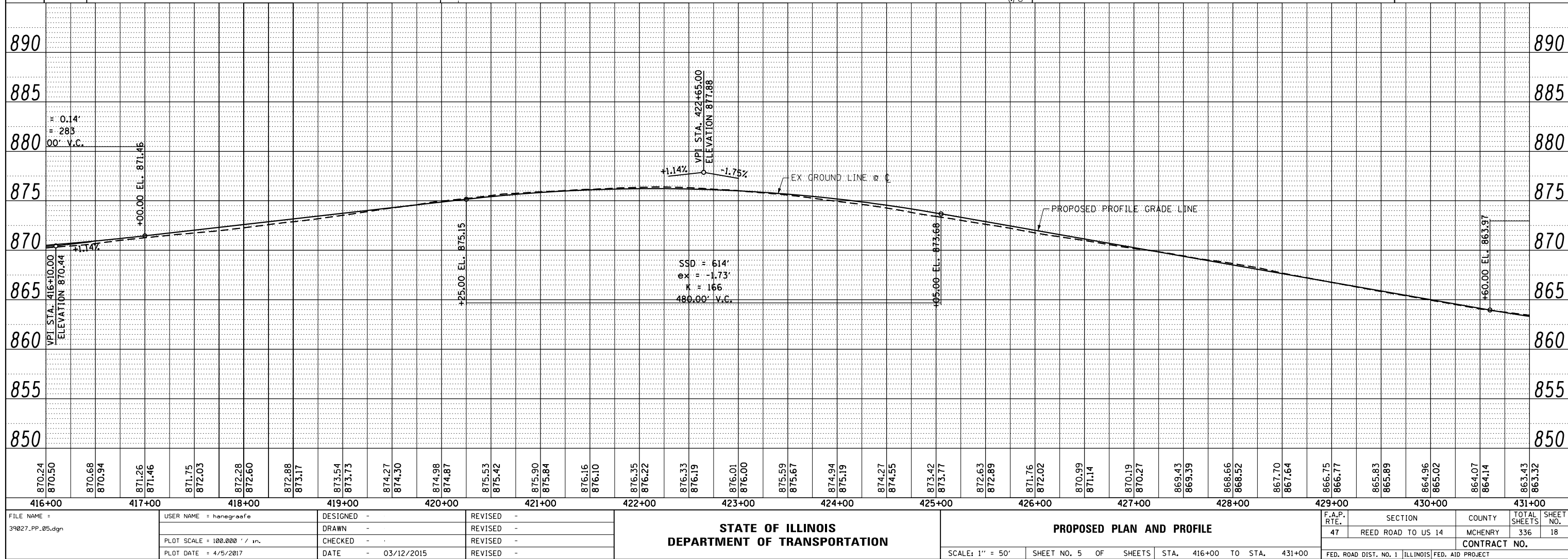
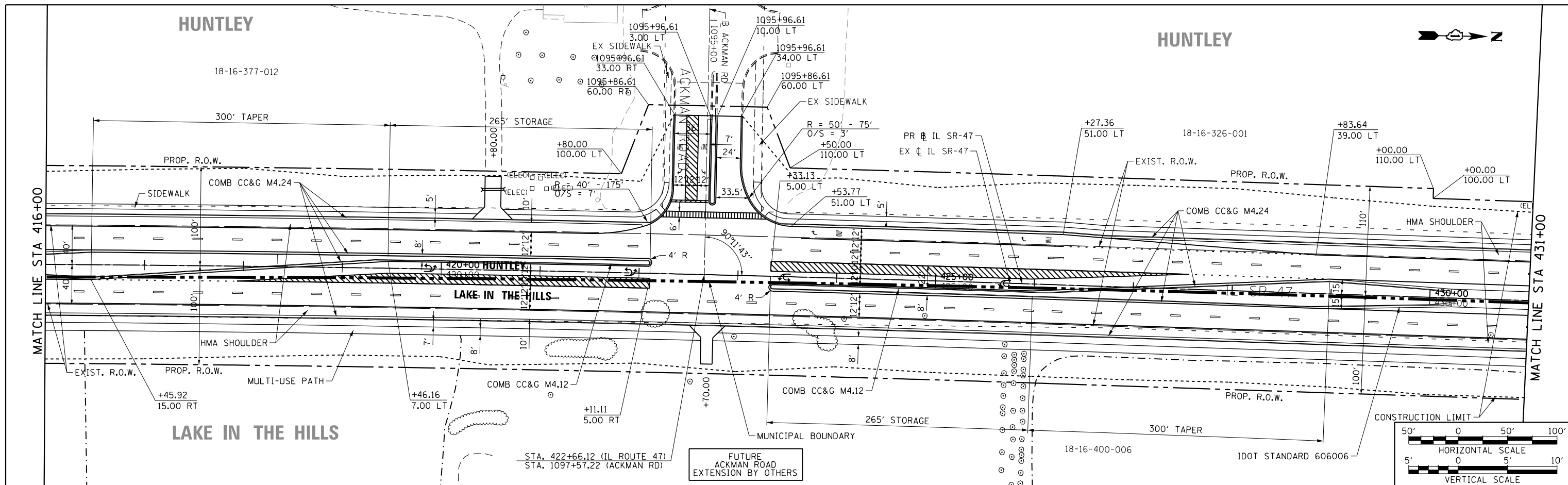


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		DRAWN -	REVISED -							47	REED ROAD TO US 14	MCHENRY	336	17
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -											
	PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -											
					SCALE: 1" = 50'	SHEET NO. 4 OF SHEETS	STA. 401+00 TO STA. 416+00	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT						

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4/5/2017

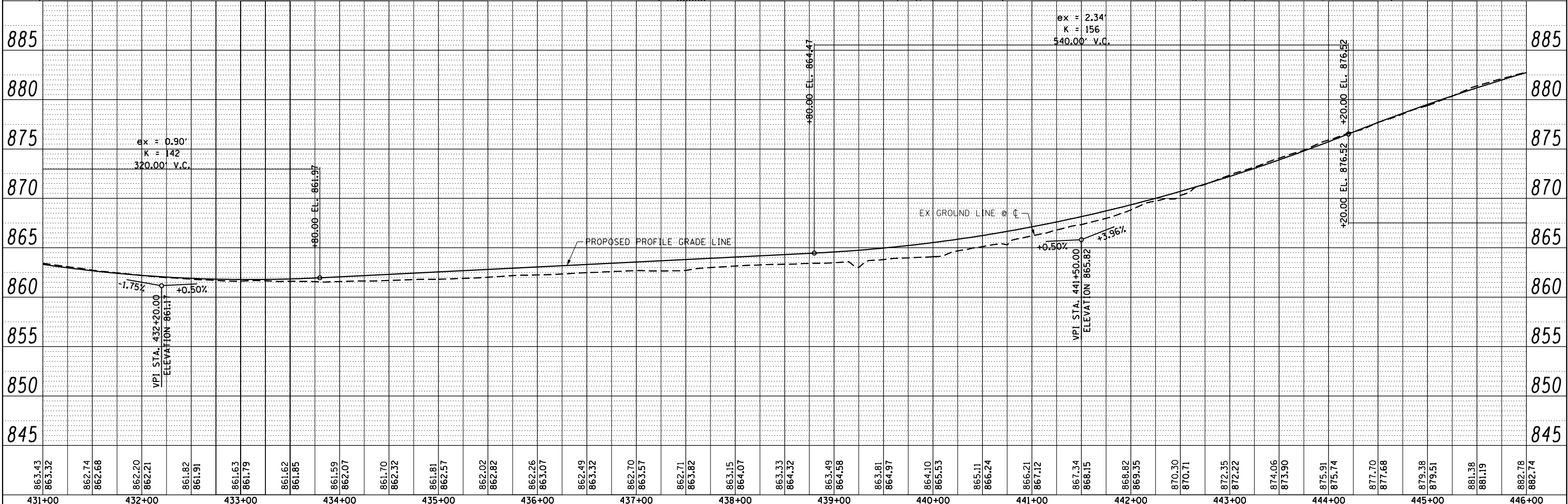
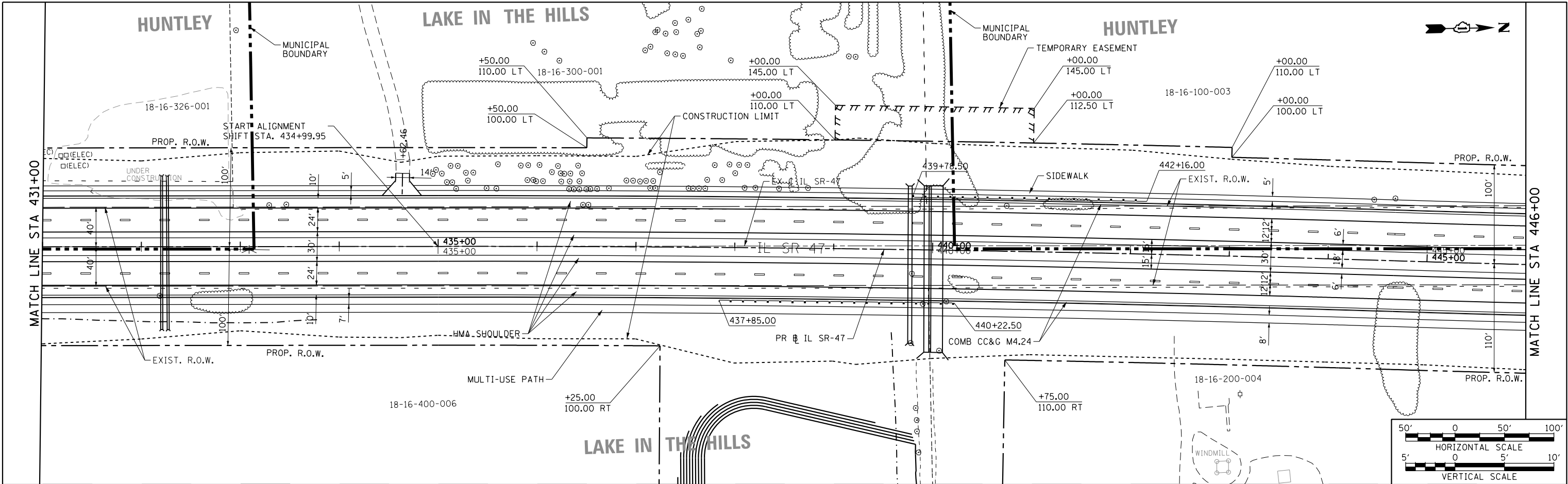
PLAN					
NOTE BOOK NO.					
SURVEYED _____					
PLOTTED _____					
ALIGNMENT CHECKED _____					
R.T. OF WAY CHECKED _____					
CADD FILE NAME _____					
				BY	DATE

PROFILE	SURVEYED _____	BY _____	DATE _____
NOTE BOOK	PLOTTED _____		
NO. _____	GRADES CHECKED _____		
	B.M. NOTED _____		
	STRUCTURE NOTATIONS CHKD _____		



PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	CADD FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		

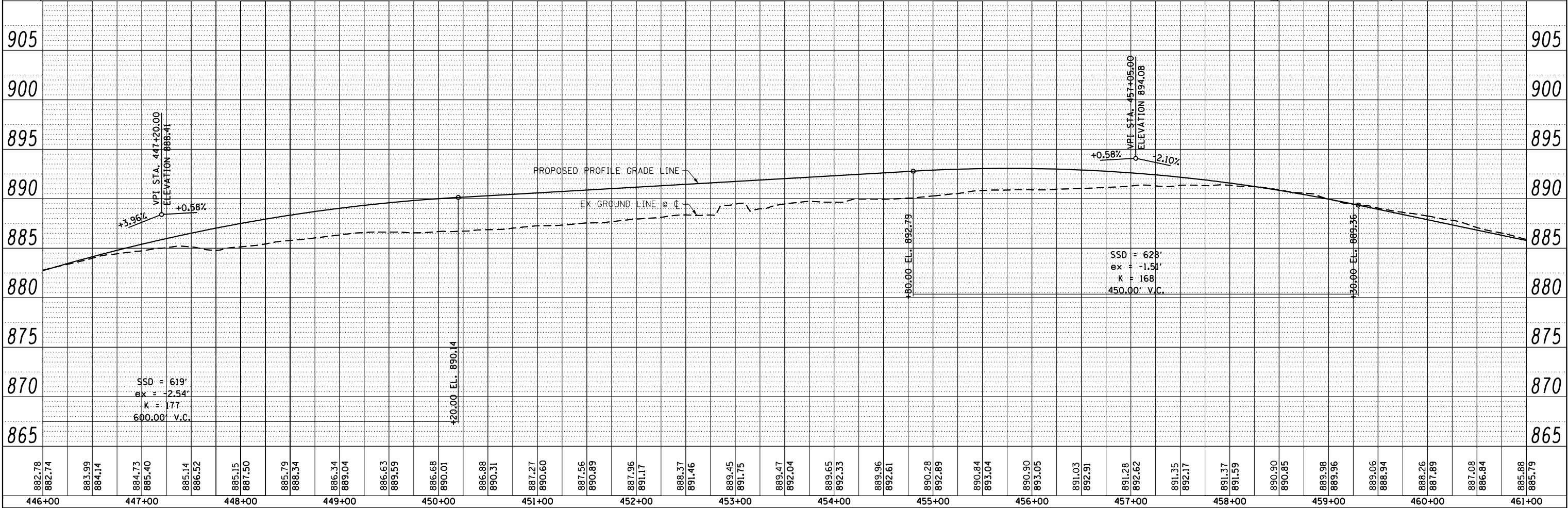
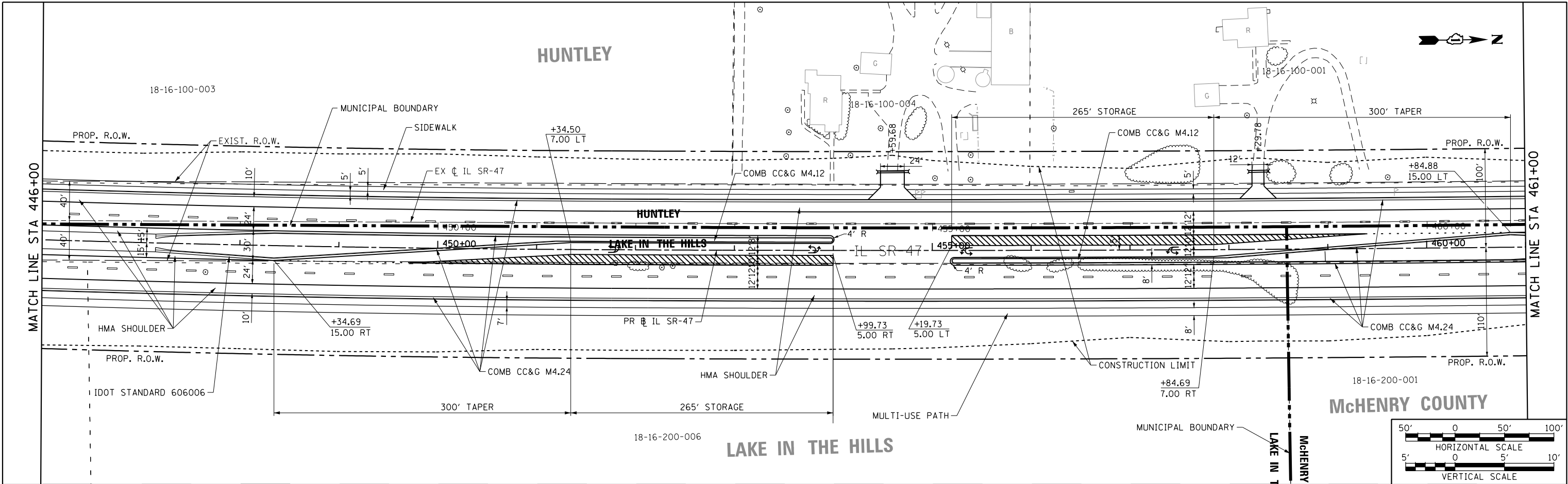


FILE NAME	USER NAME	DESIGNED	REVISED	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = 4/5/2017	DATE	REVISED					

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4/5/2017

PLAN	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	ALIGNED	CHECKED	
	FILE NAME		
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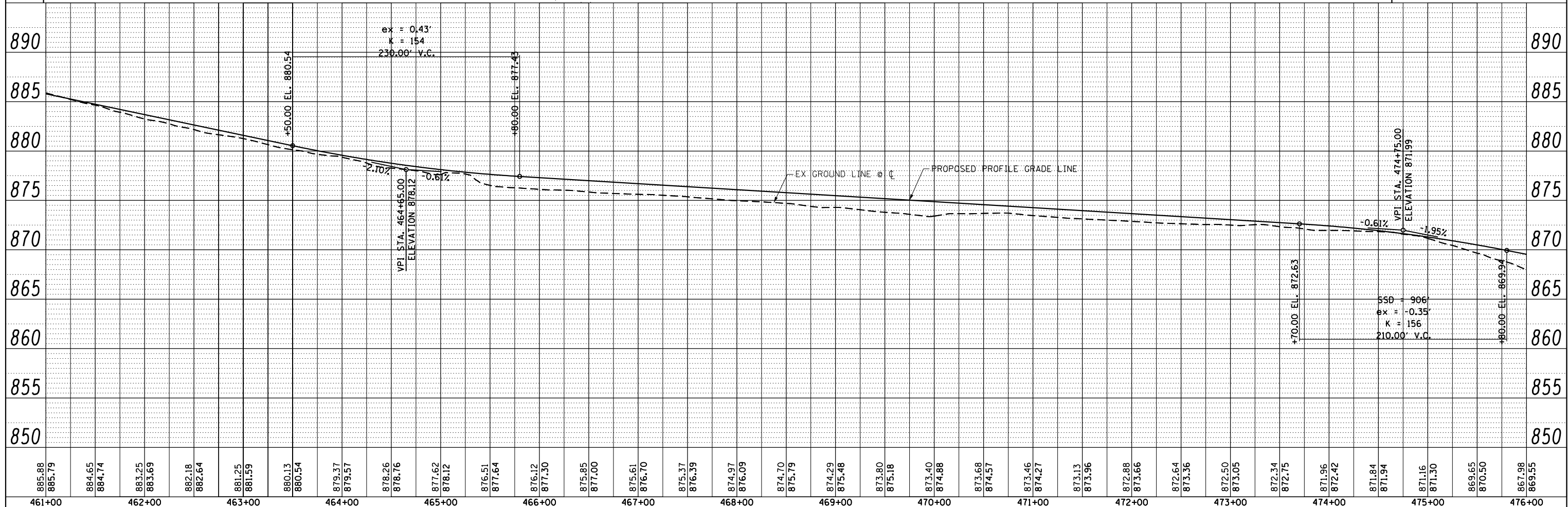
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	PLOTTED		
NOTE BOOK	GRADES	CHECKED	
	STRUCTURE	NOTATIONS	CHKD
	NO.		



FILE NAME =  39027_PP_07.dgn	USER NAME = haneografe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	20
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	PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -		SCALE: 1" = 50'	SHEET NO. 7 OF SHEETS	STA. 446+00 TO STA. 461+00	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT			



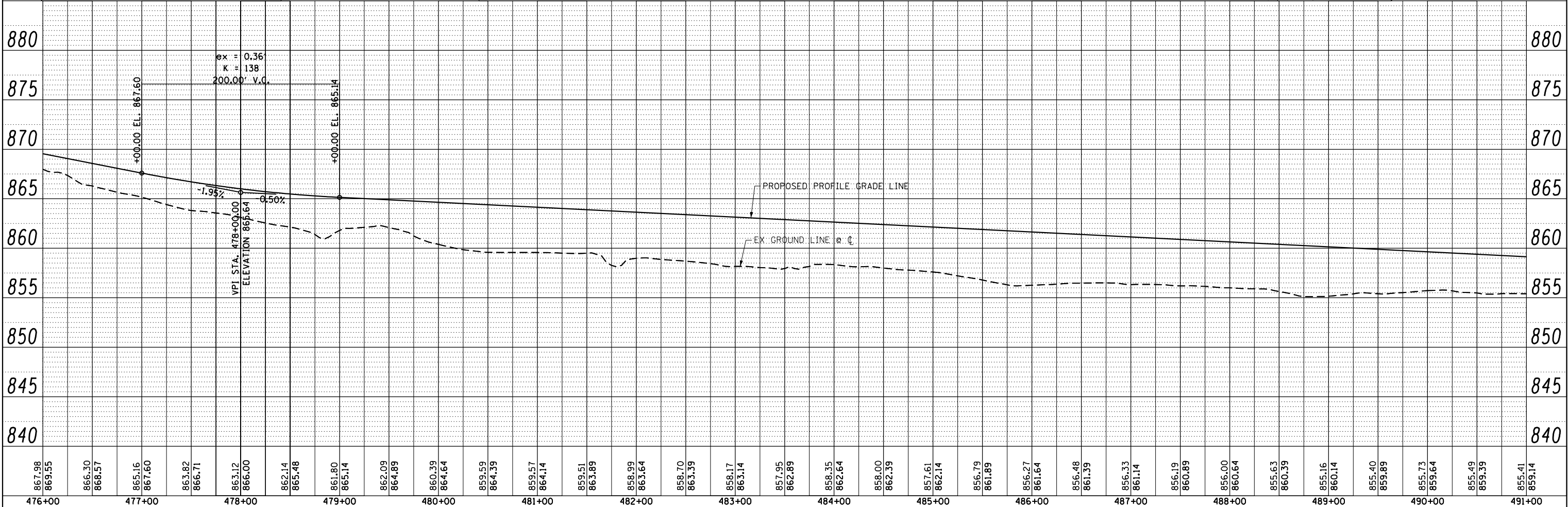
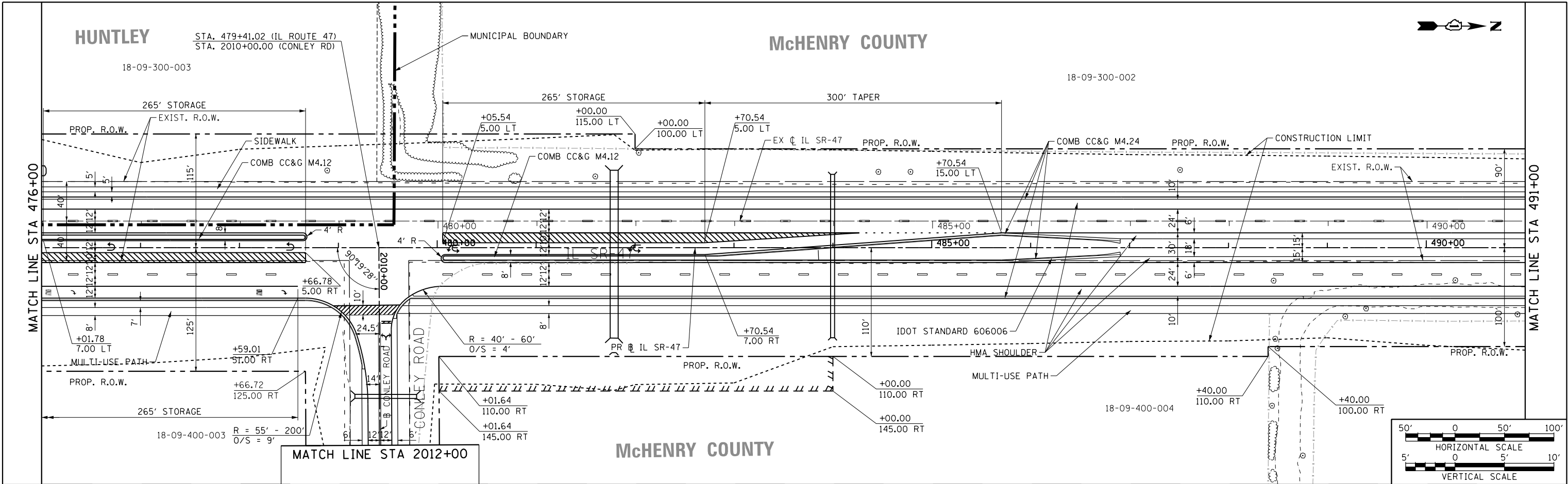
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NOTE BOOK _____		GRADES CHECKED _____					
NO. _____		B.M. NOTED _____					
		STRUCTURE NOTATIONS CHECKED _____					



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		DRAWN -	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	21
	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -		CONTRACT NO.							
	PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -									
					SCALE: 1" = 50'	SHEET NO. 8 OF SHEETS	STA. 461+00 TO STA. 476+00	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
	CHECKED		
	FILE NAME		
	NO.		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES		
	CHECKED		
	STRUCTURE		
	NOTATIONS		
	CHKD		

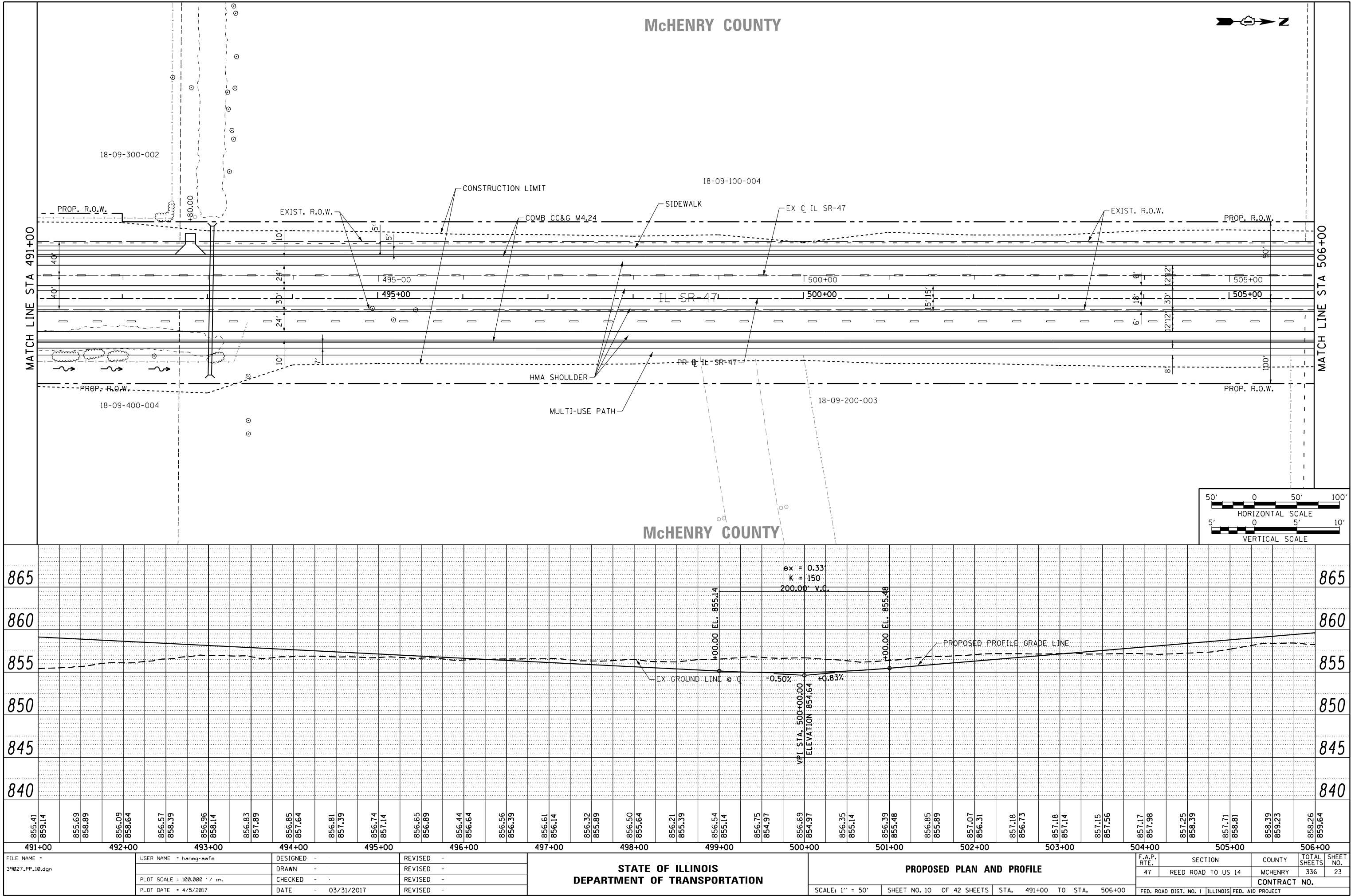


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	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 9	OF SHEETS	STA. 476+00	TO STA. 491+00	CONTRACT NO.		
	PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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4/5/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	CADD FILE NAME		

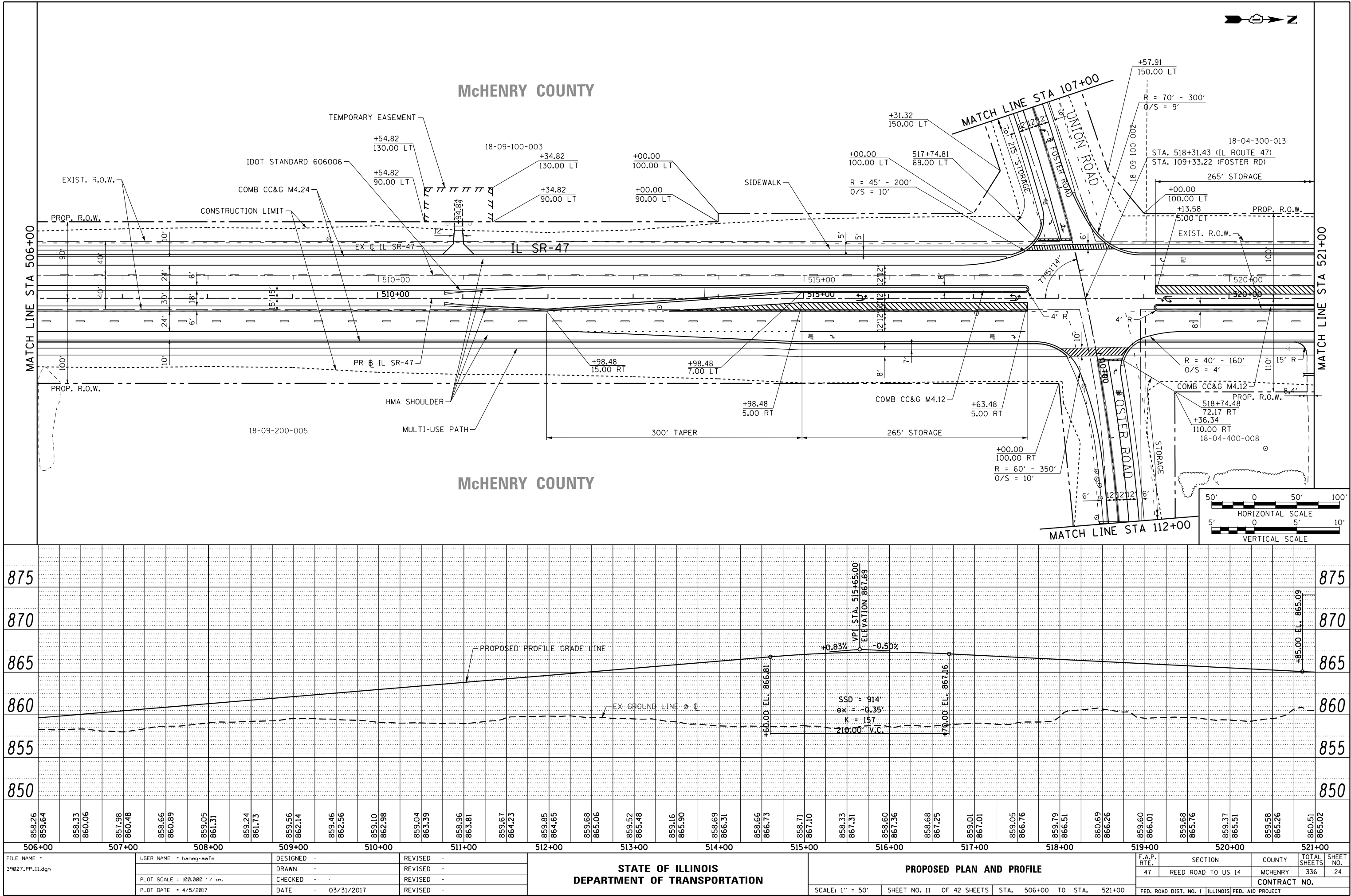
PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		



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4/5/2017

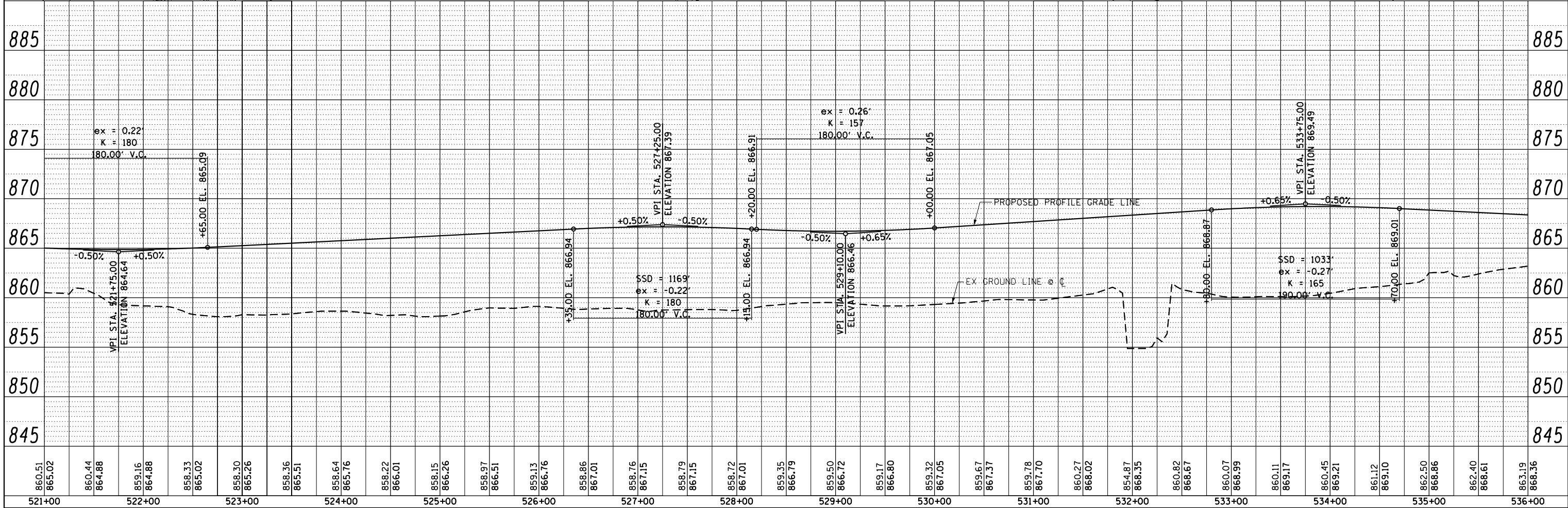
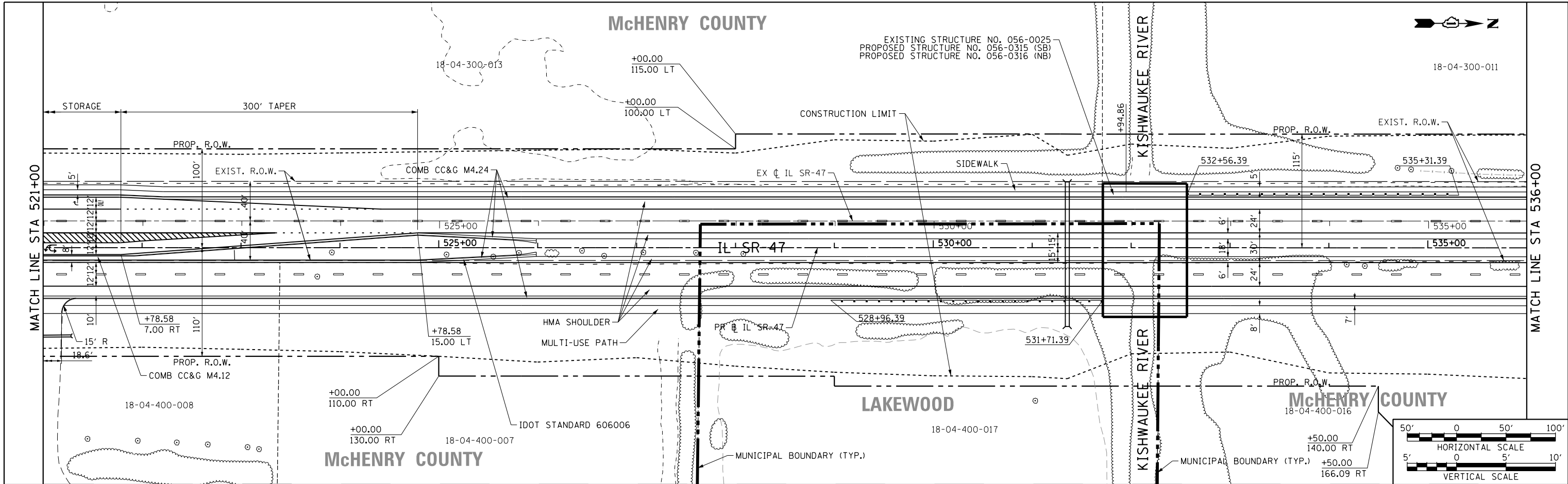
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NOTE BOOK	ALIGNED		
NO.	CADD FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		



PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
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NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		

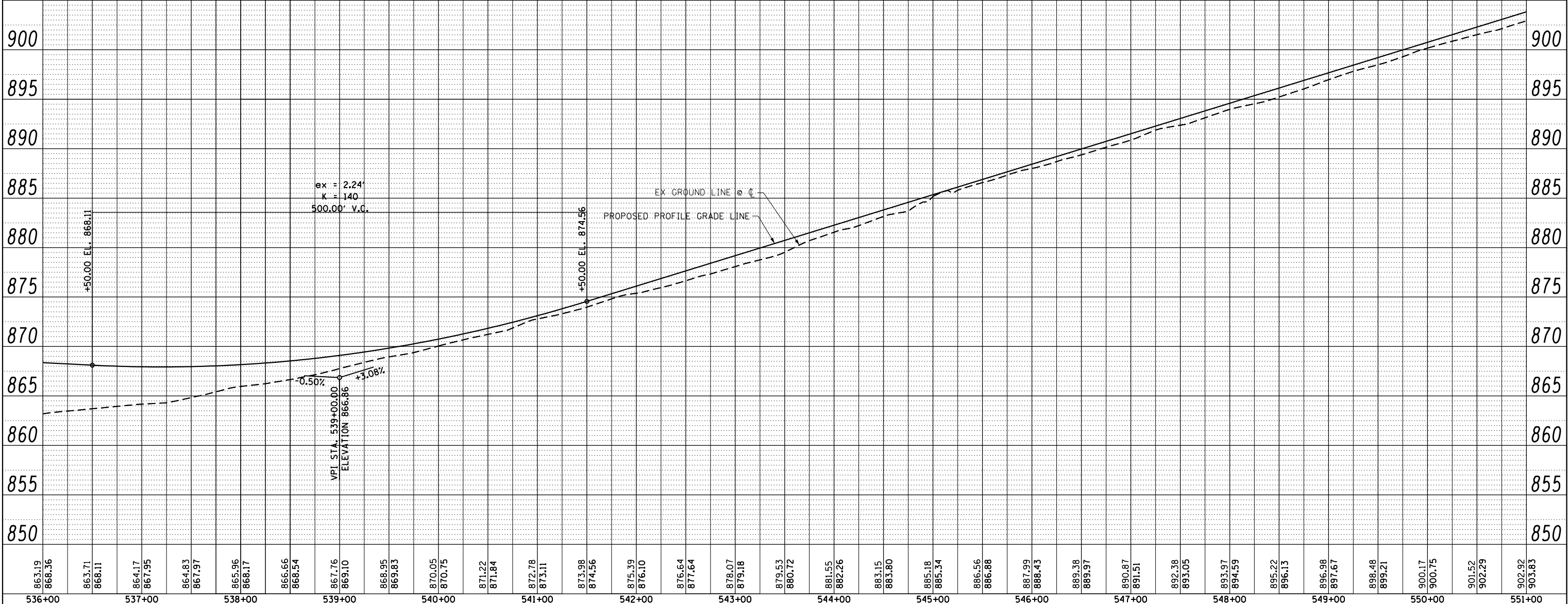
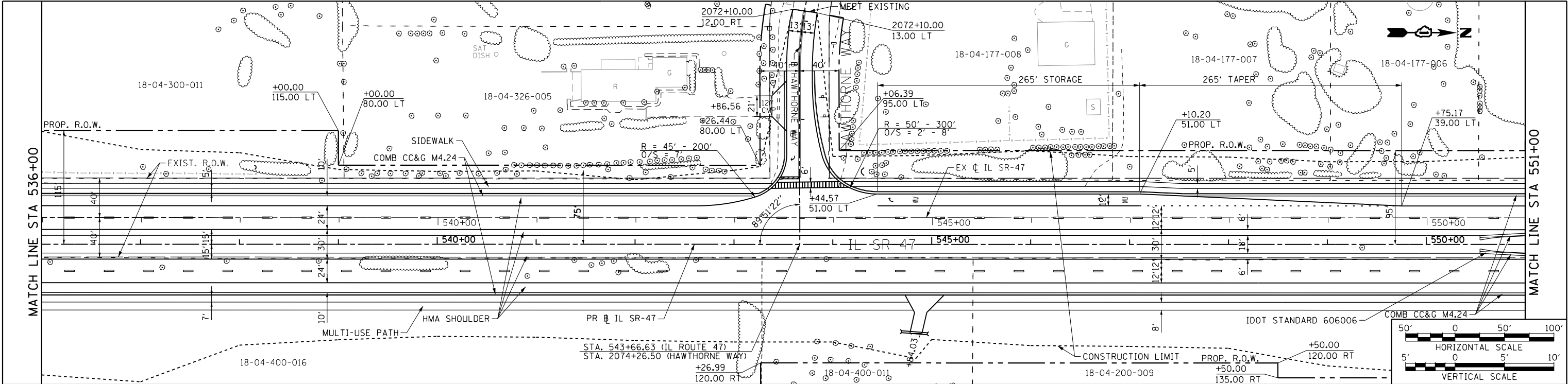


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	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	25
	PLOT DATE = 9/8/2017	DATE - 08/24/2017	REVISED -		SCALE: 1" = 50'		SHEET NO. 12 OF	SHEETS	STA. 521+00 TO STA. 536+00	CONTRACT NO.			
	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT												

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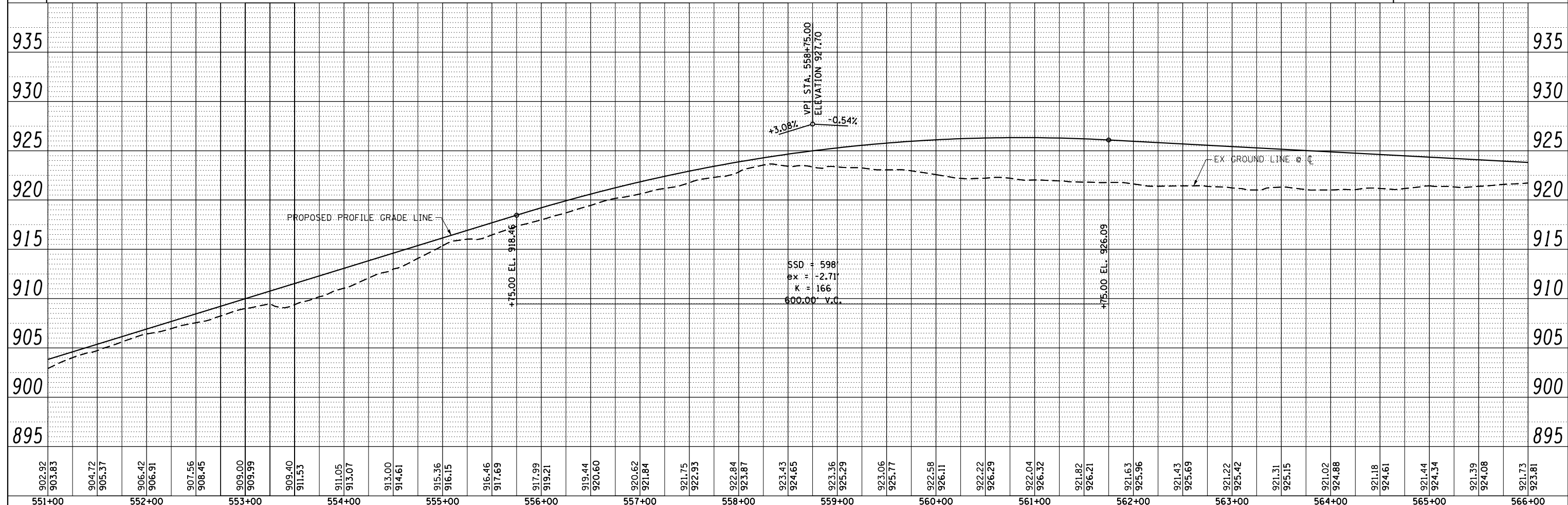
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PROFILE	SURVEYED	DATE
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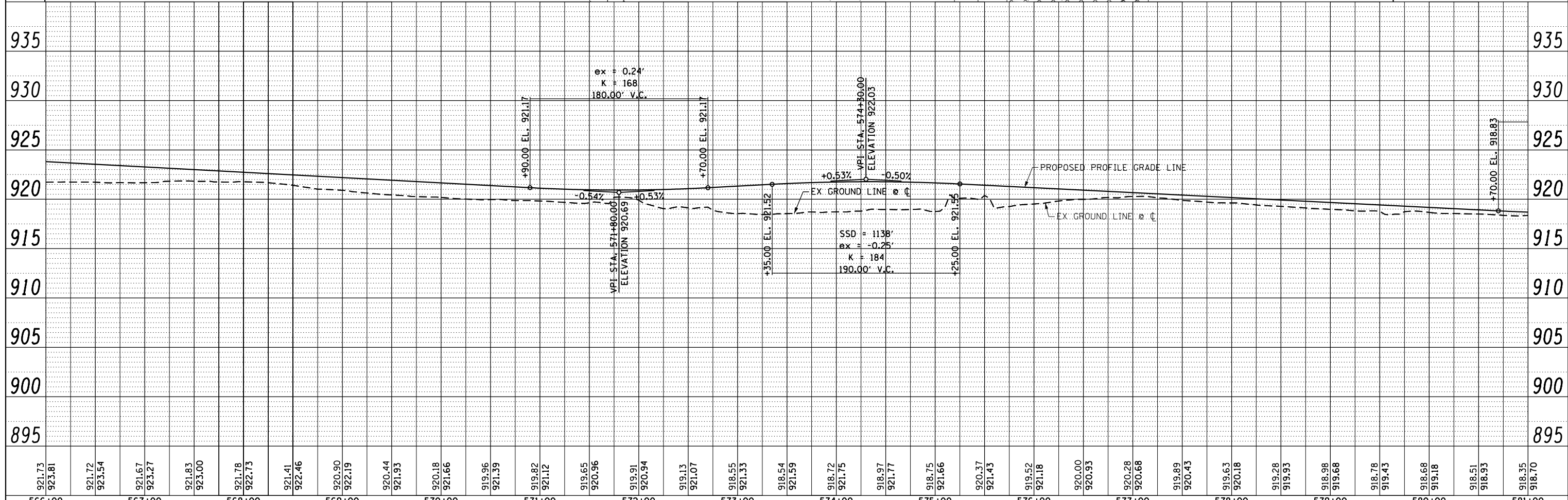
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		DRAWN - AFC	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	26
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		CONTRACT NO.								
	PLOT DATE = 4/5/2017	DATE - 01-15-2013	REVISED -		SCALE: 1" = 50'		SHEET NO. 13 OF 42 SHEETS	STA. 536+00 TO STA. 551+00		FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

PROFILE	SURVEYED _____	BY _____	DATE _____
	PLOTTED _____		
NOTE BOOK	GRADES CHECKED _____		
	B.M. NOTED _____		
NO. _____	STRUCTURE NOTAT'NS CH'KD _____		



FILE NAME = 39027_PP-14.dgn	USER NAME = dshevoz	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	27
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		CONTRACT NO.								
	PLOT DATE = 9/8/2017	DATE = 08/24/2017	REVISED -		SCALE: 1" = 50'	SHEET NO. 14 OF	SHEETS	STA. 551+00 TO STA. 566+00	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

PROFILE	SURVEYED _____	BY _____	DATE _____
	PLOTTED _____		
NOTE BOOK	GRADES CHECKED _____		
NO. _____	B.M. NOTED _____		
	STRUCTURE NOTATIONS CH'KD _____		

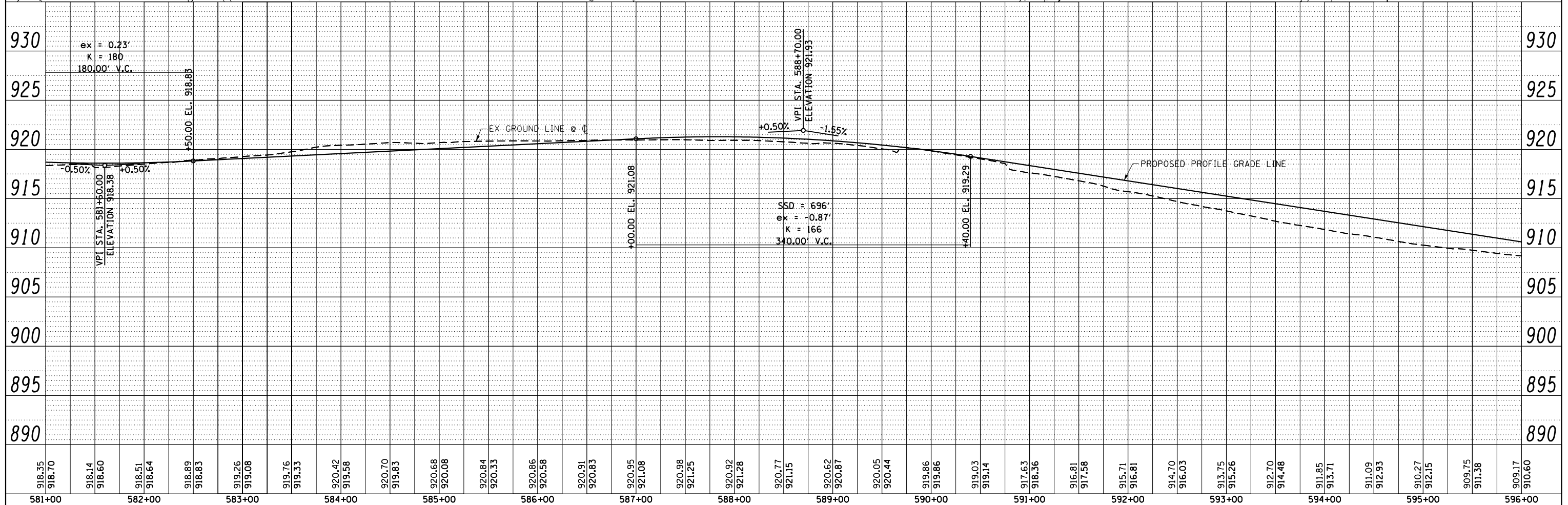
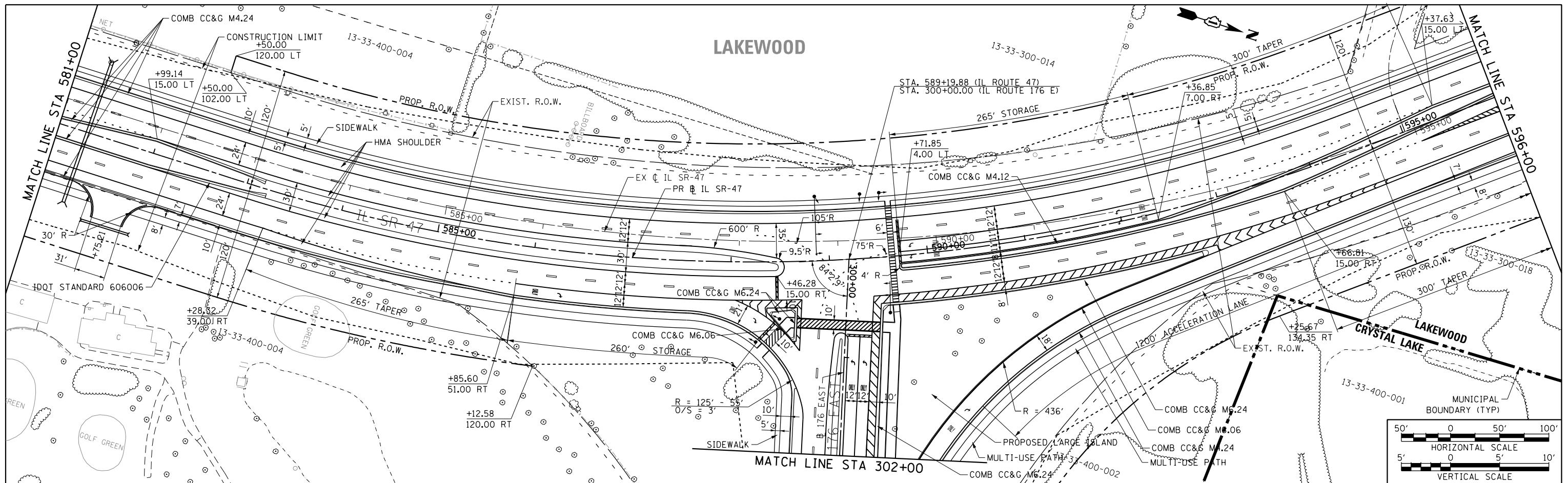


566+00	567+00	568+00	569+00	570+00	571+00	572+00	573+00	574+00	575+00	576+00	577+00	578+00	579+00	580+00	581+00										
FILE NAME = 39027_PP_15.dgn		USER NAME = dshevez		DESIGNED -		REVISED -		STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION				PROPOSED PLAN AND PROFILE				F.A.P. RTE.		SECTION		COUNTY		TOTAL SHEETS		SHEET NO.	
				DRAWN -		REVISED -										47		REED ROAD TO US 14		MCHENRY		336		28	
PLOT SCALE = 100.000' / in.		CHECKED -		REVISED -		SCALE: 1" = 50'						SHEET NO. 15 OF SHEETS		STA. 566+00 TO STA. 581+00		CONTRACT NO.									
PLOT DATE = 9/8/2017		DATE - 08/24/2017		REVISED -																FED. ROAD DIST. NO. 1				ILLINOIS	

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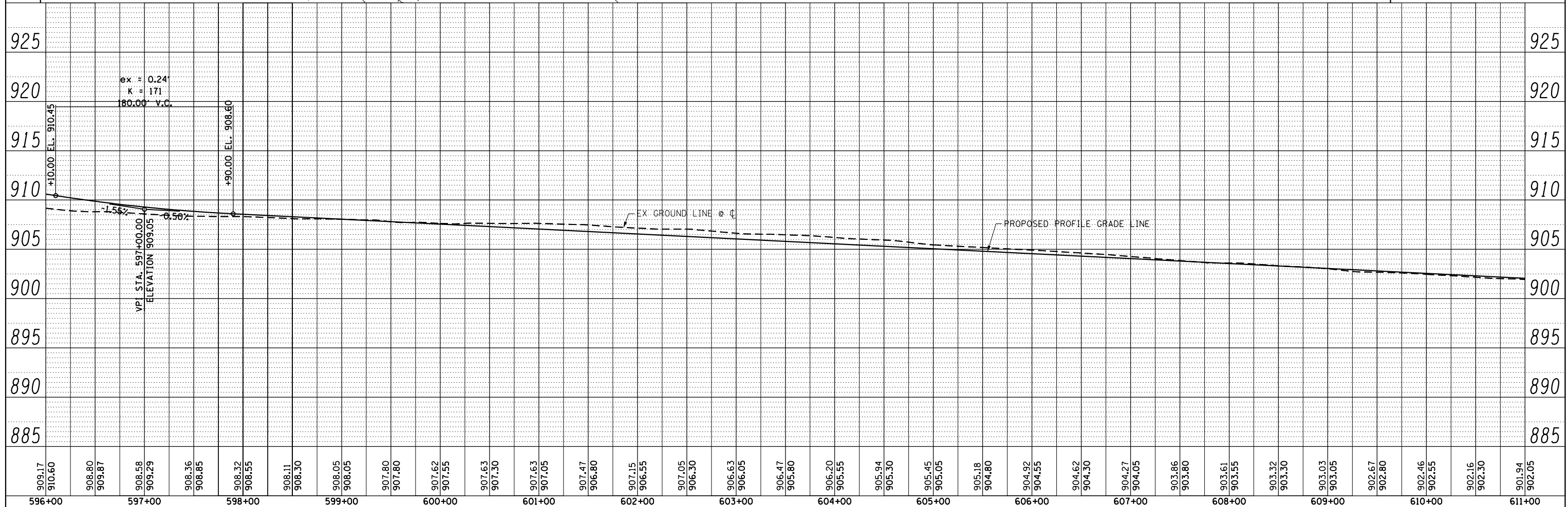
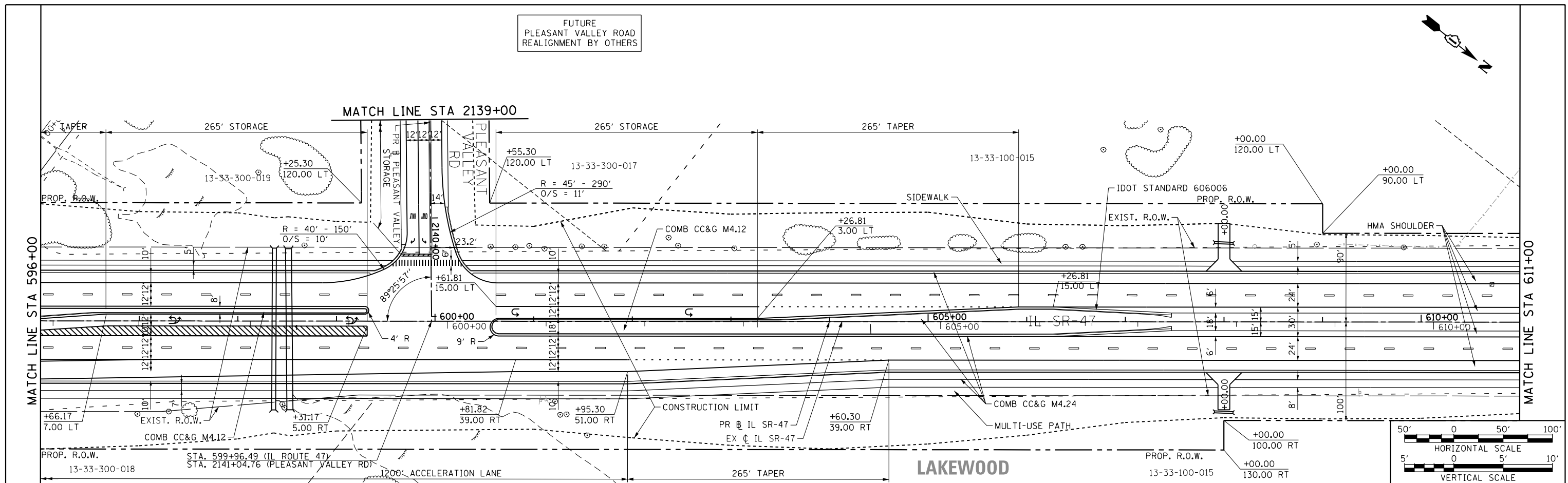
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NOTE BOOK _____		GRADES CHECKED _____					
NO. _____		B.M. NOTED _____					
		STRUCTURE NOTATIONS CHECKED _____					



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		DRAWN -	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	29
	PLOT SCALE = 100.000' / 1" =	CHECKED -	REVISED -		CONTRACT NO.							
	PLOT DATE = 9/8/2017	DATE = 08/24/2017	REVISED -		SCALE: 1" = 50'	SHEET NO. 16 OF SHEETS	STA. 581+00 TO STA. 596+00	FED. ROAD DIST. NO. 1 ILLINOIS	FED. AID PROJECT			

PLAN				BY		DATE	
NOTE BOOK		SURVEYED _____		PLOTTED _____			
NO. _____		ALIGNMENT _____		CHECKED _____			
		RT. OF WAY _____		CHECKED _____			
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PROFILE	SURVEYED _____	BY _____	DATE _____
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NO. _____	STRUCTURE NOTATIONS CHK'D _____		



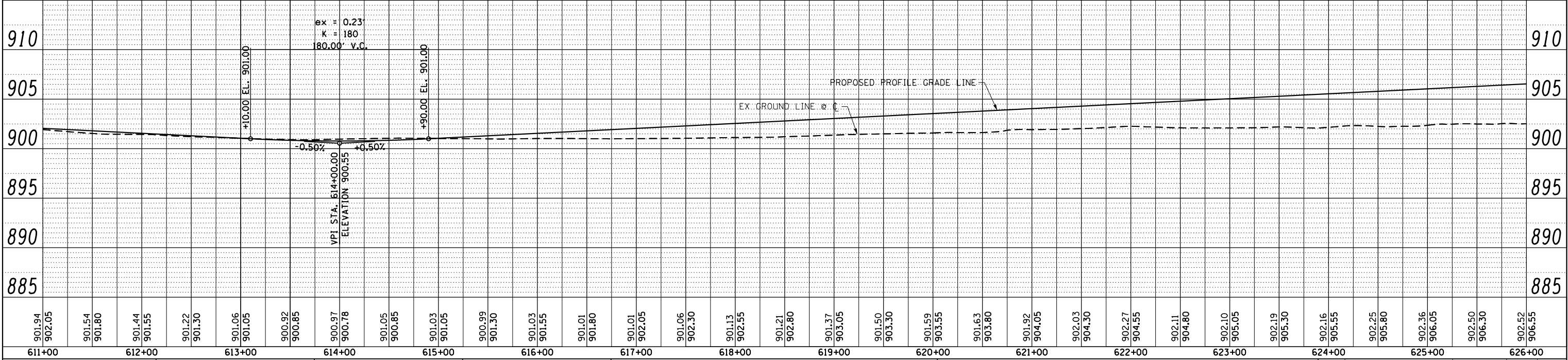
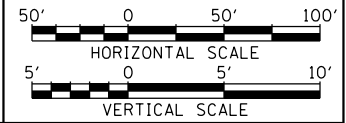
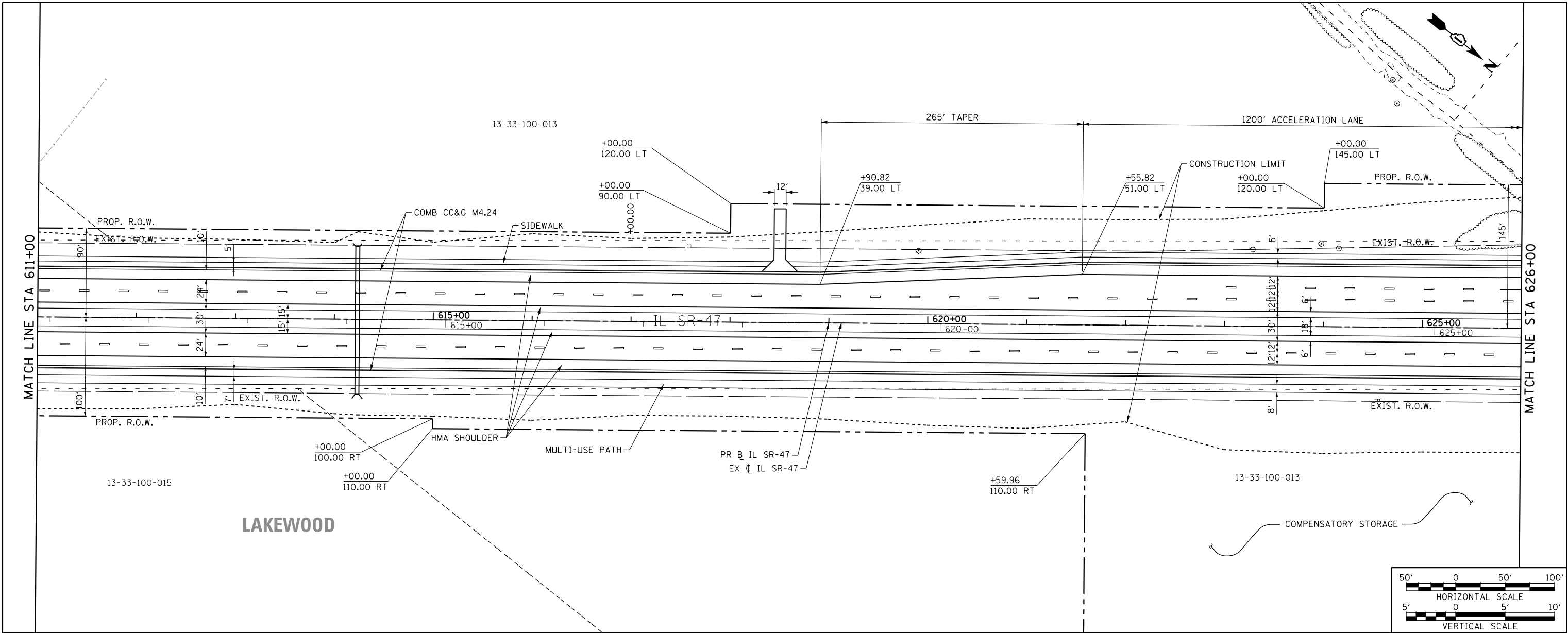
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		DRAWN -	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	30
	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -					CONTRACT NO.				
	PLOT DATE = 9/11/2017	DATE = 08/24/2017	REVISED -		SCALE: 1" = 50'	SHEET NO. 17 OF SHEETS	STA. 596+00 TO STA. 611+00	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

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PLAN	SURVEYED	BY	DATE
NOTE BOOK NO.	ALIGNED		
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	FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK NO.	GRADES CHECKED		
	STRUCTURE NOTATIONS CHKD		

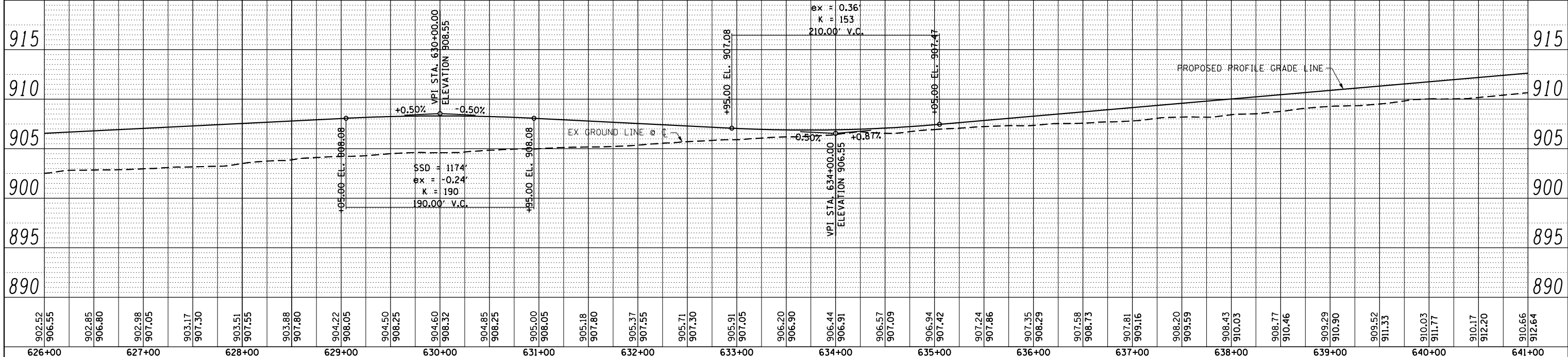
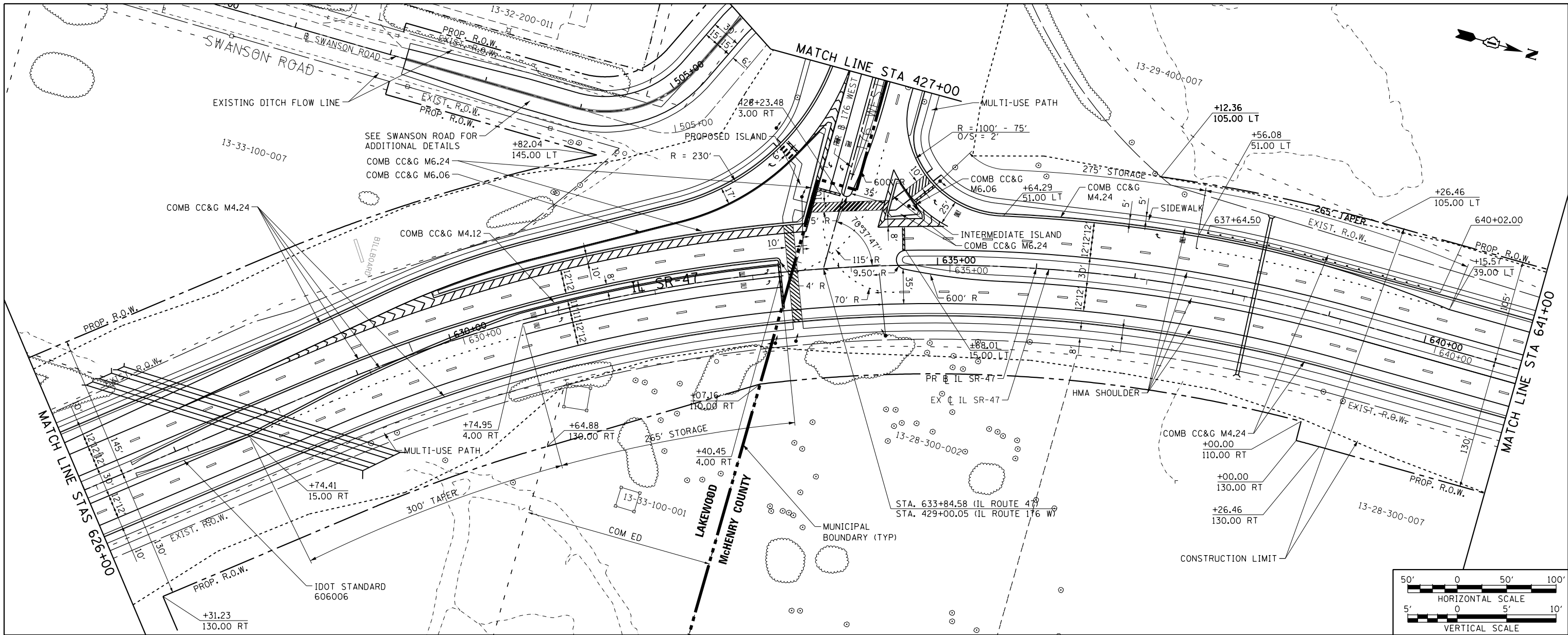


FILE NAME	USER NAME	DESIGNED	REVIS	STATE OF ILLINOIS	PROPOSED PLAN AND PROFILE	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CHECKED	REVISED		SHEET NO. 18 OF 42 SHEETS					
		DATE	REVISED		STA. 611+00 TO STA. 626+00					

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9/11/2017

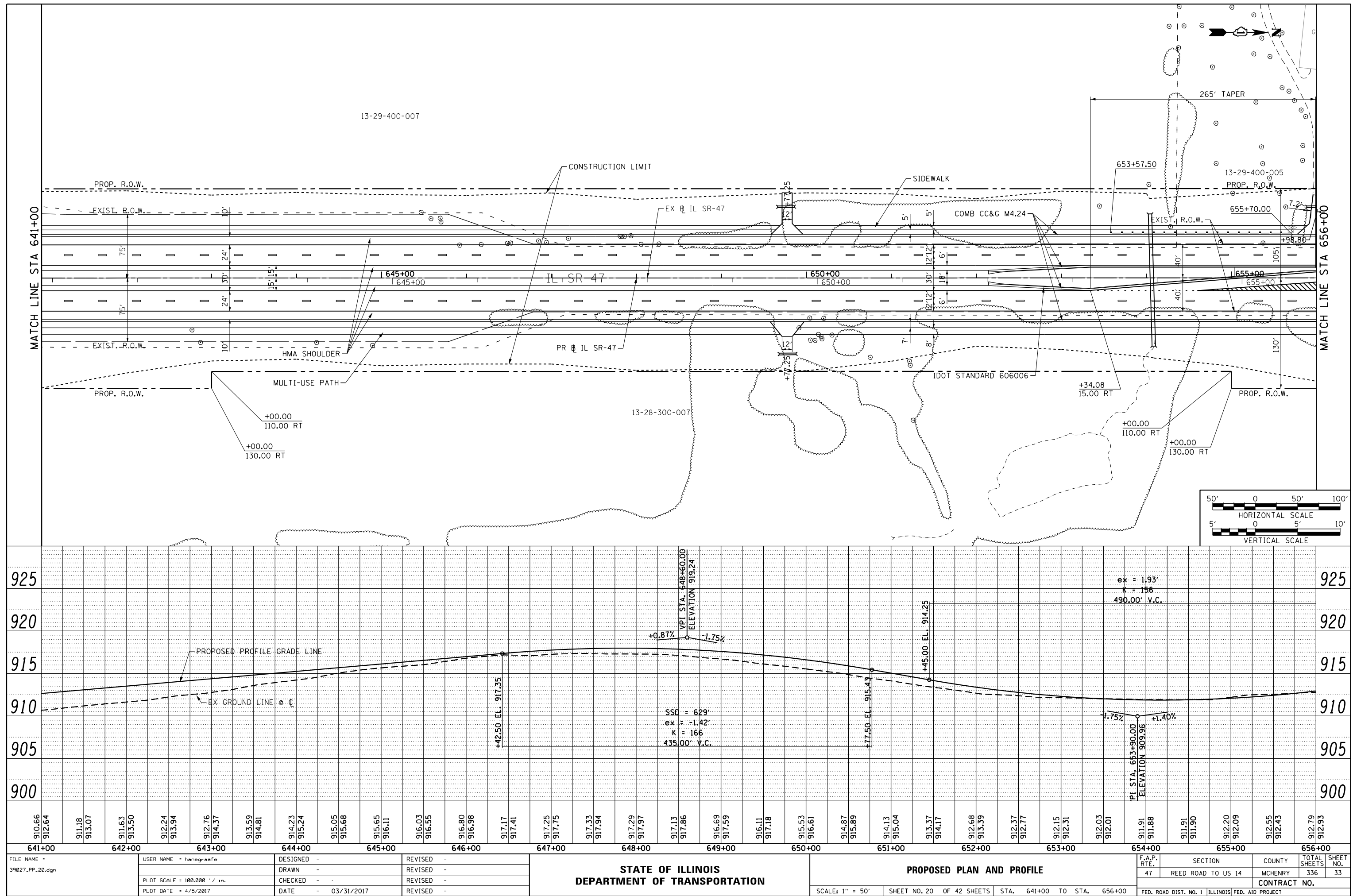
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NOTE BOOK	PLOTTED		
NO.	CHECKED		
	FILE NAME		

PROFILE	SURVEYED _____	BY _____	DATE _____
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NOTE BOOK	GRADES CHECKED _____		
NO. _____	B.M. NOTED _____		
	STRUCTURE NOTATIONS CHKD _____		



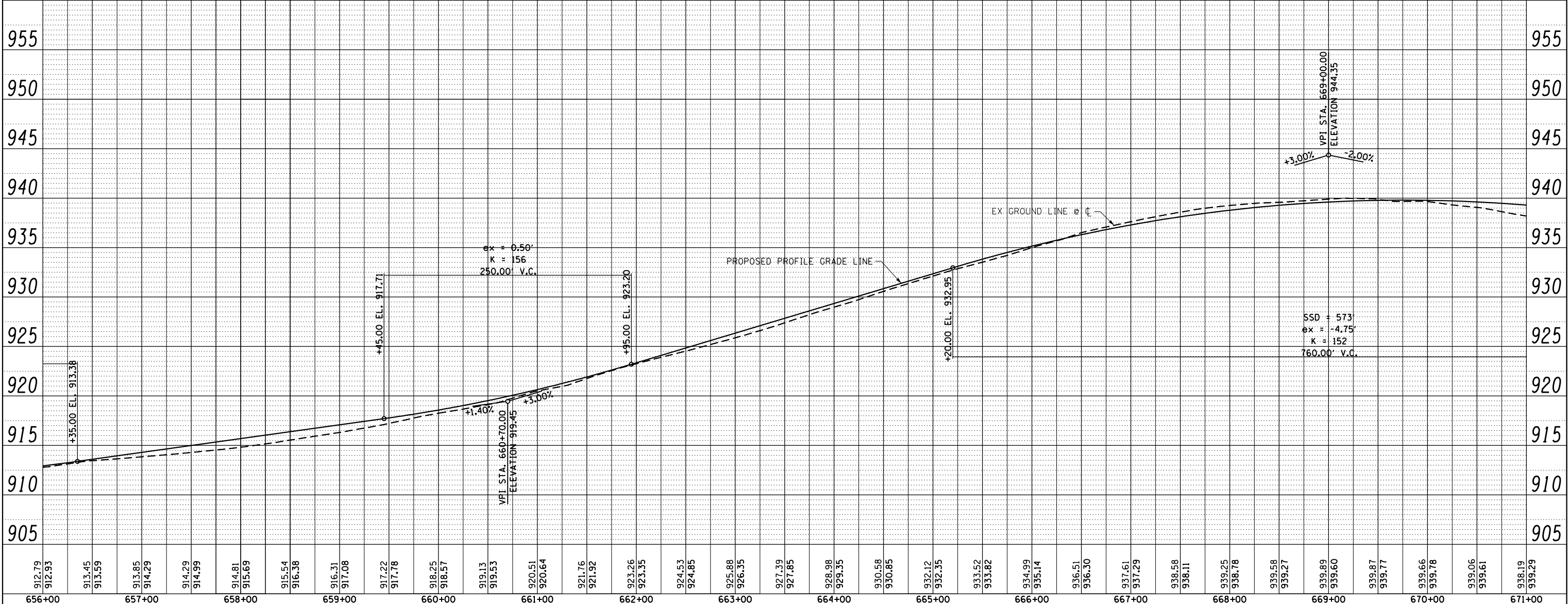
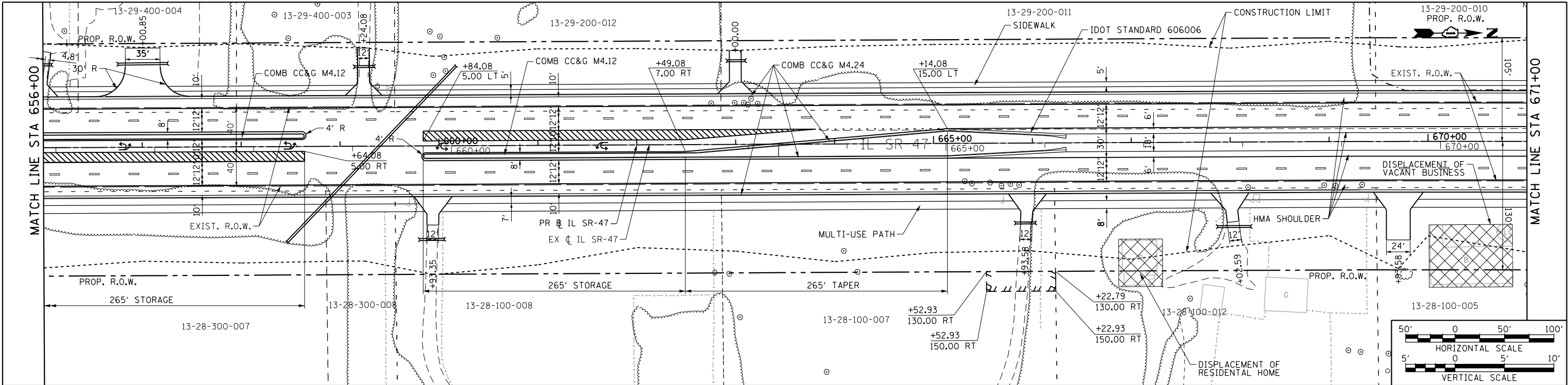
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	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -							47	REED ROAD TO US 14	MCHENRY	336	32
	PLOT DATE = 9/8/2017	DATE = 08/24/2017	REVISED -		SCALE: 1" = 50'		SHEET NO. 19	OF 42 SHEETS	STA. 626+00 TO STA. 641+00	CONTRACT NO.				
	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT													

<b>PROFILE</b>	SURVEYED _____	BY _____	DATE _____
	PLOTTED _____		
NOTE BOOK _____	GRADES CHECKED _____		
	B.M. NOTED _____		
NO. _____	STRUCTURE NOTATIONS CH'KD _____		



PLAN	SURVEYED	BY	DATE
NOTE BOOK NO.	ALIGNED		
	CHECKED		
	FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK NO.	GRADES CHECKED		
	STRUCTURE NOTATIONS CHKD		

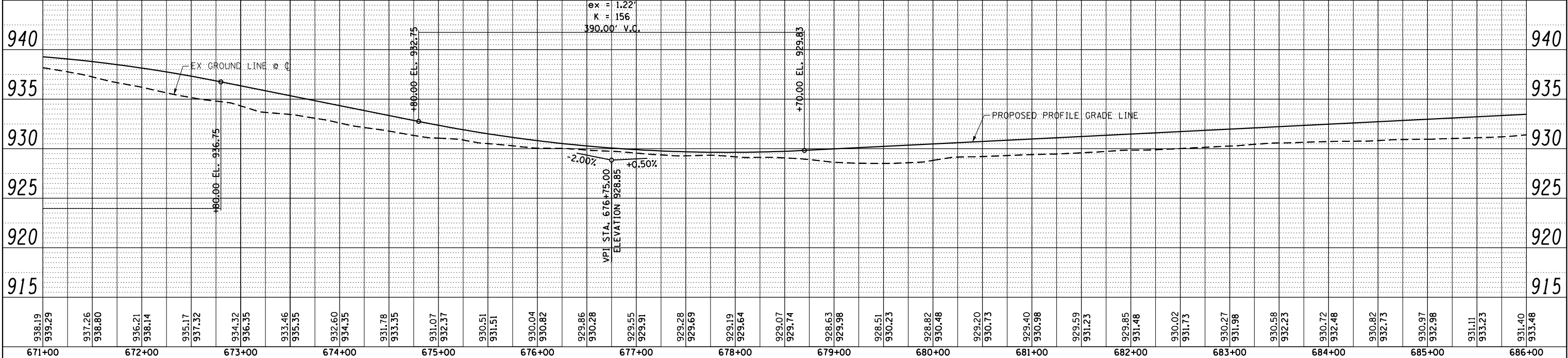
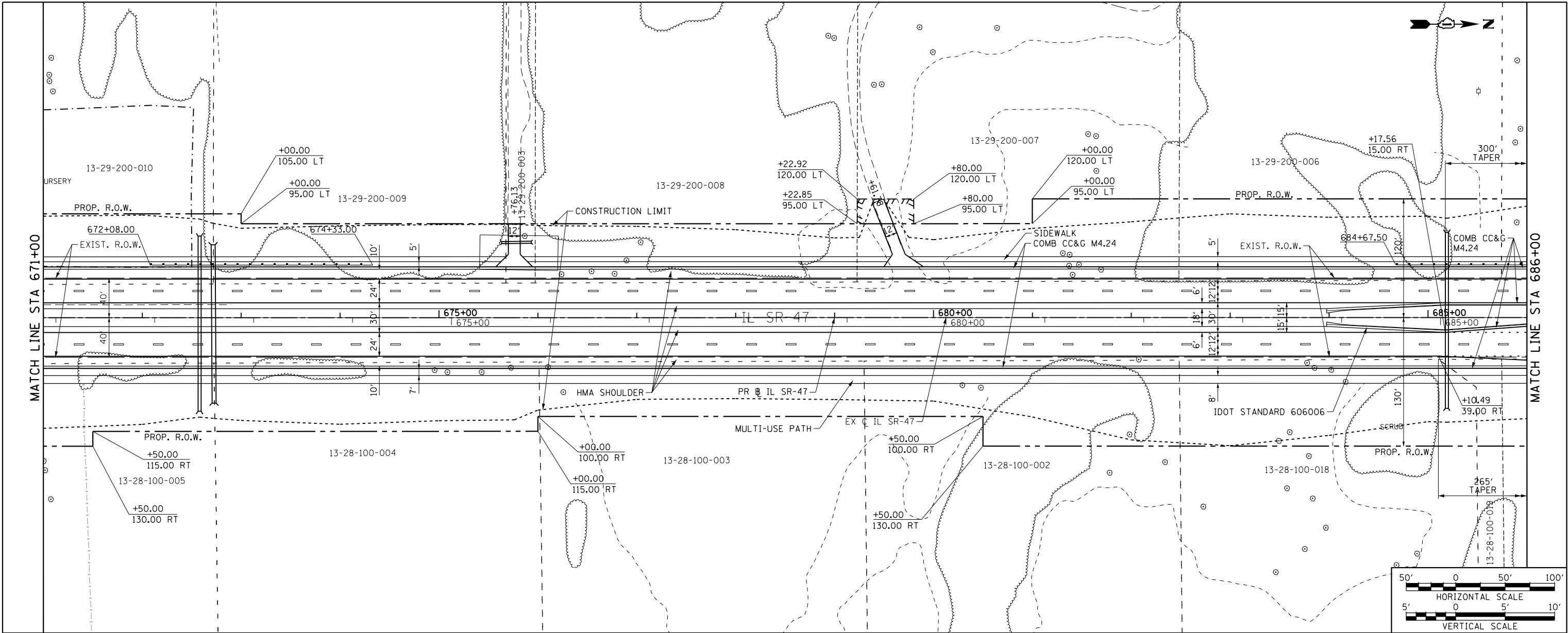


FILE NAME	USER NAME	DESIGNED	REVIS	SCALE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		AFC				MCHENRY		
						CONTRACT NO.		
						ILLINOIS FED. AID PROJECT		

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8/29/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK NO.	ALIGNED		
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NOTE BOOK NO.	GRADES		
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	STRUCTURE		
	NOTATIONS		



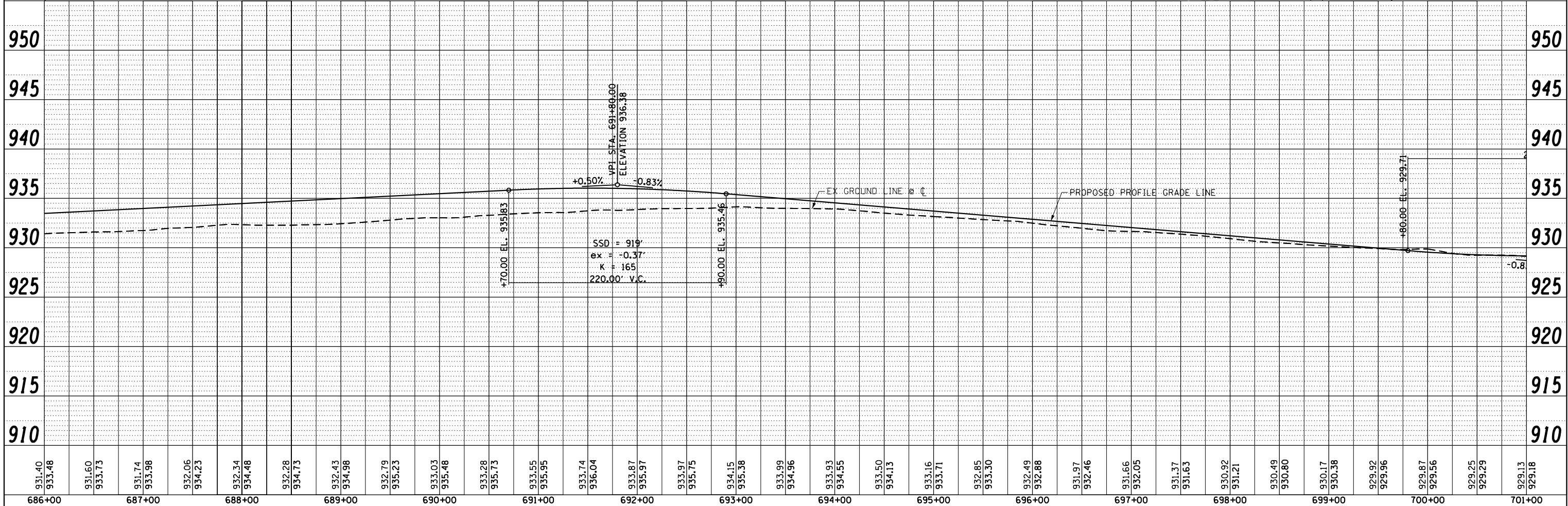
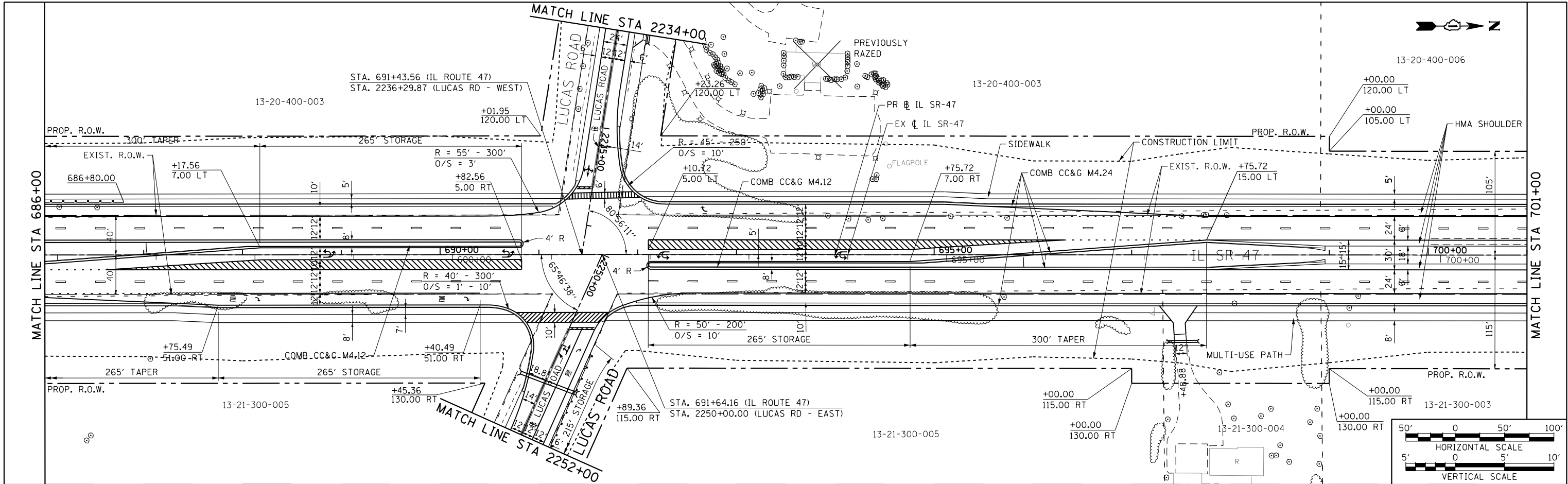
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		DRAWN -	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	35
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	PLOT DATE = 4/5/2017	DATE - 03/31/2017	REVISED -		SCALE: 1" = 50'	SHEET NO. 22 OF 42 SHEETS	STA. 671+00 TO STA. 686+00	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

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PLAN	SURVEYED	BY	DATE
NOTE BOOK NO.	PLOTTED		
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NOTE BOOK NO.	PLOTTED		
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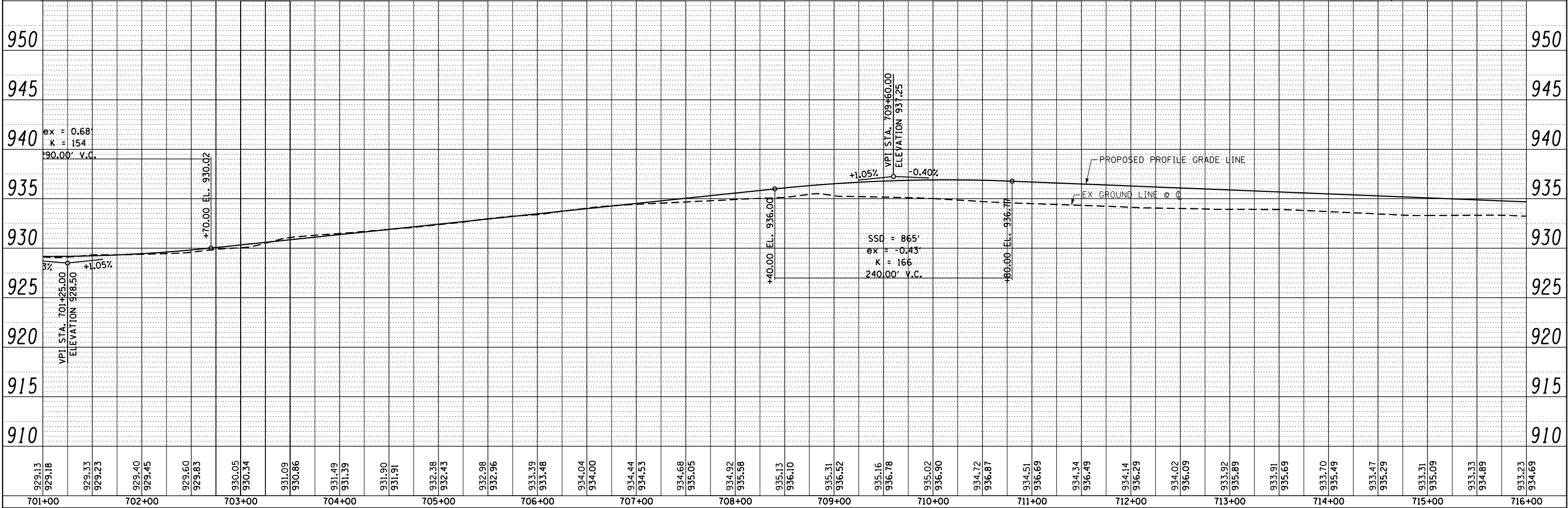
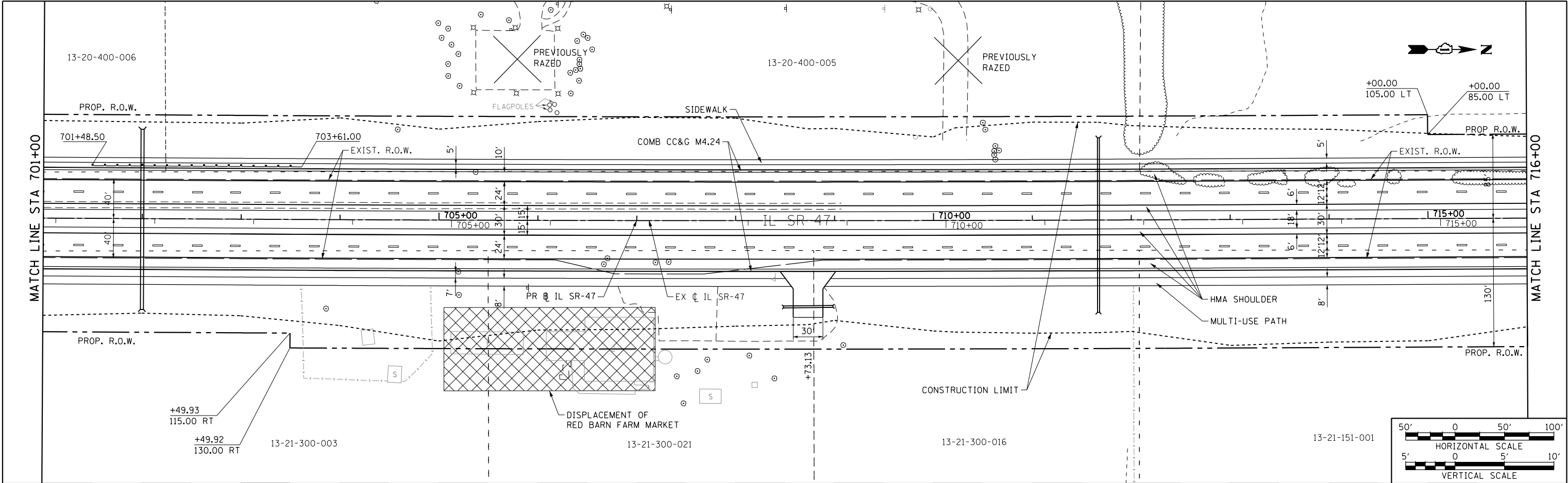


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		DRAWN -	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	36
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	PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -					SCALE: 1" = 50'	SHEET NO. 23 OF SHEETS	STA. 686+00 TO STA. 701+00	FED. ROAD DIST. NO. 1	ILLINOIS



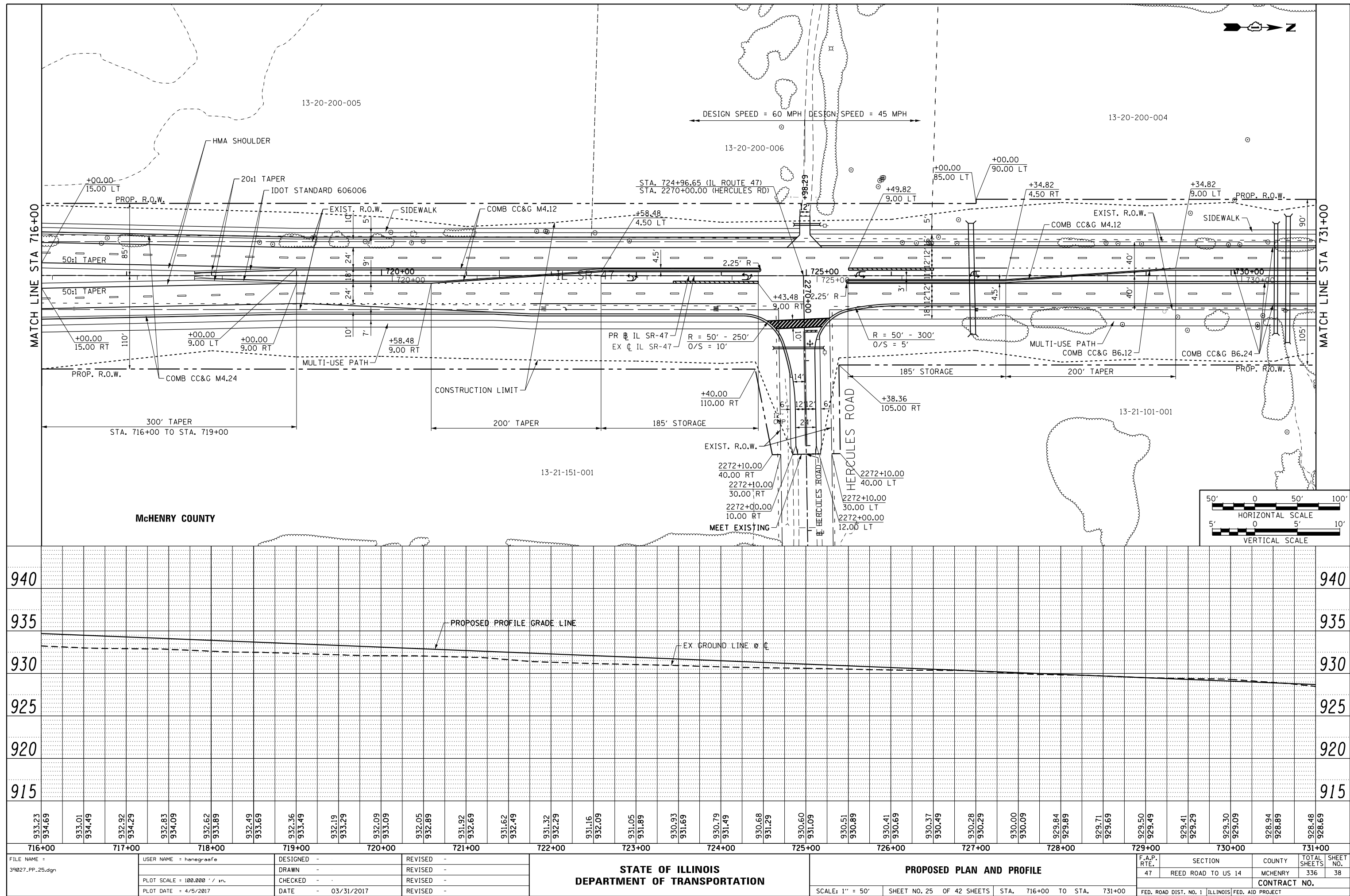
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	NOTED		
NOTE BOOK	CHECKED		
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CADD FILE NAME			

PROFILE	SURVEYED	BY	DATE
	NOTED		
NOTE BOOK	CHECKED		
	FILED		
STRUCTURE NOTATION CHKD			



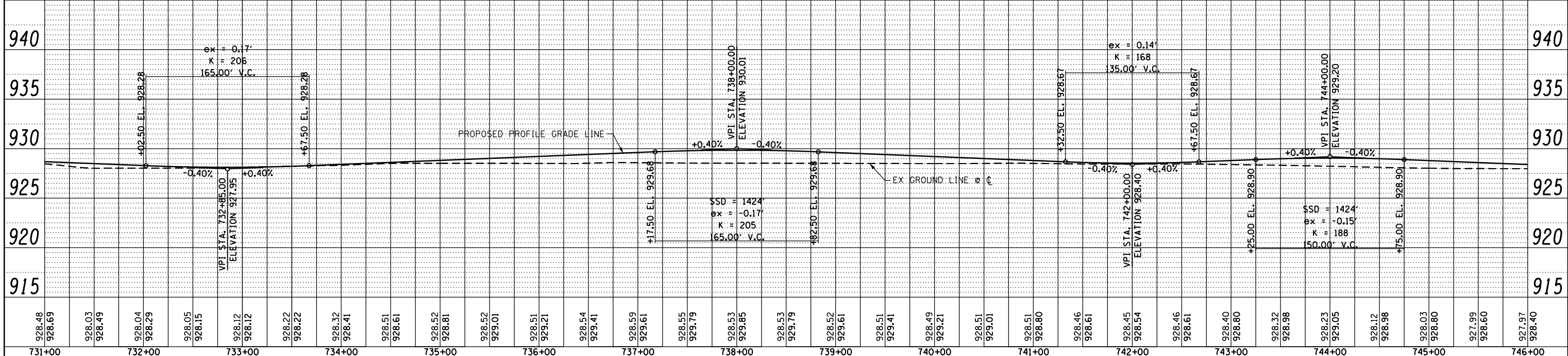
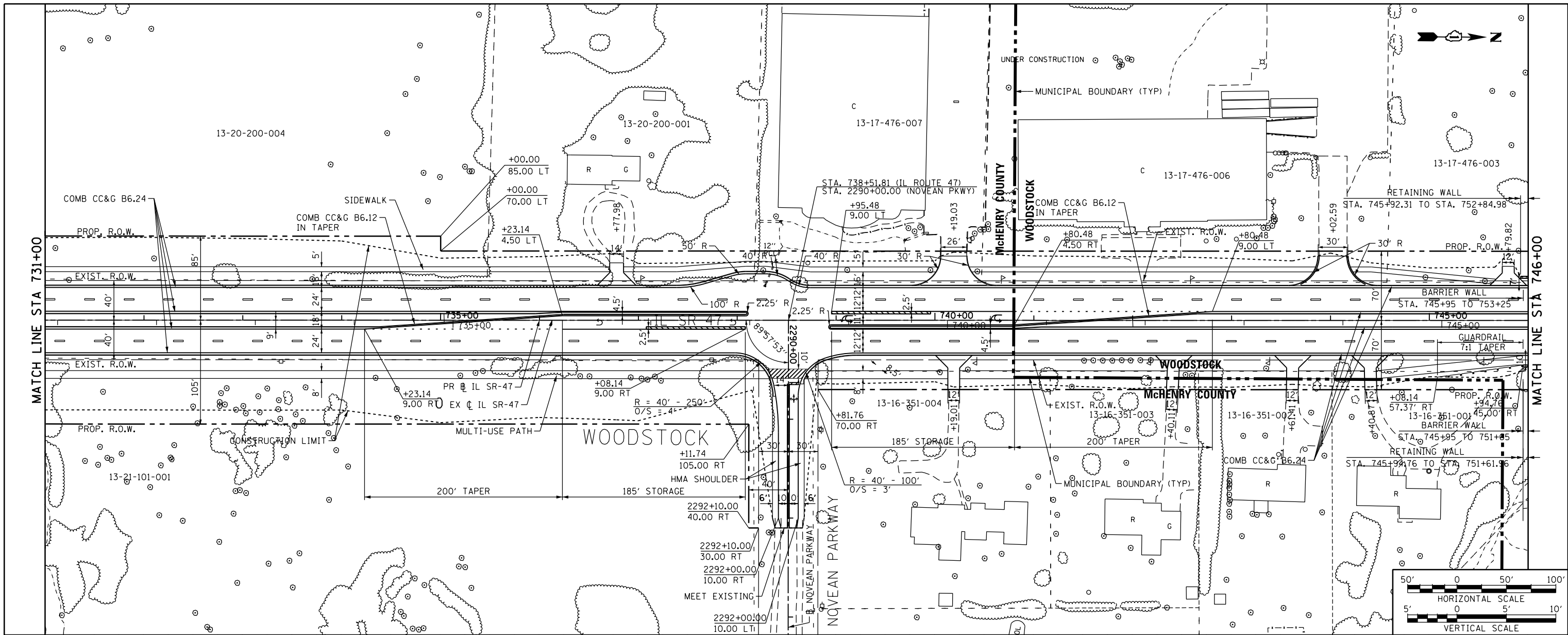
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		DRAWN -	REVISED -									47	REED ROAD TO US 14	MCHENRY	336	37
		CHECKED -	REVISED -									CONTRACT NO.				
		DATE - 08/24/2017	REVISED -									FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				

PROFILE	SURVEYED _____	BY _____	DATE _____
	PLOTTED _____		
NOTE BOOK	GRADES CHECKED _____		
	B.M. NOTED _____		
NO. _____	STRUCTURE NOTATIONS CH'KD _____		



PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	CADD FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		

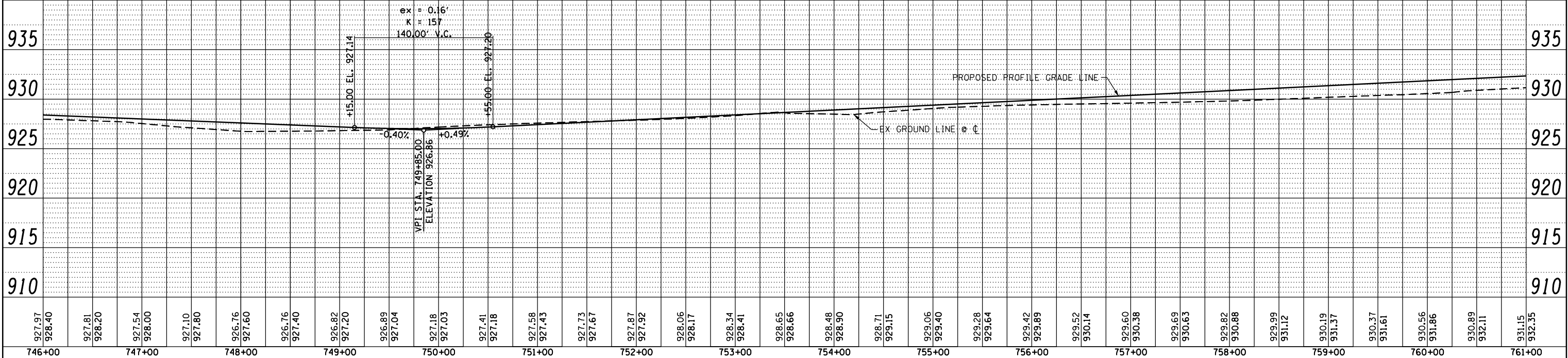
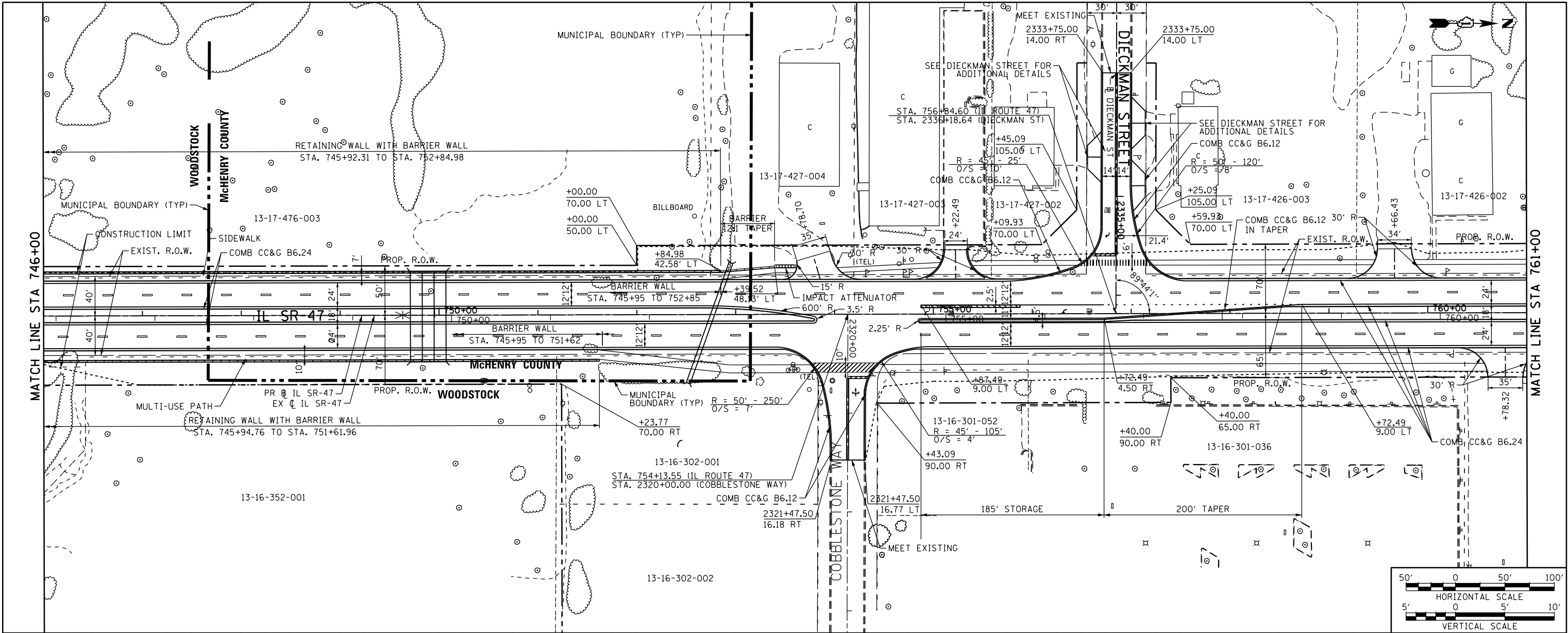


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	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 26	OF 42 SHEETS	STA. 731+00	TO STA. 746+00	CONTRACT NO.		
	PLOT DATE = 9/7/2017	DATE = 08/24/2017	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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9/7/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	FILE NAME		

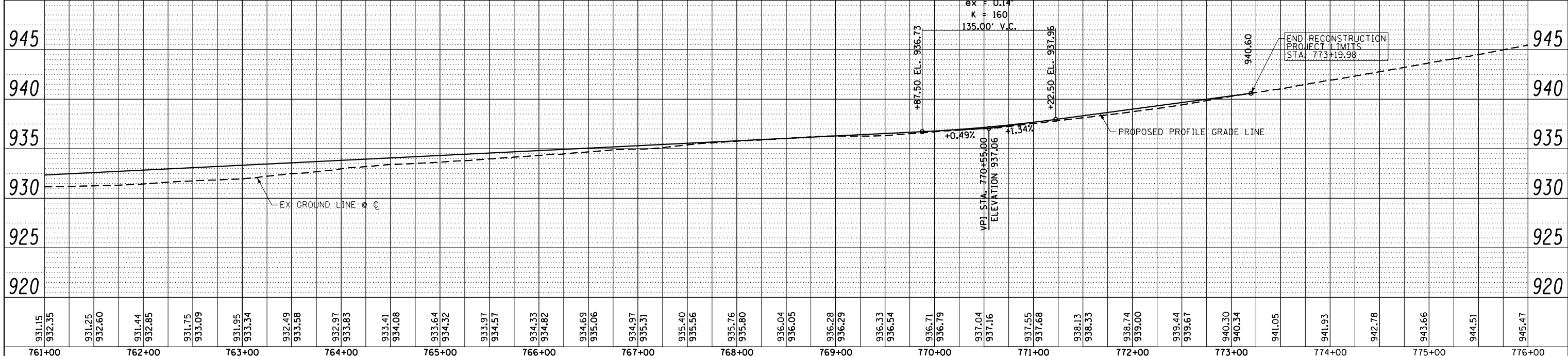
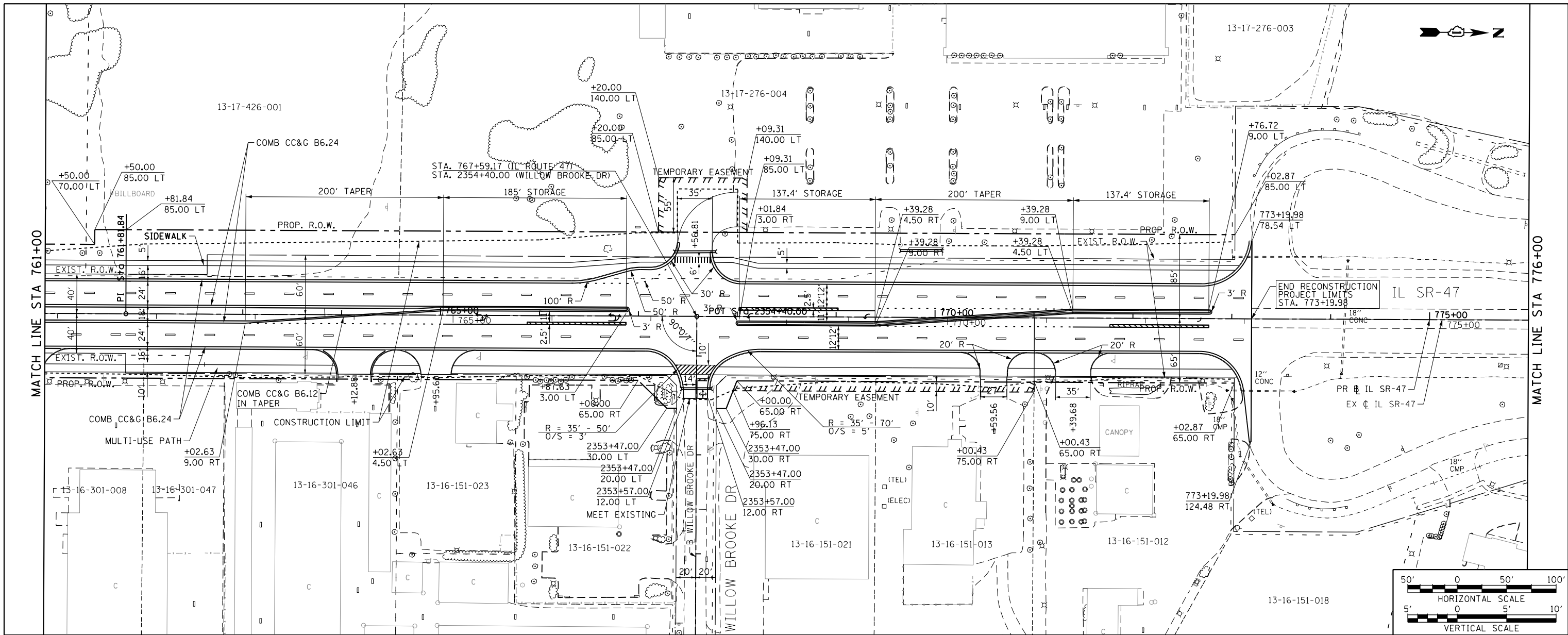
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NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		



FILE NAME =  39027_PP_27.dgn	USER NAME = ChiuA	DESIGNED -	REVISED -	STATE OF ILLINOIS  DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	40
	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -		CONTRACT NO.							
	PLOT DATE = 9/7/2017	DATE - 08/24/2017	REVISED -									
	SCALE: 1" = 50'				SHEET NO. 27 OF 42 SHEETS		STA. 746+00 TO STA. 761+00		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT			

PLAN	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	ALIGNED		
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PROFILE	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	GRADES CHECKED		
	STRUCTURE NOTATIONS CHKD		



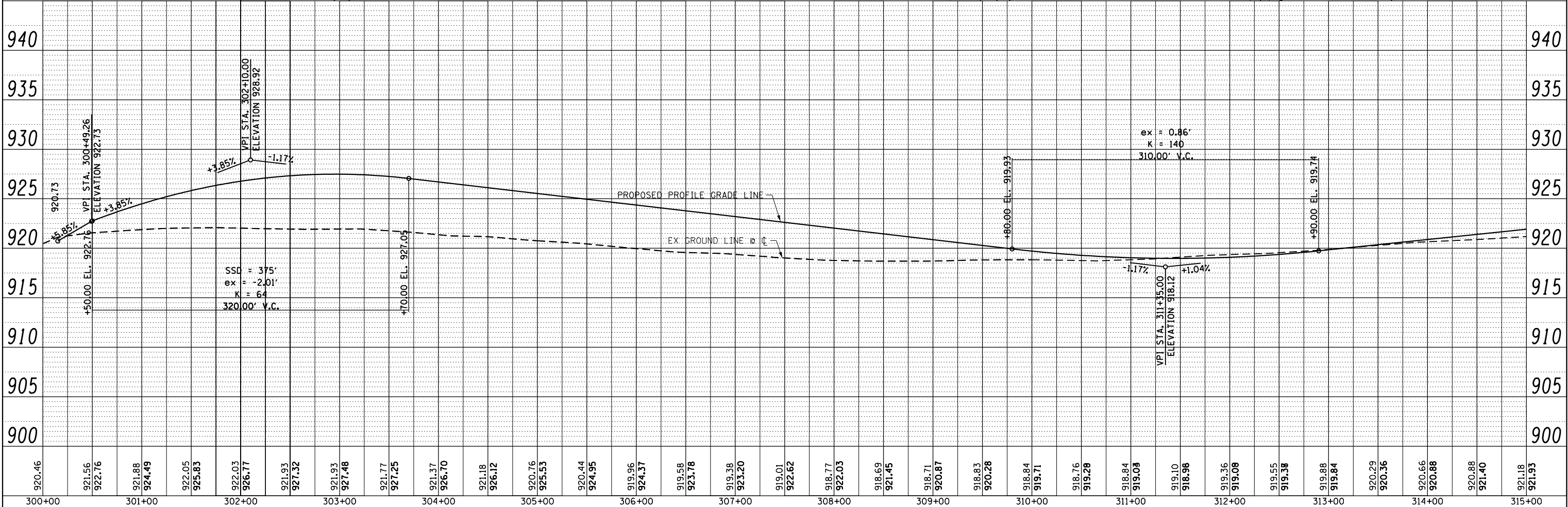
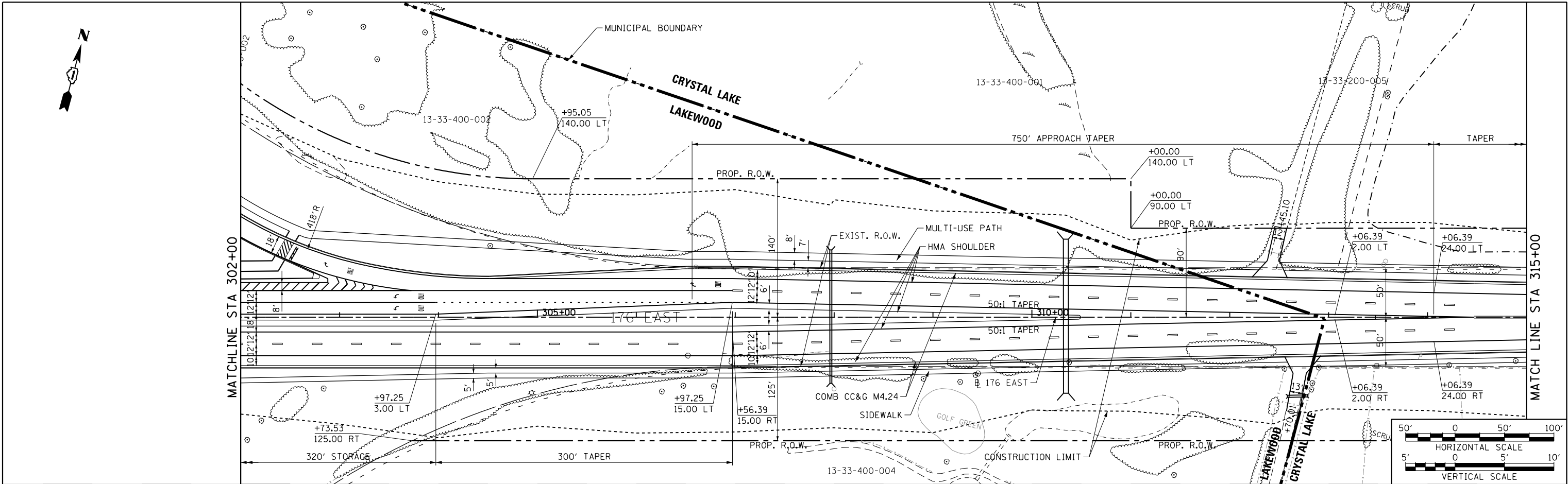
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		CHECKED	REVISED					SHEET NO. 28 OF 42 SHEETS				COUNTY			
		DATE	REVISED					STA. 761+00 TO STA. 776+00				MCHENRY			
												CONTRACT NO.			
												FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT			

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4/5/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	FILE NAME		

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NOTE BOOK	GRADES CHECKED		
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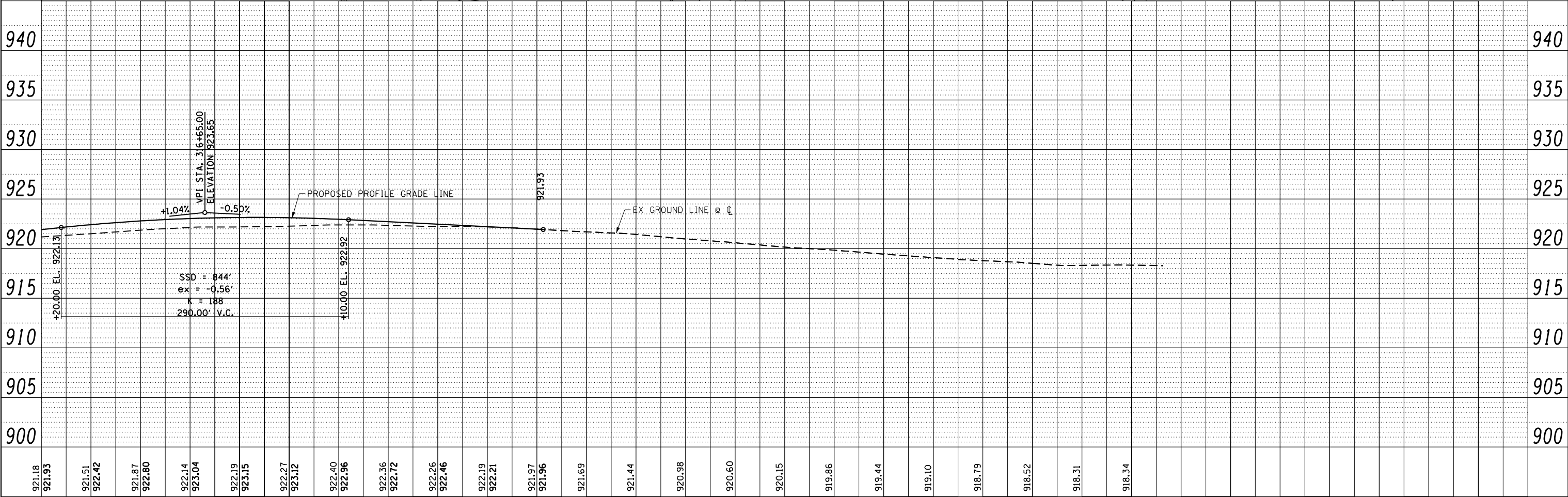
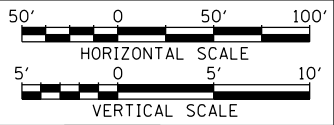
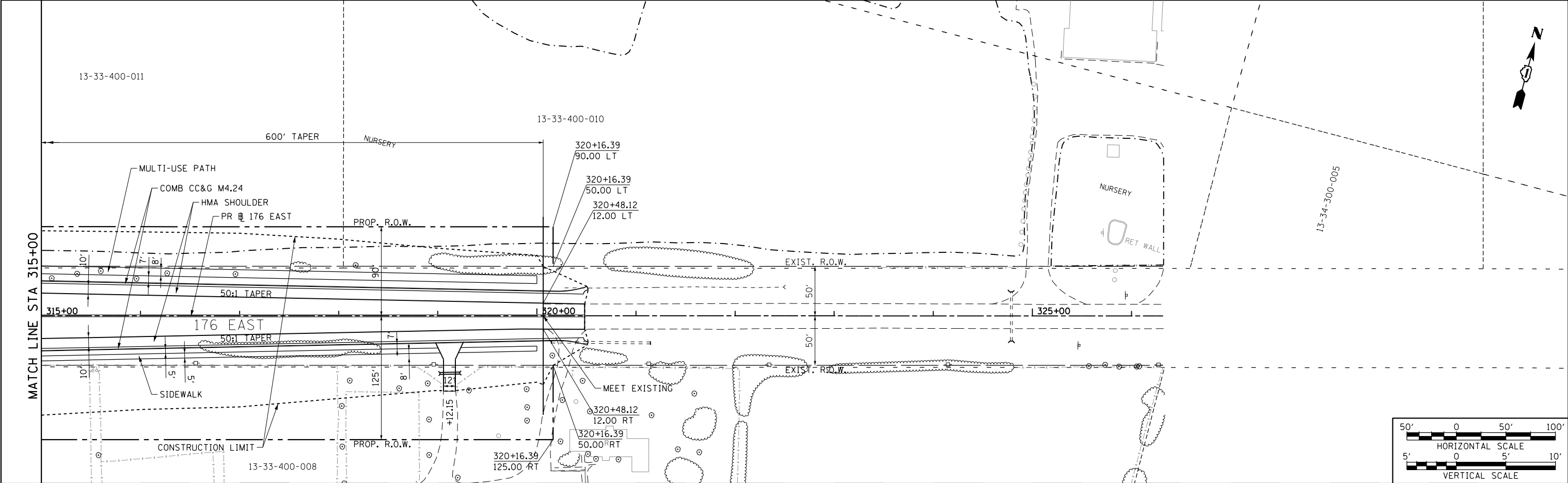


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	PLOT DATE = 9/8/2017	DATE - 08/24/2017	REVISED -										

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9/8/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	CADD FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		

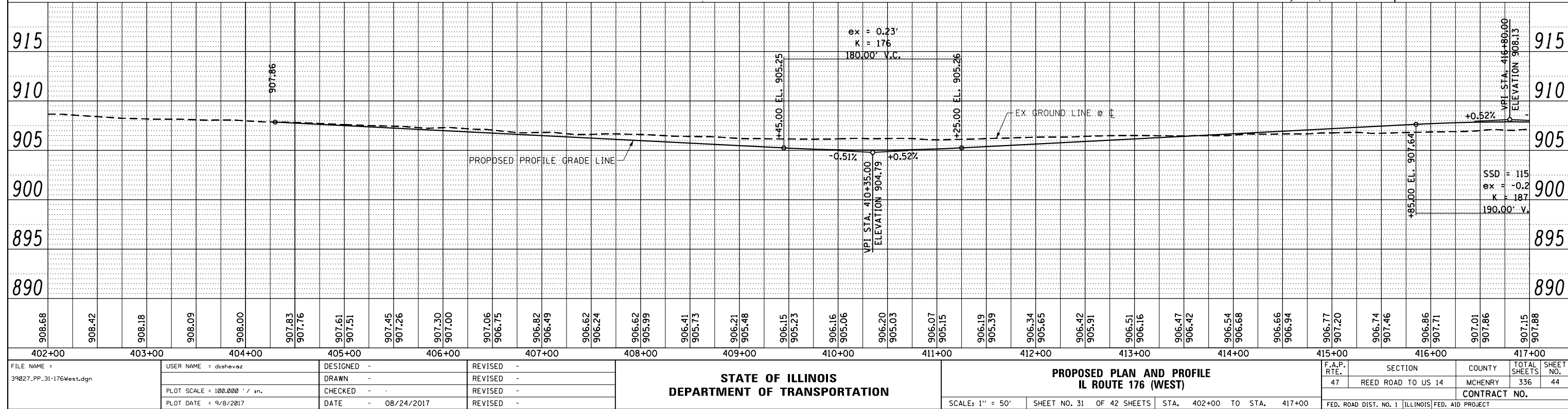


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FILE NAME =  39027_PP_30.176East.dgn		USER NAME = hanegraafe		DESIGNED -		REVISED -		STATE OF ILLINOIS  DEPARTMENT OF TRANSPORTATION														PROPOSED PLAN AND PROFILE IL ROUTE 176 (EAST)						F.A.P. RTE.	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.		
				DRAWN -		REVISED -																						47	REED ROAD TO US 14		MCHENRY	336	43		
		PLOT SCALE = 100.000 ' / in.		CHECKED -		REVISED -																SCALE: 1" = 50'						SHEET NO. 30 OF SHEETS		STA. 315+00 TO STA. 326+00		CONTRACT NO.			
		PLOT DATE = 4/5/2017		DATE - 03/12/2015		REVISED -																						FED. ROAD DIST. NO. 1 ILLINOIS				FED. AID PROJECT			

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4/5/2017

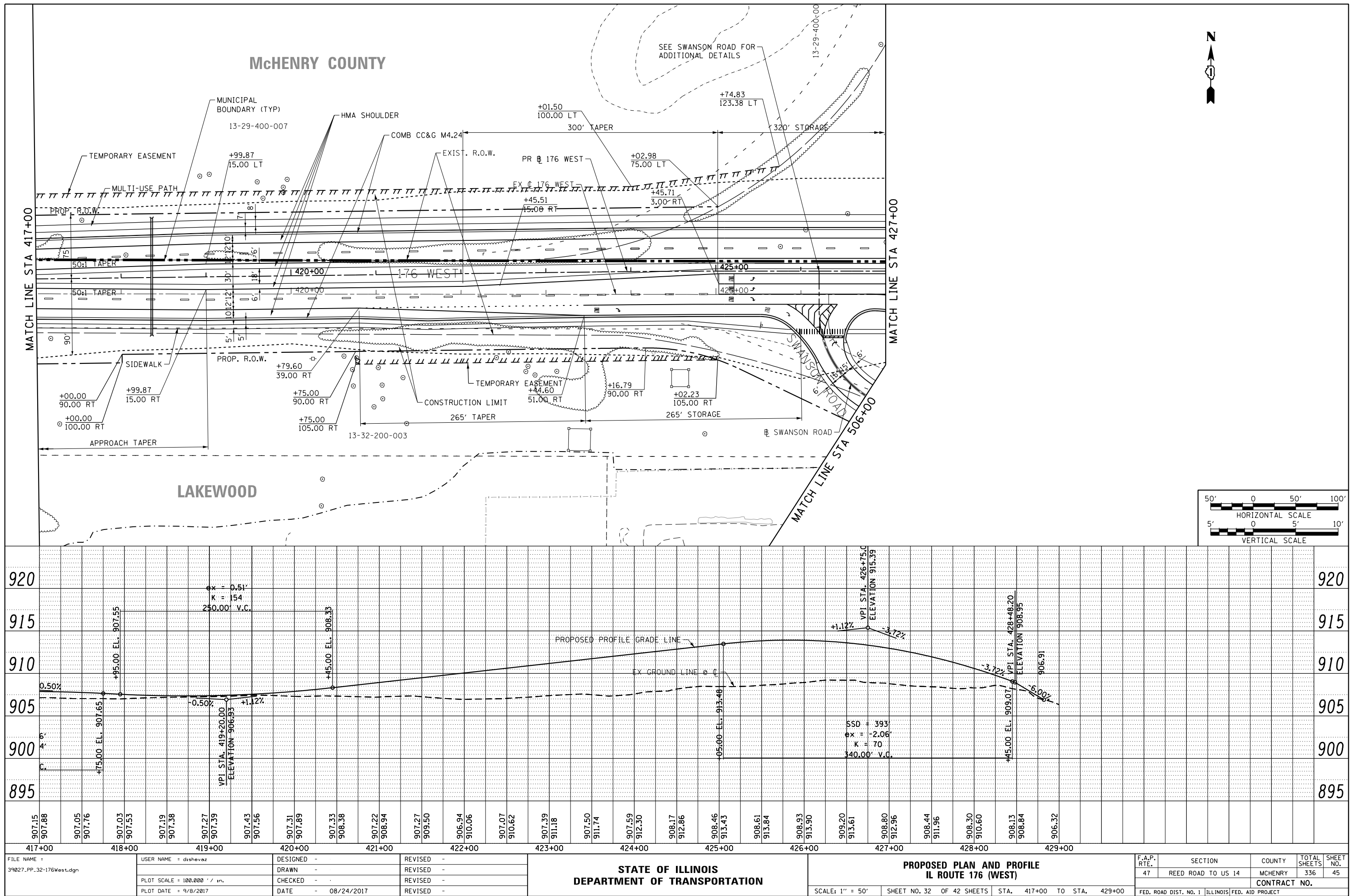


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NOTE BOOK	PLOTTED _____		
	GRADES CHECKED _____		
	B.M. NOTED _____		
NO. _____	STRUCTURE NOTATIONS CHKD _____		



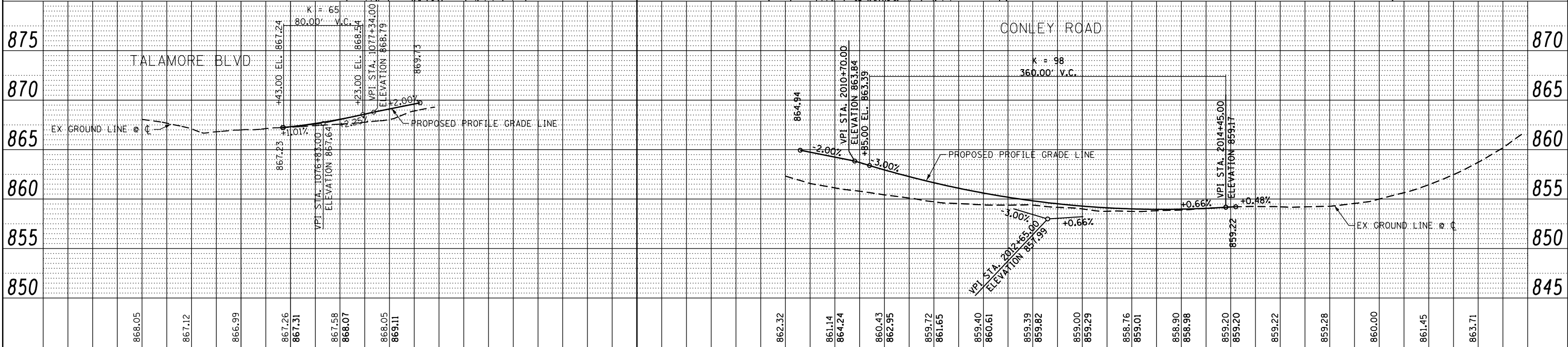
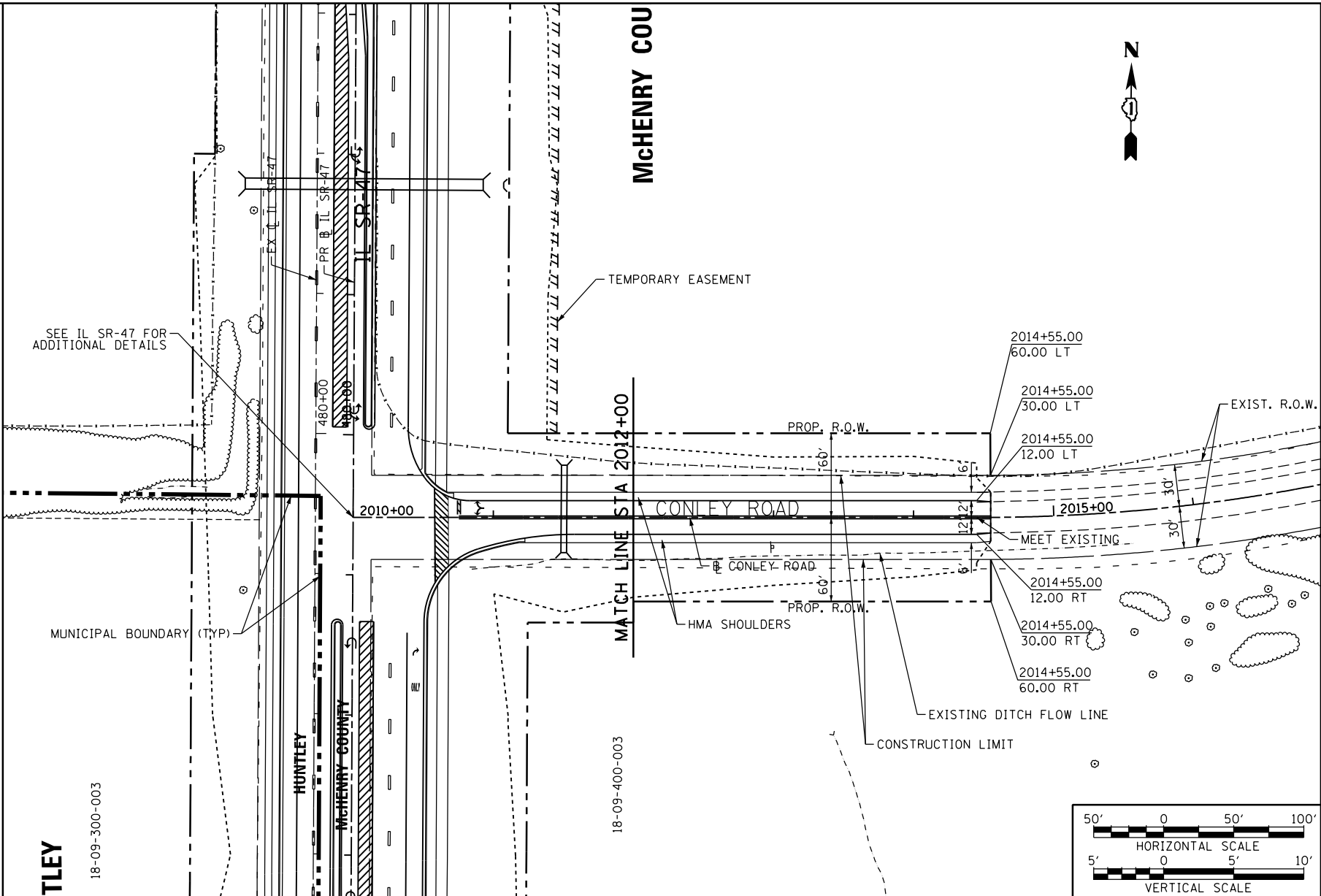
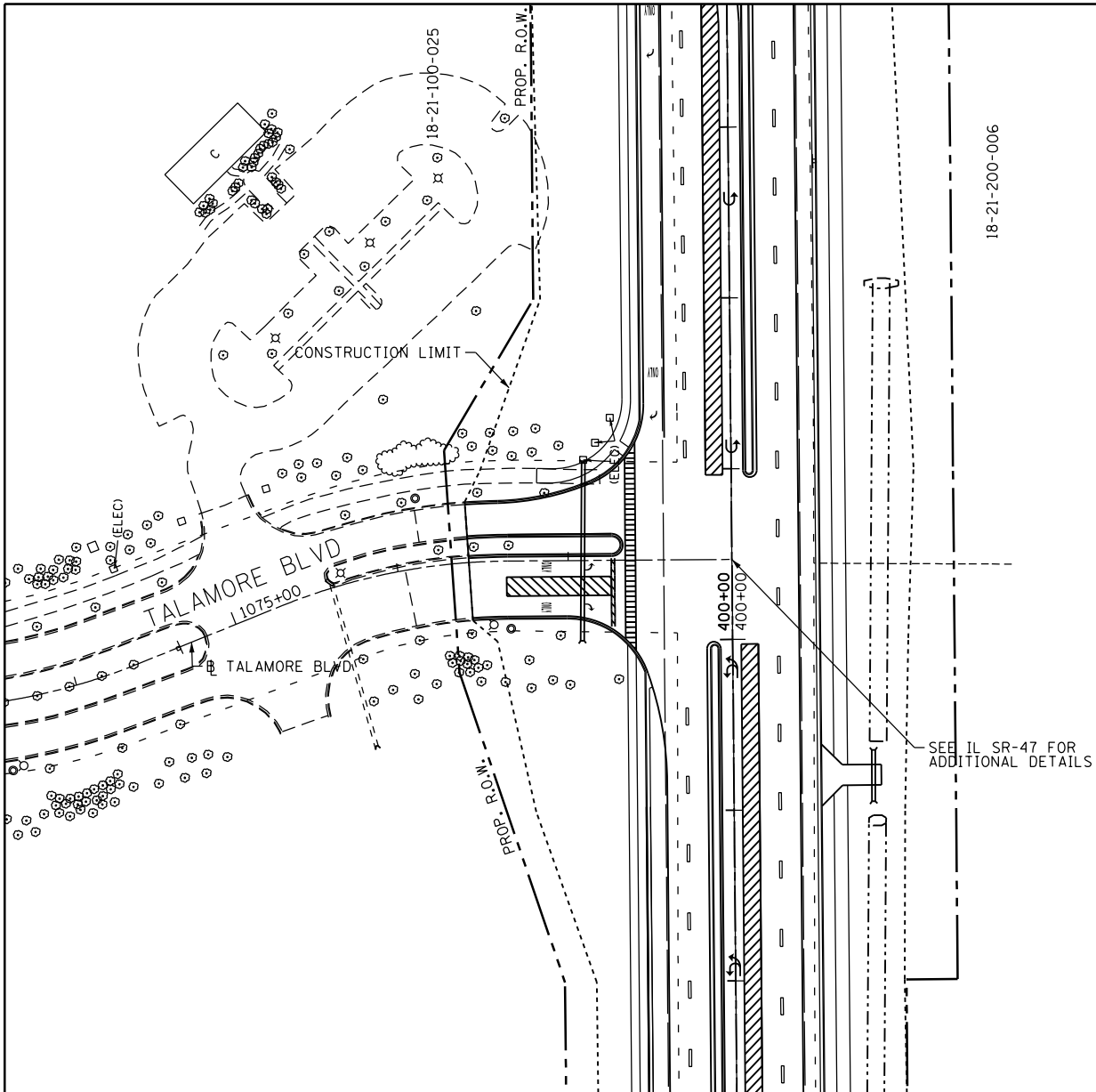


PROFILE			
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	PLOTTED		
NOTE BOOK	GRADES CHECKED		
	B.M. NOTED		
NO. _____	STRUCTURE NOTATIONS CHKD		



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NOTE BOOK	ALIGNED		
NO.	CADD FILE NAME		

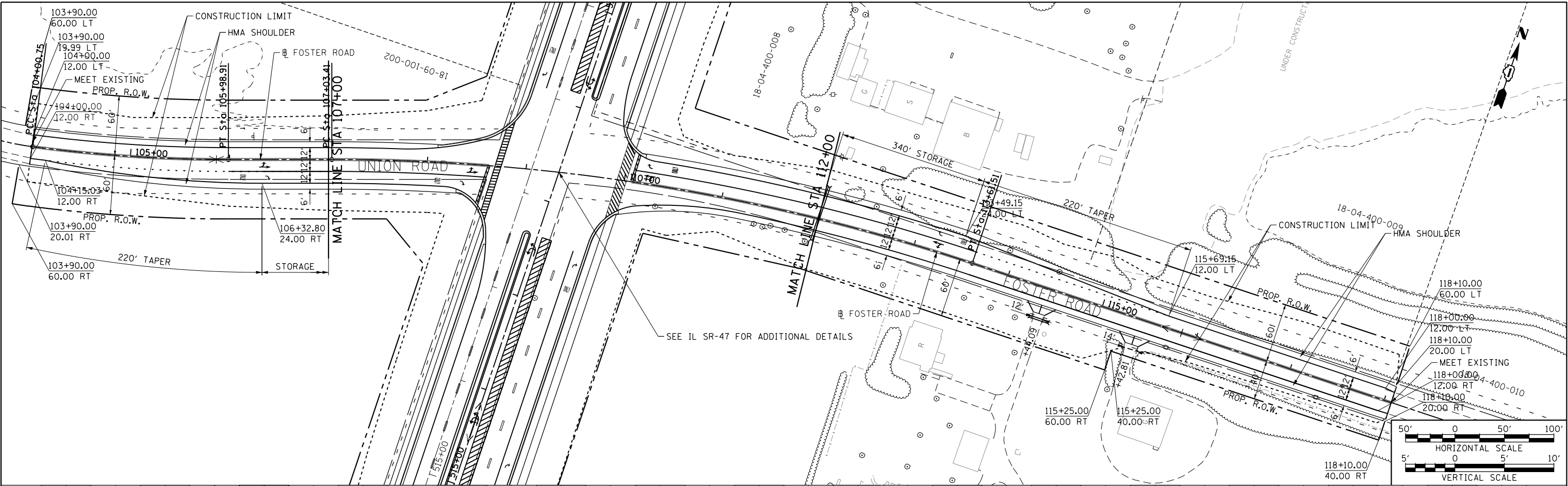
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NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		



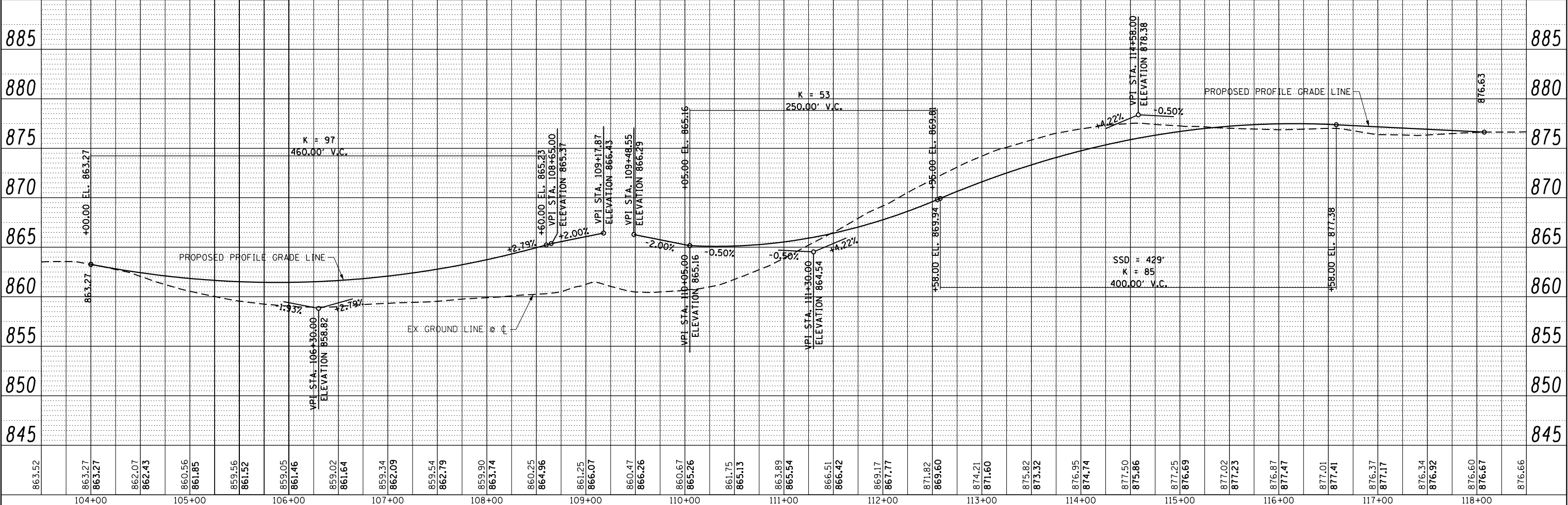
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		DRAWN -	REVISED -							47	REED ROAD TO US 14	MCHENRY	336	46
	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -							CONTRACT NO.				
	PLOT DATE = 9/7/2017	DATE - 08/24/2017	REVISED -				SCALE: 1" = 50'			SHEET NO. 33	OF 42 SHEETS	STA. 2010+00 TO STA. 2017+00	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT	

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9/7/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	CADD FILE NAME		



PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		

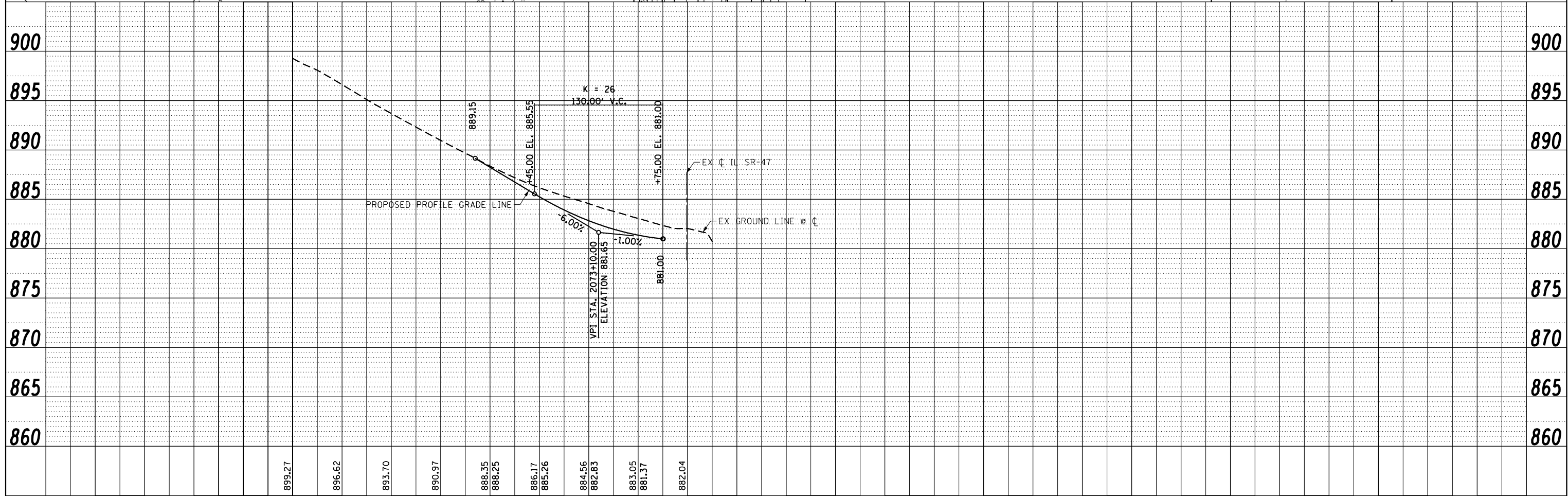
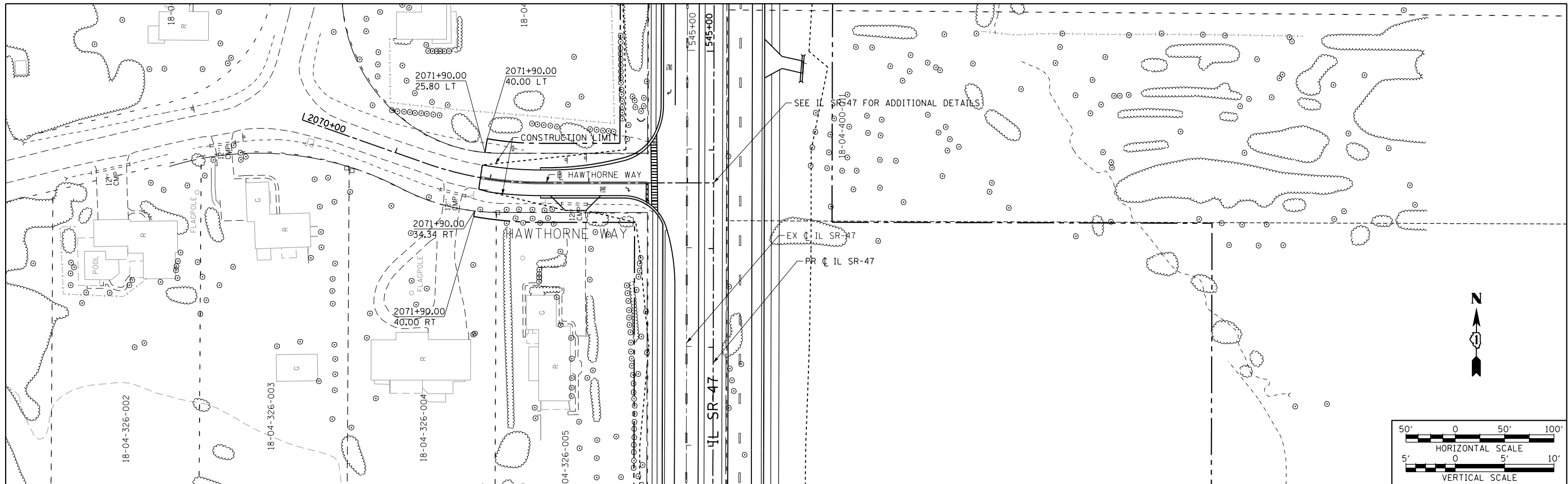


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		DRAWN -	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	47
	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -				CONTRACT NO.						
	PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -		SCALE: 1" = 50'	SHEET NO. 34	OF	SHEETS	STA. 104+00	TO	STA. 118+00	FED. ROAD DIST. NO. 1	ILLINOIS

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4/5/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO. _____	ALIGNMENT CHECKED		
	RT. OF WAY CHECKED		
	CADD FILE NAME		

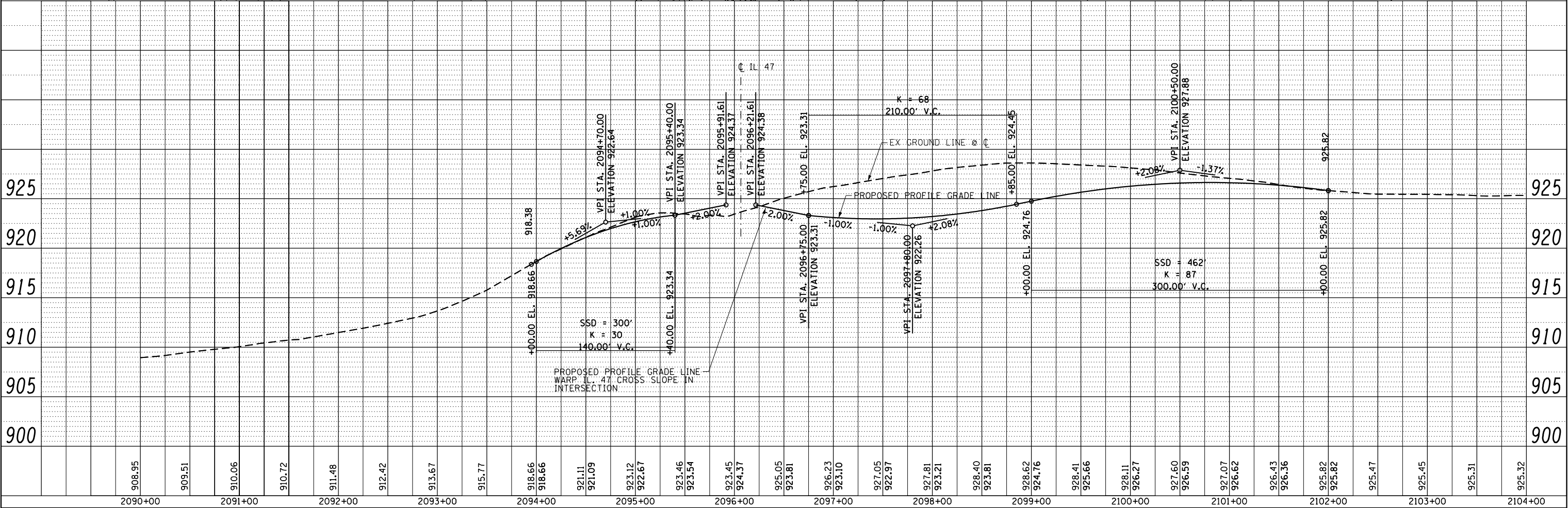
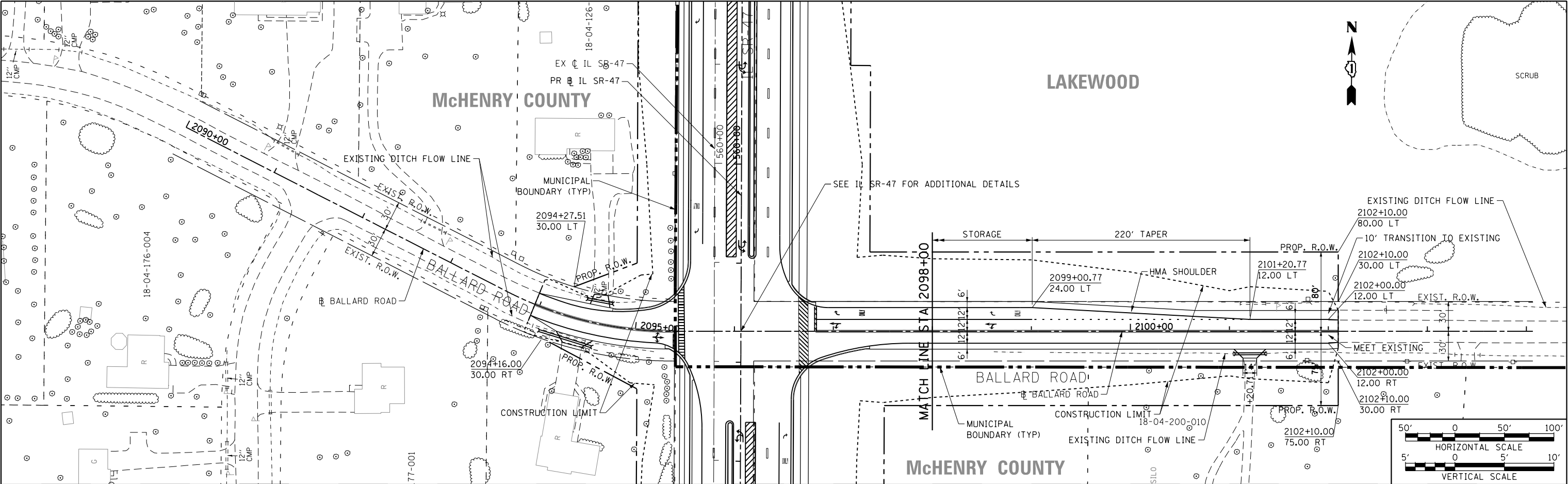
PROFILE	SURVEYED _____	BY _____	DATE _____
	PLOTTED _____		
NOTE BOOK	GRADES CHECKED _____		
NO. _____	B.M. NOTED _____		
	STRUCTURE NOTATIONS CHK'D _____		



FILE NAME = 39027_PP_35-Hawthorne.dgn	USER NAME = haneagraafe	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED PLAN AND PROFILE HAWTHORNE WAY				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN -	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	48
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		CONTRACT NO.								
	PLOT DATE = 4/5/2017	DATE - 03/12/2015	REVISED -		SCALE: 1" = 5035	SHEET NO. 35 OF	SHEETS	STA.	TO STA.	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT	

PLAN	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	ALIGNED		
	CADD FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		

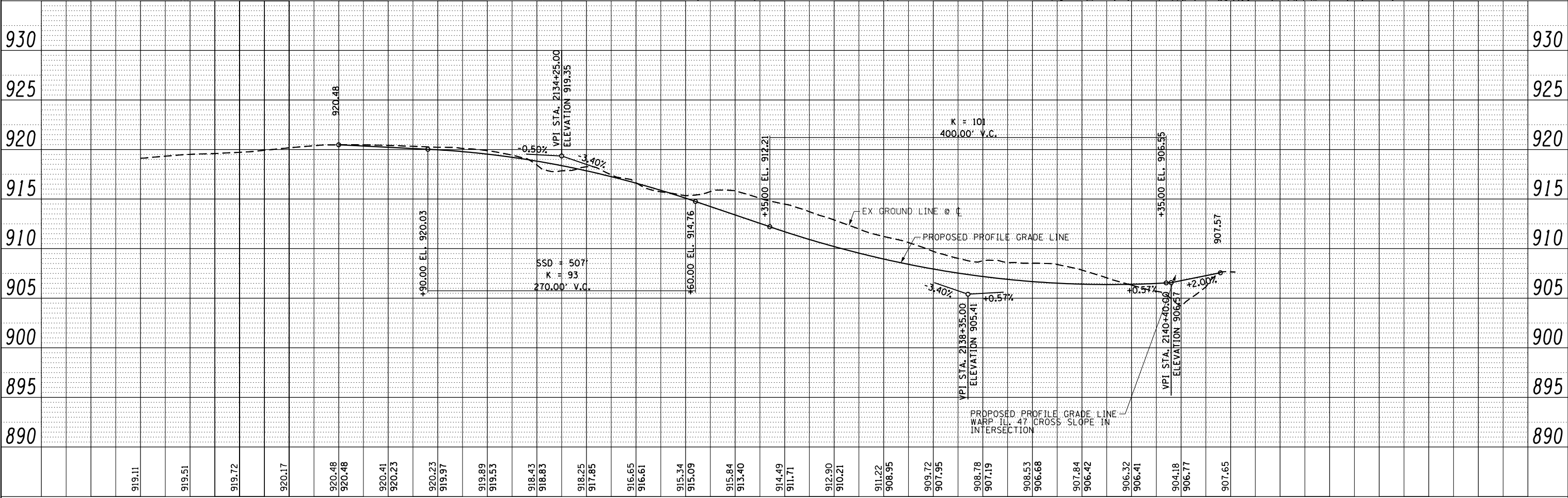
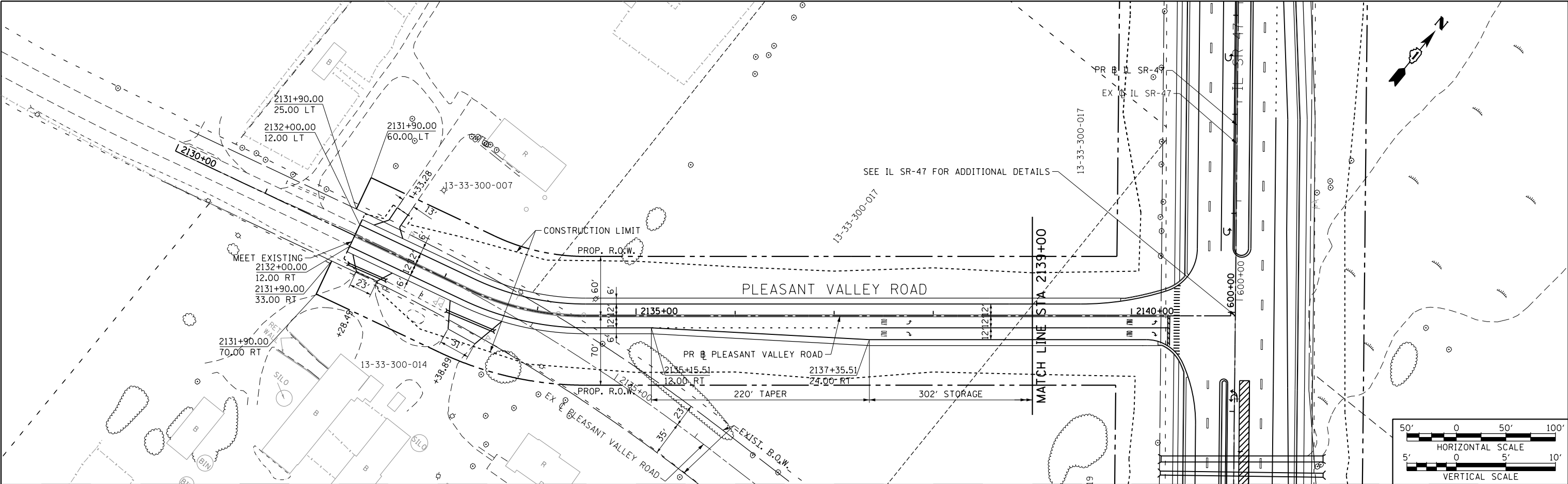


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		DRAWN -	REVISED -						47	REED ROAD TO US 14	MCHENRY	336	49
	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -				CONTRACT NO.						
	PLOT DATE = 9/8/2017	DATE - 08/24/2017	REVISED -		SCALE: 1" = 50'	SHEET NO. 36 OF SHEETS	STA. 2090+00 TO STA. 2104+00	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT			

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9/8/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK NO.	ALIGNED CHECKED		
	FILED		
	CADD FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK NO.	GRADES CHECKED		
	STRUCTURE NOTATIONS CHKD		



2130+00		2131+00		2132+00		2133+00		2134+00		2135+00		2136+00		2137+00		2138+00		2139+00		2140+00		2141+00							
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				DRAWN -		REVISED -																		47	REED ROAD TO US 14		MCHENRY	336	50
		PLOT SCALE = 100.000' / in.		CHECKED -		REVISED -												CONTRACT NO.											
		PLOT DATE = 4/5/2017		DATE - 03/12/2015		REVISED -																							
																		SCALE: 1" = 50'		SHEET NO. 37 OF SHEETS		STA. 2130+00 TO STA. 2141+00		FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT			

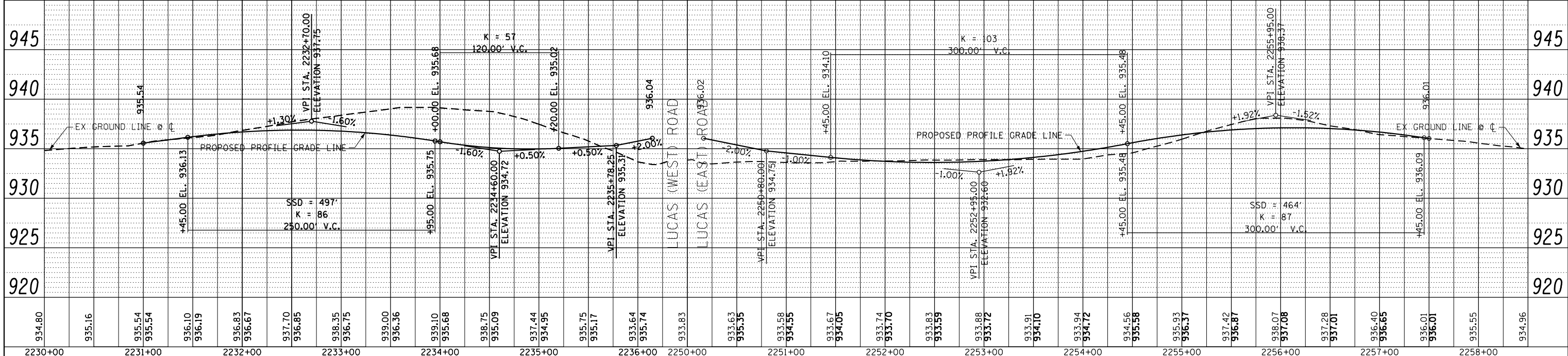
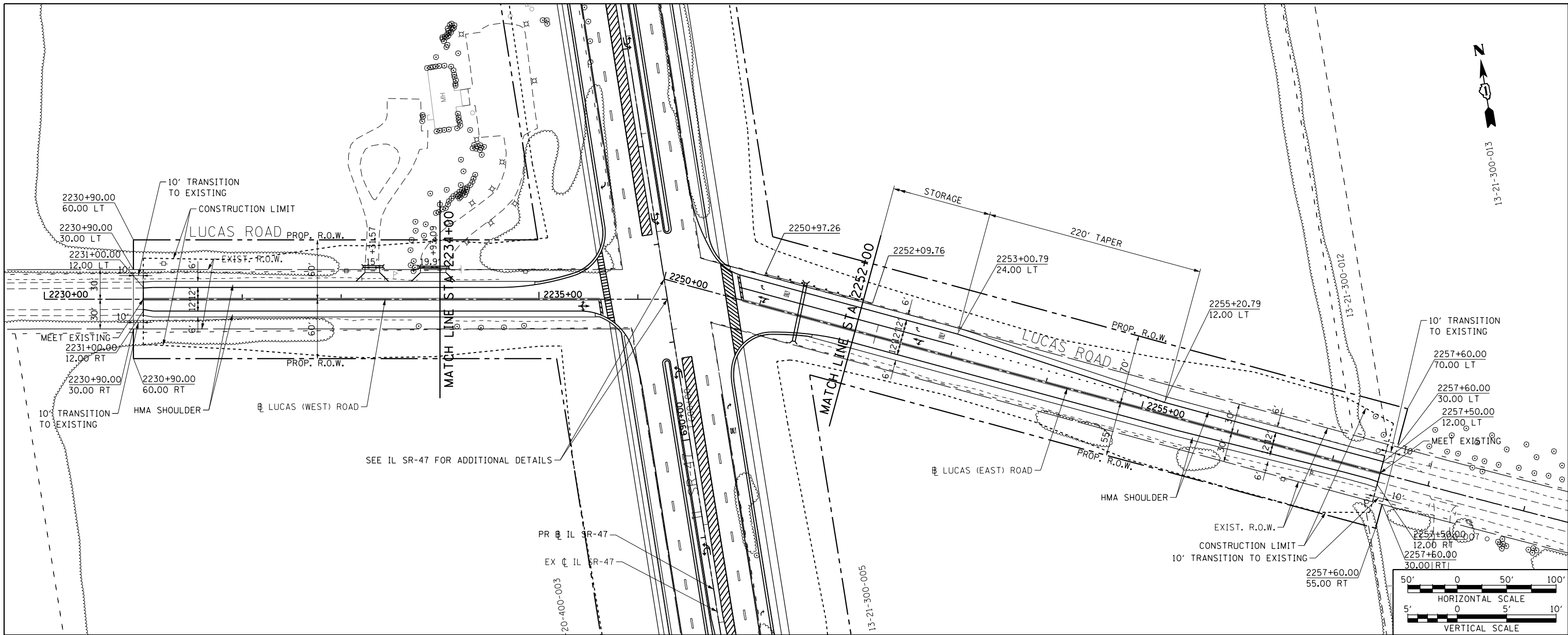
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4/5/2017



PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	CHECKED		
	FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE		
	NOTATIONS CHKD		

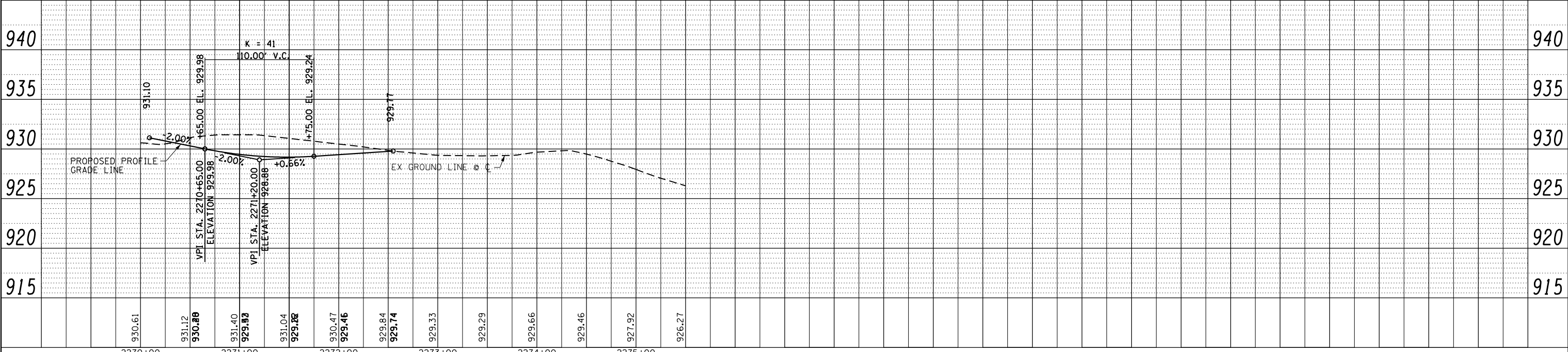
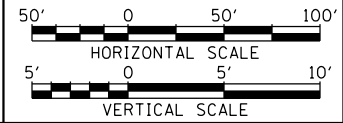
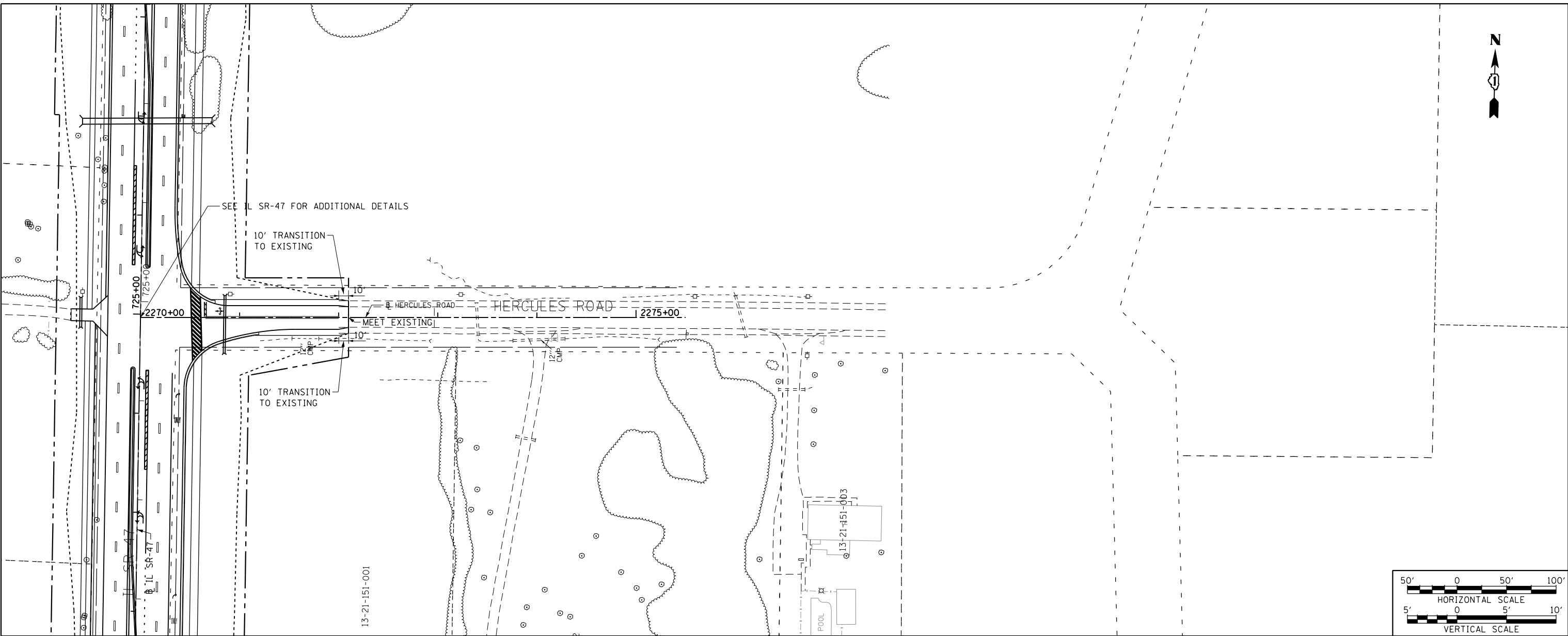


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		DRAWN -	REVISED -					47	REED ROAD TO US 14	MCHEMRY	336	51
	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		CONTRACT NO.							
	PLOT DATE = 4/5/2017	DATE = 03/31/2017	REVISED -		SCALE: 1" = 50'	SHEET NO. 38 OF 42 SHEETS	STA. 2230+00 TO STA. 2258+00	FED. ROAD DIST. NO. 1 ILLINOIS	FED. AID PROJECT			

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4/5/2017

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		



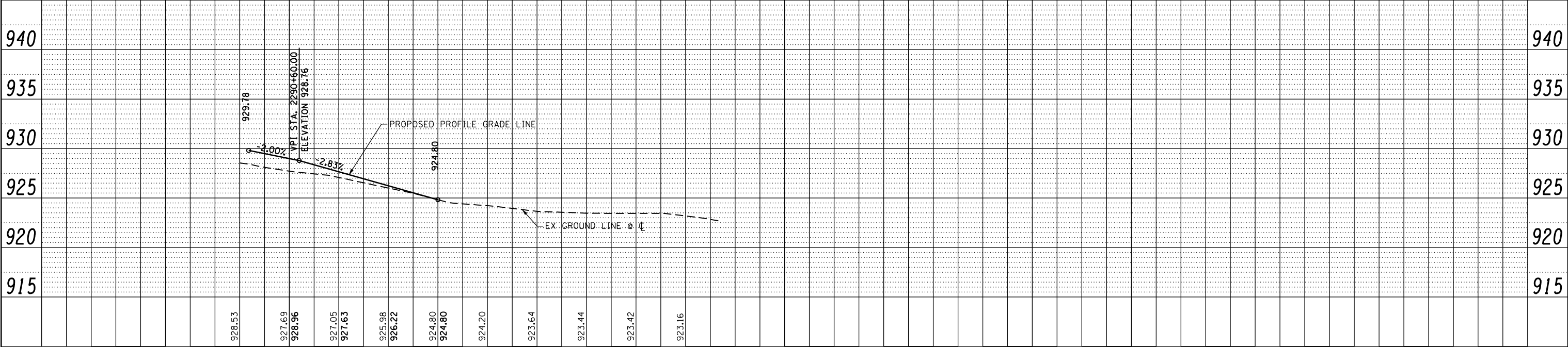
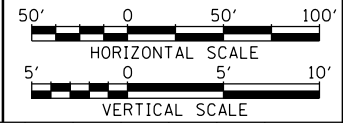
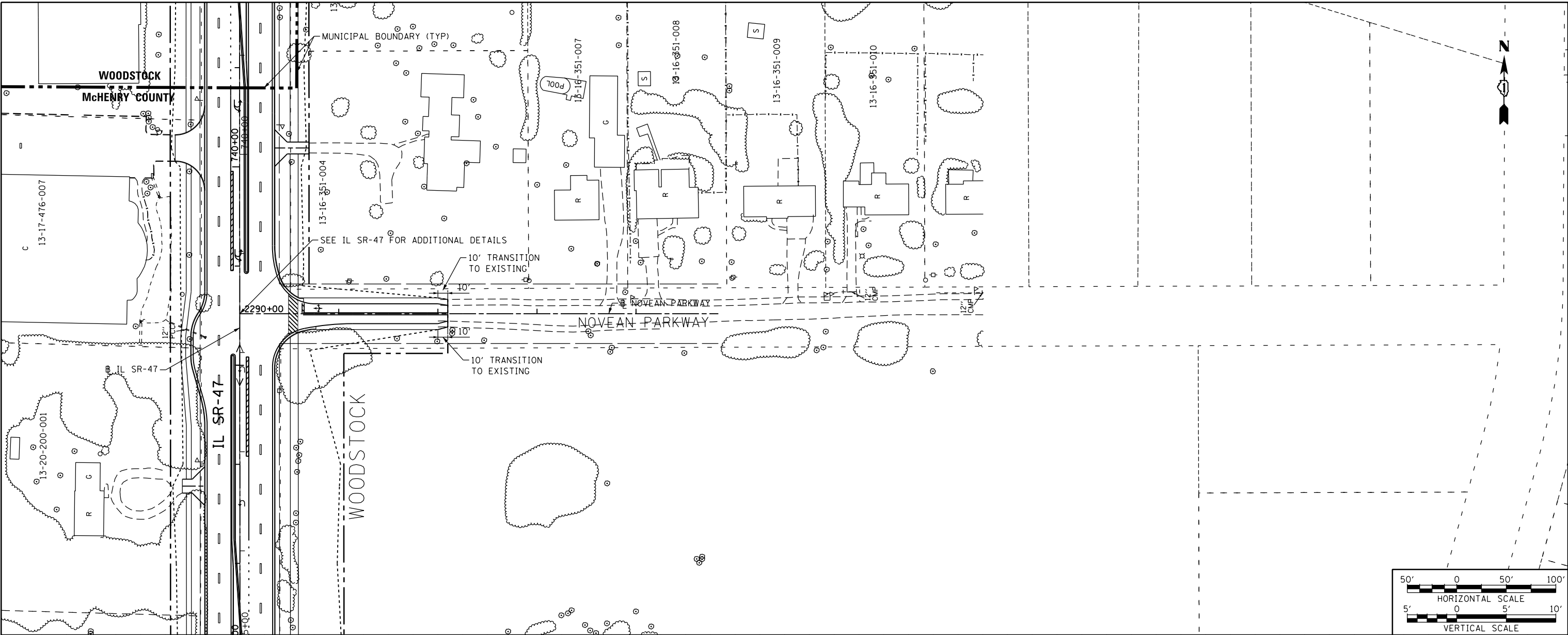
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	PLOT SCALE = 100.000' / in.	CHECKED -	REVISED -		SCALE: 1" = 50'	SHEET NO. 39	OF 42 SHEETS	STA. 2270+00 TO STA. 2275+00	CONTRACT NO.			
	PLOT DATE = 4/5/2017	DATE - 03/31/2017	REVISED -		FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT							

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4/5/2017



PLAN	SURVEYED	BY	DATE
NOTE BOOK NO.	PLOTTED		
CADD FILE NAME	ALIGNED		
	CHECKED		

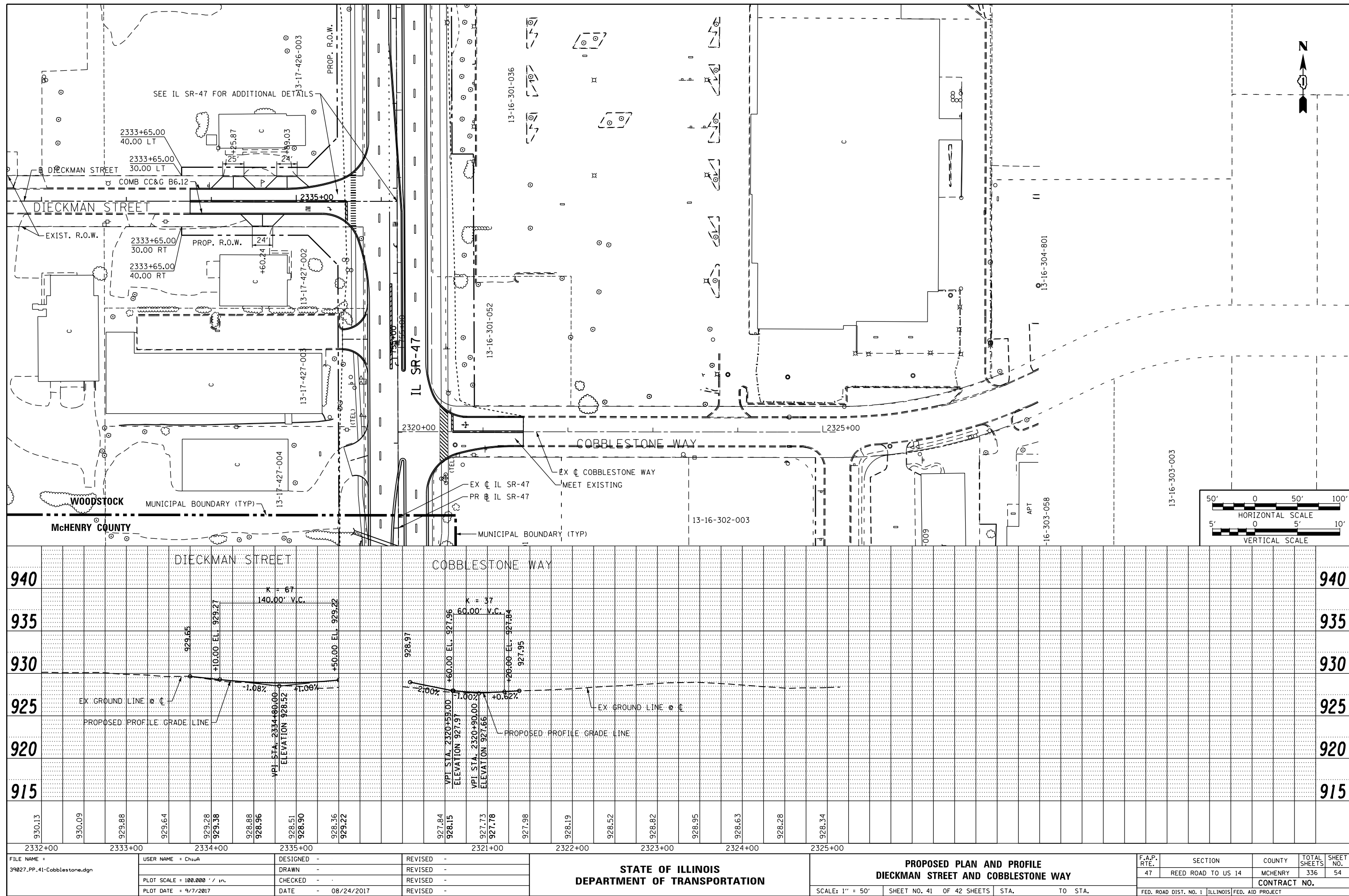
PROFILE	SURVEYED	BY	DATE
NOTE BOOK NO.	PLOTTED		
STRUCTURE NOTATIONS CHKD	GRADES CHECKED		
	STRUCTURE NOTATIONS CHKD		



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	PLOT SCALE = 100.000 ' / in.	CHECKED -	REVISED -					47	REED ROAD TO US 14	MCHENRY	336	53
	PLOT DATE = 9/7/2017	DATE - 08/24/2017	REVISED -		SCALE: 1" = 50'			SHEET NO. 40 OF 42 SHEETS	STA. 2290+00 TO STA. 2294+00	CONTRACT NO.		
	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT											

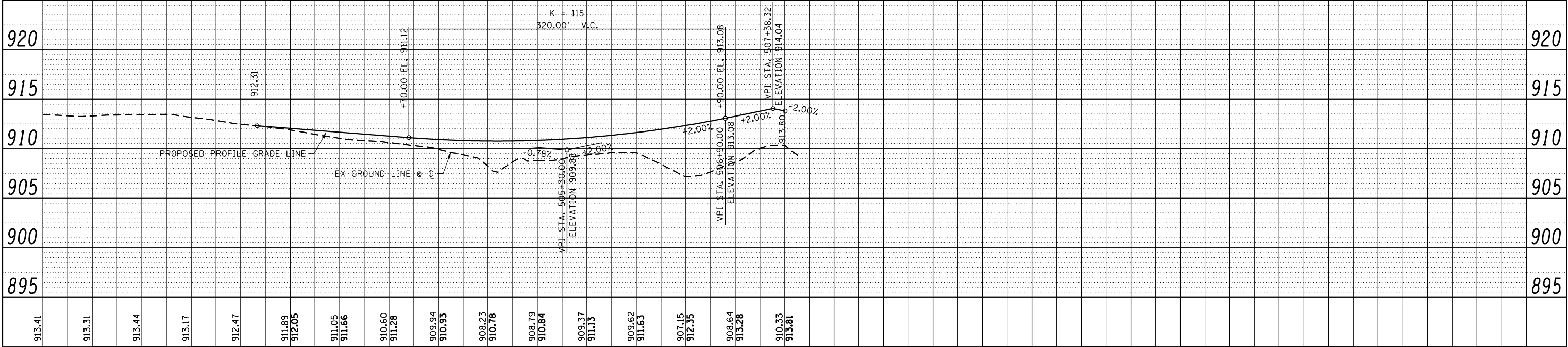
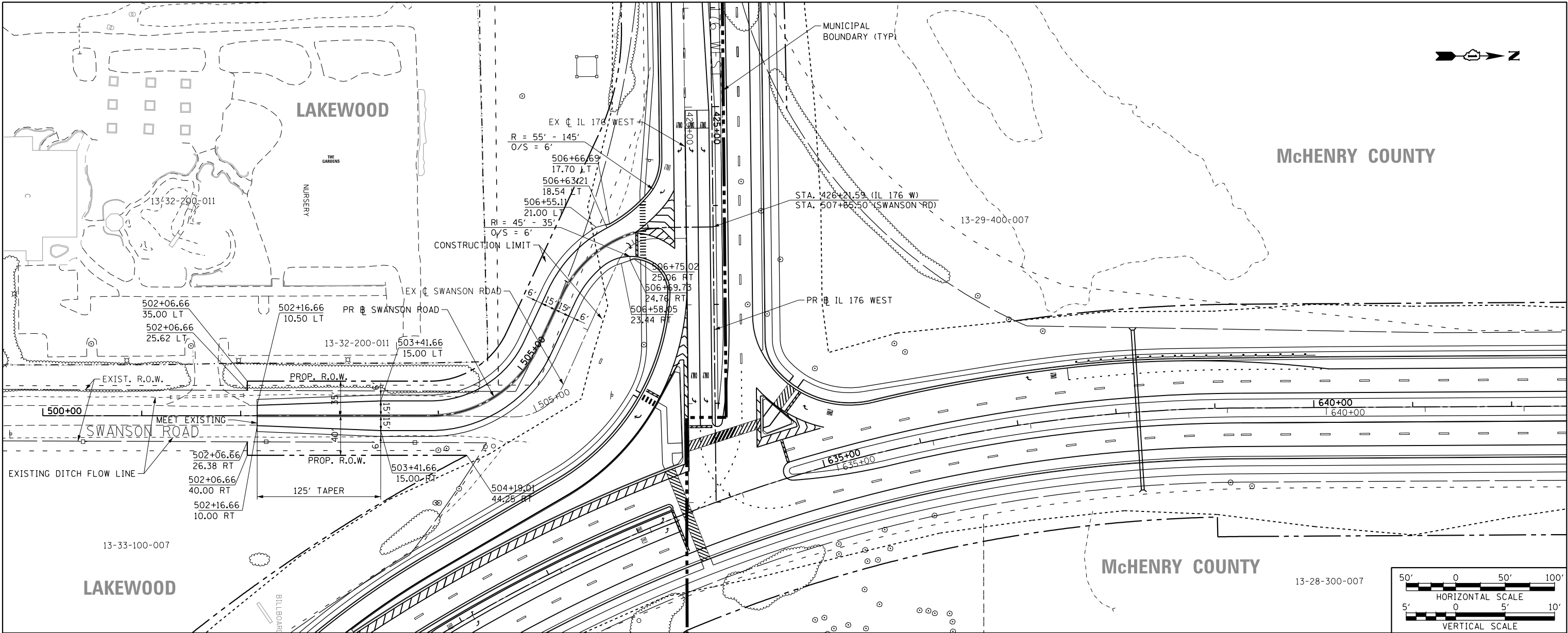
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9/7/2017

PROFILE	SURVEYED _____	BY _____	DATE _____
	PLOTTED _____		
NOTE BOOK	GRADES CHECKED _____		
	B.M. NOTED _____		
NO. _____	STRUCTURE NOTATIONS CH'KD _____		



PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
NO.	FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	GRADES CHECKED		
NO.	STRUCTURE NOTATIONS CHKD		



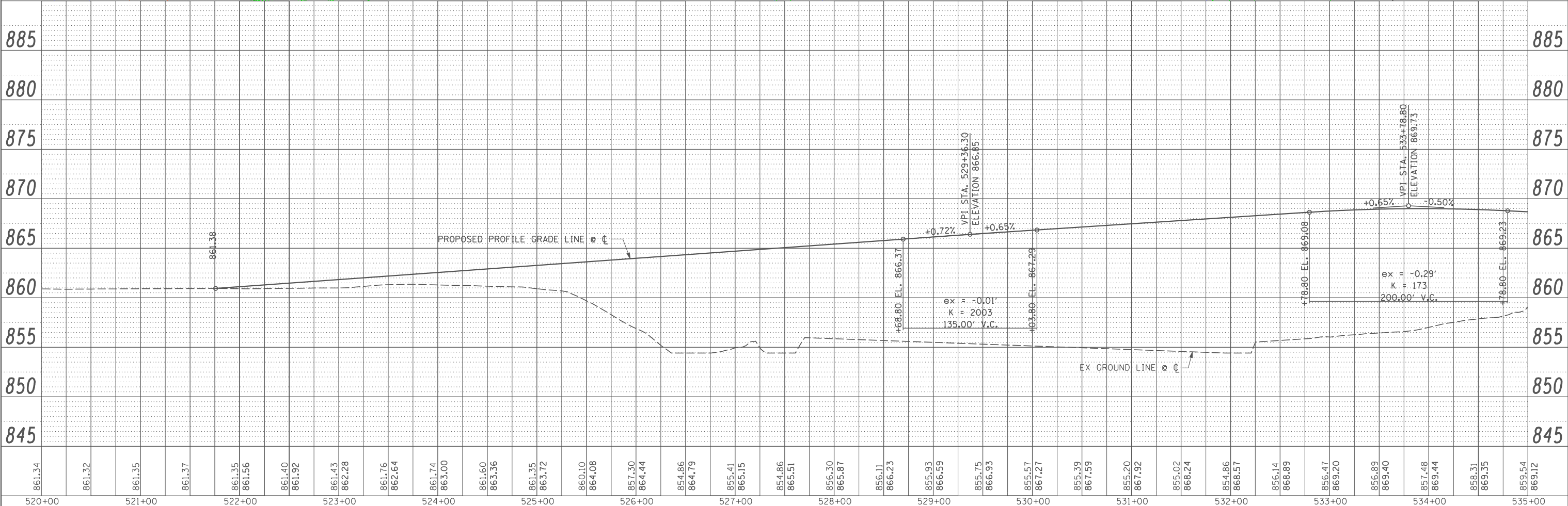
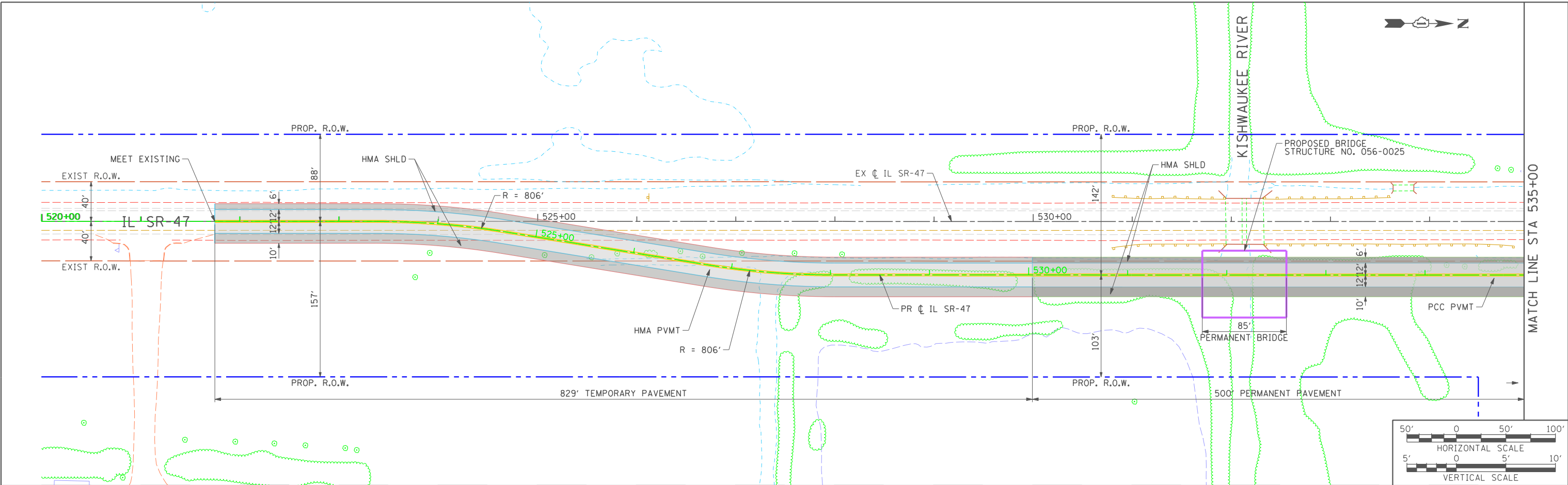
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		PLOT SCALE = 100.000' / in.		DRAWN -		REVISED -																47	REED ROAD TO US 14		MCHENRY	336	55
				PLOT DATE = 9/8/2017		CHECKED -										REVISED -		CONTRACT NO.									
		PLOT DATE = 9/8/2017		DATE - 08/24/2017		REVISED -										SCALE: 1" = 50'		SHEET NO. 42 OF 42 SHEETS		STA. 500+00 TO STA. 507+66		FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT			

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9/8/2017

**APPENDIX A-9**  
**KISHWAUKEE RIVER BRIDGE REPLACEMENT**

PLAN	SURVEYED	BY	DATE
NOTE BOOK NO.	ALIGNED		
	CHECKED		
	FILE NAME		

PROFILE	SURVEYED	BY	DATE
NOTE BOOK NO.	GRADES		
	CHECKED		
	STRUCTURE		
	NOTATIONS		

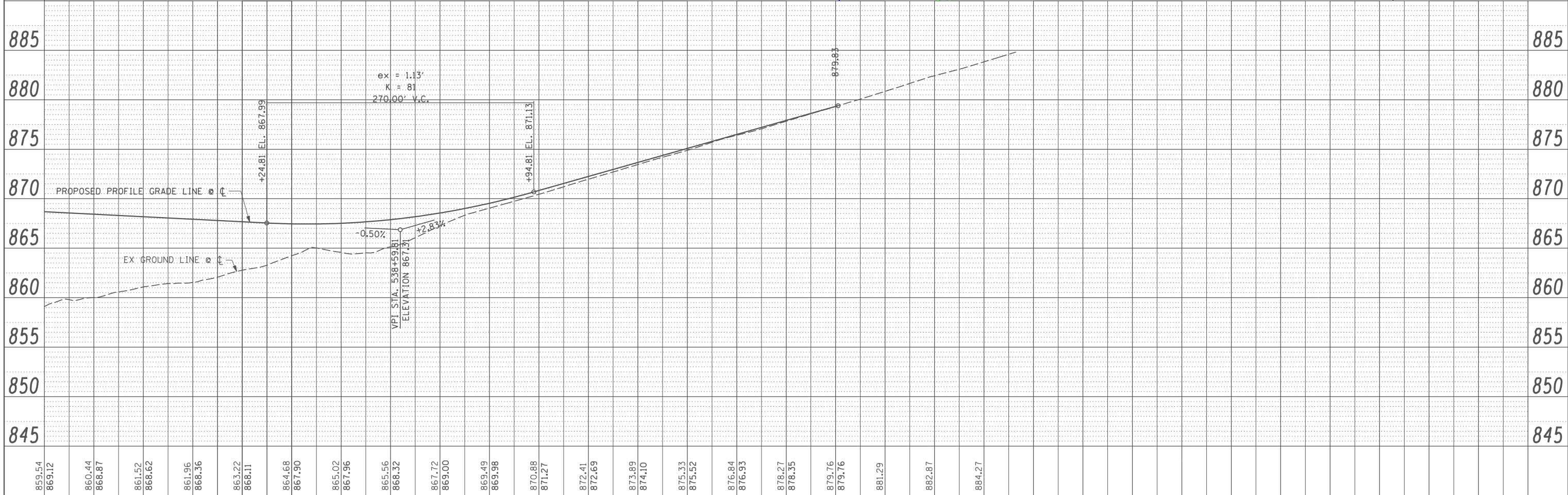
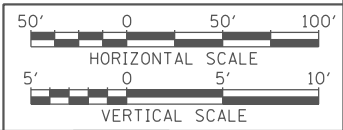
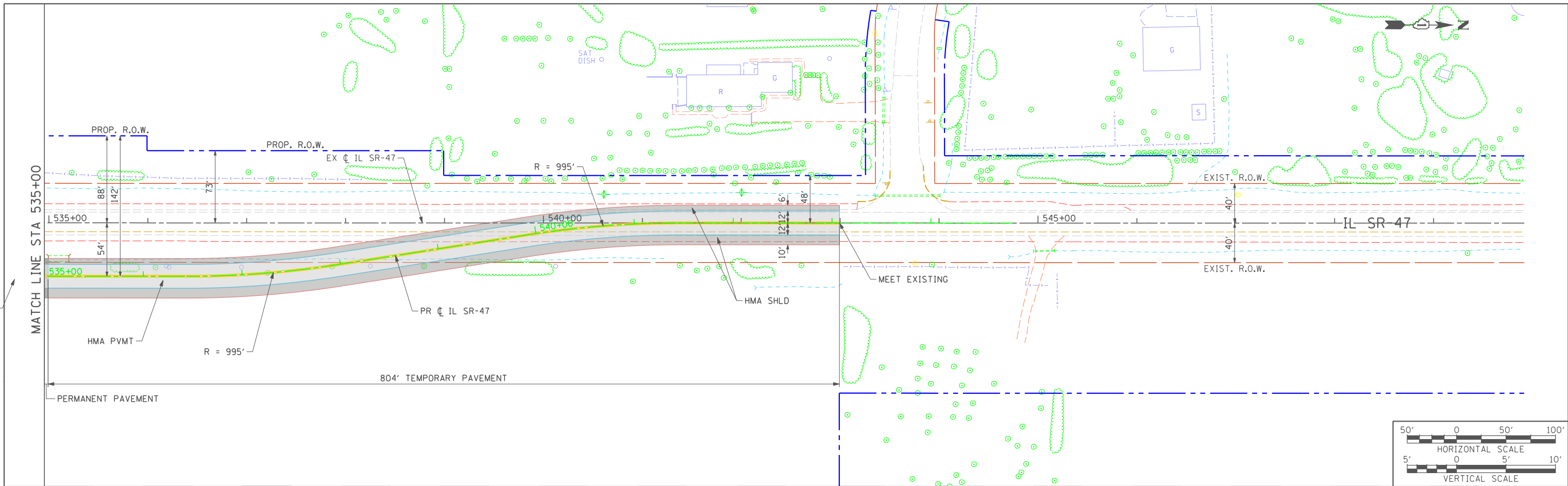


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Bridge-Option03-Prop.Bridge-SHT-01.dgn		DRAWN - AFC	REVISED -						47	REED ROAD TO US 14	MCHENRY	2	1
PLOT SCALE = 100.000' / in.		CHECKED -	REVISED -						CONTRACT NO.				
PLOT DATE = 2/21/2013		DATE - 01-15-2013	REVISED -						FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

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2/21/2013

PLAN	SURVEYED	BY	DATE
	NOTED		
	ALIGNED		
	CHECKED		
NOTE BOOK	NO.		

PROFILE	SURVEYED	BY	DATE
	NOTED		
	GRADES CHECKED		
	STRUCTURE NOTATIONS CHKD		
NOTE BOOK	NO.		



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PLOT DATE = 2/21/2013		DATE - 01-15-2013	REVISED -

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		OPTION 3	
SCALE: 1" = 50'	SHEET NO. 2 OF 2 SHEETS	STA. 520+00 TO STA. 535+00	F.A. RTE. 47
			SECTION REED ROAD TO US 14
			COUNTY MCHENRY
			TOTAL SHEETS 2
			SHEET NO. 2
			CONTRACT NO.
			FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

**APPENDIX A-10**  
**TRAFFIC MANAGEMENT PLAN**



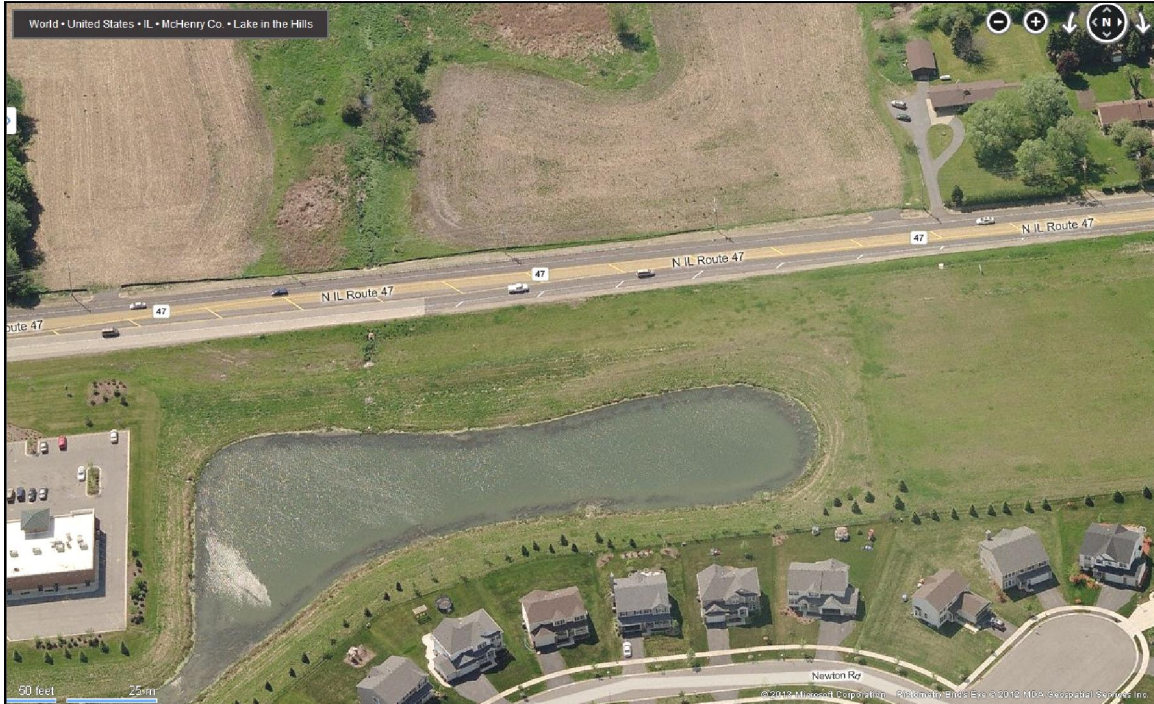
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# TRAFFIC MANGAGEMENT PLAN

## IL-47 Corridor Improvement Project Reed Road to US-14

McHenry County, State of Illinois  
Section No.: TBD



Prepared For:

February 12, 2013



**Illinois Department  
of Transportation**

**Division of Highways  
Region One / District One**

201 West Center Court  
Schaumburg, Illinois 60696

[www.dot.state.il.us](http://www.dot.state.il.us)

Prepared By:

**AECOM**

303 East Wacker Drive, Suite 1400  
Chicago, Illinois 60601

[www.aecom.com](http://www.aecom.com)



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## **TRAFFIC MANAGEMENT PLAN**

**ROUTE:** IL-47  
**LIMITS:** Reed Road to US-14  
**LOCATION:** McHenry County  
**SECTION NO.:** TBD

### **Introduction**

The IL-47 corridor improvement involves the reconstruction of the existing two-lane roadway into a four-lane divided highway. The improvement is approximately eight miles in length, and spans the communities of the City of Woodstock, the Village of Lake in the Hills, and the Village of Huntley. The northern terminus of the improvement is US-14. The southern terminus is Reed Road. Major high-volume crossroads include the east and west alignments of IL-176.

IL-47 is listed on the Department's Significant Route Locations Map dated 2007 at the following link. This map also appears on page 5 of this document:

[http://www.dot.il.gov/illinoisshsp/WorkZoneSafetyMobility/03092009\\_Appendix\\_B.pdf](http://www.dot.il.gov/illinoisshsp/WorkZoneSafetyMobility/03092009_Appendix_B.pdf)

Its status as a significant route coupled with its full reconstruction scope results in a "Significant Projects-Long Term" classification and requires the preparation of this Traffic Management Plan (TMP).

The project is currently unfunded. The construction of the project is listed in the Department's current five-year plan.

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## **Traffic Management Plan (TMP)**

The IL-47 TMP includes a Traffic Control Plan (TCP), a Transportation Operations Plan (TOP), and a Public Information Plan (PIP). The details of those plans will be finalized during Phase II engineering design, and those component plans cover the following safety and congestion mitigation strategies:

### **Traffic Control Plan (TCP)**

IDOT utilizes various Temporary Traffic Control Plan (TCP) strategies including signal phasing adjustments within the project limits, lane shifts, channelizing devices, temporary pavement markings, flaggers/traffic control officers, temporary signals as needed, lighting devices as needed, temporary lane closures, temporary signage, incentive/disincentive clauses in the contract documents, coordination with local stakeholders and adjacent projects, restrictions for special events as requested by the local municipalities, improvement and/or signing of alternate routes and pedestrian accommodations among others. The traffic control plans will be in conformance with State standards that will be in effect at the time of letting.

### **Transportation Operations Plan (TOP)**

IDOT utilizes various Transportation Operations Plan (TOP) strategies which can include traffic radio, portable changeable message signs, speed limit reduction initiatives, high occupancy vehicle (HOV) lanes, variable work hours, signal timing/coordination improvements, temporary traffic signals, alternate route improvements, parking and turn restrictions, reversible lanes, heavy vehicle restrictions, coordination with adjacent projects, incidence response coordination, Intelligent Transportation System (ITS) monitoring, surveillance through closed circuit TV (CCTV) and loop detectors, traffic screens, and local detour routes among others.

### **Public Information Plan (PIP)**

IDOT utilizes various Public Information Plan (PIP) strategies depending on the level of public involvement within the project, population and traveling public density, and overall resource availability within the project area. The strategies utilized can include brochures/mailers, press releases and media advisories, paid advertisements, telephone hot lines, websites, public hearings and/or meetings, press conferences, community task forces, coordination with media outlets, municipalities, schools and emergency services, work zone education campaigns and signage among others.

The following safety and congestion mitigation strategies will be implemented for the IL-47 corridor improvement:

All traffic control devices will conform to the Illinois Manual on Uniform Traffic Control Devices (ILMUTCD). Temporary traffic signals will include emergency preemption and communication devices. Temporary traffic signal controllers will be supplied by one of the District approved closed loop equipment manufacturers.

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Temporary traffic signals within any existing closed loop traffic signal system shall be interconnected to that system using similar brand control equipment. Traffic signal management systems shall be maintained in operation as indicated by the plans or as directed by the Resident Engineer. To best mitigate traffic queues, detection at temporary traffic signals shall be included for all approaches of the existing signalized intersections unless stated otherwise in the temporary traffic signal plans.

All signs, barricades, and temporary striping will conform to the ILMUTCD and applicable State standards. Vehicular access to local businesses and properties will be maintained at all times during construction, except when paving operations occur directly on or in front of entrances. In those cases, flag persons will be used to direct traffic. In the case of multi-entrance businesses, at least one entrance will remain open at all times. Property and business owners will be notified in advance of any temporary closures. All properties will have access at the end of every workday.

The IL-47 reconstruction will be performed in two primary stages with minor preparation of the roadway surface such as curb and gutter removal, temporary pavement installation, and temporary striping operations being performed under advanced, pre-stage work.

Stage I reconstruction will maintain existing traffic patterns of two-way traffic with one lane in each direction on the existing roadway. The existing roadway will be modified to maintain two-way traffic flow by the installation of temporary pavement in the existing median and shoulder areas. The IL-47 existing typical section accommodates one lane of travel in each direction. Stage I reconstruction will similarly maintain one lane of travel in each direction. Stage I operations will include curb and gutter removal, shoulder and pavement removal, earthwork, installation of the proposed drainage system, installation of temporary drainage pipes for maintaining drainage system connections along with the bulkheading of newly installed lateral pipes, the installation of roadway lighting and signal posts, and the reconstruction of the new pavement on the east half-section of the proposed IL-47 right-of-way. The northbound lanes will be constructed during Stage I. The suggested Stage I typical section appears on page 6.

Stage II reconstruction will establish two-way traffic with one lane in each direction on the newly reconstructed pavement established during Stage I operations. Stage II operations will include curb and gutter removal, shoulder and pavement removal, earthwork, installation of the proposed drainage system, the removal of temporary drainage pipes and lateral pipe bulkheads, the installation of roadway lighting and signal posts, and the installation of permanent landscaping and erosion control measures. The southbound lanes will be constructed during Stage II. Major operations will be completed at the end of Stage II reconstruction. The suggested Stage II typical section appears on page 6.

The proposed right-of-way along IL-47 and its crossroads is sufficient to implement the project under the two-stage reconstruction operations summarized in the paragraphs above.

Traffic will remain open on all crossroads at all times.

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Two (2) through lanes with minimum widths of 10-feet edge-to-edge (preferably 11-feet edge-to-edge) will be provided during all construction stages. The 10-foot minimum lane widths are sufficient for emergency vehicles and truck traffic. Eleven (11) foot lanes should be used where feasible.

Similarly, the reconstruction of the structure over the Kishwaukee River will be performed in two stages that dovetail with the IL-47 staging plans.

The TMP as described in this document meets the requirements of the Work Zone Safety and Mobility Rule.



# IDOT DISTRICT 1

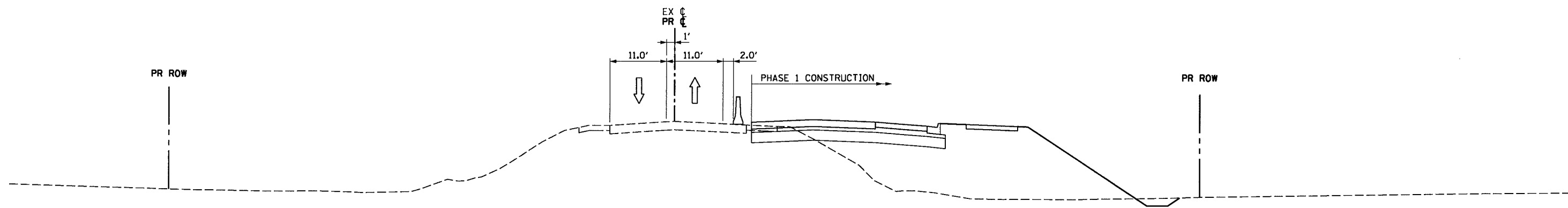
## SIGNIFICANT ROUTE LOCATIONS



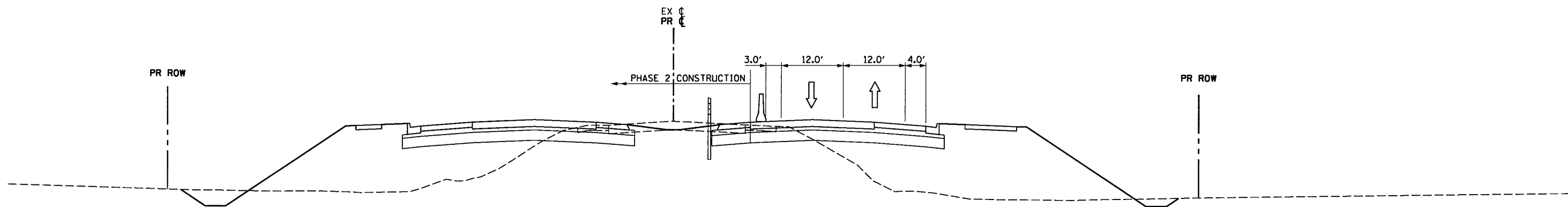
### Significant Locations (2007)

- Approaching Significant Route Designation.
- Consider as a Significant Route.

Appendix B  
9/10/2007



IL 47  
PHASE 1



IL 47  
PHASE 2

FILE NAME = 39027_SHT_MOT-TYPSEC-01.dgn	USER NAME = patelp2		DESIGNED - XXX	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUGGESTED CONSTRUCTION STAGING TYPICAL SECTIONS				F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN - PHP		CHECKED - XXX	REVISED -						47	REED ROAD TO US 14	MCHENRY		
	PLOT SCALE = 20.000' / in.		DATE -	REVISED -						CONTRACT NO.				
	PLOT DATE = 2/12/2013					SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.	FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT		