INTERSTATE 39 & U.S. ROUTE 20 WITH HARRISON AVENUE

DESIGN

INTERCHANGE (TYPE) STUDY					
WEAVING ANALYSIS - PROGRAM USED HCS V5.4					
Weaving Section		I-39 SOUTHBOUND		I-39 NORTHBOUND	
Terrain/Grade		Level		Level	
Type of Weave		Type C		Type B	
Number of Total Lanes		3		3	
Peak Hour Factor		0.92		0.92	
Free Flow Speed (FFS)		65 mph		65 mph	
Length of Weaving (ft)		1,700'		1,300'	
Volume 1 (Through Volume)	AM	920		2,960	
	PM	920		2,960	
Volume 2 (Exit Weave)	AM	140		430	
	PM	140		430	
Volume 3 (Entrance Weave)	AM	2470		345	
	PM	2470		345	
Volume 4 (Ramp-Ramp)	AM	375		130	
	PM	375		130	
TRUCK TYPES		Trucks & Buses, RV		Trucks & Buses, RV	
% Trucks		25%		25%	
Population Factor		1.0		1.0	
		Weaving	Non-Weaving	Weaving	Non-Weaving
Weaving Intensity Factor, W		1.09	1.66	0.90	0.47
Weaving and Non-weaving Speeds, S		41.34	35.68	43.97	52.44
Weaving Segment Speed, S		39.30 mph		50.53 mph	
Weaving Segment Density, D		40.12 pc/mi/ln		30.90 pc/mi/ln	
Level of Service		E		D	
Capacity of Base Condition, cb		5496 pc/h		5994 pc/h	
Constrained/Unconstrained		Unconstrained		Unconstrained	

PROPOSED CURVE DATA
HARRISON AVENUE
PI STA. = 22+66.12
Δ = 48° 29' 40" (RT)
D = 2° 59' 59"
R = 1,910.08'
T = 860.32'
L = 1,616.67'
E = 184.81'
S.E. = 2.0%
T.R. = 67'
S.E. RUN = 67'
P.C. STA. = 14+05.80
P.T. STA. = 30+22.47

PROPOSED CURVE DATA
SOUTHBOUND I-39 BASELINE
PI STA. = 1304+25.28
Δ = 6° 42' 35.53" (RT)
D = 0° 47' 23.23"
R = 7,254.61'
T = 425.28'
L = 849.58'
E = 12.45'
S.E. = 3.0%
T.R. = 82'
S.E. RUN = 175'
P.C. STA. = 1300+00.00
P.T. STA. = 1308+49.58

PROPOSED CURVE DATA
SOUTHBOUND EXIT RAMP
PI STA. = 309+00.58
Δ = 13° 43' 25" (RT)
D = 6° 51' 42"
R = 835.00'
T = 100.48'
L = 200.00'
E = 6.02'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 210'
P.C. STA. = 308+00.10
P.C.C. STA. = 310+00.10

PROPOSED CURVE DATA
SOUTHBOUND EXIT RAMP
PI STA. = 315+70.17
Δ = 22° 27' 12" (LT)
D = 14° 28' 07"
R = 396.00'
T = 78.60'
L = 155.19'
E = 7.73'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 156'
P.C. STA. = 314+91.56
P.T. STA. = 316+46.75

PROPOSED CURVE DATA
SOUTHBOUND EXIT RAMP
PI STA. = 311+35.69
Δ = 23° 13' 09" (RT)
D = 8° 40' 52"
R = 660.00'
T = 135.59'
L = 267.47'
E = 13.78'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 180'
P.C.C. STA. = 310+00.10
P.T. STA. = 312+67.56

PROPOSED CURVE DATA
NORTHBOUND ENT. RAMP
PI STA. = 113+08.22
Δ = 3° 40' 46" (RT)
D = 1° 09' 28"
R = 4,948.52'
T = 158.95'
L = 317.79'
E = 2.55'
S.E. = VARIABLE
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 111+49.27
P.T. STA. = 114+67.06

PROPOSED CURVE DATA
NORTHBOUND ENT. RAMP
PI STA. = 105+95.01
Δ = 38° 57' 41" (RT)
D = 6° 51' 42"
R = 835.00'
T = 295.37'
L = 567.80'
E = 50.70'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192'
P.C. STA. = 102+99.64
P.T. STA. = 108+67.44

PROPOSED CURVE DATA
HARRISON AVENUE
PI STA. = 50+68.63
Δ = 17° 55' 04" (LT)
D = 1° 00' 00"
R = 5,729.71'
T = 903.28'
L = 1,791.81'
E = 70.76'
S.E. = NORMAL CROWN
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 41+65.35
P.T. STA. = 59+57.16

PROPOSED CURVE DATA
SOUTHBOUND ENT. RAMP
PI STA. = 409+34.75
Δ = 28° 08' 18" (RT)
D = 6° 51' 42"
R = 835.00'
T = 209.26'
L = 410.07'
E = 25.82'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192'
P.C. STA. = 407+25.49
P.T. STA. = 411+35.57

PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP
PI STA. = 211+93.08
Δ = 1° 01' 29" (LT)
D = 0° 47' 31"
R = 7,235.28'
T = 64.70'
L = 129.40'
E = 0.29'
S.E. = 2.0%
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 211+28.37
P.R.C. STA. = 212+57.78

PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP
PI STA. = 213+96.54
Δ = 18° 52' 14" (RT)
D = 6° 51' 42"
R = 835.00'
T = 138.76'
L = 275.01'
E = 11.45'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 210'
P.R.C. STA. = 212+57.78
P.C.C. STA. = 215+32.79

PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP
PI STA. = 216+28.74
Δ = 16° 32' 34" (RT)
D = 8° 40' 52"
R = 660.00'
T = 95.95'
L = 190.56'
E = 6.94'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 180'
P.C.C. STA. = 215+32.79
P.T. STA. = 217+23.35

PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP
PI STA. = 221+10.64
Δ = 44° 00' 59" (LT)
D = 14° 10' 56"
R = 404.00'
T = 163.29'
L = 310.37'
E = 31.75'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 156'
P.C. STA. = 219+47.35
P.T. STA. = 222+57.72

PROPOSED CURVE DATA
INTERSTATE 39
PI STA. = 871+99.68
Δ = 17° 40' 00.09" (LT)
D = 0° 49' 59.93"
R = 6875.65'
T = 1068.50'
L = 2120.05'
E = 82.53'
S.E. = 3.0%
T.R. = ------
S.E. RUN = ------
P.C. STA. = 861+31.17
P.T. STA. = 882+51.22

MEET EXISTING INTERSTATE 39/90 TOLLWAY CONSTRUCTION (2008)

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SHEET 18 OF 19 PROFILE SHEET OF HARRISON AVENUE (31+00 - 60+00)
SHEET 19 OF 19 PROFILE SHEET OF HARRISON AVENUE & S.B. I-39 / U.S. RTE 20 (60+00 - 75+00) (850+00 - 865+00)

HARRISON AVENUE
INTERSTATE 39 / U.S. ROUTE 20
U.S. ROUTE 20
INTERSTATE 39

1060 (FROM I-90)
2845 (FROM I-39)
3305 (TO I-39)
560 (TO I-90)

2035 TRAFFIC YEAR AM/PM TRAFFIC

REFER TO INTERSTATE 39 WITH U.S. RTE 20 (WEST TERMINAL) FOR TRAFFIC DETAILS SEE SHEET 2 OF 19

REFER TO INTERSTATE 39 WITH U.S. RTE 20 (EAST TERMINAL) FOR TRAFFIC DETAILS SEE SHEET 3 OF 19

PRELIMINARY
SUBJECT TO REVISION

1"= 200' 0 100' 200' 300' 400'

INTERSECTION DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. 20/HARRISON AVE.)

I.D.S. SHEET 1 OF 19

•NON-SPEC•
•DATE-TIME•
•REF-
•REF-
•REF-
•REF-

CAPACITY DESIGN STUDY

2 PHASE — AREA OTHER — PEAK HOUR FACTOR 0.90
60 SEC. CYCLE — AVERAGE INTERSECTION DELAY — A.M. 11.6 SEC. — INTERSECTION LEVEL
SIGNAL TYPE ACTUATED — PROGRAM USED HCS+ V5.4 — P.M. 11.6 SEC. — OF SERVICE — A.M. B / P.M. B

APPROACH		A EB		B WB		C SB	
BUS STOP CONDITION		N/A	N/A	N/A	N/A	N/A	N/A
PARKING MANEUVER/HR.		N/A	N/A	N/A	N/A	N/A	N/A
PEDESTRIANS		N/A	N/A	N/A	N/A	N/A	N/A
ARRIVAL TYPE		3	3	3	3	3	3
THROUGH LANE UTILIZATION FACTOR		1.00			1.00		
BASE SATURATION FLOW		1900	1900	1900	1900	1900	1900
STORAGE (ft)		253′	0	0	229′	107′	174′
LANE GROUP		TH	R	L	TH	L	R
LANE WIDTHS		2@12′	12′	12′	3@12′	12′	12′
GREEN TIME (SECONDS)	A.M.	24.0	60.0	60.0	24.0	24.0	24.0
	P.M.	24.0	60.0	60.0	24.0	24.0	24.0
LANE GROUP DELAY (SECONDS)	A.M.	18.7	0.4	5.8	16.8	13.0	15.6
	P.M.	18.7	0.4	5.8	16.8	13.0	15.6
LEVEL OF SERVICE	A.M.	B	A	A	B	B	B
	P.M.	B	A	A	B	B	B
V/C RATIO	A.M.	0.78	0.54	0.86	0.73	0.36	0.59
	P.M.	0.78	0.54	0.86	0.73	0.36	0.59
2035 30TH MAX. HOUR TRAFFIC	A.M.	910	730	1050	1240	190	325
	P.M.	910	730	1050	1240	190	325
2015 8TH MAX. HOURLY TRAFFIC	A.M.	657		875		168	
	P.M.	657		875		168	

PROPOSED CURVE DATA
HARRISON AVENUE

PI STA. = 50+68.63
Δ = 17° 55′ 04″ (LT)
D = 1° 00′ 00″
R = 5,729.71′
T = 903.28′
L = 1,791.81′
E = 70.76′
S.E. = NORMAL CROWN
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 41+65.35
P.T. STA. = 59+57.16

PROPOSED CURVE DATA
SOUTHBOUND EXIT RAMP

PI STA. = 315+70.17
Δ = 22° 27′ 12″ (LT)
D = 14° 28′ 07″
R = 396.00′
T = 78.60′
L = 155.19′
E = 7.73′
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 156′
P.C. STA. = 314+91.56
P.T. STA. = 316+46.75

PROPOSED CURVE DATA
INTERSTATE 39

PI STA. = 871+99.68
Δ = 17° 40′ 00.09″ (LT)
D = 0° 49′ 59.93″
R = 6875.65′
T = 1068.50′
L = 2120.05′
E = 82.53′
S.E. = 3.0%
T.R. = _____
S.E. RUN = _____
P.C. STA. = 861+31.17
P.T. STA. = 882+51.22

ELEMENTS CONTROLLING DESIGN

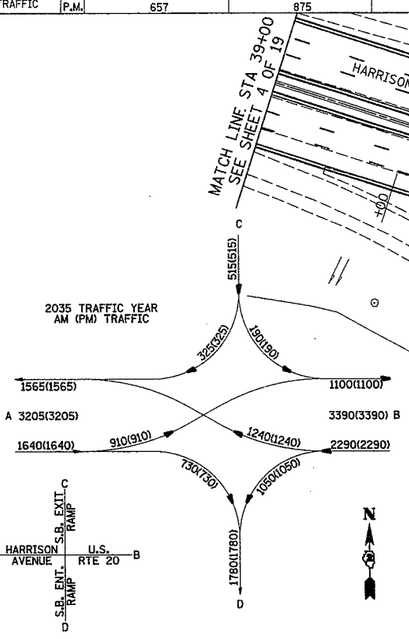
1. ROUTE (STREET) FAI ROUTE 39 (I-39) RAMPS AT FAP ROUTE 301 (US 20)
2. HIGHWAY FUNCTIONAL CLASSIFICATION US 20 - OTHER PRINCIPAL ARTERIA ; I-39 - INTERSTATE ; I-39 RAMPS - INTERSTATE
3. AVERAGE DAILY TRAFFIC (ADT) DATA:
   - I-39 EXISTING 63,800 (2015) DESIGN 104,800 (2035)
   - US 20 EXISTING 24,500 (2015) DESIGN 33,900 (2035)
   - I-39 RAMPS EXISTING 3,050-10,850 (2015) DESIGN 5,150-17,800 (2035)
4. US ROUTE 20 IS THE PREFERENCE ROUTE.
5. ANTICIPATED YEAR OF CONSTRUCTION 2015 DESIGN YEAR 2035
6. TRAFFIC CONTROL TO BE TRAFFIC SIGNALS
   WARRANTS MET MUTCD WARRANT 1
7. DESIGN CRITERIA: BDE CHAPTERS 36 & 37
8. DESIGN VEHICLE: WB-65 DESIGN VEHICLE
9. TRUCK ROUTE DESIGNATION I-39 IS CLASS I ; US 20 (EAST LEG) IS CLASS II

	INTERSTATE 39	US 20/HARRISON AVE	I-39 RAMPS
10. DESIGN SPEED	70 MPH	35 MPH	50 MPH-35 MPH
11. POSTED SPEED	65 MPH	45 MPH	N/A

12. PEDESTRIANS USAGE: NONE BICYCLES USAGE: NONE

GENERAL NOTES

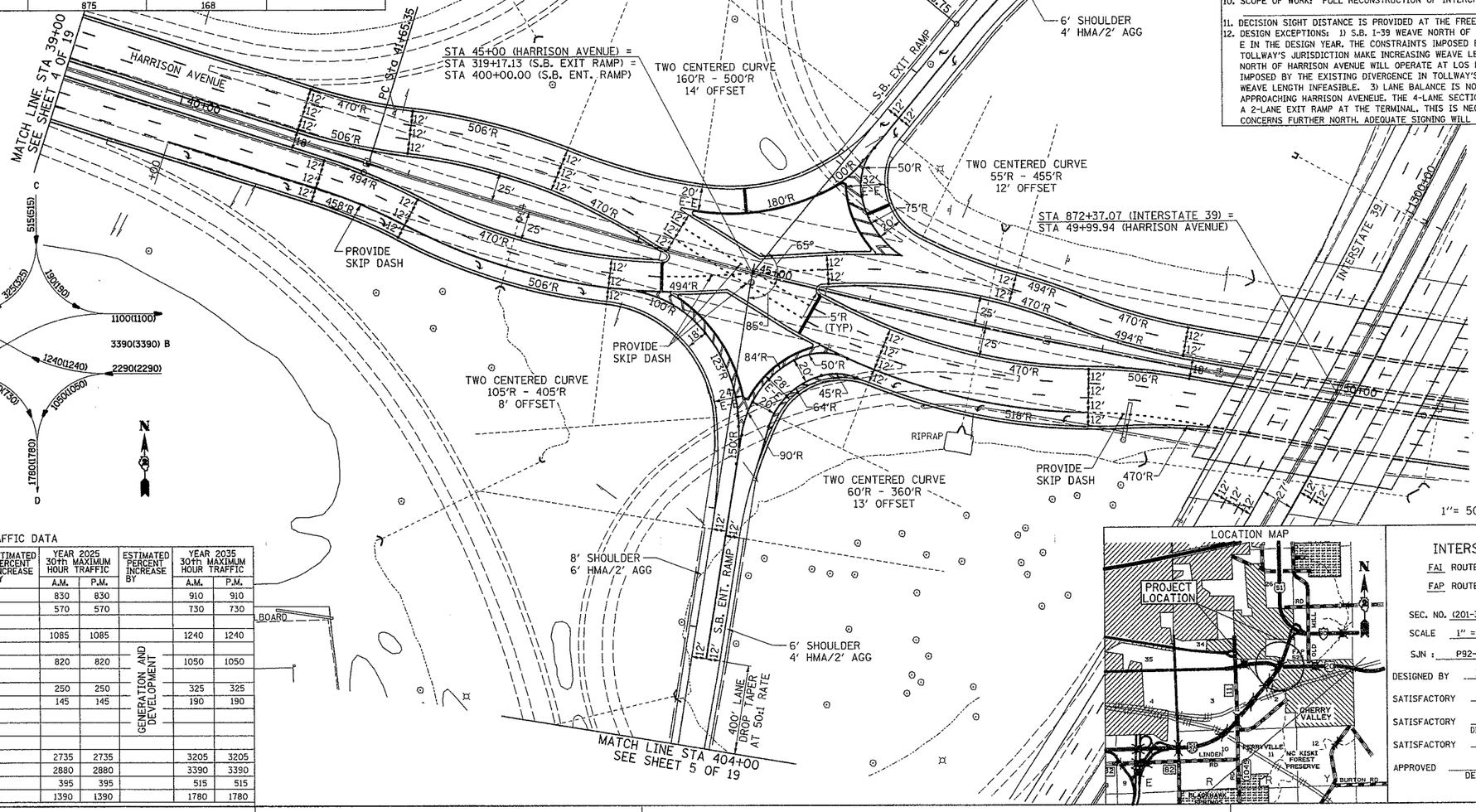
1. PROFILES ARE PROVIDED, SINCE APPROACH GRADES ARE ON NEW ALIGNMENT AND RECONSTRUCTED.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. TYPE M-6.24 & M-6.06 CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND.
4. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED.
5. ENTRANCES SHALL CONFORM TO THE POLICY ON "ACCESS TO STATE HIGHWAYS".
6. TURNING MOVEMENTS CHECKED USING AUTOTURN.
7. DISABLED RAMPS TO BE IN ACCORDANCE WITH ADA REQUIREMENTS.
8. PROPOSED R.O.W. IS SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
9. INTERSECTION IS/NOT A HIGH ACCIDENT LOCATION - YEAR: _____
10. SCOPE OF WORK: FULL RECONSTRUCTION OF INTERCHANGE TO D.D.I. ; RECONSTRUCTION OF US 20/HARRISON AVENUE.
11. DECISION SIGHT DISTANCE IS PROVIDED AT THE FREEWAY RAMP TERMINALS ALONG I-39.
12. DESIGN EXCEPTIONS: 1) S.B. I-39 WEAVE NORTH OF HARRISON AVENUE WILL OPERATE AT LOS E IN THE DESIGN YEAR. THE CONSTRAINTS IMPOSED BY THE EXISTING S.B. CONVERGENCE IN TOLLWAY'S JURISDICTION MAKE INCREASING WEAVE LENGTH INFEASIBLE. 2) N.B. I-39 WEAVE NORTH OF HARRISON AVENUE WILL OPERATE AT LOS D IN THE DESIGN YEAR. THE CONSTRAINTS IMPOSED BY THE EXISTING DIVERGENCE IN TOLLWAY'S JURSDICTION MAKE INCREASING THE WEAVE LENGTH INFEASIBLE. 3) LANE BALANCE IS NOT ACHEIVED ON NORTHBOUND I-39 APPROACHING HARRISON AVENEUE. THE 4-LANE SECTION WILL DROP TO 2 MAINLINE LANES AND A 2-LANE EXIT RAMP AT THE TERMINAL. THIS IS NECESSARY TO AVOID MAJOR OPERATIONAL CONCERNS FURTHER NORTH. ADEQUATE SIGNING WILL BE PROVIDED AHEAD OF DIVERGENCE.



TRAFFIC DATA

MOVEMENT	YEAR 2015 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2015 30TH MAXIMUM HOUR TRAFFIC P.M.	PERCENT TRUCK TRAFFIC IN 30TH MAX HOUR	ESTIMATED PERCENT INCREASE BY	YEAR 2025 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2025 30TH MAXIMUM HOUR TRAFFIC P.M.	ESTIMATED PERCENT INCREASE BY	YEAR 2035 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2035 30TH MAXIMUM HOUR TRAFFIC P.M.
AB	750	750	11.0		830	830		910	910
AD	445	445	7.0		570	570		730	730
AC									
BA	950	950	11.0		1085	1085		1240	1240
BC									
BD	640	640	19.0		820	820		1050	1050
CD									
CA	195	195	7.0		250	250		325	325
CB	110	110	13.0		145	145		190	190
DC									
DB									
DA									
TOTAL A	2340	2340			2735	2735		3205	3205
TOTAL B	2450	2450			2880	2880		3390	3390
TOTAL C	305	305			395	395		515	515
TOTAL D	1085	1085			1390	1390		1780	1780

GENERATION AND DEVELOPMENT



INTERSECTION DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39) WITH
FAP ROUTE 301 (U.S. ROUTE 20) WEST TERMINAL
SEC. NO. (201-3)K&(14-1,5)K PROJ. NO. _____
SCALE 1" = 50FT COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO. ___
DESIGNED BY IDOT - DISTRICT 2 DATE SEPT 2010

SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER DATE
APPROVED _____ DEPUTY DIRECTOR OF HIGHWAYS, REGION TWO ENGINEER DATE

I.D.S. SHEET 2 OF 19

BDE-9409

•DGN-SPEC•
•SITE-TIME•
•REF-
•REF-
•REF-

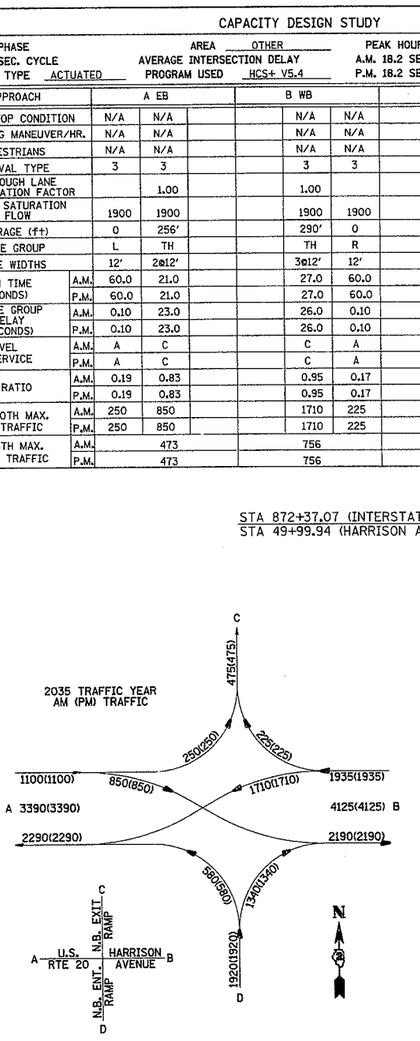
CAPACITY DESIGN STUDY

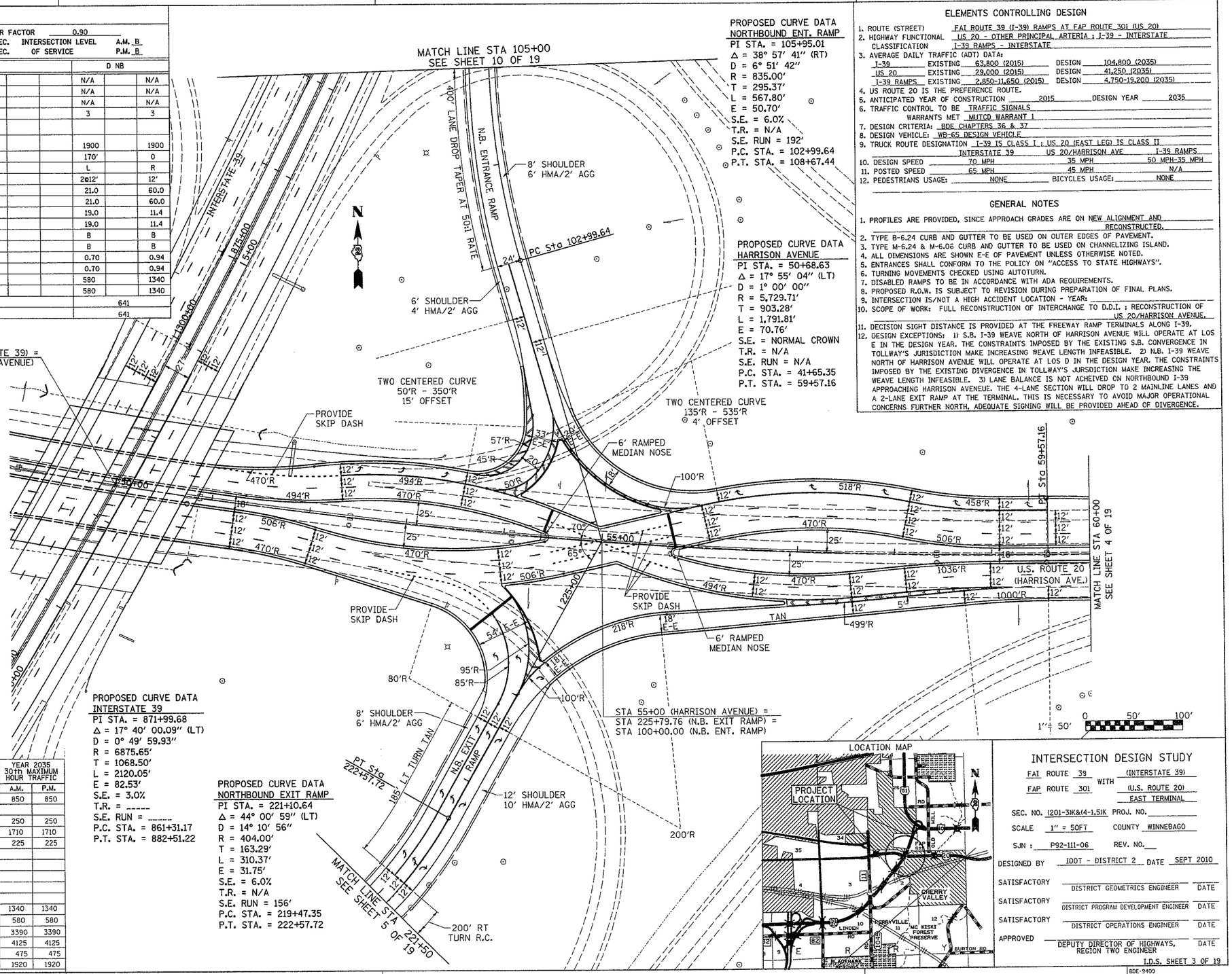
2 PHASE
60 SEC. CYCLE
SIGNAL TYPE ACTUATED

AREA OTHER
AVERAGE INTERSECTION DELAY
PROGRAM USED HCS+ V5.4

PEAK HOUR FACTOR 0.90
A.M. 18.2 SEC. INTERSECTION LEVEL A.M. B
P.M. 18.2 SEC. OF SERVICE P.M. B

APPROACH		A EB		B WB		D NB	
BUS STOP CONDITION		N/A	N/A	N/A	N/A	N/A	N/A
PARKING MANEUVER/HR.		N/A	N/A	N/A	N/A	N/A	N/A
PEDESTRIANS		N/A	N/A	N/A	N/A	N/A	N/A
ARRIVAL TYPE		3	3	3	3	3	3
THROUGH LANE UTILIZATION FACTOR			1.00	1.00			
BASE SATURATION FLOW		1900	1900	1900	1900	1900	1900
STORAGE (ft)		0	256'	290'	0	170'	0
LANE GROUP		L	TH	TH	R	L	R
LANE WIDTHS		12'	2@12'	3@12'	12'	2@12'	12'
GREEN TIME (SECONDS)	A.M.	60.0	21.0	27.0	60.0	21.0	60.0
	P.M.	60.0	21.0	27.0	60.0	21.0	60.0
LANE GROUP DELAY (SECONDS)	A.M.	0.10	23.0	26.0	0.10	19.0	11.4
	P.M.	0.10	23.0	26.0	0.10	19.0	11.4
LEVEL OF SERVICE	A.M.	A	C	C	A	B	B
	P.M.	A	C	C	A	B	B
V/C RATIO	A.M.	0.19	0.83	0.95	0.17	0.70	0.94
	P.M.	0.19	0.83	0.95	0.17	0.70	0.94
2035 30TH MAX. HOUR TRAFFIC	A.M.	250	850	1710	225	580	1340
	P.M.	250	850	1710	225	580	1340
2015 8TH MAX. HOURLY TRAFFIC	A.M.	473		756		641	
	P.M.	473		756		641	





PROPOSED CURVE DATA
NORTHBOUND ENT. RAMP

PI STA. = 105+95.01
Δ = 38° 57' 41" (RT)
D = 6° 51' 42"
R = 835.00'
T = 295.37'
L = 567.80'
E = 50.70'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192'
P.C. STA. = 102+99.64
P.T. STA. = 108+67.44

PROPOSED CURVE DATA
HARRISON AVENUE

PI STA. = 50+68.63
Δ = 17° 55' 04" (LT)
D = 1° 00' 00"
R = 5,729.71'
T = 903.28'
L = 1,791.81'
E = 70.76'
S.E. = NORMAL CROWN
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 41+65.35
P.T. STA. = 59+57.16

PROPOSED CURVE DATA
INTERSTATE 39

PI STA. = 871+99.68
Δ = 17° 40' 00.09" (LT)
D = 0° 49' 59.93"
R = 6875.65'
T = 1068.50'
L = 2120.05'
E = 82.53'
S.E. = 3.0%
T.R. = _____
S.E. RUN = _____
P.C. STA. = 861+31.17
P.T. STA. = 882+51.22

PROPOSED CURVE DATA
NORTHBOUND EXIT RAMP

PI STA. = 221+10.64
Δ = 44° 00' 59" (LT)
D = 14° 10' 56"
R = 404.00'
T = 163.29'
L = 310.37'
E = 31.75'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 156'
P.C. STA. = 219+47.35
P.T. STA. = 222+57.72

ELEMENTS CONTROLLING DESIGN

1. ROUTE (STREET) FAI ROUTE 39 (I-39) RAMPS AT FAP ROUTE 301 (US 20)
2. HIGHWAY FUNCTIONAL CLASSIFICATION: US 20 - OTHER PRINCIPAL ARTERIA ; I-39 - INTERSTATE; I-39 RAMPS - INTERSTATE
3. AVERAGE DAILY TRAFFIC (ADT) DATA:
   - I-39 EXISTING 63,800 (2015) DESIGN 104,800 (2035)
   - US 20 EXISTING 29,000 (2015) DESIGN 41,250 (2035)
   - I-39 RAMPS EXISTING 2,850-11,650 (2015) DESIGN 4,750-19,200 (2035)
4. US ROUTE 20 IS THE PREFERENCE ROUTE.
5. ANTICIPATED YEAR OF CONSTRUCTION 2015 DESIGN YEAR 2035
6. TRAFFIC CONTROL TO BE TRAFFIC SIGNALS
   WARRANTS MET MUTCD WARRANT 1
7. DESIGN CRITERIA: BDE CHAPTERS 36 & 37
8. DESIGN VEHICLE: WB-65 DESIGN VEHICLE
9. TRUCK ROUTE DESIGNATION I-39 IS CLASS I ; US 20 (EAST LEG) IS CLASS II

	INTERSTATE 39	US 20/HARRISON AVE	I-39 RAMPS
10. DESIGN SPEED	70 MPH	35 MPH	50 MPH-35 MPH
11. POSTED SPEED	65 MPH	45 MPH	N/A

12. PEDESTRIANS USAGE: NONE BICYCLES USAGE: NONE

GENERAL NOTES

1. PROFILES ARE PROVIDED, SINCE APPROACH GRADES ARE ON NEW ALIGNMENT AND RECONSTRUCTED.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT.
3. TYPE M-6.24 & M-6.06 CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND.
4. ALL DIMENSIONS ARE SHOWN E-E OF PAVEMENT UNLESS OTHERWISE NOTED.
5. ENTRANCES SHALL CONFORM TO THE POLICY ON "ACCESS TO STATE HIGHWAYS".
6. TURNING MOVEMENTS CHECKED USING AUTOTURN.
7. DISABLED RAMPS TO BE IN ACCORDANCE WITH ADA REQUIREMENTS.
8. PROPOSED R.O.W. IS SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
9. INTERSECTION IS/NOT A HIGH ACCIDENT LOCATION - YEAR: _____
10. SCOPE OF WORK: FULL RECONSTRUCTION OF INTERCHANGE TO D.D.I. ; RECONSTRUCTION OF US 20/HARRISON AVENUE.
11. DECISION SIGHT DISTANCE IS PROVIDED AT THE FREEWAY RAMP TERMINALS ALONG I-39.
12. DESIGN EXCEPTIONS: 1) S.B. I-39 WEAVE NORTH OF HARRISON AVENUE WILL OPERATE AT LOS E IN THE DESIGN YEAR. THE CONSTRAINTS IMPOSED BY THE EXISTING S.B. CONVERGENCE IN TOLLWAY'S JURISDICTION MAKE INCREASING WEAVE LENGTH INFEASIBLE. 2) N.B. I-39 WEAVE NORTH OF HARRISON AVENUE WILL OPERATE AT LOS D IN THE DESIGN YEAR. THE CONSTRAINTS IMPOSED BY THE EXISTING DIVERGENCE IN TOLLWAY'S JURSDICTION MAKE INCREASING THE WEAVE LENGTH INFEASIBLE. 3) LANE BALANCE IS NOT ACHEIVED ON NORTHBOUND I-39 APPROACHING HARRISON AVENEUE. THE 4-LANE SECTION WILL DROP TO 2 MAINLINE LANES AND A 2-LANE EXIT RAMP AT THE TERMINAL. THIS IS NECESSARY TO AVOID MAJOR OPERATIONAL CONCERNS FURTHER NORTH. ADEQUATE SIGNING WILL BE PROVIDED AHEAD OF DIVERGENCE.

TRAFFIC DATA

MOVEMENT	YEAR 2015 30TH MAXIMUM HOUR TRAFFIC A.M.	YEAR 2015 30TH MAXIMUM HOUR TRAFFIC P.M.	PERCENT TRUCK TRAFFIC IN 30th MAX HOUR	ESTIMATED PERCENT INCREASE BY	YEAR 2025 30th MAXIMUM HOUR TRAFFIC A.M.	YEAR 2025 30th MAXIMUM HOUR TRAFFIC P.M.	ESTIMATED PERCENT INCREASE BY	YEAR 2035 30th MAXIMUM HOUR TRAFFIC A.M.	YEAR 2035 30th MAXIMUM HOUR TRAFFIC P.M.
AB	710	710	11.0		780	780		850	850
AD									
AC	150	150	11.0		195	195		250	250
BA	1240	1240	11.0		1455	1455		1710	1710
BC	135	135	13.0		175	175		225	225
BD									
CD									
CA									
CB									
DC									
DB	815	815	14.0		1045	1045	GENERATION AND DEVELOPMENT	1340	1340
DA	350	350	8.0		450	450		580	580
TOTAL A	2450	2450			2880	2880		3390	3390
TOTAL B	2900	2900			3455	3455		4125	4125
TOTAL C	285	285			370	370		475	475
TOTAL D	1165	1165			1495	1495		1920	1920

LOCATION MAP

INTERSECTION DESIGN STUDY

FAI ROUTE 39 (INTERSTATE 39)
WITH
FAP ROUTE 301 (U.S. ROUTE 20) EAST TERMINAL

SEC. NO. (201-3)K&(4-1,5)K PROJ. NO. _____
SCALE 1" = 50FT COUNTY WINNEBAGO
SJN : P92-111-06 REV. NO. ___
DESIGNED BY IDOT - DISTRICT 2 DATE SEPT 2010

SATISFACTORY _____ DATE
DISTRICT GEOMETRICS ENGINEER

SATISFACTORY _____ DATE
DISTRICT PROGRAM DEVELOPMENT ENGINEER

SATISFACTORY _____ DATE
DISTRICT OPERATIONS ENGINEER

APPROVED _____ DATE
DEPUTY DIRECTOR OF HIGHWAYS, REGION TWO ENGINEER

I.D.S. SHEET 3 OF 19

BDE-9409

•RGN-SPEC•
•DATE-TIME•
•REF-
•REF-
•REF-
•REF-

•DGN-SPEC•
•DATE-TIME•
•REF-
•REF-
•REF-
•REF-

N

MATCH LINE STA 60+00
SEE SHEET 3 OF 19

U.S. ROUTE 20

60+00

65+00

12'
12'
12'
10'
12'
12'
12'

SIGN

SEE U.S. ROUTE 20
WITH MILL ROAD
IDS FOR CONTINUATION

SEE HARRISON AVENUE
WITH SOUTH MALL DRIVE
IDS FOR CONTINUATION

CANOPY

30" CMP

SIGN

3' X 4' BOX

30+22.47 P.T. STA

30+00

12'
12'
12'
10'
12'
12'
12'

HARRISON AVENUE

35+00

OVERHEAD SIGN

RIPRAP

RIPRAP

MATCH LINE STA 39+00
SEE SHEET 2 OF 19

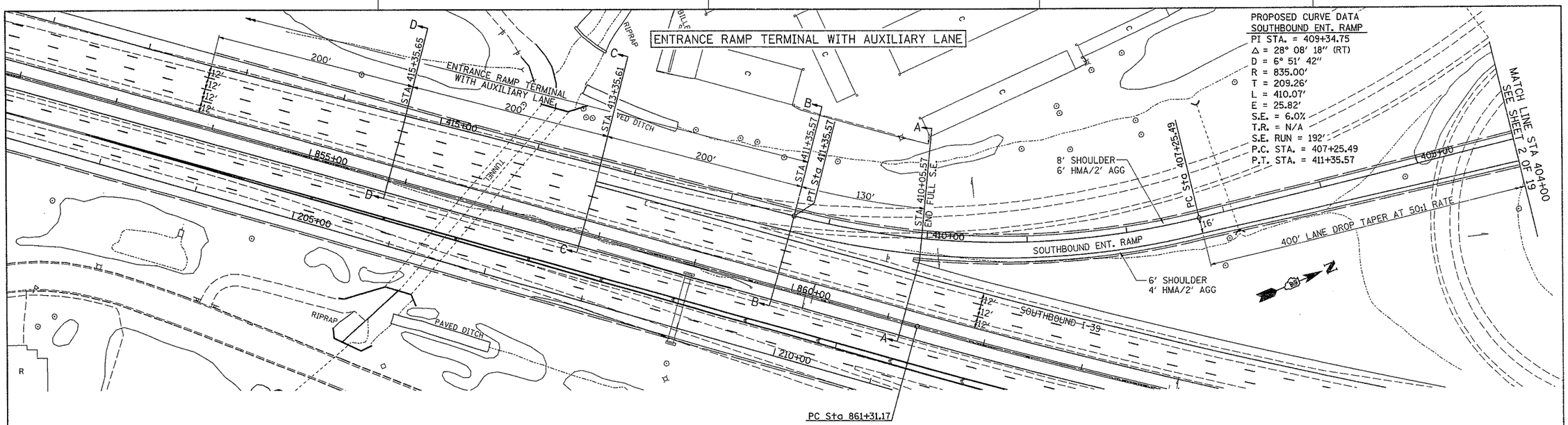
N

1"= 50'

0 50' 100'

INTERSECTION DESIGN STUDY

HARRISON AVENUE
WITH
EAST AND WEST PROJECT LIMITS



INTERSECTION DESIGN STUDY

INTERSTATE 39

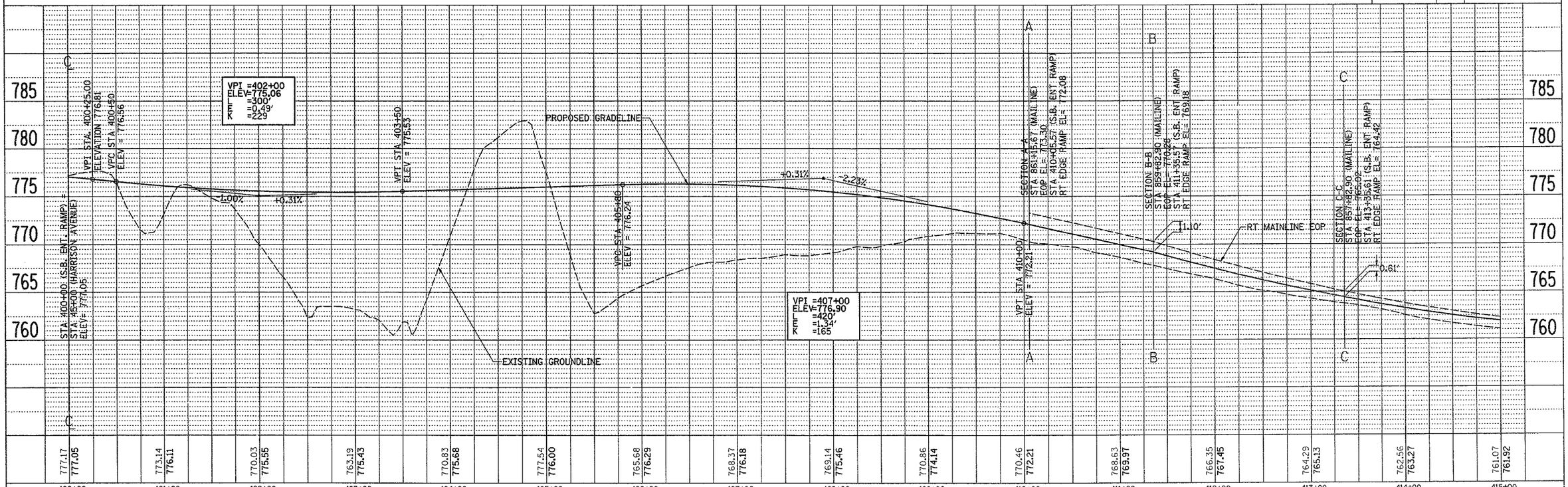
WITH

N.B. EXIT & S.B. ENTRANCE RAMPS

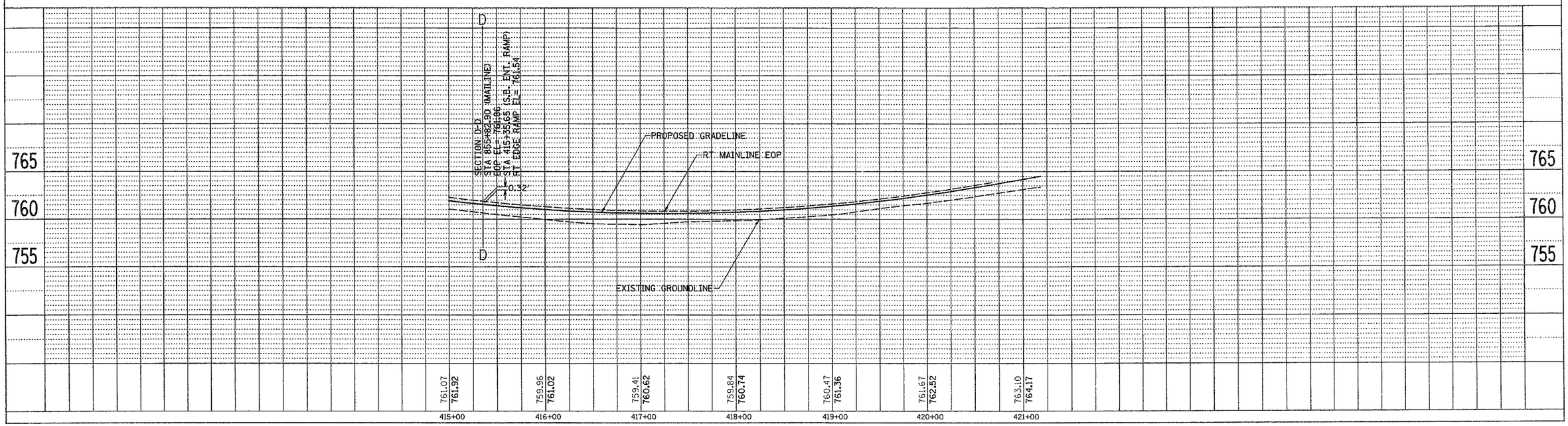
I.D.S. SHEET 5 OF 19

SOUTHBOUND ENTRANCE RAMP PROFILE

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	(201-3)K&(4-1.5)K	WINNEBAGO	19	6
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

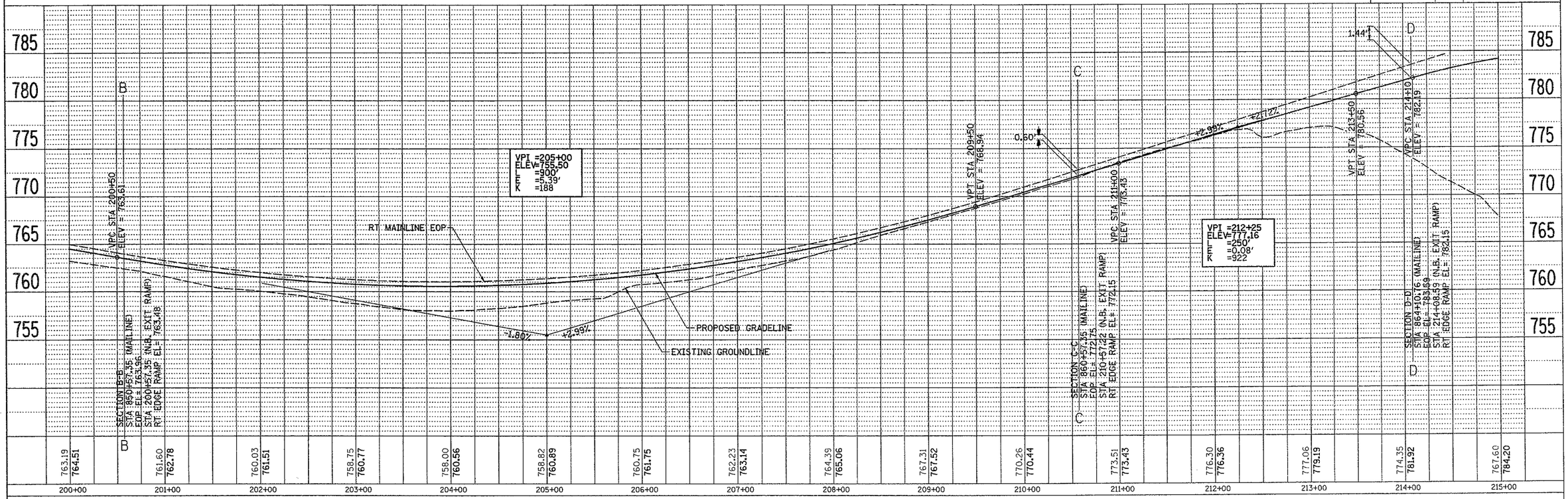


SOUTHBOUND ENTRANCE RAMP PROFILE

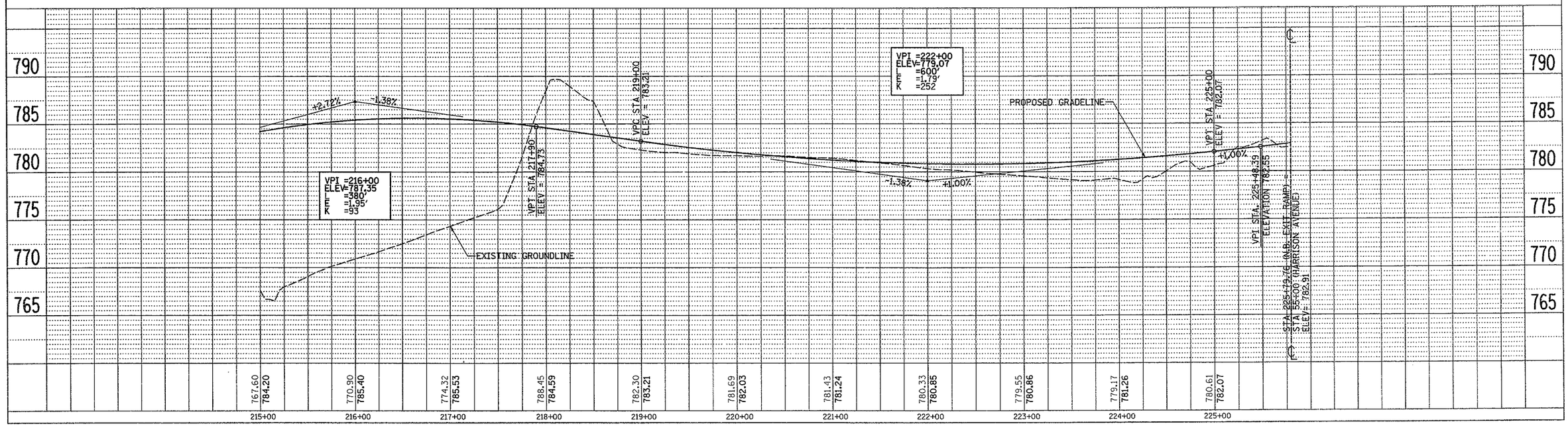


FA RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	19	7
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

NORTHBOUND EXIT RAMP PROFILE



NORTHBOUND EXIT RAMP PROFILE



FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	AREAS CHECKED		

STA 864 + 10.76
I-39 NORTHBOUND EXIT RAMP
CROSS SECTION D-D

214 + 08.39

STA 860 + 57.35
I-39 NORTHBOUND EXIT RAMP
CROSS SECTION C-C

210 + 51.22

STA 860 + 57.35
I-39 NORTHBOUND EXIT RAMP
CROSS SECTION B-B

200 + 57.35

FILE NAME =	USER NAME = griffithdj	DESIGNED -	REVISED -
C:\Projects\I-39_Harrison _Ave\critical-xsc.dgn		DRAWN -	REVISED -
	PLOT SCALE = 1" = 5ft VERT. / 1" = 10ft HORIZ.	CHECKED -	REVISED -
	PLOT DATE = Wed Sep 22 10:32:28 2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

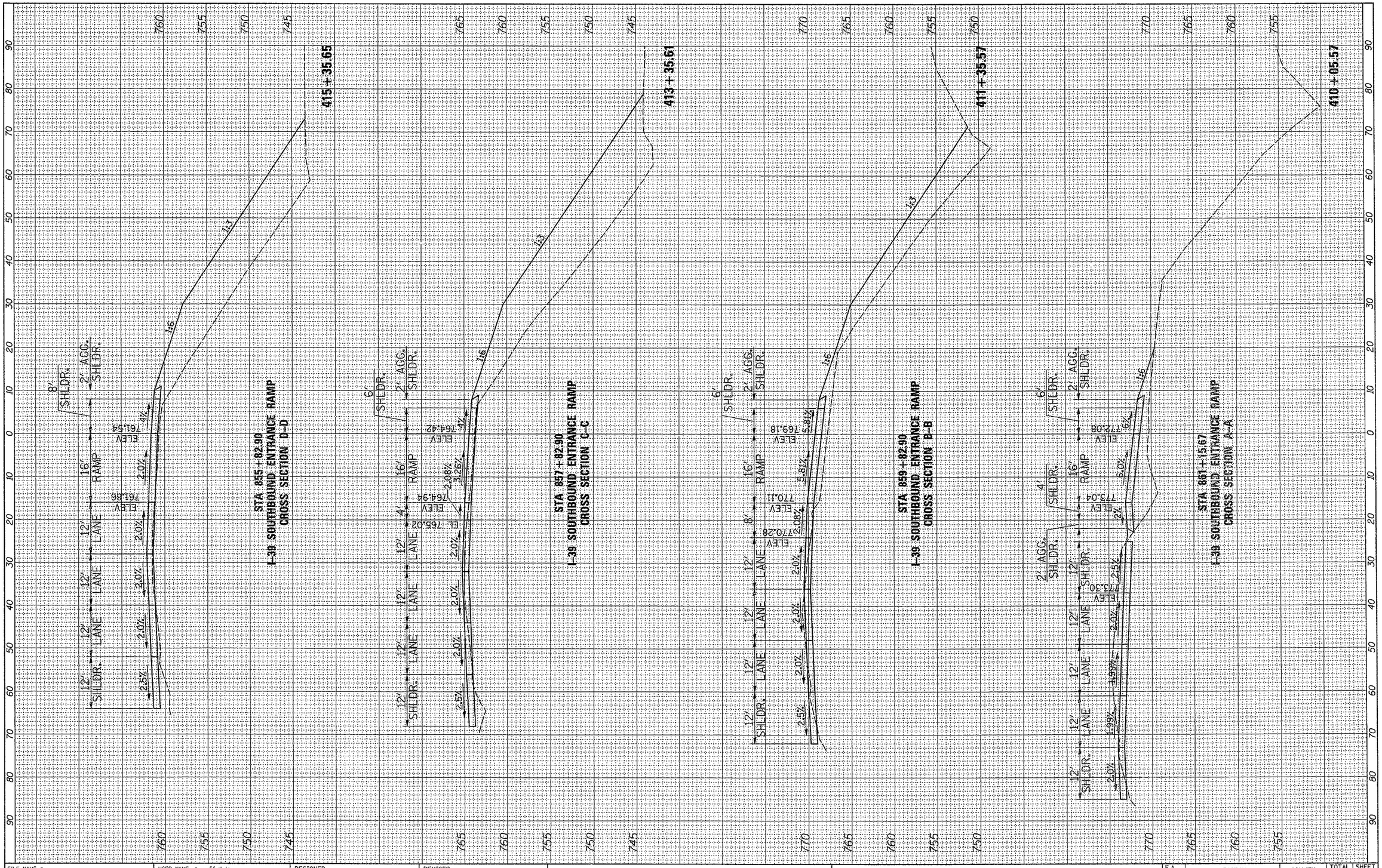
I-39 NORTHBOUND EXIT RAMP
CRITICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | STA. 200+57.35 TO STA. 214+08.59

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	(201-3)K (4-1,5)K	WINNEBAGO	19	8
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

FINAL SURVEY	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		



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		DRAWN -	REVISED -
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	PLOT DATE = Wed Sep 22 10:31:59 2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-39 SOUTHBOUND ENTRANCE RAMP
CRITICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | STA. 410+05.57 TO STA. 415+35.65

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	(201-3)K (4-1,5)K	WINNEBAGO	19	9
		CONTRACT NO.		
	ILLINOIS	FED. AID PROJECT		

MATCH LINE STA 314+50
SEE SHEET 2 OF 19

8' SHOULDER
6' HMA/2' AGG

200' LT TURN R.C.

16'

PT Sta 312+67.56

PROPOSED CURVE DATA
SOUTHBOUND EXIT RAMP
PI STA. = 311+35.69
Δ = 23° 13' 09" (RT)
D = 8° 40' 52"
R = 660.00'
T = 135.59'
L = 267.47'
E = 13.78'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 180'
P.C.C. STA. = 310+00.10
P.T. STA. = 312+67.56

PROPOSED CURVE DATA
SOUTHBOUND EXIT RAMP
PI STA. = 309+00.58
Δ = 13° 43' 25" (RT)
D = 6° 51' 42"
R = 835.00'
T = 100.48'
L = 200.00'
E = 6.02'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 210'
P.C. STA. = 308+00.10
P.C.C. STA. = 310+00.10

PROPOSED CURVE DATA
SOUTHBOUND I-39 BASELINE
PI STA. = 1304+25.28
Δ = 6° 42' 35.53" (RT)
D = 0° 47' 23.23"
R = 7,254.61'
T = 425.28'
L = 849.58'
E = 12.45'
S.E. = 3.0%
T.R. = 82'
S.E. RUN = 175'
P.C. STA. = 1300+00.00
P.T. STA. = 1308+49.58

6' SHOULDER
4' HMA/2' AGG

SOUTHBOUND EXIT RAMP

PCC Sta 310+00.10

310+00

16'

D

STA 308+10

PC Sta 308+00.10

70'

140'

C

STA 306+60

STANDARD EXIT RAMP TERMINAL

B

STA 302+99.58

A

STA 300+00

12' HMA SHOULDER

SIGN

1' STUB

1' STUB

305+00

300+00

US 51 & FAI 39

SOUTHBOUND I-39

12'
12'
12'

360'

OVERHEAD SIGN

300'

12'
12'
12'

875+00

5+00

1305+00

880+00

1310+00

1315+00

PP-126

PT Sta 1308+49.58

BIT

91271
T-793.4

MATCH LINE STA 105+00
SEE SHEET 3 OF 19

105+00

400' LANE DROP TAPER AT 50:1 RATE

NORTHBOUND ENT. RAMP

6' SHOULDER
4' HMA/2' AGG

8' SHOULDER
6' HMA/2' AGG

16'

STA 107+37.44
END FULL I.S.E.

PT Sta 8+34.03

12' HMA SHOULDER

NORTHBOUND I-39

12'
12'

880+00

10+00

A

B

C

D

PC Sta 14+22.36

8'

4'

110+00

15+00

OVERHEAD SIGN

12'
12'
12'

130'

200'

200'

200'

STA 108+67.44

PT Sta 108+67.44

STA 110+67.44

PC Sta 111+49.27

ENTRANCE RAMP TERMINAL WITH AUXILIARY LANE

STA 112+67.06

PT Sta 114+67.06

20+00

12' HMA SHOULDER

PT Sta 22+88.44

MEET EXISTING
I-39/I-90 TOLLWAY
CONSTRUCTION (2008)
APPROX. STA 21+45

ENTRANCE RAMP TERMINAL WITH AUXILIARY LANE

PROPOSED CURVE DATA
NORTHBOUND ENT. RAMP
PI STA. = 105+95.01
Δ = 38° 57' 41" (RT)
D = 6° 51' 42"
R = 835.00'
T = 295.37'
L = 567.80'
E = 50.70'
S.E. = 6.0%
T.R. = N/A
S.E. RUN = 192'
P.C. STA. = 102+99.64
P.T. STA. = 108+67.44

PP-161

PROPOSED CURVE DATA
NORTHBOUND I-39 BASELINE
PI STA. = 17+55.89
Δ = 7° 37' 58.04" (RT)
D = 1° 08' 45.30"
R = 5000.00'
T = 333.54'
L = 666.09'
E = 11.11'
S.E. = 3.7%
T.R. = N/A
S.E. RUN = 191' & 223'
P.C. STA. = 14+22.36
P.T. STA. = 20+88.44

PROPOSED CURVE DATA
NORTHBOUND ENT. RAMP
PI STA. = 113+08.22
Δ = 3° 40' 46" (RT)
D = 1° 09' 28"
R = 4,948.52'
T = 158.95'
L = 317.79'
E = 2.55'
S.E. = VARIABLE
T.R. = N/A
S.E. RUN = N/A
P.C. STA. = 111+49.27
P.T. STA. = 114+67.06

1"= 50'

0 50' 100'

INTERSECTION DESIGN STUDY

INTERSTATE 39

WITH

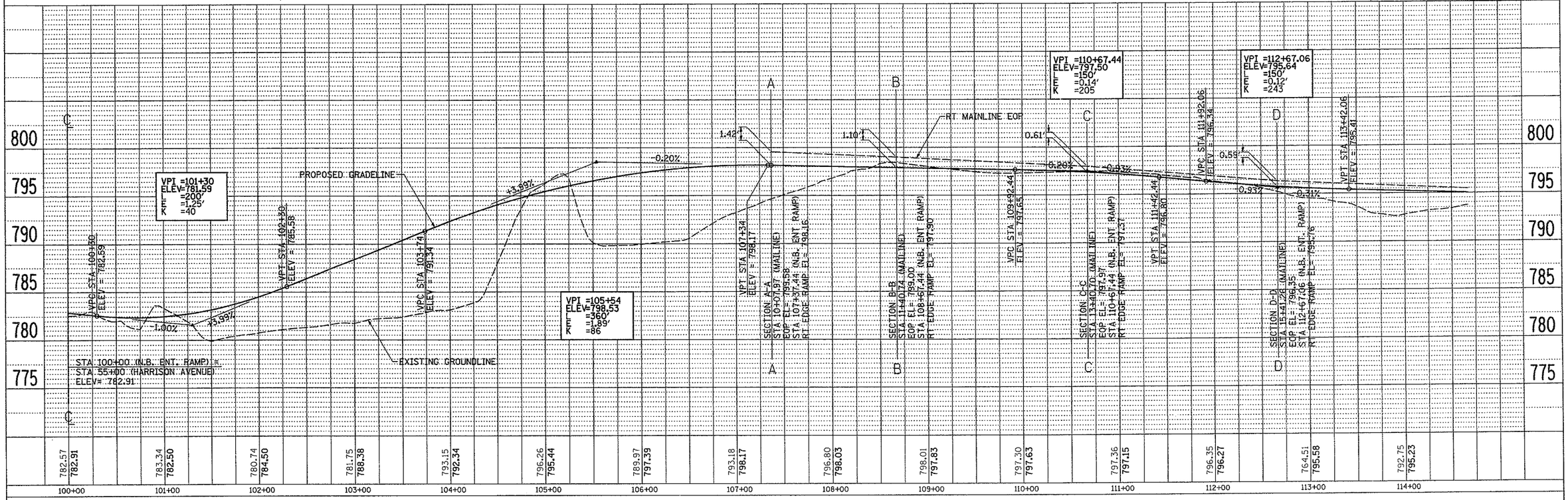
N.B. ENTRANCE & S.B. EXIT RAMPS

I.D.S. SHEET 10 OF 19

•DGN-SPEC•
•DATE-TIME•
•REF-
•REF-
•REF-

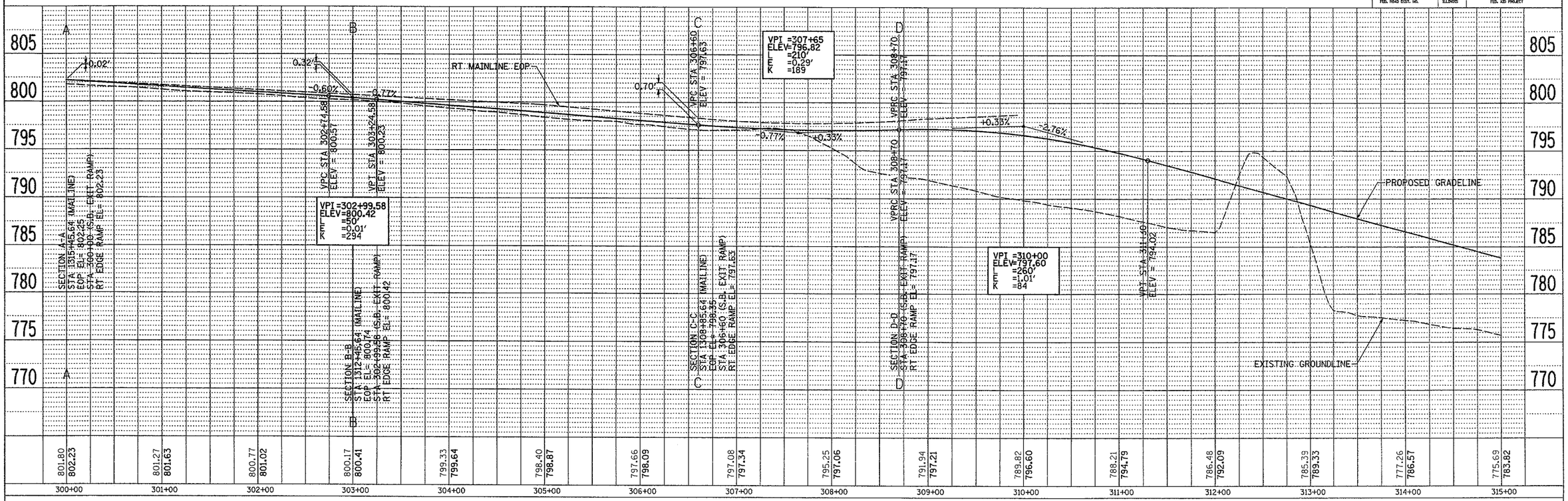
NORTHBOUND ENTRANCE RAMP PROFILE

FA RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	19	11
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

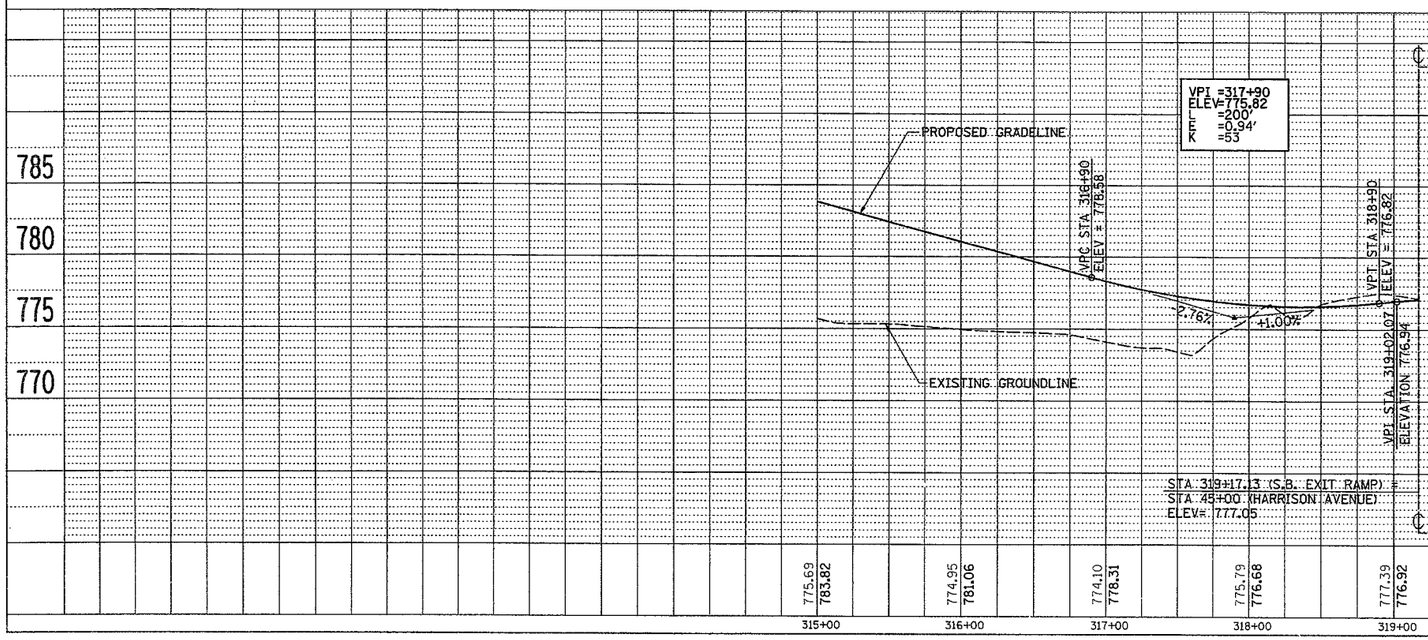


SOUTHBOUND EXIT RAMP PROFILE

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	(201-3)K&(4-1,5)K	WINNEBAGO	19	12
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

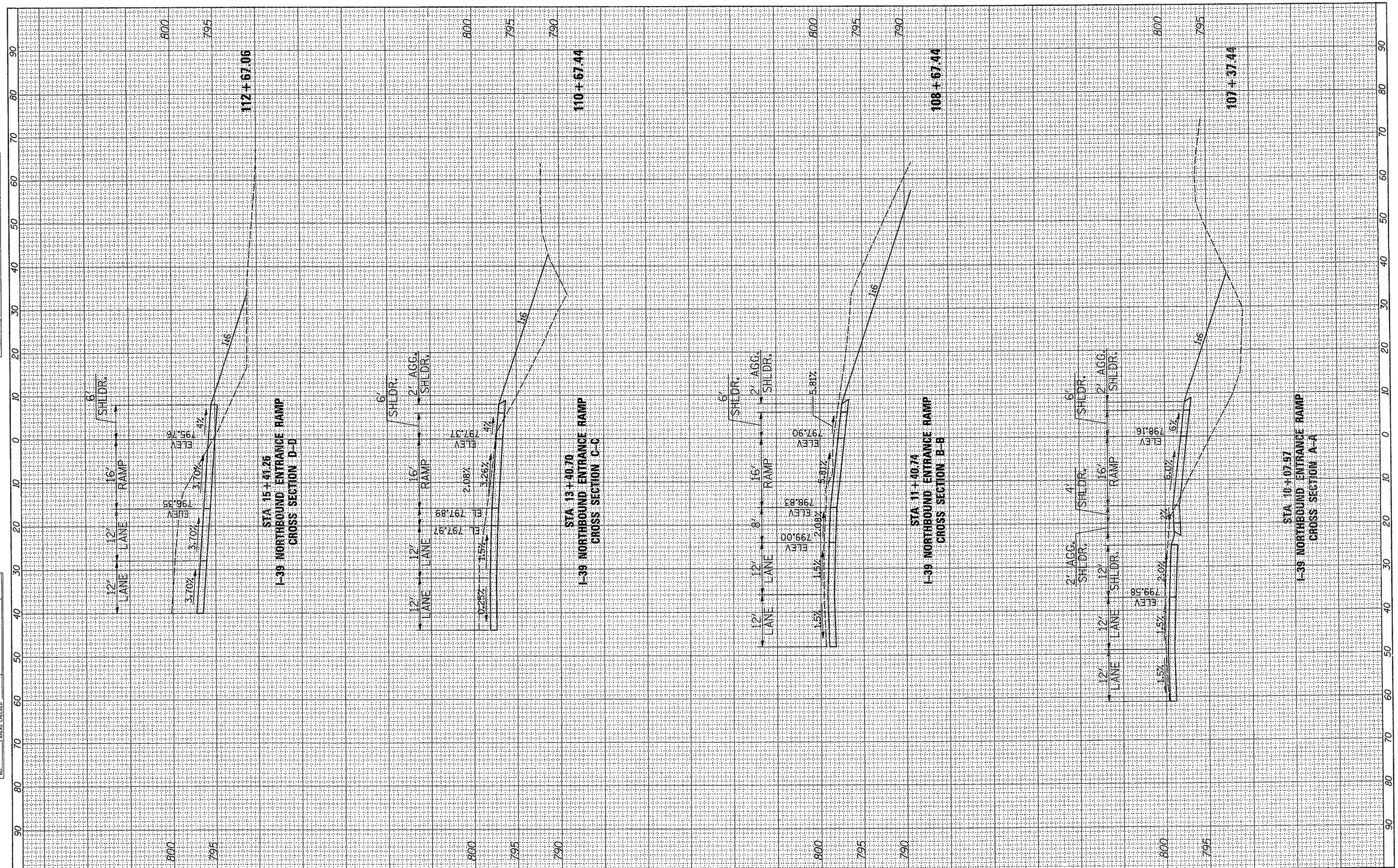


SOUTHBOUND EXIT RAMP PROFILE



FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	AREAS CHECKED		



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		DRAWN -	REVISED -
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	PLOT DATE = Wed Sep 22 10:32:49 2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

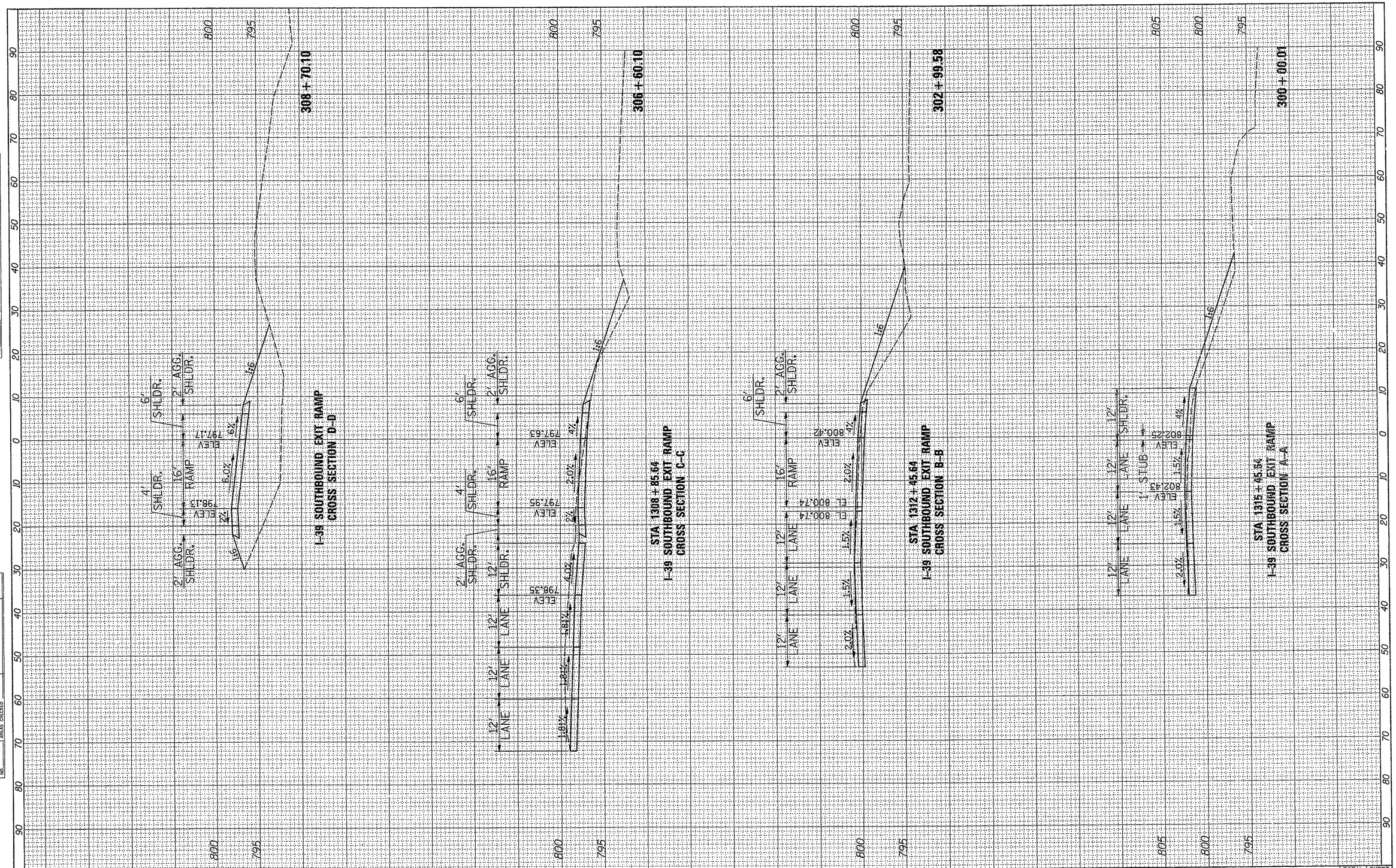
I-39 NORTHBOUND ENTRANCE RAMP
CRITICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | STA. 107+37.44 TO STA. 112+67.06

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	(201-3)K (4-1,5)K	WINNEBAGO	19	13
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

FINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
NO.	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		



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	PLOT DATE = Wed Sep 22 10:32:15 2010	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

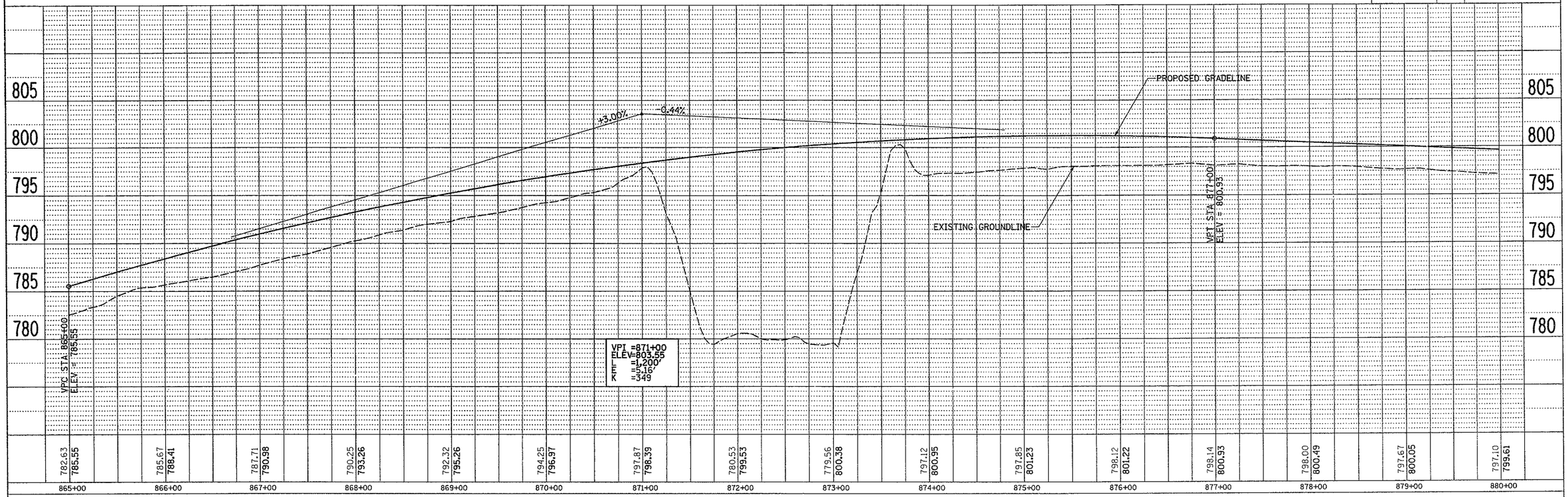
I-39 SOUTHBOUND EXIT RAMP
CRITICAL CROSS SECTIONS

SCALE: | SHEET NO. OF SHEETS | STA. 300+00.01 TO STA. 308+70.10

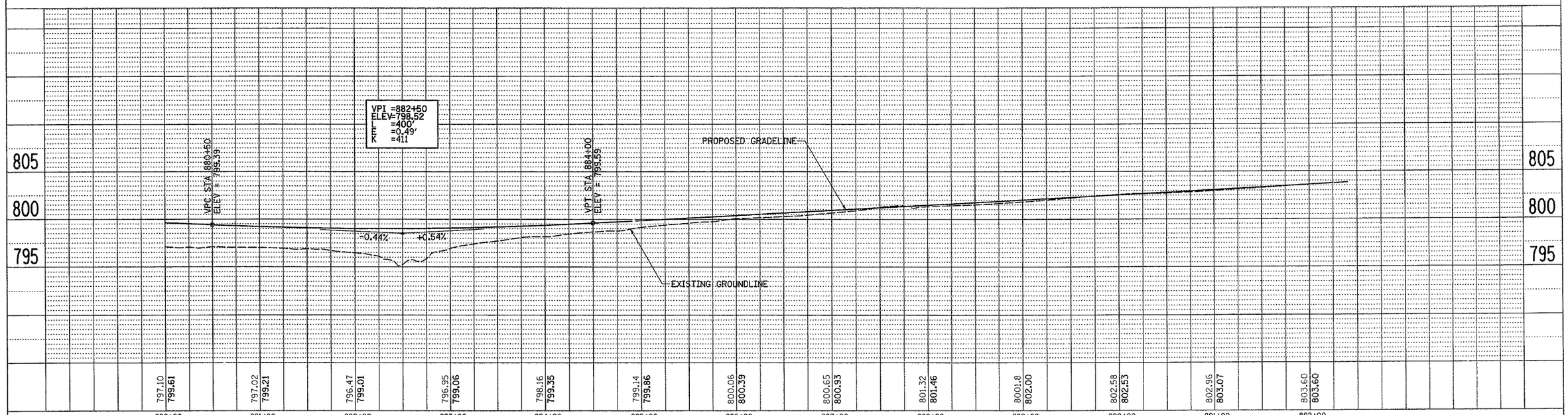
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
301	(201-3)K (4-1,5)K	WINNEBAGO	19	14
		CONTRACT NO.		
	ILLINOIS FED. AID PROJECT			

FA RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	19	15
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

I–39 / U.S. ROUTE 20 PROFILE

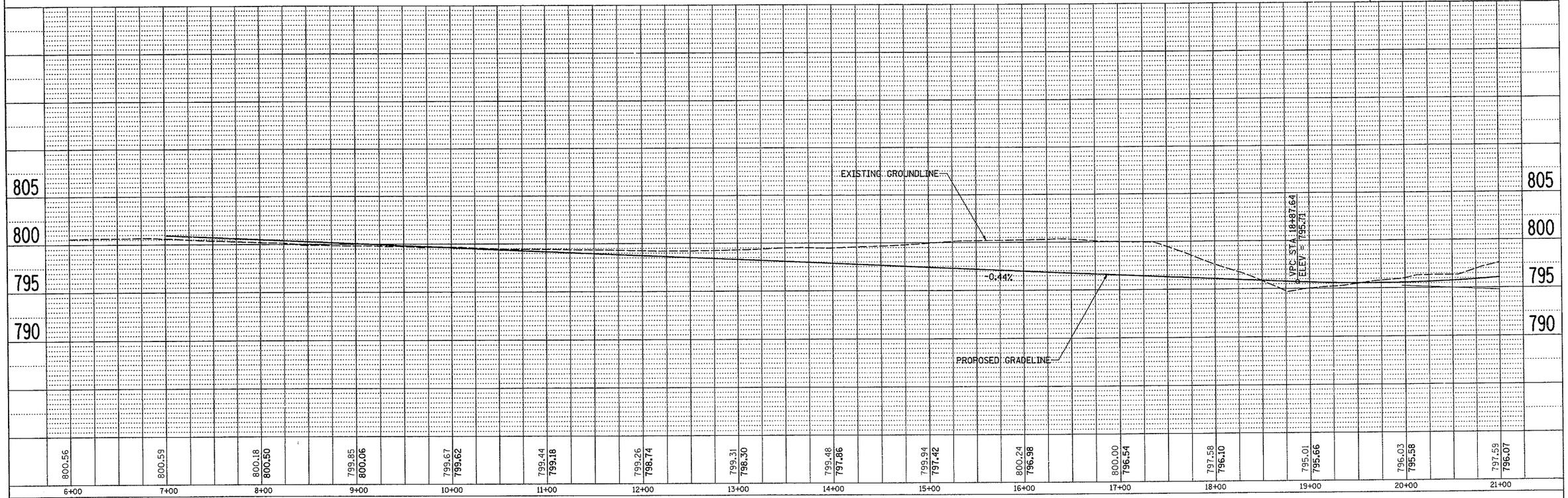


I–39 / U.S. ROUTE 20 PROFILE

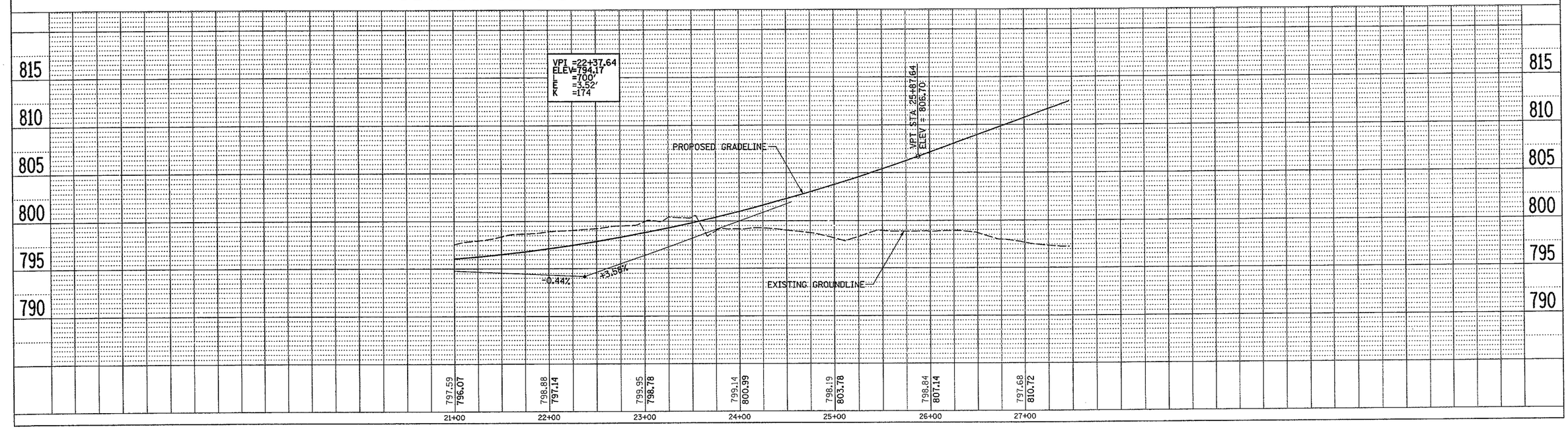


NORTHBOUND I–39 / U.S. ROUTE 20 PROFILE

FA RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	19	16
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

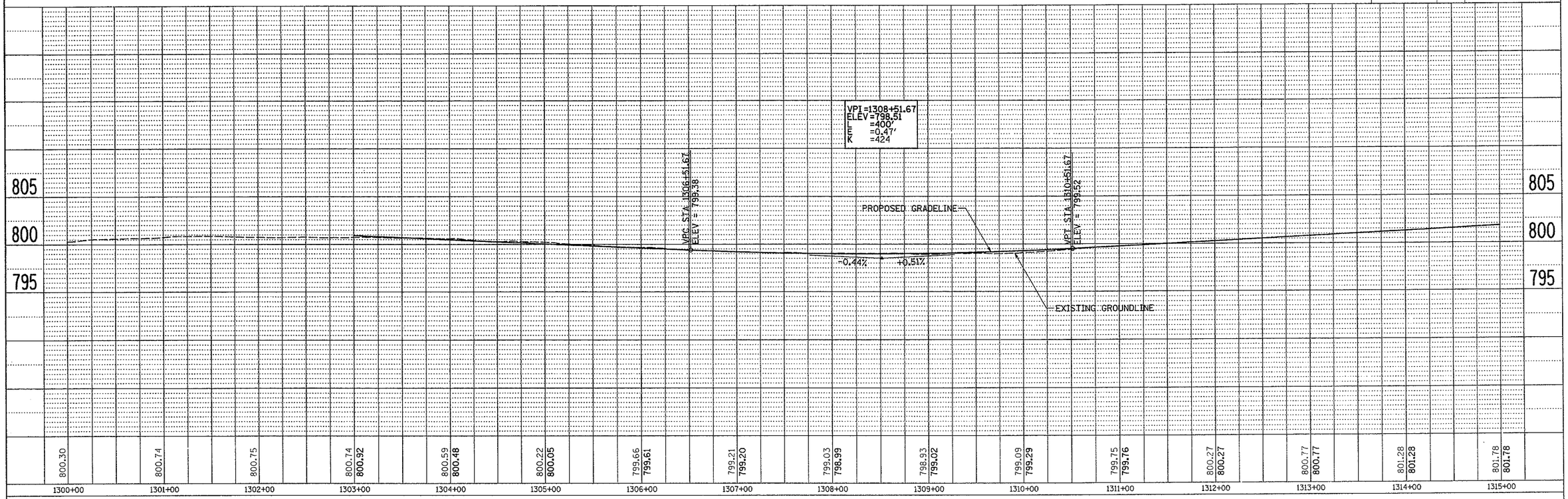


NORTHBOUND I–39 / U.S. ROUTE 20 PROFILE

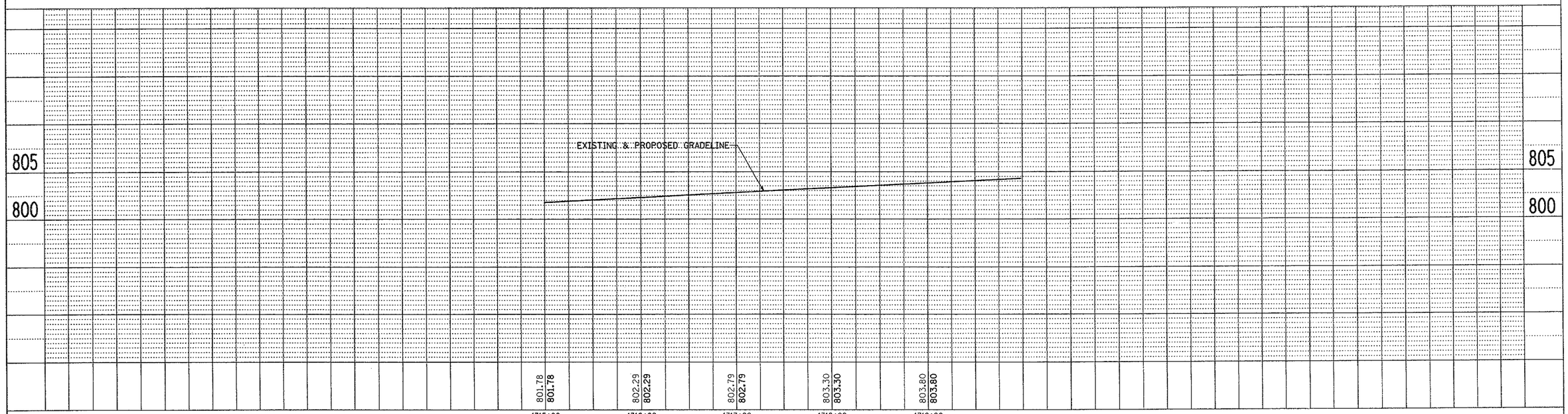


SOUTHBOUND I–39 / U.S. ROUTE 20 PROFILE

FA RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)IK&(4-1,5)IK	WINNEBAGO	19	17
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

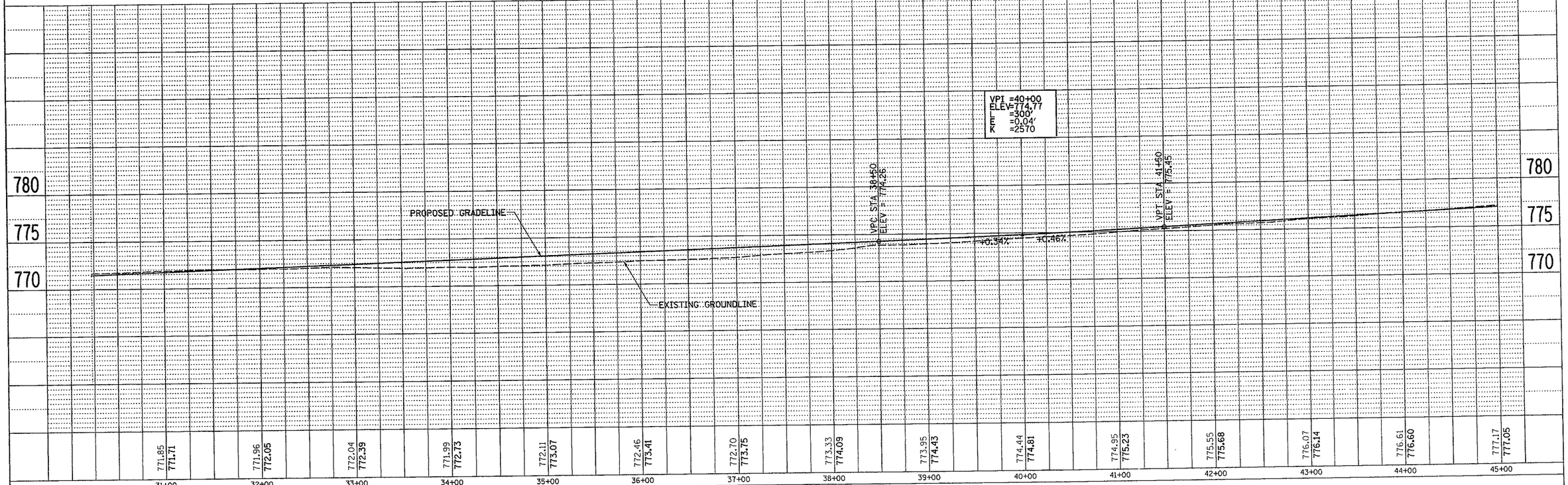


SOUTHBOUND I–39 / U.S. ROUTE 20 PROFILE

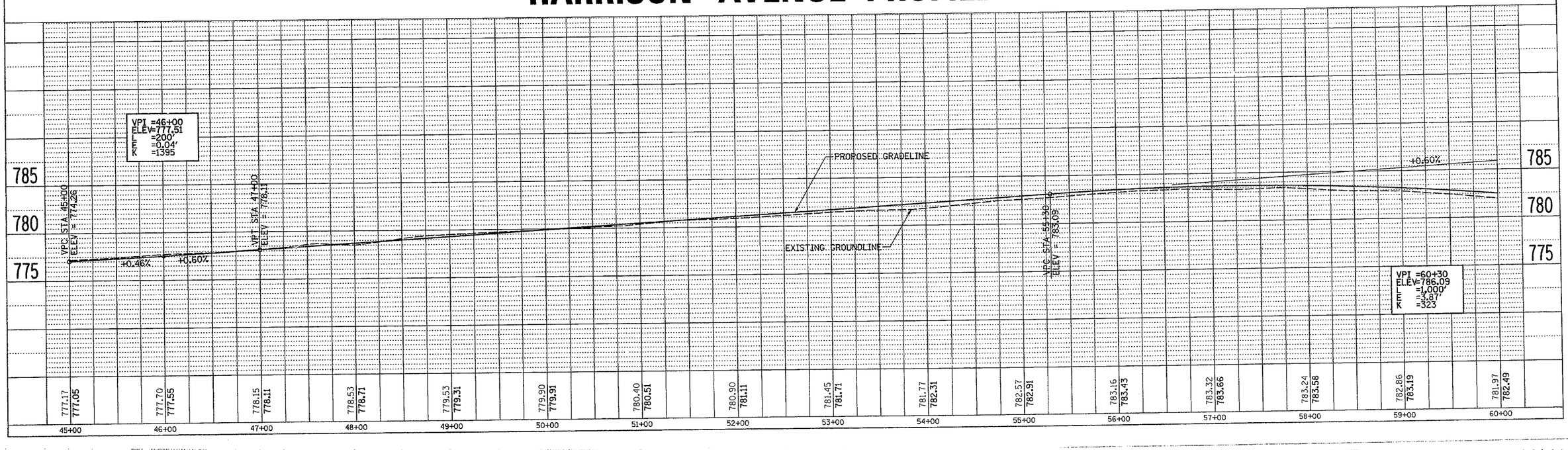


FA RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	19	18
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

HARRISON AVENUE PROFILE

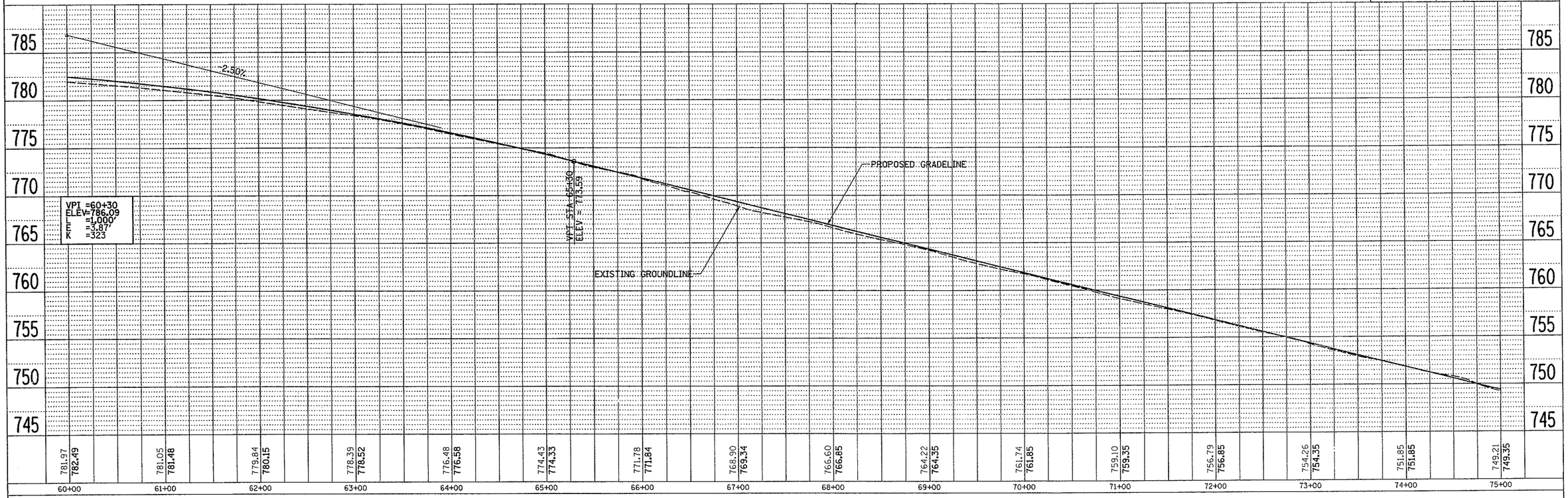
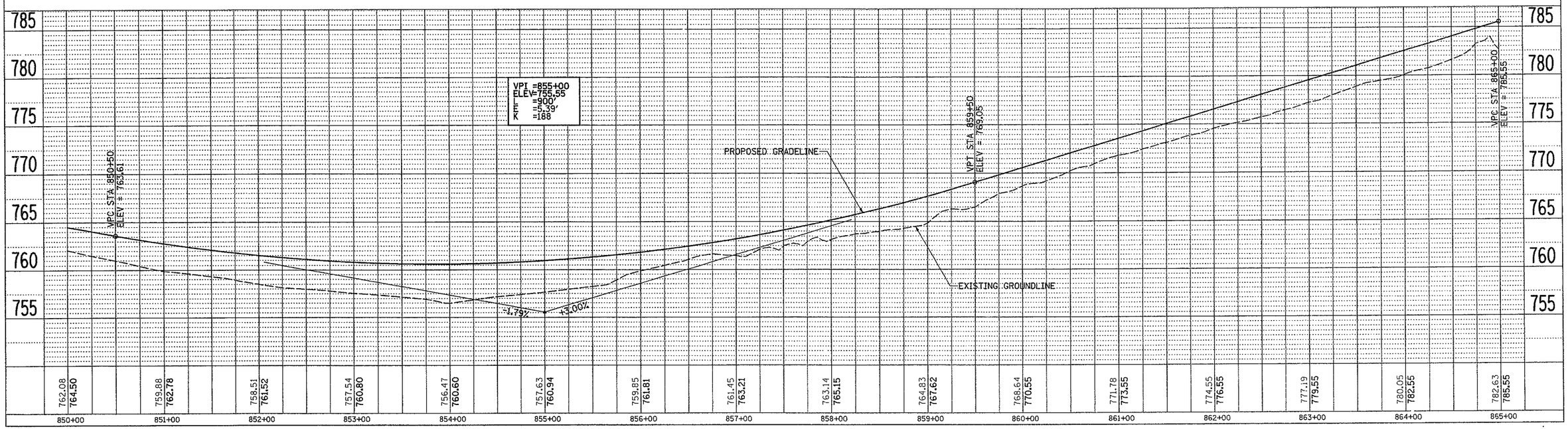


HARRISON AVENUE PROFILE



HARRISON AVENUE PROFILE

FA RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
	(201-3)K&(4-1,5)K	WINNEBAGO	19	19
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



I-39 / U.S. ROUTE 20 PROFILE