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CAPACITY DESIGN STUDY

2 PHASE
60 SEC. CYCLE
SIGNAL TYPE PRE-TIMED

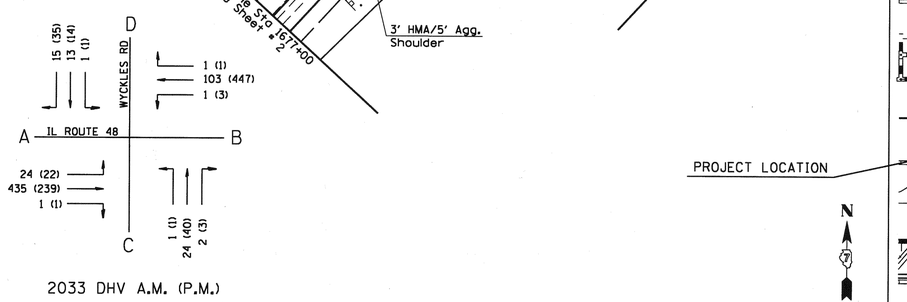
AREA OTHER
AVERAGE INTERSECTION DELAY
PROGRAM USED HCS+ V 5.5

PEAK HOUR FACTOR 0.90
A.M. 14.3 SEC. INTERSECTION LEVEL OF SERVICE A.M. B
P.M. 15.9 SEC. P.M. B

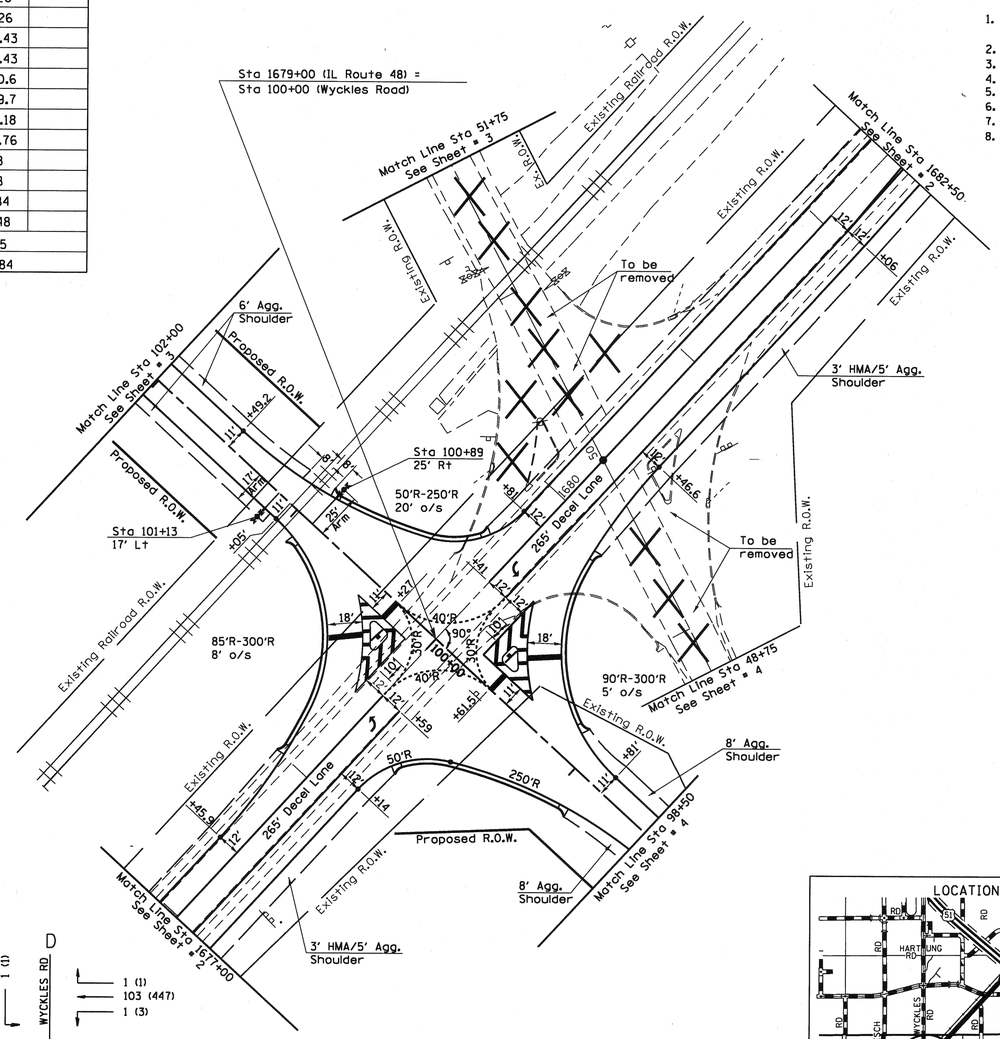
APPROACH		A (SB)	B (NB)	C (EB)		D (WB)
BUS STOP CONDITION		---	---	---		---
PARKING MANEUVER/HR.		---	---	---		---
PEDESTRIANS		---	---	---		---
ARRIVAL TYPE		3	3	3		3
LANE UTILIZATION FACTOR		1.00	1.00	1.00	1.00	1.00
BASE SATURATION FLOW		1900	1900	1900		1900
D - DISTANCE		---	---	13′	---	2′	---
LANE GROUP		LTR	LTR	L	TR	L	TR
LANE WIDTHS		11′	11′	12′	12′	12′	12′
GREEN TIME (SECONDS)	A.M.	26	26	26	26	26	26
	P.M.	26	26	26	26	26	26
G/C RATIO	A.M.	0.43	0.43	0.43	0.43	0.43	0.43
	P.M.	0.43	0.43	0.43	0.43	0.43	0.43
LANE GROUP DELAY (SECONDS)	A.M.	9.9	9.9	9.9	16.0	9.7	10.6
	P.M.	10.1	10.0	10.2	11.8	9.7	19.7
V/C RATIO	A.M.	0.05	0.05	0.05	0.67	0.01	0.18
	P.M.	0.09	0.07	0.10	0.37	0.01	0.76
LEVEL OF SERVICE	A.M.	A	A	A	B	A	B
	P.M.	B	A	B	B	A	B
2033 30TH MAX. HOUR TRAFFIC	A.M.	29	27	24	436	1	184
	P.M.	50	44	22	240	3	448
2013 8TH MAX. HOURLY TRAFFIC	A.M.	13	11	188		75	
	P.M.	21	18	107		184	

TRAFFIC DATA

MOVEMENT	YEAR 2013 30TH MAXIMUM HOUR TRAFFIC A.M.	P.M.	PERCENT TRUCK TRAFFIC IN 30th MAX HOUR	ESTIMATED PERCENT INCREASE BY	YEAR ___ 30th MAXIMUM HOUR TRAFFIC A.M.	P.M.	ESTIMATED PERCENT INCREASE BY	YEAR 2033 30th MAXIMUM HOUR TRAFFIC A.M.	P.M.
AB	10	11	13/11					13	14
AD	1	1	0/0					1	1
AC	12	26	20/9					15	35
BA	18	30	13/8					24	40
BC	1	1	0/100					1	1
BD	1	2	100/50					2	3
CD	322	177	14/21					435	239
CA	19	17	6/29					24	22
CB	1	1	0/100					1	1
DC	135	331	26/13					183	447
DB	1	2	100/50					1	3
DA	1	1	0/0					1	1
TOTAL A	61	86						78	113
TOTAL B	32	47						42	62
TOTAL C	490	553						659	745
TOTAL D	461	514						623	694



2033 DHV A.M. (P.M.)



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SHEET NUMBER

ELEMENTS CONTROLLING DESIGN

1. DESIGN DESIGNATION FAP RTE 714 (IL RTE 48) MINOR URBAN ARTERIAL 7100 ADT (2033) WITH FAS RTE 1539 (WYCKLES RD) MAJOR COLLECTOR 1000 ADT (2033)
2. FAP RTE 714 (IL RTE 48) IS THE PREFERENCE ROUTE
3. ANTICIPATED YEAR OF CONSTRUCTION 2013
4. TRAFFIC CONTROL TO BE STOP CONTROLLED ON WYCKLES RD.
5. DESIGN VEHICLE: WB-65 (IL 48) AND WB-55 (WYKLES RD)
6. POSTED SPEED: 55 MPH ON IL RTE 48 AND WYCKLES RD.
7. DESIGN SPEED: 60 MPH ON IL RTE 48 AND WYCKLES RD.
8. FAP RTE 714 (IL RTE 48) IS A CLASS II TRUCK ROUTE.
9. PEDESTRIAN USAGE: NO BICYCLE USAGE: NO

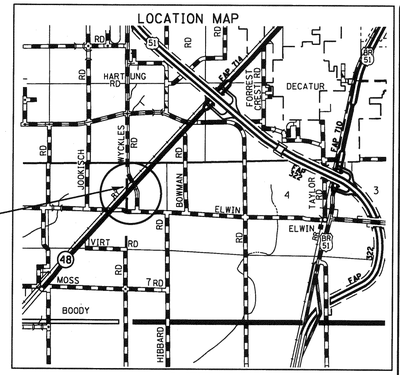
GENERAL NOTES

1. PROFILES ARE PROVIDED, SINCE APPROACH GRADES ARE GREATER THAN 1% DUE TO RELOCATION OF THE INTERSECTION.
2. TYPE B-6.24 CURB AND GUTTER TO BE USED ON OUTER EDGES OF PAVEMENT
3. TYPE ____ CURB AND GUTTER TO BE USED ON CHANNELIZING ISLAND
4. ALL DIMENSIONS ARE SHOWN F-F OF CURB UNLESS OTHERWISE SHOWN.
5. R.O.W. IS SUBJECT TO REVISION DURING PREPARATION OF FINAL PLANS.
6. TURNING MOVEMENTS CHECKED WITH AUTOTURN.
7. SIGHT DISTANCE MEETS BDE POLICY.
8. PAVEMENT MARKINGS ARE IN ACCORDANCE WITH DISTRICT POLICY.

40 0 40
GRAPHIC SCALE

PROJECT LOCATION

LOCATION MAP



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INTERSECTION DESIGN STUDY

FAP ROUTE 714 (IL ROUTE 48)
WITH
FAS ROUTE 1539 (WYCKLES RD)

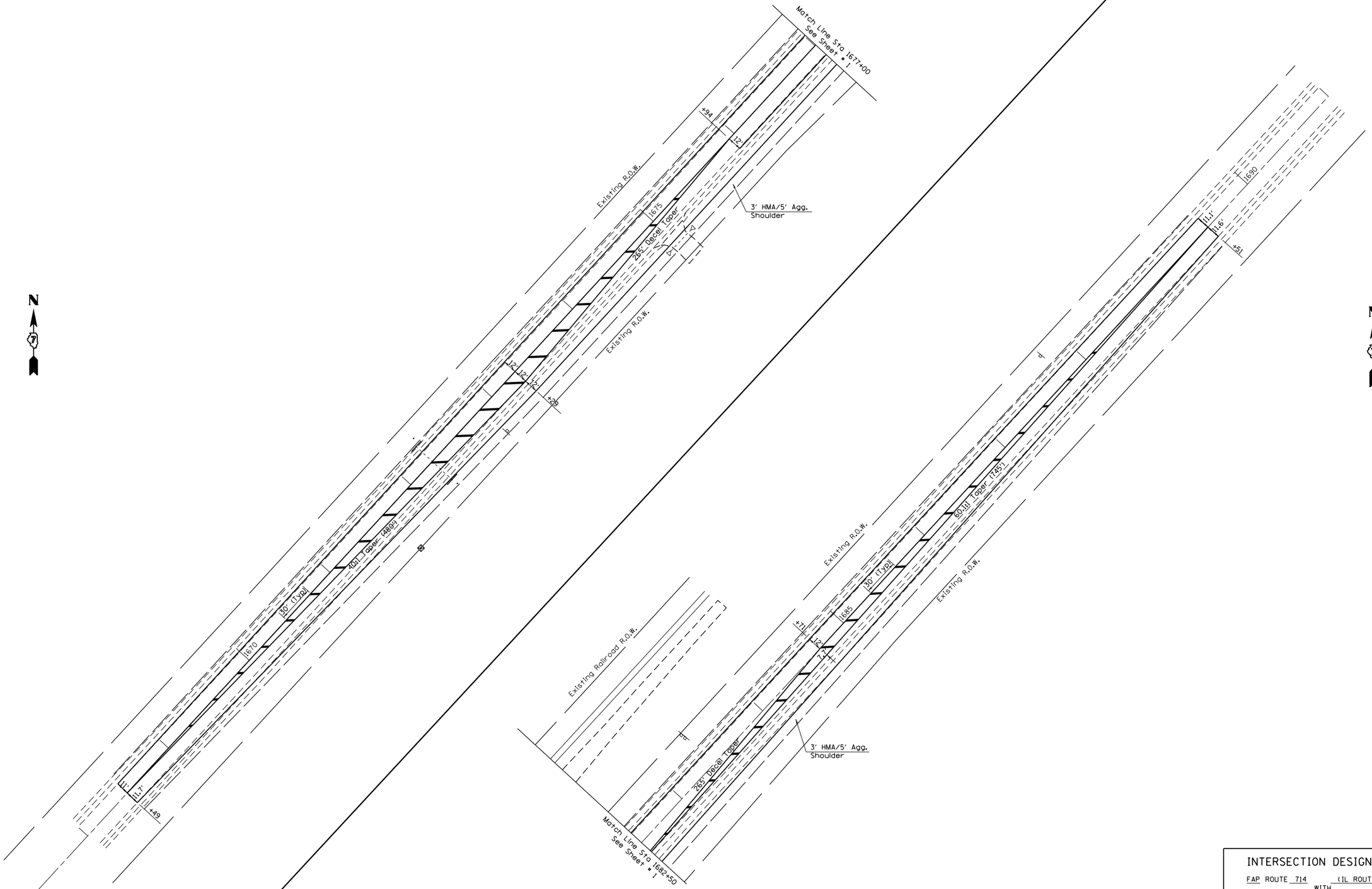
SEC. NO. 128N PROJ. NO. 74515
SCALE 40 COUNTY MACON
SJN : REV. NO.

DESIGNED BY DRM DATE: 6/2012

SATISFACTORY — DISTRICT GEOMETRICS ENGINEER — DATE 6-22-12
SATISFACTORY — ACTING DISTRICT PROGRAM DEVELOPMENT ENGINEER — DATE 6-25-12
SATISFACTORY — ACTING DISTRICT OPERATIONS MANAGER — DATE 6-25-12
APPROVED — DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER — DATE 6-27-12

CADD FILE NAME : [74515]
I.D.S. SHEET 1 OF 6

BDE-9908



INTERSECTION DESIGN STUDY

FAP ROUTE 714 (IL ROUTE 48)
FAS ROUTE 1539 WITH (WYCKLES RD)

SEC. NO. 128N

SCALE 40 COUNTY MACON

SJN : PROJ. NO. 74515

I.D.S. SHEET 2 OF 6

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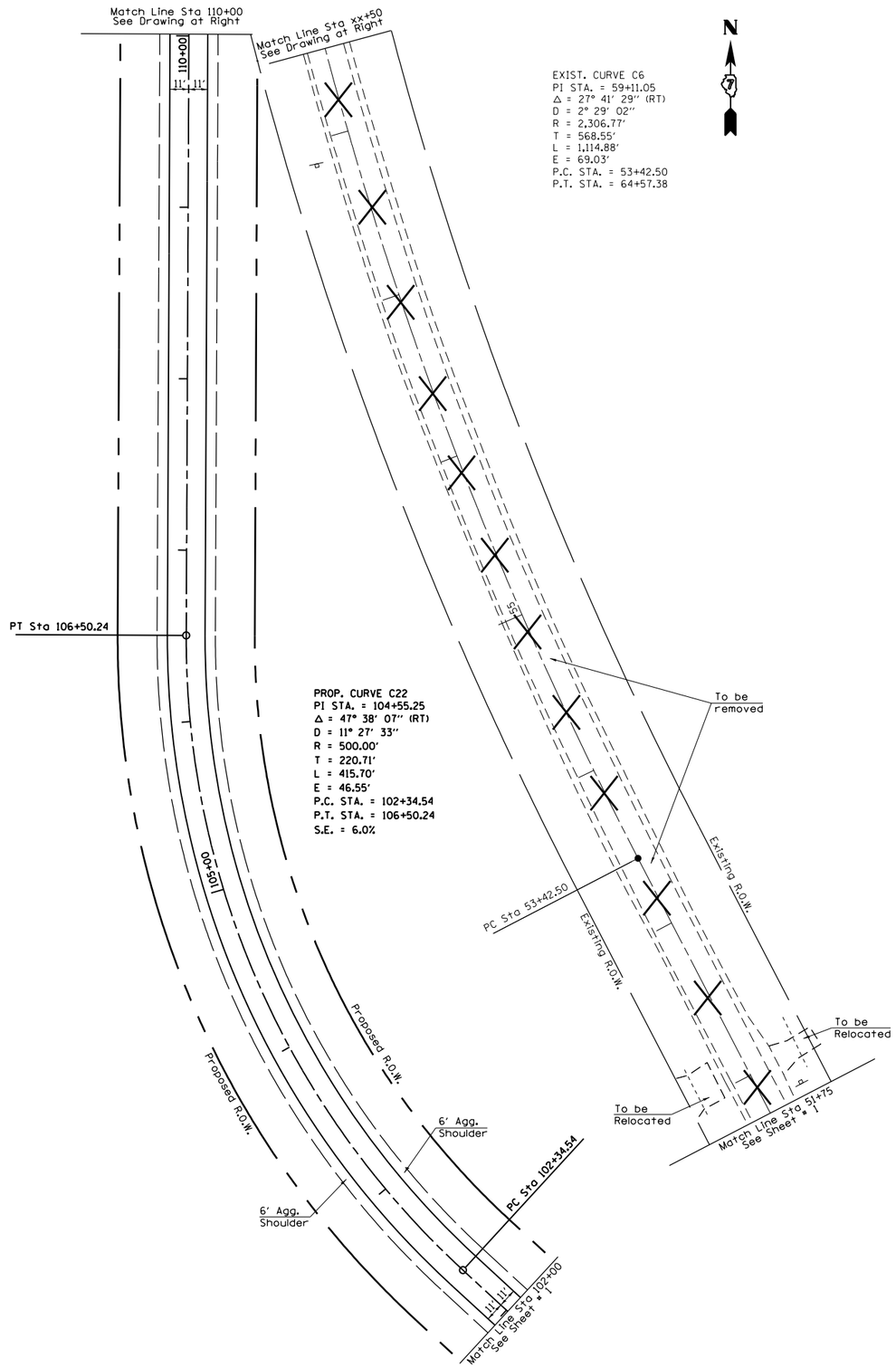
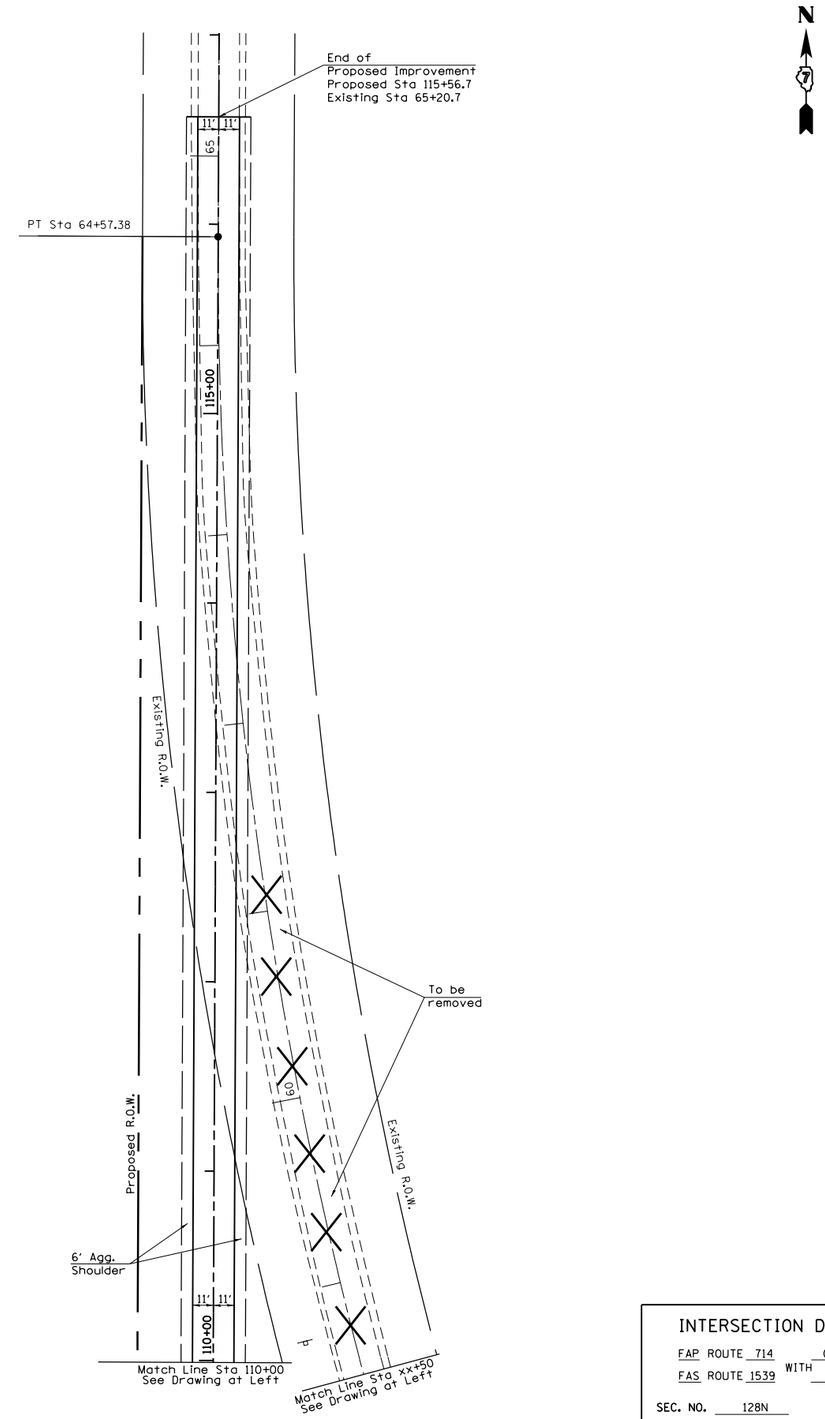




INTERSECTION DESIGN STUDY

FAP ROUTE 714 (IL ROUTE 48)
FAS ROUTE 1539 WITH (WYCKLES RD)

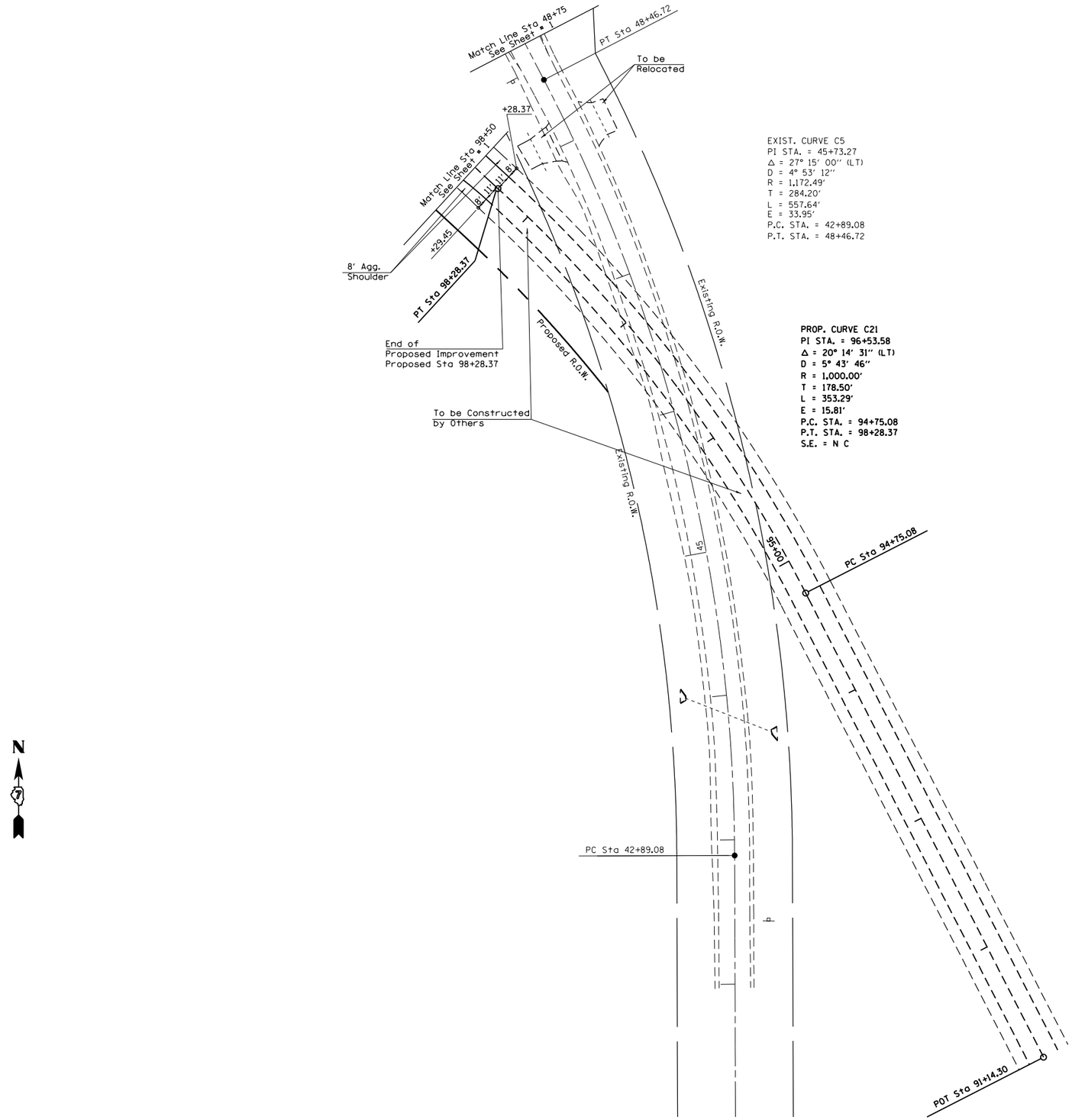
SEC. NO. 128N

SCALE 40 COUNTY MACON

SJN : PROJ. NO. 74515

I.D.S. SHEET 3 OF 6

BDE-9908



EXIST. CURVE C5
PI STA. = 45+73.27
Δ = 27° 15' 00" (LT)
D = 4° 53' 12"
R = 1,172.49'
T = 284.20'
L = 557.64'
E = 33.95'
P.C. STA. = 42+89.08
P.T. STA. = 48+46.72

PROP. CURVE C21
PI STA. = 96+53.58
Δ = 20° 14' 31" (LT)
D = 5° 43' 46"
R = 1,000.00'
T = 178.50'
L = 353.29'
E = 15.81'
P.C. STA. = 94+75.08
P.T. STA. = 98+28.37
S.E. = N C

INTERSECTION DESIGN STUDY

FAP ROUTE 714 (IL ROUTE 48)
FAS ROUTE 1539 WITH (WYCKLES RD)

SEC. NO. 128N

SCALE 40 COUNTY MACON

SJN : PROJ. NO. 74515

I.D.S. SHEET 4 OF 6

BDE-9908

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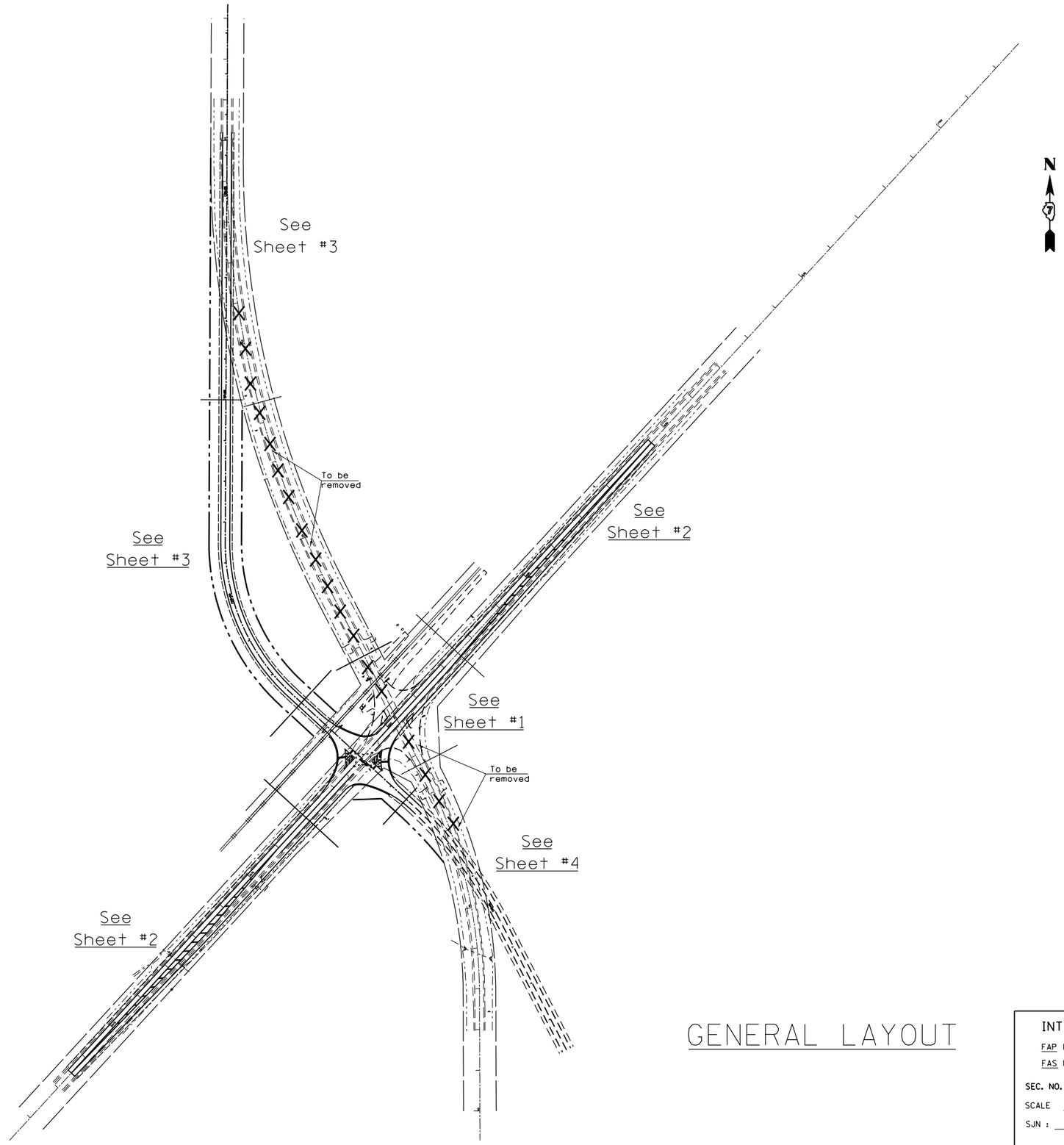


GENERAL LAYOUT

INTERSECTION DESIGN STUDY

FAP ROUTE 714 (IL ROUTE 48)
WITH
FAS ROUTE 1539 (WYCKLES RD)

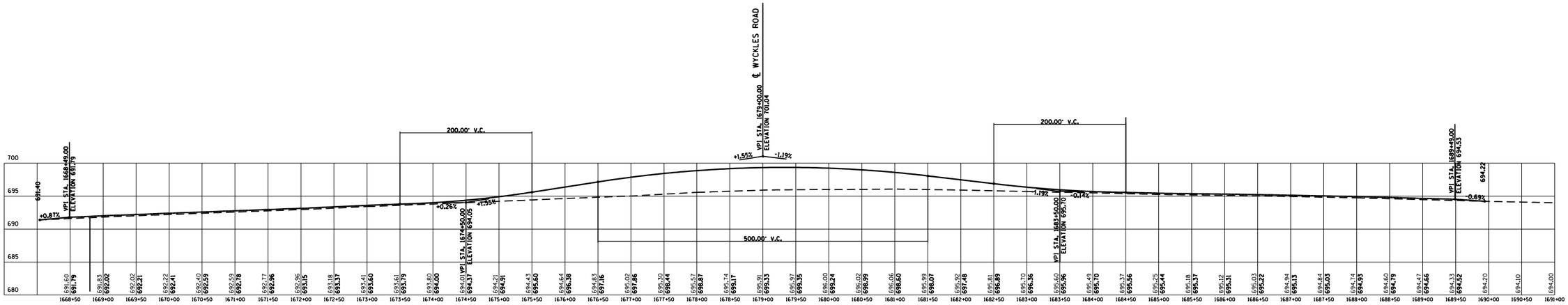
SEC. NO. 128N

SCALE 40 COUNTY MACON

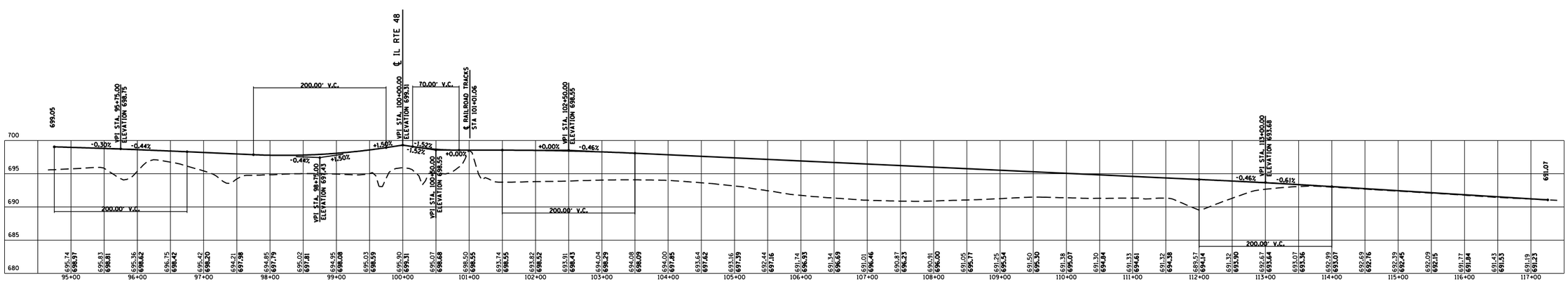
SJN : PROJ. NO. 74515

I.D.S. SHEET 5 OF 6

BDE-9908



ILLINOIS ROUTE 48 PROFILE



WYCKLES ROAD PROFILE

INTERSECTION DESIGN STUDY

FAP ROUTE 714 (IL RTE 48)

FAS ROUTE 1539 WITH (WYCKLES ROAD)

SEC. NO. 128N

SCALE 80 COUNTY MACON

SJN : PROJ. NO. 74515

I.D.S. SHEET 6 OF 6

BDE-9908

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