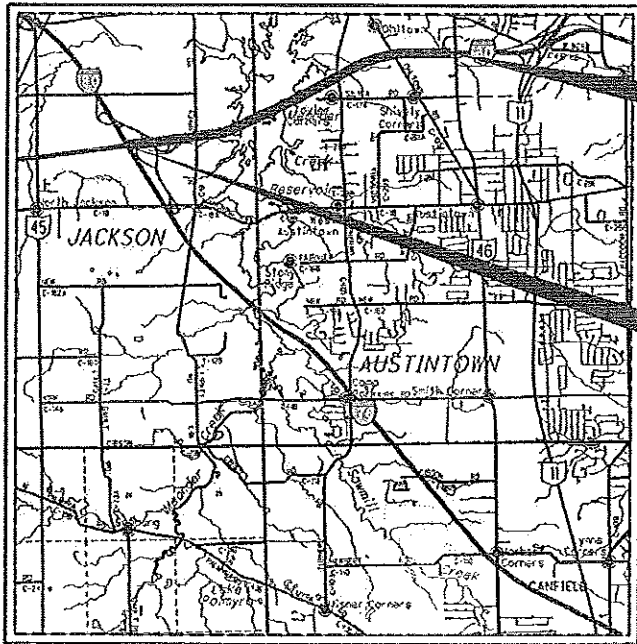


STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

MAH-80-0.00

**JACKSON & AUSTINTOWN TOWNSHIPS
MAHONING COUNTY**



LOCATION MAP

LATITUDE: N41°06'56" LONGITUDE: W80°48'18"



PORTION TO BE IMPROVED	-----
INTERSTATE HIGHWAY	-----
FEDERAL ROUTES	-----
STATE ROUTES	-----
COUNTY & TOWNSHIP ROADS	-----
OTHER ROADS	-----

DESIGN DESIGNATION

DESIGN FUNCTIONAL CLASSIFICATION:
RURAL INTERSTATE (MAH IR 80 S.L.M. 0.00-3.85)
NHS PROJECT YES

DESIGN EXCEPTIONS

NONE

INDEX OF SHEETS:

TITLE SHEET	1
GENERAL NOTES	2
MAINTENANCE OF TRAFFIC	3-5
GENERAL SUMMARY	6
REFERENCE SHEETS	7-9

PROJECT DESCRIPTION

CONCRETE REPAIRS ON IR 80 OF MAHONING COUNTY FROM THE OHIO TURNPIKE TO SR 46.

PROJECT EDA:	N/A MAINTENANCE
ESTIMATED CONTRACTOR EDA:	N/A MAINTENANCE
NOTICE OF INTENT EDA:	N/A MAINTENANCE

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2016 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

Call Before You Dig
1-800-362-2764

(Non-members must be called directly)
OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE
1-800-925-0988

PLAN PREPARED BY:
ODOT DISTRICT 4 PLANNING & ENGINEERING
2088 SOUTH ARLINGTON RD.
ARRON, OHIO 44306

ENGINEERS SEAL:

SIGNED: *Rebecca Bisesi*
DATE: 2-3-17

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
BP-1.1	7/28/00	MT-98.21	7/18/14	800-2016	1/20/17
BP-2.1	7/17/15	MT-98.22	1/20/17	808	1/29/16
BP-2.2	7/18/08			821	4/20/12
BP-2.5	7/19/13	MT-105.10	7/19/13	832	1/17/14
BP-6.1	7/19/13			908	1/29/16
DM-1.2	1/18/13	TC-41.20	10/18/13	921	4/20/12
DM-4.3	1/15/16	TC-52.20	7/15/16		
DM-4.4	1/15/16				
MT-95.30	7/15/16				
MT-95.40	1/20/17				
MT-95.45	1/20/17				
MT-95.50	10/16/15				
MT-98.10	1/20/17				
MT-98.11	1/20/17				
MT-98.20	7/18/14				

APPROVED: *[Signature]*
DATE: 2-3-17 DISTRICT DEPUTY DIRECTOR

APPROVED: *[Signature]*
DATE: 2-28-17 DIRECTOR, DEPARTMENT OF TRANSPORTATION

MAH - IR 80-00.00
170326 PID - 104169
Dist 4 5/11/2017

Contract Proposal Available @ www.
Contracts.dot.state.oh.us/home

I:\ProjectData\MAH\104169_80-0-00_Design\Roadway\Sheet\104169_104169_104169.dgn Sheet

FEDERAL PROJECT NO.
E170(522)

PID NO.
104169

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT
NONE

MAH-80-0.00

UTILITIES

THE CONTRACTOR SHALL USE THE FOLLOWING PROCEDURE AT EACH LOCATION WHERE WORK IS PERFORMED, IN ACCORDANCE WITH SECTIONS 105.07 AND 107.16 IN THE CONSTRUCTION AND MATERIALS SPECIFICATIONS.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE OHIO UTILITIES PROTECTION SERVICE (OUPS), THE OHIO & GAS PROCEDURES UNDERGROUND PROTECTION SERVICE (OGPUPS), THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4 HEAD-QUARTERS AND ALL NON REGISTERED UTILITY OWNERS AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION IN ALL AREAS.

OUPS 1-800-362-2764 (CONTACT LIMITED BASIS PARTICIPANTS DIRECTLY)
 OGPUPS 1-800-925-0988
 ODOT 330-786-3145 KEN GREENE

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE NOT SHOWN ON THE PLANS, BUT CAN BE OBTAINED FROM THE OWNERS OF THE UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES.

PLAN INTENT

THIS PROJECT SHALL CONSIST OF FULL DEPTH PAVEMENT REPAIR OF DETERIORATED SECTIONS OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT ON THROUGH LANES AND CONCRETE SHOULDERS WITHIN THE PROJECT LIMITS.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

PROFILE AND ALIGNMENT

PLACE THE PROPOSED PAVEMENT TO FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. PLACE THE PROPOSED ASPHALT CONCRETE OVERLAY AS SHOWN ON THE TYPICAL SECTIONS.

COMMUNITY NOTIFICATION:

THE CONTRACTOR WILL ADVISE THE ODOT PROJECT ENGINEER A MINIMUM OF TWENTY-ONE (21) DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR MUST ALSO PROVIDE NOTIFICATION TO THE ODOT PROJECT ENGINEER A MINIMUM OF TWENTY-ONE (21) DAYS PRIOR TO ANY LANE RESTRICTIONS. THE ODOT PROJECT ENGINEER WILL FORWARD THE INFORMATION TO THE ODOT, DISTRICT 4 OFFICE OF PUBLIC INFORMATION FOR USE TO NOTIFY EMERGENCY SERVICES AND COMMUNITIES A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO THE START OF PROJECT CONSTRUCTION. INCLUDED IN THIS NOTIFICATION WILL BE THE PROJECTED DATES OF ANY LANE RESTRICTIONS REQUIRED BY THE PROJECT.

PAVEMENT MARKING DETAILS

THE PAVEMENT MARKING DETAIL SHEETS WILL BE SUPPLIED TO THE CONTRACTOR AT THE PRE-CONSTRUCTION MEETING.

PAVEMENT MARKING LANE WIDTHS

THE NORMAL LANE WIDTH FOR THE PAVEMENT MARKINGS ON THIS PROJECT SHALL BE AS FOLLOWS:

ROUTE	S.L.M. TO S.L.M.	LANE WIDTH
SR 80	0.00 TO 3.85	12'

PAVEMENT MARKING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PLACE PAVEMENT MARKINGS ON THE NEW PAVEMENT SURFACE FOLLOWING FULL DEPTH PAVEMENT REPLACEMENT:

646, EDGE LINE, 6"	1.00 MILE
646, LANE LINE, 6"	3.00 MILE
646, CHANNELIZING LINE, 12"	200 FEET

COMMUNITY NOTIFICATION

THE CONTRACTOR WILL ADVISE THE ODOT PROJECT ENGINEER A MINIMUM OF TWENTY-ONE (21) DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR MUST ALSO PROVIDE NOTIFICATION TO THE ODOT PROJECT ENGINEER A MINIMUM OF TWENTY-ONE (21) DAYS PRIOR TO ANY LANE RESTRICTIONS OR CLOSURES. THE ODOT PROJECT ENGINEER WILL FORWARD THIS INFORMATION TO THE ODOT, DISTRICT 4 OFFICE OF PUBLIC INFORMATION FOR USE TO NOTIFY EMERGENCY SERVICES AND COMMUNITIES A MINIMUM OF FIFTEEN (15) DAYS PRIOR TO THE START OF PROJECT CONSTRUCTION. INCLUDED IN THIS NOTIFICATION WILL BE THE PROJECTED DATES OF ANY LANE RESTRICTIONS OR CLOSURES REQUIRED BY THE PROJECT.

ITEM 203 - EXCAVATION (FOR PAVEMENT REPAIR)

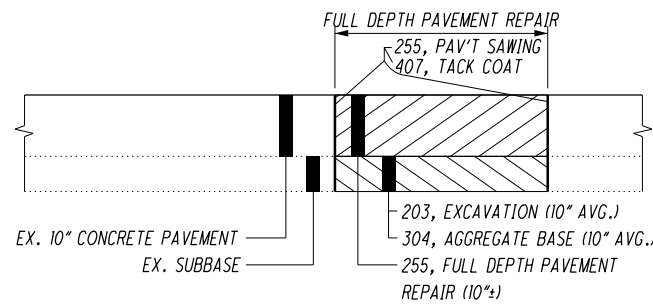
THIS ITEM OF WORK SHALL CONSIST OF REMOVING AND DISPOSING OF ALL UNSUITABLE MATERIAL BY EXCAVATING THE EXISTING SUBGRADE AND SUBBASE TO AN AVERAGE DEPTH OF 6 INCHES OR AS DIRECTED BY THE ENGINEER. EXACT LIMITS OF REMOVAL SHALL BE DETERMINED BY THE ENGINEER. ALL EQUIPMENT, LABOR, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 EXCAVATION (FOR PAVEMENT REPAIR). THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

203, EXCAVATION (FOR PAVEMENT REPAIR), 700 CU YD

ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS RRCM

A QUANTITY OF THIS ITEM SHALL BE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER. THIS ITEM SHALL CONSIST OF CUTTING AND REMOVING DETERIORATED PAVEMENT FULL DEPTH AND PLACING 10%± CONCRETE, CLASS RRCM FOR THE TRANSVERSE, JOINTS UNLESS OTHERWISE DIRECTED BY THE ENGINEER. IT IS NOT THE INTENT TO REPAIR EVERY DETERIORATED AREA WITHIN THE PROJECT. THE ENGINEER SHALL DETERMINE WHICH AREAS ARE TO BE REPAIRED. REFER TO BP-2.5 FOR TRANSVERSE REPAIRS. PAYMENT SHALL BE BASED ON THE ACTUAL NUMBER OF SQUARE YARDS OF PAVEMENT REMOVED AND REPLACED TO THE LIMITS DESIGNATED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

255, FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS RRCM	2500 SQ YD
255, FULL DEPTH PAVEMENT SAWING	4388 FT



ITEM 304 - AGGREGATE BASE (FOR PAVEMENT REPAIR)

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN PROVIDED AND SHALL BE USED AS DIRECTED BY THE ENGINEER TO BACKFILL AREAS WHICH WERE EXCAVATED UNDER ITEM 203 EXCAVATION (FOR PAVEMENT REPAIR). THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

304, AGGREGATE BASE (FOR PAVEMENT REPAIR), 700 CU YD

ITEM 605, 6" SHALLOW PIPE UNDERDRAINS WITH FABRIC WRAP, AS PER PLAN

ITEM 611, 4" CONDUIT TYPE F FOR UNDERDRAIN OUTLET
ITEM 611 PRECAST REINFORCED OUTLET

WHERE A SECTION OF UNDERDRAIN PIPE IS FOUND TO BE BROKEN OR PLUGGED, THE SECTION WILL BE ISOLATED BY RODDING. THE SECTION WILL BE REPLACED AT APPROXIMATELY THE LINE GRADE IN ITS ENTIRETY WITH NEW 6" SHALLOW PIPE UNDERDRAIN AT 2' IN FROM THE OUTSIDE EDGE LINE, AS DETAILED IN THE STANDARD CONSTRUCTION DRAWING DM-1.2. THE NEW UNDERDRAIN WILL BE AT A DEPTH OF 24" AND FOLLOW THE PROFILE OF THE EXISTING PAVEMENT. THE UNDERDRAIN WILL BE PLACED TO CREATE POSITIVE FLOW. THE METHOD OF MEASUREMENT AND PAYMENT WILL BE ACCORDING TO CMS 605.

THE UNIT BID PRICES ON THESE PAY ITEMS WILL NOT BE ADJUSTED AS PER CMS 104.02.D.

ITEM 605, 6" SHALLOW PIPE UNDERDRAINS WITH FABRIC WRAP, AS PER PLAN 50 FT.

ITEM 611, 4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET 10 FT.

ITEM 611, PRECAST REINFORCED OUTLET 1 EACH

ITEM 605, 6" UNCLASSIFIED PIPE UNDERDRAINS, AS PER PLAN
ITEM 605, 4" UNCLASSIFIED PIPE UNDERDRAINS, AS PER PLAN

WHERE A SECTION OF UNDERDRAIN PIPE IS FOUND TO BE BROKEN OR PLUGGED, THE SECTION WILL BE ISOLATED BY RODDING. THE SECTION WILL BE REPLACED AT APPROXIMATELY THE LINE GRADE IN ITS ENTIRETY WITH 4" OR 6" UNCLASSIFIED PIPE UNDERDRAINS ACCORDING TO CMS 605. THE COST OF REMOVAL OF THE EXISTING BROKEN OR PLUGGED UNDERDRAIN SHALL BE CONSIDERED INCIDENTAL TO THIS WORK. THE CONTRACTOR WILL EXERCISE CARE NOT TO DAMAGE OR REMOVE MORE EXISTING UNDERDRAIN THAN IS NECESSARY TO REMOVE THE BROKEN OR PLUGGED SECTION. THE METHOD OF MEASUREMENT AND PAYMENT WILL BE ACCORDING TO CMS 605.

THE UNIT BID PRICES ON THESE PAY ITEMS WILL NOT BE ADJUSTED AS PER CMS 104.02.D.

ITEM 605, 6" UNCLASSIFIED PIPE UNDERDRAINS, AS PER PLAN 50 FT.
 ITEM 605, 4" UNCLASSIFIED PIPE UNDERDRAINS, AS PER PLAN 50 FT.

UNSUITABLE SOILS

THE FOLLOWING ITEMS AND QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO ADDRESS UNSUITABLE SOILS ENCOUNTERED IN THE AREA UNDER THE PROPOSED FULL-DEPTH PAVEMENT REPLACEMENT LOCATIONS.

THE UNIT BID PRICES ON THESE PAY ITEMS WILL NOT BE ADJUSTED AS PER CMS 104.02.D.

ITEM 203, EXCAVATION,	200 CU YD
ITEM 203, GRANULAR MATERIAL, TYPE C (703.16),	200 CU YD
ITEM 204, GEOTEXTILE FABRIC, TYPE D,	900 SY YD

CALCULATED
TFS
CHECKED
RMB

GENERAL NOTES

MAH-80-0.00

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MAINTENANCE OF TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. A MINIMUM OF ONE ELEVEN FOOT LANE IN EACH DIRECTION SHALL BE MAINTAINED ON THE EXISTING PAVEMENT OR COMPLETED PAVEMENT DURING CONSTRUCTION OF THE WORK.
2. THE CONTRACTOR SHALL INFORM THE DISTRICT OFFICE (330) 786-2208, EIGHTEEN (18) DAYS PRIOR TO THE BEGINNING OF WORK.
3. TRUCK MOUNTED ATTENUATORS [TMA'S] SHALL BE USED AS SHOWN IN THE STANDARD CONSTRUCTION DRAWINGS.
4. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR BE PERMITTED TO HAVE SUCCESSIVE WORK ZONES UNLESS THE DISTANCE BETWEEN THE DRUMS, BARRICADES OR CONES EXCEEDS TWO 2 MILES.
5. THE CENTER LANE WILL BE CLOSED AS DETAILED ON SHEET 6, USING THE TRUCK-MOUNTED ATTENUATOR. ALL WORK IN THIS SECTION WILL BE COMPLETED PER THE PERMITTED LANE CLOSURE CHART.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS & UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE OFFICE OF COMMUNICATIONS. THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE & TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, DETOUR ROUTES, IF APPLICABLE, & ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTICE TO OFFICE OF COMMUNICATIONS TIME TABLE		
ITEM	DURATION OF CLOSURE	NOTICE DUE TO OFFICE OF COMMUNICATIONS
RAMP & RAMP CLOSURES	>= 2WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 12 HOURS	4 BUSINESS DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	2 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERNS CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTICE OF COMMUNICATIONS TIME TABLE.

LANE CLOSURES

DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AS PER THE PERMITTED LANE CLOSURE CHART UNLESS OTHERWISE DETAILED IN THE SEQUENCE OF CONSTRUCTION NOTE . THE PERMITTED LANE CLOSURE CHART USED FOR THIS PROJECT SHALL BE THE MOST CURRENT CHART AVAILABLE ON THE DATE THIS PROJECT SELLS.

THE CHART CAN BE FOUND AT:
<http://plcm.dot.state.oh.us>

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE REQUIREMENTS IN THE CHART, THE CONTRACTOR SHALL BE ASSESSED DISINCENTIVES IN THE AMOUNT OF \$5000 PER HOUR OR PORTION THEREOF THAT THE LANE REDUCTION REMAINS BEYOND THE SPECIFIED LIMIT.

ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP). IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.

WHEN CONSTRUCTION VEHICLES ARE ENTERING/EXITING THE ZONE DIRECTLY FROM/INTO AN OPEN LANE OF TRAFFIC. IF A LANE HAS BEEN CLOSED TO PROVIDE AN ACCELERATION/ DECELERATION LANE FOR THE VEHICLE, THE LEO WILL NOT BE REQUIRED.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 180 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

ITEM 614, MAINTAINING TRAFFIC (LANE CLOSURE/REDUCTION REQUIRED)

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

TRAFFIC CONTROL INSPECTOR

THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL OTHER THAN THE SUPERINTENDENT AND SUBJECT TO THE APPROVAL OF THE ENGINEER, TO CONTINUOUSLY INSPECT ALL TRAFFIC CONTROL DEVICES WHENEVER CONSTRUCTION WORK IS BEING PERFORMED WITHIN THE WORK LIMITS OF THE PROJECT. THE DESIGNATED INDIVIDUAL SHALL ALSO INSPECT ALL TRAFFIC DEVICES AT THE BEGINNING AND AT THE END OF EACH WORK DAY. THE DESIGNATED INDIVIDUAL OR A QUALIFIED REPRESENTATIVE SHALL ALSO BE AVAILABLE ON AN AROUND THE CLOCK BASIS TO REPAIR AND/OR REPLACE DAMAGED OR MISSING TRAFFIC CONTROL DEVICES. THESE INDIVIDUALS SHALL BE EQUIPPED WITH CELLULAR PHONES AND THEIR NAMES AND PHONE NUMBERS SHALL BE GIVEN TO THE PROJECT ENGINEER AT THE PRE-CONSTRUCTION MEETING. THE DESIGNATED INDIVIDUAL SHALL HAVE NO OTHER CONSTRUCTION RELATED DUTIES. PAYMENT FOR THE SERVICES OF THE TRAFFIC CONTROL INSPECTOR SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

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CALCULATED TFS CHECKED RMB	MAINTENANCE OF TRAFFIC
MAH-80-0.00	
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ITEM 614, MAINTAINING TRAFFIC (LANES OPEN DURING HOLIDAYS OR SPECIAL EVENTS)

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS	FOURTH OF JULY
NEW YEARS	LABOR DAY
MEMORIAL DAY	THANKSGIVING

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR EVENT	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY
THURSDAY (THANKSGIVING ONLY)	6:00 AM WEDNESDAY THROUGH 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE IN THE AMOUNT OF \$75 FOR EACH MINUTE THE ABOVE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

ITEM 614 - PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A PORTABLE CHANGEABLE MESSAGE SIGN, THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCE OF 650 FEET AND 475 FEET RESPECTIVELY.

EACH SIGN SHALL BE TRAILER MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM TO DIM THE SIGN DURING DARKNESS AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. PCMS TRAILERS SHOULD BE DELINEATED ON A PERMANENT BASIS BY AFFIXING RETROREFLECTIVE MATERIAL, IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER AS SEEN BY ONCOMING ROAD USERS.

PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE PCMS SHOULD NOT BE LOCATED IN THE MEDIAN OF THE HIGHWAY UNLESS IT IS PROTECTED FROM BOTH DIRECTIONS OF TRAFFIC. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE THE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS WILL BE OFF. ADDITIONALLY WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED, FACING AWAY FROM ALL TRAFFIC AND SHALL DISPLAY ONE OR MORE TYPE G YELLOW REFLECTIVE SHEETING SURFACES OF 9-INCH BY 15-INCH MINIMUM SIZE FACING TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT AND TO REVISE SIGN MESSAGES, IF NECESSARY.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE CONTRACTOR. A LIST OF ALL PROPOSED PREPROGRAMMED MESSAGES WILL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE LINE PRESENTATION FORMATS WITH UP TO OF SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DE-ACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL [IN ACTIVE CELLULAR AREAS] ALLOW REMOTE SIGN ACTIVATION, DEACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF 614. THE CONTRACTOR SHALL PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC AND. THE ENTIRE COST TO CONTROL TRAFFIC ACCRUED BY THE DEPARTMENT WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24 HOURS PER DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THEIR USE. THE REQUIREMENT TO FURNISH, INSTALL, MAINTAIN AND REMOVE A PCMS UNIT ON THIS PROJECT SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES AS OUTLINED IN 614.02.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

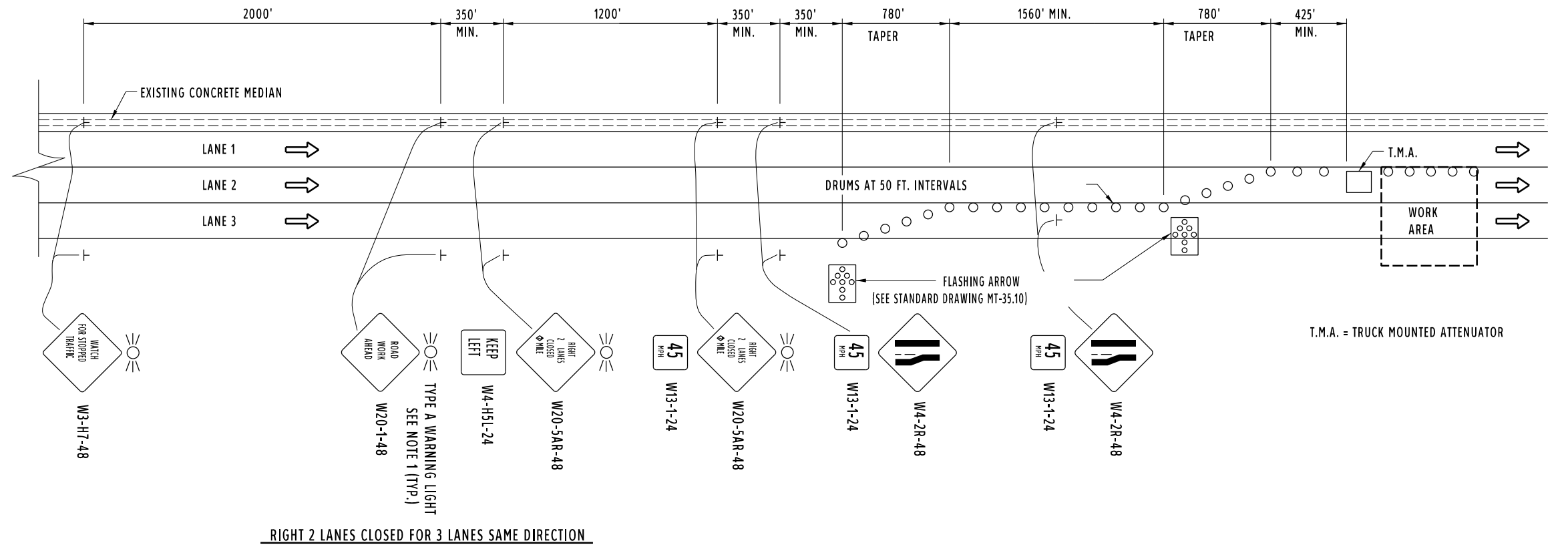
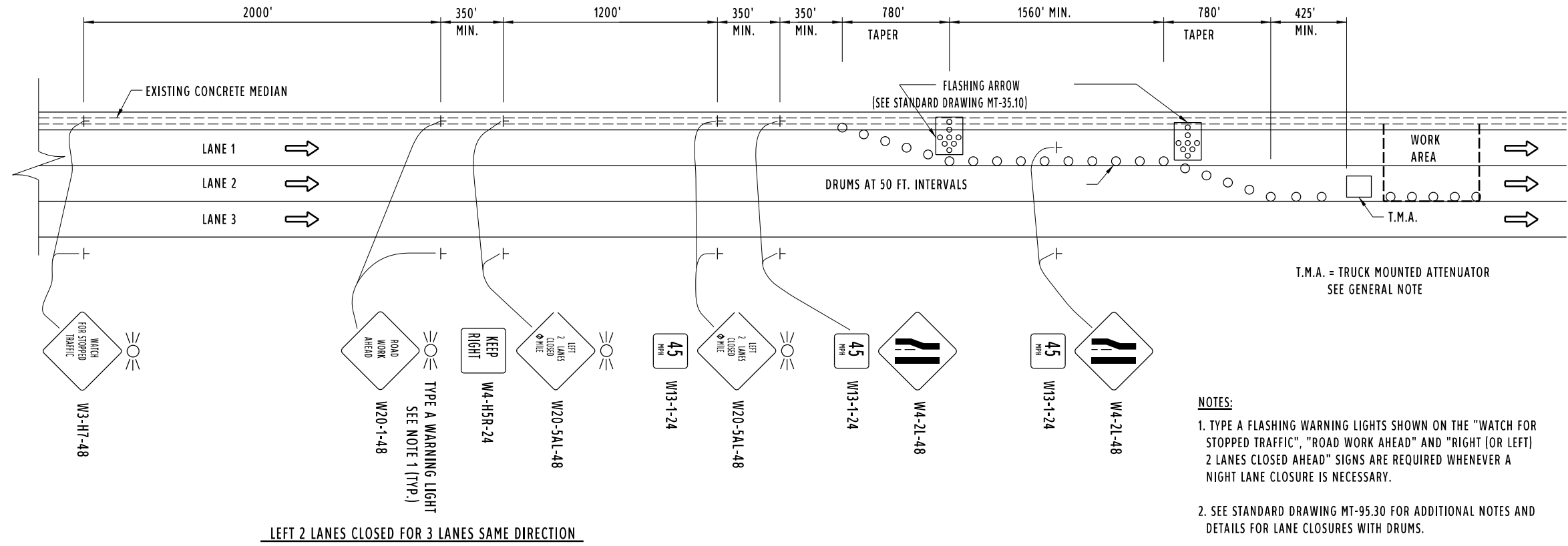
614 PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN, 2 SIGN MONTH

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MAINTENANCE OF TRAFFIC

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SHEET NUM.										PART.		ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
						2	3			01/MS/PV		EXT	TOTAL				
						900				900		203	10000	900	CY	EXCAVATION	
						200				200		203	35120	200	CY	GRANULAR MATERIAL, TYPE C	
						900				900		204	50000	900	SY	GEOTEXTILE FABRIC	
										1,000		832	30000	1,000	EACH	EROSION CONTROL	
						50				50		605	05201	50	FT	4" UNCLASSIFIED PIPE UNDERDRAINS, AS PER PLAN	2
						50				50		605	11111	50	FT	6" SHALLOW PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC, AS PER PLAN	2
						50				50		605	13301	50	FT	6" UNCLASSIFIED PIPE UNDERDRAINS, AS PER PLAN	2
						10				10		611	00410	10	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
						1				1		611	99710	1	EACH	PRECAST REINFORCED CONCRETE OUTLET	
						2,500				2,500		255	10501	2,500	SY	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS RRCM, AS PER PLAN	2
						4,388				4,388		255	20000	4,388	FT	FULL DEPTH PAVEMENT SAWING	
						700				700		304	20000	700	CY	AGGREGATE BASE	
						1				1		646	10010	1	MILE	EDGE LINE, 6"	
						3				3		646	10110	3	MILE	LANE LINE, 6"	
						200				200		646	10310	200	FT	CHANNELIZING LINE, 12"	
							180					614	11110	180	hour	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
						4						614	12410	4	EACH	SPEED ZONE AHEAD SYMBOL SIGN	
												614	12470	28	EACH	WORK ZONE SPEED LIMIT SIGN	
												614	18600	2	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN	
										LS		614	11000	LS		MAINTAINING TRAFFIC	
										LS		623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
										LS		624	10000	LS		MOBILIZATION	

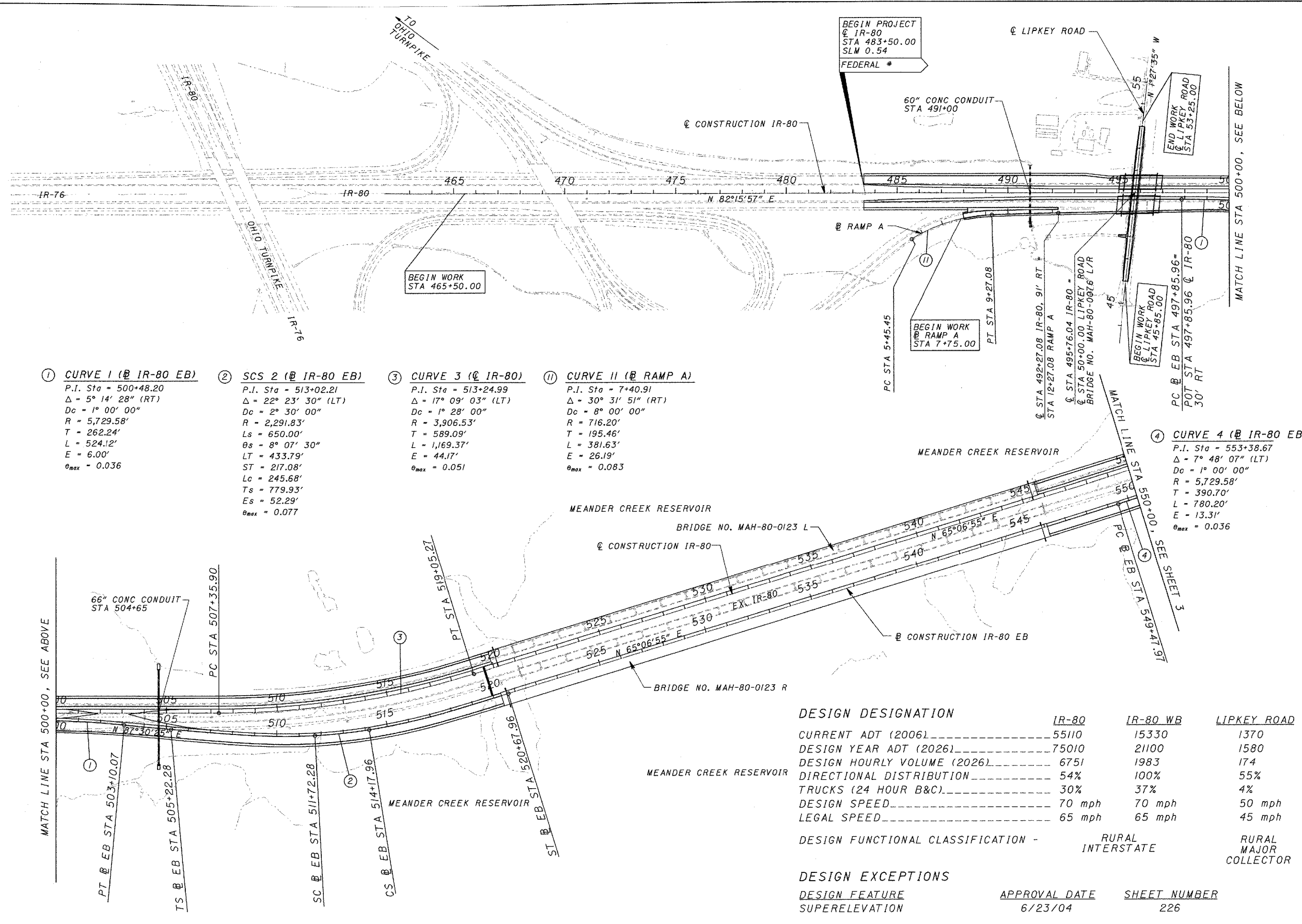
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GENERAL SUMMARY			
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EXISTING PLANS FOR REFERENCE ONLY
 JOINT REPAIR LOCATIONS TO BE DETERMINED BY THE PROJECT ENGINEER.



0 200 400
 HORIZONTAL
 SCALE IN FEET



① **CURVE 1 (@ IR-80 EB)**
 P.I. Sta = 500+48.20
 $\Delta = 5^\circ 14' 28''$ (RT)
 $Dc = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 262.24'$
 $L = 524.12'$
 $E = 6.00'$
 $e_{max} = 0.036$

② **SCS 2 (@ IR-80 EB)**
 P.I. Sta = 513+02.21
 $\Delta = 22^\circ 23' 30''$ (LT)
 $Dc = 2^\circ 30' 00''$
 $R = 2,291.83'$
 $Ls = 650.00'$
 $\theta_s = 8^\circ 07' 30''$
 $LT = 433.79'$
 $ST = 217.08'$
 $Lc = 245.68'$
 $Ts = 779.93'$
 $Es = 52.29'$
 $e_{max} = 0.077$

③ **CURVE 3 (@ IR-80)**
 P.I. Sta = 513+24.99
 $\Delta = 17^\circ 09' 03''$ (LT)
 $Dc = 1^\circ 28' 00''$
 $R = 3,906.53'$
 $T = 589.09'$
 $L = 1,169.37'$
 $E = 44.17'$
 $e_{max} = 0.051$

④ **CURVE II (@ RAMP A)**
 P.I. Sta = 7+40.91
 $\Delta = 30^\circ 31' 51''$ (RT)
 $Dc = 8^\circ 00' 00''$
 $R = 716.20'$
 $T = 195.46'$
 $L = 381.63'$
 $E = 26.19'$
 $e_{max} = 0.083$

⑤ **CURVE 4 (@ IR-80 EB)**
 P.I. Sta = 553+38.67
 $\Delta = 7^\circ 48' 07''$ (LT)
 $Dc = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 390.70'$
 $L = 780.20'$
 $E = 13.31'$
 $e_{max} = 0.036$

DESIGN DESIGNATION

	IR-80	IR-80 WB	LIPKEY ROAD
CURRENT ADT (2006)	55110	15330	1370
DESIGN YEAR ADT (2026)	75010	21100	1580
DESIGN HOURLY VOLUME (2026)	6751	1983	174
DIRECTIONAL DISTRIBUTION	54%	100%	55%
TRUCKS (24 HOUR B&C)	30%	37%	4%
DESIGN SPEED	70 mph	70 mph	50 mph
LEGAL SPEED	65 mph	65 mph	45 mph

DESIGN FUNCTIONAL CLASSIFICATION - RURAL INTERSTATE RURAL MAJOR COLLECTOR

DESIGN EXCEPTIONS

DESIGN FEATURE	APPROVAL DATE	SHEET NUMBER
SUPERELEVATION	6/23/04	226

SCHEMATIC PLAN
STA 465+50 TO STA 550+00

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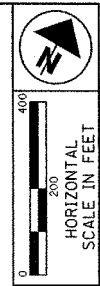
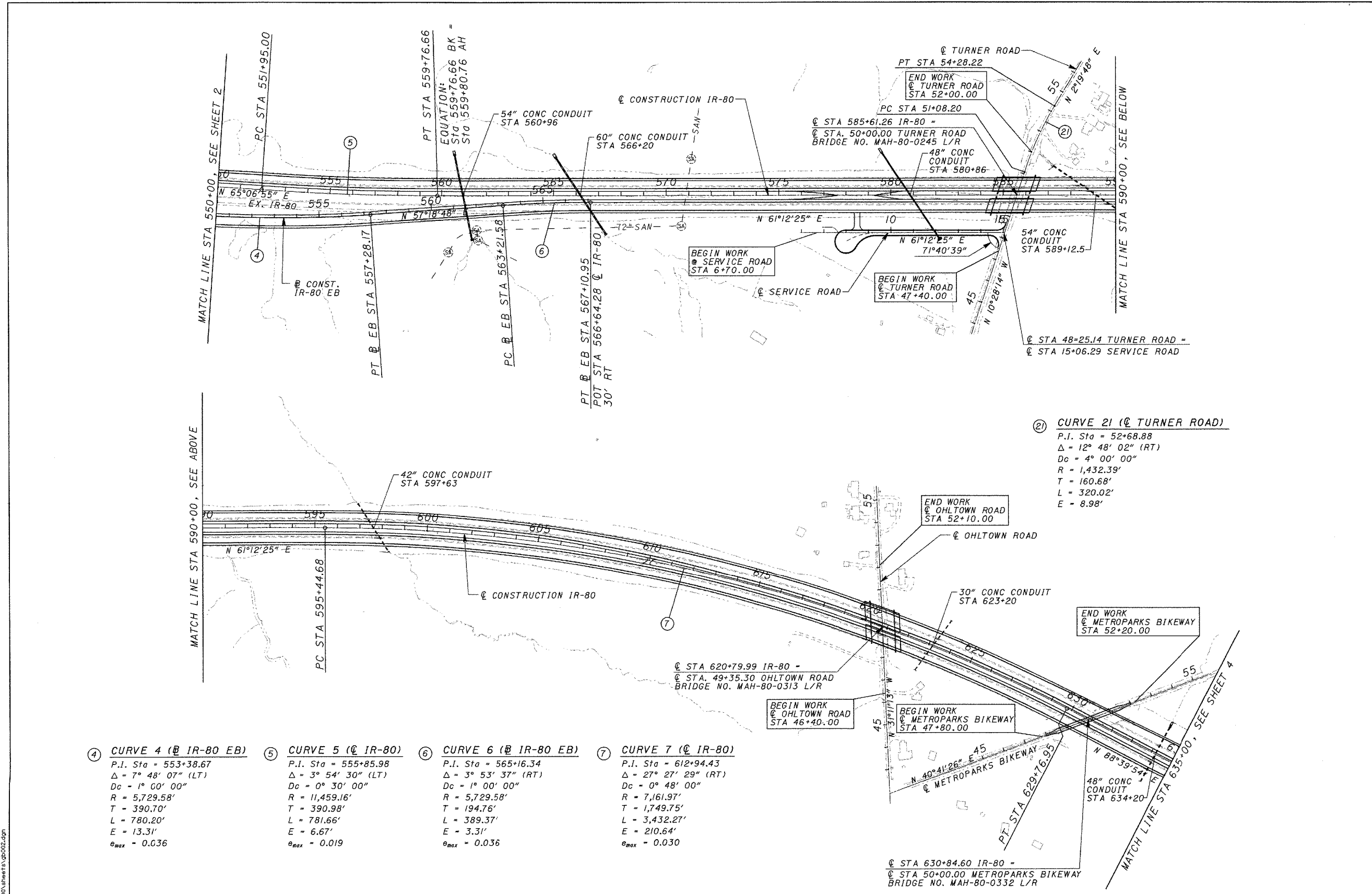
EXISTING PLANS - REFERENCE ONLY

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EXISTING PLANS FOR REFERENCE ONLY
 JOINT REPAIR LOCATIONS TO BE DETERMINED BY THE PROJECT ENGINEER.



Schematic Plan
 STA 550+00 TO STA 635+00

- ④ **CURVE 4 (@ IR-80 EB)**
 P.I. Sta = 553+38.67
 $\Delta = 7^\circ 48' 07''$ (LT)
 $D_c = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 390.70'$
 $L = 780.20'$
 $E = 13.31'$
 $e_{max} = 0.036$
- ⑤ **CURVE 5 (@ IR-80)**
 P.I. Sta = 555+85.98
 $\Delta = 3^\circ 54' 30''$ (LT)
 $D_c = 0^\circ 30' 00''$
 $R = 11,459.16'$
 $T = 390.98'$
 $L = 781.66'$
 $E = 6.67'$
 $e_{max} = 0.019$
- ⑥ **CURVE 6 (@ IR-80 EB)**
 P.I. Sta = 565+16.34
 $\Delta = 3^\circ 53' 37''$ (RT)
 $D_c = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 194.76'$
 $L = 389.37'$
 $E = 3.31'$
 $e_{max} = 0.036$
- ⑦ **CURVE 7 (@ IR-80)**
 P.I. Sta = 612+94.43
 $\Delta = 27^\circ 27' 29''$ (RT)
 $D_c = 0^\circ 48' 00''$
 $R = 7,161.97'$
 $T = 1,749.75'$
 $L = 3,432.27'$
 $E = 210.64'$
 $e_{max} = 0.030$

- ② **CURVE 21 (@ TURNER ROAD)**
 P.I. Sta = 52+68.88
 $\Delta = 12^\circ 48' 02''$ (RT)
 $D_c = 4^\circ 00' 00''$
 $R = 1,432.39'$
 $T = 160.68'$
 $L = 320.02'$
 $E = 8.98'$

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EXISTING PLANS - REFERENCE ONLY

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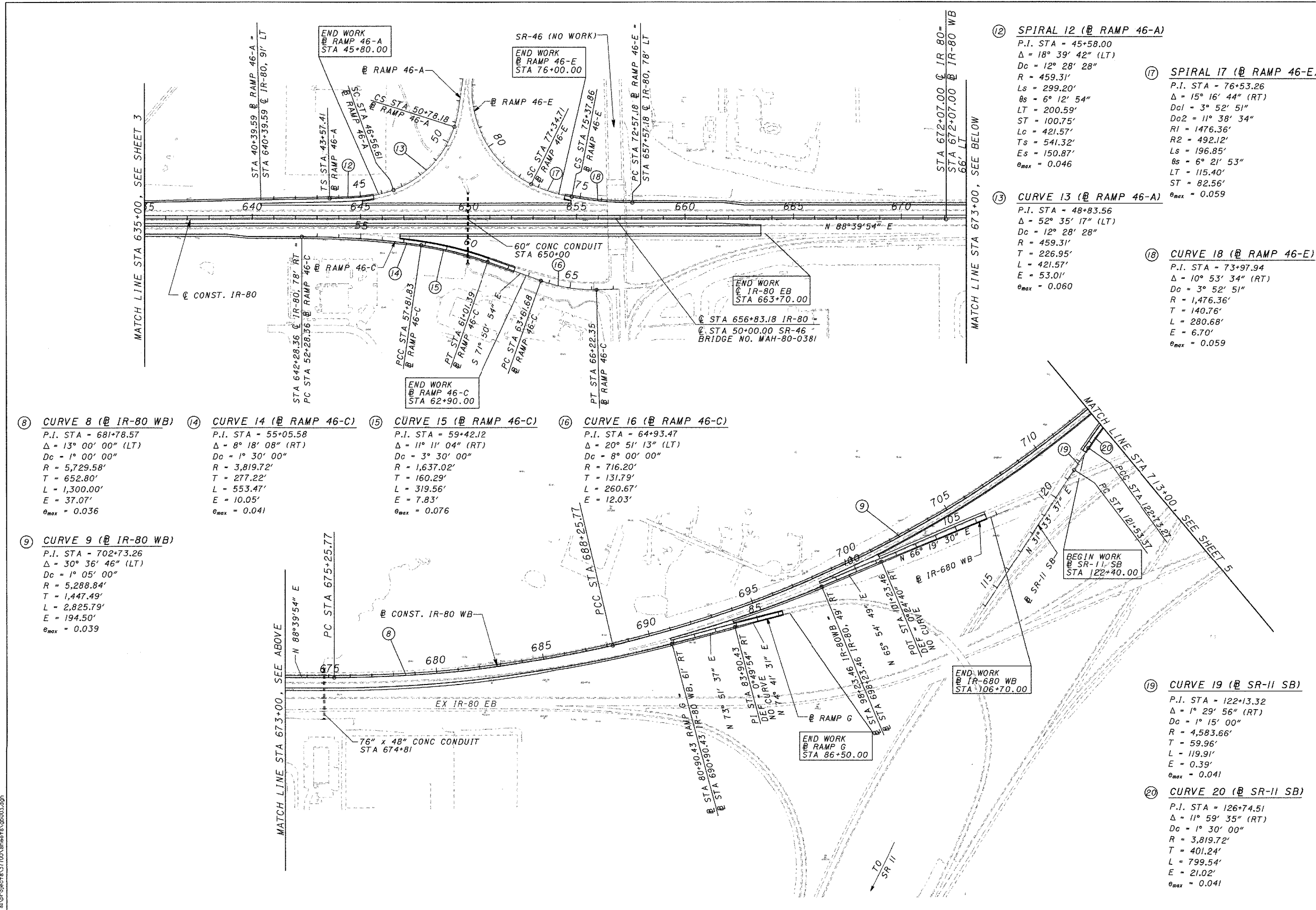
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EXISTING PLANS FOR REFERENCE ONLY
 JOINT REPAIR LOCATIONS TO BE DETERMINED BY THE PROJECT ENGINEER.



CALCULATED
 TFS
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 RMB



⑧ CURVE 8 (@ IR-80 WB)
 P.I. STA = 681+78.57
 $\Delta = 13^\circ 00' 00''$ (LT)
 $Dc = 1^\circ 00' 00''$
 $R = 5,729.58'$
 $T = 652.80'$
 $L = 1,300.00'$
 $E = 37.07'$
 $\theta_{max} = 0.036$

⑨ CURVE 9 (@ IR-80 WB)
 P.I. STA = 702+73.26
 $\Delta = 30^\circ 36' 46''$ (LT)
 $Dc = 1^\circ 05' 00''$
 $R = 5,288.84'$
 $T = 1,447.49'$
 $L = 2,825.79'$
 $E = 194.50'$
 $\theta_{max} = 0.039$

⑭ CURVE 14 (@ RAMP 46-C)
 P.I. STA = 55+05.58
 $\Delta = 8^\circ 18' 08''$ (RT)
 $Dc = 3^\circ 30' 00''$
 $R = 3,819.72'$
 $T = 277.22'$
 $L = 553.47'$
 $E = 10.05'$
 $\theta_{max} = 0.041$

⑮ CURVE 15 (@ RAMP 46-C)
 P.I. STA = 59+42.12
 $\Delta = 11^\circ 11' 04''$ (RT)
 $Dc = 3^\circ 30' 00''$
 $R = 1,637.02'$
 $T = 160.29'$
 $L = 319.56'$
 $E = 7.83'$
 $\theta_{max} = 0.076$

⑯ CURVE 16 (@ RAMP 46-C)
 P.I. STA = 64+93.47
 $\Delta = 20^\circ 51' 13''$ (LT)
 $Dc = 8^\circ 00' 00''$
 $R = 716.20'$
 $T = 131.79'$
 $L = 260.67'$
 $E = 12.03'$

⑫ SPIRAL 12 (@ RAMP 46-A)
 P.I. STA = 45+58.00
 $\Delta = 18^\circ 39' 42''$ (LT)
 $Dc = 12^\circ 28' 28''$
 $R = 459.31'$
 $Ls = 299.20'$
 $\theta_s = 6^\circ 12' 54''$
 $LT = 200.59'$
 $ST = 100.75'$
 $Lc = 421.57'$
 $Ts = 541.32'$
 $Es = 150.87'$
 $\theta_{max} = 0.046$

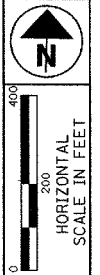
⑰ SPIRAL 17 (@ RAMP 46-E)
 P.I. STA = 76+53.26
 $\Delta = 15^\circ 16' 44''$ (RT)
 $Dc1 = 3^\circ 52' 51''$
 $Dc2 = 11^\circ 38' 34''$
 $R1 = 1476.36'$
 $R2 = 492.12'$
 $Ls = 196.85'$
 $\theta_s = 6^\circ 21' 53''$
 $LT = 115.40'$
 $ST = 82.56'$
 $\theta_{max} = 0.059$

⑬ CURVE 13 (@ RAMP 46-A)
 P.I. STA = 48+83.56
 $\Delta = 52^\circ 35' 17''$ (LT)
 $Dc = 12^\circ 28' 28''$
 $R = 459.31'$
 $T = 226.95'$
 $L = 421.57'$
 $E = 53.01'$
 $\theta_{max} = 0.060$

⑱ CURVE 18 (@ RAMP 46-E)
 P.I. STA = 73+97.94
 $\Delta = 10^\circ 53' 34''$ (RT)
 $Dc = 3^\circ 52' 51''$
 $R = 1,476.36'$
 $T = 140.76'$
 $L = 280.68'$
 $E = 6.70'$
 $\theta_{max} = 0.059$

⑲ CURVE 19 (@ SR-11 SB)
 P.I. STA = 122+13.32
 $\Delta = 1^\circ 29' 56''$ (RT)
 $Dc = 1^\circ 15' 00''$
 $R = 4,583.66'$
 $T = 59.96'$
 $L = 119.91'$
 $E = 0.39'$
 $\theta_{max} = 0.041$

⑳ CURVE 20 (@ SR-11 SB)
 P.I. STA = 126+74.51
 $\Delta = 11^\circ 59' 35''$ (RT)
 $Dc = 1^\circ 30' 00''$
 $R = 3,819.72'$
 $T = 401.24'$
 $L = 799.54'$
 $E = 21.02'$
 $\theta_{max} = 0.041$



SCHEMATIC PLAN
 STA 635+00 TO STA 713+00

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EXISTING PLANS - REFERENCE ONLY

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