OHIO DEPARTMENT OF TRANSPORTATION

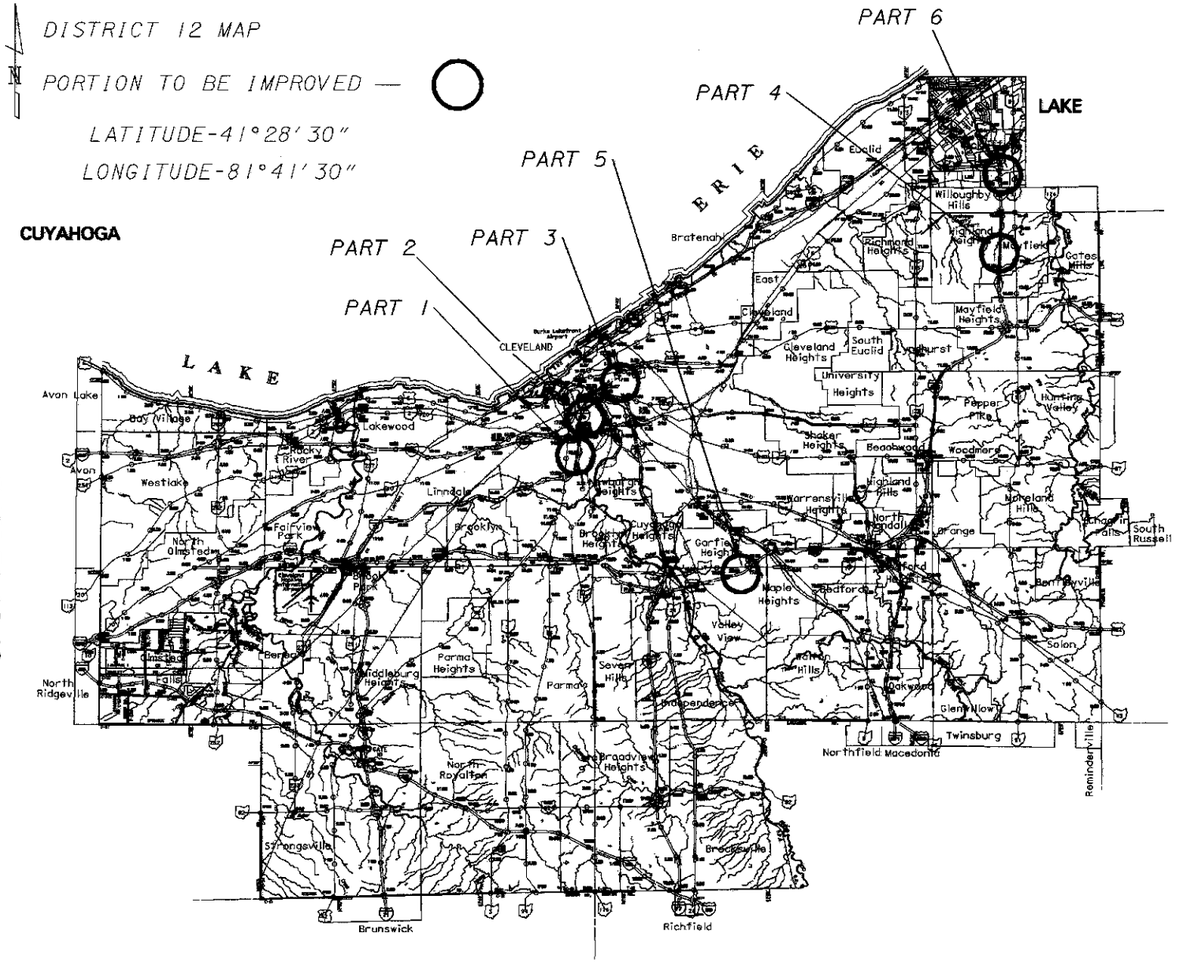
PART	BRIDGE SECTION	STRUCTURE FILE NUMBER	CITY	FEATURE INTERSECTED	WORK LIMITS BEGIN	WORK LIMITS END
1	CUY-71-1848	1805495	CLEVELAND	BURHER PEDESTRIAN BRIDGE	4+10.46	7+81.21
2	CUY-90-1599	1809393	CLEVELAND	CENTRAL VIADUCT EAST APPROACH	3+88.00	54+65.00
3	CUY-90-1704	1807927	CLEVELAND	INNERBELT UNDERPASS AT PROSPECT AVE.	10+33.33	11+97.63
4	CUY-271-1543	1811851	MAYFIELD	HIGHLAND RD OVERPASS	7+74.46	11+61.64
5	CUY-480-1955	1812556	GA. HEIGHTS	TRANSPORTATION BLVD OVERPASS	17+71.74	21+80.08
6	LAK-271-0145SW	4305523	WILLOUGHBY HILLS	IR 271 NB TO IR 90 WB CONNECTOR	19+97.00	25+84.00

DISTRICT 12 MAP

PORTION TO BE IMPROVED —

LATITUDE-41°28'30"

LONGITUDE-81°41'30"



Project Description:
Pier repair,
Sealing concrete surfaces

1997 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND PROPOSAL SHALL GOVERN THESE IMPROVEMENTS.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THESE IMPROVEMENTS WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAYS AND PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS & ESTIMATES.

Approved _____ District Deputy Director

Date 2.10.99

STATE OF OHIO
MICHAEL J. MALLOY
E-60048
REGISTERED
PROFESSIONAL ENGINEER

Approved _____ Director, Department of Transportation

Date 8-4-99

INDEX OF SHEETS:

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

PLAN PREPARED BY:
OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 12
PRODUCTION DEPARTMENT

STANDARD DRAWINGS		STANDARD DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
MT-35.10M	1/30/95	MT-105.10	07/01/92	843	05/05/98
MT-35.11M	1/30/95	MT-105.11	07/01/92		
MT-95.31M	04/25/94				
MT-95.32M	04/25/94	TC-52.10	04/03/79		
MT-97.10	04/29/88	TC-52.20	04/03/79		

FEDERAL PROJECT NO. NON-FEDERAL

PID NO. 20564

CONSTRUCTION PROJECT NO. CUYAHOGA COUNTY CUY-71-18.48/VAR

RAILROAD INVOLVEMENT NONE

1/10

PLOT SUBMITTED:02-JUL-1999 13:16

20564GTA.DGN

CUY-71-18.48
990681
DIST 12

PID#20564
10-13-99

PART 2
CUY-90-1599

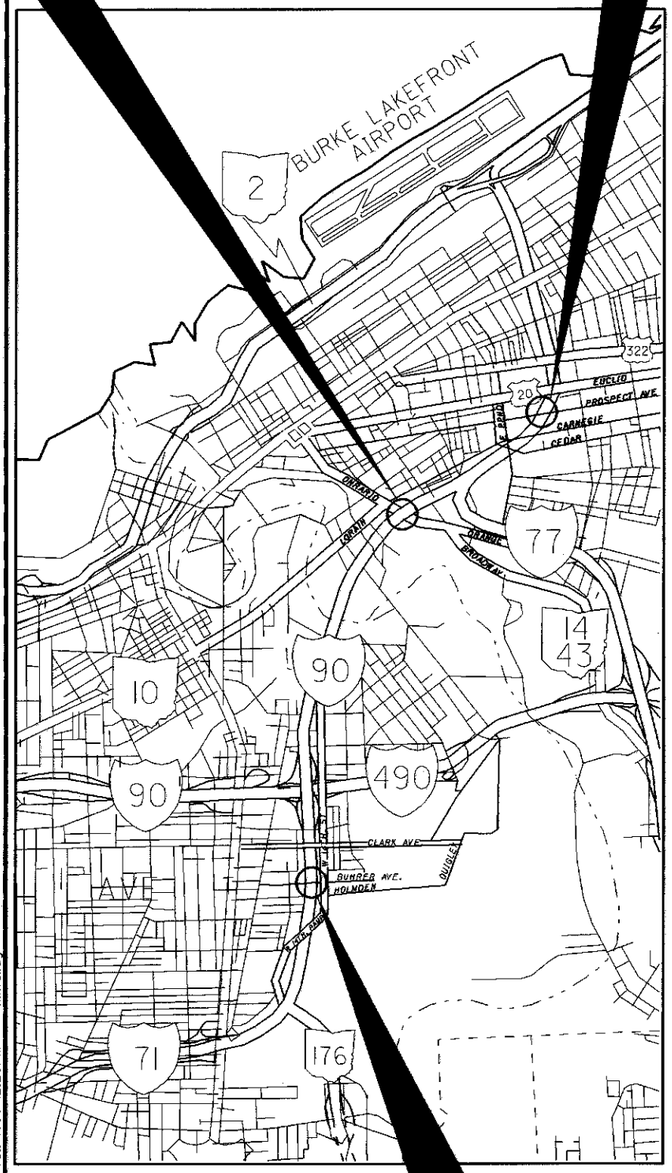
PART 3
CUY-90-1704

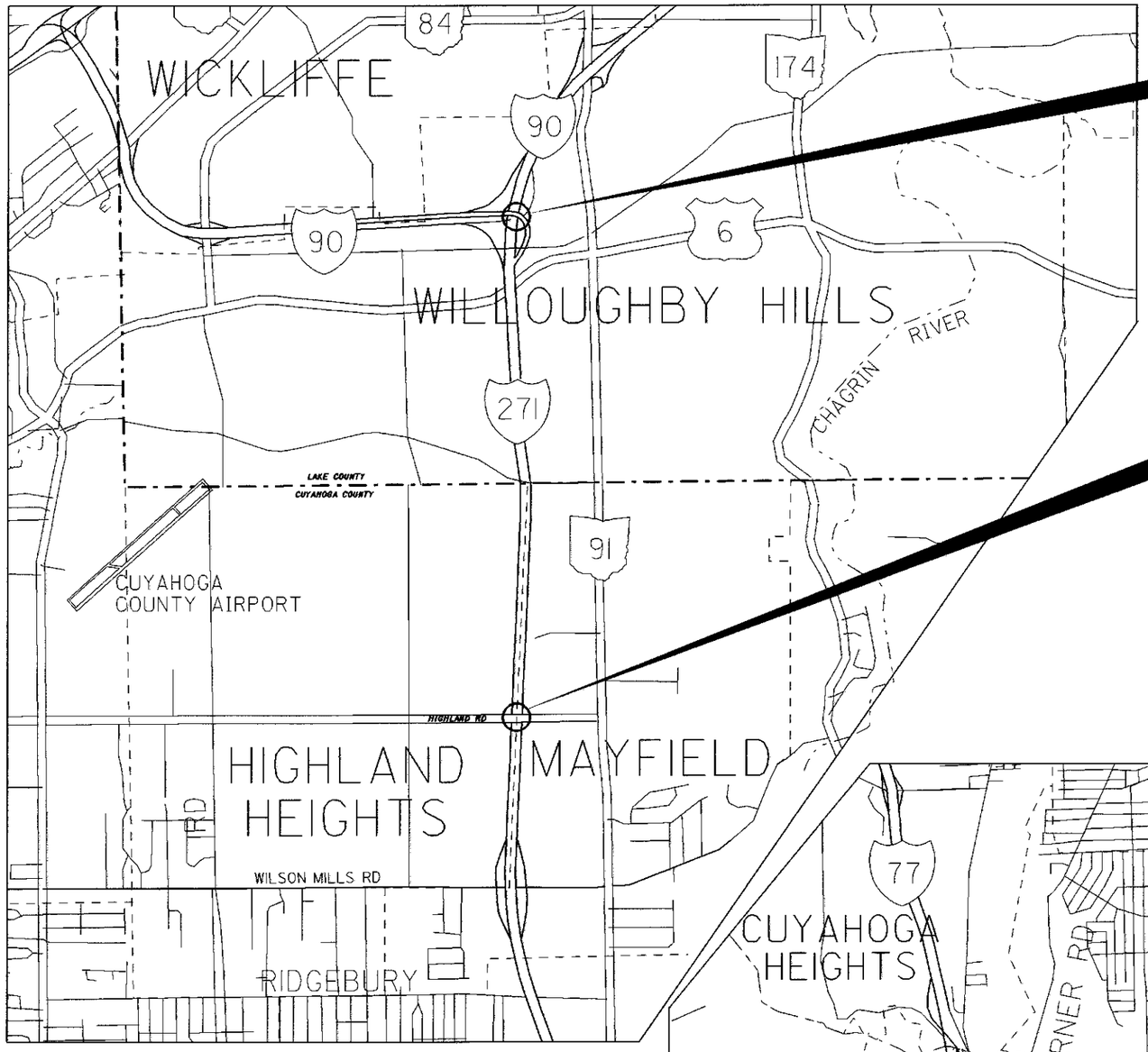
PART 6
LAK-271-0145 SW

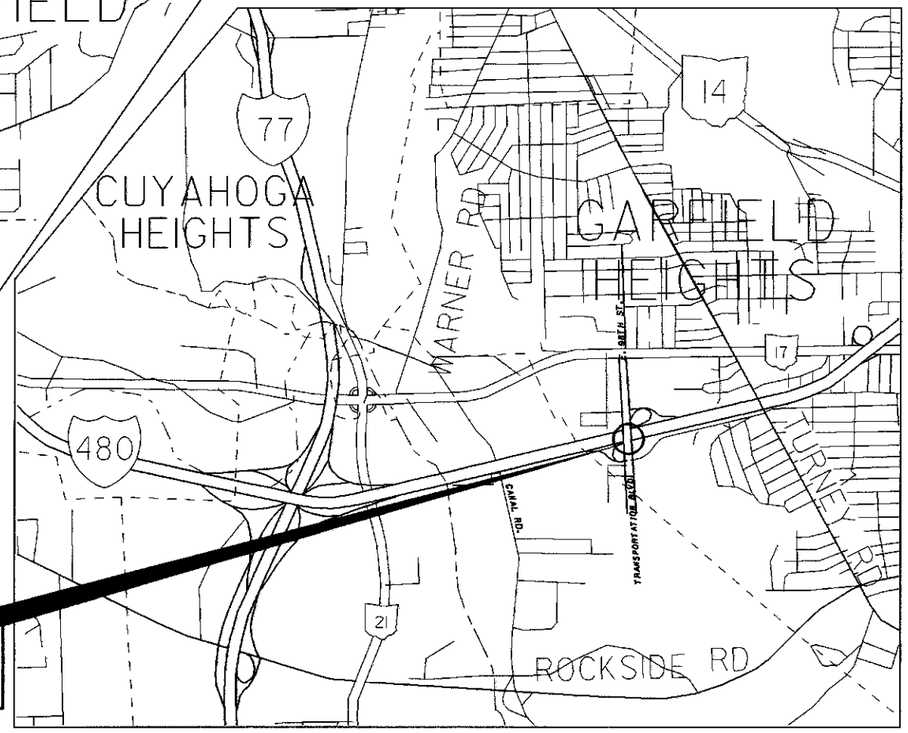
PART 4
CUY-271-1543

PART 1
CUY-71-1848

PART 5
CUY-480-1955







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LOCATION MAP

CUYAHOGA COUNTY
CUY-71-18.48/VAR

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PROPOSAL NOTES

SEALING OF CONCRETE SURFACES

CONVERSION OF METRIC STANDARD DRAWINGS:

THE METRIC STANDARD DRAWINGS REFERENCED IN THIS PLAN SHALL BE CONVERTED TO ENGLISH UNITS USING THE SI (METRIC) TO ENGLISH CONVERSION FACTORS PROVIDED IN SECTION 109.011 OF THE CMS. THE APPENDIX OF ASTM E 380 SHALL BE UTILIZED FOR ANY ADDITIONAL CONVERSION FACTORS REQUIRED. CONVERSIONS SHALL BE APPROXIMATELY PRECISE AND SHALL REFLECT STANDARD INDUSTRY ENGLISH VALUES WHERE SUITABLE.

EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO C.M.S. SECTIONS 102.05 AND 105.02. THE ORIGINAL CONSTRUCTION PLANS OF THE EXISTING BRIDGE ARE AVAILABLE UPON REQUEST AT THE DISTRICT 12 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, GARFIELD HEIGHTS, OHIO.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PRE-BID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED ON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996, INCLUDING THE 1997 INTERIM SPECIFICATIONS, AND THE ODOT BRIDGE DESIGN MANUAL.

SEALING OF CONCRETE SURFACES

THE FOLLOWING LOCATIONS SHALL BE SEALED WITH A URETHANE TOP COAT SEALER

PARTS 1 THROUGH 6

THE SURFACE OF THE FINAL LAYER OF INSTALLED FIBER WRAP. THE URETHANE TOP COAT COLOR SHALL BE EITHER BUFF OR GREY WHICHEVER COLOR MOST CLOSELY MATCHES THE COLOR OF THE EXISTING SEALER ON THE BRIDGE.

THE FOLLOWING LOCATIONS SHALL BE SEALED WITH AN EPOXY-URETHANE SEALER.

PARTS 4 AND 5

ALL PIER COLUMNS FROM THE GROUND ELEVATION OR TOP OF THE PARAPET, TO THE BOTTOM OF THE PIER CAP.

AREAS RECEIVING FIBER WRAP SHALL NOT BE SEALED WITH EPOXY-URETHANE. THE FINAL COAT SHALL BE COLORED EITHER BUFF OR GREY, WHICHEVER COLOR MOST CLOSELY MATCHES THE COLOR OF THE EXISTING SEALER ON THE BRIDGE.

ITEM SPECIAL - STRUCTURE MISC.: COMPOSITE FIBER WRAP SYSTEM

DESCRIPTION:

THIS WORK SHALL CONSIST OF PROVIDING AND INSTALLING A FIBER WRAP COLUMN

PREPARATION, WRAPPING THE COLUMN, AND ALL INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION PER THE MANUFACTURER'S REQUIREMENTS.

MATERIALS:

SUPPLIERS SHALL HAVE A MINIMUM OF 10 INSTALLATIONS AND FURNISH CERTIFIED TEST REPORTS INCLUDING 1000 HOUR TESTS FOR 140° F. WATER, SALT WATER, ALKALINE SOIL, OZONE, AND EFFERVESCENCE IN ADDITION TO THE REQUIREMENTS LISTED BELOW. FIBER COMPOSITE SUPPLIER SHALL ALSO HAVE CONDUCTED LABORATORY RESEARCH ON DELAMINATED COLUMNS DEMONSTRATING THAT THE REPAIRED COLUMN EXCEEDS THE ORIGINAL DESIGN IN AXIAL STRENGTH AND DUCTILITY.

THE FABRIC FOR THE COMPOSITE CASING SHALL BE CONTINUOUS FILAMENT WOVEN FABRIC. PRIMARY FIBERS FOR THE FABRIC SHALL BE (E) ELECTRICAL GLASS FIBERS. THE FABRIC SHALL HAVE A MINIMUM NOMINAL THICKNESS OF 0.05 INCHES. THE MINIMUM WEIGHT OF THE FABRIC SHALL BE 27.0 OUNCES PER SQUARE YARD.

THE EPOXY SHALL BE AS SUPPLIED BY THE MANUFACTURER TO MEET THE COMPOSITE STRENGTH GIVEN BELOW. POLYESTER RESIN SHALL NOT BE ALLOWED AS A SUBSTITUTE FOR EPOXY RESIN.

THE COMPOSITE OF THE FIBER WRAPPED COLUMN CASING SYSTEM SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

PROPERTY	REQUIREMENT	ASTM TEST METHOD
ULTIMATE TENSILE STRENGTH, PSI, MIN. IN PRIMARY FIBER DIRECTION,	60,000 PSI	D3039, AVERAGE OF 7, 1" BY 10" NORMALIZED TO 0.80" THICK .01" PER MIN. TESTING SPEED.
ULTIMATE TENSILE STRENGTH, PSI, MIN. IN ORTHOGONAL FIBER DIRECTION,	3,000 PSI	D3039, AVERAGE OF 7, 1" BY 10" NORMALIZED TO 0.80" THICK .01" PER MIN. TESTING SPEED.
TENSILE STRENGTH(MIN AFTER TEST) 1000 HOURS EXPOSURE TO 100% HUMIDITY	60,000 PSI	C 581
TENSILE STRENGTH(MIN AFTER TEST) 1000 HOURS EXPOSURE TO OZONE	60,000 PSI	D 1149 EXCEPT NOT UNDER STRESS DURING OZONE EXPOSURE
TENSILE STRENGTH(MIN AFTER TEST) 1000 HOURS EXPOSURE TO ALKALI	60,000 PSI	D 3083 USING SOIL BURIAL BURIAL - WATER CONTENT OF 73% +/- 3%
TENSILE STRENGTH(MIN AFTER TEST) 1000 HOURS EXPOSURE TO SALT WATER	60,000 PSI	C 581 AND D 1141 OMITTING ADDITION OF HEAVY METAL REAGENTS
TENSILE STRENGTH(MIN AFTER TEST) 1000 HOURS EXPOSURE AT 140 DEGREES F.	60,000 PSI	D 3045
TENSILE STRENGTH(MIN AFTER TEST) ULTRAVIOLET (UV) EXPOSURE	60,000 PSI	G 53 USING FS 40 UV-B BULBS FOR A MINIMUM 38 CYCLES. THE CYCLE SHALL BE 4 HOURS OF CONDENSATE EXPOSURE AT 40 DEGREES C
ELONGATION PERCENT, MIN PERCENT, MAX	1.7% 5.0%	
TENSILE MODULUS, PSI MIN. OF PRIMARY FIBERS	3,000,000	
VISUAL DEFECTS	ACCEPTANCE LEVEL III	D 2563
COEFFICIENT OF THERMAL EXPANSION IN PRIMARY DIRECTION	4,300,000 PPM/DEG. F (+ 15%)	E 1142

DESIGN AGENCY
O.D.O.T.
DISTRICT 12
PRODUCTION DEPARTMENT

DESIGNED MJM
DRAWN MJM
CHECKED JWT
REVISED
REVIEWED NRC
DATE 6-99
SUBSURFACE FILE NUMBER SEE TITLE SHEET

CUYAHOGA COUNTY
LAKE COUNTY
CUY-17-1848 VARIOUS

GENERAL NOTES

10

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SURFACE PREPARATION

THE SURFACE TO RECEIVE THE COMPOSITE WRAP SHALL BE FREE FROM FINS, SHARP EDGES AND PROTRUSIONS THAT WILL CAUSE VOIDS BEHIND THE CASING OR THAT, IN THE OPINION OF THE ENGINEER, WILL DAMAGE THE FIBER. IN ADDITION, THE SURFACE SHALL BE SMOOTH AND FREE OF VOIDS OR UNDULATIONS THAT WOULD PREVENT FULL CONTACT BETWEEN THE CONCRETE AND THE FIBER WRAP.

THE CONTACT SURFACES OF THE CONCRETE SHALL BE COMPLETELY DRY AT THE TIME OF APPLICATION OF THE COMPOSITE. NEWLY REPAIRED OR PATCHED SURFACES THAT HAVE SET BUT NOT CURED A MINIMUM OF 7 DAYS SHALL BE COATED WITH WATER-BASED EPOXY PAINT OR OTHER APPROVED SEALER.

COMPOSITE APPLICATION

THE AMBIENT TEMPERATURE AND THE TEMPERATURE OF THE EPOXY RESIN COMPONENTS SHALL BE BETWEEN 55° F AND 95° F AT THE TIME OF MIXING. THE COMPOSITE SHALL BE APPLIED WHEN THE RELATIVE HUMIDITY IS LESS THAN 85% AND THE SURFACE TEMPERATURE IS MORE THAN 5° F ABOVE THE DEW POINT. APPLICATION SHALL BEGIN WITHIN ONE HOUR AFTER THE BATCH HAS BEEN MIXED.

THE COMPONENTS OF THE EPOXY RESIN SHALL BE MIXED WITH A MECHANICAL MIXER AND APPLIED UNIFORMLY TO THE FIBER AT A RATE THAT SHALL INSURE COMPLETE SATURATION OF THE FABRIC.

THE FABRIC/EPOXY COMPOSITE SHALL BE APPLIED TO THE SURFACE OF THE COLUMN BY WRAPPING USING METHODS THAT PRODUCE A UNIFORM FORCE THAT IS DISTRIBUTED ACROSS THE ENTIRE WIDTH OF THE FABRIC. THE PRIMARY FIBERS OF THE FABRIC SHALL NOT DEVIATE FROM A HORIZONTAL LINE MORE THAN 1/2 INCH PER FOOT, AND THE TRANSVERSE FIBERS SHALL BE PERPENDICULAR TO THE PRIMARY. ENTRAPPED AIR SHALL BE RELEASED OR ROLLED OUT BEFORE THE EPOXY SETS.

SUCCESSIVE LAYERS OF COMPOSITE MATERIALS SHALL BE PLACED BEFORE POLYMERIZATION OF THE PREVIOUS LAYER OF EPOXY IS TOO DRY TO ACHIEVE ADEQUATE BOND BETWEEN LAYERS. IF POLYMERIZATION DOES OCCUR BETWEEN LAYERS THE SURFACE MUST BE ROUGHENED USING A LIGHT ABRASIVE THAT WILL NOT DAMAGE THE FIBER.

THE FINAL LAYER OF EPOXY SHALL BE APPLIED TO THE FINAL LAYER, WITH CARE TAKEN TO INSURE COATING OF ALL EDGES AND SEAMS. SPACES BETWEEN THE BANDS OF FABRIC SHALL BE FILLED WITH EPOXY THICKENED AS DIRECTED BY THE MANUFACTURER.

COATING SYSTEM APPLICATION

A FINAL COATING IS REQUIRED TO PROTECT THE FIBERS FROM THE ELEMENTS, SPECIFICALLY UV RADIATION AND TO GIVE THE FINAL AESTHETIC EFFECT.

(AFTER 96 HOURS FROM THE FINAL APPLICATION OF EPOXY) IF THE FINAL EPOXY COAT IS COMPLETELY POLYMERIZED THE EXTERIOR SURFACES OF THE COMPOSITE WRAP SHALL BE CLEANED AND ROUGHENED BY A LIGHT ABRASIVE. CARE SHOULD BE TAKEN DURING THE ROUGHENING PROCESS SO THAT THE FIBERS ARE NOT DAMAGED. ALL CLEANED AND ROUGHENED SURFACES SHALL BE DRY BEFORE PAINTING.

THE FIBER WRAP SHALL BE SEALED WITH A URETHANE TOP COAT SEALER.

MEASUREMENT AND PAYMENT

THE BID PRICE SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO PROVIDE AND INSTALL A FIBER WRAP COLUMN CASING SYSTEM USING HIGH STRENGTH, HYBRID FIBER/EPOXY COMPOSITES FIELD APPLIED TO THE COLUMN. INCLUDING ERECTION OF SCAFFOLDING, CLEANING, SURFACE PREPARATION, WRAPPING THE COLUMN, AND ALL INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION PER THE MANUFACTURES REQUIREMENTS.

ITEM	UNIT	DESCRIPTION
SPECIAL	S.F.	STRUCTURE MISC., COMPOSITE FIBER WRAP SYSTEM

DESIGN AGENCY
O.D.O.T.
DISTRICT 12
PRODUCTION DEPARTMENT

DESIGNED MJM | DRAWN MJM | REVIEWED NRC | DATE 6-99
CHECKED JWT | REVISED | STRUCTURE FILE NUMBER SEE TITLE SHEET

GENERAL NOTES

CUYAHOGA COUNTY
LAKE COUNTY
CUY-17-1848 VARIOUS

G E N E R A L S U M M A R Y

ESTIMATED QUANTITIES					PART	1	2	3	4	5	6	GENERAL
ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION		(CUY-71-1848)	(CUY-90-1599)	(CUY-90-1704)	(CUY-271-1543)	(CUY-480-1955)	(LAK-271-0145SW)	
SPECIAL	512E67510	372	SQ YD	SEALING CONCRETE SURFACES, (EPOXY-URETHANE)		0	0	0	141	231	0	
SPECIAL	512E71500	586	SQ YD	URETHANE TOP COAT SEALER		15	301	27	94	53	96	
843	843E50000	473	SQ FT	* PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR		32	0	62	189	95	95	
SPECIAL	530E00600	8447	SQ FT	STRUCTURE, MISC.: COMPOSITE FIBER WRAP SYSTEM		264	5426	483	892	506	876	
614	11000	LUMP		MAINTAINING TRAFFIC								LUMP
624	10000	LUMP		MOBILIZATION								LUMP

* ALL OR A PORTION OF THIS ITEM IS SUBJECT TO NON-PERFORMANCE AS DIRECTED BY THE ENGINEER.

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OHIO DEPARTMENT OF TRANSPORTATION
DISTRICT 12 PRODUCTION DEPT.

DESIGNED JWT | DRAWN JWT | REVIEWED NRC | DATE 7/99
CHECKED MJM | REVISED | STRUCTURE FILE NUMBER SEE TITLE SHEET

GENERAL SUMMARY

CUYAHOGA COUNTY
CUY-71-18.48/VAR

FIBER WRAP COLUMN REPAIR TABLE

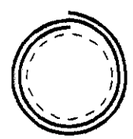
BRIDGE NO.	# SPANS	# PIER COLUMNS	# COLUMNS TO WRAP	COLUMN PERIMETER (FT.)	HEIGHT OF WRAP (H) (FT)	# OF WRAPS (SEE DETAIL A)	COLUMNS TO BE WRAPPED (SEE PLAN DETAIL)	AREA TO BE WRAPPED (SQ.FT.)	AREA OF WRAP (SQ.FT.)
PART 1 CUY-71-1848 I-71 UNDER BUHRER PEDESTRIAN BRIDGE	6	5	1	11	12	2	D-1	132	264
✱ PART 2 CUY-90-1599 I-90 OVER RTA AND ONTARIO ST.	10	77	24	9.42	12	2	G-(1-8) H-(1-8) I-(1-8)	2713	5426
● PART 3 CUY-90-1704 PROSPECT AVE OVER I-90	2	6	1	13.42	18	2	A-1	241.5	483
PART 4 ▲ CUY-271-1543 HIGHLAND RD OVER I-271	6	15	6	9.42	15	1	A-1,A-2,A-3 B-1,E-1,E-2	848	893
PART 5 ▲ CUY-480-1955 E. 98TH STREET OVER I-480	5	16	3	9.42	17	1	B-4 D-3 D-4	480	506
■ PART 6 ▲ LAK-271-0145SW I-271 NB RAMP TO I-90 WB OVER I-90 EB	7	6	1	33.87	25.5	1	F-1	864	876

✱ BECAUSE OF THE OVERWELMING NUMBER OF PIERS ON THIS BRIDGE, FOR THIS PROJECT, PIER G IS CONSIDERED TO BE THE FIRST PIER LINE WEST OF ONTARIO ST., PIER H IS THE MEDIAN PIER, AND PIER I IS THE FIRST PIER LINE EAST OF ONTARIO ST.

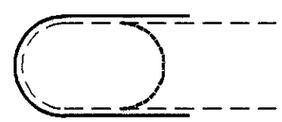
■ FOR PIER NUMBERING PURPOSES, ON THIS BRIDGE, NORTH IS CONSIDERED TO BE POINTING IN THE DIRECTION OF THE TRAFFIC ON THE BRIDGE.

▲ FOR PIERS WITH ONLY ONE WRAP, THE MATERIAL SHALL BE OVERLAPPED 6".

● FIBER WRAP TO EXTEND FROM THE TOP OF THE MEDIAN BARRIER TO THE TOP OF THE LIGHT PEDESTAL.WRAP AREA AT PIER CAP THE SAME PERIMETER AS THE COLUMN. SEE DETAIL B



DETAIL A



DETAIL B

DESIGN AGENCY
O.D.O.T.
DISTRICT 12
PRODUCTION DEPARTMENT

DESIGNED MJM | DRAWN MJM | REVIEWED NRC | DATE 6-99
CHECKED JWT | REVISED | STRUCTURE FILE NUMBER SEE TITLE SHEET

CUYAHOGA COUNTY
LAKE COUNTY
CUY-17-1848 VARIOUS

FIBER WRAP COLUMN REPAIR TABLE

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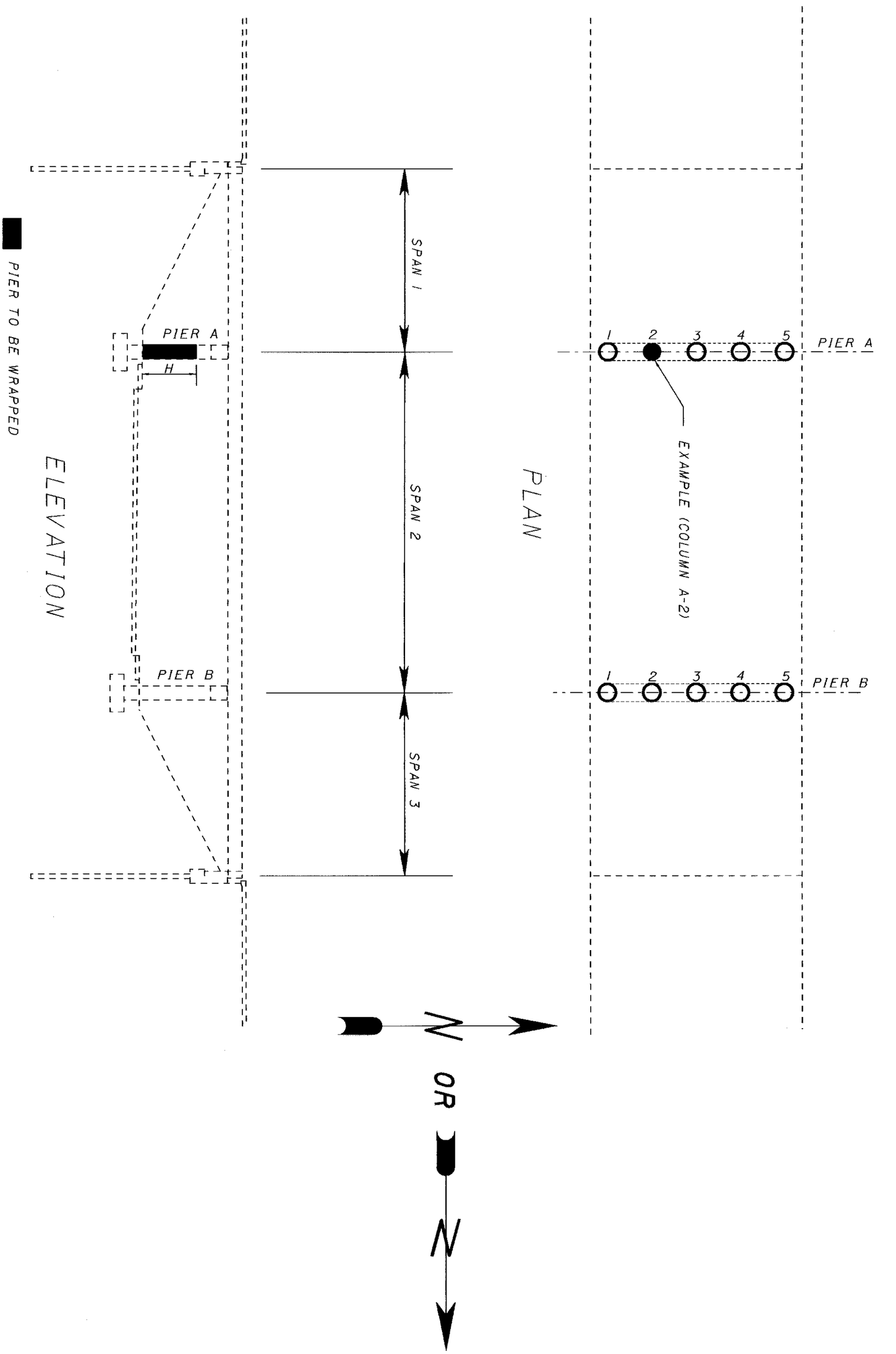

10	CUYAHOGA COUNTY LAKE COUNTY CUY-17-1848 VARIOUS	BRIDGE DATA	DESIGNED MJM	DRAWN MJM	REVIEWED NCR	DATE 6-99	DESIGN AGENCY O.D.O.T. DISTRICT 12 PRODUCTION DEPARTMENT
			CHECKED JWT	REVISED	STRUCTURE FILE NUMBER SEE TITLE SHEET		

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ITEM 614 - MAINTAINING TRAFFIC:

GENERAL

GENERALLY THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS AS TO MAKE THE PROPOSED REPAIR WITH A MINIMUM OF HAZARD, DELAY AND INCONVENIENCE TO THE MOTORISTS USING THE HIGHWAY. FURTHERMORE, IN ADDITION TO THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE FOLLOWING SPECIFIC PROVISIONS ARE MANDATORY.

NOTIFICATION

SINCE FUNCTIONAL TRAFFIC CONTROL IS A MAJOR CONCERN ON THIS PROJECT, IT IS ESSENTIAL THAT THE MOTORING PUBLIC BE ADEQUATELY FOREWARNED ON FUTURE LANE CLOSURES AND TRAFFIC CONSTRICTIONS. THEREFORE, THE CONTRACTOR SHALL SUBMIT A SCHEDULE TO THE OHIO DEPARTMENT OF TRANSPORTATION INDICATING THE LOCATIONS AND DATES OF THE LANE CLOSURES AT LEAST THREE (3) DAYS PRIOR TO THE IMPLEMENTATION OF ANY SUCH CLOSURES. THE CONTRACTOR SHALL ALSO NOTIFY THE LOCAL LAW ENFORCEMENT AGENCIES OF LANE CLOSURES AT LEAST THREE (3) DAYS PRIOR TO IMPLEMENTATION.

RESTRICTIONS

NO LANE OR SHOULDER CLOSURES SHALL BE IN PLACE WHEN NO WORK IS BEING PERFORMED.

NO 2 LANE CLOSURES ARE PERMITTED.

NO LANES SHALL BE CLOSED ON ANY BRIDGE.

AT NO TIME SHALL THE CONTRACTOR LOWER THE VERTICAL CLEARANCE OVER ANY RAIL LINE.

EXIT AND ENTRANCE RAMPS LANES SHALL REMAIN OPEN AT ALL TIMES AND EXHIBIT A MINIMUM WIDTH OF TEN (10) FEET.

AT STRUCTURE	LANE CLOSURES SHALL NOT BE PERMITTED	
CUY-71-1848	IR-71NB	WEEKDAYS 6am-9am
CUY-90-1599	ONTARIO	WEEKDAYS 6am-9am WEEKDAYS 3pm-7pm
CUY-90-1704	IR-90	WEEKDAYS 6am-7pm
CUY-271-1543	IR-271	WEEKDAYS 6am-9am WEEKDAYS 3pm-7pm
CUY-480-1955	IR-480	WEEKDAYS 6am-9am WEEKDAYS 3pm-7pm
LAK-271-0145SW	IR-271	WEEKDAYS 6am-9am

NOTWITHSTANDING THE ABOVE, NO LANE OR SHOULDER CLOSURES SHALL OCCUR DURING THE PERIOD BEGINNING AT 12:00 NOON ON THE DAY PRECEDING AND CONTINUING UNTIL NOON ON THE DAY FOLLOWING LEGAL HOLIDAYS AND HOLIDAY WEEKENDS SUCH AS MEMORIAL DAY, FOURTH OF JULY, AND LABOR DAY. FURTHERMORE, NO LANE CLOSURES SHALL BE IMPLEMENTED OR IN PLACE DURING INCREASED TRAFFIC VOLUMES CAUSED BY SPECIAL EVENTS WITH A SEATING CAPACITY OVER 40,000 OR WHEN THE ENGINEER DEEMS THE CLIMATOLOGICAL CONDITIONS TOO HAZARDOUS.

CONVERSION OF METRIC STANDARD DRAWINGS:

THE METRIC STANDARD DRAWINGS REFERENCED IN THIS PLAN SHALL BE CONVERTED TO ENGLISH UNITS USING THE SI (METRIC) TO ENGLISH CONVERSION FACTORS PROVIDED IN SECTION 109.011 OF THE CMS. THE APPENDIX OF ASTM E 380 SHALL BE UTILIZED FOR ANY ADDITIONAL CONVERSION FACTORS REQUIRED. CONVERSIONS SHALL BE APPROXIMATELY PRECISE AND SHALL REFLECT STANDARD INDUSTRY ENGLISH VALUES WHERE SUITABLE.

MAINTENANCE OF TRAFFIC SYSTEMS

A. WHEN REQUIRED

WHENEVER ANY PART OF THE TRAVELED SURFACE IS BEING WORKED UPON OR IS OTHERWISE NOT SUITABLE FOR SAFE AND CONVENIENT USE BY VEHICLES, TRAFFIC CONTROL DEVICES SUFFICIENT TO PROTECT SUCH AREAS TO ASSURE THE SAFE AND CONVENIENT PASSAGE OF VEHICULAR TRAFFIC SHALL BE INSTALLED AND MAINTAINED. SUCH TRAFFIC CONTROL DEVICES AND THE MANNER IN WHICH THEY ARE USED SHALL BE CONSISTENT WITH THESE PLANS AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (HEREINAFTER REFERRED TO AS THE "MANUAL"). THE TRAFFIC CONTROL DEVICE SYSTEM SHALL CONSTITUTE THE MINIMUM PROVISIONS FOR TRAFFIC CONTROL FOR EACH PARTICULAR SITUATION. WHENEVER THE ENGINEER DEEMS IT NECESSARY ESPECIALLY WHERE A GRADE, CURVE, OR MERGE CONDITIONS EXIST, HE MAY DIRECT THAT ADDITIONAL OR ALTERNATIVE DEVICES BE USED.

B. CONDITIONS

DURING ALL PARTS OF THIS PROJECT, SIGNING, BARRICADES, FLASHING AROWS, ETC. SHALL BE LOCATED AS INDICATED IN THE MANUAL, AS SHOWN ON THE MAINTENANCE OF TRAFFIC SHEETS OR AS SHOWN ON STANDARD DRAWING MT-97.10.

C. ADVANCE WARNING SIGNS

ALL ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS TRAFFIC SHALL BE ERECTED BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHENEVER THEY ARE NOT APPLICABLE.

D. FLASHING ARROW REQUIREMENT

FLASHING ARROWS SHALL BE FURNISHED AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS.

E. PROTECTION OF PUBLIC

WHENEVER ANY WORK IS BEING DONE OVER A TRAVELED LANE OR SHOULDER, THE CONTRACTOR SHALL SUPPLY SUFFICIENT SAFETY EQUIPMENT AS APPROVED BY THE DIRECTOR TO PROTECT THE TRAVELING PUBLIC FROM ANY CONSTRUCTION DEBRIS. IF TRAVELED LANES UNDER STRUCTURES ARE TO BE CLOSED FOR REASONS OF SAFETY, METHOD AND TIME OF CLOSURE MUST BE APPROVED PRIOR TO IMPLEMENTATION. PERSONAL CARS SHALL NOT BE PARKED WITHIN THE L/A.

F. FLAGGERS

FLAGGERS SHALL BE IN ACCORDANCE WITH MT-97.10. THE MAINTENANCE OF TRAFFIC PLANS REQUIRE THE USE OF TWO (2) FLAGGERS. ADDITIONAL FLAGGERS SHALL BE USED AS DIRECTED BY THE ENGINEER.

G. LAW ENFORCEMENT OFFICER WITH PATROL CAR

THE CONTRACTOR SHALL PROVIDE AND PAY ALL COST FOR THE SERVICES OF LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR THE EXCLUSIVE PURPOSE OF CONTROLLING TRAFFIC AS DETERMINED BY THE ENGINEER. THE NUMBER OF OFFICERS AND CARS REQUIRED FOR THIS PURPOSE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE OFFICERS SHALL MOVE THEIR PATROL CARS AS NECESSARY TO INSURE THEIR CONSTANT PRESENCE AT THE POINT(S) OF SLOWDOWN, STOPPAGE OR BACK-UP. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS FOR SCHEDULING AND PAYMENT OF LAW ENFORCEMENT OFFICER WITH PATROL CAR. PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE MAN HOUR PRICE BID FOR ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR.

H. FAILURE TO COMPLY

IF THERE IS ANY FAILURE TO COMPLY WITH PROVISION FOR TRAFFIC CONTROL SET OUT IN THESE PLANS AND NOTES, OR WITH THE PROVISIONS OF THE "MANUAL", THE HIGHWAY IN THE VICINITY OF THE WORK AREA SHALL NOT BE CONSIDERED IN A CONDITION FOR THE SAFE AND CONVENIENT USE BY THE TRAVELING PUBLIC. ANY FAILURE TO KEEP THE HIGHWAY, IN THE VICINITY OF THE WORK AREA, IN A CONDITION FOR THE SAFE ANC CONVENIENT USE BY THE TRAVELING PUBLIC SHALL BE CONSIDERED A BREACH OF THIS CONTRACT. WORK SHALL BE SUSPENDED UNTIL THE CONTRACTOR COMPLIES WITH THE PROVISION OF THE AFOREMENTIONED ITEMS.

TRAFFIC CONTROL MATERIAL

A. SIGNS

SIGN DIMENSIONS AND SPECIFICATIONS, INCLUDING LETTER SIZES SHALL BE AS PROVIDED IN THE "MANUAL", OR IN DESIGN DRAWINGS PROVIDED BY THE DEPARTMENT OF TRANSPORTATION. THE SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER PRIOR TO THE START OF THIS PROJECT.

B. SIGN SUPPORTS

SIGN SUPPORTS SHALL BE AS SHOWN ON STANDARD DRAWINGS MT-105.10 AND MT-105.11.

C. FLASHING ARROWS

THE ELECTRIC FLASHING ARROW SHALL BE AS SHOWN ON STANDARD CONSTRUCTION DRAWING MT-35.10M AND MT-35.11M.

D. CONES

CONES SHALL BE LOCATED AS SHOWN IN THE "MANUAL" AND THE TRAFFIC CONTROL PLANS.

E. DRUMS

DRUMS SHALL BE LOCATED AS SHOWN ON THE TRAFFIC CONTROL PLANS AND ARE REQUIRED FOR NIGHTTIME CLOSURES.

F. FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHT TIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR MAINTAINING TRAFFIC.

PAYMENT

PAYMENT FOR PROVIDING, ERECTING, MAINTAINING AND REMOVING TEMPORARY MAINTENANCE OF TRAFFIC CONTROL DEVICES SHALL BE MADE UNDER THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.

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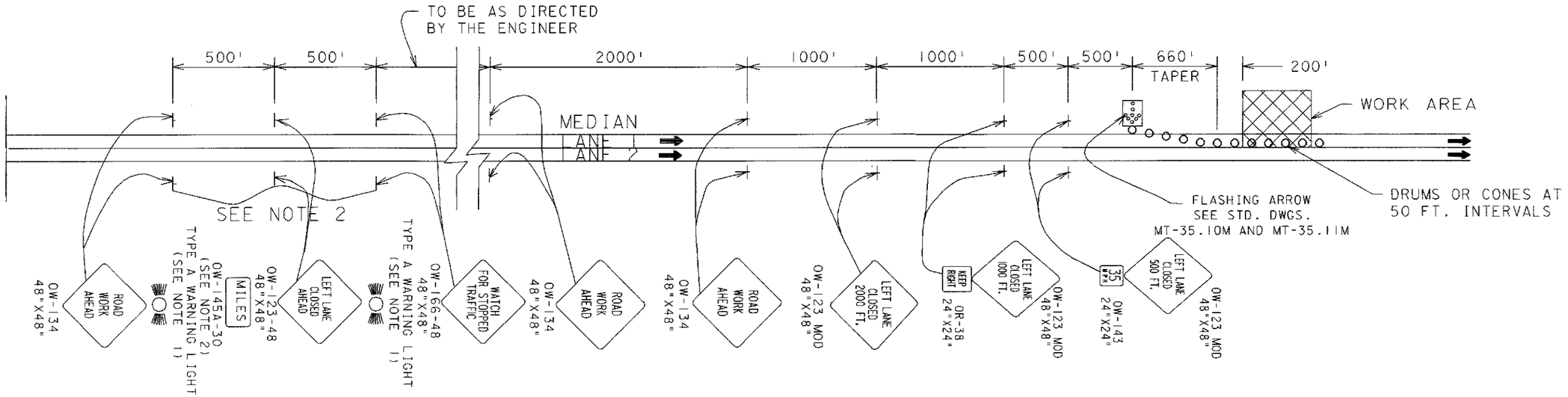
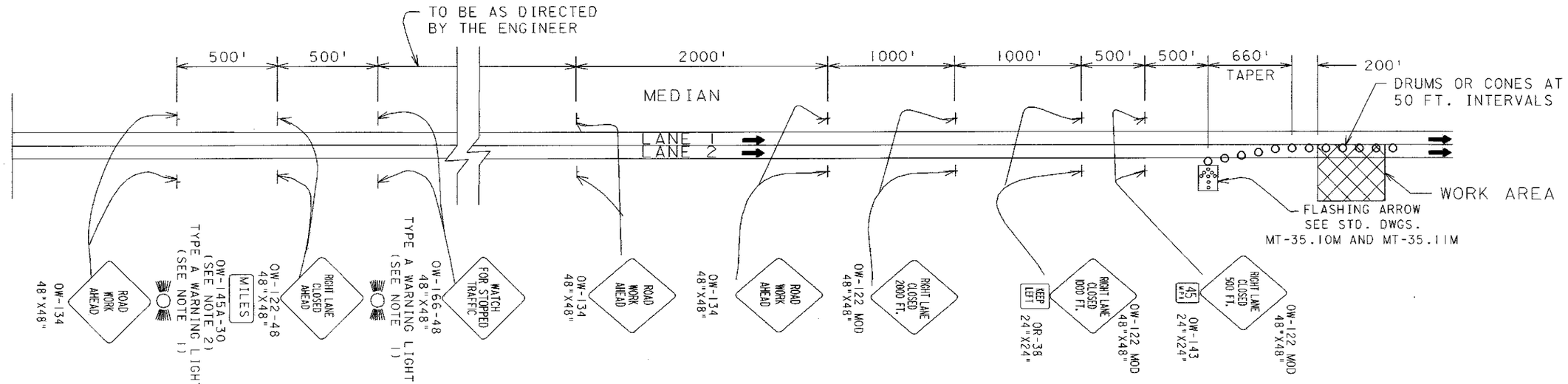


LEFT LANE CLOSED FOR 2 LANES SAME DIRECTION



RIGHT LANE CLOSED FOR 2 LANES SAME DIRECTION

GENERAL NOTES:

1. TYPE A FLASHING WARNING LIGHTS SHOWN ON THE "ROAD CONSTRUCTION AHEAD" AND "RIGHT(OR LEFT) LANE CLOSED AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.
2. EXTRA ADVANCE WARNING SIGN GROUPS CONSISTING OF OW-128, OW-122, AND OW-166 SIGNS PLUS DISTANCE PLATES MAY BE SPECIFIED IN THE PLANS OR REQUIRED TO BE ERECTED AT THE DIRECTION OF THE ENGINEER.

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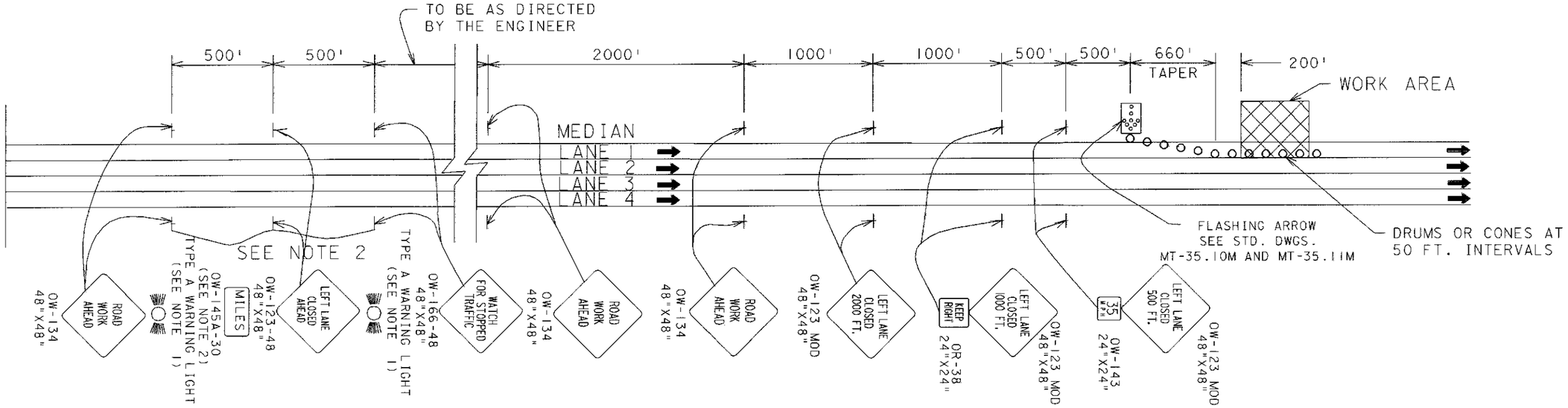
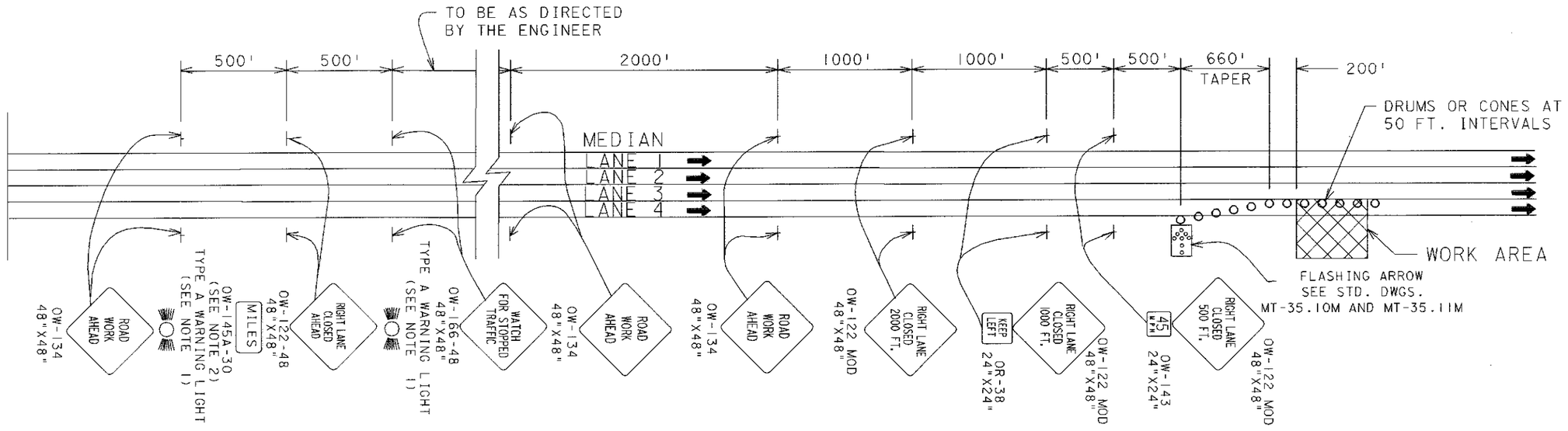


LEFT LANE CLOSED FOR 3 OR 4 LANES SAME DIRECTION



RIGHT LANE CLOSED FOR 3 OR 4 LANES SAME DIRECTION

GENERAL NOTES:

1. TYPE A FLASHING WARNING LIGHTS SHOWN ON THE "ROAD CONSTRUCTION AHEAD" AND "RIGHT(OR LEFT) LANE CLOSED AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.
2. EXTRA ADVANCE WARNING SIGN GROUPS CONSISTING OF OW-128, OW-122, OR OW-123 AND OW-166 SIGNS PLUS DISTANCE PLATES MAY BE SPECIFIED IN THE PLANS OR REQUIRED TO BE ERECTED AT THE DIRECTION OF THE ENGINEER.