



CUY-90-14.90

PID 77332/85531

APPENDIX EX-70

CUY-077-0162 PID 21573

(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

OHIO DEPARTMENT OF TRANSPORTATION

PLAN NO. _____

LOCATION NO.	BRIDGE NO.	STRUCTURAL FILE NO.	CITY	PART NO.	BRIDGE NO.	STRUCTURAL FILE NO.	CITY
1	CUY-77-0162	1805703	BRECKSVILLE				
2	CUY-90-1651 EX	1807919	CLEVELAND				
3	CUY-90-1651 L	1807900	CLEVELAND				
4	CUY-90-1651 R	1807803	CLEVELAND				

ABUTMENT REPAIR AND RESTORATION

RESTORE ABUTMENTS OF FOUR BRIDGES

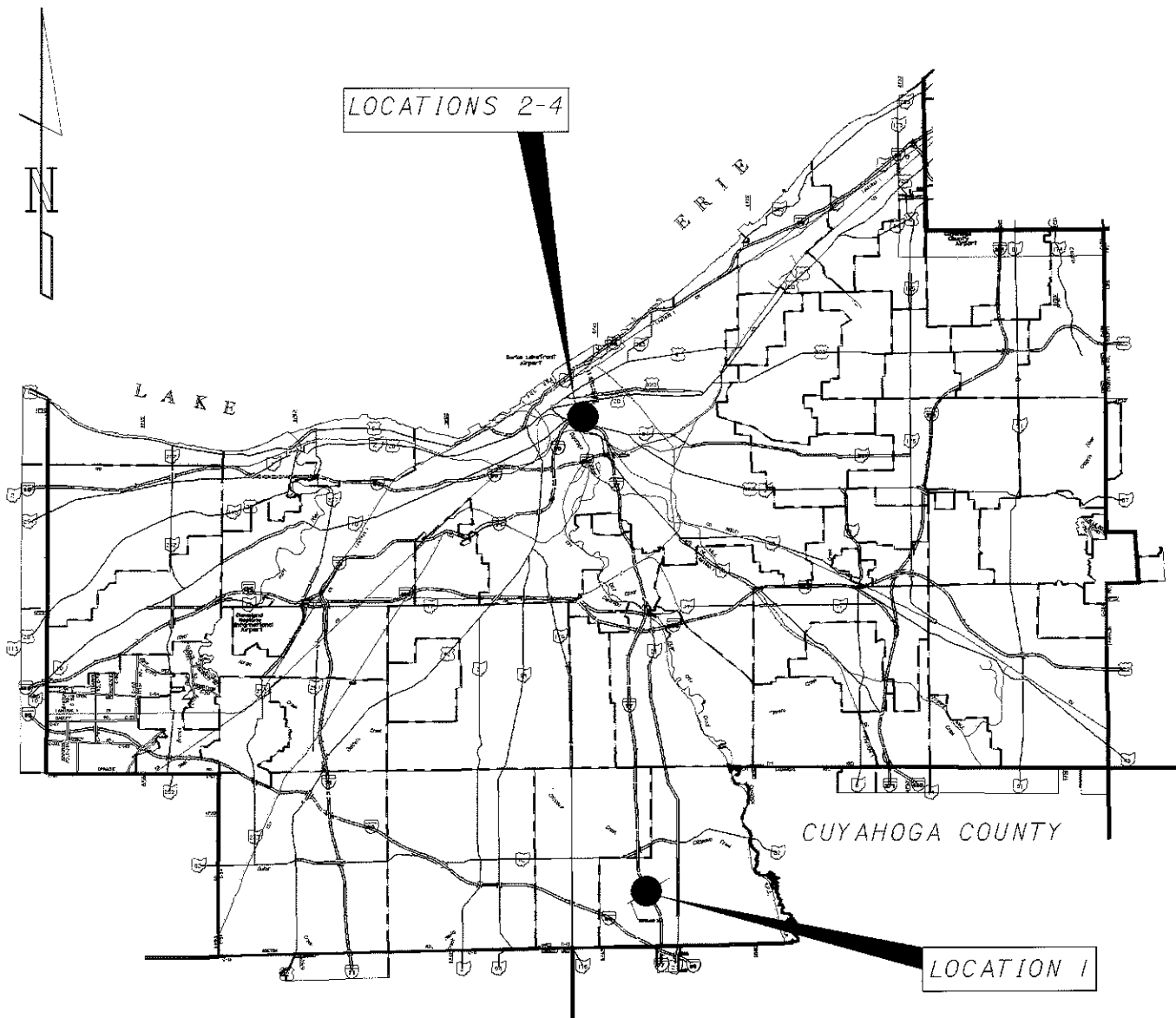
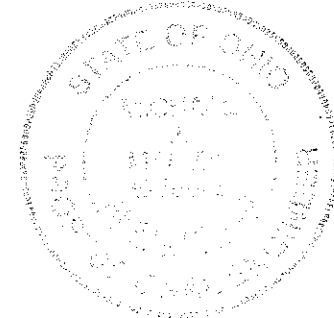
1997 SPECIFICATIONS

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

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

Approved *[Signature]*
 Date 2/27/01 District Deputy Director of Transportation

Approved *[Signature]*
 Date 3-7-01 Director, Department of Transportation



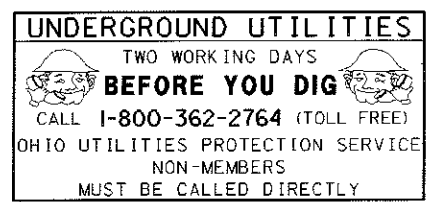
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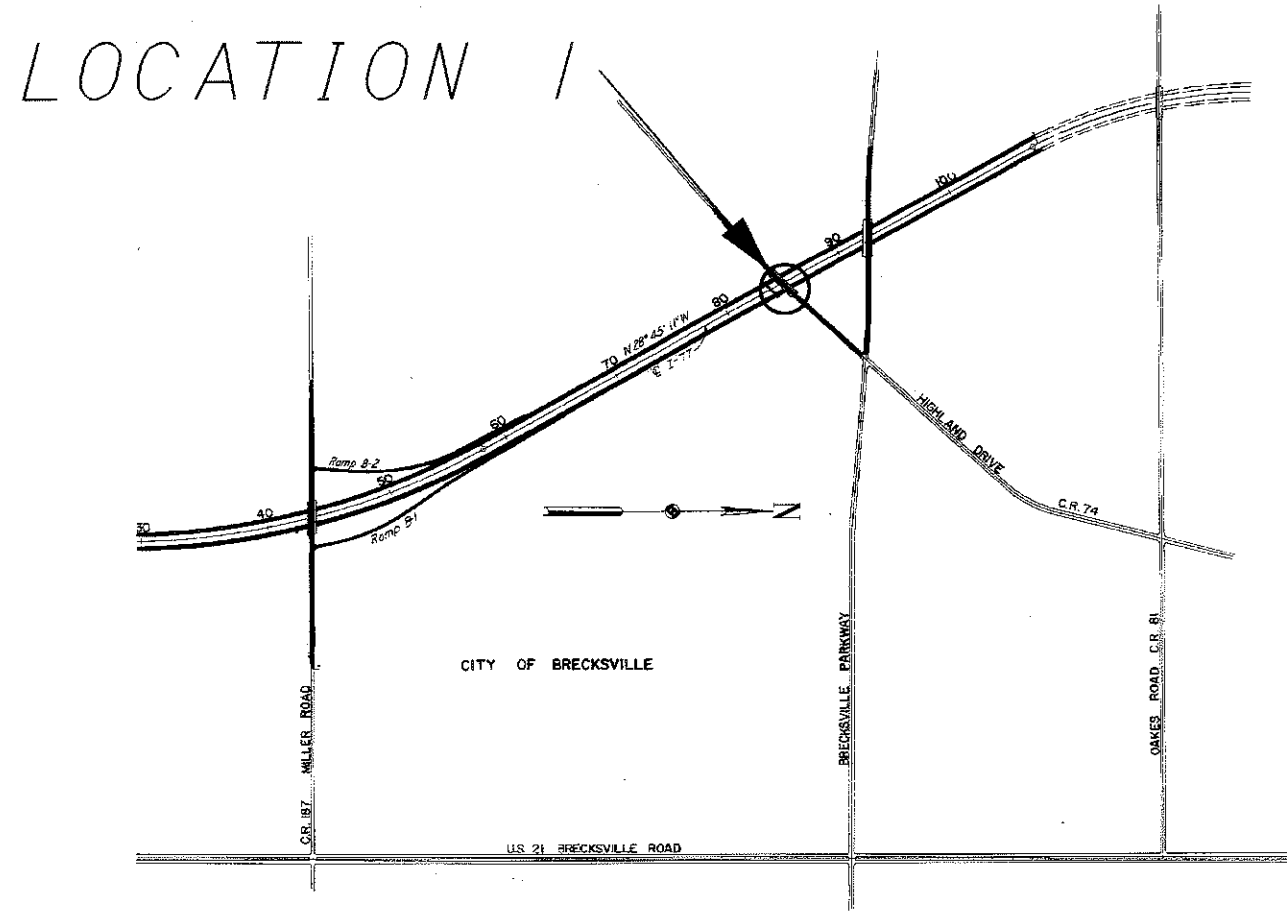
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 Dist 12 6/6/01

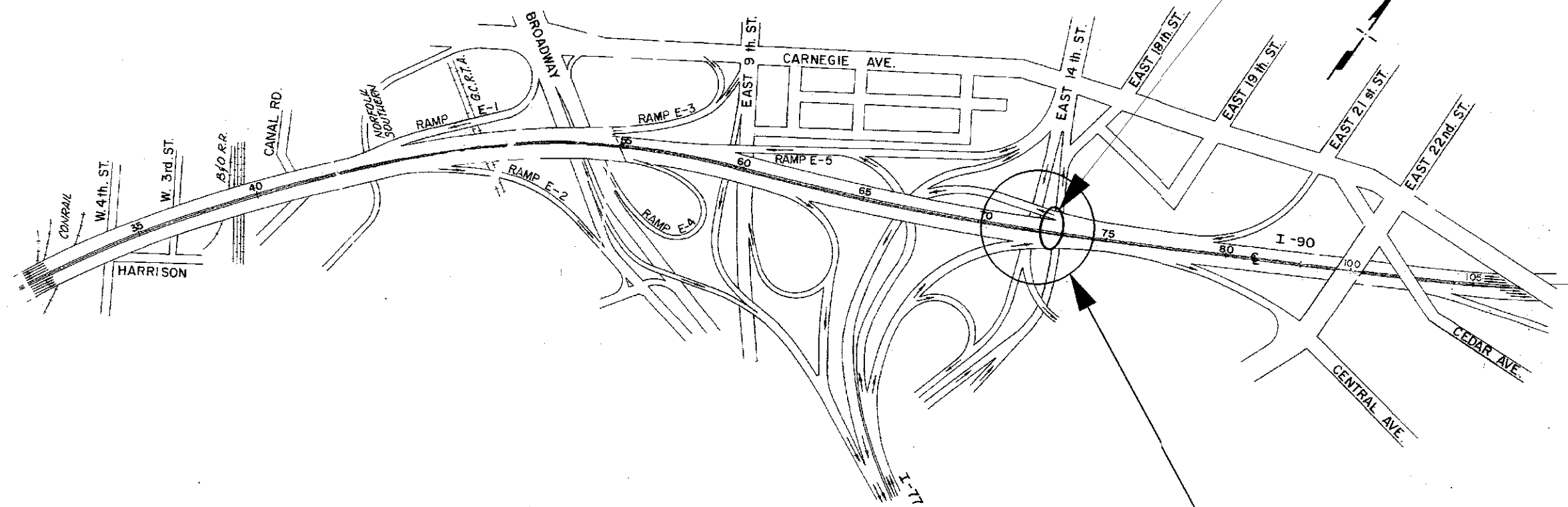
PLAN PREPARED BY:
 ODOT - DISTRICT TWELVE
 PRODUCTION DEPARTMENT
 5500 TRANSPORTATION BLVD.
 GARFIELD HEIGHTS, OHIO 44125



STANDARD CONSTRUCTION DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
MT-35.10M	1/30/95	SS 842	01/06/99
MT-35.11M	1/30/95	SS 843	05/05/98
MT-97.10M	4/25/94		
MT-105.10M	4/25/94		
MT-105.11M	4/25/94		
		SPECIAL PROVISIONS	

FEDERAL PROJECT NO. 100% STATE
 PID NO. 21573
 CONSTRUCTION PROJECT NO.
 RAILROAD INVOLVEMENT NONE
 CUY-77-01.62
 1/12





EAST ABUTMENT

LOCATIONS 2-4

NOTE: WORK SHALL BE ON EAST ABUTMENT ONLY

CALCULATED
CHECKED

LOCATION MAP

CUY-77-01.62

3
12

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

LISTED ON THE TITLE SHEET.

AND TO SUPPLEMENTAL SPECIFICATIONS:

LISTED ON THE TITLE SHEET.

AND TO PROPOSAL NOTES:

PATCHING CONCRETE BRIDGE DECKS

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.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

METHOD OF OPERATION

BRIDGE CUY-77-0162(EAST ABUTMENT)

1. BUILD AND SECURE BREASTWALL ADDITION.
2. JACK ENTIRE BRIDGE USING BREASTWALL ADDITION AS SUPPORT FOR JACKS.
3. MOVE BEARINGS AND BEARING PADS AS NECESSARY TO REPAIR AND POUR BEARING SEATS.
4. REPAIR BEARING SEATS.
5. REPLACE BEARINGS AT THE EXISTING ELEVATIONS. REMOVE JACKS.
6. REPAIR BACKWALL.

BRIDGE CUY-77-0162(WEST ABUTMENT) NO JACKING REQUIRED
BRIDGE CUY-90-1651 L.R.EX(EAST ABUTMENT) NO JACKING REQUIRED)

1. REPAIR BREASTWALL
2. REPAIR BEARING SEAT
3. REPAIR BACKWALL

ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN:

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO RAISE OR REPOSITION ANY EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS.

TRAFFIC WILL BE PERMITTED ON THE STRUCTURE WHILE THE STRUCTURE IS TEMPORARILY SUPPORTED. SEE NOTE PAGE 11 FOR MAINTENANCE OF TRAFFIC SOLUTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION AND OPERATION OF AN ADEQUATE JACKING SYSTEM, INCLUDING ANY TEMPORARY OR PERMANENT SUPPORTS NECESSARY TO PERFORM THE WORK DESCRIBED IN THE PROJECT PLANS. THREE (3) SETS OF JACKING PLANS, WHICH INCLUDE THE INFORMATION DESCRIBED IN THIS NOTE, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AT LEAST THIRTY (30) DAYS BEFORE ACTUAL WORK IS TO BEGIN. THE PLANS SHALL BE PREPARED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER.

JACKING SUBMITTALS SHALL INCLUDE AT LEAST THE FOLLOWING:

1. THE SIGNATURE AND NUMBER, OR PROFESSIONAL SEAL, OF THE REGISTERED PROFESSIONAL ENGINEER WHO PREPARED THE SUBMITTAL.
2. CALCULATIONS AND ANALYSIS OF THE STRUCTURE TO DETERMINE AND DEFINE THE ACTUAL LOADING APPLIED AT THE CONTRACTOR'S SELECTION JACKING POINTS.
3. A DRAWING SHOWING THE PHYSICAL AND DIMENSIONAL POSITION OF THE JACKS WITH RESPECT TO THE STRUCTURE INCLUDING CLEARANCES AND CENTER OF LIFT.
4. A SCHEMATIC LAYOUT OF JACKS, CHECK VALVES, PUMPS WITH 3-WAY RETRACTOR VALVE, PRESSURE GAGES, FLOW CONTROL VALVES, ETC. IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ALL JACKS FOR EACH ABUTMENT OR PIER SHALL BE CONNECTED TOGETHER. ALL JACKS AT EACH ABUTMENT OR PIER SHALL BE THE SAME SIZE.
5. ANALYSIS AND CALCULATIONS OF THE STRESSES INDUCED OR CREATED IN THE STRUCTURE AND ANY TEMPORARY OR PERMANENT SUPPORTS. DESIGN CALCULATIONS FOR ANY TEMPORARY OR PERMANENT SUPPORTS.
6. PHYSICAL DIMENSIONS, MATERIALS, AND FABRICATION DETAILS OF ANY TEMPORARY OR PERMANENT SUPPORTS. HORIZONTAL AND VERTICAL MOVEMENT RESTRAINT SHALL BE PROVIDED.
7. A STEP BY STEP PROCEDURE DETAILING ALL STEPS IN THE JACKING OPERATION.
8. METHOD OF ATTACHMENT TO STRUCTURAL MEMBERS. WELDING TO TENSION AREAS WILL NOT BE PERMITTED.

THE ENTIRE SYSTEM INCLUDING JACKS SHALL HAVE 20% MORE CAPACITY THAN REQUIRED BASED ON CALCULATED LOADS.

FOR LIFTS GREATER THAN 1", JACKS SHALL HAVE LOCKING NUTS TO POSITIVELY LOCK AND SUPPORT THE STRUCTURE DURING THE LIFT.

JACKS SHALL HAVE A SWIVEL LOAD CAP, A DOMED POSITION HEAD OR SOME OTHER DEVICE TO PROTECT AGAINST THE EFFECTS OF SIDE LOAD ON THE JACK.

JACKS ALONE SHALL NOT BE USED TO SUPPORT LOADS EXCEPT DURING THE ACTUAL JACKING OPERATION. TEMPORARY SUPPORTS, BLOCKING OR OTHER METHODS APPROVED BY THE DIRECTOR SHALL BE USED.

SINGLE ACTING RAMS WITH NO OVER-TRAVEL PROTECTION SYSTEM SHALL NOT BE USED.

SPARE EQUIPMENT SHALL BE AVAILABLE ON SITE FOR THE REQUIRED STRUCTURE RAISING TO PROCEED IN THE EVENT OF A BREAKDOWN. A LIST OF SPARE EQUIPMENT SHALL BE PROVIDED TO THE ENGINEER.

AT A MINIMUM, A JACKING OPERATION SHALL LIFT ALL BEAMS AT ANY ONE ABUTMENT OR PIER SIMULTANEOUSLY. THE ONLY EXCEPTION IS THE SITUATION WHERE THE WORK INVOLVES REPLACING OR REHABILITATING INDIVIDUAL BEARINGS; NO PERMANENT SHIMMING IS REQUIRED AND THE HEIGHT OF THE LIFT SHALL NOT EXCEED 1/4".

IF, DURING THE JACKING OPERATIONS, CRACKING OF THE CONCRETE SUPERSTRUCTURE, SEPARATION OF THE CONCRETE DECK FROM THE STEEL STRINGERS, OR OTHER DAMAGE TO THE STRUCTURE IS VISUALLY OBSERVED, THE JACKING OPERATION SHALL IMMEDIATELY CEASE AND APPROVED SUPPORTS SHALL BE INSTALLED. THE CONTRACTOR SHALL THEN ANALYZE THE DAMAGE AND SUBMIT A METHOD OF CORRECTION TO THE ENGINEER FOR APPROVAL. ANY BEAMS THAT SEPARATE FROM THE DECK SHALL BE EPOXY INJECTED FOR THE DISTANCE OF THE SEPARATION IN ACCORDANCE WITH THE PROPOSAL NOTE "CONCRETE REPAIR BY EPOXY INJECTION". COST OF THIS EPOXY INJECTION OR OTHER REQUIRED REPAIRS SHALL BE BORNE BY THE CONTRACTOR.

THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER THAT THE BRIDGE BEARINGS ARE FULLY SEATED BETWEEN ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUITABLE MEANS OF REPAIR, SUBJECT TO THE APPROVAL OF THE ENGINEER, WILL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.

THE JACKING OPERATION SHALL BE DIRECTED BY A PROFESSIONAL ENGINEER EMPLOYED BY THE CONTRACTOR. FAILURE TO HAVE A PROFESSIONAL ENGINEER PRESENT SHALL BE CAUSE FOR CEASING JACKING OPERATIONS.

JACKING SHALL NOT COMMENCE UNTIL 14 DAYS AFTER NEW CONCRETE (NEW BREASTWALL) HAS CURED, AND TEMPORARY SUPPORTS SHALL NOT BE REMOVED UNTIL NEW CONCRETE (AT ABUTMENT SEATS) HAS CURED FOR 14 DAYS.

PAYMENT SHALL BE MADE AT THE LUMP SUM PRICE BID PER ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN AND SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

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REGION AGENCY: DISTRICT TWELVE
 PRODUCTION DEPARTMENT
 DATE: 02/01
 STRUCTURE FILE NUMBER: SEE TITLE SHEET
 REVIEWED: M/JM
 DRAWN: J/WT
 DESIGNED: J/WT
 CHECKED: M/JM
 GENERAL NOTES
 CUY-77-01.62
 1/2
 4/12

EMBEDDED GALVANIC ANODES FOR CORROSION
MITIGATION IN CONCRETE REHABILITATION

**ITEM - 842 CONCRETE MISCELLANEOUS EMBEDDED
GALVANIC ANODE (EGA)**

PART 1 GENERAL

1.01 SUMMARY

A. THIS SECTION INCLUDES FURNISHING ALL LABOR, TOOLS, MATERIALS, EQUIPMENT AND SERVICES NECESSARY TO PROPERLY INSTALL EMBEDDED GALVANIC ANODES.

B. EMBEDDED GALVANIC ANODES ARE DESIGNED TO PROVIDE LOCALIZED CORROSION PROTECTION. WHEN PLACED AT THE APPROPRIATE SPACING ALONG THE PERIMETER OF CONCRETE PATCHES OR ALONG THE INTERFACE BETWEEN NEW/EXISTING CONCRETE, THE ANODES MITIGATE THE FORMATION OF NEW CORROSION SITES IN THE EXISTING CONCRETE.

1.02 REFERENCES

- A. ACI/ICRI 1999 CONCRETE REPAIR MANUAL
- B. ICRI GUIDELINE NO. 03730 GUIDE FOR SURFACE PREPARATION FOR THE REPAIR OF DETERIORATED CONCRETE RESULTING FOR REINFORCING STEEL CORROSION
- C. ASTM A615/A615M-00 STANDARD SPECIFICATION FOR DEFORMED AND PLAIN BILLET-STEEL BAR FOR CONCRETE REINFORCEMENT
- D. ASTM B418-95A (2000) STANDARD SPECIFICATION FOR CAST AND WROUGHT GALVANIC ZINC ANODES

PART 2 PRODUCTS

2.01 MATERIALS

- A. EMBEDDED GALVANIC ANODES SHALL BE PUCK-SHAPED APPROXIMATELY 2 * INCHES IN DIAMETER BY 1 INCH HIGH (63 MM X 25 MM), PRE-MANUFACTURED, AND CONSIST OF ELECTROLYTIC HIGH GRADE ZINC IN COMPLIANCE WITH ASTM B418 CAST AROUND A PAIR OF STEEL TIE WIRES AND ENCASED IN A HIGHLY ALKALINE CEMENTITIOUS SHELL WITH A PH OF 14 OR GREATER.
- B. EMBEDDED GALVANIC ANODES (EBAs) SHALL BE GALVASHIELD XP AVAILABLE FROM VECTOR CORROSION TECHNOLOGIES (330) 723-1177 OR APPROVED EQUAL.
- C. REPAIR MORTARS, CONCRETE AND BONDING AGENTS SHALL BE PORTLAND CEMENT-BASED MATERIALS WITH SUITABLE ELECTRICAL CONDUCTIVITY. NON-CONDUCTIVE REPAIR MATERIALS SUCH AS EPOXY, URETHANE, OR MAGNESIUM PHOSPHATE SHALL NOT BE PERMITTED.

PART 3 EXECUTION

3.01 CLEANING AND REPAIR OF REINFORCING STEEL

- A. CLEAN EXPOSED REINFORCING STEEL OF RUST, MORTAR, ETC. TO PROVIDE SUFFICIENT ELECTRICAL CONNECTION AND MECHANICAL BOND.
- B. IF SIGNIFICANT REDUCTION IN THE CROSS SECTION OF THE REINFORCING STEEL HAS OCCURRED, REPLACE OR INSTALL SUPPLEMENTAL REINFORCEMENT AS DIRECTED BY THE ENGINEER.
- C. SECURE LOOSE REINFORCING STEEL BY TYING TIGHTLY TO OTHER BARS WITH STEEL TIE WIRE.

3.02 GALVANIC ANODE INSTALLATION

- A. GALVANIC ANODES SHALL BE INSTALLED ALONG THE PERIMETER OF THE REPAIR AT SPACING AS SPECIFIED ON THE DRAWINGS. IN NO CASE SHALL THE DISTANCE BETWEEN ANODES EXCEED 30 INCHES (750 MM).
- B. PROVIDE SUFFICIENT CLEARANCE BETWEEN ANODES AND SUBSTRATE TO ALLOW REPAIR MATERIAL TO ENCASE ANODE.
- C. SECURE THE GALVANIC ANODES AS CLOSE AS POSSIBLE TO THE PATCH EDGE USING THE ANODE TIE WIRES. THE TIE WIRES SHOULD BE TIGHTENED TO ALLOW LITTLE OR NO FREE MOVEMENT.
 - 1. IF THE ANODE IS TO BE TIED ONTO A SINGLE BAR, OR IF LESS THAN 1 INCH (25 MM) OF CONCRETE COVER IS EXPECTED, PLACE ANODE BENEATH THE BAR AND SECURE TO CLEAN REINFORCING STEEL.
 - 2. IF SUFFICIENT CONCRETE COVER EXISTS, THE ANODE MAY BE PLACED AT THE INTERSECTION BETWEEN TWO BARS AND SECURED TO EACH CLEAN BAR.
- D. ELECTRICAL CONTINUITY
 - 1. CONFIRM ELECTRICAL CONNECTION BETWEEN ANODE TIE WIRE AND REINFORCING STEEL WITH A MULTI-METER.
 - 2. CONFIRM ELECTRICAL CONTINUITY OF THE EXPOSED REINFORCING STEEL WITHIN THE REPAIR AREA. IF NECESSARY, ELECTRICAL CONTINUITY SHALL BE ESTABLISHED WITH STEEL TIE WIRE.

3.03 CONCRETE REPLACEMENT

- A. COMPLETE THE REPAIR FOLLOWING NORMAL CONCRETE REPAIR PROCEDURES, TAKING CARE NOT TO CREATE ANY AIR VOIDS AROUND THE EMBEDDED GALVANIC ANODE.
- EACH EGA PROVIDED AND INSTALLED WITH ALL INCIDENTALS INCLUDED SHALL BE PAID FOR AT THE PRICE BID FOR:

ITEM	DESCRIPTION	UNIT
842E81300	CONCRETE MISCELLANEOUS EMBEDDED GALVANIC ANODE	EACH

ITEM 842 CLASS S CONCRETE MISCELLANEOUS ABUTMENT REPAIR.

THIS ITEM SHALL INCLUDE THE REMOVAL OF ALL LOOSE AND DISINTEGRATED CONCRETE FROM THE ABUTMENT BREAST WALL AND BEARING SEAT AS PER CMS 519.03. MOREOVER, IT INCLUDES REFORMING THE BACKWALL, BREAST WALL AND ABUTMENT SEAT.

THE BREAST WALL SHALL BE RESTORED THROUGH THE USE OF SS842. THE CONTRACTOR SHALL REMOVE ALL UNSOUND CONCRETE ALONG THE ILLUSTRATED REGION. THEREAFTER, A 1 FT THICK SECTION SHALL BE CONSTRUCTED AS SHOWN ON PAGE 7 . ITS LENGTH SHALL MATCH THAT OF THE EXISTING BREAST WALL AND THE TOP SURFACE SHALL BE FLUSH WITH THE BEARING ELEVATION. THAT IS, THE PROFILE OF THE BREAST WALL SHALL COINCIDE WITH THE EXISTING BEARING SEAT PROFILE.

BEARING SEAT REPAIR FOLLOWS. USE THE NEWLY CURED SECTION OF BREAST WALL AS A BASE FOR THE JACKS. JACK THE EAST ABUTMENT AS PER INSTRUCTIONS, ITEM 516 - JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN. REMOVE UNSOUND CONCRETE FROM THIS AREA. THE MINIMUM DEPTH OF REMOVAL SHALL BE 1 FT. RESTORE THE SEAT AS PER SS842. THE BACKWALL SHALL BE RESTORED USING ITEM - 519 PATCHING CONCRETE STRUCTURES. DURING THE REPAIR OPERATION, INCORPORATE THE MAINTENANCE OF TRAFFIC SCHEME IF AT ANY TIME IT IS DETERMINED BY THE ENGINEER THAT THE EFFECTS OF THE RAISED BRIDGE COULD ADVERSELY AFFECT DRIVING PATTERNS OF MOTORISTS. USE ITEM 614 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC AS A TEMPORARY DRIVING SURFACE ENHANCEMENT.

THE CORROSION RESISTANCE OF THE PROPOSED REPAIR AREAS(BREAST WALL, BEARING SEAT AND BACKWALL) AS WELL AS THE SURROUNDING EXISTING AREAS WILL BE ENHANCED BY ADDING GALVANIC ANODES. THE ANODES SHALL BE INSTALLED BY TYING THEM TO REBARS #602. ATTACHMENT DETAILS ARE SHOWN ON PAGE . INSTALLATION AND LOCATION PROCEDURES ARE AS PER ITEM-842 CONCRETE MISCELLANEOUS.

IN ADDITION, PLACE EGAs AT ALL LOCATIONS WHERE THERE ARE EXPOSED REBAR TIE-INS TO THE EXISTING ABUTMENT CONCRETE.

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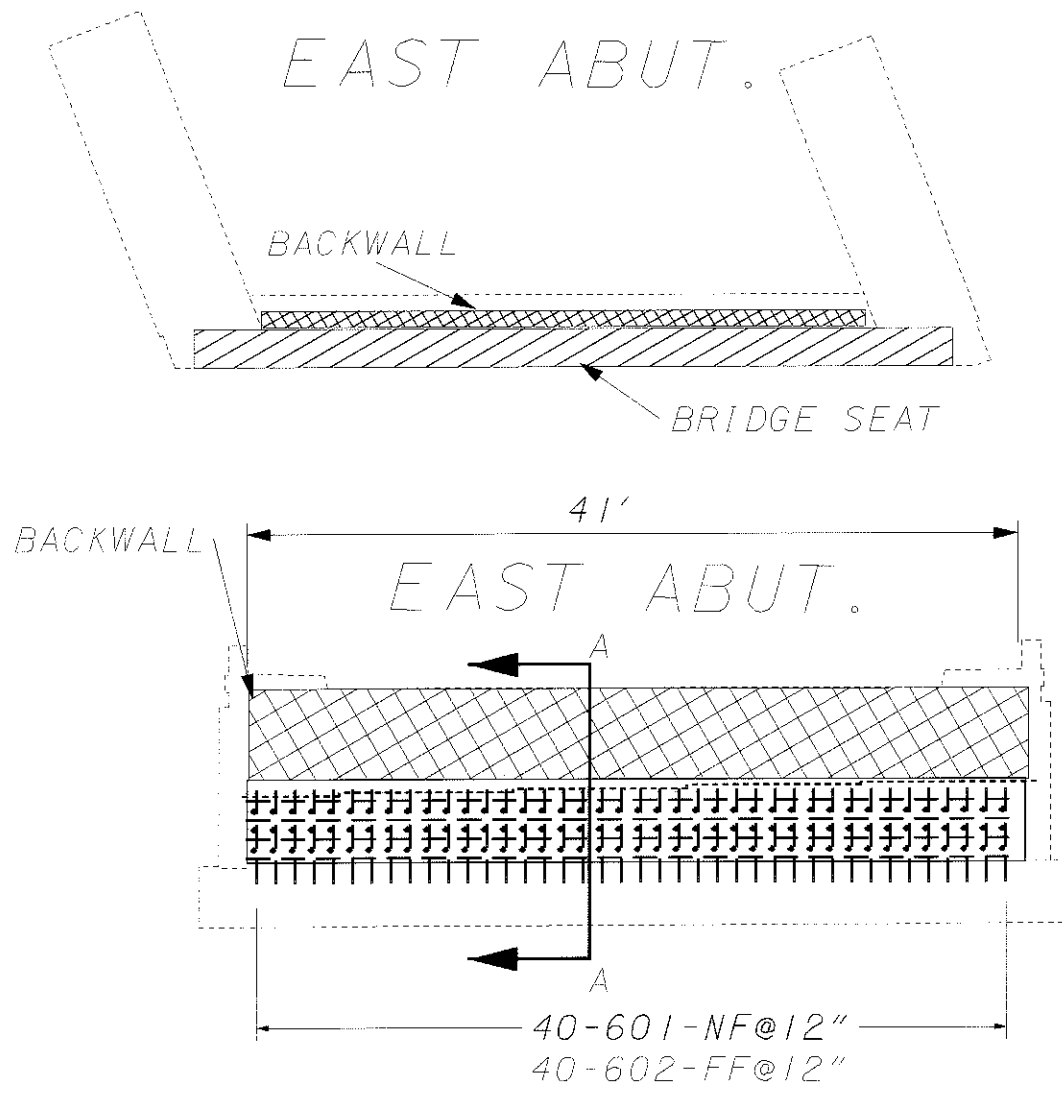
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GENERAL NOTES				
CUY-71-17.91/VAR				
2 / 2				
5 12				

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ITEM	EXTENSION	QUANTITY	UNIT	DESCRIPTION
CUY - 77 - 0162				
203	13300	LUMP	LUMP	EXCAVATION INCLUDING EMBANKMENT CONSTRUCTION
512	67510	49	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
516	47001	LUMP	LUMP	JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN
519	11100	441	SQ FT	PATCHING CONCRETE STRUCTURE
842	34450	10	CU YD	CLASS S CONCRETE, MISC.: ABUTMENT REPAIR
842	81300	115	EACH	CONCRETE MISC.: EMBEDDED GALVANIC ANODE (EGA)
843	50000	27	SQ FT	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR
CUY -90- 1651 L (EAST ABUTMENT)				
512	67510	60	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
519	11100	255	SQ FT	PATCHING CONCRETE STRUCTURE
842	34450	5	CU YD	CLASS S CONCRETE, MISC.: ABUTMENT REPAIR
842	81300	35	EACH	CONCRETE MISC.: EMBEDDED GALVANIC ANODE (EGA)
843	50000	13	SQ FT	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR
CUY -90- 1651 R (EAST ABUTMENT)				
512	67510	60	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
519	11100	255	SQ FT	PATCHING CONCRETE STRUCTURE
842	34450	5	CU YD	CLASS S CONCRETE, MISC.: ABUTMENT REPAIR
842	81300	35	EACH	CONCRETE MISC.: EMBEDDED GALVANIC ANODE (EGA)
843	50000	13	SQ FT	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR
CUY -90- 1651 EX (EAST ABUTMENT)				
512	67510	60	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
519	11100	255	SQ FT	PATCHING CONCRETE STRUCTURE
842	34450	5	CU YD	CLASS S CONCRETE, MISC.: ABUTMENT REPAIR
842	81300	35	EACH	CONCRETE MISC.: EMBEDDED GALVANIC ANODE (EGA)
843	50000	13	SQ FT	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR
614	11000	LUMP	LUMP	MAINTAINING TRAFFIC
614	13000	1	CU YD	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC
624	10000	LUMP	LUMP	MOBILIZATION

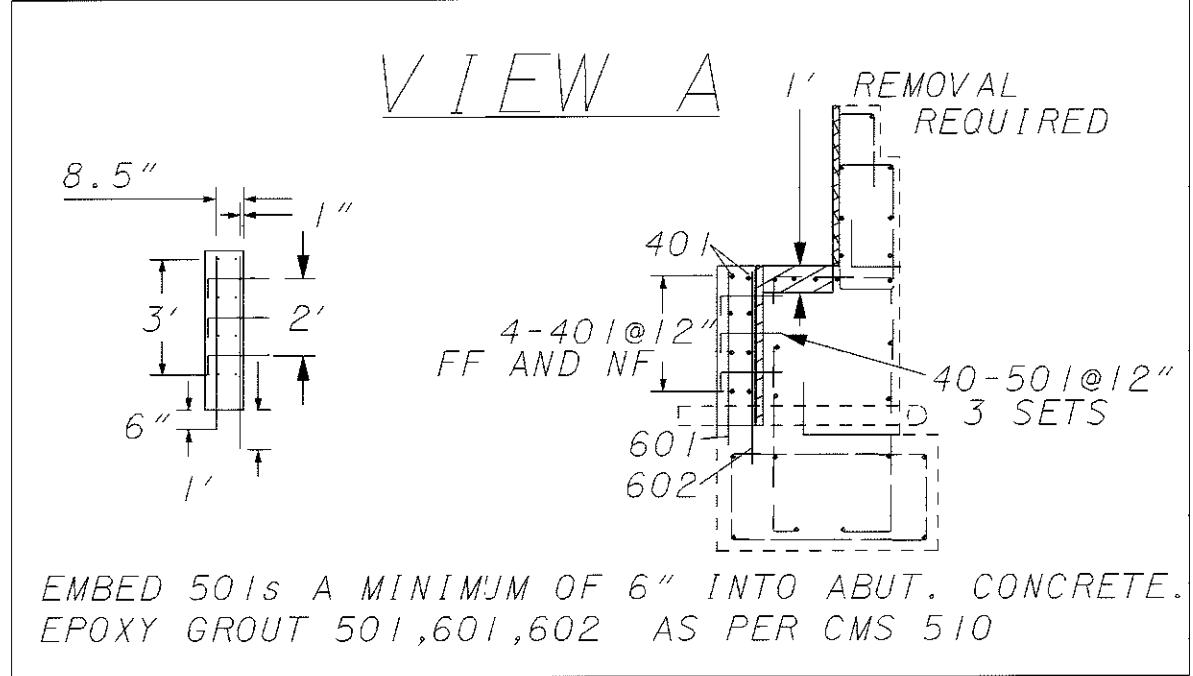
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 PRODUCTION DEPARTMENT
 DATE: 02/01
 STRUCTURE FILE NUMBER: SEE TITLE SHEET
 REVIEWED: MJM
 DRAWN: JMT
 DESIGNED: JMT
 CHECKED: MJM
ESTIMATED QUANTITIES
CUY-77-01.62
 6/12

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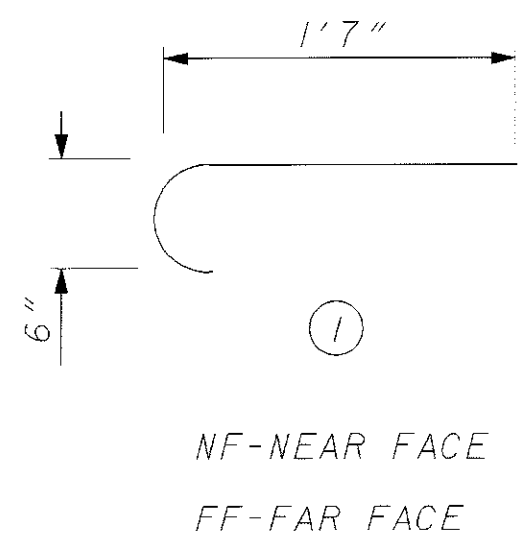
SECTION A-A
FOR DETAILS
SEE VIEW A

SHOW EXCAVATION
AS PER 203



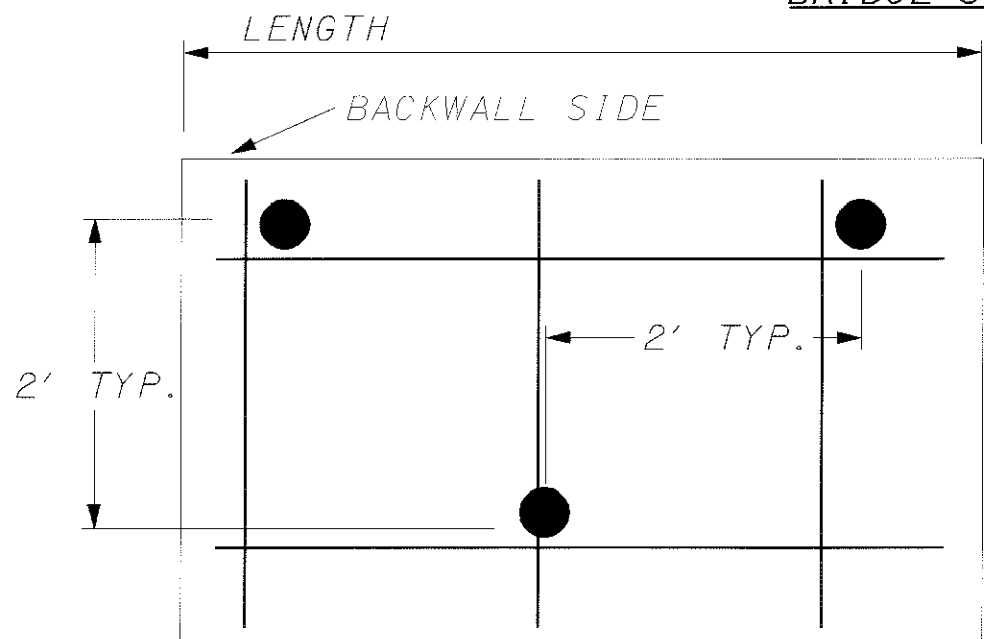
SEAL ABUTMENT WITH EPOXY URETHANE
SEE PAGE 9 FOR FRAMING DETAILS

MARK	NO.	LENGTH	TYPE
401	8	40'	STR
501	120	1' 11-1/8"	①
601	40	4' 6"	STR
602	40	5'	STR



⊠ - CROSSHATCH REPRESENTS AREA TO BE PATCHED AS PER ITEM 519
 ⊠ - CROSSHATCH REPRESENTS AREA OF REMOVAL TO BE INCLUDED WITH CLASS S CONCRETE MISC.: , ABUTMENT REPAIR

BRIDGE SEAT LAYOUT OF EMBEDDED GALVANIC ANODES

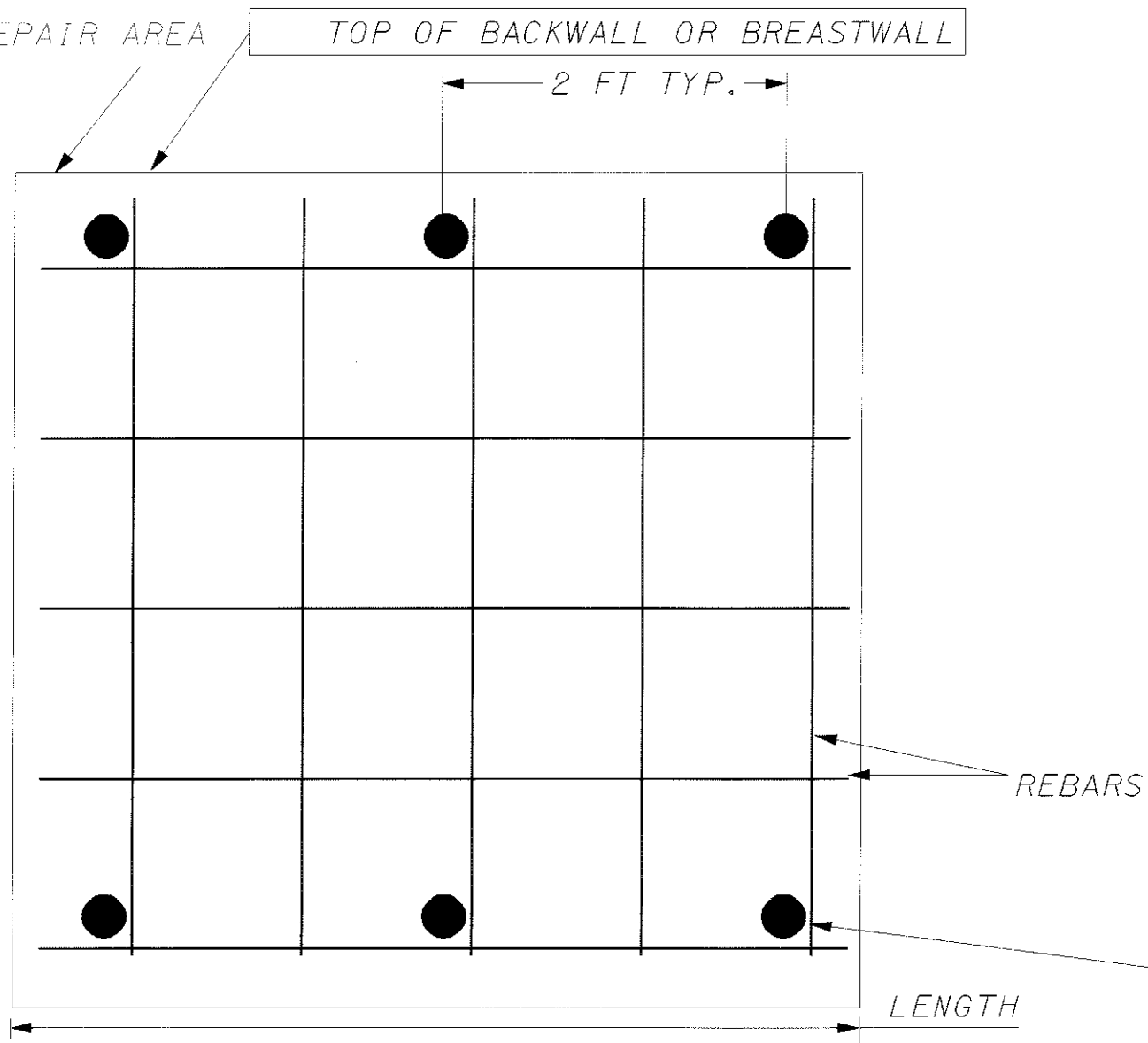


NOTES:

1. STAGGER AND INSTALL THE ANODES AS SHOWN.
2. USE ALL FOUR LEADS TO TIE DOWN EACH ANODE.
3. THE BRIDGE SEAT RESTORATION LENGTH SHALL MATCH THAT OF THE EXISTING BRIDGE SEAT LENGTH.
4. PLACE EGAs AT ALL LOCATIONS WHERE THERE ARE EXPOSED REBAR TIE-INS TO THE EXISTING ABUTMENT CONCRETE.

EDGE OF REPAIR AREA

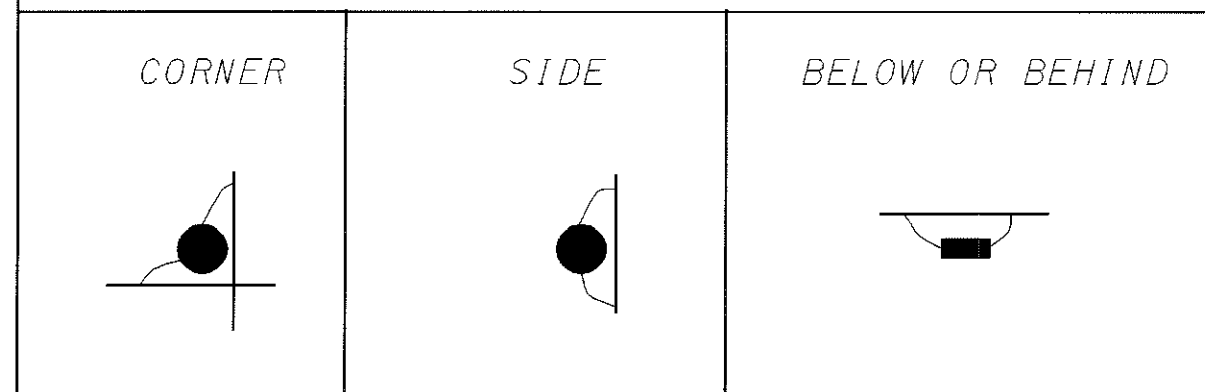
BACKWALL AND BREASTWALL LAYOUT OF EMBEDDED GALVANIC ANODES



NOTES:

1. STAGGER AND INSTALL THE ANODES AS SHOWN.
2. THE BREASTWALL AND BACKWALL RESTORATION AREAS SHALL EQUAL THAT OF THE EXISTING BREASTWALL AND BACKWALL.
3. USE ALL FOUR LEADS TO TIE DOWN EACH ANODE.
4. PLACE EGAs AT ALL LOCATIONS WHERE THERE ARE EXPOSED REBAR TIE-INS TO THE EXISTING ABUTMENT CONCRETE.

TYPICAL INSTALLATIONS OF EMBEDDED GALVANIC ANODES



EMBEDDED GALVANIC ANODE (EGA)

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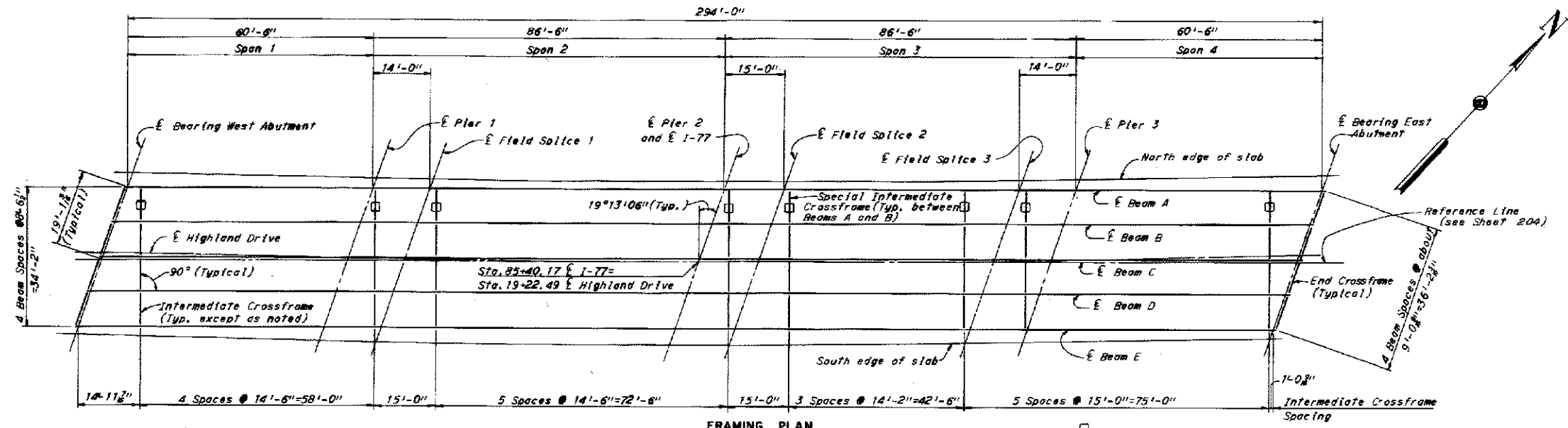
DESIGN AGENCY
DISTRICT TWELVE
PRODUCTION DEPARTMENT

DATE	02/01
REVIEWED	MJM
STRUCTURE FILE NUMBER	SEE TITLE SHEET
DRAWN	JWT
REVISOR	MJM

STRUCTURE DETAILS (EAST ABUTMENT)
BRIDGE NO. CUY-77-0162
OVER INTERSTATE 77

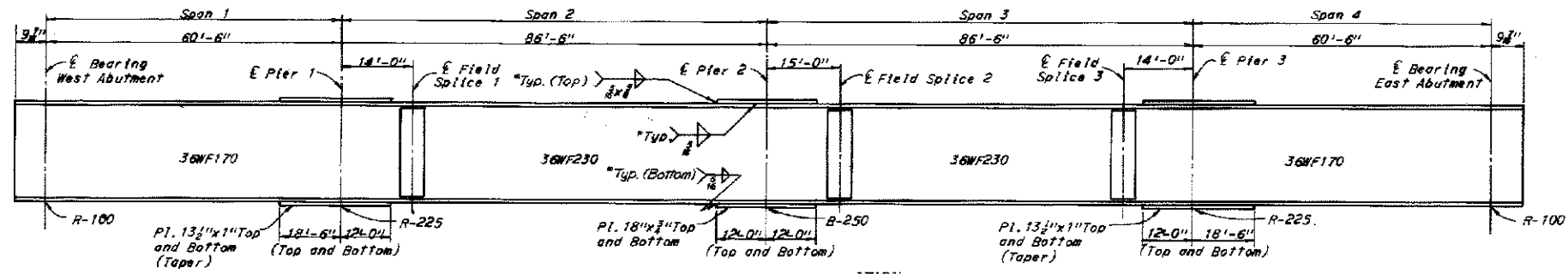
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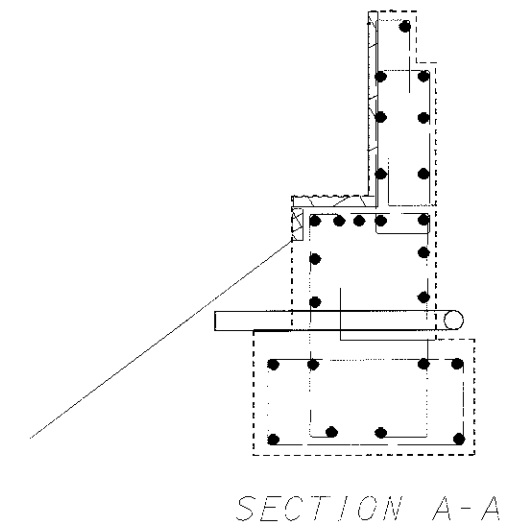
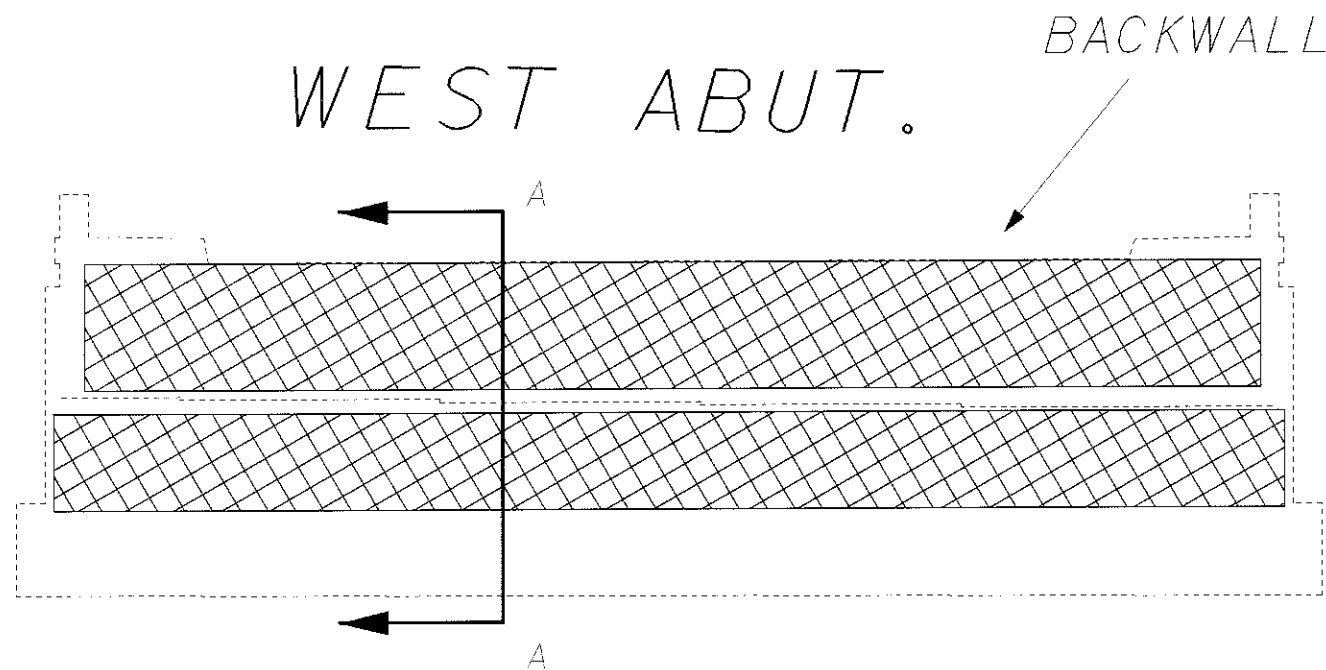
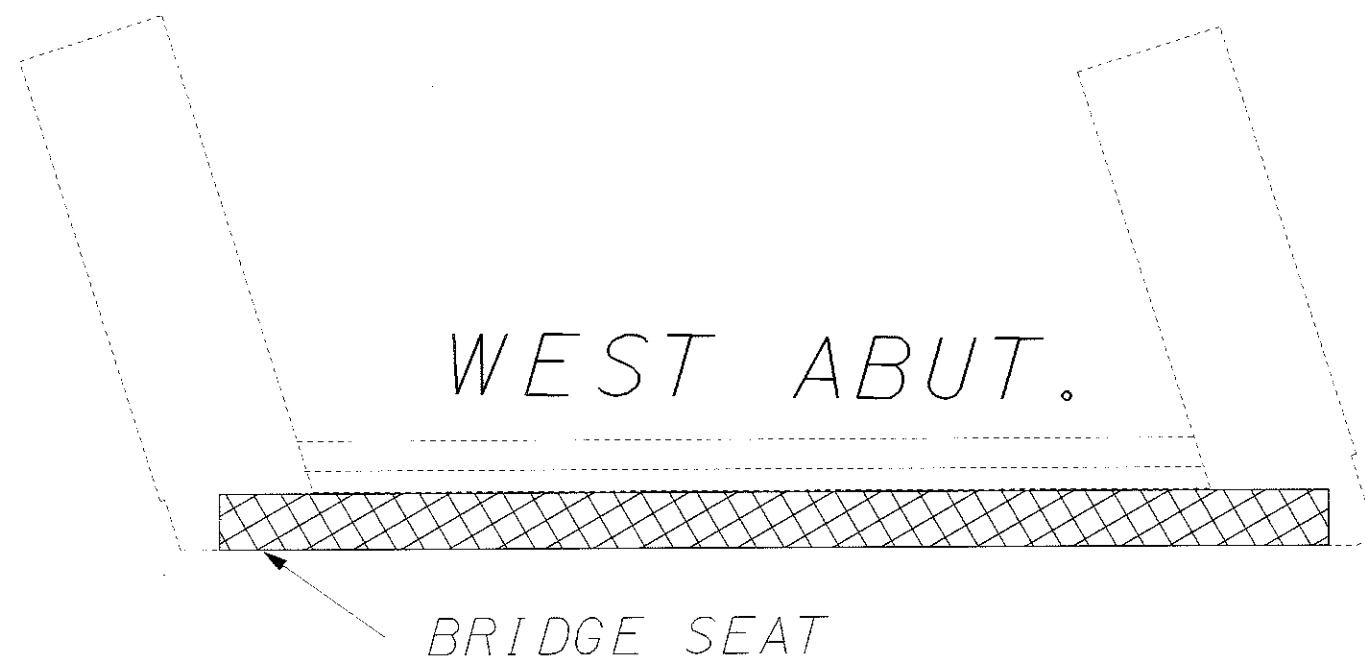


FRAMING PLAN

□ Indicates Special Intermediate Crossframe.



THIS FRAMING PLAN VIEW IS FOR INFORMATION PURPOSES ONLY.



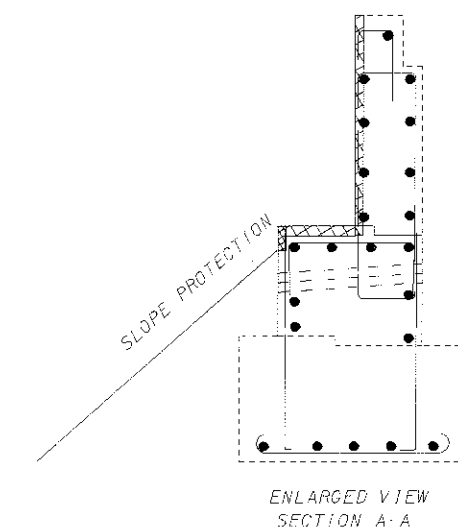
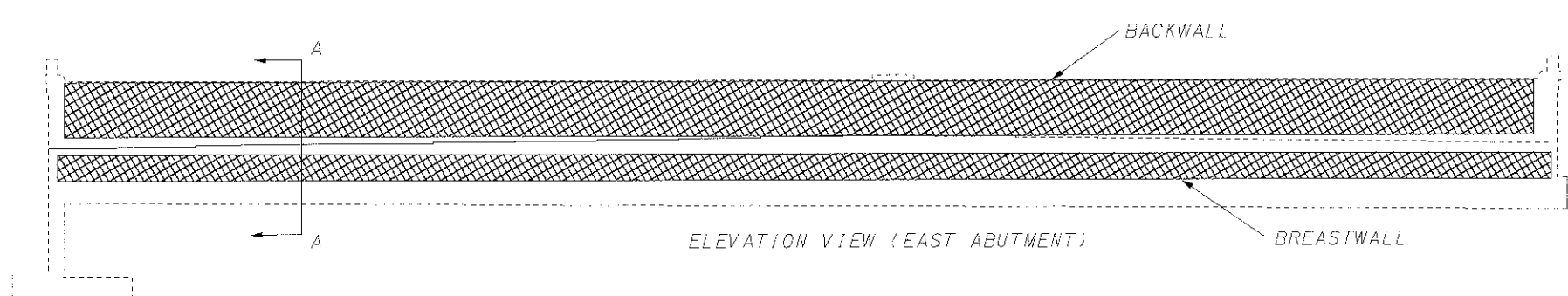
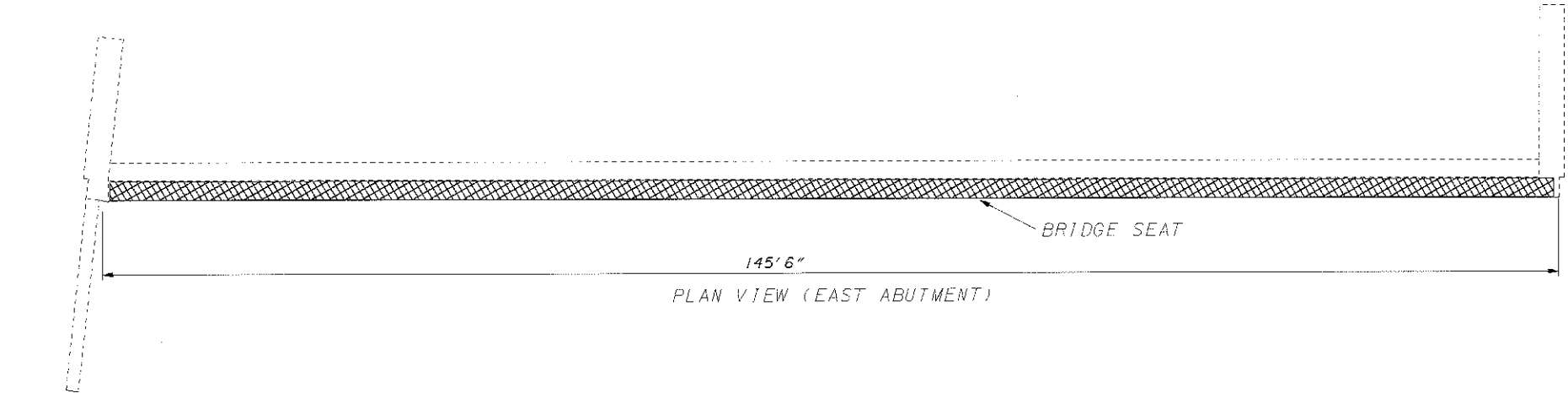
1. PROPOSED WORK:
REMOVE AND PATCH LOOSE AND DISINTEGRATED CONCRETE AS DIRECTED BY THE ENGINEER AS PER CMS 519 AND/OR SS843. EGAs SHALL BE USED, AS DIRECTED BY THE ENGINEER, IF THERE IS A PATCH LOCATION DEEP ENOUGH THAT THERE IS 360 DEGREE REBAR EXPOSURE AND THERE IS ADEQUATE SPACE TO INSERT A EGA.
2. SEAL ABUTMENT WITH EPOXY URETHANE.

☒ - CROSSHATCH REPRESENTS AREAS PATCHED AS PER ITEM 519 AND/OR TROWELABLE MORTAR AS DIRECTED BY THE ENGINEER

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DESIGNED JWT		DRAWN JWT		REVIEWED MJM		DATE 02/01		DESIGN AGENCY DISTRICT TWELVE PRODUCTION DEPARTMENT	
CHECKED MJM		REVISED		STRUCTURE FILE NUMBER SEE TITLE SHEET		STRUCTURE FILE NUMBER SEE TITLE SHEET			
STRUCTURE DETAILS BRIDGE NO. CUY-77-0162 OVER INTERSTATE 77									
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- PROPOSED WORK:
1. REMOVE AND PATCH LOOSE AND DISINTEGRATED CONCRETE AS DIRECTED BY THE ENGINEER AS PER CMS 519 AND/OR SS843. EGAs SHALL BE USED, AS DIRECTED BY THE ENGINEER, IF THERE IS A PATCH LOCATION DEEP ENOUGH THAT THERE IS 360 DEGREE REBAR EXPOSURE AND THERE IS ADEQUATE SPACE TO INSERT A EGA.
 2. SEAL ABUTMENT WITH EPOXY URETHANE.

☒ - CROSSHATCH REPRESENTS AREAS PATCHED AS PER ITEM 519 AND/OR TROWELABLE MORTAR AS DIRECTED BY THE ENGINEER

DESIGNED JWT CHECKED MJM		DRAWN JWT REVISED		REVIEWED MJM	DATE 02/01	DESIGN AGENCY DISTRICT TWELVE PRODUCTION DEPARTMENT
STRUCTURE DETAILS BRIDGE NO. CUY-90-1651 OVER E. 14TH STREET						
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ITEM 614 - MAINTAINING TRAFFIC:

MAINTENANCE OF TRAFFIC SYSTEMS

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 RESTRICTIONS. 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.

MAINTENANCE OF TRAFFIC SCHEME

IF DURING THE PROJECT, THE ENGINEER DETERMINES THAT THE APPROVED MAINTENANCE OF TRAFFIC SETUP IS NOT PERFORMING AS DESIRED, THE WORK SHALL BE SUSPENDED UNTIL THE PROBLEM IS RESOLVED TO THE SATISFACTION OF THE ENGINEER AND THE MAINTENANCE OF TRAFFIC SETUP IS REVISED ACCORDINGLY. ANY COSTS OR DELAYS INCURRED AS A RESULT OF THE FAILURE OF THE SATISFACTION OF THE ENGINEER SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR.

DURING NON-WORKING HOURS, ALL LANES SHALL BE IN FULL OPERATION WITH ALL TRAFFIC CONTROL SIGNS, EXCEPT OW-124 (ROAD CONSTRUCTION AHEAD) SIGNS, REMOVED OR COVERED AND ALL CHANNELIZING DEVICES REMOVED FROM THE PAVEMENT SURFACES. CHANNELIZING DEVICES MAY BE STORED OR DEPLOYED TEMPORARILY ADJACENT TO THE SHOULDER TO MINIMIZE THE NIGHTLY TRAFFIC CONTROL SET-UP TIME.

CONSTRUCTION EQUIPMENT, PRIVATE VEHICLES AND MATERIALS SHALL NOT BE PARKED OR STORED ON THE ROADWAY ADJACENT TO THE ROADWAY WITHIN THE 30 FOOT CLEAR ZONE OF THE TRAVELED LANES.

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.

PAYMENT FOR ALL THE ITEMS REQUIRED TO MAINTAIN TRAFFIC IN ACCORDANCE WITH THESE REQUIREMENTS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

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. 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.

E. FAILURE TO COMPLY

IF THERE IS ANY FAILURE TO COMPLY WITH THE 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 AND 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.

MAINTENANCE OF 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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MAINTENANCE OF TRAFFIC NOTES

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