



**OHIO TURNPIKE AND
INFRASTRUCTURE COMMISSION**

ADDENDUM NO. 1
ISSUED NOVEMBER 21, 2019

to

PROJECT NO. 43-20-02 (PART A)
BRIDGE DECK REPAIR AND REHABILITATION
TEDROW-MORENCI ROAD (C.R. 17-3) OVER OHIO TURNPIKE M.P. 31.4,
WINAMEG-LYONS ROAD (T.R. 11) OVER OHIO TURNPIKE M.P. 38.3,
HELLER-LYONS ROAD (T.R. 10) OVER OHIO TURNPIKE M.P. 39.3
FULTON COUNTY, OHIO
ISSUED NOVEMBER 13, 2019

PROJECT NO. 43-20-02 (PART B)
BRIDGE REPAIRS
TEDROW-MORENCI ROAD (C.R. 17-3) OVER OHIO TURNPIKE, M.P. 31.4,
HARTMAN-INLET ROAD (T.R. 17) OVER OHIO TURNPIKE, M.P. 32.2
FULTON COUNTY, OHIO

EXTENDED TO: 2:00 P.M. (EASTERN TIME), ~~DECEMBER 4~~ DECEMBER 20, 2019

ATTENTION OF BIDDERS IS DIRECTED TO:
ANSWERS TO QUESTIONS RECEIVED THROUGH 12:00 PM ON NOVEMBER 21, 2019

-AND-

MODIFICATIONS TO THE CONTRACT DOCUMENTS

New Plan Sheet: Part A & B Title Sheet

Revised Plan Sheets Part A: 1 and 2 of 45, BP-5.1

New Plan Sheets Part B: 1 through 9, TCB-1, TCB-2 and TCR-14

-AND-

Bid Schedule of Items and Estimated Quantities Worksheet

Ref Nos.: 1 through 5 – Revised title heading to reference Part A & Part B

Ref Nos.: 6 through 39 – Revised title heading to reference Part A only

NEW Ref Nos.: 40 through 65 – to add Part B of the Project

-AND-


Special Provisions - Table of Contents (2 pages) Revised

Special Provisions - SP-1 through SP-16 Revised

-AND-

Supplemental Specification 849 for Part B

Issued by the Ohio Turnpike and Infrastructure Commission through Jennifer L. Stueber, Esq., General Counsel.



Jennifer L. Stueber, Esq.,
General Counsel

11/21/19
Date

ANSWERS TO QUESTIONS RECEIVED THROUGH 12:00 P.M. ON NOVEMBER 21, 2019:

Q#1 Bid item #14- Signing, Misc.: Low Clearance Sign- the proposal shows a quantity of 6 each. Plan sheet 2/45 general summary shows 12 each per bridge which would total to 36 each, and plan sheet 7 general notes call out 36 each. Please verify the correct quantity.

A#1 The correct quantity for Bid Item #14 – Signing, Misc.: Low Clearance Sign is 36. Plan Sheet 2 of 45 and the Estimated Quantity Worksheet have been revised and are included as part of this Addendum.

Q#2 Plan sheets 18, 31, 43 depict the bottom of the bridge deck with squared/vertical haunches. Will the OTIC allow the use of traditional triangular haunches?

A#2 A deviation from the now-standard haunch detail as detailed in the plans will not be permitted.

Q#3 We cannot locate the bridge asbestos survey documentation. Could the Commission confirm that the asbestos survey is complete and that there is no asbestos abatement required?

A#3 There is a plan note on Sheet 8 of 45 which indicates “AN ASBESTOS SURVEY OF THE THREE BRIDGES DETERMINED THAT NO ASBESTOS IS PRESENT.”

Q#4 SP 511B section D requires a 36” walkway width for inspection access. A standard C-49 overhang jack with a C-54 extender gives 66 ¼” of useable surface on the top of the jack. Taking away 38” for the bridge overhang leaves 28 ¼” between the edge of deck and face of handrail. Will this distance be acceptable, or will the contractor be required to modify overhang jacks to create a 36” walk? Is the 36” dimension from the edge of deck to the face of handrail, or is it measured from the end of form kicker to give 36” of unobstructed walkway?

A#4 Due to the depth of the existing fascia beams and the type of overhang jacks available, a 28” wide walkway is acceptable. The walkway width is measured from the edge of the deck to the face of the handrail.

Q#5 Given the Thanksgiving holiday and numerous other projects bidding, we request that the Commission consider delaying the bid date for the project 2 weeks.

A#5 Through this Addendum No. 1, the Commission extends the Bid Opening to 2:00 P.M. (Eastern) on Friday, December 20, 2019.

Due to a need for the Commission to address repairs to two bridges, a Part B has been added to this project. The work originally scoped has been identified as Part A. Due to the addition of Part B, a new total project title sheet has been added as well as the Part B plans. Revisions have been made to the Part A title sheet to indicate the original scope of work is being identified as Part A. Revisions have also been made to the Special Provisions and the Estimated Quantities Worksheet to include information pertinent to Part B. The standard drawings and supplement specification required for the Part B work have been included with this Addendum 1.

Receipt of Addendum No. 1

Project No. 43-20-02 is hereby acknowledged:

(Firm Name) _____

(Signature) _____

(Printed Name) _____

(Date) _____

**BIDDERS MUST RETURN THE ABOVE ACKNOWLEDGEMENT
OF RECEIPT OF ADDENDUM NO. 1 WITH THEIR BID.**



OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

THE JAMES W. SHOCKNESSY OHIO TURNPIKE

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43-20-02 PART A ——— 1-45
43-20-02 PART B ——— 1-9
OTIC STANDARD DRAWINGS
ODOT STANDARD DRAWINGS

PROJECT NO. 43-20-02

SCOPE OF WORK - PART A

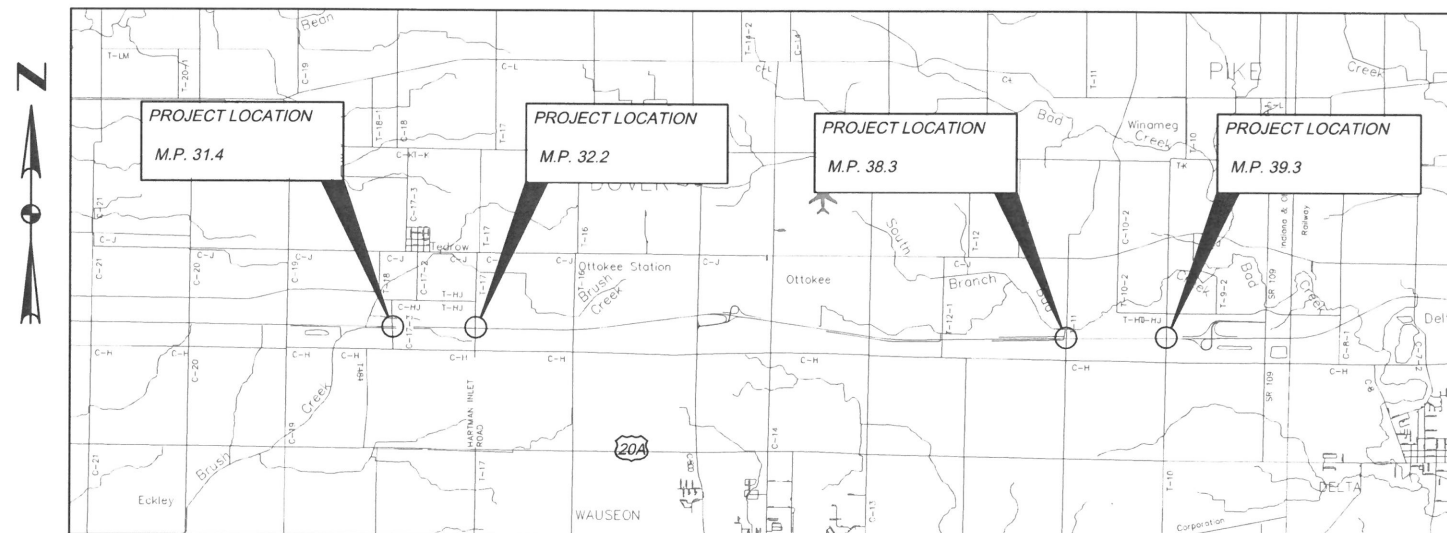
BRIDGE DECK REPAIR AND REHABILITATION

TEDROW-MORENCI ROAD (C.R. 17-3) OVER OHIO TURNPIKE M.P. 31.4,
WINAMEG-LYONS ROAD (T.R. 11) OVER OHIO TURNPIKE M.P. 38.3,
HELLER-LYONS ROAD (T.R. 10) OVER OHIO TURNPIKE M.P. 39.3
FULTON COUNTY, OHIO

SCOPE OF WORK - PART B

BRIDGE REPAIRS

TEDROW-MORENCI ROAD (C.R. 17-3) OVER OHIO TURNPIKE M.P. 31.4,
HARTMAN-INLET ROAD (T.R. 17) OVER OHIO TURNPIKE M.P. 32.2
FULTON COUNTY, OHIO



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440-971-2781 - EAST (M.P. 126.4 - M.P. 241.26)

APPROVED FOR
THE OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

BY
Anthony D. Yon
CHIEF ENGINEER

11-19-19
DATE

SCOPE OF WORK - PART A

DESIGN CONTRACT: 71-18-06

PLAN PREPARED BY:

E.L. ROBINSON
ENGINEERING
1468 West 9th Street - Cleveland, Ohio 44113
www.elrobinsonengineering.com

SCOPE OF WORK - PART B

DESIGN CONTRACT: 99-19-03

PLAN PREPARED BY:

AECOM
AKRON CLEVELAND COLUMBUS
564 WHITE POND DRIVE
AKRON, OHIO 44320-1100
(330) 836-9111



OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

THE JAMES W. SHOCKNESSY OHIO TURNPIKE

PROJECT NO. 43-20-02

SCOPE OF WORK - PART A

BRIDGE DECK REPAIR AND REHABILITATION

TEDROW-MORENCI ROAD (C.R. 17-3) OVER OHIO TURNPIKE M.P. 31.4,
WINAMEG-LYONS ROAD (T.R. 11) OVER OHIO TURNPIKE M.P. 38.3,
HELLER-LYONS ROAD (T.R. 10) OVER OHIO TURNPIKE M.P. 39.3
FULTON COUNTY, OHIO

APPROVED FOR
THE OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION
BY
Anthony D. Yank
CHIEF ENGINEER
11-19-19
DATE

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7. BRIDGE SHEETS M.P. 38.3	21-33
8. BRIDGE SHEETS M.P. 39.3	34-45

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION STANDARD DRAWINGS

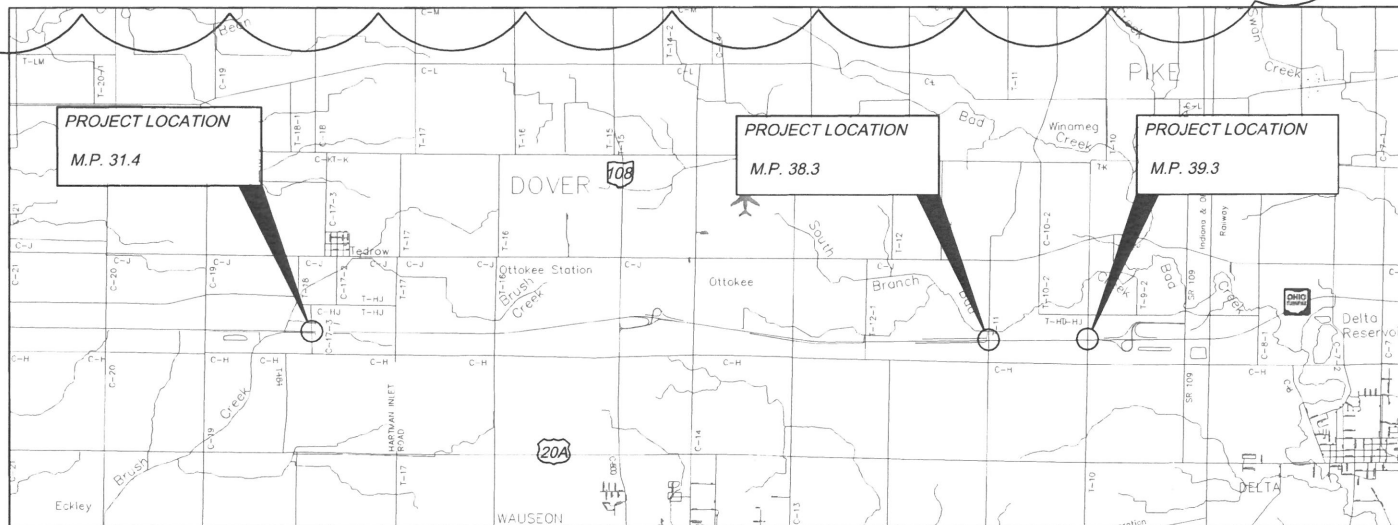
CL-2	CHAIN LINK SAFETY FENCE (ALL ALUMINUM) DETAILS, TYPE 2	10/20/17
DJ-1	DECK JOINT DETAILS, CELLULAR ABUTMENTS	10/20/17
DJ-2	DECK JOINT DETAILS	10/20/17
DJ-5	DECK JOINT DETAILS AT PIERS	10/20/17
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TCR-10	TEMPORARY TRAFFIC CONTROL DOUBLE LANE CLOSURE	10/20/17
TCR-15	TEMPORARY TRAFFIC CONTROL SIGNS FOR MAINTENANCE AND CONSTRUCTION	10/20/17

OHIO DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS

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BP-5.1	CONCRETE CURBS AND COMBINED CURB & GUTTER	01/18/19
MGS-1.1	MIDWEST GUARDRAIL SYSTEM, GUARDRAIL DETAILS	01/19/19
MGS-2.1	MIDWEST GUARDRAIL SYSTEM, STANDARD TYPE MGS	01/19/19
MGS-3.1	MIDWEST GUARDRAIL SYSTEM, MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	01/19/19
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SBR-1-13	SINGLE SLOPE CONCRETE BRIDGE RAILING	07/20/18
TC-41.20	YIELDING POST	10/18/13
TC-52.10	SIGN BLANK DETAILS 1	10/18/13
TC-52.20	SIGN BLANK DETAILS 2	07/20/18

OHIO DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS

SS 800	REVISIONS TO THE 2016 CONSTRUCTION & MATERIALS SPECIFICATIONS	07/19/19
SS 821	ARROW BOARD	04/20/12
SS 921	ARROW BOARD	04/20/12



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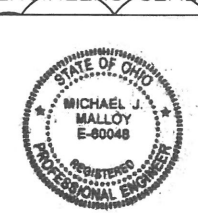
PLAN PREPARED BY:

E.L. ROBINSON
ENGINEERING

1468 West 9th Street - Cleveland, Ohio 44113
www.elrobinsonengineering.com

T: 216.452.1890
F: 216.452.1894

ENGINEERS SEAL:



SIGNED: *Michael J. Malloy*
DATE: November 19, 2019

SN001_MP31.4-38.3-39.3.dwg: 11/15/19 - 9:46am

GENERAL SUMMARY						
ITEM	GRAND TOTAL	UNIT	DESCRIPTION	MP 31.4	MP 38.3	MP 39.3
				TEDROW-MORENCI	WINAGMEG-LYONS	HELLER-LYONS
			GENERAL			
IB.ART.6	LUMP SUM	LUMP SUM	PREMIUM FOR CONTRACT PERFORMANCE BOND AND PAYMENT BOND	LUMP SUM	LUMP SUM	LUMP SUM
SP 614	LUMP SUM	LUMP SUM	MAINTAINING TRAFFIC	LUMP SUM	LUMP SUM	LUMP SUM
SP 619	LUMP SUM	LUMP SUM	FIELD OFFICE	LUMP SUM	LUMP SUM	LUMP SUM
SP 623	LUMP SUM	LUMP SUM	CONSTRUCTION LAYOUT SURVEY	LUMP SUM	LUMP SUM	LUMP SUM
624	LUMP SUM	LUMP SUM	MOBILIZATION	LUMP SUM	LUMP SUM	LUMP SUM
			ROADWAY			
202	624	FOOT	GUARDRAIL REMOVED	208	208	208
202	11	EACH	BRIDGE TERMINAL ASSEMBLY REMOVED	4	3	4
254	407	SQ. YD.	PAVEMENT PLANING, ASPHALT CONCRETE (THICKNESS, 1 1/2" MINIMUM)	115	147	145
407	36	GAL.	TACK COAT	10	13	13
407	36	GAL.	TACK COAT FOR INTERMEDIATE COURSE	10	13	13
448	20	CU. YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 (VARIABLE THICKNESS, 1 1/2" MINIMUM)	6	7	7
448	14	CU. YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (THICKNESS 1 1/4")	4	5	5
614	5	EACH	REPLACEMENT SIGN	2	2	1
630	36	EACH	SIGNING MISC.: LOW CLEARANCE SIGN	12	12	12
630	16	SQ. FT.	SIGNING MISC.: ADDITIONAL SIGNS, GROUND MOUNTED	6	5	5
642	0.35	MILE	EDGE LINE, 4", TYPE 1	0.13	0.11	0.11
642	0.2	MILE	CENTER LINE, TYPE 1	0.07	0.06	0.06
			STRUCTURES			
SP 202	LUMP SUM	LUMP SUM	PORTIONS OF STRUCTURE REMOVED	LUMP SUM	LUMP SUM	LUMP SUM
509	300	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL	100	100	100
SP 509	192,746	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60	70,240	61,365	61,141
SP 511B	439	CU. YD.	CLASS HP4 CONCRETE, SUPERSTRUCTURE DECK SLAB	152	142	145
SP 511B	215	CU. YD.	CLASS S CONCRETE, BARRIERS AND PARAPETS, USING TYPE 1 CEMENT	89	63	63
SP 511B	61	CU. YD.	CLASS HP4 CONCRETE, ABUTMENT SLABS	17	23	21
SP 511B	12	CU. YD.	CLASS HP4 CONCRETE, FOR PREPLACEMENT TESTING	4	4	4
513	3,992	EACH	WELDED STUD SHEAR CONNECTORS	1,352	1,320	1,320
SP 516A	80	FOOT	CRACK REPAIR USING EPOXY INJECTION	8	35	37
SP 516B	1,573	FOOT	SEALING OF CONSTRUCTION JOINTS	606	484	483
SP 516G	40	EACH	REPLACE EXPANSION BEARING DEVICE		20	20
SP 516J	37	EACH	REPLACE FIXED BEARING DEVICE	12	15	10
SP 519	19	SQ. FT.	PATCHING OF CONCRETE STRUCTURES	0	7	12
SP 527	LUMP SUM	LUMP SUM	FALSEWORK, TEMPORARY BRACING AND PROTECTIVE STRUCTURES	LUMP SUM	LUMP SUM	LUMP SUM
SP 533	153	FOOT	3" CONTINUOUS STRIP SEAL IN STRUCTURAL STEEL JOINT	43	55	55
SP 533A	153	FOOT	1 1/2" ELASTOMERIC COMPRESSION SEAL IN STRUCTURAL STEEL JOINT	43	55	55
SP 536	2,784	SQ. YD.	CONCRETE WEATHERPROOFING, DECK, ABUTMENT SLABS, AND APPROACH SLABS	955	911	918
SP 536	1113	SQ. YD.	CONCRETE WEATHERPROOFING, SUBSTRUCTURE	429	341	343
606	300	FOOT	GUARDRAIL, TYPE MGS	100	100	100
606	12	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	4	4	4
SP 607	1,528	FOOT	TYPE II FENCE, ALL ALUMINUM (6'-0" CHAIN LINK WITH SPECIALS)	592	466	470
609	173	FOOT	CURB, TYPE 6	60	52	61



245

PROJECT 43-20-02

DATE: 8/15/19

GENERAL SUMMARY

DESIGNED
KRM
DRAWN
KRM

CHECKED
LAH
IN CHARGE
MJM

NO.
1
-

REVISIONS
ADDENDUM 1
-

BY
MJM
DATE
11/19

DESIGN AGENCY
EL ROBINSON
ENGINEERING
1408 West 9th Street - Cleveland, Ohio 44113
www.elrobinsonengineering.com

OHIO
TURNPIKE

OHIO
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OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION



OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

THE JAMES W. SHOCKNESSY OHIO TURNPIKE

PROJECT NO. 43-20-02 SCOPE OF WORK - PART B BRIDGE REPAIRS

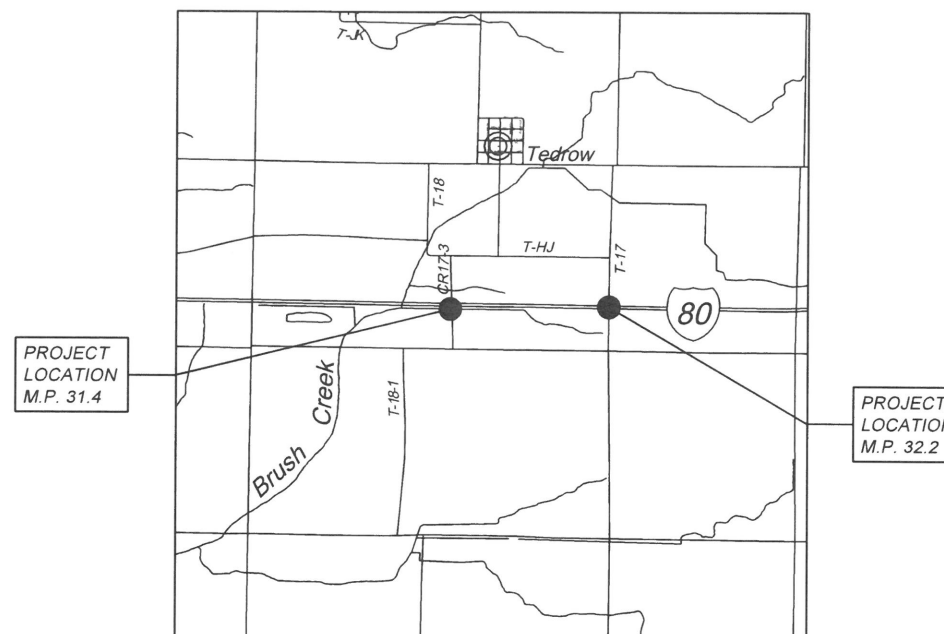
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HARTMAN-INLET ROAD (T.R. 17) OVER THE OHIO TURNPIKE M.P. 32.2
FULTON COUNTY, OHIO

APPROVED FOR
THE OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION
BY
Anthony D. Yan
CHIEF ENGINEER

11-19-19
DATE

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OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION STANDARD DRAWINGS

TCB-1	REQUIREMENTS FOR PORTABLE BARRIER SETTING AND REMOVAL OPERATIONS	10/20/2017
TCB-2	PORTABLE BARRIER STORAGE DETAILS	10/20/2017
TCR-1	TEMPORARY TRAFFIC CONTROL GENERAL NOTES	10/20/2017
TCR-2	TEMPORARY TRAFFIC CONTROL DETAILS, LEGEND, NOTES, AND STANDARD SINGLE LANE CLOSURE	10/20/2017
TCR-14	TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE WITH PORTABLE BARRIER	10/20/2017
TCR-15	TEMPORARY TRAFFIC CONTROL SIGNS FOR MAINTENANCE AND CONSTRUCTION	10/20/2017

OHIO DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS

SS 800	REVISIONS TO THE 2016 CONSTRUCTION AND MATERIAL SPECIFICATIONS	07/19/19
SS 849	HEAT STRAIGHTENING OF DAMAGED STRUCTURAL STEEL	01/18/13

PLAN PREPARED BY:
AECOM
564 WHITE POND DRIVE
AKRON, OHIO 44320-1100
(330) 836-9111

ENGINEERS SEAL:

STATE OF OHIO
MARK
ROBERT
WIMER
PE-72707
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: *Mark R. Wimer*
DATE: 11/8/19

G:\Akron\DCS\Projects\TRN\60601877_5\RCES\900_CAD_GIS\Task Orders\Task 1 MP31.4 and 32.2 99-19-03\CAD Drawings\11 01 2019\GN002.dwg; GN001 - General Notes 1; 11/19/19 - 12:57pm

CONSTRUCTION SPECIFICATIONS

THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIALS SPECIFICATIONS DATED JANUARY, 2016, AND THE SPECIAL PROVISIONS CONTAINED IN THE CONTRACT DOCUMENTS SHALL GOVERN THIS PROJECT.

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION FOR STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE ODOT BRIDGE DESIGN MANUAL, 2004.

DESIGN DATA:

STRUCTURAL STEEL - ASTM A709 GRADE 50 (Fy= 50 KSI) (NEW STEEL)
(Fy= 33 KSI) (EXISTING STEEL)

EXISTING STRUCTURE VERIFICATION

THE ORIGINAL CONSTRUCTION PLANS ARE AVAILABLE ON BID EXPRESS.

DETAILS, DIMENSIONS, AND ELEVATIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR 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.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS, DIMENSIONS, ELEVATIONS, AND SKEW ANGLES WHICH SHOULD BE FIELD VERIFIED BY THE CONTRACTOR. THE STRUCTURAL STEEL SHALL NOT BE FABRICATED UNTIL THE ACTUAL DETAILS, DIMENSIONS, ELEVATIONS, AND SKEW ANGLES HAVE BEEN FIELD VERIFIED BY THE CONTRACTOR.

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN:

WORK UNDER THIS ITEM INCLUDES THE FABRICATION AND INSTALLATION OF REPLACEMENT CONNECTION PLATES AND WEB REPAIR PLATES AS SHOWN IN THE PLANS AND CLEANING THE EXISTING STEEL IN AREAS TO BE WELDED BY REMOVING THE EXITING PAINT BY GRINDING OR ABRASIVE BLASTING. PROVIDE A MINIMUM OF 2" CLEAR FROM ALL WELDS.. THIS WORK ALSO INCLUDES BUT IS NOT LIMITED TO THE FIELD DRILLING OF BOLT HOLES, WELDING AND THE FURNISHING AND INSTALLATION OF A325 GALVANIZED BOLTS AND INCLUDES ALL INCIDENTALS NECESSARY TO COMPLETE THIS WORK.

ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN.

ITEM 513 - STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING AND NDT, AS PER PLAN:

THIS WORK CONSISTS OF THE FOLLOWING SEQUENCE OF OPERATIONS PERFORMED AT THE AREAS DESIGNATED IN THE PLANS AND AS DIRECTED BY THE ENGINEER TO IDENTIFY EXTENTS OF ANY CRACKING OF STRUCTURAL STEEL.

1. CLEAN THE DESIGNATED AREA BY PENCIL ABRASIVE BLASTING THE PAINT AND/OR RUST FROM THE STEEL SURFACE. PENCIL ABRASIVE BLASTING SHALL CONFORM TO THE FOLLOWING:

CLEAN THE DESIGNATED NON-DESTRUCTIVE TESTING (NDT) AREAS OF ALL PAINT, RUST AND FOREIGN MATERIAL BY ABRASIVE BLASTING TO A SURFACE QUALITY EQUAL TO SSPC-SP10 PREPARATION GRADE SA 2 ACCORDING TO AND AS SHOWN IN SSPC-VIS 1-89. SINCE THE INTENT OF THE PENCIL ABRASIVE BLASTING IS TO ENHANCE THE VISUAL AND NDT CRACK DETECTION TECHNIQUES, A GENTLE ABRASIVE BLAST SHALL BE USED SUCH THAT THE SURFACE IS NOT PEENED OR OTHERWISE COLD WORKED. PERFORM THE ABRASIVE BLASTING USING A MAXIMUM COMPRESSED AIR PRESSURE OF 100 PSI, A HOSE NOZZLE DIAMETER OF 1/4" (+/- 1/16"), AND A GRADE 30/60 COAL SLAG ABRASIVE OR EQUIVALENT. DO NOT USE BLASTING ABRASIVES CONTAINING MORE THAN ONE-PERCENT FREE SILICA. BLASTERS USED FOR SURFACE PREPARATION FOR STRUCTURAL STEEL COATING CAN NOT BE USED FOR PENCIL BLASTING. AFTER THE ABRASIVE BLASTING IS COMPLETE, AIR BLOW THE AREA CLEAN. THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER THAT PENCIL ABRASIVE BLASTING CAN SATISFACTORILY BE PERFORMED ACCORDING TO THESE SPECIFICATIONS PRIOR TO THE START OF THE WORK.

CLEANED AREAS SHALL BE AT LEAST 3 INCHES WIDE ALONG EACH SIDE OF A SUSPECTED CRACK LOCATION UNLESS OTHERWISE SHOWN IN THE PLANS. ALL PAINT REMOVAL SHALL BE IN ACCORDANCE WITH SP 514A.

2. THE ENGINEER, ACCOMPANIED BY THE CONTRACTOR, SHALL CAREFULLY VISUALLY INSPECT THE CLEANED AREA. GRINDING MAY BE DIRECTED BY THE ENGINEER TO ENHANCE THE INVESTIGATION FOR CRACK PRESENCE. THE GRINDING MOTION SHALL BE PARALLEL TO THE FLANGE EDGE.
3. NON-DESTRUCTIVELY TEST (NDT) THE AREA USING MAGNETIC PARTICLE EXAMINATION AND/OR DYE PENETRATION SO THAT THE ENGINEER MAY FURTHER INSPECT THE CRACKS.

STRUCTURE GENERAL NOTES

ITEM 513 - STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING AND NDT, AS PER PLAN: (CONTINUED)

4. ALL CRACKS AND/OR CRACK TIPS THAT ARE ACCESSIBLE ARE TO BE REMOVED AS SHOWN IN THE PLANS. ANY CRACKS INACCESSIBLE TO DRILLING ARE TO BE REMOVED AS SHOWN IN THE PLANS BY CAREFUL GRINDING, OR BY CAREFULLY ENLARGING THE DRILLED HOLES BY GRINDING.
5. PERFORM STEPS 1 THRU 4 ON THE OPPOSITE SIDE OF THE WEB AT THE SUSPECTED CRACK LOCATION.

ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR ITEM 513 - STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING, AND NDT, AS PER PLAN.

ITEM 513 - STRUCTURAL STEEL, MISC., DRILLING STRUCTURAL STEEL, GRINDING AND NDT, AS PER PLAN:

THIS WORK CONSISTS OF DRILLING CRACKS AND ENDS OF CRACKS, GRINDING TO ENLARGE DRILLED HOLES, AND NON-DESTRUCTIVE TESTING AS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER TO ARREST CRACKS FOUND BY PENCIL ABRASIVE BLASTING. ENGINEER APPROVAL MUST BE OBTAINED BEFORE DRILLING ANY HOLES IN THE FLANGES UNDER THIS ITEM.

DRILL HOLES TO REMOVE THE ENTIRE CRACKS OR THE APPARENT ENDS OF THE CRACK REVEALED BY THE INITIAL NDT AND/OR VISUAL INSPECTION. GRIND SMOOTH THE EXPOSED CIRCUMFERENCE OF EACH DRILLED HOLE AND CAREFULLY INSPECT FOR CRACKS USING MAGNETIC PARTICLE EXAMINATION AND/OR DYE PENETRATION. CONTINUE DRILLING, GRINDING, AND TESTING UNTIL ALL CRACK ENDS ARE REMOVED. WHEN NO CRACKS ARE DETECTED AT A LOCATION, NO ADDITIONAL HOLES SHALL BE DRILLED UNDER THIS ITEM.

SINCE ANY OF THESE CRACKS COULD PROPAGATE INTO A TENSION ZONE, REMOVING THEIR ENDS IS IMPERATIVE. CRACKS UP TO 1/2" LONG, AND DEFECTS UP TO 1/2" IN DIAMETER, SHALL BE COMPLETELY REMOVED BY A SINGLE 1" DIAMETER HOLE WHEN PRACTICAL. THE 1" DIAMETER HOLE SHALL BE DRILLED SUCH THAT THERE IS 1/4" CLEAR AT EACH END OF THE CRACK OR DEFECT. ENDS OF CRACKS LONGER THAN 1/2", AND DEFECTS LARGER THAN 1/2" IN DIAMETER, SHALL BE DRILLED AT THE END OF THE CRACK OR DEFECT WITH 1" DIAMETER DRILL BITS. HOLES SHALL BE CAREFULLY EXAMINED FOR CRACKS IN THE PLANE OF THE PLATE. 1 1/2" OR 2" DIAMETER HOLES MAY BE DRILLED TO COMPLETELY REMOVE A LARGER CRACK OR DEFECT WHERE THE PROXIMITY OF THE CRACK END TO ADJACENT STEEL PRECLUDES DRILLING 1" DIAMETER HOLES.

THE LOCATION OF ALL HOLES SHALL BE DETERMINED BY THE ENGINEER.

ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR ITEM 513 - STRUCTURAL STEEL MISC., DRILLING STRUCTURAL STEEL, GRINDING, AND NDT, AS PER PLAN.

ITEM SP 514A – FIELD PAINTING OF EXISTING STRUCTURES - SYSTEM OZEU:

WORK UNDER THIS ITEM INCLUDES PREPARING AND COATING THE FOLLOWING AREAS OF EXISTING STEEL WITH A PAINT SYSTEM THAT MATCHES EXISTING OR IS AN APPROVED ALTERNATE:

1. ANY AREA WHERE DRILLING, GRINDING, ABRASIVE BLASTING OR WELDING OCCURRED.
2. ANY AREA OF PAINT DAMAGED BY THE COLLISION, INCLUDING THE ENTIRE LENGTH OF HEAT STRAIGHTENING BEAM REPAIRS.
3. ANY AREA DAMAGED BY THE CONTRACTOR'S OPERATIONS.

THE TOPCOAT COLOR SHALL CLOSELY MATCH THE COLOR OF THE EXISTING PAINT (GREEN PER FEDERAL STANDARD 595B-14159).

THIS ITEM ALSO INCLUDES PAINTING ALL NEW STEEL.

ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM SP 514A – FIELD PAINTING OF EXISTING STRUCTURES - SYSTEM OZEU, FOR PAYMENT.

ITEM SP 614 - MAINTAINING TRAFFIC:

TRAFFIC SHALL BE MAINTAINED AS DETAILED ON OTIC STANDARD DRAWINGS TCR-1, TCR-2, TCR-14 AND TCR-15. ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH OTIC SPECIAL PROVISIONS AND C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM SP 614, MAINTAINING TRAFFIC, AS PER PLAN UNLESS SEPARATELY ITEMIZED IN THE PLAN.

1. CONTRACTOR WILL BE RESPONSIBLE FOR ERECTING AND MAINTAINING ALL TRAFFIC CONTROL REQUIRED TO PERFORM THE WORK.
2. THE TURNPIKE WESTBOUND RIGHT LANE SHOULDER SHALL BE CLOSED AS DETAILED ON OTIC STANDARD DRAWINGS TCR-1, TCR-2, TCR-14 AND TCR-15.
3. THE CONTRACTOR SHALL CLOSE AND DETOUR ALL LOCAL TRAFFIC ON TEDROW-MORENCI ROAD DURING ANY TIME IN WHICH THE EXISTING AND/OR PROPOSED DIAPHRAGMS ARE REMOVED OR NOT FULLY INSTALLED. FOR TEMPORARY CLOSURES ON LOCAL ROADS AND PROVIDE DOCUMENTATION OF PERMITS TO THE OTIC. THE CONTRACTOR SHALL NOT CLOSE ANY LANES OR SHOULDERS UNTIL THE PERMITS ARE OBTAINED AND SUBMITTED.
4. THE CONTRACTOR SHALL NOTIFY THE LOCAL MUNICIPALITIES/COUNTY AND THE OTIC 14 DAYS PRIOR TO BEGINNING WORK AND 14 DAYS PRIOR TO ANY CLOSURE OF THE LOCAL ROADS. THE NOTIFICATION FOR ROAD CLOSURE SHALL ALSO INCLUDE AN ANTICIPATED CLOSURE DURATION.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM CONTRACT BID PRICE FOR ITEM SP 614, MAINTAINING TRAFFIC.

GENERAL SUMMARY - MP 31.4 AND MP 32.2			
ITEM	TOTAL	UNIT	DESCRIPTION
IB. ART. 6	1	LUMP	PREMIUM FOR CONTRACT PERFORMANCE BOND AND PAYMENT BOND
SP 614	1	LUMP	MAINTAINING TRAFFIC
624	1	LUMP	MOBILIZATION

GENERAL SUMMARY - MP 31.4			
ITEM	TOTAL	UNIT	DESCRIPTION
513	3 *	EACH	STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING AND NDT, AS PER PLAN
513	3 *	EACH	STRUCTURAL STEEL MISC., DRILLING STRUCTURAL STEEL, GRINDING AND NDT, AS PER PLAN
513	1	LUMP	STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN
SP 514A	1	LUMP	FIELD PAINTING OF EXISTING STRUCTURES - SYSTEM OZEU
SP 525A	1	LUMP	WORKER PROTECTION
SP 525A	3	EACH	PROTECTIVE CLOTHING/EQUIPMENT SET
SP 525A	1	LUMP	ESTABLISH REGULATED AREAS
SP 525A	1	LUMP	UNIVERSAL PAINT-RELATED WASTE
SP 525A	1	LUMP	CONTAINMENT SYSTEM
849	1	LUMP	DAMAGE ASSESSMENT
849	1	LUMP	SURFACE PREPARATION
849	8	HOURS	REPAIRING DAMAGED MEMBERS BY GRINDING
849	1	LUMP	STRAIGHTENING DAMAGED MEMBERS

* A CONTINGENCY OF 3 EACH HAS BEEN INCLUDED IN THE QUANTITIES FOR ITEM 513 - STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING, AND NDT, AS PER PLAN AND ITEM 513 - STRUCTURAL STEEL MISC., DRILLING STRUCTURAL STEEL, GRINDING, AND NDT, AS PER PLAN AND ARE TO BE PERFORMED AS DIRECTED BY THE ENGINEER.

PROJECT 43-20-02B
TEDROW-MORENCI ROAD OVER THE OHIO TURNPIKE
M.P. 31.4

DATE: 11/8/19

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GENERAL NOTES AND QUANTITIES

DESIGN AGENCY
AECOM
564 WHITE POND DRIVE
AKRON, OHIO 44320-1100
888-911-1111

OHIO TURNPIKE

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

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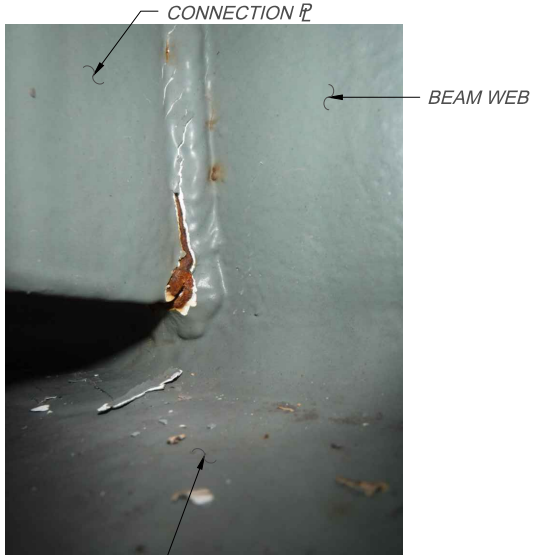


PHOTO - P1
BEAM 4 - CRACK IN CONNECTION P



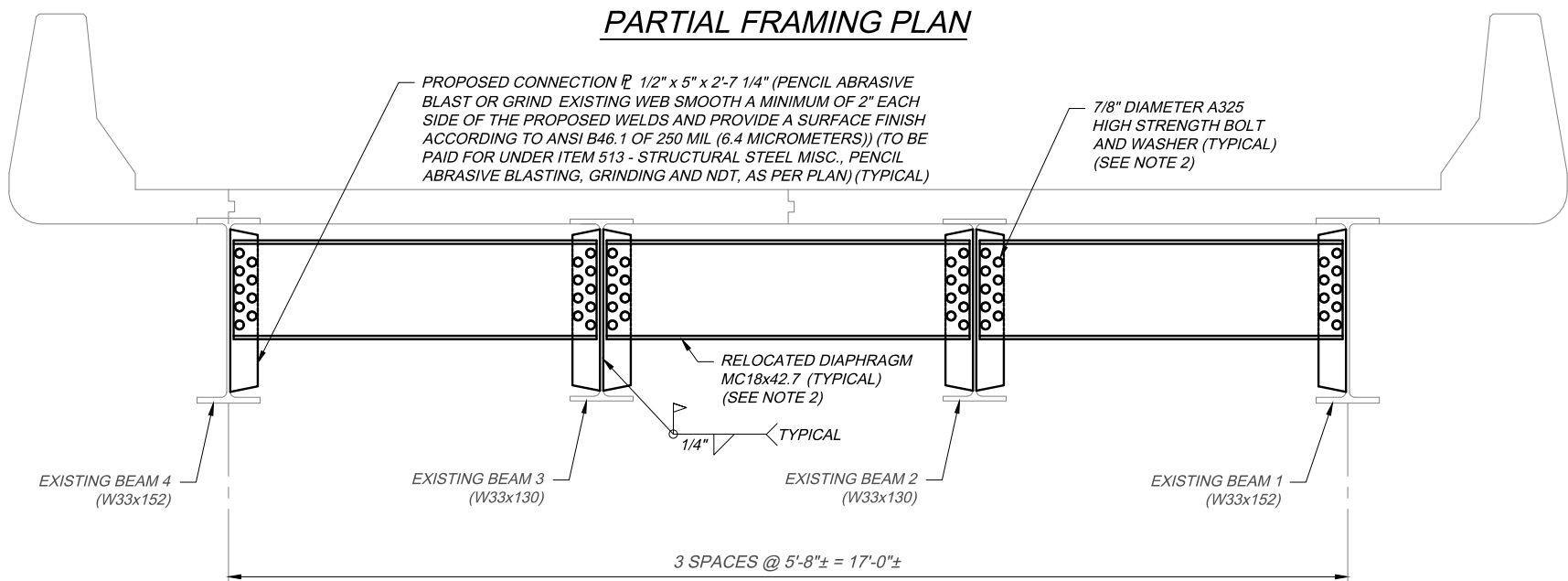
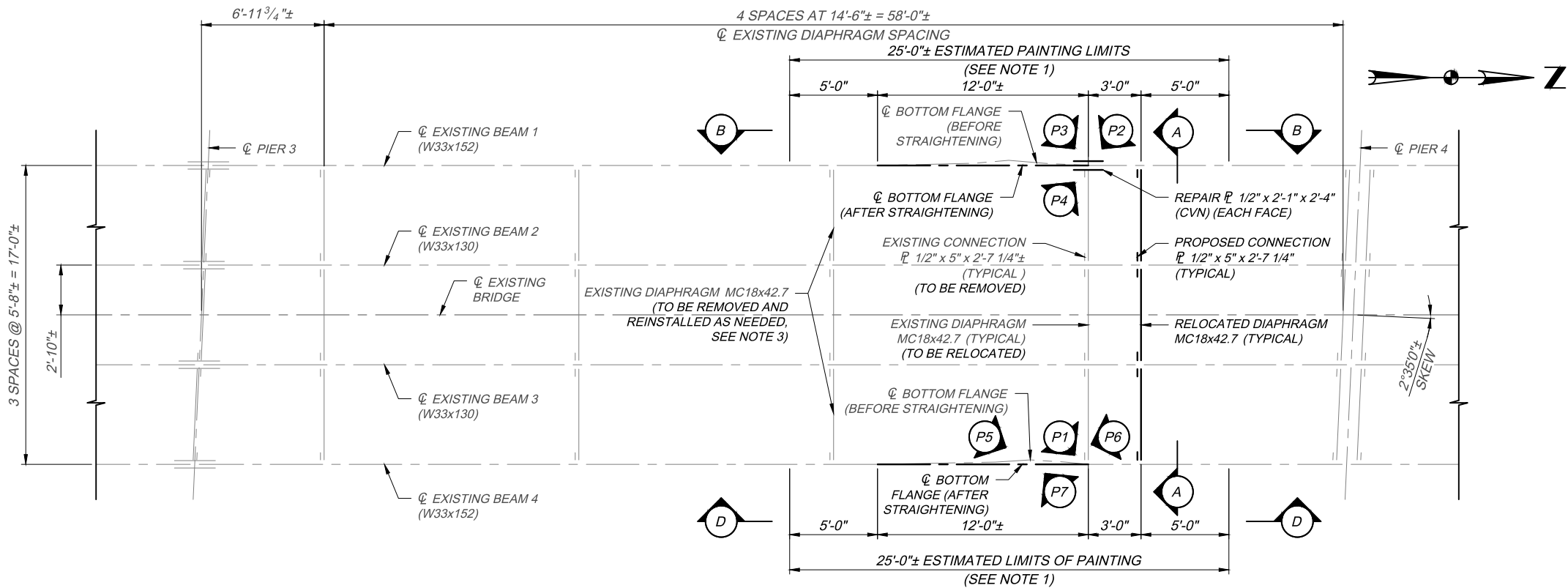
PHOTO - P2
BEAM 1 - HORIZONTAL CRACK IN WEB



PHOTO - P3
BEAM 1 - HORIZONTAL CRACK IN WEB



PHOTO - P4
BEAM 1 - CRACK IN CONNECTION P



SECTION A-A
(DIAPHRAGM CONNECTION P
RE-ERECTION DETAIL)

- NOTES:**
1. FOR ADDITIONAL FIELD PAINTING NOTES, SEE FIELD PAINTING OF EXISTING STRUCTURE - SYSTEM OZEU, SHEET 1 OF 4.
 2. REMOVE AND RE-ERECT DIAPHRAGMS USING NEW 7/8" DIAMETER ASTM A325 GALVANIZED BOLTS IN ACCORDANCE WITH ITEM 513.20 IN LIEU OF RIVETS OR AT THE OPTION OF THE CONTRACTOR, REPLACE DIAPHRAGMS IN KIND AT NO ADDITIONAL COST TO THE COMMISSION.
 3. CONTRACTOR MAY TEMPORARILY REMOVE THE DIAPHRAGMS TO FACILITATE HEAT STRAIGHTENING OPERATIONS. HOWEVER, WHEN REINSTALLING THE DIAPHRAGMS, THE CONTRACTOR SHALL USE NEW 7/8" DIAMETER ASTM A325 GALVANIZED BOLTS IN ACCORDANCE WITH ITEM 513.20. COSTS FOR NEW BOLTS AND ALL ASSOCIATED LABOR TO REMOVE AND SUBSEQUENTLY REINSTALL DIAPHRAGMS, SHALL BE INCIDENTAL TO ITEM 513-STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN.
 4. FOR VIEW B-B AND BEAM 1 DAMAGE SECTION C-C, SEE SHEET 3 OF 4.
 5. FOR PHOTOS P5, P6, P7, VIEW D-D AND BEAM 4 DAMAGE SECTION E-E, SEE SHEET 4 OF 4.

SECTION C-C

PARTIAL VIEW B-B
(BEAM ELEVATION - BEAM 1)

*DETAIL A****

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PHOTO - P5
BEAM 5 - BOTTOM FLANGE DAMAGE

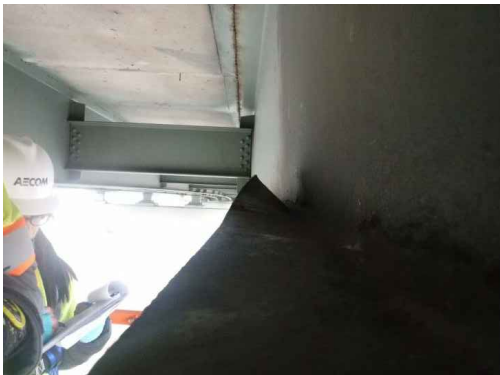
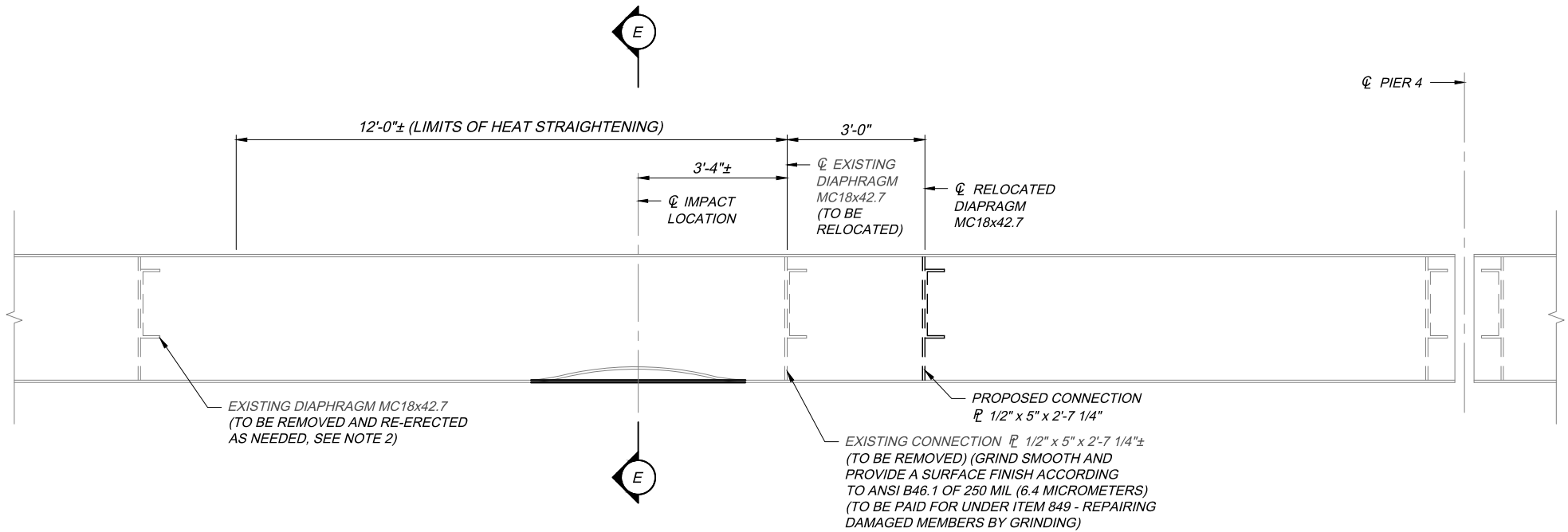


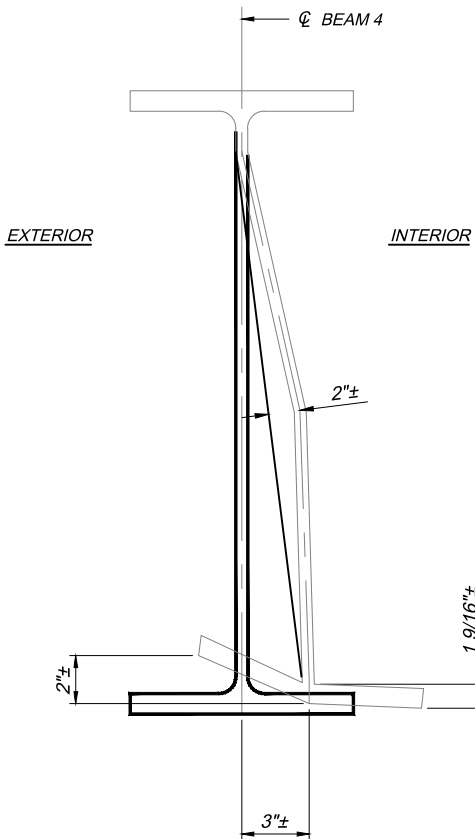
PHOTO - P6
BEAM 4 - BOTTOM FLANGE DAMAGE



PHOTO - P7
BEAM 4 - BOTTOM FLANGE DAMAGE



PARTIAL VIEW D-D
(BEAM ELEVATION - BEAM 4)



SECTION E-E

- NOTES:
- FOR PARTIAL FRAMING PLAN AND LOCATIONS FOR VIEW D-D, PHOTOS P5, P6 AND P7, SEE SHEET 2 OF 4.
 - CONTRACTOR MAY TEMPORARILY REMOVE THE DIAPHRAGMS TO FACILITATE HEAT STRAIGHTENING OPERATIONS. HOWEVER, WHEN REINSTALLING THE DIAPHRAGMS, THE CONTRACTOR SHALL USE NEW 7/8" DIAMETER ASTM A325 GALVANIZED BOLTS IN ACCORDANCE WITH ITEM 513.20. COSTS FOR NEW BOLTS AND ALL ASSOCIATED LABOR TO REMOVE AND SUBSEQUENTLY REINSTALL DIAPHRAGMS, SHALL BE INCIDENTAL TO ITEM 513-STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN.
 - DO NOT ALLOW JACKS, PULLERS OR RESTRAINING FORCES TO SUBJECT ANY PART OF THE STRUCTURE TO UNIT STRESSES THAT EXCEED 50 PERCENT OF THE MATERIAL'S NOMINAL YIELD (FY) AT AMBIENT TEMPERATURE PER HEAT STRAIGHTENING SUPPLEMENTAL SPECIFICATION 849.
 - STRUCTURAL STEEL TYPE:
EXISTING STEEL (Fy = 33,000 PSI)
NEW STEEL ASTM A709 (Fy = 50,000 PSI)

PROJECT 43-20-02B		DATE: 11/8/19		DESIGN AGENCY AECOM 564 WHITE POND DRIVE AKRON, OHIO 44320-1700 888-911-1111	
4 / 4		5 / 9		OHIO TURNPIKE	
BEAM REPAIR DETAILS		TEDROW-MORENCI ROAD OVER THE OHIO TURNPIKE		FULTON COUNTY	
M.P. 31.4		DESIGNED MRW		CHECKED JTH	
		DRAWN CMA		IN CHARGE DSB	
		NO. 1		REVISIONS ADDENDUM 1	
		BY MRW		DATE 11/19	

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

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CONSTRUCTION SPECIFICATIONS

THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIALS SPECIFICATIONS DATED JANUARY, 2016, AND THE SPECIAL PROVISIONS CONTAINED IN THE CONTRACT DOCUMENTS SHALL GOVERN THIS PROJECT.

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION FOR STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE ODOT BRIDGE DESIGN MANUAL, 2004.

DESIGN DATA:

STRUCTURAL STEEL - ASTM A709 GRADE 50 (Fy= 50 KSI) (NEW STEEL)
(Fy= 33 KSI) (EXISTING STEEL)

EXISTING STRUCTURE VERIFICATION

THE ORIGINAL CONSTRUCTION PLANS ARE AVAILABLE ON BID EXPRESS.

DETAILS, DIMENSIONS, AND ELEVATIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR 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.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS, DIMENSIONS, ELEVATIONS, AND SKEW ANGLES WHICH SHOULD BE FIELD VERIFIED BY THE CONTRACTOR. THE STRUCTURAL STEEL SHALL NOT BE FABRICATED UNTIL THE ACTUAL DETAILS, DIMENSIONS, ELEVATIONS, AND SKEW ANGLES HAVE BEEN FIELD VERIFIED BY THE CONTRACTOR.

ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN:

WORK UNDER THIS ITEM INCLUDES THE FABRICATION AND INSTALLATION OF REPLACEMENT CONNECTION PLATES AND WEB REPAIR PLATES AS SHOWN IN THE PLANS AND CLEANING THE EXISTING STEEL IN AREAS TO BE WELDED BY REMOVING THE EXITING PAINT BY GRINDING OR ABRASIVE BLASTING. PROVIDE A MINIMUM OF 2" CLEAR FROM ALL WELDS.. THIS WORK ALSO INCLUDES BUT IS NOT LIMITED TO THE FIELD DRILLING OF BOLT HOLES, WELDING AND THE FURNISHING AND INSTALLATION OF A325 GALVANIZED BOLTS AND INCLUDES ALL INCIDENTALS NECESSARY TO COMPLETE THIS WORK.

ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN.

ITEM 513 - STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING AND NDT, AS PER PLAN:

THIS WORK CONSISTS OF THE FOLLOWING SEQUENCE OF OPERATIONS PERFORMED AT THE AREAS DESIGNATED IN THE PLANS AND AS DIRECTED BY THE ENGINEER TO IDENTIFY EXTENTS OF ANY CRACKING OF STRUCTURAL STEEL.

1. CLEAN THE DESIGNATED AREA BY PENCIL ABRASIVE BLASTING THE PAINT AND/OR RUST FROM THE STEEL SURFACE. PENCIL ABRASIVE BLASTING SHALL CONFORM TO THE FOLLOWING:

CLEAN THE DESIGNATED NON-DESTRUCTIVE TESTING (NDT) AREAS OF ALL PAINT, RUST AND FOREIGN MATERIAL BY ABRASIVE BLASTING TO A SURFACE QUALITY EQUAL TO SSPC-SP10 PREPARATION GRADE SA 2 ACCORDING TO AND AS SHOWN IN SSPC-VIS 1-89. SINCE THE INTENT OF THE PENCIL ABRASIVE BLASTING IS TO ENHANCE THE VISUAL AND NDT CRACK DETECTION TECHNIQUES, A GENTLE ABRASIVE BLAST SHALL BE USED SUCH THAT THE SURFACE IS NOT PEENED OR OTHERWISE COLD WORKED. PERFORM THE ABRASIVE BLASTING USING A MAXIMUM COMPRESSED AIR PRESSURE OF 100 PSI, A HOSE NOZZLE DIAMETER OF 1/4" (+/- 1/16"), AND A GRADE 30/60 COAL SLAG ABRASIVE OR EQUIVALENT. DO NOT USE BLASTING ABRASIVES CONTAINING MORE THAN ONE-PERCENT FREE SILICA. BLASTERS USED FOR SURFACE PREPARATION FOR STRUCTURAL STEEL COATING CAN NOT BE USED FOR PENCIL BLASTING. AFTER THE ABRASIVE BLASTING IS COMPLETE, AIR BLOW THE AREA CLEAN. THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER THAT PENCIL ABRASIVE BLASTING CAN SATISFACTORILY BE PERFORMED ACCORDING TO THESE SPECIFICATIONS PRIOR TO THE START OF THE WORK.

CLEANED AREAS SHALL BE AT LEAST 3 INCHES WIDE ALONG EACH SIDE OF A SUSPECTED CRACK LOCATION UNLESS OTHERWISE SHOWN IN THE PLANS. ALL PAINT REMOVAL SHALL BE IN ACCORDANCE WITH SP 514A.

2. THE ENGINEER, ACCOMPANIED BY THE CONTRACTOR, SHALL CAREFULLY VISUALLY INSPECT THE CLEANED AREA. GRINDING MAY BE DIRECTED BY THE ENGINEER TO ENHANCE THE INVESTIGATION FOR CRACK PRESENCE. THE GRINDING MOTION SHALL BE PARALLEL TO THE FLANGE EDGE.
3. NON-DESTRUCTIVELY TEST (NDT) THE AREA USING MAGNETIC PARTICLE EXAMINATION AND/OR DYE PENETRATION SO THAT THE ENGINEER MAY FURTHER INSPECT THE CRACKS.

STRUCTURE GENERAL NOTES

ITEM 513 - STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING AND NDT, AS PER PLAN: (CONTINUED)

4. ALL CRACKS AND/OR CRACK TIPS THAT ARE ACCESSIBLE ARE TO BE REMOVED AS SHOWN IN THE PLANS. ANY CRACKS INACCESSIBLE TO DRILLING ARE TO BE REMOVED AS SHOWN IN THE PLANS BY CAREFUL GRINDING, OR BY CAREFULLY ENLARGING THE DRILLED HOLES BY GRINDING.
5. PERFORM STEPS 1 THRU 4 ON THE OPPOSITE SIDE OF THE WEB AT THE SUSPECTED CRACK LOCATION.

ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR ITEM 513 - STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING, AND NDT, AS PER PLAN.

ITEM 513 - STRUCTURAL STEEL, MISC., DRILLING STRUCTURAL STEEL, GRINDING AND NDT, AS PER PLAN:

THIS WORK CONSISTS OF DRILLING CRACKS AND ENDS OF CRACKS, GRINDING TO ENLARGE DRILLED HOLES, AND NON-DESTRUCTIVE TESTING AS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER TO ARREST CRACKS FOUND BY PENCIL ABRASIVE BLASTING. ENGINEER APPROVAL MUST BE OBTAINED BEFORE DRILLING ANY HOLES IN THE FLANGES UNDER THIS ITEM.

DRILL HOLES TO REMOVE THE ENTIRE CRACKS OR THE APPARENT ENDS OF THE CRACK REVEALED BY THE INITIAL NDT AND/OR VISUAL INSPECTION. GRIND SMOOTH THE EXPOSED CIRCUMFERENCE OF EACH DRILLED HOLE AND CAREFULLY INSPECT FOR CRACKS USING MAGNETIC PARTICLE EXAMINATION AND/OR DYE PENETRATION. CONTINUE DRILLING, GRINDING, AND TESTING UNTIL ALL CRACK ENDS ARE REMOVED. WHEN NO CRACKS ARE DETECTED AT A LOCATION, NO ADDITIONAL HOLES SHALL BE DRILLED UNDER THIS ITEM.

SINCE ANY OF THESE CRACKS COULD PROPAGATE INTO A TENSION ZONE, REMOVING THEIR ENDS IS IMPERATIVE. CRACKS UP TO 1/2" LONG, AND DEFECTS UP TO 1/2" IN DIAMETER, SHALL BE COMPLETELY REMOVED BY A SINGLE 1" DIAMETER HOLE WHEN PRACTICAL. THE 1" DIAMETER HOLE SHALL BE DRILLED SUCH THAT THERE IS 1/4" CLEAR AT EACH END OF THE CRACK OR DEFECT. ENDS OF CRACKS LONGER THAN 1/2", AND DEFECTS LARGER THAN 1/2" IN DIAMETER, SHALL BE DRILLED AT THE END OF THE CRACK OR DEFECT WITH 1" DIAMETER DRILL BITS. HOLES SHALL BE CAREFULLY EXAMINED FOR CRACKS IN THE PLANE OF THE PLATE. 1 1/2" OR 2" DIAMETER HOLES MAY BE DRILLED TO COMPLETELY REMOVE A LARGER CRACK OR DEFECT WHERE THE PROXIMITY OF THE CRACK END TO ADJACENT STEEL PRECLUDES DRILLING 1" DIAMETER HOLES.

THE LOCATION OF ALL HOLES SHALL BE DETERMINED BY THE ENGINEER.

ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR ITEM 513 - STRUCTURAL STEEL MISC., DRILLING STRUCTURAL STEEL, GRINDING, AND NDT, AS PER PLAN.

ITEM SP 514A – FIELD PAINTING OF EXISTING STRUCTURES - SYSTEM OZEU:

WORK UNDER THIS ITEM INCLUDES PREPARING AND COATING THE FOLLOWING AREAS OF EXISTING STEEL WITH A PAINT SYSTEM THAT MATCHES EXISTING OR IS AN APPROVED ALTERNATE:

1. ANY AREA WHERE DRILLING, GRINDING, ABRASIVE BLASTING OR WELDING OCCURRED.
2. ANY AREA OF PAINT DAMAGED BY THE COLLISION, INCLUDING THE ENTIRE LENGTH OF HEAT STRAIGHTENING BEAM REPAIRS.
3. ANY AREA DAMAGED BY THE CONTRACTOR'S OPERATIONS.

THE TOPCOAT COLOR SHALL CLOSELY MATCH THE COLOR OF THE EXISTING PAINT (GREEN PER FEDERAL STANDARD 595B-14159).

THIS ITEM ALSO INCLUDES PAINTING ALL NEW STEEL.

ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM SP 514A – FIELD PAINTING OF EXISTING STRUCTURES - SYSTEM OZEU, FOR PAYMENT.

ITEM SP 614 - MAINTAINING TRAFFIC:

TRAFFIC SHALL BE MAINTAINED AS DETAILED ON OTIC STANDARD DRAWINGS TCR-1, TCR-2, TCR-14 AND TCR-15. ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH OTIC SPECIAL PROVISIONS AND C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM SP 614, MAINTAINING TRAFFIC, AS PER PLAN UNLESS SEPARATELY ITEMIZED IN THE PLAN.

1. CONTRACTOR WILL BE RESPONSIBLE FOR ERECTING AND MAINTAINING ALL TRAFFIC CONTROL REQUIRED TO PERFORM THE WORK.
2. THE TURNPIKE WESTBOUND RIGHT LANE SHOULDER SHALL BE CLOSED AS DETAILED ON OTIC STANDARD DRAWINGS TCR-1, TCR-2, TCR-14 AND TCR-15.
3. THE CONTRACTOR SHALL CLOSE AND DETOUR ALL LOCAL TRAFFIC ON HARTMAN-INLET ROAD DURING ANY TIME IN WHICH THE EXISTING AND/OR PROPOSED DIAPHRAGMS ARE REMOVED OR NOT FULLY INSTALLED. FOR TEMPORARY CLOSURES ON LOCAL ROADS AND PROVIDE DOCUMENTATION OF PERMITS TO THE OTIC. THE CONTRACTOR SHALL NOT CLOSE ANY LANES OR SHOULDERS UNTIL THE PERMITS ARE OBTAINED AND SUBMITTED.
4. THE CONTRACTOR SHALL NOTIFY THE LOCAL MUNICIPALITIES/COUNTY AND THE OTIC 14 DAYS PRIOR TO BEGINNING WORK AND 14 DAYS PRIOR TO ANY CLOSURE OF THE LOCAL ROADS. THE NOTIFICATION FOR ROAD CLOSURE SHALL ALSO INCLUDE AN ANTICIPATED CLOSURE DURATION.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM CONTRACT BID PRICE FOR ITEM SP 614, MAINTAINING TRAFFIC.

GENERAL SUMMARY - MP 32.2			
ITEM	TOTAL	UNIT	DESCRIPTION
202	64	SF	REMOVAL MISC.: LOOSE CONCRETE REMOVAL
513	3 *	EACH	STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING AND NDT, AS PER PLAN
513	3 *	EACH	STRUCTURAL STEEL MISC., DRILLING STRUCTURAL STEEL, GRINDING AND NDT, AS PER PLAN
513	1	LUMP	STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN
SP 514A	1	LUMP	FIELD PAINTING OF EXISTING STRUCTURES - SYSTEM OZEU
SP 525A	1	LUMP	WORKER PROTECTION
SP 525A	3	EACH	PROTECTIVE CLOTHING/EQUIPMENT SET
SP 525A	1	LUMP	ESTABLISH REGULATED AREAS
SP 525A	1	LUMP	UNIVERSAL PAINT-RELATED WASTE
SP 525A	1	LUMP	CONTAINMENT SYSTEM
849	1	LUMP	DAMAGE ASSESSMENT
849	1	LUMP	SURFACE PREPARATION
849	8	HOURS	REPAIRING DAMAGED MEMBERS BY GRINDING
849	1	LUMP	STRAIGHTENING DAMAGED MEMBERS

* A CONTINGENCY OF 3 EACH HAS BEEN INCLUDED IN THE QUANTITIES FOR ITEM 513 - STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING, AND NDT, AS PER PLAN AND ITEM 513 - STRUCTURAL STEEL MISC., DRILLING STRUCTURAL STEEL, GRINDING, AND NDT, AS PER PLAN AND ARE TO BE PERFORMED AS DIRECTED BY THE ENGINEER.

NOTE: ITEMS IB. ART. 6 - PREMIUM FOR CONTRACT PERFORMANCE BOND AND PAYMENT BOND, SP 614 - MAINTAINING TRAFFIC AND 624 - MOBILIZATION ARE ALL TO BE PAID FOR UNDER TEDROW-MORENCI ROAD BRIDGE REPAIRS. NO SEPARATE PAYMENT WILL BE MADE WITH HARTMAN-INLET ROAD BRIDGE.

PROJECT 43-20-02B

DATE: 11/8/19

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GENERAL NOTES AND QUANTITIES

HARTMAN-INLET ROAD OVER THE OHIO TURNPIKE

M.P. 32.2

DESIGN AGENCY

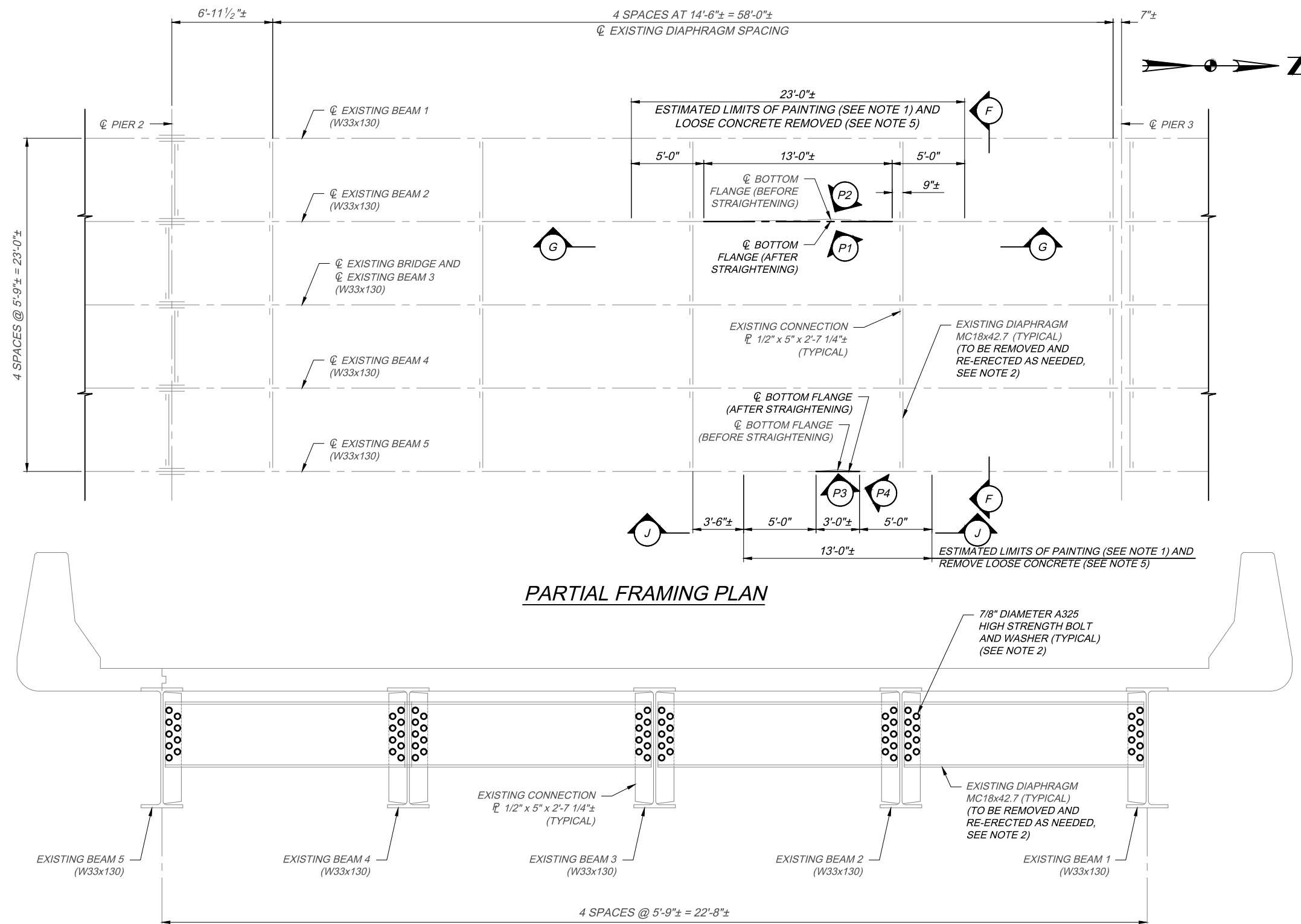
AECOM

564 WHITE POND DRIVE
AKRON, OHIO 44320-1100
888-911.1

OHIO TURNPIKE

OHIO TURNPIKE COMMISSION

OHIO TURNPIKE

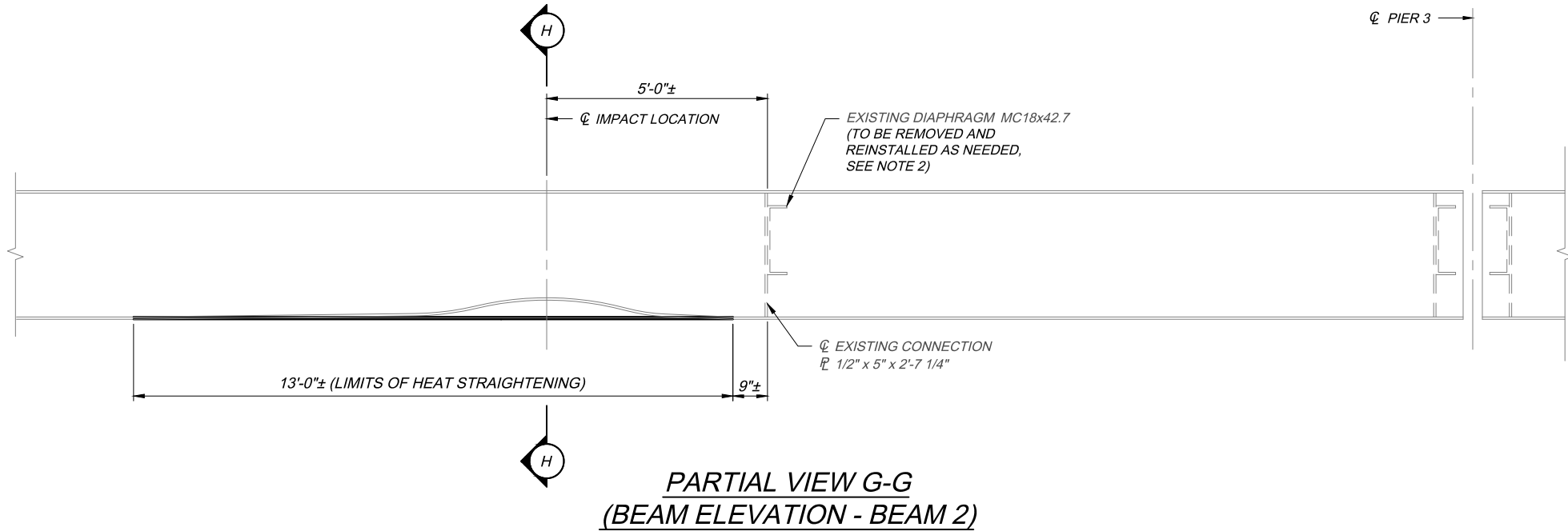
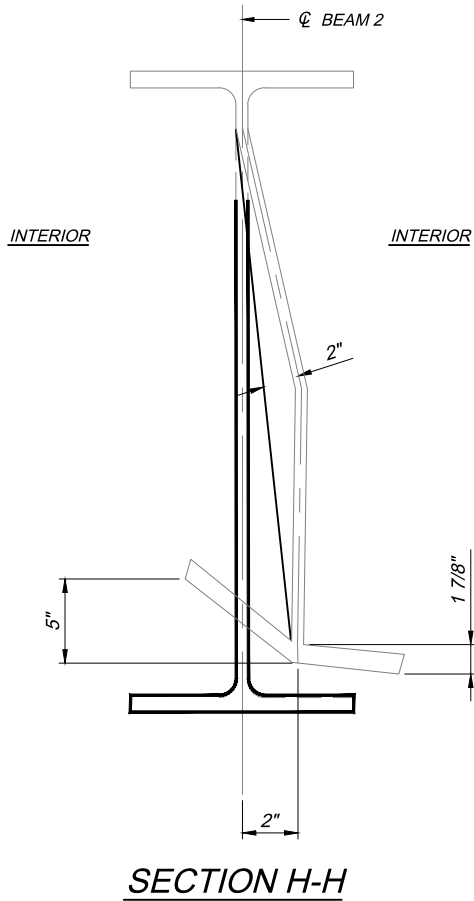


SECTION F-F
(DIAPHRAGM CONNECTION R
RE-ERECTION DETAIL)

NOTES:

1. FOR ADDITIONAL FIELD PAINTING NOTES, SEE FIELD PAINTING OF EXISTING STRUCTURE - SYSTEM OZEU, SHEET 1 OF 4.
2. CONTRACTOR MAY TEMPORARILY REMOVE THE DIAPHRAGMS TO FACILITATE HEAT STRAIGHTENING OPERATIONS. HOWEVER, WHEN REINSTALLING THE DIAPHRAGMS, THE CONTRACTOR SHALL USE NEW 7/8" DIAMETER ASTM A325 GALVANIZED BOLTS IN ACCORDANCE WITH ITEM 513.20. COSTS FOR NEW BOLTS AND ALL ASSOCIATED LABOR TO REMOVE AND SUBSEQUENTLY REINSTALL DIAPHRAGMS, SHALL BE INCIDENTAL TO ITEM 513-STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN.
3. FOR VIEW G-G AND BEAM 2 DAMAGE SECTION H-H, SEE SHEET 3 OF 4.
4. FOR VIEW J-J AND BEAM 5 DAMAGE SECTION K-K, SEE SHEET 4 OF 4.
5. THE LOOSE CONCRETE REMOVAL LIMITS SHALL BE THE LENGTH SHOWN ON THE PLANS AND EXTEND 24" BEYOND EACH FACE OF THE BEAMS TOP FLANGE. TO BE PAID FOR UNDER ITEM 202 - REMOVAL MISC.: LOOSE CONCRETE REMOVAL.

G:\Akron\DCS\Projects\TRN60601677_5\YRCES\900_CAD_GIS\Task Orders\Task 1 MP31.4 and 32.2 99-19-03\CAD Drawings\11 01 2019\FUL008.dwg; FUL008; 11/19/19 - 12:59pm



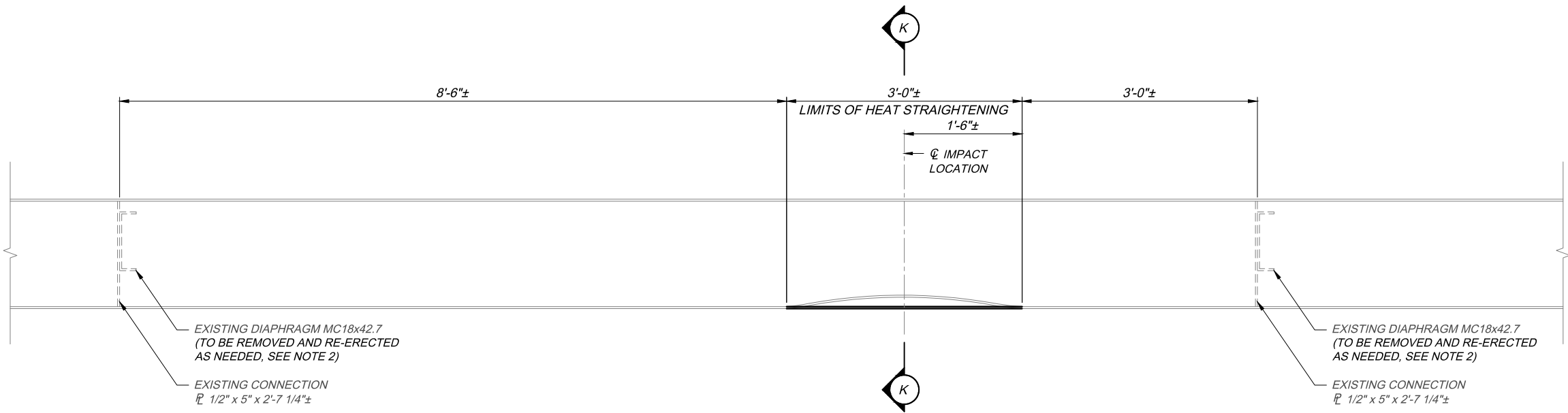
NOTES:

- FOR PARTIAL FRAMING PLAN AND LOCATIONS FOR VIEW G-G, SEE SHEET 2 OF 4.
- CONTRACTOR MAY TEMPORARILY REMOVE THE DIAPHRAGMS TO FACILITATE HEAT STRAIGHTENING OPERATIONS. HOWEVER, WHEN REINSTALLING THE DIAPHRAGMS, THE CONTRACTOR SHALL USE NEW 7/8" DIAMETER ASTM A325 GALVANIZED BOLTS IN ACCORDANCE WITH ITEM 513.20. COSTS FOR NEW BOLTS AND ALL ASSOCIATED LABOR TO REMOVE AND SUBSEQUENTLY REINSTALL DIAPHRAGMS, SHALL BE INCIDENTAL TO ITEM 513-STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN.
- DO NOT ALLOW JACKS, PULLERS OR RESTRAINING FORCES TO SUBJECT ANY PART OF THE STRUCTURE TO UNIT STRESSES THAT EXCEED 50 PERCENT OF THE MATERIAL'S NOMINAL YIELD (FY) AT AMBIENT TEMPERATURE PER HEAT STRAIGHTENING SUPPLEMENTAL SPECIFICATION 849.
- STRUCTURAL STEEL TYPE:

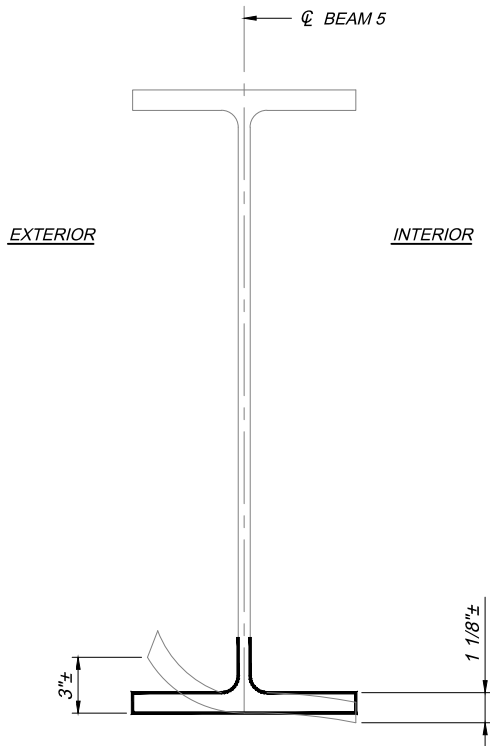
EXISTING STEEL (Fy = 33,000 PSI)
NEW STEEL ASTM A709 (Fy = 50,000 PSI)

<div><div>9</div><div>8</div></div>		3 / 4		PROJECT 43-20-02B		BEAM REPAIR DETAILS										DESIGNED		CHECKED		NO.		REVISONS		BY		DATE		DESIGN AGENCY	
				DATE: 11/8/19		HARTMAN-INLET ROAD OVER THE OHIO TURNPIKE										MRW		JTH		1		ADDENDUM 1		MRW		11/19		564 WHITE POND DRIVE AKRON, OHIO 44320-1100 AECOM 836-9111	
						M.P. 32.2										DRAWN		IN CHARGE											
						FULTON COUNTY										CMA		DSB											
OHIO TURNPIKE																													
OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION																													
OHIO TURNPIKE																													

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PARTIAL VIEW J-J
(BEAM ELEVATION - BEAM 5)

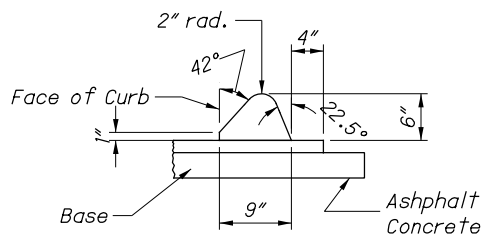


SECTION K-K

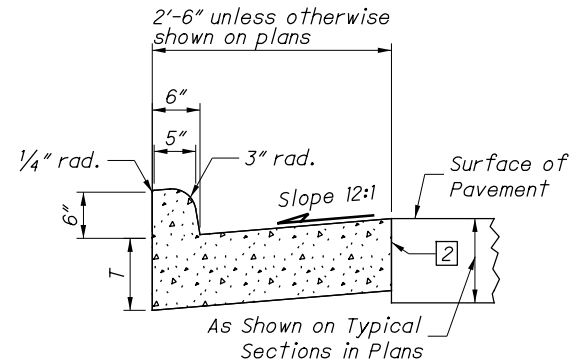
- NOTES:
- FOR PARTIAL FRAMING PLAN AND LOCATIONS FOR VIEW J-J, SEE SHEET 2 OF 4.
 - CONTRACTOR MAY TEMPORARILY REMOVE THE DIAPHRAGMS TO FACILITATE HEAT STRAIGHTENING OPERATIONS. HOWEVER, WHEN REINSTALLING THE DIAPHRAGMS, THE CONTRACTOR SHALL USE NEW 7/8" DIAMETER ASTM A325 GALVANIZED BOLTS IN ACCORDANCE WITH ITEM 513.20. COSTS FOR NEW BOLTS AND ALL ASSOCIATED LABOR TO REMOVE AND SUBSEQUENTLY REINSTALL DIAPHRAGMS, SHALL BE INCIDENTAL TO ITEM 513-STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN.
 - DO NOT ALLOW JACKS, PULLERS OR RESTRAINING FORCES TO SUBJECT ANY PART OF THE STRUCTURE TO UNIT STRESSES THAT EXCEED 50 PERCENT OF THE MATERIAL'S NOMINAL YIELD (FY) AT AMBIENT TEMPERATURE PER HEAT STRAIGHTENING SUPPLEMENTAL SPECIFICATION 849.
 - STRUCTURAL STEEL TYPE:

EXISTING STEEL (Fy = 33,000 PSI)
NEW STEEL ASTM A709 (Fy = 50,000 PSI)

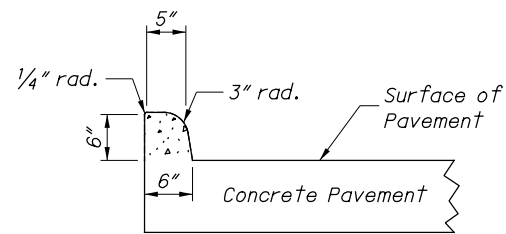
PROJECT 43-20-02B	DATE: 11/8/19	BEAM REPAIR DETAILS				DESIGNED		CHECKED	NO.	REVISIONS	BY	DATE	DESIGN AGENCY
		HARTMAN-INLET ROAD OVER THE OHIO TURNPIKE		FULTON COUNTY		MRW	JTH	1	ADDDUM 1	MRW	11/19	AECOM	
M.P. 32.2				DRAWN	TMR	IN CHARGE	DSB						564 WHITE POND DRIVE AKRON, OHIO 44320-1700 888-9111
OHIO TURNPIKE		OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION											



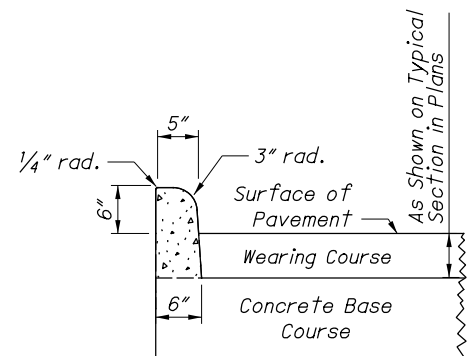
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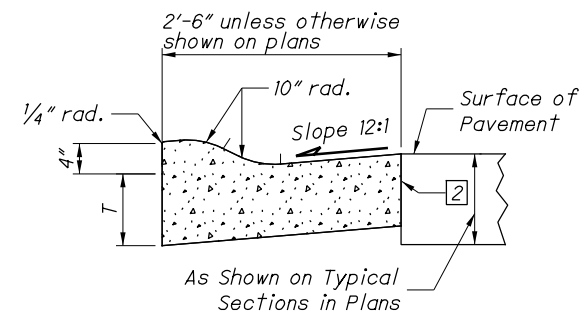
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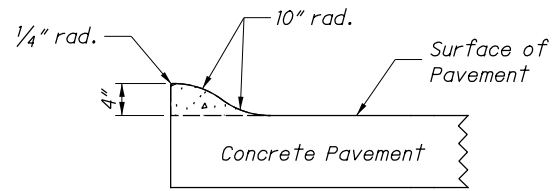
TYPE 2-A



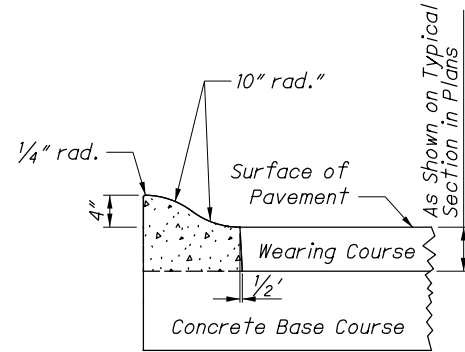
TYPE 2-B



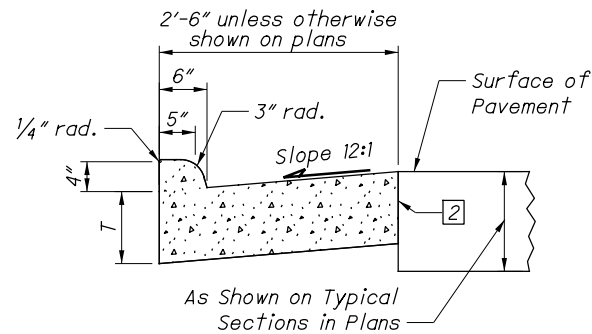
TYPE 3



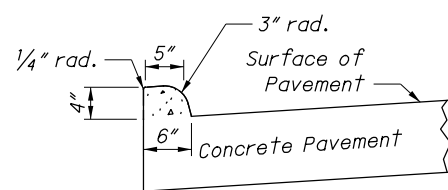
TYPE 3-A



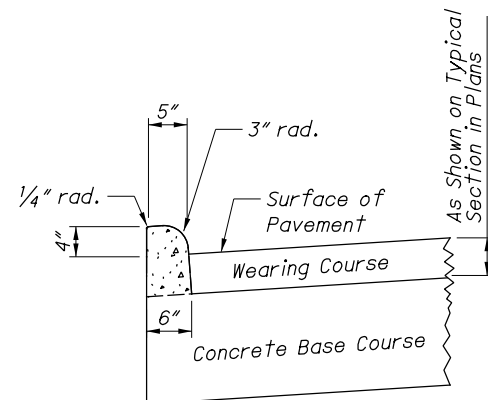
TYPE 3-B



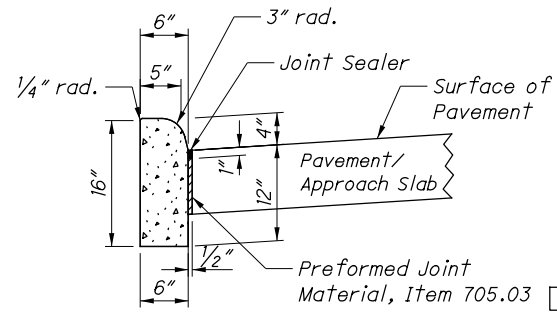
TYPE 4



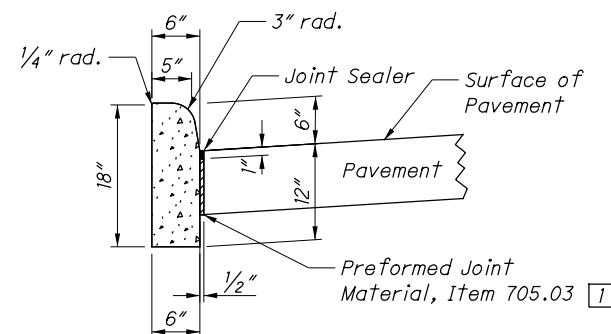
TYPE 4-A



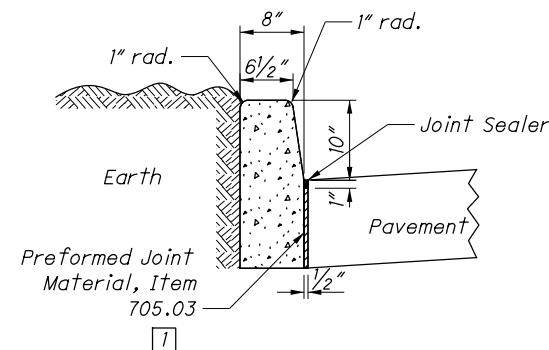
TYPE 4-B



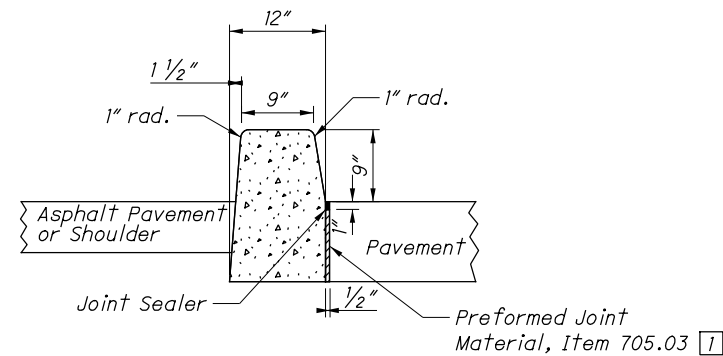
TYPE 4-C



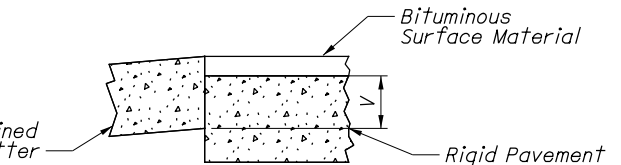
TYPE 6



TYPE 7



TYPE 8



TYPE 9

NOTES

GENERAL: This drawing shows alternate types of curb that may be used on various types of pavement. The typical section of the project shows the type to be used, also the thickness of the edge of the pavement or the edge of the curb and gutter section.

JOINTS: 1" expansion joints shall extend up to the top of the curb and shall be constructed in the curb and gutter section in such a manner that the joint seal will extend the full width of the gutter and into the curb face a sufficient distance to seal the joint to an elevation of a least 2" above the flow line of the gutter. Dowel bars shall be used in the curb and gutter section at expansion joints and to the surface of the pavement.

Transverse expansion joint material shall meet the requirements of Item 705.03.

GUTTER PLATE THICKNESS: Thickness of gutter plate "T" shall be 9" unless otherwise shown on the plans.

TOLERANCES: Dimensional tolerances are as follows:

Curbs: $\pm \frac{1}{32}$ " to $\pm \frac{1}{4}$ ".

Gutters: 0 to $\pm \frac{1}{2}$ ".

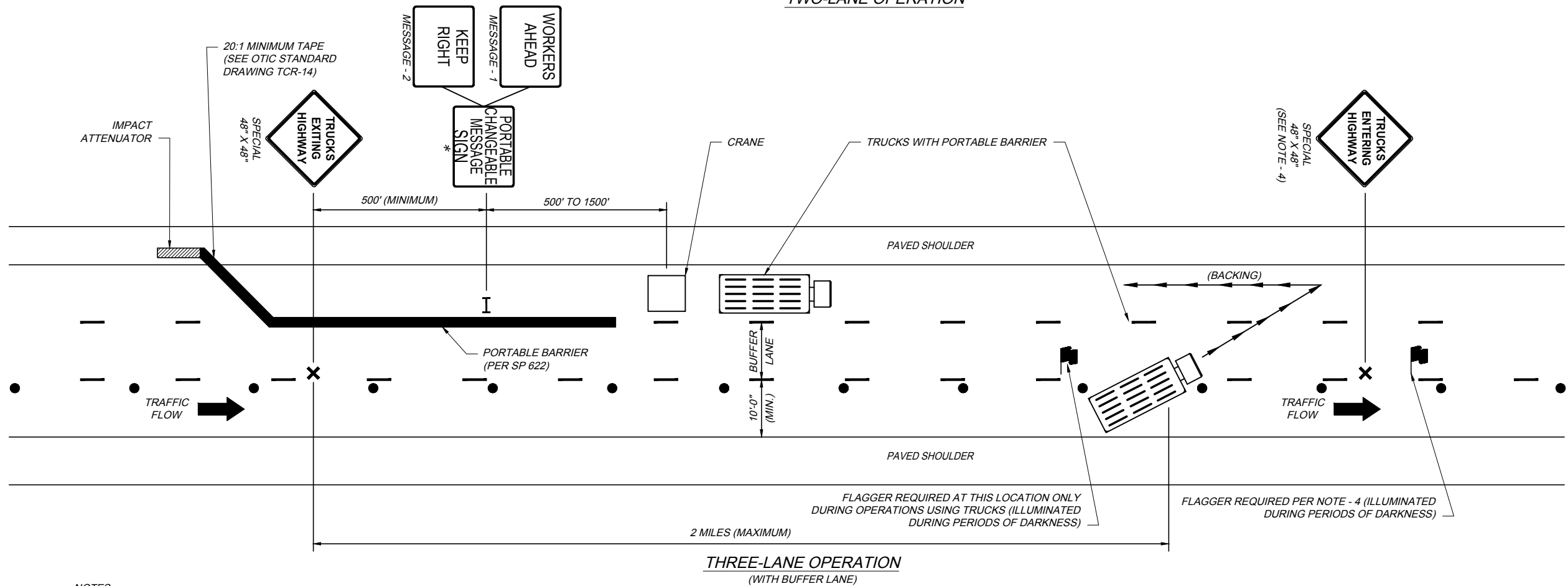
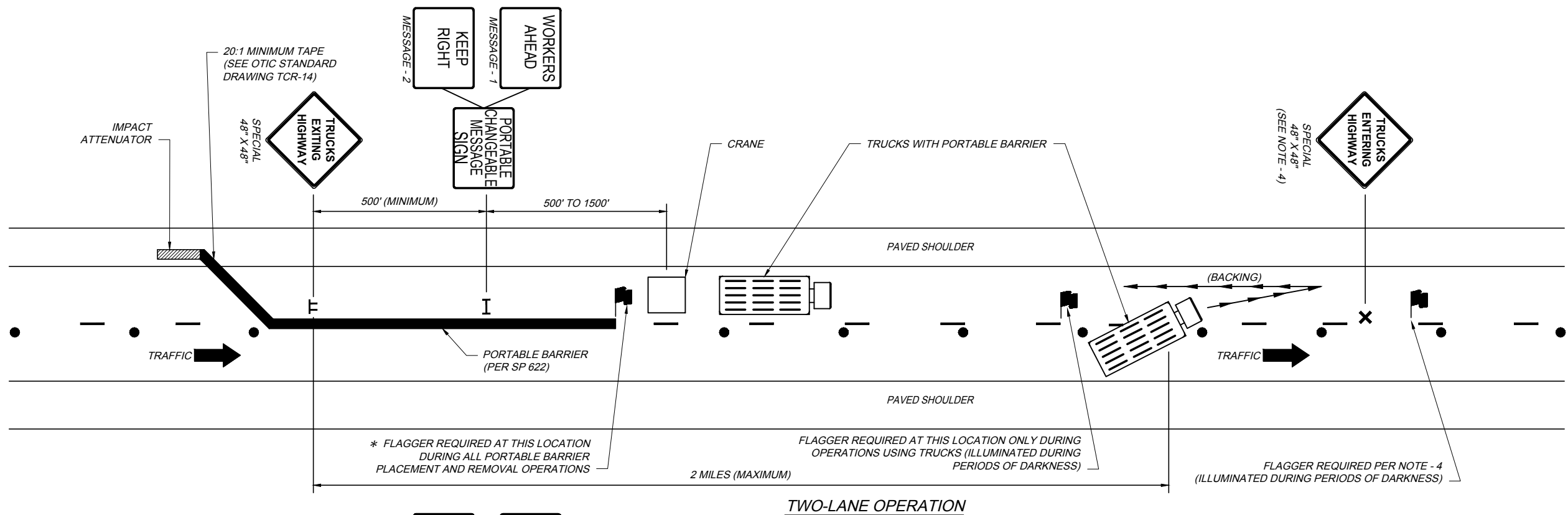
LEGEND

1 Expansion joint material and joint sealer are not required for the portion of the curb that is adjacent to a flexible pavement type. Both materials are required, as detailed, for the full height of rigid pavement and concrete bases.

2 Butt joints shall be provided between combined curb-and-gutter and new or existing rigid pavements, with tie bars or hook bolts provided at intervals of 5'. See SCD BP-2.1 for details of tie bars and hook bolts.

If the combined curb-and-gutter adjoins a new rigid base or an existing rigid base or pavement that is to be surfaced with asphalt concrete, a butt joint shall also be provided. However, tie bars or hook bolts shall be omitted when the vertical overlap ("V" in detail below) between the curb-and-gutter and rigid pavement is less than 7".

TCB-1 2017.10.20.DWG: 10/25/17 - 4:41pm

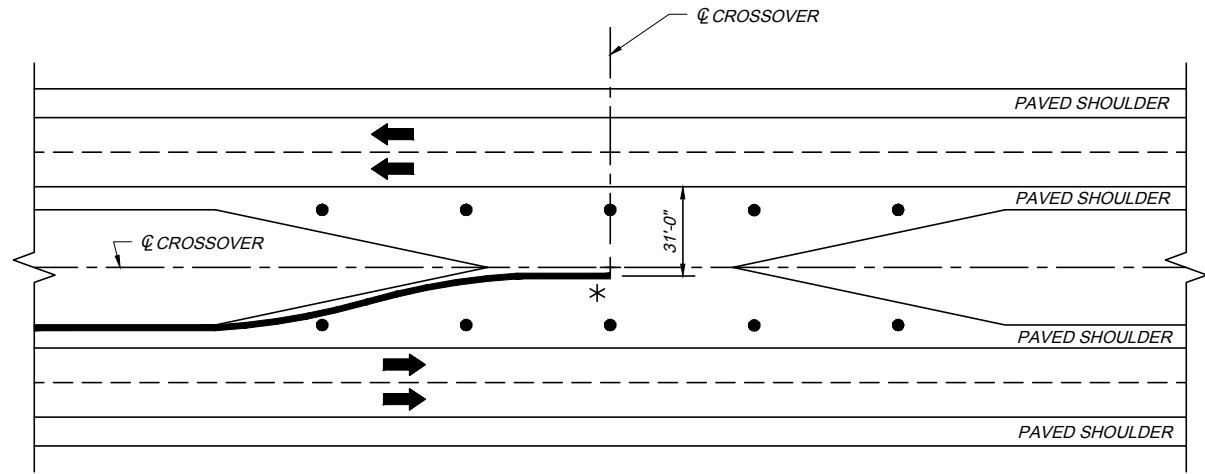


NOTES:

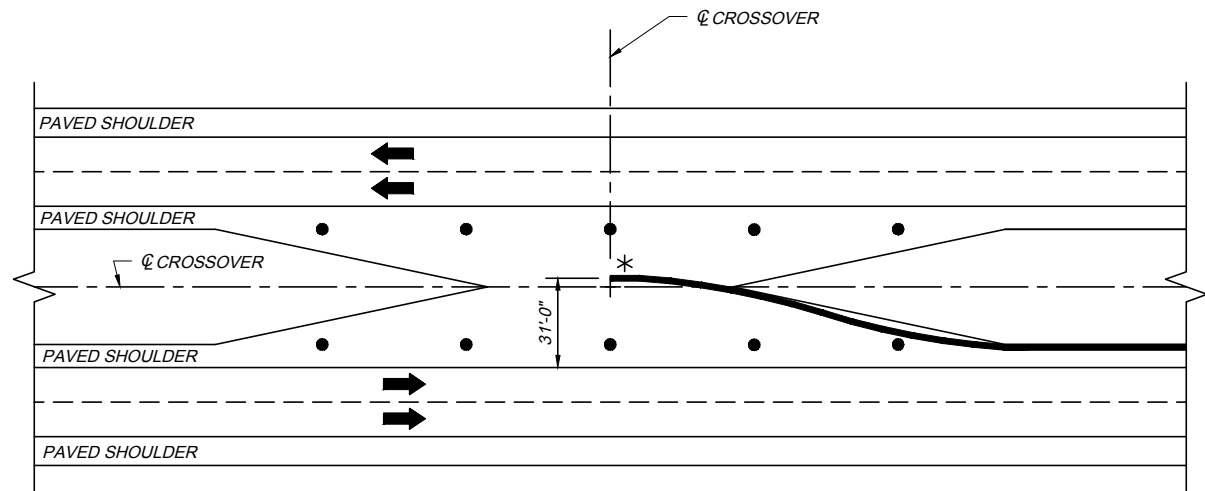
1. FOR NIGHTTIME OPERATIONS ALL LIGHTS SHALL BE DIRECTED AT SUCH AN ANGLE SO AS NOT TO HINDER THE VISION OF ONCOMING TRAFFIC, YET SUFFICIENT TO LIGHT THE CONSTRUCTION AREA.
2. ORDER OF OPERATIONS.
 - A. SET IMPACT ATTENUATOR FIRST.
 - B. SET BARRIER WITH DIRECTION OF TRAFFIC FLOW.
 - C. REMOVE BARRIER AGAINST DIRECTION OF TRAFFIC FLOW.
 - D. REMOVE IMPACT ATTENUATOR.

3. CONTRACTOR SHALL ADJUST SIGN AND PORTABLE CHANGEABLE MESSAGE SIGN TO MAINTAIN REQUIRED SPACINGS.
 4. IF THE DELIVERY TRUCKS RETURN TO THE OPEN TRAFFIC LANE, A "TRUCKS ENTERING HIGHWAY" SIGN SHALL BE LOCATED 1000 FEET AHEAD OF THE ENTRY LOCATION AND A FLAGGER SHALL BE LOCATED AT THE ENTRY LOCATION. THE FLAGGER AND ADDITIONAL SIGN IS NOT REQUIRED IF THE BARRIER DELIVERY TRUCKS EXIT THE WORK ZONE AT THE END OF THE CLOSED LANE.
 5. FOR LEGENDS, DETAILS AND NOTES, SEE OTIC STANDARD DRAWING TCR-2
- * - THESE ITEMS ARE NOT REQUIRED IF THERE IS NO EQUIPMENT, MATERIALS OR WORKERS IN THE BUFFER LANE.

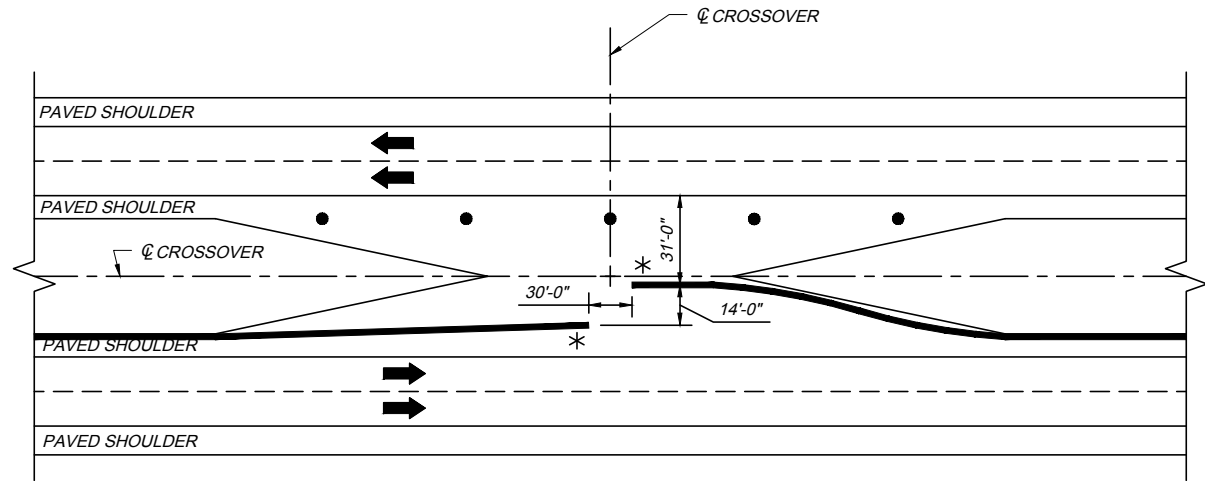
TCB-2 2017.10.20.DWG; 2/20/19 - 10:48am



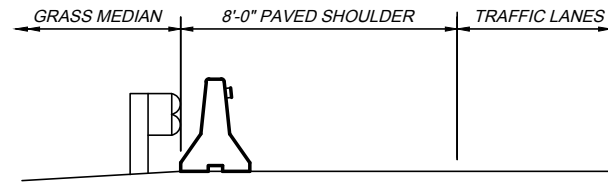
STORAGE WHEN ENDING IN CROSSOVER



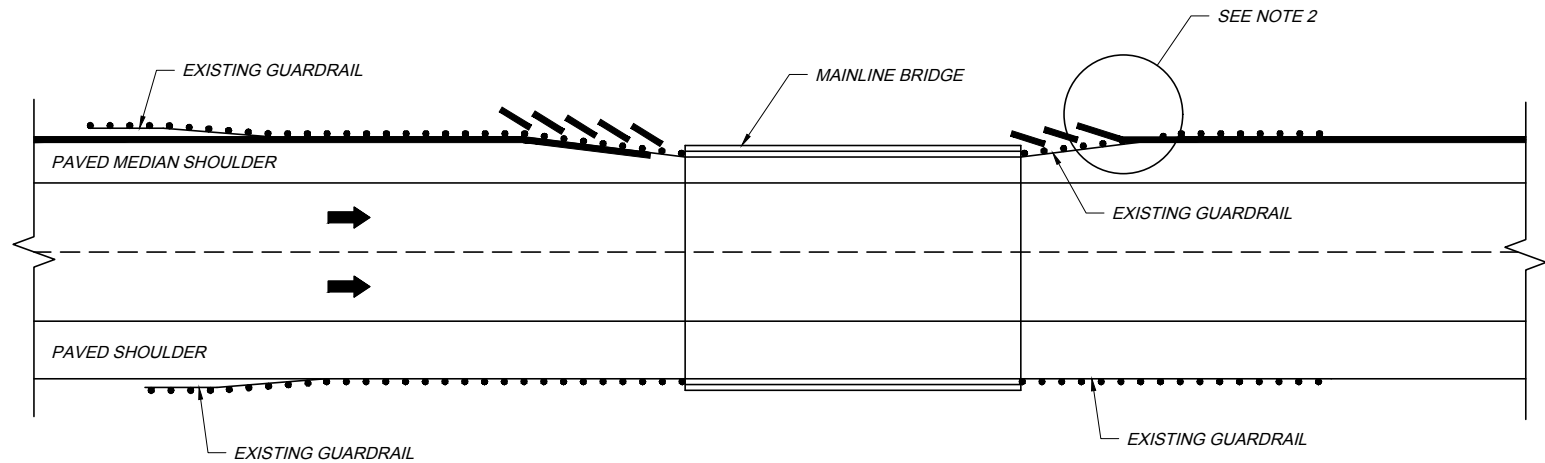
STORAGE WHEN BEGINNING IN CROSSOVER



STORAGE WHEN CONTINUING PAST CROSSOVER



TYPICAL PORTABLE BARRIER LOCATION ON PAVED SHOULDER
(ALL LOCATIONS WHERE 8 FOOT MEDIAN SHOULDER IS PRESENT)
(WITH OR WITH OR WITHOUT GUARDRAIL PRESENT)
(DELINEATION PER SP 622A)



STORAGE AT MAINLINE BRIDGES
(IF MEDIAN SHOULDER IS < 8 FEET)

NOTES:

1. ALL DIMENSIONS ARE TO THE CENTERLINE OF BARRIER.
2. REMOVE ONE GUARDRAIL PANEL (AND POST IF NECESSARY) AND PLACE PORTABLE BARRIER: BEGINNING IN GRASS MEDIAN - THRU OPENING IN GUARDRAIL - TO TYPICAL LOCATION ON PAVED SHOULDER.
3. ALL PORTABLE BARRIER STORED BEHIND EXISTING GUARDRAIL SHALL BE PLACED AS PARALLEL TO THE ROADWAY AS POSSIBLE WHILE STILL MAINTAINING AN OVERLAP PATTERN. THIS PORTABLE BARRIER WILL ALSO BE LOCATED A MINIMUM OF 5½ FEET BEHIND THE FACE OF GUARDRAIL.
4. ALL PORTABLE BARRIER SECTIONS SHALL BE CONNECTED TOGETHER EXCEPT THE INDIVIDUAL SECTIONS STORED BEHIND EXISTING GUARDRAIL AT MAINLINE BRIDGES.

LEGEND:

- - PORTABLE BARRIER
- * - IMPACT ATTENUATOR
- - TRAFFIC DRUMS (50' SPACING)

DATE: OCTOBER 20, 2017

STANDARD DRAWING

PORTABLE BARRIER
STORAGE DETAILS

TCB-2

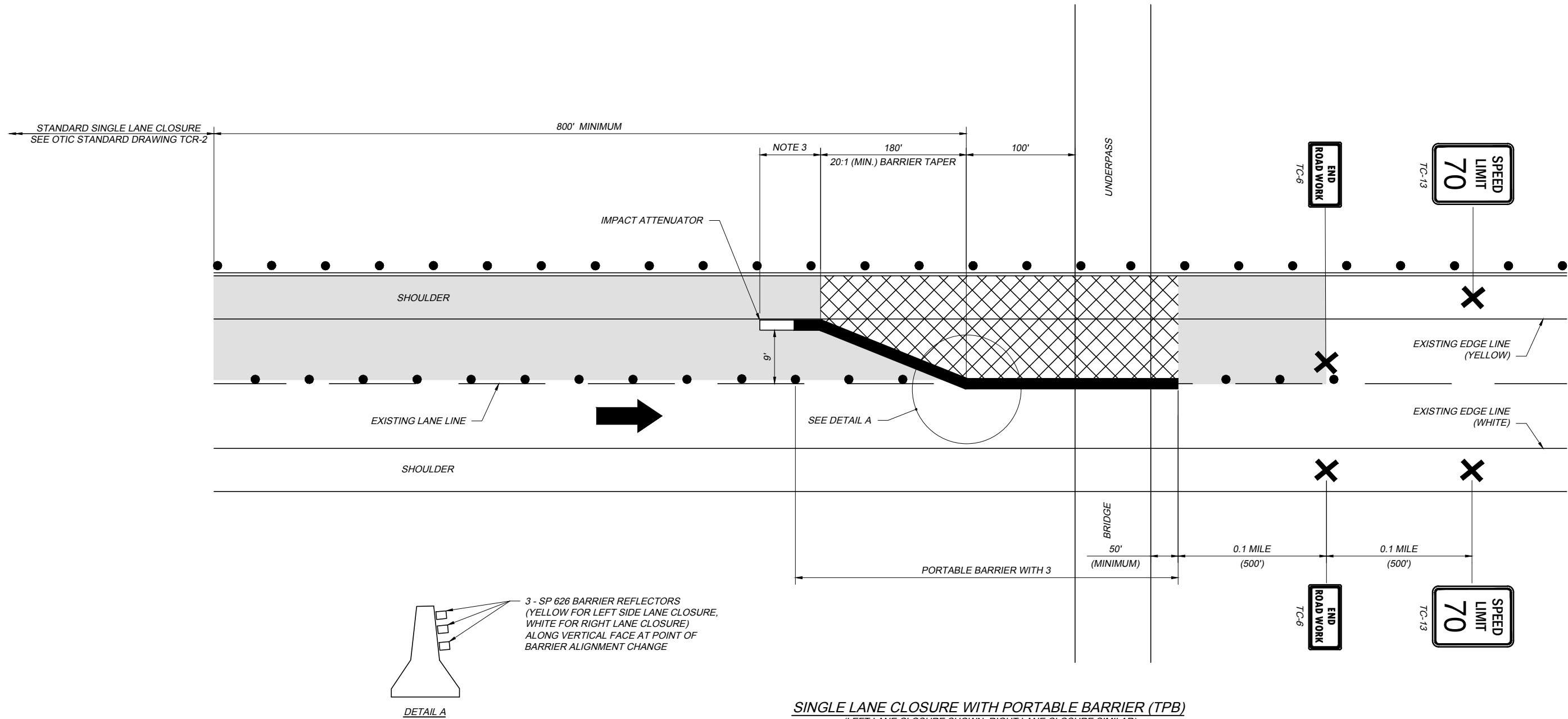
1 / 1

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION

OHIO
TURNPIKE

OHIO
TURNPIKE

TCR-14 2017.10.20.DWG; 2/20/19 - 11:43am



SINGLE LANE CLOSURE WITH PORTABLE BARRIER (TPB)
(LEFT LANE CLOSURE SHOWN, RIGHT LANE CLOSURE SIMILAR)
(TWO LANE SECTION SHOWN, RIGHT LANE CLOSURE SIMILAR)

- NOTES:**
- IMPACT ATTENUATOR FROM CURRENT ODOT APPROVED LIST, ODOT TYPE 3 AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - THE IMPACT ATTENUATOR AND PORTABLE BARRIER NEEDED FOR THIS DETAIL SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR SP 614 - MAINTAINING TRAFFIC AND SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO SET, RESET, AND REMOVE THE IMPACT ATTENUATOR AND PORTABLE BARRIER.
 - DISTANCE BASED ON MANUFACTURER'S RECOMMENDATION.
 - SP 626 BARRIER REFLECTORS @ 10' SPACING (YELLOW FOR LEFT LANE CLOSURE, WHITE FOR RIGHT LANE CLOSURE)
 - IMPACT ATTENUATORS INSTALLED AT LOCATIONS OTHER THAN UNDERPASS BRIDGE (SHOWN) SHALL BE INSTALLED PER ODOT STANDARD CONSTRUCTION DRAWING MT - 101.75.

**OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION
SPECIAL PROVISIONS FOR
PROJECT NO. 43-20-02**

SP 1	GENERAL - INCLUDING MODIFICATIONS TO OHIO TURNPIKE GENERAL CONDITIONS	SP - 1
SP 101	PLANS AND DESCRIPTION OF THE WORK	SP - 1
SP 102	SPECIFICATIONS	SP - 2
SP 103	CONSTRUCTION PHASING AND TIME OF COMPLETION	SP - 2
SP 104	ACCESS TO TURNPIKE AND RESTRICTIONS	SP - 3
SP 105	DISPOSAL OF EXCESS MATERIALS	SP - 6
SP 106	HOURS OF WORK	SP - 6
SP 107	TIME OF THE ESSENCE - LIQUIDATED DAMAGES	SP - 7
SP 108	CONCRETE PLANT CERTIFICATION	SP - 7
SP 109	HAULING OVER LOCAL ROADS	SP - 7
SP 110	PROJECT SAFETY	SP - 8
SP 111	PROHIBITION ON USE OF SLAG	SP - 14
SP 112	ENVIRONMENTAL POLLUTION CONTROL	SP - 14
SP 113	NOT USED	SP - 15
SP 114	NOT USED	SP - 15
SP 115	NOT USED	SP - 15
SP 116	FURNISHING RIGHT OF WAY/UTILITY RELOCATIONS	SP - 16
SP 117	FIBER OPTIC CABLES	SP - 16
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SP 119	NOT USED	SP - 16
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SP 509	EPOXY COATED REINFORCING STEEL	SP - 31
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INDEX - SPECIAL PROVISIONS

STATE OF OHIO DEPARTMENT OF TRANSPORTATION - SUPPLEMENTAL SPECIFICATIONS

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SS 821	ARROW BOARD (4/20/12)	SP - 248
SS 921	ARROW BOARD (4/20/12)	SP - 250

APPENDIX

APPENDIX A – PERMITTED LANE CLOSURES	SP - 252
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**OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION
SPECIAL PROVISIONS FOR
PROJECT NO. 43-20-02**

SP 1 **GENERAL - INCLUDING MODIFICATIONS TO OHIO TURNPIKE
GENERAL CONDITIONS**

SP 101 **PLANS AND DESCRIPTION OF THE WORK**

The Work included in this Project, together with other pertinent information is shown and described in the Plans, which consist of a title sheet and other drawings, as tabulated on the index of sheets, covering details of the Work.

The title sheet for Project(s) No. 43-20-02 bears the general title as follows:

OHIO TURNPIKE AND INFRASTRUCTURE COMMISSION
THE JAMES W. SHOCKNESSY OHIO TURNPIKE

PROJECT NO. 43-20-02 (**PART A**)
BRIDGE DECK REPAIR AND REHABILITATION
TEDROW-MORENCI ROAD (C.R. 17-3) OVER OHIO TURNPIKE M.P. 31.4,
WINAMEG-LYONS ROAD (T.R. 11) OVER OHIO TURNPIKE MP 38.3,
HELLER-LYONS ROAD (T.R. 10) OVER OHIO TURNPIKE M.P. 39.3
FULTON COUNTY, OHIO

PROJECT NO. 43-20-02 (PART B)
BRIDGE REPAIRS
TEDROW-MORENCI ROAD (C.R. 17-3) OVER OHIO TURNPIKE, M.P. 31.4,
HARTMAN-INLET ROAD (T.R. 17) OVER OHIO TURNPIKE, M.P. 32.2
FULTON COUNTY, OHIO

The title sheet bears the approval of the Chief Engineer.

The Work to be performed under Project No. 43-20-02 (**Part A**) consists of the following:

Replacement of the bridge decks; replacement of expansion joints; bearings; miscellaneous patching of substructure; sealing of construction joints; performing concrete weatherproofing; maintenance of traffic; installing fencing; and all other items incidental to the completion of the Work.

The Work to be performed under Project No. 43-20-02 (Part B) consists of the follow:

Repair of bridge components, including: damaged structural steel members by heat straightening, abrasive blasting, drilling and grinding; painting of existing structural steel; maintenance of traffic; and all other items incidental to the completion of the Work.

Details of this Work and other incidental Work are shown on the Plans and/or described in the Specifications and these Special Provisions.

Pre-bid Questions should be submitted in accordance with Sections 1.3.3 and 1.3.4 of Article 1 of the Instruction to Bidders.

No verbal Questions will be considered.

SP 102

SPECIFICATIONS

All Work under this Project is to be constructed under the applicable sections of the Construction and Material Specifications ("CMS") of the State of Ohio Department of Transportation ("ODOT"), dated January 1, 2016 and Supplemental Specifications unless an earlier edition is specified on an Ohio Turnpike Standard drawing, excepting Section 100 thereof - General Provisions, and in accordance with the General Conditions of the Commission, these Special Provisions, the payment items listed on the Bid Form, and the terms and conditions of the Contract Documents. If there is reference to Section 100 of the ODOT CMS in other sections of the CMS, the appropriate provision of Section 100 shall apply and be operative, unless there is a specific statement to the contrary in the General Conditions, Special Provisions, and terms and conditions of the Contract Documents of the Commission. Whenever the word "Director" appears in the ODOT CMS, it shall be construed to mean the "Commission" or the "Chief Engineer" of the Commission, as set forth in the definitions of the Standard Conditions.

SP 103

CONSTRUCTION PHASING AND TIME OF COMPLETION

(12/06/2017)

The Work shall be performed and completed in its entirety in strict accordance with the Plans, Specifications, Special Provisions and other Contract Documents as follows:

- A. Notice to Proceed (NTP):** The Commission will issue the Contractor the Notice to Proceed (NTP) by the Chief Engineer after the Contract is fully executed. Upon receipt of the NTP, the Contractor shall begin performance of preliminary investigations and survey layout work, as approved by the Chief Engineer, and preparation of the Construction Schedule, Shop Drawings and submittals for this Project.
- B. Baseline Construction Schedule:** The Baseline Construction Schedule for this Project shall be submitted and acceptable prior to the Contractor performing the Work in accordance with General Condition Articles 4.2 and 4.3 and SP 120A or SP 120B to the extent made applicable through incorporation in the Contract Documents. Liquidated damages for failure to submit an acceptable Construction Schedule shall commence on the day the Contractor begins to perform the Work described in General Conditions Article 4.2.4.2. Mobilization on the site shall signify the beginning of the Work.
- C. Construction Access:** The Commission anticipates providing the Contractor access to the Turnpike on or about **April 1, 2020** at which time the Contractor may begin the Work for this Project.
- D. Substantial Completion:** The Work shall be substantially complete **by October 1, 2020**. Substantially completed shall mean all Work, as described in the Contract Documents, excluding punch list items, have been completed including that all Local Roads and the Turnpike roadway (all traffic lanes and shoulders) are open to traffic, as well as all traffic control and safety devices in place and approved by the Chief Engineer. Liquidated damages for failure to substantially complete the Work described in Part D herein shall commence **on October 2, 2020**.
- E. Final Completion:** All Punch List items for this Project shall be completed in strict accordance with the Plans, Specifications, Special Provisions, and other Contract

Documents **by October 31, 2020**. Liquidated damages for failure to meet the Final Completion Date shall commence **on November 1, 2020**.

It shall be noted that in order to meet the above referenced dates, the Contractor may be required to Work additional shifts and/or extended hours as well as periodic holidays and weekends. These additional forces shall be included in their Bid and there shall be no additional cost to the Commission.

SP 104

ACCESS TO TURNPIKE AND RESTRICTIONS
(05/17/2017)

The Contractor will be provided access and use of Turnpike roadways during the progress of the Work under this Project as follows:

- A. Toll-free access for the Contractor's equipment and vehicles may be granted. A limited number of construction transponders will be issued for the Contractor's motor vehicles. A detailed request outlining the quantity and need for toll-free transponders must be submitted to and approved by the Chief Engineer.
- B. It shall be the Contractor's responsibility to manage the issuance and use of all construction transponders for performing the Work under the Project. The Contractor shall be liable for any misuse of said transponders whether it is by the Contractor's forces or those of a subcontractor. Use of these transponders for personal travel or other travel not associated with this Project is strictly forbidden. The Contractor shall be advised that any personal or company transponders issued for use other than on this Project, must be removed from Project vehicles or properly stored in protective mylar bags provided. It is the responsibility of the Contractor to advise all subcontractors of the same requirements. The Commission will not be responsible for providing credit to accounts that are billed due to improper storage of personal or company transponders. Upon the completion of the Project, ALL transponders shall be returned to the Commission. Should the Contractor return less than the number issued to them, the Commission shall withhold the sum of one hundred (\$100.00) dollars per transponder not returned from any monies due the Contractor.
- C. The toll-free access, if granted, will be limited to a specified range of gates on each side of the Project limits. The Contractor will be charged a toll for all Turnpike travel outside the limits authorized by the toll-free access. Any method of operation involving such travel will be subject to such requirements and restrictions as the Commission may impose to facilitate proper collection of tolls and avoid undue inconvenience or hazard to the traveling public.
- D. If the Contractor elects to have its vehicles or equipment use any Interchange other than those authorized, such use will be subject to such restrictions as the Commission may determine to be necessary to avoid undue inconvenience or hazard to the traveling public.
- E. Upon request from the Contractor and approval of the Chief Engineer, toll-free access will be provided for the Contractor's administrative and supervisory personnel and/or special equipment or material deliveries, exclusive of asphalt and concrete that may require Turnpike travel outside the toll-free zone.

- F. Private automobiles of workmen will not be permitted on the Ohio Turnpike roadways and may not be parked in the construction area. All parking must be at an approved staging area.
- G. Access for all material delivery and/or construction equipment shall be achieved through public Toll Plaza ramps only. No access drives, maintenance building facilities, service plazas or back-gate entrance locations will be permitted for use without prior written approval of the Chief Engineer. See Section I below for proposed fence cuts or alternate access locations. Limited access will be granted at the following locations for the delivery of the noted items only, for which no access credit or plans are required.

Access Location(s):	None	Delivery Item(s):	None
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- H. During all phases of construction, the following will apply:

1. During periods of high Turnpike traffic volume, crossing of the active lanes and/or restricting traffic to a single lane will not be permitted unless authorized by the Chief Engineer. The following times are known to have high Turnpike traffic volume:

2019 Construction

Easter:	Noon on Friday, April 10, 2020 through Sunrise Tuesday, April 14, 2020
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Memorial Day Holiday:	Noon on Friday, May 22, 2020 through Sunrise Tuesday, May 26, 2020
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Independence Day Holiday:	Noon on Thursday, July 2, 2020 through Sunrise Monday, July 6, 2020
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Labor Day Holiday:	Noon on Friday, September 4, 2020 through Sunrise Tuesday, September 8, 2020
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Thanksgiving Day Holiday:	Sunrise Wednesday, November 25, 2020 through Sunrise Monday, November 30, 2020
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Christmas Day Holiday:	Noon Wednesday, December 23, 2020 through Sunrise Monday, December 28, 2020
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Summer Weekends:	Noon on Friday through Sunrise on Monday for the period beginning Friday, May 29, 2020 through Sunrise Monday, August 31, 2020
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Non-Summer Weekends:	Fridays and Sundays 12:00 PM (noon) through 10:00 PM
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2. Unforeseen circumstances may occur making it necessary to restrict lane closures, Work zones, and ingress/egress traffic, as deemed necessary by the Chief Engineer.
3. Traffic shall not be restricted to a single lane after November 1 through April 1 unless approved by the Chief Engineer. Written requests for restricting traffic

to a single lane shall be provided to the Chief Engineer at least forty-eight (48) hours in advance.

4. Traffic backups can be expected and should be anticipated by the Contractor. During all phases of construction, the Chief Engineer may restrict or suspend the Contractor's activities as per Article 13.1 - Suspension of the Work, of the General Conditions and/or require both Turnpike roadways to be open to traffic if the weather or traffic conditions should so indicate. Delays caused by these restrictions or suspensions are not the responsibility of the Commission.
5. Shoulder drop-offs from the edge of the traveled lane shall be limited to three (3) inches maximum and all guardrail and terminal assemblies shall be reinstalled leaving no obstruction unprotected.
6. **Permitted Lane Closures:** In addition to the restrictions noted above, Lane Closures are only permitted at the times shown in APPENDIX B – PERMITTED LANE CLOSURES. Implementation of the lane closure (i.e. set-up operations) may not occur prior to the permitted lane closure time and lane closures must be removed (i.e. tear down operations) prior to the prohibited lane closure time.

Approval of any Lane Closure is conditional that the zone must be removed anytime traffic backups extend one half (1/2) mile beyond the first transitional arrow board. If this occurs, the Contractor is to make the work area safe and remove the lane closure as directed by the Chief Engineer, thereby making at least two (2) lanes available to traffic. At no time may the closed lane which is adjacent to traffic be used for the storage or parking of any equipment and/or vehicles, except as specified on Ohio Turnpike Standard Drawing TCR-1.

Written requests for any closures and or restrictions shall be provided to the Chief Engineer in a timely manner in order to meet the required time frames set forth in the SP 614 Notification Time Table. Approval, if granted, may be restricted at the Chief Engineer's discretion. Approval is conditional that the zone must be removed anytime traffic backups extend one half (1/2) mile beyond the first transitional arrow board. If this occurs, the Contractor is to make the work area safe and remove the lane closure as directed by the Chief Engineer.

7. In the event that any of the above mentioned requirements relative to lane closure(s) are not complied with and/or not authorized by the Chief Engineer, the Commission may impose upon the Contractor a Liquidated Damage in the amount of \$10,000 per hour for each hour or portion of an hour not in compliance.
8. The Contractor may elect to perform culvert lining construction below the mainline in any construction phase, subject to the requirements of this Specification. Prior to performance of this Work, the Contractor shall submit an access plan to the Chief Engineer for approval. The Contractor's access plan shall include, but is not limited to the following; the intended method of accessing the site, the extent of the material laydown and equipment area, and methods of maintaining proper drainage in the Work area. Existing guardrail lengths and locations shall be shown on the Contractor's access plan.

- I. Temporary Access Deduct Alternate proposals (all proposed Entrances or Exits to the Turnpike at locations other than public Toll Plaza ramps) may be submitted by the Contractor, if the Commission includes this item on the Bid Form. The Contractor shall enter a lump sum credit in the space provided in the Proposal, setting forth the amount of credit, which will apply in case its proposal for Temporary Access is granted (See Bid form). In addition, The Contractor shall furnish the following information in the sealed envelope containing its signed original Bid Guaranty/Performance Bond, Power of Attorney, Bidder's Affidavit and completed Financial Statement submitted within twenty-four (24) hours of the Bid Opening in accordance with Articles 2.7.2, 2.7.4 and 6.1.1 of the Instructions to Bidders.
 1. The exact location of such proposed entrances or exits.
 2. A detailed plan of all construction necessary to provide such access, including any drainage and guardrail work necessary and such Work that will be performed to restore the area to its original condition or repair of any damage after construction.

If the Temporary Access is approved, the Work of constructing the temporary access and restoration of the area as proposed by the bidder, or repair of any damage resulting to an existing facility that may be used, shall be the Contractor's responsibility and shall be performed as directed by the Chief Engineer. The Contractor is solely responsible for obtaining any permits or permissions required for the use of properties not within the Turnpike Right-of-Way. The unit prices bid shall not reflect any costs which apply to such temporary construction, restoration, or repair Work, and such Work shall not be separately measured or paid for, but shall be performed without cost to the Commission.

If such temporary access is located within a Project construction zone, the bidder will not be permitted to use the temporary access during times that traffic is being maintained on the right lane of the adjacent roadway. Granting of this temporary access will not waive the Contractor's responsibility to haul only legal weights on the Turnpike roadways.

In the event that the construction of such temporary access is not approved, the Project shall proceed as if no request or bid had been made for the construction thereof.

SP 105

DISPOSAL OF EXCESS MATERIALS

Except as otherwise specifically provided in these Special Provisions, materials in excess of the requirements of the Work under this Project shall be disposed of by the Contractor off the Turnpike right-of-way. It shall be the Contractor's responsibility to select and maintain disposal areas and enter into appropriate waste disposal agreements to dispose of excess materials. All costs associated with disposing of excess materials shall be incidental to the Project. The Contractor shall supply a copy of the waste disposal agreement to the Commission at least forty-eight (48) hours prior to any disposal. The Commission will in no way be responsible for disposal areas.

SP 106

HOURS OF WORK

The Commission will consider extended hours of Work for construction operations for the duration of this Project. However, when overtime, multiple shift or nighttime Work is

contemplated, the Contractor shall give the Chief Engineer a minimum of forty-eight (48) hours in advance notice of its overtime, multiple shift or nighttime Work schedule so that inspection may also be scheduled. If other nighttime operations are contemplated, the Contractor shall give the Chief Engineer a minimum forty-eight (48) hours advance notice and the Contractor shall furnish the Chief Engineer its proposed construction operations and proposed scheme for lighting the Work area. Nighttime Work shall not begin without written approval of the lighting plan.

A proposed night work plan shall be submitted for review and approval by the Chief Engineer. The submittal shall clearly describe the type of Work to be done, the duration of the Work, location of the intended Work, and the Contractor's proposed lighting plan. Temporary lighting of the Work site for operations conducted during nighttime periods shall be positioned so the lights do not cause glare to the drivers on the highway. If glare is detected, the light placement and shielding shall be adjusted to the satisfaction of the Chief Engineer before Work proceeds.

SP 107 **TIME OF THE ESSENCE - LIQUIDATED DAMAGES**

Time is of the essence under the Project. The operation of the Turnpike roadway is of prime importance to the Commission and the traveling public. Completion of the Work at the scheduled time and, if possible, prior to the scheduled completion date, is vitally important.

Article 3 of the Contract Form provides for the assessment of liquidated damages on the Contractor's failure to complete the Work within the time set forth in these Special Provisions, or as modified by the Chief Engineer. For each calendar day that any Work required shall remain uncompleted beyond the specified time of completion, Liquidated Damages shall be deducted from the funds due the Contractor, in accordance with the provisions of Article 3 of the Contract Form.

SP 108 **CONCRETE PLANT CERTIFICATION**

The Contractor must submit either a current Certificate of Conformance issued by the National Ready Mixed Concrete Association or maintain a certification from a Sealer of Weights and Measures, or a scale servicing company attesting to the accuracy of the weighing and metering devices, within a twelve (12) month period before use of the plant for the supply of concrete to this Project. Failure to comply with this requirement will result in rejection of all concrete supplied from the non-complying producer unless the certification is otherwise waived by the Chief Engineer.

SP 109 **HAULING OVER LOCAL ROADS**

A. General

All deliveries, waste removal loads, and heavy traffic in general shall use the Ohio Turnpike mainline as the only ingress/egress route. Local roads shall only be used for and in connection with the Project as routes for cars and small trucks. Any deviation from this requirement must have prior approval from the Chief Engineer and all applicable local authorities. The Contractor shall determine the existence of and comply with any local laws and/or ordinances governing locally maintained roads including, but not limited to, bonds for road damage and weight/load size restrictions.

B. Surveys

The Contractor shall conduct a video and written pre-construction local roads conditions survey. This survey shall be conducted by the Contractor, the Chief

Engineer and the local governing body responsible for the roads. Copies of the survey shall be approved and maintained by both the local government and the Chief Engineer.

A post-construction survey shall similarly be conducted, approved and distributed.

C. Repair Responsibility

The Contractor and local governing body shall determine the damage to roads and appurtenant structures due to extra construction traffic from this Project.

The Contractor shall either repair, have repaired, or pay agreed repair costs as determined with the local governing body.

The Commission shall be held harmless for any damage to local roads and appurtenant structures due to construction of this Project.

The Commission will withhold final payment of monies due the Contractor until all such local road repairs are satisfactorily completed and/or negotiated costs paid and a copy of the signed release from the local governing body is provided to the Commission.

No extra payment for this item will be made to the Contractor. All Work required under this Special Provision shall be considered incidental to the Project and shall be completed at no cost to the Commission.

SP 110

PROJECT SAFETY
(02-16-18)

A. General

It is the intention of this program that safety not be sacrificed for production but should be an integral part of the planning process. The Commission promotes a ZERO Accident Culture and expects contractors to adopt this same culture.

The Contractor is charged with the responsibility for supervising Project safety and providing a workplace free of recognized hazard for all employees. The Contractor is responsible for enforcing its safety program and shall describe its enforcement procedures that are to be used, to ensure the program is followed.

The Contractor is solely responsible for the safety and health of its employees and for the protection of property and the general public. The Contractor shall comply with and ensure that all subcontractors comply with all Commission, OSHA, Federal, State, County and Local safety and health laws, regulations and Specifications, and enforce all applicable jobsite safety and health regulations and requirements through daily inspections and other measures deemed appropriate to ensure compliance by employees and subcontractor employees.

The jobsite will be subject to safety inspection by OSHA, the Commission, and the Chief Engineer, but this provision does not in any way affect the responsibility of the Contractor to be solely responsible for safety. Upon written notice of any safety violation, the Contractor will provide a written response within twenty-four (24) hours stating corrective actions and date of such corrections within twenty-four (24) hours.

Upon failure to immediately correct any safety violation after written notice of the violation from the Commission, the Chief Engineer, any insurance carrier or other authorized representative, the Chief Engineer has the right to stop the Work affected by the violation until the condition is corrected to the satisfaction of the Chief Engineer. No extension of time or additional compensation will be granted as a result of any stop order so issued. The Chief Engineer also reserves the right to withhold the processing of Contractor pay estimates until unresolved safety issues are corrected to the satisfaction of the Chief Engineer.

The Contractor will ensure that personal protective equipment is readily available, issued, properly fitted, maintained and worn. Hard hats and Hi-Viz shirts or retro-reflective traffic safety vests will be worn by all jobsite personnel. The vests shall meet the latest requirements of ANSI/ISEA, Class 3, or as approved by the Commission. Proper clothing will be worn by all jobsite personnel to include: shirts covering shoulders, long pants, and Work type shoes or boots (shorts, muscle shirts, cut-a-way shirts, and sport type shoes are not permitted).

The Contractor will assure that proper material and equipment storage and housekeeping are maintained daily. Access is not to be obstructed, which would prevent the assistance of emergency personnel and equipment.

The Contractor will establish means to inform subcontractors, vendors and visitors of site rules and regulations.

B. Safety Program

Fourteen (14) days prior to the commencement of the Work, the Contractor shall submit two (2) copies of the Contractor's written safety program, including night operations, and the past three (3) years of the Contractor's OSHA Log of Work-Related Injuries and Illnesses (Form 300) for review by the Chief Engineer. Upon receipt of the Chief Engineer's comments, any revisions required must be submitted within seven (7) days. At a minimum, this written safety program is to address the following:

1. Compliance with all applicable OSHA, Federal, State, County and Local laws, rules, regulations and Commission's Specifications.
2. Designation of the Contractor's Safety Representative. (Submit resume for review).
3. Safety training requirements; all employees are encouraged to have completed the **Safety Training Passport Program** and other OSHA training. (Record keeping required, copy of the training record shall be readily available upon request).
4. New employee safety orientation (record keeping required, copy maintained on site).
5. Weekly tool box safety meetings (record keeping required, copy maintained on site).
6. Hazard Communication (Right to Know Training Program, inclusive of safety data sheet ("SDS") storage procedures).
7. Procedure to enforce safety policy, to include disciplinary measures where appropriate.

8. Procedure to enforce safety policy on Subcontractors.
9. Housekeeping.
10. Safety inspections of equipment, i.e., cranes, dozers, trucks (rock) hoes and loaders; daily, weekly inspection log required: To include inspection of equipment prior to being allowed on jobsite (record keeping required, maintain logs on site during the duration of the Project).
11. Incorporation of safety topics, i.e., safety concerns into Project progress meetings.
12. Use of personal protective equipment.
13. Program for jobsite medical service, to include emergency phone numbers.
14. Accident record keeping procedures (copies of all recordable accidents will be provided to the Chief Engineer within twenty-four (24) hours of occurrence). This should be revised or an exception added to consider a fatal accident. Fatal accidents must be reported to OSHA within **8** hours.
15. Provisions for required OSHA bulletin board notices. (Submit samples, i.e., OSHA, state posters).
16. Provisions for a safety awareness program.
17. Provision for evacuation/emergency plans.
18. Provision for training of Zone and Flagger personnel (submit training program). All Flaggers and Zone personnel shall wear Hi- Viz yellow/green safety vests and hard hats. The vests shall meet the latest requirements of ANSI/ISEA, Class 3. During night work operations, all Flagger personnel shall wear a Class 3 vest and Class E Leggings. Illumination shall be provided at the location where the flagger is stationed based on the National Cooperative Highway Research Program (Report 498).
19. Provide an updated copy of your company's Silica Protection Plan in order to comply with OSHA's new Crystalline Silica Rule.
20. Substance Abuse Program that includes as a minimum the following elements:
 - (a) A written program that complies with Ohio Revised Code Sections 153.03 and 153.031.
 - (b) The Contractor is required to be enrolled and in good standing in the Drug-Free Safety Program of the Ohio Bureau of Workers' Compensation ("Bureau") or a comparable program approved by the Bureau that requires an employer to do all of the following:
 - (1) Develop, implement, and provide to all employees a written substance use policy that conveys full and fair disclosure of the employer's expectations that no employee be at

work with alcohol or drugs in the employee's system, and specifies the consequences for violating the policy.

- (c) Drug and alcohol tests on employees are required as listed and must use the Federal testing model that the Bureau's Administrator has incorporated into the Bureau's Drug-Free Safety Program.
 - (1) Prior to an individual's employment or during an employee's probationary period, which shall not exceed 128 days after the probationary period begins;
 - (2) At random intervals, while an employee provides labor or onsite supervision of labor. A neutral selection procedure required by the United States Department of Transportation to determine which employees to test and when to test those employees. All employees must have a negative substance test result for the Ohio Turnpike Project prior to starting Work on the Project. Substance testing must be performed on the substance specified in the employer's company substance abuse program;
 - (3) After an accident at the site where labor is being performed pursuant to the Project;
 - (4) When the employer or a construction manager has reasonable suspicion that prior to an accident an employee may be in violation of the employer's written substance use policy;
 - (5) The Contractor shall submit a notarized letter each month that there is complete compliance with the substance abuse program.
- (d) Require all employees to receive at least one (1) hour of training that increases awareness of and attempts to deter substance abuse and supplies information about employee assistance to deal with substance abuse problems, and require all supervisors to receive one (1) additional hour of training in skill building to teach a supervisor how to observe and document employee behavior and intervene when reasonable suspicion exists of substance use. This training must be received before Work begins on the Project.
- (e) Contractors must ensure that all employees are subjected to testing for at least five (5) drugs; Amphetamines, Cannabinoids ("THC"), cocaine, opiates, and phencyclidine ("PCP"/angel dust); and alcohol.
- (f) The laboratories used must be certified by the Department of Health and Human Services, Substance Abuse and Mental Health Services Administration. No other laboratories are considered compliant. A breath/saliva preliminary test for alcohol shall be used with a confirmatory breath test conducted by a certified breath alcohol technician.
- (g) Employees tested under this criterion who are found to have a blood alcohol level of 0.04 or greater will be immediately relieved from performing Work under this Project.

- (h) The Contractor shall require all subcontractors to be enrolled and be in good standing in the Ohio Bureau of Workers' Compensation's Drug-Free Safety Program or comparable program.
- (i) Each subcontractor shall require all lower-tier subcontractors be enrolled in and be in good standing in the Ohio Bureau of Workers' Compensation's Drug-Free Safety Program or a comparable program.
- (j) Failure of a Contractor to require a subcontractor to be enrolled and be in good standing in the Ohio Bureau of Workers' Compensation's Drug-Free Safety Program or a comparable program prior to the time the subcontractor provides labor at the Project site will result in the Contractor being found in breach of the Contract and that breach shall be used in the responsibility analysis of that Contractor or subcontractor who was not enrolled in a program for future contracts with the Commission for five (5) years after date of the breach.
- (k) Failure of a subcontractor to require a lower-tier subcontractor to be enrolled and in good standing in the Ohio Bureau of Workers' Compensation's Drug-Free Safety Program or a comparable program prior to the time the lower-tier subcontractor provides labor at the Project site will result in the subcontractor being found in breach of the Contract and that breach shall be used in the responsibility analysis of that subcontractor or the lower-tier subcontractor who was not enrolled in a program for future contracts with the Commission for five (5) years after date of the breach.

The Chief Engineer reserves the right to request any documentation to ensure the safety program is being conducted in accordance with the written program and applicable rules and regulations. The Contractor is to submit the documentation within twenty-four (24) hours of the Chief Engineer's request.

The Contractor will report the man-hours of all personnel employed on the Project as well as all recorded and lost time injuries on a monthly basis in conjunction with the monthly pay estimates.

C. Safety Representative

The Contractor shall have a safety representative for the Project on-site while Work is being performed. Superintendents are not to be designated as safety representatives.

The Contractor's safety representative must have completed the OSHA thirty (30) hour training or approved equivalent. Certification of training completion must be submitted to the Chief Engineer with the written safety program.

The safety representative's dedicated fulltime responsibility is to ensure that all Work is conducted in compliance with safety and health requirements and to develop and implement safety training programs and maintain safety records for all job personnel and in conjunction with the Contractor's management. The safety representative is to have specialized training and two (2) years experience in heavy highway and bridge construction safety and is subject to review by the Chief

Engineer. The Chief Engineer has the authority to request removal of the Contractor's Safety Representative if that representative is judged to be improperly or inadequately performing his or her duties; however, this authority in no way affects the Contractor's sole responsibility for performing its Work safely, nor does it impose any obligation upon the Commission or the Chief Engineer to ensure that the Contractor performs its Work safely.

D. Subcontractor Safety Representative

Ensure that all major subcontractors have an employee on-site designated as a safety representative. This employee may have responsibilities other than safety. This safety representative is to ensure that the subcontractor and its subcontractors and vendors meet all required safety rules and regulations. Superintendents are not to be designated safety representatives.

E. Special Safety Concerns

The following items are of special safety concern to the Commission and are to be given special attention. Detailed Plans to address these special safety concerns shall be submitted fourteen (14) days prior to starting Work:

1. Mandatory 100 percent fall protection for individuals performing Work above six (6) feet (all phases of Work including steel erection shall meet the requirements of 29 CRF 1926, Subpart M); Any Work performed in any aerial lift, and/or scissors lift will require 100% fall protection.
2. Excavation trenching cave-in protection (daily inspection documentation required);
3. Utility protection, including underground and overhead lines;
4. Electrical safety;
5. Crane safety; All cranes shall be equipped with anti-2 block switches (all cranes shall be required to have the boom down when not in use), OSHA 1926.550, OSHA 1910.180, ANSI B30.5 (1989), and PCSA No. 2 shall apply;
6. Any particularly hazardous operations (i.e., pile driving, caissons, cofferdams, etc.); and
7. Welding/cutting (all gas torches shall have anti-flashback valves).

F. Liability

Compliance with requirements for safety and/or Chief Engineer's review of the Contractor's safety program does not relieve or decrease the liability of the Contractor for safety.

No provision of these Contract Documents acts to make the Commission, the Construction Inspectors or any other party other than the Contractor solely responsible for safety. Article 16 of the General Conditions – Indemnification applies to protect, indemnify, defend and hold harmless all parties referred to therein from any and all actions, damages, fines, suits, losses and any other expenses arising from the Contractor's failure to meet all safety requirements and/or provide a safe Work site.

G. Basis of Payment

Safety and health equipment, operations, training, and dedicated personnel will not be measured or paid separately, but are considered incidental to the Contract requirements.

SP 111

PROHIBITION ON USE OF SLAG

Slag may only be used as a construction material when it is incorporated as a coarse aggregate into Portland cement and/or bituminous concrete mixes where such use is permitted in the following Special Provisions:

SP 302, SP 400, SP 451, SP 511, SP 511A, SP 511B, SP 511C and SP 526

All types of slag are prohibited for all other uses, including by way of example, but without limitation: aggregate base, pipe bedding, granular backfill, embankment, slope and channel protection, underdrains and all other uses where not incorporated into a specified concrete or asphalt mix.

SP 111 supersedes all applicable sections of the ODOT CMS, and all Supplemental Specifications that may allow the use of slag.

For purposes of this provision, the term "slag" means air-cooled blast furnace slag, blast furnace slag, open-hearth slag or any other byproduct of the iron and steel making process.

SP 112

ENVIRONMENTAL POLLUTION CONTROL

A. General

The Contractor shall provide all equipment, materials, and labor necessary to prevent and/or clean up the spillover of construction operations onto adjacent property, roadways, and waterways. This shall include, but not be limited to, dust, mud, trash, night lighting, diesel fumes, petroleum products used to fuel/lubricate construction equipment, and any environmentally hazardous material.

The Contractor shall comply with all Federal, State and Local laws and regulations controlling pollution of the environment. It shall take appropriate or necessary precautions including, but not be limited to, those measures shown on the storm water pollution prevention plan (SWP3), to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

The Contractor shall submit a written proposal on specific environmental pollution control methods and measures to be employed. Work shall not commence until methods have been submitted and accepted by the Commission.

B. Dust Control

Dust control shall apply to all construction operations and materials that may become airborne as particulate matter. Such operations shall include, but not be limited to, earthwork, drilling, blasting, and any vehicular traffic related to the Project.

In the event a dangerous or unacceptable dusting situation occurs, the Commission has the option to either:

1. Direct the Contractor to immediately remedy the situation to the Chief Engineer's acceptance; or
2. Shut down the Contractor's operations and have the remedial Work performed by others, at the Contractor's expense; or
3. Shut down the Contractor's operations until an acceptable condition exists.

No extension of time shall be allowed, nor shall additional compensation to be paid for shut down required under the terms of this provision.

C. Mud Control

The Contractor shall include in its environmental pollution control proposal and/or SWP3 a plan for removal of mud on vehicles leaving the construction site. This proposal shall also include an action plan for cleaning of public roads and/or storm drains should mud and/or dirt be deposited on the roads by vehicles, erosion, or any construction activity.

D. Trash Control

The Contractor shall include in its environmental pollution control proposal and/or SWP3 a plan for containing trash on site, trash disposal methods on site, if permitted by law, and off-site disposal hauling schedule.

E. Lighting Control

All lighting for night operations shall be in accordance with SP 106. Night lighting shall be shielded from direct illumination of adjacent residences and the traveling public. Should night operation be anticipated, illumination control measures shall be included in the environmental pollution control proposals.

F. Diesel Fume Control

The Contractor shall minimize generation of diesel fumes by using the highest-grade diesel fuel available and keeping equipment in good operating condition through a documented preventive maintenance program. Documents for diesel fuel purchases and maintenance program shall be made available within one (1) day of request to Inspectors to verify compliance.

Any piece of equipment generating excess visible exhaust after a half-hour warm-up period is subject to being shut down by Inspectors until condition is corrected. No extension of time nor additional compensation will be paid for such a shut down.

G. Measurement and Payment

Environmental pollution control measures will not be measured or paid for separately, but are considered incidental to the normal construction activity being performed.

SP 113 **NOT USED**

SP 114 **NOT USED**

SP 115 **NOT USED**

SP 116**FURNISHING RIGHT OF WAY/UTILITY RELOCATIONS**

The Commission will be responsible for the securing of all necessary rights of way in advance of construction. Any other exceptions will be indicated in the Contract.

Utility relocations are not expected to begin prior to the notice to proceed to be issued for this Project and are expected to occur on an as needed basis during the course of the Work. All utilities marked on the approved Plans, as relocated "By Others" will be relocated by the Utility Owner. All expense involved with relocating such utilities shall be borne by the Utility Owner. All utility relocations required for the convenience of the Contractor will be coordinated and paid for by the Contractor. The Contractor and Utility Owners are requested to cooperate by arranging its Work in such a manner that inconvenience to either will be held to a minimum.

SP 117**FIBER OPTIC CABLES**

Quest Communications Company, LLC DBA CenturyLink QCC

A CenturyLink fiber optic cable is buried adjacent to the right-of-way fence of the westbound roadway and is encased underground at mainline structures as shown on the Plans. Extreme care must be taken by the Contractor to preserve and protect this cable during all phases of construction. Special care shall be exercised during outside shoulder repair and improvements to drainage outlets. Any excavation in this area for any reason is not to be performed without CenturyLink first locating the cable. After the cable has been located by CenturyLink, the Contractor shall excavate to within twelve inches (12") of the cable depth as provided. A CenturyLink representative will then hand dig to expose the cable.

A live CenturyLink fiber optic cable in a two inch (2") diameter steel pipe is attached to the existing mainline bridge parapets or beams in the area of parapet modifications as noted on the Plans. A CenturyLink representative shall remove the conduit attachment clamp hardware from the existing parapet prior to any parapet removals. Extreme care shall be taken including supporting and maintaining conduit at its present location during all the Contractor's operations as to not damage the fiber optic cable. After completion of the Work, the CenturyLink representative shall attach the cable to the reconstructed parapet.

The existing "as built" Plans of the cable installation are included in the Plans for the Contractor's information.

CenturyLink shall be notified a minimum of two (2) days prior to any excavation over its lines and/or locating the cable or any Work in the vicinity of the cable.

The following shall be contacted for locating the cable:

George McElvain;
Office: (303) 837-3926
Cell: (303) 992-9931

SP 118
SP 119**NOT USED**
NOT USED

PROJECT NO. 43-20-02
ESTIMATED QUANTITIES WORKSHEET

Ref. No.	Item No.	Item Description	Approx. Quantity	Unit	Unit Cost	Extended Bid Amount
PART A AND PART B - GENERAL (Ref. Nos. 1 - 5)						
1	IB.ART.6	PREMIUM FOR CONTRACT PERFORMANCE BOND AND PAYMENT BOND	1	LUMP		
2	SP 614	MAINTAINING TRAFFIC	1	LUMP		
3	SP 619	FIELD OFFICE	1	LUMP		
4	SP 623	CONSTRUCTION LAYOUT SURVEY	1	LUMP		
5	624	MOBILIZATION	1	LUMP		
TOTAL - GENERAL (PARTS A & B)						

PART A - ROADWAY (Ref. Nos. 6 - 17)						
6	202	GUARDRAIL REMOVED	624	FOOT		
7	202	BRIDGE TERMINAL ASSEMBLY REMOVED	11	EACH		
8	254	PAVEMENT PLANING, ASPHALT CONCRETE (THICKNESS, 1 1/2" MINIMUM)	407	SQ. YD.		
9	407	TACK COAT	36	GAL.		
10	407	TACK COAT FOR INTERMEDIATE COURSE	36	GAL.		
11	448	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 (VARIABLE THICKNESS, 1 1/2" MINIMUM)	20	CU. YD.		
12	448	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (THICKNESS 1 1/4")	14	CU. YD.		
13	614	REPLACEMENT SIGN	5	EACH		
14	630	SIGNING MISC.: LOW CLEARANCE SIGN	36	EACH		
15	630	SIGNING MISC.: ADDITIONAL SIGNS, GROUND MOUNTED	16	SQ. FT.		
16	642	EDGE LINE, 4", TYPE 1	0.35	MILE		
17	642	CENTER LINE, TYPE 1	0.20	MILE		
TOTAL - ROADWAY (PART A)						

PART A - STRUCTURES (Ref. Nos. 18 - 39)						
18	SP 202	PORTIONS OF STRUCTURE REMOVED	1	LUMP		
19	509	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL	300	POUND		
20	SP 509	EPOXY COATED REINFORCING STEEL, GRADE 60	192,746	POUND		
21	SP 511B	CLASS HP4 CONCRETE, SUPERSTRUCTURE DECK SLAB	439	CU. YD.		
22	SP 511B	CLASS S CONCRETE, BARRIERS AND PARAPETS, USING TYPE 1 CEMENT	215	CU. YD.		
23	SP 511B	CLASS HP4 CONCRETE, ABUTMENT SLABS	61	CU. YD.		
24	SP 511B	CLASS HP4 CONCRETE, FOR PREPLACEMENT TESTING	12	CU. YD.		
25	513	WELDED STUD SHEAR CONNECTORS	3,992	EACH		
26	SP 516A	CRACK REPAIR USING EPOXY INJECTION	80	FOOT		
27	SP 516B	SEALING OF CONSTRUCTION JOINTS	1,573	FOOT		
28	SP 516G	REPLACE EXPANSION BEARING DEVICE	40	EACH		
29	SP 516J	REPLACE FIXED BEARING DEVICE	37	EACH		
30	SP 519	PATCHING OF CONCRETE STRUCTURES	19	SQ. FT.		
31	SP 527	FALSEWORK, TEMPORARY BRACING AND PROTECTIVE STRUCTURES	1	LUMP		
32	SP 533	3" CONTINUOUS STRIP SEAL IN STRUCTURAL STEEL JOINT	153	FOOT		
33	SP 533A	1 1/2" ELASTOMERIC COMPRESSION SEAL IN STRUCTURAL STEEL JOINT	153	FOOT		
34	SP 536	CONCRETE WEATHERPROOFING, DECK, ABUTMENT SLABS, AND APPROACH SLABS	2,784	SQ. YD.		
35	SP 536	CONCRETE WEATHERPROOFING, SUBSTRUCTURE	1,113	SQ. YD.		
36	606	GUARDRAIL, TYPE MGS	300	FOOT		
37	606	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	12	EACH		
38	SP 607	TYPE II FENCE, ALL ALUMINUM (6'-0" CHAIN LINK WITH SPECIALS)	1,528	FOOT		
39	609	CURB, TYPE 6	173	FOOT		
TOTAL - STRUCTURES (PART A)						

		PART B - STRUCTURE - TEDROW-MORENCI ROAD OVER THE OHIO TURNPIKE, MP 31.4 (Ref. Nos. 40 - 52)				
40	513	STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING AND NDT, AS PER PLAN	3	EACH		
41	513	STRUCTURAL STEEL MISC., DRILLING STRUCTURAL STEEL, GRINDING AND NDT, AS PER PLAN	3	EACH		
42	513	STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN	1	LUMP		
43	SP 514A	FIELD PAINTING OF EXISTING STRUCTURES - SYSTEM OZEU, AS PER PLAN	1	LUMP		
44	SP 525A	WORKER PROTECTION	1	LUMP		
45	SP 525A	PROTECTIVE CLOTHING/ EQUIPMENT	3	EACH		
46	SP 525A	ESTABLISH REGULATED AREAS	1	LUMP		
47	SP 525A	PAINT WASTE/ HAZARDOUS WASTE CLASSIFICATION, HANDLING, AND DISPOSAL	1	LUMP		
48	SP 525A	CONTAINMENT SYSTEM	1	LUMP		
49	849	DAMAGE ASSESSMENT	1	LUMP		
50	849	SURFACE PREPARATION	1	LUMP		
51	849	REPAIRING DAMBED MEMBERS BY GRINDING	8	HOURS		
52	849	STRAIGHTENING DAMAGED MEMBERS	1	LUMP		
TOTAL - STRUCTURE MP 31.4 (PART B)						

		PART B - STRUCTURE - HARTMAN-INLET ROAD OVER THE OHIO TURNPIKE, MP 32.2 (Ref. Nos. 53 - 65)				
53	513	STRUCTURAL STEEL MISC., PENCIL ABRASIVE BLASTING, GRINDING AND NDT, AS PER PLAN	3	EACH		
54	513	STRUCTURAL STEEL MISC., DRILLING STRUCTURAL STEEL, GRINDING AND NDT, AS PER PLAN	3	EACH		
55	513	STRUCTURAL STEEL MEMBERS, LEVEL 1 OR LEVEL UF, AS PER PLAN	1	LUMP		
56	SP 514A	FIELD PAINTING OF EXISTING STRUCTURES - SYSTEM OZEU, AS PER PLAN	1	LUMP		
57	SP 525A	WORKER PROTECTION	1	LUMP		
58	SP 525A	PROTECTIVE CLOTHING/ EQUIPMENT	3	EACH		
59	SP 525A	ESTABLISH REGULATED AREAS	1	LUMP		
60	SP 525A	PAINT WASTE/ HAZARDOUS WASTE CLASSIFICATION, HANDLING, AND DISPOSAL	1	LUMP		
61	SP 525A	CONTAINMENT SYSTEM	1	LUMP		
62	849	DAMAGE ASSESSMENT	1	LUMP		
63	849	SURFACE PREPARATION	1	LUMP		
64	849	REPAIRING DAMBED MEMBERS BY GRINDING	8	HOURS		
65	849	STRAIGHTENING DAMAGED MEMBERS	1	LUMP		
TOTAL - STRUCTURE MP 32.2 (PART B)						

SUMMARY

TOTAL BASE BID (INCLUDES REF. NO. 1 THRU REF. NO. 65) ----->

Revised Through Addendum No. 1

**STATE OF OHIO
DEPARTMENT OF TRANSPORTATION**

SUPPLEMENTAL SPECIFICATION 849

HEAT STRAIGHTENING OF DAMAGED STRUCTURAL STEEL

January 18 2013

- 849.01 Description**
- 849.02 Materials**
- 849.03 Superintendent**
- 849.04 Quality Control**
- 849.05 Testing Equipment**
- 849.06 Pollution Control**
- 849.07 Safety Requirements and Precautions**
- 849.08 Inspection Access & Illumination**
- 849.09 Quality Control Point Photographic Verification and Documentation**
- 849.10 Qualification Verification (QCP # 1)**
- 849.11 Surface Preparation (QCP # 2, 3 and 4)**
- 849.12 Damage Inspection (QCP # 5)**
- 849.13 Straightening Work Plan (QCP # 6)**
- 849.14 Repairing Damaged Members (QCP # 7)**
- 849.15 Straightening Damaged Members (QCP # 8)**
- 849.16 Finish Tolerances (QCP # 9)**
- 849.17 Final Inspection (QCP # 10)**
- 849.18 Method of Measurement**
- 849.19 Basis of Payment**

849.01 Description. This work consists of repair and heat straightening of damaged portions of existing steel members. Heat straightening work is to be accomplished in accordance with Item 513 and as noted herein.

General requirements and associated references:

Characteristic	Specification Reference
Site Evaluation & Work Plan	Federal Highway Administration, FHWA Publication, FHWA-HIF-00-008 & FHWA-IF-99-004
Surface Preparation	Society for Protective Coatings, SSPC- SP15 Commercial Grade Power Tool Cleaning or equal
Jacking or Bracing Existing Structure	C&MS 501.05.B.5, Submittal of Construction Plans and Calculations

Characteristic	Specification Reference
Heat Straightening	C&MS 513.11; AASHTO Standard Specifications for Highway Bridges, Division II, Construction, 11.4.12.2; AASHTO LRFD Bridge Construction Specifications, 2 nd Edition, 2004, Section 11.4.12.2; and FHWA, Publication, FHWA-IF-99-004; Final Report No. RC-1456 Sponsored by Michigan Department of Transportation, Heat Straightening Repairs of Damaged Steel, Effects Of Multiple Damage-Heat Straightening Repairs On The Structural Properties Of Bridge Steels.
Repairing Damaged Members	ASTM A6; AWS D1.5-2002
Weld Repairs	C&MS 513.21
Nondestructive Testing (Magnetic Particle)	C&MS 513.25.B(4) and (5)
Nondestructive Testing (Radiographic)	C&MS 513.25.A(1) though (6)

849.02 Materials. Furnish material according to Item 711.01. The minimum yield strength of the furnished material shall be equal to or exceed that of the existing material. Submit certified test data, Item 501.06, to the Engineer.

849.03 Superintendent. In addition to the requirements of Item 105.06 the Superintendent must document experience in conducting heat straightening repairs on highway bridges. Heat straightening experience must satisfy at least one of the following three experience definitions: (1) The Superintendent must have successfully completed at least three heat straightening projects in the preceding five years; (2) The Superintendent must be an Ohio Registered Engineer and must have successfully completed at least one heat straightening project in the preceding five years; or (3) The Superintendent must be an AWS, CWI Inspector in accordance with the provisions of AWS QC-1, Standard for Qualification and Certification of Welding Inspectors and must have successfully completed at least one heat straightening project in the preceding five years.

849.04 Quality Control. Quality control consists of controlling the quality of work in each phase as established by the Quality Control Points (QCPs). Control work quality by inspection, tests, measurements and cooperation with the Engineer.

Quality Control Points (QCP). QCPs are points in time when one phase of the work has been completed and approved by the Superintendent, and is ready for inspection by the Engineer before the next phase of the work can commence. At a QCP, the Superintendent shall provide quality control documents bearing his signature. The Contractor shall provide access to inspect all affected surfaces. If inspection identifies a deficiency, correct the deficiency according to the Contract Documents before starting the next phase of work. Discovery of defective work, material, or the failure of the final product after a Quality Control Point is past, before final acceptance, shall not, in any way, prevent the Department from rejecting the final product or obligate the Department to final acceptance.

	Quality Control Points	Purpose
1	Qualification Verification	Verification of superintendent, sample work plans, welder qualifications, welding procedures, non destructive testing technician and equipment.
2.	Existing Paint Removal	Remove exiting paint to allow visual observation of the heating color, prevent lead exposure or hazardous fumes resulting from burning paint.
3.	Grinding Edges	Round corners to prevent cracking during straightening and improve paint repair.
4	Containment/Waste Disposal	Contain, collect, & dispose of removed paint, abrasives, stripper or power tool cleaning debris
5	Damage Inspection	Visual and non-destructive testing inspection and documentation of all damages to be repaired.
6	Straightening Work Plan	Documentation of Contractor's means and methods including validation of: material replacement or welding repairs to be made, jacking or bracing plans; material certification; surface preparation methods; calculation and control of jacking and pulling forces; heating methods and shapes; heating equipment; and temperature indicating devices.
7.	Repairing Damaged Members	Repair all damaged material to prevent cracking or further damage during straightening.
8.	Straightening Damaged Members	Heat straighten all damaged material using controlled: temperature; and jacking, pulling or restraining forces to prevent hairline fracture cracks, local buckling and protect material properties.
9.	Finished Tolerances, Conditions and Profiles	Check and documentation of dimensional tolerances.
10.	Final Inspection	Final visual and non destructive tests. Collate and check all documentation to assure all requirements have been completed.

849.05 Testing Equipment. For the project duration, provide the Engineer with the test equipment listed below for each work site with ongoing heat straightening work. Maintain the equipment in good working order:

1. One digital camera with at least: 5.0 mega pixel resolution, auto focus, 3 x zoom lens, 512M memory and a built in flash.
2. Provide a handheld portable, Infrared, non contact thermometer capable of reading temperatures from -25 to 1600°F (-30 to 900°C) with temperature sensitivity of $\pm 1.8^{\circ}\text{F}$ (1°C)
3. Magnetic Particle Inspection Equipment according to Item 513.25.B Yoke Method with testing particles on the job at all times.
4. Digital light meter capable of measuring illumination from 10 to 200 foot candles with an accuracy of $\pm 5\%$.

849.06 Pollution Control. Comply with pollution control laws, rules, or regulations of Federal, State, or local agencies and requirements of this specification.

849.07 Safety Requirements and Precautions. Comply with Item 514 for the Safety Requirements and Precautions.

849.08 Inspection Access & Illumination. Comply with Item 514 for the Inspection Access requirements with the following additions.

Illuminate work area with artificial lighting as necessary to supplement natural light and achieve a general work area lighting equal to 20 foot candles throughout the entire work area. Provide additional artificial lighting equal to 100 foot candles measured at work surfaces during times of inspection.

Place and aim artificial light so that lights do not cause glare to the drivers on the roadway. Adjust the positioning and aim of artificial light to the satisfaction of the Engineer.

849.09 Quality Control Point Photographic Verification and Documentation. Take sufficient number of photographs to document the condition of the work at Quality Control Points 2, through 10.

849. 10. Qualification Verification (QCP # 1)

Provide a record of the following: Superintendent's qualifications and work history; sample heat straightening work plans; welder qualifications; welding procedures; Non-destructive testing technician's certification; and a list of equipment to be used and inventoried on each work site.

849.11 Surface Preparation (QCP # 2, 3 and 4)

A. Existing Paint Removal (QCP #2). Remove existing paint according to SSPC-SP 15 Commercial Grade Power Tool Cleaning or equal. Remove all existing paint except that tight rust or mill scale may remain. Humidity and temperature restrictions do not apply. Remove paint as necessary to perform inspections and straightening work and to the Engineer's satisfaction.

B. Grinding Flange Edges (QCP #3). Round all exposed corners of main members as necessary to achieve a 1/16 inch radius [1.6 mm] or equivalent flat surface at a 45 degree angle. Grind edges at all locations of planned work to prevent edge cracking during the straightening work and to the Engineer's satisfaction.

C. Containment/Waste Disposal (QCP #4). Comply with Item 514 for the Containment/Waste Disposal requirements.

849.12 Damage Inspection (QCP # 5). Visually inspect all areas of damage, suspected damage, yield lines and zones of plastic bending. Also inspect all secondary members and connections between main and secondary members that potentially distributed forces causing damage. Perform this work with inspected surfaces being within approximately 24 inches (610 mm) from the inspector. Use access equipment, illumination, and non-destructive testing as necessary to identify, measure and document the location and

details of: buckling; crimps; misalignment; twists; tears; burrs; damaged edges; punched holes; pull out of secondary members; cracks or other physical distress. Remove existing paint and test using magnetic particle testing, Yoke Method, at all areas of detected and suspected hairline cracking according to Item 513.25.B (4) and (5).

Provide field sketches, non-destructive testing, photographs and inspection access to the satisfaction of the Engineer.

849.13 Straightening Work Plan (QCP # 6) Use field data from the damage inspection to have an Ohio Registered Engineer prepare, sign, seal and date a written straightening work plan. Submit the work plan prior to performing the work.

The written straightening work plan shall include the following details.

- A. Framing plan showing areas to be repaired, include results from the Damage Inspection (QCP # 5)
- B. Sequence of work
- C. Shape, size and temperature of heating patterns
- D. Location and limits of jacking, pulling or restraining forces
- E. Calculations of member stresses from jacking, pulling or restraining force
- F. Location and details of grinding repairs
- G. Location and details of drilled or coped holes
- H. Location and details of weld repairs
- I. Location and details of material replacements
- J. Location and limits of paint removal and repair
- K. Location, design and details of temporary supports for structural support and stability

849.14 Repairing Damaged Members (QCP # 7). Repair all damaged material including: damaged edges; tears; burrs; sharp edges; punched holes; pull out of secondary members; or cracks by grinding, welding or material replacement as limited by the following table, specification and to the Engineer's satisfaction.

Repair Method	Limits of Material Damage
Grinding ¹	Grind ¹ out damaged material when the remaining calculated net cross sectional area of the individual plate, flange or web remaining after grinding is greater than 98% of the calculated cross sectional area based upon existing member dimensions. Example; Grind ¹ 3/16 inch (5 mm) deep notches in, 1 inch (25mm) X 12 inch (305mm) flange plate. $(11.8125 \text{ in}^2 / 12 \text{ in}^2) \times 100 = 98.44\%$
Welding ^{2,3}	Weld ² damaged material when the remaining calculated net cross sectional area of the individual plate, flange or web remaining after grinding is less than 98% of the calculated cross sectional area based upon existing member dimensions. Example; Weld ² 1/4 inch (5 mm) deep notches in, 1 inch (25mm) X 12 inch (305mm) flange plate. $(11.75 \text{ in}^2 / 12 \text{ in}^2) \times 100 = 97.92 \%$ Weld ³ In lieu of extensive weld repairs and straightening, the Contractor may replace localized portions of main members. Provide a replaced flange or web equal to 100% of the calculated cross sectional area based upon existing member dimensions

Note 1. a) Grind out the damage b) taper to the original surface using a 1:10 slope c) provide a surface finish according to ANSI B46.1 of 250 mil (6.4 μm).

Note 2. a) Prepare the damaged material for welding; b) Perform complete penetration welds according to C&MS 513 using approved electrodes, procedures and welders; c) Grind the completed welds smooth and flush with the adjacent surfaces to provide a surface finish according to ANSI B46.1 of 250 mil (6.4 μm); d) 100% Radiographic and 100% Magnetic-particle testing according to C&MS 513.

Note 3. The Contractor may replace a localized portion of a main member. a) Before cutting any main member, provide bracing and support of the loads in the damaged member. b) Remove localized portions of the structure by cutting and replacing these portions with new steel to match the existing shape and thickness. c) Connect the new steel to the existing structural member using complete penetration welds². d) Grinding the welds smooth and flush with the adjacent surfaces and provide a surface finish according to ANSI B46.1 of 250 mil (6.4 μm). e) Test the welds using 100% Radiographic tests. f) Finish reentrant corners with 1 inch (25mm) radius. g) Provide 2 inch (50mm) diameter (minimum) cope holes in the web, at all weld intersections and at the web to flange intersection.

Replace all damaged secondary members: cross frames and other attachments to the Engineer's satisfaction. Before cutting any cross frame or attachment, install bracing and supports necessary for structural stability of the main structural members. Condition the main members by grinding or welding at the existing secondary member connection as described in the table listed above. Connect new secondary members by welding or bolting according to the existing detail. Connect cross frames and attachments in the sequence defined in the straightening work plan.

Perform all welding using qualified welders, electrodes and procedures in accordance with Item 513. Perform 100% Radiographic testing for all main member repairs according to Item 513, except submit copies of reports to the Engineer for acceptance. Perform 100% Magnetic Particle testing for all secondary member fillet welds to main members and flange to web fillet welds according to Item 513. Provide material according to this specification.

849.15 Straightening Damaged Members (QCP # 8). Perform straightening using methods which will not permanently damage the metal's material properties. Sharp kinks and bends may be cause for rejection of the work. Heat members using: controlled jacking, pulling or restraining forces; specified heating patterns; and controlled temperatures that result in controlled shrinkage to straighten the member. Do not heat members then use: large jacks or pullers which mechanically hot work the material. Mechanical hot work permanently damages the metal's material properties. Prior to straightening a damaged compression member, install adequate bracing to support loads and prevent buckling.

A. Restraints or preloads. Apply jacking, pulling or restraining forces to the damaged member in the direction that tends to straighten the member. Position jacks, pullers, or restraining forces such that heat straightening shrinkage will relieve the force during the cooling cycle. Do not allow jacks, pullers or restraining forces to subject any part of the structure to unit stresses that exceed 50 percent of the material's nominal yield (F_y) at ambient temperature. Provide pressure gages or load cells to control jacks, pullers or restraining forces. Secure jacks, pullers or restraining forces so they do not dislodge

during cooling. Apply jacks, pullers or restraining forces prior to heating. Do not apply additional jacking, pulling or restraining forces after beginning the application of heat. Do not apply the next cycle of jacking, pulling or restraining forces until the steel has cooled below 200 °F (93 °C).

B. Application of Heat. Heat opposite faces of a plate or rolled shape concurrently when the material thickness (t in the figure below) equals or exceeds 1 1/4 inch (30mm). When heating thick plates, it may be necessary to interrupt heating for periods of less than one minute to allow the heat to soak into the flange and avoid surface over-heating. Perform heating using single and multi-orifice (rosebud) heating torches sized according to the following table. Manipulate the torches to avoid overheating. Heat using air-propane or air-natural gas unless other methods are accepted by the Engineer.

Limits on Torch Tip Size		
Steel Thickness	Orifice type	Orifice Size
less than 1/4inch(6mm)	Single	3
3/8 inches (9.5mm)	Single	4
1/2 inch (13mm)	Single	5
5/8 inch (16mm)	Single	7
3/4 inch(19mm)	Single	8
1 inch (25mm)	Single or Rosebud	8 single, 3 rosebud
1 1/4 inch (32mm)	Single or Rosebud: on both sides*	8 single, 3 rosebud
2 inch (51mm)	Single or Rosebud: on both sides*	8 single, 4 rosebud
3 inch (76mm) or greater	Rosebud: on both* sides	5

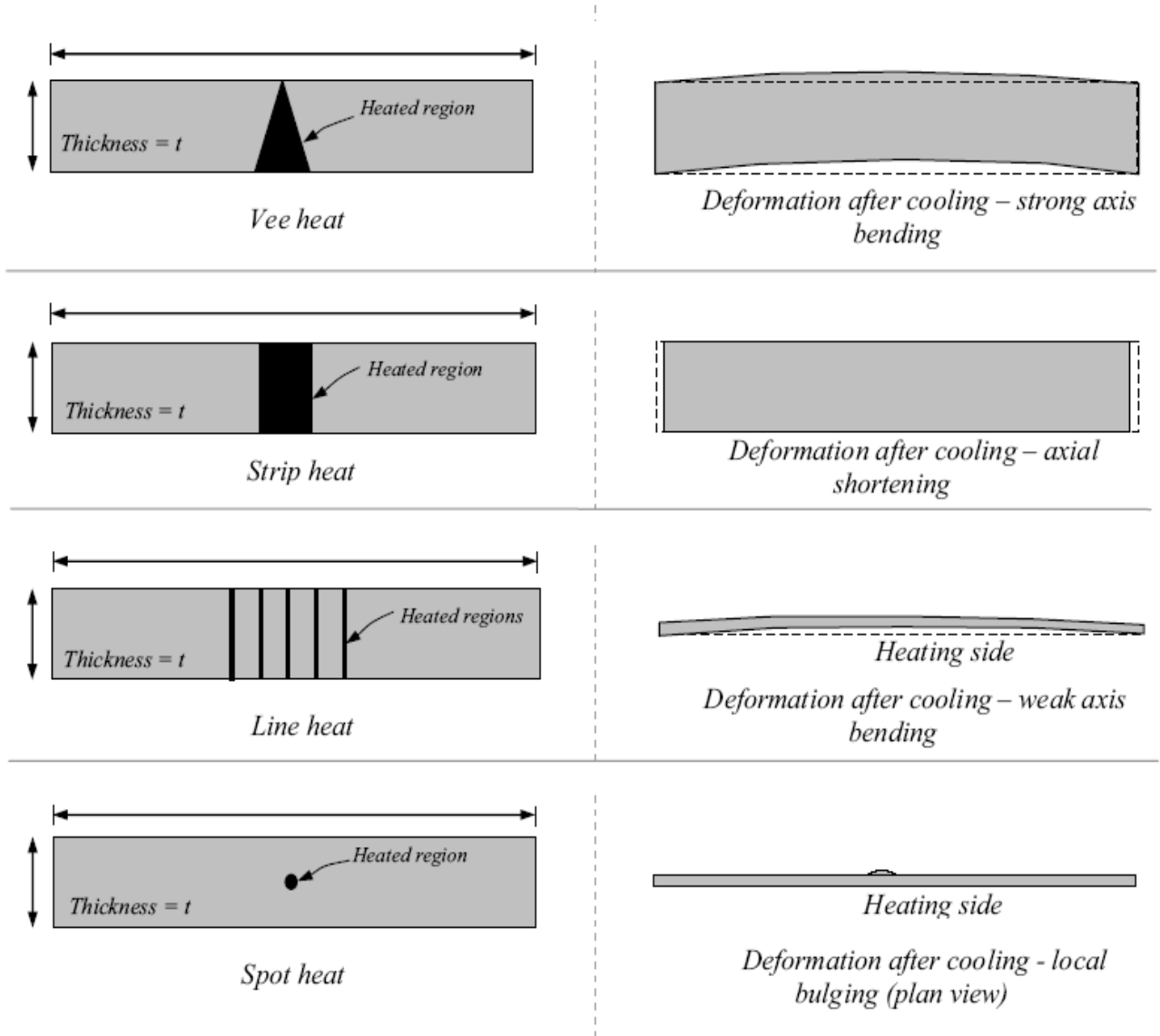
* - Heat applied concurrently to both sides

C. Shape of Heating Patterns. Perform heating using four basic heating patterns: Strip, Line, Spot or “V” as specified below and illustrated in the figure. Prior to applying heat, mark the steel with chalk or soap stone defining: an assigned unique heat number; location; shape and limits of the heating patterns.

1. Strip, Line and Spot heats shall be of sufficient width, length and position to create the required straightening. The maximum temperature shall be prescribed below. If chording or twisting occurs in the member, correct the situation to the Engineers satisfaction.

2. “V” heats consists of triangular areas spaced at regular intervals, not less than a flange width (B_f) apart as measured along the longitudinal dimension of the member. Limit the “V” shape as follows: the distance between the “V” apex and the opposite leg of the “V” shape may equal the width of the plate or shape; do not exceed a 30 degree angle between the adjacent sides of the “V”; and do not exceed a dimension of 10 in. (254mm) for the side opposite the “V” apex as measured long the longitudinal plate edge. Apply heat starting at the “V” apex; manipulate the torch in a serpentine

pattern, progressing toward the side opposite the “V” apex. Once heating proceeds towards the side opposite the “V” apex, do not return heating torches to the “V” apex side of the V heating pattern. The maximum temperature shall be prescribed below. If chording or twisting occurs in the member, correct the situation to the Engineers satisfaction.



Four basic heating patterns

D. Temperature Control. Control heat so the internal temperature of the steel does not exceed the table values below. The internal temperature of the steel is the surface temperature approximately five seconds after passage of the torch.

Control the application of heating so it is confined inside the marked limits of the four basic heating patterns. Bring the steel within the pattern to the desired temperature as rapidly as possible without overheating. Control the application of heat by checking the internal temperature of the steel by frequent use of appropriate temperature range

indicating crayons or an infrared, non contact thermometer. The Department will require investigative testing for damage to the metal's material properties for any procedure which causes the internal temperature of the steel to exceed the specified maximum heating temperature.

Do not accelerate cooling with water, water mist or other cooling accelerants. After the steel surface temperature is less than 600 °F (315 °C) cooling may be accelerated with dry compressed air. After completing a planned set of heat patterns along the member, do not apply additional heat until the entire member has cooled below 200 °F (93 °C) and the straightening movement has been verified.

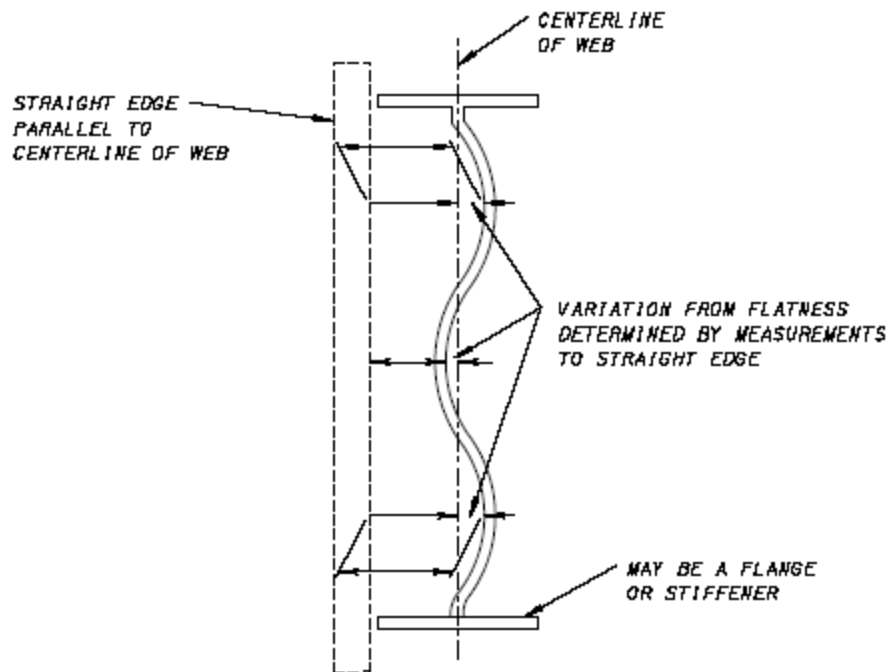
Maximum Heating Temperatures	
ASTM Steel Type and Grade	Maximum Heating Temperatures
Mild carbon steel (A7; A373; A36 grade 36; A572 Grade 50; A588 Grade 50W; A709 Grade: 36, 50 and 50W)	1200°F (649 °C)
Quenched and tempered steel and Thermo mechanical Controlled Process. (A514; A709 Gr. 100/100W; A709: HPS50W and HPS70W)	1100°F (593 °C)
Quenched and tempered steel A709 Gr. 70W and HPS100W	1050°F (566 °C)

849.16 Finish Tolerances (QCP # 9). Do not measure dimensional tolerances for final acceptance until all heating and welding operations are completed and the member has cooled to 160 °F (70 °C) or less. Perform straightening work to meet the table requirements listed below. Check tolerances before any cross frames or other lateral restraint devices are attached. Do not force members into position and then weld in the cross frames to hold members within heat straightened tolerances.

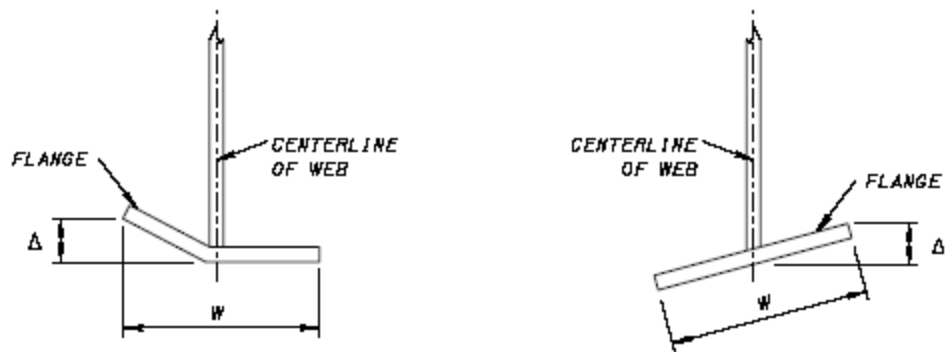
Tolerances for Heat Straightening ^{4, 5}	
Member Type	Allowable Tolerance
Beam, Truss members, or Columns; straightness x and y axis (Sweep and Camber) measured offset from a string line stretched along the longitudinal axis, member center line, true to the original as built condition.	Overall alignment: 1/8 inch (3 mm) times the overall member length divided by 10 feet (3m) but not more than 1/2 inch (13 mm), note ¹ At point of impact: 1/4 inch (3 mm) times the overall heat straightened length divided by 10 feet but not more than 3/4 inch (22 mm), note ¹

Tolerances for Heat Straightening ^{4, 5}

Member Type	Allowable Tolerance
Beam, Truss members, or Columns; overall and point of impact straightness (Twist or plumb) measured offset from a string line stretched along the longitudinal axis, center line, true to the original as built condition.	<p>Overall: Permissible difference in the measured offsets (plumb) from a longitudinal center line, at the top and bottom flanges at any point on centerline of member, when measured from a common longitudinal centerline, shall not exceed 1/4 inch (6 mm), note¹</p> <p>At point of impact: Permissible difference in the measured offsets (plumb) from a longitudinal center line, at the top and bottom flanges at any point on centerline of member, when measured from a common centerline, shall not exceed 3/8 inch (10 mm), note¹</p>
Flatness of web, measured by off set from a straight edge	D/150 but not greater than 1/4 inch (6mm) , Note ²
Combined warp or tilt of the flange at any cross section.	W/100 or 1/4 inch (6 mm) which ever is greater except at bearing points not more than 1/16 inch (1.6 mm), Note ³
Flange Waviness	Waviness, the deviation of the top or bottom surface of a flange from a straight line or plan curvature, shall not exceed 1/4 inch (6 mm) when the number of waves in a 10-foot (3 m) length is four or less, or 1/8 inch (3 mm) when more than four, but sharp kinks or bends shall be cause for rejection.
Surface Finish and Cross Sectional Area	Provide existing members with 98% of the calculated cross sectional area based upon existing member dimensions. Taper to the original surface using a 1:10 slope c) provide a surface finish according to ANSI B46.1 of 250 mil (6.4 μm). Provide new materials with 100% of the calculated cross sectional area based upon existing member dimensions Smooth complete penetration welds to a surface finish according to ANSI B46.1 of 250 mil (6.4 μm).
<p>1. Tolerances for horizontally curved members or vertically cambered members should account for the original shape of the member.</p> <p>2. Flatness of web measured by offset from a straight edge whose length is not less than the lesser dimension of the distance between stiffeners or the distance between flanges. Position straight edge so that the two ends are touching the web and a mid point offset can be measured using a ruler. Check the offset. Position the straight edge horizontally, vertically and diagonally to determine maximum offset. "D" is the lesser dimension of the distance between stiffeners or the distance between flanges. See illustrative figure below.</p> <p>3. Determine combined warp and tilt of the flange at any cross section by measuring the offset at the toe of the flange from a line normal to the plane of the web through the intersection of the centerline of the web with the outside surface of the flange. "W" is the width of the flange. See illustrative figure below.</p> <p>4. Check tolerances before any cross frames or other lateral restraint devices are attached. Do not force members into position and then weld in the cross frames to hold members within heat straightened tolerances.</p> <p>5. The Contractor may request acceptance of final tolerances outside of the specified values. The contractor may indicate that a point of diminishing return has been reached where additional work will not result in a better final condition.</p>	



NOTE 2 FLATNESS OF WEB



Δ = COMBINED WARP OR TILT OF THE FLANGE AT ANY CROSS SECTION
W = FLANGE WIDTH

NOTE 3 COMBINED WARP AND TILT OF THE FLANGE

849.17 Final Inspection (QCP # 10). Perform a final arms length inspection of all surfaces that were repaired or heated. Perform the inspection after the work is complete

and cooled to 160 °F (70 °C) or less. Perform non-destructive testing at locations of detected or suspected hairline cracking as part of this inspection. Test these areas using magnetic particle testing. Repair any cracks that are found according to Repairing Damaged Members (QCP # 7).

The Department will base final acceptance of the work upon acceptance of the: Surface Preparation; Damage Assessment; Repairing Damaged Members; Straightening Damaged Members; and Final Inspection. The Department will review the reports, progressive project documentation and progressive field measurements to determine the final acceptability of the work.

849.18 Method of Measurement. The Department will measure Damage Assessment, Straightening Damaged Members and Surface Preparation on a lump sum basis. The Department will measure Repairing Damaged Members by Grinding, by each hour expended performing the work. Hours include the cost of all labor, supervision, equipment and materials required to grind damaged members.

849.19 Basis of Payment The Department will not pay for the following:

- A. Restoration of property to its original condition if the Contractor causes damage or injury to public or private property.
- B. Repairing adjacent coatings outside the surface preparation areas damaged during the repair or straightening operations.
- C. Hazardous material testing that is required by a hauler, treatment facility, disposal facility or landfill.
- D. Repair of damage to structural members caused by improper jacking or pulling.
- E. Investigative testing for damage to the metal's material properties caused by excessive heating temperatures.

The Department will pay for inspection access, inspection, non destructive testing; straightening work plan and final inspection as incidental to Damage Assessment.

The Department will pay for existing paint removal, grinding flange edges and containment/waste disposal as incidental to Surface Preparation.

If repairs require welding, drilling or coping holes, or material replacement according to: Repairing Damaged Members (QCP# 7), the department will pay for these repairs as extra work according to Item 109.05 or as otherwise specified in the contract.

All other requirements of this specification are considered incidental to the work.

The Department will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
849	Lump Sum	Damage Assessment
849	Lump Sum	Surface Preparation
849	Hours	Repairing Damaged Members by Grinding.
849	Lump Sum	Straightening Damaged Members.

Designer Comments:

Include all pay items.

Designate the existing paint coating and application year.

Designate the existing steel type, grade, minimum yield strength and allowable jacking stress which is 50% of the material yield stress.

When estimating the quantity for Item 849, Repairing Damaged Members by Grinding, unless a more detailed estimate can be determined from field observations and engineering judgment provide one tenth hour for each linear foot of span length multiplied by the number of damaged beams.

When estimating the quantity for Item 849, Repairing Damaged Members by Grinding, and damage is: beyond the limits of grinding; resulted in large cracks or missing sections of material; or resulted in cross frames and attachments replacement. Provide appropriate bidding items: Item 513, Repair of Damaged Main Material by Drilling or Coping Holes as per plan; Item 513, Repair of Damaged Main Material by Welding or Replacement as per plan; or Item 513, Repair of Damaged Secondary Material by Welding or Replacement as per plan. Include applicable notes and plan details as necessary to define the work. See BDM section 600 note #44 for item Item 513 replacement materials for a basis of these plan notes.

Determine the need for associated repair items

Item 202, Portions of Structure Removed, As Per Plan

Item 512, Concrete Repair by Epoxy Injection, As Per Plan

Item 513, Repair of Damaged Main Material by Welding or Replacement As Per plan

Item 513, Repair of Damaged Main Material by Drilling or Coping Holes As Per plan

Item 513, Repair of Damaged Secondary Material by Welding or Replacement, As Per Plan

Item 514, Field Painting of Damaged Structural Steel, As Per Plan (April 19, 2006)

Item 516, Jacking and Temporary Support of Superstructure, As Per Plan

Item 519, Patching Concrete Structures

Item 614, Maintaining Traffic

Item 624, Mobilization