BOSTON HEIGHTS

BOSTON HEIGHTS

BOSTON HEIGHTS

BEGIN PROJECT

STA 765+00.00

STOW

Meddowbrok

Jack

LOCATION MAP

LATITUDE: 41°14′18" LONGITUDE: 81°26′26"





DESIGN DESIGNATION

DESIGN

EXCEPTIONS

BRIDGE RAILING

CURRENT ADT (2023)	15,500
DESIGN YEAR ADT (2043)	15,500
DESIGN HOURLY VOLUME (2043)	_ 1,400
DIRECTIONAL DISTRIBUTION	_ 55%
TRUCKS (24 HOUR B&C)	_ 5%
DESIGN SPEED	<i>35 MPH</i>
LEGAL SPEED	_ 25 MPH
DESIGN FUNCTIONAL CLASSIFICATION:	
03 PRINCIPAL ARTERIAL (URBAN)	
NHS PROJECT	_ YES

SHEET

NUMBER

UNDERGROUND UTILITIES Contact Two Working Days

Before You Dig

DATE

06/28/22



OHIO811, 8-1-1, or 1-800-362-2764 (Non-members must be called directly)

PLAN PREPARED BY:

MOTT MACDONALD

MACDONALD

18013 CLEVELAND PARKWAY DRIVE, SUITE 200, CLEVELAND, OHIO 44135
PHONE: (216) 535—3640
FAX: (216) 265—2816

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

SUM-091-14.49

CITY OF HUDSON SUMMIT COUNTY

INDEX OF SHEETS:

TITLE SHEET	1
TYPICAL SECTIONS	2-5
GENERAL NOTES	6-84
<i>MAINTENANCE OF TRAFFIC</i>	9 - 11, 11A-21
GENERAL SUMMARY	22 - 23
SUBSUMMARIES	24 - 26
PLAN & PROFILE	27-28
CROSS-SECTIONS	<i>29 - 35</i>
DRIVE DETAILS	<i>36</i>
TRAFFIC CONTROL	37-39
STRUCTURE (20 FOOT SPAN AND UND	PER)
SUM-091-1454	40-48
RIGHT-OF-WAY	49 -52
STRUCTURE FOUNDATION EXPLORATION	ON53-58

PROJECT DESCRIPTION

PARTIAL BRIDGE REPLACEMENT OF THE WESTERN PORTION OF THE STRUCTURE OVER A TRIBUTARY OF BRANDYWINE CREEK. THE PROJECT INCLUDES CURB RELOCATION ON THE WEST SIDE AND RESURFACING TO ACCOMMODATE A NEW MULTI-USE PATH ON THE WEST SIDE.

PROJECT EARTH DISTURBED AREA: 0.48 ACRES

ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.125 ACRES

NOTICE OF INTENT EARTH DISTURBED AREA: N/A NOI NOT REQUIRED

2019 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT
THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE
THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS
NOTED ON SHEETS 13 & 19, AND THAT PROVISIONS FOR THE
MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET
FORTH ON THE PLANS AND ESTIMATES.

ADA DESIGN WAIVER

NONE REQUIRED

DISTRICT DEPUTY DIRECTOR

DIRECTOR, DEPARTMENT OF TRANSPORTATION

Jul Markerthe mo

			STANDAR	D CONSTRUCTION L	DRAWINGS		EMENTAL FICATIONS	SPECIAL PROVISIONS	
BP-2.1	1/21/22	TC-41.20	10/18/13			800-2019	SEE PROPOSAL	ASBESTOS	
BP-2.2	1/15/21	TC-42.20	10/18/13			821	4/20/12	SURVEY	
BP-3.1	1/21/22	TC-52.10	10/18/13			832	7/15/22	3/1/2	'
BP-4.1	7/19/13	TC-52.20	1/15/21			902	7/19/19	WATERWAY	
BP-5.1	7/15/22	TC-71.10	7/15/22			921	4/20/12	PERMITS	<u> </u>
						940	4/17/15	CONDITIONS	
CB-3	7/16/21	MT-95.60	4/19/19					3/16/2	'
CB-3A	7/16/21	MT-95.61	4/19/19						
CB-6	1/21/22	MT-97.10	4/19/19						
		MT-97.12	1/20/17						
DM-1.1	7/17/20	MT-99.20	4/19/19						
DM-1.2	7/16/21	MT-101.60	1/17/20						1
DM-4.3	1/15/16	MT-101.90	7/17/20						1
DM-4.4	1/15/16	MT-105.10	1/17/20						1
		MT-110.10	7/19/13						
									1

ENGINEER'S SEAL	ENGINEER'S SEAL
ROADWAY	BRIDGE
ZOLTAN S. SZABO E-55985 SONAL ENGLISH	MICHAEL A. RUSSELL E-63230 FEGISTERED SIONAL ENGINEERING

FLAGGING FOR WORK ON RAILROAD RIGHT OF WAY SHALL BE COORDINATED, OBTAINED AND PAID FOR BY THE CONTRACTOR. FLAGGING SHALL BE PROVIDED BY THE CONTRACTOR WHENEVER REQUIRED BY THE NORFOLK SOUTHERN SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTEREST. NORFOLK SOUTHERN SHALL APPROVE THE FLAGGING SERVICE PROVIDER AND THEIR STAFF.

NORFOLK SOUTHERN HAS THE SOLE AUTHORITY TO DETERMINE THE NEED FOR PROTECTION SERVICES TO PROTECT ITS OPERATIONS IN GENERAL. THE REQUIREMENTS OF SUCH SERVICES WILL BE WHENEVER THE CONTRACTOR'S PERSONNEL OR EQUIPMENT ARE OR ARE LIKELY TO BE, WORKING ON THE RAILROAD'S RIGHT OF WAY, OR ACROSS, OVER, ADJACENT TO, OR UNDER A TRACK, OR WHEN SUCH WORK HAS DISTURBED OR IS LIKELY TO DISTURB A RAILROAD STRUCTURE OR THE RAILROAD ROADBED OR SURFACE AND ALIGNMENT OF ANY TRACK TO SUCH EXTENT THAT THE MOVEMENT OF TRAINS MUST BE CONTROLLED BY FLAGGING.

THE TOTAL DOLLARS IN THE ESTIMATED QUANTITIES IS BASED UPON AN ESTIMATE OF TOTAL FLAGGING DOLLARS NEEDED TO COMPLETE THE PLANNED WORK.

ONLY THE FOLLOWING CERTIFIED FLAGGING PROVIDERS ARE ACCEPTABLE BY NORFOLK SOUTHERN:

RAILROAD CONSULTANTS STEVE LLOYD (VP BUSINESS DEVELOPMENT) (615) 542-8901

RAILPROS 1320 GREENWAY DR., SUITE 490 IRVING, TX 75038 (877) 315-0513 http://www.railpros.com/services-category/field-services/

SERVICE.

PAYMENT FOR CERTIFIED FLAGGING PROVIDERS WILL BE MADE PER ITEM 900E001000, EACH, RAILROAD FLAGGING SERVICES BASED UPON THE INVOICES RECEIVED FROM THE FLAGGING SERVICE FOR THE DOLLARS USED, INCLUDING A FIVE PERCENT MARKUP FOR CONTRACTOR OVERHEAD FOR ADMINISTERING THE CONTRACT WITH THE FLAGGING

IN THE EVENT THE PROJECT IS DELAYED DUE TO RAILROAD FLAGGER AVAILABILITY, THE CONTRACTOR WILL PROVIDE DOCUMENTATION SUPPORTING THEIR EFFORTS TO SCHEDULE A FLAGGER FROM THE FLAGGING SERVICE.



					SHEET N	JM.	•					PART.	1	ITEM	ITEM	GRAND	UNIT	DESCRIPTION SHE	
7	8	9	10	11A	12	24	25	26	35	37	01/NHS/04	02/NHS/28/ HUDS	03/NHS/04/ HUDS	11211	EXT	TOTAL	OMIT	NO NO	
																		TRAFFIC CONTROL	
	15	1	1							20.2	15 14.1	14.1		630	02100 03100	15		GROUND MOUNTED SUPPORT, NO. 2 POST	
	2									28.2	9	14.1		630 630	80100	28.2 10		GROUND MOUNTED SUPPORT, NO. 3 POST SIGN, FLAT SHEET	
	2									1 -	2	<u> </u>		630	84900	2		REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
										1		1		630	85100	1		REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
										1		1		630	86002	1		REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
										0.16	0.09	0.07		644	00300	0.16	MILE	CENTER LINE	
		+	+	1		-				107	ا ۾	107		644 644	00700 01300	107 10	FT EACH	TRANSVERSE/DIAGONAL LINE LANE ARROW	
		1	1	1						10				011	01000	10	LAGIT		
																		MAINTENANCE OF TRAFFIC	
			40								40			614	11110	40	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
			LS								LS			614	12420	LS		DETOUR SIGNING	
		10								_	10			614	13000	10		ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
		+	2	1	0.09	-				1	0.04	0.05		614 614	18601 21100	0.09		PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN WORK ZONE CENTER LINE, CLASS I, 642 PAINT	0
		1	1	1	0.00						0.04	0.00		014	21100	0.00	IVIILL	WOTAL ZOINE OF THE CHARLY OF YOUR TAILAN	
					0.06							0.06		614	21200	0.06	MILE	WORK ZONE CENTER LINE, CLASS I, 740.06, TYPE I	
	_	0.16									0.09	0.07		614	21550	0.16	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT	
			1		0.08	1					0.03	0.05		614	22100	0.08		WORK ZONE EDGE LINE, CLASS I, 4", 642 PAINT	
			1		0.03	-					140	0.03		614	22200	0.03		WORK ZONE EDGE LINE, CLASS I, 4", 740.06, TYPE I	
			1	1	140	-					140	1	1	614	23400	140	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 8", 740.06, TYPE I	
			1	1	6	1					6	1	1	614	30400	6	EACH	WORK ZONE ARROW, CLASS I, 740.06, TYPE I	
				1							1			614	40050	1	EACH	BUSINESS ENTRANCE SIGN	
			1								1			616	10000	1	MGAL	WATER	
		<u> </u>	<u> </u>																
		1	1	<u> </u>														STRUCTURE 20 FOOT SPAN AND UNDER (SUM-091-14.54) FOR STRUCTURE SUM-091-14.54 ESTIMATED QUANTITIES 43	3
										1								TOROTORE SOM-031-14.34 ESTIMATED QUANTITIES	
																		INCIDENTALS	
											11,300	4,200		614	11000	LS		MAINTAINING TRAFFIC	
											6	2		619	16010	8	MNTH	FIELD OFFICE, TYPE B	
				_							3,800	1,400		623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
		+	+	1						1	15,050	5,650		624 SRECIAL	10000	LS		MOBILIZATION AS-BUILT CONSTRUCTION PLANS ***********************************	3
											10,000			900	00100	10,000	EACH	RAILROAD FLAGGING SERVICES 8/	A
											ww	uuu	····	·····	uuu	·····			
		1	1	<u> </u>						1	<u> </u>								
										1									
										<u> </u>									
		<u> </u>	<u> </u>	_						<u> </u>		_							
		1	1	_						1									
		1	1	1															
																			_
		 	1	<u> </u>		_				-	-	_							
		1	1	1						1									
		1	1	1		-	_						 						
		1	†	1															
		1	1			-						1	-	-					
			1			-						1	1						
		1	1	1		1						1	1	1					
		1	1	1							1	1							
		1	1			-						1		1					
		+	1																
		I		_			-	-	_			-				_			

SUM

STRUCTURE NOTES

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN:

DESCRIPTION:

IN ADDITION TO REMOVING THE EXISTING STRUCTURE, THIS WORK SHALL CONSIST OF THE REMOVAL OF THE EXISTING BARN STONES COMPRISING THE ABUTMENTS OF THE EXISTING STRUCTURE. THE BARN STONES ARE APPROXIMATELY 30 INCHES BY 30 INCHES AND VARY IN LENGTH FROM LESS THAN 3 FEET TO MORE THAN 8 FEET LONG.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN:

ITEM 202 - BRIDGE RAILING REMOVED FOR REUSE, AS PER PLAN:

LUMP

DESCRIPTION:

THIS WORK SHALL CONSIST OF REMOVING AND STORING THE EXISTING ALUMINUM BRIDGE RAIL FOR REUSE IN THE PROPOSED PARAPET.

RAILING DAMAGED DURING REMOVAL AND/OR WHILE IN THE CONTRACTOR'S CUSTODY SHALL BE REPLACED IN-KIND BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT.

MEASUREMENT AND PAYMENT:

THE DEPARTMENT WILL MEASURE THE LINEAR FOOT QUANTITY OF BRIDGE RAIL REMOVED AND STORED. THIS SHALL INCLUDE ALL TOOLS, LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED, AND TO THE SATISFACTION OF THE ENGINEER.

ITEM 503 - COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN:

FURNISH STEEL SHEET PILING PER AASHTO M 202 (ASTM A328) (MINIMUM YIELD POINT 39 KSI) WITH MINIMUM SECTION MODULUS OF 10 CUBIC INCHES PER FOOT.

THE DESIGN SHOWN ON THE PLANS FOR TEMPORARY SUPPORT OF EXCAVATION IS ONE REPRESENTATIVE DESIGN THAT MAY BE USED TO CONSTRUCT THE PROJECT. THE CONTRACTOR MAY CONSTRUCT THE DESIGN SHOWN ON THE PLANS OR PREPARE AN ALTERNATE DESIGN TO SUPPORT THE SIDES OF EXCAVATIONS. IF CONSTRUCTING AN ALTERNATE DESIGN FOR TEMPORARY SUPPORT OF EXCAVATION, PREPARE AND PROVIDE PLANS IN ACCORDANCE WITH C&MS 501.05. THE DEPARTMENT WILL PAY FOR THE TEMPORARY SUPPORT OF EXCAVATION AT THE CONTRACT LUMP SUM PRICE FOR COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN. NO ADDITIONAL PAYMENT WILL BE MADE FOR PROVIDING AN ALTERNATE DESIGN.

ITEM 509 - EPOXY COATED REINFORCING STEEL, AS PER PLAN:

DESCRIPTION:

IN ADDITION TO THE REQUIREMENTS OF C&MS 509, THIS SHALL INCLUDE PROVIDING HEADED DOWELS ON THOSE REINFORCING BARS SO DESIGNATED IN THE REINFORCING STEEL SCHEDULE.

HEADED DOWELS SHALL DEVELOP THE MINIMUM SPECIFIED TENSILE STRENGTH OF THE REINFORCING BAR PER ASTM A970, "STANDARD SPECIFICATION FOR HEADED STEEL BARS FOR CONCRETE REINFORCEMENT", CLASS A OR HA. PRIOR TO ORDERING, SUBMIT FOR APPROVAL INDEPENDENT LABORATORY TESTING CERTIFICATION CONFORMING TO THE INTERNATIONAL CODE COUNCIL (ICC) THAT THE PRODUCT(S) MEET THIS REQUIREMENT.

HEADED DOWELS MAY BE COLD-SWAGED, FORGED, OR WELDED.

ACCEPTABLE PRODUCTS INCLUDE:

BUTTONHEAD BNH, 5AB BARSPLICE PRODUCTS, INC. DAYTON, OH 937-275-8700 WWW.BARSPLICE.COM

D158F PLAIN END ANCHOR (5AB) DAYTON SUPERIOR MIAMISBURG, OH 888-977-9600 WWW.DAYTONSUPERIOR.COM

HRC 555 SERIES T-HEAD HEADED REINFORCEMENT CORP. FOUNTAIN VALLEY, CA 714-557-1455 WWW.HRC-USA.COM

EPOXY COAT ALL HEADED DOWELS AFTER HEAD INSTALLATION/FABRICATION.

MEASUREMENT AND PAYMENT:

THE DEPARTMENT WILL MEASURE THE POUNDS OF EPOXY COATED REINFORCING STEEL INCORPORATED INTO THE WORK. THIS SHALL INCLUDE ALL TOOLS, LABOR, MATERIALS, AND

EQUIPMENT NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED, AND TO THE SATISFACTION OF THE ENGINEER.

ITEM 517 - RAILING, MISC.: REINSTALL BRIDGE RAILING:

DESCRIPTION:

THIS WORK SHALL CONSIST OF REINSTALLING THE BRIDGE RAILING REMOVED AND STORED FOR RE-USE.

CORE OR FORM HOLES IN THE TOP OF THE PARAPET AS NECESSARY TO RECEIVE THE RAILING. HOLES TO BE 1/4" LARGER THAN THE POST DIAGONAL DIMENSION.

INSTALL THE RAILING PLUMB AND CENTERED ON THE CONCRETE PARAPET; AS WELL AS TO THE SAME ELEVATION, AND IN LINE WITH, THE ADJACENT RAILING.

GROUT IN PLACE WITH NON-SHRINK NON-METALLIC GROUT PER C&MS 510.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY REPLACE THE ALUMINUM RAIL WITH ANOTHER THAT MATCHES THE EXISTING RAIL'S CONFIGURATION, DETAILS, AND FINISH; AND IS PROVIDED BY THE SAME SUPPLIER AS THE ORIGINAL.

MEASUREMENT AND PAYMENT:

THE DEPARTMENT WILL MEASURE THE LINEAR FOOT QUANTITY OF REINSTALLED BRIDGE RAILING INCORPORATED INTO THE WORK. THIS SHALL INCLUDE ALL TOOLS, LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED, AND TO THE SATISFACTION OF THE ENGINEER.

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE B WITH AGGREGATE FILTER:

DESCRIPTION:

REPLACE ALL CHANNEL EROSION PROTECTION DISTURBED BY THE WORK WITH TYPE B ROCK CHANNEL PROTECTION (RCP) 48" DEEP WITH AN AGGREGATE FILTER INCLUDING ANY SUBGRADE PREPARATION REQUIRED TO PROVIDE SOLID BEARING OF THE RCP AND FILTER PER C&MS 601.

AN ADDITIONAL 25% CONTINGENCY IS INCLUDED IN THE QUANTITIES ESTIMATED.

MEASUREMENT AND PAYMENT:

THE DEPARTMENT WILL MEASURE THE CUBIC YARDS OF TYPE A ROCK CHANNEL PROTECTION WITH AGGREGATE FILTER INCORPORATED INTO THE WORK. THIS SHALL INCLUDE ALL TOOLS, LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO COMPLETE THIS ITEM OF WORK AS DESCRIBED, AND TO THE SATISFACTION OF THE ENGINEER.

ITEM 611 - 14' x 8' CONDUIT, TYPE A, 706.05, AS PER PLAN, **DESIGN COVER 0-2 FT:**

DESCRIPTION:

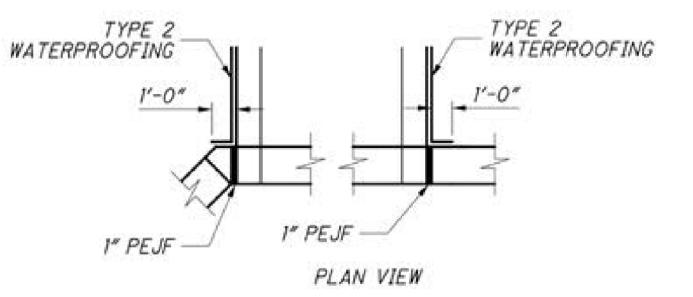
IN ADDITION TO THE REQUIREMENTS OF C&MS 611 AND SUPPLEMENTAL SPECIFICATION 940, THIS SHALL INCLUDE PROVIDING SKEWED ENDS TO THE FIRST AND LAST UNIT AS SHOWN IN THE PLANS TO PROVIDE A UNIFORM WIDTH TO THE CAST-IN-PLACE CONCRETE CLOSURES AT EITHER END OF THE BOX CULVERT. BEVELED FACES OF THESE UNITS MAY BE LEFT SMOOTH.

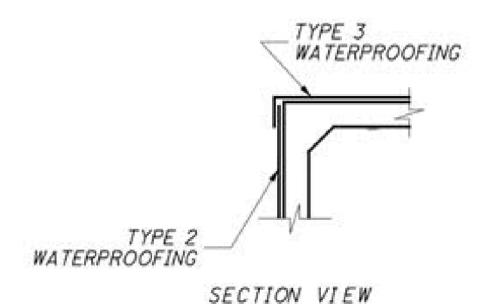
THIS SHALL ALSO INCLUDE PROVIDING COMPACTED FILL IN ANY VOIDS LEFT FROM REMOVALS BELOW AND TO THE SUBGRADE. BEDDING, AND BACKFILL PER 611.06.

WATERPROOFING:

TYPE 2 WATERPROOFING, PER CMS 512.09 AND 711.25, SHALL EXTEND VERTICALLY DOWN THE ENTIRE SIDES OF THE PRECAST CULVERT SECTIONS FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 2 WATERPROOFING.

TYPE 3 WATERPROOFING, PER CMS 512.10 AND 711.29 SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND ONE FOOT VERTICALLY DOWN THE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. PAYMENT FOR THE MEMBRANE WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQUARE YARD FOR ITEM 512 - TYPE 3 WATERPROOFING.





WATERPROOFING DETAILS

7

OF 54

49 4 60

DES. BY:

MMR

CHK. BY:

MAR

091-14.49 SUM

