

State of Maryland **Board of Public Works**

Wetlands Administration 80 Calvert Street, Room 117, Annapolis, Maryland 21401 410-260-7791 Wes Moore
Governor

Dereck E. Davis

Treasurer

Brooke Lierman *Comptroller*

John T. Gontrum, Esq. *Executive Secretary*

WETLANDS LICENSE NO. 24-0653(R1) MARYLAND TRANSPORTATION AUTHORITY

A minor modification (pursuant to COMAR 23.02.04.17.B.(1)) was made to the original license. Changes to original license language are shown with a strikethrough, and revisions shown with bold type

The Maryland Board of Public Works authorizes you to:

- I. Remove the remaining four protective barrier structures (dolphins) and bridge pier structures, both above and below the water line:
 - a. This removal will consist of both mechanical means and the use of blasting
 - b. Subaqueous blasting and blasting above the water line will be used on the remaining eleven in-water piers (piers 14 24) and four dolphins
 - c. Remove the existing dolphins and piers to two feet below the mud line
 - d. The material will be removed via barge with both clamshell and excavators and will include the removal of buried pier segments and associated structures
 - e. The project will result in 8.29 6.45 acres of temporary impacts to the Patapsco River.

Patapsco River, Francis Scott Key Bridge, Baltimore City and County, and Anne Arundel County, Maryland

Issuance of this Tidal Wetlands License constitutes the State's determination that the authorized activities are consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the Federal Coastal Zone Management Act of 1972, as amended [16 U.S.C. §1456].

THIS LICENSE AUTHORIZES YOU TO PERFORM THE WORK ONLY IF YOU COMPLY WITH THE FOLLOWING SPECIAL CONDITION(S):

- A. The Licensee shall submit a final blasting plan that includes a detailed fish deterrent sound system. The final blast plan must be submitted and reviewed by the Maryland Department of Environment Tidal Wetlands Division and Maryland Department of Natural Resources Environmental Review Program.
- B. If any subaqueous blasting occurs between February 15 through June 15, inclusive during any year, the Licensee shall coordinate with DNR for minimization and avoidance measures prior to activity commencement. The Licensee shall make every effort to complete subaqueous blasting activities outside of the above TOYR.
- C. The Licensee shall strictly manage and maintain all in-water BMPs to minimize sedimentation during blasting activities.
- D. The Licensee shall remove all debris with a minimum size of 10 inches in diameter or greater that is on the substrate surface or within two feet below the mudline.

- E. The Licensee shall document the location, size and depth of any remaining bridge debris material using side scan sonar, any debris deeper than two feet below the mudline may be left in place.
- F. If surface water intake is necessary, the Licensee shall ensure that the intake have a 1mm screen and an intake velocity of no more than 0.5 cubic feet per second.
- G. If the remnants from piers 19, 20 and 21 need to be removed from greater than two feet below the mudline, the Licensee shall remove these outside of the February 15 through June 15 time of year restriction to protect spawning anadromous fish species.
- H. The Licensee shall use appropriate BMPs that are identified in the "Proposed Best Management Practices for Francis Scott Key Bridge Pier Demolition to be permitted under MDE Tidal Wetland License 24-WL-0653 (adapted from NMFS/GARFO BMP Manual)".
- I. If any mooring activities overlap within the Fort Carroll Sensitive Species Project Review Area (SSPRA) area, the Licensee shall coordinate with DNR's Environmental Review Program for minimization and avoidance measures.
 - *The SSPRA over the Key Bridge (green oval) can be disregarded, as the nest was lost in the bridge collapse.
- J. The Licensee shall submit a weekly report and a summary report at the end of blasting activities documenting total injured/killed fish observed for each species, approximate location relative to where the blasting was occurring, and time/date.
- K. The Licensee shall provide compensation for fish mortality as a result of any blasting activities. The Licensee shall provide payment into a Maryland Department of Natural Resources (DNR) Special Fund as designated by DNR. Monetary values associated with fish kills shall be evaluated in accordance with the Aquatic Species Fish Mortality Mitigation Cost Table.

THIS LICENSE AUTHORIZES YOU TO PERFORM THE WORK ONLY IF YOU COMPLY WITH THE FOLLOWING STANDARD CONDITIONS:

- 1. Licensee shall conduct the authorized work in accordance with the plans and drawings dated as accepted by MDE on July 12, 2024 October 31, 2025, which are hereby incorporated into this License.
- 2. Until the authorized work is complete, Licensee shall have available at the site a copy of this License including the plans and drawings.
- 3. This License constitutes Maryland's authorization to conduct the authorized work under the State Tidal Wetlands Law. This License does not bestow any other federal, State, or local government authorization.
- 4. Licensee shall have all proposed work above Mean High Water reviewed and authorized by the local county Department of Planning and Zoning or applicable agency.
- 5. Licensee shall notify MDE's Compliance Program by BOTH phone AND in writing of the following: (a) start date at least five business days before beginning work; and
 - (b) completion date no more than five business days after project completion.
 - Central Division: 410-537-3510, 1800 Washington Blvd, Baltimore, MD 21230
- 6. Licensee shall comply with any regulations, conditions, or instructions issued by MDE, including any Water Quality Certification issued with respect to the authorized work.
- 7. Licensee shall conduct the authorized work in accordance with Critical Area Commission requirements. The Critical Area Commission and MDTA have developed a Memorandum of Understanding (MOU) approving the Key Bridge Rebuild and requiring Commission review prior to buffer disturbance. In accordance with the MOU, any anticipated Buffer disturbance shall be

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reviewed by the Critical Area Commission per the requirements of linear projects in Intensely Developed Area before commencement of land disturbing activity. All activities within the Critical Area and Critical Area Buffer will be performed in accordance with the MOU.

"Buffer" means the 100-foot Critical Area Buffer and any expanded area that is immediately landward of the mean high-water line of the tidal waters or is immediately landward of tidal wetlands. The Buffer includes expanded contiguous area if the contiguous area includes steep slopes, hydric soil, or highly erodible soil, or otherwise meets the criteria of COMAR 27.01.09.01.E(7). "Disturbance" means any alteration or change to the land including any amount of clearing. Clearing includes vegetation removal, grading, and construction activity.

- 8. Licensee may not fill, dredge, or otherwise alter or destroy tidal marsh or its vegetation unless this License specifically authorizes the activity.
- 9. Licensee may not stockpile material in State tidal wetlands/State tidal waters of the U.S.
- 10. Licensee shall allow unfettered public use of State wetlands/State tidal waters of the U.S unless approved by the U.S. Coast Guard for safety reasons.
- 11. This License does not transfer a property interest of the State.
- 12. Licensee shall file a Miss Utility ticket for the proposed work at least 10 days before beginning work. *Miss Utility*: 800-257-7777
- 13. Licensee shall ensure that structures (for example, piers and piles) removed from the site are taken to an upland disposal facility approved by MDE's Compliance Program.
- 14. If the authorized work impacts more than 5,000 square feet or includes 100 or more cubic yards of fill, Licensee shall conduct the authorized work in accordance with a locally approved Soil Erosion and Sediment Control Plan.
- 15. If the authorized work is not performed by the property owner, all work performed under this Tidal Wetlands License shall be conducted by a marine contractor licensed by the Marine Contractors Licensing Board (MCLB) in accordance with Title 17 of the Environment Article of Annotated Code of Maryland. A list of licensed marine contactors may be obtained by contacting the MCLB at 410-537-3249, by email at MDE.MCLB@maryland.gov or by accessing the Maryland Department of the Environment, Environmental Boards webpage.
- 16. Licensee shall allow State officials and employees to make inspections at reasonable times and cooperate with those inspections.
- 17. This License is granted only to the Licensee. Licensee may transfer the license only with written approval from the Board of Public Works. If the Board of Public Works approves the transfer, the transferee is subject to all License terms and conditions.
- 18. Licensee shall indemnify, defend, and save harmless the State of Maryland, its officials, officers, and employees from and against any and all liability, suits, claims, and actions of whatever kind, caused by or arising from, the work this License authorizes.
- 19. The Board of Public Works or its Wetlands Administrator may modify, suspend, or revoke this License in its reasonable discretion. Licensee shall promptly comply upon notice of any such action.
- 20. This License expires September 13, 2027.

 If the authorized work is not completed by the expiration date, all activity must stop.

Note: A three-year license may be renewed for one additional three-year term if the Licensee requests an extension before the expiration date and all other conditions are met. A six-year license may not be renewed; instead, Licensee must reapply to MDE for a new license. Contact the Board of Public Works to determine if this License may be extended. *Board of Public Works:* 410-260-7791

- 21. In conducting work authorized under this license, licensee may not cause injury to private property; invade the rights of others; or infringe any federal, state, or local laws or regulations.
- 22. Licensee shall maintain any authorize structure in good condition and perform the authorized activity in a workmanlike manner in accordance with this license.
- 23. In conducting work authorized under this license, licensee shall eliminate or minimize adverse effects on fish, wildlife, and the natural environment.

By the authority of the Board of Public Works:

Docusigned by:
William Morgante

William Morgante

William Morgante
Wetlands Administrator

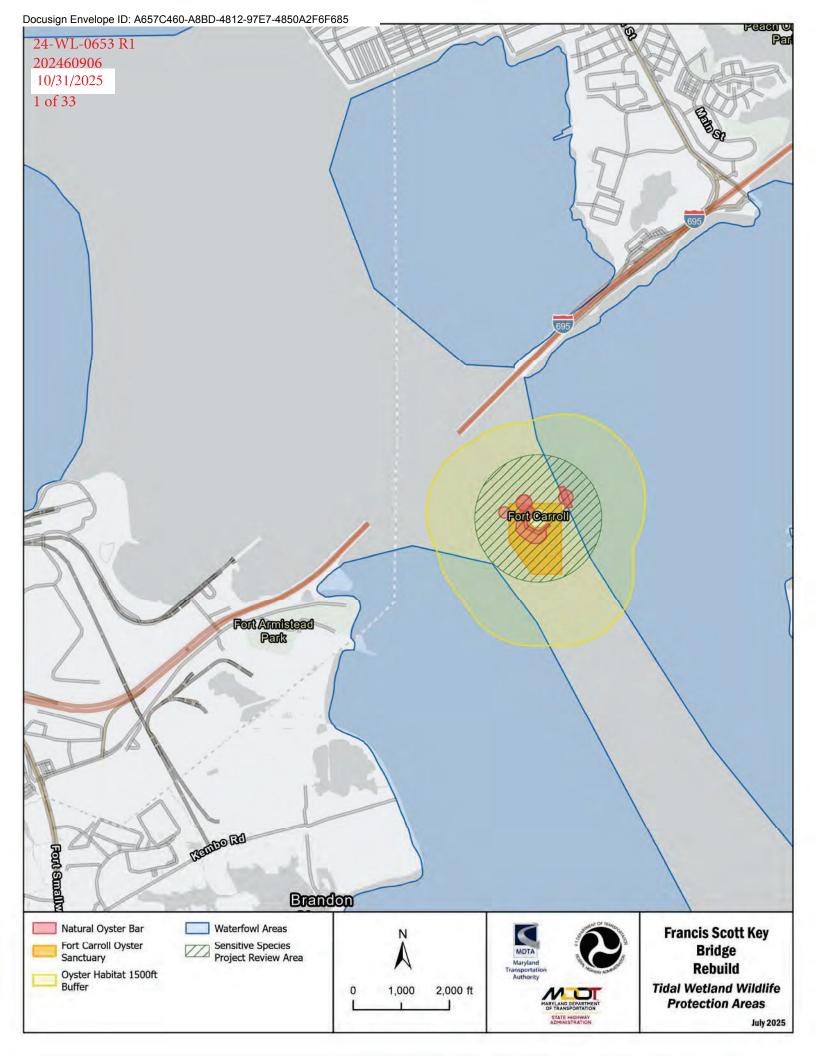
Effective Date: September 13, 2024 Approved as: Secretary's Agenda Item: 5

Board of Public Works Meeting Date: September 11, 2024

Revised: November 24, 2025 (R1)

I accept this License and all its conditions.

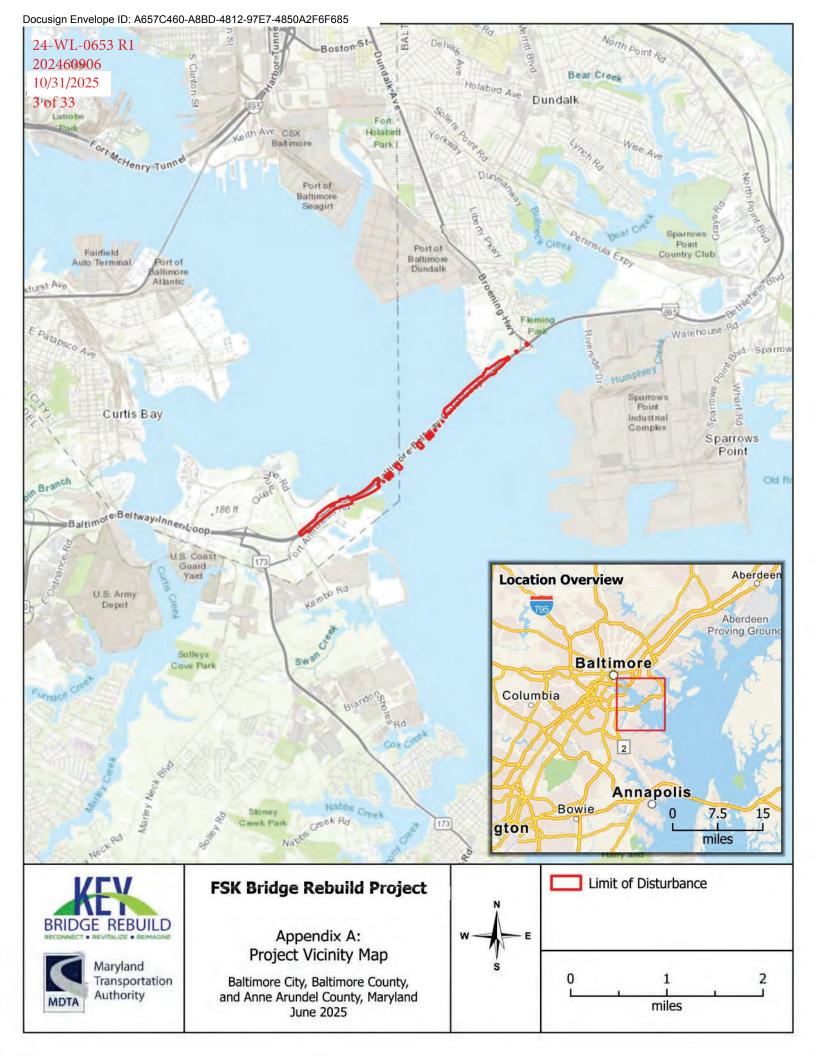
	Signed by:
12/11/2025	Signed by: Brown Wryn
Date	Licensee (Signature) 63175F2A5AFA460
	Brian Wolfe
	Name (Printed)
	Director of Project Development
	Title
	bwolfe3@mdta.state.md.us
	Email (To receive completed license.)



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Fish Mortality Mitigation Cost Table

		Prices as of March 2022						P	rices in CO	MAR 08.02	2.09.01		
	Under 4"	4"-6"	6"-8"	8"-10"	10"-12"	12"+ price/lb	Und	er 4"	4"-6"	6"-8"	8"-10"	10"-12"	12"+ price
Bass, Largemouth	1.75	2.45	3.85	5,60	7.00	8.75	0.	50	0.70	1,10	1,60	2.00	2,50
Bass, Striped*	2.63	4.38	6.13	7.88	10.50	17.50	0.	75	1.25	1.75	2.25	3.00	5.00
Bluefish	1.75	2.98	4.03	5.25	7.00	11.73	0.	50	0.85	1.15	1.50	2.00	3.35
Catfish, Bullheads	0.35	0.70	1.05	1.40	1.75	1.75	0.	10	0.20	0.30	0.40	0.50	0.50
Catfish, Channel, White	0.53	0.88	1.23	1.58	1.93	3.50	0.	15	0.25	0.35	0.45	0.55	1.00
Catfish, Blue, Flathead			In	vasive			0.	00	0.00	0.00	0.00	0.00	0.00
Crappie, B l ack, White	0.70	1.40	2.10	3.50	5.25	8.75	0.	20	0.40	0.60	1.00	1.50	2.50
Croaker	0.53	1.05	1.58	2.10	2.63	2.63	0.	15	0.30	0.45	0.60	0.75	0.75
Drum, Black, Red	1.75	2.98	4.03	5.25	7.00	11.73	0.	50	0.85	1.15	1.50	2.00	3.35
Ee l , American	0.18	0.35	1.05	1.05	1.05	1.75	0.	05	0.10	0.30	0.30	0.30	0.50
Herring*	0.35	0.70	1.05	1.75	2.63	1.75	0.	10	0.20	0.30	0.50	0.75	0.50
Menhaden	0.35	0.70	1.05	1.75	2.63	1.75	0.	10	0.20	0.30	0.50	0.75	0.50
Perch, White	0.53	0.88	1.23	1.58	1.93	2.28	0.	15	0.25	0.35	0.45	0.55	0.65
Perch, Yellow	0.53	0.88	1.23	1.58	1.93	2.28	0.	15	0.25	0.35	0.45	0.55	0.65
Seatrout, all species	0.88	1.58	2.28	3.15	3.85	5.25	0.	25	0.45	0.65	0.90	1.10	1.50
Shad, American*	0.35	0.70	1.05	1.75	2.10	2.98	0.	10	0.20	0.30	0.50	0.60	0.85
Shad, Hickory*	0.35	0.70	1.05	1.75	2.10	2.98	0.	10	0.20	0.30	0.50	0.60	0.85
Shad, Gizzard	0.07	0.14	0.21	0.28	0.35	0.53	0.	02	0.04	0.06	0.08	0.10	0.15
Snakehead			In	vasive			0.	00	0.00	0.00	0.00	0.00	0.00
Spot	0.53	1.05	1.58	2.10	2.63	2.63	0.	15	0.30	0.45	0.60	0.75	0.75
Sturgeon*						175.00							50.00
Sunfish, all species	0.70	1.23	3.50	6.13	10.50	10.50	0.	20	0.35	1.00	1.75	3.00	3.00
	Unde	Under 4"		Over 4"				Under 4"		Over 4"			
Forage fish, shiners, daces, silversides, anchovies, etc.*	\$3.50/thousand		\$7/thousand					\$1/thousand		\$2/thousand			
	Unde	er 5"	Ove	er 5"				Unde	er 5"	Ove	er 5"		
Blue Crabs, Hard*	.87/6	each	1.74	/each				.25/e	ach	.50/	each		
	Under 3.5"		Over 3.5"				Under 3.5"		Over 3.5"				
Blue Crabs, Soft, Peeler*	.87/6	.87/each		1.74/each				.25/each		.50/each			
Soft-shell Clams	\$70/b							\$20/bi					
Hard-shell Clams	.70/each								0/each				
Oysters	\$52.50/bushe							\$15/bushel					
Grass Shrimp	\$14/gallon						\$4/gallon						
Diamondback Terrapins*	\$3.49/	pound						\$1/pc	ound				
Notes:													
COMAR values have been adjust	ed to reflect the	cumulative	rate of infla	ation from 1	980 to Marc	ch 2022 which is	just under 2	50%					
https://www.usinflationcalculator.c	om/?mc_cid=16	03cc288f&	mc_eid=74	0ba2c29d									



Remainder of FSK Bridge Demolition

Notes: Deck, Parapet, Median, Girder removal authorized in 24-WL-0607

Pier Above Water Removal - Piers 14 through 16 & 22 through 24

- 1. The portion of the piers above the water for the remaining piers (14, 15, 16, and 22, 23, 24) shall be removed using explosives.
- 2. The existing pier caps, columns, and struts shall be drilled to allow charges to be placed.
- 3. Once the charges are placed, the explosives will fail the piers and allow them to fall into the water.
- 4. They will be cleaned up with the portions of the piers that are below water.

Pier Below Water Removal - Piers 14 through 16 & 19 through 24

- 1. The portions of the existing piers that are below water (14, 15, 16, 19, 20, 21, 22, 23, and 24) shall be removed utilizing explosives.
- 2. The piers shall either be drilled from on top of the pier or from a barge.
- 3. Divers will be sent down to inspect the footing to check for any cofferdams that may have been left in place. If they are found, the sheets will be cut vertically every eight (8) feet.
- 4. Once the drilling is completed, the explosives will be placed and the piers will be imploded.
- 5. Once they are imploded, the river bottom will be cleaned up with a combination of hydraulic excavators and duty cycle cranes equipped with clamshell buckets.
- 6. Place material on barges and push to trestle or offloading yard.
- 7. Offload all the debris from the barges then move the barge back to each pier until the cleanup is complete.
- 8. Piers shall be removed to two (2) feet below existing mudline or as directed by the United States Coast Guard (USCG) or the United States Army Corps of Engineers (USACE). Approximate elevations of mudline:
 - a. Pier 14 EL -16
 - b. Pier 15 EL -16
 - c. Pier 16 EL -20
 - d. Pier 19 EL -25
 - e. Pier 20 EL -24
 - f. Pier 21 EL -24
 - a. Pier 22 EL -19
 - h. Pier 23 EL -13

- i. Pier 24 EL -15
- 9. Load concrete into trucks to be recycled at facility listed above.

Abutment Removal

- 1. The existing abutments and wingwalls shall be completely removed.
- 2. Hammer the abutments and wingwalls with a hydraulic excavator equipped with a hydraulic hammer.
- 3. Load concrete into trucks to be recycled at an approved facility.

Pier 18 Strut & Column Removal (Above Water)

- 1. The portion of Pier 18 above the water shall be removed using explosives.
- 2. The existing pier caps, columns, and struts shall be drilled to allow charges to be placed.
- 3. Once the charges are placed, the explosives will fail the piers and allow them to fall into the water.
- 4. They will be cleaned up with the portions of the piers that are below water.

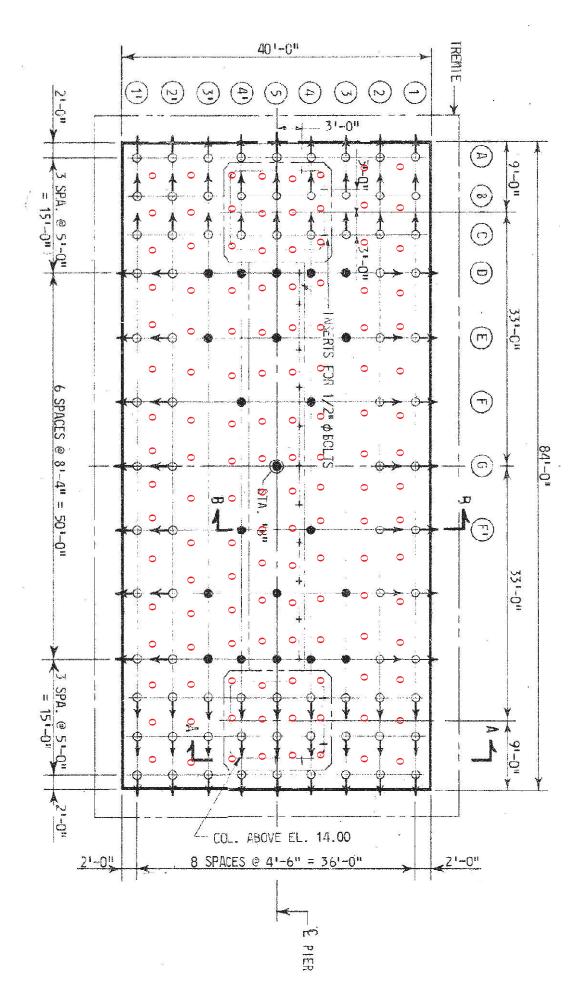
Piers 19-21 Blast Parameters

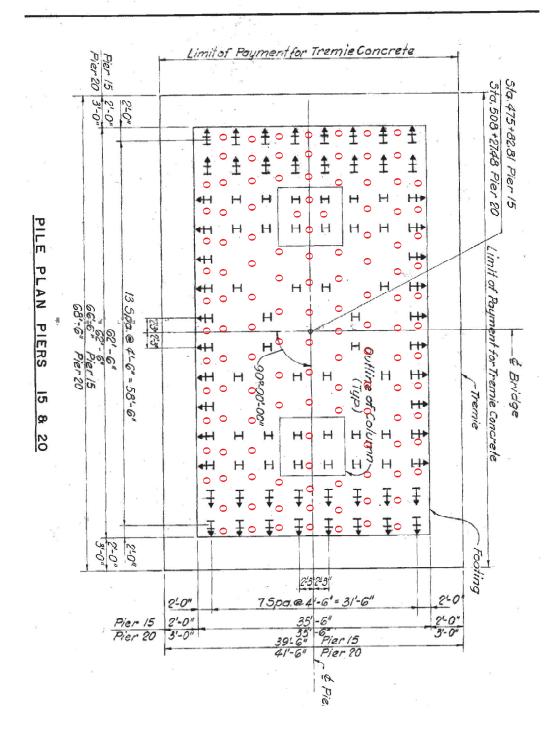
	<u>P19</u>	<u>P20</u>	<u>P21</u>
Number of holes	180	126	163
Hole depth (ft)	36	34	34
Hole diameter(in)	2.75	2.75	2.75
Spacing(ft)	5	4.5	4.5
Burden(ft)	4.5	4.5	4.5
Number of holes	180	126	163
Max. decks per hole	2	2	2
Max. explosives /delay(lb)	30	24	26
Approx. Total explosive(lb)	5500	3000	4300
Average powder factor	1.75	1.75	1.75
Minimum delay (ms)	9	9	9

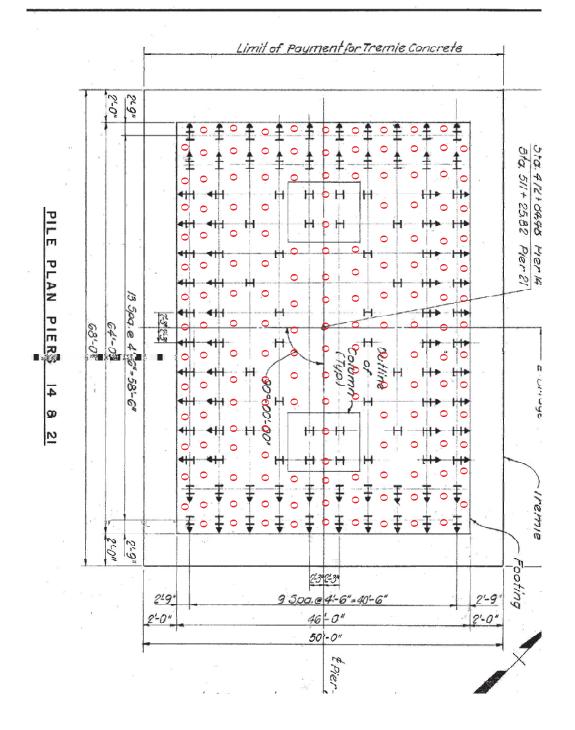
Estimated Peak Particle Velocity (in/sec) at Utility Trench

Structure	Distance(ft)	lb/delay	K = 24.2	160	240	300
Pier 19	~230	30	0.061	0.405	0.607	0.795
Pier 20	~230	24	0.051	0.338	0.508	0.635
Pier 21	~230	26	0.058	0.383	0.574	0.718

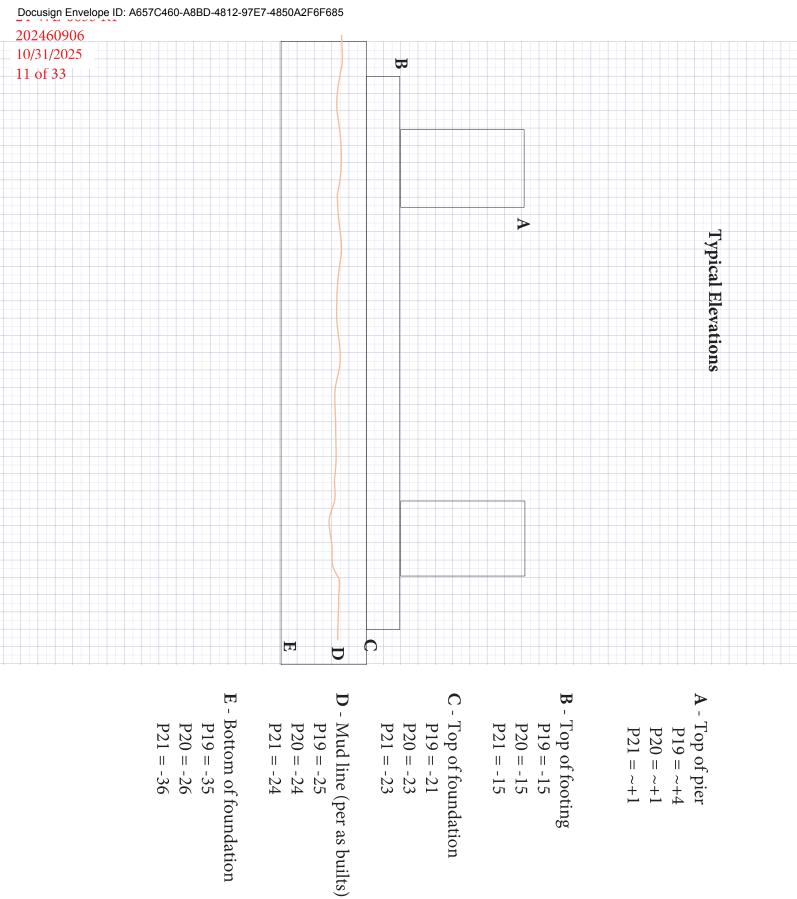
^{**} K value indicates level of confinement of the blast with 24.2 being unconfined and 300 being extremely confined (as a sinking cut in solid bedrock).







WL 0+00



P21 = -23P20 = -23

A - Top of pier
P19 =
$$\sim$$
+4
P20 = \sim +1
P21 = \sim +1

P19 = -15 P20 = -15 P21 = -15

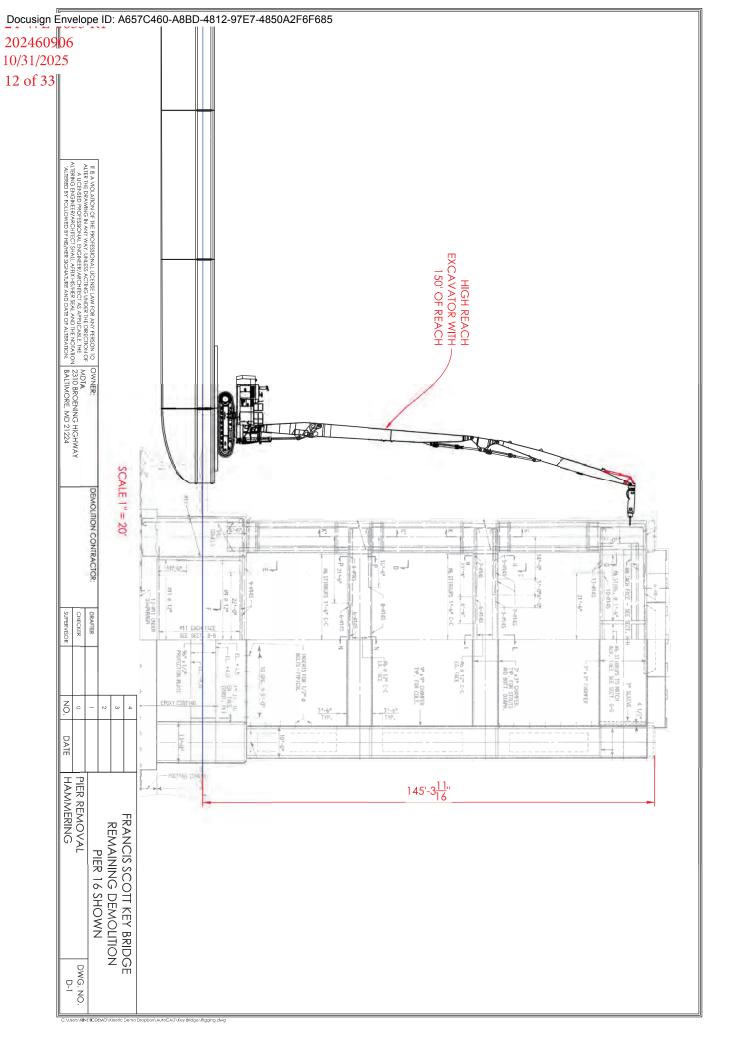
$$P19 = -25$$

$$P20 = -24$$

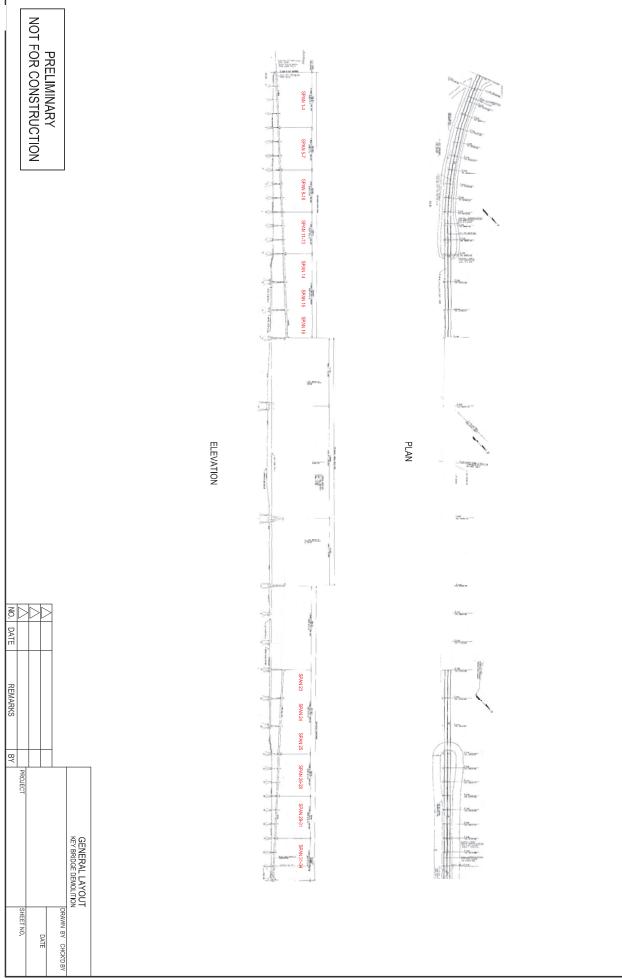
$$P21 = -24$$
E - Bottom of foundation

P20 = -26P21 = -36

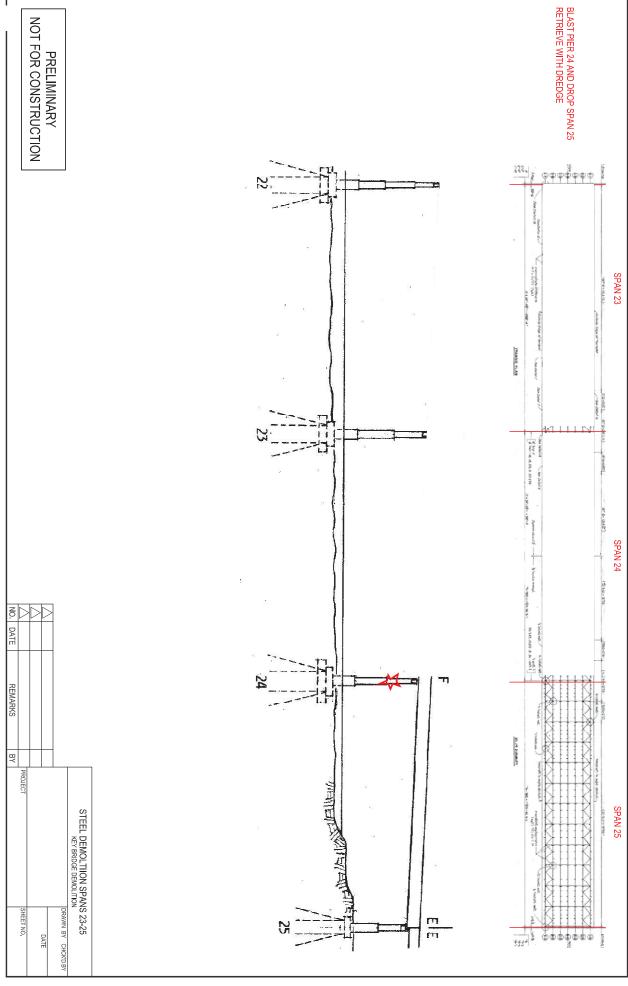
P19 = -35



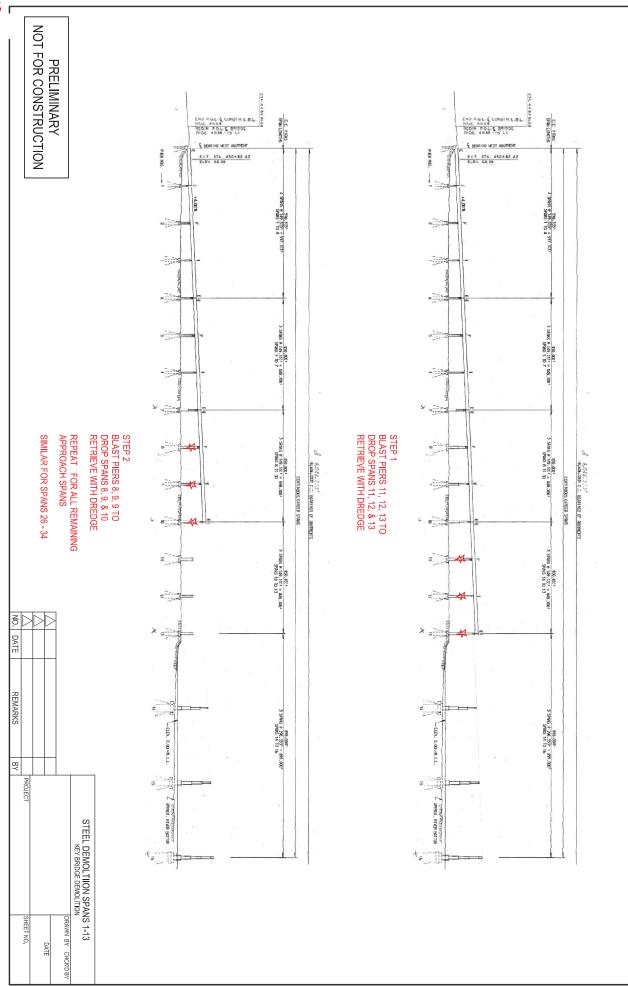
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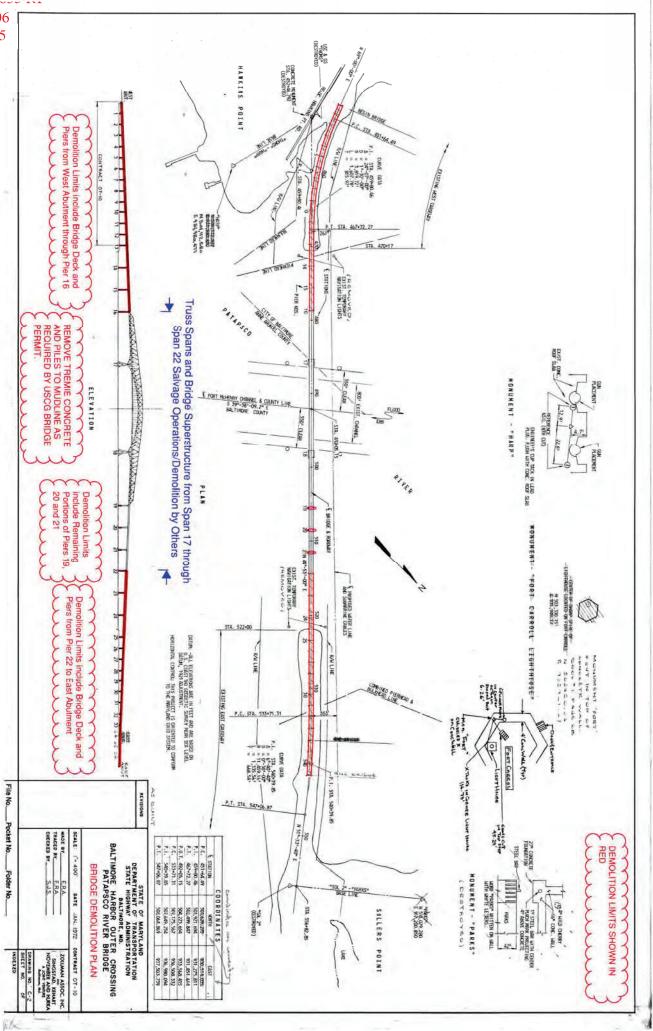
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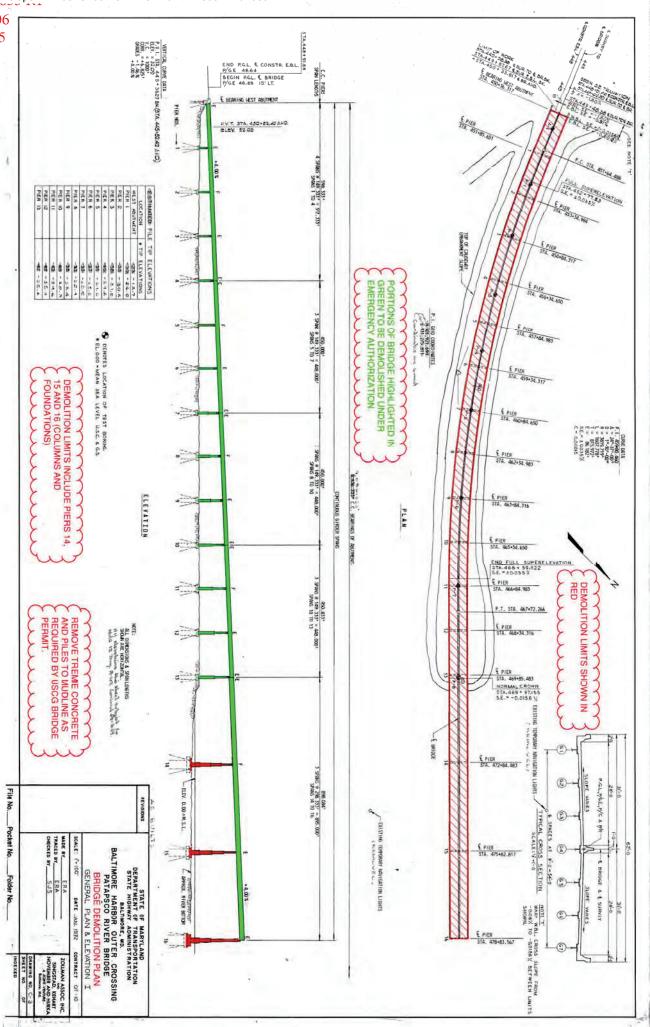
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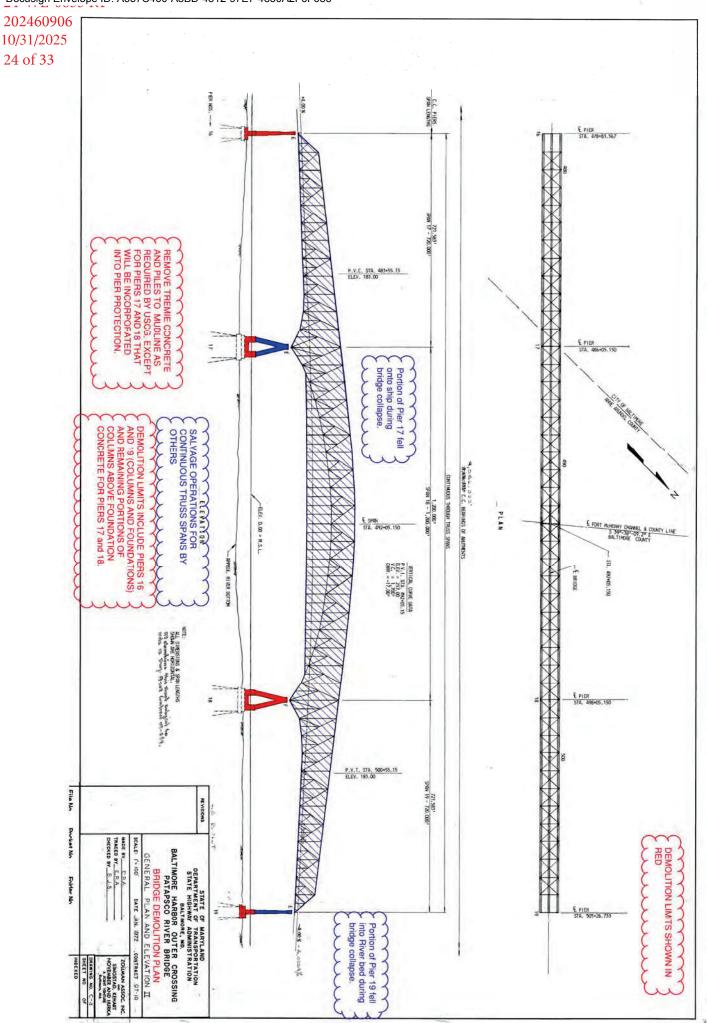
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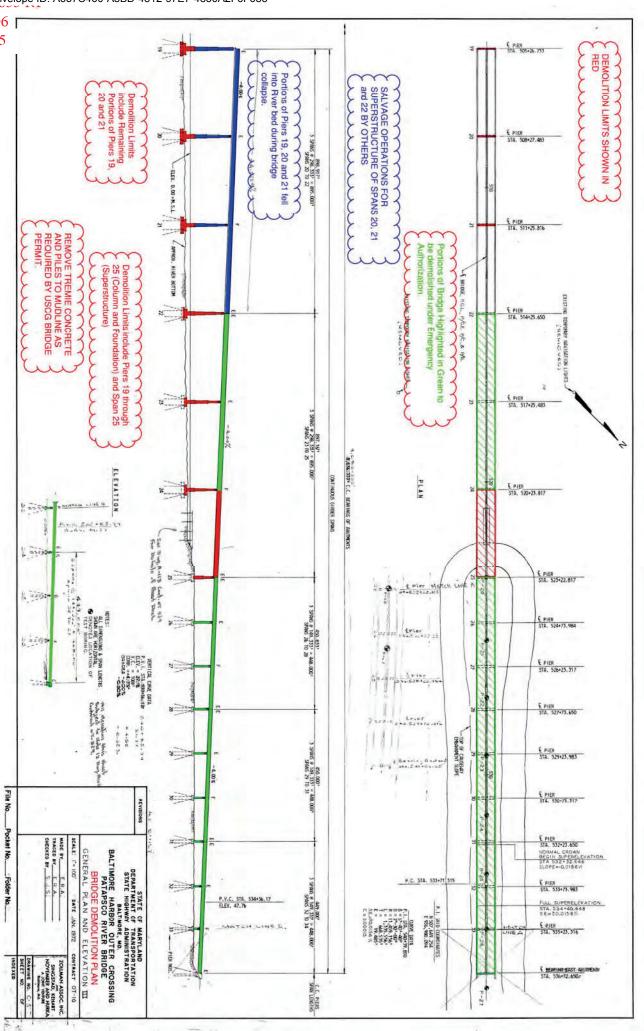
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Docusign Envelope ID: A657C460-A8BD-4812-97E7-4850A2F6F685 202460906 THIS FACE TO EXTEND TO BOTT, OF FOOTING LLL. 10/31/2025 27 of 33 5.4 PP 22 = HALF SECTION ship during bridge collapse. Portions of Piers 17 fell on DAG. NO. A-112 S-87 LI STERRES 9-845 1-321-00 2 2-8145 1-321-0 2 105-100 - 316-0" SHERR TOCK ON LOS OL COTTAN FEBRE 3, FOOD OL CURITE THE BUILT YEAR TO WAT THE BOLTS (TYPICAL) TYP. FOR COLUMN FEMILIE SUPPORT FOR OCTAIL SEE DAG. NO. 4-114 HALF ELEVATION EL. 124.25 EL. 103.90 HET FOR SUPPLIED SCALE: 3/32" = 11-Q" 1-6-6-1 TA . 3 ALL MARKUP ELEVATIONS RELATIVE TO MLW = 0.0 ELEVATION 31-5° 81-0° 31-5° PROT PLATE TA SOLE A 1 #6 e 12* HALF SECTION (A) E COLUMN) 0-102-0 相 W 21 8 RRANGDENT SINGLAR D SECT. 4-4 O.B. THIS FACE TO EXTEND TO BOTT OF FOOTING A STOR FOR DETAIL Of CHANGE SIDE DHEN
CARE (BA OLICES) FOUNDS
FOR STRANGINE
FOR STRANGINE TO PILES AT AN 12-8145 E 341-0 DAG. 10, 4-111 SEE SHAL MOUT SUPPORT COLS. ALL PER PRESE PILES NOTES:

FOR CENERAL NOTES SEE DAG. NO. 4-102.

PLES: HP 14 x 102 THE WILL BY ANY BEN PIE SALICE POLETTION PLAIE DETATIONS,
AD SET, L-L, SEE DG. NO. 3-113.
FM SECTIONS TAKES AND CONSTRUCTION
JANN DETAIL. SEE DAG. NO. 3-111. LEGEND:

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ATTER PILE 1:4

THE LINE THEN THE 1:4

SPHICE, INCIDENTS THE LEE

DIRECTION OF THE LEE BURG, SEE DUG, NO. 4-107. (4) 16-50 11-4 1/40 00000000000000000 11-0 3/W H30 55 A CAMER FIR \$ 1/2" ANCHOR BOLTS File No. 22 SPACES & 4'-0" = 88'-0" SCALE: X72" = 17-0" of Cent or 8-9 4 ROAS #11 DOLELS -6" C.C. Pocket No HALF: SCALE AS NOTED JOINT E BRIDGE BALTIMORE HARBOR OUTER CROSSING PATAPSCO RIVER BRIDGE 2 RQL/S OF #11 DOLELS @ 6" C.C. TOP PLAN STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
BALTIMORE, MD. Fo'der No PLANS AND ELEVATIONS ¢ DATE JAN., 1972 DIRENSIONS OF PILES HAR AT BUTTON OF FOOTING, EL. - 33.50 ET INNIED PILE TIP EL.: - 137 ANERAGE. E BRIDGE E GREINER COMPANY, I CONSULTING ENGINEERS BALTIMORE, MARYLAND 11-60 1'-6"

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