



William Morgante, PWS
Wetlands Administrator

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. 24-0607
MARYLAND TRANSPORTATION AUTHORITY

The Maryland Board of Public Works authorizes you to:

- I. Mechanically remove the remaining parapet, median, deck and six remaining girders over water spans
- II. Place one hundred 36-diameter temporary piles
- III. Place three temporary buoys
- IV. Conduct 60 soil borings/geotechnical investigations using a maximum 12-inch diameter outer casing and an 8-inch diameter inner casing to a maximum depth of 275 feet below the mudline
- V. Conduct the following temporary investigative in-water tests: 14 test piles, six drill shaft tests, and six static load tests.

Patapsco River, Francis Scott Key Bridge, Baltimore City and 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 dispose of all demolition material at an approved facility or disposal site.
- B. The Licensee shall strictly manage and maintain all above water erosion controls BMPs during demolition activities to prevent runoff and debris from entering surface waters and protect stream resources, to the extent possible.
- C. The Licensee shall strictly manage and maintain all in-water BMPs, including the placement of shielding barges, during demolition activities to minimize runoff and debris from entering surface waters, to the extent possible.
- D. If any in-water pile installation or testing activity 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 pile driving activities outside of the above TOYR. The Licensee shall make every effort to complete pile driving activities outside of the above TOY restriction.
- E. The Licensee shall use appropriate BMPs for all pile driving activities that are identified in the "*Proposed Best Management Practices for Francis Scott Key Bridge pier Demolition*

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to be permitted under MDE's Tidal Wetland License 24-WL-0653. (adapted from NMFS/GARFO BMP Manual)" document.

- F. If any mooring, pile driving, and other demonstration activities overlap within the Fort Carroll Sensitive Species Project Review Area (SSPRA) area as depicted on Attachment C, 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.
- G. The Licensee shall implement a "hold point" for agency coordination and adaptive management if the following is observed during or immediately (approximately 1 hour) after pile driving activity:
 - a. Presence of dolphin, sea turtle, or sturgeon within the injury or behavioral modification zone- reference figures from Key Crossing Environmental Compliance Plan (applicability: all impact hammer activities);
 - b. One (1) stunned or dead sturgeon and/or dolphin (applicability: all impact hammer activities);
 - c. Ten (10) stunned or dead game fish or species considered to be in need of conservation per pile location, such as all Bass species, Alewife, Blueback Herring, and American Shad and others (applicability: all impact hammer activities);
 - d. Forty (40) stunned or dead non-game fish per pile location (applicability: all impact hammer activities).
- H. The Licensee shall implement a "hold point" for agency coordination and adaptive management if the following is observed cumulatively for all pile driving during 24-hour period when pile driving occurred:
 - a) One (1) stunned or dead sturgeon and/or dolphin (applicability: all impact hammer activities);
 - b) Thirty (30) stunned or dead game fish or species considered to be in need of conservation, such as all Bass species, Alewife, Blueback Herring, and American Shad and others (applicability: all impact hammer activities);
 - c) One hundred-twenty (120) stunned or dead non-game fish (applicability: all impact hammer activities).
- I. The Licensee shall submit a weekly report and a summary report at the end of pile driving activities documenting total injured/killed fish observed, approximate location relative to where the pile driving was occurring, and time/date.
- J. The Licensee shall provide compensation for fish mortality if a Hold Point is issued. 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 Fish Mortality Mitigation Cost Table depicted on Attachment D.
- K. The Licensee shall install appropriate hazard notification, visibility, and safety requirements on all temporary pilings.

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

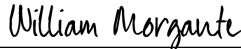
1. Licensee shall conduct the authorized work in accordance with the plans and drawings dated as accepted by MDE on July 12, 2024, which are hereby incorporated into this License.
2. Until the authorized work is complete, Licensee shall have available at the site a copy of this License including the 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 approving the Key Bridge Rebuild and requiring Commission review prior to buffer disturbance. In accordance with the MOU, any anticipated Buffer disturbance and mitigation shall be reviewed by the Critical Area Commission Staff for concurrence and presented to the Critical Area Commission prior to commencement of land disturbing activity.
"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.
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.

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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 contractors 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. October 9, 2027.
20. This License expires
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:

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William Morgante
Wetlands Administrator

October 9, 2024

Effective Date:

Approved as: Secretary's Agenda Item: 4

Board of Public Works Meeting Date: October 2, 2024

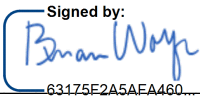
WL#24-0607

Maryland Transportation Authority

I accept this License and all its conditions.

10/9/2024

Date

Signed by:

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Licensee (Signature)

Brian Wolfe

Name (Printed)

Director of Project Development

Title

bwolfe3@mdta.state.md.us

Email (To receive completed license.)

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Francis Scott Key Bridge Rebuild Project

Vicinity Map

Baltimore City and Baltimore County, Maryland
June 2024



- Study Area
- County Boundaries

0 1,000 2,000
Feet

SCOPE:

The work consists of the demolition of the remaining portions of the Francis Scott Key Bridge carrying I-695 over the Patapsco River. The limits of removal include the bridge superstructure from the west abutment through Span 16 and from Pier 22 to the east abutment. The superstructure shall be fully demolished. The substructure removal includes both abutments, Piers 1 through 13 and 25 through 36 on land, and ~~Piers 14, 15, 16, 17, 18, 22, 23, and 24 along with the remainders of Piers 19, 20 and 21 in the Patapsco River. The substructure shall also be removed to two (2) feet below grade or as directed by the United States Coast Guard (USCG) or the United States Army Corps of Engineers (USACE).~~

The existing bridge median barrier, parapet, and deck shall be removed utilizing hydraulic excavators operating on the bridge deck. The steel spans over the water shall be removed utilizing a ringer crane on a barge. The steel spans over land shall be removed by felling the piers and dropping the steel spans. The abutments shall be removed utilizing hydraulic excavators equipped with hydraulic hammers. ~~The water piers shall be removed utilizing explosive demolition.~~

GENERAL OPERATIONS STATEMENT:

All work performed by Demolition Contractor will be done in strict accordance with local, state, and federal safety requirements. A Site-Specific Health and Safety Plan is required to be prepared by the Contractor for this demolition phase, and the Competent Person will convene a safety meeting prior to starting work at which all operatives shall be present. The Competent Person shall review the Site-Specific Safety Plan on a daily basis and ensure that all persons present understand the demolition procedure, all pertinent safety issues, including fall protection and what is required of them.

SITE MAINTENANCE:

During demolition operations, the site shall be maintained in a neat and orderly fashion. Truck drivers and on-site personnel shall coordinate deliveries and disposal operations to alleviate traffic issues.

Operations will be conducted in a manner that will minimize disturbance to the public in areas adjacent to the work.

At no time will unauthorized personnel be allowed in work areas. At no time will the work be left unattended without proper safety protection.

RECYCLING:

- All concrete and asphalt will be recycled at an approved facility.
- All steel and non-ferrous metals will be transported to an approved facility.
- All other demolition debris will be disposed of at an approved disposal site.

Redlined items included in 24-WL-0653

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Remainder of FSK Bridge Demolition Procedure,
MDTA Contract No. KB-4903-0000, Baltimore City and County, MD

LIST OF PROPOSED RECYCLING FACILITIES:

Ferrous & Non-Ferrous Metals	TBD
Concrete	TBD

GENERAL NOTES:

- Demolition Contractor shall not allow debris, tools, or incidental equipment to swing over areas where there is vehicular or pedestrian traffic. Any debris or tools that enter the River shall be retrieved.
- Dust control shall be provided during demolition operations and consist of water hose(s) equipped with spray nozzles to wet down debris as required.

EQUIPMENT TO BE UTILIZED AND/OR AVAILABLE:

Excavator(s)	Ringer Crane(s)
Crawler Crane(s)	Triaxle Dump Trucks
Tractors and Dump Trailers	Hydraulic Hammers
Hydraulic Shears	
Core Cut or Husqvarna Walk-Behind Concrete Saw, Wall Saw & Wire Saw	
Grapples, Slab Bucket, Universal Processor, Concrete Pulverizer, and Miscellaneous Small Tools	

WORK REQUIRED PRIOR TO DEMOLITION:

Prior to demolition, the following work shall be completed:

- Communication will be established with the MDTA prior to the commencement of any demolition.
- Longitudinal and transverse cut lines will be laid out and painted on the deck.
- Prior to deck removal over the water, barges shall be placed beneath that portion of deck to act as a shield to eliminate any debris or slurry from entering the water.

DEMOLITION SEQUENCE:

1. Remove parapet, median, and deck over land and water.
2. Remove existing girders on the six (6) remaining water spans.
3. Remove existing land spans and land piers using explosives to fell the piers.
4. ~~Remove water piers and dolphins using explosives.~~

NOTES:

- The equipment included in the demolition procedure below may be replaced by an alternative piece of equipment that has the capability to perform the intended

Redlined items included in 24-WL-0653

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REDLINED ITEMS NOT INCLUDED IN EMERGENCY
AUTHORIZATION.

operation (subject to the Engineer's approval).

- No demolition work shall proceed without authorization by MDTA.
- Demolition Contractor personnel shall always utilize fall protection PPE when working at or near a leading edge where no barrier, handrails, or fall restraints are in place. Fall protection PPE will be in accordance with OSHA Standards and include the use of harnesses, self-retracting lifelines lanyards, concrete fall arrest anchors, and other approved means.
- At the end of each shift of work, Demolition Contractor will ensure that all leading edges are secured and protected.

REMAINDER OF FSK BRIDGE DEMOLITION

NOTES:

- Erosion controls shall be in place on both approaches prior to removing any deck or dropping any steel.
- Shielding barges will be positioned beneath span being removed to prevent any slurry or debris from entering the waterway.

Deck, Parapet, and Median Removal (Water)

1. The existing median barrier will be removed by hammering it every ten (10) feet to create sections. The barrier will then be hammered where it meets the deck. Cut any rebar and move each section down the bridge.
2. Parapet will be removed by sawcutting techniques.
3. Core holes in the parapet to allow rigging to be inserted.
4. Make plunge cuts every ten (10) feet to create sections.
5. Finally, make a longitudinal cut adjacent to the bottom of the barrier.
6. Lift the sections and place them on the deck.
7. Drag the sections out of the way to the laydown area.
8. Next, the concrete deck will be removed. The concrete deck is non-composite so sawcutting techniques will also be utilized for this removal operation.
9. The size of the deck panels shall be six (6) feet long and nine (9) feet wide (this is the spacing of the girders.)
10. Make the sawcuts in the span to be removed. Sawcut down the center of the existing girders.
11. Once the deck is sawcut, begin to remove the deck sections.
12. Deck sections shall be moved off the span and down to the laydown yard.
13. The concrete deck and parapet sections will be downsized and then shall be loaded into trucks for recycling at an approved recycling facility.

Deck, Parapet, and Median Removal (Land)

1. The existing median barrier will be removed by hammering it every ten (10) feet to create sections. The barrier will then be hammered where it meets the deck. Cut

- any rebar and move each section down the bridge.
2. Parapet will be removed by sawcutting techniques.
 3. Core holes in the parapet to allow rigging to be inserted.
 4. Make plunge cuts every ten (10) feet to create sections.
 5. Finally, make a longitudinal cut adjacent to the bottom of the barrier.
 6. Lift the sections and place them on the deck.
 7. Drag the sections out of the way to the laydown area.
- Next, the concrete deck will be removed. The concrete deck is non-composite so sawcutting techniques will also be utilized for this removal operation.
8. The size of the deck panels shall be six (6) feet long and nine (9) feet wide (this is the spacing of the girders.)
 9. Make the sawcuts in the span to be removed. Sawcut down the center of the existing girders.
 10. Once the deck is sawcut, begin to remove the deck sections.
 11. Deck sections shall be moved off the span and down to the laydown yard.
 12. The concrete deck and parapet sections will be downsized and then shall be loaded into trucks for recycling at an approved recycling facility.

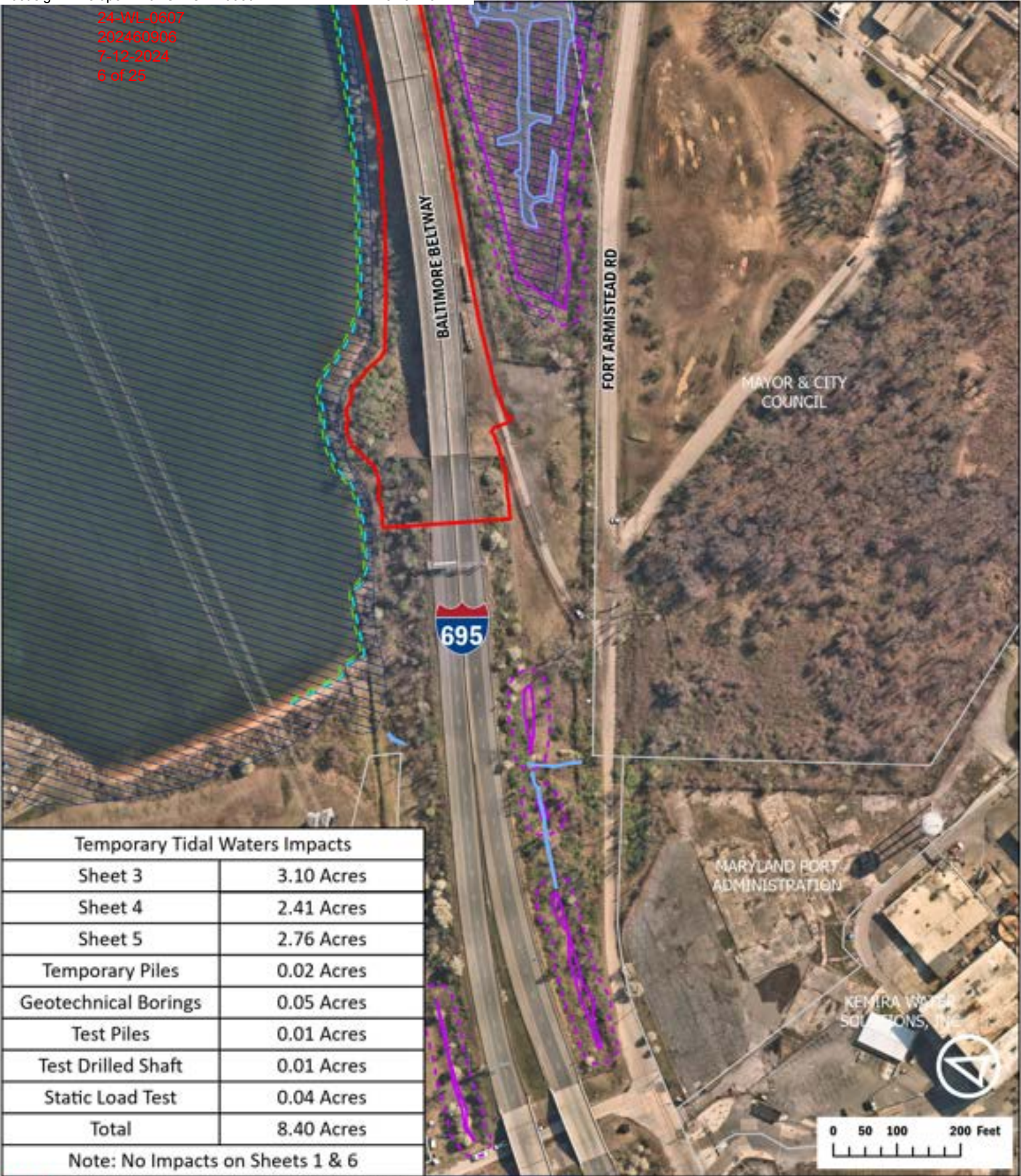
Girder Removal (Water)

1. The existing continuous span girders shall be removed either in pairs or as a single unit (there are seven (7) beams in each span.)
2. Position the Ringer Crane into position and spud down. A material barge shall be placed alongside the crane barge.
3. Remove the first section of steel by cutting holes in the web to insert the chain through. A spreader bar will be utilized as these spans are 300 feet long.
4. Lift the section of steel with the crane and place it on the material barge.
5. Multiple material barges may be required due to the span length.
6. Continue in each span until all the beams are removed.
7. Move to the adjacent span and repeat the process.
8. The operation will then be moved to the opposite approach to remove those spans.
9. The material barges will be pushed to the laydown yard where they will be offloaded.
10. Once the steel is offloaded, it will be subsequently downsized with a combination of hydraulic shears and oxygen/propane torches.
11. Load steel into trucks to be recycled at facility listed above.

Girder & Pier Removal (Land) – Piers 1 through 13 & 25 through 36

1. The existing land spans and piers shall be removed by felling the piers and allowing the steel girders to drop.
2. The existing column legs, caps, and struts shall be drilled to allow charges to be placed.
3. Once all charges are placed, explosive demolition shall fell the piers which will bring

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Temporary Tidal Waters Impacts	
Sheet 3	3.10 Acres
Sheet 4	2.41 Acres
Sheet 5	2.76 Acres
Temporary Piles	0.02 Acres
Geotechnical Borings	0.05 Acres
Test Piles	0.01 Acres
Test Drilled Shaft	0.01 Acres
Static Load Test	0.04 Acres
Total	8.40 Acres

Note: No Impacts on Sheets 1 & 6

Limits of Disturbance

Potential Temporary Pile Area

Streams

Wetlands

25ft Wetland Buffer

100-Year Floodplain

Approximate MLW Line

MHHW Line

MHW Line

Property Parcels

Municipal Boundaries



Maryland
Transportation
Authority

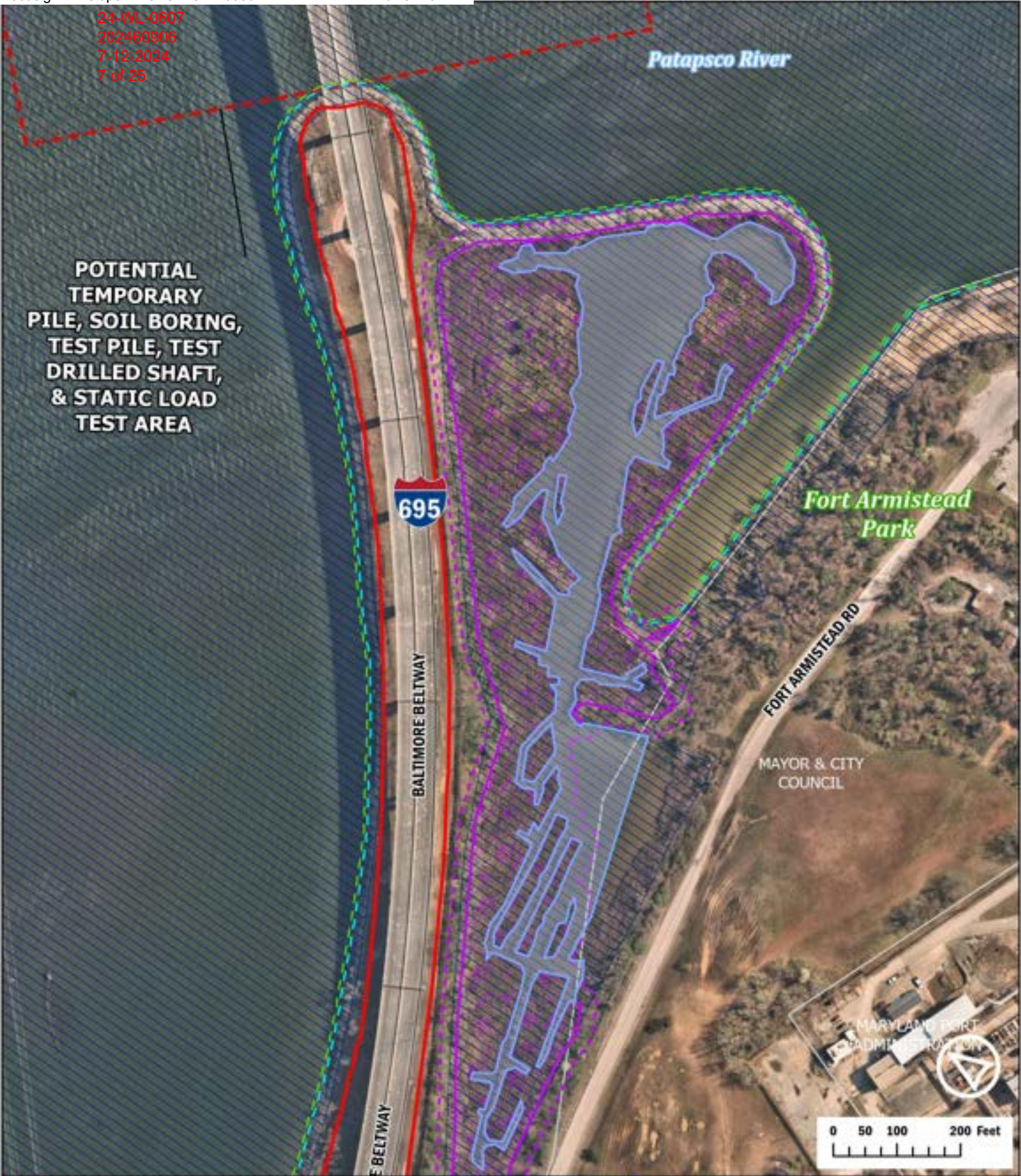
MARYLAND
DEPARTMENT
OF TRANSPORTATION

**Francis Scott Key
Bridge
Demolition
Impact Plates**

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POTENTIAL
TEMPORARY
PILE, SOIL BORING,
TEST PILE, TEST
DRILLED SHAFT,
& STATIC LOAD
TEST AREA

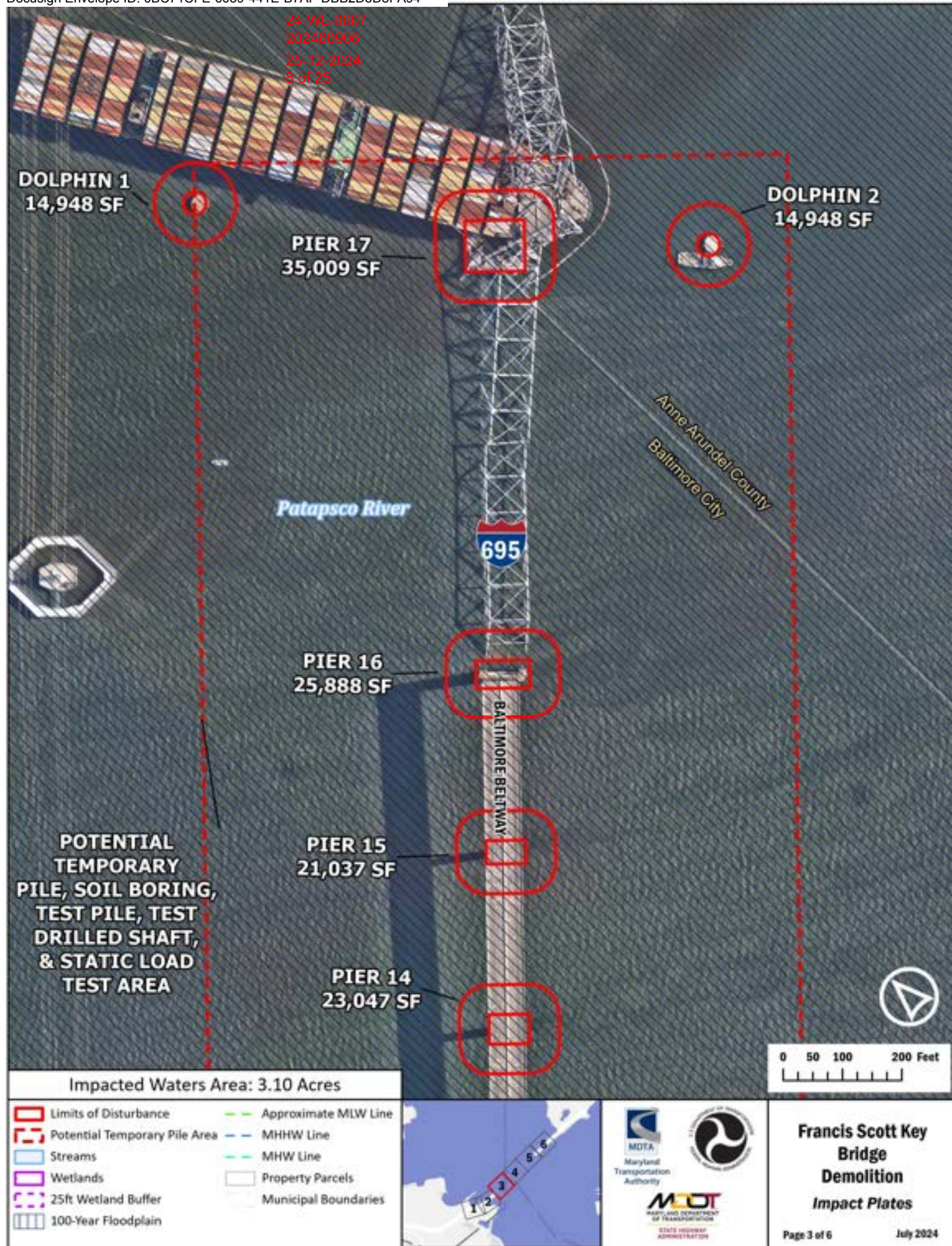


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|-------------------------------|----------------------|
| Limits of Disturbance | Approximate MLW Line |
| Potential Temporary Pile Area | MHHW Line |
| Streams | MHW Line |
| Wetlands | Property Parcels |
| 25ft Wetland Buffer | Municipal Boundaries |
| 100-Year Floodplain | |

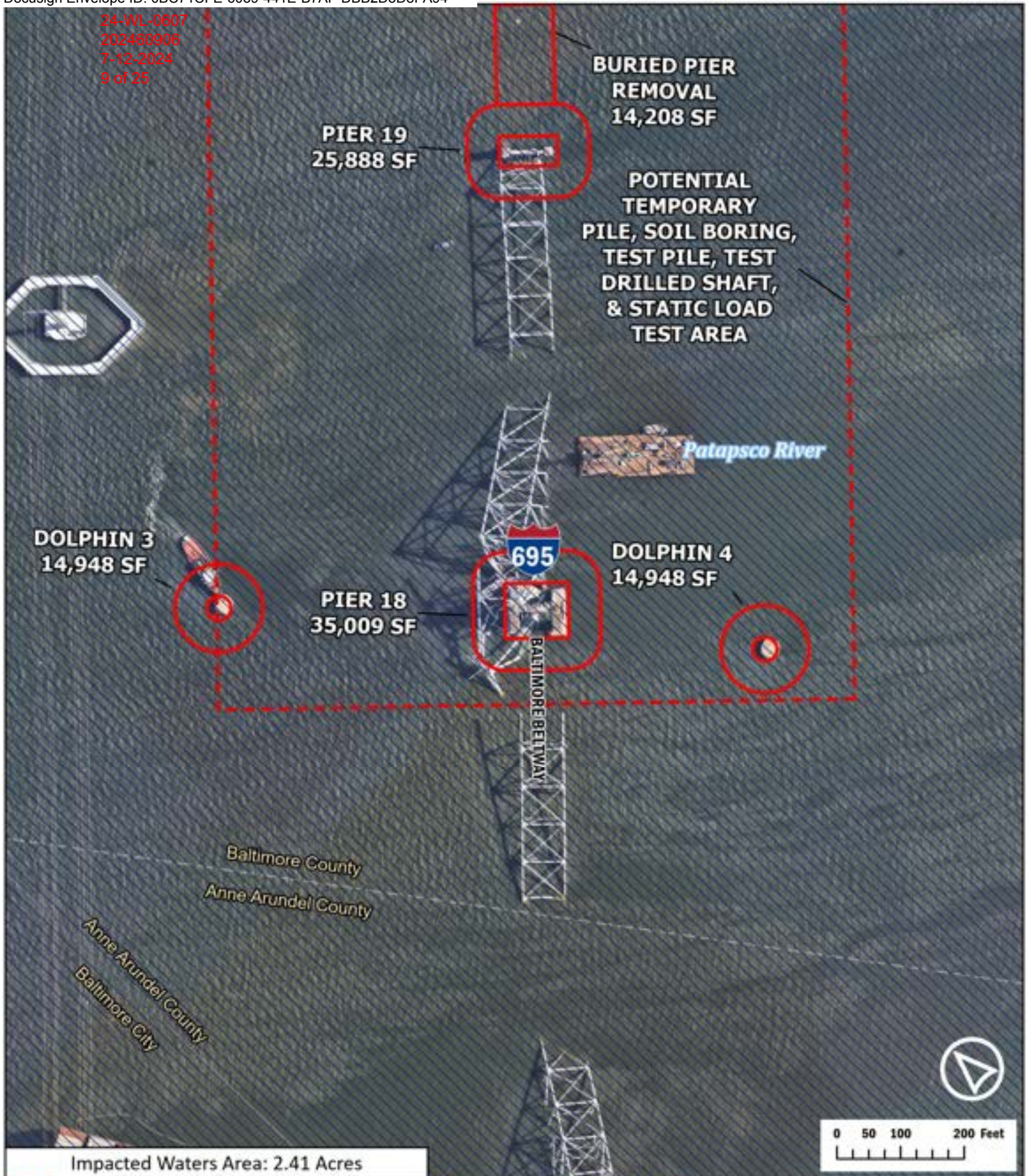


**Francis Scott Key
Bridge
Demolition
Impact Plates**

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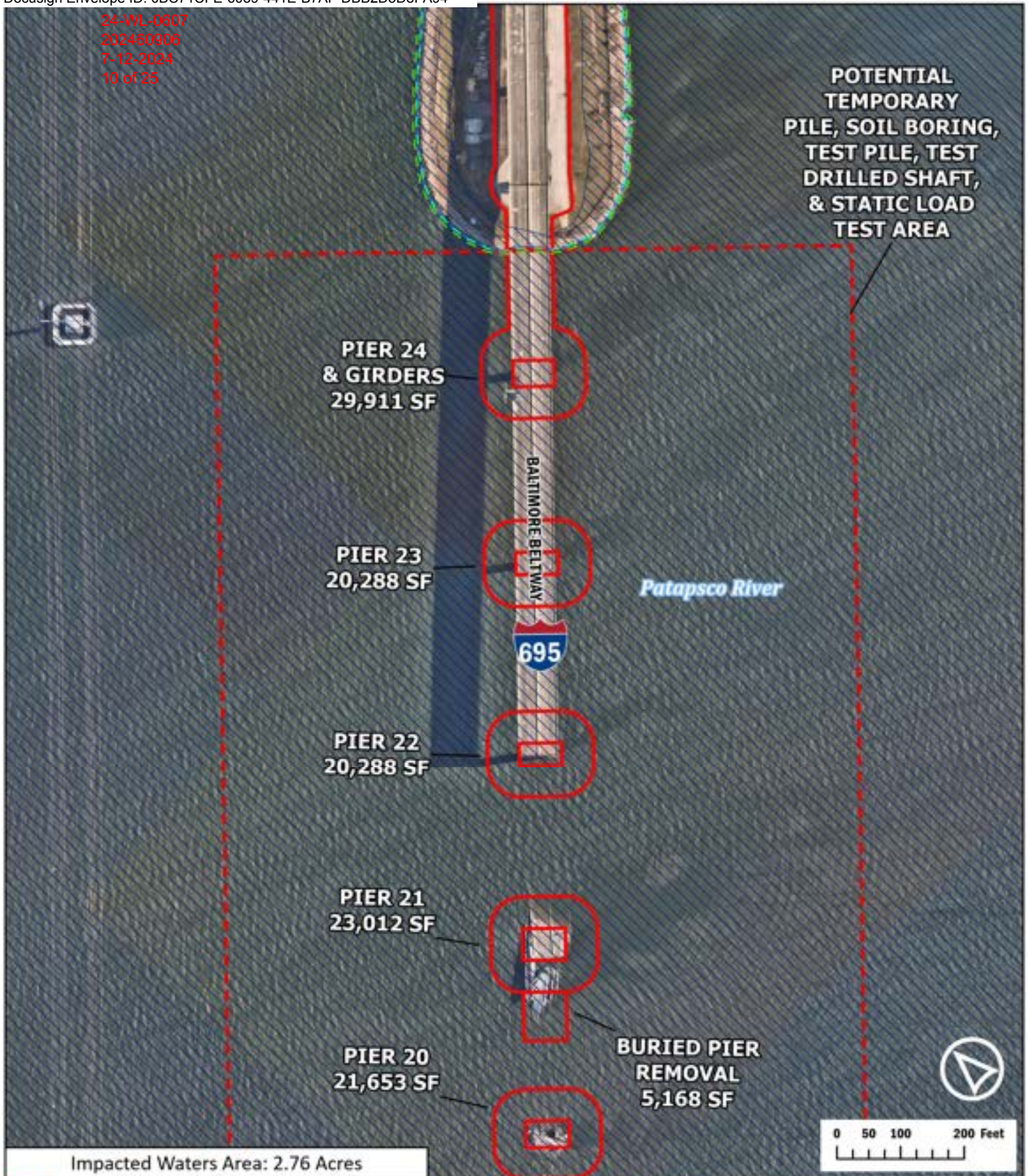
Impacted Waters Area: 2.41 Acres

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|-------------------------------|----------------------|
| Limits of Disturbance | Approximate MLW Line |
| Potential Temporary Pile Area | MHHW Line |
| Streams | MHW Line |
| Wetlands | Property Parcels |
| 25ft Wetland Buffer | Municipal Boundaries |
| 100-Year Floodplain | |



**Francis Scott Key
Bridge
Demolition
Impact Plates**

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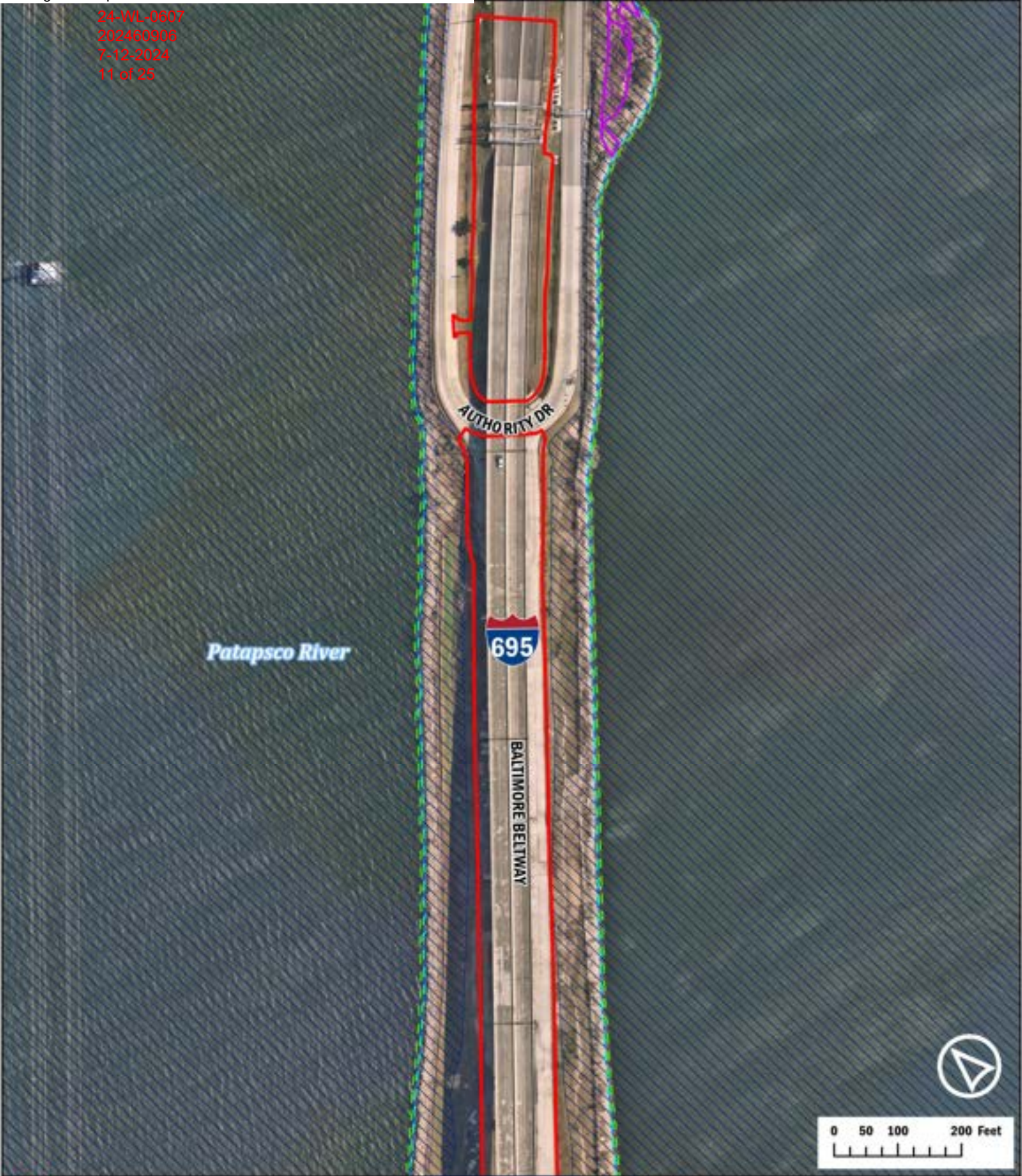
Impacted Waters Area: 2.76 Acres

- | | |
|-------------------------------|----------------------|
| Limits of Disturbance | Approximate MLW Line |
| Potential Temporary Pile Area | MHHW Line |
| Streams | MHW Line |
| Wetlands | Property Parcels |
| 25ft Wetland Buffer | Municipal Boundaries |
| 100-Year Floodplain | |



**Francis Scott Key
Bridge
Demolition
Impact Plates**

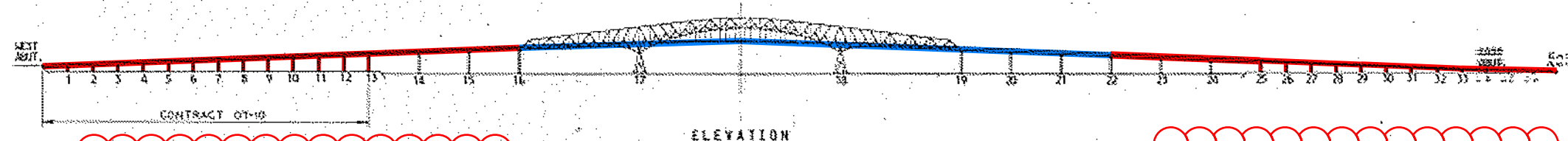
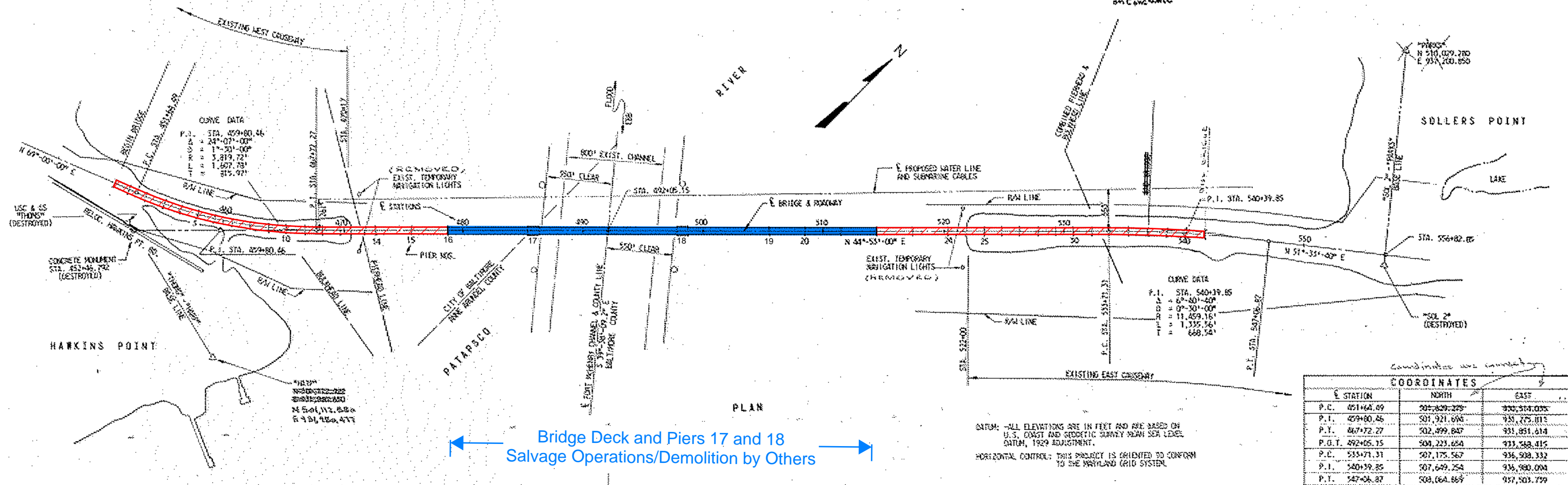
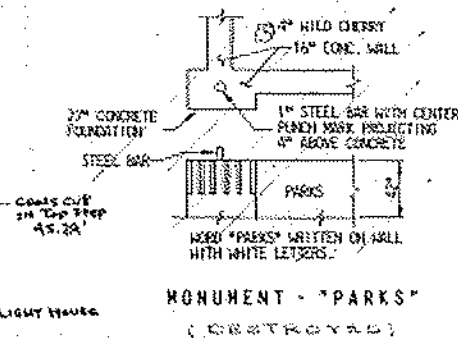
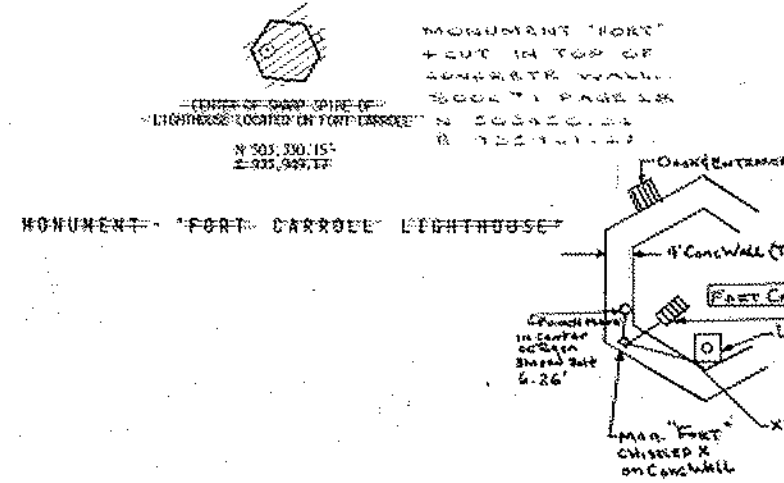
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- | | |
|-------------------------------|----------------------|
| Limits of Disturbance | Approximate MLW Line |
| Potential Temporary Pile Area | MHHW Line |
| Streams | MHW Line |
| Wetlands | Property Parcels |
| 25ft Wetland Buffer | Municipal Boundaries |
| 100-Year Floodplain | |







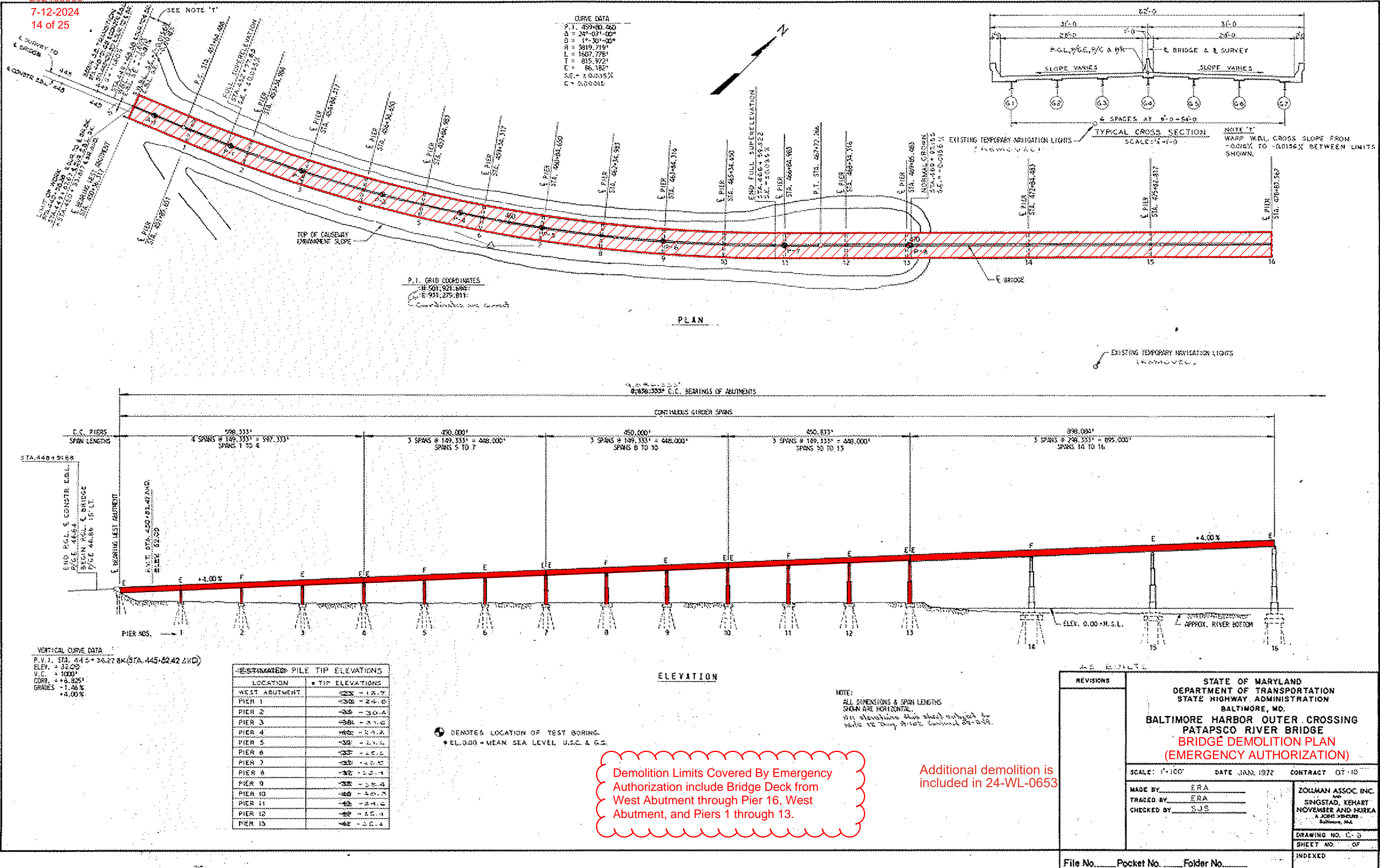
Demolition Limits Covered By Emergency Authorization include Bridge Superstructure from Pier 22 to East Abutment, Piers 25 through 36, and East Abutment.

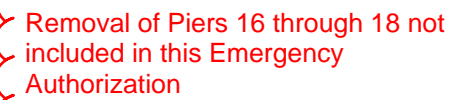
COORDINATES		
STATION	NORTH	EAST
P.C. 451+64.69	505,820.225	930,514.035
P.T. 459+80.48	501,921.650	935,775.115
P.Y. 467+72.27	502,499.687	931,831.614
P.G.T. 492+65.15	504,223.654	931,548.415
P.C. 535+71.31	507,175.567	936,908.332
P.T. 540+39.85	507,649.254	934,900.004
P.Y. 547+06.87	508,164.865	937,503.779

REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION BALTIMORE, MD. BALTIMORE HARBOR OUTER CROSSING PATAPSCO RIVER BRIDGE BRIDGE DEMOLITION PLAN (EMERGENCY AUTHORIZATION)	
	SCALE: 1" = 400'	DATE JAN. 1972 CONTRACT 07-10
	MADE BY: <u>ERA</u> TRACED BY: <u>ERA</u> CHECKED BY: <u>SJS</u>	ZOLLMAN ASSOC. INC. NO. SINGSTAD, KEHART NOVEMBER AND HURKA A JOINT VENTURE Baltimore, MD.
		DRAWING NO. C-2
		SHEET NO. OF
	File No. Pocket No. Folder No.	INDEXED

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- Salvage Operations for Continuous Truss
- Spans and Piers 17 and 18 By Others

NOTE:
ALL DIMENSIONS & SPAN LENGTHS
SHOWN ARE HORIZONTAL.
ALL dimensions shall be subject to
date 12 Aug. 57, 10% contract let - 57.

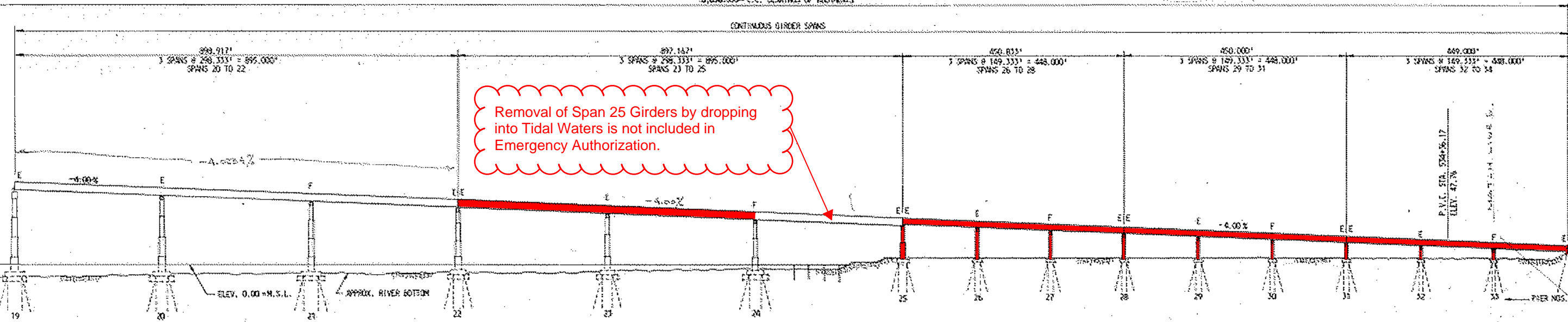
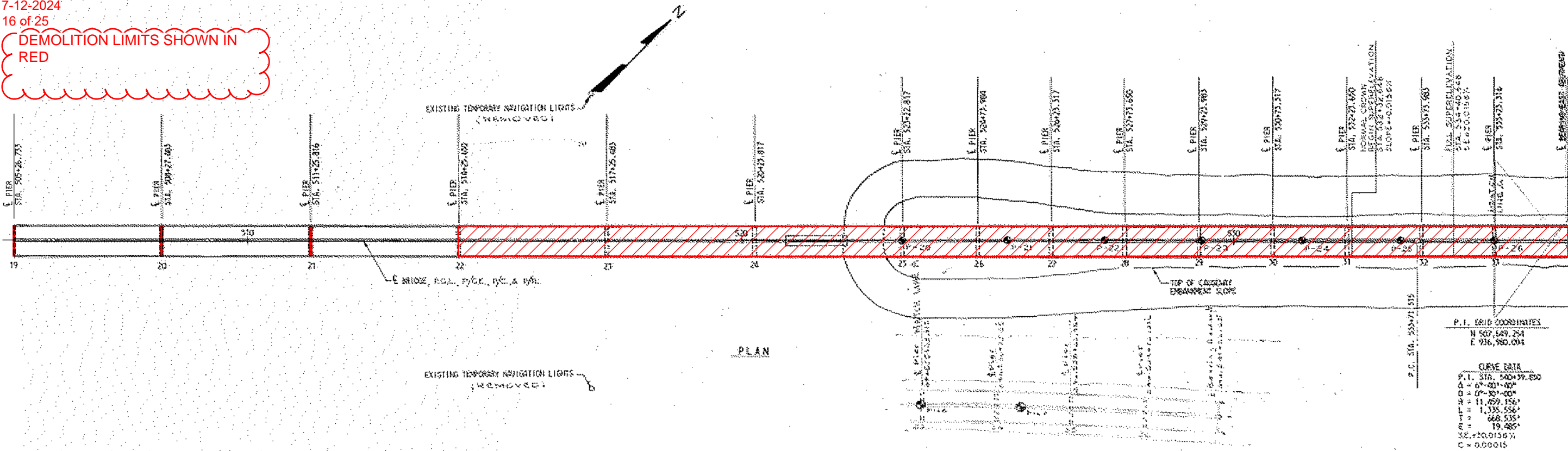
REVISIONS	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION BALTIMORE, MD. BALTIMORE HARBOR OUTER CROSSING PATAPSCO RIVER BRIDGE BRIDGE DEMOLITION PLAN (EMERGENCY AUTHORIZATION)	
	SCALE: 1"=100'	DATE: JAN. 1972 CONTRACT: DT-10
	MADE BY: <u>E.R.A.</u> TRACED BY: <u>E.R.A.</u> CHECKED BY: <u>B.J.S.</u>	ZOLMAN ASSOC. INC. AND SINOSTAD, KEHART NOVEMBER AND BURKA A JOINT VENTURE Baltimore, Md.
		DRAWING NO. C-3
		SHEET NO. OF
		INDEXED

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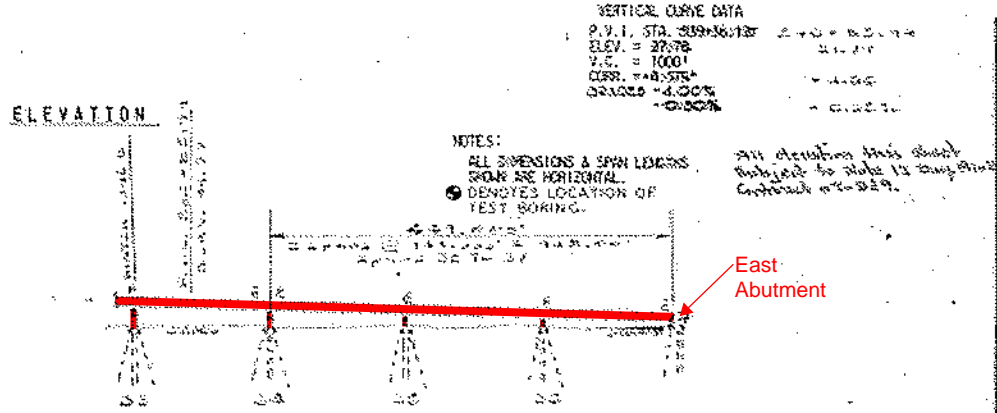
DEMOLITION LIMITS SHOWN IN RED



Removal of Span 25 Girders by dropping into Tidal Waters is not included in Emergency Authorization.

Demolition Limits Covered By Emergency Authorization include Bridge Superstructure (Parapets, Deck and Girders) from Pier 22 to East Abutment; Piers 25 through 36, and East Abutment.

Additional demolition is included in 24-WL-0653

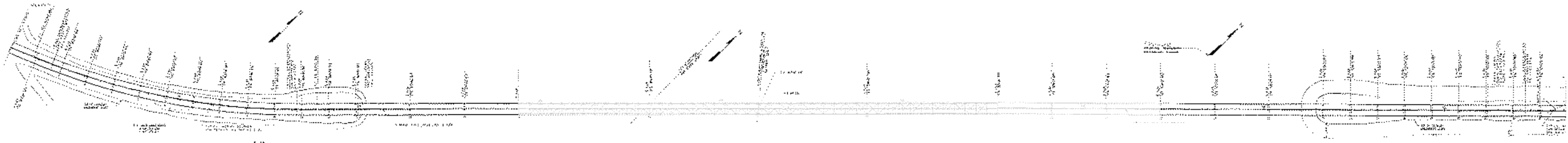


REVISIONS	

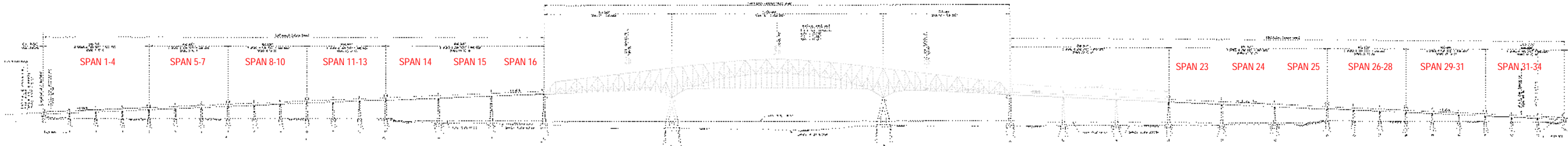
STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION BALTIMORE, MD.		
BALTIMORE HARBOR OUTER CROSSING PATAPSCO RIVER BRIDGE BRIDGE DEMOLITION PLAN (EMERGENCY AUTHORIZATION)		
SCALE: 1" = 100'	DATE: JAN. 1972	CONTRACT: OT-10
MADE BY: E.R.A.	ZOLLMAN ASSOC. INC.	
TRACED BY: E.R.A.	SINOSTAD, KEHART NOVEMBER AND HIRKA A JOINT VENTURE Baltimore, Md.	
CHECKED BY: S.J.S.	DRAWING NO. C-5	
	SHEET NO. 1 OF 1	
	INDEXED	

File No. _____ Pocket No. _____ Folder No. _____

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PLAN



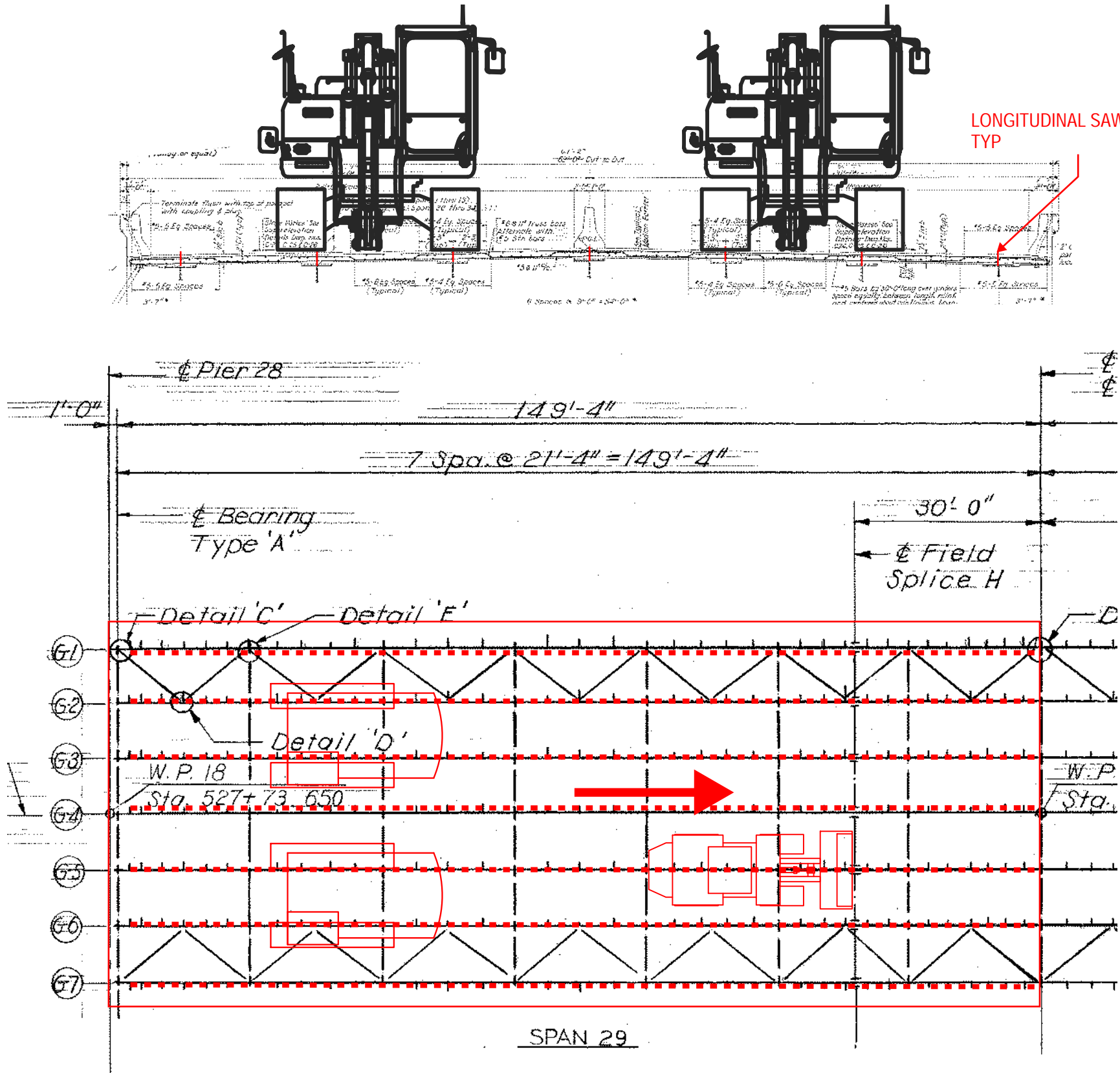
ELEVATION

PRELIMINARY
NOT FOR CONSTRUCTION

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NO.	DATE	REMARKS	BY

GENERAL LAYOUT KEY BRIDGE DEMOLITION	
	DRAWN BY CHK'D BY
	DATE
	SHEET NO.

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DECK DEMOLITION SEQUENCE
1. SAW AND REMOVE OVERHANG BARRIER AND DECK
2. LONGITUDINAL SAW DECK
3. WITH EXCAVATOR, PULL BACK SECTION OF DECK, CUT/BREAK REBAR, HAUL PANEL OFF DECK WITH LOADER

REPEAT FOR ENTIRE DECK

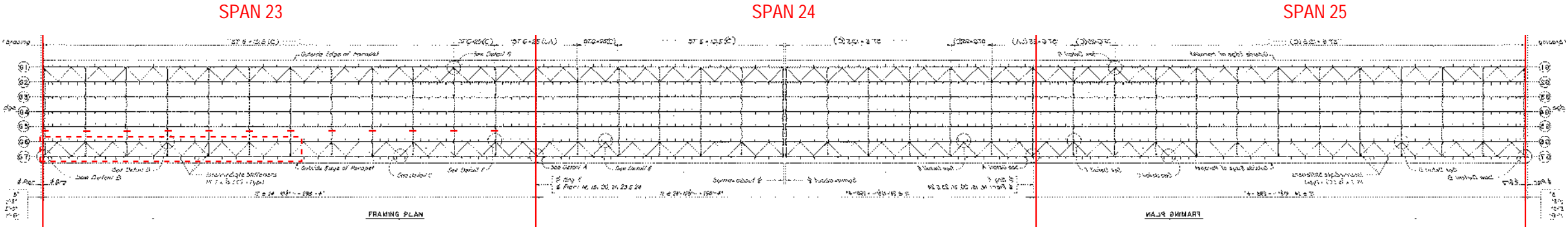
PRELIMINARY
NOT FOR CONSTRUCTION

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NO.	DATE	REMARKS	BY

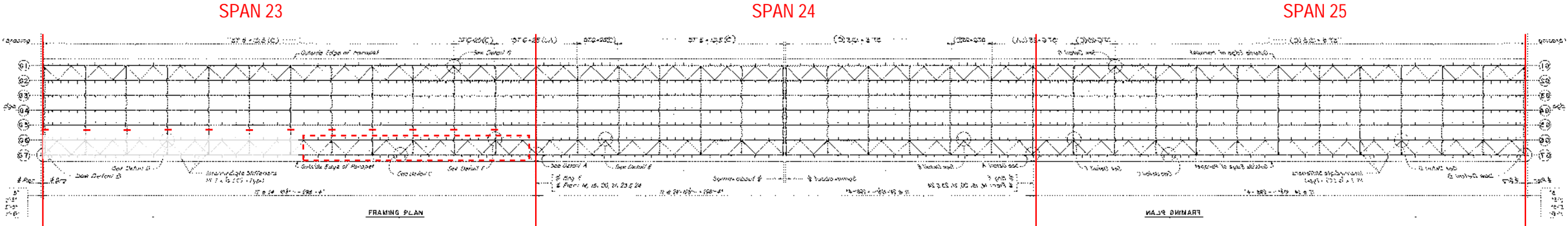
GENERAL DECK DEMOLITION KEY BRIDGE DEMOLITION	
PROJECT	DRAWN BY CHK'D BY
	DATE
	SHEET NO.

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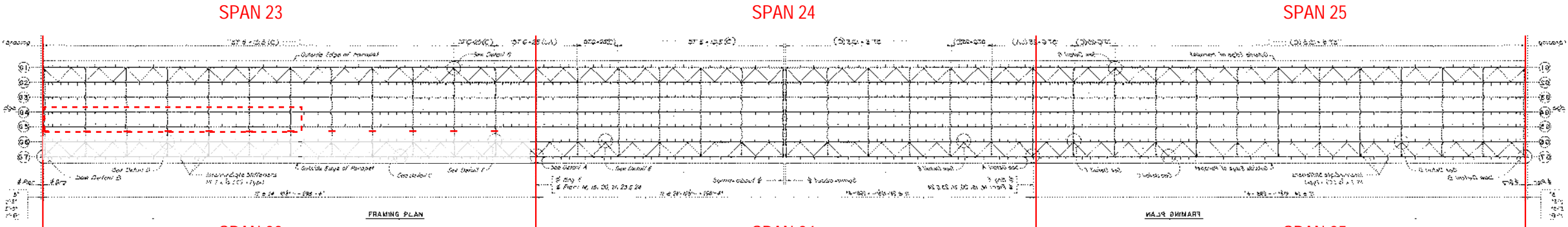
STEP 1 -
CUT CROSSFRAMES BETWEEN G6 & G5
HOIST G6&G7. APPROX WT = 100 TNS



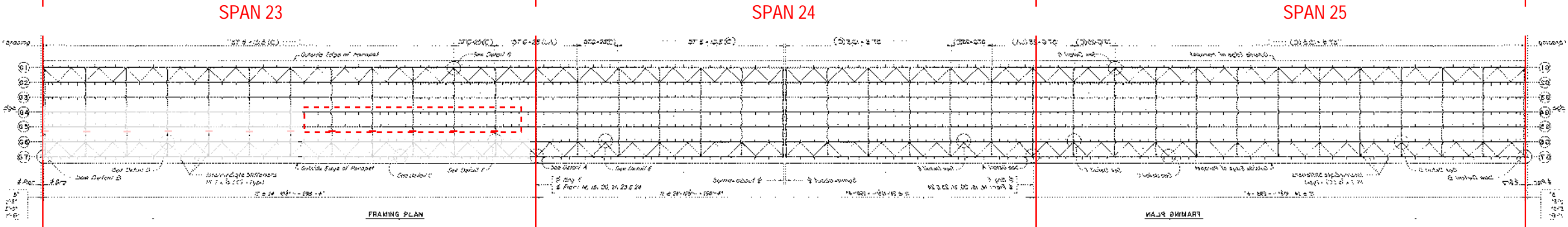
STEP 2 -
CUT CROSSFRAMES BETWEEN G6 & G5
HOIST G6&G7. APPROX WT = 75 TNS



STEP 3 -
CUT CROSSFRAMES BETWEEN G3 & G4
HOIST G4&G5. APPROX WT = 100 TNS



STEP 4 -
CUT CROSSFRAMES BETWEEN G3 & G4
HOIST G4&G5. APPROX WT = 75 TNS



PRELIMINARY
NOT FOR CONSTRUCTION

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NO.	DATE	REMARKS	BY

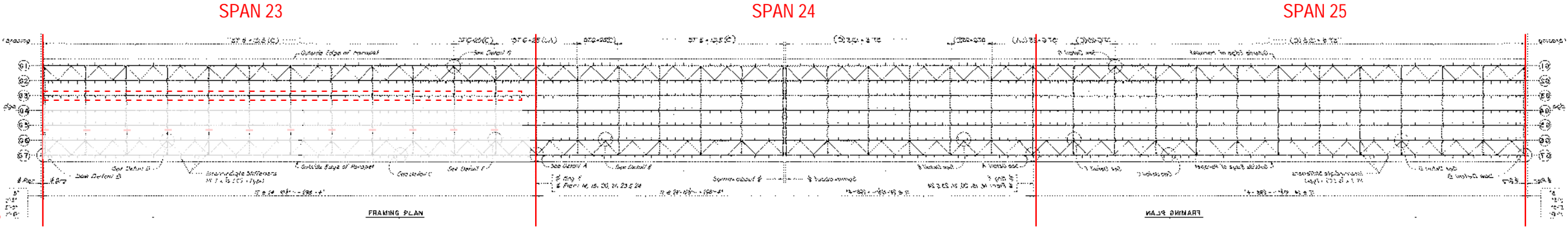
STEEL DEMOLITION SPANS 23-25 KEY BRIDGE DEMOLITION	
DRAWN BY CHK'D BY	
DATE	
PROJECT	SHEET NO.

24-WL-0607

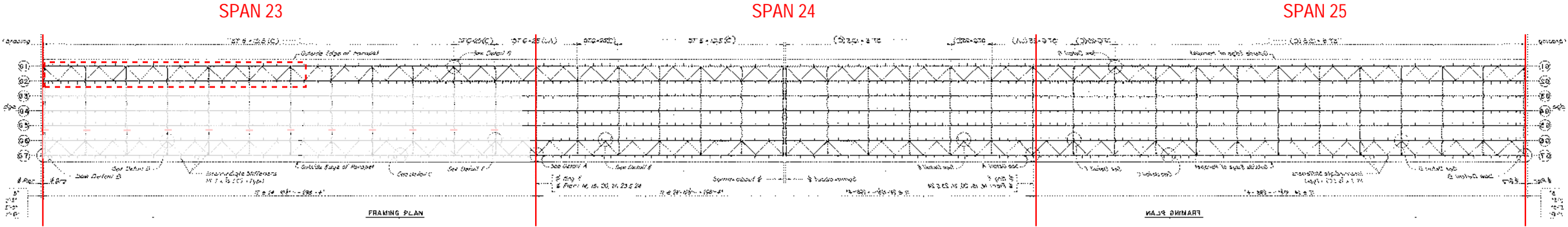
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STEP 5 -
RIG TO G3 WITH SPREADER
CUT CROSSFRAMES BETWEEN G3 & G2
HOIST G3. APPROX WT = 90 TNS

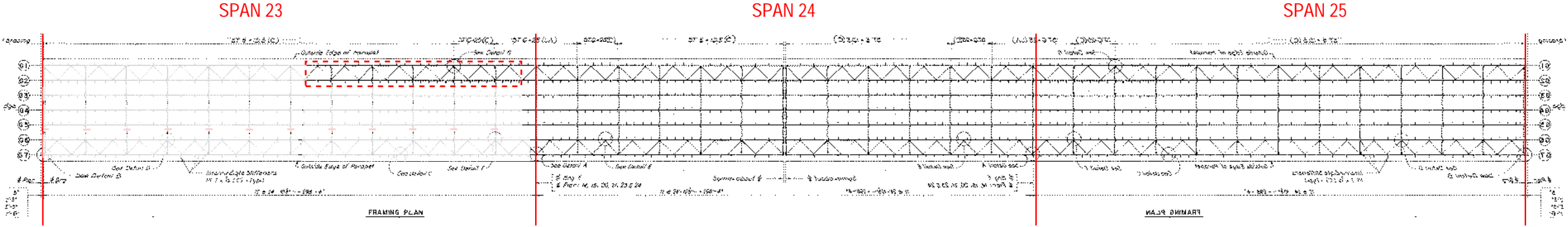
MAY ALSO TAKE PARTIAL LENGTH AND
KEEP CONNECTED WITH CROSSFRAMES



STEP 6 -
HOIST G1&G2. APPROX WT = 100 TNS



STEP 7 -
HOIST G1&G2. APPROX WT = 75 TNS



REPEAT SAME STEPS FOR SPAN 24

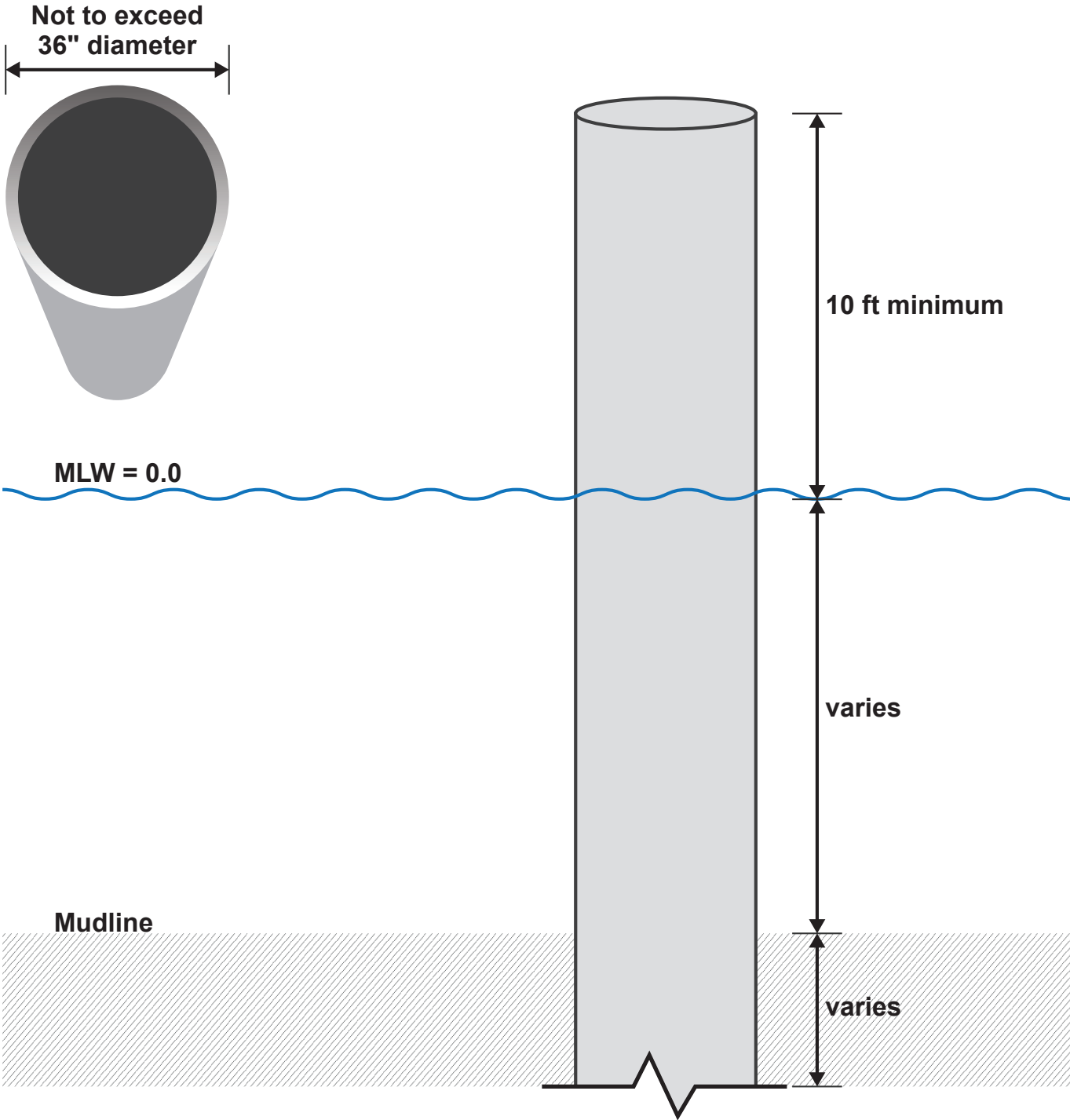
PRELIMINARY
NOT FOR CONSTRUCTION

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NO.	DATE	REMARKS	BY

STEEL DEMOLITION SPANS 23-25 KEY BRIDGE DEMOLITION	
PROJECT	DRAWN BY CHK'D BY
	DATE
	SHEET NO.

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Temporary Pile Typical Section



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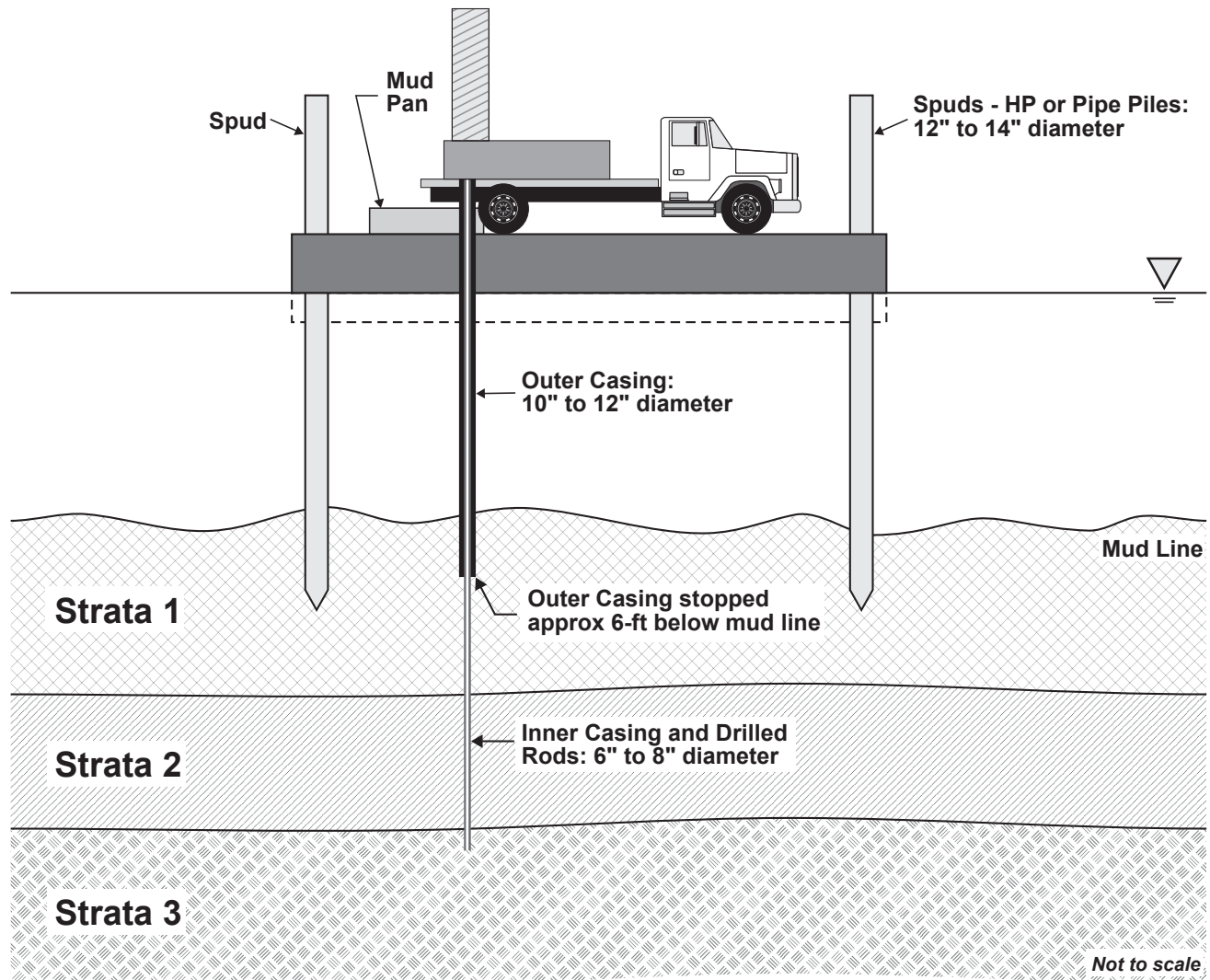
Francis Scott Key Bridge
Rebuild Project
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Not to scale

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Subsurface Exploration Cross-Section - Geotechnical Boring



33 sq. ft. impact/boring
Total impact not to exceed 1,980 sq. ft. (60 borings)

Note: The subsurface exploration work will be conducted with a barge mounted drill rig to obtain Standard Penetration Test (SPT) samples. The field crew will install an outer casing below the mudline to seat the borehole. Drill rods and inner casing will be run through the outer casing to obtain soil samples. Spuds on the four corners of the barge will be used to keep the barge in position. A mud pan will be used to minimize sedimentation in the river.



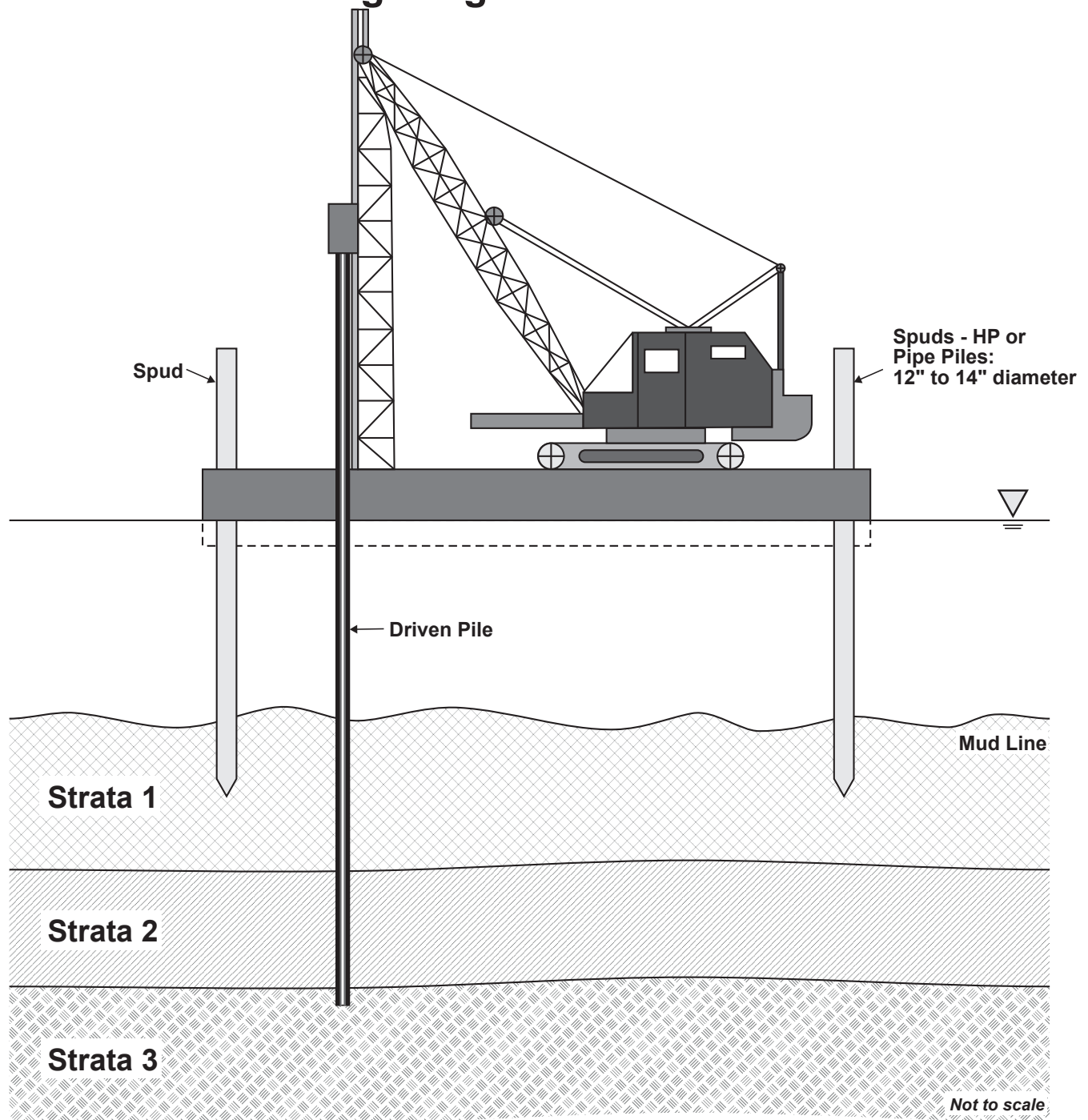
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Foundation Testing Program Cross-Section – Pile Test



33 sq. ft. impact/pile test

Total impact not to exceed 462 sq. ft. (14 pile tests)

Note: Test piles will be driven into the substrata using an impact hammer for the purposes of evaluating pile foundation capacities and developing the hydro acoustic monitoring program. The pile driving equipment will be mounted on a barge, and spuds on the four corners of the barge will be used to keep the barge in position. Upon completion, all piles will be cut off below the mudline. Piles may also be subjected to load testing per ASTM D7383 "Axial Compressive Force Pulse (Rapid) Testing of Deep Foundations" (i.e. Statnamic or other tests allowed by the ASTM D7383), when allowed by the Authority.



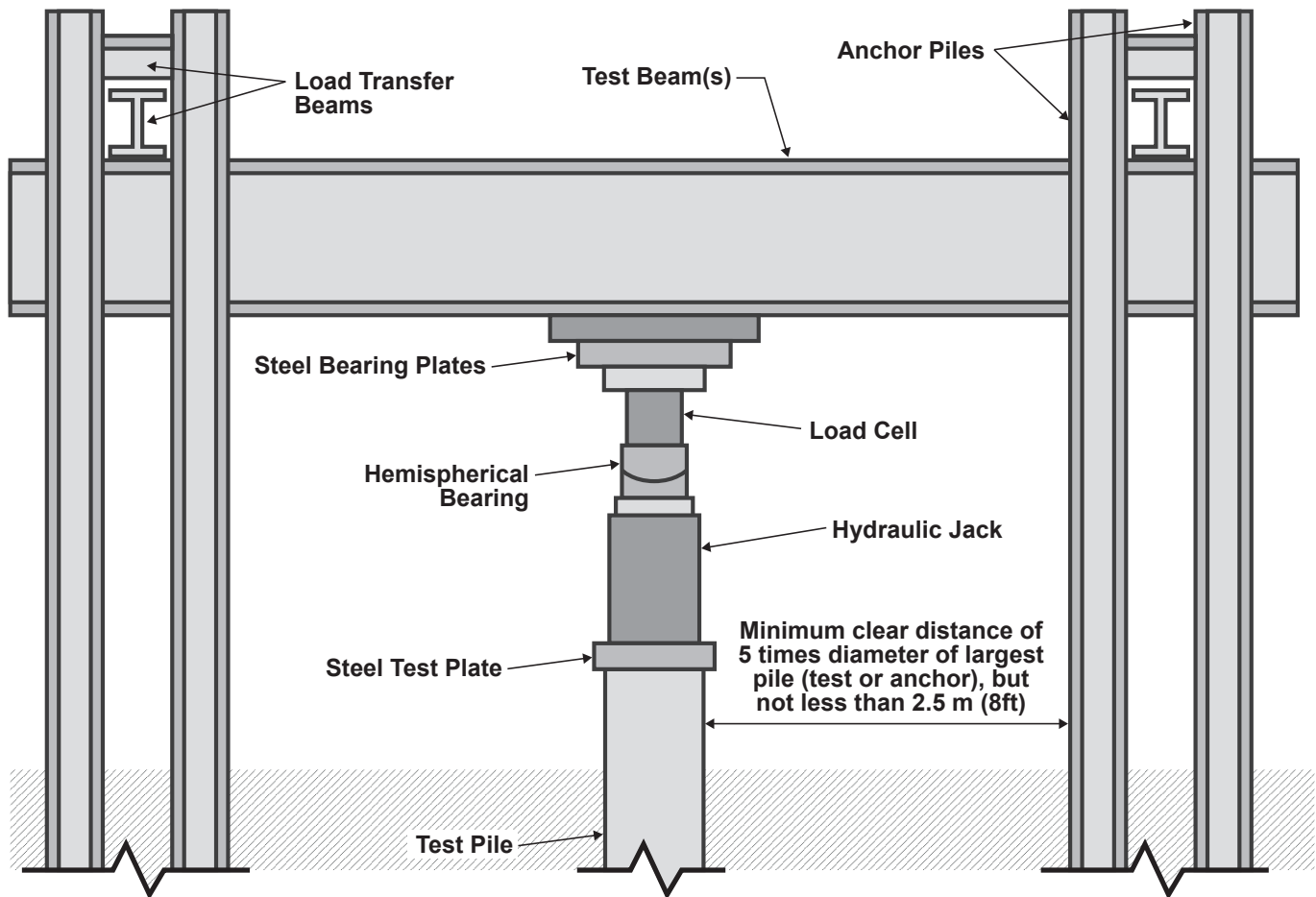
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Foundation Testing Program Cross-Section – Static Load Test



260 sq. ft. impact (1 shaft or pile)
Total impact not to exceed 1,560 sq. ft. (6 tests)

Note: Static load test includes one drilled shaft or pile, and a four reaction shaft pile array. Shaft and piles are installed in river bottom and loaded with weight. Then upon completion test shaft and reaction piles will be cut below the mudline.

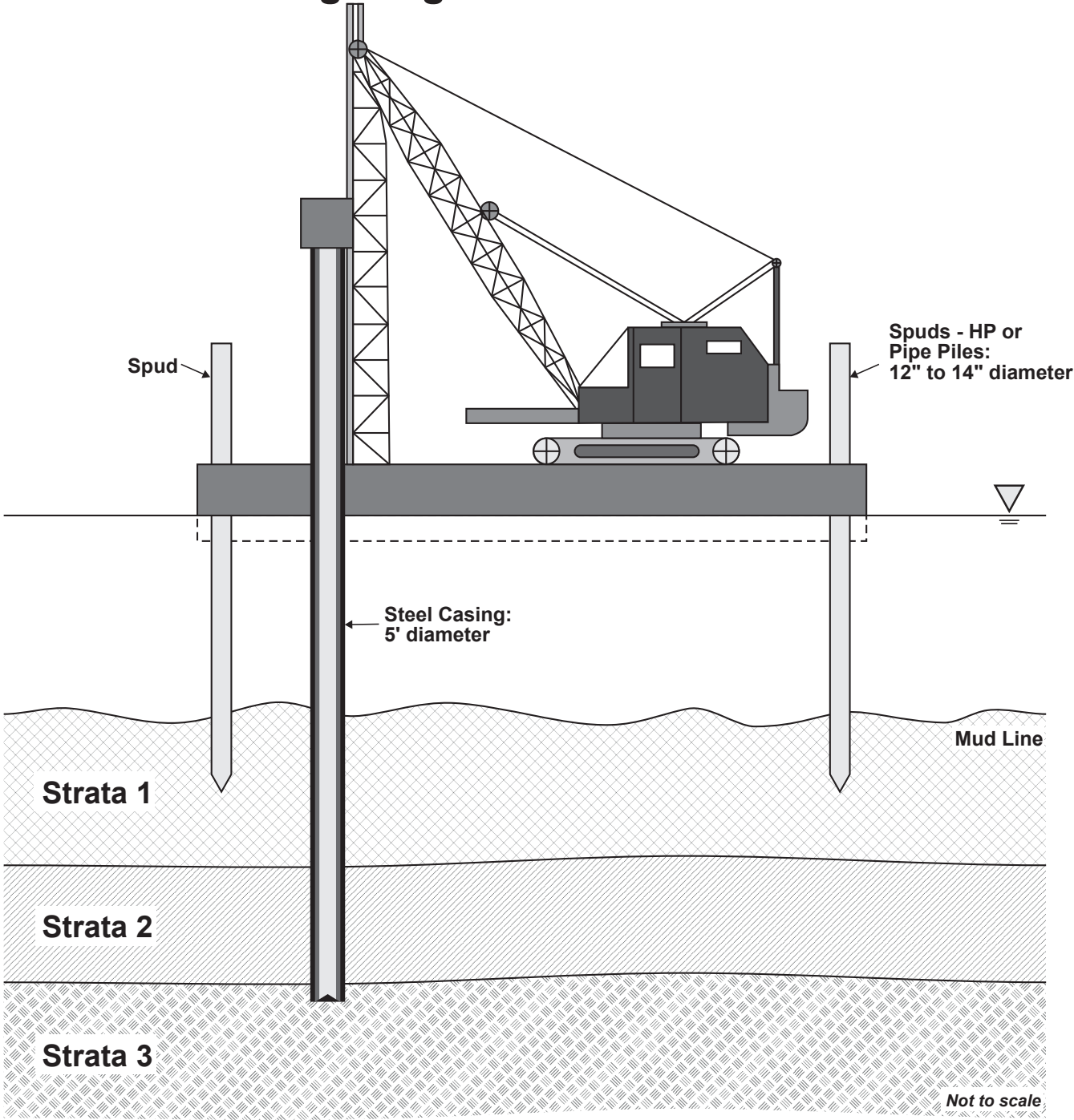


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Foundation Testing Program Cross-Section – Drilled Shaft



50 sq. ft. impact (1 shaft)
Total impact not to exceed 300 sq. ft. (6 shafts)

Note: A 5-foot diameter drilled shaft will be constructed to determine the capacity of this foundation type. A steel casing will be installed into the substrata for construction of the shaft. Upon reaching the appropriate depth; testing equipment, rebar and concrete will be installed within the steel casing. The drilled shaft rig will be mounted on a barge, and spuds on the four corners of the barge will be used to keep the barge in position. Upon completion, the drilled shaft will be cut off below the mudline.



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