

U.S. Department of
Homeland Security

United States
Coast Guard



Commander
United States Coast Guard
Fifth Coast Guard District

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (dpb)
Phone: (757) 398-6557
Fax: (757) 398-6334
Email: James.L.Rousseau2@uscg.mil

16591
21 FEB 2013

Mr. E. David Lambert, P.E.
Director, Bridge Engineering and Infrastructure Management
State Transportation Engineer
New Jersey Department of Transportation
PO Box 600
Trenton, NJ 08625-0600

Dear Mr. Lambert:

Enclosed is the Coast Guard Bridge Permit Amendment 1-13-5 dated February 20, 2013, approving the modification of existing bridge across Manahawkin Bay, provides the after-the-fact approval of West Thorofare Bridge, at mile 37.4, near Ship Bottom Township, NJ and rescinds the Advance Approval designations for Hillards Thorofare, East Thorofare, and West Thorofare Bridges. The following stipulations shall be adhered to:

a. The Contractor shall submit each plan and schedule of operation for approval at least 45 days prior to commencement of work in the waterways. One copy of such information shall be submitted concurrently to your Resident Engineer, the United States Coast Guard Commander (dpb); Federal Building, 4th Floor, 431 Crawford Street; Portsmouth, VA 23704-5004, and the U. S. Coast Guard Sector Delaware Bay at 1 Washington Avenue, Philadelphia, PA 19147-4395. The information shall include a sketch of the waterways; the bridges; the location of any restrictions that will be placed in the waterways such as barges, anchors, and anchor lines; the location and height above mean high water and detailed description of any scaffolding, or netting; detailed description indicating the placement, type and dimension of any cofferdams if used. The schedules should also include the hours of operation and whether or not the equipment will be removed at night. The contractor shall comply with all provisions of the Navigation Rules International - Inland, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. The Contractor shall submit to the Resident Engineer a copy of all correspondence between the Coast Guard and himself or herself. No deviation from the approved plan and schedule of operation may be made unless the modification has previously been submitted and approved by the Coast Guard.

b. At no time during the work will the waterways be closed to navigation without prior approval from the Coast Guard. You are required to maintain close and regular contact with Coast Guard Sector Delaware Bay to keep them informed to activities in waterways at (215) 271-4960.

c. Barges that are used in the waterways during the project must be marked. Enclosure (2) outlines temporary marking and lighting requirements for barges and structures not part of the bridge that will be used during construction. If barge or float anchor lines are used, they must be marked by buoys, which should be lighted. If you should have any questions, regarding lights on the barges or work floats, please contact Mr. John Walters, Chief, Waterways Management Section, at (757) 398-6230. Floating equipment shall have a radiotelephone capable of operation from its main control station in accordance with Part 26 of Title 33, Code of

Federal Regulations and shall be monitored during all periods the floating equipment is on station.

d. During the progress of work, while the channels are in operation, should any material, machinery or equipment be lost, dumped, thrown overboard, sunk or misplaced which may be dangerous to or obstruct navigation, immediate notice shall be given to the Coast Guard and the object removed with the utmost dispatch. Until removal can be effected, the objects shall be properly marked in order to protect navigation. Notice to the Coast Guard shall give a description and location of any such object and the action taken or being taken to protect navigation.

e. Upon completion of the proposed project, an inspection of the waterways bottom shall be performed to insure that all construction waste materials have been completely removed. Certification will be required in writing by a licensed engineer or licensed surveyor that the waterways have not been impaired and all construction related debris has been cleared from it. The certification shall include the actual method used to conduct the inspection. The Contractor shall remove any bridge related debris, resulting from the current or prior work or occurrences, discovered during this survey.

f. Upon completion of the bridgework, a responsible official of the New Jersey Department of Transportation shall verify as-built clearances and a statement attesting to the correctness of the clearances shall be forwarded to this office for record purpose. In lieu of verification by the above listed official, certification by a licensed surveyor or registered professional engineer registered in the State of New Jersey will be accepted.

g. Except as shown on the plans, no dredging, excavation, filling, rip-rap, or other work affecting the bottoms, shall be done in conjunction with this work.

h. If during the periods of construction, permanent lighting cannot be maintained operable, the fenders of each pier shall be marked with a battery or power operated white light of not less than 60 flashes per minute and visible for a range of 2,000 yards on 90% of the nights of the year. Generally, a lamp of 20-candle power will meet these requirements. If necessary to obtain coverage required, a light or lights on the upstream and downstream sides shall be installed. The piers shall be so marked until the construction has been completed and permanent navigational lighting has been reinstalled and determined to be operating satisfactorily. Written approval from the Coast Guard of temporary lighting during periods of construction is required. No existing bridge navigation lights shall be impaired or blocked during darkness or periods of reduced visibility.

i. Compliance with the requirements stated herein does not relieve the contractor of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the State of New Jersey or any other federal, state or local authority having cognizance of any aspect of the location, construction or maintenance of said bridge. It is advised that the Coast Guard can levy monetary civil penalties for violations of bridge regulations and statutes.

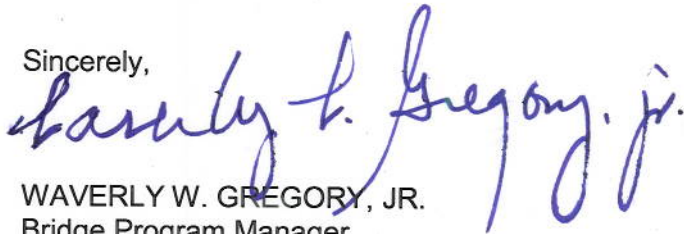
j. In accordance with Title 33 Code of Federal Regulations Part 118.25 – Application procedure, approval of lights and other signals required shall be obtained prior to construction. Application shall be by letter accompanied by duplicate sets of drawings showing (1) the plan

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21 FEB 2013

and elevation of the structure showing lights and signals proposed, and (2) a small scale vicinity chart showing proposed bridges and all other bridges within 1,000 feet above or below the proposed bridges.

The office of the Bridge Administrator, Fifth Coast Guard District, shall be notified immediately upon completion of the project. If you should have any questions regarding this matter, please call Mr. James Rousseau at (757) 398-6557.

Sincerely,



WAVERLY W. GREGORY, JR.
Bridge Program Manager
By direction of the Commander
Fifth Coast Guard District

Encl: (1) Bridge Permit 1-13-5 dated February 20, 2013
(2) USCG Temporary Marking & Lighting

Copy: John Walters, (dpw) w/encl
USCG Sector Delaware Bay, Waterways Management w/encl
Shelly H. Sugarman, COMDT (CG-BRG-2)

U.S. Department of
Homeland Security
United States
Coast Guard



**BRIDGE PERMIT
AMENDMENT
(1-13-5)**

20 FEB 2013

WHEREAS by a permit issued on 26 April 1955, the Secretary of the Army approved the location and plans of bridges to be constructed by the State of New Jersey (New Jersey State Highway Department) across Manahawkin Bay (Hilliards Thorofare), New Jersey Intracoastal Waterway (Manahawkin Bay) and Cedar Bonnet Thorofare (East Thorofare) between Ship Bottom (Borough of Ship Bottom) and Manahawkin (Stafford Township), New Jersey, under authority of the General Bridge Act of 1946, as amended, and that the bridges were constructed;

AND WHEREAS said act, as amended, transferred to and vested in the Secretary of Homeland Security the functions, powers and duties of the Secretary of the Army pertaining to the approval of plans for bridges over the navigable waters of the United States, and the Secretary of Homeland Security has delegated these functions, powers and duties to the Commandant, U.S. Coast Guard by Department of Homeland Security Delegation Number: 0170.1;

AND WHEREAS condition 4 of that permit provides that no deviation from the approved plans shall be made either before or after completion of the structures unless modification of said plans has previously been submitted to and received the approval of the Secretary of the Army;

AND WHEREAS the - STATE OF NEW JERSEY - has submitted for approval plans indicating modification to the bridges by adding a new parallel structure and modifying the existing bridge across Manahawkin Bay, and granting approval of a bridge previously constructed across West Thorofare;

NOW THEREFORE, This is to certify that the location and plans dated April 2012 hereby approved supersede the plans previously approved. In granting this approval, all conditions to which the original permit was subject are superseded by the following conditions:

1. No deviation from the approved plans may be made either before or after completion of the structures unless the modification of said plans has previously been submitted to and received the approval of the Commandant.
2. The construction of falsework, cofferdams or other obstructions, if required, shall be in accordance with plans submitted to and approved by the Commander, Fifth Coast Guard District, prior to modification of the bridges. All work shall be so conducted that the free navigation of the waterway is not unreasonably

Continuation Sheet

**Bridges across Hilliards Thorofare, Manahawkin Bay, West
Thorofare and East Thorofare near Stafford Township
and the Borough of Ship Bottom, New Jersey****20 FEB 2013
BRIDGE PERMIT
AMENDMENT
(1-13-5)**

interfered with and the present navigable depths are not impaired. Timely notice of any and all events that may affect navigation shall be given to the District Commander during modification of the bridges. The channel or channels through the structures shall be promptly cleared of all obstructions placed therein or caused by the modification of the bridges to the satisfaction of the District Commander, when in the judgment of the District Commander the modification work has reached a point where such action should be taken.

3. Issuance of this permit amendment does not relieve the permittee of the obligation or responsibility for compliance with the provisions of any other law or regulation as may be under the jurisdiction of the U.S. Department of Commerce, National Marine Fisheries Service, or any other federal, state or local authority having cognizance of any aspect of the location, modification or maintenance of said bridges.
4. A bridge fendering system shall be installed and maintained in good condition on the Hilliards Thorofare and West Thorofare Bridges by and at the expense of the owner of the bridges when so required by the District Commander. Said installation and maintenance shall be for the safety of navigation and be in accordance with plans submitted to and approved by the District Commander prior to its construction.
5. The pier protection fender system shall be constructed and maintained on the U.S. 72 Manahawkin Bay Bridges as shown on the approved plan sheets 2, 3 and 4 (of 13) dated April 2012 for the safety of navigation.
6. The pier protection fender system shall be maintained on the East Thorofare Bridge as shown on the approved plan sheets 8, 10 and 11 (of 13) dated April 2012 for the safety of navigation.
7. Clearance gauges shall be maintained in a good and legible condition on the Hilliards Thorofare, West Thorofare and East Thorofare Bridges by and at the expense of the owner of the bridges.
8. Clearance gauges shall be installed and maintained in a good and legible condition on the U.S. 72 Manahawkin Bay Bridges by and at the expense of the owner of the bridges. The type of gauges and the locations in which they are to be installed will be submitted to the District Commander for approval.
9. The temporary trestles across Manahawkin Bay, mile 37.4, shall be constructed in accordance with the approved plan sheets 2 and 3 (of 13) dated April 2012.
10. All parts of the temporary trestles, or incomplete parts thereof, shall be removed in their entirety and the waterway cleared to the satisfaction of the District Commander. Such removal and clearance shall be completed by and at the expense of the owner of the bridges upon due notice from the District Commander.

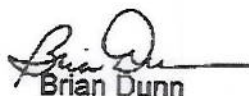
Continuation Sheet

**Bridges across Hilliards Thorofare, Manahawkin Bay, West
Thorofare and East Thorofare near Stafford Township
and the Borough of Ship Bottom, New Jersey****20 FEB 2013
BRIDGE PERMIT
AMENDMENT
(1-13-5)**

11. All parts of the existing to-be-modified U.S. 72 Manahawkin Bay Bridge across Manahawkin Bay, mile 37.4, not utilized in the new modified bridges, shall be removed in their entirety and the waterway cleared to the satisfaction of the District Commander. Such removal and clearance shall be completed by and at the expense of the owner of the bridges upon due notice from the District Commander.

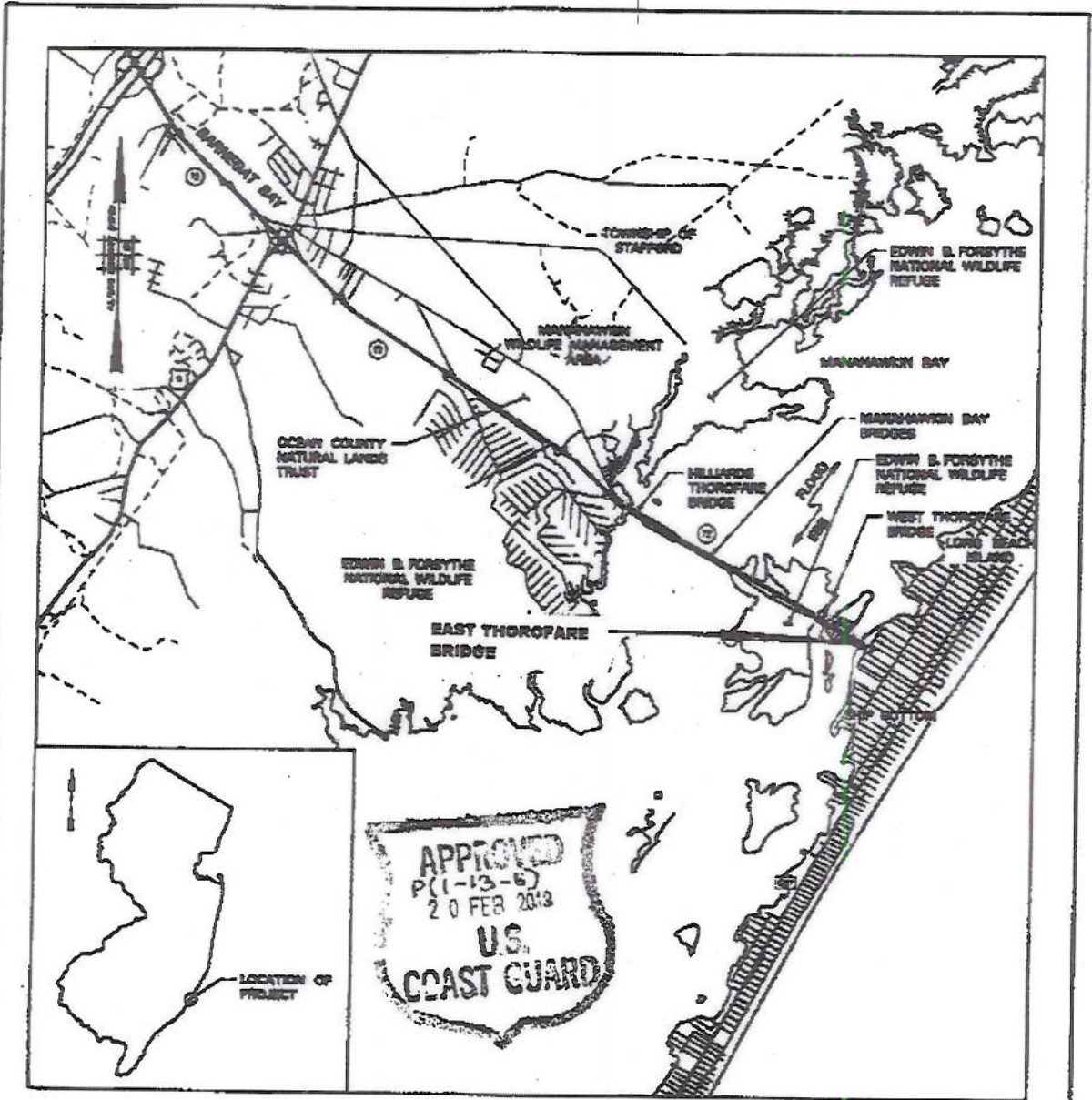
12. When the bridges are no longer used for transportation purposes, they shall be removed in their entirety or to an elevation deemed appropriate by the District Commander and the waterway cleared to the satisfaction of the District Commander. Such removals and clearances shall be completed by and at the expense of the owner of the bridges upon due notice from the District Commander.

13. The approval hereby granted shall cease and be null and void unless modification of the bridges is commenced within three years and completed within five years after the date of this permit amendment.



Brian Dunn

Administrator, Office of Bridge Programs
U.S. Coast Guard
By direction of the Commandant



APPROVED
P(1-13-5)
20 FEB 2013
U.S.
COAST GUARD

KEY MAP
P=1 MILE



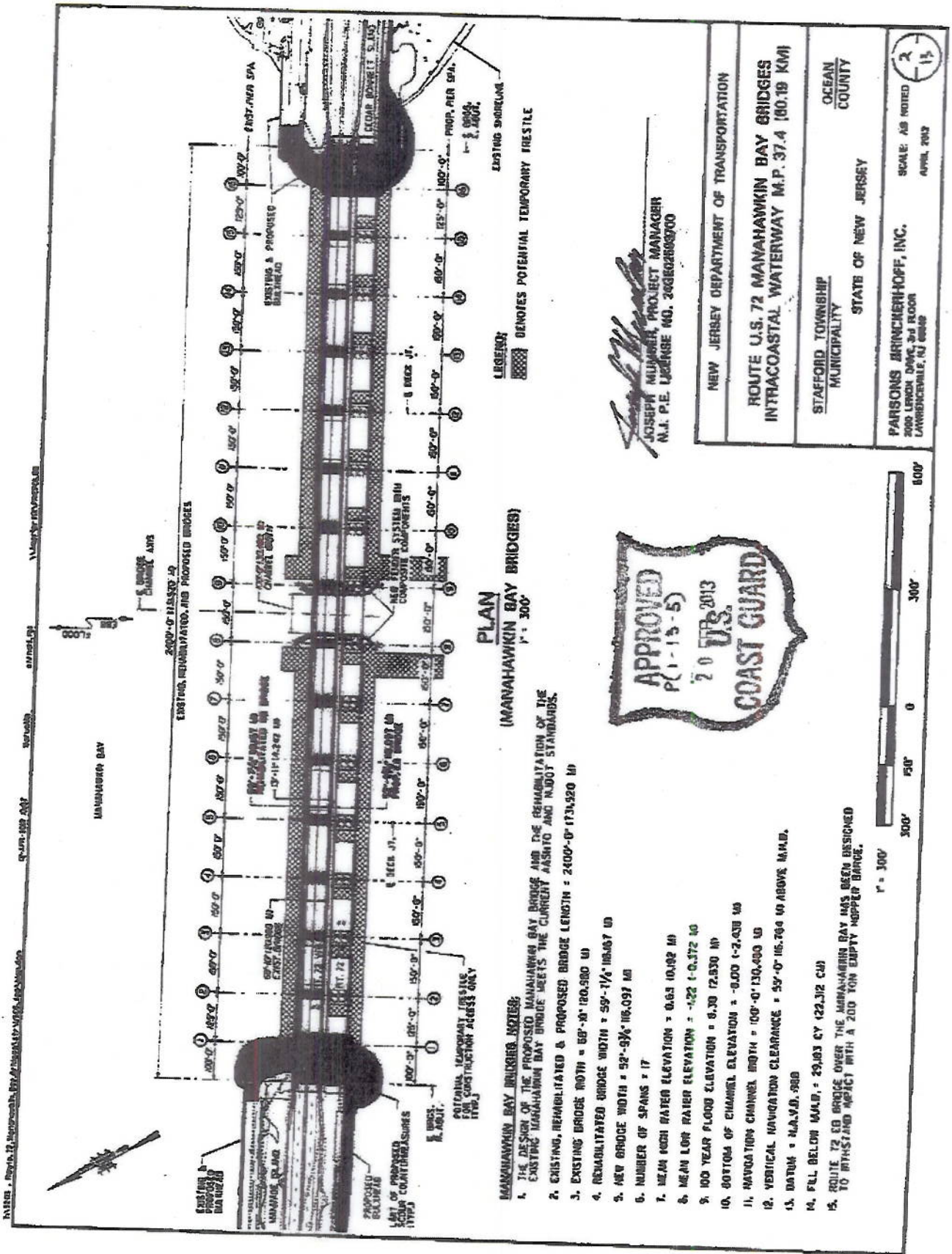
US COAST GUARD PERMIT PLAN:
EXISTING EAST THOROFARE BRIDGE TO BE REHABILITATED
OVER MANAHAWKIN BAY NEAR STAFFORD TOWNSHIP AND
THE BOROUGH OF SHIP BOTTOM, NEW JERSEY

Wen-Jinn Shiou

WEN-JINN SHIOU, PROJECT MANAGER
N.J. P.E. LICENSE NO. 243694707800
RM ENGINEERS, P.C.

NEW JERSEY DEPARTMENT OF TRANSPORTATION	
ROUTE U.S. 72 OVER MANAHAWKIN BAY M.P.37.4 (60+900M)	
STAFFORD TOWNSHIP BOROUGH OF SHIP BOTTOM MUNICIPALITY	OCEAN COUNTY
STATE OF NEW JERSEY	
PARSONS BRINCKERHOFF, INC. 2000 LENOX DRIVE, 3RD FLOOR LAWRENCEVILLE, NJ 08852	SCALE: AS NOTED APRIL 2012





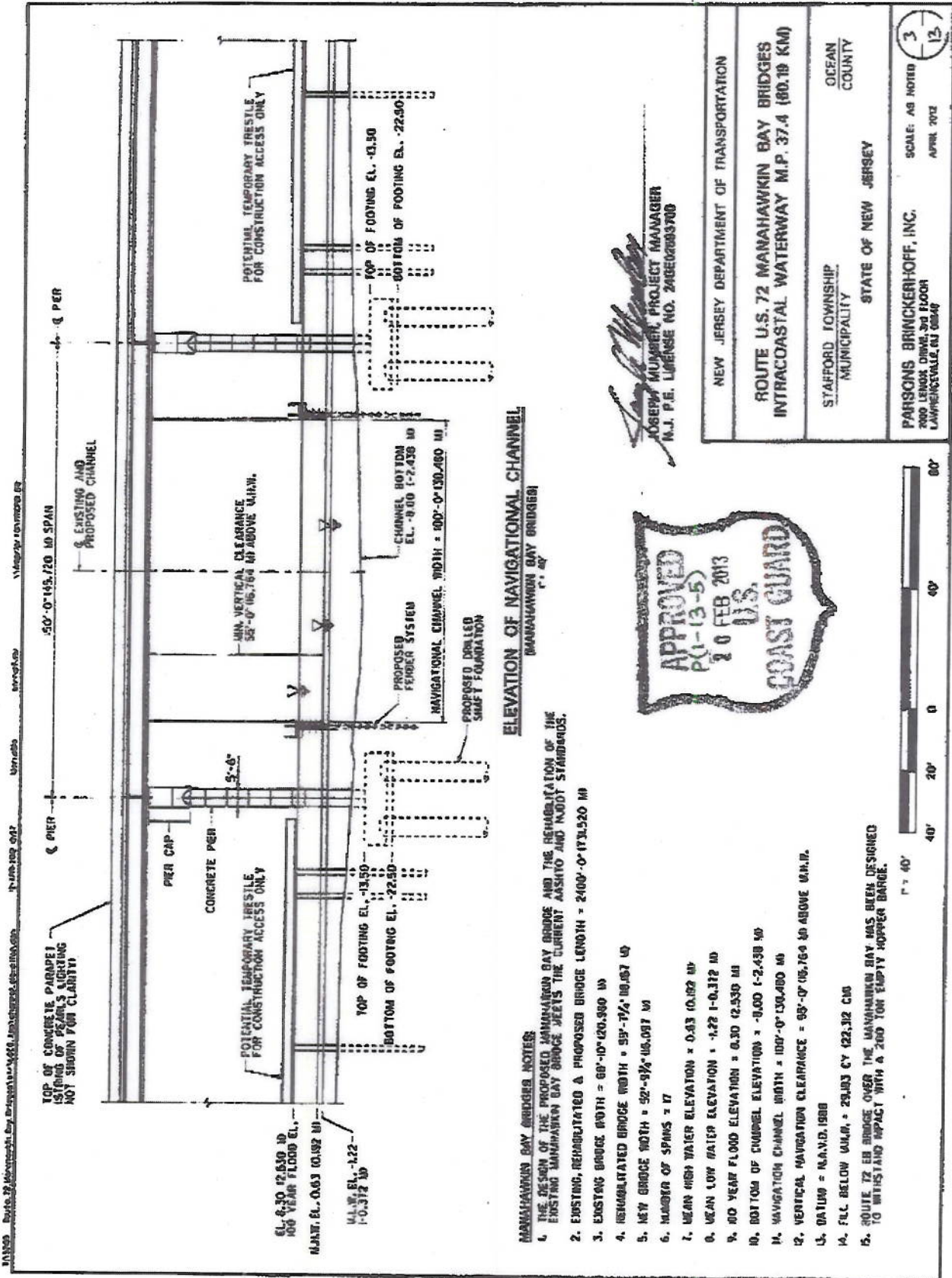
PLAN
(MANAHAWKIN BAY BRIDGES)
1" = 300'

- MANAHAWKIN BAY BRIDGES NOTES:**
1. THE DESIGN OF THE PROPOSED MANAHAWKIN BAY BRIDGE AND THE REHABILITATION OF THE EXISTING MANAHAWKIN BAY BRIDGE MEETS THE CURRENT AASHTO AND N.DOT STANDARDS.
 2. EXISTING, REHABILITATED & PROPOSED BRIDGE LENGTH = 2400'-0" (731.520 M)
 3. EXISTING BRIDGE WIDTH = 68'-0" (20.580 M)
 4. REHABILITATED BRIDGE WIDTH = 59'-9 1/2" (18.097 M)
 5. NEW BRIDGE WIDTH = 59'-9 1/2" (18.097 M)
 6. NUMBER OF SPANS = 17
 7. MEAN HIGH WATER ELEVATION = 0.63 (0.82 M)
 8. MEAN LOW WATER ELEVATION = -1.22 (-0.372 M)
 9. 100 YEAR FLOOD ELEVATION = 6.30 (2.330 M)
 10. BOTTOM OF CHANNEL ELEVATION = -0.00 (-2.038 M)
 11. NAVIGATION CHANNEL WIDTH = 100'-0" (30.480 M)
 12. VERTICAL NAVIGATION CLEARANCE = 55'-0" (16.764 M) ABOVE M.H.W.
 13. DATUM = M.A.S.D. 988
 14. FULL BELOW M.A.P. = 29.83 CY (22.312 CU)
 15. ROUTE 72 EB BRIDGE OVER THE MANAHAWKIN BAY HAS BEEN DESIGNED TO WITHSTAND IMPACT WITH A 200 TON EMPTY HOPPER BARGE.



Joseph Mumber
JOSEPH MUMBER, PROJECT MANAGER
N.J. P.E. LICENSE NO. 206802809000

NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S. 72 MANAHAWKIN BAY BRIDGES INTRACOASTAL WATERWAY M.P. 37.4 (80.19 KM)
STAFFORD TOWNSHIP MUNICIPALITY
STATES OF NEW JERSEY
OCEAN COUNTY
PARSONS BRINCKERHOFF, INC. 2000 LINCEN DRIVE, 3rd FLOOR LAWRENCEVILLE, NJ 08848
SCALE: AS NOTED APRIL 2013
2/15



ELEVATION OF NAVIGATIONAL CHANNEL
MANAHAWKIN BAY BRIDGE

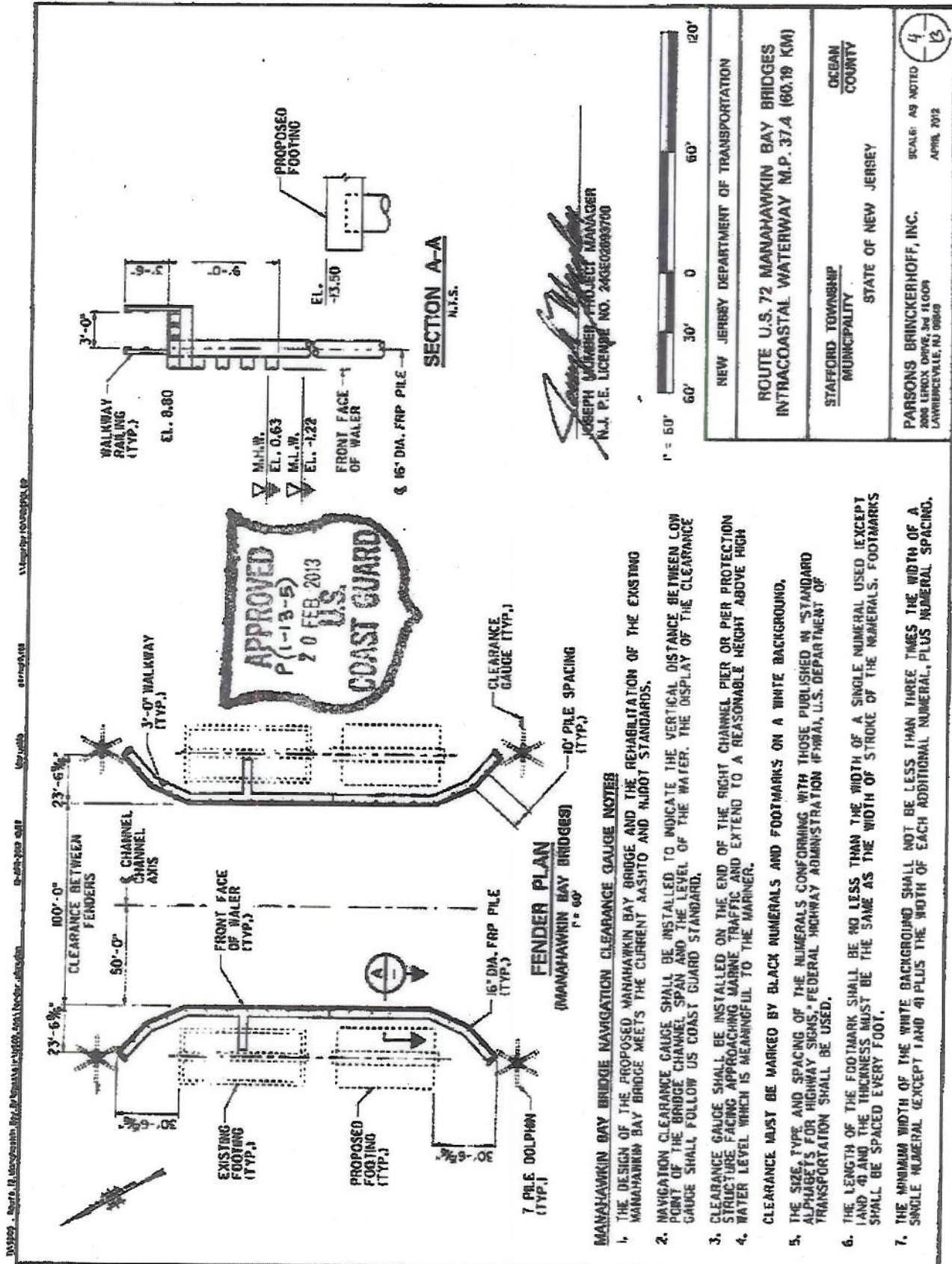
MANAHAWKIN BAY BRIDGE NOTES:
 1. THE DESIGN OF THE PROPOSED MANAHAWKIN BAY BRIDGE AND THE REHABILITATION OF THE EXISTING MANAHAWKIN BAY BRIDGE MEETS THE CURRENT ASHTO AND NADOT STANDARDS.
 2. EXISTING, REHABILITATED & PROPOSED BRIDGE LENGTH = 2400'-0" (731.520 M)
 3. EXISTING BRIDGE WIDTH = 68'-10" (20.990 M)
 4. REHABILITATED BRIDGE WIDTH = 59'-7 1/2" (18.067 M)
 5. NEW BRIDGE WIDTH = 52'-3 3/4" (15.937 M)
 6. NUMBER OF SPANS = 17
 7. MEAN HIGH WATER ELEVATION = 0.43 (0.132 M)
 8. MEAN LOW WATER ELEVATION = -1.22 (-0.372 M)
 9. 100 YEAR FLOOD ELEVATION = 0.30 (0.914 M)
 10. BOTTOM OF CHUMBEL ELEVATION = -8.00 (-2.438 M)
 11. NAVIGATION CHANNEL WIDTH = 100'-0" (30.480 M)
 12. VERTICAL NAVIGATION CLEARANCE = 58'-0" (17.680 M) ABOVE M.A.S.L.
 13. DATUM = M.A.S.L. 1988
 14. F.L.C. BELOW WATER = 25,003 CY (123.312 CU)
 15. ROUTE 72 EB BRIDGE OVER THE MANAHAWKIN BAY HAS BEEN DESIGNED TO WITHSTAND IMPACT WITH A 200 TON EMPTY HOPPER BARGE.



Joseph M. ...
 JOSEPH MUMFORD, PROJECT MANAGER
 N.J. P.E. LICENSE NO. 240602003700

NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S. 72 MANAHAWKIN BAY BRIDGES INTRACOSTAL WATERWAY M.I.P. 37.4 (80.19 KM)
STAFFORD TOWNSHIP MUNICIPALITY
STATE OF NEW JERSEY
OCEAN COUNTY
PARSONS BRINCKERHOFF, INC. 2000 LENOX DRIVE 3RD FLOOR LAURELHURST, NJ 08048
SCALE: AS NOTED APRIL 2012
3 / 13



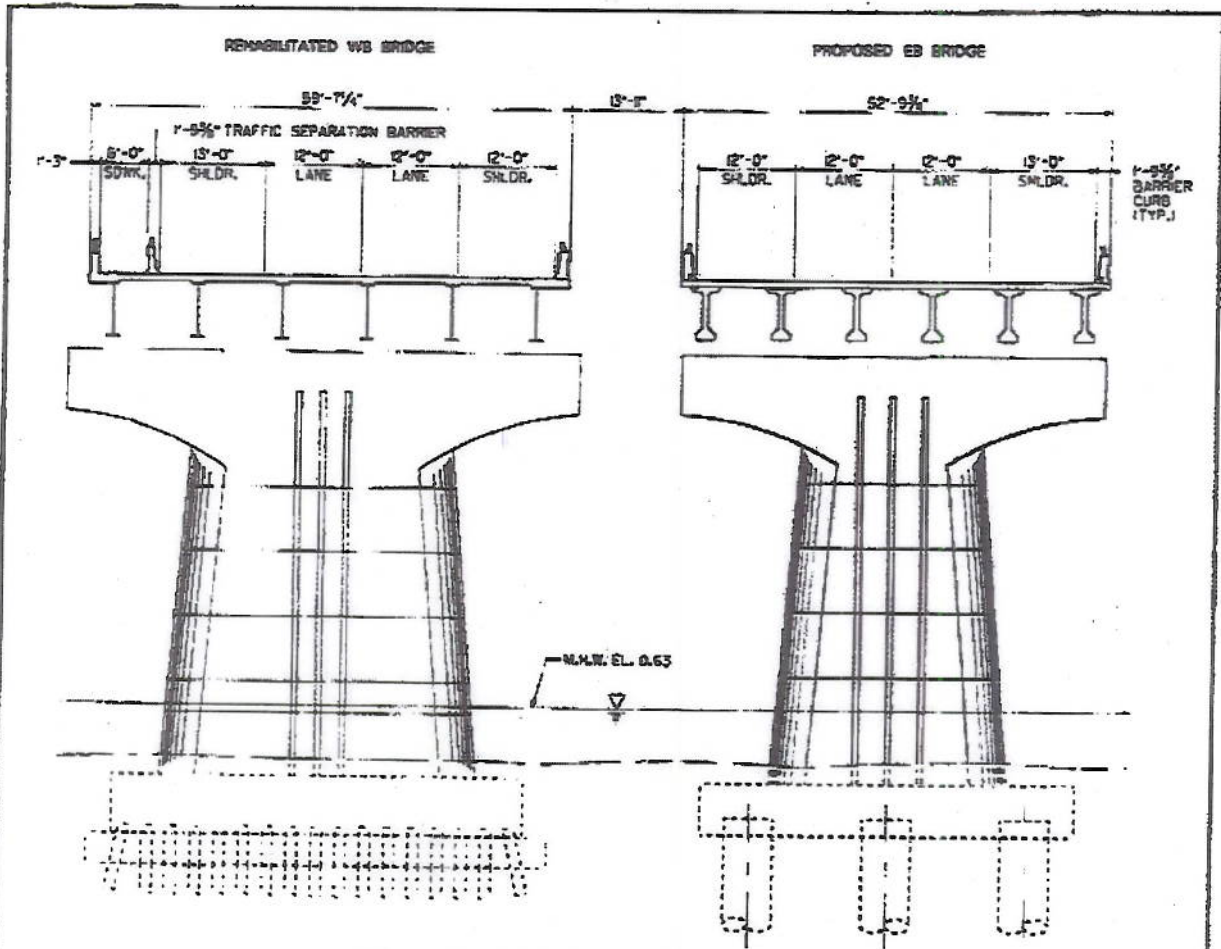


Joseph Mariner
 JOSEPH MARINER, PROJECT MANAGER
 N.J. P.E. LICENSE NO. 243602003700

1" = 60'
 60' 30' 0 60' 120'

NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S. 72 MANAHAWKIN BAY BRIDGES INTRACOASTAL WATERWAY M.P. 37.4 (60.19 KM)
STAFFORD TOWNSHIP MUNICIPALITY
STATE OF NEW JERSEY
OCEAN COUNTY
PARSONS BRINCKERHOFF, INC. 2000 LEROX DRIVE, 3RD FLOOR LAWRENCEVILLE, NJ 08648
SCALE: AS NOTED APRIL 2012

- MANAHAWKIN BAY BRIDGE NAVIGATION CLEARANCE GAUGE NOTES**
1. THE DESIGN OF THE PROPOSED MANAHAWKIN BAY BRIDGE AND THE REHABILITATION OF THE EXISTING MANAHAWKIN BAY BRIDGE MEETS THE CURRENT AASHTO AND NJDOT STANDARDS.
 2. NAVIGATION CLEARANCE GAUGE SHALL BE INSTALLED TO INDICATE THE VERTICAL DISTANCE BETWEEN LOW POINT OF THE BRIDGE CHANNEL SPAN AND THE LEVEL OF THE WATER. THE DISPLAY OF THE CLEARANCE GAUGE SHALL FOLLOW US COAST GUARD STANDARD.
 3. CLEARANCE GAUGE SHALL BE INSTALLED ON THE END OF THE RIGHT CHANNEL PIER OR PIER PROTECTION STRUCTURE FACING APPROACHING MARINE TRAFFIC AND EXTEND TO A REASONABLE HEIGHT ABOVE HIGH WATER LEVEL WHICH IS MEANINGFUL TO THE MARINER.
 4. CLEARANCE MUST BE MARKED BY BLACK NUMERALS AND FOOTMARKS ON A WHITE BACKGROUND. THE SIZE, TYPE AND SPACING OF THE NUMERALS CONFORMING WITH THOSE PUBLISHED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS," FEDERAL HIGHWAY ADMINISTRATION (FHWA), U.S. DEPARTMENT OF TRANSPORTATION SHALL BE USED.
 5. THE LENGTH OF THE FOOTMARK SHALL BE NO LESS THAN THE WIDTH OF A SINGLE NUMERAL USED (EXCEPT 1 AND 4) AND THE THICKNESS MUST BE THE SAME AS THE WIDTH OF STROKE OF THE NUMERALS. FOOTMARKS SHALL BE SPACED EVERY FOOT.
 6. THE MINIMUM WIDTH OF THE WHITE BACKGROUND SHALL NOT BE LESS THAN THREE TIMES THE WIDTH OF A SINGLE NUMERAL (EXCEPT 1 AND 4) PLUS THE WIDTH OF EACH ADDITIONAL NUMERAL, PLUS NUMERAL SPACING.



PROPOSED MANAHAWKIN BAY BRIDGES

(LOOKING EAST)
TYPICAL SECTION
P = 20'

MANAHAWKIN BAY BRIDGE NOTES:

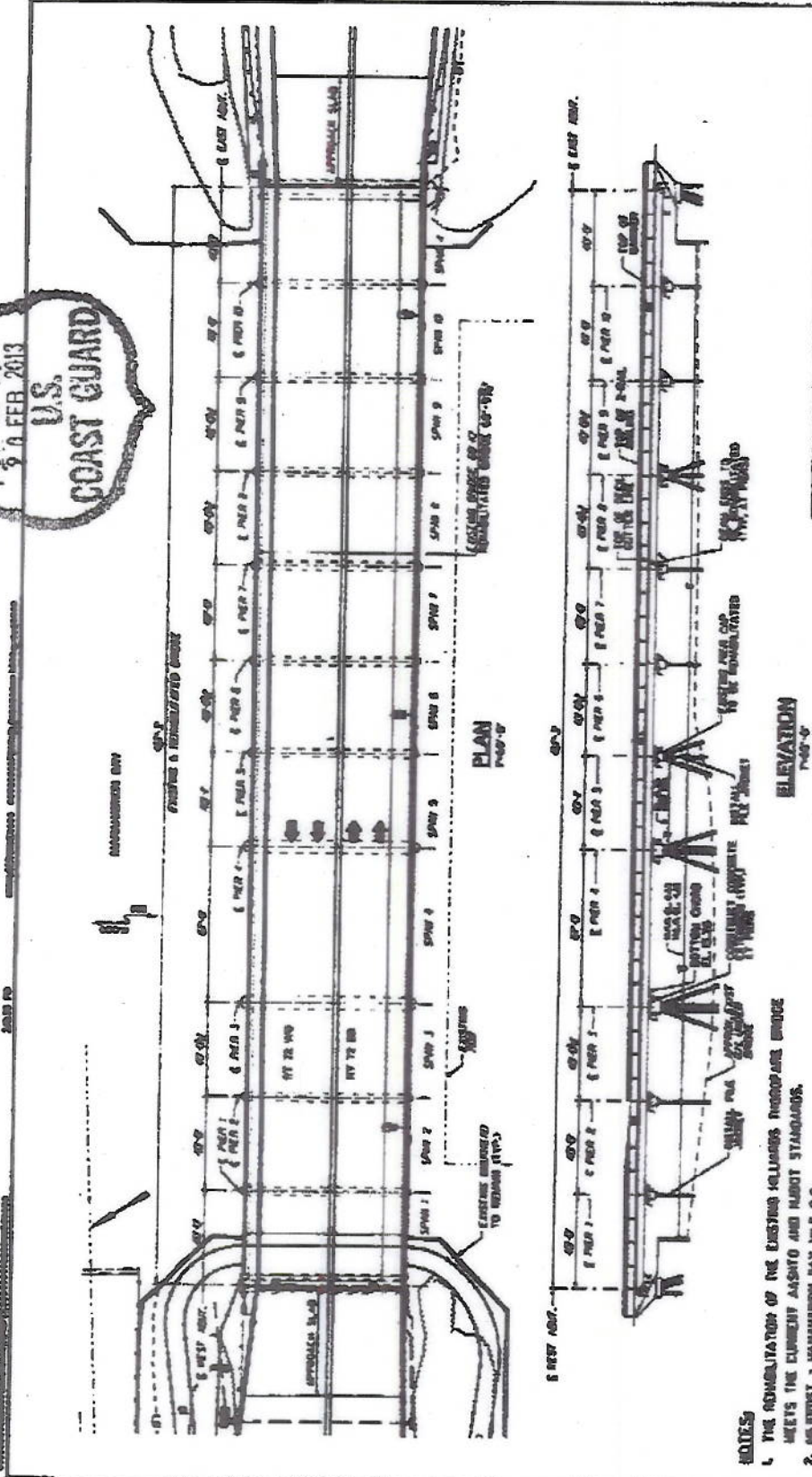
1. THE DESIGN OF THE PROPOSED MANAHAWKIN BAY BRIDGE AND THE REHABILITATION OF THE EXISTING MANAHAWKIN BAY BRIDGE MEETS THE CURRENT AASHTO AND FLOOD STANDARDS.
2. EXISTING, REHABILITATED & PROPOSED BRIDGE LENGTH = 2400'-0" (731.520 M)
3. EXISTING BRIDGE WIDTH = 58'-10" (18.080 M)
4. REHABILITATED BRIDGE WIDTH = 59'-7 1/4" (18.167 M)
5. NEW BRIDGE WIDTH = 52'-9 3/4" (16.097 M)
6. NUMBER OF SPANS = 17
7. MEAN HIGH WATER ELEVATION = 0.63 (0.52 M)
8. MEAN LOW WATER ELEVATION = -1.22 (-0.372 M)
9. 100 YEAR FLOOD ELEVATION = 6.90 (2.530 M)
10. BOTTOM OF CHANNEL ELEVATION = -8.00 (-2.438 M)
11. NAVIGATION CHANNEL WIDTH = 100'-0" (30.480 M)
12. VERTICAL NAVIGATION CLEARANCE = 55'-0" (16.764 M) ABOVE M.H.W.
13. DATUM = M.A.V.D. 1988
14. FILL BELOW M.A.V.D. = 29,483 CY (22.32 CUBIC METERS)
15. ROUTE 72 EB BRIDGE OVER THE MANAHAWKIN BAY HAS BEEN DESIGNED TO WITHSTAND IMPACT WITH A 200 TON EMPTY HOPPER BARGE.



NEW JERSEY DEPARTMENT OF TRANSPORTATION	
ROUTE U.S. 72 MANAHAWKIN BAY BRIDGES INTRACOASTAL WATERWAY M.P. 37.4 (80.16 KM)	
STAFFORD TOWNSHIP MUNICIPALITY	OCEAN COUNTY
STATE OF NEW JERSEY	
PARSONS BRINCKERHOFF, INC. 2000 LEHIGH DRIVE, 3RD FLOOR LAUREL HILLS, NJ 08808	SCALE: AS NOTED APRIL 2012

Joseph Mumber
JOSEPH MUMBER, PROJECT MANAGER
N.J. P.E. LICENSE NO. 24620298700

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NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S. 72 OVER HILLIARDS THOROFARE MANAHAWKIN BAY M.P. 37.4 (0.0 KM)
STAFFORD TOWNSHIP MUNICIPALITY
STATE OF NEW JERSEY
OCEAN COUNTY
PARSONS BRINCKERHOFF, INC. 2000 LIBERTY DRIVE, 2ND FLOOR LITTLETON, CO 80120
SEND AS NOTED APRIL 2003

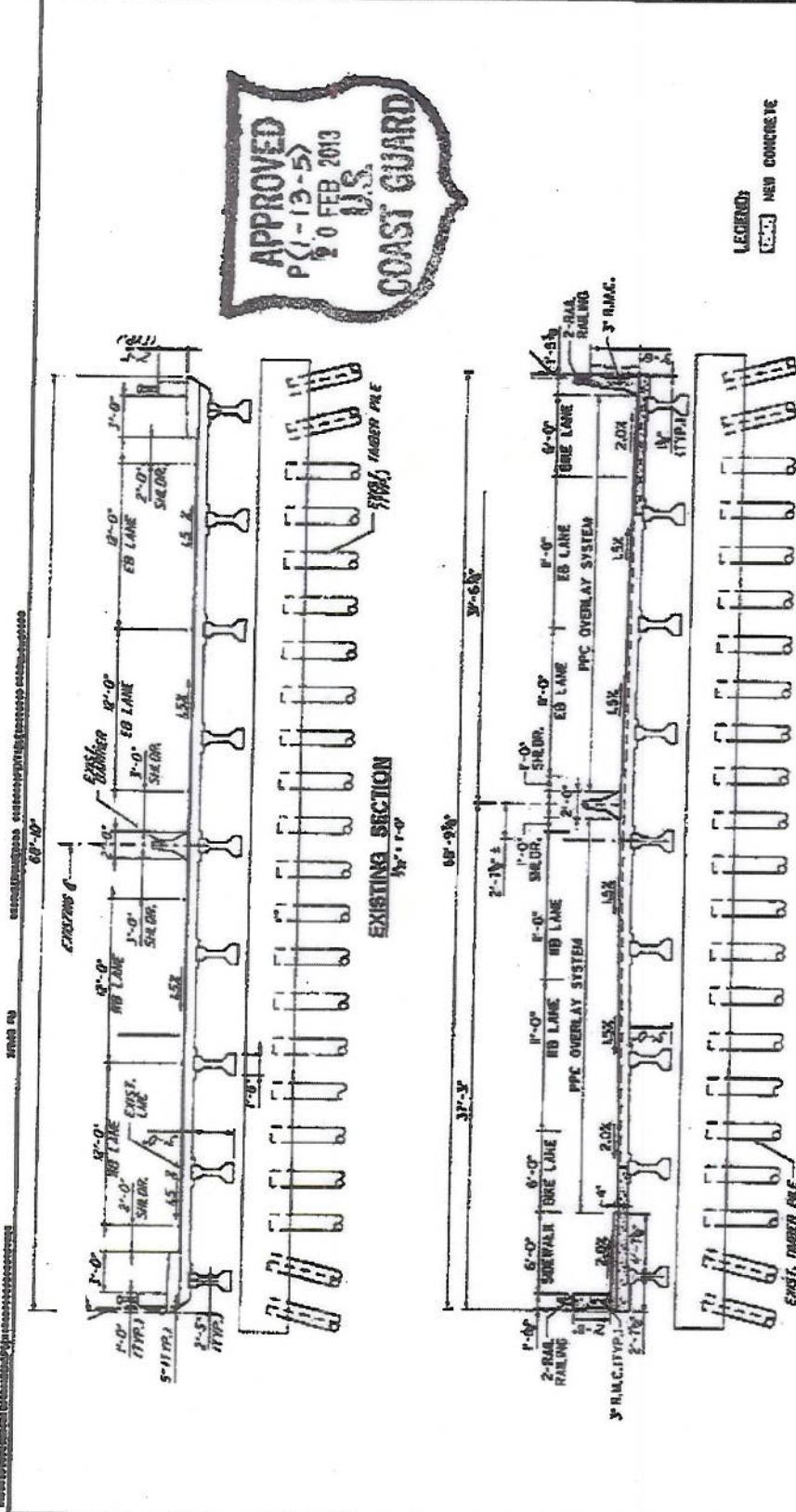
HILLIARDS THOROFARE BRIDGE
ELEVATION
1-03-0

WHEN-UNN CHANG, PROJECT MANAGER
N.J. P.E. LICENSE NO. 2406207000

When-unn Chang

NOTES:

1. THE MODIFICATION OF THE EXISTING HILLIARDS THOROFARE BRIDGE MEETS THE CURRENT AASHTO AND AASHTO STANDARDS.
2. ALLESTREE - MANAHAWKIN BAY JULE 0+0
3. EXISTING & RECONSTRUCTED BRIDGE LENGTH = 637'-3" (442,460 M)
4. EXISTING BRIDGE WIDTH = 60'-0" (18.288 M)
5. RECONSTRUCTED BRIDGE WIDTH = 60'-0" (18.288 M)
6. NUMBER OF SPANS = 9
7. MEAN HIGH WATER ELEVATION = 0.43 (0.132 M)
8. MEAN LOW WATER ELEVATION = -4.28 (-1.312 M)
9. 100 YEAR FLOOD ELEVATION = 8.30 (2.530 M)
10. BATHY BLAYD 1900
11. 100 NAVIGATIONAL CHANNEL
12. 100 FLL 60.69 MARS
13. VERTICAL CLEARANCE: 35.28 FEET AT WHM
14. HORIZONTAL CLEARANCE: APPROX. 57.9 FEET BETWEEN PIERS



LEGEND:
 NEW CONCRETE

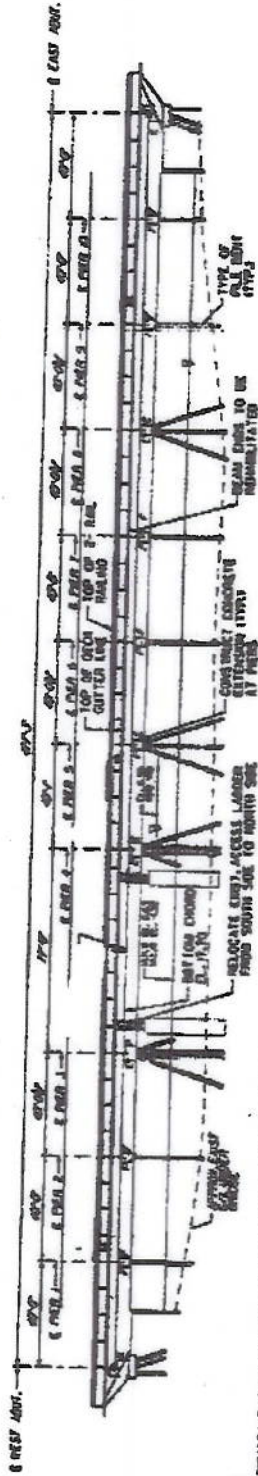
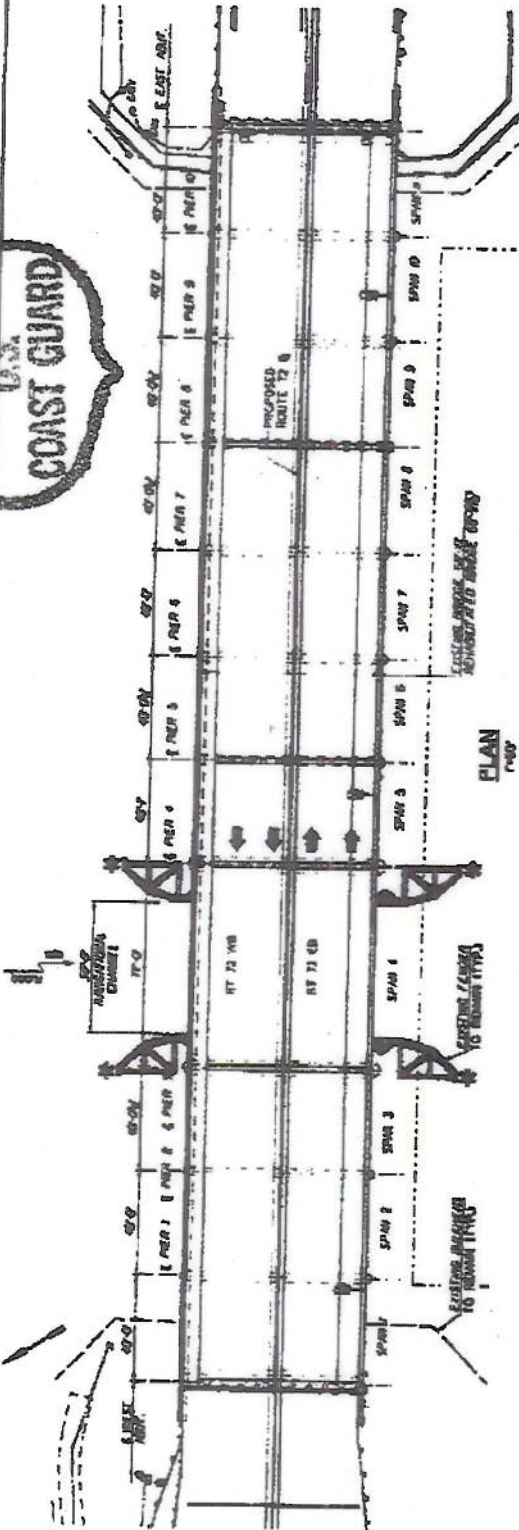
NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S. 72 OVER HILLIARDS THOROFARE MANAHAWKIN BAY M.P. 32.4 0.0 (RM)
STAFFORD TOWNSHIP MUNICIPALITY
STATE OF NEW JERSEY
OCEAN COUNTY
SCALE: AS NOTED APRIL 2011
PARSONS BRINCKERHOFF, INC. 7000 LEHIGH DRIVE 3RD FLOOR LANNERSVILLE, NJ 08040

HILLIARDS THOROFARE BRIDGE



Wei-Chi Chen
 WEI-CHI CHEN, PROJECT MANAGER
 N.J. P.E. LICENSE NO. 24624707800
 IH ENGINEERS, P.C.

- NOTES:
1. THE REHABILITATION OF THE EXISTING HILLIARDS THOROFARE BRIDGE MEETS THE CURRENT ASHTO AND AASHTO STANDARDS.
 2. EXISTING & REHABILITATED BRIDGE LENGTH = 487'-3" (149.230 M)
 3. EXISTING BRIDGE WIDTH = 60'-0" (18.288 M)
 4. REHABILITATED BRIDGE WIDTH = 60'-9" (18.528 M)
 5. NUMBER OF SPANS = 1
 6. MEAN HIGH WATER ELEVATION = 0.63 (0.193 M)
 7. MEAN LOW WATER ELEVATION = -1.22 (-0.372 M)
 8. 100 YEAR FLOOD ELEVATION = 0.30 (0.914 M)
 9. GATUNDE N.A.S.D. 1988
 10. NO NAVIGATIONAL CHANGE
 11. NO FULL BEARER I.M.M.



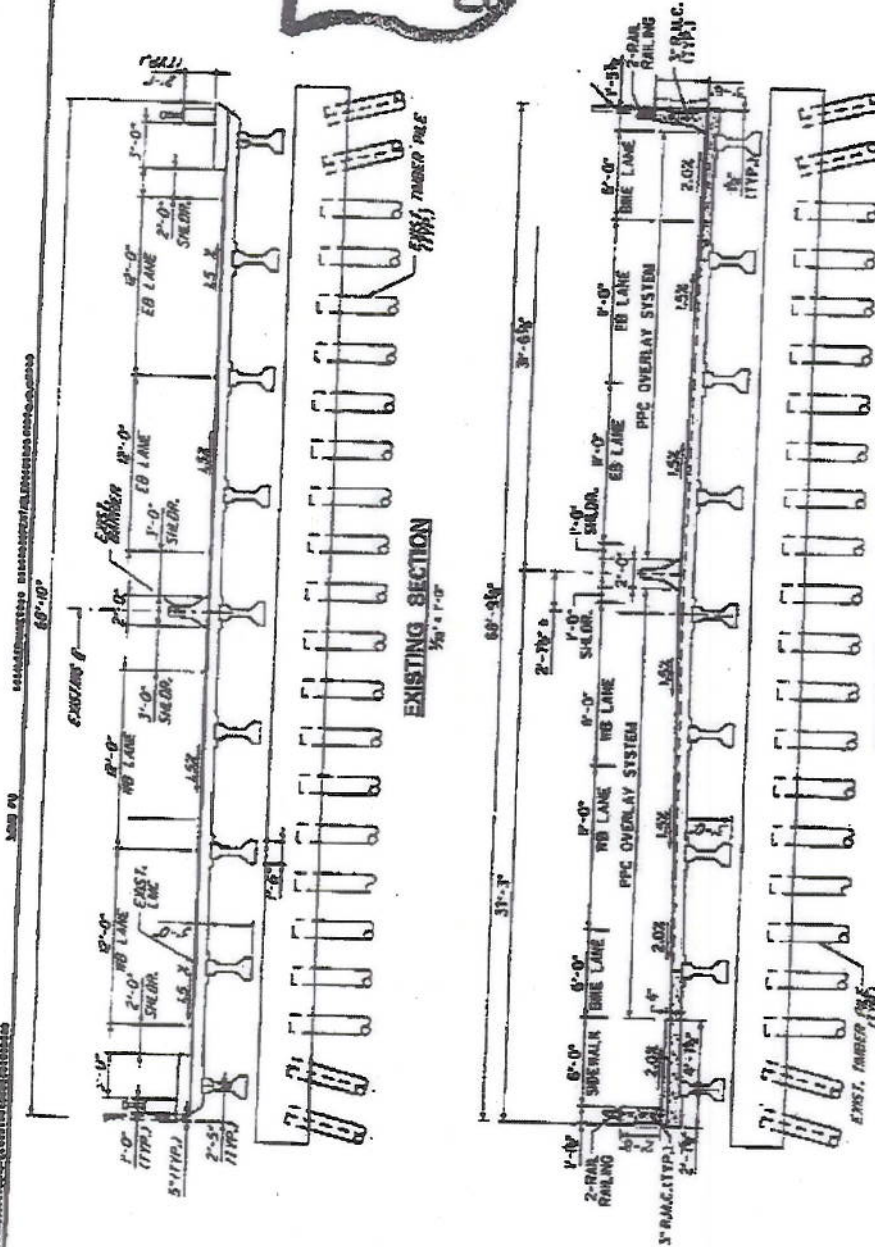
- NOTES:**
1. THE REHABILITATION OF THE EXISTING EAST THOROFARE BRIDGE MEETS THE CURRENT ASHBY AND HEBBY STANDARDS.
 2. WLEPOST - MANHAWKIN BAY WLE 010
 3. EXISTING & REHABILITATED BRIDGE LENGTH = 477'-3" (145.460 M)
 4. EXISTING BRIDGE WIDTH = 60'-10" (18.591 M)
 5. REHABILITATED BRIDGE WIDTH = 60'-0" (18.288 M)
 6. NUMBER OF SPANS = 8
 7. MEAN HIGH WATER ELEVATION = 0.63 (0.192 M)
 8. MEAN LOW WATER ELEVATION = -4.22 (-12.872 M)
 9. 100 YEAR FLOOD ELEVATION = 4.30 (13.130 M)
 10. BOTTOM OF CHAMBER ELEVATION = -13.07 (-3.984 M)
 11. NAVIGATIONAL CHAMBER WIDTH = 90'-0" (27.340 M)
 12. VERTICAL NAVIGATION CLEARANCE = 17'-0" (5.182 M)
 13. RATINGS H.A.V.D. FRS
 14. NO P.U.L. BELOW MARK.

EAST THOROFARE BRIDGE



W. J. Clark
WEN-JUN CHAO, PROJECT MANAGER
P.E. LICENSE NO. 2406107090
BY ENGINEERS, P.C.

NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S. 72 OVER EAST THOROFARE MANHAWKIN BAY M.P. 37.7(0.0 KM)
STAFFORD TOWNSHIP BOROUGH OF SHIP BOTTOM MUNICIPALITY
STATES OF NEW JERSEY
OCEAN COUNTY
PARSONS BRINCKERHOFF, INC. 2600 LEROX DRIVE, 3rd FLOOR LAWRENCEVILLE, NJ 08640
SCALE: AS NOTED APRIL 2012
13



NEW JERSEY DEPARTMENT OF TRANSPORTATION

ROUTE U.S. 72 OVER EAST THORFARE
MANAWKIN BAY M.P. 37.5 (0.0 KM)

STAFFORD TOWNSHIP
BOROUGH OF SHIP BOTTOM
MUNICIPALITY

STATE OF NEW JERSEY

OCEAN COUNTY

PARSONS BRINCKERHOFF, INC.
200 LENOX GARDEN, 3RD FLOOR
LAWRENCEVILLE, GA 30046

SCALE: AS NOTED
APRIL 2012

REHABILITATED SECTION
EAST THORFARE BRIDGE

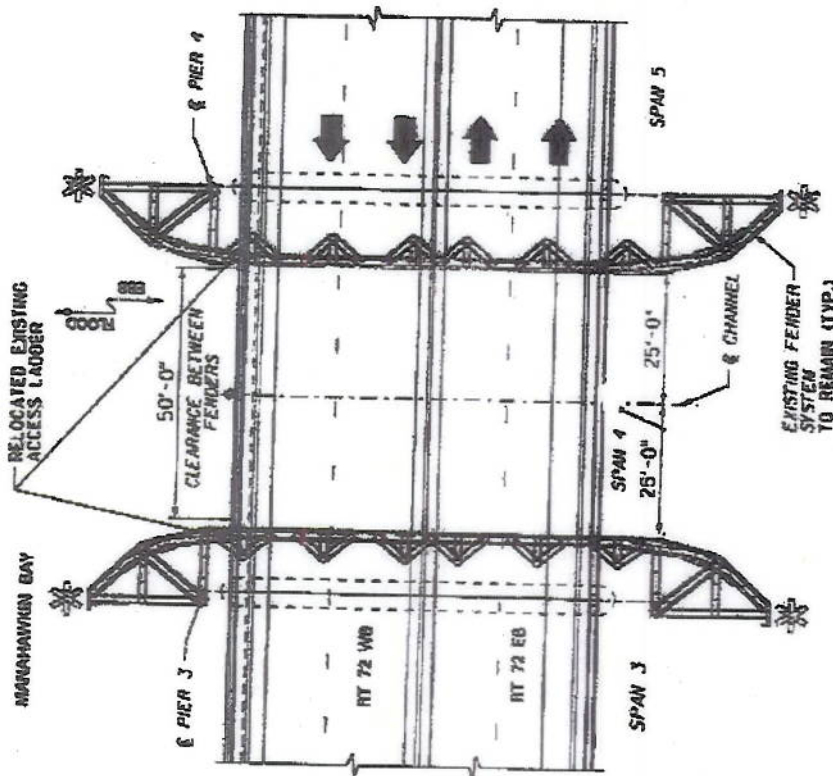
VIEW-JIN CHOU, PROJECT MANAGER
N.J. P.E. LICENSE NO. 24624707000
BY ENGINEERS, P.C.

View-Jin Chou

- NOTES:
1. THE REHABILITATION OF THE EXISTING EAST THORFARE BRIDGE MEETS THE CURRENT LIGHTS AND MOUNT STANDARDS.
 2. EXISTING & REHABILITATED BRIDGE LENGTHS = 477'-3" (146.400 M)
 3. EXISTING BRIDGE WIDTH = 60'-0" (18.288 M)
 4. REHABILITATED BRIDGE WIDTH = 60'-0" (18.288 M)
 5. NUMBER OF SPANS = 4
 6. MEAN HIGH WATER ELEVATION = 0.63 (0.192 M)
 7. MEAN LOW WATER ELEVATION = -1.22 (-0.372 M)
 8. 100 YEAR FLOOD ELEVATION = 0.30 (0.914 M)
 9. BOTTOM OF CHANNEL ELEVATION = -3.07 (-3.069 M)
 10. NAVIGATIONAL CHANNEL WIDTH = 50'-0" (15.240 M)
 11. VERTICAL NAVIGATION CLEARANCE = 17'-0" (5.181 M)
 12. DATUM = M.A.S.L. 1988
 13. NO FLL BELOW M.A.S.L.

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13

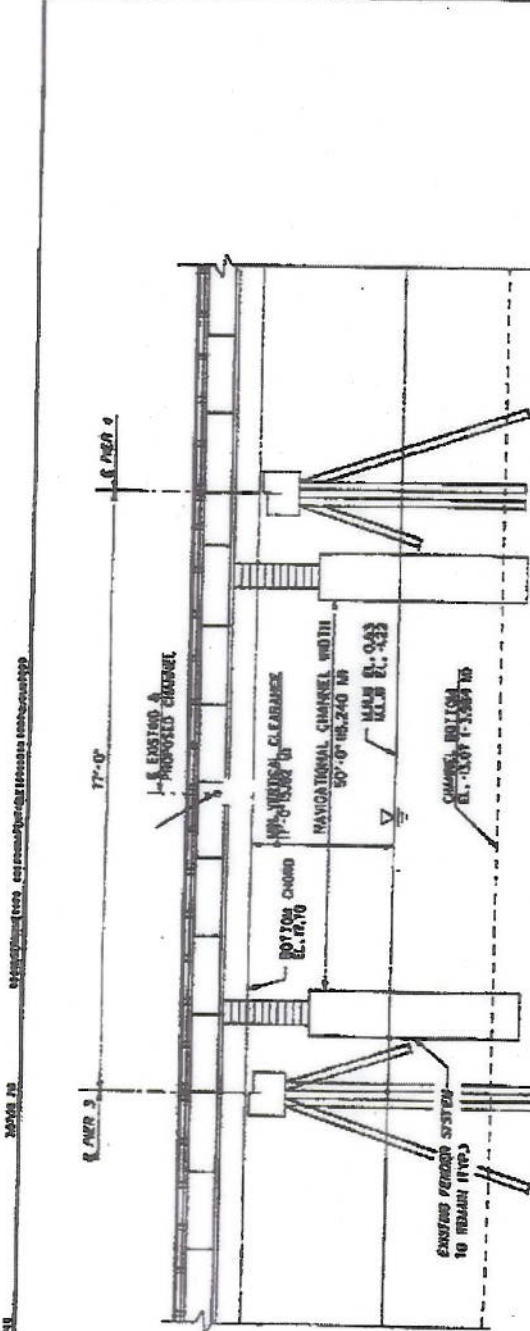
- NOTES:**
1. THE REHABILITATION OF THE EXISTING EAST THOROFARE BRIDGE MEETS THE CURRENT ASHTO AND AASHTO STANDARDS.
 2. EXISTING & REHABILITATED BRIDGE LENGTH = 411'-3" (128.489 M)
 3. EXISTING BRIDGE WIDTH = 66'-0" (20.118 M)
 4. REHABILITATED BRIDGE WIDTH = 60'-9 3/4" (18.590 M)
 5. NUMBER OF SPANS = 4
 6. MEAN HIGH WATER ELEVATION = 0.63 (0.192 M)
 7. MEAN LOW WATER ELEVATION = -1.22 (-0.372 M)
 8. 100 YEAR FLOOD ELEVATION = 6.30 (1.930 M)
 9. BOTTOM OF CHANNEL ELEVATION = -15.07 (-4.594 M)
 10. HORIZONTAL CHANNEL WIDTH = 60'-0" (18.288 M)
 11. VERTICAL NAVIGATION CLEARANCE = 17'-0" (5.182 M)
 12. DATUM: M.S.V.D. 1988
 13. NO FILL BELOW MAIN.



PLAN 1'-30"=1'

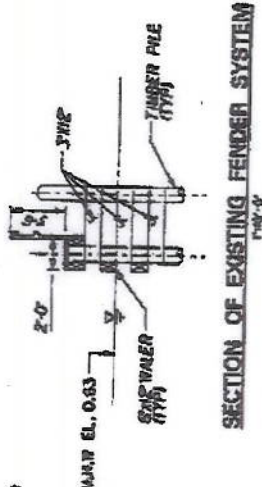
NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S. 72 OVER EAST THOROFARE MANAHAWKIN BAY (M.P. 57.9+0.0 KM)
STAFFORD TOWNSHIP BOROUGH OF SHIP BOTTOM MUNICIPALITY
STATE OF NEW JERSEY
OCEAN COUNTY
PARSONS BRINCKERHOFF, INC. 2000 LEONIX DRIVE, 3RD FLOOR LAWRENCEVILLE, NJ 08046
SCALE: AS NOTED APRIL 2012
13

Wen-Jin Cai
 WEN-JIN CAI, PROJECT MANAGER
 N.J. P.E. LICENSE NO. 246094707800
 IH ENGINEERS, P.C.



ELEVATION OF NAVIGATIONAL CHANNEL

- NOTES:**
1. THE REHABILITATION OF THE EXISTING EAST THOROFARE BRIDGE MEETS THE CURRENT AASHTO AND MDOT STANDARDS.
 2. EXISTING & REHABILITATED BRIDGE LENGTH = 417'-3" (127.160 M).
 3. EXISTING BRIDGE WIDTH = 68'-0" (20.728 M).
 4. REHABILITATED BRIDGE WIDTH = 58'-9 1/2" (18.020 M).
 5. NUMBER OF SPANS = 8.
 6. MEAN HIGH WATER ELEVATION = 0.63 (1.992 M).
 7. MEAN LOW WATER ELEVATION = -1.22 (-0.372 M).
 8. 100 YEAR FLOOD ELEVATION = 0.30 (0.915 M).
 9. BOTTOM OF CHANNEL ELEVATION = -3.07 (-1.504 M).
 10. NAVIGATIONAL CHANNEL WIDTH = 50'-0" (15.240 M).
 11. VERTICAL NAVIGATION CLEARANCE = 11'-0" (3.353 M).
 12. DATUM = M.A.S.L. 1985.
 13. MD P11 BELOW MAIN.



SECTION OF EXISTING FENDER SYSTEM

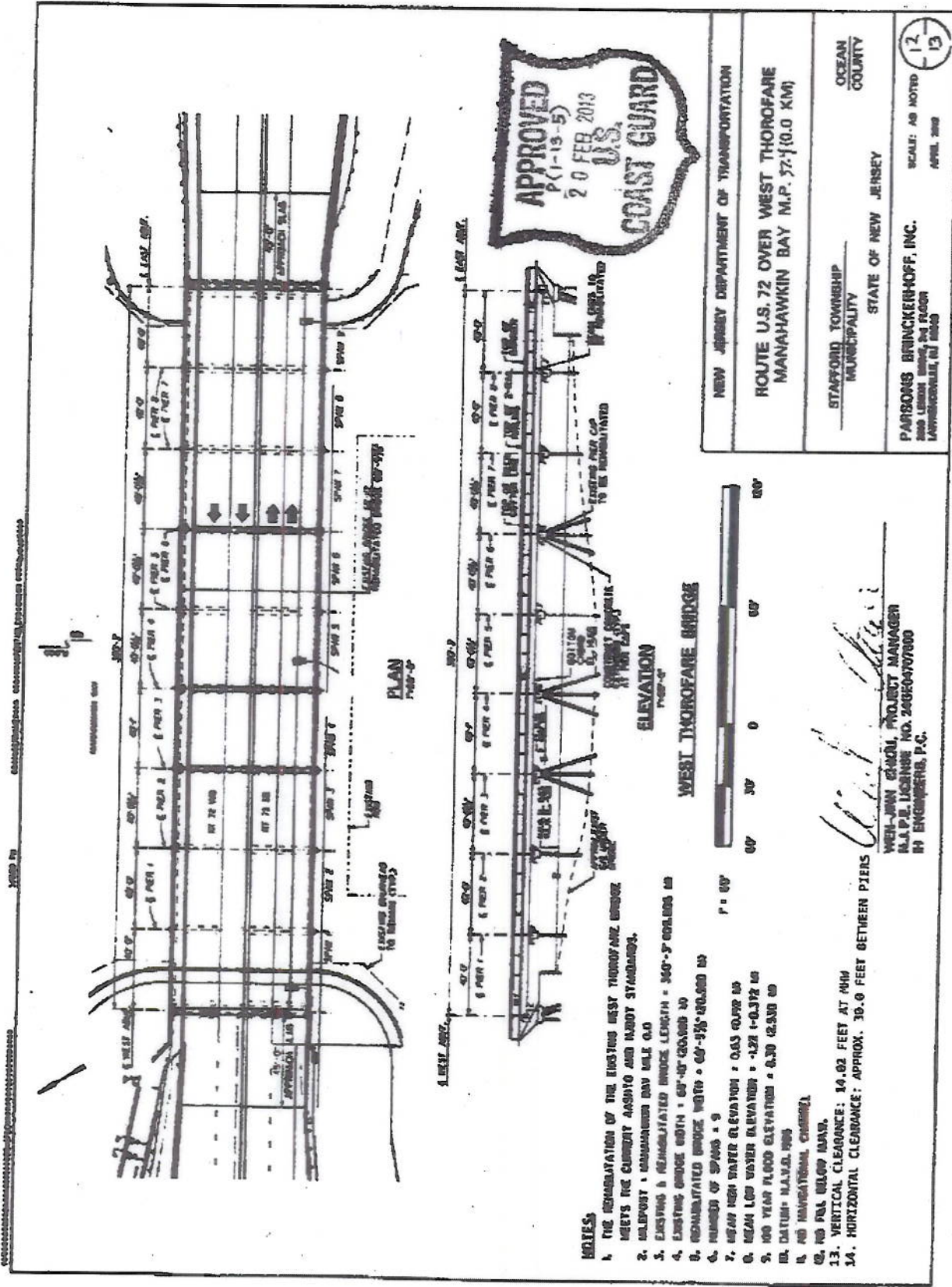
EAST THOROFARE BRIDGE

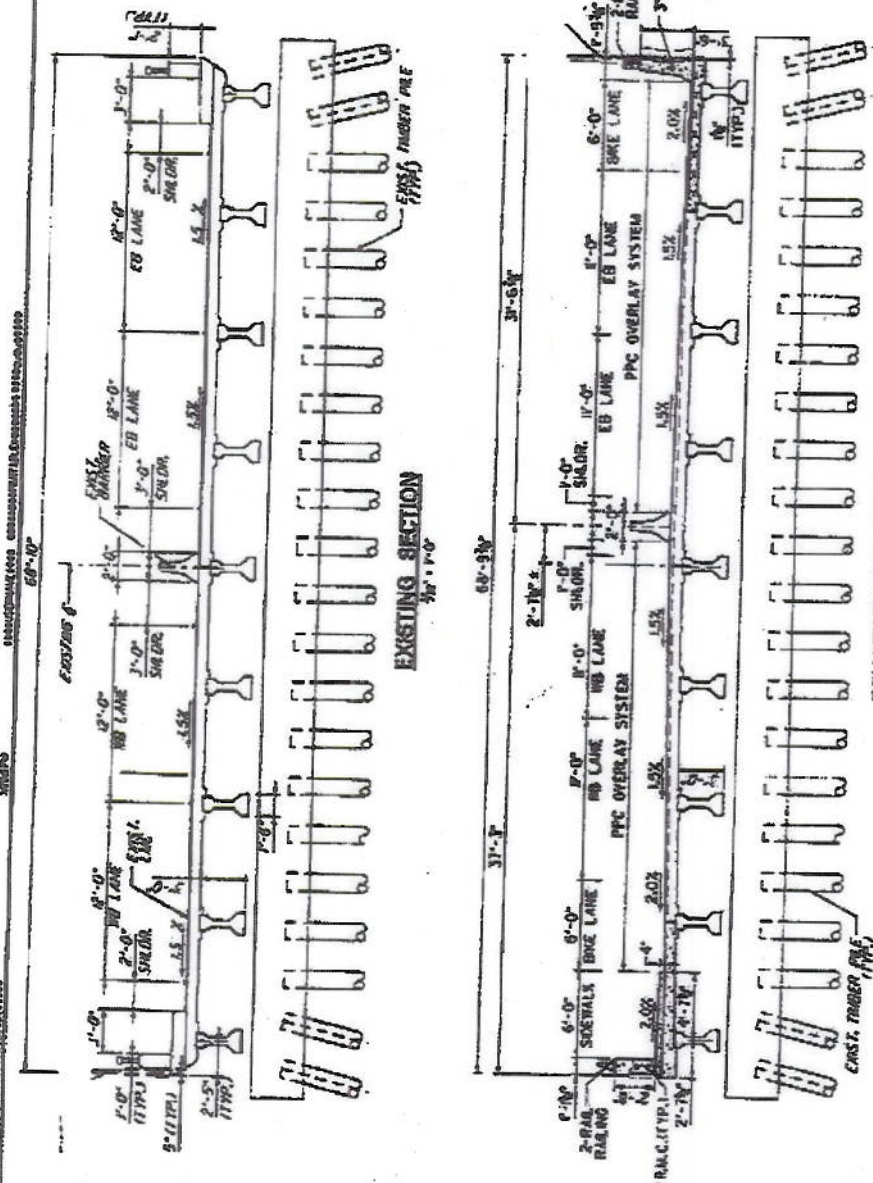


NEW JERSEY DEPARTMENT OF TRANSPORTATION
ROUTE U.S. 72 OVER EAST THOROFARE MANAHAWKIN BAY M.P. 31.9 (10.0 KM)
STARBUCK TOWNSHIP BOROUGH OF SHIP BOTTOM MUNICIPALITY
STATE OF NEW JERSEY
OCEAN COUNTY
PARSONS BRINCKERHOFF, INC. 2400 LEHIGH AVENUE, 2ND FLOOR LANHAMTOWN, PA 17036
SCALE: AS NOTED APRIL 2012
11 13



W. J. Chen
 WEN-JUN CHEN, PROJECT MANAGER
 N.J. P.E. LICENSE NO. 24680470780
 BE ENGINEERS, P.C.





LEGEND:
 (Symbol) NEW CONCRETE

NEW JERSEY DEPARTMENT OF TRANSPORTATION
 ROUTE U.S. 72 OVER WEST THORFARE
 MANAHAWKIN BAY M.P. 7.4 (0.0 KM)
 STAFFORD TOWNSHIP
 MUNICIPALITY
 STATE OF NEW JERSEY
 OCEAN COUNTY
 SCALE: AS NOTED
 APRIL 2012

13
 13

REHABILITATED SECTION
 3/4" = 1'-0"

WEST THORFARE BRIDGE



Walter J. Caspi
 WEN-JUN CHENG, PROJECT MANAGER
 N.J. P.E. LICENSE NO. 2406047000
 H ENGINEERS, P.C.

NOTES:

1. THE REHABILITATION OF THE EXISTING WEST THORFARE BRIDGE MEETS THE CURRENT AASHTO AND MDDOT STANDARDS.
2. EXISTING & REHABILITATED BRIDGE LENGTH = 360'-3" (109,800 MM)
3. EXISTING BRIDGE WIDTH = 60'-0" (18,288 MM)
4. REHABILITATED BRIDGE WIDTH = 60'-0" (18,288 MM)
5. NUMBER OF SPANS = 9
6. MEAN HIGH WATER ELEVATION = 0.83 (0.257 M)
7. MEAN LOW WATER ELEVATION = -0.22 (-0.372 M)
8. 100 YEAR FLOOD ELEVATION = 0.30 (0.914 M)
9. DATUM: M.A.S.D. 1988
10. NO NAVIGATIONAL CHANNEL
11. NO FILL BELOW M.A.S.D.

***LIGHTING REQUIREMENTS FOR BARGES AND STRUCTURES NOT PART OF A
BRIDGE OR APPROACH STRUCTURE***

88.13 Lights on barges at bank or dock.

- (a) The following barges shall display at night and, if practicable, in periods of restricted visibility the lights described in paragraph (b) of this section -
 - (1) Every barge projecting into a buoyed or restricted channel.
 - (2) Every barge so moored that it reduces the available navigable width of any channel to less than 80 meters.
 - (3) Barges moored in groups of more than two barges wide or to a maximum width of over 25 meters.
 - (4) Every barge not moored parallel to the bank or dock.
- (b) Barges described in paragraph (a) shall carry two unobstructed white lights of an intensity to be visible for a least one mile on a clear dark night and arranged as follows:
 - (1) On a single moored barge, lights shall be placed on the two corners farthest from the bank or dock.
 - (2) On barges moored in group formation, a light shall be placed on each of the upstream and downstream ends of the group, on the corners farthest from the bank or dock.
 - (3) Any barge in a group, projecting from the main body of the group toward the channel, shall be lighted as a single barge.
- (c) Barges moored in any slip or slough, which is used primarily for mooring purposes, are exempt from the lighting requirements of this section.

***33 CODE OF FEDERAL REGULATIONS, SECTION 118.95
LIGHTS ON STRUCTURES NOT PART OF A BRIDGE OR APPROACH STRUCTURE***

Lights on sheer booms, isolated piers, obstructions, and other structures not part of a bridge or approach structure must meet the requirements for aids to navigation in Subpart 66.01 of Part 66 of this chapter.

33 CODE OF FEDERAL REGULATIONS, SECTION 66.01-10

- (a) The characteristics of a private aid to navigation shall conform to the United States Aids to Navigation System described in Subpart B of Part 62 of this subchapter, except that only tungsten-incandescent light sources will be approved for electric lights.

Therefore in accordance with 33 CFR 66.01-10(a), the above lights shall be marked with slow flashing yellow lights visible for two miles on a clear dark night. Lights similar to the Tideland ML-120 Barge Light may be used. Only tungsten-incandescent light sources will be approved for electric lights.