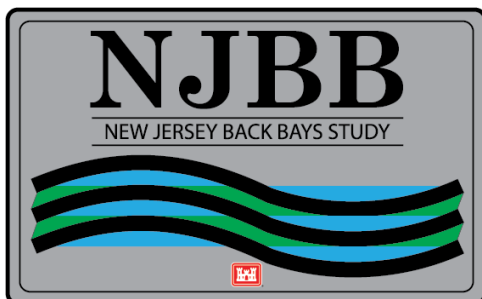

**ENGINEERING APPENDIX
TENTATIVELY SELECTED PLAN
BARRIERS AND CROSS SECTIONS**

**NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
FEASIBILITY STUDY**

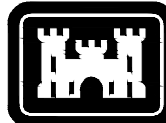
PHILADELPHIA, PENNSYLVANIA

APPENDIX B.7A

August 2021



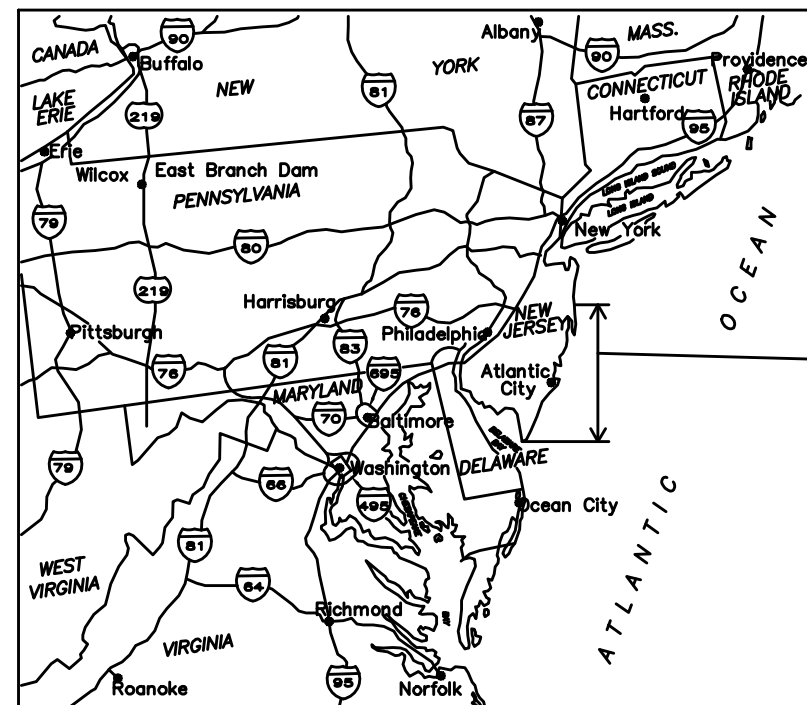
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NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT DRAFT INTEGRATED FEASIBILITY STUDY TENTATIVELY SELECTED PLAN

DRAWING INDEX	
Sheet Number	Sheet Title
G-001	COVER SHEET
G-002	GENERAL PLAN
C-101	MANASQUAN INLET - A1
C-102	BARNEGAT INLET - A1
C-103	ABSECON BAY CLOSURE - A1
C-104	GREAT EGG HARBOR INLET - A1
C-105	SOUTHERN OCEAN CITY BAY CLOSURE - A1
C-301	CROSS SECTIONS - MANASQUAN - A1
C-302	CROSS SECTIONS - BARNEGAT - A1
C-303	CROSS SECTIONS - ABSECON BAY CLOSURE - A1
C-304	CROSS SECTIONS - GREAT EGG - A1
C-305	CROSS SECTIONS - OC BAY CLOSURE - A1



Appendix B.7 -
Engineering
Appendix - New
Jersey Back Bays
Coastal Storm
Risk
Management

LOCATION
OF PROJECT

N
VICINITY MAP
N.T.S.

SOLICITATION NO:-
CONTRACT NO:-
ISSUE/SUBMITTAL DATE: JULY 2021





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DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN
NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
COVER SHEET

SHEET NUMBER
G-001

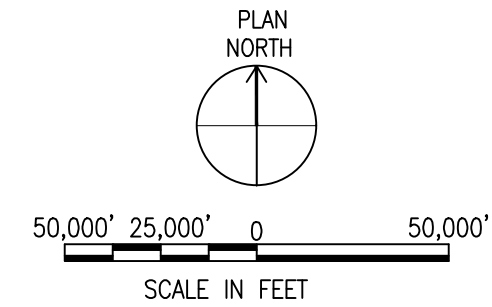


GENERAL PLAN LEGEND:

-  NON-STRUCTURAL
-  REGION
-  INLET STORM SURGE BARRIER
-  CROSS BAY BARRIER

NOTES:

1. NON-STRUCTURAL AREAS NOT SHOWN IN PLAN VIEWS (SHEETS C-101 THROUGH C-105) FOR CLARITY. DETAILS OF THE TENTATIVELY SELECTED PLAN NON-STRUCTURAL AREAS CAN BE FOUND IN SECTION 8.2.4.2 OF THE MAIN REPORT (OVERVIEW OF ENTIRE NJBB STUDY AREA AS WELL AS REGIONAL VIEWS).
2. ELEVATIONS ARE EXPRESSED IN U.S. SURVEY FEET AND REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. HORIZONTAL CONTROL IS REFERENCED TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983.
4. SEE SHEETS C-101 THROUGH C-105 FOR PLAN VIEW INLET STORM SURGE BARRIERS AND CROSS BAY BARRIERS.
5. SEE SHEETS C-301 THROUGH C-305 FOR INLET STORM SURGE BARRIER AND CROSS BAY BARRIER CROSS SECTIONS.
6. SEE CIVIL SECTION WRITE UP OF ENGINEERING APPENDIX FOR LEVEE, SEAWALL, AND FLOODWALL DETAILS.



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DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN
NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
GENERAL PLAN

SHEET NUMBER

G-002



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DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN

NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
MANASQUAN INLET - A1

SHEET NUMBER

C-101



LEVEE/DUNE/BURIED SEAWALL TIE INTO
HIGH GROUND (CONTINUES APPROXIMATELY
4,000 FT NORTH OF PLAN VIEW)



BARRIER WITH BOX CULVERTS TO PROMOTE WATER FLOW

SEAWALL TIE INTO HIGH GROUND

150' WIDE VERTICAL LIFT GATE (TYP)

VERTICAL LIFT GATE PIER STRUCTURE (TYP)

SECTOR GATE (320' WIDE NAVIGABLE SPAN)

SECTOR GATE HOUSING STRUCTURE (TYP)

TYPE C FLOODWALL TIE INTO HIGH GROUND

ROAD CLOSURE

FEDERAL NAVIGATION CHANNEL

BARNEGAT INLET

ATLANTIC OCEAN



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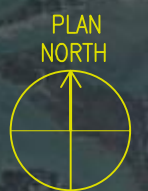
DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN

NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT

BARNEGAT INLET - A1

SHEET NUMBER

C-102



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DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN

NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
ABSECON BAY CLOSURE - A1

SHEET NUMBER

C-103



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DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN

NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
GREAT EGG HARBOR INLET - A1

SHEET NUMBER

C-104



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DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN
NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
SOUTHERN OCEAN CITY BAY CLOSURE - A1

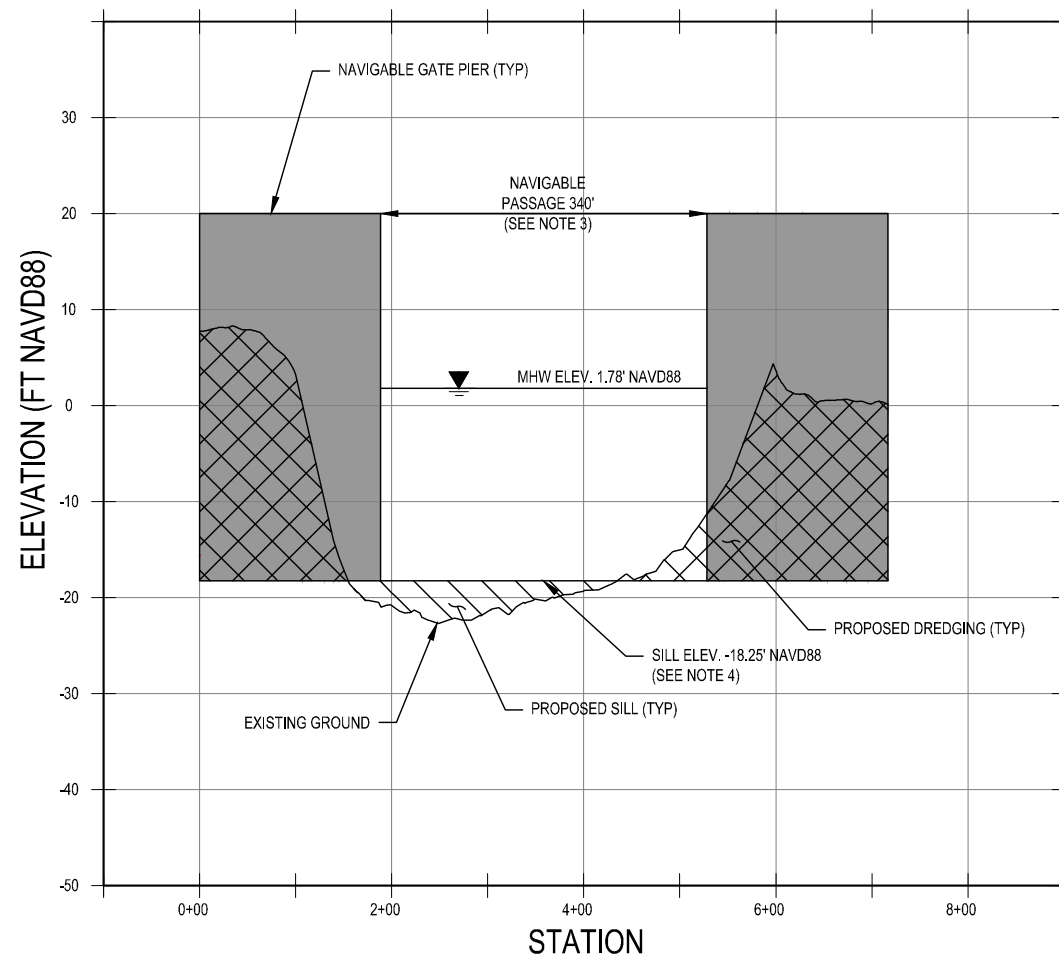
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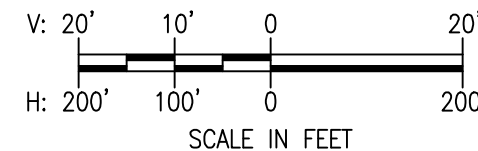
US Army Corps
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PHILADELPHIA
DISTRICT

MANASQUAN INLET - A1



NOTES:

1. CROSS SECTIONS SHOWN WERE USED IN THE ERDC ADH MODEL TO EVALUATE BARRIER AFFECTS ON VELOCITY, SALINITY, AND TIDAL PRISM WHILE IN THEIR "OPEN" POSITION.
2. ELEVATIONS ARE EXPRESSED IN FEET AND REFER THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. NAVIGABLE SECTOR GATES ARE ASSUMED TO BE LOCATED ACROSS THE AUTHORIZED FEDERAL NAVIGATION CHANNEL AND SIZED TO ALLOW ACCESS TO THE ENTIRE CHANNEL, OUTSIDE OF SIGNIFICANT STORM EVENTS. THE FEDERAL NAVIGATION CHANNEL AUTHORIZED WIDTH IS 300 FT. THE NAVIGABLE PASSAGE WAS SIZED TO 340' TO PROVIDE A BUFFER FROM THE NAVIGATION CHANNEL AND TO PROMOTE ADDITIONAL FLOW.
4. FEDERAL NAVIGATION CHANNEL AUTHORIZED DEPTH IS -14 FT MLW OR APPROXIMATELY -16.25 FT NAVD88.
5. THE SILL ELEVATION AT THE FEDERAL NAVIGATION CHANNEL IS INITIALLY SET TO 2 FEET BELOW THE AUTHORIZED CHANNEL DEPTH (2 FT OF UNDER-KEEL CLEARANCE TO ACCOUNT FOR A HARD BOTTOM STRUCTURE). THE EXISTING GROUND AT SOME LOCATIONS IS MUCH DEEPER THAN THE AUTHORIZED FEDERAL NAVIGATION CHANNEL. ENGINEERING JUDGEMENT IS USED TO DEEPEN THE SILL BELOW THE AUTHORIZED DEPTH IN ORDER TO PROMOTE ADDITIONAL FLOW.
6. ALL GATES ARE SHOWN IN THE OPEN POSITION. MOVEABLE GATES ARE NOT SHOWN FOR CLARITY.



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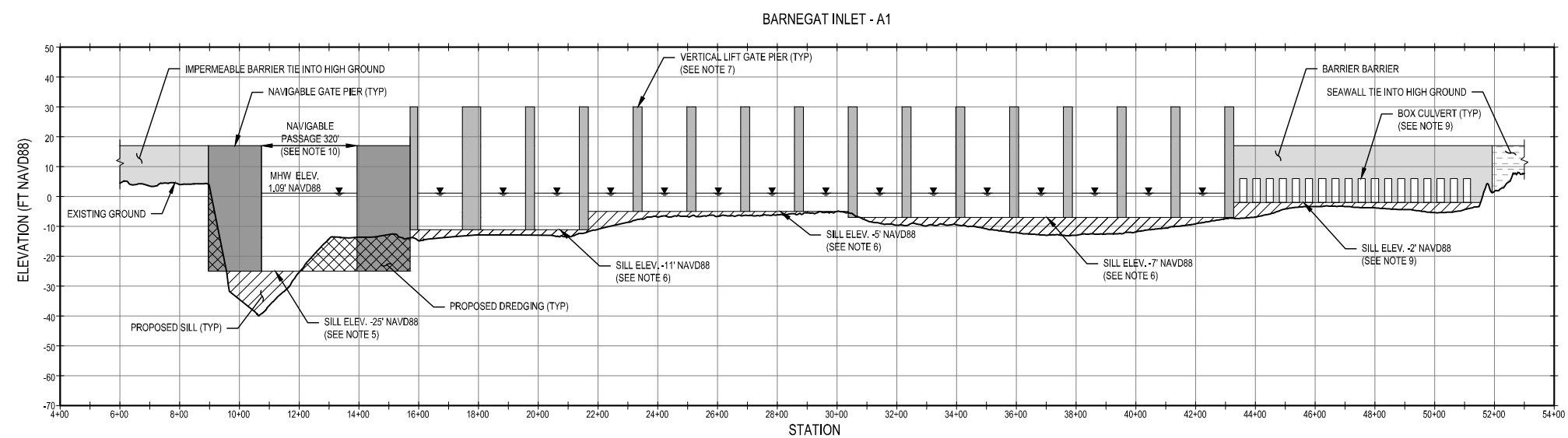
DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN
NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
CROSS SECTIONS - MANASQUAN - A1

SHEET NUMBER

C-301

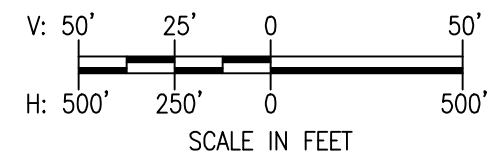


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NOTES:

1. CROSS SECTIONS SHOWN WERE USED IN THE ERDC ADH MODEL TO EVALUATE BARRIER AFFECTS ON VELOCITY, SALINITY, AND TIDAL PRISM WHILE IN THEIR "OPEN" POSITION.
2. ELEVATIONS ARE EXPRESSED IN FEET AND REFER THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. NAVIGABLE SECTOR GATES ARE ASSUMED TO BE LOCATED ACROSS AUTHORIZED FEDERAL NAVIGATION CHANNELS AND SIZED TO ALLOW ACCESS THROUGH THE ENTIRE CHANNEL, OUTSIDE OF SIGNIFICANT STORM EVENTS. THE FEDERAL NAVIGATION CHANNEL AUTHORIZED WIDTH IS 300 FT. THE NAVIGABLE PASSAGE WAS SIZED TO PROVIDE A 10 FT BUFFER ON EITHER SIDE OF THE FEDERAL NAVIGATION CHANNEL.
4. FEDERAL NAVIGATION CHANNEL AUTHORIZED DEPTH IS -10 FT MLW OR APPROXIMATELY -11.06 FT NAVD88.
5. THE SILL ELEVATION AT THE FEDERAL NAVIGATION CHANNEL IS INITIALLY SET TO 2 FT BELOW THE AUTHORIZED CHANNEL DEPTH (2 FT OF UNDER-KEEL CLEARANCE TO ACCOUNT FOR A HARD BOTTOM STRUCTURE). THE EXISTING GROUND IN SOME LOCATIONS IS MUCH DEEPER THAN THE AUTHORIZED FEDERAL NAVIGATION CHANNEL. ENGINEERING JUDGEMENT IS USED TO DEEPEN THE SILL BELOW THE AUTHORIZED DEPTH IN ORDER TO PROMOTE ADDITIONAL FLOW.
6. SILL ELEVATIONS FOR THE VERTICAL LIFT GATES ARE INITIALLY SET TO BE GENERALLY ABOVE THE EXISTING GROUND TO REDUCE THE POTENTIAL FOR SEDIMENTATION. SETTING CONSISTENT SILL ELEVATIONS ACROSS ADJACENT GATES INCREASES THE OVERALL CONSTRUCTABILITY OF THE STORM SURGE BARRIER.
7. VERTICAL LIFT GATE PIER TOP ELEVATIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
8. ALL GATES ARE SHOWN IN THE "OPEN" POSITION. MOVEABLE GATES ARE NOT SHOWN FOR CLARITY.
9. BOX CULVERT DIMENSIONS ARE ASSUMED TO BE 24 FT x 8 FT. THE BOX CULVERT BASE IS AT ELEV. -2 FT NAVD88.



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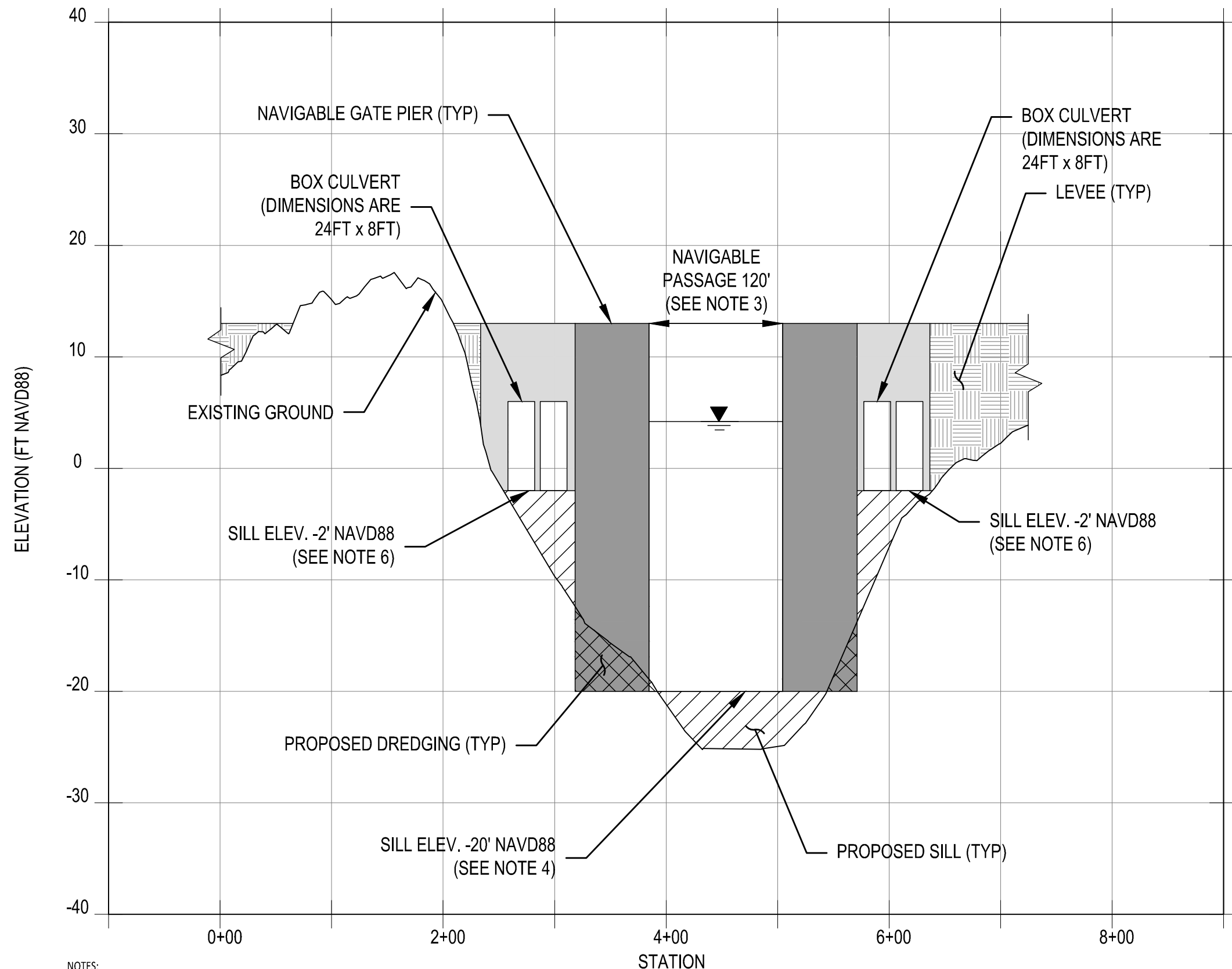
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TENTATIVELY SELECTED PLAN

NEW JERSEY BAY BAYS
COASTAL STORM RISK MANAGEMENT
CROSS SECTIONS - BARNEGAT - A1

SHEET NUMBER

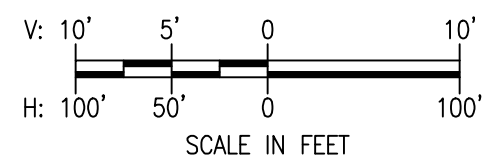
C-302

ABSECON BAY CLOSURE SECTOR GATE - A1



NOTES:

1. CROSS SECTIONS SHOWN WERE USED IN THE ERDC ADH MODEL TO EVALUATE BARRIER AFFECTS ON VELOCITY, SALINITY, AND TIDAL PRISM WHILE IN THEIR "OPEN" POSITION.
2. ELEVATIONS ARE EXPRESSED IN FEET AND REFER THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. NAVIGABLE SECTOR GATES ARE ASSUMED TO BE LOCATED ACROSS AUTHORIZED FEDERAL NAVIGATION CHANNELS AND SIZED TO ALLOW ACCESS THROUGH THE ENTIRE CHANNEL, OUTSIDE OF SIGNIFICANT STORM EVENTS. THE NJICWW AUTHORIZED WIDTH IS 100 FT. THE NAVIGABLE SECTOR GATE WAS SIDES TO PROVIDE A 10 FT BUFFER ON EITHER SIDE.
4. THE NJICWW IS NORMALLY MAINTAINED TO A DEPTH OF 6 FT MLW. THE SECTOR GATE SILL ELEVATION IS INITIALLY SET TO 2 FEET BELOW THE MAINTAINED DEPTH (2 FT OF UNDER-KEEL CLEARANCE TO ACCOUNT FOR A HARD BOTTOM STRUCTURE). THE EXISTING GROUND AT SOME LOCATIONS IS MUCH DEEPER THAN THE MAINTAINED DEPTH. ENGINEERING JUDGEMENT IS USED TO DEEPEN THE SILL BELOW THE MAINTAINED DEPTH IN ORDER TO PROMOTE ADDITIONAL FLOW.
5. SECTOR GATE SHOWN IN THE "OPEN" POSITION. MOVEABLE GATES ARE NOT SHOWN FOR CLARITY.
6. BOX CULVERT DIMENSIONS ARE ASSUMED TO BE 24 FT x 8 FT. THE BOX CULVERT BASE IS AT ELEV. -2 FT NAVD88.



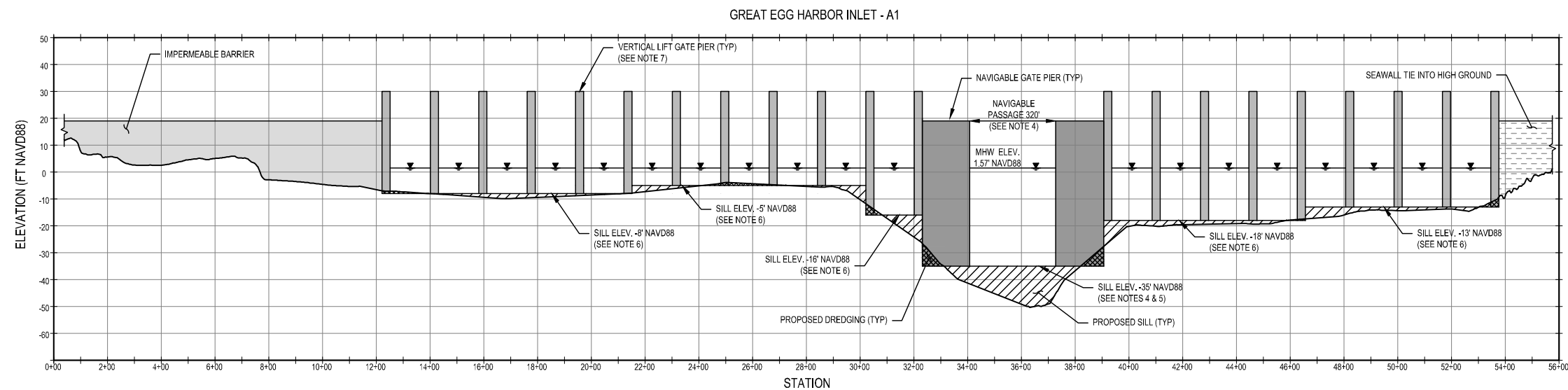
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TENTATIVELY SELECTED PLAN
NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
CROSS SECTIONS - ABSECON BAY CLOSURE - A1

SHEET NUMBER
C-303

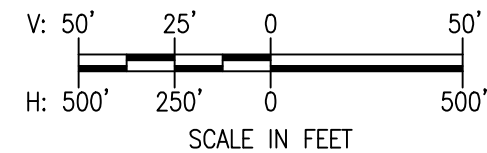


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PHILADELPHIA
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NOTES:

1. CROSS SECTIONS SHOWN WERE USED IN THE ERDC ADH MODEL TO EVALUATE BARRIER EFFECTS ON VELOCITY, SALINITY, AND TIDAL PRISM WHILE IN THEIR "OPEN" POSITION. CONFIGURATION C1 WAS NOT MODELED FOR GREAT EGG HARBOR INLET BUT MAY BE FURTHER EVALUATED IN THE NEXT PHASE OF THE FEASIBILITY STUDY.
2. ELEVATIONS ARE EXPRESSED IN FEET AND REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. NAVIGABLE SECTOR GATES ARE ASSUMED TO BE LOCATED ACROSS AUTHORIZED FEDERAL NAVIGATION CHANNELS AND SIZED TO ALLOW ACCESS THROUGH THE ENTIRE CHANNEL, OUTSIDE OF SIGNIFICANT STORM EVENTS.
4. NO FEDERAL NAVIGATION CHANNEL AUTHORIZED FOR GREAT EGG HARBOR INLET. NAVIGATION REQUIREMENTS FOR GREAT EGG HARBOR INLET WERE ASSUMED TO BE COMPARABLE TO THE BARNEGAT INLET FEDERAL NAVIGATION CHANNEL. NAVIGATION REQUIREMENTS WERE FURTHER EVALUATED AT GREAT EGG HARBOR INLET THROUGH A MARITIME VESSEL ANALYSIS.
5. ENGINEERING JUDGEMENT IS USED TO SET THE NAVIGABLE SILL TO PROMOTE NECESSARY FLOW THROUGH THE INLET.
6. SILL ELEVATIONS FOR THE VERTICAL LIFT GATES ARE INITIALLY SET TO BE GENERALLY ABOVE THE EXISTING GROUND TO REDUCE THE POTENTIAL FOR SEDIMENTATION. SETTING CONSISTENT SILL ELEVATIONS ACROSS ADJACENT GATES INCREASES THE OVERALL CONSTRUCTIBILITY OF THE STORM SURGE BARRIER.
7. VERTICAL LIFT GATE PIER TOP ELEVATIONS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
8. ALL GATES ARE SHOWN IN THE "OPEN" POSITION. MOVEABLE GATES ARE NOT SHOWN FOR CLARITY.



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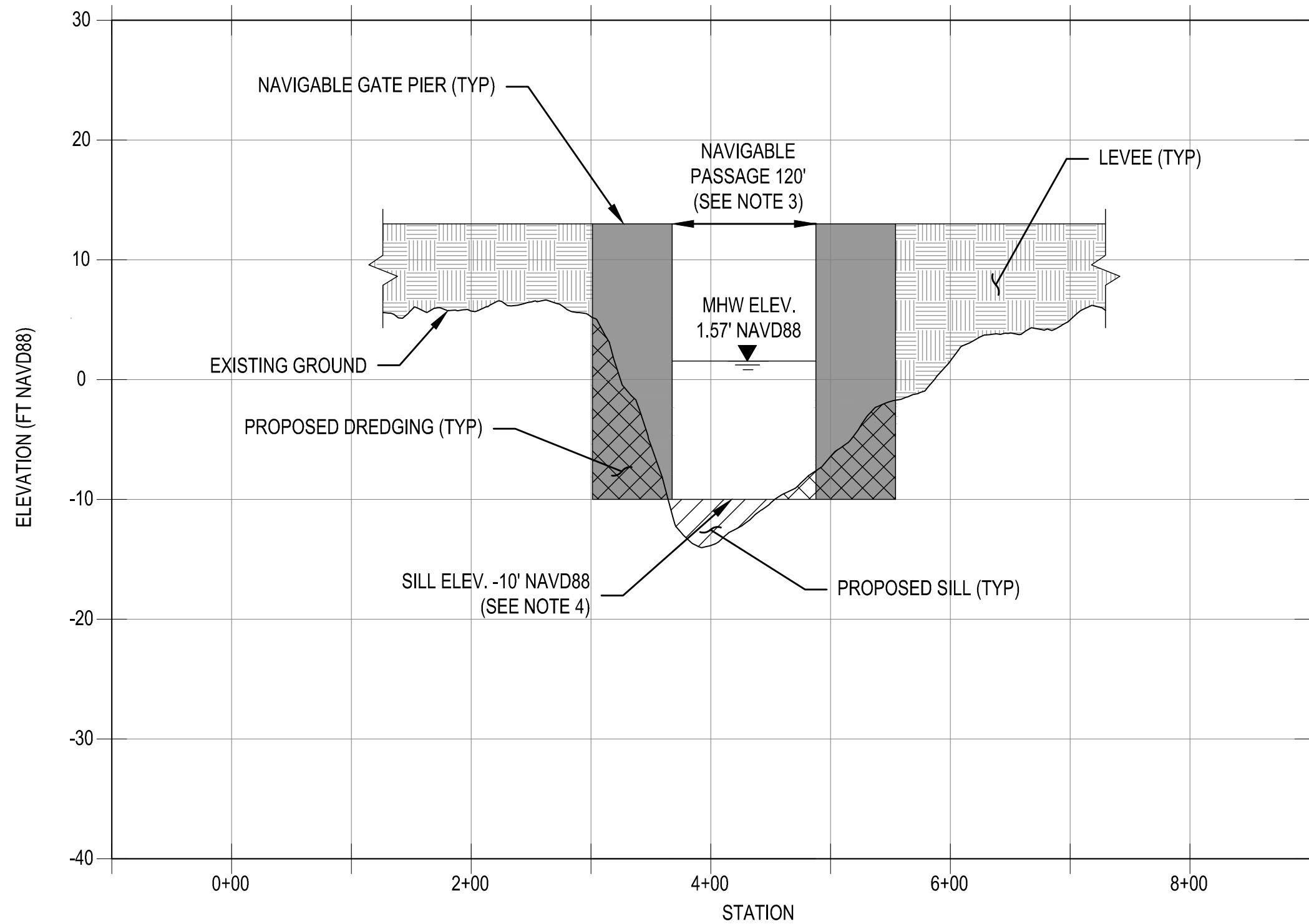
**DRAFT INTEGRATED FEASIBILITY STUDY
 TENTATIVELY SELECTED PLAN**

 NEW JERSEY BAY BAYS
 COASTAL STORM RISK MANAGEMENT
 CROSS SECTIONS - GREAT EGG - A1

SHEET NUMBER

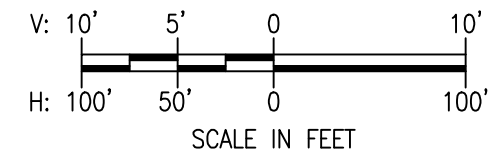
C-304

SOUTHERN OCEAN CITY BAY CLOSURE SECTOR GATE - A1



NOTES:

1. CROSS SECTIONS SHOWN WERE USED IN THE ERDC ADH MODEL TO EVALUATE BARRIER EFFECTS ON VELOCITY, SALINITY, AND TIDAL PRISM WHILE IN THEIR "OPEN" POSITION.
2. ELEVATIONS ARE EXPRESSED IN FEET AND REFER THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. NAVIGABLE SECTOR GATES ARE ASSUMED TO BE LOCATED ACROSS AUTHORIZED FEDERAL NAVIGATION CHANNELS AND SIZED TO ALLOW ACCESS THROUGH THE ENTIRE CHANNEL, OUTSIDE OF SIGNIFICANT STORM EVENTS. THE NJICWW AUTHORIZED WIDTH IS 100 FT. THE NAVIGABLE SECTOR GATE WAS SIZED TO PROVIDE A 10 FT BUFFER ON EITHER SIDE.
4. THE NJICWW IS NORMALLY MAINTAINED TO A DEPTH OF 6 FT MLW. THE SECTOR GATE SILL ELEVATION IS INITIALLY SET TO 2 FEET BELOW THE MAINTAINED DEPTH (2 FT OF UNDER-KEEL CLEARANCE TO ACCOUNT FOR A HARD BOTTOM STRUCTURE). THE EXISTING GROUND AT SOME LOCATIONS IS MUCH DEEPER THAN THE MAINTAINED DEPTH. ENGINEERING JUDGEMENT IS USED TO DEEPEN THE SILL BELOW THE MAINTAINED DEPTH TO PROMOTE ADDITIONAL FLOW.
5. SECTOR GATE SHOWN IN THE "OPEN" POSITION. MOVEABLE GATES ARE NOT SHOWN FOR CLARITY.



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DRAFT INTEGRATED FEASIBILITY STUDY
TENTATIVELY SELECTED PLAN
NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
CROSS SECTIONS - OC BAY CLOSURE - A1

SHEET NUMBER

C-305