



Proactive by Design

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION
MANAGEMENT



To: Coastal Resources Management Council Permitting Staff
Mr. Rich Lucia
Ms. Amy Silva

From: Matthew Page, P.E. – GZA
Timothy Smith, P.E. – GZA

Date: August 14, 2026

File No: 03.0033884.02

Re: A2026-01-003 Repairs to Cliff Walk
Developed Alternative Plan

On behalf of the City of Newport, GZA has prepared the following design alternative for repairs to the Newport Cliff Walk between Station 3+75 and Station 4+25. These revised concepts were developed in response to the discussion and continuance granted during the CRMC public hearing on July 14, 2026.

During the July hearing, the Council determined that the City of Newport and landowner of the subject property (Ochre Point) must evaluate modifications to the design submitted on December 23, 2025. Specifically, the Council requested that the city reduce impacts below mean high water, with particular emphasis on the rock outcrop area identified as Section F.

On July 16, 2026, GZA and the City of Newport met with Robert Fairbanks P.E., the engineer representing the private property owners, to discuss alternative repair options for the area. Several alternatives were discussed and following the discussion GZA explored seven (7) design alternatives. These alternatives included:

1. Do-Nothing
2. Permanent Removal of the Private Pedestrian Bridge
3. Removal and Replacement of the Private Pedestrian Bridge with Improved Foundation
4. Underpinning of the Private Pedestrian Bridge with Limited Demolition
5. Removal of Bedrock to Facilitate Revetment Installation
6. Soil / Rock Nailing the Bedrock Interface with Shotcrete Overlay
7. Rock Bolting / Doweling the Bedrock Interface

GZA prepared an alternatives analysis presentation illustrating both the advantages and disadvantages of each option and shared this during a meeting with CRMC, the City of Newport, and Robert Fairbanks on August 5, 2026. During the meeting, CRMC staff agreed that Option 7 – Rock Doweling of the Bedrock Interface would be acceptable and raised no objections.

GZA subsequently prepared the attached revised permit drawings for review by CRMC staff. The City of Newport requests that CRMC proceed to re-issue Public Notice for the project to facilitate a follow up CRMC hearing as soon as practicable.

CC:
William Riccio, P.E.
William Boardman, P.E.
Robert Fairbanks, P.E.
Teresa Crean

Received

8/14/2026

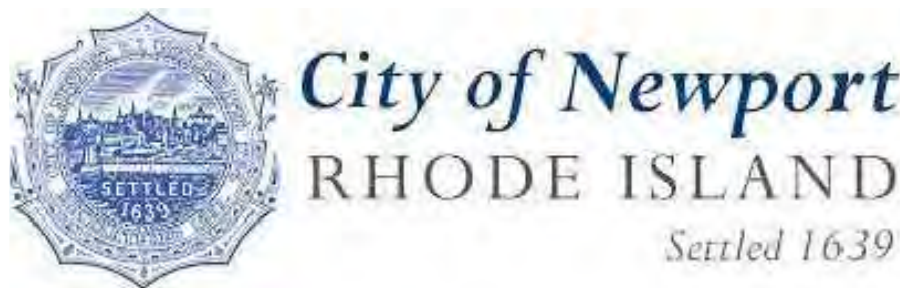
**Coastal Resources
Management Council**

NEWPORT CLIFF WALK REPAIR

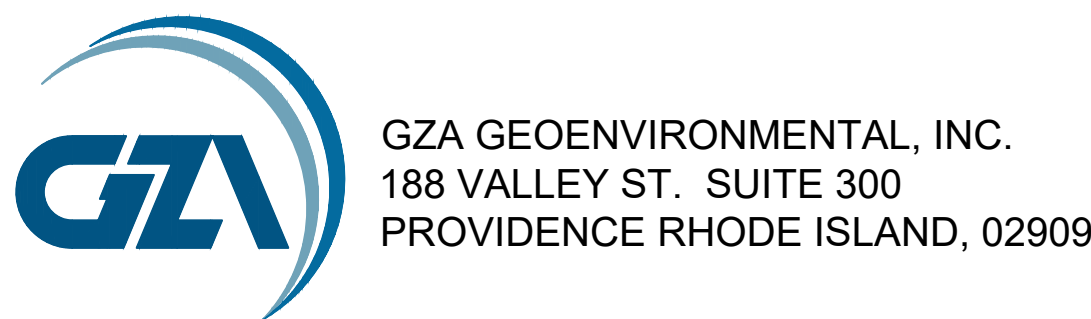
NEWPORT, RHODE ISLAND

AUGUST, 2026

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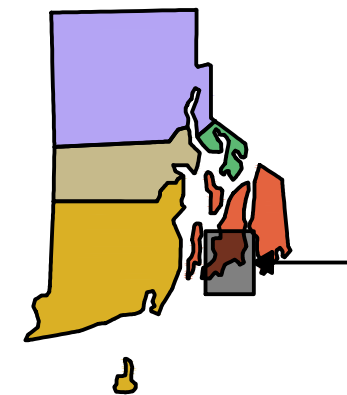
DESIGNED BY:



PROJECT LOCUS MAP

SOURCE: BASE MAP FROM THE FOLLOWING USGS QUADRANGLE MAP:
NEWPORT, RI (2021)
DIGITAL TOPOGRAPHIC MAPS PROVIDED BY USGSSTORE.GOV.
CONTOUR ELEVATIONS REFERENCE NAVD 88.
CONTOURS ARE SHOWN IN FEET AT 10 FOOT INTERVALS

RHODE ISLAND



PROJECT VICINITY MAP

AERIAL BASE MAP DEVELOPED FROM AN ELECTRONIC
IMAGE FILE PROVIDED BY MICROSOFT CORPORATION /
DIGITAL GLOBE / CNES DISTRIBUTION AIRBUS DC IN 2018.

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Received
8/14/2026
Coastal Resources
Management Council

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© 2025 - GZA GeoEnvironmental, Inc. GZA-J:\GEO\33884.01.TWS\CAD\CURRENT\PLANS\100% DESIGN_12-25\2_NOTES-LEGEND.DWG November 24, 2025 GARY BASTIEN

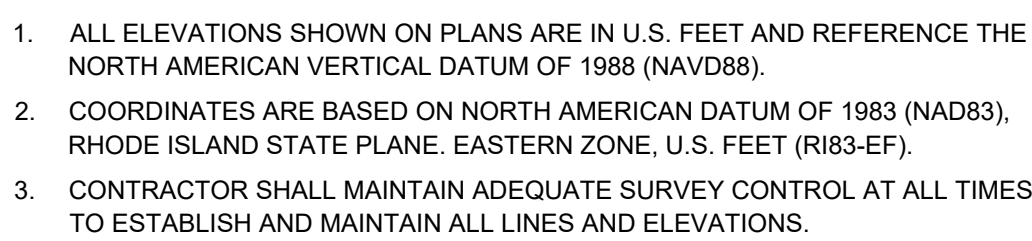
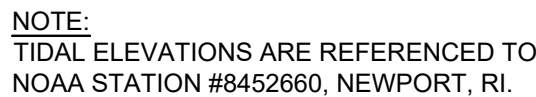
- GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY CONSTRUCTION FENCES AND BARRIERS AROUND THE CONTRACTOR WORK AREA. THE CONTRACTOR SHALL COORDINATE ACCESS AND BARRIERS WITH THE CITY OF NEWPORT AND OCHE POINT PROPERTY.
2. ALL EROSION CONTROL MEASURES SHALL BE PUT INTO PLACE PRIOR TO THE START OF CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL COMPLETION OF THE PROJECT. EROSION AND SEDIMENTATION CONTROLS SHALL BE INSPECTED AND MAINTAINED AFTER EACH RAIN EVENT AND REPLACED AS NECESSARY DURING PROJECT CONSTRUCTION.
3. DEBRIS AND OIL ABSORBENT TURBIDITY BOOMS SHALL BE PLACED AROUND THE LIMIT OF WORK. DEBRIS SHALL BE REMOVED DAILY.
4. TEMPORARY CONTROLS SHALL BE INSTALLED, AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH PERMIT REQUIREMENTS AND SECTION 01 57 00- TEMPORARY CONTROLS. PRIOR TO THE START OF WORK AND BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. STANDARD DUST CONTROL MEASURES, INCLUDING THE USE OF WATER MIST AND OTHER SUITABLE METHODS TO LIMIT THE SPREAD OF DUST SHALL BE USED. AS NECESSARY, TO COMPLY WITH GOVERNING ENVIRONMENTAL PROTECTION REGULATIONS. DO NOT USE WATER WHERE IT MAY CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS SUCH AS ICE, FLOODING, AND POLLUTION. CALCIUM CHLORIDE SHALL NOT BE ALLOWED IN ANY ARE IN THE OCHE POINT YARD. DUST CONTROL SHALL BE PERFORMED USING WATER ONLY.
6. ALL MATERIAL REMOVED AND NOT REUSED SHALL BECOME THE PROPERTY OF THE OWNER AND SHALL BE REMOVED DAILY FROM THE SITE OR PROPERLY STORED AT AN APPROVED LOCATION ON SITE. REMOVED MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.
7. STOCKPILE ALL REMOVED SOIL ON SITE OR AT A LOCATION DIRECTED BY THE OWNER FOR RE-USE.

1. THE CONTRACTOR MUST SUBMIT A WATER AND SEDIMENT CONTROL PLAN IN ACCORDANCE WITH STATE REGULATIONS AND PROJECT PERMIT. THE PLAN SHALL BE PREPARED AND STAMPED BY A LICENSED RHODE ISLAND PROFESSIONAL ENGINEER, FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. THE PLAN MUST INCLUDE DEWATERING MEASURES FOR EXCAVATED SEDIMENT.

1. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WORK WITH OTHER CONTRACTORS WORKING AT THE SITE.
2. TO THE FULLEST EXTENT PRACTICAL, EXCEPT AS PROVIDED IN THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL NOT INTERFERE WITH ACCESS TO THE SURROUNDING AREA.
3. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE APPROPRIATE UTILITY COMPANY REPRESENTATIVES AND CITY OF NEWPORT AND OCHRE POINT PROPERTY.

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE LEGAL DISPOSAL OF ALL MATERIALS. NO MATERIAL IS TO BE DEPOSITED INTO THE SURROUNDING WATERS.
2. DISPOSAL OF ALL WASTE MATERIAL SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND CONSISTENT WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
3. PRIOR TO DISPOSAL, THE OWNER SHALL APPROVE ALL DISPOSAL SITES.



LEGEND

	BENCHMARK / CONTROL POINT (CP)
	PROPERTY LINE
	EXISTING CONTOURS (MAJOR)
	EXISTING CONTOURS (MINOR)
	FILTREXX (R) SILT SOXX (OR EQUAL)
	LIMIT OF WORK
	TEMPORARY FENCE LINE
	EXISTING GATES
	NEW GATES
	EXISTING STRUCTURES
	JERSEY BARRIER
	JERSEY BARRIER WITH FENCE

	EXISTING OVERHEAD WIRES
	EXISTING WATER LINE
	ABOVE GROUND FORCE MAIN
	EXISTING ELECTRICAL LINE
	EXISTING GAS LINE
	EXISTING TELECOMMUNICATIONS
	ABANDONED WATER LINE
	EXISTING WATER MANHOLE
	EXISTING ELECTRICAL MANHOLE
	EXISTING UTILITY MANHOLE
	EXISTING TELEPHONE MANHOLE
	EXISTING STORMWATER MANHOLE
	EXISTING UTILITY POLE
	EXISTING HYDRANT
	EXISTING LIGHT POST
	EXISTING STORMWATER CURB INLET / CATCH BASIN

DIA.	DIAMETER
C.I.	CAST IRON
D.I.	DUCTILE IRON
EL.	ELEVATION
HASP	HEALTH AND SAFETY PLAN
HDPE	HIGH-DENSITY POLYETHYLENE
INV.	INVERT
MHHW	MEAN HIGH, HIGH WATER
MHW	MEAN HIGH WATER
MIN.	MINIMUM
MLLW	MEAN LOW, LOW WATER
MLW	MEAN LOW WATER
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OHW	OVERHEAD WIRES
PCP	PRE-CAST PIPE
STA.	STATION
TYP.	TYPICAL
N / F	NON OR FORMERLY
APRX	APPROXIMATE

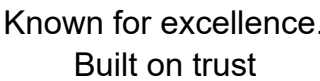
The diagram illustrates the relationship between a section and a detail in architectural drawing. It is divided into two main parts: SECTION and DETAIL.

SECTION:

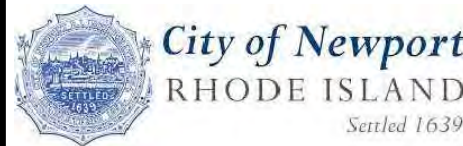
- A central circle is labeled **A** at the top and contains the text **S-1** and **S-5** separated by a vertical line.
- Two arrows point from this circle to two rectangular boxes representing sheets.
- The left box is labeled **SHEET WHERE THE SECTION IS CUT**.
- The right box is labeled **SHEET WHERE THE SECTION VIEW IS LOCATED**.
- Below the circle, the text **SCALE: 1" = 2'** is written.

DETAIL:

- A central circle is labeled **1** at the top and contains the text **S-2** and **S-4** separated by a vertical line.
- Two arrows point from this circle to two rectangular boxes representing sheets.
- The left box is labeled **SHEET WHERE THE DETAIL IS CUT**.
- The right box is labeled **SHEET WHERE THE DETAIL VIEW IS LOCATED**.
- Below the circle, the text **SCALE: 1" = 2'** is written.



PREPARED FOR:



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REV	DESCRIPTION	DATE	B

PROJECT NO:	33884.01
DATE:	DECEMBER, 2025
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

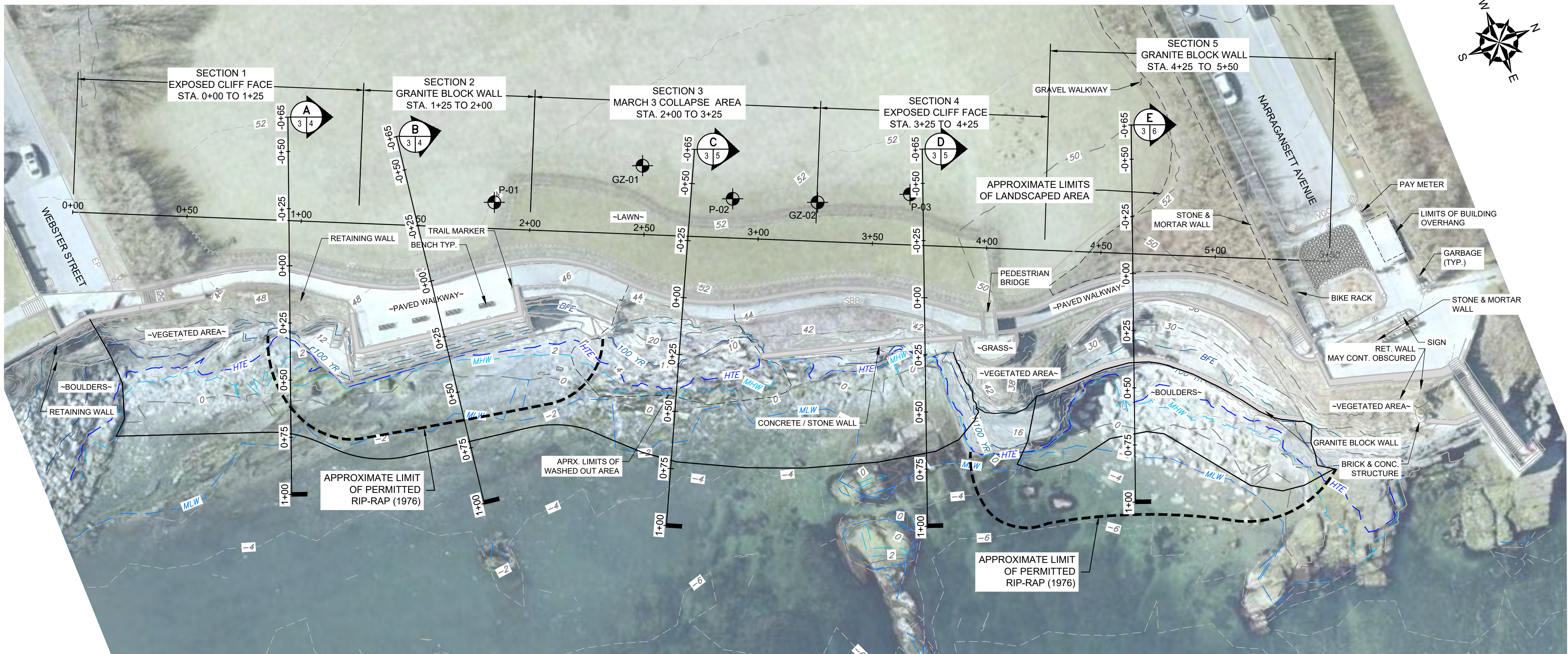
GENERAL NOTES AND LEGENDS

DRAWING

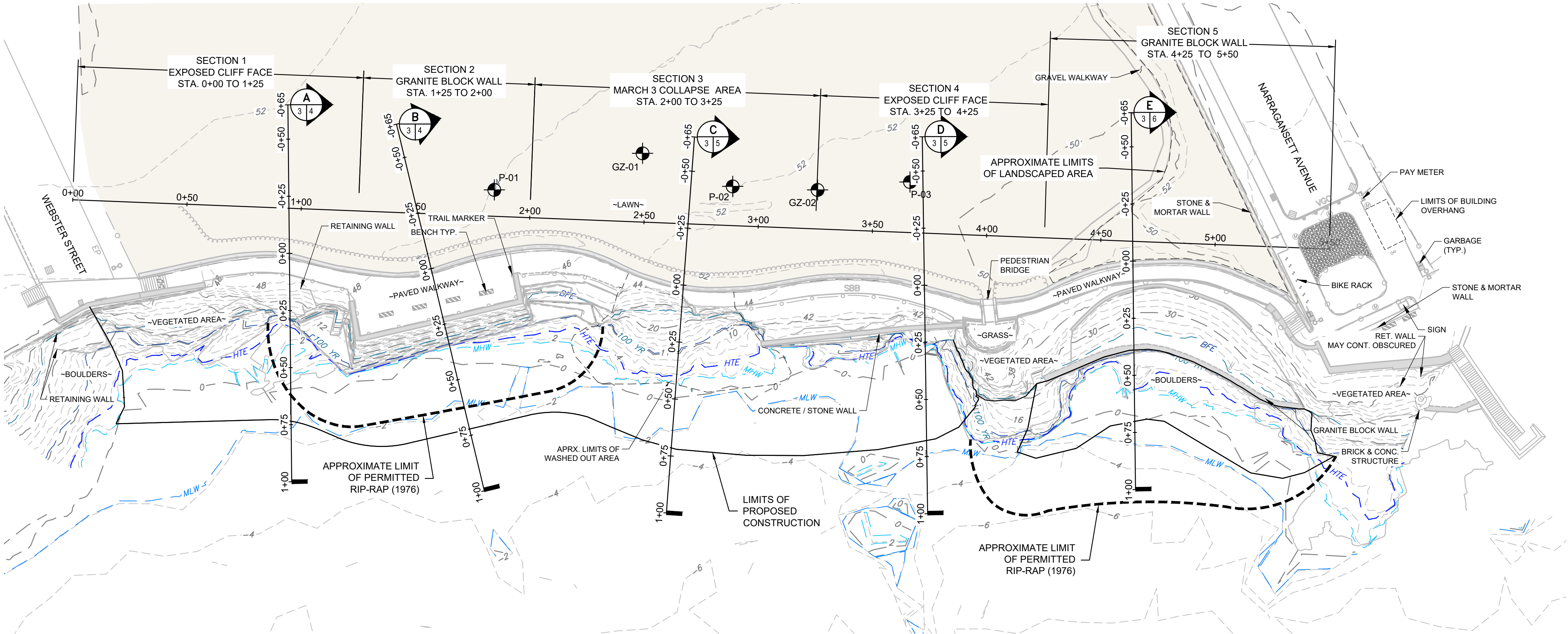
2

SHEET NO. 2 OF 21

© 2026 - GZA GeoEnvironmental, Inc. GZA--\\GEO\33884.01\TWS\GAD\CURRENT\PLANS\100% DESIGN\12-25\3_EXISTING CONDITIONS PLANDWG 3_EXISTING CONDITIONS PLAN February 17, 2026 GARY BASTIEN



AERIAL SITE PLAN



EXISTING CONDITIONS PLAN
SCALE: 1"=30'

NOTES

1. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAMMETRY DATA AND ELECTRONIC DRAWING FILE "7318A 2022-06-02" PREPARED BY DOUCET LAND SURVEYORS AND PROVIDED TO GZA.
2. ALL ELEVATIONS REFERENCE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).

LEGEND

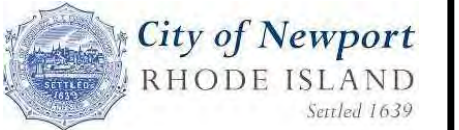
- INDICATES BORINGS/PROBES PERFORMED BY NEW ENGLAND BORING AND OBSERVED BY GZA PERSONNEL.
- RETAINING WALL
- CHAIN LINK FENCE
- HANDRAIL
- SHRUB LINE
- MAJOR CONTOUR 10 FOOT INTERVAL
- MINOR CONTOUR 2 FOOT INTERVAL
- TOPSOIL BEHIND WALL

DESCRIPTION	ELEVATION	CONTOUR
FEMA BASE FLOOD ELEVATION	25.00	BFE
100 YEAR STILL WATER	10.60	100 YR
HIGH TIDE ELEVATION	3.15	HTE
MEAN HIGH WATER	1.57	MHW
MEAN LOW WATER	-1.90	MLW

0 15' 30' 60' 90'
SCALE IN FEET 1" = 30'



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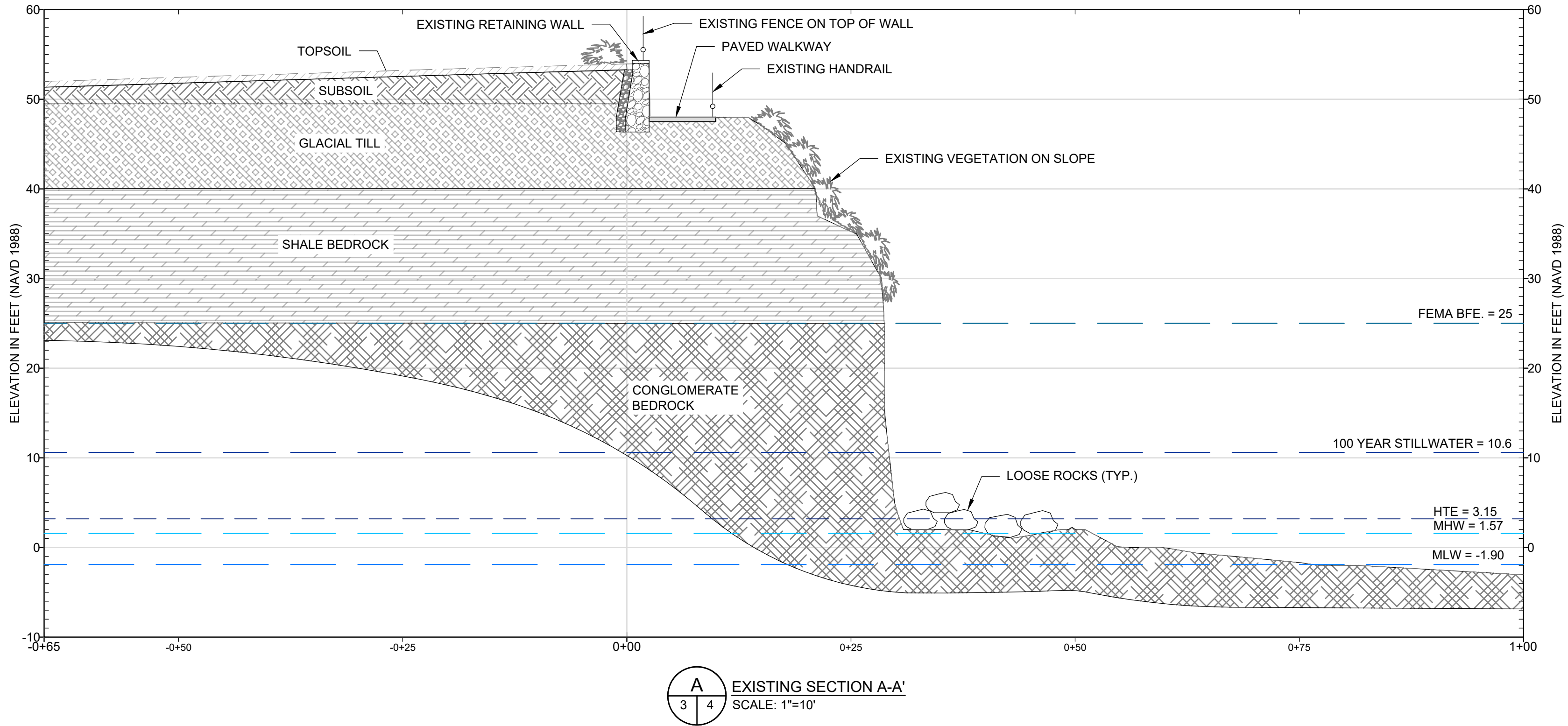
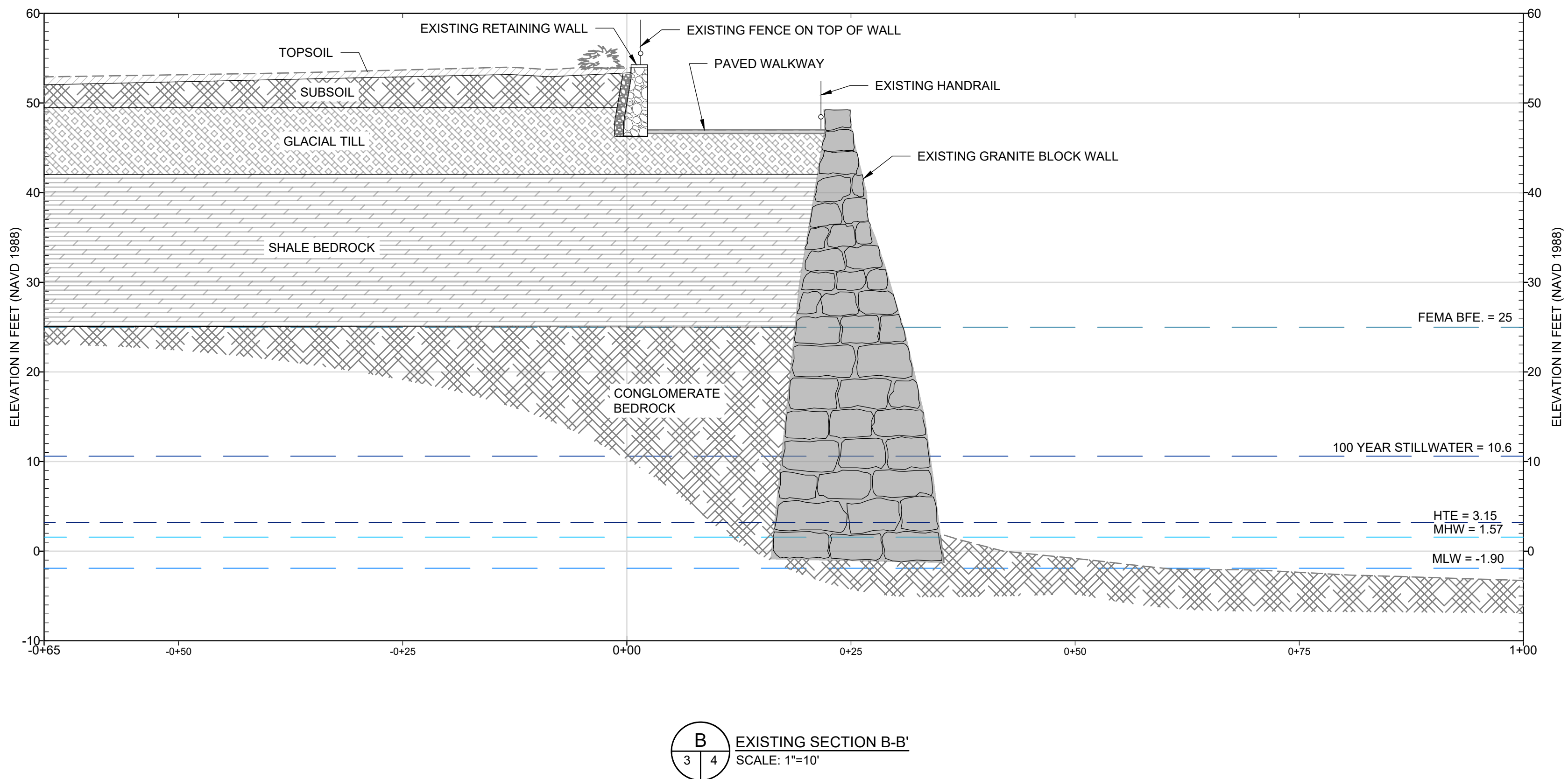
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DATE:	FEBRUARY, 2026
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

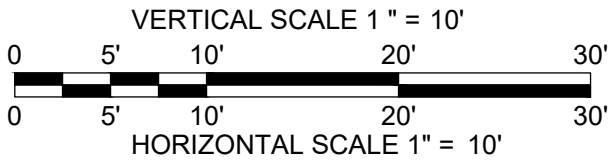
EXISTING CONDITIONS PLAN

DRAWING
3
SHEET NO. 3 OF 21

© 2025 - GZA GeoEnvironmental, Inc. GZA--A\GEO\33884.01.TWS\GAD\CURRENT\PLANS\100% DESIGN\12-25\4_EXISTING CONDITIONS SECTIONS A-A' AND B-B'.DWG 4_EXISTING CONDITIONS SECTIONS A-A' AND B-B'. November 25, 2025 GARY BASTEN



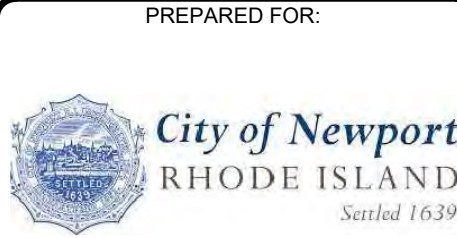
- NOTE:
1. LIMITS OF SLOPE MAY VARY. CONTRACTOR SHALL VERIFY IN FIELD. DRAWINGS ARE FOR ILLUSTRATIVE PURPOSES ONLY.
 2. SUBSURFACE LAYERING IS APPROXIMATE BASED ON INTERPOLATION FROM NEARBY BORINGS AND VISUAL OBSERVATIONS. VERIFY IN FIELD



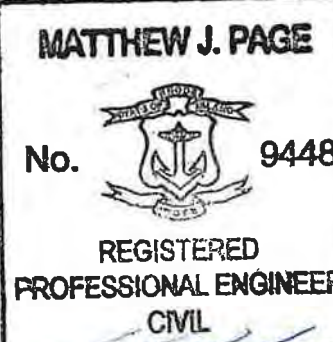
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8/14/2026
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REV	DESCRIPTION	DATE	BY

PROJECT NO: 33884.01
DATE: DECEMBER, 2025
PROJECT MGR: TWS
DESIGNED BY: SAB
DRAWN BY: GRB
CHECKED BY: TWS
REVIEWED BY: MJP
SCALE: AS NOTED
REVISION NO.

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

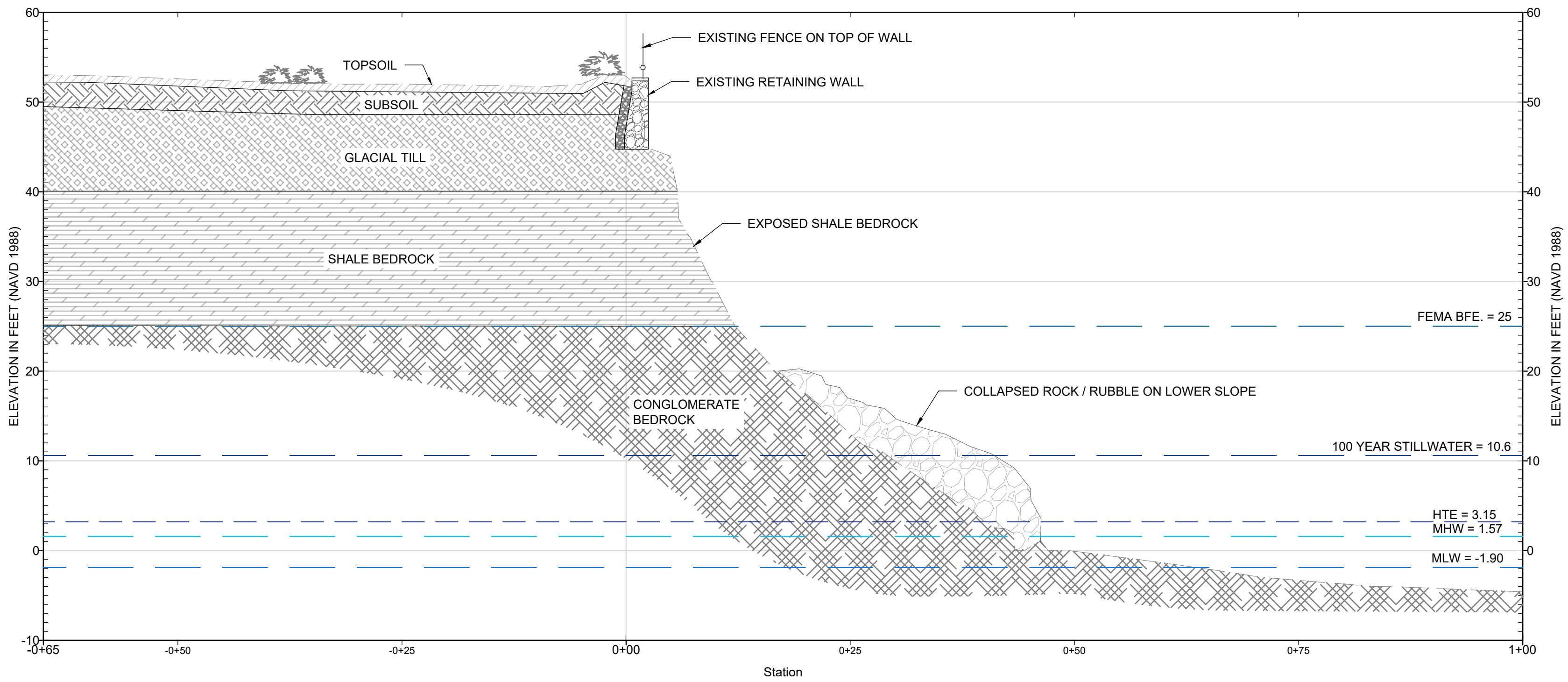
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(SHEET 1 OF 3)

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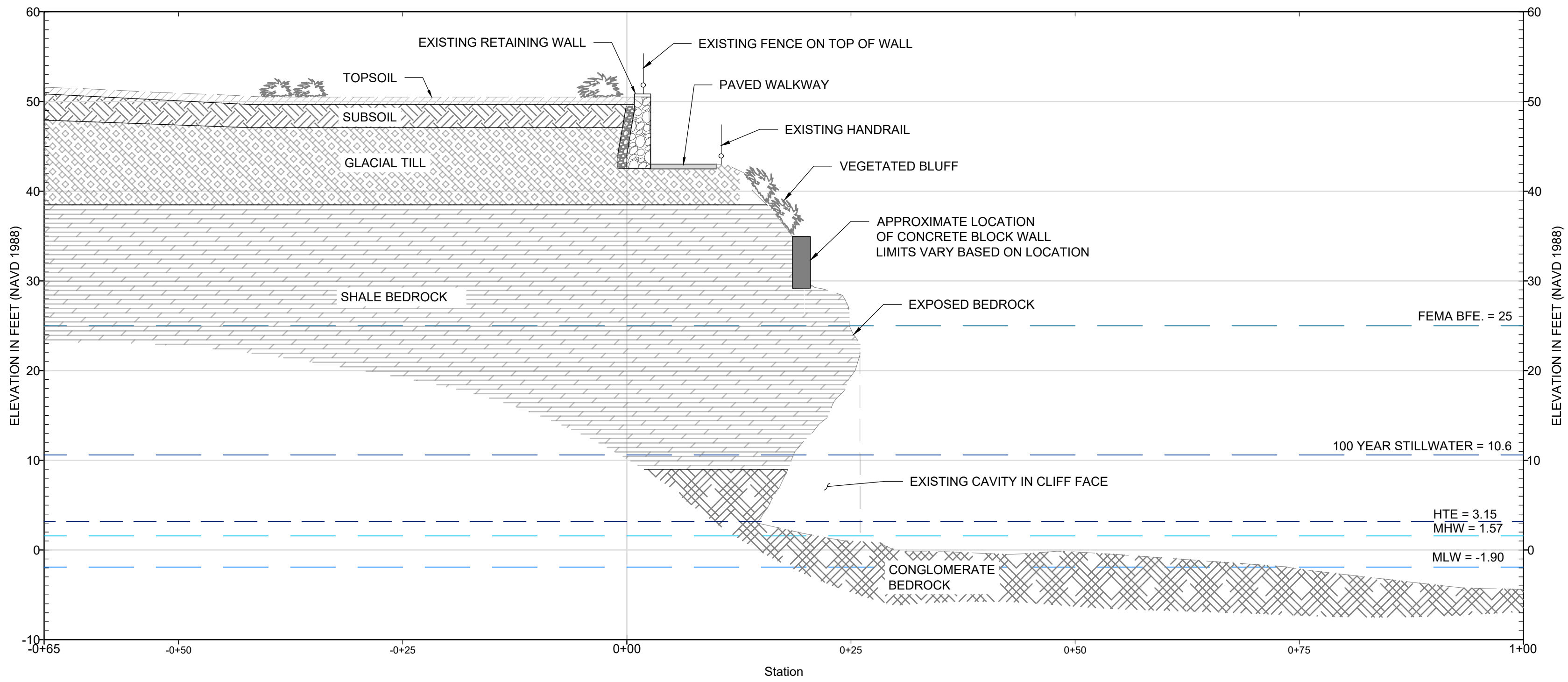
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SHEET NO. 4 OF 21

© 2025 - GZA GeoEnvironmental, Inc. GZA-1\GEO\33884.01\TWS\GAD\CURRENT\PLANS\100% DESIGN\12-25\5-EXISTING CONDITIONS SECTIONS C-C' AND D-D'.DWG 5-EXISTING CONDITIONS SECTIONS C-C' AND D-D'. November 25, 2025 GARY BASTIEN



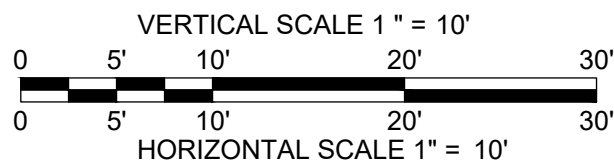
C
3 5
EXISTING SECTION C-C'
SCALE: 1"=10'



D
3 5
EXISTING SECTION D-D'
SCALE: 1"=10'

NOTE:

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2. SUBSURFACE LAYERING IS APPROXIMATE BASED ON INTERPOLATION FROM NEARBY BORINGS AND VISUAL OBSERVATIONS. VERIFY IN FIELD

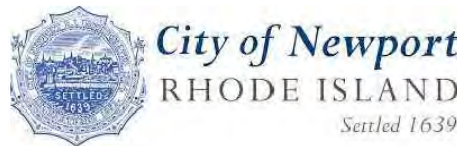


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MATTHEW J. PAGE

No. 9448

REGISTERED
PROFESSIONAL ENGINEER
CIVIL

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PROJECT NO: 33884.01
DATE: DECEMBER, 2025
PROJECT MGR: TWS
DESIGNED BY: SAB
DRAWN BY: GRB
CHECKED BY: TWS
REVIEWED BY: MJP
SCALE: AS NOTED
REVISION NO.

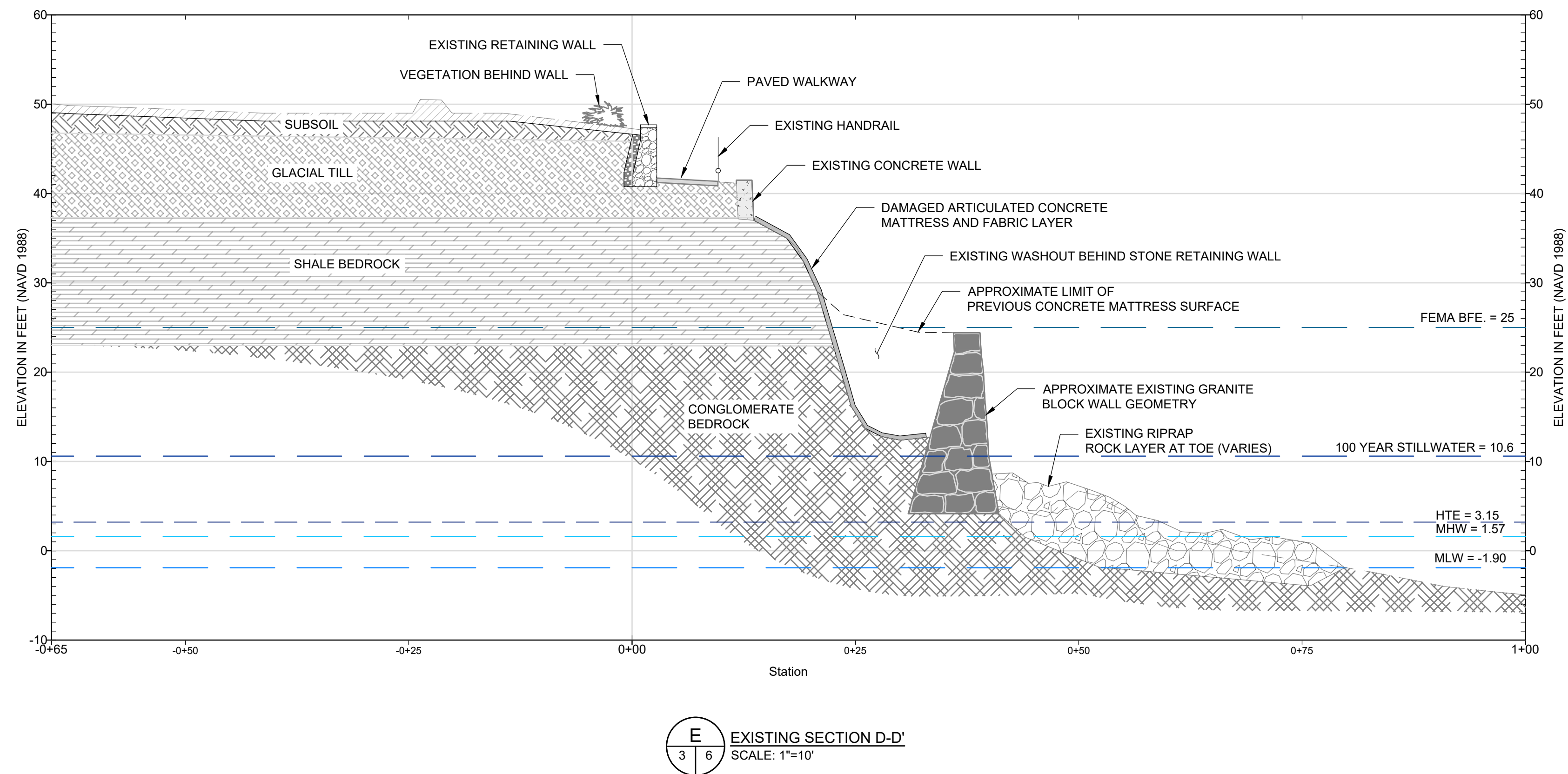
NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

EXISTING CONDITIONS SECTIONS
(SHEET 2 OF 3)

DRAWING

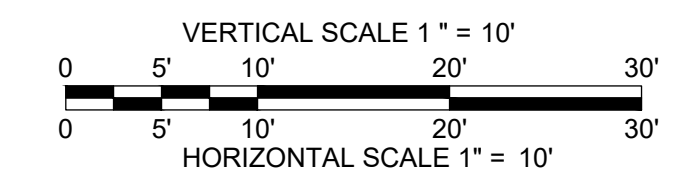
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SHEET NO. 5 OF 21



NOTE:

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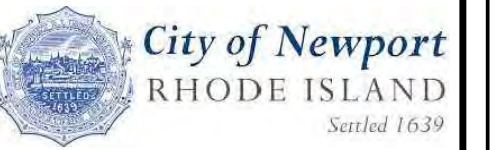


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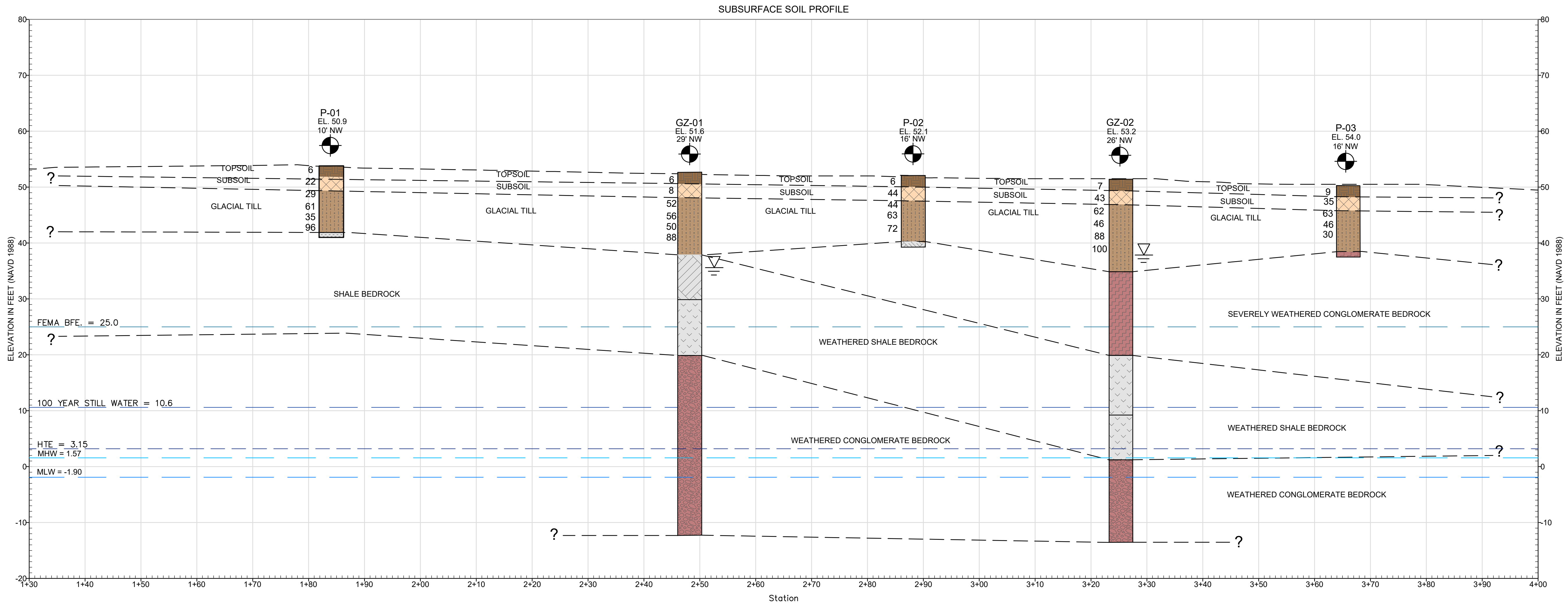
PROJECT NO:	33884.01
DATE:	DECEMBER, 2025
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NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

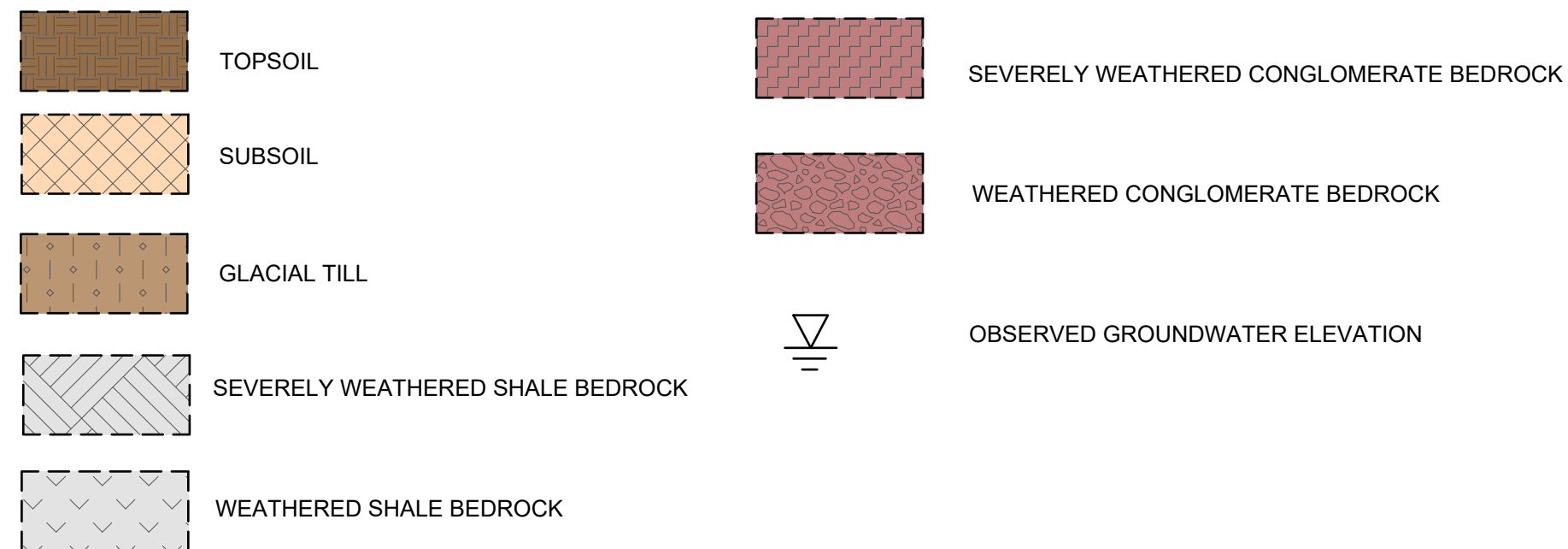
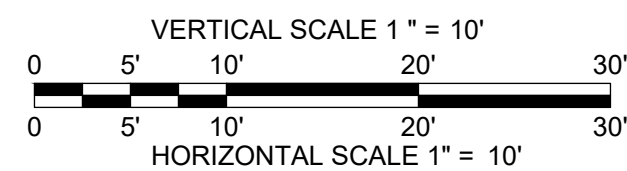
**EXISTING CONDITIONS SECTIONS
(SHEET 3 OF 3)**

DRAWING
6
SHEET NO. 6 OF 21

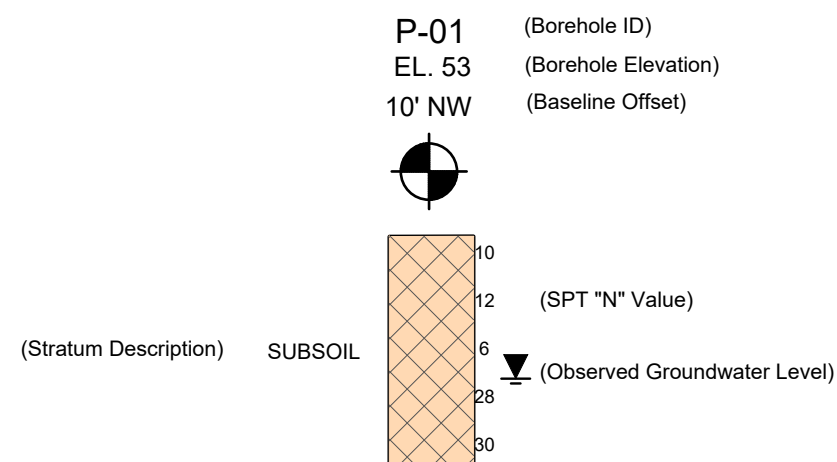
© 2025 - GZA GeoEnvironmental, Inc. GZA-I:\GEO\33884.01\TWS\CAD\CURRENT\PLANS\100% DESIGN\12-25\7_SUBSURFACE SOIL PROFILE November 24, 2025 GARY BASTIEN



LEGEND



BOREHOLE LEGEND



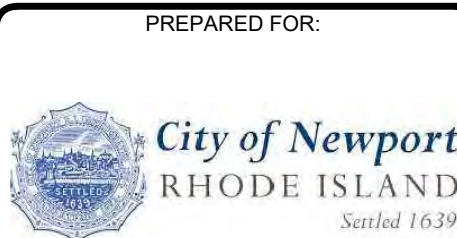
NOTES

- STRATIFICATION LINES ARE INTERPOLATIONS BASED ON WIDELY SPACED BORING LOCATIONS AND THUS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES. ACTUAL TRANSITIONS MAY VARY FROM THOSE SHOWN.
- REFER TO DRAWING C-1 FOR BORING LOCATIONS.

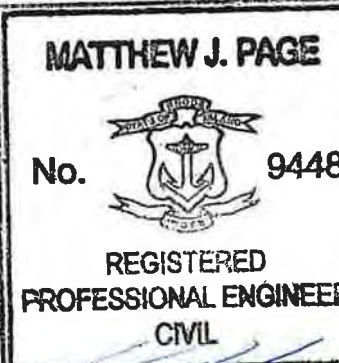
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8/14/2026
Coastal Resources
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REV	DESCRIPTION	DATE	BY

PROJECT NO:	33884.01
DATE:	DECEMBER, 2025
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

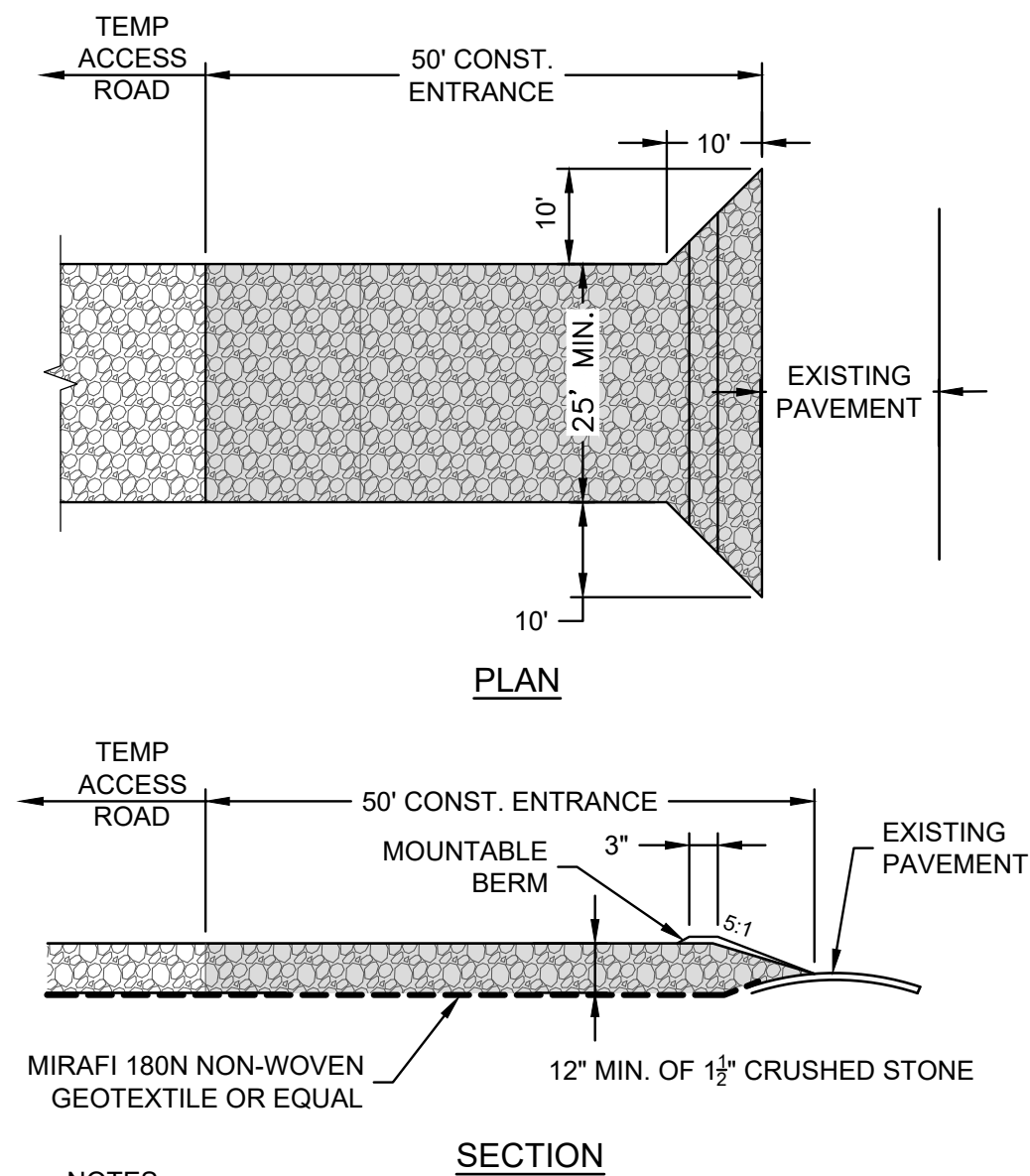
NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

SUBSURFACE EXPLORATION PROFILES

DRAWING

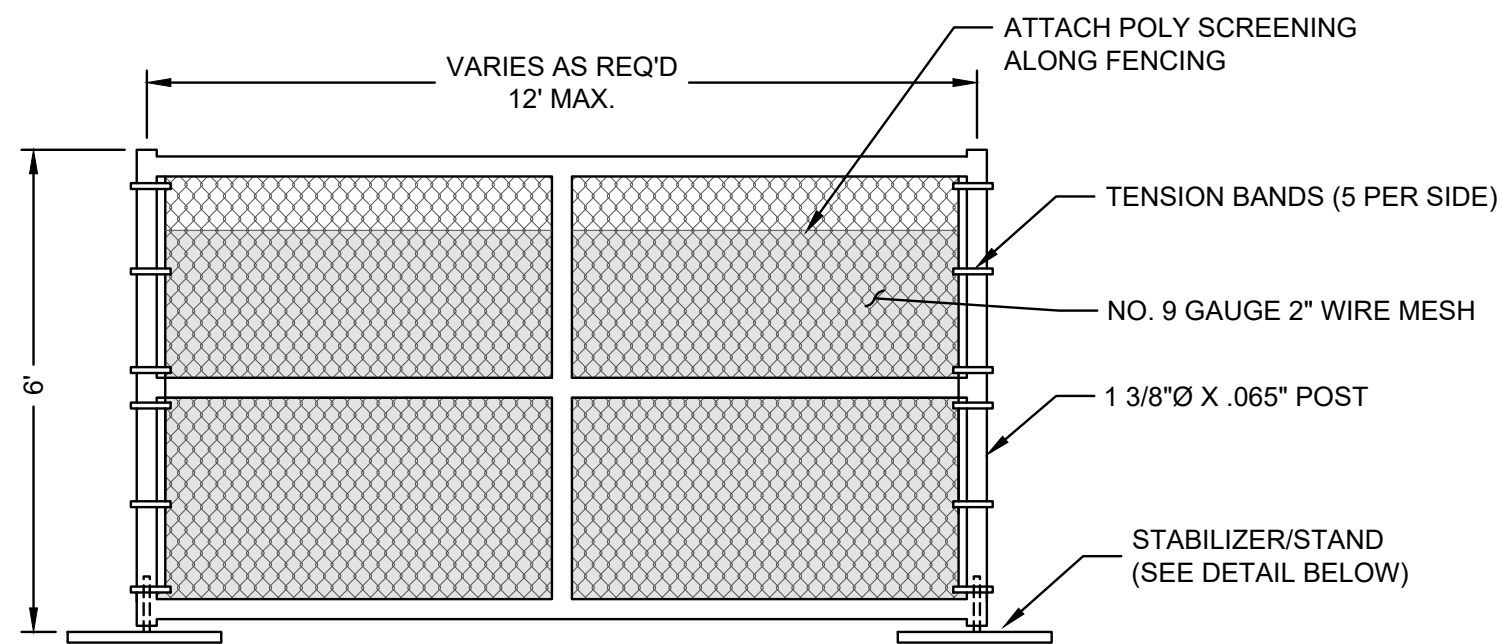
7

SHEET NO. 7 OF 21



- NOTES:
- ENTRANCE WIDTH SHALL BE TWENTY-FIVE (25) FEET MINIMUM.
 - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING AND ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
 - PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED BY CONTRACTOR.

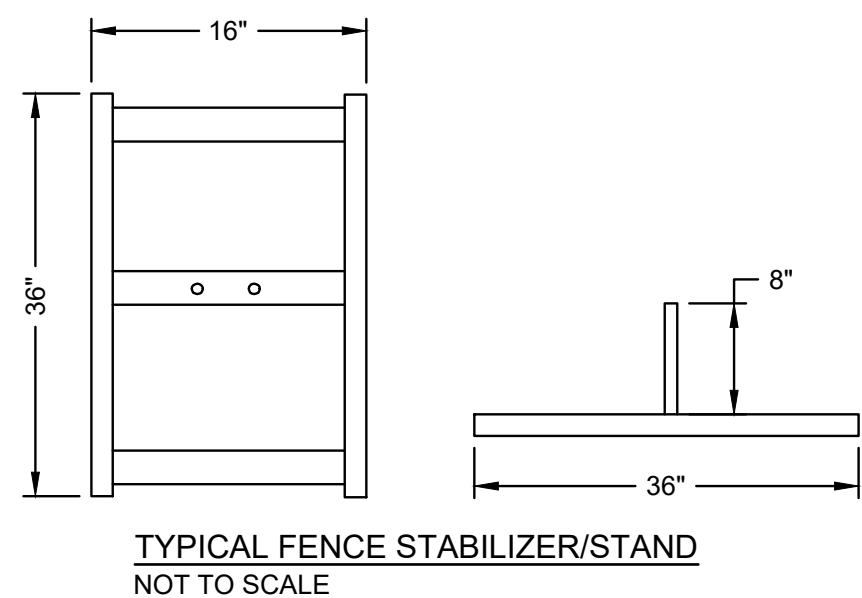
1 TEMPORARY CONSTRUCTION ENTRANCE / EXIT / WHEEL WASH STATION AND TEMPORARY ACCESS ROAD
NOT TO SCALE



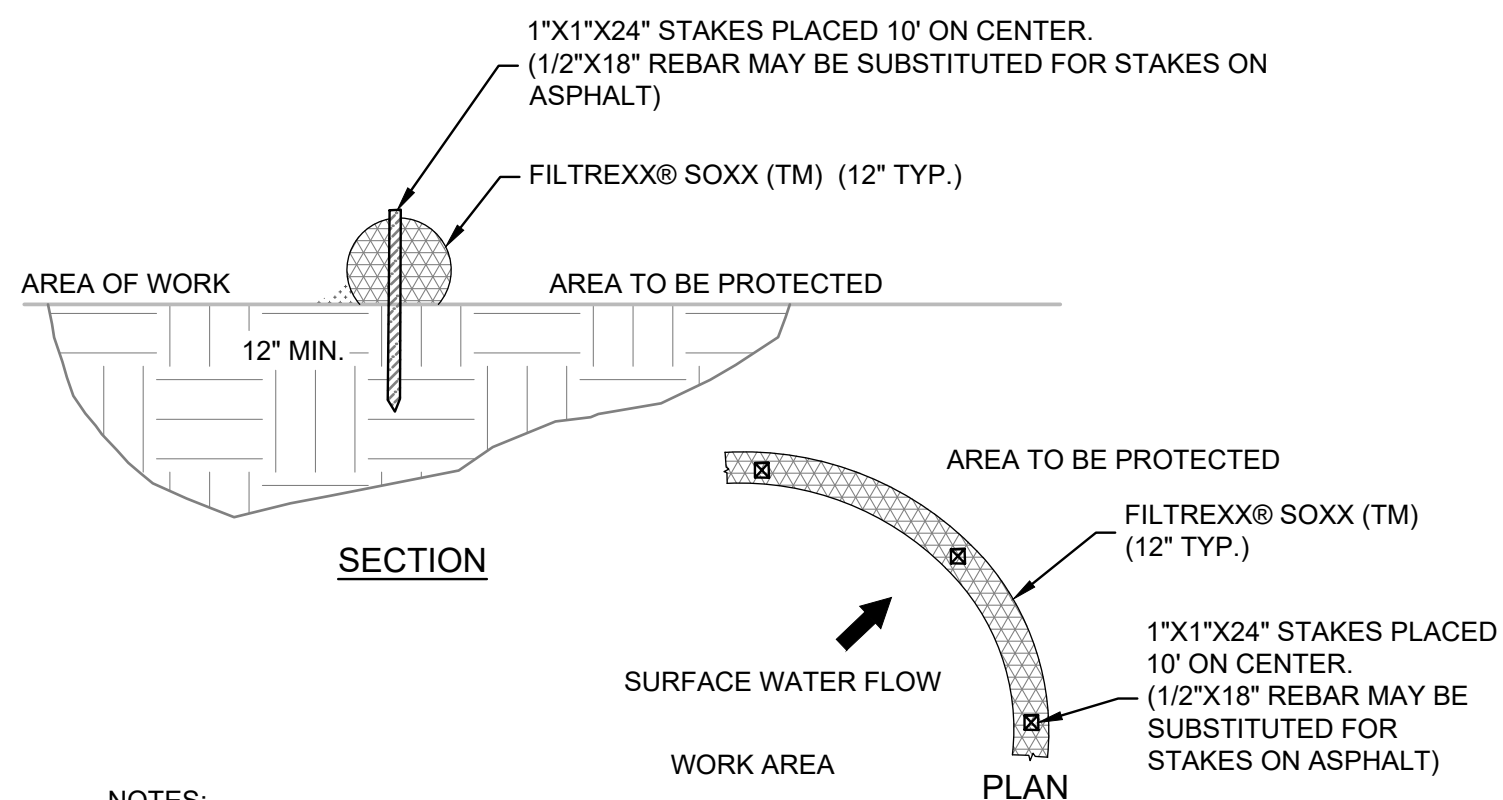
TEMPORARY CONSTRUCTION FENCING NOTES:

- FENCES SHALL BE CONSTRUCTED WITH A TOP AND BOTTOM RAIL.
- GATES MUST REMAIN IN GOOD WORKING ORDER AND MUST BE CLOSED AND SECURED DURING NON-WORKING HOURS.
- GATES SHALL BE CONSTRUCTED SO THAT THEY SWING IN TOWARDS THE CONSTRUCTION SITE.
- GATES MUST BE CONSTRUCTED WITH THE SAME DESIGN CHARACTERISTICS AS THE TEMPORARY CONSTRUCTION FENCE.
- FABRIC SHALL BE ANCHORED IN EACH GROMMET WITH ALUMINUM TIES.

6 TYPICAL TEMPORARY CONSTRUCTION FENCE PANEL
NOT TO SCALE



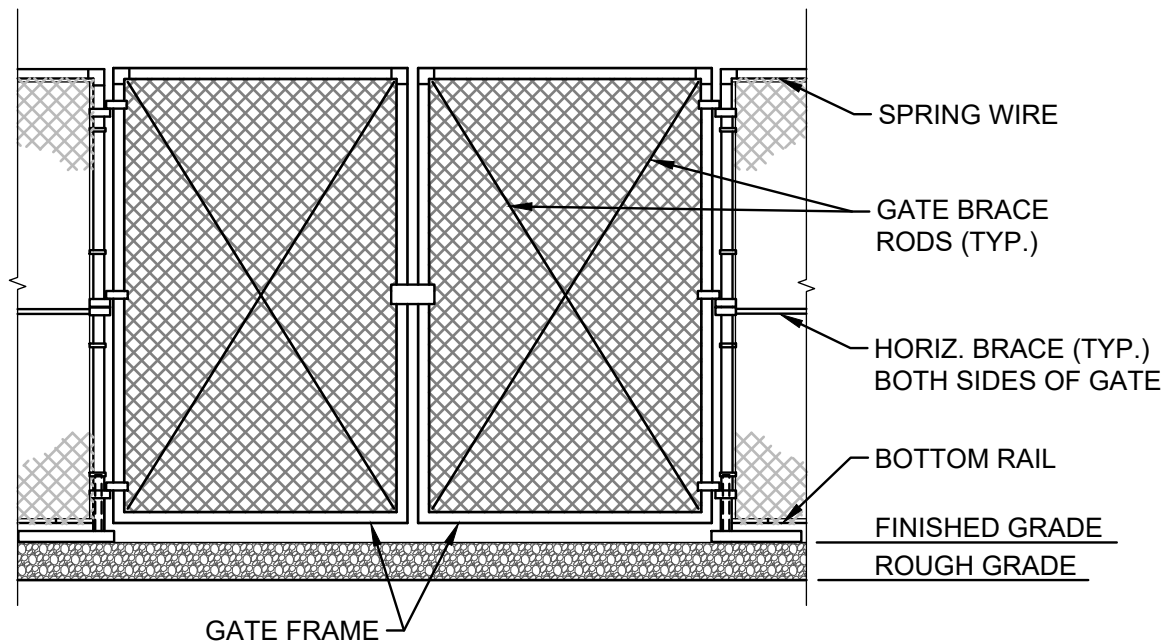
TYPICAL FENCE STABILIZER/STAND
NOT TO SCALE



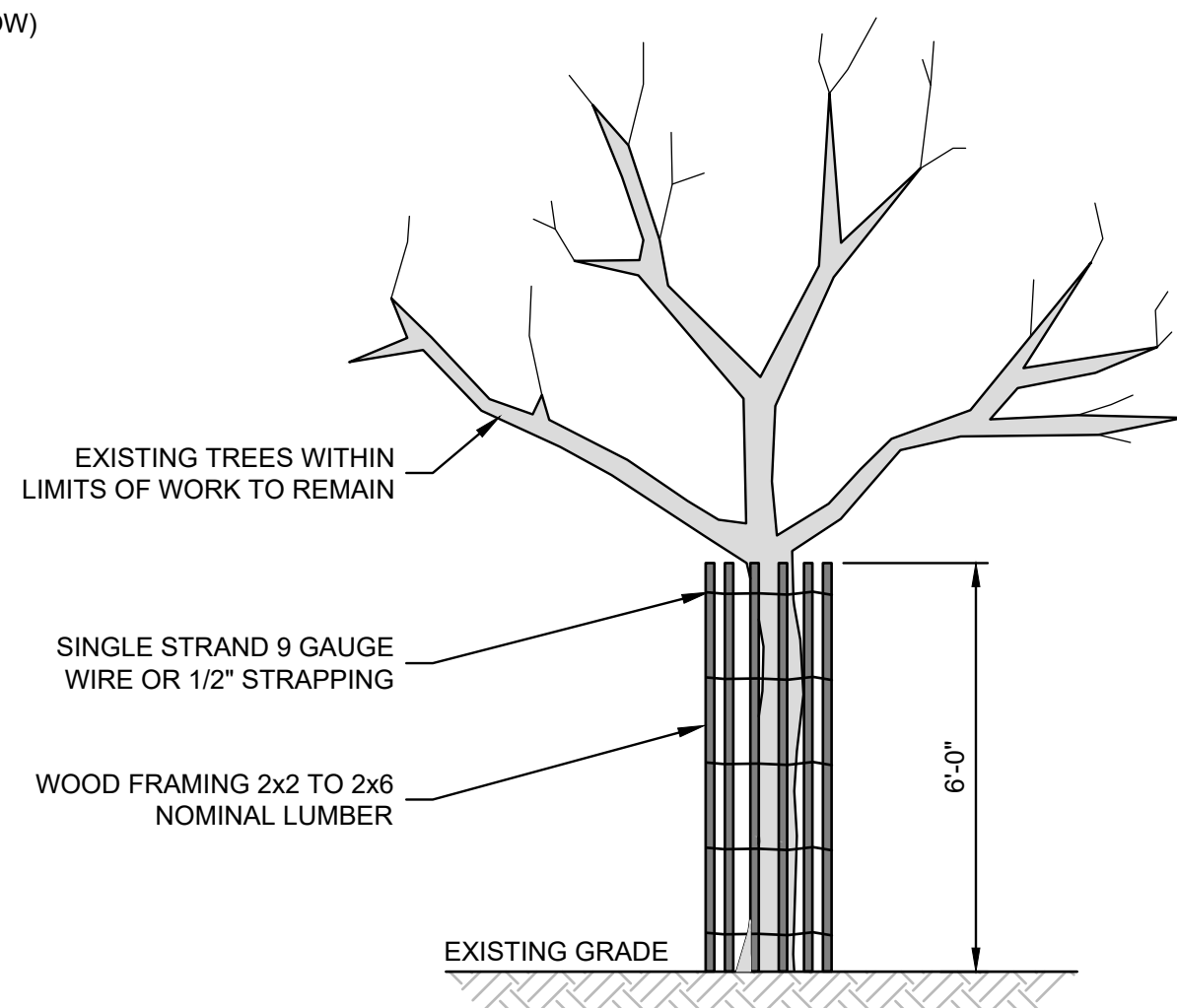
NOTES:

- ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
- STAKES/REBAR PINS SHALL HAVE PROTECTIVE CAPS INSTALLED TO PREVENT FALL INJURY.

2 FILTREXX® SOXX SEDIMENT CONTROL DETAIL
NOT TO SCALE

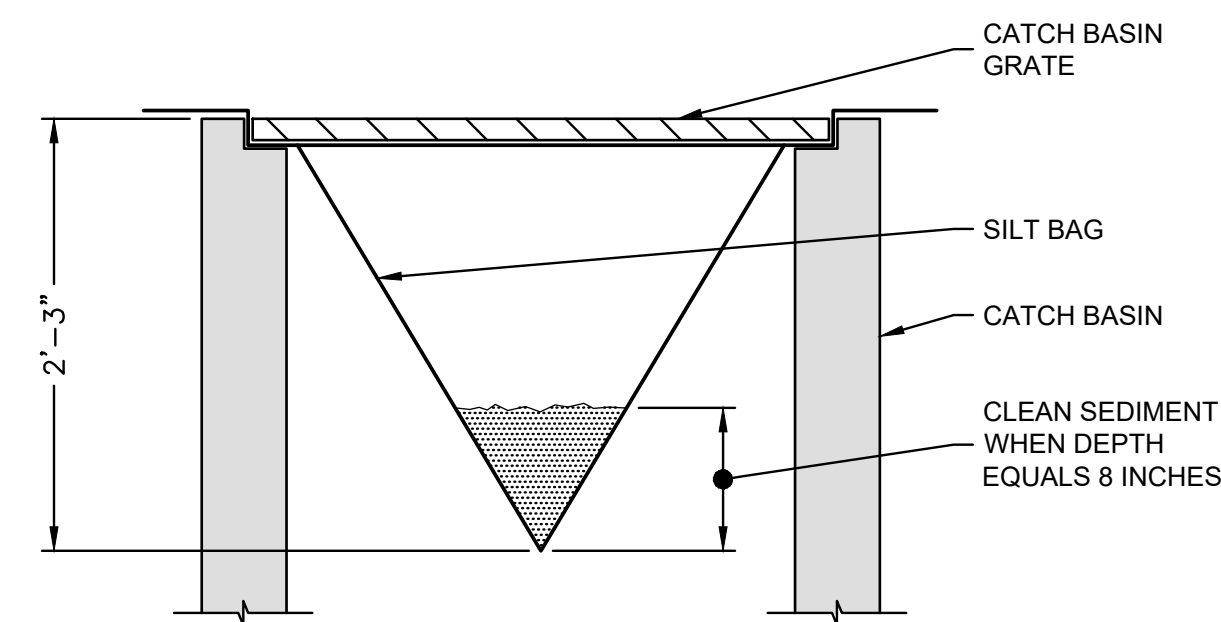


5 TYPICAL TEMPORARY CONSTRUCTION DOUBLE SWING GATE
NOT TO SCALE



NOTE:
THIS DETAIL SHALL BE USED TO PROTECT THE TREE'S TRUNK IN SITUATION WHERE CONSTRUCTION IS WITHIN CLOSE PROXIMITY, OR OTHERWISE NOTED HEREIN AS PROTECTED TREE

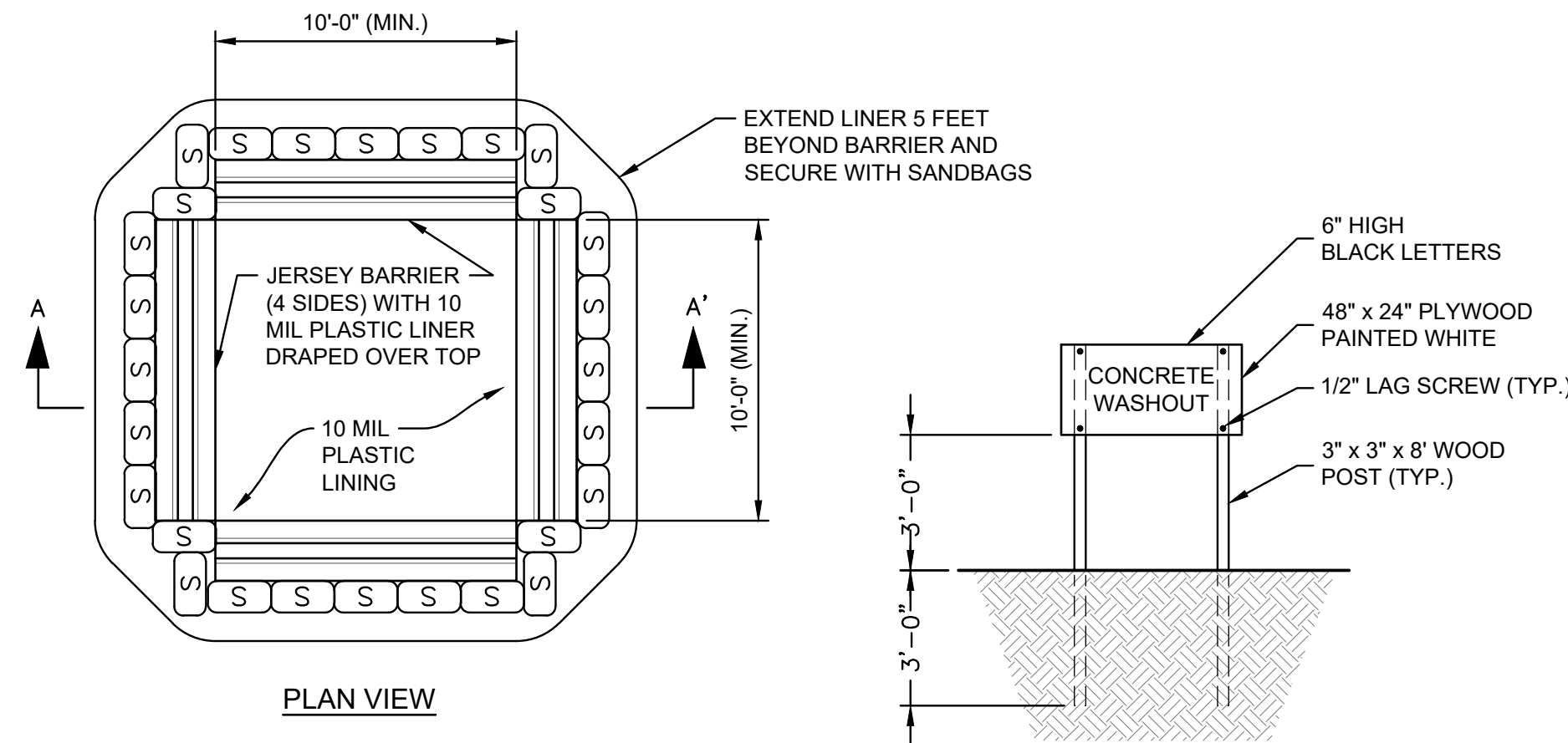
7 TREE PROTECTION DEVICE
NOT TO SCALE



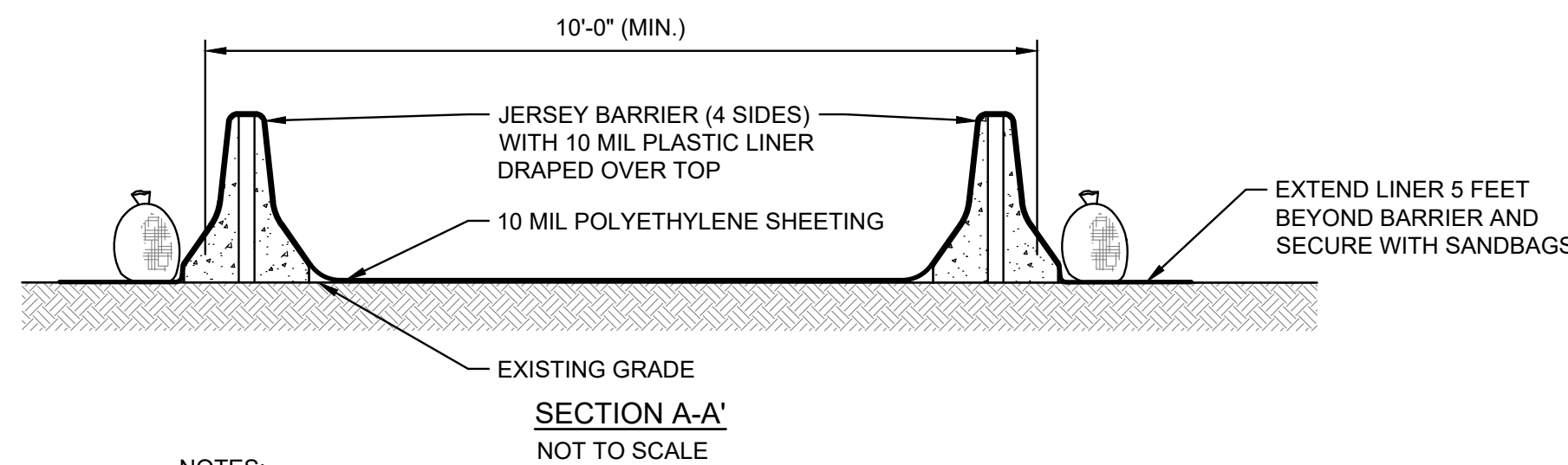
NOTES:

- SEDIMENT BAG INLET PROTECTION TO BE SILT SACK MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS INC. RICHMOND, VA OR APPROVED EQUAL.
- STORM WATER CATCH BASINS OR DRAINS SHALL BE PROTECTED FROM MATERIALS RUN-OFF. CONTRACTOR SHALL INSTALL SILT SACKS WITHIN EACH CATCH BASIN IN THE VICINITY OF ANY WORK AREAS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL USE ALL BMP'S NECESSARY TO PROTECT THESE INLETS FROM SEDIMENT AND DEBRIS.

3 SILT SACK DETAIL
NOT TO SCALE



CONCRETE WASHOUT SIGN DETAIL
(OR EQUIVALENT)



NOTES:

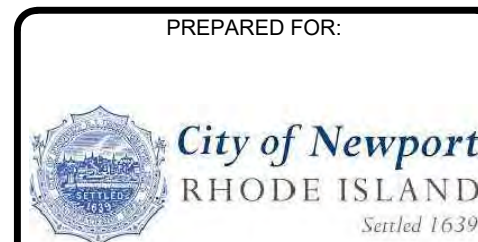
- SUMPS TO BE CLEANED AND WASTE CONCRETE AND WATER REMOVED AND PROPERLY DISPOSED OF UPON COMPLETION OF WORK.

8 CONCRETE WASHOUT AREA
NOT TO SCALE

Received
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REV	DESCRIPTION	DATE	BY

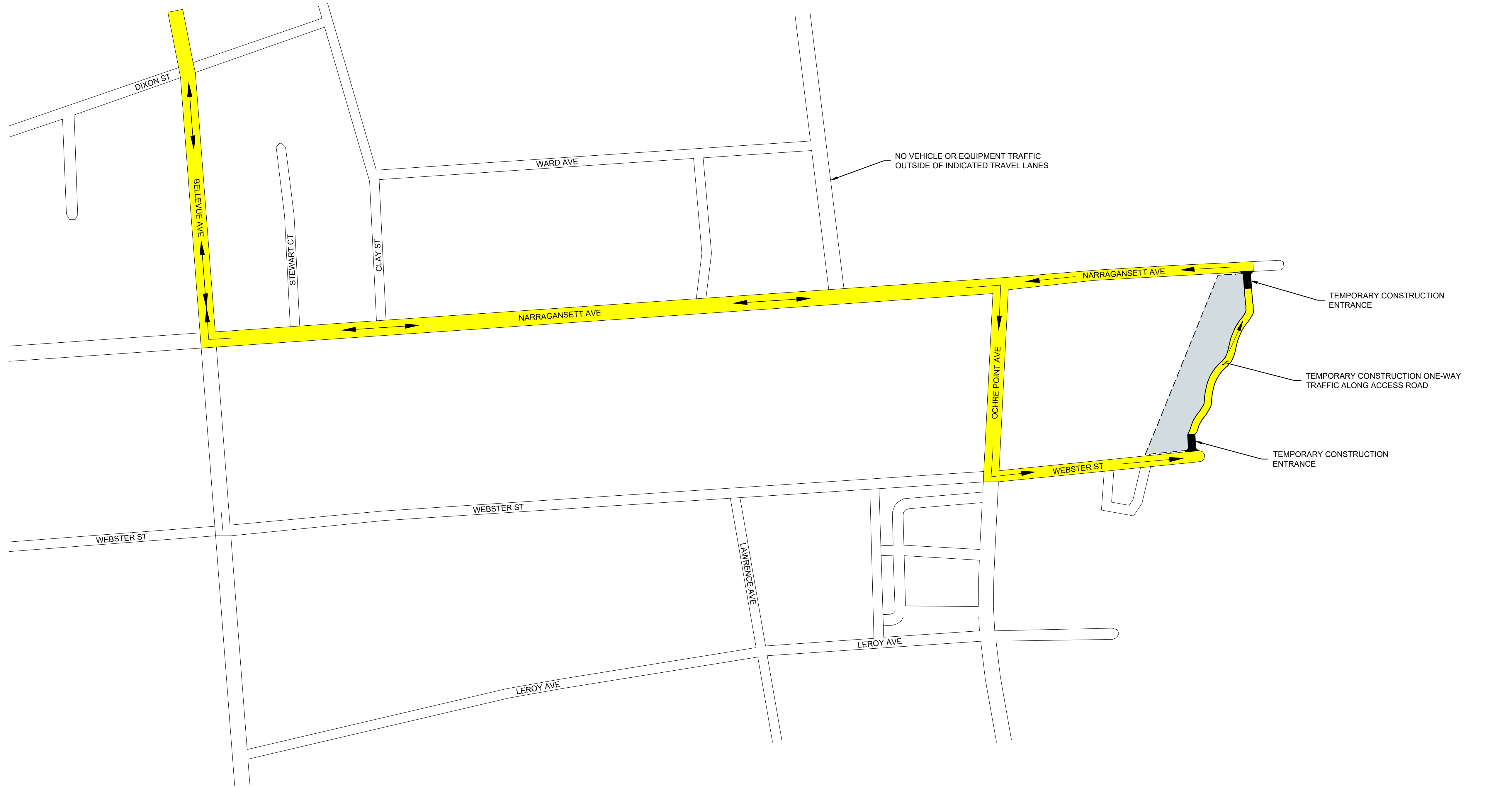
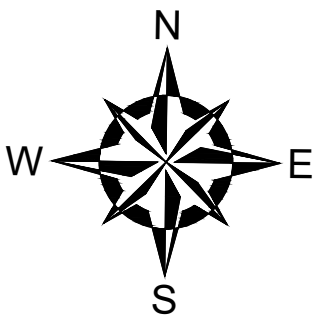
PROJECT NO:	33884.01
DATE:	DECEMBER, 2025
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

TEMPORARY CONTROLS DETAILS

DRAWING
9
SHEET NO. 9 OF 21

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LEGEND

VEHICLE DIRECTION OF TRAVEL

0 75' 150' 300' 450'

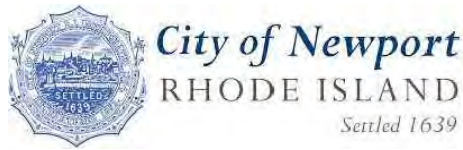
SCALE IN FEET 1" = 150'

Received
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MATTHEW J. PAGE
No. 9448
REGISTERED
PROFESSIONAL ENGINEER
CIVIL

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REV. DESCRIPTION DATE BY

PROJECT NO: 33884.01
DATE: DECEMBER, 2025
PROJECT MGR: TWS
DESIGNED BY: SAB
DRAWN BY: GRB
CHECKED BY: TWS
REVIEWED BY: MJP
SCALE: AS NOTED
REVISION NO.

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

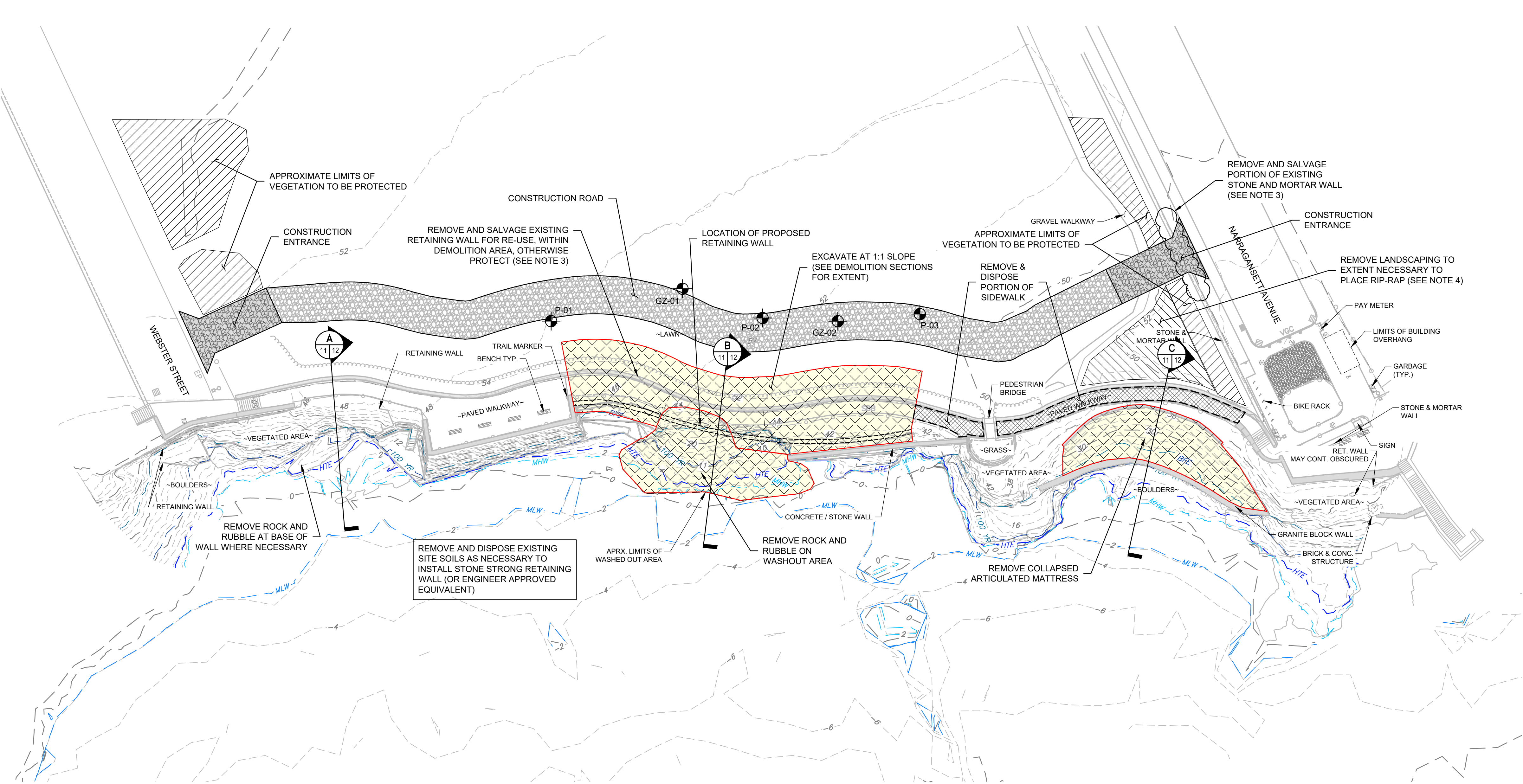
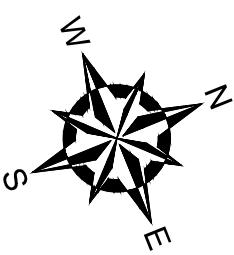
TRAFFIC CONTROLS PLAN

DRAWING

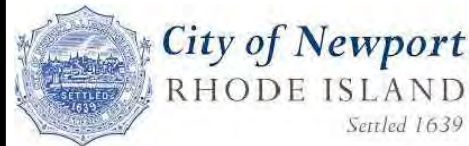
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SHEET NO. 10 OF 21

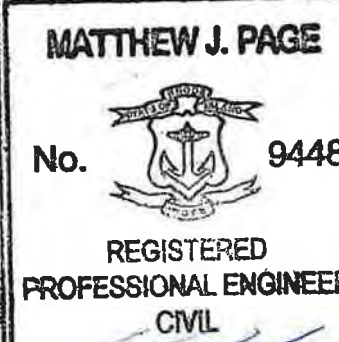
© 2025 - GZA GeoEnvironmental, Inc. GZA-I:\GEO\33884.01\TWS\GEO\CURRENT\PLANS\100% DESIGN\12-25\11_DEMOLITION PLANDWG 11 DEMO PLAN September 24, 2025 GARY BASTEN



PREPARED FOR:



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REV	DESCRIPTION	DATE	BY

PROJECT NO: 33884.01
DATE: DECEMBER, 2025
PROJECT MGR: TWS
DESIGNED BY: SAB
DRAWN BY: GRB
CHECKED BY: TWS
REVIEWED BY: MJP
SCALE: AS NOTED
REVISION NO.

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

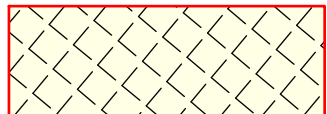
DEMOLITION PLAN

DRAWING

11

SHEET NO. 11 OF 21

LEGEND:

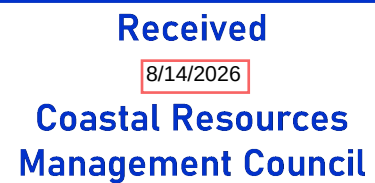


INDICATES AREAS OF SLOPE, ROCK AND DEBRIS TO BE REMOVED

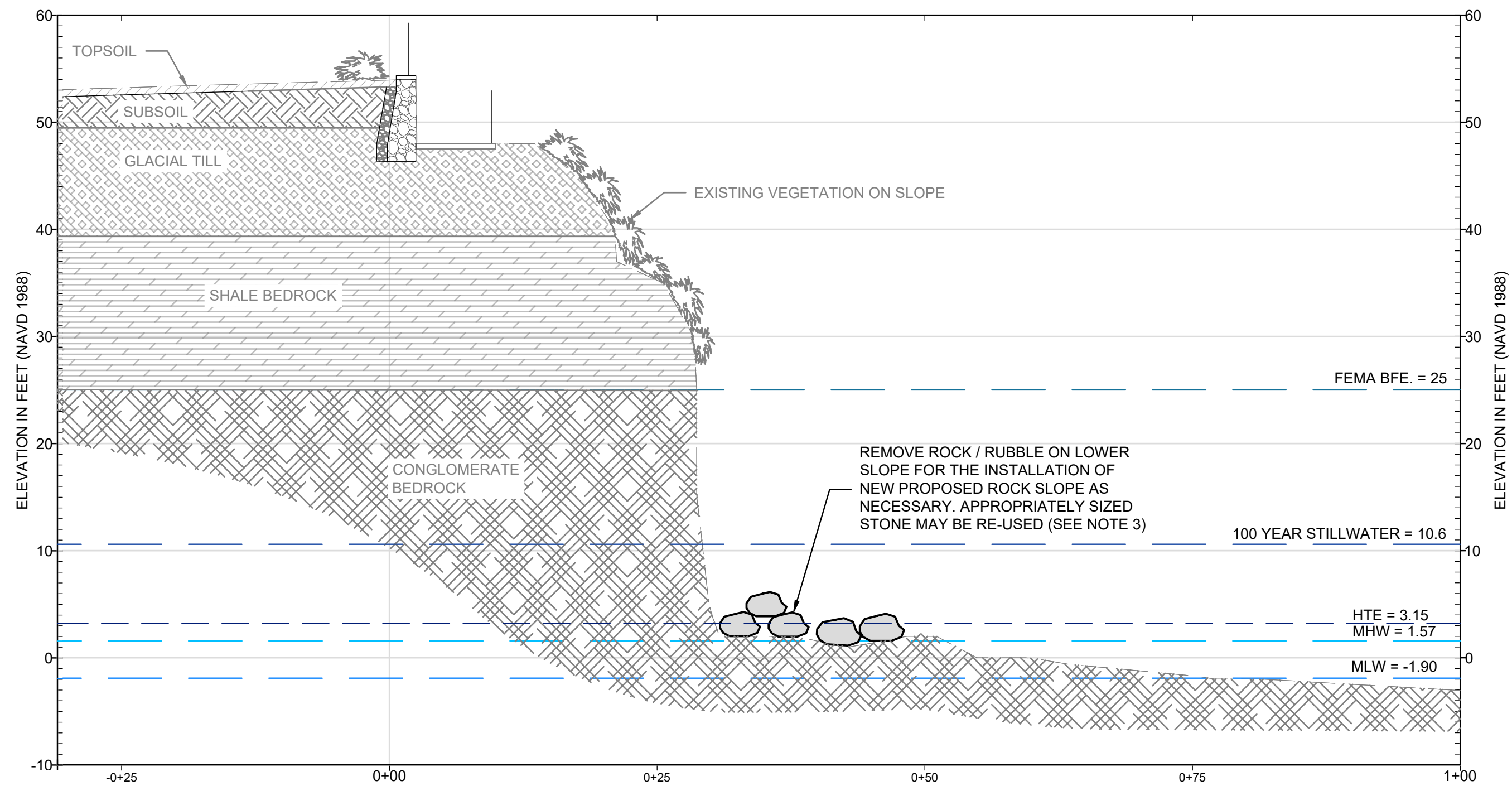
INDEX CONTOUR ELEVATIONS		
DESCRIPTION	ELEVATION	CONTOUR
FEMA BASE FLOOD ELEVATION	25.00	— BFE —
100 YEAR STILL WATER	10.60	— 100 YR —
HIGH TIDE ELEVATION	3.15	— HTE —
MEAN HIGH WATER	1.57	— MHW —
MEAN LOW WATER	-1.90	— MLW —

NOTES

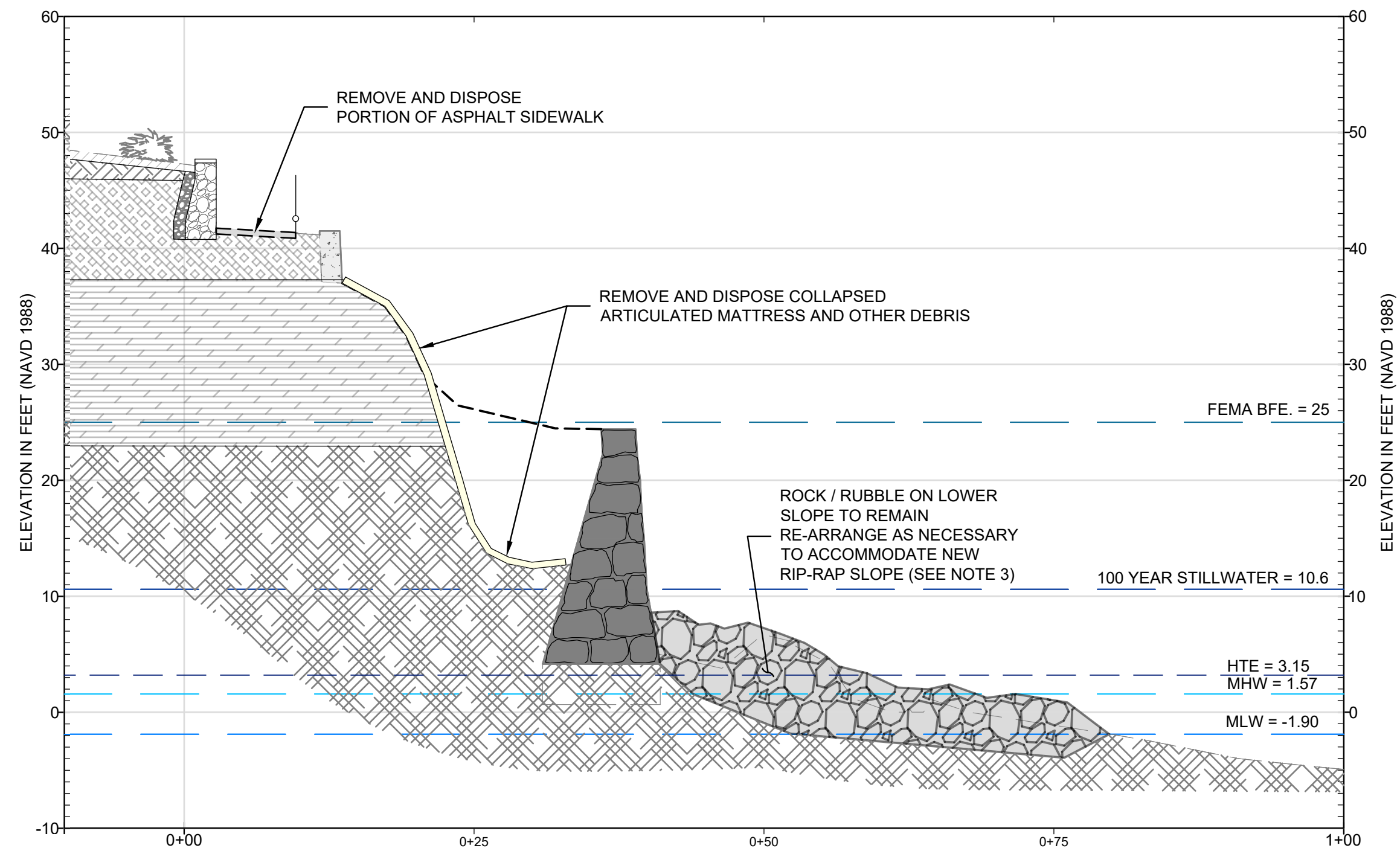
- BASE MAP DEVELOPED FROM AERIAL PHOTOGRAMMETRY DATA AND ELECTRONIC DRAWING FILE "7318A 2022-06-02" PREPARED BY DOUCET LAND SURVEYORS AND PROVIDED TO GZA.
- ALL ELEVATIONS REFERENCE NORTH AMERICAN VERTICAL DATUM 1988(NAVD88).
- CONTRACTOR SHALL INVENTORY ALL WALL SYSTEMS PRIOR TO DEMOLITION. INVENTORY SHALL CONSIST OF DOCUMENTING WELL HEIGHT, WIDTH AND LENGTH USING FIELD NOTES AND PHOTOGRAPHS. CONTRACTOR SHALL STOCKPILE ALL STONE ASSOCIATED WITH EXISTING RETAINING WALL FOR REUSE. SEPARATE STOCKPILES OF EACH WELL SYSTEM SHALL BE MAINTAINED.
- CONTRACTOR SHALL INVENTORY ALL SHRUBS, BUSHES, PLANTINGS, AND TREES PRIOR TO REMOVAL. INVENTORY SHALL CONSIST OF SPECIES TYPE, QUANTITY, AND PHOTO DOCUMENTATION.



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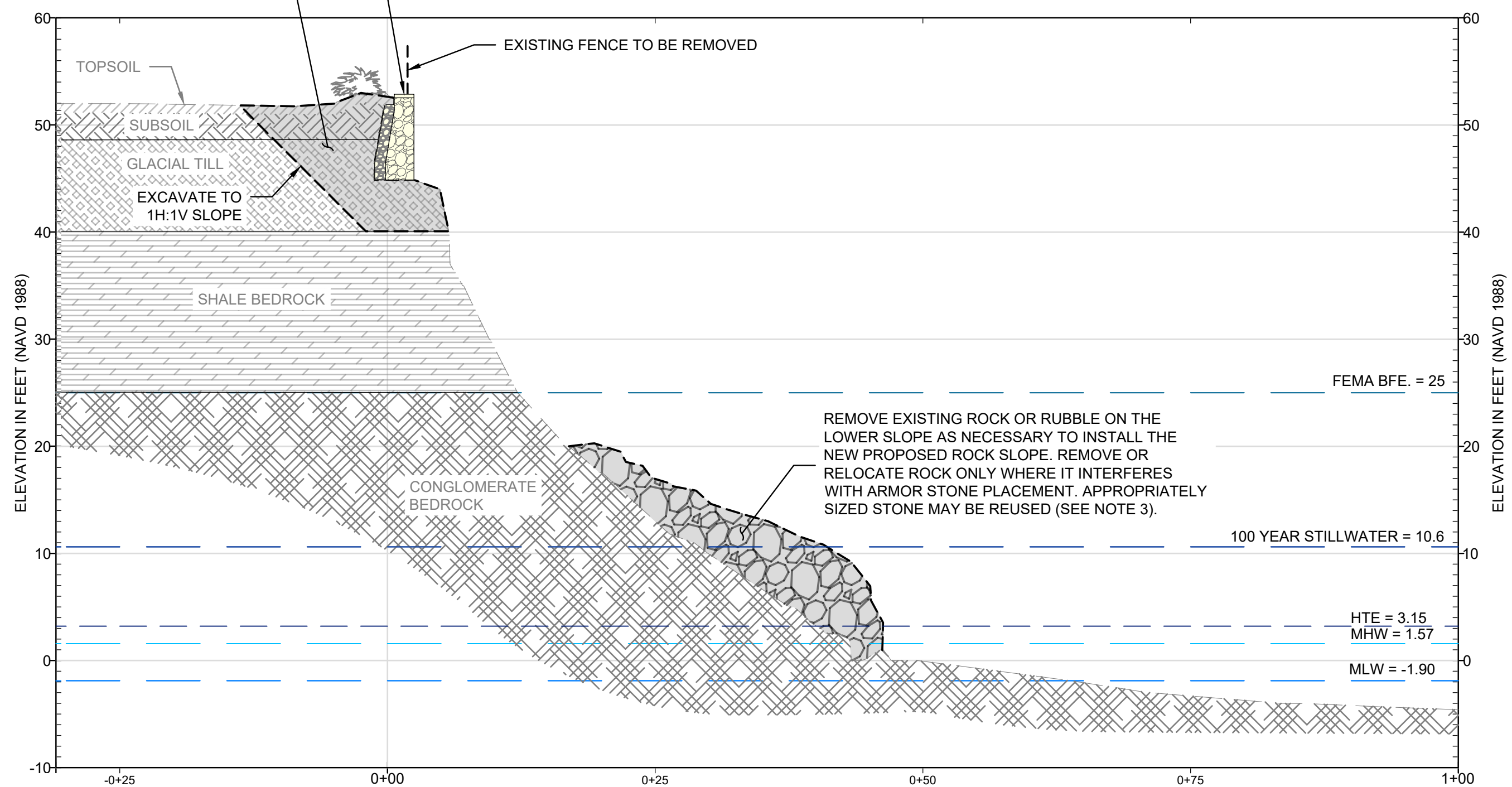
A DEMOLITION SECTION A-A'
SCALE: 1"=10'



C DEMOLITION SECTION E-E'
SCALE: 1"=10'

REMOVE AND SALVAGE EXISTING RETAINING WALL FASCIA STONE AND BLUESTONE CAP FOR RE-CONSTRUCTION AT AREAS BEHIND PROPOSED STONE STRONG RETAINING WALLS

APPROXIMATE LIMITS OF REMOVAL AND STOCKPILE OF EXISTING SITE SOILS AS NECESSARY FOR THE INSTALLATION OF STONE STRONG RETAINING WALL

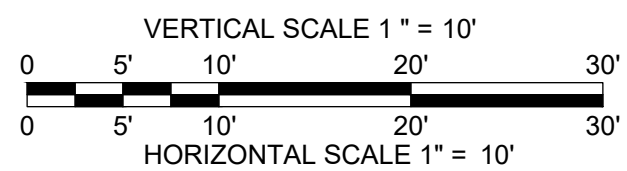


B DEMOLITION SECTION C-C'
SCALE: 1"=10'

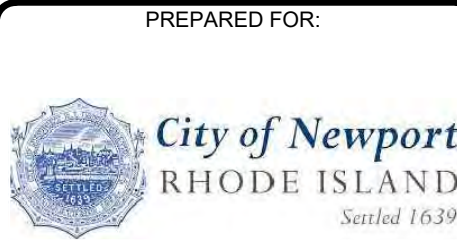
Received
8/14/2026
Coastal Resources
Management Council

NOTE:

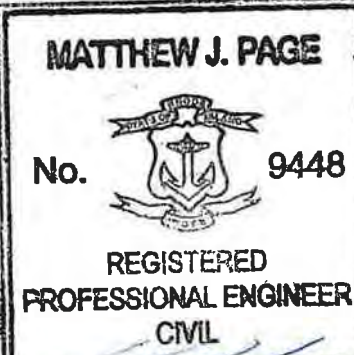
- LIMITS OF SLOPE MAY VARY. CONTRACTOR SHALL VERIFY IN FIELD. DRAWINGS ARE FOR ILLUSTRATIVE PURPOSES ONLY.
- SALVAGE EXISTING RETAINING WALL STONE FOR FUTURE RECONSTRUCTION TO MATCH ADJACENT WALL SYSTEM.
- ROCK RUBBLE MAY BE RE-USED AS RIP-RAP PROVIDED SIZE IS ADEQUATE. CONTRACTOR SHALL IN NO WAY REMOVE MATERIAL THAT MAY LEAD TO DESTABILIZATION OF EXISTING SLOPE.



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REV	DESCRIPTION	DATE	BY

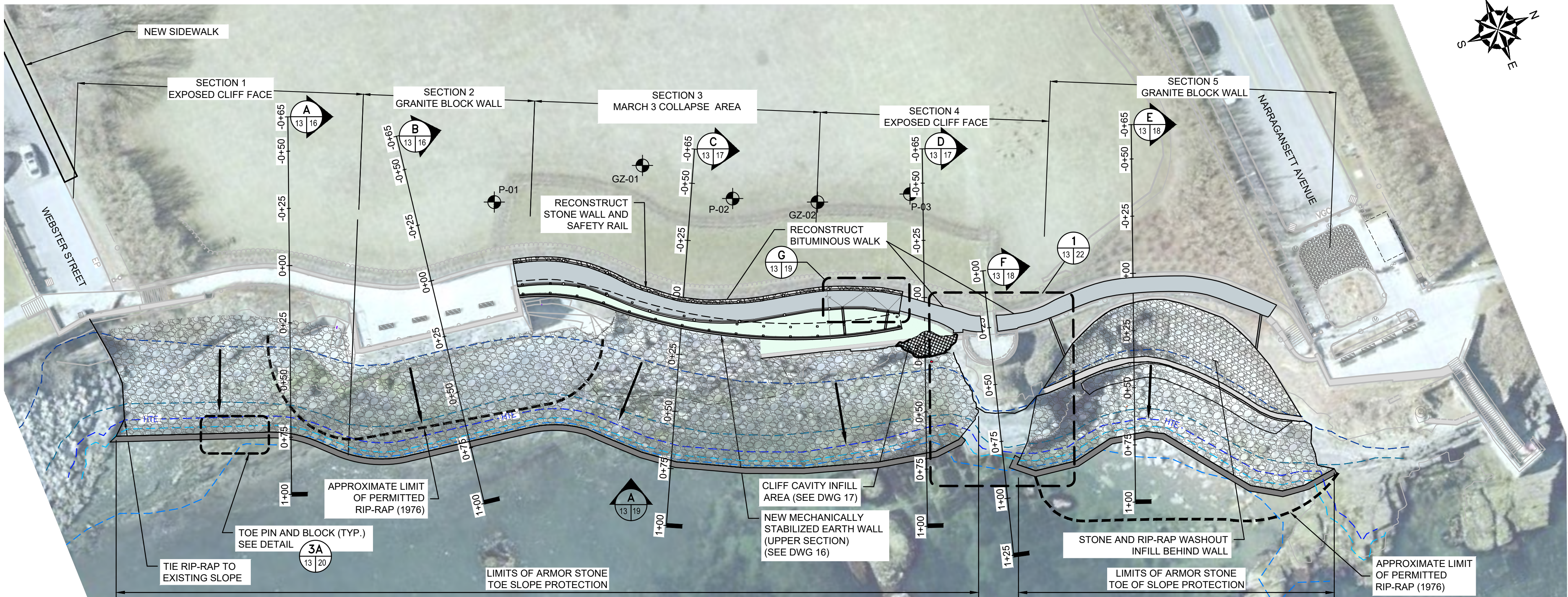
PROJECT NO:	33884.01
DATE:	DECEMBER, 2025
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

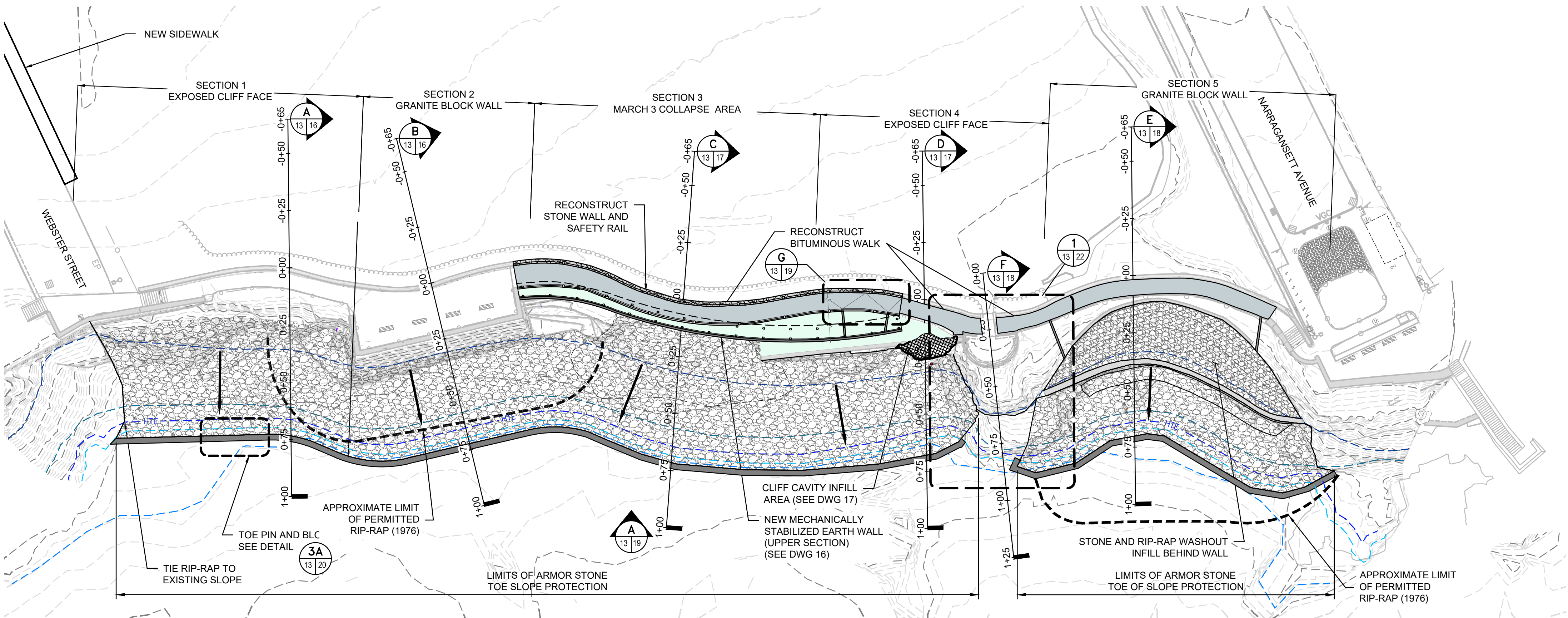
DEMOLITION SECTIONS

DRAWING
12
SHEET NO. 12 OF 21

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AERIAL SITE PLAN



PROPOSED IMPROVEMENTS

NOTES
ALL PROPOSED ARMOR STONE PROTECTION SLOPES
TO BE (1.5H:1V) - SEE PROPOSED SECTIONS

NOTES

1. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAMMETRY DATA AND ELECTRONIC DRAWING FILE "7318A 2022-06-02" PREPARED BY DOUCET LAND SURVEYORS AND PROVIDED TO GZA.
2. ALL ELEVATIONS REFERENCE NORTH AMERICAN VERTICAL DATUM 1988(NAVD88).

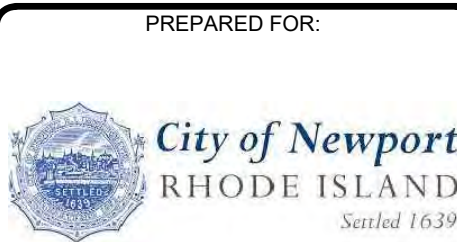
LEGEND

- INDICATES BORINGS/PROBES PERFORMED BY NEW ENGLAND BORING AND OBSERVED BY GZA PERSONNEL.
- RETAINING WALL
- CHAIN LINK FENCE
- HANDRAIL
- SHRUB LINE
- MAJOR CONTOUR 10 FOOT INTERVAL
- MINOR CONTOUR 2 FOOT INTERVAL
- SLOPE DOWN DIRECTION
- LIMIT OF WORK
- PROPOSED SAFETY FENCE
- PROPOSED PAVED WALK
- CAST IN PLACE STEPPED WALL
- RIP-RAP TOE OF WALL PROTECTION
- GROUT BAG TOE PROTECTION

INDEX CONTOUR ELEVATIONS		
DESCRIPTION	ELEVATION	CONTOUR
FEMA BASE FLOOD ELEVATION	25.00	BFE
100 YEAR STILL WATER	10.60	100 YR
HIGH TIDE ELEVATION	3.15	HTE
MEAN HIGH WATER	1.57	MHW
MEAN LOW WATER	-1.90	MLW



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REV	DESCRIPTION	DATE	BY

PROJECT NO:	33884.01
DATE:	AUGUST, 2026
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

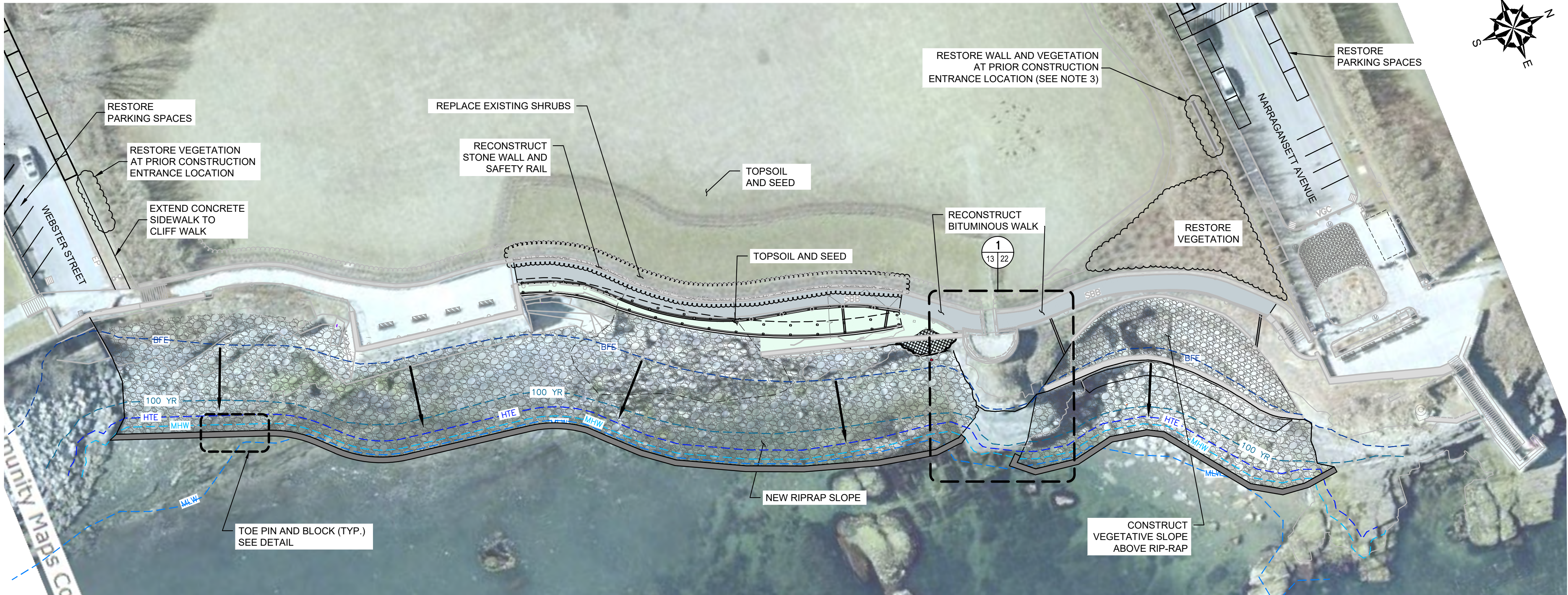
PROPOSED CONDITIONS PLAN

DRAWING

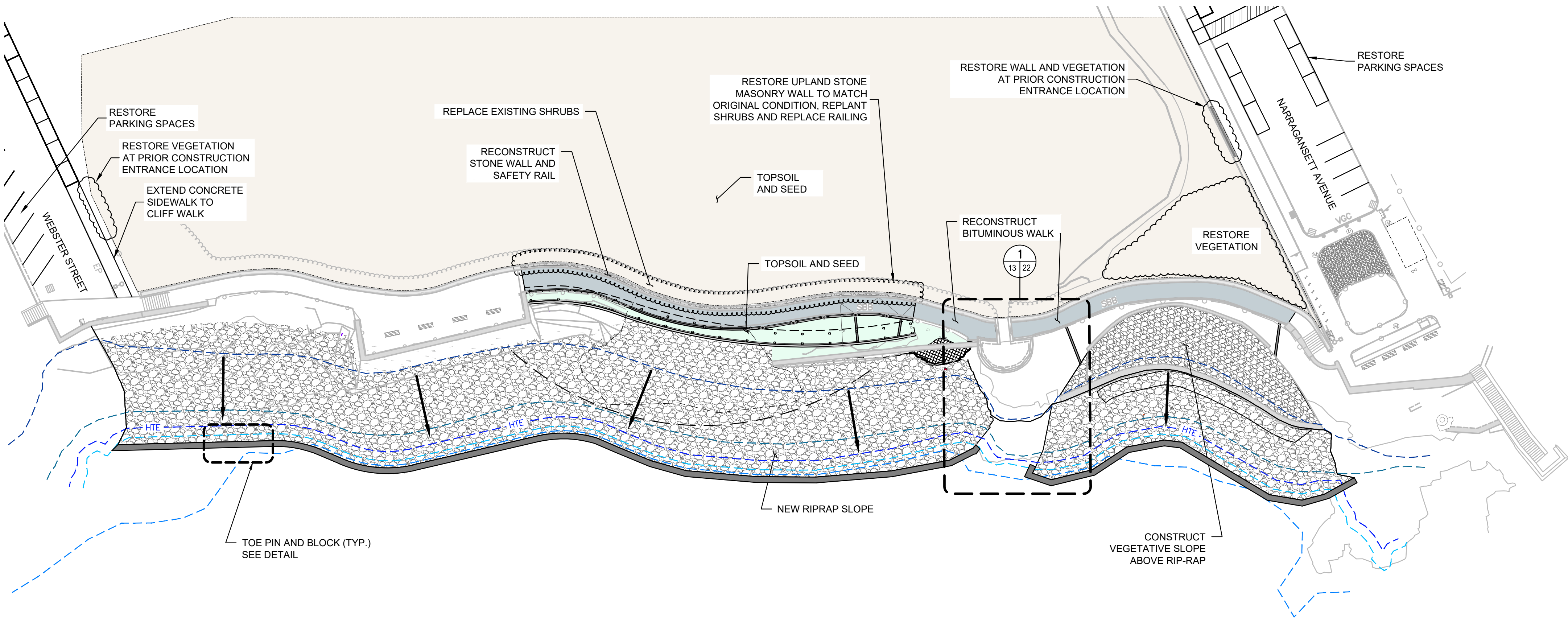
13

SHEET NO. 13 OF 21

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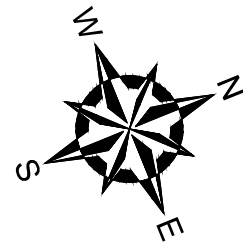


AERIAL SITE PLAN



PROPOSED IMPROVEMENTS

NOTES
ALL PROPOSED ARMOR STONE PROTECTION SLOPES
TO BE (1.5H:1V) - SEE PROPOSED SECTIONS



NOTES

1. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAMMETRY DATA AND ELECTRONIC DRAWING FILE "7318A 2022-06-02" PREPARED BY DOUCET LAND SURVEYORS AND PROVIDED TO GZA.
2. ALL ELEVATIONS REFERENCE NORTH AMERICAN VERTICAL DATUM 1988(NAVD88).
3. AS OUTLINED IN CONTRACT DOCUMENTS WELL SYSTEMS AND VEGETATION SHALL BE RESTORED TO PREVIOUS CONDITIONS. CONTRACTOR SHALL RELY UPON QUALIFIED CONSULTANTS / SUBCONTRACTORS AND INFORMATION GATHERED THROUGH PRE-CONSTRUCTION SURVEYS / INVENTORIES TO MATCH PREVIOUS CONDITIONS.
4. INSTALL REVETMENT STONES WITHIN SECTION F FOLLOWING PLACEMENT OF REVETMENT ALONG ALL OTHER PORTIONS OF CLIFF WALK OR OTHER.

LEGEND

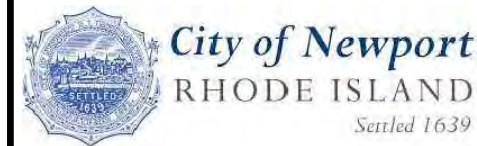
- RETAINING WALL
- CHAIN LINK FENCE
- HANDRAIL
- SHRUB LINE
- MAJOR CONTOUR 10 FOOT INTERVAL
- MINOR CONTOUR 2 FOOT INTERVAL
- SLOPE DOWN DIRECTION
- LIMIT OF WORK
- PROPOSED SAFETY FENCE
- PROPOSED PAVED WALK
- CAST IN PLACE STEPPED WALL
- RIP-RAP TOE OF WALL PROTECTION
- GROUT BAG TOE PROTECTION
- TOPSOIL AND SEED

INDEX CONTOUR ELEVATIONS		
DESCRIPTION	ELEVATION	CONTOUR
FEMA BASE FLOOD ELEVATION	25.00	---BFE---
100 YEAR STILL WATER	10.60	---100 YR---
HIGH TIDE ELEVATION	3.15	---HTE---
MEAN HIGH WATER	1.57	---MHW---
MEAN LOW WATER	-1.90	---MLW---

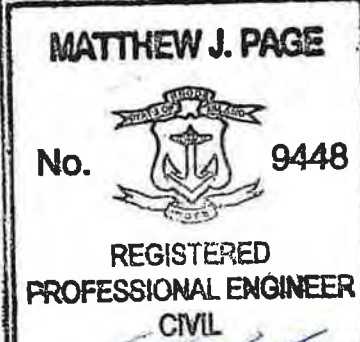
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REV	DESCRIPTION	DATE	BY

PROJECT NO:	33884.01
DATE:	AUGUST, 2026
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

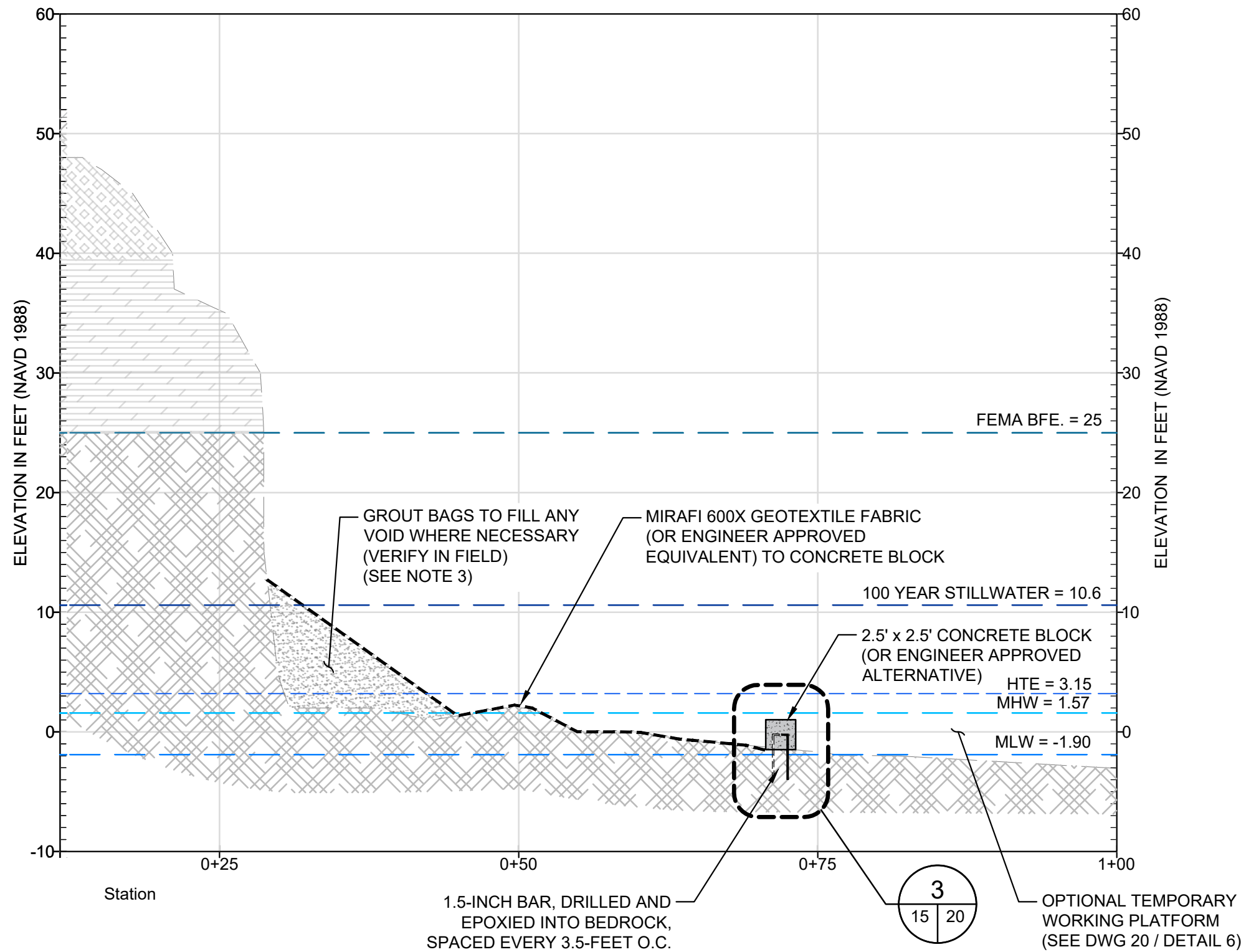
NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

FINAL - RESTORATION PLAN

DRAWING

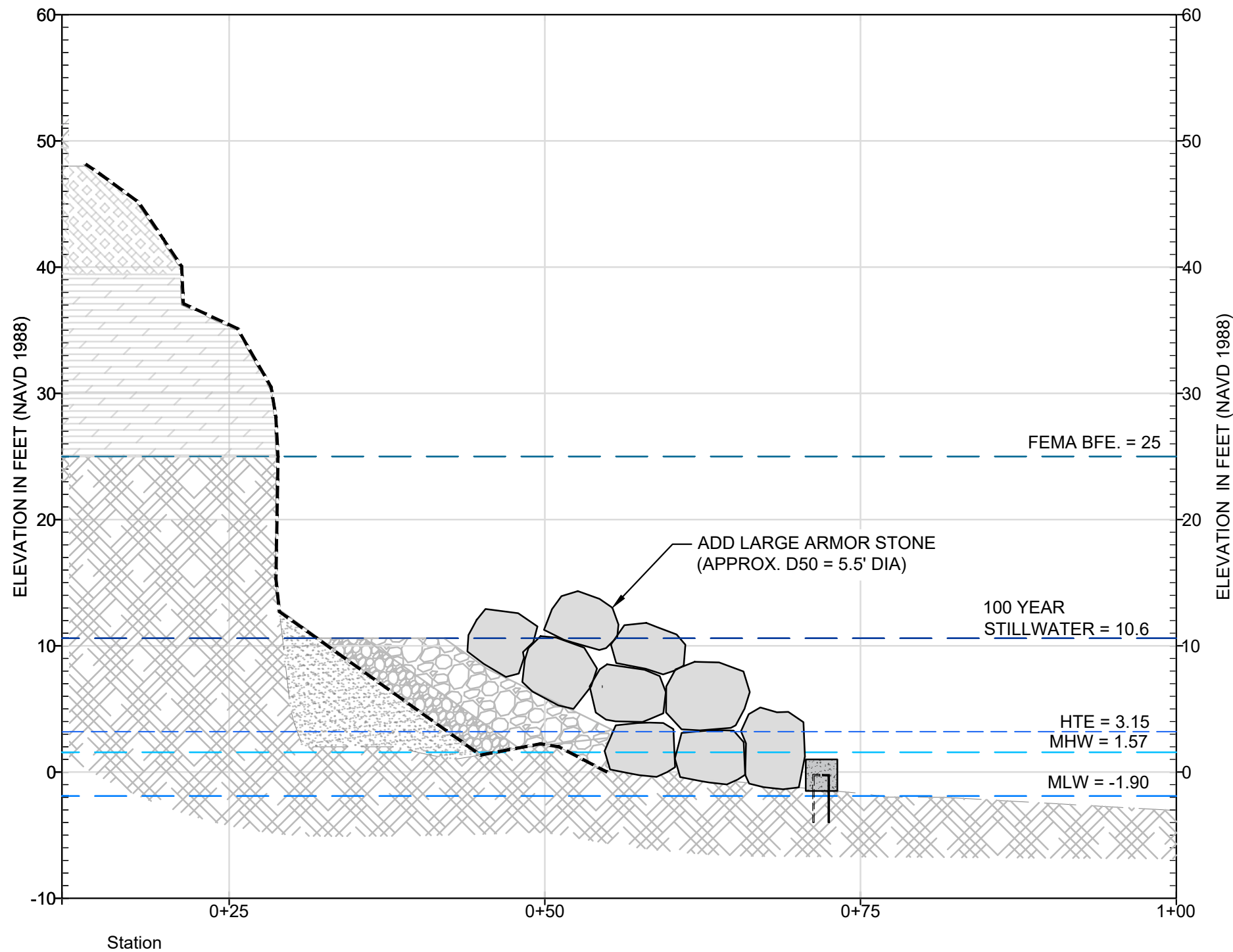
14

SHEET NO. 14 OF 21

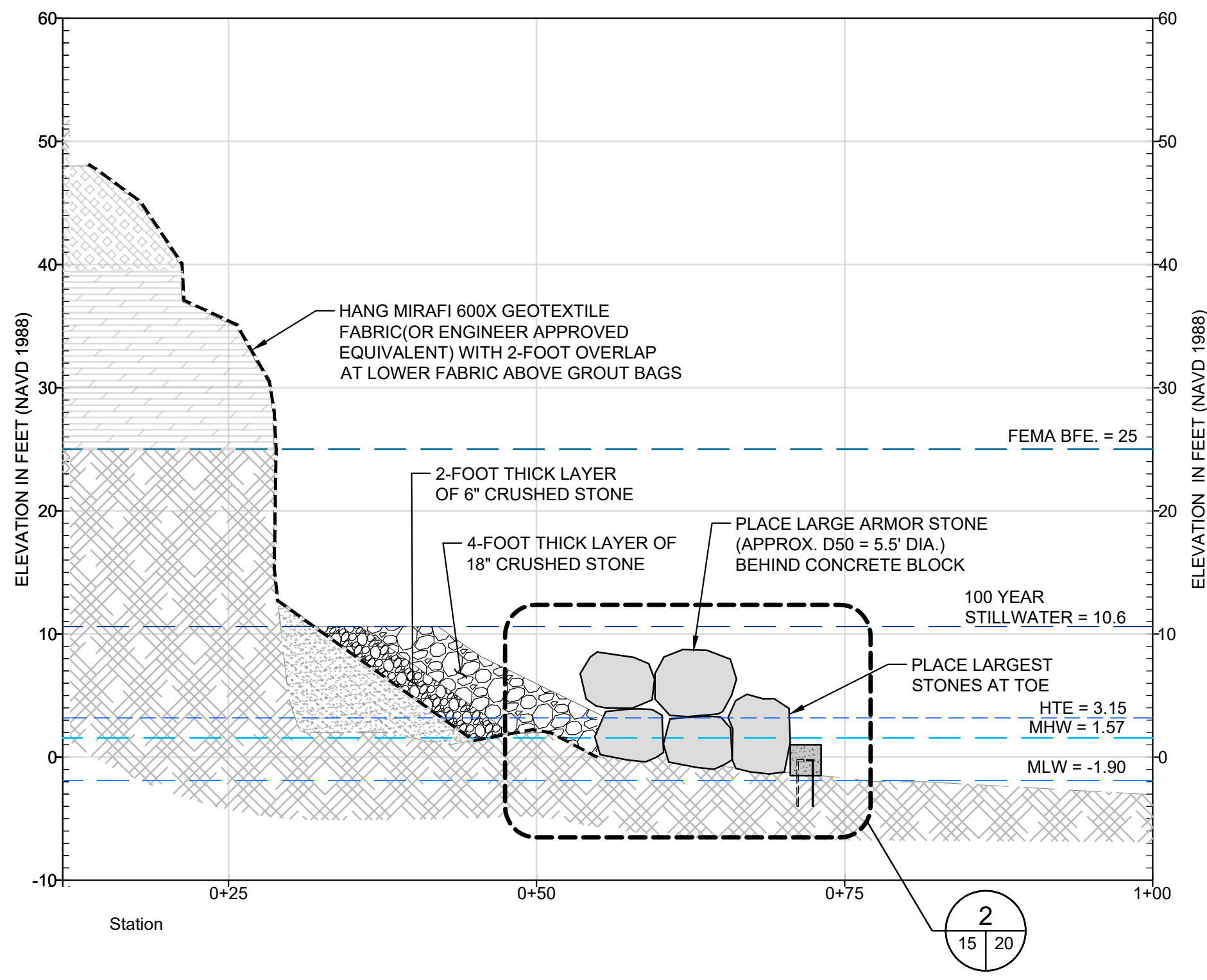


TYPICAL REVETMENT CONSTRUCTION - PHASE 1
SCALE: 1"=10'

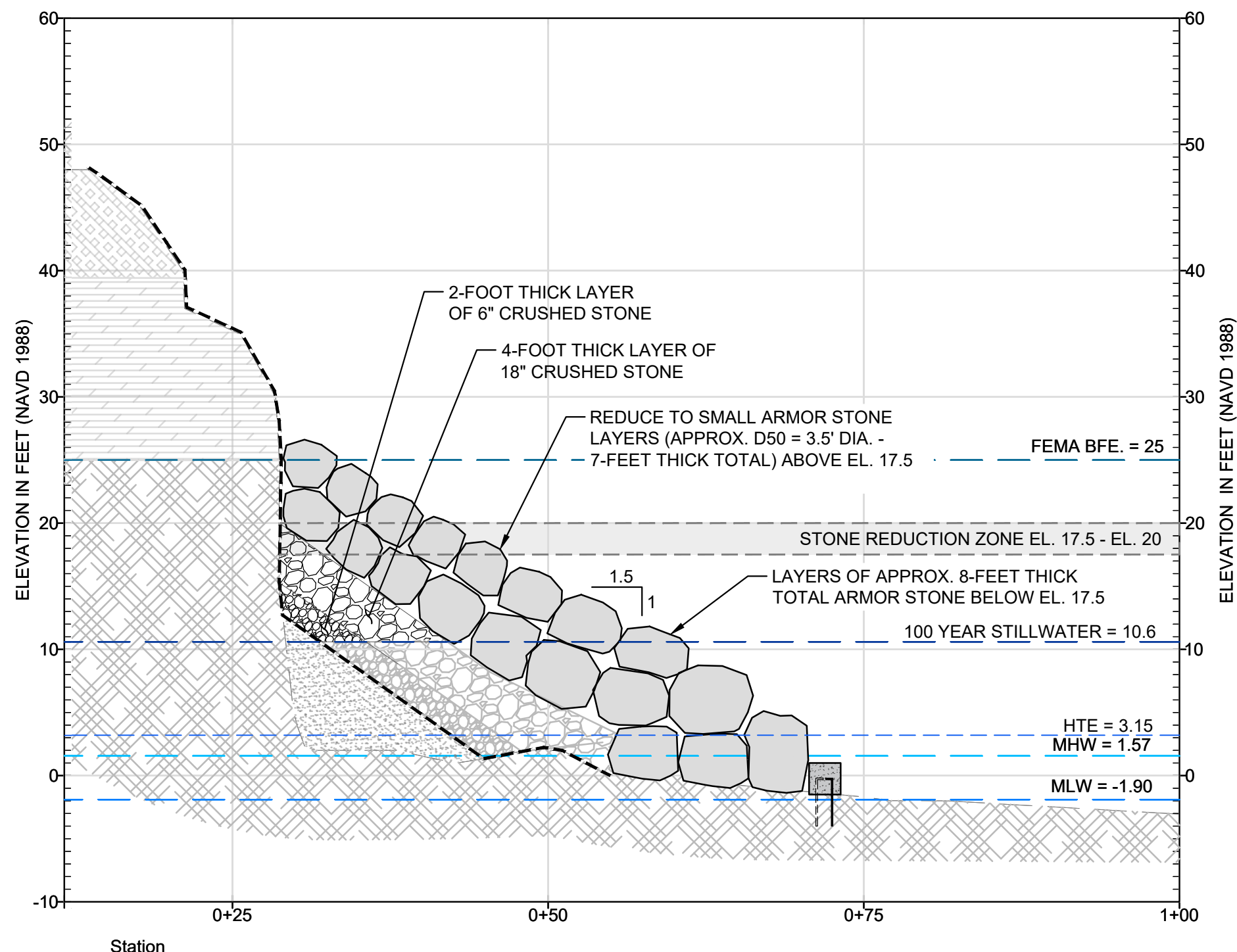
NOTE:
SECTION A-A SHOWN
(TYPICAL FOR ALL SECTIONS)



TYPICAL REVETMENT CONSTRUCTION - PHASE 3
SCALE: 1"=10'



TYPICAL REVETMENT CONSTRUCTION - PHASE 2
SCALE: 1"=10'



TYPICAL REVETMENT CONSTRUCTION - PHASE 4
SCALE: 1"=10'

LARGE ARMOR STONE (Below EL. 20ft.)		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	36700	6.1
50% (D.50)	30000	5.6
MIN	22000	5.1

SMALL ARMOR STONE (Above EL. 20ft.)		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	30000	5.6
50% (D.50)	7500	3.5
15% (D.15)	4000	2.8
MIN	937.5	1.8

CORE STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	621.1	1.6
50% (D.50)	155.3	1.2
15% (D.15)	77.6	0.8
MIN	19.4	0.5

BEDDING STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (IN)
MAX	44.9	8.0
50% (D.50)	11.2	4.8
15% (D.15)	5.6	3.8
MIN	1.4	0.2

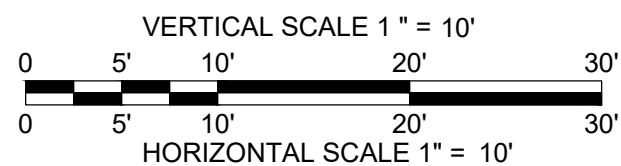
NOTES:

- NOMINAL DIAMETER OF THE ARMOR STONE WAS CALCULATED USING AN EQUIVALENT CUBIC VOLUME ESTIMATION. STONE SIZING SHOULD BE DETERMINED IN THE FIELD USING THE STONE WEIGHT.
- BASE AND CORE MATERIAL SHALL CONSIST OF ANGULAR, QUARRIED, CRUSHED STONE. STONE SHALL HAVE A MINIMUM DENSITY OF 160 POUNDS PER CUBIC FOOT AND A MINIMUM DIMENSION NOT LESS THAN ONE THIRD OF THE MAXIMUM DIMENSION. REFER TO RI DOT "M.10.03.2 STONE FOR RIPRAP", NSA NO. R-2 (SEE GRADATION ABOVE).
- PRIOR TO FILLING OF VOIDS BEYOND LIMITS OF REVETMENT, CONTRACTOR SHALL COORDINATE APPROVAL WITH ENGINEER AND OWNER.
- GROUT BAGS SHALL BE USED WHERE EXISTING MAN-MADE STRUCTURES HAVE BEEN UNDERMINED. STONES MAY BE USED IN LIEU OF GROUT BAGS AT OTHER LOCATIONS.

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CONSTRUCTION SEQUENCE:

- PLACE CONCRETE BLOCK AT TOE OF SLOPE. INSTALL 1.5 INCH DIA. BAR AND EPOXY WITH HILTI RE-500 OR APPROVED EQUIVALENT INTO BEDROCK.
- INSTALL GROUT BAGS IN NECESSARY VOID (VERIFY IN FIELD) (AS NECESSARY).
- HANG GEOTEXTILE FROM CLIFF FACE OVER GROUT BAGS (AS NECESSARY).
- PLACE 5.5 FOOT STONES BEHIND CONCRETE BLOCK.
- BEGIN INSTALLING CRUSHED STONE AND BEDDING LAYERS.
- PLACE 5.5 FOOT STONES ATOP BEDDING LAYER, AND BUILD SLOPE.
- AT ELEVATION 15.0 NAVD88, TRANSITION TO 3.5 FOOT ARMOR STONES.
- CONSTRUCT LAYERED SLOPE AT A 1.5H:1V TO NOTED ELEVATION.



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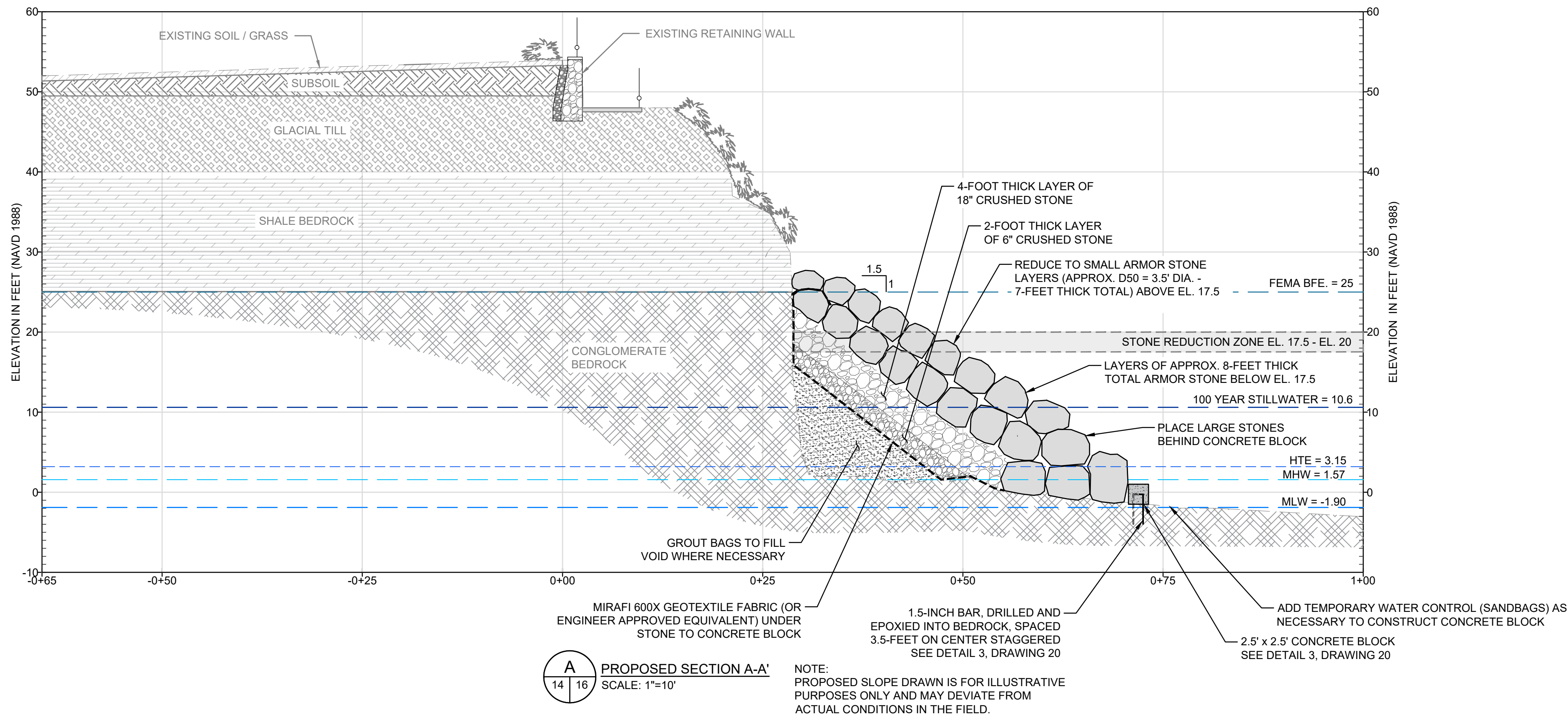
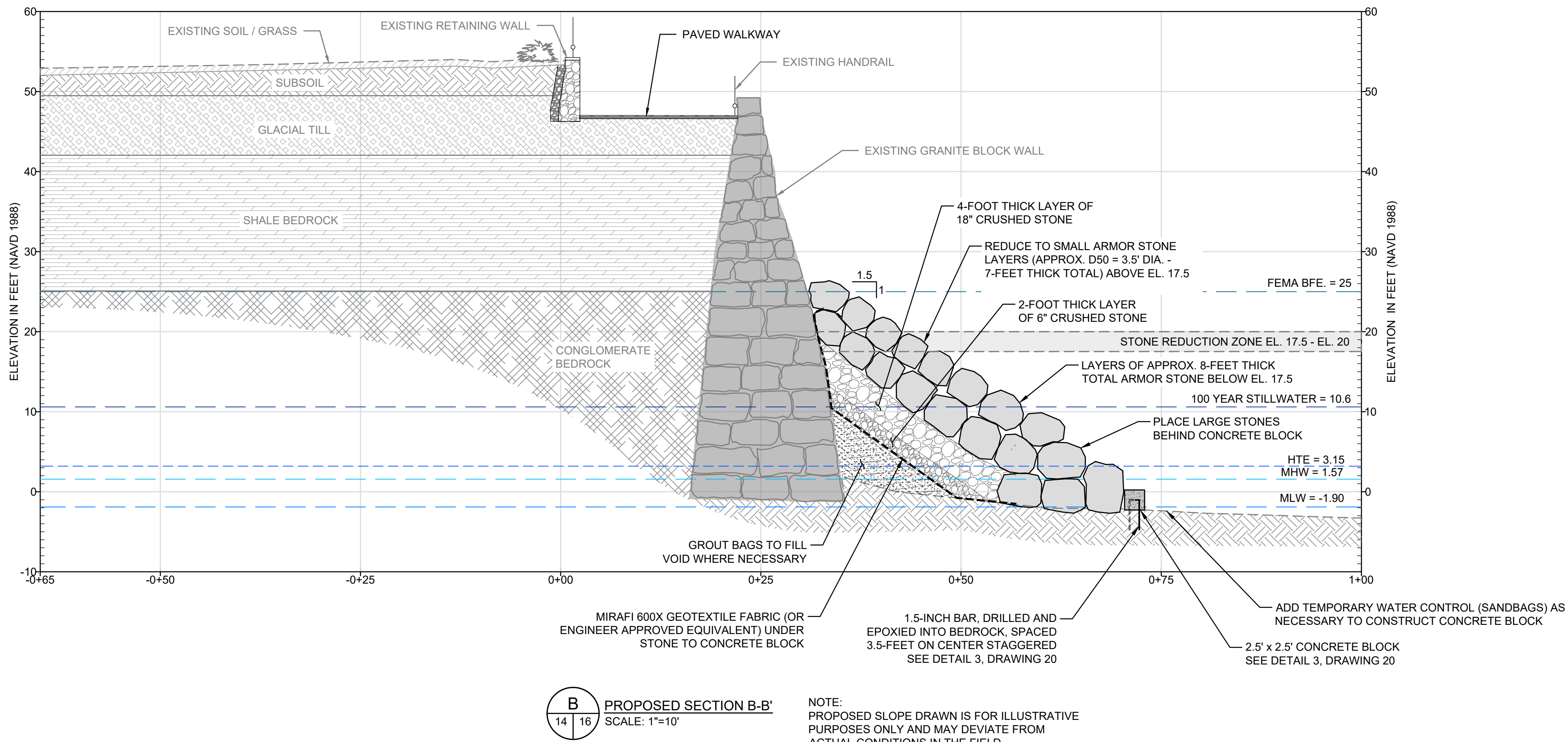
NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

TYPICAL REVETMENT
CONSTRUCTION PHASING

DRAWING

15

SHEET NO. 15 OF 21



LARGE ARMOR STONE (Below EL. 20ft.)		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	36700	6.1
50% (D.50)	30000	5.6
MIN	22000	5.1

SMALL ARMOR STONE (Above EL. 20ft.)		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	30000	5.6
50% (D.50)	7500	3.5
15% (D.15)	4000	2.8
MIN	937.5	1.8

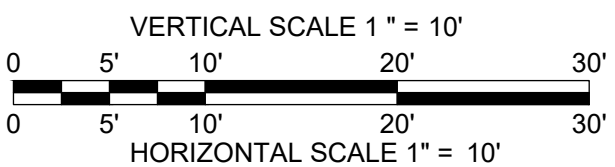
CORE STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	621.1	1.6
50% (D.50)	155.3	1.2
15% (D.15)	77.6	0.8
MIN	19.4	0.5

BEDDING STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (IN)
MAX	44.9	8.0
50% (D.50)	11.2	4.8
15% (D.15)	5.6	3.8
MIN	1.4	0.2

NOTES:

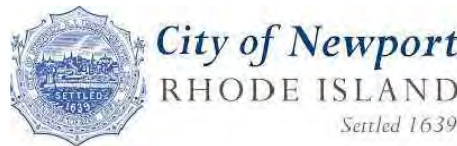
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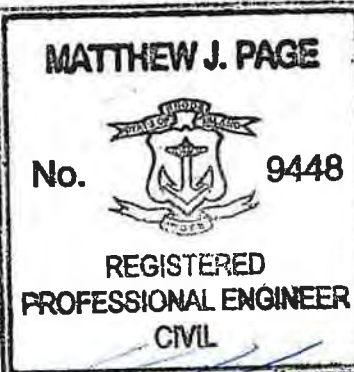


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PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

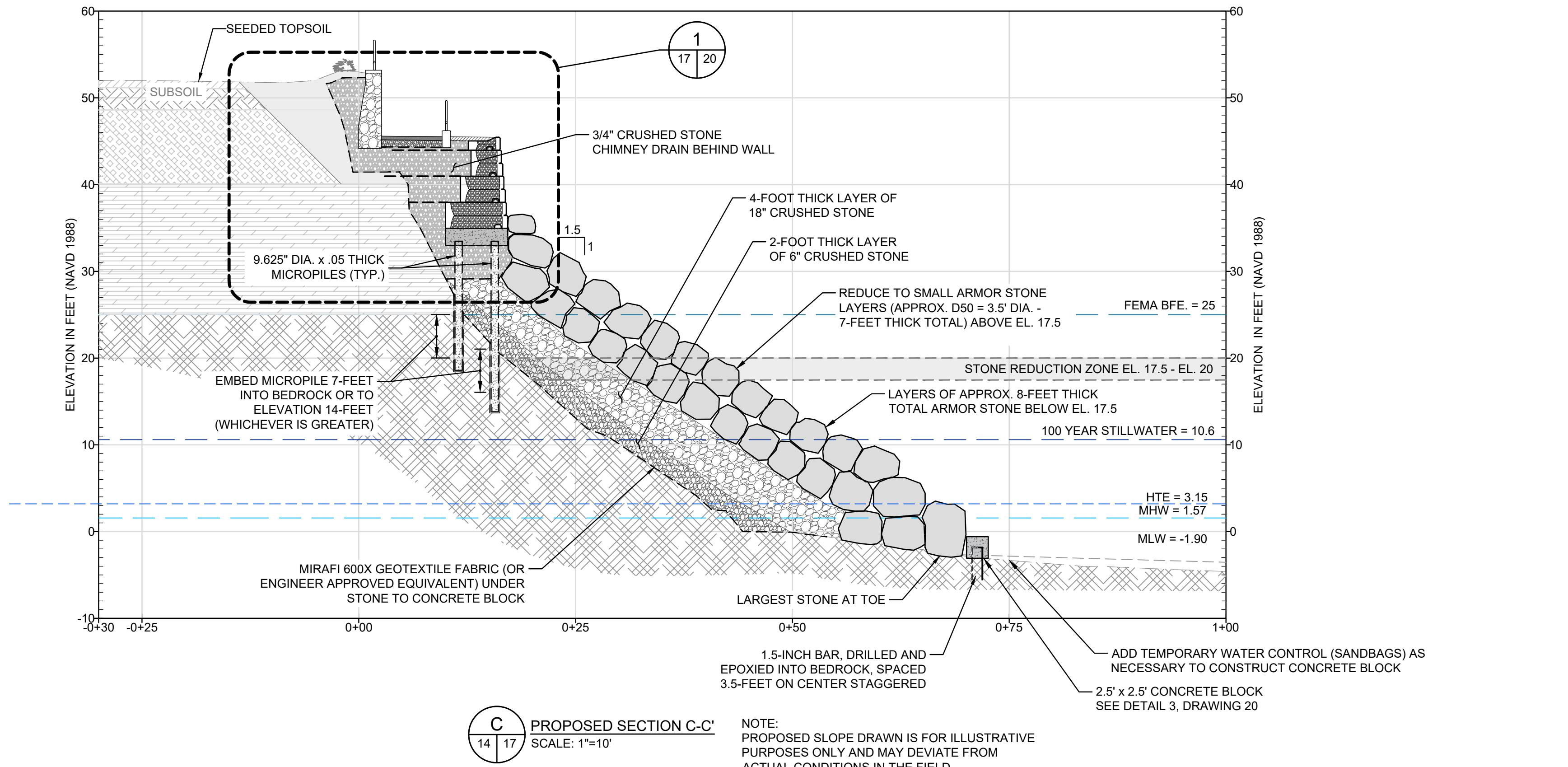
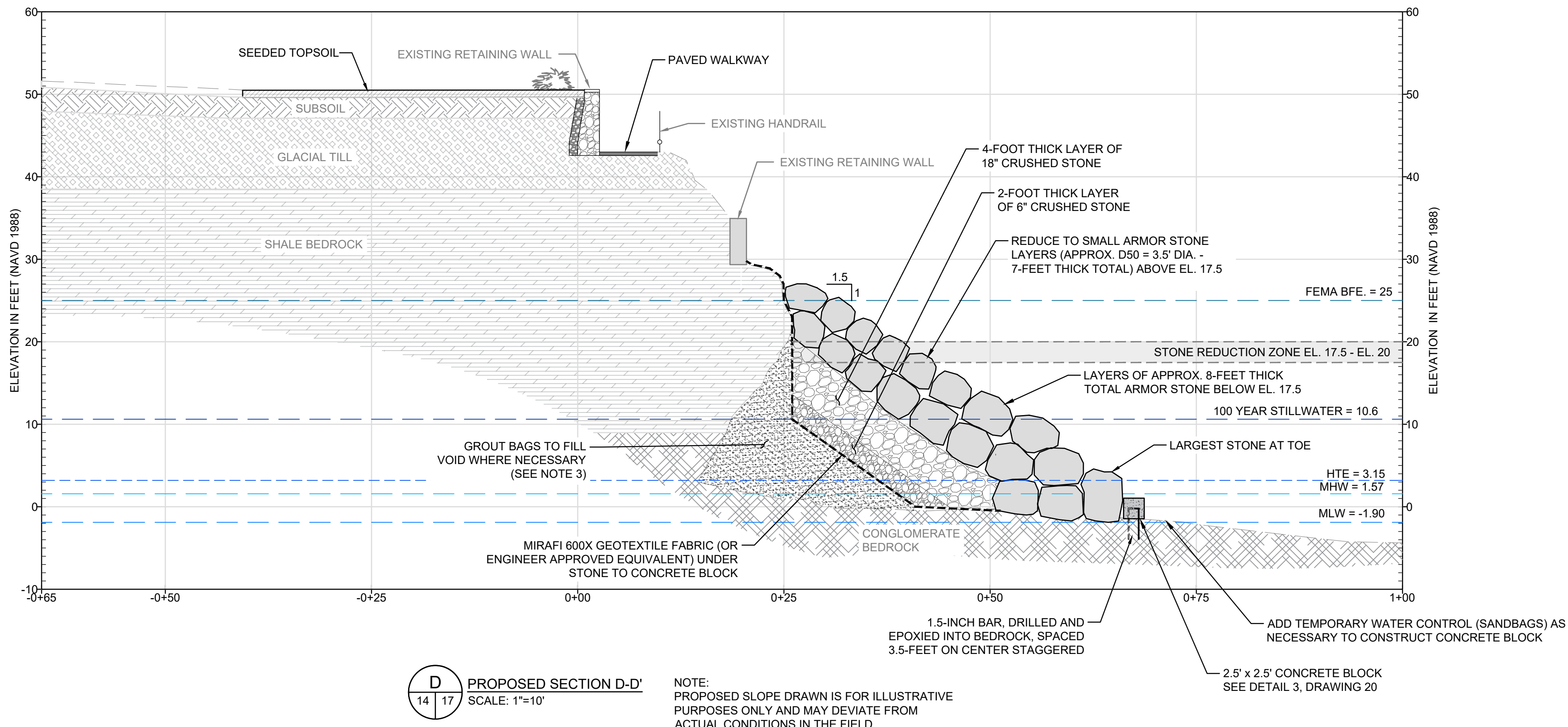
PROPOSED CONDITIONS SECTIONS
(SHEET 1 OF 3)

DRAWING

16

SHEET NO. 16 OF 21

© 2025 - GZA GeoEnvironmental, Inc. GZA--(1) (GEO) 33884.01 TWS (GEO) (CURRENT) PLANS 100% DESIGN 12-25 17-PROPOSED TYPICAL REPAIR SECTION C-C' AND D-D' DWG 17-PROP SECT December 4, 2025 GARY BASTIEN



LARGE ARMOR STONE (Below EL. 20ft.)		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	36700	6.1
50% (D.50)	30000	5.6
MIN	22000	5.1

SMALL ARMOR STONE (Above EL. 20ft.)		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	30000	5.6
50% (D.50)	7500	3.5
15% (D.15)	4000	2.8
MIN	937.5	1.8

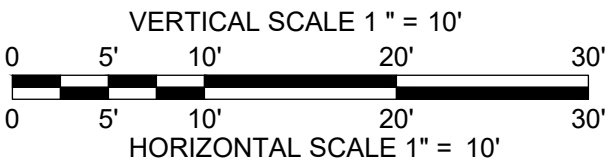
CORE STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	621.1	1.6
50% (D.50)	155.3	1.2
15% (D.15)	77.6	0.8
MIN	19.4	0.5

BEDDING STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (IN)
MAX	44.9	8.0
50% (D.50)	11.2	4.8
15% (D.15)	5.6	3.8
MIN	1.4	0.2

NOTES:

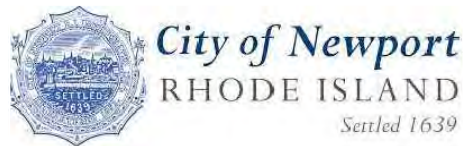
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SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

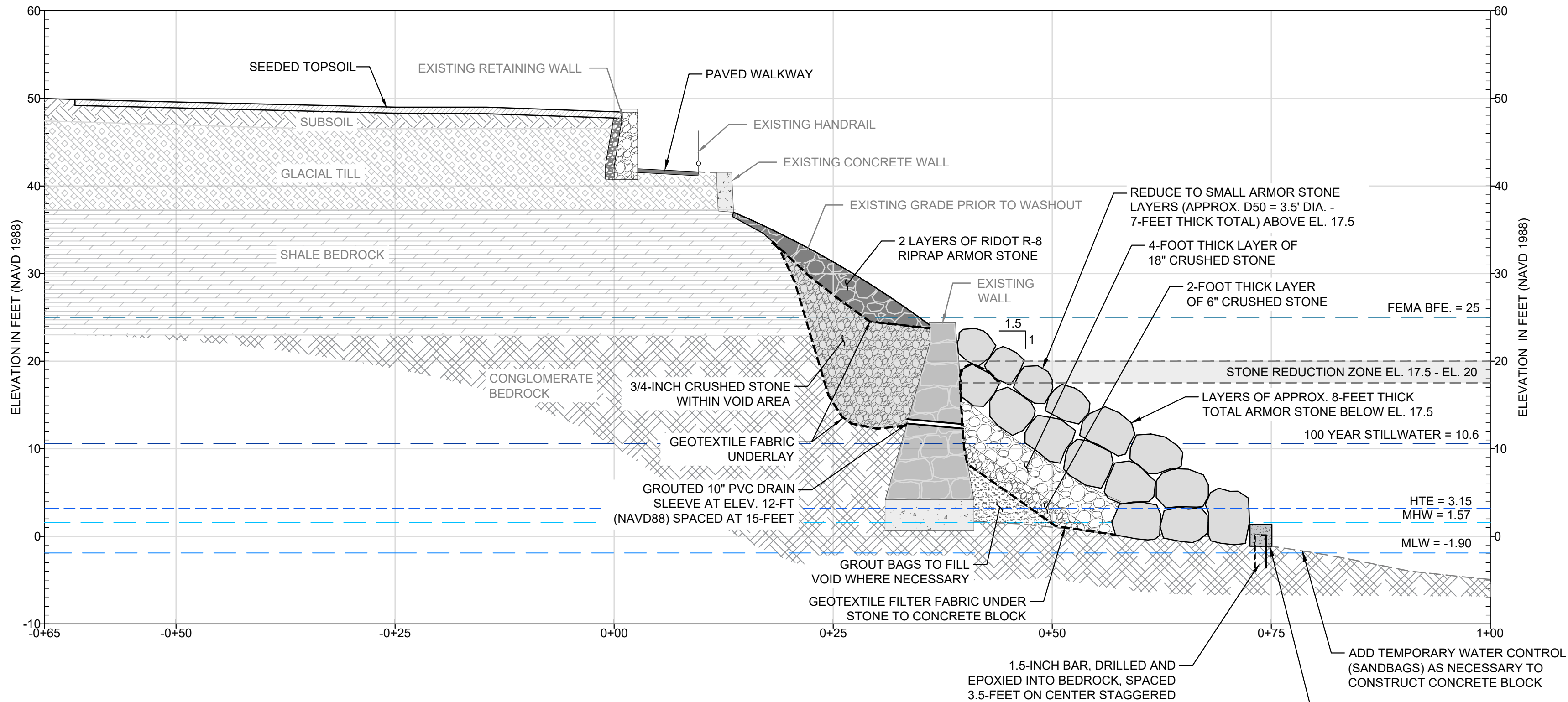
PROPOSED CONDITIONS SECTIONS
(SHEET 2 OF 3)

DRAWING

17

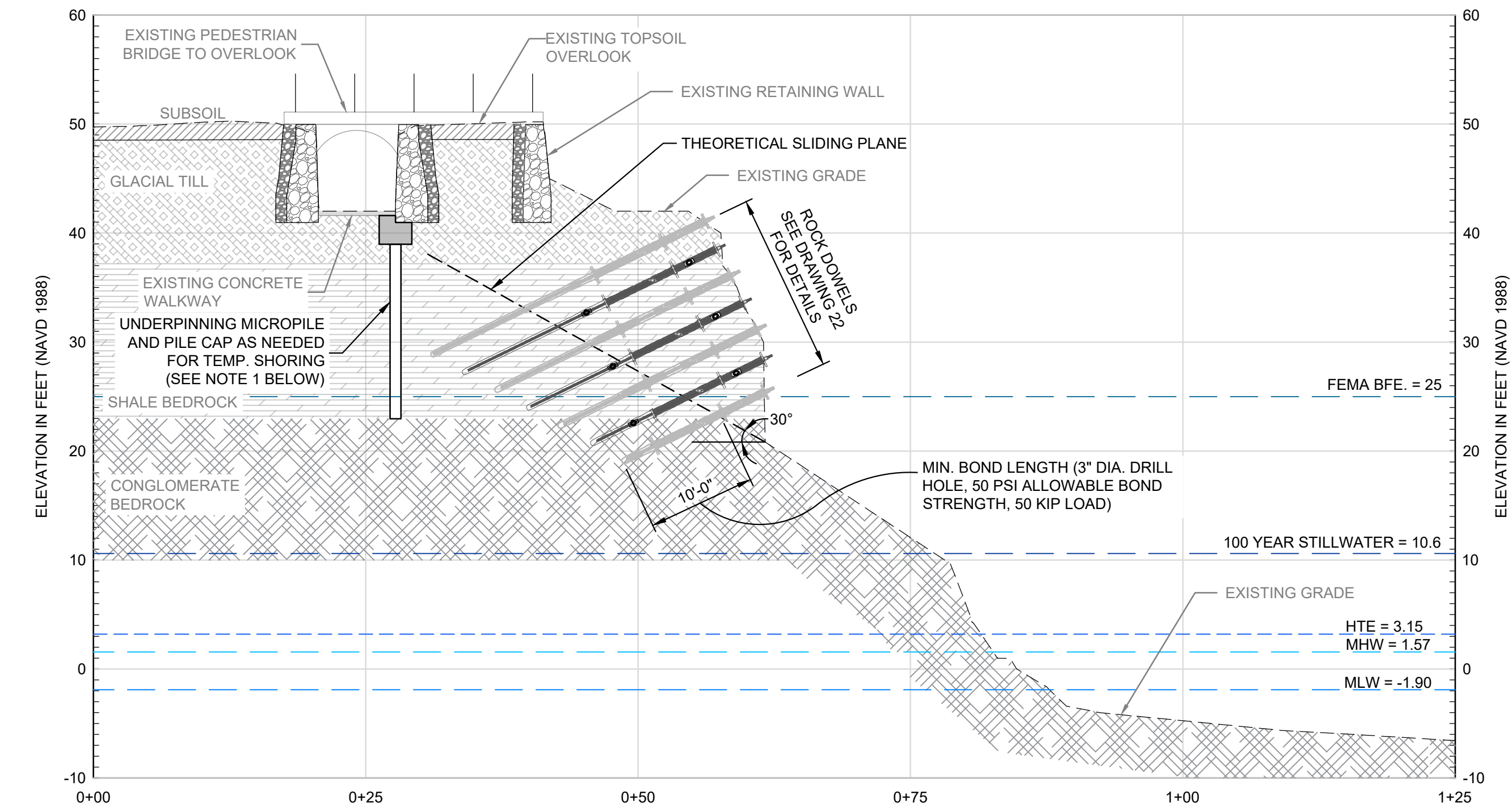
SHEET NO. 17 OF 21

© 2026 - GZA GeoEnvironmental, Inc. GZA-1-1031-026 133884-01.TWS (CAD) CURRENT PLANS 100% DESIGN 12-25118-PROPOSED TYPICAL REPAIR SECTION E-E' AND F-F'.DWG 18_PROPOSED TYPICAL REPAIR SECTION E-E' AND F-F'.DWG August 12, 2026 GARY BASTIEN



E
14 18
PROPOSED SECTION E-E'
SCALE: 1"=10'

NOTE:
SLOPE DRAWN IS ILLUSTRATIVE FOR
REPRESENTATIVE SECTION SHOWN.
ELEVATIONS SHOWN ARE TO BE MAINTAINED
FOR ENTIRE WALL ALIGNMENT.



F
14 18
PROPOSED SECTION F-F'
SCALE: 1"=10'

NOTE:
1. DURING PROPOSED REVETMENT AND ROCK DOWEL CONSTRUCTION, BRIDGE TO BE CONTINUOUSLY MONITORED FOR MOVEMENT. IF STABILITY OF THE BRIDGE IS IMPACTED, CONTRACTOR SHALL DESIGN AND CONSTRUCT MICROPILE AND CAP UNDERPINNING SYSTEM.

NOTE:
SLOPE DRAWN IS ILLUSTRATIVE FOR
REPRESENTATIVE SECTION SHOWN.
ELEVATIONS SHOWN ARE TO BE MAINTAINED
FOR ENTIRE WALL ALIGNMENT.

RIDOT R8 RIPRAP ARMOR STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	14000	4.4
50% (D.50)	3500	2.7
15% (D.15)	1750	2.2
MIN	437.5	1.4

LARGE ARMOR STONE (Below EL. 20ft.)		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	36700	6.1
50% (D.50)	30000	5.6
MIN	22000	5.1

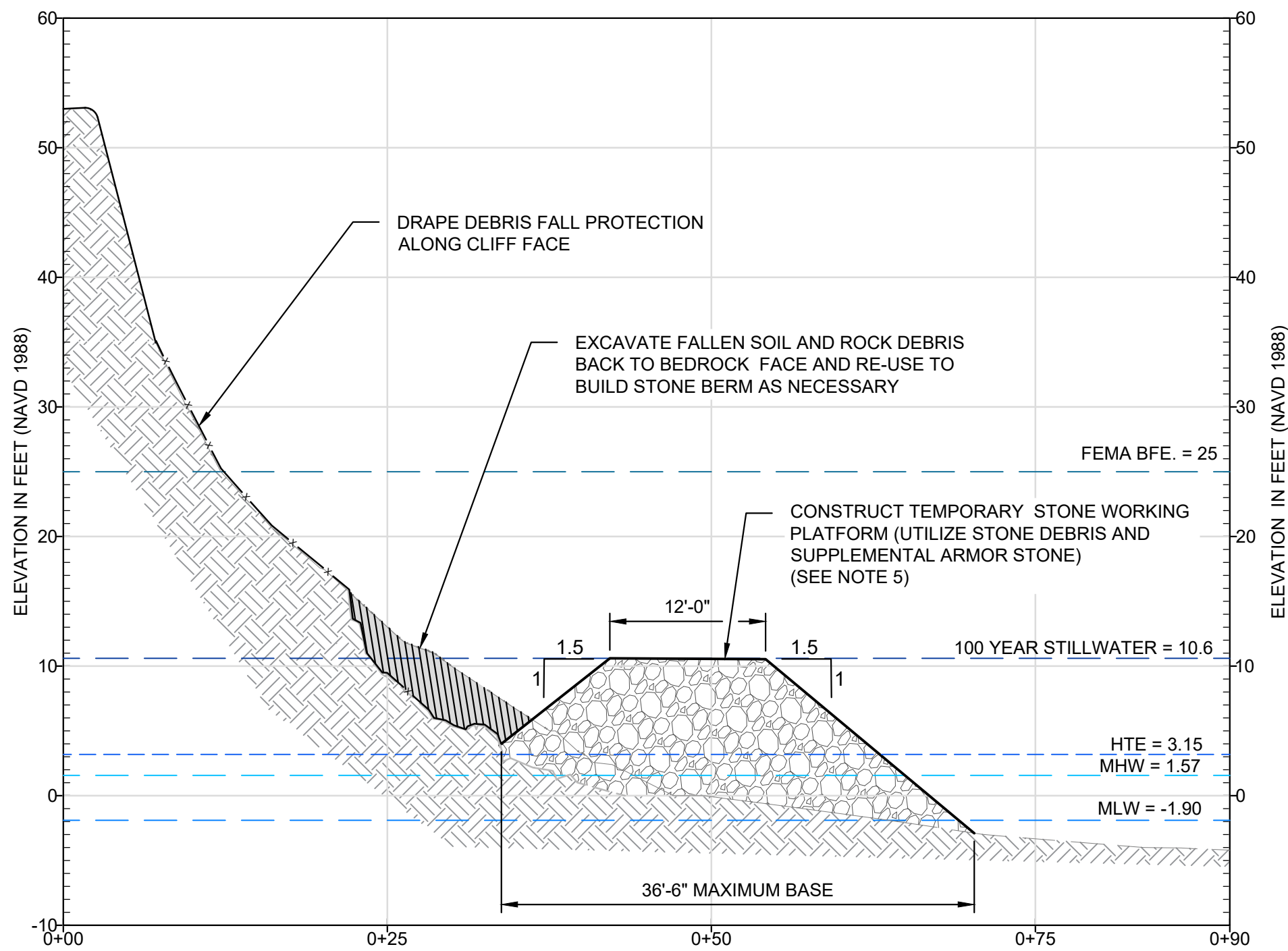
SMALL ARMOR STONE (Above EL. 20ft.)		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	30000	5.6
50% (D.50)	7500	3.5
15% (D.15)	4000	2.8
MIN	937.5	1.8

CORE STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (FT)
MAX	621.1	1.6
50% (D.50)	155.3	1.2
15% (D.15)	77.6	0.8
MIN	19.4	0.5

BEDDING STONE		
	STONE WEIGHT (LB) (EACH)	NOMINAL DIAMETER (IN)
MAX	44.9	8.0
50% (D.50)	11.2	4.8
15% (D.15)	5.6	3.8
MIN	1.4	0.2

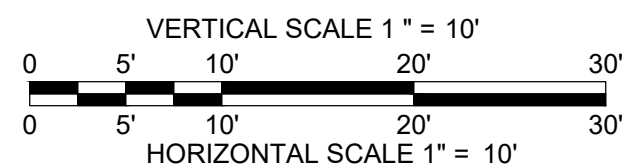
NOTES:

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- RIDOT R8 STONE TO BE PLACED ABOVE EXISTING CONCRETE BLOCK WALL AND WILL SIT DIRECTLY ON CRUSHED STONE LAYER.
- STONE BELOW BLOCK WALL TO BE CONSISTENT WITH REVETMENT FROM SECTIONS A-D.
- TEMPORARY STONE PLATFORM IS SHOWN FOR ILLUSTRATION PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN OF PLATFORM BASED ON THESE MEANS AND METHODS. PLATFORM SHALL BE REMOVED FOLLOWING CONSTRUCTION EFFORT. NO SOIL SHOULD BE ALLOWED FOR THE CONSTRUCTION OF THE STONE PLATFORM.
- INSTALL REVETMENT STONES WITHIN SECTION F FOLLOWING PLACEMENT OF REVETMENT ALONG ALL OTHER PORTIONS OF CLIFF WALK OR OTHER.

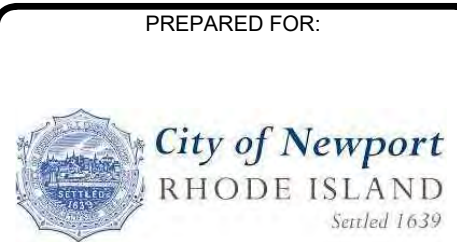


1
14 18
OPTIONAL WORKING PLATFORM - DETAIL
SCALE: 1"=10'

NOTE:
FOR TEMPORARY USE ONLY DURING
REPAIR CONSTRUCTION



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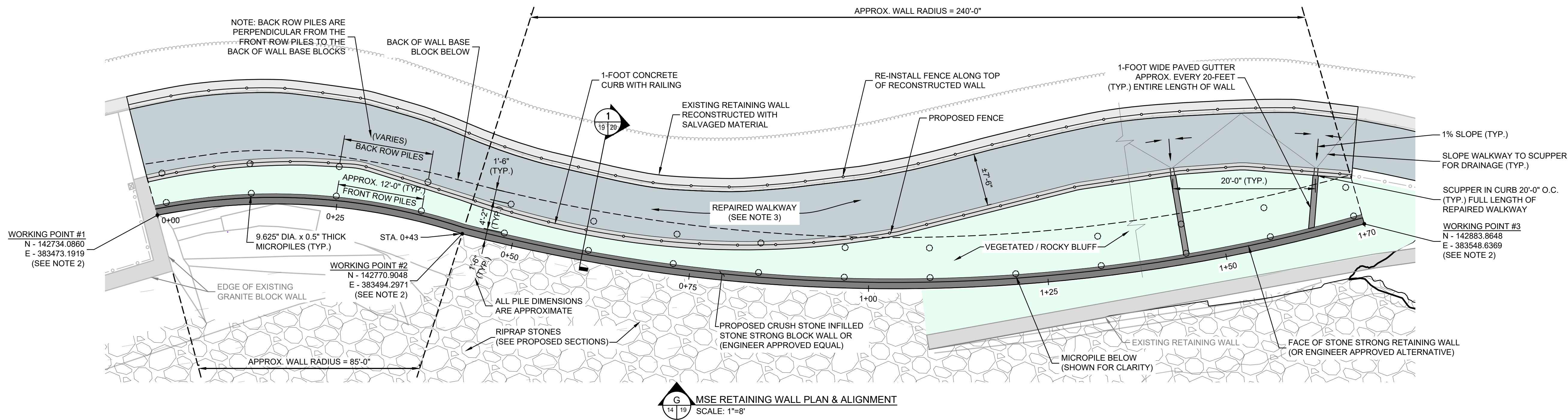
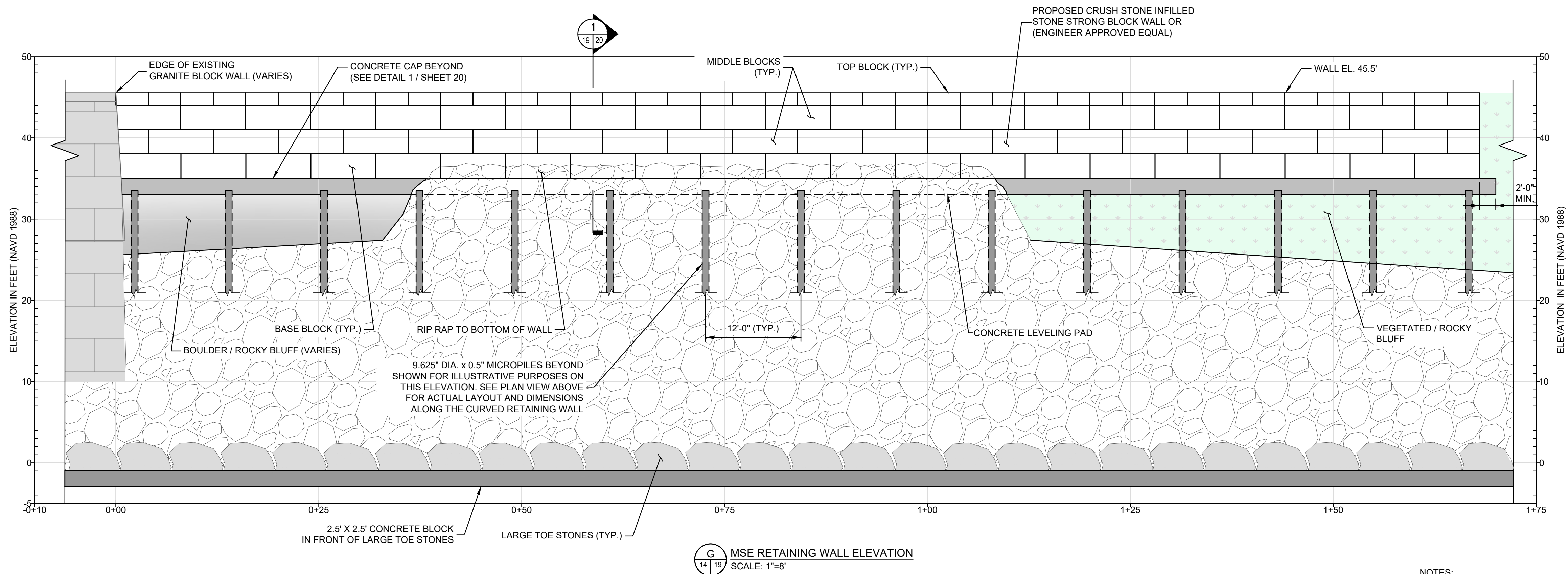
PROJECT NO:	33884.01
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SCALE:	AS NOTED
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NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

PROPOSED CONDITIONS AND
WORKING PLATFORM SECTIONS
(SHEET 3 OF 3)

DRAWING
18
SHEET NO. 18 OF 21

© 2025 - GZA GeoEnvironmental, Inc. GZA--1\GEO\33884.01\TWS\G01\CURRENT\PLANS\100% DESIGN\12-25\19_REPAIR_PLAN-ELEVATIONS.DWG 19-DETAILS December 2, 2025 GARY BASTEN

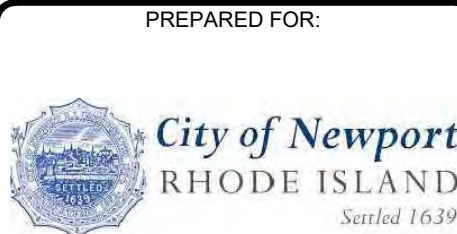


NOTES:

- STONE STRONG BLOCK CONFIGURATION MUST MAINTAIN MINIMUM CONCAVE RADIUS OF 14'-6" AND A MINIMUM CONVEX RADIUS OF 17'. MINIMUM RADII PERTAIN TO THE TOP COURSE.
- WORKING POINTS ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
- REPAIRED WALKWAY ALIGNMENT TO MATCH EXISTING FACE OF EXISTING PRIVACY RETAINING WALL. PERFORM PRE-CONSTRUCTION SURVEY OF EXISTING PRIVACY WALL TO ESTABLISH ACTUAL WALKWAY ALIGNMENT.



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MATTHEW J. PAGE

No. 9448

REGISTERED
PROFESSIONAL ENGINEER
CIVIL

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REV	DESCRIPTION	DATE	BY

PROJECT NO:	33884.01
DATE:	DECEMBER, 2025
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

Received
8/14/2026
Coastal Resources
Management Council

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

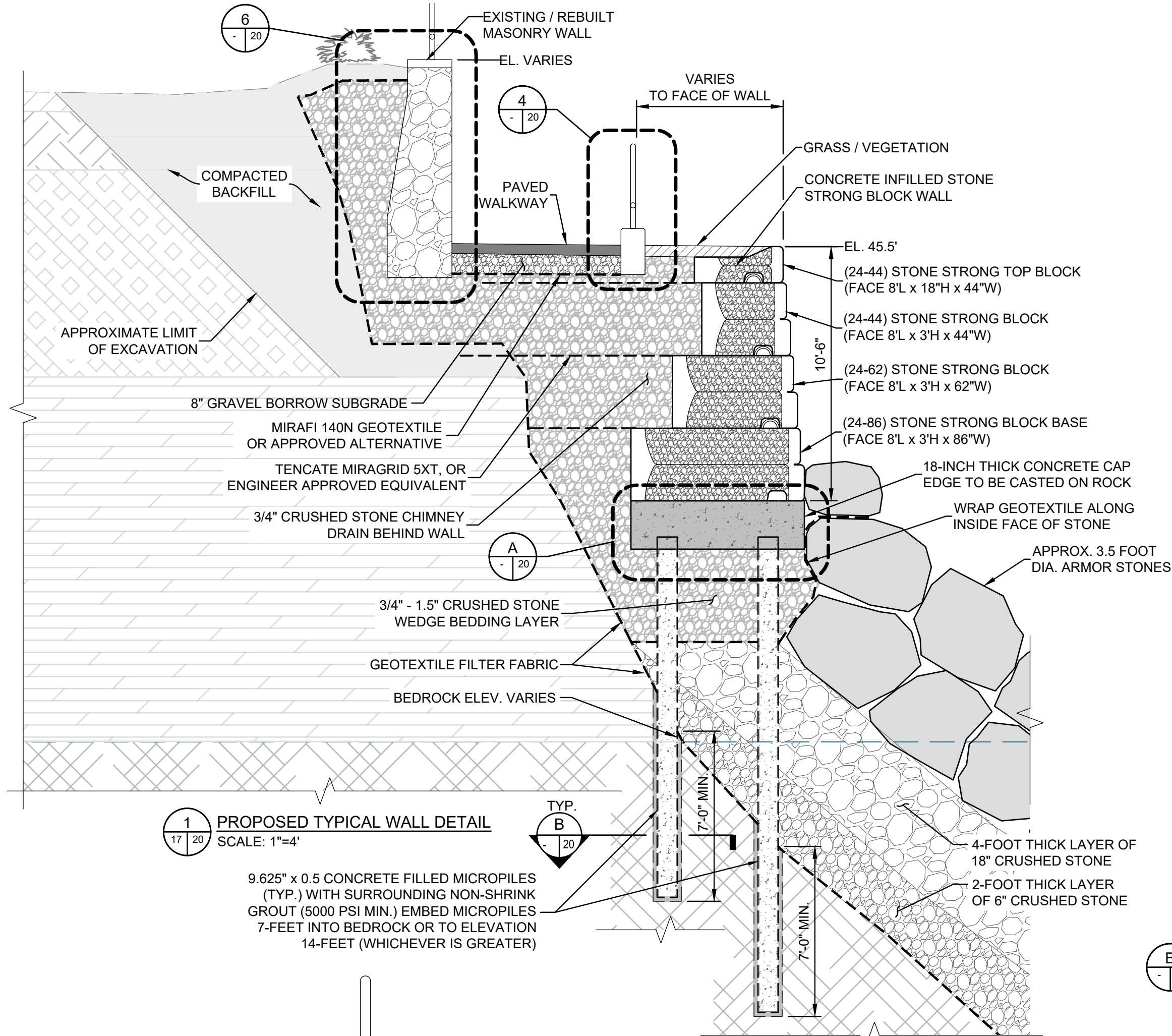
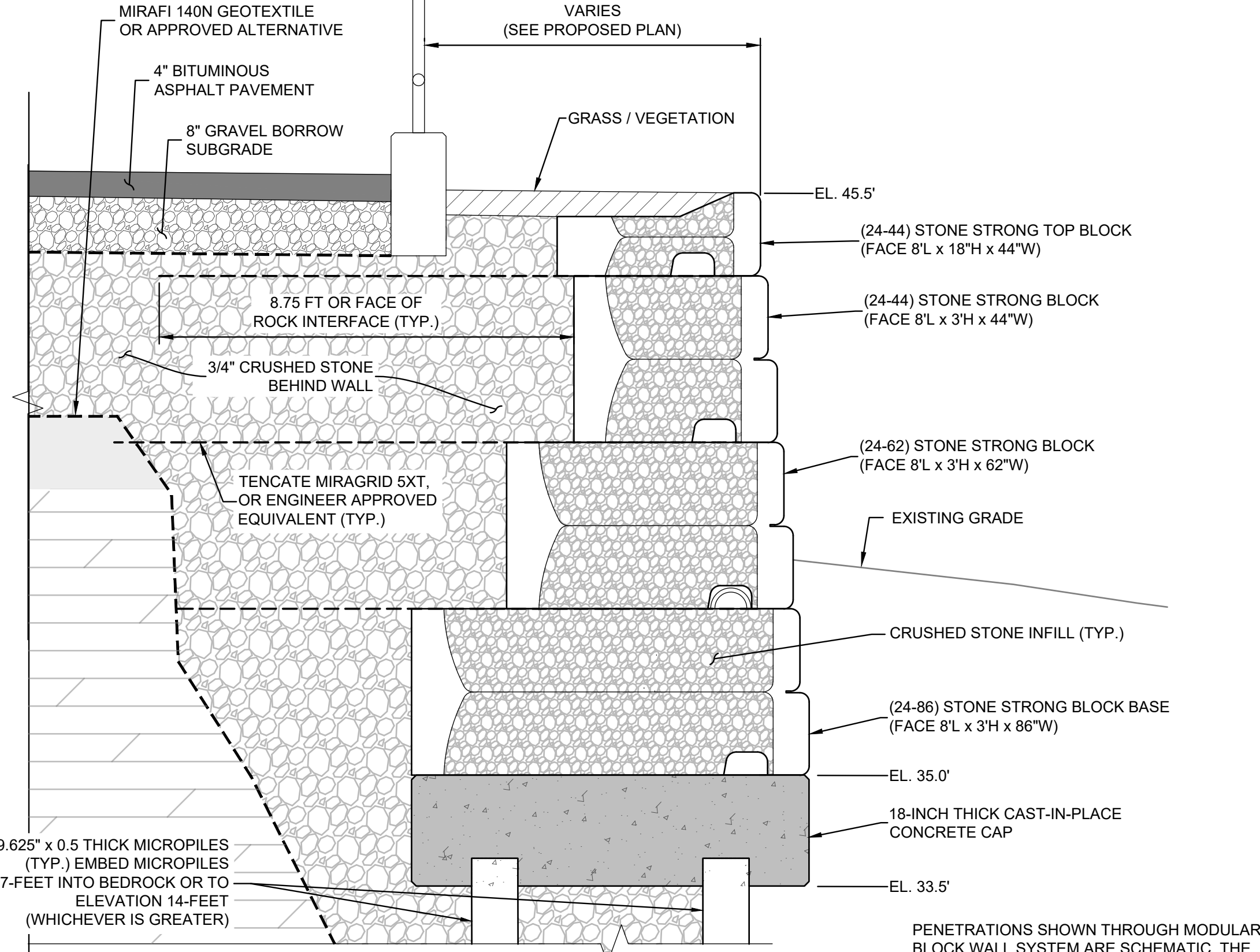
REPAIR PLAN AND ELEVATION

DRAWING

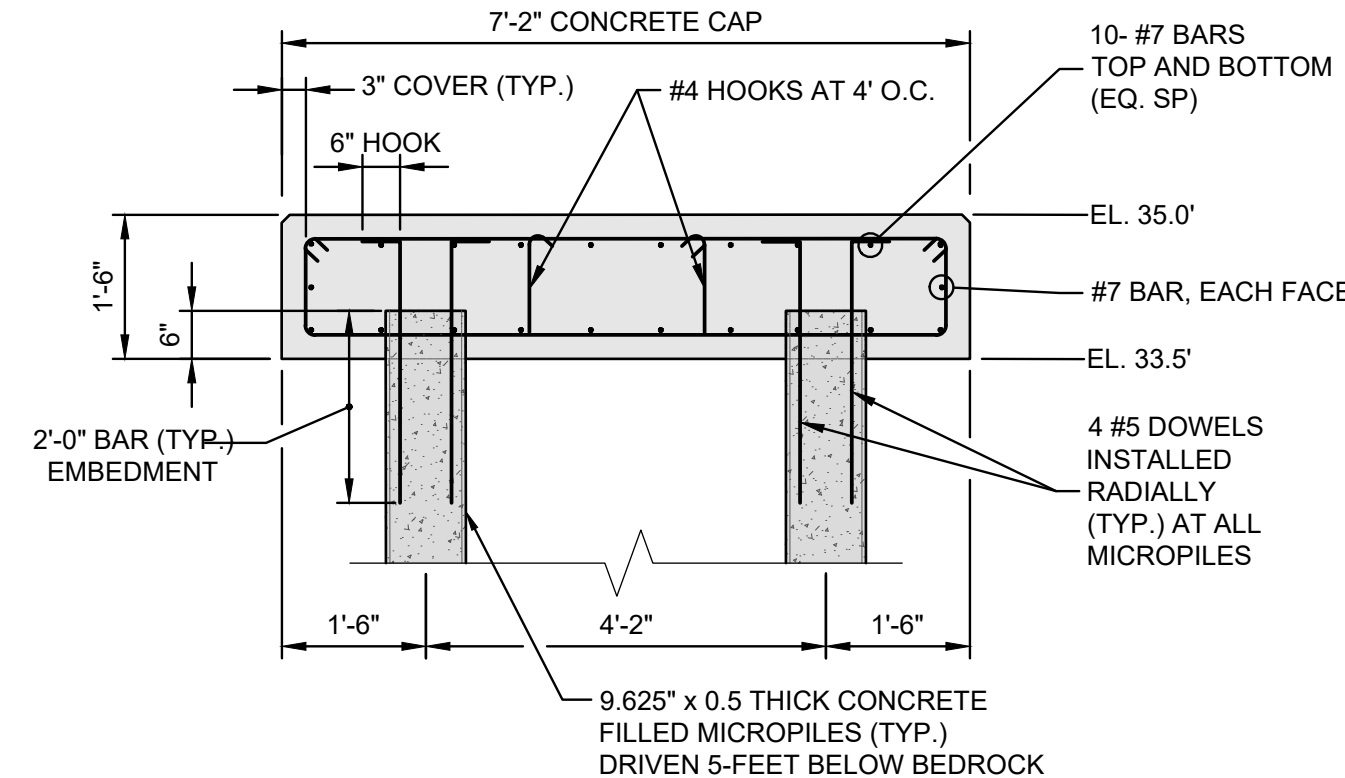
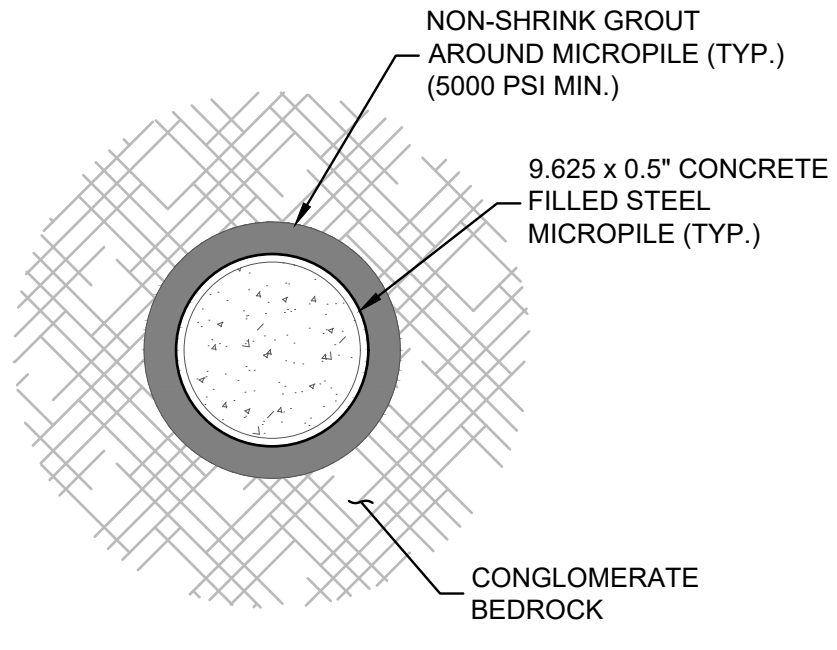
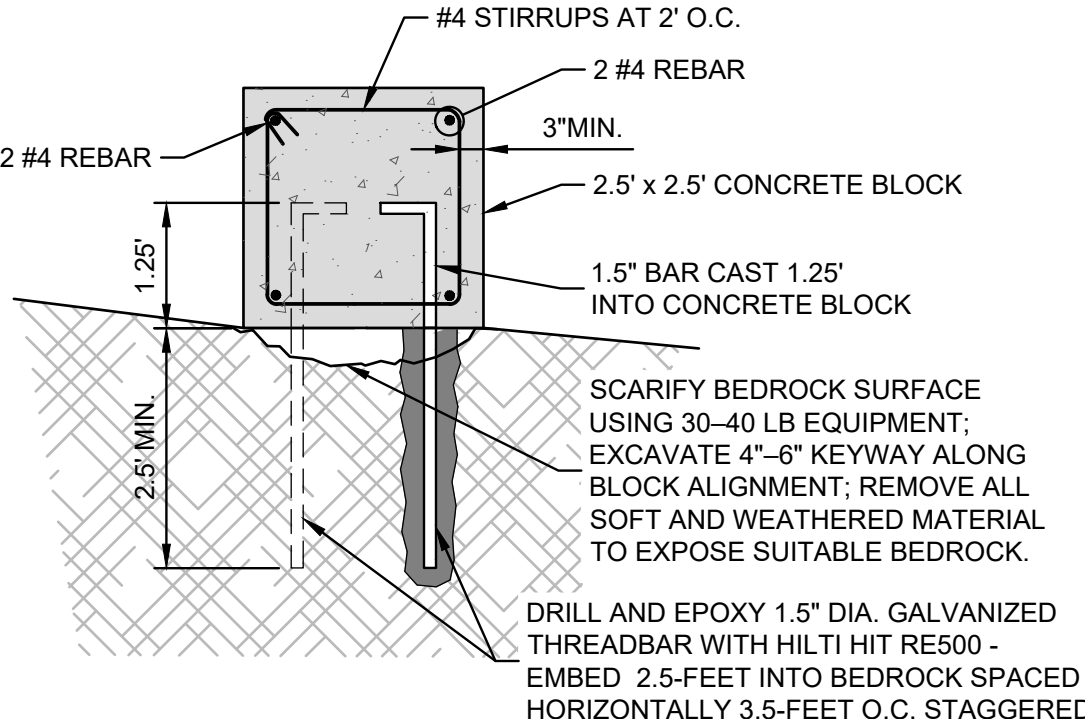
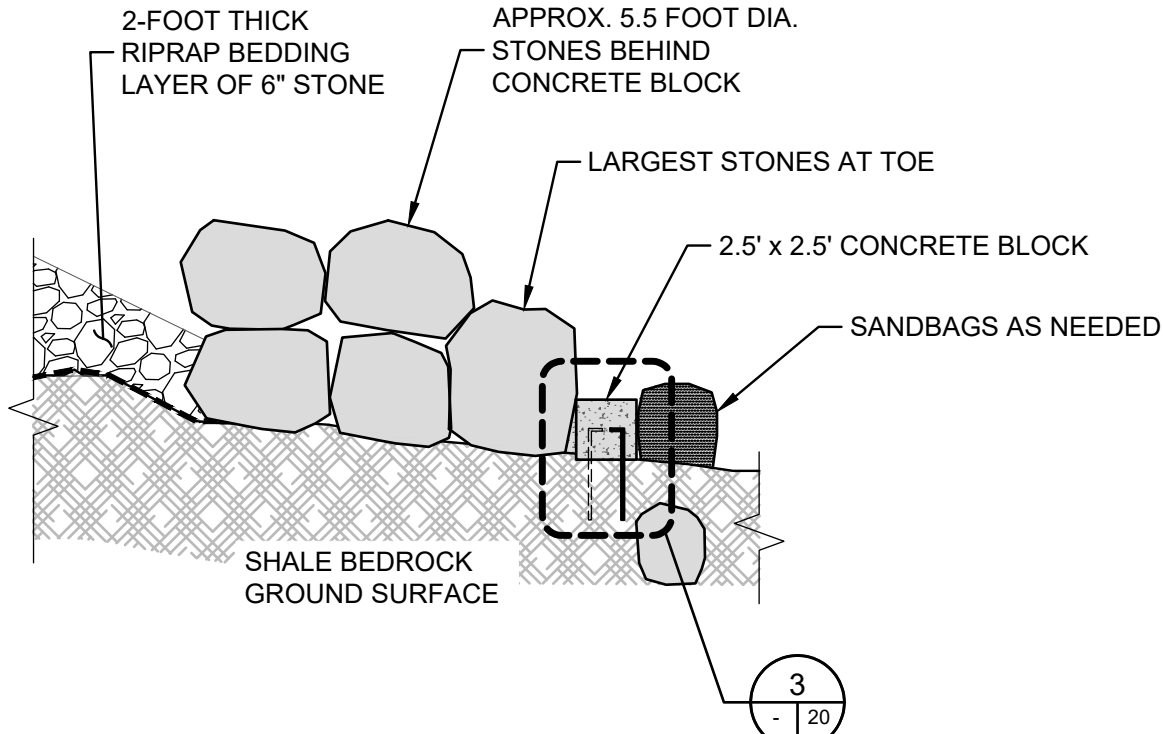
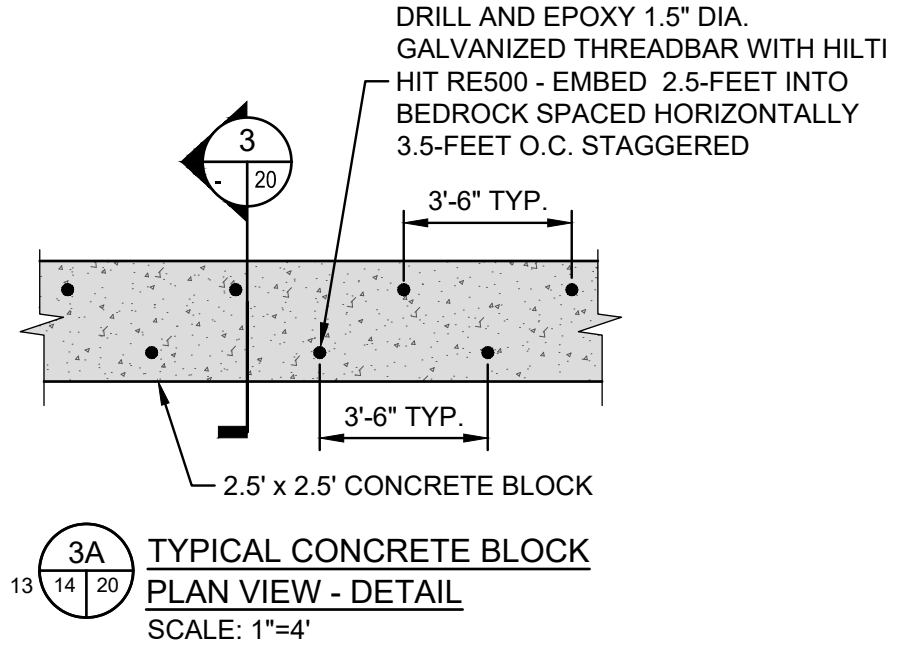
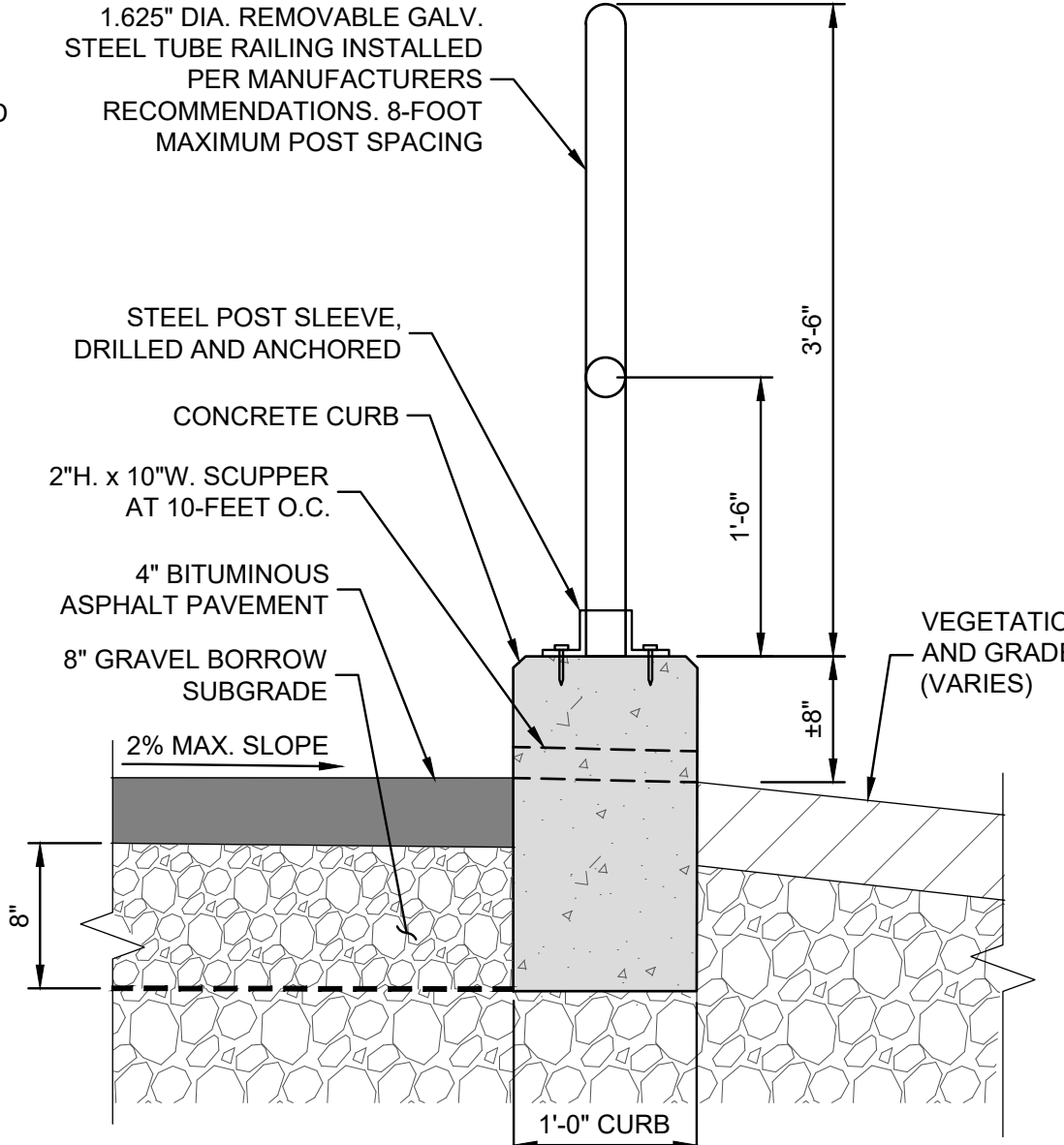
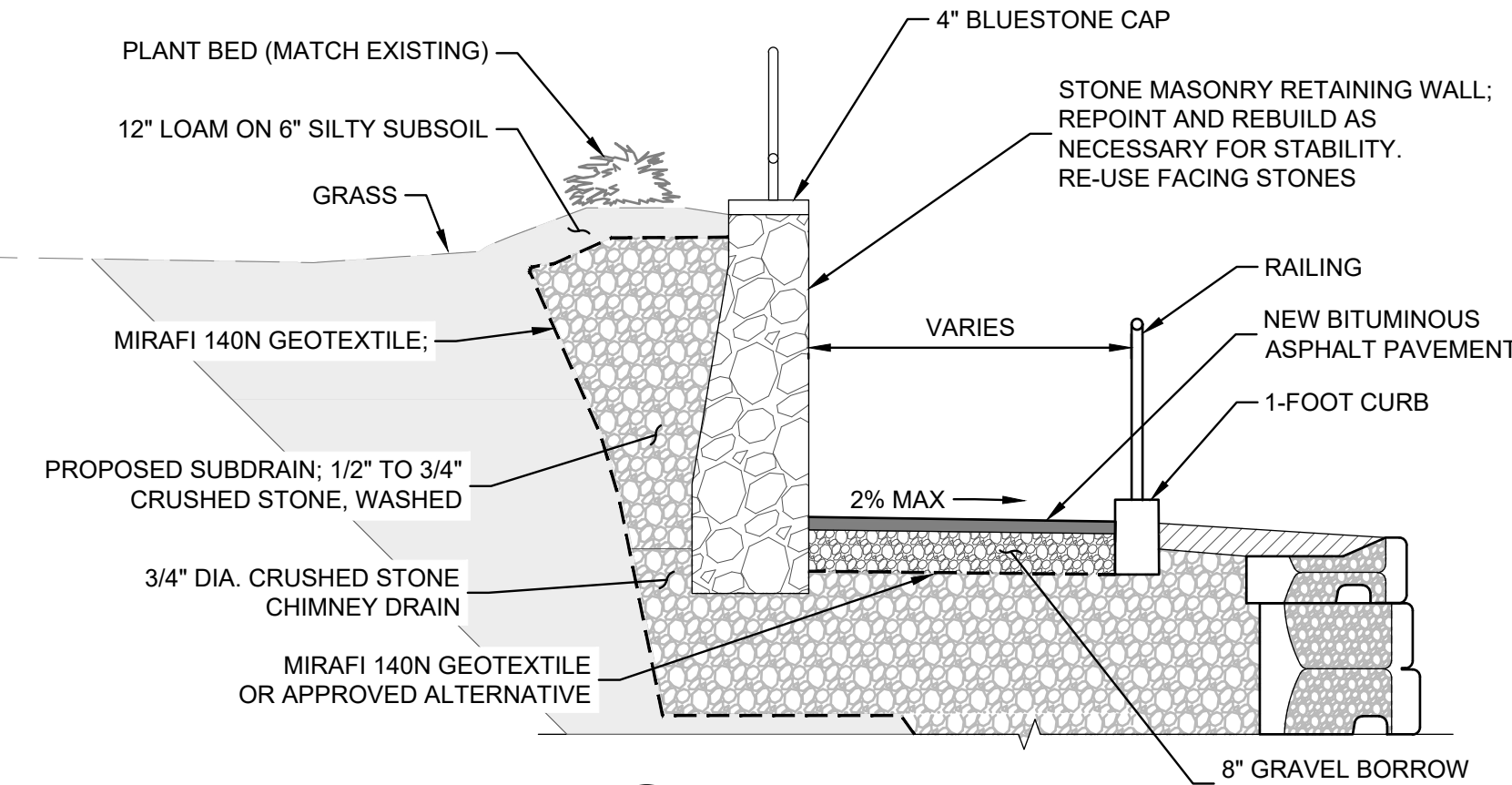
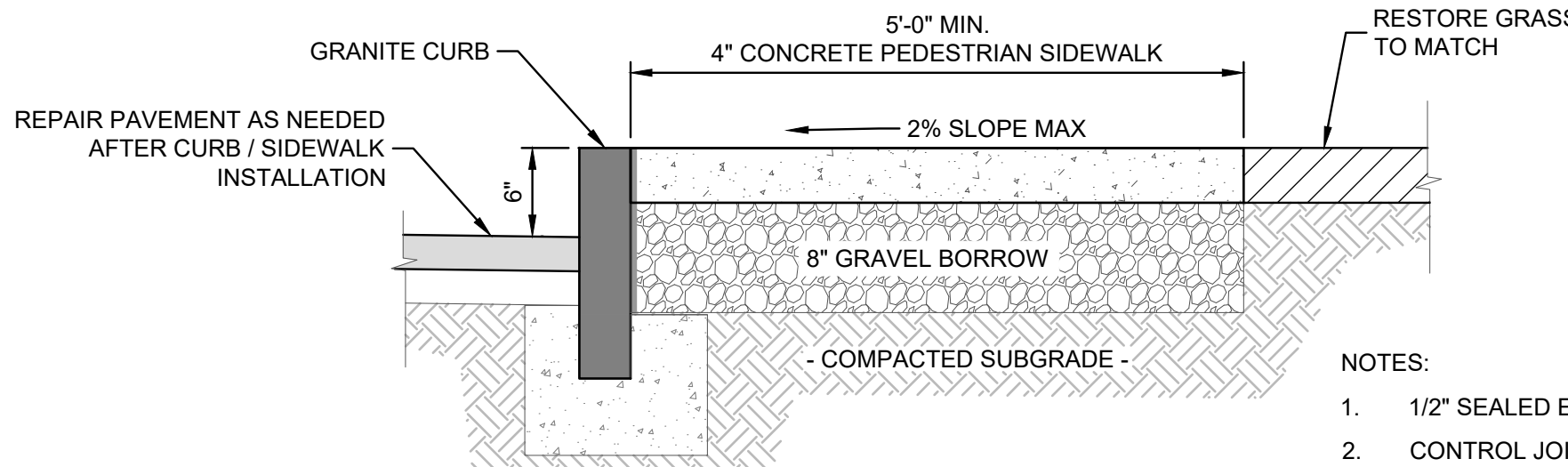
19

SHEET NO. 19 OF 21

© 2025 - GZA GeoEnvironmental, Inc. GZA--A\GEO\33884.01 TWS\GAD\CURRENT\PLANS\100% DESIGN\12-25-25\20_REPAIR DETAILS.DWG 20-DETAILS December 2, 2025 GARY BASTIEN



PENETRATIONS SHOWN THROUGH MODULAR BLOCK WALL SYSTEM ARE SCHEMATIC. THE CONTRACTOR SHALL COORDINATE WITH THE WALL MANUFACTURER TO DETERMINE PROPER METHODS FOR CONSTRUCTING PENETRATIONS THROUGH THE WALL.

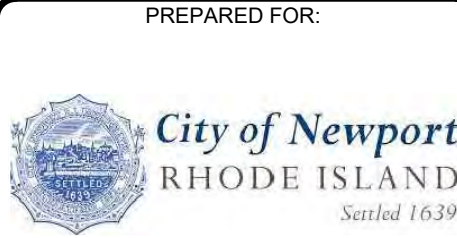


- NOTES:
- 1/2" SEALED EXPANSION JOINT EVERY 30 FEET.
 - CONTROL JOINTS EVERY 6 FEET
 - 6" x 6" - W5 x W5 WELDED WIRE FABRIC
 - 4,000 PSI MIN. STRENGTH, CLASS D.
 - CONCRETE SHALL BE INTEGRALLY COLORED AND STAMPED WHERE SHOWN ON PLANS

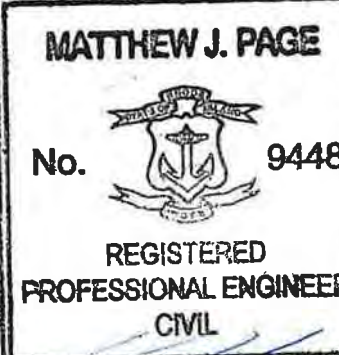
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8/14/2026
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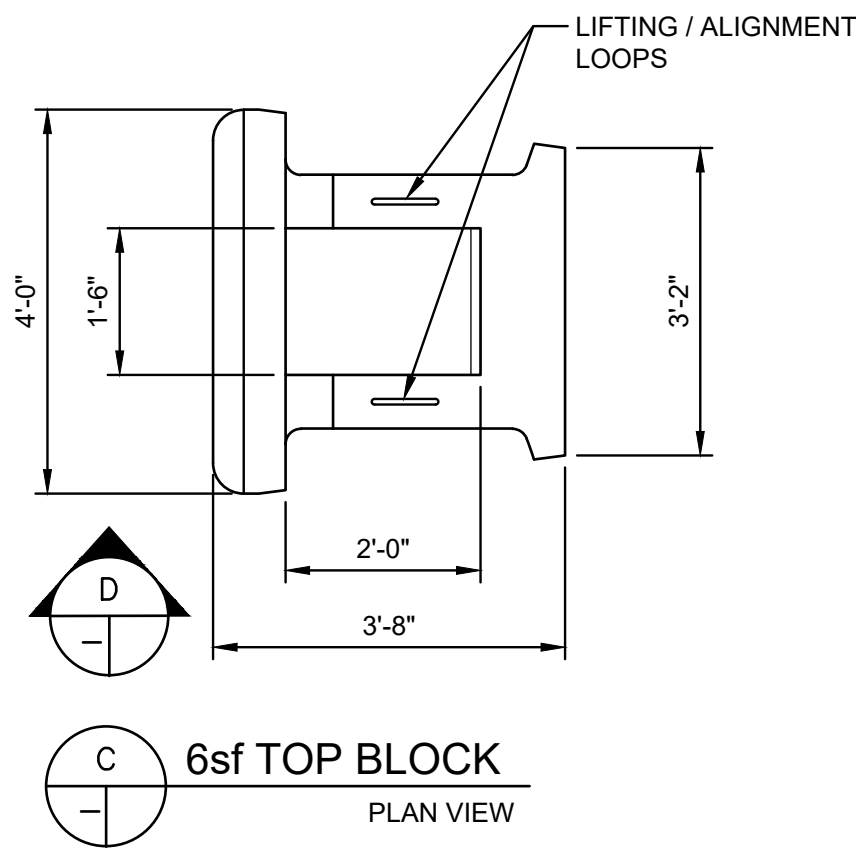
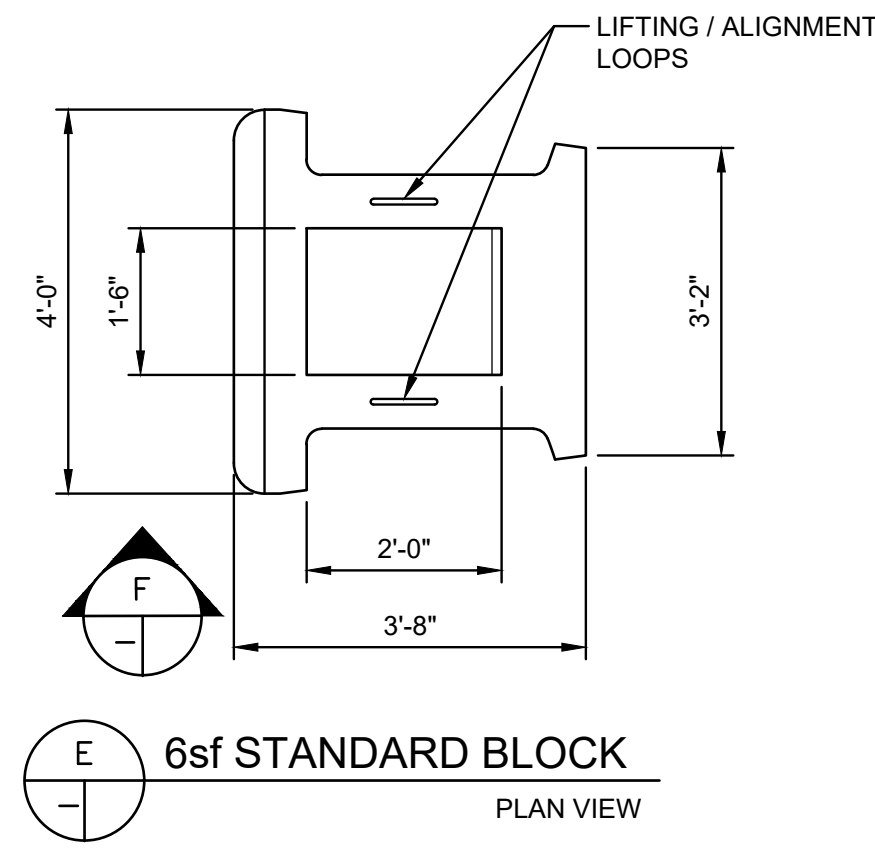
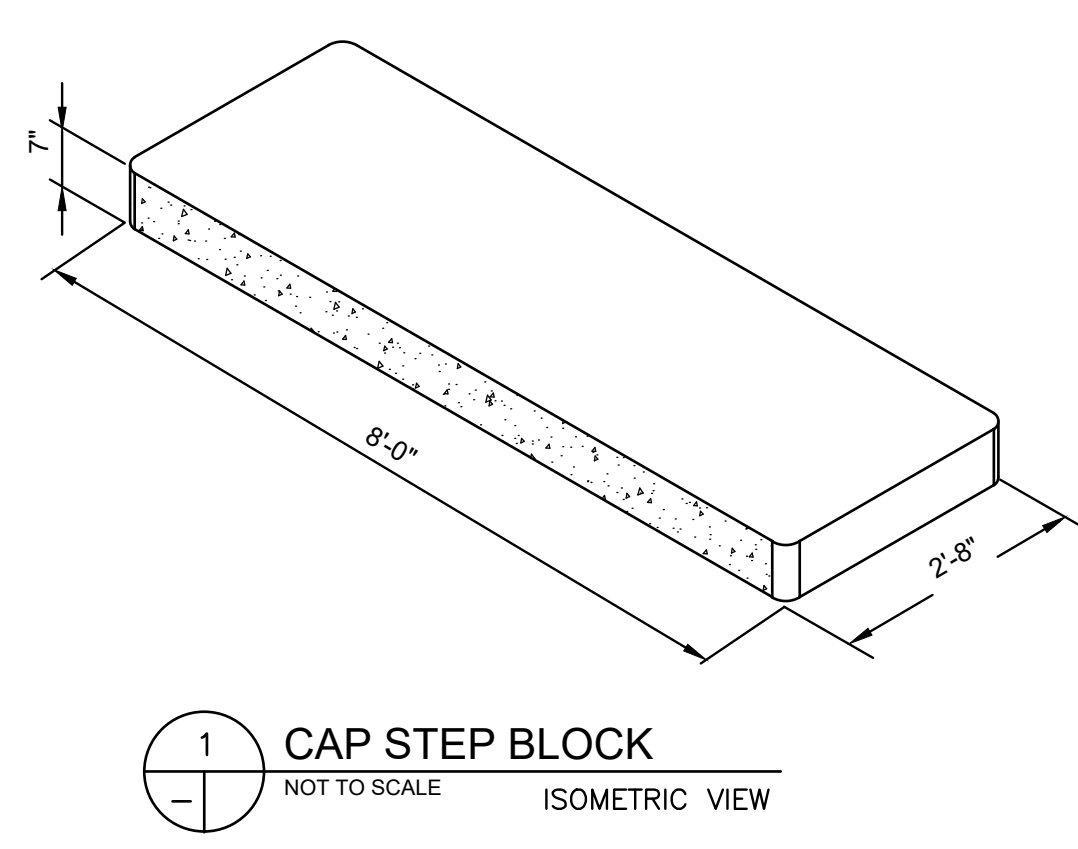
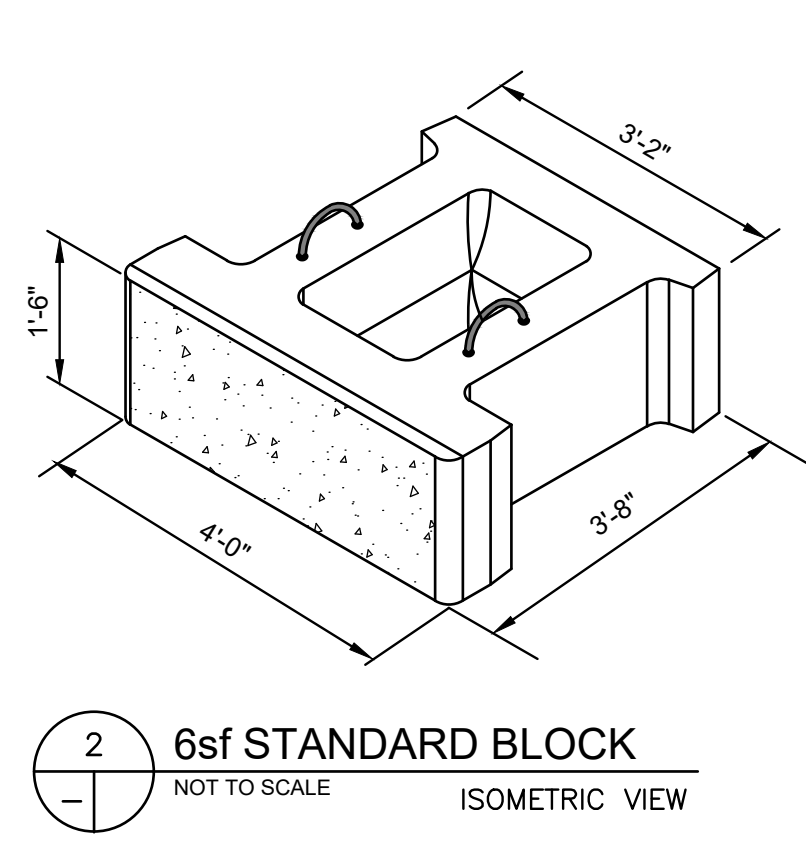
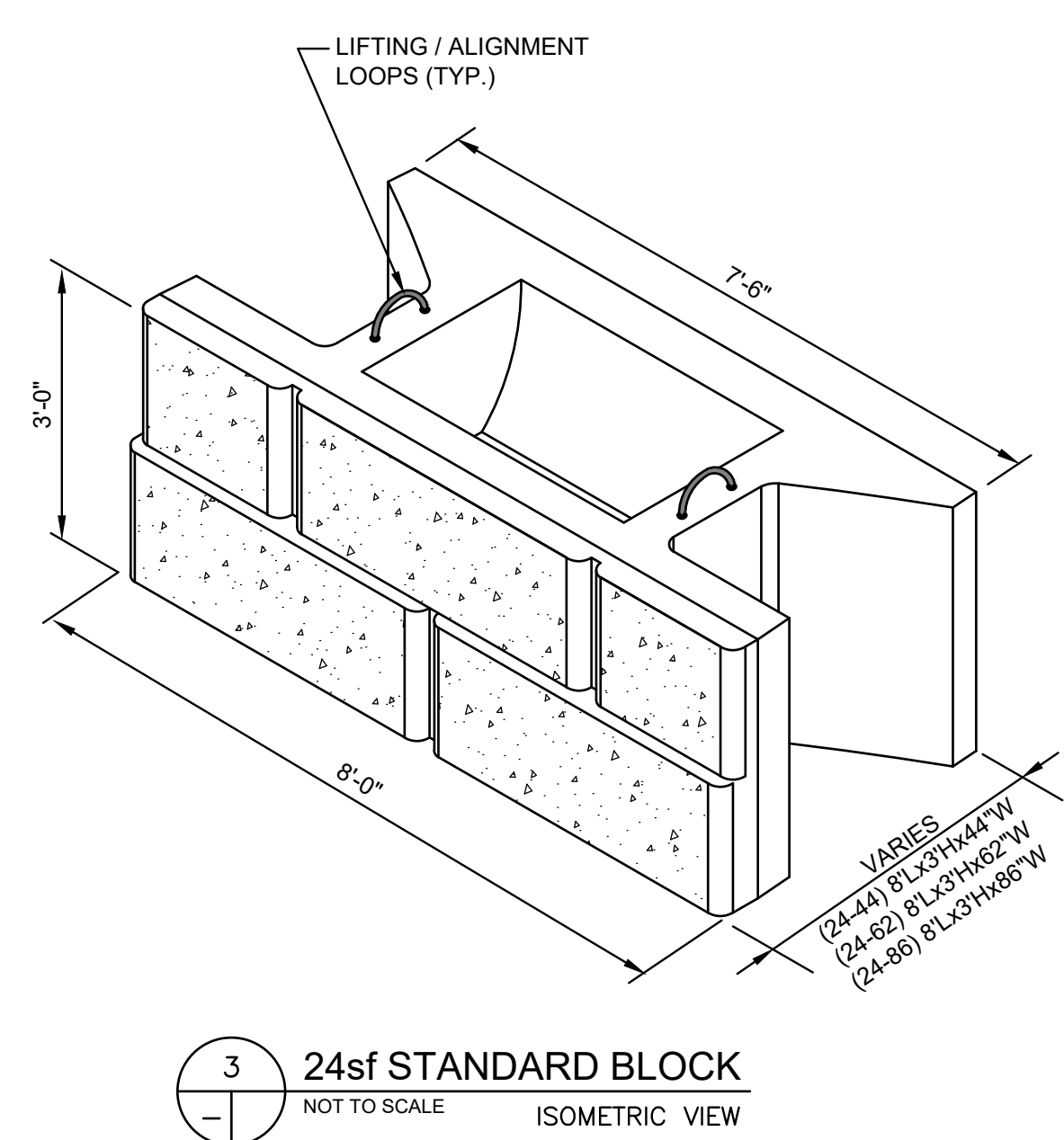
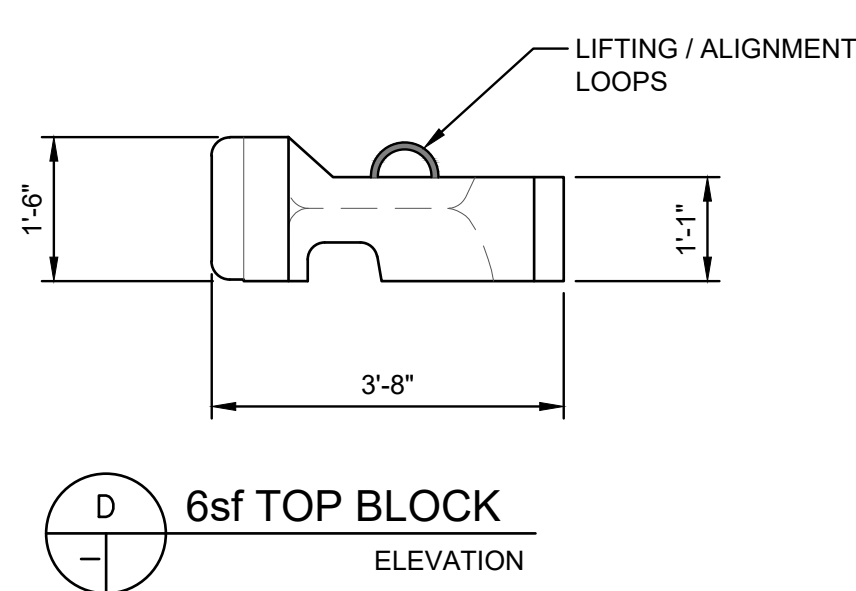
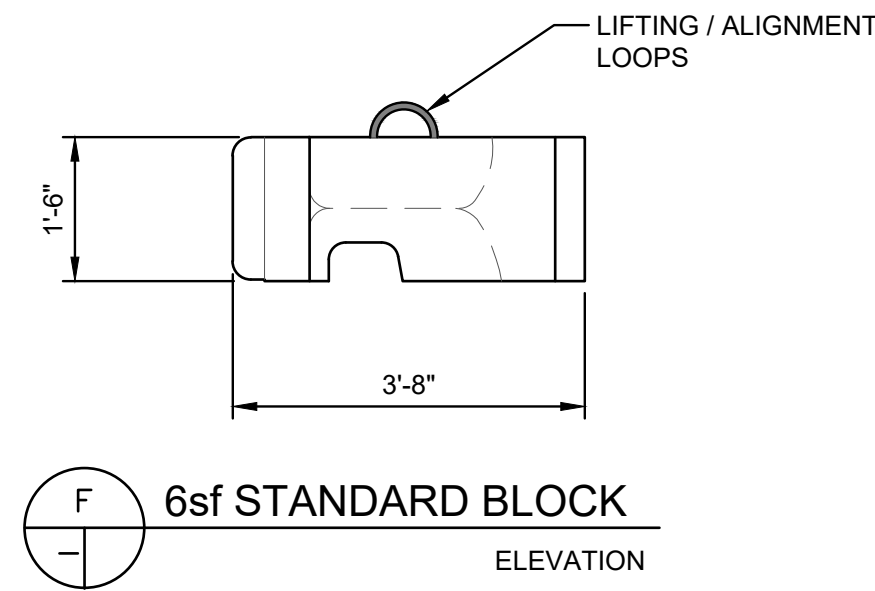
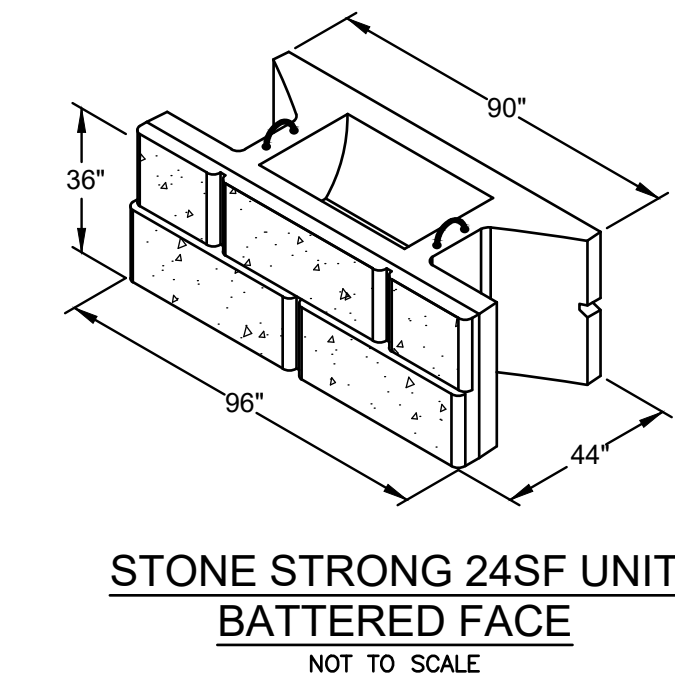
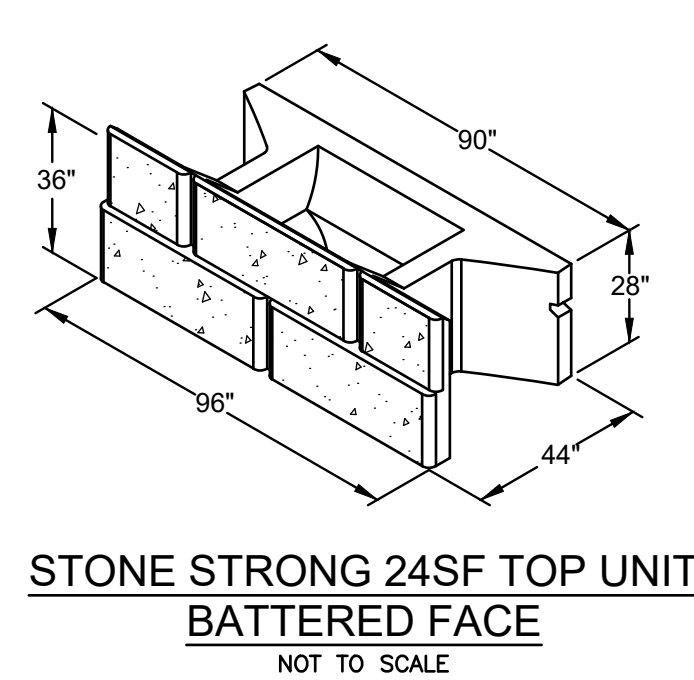
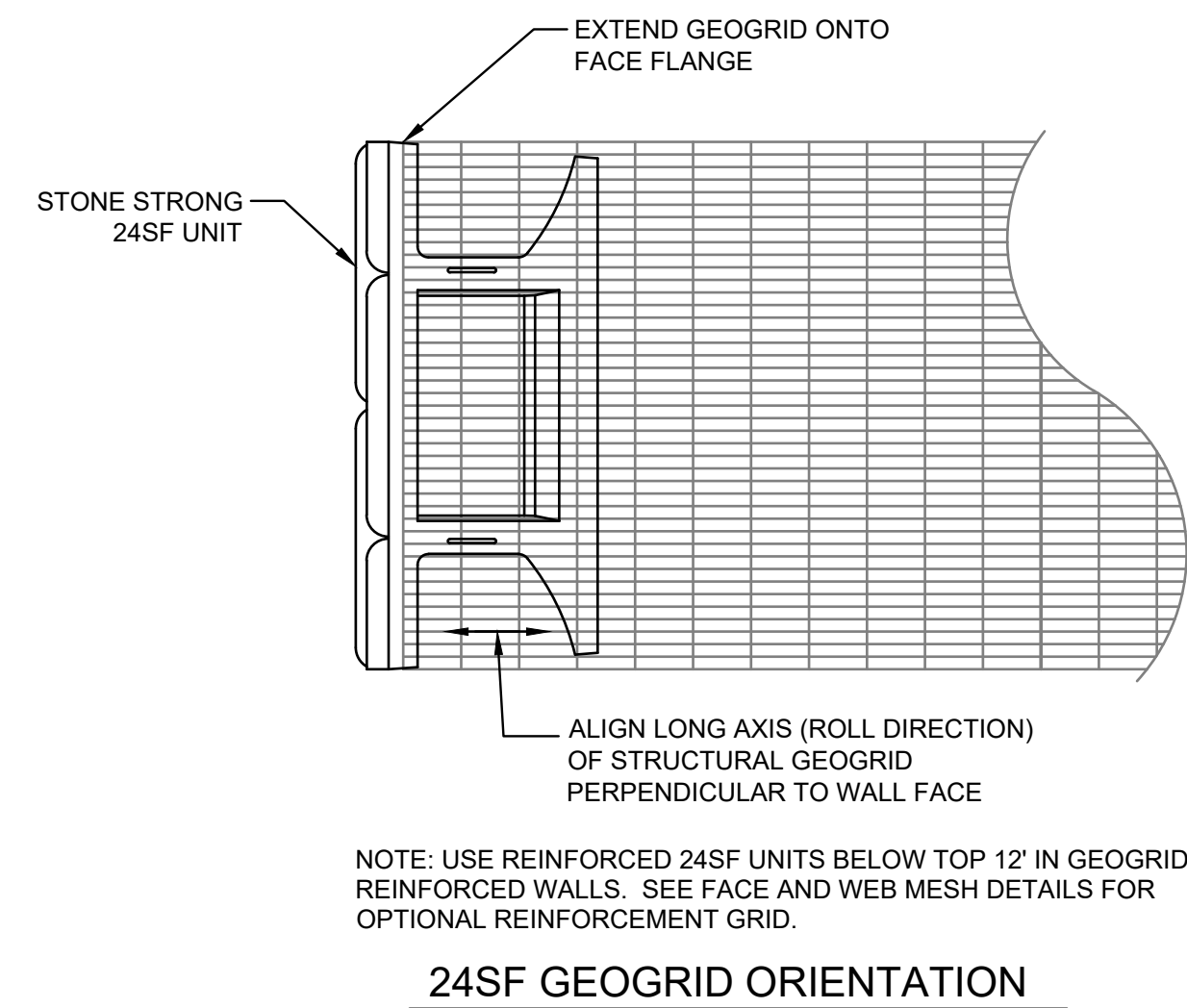
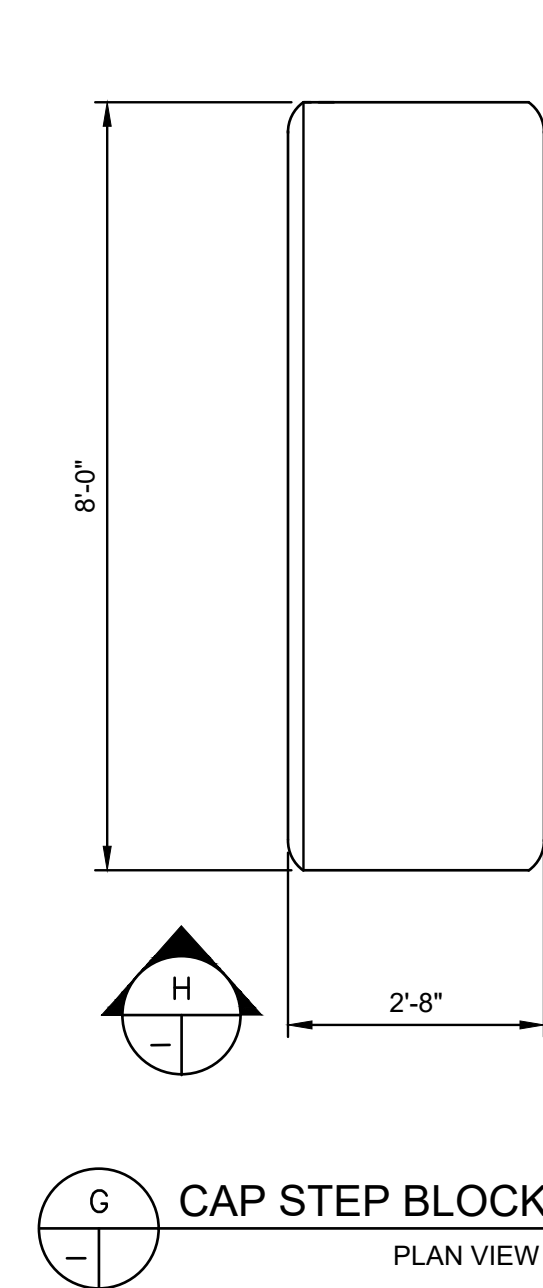
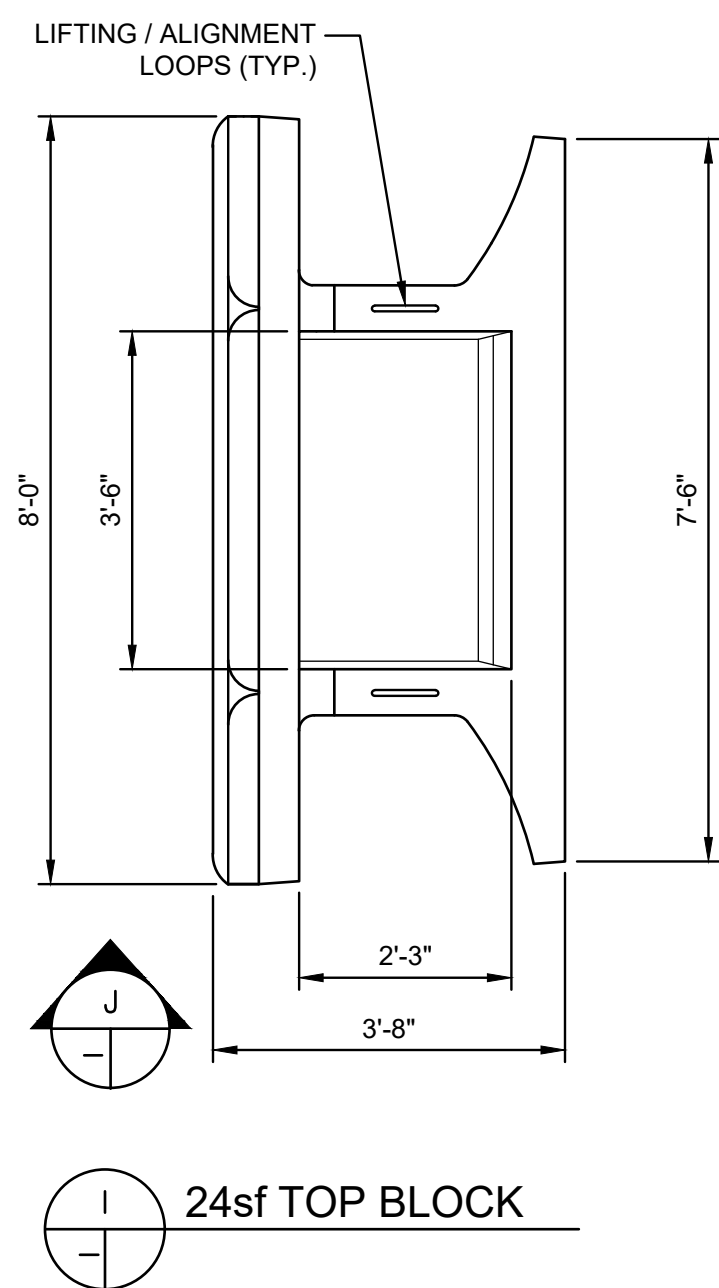
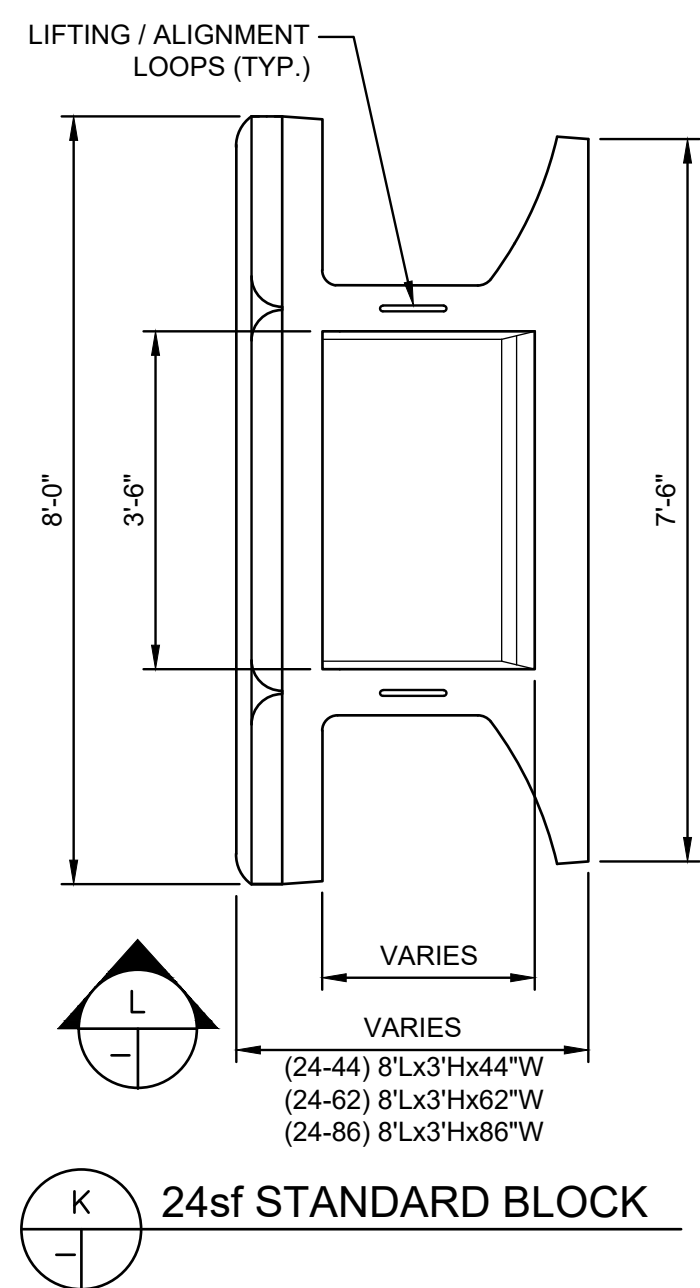
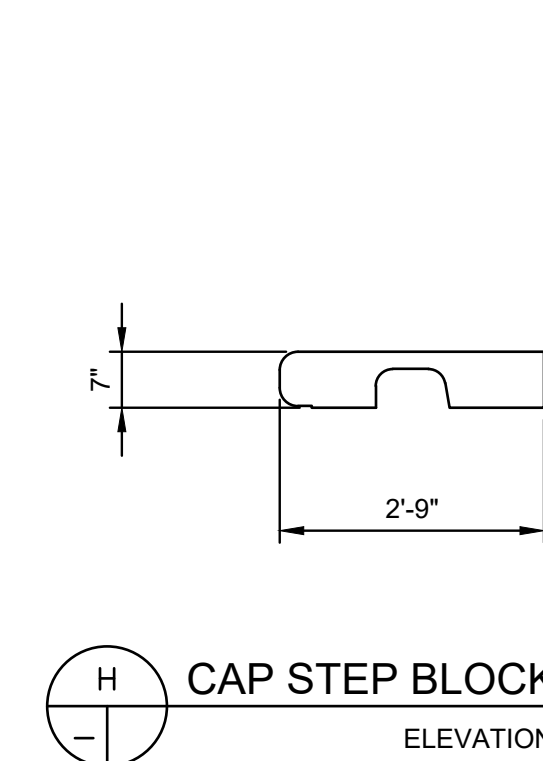
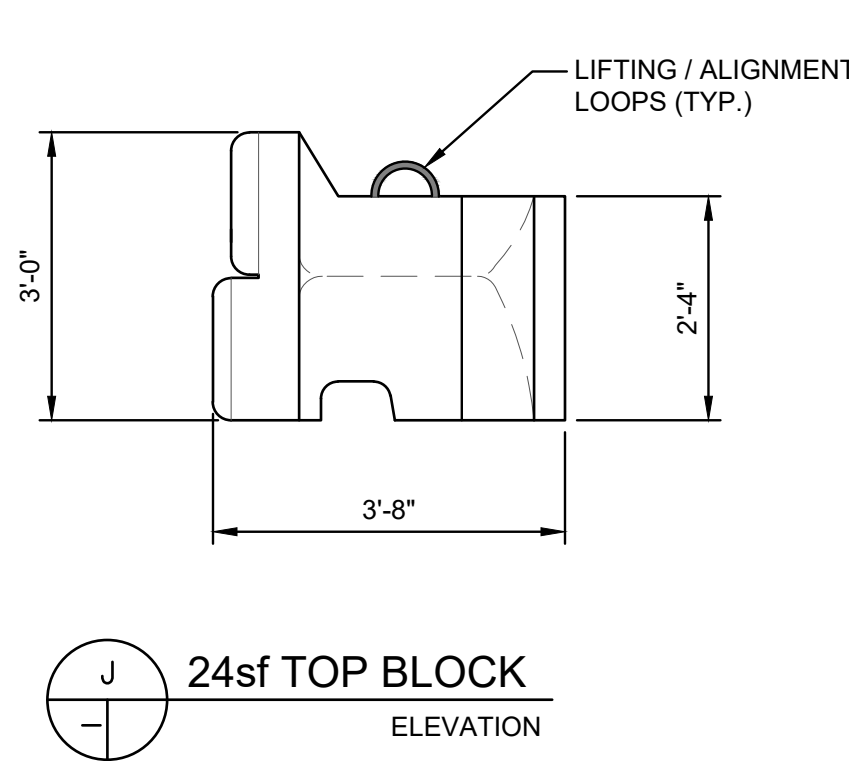
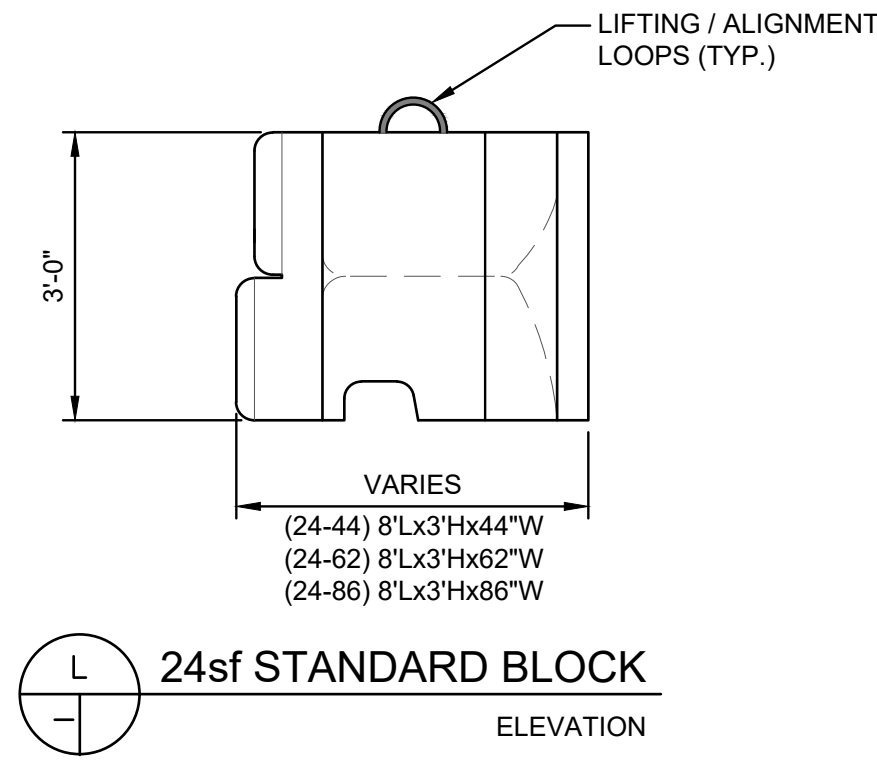
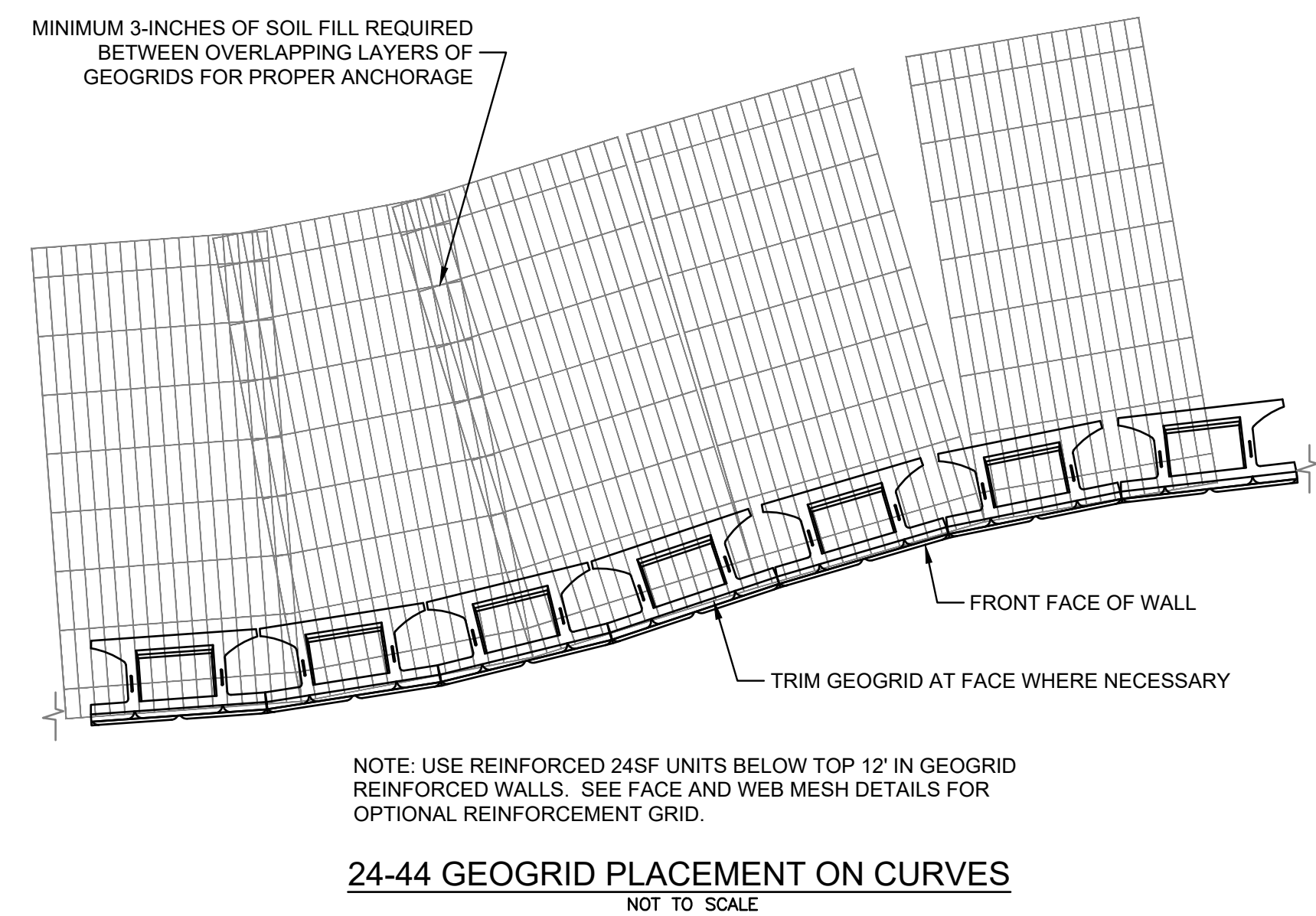
REV	DESCRIPTION	DATE	BY

PROJECT NO: 33884.01
DATE: DECEMBER, 2025
PROJECT MGR: TWS
DESIGNED BY: SAB
DRAWN BY: GRB
CHECKED BY: TWS
REVIEWED BY: MJP
SCALE: AS NOTED
REVISION NO.

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

REPAIR DETAILS

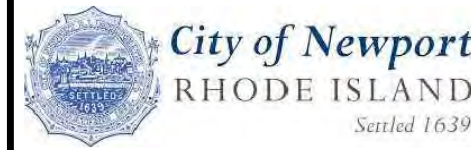
DRAWING
20
SHEET NO. 20 OF 21



Received
8/14/2026
Coastal Resources
Management Council



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REV	DESCRIPTION	DATE	BY

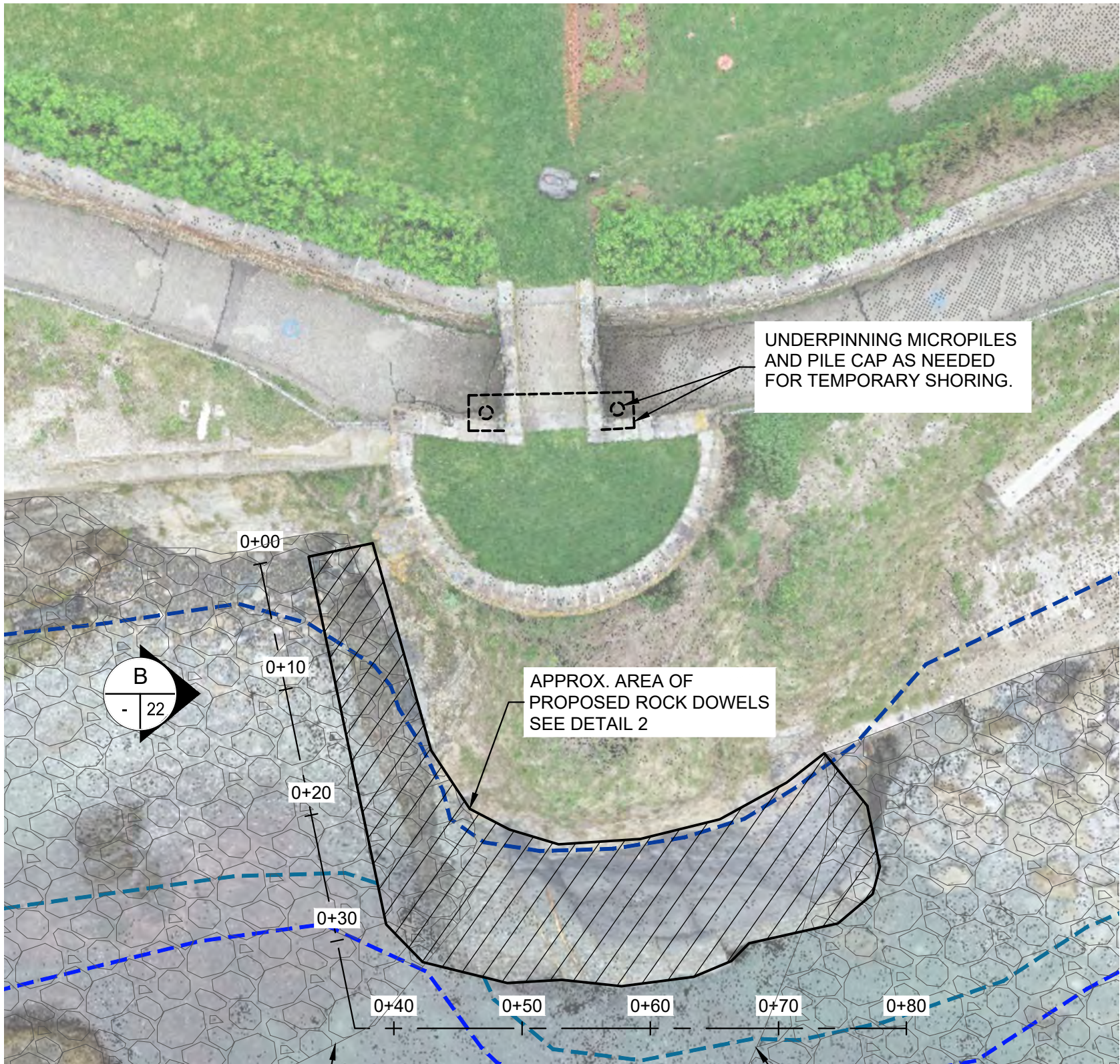
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DATE:	DECEMBER, 2025
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

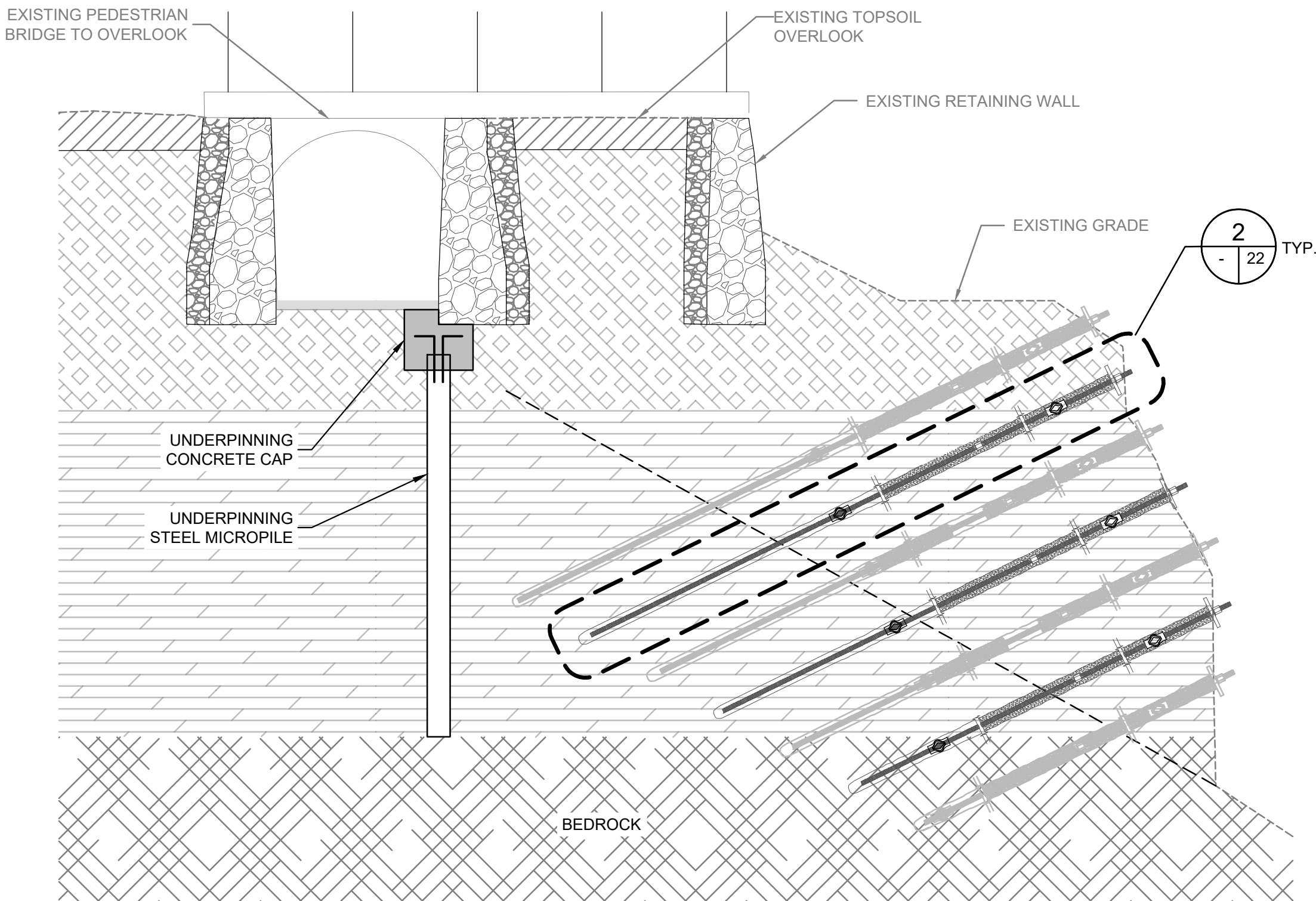
STONE STRONG BLOCK DETAILS

DRAWING
21
SHEET NO. 21 OF 21

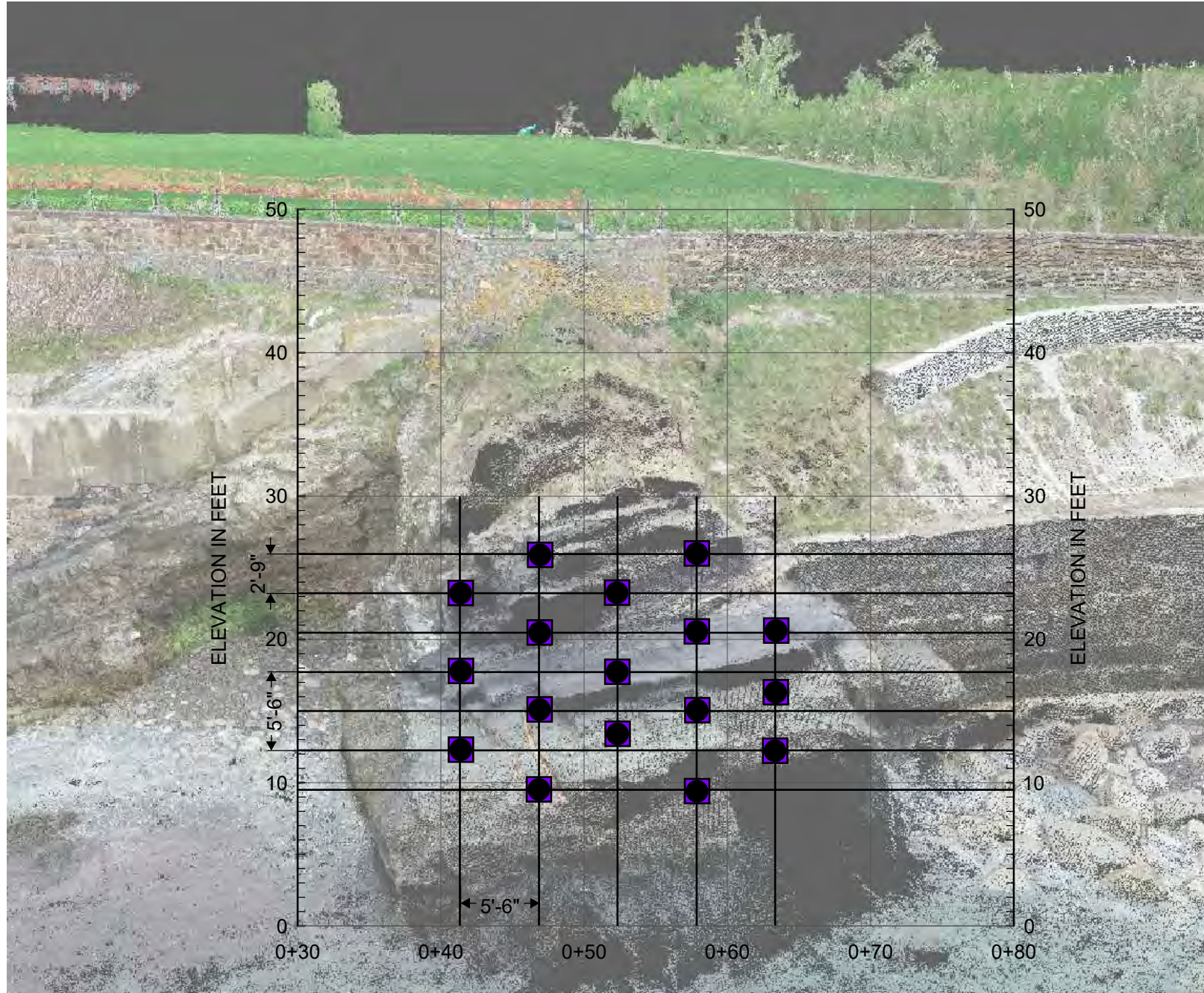
© 2026 - GZA GeoEnvironmental, Inc. GZA-1-1031 (GED) 33884.01.TWS (CAD) CURRENT PLANS 100% DESIGN 12-25122-ROCK DOWEL AND TEMP. SHORING DETAILS.DWG 22-PROP. SECT August 12, 2026 GARY BASTIEN



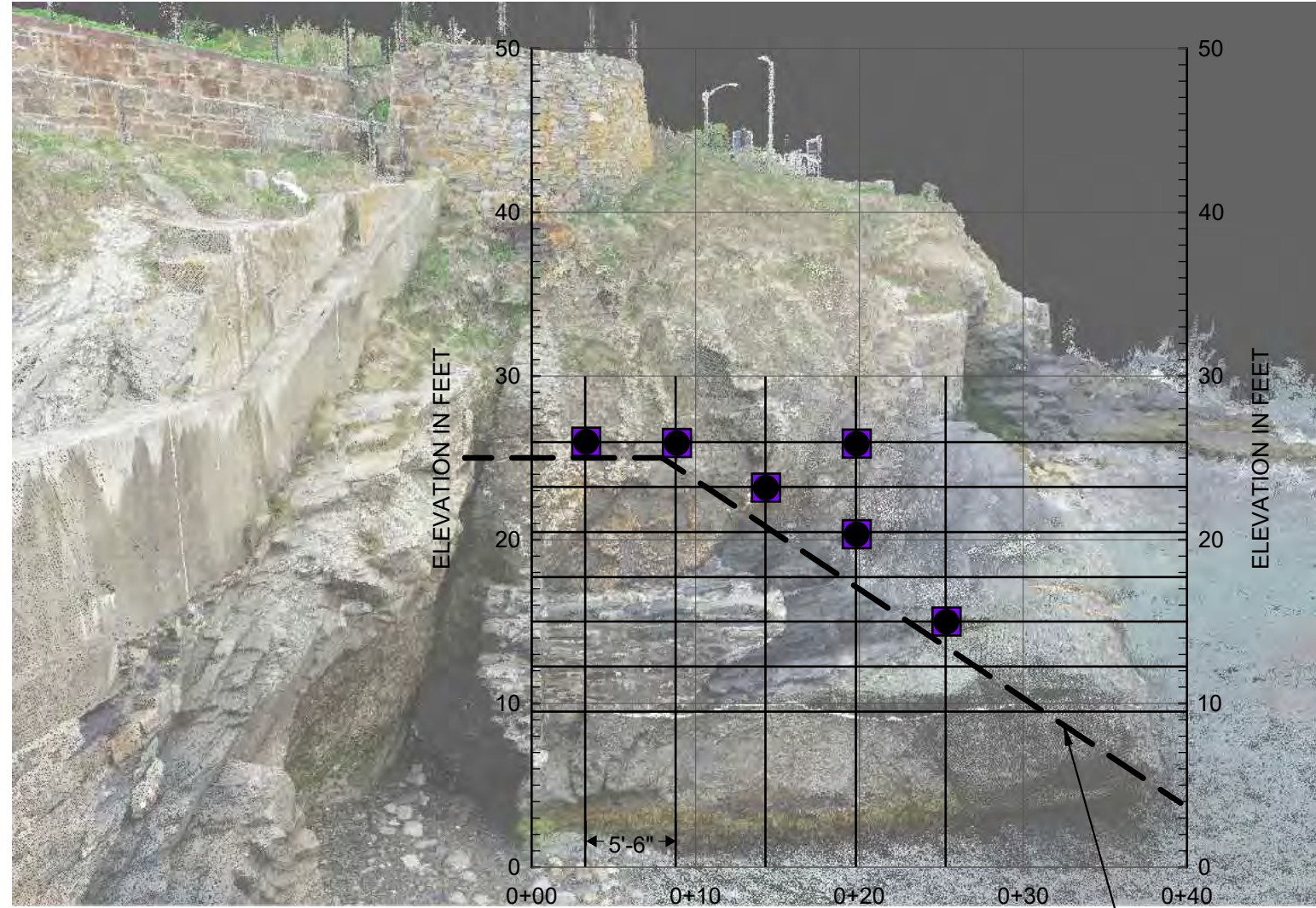
1
- 22
AERIAL PHOTO - PARTIAL PLAN
APPROX. SCALE: 1"=10'



3
- 22
UNDERPINNING DETAIL
SCALE: 1"=5'

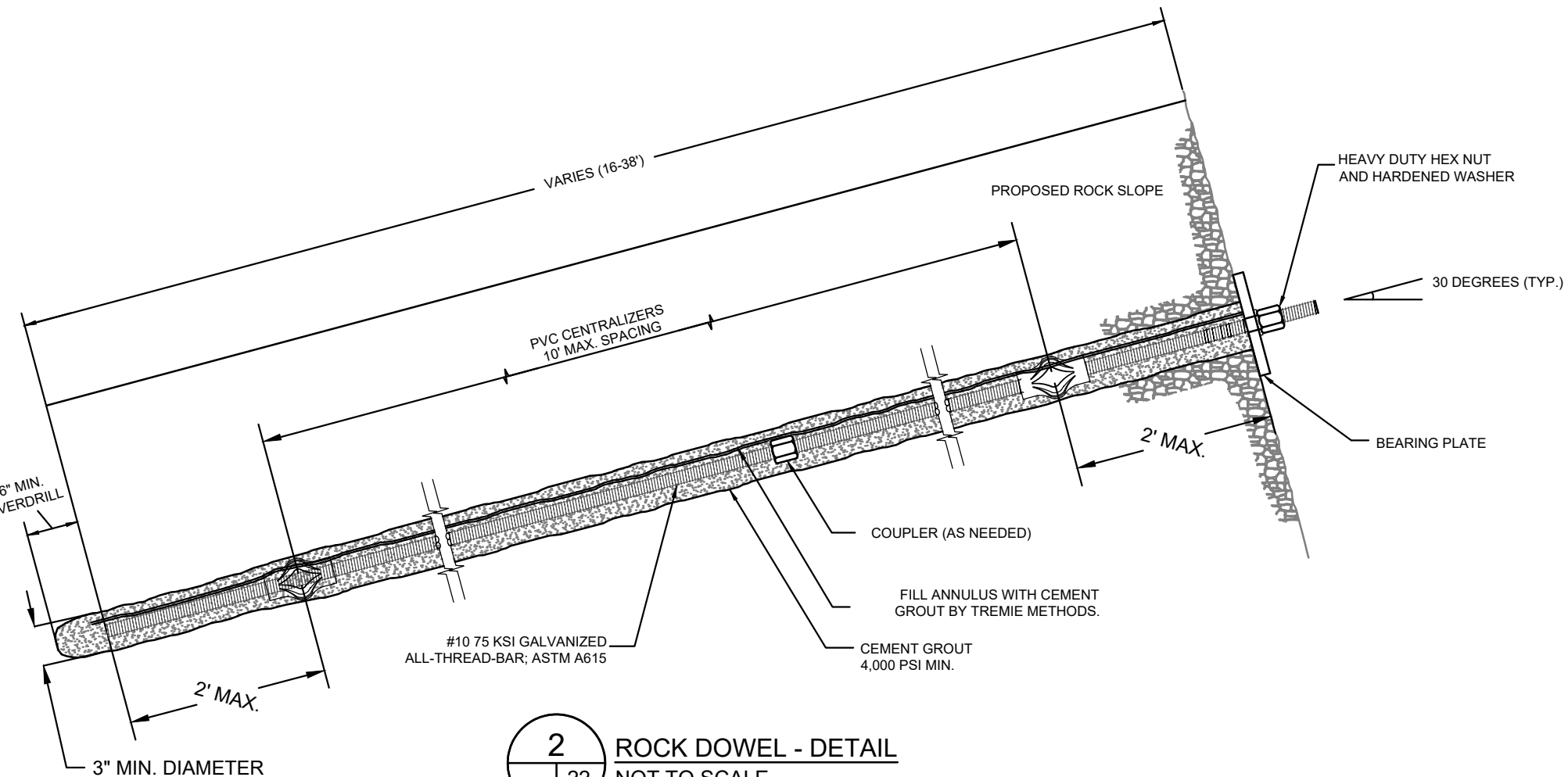


A
- 22
ROCK DOWEL LOCATIONS - FRONT ELEVATION AERIAL IMAGE
APPROX. SCALE: 1"=10'



B
- 22
ROCK DOWEL LOCATIONS - SIDE ELEVATION AERIAL IMAGE
APPROX. SCALE: 1"=10'

LEGEND:
■ APPROXIMATE LOCATION OF PROPOSED ROCK DOWELS. ACTUAL LOCATIONS MAY BE AS DIRECTED BY ENGINEER DURING CONSTRUCTION BASED ON FIELD CONDITIONS



2
- 22
ROCK DOWEL - DETAIL
NOT TO SCALE

ROCK DOWEL NOTES:

- MATERIALS: MATERIALS FOR CONSTRUCTION SHALL BE FURNISHED NEW AND WITHOUT DEFECTS. DEFECTIVE MATERIALS REJECTED BY GZA SHALL BE REMOVED BY THE CONTRACTOR.
- ROCK DOWEL LENGTHS SHALL BE AS SPECIFIED IN THE DRAWINGS. THE DRAWINGS PROVIDE MINIMUM LENGTHS. ACTUAL LENGTHS WILL BE DETERMINED BY GZA BASED ON EXPOSED CONDITIONS.
- CENTRALIZERS SHALL BE CONSTRUCTED OF SCHEDULE 40 PVC, SHALL BE SECURELY ATTACHED TO THE DOWEL BAR, SIZED TO POSITION THE DOWEL BAR OR ROPE ANCHOR WITHIN 1 INCH OF THE CENTER OF THE DRILL HOLE, SIZED TO ALLOW TREMIE PIPE INSERTION TO THE BOTTOM OF THE DRILL HOLE, AND SIZED TO ALLOW GROUT TO FLOW FREELY UP THE DRILL HOLE.
- GROUT MATERIAL HANDLING AND STORAGE: CEMENT SHALL BE ADEQUATELY STORED TO PREVENT MOISTURE DEGRADATION AND PARTIAL HYDRATION. CEMENT THAT HAS BECOME CAKED OR LUMPY SHALL NOT BE USED.
- DOWEL BAR STORAGE: ALL DOWEL BARS SHALL BE CAREFULLY HANDLED AND SHALL BE STORED ON SUPPORTS TO KEEP THE STEEL FROM CONTACT WITH THE GROUND. STEEL BARS SHALL BE PICKED UP IN SUCH A WAY AS TO PREVENT OVERSTRESSING. DAMAGE TO THE STEEL OR COATING AS A RESULT OF OVERSTRESSING, ABRASION, CUTS, NICKS, WELDS, AND WELD SPATTER SHALL BE CAUSE FOR REJECTION. GROUNDING OF WELDING LEADS TO THE DOWEL STEEL WILL NOT BE ALLOWED. DOWEL STEEL SHALL BE PROTECTED FROM AND SUFFICIENTLY FREE OF DIRT, RUST AND OTHER DELETERIOUS SUBSTANCES PRIOR TO INSTALLATION. DOWELS SHOULD BE STORED SUCH THAT THEY WILL ABOVE FREEZING TEMPERATURE WHEN INSTALLED FOR GROUTING. HEAVY CORROSION OR PITTING OF DOWELS SHALL BE CAUSE FOR REJECTION BY THE GEOLOGIST/GEOTECHNICAL ENGINEER. REPLACE DOWELS WITH DAMAGED COATING.

ROCK DOWEL INSTALLATION:

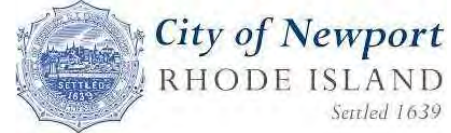
- PRIOR TO ROCK DOWEL INSTALLATION, SCALING SHALL BE CONDUCTED TO PROVIDE A COMPETENT ROCK SURFACE.
- DOWELS SHALL BE INSTALLED AT THE LOCATIONS AND TO THE LENGTHS INDICATED ON THE PLANS AND/OR AS DIRECTED BY GZA DURING CONSTRUCTION. THE LENGTHS SPECIFIED IN THE DETAILS DO NOT INCLUDE THE PORTION OF THE DOWEL EXTENDING BEYOND THE FACE THROUGH THE DOWEL PLATE AND NUT, WHICH WILL REQUIRE BARS TO BE NOMINALLY 1' LONGER THAN THE RECOMMENDED DESIGN LENGTHS.
- THE CONTRACTOR SHALL SELECT THE DRILLING EQUIPMENT AND METHODS SUITABLE FOR THE GROUND CONDITIONS. THE DRILL HOLE DIAMETER SHALL BE AS SPECIFIED IN THE DRAWINGS OR GREATER. WATER, DRILLING MUD OR OTHER FLUIDS USED TO ASSIST IN CUTTINGS REMOVAL SHALL NOT BE ALLOWED. DRILL HOLES SHALL BE OBSERVED FOR CLEANLINESS PRIOR TO INSERTION OF THE DOWEL.
- DRILL HOLES THAT WILL NOT BE GROUTED THE SAME DAY AS DRILLING SHALL BE CAPPED WITH A PLUG ON THE SAME DAY THEY ARE DRILLED.
- DOWEL BARS SHALL BE INSERTED INTO THE DRILL HOLE IMMEDIATELY PRIOR TO GROUTING TO THE REQUIRED LENGTH WITHOUT DIFFICULTY AND IN SUCH A MANNER AS TO PREVENT DAMAGE TO THE DRILL HOLE, BAR, TREMIE TUBE OR SPACERS. DOWEL BARS THAT CANNOT BE FULLY INSERTED TO THE DESIGN DEPTH SHALL BE REMOVED FROM THE DRILL HOLE AND THE DRILL HOLE SHALL BE CLEANED SUFFICIENTLY TO ALLOW UNOBSTRUCTED INSTALLATION OF THE BAR. ALTERNATIVELY, THE HOLE MAY BE GROUTED AND THE DOWEL BAR SHALL BE INSERTED INTO THE DRILL HOLE IMMEDIATELY THEREAFTER.
- IF THE BAR CANNOT BE FULLY INSERTED INTO THE HOLE, THE BAR SHALL BE REMOVED AND THE HOLE REDRILLED.

VERTICAL SCALE 1" = 10'
0 5' 10' 20' 30'
0 5' 10' 20' 30'
HORIZONTAL SCALE 1" = 10'



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PREPARED FOR:



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REV	DESCRIPTION	DATE	BY
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PROJECT NO:	33884.01
DATE:	AUGUST, 2026
PROJECT MGR:	TWS
DESIGNED BY:	SAB
DRAWN BY:	GRB
CHECKED BY:	TWS
REVIEWED BY:	MJP
SCALE:	AS NOTED
REVISION NO.	

NEWPORT CLIFF WALK REPAIR
NEWPORT, RHODE ISLAND

ROCK DOWEL AND TEMPORARY
SHORING DETAILS

DRAWING
22

SHEET NO. 22 OF 22