

LONG BEACH SEAWALL FEMA DISASTER RELIEF


PROJECT No. 73018
EVENT No. 4372DR-MA

MARCH 2020

PREPARED FOR:

TOWN OF ROCKPORT
34 BROADWAY
ROCKPORT, MASSACHUSETTS 01966

PREPARED BY:

 GZA GEOENVIRONMENTAL, INC.
144 ELM STREET
AMESBURY, MA 01913

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PROJECT LOCUS MAP

SOURCE: USGS TOPOGRAPHIC QUADRANGLES
NOT TO SCALE

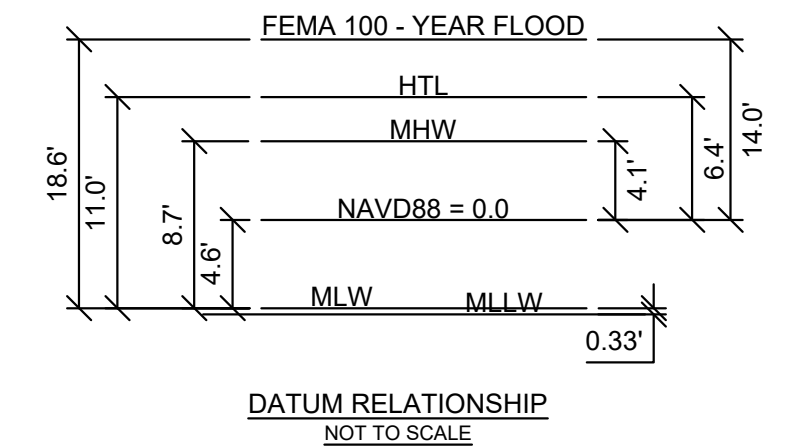


PROJECT AERIAL IMAGE

SOURCE: TOWN OF ROCKPORT
DEPARTMENT OF PUBLIC WORKS, GIS DIVISION
NOT TO SCALE

MATERIAL SPECIFICATIONS:
MATERIAL AND PRODUCT REQUIREMENTS, WHERE REFERENCED AS MHD, THE REQUIREMENTS REFERS TO THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988, OR LATEST EDITION.

CONCRETE:	28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI 1-1/2" MAXIMUM AGGREGATE SIZE AIR CONTENT 5.0% - 7.0%
CEMENT:	PORTLAND CEMENT, ASTM C150, TYPE II
REINFORCING STEEL:	GRADE 60 - ASTM A615 EPOXY COATED - ASTM A775
DOWELS:	GRADE 60 - ASTM A615 EPOXY COATED - ASTM A775
EPOXY ADHESIVE:	TWO-COMPONENT EPOXY ADHESIVE, SUITABLE FOR MARINE ENVIRONMENT (HILTI-RE 500 V3, OR APPROVED EQUIVALENT)
ELASTOMERIC SEALANT:	NON-SAG, ELASTOMERIC, SILICONE SEALANT, SUITABLE FOR MARINE ENVIRONMENT, COLOR TO BE CLEAR OR TRANSPARENT (SIKASIL-N PLUS, OR APPROVED EQUIVALENT) - ASTM C920
STEEL SHEETPILES:	GRADE 50 - ASTM A572
RAILING PIPE:	SCHEDULE 80 STEEL HOT-DIPPED GALVANIZED - ASTM A53
FILTER FABRIC:	NON-BIODEGRADABLE NEEDLE-PUNCHED NON-WOVEN GEOTEXTILE FILTER FABRIC RESISTANT TO NATURALLY ENCOUNTERED CHEMICALS, ALKALIS, AND ACIDS (MIRAFI 160N, OR APPROVED EQUIVALENT)
WOVEN GEOTEXTILE:	NON-BIODEGRADABLE WOVEN GEOTEXTILE FABRIC RESISTANT TO NATURALLY ENCOUNTERED CHEMICALS, ALKALIS, AND ACIDS (MIRAFI 600X, OR APPROVED EQUIVALENT)
CRUSHED STONE (1-1/2 IN.):	SIEVE NO. SIZE (MM) PERCENT PASSING
(MHD SPEC. M2.01.1)	2" 50.8 100
	1-1/2" 38.1 95-100
	1" 25.4 35-70
	3/4" 19.1 0-25



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PROJECT DESCRIPTION:

- THE PROJECT INVOLVES THE RECONSTRUCTION OF APPROXIMATELY 350 LINEAL FEET OF A 1930'S SECTION OF SEAWALL (STATION 12+10 TO 15+60) AND THE RECONSTRUCTION OF APPROXIMATELY 43 LINEAL FEET OF SEAWALL WITH NEW CONCRETE ACCESS STAIRWAY, LOCATED AT THE WESTERN END (STATION 0+00 TO 0+43). THE PROJECT ALSO INCLUDES POST-CONSTRUCTION AND SITE RESTORATION.
- THE PROJECT WORK INCLUDES ALL WORK REQUIRED TO COMPLETE THE PROJECT INCLUDING LABOR, MATERIALS, TRANSPORTATION, SITE MOBILIZATION, SITE PREPARATION, CONSTRUCTION, EROSION AND SEDIMENT CONTROLS, SITE SURVEY, DEMOBILIZATION AND SITE RESTORATION, PROVISION OF ALL REQUIRED SUBMITTALS, SHOP DRAWINGS, ETC., AND PREPARATION AND SUBMITTAL OF AS-BUILT CONSTRUCTION DRAWINGS.

REFERENCE NOTES:

- TOPOGRAPHIC SURVEY AND SURVEY CONTROL LOCATION PERFORMED BY GZA GEOENVIRONMENTAL, INC. ON NOVEMBER 21 AND 22, 2019. SURVEY CONTROL LOCATIONS USING REAL-TIME KINEMATIC DIFFERENTIAL GLOBAL POSITIONING SYSTEM UNIT (RTK DGPS).
- SITE BENCHMARK IS A MAG NAIL SET INTO THE PAVEMENT AT THE END OF LONG BEACH (OLD COUNTY) ROAD, BENCHMARK EL. +10.8 FEET NAVD88.
- PROJECT DATUM: MA STATE PLANE COORDINATE SYSTEM, NAD83 IN US SURVEY FEET (HORIZONTAL); NAVD88 IN FEET (VERTICAL).
- AERIAL IMAGERY SUPPLIED BY THE TOWN OF ROCKPORT.
- PROPERTY LINES ARE APPROXIMATE AND WERE DELINEATED USING AVAILABLE LAYERS FROM MASSGIS'S ONLINE MAPPING TOOL.
- THE LOCATIONS OF EXISTING BUILDING FOOTPRINTS WERE APPROXIMATELY DETERMINED BY USING AVAILABLE AERIAL PHOTOGRAPHY.
- THE LOCATIONS OF UTILITIES ARE APPROXIMATE; SOME UTILITIES MAY NOT BE SHOWN ON THE PLAN. ACCESSIBLE AND VISIBLE UTILITIES WERE APPROXIMATELY DETERMINED USING AN RTK DGPS UNIT AND TOTAL STATION SURVEY UNIT BY GZA GEOENVIRONMENTAL, INC. EXISTING SEWER LINES AND LATERALS ARE APPROXIMATE AND WERE TRACED FROM PLANS SUPPLIED BY THE TOWN OF ROCKPORT.
- THE SUBJECT PROPERTY IS LOCATED IN THE TOWN OF ROCKPORT "RESIDENTIAL A" (RA) ZONING DISTRICT.
- THE PROJECT AREA IS LOCATED WITHIN THE COASTAL AREA MANAGEMENT ZONE. THE PROJECT IS ALSO LOCATED WITHIN THE FEMA FLOOD HAZARD ZONE VE (BFE=EL. 14 FEET NAVD88).
- FEMA FLOOD HAZARD ZONES WERE DELINEATED USING FEMA'S DIGITAL NATIONAL FLOOD HAZARD LAYER (NFHL) WHICH INCORPORATES ALL FLOOD INSURANCE RATE MAP (FIRM) DATABASES PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) AND MAP REVISIONS.
- APPROPRIATE CHAPTER 91 JURISDICTION LIMITS WERE DELINEATED USING AVAILABLE LAYERS FROM MASSGIS'S ONLINE MAPPING TOOL.
- THE LOCATIONS OF RESOURCE AREAS WERE APPROXIMATELY DETERMINED FROM EXISTING TOPOGRAPHIC SURVEY AND THE WETLAND PROTECTION ACT DEFINITIONS.

- TIDE DATUMS WERE DEVELOPED BASED ON THE NOAA ROCKPORT HARBOR, MA TIDE STATION (8441551) AND CORRECTED FOR THE PROJECT SITE USING THE NOAA/NOS SOFTWARE VDATUM 4.0. THE CORRECTED TIDE DATUMS USED FOR THE PROJECT ARE SUMMARIZED BELOW:

- 13.A. MEAN HIGHER HIGH WATER (MHHW): 4.5 FT-NAVD88
- 13.B. MEAN HIGH WATER (MHW): 4.1 FT-NAVD88
- 13.C. MEAN TIDE LEVEL (MTL): -0.3 FT-NAVD88
- 13.D. MEAN LOW WATER (MLW): -4.6 FT-NAVD88
- 13.E. MEAN LOWER LOW WATER (MLLW): -4.9 FT-NAVD88

- REFERENCED STANDARDS: REFERENCES HEREIN TO ANY TECHNICAL SOCIETY, ORGANIZATION, GROUP OR BODY ARE MADE IN ACCORDANCE WITH THE FOLLOWING ABBREVIATIONS AND, UNLESS OTHERWISE NOTED OR SPECIFIED, ALL WORK UNDER THIS SECTION SHALL CONFORM TO THE LATEST EDITION AS APPLICABLE:

- 14.A. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS
- 14.B. COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988, OR LATEST EDITION

GENERAL REQUIREMENTS FOR CONSTRUCTION:

- CONSTRUCTION WORK WILL BE OBSERVED BY THE ENGINEER DURING CONSTRUCTION.
- CONSTRUCTION SCHEDULE LIMITATIONS: NO WORK SHALL BE PERFORMED AT ANY TIME DURING THE PERIOD FROM JUNE 15 TO SEPTEMBER 15.
- CONTRACTOR SHALL NOTIFY DIGSAFE PRIOR TO THE START OF WORK AS REQUIRED BY STATE AND LOCAL REGULATIONS AND IN ACCORDANCE WITH GOOD INDUSTRY PRACTICE.
- EXISTING UTILITIES MAY NOT BE ADEQUATELY DEFINED BY DIGSAFE; THEREFORE, THE CONTRACTOR SHALL LOCATE THE EXISTING UTILITIES WITHIN THE LIMITS OF ALL EXCAVATION PRIOR TO THE START OF ANY EXCAVATION ACTIVITIES USING A QUALIFIED UTILITY LOCATING COMPANY.
- AT THE COMPLETION OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE ANY AREAS DISTURBED AS A RESULT OF CONSTRUCTION.
- CONTRACTOR SHALL REMOVE AND DISPOSE ALL UNQUALIFIED MATERIALS, CONSTRUCTION DEBRIS, OR OTHER MATERIALS DETERMINED TO BE INADEQUATE FROM THE SITE AT NO COST TO THE OWNER.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN THE PROPER EQUIPMENT TO DELIVER, UNLOAD, AND INSTALL THE MATERIALS TO THEIR FINAL LOCATION.
- IMPORTED AND EXCAVATED MATERIALS SHALL BE STORED IN SEGREGATED LOCATIONS TO ASSURE NO MIXING WITH FINE GRADATION NATIVE SAND. PROTECT THE STOCKPILES FROM SLOUGHING OR MOVEMENT AND FROM STORMWATER RUNOFF TO ADJACENT AREAS.
- ALL FILL MATERIALS SHALL BE PLACED AND GRADED TO THE LIMITS AND GRADES SHOWN ON THE DRAWINGS.
- PARAMETERS OF ROUGH FINISH, INCLUDING MAXIMUM AND MINIMUM ELEVATION DIFFERENCES, TO BE ESTABLISHED BETWEEN THE PROJECT ENGINEER AND CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
- CONTRACTOR SHALL BE PREPARED TO WORK WITHIN THE TIDAL CYCLE TO AVOID INUNDATION OF THE WORK AREA DURING CONSTRUCTION.

FILL MATERIALS:


- ALL FILL MATERIALS SHALL BE FREE OF CONTAMINANTS, ARTIFICIAL MATERIALS AND OTHER DELETERIOUS MATERIALS.
- FILL MATERIALS SHALL BE FROM A SOURCE APPROVED BY THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION.
- SPECIFICATIONS FOR MATERIALS ARE PRESENTED HEREIN.

CONSTRUCTION SEQUENCE:

- THE CONSTRUCTION SEQUENCE SHALL BE ESTABLISHED BY THE CONTRACTOR. IN GENERAL, THE EXPECTED SEQUENCE IS AS FOLLOWS:
 - SITE MOBILIZATION AND PREPARATION;
 - ESTABLISHMENT OF SITE SURVEY CONTROLS;
 - UTILITY CLEARANCES;
 - INSTALLATION OF EROSION AND SEDIMENTATION MEASURES;
 - INSTALLATION OF TEMPORARY SUPPORT OF EXCAVATION MEASURES INCLUDING TEMPORARY STEEL SHEETPILES;
 - EXCAVATION AND REMOVAL OF EXISTING SEAWALL SECTIONS;
 - SUBGRADE AND SUBBASE PREPARATION;
 - INSTALLATION OF NEW REINFORCED CAST-IN-PLACE CONCRETE FOOTINGS AND PERMANENT STEEL SHEETPILES AT PROPOSED WALL TOE;
 - INSTALLATION OF NEW REINFORCED CAST-IN-PLACE CONCRETE SEAWALL SECTIONS AND PERMANENT STAIRWAY AT WEST END;
 - BACKFILLING, REMOVAL OF TEMPORARY SUPPORT OF EXCAVATION MEASURES, AND RESTORATION OF THE DISTURBED AREAS;
 - REMOVAL OF EROSION AND SEDIMENTATION CONTROL MEASURES;
 - DEMOBILIZATION AND SITE RESTORATION; AND
 - SUBMITTAL OF AS-BUILT DRAWINGS.

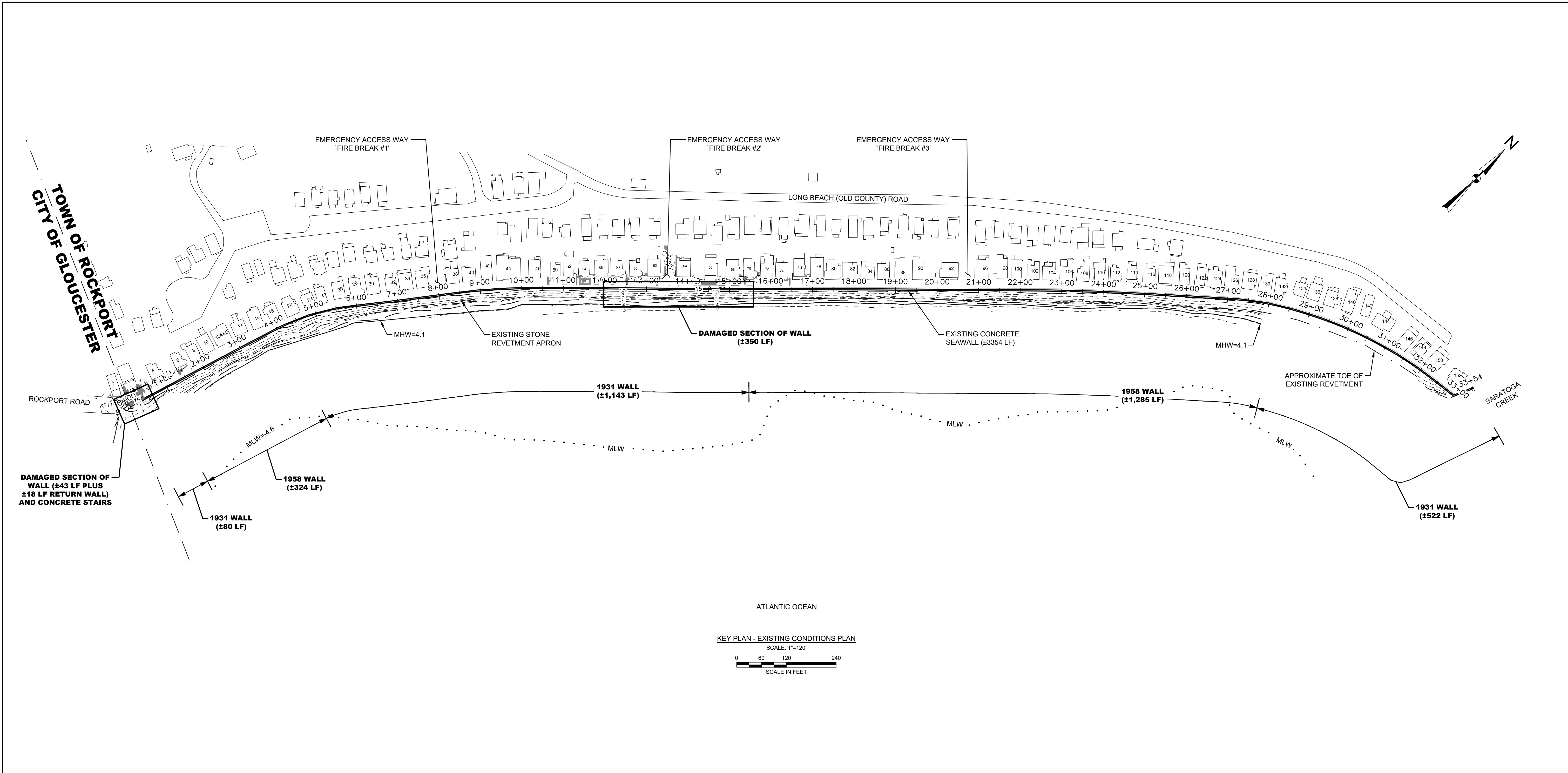
EROSION CONTROL GENERAL NOTES:

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SEDIMENTATION AND EROSION CONTROL.
- ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PERIODICALLY MAINTAINED ON A REGULAR BASIS DURING CONSTRUCTION, AND PROMPTLY FOLLOWING STORMS OR PERIODS OF RAINFALL.

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COVER SHEET AND NOTES			
PREPARED BY:	 GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR:
			TOWN OF ROCKPORT 34 BROADWAY ROCKPORT, MASSACHUSETTS 01966
PROJ MGR:	DAS	REVIEWED BY:	ABB
DESIGNED BY:	DAS	DRAWN BY:	LFT
DATE:	MARCH 2020	PROJECT NO.:	18.0173734.00
		CHECKED BY:	DAS
		SCALE:	AS SHOWN
		REVISION NO.:	
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			SHEET NO. 1 OF 6

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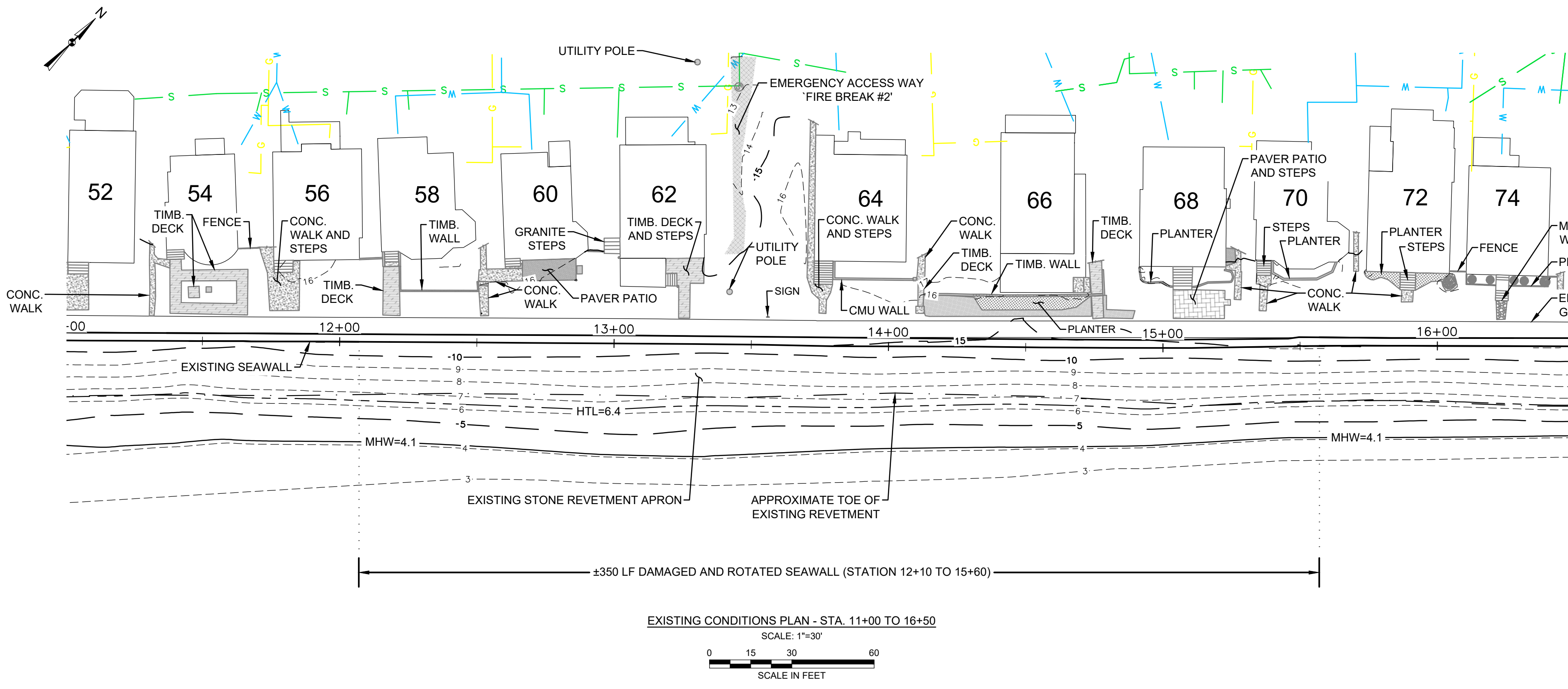
KEY PLAN - EXISTING CONDITIONS PLAN
SCALE: 1"=120'
0 60 120 240
SCALE IN FEET

- LEGEND**
- EXISTING SEAWALL
 - - - EXISTING MAJOR CONTOUR
 - - - EXISTING MINOR CONTOUR
 - - - EXISTING HIGH TIDE LEVEL
 - - - EXISTING MEAN HIGH WATER (MHW)
 - · · · · EXISTING MEAN LOW WATER (MLW)

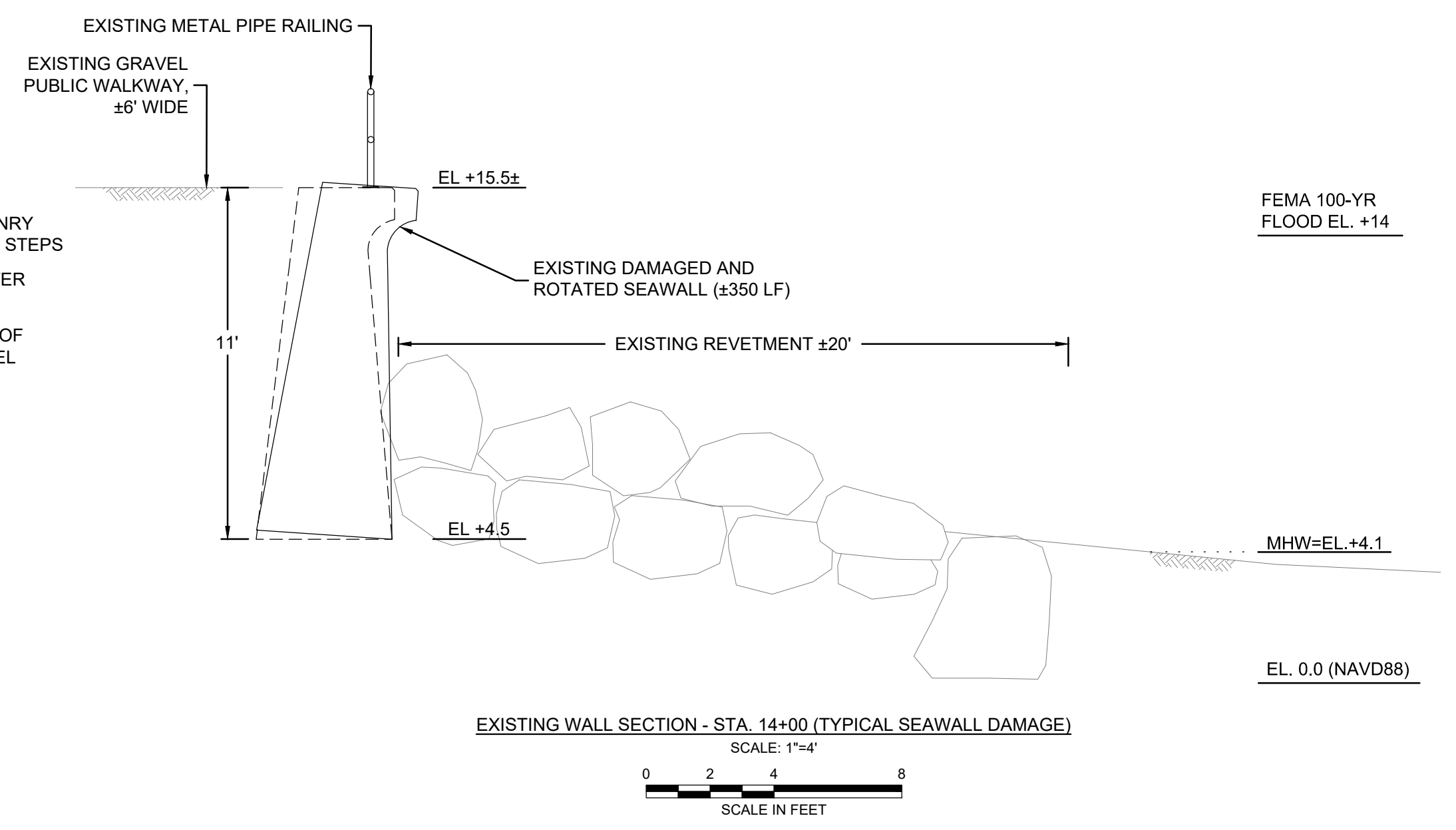
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LONG BEACH SEAWALL FEMA DISASTER RELIEF PROJECT NO. 73018 (4372DR-MA) ROCKPORT, MASSACHUSETTS			
KEY PLAN - EXISTING CONDITIONS PLAN			
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: TOWN OF ROCKPORT 34 BROADWAY ROCKPORT, MASSACHUSETTS 01966	
PROJ MGR: DAS	REVIEWED BY: ABB	CHECKED BY: DAS	2
DESIGNED BY: DAS	DRAWN BY: LFT	SCALE: AS NOTED	
DATE: MARCH 2020	PROJECT NO. 18.0173734.00	REVISION NO.	SHEET NO. 2 OF 6

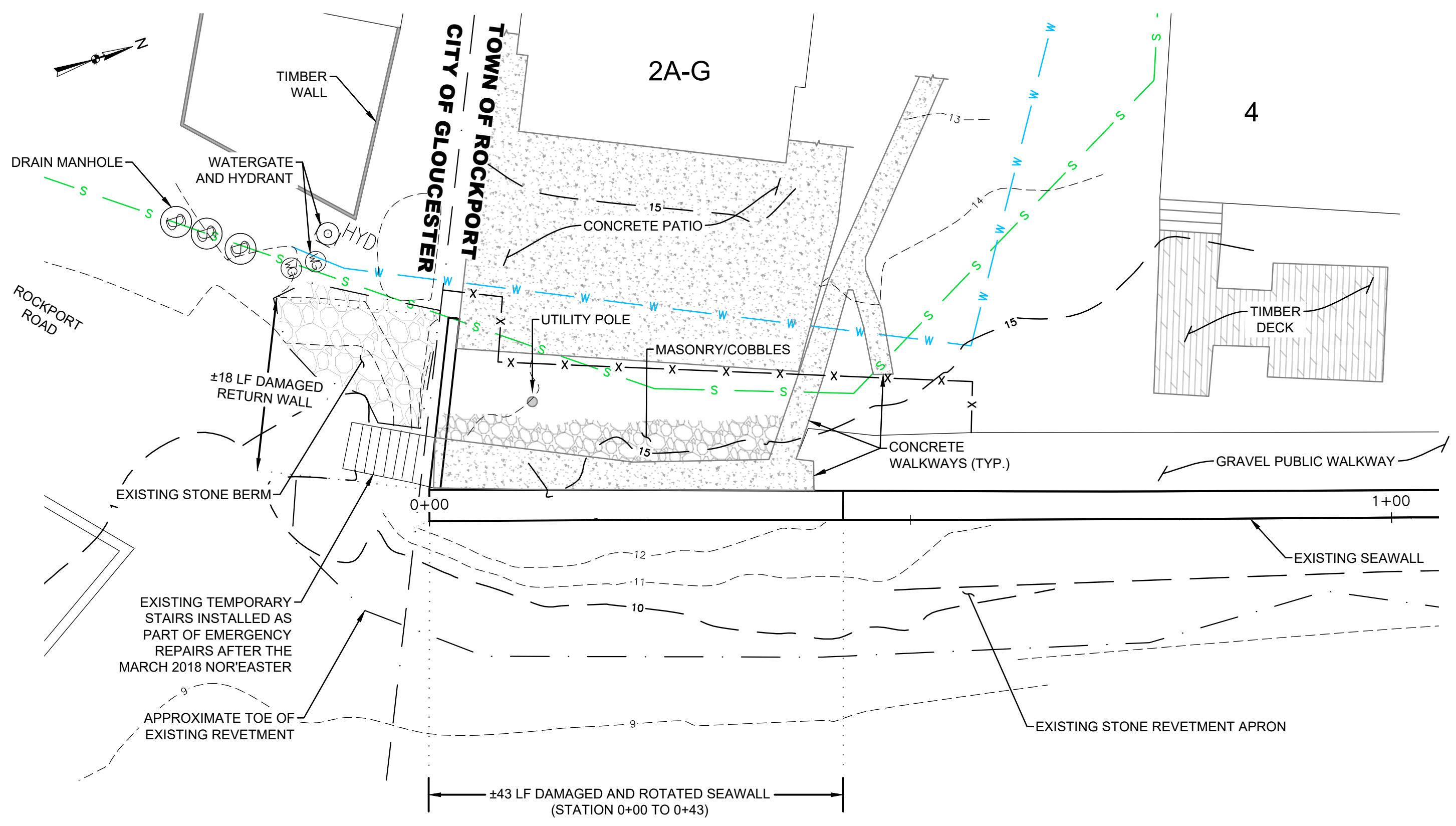
© 2019 - GZA GeoEnvironmental, Inc. GZA-18.0173734.00 Long Beach Seawall FEMA Reconstruction 18.0173734.00 Long Beach Seawall FEMA Reconstruction FEMA 2020.dwg [Sheet 3-EX PLAN & SECT] March 12, 2020 - 10:12am lucas.taylor



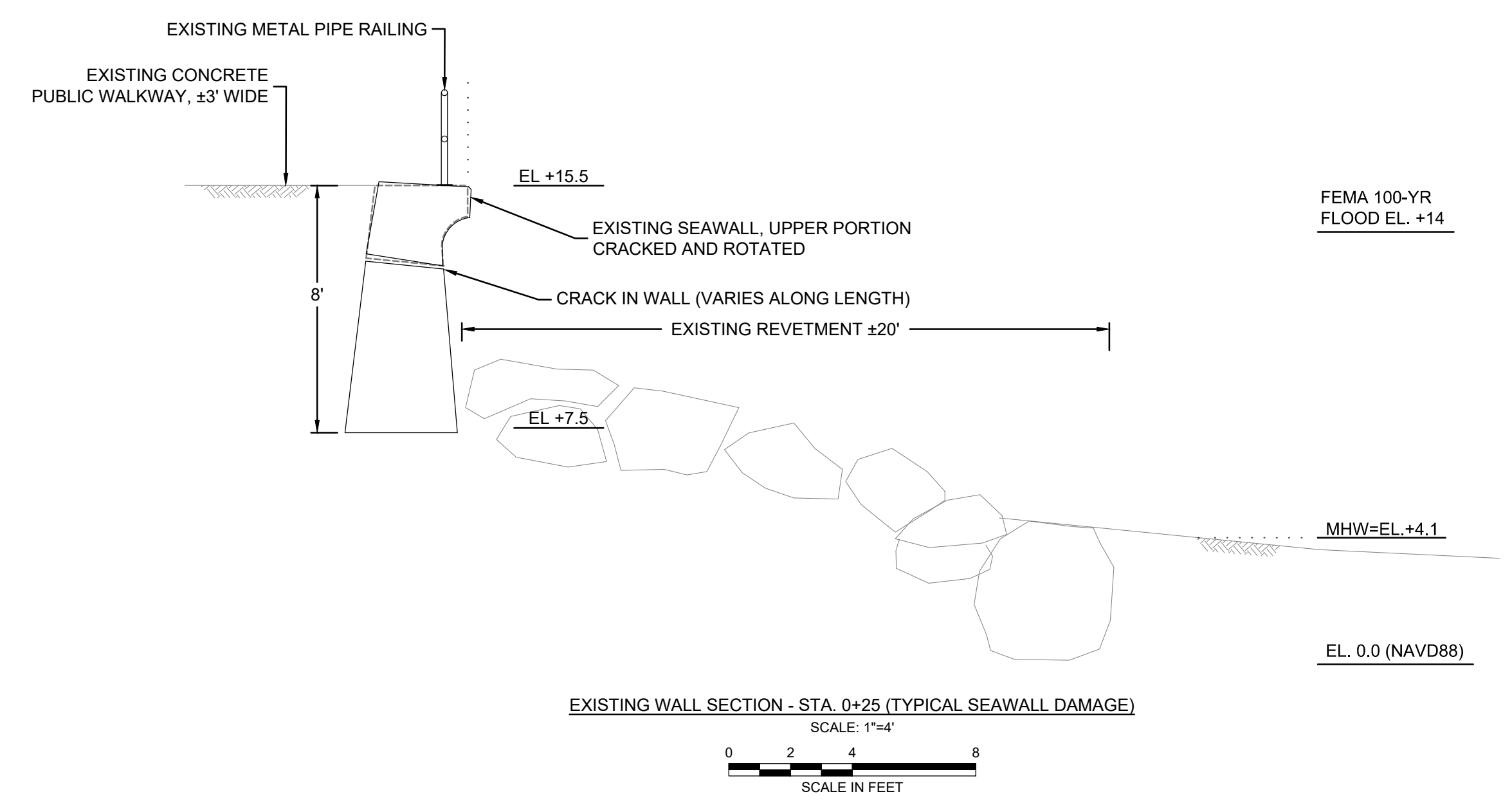
EXISTING CONDITIONS PLAN - STA. 11+00 TO 16+50
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SCALE IN FEET



EXISTING WALL SECTION - STA. 14+00 (TYPICAL SEAWALL DAMAGE)
SCALE: 1"=4'
SCALE IN FEET



EXISTING CONDITIONS PLAN - WESTERN END STA. 0+00 TO 1+00
SCALE: 1"=10'
SCALE IN FEET



EXISTING WALL SECTION - STA. 0+25 (TYPICAL SEAWALL DAMAGE)
SCALE: 1"=4'
SCALE IN FEET

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PROJECT NO. 73018 (4372DR-MA)
ROCKPORT, MASSACHUSETTS**

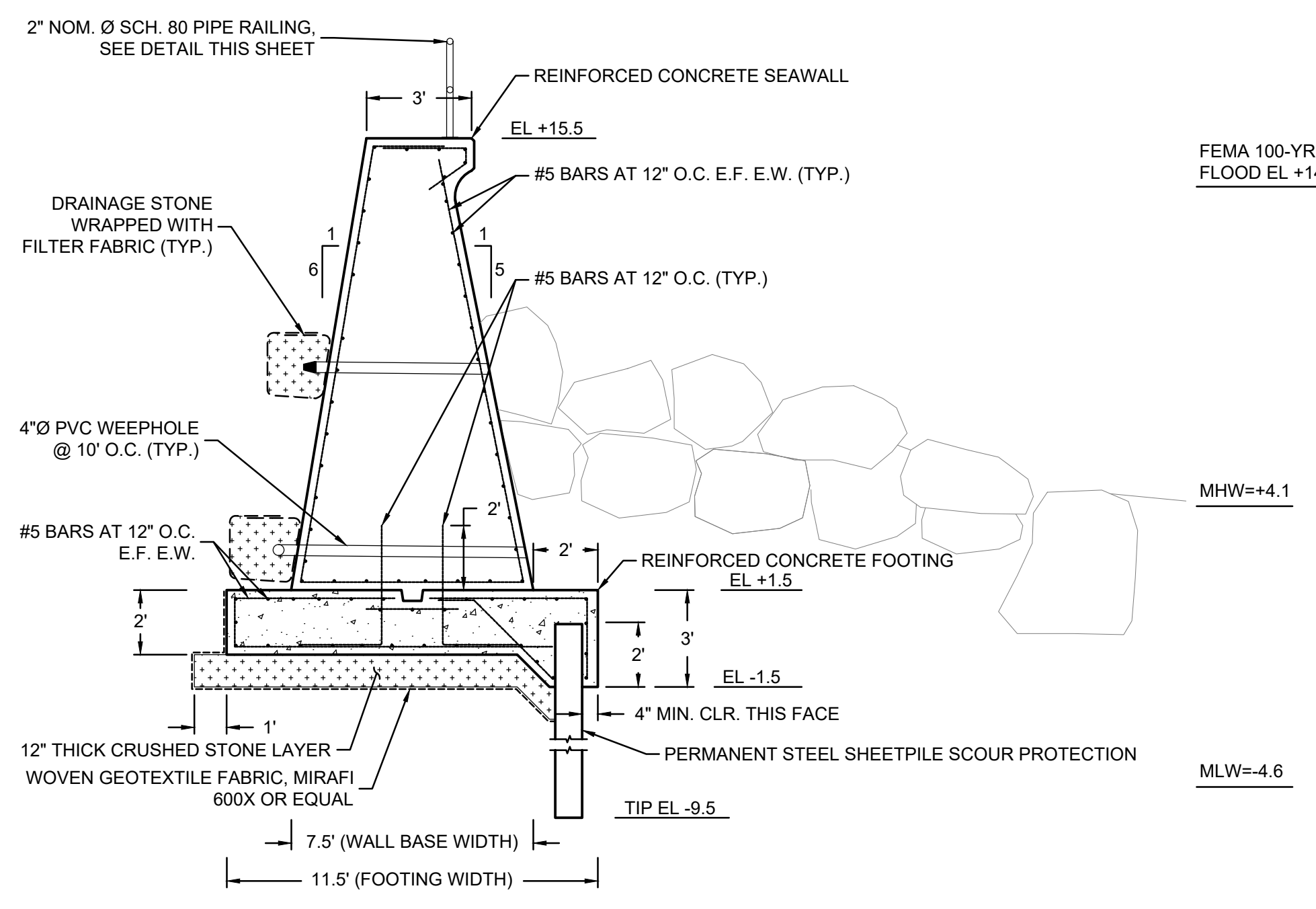
EXISTING CONDITIONS PLAN AND SECTIONS

PREPARED BY:	GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR:	TOWN OF ROCKPORT 34 BROADWAY ROCKPORT, MASSACHUSETTS 01966
PROJ MGR:	DAS	REVIEWED BY:	ABB
DESIGNED BY:	DAS	DRAWN BY:	LFT
DATE:	MARCH 2020	PROJECT NO.:	18.0173734.00
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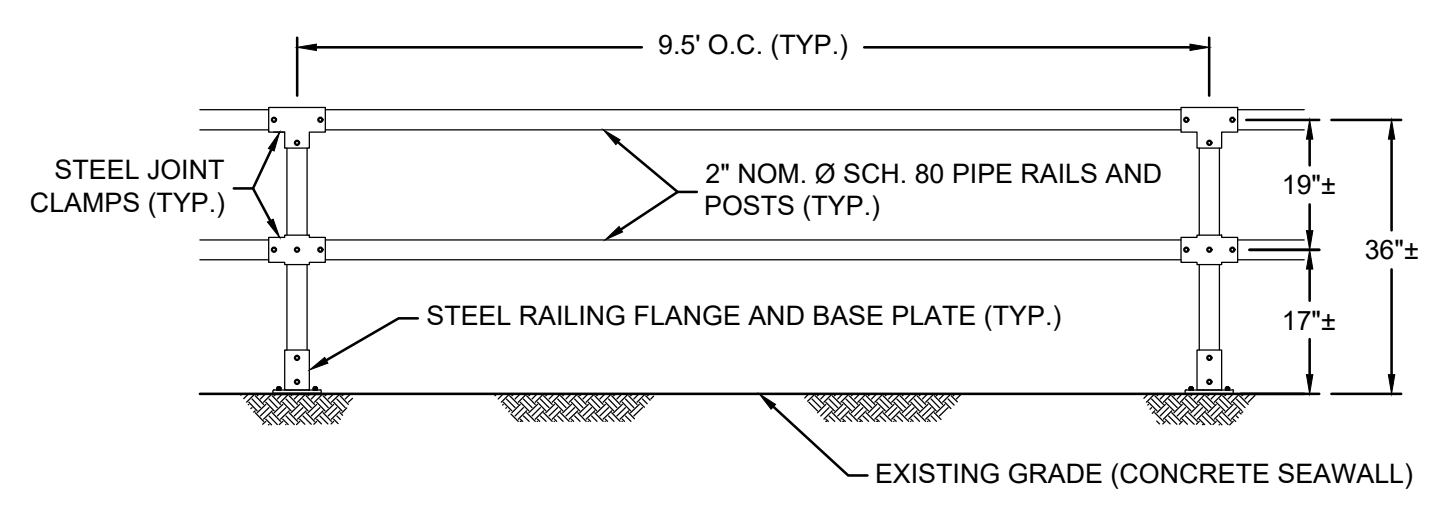
FIGURE
3
SHEET NO. 3 OF 6

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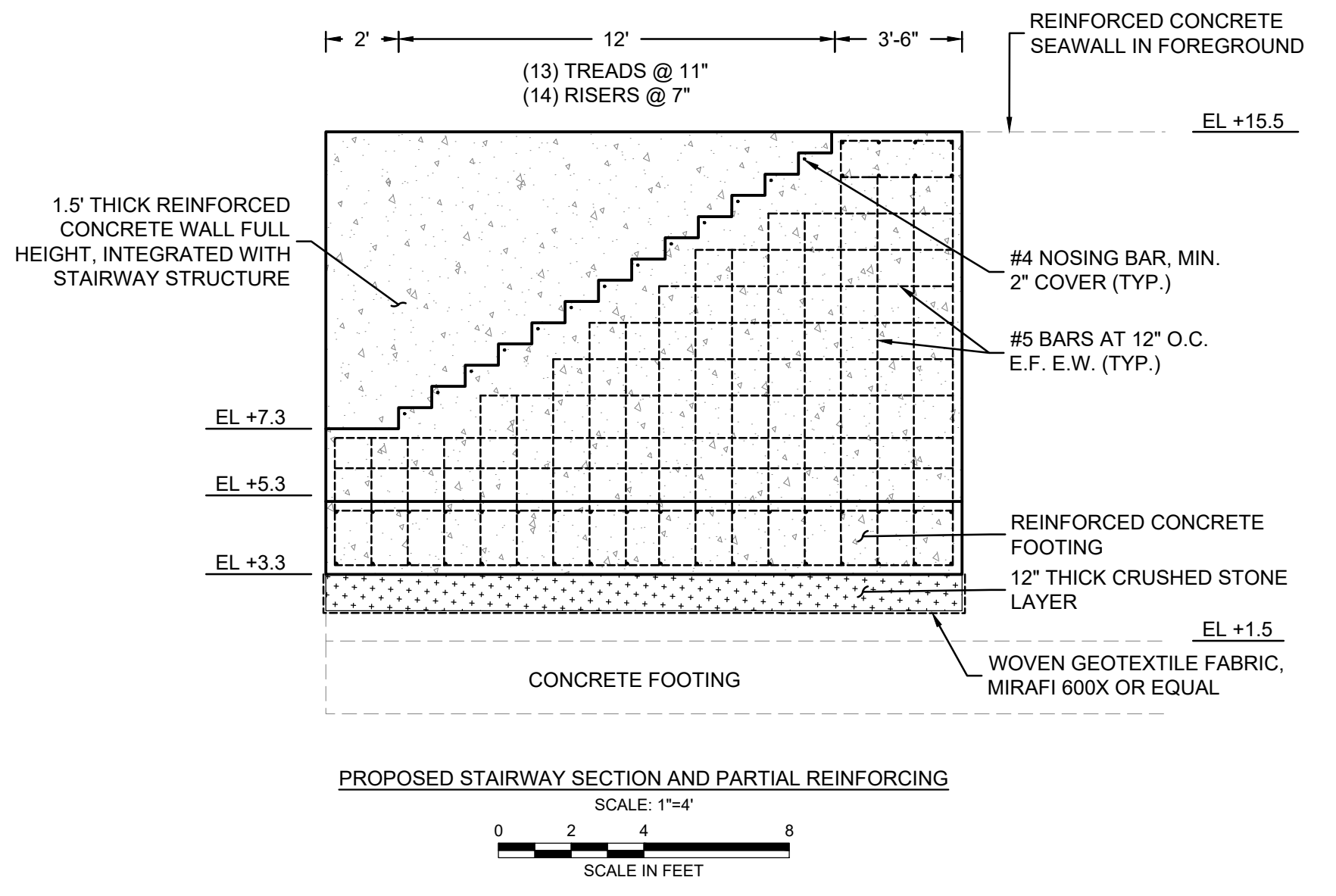
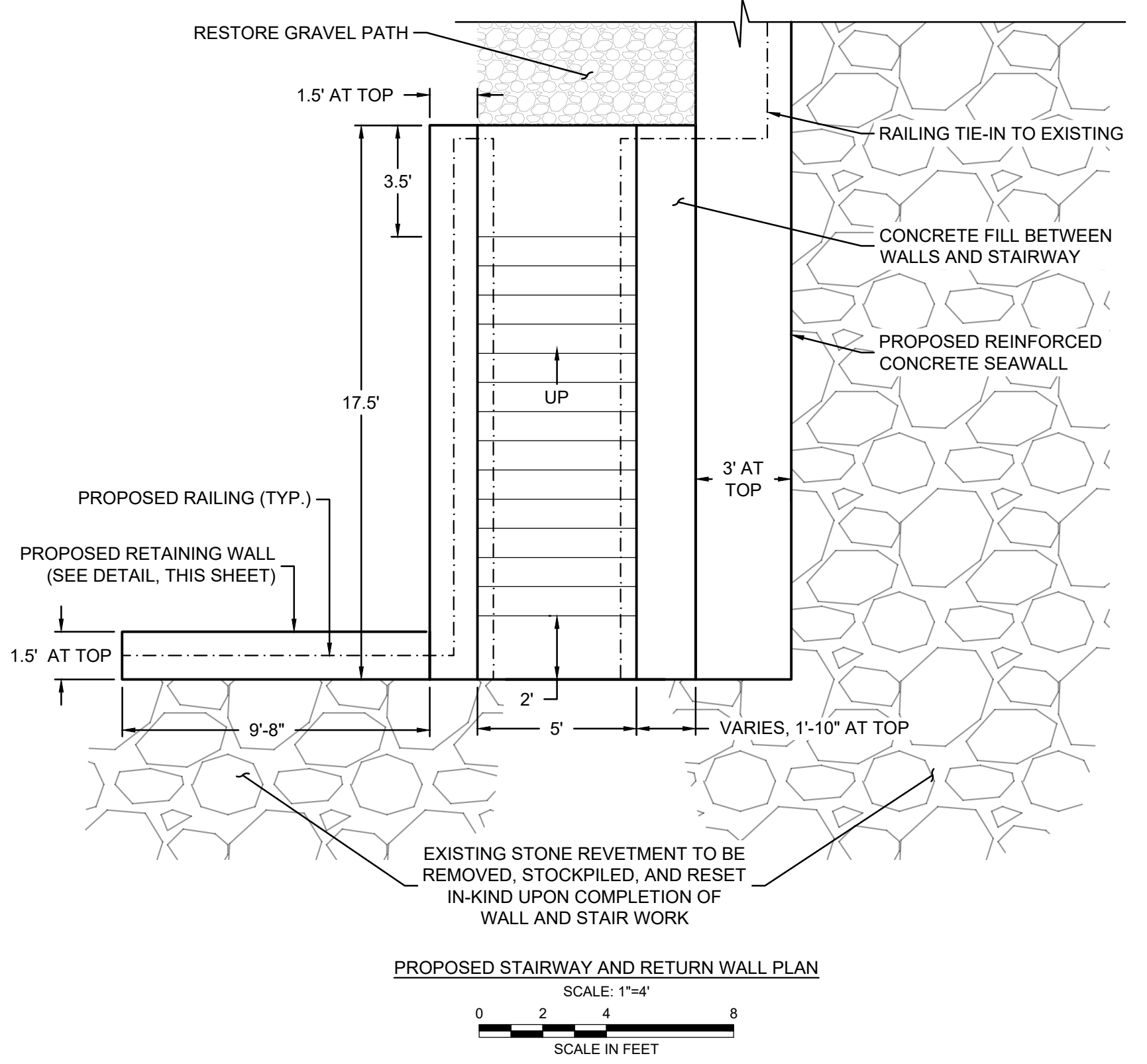
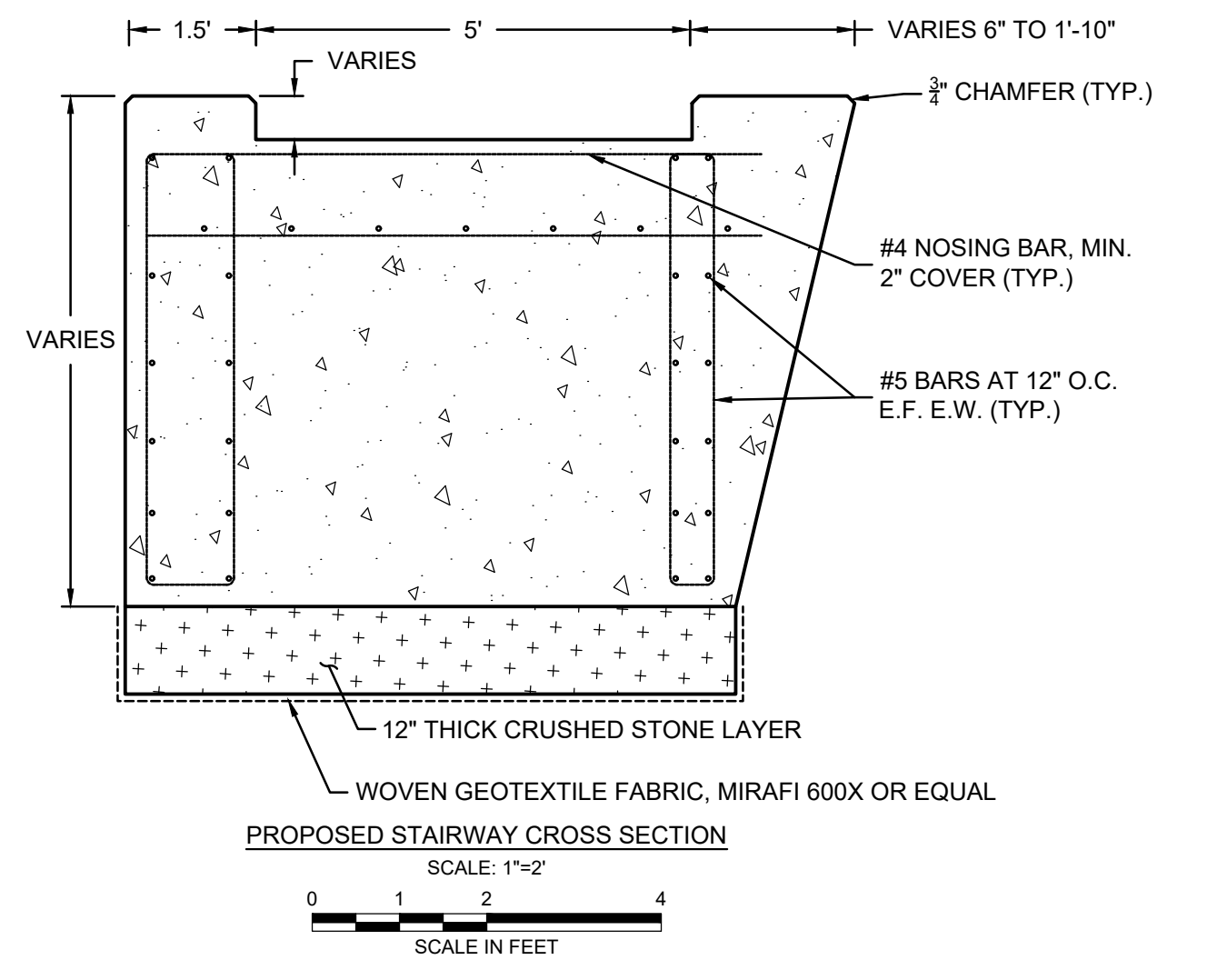
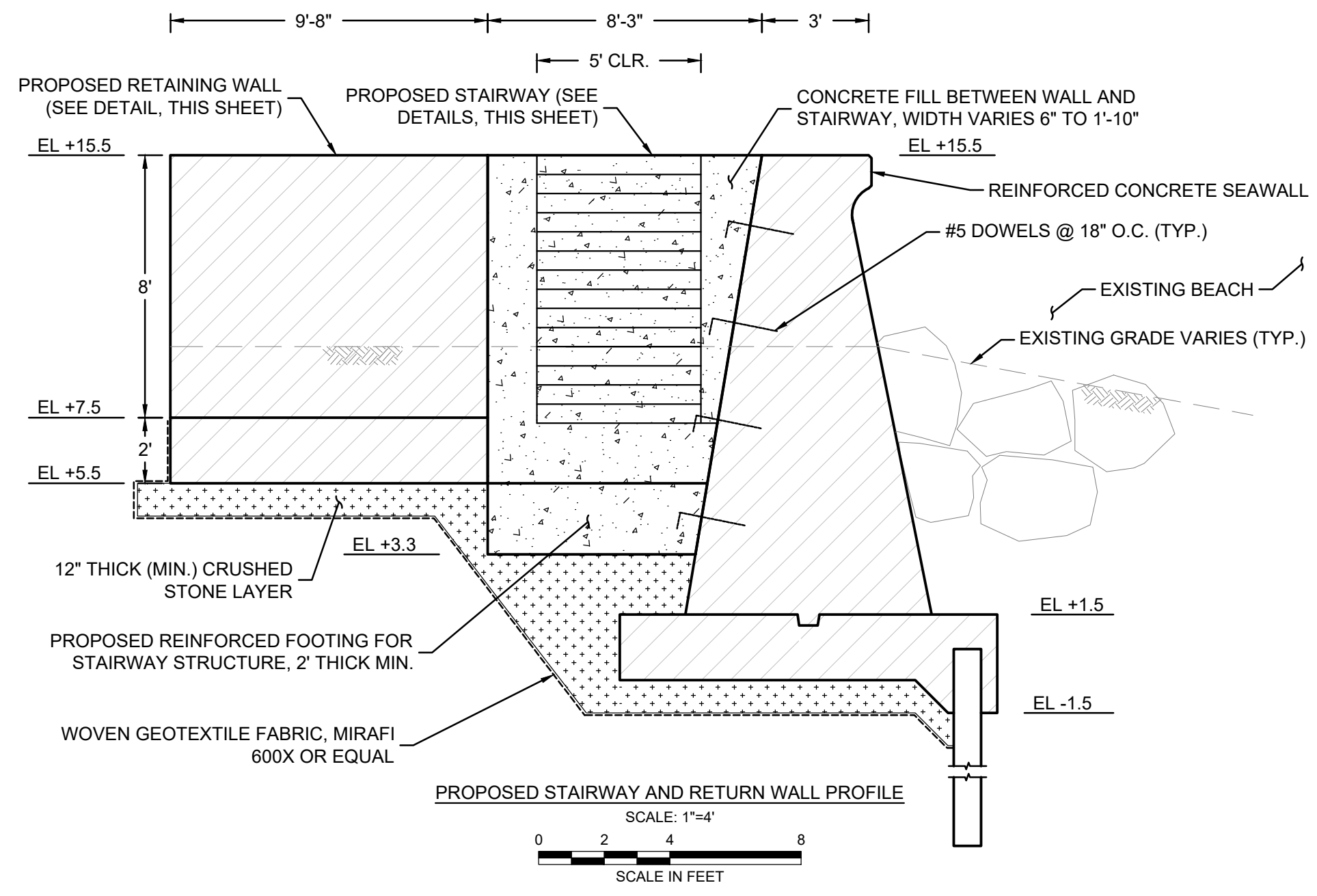
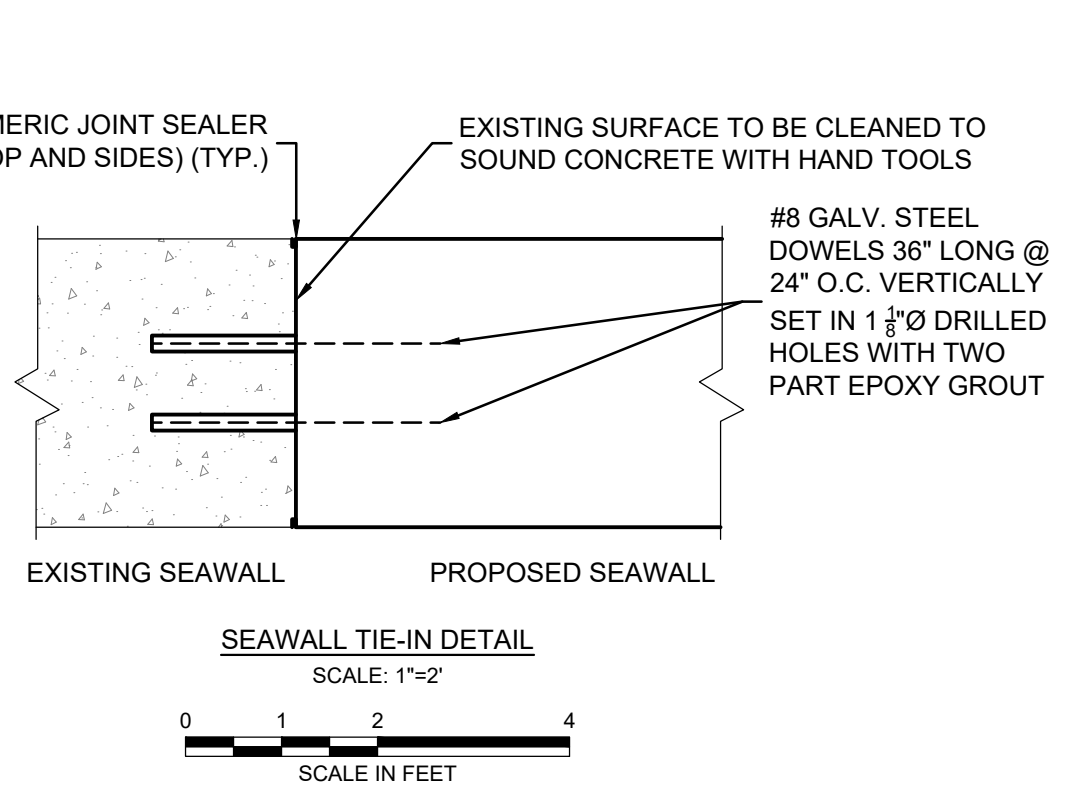
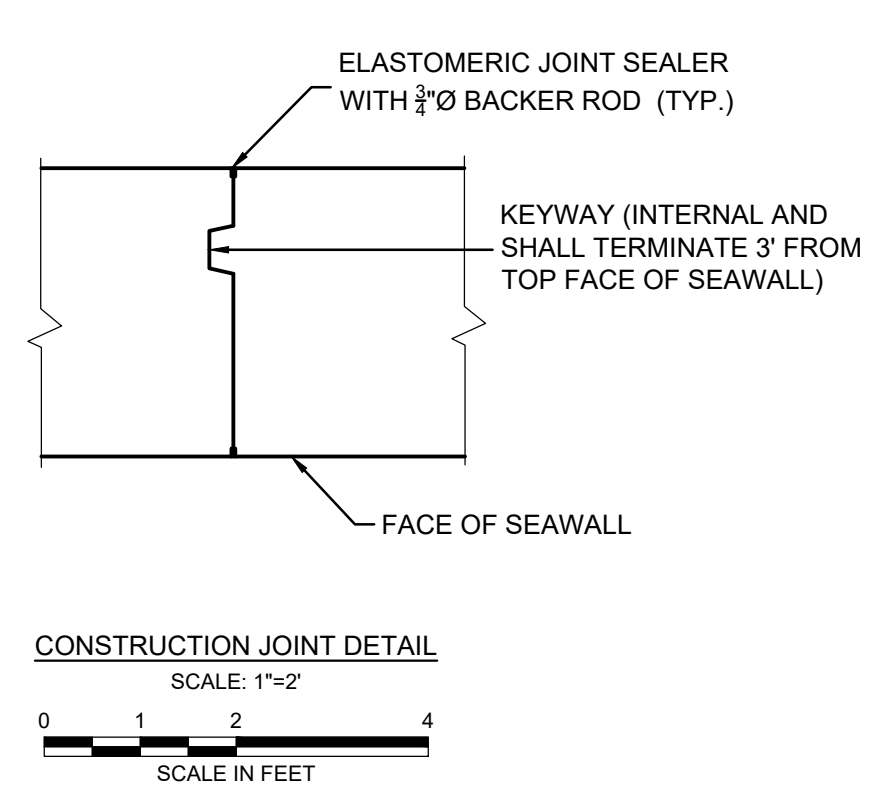
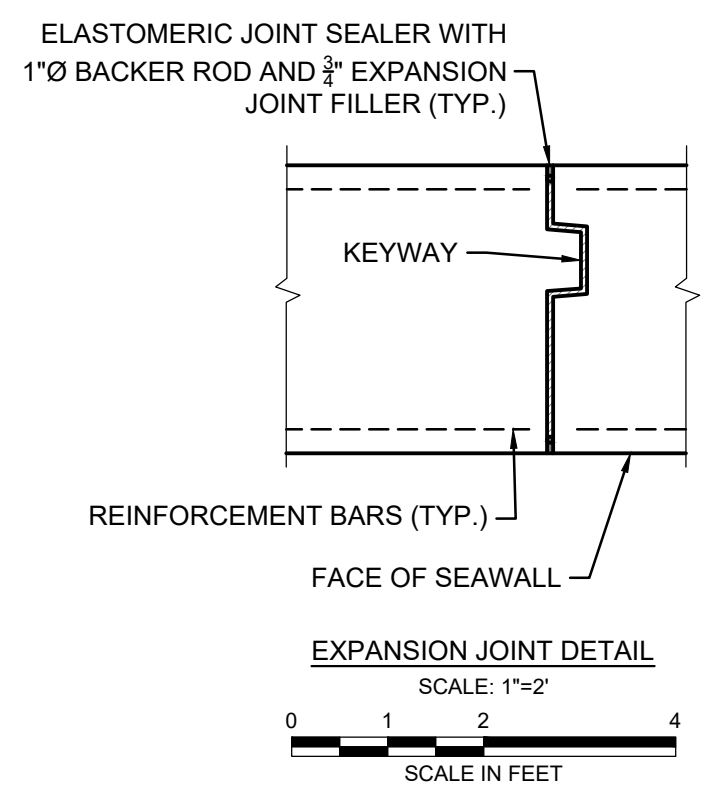
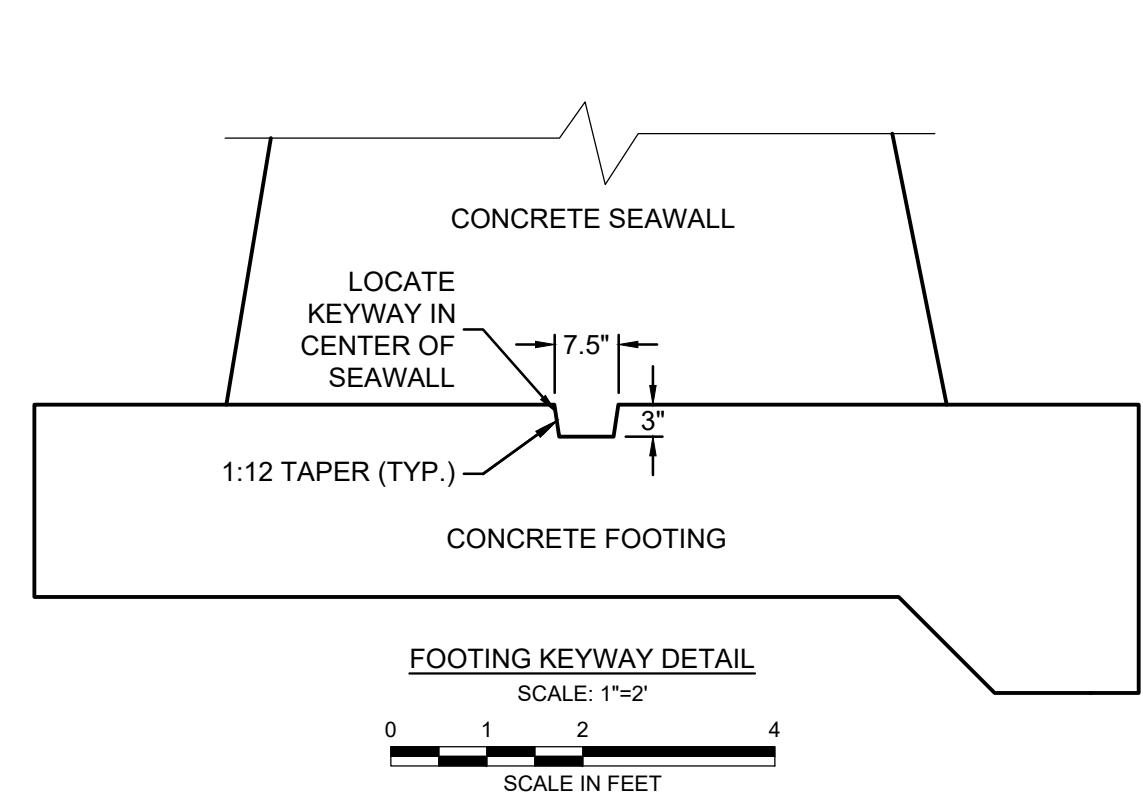
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- WALL RECONSTRUCTION NOTES:**
1. ALL REINFORCING BARS ARE TO BE A MINIMUM 3" CLEAR FROM FACE OF CONCRETE WHERE CONCRETE IS EXPOSED TO EARTH, EXCEPT WHERE OTHERWISE NOTED.
 2. PROVIDE TOOLED CONSTRUCTION JOINTS NO MORE THAN 25' APART.
 3. PROVIDE EXPANSION JOINTS NO MORE THAN 100' APART.



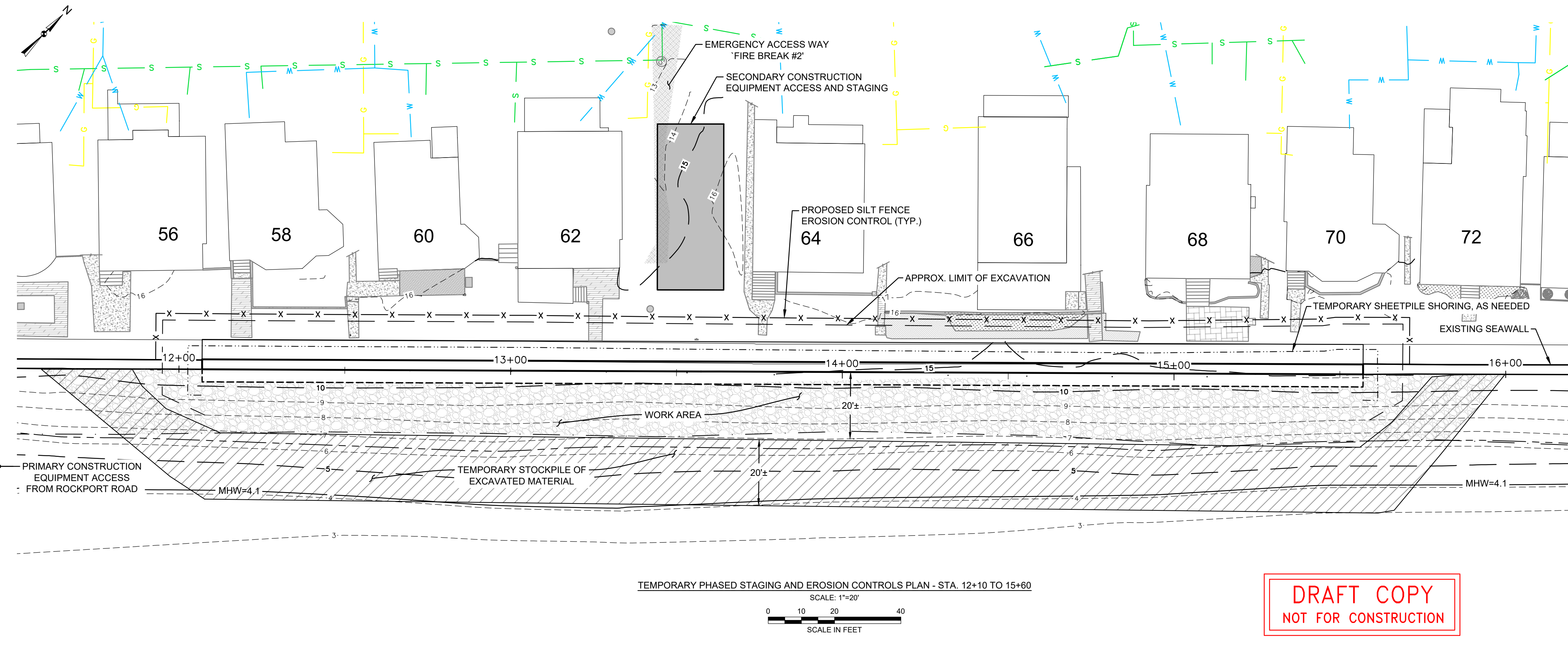
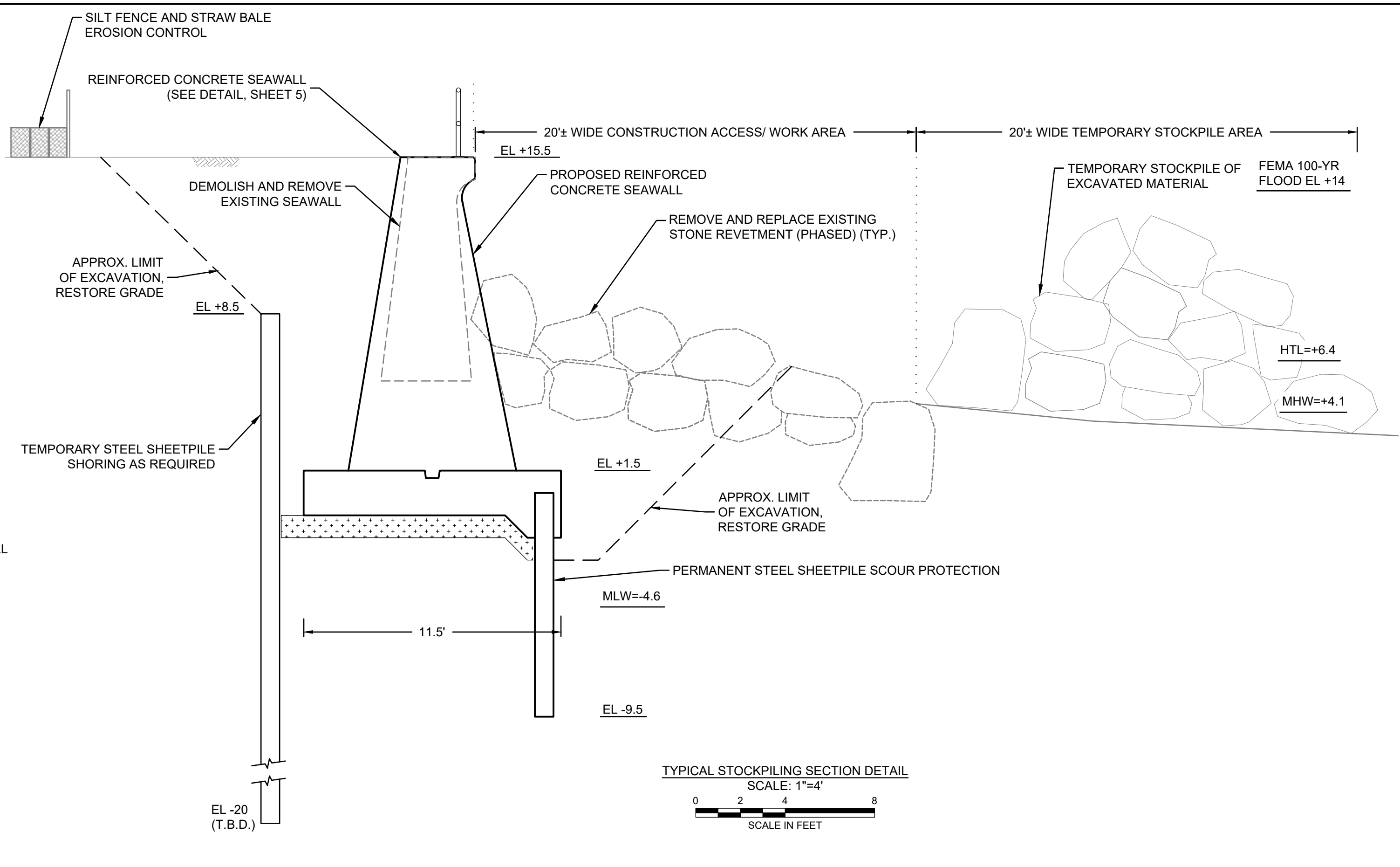
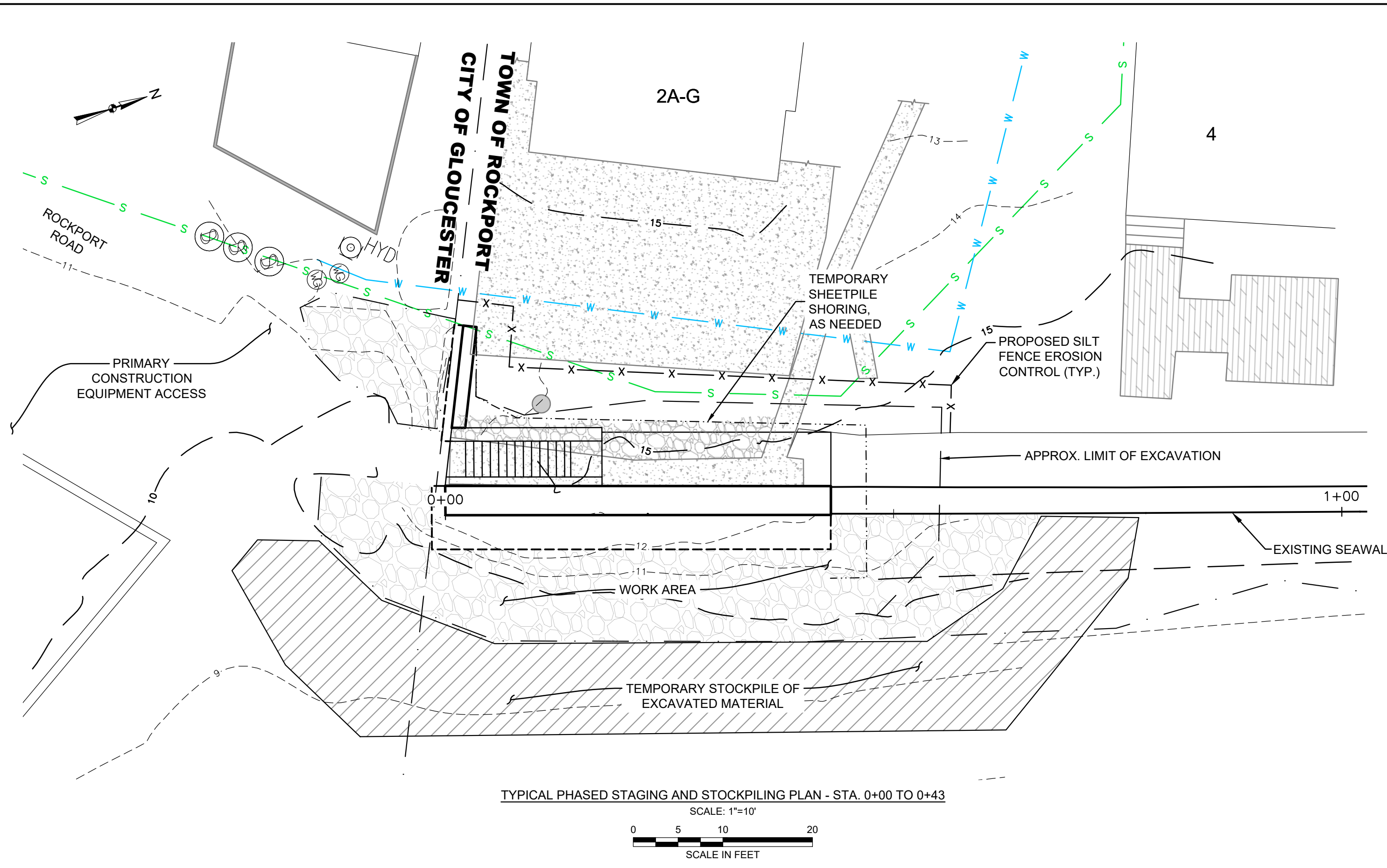
- RAILING NOTES:**
1. PROPOSED RAILINGS SHALL TIE-IN TO EXISTING RAILINGS TO REMAIN.
 2. DIMENSIONS FROM EXISTING GRADE TO TOP AND MID-RAILS OF THE NEW RAILING SHALL MATCH THE EXISTING RAILING. FIELD VERIFY ALL DIMENSIONS.



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PROPOSED DETAILS				
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				5
				FIGURE SHEET NO. 5 OF 6

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- STAGING AND STOCKPILING NOTES:**
- EXCAVATED MATERIAL CONSISTING OF REVETMENT STONE, BEACH SAND, AND OTHER GRANULAR MATERIAL IS TO BE TEMPORARILY STOCKPILED ALONG THE BEACH SEAWARD OF THE PROPOSED WORK.
 - STOCKPILED MATERIAL IS TO ACT AS A TEMPORARY BUFFER AGAINST WAVES AND TIDAL WATERS DURING THE CONSTRUCTION WORK.
 - SUITABLE EXCAVATED MATERIAL WILL BE USED TO BACKFILL EXCAVATIONS AND RESTORE THE AREA TO PRE-CONSTRUCTION CONDITIONS.
 - THE BEACH SHALL BE ACCESSED VIA ROCKPORT ROAD, ALL EQUIPMENT SHALL BE LIMITED TO THE AREA LANDWARD OF THE TEMPORARY STOCKPILE BERM.

- EROSION CONTROL NOTES:**
- ALONG THE LANDWARD SIDE OF THE SEAWALL, EROSION CONTROLS SHALL BE INSTALLED BETWEEN THE LIMITS OF WORK AND DWELLINGS.
 - EROSION CONTROLS SHALL ALSO ACT AS A LIMIT OF DISTURBANCE, AND NO ALTERATION SHALL TAKE PLACE BEYOND IT.
 - EROSION CONTROLS SHALL BE INSPECTED DURING WORK AND MAINTAINED IN GOOD REPAIR.
 - EROSION CONTROLS SHALL REMAIN IN PROPER FUNCTIONING CONDITION UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.

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LONG BEACH SEAWALL FEMA DISASTER RELIEF PROJECT NO. 73018 (4372DR-MA) ROCKPORT, MASSACHUSETTS			
TEMPORARY STAGING AND EROSION CONTROL PLAN			
PREPARED BY:	GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: TOWN OF ROCKPORT 34 BROADWAY ROCKPORT, MASSACHUSETTS 01966
PROJ MGR: DAS	REVIEWED BY: ABB	CHECKED BY: DAS	FIGURE
DESIGNED BY: DAS	DRAWN BY: LFT	SCALE: AS NOTED	6
DATE: MARCH 2020	PROJECT NO: 18.0173734.00	REVISION NO.	
			SHEET NO. 6 OF 6

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