



1.0 INTRODUCTION

On behalf of the Town of Scituate (Town, Applicant), GZA GeoEnvironmental, Inc. (GZA) has prepared this Notice of Intent (NOI) application to describe the proposed Project that includes repair of storm-damaged foreshore structures along 91 Surfside Road (North Scituate Beach). The Project is being partially funded through the Federal Emergency Management Agency (FEMA), with a match provided by the Town of Scituate. The following sites/foreshore protection structures are being proposed for repair:

Site 2: 91 Surfside Road Revetment (Parcel 15-1-45 and 15-1-46-F)

Refer to the attached Site Locus Map for proposed project site location. The objective of the project is to repair and improve storm-damaged foreshore structures. This application is submitted in accordance with the requirements of the Wetlands Protection Act Regulations (WPA, 310 CMR 10.00) and the Town of Scituate – Wetlands Protection Rules and Regulations (Scituate Code of Bylaws Section 30770).

2.0 EXISTING CONDITIONS

The Town of Scituate, Department of Public Works, Engineering Division has documented and compiled storm-related damages from declared disasters, “NEMO”, “JUNO”, and “RILEY” and submitted FEMA damage claims. The Town is proposing repair of the storm-damaged foreshore structures along Glades Beach/North Scituate Beach, Surfside Road and Seaside Road.

On February 4, March 16, and April 14, 2020, GZA personnel visited the project sites and performed visual and tactile inspections, hand measurements, photographic documentation, and limited topographic survey using a Real-Time Kinematic (RTK) Differential Global Positioning System (DGPS) at each site location. In addition, GZA retained Greenman-Pedersen, Inc. (GPI) to provide Unmanned Aircraft Services (UAS) for the development of aerial imagery and topographic survey data at each site for base plan development. Permit drawings, including locations of features and site stationing described herein, are presented for reference in **Appendix A**. Existing conditions photographs are included in **Appendix C**. Detailed descriptions of the existing conditions for the site location/foreshore protection structures are as follows:

2.1 SITE 2: 91 SURFSIDE ROAD REVETMENT

The foreshores structures at Site 2 are located at 91 and 0 Surfside Road, off the southern end of Surfside Road. Site 2 is located within a barrier beach system that separates the Atlantic Ocean (Massachusetts Bay), to the east, from Musquashcut Pond to the west. The existing shoreline to the north is protected with existing armor stone revetment, frequently fronting existing concrete seawalls. The existing shoreline to the south is protected by an artificial dune (“cobble berm”). The foreshore structures at Site 2 consist of a steel H-pile and concrete paneled seawall fronted by stone revetment, located at the southern limit of seawalls and revetments along Surfside Road, and the transition into the existing cobble berm. The existing armor stone revetment and seawall continue roughly parallel to the existing shoreline, then turning landward and continuing along the southern limit of existing residential structures located on the property of 91 Surfside Road. The foreshore structures provide protection to landward residential property, roadways, and utilities. The top of the seawall is at approximately elevation 17 feet NAVD88. Prior drawings by Vine Associates, dated 1994, indicate stone revetment extending approximately 28 feet seaward at a slope of approximately 1.5H:1V.

During recent site visit inspections, GZA observed that the revetment armor stones appeared to generally consist of 4- to 12-ton angular stones. Numerous displaced or missing armor stones were observed with large voids exposing the face of



the seawall and finer stone revetment core materials. The seawall was observed to be damaged and deteriorated with corrosion of steel H-piles and spalling and displacement of the concrete panels.

The existing seawall fronting 91 Surfside Road is currently owned by the property owner at 91 Surfside Road (Zhang John & Qiong Wu) along with parcel 15-1-46F south of 91 Surfside Road known as 0 Surfside Road. The Town of Scituate owns the stone revetment fronting 91 Surfside Road and the property landward of 91 and Surfside Road. There is a recorded easement for 91 Surfside Road allowing the Town to maintain the existing seawall (Cert No. 125010, Book 625, Page 10).

Prior Authorizations: Scituate Conservation Commission Order of Conditions DEP file No. 68-887. MADEP License Plan No. 3769, dated May 6, 1994. USACE CENED-OR-R-199602833, dated 1993, and MEPA Certificate No. 9652.

3.0 PROPOSED PROJECT

Descriptions of the work included in the proposed project are provided below. Locations and additional information regarding the proposed work are presented on the Permit Drawings in **Appendix A**.

3.1 SITE 2: 91 SURFSIDE ROAD REVETMENT

The proposed work includes approximately 50 linear feet of existing, damaged revetment repair fronting the existing steel H-pile and concrete paneled seawall at 91 Surfside Road. The width of the 91 Surfside Road revetment repairs will vary based on field conditions encountered and the extent of damage but will generally be limited to approximately 28 feet wide. This work will include limited removal and resetting of existing revetment stone and installation of supplemental (off-site) stone to restore the existing structure to its pre-disaster geometry and function. Mitigation of coastal hazards will be provided by the addition of supplemental revetment stone that is typically larger or favoring the larger end of the range of the existing stone sizes. This work is expected to require working during favorable tidal and ocean conditions with temporary equipment access to the beach. The repaired revetment will generally occur within the footprint of the existing structure and will not extend further seaward.

4.0 REGULATORY COMPLIANCE AND IMPACTS

The proposed work will be performed using the best available measures to minimize the adverse impacts to the resource areas defined under the Massachusetts Wetlands Protection Act (WPA) and local wetlands ordinances. The project has been designed to limit both temporary and permanent impacts at the site. All permanent impacts will occur within the footprint of existing coastal engineering structures and existing, related improvements. However, the proposed work will result in unavoidable temporary impacts associated with access. **Table 1** summarizes the total impacts proposed within each resource area.

Table 1 – Summary of Resource Area Impacts

Resource Area	Impact
Land Subject to Coastal Storm Flowage (LSCSF)	±2,737 SF; Proposed impact corresponds to the areas of the site located landward of the MHW contour, including existing coastal engineering structures, the footprint of proposed repairs, and portions of the temporary equipment access.
Coastal Beach (Barrier Beach)	±2,385 SF; Temporary Only for construction equipment access to the site of proposed repairs and limited, transient storage of revetment stone while the work is performed. Proposed impact typically corresponds to an approximately 20-foot-wide path immediately seaward of the revetment repair work and seaward edge of the cobble dune.



Coastal Dune (Barrier Beach)	±1,148 SF; Temporary Only for construction equipment access from the paved roadway to the site of proposed repairs. Proposed temporary impact typically corresponds to an approximately 20-foot-wide path immediately seaward of the revetment repair work and within the cobble dune.
Barrier Beach	±6,270 SF; The entire project footprint, including access from existing paved roadways, occurs within a Barrier Beach System. <i>Impact area noted under Barrier Beach includes all other resource area impacts noted herein.</i>
Coastal Bank	±50 LF; Permanent restoration of existing coastal engineering structures and related improvements to pre-disaster conditions.

4.1 LAND SUBJECT TO COASTAL STORM FLOWAGE (310 CMR 10.04)

Massachusetts WPA Regulations define Land Subject to Coastal Storm Flowage (LSCSF) as, “*land subject to any inundation caused by coastal storms up to and include that caused by the 100-year storm, surge of record or storm of record, whichever is greater.*”

Much of the proposed work will occur within the LSCSF resource area, between the Mean High Water (MHW) line and the FEMA 100-year flood elevation. However, the work that will occur within LSCSF will be limited to temporary construction access, and repair of existing stone revetment. The proposed work will temporarily impact approximately 2,013 square feet of LSCSF area to repair the storm-damaged revetment to its pre-disaster geometry and function. An additional 724 square feet of LSCSF will be impacted by temporary construction equipment access to the site of proposed repairs. The proposed work will not significantly impact the land’s ability to buffer storm waves. The areas of the site used solely for access will be restored to pre-construction conditions after the completion of work. There are no additional performance standards for LSCSF resource area provided under the Massachusetts WPA Regulations.

4.2 COASTAL BEACH (310 CMR 10.27)

Massachusetts WPA Regulations define Coastal Beach as, “*unconsolidated sediment subject to wave, tidal and coastal storm action which forms the gently sloping shore of a body of saltwater and includes tidal flats. Coastal beaches extend from the mean low water line landward to the dune line, coastal bank line or the seaward edge of existing man-made structures, when these structures replace one of the above lines, whichever is closest to the ocean.*”

The Coastal Beach resource area extends from the Mean Low Water (MLW) line to the dune line or seaward edge of the existing man-made structures (e.g., concrete seawalls and stone revetments). The proposed work includes repair and reconstruction of existing, storm-damaged foreshore structures within the original footprints and will not extend any further seaward. Approximately 2,385 square feet of temporary impact associated with construction is proposed within the Coastal Beach resource area. The work proposed within the Coastal Beach Resource area will consist of temporary construction equipment access to the site of proposed repairs and limited, temporary revetment stone storage during repair work. The proposed temporary impact typically corresponds to an approximately 20-foot-wide path immediately seaward of the existing revetments and revetment repair work. Excavations and disturbance of existing grade will be minimized to the amount necessary to perform the work. Mining of existing sediment and possible revetment stone beyond the limits of the existing structure’s footprint will not be permitted. The site will be restored to pre-construction conditions after the completion of work.

In accordance with 310 CMR 10.27, when a Coastal Beach is determined to be significant to storm damage prevention, flood control, or protection of wildlife habitat, 310 CMR 10.27(3) through (7) shall apply. When a tidal flat is determined to be significant to marine fisheries or the protection of wildlife habitat, 310 CMR 10.27(6) shall apply. **Table 2** lists the



performance standards for Coastal Beach and describes how the proposed project will address the performance standards.

Table No. 2 – Performance Standards for Work in Coastal Beach	
Performance Standard	Proposed Project
310 CMR 10.27(3) <i>Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.</i>	Temporary impacts including equipment access, transient storage/stockpiling of revetment stone, excavation and shoring/support of excavation are anticipated to the extent necessary to facilitate the proposed repair work. Temporary shoring, excavations, and existing grade disturbance within the Coastal Beach resource area will be restored with the sand and naturally occurring sediments to match pre-construction conditions. No sediment mining or excavation to recover displaced revetment stones beyond the limit of the existing revetment structure will be permitted. No naturally occurring sediments, soil, or stone will be removed from the beach. All naturally occurring sediments disturbed by the work will be returned as near to their location of origin as feasible within a tide cycle.
310 CMR 10.27(4) <i>Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows: (a) It shall be the minimum length and height demonstrated to be necessary to maintain beach form and volume. In evaluating necessity, coastal engineering, physical oceanographic and/or coastal geologic information shall be considered. (b) Immediately after construction any groin shall be filled to entrapment capacity in height and length with sediment of grain size compatible with that of the adjacent beach. (c) Jetties trapping littoral drift material shall contain a sand by-pass system to transfer sediments to the downdrift side of the inlet or shall be periodically redredged to provide beach nourishment to ensure that downdrift or adjacent beaches are not starved of sediments.</i>	The proposed work includes repair and in-kind reconstruction of existing, storm-damaged foreshore structures within the original footprints and will not extend any further seaward.
310 CMR 10.27(5) <i>Notwithstanding 310 CMR 10.27(3), beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.</i>	No beach nourishment is proposed.
310 CMR 10.27(6) <i>In addition to complying with the requirements of 310 CMR 10.27(3) and (4), a project on a tidal flat shall if water-dependent be designed and constructed, using best available measures, so as to minimize adverse effects, and if non-water-dependent, have no adverse effects, on marine fisheries and wildlife habitat caused by: (a) alterations in water circulation; (b) alterations in the distribution of sediment grain size; and (c) changes in water</i>	The proposed work includes repair and in-kind reconstruction to storm-damaged foreshore structures within the original footprints and will not extend any further seaward. The proposed work will be performed within the tidal cycle to avoid inundation of the work area. Sedimentation and erosion control measures will be in place during construction activities, as appropriate.



Table No. 2 – Performance Standards for Work in Coastal Beach	
Performance Standard	Proposed Project
<i>quality, including, but not limited to, other than natural fluctuations in the levels of dissolved oxygen, temperature or turbidity, or the addition of pollutants.</i>	
310 CMR 10.27(7) <i>Notwithstanding the provisions of 310 CMR 10.27(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites or rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.</i>	No Estimated Habitat for Rare Species or Priority Habitat for Rare Wildlife are listed in the vicinity of the proposed project sites on the current maps published by the Natural Heritage and Endangered Species Program.

4.3 COASTAL DUNE (310 CMR 10.28)

Massachusetts WPA Regulations define Coastal Dune as, *“any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal dune also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control.”*

Coastal Dune, maintained with sediment deposited by artificial means (“cobble berm”) occurs immediately south of the proposed work at Site 2. The proposed work includes the in-kind reconstruction of the existing stone revetment fronting the existing steel H-pile and concrete paneled seawall at 91 Surfside Road. The work proposed within the Coastal Dune resource area will consist of temporary construction equipment access, from the southern end of the existing pavement on Surfside Road to the site of proposed revetment repairs. The proposed temporary impact is approximately 1,148 square feet and corresponds to an approximately 20-foot-wide path over the transitional area between existing armor stone revetment and cobble berm. The proposed impact will be minimized to the extent necessary to perform the proposed repair work. The proposed work will not significantly impact the land’s ability to buffer storms and flooding. The site will be restored to pre-construction conditions after the completion of work.

In accordance with 310 CMR 10.28, when a Coastal Dune is determined to be significant to storm damage prevention, flood control or the protection of wildlife habitat, 310 10.28(3) through (6) shall apply. **Table 3** lists the performance standards for Coastal Dune and describes how the proposed project will address the performance standards.

Table No. 3 – Performance Standards for Work in Coastal Dune	
Performance Standard	Proposed Project
310 CMR 10.28(3) <i>Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by: (a) affecting the ability of waves to remove sand from the dune; (b) disturbing the vegetative cover so as to destabilize the dune; (c) causing any modification of the dune form that would increase the potential for storm or flood damage; (d) interfering with the landward or lateral movement of the dune; (e) causing removal of sand from the dune artificially; or (f) interfering with mapped or otherwise identified bird nesting habitat.</i>	Temporary impacts including equipment access are anticipated and will be minimized to the extent necessary to facilitate the proposed repair work. No excavation on the Coastal Dune, outside of the proposed repair work will be permitted. No sediment mining or excavation to recover displaced revetment stones beyond the limit of the existing revetment structure will be permitted. No naturally occurring or artificially deposited sediments, soil, or stone will be removed from the Coastal Dune. Disturbance of existing vegetation, if any, will be avoided. Mapped or otherwise identified bird nesting habitat is not



Table No. 3 – Performance Standards for Work in Coastal Dune	
Performance Standard	Proposed Project
	located at the site. All areas disturbed by the work will be restored to pre-construction conditions.
310 CMR 10.28(4) <i>Notwithstanding the provisions of 310 CMR 10.28(3), when a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided that such work, using the best commercially available measures, minimizes the adverse effect on the coastal dune caused by the impacts listed in 310 CMR 10.28(3)(b) through (e). Such an accessory project may include, but is not limited to, a small shed or a small parking area for residences. It shall not include coastal engineering structures.</i>	The proposed work includes repair and in-kind reconstruction of existing, storm-damaged coastal engineering structures within the original footprints and will not extend any further.
310 CMR 10.28(5) <i>The following projects may be permitted, provided that they adhere to the provisions of 310 CMR 10.28(3): (a) pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat; (b) fencing and other devices designed to increase dune development; and (c) plantings compatible with the natural vegetative cover.</i>	No pedestrian walkways, fencing and/or other devices designed to increase dune development, and/or plantings are proposed. Areas of the site, not specifically scheduled for repair, will be minimized, and restored to pre-construction conditions.
310 CMR 10.28(6) <i>Notwithstanding the provisions of 310 CMR 10.28(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.</i>	No Estimated Habitat for Rare Species or Priority Habitat for Rare Wildlife are listed in the vicinity of the proposed project sites on the current maps published by the Natural Heritage and Endangered Species Program.

4.4 BARRIER BEACH (310 CMR 10.29)

Massachusetts WPA Regulations define Barrier Beach as, “a narrow low-lying strip of land generally consisting of coastal beaches and coastal dunes extending roughly parallel to the trend of the coast. It is separated from the mainland by a narrow body of fresh, brackish or saline water or a marsh system. A barrier beach may be joined to the mainland at one or both ends.”

Site 2 occurs within Barrier Beach formed by an area of land between the Atlantic Ocean and Musquashcut Pond. The proposed work includes the in-kind reconstruction of the existing stone revetment fronting the existing steel H-pile and concrete paneled seawall at 91 Surfside Road. The proposed reconstructed revetment shall be constructed to match the original revetment line. The proposed work will temporarily alter approximately 6,270 square feet of previously altered Barrier Beach area to repair the storm-damaged foreshore structures. The proposed work will not significantly impact the land’s ability to buffer storms and flooding. The site will be restored to pre-construction conditions after the completion of work.

In accordance with 310 CMR 10.29, when a Barrier Beach is determined to be significant to storm damage prevention, flood control, marine fisheries or protection of wildlife habitat. 310 CMR 10.27(3) through (6) (Coastal Beaches) and



10.28(3) through (5) (Coastal Dunes) shall apply. Refer to **Table 2** for Coastal Beach performance standards and **Table 3** for Coastal Dune performance standards.

4.5 COASTAL BANK (310 CMR 10.30)

Massachusetts WPA Regulations define Coastal Bank as, “the seaward face or side of any elevated landform, other than coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action or other wetland.”

The Coastal Bank at the project site is formed by existing man-made foreshore protection structures including concrete seawalls and stone revetments. The Coastal Bank at the project site provides a vertical buffer to storm waves and surge and protects the landward roadways, utilities, and other public and private property. The proposed work to includes repair and reconstruction to approximately 50 linear feet of storm-damaged foreshore structures within the original footprints and will not extend any further seaward. The proposed work will not adversely impact the ability of the existing Coastal Bank at the project sites to be vertical buffers to storm waves and surge.

In accordance with 310 CMR 10.30, when a Coastal Bank is determined to be significant to storm damage prevention or flood control because it is a vertical buffer to storm waters, 310 CMR 10.30(6) through (8) shall apply. **Table 4** lists the performance standards for Coastal Bank and describes how the proposed project will address the performance standards.

Table No. 4 – Performance Standards for Work in Coastal Bank	
Performance Standard	Proposed Project
310 CMR 10.30(6) <i>Any project on such a coastal bank or within 100 feet landward of the top of such coastal bank shall have no adverse effects on the stability of the coastal bank.</i>	The proposed work includes repair and reconstruction to storm-damaged foreshore structures. The proposed repairs and reconstructions will provide a more resilient shoreline able to buffer storm waves and surge to protect the landward roadways, utilities, and other public and private property.
310 CMR 10.30(7) <i>Bulkheads, revetment, seawalls, groins or other coastal engineering structures may be permitted on such a coastal bank except when such a bank is significant to storm damage prevention or flood control because it supplies sediment to coastal beaches, coastal dunes, and barrier beaches.</i>	The Coastal Bank at the project site is formed by existing man-made foreshore protection structures including concrete seawalls and stone revetments. The existing coastal engineering structures provide an armored Coastal Bank that is significant to storm damage prevention or flood control because the structures act as a vertical buffer to storm waves, while protecting and stabilizing other landward coastal infrastructure and development, rather than as a possible supply of sediment to the Coastal Beach. The proposed work includes repair and reconstruction to existing, storm-damaged foreshore structures within the original footprints, using similar or existing materials and methods and will not extend any further seaward.
310 CMR 10.30(8) <i>Notwithstanding the provisions of 310 CMR 10.30(3) through (7), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.</i>	No Estimated Habitat for Rare Species or Priority Habitat for Rare Wildlife are listed in the vicinity of the proposed project sites on the current maps published by the Natural Heritage and Endangered Species Program.



4.6 100-FOOT BUFFER ZONE

Massachusetts WPA Regulations define Buffer Zone as, “100-ft area horizontally (on a true lateral) landward of approved delineation of applicable wetland resource areas.” The WPA further states that any activities undertaken within 100 feet of an area specified in 310 CMR 10.02(1)(a) will be conducted per (310 CMR 10.02(2)(b)), “in a manner so as to reduce the potential for any adverse impacts to the resource area during construction, and with post-construction measures implemented to stabilize any disturbed areas.”

Impacts to the Buffer Zone will occur as a result of typical temporary construction access needs. The proposed work occurs within existing coastal wetland resource areas, coastal engineering structures, or related improvements. Accordingly, the potential for project-related impacts to the Buffer Zone is limited to that which may occur by transporting personnel, materials, and equipment to and from the project site over existing publicly accessible, paved roadways, in accordance with local, state, and federal laws and regulations. Temporary impacts to the Buffer Zone are unavoidable due to the location of the project work and access limitations. Temporary impacts will be limited to the extent practicable and project-related areas of disturbance will be stabilized using best available measures and restored to pre-construction conditions.

4.7 OTHER REGULATED RESOURCE AREAS

GZA has also considered whether the project site falls within other environmental regulatory boundaries that would require additional permits. There are no Outstanding Resource Waters, Areas of Critical Environmental Concern, Certified Vernal Pools, Estimated Habitat for Rare Species, or Priority Habitat for Rare Wildlife associated with the project site.

5.0 **CONSTRUCTION PROCEDURES**

The general construction process consists of:

1. Installation of project-related and regulatory signage.
2. Mobilization of equipment and materials to the land-side construction access and staging areas in the existing paved areas near the south end of Surfside Road.
3. Site preparation activity such as deployment of erosion and sediment control measures, site delineation, temporary construction facilities, survey control, and temporary access measures, as applicable
4. Delivery of supplemental revetment stone materials to landward staging and storage locations. (Delivery of material will be phased and occur periodically throughout the project, as necessary).
5. Incremental removal and reset of existing, damaged stone revetment elements and installation of supplemental stone products on the existing segments of revetment scheduled for repair including construction equipment access to the beach, during periods when the work and access are above the tide level. Areas disturbed to facilitate the work (e.g., access route on beach) will be stabilized and restored following the proposed repair work.
6. Site restoration and demobilization.

Proposed work will be accessed on foot and with typical construction equipment, including but not limited to hydraulic excavators, backhoes, front-end loaders, cranes, dump trucks, etc. Construction material deliveries will likely be unloaded from the paved surface of Surfside Road and then transported to temporary, on-site storage locations or the site of proposed repairs by site equipment.

Except for limited and transient storage of revetment stone within the approximately 20-foot-wide path for beach construction access; other equipment, materials, debris, or other items will be stored so that they will be protected from



rising water when not being used. It is our understanding the Town-owned vacant lot at the end of Surfside Road may be used for temporary equipment and material storage. Site features to remain will be protected throughout the duration of the construction work. Areas temporarily disturbed by construction activities will be restored to pre-construction conditions at the completion of the project.

5.1 MEASURES TO MINIMIZE RESOURCE AREA IMPACTS

Measures to minimize impacts to the Resource Areas noted above include the following:

- Temporary barriers, fencing and signage will be placed at the work site during construction.
- Contractor will have spill kits/absorbent pads on each piece of equipment.
- Each vehicle shall be inspected daily for leaks; any leaking equipment shall be removed from the site immediately and shall not return to service until repaired.
- The Contractor will provide a contingency plan for approval in the event a piece of equipment is stuck to remove the equipment immediately.
- The work area will be left in a condition such that rising water and/or adverse weather will not cause damage to the work area or adjacent areas.
- The Contractor will perform the work during favorable tides for the various aspects of the work. The contractor will work the tides to minimize impacts to resource areas.
- Sedimentation and erosion control measures will be in place during construction activities.
- Proposed work shall comply with all Federal, State and Local Codes and Regulations.
- Proposed work shall comply with the Local Conservation Commission's Order of Conditions.

6.0 CONCLUSION

The proposed project is necessary to repair the storm-damaged foreshore protection structures at 91 Surfside Road in Scituate, MA. The structures are required to provide protection for critical infrastructure, public waterfront access, and public and private property. The project has been designed to minimize impacts to regulated resource areas.



SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

	Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
	With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
	Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

	0.2% Annual Chance Flood Hazard. Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile. <i>Zone X</i>
	Future Conditions 1% Annual Chance Flood Hazard. <i>Zone X</i>
	Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
	Area with Flood Risk due to Levee. <i>Zone D</i>

OTHER AREAS

NO SCREEN	Area of Minimal Flood Hazard	Zone X
	Effective LOMRs	
	Area of Undetermined Flood Hazard	Zone D

GENERAL - - - - Channel, Culvert, or Storm Sewer
STRUCTURES ||||| Levee, Dike, or Floodwall

OTHER FEATURES

-  Cross Sections with 1% Annual Chance
-  Water Surface Elevation
-  Coastal Transect
-  Base Flood Elevation Line (BFE)
-  Limit of Study
-  Jurisdiction Boundary
-  Coastal Transect Baseline
-  Profile Baseline
-  Hydrographic Feature

MAP PANELS

-  Digital Data Available
-  No Digital Data Available
-  Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/7/2022 at 1:11 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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SCITUATE FORESHORE PROTECTION REPAIRS
SITE NO. 2: 91 SURFSIDE ROAD
SCITUATE, MASSACHUSETTS

FEMA MAP

PREPARED BY:

 **GZA** GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
TOWN OF SCITUATE
600 CHIEF JUSTICE CUSHING HIGHWAY
SCITUATE, MASSACHUSETTS

PROJ MGR:	DAS
DESIGNED BY:	AJK
DATE:	MARCH 2024

REVIEWED BY:	DAS
DRAWN BY:	AJK
PROJECT NO.	18.0174547.00

CHECKED BY:	ABB
SCALE:	AS SHOWN
REVISION NO.	

FIGURE
2
SHEET NO.

SCITUATE FORESHORE PROTECTION REPAIRS

SITE NO. 2: 91 SURFSIDE ROAD SCITUATE, MASSACHUSETTS

BOARD OF SELECTMEN

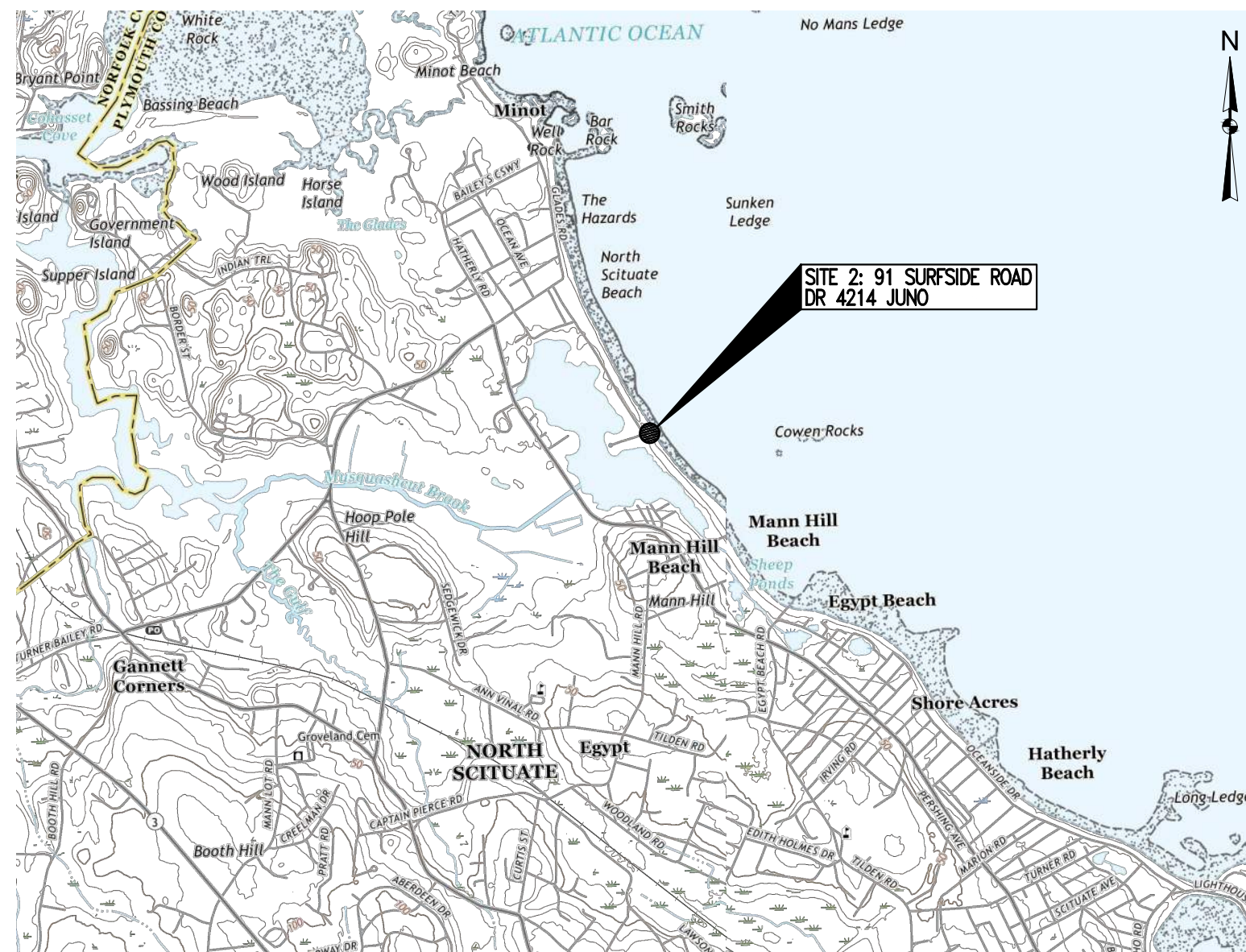
MAURA C. CURRAN, CHAIR
ANDREW W. GOODRICH, VICE CHAIR
SUSAN J. HARRISON
KAREN B. CANFIELD
KAREN E. CONNOLLY

TOWN ADMINISTRATOR

JAMES BOUDREAU

DIRECTOR OF PUBLIC WORKS

KEVIN CAFFERTY



PROJECT LOCUS MAP

SOURCE: USGS TOPOGRAPHIC QUADRANGLES
DIGITAL TOPOGRAPHIC MAPS PROVIDED BY USGSSTORE.GOV.

CONTOUR ELEVATIONS REFERENCE NAVD 88,
CONTOURS AND ELEVATIONS ARE SHOWN IN FEET



SCALE: 1" = 2500 FEET

PREPARED FOR

TOWN OF SCITUATE
600 CHIEF JUSTICE CUSHING
SCITUATE, MA

PROJECT ENGINEER



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



Anders B. Fanger
3/7/24

INDEX OF DRAWINGS

- 1 COVER SHEET
- 2 PROPOSED WORK PLAN AND SECTION

PERMITTING COPY
NOT FOR CONSTRUCTION

GZA - March 07, 2024 - 12:59pm - Isabel.Gleckner

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SCITUATE FORESHORE PROTECTION REPAIRS
SITE NO. 2: 91 SURFSIDE ROAD
SCITUATE, MASSACHUSETTS

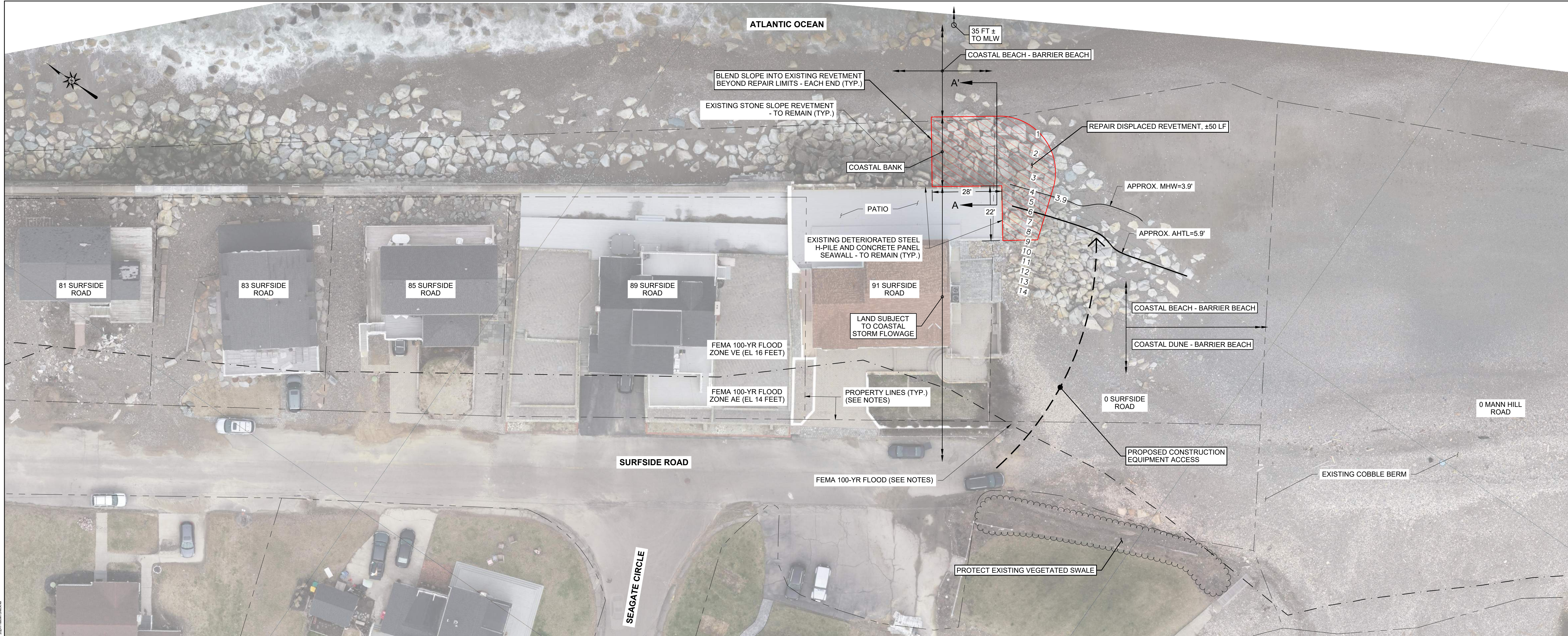
COVER SHEET

PREPARED BY:	P
 GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	

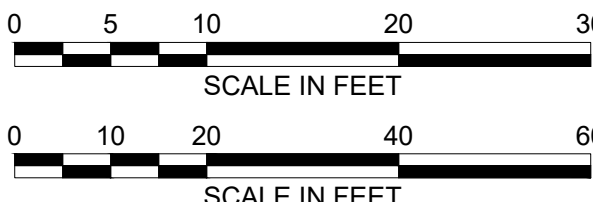
PREPARED FOR:
TOWN OF SCITUATE
600 CHIEF JUSTICE CUSHING
SCITUATE, MASSACHUSETTS

PROJ MGR: DAS	REVIEWED BY: AJK	C
DESIGNED BY: DAS	DRAWN BY: AJP	S
DATE: MAR 2024	PROJECT NO. 18.0174547.00	R

CHECKED BY: DAS	DRAWING 1
SCALE: AS SHOWN	
REVISION NO. -	
SHEET NO. 1 OF 2	



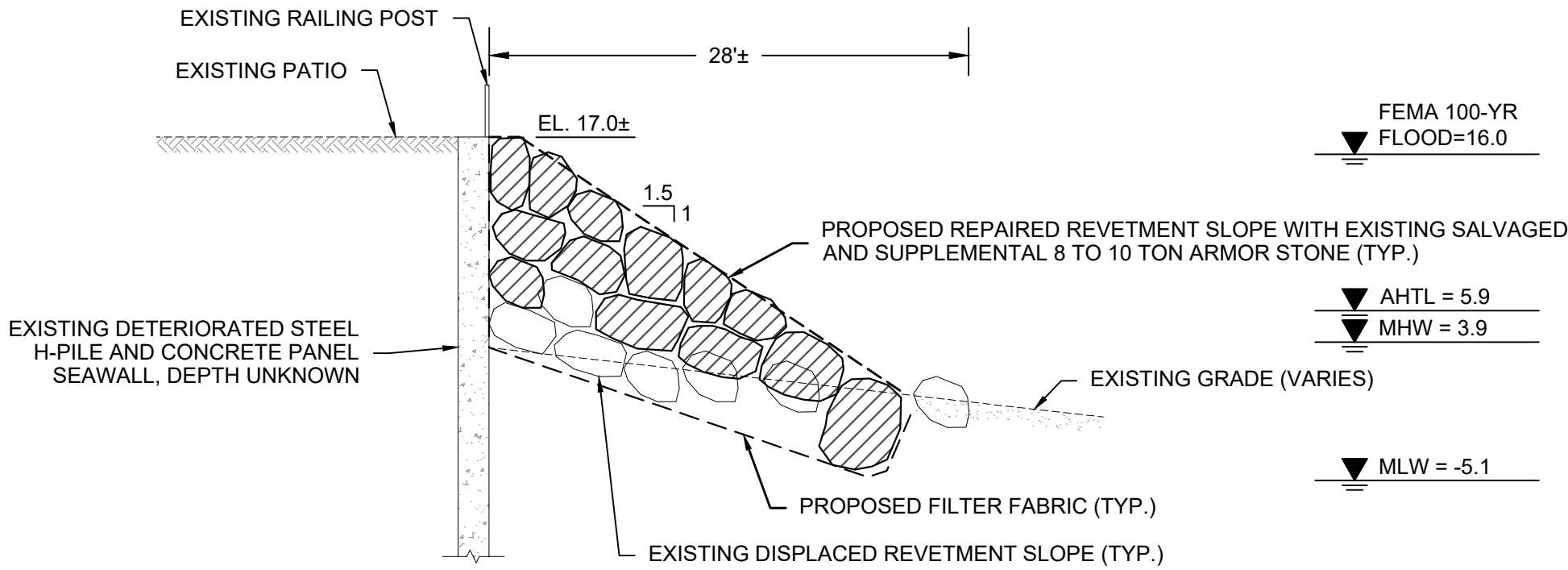
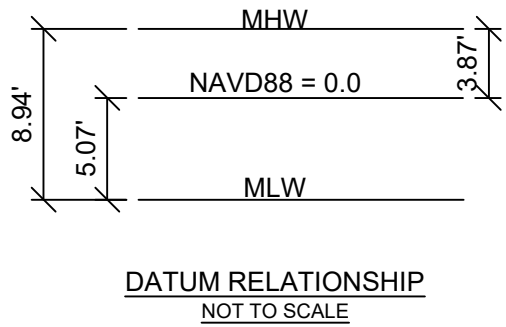
PROPOSED WORK PLAN: 91 SURFSIDE ROAD
SCALE: 1"=20'



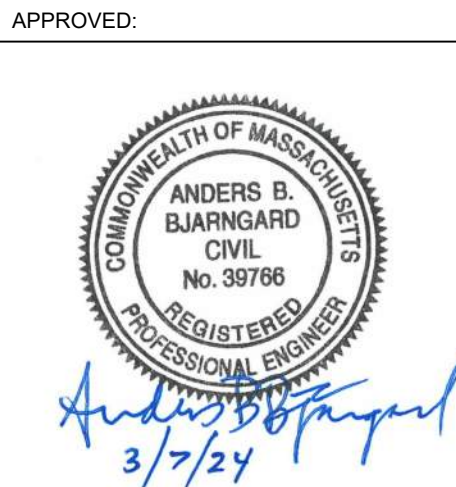
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- LEGEND**
- EXISTING CONTOUR MAJOR
 - EXISTING CONTOUR MINOR
 - MEAN HIGH WATER (MHW)
 - FEMA FLOOD ZONES
 - PROPERTY LINES
 - REPAIR DISPLACED REVETMENT TOE AND SLOPE

- GENERAL NOTES:**
- ELEVATIONS ARE IN FEET BASED ON THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88):
MLW=-5.07, NAVD88=0.00, MHW=3.87, AHTL=5.93. TIDAL DATUM REFERENCED TO THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) STATION ID 8445138 FOR SCITUATE HARBOR, SCITUATE, MA.
 - LIMITED TOPOGRAPHIC SURVEY AND SITE OBSERVATIONS PERFORMED BY GZA GEOENVIRONMENTAL, INC. ON MARCH 16 AND APRIL 14, 2020 AND REPRESENTS CONDITIONS AT THE TIME OF THE SURVEY AND OBSERVATIONS.
 - ORTHOMOSAIC IMAGES DEVELOPED BY GREENMAN-PEDERSEN, INC. ON APRIL 6, 2020 USING UNMANNED AIRCRAFT SYSTEM FLIGHTS AT AN ALTITUDE OF APPROXIMATELY 150 TO 200 FEET. ELECTRONIC FILES WERE SENT TO GZA GEOENVIRONMENTAL, INC. ON APRIL 9, 2020.
 - PROPERTY LINES AND FEMA FLOOD ZONES WERE TAKEN FROM MOST RECENT AVAILABLE DATA FROM MA GIS DATABASE.



SECTION A - A': 91 SURFSIDE ROAD
SCALE: 1"=10'



1		REVISED REVETMENT LIMITS ON SOUTH FACE	AJK	1/19/2024
NO		ISSUE/DESCRIPTION	BY	DATE
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PREPARED BY:		SCITUATE FORESHORE PROTECTION REPAIRS SITE 2: 91 SURFSIDE ROAD SCITUATE, MASSACHUSETTS		
GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		TOWN OF SCITUATE 600 CHIEF JUSTICE CUSHING SCITUATE, MASSACHUSETTS		
PROJ MGR: DAS	DESIGNED BY: DAS	REVIEWED BY: LFT	CHECKED BY: DAS	DRAWING
DATE: MAR 2024	PROJECT NO. 18.0174547.00	SCALE: AS SHOWN	REVISION NO. 1	2
				SHEET NO. 2 OF 2



Photographic Log

Scituate Foreshore Protection Repairs

North Scituate Beach

Client Name: Town of Scituate		Site Location: 91 Surfside Road Scituate, MA	Project No. 18.0174547.02
Photo No. 1	Date: 4/14/20		
Direction Photo Taken: Northwest			
Description: Typical displaced revetment toe and slope along the southern return wall.			

Photo No. 2	Date: 4/14/20	
Direction Photo Taken: West		
Description: Overview of displaced revetment toe and slope along deteriorated steel H-pile and concrete panel seawall.		



Photographic Log

Scituate Foreshore Protection Repairs

North Scituate Beach

Client Name: Town of Scituate		Site Location: 91 Surfside Road Scituate, MA	Project No. 18.0174547.02
Photo No. 3	Date: 4/14/20		
Direction Photo Taken: Southwest			
Description: Typical displaced revetment toe and slope along seawall.			

Photo No. 4	Date: 4/14/20	
Direction Photo Taken: West		
Description: Typical damaged and deteriorated steel H-pile and concrete panel seawall.		