

PUBLIC NOTICE

Comment Period Begins: February 20, 2024 Comment Period Ends: March 20, 2024 File Number: NAE-2020-01866 In Reply Refer to: Ms. Cori M. Rose Phone: (978) 831-3673 Email: cori.m.rose@usace.army.mil

The District Engineer, U.S. Army Corps of Engineers, New England District (USACE), has received a permit application, file number NAE-2020-01866 to conduct work in waters of the United States from Dawn Henning, City of New Haven Engineering Department, 200 Orange Street, New Haven, Connecticut. This work is proposed in New Haven Harbor at Long Wharf Park, Long Wharf Drive, New Haven, Connecticut. The site coordinates are Latitude 41.2880° N, Longitude -72.9235° W, New Haven, New Haven County, Connecticut.

The work proposed will involve the permanent discharge of up to 11,410 cubic yards of stone/ECONcrete© and 12,349 cubic yards of sand, gravel, and cobble, as well as associated grading below the high tide line over a 5.4-acre area of intertidal and shallow submerged mudflats. The applicant proposes activity in estuarine waters, which seeks to raise the elevation of the tidal substrate, and the newly established sills and planted saltmarsh are intended to attenuate waves and reduce shoreline erosion for storm events (up to the 20-year recurrence interval). The living shoreline stabilization project will span a 3,400 linear foot section of the New Haven Harbor coastline known as "Long Wharf" and Vietnam Veterans Memorial Park.

In total, the proposed fill material will convert an area of approximately 3.4-acres from tidal mudflat to low coastal wetland dominated by saltmarsh cordgrass (*Spartina alterniflora*), and include stone sills with scour protection and marsh migration zone. Within this 3.4-acre area, 0.6 acres will be stone sills (0.2 acres will be exposed crushed stone for scour protection and 0.4 acres for stone sills proper), 2.5 acres will be Low Marsh and 0.3 acres will be marsh migration zone. The crushed stone scour protection landward of the rock sills is intended to serve the dual purpose of scour protection and to provide access to the sill area during construction and any future maintenance. An additional 2.0-acres of intertidal mudflat will have fill discharged to correspond with the new adjacent shoreline elevation, but the discharge will have no change to the function of the area as an intertidal mudflat. The area of habitat conversion waterward of the high tide line (HTL) is summarized in the table below:

Habitat	Seaward of HTL (4.4 ft-NAVD) (sf)	Seaward of HTL (4.4 ft-NAVD) (ac)
Permanent Impacts		
Low Marsh	108,577	2.5
Tidal Flats	-147,267	-3.4
Maritime Shrub	321	0.007
Phragmites	-321	-0.007
Marsh Migration Zone	13,110	0.3
Stone Sills	25,580	0.6
Total Impact Area (fill and excavation)	147,588	3.4
Temporary Impacts		
Tidal Flats	1,650	0.04

The project will include the following permanent and temporary components:

- Construction of 23 stone sills consisting of rubble mound, low-crested quarried granite stone placed waterward of mean high water (MHW). Each rock sill will be approximately 80-feet long, 25-feet wide and range between 3.5 and 5.5-feet high with a crest width of 4-feet and a sill crest elevation of 4.5-feet. A space of between 25 and 35 feet will be provided between each stone sill to maintain tidal circulation and movement of aquatic resources to and from the intertidal shoreline.
- Placement of 12,349 cubic yards of permanent fill consisting of a mix of gravel, cobble, and sand for creation of new salt marsh planting bed and future tidal wetland landward marsh migration zone. Two acres of tidal flat habitat not being converted to low marsh will also receive fill to bring the elevation of these intertidal areas up to the elevation of the new low marsh.
- Mechanical removal of invasive common reed (Phragmites australis) from an approximately 0.33-acre area in the northern end of the site, placement of approximately 9 cubic yards of new sand fill below the HTL.
- Planting of native maritime woody shrubs and perennial herbaceous plants and grasses along the base of the existing granite revetment and within the northwest project corner where invasive reed currently resides.
- Installation of 3 pedestrian access granite stairways in place of the existing granite revetment for access to the shoreline.
- Placement of temporary fill, in the form of protective mats as best management practice, below the HTL for temporary vehicular construction access.

The project proponent has identified two methodologies for construction of the rock sills. The first, listed above, would involve the use of tracked and/or low-pressure vehicles and excavators on mats or pads placed in the water and within the intertidal zone. An alternative to this approach, which has the potential to reduce the disturbance from construction vehicles in the intertidal zone, would involve the use of a jack-up or spud barge with mounted crane and/or excavator. A barge of this type could access the sill construction area at a higher water level and be elevated above the substrate on legs (spuds) at low water cycles. This methodology would reduce tracking of equipment along the shoreline and result in less disturbance than if a barge were "grounded" at low water.

The purpose of the proposed work is to establish a climate resilient shoreline at a popular urban park which will withstand erosion forces up to a 20-year storm event while simultaneously improving ecological function and continuity of the land with the water interface and enhancing the opportunity for public access and passive recreational pursuits. Construction of the living shoreline is expected to take between one and two years to complete.

The work is just one of multiple components to the City of New Haven's shoreline protection and flood control strategy, which includes (from seaward to landward) this proposal for installation of a living shoreline, the existing granite armored rock revetments above the HTL, and the proposed federal USACE federally funded Long Wharf Flood Protection Project which includes a 6,425-foot long system of flood walls, gates and pump stations <u>https://</u> <u>www.nae.usace.army.mil/Portals/74/docs/Topics/FairField/Draft-Main-Report-EA-13DEC2019.pdf</u>).

The work is shown on the enclosed plans entitled "THE LONG WHARF MARSH NEW HAVEN, CONNECTICUT," on 19 sheets, and dated "FEB. 2023".

The project proponent has considered multiple alternatives and site configurations for the project and has included the use of best management practices and operational controls into the project design to minimize the potential adverse effects of the project. No compensatory mitigation is being proposed.

AUTHORITY

Permits are required pursuant to:

- X Section 10 of the Rivers and Harbors Act of 1899
- X Section 404 of the Clean Water Act
- Section 103 of the Marine Protection, Research and Sanctuaries Act.

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

The USACE is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. The USACE will consider all comments received to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an environmental assessment and/or an environmental impact statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972, as amended.

<u>The Federal Emergency Management Agency (FEMA) is funding the project and</u> therefore has been designated, by the Corps, as the lead Federal agency to fulfill the <u>collective Federal responsibilities under Section 7 of the Endangered Species Act of</u> 1973 (PL 93-205), Section 106 of the National Historic Preservation Act of 1966 (PL 89-665), and the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (PL 104-267).

ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). Essential Fish Habitat describes waters and substrate necessary for fish for spawning, breeding, feeding or growth to maturity.

This project will impact approximately 5.4-acres of EFH. Of the 5.4-acres, 2-acres will remain tidal flat with minimal additional material placed to grade it into the proposed marsh area. This habitat consists of intertidal mudflat made up of fine to medium sand with gravel, shell hash, some cobbles, and occasional boulders. Loss or alteration of this habitat may adversely affect species that use these waters and substrate. However, the District Engineer has made a preliminary determination that the site-specific adverse effect will not be substantial. Further consultation with the National Marine Fisheries Service regarding the project's impacts to EFH and inclusion of EFH conservation recommendations is being conducted by FEMA, in coordination with USACE, and these consultations will be concluded prior to the final decision.

NATIONAL HISTORIC PRESERVATION ACT

Based on our initial review of the proposed project, historic properties were identified within the area of potential effects. However, the applicant currently proposes to avoid all effects to known historic properties. Additional review and consultation to fulfil requirements under Section 106 of the National Historic Preservation Act of 1966, as amended, will be completed by FEMA as part of the project review, and these consultations will be concluded prior to the final decision.

ENDANGERED SPECIES CONSULTATION

The USACE has reviewed the application for the potential impact on federally listed threatened or endangered species and their designated critical habitat pursuant to section 7 of the Endangered Species Act (ESA) as amended. It is our preliminary determination that the proposed activity for which authorization is being sought is designed, situated, or will be operated/used in such a manner that it is not likely to adversely affect a listed species or their critical habitat. FEMA is coordinating with the National Marine Fisheries Service and U.S. Fish and Wildlife Service on listed species under their jurisdiction and such ESA consultations will be concluded prior to the final decision.

OTHER GOVERNMENT AUTHORIZATIONS

The states of Connecticut, Maine, Massachusetts, New Hampshire, and Rhode Island have approved Coastal Zone Management Programs. Where applicable, the applicant states that any proposed activity will comply with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program. By this public notice, we are requesting the state concurrence or objection to the applicant's consistency statement.

The following authorizations have been applied for, or have been, or will be obtained:

- (X) Permit, license or assent from State.
- () Permit from local wetland agency or conservation commission.
- (X) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

COMMENTS

The USACE is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties so that we may consider and evaluate the impacts of this proposed activity. Any comments received will be considered by USACE to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. People submitting comments are advised that all comments received will be available for public review in their entirety and will be considered a matter of public record.

Comments should be submitted in writing by the above date. If you have any questions, please contact Ms. Cori M. Rose at <u>cori.m.rose@usace.army.mil</u> or (978) 831-3673.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for a public hearing shall specifically state the reasons for holding a public hearing. The USACE holds public hearings

for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly to reach an understanding.

THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.

Kevin R Kotelly

Kevin R. Kotelly, P.E. Chief, CT/RI Section Regulatory Division

Please contact Ms. Tina Chaisson at <u>bettina.m.chaisson@usace.army.mil</u> or (978) 318-8058 if you would like to be removed from our public notice mailing list.

THE LONG WHARF MARSH

INDEX OF DRAWINGS

NO. DRAWING TITLE

GENERAL DRAWINGS

- 1 TITLE SHEET AND INDEX OF DRAWINGS
- 2 LEGEND AND GENERAL NOTES
- 3 VICINITY MAP
- 4 NOAA NAUTICAL CHART 12371 NEW HAVEN HARBOR

EXISTING CONDITIONS DRAWINGS

- 5 PLAN INDEX SHEET
- 6 EXISTING CONDITIONS PLAN 1
- 7 EXISTING CONDITIONS PLAN 2
- 8 EXISTING CONDITIONS SECTIONS 1 AND 2
- 9 EXISTING CONDITIONS SECTIONS 3 AND 4

PROPOSED CONDITIONS DRAWINGS

- 10 PROPOSED CONDITIONS PLAN 1
- 11 PROPOSED CONDITIONS PLAN 2
- 12 PROPOSED CONDITIONS PLAN 3 PARTIAL PLAN 1 OF 2
- 13 PROPOSED CONDITIONS SECTIONS 1 AND 2
- 14 PROPOSED CONDITIONS SECTIONS 3 AND 4
- 15 PROPOSED CONDITIONS PLAN 3 PARTIAL PLAN 2 OF 2
 - EROSION AND SEDIMENT CONTROL PLAN 1
 - EROSION AND SEDIMENT CONTROL PLAN 2
 - EROSION AND SEDIMENT CONTROL DETAILS; GRANITE STEP DETAIL
 - PROPOSED SILL SECTION, DETAILS AND NOTES

PROJECT OWNER

CITY OF NEW HAVEN CITY HALL 165 CHURCH STREET NEW HAVEN, CONNECTICUT

JUSTIN ELICKER - MAYOR DONNA HALL - CITY OF NEW HAVEN PLAN DEPARTMENT

16 17

18

19



PROJECT ENGINEER



GZA GEOENVIRONMENTAL, INC. 249 VANDERBILT AVE. NORWOOD, MASSACHUSETTS 02062

SEAL:

GZA GEOENVIRONMENTAL, INC. 95 GLASTONBURY BLVD. GLASTONBURY, CT 06033

GZA HAS DESIGNED THE LONG WHARF LIVING SHORELINE USING A DESIGN APPROACH AND METHODOLOGIES CONSISTENT WITH THE CURRENT STATE OF PRACTICE USED BY PRACTITIONERS FOR SIMILAR PROJECTS. LIVING SHORELINES ARE DYNAMIC SYSTEMS, INCLUDING NATURAL MATERIALS THAT ARE SUSCEPTIBLE TO CHANGE DUE TO EXPOSURE TO NORMAL COASTAL PROCESSES AND TO MINOR TO SEVERE DAMAGE DURING COASTAL STORMS. DAMAGE AND MAINTENANCE SHOULD BE EXPECTED.

ALL RIGHTS RESERVED. @2022 GZA GEOENVIRONMENTAL, INC		NOT	FOR CONSTRUCTION FOR EGULATORY REVIEW ONLY	NOT VALID WITHOUT ENG	INEER'S SEAL	
UNLESS SPECIFICALLY STATED BY WRITTEN AGGRESMENT, THIS DRAWING IS THE SOLD PROPERTY OF C7 BEODIVIRONMENTAL, INC. (QZN) THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY CZN. DLICHT OR THE CLIENTS OFSCHATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION UDINTIFIED OF THE DRAWING THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, BR ALTERED IN ANY MANUER FOR USE AT ANY OTHER UCATION OF THE MAN OTHER PROJECT HINDITHE PTOR WRITTEN, CONSEND OF CZN. TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PROR WRITTEN EXPRESS CONSENT OF CZN. WILL BE AT THE USER'S SOLE BISK AND WITHOUT ANY FISH OR LABULT THE OR WRITTEN CAPPERS CONSENT OF CZN. WILL BE AT THE USER'S SOLE BISK AND WITHOUT ANY FISH OR LABULT THE OR OR WRITTEN CAPPERS CONSENT OF CZN. WILL BE AT THE USER'S SOLE BISK AND WITHOUT ANY FISH OR LABULT THE OR OR WRITTEN CAPPERS CONSENT OF CZN. WILL BE AT THE USER'S SOLE BISK AND WITHOUT ANY FISH OR LABUT THE TO CZN.						
THE LONG WHARF MARSH NEW HAVEN, CONNECTICUT	PREPARED	GZA GeoEnvironmental, Inc.		APPLICANT:		
TITLE SHEET AND INDEX OF DRAWINGS	PROJ MGR: DESIGNED I DATE: EFR	BW BY: DCS 2023	REVIEWED BY: RM DRAWN BY: MEG PROJECT NO. 01.0172596.10	CHECKED BY: SCALE: SEE DWG REVISION NO.	DWG GO	01

2023 MICHAEL GARDNER FILES/ACAD/FOR_PERMIT_AND_CONSTRUCTION-2022/172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 8.5X11-G01 FEBRUARY 16, 172596\172596-30.HM\WORK nc. GeoEnvironmental, 1000 170.0 000 GZA 1 2023 62 0

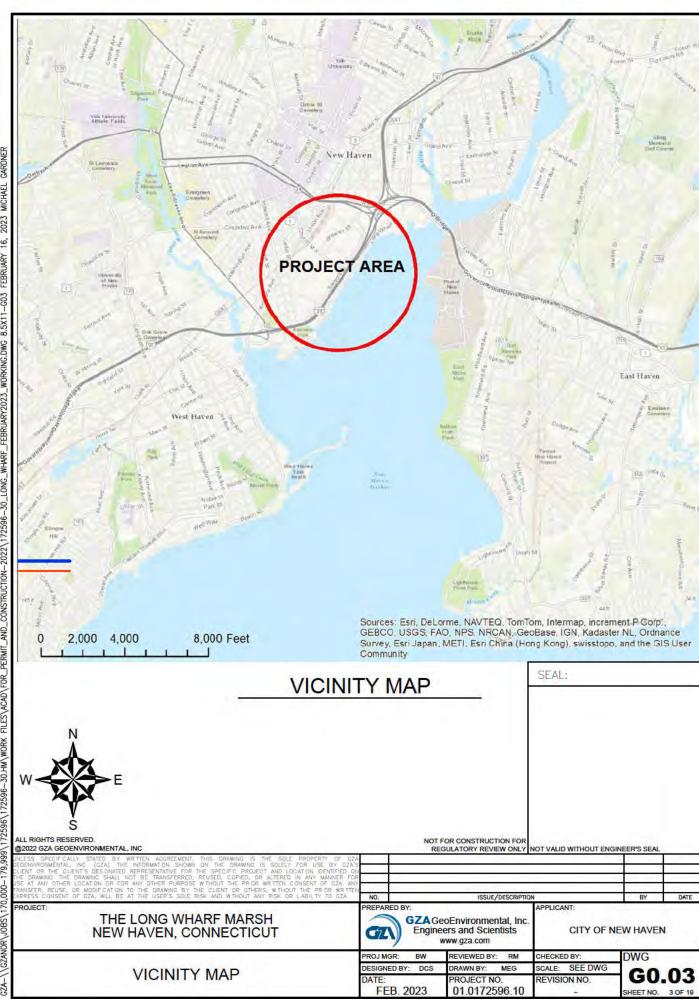
LEOEND

OFNEDAL NOTEO

G0.02 SHEET NO. 2 OF 19

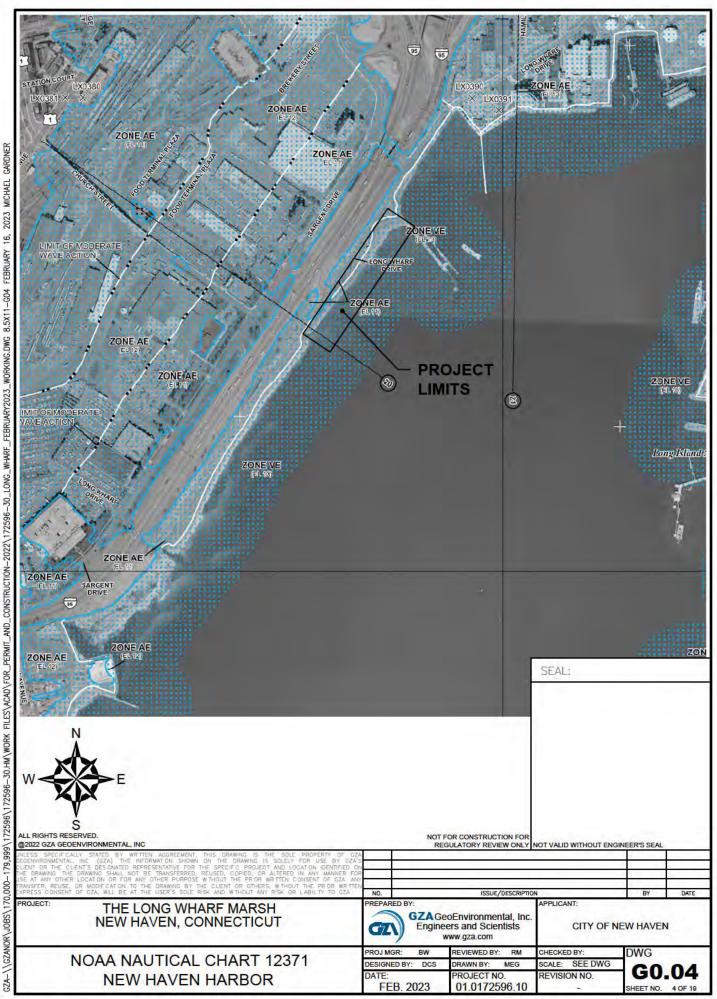
© 2023 – GZA GeoEnvironmental, Inc. GZA-\\GZANOR\JOBS\170,000-179,999\172596-30.HW\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 8.5X11-G02 FEBRUARY 16, 2023 MICHAEL GARDNER

LEGEND			GENERAL NOTES				
	ONDITIONS PLANS	1.	THE PURPOSE OF THESE DRAWINGS ARE FOR REGULATORY				
SISTING CC UTILITIES UTILITES UTILITES UTILITES UTILITES UTILITES UTILITES UTILIT	CATCH BASIN DRAINAGE FEATURE MANHOLE OUTFALL SEWER CONNECTION SEWER MAIN ELECTRIC BOX EXISTING BUILDING LOCATION EDGE OF PAVED ROADWAY EDGE OF PAVED ROADWAY EDGE OF PAVED PARKING COASTAL JURISDICTION LINE (EL.+4.6' NEW HAVEN, CT) SPRING HIGH TIDE LINE (EL.+3.3') MEAN HIGH WATER LINE (EL.+2.8') TOPOGRAPHIC SURFACE CONTOUR MINOR (1' INTERVAL) TOPOGRAPHIC SURFACE CONTOUR MINOR (5' INTERVAL) TOPOGRAPHIC SURFACE CONTOUR MAJOR (5' INTERVAL) STONE REVETIMENT SECTION LINE (STATIONING IN FEET) SECTION LINE (STATIONING IN FEET) SECTION LINE (STATIONING IN FEET) SECTION ID GRASS (LAWN) BITUMINOUS WALK PHRAGMITES MARSH (SPARTINA ALTERNIFLORA) BEACH MARTIME SHRUB TIDAL FLAT SANDBAR CONE PENETROMETER TEST LOCATIONS UPPER (BEACH) AND LOWER (MARSH/ TIDAL FLAT) SEDIMENT SAMFLE LOCATIONS	1. 2. 3. 4. 5.	GENERAL NOTES THE PURPOSE OF THESE DRAWINGS ARE FOR REGULATORY REVIEW ONLY. VICINITY MAP TAKEN FROM ESRI. ELEVATIONS REFERENCE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), UNLESS OTHERWISE NOTED. THIS TE INFORMATION HAS BEEN TAKEN FROM A DRAWING TITLE 'TOPOGRAPHIC SURVEY LONG WHARF PARK'', PREPARED FOR THE CITY OF NEW HAVEN DEPARTMENT OF ENGINEER & LAND SURVEYOR, DATED 10/04/2019. SUPPLEMENTARY INFORMATION WAS OBTAINED BY GZA DURING A BATHYMETRIC SURVEY IN MARCH 2017, AND ONLY REPRESENTS THE SITE CONDITIONS AT THAT TIME.				
eatures	PROPOSED TIDAL WETLAND PROPOSED TIDAL WETLAND PROPOSED TIDAL WETLAND						
			SEAL.				
SS SPECIFICALLY INVERTMENTAL, I IT OF THE CLIEN DRAWING THE D AT AMY OTHER U SFEE, REUST, OF	VIRONMENTAL, INC. STATED BY WETTER ADDREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF (G2A) THE INFORMATOR SHOWE ON THE DRAWING IS SOLED FOR USE BY "S OLS UNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATOR IDENT SOLED AND SHALL HER BE TRANSFERRED, RELEASE OF DRAWING OR ALL DRAWING MODIFICATION TO THE DRAWING BY THE CLEDE OR OTHERS WITHOUT THE PROPE STA WILL BE AT THE USER'S SOLE REA AND WITHOUT ANY REAL OF LABILITY OF	NED ON ER FOR 24 ANY WR TTEIA 524	NOT FOR CONSTRUCTION FOR REGULATORY REVIEW ONLY NOT VALID WITHOUT ENGINEER'S SEAL				
	THE LONG WHARF MARSH NEW HAVEN, CONNECTICUT	PF	CITY OF NEW HAVEN WWW.gza.com ROJ MGR: BW REVIEWED BY: RM CHECKED BY: DWG				
LE	GEND AND GENERAL NOTES		ESIGNED BY: DCS DRAWN BY: MEG SCALE: SEE DWG GO.02 ATE: PROJECT NO. REVISION NO. FEB. 2023 01.0172596.10 - SHEET NO. 2 OF 19				

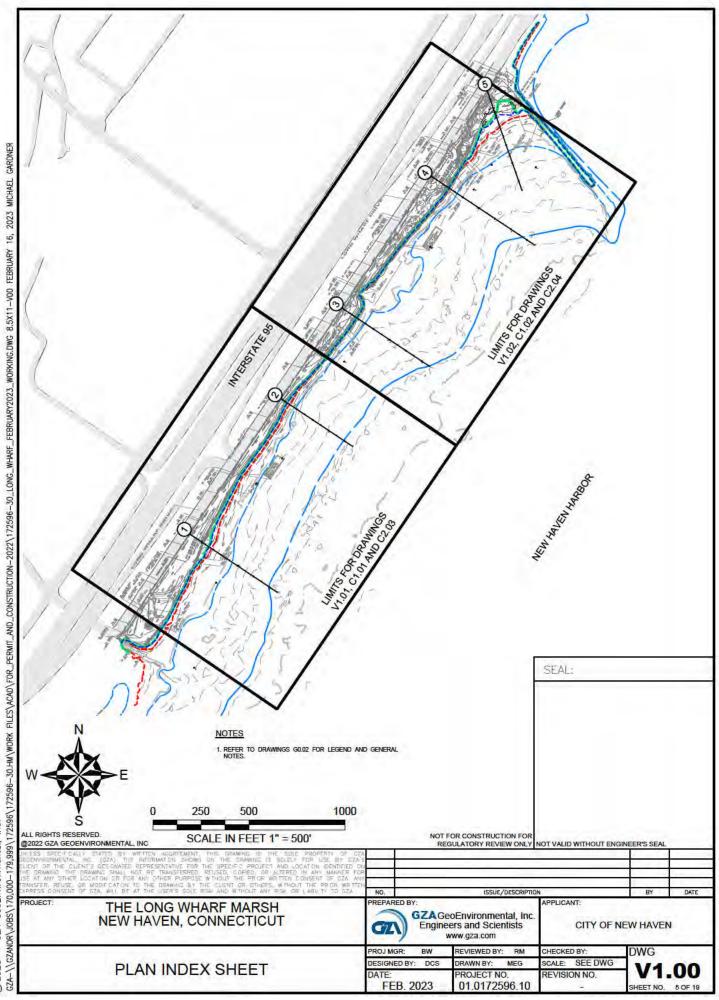


GZA-\\GZANOR\JOBS\170,000-179,999\172596\172596_30,HM\WORK FLES\GAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING,DWG 8.5X11-G03 FEBRUARY 16, 2023 MICHAEL GARDNER

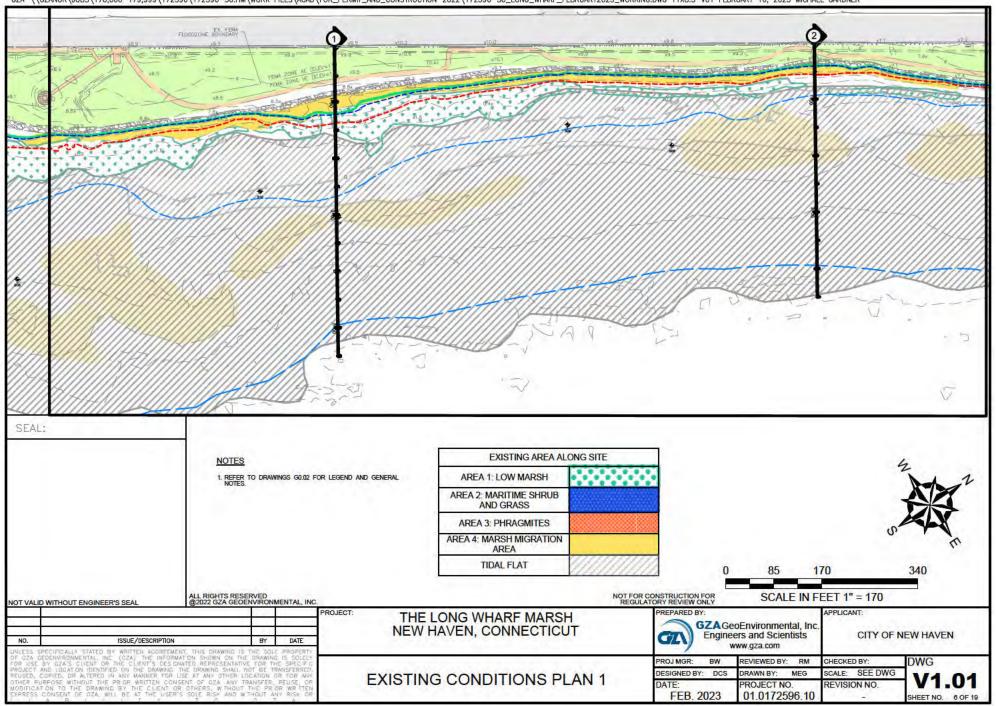
© 2023 – GZA GeoEnvironmental, Inc.



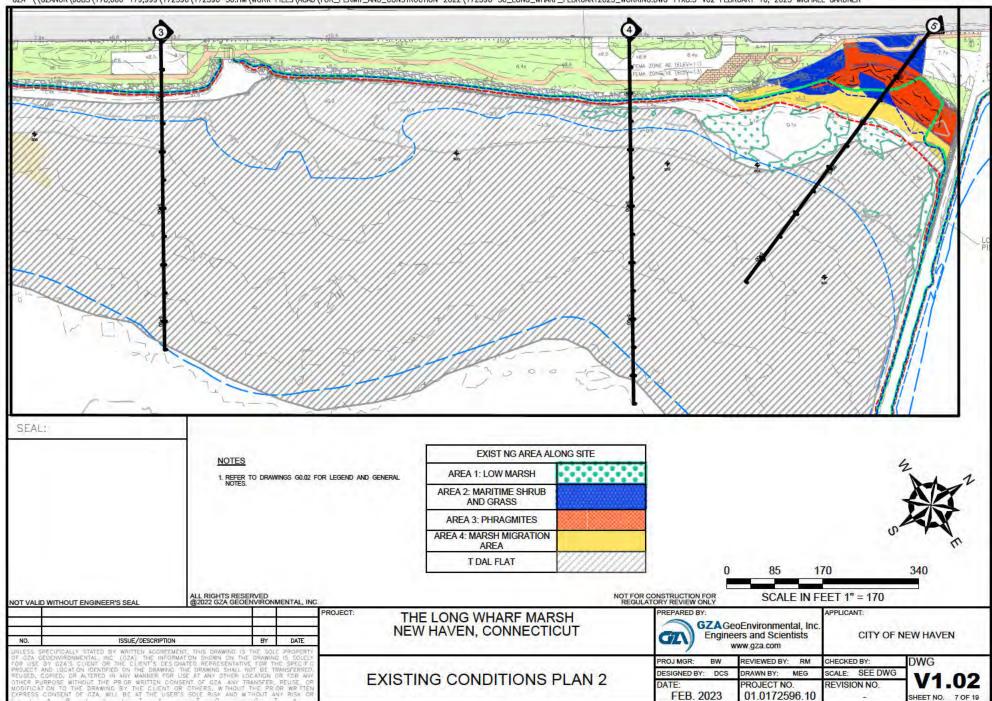
- GZA GeoEnvironmental, Inc. © 2023



- GZA GeoEnvironmental, Inc. © 2023



© 2023 – GZA GeoEnvironmental, Inc. GZA-\\GZANOR\JOBS\170,000 – 179,999\172596\172596-30.HM\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 11X8.5-V01 FEBRUARY 16, 2023 MICHAEL GARDNER



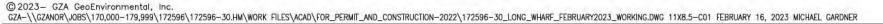
© 2023- GZA GeoEnvironmental, Inc. GZA-\\GZANOR\JOBS\170,000-179,999\172596\172596-30.HM\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 11X8.5-V02 FEBRUARY 16, 2023 MICHAEL GARDNER

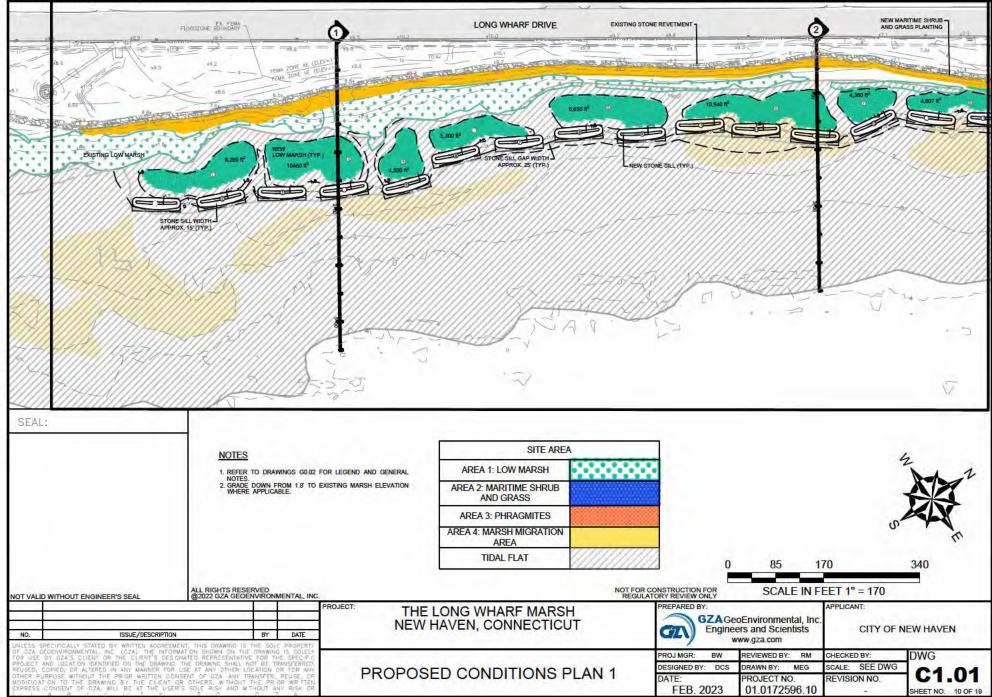
30 **EXISTING CONDITIONS - SECTION 1** MEAN HIGH HIGH TIDE LINE (EL. 4.4 WATER LINE 20 COASTAL JURISDICTION LINE (EL. 4.67) (EL 2.8') TIDAL FLAT ELEVATION (FT-NAV FEMA VE (BFE 13') EXISTING FEMA AE (BFE 11') BITUMINOUS WALK TOO-YEAR FLOOD (EL. 8.91 10-YEAR FLOOD (EL 6.8') 1-YEAR FLOOD (EL 5.4') A COL MHHW (EL. 3.1) MHW (EL. 2.8) EXISTING STONE REVETMENT EXISTING SANITARY FORCE MAIN. APPROXIMATE LOCATION. INVERT ELEVATION IS UNCONFIRMED. SHOWN MLLW (EL -36") FOR GENERAL REFERENCE ONLY. -10 -2+00 0+00 0+50 1+00 1+50 STATION (FEET) 30 **EXISTING CONDITIONS - SECTION 2** COASTAL JURISDICTION HIGH TIDE MEAN HIGH 20 LINE (EL. 4.6') LINE (EL. 4.4') WATER LINE (EL. 2.8) TIDAL FLAT ELEVATION (FT-NAV FEMA VE (BFE 13') EXISTING BITUMINOUS WALK FEMA AE (BFE 11') 100-YEAR FLOOD (EL. 8.9') 10-YEAR FLOOD (EL. 6.8') 1-YEAR FLOOD (EL. 5.4) MHHW (EL 3 1') MHW (EL 2.8') EXISTING STONE REVETMENT MSI (EL -0.3) EXISTING SANITARY FORCE MAIN. MLLW (EL. -36') APPROXIMATE LOCATION. INVERT ELEVATION IS UNCONFIRMED. SHOWN FOR GENERAL REFERENCE ONLY. -10. 0+00 0+50 1+00 1+50 2+00 STATION (FEET) NOTES: SEAL: 1. THE SANITARY FORCE MAIN IS SHOWN FOR GENERAL REFERENCE ONLY. THE LOCATION AND ELEVATION SHOULD BE CONSIDERED HIGHLY APPROXIMATE. AS INDICATED IN GENERAL NOTES, THE PRECONSTRUCTION DETERMINATION OF EXISTING UTILITIES WITH THE PROJECT AREA IS THE RESPONSIBILITY OF THE CONTRACTOR. 2. THE FLOOD WATER LEVELS SHOWN FOR THE 10 AND 100 YEAR RECURRENCE INTERVAL EVENTS STILLWATER ELEVATIONS AND THE 100-YEAR BASE FLOOD ELEVATIONS WERE DEVELOPED BY FEMA (EFFECTIVE FEMA FLOOD INSURANCE STUDY NUMBER 00009CV001D DATED MAY 2017 AND FLOOD INSURANCE RATE MAP NUMBER 09009C0441J DATED JULY 2013. 3. THE FLOOD WATER LEVELS SHOWN FOR THE 1 YEAR RECURRENCE INTERVAL EVENT, INDICATES THE STILLWATER ELEVATIONS DEVELOPED BY USACE NORTH ATLANTIC COAST COMPREHENSIVE STUDY . 4. THE TIDAL DATUMS SHOWN ARE BASED ON THE NOAA CO-OPS TIDE GAGE NEW HAVEN STATION 8465705. 5. GROUND ELEVATION ABOVE MHW, BASED ON SURVEY COMPLETED BY DAVID A. HUGHES PROFESSIONAL ENGINEER & LAND SURVEYOR. 6. GROUND ELEVATION BELOW MHW BASED ON GZA BATHYMETRIC SURVEY, MARCH 2017. 50 12.5 25 ALL RIGHTS RESERVED @2022 GZA GEOENVIRONMENTAL, INC. NOT FOR CONSTRUCTION FOR REGULATORY REVIEW ONLY SCALE IN FEET 1" = 25 NOT VALID WITHOUT ENGINEER'S SEAL APPLICANT: PROJECT: REPARED BY THE LONG WHARF MARSH GZAGeoEnvironmental, Inc. NEW HAVEN, CONNECTICUT CITY OF NEW HAVEN Engineers and Scientists **17** NO ISSUE/DESCRIPTION BY DATE www.gza.com ALLY STATED BY WHITTEN ADDREDMENT, THIS DRAWING IS THE SOLE PRODE OMMENTAL INC. (CZA) THE INFORMATION SHOWN ON THE DRAWING IS SOL S CIENT OR THE CIENT'S DES GUARTER REPRESENTATIVE FOR THE SPECI ATON IOENTEDED OF THE STAWNING THE BRAWING SHALL HOT BE TRANSFER DRAWING THEO IN ANY MAINER POR LISE AT ANY OTHER IOENTIME REMISE WINDOUT THE PROFENSION OF IOTA WINT TRANSFER REMISE. THE DRAWING BY THE CLEAT OR OTHERS IN THOUT THE PROFENSION THE DRAWING BY THE CLEAT OR OTHERS. IN THOUT THE PROFENSION DWG PROJ MGR BW REVIEWED BY: RM CHECKED BY EXISTING CONDITIONS DESIGNED BY: DCS DRAWN BY: MEG SCALE: SEE DWG V2.01 DATE: SECTIONS 1 AND 2 PROJECT NO. REVISION NO. FEB. 2023 01.0172596.10 SHEET NO. 8 OF 19

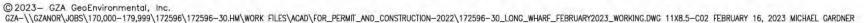
© 2023- GZA GeoEnvironmental, Inc. GZA-\\GZANOR\JOBS\170,000-179,999\172596\172596-30.HM\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 11X8.5-V21 FEBRUARY 16, 2023 MICHAEL GARDNER

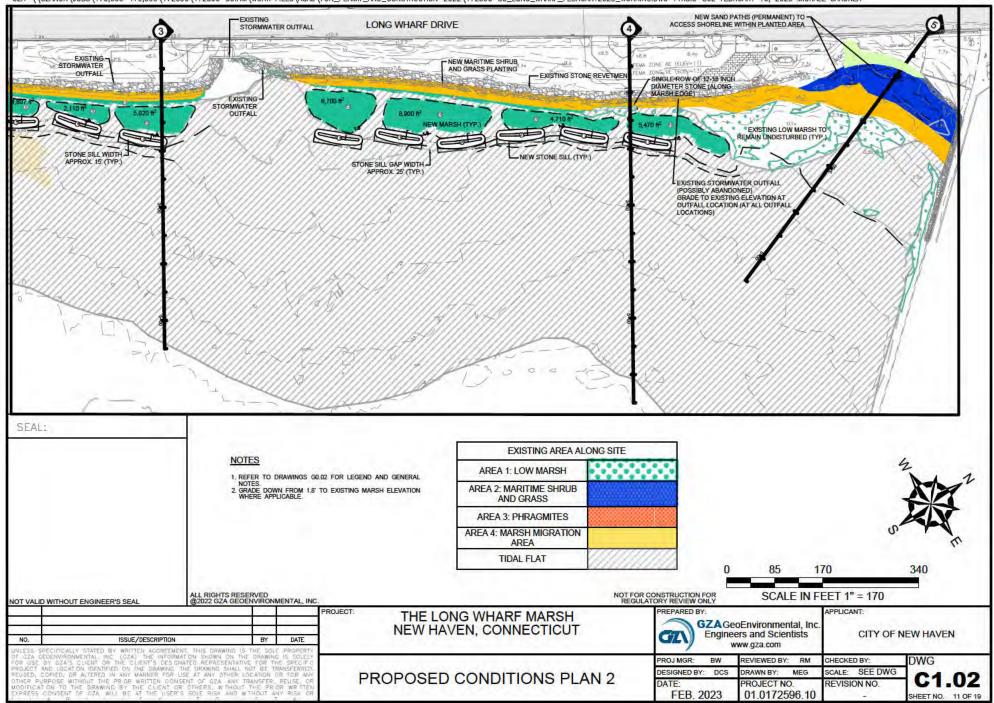
			COASTAL JURISDICTION HIGH TID LINE (EL 4.8')	DE	CONDITIONS - SECT	TION 3		
		EXISTING					L FLAT	
	PARKING AREA	BITUMINOU	IS WALK MEA					100-YEAR FLOOD (EL.
Image: Description of the control o	2		(R.	2.8)				MHHW (EL. 3.1)
How we have been been been been been been been be	EXISTING SANITARY FORCE MAIN.		EXISTING STONE REVETMENT					MSL (FL -0.3)
	APPROXIMATE LOCATION. INVERT ELEVATION IS UNCONFIRMED. SHOWN							
	xo	0+50	+ + + + + + + + + + + + + + + + + + +		1+50	-11	2+00	
Image: construction of the consthe construction of the construction of the			1 1 1 1		·F - 1		1 1	
				RISDICTION HIGH TIDE INE (EL. 4.6) LINE (EL. 4.4)	CONDITIONS - SECT	FION 4		
Image:								
ADDITION SERVICE ADDITION SERVICE <td< td=""><td></td><td></td><td>EXISTING</td><td></td><td></td><td></td><td>DAL FLAT</td><td>FEMA VE (BFE 13') . FEMA AE (BFE 11')</td></td<>			EXISTING				DAL FLAT	FEMA VE (BFE 13') . FEMA AE (BFE 11')
		PARKING AREA		WATER LINE				100-YEAR FLOOD (EL C
Concernence of a concernence of a concentration where the concentration of the concentra	0		EVICT	- RA				MHHW (EL 3.1)
EXERCISE SHOWN BY SERVICE ON Y BY	EXISTING SANITARY FORCE MAIN.		R	EVETMENT	+			MSL (EL -0.3')
	ELEVATION IS UNCONFIRMED. SHOWN							MILW(CL-3.6)
NOTES: • Intervent processment to record many is shown for deneral, herebence only the contraction and elevation should be considered intervent to record many to the contraction of existing utilities with the intervent elevations should be considered by the contraction of existing utilities with the intervent elevations and the intervent elevations and the intervent elevations and the intervent elevations and the intervent elevations intervent elevations and the intervent elevations and the intervent elevations and the intervent elevations were developed by read elevations intervent elevations and the intervent elevations intervent elevations and the intervent elevations intervent elevations intervent elevations intervent elevations and the intervent elevations intervent elevations and the intervent elevations are based on the noa co-ops the galaxies new haves protein and number galaxies on the noa co-ops the galaxies new haves protein and number galaxies intervent elevations intervent elevatervent elevations intervent elevations intervent elevations inter	0 1 1 1	0+50	1+00		1+50	1. (t	2+00	-
				STATION (FEET)				
		NOTES:						
100-YEAR BASE FLOOD ELEVATIONS WERE DEVELOPED BY FEMA (EFFECTIVE FEMA FLOOD INSURANCE STUDY NUMBER 00000CV001D DATED MAY 2017 AND FLOOD INSURANCE STUDY. 3. THE FLOOD WATER LEVELS SHOWN FOR THE 1 YEAR RECORRENCE INTERVAL EVENT, INDICATES THE STILLWATER ELEVATIONS DEVELOPED BY USACE NORTH ATLANTIC COAST COMPREHENSIVE STUDY. 4. THE TIDAL DATUMS SHOWN ARE BASED ON THE NOA CO-OPS TIDE GAGE NEW HAVEN STATION 9405705. 5. GROUND ELEVATION BELOW MHW, BASED ON SURVEY COMPLETED BY DAVID A HUGHES PROFESSIONAL ENGINEER & LAND SURVEYOR. 8. GROUND ELEVATION BELOW MHW BASED ON GZA BATHYMETRIC SURVEY, MARCH 2017. 0 12.5 25 50 ALL RIGHTS RESERVED MITHOUT ENGINEER'S SEAL INCE TO THE DATUMS SHOWN ARE BASED ON GZA BATHYMETRIC SURVEY, MARCH 2017. MITHOUT ENGINEER'S SEAL O 12.5 ALL RIGHTS RESERVED MITHOUT ENGINEER'S SEAL NOT FOR CONSTRUCTION FOR REGULATORY REVIEW ONLY SCALE IN FEET 1" = 25 THE LONG WHARF MARSH NEW HAVEN, CONNECTICUT NOT FOR CONSTRUCTION FOR REGULATORY REVIEW ONLY SCALE IN FEET 1" = 25 COLSPAN= STUDY SCALE IN FEET 1" = 25 COLSPAN= STUDY SCALE IN FEET 1" = 25 COLSPAN= STUDY SCALE IN FEET 1" = 2		HIGHLY APPROXIMATE. AS INDI	CATED IN GENERAL NOTES, THE PREC	ONLY. THE LOCATION AND ELEVATION CONSTRUCTION DETERMINATION OF EXI	Should be considered Sting utilities with the			
DEVELOPED BY USACE NORTH ATLANTIC COAST COMPREHENSIVE STUDY. 4. THE TIDAL DATUMS SHOWN ARE BASED ON THE NOA CO-OPS TIDE GAGE NEW HAVEN STATION 8465705. 5. GROUND ELEVATION ABOVE MHW, BASED ON SURVEY COMPLETED BY DAVID A. HUGHES PROFESSIONAL ENGINEER & LAND SURVEYOR. 8. GROUND ELEVATION ABOVE MHW, BASED ON GZA BATHYMETRIC SURVEY, MARCH 2017. 0 12.5 25 50 ALL RIGHTS RESERVED 8. GROUND ELEVATION BELOW MHW BASED ON GZA BATHYMETRIC SURVEY, MARCH 2017. 0 12.5 25 50 0 12.5 25 0 12.5 12 0 12.5 25 0 12.5 12 0 12.5 25 0 12.5 12 0 12.5 25 0 12.5 12 0		100-YEAR BASE FLOOD ELEVAT	TIONS WERE DEVELOPED BY FEMA (EI	FFECTIVE FEMA FLOOD INSURANCE STU				
		3. THE FLOOD WATER LEVELS S DEVELOPED BY USACE NORTH /	HOWN FOR THE 1 YEAR RECURREN ATLANTIC COAST COMPREHENSIVE STI	ICE INTERVAL EVENT, INDICATES THE	STILLWATER ELEVATIONS			
 GROUND ELEVATION BELOW MHW BASED ON GZA BATHYMETRIC SURVEY, MARCH 2017. 		4. THE TIDAL DATUMS SHOWN ARE	BASED ON THE NOAA CO-OPS TIDE G	AGE NEW HAVEN STATION 8485705.				
ALL RIGHTS RESERVED @2022 GZA GOOENVIRONMENTAL, INC. NOT FOR CONSTRUCTION FOR REGULATORY REVIEW ONLY. SCALE IN FEET 1" = 25 Image: state of the		5. GROUND ELEVATION ABOVE MH	W. BASED ON SURVEY COMPLETED BY	DAVID A. HUGHES PROFESSIONAL ENGI	NEER & LAND SURVEYOR.			
ALL RIGHTS RESERVED @2022 GZA GEOENVIRONMENTAL, INC. WITHOUT ENGINEER'S SEAL ALL RIGHTS RESERVED @2022 GZA GEOENVIRONMENTAL, INC. PROJECT: THE LONG WHARF MARSH NEW HAVEN, CONNECTICUT THE LONG WHARF MARSH NEW HAVEN, CONNECTICUT PREPARED BY: GZA GEOENvironmental, Inc. GZA GEOENvironmental, Inc. CITY OF NEW HAVEN CITY OF NEW HAVEN CITY OF NEW HAVEN CITY OF NEW HAVEN CONVIGUENT OF THE DEAMING IS THE BOLE PROPERTY NO TERDINANT THE DEAMING THE BRAWING SHALL NOT BE TRANSFERENCE NO TERDINANT OF THE DEAMING OF THE BRAWING SHALL NOT BE TRANSFERENCE NO TERDINANT THE DIA WITTER DIA		8. GROUND ELEVATION BELOW M	W BASED ON GZA BATHYMETRIC SUR	VEY, MARCH 2017.		0	12.5 2	5 50
Image: Description BY Date Store Store EXISTING CONDITIONS Security of the period with the period withe period						-		
Intel LONG WHARP MARSH ISSUE/DESCRIPTION BY DATE INTEL LONG WHARP MARSH SECTIONG WHARP MARSH INTEL CONG WHARP MARSH NEW HAVEN, CONNECTICUT SECAGeoEnvironmental, Inc. CITY OF NEW HAVEN, SECTIONS 3 AND 4					NOT FOR CONSTR REGULATORY F	REVIEW ONLY	SCALE IN F	
ISSUE/DESCRIPTION BY DATE PECIFICALLY STATED BY WRITTEN ADDREEMENT, THIS DRAWING IS THE SQLE PROPERTY OF COMPONENTIAL INC. (CA) THE INFORMATION SHOWN DW THE DRAWING IS SOLED WARKED SCHAFTER ARRESEMENT THE DRAWING IS THE SQLE PROPERTY AND LOCATION UDENTIFIED ON THE DRAWING THE BRAWING STALL. NOT BE TRANSFERED. EXISTING CONDITIONS EXISTING CONDITIONS PROJECT NO. REVIEWED BY: RM CHECKED BY: DWG OFFICIENTS DATE PROJECT NO. REVISION NO.	WITHOUT ENGINEER'S SEAL	ALL RIGHTS RESERVED @2022 GZA GEOENVIRONMENTAL, IN						
VWW.g2d.com VWW.g2d.com VWW.g2d.com VWW.g2d.com VWW.g2d.com VWW.g2d.com VWW.g2d.com VWW.g2d.com VG2AS UNE INFORMATION SHOWN DW THE DRAWING IS THE SOLE PROPERTY VG2AS UNE INFORMATION SHOWN DW THE DRAWING IS DREADED TO THE SOLE PROPERTY VG2AS UNE INFORMATION SHOWN DW THE DRAWING IS DREADED TO THE SOLE PROPERTY VG2AS UNE CLIENT'S CREATER THE SOLE PROPERTY VG2AS UNIT OF TRANSFERENCE VG4AS UNIT OF TRANSFERENCE VG4AS UNIT OF TRANSFERENCE VG4AS UNIT OF TRANSFERENCE VG4AS UNIT OF TRA	WITHOUT ENGINEER'S SEAL	ALL RIGHTS RESERVED @2022 GZA GEOENVIRONMENTAL, II	PROJECT: THE L			-		APPLICANT:
AND A WHOLD THE DATE WHO THE CALL AND AND A WHO AND A THE PROPERTY AND A THE PROJECT NO. REVISION NO. VA		@2022 GZA GEOENVIRONMENTAL, IN	PROJECT: THE L		T		s and Scientists	
TO THE DEADWING BY THE CLEAR OF THE PROJECT NO. REVISION NO. VA	ISSUE/DESCRIPTION	@2022 GZA GEOENVIRONMENTAL, IN	PROJECT: THE L NEW H			GZA Geo Engineer ww	s and Scientists w.gza.com	CITY OF NEW HAVEN
CDITED OF DEA WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OF SECTIONS 3 AND 4 FEB. 2023 01.0172596.10 - SHEET NO.	ISSUE/DESCRIPTION	@2022 GZA GEOENVIRONMENTAL, IN	PROJECT: THE L NEW H	IAVEN, CONNECTICU		GZAGeo Engineer ww JMGR: BW	s and Scientists w.gza.com REVIEWED BY: RM	

© 2023 – GZA GeoEnvironmental, Inc. GZA-\\GZANDR\JORS\170.000-179.999\172596-30.HW\WORK FILES\ACAD\FOR PERMIT AND CONSTRUCTION-2022\172596-30.LONG WHARE FEBRUARY2023 WORKING.DWG 11X8.5-V22 FEBRUARY 16. 2023 MICHAEL GARD

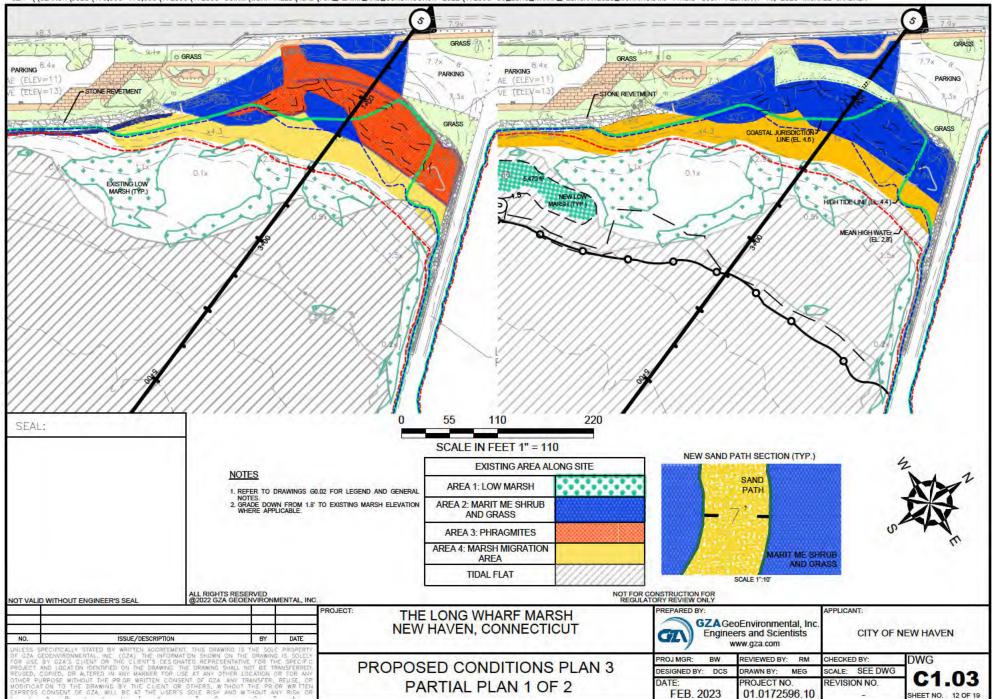








© 2023- GZA GeoEnvironmental, Inc. GZA-\\GZANOR\JOBS\170,000-179,999\172596\172596-30.HM\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 11X8.5-C03.1 FEBRUARY 16, 2023 MICHAEL GARDNER



© 2023- GZA GeoEnvironmental, Inc.

GZA-\\GZANOR\JOBS\170,000-179,999\172596\172596-30.HM\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 11X8.5-C31.1 FEBRUARY 16, 2023 MICHAEL GARDNER **PROPOSED CONDITIONS - SECTION 1** HIGH TIDE LINE (EL 4.4' 20 MEAN HIGH WATER LINE COASTAL JURISDICTION LINE (EL. 4.6) (EL 2.8') FEMA VE (BFE 13" EXISTING FEMA AE (BFE 11') BITUMINOUS WALK 10-. . 10-YEAR FLOOD (EL. 6.8') 1-YEAR FLOOD (EL. 5.4') HHW (EL. 3.1) STATESILL CR EXISTING STONE REVETMENT THEFT AT A CONTRACT OF A DATE OF and real and the second second MLLW (EL -3.6") 0+50 1+50 2+00 2+50 1+00 STATION (FEET) 30 20 1 1 1 **PROPOSED CONDITIONS - SECTION 2** COASTAL JURISDICTION LINE (EL 4.6') HIGH TIDE LINE (EL. 4.4) MEAN HIGH WATER LINE (EL 2.8') ELEVATION (FT-NAVD8 FEMA VE (BFE 13') EXISTING BITUMINOUS WALK FEMA AE (BFE 11') 10-100-YEAR FLOOD (EL. 8.91 UR SDC 10-YEAR FLOOD (EL. 6.8') 1-YEAR FLOOD (EL. 5.4.) L CREST ELEV. (4.5) EXISTING STONE MHHW (EL 3 1) 0000 REVETMENT 8888 MSL (EL -0.3 0. EXISTING SANITARY FORCE MAIN. APPROXIMATE LOCATION. INVERT ELEVATION IS UNCONFIRMED. SHOWN MLLW (EL. -3.6') FOR GENERAL REFERENCE ONLY. -10_ 0+50 2+00 1+00 1+50 STATION (FEET) NOTES: SEAL: 1. THE TIDAL DATUMS SHOWN ARE BASED ON THE NOAA CO-OPS TIDE GAGE NEW HAVEN STATION 8485705. 2. THE SANITARY FORCE MAIN IS SHOWN FOR GENERAL REFERENCE ONLY, THE LOCATION AND ELEVATION SHOULD BE CONSIDERED HIGHLY APPROXIMATE. AS INDICATED IN GENERAL NOTES, THE PRECONSTRUCTION DETERMINATION OF EXISTING UTILITIES WITH THE PROJECT AREA IS THE RESPONSIBILITY OF THE CONTRACTOR. 3. THE FLOOD WATER LEVELS SHOWN FOR THE 10 AND 100 YEAR RECURRENCE INTERVAL EVENTS STILLWATER ELEVATIONS AND THE 100-YEAR BASE FLOOD ELEVATIONS WERE DEVELOPED BY FEMA (EFFECTIVE FEMA FLOOD INSURANCE STUDY NUMBER 09009CV001D DATED MAY 2017 AND FLOOD INSURANCE RATE MAP NUMBER 09009C0441J DATED JULY 2013. 4. THE FLOOD WATER LEVELS SHOWN FOR THE 1 YEAR RECURRENCE INTERVAL EVENT, INDICATES THE STILLWATER ELEVATIONS DEVELOPED BY USACE NORTH ATLANTIC COAST COMPREHENSIVE STUDY .

5. THE TIDAL DATUMS SHOWN ARE BASED ON THE NOAA CO-OPS TIDE GAGE NEW HAVEN STATION 8485705.

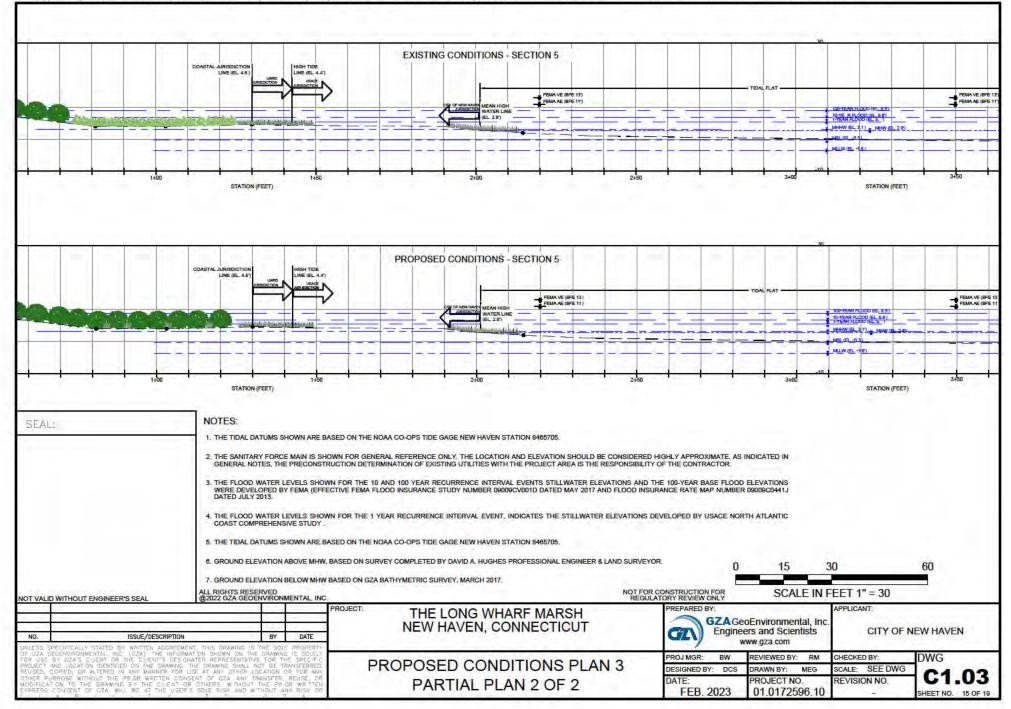
6. GROUND ELEVATION ABOVE MHW, BASED ON SURVEY COMPLETED BY DAVID A. HUGHES PROFESSIONAL ENGINEER & LAND SURVEYOR.

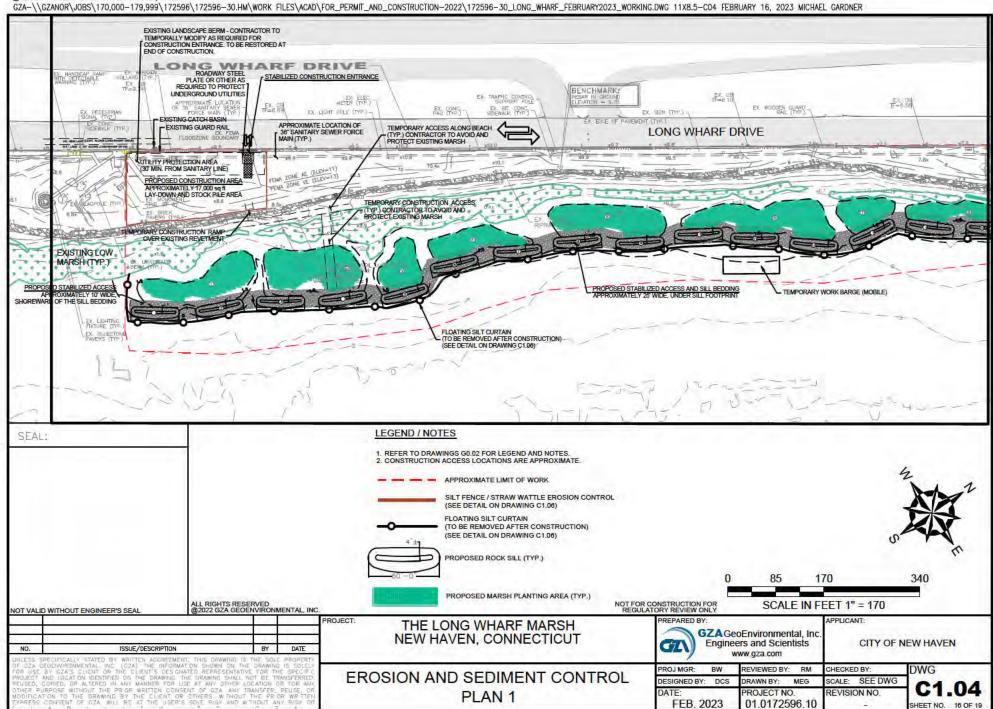
12.5 50 25 7. GROUND ELEVATION BELOW MHW BASED ON GZA BATHYMETRIC SURVEY, MARCH 2017. ALL RIGHTS RESERVED @2022 GZA GEOENVIRONMENTAL, INC. NOT FOR CONSTRUCTION FOR REGULATORY REVIEW ONLY SCALE IN FEET 1" = 25 NOT VALID WITHOUT ENGINEER'S SEAL APPLICANT: PROJECT: REPARED BY THE LONG WHARF MARSH GZAGeoEnvironmental, Inc. NEW HAVEN, CONNECTICUT CITY OF NEW HAVEN Engineers and Scientists **17** NO ISSUE/DESCRIPTION BY DATE www.gza.com ALLY STATED BY WHITTEN NORREMENT, THIS DRAWING IS THE SOLE PROPER OMMENTAL INC. (27A) "THE INFORMATION SHOWN ON THE DRAWING IS SOL S CIENT OF THE CIENT'S DESCONTENT REPRESENTATIVE FOR THE SPECE ATOM IOENTIED OF THE STAWMING, THE INTAWING SHALL HOT BE TRANSFER ATOM IOENTIED OF THE STAWMING, THE INTAWING SHALL HOT BE TRANSFER ATOM IOENTIED OF THE STAWMING, THE INTAWING SHALL HOT BE WINDOUT THE DO NA ANY MAINJER FOR LISE AT ANY OTHER (OCATION OR TOR WINDOUT THE D'S OF WORTHEN DONSENT OF CRA WIT TRANSFER, REUSE, THE DRAWING BY THE CLEAT OR ORVERS. WINDOUT THE PROR WIT DE CRA WILL BE AT THE USER'S COLE RISK AND WITHOUT THE ANAL BEAT CHECKED BY DWG PROJ MGR BW REVIEWED BY: RM PROPOSED CONDITIONS DESIGNED BY: DCS DRAWN BY: MEG SCALE: SEE DWG C3.01 SECTIONS 1 AND 2 DATE: PROJECT NO. REVISION NO. FEB. 2023 01.0172596.10 SHEET NO. 13 OF 19

30 **PROPOSED CONDITIONS - SECTION 3** COASTAL JURISDICTION HIGH TIDE LINE (EL. 4.6') || LINE (EL. 4.4) 20 MEAN HIGH USACE. WATER LINE (EL. 2.8) ŧ ELEVATION (FT-NAVD FEMA VE (BFE 13) EXISTING FEMA AE (BFE 11) BITUMINOUS WALK PARKING AREA 100-YEAR FLOOD /EL. 8.9" 10-YEAR FLOOD (EL. 6.8') 1-YEAR FLOOD (EL. 5.4') SILL CREST ELEV. (4.5') MHHW (EL. 3 1) asaa EXISTING STONE MSL (EL -0.3 0 REVETMENT EXISTING SANITARY FORCE MAIN APPROXIMATE LOCATION. INVERT ELEVATION IS UNCONFIRMED. SHOWN MLLW (EL -3.6") FOR GENERAL REFERENCE ONLY. -10 0+50 1+50 1+00 2+00 STATION (FEET) 30 **PROPOSED CONDITIONS - SECTION 4** 20 COASTAL JURISDICTION , HIGH TIDE LINE (EL 4.6') LINE (EL. 4.4') ELEVATION (FT-NAVD8 TIDAL FLAT FEMA VE (BFE 13') EXISTING FEMA AE (BFE 11) MEAN HIGH PARKING ARE BITUMINOUS WAL DO-YEAR FLOOD (EL. 8.9 WATERLIN (EL. 2.8') 10-YEAR FLOOD (EL. 6.8') 1-YEAR FLOOD (EL. 5.4) SILL CREST ELEV. (4.5') and and a MHHW (EL. 3 1') EXISTING STONE TO THE REPORT OF THE PROPERTY. . 17 REVETMENT MSL (EL -0.3 EXISTING SANITARY FORCE MAIN. MLLW (EL -3 6') APPROXIMATE LOCATION. INVERT ELEVATION IS UNCONFIRMED. SHOWN FOR GENERAL REFERENCE ONLY. -10 0+50 1+00 1+50 2+00 STATION (FEET) NOTES: SEAL: 1. THE TIDAL DATUMS SHOWN ARE BASED ON THE NOAA CO-OPS TIDE GAGE NEW HAVEN STATION 8485705. 2. THE SANITARY FORCE MAIN IS SHOWN FOR GENERAL REFERENCE ONLY. THE LOCATION AND ELEVATION SHOULD BE CONSIDERED HIGHLY APPROXIMATE. AS INDICATED IN GENERAL NOTES, THE PRECONSTRUCTION DETERMINATION OF EXISTING UTILITIES WITH THE PROJECT AREA IS THE RESPONSIBILITY OF THE CONTRACTOR. 3. THE FLOOD WATER LEVELS SHOWN FOR THE 10 AND 100 YEAR RECURRENCE INTERVAL EVENTS STILLWATER ELEVATIONS AND THE 100-YEAR BASE FLOOD ELEVATIONS WERE DEVELOPED BY FEMA (EFFECTIVE FEMA FLOOD INSURANCE STUDY NUMBER 09009CV001D DATED MAY 2017 AND FLOOD INSURANCE RATE MAP NUMBER 09009C0441J DATED JULY 2013. 4. THE FLOOD WATER LEVELS SHOWN FOR THE 1 YEAR RECURRENCE INTERVAL EVENT, INDICATES THE STILLWATER ELEVATIONS DEVELOPED BY USACE NORTH ATLANTIC COAST COMPREHENSIVE STUDY . 5. THE TIDAL DATUMS SHOWN ARE BASED ON THE NOAA CO-OPS TIDE GAGE NEW HAVEN STATION 8485705. 8. GROUND ELEVATION ABOVE MHW, BASED ON SURVEY COMPLETED BY DAVID A. HUGHES PROFESSIONAL ENGINEER & LAND SURVEYOR. 12.5 25 50 7. GROUND ELEVATION BELOW MHW BASED ON GZA BATHYMETRIC SURVEY, MARCH 2017. NOT FOR CONSTRUCTION FOR REGULATORY REVIEW ONLY ALL RIGHTS RESERVED @2022 GZA GEOENVIRONMENTAL, INC. SCALE IN FEET 1" = 25 NOT VALID WITHOUT ENGINEER'S SEAL PROJECT: APPLICANT: REPARED BY THE LONG WHARF MARSH GZAGeoEnvironmental, Inc. NEW HAVEN, CONNECTICUT CITY OF NEW HAVEN Engineers and Scientists **17** NO ISSUE/DESCRIPTION BY DATE www.gza.com ALLY STATED BY WHITTEN NORREMENT, THIS DRAWING IS THE SOLE PROPER OMMENTAL INC. (27A) "THE INFORMATION SHOWN ON THE DRAWING IS SOL S CIENT OF THE CIENT'S DESCONTENT REPRESENTATIVE FOR THE SPECE ATOM IOENTIED OF THE STAWMING, THE INTRAMING SHALL HOT BE TRANSFER OF ALTERED N. ANY MAINLER FOR USE AT ANY OTHER IOCATION OR TOR WITHOUT THE PR OF WEITHEN CONSENT OF CRA ANY TRANSFER, REUSE, THE DRAWING BY THE CLEAT OR THIERS. WITHOUT THE PR OF WITH T DE CRA WILL BE AT THE USER'S COLE FISH AND WITHOUT THE PR OF WHIT DWG PROJ MGR BW REVIEWED BY: RM CHECKED BY PROPOSED CONDITIONS DESIGNED BY: DCS DRAWN BY: MEG SCALE: SEE DWG C3.01 ON TO SECTIONS 3 AND 4 DATE: PROJECT NO. REVISION NO. FEB. 2023 01.0172596.10 SHEET NO. 14 OF 19

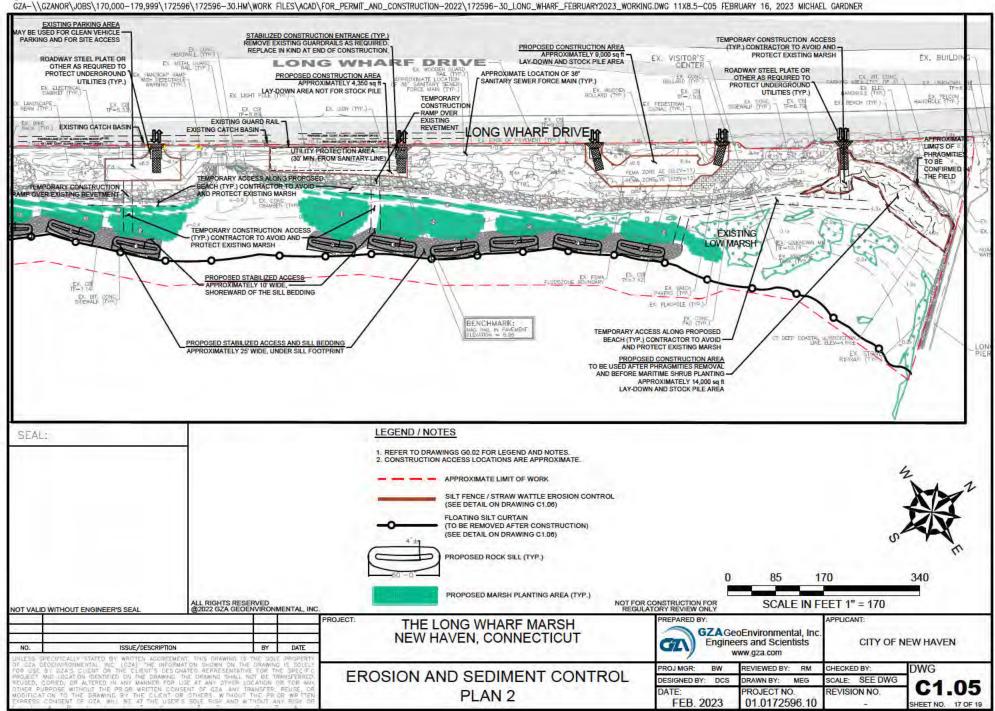
© 2023- GZA GeoEnvironmental, Inc. GZA-\\GZANOR\JOBS\170,000-179,999\172596\172596-30.HM\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 11X8.5-C31.2 FEBRUARY 16, 2023 MICHAEL GARDNER © 2023- GZA GeoEnvironmental, Inc.

GZA-\\GZANOR\JOBS\170,000-179,999\172596-30.HW\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 11X8.5-C03.2 FEBRUARY 16, 2023 MICHAEL GARDNER

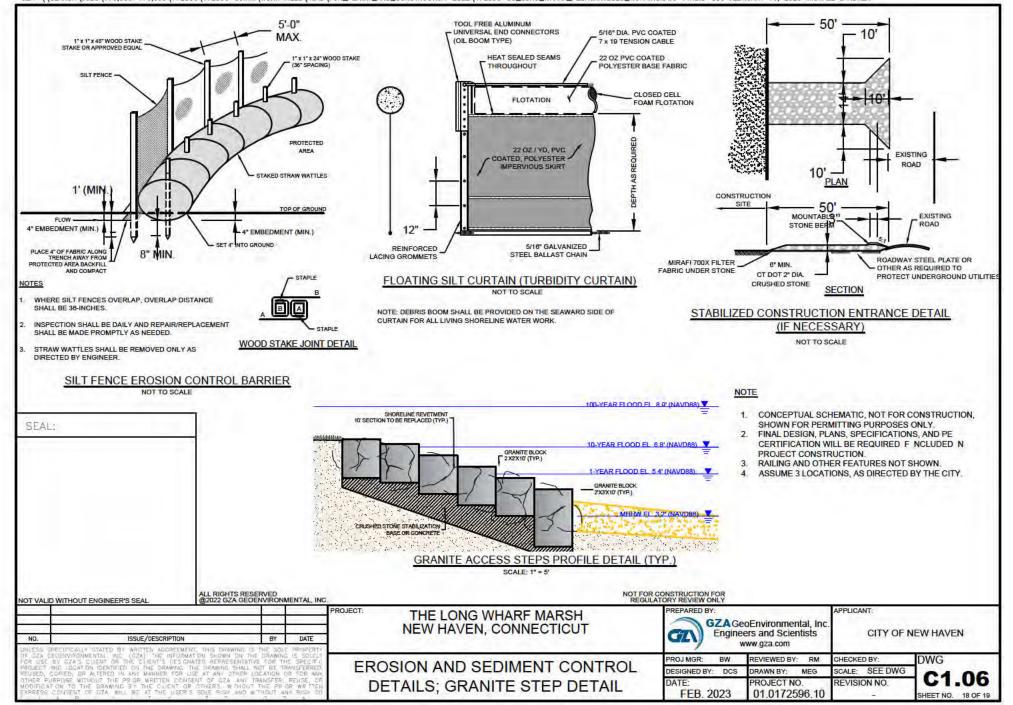




© 2023- GZA GeoEnvironmental, Inc.



© 2023- GZA GeoEnvironmental, Inc.



© 2023- GZA GeoEnvironmental, Inc. GZA-\\GZANOR\JOBS\170,000-179,999\172596-30.HW\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF_FEBRUARY2023_WORKING.DWG 11X8.5-C06 FEBRUARY 16, 2023 MICHAEL GARDNER

1-YEAR FLOOD EL. 5.4' (NAVD88) ARMOR GRADATION PROPOSED GRAVELET 4' CREST COORDINATES SHOWN ON SILL REFERENCE LAYER TO 1.8" NAVD88 STONEWEIGHT NOMINAL WRAP GEOTEXTILE CREST EL. 4.5' (LB) (EACH) DIAMETER (FT) TABLE REFER TO THE CENTERLINE OF THE AS SHOWN (NAVD88) INNER ANCHOR STONE OW MARSH PLANTING WMAX 3,306 27 SCOUR PROTECTION MHHW EL. 3.2' (NAVD88) 2,845 50% (Wsn) 2.5 MHW EL. 2.8' (NAVD88) 23 1 084 w... TYP 5' CRUSHED STONE 1.5 NOTES ANCHOR STONE SIZING 3.0" MINIMUM TO 3.5 MAXIMUM ISL EL. -0.2' (NAVD88) NOMINAL DIAMETER OF THE ARMOR STON WAS CALCULATED USING AN EQUIVALENT 8" 8" THICK BEDDING LAYER CUBIC VOLUME EST MATION, STONE SIZING PROPOSED SAND FILL 6-INCH NOMINAL DIAMETER SHOULD BE DETERMINED AT THE SOURCE LAYER TO 1.5' NAVD88 PLACE TWO LARGER ANCHOR STONES AT TOE A MINIMUM OF 3.0' NOMINAL AND/ OR IN THE FIELD BASED ON STONE EXISTING GRADE MIRAFI FW404 GEOTEXTILE DIAMETER, MAXIMUM OF 3.5' NOMINAL DIAMETER, ANCHOR STONES SHALL BE WEIGHT, DIAMETER, AND ASPECT RATIO. OR EQUIVALENT AT BOTTOM OF BASE AND CORE MATERIAL SHALL CONSIS PLACED CONTINUOUSLY ALONG SEAWARD EDGE OF EACH MARSH SILL SEGMENT. 8" THICK BEDDING LAYER OF ANGULAR, QUARRIED, CRUSHED STONE MLLW.EL -2.2 (NAVD88) STONE SHALL HAVE A MINIMUM DENSITY O SILL CROSS SECTION (TYP.) 162 POUNDS PER CUBIC FOOT ECONCRETE TIDE POOLS ANCHOR STONES AT TOE A MINIMUM OF TIDE POOLS TO BE CONFIGURED IN GROUPS OF 3. TIDE POOLS ON THE SEAWARD S DE TO BE INCORPORATED NTO THE TOE STONE. 3.0' NOMINAL DIAMETER, MAXIMUM OF 3.5' TIDE POOLS ON THE LANDWARD S DE TO BE PARTIALLY SET INTO THE S LL EDGE. NOMINAL DIAMETER. ANCHOR STONES AND BURIED IN THE FILL, LEAVING 6 INCHES OF TIDAL POOL EXPOSED ABOVE THE SHALL BE PLACED CONTINUOUSLY ALONG SURFACE. SEAWARD EDGE OF EACH MARSH SILL 1-YEAR FLOOD EL. 5.4' (NAVD88) SEGMENT 8" THICK BEDDING LAYER 6-INCH NOMINAL DIAMETER USED AS STABILIZED ACCESS ONLY; SCALE 1"=20 10' WIDTH (TYP.) *SEE NOTE BELOW MHHW EL. 3.2' (NAVD88) SILL WITH ECONCRETE TIDE POOLS (TYP.) MHW EL. 2.8' (NAVD88) SEAL: ISL EL. -0.2' (NAVD88) EXISTING GRADE 8" THICK BEDDING LAYER 6-INCH NOMINAL DIAMETER MLLW.EL. -2.2 (NAVD88) SILL CROSS SECTION (TYP.) 8 NOT FOR CONSTRUCTION FOR REGULATORY REVIEWONLY SCALE IN FEET 1" ≈ 4 LL RIGHTS RESERVED NOT VALID WITHOUT ENGINEER'S SEAL PROJECT: APPLICANT: THE LONG WHARF MARSH PREPARED BY: GZAGeoEnvironmental, Inc. NEW HAVEN, CONNECTICUT CITY OF NEW HAVEN Engineers and Scientists NO ISSUE/DESCRIPTION BY DATE GL www.gza.com DWG PROJMGR BW REVIEWED BY: RM CHECKED BY DES GNAT PROPOSED SILL SECTION. DESIGNED BY: DCS MEG SCALE: SEE DWG DRAWN BY: C5.01 THE BE OR WRITTEN DATE: PROJECT NO. REVISION NO.

DETAILS AND NOTES

EEB 2023

01 0172506 10

FED 202

SHEET NO. 19 OF 19

© 2023 GZA GeoEnvironmental, Inc GZA-\\GZMNOR\JOBS\170,000-179,999\172596-30.HK\WORK FILES\ACAD\FOR_PERMIT_AND_CONSTRUCTION-2022\172596-30_LONG_WHARF FEBRUARY2023_WORKING.DWG 11X8.5-C51.2 FEBRUARY 16, 2023 MICHAEL GARDNER