



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

July 16, 2020

Town of Concord Water & Sewer Division
c/o Ziad Kary, Environmental Partners Group
1900 Crown Colony Drive, Suite 402
Quincy, MA 02169

Re: Written Determination Pursuant to M.G.L. Chapter 91
Waterways License and Permit Application No. W19-5496
180 Skyline Drive, Nagog Pond, Acton, Middlesex County

Dear Mr. Kary,

The Department of Environmental Protection Waterways Regulation Program (“the Department”) hereby issues this Written Determination, pursuant to Massachusetts General Law (M.G.L.) Chapter 91, the Public Waterfront Act, and the Waterways Regulations at 310 CMR 9.00, and its intent to approve the above-referenced Waterways Application, subject to the attached conditions.

The Town of Concord Water & Sewer Division (“the Applicant”) requests authorization pursuant to M.G.L. Chapter 91 and the applicable provisions of 310 CMR 9.00 to remove an existing intake pipeline that serves as a water supply system for the Town of Concord and to conduct upgrades to the system by installing a new pipeline and water intake support structure in Nagog Pond, a Great Pond, at 180 Skyline Drive, Acton, Middlesex County (the “project site”).

Specifically, the proposed project includes the removal of an existing approximately 1,800± linear foot 16 inch diameter cast iron water intake pipe and installation of a 2,400-linear foot 20-inch diameter polyethylene water intake pipe secured in place with concrete collars, with an intake support structure and concrete foundation at the waterward end of the pipeline. The new pipeline will generally follow the existing pipeline footprint and extend approximately 600 linear feet further waterward.

The removal and installation of the pipelines will involve dredging and backfilling along the project footprint. The dredging required for the project includes a trench of approximately 4 feet wide by 5 feet deep, resulting in approximately 4,840± square feet or 900± cubic yards of dredging. The dredged material will be stockpiled and reused as backfill for the pipe. Additional fill will be required at several locations along the pipe in order to maintain a continuous positive slope from

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

the intake structure to the gatehouse. Concrete pipe collars and the concrete footing of the intake screen support structure contribute to the fill area, resulting in approximately 2,000 square feet of fill.

FINDINGS:

1. The project site encompasses approximately 10,000 square feet in a Great Pond of the Commonwealth, which is subject to licensing and permitting pursuant to 310 CMR 9.04(2).
2. The Department determines that the project is a water-dependent industrial use project pursuant to 310 CMR 9.12(2)(b)16 and 310 CMR 9.12(2)(c).
3. The Department determines that the proposed project complies with the standards for dredging and dredge material disposal pursuant to 310 CMR 9.40. A 401 Water Quality Certification (X273001) for dredging and fill was issued for the project on November 5, 2019.
4. The Department determines that the public was properly notified and given opportunity to comment. A Public Notice was published in the Acton Beacon on April 18, 2019. The project was re-noticed in the Acton Beacon on May 2, 2019 and published in the Environmental Monitor on May 8, 2019. The Municipal Official for the Town of Acton requested a Public Hearing for the project, necessitating a third public notice in the Acton Beacon on June 20, 2019 and in the Environmental Monitor on June 26, 2019. The Public Hearing was held on July 10, 2019 at the Acton Town Hall, 427 Main Street, Acton and the public comment deadline was July 30, 2019. The Department received thirteen letters within the public comment period. All comments were responded to satisfactorily by the Applicant and/or are addressed in the Special Conditions of this Written Determination.
5. The Applicant has submitted documentation regarding compliance with other regulatory requirements, including but not limited to the Certificate of the Secretary of Energy and Environmental Affairs (the "Secretary") on the Final Environmental Impact Report (EEA #15446) pursuant to the Massachusetts Environmental Policy Act dated November 10, 2016; the 401 Water Quality Certification (X273001) for dredging and fill issued on November 5, 2019, the Municipal Planning Board Notification and Municipal Zoning Certificate signed by the Town of Acton Planning Director on January 23, 2019; the Massachusetts Wetlands Protection Act Order of Conditions (DEP File #85-1188) issued on January 6, 2016.
6. The Department determines that the project will comply with the applicable sections of the regulations at 310 CMR 9.37.
7. The Department presumes that the project serves a proper public purpose in accordance with 310 CMR 9.31(2)(a). Pursuant to M.G.L. Chapter 30 Section 61 and 301 CMR 11.01(4)(c), the Department has reviewed the project as identified in the Secretary's Certificate on the Final Environmental Impact Report (FEIR) (EEA #15446) dated November 10, 2019 including the MEPA documents and the documents submitted in connection with the application for a Waterways license and permit. Based upon its review, the Department finds that implementation of the terms and conditions of this proposed license constitute all feasible means to be used to

avoid damage to the environment and will minimize and mitigate any such damage to the maximum extent practicable.

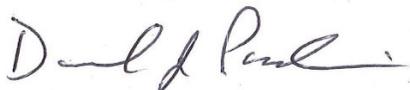
Conclusion:

On the basis of the foregoing analysis, the Department will approve the proposed dredging, structures, and fill as shown on the Draft License Plans and as shall be delineated on the Final License Plans in accordance with the terms of this Determination. This Determination is subject to the attached Special Conditions to be carried out by the referenced Applicant (hereinafter the "Licensee" and the "Permittee"). These Special Conditions will be included, in substantially the same form, along with the Standard Conditions, with the Final Chapter 91 License/Permit to be issued pursuant hereto. This Determination, including the attached Draft License/Permit and Special Conditions, is subject to appeal as described in more detail in the Notice of Appeal Rights.

Pursuant to Executive Order No. 591: Declaration of a State of Emergency to Respond to COVID-19 and Section (d) of COVID-19 Order No. 42, Order Resuming State Permitting Deadlines and Continuing to Extend the Validity of State Permits issued July 1, 2020, any person aggrieved by a decision or final decision of a state permitting agency on an approval whose right to appeal such decision would expire during the state of emergency absent the filing of an appeal shall have until August 10, 2020 to file an appeal. The Department will grant the Chapter 91 Waterways License if no appeals are filed within the timeframe specified above and upon receipt of any requisite fees and final mylar license plans.

No construction or alteration in or to any portion of the site within jurisdiction pursuant to M.G.L. Chapter 91 is authorized unless and until a license and permit has been issued and duly recorded at the applicable County Registry of Deeds. If you have any questions, please contact Alice Doyle of the Waterways Regulation Program at (617) 654-6624 or Alice.Doyle@mass.gov.

THIS DETERMINATION IS ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION ON THE 16th DAY OF July IN THE YEAR 2020.



Daniel J. Padien
Program Chief
Waterways Regulation Program

cc: John S. Mangiaratti, Town Manager, Town of Acton
Matthew Selby, Town of Acton Planning Board
Dean A. Charter, Town of Acton Board of Selectmen
Tom Tidman, Town of Acton Conservation Commission
Town of Acton Zoning Board of Appeals
Marielle Stone, Denise Childs, MassDEP CERO
Purvi Patel, MEPA
Caleb Slater, Massachusetts Division of Fisheries and Wildlife

Brona Simon, Massachusetts Historical Commission
Ramona Peters, Mashpee Wampanoag Tribe
David Robinson, Massachusetts Board of Underwater Archaeological Resources

Public Commenters:

Carolyn Kiely
Katherine Stock, MiyaresHarrington LLP

11-Citizen Group Letter (all Acton residents)

Kim Kastens, Carolyn Kiely, Robert Sekuler, Barry Elkin, Byron Hartonian, Lindsay C. Singer, Neal Fishman, Nancy C. Hess, Midnia R. Brandt, Robert Sniffen, Miles Fidelman

10-Citizen Group Letter (all Acton residents)

Kim A. Kastens, Tarik Pekin, Robert Sekuler, Carolyn Kiely, Robert E. Kingan, Margaret C. Nichols, Neal W. Fishman, Janet Klagge, Midnia R. Brandt, James P. Hess

14-Citizen Group Letter

Robert V. Ferrara (Acton), Linda McElroy (Acton), Denise LeBlanc (Acton), Larry Karpelman (Acton), Joan Deppe (Acton), Donald MacIver (Littleton), Donna White (Littleton), Sydney Blackwell (Harvard), Charles Paris (Charlton), Jane Chrisfield (Littleton), Richard Keleher (Acton), Ezra Habif (Natick), Lori Lafayette (Marlborough), Deena Ferrara (Acton)

12-Citizen Group Letter (All Acton residents)

Terra Friedrichs, Ron Beck, Dennis Caristi, Shauna Wilkinson, Dave Lunger, Karen Boutet, Alan Nidle, David Honn, John Pirolli, Nancy Lunger, Wayne Friedrichs, Nancy Lenicheck

NOTICE OF APPEAL RIGHTS

Who has the right to appeal?

The following persons shall have the right to an adjudicatory hearing concerning this decision by the Department to grant or deny a license or permit, in accordance with 310 CMR 9.17(1): (a) an applicant who has demonstrated property rights in the lands in question, or which is a public agency; (b) any person aggrieved by the decision of the Department to grant a license or permit who has submitted written comments within the public comment period; (c) 10 residents of the Commonwealth who, pursuant to M.G.L. Chapter 30A, § 10A, have submitted comments within the public comment period with at least 5 of the 10 residents residing in the municipality(s) in which the license or permitted activity is located. The appeal shall clearly and specifically state the facts and grounds for the appeal and the relief sought, and each appealing resident shall file an affidavit stating the intent to be part of the group and to be represented by its authorized representative; (d) the municipal official in the affected municipality who has submitted written comments within the public comment period; and (e) CZM, for any project identified in 310 CMR 9.13(2)(a) for CZM participation or 310 CMR 9.13(2)(b) for DCR participation, if it has filed a notice of participation within the public comment period.

How can I request an adjudicatory hearing?

A person requesting an adjudicatory hearing must submit a "Notice of Claim" to the Department, with a copy of the MassDEP Adjudicatory Hearing Fee Transmittal Form and include the details specified below, within the appeal period in accordance with the Orders referenced above and pursuant to the regulations at 310 CMR 9.17(2). The Fee

Transmittal Form is available at the following website: <http://www.mass.gov/eea/docs/dep/service/adr/adjherfm.doc>
The Notice of Claim must be made in writing and sent by certified mail or hand delivery to:

MassDEP
Case Administrator
One Winter Street, 2nd Floor
Boston, MA 02108

A copy of the complete Notice of Claim must be sent at the same time by certified mail or hand delivery to: (1) the Applicant, (2) the municipal official of the city or town where the project is located, and (3) the issuing office of the MassDEP, which in this case is located at:

MassDEP
Waterways Regulation Program
One Winter Street, 5th Floor
Boston, MA 02108

The MassDEP Adjudicatory Hearing Fee Transmittal Form and a valid check payable to “*The Commonwealth of Massachusetts*” in the amount of one hundred dollars (\$100) must be mailed to:

MassDEP
Commonwealth Master Lockbox
P.O. Box 4062
Boston, MA 02211

What information must be included in the hearing request?

Pursuant to 310 CMR 9.17(3), any Notice of Claim requesting an adjudicatory hearing must include the following:

- (a) the MassDEP Waterways Application File Number;
- (b) the complete name, address, fax number and telephone number of the Applicant;
- (c) the address of the project;
- (d) the complete name, address, fax number, and telephone number of the party filing the request and, if represented by counsel, the name, address, fax number, and phone number of the attorney;
- (e) if claiming to be a person aggrieved, the specific facts that demonstrate that the party satisfies the definition of “aggrieved person” found in 310 CMR 9.02;
- (f) a clear statement that a formal adjudicatory hearing is being requested;
- (g) a clear statement of the facts which are the grounds for the proceedings, the specific objections to the MassDEP’s written decision, and the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written decision; and
- (h) a statement that a copy of the request has been sent to: the Applicant and the municipal official of the city or town where the project is located.

Dismissal of request

The request for appeal will be dismissed if the filing fee is not paid, unless the appellant is exempt or is granted a waiver.

Exemptions

The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

Waiver

The Department may waive the adjudicatory hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

DRAFT WATERWAYS LICENSE AND PERMIT
AND SPECIAL CONDITIONS

Town of Concord Water & Sewer Division

of – Concord-- in the county of -- Middlesex -- has applied to the Department of Environmental Protection for a license and permit to -- replace and improve existing water intake infrastructure as further detailed below -----

and has submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law, to the -- Municipal Official -- of the -- Town of Acton -----

Now, said Department, having heard all parties desiring to be heard, and having fully considered said application, hereby, subject to the approval of the Governor, authorizes and licenses the said

Town of Concord Water & Sewer Division -- subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, is hereby granted a license and permit to -- remove an 1,800-linear foot 16-inch diameter cast iron water intake pipe and install a 2,400-linear foot 20-inch diameter polyethylene water intake pipe secured in place with concrete collars, install an intake support structure and concrete foundation at the waterward end of the pipeline; dredge and backfill along the project footprint, the dredging required is for removal of portions of the existing pipeline, and will require a trench approximately 4 feet wide by 5 feet deep, resulting in approximately 4,840 square feet or 900 cubic yards of dredging, the dredged material will be stockpiled and reused as backfill for the new pipeline, and additional fill will be required at several locations along the pipe in order to maintain a continuous positive slope from the intake structure to the gatehouse; concrete pipe collars and the concrete footing for the intake screen support structure contribute to the fill area, resulting in approximately 2,000 square feet of fill -----

in – Nagog Pond (a Great Pond) -- at 180 Skyline Drive -- in the – Town of Acton -- and in accordance with the locations shown and details indicated on the accompanying Draft License Plans W19-5496 dated January 25, 2019 (Sheets 1-12, 14-16) and March 25, 2019 (Sheet 13).

The existing structure and drinking water supply was authorized by Chapter 201 of the Massachusetts Acts of 1884. No license prior to or subsequent to this act has been issued for the existing water supply infrastructure at the project site.

The structures and fill authorized hereby shall be limited to the following use: infrastructure facility for water withdrawal.

The fill and structures authorized herein are valid for an unlimited term pursuant to 310 CMR 9.15(1)(c). The Dredging Permit incorporated within this license is valid for a term of five (5) years from the date of issuance.

This Determination is subject to the following Special Conditions and Standard Conditions. These Special Conditions will be included, in substantially the same form, along with the Standard Conditions, with the final Waterways License/Permit to be issued pursuant hereto.

SPECIAL WATERWAYS LICENSE CONDITIONS

1. All work authorized herein shall be completed within five (5) years of the date of License issuance. Said construction period may be extended by the Department for one or more one year periods without public notice, provided that the Licensee submits to the Department no later than thirty (30) days prior to the expiration of said construction period a written request to extend the period and provides an adequate justification for said extension.
2. The work authorized by this license shall be performed in strict conformance with all applicable requirements and authorizations of 401 Water Quality Certification No. X273001 issued by the Department on November 5, 2019, or as otherwise amended thereto.
3. The Licensee shall allow agents of the Department to enter the project site to verify compliance with the conditions of this License.
4. All fill and structures authorized herein shall be constructed to meet the Engineering and Construction Standards pursuant to 310 CMR 9.37.
5. The Licensee shall request in writing that the Department issue a Certificate of Compliance within sixty (60) days completion of the licensed project, but in no event later than five (5) year from the date of license issuance, or any extension thereof, in accordance with 310 CMR 9.19(1). The request shall be accompanied by a certification by a registered professional engineer licensed to do business in the Commonwealth that the project was completed in accordance with the plans, specifications, and conditions of this License.
6. The Licensee shall maintain all structures in accordance with the terms and conditions specified herein or this License may expire, pursuant to 310 CMR 9.25(1)(c).

7. Any structural alteration or change in use, or any other modification, from that explicitly authorized herein and contained on said License Plans, shall require prior review of the Department to determine whether additional licensing is required pursuant to M.G.L. Chapter 91 and the Waterways Regulations at 310 CMR 9.00.
8. The Written Determination shall remain valid for up to one (1) year after issuance. Said term may be extended for one (1) or more one (1) year periods, provided that the Applicant submits to the Department, thirty (30) days prior to the expiration of said term a written request to extend the term and provides adequate justification for said extension. This condition shall expire upon issuance of the License to be issued pursuant hereto.

SPECIAL WATERWAYS DREDGE PERMIT CONDITIONS

1. The work authorized by this permit shall be performed in strict conformance with all applicable requirements and authorizations of 401 Water Quality Certification No. X273001 issued by the Department on November 5, 2019, or as otherwise amended thereto.
2. After completion of the dredging authorized herein, no maintenance dredging is permitted.

Please see Pages 9-10 for the Standard Waterways License and Permit Conditions

Duplicate of said plan, License No. To Be Determined is on file in the office of said Department, and original of said plan accompanies this License to be issued pursuant hereto and is to be referred to as a part hereof.

STANDARD WATERWAYS LICENSE CONDITIONS

1. Acceptance of this Waterways License shall constitute an agreement by the Licensee to conform to all terms and conditions stated herein.
2. This License is granted upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Licensee prior to the commencement of any activity or use authorized pursuant to this License.
3. Any change in use or any substantial structural alteration of any structure or fill authorized herein shall require the issuance by the Department of a new Waterways License in accordance with the provisions and procedures established in Chapter 91 of the Massachusetts General Laws. Any unauthorized substantial change in use or unauthorized substantial structural alteration of any structure or fill authorized herein shall render this License void.
4. This Waterways License shall be revocable by the Department for non-compliance with the terms and conditions set forth herein. This License may be revoked after the Department has given written notice of the alleged non-compliance to the Licensee and those persons who have filed a written request for such notice with the Department and afforded them a reasonable opportunity to correct said non-compliance. Failure to correct said non-compliance after the issuance of a written notice by the Department shall render this License void and the Commonwealth may proceed to remove or cause removal of any structure or fill authorized herein at the expense of the Licensee, its successors and assigns as an unauthorized and unlawful structure and/or fill.
5. The structures and/or fill authorized herein shall be maintained in good repair and in accordance with the terms and conditions stated herein and the details indicated on the accompanying License Plans.
6. Nothing in this Waterways License shall be construed as authorizing encroachment in, on or over property not owned or controlled by the Licensee, except with the written consent of the owner or owners thereof. The Licensee stated that The Town of Concord Water & Sewer Division was the property owner at the time the application was submitted.
7. This Waterways License is granted subject to all applicable Federal, State, County, and Municipal laws, ordinances and regulations including but not limited to a valid final Order of Conditions pursuant to the Wetlands Protection Act, M.G.L. Chapter 131, §40.
8. This Waterways License is granted upon the express condition that the use of the structures and/or fill authorized hereby shall be in strict conformance with all applicable requirements and authorizations of the Department.
9. This License authorizes structure(s) and/or fill on:
 - _____ Private Tidelands. In accordance with the public easement that exists by law on private tidelands, the licensee shall allow the public to use and to pass freely upon the area of the subject property lying between the high and low water marks, for the purposes of fishing, fowling, navigation, and the natural derivatives thereof.
 - _____ Commonwealth Tidelands. The Licensee shall not restrict the public's right to use and to pass freely, for any lawful purpose, upon lands lying seaward of the low water mark. Said lands are held in trust by the Commonwealth for the benefit of the public.
 - X** _____ Great Pond of the Commonwealth. The Licensee shall not restrict the public's right to use and to pass freely upon lands lying seaward of the high water mark for any lawful purpose.
 - _____ Navigable River or Stream. The Licensee shall not restrict the public's right to use and to pass freely, for any lawful purpose, in the waterway. No restriction on the exercise of these public rights shall be imposed unless otherwise expressly provided in this license.
10. Unless otherwise expressly provided by this license, the licensee shall not limit the hours of availability of any areas of the subject property designated for public passage, nor place any gates, fences, or other structures on such areas in a manner that would impede or discourage the free flow of pedestrian movement thereon.

STANDARD WATERWAYS PERMIT CONDITIONS

1. Acceptance of this Waterways Permit shall constitute an agreement by the Permittee to conform to all terms and conditions stated herein.
2. Any modification from that explicitly authorized herein and contained on the Waterways Permit Plans shall require prior review of the Department to determine whether additional authorization is required pursuant to M.G.L. Chapter 91, the Public Waterfront Act, and the Waterways Regulations at 310 CMR 9.00.
3. The Permittee shall inform the Department in writing at least three (3) days before commencing any authorized dredging or dredge material disposal.
4. This Waterways Permit is issued upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Permittee prior to the commencement of any activity hereby authorized.
5. This Waterways Permit shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This Permit may be revoked after the Department has given written notice of the alleged noncompliance to the Permittee, or his agent, and those persons who have filed a written request, with the Department, for such notice and have afforded the Permittee a reasonable opportunity to correct said noncompliance. Failure to correct noncompliance after the issuance of a written notice by the Department shall render this Permit void.
6. This Waterways Permit is issued subject to all applicable federal, state, county, and municipal laws, ordinances, by-laws, and regulations, including but not limited to, a valid Order of Conditions issued pursuant to the Wetlands Protection Act, M.G.L. Chapter 131, §40 and a valid Water Quality Certification issued pursuant 314 CMR 9.00.
7. This Waterways Permit is issued upon the express condition that dredging, transportation, and disposal of dredge material shall be in strict conformance with all applicable requirements and authorizations of the Department. Any subsequent maintenance dredging and transportation and disposal of dredge material during the term of this Waterways Permit shall be in strict conformance with all applicable requirements and authorizations of the Department.
8. Unless otherwise authorized in accordance with a Special Condition of this Waterways Permit, no maintenance dredging beyond the time authorized herein is permitted.
9. The dredging under this Permit shall be conducted as to cause no unnecessary obstruction of the free passage of vessels.
10. In conducting the dredging authorized, care shall be taken to cause no shoaling. If, however, any shoaling is caused, the Permittee shall, at his expense, remove the shoal areas. The Permittee shall pay all costs of supervision, and if at any time the Department deems necessary a survey or surveys of the area dredged, the Permittee shall pay all costs associated with such work.
11. Nothing in this Permit shall be construed as to impair the legal rights of any persons or authorize dredging on land not owned by the Permittee without consent of the owner(s) of such property.
12. The Permittee shall assume and pay all claims and demands arising in any manner from the work authorized herein and shall save harmless and indemnify the Commonwealth of Massachusetts, its officers, employees, and agents from all claims, audits, damages, costs and expenses incurred by reason thereof.
13. Whosoever violates any provisions of this Permit shall be subject to a fine of twenty-five thousand dollars and zero cents (\$25,000.00) per day for each day such violation occurs or continues, or by imprisonment for not more than one year, or both such fine and imprisonment; or shall be subject to civil penalty not to exceed twenty-five thousand dollars and zero cents (\$25,000.00) for each day such violation occurs or continues.

The amount of tidewater displaced by the work hereby authorized has been ascertained by said Department, and compensation thereof has been made by the said – Town of Concord Water & Sewer Division -- by paying into the treasury of the Commonwealth -- (N/A) -- for each cubic yard so displaced, being the amount hereby assessed by said Department – (*exempt pursuant to 310 CMR 9.16(4)(a)*).

Nothing in this License shall be so construed as to impair the legal rights of any person.

This License shall be void unless the same and the accompanying plan are recorded within 60 days from the date hereof, in the Registry of Deeds for the -- County of – Middlesex.

~~In witness whereas, said Department of Environmental Protection have hereunto set their~~

~~hands this _____ day of _____ in the year two thousand and nineteen.~~

~~Section Chief~~ _____

~~Department of Environmental
Protection~~

THE COMMONWEALTH OF MASSACHUSETTS

~~This license is approved in consideration of the payment into the treasury of the Commonwealth by the said – Town of Concord Water & Sewer Division -- the further sum of -- (*exempt pursuant to 310 CMR 9.16(4)(a)*) -- the amount determined by the Governor as a just and equitable charge for rights and privileges hereby granted in the land of the Commonwealth.~~

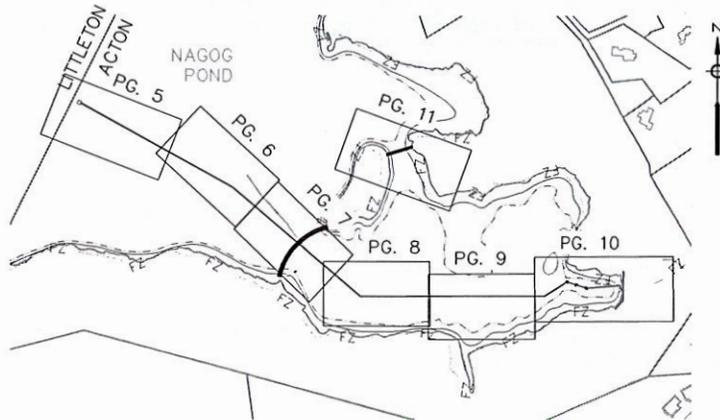
BOSTON,

~~Approved by the Governor.~~

Governor



LOCUS MAP

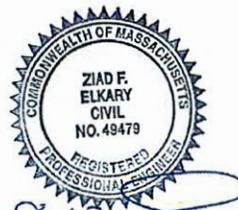


PROPOSED RAW WATER INTAKE PLAN



SCALE IN FEET
 SCALE: 1"=500'

VERTICAL DATUM- NAVD 1988

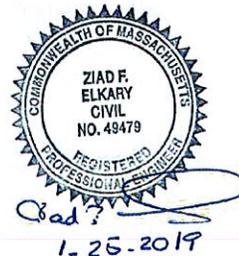


Ziad F. Elkary
 1.25.2019

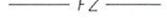
PLAN ACCOMPANYING PETITION OF:
 TOWN OF CONCORD, MASSACHUSETTS
 RAW WATER INTAKE
 NAGOG POND
 TOWN OF ACTON, MASSACHUSETTS

GENERAL NOTES

1. USGS BATHYMETRY WAS OBTAINED FROM LEVIN, A.B., ARCHFIELD, S.A., AND MASSEY, A.J., 2011, REFINEMENT AND EVALUATION OF THE MASSACHUSETTS FIRM-YIELD ESTIMATOR MODEL VERSION 2.0: U.S. GEOLOGICAL SURVEY POINTS WERE OBTAINED FROM SARA LEVIN IN AN EMAIL CORRESPONDENCE. BATHYMETRY WAS CONFIRMED BY ENVIRONMENTAL PARTNERS GROUP.
2. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988.
3. HORIZONTAL DATUM IS REFERENCED TO THE NORTH AMERICAN DATUM OF 1983.
4. PROPERTY LINE, STREET LINE, AND OWNER INFORMATION WAS COMPILED FROM RECORDS ON FILE AT THE MIDDLESEX NORTH REGISTRY OF DEEDS, THE TOWN OF ACTON ASSESSORS DEPARTMENT, AND THE TOWN OF LITTLETON ASSESSORS DEPARTMENT.
5. MEAN ANNUAL HIGH WATER MARK (MHW) FLAGS WERE DELINEATED BY PINEBROOK CONSULTING IN MAY 2015, AUGUST 2015, OCTOBER 2015, AND NOVEMBER 2015 AND WERE SURVEYED BY ENVIRONMENTAL PARTNERS GROUP AND MERRILL CORPORATION.
6. THE MEAN HIGH WATER MARK IS BASED ON THE 2015 AVERAGE POND SURFACE ELEVATION.
7. THE HISTORIC MEAN LOW WATER MARK IS BASED ON 1966-1967 AVERAGE POND SURFACE ELEVATION.
8. THE SUBJECT PROPERTY IS LOCATED IN ZONE X AND ZONE AE EL. 208 THROUGH 213 OF THE FLOOD INSURANCE RATE MAP, AS SHOWN ON COMMUNITY PANEL No. 250176 0234f, WHICH BEARS AN EFFECTIVE DATE OF JULY 7, 2014, AND IS PARTIALLY WITHIN A SPECIAL FLOOD HAZARD AREA.
9. NORTH DIRECTION SHOWN IS APPROXIMATE.
10. EXISTING PIPE ALIGNMENT IS BASED ON UNDERWATER INVESTIGATIONS PERFORMED BY ENVIRONMENTAL PARTNERS.
11. THE CONTRACTOR MAY INSTALL THE NEW HDPE ALONG A MORE DIRECT ROUTE BETWEEN THE INTAKE LOCATION AND THE GATEHOUSE, AS LONG AS THE HDPE PIPE REMAINS AT A CONSTANT UPWARD SLOPE TOWARD THE GATEHOUSE. THE CONTRACTOR MAY REMOVE LESS OF THE EXISTING CI PIPE THAN IS SHOWN IN THESE PLANS.
12. THE INTAKE BURST PIPING ALIGNMENT IS SUBJECT TO CHANGE, AS THE LOCATION OF THE AIR BURST SYSTEM HAS NOT BEEN FINALIZED AT THIS STAGE.

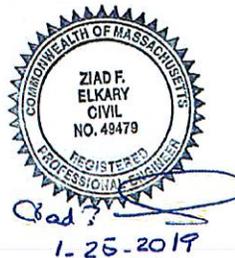


LEGEND

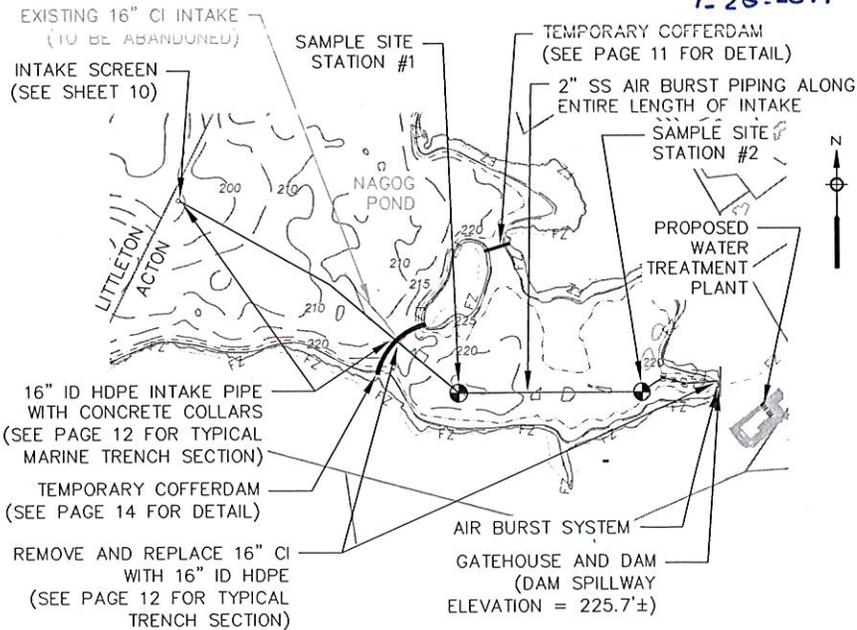
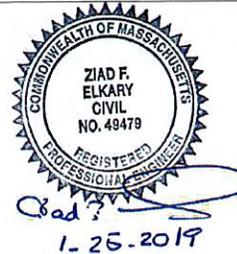
	PROPERTY LINE
	MHW
	HMLW
	TREELINE
	MAJOR CONTOUR
	MINOR CONTOUR
	FLOOD ZONE
	EXISTING GRADE
	PROPOSED INTAKE WITH CONCRETE COLLARS
	DREDGING LIMITS
	FILL LIMITS

ABBREVIATIONS

CI	CAST IRON
HDPE	HIGH-DENSITY POLYETHYLENE
MHW	MEAN HIGH WATER
HMLW	HISTORIC MEAN LOW WATER
TYP.	TYPICAL
SS	STAINLESS STEEL
ID	INSIDE DIAMETER
PG	PAGE

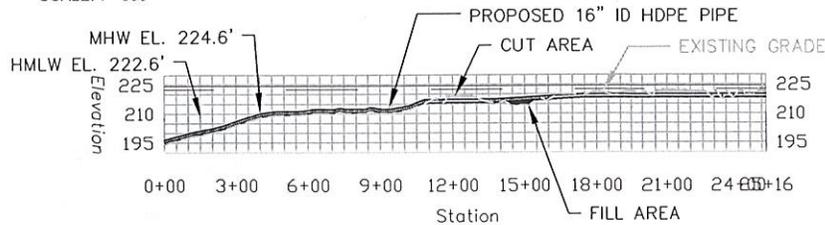


DREDGING DIMENSIONS	STRUCTURES FOOTPRINT
LENGTH = 1,210 ft	NUMBER OF COLLARS = 281
WIDTH = 4 ft	AREA PER COLLAR = 3 sf
DEPTH = 5 ft	TOTAL COLLAR AREA = 850 sf
AREA = 4,840 sf	INTAKE STRUCT. SUPPORT AREA = 225 sf
VOLUME = 900 cy	TOTAL STRUCT. FILL AREA = 1,075 sf



PROPOSED RAW WATER INTAKE - PLAN VIEW

SCALE: 1"=500'



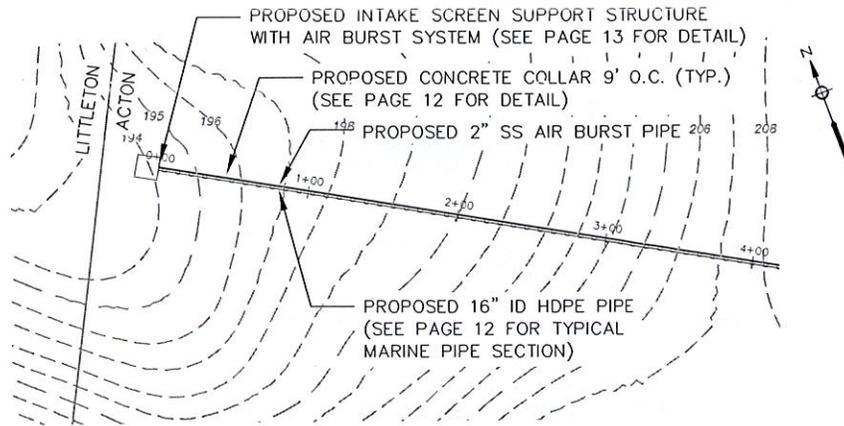
PROPOSED RAW WATER INTAKE - PROFILE VIEW

VERTICAL SCALE: 1"=62'-6"
 HORIZONTAL SCALE: 1"=500'

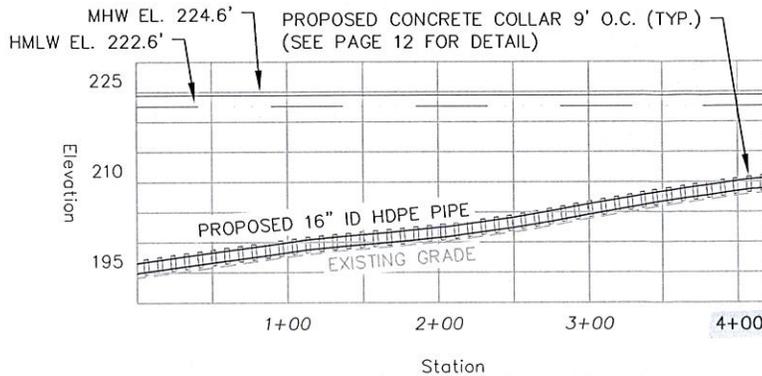


DREDGING DIMENSIONS
 NO DREDGING

STRUCTURES FOOTPRINT
 NUMBER OF COLLARS = 47
 AREA PER COLLAR = 3 sf
 TOTAL COLLAR AREA = 141 sf
 INTAKE SCREEN SUPPORT STRUC. = 225 sf
 TOTAL AREA = 366 sf



STRUCTURES AND FILL I - PLAN VIEW
 SCALE: 1"=80'

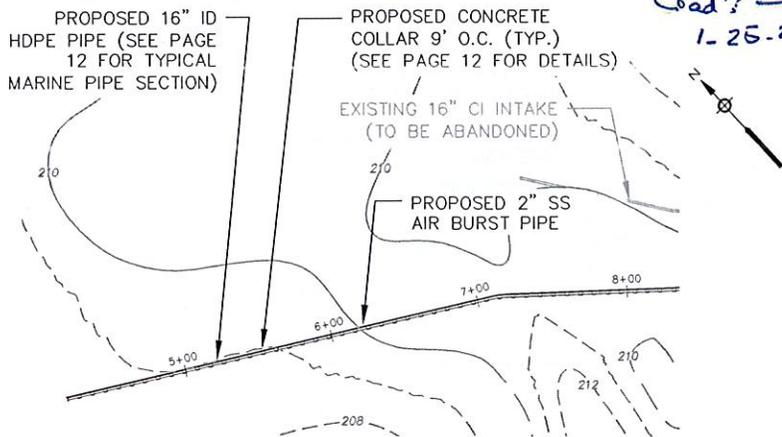


STRUCTURES AND FILL I - PROFILE VIEW
 VERTICAL SCALE: 1"=20'
 HORIZONTAL SCALE: 1"=80'

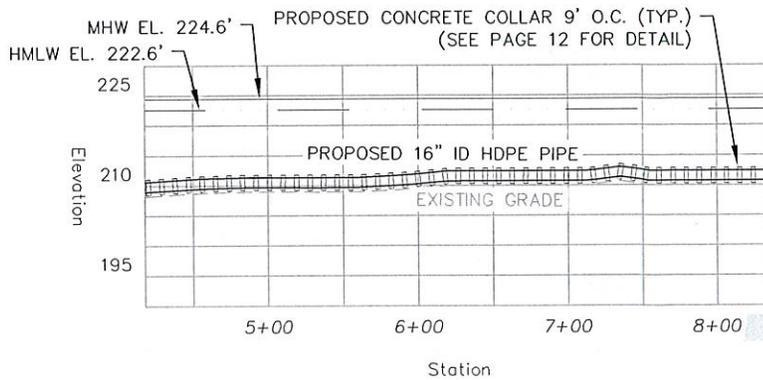


DREDGING DIMENSIONS
 NO DREDGING

STRUCTURES FOOTPRINT
 NUMBER OF COLLARS = 47
 AREA PER COLLAR = 3 sf
 TOTAL AREA = 141 sf



STRUCTURES AND FILL II - PLAN VIEW
 SCALE: 1"=80'

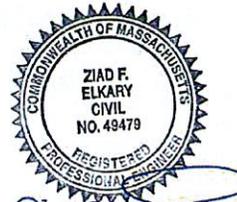


STRUCTURES AND FILL II - PROFILE VIEW
 VERTICAL SCALE: 1"=20'
 HORIZONTAL SCALE: 1"=80'

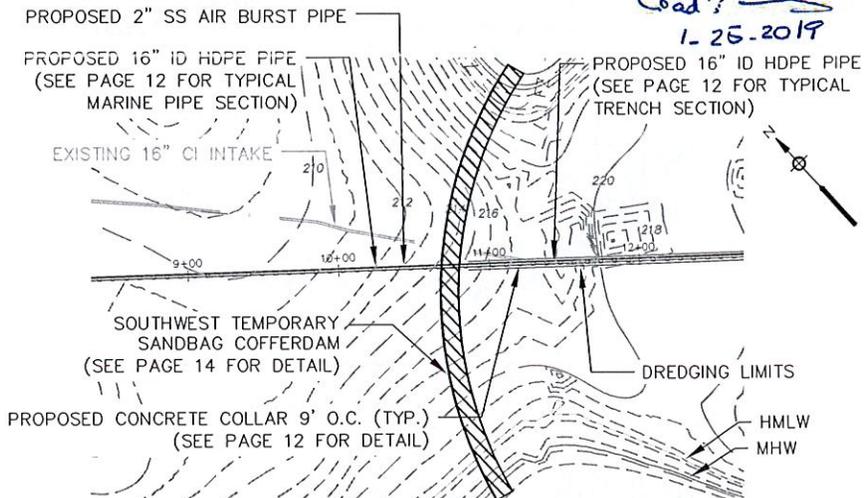


DREDGING DIMENSIONS
 LENGTH = 185 ft
 WIDTH = 4 ft
 DEPTH = 5 ft
 AREA = 740 sf
 VOLUME = 137 cy

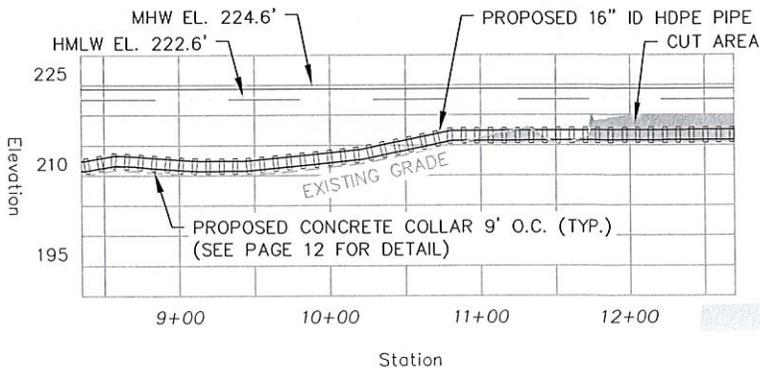
STRUCTURES FOOTPRINT
 NUMBER OF COLLARS = 49
 AREA PER COLLAR = 3 sf
 TOTAL AREA = 147 sf



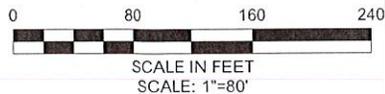
Qad?
 1-25-2019



STRUCTURES AND FILL III - PLAN VIEW
 SCALE: 1"=80'



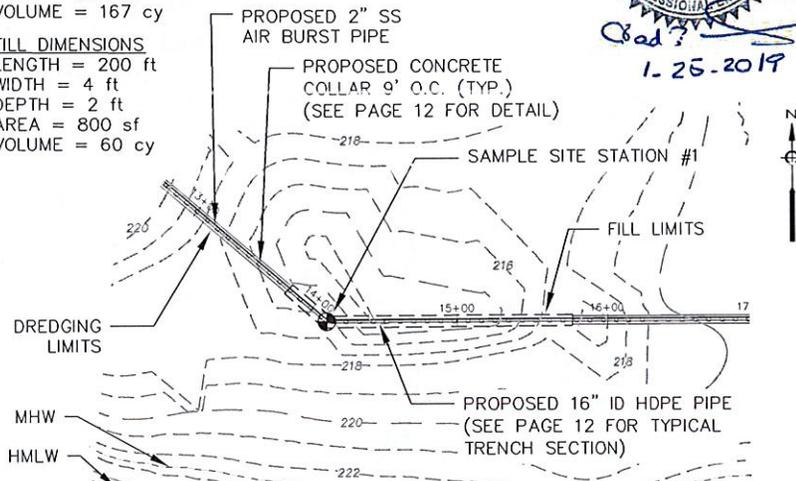
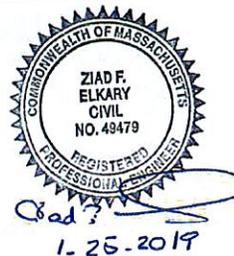
STRUCTURES AND FILL III - PROFILE VIEW
 VERTICAL SCALE: 1"=20'
 HORIZONTAL SCALE: 1"=80'



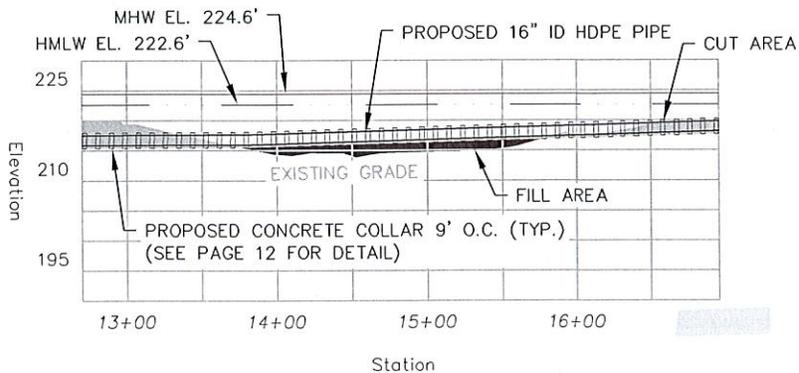
DREDGING DIMENSIONS
 LENGTH = 226 ft
 WIDTH = 4 ft
 DEPTH = 5 ft
 AREA = 904 sf
 VOLUME = 167 cy

FILL DIMENSIONS
 LENGTH = 200 ft
 WIDTH = 4 ft
 DEPTH = 2 ft
 AREA = 800 sf
 VOLUME = 60 cy

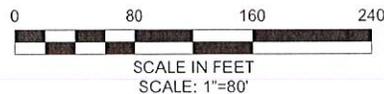
STRUCTURES FOOTPRINT
 NUMBER OF COLLARS = 47
 AREA PER COLLAR = 3 sf
 TOTAL AREA = 141 sf



STRUCTURES AND FILL IV - PLAN VIEW
 SCALE: 1"=80'

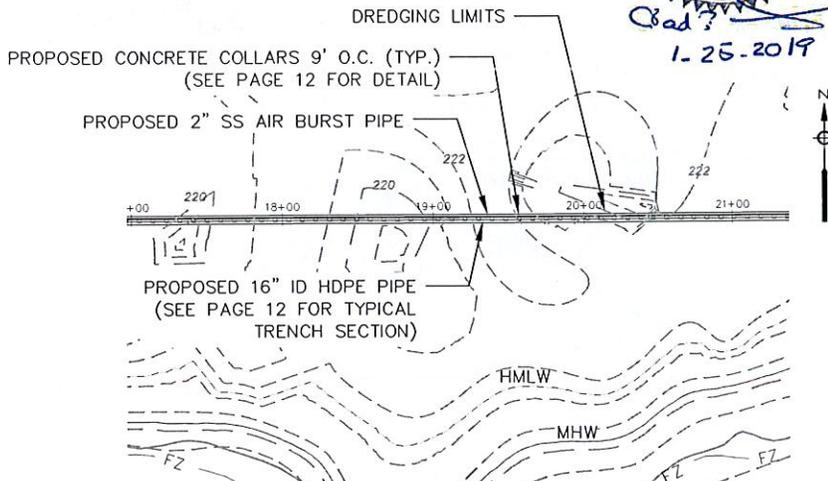
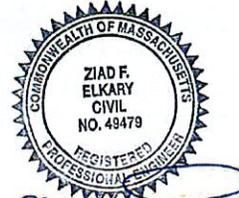


STRUCTURES AND FILL IV - PROFILE VIEW
 VERTICAL SCALE: 1"=20"
 HORIZONTAL SCALE: 1"=80'



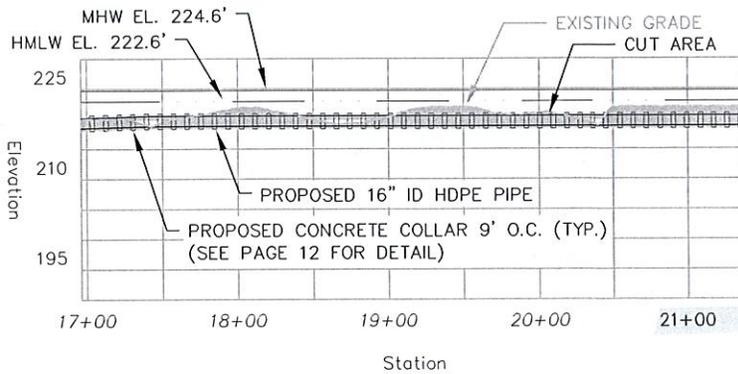
DREDGING DIMENSIONS
 LENGTH = 441 ft
 WIDTH = 4 ft
 DEPTH = 5 ft
 AREA = 1,764 sf
 VOLUME = 327 cy

STRUCTURES FOOTPRINT
 NUMBER OF COLLARS = 49
 AREA PER COLLAR = 3 sf
 TOTAL AREA = 147 sf



STRUCTURES AND FILL V - PLAN VIEW

SCALE: 1"=80'



STRUCTURES AND FILL V - PROFILE VIEW

VERTICAL SCALE: 1"=20'
 HORIZONTAL SCALE: 1"=80'

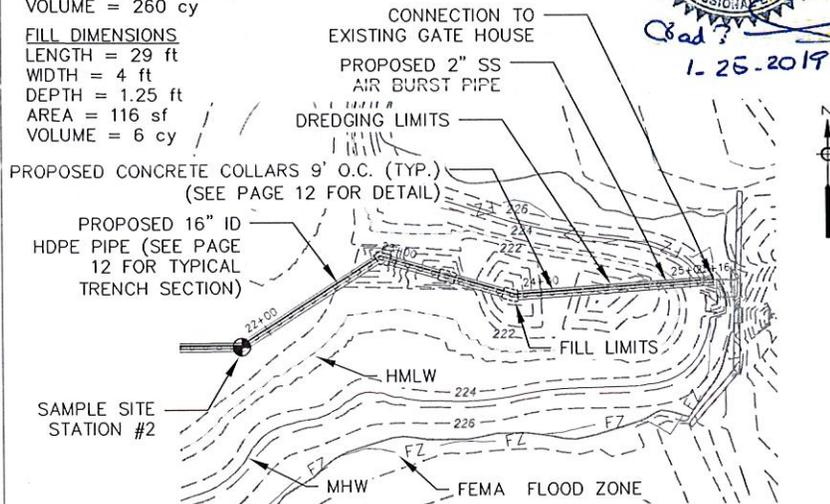
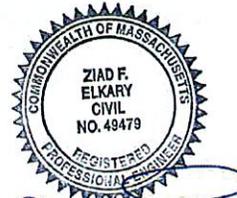


SCALE IN FEET
 SCALE: 1"=80'

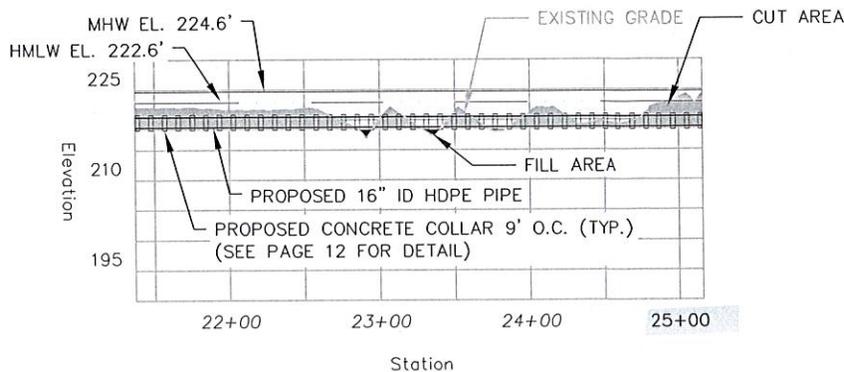
DREDGING DIMENSIONS
 LENGTH = 351 ft
 WIDTH = 4 ft
 DEPTH = 5 ft
 AREA = 1,404 sf
 VOLUME = 260 cy

STRUCTURES FOOTPRINT
 NUMBER OF COLLARS = 42
 AREA PER COLLAR = 3 sf
 TOTAL AREA = 126 sf

FILL DIMENSIONS
 LENGTH = 29 ft
 WIDTH = 4 ft
 DEPTH = 1.25 ft
 AREA = 116 sf
 VOLUME = 6 cy



STRUCTURES AND FILL VI - PLAN VIEW
 SCALE: 1"=80'



STRUCTURES AND FILL VI - PROFILE VIEW

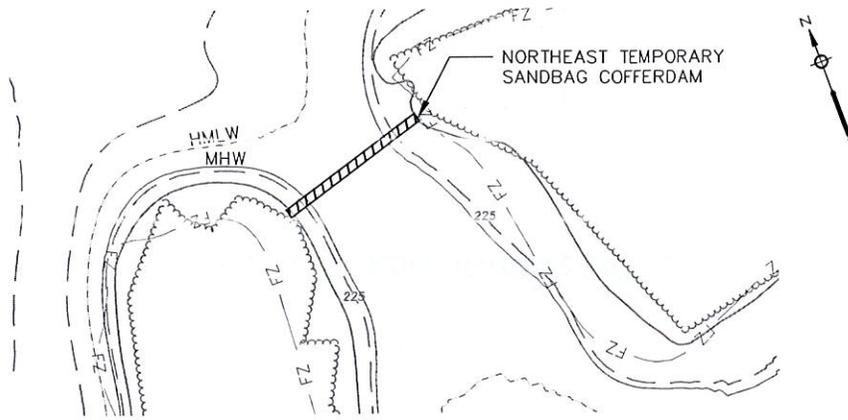
VERTICAL SCALE: 1"=20'
 HORIZONTAL SCALE: 1"=80'



SCALE IN FEET
 SCALE: 1"=80'

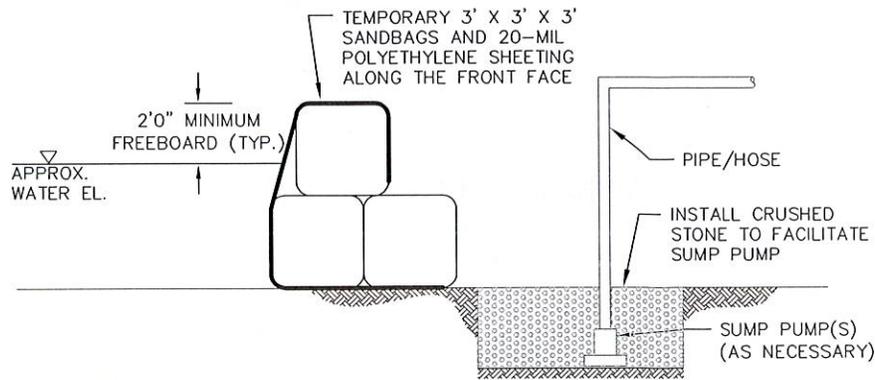
DREDGING DIMENSIONS
 NO DREDGING

STRUCTURES FOOTPRINT
 NO STRUCTURES



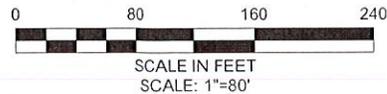
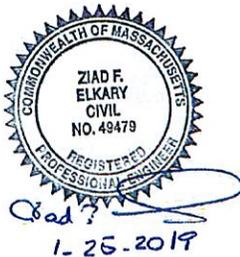
STRUCTURES AND FILL VII

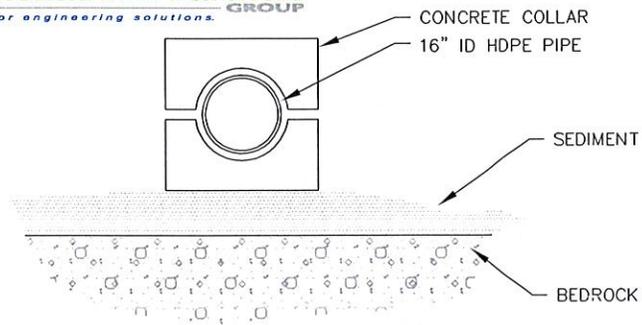
SCALE: 1"=80'



**NORTHEAST TEMPORARY
 SANDBAG COFFERDAM DETAIL**

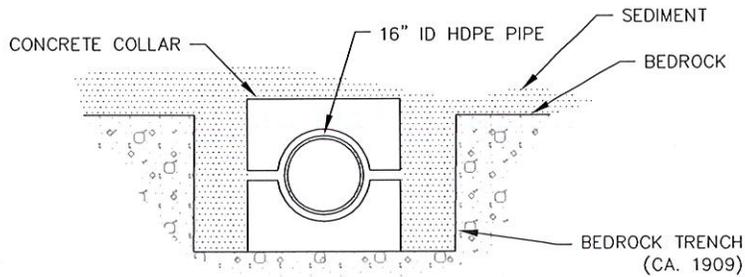
SCALE: N.T.S.





TYPICAL MARINE PIPE SECTION

SCALE: N.T.S.

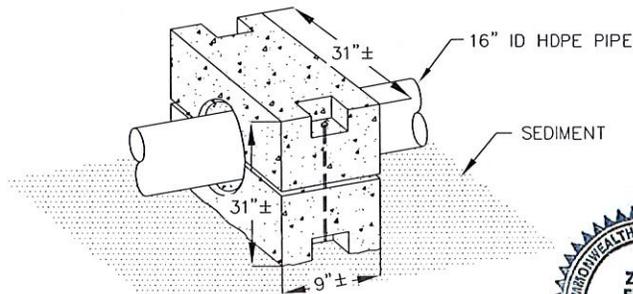


NOTE:

1. TRENCH DIMENSIONS VARY.

TYPICAL TRENCH SECTION

SCALE: N.T.S.



NOTE:

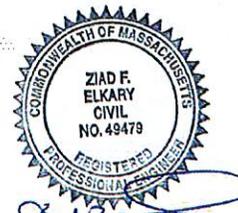
1. COLLAR DIMENSIONS ARE APPROXIMATE.

CONCRETE COLLAR DETAIL

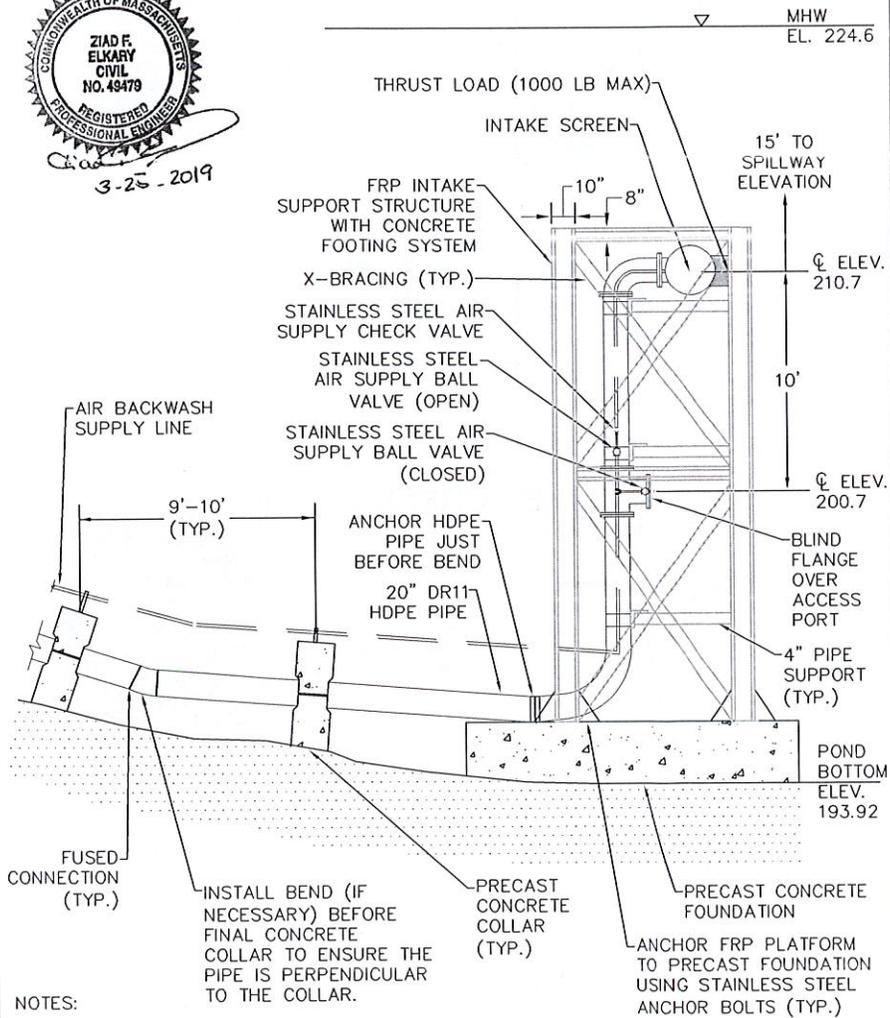
SCALE: N.T.S.

VERTICAL DATUM- NAVD 1988

PAGE 12 OF 16



1-25-2019



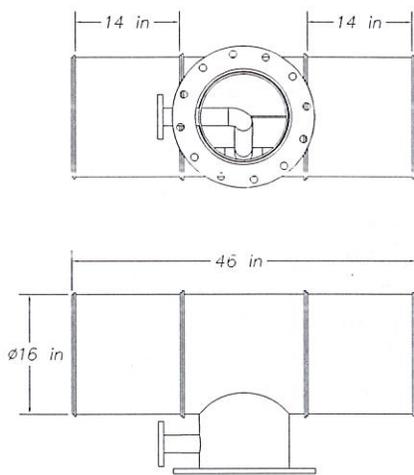
NOTES:

1. ALL SUBMERGED HARDWARE SHALL BE STAINLESS STEEL.

INTAKE SUPPORT STRUCTURE DETAIL

SCALE: N.T.S.

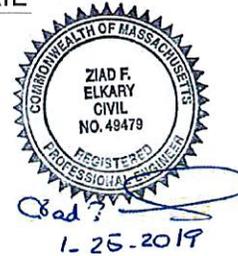
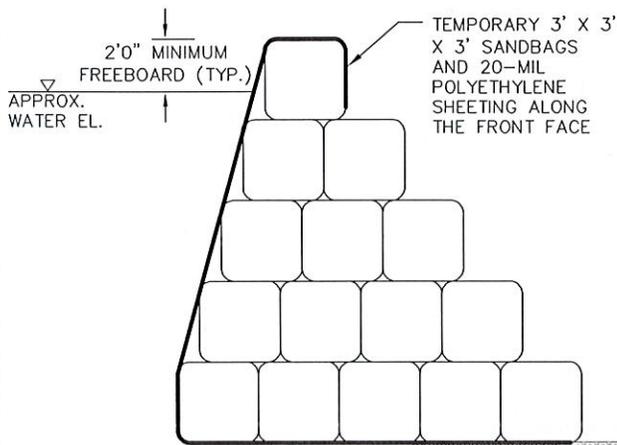
VERTICAL DATUM- NAVD 1988



- NOTES:**
1. MATERIAL = 304 SS
 2. UNIT CAPACITY = 1.5 MGD
 3. MAX SLOT VELOCITY = 0.50 FPS
 5. OUTLET SIZE 12 IN
 6. AIRBURST SIZE = 12 IN
 7. SLOT WIDTH = 0.125 IN

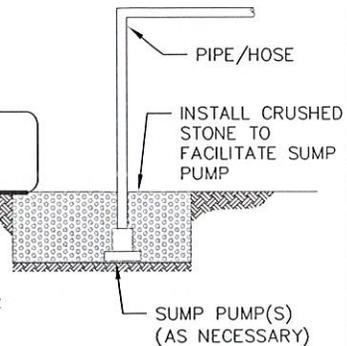
INTAKE SCREEN DETAIL

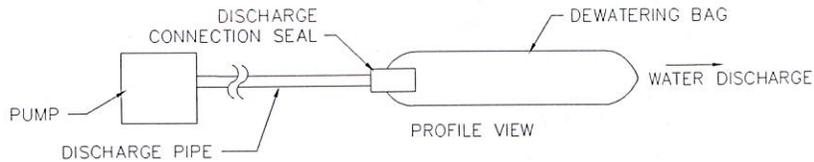
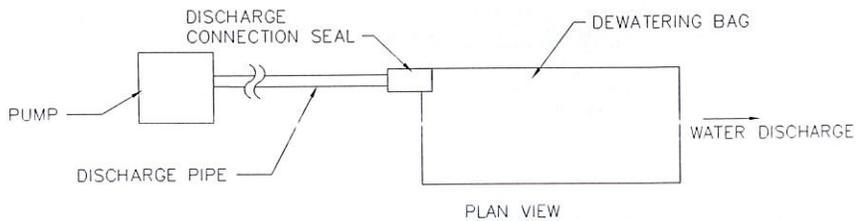
SCALE: N.T.S.



**SOUTHWEST TEMPORARY
 SANDBAG COFFERDAM DETAIL**

SCALE: N.T.S.



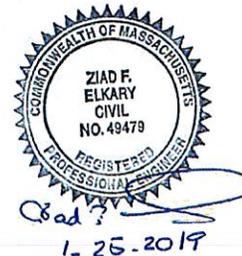


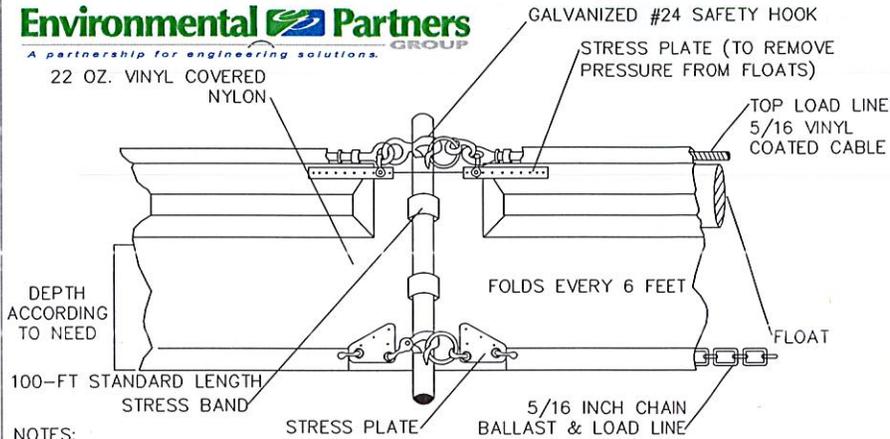
NOTES:

1. CONTRACTOR SHALL USE STONE AROUND THE SUCTION END TO MINIMIZE DISCHARGE OF TRENCH MATERIALS. THE DISCHARGE WATER SHALL PASS THROUGH FILTER FABRIC.
2. DEWATERING BAG SIZE AND QUANTITY SHALL BE AS NEEDED TO ADEQUATELY FILTER ALL PUMP EFFLUENT FROM DEWATERING ACTIVITIES. CONTRACTOR SHALL PROVIDE A REDUNDANT BAG ON SITE AT ALL TIMES.
3. EACH BAG SHALL HANDLE A 2", 3", OR 4" DISCHARGE HOSE.
4. DISCHARGE HOSES CAN BE PLACED ALONG ANY EDGE BY MAKING A SMALL INCISION INTO THE FABRIC, INSERTING THE HOSE, AND THEN CLAMPING THE FABRIC TO THE HOSE VIA WIRE, TIES, CLAMP, ROPE OR SIMILAR TO CREATE A GOOD SEAL.
5. CONTRACTOR SHALL AVOID DISCHARGING MULTIPLE PIPES INTO ONE BAG.

DEWATERING BAG DETAIL

SCALE: N.T.S.





NOTES:

1. THE TURBIDITY CURTAIN AND ANCHOR SYSTEM SHALL BE ADEQUATE FOR A MINIMUM FLOW VELOCITY OF 2 FEET PER SECOND.
2. THE TURBIDITY CURTAIN SHALL EXTEND THE ENTIRE DEPTH OF THE WATER COURSE.
3. TURBIDITY CURTAIN EXTERNAL ANCHORING SHALL BE ACCOMPLISHED WITH THE USE OF BOTTOM ANCHORS. BOTTOM ANCHORS MUST BE SUFFICIENT TO HOLD THE CURTAIN IN THE SAME POSITION RELATIVE TO THE BOTTOM OF THE WATERCOURSE WITHOUT INTERFERING WITH THE ACTION OF THE CURTAIN.
4. THE MINIMUM PHYSICAL PROPERTY REQUIREMENTS FOR THE CURTAIN FABRIC SHALL BE AS FOLLOWS:
 THICKNESS = 45 MILS
 WEIGHT = 22 OZ./SQ.YD.
 GRAB TENSILE STRENGTH = 300 LBS.
 UV INHIBITOR IS REQUIRED
5. THE CONTRACTOR SHALL ATTEMPT TO MINIMIZE THE NUMBER OF JOINTS IN THE SILT CURTAIN. A MINIMUM CONTINUOUS SPAN OF 50-FT BETWEEN JOINTS SHALL BE MAINTAINED.
6. THE ENDS OF THE CURTAIN, BOTH FLOATING AND WEIGHTED LOWER, SHOULD EXTEND WELL UP INTO THE EDGE OF WATER, ESPECIALLY IF HIGH WATER CONDITIONS ARE EXPECTED. THE ENDS SHOULD BE SECURED FIRMLY TO THE EDGE OF WATER TO FULLY ENCLOSE THE AREA WHERE SEDIMENT MAY ENTER THE WATER.
7. ALL BARRIER HARDWARE AND FITTINGS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED.
8. THE TURBIDITY CURTAIN SHALL BE MAINTAINED IN PLACE AFTER CONSTRUCTION IS COMPLETED, UNTIL ENGINEER PROVIDES DIRECTION TO REMOVE THE CURTAIN.
9. THE TURBIDITY CURTAIN SHALL COMPLETELY ENCLOSE ANY CONSTRUCTION ACTIVITY WITHIN THE POND AS SPECIFIED.

TURBIDITY CURTAIN DETAIL

SCALE: N.T.S.

