



TOWN OF CONCORD
COMMUNITY PRESERVATION COMMITTEE
141 KEYES ROAD, CONCORD, MA 01742
TEL. (978) 318-3290 FAX (978) 318-3291

Application for CPA Funding
Due no later than 4:00pm on Friday, October 9, 2020

Applicant: Town of Concord - Natural Resources Division

Co-Applicant (if applicable): _____

Project Name: Warner's Pond Dredging

Project Location/Address: Warner's Pond (2X Warner Street)

Purpose: (Select all that apply)

☒ Open Space

☐ Community Housing

☐ Historic Preservation

☒ Recreation

Project Budget:

Amount of CPA Funds Requested: \$ 250,000

Amount from Other Funding Sources: \$ 1,250,000 FY22 Capital Budget

Total Project Budget: \$ 1,500,000
(If multi-year project, note current phase only)

Please check which of the following is included with this Application:

☒ One Paragraph Project Summary *

☒ Timeline *

☒ Map (if applicable)

☒ Architectural plans, site plans, photographs
(if appropriate)

☒ Narrative *

☒ Selection Criteria and Needs Assessment

____ Copy of Audit or most recent Financial

☒ Detailed Project Budget *

Information (Non Profit Organizations Only)*

☒ Feasibility Assessment

____ Letters of Support (if any)

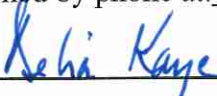
☒ Statement of Sustainability (if applicable)

* Required Documentation

The Contact Person for this Project is: Delia Kaye, Natural Resources Director

All Correspondence should be mailed to: 141 Keyes Road, Concord MA 01742

The Contact Person can be reached by phone at: (978) 318-3285 or by email at: dkaye@concordma.gov

Signature of Applicant: 

Signature of Property Owner (if different): 

For Historic Preservation Projects Only – please check the box below left and acknowledge:

☐ I/We have read the **U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties** and understand that planning for and execution of this project must meet these standards.

Brief Project Summary:

The Warner's Pond Dredging Project seeks to improve the ecological health and recreational opportunities at Warner's Pond through a limited dredging operation, and to improve the boat launch access to better serve public access to the pond. Warner's Pond once provided recreational opportunities including swimming, fishing, boating, and ice-skating, but these uses have diminished over time due to pond eutrophication, which has also decreased the ecological health of the pond. The Warner's Pond Watershed Management Plan identified limited dredging as the most economical strategy to sustainably improve the condition of Warner's Pond. The Warner's Pond Dredging Feasibility Analysis developed preliminary cost estimates of \$1.8 million to \$2.2 million to dredge a limited portion of the pond at the boat launch off Commonwealth Avenue and at the newly-acquired Gerow land. This application seeks the second and final year to fund dredging improvements in the amount of \$250,000 to supplement the previously awarded CPA funding and capital funding. CPA funding is requested from the Open Space and Recreation categories.

Previously completed studies on the pond can be viewed at:

- www.concordma.gov/744/Warners-Pond-Watershed-Management-Plan
- www.concordma.gov/DocumentCenter/View/18566/Warners-Pond-Dredging-Feasibility-Study

Narrative:

Warner's Pond is a 48-acre pond in West Concord formed by the damming of Nashoba Brook in the 1800s. Positioned at the base of an extensive 47-square mile, densely developed watershed which lies almost entirely outside of Concord's borders, Warner's Pond is subject to sedimentation caused by flows from Nashoba Brook slowing down and depositing sediments into the pond, which amass to allow excessive plant growth. These accumulating nutrient-rich sediments increase plant growth and decrease oxygen levels, resulting in eutrophication of the pond.

Eutrophication of the pond has been occurring since at least the 1980s; a consequence of the dammed condition and the large watershed to pond ratio, resulting in shallower water depths more susceptible to excessive weed growth. Nuisance aquatic plants, particularly highly invasive, non-native plant species such as variable watermilfoil (*Myriophyllum heterophyllum*), fanwort (*Cabomba caroliniana*), and water chestnut (*Trapa natans*), have degraded open water habitat and impaired recreational uses. The sediment accumulation, excess nutrients in the water column, and dense growth of non-native aquatic plants have led to seriously degraded conditions in the pond over time.

These degraded conditions have diminished the ecological value of the pond with regard to its ability to support fish and wildlife populations typical of healthier open water habitats. The poor water quality and increased weed growth are also impairing the pond's ability to serve the community with regard to recreational opportunities. Sediment accumulation and excessive plant growth have increased to the point that many areas of the pond are impassable by kayakers and canoeists.

The Town commissioned a Watershed Management Plan in 2012, which identified dredging as the most economical strategy for sustainable and long-term improvements to Warner's Pond. The Watershed Management Plan recommended a range of options for improving the ecological and recreational value of the pond, including short-term options such as herbicides and biological controls, as well as long-term options including dredging. Dredging was recommended as the primary focus for management. While dredging is expensive, it addresses multiple in-pond problems and lasts for decades. As dredging the entire 48-acre pond is not economically feasible, the Plan recommended dredging a 6.1-acre portion of the pond, specifically the area between Scout Island, Pond Street, and the Commonwealth Avenue public access points, as a more realistic alternative to dredging the entire pond, that targeted primarily recreational areas while leaving more ecologically sensitive areas unaltered. With the recent acquisition of the Gerow Land, the Dredging Feasibility Study also evaluated a northern dredge area to enhance the ability of the Gerow land to be used for recreational activities. See Figure 1 showing proposed dredging areas.

This project proposes to dredge areas of the pond to reestablish open water habitat to improve wildlife habitat while also providing improved recreational opportunities for swimming, boating, and fishing. Along with these recreational improvements, the pond will also continue to afford a wide range of shallow water habitat including marsh, emergent wetland, and other vegetated areas that will maintain the pond's value for associated wildlife viewing. To minimize cost and maximize benefits for the Town, some dredge material will be repositioned along the northern shore of Scout Island and revegetated with wetland plants to create a wetland shelf, which will further improve wildlife habitat in Warner's Pond. Cost estimates range between \$1.8 million and \$2.2 million, as detailed in the attached budget estimate.

Dredging is a reliable approach for restoring ecological and aesthetic characteristics of Warner's Pond as it will remove the nutrient-rich sediments that are causing eutrophication of the pond. Part of the Dredging Feasibility Study included identifying grant opportunities to fund this work. The Study notes that not many sources of funding specifically dedicated to dredging or pond restoration projects are available, and that they are difficult to obtain. Town Meeting appropriated \$500,000 for Warner's Pond dredging in its Capital Improvement Plan for 2021, and \$1,250,000 will be sought in FY22. Fortunately, this dredge project is envisioned to last at least 100 years before additional dredging might be required.

CPC's Selection Criteria and Needs Assessment

This application meets the following Selection Criteria as found in the 2020 Community Preservation Plan:

- a.) **Eligibility** – Under the CPA legislation, CPA funds can be used for “*the acquisition, creation, and preservation of open space*” and for “*recreational use*”. This proposal seeks to restore Town-owned open space, thereby preserving and improving the ecological health of the pond while enhancing the recreational experience of all users of Town land, a recreational opportunity once cherished by residents.

- b.) **Consistency with Town-wide Planning** – Goal 1 of the 2015 Open Space and Recreation Plan (OSRP) is to protect water resources and biodiversity. The restoration of Warner's Pond, is a specifically listed goal under this section (Goal 1C3). This project also meets several goals identified in the 2018 Comprehensive Long Range Plan. Goal 4.6 1.1 recommends financial resources be allocated to maintain and protect current open space and conservation land. Goal 4.6 2.2 recommends that the Town restore Warner's Pond as part of the Town's effort to protect and improve the recreational accessibility of its water resources. The proposed project also meets Goal 4.6 7.2 which recommends increasing financial resources allocated to maintain and provide programming of current open space and recreational facilities. Goal 4.6 8.2 recommends ensuring the Concord's open space and recreation facilities are physically and financially accessible to residents and improvements or new facility projects are fiscally sound. Goal 4.6 9.4 recommends increasing accessibility to open space and Goal 4.6 9.6 advocates for providing public amenities and improved access to recreation and natural areas. And, as stated previously, this project is consistent with the recommendations identified in the 2012 Warner's Pond Watershed Management Plan. This project will result in improved recreational opportunities not presently at the pond. Being located directly adjacent to the newly constructed Bruce Freeman Rail Trail (BFRT), improved recreational use of Warner's Pond will also enhance use of the BFRT, not only locally but also regionally.
- c.) **Support by Boards, Committees, Community & Town Meeting Actions** –With the recent construction of the Bruce Freeman Rail Trail and parking area, along with the planned recreational park at the Gerow Land, there is real movement to improve recreational opportunities in this area by the community. The Natural Resources Commission has endorsed this project. The project has also received its environmental clearance under the Massachusetts Environmental Protection Act.
- d.) **Enhancement of existing Town-owned open space, recreation, historic, and/or housing assets** –This proposal enhances and improves recreational uses within Warner's Pond, restores degraded portions of open space, and protects the historic and cultural resource of Warner's Pond, as well as its water quality.
- e.) **Service of Multiple or Underserved Populations** –Town lands are public and open to all members of the community. This project will provide and/or improve recreational opportunities not presently available in West Concord. Being linked to the BFRT, these opportunities are extended to regional populations as well.
- f.) **CPA Purposes** – This proposal meets two of the four CPA purposes: open space preservation and recreation.
- g.) **Administrative and Financial Management** - The Division of Natural Resources has overseen several restoration projects funded by the CPA and has completed all requirements for previously-funded projects.
- h.) **Successful Implementation of Similar Projects** – Though dredging projects area not undertaken frequently, the Division is familiar with all required permitting, regularly

develops bid documents for various Division projects, and oversees restoration projects on a regular basis.

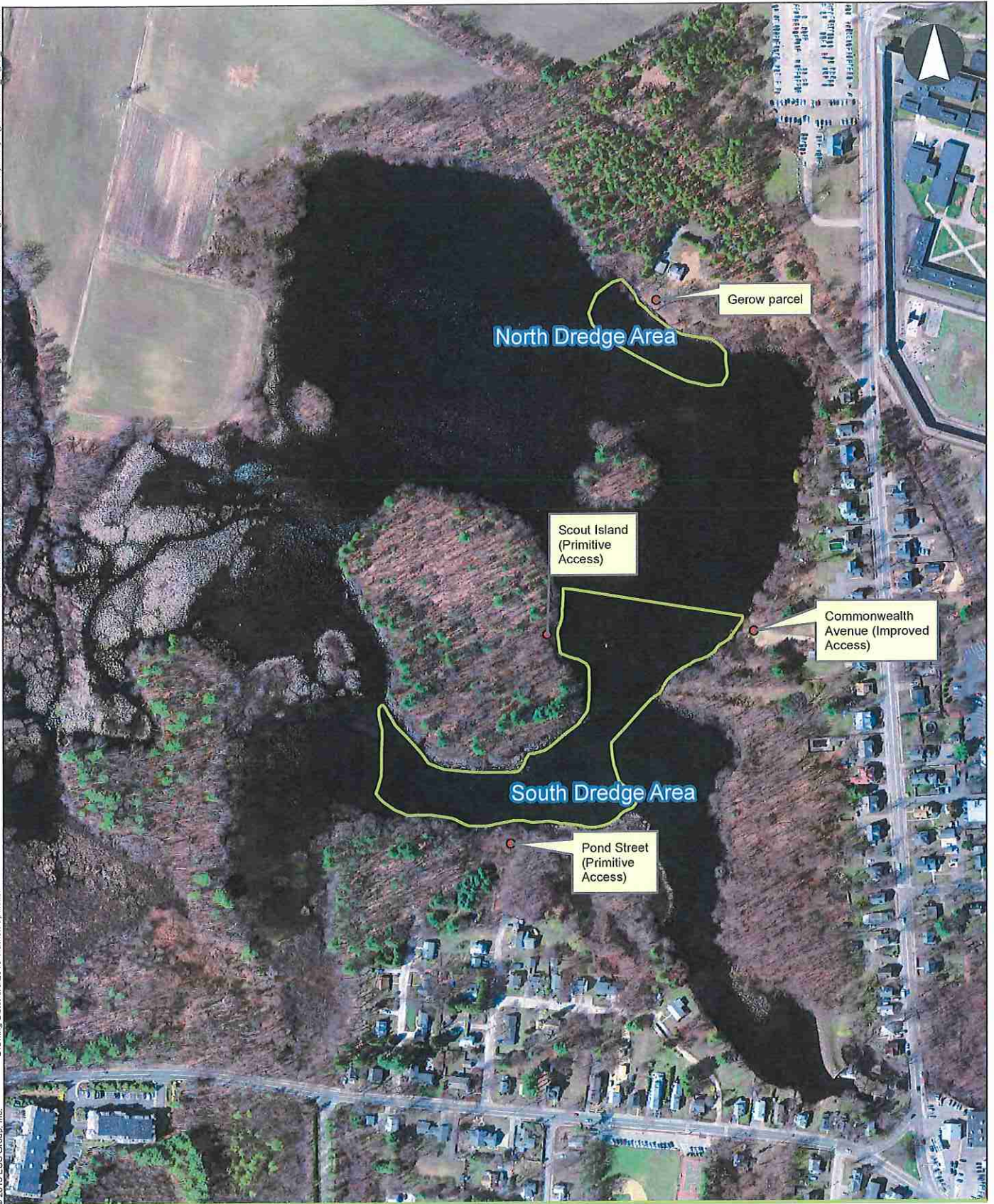
- i.) **Site Control** – Warner's Pond is owned by the Town of Concord under the care and custody of the Natural Resources Commission. Dewatering and disposal will occur at the MCI Concord facility. Approval has been obtained from MCI for activities that will occur on their land.
- j.) **Financial Need** – The Division of Natural Resources manages nearly 1,500 acres of conservation land and conducts regular maintenance and small improvements through careful application of limited funds within its operating budget, summer staff, trail stewards, and volunteers. A restoration project of this magnitude is beyond the funding provided by the operating budget. Grant funding for this type of project is extremely limited and difficult to secure. The project requires specialized equipment and personnel to successfully implement and is beyond the financial resources of the Town.
- k.) **Sources of Funding** – Due to the significant funds needed to undertake this work, the Town included \$500,000 for Warner's Pond dredging in the FY21 Capital Improvement Plan. An additional \$1,250,000 will be sought in FY22. In-kind contributions of staff time will be provided for project administration.
- l.) **Project Plan Feasibility** – The 2012 Watershed Management Plan recommends dredging as the most cost-effective, long-lasting solution to improve recreational opportunities at Warner's Pond. Conceptual plans have been developed and permits will be secured over the next year; the next steps are to obtain construction funding to implement the project.
- m.) **Urgency of Project** – Besides improving wildlife habitat, which is in severe decline, with the recent construction of the BFRT and acquisition of the Gerow land, dredging is the first step to greatly improve recreational use of this underutilized resource in West Concord.
- n.) **Maintenance Provisions** – Benefits from this undertaking are projected to last 100 years before additional dredging might be required.
- o.) **Permanent Restriction** – No permanent restriction is needed as part of this project
- p.) **Reimbursement** – This proposal does not seek reimbursement of previously appropriated funds.
- q.) **Incorporation of Sustainable Design Features** – This project proposes restoration of an environment impaired by past and present human activity. To conserve fuel required to transport dredge material from the site, we worked with MCI Concord who agreed to allow us to use their adjacent farm field temporarily to dewater dredge material. Following dewatering, MCI has agreed to accept the dredge material to amend their agricultural soils. This public-private partnership greatly reduces energy consumption to

transport material, allows dewatering activities to occur within the same watershed, and reusing dredge material to enhance local agricultural soils. Reusing some of the dredged material to create wildlife shelves within Warner's Pond further reduces impacts on the environment and energy costs associated with undertaking this project.

- r.) **Four Sustainability Principles** – Proposed work entails reversing human impacts on Warner's Pond in an environmental sound manner.
- s.) **Local Qualified Vendors** – The Town will adhere to state bidding rules, and will award projects to local bidders where it is legal and feasible to do so.
- t.) **Normal CPC Schedule** - This proposal does not request the CPC to act outside their normal schedule.
- u.) **Land Acquisition Projects** – N/A.

Attachments:

- Figure 1: Warner's Pond Project Locus and Dredge Areas
- Table 2a: Project Budget Estimates for Warner's Pond Restoration
- Dredging Plans for Warner's Pond prepared by ESS Group, dated May 2018



Warner's Pond Dredging Feasibility Assessment
Concord, Massachusetts

Warner's Pond
Project Locus and Dredge Areas

1 inch = 350 feet

Source: 1) MassGIS, Ortho Imagery, 2013

 Dredge areas

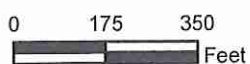


Figure 1



Table 2a. Project Budget Estimates for Warner's Pond Restoration

Town of Concord - Hydraulic Dredging of Warners Pond							
Project Budget Estimate							
10/23/18							
Description	Unit	Unit Price (2018 \$)	Quantity - South Dredge Area	Quantity - North Dredge Area	Subtotal - South Dredge Area	Subtotal - North Dredge Area	Project Total
Site Preparation Warners Pond							
Mobilization/Demobilization	LS	\$50,000.00	1		\$50,000.00		\$50,000.00
Clearing and Grubbing	AC	\$18,000.00	0.15	0.10	\$2,700.00	\$1,800.00	\$4,500.00
Crushed Stone for Access Road	T	\$150.00		55		\$8,250.00	\$8,250.00
Site Preparation Re-Use Site (Northeast Correctional Facility)							
Erosion Controls	FT	\$12.00	1,300	0	\$15,600.00	\$0.00	\$15,600.00
Fine Grading and Compacting	SY	\$2.50	12,300	0	\$30,750.00	\$0.00	\$30,750.00
Pond Dredging							
Hydraulic Dredging (8-Inch Dredge)	CY	\$7.00	30,740	4,990	\$215,180.00	\$34,930.00	\$250,110.00
Dewatering							
Bales of Straw	EA	\$13.50	500	60	\$6,750.00	\$810.00	\$7,560.00
Crushed Stone Marker Layer	T	\$37.00	7,700	1,200	\$284,900.00	\$44,400.00	\$329,300.00
Crushed Stone Marker Layer Removal and Disposal	CY	\$28.00	6,000	1,000	\$168,000.00	\$28,000.00	\$196,000.00
Dewatering Dredge Material	CY	\$12.00	30,740	4,990	\$368,880.00	\$59,880.00	\$428,760.00
Wetland Creation							
Fine Grading and Compacting	SY	\$2.29	5,600		\$12,800.00		\$12,800.00
Wetland Plants	EA	\$8.00	15,000		\$120,000.00		\$120,000.00
Material Placement by Hydraulic Dredge	CY	\$3.50	500		\$1,800.00		\$1,800.00
Turbidity Curtain	FT	\$32.00	1,400		\$44,800.00		\$44,800.00
Hauling to Re-Use Site (Northeast Correctional Center)							
Trucking	CY	\$6.00	30,240	4,990	\$181,440.00	\$29,940.00	\$211,400.00
Site Restoration Warners Pond							
Seeding	SY	\$1.00	700	500	\$700.00	\$500.00	\$1,200.00
Site Restoration Re-Use Site							



Dredging Feasibility Assessment and Conceptual Engineering Design for Warner's Pond
November 2018

Pavement Restoration	LS	\$5,000.00	1	12,300	0	\$5,000.00	\$5,000.00	\$5,000.00
Seeding	SY	\$1.00				\$12,300.00	\$12,300.00	\$12,300.00
15% CONTINGENCY								
Estimated Construction Budget							\$259,520.00	\$229,478.00
Range of Estimated Budget (-10%/+10%)							\$1,989,650.00	\$1,759,328.00
							\$1,790,000 -	\$1,580,000 -
							\$2,190,000	\$1,940,000

Disclaimer: This Project Budget Estimate is made on the basis of ESS's judgement utilizing conceptual level drawings. The stated range of estimated budget are opinions only and not a formal construction estimate. ESS makes no warranty, expressed or implied, that proposals, bids, or actual construction cost will not vary from this budget estimate. If the Client wishes greater assurance as to probable construction costs, the Client shall employ an independent cost estimator or contractor.

FOR DREDGING FEASIBILITY STUDY

GENERAL NOTES:

1. THE HORIZONTAL DATUM SHOWN HEREON IS THE NORTH AMERICAN DATUM OF 1983 (NAD-83) MASSACHUSETTS STATE PLANE COORDINATE SYSTEM. FEET, DATED 2013-2014.
2. THE VERTICAL DATUM FOR TOPOGRAHY SURROUNDING THE POND AND BATHYMETRY IN THE POND REFERENCES WAGNER. LGRT HAS OBTAINED FROM HANCOCK, DATED 2013-2014.
3. POND BOTTOM CONTOURS ARE IN FEET AND WERE GENERATED USING AUTOCAD CIVIL 10 DATA TO CREATE CONTOURS FROM WATER DEPTH MEASUREMENTS IN THE FIELD BY E&S GROUP, INC. ON AUGUST 10, 2017 AND IN 2014 AND CAN ONLY BE CONSIDERED TO REPRESENT CONDITIONS EXISTING AT THAT TIME. THE WATER SURFACE ELEVATION AT THE TIME OF FIELD MEASUREMENTS WAS 15.15 FEET AND ALL WATER DEPTHS ARE REFERENCED TO THIS ELEVATION.
4. REQUIRED DREDGE AND EXCAVATION CONTOURS SHOWN ARE APPROXIMATE PROJECT OBJECTIVE IS TO DREDGE AND EXCAVATE ACCUMULATED SOFT SEDIMENT APPROXIMATELY 15 TO 20 CY.
5. FLOOD FLOOD HAZARD ZONES FROM FEMA FIRM NO. 250170309E. EFFECTIVE DATE JULY 7, 2014.
6. TYPICAL DATA OBTAINED FROM MASSDOT, DATED 2017. PACE LINE ARE APPROXIMATE.
7. SEDIMENT DRAINAGE TO OCCUR ON AGRICULTURAL FIELD NORTH-EAST CORRECTIONAL CENTER LAND TO NORTHWEST OF POND AS SHOWN ON PLANS.

SEDIMENTATION & EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES, AS SPECIFIED ON THE DRAWINGS AS NECESSARY AND AS REQUIRED BY THE PERMITS.
2. PERMITS FOR EROSION CONTROL MEASURES SHALL BE OBTAINED PRIOR TO ANY CONSTRUCTION ACTIVITIES. CONTRACTOR TO NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES. ALL SOIL AND EROSION CONTROL MEASURES SHALL BE DESIGNED AND REPAIRED AS NECESSARY BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL PROVIDE SUPPLEMENTAL EROSION CONTROL MEASURES TO PREVENT OFF-SITE TRANSPORT OF EARTH, SEDIMENT AND DEBRIS AS NECESSARY.
4. AREAS TO REMAIN UNSTABILIZED FOR A PERIOD OF MORE THAN 30 DAYS SHALL BE TEMPORARILY REEDED AND MULCHED.
5. PERMANENT SEEDING SHALL OCCUR BETWEEN MARCH 1 AND JUNE 15, OR BETWEEN AUGUST 15 AND OCTOBER 15.
6. UNDESIRABLE AREAS SHALL BE SURROUNDED BY EROSION CONTROL BARRIERS UNTIL SUCH TIME AS THE MATERIAL IS REPREPARED AND STABILIZED OR TRANSPORTED OFF-SITE.
7. SOILS TO BE EXPOSED FOR A PERIOD OF MORE THAN 30 DAYS SHALL BE SURROUNDED BY EROSION CONTROLS. TEMPORARILY SEEDING AND MULCHED.
8. TEMPORARY STOCKPILES OF DREDGED/EXCAVATED MATERIAL SHALL BE LOCATED ON-SITE. WITHIN THE DESIGNATED AREAS. ANY MATERIAL NOT REUSED ON-SITE SHALL BE TRANSPORTED TO AN APPROPRIATE OFF-SITE DISPOSAL LOCATION IN ACCORDANCE WITH THE PROJECT'S PERMITS.
9. EROSION CONTROL MEASURES SHALL BE INSPECTED DAILY AND DURING AND AFTER EVERY RAIN EVENT. ANY NECESSARY REPLACEMENT OR REPAIR SHALL BE COMPLETED BY THE CONTRACTOR.
10. DUST SHALL BE CONTROLLED IN ACCORDANCE WITH THE SPECIFICATIONS AND APPLICABLE REGULATIONS.
11. THE CONTRACTOR SHALL PHASE DREDGING OPERATIONS TO MINIMIZE THE AREA DISTURBED OR OPEN TO THE ELEMENTS AT ANY GIVEN TIME.
12. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED TO MINIMIZE TURBIDITY. AT A MINIMUM, A WILT CURTAIN SHALL BE USED DOWNCURRENT OF THE CONSTRUCTION AREA.
13. THE SITE SHALL BE LEFT IN A STABLE CONDITION AT THE CLOSE OF EACH DAY.

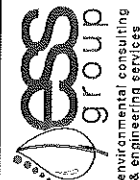
CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL OBTAIN ALL LOGS, PERMITS, AND APPROPRIATE AGENCIES AND UTILITY COMPANIES, IN WRITING, 48 HOURS PRIOR TO ANY WORK WITHIN 15 FEET OF A UTILITY LINE.
2. THE CONTRACTOR SHALL NOTIFY ALL APPROPRIATE AGENCIES AND UTILITY COMPANIES, IN WRITING, 48 HOURS PRIOR TO ANY WORK WITHIN 15 FEET OF A UTILITY LINE.
3. THE CONTRACTOR SHALL LAID OUT THE DIRECTION OF THE ENGINEER, EARTH/SHOULDER CONSTRUCTION LIMITS ON THE SITE BY ACCEPTABLE VISIBLE MARKERS. ALL WORK AND EQUIPMENT SHALL BE CONFINED TO WITHIN THESE LIMITS, UNLESS OTHERWISE SPECIFICALLY AUTHORIZED.
4. NO CHANGES ARE TO BE MADE UNLESS AUTHORIZED BY ENGINEER AND/OR APPLICATION OWNER.
5. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL SAFETY CODES, REGULATIONS, LEGAL REQUIREMENTS, PERMIT CONDITIONS, ETC.
6. THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALLS, STREETS, PAVEMENTS, HIGHWAY GUARDS, CURBS, EXISTING, TREES, PLANTINGS, STRUCTURES, FENCES, ETC. ON OR OFF THE PREMISES AND SHALL REPAIR AND REPLACE OR OTHERWISE MAKE GOOD AT HIS/HER OWN EXPENSE AS REQUIRED BY THE ENGINEER OR OWNER ANY ITEM DAMAGED AS A RESULT OF THE CONTRACTOR'S WORK.
7. THE CONTRACTOR SHALL DISPOSE OF ALL STUMPS, RUBBERHARD DEBRIS IN ACCORDANCE WITH THE SPECIFICATIONS AND ALL APPLICABLE CODES AND REGULATIONS. THE CONTRACTOR SHALL LEAVE THE PROJECT SITE IN SAFE AND CLEAN CONDITION UPON COMPLETION OF DREDGING OPERATIONS.
8. THE CONTRACTOR SHALL PROVIDE ADEQUATE BRACING AND SHORING OF EXCAVATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING CODES AND REGULATIONS.
9. ALL SURFACES DISTURBED BY THIS WORK SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AS DETAILED OR AS SPECIFIED BY THE ENGINEER.
10. DREDGING AND EXCAVATION SHALL BE COORDINATED TO MINIMIZE DISTURBANCE OF EXISTING CONDITIONS AND OPERATIONS.
11. DREDGING SHALL TAKE PLACE WITHIN APPROVED WORK WINDOWS.
12. ALL EXISTING PILING AND STRUCTURES EXPOSED DURING EXCAVATION SHALL BE ADEQUATELY SUPPORTED, BRACED, OR OTHERWISE PROTECTED DURING DREDGING ACTIVITIES.
13. ALL NECESSARY FEES AND PERMITS SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR.
14. WORK SHALL COMPLY WITH APPLICABLE MUNICIPAL, STATE, AND FEDERAL PERMITS AND REQUIREMENTS.
15. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH ALL AUTHORIZATIONS NECESSARY FOR CONSTRUCTION AND DREDGE MATERIAL, TRANSPORT VEHICLE SURVEILLANCE TRAVEL ON STATE AND LOCAL ROADS.
16. NO DREDGED MATERIAL, CONTAINING FREE DRAINING LIQUIDS AS DETERMINED BY THE EPA PHASE II TEST, SHALL BE TRANSPORTED OVER STATE OR LOCAL ROADS.

UTILITIES NOTES:

1. BEFORE COMMENCEMENT OF DREDGING, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAKING ALL NECESSARY ARRANGEMENTS AND FOR OBTAINING ALL NECESSARY PERMITS AND AUTHORIZATIONS FROM ALL AGENCIES AND UTILITY COMPANIES, IN WRITING, 48 HOURS PRIOR TO ANY WORK WITHIN 15 FEET OF A UTILITY LINE.
2. UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER OR OWNER, THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES.
3. IF REQUIRED, OVERHEAD LINES SHALL BE RELOCATED BY THE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE.
4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER AND OWNER FOR RESOLUTION OF THE CONFLICT.

FOR DREDGING FEASIBILITY STUDY



100 Fifth Avenue, 5th Floor
Waltham, Massachusetts 02451
P 781.419.7596
www.esgroup.com

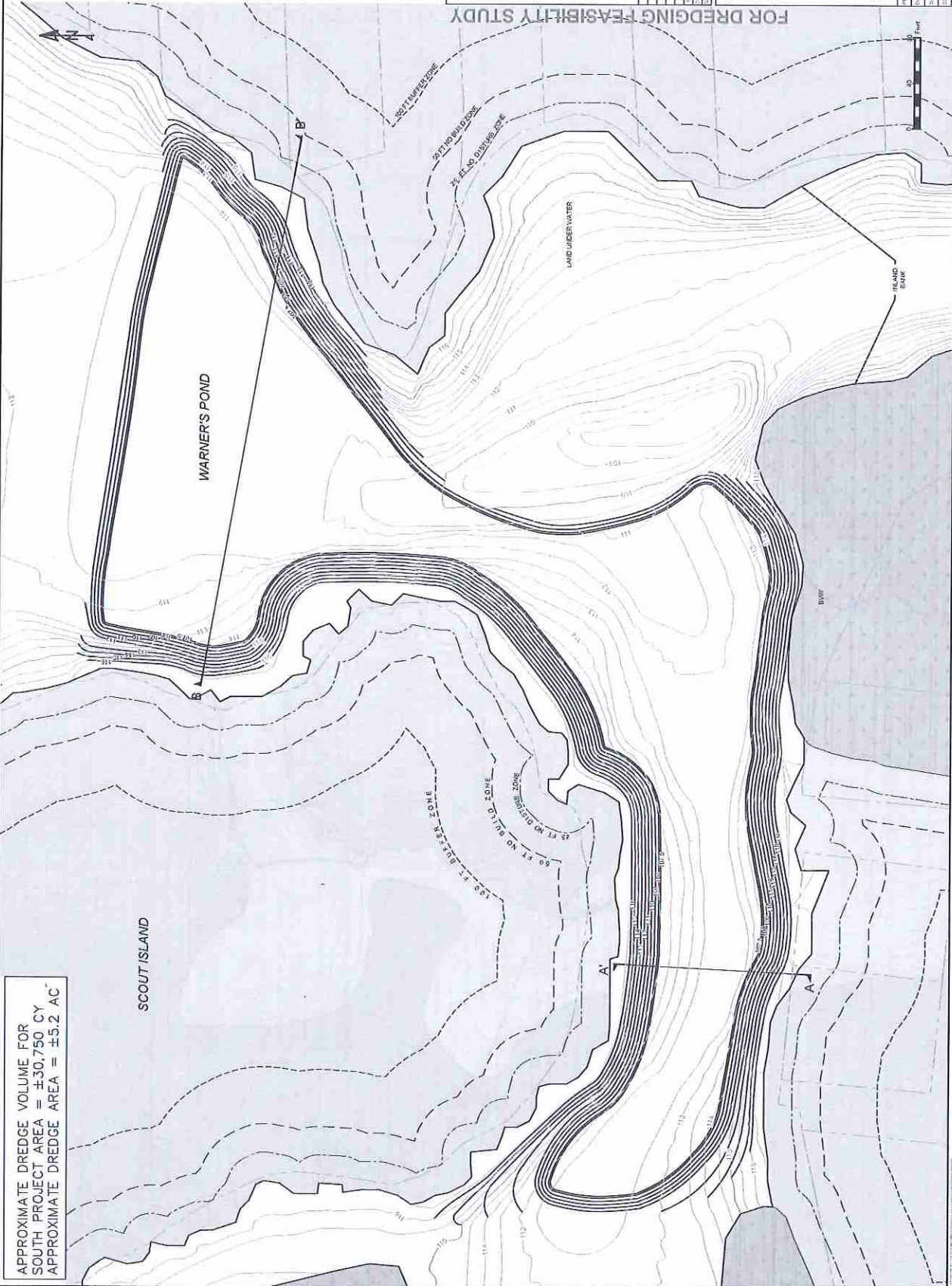


NO.	DATE	DESCRIPTION	BY	CHKD.
1	07/10/2017	FOR DREDGING FEASIBILITY STUDY	DAVID J. O'NEIL	DAVID J. O'NEIL

TOWN OF CONCORD
WARNER'S POND
CONCORD, MA

WARNER'S POND
DREDGING
GENERAL NOTES

DATE OF LATEST COR.	NO. OF SHEETS	SHEET NO.	OF
		1	1



100 Fifth Avenue, 5th Floor
Watson, Massachusetts 02451
p 781 419 7695
www.essgroup.com



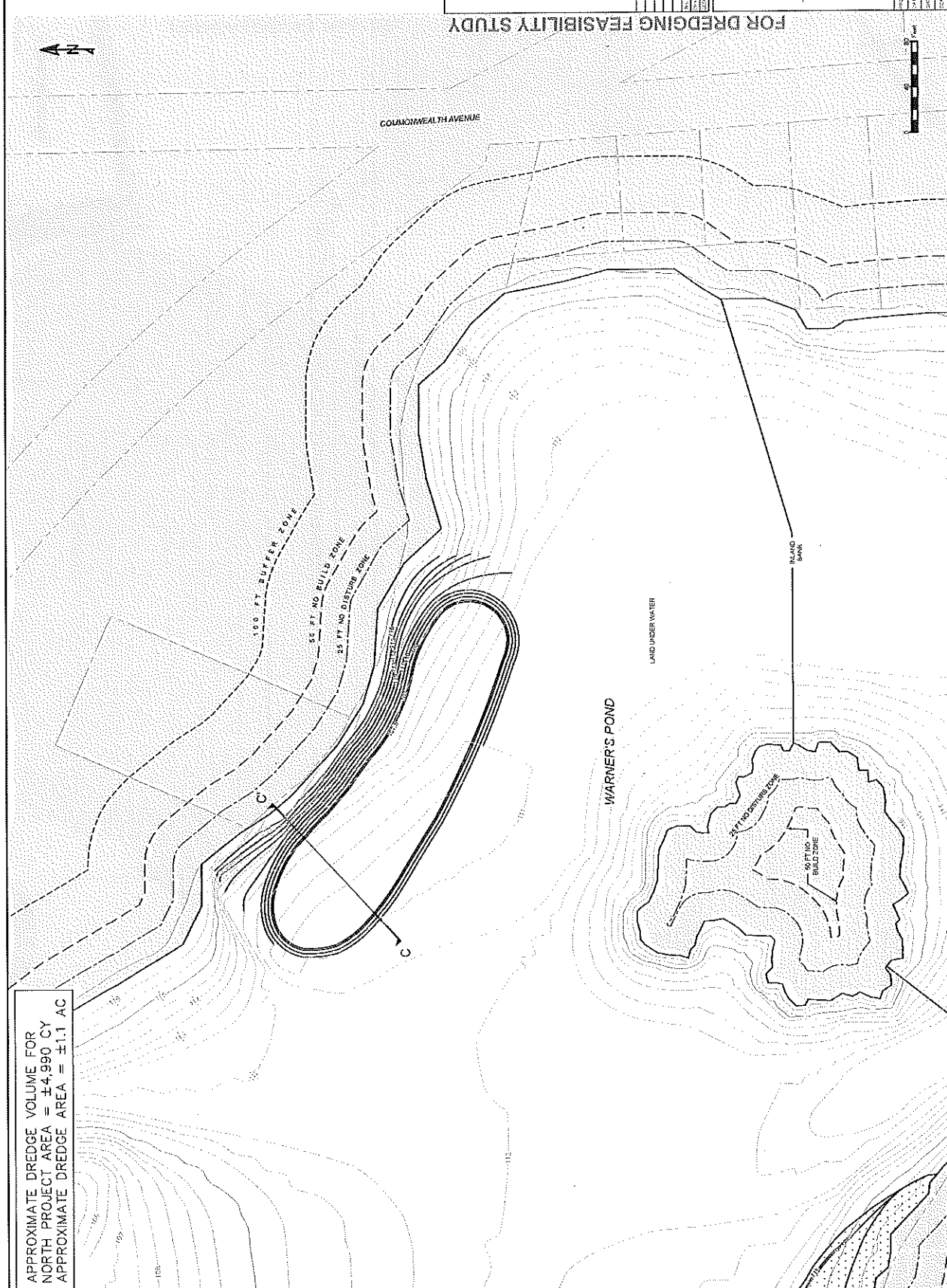
NO.	DESCRIPTION	DATE	BY	CHKD
1	DESIGN	10/1/18	J. B.	J. B.
2	REVISION	10/1/18	J. B.	J. B.
3	REVISION	10/1/18	J. B.	J. B.
4	REVISION	10/1/18	J. B.	J. B.
5	REVISION	10/1/18	J. B.	J. B.
6	REVISION	10/1/18	J. B.	J. B.
7	REVISION	10/1/18	J. B.	J. B.
8	REVISION	10/1/18	J. B.	J. B.
9	REVISION	10/1/18	J. B.	J. B.
10	REVISION	10/1/18	J. B.	J. B.

TOWN OF CONCORD
WARNER'S POND
CONCORD, MA

WARNER'S POND
SOUTH PROJECT AREA
PROPOSED DREDGING

PROJECT NO.	18-001
DATE OF FIELDWORK	10/1/18
SHEET NO.	1 OF 1
SCALE	1" = 40'
DATE	10/1/18
BY	J. B.
CHKD	J. B.

D-1



group
environmental consulting
& engineering services

100 Elm Avenue, 6th Floor
Waltham, Massachusetts 02451
p 781 419 7696
www.groupinc.com

PROJECT NO.	2008-01
DATE	10/10/08
PROJECT NAME	WARNER'S POND
LOCATION	CONCORD, MA
SCALE	1" = 100'
DATE	10/10/08
PROJECT NO.	2008-01

TOWN OF CONCORD
WARNER'S POND
CONCORD, MA

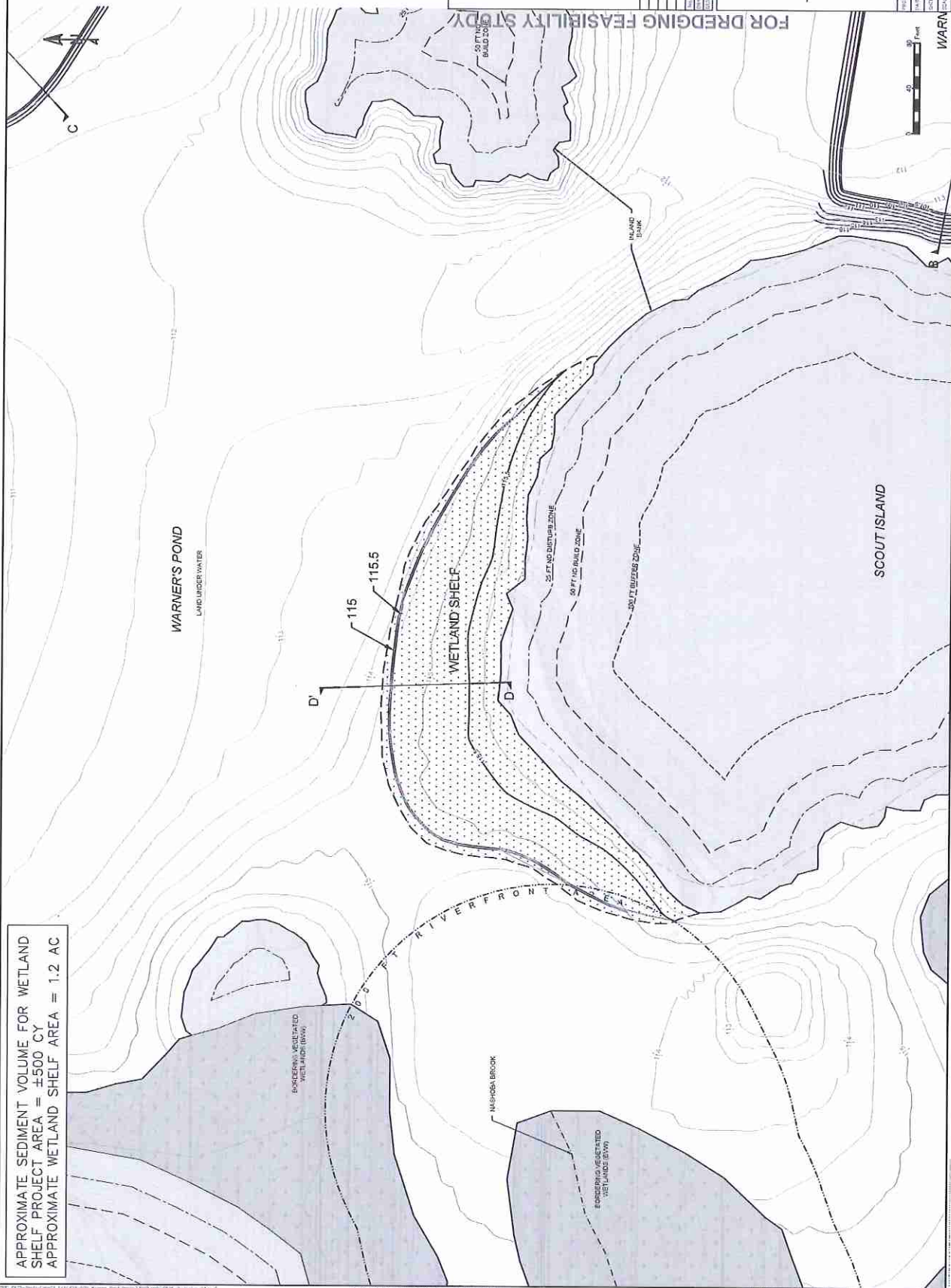
WARNER'S POND
NORTH PROJECT AREA
PROPOSED DREDGING

PROJECT NO.	2008-01
DATE	10/10/08
PROJECT NAME	WARNER'S POND
LOCATION	CONCORD, MA
SCALE	1" = 100'
DATE	10/10/08
PROJECT NO.	2008-01

D-2

FOR DREDGING FEASIBILITY STUDY

APPROXIMATE SEDIMENT VOLUME FOR WETLAND SHELF PROJECT AREA = ±500 CY
 APPROXIMATE WETLAND SHELF AREA = 1.2 AC



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 P 781.419.7066
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NO.	REVISION	DATE	BY	CHKD
1	ISSUED FOR PERMIT	10/1/10	ESS	ESS
2	FOR DREDGING FEASIBILITY STUDY	10/1/10	ESS	ESS

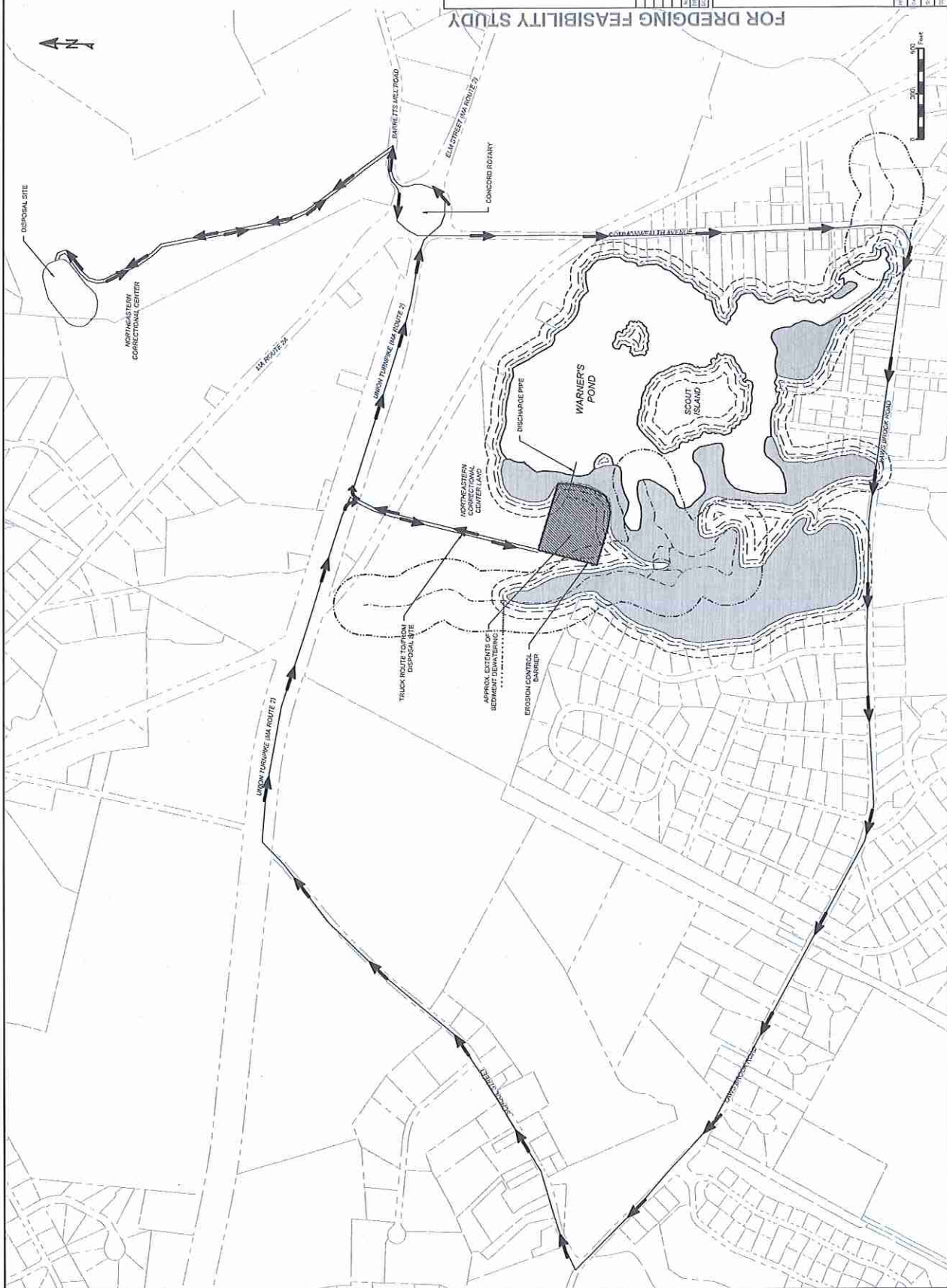
TOWN OF CONCORD
 WARNER'S POND
 CONCORD, MA

WARNER'S POND
 PROPOSED
 WETLAND SHELF

PROJECT NO. 1001-0001
 DATE OF PRELIMINARY STUDY
 SHEET NO. 3 OF 3
 SCALE 1" = 40'

D-3

WARN



FOR DREDGING FEASIBILITY STUDY

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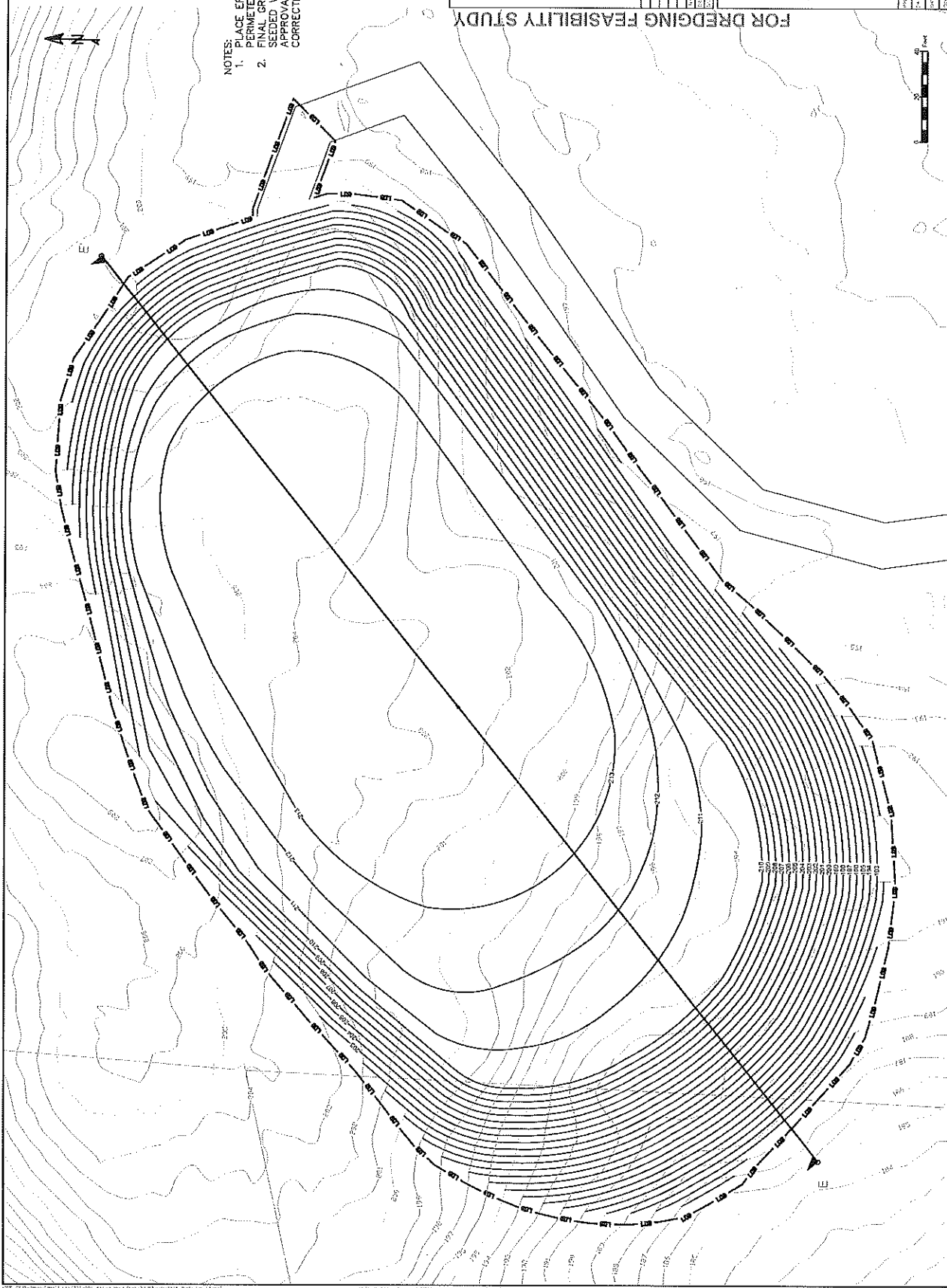
PROJECT NO.	10000000000000000000
DATE OF STUDY	10/10/2010
PROJECT NO.	10000000000000000000
DATE OF STUDY	10/10/2010

TOWN OF CONCORD
 WARNER'S POND
 CONCORD, MA

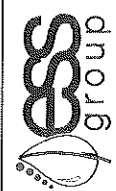
WARNER'S POND
 DREDGE MATERIAL
 MANAGEMENT PLAN

REVISION NO. 002-000000
 DATE OF REVISION 0000
 SHEET NO. 4 OF 4
 SCALE 1" = 200'

D-4



- NOTES:
1. PLACE EROSION CONTROLS ALONG LOD PERIMETER.
 2. FINAL GRADED DISPOSAL AREA TO BE SEEDED WITH SEED MIX MEETING APPROVAL OF NORTHEASTERN CORRECTIONAL CENTER.



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DATE: 11/11/11	PROJECT: 11-0000-0000
BY: [Signature]	DATE: 11/11/11
CHECKED: [Signature]	DATE: 11/11/11
APPROVED: [Signature]	DATE: 11/11/11

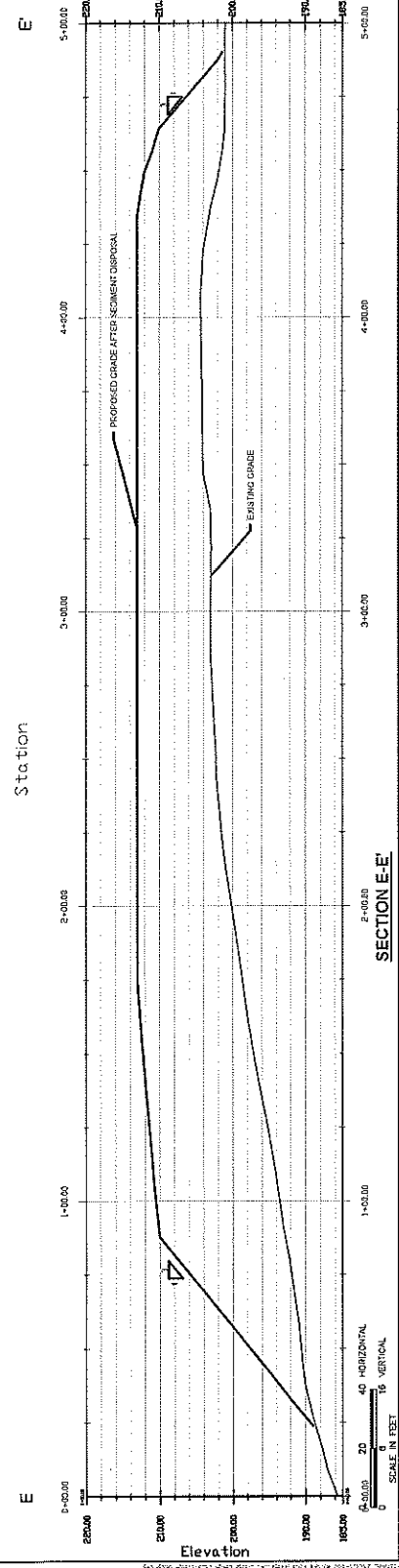
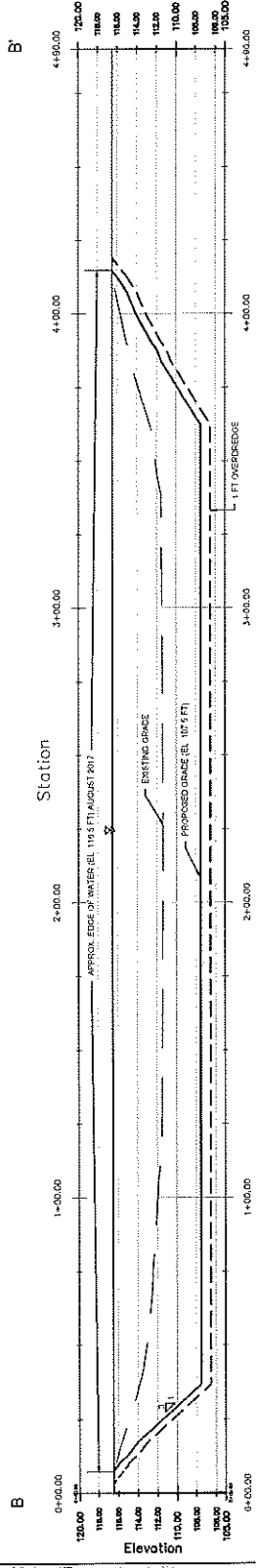
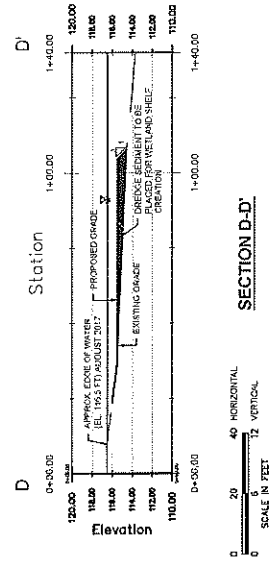
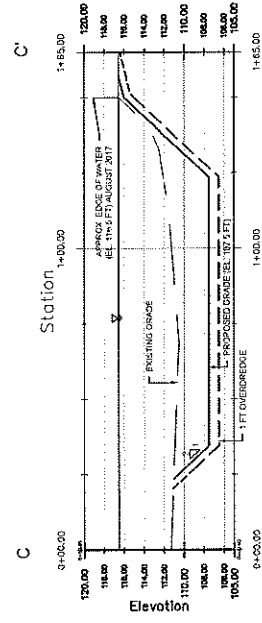
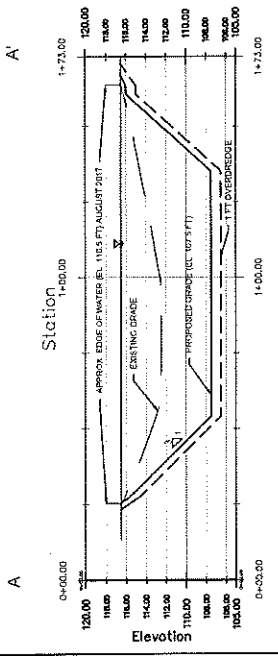
TOWN OF CONCORD
 WARNER'S POND
 CONCORD, MA

WARNER'S POND
 DREDGE MATERIAL
 DISPOSAL SITE

PROJECT: 11-0000-0000	DATE: 11/11/11
BY: [Signature]	DATE: 11/11/11
CHECKED: [Signature]	DATE: 11/11/11
APPROVED: [Signature]	DATE: 11/11/11

D-5

FOR DREDGING FEASIBILITY STUDY



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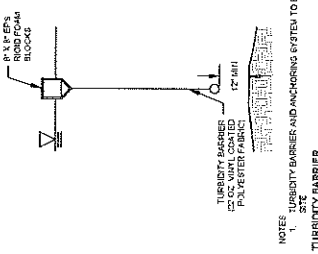
**TOWN OF CONCORD
WARNER'S POND
CONCORD, MA**

**WARNER'S POND
PROJECT COMPONENT
SECTIONS**

PROJECT: MA PROJ-200-12
DATE: 05/20/2015
SHEET: 42 OF 45
SCALE: 1" = 40'

D-6

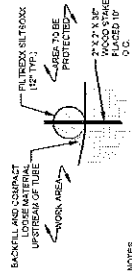
FOR DREDGING FEASIBILITY STUDY



NOTES

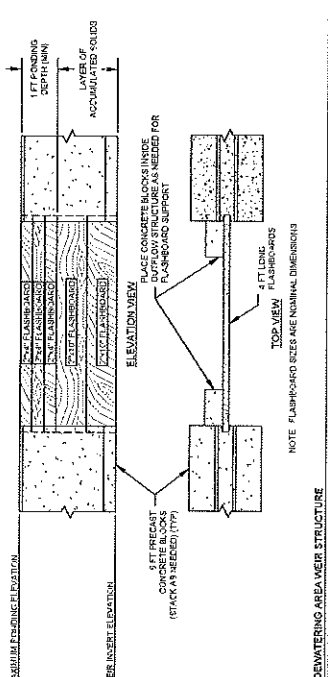
1. TURBIDITY BARRIER AND ANCHORING SYSTEM TO BE DESIGNED FOR PROJECT SITE

TURBIDITY BARRIER

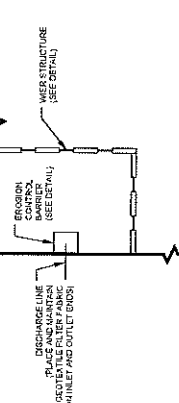


NOTES:

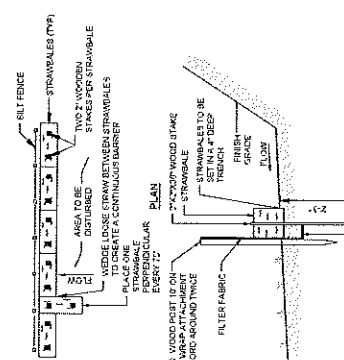
1. ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS
2. SILT-SOXX TO BE LEFT IN PLACE ONCE CONSTRUCTION IS COMPLETE.



DEWATERING AREA WEIR STRUCTURE



NOTE: PROVIDE MINIMUM WEB EFFECTIVE LENGTH OF 30 FT.
OVERWATERING AREA OUTFLOW STRUCTURE



NOTE: * DEPTH TO BE 2" UNLESS POST IS TO BE SET IN PLANT IN FEAT DRIVE BEYOND 2' DEPTH BY HAND TO REFUSAL OR 3' MAX.

FOR DREDGING FEASIBILITY STUDY

 ESS group environmental consulting & engineering services	100 Fifth Avenue, 5th Floor New York, New York 10018 Tel 212 419 7896 www.essgroup.com		100 Fifth Avenue, 5th Floor New York, New York 10018 Tel 212 419 7896 www.essgroup.com	
	100 Fifth Avenue, 5th Floor New York, New York 10018 Tel 212 419 7896 www.essgroup.com		100 Fifth Avenue, 5th Floor New York, New York 10018 Tel 212 419 7896 www.essgroup.com	

TOWN OF CONCORD WARNER'S POND CONCORD, MA		DRAWING NO. D-7
WARNER'S POND DREDGING DETAILS		PROJECT NO. 01-00000000-0000
DATE OF PREPARATION 01/01/00		DATE OF PLOT 01/01/00