NAGOG POND
INTAKE REPLACEMENT

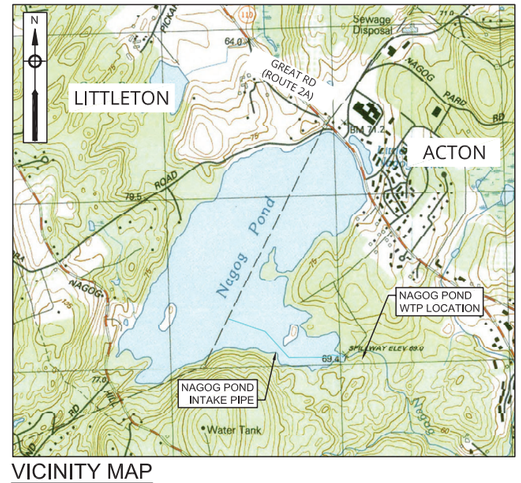
TOWN OF CONCORD, MA

INDEX

IFB NO. 2192
MAY 2020
FOR CONSTRUCTION

ENVIRONMENTAL PARTNERS

DEPARTMENT OF PUBLIC WORKS
CONCORD, MASSACHUSETTS
ALAN H. CATHCART - DIRECTOR OF PUBLIC WORKS
MELISSA SIMONCINI - SR ENV. AND REGULATORY COORDINATOR
TOM FORD - SUPERVISOR
VALERIE DOERRER - PUBLIC WORKS ENGINEER
SCOTT CHALMERS - WATER TREATMENT OPERATOR



VICINITY MAP
1"= 500'

GENERAL NOTES:

1. BASE MAP INFORMATION SHOWN ON THE DESIGN SHEETS IS BASED ON A COMPILATION OF A SURVEY PERFORMED BY ENVIRONMENTAL PARTNERS GROUP IN MAY 2015 AND A SURVEY PERFORMED BY MERRILL CORPORATION IN AUGUST 2015. BASE MAP INFORMATION WAS ALSO COMPILED FROM THE NAGOG POND DAM REPAIRS RECORD DRAWINGS CREATED BY THE PARE CORPORATION IN JULY 2013 AND THE SKYLINE DRIVE ACCESS ROAD DESIGN PLANS CREATED BY BOHLER ENGINEERING IN MARCH 2012.
2. 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 SCIENTIFIC INVESTIGATIONS REPORT 2011-5125. RAW SURVEY POINTS WERE OBTAINED FROM SARA LEVIN IN AN EMAIL CORRESPONDENCE. BATHYMETRY WAS CONFIRMED BY ENVIRONMENTAL PARTNERS GROUP.
3. ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988.
4. HORIZONTAL DATUM IS REFERENCED TO THE NORTH AMERICAN DATUM OF 1983.
5. PROPERTY LINE, STREET LINE, EASEMENT 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.
6. BORDERING VEGETATED WETLAND LIMIT (WL/BVW), MEAN ANNUAL HIGH WATER (MHW), AND VERNAL POOL (VP) 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.
7. THE MEAN HIGH WATER MARK IS BASED ON THE 2015 AVERAGE POND SURFACE ELEVATION.
8. THE HISTORIC MEAN LOW WATER MARK IS BASED ON 1966-1967 AVERAGE POND SURFACE ELEVATION.
9. 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 0243f, WHICH BEARS AN EFFECTIVE DATE OF JULY 7, 2014, AND IS PARTIALLY WITHIN A SPECIAL FLOOD HAZARD AREA.
10. THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES, PRIVATE PROPERTY OR WITHIN 100 FEET OF WETLANDS, UNLESS DIRECTED TO DO SO BY THE CONTRACT DOCUMENTS.
11. NORTH DIRECTION SHOWN IS APPROXIMATE.
12. EXISTING INTAKE PIPE ALIGNMENT IS BASED ON UNDERWATER INVESTIGATIONS PERFORMED BY EP.
13. CONTRACTOR SHALL VERIFY EXISTING INTAKE PIPE ALIGNMENT IN FIELD.
14. DO NOT SCALE DRAWINGS UNLESS OTHERWISE NOTED. WRITTEN DIMENSION AND STATIONING SHALL PREVAIL. REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
15. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
16. THE CONTRACTOR SHALL RESTORE ALL PUBLIC AND PRIVATE PROPERTY TO ITS PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL COST TO THE OWNER.
17. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTIFICATION TO THE RESPECTIVE UTILITY COMPANY. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
18. THE CONTRACTOR IS TO TAKE SPECIAL CARE NOT TO DAMAGE TREES, BUSHES, PLANTS, FLOWERS, STONEWALLS, FENCES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS THEY ARE NOTED TO BE REMOVED. CONTRACTOR SHALL REPLACE ALL DAMAGED ITEMS AT NO COST TO OWNER.
19. CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDE WALKS, PAVEMENT AND OTHER ITEMS DAMAGED BY THEIR CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, AND TO THE SATISFACTION OF THE OWNER AND ENGINEER.
20. THE CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES AS NECESSARY AND IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
21. THE CONTRACTOR SHALL BE REQUIRED TO FURNISH AND MAINTAIN A TELEPHONE NUMBER WHERE THE CONTRACTOR CAN BE REACHED 24 HOURS A DAY, 7 DAYS A WEEK.
22. THE CONTRACTOR IS RESPONSIBLE FOR SECURING SITE STORAGE AND LAYDOWN AREAS. THE LOCATION AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTED BY THE TOWN OF CONCORD. THE CONTRACTOR SHALL LIMIT HIS ACTIVITIES TO THESE AREAS.
23. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR WORK IN ROADWAYS. THE CONTRACTOR IS RESPONSIBLE FOR CONFORMING TO ALL PERMITS AS AN INTEGRAL PART OF THE WORK.
24. THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, AND EQUIPMENT NECESSARY TO COMPLETE WORK ON THIS CONTRACT AS OUTLINED IN THE CONTRACT DOCUMENTS (PLANS AND SPECIFICATIONS) AND FURNISH A COMPLETE JOB, IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL GOVERNING AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
25. HAULING OF EARTH TO AND FROM THE SITE SHALL BE RESTRICTED TO BETWEEN THE HOURS OF 9:00 AM AND 3:00 PM ON WEEKDAYS.
26. ALL MATERIALS TO BE REMOVED MUST BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
27. THE LOCATION AND LIMITS OF ALL ON-SITE WORK AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO THE OWNER AND THE ENGINEER. THE CONTRACTOR SHALL LIMIT HIS/HER ACTIVITIES TO THESE AREAS.
28. THE CONTRACTOR SHALL MARK THE LIMITS OF WORK IN THE FIELD PRIOR TO INSTALLING EROSION CONTROL DEVICES AND PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES INCLUDING SITE CLEARING.
29. FILL CONTAINING HAZARDOUS MATERIALS IS FORBIDDEN TO BE USED AS REQUIRED BY THE TOWN OF ACTON ZONING BYLAW.
30. INSTALL FILTER SOCK PRIOR TO COMMENCEMENT OF EARTHWORK OPERATIONS. INSPECT EROSION CONTROLS IMMEDIATELY AFTER EACH STORM, AND REMOVE ACCUMULATED SEDIMENT AS REQUIRED. REPLACE DAMAGED EROSION CONTROLS AS REQUIRED. FILTER SOCK SHALL BE STAGGERED TO ACCOMMODATE FOR ANIMAL PASSAGE THROUGH THE BARRIER.
31. SILT SACKS AND OTHER EROSION AND SEDIMENT CONTROL MEASURES/DEVICES SHALL BE INSPECTED, CLEANED, REPLACED AND/OR REPAIRED DAILY AND AS NECESSARY, AND AFTER EACH SIGNIFICANT RAINFALL.
32. THE CONTRACTOR SHALL FOLLOW THE SPECIAL PRACTICES DESCRIBED IN THE PROJECT DOCUMENTS AND COMPLY WITH THE DIRECTIONS OF THE ENGINEER AND/OR ACTON CONSERVATION COMMISSION AGENT TO ADDRESS EROSION AND SEDIMENTATION CONDITIONS THAT MAY ARISE ON A CASE BY CASE BASIS DURING CONSTRUCTION.
33. STOCKPILES OF EXCAVATED MATERIAL AND AGGREGATE MATERIALS (GRAVEL, SAND, AND STONE) ARE NOT ANTICIPATED TO BE MAINTAINED ON-SITE. IT IS EXPECTED THAT THESE TYPES OF MATERIALS WILL BE DELIVERED ON AN AS-NEEDED BASIS. HOWEVER, IF STOCKPILING IS REQUIRED, THEN SUITABLE EROSION CONTROL MEASURED WILL BE EMPLOYED INCLUDING PERIMETER SILT FENCING.
34. ALL EQUIPMENT AND HARDWARE SHALL BE NEW, UNLESS OTHERWISE NOTED.
35. NO WORK SHALL BE UNDERTAKEN UNTIL ALL PERMITTING CONDITIONS, INCLUDING ORDER OF CONDITIONS BY THE TOWN OF ACTON, 401 WATER QUALITY CERTIFICATION, ACOE MA GENERAL PERMIT BY THE ARMY CORPS OF ENGINEERING, AND MASSDOT ACCESS PERMIT, HAVE BEEN REVIEWED AND ARE CLEARLY UNDERSTOOD BY THE CONTRACTOR OR HIS/HER AGENT.
36. MEMBERS AND AGENTS OF THE TOWN OF ACTON STET SHALL HAVE THE RIGHT TO ENTER AND INSPECT THE PREMISES TO EVALUATE COMPLIANCE WITH THE ORDER AND TO REQUIRE THE SUBMITTAL OF ANY DATA DEEMED NECESSARY BY THE COMMISSION FOR THAT EVALUATION.
37. ACCEPTED CONSTRUCTION STANDARDS AND PROCEDURES SHALL BE FOLLOWED IN THE COMPLETION OF THIS PROJECT.
38. NO SALT OR OTHER DEICING CHEMICALS SHALL BE USED ON ROADWAYS AND PARKING AREAS ON THE SITE.
39. A FIFTY (50) FOOT SETBACK OF NATURAL VEGETATION SHALL BE MAINTAINED UP-GRADIENT FROM THE WETLANDS.
40. THERE SHALL BE NO USE OF FERTILIZERS, PESTICIDES, HERBICIDES, OR CHEMICALS WITHIN THE FIFTY (50) FOOT DISTURBANCE ZONE.
41. THERE SHALL BE NO UNDERGROUND STORAGE OF GASOLINE, OIL, OR OTHER FUELS OR HAZARDOUS MATERIALS WITHIN THE ONE-HUNDRED (100) FOOT BUFFER ZONE.
42. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO PUBLIC ROADWAYS TO THE EXTENT THAT SUCH DAMAGE CAN BE DIRECTLY ATTRIBUTED TO THE CONTRACTOR, ITS SUBCONTRACTORS, OR SUPPLIES DURING THE CONSTRUCTION PERIOD.
43. REFER TO SHEET C-8 FOR THE CONTRACTOR'S SITE ACCESS TRAILER ROUTE TO BE UTILIZED AT ALL TIMES DURING CONSTRUCTION. CONSTRUCTION VEHICLES MAY NOT ACCESS THE SITE VIA THE SOUTHEASTERN PORTION OF ACORN PARK DRIVE, QUAIL RIDGE DRIVE, OR SKYLINE DRIVE (EXCEPT THE PORTION BETWEEN HAZELNUT STREET AND THE FACILITY DRIVE)
44. ALL CONSTRUCTION ACTIVITY ON THE SITE SHALL BE LIMITED TO MONDAY - FRIDAY: 7:00 AM - 3:00 PM. NO WORK IS PERMITTED ON SATURDAYS WITHOUT A WRITTEN REQUEST AND APPROVAL BY OWNER. NO WORK IS PERMITTED ON SUNDAYS AND HOLIDAYS.
45. DELIVERIES OF CHEMICALS TO THE NAGOG POND WTP AND REMOVAL OF RESIDUAL MATTERS FROM THE PLANT SHALL ROUTINELY OCCUR ONLY ON WEEKDAYS, EXCLUDING FEDERAL HOLIDAYS, BETWEEN 8:00 AM - 2:30 PM.
46. THE TOWN OF ACTON'S PROJECT MONITOR SHALL BE ON-SITE PERIODICALLY THROUGHOUT CONSTRUCTION ACTIVITIES. THE PROJECT MONITOR WILL BE COORDINATED WITH THE TOWN AND ENGINEER.

LEGEND:

EXISTING

- 100-YEAR FEMA FLOOD ZONE
- BORDERING VEGETATED WETLANDS
- MEAN ANNUAL HIGH WATER LINE
- VERNAL POOL
- SHORELINE
- 25' WETLAND BUFFER
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- ZONE A 400' BUFFER
- WATER MAIN
- INTAKE PIPE
- DRAIN LINE
- SEWER MAIN
- GAS MAIN
- UNDERGROUND ELECTRIC AND TELEPHONE
- EXISTING FENCE
- CONTOUR MINOR
- CONTOUR MAJOR
- TREE LINE
- PROPERTY LINE
- EASEMENT LINE
- ROCK WALL
- RIP RAP
- HYDRANT
- DRAIN MANHOLE
- CATCH BASIN
- SEWER MANHOLE
- ELECTRIC MANHOLE
- HAND HOLE
- WATER SHUTOFF
- GATE VALVE
- LIGHT POLE
- BORING LOCATION AND NUMBER
- WETLAND FLAG AND NUMBER

PROPOSED

- 3/4" CRUSHED STONE
- TREE LINE
- ASPHALT
- PROCESSED GRAVEL
- RIP RAP
- FIRE HYDRANT
- ROOF DRAIN CLEANOUT
- CONCRETE BOLLARD
- SEPTIC TANK EFFLUENT
- CHAIN LINK FENCE
- SEPTIC SYSTEM BUFFER
- WATER SERVICE
- AIR BURST PIPING
- INTAKE PIPE
- RAW WATER PIPING
- FINISHED WATER PIPING
- STEEL GUARD RAIL
- PROPOSED CONTOUR
- AIR BURST
- SEPTIC TANK
- GATE VALVE
- DRAIN MANHOLE
- CATCH BASIN
- LEACHING PIT
- WALL MOUNTED FLOOD LIGHT
- 360° SECURITY CAMERA
- FILTER SOCK/HAY BALES
- REDI-ROCK BLOCK WALL
- FRACTURED LEDGE RETAINING WALL
- AREA TO BE DEMOLISHED
- LIMIT OF WORK
- EVERGREEN TREE
- SHRUB
- GROUND COVER OR PERENNIAL PLANTING
- AREA TO BE MULCHED
- SANDBAG COFFERDAM
- SEDIMENT
- BEDROCK
- CONCRETE

ENVIRONMENTAL PARTNERS

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

GENERAL NOTES AND LEGEND

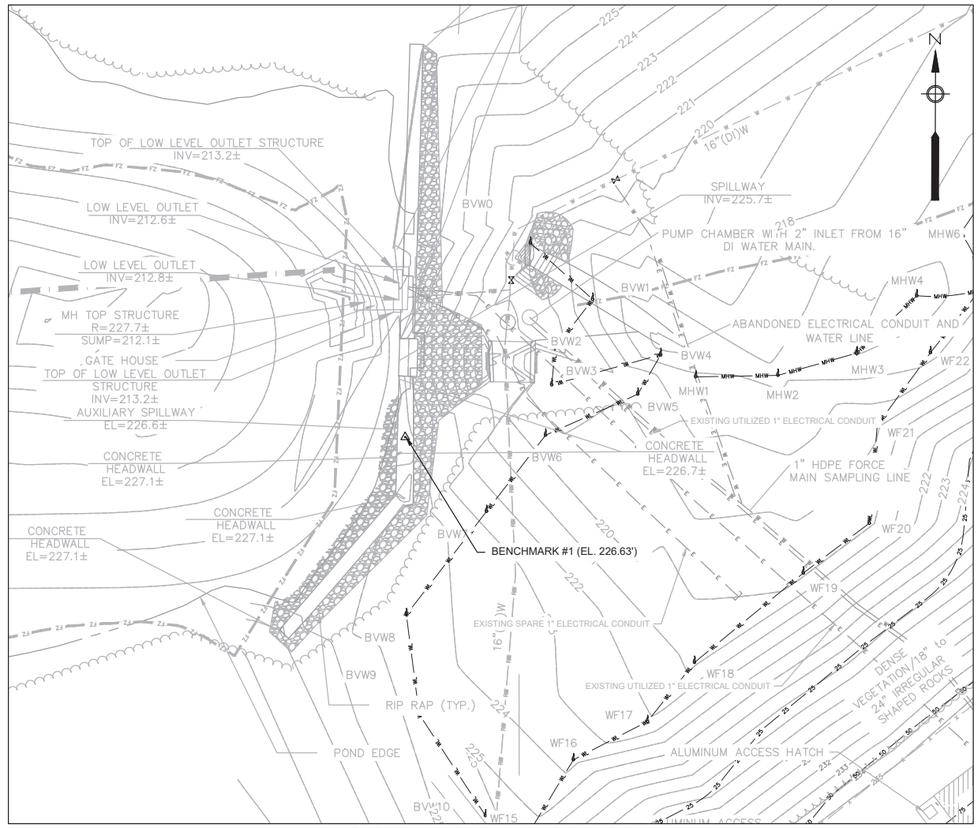
FOR CONSTRUCTION

Sheet No.

G-1

Drawing file: C:\Concord\200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\G2 General Notes and Legend.dwg Plot Date: May 19, 2020 - 2:43pm

PLAN
SCALE: 1"=60'



INSET "A": GATE HOUSE AND DAM
SCALE: 1"=20'

NOTES:

1. POND, GATEHOUSE, AND DAM ARE WITHIN THE 100 YEAR AE FLOOD ZONE AND THE ZONE A 400' BUFFER.
2. REFER TO APPENDIX I FOR THE UNDERWATER SURVEY OF THE NAGOG POND INTAKE ALIGNMENT.

ENVIRONMENTAL PARTNERS

5/19/2020

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

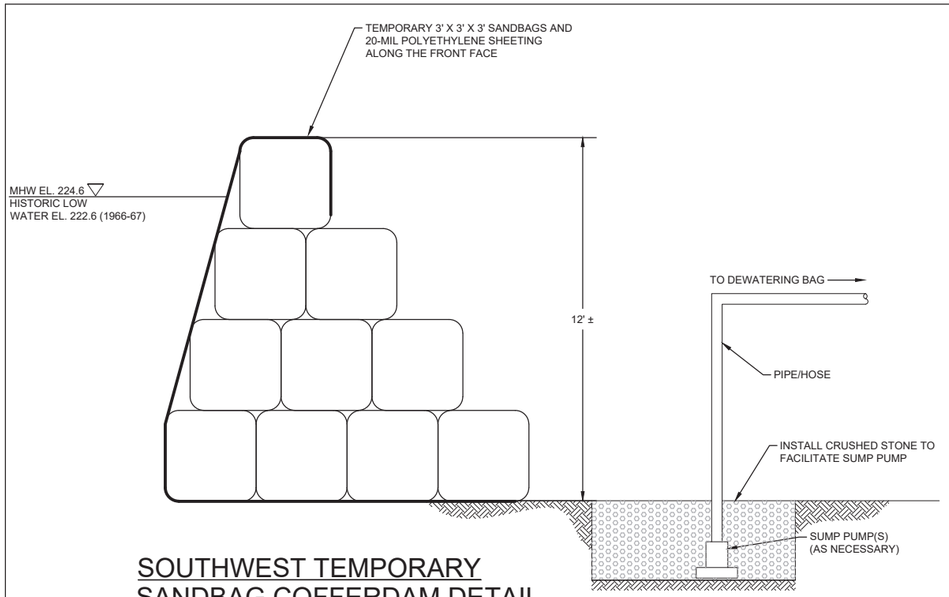
NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

EXISTING CONDITIONS PLAN

FOR CONSTRUCTION

Sheet No.

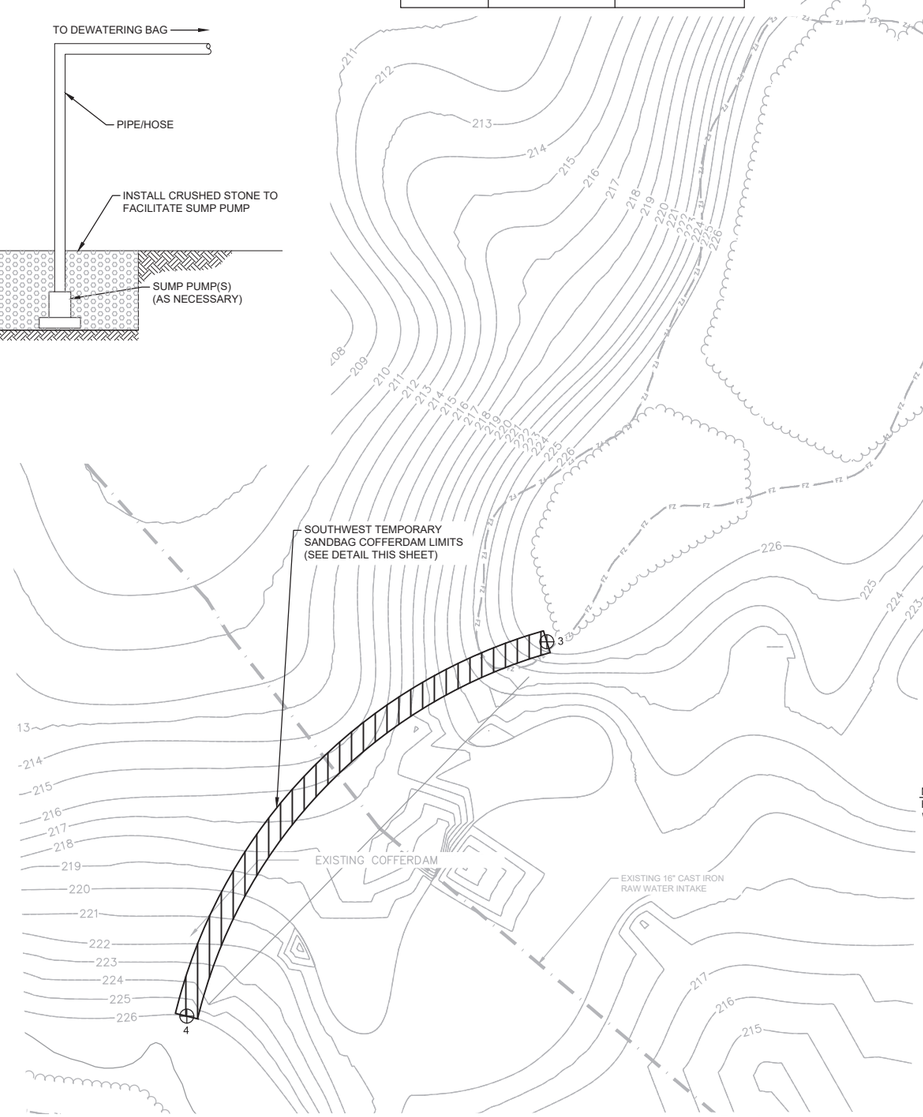
C-1



SOUTHWEST TEMPORARY SANDBAG COFFERDAM DETAIL

SCALE: N.T.S.

FEATURE COORDINATES		
POINT NUMBER	NORTHING (FT)	EASTING (FT)
1	3011478.8583	673258.7516'
2	3011431.4621	673163.1014
3	3011141.7971	672921.8875
4	3010944.1931	672731.8079



PLAN

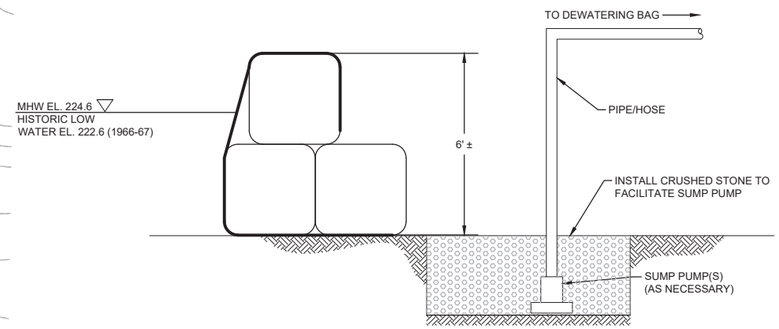
SCALE: 1"=40'

DEWATERING AND COFFERDAM NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A DEWATERING PLAN TO THE ENGINEER AND ACTON CONSERVATION COMMISSION FOR REVIEW. NO DEWATERING WORK WITHIN NAGOG POND SHALL BEGIN UNTIL AN APPROVED DEWATERING PLAN IS ISSUED.
2. THE CONTRACTOR SHALL SET UP ALL EROSION CONTROLS AS SHOWN ON DRAWINGS PRIOR TO BEGINNING WORK WITHIN NAGOG POND. NO WORK SHALL BEGIN UNTIL AN INSPECTION HAS BEEN COMPLETED BY THE TOWN OF ACTON CONSERVATION COMMISSION.
3. PRIOR TO DEWATERING, THE CONTRACTOR SHALL HAVE A TURBIDITY CURTAIN AND TRASH RACK INSTALLED AT THE LOW LEVEL OUTLET AT THE DAM (REFER TO DRAWING C–3).
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD ROUTING A TEMPORARY HDPE BYPASS LINE FROM THE UPSTREAM NAGOG POND TO THE DOWNSTREAM LOW LEVEL OUTLET IN ORDER TO MAINTAIN STREAM FLOW TO NAGOG BROOK. ALL WORK SHALL BE COORDINATED AND APPROVED BY THE ENGINEER.
5. REPRESENTATIVES FROM STATE AGENCIES MAY BE ON–SITE DURING DEWATERING ACTIVITIES. ADJUSTMENTS TO THE CONTRACTOR'S PROPOSED DEWATERING APPROACH SHALL BE MADE, AS REQUIRED BY THE STATE, BASED ON FIELD CONDITIONS.

SEQUENCE OF POND DEWATERING:

1. INSTALL A TURBIDITY CURTAIN AND TRASH RACK AT THE LOW LEVEL OUTLET AT THE DAM. SEE SHEET C–3 FOR LOCATION.
2. INSTALL A TEMPORARY SANDBAG COFFERDAM ALONG THE NORTHEAST AND SOUTHWEST LIMITS AS SHOWN ON THIS SHEET.
3. INSTALL TEMPORARY DEWATERING PUMPING SYSTEM, COMPLETE WITH ALL FLEXIBLE SUCTION AND DISCHARGE PIPING, STANDBY GENERATORS, AND SECONDARY CONTAINMENT SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING TEMPORARY BYPASS LINES TO MAINTAIN HYDRAULIC FLOW FROM NAGOG POND TO NAGOG BROOK DURING DEWATERING ACTIVITIES. THE CONTRACTOR SHALL PROVDE NOISE PROTECTIVE ACOUSTICALLY–SILENCED ENCLOSURES FOR TEMPORARY DEWATERING PUMPING SYSTEM.
4. DURING INITIAL DRAWDOWN, THE OWNER SHALL DEWATER THE WORK ZONE THROUGH THE DAM LOW LEVEL OUTLET.
5. PROVIDE SUPPLEMENTAL DEWATERING BY PUMPING WATER FROM THE WORK ZONE (THE "COVE") TO THE MAIN BODY OF NAGOG POND, AN ISOLATED LOW POINT, OR NAGOG BROOK.
6. THE CONTRACTOR SHALL VISUALLY MONITOR THE AMOUNT OF SOLIDS/SEDIMENT BEING DISCHARGED DURING CONSTRUCTION INCLUDING ALL PUMPED DISCHARGES. IF DETECTED, THE DISCHARGE SHALL BE ROUTED TO AN ISOLATED LOW POINT AWAY FROM THE CONSTRUCTION ZONE TO ALLOW SETTLEMENT. ONCE SETTLED, THE WATER MAY THEN BE PUMPED EITHER BACK INTO NAGOG POND OR NAGOG BROOK TO FACILITATE CONSTRUCTION ACTIVITIES. REFER TO SPECIFICATION SECTION 02140 – DEWATERING & DISCHARGE FOR ADDITIONAL REQUIREMENTS.
7. UPON COMPLETION OF ALL INTAKE PIPE INSTALLATION WORK, THE CONTRACTOR SHALL CAREFULLY REMOVE AND DISASSEMBLE THE TEMPORARY SANDBAG COFFERDAM SYSTEM, TURBIDITY CURTAIN, AND TRASH RACK. SANDBAG DISASSEMBLY SHALL OCCUR ONCE THE SANDBAGS ARE REMOVED FROM THE POND. SANDBAGS AND CONTENTS THEREOF SHALL NOT BE DISPOSED OF IN NAGOG POND.



NORTHEAST TEMPORARY SANDBAG COFFERDAM DETAIL

SCALE: N.T.S.

ENVIRONMENTAL PARTNERS

ZIAD F. ELKADY — 5/19/2020

MARK	DATE	DESCRIPTION

Scale	1"=40'
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

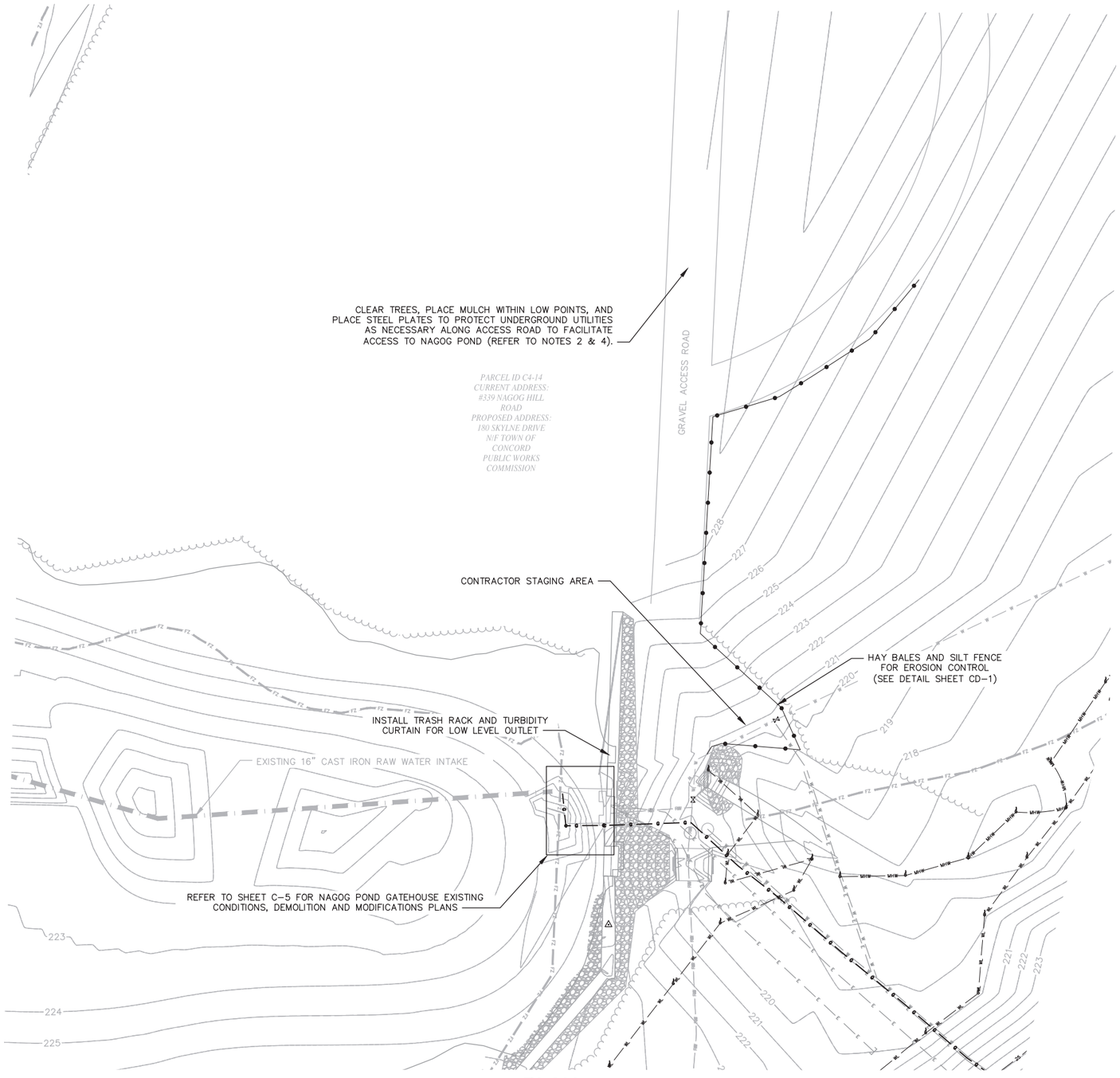
DEWATERING PLAN, NOTES AND DETAILS

FOR CONSTRUCTION

Sheet No.

C-2

Drawing file: I:\Concord.200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\03 Civil Sheets C-1 to C-4.dwg Plot Date: May 19,2020-2:51pm



PLAN
SCALE: 1"=20'

NOTES:

1. POND, GATEHOUSE, AND DAM ARE WITHIN THE 100 YEAR AE FLOOD ZONE AND THE ZONE A 400' BUFFER.
2. FOR ACCESS TO NAGOG POND VIA THE GRAVEL ACCESS ROAD, THE CONTRACTOR SHALL SUBMIT AN ACCESS AND STAGING PLAN TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL LIMIT CONSTRUCTION STAGING AND PARKING TO STAGING AREA AND GRAVEL ACCESS ROAD. REFER TO APPENDIX M FOR EXISTING CONDITIONS PHOTOGRAPHS OF THE GRAVEL ACCESS ROAD
3. CONTRACTOR SHALL INSTALL ALL EROSION CONTROLS PRIOR TO BEGINNING DEWATERING ACTIVITIES. NO WORK SHALL BEGIN UNTIL AN INSPECTION HAS BEEN COMPLETED BY THE TOWN OF ACTON CONSERVATION COMMISSION.
4. CONTRACTOR SHALL PLACE CONSTRUCTION MATS ALONG THE GRAVEL ACCESS ROAD TO PROTECT THE EXISTING GROUND SURFACE. REFER TO DETAIL ON SHEET CD-1.

ENVIRONMENTAL PARTNERS

ZIAD F. ELKADY 5/19/2020

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

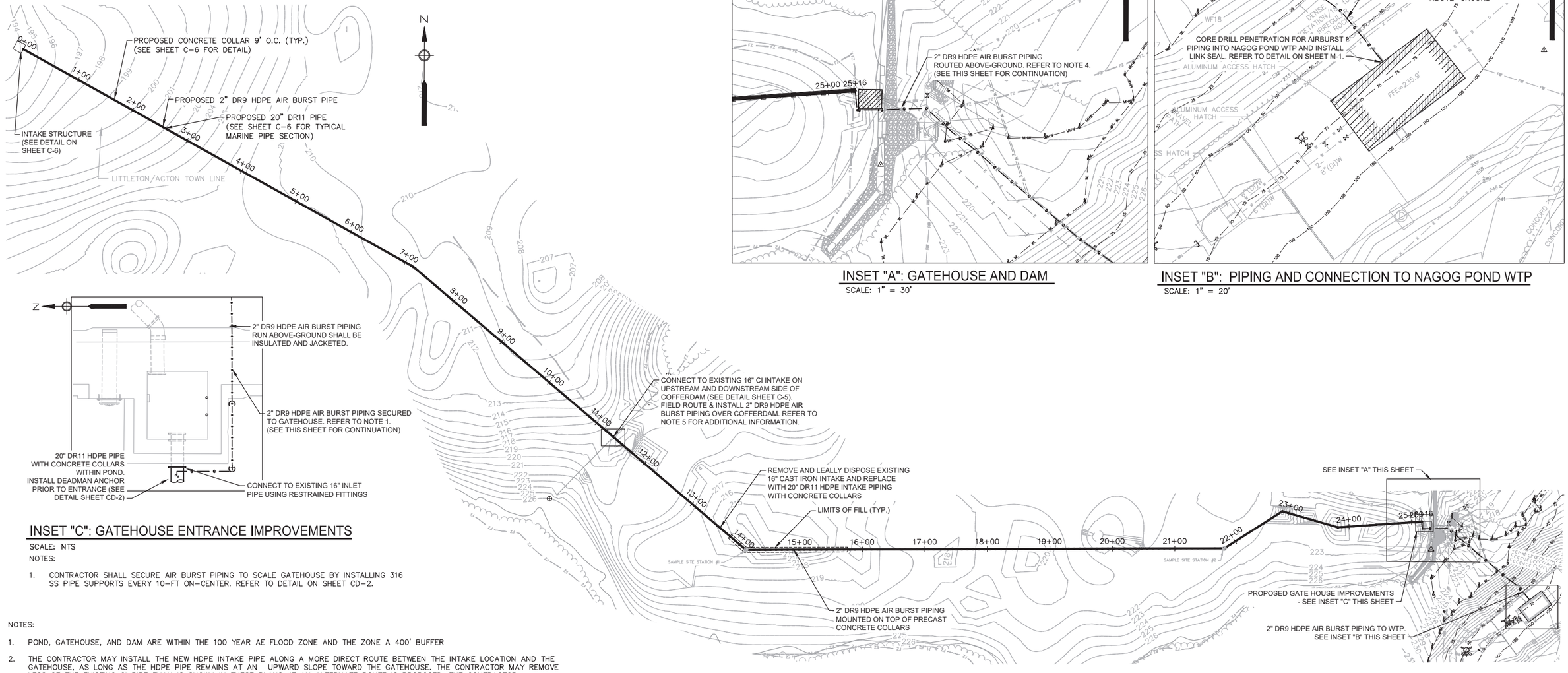
EROSION CONTROL PLAN

FOR CONSTRUCTION

Sheet No.

C-3

Drawing file: I:\Concord.2\00200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\03 Civil Sheets C-1 to C-4.dwg Plot Date: May 19,2020-2:49pm



PLAN
SCALE: 1"=80'

INSET "A": GATEHOUSE AND DAM
SCALE: 1" = 30'

INSET "B": PIPING AND CONNECTION TO NAGOG POND WTP
SCALE: 1" = 20'

INSET "C": GATEHOUSE ENTRANCE IMPROVEMENTS

SCALE: NTS

NOTES:

1. CONTRACTOR SHALL SECURE AIR BURST PIPING TO SCALE GATEHOUSE BY INSTALLING 316 SS PIPE SUPPORTS EVERY 10–FT ON–CENTER. REFER TO DETAIL ON SHEET CD–2.

NOTES:

1. POND, GATEHOUSE, AND DAM ARE WITHIN THE 100 YEAR AE FLOOD ZONE AND THE ZONE A 400' BUFFER
2. THE CONTRACTOR MAY INSTALL THE NEW HDPE INTAKE PIPE ALONG A MORE DIRECT ROUTE BETWEEN THE INTAKE LOCATION AND THE GATEHOUSE, AS LONG AS THE HDPE PIPE REMAINS AT AN UPWARD SLOPE TOWARD THE GATEHOUSE. THE CONTRACTOR MAY REMOVE LESS OF THE EXISTING CI PIPE THAN IS SHOWN IN THESE PLANS. IF AN ALTERNATE ROUTE IS PROPOSED, THE CONTRACTOR MUST SUBMIT A PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL.
3. CONTRACTOR SHALL INSTALL A DEADMAN PIPE ANCHOR SUPPORT ON NEW INTAKE PIPING PRIOR TO ENTERING THE NAGOG POND GATEHOUSE. CONTRACTOR SHALL COORDINATE FINAL LOCATION WITH THE ENGINEER IN THE FIELD. REFER TO DETAIL ON SHEET CD–2.
4. CONTRACTOR SHALL INSTALL INSULATION AND PIPE JACKETING FOR ALL AIR BURST PIPING ROUTED ABOVE–GROUND BETWEEN THE NAGOG POND GATEHOUSE AND THE NAGOG POND WTP. CONTRACTOR SHALL INSTALL 316 SS PIPE SUPPORTS EVERY 10–FT ON–CENTER AND AT ALL BENDS AND FITTINGS ALONG THE ALIGNMENT. REFER TO DETAIL ON SHEET CD–2.
5. THE BASE BID WORK INVOLVES CONNECTING TO THE EXISTING 16" CI INTAKE PIPE ON THE UPSTREAM AND DOWNSTREAM ENDS OF THE COFFERDAM USING RESTRAINED FITTINGS AS SHOWN ON THIS SHEET AND SHEET C–5. THE BID ALTERNATE WORK INVOLVES REMOVING THE EXISTING 16" CI INTAKE PIPE AND FITTINGS FROM THE COFFERDAM AND REPLACING THIS WITH NEW 20" DR11 HDPE INTAKE PIPE AND FITTINGS. THE FINAL METHOD OF INSTALLATION FOR THIS WORK SHALL BE SELECTED DURING CONSTRUCTION.

ENVIRONMENTAL PARTNERS

ZIAD F. ELKARY — 5/19/2020

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

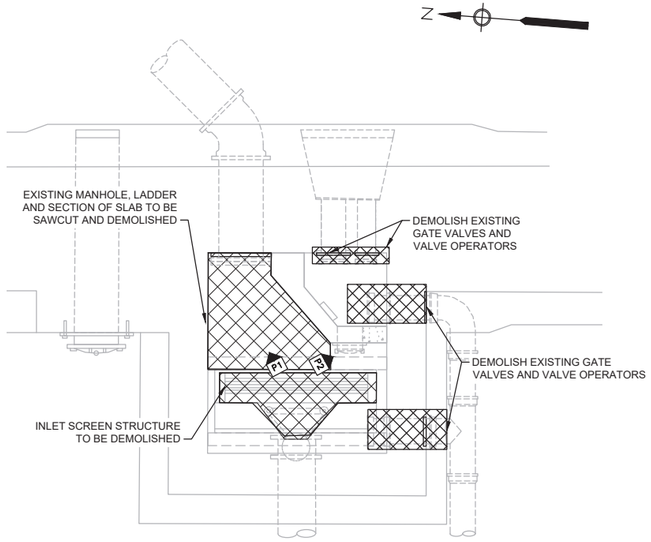
INTAKE LAYOUT AND GATEHOUSE IMPROVEMENTS PLAN

FOR CONSTRUCTION

Sheet No.

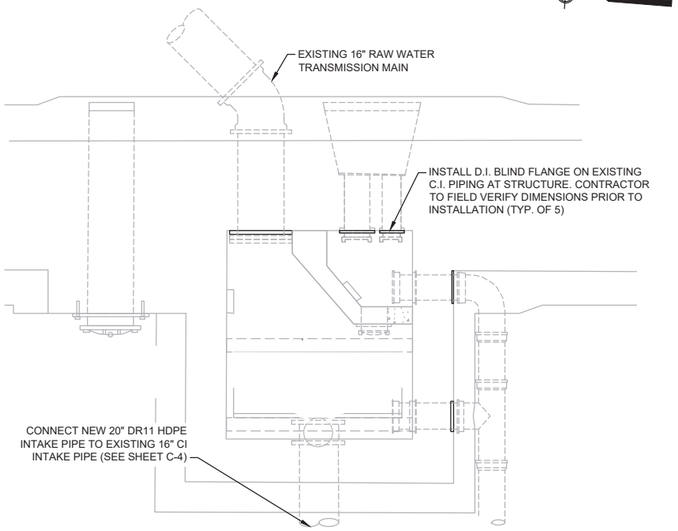
C-4

Drawing file: I:\Concord 200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\03 Civil Sheets C-1 to C-4.dwg Plot Date: May 19,2020-2:48pm



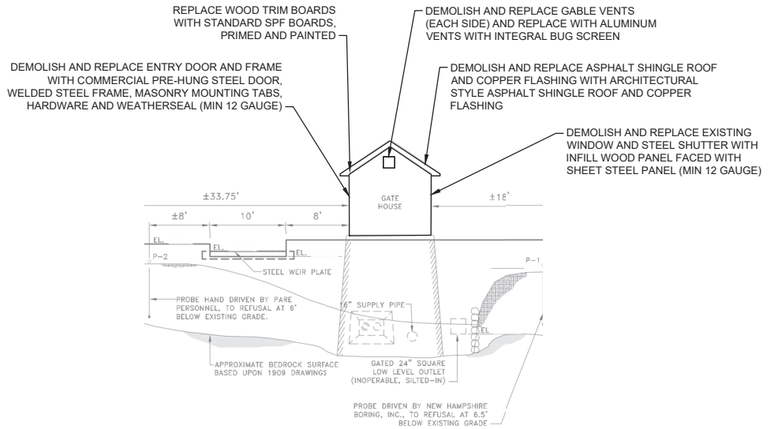
GATEHOUSE DEMOLITION PLAN

SCALE: N.T.S.



GATEHOUSE MODIFICATIONS (BELOW SLAB)

SCALE: N.T.S.



GATEHOUSE EXTERIOR IMPROVEMENTS

SCALE: N.T.S.

NOTES:

A. REPAIR VISIBLE MASONRY WALL CRACKS WITH CLOSED CELL ETHAFOAM BACKER ROD AND CLEAR NON-STAINING ONE-PART SILICONE SEALANT.
B. REPAIR DAMAGED EXTERIOR BRICK USING CLEAR NON-STAINING ONE-PART SILICONE SEALANT.
C. REMOVE GRAFFITI OFF ALL MASONRY WALLS USING SS WIRE BRUSH.

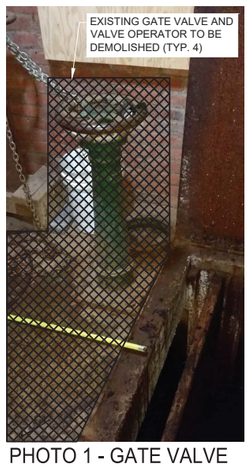
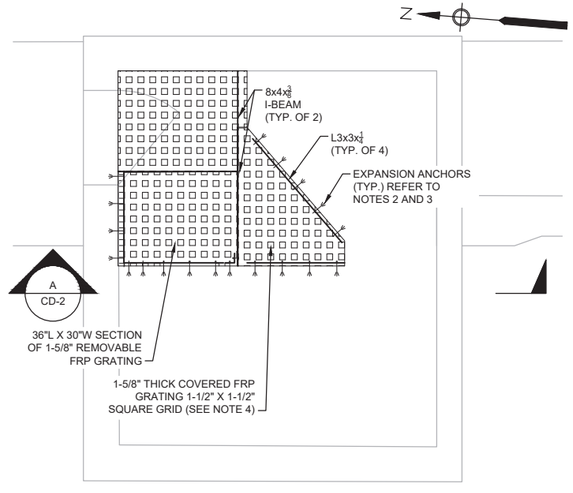


PHOTO 1 - GATE VALVE

SCALE: N.T.S.

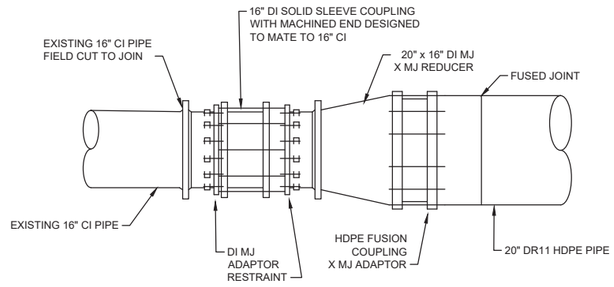
PHOTO 2 - MANHOLE

SCALE: N.T.S.



GATEHOUSE MODIFICATIONS (ABOVE SLAB)

SCALE: N.T.S.



CONNECTION DETAIL

SCALE: N.T.S.

NOTES:

1. ELEVATIONS ARE APPROXIMATE AND ARE BASED ON EXISTING RECORD INFORMATION. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
2. PROVIDE 3/8" ø HILTI KWIK BOLT TZ 316 STAINLESS STEEL (SS) EXPANSION ANCHORS (3 1/4") EMBED.).
3. 1/2" Ø 316 SS ANCHORS SPACING FOR FRP L3x3 SUPPORT 4" FROM ENDS AND 12" O.C. MAX.
4. PROVIDE THREE (3) PIECES OF FRP GRATINGS SECURED USING 316 GRATING CLIPS. VERIFY DIMENSIONS AND CONFIGURATIONS IN FIELD PRIOR TO FABRICATION.

ENVIRONMENTAL PARTNERS

ZIAD F. ELKHAT — CIVIL — 5/19/2020

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

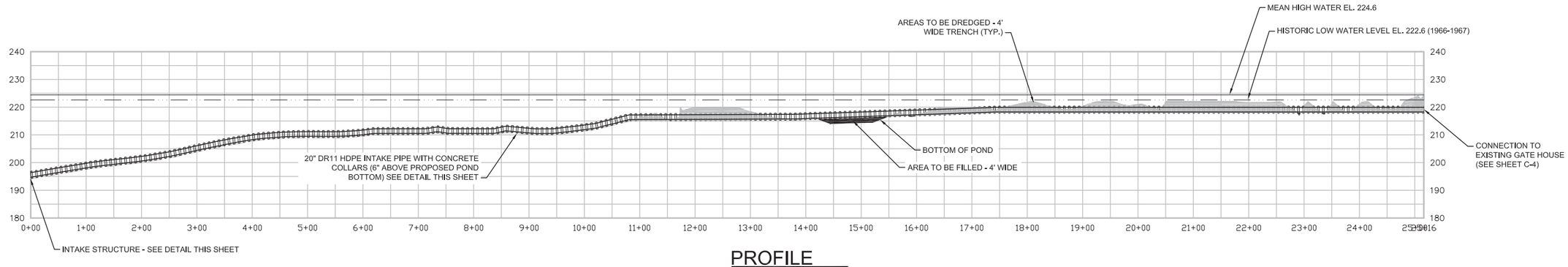
NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

NAGOG POND GATEHOUSE EXISTING CONDITIONS, DEMOLITION AND MODIFICATION PLANS

FOR CONSTRUCTION

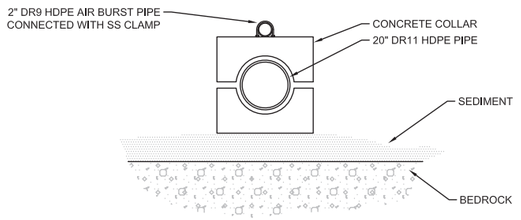
Sheet No. C-5

Drawing file: I:\Concord 200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\03 Civil Sheets C-5 to C-8.dwg Plot Date: May 19,2020-3:03pm



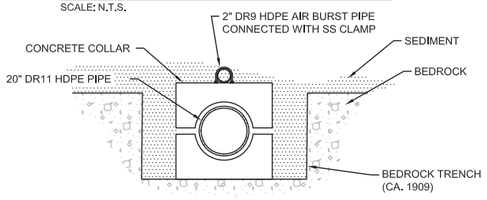
PROFILE

HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=20'



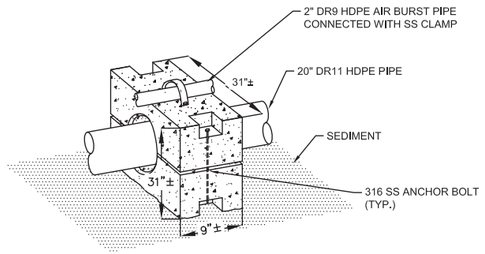
TYPICAL MARINE PIPE SECTION

SCALE: N.T.S.



TYPICAL TRENCH SECTION

SCALE: N.T.S.

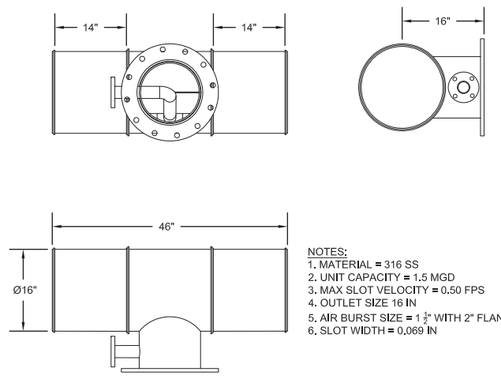


PRECAST CONCRETE COLLAR DETAIL

SCALE: N.T.S.

NOTES:

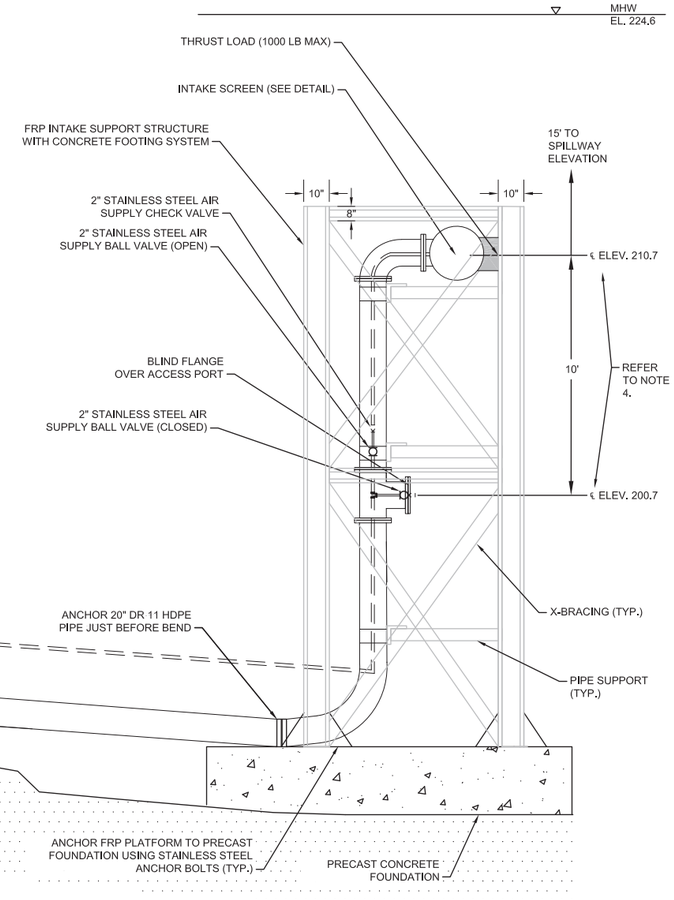
1. FLEXIBLE COUPLINGS OR EXPANSION LOOPS SHALL BE PROVIDED ALONG HDPE PIPE ALIGNMENT.
2. PROVIDE FLEXIBLE CONNECTOR AT HDPE CONNECTION TO INTAKE PIPE ONLY.
3. PROVIDE 1/4" NEOPRENE SPONGE PADDING BETWEEN COLLARS AND INTAKE PIPE.
4. THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATION OF THE EXISTING INTAKE IN THE FIELD PRIOR TO SUBMITTING AND FABRICATING THE FRP INTAKE SUPPORT STRUCTURE. THE INTAKE ELEVATION SHALL MATCH THE ELEVATION OF THE EXISTING INTAKE IN ACCORDANCE WITH CHAPTER 91/401 REQUIREMENTS.



NOTES:
1. MATERIAL = 316 SS
2. UNIT CAPACITY = 1.5 MGD
3. MAX SLOT VELOCITY = 0.50 FPS
4. OUTLET SIZE 16 IN
5. AIR BURST SIZE = 1 ¼" WITH 2" FLANGE CONNECTION
6. SLOT WIDTH = 0.069 IN

INTAKE SCREEN DETAIL

SCALE: N.T.S.



INTAKE SUPPORT STRUCTURE DETAIL

SCALE: N.T.S.

ENVIRONMENTAL PARTNERS

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

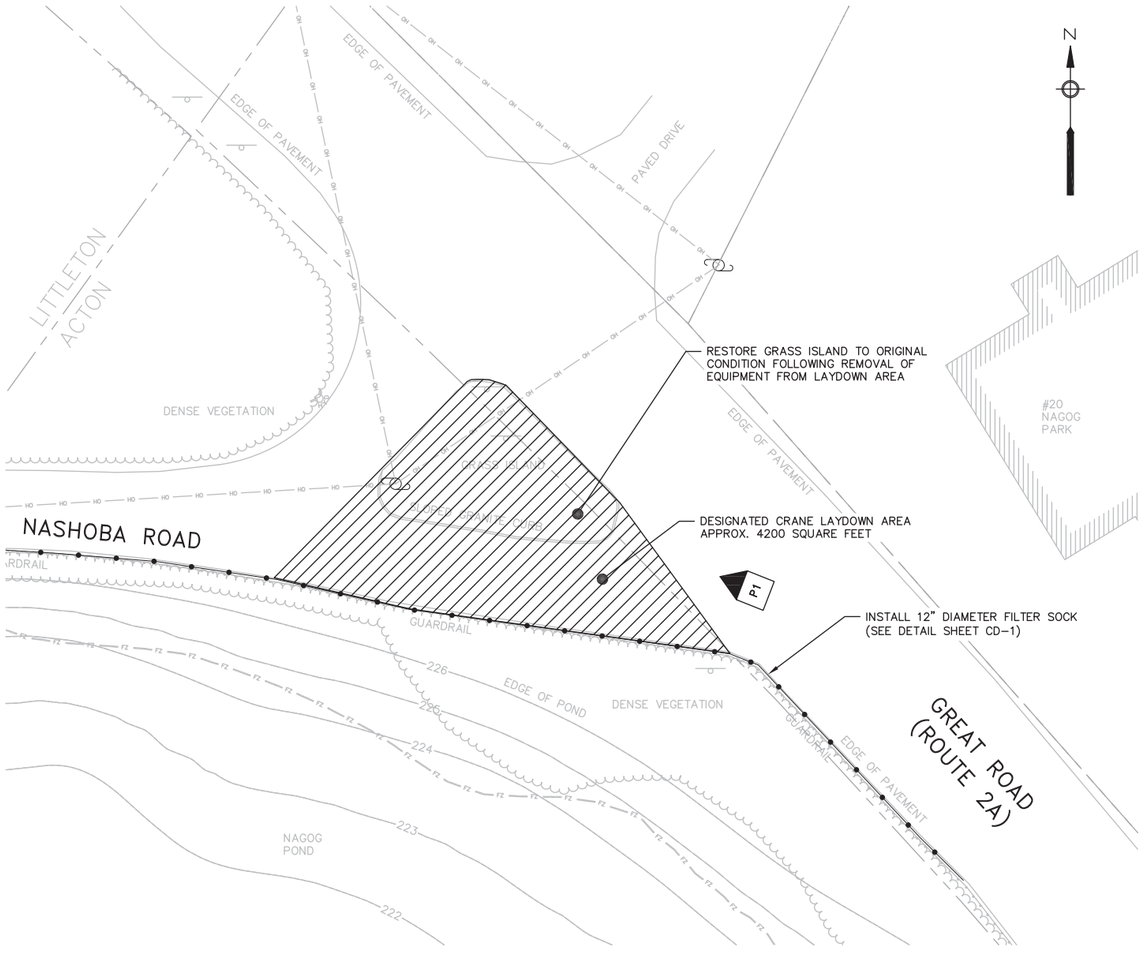
NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

INTAKE LAYOUT PROFILE AND DETAILS

FOR CONSTRUCTION

Sheet No. C-6

Drawing file: I:\Concord\200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\03 CWI Sheets C-5 to C-8.dwg Plot Date: May 19,2020-3:02pm



PLAN
SCALE: 1"=20'

PHOTO 1: CRANE LAYDOWN AREA
SCALE: N.T.S.

NOTES:

1. BASE MAP INFORMATION FOR PROPOSED CRANE LAYDOWN AREA IS BASED ON AVAILABLE GIS DATA AND AERIAL IMAGERY. CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS AND CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. THE PROPOSED CRANE LAYDOWN AREA IS WITHIN THE TOWN RIGHT OF WAY. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROLS IN ACCORDANCE WITH MUTCD, MASSDOT REQUIREMENTS, TOWN OF ACTON REQUIREMENTS AND TOWN OF LITTLETON REQUIREMENTS..
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A MASSDOT ACCESS PERMIT APPLICATION AND A TRAFFIC MANAGEMENT PLAN TO MASSDOT AS PART OF THE PROJECT. REFER TO APPENDIX I FOR COPY OF DRAFT MASSDOT ACCESS PERMIT APPLICATION FOR ADDITIONAL INFORMATION.
4. THE CONTRACTOR SHALL COORDINATE ALL WORK AROUND EXISTING OVERHEAD UTILITIES IN AREA. NO DISRUPTIONS TO EXISTING OVERHEAD UTILITIES SHALL BE ALLOWED.

QUAM FIRMA RES CONCORDIA
CONCORD INCORPORATED 1635

ENVIRONMENTAL PARTNERS

ZIAD F. ELKHOURY
NUMBER
CIVIL
COMMONWEALTH OF MASSACHUSETTS
5/19/2020

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

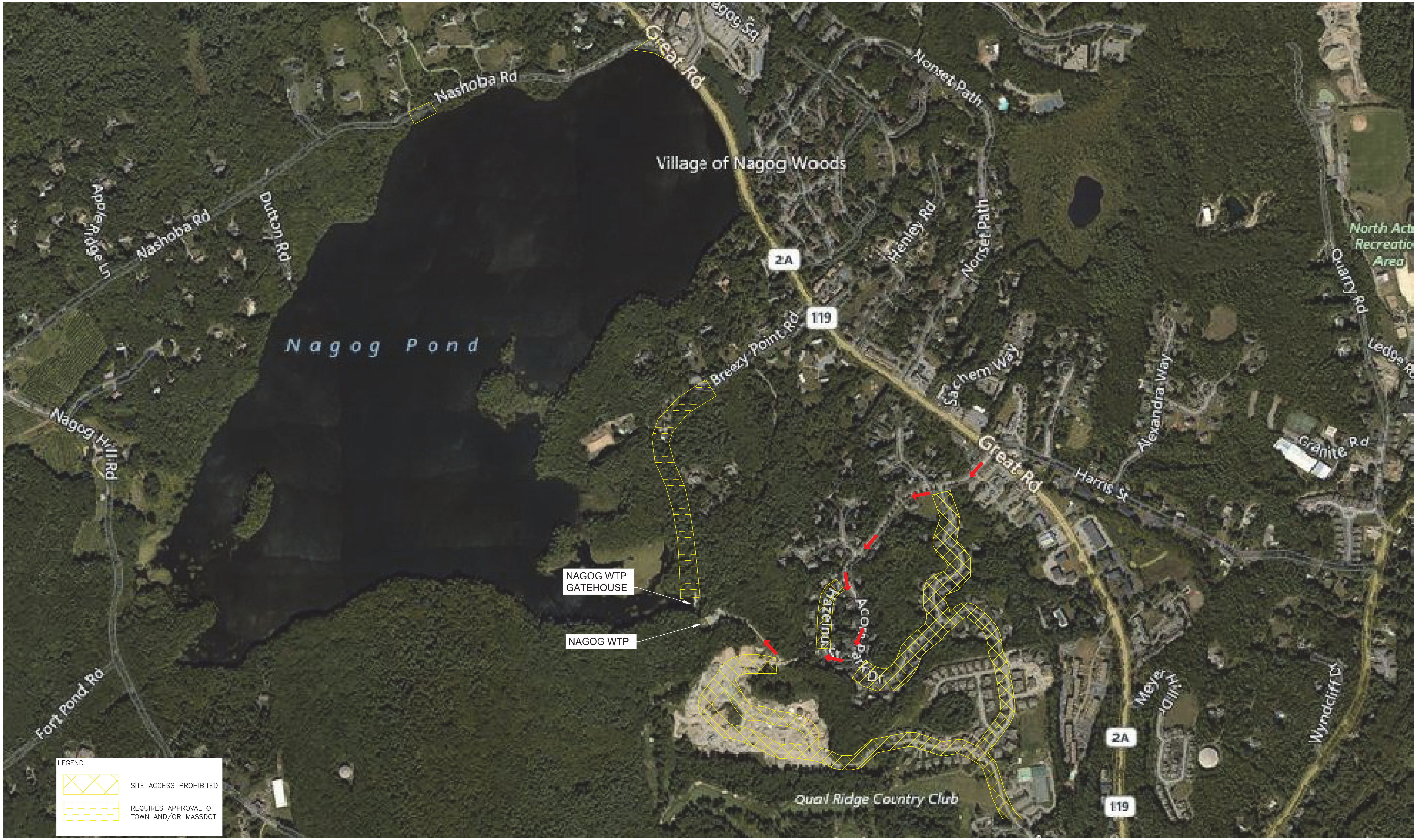
NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

MODULAR BARGE ACCESS PLAN

FOR CONSTRUCTION

Sheet No.
C-7

Drawing file: I:\Concord\200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\03 Civil Sheets C-3 to C-8.dwg Plot Date: May 19,2020-2:58pm



ENVIRONMENTAL PARTNERS

MARK	DATE	DESCRIPTION
△	6/22/20	REVISED BREEZY POINT EASEMENT LIMITS

Scale	N.T.S.
Date	MAY 2020
Job No.	200-1801
Designed by	PJM
Drawn by	PJM
Checked by	ATG
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

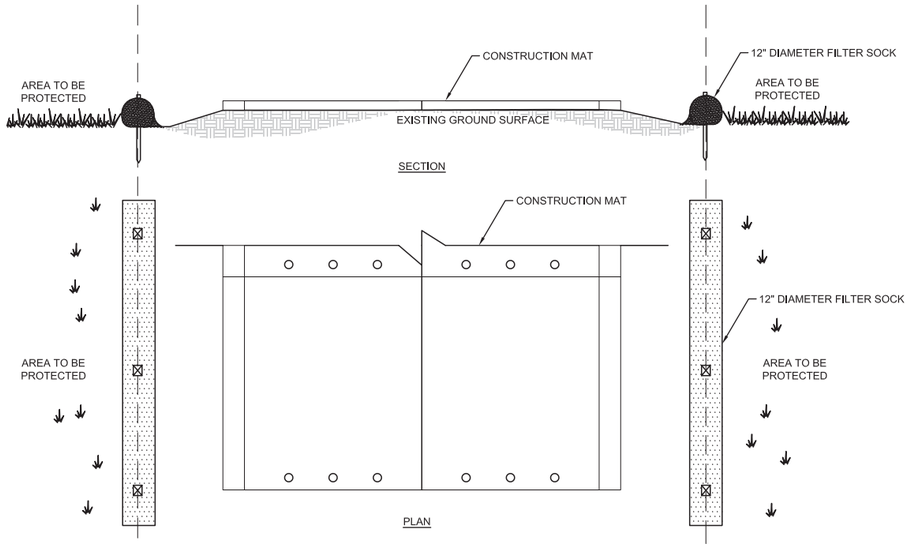
NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

SITE ACCESS TRAILER ROUTE

FOR CONSTRUCTION

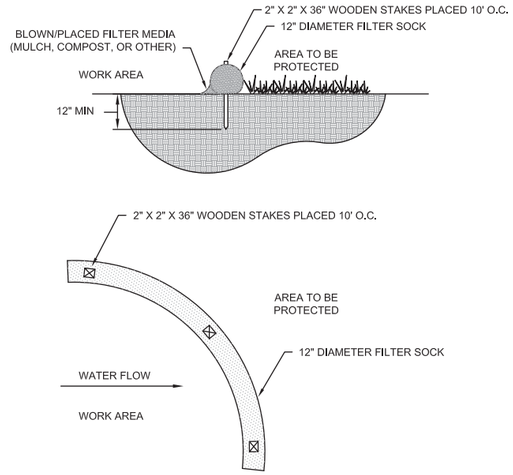
Sheet No. C-8

Drawing file: I:\Concord 200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\Conformed\03 Civil Sheets C-8 Conformed.dwg Plot Date: Jun 22,2020-9:34am



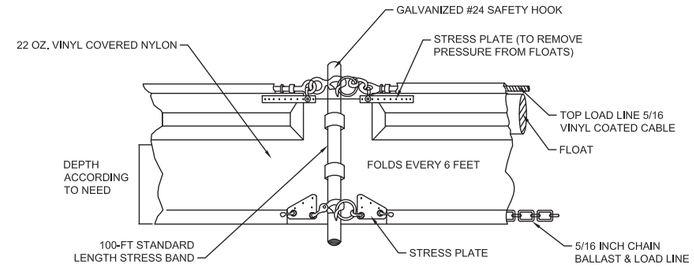
ACCESS ROAD CONSTRUCTION MAT DETAIL

SCALE: N.T.S.



12" DIAMETER FILTER SOCK

SCALE: N.T.S.

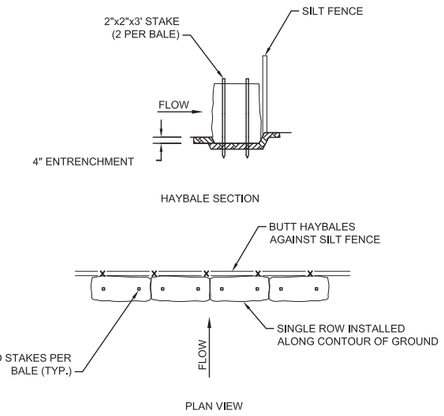


NOTES:

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.

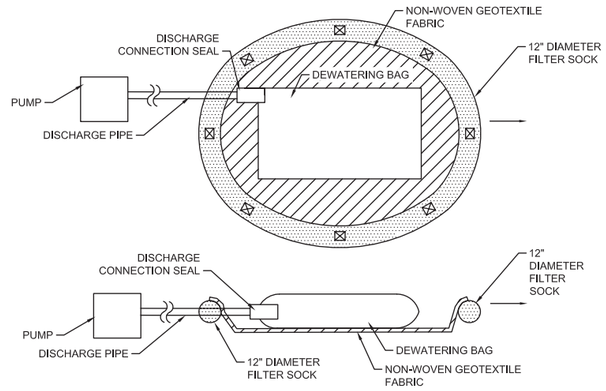


NOTES:

1. BALES SHALL BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES DRIVEN THROUGH THE BALES. THE FIRST WOODEN STAKE IN EACH BALE SHALL BE ANGLED TOWARD THE PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. INSPECTION SHALL BE FREQUENT AND REPAIR OF REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED AND REPLACED WHEN THEY BECOME FILLED WITH SEDIMENT AND BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. BALES SHALL BE REMOVED WHEN THE EMBANKMENTS STABILIZE.

HAY BALES AND SILT FENCE DETAIL

SCALE: N.T.S.

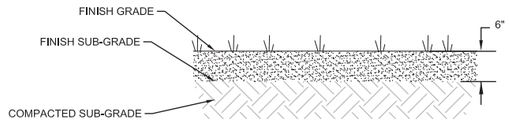


NOTES:

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 BAGS

SCALE: N.T.S.



NOTES:

1. SEED MIX SHALL BE NEW ENGLAND CONSERVATION SEED MIX, FREE OF FERTILIZERS.
2. LOAM SHALL BE NATIVE TO LOCAL AREA AND OF LOW NITROGEN CONTENT.
3. INSTALL CURLEX CL EROSION CONTROL BLANKET AS MANUFACTURED BY AMERICAN EXCELSIOR COMPANY (OR APPROVED EQUAL) ON ALL LOAM AND SEEDED SLOPES 3:1 OR STEEPER.

LOAM AND SEED (DISTURBED AREAS)

SCALE: N.T.S.

ENVIRONMENTAL PARTNERS

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

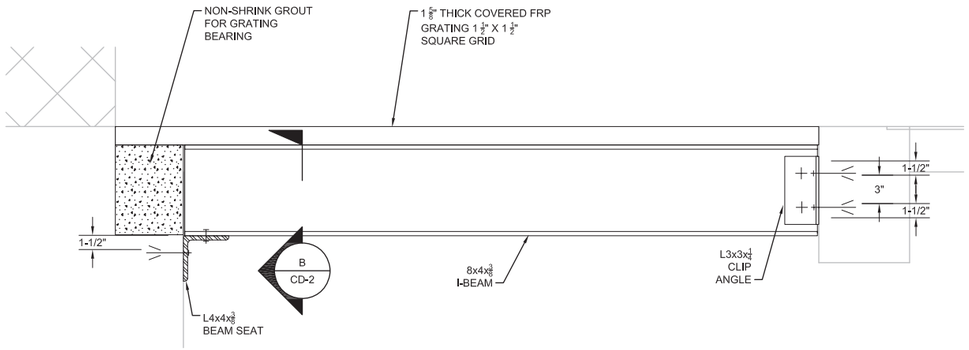
CIVIL DETAILS I

FOR CONSTRUCTION

Sheet No.

CD - 1

Drawing file: K:\Concord\200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\04 Detail Sheets.dwg Plot Date: May 19,2020-3:15pm

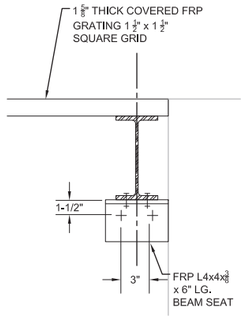


SECTION
SCALE: N.T.S.

A C-5

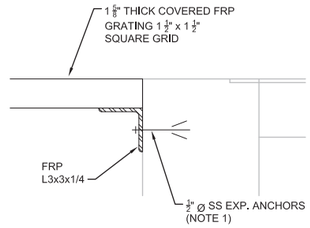
NOTES:

1. PROVIDE FRP I-BEAM AND ANGLES FOR FRP GRATING SUPPORTS.
2. PROVIDE ¾" ø 316 STAINLESS STEEL (SS) BOLT CONNECTIONS FOR FRP I-BEAM.
3. PROVIDE ½" ø HILTI KWIK BOLT TZ 316 SS EXPANSION ANCHORS (3 ¼" EMBED.).
4. PROVIDE 316 SS GRATING CLIPS FOR SECURING FRP GRATING.



SECTION
SCALE: N.T.S.

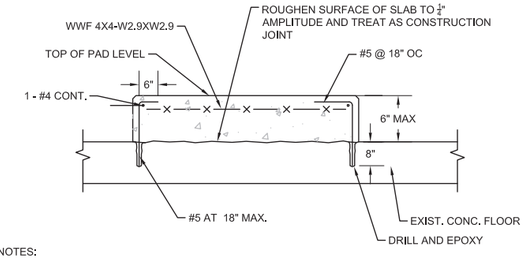
B CD-2



NOTES:

1. ½" ø HILTI BOLT TZ 316 STAINLESS STEEL (SS) EXPANSION ANCHORS (3 ¼" EMBED.) @ 12"O.C. MAX. AND 4" FROM EA. ANGLE ENDS.

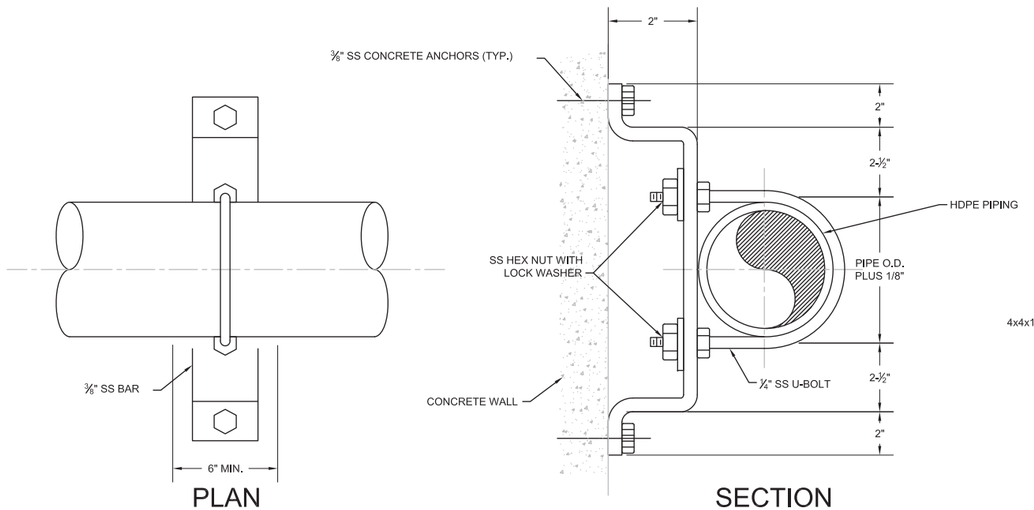
TYPICAL FRP ANGLE SUPPORT
SCALE: N.T.S.



NOTES:

1. THE EXACT SIZE, SHAPE AND LOCATION OF EQUIPMENT (HOUSE-KEEPING) PADS SHALL BE DETERMINED BY THE CONTRACTOR AFTER APPROVAL OF SHOP DRAWINGS FOR THE EQUIPMENT. ANCHOR BOLTS WHERE REQUIRED SHALL BE SIZED AND LOCATED ACCORDING TO MANUFACTURER'S REQUIREMENTS. SEE DWGS FOR SIZE AND LOCATION.
2. FOR HOUSEKEEPING PADS BETWEEN 2" AND 4" THICK, USE ¼" ø CONCRETE SCREW ANCHORS AT 12" OC EACH WAY. ENSURE THAT THE HEAD OF THE ANCHOR HAS A MINIMUM OF ¾" CLEAR UNDER AND ¾" CLEAR ON TOP.

INTERIOR CONCRETE EQUIPMENT PAD DETAIL
SCALE: N.T.S.



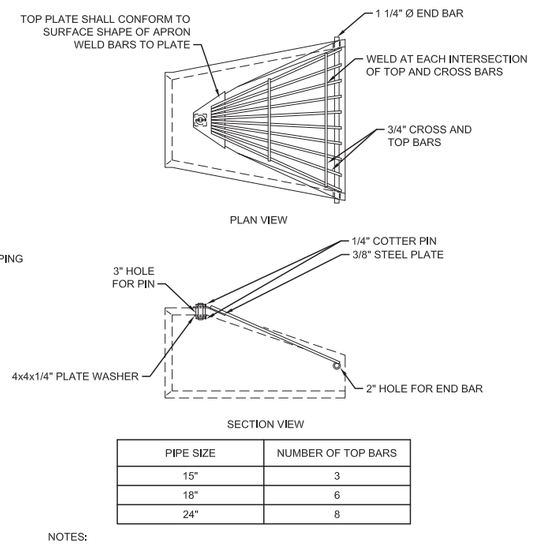
PLAN

SECTION

NOTES:

1. PROVIDE PIPE SUPPORTS IN ACCORDANCE WITH PIPE MANUFACTURER'S SPACING REQUIREMENTS.

PIPE SUPPORT DETAIL
SCALE: N.T.S.

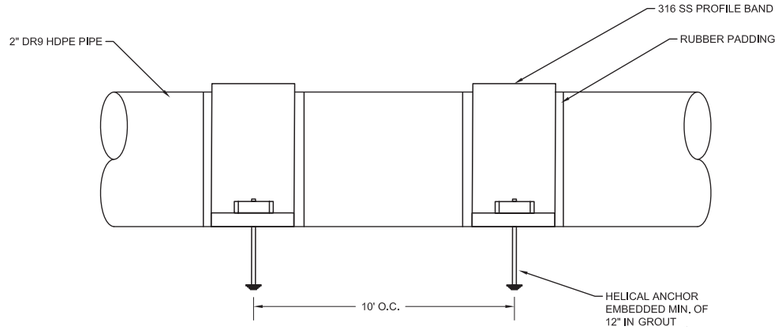


PIPE SIZE	NUMBER OF TOP BARS
15"	3
18"	6
24"	8

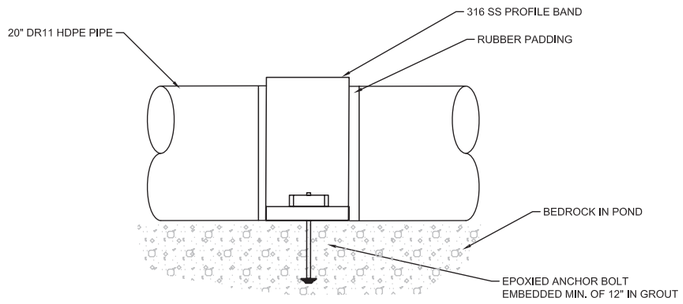
NOTES:

1. STEEL BARS USED IN CONSTRUCTION OF THE GUARD MAY BE SMOOTH OR DEFORMED STEEL CONFORMING TO THE REQUIREMENTS OF CRSI SPECIFICATIONS FOR STRUCTURAL GRADE STEEL REINFORCEMENT.
2. WELDING OF STEEL PARTS SHALL BE AS SHOWN AND SUBJECT TO THE APPROVAL OF THE ENGINEER. THE GUARD SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH CURRENT CRSI SPECIFICATIONS.

TRASH RACK DETAIL
SCALE: N.T.S.



ABOVE-GROUND AIR BURST PIPE SUPPORTS
SCALE: N.T.S.



DEADMAN RESTRAINT FOR INTAKE PIPE
SCALE: N.T.S.

ENVIRONMENTAL PARTNERS

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/JFB
Drawn by	ATG
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

CIVIL DETAILS II

FOR CONSTRUCTION

Sheet No.

CD - 2

Drawing file: X:\Concord\200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\04 Detail Sheets.dwg Plot Date: May 19,2020-3:15pm

PROCESS MECHANICAL NOTES

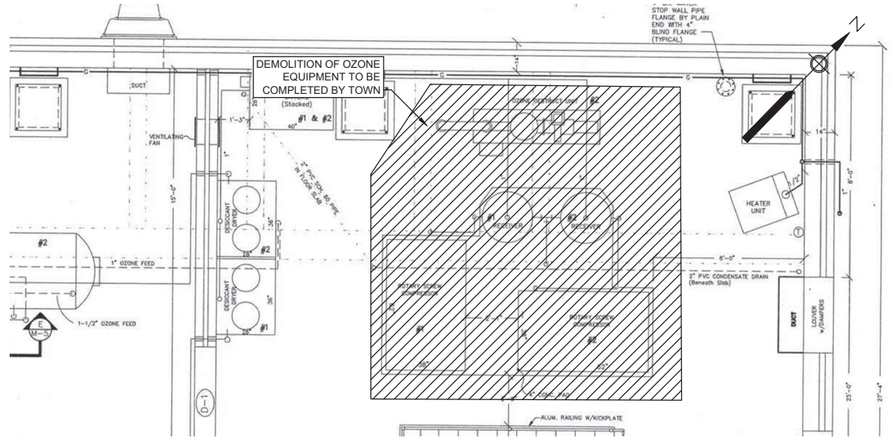
1. BASE MAP INFORMATION SHOWN ON THIS SHEET IS BASED ON CONTRACT NO.1 NAGOG POND DISINFECTION FACILITY RECORD DRAWINGS DATED 1995 CREATED BY HALEY & WARD, INC.
2. THE REQUIREMENTS INCLUDED IN THESE NOTES ARE SUPPLEMENTARY TO THE CONTRACT, GENERAL CONDITIONS, TECHNICAL REQUIREMENTS, AND OTHER REQUIREMENTS SPECIFIED HEREIN.
3. ALL WALL SLEEVES SHALL BE LARGE ENOUGH TO ACCOMMODATE FLANGES AS REQUIRED. IF SLEEVES ARE TO BE SEALED, PROVIDE GROOVED COUPLING PIPING CONNECTION TO FACILITATE INSTALLATION AND REMOVAL OF PIPING.
4. ALL PIPE PENETRATIONS THROUGH INTERIOR AND EXTERIOR WALLS AND FLOORS SHALL BE SEALED WATERTIGHT.
5. THE AIR BURST PIPING IS SHOWN DIAGRAMMATICALLY: FIELD-ROUTING SUBJECT TO APPROVAL OF THE ENGINEER. SMALL PIPE ROUTING MUST NOT INTERFERE WITH ACCESS TO OR OPERATION OF ANY OTHER PIPE, VALVE, OR EQUIPMENT.
6. ALL PROCESS EQUIPMENT, INCLUDING RECEIVERS AND COMPRESSORS, SHALL BE ISOLATED FROM PIPING LOADS AND DYNAMICS BY FLEXIBLE CONNECTORS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND SPECIFICATIONS.
7. ALL PIPING, VALVES, EQUIPMENT, ETC. SHALL BE LABELED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
8. ALL MECHANICAL LAYOUTS ARE GENERALLY DIAGRAMMATIC AS SHOWN ON THESE DRAWINGS. THE WORK OF THE VARIOUS TRADES SHALL BE COORDINATED TO AVOID INTERFERENCE AND TO SECURE MAXIMUM HEAD ROOM.
9. THE INSTALLATION OF FACILITIES AND APPURTENANT WORK SHALL BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL FEDERAL, STATE, AND MUNICIPAL CODES AND REGULATIONS GOVERNING THE WORK. IN INSTANCES WHERE THE REQUIREMENT OF DRAWINGS AND SPECIFICATIONS ARE IN EXCESS OF THE REQUIREMENTS OF THE APPLICABLE CODES AND REGULATIONS, AND ARE PERMITTED THEREUNDER, THEN, IN SUCH INSTANCES, THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL GOVERN, UNLESS DIRECTED OTHERWISE IN WRITING BY THE ENGINEER.
10. UNLESS OTHERWISE SPECIFIED, NEAT BRASS PLATE, OR OTHERWISE SUITABLE MATERIAL, HAVING THE SERIAL NUMBER, THE MAKE, HORSEPOWER, CAPACITY, SPEED, AND OTHER PERTINENT DATA, AND ANY IMPORTANT OPERATING OR MAINTENANCE INSTRUCTIONS, PERMANENTLY AND CLEARLY MARKED ON THE PLATE, SHALL BE MOUNTED ON EACH ITEM OF EQUIPMENT. ALL IMPORTANT PARTS OF EQUIPMENT, AS DIRECTED BY ENGINEER/OWNER SHALL BE STAMPED FOR IDENTIFICATION AND LOCATION.
11. ALL NECESSARY ANCHOR BOLTS, NUTS, WASHERS, SETTING TEMPLATES, AND SUCH OTHER PARTS SHALL BE PROVIDED AS REQUIRED FOR THE PROPER INSTALLATION OF THE WORK, AND WHEREVER PRACTICABLE, THEY SHALL BE BUILT IN AS THE WORK PROGRESSES. THE PARTS SHALL BE OF THE MATERIALS SPECIFIED, AND WHERE NOT SPECIFIED OR INDICATED, THEY SHALL BE OF APPROVED TYPES AND MATERIALS FOR EACH APPLICATION. THE SETTING OF ANCHOR BOLTS BY DRILLING AND GROUTING WILL NOT BE PERMITTED.
12. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER, AS APPROVED, TRULY LEVEL AND PLUMB, AND SHALL BE PROVIDED COMPLETE WITH ALL NECESSARY PIPING, FITTINGS, VALVES, CONTROLS, WIRING, AND APPURTENANCES AND ACCESSORIES SO THE EQUIPMENT WILL BE LEFT COMPLETE AND IN SATISFACTORY OPERATION.
13. ALL WEDGES, SHIMS, FILLING PIECES, KEYS, PACKING, GROUT, OR OTHER MATERIALS NECESSARY TO PROPERLY ALIGN, LEVEL, AND SECURE APPARATUS IN PLACE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. ALL PARTS INTENDED TO BE PLUMB OR LEVEL MUST BE PROVEN EXACTLY SO. ANY GRINDING NECESSARY TO BRING PARTS TO PROPER BEARING AFTER ERECTION SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.
14. CONTRACTOR SHALL SUBMIT PIPING LAYOUT DIAGRAMS TO THE ENGINEER FOR APPROVAL PRIOR TO ANY PIPING INSTALLATION. PIPING LAYOUT DIAGRAMS SHALL SHOW DIMENSIONS OF ALL VALVES, FITTINGS, PIPE RUNS, AND SUPPORTS.
15. ALL PIPING SYSTEMS AND EQUIPMENT SHALL BE ADEQUATELY AND SAFELY SUPPORTED. CONTRACTOR SHALL DESIGN, PROVIDE, AND INSTALL ALL SUPPORTS AS REQUIRED BY THE PIPING AND EQUIPMENT PROVIDED. AT A MINIMUM, ALL PIPING SYSTEMS SHALL BE SUPPORTED PER THE REQUIREMENTS OF MANUFACTURER'S STANDARDIZATION SOCIETY (MSS) SP-58 AND MSS SP-69. SUPPORT DESIGN SHALL ACCOMMODATE ALL STATIC AND OPERATIONAL CONDITIONS TO WHICH THE PIPING AND EQUIPMENT MAY BE SUBJECTED. SUPPORTS SHALL BE IN ADDITION TO THOSE SHOWN ON THE CONTRACT DRAWINGS, AS SPECIFIED IN THE SPECIFICATIONS.
16. IT IS NOT THE INTENT OF THESE DRAWINGS TO PORTRAY EVERY DETAIL OF THE REQUIRED WORK. THE CONTRACTOR SHALL PROVIDE THE EQUIPMENT AND SYSTEMS COMPLETE SO THAT WHEN ASSEMBLED AND INSTALLED IN THE WORK, THEY SHALL OPERATE AND PERFORM AS DESCRIBED HEREIN.
17. COORDINATE THE WORK REQUIRED BY THE PROCESS MECHANICAL DRAWINGS WITH THE WORK REQUIRED BY OTHER DRAWINGS.
18. ALL NUTS AND BOLTS FOR FITTINGS, VALVES, PIPING, AND OTHER PROCESS MECHANICAL CONNECTIONS SHALL BE TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED.

INTAKE SCREEN AND AIR BURST EQUIPMENT SCHEDULE

TAG NO.	EQUIPMENT DESCRIPTION	LOCATION	TYPE	SIZING				DRIVE	MOTOR		VOLTAGE		
				VALUE 1	UNIT 1	VALUE 2	UNIT 2		HP	ENCL.	VAC	Hz	PHASE
C-101A	AIR BURST COMPRESSOR #1	AIR BURST SYSTEM SKID	RECIPROCATING	35	CFM	150	PSI	CONSTANT	10	TEFC	460	60	3
C-101B	AIR BURST COMPRESSOR #2	AIR BURST SYSTEM SKID	RECIPROCATING	35	CFM	150	PSI	CONSTANT	10	TEFC	460	60	3
R-101A	AIR BURST LARGE RECEIVER	WTP COMPRESSOR ROOM	HORIZONTAL	550	GAL	--	--	--	--	--	--	--	--
R-101B	AIR BURST SMALL RECEIVER	AIR BURST SYSTEM SKID	HORIZONTAL	2	GAL	--	--	--	--	--	--	--	--
S-101	RAW WATER INTAKE SCREEN	NAGOG POND	CYLINDRICAL	1042	GPM	--	--	--	--	--	--	--	--

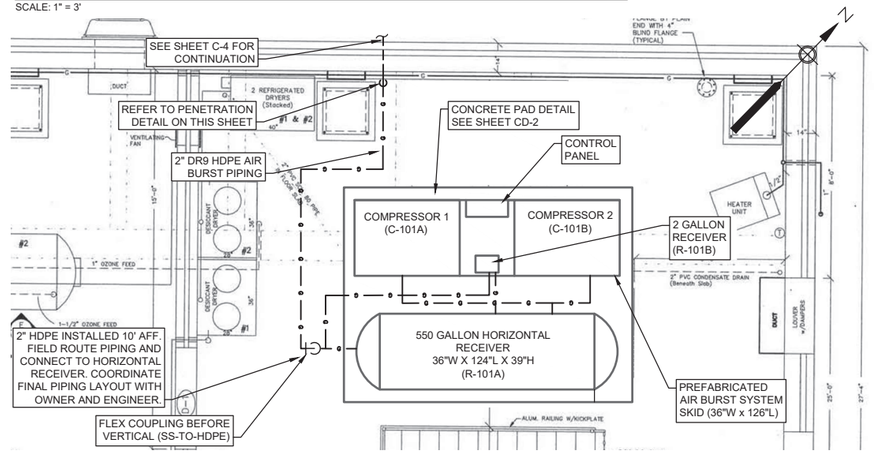
VALVE SCHEDULE

TAG NO.	EQUIPMENT DESCRIPTION	LOCATION	TYPE	APPLICATION	SIZE (INCHES)	SERVICE	ACTUATOR	VALVE POSITION
BV-101	AIR BURST DRAIN VALVE	AIR BURST LARGE RECEIVER	SOLENOID VALVE	AIR	1/4	OPEN/CLOSE	ELECTRICALLY ACTUATED	NORMALLY CLOSED
BV-102	AIR BURST DRAIN VALVE	AIR BURST LARGE RECEIVER	BALL VALVE	AIR	1/4	OPEN/CLOSE	MANUAL	NORMALLY OPEN
BV-103	AIR BURST DRAIN VALVE	AIR BURST SMALL RECEIVER	BALL VALVE	AIR	1/4	OPEN/CLOSE	MANUAL	NORMALLY CLOSED
CV-101	AIR BURST AIR CONTROL VALVE	AIR BURST COMPRESSOR #1	CHECK VALVE	AIR	3/4	OPEN/CLOSE	MANUAL	NORMALLY OPEN
CV-102	AIR BURST AIR CONTROL VALVE	AIR BURST COMPRESSOR #2	CHECK VALVE	AIR	3/4	OPEN/CLOSE	MANUAL	NORMALLY OPEN
CV-103	AIR BURST AIR CONTROL VALVE	AIR BURST LARGE RECEIVER	BALL VALVE	AIR	2	OPEN/CLOSE	PNEUMATICALLY ACTUATED	NORMALLY CLOSED
CV-104	AIR BURST CHECK VALVE	AIR BURST SMALL RECEIVER	CHECK VALVE	AIR	1/4	OPEN/CLOSE	MANUAL	NORMALLY OPEN
PRV-101	AIR BURST PRESSURE RELIEF VALVE	AIR BURST LARGE RECEIVER	PRESSURE RELIEF VALVE	AIR	1-1/2	OPEN/CLOSE	MANUAL	NORMALLY CLOSED
PRV-102	AIR BURST PRESSURE RELIEF VALVE	AIR BURST SMALL RECEIVER	PRESSURE RELIEF VALVE	AIR	1/4	OPEN/CLOSE	MANUAL	NORMALLY CLOSED



EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE: 1" = 3'

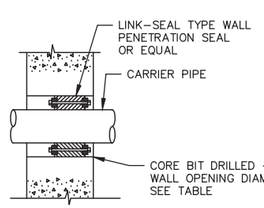


PROPOSED MODIFICATIONS PLAN

SCALE: 1" = 3'

AIR BURST SYSTEM NOTES:

1. THE AIR BURST SYSTEM MANUFACTURER IS RESPONSIBLE FOR PROVIDING A COMPLETE AIR BURST SYSTEM, COMPLETE WITH A 550 GAL HORIZONTAL RECEIVER AND A SKID-MOUNTED ASSEMBLY CONTAINING A CONTROL PANEL, TWO COMPRESSORS, SMALL HORIZONTAL RECEIVER, VALVES AND PRESSURE GAUGES. REFER TO EQUIPMENT SCHEDULE AND VALVE SCHEDULE ON THIS SHEET, AND SECTION 11330 FOR A COMPLETE LIST OF MECHANICAL EQUIPMENT TO BE PROVIDED BY THE AIR BURST SYSTEM MANUFACTURER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD COORDINATING THE PIPING CONNECTIONS FOR THE AIR BURST SYSTEM WITH THE AIR BURST SYSTEM SUPPLIER. ALL PIPING BETWEEN THE 550 GAL HORIZONTAL RECEIVER AND THE SKID-MOUNTED ASSEMBLY SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. ALL PIPING BETWEEN THE AIR BURST SYSTEM AND THE INTAKE SCREEN SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL ELECTRICAL AND INSTRUMENTATION WORK WITH THE OWNER. THE OWNER'S ON-CALL ELECTRICIAN SHALL BE RESPONSIBLE FOR PROVIDING CONDUIT AND WIRING TO THE NEW AIR BURST SYSTEM. THE OWNER'S INTEGRATOR SHALL BE RESPONSIBLE FOR ALL INTEGRATION AND PROGRAMMING WORK ASSOCIATED WITH THE NEW AIR BURST SYSTEM. THE CONTRACTOR SHALL NOT ENERGIZE THE AIR BURST SYSTEM UNTIL THE OWNER'S WORK HAS BEEN COMPLETED..
4. CONTRACTOR SHALL INSTALL HOUSEKEEPING PADS BELOW ALL AIR BURST SYSTEM EQUIPMENT. REFER TO DETAIL ON SHEET CD-2.
5. THE PREFABRICATED AIR BURST SYSTEM SKID SHALL BE EQUIPPED WITH VIBRATION DAMPENERS TO PREVENT EXCESSIVE VIBRATION.



CARRIER PIPE NOMINAL SIZE	CARRIER PIPE O.D.	WALL SLEEVE SIZE	CORE DRILLED I.D.
2"	2.50"	4"	4"
4"	4.80"	8"	8"
6"	6.90"	10"	10"
8"	9.05"	12"	12"
16"	17.40"	20"	20"
18"	19.50"	24"	24"
24"	25.80"	30"	29"

NOTES:

1. SIZES SHOWN ARE FOR DUCTILE IRON PIPE, FOR OTHER MATERIALS AND PIPE SIZES CONSULT MANUFACTURER'S SPECIFICATIONS.
2. SOME APPLICATIONS MAY REQUIRE STANDARD WALL CASTINGS.
3. FOR WATER-TIGHT AND GAS-TIGHT APPLICATIONS, PROVIDE NON-SHRINK GROUT ON BOTH SIDES.

TYPICAL WALL PENETRATION DETAIL

SCALE: N.T.S.

ENVIRONMENTAL PARTNERS

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/ASK
Drawn by	KHB
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

NAGOG POND WTP EXISTING CONDITIONS, DEMOLITION AND MODIFICATION PLANS

FOR CONSTRUCTION

Sheet No.

M-1

Drawing file: I:\Concord\200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\03 Civil Sheets C-5 to C-8.dwg Plot Date: May 19,2020-2:57pm

ISA INSTRUMENT IDENTIFICATION TABLE

MEASURED OR INITIATING VARIABLE	FIRST LETTER MEAS. VARI.	SUCCEEDING LETTERS: SWITCH (HI, LO, OPEN, CLOSE)	PRIM. ELEM. (SENSOR)	INDICATOR	INDICATING CONTROLLER	CONTROL OR CONTR. (BLND)	RECORDER	INTEGRATOR (TOTALIZER)	TRANSMITTER (INDICTING)	TRANSMITTER	VALVE OR ACTUATOR	RELAY	SOURCE
ANALYSIS	A	ASL	AE	AI			AR		AIT	AT		AY	
BURNER, COMBUSTION	B		BE			BC						BY	
CONDUCTIVITY	C	CSH	CE	CI	CIC	CC	CR		CIT	CT		CY	
DENSITY	D	DSH	DE	DI	DIC	DC	DR		DIT	DT		DY	DX
VOLTAGE	E		EE	EI					EIT	ET		EY	
FLOW RATE	F	FSHL	FE	FI	FIC	FC	FR	FQ	FIT	FT	FV	FY	
USER'S CHOICE	G												
HAND	H	HS											
CURRENT (ELECTRICAL)	I	IS	IE	II	IIC	IC				IT		IY	
POWER	J	JSH	JE	JI	JIC	JC	JR	JQ				JY	
TIME, TIME SCHEDULE	K			KI	KIC	KC		KQ				KY	KS
LEVEL	L	LSH	LE	LI	LIC	LC	LR		LIT	LT	LV	LY	
HUMIDITY	M		ME	MI	MIC	MC	MR		MIT	MT		MY	
USER'S CHOICE	N												
USER'S CHOICE	O												
PRESSURE, VACUUM	P	PSH	PE	PI	PIC	PC	PR		PIT	PT	PV	PY	
QUANTITY	Q						QR						
RADIATION	R												
SPEED, FREQUENCY	S	SSL	SE	SI		SC			SIT	ST		SY	
TEMPERATURE	T	TSL	TE	TI	TIC	TC	TR		TIT	TT	TV	TY	
MULTIVARIABLE	U			UI			UR					UY	
MECHANICAL ANALYSIS	V												
WEIGHT, FORCE	W	WS	WE	WI	WIC		WR		WIT	WT			
VIBRATION	X		XE	XI								XY	
EVENT	Y	YS		YI			YR		YIT	YT		YY	
POSITION, DIMENSION	Z	ZSO	ZE	ZI			ZR		ZIT	ZT		ZY	

VALVES AND FITTINGS

- BALL VALVE
- CHECK VALVE
- SOLENOID
- PRESSURE INDICATOR
- FLEXIBLE COUPLING
- RELIEF VALVE
- PNEUMATIC

PUMPS, BLOWERS, TANKS, AND EQUIPMENT

- INTAKE SCREEN
- RECEIVER TANK
- DRAIN
- PRESSURE SWITCH
- COMPRESSOR

INSTRUMENTATION

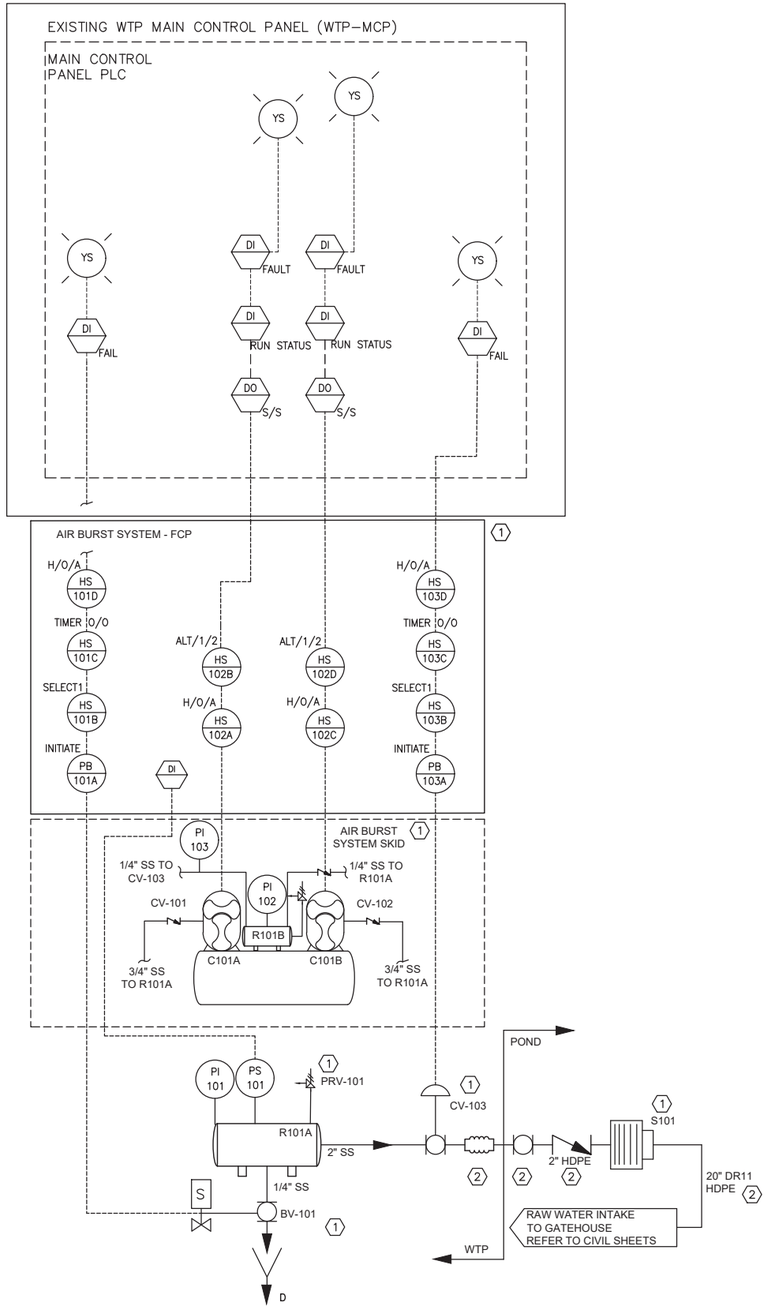
- FIELD MOUNTED INSTRUMENT TAG
- PANEL MOUNTED INSTRUMENT TAG (EQUIPMENT MANUFACTURERS PANEL)
- PANEL MOUNTED INSTRUMENT TAG (INSTRUMENTATION CONTRACTORS PANEL)
- SCADA SYSTEM SIGNAL TAG A=ANALOG, D=DISCRETE I=INPUT, O=OUTPUT
- INDICATING LIGHT: R - RED, Y - YELLOW G - GREEN, B - BLUE, O-ORANGE
- SCADA ALARM: L = LOW, H = HIGH NF = NO FLOW
- HAND SWITCH
- PUSH BUTTON

FLOWS AND LINES

- PRIMARY FLOW
- ELECTRICAL SIGNAL
- PLC
- CONTROL PANEL
- LOCATIONAL DIVIDE

ANNOTATION

- FLOW ARROW LEFT: PROCESS STREAM TO/FROM LOCATION REFER TO SHEET X
- FLOW ARROW RIGHT: PROCESS STREAM TO/FROM LOCATION REFER TO SHEET X



INSTRUMENTATION SCHEDULE

TAG NO.	EQUIPMENT DESCRIPTION	LOCATION	TYPE	VOLTAGE		
				VAC	HZ	PHASE
PI-101	AIR BURST PRESSURE GAUGE	AIR BURST LARGE RECEIVER	DIRECT MOUNTING, INDICATING DIAL	--	--	--
PI-102	AIR BURST PRESSURE GAUGE	AIR BURST SMALL RECEIVER	DIRECT MOUNTING, INDICATING-DIAL	--	--	--
PI-103	AIR BURST PRESSURE REGULATOR	AIR BURST SMALL RECEIVER	DIRECT MOUNTING, INDICATING-DIAL	--	--	--
PS-101	AIR BURST PRESSURE SWITCH	AIR BURST LARGE RECEIVER	PRESSURE INSTRUMENT	LOOP POWERED		

NOTES:

1. REFER TO INSTRUMENTATION SCHEDULE ON THIS SHEET, AND SECTION 11330 FOR A COMPLETE LIST OF INSTRUMENTATION EQUIPMENT TO BE PROVIDED BY THE AIR BURST SYSTEM MANUFACTURER.

(1) FURNISHED BY AIR BURST SYSTEM MANUFACTURER AND INSTALLED BY GENERAL CONTRACTOR.

(2) FURNISHED AND INSTALLED BY GENERAL CONTRACTOR.

ENVIRONMENTAL PARTNERS

ZIAD F. ELKARY 5/19/2020

MARK	DATE	DESCRIPTION

Scale	AS SHOWN
Date	MAY 2020
Job No.	200-1801
Designed by	ATG/ASK
Drawn by	KHB
Checked by	ASK
Approved by	ZFK

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

NAGOG POND INTAKE REPLACEMENT
TOWN OF CONCORD, MASSACHUSETTS

PROPOSED AIR BURST SYSTEM P&ID

FOR CONSTRUCTION

Sheet No. I-1

Drawing file: I:\Concord 200\200-1801 - Nagog Pond Final Design-Permitting\Intake Design\Drawings - Updated\Drawings\03 Civil Sheets C-5 to C-8.dwg Plot Date: May 19,2020-2:56pm