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Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

Funding Partner Information

NHDES, Coastal Program

NHDES, Aquatic Resource Mitigation Fund

NH State Conservation Committee, Conservation Grant Program

Permits

NH Department of Environmental Services, RSA 482-A, Wetlands Permit: 2015-00XXX

NH Department of Environmental Services, RSA 485-A:17, Terrain Alteration: General Permit by Rule Env-Wq 1503.03(f)

NH Department of Environmental Services, RSA 483-B, Shoreland Protection: Permit Exemption per RSA 483-B:5-b,IV

NH Department of Environmental Services, Clean Water Act, Section 401 Certification: WQC #2012-404P-002

US Army Corps of Engineers, Clean Water Act, Section 404 Permit: NAE-2015-0XXXX

US Environmental Protection Agency, National Pollutant Discharge Elimination System, General Permit for Discharges from Construction Activities: Permit No. NHR120000

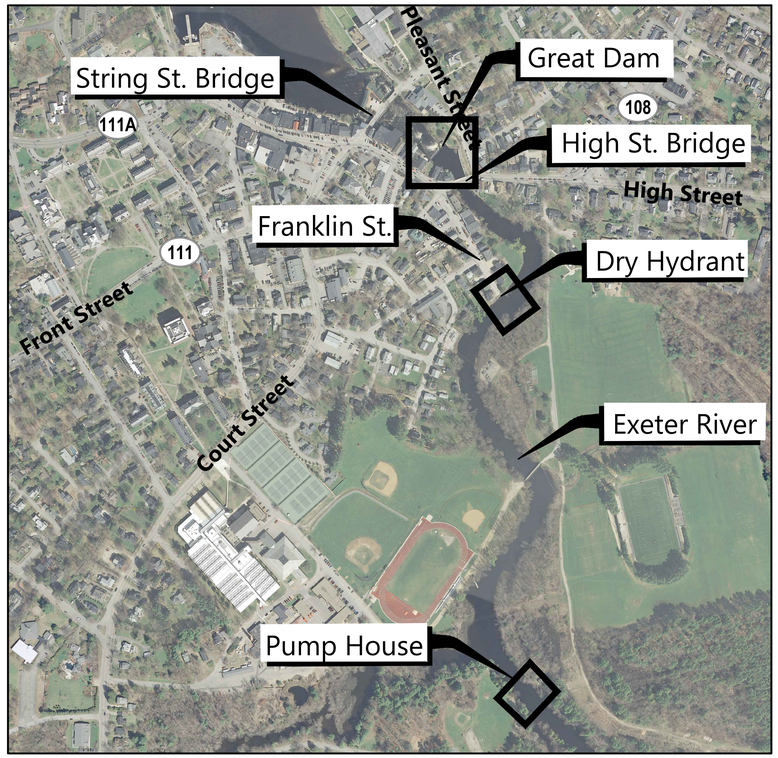
National Historic Preservation Act, Section 106 Memorandum of Agreement: NHDHR R&C #3280

Property Owners

Town of Exeter

10 Front Street
Exeter, NH 03883
Phone: 603-773-6157 · Fax: 603-772-1355

Paul Vlasich, PE
Town Engineer



Site Location Map ↑ 0 250 500 Feet

Site Plans

Issued for	Permitting
Date Issued	December 7, 2015
Latest Issue	December 7, 2015

FOR PERMIT USE ONLY
NOT FOR CONSTRUCTION

Sheet Index

Reference Drawings

Number	Drawing Title	Latest Issue
SV-1	Existing Conditions Plan of Land	3/23/2015

VHB Project No. 52151.04

Issued for: Permitting

Legend

Exist.	Prop.	
		PROPERTY LINE
		LIMIT OF WORK
		RIGHT-OF-WAY/PROPERTY LINE
		EASEMENT
		BUILDING SETBACK
		PARKING SETBACK
10+00	10+00	BASELINE
		CONSTRUCTION LAYOUT
		ZONING LINE
		TOWN LINE
WTL		WETLAND LINE
100-YR		100-YEAR FLOODPLAIN
FLD		REGULATORY FLOODWAY
OHW		ORDINARY HIGH WATER
TOB		TOP OF BANK
SP50		50' SHORELINE PROTECTION SETBACK
SP150		150' SHORELINE PROTECTION SETBACK
SP250		250' SHORELINE PROTECTION SETBACK
		GRAVEL ROAD
EOP		EDGE OF PAVEMENT
BB	BB	BITUMINOUS BERM
BC	BC	BITUMINOUS CURB
CC	CC	CONCRETE CURB
	CG	CURB AND GUTTER
CC	ECC	EXTRUDED CONCRETE CURB
CC	MCC	MONOLITHIC CONCRETE CURB
CC	PCC	PRECAST CONC. CURB
SGE	SGE	SLOPED GRAN. EDGING
VGC	VGC	VERT. GRAN. CURB
		LIMIT OF CURB TYPE
		BUILDING
	EN	BUILDING ENTRANCE
	LD	LOADING DOCK
		BOLLARD
D	D	DUMPSTER PAD
		SIGN
		DOUBLE SIGN
		STEEL GUARDRAIL
		WOOD GUARDRAIL
		PATH
		FENCE
		TREE LINE
		CONSTRUCTION FENCE
		TREE PROTECTION FENCE
		STOCKADE FENCE
		WIRE FENCE
		STONE WALL
		RETAINING WALL
		STREAM / POND / WATER COURSE
		COFFER DAM/SAND BAGS
		DEMOLITION
		SAWCUT
		SILT FENCE
		SILT SOCK / STRAW WATTLE
		TURBIDITY CURTAIN
4	4	MINOR CONTOUR
20	20	MAJOR CONTOUR
DYL	DYL	DOUBLE YELLOW LINE
SL	SL	STOP LINE
		CROSSWALK
		ACCESSIBLE CURB RAMP
		ACCESSIBLE PARKING
VAN	VAN	VAN-ACCESSIBLE PARKING

Exist.	Prop.	
		CONCRETE
		HEAVY DUTY PAVEMENT
		RIPRAP
		CONSTRUCTION ENTRANCE
27.35 TC×	27.35 TC×	TOP OF CURB ELEVATION
26.85 BC×	26.85 BC×	BOTTOM OF CURB ELEVATION
132.75×	132.75×	SPOT ELEVATION
45.0 TW× 38.5 BW×	45.0 TW× 38.5 BW×	TOP & BOTTOM OF WALL ELEVATION
		BORING LOCATION
		TEST PIT LOCATION
MW	MW	MONITORING WELL
		PENSTOCK
UD	UD	UNDERDRAIN
12"D	12"D	DRAIN
6"RD	6"RD	ROOF DRAIN
12"S	12"S	SEWER
FM	FM	FORCE MAIN
OHW	OHW	OVERHEAD WIRE
6"W	6"W	WATER
4"FP	4"FP	FIRE PROTECTION
	2"DW	DOMESTIC WATER
3"G	G	GAS
E	E	ELECTRIC
STM	STM	STEAM
T	T	TELEPHONE
FA	FA	FIRE ALARM
CATV	CATV	CABLE TV
		CATCH BASIN
		DOUBLE CATCH BASIN
		GUTTER INLET
		DRAIN MANHOLE
TD		TRENCH DRAIN
		PLUG OR CAP
CO	CO	CLEANOUT
		FLARED END SECTION
		HEADWALL
CS	CS	SEWER MANHOLE CURB STOP & BOX
WV	WV	WATER VALVE & BOX
TSV	TSV	TAPPING SLEEVE, VALVE & BOX
		SIAMESE CONNECTION
HYD	HYD	FIRE HYDRANT
WM	WM	WATER METER
PIV	PIV	POST INDICATOR VALVE
W	W	WATER WELL
GG	GG	GAS GATE
GM	GM	GAS METER
E	EMH	ELECTRIC MANHOLE
EM	EM	ELECTRIC METER
		LIGHT POLE
T	TMH	TELEPHONE MANHOLE
T	T	TRANSFORMER PAD
		UTILITY POLE
		GUY POLE
		GUY WIRE & ANCHOR
HH	HH	HAND HOLE
PB	PB	PULL BOX
Matchline		MATCHLINE

Abbreviations

General

ABAN	ABANDON
ACR	ACCESSIBLE CURB RAMP
ADJ	ADJUST
APPROX	APPROXIMATE
BIT	BITUMINOUS
BS	BOTTOM OF SLOPE
BWLL	BROKEN WHITE LANE LINE
CONC	CONCRETE
DYCL	DOUBLE YELLOW CENTER LINE
EL	ELEVATION
ELEV	ELEVATION
EX	EXISTING
EXIST	EXISTING
FDN	FOUNDATION
FFE	FIRST FLOOR ELEVATION
FLD	REGULATORY FLOODWAY
GRAN	GRANITE
GTD	GRADE TO DRAIN
LA	LANDSCAPE AREA
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OHM	ORDINARY HIGH WATER
PERF	PERFORATED
PROP	PROPOSED
REM	REMOVE
RET	RETAIN
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
SP50	SHORELINE PROTECTION, 50'
SP150	SHORELINE PROTECTION, 150'
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
TOB	TOP OF BANK
TS	TOP OF SLOPE
TYP	TYPICAL
WSE	WATER SURFACE ELEVATION

Utility

CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
DCB	DOUBLE CATCH BASIN
DMH	DRAIN MANHOLE
CIP	CAST IRON PIPE
COND	CONDUIT
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
FM	FORCE MAIN
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GI	GUTTER INLET
GT	GREASE TRAP
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HW	HEADWALL
HYD	HYDRANT
INV	INVERT ELEVATION
I=	INVERT ELEVATION
LP	LIGHT POLE
MES	METAL END SECTION
PWW	PAVED WATER WAY
PVC	POLYVINYLCHLORIDE PIPE
PIV	POST INDICATOR VALVE
RCP	REINFORCED CONCRETE PIPE
R=	RIM ELEVATION
SMH	SEWER MANHOLE
TSV	TAPPING SLEEVE, VALVE AND BOX
UG	UNDERGROUND
UP	UTILITY POLE

Notes:

Description of Work

1. THE GOALS OF THIS PROJECT ARE TO: REMOVE THE GREAT DAM AND STABILIZE THE RIVER BED IN A WAY THAT PROTECTS THE ADJACENT PROPERTIES WHILE CREATING UPSTREAM PASSAGE FOR DIADROMOUS FISH SPECIES SUCH AS AMERICAN SHAD.
2. THE GREAT DAM IS A CONCRETE DAM WITH AN OGEE STYLE SPILLWAY, A FISH LADDER, A LOW-LEVEL OUTLET, AND A PENSTOCK WITH ITS ASSOCIATED HEADWORKS. THE DAM IS APPROXIMATELY 136 FEET LONG BY APPROXIMATELY 16 FEET HIGH MEASURED FROM THE TOP OF ITS TALLEST ABUTMENT TO THE STREAMBED AT ITS DOWNSTREAM FACE.
3. THE WORK CONSISTS OF COMPLETE REMOVAL OF THE DAM STRUCTURE INCLUDING ALL CONCRETE, METAL, STONE AND WOOD COMPONENTS. THE APPROXIMATE LIMITS AND EXTENT OF DAM REMOVAL ARE DEPICTED ON PLAN SHEETS C-2 AND C-5. BECAUSE REMOVAL OF THE DAM COULD RESULT IN AN UNSTABLE RIVERBED WITH EXCESSIVE VERTICAL DROPS INHIBITING OR PREVENTING FISH PASSAGE, UP TO APPROXIMATELY 250 LINEAR FEET OF THE RIVER CHANNEL WILL BE RE-GRADED AND STABILIZED WITH PLACED RIP RAP. PLACED RIP RAP WILL FUNCTION TO STABILIZE THE RIVERBED, PROTECT STREAMBANKS, AND LIMIT THE VERTICAL DROP ALONG THE RIVERBED. SEE SHEET C-6 FOR PROPOSED LOCATION GRADING AND LIMITS OF PLACED RIP RAP.
4. EQUIPMENT SHALL BE STAGED ALONG A FENCED OFF PORTION OF PLEASANT STREET AND ON THE EAST BANK OF THE RIVER IN FOUNDERS PARK WHERE EQUIPMENT WILL ENTER THE STREAM.
5. REGRADE A PORTION OF THE EAST BANK TO ALLOW EQUIPMENT ACCESS, AND A WOODEN TIMBER BRIDGE (OR APPROVED EQUAL) WILL NEED TO BE INSTALLED TO PROVIDE ACCESS TO THE DAM. THE CONTRACTOR MAY POTENTIALLY USE THE PROPERTY OWNED BY PETER OLNEY AT 23 WATER STREET TO ACCESS THE RIVER.
6. REMOVE ALL CONCRETE FROM THE RIVER, AND HAUL FOR DISPOSAL TO AN APPROVED DISPOSAL FACILITY. COMPLETELY REMOVE THE TIMBER ACCESS BRIDGE (OR APPROVED EQUAL) AND HAUL FOR DISPOSAL TO AN APPROVED DISPOSAL FACILITY.
7. THE PROJECT IS IN A FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) ZONE AE, SPECIAL FLOOD HAZARD AREA, WHICH IS DEFINED AS AN AREA SUBJECT TO INUNDATION BY THE 1-PERCENT-ANNUAL-CHANCE (100-YEAR) FLOOD EVENT DETERMINED BY DETAILED METHODS. ADDITIONALLY, MUCH OF THE WORK IS LOCATED WITHIN A REGULATORY FLOODWAY AS DETERMINED BY FEMA. A REGULATORY FLOODWAY MEANS THE CHANNEL OF A RIVER OR WATERCOURSE AND THE ADJACENT LAND AREAS THAT MUST BE RESERVED IN ORDER TO DISCHARGE THE BASE FLOOD WITHOUT CUMULATIVELY INCREASING THE WATER SURFACE ELEVATION MORE THAN A DESIGNATED HEIGHT.

General

1. NOTIFY "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS BEFORE EXCAVATING.
2. ENSURE SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
3. APPLY SIX (6) INCHES OF LOAD AND SEED (UNLESS OTHERWISE NOTED) TO ANY UPLAND AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (PAVEMENTS, WALKS, ETC.)
4. PERFORM ALL WORK IN STRICT COMPLIANCE WITH NH WETLANDS PERMIT, US ARMY CORPS OF ENGINEERS PERMIT, AND ALL OTHER APPLICABLE PERMITS AND REGULATIONS. THE CONTRACTOR SHALL HAVE A COPY OF ALL NECESSARY PERMITS AVAILABLE ON SITE AT ALL TIMES.
5. UPON AWARD OF CONTRACT, MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
6. RESTORE AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
7. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, OR OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
8. PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
9. DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
10. CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SREPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO THE TOWN OF EXETER OR ADJACENT PROPERTY OWNERS. DAMAGE RESULTING FROM STORMWATER RUNOFF SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
11. FOR PURPOSES OF THIS PLAN SET AND CONSTRUCTION SPECIFICATIONS, THE TERMS "ENGINEER" AND "MONITOR" SHALL BE SYNONYMOUS AND SHALL MEAN THE INDIVIDUAL OR FIRM RETAINED BY TOWN OF EXETER TO CONDUCT CONSTRUCTION MONITORING.

Layout and Materials

1. ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A LICENSED LAND SURVEYOR (LLS).
2. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, NOT ALL DEPICTED ITEMS ARE DRAWN TO THEIR ACTUAL DIMENSIONS. REFER TO THE LABELED DIMENSIONS AND THE PROVIDED DETAILS FOR ACTUAL DESIGN INFORMATION.

Utilities

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE TOWN OF EXETER HAS NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN, SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE ENGINEER FOR THE RESOLUTION OF THE CONFLICT. CONTRACTOR'S FAILURE TO NOTIFY PRIOR TO PERFORMING ADDITIONAL WORK RELEASES THE TOWN OF EXETER AND OTHER PROJECT PARTNERS FROM OBLIGATIONS FOR ADDITIONAL PAYMENTS WHICH OTHERWISE MAY BE WARRANTED TO RESOLVE THE CONFLICT.
3. NOTIFY ALL CORPORATIONS, COMPANIES, INDIVIDUALS, OR LOCAL AUTHORITIES OWNING OR HAVING JURISDICTION OVER UTILITIES RUNNING TO, THROUGH, OR ACROSS AREAS TO BE AFFECTED BY CONSTRUCTION ACTIVITIES.
4. LOCATE AND IDENTIFY EXISTING UTILITIES THAT ARE TO REMAIN AND PROTECT THEM FROM DAMAGE.

Existing Conditions Information

1. BASE PLAN: SEE EXISTING CONDITIONS PLANS, SHEET C-2 AND SHEET C-3.
   - A. THE PROPERTY LINES SHOWN HEREON ARE BASED ON DEEDS AND PLANS OF RECORD AND THE TOWN OF EXETER GIS AND ARE NOT THE RESULT OF A BOUNDARY SURVEY BY VHB.
   - B. THE EXISTING CONDITIONS SHOWN HEREON ARE BASED ON SURVEYS BY OTHERS, TOWN OF EXETER GIS AND SUPPLEMENTED BY AN ON-THE-GROUND INSTRUMENT SURVEY BY VHB, INC. BETWEEN JULY & AUGUST 2011.
   - C. THE EXISTING CONDITIONS TOPOGRAPHY DEPICTED AT THE PROPERTY AT 23 WATER STREET WAS TAKEN FROM THE COASTAL LIDAR DATA SET (ACQUIRED WINTER 2010/SPRING 2011) OBTAINED FROM NH GRANIT (NEW HAMPSHIRE STATEWIDE GEOGRAPHIC INFORMATION SYSTEM (GIS) CLEARINGHOUSE) AND NOT FROM ON THE GROUND SURVEY.
   - D. THE BATHYMETRY NORTHWEST OF THE GREAT DAM IS BASED ON AN ON-THE-GROUND SURVEY BY VHB, INC. BETWEEN JULY AND AUGUST 2011.
   - E. THE BATHYMETRY SOUTHEAST OF THE GREAT DAM IS BASED ON AN ON-THE-GROUND SURVEY BY VHB, INC. IN SEPTEMBER 2014.
   - F. THE HORIZONTAL DATUM IS BASED ON NH GRID. THE ELEVATIONS SHOWN HEREON REFER TO NAVD 1988 – GEOID 12A.
   - G. WETLAND BOUNDARIES DEPICTED ON PLANS ARE COWARDIN CLASSIFICATIONS COMPLETED BY A VHB WETLAND SCIENTIST USING AERIAL ORTHOIMAGERY AND NOT ON-THE-GROUND SURVEY.
2. GEOTECHNICAL DATA INCLUDING TEST PIT AND BORING LOCATIONS AND ELEVATIONS WERE OBTAINED FROM PARE CORPORATION AND ARE DETAILED IN THEIR REPORT TITLED "GEOTECHNICAL DESIGN BASIS REPORT, PROPOSED REMOVAL OF GREAT DAM, EXETER RIVER, EXETER, NEW HAMPSHIRE", DATED DECEMBER 2014. BORING LOCATIONS ARE DEPICTED ON SHEET C-2. BORING LOG DATA IS PROVIDED IN THE FINAL REPORT AND CAN BE OBTAINED BY CONTACTING THE TOWN OF EXETER ENGINEER, MR. PAUL VLASICH AT 603-773-6160.

Demolition

1. SUBMIT THE FOLLOWING INFORMATION TO THE ENGINEER FOR REVIEW BEFORE COMMENCING WORK:
   - 1.1. PERMITS FOR TRANSPORT AND DISPOSAL OF DEBRIS.
   - 1.2. DEMOLITION PROCEDURES AND OPERATIONAL SEQUENCE.
   - 1.3. CALCULATIONS
2. DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
3. THE DEMOLITION LIMITS DEPICTED ON THE PLANS ARE INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
4. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.
5. CEASE OPERATIONS IMMEDIATELY IF ANY DAMAGE, SETTLEMENT, OR OTHER ADVERSE EFFECT ON ADJACENT STRUCTURES OCCUR. HOWEVER, IF AN UNSAFE CONDITION IS CREATED THAT WOULD POTENTIALLY CAUSE INJURY TO PERSONS OR UNDUE HARM TO PROPERTIES, TAKE WHATEVER MEASURES ARE WARRANTED TO PREVENT SUCH INJURY OR HARM. IMMEDIATELY NOTIFY THE ENGINEER AND REGULATORY AGENCIES. DO NOT RESUME OPERATIONS UNTIL CONDITIONS ARE CORRECTED, DAMAGE REPAIRED, AND APPROVAL HAS BEEN RECEIVED FROM THE APPROPRIATE AUTHORITIES AND THE OWNER'S REPRESENTATIVE.
6. OBTAIN WRITTEN PERMISSION FROM ADJACENT PROPERTY OWNERS WHEN DEMOLITION EQUIPMENT WILL TRANSVERSE, INFRINGE UPON, OR AFFECT ACCESS TO THEIR PROPERTY. COPIES OF THE PERMISSION DOCUMENTS SHALL BE SUBMITTED TO THE ENGINEER.
7. PROVIDE HOSES AND WATER CONNECTIONS AND SPRAY WATER ON DEMOLITION DEBRIS TO MINIMIZE DUST.
8. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO THE CONDITION WHICH EXISTED PRIOR TO START OF WORK.
9. ALL HAZARDOUS WASTE REMOVAL SHALL BE PERFORMED BY A HAZARDOUS WASTER CONTRACTOR QUALIFIED AND DULY LICENSED IN THE STATE OF NEW HAMPSHIRE TO REMOVE, TRANSPORT, AND DISPOSE OF EACH TYPE OF HAZARDOUS SUBSTANCE.

Erosion Control

1. INSPECT AND MAINTAIN EROSION CONTROL MEASURES WITHIN TWELVE HOURS AFTER EACH STORM EVENT (0.25" OF RAINFALL OR GREATER) AND DISPOSE OF DEPOSITED SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES, EROSION CONTROL MEASURES AND PROTECTED AREAS.
2. CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION DOES NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
3. PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
4. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS.
5. TEMPORARILY SEED AND MULCH AREAS REMAINING UNSTABILIZED FOR A PERIOD OF MORE THAN 7 DAYS. CLEAN, WEED FREE, STRAW MULCH SHALL BE APPLIED AT A MINIMUM RATE OF 1-1/2 TONS/ACRE, WHICH EQUALS A THICKNESS OF APPROXIMATELY 1 INCH.
6. PERMANENT SEEDING SHALL OCCUR BETWEEN APRIL 1 AND JUNE 1, AND/OR BETWEEN AUGUST 15 AND OCTOBER 15. ALL SEEDING SHALL BE STRAW MULCHED.
7. APPLY WATER AS NEEDED TO CONTROL DUST
8. TEMPORARILY SEED AND MULCH SOILS TO BE STOCKPILED FOR A PERIOD OF MORE THAN 7 DAYS. INSTALL SILT FENCING ALONG DOWNHILL SIDE OF STOCKPILES.
9. PROVIDE NECESSARY EROSION CONTROL MEASURES TO INSURE THAT SURFACE WATER RUNOFF FROM UNSTABILIZED AREAS DOES NOT CARRY SILT, SEDIMENT, AND OTHER DEBRIS OUTSIDE OF THE LIMITS OF WORK.
10. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    - A. A MINIMUM OF 85% VEGETATED COVER HAS BEEN ESTABLISHED;
    - B. A MINIMUM OF 3-IN OF NON-EROSIVE MATERIAL, SUCH AS STONE OR RIPRAP, HAS BEEN INSTALLED;
    - C. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED. THE ENGINEER SHALL BE RESPONSIBLE FOR MAKING A DETERMINATION AS TO WHETHER AN AREA IS STABLE.
11. ALL DITCHES, SWALES, AND DRAINAGE BASINS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
12. LOAM, SEED, MULCH, OR MAT FILL ALL CUT AND FILL SLOPES, IF REQUIRED, WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
13. ALL PERMANENT AND TEMPORARY SEEDING SHALL BE FREE OF NOXIOUS WEED SEED.
14. NO FERTILIZERS (EXCEPT LIMESTONE) SHALL BE USED WITHIN 25 FEET OF THE RIVER. FROM 25-250 FEET, LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER MAY BE USED. THESE FERTILIZERS MUST BE GUARANTEED ON THE PACKAGE LABEL TO CONTAIN NOT MORE THAN 2 PERCENT PHOSPHOROUS AND AT LEAST 50 PERCENT SLOW RELEASE NITROGEN.
15. INSTALL STABILIZED CONSTRUCTION ENTRANCES AT CONSTRUCTION ENTRANCES. DETERMINE FINAL LOCATION PRIOR TO CONSTRUCTION.

Winter Construction

1. ALTHOUGH WINTER CONSTRUCTION IS NOT ANTICIPATED, STABILIZE ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH. STABILIZATION METHODS INCLUDE SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE AND SECURED WITH ANCHORED NETTING, ELSEWHERE. COMPLETE THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING IN ADVANCE OF THAW OR SPRING MELTS, DO NOT INSTALL OVER ACCUMULATED SNOW OR FROZEN GROUND.
2. TEMPORARILY STABILIZE ALL DITCHES OR SWALES, WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS, WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH,

State Regulations

1. RSA 482-A, WETLAND DREDGE AND FILL, NH DEPARTMENT OF ENVIRONMENTAL SERVICES, WETLANDS BUREAU.
2. CLEAN WATER ACT, SECTION 401 WATER QUALITY CERTIFICATION, NH DEPARTMENT OF ENVIRONMENTAL SERVICES, WATERSHED MANAGEMENT BUREAU.
3. RSA 483-B, COMPREHENSIVE SHORELAND PROTECTION ACT, NH DEPARTMENT OF ENVIRONMENTAL SERVICES, WETLAND BUREAU.

Federal Regulations

1. CLEAN WATER ACT, SECTION 404, WETLAND DREDGE AND FILL PERMIT, US ARMY CORPS OF ENGINEERS.
2. USFWS ENDANGERED SPECIES ACT AND BIOLOGICAL OPINION.
3. NATIONAL HISTORIC PRESERVATION ACT, SECTION 106 CONSULTATION, NH STATE HISTORIC PRESERVATION OFFICE (NH DIVISION OF HISTORICAL RESOURCES).

Engineers
Scientists
Planners
Designers

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No.	Revision	Date	Appvd.

Designed by TM | Drawn by JB | Checked by JSA
CAD checked by TM | Approved by JSA
Scale ---- | Date 12/07/15

Project Title

Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

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Drawing Title

Legend and General Notes

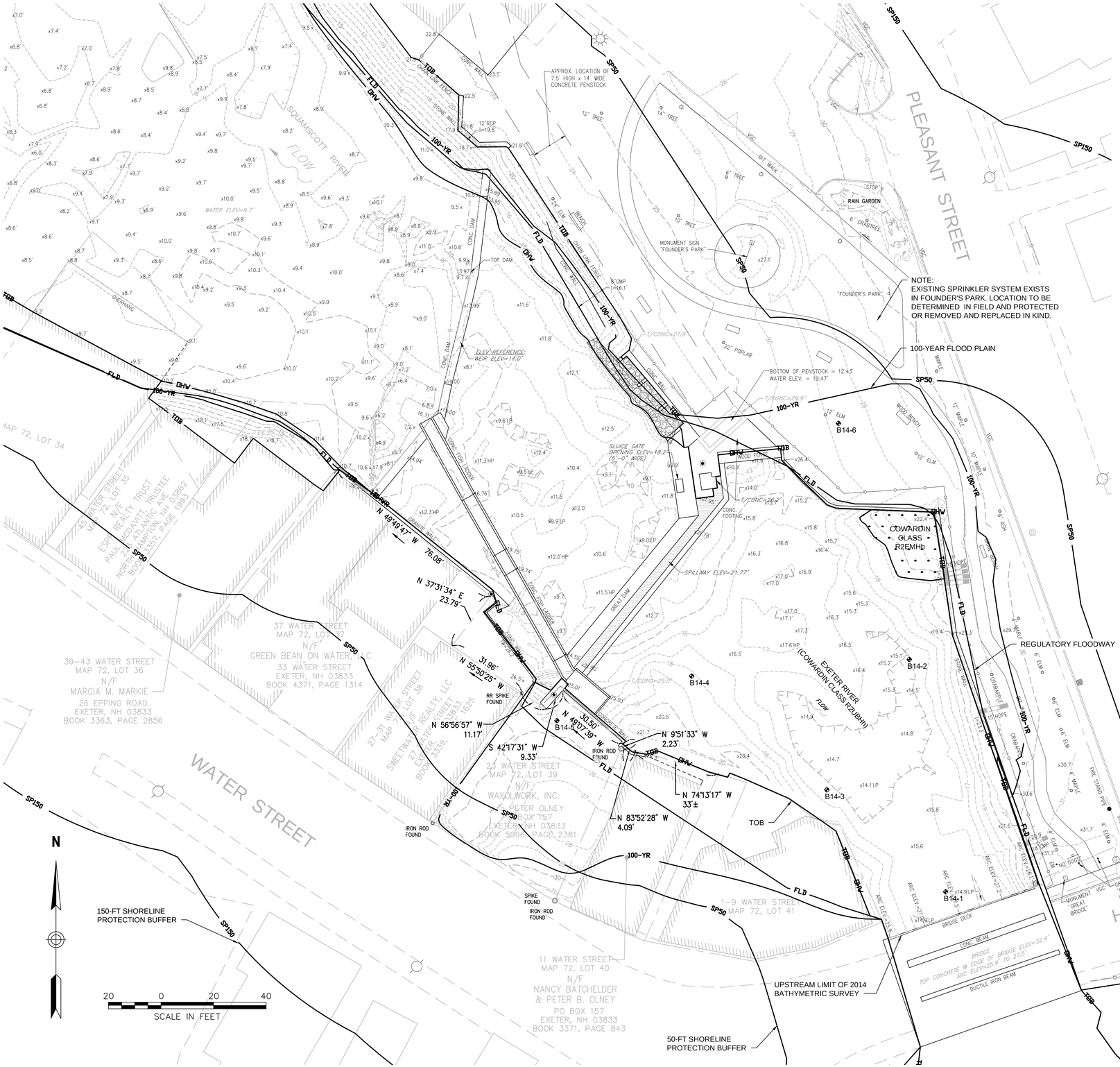
Drawing Number

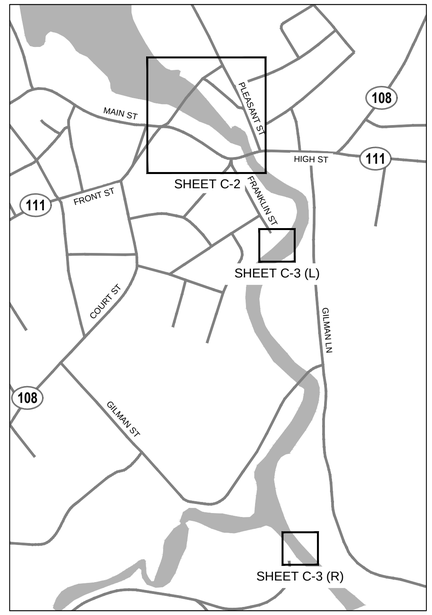
C-1

Sheet 1 of 14

Project Number 52151.04

LD-LG.DWG





LOCUS MAP

GENERAL NOTES:

1. THE HIGH TIDE LINE (MHHW) IS ESTIMATED TO BE EL. 3.49 NAVD88 AND IS BELOW THE PROJECT WORK AREA. THE MHHW EL. IS BASED ON NOAA TRANSFORMATION PREDICTIONS FOR SQUAMSCOTT RIVER RR. BRIDGE, NH (8422687) WHICH ARE OFFSET FROM ELEVATIONS FOR THE REFERENCE STATION PORTLAND (8418150).
2. 100-YEAR FLOODPLAIN DELINEATED USING ELEVATIONS SPECIFIED IN FEMA'S EFFECTIVE FLOOD INSURANCE STUDY (FIS) FOR ROCKINGHAM COUNTY, NEW HAMPSHIRE, DATED MAY 17, 2005 AND FEMA'S EFFECTIVE FLOOD INSURANCE RATE MAP (FIRM) FOR ROCKINGHAM COUNTY, NEW HAMPSHIRE, DATED MAY 17, 2005.
3. REGULATORY FLOODWAY DELINEATION BASED ON FEMA'S DIGITAL NATIONAL FLOOD HAZARD LAYER AND SHOWN ON THE FIRM.

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No.	Revision	Date	Appvd.

Designed by	TM	Drawn by	JB
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Project Title

Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

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Drawing Title

Existing Conditions Plan

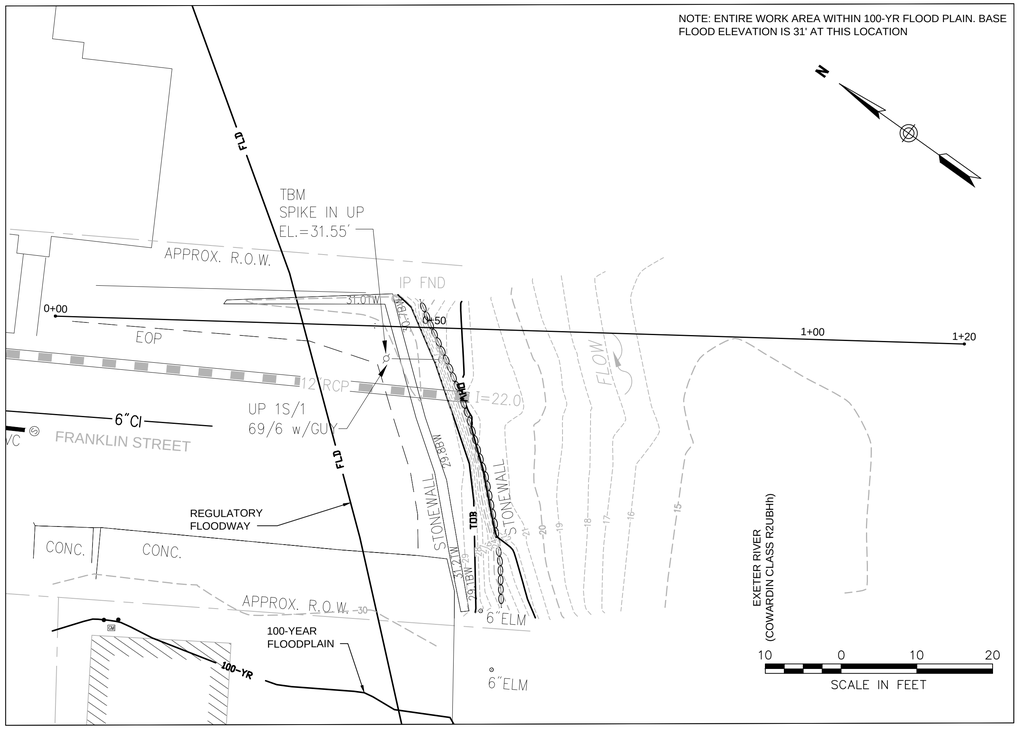
Drawing Number

C-2

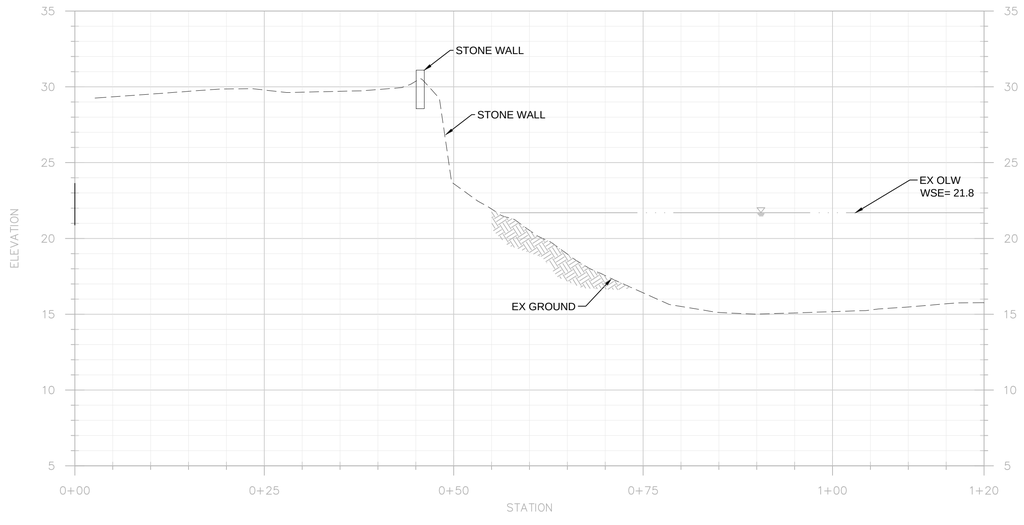
Sheet 2 of 14

Project Number 52151.04

LD-PRG.DWG

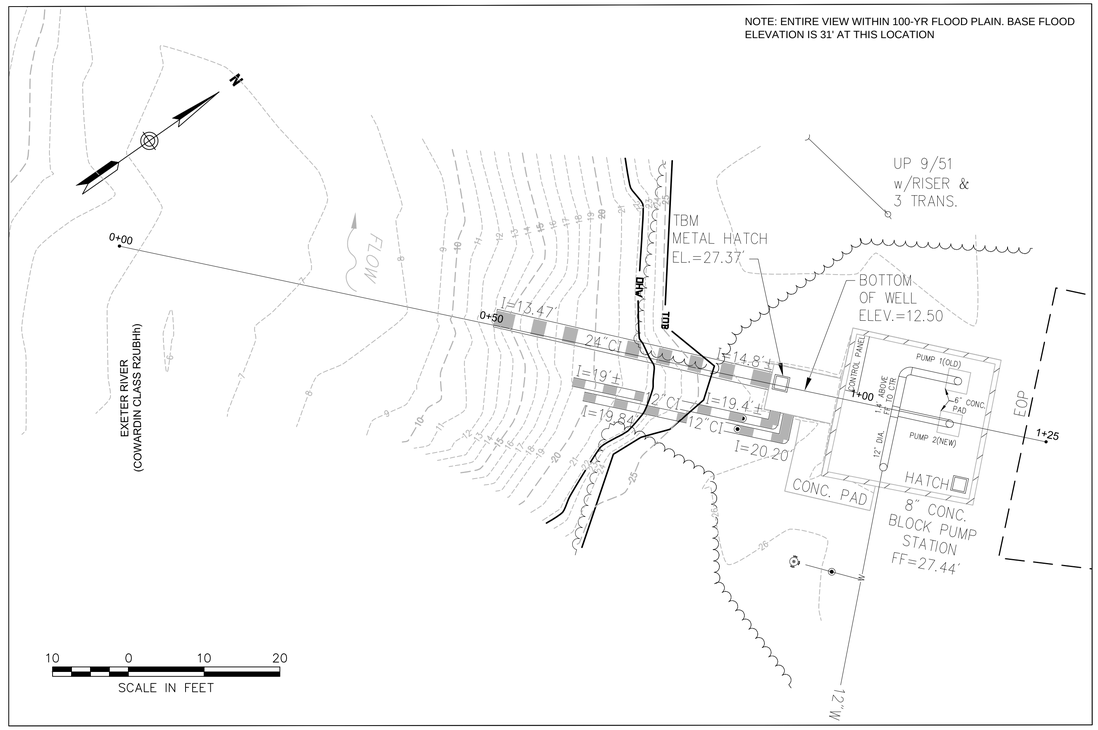


FRANKLIN ST. DRY HYDRANT PLAN

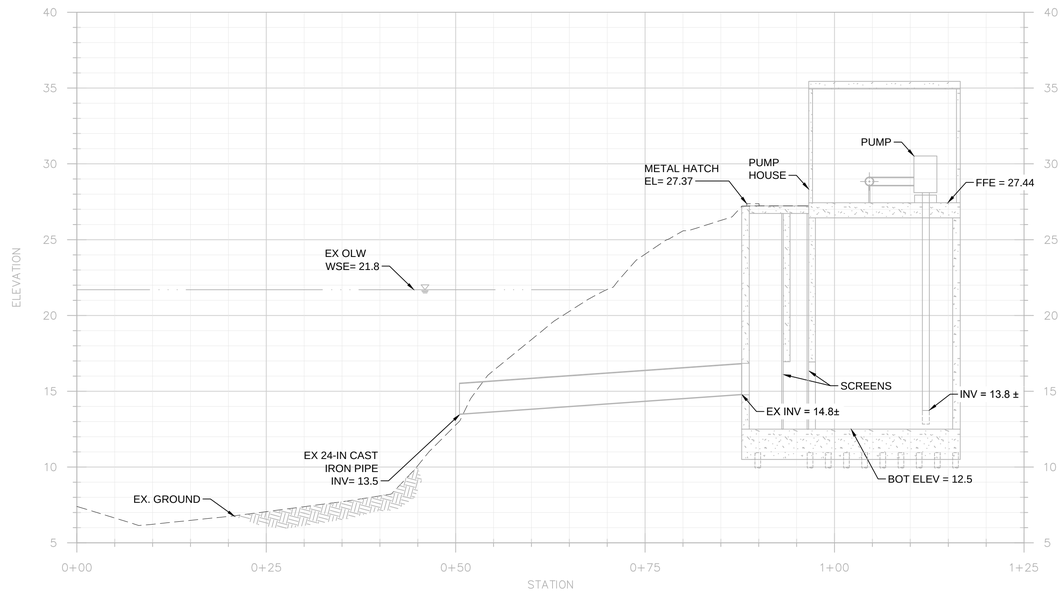


HORIZONTAL
10 0 10 20
5 0 5 10
VERTICAL
SCALE IN FEET

FRANKLIN ST. DRY HYDRANT PROFILE



PUMP HOUSE PLAN



HORIZONTAL
10 0 10 20
5 0 5 10
VERTICAL
SCALE IN FEET

PUMP HOUSE PROFILE

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Great Dam Removal and Exeter River Restoration

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Existing Conditions Plan

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C-3

Sheet 3 of 14

Project Number 52151.04

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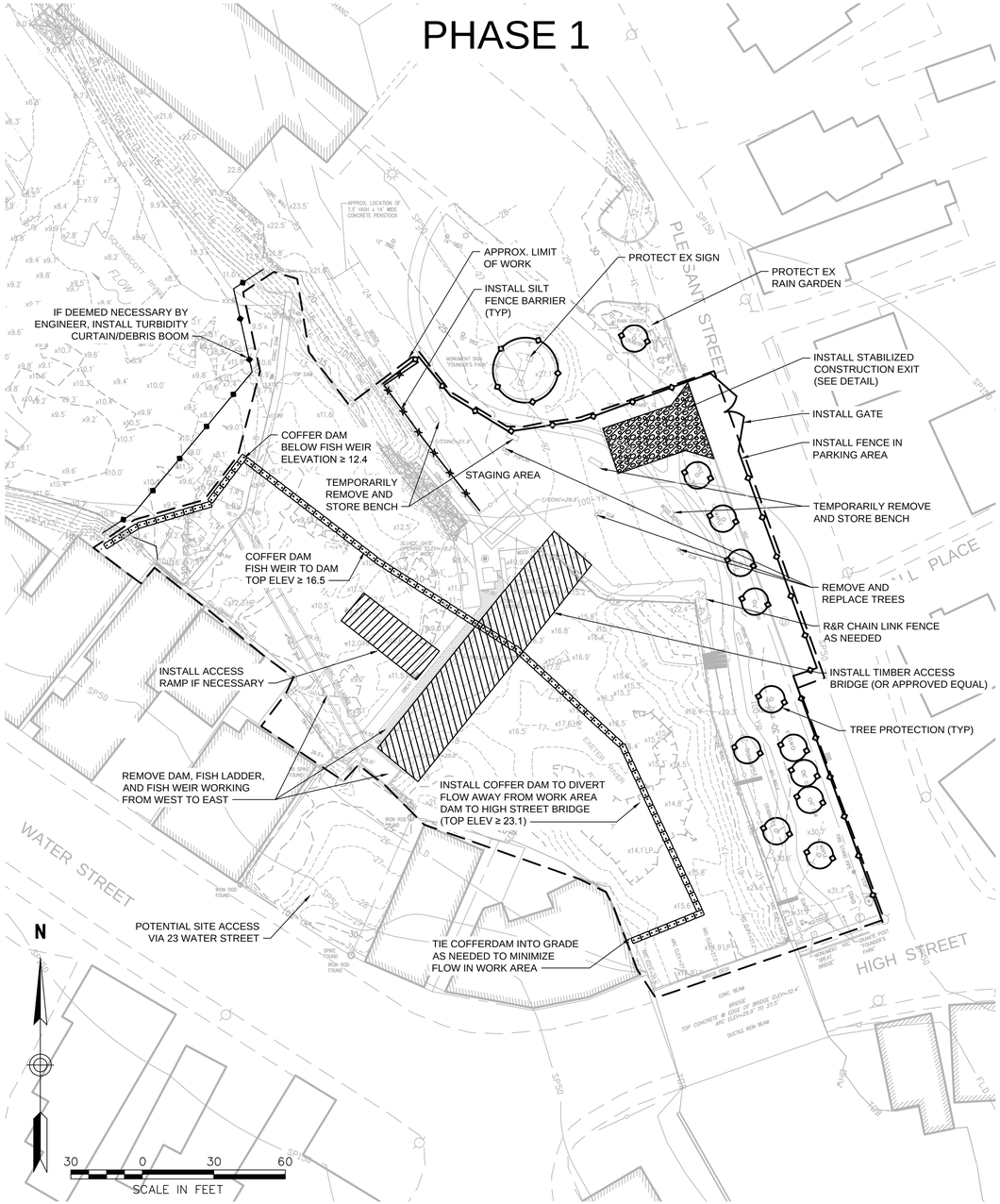
PHASE 1



Pre-Construction

1. TWO WEEKS PRIOR TO CONSTRUCTION, A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD WITH THE CONTRACTOR, TOWN, ENGINEER, AND REGULATORY AGENCIES TO DISCUSS THE PROPOSED PLAN/SCHEDULE, REVIEW PERMIT CONDITIONS, AND TO DISCUSS HIGH-FLOW CONTINGENCY PLANS.
2. PROVIDE A FINAL CONSTRUCTION SCHEDULE AND METHODS TO ENGINEER, TOWN AND NHDES AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION. DOCUMENT DETAILS OF PROPOSED RIVER DIVERSION, COFFERDAM CONSTRUCTION, CONSTRUCTION PHASING AND TEMPORARY EROSION CONTROL MEASURES TO BE IMPLEMENTED. ADDRESS THE ENTIRE WATER MANAGEMENT AND CONTROL PLAN, DAM REMOVAL AND RIVER RESTORATION PORTIONS OF THE PROJECT.

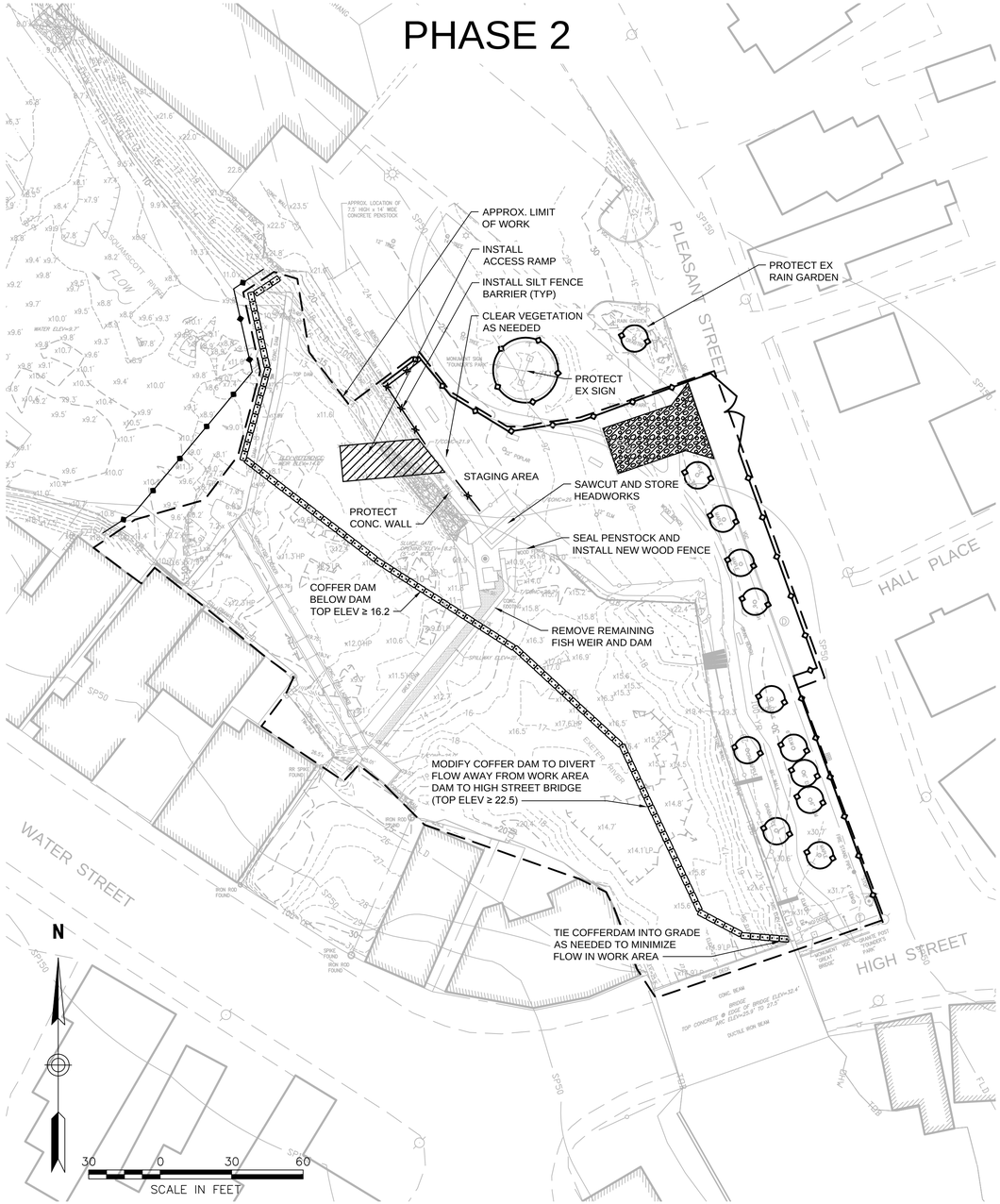
Timing

1. IN-STREAM WORK FOR DAM REMOVAL SHALL NOT COMMENCE UNTIL DRY WEATHER IS FORECASTED, GENERALLY FOR AT LEAST 3 TO 4 DAYS. SHOULD A SIGNIFICANT (GREATER THAN 0.5 INCH) RAINFALL EVENT OCCUR WHILE WORK IS BEING CONDUCTED IN THE RIVER, REMOVE ALL EQUIPMENT FROM THE RIVER UNTIL THE HIGH RIVER FLOW SUBSIDES.

Construction Staging & Initial Draw Down

1. INSTALL TEMPORARY EROSION CONTROL MEASURES PRIOR TO CONSTRUCTION. EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREA IS STABILIZED.
2. STRIP LOAM WITHIN AREAS DISTURBED BY GRADING AND/OR EQUIPMENT ACCESS AND STOCKPILE FOR LATER RESTORATION. DO NOT SALVAGE TOPSOIL FROM AREAS WITH NON-NATIVE, INVASIVE SPECIES.
3. GRADE THE EASTERN BANK AT THE CAUSEWAY TO ALLOW FOR EQUIPMENT ACCESS.
4. DRAW DOWN THE IMPOUNDMENT BY OPENING THE LOW LEVEL OUTLET ON THE EAST BANK.
5. CONDUCT WORK IN THE DRY TO THE EXTENT POSSIBLE TO MINIMIZE TURBIDITY. ADDRESS WET VS. DRY CONSTRUCTION IN THE FINAL SCHEDULE & METHODS. METHODS TO BE REVIEWED AND ACCEPTED BY THE ENGINEER AND NHDES.
6. INSTALL A TEMPORARY COFFERDAM ON THE UPSTREAM FACE OF THE DAM TO ALLOW FOR ADEQUATE DE-WATERING, SITE PREPARATION, AND DEMOLITION OF THE DAM. CHOOSE THE COFFERDAM CONSTRUCTION TYPE AS WELL AS METHODS FOR MANAGING AND CONTROLLING WATER THROUGHOUT THE CONSTRUCTION PERIOD, BUT THE DESIGN IS SUBJECT TO REVIEW AND ACCEPTANCE BY THE ENGINEER AND NHDES WETLANDS BUREAU.
7. INSTALL TIMBER ACCESS BRIDGE FROM EAST BANK TO WEST BANK. PLACE THE COFFERDAM, STARTING FROM THE WEST BANK TO BEGIN DEMOLITION OF DAM ALONG WEST BANK MOVING TOWARD THE EAST ABUTMENT. THE COFFERDAM SHOULD EXTEND FAR ENOUGH DOWNSTREAM TO PREVENT BACKWATER FROM ENTERING THE DAM REMOVAL AREA.
8. DEWATER TURBID WATER, IF REQUIRED, BY DISCHARGING TO A STABILIZED SEDIMENT BASIN/TRAP CONSTRUCTED IN ONSITE UPLANDS AND IN ACCORDANCE WITH THE "STORMWATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR DEVELOPING AREAS IN NEW HAMPSHIRE." LOCATE BASIN/TRAP IN AN UPLAND AREA AS FAR AS PRACTICAL FROM THE RIVER. CLEAN WATER MAY BE DISCHARGED DIRECTLY.

PHASE 2



DEWATERING METHODS SHALL BE SUBJECT TO THE REVIEW AND ACCEPTANCE OF THE ENGINEER.

9. AT THE DISCRETION OF THE ENGINEER, INSTALL A TURBIDITY CURTAIN AND/OR FLOATING DEBRIS BOOM TO CONTAIN SUSPENDED SEDIMENT DURING DREDGING OPERATIONS (OUTSIDE OF THE TEMPORARY COFFERDAM).

Phase 1 - Suggested Sequence of Construction

1. DRAW DOWN IMPOUNDMENT
2. INSTALL COFFER DAM (SAND BAGS, PORTADAM, OR APPROVED EQUAL) TO ALLOW WORK ON WEST SIDE OF CHANNEL. COFFER DAM HEIGHT TO TRANSITION BETWEEN ELEVATIONS SHOWN (APPROX BANKFULL STORM ELEVATION)
3. INSTALL TIMBER MATS & RAMP ACCESS BRIDGE FROM EAST BANK TOWARDS WEST BANK
4. REMOVE LOWER FISH WEIR IN WEST SIDE OF RIVER
5. REMOVE FISH LADDER
6. REMOVE CONCRETE DAM IN WEST SIDE OF RIVER
7. GRADE CHANNEL WITHIN COFFER DAM AREA
8. SEED AND RESTORE WESTERN BANKS AS SHOWN ON SHEET C-10.

Phase 2 - Suggested Sequence of Construction

1. ADJUST COFFER DAM LOCATION TO COMPLETE WORK ON EAST SIDE OF CHANNEL, HEIGHTS TO TRANSITION BETWEEN ELEVATIONS SHOWN (APPROX BANKFULL ELEVATION)
2. ADJUST TIMBER MATS IF NECESSARY
3. REMOVE FISH WEIR IN EAST SIDE OF RIVER
4. REMOVE CONCRETE DAM IN EAST SIDE OF RIVER
5. SAWCUT CONC. AT DAM HEADWORKS AND REMOVE GEAR WORKS FOR FUTURE USE
6. SEAL PENSTOCK AND REMOVE LOW FLOW OUTLET
7. GRADE REMAINING CHANNEL WITHIN COFFER DAM AREA
8. SEED AND RESTORE EASTERN BANKS AS SHOWN ON SHEET C-10.

Phase 3 - Suggested Sequence of Construction

1. FOLLOWING FIRST SPRING MIGRATION SEASON POST CONSTRUCTION, ADJUST GRADING AND BOULDER PLACEMENT AT DIRECTION OF ENGINEER

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Project Title

Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

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Drawing Title

Staging and Construction Sequence

Drawing Number

C-4

Sheet of 4 14

Project Number 52151.04

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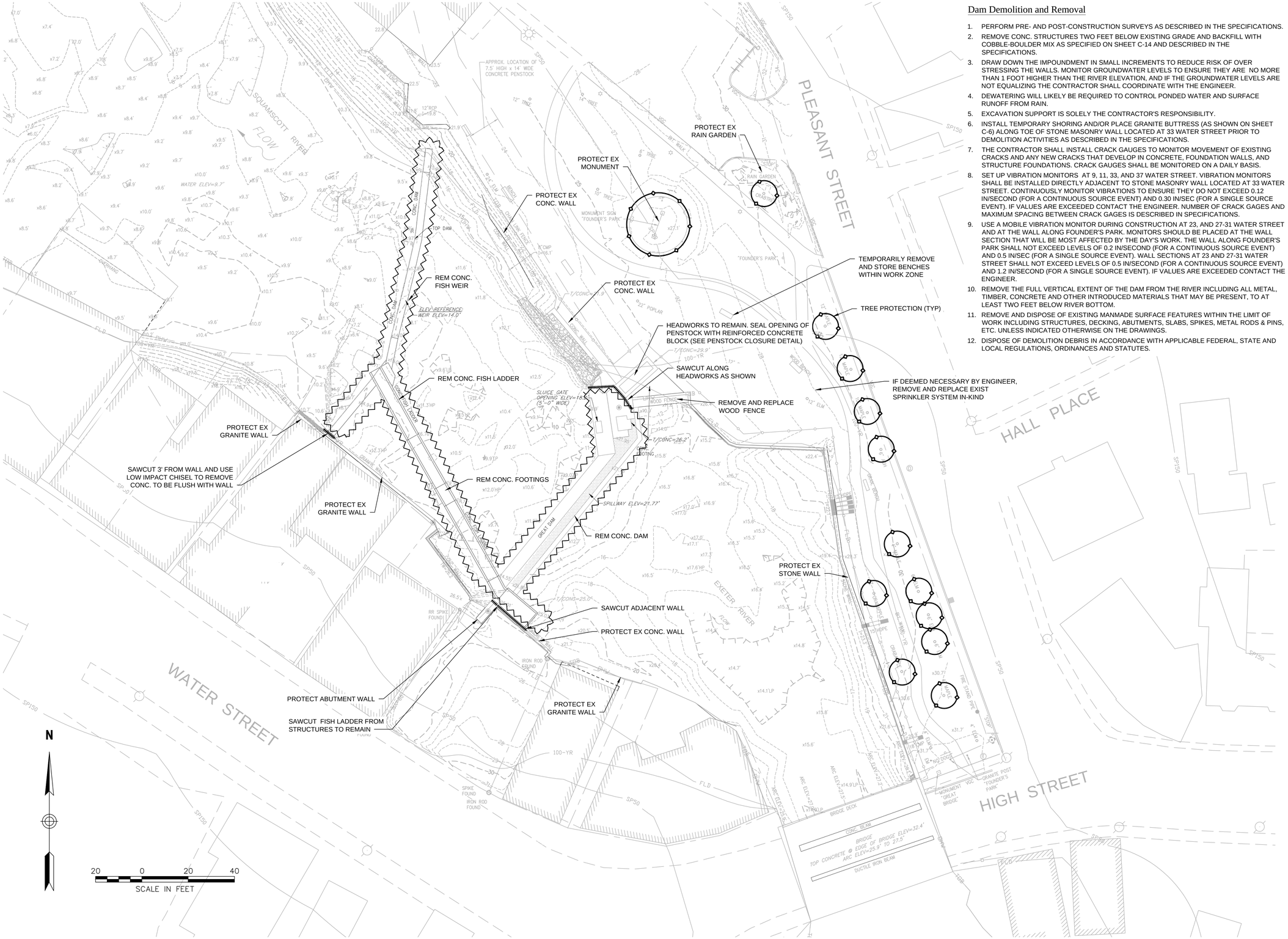

Dam Demolition and Removal

1. PERFORM PRE- AND POST-CONSTRUCTION SURVEYS AS DESCRIBED IN THE SPECIFICATIONS.
2. REMOVE CONC. STRUCTURES TWO FEET BELOW EXISTING GRADE AND BACKFILL WITH COBBLE-BOULDER MIX AS SPECIFIED ON SHEET C-14 AND DESCRIBED IN THE SPECIFICATIONS.
3. DRAW DOWN THE IMPOUNDMENT IN SMALL INCREMENTS TO REDUCE RISK OF OVER STRESSING THE WALLS. MONITOR GROUNDWATER LEVELS TO ENSURE THEY ARE NO MORE THAN 1 FOOT HIGHER THAN THE RIVER ELEVATION, AND IF THE GROUNDWATER LEVELS ARE NOT EQUALIZING THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER.
4. DEWATERING WILL LIKELY BE REQUIRED TO CONTROL PONDED WATER AND SURFACE RUNOFF FROM RAIN.
5. EXCAVATION SUPPORT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY.
6. INSTALL TEMPORARY SHORING AND/OR PLACE GRANITE BUTTRESS (AS SHOWN ON SHEET C-6) ALONG TOE OF STONE MASONRY WALL LOCATED AT 33 WATER STREET PRIOR TO DEMOLITION ACTIVITIES AS DESCRIBED IN THE SPECIFICATIONS.
7. THE CONTRACTOR SHALL INSTALL CRACK GAUGES TO MONITOR MOVEMENT OF EXISTING CRACKS AND ANY NEW CRACKS THAT DEVELOP IN CONCRETE, FOUNDATION WALLS, AND STRUCTURE FOUNDATIONS. CRACK GAUGES SHALL BE MONITORED ON A DAILY BASIS.
8. SET UP VIBRATION MONITORS AT 9, 11, 33, AND 37 WATER STREET. VIBRATION MONITORS SHALL BE INSTALLED DIRECTLY ADJACENT TO STONE MASONRY WALL LOCATED AT 33 WATER STREET. CONTINUOUSLY MONITOR VIBRATIONS TO ENSURE THEY DO NOT EXCEED 0.12 IN/SECOND (FOR A CONTINUOUS SOURCE EVENT) AND 0.30 IN/SEC (FOR A SINGLE SOURCE EVENT). IF VALUES ARE EXCEEDED CONTACT THE ENGINEER. NUMBER OF CRACK GAGES AND MAXIMUM SPACING BETWEEN CRACK GAGES IS DESCRIBED IN SPECIFICATIONS.
9. USE A MOBILE VIBRATION MONITOR DURING CONSTRUCTION AT 23, AND 27-31 WATER STREET AND AT THE WALL ALONG FOUNDER'S PARK. MONITORS SHOULD BE PLACED AT THE WALL SECTION THAT WILL BE MOST AFFECTED BY THE DAY'S WORK. THE WALL ALONG FOUNDER'S PARK SHALL NOT EXCEED LEVELS OF 0.2 IN/SECOND (FOR A CONTINUOUS SOURCE EVENT) AND 0.5 IN/SEC (FOR A SINGLE SOURCE EVENT). WALL SECTIONS AT 23 AND 27-31 WATER STREET SHALL NOT EXCEED LEVELS OF 0.5 IN/SECOND (FOR A CONTINUOUS SOURCE EVENT) AND 1.2 IN/SECOND (FOR A SINGLE SOURCE EVENT). IF VALUES ARE EXCEEDED CONTACT THE ENGINEER.
10. REMOVE THE FULL VERTICAL EXTENT OF THE DAM FROM THE RIVER INCLUDING ALL METAL, TIMBER, CONCRETE AND OTHER INTRODUCED MATERIALS THAT MAY BE PRESENT, TO AT LEAST TWO FEET BELOW RIVER BOTTOM.
11. REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING STRUCTURES, DECKING, ABUTMENTS, SLABS, SPIKES, METAL RODS & PINS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
12. DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.

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Exeter, New Hampshire

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Drawing Title

Structure Demolition Plan

Drawing Number

C-5

Sheet 5 of 14

Project Number
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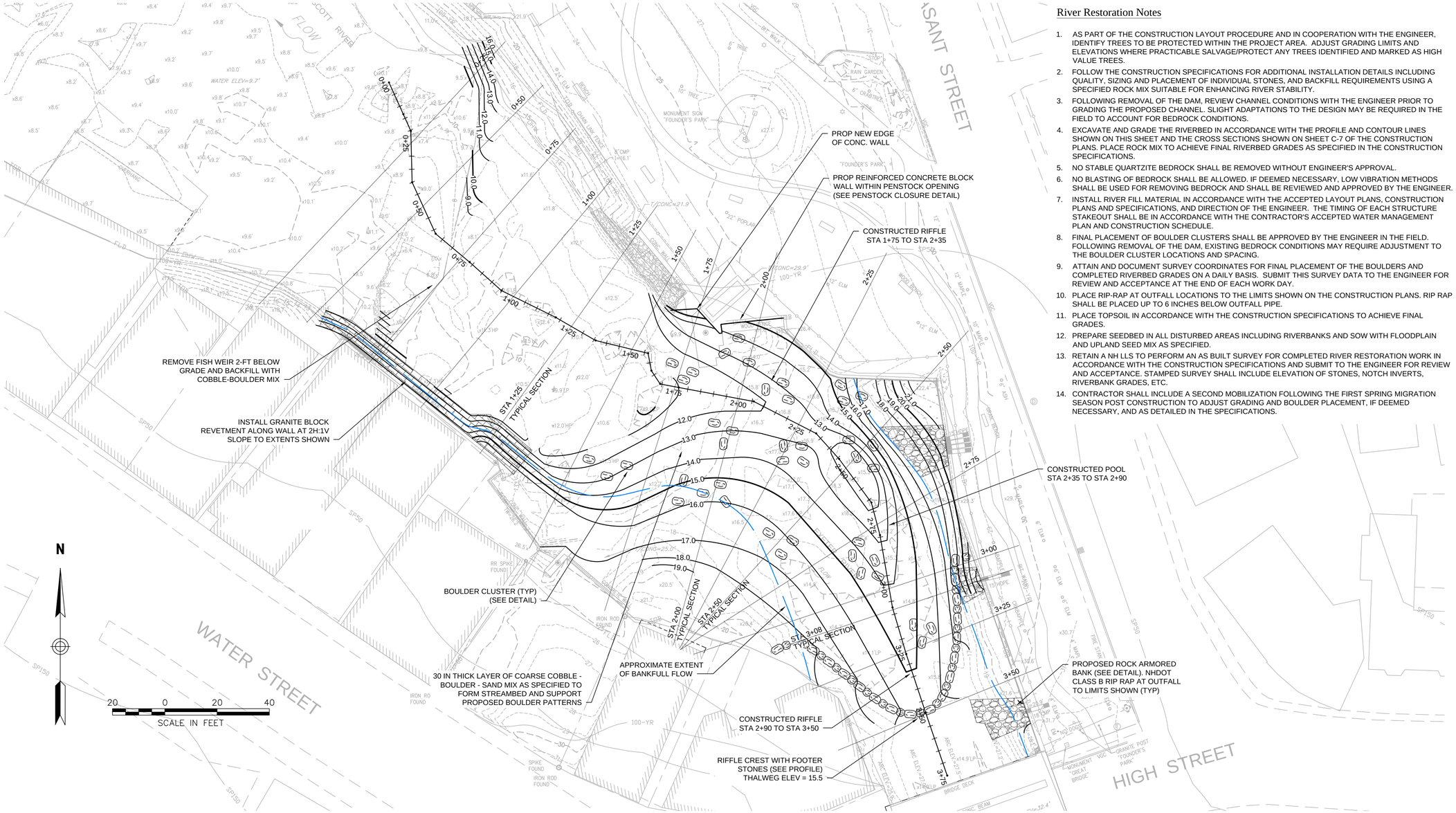

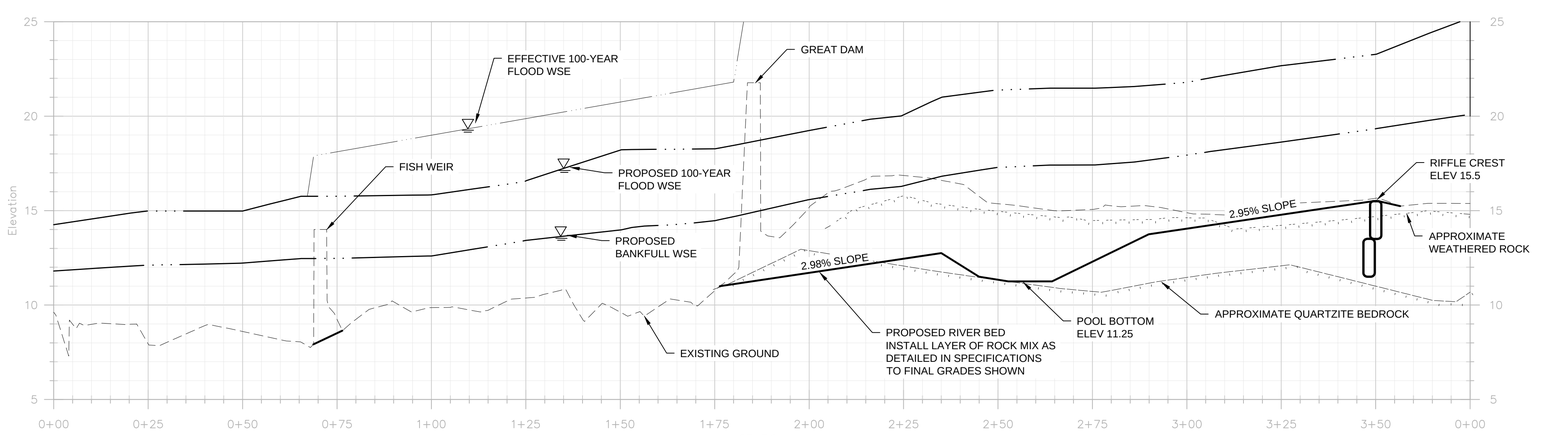

River Restoration Notes

1. AS PART OF THE CONSTRUCTION LAYOUT PROCEDURE AND IN COOPERATION WITH THE ENGINEER, IDENTIFY TREES TO BE PROTECTED WITHIN THE PROJECT AREA. ADJUST GRADING LIMITS AND ELEVATIONS WHERE PRACTICABLE SALVAGE/PROTECT ANY TREES IDENTIFIED AND MARKED AS HIGH VALUE TREES.
2. FOLLOW THE CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INSTALLATION DETAILS INCLUDING QUALITY, SIZING AND PLACEMENT OF INDIVIDUAL STONES, AND BACKFILL REQUIREMENTS USING A SPECIFIED ROCK MIX SUITABLE FOR ENHANCING RIVER STABILITY.
3. FOLLOWING REMOVAL OF THE DAM, REVIEW CHANNEL CONDITIONS WITH THE ENGINEER PRIOR TO GRADING THE PROPOSED CHANNEL. SLIGHT ADAPTATIONS TO THE DESIGN MAY BE REQUIRED IN THE FIELD TO ACCOUNT FOR BEDROCK CONDITIONS.
4. EXCAVATE AND GRADE THE RIVERBED IN ACCORDANCE WITH THE PROFILE AND CONTOUR LINES SHOWN ON THIS SHEET AND THE CROSS SECTIONS SHOWN ON SHEET C-7 OF THE CONSTRUCTION PLANS. PLACE ROCK MIX TO ACHIEVE FINAL RIVERBED GRADES AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS.
5. NO STABLE QUARTZITE BEDROCK SHALL BE REMOVED WITHOUT ENGINEER'S APPROVAL.
6. NO BLASTING OF BEDROCK SHALL BE ALLOWED. IF DEEMED NECESSARY, LOW VIBRATION METHODS SHALL BE USED FOR REMOVING BEDROCK AND SHALL BE REVIEWED AND APPROVED BY THE ENGINEER.
7. INSTALL RIVER FILL MATERIAL IN ACCORDANCE WITH THE ACCEPTED LAYOUT PLANS, CONSTRUCTION PLANS AND SPECIFICATIONS, AND DIRECTION OF THE ENGINEER. THE TIMING OF EACH STRUCTURE STAKEOUT SHALL BE IN ACCORDANCE WITH THE CONTRACTOR'S ACCEPTED WATER MANAGEMENT PLAN AND CONSTRUCTION SCHEDULE.
8. FINAL PLACEMENT OF BOULDER CLUSTERS SHALL BE APPROVED BY THE ENGINEER IN THE FIELD. FOLLOWING REMOVAL OF THE DAM, EXISTING BEDROCK CONDITIONS MAY REQUIRE ADJUSTMENT TO THE BOULDER CLUSTER LOCATIONS AND SPACING.
9. ATTAIN AND DOCUMENT SURVEY COORDINATES FOR FINAL PLACEMENT OF THE BOULDERS AND COMPLETED RIVERBED GRADES ON A DAILY BASIS. SUBMIT THIS SURVEY DATA TO THE ENGINEER FOR REVIEW AND ACCEPTANCE AT THE END OF EACH WORK DAY.
10. PLACE RIP-RAP AT OUTFALL LOCATIONS TO THE LIMITS SHOWN ON THE CONSTRUCTION PLANS. RIP RAP SHALL BE PLACED UP TO 6 INCHES BELOW OUTFALL PIPE.
11. PLACE TOPSOIL IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS TO ACHIEVE FINAL GRADES.
12. PREPARE SEEDBED IN ALL DISTURBED AREAS INCLUDING RIVERBANKS AND SOW WITH FLOODPLAIN AND UPLAND SEED MIX AS SPECIFIED.
13. RETAIN A NH LLS TO PERFORM AN AS BUILT SURVEY FOR COMPLETED RIVER RESTORATION WORK IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS AND SUBMIT TO THE ENGINEER FOR REVIEW AND ACCEPTANCE. STAMPED SURVEY SHALL INCLUDE ELEVATION OF STONES, NOTCH INVERTS, RIVERBANK GRADES, ETC.
14. CONTRACTOR SHALL INCLUDE A SECOND MOBILIZATION FOLLOWING THE FIRST SPRING MIGRATION SEASON POST CONSTRUCTION TO ADJUST GRADING AND BOULDER PLACEMENT, IF DEEMED NECESSARY, AND AS DETAILED IN THE SPECIFICATIONS.

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Drawing Title

River Channel Grading Plan

Drawing Number

C-6

Sheet 6 of 14

Project Number 52151.04

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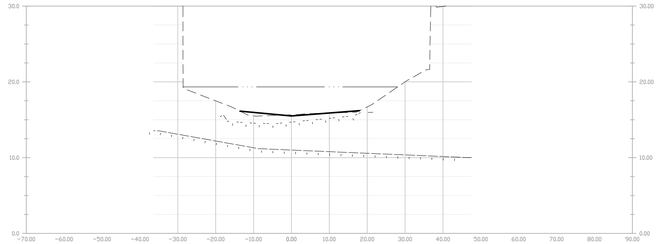

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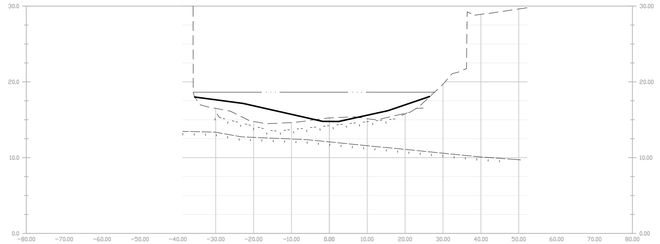

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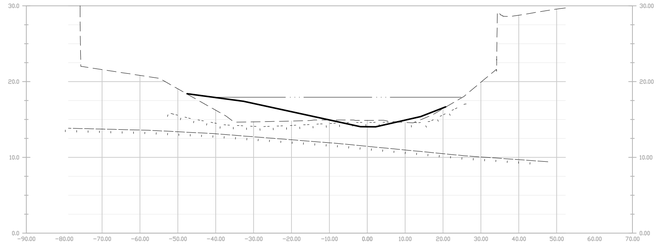

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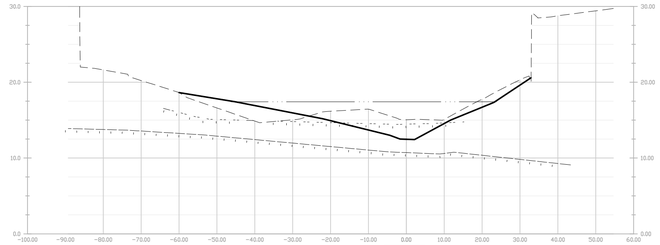

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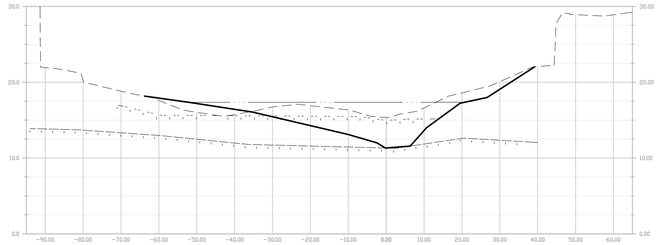

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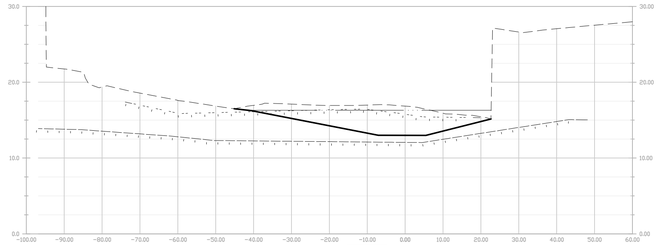

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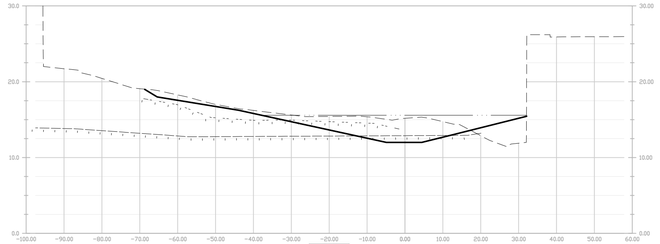

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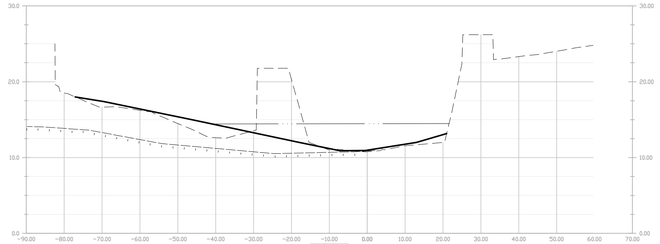

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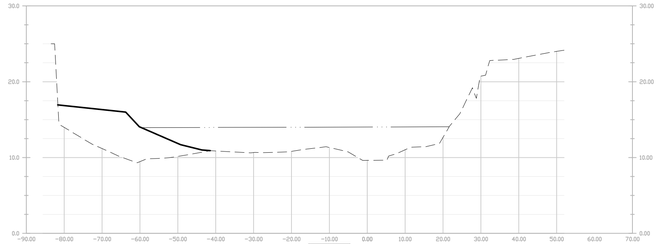

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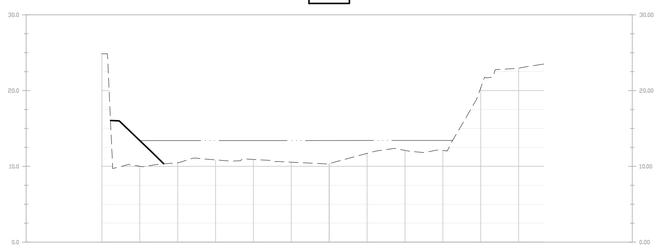

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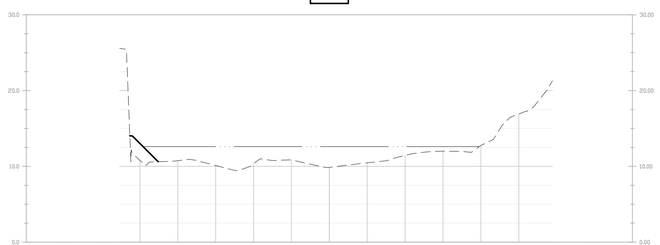

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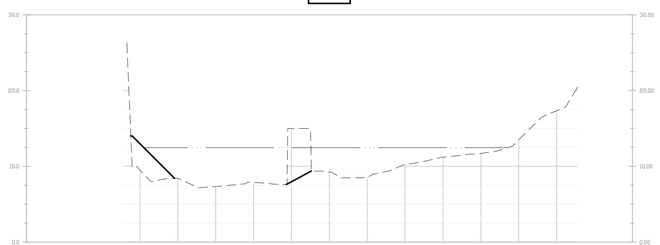

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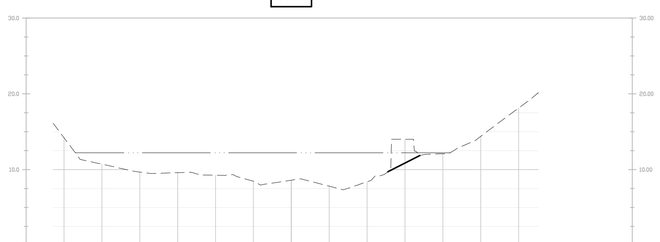
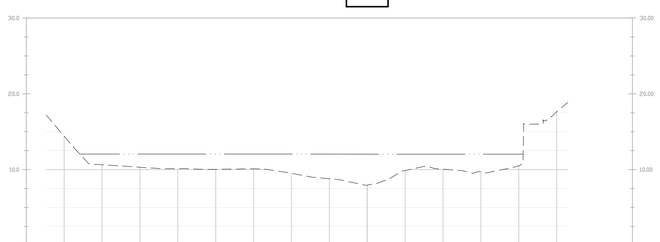


0+25



NOTE:
CROSS SECTIONS ARE DRAWN LOOKING DOWNSTREAM WITH THE EAST BANK SHOWN ON THE RIGHT AND THE WEST BANK SHOWN ON THE LEFT

Legend

- EXISTING SURFACE
- PROPOSED SURFACE
- PROPOSED BANKFULL WSE (1.5 YEAR)
- APPROXIMATED QUARTZITE BEDROCK
- APPROXIMATED WEATHERED ROCK

HORIZONTAL
10 0 10 20
5 0 5 10
VERTICAL
SCALE IN FEET

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Scientists
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Designers

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Checked by	JSA		
CAD checked by	TM	Approved by	JSA
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Project Title

Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

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Drawing Title

River Channel Cross Sections

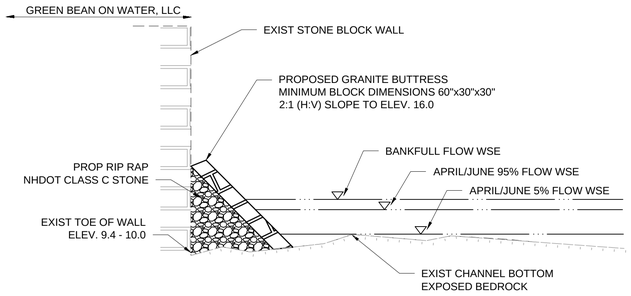
Drawing Number

C-7

Sheet 7 of 14

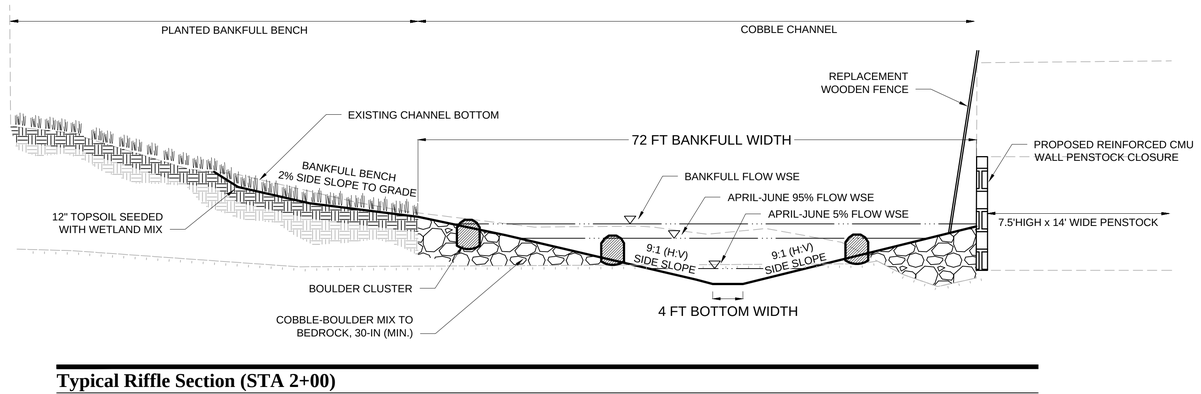
Project Number
52151.04

LD-PRG.DWG



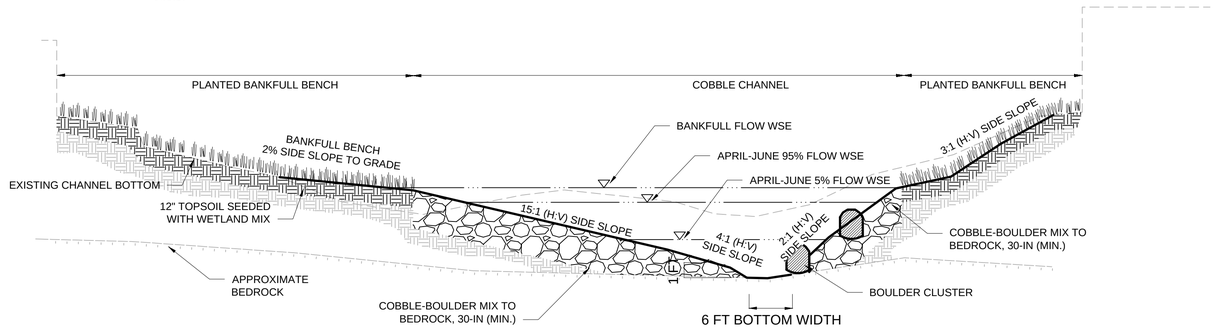
Granite Buttress at Green Bean on Water (STA 1+25)

N.T.S.



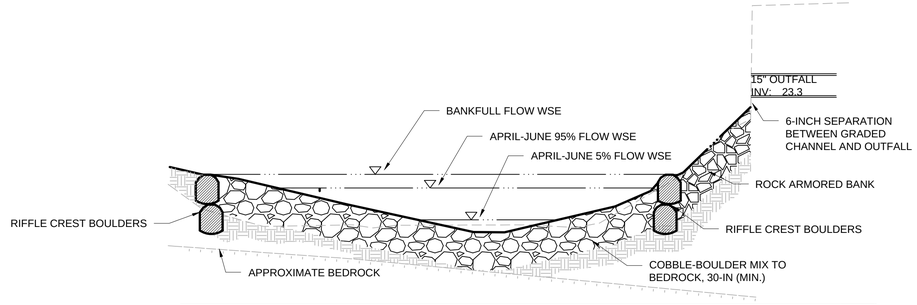
Typical Riffle Section (STA 2+00)

N.T.S.



Typical Pool Section (STA 2+50)

N.T.S.



Typical Section at Outfall along Pleasant Street (STA 3+08)

N.T.S.

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Great Dam Removal and Exeter River Restoration

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Drawing Title

Typical Cross Sections

Drawing Number

C-8

Sheet 8 of 14

Project Number 52151.04

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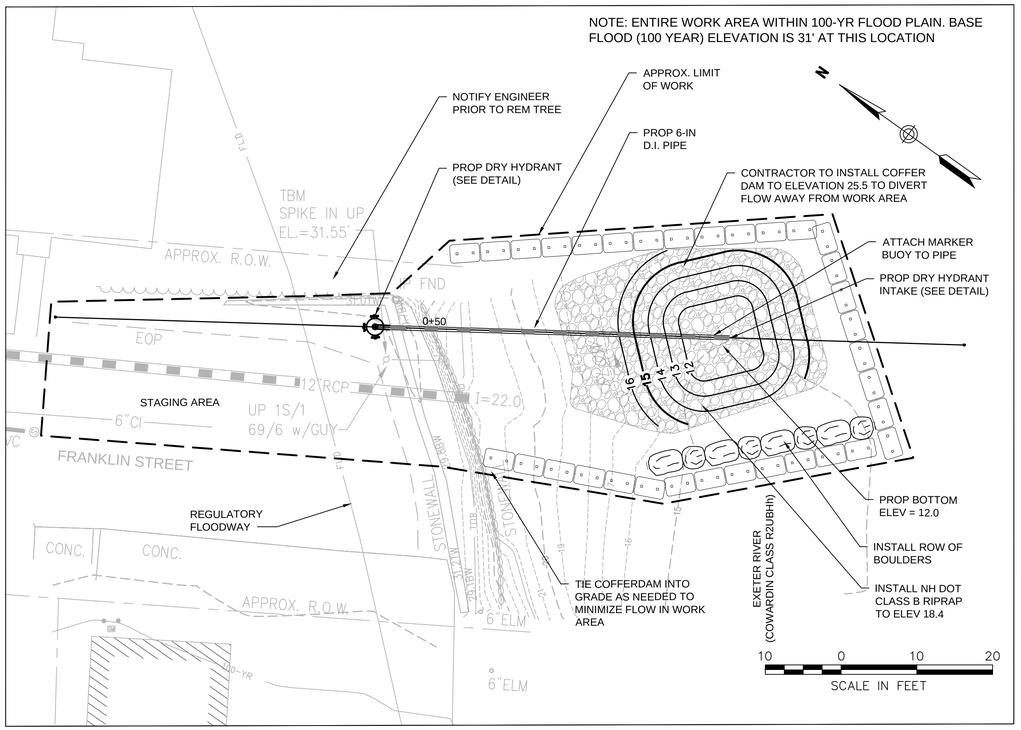
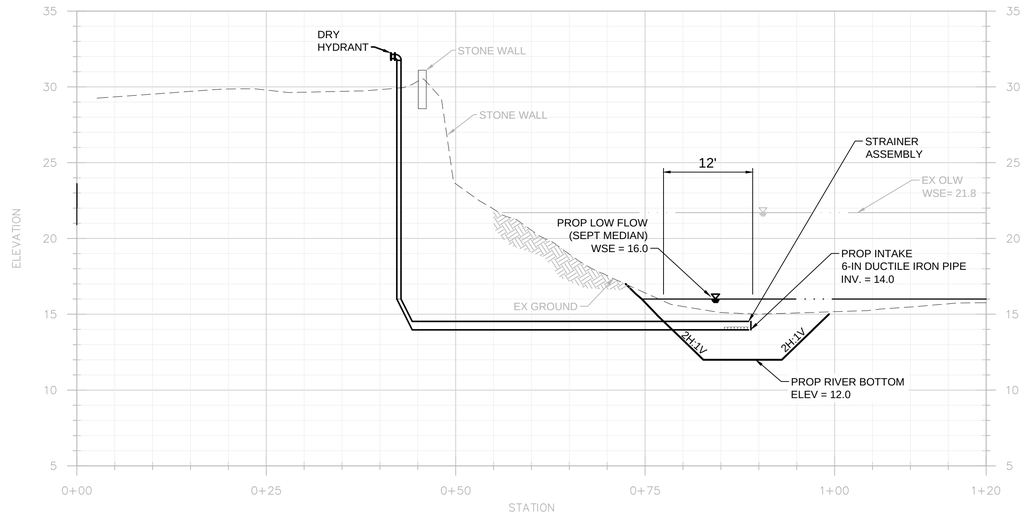
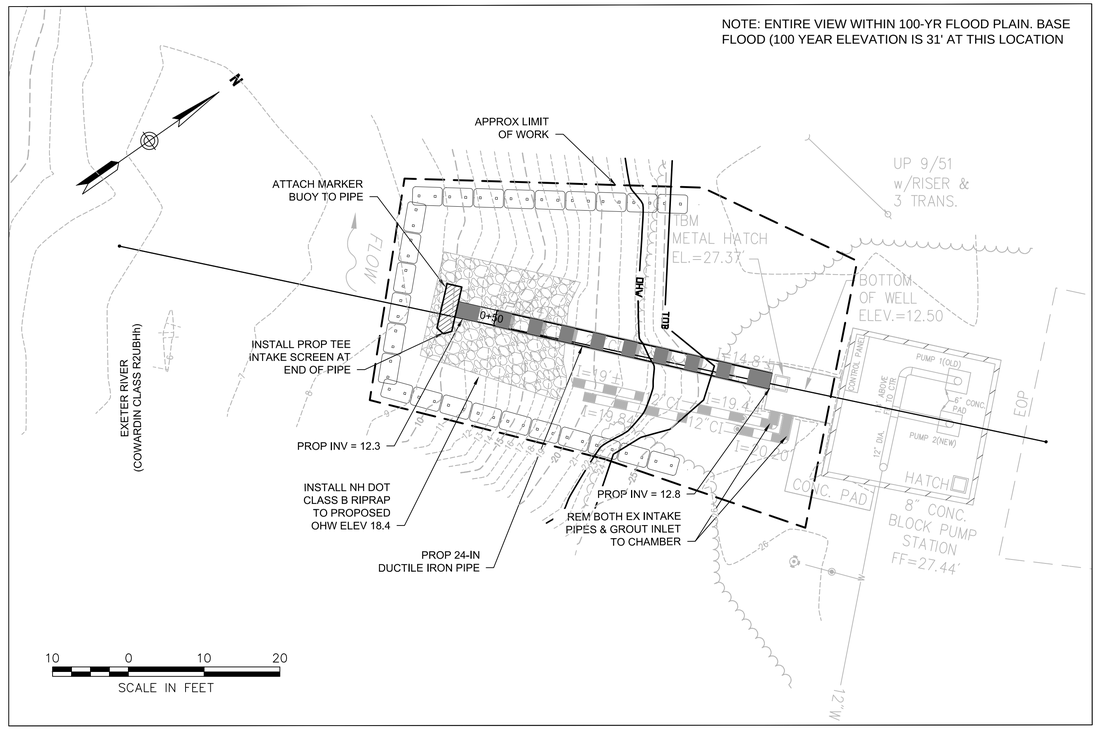


FRANKLIN ST. DRY HYDRANT PLAN

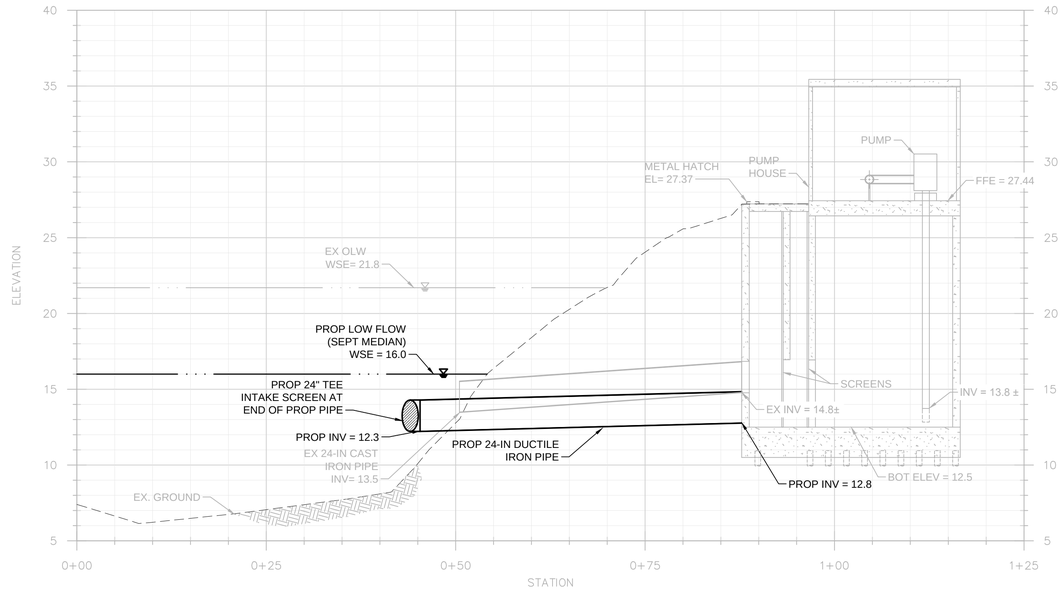


FRANKLIN ST. DRY HYDRANT PROFILE

HORIZONTAL
10 0 10 20
5 0 5 10
VERTICAL
SCALE IN FEET



PUMP HOUSE PLAN



PUMP HOUSE PROFILE

HORIZONTAL
10 0 10 20
5 0 5 10
VERTICAL
SCALE IN FEET

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Date	12/07/15		

Project Title

Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

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Drawing Title

Conceptual Intake Designs

Drawing Number

C-9

Sheet 9 of 14

Project Number 52151.04

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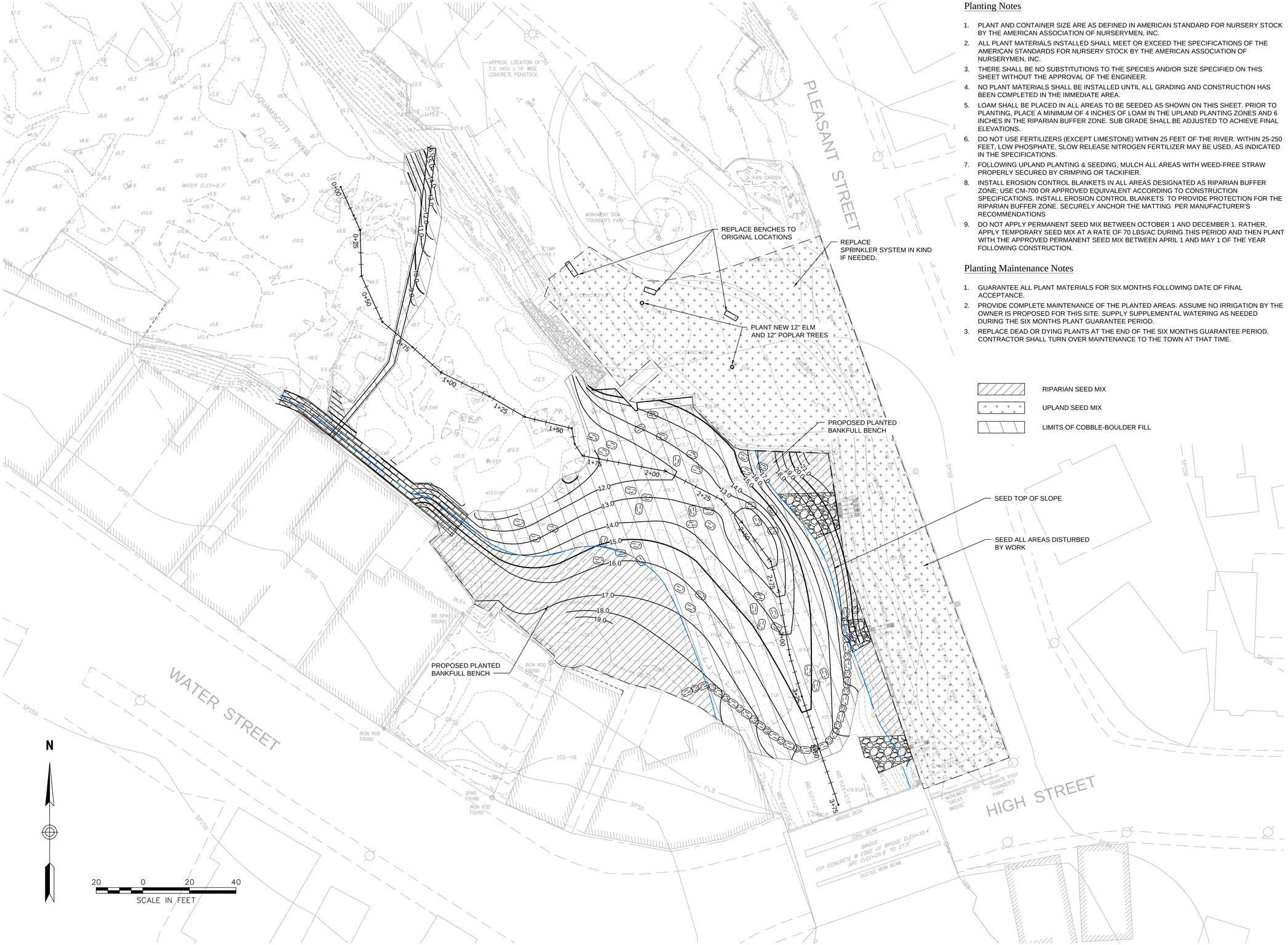

Planting Notes

1. PLANT AND CONTAINER SIZE ARE AS DEFINED IN AMERICAN STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
2. ALL PLANT MATERIALS INSTALLED SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE AMERICAN STANDARDS FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
3. THERE SHALL BE NO SUBSTITUTIONS TO THE SPECIES AND/OR SIZE SPECIFIED ON THIS SHEET WITHOUT THE APPROVAL OF THE ENGINEER.
4. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
5. LOAM SHALL BE PLACED IN ALL AREAS TO BE SEEDED AS SHOWN ON THIS SHEET. PRIOR TO PLANTING, PLACE A MINIMUM OF 4 INCHES OF LOAM IN THE UPLAND PLANTING ZONES AND 6 INCHES IN THE RIPARIAN BUFFER ZONE. SUB GRADE SHALL BE ADJUSTED TO ACHIEVE FINAL ELEVATIONS.
6. DO NOT USE FERTILIZERS (EXCEPT LIMESTONE) WITHIN 25 FEET OF THE RIVER. WITHIN 25-250 FEET, LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER MAY BE USED, AS INDICATED IN THE SPECIFICATIONS.
7. FOLLOWING UPLAND PLANTING & SEEDING, MULCH ALL AREAS WITH WEED-FREE STRAW PROPERLY SECURED BY CRIMPING OR TACKIFIER.
8. INSTALL EROSION CONTROL BLANKETS IN ALL AREAS DESIGNATED AS RIPARIAN BUFFER ZONE; USE CM-700 OR APPROVED EQUIVALENT ACCORDING TO CONSTRUCTION SPECIFICATIONS. INSTALL EROSION CONTROL BLANKETS TO PROVIDE PROTECTION FOR THE RIPARIAN BUFFER ZONE. SECURELY ANCHOR THE MATTING PER MANUFACTURER'S RECOMMENDATIONS
9. DO NOT APPLY PERMANENT SEED MIX BETWEEN OCTOBER 1 AND DECEMBER 1. RATHER, APPLY TEMPORARY SEED MIX AT A RATE OF 70 LBS/AC DURING THIS PERIOD AND THEN PLANT WITH THE APPROVED PERMANENT SEED MIX BETWEEN APRIL 1 AND MAY 1 OF THE YEAR FOLLOWING CONSTRUCTION.

Planting Maintenance Notes

1. GUARANTEE ALL PLANT MATERIALS FOR SIX MONTHS FOLLOWING DATE OF FINAL ACCEPTANCE.
2. PROVIDE COMPLETE MAINTENANCE OF THE PLANTED AREAS. ASSUME NO IRRIGATION BY THE OWNER IS PROPOSED FOR THIS SITE. SUPPLY SUPPLEMENTAL WATERING AS NEEDED DURING THE SIX MONTHS PLANT GUARANTEE PERIOD.
3. REPLACE DEAD OR DYING PLANTS AT THE END OF THE SIX MONTHS GUARANTEE PERIOD. CONTRACTOR SHALL TURN OVER MAINTENANCE TO THE TOWN AT THAT TIME.

RIPARIAN SEED MIX

UPLAND SEED MIX

LIMITS OF COBBLE-BOULDER FILL

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Project Title

Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

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Drawing Title

Restoration and Planting Plan

Drawing Number

C-10

Sheet 10 of 14

Project Number 52151.04

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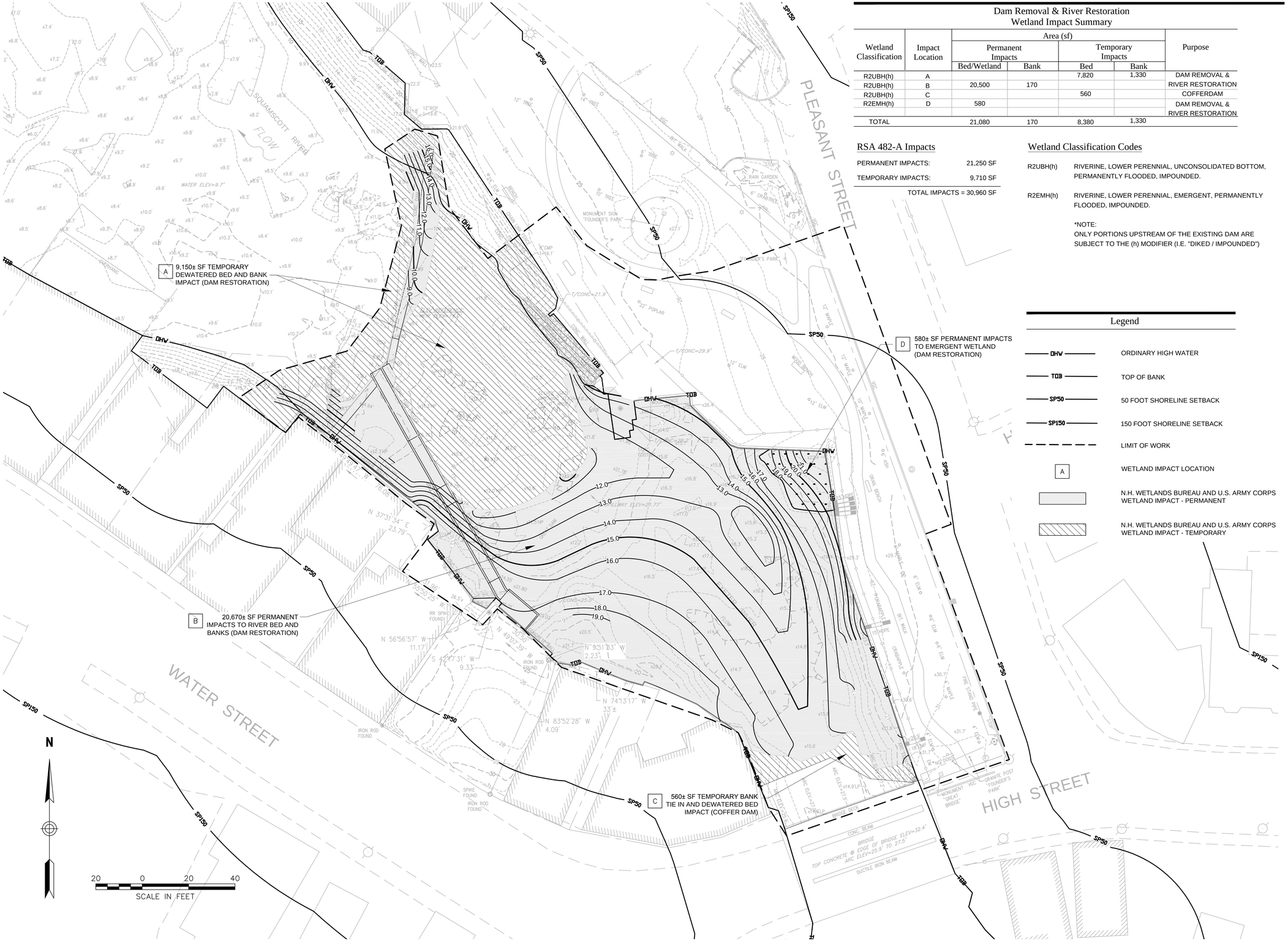

Dam Removal & River Restoration
Wetland Impact Summary

Wetland Classification	Impact Location	Area (sf)				Purpose
		Permanent Impacts		Temporary Impacts		
		Bed/Wetland	Bank	Bed	Bank	
R2UBH(h)	A			7,820	1,330	DAM REMOVAL & RIVER RESTORATION
R2UBH(h)	B	20,500	170			
R2UBH(h)	C			560		COFFERDAM
R2EMH(h)	D	580				DAM REMOVAL & RIVER RESTORATION
TOTAL		21,080	170	8,380	1,330	

RSA 482-A Impacts

PERMANENT IMPACTS:	21,250 SF
TEMPORARY IMPACTS:	9,710 SF
TOTAL IMPACTS = 30,960 SF	

Wetland Classification Codes

R2UBH(h) RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, PERMANENTLY FLOODED, IMPOUNDED.

R2EMH(h) RIVERINE, LOWER PERENNIAL, EMERGENT, PERMANENTLY FLOODED, IMPOUNDED.

*NOTE:
ONLY PORTIONS UPSTREAM OF THE EXISTING DAM ARE SUBJECT TO THE (h) MODIFIER (I.E. "DIKED / IMPOUNDED")

Legend

- OHW — ORDINARY HIGH WATER
- TOB — TOP OF BANK
- SP50 — 50 FOOT SHORELINE SETBACK
- SP150 — 150 FOOT SHORELINE SETBACK
- LIMIT OF WORK
- A — WETLAND IMPACT LOCATION
- N.H. WETLANDS BUREAU AND U.S. ARMY CORPS WETLAND IMPACT - PERMANENT
- N.H. WETLANDS BUREAU AND U.S. ARMY CORPS WETLAND IMPACT - TEMPORARY

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Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

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Drawing Title

Wetland Impact Plan

Drawing Number

C-11

Sheet 11 of 14

Project Number 52151.04

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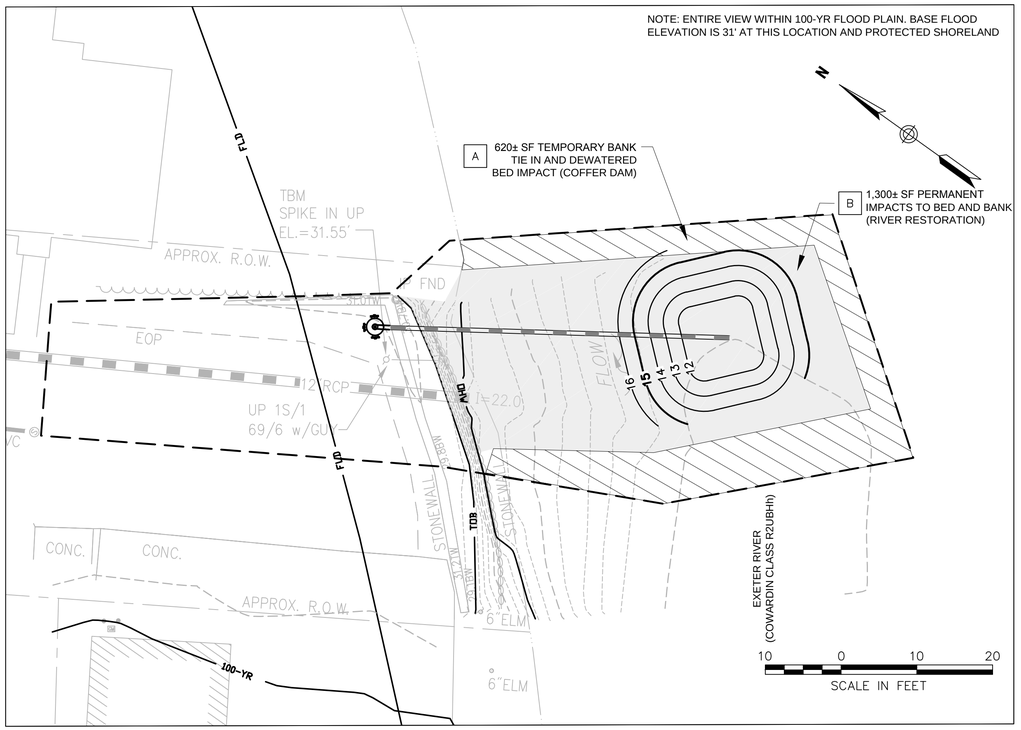
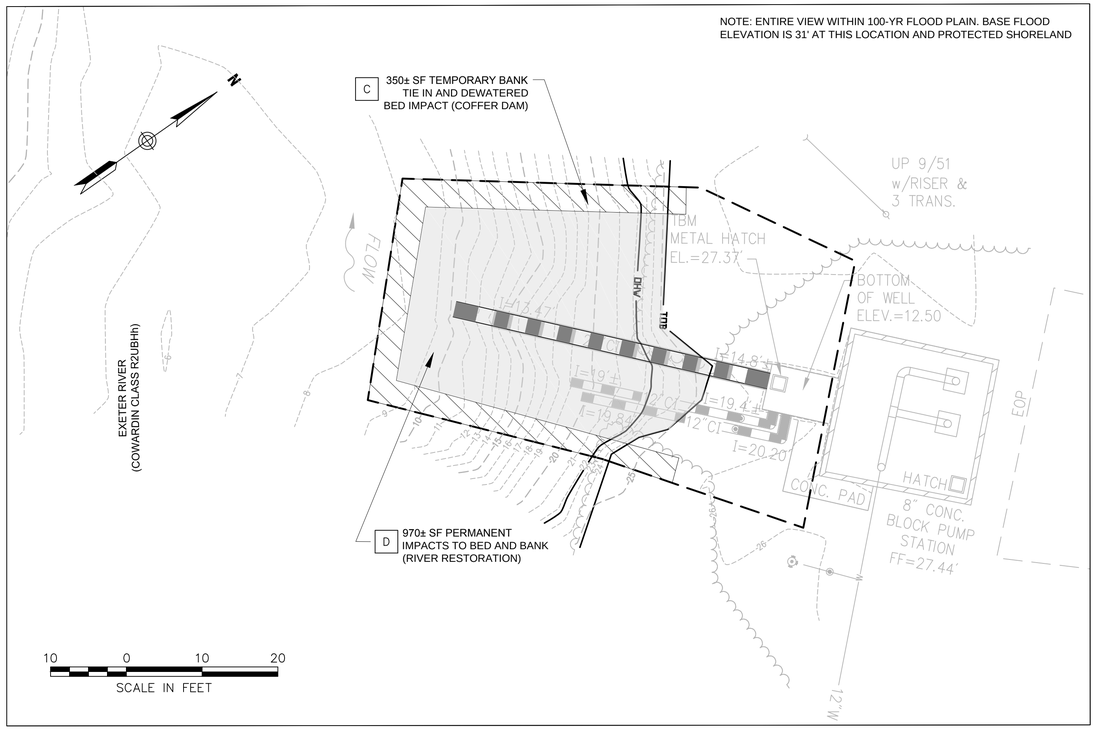


FRANKLIN ST. DRY HYDRANT PLAN



PUMP HOUSE PLAN

Legend

OHW	ORDINARY HIGH WATER
TOB	TOP OF BANK
A	WETLAND IMPACT LOCATION
	N.H. WETLANDS BUREAU AND U.S. ARMY CORPS WETLAND IMPACT - PERMANENT
	N.H. WETLANDS BUREAU AND U.S. ARMY CORPS WETLAND IMPACT - TEMPORARY
	TEMPORARY SHORELAND IMPACT

Wetland Classification Codes

R2UBH(h) RIVERINE, LOWER PERENNIAL, UNCONSOLIDATED BOTTOM, PERMANENTLY FLOODED, IMPOUNDED.

R2UBH(h) RIVERINE, LOWER PERENNIAL, EMERGENT, PERMANENTLY FLOODED, IMPOUNDED.

Dry Hydrant & Municipal Water Intake
Wetland Impact Summary

Wetland Classification	Impact Location	Area (sf) Permanent Impacts Bed	Permanent Impacts Bank	Temporary Impacts Bed	Temporary Impacts Bank	Purpose
R2UBH(h)	A			620		COFFERDAM
R2UBH(h)	B	1,220	80			PIPE INSTALLATION
R2UBH(h)	C			330	20	COFFERDAM
R2UBH(h)	D	820	150			PIPE INSTALLATION
TOTAL		2,040	230	950	20	

RSA 482-A IMPACTS

PERMANENT IMPACTS:	2,270 SF
TEMPORARY IMPACTS:	970 SF
	3,240 SF

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Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

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Drawing Title

Wetland Impact Plan

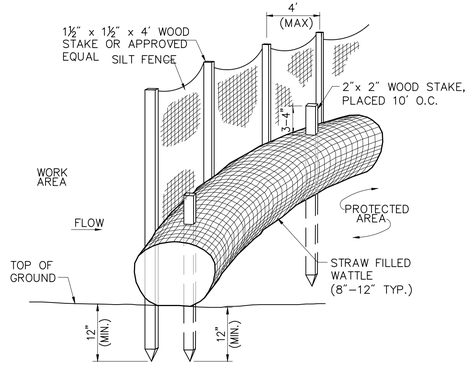
Drawing Number

C-12

Sheet 12 of 14

Project Number 52151.04

LD-PRG.DWG

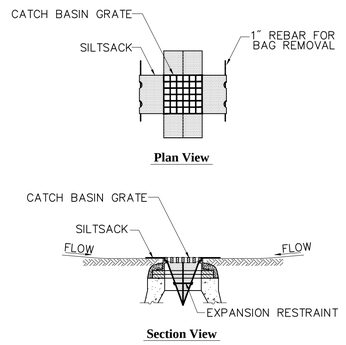


Notes:

1. STRAW WATTLE SHALL BE AS MANUFACTURED BY EARTHSAVER OR APPROVED EQUAL.
2. STRAW WATTLES SHALL OVERLAP A MINIMUM OF 12 INCHES.
3. STRAW WATTLE SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. TEMPORARY STRAW WATTLES TO BE REMOVED BY CONTRACTOR. ALL OTHERS TO REMAIN IN PLACE UNLESS DIRECTED OTHERWISE BY ENGINEER.
5. IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

Silt Fence/Sock - Erosion Control Barrier

N.T.S.

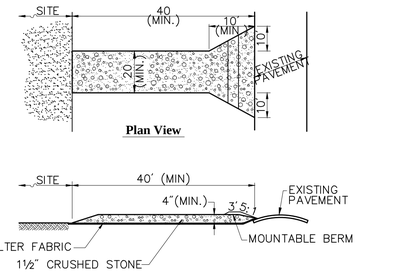


Notes:

1. INSTALL SILTSACK IN ALL CATCH BASINS WITHIN LIMIT OF WORK BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

Siltsack Sediment Trap

N.T.S.

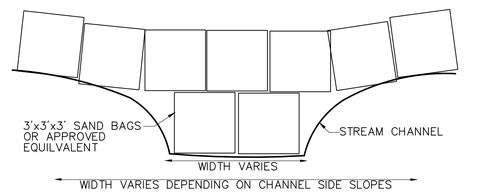


Notes:

1. ENTRANCE WIDTH SHALL BE A TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.
4. FINAL LOCATIONS OF STABILIZED CONSTRUCTION EXIT TO BE CONFORMED WITH ENGINEER PRIOR TO CONSTRUCTION.

Stabilized Construction Exit

N.T.S.

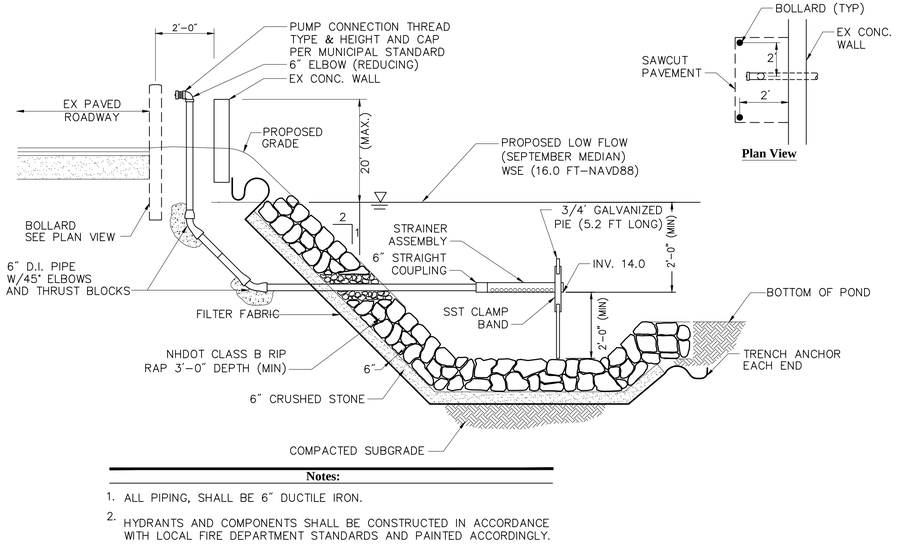


Notes:

1. CONTRACTOR TO DESIGN AND INSTALL COFFER DAM TO CONTROL OVERTOPPING FLOWS AND PREVENT EROSION OR DAMAGE TO SURROUNDING LAND

Coffer Dam (Sand Bags)

N.T.S.

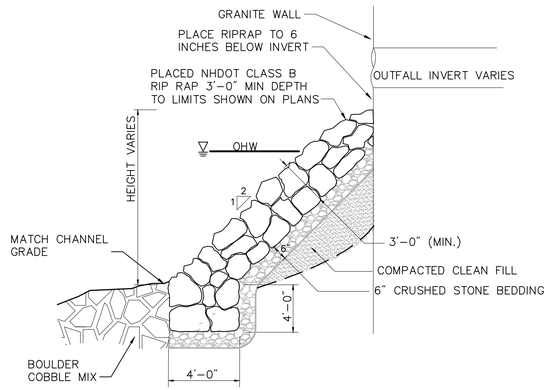


Notes:

1. ALL PIPING, SHALL BE 6" DUCTILE IRON.
2. HYDRANTS AND COMPONENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH LOCAL FIRE DEPARTMENT STANDARDS AND PAINTED ACCORDINGLY.

Dry Hydrant

N.T.S.

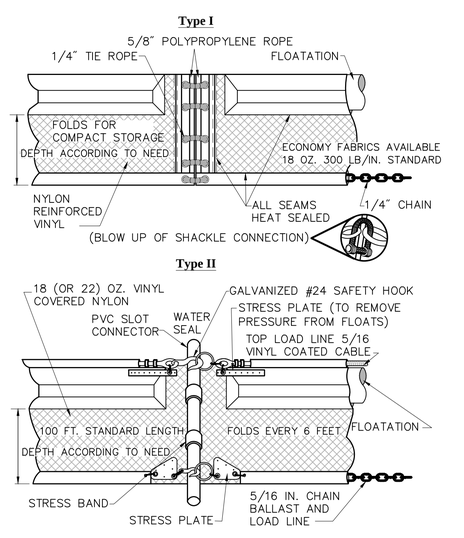


Notes:

1. SLOPE TO BE FOUNDED ON UNDISTURBED MATERIAL OR FILL THAT HAS BEEN COMPACTED. FILL SHALL CONSIST OF A MIXTURE OF FINE TO COARSE SAND.
2. ROCK ARMOR SHALL BE NHDOT CLASS B RIPRAP.
3. ROCK SHALL COMPLETELY ENCASE EXPOSED PORTIONS OF CASSION.

Rock Armored Bank

N.T.S.



Turbidity Curtain

N.T.S.

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Project Title

Great Dam Removal and Exeter River Restoration

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Drawing Title

Details

Drawing Number

C-13

Sheet 13 of 14

Project Number 52151.04

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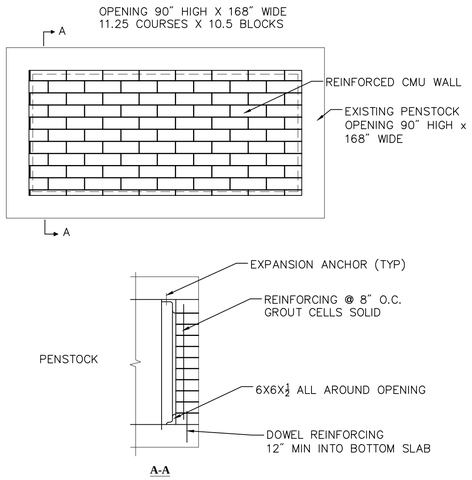


A-A

7.5' HIGH x 14.0' WIDE PENSTOCK CLOSURE

N.T.S.

STONE CLASS	STONE SIZE (IN)
D95	24 – 40
D84	18 – 24
D50	10 – 15
D30	5 – 8
D16	2 – 4

NOTES:

1. CONTRACTOR SHALL ADD 10% SAND TO COBBLE – BOULDER MIX.
2. CONTRACTOR TO PLACE MINIMUM 30 INCH DEPTH OF SPECIFIED BED MATERIAL.

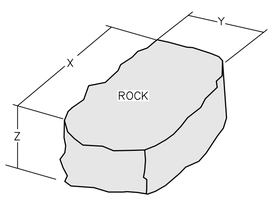
Cobble-Boulder Bed Material Specification

N.T.S.

*** MINIMUM X–Y–Z DIMENSIONS FOR ALL STRUCTURE STONES SHALL MEET THE MINIMUM SIZE REQUIREMENTS GIVEN IN THE TABLE BELOW.

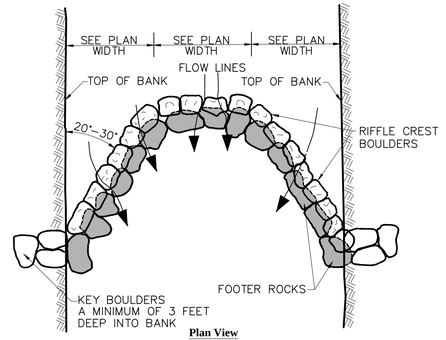
DIMENSION

X	Y	Z
60"	36"	24"
60"	30"	30"
48"	48"	24"
48"	36"	30"

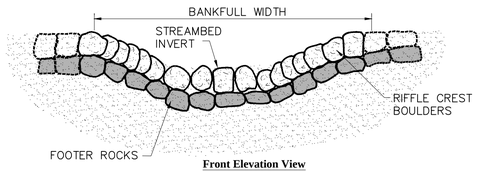


Boulder Axis Detail

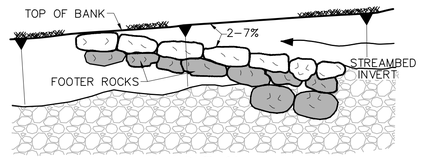
N.T.S.



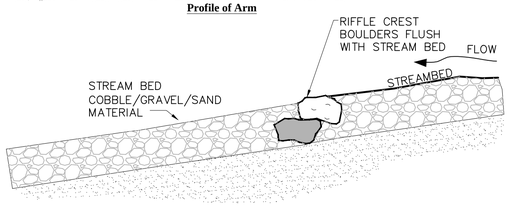
Plan View



Front Elevation View



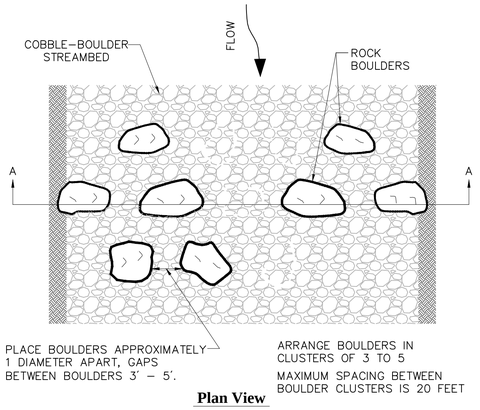
Profile of Arm



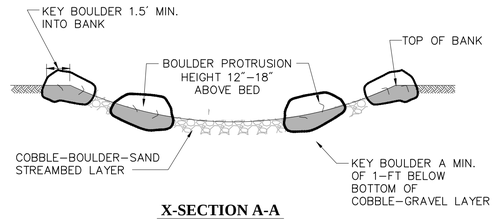
Profile Through Center of Riffle Crest

Riffle Crest Detail

N.T.S.



Plan View



X-SECTION A-A

Boulder Cluster

N.T.S.

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No.	Revision	Date	Appvd.

Designed by TM | Drawn by JB | Checked by JSA
CAD checked by TM | Approved by JSA
Scale NTS | Date 12/07/15

Project Title

Great Dam Removal and Exeter River Restoration

Exeter, New Hampshire

Issued for

Permitting

Not Approved for Construction

Drawing Title

Details (2)

Drawing Number

C-14

Sheet 14 of 14

Project Number 52151.04

LD–DT.DWG