

TEMPLE STREET DAM REMOVAL DUXBURY, MA

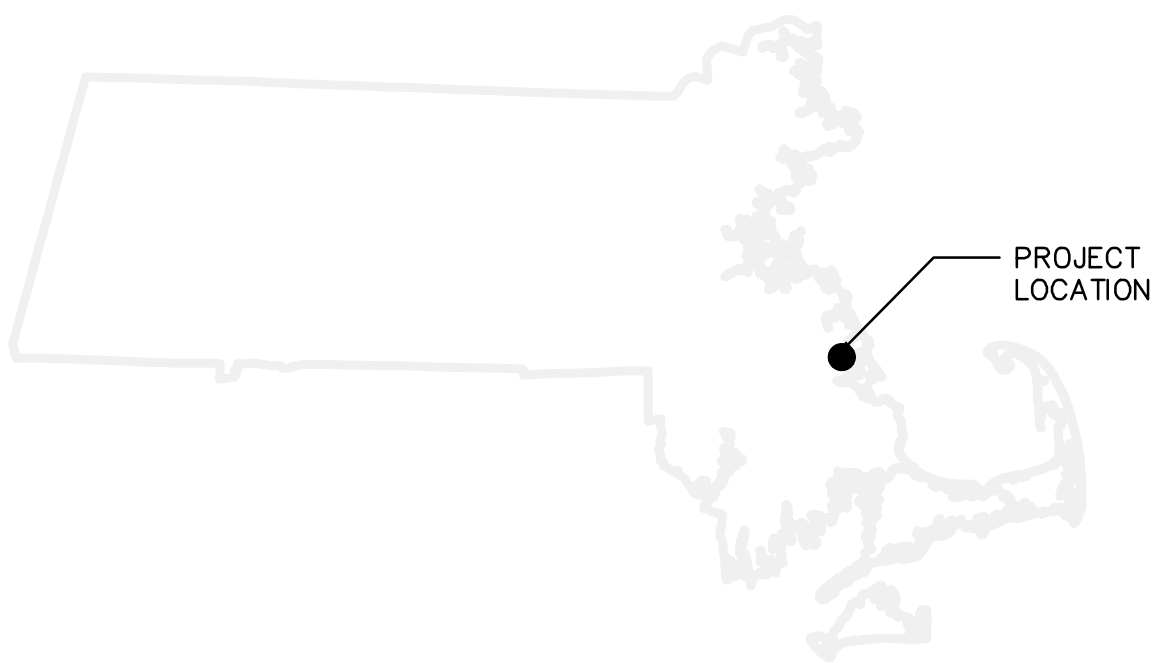
MASSACHUSETTS DIVISION OF ECOLOGICAL RESTORATION

251 CAUSEWAY STREET, SUITE 400
BOSTON, MA 02114

SUPPORTED BY PROJECT PARTNERS:
NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION
TOWN OF DUXBURY

75% DESIGN DRAWINGS

DRAWING NO.	TITLE
1	COVER SHEET
2	GENERAL NOTES
3	EXISTING OVERALL SITE PLAN
4	EXISTING TEMPORARY ACCESS, EROSION CONTROL AND WATER CONTROL PLAN
5	PROPOSED OVERALL SITE PLAN
6	PROPOSED PLAN AND PROFILE AND WATER CONTROL PLAN
7	PROPOSED BEAVER DAM ANALOGUE AND LOW FLOW CHANNEL DETAILS
8	DAM REMOVAL ELEVATION AND TYPICAL SECTIONS
9	STREAM RESTORATION DETAILS
10	EROSION AND SEDIMENT CONTROL DETAILS
11	SITE RESTORATION/PLANTING PLAN



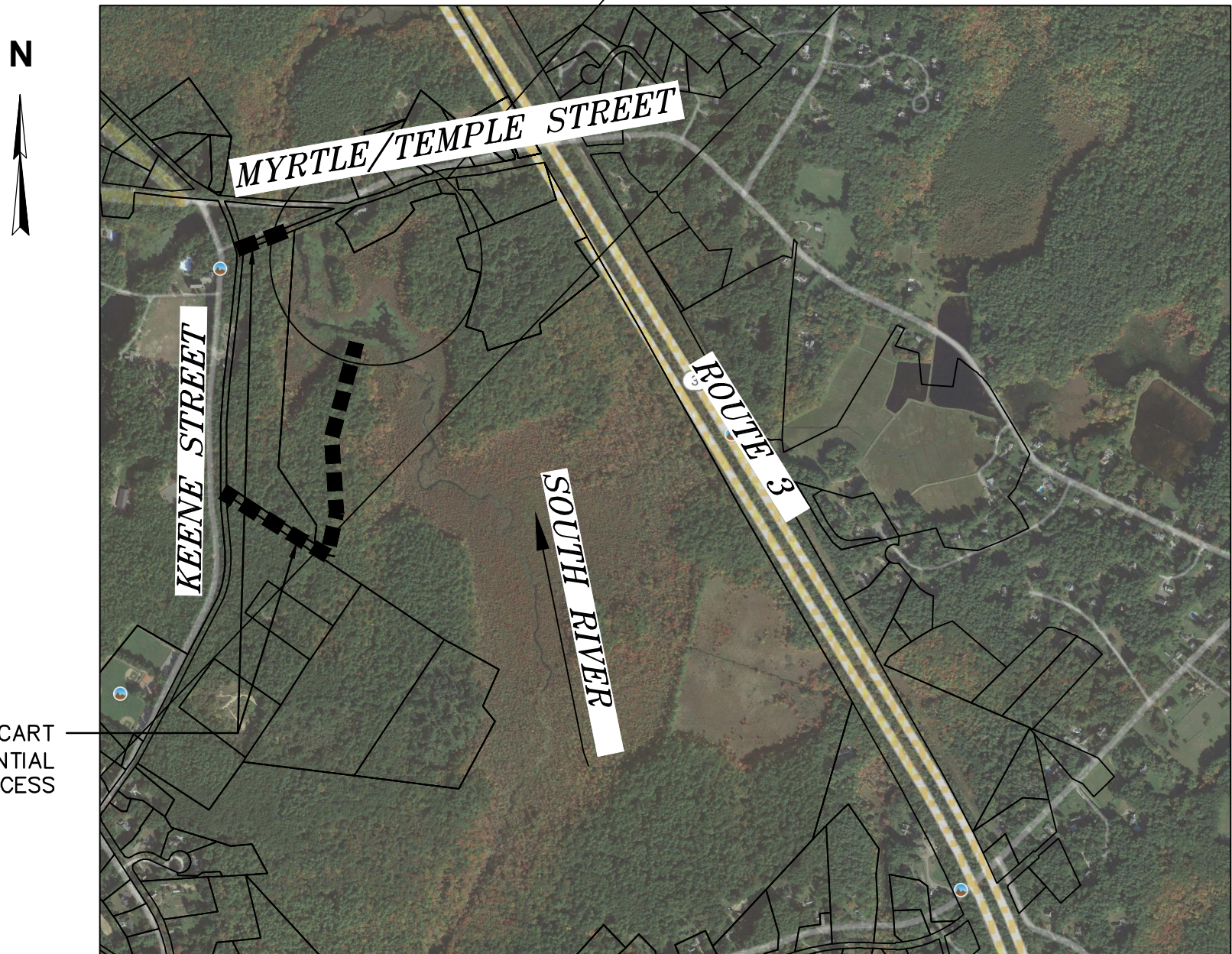
PROJECT
LOCATION



SOURCE: USGS

SCALE: 1" = 2000'

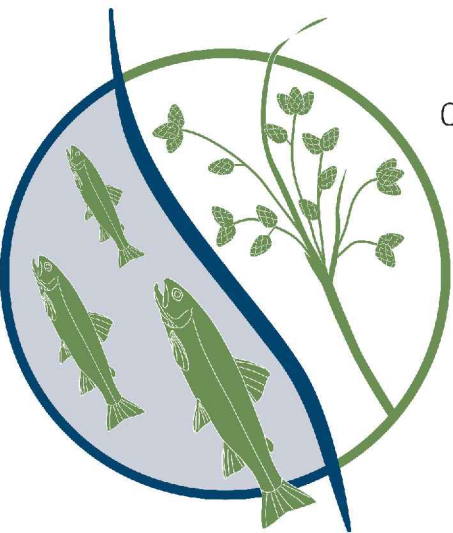
PROJECT
SITE



EXISTING CART
PATH/POTENTIAL
SECONDARY ACCESS

SOURCE: GOOGLE

SCALE: 1" = 1000'



COMMONWEALTH OF MASSACHUSETTS

Division of
Ecological
Restoration



DIG-SAFE
CONTRACTOR SHALL CALL DIG-SAFE CALL CENTER AT 811 OR 1-888-344-7233
AT LEAST 72 HOURS PRIOR TO STARTING ANY EXCAVATION. SATURDAYS,
SUNDAYS, AND LEGAL HOLIDAYS ARE NOT TO BE INCLUDED IN THE
REQUIRED 72 HOUR NOTICE.

ANY ERRORS OR OMISSIONS SHALL BE REPORTED TO THE ENGINEER
WITHOUT DELAY. ALL DESIGNS AND DRAWINGS ARE INSTRUMENTS OF
SERVICE OF GOMEZ AND SULLIVAN ENGINEERS, D.P.C. REPRODUCTION OR
USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY GOMEZ AND
SULLIVAN, D.P.C. IS DONE AT THE LIABILITY OF THOSE RESPONSIBLE FOR
SUCH REPRODUCTION OF USE.

PRELIMINARY
NOT FOR
CONSTRUCTION

6/30/22	1	75% DRAWINGS	BAS	KJC
DATE	#	DESCRIPTIONS	BY	APP
DRAWN BY: BAS				
CHECKED BY: KJC				
APPROVED BY:				
PROJECT NO.		2336	DATE: 6/30/2022	

TEMPLE STREET DAM REMOVAL/ SOUTH
RIVER RESTORATION PROJECT

COVER SHEET

Massachusetts Division Of Ecological
Restoration
Massachusetts Dept. of Fish & Game
251 Causeway Street, Suite 400
Boston, MA 02114

Gomez and Sullivan Engineers, D.P.C.
41 Liberty Hill Road
PO Box 2179
Henniker, NH 03242

SCALE: NONE

DRAWING:

1

IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.

DATA SOURCES

- HORIZONTAL DATUM IS NORTH AMERICAN DATUM (NAD) 1983, MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MAINLAND ZONE (FT). VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 FEET.
- TAX PARCELS ARE BASED ON TAX PARCEL DATA FROM MASSGIS AND THE TOWN OF DUXBURY'S ASSESSOR'S GIS PARCEL MAPS & PROPERTY DATA ONLINE. ACCESSED DECEMBER 2021.
- TOPOGRAPHIC SURVEYS WERE PERFORMED BY ALPHA SURVEY GROUP, LLC ON JANUARY 9&10, 2018, BY INTER-FLUVE ON APRIL 14-19, 2021 AND JUNE 7, 2021, AND GOMEZ AND SULLIVAN ENGINEERS ON DECEMBER 14-15, 2021.
- ALL OTHER TOPOGRAPHY OUTSIDE THE SURVEY AREA WAS DERIVED FROM THE "2011 LIDAR FOR THE NORTHEAST" DATASET. OBTAINED FROM THE MASSMAPPER (FORMERLY MASSGIS) CLEARINGHOUSE.
- WETLAND BOUNDARIES WERE DELINEATED BY LEC ENVIRONMENTAL CONSULTANTS, INC, ON DECEMBER 15, 2021 AND SURVEYED BY GOMEZ AND SULLIVAN ENGINEERS ON DECEMBER 15, 2021. WETLAND BOUNDARIES BEYOND THE LIMITS OF DISTURBANCE ARE FROM THE MASSGIS WETLAND LAYER DEVELOPED BY THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (MASSDEP) IN 2005.
- HYDRAULIC ANALYSIS WAS CONDUCTED BY GOMEZ AND SULLIVAN ENGINEERS, DPC AS SUMMARIZED IN A REPORT DATED JUNE 30, 2022.
- BORDERING LAND SUBJECT TO FLOODING (BLSF) DEPICTED ON THE PLANS IS BASED ON THE 100-YEAR FLOOD INUNDATION MAPPING DEVELOPED BY GOMEZ AND SULLIVAN ENGINEERS FOR EXISTING AND PROPOSED CONDITIONS. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) 100-YEAR REGULATORY FLOODPLAIN (ZONE A) IS NOT SHOWN FOR REFERENCE SINCE IT IS ASSUMED TO BE LESS ACCURATE THAN THE MODELED BLSF. ZONE A IS SHOWN IN A REPORT DATED JUNE 30, 2022
- UTILITY LOCATIONS AND ELEVATIONS SHOWN ON THE PLANS ARE BASED SURVEYS AND PLANS OBTAINED FROM THE DUXBURY CONSERVATION COMMISSION BY AMORY ENGINEERS, P.C. DATED OCTOBER 8, 2007. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE.

GENERAL NOTES

- CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF EXCAVATION. CONTRACTOR SHALL NOTIFY DIG SAFE MASSACHUSETTS AT 811 OR 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION. SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS ARE NOT TO BE INCLUDED IN THE REQUIRED 72 HOUR NOTICE.
- CONTRACTOR SHALL MAINTAIN ALL UTILITIES IN WORKING ORDER AND FREE FROM DAMAGE DURING THE DURATION OF THE PROJECT. NO EQUIPMENT SHALL ENTER OR WORK IN THE EXCLUSION ZONE SHOWN ON THE DRAWINGS OVER THE WATER LINE CROSSING AT RIVER STREET. ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY CONTRACTOR AT NO COST TO THE TOWN OR UTILITY COMPANIES. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE COMPLETED BY HAND.
- CONTRACTOR SHALL MAINTAIN ALL CONTROL POINTS DURING CONSTRUCTION, INCLUDING BENCHMARKS AND ELEVATIONS AT CRITICAL AREAS. SITE LAYOUT SURVEY REQUIRED FOR CONSTRUCTION SHALL BE PROVIDED BY THE CONTRACTOR AND PERFORMED BY A MASSACHUSETTS' REGISTERED PROFESSIONAL LAND SURVEYOR. ALL GRADE STAKES SET BY SURVEYOR SHALL BE MAINTAINED BY CONTRACTOR UNTIL FINAL INSPECTION OF THE ITEM HAS BEEN COMPLETED BY ENGINEER.
- EXCESSIVE IDLING DURING THE CONSTRUCTION PERIOD IS PROHIBITED. SIGNS SHALL BE POSTED AT THE SITE LIMITING IDLING TO 5 MINUTES OR LESS. PERIODIC INSPECTIONS SHALL BE CONDUCTED BY SITE SUPERVISORS TO ENSURE COMPLIANCE. STAGING AREAS SHALL BE LOCATED TO MINIMIZE EMISSION IMPACTS TO ABUTTING PROPERTIES.

CONSTRUCTION WASTE MANAGEMENT

- SITE SHALL BE KEPT WELL ORGANIZED, SIGNED, AND FREE OF WASTE MATERIALS, DEBRIS, AND RUBBISH AT ALL TIMES. GOOD HOUSEKEEPING PRACTICES SHALL BE MAINTAINED ON A CONTINUOUS BASIS FROM WORK SITE TO WORK SITE. DISPOSAL OF ANY WASTE MATERIALS ON THE CONSTRUCTION SITE IS PROHIBITED.
- SANITARY, WASTE DISPOSAL, AND EMPLOYEE FACILITIES SHALL BE PROVIDED BY CONTRACTOR.
- ALL WATER RESOURCES (E.G., GROUND AND SURFACE WATERS), INCLUDING ALL DRAINS AND CATCH BASINS, SHALL BE PROTECTED FROM LEACHING AND/OR RUN-OFF OF CHEMICAL POLLUTANTS, SOLID WASTES, AND CONSTRUCTION SITE DEBRIS. ALL CATCH BASINS SHALL BE MAINTAINED FREE FLOWING.
- ALL COMBUSTIBLE WASTE MATERIALS SHALL BE PLACED IN COVERED METAL CONTAINERS AND PROMPTLY DISPOSED OF IN AN APPROVED MANNER AT AN APPROVED WASTE DISPOSAL FACILITY.
- STORAGE AND/OR USE OF CHEMICALS, FUELS, OILS, GREASES, BITUMINOUS MATERIALS, SOLIDS, WASTE WASHINGS, AND CEMENT SHALL BE HANDLED APPROPRIATELY AS TO PREVENT LEACHING OR SURFACE RUNOFF INTO PUBLIC WATERS OR DRAINS. ALL APPROVED STORAGE AREAS FOR THESE MATERIALS MUST BE DIKED.
- ALL ROADWAYS SHALL BE MAINTAINED FREE OF DEBRIS. STABILIZED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED TO CAPTURE DEBRIS FROM WHEELS OF CONSTRUCTION VEHICLES. VEHICLES SHALL BE INSPECTED AT ENTRANCES BEFORE TURNING ONTO THE ROADWAY AND EXCESS DEBRIS SHALL BE REMOVED.
- ALL EXCESS MATERIALS SHALL BE REMOVED FROM THE SITE AS SOON AS POSSIBLE AND IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS FOR REUSE AND DISPOSAL.

TRAFFIC CONTROL

- CONTRACTOR SHALL IMPLEMENT TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND MASSACHUSETTS AMMENDMENTS TO THE MUTCD OR AS DIRECTED OR ORDERED BY OWNER, ENGINEER, OR MUNICIPAL POLICE DEPARTMENT.

TEMPORARY ACCESS ROUTE STABILIZATION

- DEFINITION: THE STABILIZATION OF TEMPORARY CONSTRUCTION ACCESS ROUTES, ON-SITE VEHICLE TRANSPORTATION ROUTES, AND CONSTRUCTION PARKING AREAS.
- PURPOSE: TO CONTROL EROSION ON TEMPORARY CONSTRUCTION ROUTES AND PARKING AREAS.
- CONDITION WHERE PRACTICE APPLIES: ALL TRAFFIC ROUTES AND PARKING AREAS FOR TEMPORARY USE BY CONSTRUCTION TRAFFIC.
- DESIGN CRITERIA: CONSTRUCTION ROADS SHOULD BE LOCATED TO REDUCE EROSION POTENTIAL, MINIMIZE IMPACT ON EXISTING SITE RESOURCES, AND MAINTAIN OPERATIONS IN A SAFE MANNER. HIGHLY EROSIIVE SOILS, WET OR ROCKY AREAS, AND STEEP SLOPES SHOULD BE AVOIDED. ROADS SHOULD BE ROUTED WHERE SEASONAL WATER TABLES ARE DEEPER THAN 18 INCHES. SURFACE RUNOFF AND CONTROL SHOULD BE IN ACCORDANCE WITH OTHER STANDARDS.
- ROAD GRADE: A MAXIMUM GRADE OF 12% IS RECOMMENDED, ALTHOUGH GRADES UP TO 20% ARE ACCEPTABLE FOR SHORT DISTANCES.
- ROAD WIDTH: 14 FT (9 FT MINIMUM) FOR ONE-WAY TRAFFIC, OR 24 FT MINIMUM FOR TWO-WAY TRAFFIC.
- SIDE SLOPE OF ROAD EMBANKMENT: 2:1 OR FLATTER.
- COMPOSITION: USE AN 8-INCH LAYER OF STATE DOT APPROVED GRAVEL SUB-BASE OR EQUIVALENT, PLACED ON A GEOTEXTILE FABRIC.
- MAINTENANCE: ACCESS ROUTES AND PARKING AREAS SHALL BE INSPECTED PERIODICALLY FOR CONDITION OF SURFACE AND TOPDRESSED WITH NEW GRAVEL AS NEEDED.
- RESTORATION: UPON COMPLETION OF THE WORK, ALL TEMPORARY MATERIALS SHALL BE REMOVED AND THE SITE SHALL BE RESTORED TO PRE-PROJECT CONDITIONS.

SOIL EROSION AND SEDIMENTATION CONTROL

- ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION EROSION AND SEDIMENTATION CONTROL GUIDELINES AND APPLICABLE NPDES STANDARDS.
- ALL APPLICABLE SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY SOIL OR STREAM DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
- ALL DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN FOURTEEN (14) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING WITH A NATIVE SEED MIXTURE. MULCH, WATER AND ANCHOR AS NECESSARY TO ESTABLISH GRASS AND PREVENT LOSS TO WIND OR EROSION. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS SHALL BE MULCHED WITH SMALL GRAIN STRAW AT A RATE OF TWO (2) TONS PER ACRE IN ACCORDANCE WITH STATE STANDARDS.
- PERMANENT VEGETATION SHALL BE SEEDED WITH A NATIVE SEED MIXTURE ON ALL EXPOSED AREAS IMMEDIATELY AFTER FINAL GRADING. MULCH SHALL BE USED AS NECESSARY FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
- ALL CRITICAL AREAS SUBJECT TO EROSION SHALL RECEIVE A TEMPORARY SEEDING WITH AN APPROVED NATIVE SEED MIXTURE IN COMBINATION WITH STRAW MULCH, AT A RATE OF TWO (2) TONS PER ACRE IN ACCORDANCE WITH STATE STANDARDS.
- SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE SHALL BE SPRINKLED WITH WATER UNTIL THE SURFACE IS WET, TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED, OR MULCH SHALL BE APPLIED IN ACCORDANCE WITH STATE STANDARDS FOR EROSION CONTROL.
- ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
- STOCKPILE AND STAGING LOCATIONS DETERMINED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE. ALL SOIL STOCKPILES SHALL BE TEMPORARILY STABILIZED IN ACCORDANCE WITH NOTE #3 AND PROTECTED BY COMPOST FILTER SOCKS ON THE DOWNHILL SIDES.
- THE CONTRACTOR SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE, AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION AND THAT HAVE NOT BEEN FINALLY STABILIZED, STABILIZATION PRACTICES, STRUCTURAL PRACTICES, AND OTHER CONTROLS AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER THE END OF ANY STORM THAT PRODUCES AT LEAST 0.5 INCHES OF RAINFALL AT THE SITE. WHERE SITES HAVE BEEN FINALLY STABILIZED, SUCH INSPECTION SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH UNTIL FINAL COMPLETION. CRITICAL AREAS AND AREAS WHERE VEHICLES EXIT THE SITE SHALL BE INSPECTED DAILY.

CONSTRUCTION SEQUENCE

SITE PREPARATION AND ACCESS

- CONTRACTOR SHALL PREPARE A CONSTRUCTION SEQUENCE PLAN TO BE APPROVED BY OWNER AND ENGINEER. THE FOLLOWING GENERAL SEQUENCE SHALL BE ADAPTED FOR THE SITE-SPECIFIC REQUIREMENTS.
- SURVEY AND STAKE THE PROPOSED LIMIT OF DISTURBANCE AND LIMIT OF EROSION CONTROLS. INSTALL EROSION CONTROLS AND CONTAINMENT MEASURES AS INDICATED IN THE PLANS.
- FLAG LIMITS OF CLEARING, TO BE APPROVED BY OWNER PRIOR TO ANY TREE REMOVAL. CLEAR AND GRUB ALONG APPROVED ACCESS ROUTES AS NEEDED.
- INSTALL STAGING AREA AND TEMPORARY ACCESS RAMPS/ROUTES AS NEEDED. UTILIZE SWAMP MATS (OR APPROVED EQUAL) TO MINIMIZE DISTURBANCE TO WETLAND AREAS.
- INSTALL OIL BOOM AND TURBIDITY CURTAINS.

PHASE I – (RIVER WORK)

- LEAVE DAGGER BOARDS IN PLACE AT THE DAM.
- FLOAT LOG PIECES INTO THE IMPOUNDMENT AND TEMPORARILY ANCHOR THEM IN PLACE.

PHASE II – (RIVER WORK)

- INSTALL SUPERSACK COFFERDAM (OR APPROVED EQUAL) TO FACILITATE FLOW THROUGH SITE WHILE CONSTRUCTING RIFFLE FEATURE AT RIVER STREET.
- CONSTRUCT PROPOSED RIFFLE FEATURE AT RIVER STREET AS SHOWN. RIFFLE SHALL BE CONSTRUCTED IN 15-INCH LIFTS ABOVE FILTER LAYER AND FINE MATERIAL SHALL BE USED TO CHOKE EACH LIFT PRIOR TO PLACEMENT OF THE SUBSEQUENT LIFT. THE CONTRACTOR SHALL WASH THE FINE MATERIAL INTO THE LIFT OF COARSE MATERIAL WITH A SUFFICIENT QUANTITY OF WATER.
- RELOCATE SUPERSACKS AT THE ENDS OF THE COFFERDAM AS REQUIRED TO SWITCH FLOWS TO THE OTHER SIDE TO CONSTRUCT THE OTHER HALF OF THE RIFFLE FEATURE.
- ONCE RIFFLE FEATURE AT RIVER STREET IS CONSTRUCTED RELOCATE SUPERSACK COFFERDAMS/CONTROLS TO FACILITATE THE REMOVAL OF THE DAM IN PHASE III.

PHASE III – (RIVER WORK)

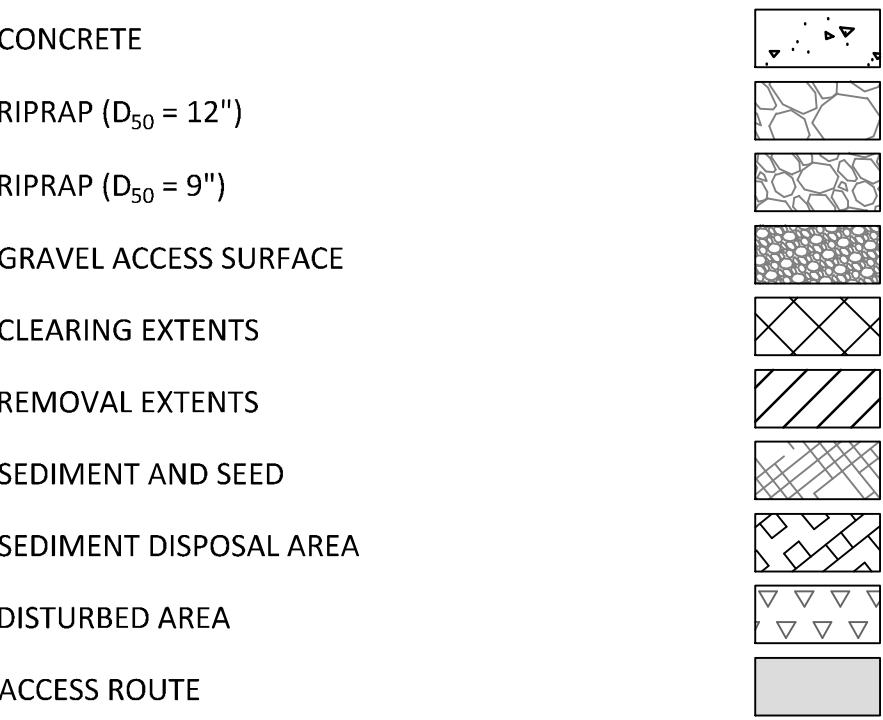
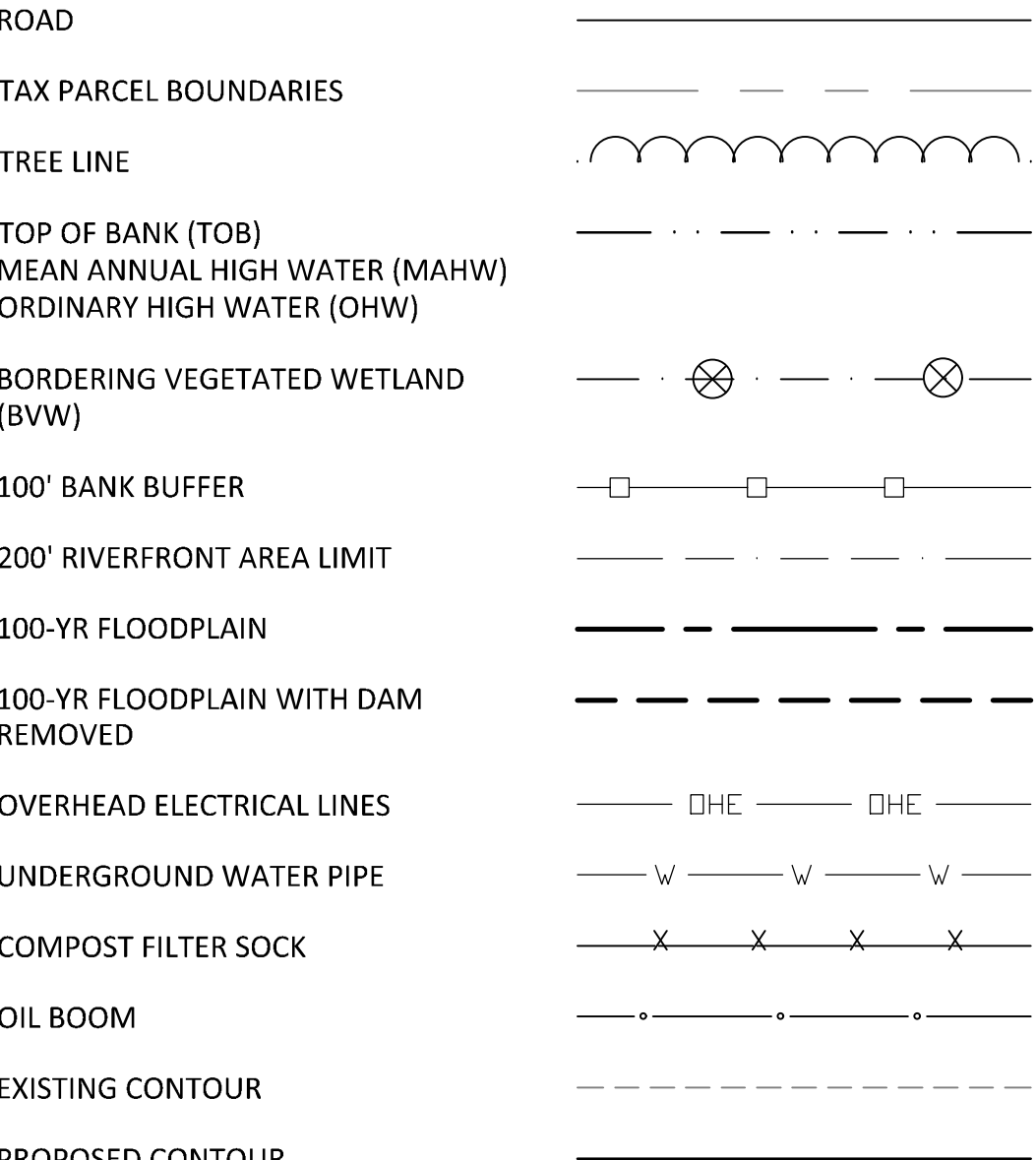
- INSTALL SUPERSACK COFFERDAM (OR APPROVED EQUAL) TO FACILITATE FLOW THROUGH SITE WHILE REMOVING THE DAM AND CONSTRUCTING THE UPSTREAM RIFFLE FEATURE.
- REMOVE SPILLWAY DAGGER BOARDS TO DRAIN THE IMPOUNDMENT.
- REMOVE THE FULL VERTICAL EXTENT OF THE CONCRETE TRAINING WALLS, PIER, DECK, AND APRON OF THE DAM SPILLWAY OUTLET STRUCTURE. REMOVE ALL CONCRETE FROM THE RIVER.
- CONSTRUCT PROPOSED RIFFLE FEATURE AT THE DAM AS INDICATED. RIFFLE SHALL BE CONSTRUCTED IN 15-INCH LIFTS ABOVE FILTER LAYER AND FINE MATERIAL SHALL BE USED TO CHOKE EACH LIFT PRIOR TO PLACEMENT OF THE SUBSEQUENT LIFT. THE CONTRACTOR SHALL WASH THE FINE MATERIAL INTO THE LIFT OF COARSE MATERIAL WITH A SUFFICIENT QUANTITY OF WATER.
- REMOVE WATER CONTROLS FROM THE DAM LOCATION.

STREAM RESTORATION

- INSTALL BEAVER DAM ANALOGS (BDA) TO CREST ELEVATION 38.0 FT AS SHOWN ON THE PLANS AND CONSTRUCT THE LOW FLOW CHANNEL AT THE BOUNDARY OF THE LOWER AND UPPER IMPOUNDMENTS. BDA'S SHALL TIE INTO GRADE AT EACH END EXCEPT AT LOW FLOW CHANNEL BREACH.
- REMOVE TEMPORARY ANCHORS AND INSTALL PERMANENT ANCHORS FOR LARGE WOODY DEBRIS AS SHOWN ON THE PLANS.
- PLANT LIVE STAKES IN THE FLOODPLAIN AREAS WITH NATIVE SPECIES PER THE PLANTING PLAN ALONG THE WATER'S EDGE.

SITE RESTORATION

- REMOVE ANY REMAINING WATER CONTROLS FROM THE SITE.
- REMOVE CRUSHED STONE, STONE FILL AND GEOTEXTILE FABRIC FOR TEMPORARY ACCESS PATHS AND AT THE CONSTRUCTION ENTRANCE.
- REPAIR PAVED PARKING AREA, TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE, IF NECESSARY.
- REMOVE EROSION CONTROL AND OTHER CONTAINMENT MEASURES ONLY AFTER ALL AREAS ARE STABILIZED WITH VEGETATIVE COVER TO THE SATISFACTION OF OWNER'S REPRESENTATIVE.
- EXCAVATED SEDIMENT SHALL BE SPREAD ACROSS ANY DISTURBED AREAS IN A 4" LAYER AND WILL BE SEEDED WITH AN APPROVED NATIVE SEED MIXTURE.



RESOURCE AREA IMPACTS

RESOURCE	AREA (SQUARE FEET, SF)			TEMPORARY (SF)	PERMANENT (SF)
	EXISTING	CHANGE	TOTAL		
BANK (FT)	40,404	3,516	43,920	3,435	3,435
BORDERING VEGETATED WETLANDS	5,776,234	1,020,141	6,796,375	4,197	110
ISOLATED VEGETATED WETLANDS	0	0	0	0	0
LAND UNDER WATER/OHW/MAHW	7,432,053	-1,183,394	6,248,659	246,923	10,026
BORDERING LAND SUBJECT TO FLOODING	1,602,029	1,140,571	2,742,600	1,769	686
ISOLATED LAND SUBJECT TO FLOODING	0	0	0	0	0
RIVERFRONT AREA	110,491	0	110,491	10,202	8,050
FISH RUNS (LF)	216	4,977	5,193	879	380

NOTE:

- RESOURCE AREAS BASED ON THE DOWNSTREAM LIMIT OF WORK JUST UPSTREAM OF THE SOUTH RIVER MYRTLE STREET CROSSING UP TO THE UPSTREAM END OF THE IMPOUNDMENT.

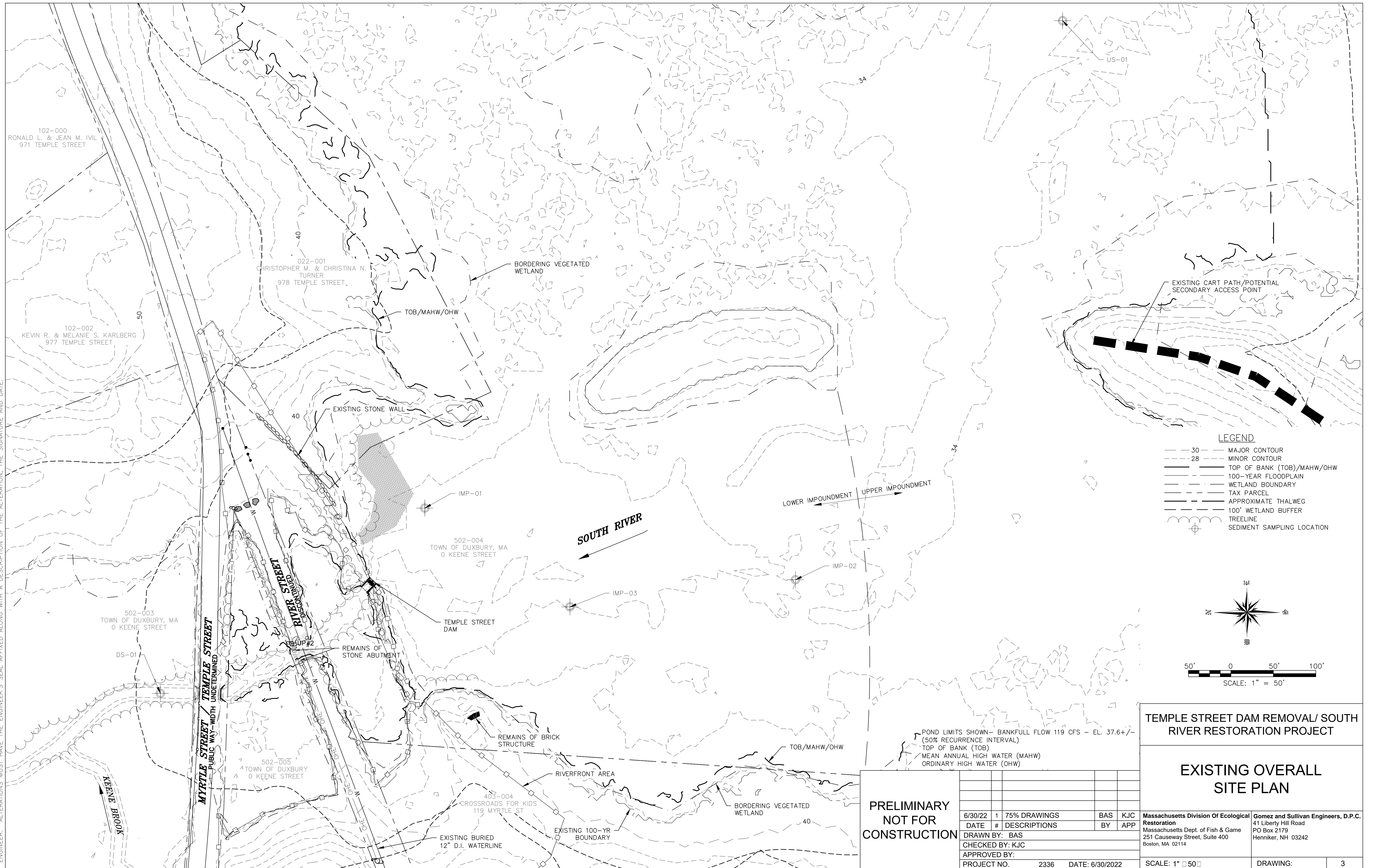
TEMPLE STREET DAM REMOVAL/ SOUTH RIVER RESTORATION PROJECT

GENERAL NOTES

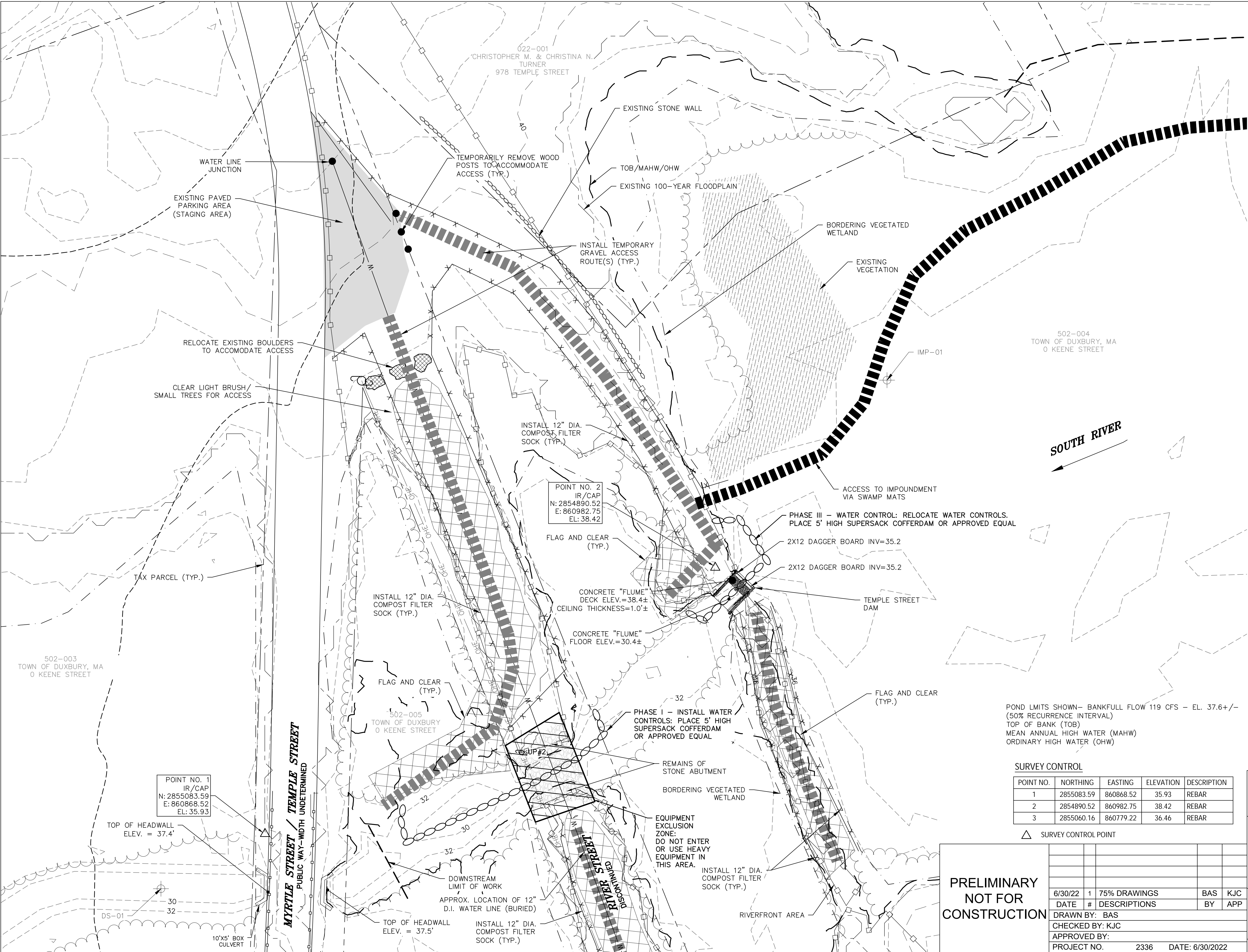
PRELIMINARY
NOT FOR
CONSTRUCTION

					GENERAL NOTES		
6/30/22	1	75% DRAWINGS	BAS	KJC	Massachusetts Division Of Ecological Restoration Massachusetts Dept. of Fish & Game 251 Causeway Street, Suite 400 Boston, MA 02114	Gomez and Sullivan Engineers, D.P.C. 41 Liberty Hill Road PO Box 2179 Henniker, NH 03242	
DATE	#	DESCRIPTIONS	BY	APP			
DRAWN BY: BAS							
CHECKED BY: KJC							
APPROVED BY:							
PROJECT NO.		2336	DATE: 6/30/2022		SCALE: NONE	DRAWING:	2

IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.



IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.

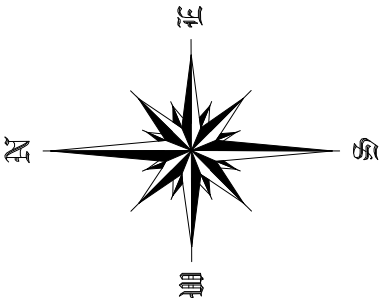


CARE AND DIVERSION OF WATER

1. CONTRACTOR SHALL PROVIDE, MAINTAIN, AND REMOVE ALL DIVERSIONS, COFFERDAMS, PIPING, AND/OR PUMPS AS REQUIRED TO PERFORM THE WORK AND BYPASS SOUTH RIVER FLOWS AROUND THE WORK SITE DURING CONSTRUCTION.
2. ALL DIVERSIONS, COFFERDAMS, PIPING AND PUMPS SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED TO PRACTICE IN MASSACHUSETTS HIRED BY THE CONTRACTOR AND SUBMITTED TO OWNER AND THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO USE.
3. CONTRACTOR SHALL COORDINATE INSTALLATION OF ALL DIVERSIONS AND COFFERDAMS WITH OWNER AND IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
4. CONTRACTOR SHALL DEVELOP A PLAN TO SECURE THE WORK SITE AND BREACH THE DIVERSION AND/OR COFFERDAM WITH MINIMAL RELEASE OF SEDIMENT IN THE EVENT OF A STORM EVENT GREATER THAN THE BYPASS SYSTEM CAPACITY. THE PLAN SHALL ADDRESS MEASURES REQUIRED TO PASS THE STORM FLOW AND SHALL BE SUBMITTED TO OWNER FOR APPROVAL.
5. MEAN FLOW IN THE SOUTH RIVER IS APPROXIMATELY 5 CFS FOR THE MONTHS OF JULY THROUGH DECEMBER WITH A 10% CHANCE OF EXCEEDANCE OF 11 CFS BASED ON DATA INTERPOLATED FROM THE INDIAN HEAD RIVER AT HANOVER, MA USGS GAGE NO. 01105730 FOR THE PERIOD OF RECORD ADJUSTED TO PROJECT SITE BASED ON DRAINAGE AREA RATIO.
6. WORK SHALL COMPLY WITH TIME-OF-YEAR RESTRICTIONS RELATIVE TO WORK IN THE RIVER. NO IN-WATER CONSTRUCTION OR ACTIVITIES CONTRIBUTING SILT OR SEDIMENT TO THE SOUTH RIVER SHALL BE CONDUCTED FROM APRIL 15 THROUGH JULY 15.

LEGEND

- 30 MAJOR CONTOUR
- 28 MINOR CONTOUR
- TOP OF BANK (TOB)/MAHW/OHW
- 100-YEAR FLOODPLAIN
- WETLAND BOUNDARY
- TAX PARCEL
- APPROXIMATE THALWEG
- 100' WETLAND BUFFER
- TREELINE
- SEDIMENT SAMPLING LOCATION



20' 0 20' 40'
SCALE: 1" = 20'

POND LIMITS SHOWN- BANKFULL FLOW 119 CFS - EL. 37.6+/-
(50% RECURRENCE INTERVAL)
TOP OF BANK (TOB)
MEAN ANNUAL HIGH WATER (MAHW)
ORDINARY HIGH WATER (OHW)

SURVEY CONTROL

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2855083.59	860868.52	35.93	REBAR
2	2854890.52	860982.75	38.42	REBAR
3	2855060.16	860779.22	36.46	REBAR

△ SURVEY CONTROL POINT

PRELIMINARY
NOT FOR
CONSTRUCTION

6/30/22	1	75% DRAWINGS	BAS	KJC
DATE	#	DESCRIPTIONS	BY	APP
DRAWN BY: BAS				
CHECKED BY: KJC				
APPROVED BY:				
PROJECT NO.	2336	DATE: 6/30/2022		

TEMPLE STREET DAM REMOVAL/ SOUTH RIVER RESTORATION PROJECT

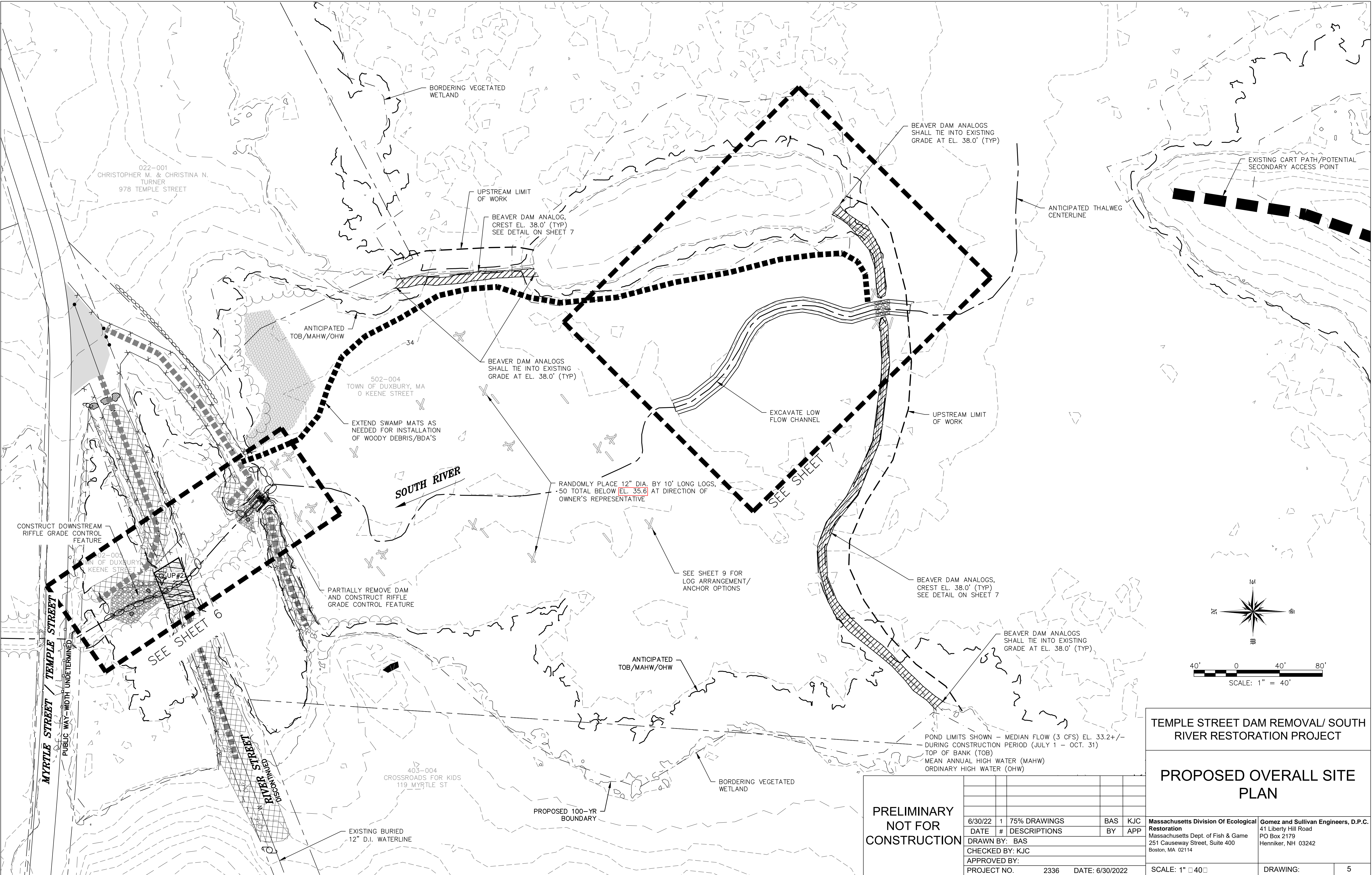
EXISTING CONDITIONS,
ACCESS, EROSION CONTROL,
AND WATER CONTROL PLAN

Massachusetts Division Of Ecological Restoration
Massachusetts Dept. of Fish & Game
251 Causeway Street, Suite 400
Boston, MA 02114

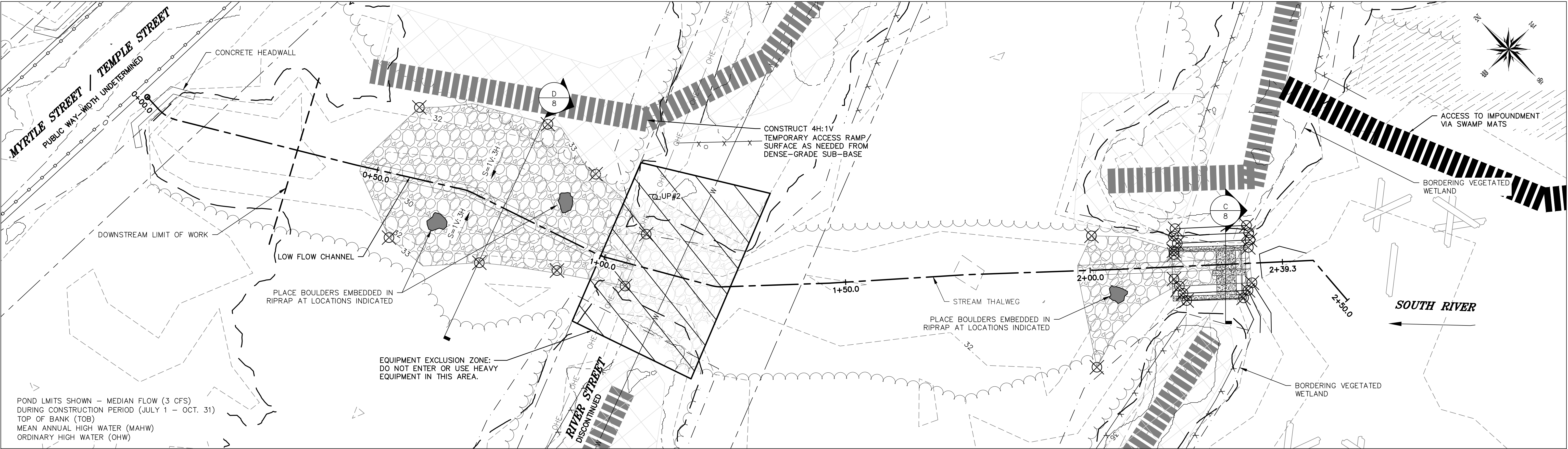
Gomez and Sullivan Engineers, D.P.C.
41 Liberty Hill Road
PO Box 2179
Henniker, NH 03242

SCALE: 1" = 20' DRAWING: 4

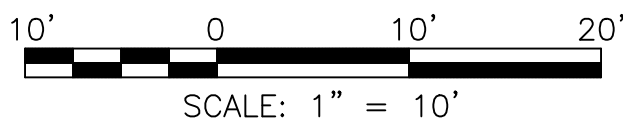
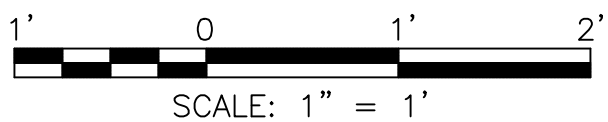
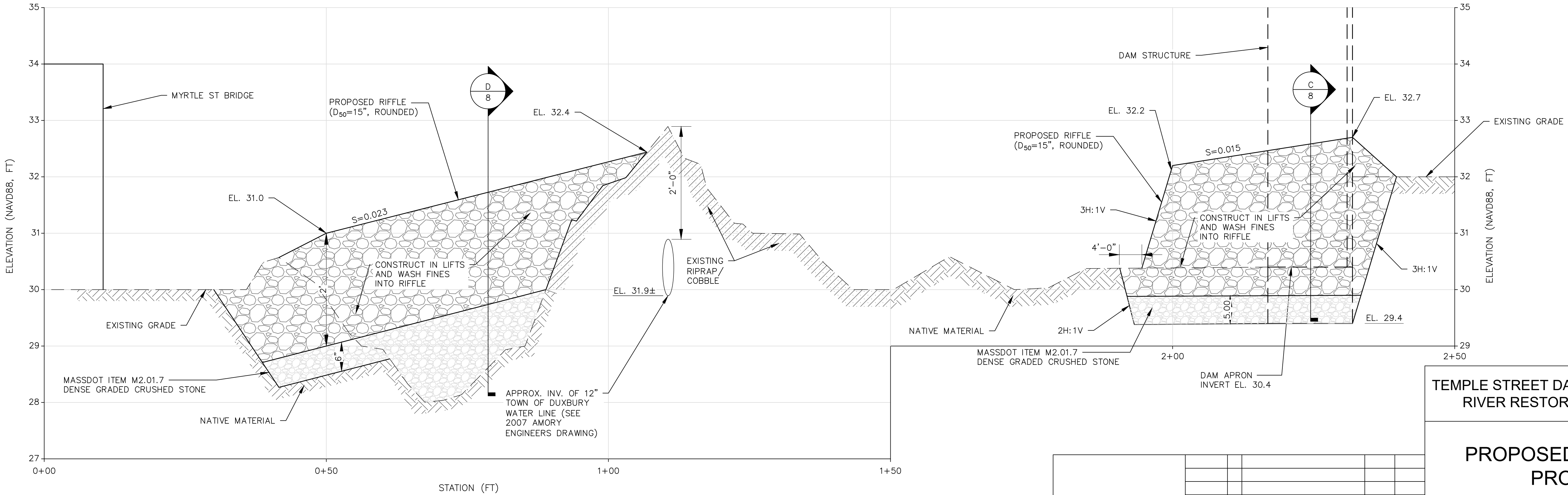
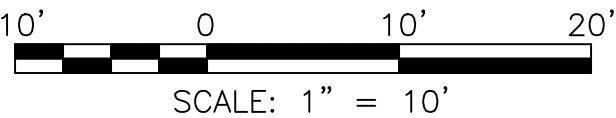
IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.



IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.



1 PLAN VIEW
6 SCALE: 1" = 10'



2 PROPOSED THALWEG PROFILE
6 HORIZONTAL SCALE: 1" = 10' VERTICAL SCALE: 1"=1'

PRELIMINARY
NOT FOR
CONSTRUCTION

6/30/22	1	75% DRAWINGS	BAS	KJC
DATE	#	DESCRIPTIONS	BY	APP
DRAWN BY: BAS				
CHECKED BY: KJC				
APPROVED BY:				
PROJECT NO.		2336	DATE: 6/30/2022	

TEMPLE STREET DAM REMOVAL/ SOUTH
RIVER RESTORATION PROJECT

PROPOSED PLAN AND
PROFILE

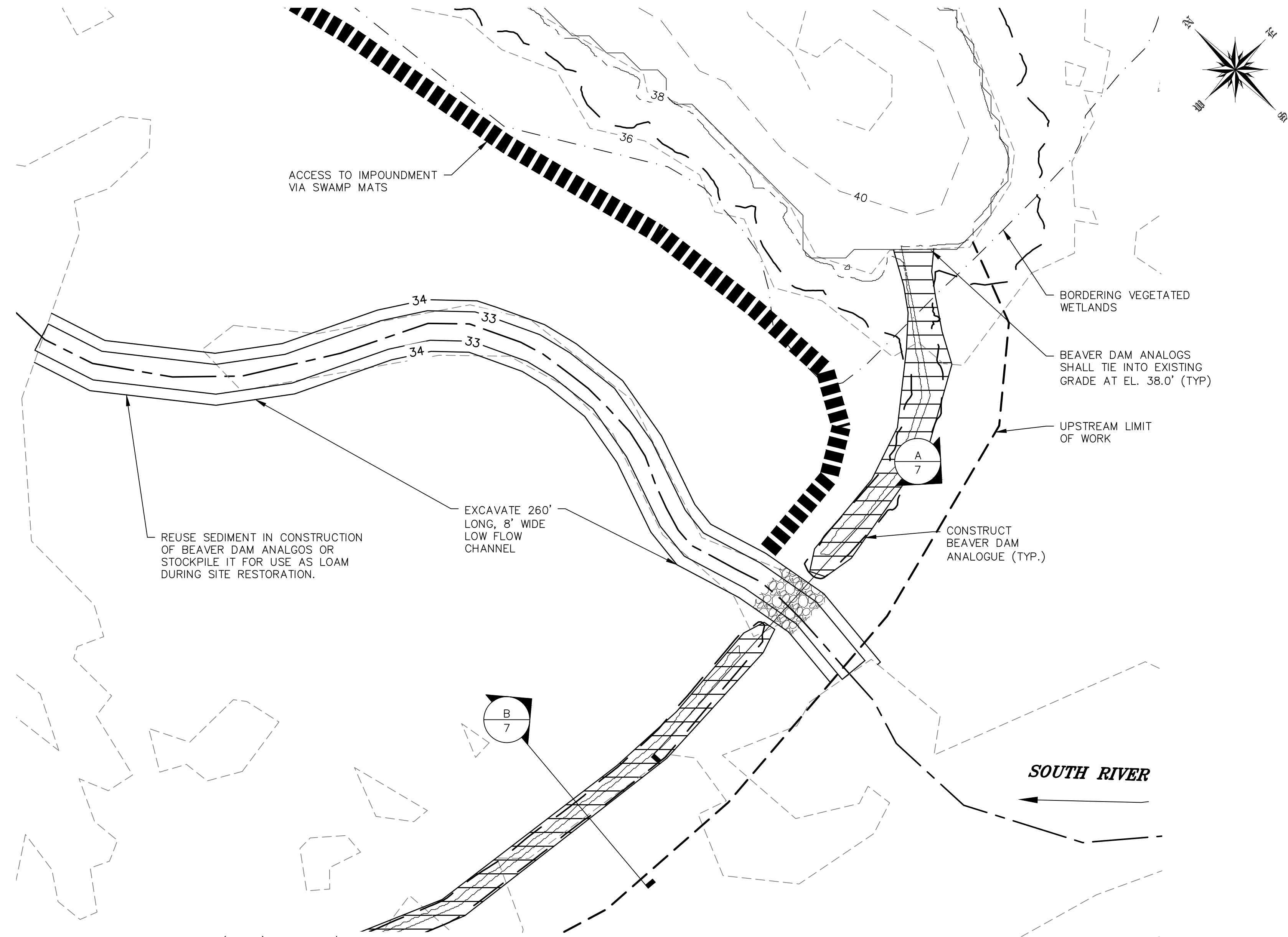
Massachusetts Division Of Ecological
Restoration
Massachusetts Dept. of Fish & Game
251 Causeway Street, Suite 400
Boston, MA 02114

Gomez and Sullivan Engineers, D.P.C.
41 Liberty Hill Road
PO Box 2179
Henniker, NH 03242

SCALE: 1" = 10'

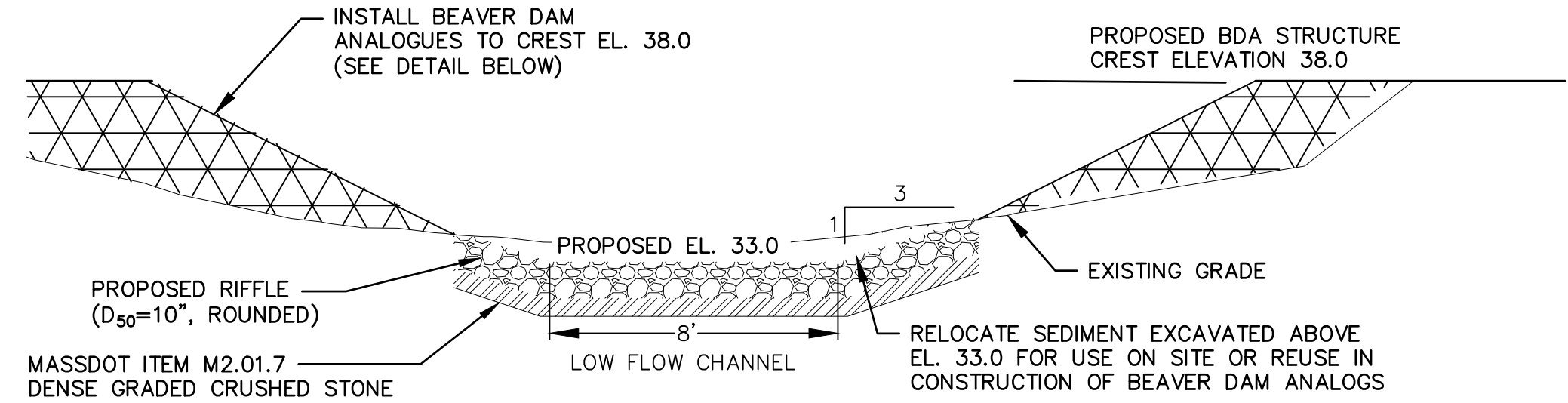
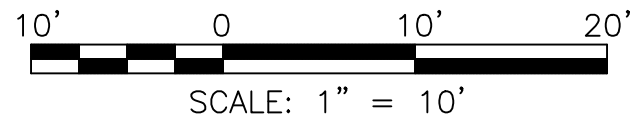
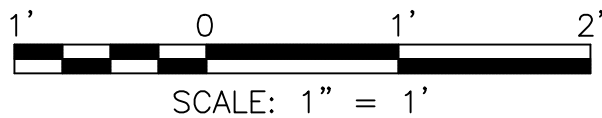
DRAWING: 6

IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.

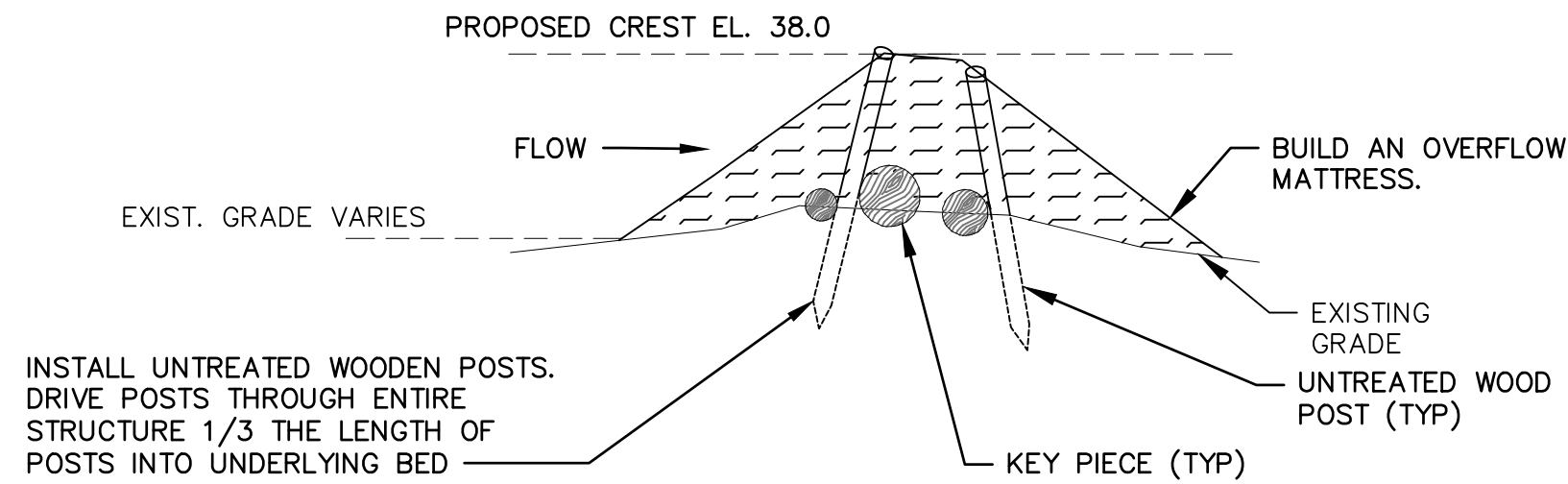


POND LIMITS SHOWN — MEDIAN FLOW (3 CFS) EL. 33.2+/-
DURING CONSTRUCTION PERIOD (JULY 1 — OCT. 31)
TOP OF BANK (TOB)
MEAN ANNUAL HIGH WATER (MAHW)
ORDINARY HIGH WATER (OHW)

1
7
BEAVER DAM ANALOGUE AND LOW FLOW CHANNEL
SCALE: 1" = 20'



A
7
BEAVER DAM ANALOGUE— LOW FLOW CHANNEL DETAIL
SCALE: 1" = 4'



B
7
BEAVER DAM ANALOGUES
SCALE: 1" = 4'

BDA MATERIALS

- WOODY FILL MATERIALS: BRANCHES, LIMBS, SMALL LOGS, BRUSHY FILL.
- FINER FILL MATERIAL: ORGANIC (E.G., TURF MATS, ROOTS, LEAVES, CONIFER NEEDLES, GRASS, ETC.) AND INORGANIC (E.G., FINE SEDIMENT, SILT, CLAY, SOIL, AND GRAVEL).

BDA CONSTRUCTION SEQUENCE

- FOLLOW THE SEQUENCE BELOW FOR BDA INSTALLATION.
 - BUILD UP FIRST LAYER OR COURSE BY WIDENING BASE UPSTREAM AND DOWNSTREAM OF CREST TO FLAT HEIGHT OF 6 TO 12" ABOVE EXISTING WATER SURFACE, AND MAKE SURE IT HOLDS BACK WATER.
 - LAY OUT FIRST LAYER OF LARGER FILL MATERIAL, BEING CAREFUL NOT TO GO TO HIGHER THAN 6" TO 12" ABOVE EXISTING WATER SURFACE. THE FIRST LAYER SHOULD BE JUST HIGH ENOUGH TO BACKWATER A FLAT WATER SURFACE BEHIND IT.
 - USING MUD, BED MATERIAL & TURF (TYPICALLY SOURCED FROM BACKWATER AREA OF POND) AS FINE FILL MATERIAL TO PLUG UP LEAKS, COMBINE WITH STICKS AND BRANCHES OF VARIOUS SIZES TO BUILD A WIDE BASE. MAKE SURE BASE IS WIDE ENOUGH TO ACCOMMODATE ANTICIPATED DAM HEIGHT WITH A 1.5H:1V SLOPE.
- BUILD UP SUBSEQUENT LAYER(S) IN 6" TO 12" LIFTS, PACKING WELL WITH FINE FILL MATERIAL UNTIL PONDING WATER TO ITS NEXT TEMPORARY CREST ELEVATION.
- REPEAT STEP 2 AS MANY TIMES AS NECESSARY TO BUILD UP TO DESIGN CREST ELEVATION.
- WORK A WILLOW MATTRESS (LAYING BRANCHES PARALLEL TO FLOW) INTO DAM ON DOWNSTREAM SIDE AND BUILD TO PROVIDE ENERGY DISSIPATION TO OVERTOPPING FLOWS.
- PLUG UP BDA WITH MUD AND ORGANIC MATERIAL (SMALL STICKS AND TURF) TO CREST ELEVATION.

TEMPLE STREET DAM REMOVAL/ SOUTH RIVER RESTORATION PROJECT

PROPOSED BEAVER DAM ANALOGUE AND LOW FLOW CHANNEL DETAILS

PRELIMINARY
NOT FOR
CONSTRUCTION

6/30/22	1	75% DRAWINGS	BAS	KJC
DATE	#	DESCRIPTIONS	BY	APP
DRAWN BY: BAS				
CHECKED BY: KJC				
APPROVED BY:				
PROJECT NO.	2336	DATE: 6/30/2022		

Massachusetts Division Of Ecological Restoration
Massachusetts Dept. of Fish & Game
251 Causeway Street, Suite 400
Boston, MA 02114

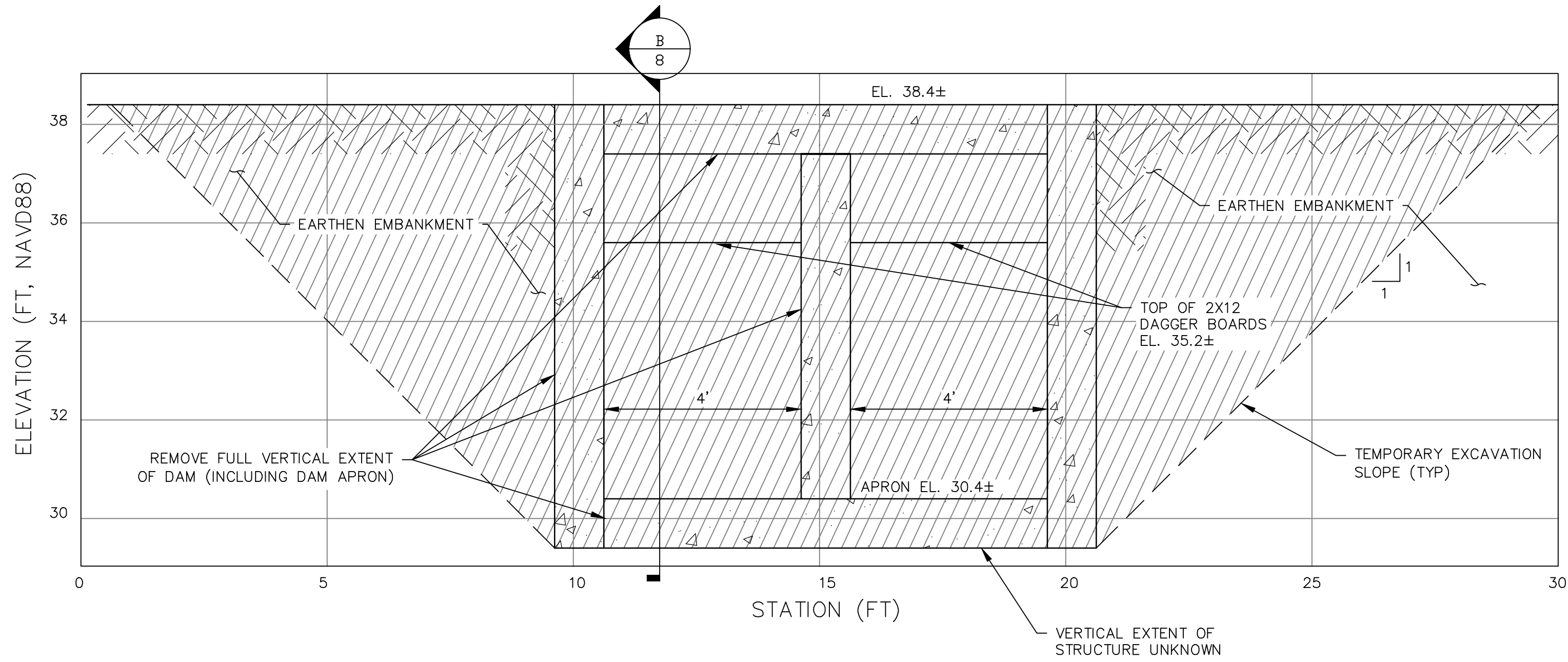
Gomez and Sullivan Engineers, D.P.C.
41 Liberty Hill Road
PO Box 2179
Henniker, NH 03242

SCALE: AS SHOWN

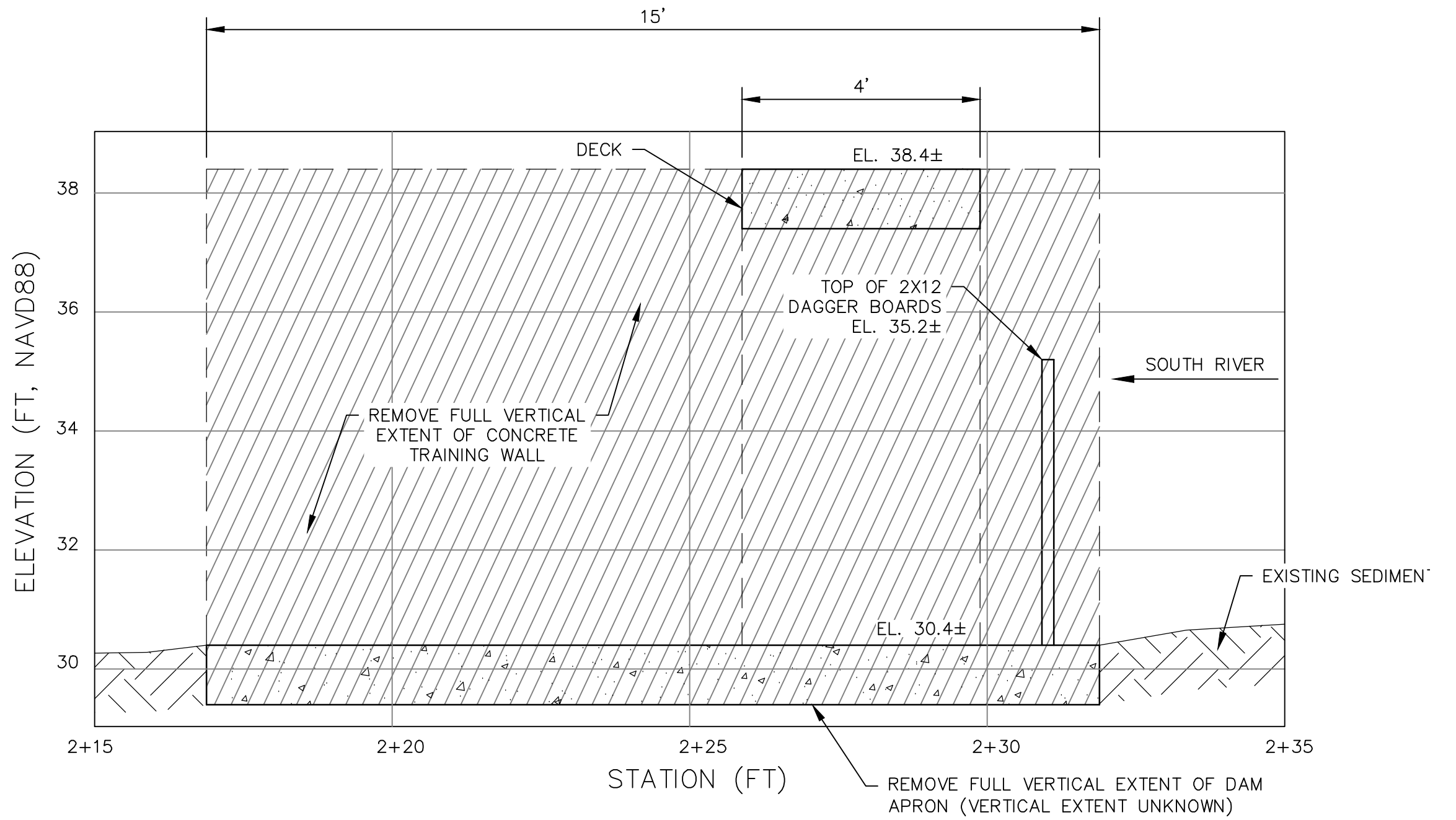
DRAWING:

7

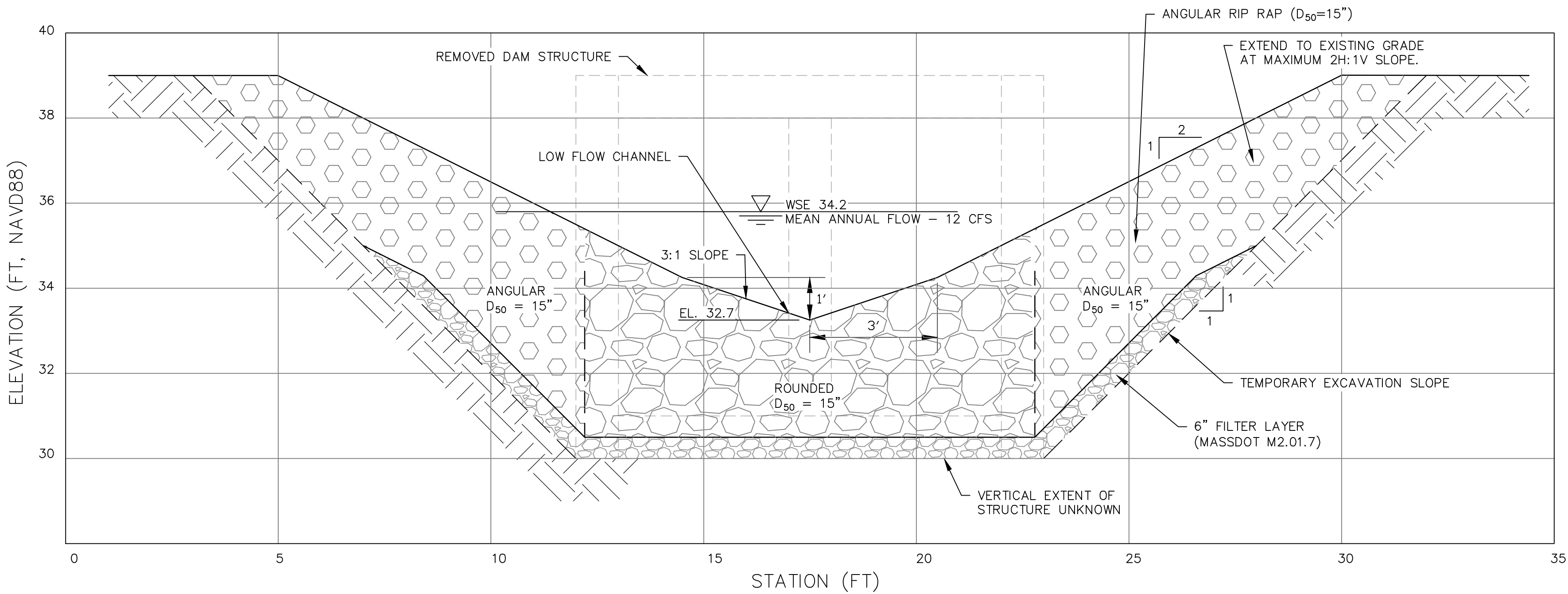
IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.



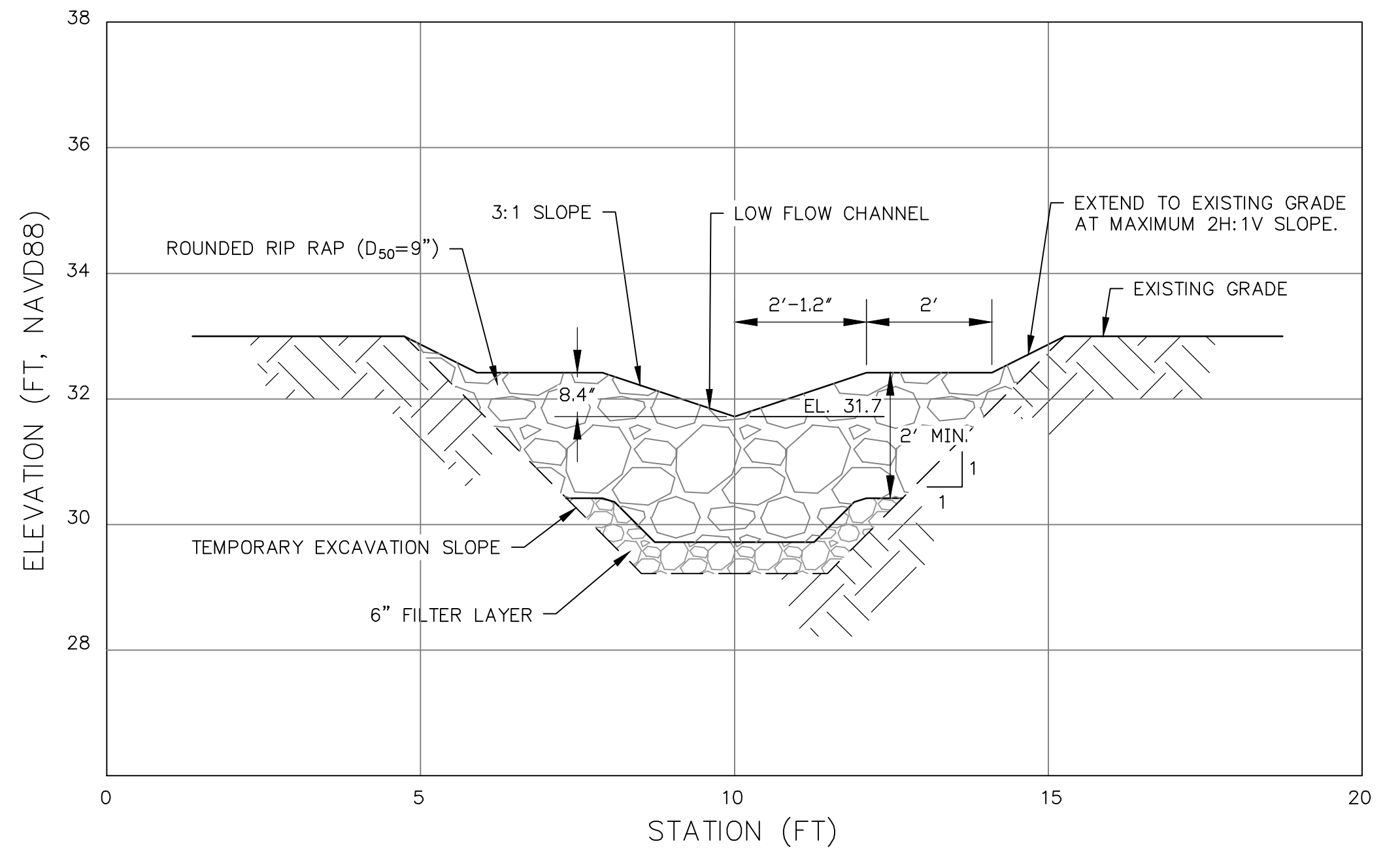
A
8 TEMPLE ST DAM ELEVATION – REMOVALS
SCALE: 1" = 2'



B
8 TEMPLE ST DAM PROFILE – REMOVALS
SCALE: 1" = 2'



C
8 TEMPLE ST DAM ELEVATION – LOW FLOW CHANNEL
SCALE: 1" = 2'



D
8 RIFFLE CROSS-SECTION – LOW FLOW CHANNEL
SCALE: 1" = 2'

TEMPLE STREET DAM REMOVAL/ SOUTH RIVER RESTORATION PROJECT

DAM REMOVAL ELEVATION AND TYPICAL SECTIONS

PRELIMINARY
NOT FOR
CONSTRUCTION

6/30/22	1	75% DRAWINGS	BAS	KJC
DATE	#	DESCRIPTIONS	BY	APP
DRAWN BY: BAS				
CHECKED BY: KJC				
APPROVED BY:				
PROJECT NO.	2336	DATE: 6/30/2022		

Massachusetts Division Of Ecological
Restoration
Massachusetts Dept. of Fish & Game
251 Causeway Street, Suite 400
Boston, MA 02114

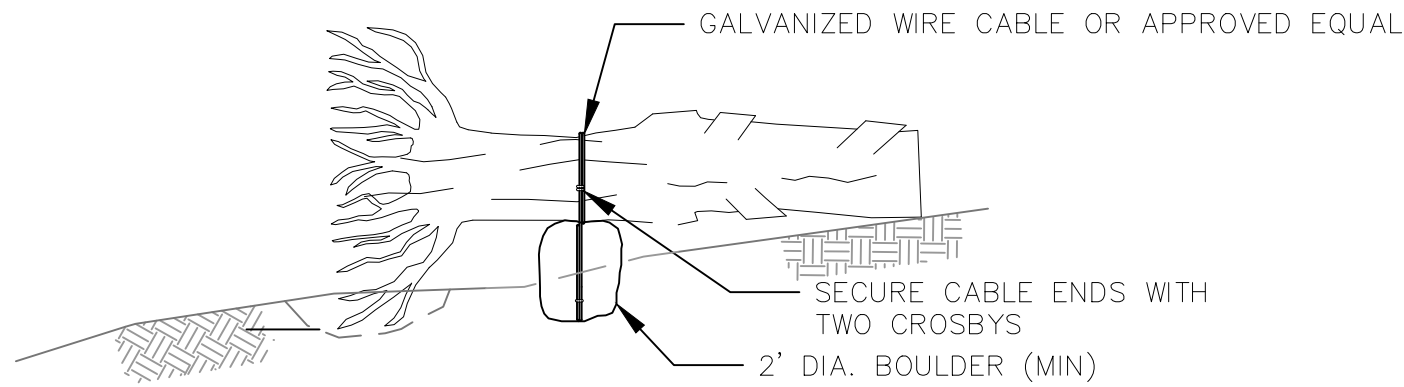
Gomez and Sullivan Engineers, D.P.C.
41 Liberty Hill Road
PO Box 2179
Henniker, NH 03242

SCALE: NOT TO SCALE

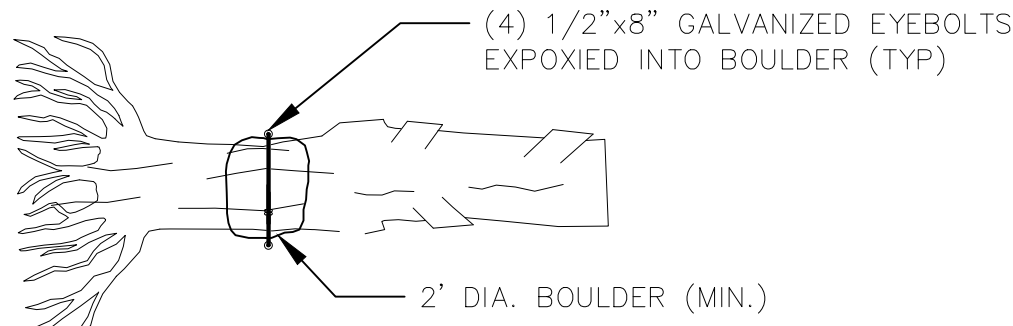
DRAWING:

8

IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.



PROFILE VIEW

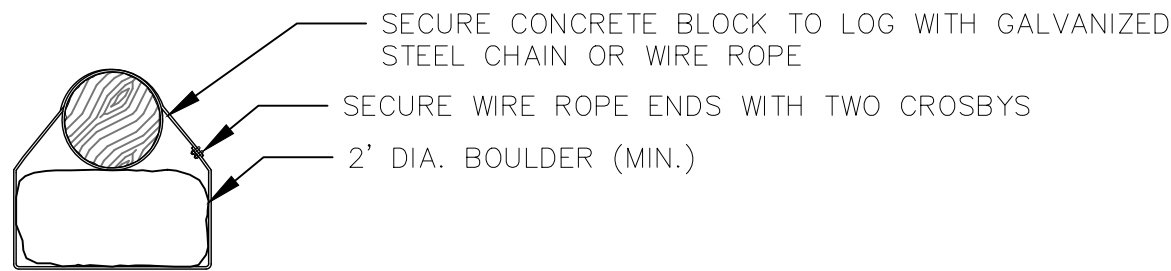


PLAN VIEW

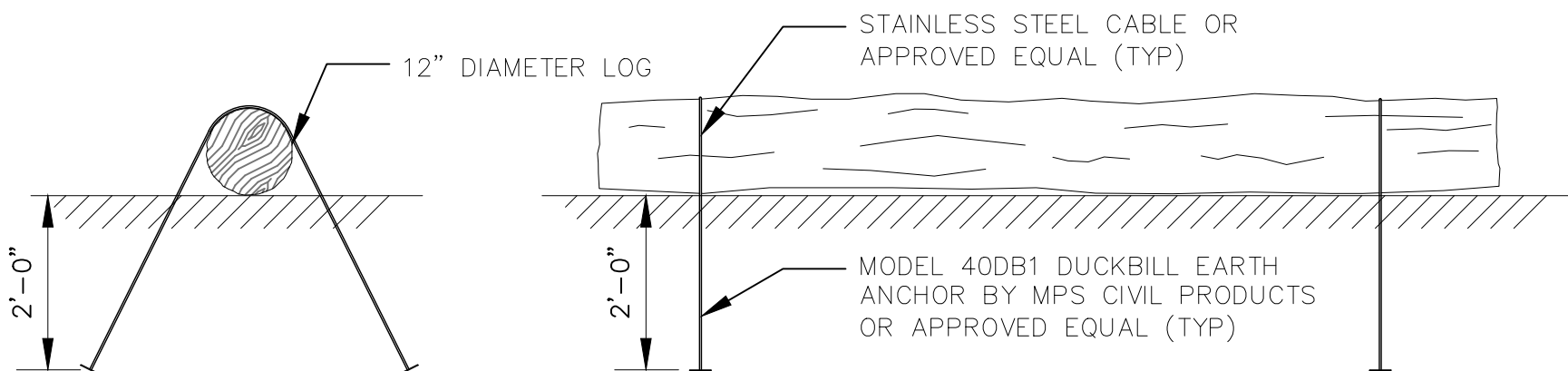
A WOODY DEBRIS STRUCTURE DETAIL
9 SCALE: NTS

WOODY DEBRIS INSTALLATION NOTES:

1. LARGE WOODY DEBRIS SHALL BE DECAY RESISTANT.
2. LOGS FOR LOG JAMS SHALL BE CEDAR, SPRUCE, PINE, OR FIR. LIMBS AND BRANCHES SHALL BE IN TACT TO THE FULLEST EXTENT POSSIBLE. OTHER TYPES OF LOGS MAY BE USED IF APPROVED PRIOR TO CONSTRUCTION WITH THE OWNER'S REPRESENTATIVE. STRUCTURE MEMBERS ARE TO BE A MINIMUM OF 1-FOOT IN DIAMETER.
3. BALLAST EACH 10' LONG WITH AT LEAST ONE BOULDER 2-FEET IN DIAMETER PER 10' LONG, 12" DIAMETER LOG.
4. ANCHOR ALL MEMBERS TOGETHER AS SHOWN IN ANCHOR DETAIL. PRE-DRILL 1 INCH HOLE AND USE AN A307 HOT-DIPPED GALVANIZED, 1-INCH DIAMETER, THREADED STAINLESS STEEL ROD WITH HEAVY PLATE WASHERS AND NUTS.
5. EXPOSED LOG ENDS SHALL HAVE BROKEN ENDS RATHER THAN SAW CUT ENDS.
6. EXISTING LOG AND ROOT MATERIALS EMBEDDED WITHIN THE FLOODPLAIN SHALL BE SUPPLEMENTED, NOT COLLECTED FOR REDISTRIBUTION ACROSS THE FLOODPLAIN.
7. ORIENTATION AND LOCATION SHALL BE DETERMINED BY THE OWNER'S REPRESENTATIVE IN THE FIELD.



OPTION 1

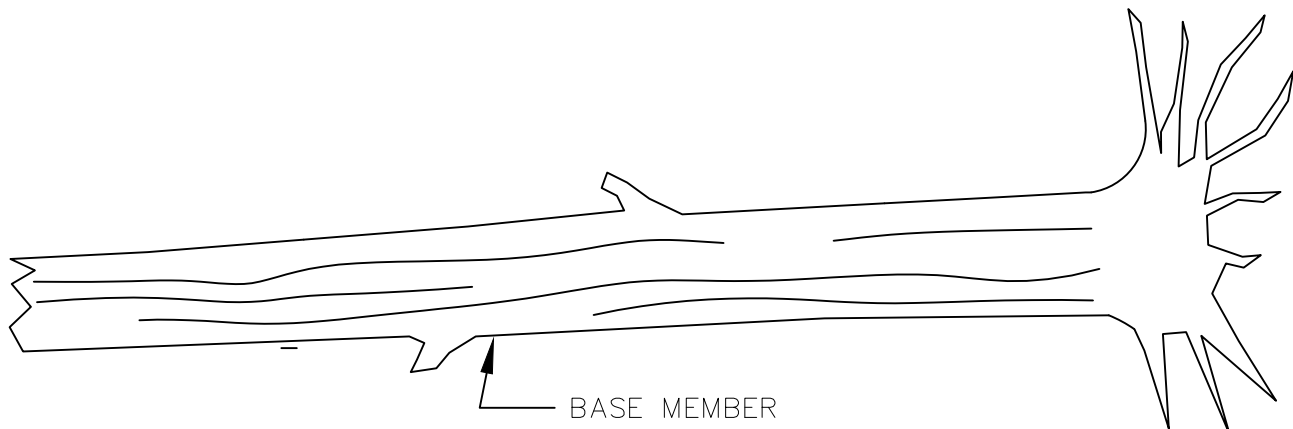


NOTE: INSTALL (2) EARTH ANCHORS PER 10' LOG

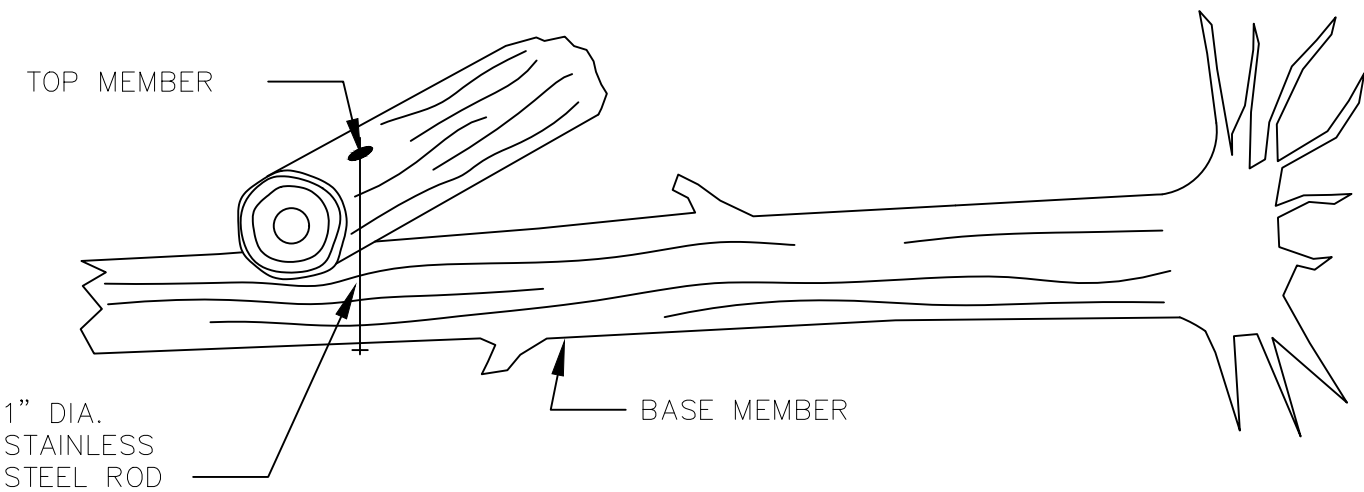
PROFILE

OPTION 2

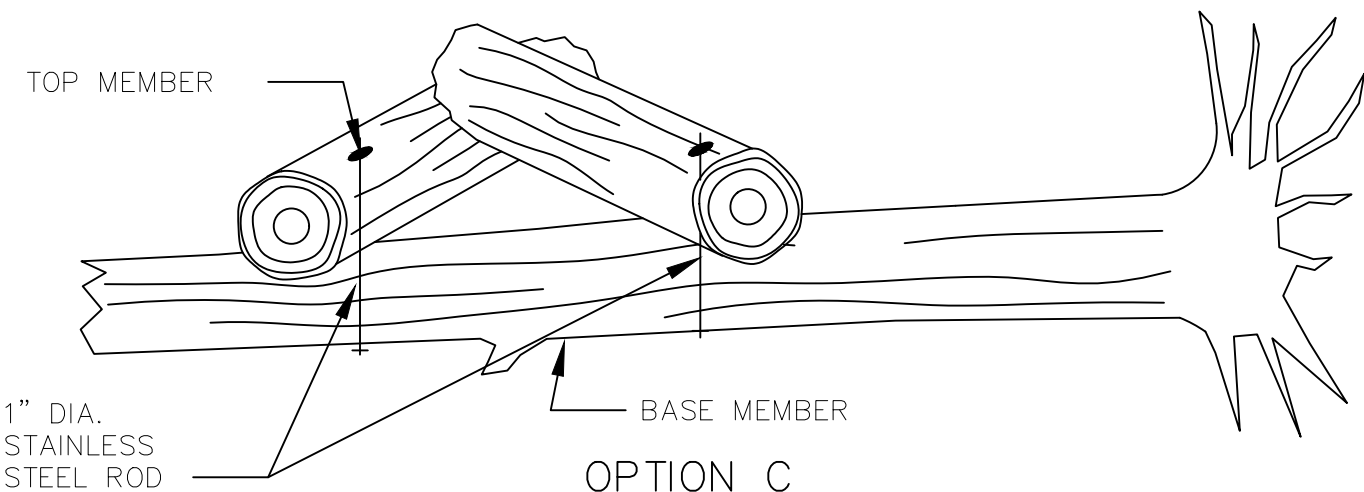
B LOG ANCHOR DETAIL
9 SCALE: NTS



OPTION A

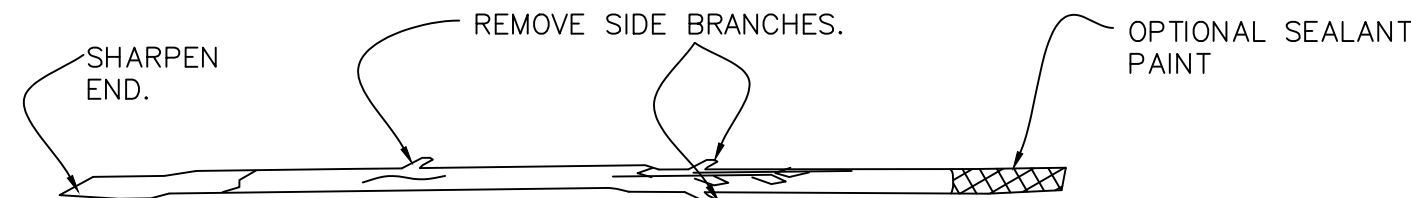


OPTION B



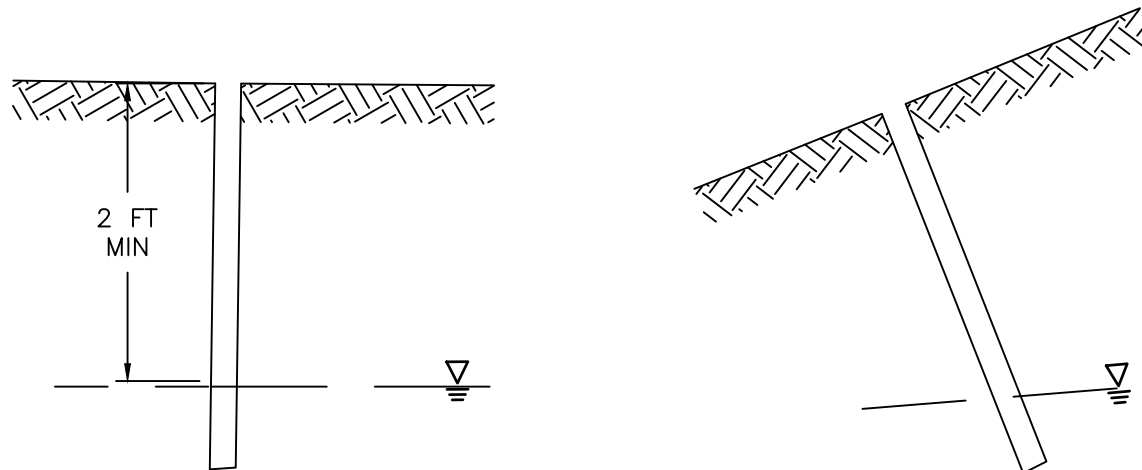
OPTION C

C LOG PLACEMENT OPTIONS
9 SCALE: NTS



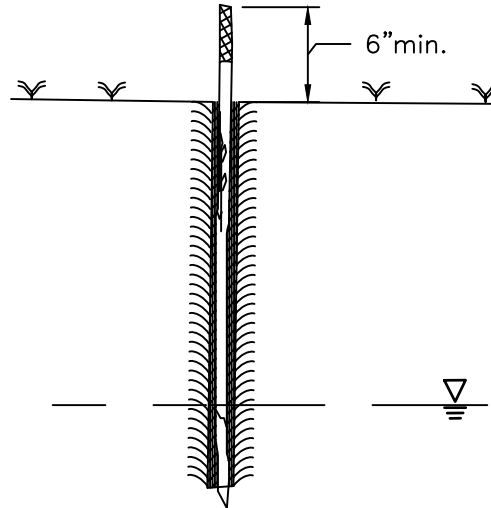
STEP 1

OBTAIN WILLOW OR WILLOW TYPE ADVENTITIOUSLY ROOTABLE STOCK. MATERIAL SHOULD BE FROM AN AREA WITH SIMILAR SOIL, CLIMATE, AND LOCATION RELATIVE TO THE STREAM. THE MATERIAL SHALL BE AT LEAST TWO YEARS OLD AND FREE OF DISEASE, ROT, OR INSECT INFESTATION. MATERIAL SHALL BE HARVESTED WHILE DORMANT AND SOAKED (1 TO 14 DAYS) BEFORE INSTALLATION.



STEP 2

CREATE A PILOT HOLE THAT IS PERPENDICULAR TO THE GROUND SURFACE AND DEEP ENOUGH TO REACH THE LOWEST WATER TABLE OF THE YEAR. THE HOLE SHALL BE 3/4 TO 1 THE LENGTH OF THE LIVE POLE.



NOTE: IF PILOT HOLE IS MADE WITH A WATER JET (HYDRO DRILL), BACKFILLING WITH WATER SOIL SLURRY MAY NOT BE NECESSARY.

STEP 3

TAMP LIVE POLES INTO HOLE. TOP OF CUTTING SHALL BE ABOVE COMPETING VEGETATION. BACK FILL HOLE WITH WATER AND SOIL MIX TO ACHIEVE GOOD SOIL TO STEM CONTACT. SPACE STAKES IN A 1 TO 3 FOOT RANDOM PATTERN.

D LIVE STAKE DETAIL
9 SCALE: NTS

TEMPLE STREET DAM REMOVAL/ SOUTH RIVER RESTORATION PROJECT

STREAM RESTORATION DETAILS

PRELIMINARY
NOT FOR
CONSTRUCTION

6/30/22	1	75% DRAWINGS	BAS	KJC
DATE	#	DESCRIPTIONS	BY	APP
DRAWN BY: BAS				
CHECKED BY: KJC				
APPROVED BY:				
PROJECT NO.	2336	DATE: 6/30/2022		

Massachusetts Division Of Ecological Restoration
Massachusetts Dept. of Fish & Game
251 Causeway Street, Suite 400
Boston, MA 02114

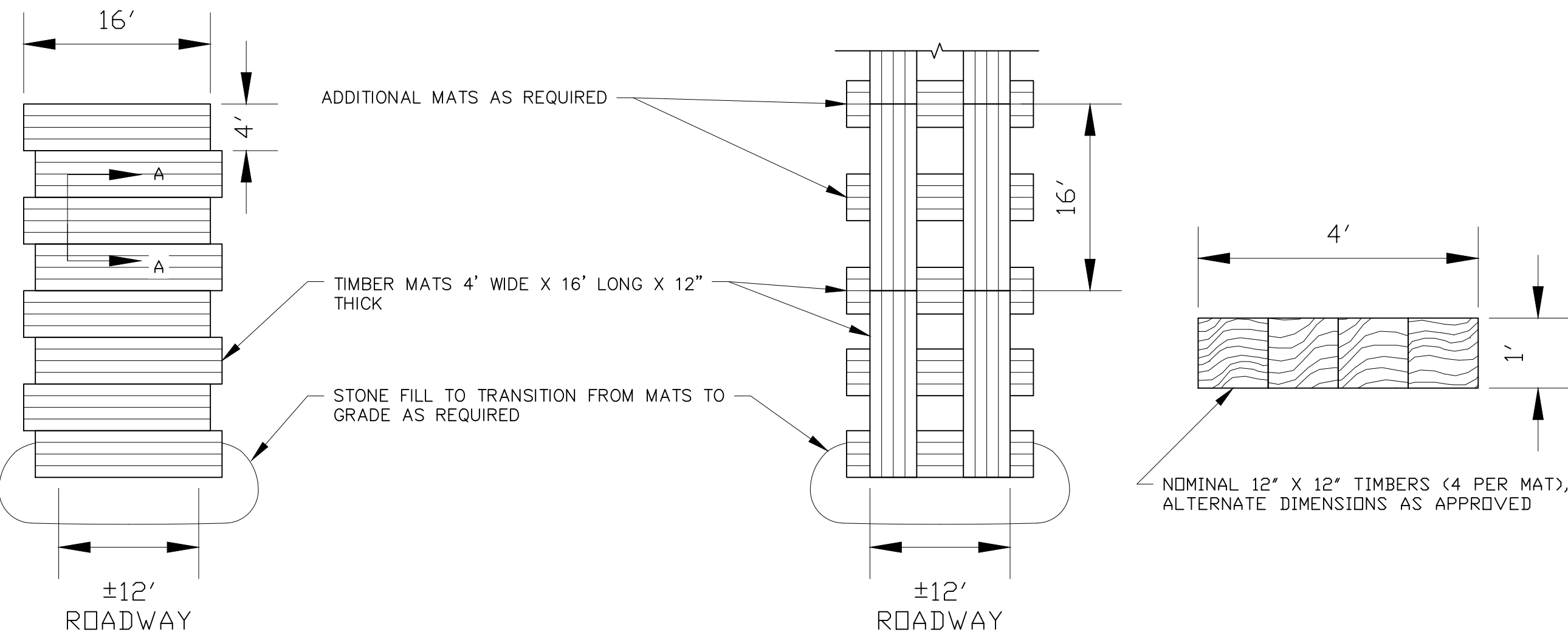
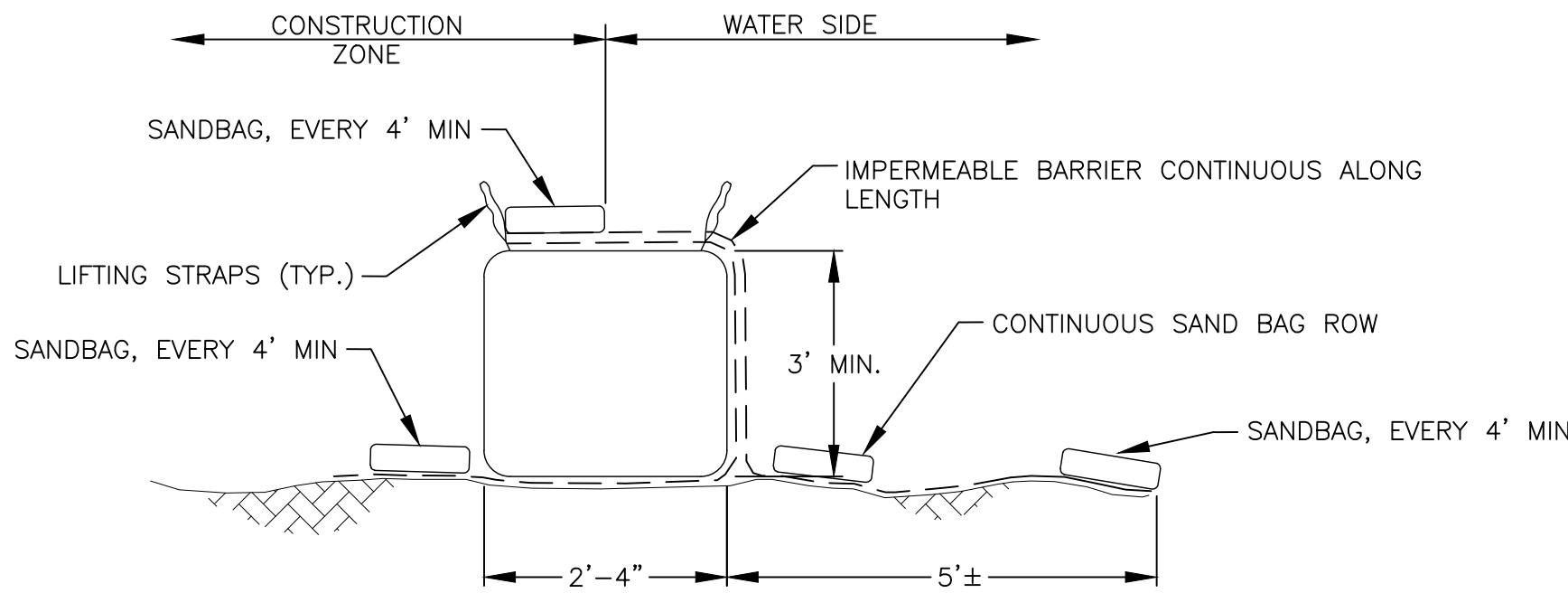
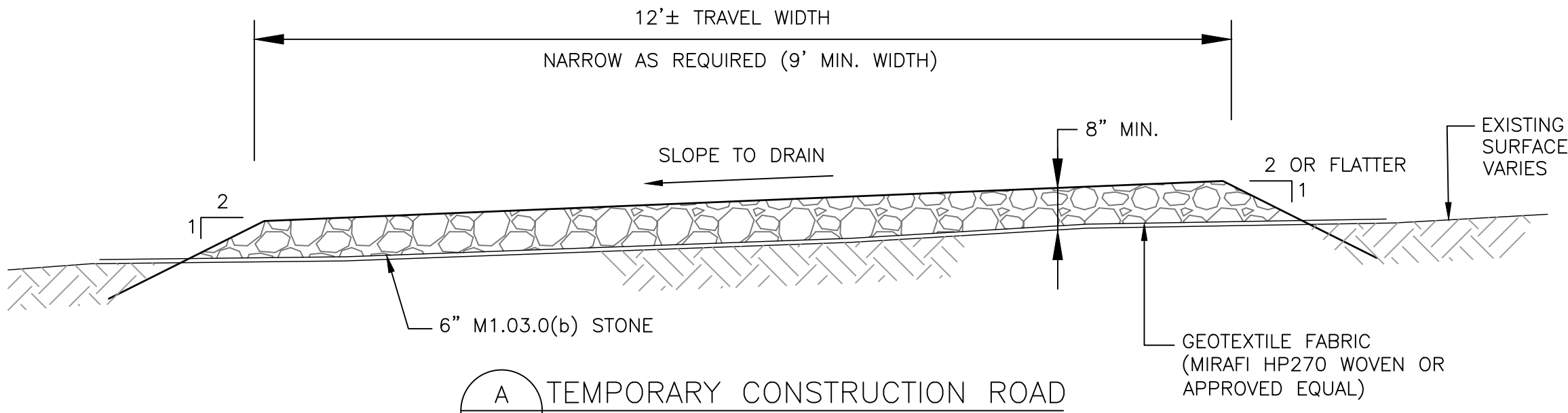
Gomez and Sullivan Engineers, D.P.C.
41 Liberty Hill Road
PO Box 2179
Henniker, NH 03242

SCALE: AS NOTED

DRAWING:

9

IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.



SINGLE LAYER PLAN

DOUBLE LAYER PLAN

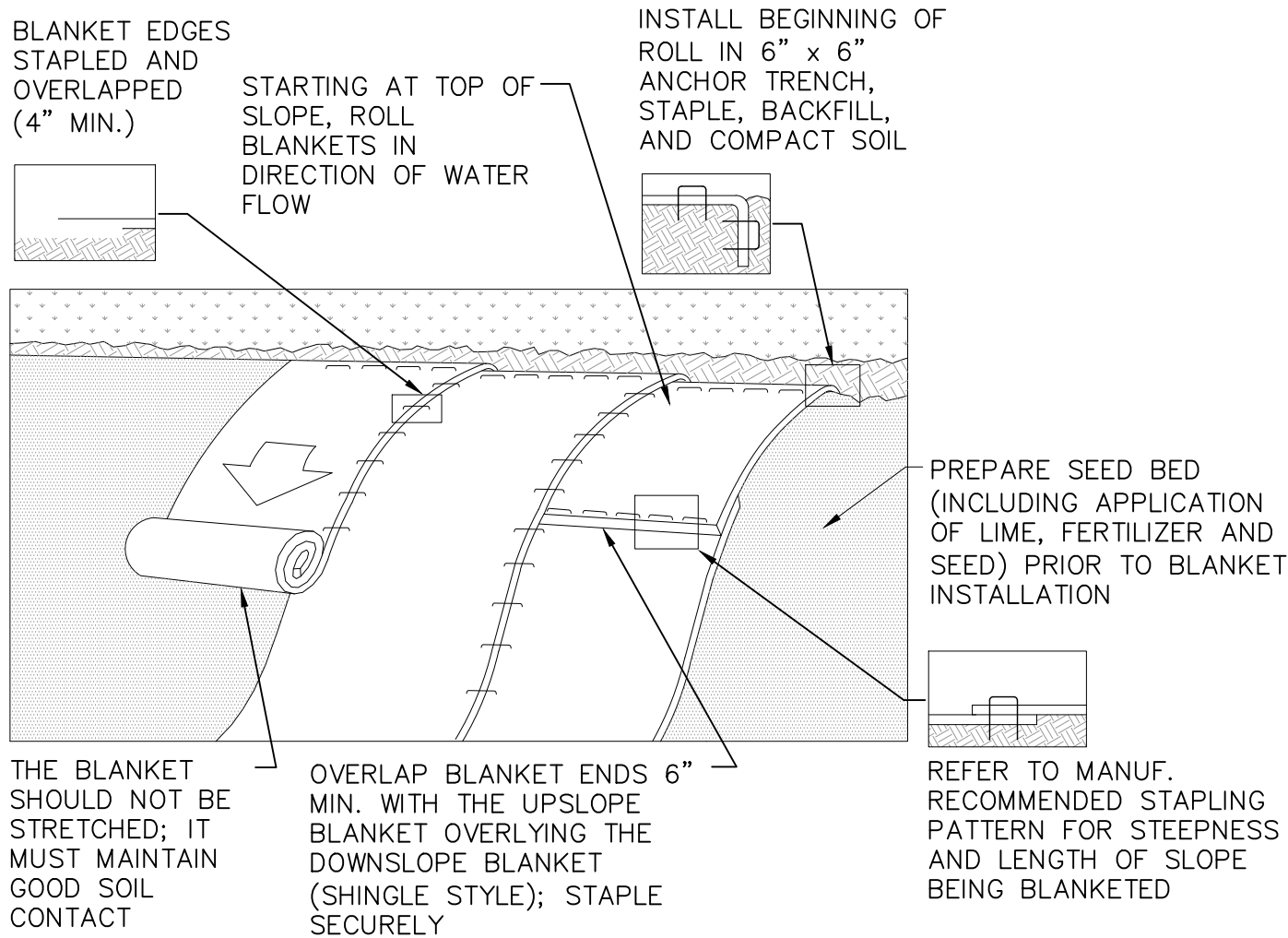
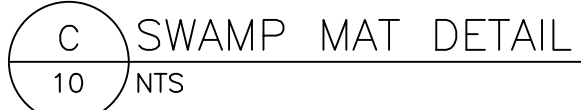
SECTION A-A

INSTALLATION

- MATS SHALL BE IN GOOD CONDITION TO ENSURE PROPER INSTALLATION, USE AND REMOVAL.
- OPERATING HEAVY EQUIPMENT IN WETLANDS SHALL BE MINIMIZED, AND SUCH EQUIPMENT OTHER THAN FIXED EQUIPMENT (DRILL RIGS, FIXED CRANES, ETC.) SHALL NOT BE STORED, MAINTAINED, FUELED OR REPAIRED IN WETLANDS UNLESS THE EQUIPMENT IS BROKEN DOWN AND CANNOT BE EASILY REMOVED.
- AN ADEQUATE SUPPLY OF SPILL CONTAINMENT EQUIPMENT SHALL BE MAINTAINED ON SITE.
- MINIMIZE IMPACTS TO WETLAND AREAS DURING INSTALLATION, USE, AND REMOVAL.
- INSTALL ADEQUATE EROSION AND SEDIMENT CONTROLS AT APPROACHES TO MATS TO PROMOTE A SMOOTH TRANSITION TO, AND MINIMIZE SEDIMENT TRACKING ONTO, SWAMP MATS.
- IN MOST CASES, CONSTRUCTION MATS SHOULD BE PLACED ALONG THE TRAVEL AREA SO THAT THE INDIVIDUAL BOARDS ARE RESTING PERPENDICULAR TO THE DIRECTION OF TRAFFIC. NO GAPS SHOULD EXIST BETWEEN MATS. PLACE MATS FAR ENOUGH ON EITHER SIDE OF THE RESOURCE AREA TO REST ON FIRM GROUND.

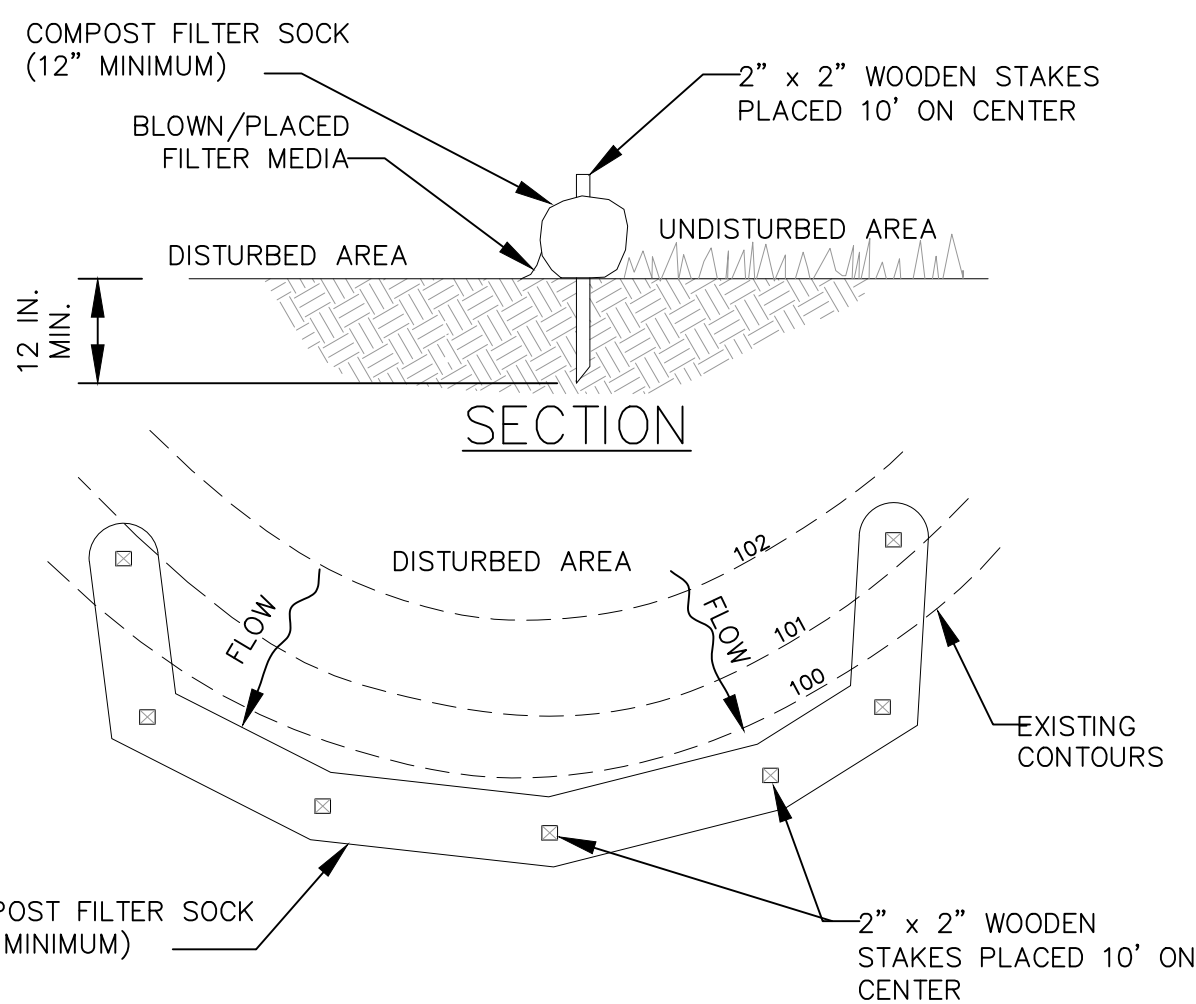
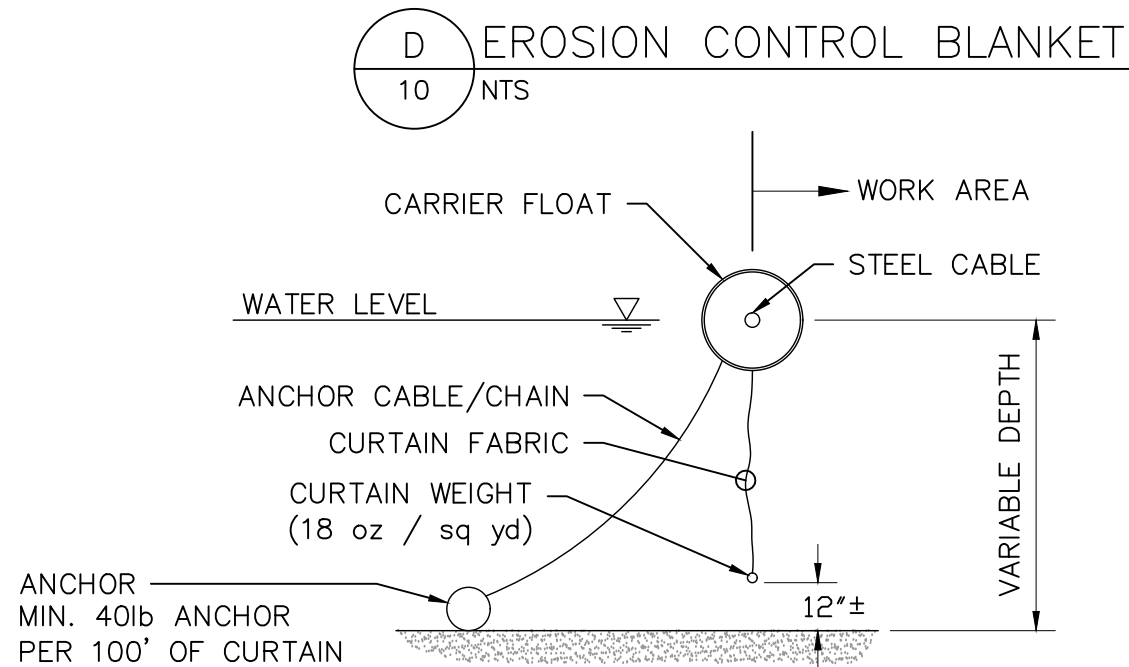
MAINTENANCE

- MAT INSTALLATIONS SHOULD BE MONITORED TO ASSURE CORRECT FUNCTIONING OF THE MATS. INSPECT MATS AFTER USE. LOOK FOR ANY DEFECTS OR STRUCTURAL PROBLEMS. MATS WHICH BECOME COVERED WITH SOILS OR CONSTRUCTION DEBRIS SHOULD BE CLEANED AND THE MATERIALS REMOVED AND DISPOSED OF IN AN UPLAND LOCATION. THE MATERIAL SHOULD NOT BE SCRAPED AND SHOVELED INTO THE RESOURCE AREA. MATS WHICH BECOME IMBEDDED MUST BE RESET OR LAYERED TO PREVENT MUD FROM COVERING THEM OR WATER PASSING OVER THEM.



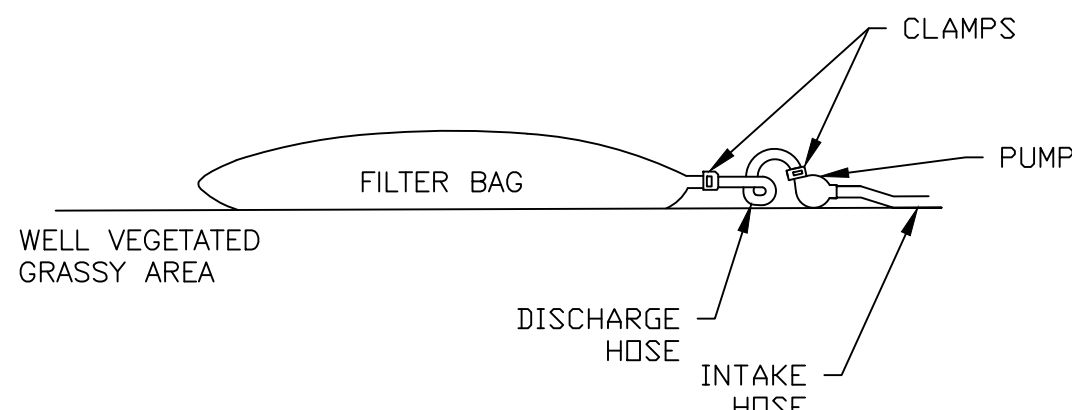
- INSTALLATION NOTES
- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 - BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15CM) DEEP X 6" (15CM) WIDE TRENCH WITH APPROXIMATELY 12" (30CM) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30CM) APART ACROSS THE WIDTH OF THE BLANKET.
 - ROLL THE BLANKETS DOWN THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/ STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
 - THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5CM-12.5CM) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
 - CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30CM) APART ACROSS ENTIRE BLANKET WIDTH.

- NOTES:
- INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 - DO NOT SCALE DRAWINGS.
 - IN LOOSE SOIL CONDITIONS THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
 - SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.
 - SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.
 - BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.
 - EROSION CONTROL BLANKET SHALL BE PLACED ON ANY VEGETATED SLOPES GREATER THAN 3H:1V.



NOTES:

- SOCK FABRIC SHALL MEET MADEP STANDARDS.
- COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.
- TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.
- ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
- COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
- UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.
- IF THERE ARE SEAMS WHERE ONE SOCK ABUTS ANOTHER, THERE NEEDS TO BE OVERLAP AND STAKING PER MANUFACTURERS SPECIFICATIONS.



NOTE:

- BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.



TEMPLE STREET DAM REMOVAL/ SOUTH RIVER RESTORATION PROJECT

EROSION AND SEDIMENT CONTROL DETAILS

PRELIMINARY
NOT FOR
CONSTRUCTION

6/30/22	1	75% DRAWINGS	BAS	KJC
DATE	#	DESCRIPTIONS	BY	APP
DRAWN BY: BAS				
CHECKED BY: KJC				
APPROVED BY:				
PROJECT NO.	2336	DATE: 6/30/2022		

Massachusetts Division Of Ecological
Restoration
Massachusetts Dept. of Fish & Game
251 Causeway Street, Suite 400
Boston, MA 02114

Gomez and Sullivan Engineers, D.P.C.
41 Liberty Hill Road
PO Box 2179
Henniker, NH 03242

SCALE: NOT TO SCALE

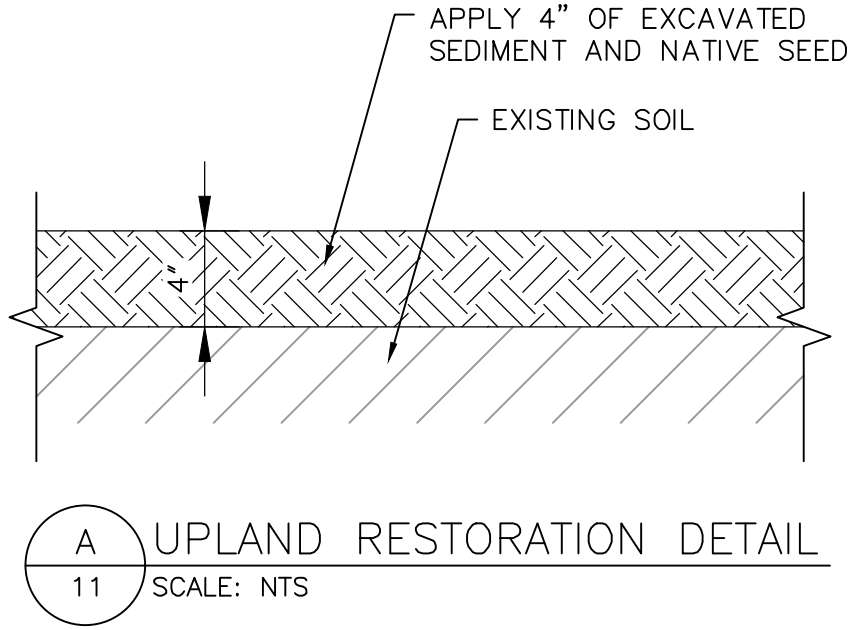
DRAWING:

10

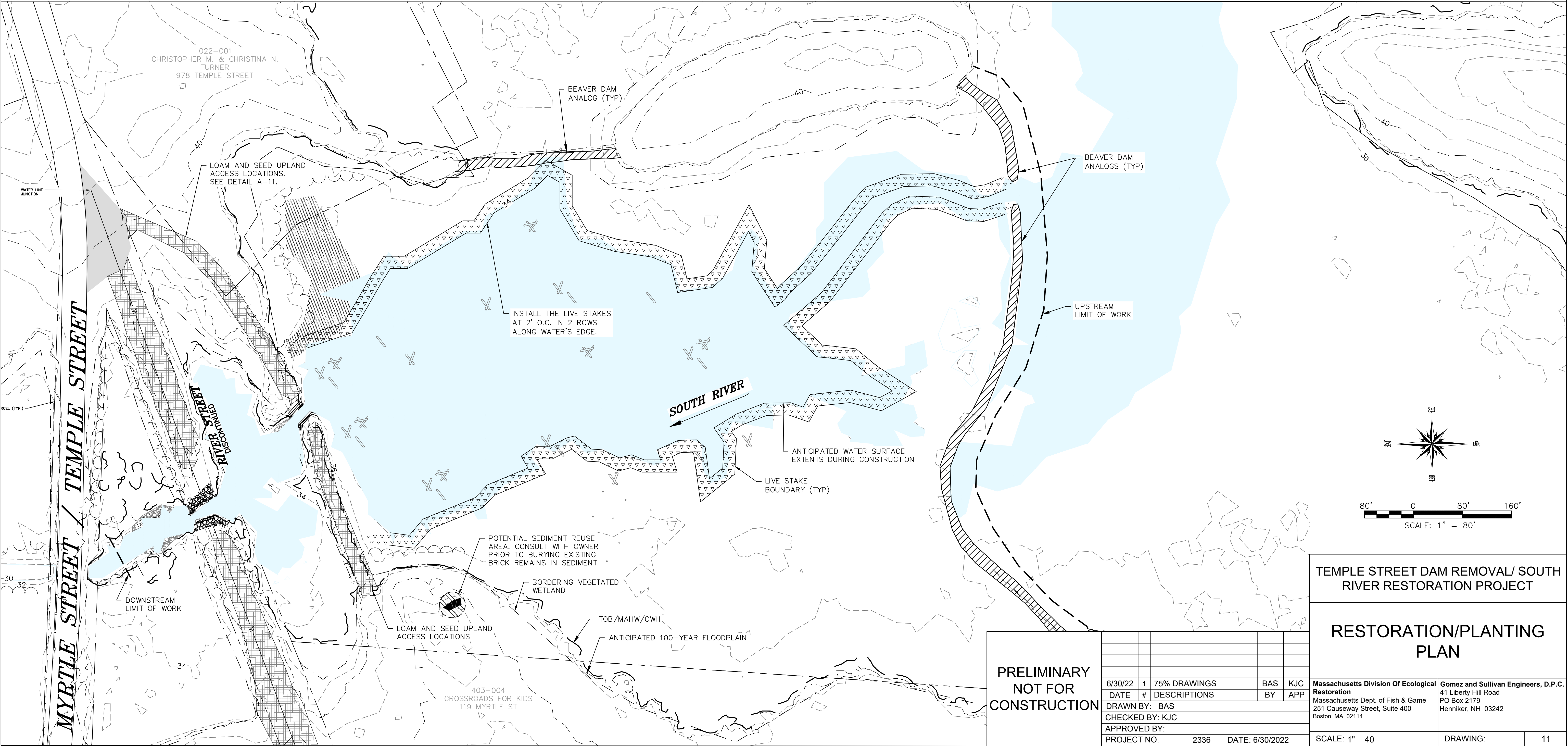
IT IS A VIOLATION OF THE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANYWAY UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. ALTERATIONS MUST HAVE THE ENGINEER'S SEAL AFFIXED ALONG WITH A DESCRIPTION OF THE ALTERATION, THE SIGNATURE AND DATE.

Zone	Wetland Restoration Habitat Type (Elevation Range)	Size	Strategy	Plant Form	Location and (SF)
UPL	Upland (>36.5)	0.46 (20,000 SF)	Seed distributed upland areas with native upland mix as needed.	Seed	Former Embankment Area, other disturbed upland areas (20,000)
Zone 1	Wet Meadow/Shrub-Scrub (33-36.5)	0.4 Acres (18,500 SF)	1-3" diameter stakes 18-36" long at 2' on center	Stake	Former Impoundment Area, adjacent to the edge of water (18,500)

Woody Cuttings (Stakes) (Zone 1) - Wetland Restoration Area		
Common Name	Scientific Name	Specification
Red-Osier Dogwood	Cornus stolonifera	1-3" diameter/18-36" long/2' o.c.
Pussy Willow	Salix discolor	1-3" diameter/18-36" long/2' o.c.
Silky Willow	Salix sericea	1-3" diameter/18-36" long/2' o.c.



- PLANTING NOTES:
1. CONTRACTOR MUST BE FAMILIAR WITH SPECIFICATIONS AND HAVE THEM AVAILABLE AT ALL TIMES.
 2. PLANTS SHALL BE PROVIDED AS PER SPECIES NAMED. NO SUBSTITUTIONS WITHOUT PRIOR WRITTEN APPROVAL.
 3. PLANTS MUST BE NATIVE TO SOUTHEASTERN MASSACHUSETTS AND SHALL BE FROM A NURSERY SPECIALIZING IN NATIVE WETLAND PLANTS.
 4. PROVIDE RECORD OF CONFIRMATION FOR PLANTS—ON—ORDER WITHIN 30 DAYS OF CONTRACT DATE.
 5. ALL PLANTS MUST BE HEALTHY AND VIGOROUS.
 6. EACH TRAY OF STAKES SHALL BE LEGIBLY LABELED WITH THE SPECIES SCIENTIFIC NAME. PROVIDE BILL OF LADING LISTING ALL PLANTS AND QUANTITIES FOR ALL MATERIAL ON SITE.
 7. PLANTS SHALL BE INSTALLED IN THE CORRECT ZONES, AS INDICATED ON THE PLAN. MARK ALL BED AREAS WITH (STAKES, ETC.). BED AREA LOCATION AND SIZE TO BE ACCEPTED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
 8. ALL PLANTS SHALL BE KEPT WATERED AS NECESSARY UNTIL THE END OF THE ESTABLISHMENT/GUARANTEE PERIOD (THE PERIOD ENDS WHEN ALL PLANTS HAVE BEEN INSTALLED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE).
 9. DEAD OR REJECTED PLANTS SHALL BE REMOVED FROM THE PROJECT AND REPLACED DURING THE ESTABLISHMENT/GUARANTEE PERIOD (NO MORE THAN TWICE IN THE SAME AREA).
 10. PLANTS MUST BE INSTALLED IN SPECIFIC ZONES AS SPECIFIED. THE OWNER'S REPRESENTATIVE WILL ASSIST IN THE LAYOUT OF PLANT MATERIAL.



PRELIMINARY
NOT FOR
CONSTRUCTION

6/30/22	1	75% DRAWINGS	BAS	KJC
DATE	#	DESCRIPTIONS	BY	APP
DRAWN BY: BAS				
CHECKED BY: KJC				
APPROVED BY:				
PROJECT NO.	2336	DATE: 6/30/2022		

TEMPLE STREET DAM REMOVAL/ SOUTH
RIVER RESTORATION PROJECT

RESTORATION/PLANTING PLAN

Massachusetts Division Of Ecological
Restoration
Massachusetts Dept. of Fish & Game
251 Causeway Street, Suite 400
Boston, MA 02114

Gomez and Sullivan Engineers, D.P.C.
41 Liberty Hill Road
PO Box 2179
Henniker, NH 03242

SCALE: 1" 40

DRAWING:

11