

MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION

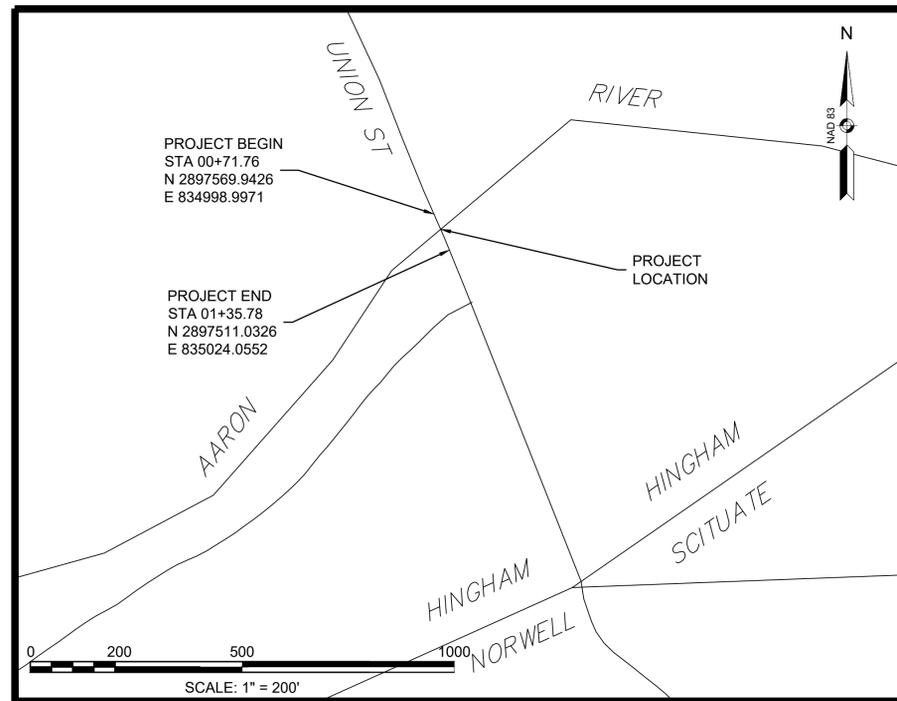
CULVERT REPLACEMENT
UNION STREET
IN THE TOWN OF
HINGHAM
PLYMOUTH COUNTY

HINGHAM UNION STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	N/A	1	6
PROJECT FILE NO.		60724762	
TITLE SHEET & INDEX			

ISSUED FOR PERMIT

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	EXISTING CONDITION PLAN & GENERAL NOTES
3	PROPOSED CONDITION PLAN & SEDIMENT AND EROSION CONTROL
4	PROFILE AND CROSS SECTIONS
5	DETAILS
6	WETLAND REPLICATION PLAN



NOTICE OF INTENT
10/29/2024

DATE	DESCRIPTION	REV #
7/1/2024		1



AECOM
AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE, CHELMSFORD, MA 01824



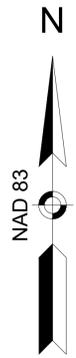
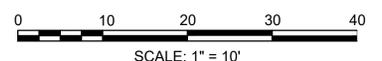
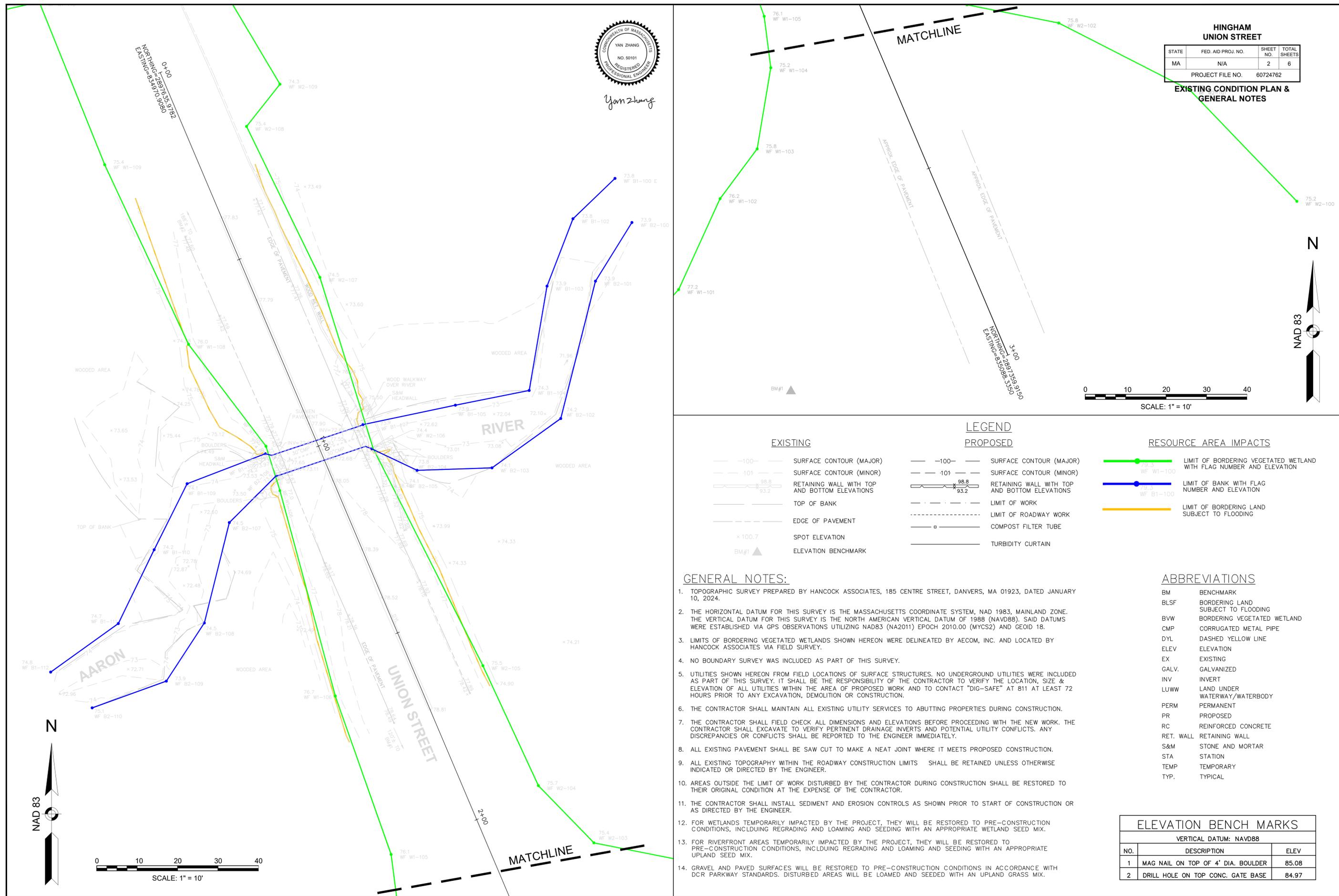
Yan Zhang
CHIEF ENGINEER

10/29/2024
DATE



Yan Zhang

HINGHAM UNION STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	N/A	2	6
PROJECT FILE NO. 60724762			
EXISTING CONDITION PLAN & GENERAL NOTES			



EXISTING

- 100 — SURFACE CONTOUR (MAJOR)
- 101 — SURFACE CONTOUR (MINOR)
- 98.8 / 93.2 — RETAINING WALL WITH TOP AND BOTTOM ELEVATIONS
- — TOP OF BANK
- — EDGE OF PAVEMENT
- × 100.7 SPOT ELEVATION
- ▲ BM #1 ELEVATION BENCHMARK

PROPOSED

- 100 — SURFACE CONTOUR (MAJOR)
- 101 — SURFACE CONTOUR (MINOR)
- 98.8 / 93.2 — RETAINING WALL WITH TOP AND BOTTOM ELEVATIONS
- — LIMIT OF WORK
- — LIMIT OF ROADWAY WORK
- ○ — COMPOST FILTER TUBE
- — TURBIDITY CURTAIN

RESOURCE AREA IMPACTS

- 79.3 / 75.3 — LIMIT OF BORDERING VEGETATED WETLAND WITH FLAG NUMBER AND ELEVATION
- 75.3 / 75.3 — LIMIT OF BANK WITH FLAG NUMBER AND ELEVATIONS
- — LIMIT OF BORDERING LAND SUBJECT TO FLOODING

GENERAL NOTES:

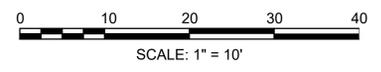
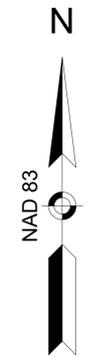
- TOPOGRAPHIC SURVEY PREPARED BY HANCOCK ASSOCIATES, 185 CENTRE STREET, DANVERS, MA 01923, DATED JANUARY 10, 2024.
- THE HORIZONTAL DATUM FOR THIS SURVEY IS THE MASSACHUSETTS COORDINATE SYSTEM, NAD 1983, MAINLAND ZONE. THE VERTICAL DATUM FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). SAID DATUMS WERE ESTABLISHED VIA GPS OBSERVATIONS UTILIZING NAD83 (NA2011) EPOCH 2010.00 (MYCS2) AND GEOID 18.
- LIMITS OF BORDERING VEGETATED WETLANDS SHOWN HEREON WERE DELINEATED BY AECOM, INC. AND LOCATED BY HANCOCK ASSOCIATES VIA FIELD SURVEY.
- NO BOUNDARY SURVEY WAS INCLUDED AS PART OF THIS SURVEY.
- UTILITIES SHOWN HEREON FROM FIELD LOCATIONS OF SURFACE STRUCTURES. NO UNDERGROUND UTILITIES WERE INCLUDED AS PART OF THIS SURVEY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG-SAFE" AT 811 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.
- THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITY SERVICES TO ABUTTING PROPERTIES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL FIELD CHECK ALL DIMENSIONS AND ELEVATIONS BEFORE PROCEEDING WITH THE NEW WORK. THE CONTRACTOR SHALL EXCAVATE TO VERIFY PERTINENT DRAINAGE INVERTS AND POTENTIAL UTILITY CONFLICTS. ANY DISCREPANCIES OR CONFLICTS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
- ALL EXISTING PAVEMENT SHALL BE SAW CUT TO MAKE A NEAT JOINT WHERE IT MEETS PROPOSED CONSTRUCTION.
- ALL EXISTING TOPOGRAPHY WITHIN THE ROADWAY CONSTRUCTION LIMITS SHALL BE RETAINED UNLESS OTHERWISE INDICATED OR DIRECTED BY THE ENGINEER.
- AREAS OUTSIDE THE LIMIT OF WORK DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL INSTALL SEDIMENT AND EROSION CONTROLS AS SHOWN PRIOR TO START OF CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
- FOR WETLANDS TEMPORARILY IMPACTED BY THE PROJECT, THEY WILL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS, INCLUDING REGRADING AND LOAMING AND SEEDING WITH AN APPROPRIATE WETLAND SEED MIX.
- FOR RIVERFRONT AREAS TEMPORARILY IMPACTED BY THE PROJECT, THEY WILL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS, INCLUDING REGRADING AND LOAMING AND SEEDING WITH AN APPROPRIATE UPLAND SEED MIX.
- GRAVEL AND PAVED SURFACES WILL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS IN ACCORDANCE WITH DCR PARKWAY STANDARDS. DISTURBED AREAS WILL BE LOAMED AND SEEDING WITH AN UPLAND GRASS MIX.

ABBREVIATIONS

BM	BENCHMARK
BLSF	BORDERING LAND SUBJECT TO FLOODING
BVW	BORDERING VEGETATED WETLAND
CMP	CORRUGATED METAL PIPE
DYL	DASHED YELLOW LINE
ELEV	ELEVATION
EX	EXISTING
GALV.	GALVANIZED
INV	INVERT
LUWW	LAND UNDER WATERWAY/WATERBODY
PERM	PERMANENT
PR	PROPOSED
RC	REINFORCED CONCRETE
RET. WALL	RETAINING WALL
S&M	STONE AND MORTAR
STA	STATION
TEMP	TEMPORARY
TYP.	TYPICAL

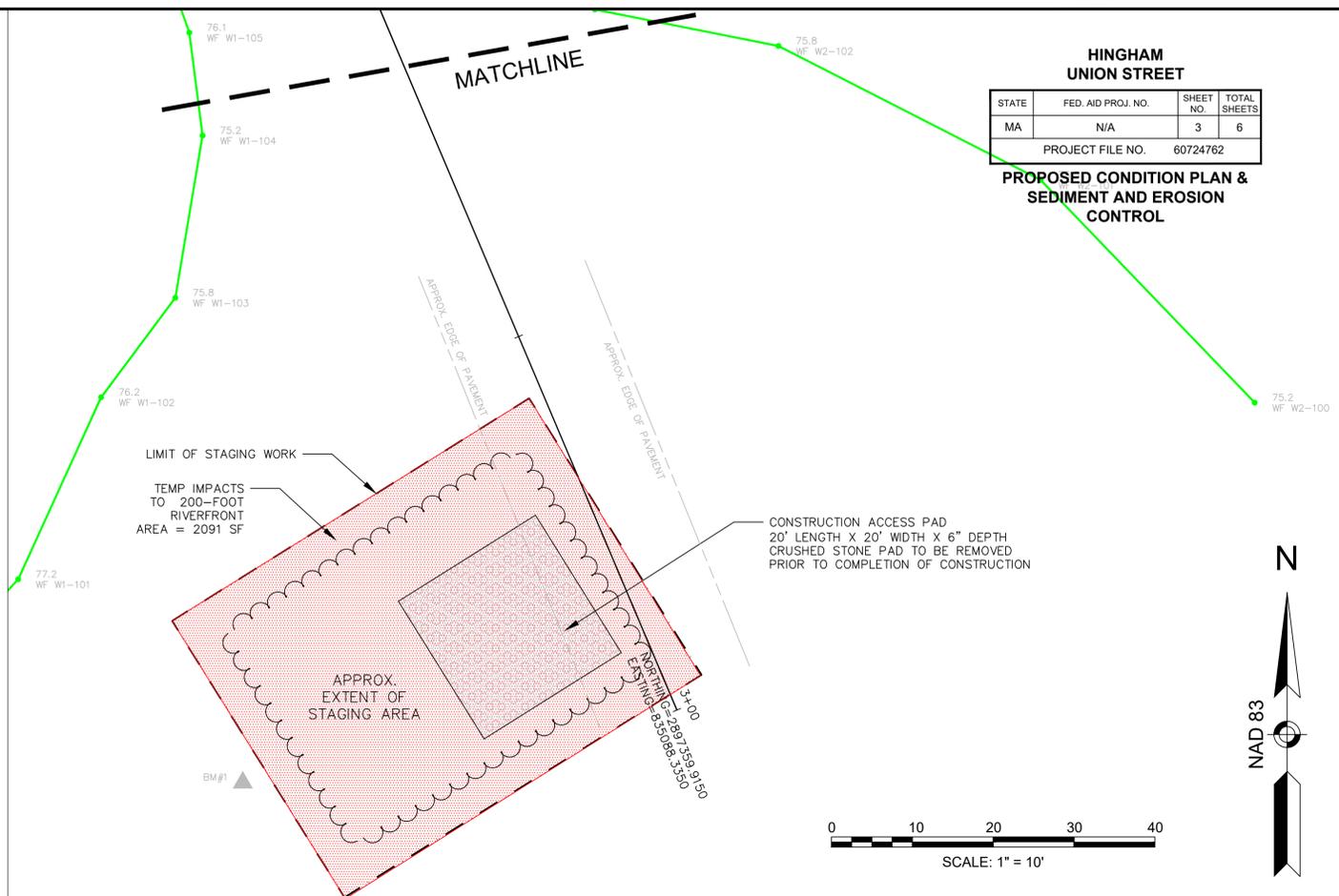
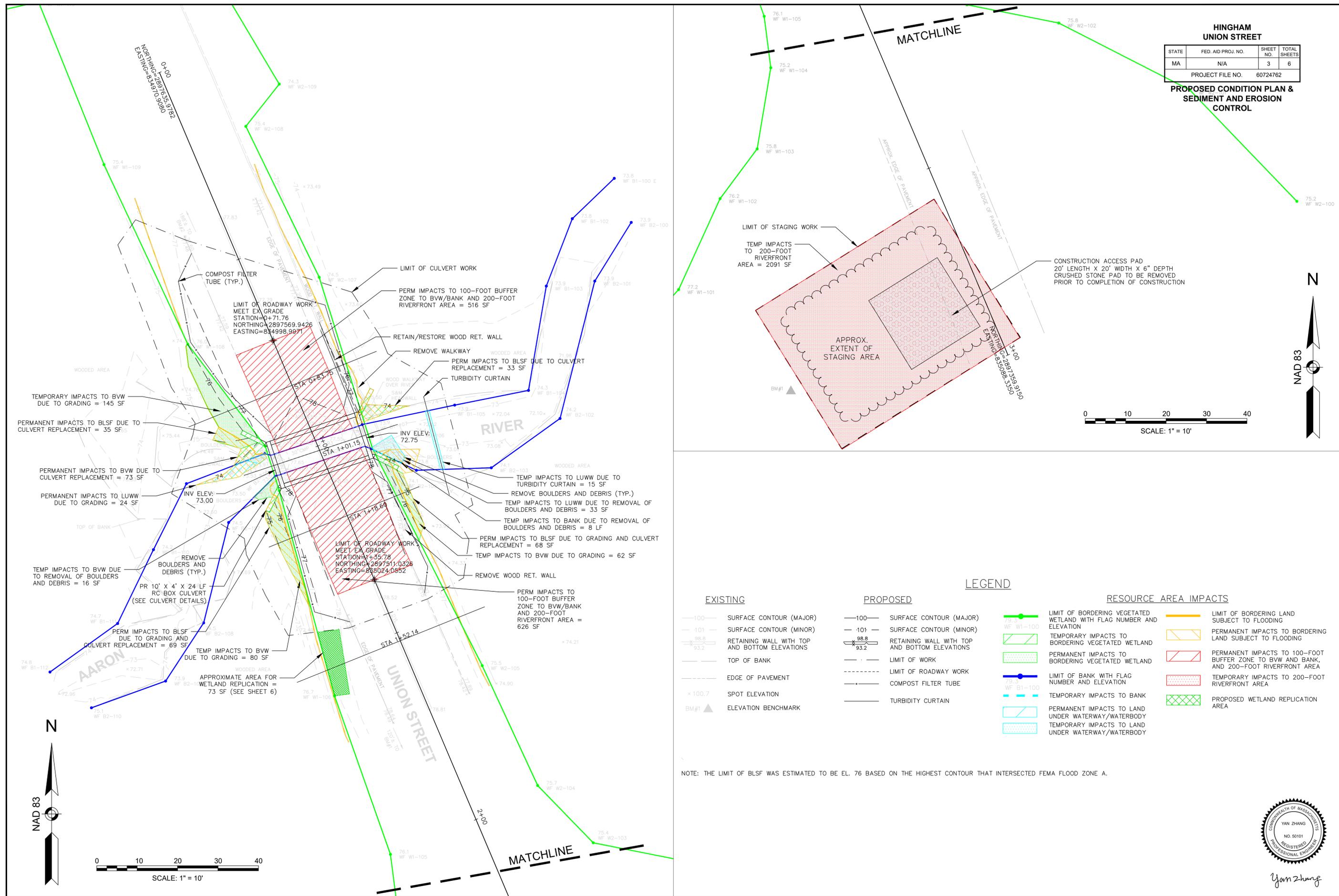
ELEVATION BENCH MARKS

VERTICAL DATUM: NAVD88		
NO.	DESCRIPTION	ELEV
1	MAG NAIL ON TOP OF 4' DIA. BOULDER	85.08
2	DRILL HOLE ON TOP CONC. GATE BASE	84.97



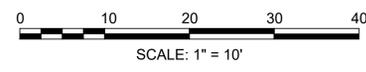
HINGHAM UNION STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	N/A	3	6
PROJECT FILE NO. 60724762			

PROPOSED CONDITION PLAN & SEDIMENT AND EROSION CONTROL



EXISTING		PROPOSED		RESOURCE AREA IMPACTS	
	SURFACE CONTOUR (MAJOR)		SURFACE CONTOUR (MAJOR)		LIMIT OF BORDERING VEGETATED WETLAND WITH FLAG NUMBER AND ELEVATION
	SURFACE CONTOUR (MINOR)		SURFACE CONTOUR (MINOR)		TEMPORARY IMPACTS TO BORDERING VEGETATED WETLAND
	RETAINING WALL WITH TOP AND BOTTOM ELEVATIONS		RETAINING WALL WITH TOP AND BOTTOM ELEVATIONS		PERMANENT IMPACTS TO BORDERING VEGETATED WETLAND
	TOP OF BANK		LIMIT OF WORK		PERMANENT IMPACTS TO 100-FOOT BUFFER ZONE TO BVW AND BANK, AND 200-FOOT RIVERFRONT AREA
	EDGE OF PAVEMENT		LIMIT OF ROADWAY WORK		TEMPORARY IMPACTS TO 200-FOOT RIVERFRONT AREA
	SPOT ELEVATION		COMPOST FILTER TUBE		PROPOSED WETLAND REPLICATION AREA
	ELEVATION BENCHMARK		TURBIDITY CURTAIN		
			LIMIT OF BANK WITH FLAG NUMBER AND ELEVATION		LIMIT OF BORDERING LAND SUBJECT TO FLOODING
			TEMPORARY IMPACTS TO BANK		PERMANENT IMPACTS TO BORDERING LAND SUBJECT TO FLOODING
			PERMANENT IMPACTS TO LAND UNDER WATERWAY/WATERBODY		PERMANENT IMPACTS TO 100-FOOT BUFFER ZONE TO BVW AND BANK, AND 200-FOOT RIVERFRONT AREA
			TEMPORARY IMPACTS TO LAND UNDER WATERWAY/WATERBODY		PROPOSED WETLAND REPLICATION AREA

NOTE: THE LIMIT OF BLSF WAS ESTIMATED TO BE EL. 76 BASED ON THE HIGHEST CONTOUR THAT INTERSECTED FEMA FLOOD ZONE A.



Yan Zhang

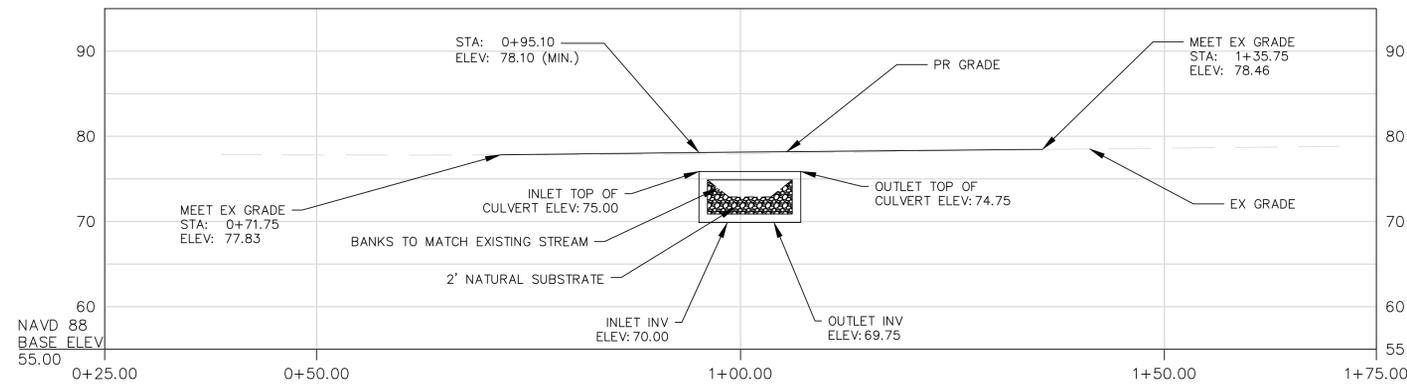
**HINGHAM
UNION STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	N/A	4	6
PROJECT FILE NO.		60724762	

PROFILE AND CROSS SECTIONS

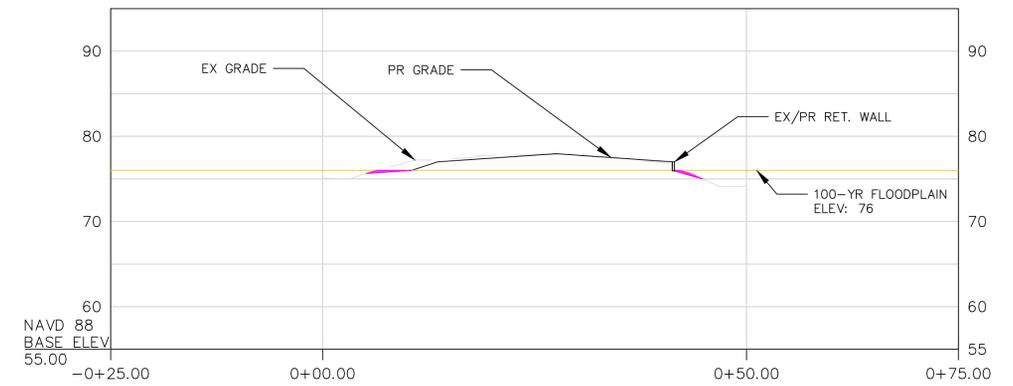
ROADWAY PROFILE

SCALE: 1" = 10'



STA 0+83.75

SCALE: 1" = 10'

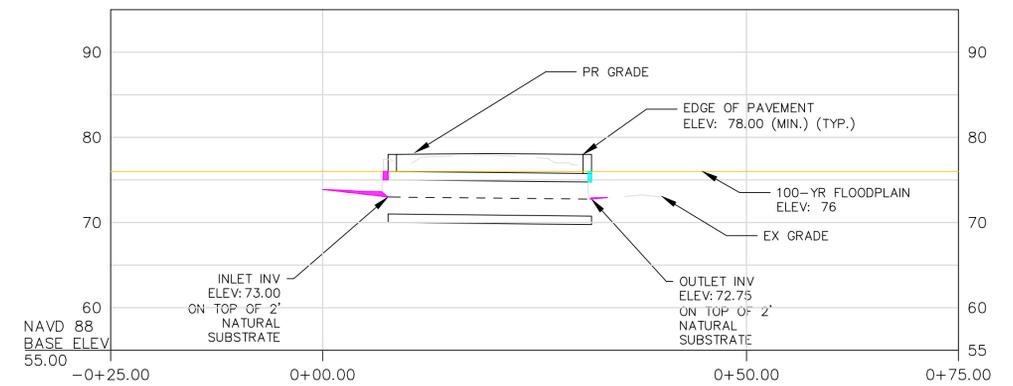


IMPACT TO BLSF			
ELEVATION (FT, NAVD88)	CUT (CY)	FILL (CY)	NET LOSS(-)/GAIN(+) TO FLOOD STORAGE CAPACITY (CY)
72-73	0	0	0
73-74	0.5	0	+0.5
74-75	5.7	0	+5.7
75-76	5.8	0.5	+5.3
TOTAL	12.0	0.5	+11.5

NOTE: THE LIMIT OF BLSF WAS ESTIMATED TO BE EL. 76 BASED ON THE HIGHEST CONTOUR THAT INTERSECTED FEMA FLOOD ZONE A.

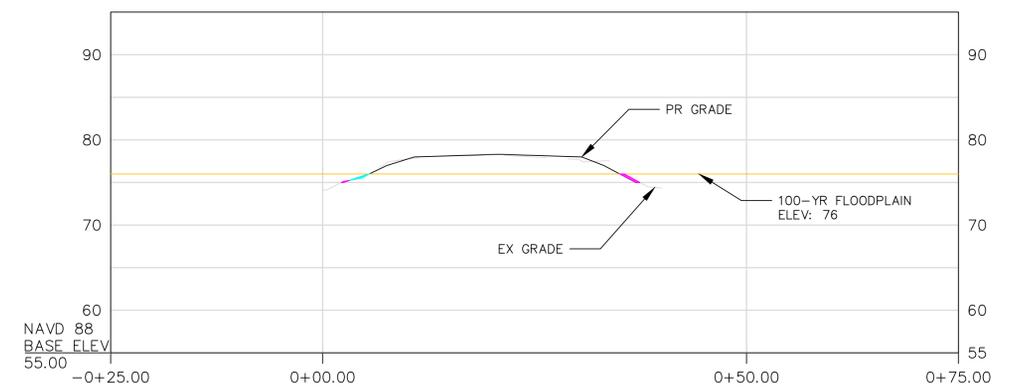
STA 1+01.15

SCALE: 1" = 10'



STA 1+18.60

SCALE: 1" = 10'



LEGEND

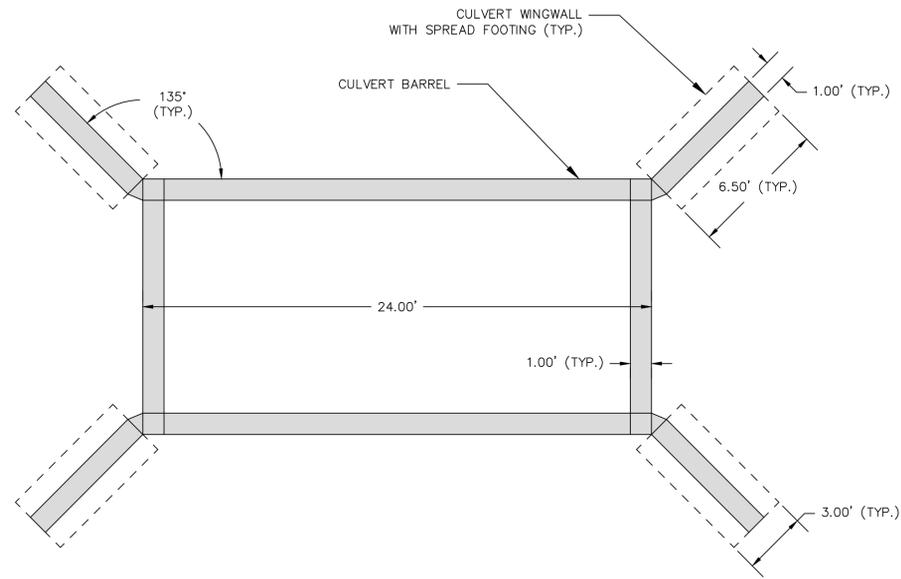
	FLOOD STORAGE GAIN
	FLOOD STORAGE LOSS



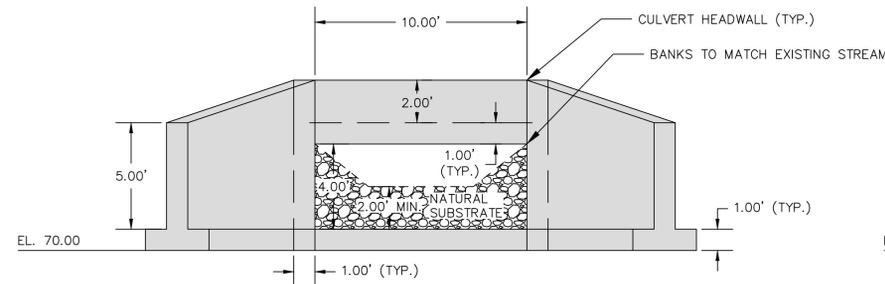
Yan Zhang

HINGHAM UNION STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	N/A	5	6
PROJECT FILE NO.		60724762	

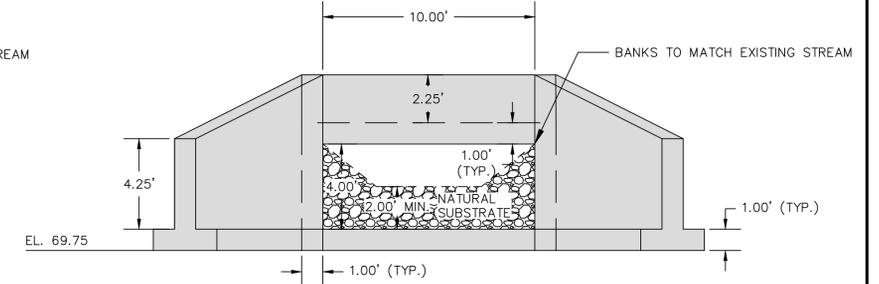
DETAILS



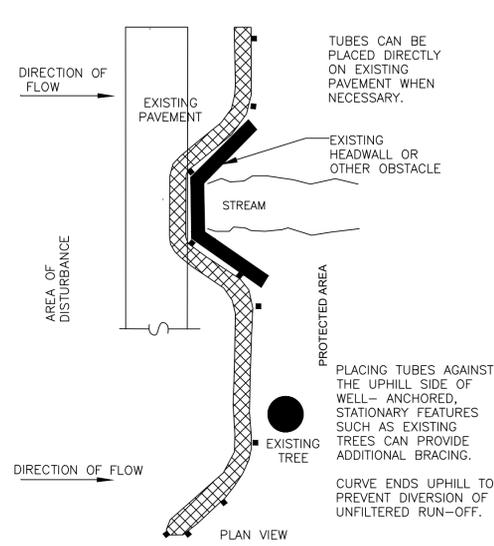
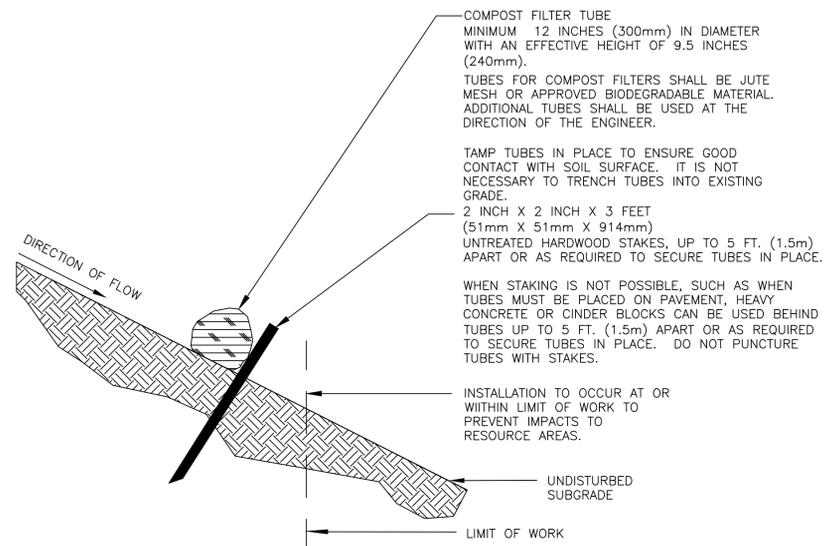
PROPOSED CULVERT PLAN VIEW
NTS



PROPOSED CULVERT INLET ELEVATION VIEW
NTS



PROPOSED CULVERT OUTLET ELEVATION VIEW
NTS



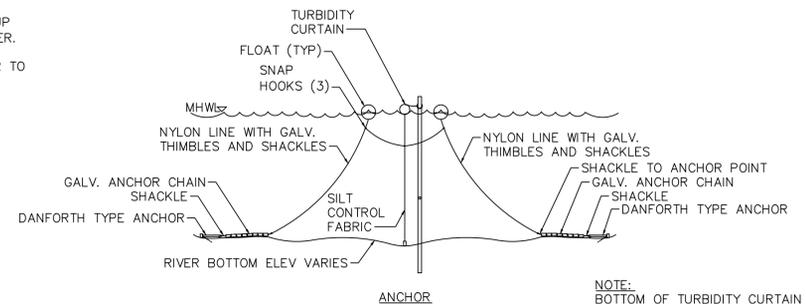
SINGLE COMPOST FILTER TUBE DETAIL
NTS

GENERAL NOTES:

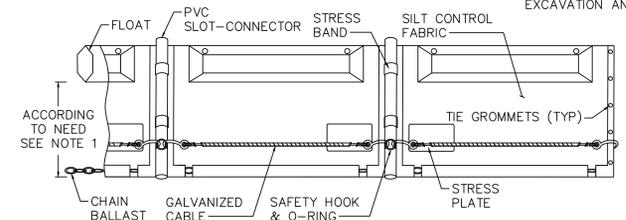
1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
4. CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN-OFF.

PROVIDE A 3 FT. (914mm) MINIMUM OVERLAP AT ENDS OF TUBES TO JOIN IN A CONTINUOUS BARRIER AND MINIMIZE UNIMPEDED FLOW. STAKE JOINING TUBES SNUGLY AGAINST EACH OTHER TO PREVENT UNFILTERED FLOW BETWEEN THEM.

SECURE ENDS OF TUBES WITH STAKES SPACED 18 IN. (457mm) APART THROUGH TOPS OF TUBES. DO NOT PUNCTURE TUBES WITH STAKES.



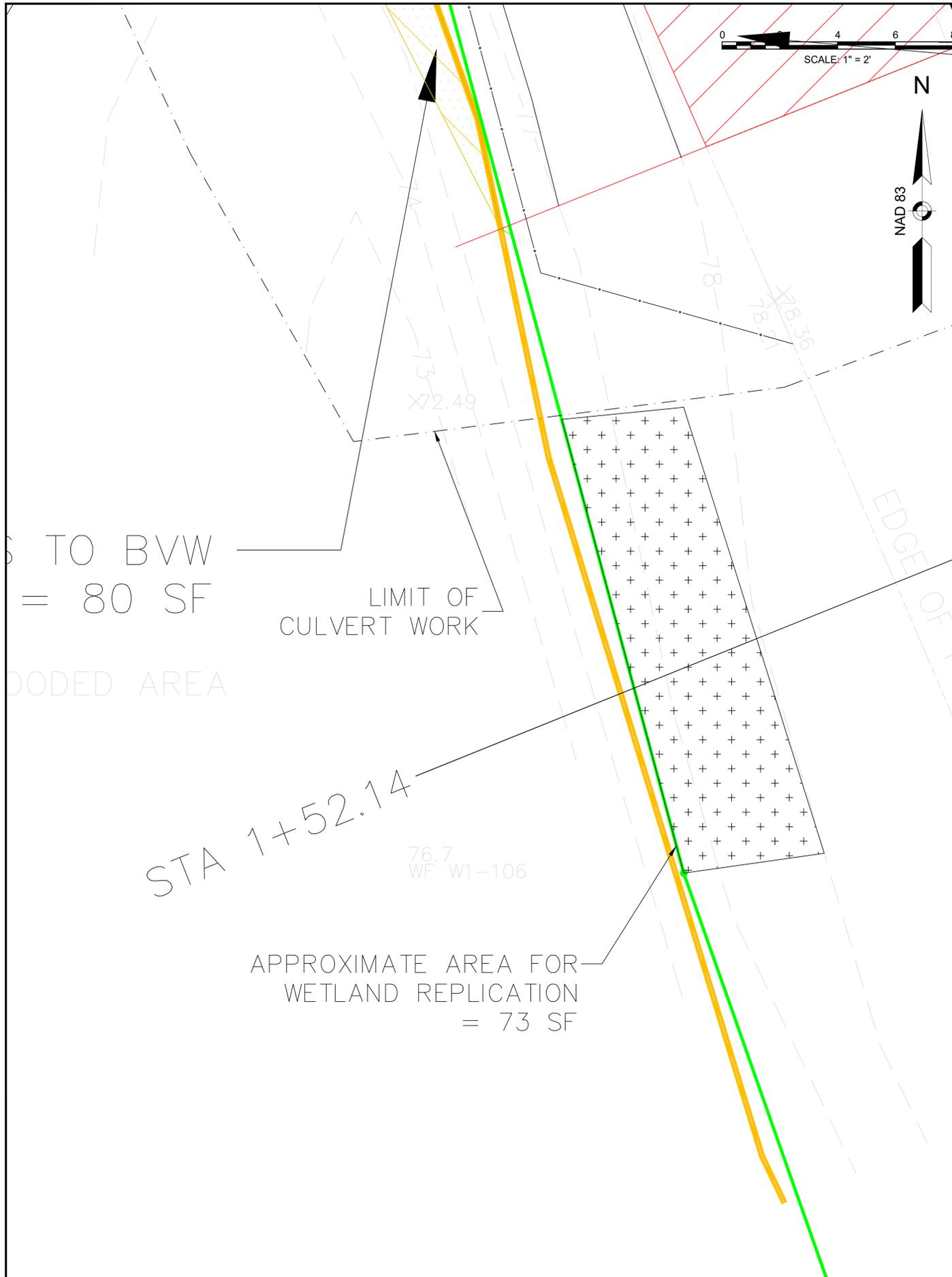
NOTE: BOTTOM OF TURBIDITY CURTAIN SHALL EXTEND TO RIVER BOTTOM DURING EXCAVATION AND FILLING OPERATIONS



- NOTES:
1. TURBIDITY CURTAIN DEPTH VARIES. TURBIDITY CURTAIN SHALL EXTEND FROM RIVER BOTTOM TO WATER SURFACE DURING EXCAVATION AND FILLING OPERATIONS
 2. INSTALL PER MANUFACTURER'S RECOMMENDATION



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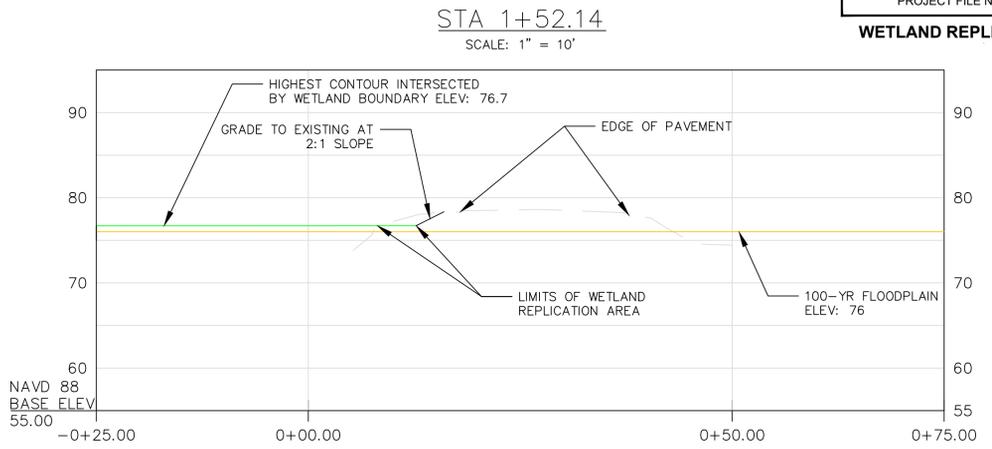


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**HINGHAM
UNION STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	N/A	6	6

PROJECT FILE NO. 60724762
WETLAND REPLICATION PLAN



EXISTING		PROPOSED		RESOURCE AREA IMPACTS	
—100—	SURFACE CONTOUR (MAJOR)	—100—	SURFACE CONTOUR (MAJOR)	—	LIMIT OF BORDERING VEGETATED WETLAND WITH FLAG NUMBER AND ELEVATION
---	EDGE OF PAVEMENT	---	LIMIT OF WORK	—	LIMIT OF BANK WITH FLAG NUMBER AND ELEVATION
×100.7	SPOT ELEVATION	—○—	COMPOST FILTER TUBE	—	LIMIT OF BORDERING LAND SUBJECT TO FLOODING
				+++++	PROPOSED WETLAND REPLICATION AREA

FORESTED WETLAND MITIGATION AREA PLANTING SCHEDULE						
CODE	QTY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	NOTES
AR	1	ACER RUBRUM	RED MAPLE	4' - 6'	10' O.C.	
UA	1	ULMUS AMERICANA	AMERICAN ELM	4' - 6'	10' O.C.	
VC	2	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	2' - 3'	8' O.C.	
CA	2	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	2' - 3'	8' O.C.	
VD	2	VIBURNUM DENTATUM	ARROWWOOD	2' - 3'	8' O.C.	
SN	2	SALIX NIGRA	BLACK WILLOW	2' - 3'	8' O.C.	
SD	2	SALIX DISCOLOR	PUSSY WILLOW	2' - 3'	8' O.C.	
WM	-	NEW ENGLAND WETLAND SEED MIX	-	-	-	APPLICATION RATE: 1LB/2,500 SQ. FT

- WETLAND MITIGATION NOTES:**
- PRIOR TO COMMENCEMENT OF ANY WORK ASSOCIATED WITH THE REPLICATION AREA, THE CONTRACTOR SHALL SUBMIT TO MASSDCR FOR REVIEW AND APPROVAL, A WORK PLAN AND STAGING PLAN THAT INCLUDES A CONSTRUCTION SCHEDULE AND AN OUTLINE OF CONSTRUCTION METHODOLOGIES FOR PERFORMING THE REQUIRED WORK.
 - A WETLAND SCIENTIST WILL BE ON-SITE TO MONITOR AND DIRECT CONSTRUCTION OF THE REPLICATION AREA. AT LEAST 10 DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL ARRANGE FOR A MEETING WITH THE WETLAND SCIENTIST AND ENGINEER TO REVIEW THE PLANNED WORK ACTIVITIES.
 - ALL EXCAVATED MATERIAL STRIPPED FROM THE REPLICATION AREA SHALL NOT BE REUSED BUT SHALL BE REMOVED FROM THE AREA AND PROPERLY DISPOSED OF AT AN APPROVED UPLAND LOCATION.
 - AS DIRECTED BY THE WETLAND SCIENTIST, A 12" DEEP LAYER OF WETLAND PLANTING SOIL/TOPSOIL SHALL BE PLACED ON UNEXCAVATED GRADE WHERE NEEDED TO SUPPORT PLANTING EFFORTS.
 - EQUIPMENT WILL NOT BE PERMITTED ON WETLAND SOILS TO PREVENT COMPACTION WITHIN THE REPLICATION AREA.

- PLANTING NOTES:**
- PLANTING IN THE REPLICATION AREA SHALL BE DEPENDENT ON PLANT TYPE. WETLAND SEED MIX SHALL BE APPLIED APRIL - MAY. TREES AND SHRUBS SHALL BE PLANTED APRIL - MAY OR SEPTEMBER - OCTOBER.
 - PRIOR TO PLANTING, THE CONTRACTOR WILL SUBMIT AN AS-BUILT INCLUDING FINAL GRADE TO MASSDCR AND ENGINEER FOR APPROVAL.
 - PRIOR TO PLANTING, ANY PLANT MATERIAL STORED ON SITE WILL BE WATERED AND CARED FOR UNDER THE DIRECTION OF THE WETLAND SCIENTIST.
 - THE WETLAND SCIENTIST SHALL INSPECT THE REPLICATION AREA PRIOR TO PLANTING TO DETERMINE THAT THE SOILS ARE SUITABLE FOR PLANTING. THIS WILL INCLUDE TESTING OF PH AND NUTRIENTS OF THE TOPSOIL TO VERIFY RANGES ARE ACCEPTABLE FOR PLANTING. THE WETLAND SCIENTIST MAY MODIFY THE PLANTING LAYOUT FROM THE PLANTING PLAN IF THE AS-BUILT CONDITIONS POSE A THREAT TO THE SURVIVAL OF PLANTINGS.
 - HAND AUGER OR DIG TO MAKE PLANTING HOLES FOR TREES AND SHRUBS. DO NOT REMOVE PLANTS FROM CONTAINERS UNTIL IMMEDIATELY BEFORE PLANTING. SEPARATE ANY POT-BOUND OR CRAMPED ROOTS AND SPREAD THEM WHEN PLACING THE PLANTS. MACHINERY WILL NOT BE ALLOWED WITHIN THE REPLICATION AREA AT ANY TIME FOR PLANTING.
 - FINAL PLANT PLACEMENT WILL BE VERIFIED BY THE WETLAND SCIENTIST.
 - DISTURBED UPLAND AREAS WILL BE LOAMED, SEEDED WITH AN UPLAND SEED MIX, AND STABILIZED WITH STRAW MULCH.