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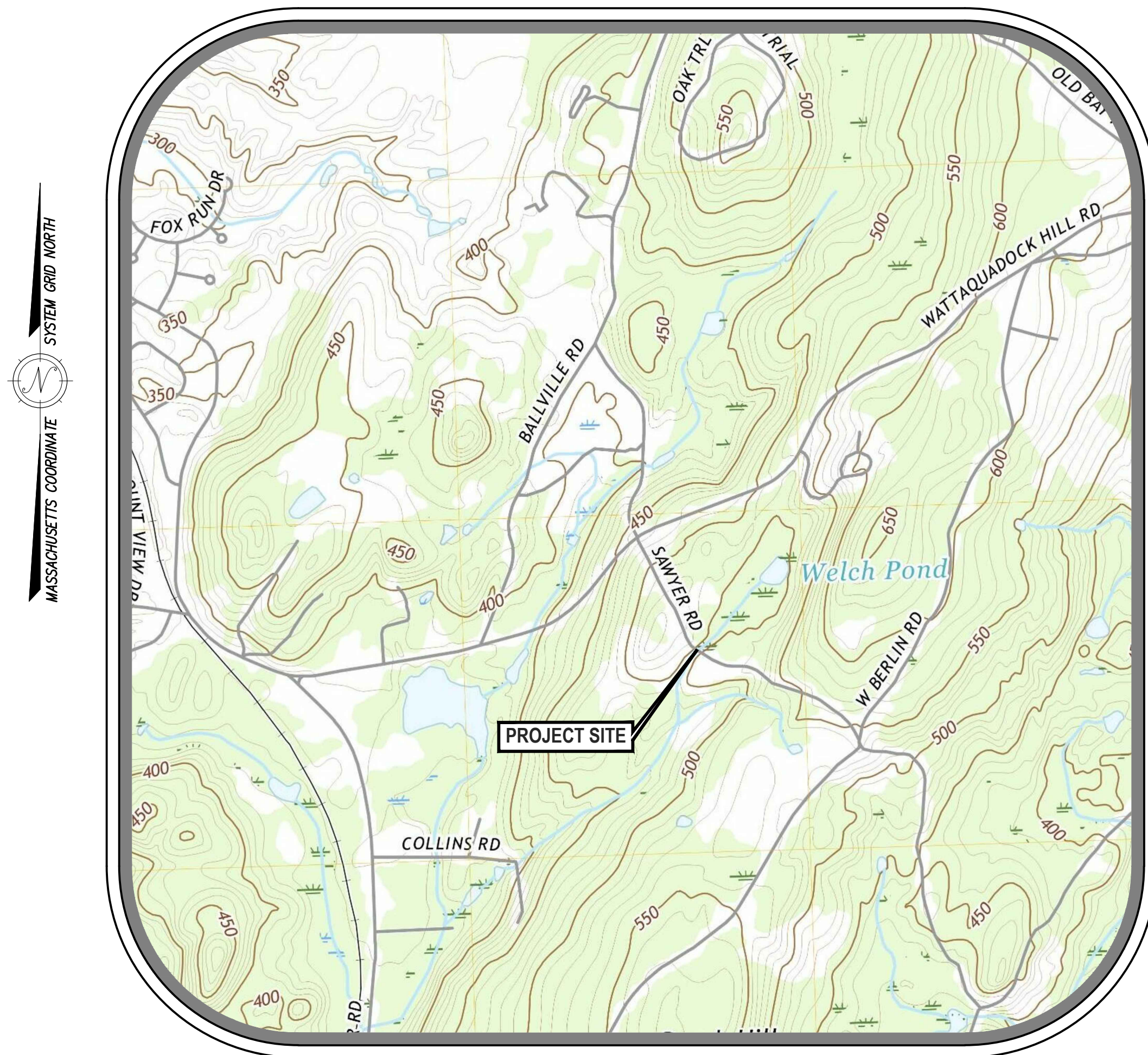
SAWYER ROAD

CULVERT REPLACEMENT PROJECT

BOLTON DPW# 202X-XX

SHEET INDEX

SHEET NUMBER	SHEET TITLE	LAST REVISION
SHEET C0.0	COVER SHEET & GENERAL NOTES	5/24/2022
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SHEET C3.1	DRAINAGE IMPROVEMENTS DETAILS	5/24/2022
SHEET C3.2	DRAINAGE IMPROVEMENTS DETAILS	5/24/2022



LOCUS MAP

SCALE: 1"=1,000'±

NOTES:

GENERAL NOTES

- VERTICAL ELEVATIONS SHOWN HEREON REFER TO NAVD 1988.
- RESOURCE AREAS AS DEFINED BY THE MASSACHUSETTS WETLANDS PROTECTION ACT AND THE TOWN OF BOLTON WETLANDS BYLAW WERE DELINEATED BY DILLIS & ROY CIVIL DESIGN GROUP, INC.
- EXISTING UTILITIES SHOWN ON THIS PLAN WERE COMPILED FROM FIELD MEASUREMENT AND RECORD PLANS. THE UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND SHOULD NOT BE ASSUMED TO BE CORRECT NOR SHOULD IT BE ASSUMED THAT THE UTILITIES SHOWN ARE THE ONLY UTILITIES LOCATED ON OR NEAR THE SITE. THE CONTRACTOR SHALL CALL DIG SAFE 1-888-DIG-SAFE PRIOR TO CONSTRUCTION IN ACCORDANCE WITH STATE LAWS.
- CONTRACTOR SHALL REFER TO THE ORDER OF CONDITIONS FROM THE BOLTON CONSERVATION COMMISSION PRIOR TO CONSTRUCTION.
- THE PROJECT DOES NOT FALL WITHIN A FLOOD HAZARD AREA AS SHOWN ON FIRM MAP 2502700467F, EFFECTIVE 07/16/2014.
- CONTRACTOR IS RESPONSIBLE FOR LOCATING AND SECURING EQUIPMENT AND MATERIAL STORAGE. EQUIPMENT OR MATERIALS SHALL NOT BE STORED WITHIN EASEMENTS OR ON PRIVATE PROPERTY WITHOUT WRITTEN PERMISSION FROM PROPERTY OWNER.

MATERIAL SPECIFICATIONS

- FILL SURROUNDING CULVERT SHALL CONFORM TO M1.04.0. FILL MATERIAL SHALL BE COMPACTED TO 95% PROCTOR DENSITY.
- FILL ABOVE CULVERT ELEVATION SHALL BE NATIVE MATERIAL PROVIDED IT CONFORMS TO COMMON BORROW SPECIFICATIONS.
- LOAM SHALL CONFORM TO M1.05.0.
- CULVERT PIPE SHALL BE BE HDPE PIPE AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL.
- HEADWALL TO BE EITHER CAST IN PLACE CONCRETE IN CONFORMANCE WITH MASSDOT SPECIFICATIONS AND DETAIL E206.5.0 OR PRECAST CONCRETE PANEL SYSTEM AS MANUFACTURED BY CONCRETE SYSTEM INCORPORATED, OR APPROVED EQUIVALENT. SUBMIT STAMPED DRAWINGS TO ENGINEER FOR APPROVAL. SEE DETAIL ON SHEETS C3.0 AND C3.1.
- STONE RIPRAP SHALL CONFORM TO M2.02.0 PLACED OVER FILTER FABRIC.
- CRUSHED STONE SHALL CONFORM TO M2.01.1, 1 1/2".
- BEAVER FENCE AND FLOW CONTROL DEVICE SHALL BE BY BEAVER SOLUTIONS OR APPROVED EQUAL.

EXCAVATION AND BACKFILL SPECIFICATIONS

- EXISTING PAVEMENT TO BE SAWCUT PRIOR TO REMOVAL.
- CONTRACTOR TO REMOVE OF EXISTING PAVEMENT OFFSITE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
- PROPOSED CULVERT SHALL BE PLACED AS SHOWN ON CONTRACT DOCUMENTS. REFER TO PLANS FOR ELEVATION.
- ALL BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR DENSITY.
- CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL, STOCKPILING, AND LEGAL DISPOSAL OF ALL EXCESS MATERIAL GENERATED DURING CONSTRUCTION ACTIVITIES INCLUDING BITUMINOUS ASPHALT, GRANULAR MATERIAL, AND UNSUITABLE MATERIALS. EXCAVATED WETLAND AND STREAM BED SOILS SHALL BE STOCKPILED ON SITE FOR REUSE.

EROSION AND SEDIMENTATION CONTROL SPECIFICATIONS

- REFER TO THE ORDER OF CONDITIONS FROM THE BOLTON CONSERVATION COMMISSION FOR CONDITIONS RELATIVE TO EROSION AND SEDIMENTATION CONTROL PRIOR TO CONSTRUCTION.
- PLACE EROSION CONTROL BARRIERS PER THE DETAILS ON THIS PLAN PRIOR TO CONSTRUCTION. NOTIFY THE BOLTON CONSERVATION COMMISSION AFTER INSTALLATION FOR INSPECTION.
- ALL PUMPED DISCHARGES MUST BE TO A SEDIMENT CONTROL DEVICE (SEDIMENT TRAP, FILTER BOX, SEDIMENT TANK OR GEOTEXTILE FILTER BAG).
- RESTORE DISTURBED AREAS WITH 6" TOPSOIL, SEED AND MULCH UNLESS OTHERWISE NOTED ON THE PLANS.
- AFTER THE SITE HAS BEEN STABILIZED AND AFTER APPROVAL FROM THE BOLTON CONSERVATION COMMISSION, REMOVE EROSION AND SEDIMENTATION CONTROL BARRIER.

RESTORATION SPECIFICATIONS

- FULL DEPTH PAVEMENT – RESTORE PAVEMENT WITH 12" GRAVEL IN ACCORDANCE TO MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SECTION M1.03.1 COMPACTED IN PLACE. PLACE 1-1/2" WEARING COARSE OVER 2-1/2" BINDER COARSE. RESTORE TO EXISTING ELEVATIONS.
- RIPRAP SHALL BE IN ACCORDANCE TO MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SECTION M2.02.0.
- RESTORE SHOULDERS WITH 6" TOP SOIL, SEED, FERTILIZE AND MULCH UNLESS OTHERWISE NOTED ON THE PLANS AND SPECIFICATIONS.

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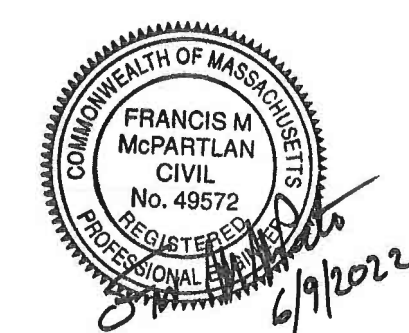
BOLTON DEPARTMENT OF PUBLIC WORKS
12 FORBUSH ROAD
BOLTON, MA

APPLICANT:

BOLTON DEPARTMENT OF PUBLIC WORKS
12 FORBUSH ROAD
BOLTON, MA

SCALE:

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DATE:
5/24/2022

DESIGN BY:
FMM

DRAWN BY:
MK

CHECKED BY:
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COVER SHEET
SAWYER ROAD
BOLTON, MASSACHUSETTS

NO.	DATE	DESCRIPTION	BY

JOB NO.

7073

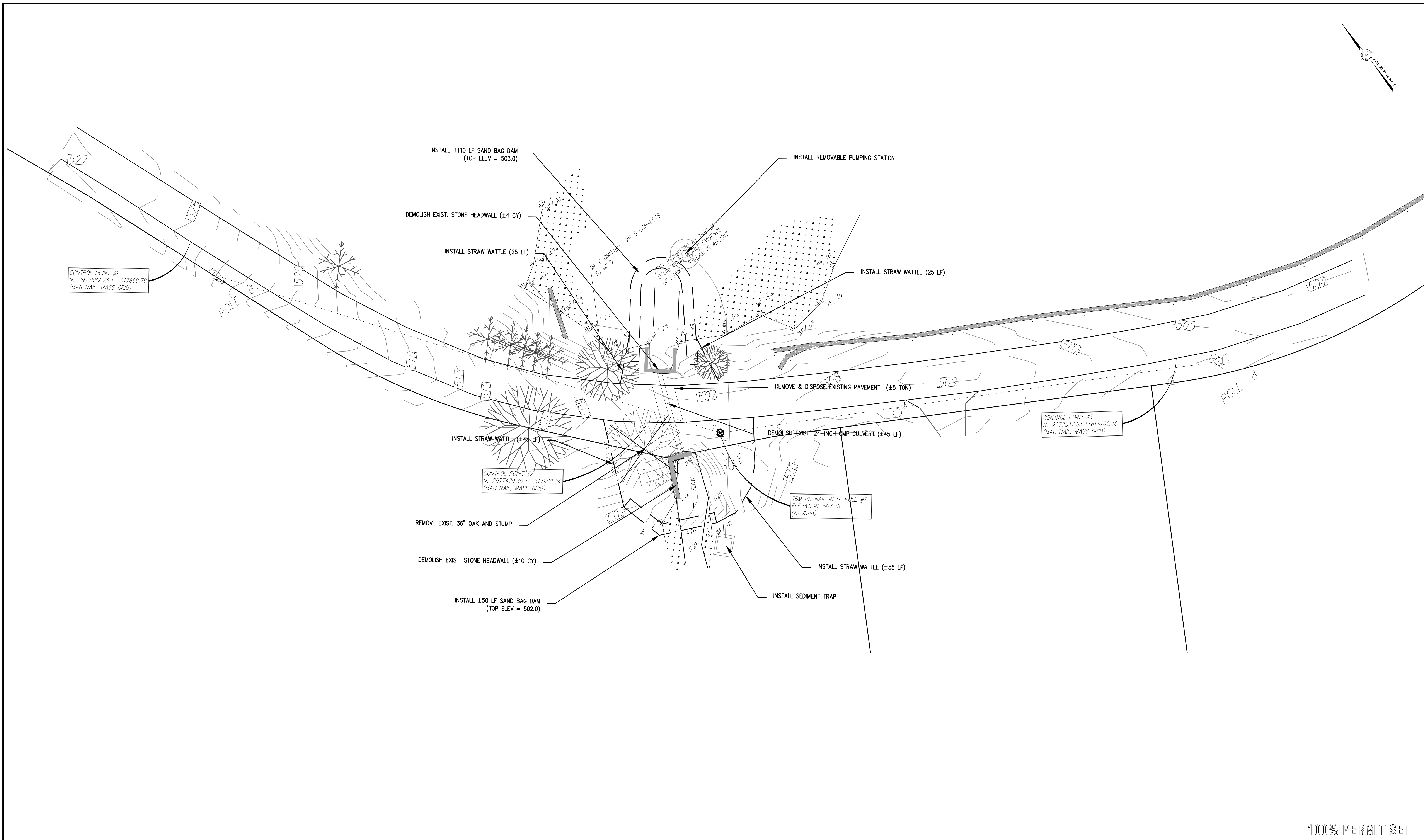
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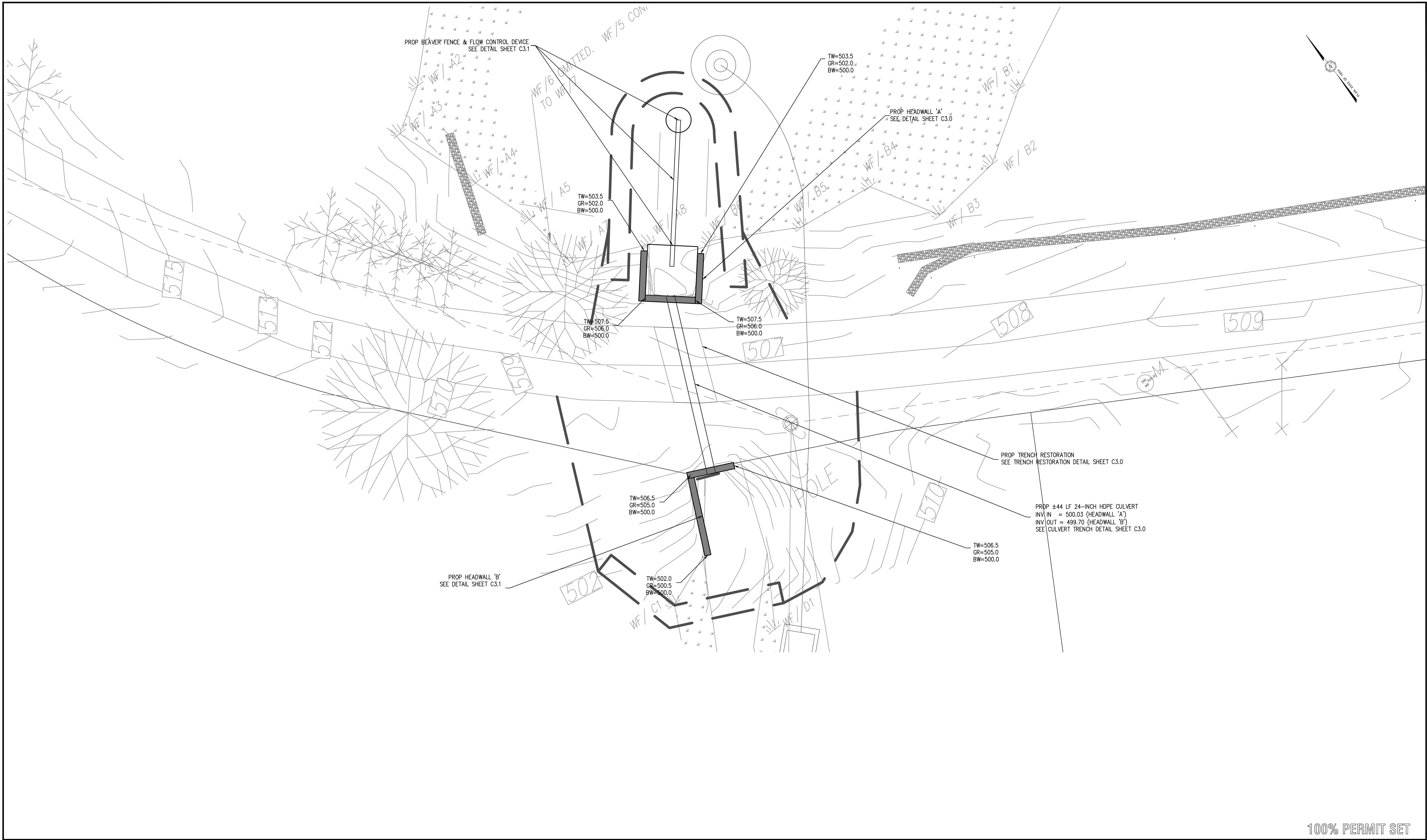
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OF 6


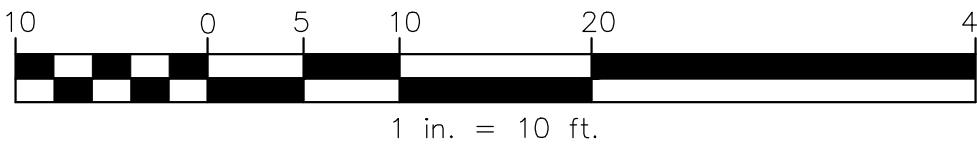


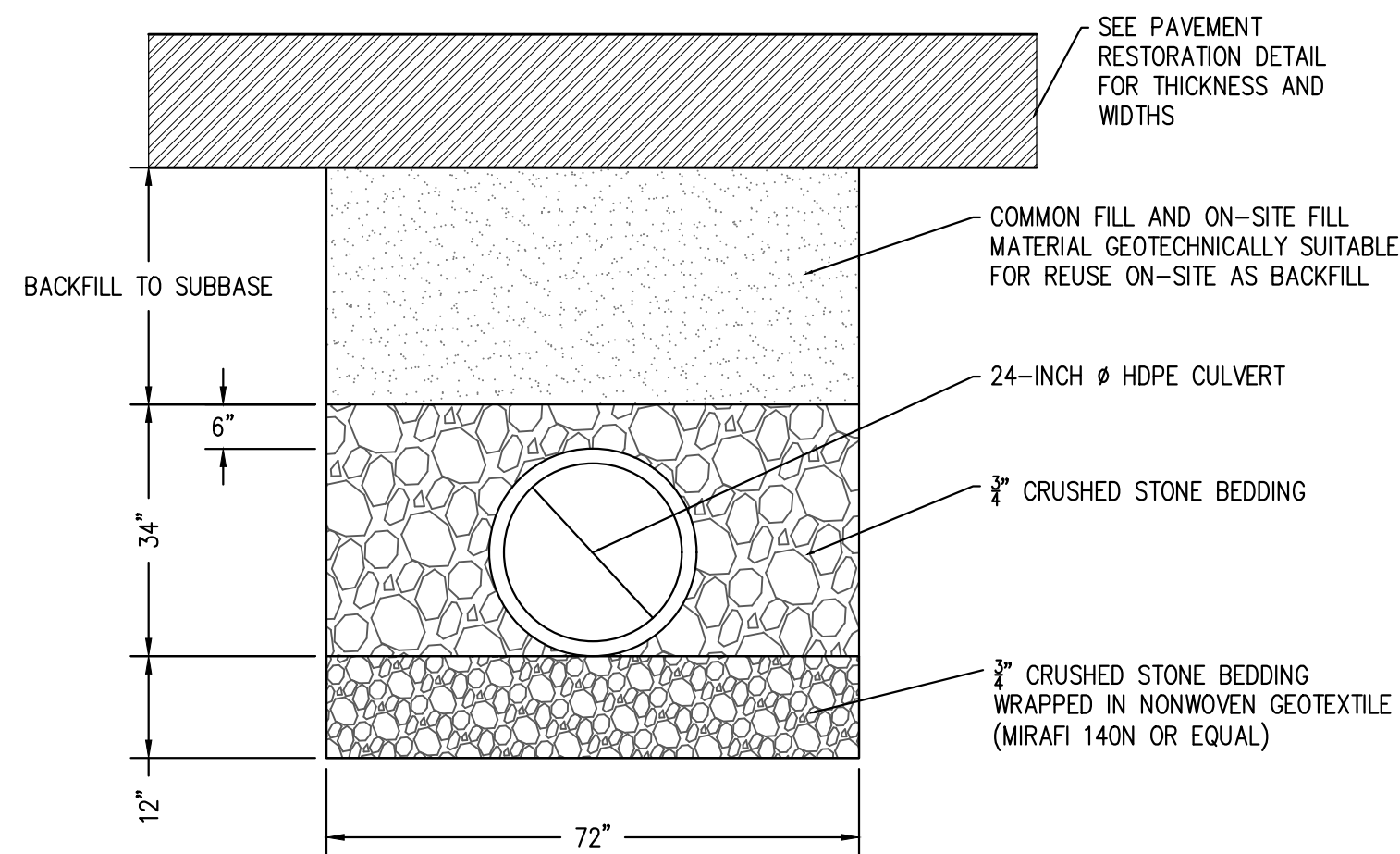
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	APPLICANT: BOLTON DEPARTMENT OF PUBLIC WORKS 12 FORBUSH ROAD BOLTON, MA			DESIGN BY: FMM		DRAWING NO. 7073-TITLE																
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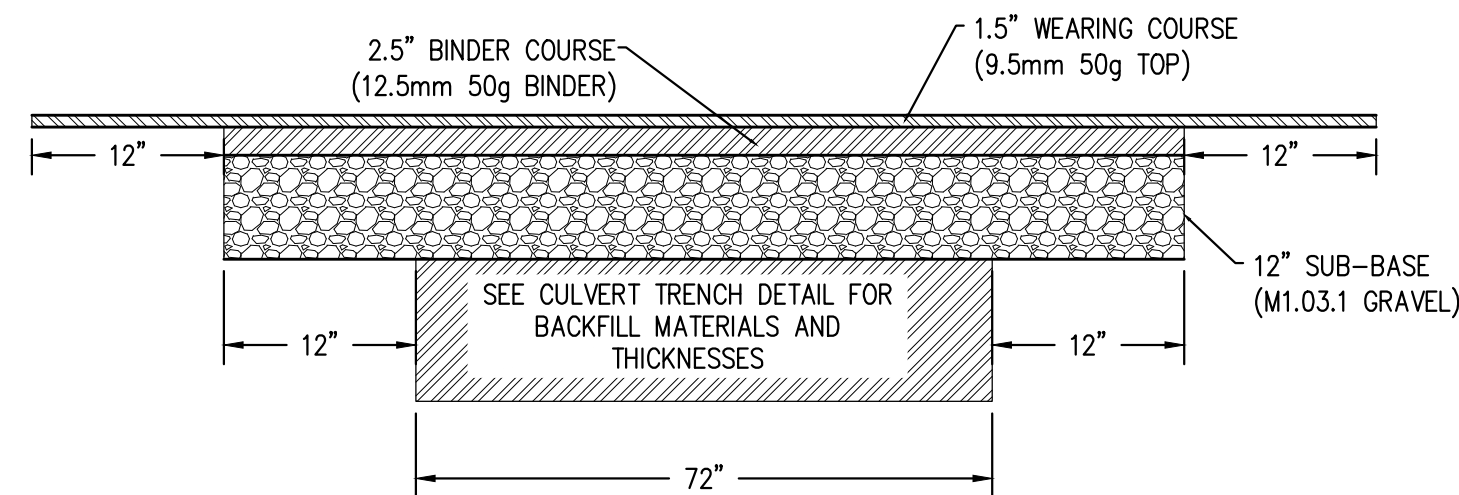


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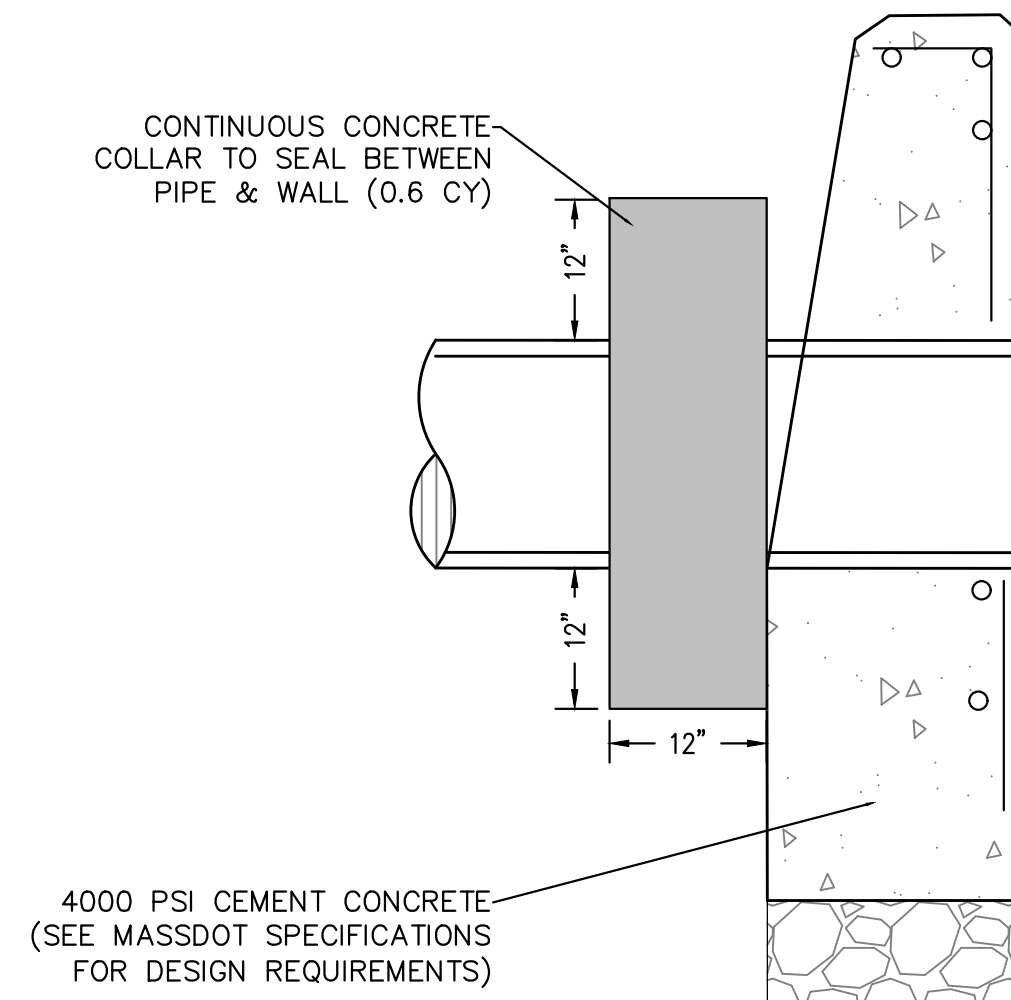
<div>PREPARED BY:</div> <div><div>CIVIL ENGINEERS LAND SURVEYORS WETLAND CONSULTANTS 1 MAIN STREET, SUITE 1 PHONE: (978) 779-6091 LUNENBURG, MA 01462 www.dillisandroy.com</div></div>		<div>OWNER:</div> <div>BOLTON DEPARTMENT OF PUBLIC WORKS 12 FORBUSH ROAD BOLTON, MA</div>		<div>SCALE:</div> <div><div>1 in. = 10 ft.</div></div> <div>COPYRIGHT DILLIS & ROY CIVIL DESIGN GROUP, INC 2022</div>		<div>APPLICANT:</div> <div>BOLTON DEPARTMENT OF PUBLIC WORKS 12 FORBUSH ROAD BOLTON, MA</div>		<div>DATE:</div> <div>5/24/2022</div>		<div>PROPOSED CONDITIONS</div> <div>SAWYER ROAD BOLTON, MASSACHUSETTS</div>			<div>JOB NO.</div> <div>7073</div>													
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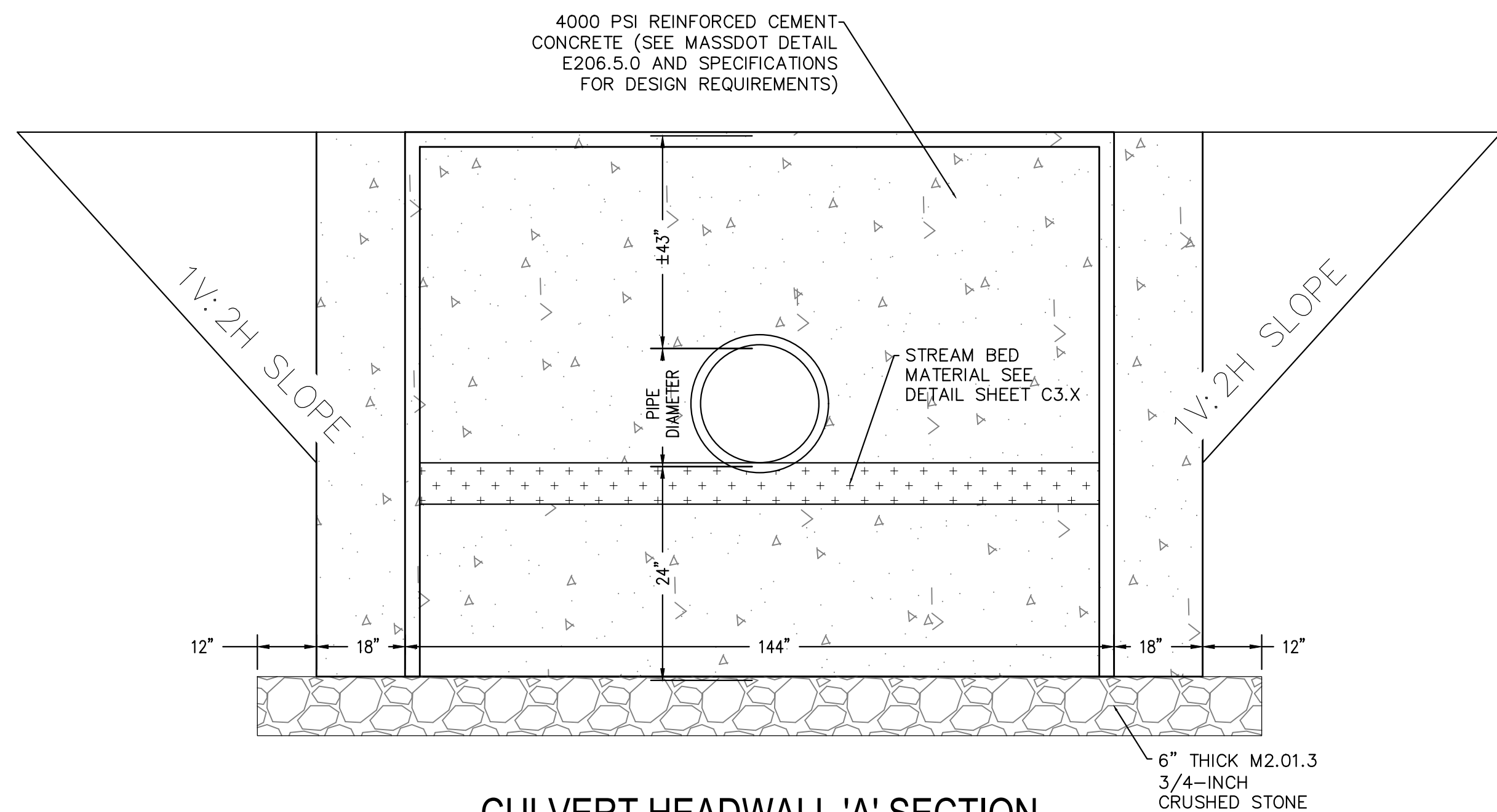
CULVERT TRENCH DETAIL
NOT TO SCALE



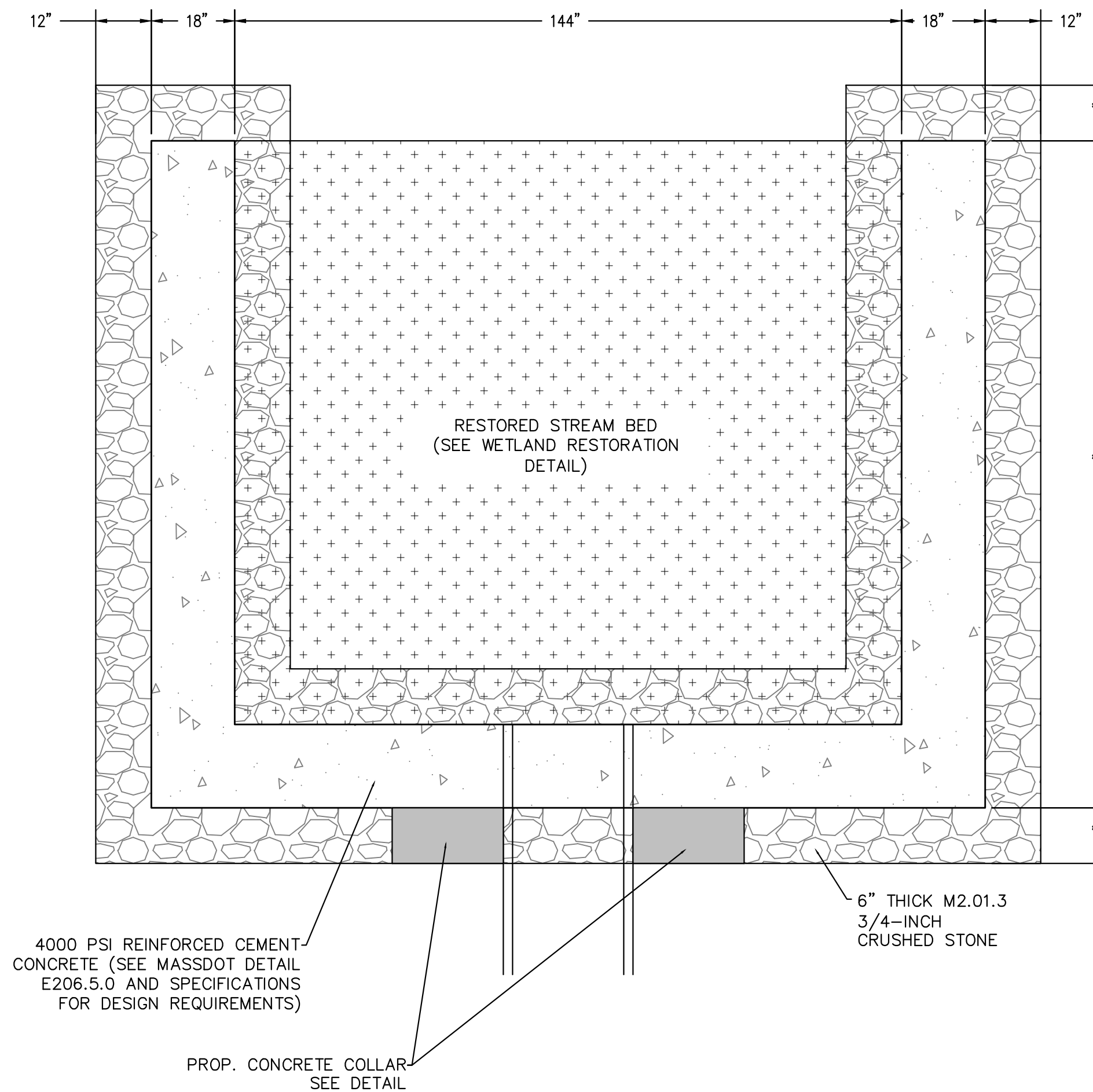
FULL DEPTH PAVEMENT DETAIL
NOT TO SCALE



CONCRETE COLLAR
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CULVERT HEADWALL 'A' SECTION
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CULVERT HEADWALL 'A' PLAN
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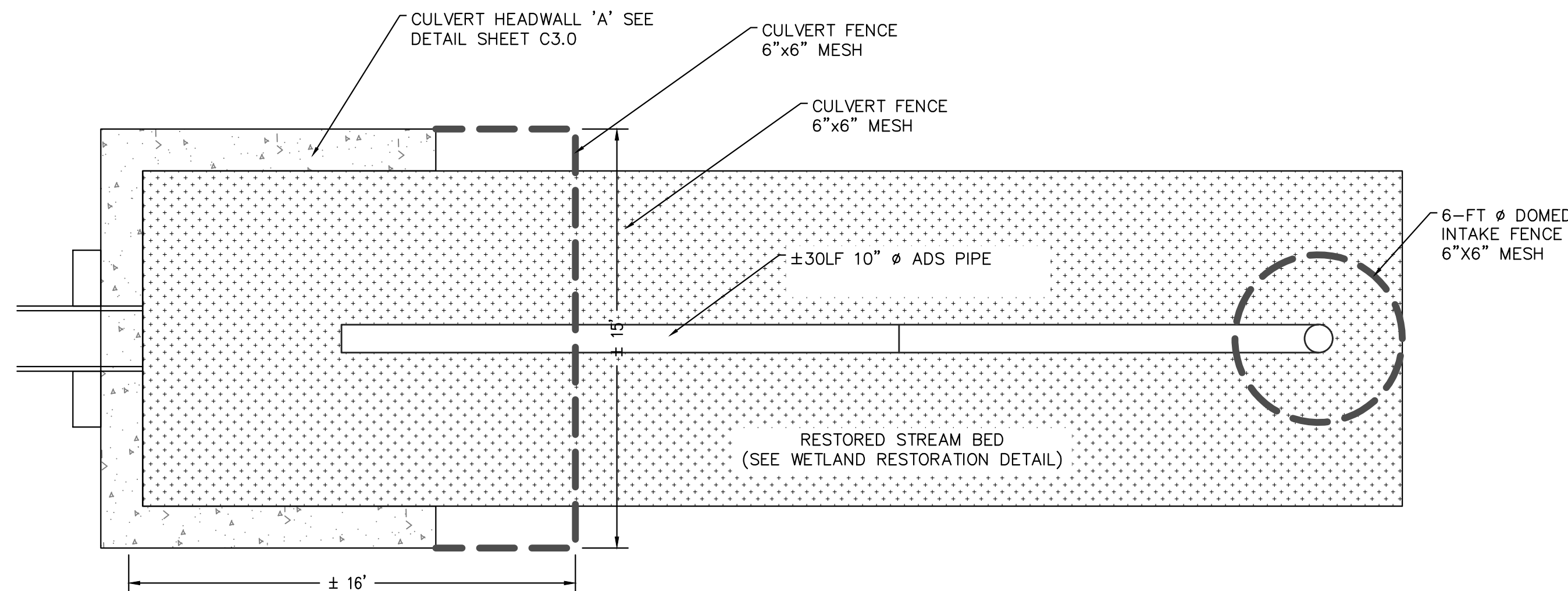
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DRAINAGE IMPROVEMENT DETAILS			
SAWYER ROAD			
BOLTON, MASSACHUSETTS			
NO.	DATE	DESCRIPTION	BY

JOB NO. 7073

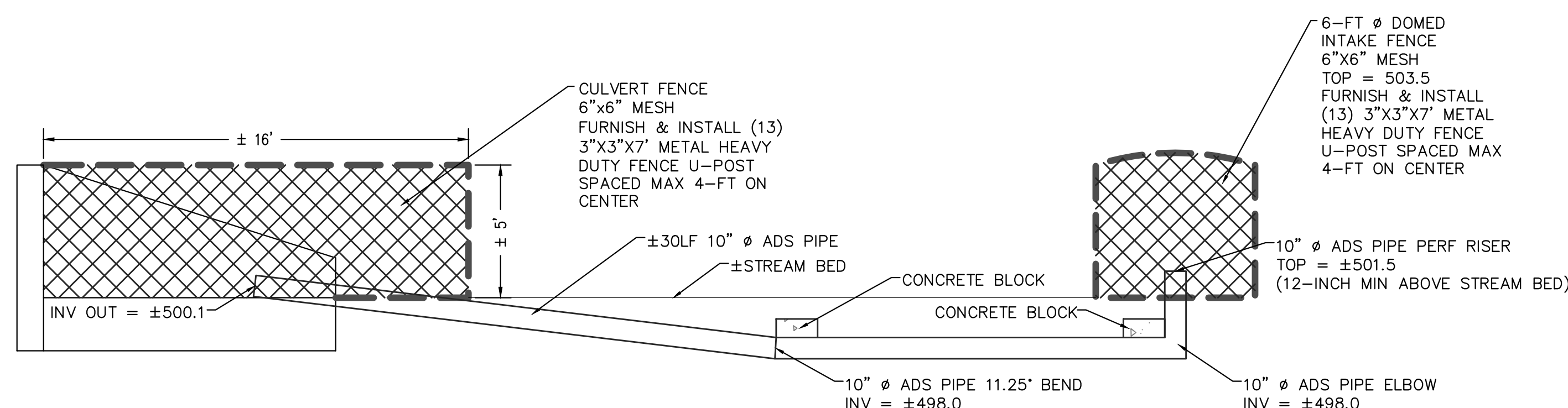
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SHEET NO. **C3.0** OF 6



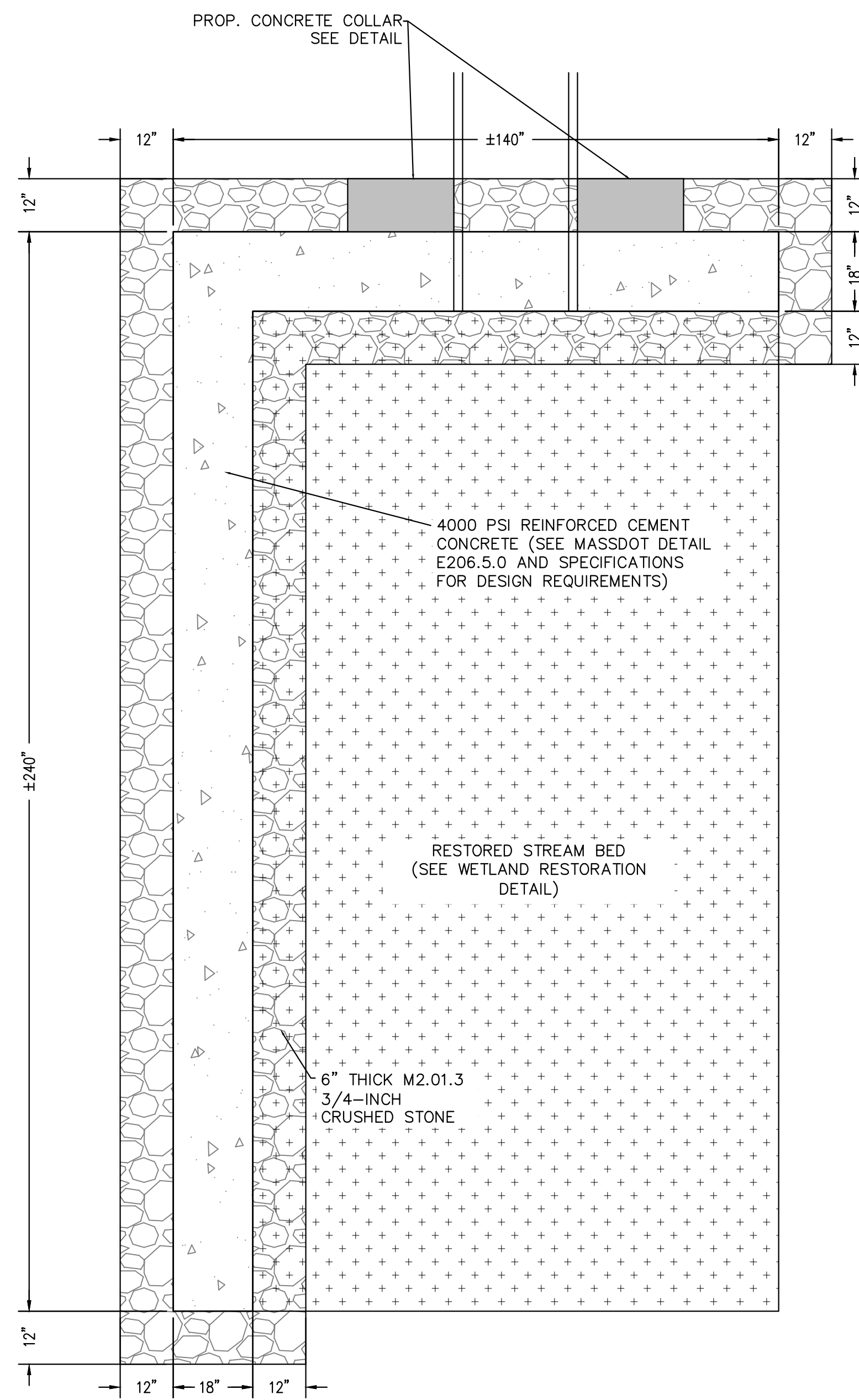
BEAVER FENCE & FLOW CONTROL DEVICE - PLAN

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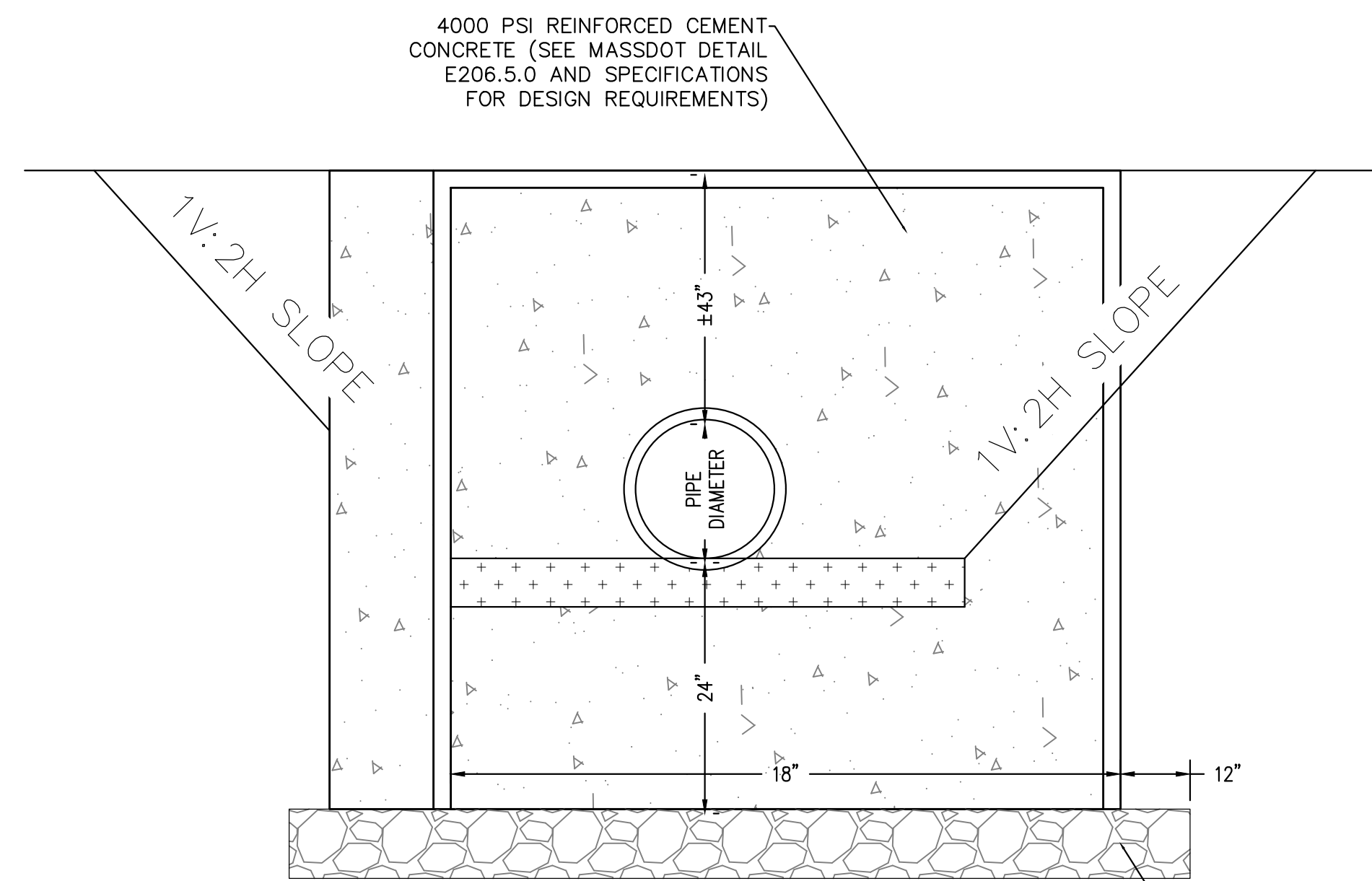
BEAVER FENCE & FLOW CONTROL DEVICE - PROFILE

NOT TO SCALE



CULVERT HEADWALL 'B' PLAN

NOT TO SCALE

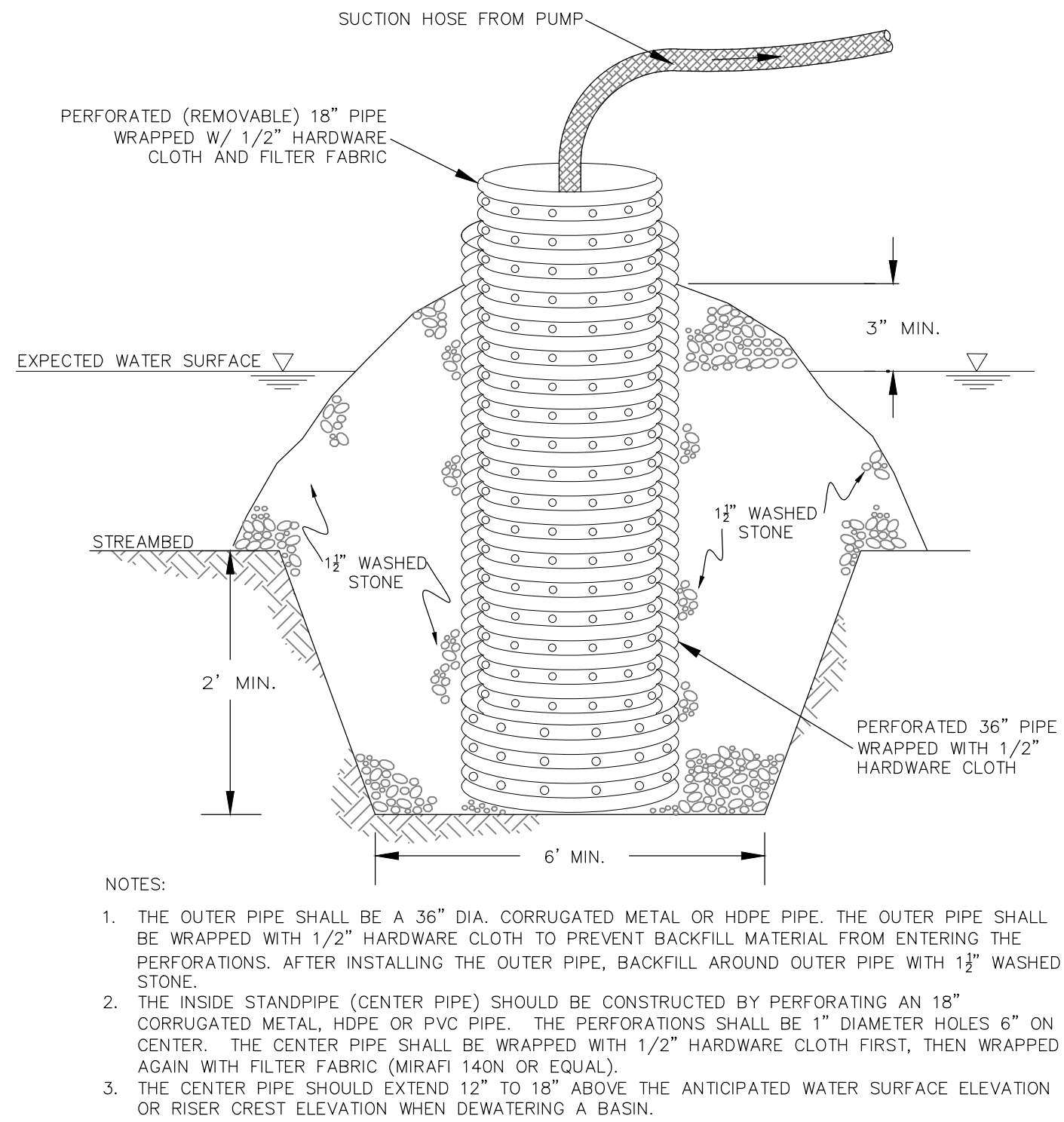
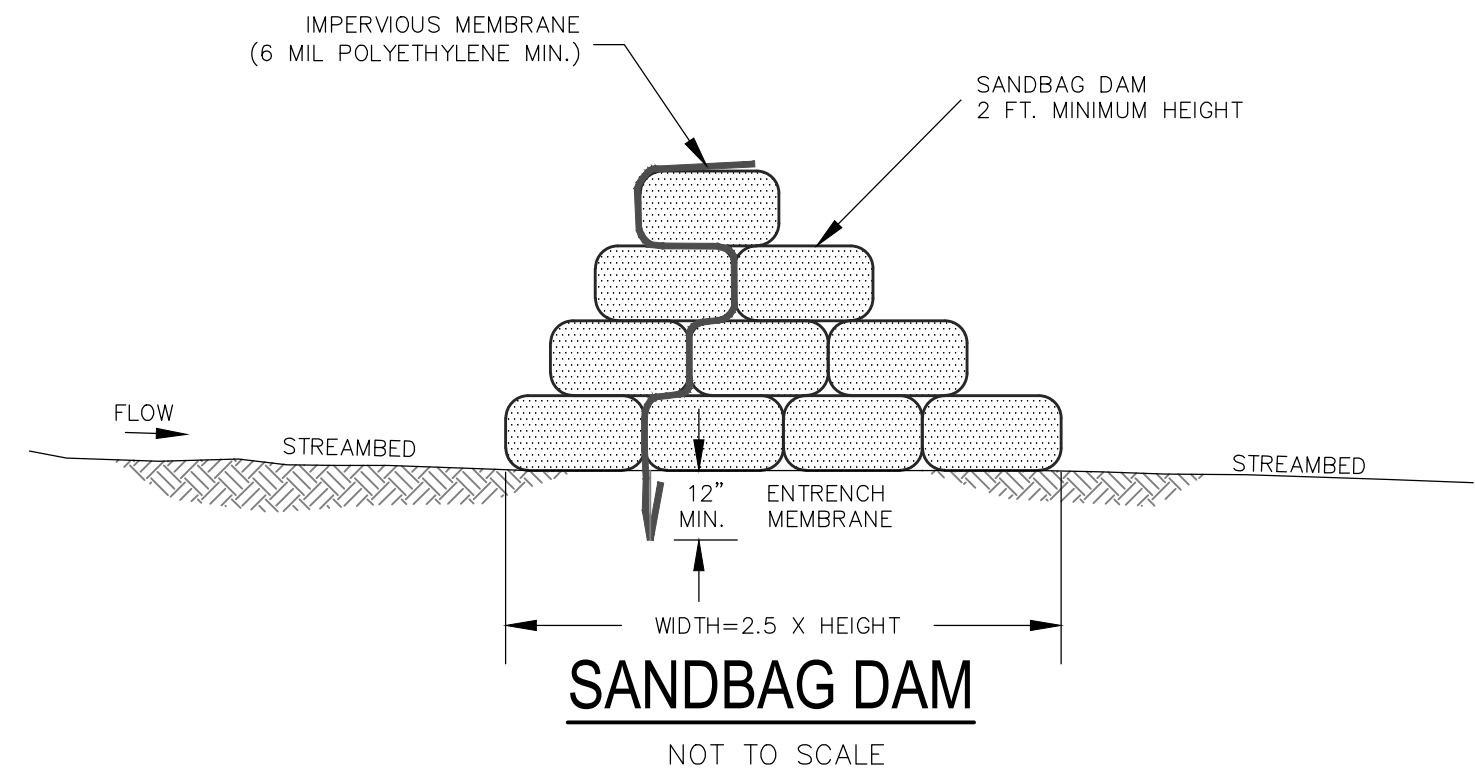


CULVERT HEADWALL 'B' SECTION

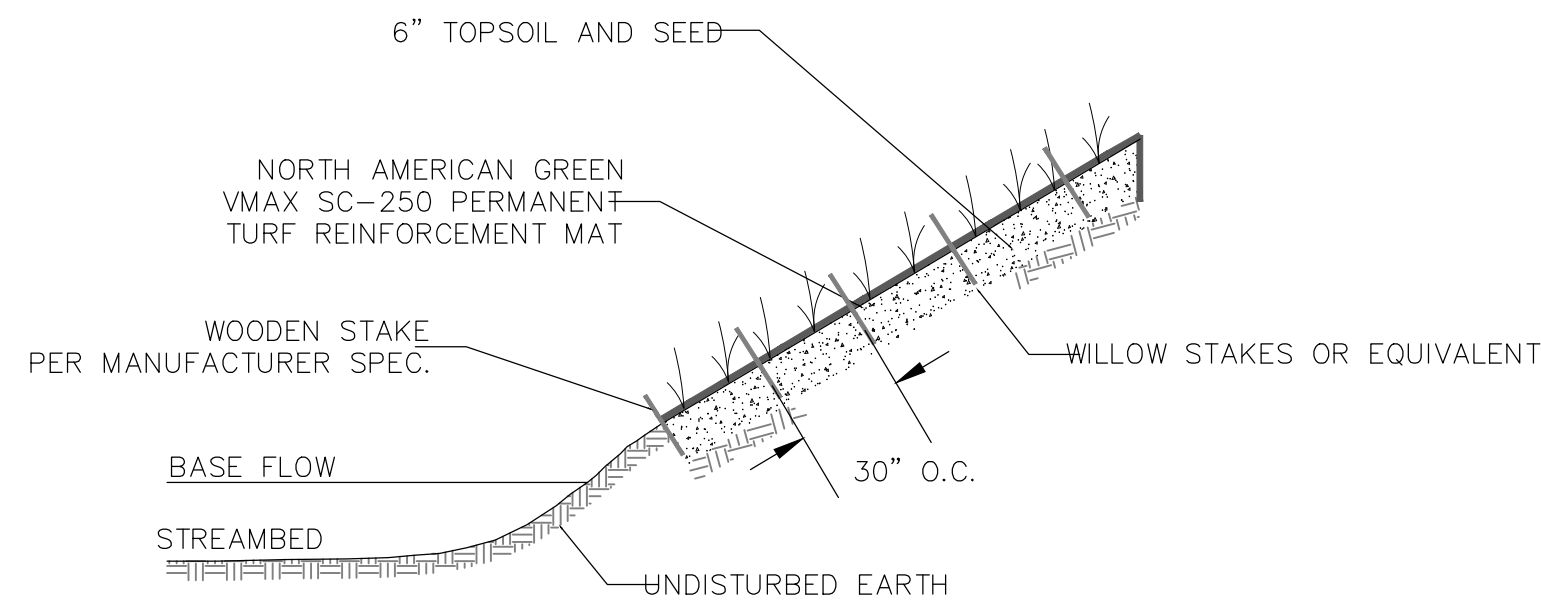
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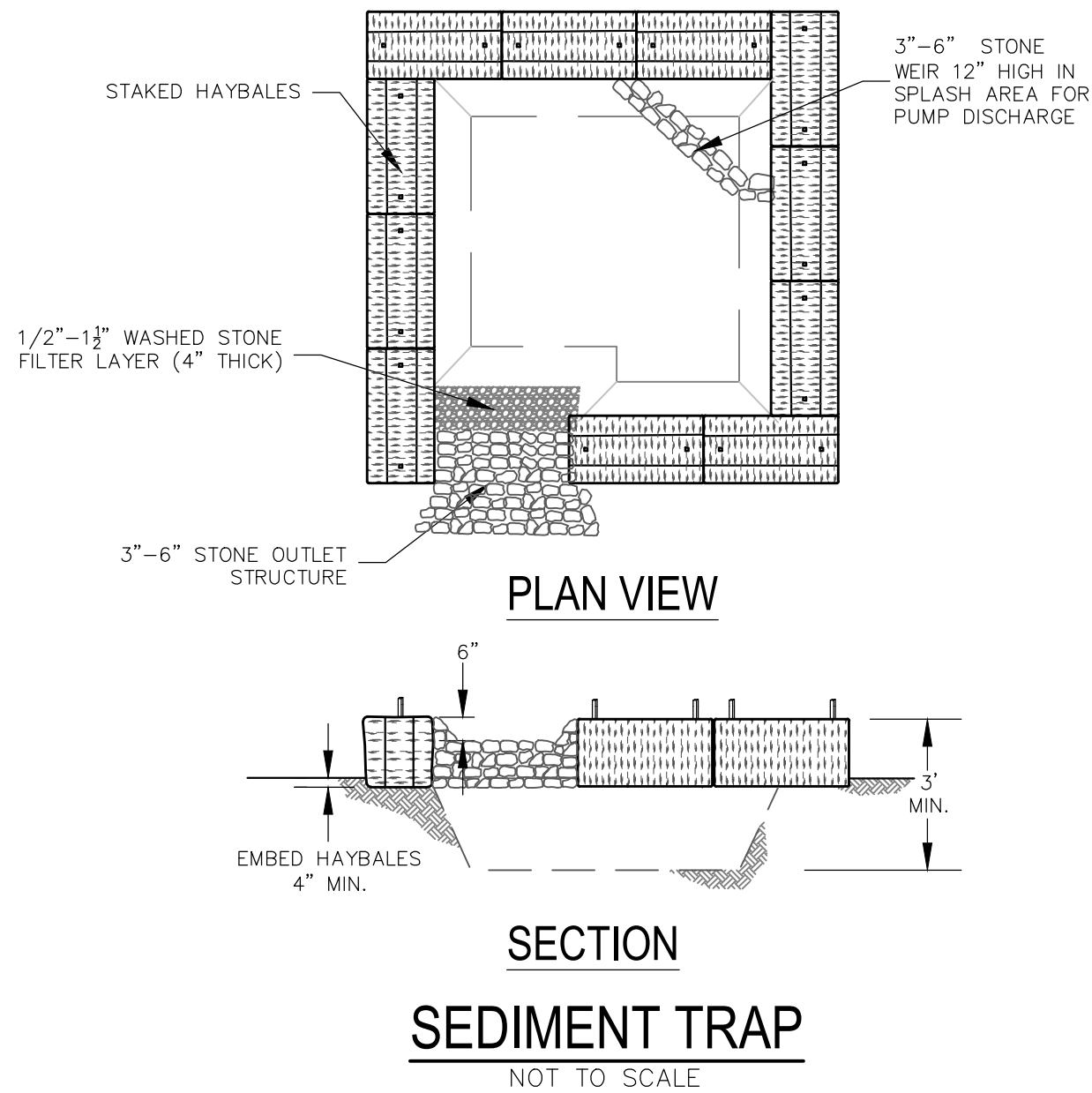
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REMOVABLE PUMPING STATION
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STREAM BANK STABILIZATION
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CONSTRUCTION NOTES:

EROSION AND SEDIMENTATION CONTROL SPECIFICATIONS

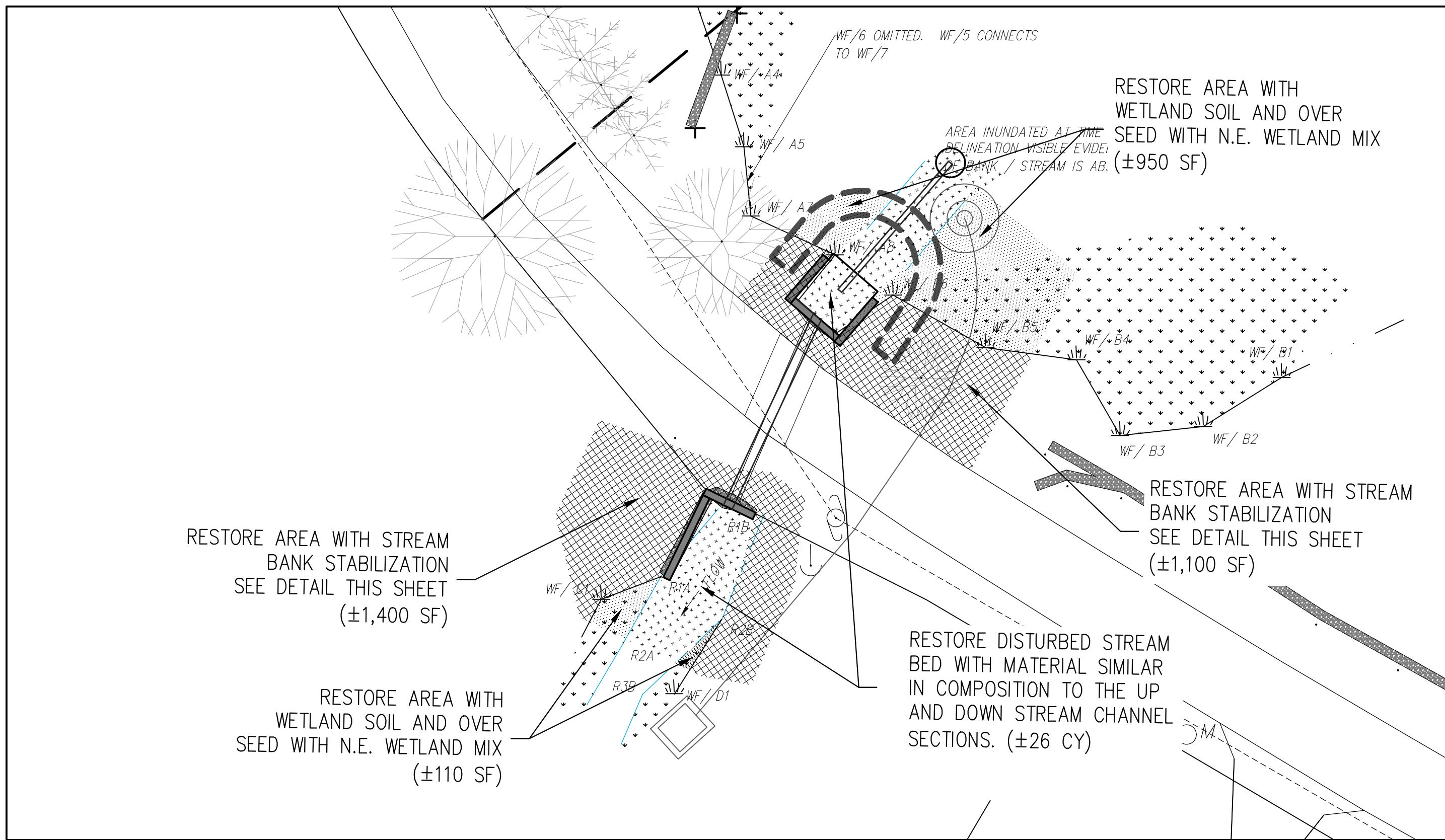
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2. PLACE EROSION CONTROL BARRIERS PER THE DETAILS ON THIS PLAN PRIOR TO CONSTRUCTION. NOTIFY THE BOLTON CONSERVATION COMMISSION AFTER INSTALLATION FOR INSPECTION.
3. ALL PUMPED DISCHARGES MUST BE TO A SEDIMENT CONTROL DEVICE (SEDIMENT TRAP, FILTER BOX, SEDIMENT TANK OR GEOTEXTILE FILTER BAG).
4. RESTORE DISTURBED AREAS WITH 6" TOPSOIL, SEED AND MULCH UNLESS OTHERWISE NOTED ON THE PLANS.
5. AFTER THE SITE HAS BEEN STABILIZED AND AFTER APPROVAL FROM THE BOLTON CONSERVATION COMMISSION, REMOVE EROSION AND SEDIMENTATION CONTROL BARRIER.

CONSTRUCTION SEQUENCE

1. POST DEP FILE NUMBER ON SITE.
2. NOTIFY CONSERVATION COMMISSION ABOUT COMMENCEMENT OF PROJECT.
3. INSTALL EROSION CONTROL BARRIER, PUMPING STATION, SEDIMENT TRAP, AND TEMPORARY SAND BAG BERM.
4. SAW CUT CULVERT TRENCH AND DEMOLISH EXISTING CULVERT AND HEADWALL.
5. INSTALL PROPOSED CULVERT, HEADWALL, BEAVER FENCE & FLOW CONTROL DEVICE , AND BACK FILL MATERIAL.
6. RESTORE DISTURBED AREA INCLUDING STREAM BED, BANKS, AND ROADWAY.
7. NOTIFY CONSERVATION COMMISSION THAT WORK IS COMPLETE AND SITE IS STABLE.
8. REMOVE EROSION CONTROL ONCE CONSERVATION COMMISSION GRANTS PERMISSION.

POST-CONSTRUCTION INVASIVE PLANT MONITORING

THE AREA SHOULD BE MONITORED FOR THE PRESENCE OF INVASIVE SPECIES IN CONJUNCTION WITH THE ROUTINE MAINTENANCE OF THE AREA. INVASIVE SPECIES PLANT PARTS REMOVED AS A RESULT OF PERIODIC MAINTENANCE SHOULD BE BAGGED AND REMOVED FOR DISPOSAL BY INCINERATION. IF INVASIVE SPECIES BECOME ESTABLISHED, THE INVASIVE SPECIES SHOULD BE REMOVED IN ACCORDANCE WITH RECOMMENDED PRACTICES FOR THE GIVEN SPECIES. APPLICATION OF HERBICIDES BY FOLIAR SPRAY IS NOT APPROPRIATE AT THIS SITE AND IS NOT TO BE USED. REMOVAL METHODS, OTHER THAN THE MAINTENANCE CUTTING REFERENCED HEREON, MUST BE APPROVED BY THE CONSERVATION COMMISSION.



WETLAND RESTORATION PLAN
SCALE 1"=20'

WETLAND RESTORATION NOTES:

A. SPECIFICATIONS

1. CONTRACTOR SHALL STOCKPILE ALL EXCAVATED WETLAND SOIL ON SITE FOR REUSE.
2. CONTRACTOR TO EXCAVATE ALL RESTORATION AREAS PRIOR TO EXCAVATING WITHIN THE EXISTING WETLAND DISTURBANCE AREAS.
3. PLACE STOCKPILED WETLAND SOIL TO MEET EXISTING GRADES IN ALL DISTURBED WETLAND AREAS.
4. CONTRACTOR TO PROVIDE ADDITIONAL WETLAND SOIL AS REQUIRED TO ACHIEVE THE 12" MINIMUM DEPTH IN THE RESTORATION AREAS. SUPPLEMENTAL SOIL SHALL CONSIST OF EQUAL VOLUMES OF A GOOD QUALITY LOAM AND WELL COMPOSTED ORGANIC MATERIAL. THE LOAM AND COMPOST SHOULD BE FREE OF LARGE STONES AND DEBRIS. CONTRACTOR TO FURNISH CONSERVATION COMMISSION WITH THE SOURCE OF OFF SITE SOIL ADDITIVES.
5. CONTRACTOR TO PLACE WETLAND SOIL WITH SIMILAR DENSITY AS OBSERVED WITHIN THE EXISTING WETLAND AREA.
6. THE ENTIRE RESTORATION AREAS WILL BE SEEDED WITH "NEW ENGLAND WET MIX" (WETLAND SEED MIX) AT AN APPLICATION RATE OF 1 LB/2500 S.F. SEEDING: THE MIX MAY BE APPLIED BY MECHANICAL SPREADER, OR BY HAND. WHEN APPLYING ON BARE SOIL, RAKE THE SOIL TO CREATE GROOVES, APPLY SEED, THEN LIGHTLY RAKE OVER. SEEDING SHALL BE COVERED WITH LIGHT MULCHING OF WEED FREE STRAW TO CONSERVE MOISTURE PER MANUFACTURER'S RECOMMENDATIONS.

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DRAINAGE IMPROVEMENT DETAILS			
SAWYER ROAD BOLTON, MASSACHUSETTS			
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JOB NO. 7073

DRAWING NO. 7073-DETAILS

SHEET NO. C3.2 OF 6