

TOWN OF LITTLETON, NH

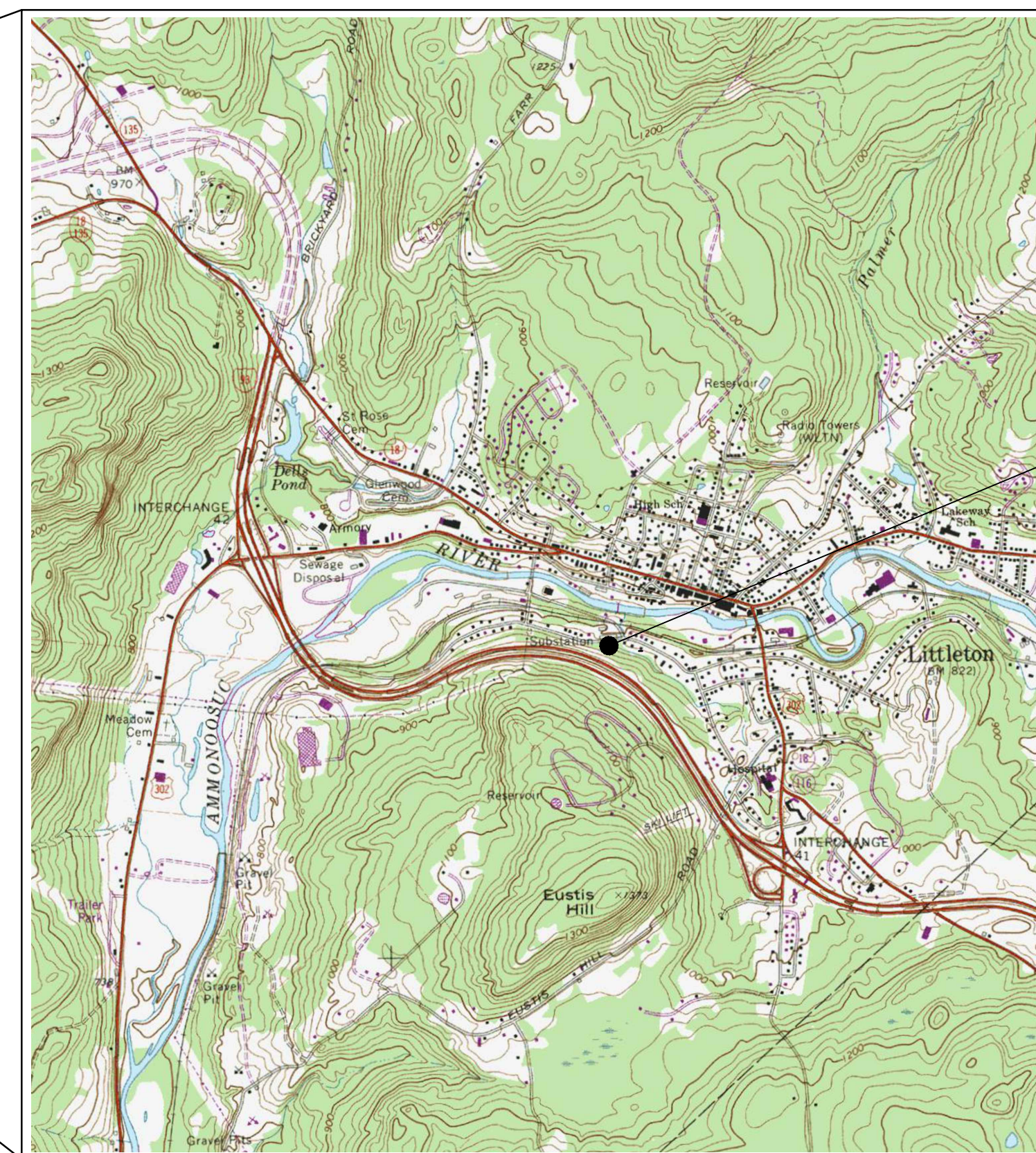
RIVERSIDE CULVERT REPLACEMENT

LITTLETON, NEW HAMPSHIRE

JUNE, 2024



NEW HAMPSHIRE



LOCATION PLAN

SCALE: 1" = 2000'

OWNER:

TOWN OF LITTLETON
125 MAIN STREET, SUITE 200
LITTLETON NEW HAMPSHIRE, 03561
(603) 444-3996

ENGINEER:

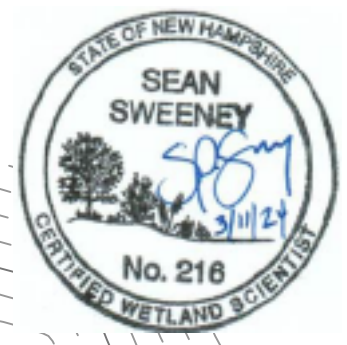
horizons
Engineering

34 SCHOOL STREET
LITTLETON, NH 03561
(603) 444-4111



SURVEYOR:

HEADWATERS CONSULTING, LLC.
461 MAIN STREET
FRANCONIA, NEW HAMPSHIRE 03580



WETLAND NOTES

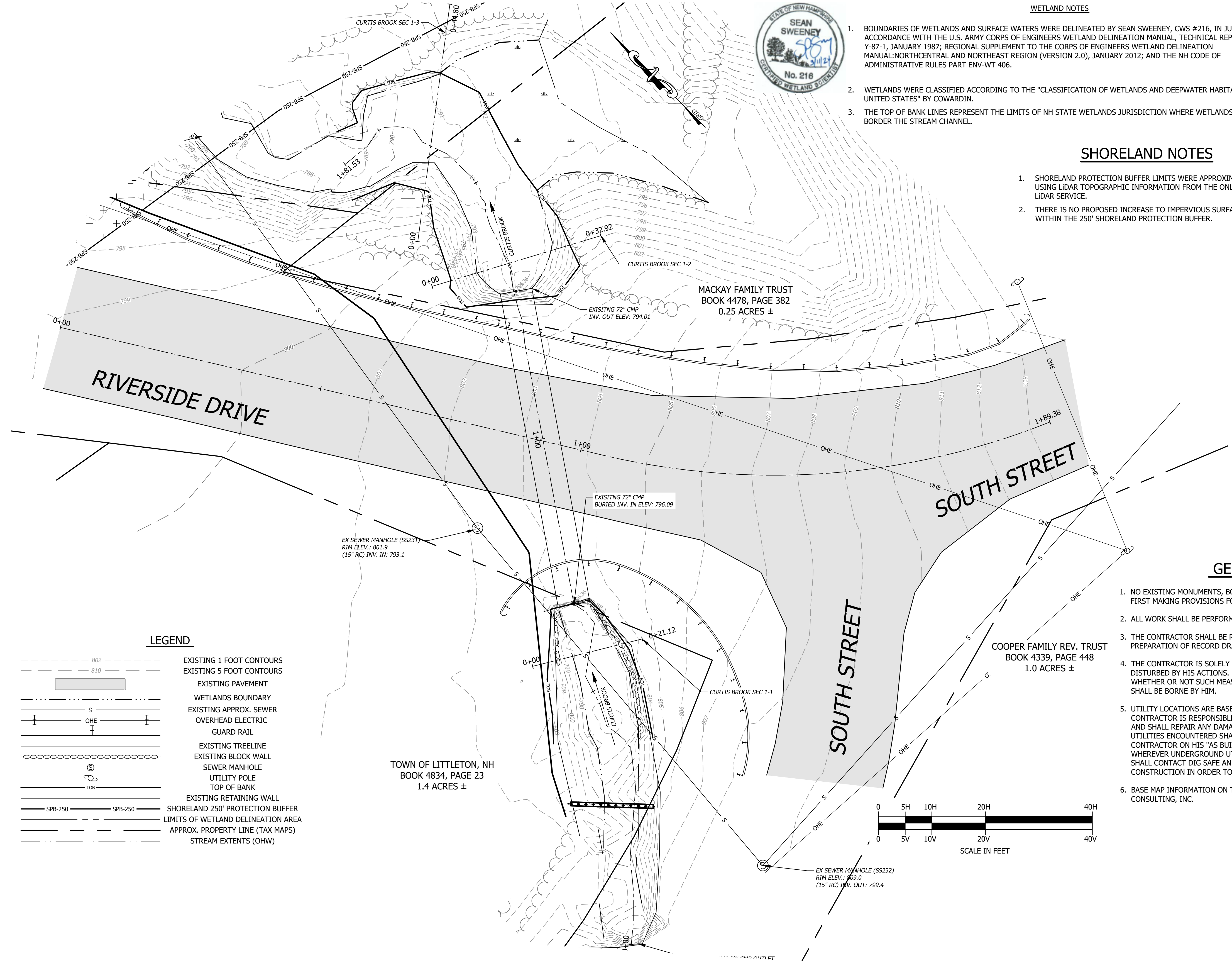
1. BOUNDARIES OF WETLANDS AND SURFACE WATERS WERE DELINEATED BY SEAN SWEENEY, CWS #216, IN JUNE 2022 IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT Y-87-1, JANUARY 1987; REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHEAST REGION (VERSION 2.0), JANUARY 2012; AND THE NH CODE OF ADMINISTRATIVE RULES PART ENV-WT 406.
2. WETLANDS WERE CLASSIFIED ACCORDING TO THE "CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES" BY COWARD IN.
3. THE TOP OF BANK LINES REPRESENT THE LIMITS OF NH STATE WETLANDS JURISDICTION WHERE WETLANDS DO NOT BORDER THE STREAM CHANNEL.

SHORELAND NOTES

1. SHORELAND PROTECTION BUFFER LIMITS WERE APPROXIMATED USING LIDAR TOPOGRAPHIC INFORMATION FROM THE ONLINE GRANIT LIDAR SERVICE.
2. THERE IS NO PROPOSED INCREASE TO IMPERVIOUS SURFACES WITHIN THE 250' SHORELAND PROTECTION BUFFER.



AERIAL LOCATION MAP
SCALE: 1" = 100'



GENERAL NOTES

1. NO EXISTING MONUMENTS, BOUNDS, OR BENCHMARKS SHALL BE DISTURBED WITHOUT FIRST MAKING PROVISIONS FOR RELOCATION.
2. ALL WORK SHALL BE PERFORMED WITHIN THE DEFINED LIMITS OF DISTURBANCE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DATA COLLECTION AND PREPARATION OF RECORD DRAWINGS.
4. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONTROLLING EROSION IN ALL AREAS DISTURBED BY HIS ACTIONS. COSTS FOR REQUIRED EROSION CONTROL, REGARDLESS OF WHETHER OR NOT SUCH MEASURES ARE SHOWN ON THE ENGINEERING DRAWINGS, SHALL BE BORNE BY HIM.
5. UTILITY LOCATIONS ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF EXISTING UTILITIES AND SHALL REPAIR ANY DAMAGE AS QUICKLY AS POSSIBLE AT HIS OWN EXPENSE. ALL UTILITIES ENCOUNTERED SHALL BE LOCATED BY DEPTH AND TIES AND SHOWN BY THE CONTRACTOR ON HIS "AS BUILT" DRAWINGS. HAND EXCAVATION SHALL BE DONE WHEREVER UNDERGROUND UTILITIES ARE SHOWN OR ANTICIPATED. THE CONTRACTOR SHALL CONTACT DIG SAFE AND THE APPROPRIATE AUTHORITIES PRIOR TO ANY CONSTRUCTION IN ORDER TO VERIFY EXISTING CONDITIONS AND UTILITY LOCATIONS.
6. BASE MAP INFORMATION ON THESE PLANS IS FROM PLANS PREPARED BY HEADWATERS CONSULTING, INC.

STREAM GEOMETRY

EXISTING STREAM SECTION GEOMETRY

INLET:
BANKFULL WIDTH: 7.9'
BANKFULL DEPTH: 5.4'
SINUOSITY: 1.2
FLOOD PRONE WIDTH: NOT MEASURABLE AS BANK IS ADJACENT TO DOWNHILL SLOPE
ENTRENCHMENT RATIO: N/A

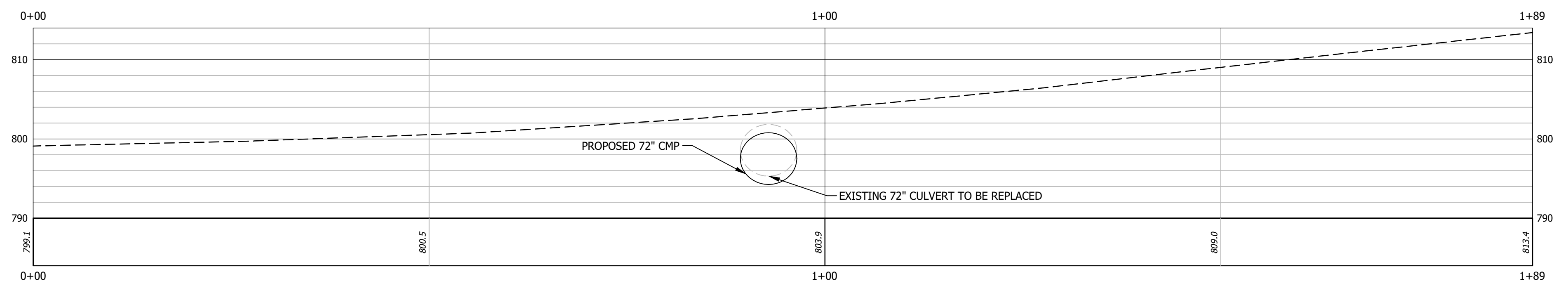
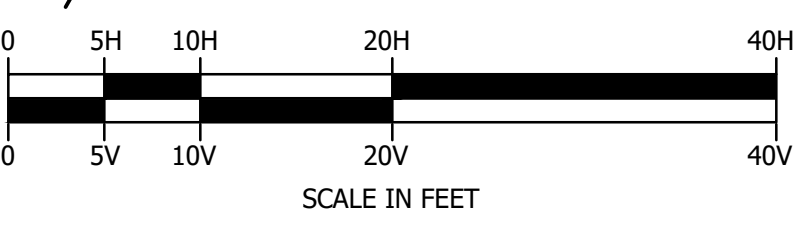
OUTLET:
BANKFULL WIDTH: 12.6'
BANKFULL DEPTH: 1.1'
SINUOSITY: 1.2
FLOOD PRONE WIDTH: 35.4'
ENTRENCHMENT RATIO: 2.8

FOR CONSTRUCTION

LEGEND

- 802 --- EXISTING 1 FOOT CONTOURS
- 810 --- EXISTING 5 FOOT CONTOURS
- ▬▬▬▬▬▬▬▬ EXISTING PAVEMENT
- - - - - WETLANDS BOUNDARY
- - - - - EXISTING APPROX. SEWER
- - - - - OVERHEAD ELECTRIC
- - - - - GUARD RAIL
- ▬▬▬▬▬▬▬▬ EXISTING TREELINE
- ▬▬▬▬▬▬▬▬ EXISTING BLOCK WALL
- ⊙ SEWER MANHOLE
- ⊙ UTILITY POLE
- ▬▬▬▬▬▬▬▬ TOP OF BANK
- ▬▬▬▬▬▬▬▬ EXISTING RETAINING WALL
- ▬▬▬▬▬▬▬▬ SHORELAND 250' PROTECTION BUFFER
- ▬▬▬▬▬▬▬▬ LIMITS OF WETLAND DELINEATION AREA
- ▬▬▬▬▬▬▬▬ APPROX. PROPERTY LINE (TAX MAPS)
- ▬▬▬▬▬▬▬▬ STREAM EXTENTS (OHW)

TOWN OF LITTLETON, NH
BOOK 4834, PAGE 23
1.4 ACRES ±



RIVERSIDE DRIVE
STA: 0+00 to STA: 1+89

DATE OF PRINT
JUNE 25 2024
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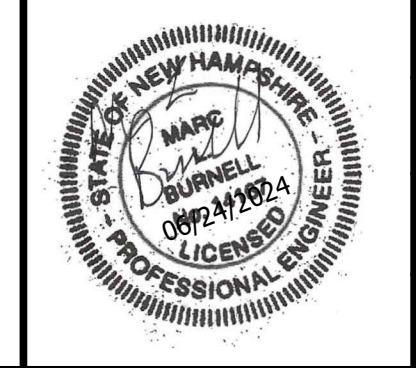
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LITTLETON, NEW HAMPSHIRE

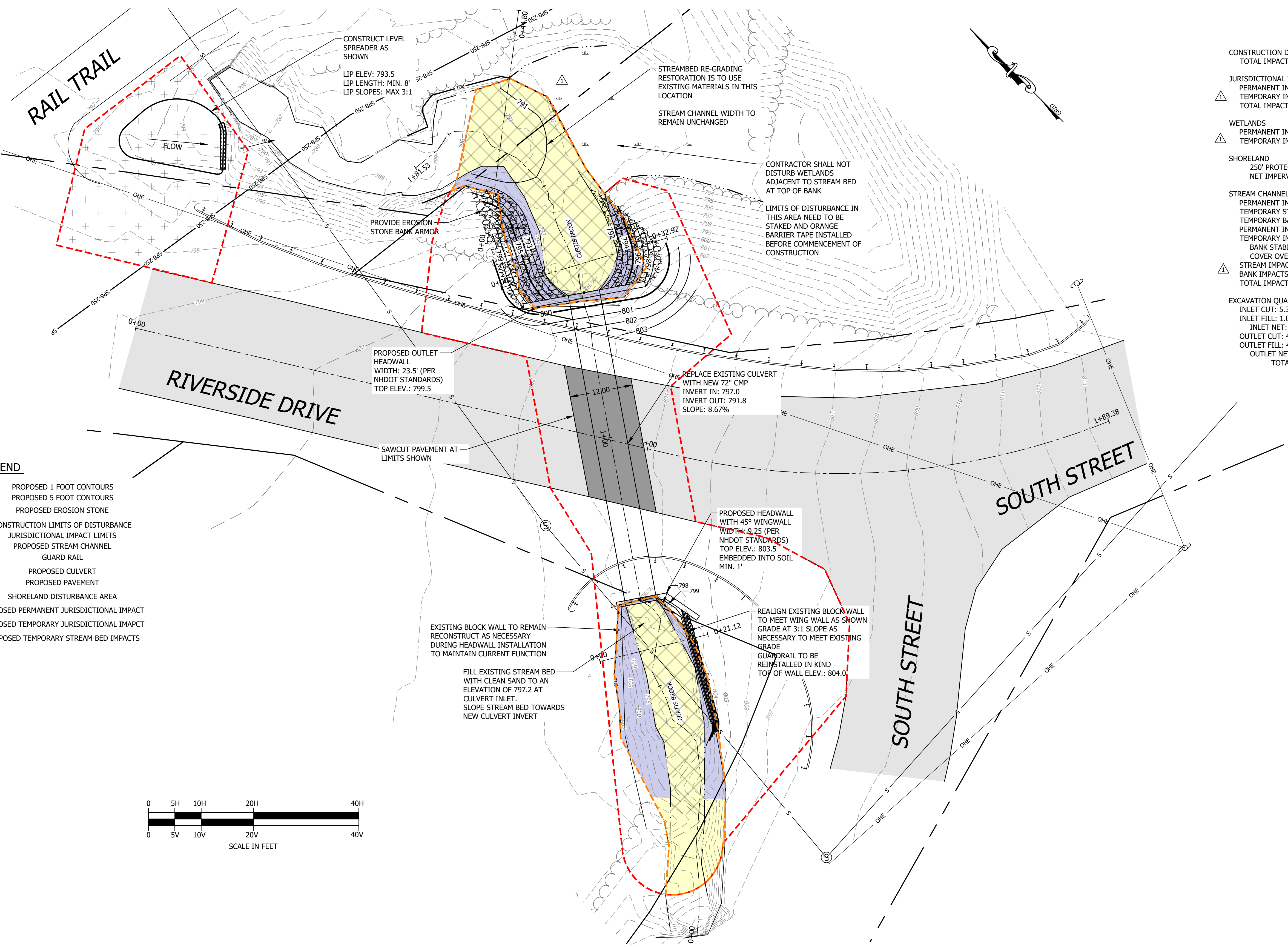
EXISTING CONDITIONS PLAN

NO.	DATE	REVISION DESCRIPTION	ENG	DWG
1	06/2024	RIFI 1 RESPONSE - REMOVED WETLANDS IMPACTS, RECALCULATED DISTURBANCES	CLB	CLB

DATE:	JUNE 2024	PROJECT #:	230740
ENG'D BY:	CLB	DRAWN BY:	CLB
CHECK'D BY:	MLB	ARCHIVE #:	H-___
SHEET 2 OF 6			



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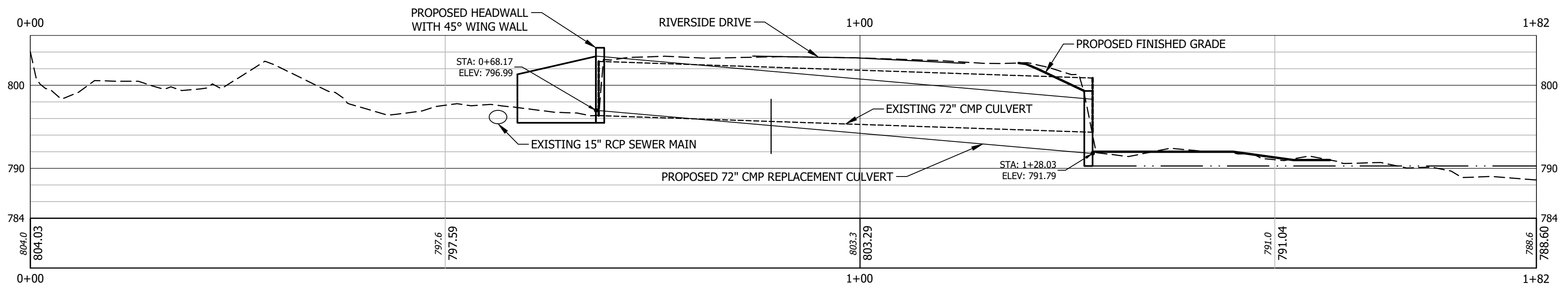
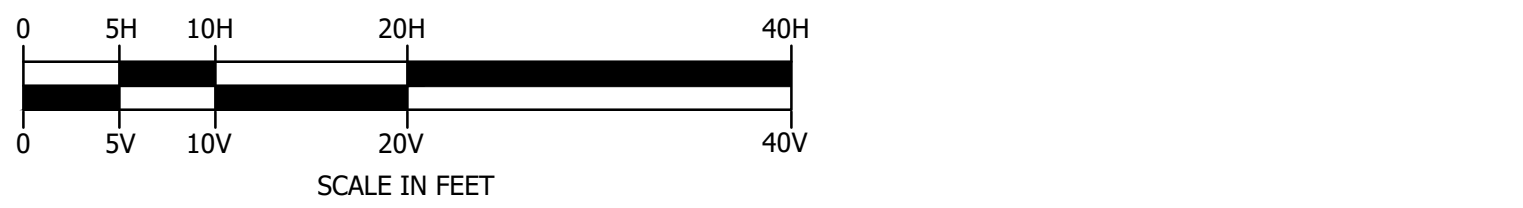


PROPOSED IMPACTS

- CONSTRUCTION DISTURBANCE/CLEARING LIMITS
TOTAL IMPACTS: 6,342 SF
- JURISDICTIONAL IMPACTS
PERMANENT IMPACTS: 553 SF
TEMPORARY IMPACTS: 1,109 SF
TOTAL IMPACTS: 1,661 SF
- WETLANDS
PERMANENT IMPACTS: 0 SF
TEMPORARY IMPACTS: 0 SF
- SHORELAND
250' PROTECTION BUFFER IMPACT: 895 SF
NET IMPERVIOUS INCREASE: 0 SF
- STREAM CHANNEL IMPACTS
PERMANENT IMPACTS: 0 LF
TEMPORARY STREAM IMPACTS: 143 LF
TEMPORARY BANK IMPACTS: 171 LF
PERMANENT IMPACTS: 0 SF
TEMPORARY IMPACTS: 943 SF
BANK STABILIZATION, DEBRIS REMOVAL, CULVERT INSTALLATION, FILL/GRADING FOR COVER OVER SEWER PIPE, OUTFALL FILL AND RE-GRADING
- STREAM IMPACTS: (STREAM IMPACTS BELOW OHW) 943 SF
BANK IMPACTS: (IMPACTS BETWEEN OHW AND TOB) 718 SF
TOTAL IMPACTS: 1,661 SF
- EXCAVATION QUANTITIES
INLET CUT: 5.3 CU. YD
INLET FILL: 1.0 CU. YD
INLET NET: 4.3 CU. YD CUT
OUTLET CUT: 43.8 CU. YD
OUTLET FILL: 4.6 CU. YD
OUTLET NET: 39.2 CU. YD CUT
TOTAL NET: 43.5 CU. YD CUT

LEGEND

- 802 PROPOSED 1 FOOT CONTOURS
- 810 PROPOSED 5 FOOT CONTOURS
- PROPOSED EROSION STONE
- CONSTRUCTION LIMITS OF DISTURBANCE
- JURISDICTIONAL IMPACT LIMITS
- PROPOSED STREAM CHANNEL
- GUARD RAIL
- PROPOSED CULVERT
- PROPOSED PAVEMENT
- SHORELAND DISTURBANCE AREA
- PROPOSED PERMANENT JURISDICTIONAL IMPACT
- PROPOSED TEMPORARY JURISDICTIONAL IMPACT
- PROPOSED TEMPORARY STREAM BED IMPACTS



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LITTLETON, NEW HAMPSHIRE

CURTIS BROOK PLAN AND PROFILE

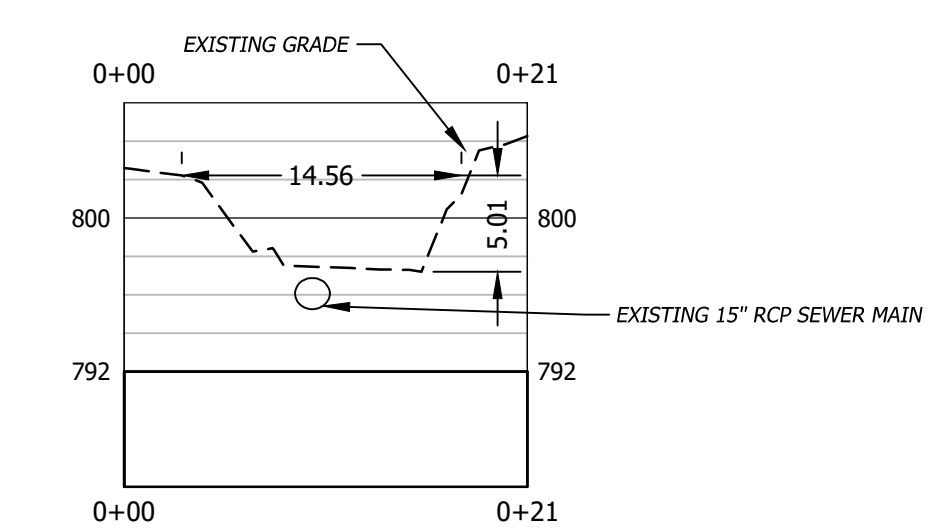
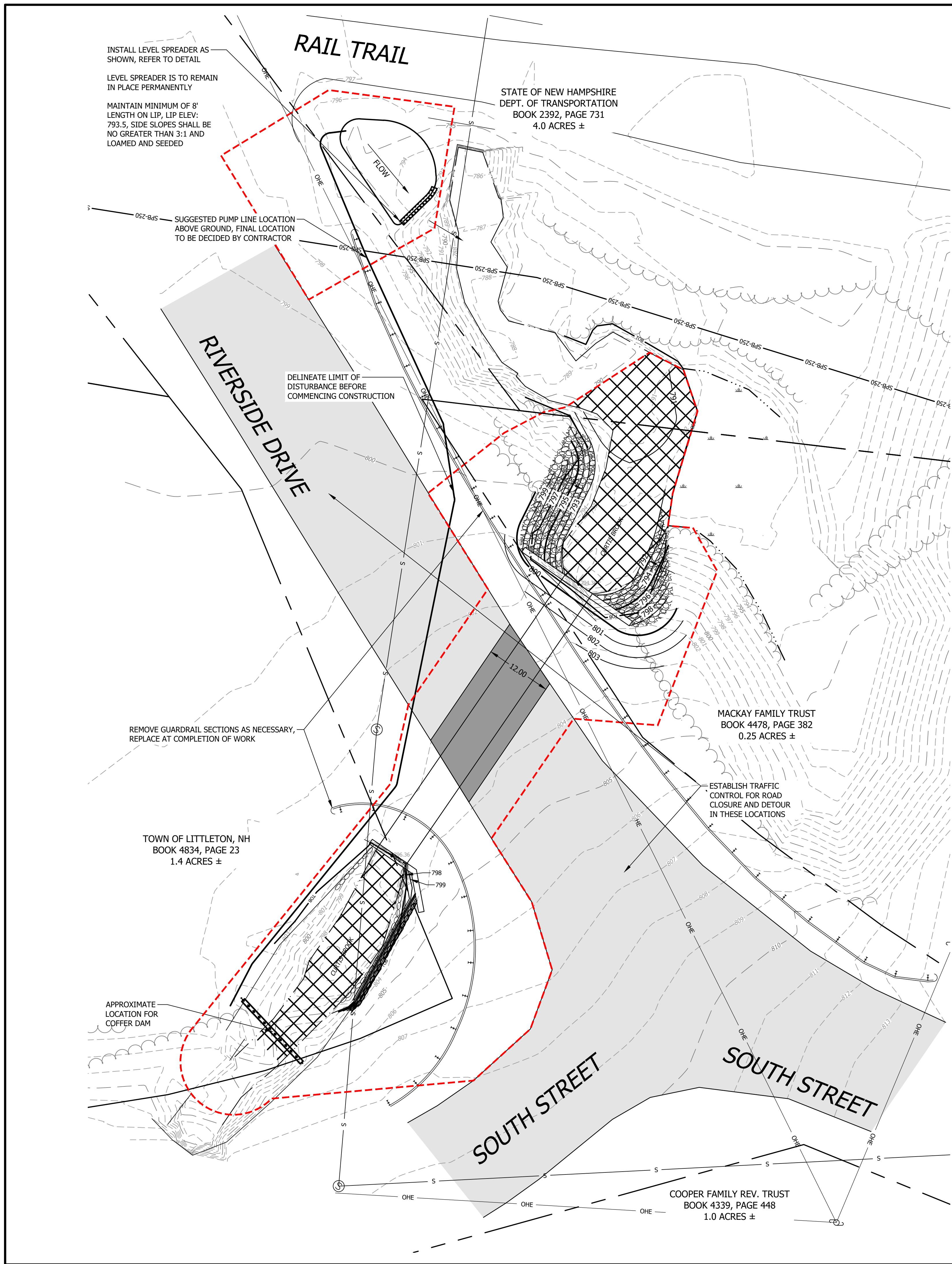
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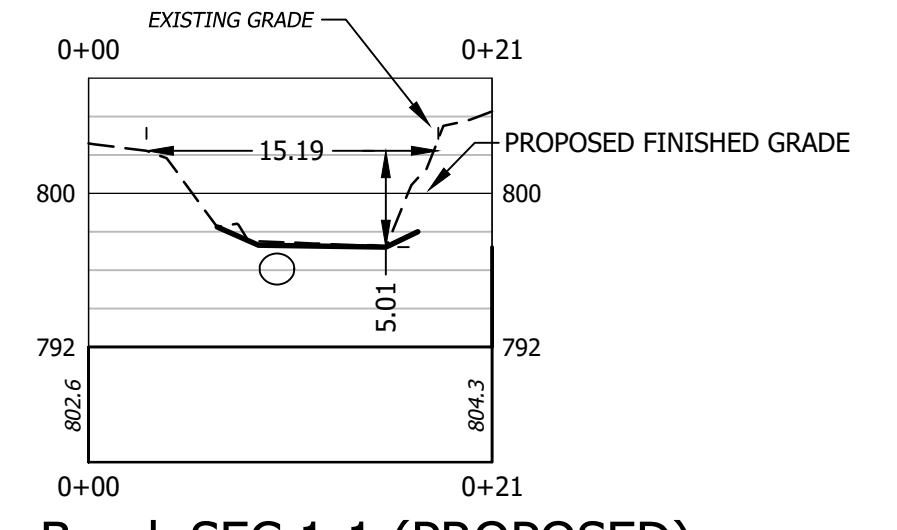


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SHEET 3 OF 6			

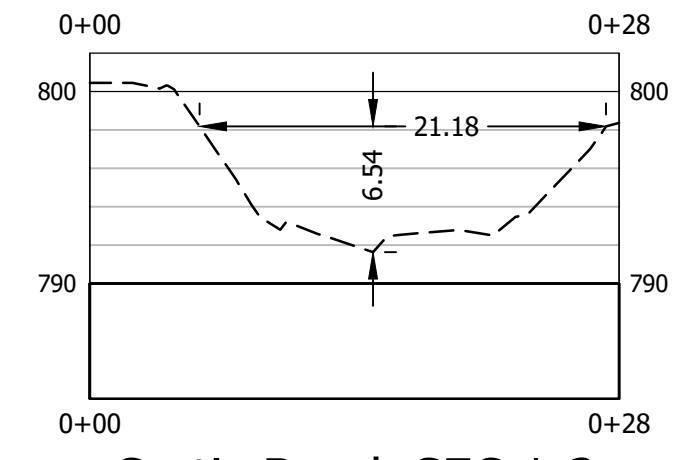
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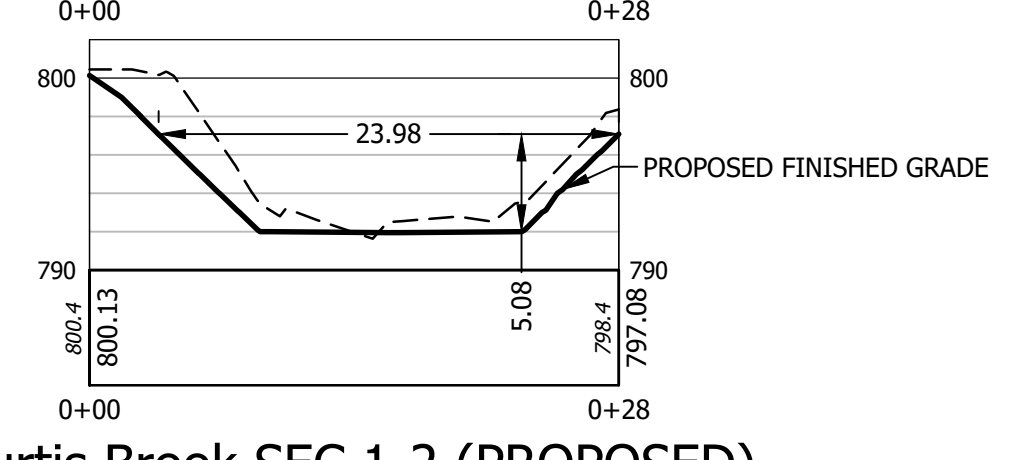
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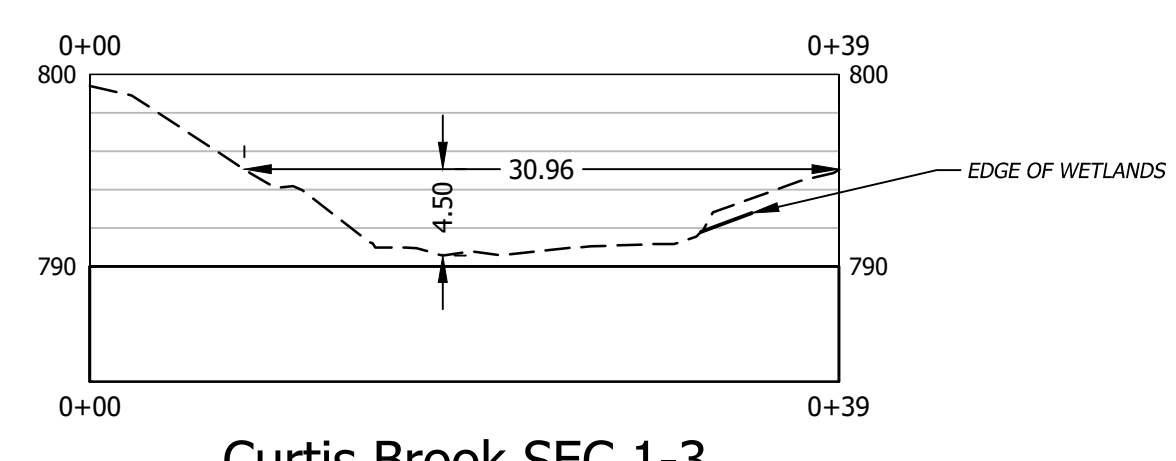
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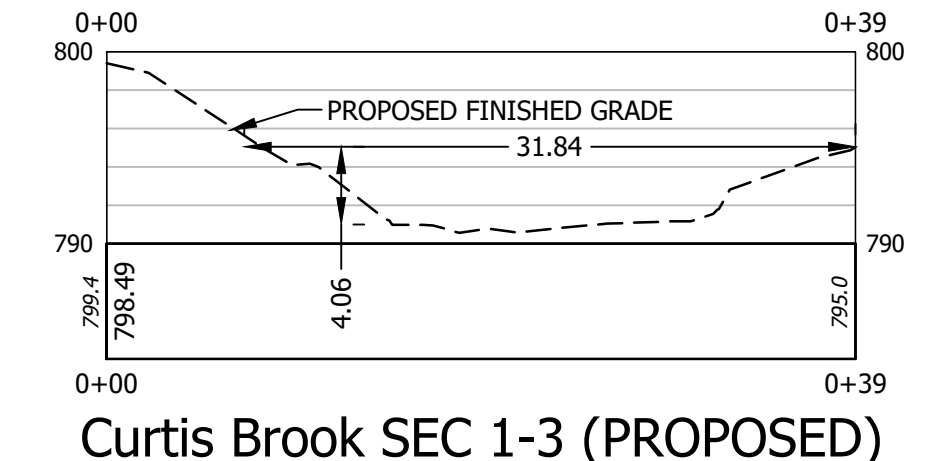
Curtis Brook SEC 1-2
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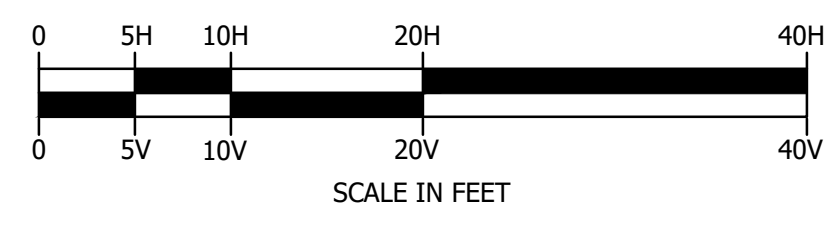
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Curtis Brook SEC 1-3
STA: 0+00 to STA: 0+39



Curtis Brook SEC 1-3 (PROPOSED)
STA: 0+00 to STA: 0+39



PHASING NOTES

THE BELOW SUGGESTED PHASING PLAN SHALL BE USED UNLESS THE CONTRACTOR HAS DISCUSSED APPROVED ALTERNATIVE PHASING WITH THE ENGINEER.

1. ESTABLISH TRAFFIC CONTROL AT DESIGNATED AREAS SHOWN ON THE PLAN AS WELL AS DETOUR SIGNAGE AT THE INTERSECTION OF RIVERSIDE DRIVE AND DEER COURT.
2. DELINEATE THE LIMIT OF DISTURBANCE IN THE FIELD AS SHOWN ON THE PLANS.
3. REMOVE GUARDRAIL SECTIONS AS NEEDED.
4. SAW CUT AND REMOVE PAVEMENT AS SHOWN.
5. CONSTRUCT LEVEL SPREADER AS SHOWN AND INSTALL WATER BYPASS PUMP AND PUMP LINE.
- 5.1. CONTRACTOR IS RESPONSIBLE FOR SIZING PUMP AND DISCHARGE LINE AS NECESSARY FOR THE FOLLOWING PARAMETERS.
- 5.1.1. CFS 0.51 (STREAM STATS 60% DURATION), BASE FLOW
- 5.1.2. CFS 2.00 (STORM EVENT SAFETY FACTOR, ENGINEER DETERMINED), DESIGN FLOW
6. CONSTRUCT COFFER DAM AS SHOWN.
7. BEGIN CULVERT REMOVAL AND REPLACEMENT, TREE CLEARING, STONE ARMOUR BANK STABILIZATION, AND HEADWALL INSTALLATION.
8. REMOVE COFFER DAM ONCE THE REPLACEMENT CULVERT HAS BEEN INSTALLED.
9. RESTORE SURFACES AND REINSTALL GUARDRAIL SECTIONS.

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RIVERSIDE CULVERT REPLACEMENT
LITTLETON, NEW HAMPSHIRE
CURTIS BROOK SECTIONS AND DEMO/PHASING PLAN

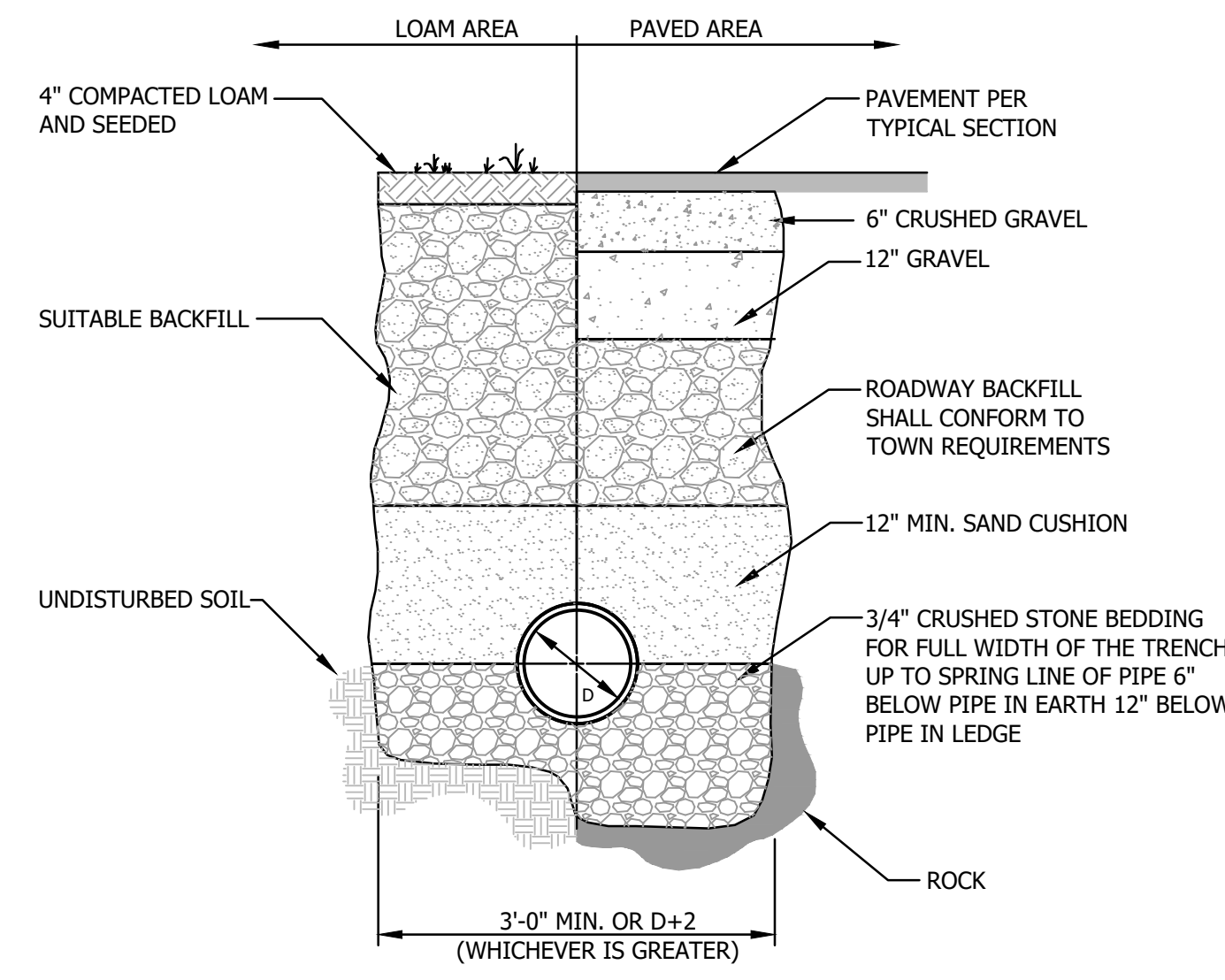
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JUNE 25 2024
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SHEET 4 OF 6

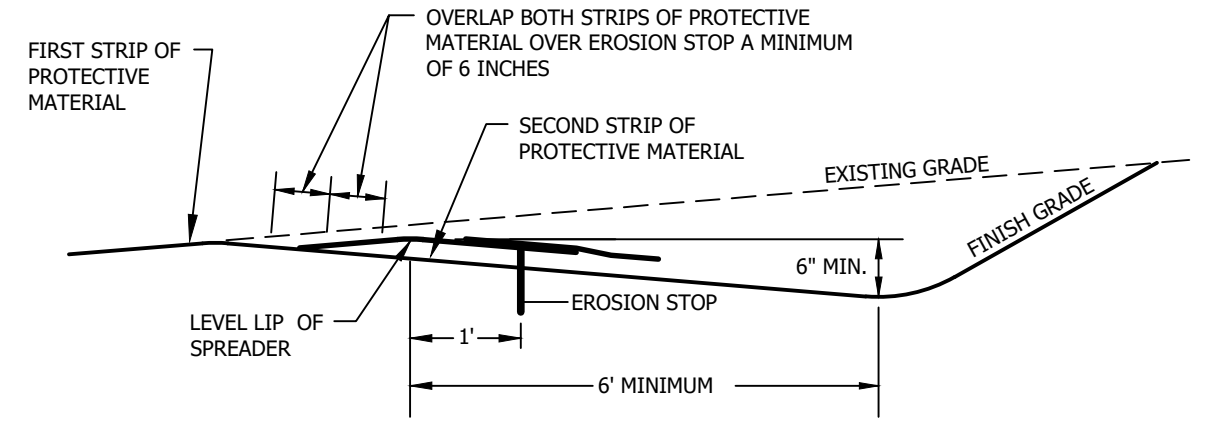
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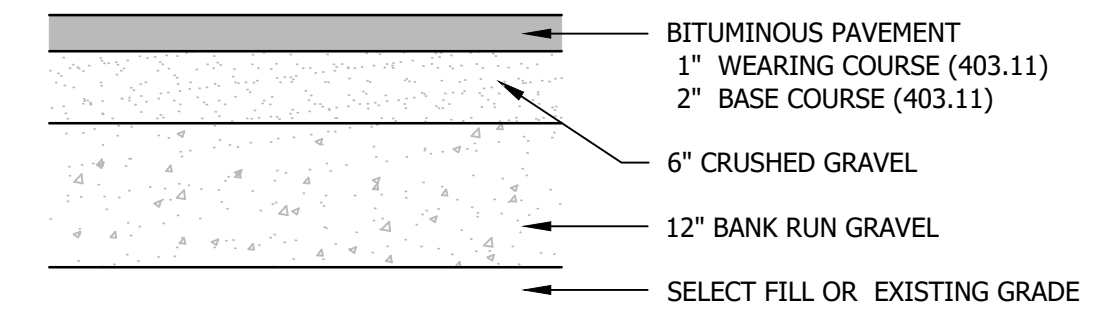
TYPICAL DRAINAGE TRENCH DETAIL
NOT TO SCALE

LEVEL LIP SPREADER INSTALLATION

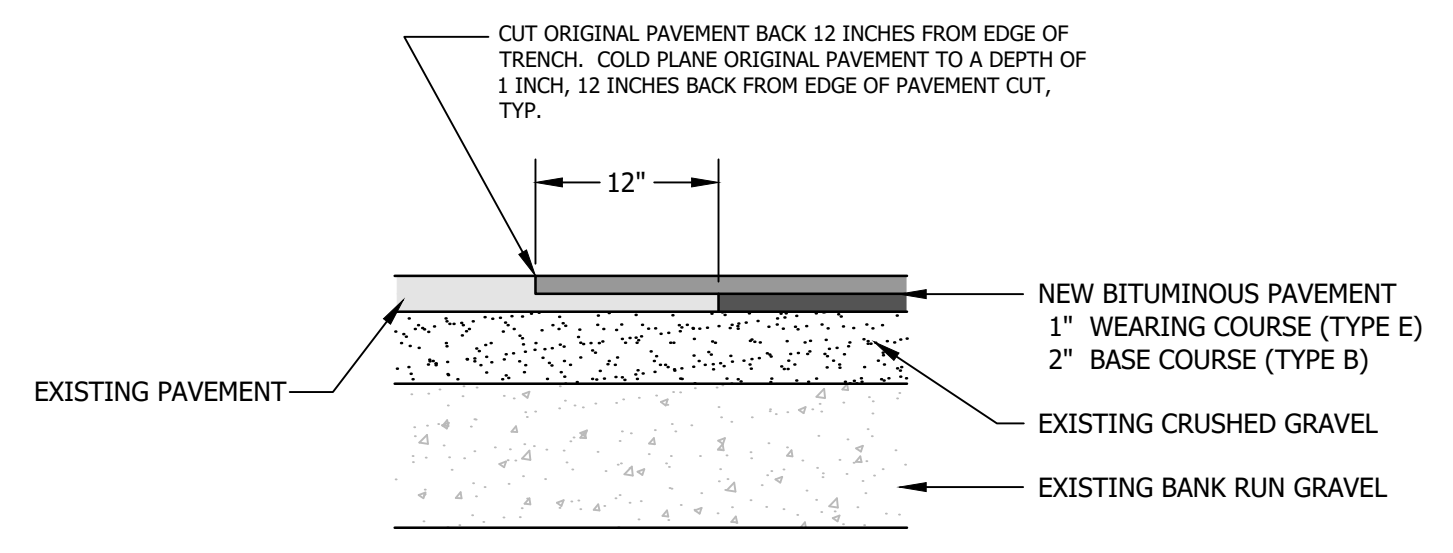
1. CONSTRUCT THE LEVEL SPREADER LIP ON A ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
2. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
3. AN EROSION STOP SHALL BE PLACED VERTICALLY A MINIMUM OF SIX INCHES DEEP IN A SLIT TRENCH ONE FOOT BACK OF THE LEVEL LIP AND PARALLEL TO THE LIP. THE EROSION STOP SHALL EXTEND THE ENTIRE LENGTH OF THE LEVEL LIP.
4. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING TWO STRIPS OF JUTE OR EXCELSIOR MATTING ALONG THE LIP. EACH STRIP SHALL OVERLAP THE EROSION STOP BY AT LEAST SIX INCHES.
5. THE ENTRANCE CHANNEL TO THE LEVEL SPREADER SHALL NOT EXCEED A 1 PERCENT GRADE FOR AT LEAST 50 FEET BEFORE ENTERING INTO THE SPREADER.
6. THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PERFORMED.
8. PROTECTIVE MATERIAL AND EROSION STOP SHALL BE NORTH AMERICAN GREEN C125 EROSION CONTROL BLANKET OR APPROVED EQUAL.



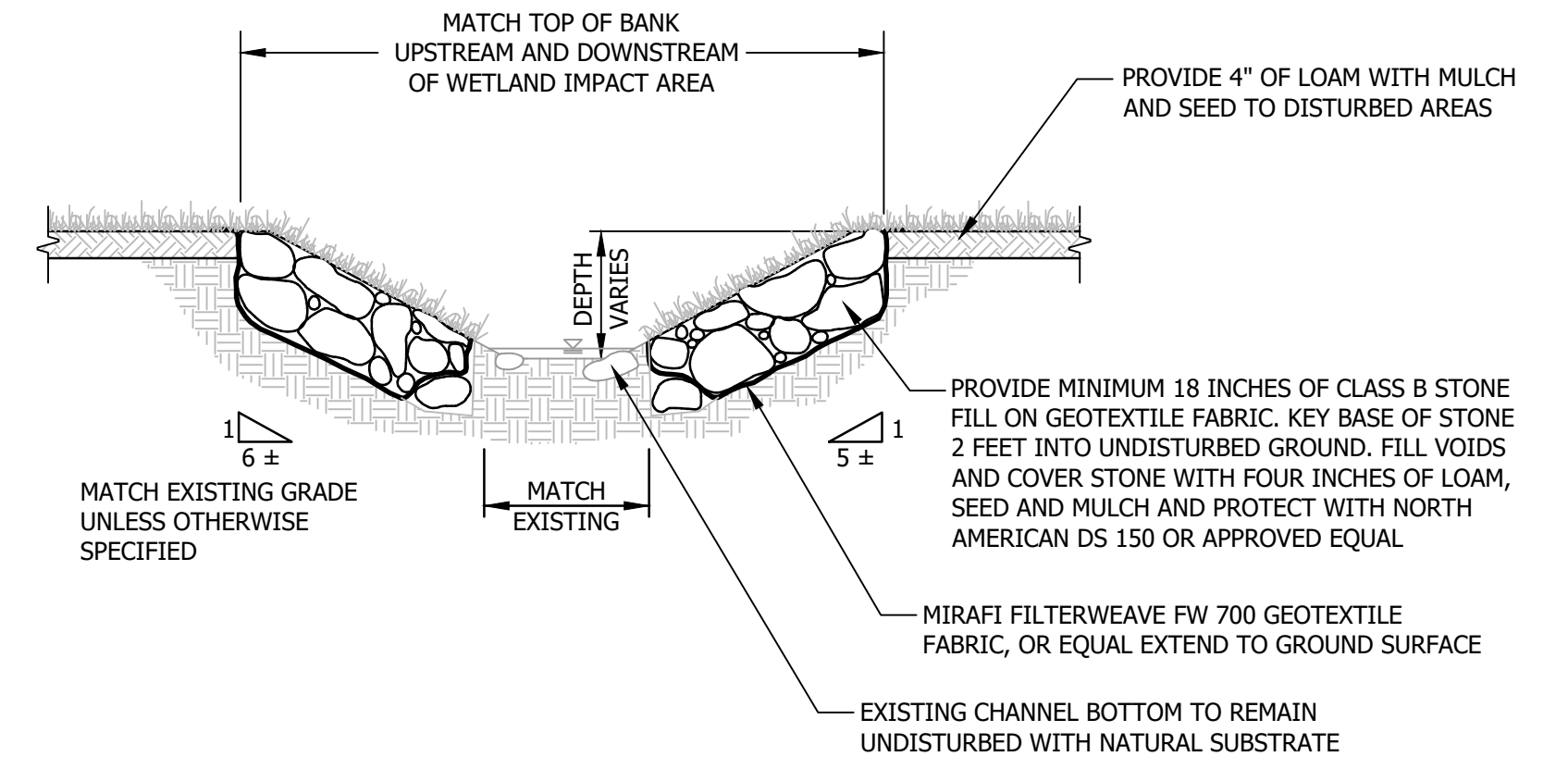
LEVEL SPREADER DETAIL
NO SCALE
SOURCE: ROCKINGHAM COUNTY CONSERVATION SERVICE



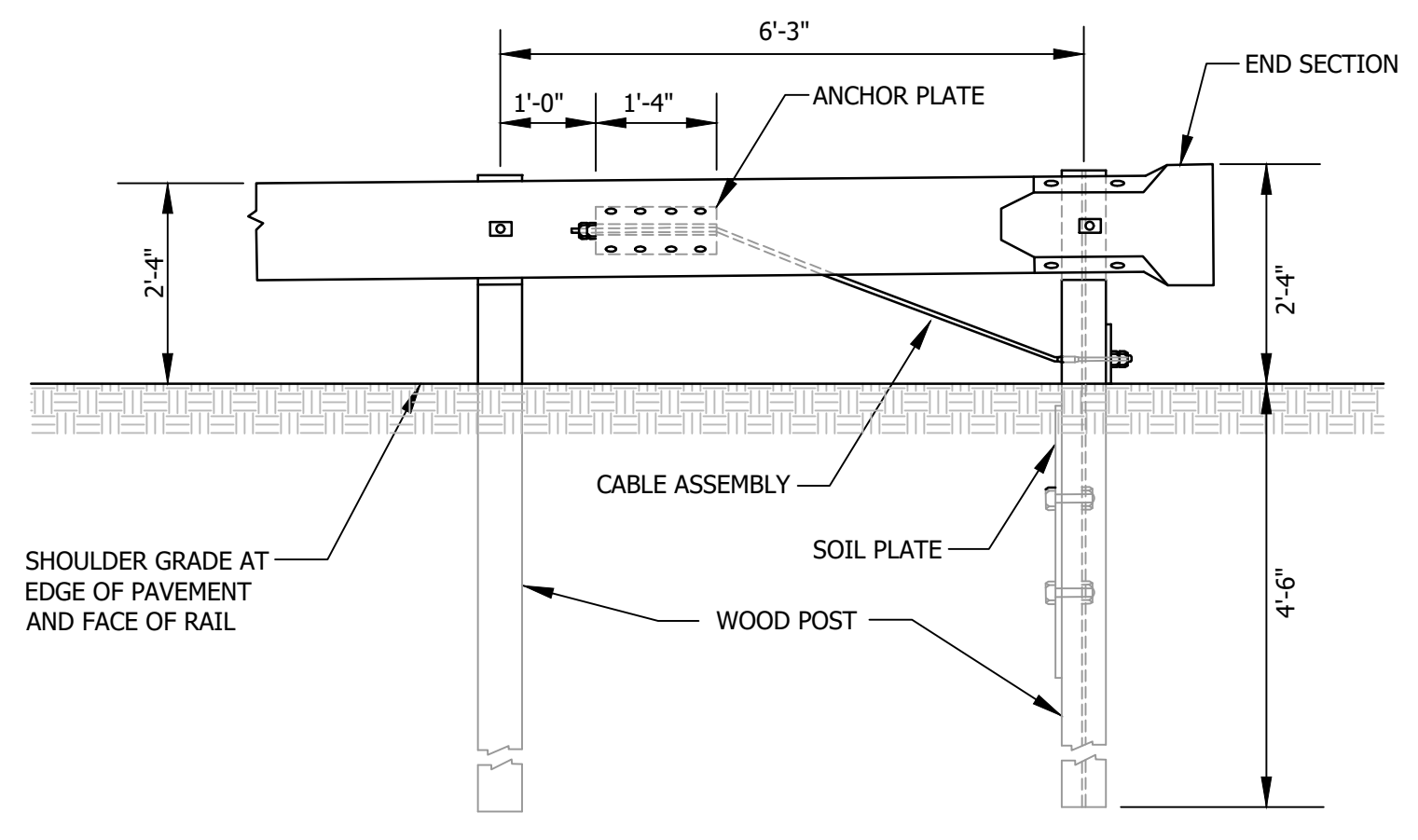
TYPICAL PAVEMENT SECTION
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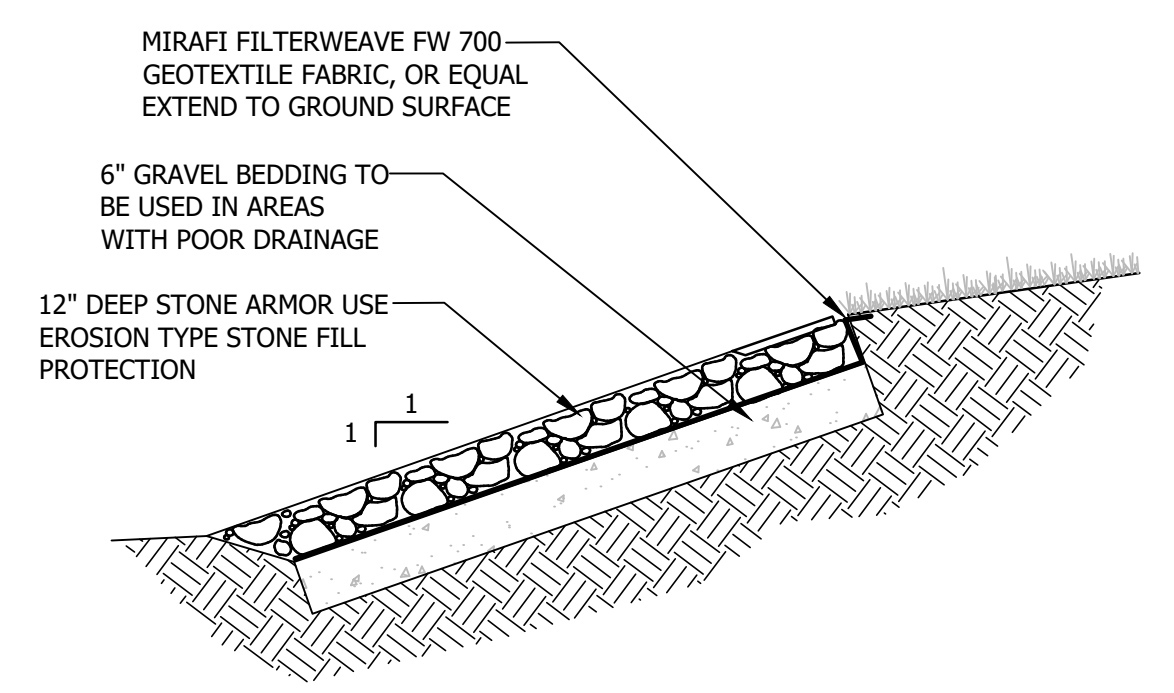
TYPICAL CUT PAVEMENT SECTION
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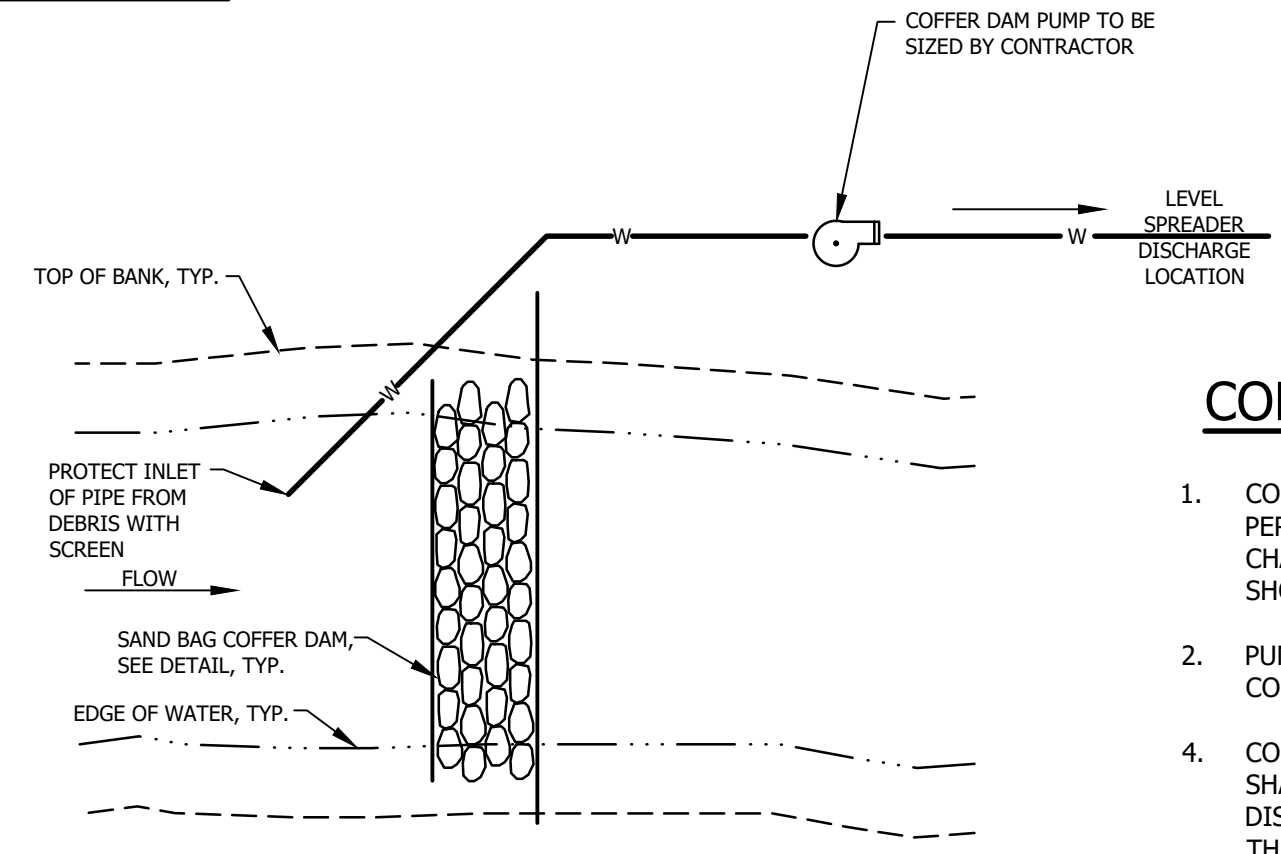
RESTORATION AT PERENNIAL STREAM SECTION
NOT TO SCALE



TERMINAL UNIT TYPE G-2
PER NHDOT SPECIFICATIONS
ITEM NO. 606.147



SLOPED STONE ARMOR DETAIL
NOT TO SCALE



COFFER DAM
NOT TO SCALE

COFFER DAM NOTES

1. CONSTRUCTION IS TO OCCUR DURING PERIOD OF LOW FLOWS IN BROOK CHANNEL. INSTALL LEVEL SPREADER AS SHOWN FOR DISCHARGE LOCATION.
2. PUMP SHALL BE SIZED BY THE CONTRACTOR.
3. CONSTRUCTION WITHIN THE CHANNEL SHALL NOT EXCEED THE ALLOWABLE DISTURBANCE AREA AS DESCRIBED IN THE STREAM ALTERATION PERMIT.
4. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONTROLLING EROSION IN ALL AREAS DISTURBED BY HIS ACTIONS. COSTS FOR REQUIRED EROSION CONTROL, REGARDLESS OF WHETHER OR NOT SUCH MEASURES ARE SHOWN ON THE ENGINEERING DRAWINGS, SHALL BE BORNE BY HIM.

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DETAILS

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PROJECT #: 230740

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SHEET 5 OF 6

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SEEDING RECOMMENDATIONS

- GRADING AND SHAPING**
A. SLOPES SHALL NOT BE STEEPER THAN 2:1; 3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
- SEEDBED PREPARATION**
A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE AMENDED WITH ORGANIC MATTER AND TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME THOROUGHLY INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
- ESTABLISHING VEGETATION**
A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
-AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ. FT.
-NITROGEN (N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ. FT.
-PHOSPHATE (P₂O₅), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ. FT.
-POTASH (K₂O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ. FT.
(NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10).
B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING, AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.

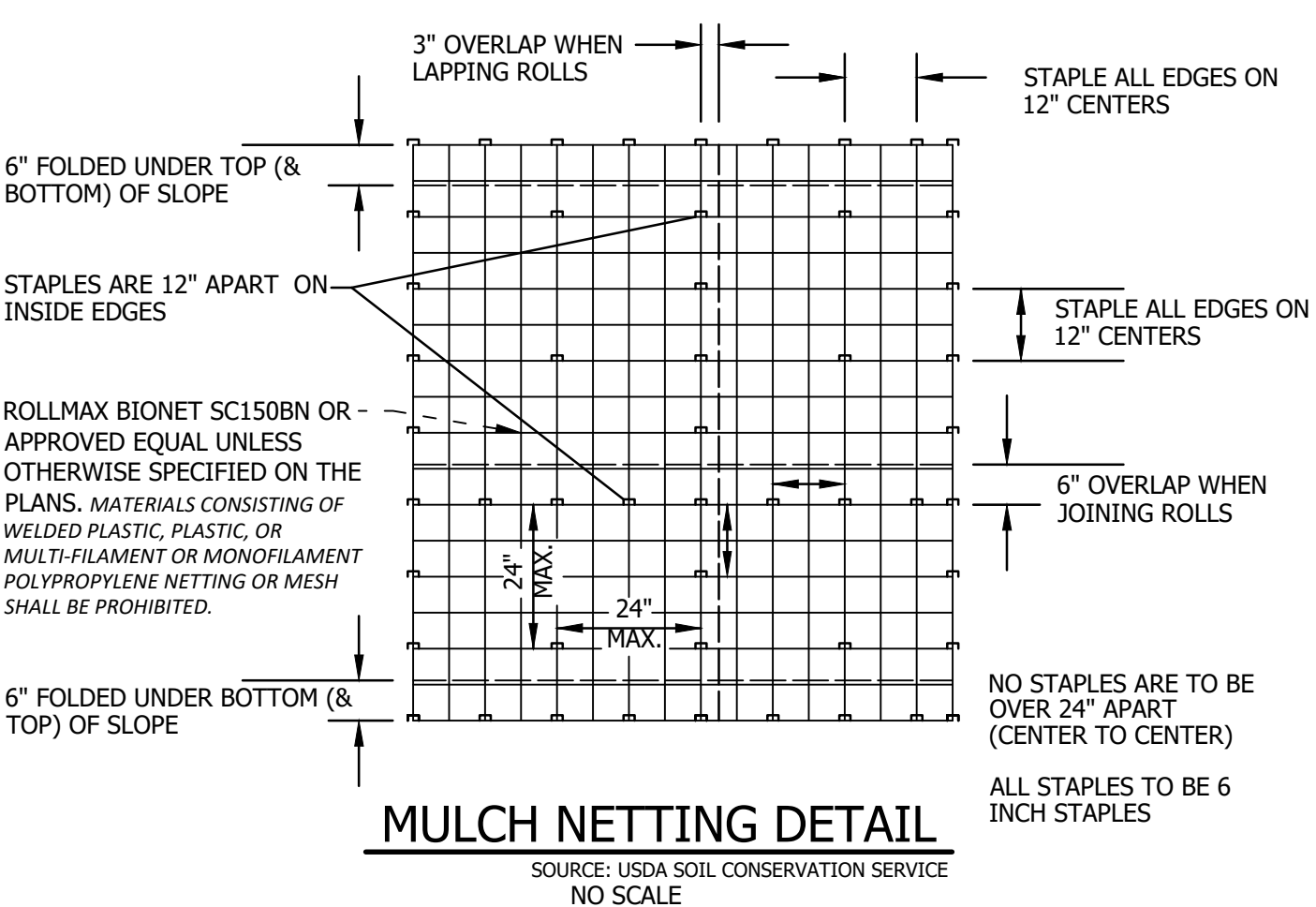
C. SEEDING GUIDE:

USE	SEEDING MIXTURE (SEE 3D)	SOIL TYPE			
		DROUGHTY	WELL DRAINED	MOD. WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	GOOD	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR

D. SEEDING RATES:

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 SQ. FT.
A TALL FESCUE	20	0.45
CREeping RED FESCUE	20	0.45
REDTOP	2	0.05
TOTAL:	42	0.95
B TALL FESCUE	15	0.35
CREeping RED FESCUE	10	0.25
CROWN VETCH OR FLATPEA	15 OR 30	0.35 OR 0.75
TOTAL:	40 OR 55	0.95 OR 1.35
C TALL FESCUE	20	0.45
FLATPEA	30	0.75
TOTAL:	50	1.20

- E. WHEN SEEDING AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO SEPTEMBER 15. WHEN SEEDING AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
- F. TEMPORARY SEEDING RATES:
- | SPECIES | POUNDS PER ACRE | POUNDS PER 1,000 SQ. FT. | REMARKS |
|--------------------|-----------------|--------------------------|---|
| WINTER RYE | 112 | 2.5 | BEST FOR FALL SEEDING. SEED FROM AUGUST TO SEPTEMBER 5TH FOR BEST COVER. SEED TO A DEPTH OF 1 INCH. |
| OATS | 80 | 2.0 | BEST FOR SPRING SEEDING. SEED NO LATER THAN MAY 15TH FOR SUMMER PROTECTION. SEED TO A DEPTH OF 1 INCH. |
| ANNUAL RYEGRASS | 40 | 1.0 | GROWS QUICKLY, BUT IS OF SHORT DURATION. USE WHERE APPEARANCES ARE NOT IMPORTANT. SEED EARLY SPRING AND/OR BETWEEN AUGUST 15TH AND SEPTEMBER 15TH. COVER SEED WITH NO MORE THAN 0.25 INCH OF SOIL. |
| PERENNIAL RYEGRASS | 30 | 0.7 | GOOD COVER WHICH IS LONGER LASTING THAN ANNUAL RYEGRASS. SEED BETWEEN APRIL 1ST AND JUNE 1ST AND/OR BETWEEN AUGUST 15TH AND SEPTEMBER 15TH. MULCHING WILL ALLOW SEEDING THROUGHOUT THE GROWING SEASON. SEED TO A DEPTH OF APPROXIMATELY 0.5 INCH. |
- MULCH**
A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING.
 - MAINTENANCE TO ESTABLISH A STAND**
A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ON SITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

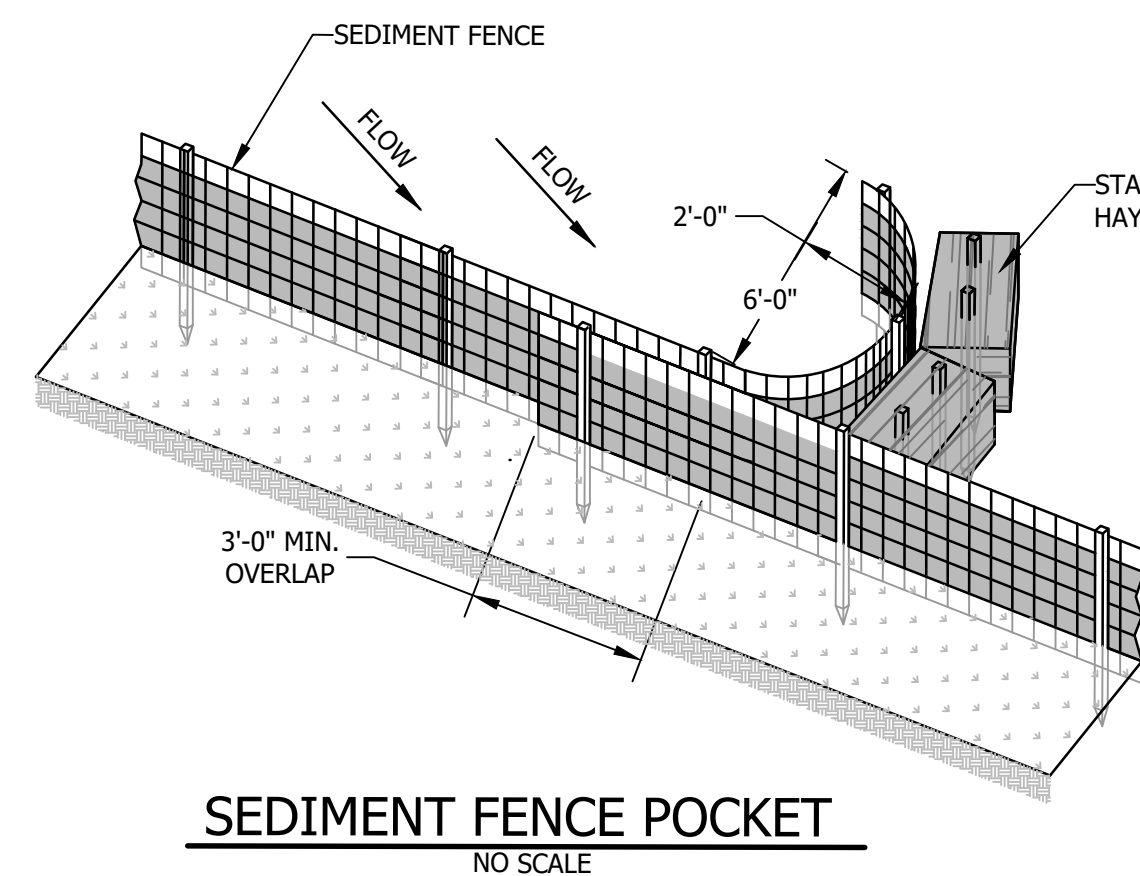
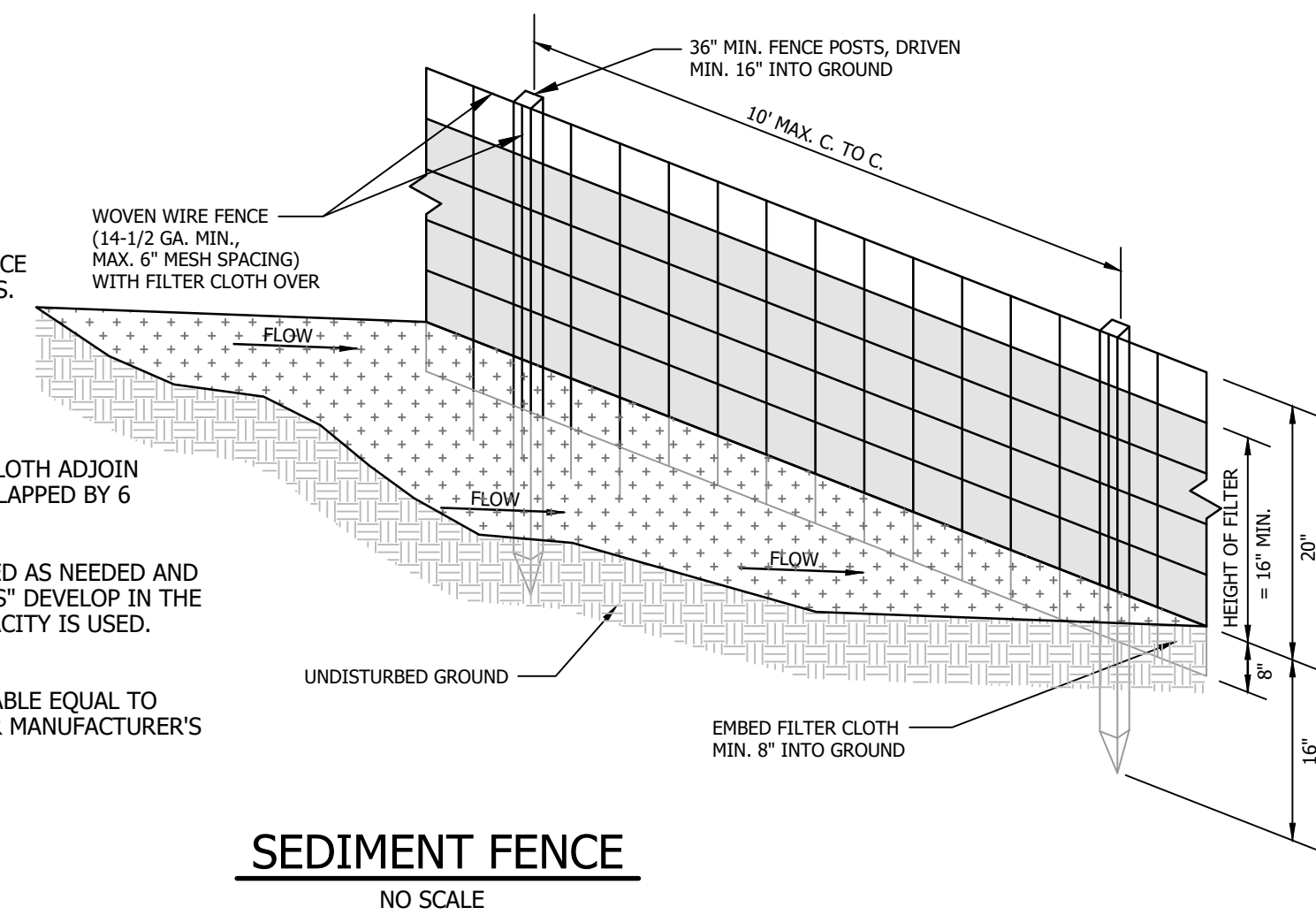


EROSION CONTROL GENERAL NOTES

- KEEP SITE MODIFICATION TO A MINIMUM**
1. CONSIDER FITTING THE BUILDINGS AND STREETS TO THE NATURAL TOPOGRAPHY. THIS REDUCES THE NEED FOR CUTS AND FILLS. AVOID EXTENSIVE GRADING THAT WOULD ALTER DRAINAGE PATTERNS OR CREATE VERY STEEP SLOPES.
2. EXPOSE AREAS OF BARE SOIL TO EROSION ELEMENTS FOR THE SHORTEST TIME POSSIBLE.
3. SAVE AND PROTECT DESIRABLE EXISTING VEGETATION WHERE POSSIBLE. ERECT BARRIERS TO PREVENT DAMAGE FROM CONSTRUCTION EQUIPMENT.
4. LIMIT THE GRADES OF SLOPES SO VEGETATION CAN BE EASILY ESTABLISHED AND MAINTAINED.
5. AVOID SUBSTANTIAL INCREASE IN RUNOFF LEAVING THE SITE.
- MINIMIZE POLLUTION OF WATER DURING CONSTRUCTION ACTIVITIES**
1. STOCKPILE TOPSOIL REMOVED FROM CONSTRUCTION AREA AND SPREAD OVER ANY DISTURBED AREAS PRIOR TO REVEGETATION. TOPSOIL STOCKPILES MUST BE PROTECTED FROM EROSION.
2. PROTECT BARE SOIL AREAS EXPOSED BY GRADING ACTIVITIES WITH TEMPORARY VEGETATION OR MULCHES.
3. USE SEDIMENT BASINS TO TRAP DEBRIS AND SEDIMENT WHICH WILL PREVENT THESE MATERIALS FROM MOVING OFF SITE.
4. USE DIVERSIONS TO DIRECT WATER AROUND THE CONSTRUCTION AREA AND AWAY FROM EROSION PRONE AREAS TO POINTS OF SAFE DISPOSAL.
5. USE TEMPORARY CULVERTS OR BRIDGES WHEN CROSSING STREAMS WITH EQUIPMENT.
6. PLACE CONSTRUCTION FACILITIES, MATERIALS, AND EQUIPMENT STORAGE AND MAINTENANCE AREAS AWAY FROM DRAINAGE WAYS.
- PROTECT AREA AFTER CONSTRUCTION**
1. ESTABLISH GRASS OR OTHER SUITABLE VEGETATION ON ALL DISTURBED AREAS. SELECT SPECIES ADAPTED TO THE SITE CONDITIONS AND THE FUTURE USE OF THE AREA. FINAL GRADES SHALL BE SEED WITHIN 72 HOURS. STABILIZATION SHALL BE DEFINED AS 85% VEGETATIVE COVER.
2. MAINTAIN VEGETATED AREAS USING PROPER VEGETATIVE 'BEST MANAGEMENT PRACTICES' DURING THE CONSTRUCTION PERIOD.
3. MAINTAIN NEEDED STRUCTURAL 'BEST MANAGEMENT PRACTICES' AND REMOVE SEDIMENT FROM DETENTION PONDS AND SEDIMENT BASINS AS NEEDED.
4. DETERMINE RESPONSIBILITY FOR LONG TERM MAINTENANCE OF PERMANENT 'BEST MANAGEMENT PRACTICES'.
5. IF CONSTRUCTION IS ANTICIPATED DURING WINTER MONTHS, REFER TO 'COLD WEATHER SITE STABILIZATION REQUIREMENTS'.
- INVASIVE SPECIES AND FUGITIVE DUST**
1. THE PROJECT SHALL NOT CONTRIBUTE TO THE SPREAD OF INVASIVE SPECIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EVALUATE WORK AREAS FOR THE PRESENCE OF INVASIVE SPECIES, AND IF FOUND SHALL TAKE NECESSARY MEASURES TO PREVENT THEIR SPREAD IN ACCORDANCE WITH RSA 430:51-57 AND AGR 3800. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT THE INTRODUCTION OF INVASIVE SPECIES BY INSPECTING AND CLEANING ALL EQUIPMENT ARRIVING ON SITE.
2. FUGITIVE DUST SHALL BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000.

CONSTRUCTION NOTES FOR SEDIMENT FENCE

- WOVEN WIRE FENCE, IF REQUIRED, TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP, MID SECTION, AND BOTTOM.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN 'BULGES' DEVELOP IN THE SEDIMENT FENCE, OR 50% OF CAPACITY IS USED.
- 12" DIAMETER FILTREXX SILT/SOXX SHALL BE CONSIDERED AN ACCEPTABLE EQUAL TO SEDIMENT FENCE IF INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.



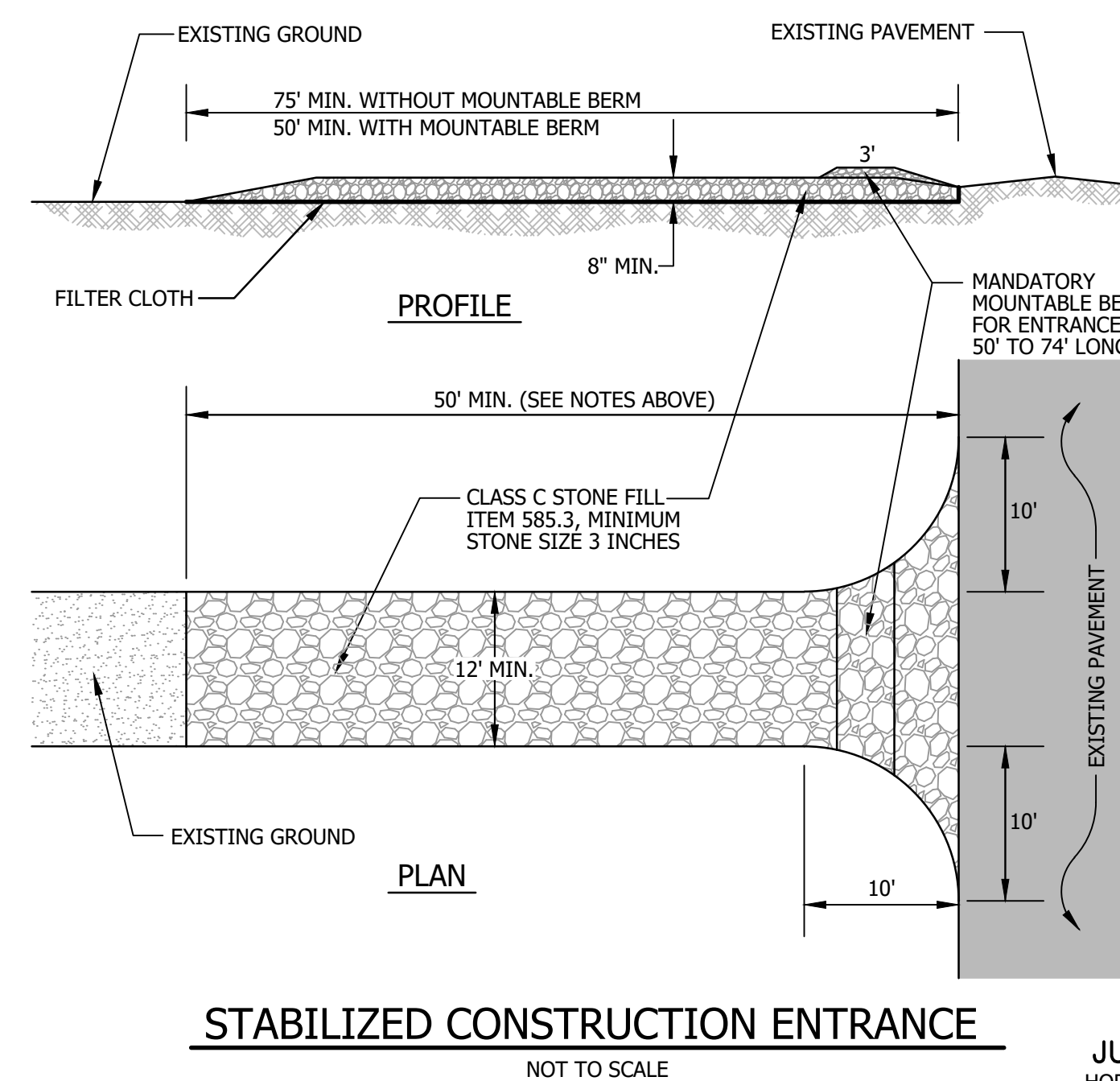
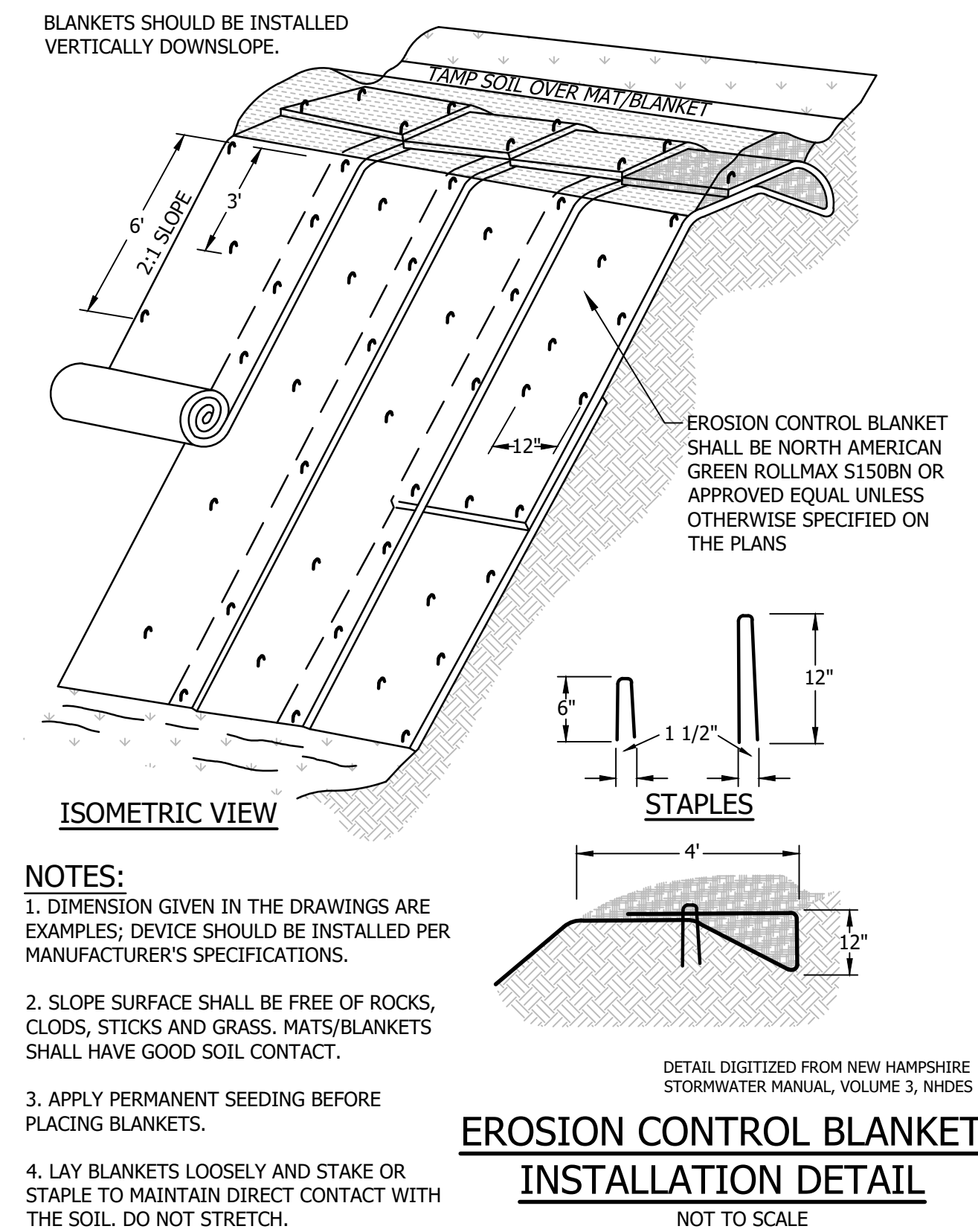
COLD WEATHER SITE STABILIZATION REQUIREMENTS

TO ADEQUATELY PROTECT WATER QUALITY DURING COLD WEATHER AND DURING SPRING RUNOFF, THE FOLLOWING ADDITIONAL STABILIZATION TECHNIQUES SHALL BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15 THROUGH MAY 1:

- THE AREA OF EXPOSED, UNSTABILIZED SOIL SHALL BE LIMITED TO 1 ACRE AND SHALL BE PROTECTED AGAINST EROSION BY THE METHODS DESCRIBED IN THIS SECTION PRIOR TO ANY THAW OR SPRING MELT EVENT. THE ALLOWABLE AREA OF EXPOSED SOIL MAY BE INCREASED IF A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY NHDES.
- ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE, SECURED WITH ANCHORED NETTING OR TACKIFIER, OR 2 INCHES OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H).
- ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF GREATER THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE SEED AND COVERED WITH PROPERLY INSTALLED AND ANCHORED EROSION CONTROL MATTING OR WITH A MINIMUM 4 INCH THICKNESS OF EROSION CONTROL MIX MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H).
- INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX, MEETING THE CRITERIA OF ENV-WQ 1506.05(D) THROUGH (H), SHALL NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH.
- INSTALLATION OF EROSION CONTROL MATTING SHALL NOT OCCUR OVER SNOW OF GREATER THAN ONE INCH IN DEPTH OR ON FROZEN GROUND.
- ALL PROPOSED STABILIZATION IN ACCORDANCE WITH NOTES 2 OR 3 ABOVE, SHALL BE COMPLETED WITHIN 1 DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS, AS DETERMINED BY THE OWNER'S ENGINEERING CONSULTANT.
- AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING AREAS WHERE ACTIVE CONSTRUCTION OF THE ROAD OR PARKING AREA HAS STOPPED FOR THE WINTER SEASON SHALL BE PROTECTED WITH A MINIMUM 3 INCH LAYER OF BASE COURSE GRAVELS MEETING THE GRADATION REQUIREMENTS OF NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM NO. 304.1 OR 304.2.

LEVEL LIP SPREADER INSTALLATION

- CONSTRUCT THE LEVEL SPREADER LIP ON A ZERO PERCENT GRADE TO INSURE UNIFORM SPREADING OF RUNOFF.
- LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL AND NOT ON FILL.
- AN EROSION STOP SHALL BE PLACED VERTICALLY A MINIMUM OF SIX INCHES DEEP IN A SLIT TRENCH ONE FOOT BACK OF THE LEVEL LIP AND PARALLEL TO THE LIP. THE EROSION STOP SHALL EXTEND THE ENTIRE LENGTH OF THE LEVEL LIP.
- THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING TWO STRIPS OF JUTE OR EXCELSIOR MATTING ALONG THE LIP. EACH STRIP SHALL OVERLAP THE EROSION STOP BY AT LEAST SIX INCHES.
- THE ENTRANCE CHANNEL TO THE LEVEL SPREADER SHALL NOT EXCEED A 1 PERCENT GRADE FOR AT LEAST 50 FEET BEFORE ENTERING INTO THE SPREADER.
- THE FLOW FROM THE LEVEL SPREADER SHALL OUTLET ONTO STABILIZED AREAS. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
- PERIODIC INSPECTION AND REQUIRED MAINTENANCE SHALL BE PERFORMED.
- PROTECTIVE MATERIAL AND EROSION STOP SHALL BE NORTH AMERICAN GREEN C125 EROSION CONTROL BLANKET OR APPROVED EQUAL.



CONSTRUCTION SEQUENCE

- PREPARE AN EROSION CONTROL PLAN OR A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
 - INSTALL CONSTRUCTION ENTRANCE, SEE DETAIL.
 - CUT AND CLEAR TREES WITHIN THE CLEARING LIMITS.
 - INSTALL SEDIMENT FENCES, ROCK CHECK DAMS, AND OTHER APPROPRIATE EROSION CONTROL MEASURES AT LOCATIONS SHOWN ON THE PLANS AND AS NEEDED.
 - GRUB SITE WITHIN GRADING LIMITS.
 - STRIP AND STOCKPILE TOPSOIL AND INSTALL EROSION CONTROL MEASURES.
 - INSTALL/ADJUST SEDIMENT FENCE, CHECK DAMS, AND HAYBALES, AS REQUIRED.
 - CONSTRUCT PERMANENT STORMWATER CONTROLS AS SOON AS PRACTICAL. DO NOT DIRECT STORMWATER TOWARD TREATMENT BASINS, PONDS, SWALES, DITCHES AND LEVEL SPREADERS UNTIL THEY HAVE BEEN STABILIZED.
 - PROCEED WITH WORK, LIMITING THE DURATION OF DISTURBANCE. THE MAXIMUM OF UNCOVERED DISTURBED EARTH AT ANY ONE TIME IS FIVE ACRES. THE MAXIMUM LENGTH OF TIME THAT DISTURBED EARTH MAY BE LEFT UNSTABILIZED IS 45 DAYS.
 - BEGIN SEEDING AND MULCHING IMMEDIATELY AFTER GRADING. ALL DISTURBED AREAS SHALL BE STABILIZED WITH APPROVED METHODS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR
D) EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- INSPECT ALL EROSION CONTROL MEASURES ON A DAILY BASIS AND AFTER EVERY 0.5 INCHES OF PRECIPITATION. MAINTAIN SEDIMENT FENCE, SEDIMENT TRAPS, HAY BALES, ETC., AS NECESSARY.
 - PAVE ROADWAYS AND/OR PARKING AREAS.
 - PLACE TOPSOIL, SEED AND MULCH.
 - COMPLETE ALL REMAINING PERMANENT EROSION CONTROL STRUCTURES.
 - MONITOR THE SITE AND MAINTAIN STRUCTURES AS NEEDED UNTIL FULL VEGETATION IS ESTABLISHED.
 - NO REFUELING OF EQUIPMENT SHALL OCCUR WITHIN JURISDICTIONAL WETLANDS.
 - NO STORAGE OF FUEL SHALL OCCUR WITHIN 25 FEET OF JURISDICTIONAL WETLANDS.

FOR CONSTRUCTION

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LITTLETON, NEW HAMPSHIRE

EROSION CONTROL NOTES AND DETAILS

NO.	DATE	REVISION DESCRIPTION	ENG	DWG
1	06/2024	RFI 1 RESPONSE - REMOVED WETLANDS IMPACTS, RECALCULATED DISTURBANCES	CLB	CLB

DATE: JUNE 2024 PROJECT #: 230740
 ENG'D BY: CLB DRAWN BY: CLB
 CHECK'D BY: MLB ARCHIVE #: H-
 SHEET 6 OF 6

DATE OF PRINT: JUNE 25 2024
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