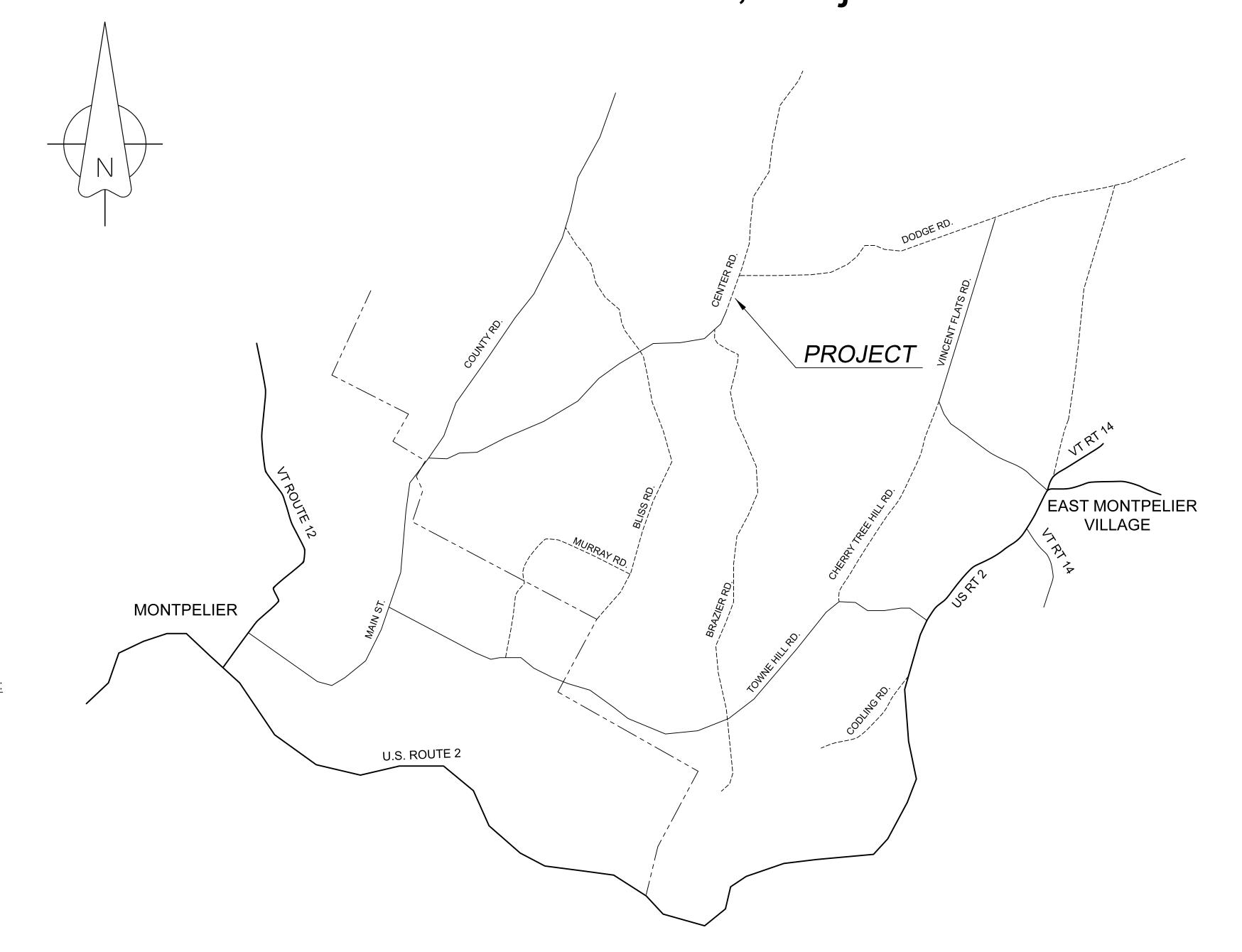
STATE OF VERMONT WASHINGTON COUNTY

TOWN OF EAST MONTPELIER

T.H. 3, - Culvert Upgrade
TH Structures Grant Program
FY 2018, Project BC 1853



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Project plans prepared through joint efforts of the following:

Newton Technical Services, LLC 728 South Barre Road Barre, VT 05641 (802) 476-6900

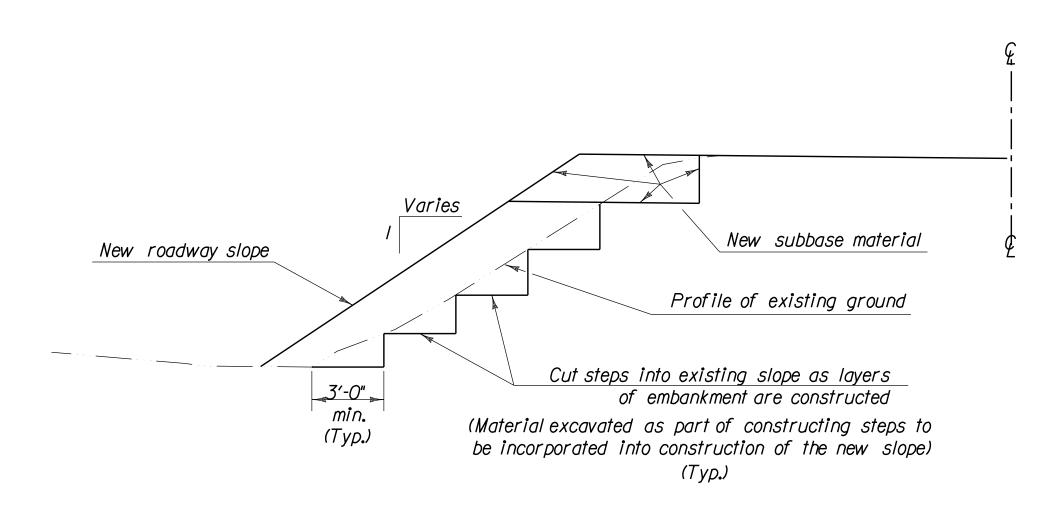
Contech Engineered Solutions LLC 9025 Centre Pointe Drive West Chester, OH 45069

Chase & Chase Surveyors & Septic Designers, Inc. 301 North Main St., Suite 301 Barre, VT 05641 (802) 479-9636

Town of East Montpelier 40 Kelton Road PO Box 157 East Montpelier, VT 05651 (802)223-3313

Item No.	Item Name	Unit	Total
201.10	Clearing and Grubbing Including Individual Trees and Stumps	LUMP SUM	1
203.15	Common Excavation	CY	350
203.27	Unclassified Channel Excavation	CY	520
204.20	Trench Excavation of Earth	CY	18
204.25	Structure Excavation	CY	670
204.30	Granular Backfill for Structures	CY	305
<i>301.35</i>	Subbase of Dense Graded Crushed Stone	CY	205
401.10	Aggregate Surface Course	CY	75
601.0915	18" Corrugated Polyethylene Pipe (HDPE)	LF	20
604.18	Precast Reinforced Concrete Drop Inlet with Grate	EACH	1
608.25	All Purpose Excavator Rental, Type I	HOURS	10
6/3./0	Stone Fill, Type I	CY	40
613.11	Stone Fill, Type II	CY	65
613.12	Stone Fill, Type III	CY	95
619.16	Steel Marker Posts	EACH	2
621.205	Steel Beam Guardrail, Galvanized with 8' Posts	LF	358
621.60	Anchor for Steel Beam Guardrail	EACH	4
635.//	Mobilization/Demobilization	LUMP SUM	1
641.10	Traffic Control	LUMP SUM	1
649.11	Geotextile for Roadbed Separator (for use under bed for new structure)	SY	129
649.31	Geotextile under Stone Fill	SY	400
651.40	Grubbing Material	SY	65
	9'-7" x 6'-6" x 64'-6" Aluminum Pipe Arch (9" x 2 1/2" corrugations) **		
	Erosion Prevention and Sediment Control	LUMP SUM	1
	Temporary Stream Diversion	LUMP SUM	1
	Assembly of New Structure	LUMP SUM	1
	Installation of New Structure	LUMP SUM	1
	Wetlands Restoration Work	LUMP SUM	1
	Streambed Stone Fill, Type E2	CY	71
	Turf Establishment (Seed, Fertilizer, Mulch, Erosion Matting, etc.)	LUMP SUM	,

(Not a bid item - town will purchase) *

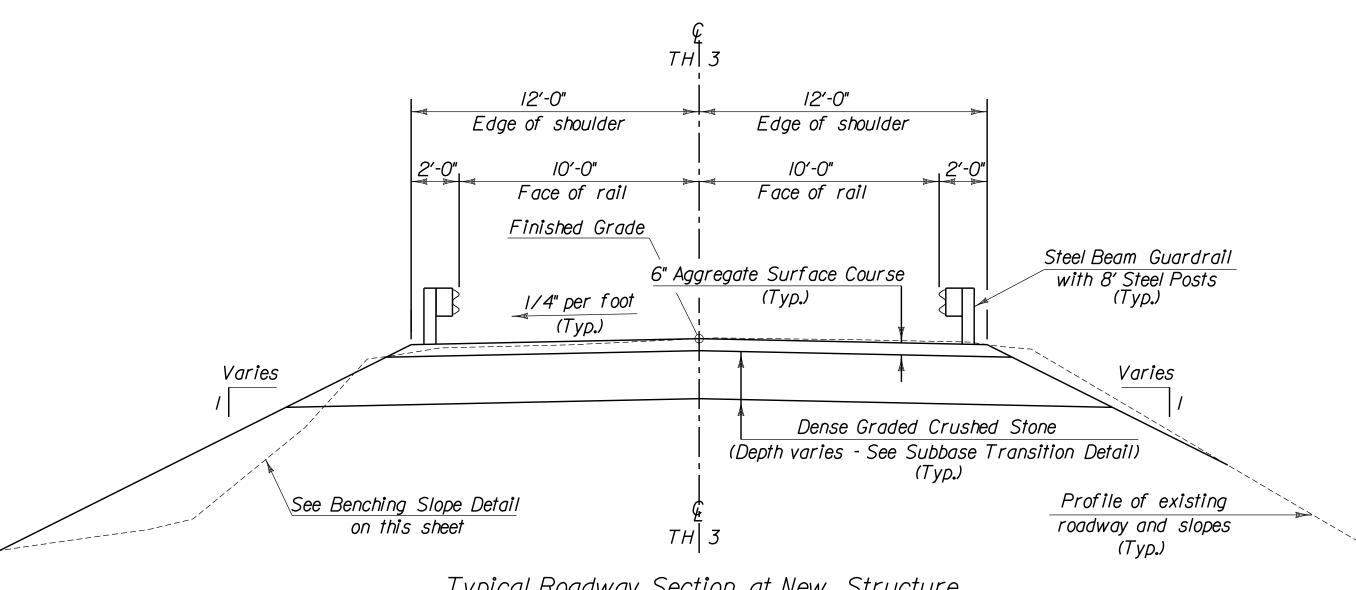


DETAILS FOR BENCHING OF EXISTING SLOPES Not to Scale

NO.	REVISIONS	ВҮ	DATE DES DWN	DATE	SCAL E	Town of East Montpelier
			DRN DWN	November 2020	As Noted	TH 3 — Center Road
			CHK DWN			TH Structures Grant Program
			APPD			FY 2018 BC 1853

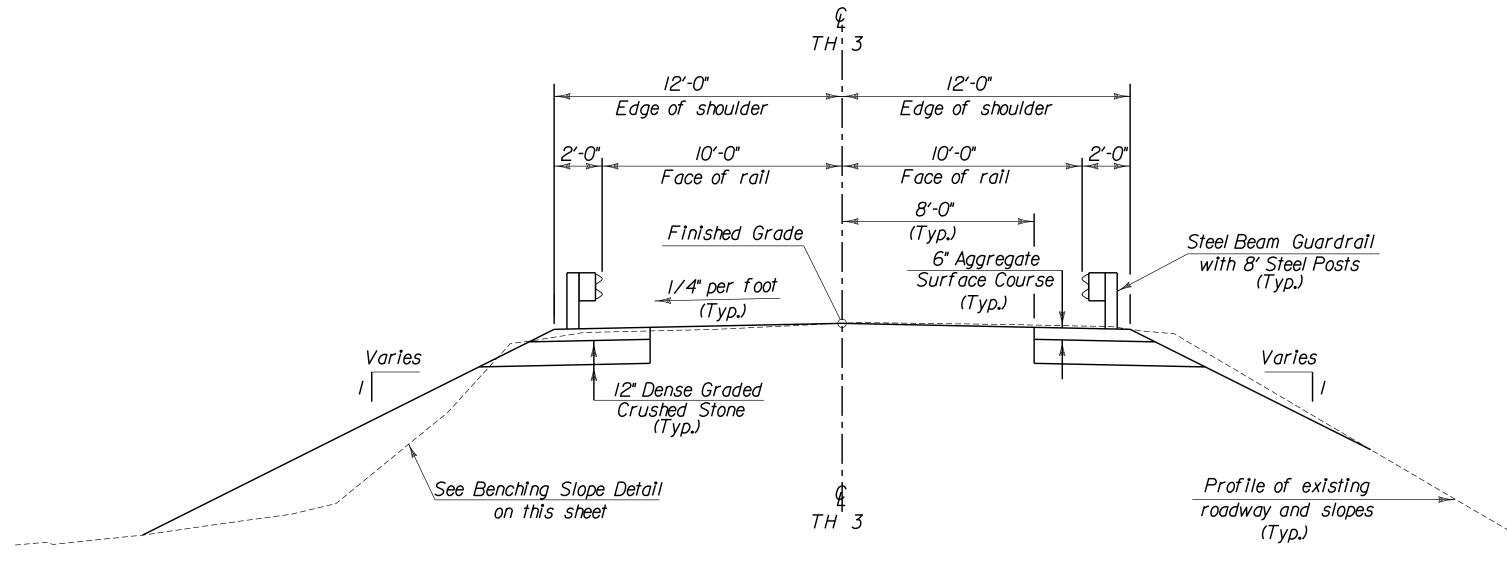
FILL AVAILABLE: 280 COMMON EXCAVATION (350 CY X 0.8) 156 UNCLASSIFIED EXCAVATION (520 CY X 0.3) TRENCH EXCAVATION OF EARTH (18 CY X 0.5) 335 STRUCTURE EXCAVATION (670 CY X 0.5) ROUNDING 780 TOTAL FILL AVAILABLE: CY85 FILL REQUIRED: 97.75 FACTORED FILL (85 CY X 1.15) 0.25 ROUNDING CY98 TOTAL FILL REQUIRED: 682 CY EXCESS MATERIAL (WASTE)

EARTHWORKS SUMMARY

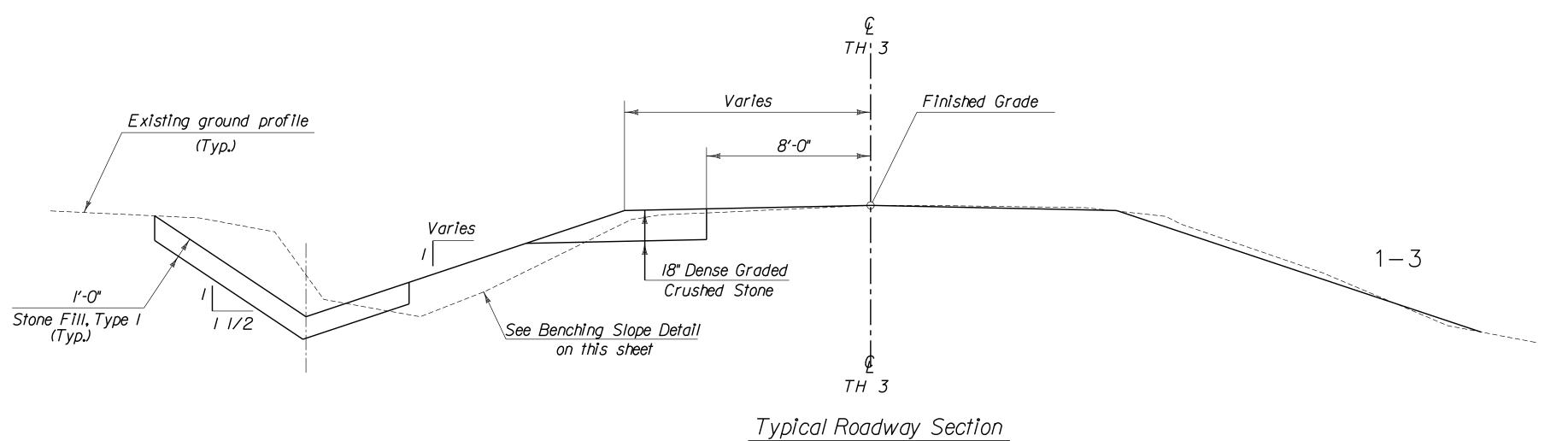


Typical Roadway Section at New Structure

Sta. 1+32.50 - Sta. 2+07.50



Typical Roadway Section
Sta. 2+07.50 - Sta. 3+25



Sta.0+75 Lt.- Sta.1+25 Lt.

Quantity Sheet Typical Sections	Newton Technical Service 728 South Barre Road
Details for Benching Existing Slope	Barre, VT 05641 (802) 476-6900

Chase & Chase Surveyors & Septic Designers, Inc. 301 North Main St., Suite 301 Barre, VT 05641 (802) 479-9636

SHEET 2 OF 23

GENERAL NOTES

SPECIFICATIONS

All work shall be carried out in accordance with the Vermont Agency of Transportation Standard Specifications for Construction dated 2011 and approved by the Federal Highway Administration on July 20,2011, including all subsequent revisions and revised specifications.

Any work done shall also comply with the latest version of the State of Vermont Standards for Town Highway Maintenance and Grading Guidelines and any other highway-related policies and guidelines as adopted by the Town of East Montpelier.

UTILITIES & DIG-SAFE

The Contractor is responsible for contacting Dig-Safe and locating any underground utilities prior to any work being done.

PERMITS

The Contractor is advised that all in-stream work shall be accomplished between the dates of July Land October 1,20XX as stated in the permits issued by the U.S. Army Corps of Engineers and the Vermont Agency of Natural Resources, Department of Environmental Conservation.

TRAFFIC CONTROL

Town Highway 3 will be closed to traffic during the project. Once installation of the new structure is complete, and TH 3 has been reconstructed to safely accommodate a minimum of one-way traffic (alternating in each direction), including school bus traffic, farm-related traffic and truck traffic, it shall remain open for the duration of the project. The Contractor shall furnish, erect and maintain the required signs and barricades to inform the public that TH 3 is temporarily closed to traffic during construction and to direct traffic accordingly. Signs that may be appropriate to use may include "ROAD WORK AHEAD", "ROAD CLOSED", "NO THRU TRAFFIC", etc.

The Contractor is responsible for contacting Dig-Safe and locating any underground utilities if any signs are mounted on posts. All costs associated with this work shall be subsidiary to the Item, Traffic Control.

All signs, barrels, cones, etc. used for Traffic Control operations shall be in compliance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD).

All work, including all labor, material, signs, cones, barrels, etc. shall fall under the Item, Traffic Control.

EROSION PREVENTION & SEDIMENT CONTROL

In an effort to prevent erosion and to control sediment, the Contractor is required to provide all necessary temporary erosion control measures. Any silt fence installed by the Contractor will be removed by the Town once the project has stabilized. The costs associated with providing all erosion prevention and sediment control measures shall be included in the Item, Erosion Prevention and Sediment Control. See the Erosion Control Details on Sheets 4 and 5.

The Contractor is required to mark out the limits of disturbance for the project and for the existing Class II wetlands on the upstream end of the project; see Detail I on Sheet 5. No trespassing, storage of equipment or material, or any other activities not shown on these plans will be allowed within the limits of the Class II wetlands area. The Contractor shall remove all markings when the project is complete. All costs associated with this work shall be considered subsidiary to the Item, Mobilization/Demobilization.

HORIZONTAL & VERTICAL ALIGNMENTS

The project will be constructed using both the existing horizontal and vertical alignments on TH 3.

CLEARING & GRUBBING

The cost of cutting and removing any trees, stumps, brush or other material that is within the project limits shall be covered under the Item, Clearing and Grubbing, including Individual Trees and Stumps. If so desired, any trees removed that are suitable for either saw logs or firewood shall be cut into reasonable lengths, piled, and left on the project for the respective landowner; otherwise all such material shall become the property of the Contractor and removed from the project.

CONTROL OF INVASIVE SPECIES

The Contractor shall take all necessary precautions to avoid the spread of any and all invasice species such as Japanese knotweed, buckthorn, etc. found on the project, or in any material either brought into, or removed from the jobsite.

BORINGS & TEST HOLES

Twelve borings have been taken at this site, but only Borings No.7A-12 apply to the location of the new structure; the location of, and the information from those boring logs is included on Sheet 13 in the plans. Information relative to Borings 1-6 taken in the vicinity of Sta. 2+20 is available upon request.

TEMPORARY STREAM DIVERSION

The Contractor is responsible for providing any temporary diversion of the stream that is required and, for maintaining that diversion until no longer needed. The Contractor is also responsible for ensuring that all in-stream work is accomplished within the timeframe outlined in the permits issued for the project and in a dewatered channel, i.e. "in the dry". Performing that work may result in using either a temporary channel, a bypass culvert, sandbags, a cofferdam system and pumps or a combination of each.

Despite which method or combination of methods that are used, the cost of this work shall fall under the Item, Temporary Stream Diversion, and all work shall comply with all permits issued for the project.

EXISTING STRUCTURE

The existing stone box culvert shall remain intact and in-place; the Contractor is not allowed to conduct any operations that will jeopardize the integrity of the existing structure.

NEW STRUCTURE

The Town will purchase the new aluminum pipe arch and related components for the project and have the material delivered to the town.

The Town will assist in loading the material onto the Contractor's equipment to get the material to the jobsite. The Contractor is responsible for the unloading, storage and security of the material on the project.

The new aluminum pipe arch, headwalls and wingwalls are fabricated as a series of flat and curved plates; all plates are corrugated. The new aluminum pipe arch including, the headwalls, wingwalls, and all of the related components, shall be assembled according to the details and notes included in the shop drawings furnished by CONTECH Engineered Solutions, LLC (CONTECH) and included in the plans.

The Contractor is required to submit a price for assembling all the components involved. CONTECH will also submit a price for assembly, and based on cost and other considerations, The Town will decide whether they want the Contractor or CONTECH to assemble the components.

CONTECH will furnish the aluminum baffles, related brackets, aluminum angles and all necessary hardware for the Contractor to use when attaching the baffles to the invert of the structure.

All of this work will fall under the Item, Assembly of New Structure and shall also include any other necessary field drilling, trimming and/or fabrication, etc. that is required. The Contractor's attention is called to General Note No.5 on Sheet 18 which states in part that "since torqueing may looses previously tightened fasteners, multiple passes may be necessary." Although every attempt has been made to ensure the accuracy of the Estimated Quantities shown in the plans, they are not guaranteed; they are provided as a basis

NEW STRUCTURE (cont'd.)

The bed for the new structure shall be undercut I'-O" as shown on the plans; once the bottom of the undercut has been graded and compacted, geotextile fabric meeting the requirements of Item 649, I Geotextile for Roadbed Separator shall be placed on that surface and the area backfilled with material meeting the requirements of Item 204.30, Granular Backfill for Structures.

If the new aluminum pipe arch, headwalls, and wingwalls are not assembled in place, the Contractor shall be responsible for furnishing the necessary equipment and rigging capable of safely and adequately lifting and setting all of the components to the line and grade shown on the plans. All costs associated with this work shall be included in the Item. Installation of New Structure.

The Contractor is required to fill the invert of the new structure to a depth of 2'-0" with material meeting the requirements of Streambed Stone Fill, Type E2 as required by ANR's River Management Engineer. The material specifications for that material are shown on Sheet 15 and a quantity of that material is included in the project's quantities. Care shall be taken not to damage the new structure during the process.

Once installed in place, and if necessary and/or required by the Town, the Contractor shall be responsible for trimming the height of the aluminum headwalls and/or wingwalls to an elevation that fits the finished project; this work shall be accomplished prior to the caps being installed on either the headwall or wingwall panels. IF the Contractor is selected to do the assembly work, this work shall also fall under the Item, Assembly of New Structure: otherwise it will be considered subsidiary to all other items on the

The new structure shall be backfilled and compacted per VT Agency of Transportation Specification 601.08. Lifts of backfill material shall be brought up evenly and compacted on both sides of the new structure, and at no time, shall the depth of the backfill on one side of the new structure be any higher than 2 feet than the lift on the other side. Material used for backfilling shall be clean, free-draining, granular material meeting the VT AOT Material Specification 704.08.

The new structure shall have a minimum of 4' of cover over the top of it prior to any construction equipment being allowed to cross over the structure.

The scour hole at the outlet end of the new structure shall be filled in with material meeting the requirements of Streambed Stone Fill. Type E2 as required by ANR's River Management Engineer. The specifications for that material are shown on Sheet 15 and a quantity of that material is included in the project's quantites. This work shall also be done prior to turning the water back thru the new structure.

STONE FILL

Stone Fill, Type II shall be used to protect any disturbed channel banks or roadway slopes at the inlet and Stone Fill, Type III shall be used in the same manner at the outlet of the new structure. Stone Fill placed on the banks of the channel shall be placed on Geotextile Fabric for Stone Fill and shall be placed up to a height of at least one foot above the top of the opening but it shall not constrict the channel, or the opening of the structure. This work shall be done in conjunction with the work associated with the Item, Wetlands Restoration Work and shall be done prior to turning the water back thru the new structure.

EARTHWORKS

All excess, suitable material from the excavation shall be used to construct the fill sections on the project. Newly constructed fill slopes shall be as shown on the plans and have a minimum slope of I on 1.5 (I verical to 1.5 horizontal) unless shown otherwise. If there is any excess material remaining, it shall first be offered to the Town; if they don't need it, it shall become the property of the Contractor and be disposed of in an approved manner.

To reduce the chance of creating a shear plane, new material used to construct the fill slopes shall be "benched" into the existing ground as shown in the details on Sheet 2 in the plans.

SUBBASE MATERIAL

Once the roadway fill is brought to subgrade elevation, graded and compacted, and any related box cut excavation has been done, the Contractor shall place, grade, and compact Dense Graded Crushed Stone as shown in the Subbase Transition Detail on Sheet, and on the roadway cross sections. The material shall meet the VT AOT Material Specification 704.06A. The 24" depth of material shall be placed in two or more equal lifts with each lift being graded and compacted. Six inches of material meeting the VT AOT Material Specification 704.12 for Aggregate Surface Course shall be placed, graded, and compacted on top of the Dense Graded Crushed Stone. GUARDRAIL

New standard steel beam guard rail, with 8'-0" steel posts and composite offset blocks, and Anchors for Steel Beam Guardrail shall be installed as shown on the plans.

WETLANDS RESTORATION WORK

The Contractor is responsible for accomplishing the work involved with the Item, Wetlands Restoration Work; see Sheets 6, 6,1, and 7 for a description of that work. Furnishing the concrete traffic barrier section, together with any required equipment, excavation, material, etc. needed to install that unit near the inlet end of the existing stone box, shall be included in that Item; see Sheet 7 for additional information and details.

All of the wetlands restoration work shall be done in a manner that minimizes any impacts on the adjacent stream, and other areas adjacent to that work.

TURF ESTABLISHMENT

The Contractor is responsible for providing turf establishment (seed, fertilizer, erosion matting, mulch, etc.) on all disturbed areas as required; this work will fall under the Item, Turf Establishment; see Seeding Formula on Sheet 12.

COMPLETION DATE

The Project has a completion date of

BIDS, INSURANCE & MISCELLANEOUS

The Town will open, examine, and review all bids that are submitted, and will make a decision on which bid to accept. Once the project is awarded to a Contractor, and the Contractor agrees to accept the award, the Town may or may not draw up a contract for use between them and the Contractor. If used, once the contract is signed by both parties, the Contractor shall provide proof of liability insurance by furnishing the Town with a Certificate of Insurnace showing the Town as loss payee. The Contractor will also be required to furnish the Town with proof of workmen's comensation insurance.

Once all proof of insurance requirements are in place, the Town will issue a Notice to Proceed and the Contractor shall have until the completion date shown above to complete any and all work awarded by the Town of East Montpelier, but no work shall be done prior to the Town, Contractor and others holding a Pre-Construction meeting.

The Town of East Montpelier reserves the right to accept or reject any bid when deemed to be in the best interest of the Town.

All work shall be done under the supervision of the Town of East Montpelier, or under an authorized representative on behalf of the Town of East Montpelier. Unless otherwise noted, the Contractor shall submit a Lump Sum price for furnishing all the necessary tools, equipment and materials, and performing all the work

for the Contractor to prepare his/her Lump Sum bid price for the project, and for the Town of East Montpelier to compare the bids that are submitted.

General Notes

required to complete the project.

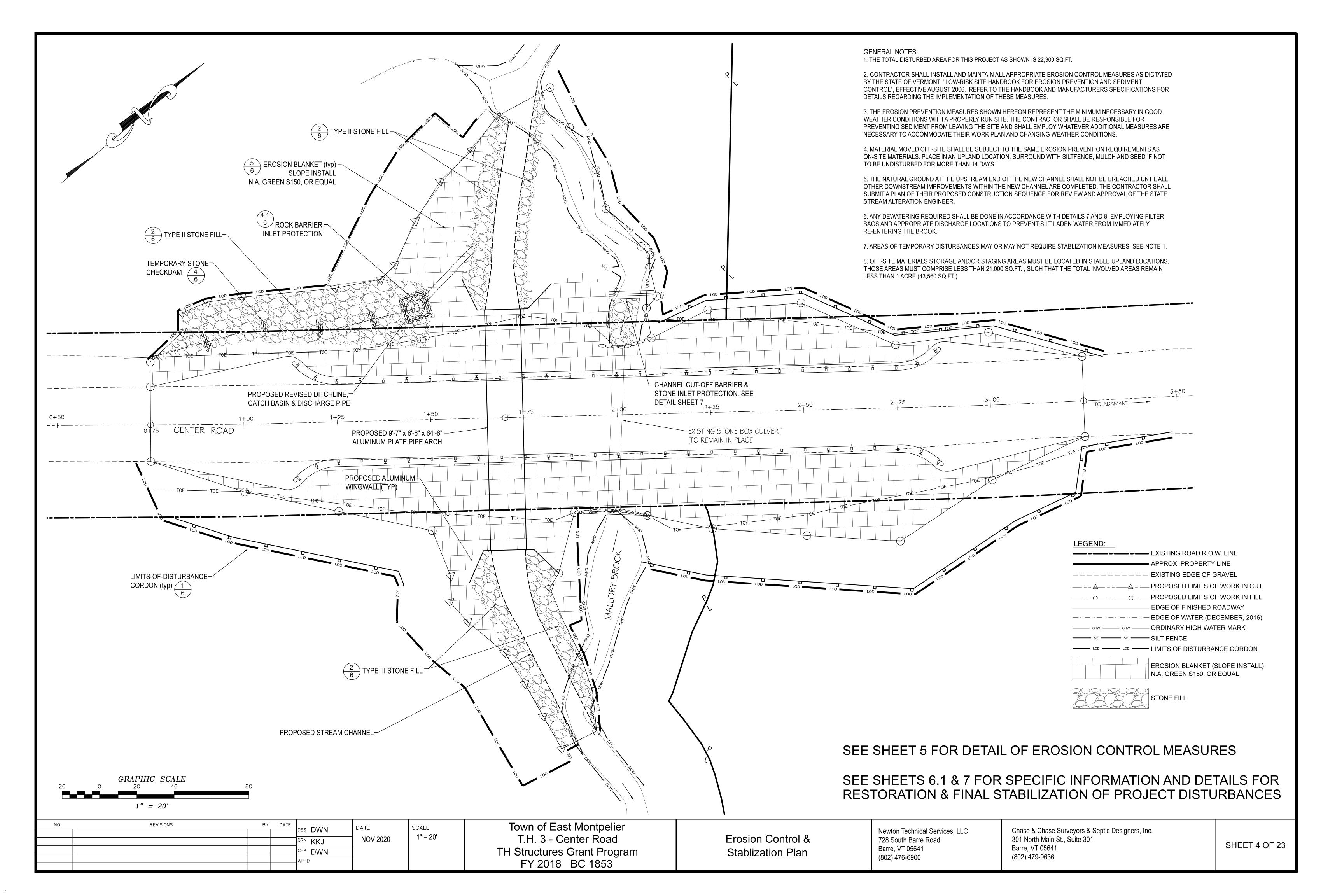
Newton Technical Services, LLC 728 South Barre Road Barre, VT 05641 (802) 476-6900

Chase & Chase Surveyors & Septic Designers, Inc. 301 North Main St., Suite 301 Barre, VT 05641 (802) 479-9636

SHEET 3 OF 23

REVISIONS BY DATE Town of East Montpelier NO. SCALE DES DWN November 2020 As Noted TH 3 — Center Road CHK DWN

TH Structures Grant Program FY 2018 BC 1853



CONSTRUCTION SPECIFICATIONS

LIMIT OF DISTURBANCE CORDON SHALL BE 3-FOOT HIGH ORANGE "CONTRUCTION" SAFETY FENCE OR APPROVED EQUIVALENT, AND SHALL BE LOCATED AS SHOWN ON THE APPLICABLE PLAN.

2. SAID FENCE SHALL BE SUPPORTED BY STEEL 'U' OR 'T' TYPE POSTS PLACED AT MAXIMUM 16-FOOT INTERVALS.

3. FENCE SHALL BE WIRE OR "ZIP" TIED TO THE SUPPORT POSTS.

. THE FENCE SHALL BE MAINTAINED IN A WORKMAN LIKE MANNER, AND SHALL REMAIN IN PLACE UNTIL FINAL SITE STABILIZATION IS ACHIEVED.

DETAIL - LIMITS OF DISTURBANCE CORDON

NOT TO SCALE

STONE FILL: STONE FILL SHALL BE APPROVED, HARD, BLASTED ANGULAR ROCK. THE LEAST DIMENSION OF THE STONE SHALL BE NO LESS THAN 1/3 OF THE LONGEST DIMENSION. THE STONE SHALL BE REASONABLY WELL GRADED SO AS TO FORM A COMPACT MASS WHEN IN PLACE.

(a) TYPE I: THE LONGEST DIMENSION SHALL VARY FROM 1-INCH TO 12-INCHES, AND AT LEAST 50% OF THE VOLUME SHALL HAVE A LEAST DIMENSION OF 4-INCHES.

(b) TYPE II: THE LONGEST DIMENSION SHALL VARY FROM 2-INCHES TO 36-INCHES, AND AT LEAST 50% OF THE VOLUME SHALL HAVE A LEAST DIMENSION OF 12-INCHES.

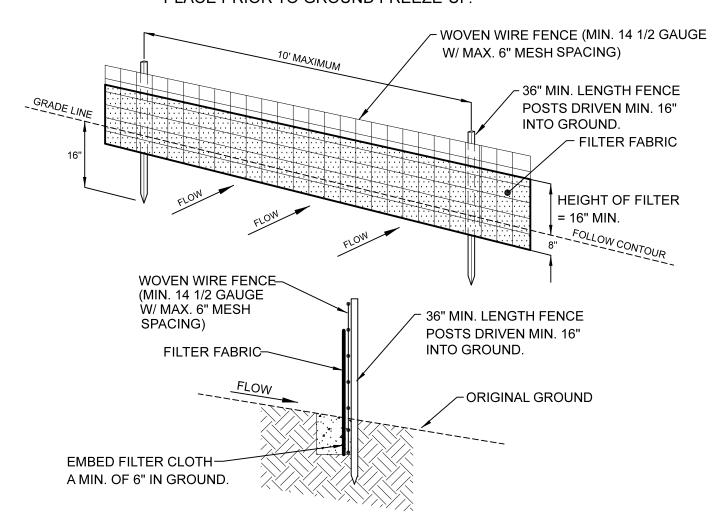
(C) TYPE III: THE LONGEST DIMENSION SHALL VARY FROM 3-INCHES TO 48-INCHES, AND AT LEAST 50% OF THE VOLUME SHALL HAVE A LEAST DIMENSION OF 16-INCHES.

(D) TYPE E2: THE LONGEST DIMENSION OF THE STONE SHALL BE BE AT LEAST 24"; LEAST 50% OF THE VOLUME OF THE STONE IN PLACE SHALL HAVE A LEAST DIMENSION; AT LEAST 25% OF THE PARTICLES SHALL HAVE A MAXIMUM DIMENSION

DETAIL - STONE DEFINITION

NOT TO SCALE

NOTE: FOR WINTER CONSTRUCTION, ALL SILT FENCE MUST BE IN PLACE PRIOR TO GROUND FREEZE-UP.



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.

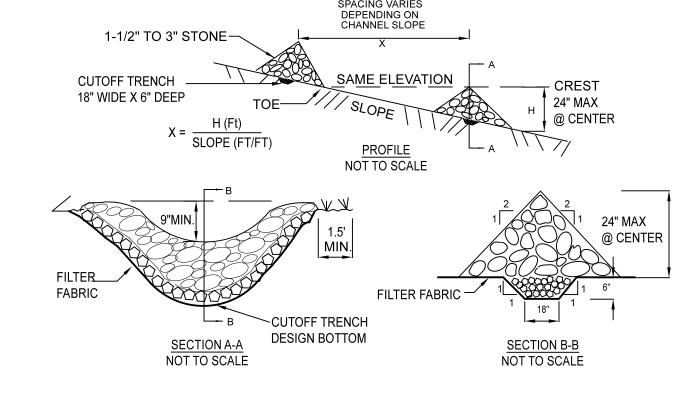
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.

MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.

- FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING. 3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X,
- 4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
- 5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

DETAIL - SILT FENCE

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

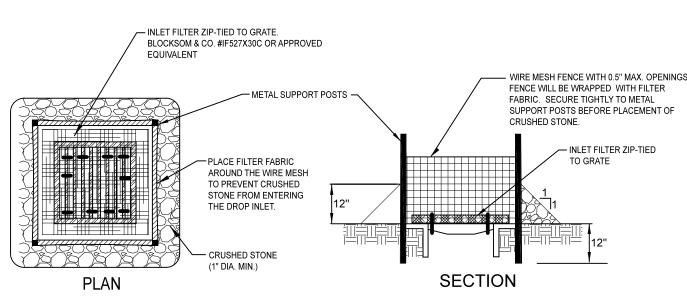
1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.

- 2. SET SPACING OF CHECK DAMS TO ASSURE THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
- 3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
- 4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
- 5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE. MAXIMUM DRAINAGE AREA 2 ACRES.

5' MIN.

DETAIL - TEMPORARY STONE CHECK DAM 4 NOT TO SCALE

5' MIN.



APPLICATION NOTES:

1. THE PRIMARY PURPOSE OF DRAINAGE STRUCTURE INLET PROTECTION IS TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE SYSTEM BY PONDING WATER WHICH ALLOWS SEDIMENT TO FALL OUT OF SUSPENSION.

2. THESE EXAMPLES OF DROP INLET PROTECTION ARE NOT INTENDED FOR USE ON GRADES. ON GRADE THEY MAY CAUSE WATER TO BYPASS THE STRUCTURE, CREATING ADDITIONAL **EROSION OR FLOODING.**

3. POSSIBLE MODIFICATIONS FOR USE ON GRADE INCLUDE ADDING A BERM DOWNSTREAM OF THE INLET TO CREATE PONDING. CHECK DAMS MAY ALSO BE USED UPSTREAM OF THE INLET TO SLOW VELOCITIES.

4. PREFABRICATED DROP INLET PROTECTION SPECIFICATIONS SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

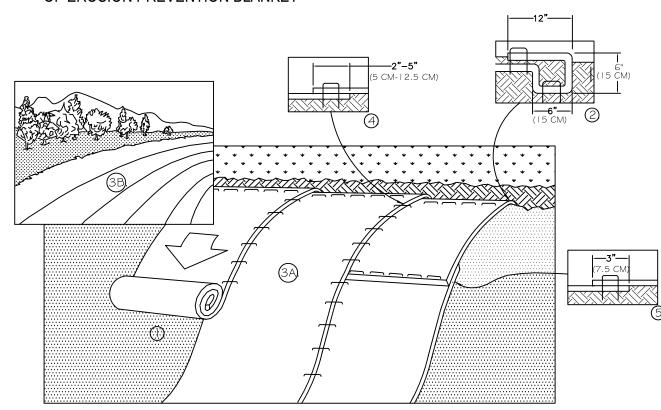
DETAIL - ROCK BARRIER INLET PROTECTION

NOT TO SCALE

6

4.1

NOTE: WHERE SLOPES DO NOT EXCEED 3H:1V, MULCH MAY BE APPLIED IN LIEU OF EROSION PREVENTION BLANKET



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) 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" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS 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 THE DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

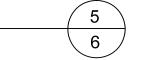
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON BLANKET TYPE.

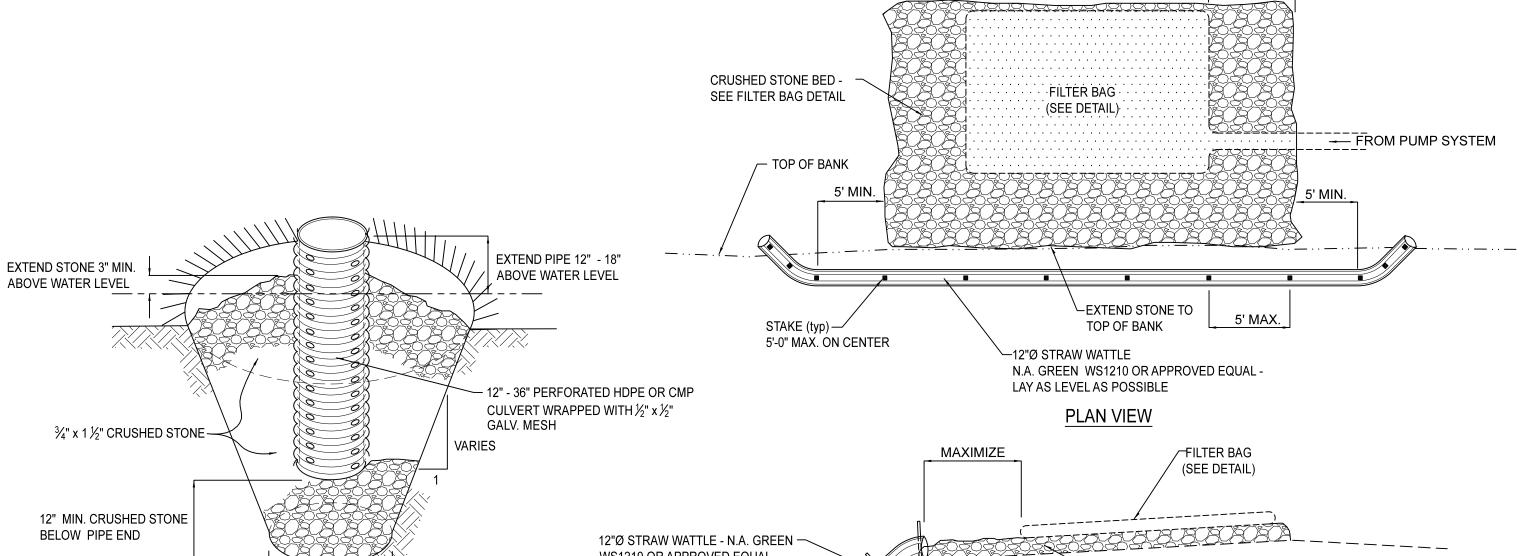
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

DETAIL - EROSION CONTROL BLANKET - SLOPE INSTALL

NOT TO SCALE





CONSTRUCTION NOTES: 1. PERFORATE PIPE WITH ½" X 6" SLOTS OR 1"Ø HOLES, 6" ON CENTER.

2. PLACE PIPE ON 12" MINIMUM BED OF 3/4" - 1 1/2" CRUSHED STONE

3. RECONSTRUCT SUMP IF/WHEN PUMP DISCHARGE DIMINISHES SUCH THAT

NOT TO SCALE

WS1210 OR APPROVED EQUAL -LAY AS LEVEL AS POSSIBLE - CRUSHED STONE BED -2 x PIPE Ø SEE FILTER BAG DETAIL EXTEND STONE & WATTLE TO TOP OF BANK - EXISTING GRADE **PROFILE CONSTRUCTION NOTES:** 1. LOCATE FILTER BAG TO MAXIMIZE DISTANCE OF THE BAG TO THE TOP OF SLOPE ON MATERIAL. BACK FILL BALANCE OF EXCAVATION WITH SAME MATERIAL LOW-GRADIENT AREA, ON EXISTING VEGETATION IF POSSIBLE. 2. EXTEND STONE BED BENEATH FILTER BAG TO TOP OF EXISTING SLOPE. REQUIRED DEWATERING CANNOT BE ACHIEVED. 3. PLACE WATTLE ON SLOPE SUCH THAT THE TOP OF THE WATTLE IS SLIGHTLY BELOW **DETAIL - DEWATERING PUMP-OUT SUMP** THE TOP OF THE SLOPE. 4. LAY WATTLE PARALLEL TO CONTOURS SO THAT THE TOP OF THE WATTLE IS AS LEVEL AS PRACTICABLE. EXTEND ENDS TO TOP OF SLOPE SUCH THAT ALL DISCHARGE WILL BE

THROUGH/OVER WATTLE.

5. ANCHOR WATTLE WITH STAKES DRIVEN THROUGH THE CENTER SPACED AT MAXIMUM 5' INTERVALS. SET ADDITIONAL STAKES AS NECESSARY TO ACHIEVE UNIFORM DISCHAGE ALONG WATTLE.

6. LEAVE WATTLE IN PLACE UNTIL BANK STABILIZATION WORK IS COMMENCED.

DETAIL - FILTER BAG DISCHARGE PAD

Erosion Control & Stablization Details

NOT TO SCALE

GENERAL STABILIZATION NOTES

UPLAND AREAS ONLY - SEE SHEET 7 FOR WETLAND AREA INFO

MULCH SHALL BE APPLIED TO ALL NON-WETLAND DISTURBED AREAS AT 2 TONS PER ACRE. MULCH SHALL CONSIST OF AIR-DRIED HAY OR STRAW FREE OF SEEDS AND COARSE MATERIALS.

NORTH AMERICAN GREEN SC150BN OR EQUAL

- SOIL MATERIAL PILES SHALL BE MULCHED AND RINGED WITH SILT FENCE.
- DISTURBED SOILS TO BE STABIZLED AS FOLLOWS:

CHANNEL SLOPE

1% TO 5% NORTH AMERICAN GREEN \$150

LINING

STONE RIP RAP OR NORTH AMERICAN GREEN SC250

SIDE SLOPESLOPE

> 2:1

NORTH AMERICAN GREEN S150BN OR EQUAL < 2:1

LIME MAY BE APPLIED TO ACHIEVE SOIL PH OF 6.5 FOR AREAS TO BE SEEDED.

- APPLY COMMERCIAL FERTILIZER AT 1.0 LBS/1,000SQ. FT OF N20, P5 AND K20, IF REQUIRED.
- LIME AND FERTILIZER SHALL BE MIXED THOROUGHLY INTO THE SEEDBED DURING SOIL PREPARATION.
- ALL DISTURBED AREA SHALL HAVE A MIN. OF 3" OF TOPSOIL PRIOR TO SEEDING.
- SEE DETAL 1/7 SHEET 7 FOR SEEDING SPECIFICATIONS FOR UPLAND AND WETLAND AREAS.
- ALL PERMANENT STABLIZATION AND RESTORATION SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS SHOWN ON SHEETS 6.1 AND 7.
- 10. SEEDING RATES FOR TEMPORARY STABILIZATION OF UPLAND AREAS: APRIL 15 - SEPT. 15: RYEGRASS (ANNUAL OR PERENNIAL: 20 LBS/ACRE)

SEPT. 15 - APRIL 15: WINTER RYE (120 LBS/ACRE)

Newton Technical Services. LLC Chase & Chase Surveyors & Septic Designers, Inc.

6

728 South Barre Road

Barre, VT 05641

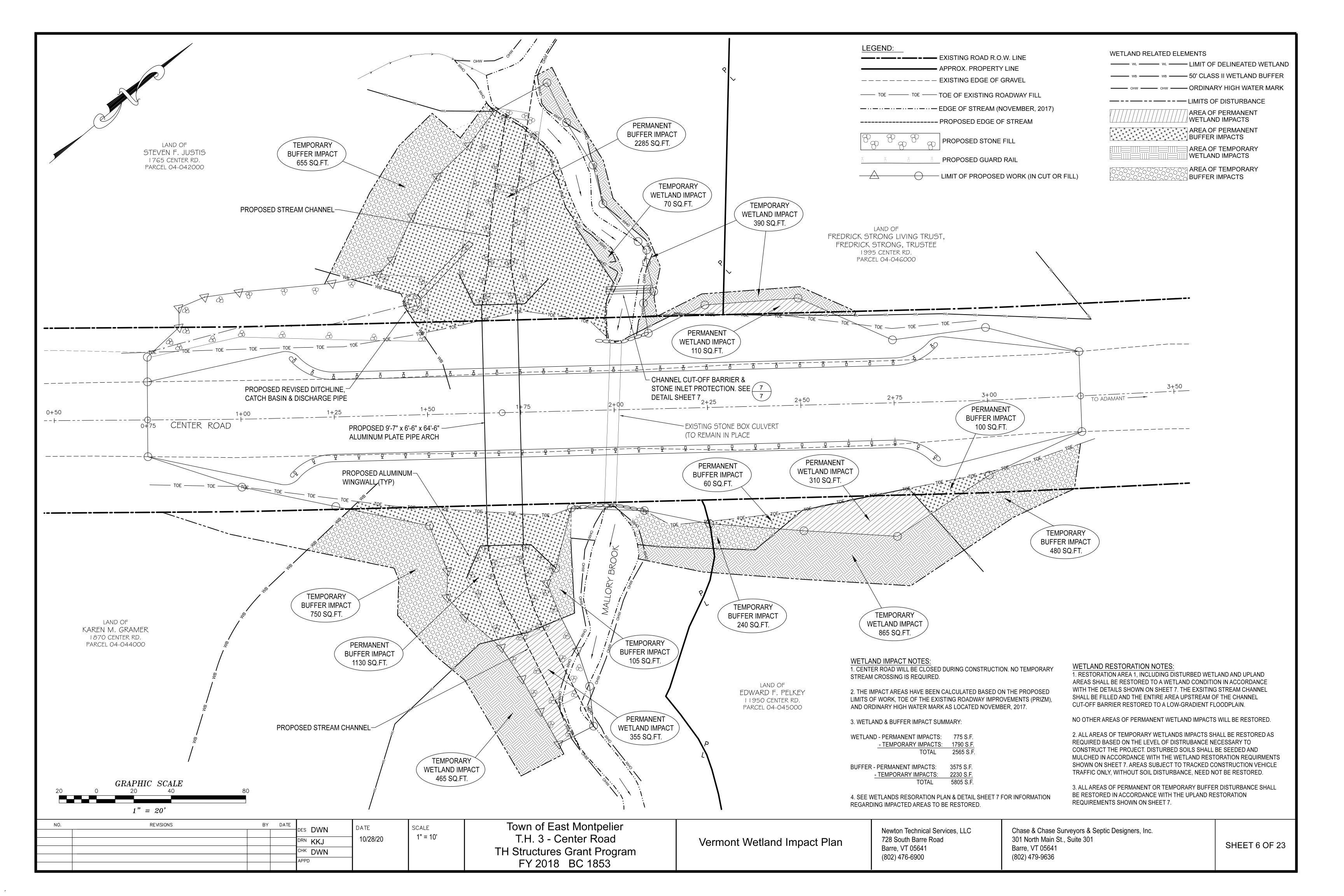
(802) 476-6900

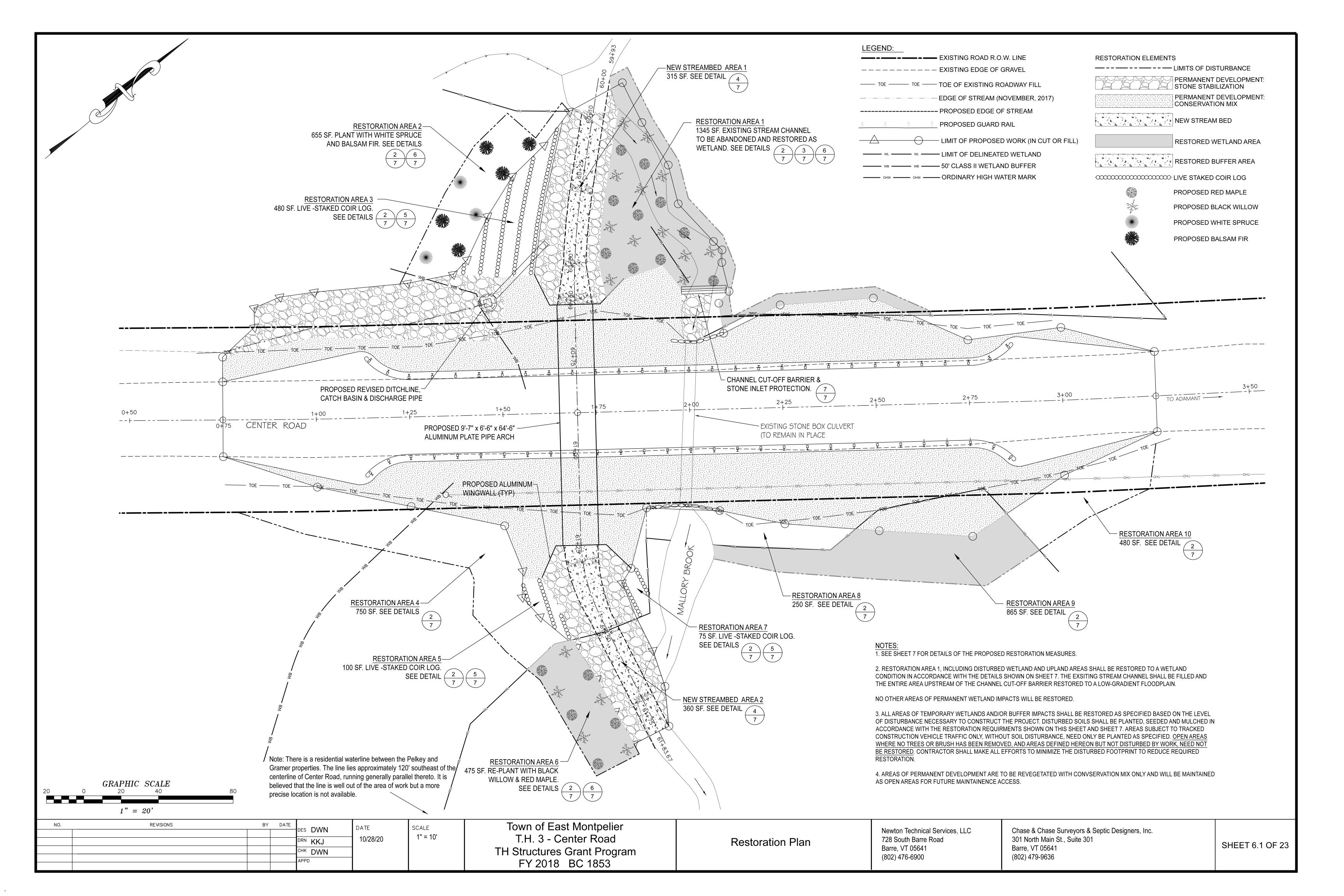
301 North Main St., Suite 301 Barre, VT 05641 (802) 479-9636

SHEET 5 OF 23

REVISIONS	BY	DATE	DES DWN	DATE	SCALE	Town of East Mont
			DE2 DAAIA			•
			DRN KKJ	NOV 2020	as noted	T.H. 3 - Center R
			CHK DWN			TH Structures Grant F
			APPD	1		
			1' " '			FY 2018 BC 18

ntpelier Road Program





WETLAND & BUFFER RESTORATION GENERAL NOTES

Execution

Excavation and Stockpiling

All excavated wetland soil material shall be stockpiled for use during restoration. The materials

shall be stockpiled in a stabilized upland location and covered with 6 mil poly sheeting to protect

soils from precipitation. If varying soil horizons are encountered during excavation, each horizon

shall be stockpiled separatlely and replaced in the order of the original soil stratum. The temporary

stockpiles for reuse must be placed in an upland location, surrounded by silt fence and stabilized in

Materials excavated from upland areas for temporary construction activities may be stockpiled on

site or hauled off-site at the Contractors discretion. The temporary stockpiles for reuse must be

All areas disturbed by temporary construction activities shall be restored as near as practical to

Wetlands muck soils shall be replaced to the lines and original grade or as shown on the plans in

Restoration Area 1. After placement, mechanically loosen the top four inches of native soils in the

Broadcast wetland seed mix over prepared soils at a rate of 0.4 lbs./1000 sf. Scratch into soil

Loam shall be placed to a minimum depth of 4" to the lines and original grade shown on the plans.

Prior to seeding, the loam shall be prepared to a minimum depth of 3" with lime and fertilizer. Lime may be added simultaneously with the fertilizer. Fertilizer and lime shall be tilled to a depth of 3" by

After application of fertilizer and lime, the loam shall be hand raked smooth. Grass seed shall be

uniformly applied to the entire area to be seeded at a rate of at least 40 lbs. per acre. Seeding shall

not be performed during unfavorable conditions, such as drought, high winds, excessive moisture,

Within 24 hours after seeding and rolling, the area shall be mulched at the rate of 2 tons of mulch per acre. Mulch material shall be acceptable to the engineer, prior to application. Mulch shall be secured in place if necessary, by such means as a shallow covering of loam or a stapled erosion matting. Seeded and mulched areas shall be watered at a rate and frequency as necessary until

the grass has sufficient growth to survive from natural moisture. Mulch shall be chopped and

Within two (2) weeks after the grass has shown exposed growth, any areas where the grass seed

has not germinated properly or where the surface has been washed or damaged shall be reseeded

washouts, or other causes by filling with topsoil, tamping, fertilizing, and seeding without additional

in the same manner as described above. Repair all damage resulting from erosion, gullies,

provide signs and barricades as necessary to protect seeded areas from traffic.

WIDE NYLON WEBBING -

FINISH GRADE

GOETEXTILE UNDER STONE FILL (VTRANS-

649.31) BETWEEN MUCK SOIL AND STONE

STONE FILL PROTECTION-(WHERE APPLICABLE)

cost to the owner until the time of final acceptance and within guarantee. The contractor shall

Immediately after seeding, the entire seeded area shall be compacted and rolled to remove irregularities in the surface and reduce air pockets to a minimum. Roller shall weigh 60 to 90 lbs.

Spread and secure mulch blanket over seeded soils. Lightly roll.

The loam shall not be hauled over, tramped over, or packed in any way.

Fertilizer shall be applied at the rate of 200 lbs. per acre, unless otherwise shown.

Lime shall be applied at a rate of 5 lbs. per square foot, unless otherwise shown.

Do not apply loose/chopped mulch to wetlands areas.

disking, harrowing, raking, or other approved method.

or other factors which will cause unsatisfactory seeding results.

placed in an upland location, surrounded by silt fence and stabilized in place.

A. Wetland Areas

B. Upland Areas

orginal grade.

Soil Preparation, Seeding, Mulching

Wetlands Areas

Do not add chemical fertilizer.

area to be restored.

B. Upland Areas

per linear foot.

machine applied.

surface.

Materials:

Loam (topsoil) shall consist of fertile, friable soil free from subsoil, gravel, roots, weeds, sod, and stones, and containing at least 3% organic matter by weight Loam may be stripped topsoil, provided it is properly screened to remove deleterious material and is not excessively acid or alkaline nor contains toxic material harmful to plant life.

Wetland soil shall be a uniform low-phosphorus mix of compost, sand, and fine soil to blend to a high % organic matter content soil (>15% organic matter).

- The phosphorus index (P-index) for the wetland soil shall be 10 30 mg/kg.
- Wetland soil shall have a pH of 6.0 7.0.
- Wetland soil shall have a low hydraulic conductivity between 0.1 0.01 ft/day. The organic portion of the wetland soil shall constitute 15% - 20% of the total wetland soil
- mixture. The organic portion shall be comprised of well pulverized and composted leaf mulch. Animal or poultry manure shall not be accepted.

Granular soll shall constitute 80% - 85% of the total wetland soil mixture, and shall meet the following gradation:

nowing gradation.		
	Sieve	% passing by weight
	No. 16	100%
	No. 40	85-100%
	No. 60	40-100%
	No. 200	5-10%

Alternatively, the existing wetland soils excavated from areas of temporary construction activity maybe used for restoration. The materials shall be stockpiled in a stable upland location and covered with 6 mil poly sheeting to protect soils from precipitation. Confirm that the soils are free from noxoius weed or invasive species.

Fertilizer shall be complete commercial fertilizer that is dry and free flowing and uniform in composition and have low or no phosphorus as shown by soil analysis.

Lime shall be ground limestone containing not less than 95% of total carbonates and shall be ground to a fineness such that at least 90% will pass through a 100 mesh sieve.

Mulch shall be unspoiled hay or legume mowings reasonaly free from weeds, twigs debris or other deletrious materials. It shall be free from rot or mold.

Mulch blanket shall be North American Green S150BN (natural blanket materials only – no plastics), or approved equal on slopes of less than 2:1. Use N.A. Green SC150BN on slopes greater than 2:1.

Seed mix shall be VTrans Rural Conservation Mix and be clean materials guaranteed to be 95% free of seeds other than those listed:

Grass	% by weigh
Creeping Red Fescue	37.5%
Turf Type Tall Fescue	37.5%
Birdsfoot Trefoil	15%
Red Top	5%
Annual Rye Grass	5%

Wetlands seed mix shall be VT Wetland Supply Wetland Hummock mix, or approved

Wetland seed mix shall be formulated by the approved vendor (see below)

Use the following mix of herbaceous species or equivalent obligate or facultative wet species suitable for wetland zones 4. The vendor shall recommend an appropriate mix or substitution of species based on availability and time of planting. Aggressive species such as cattail (Typha sp.) should be avoided.

Scientific Name Common Name Swamp milkweed Asclepias incarata Eupatoriadelphus maculates Spotted joe-pye weed Juncus effuses Common rush Fringed loosestrife Lysimachia ciliate Woolgrass Scirpus cyperinus Blue vervein Verbena hastate Iris versicolor Blueflag iris

- White Spruce (Picea glauca), native variety, 24" 48" height, rootball varies
- Balsam Fir (Abies balsamea), native variety, 24" 48" height, rootball varies
- Red Maple (Acer rubrum), 1" nominal caliper Black Willow (Salix nigra), 3 gallon sets.

AREA SPECIFIC PLANTINGS

1. All tree and shrub plantings shall be configured in staggered rows 6' - 8' on center approximating the pattern shown on the Restoration Site Plan sheet 6.1

2. Once resorations measures are established, those areas shall be maintained as undisturbed natural areas.

Restoration Area 1 Wetlands seed mix: 0.40# per 1000 sq.ft.

Red Maple - 10 total Black Willow - 12 total

Restoration Area 2 Conservation Mix: 5# per 1000 sq.ft. Balsam Fir - 5 total White Spruce - 3 total

Restoration Area 3 Conservation Mix: 5# per 1000 sq.ft. Coir Log - 90 If total

Restoration Area 4 Conservation Mix: 5# per 1000 sq.ft. Allow woody brush to naturally establish

Restoration Area 5 Conservation Mix: 5# per 1000 sq.ft.

Coir Log - 30 If total Restoration Area 6

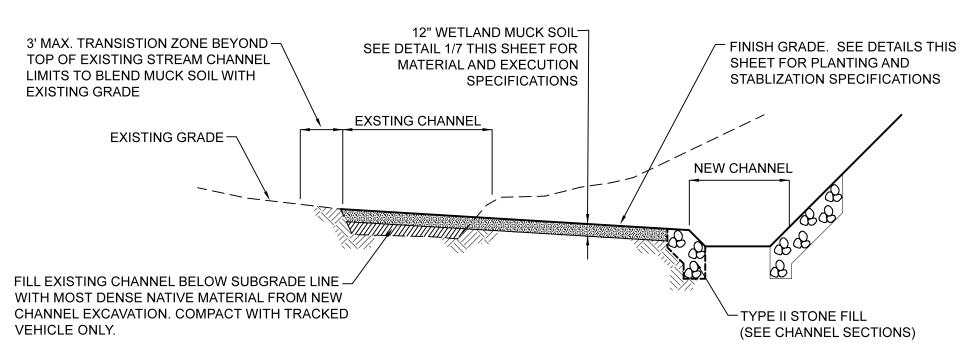
Wetlands seed mix: 0.40# per 1000 sq.ft. Red Maple - 5 total Black Willow - 5 total

Restoration Area 7 Conservation Mix: 5# per 1000 sq.ft. Coir Log - 20 If total

Restoration Area 8 Conservation Mix: 5# per 1000 sq.ft. Allow woody brush to naturally establish

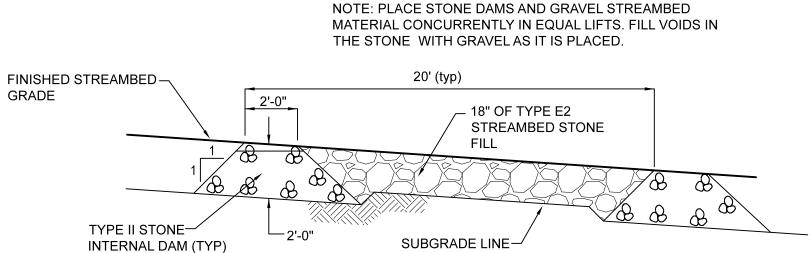
Restoration Area 9 Wetlands seed mix: 0.40# per 1000 sq.ft. Cut poplar stumps to naturally root sprout.

Restoration Area 10 Conservation Mix: 5# per 1000 sq.ft. Cut poplar stumps to naturally root sprout.

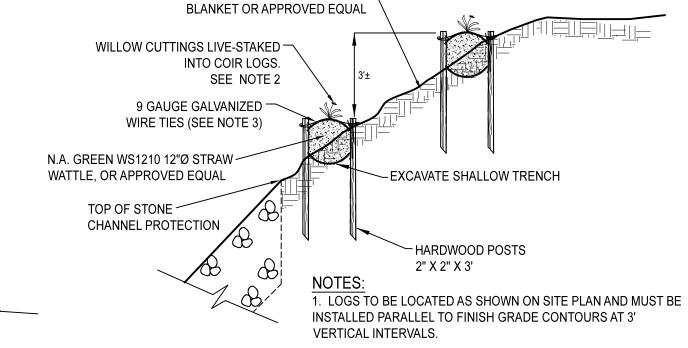


TYPICAL SECTION - RESTORATION AREA 1

NOT TO SCALE



TYPICAL STREAMBED PROFILE NOT TO SCALE



7

N.A. GREEN SC150BN EROSION_

2. EACH COIR LOG SHALL HAVE 'STREAMCO' PURPLEOSIER WILLOW (SALIX PURPUREA L.) ROOTED CUTTINGS LIVE-STAKED VERTICALLY IN THE TOP OF THE LOG AT 2' TO 2.5' CENTERS (380 TOTAL). PLANTINGS SHALL BE DONE IN THE EARLY SPRING OF THE YEAR PRIOR TO MAY 1.

7

TYPICAL SECTION - COIR LOG BANK RESTORATION NOT TO SCALE

NOTES: TREE PLANTING

1. ALL PLANT MATERIALS SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1-2004). PLANT ACCORDING TO ANSI A300 PART 6.

2. DIG THE PLANTING HOLE A MINIMUM OF 2x WIDTH OF ROOTBALL FOR AT LEAST THE FIRST 12 INCHES OF DEPTH. BELOW 12 INCHES, DIG HOLE WIDE ENOUGH TO PERMIT ADJUSTING. DO NOT DIG THE HOLE DEEPER THAN ROOT BALL DEPTH.

3. SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS (MORE THAN 15% CLAY).

4. LIFT AND SET THE TREE BY ROOT BALL ONLY. DO NOT LIFT USING THE TREE TRUNK AND DO NOT USE TREE TRUNK AS A LEVER.

5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE

OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING. 6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOTBALL.

7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL-TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.

8. USE THREE 2" X 2" WOOD STAKES DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. SPACE STAKES EQUALLY AROUND

9. ATTACH 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACH WEBBING AT 1/3 THE TREE HEIGHT.

10. APPLY A 2-3" (SETTLED) DEPTH OF PINE STRAW OR BARK MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.

11. PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.

12. REMOVE ANY TRUNK WRAP REMAINING AT TIME OF PLANTING. NO WRAPS SHALL BE PLACED ON TRUNK.

12" WETLAND MUCK SOIL-SEE DETAIL 1/7 THIS SHEET FOR MATERIAL END TO END AND EXECUTION SPECIFICATIONS ELEV 488.0' - 24" TYPE II STONE FILL FILL EXISTING CHANNEL BELOW SUBGRADE -LINE WITH MOST DENSE NATIVE MATERIAL FROM NEW CHANNEL EXCAVATION. COMPACT WITH TRACKED VEHICLE ONLY. SELECT 6" MINUS -NATIVE MATERIAL **GOETEXTILE UNDER** 12" DEEP CRUSHED GRAVEL PAD. EXTEND-STONE FILL (VTRANS 1'-0" BEYOND BARRIER FOOTPRINT IN ALL 649.31) BETWEEN MUCK DIRECTIONS. COMPACT TO 95% MODIFIED SOIL AND STONE

1. THE CONCRETE TRAFFIC BARRIER SECTION PLACED UPSTREAM OF THE INLET OF THE EXISTING

CONDITION, AND FREE FROM ANY CRACKS, DELAMINATIONS, SPALLING OR OTHER IMPERFECTIONS, ETC.

2. FURNISHING AND PLACING THE BARRIER, TOGETHER WITH ANY NECESSARY MATERIAL, BACKFILLING

CONCRETE TURNPIKE BARRIER SECTION

AS CHANNEL CUT-OFF DAM. INSTALL LEVEL

STONE BOX SHALL BE 12'-0" IN LENGTH, BE STRUCTURALLY SOUND AND IN REASONABLY GOOD

AND GRADING WORK, SHALL FALL UNDER THE ITEM, WETLANDS RESTORATION WORK,

DETAIL - CHANNEL CUT-OFF BARRIER & STONE INLET PROTECTION NOT TO SCALE

STREAMBED

DETAIL - WETLAND TREE PLANTING SPECIFICATIONS NOT TO SCALE

——GUY WEBBING

■STAKE

ROOT CROWN TO BE AT FINISH

GRADE OR 1-2" ABOVE GRADE

─ 2"x2" WOOD STAKE AT

OR BELOW GRADE

PLAN VIEW

REVISIONS	BY	DATE	des DWN	DATE	SCALE	Town of East Montpelier
			DES DVVIA			•
			DRN KKJ	10/28/20	1" = 10'	T.H. 3 - Center Road
			CHK DWN			TH Structures Grant Program
			APPD			
						FY 2018 BC 1853

Restoration Details

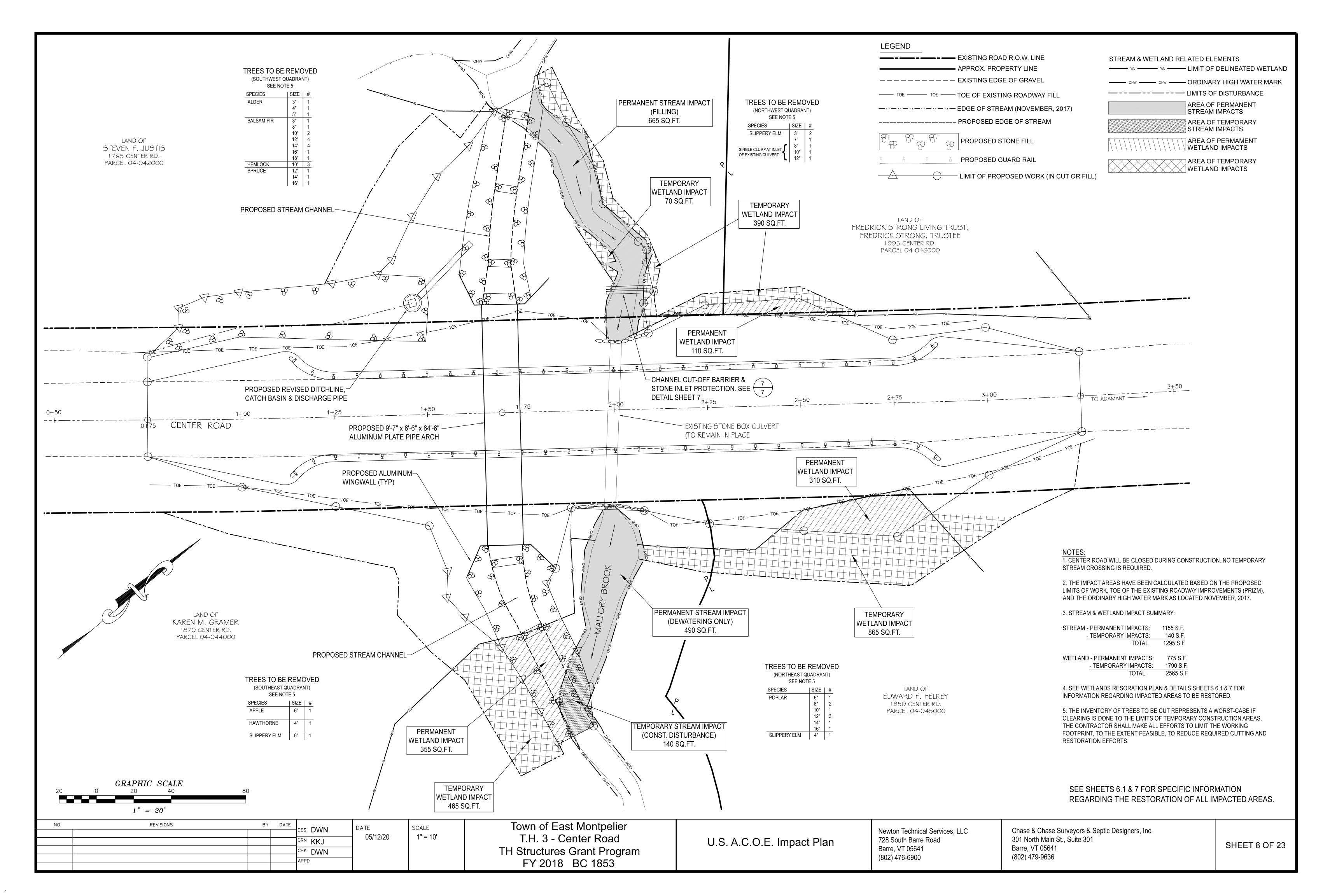
Newton Technical Services, LLC 728 South Barre Road Barre, VT 05641 (802) 476-6900

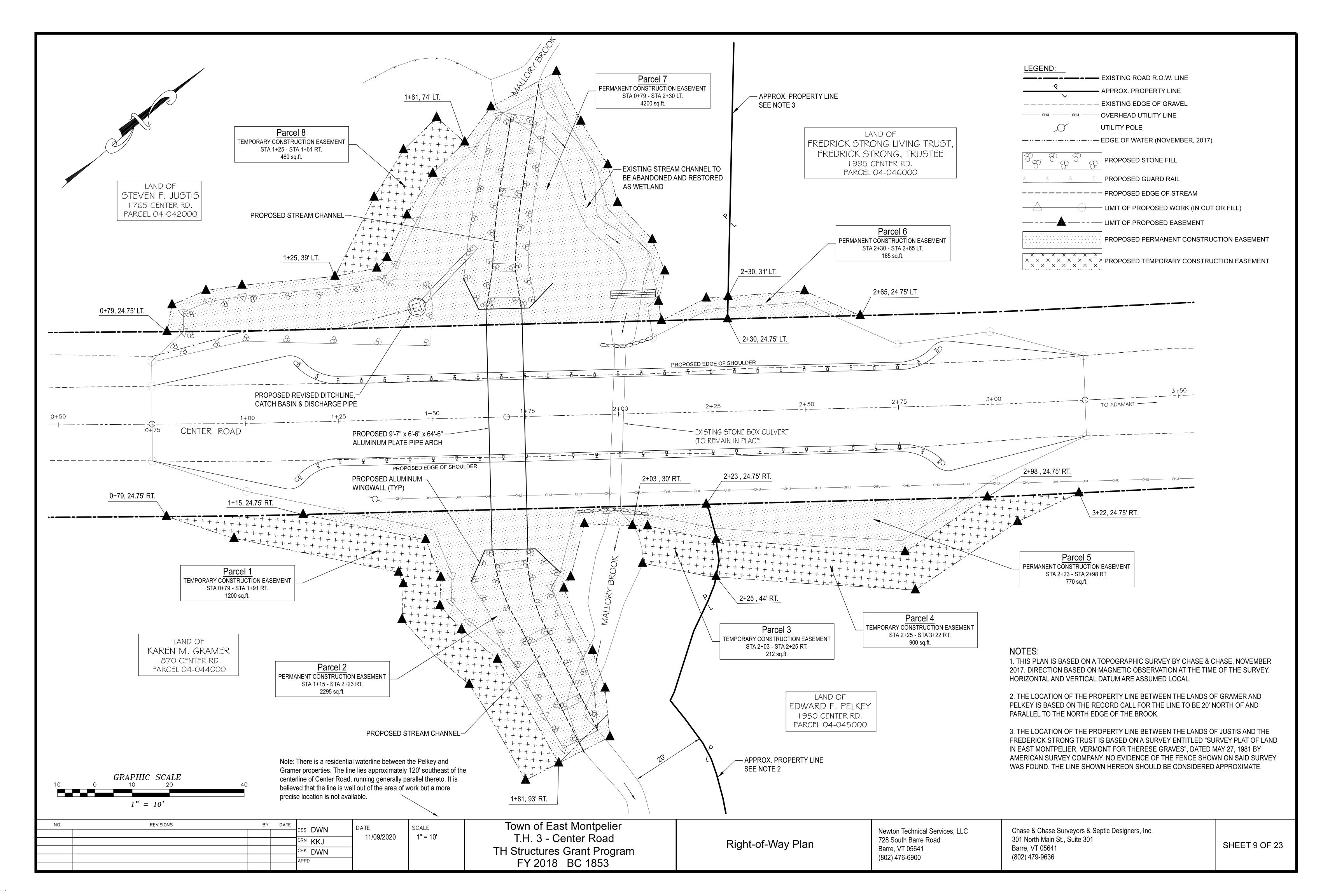
Chase & Chase Surveyors & Septic Designers, Inc. 301 North Main St., Suite 301 Barre, VT 05641 (802) 479-9636

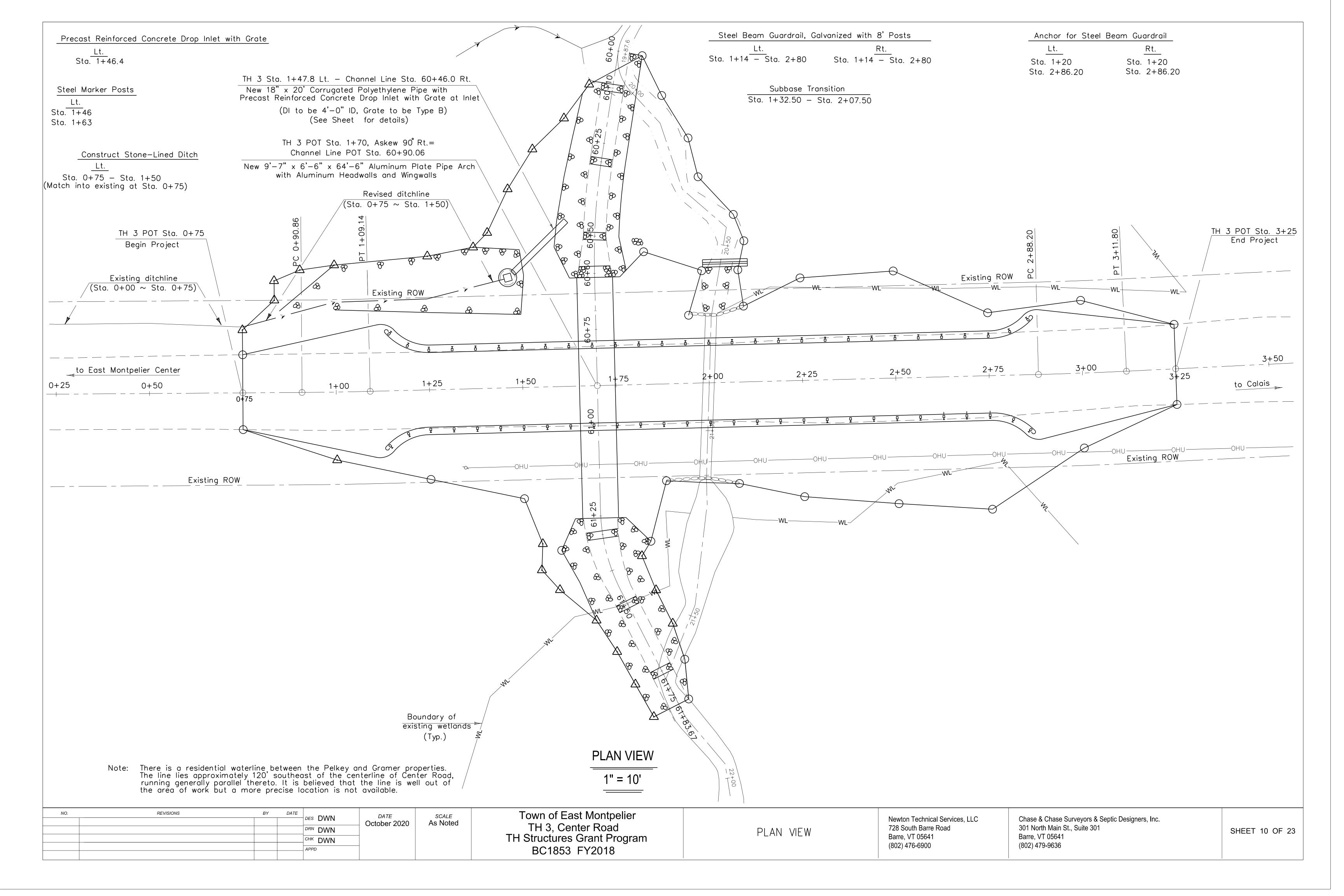
SHEET 7 OF 23

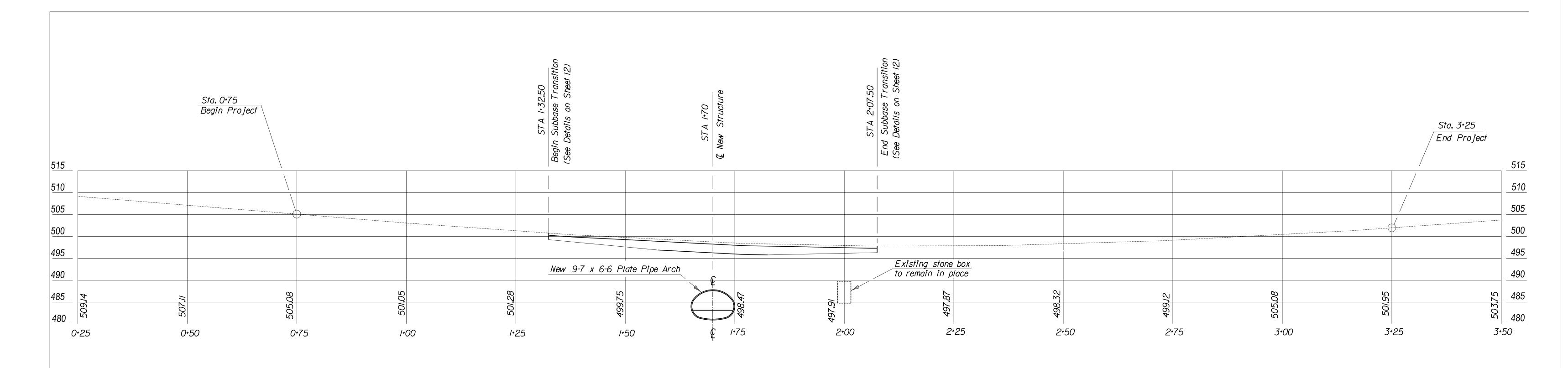
- INVERT EXISTING

STONE BOX







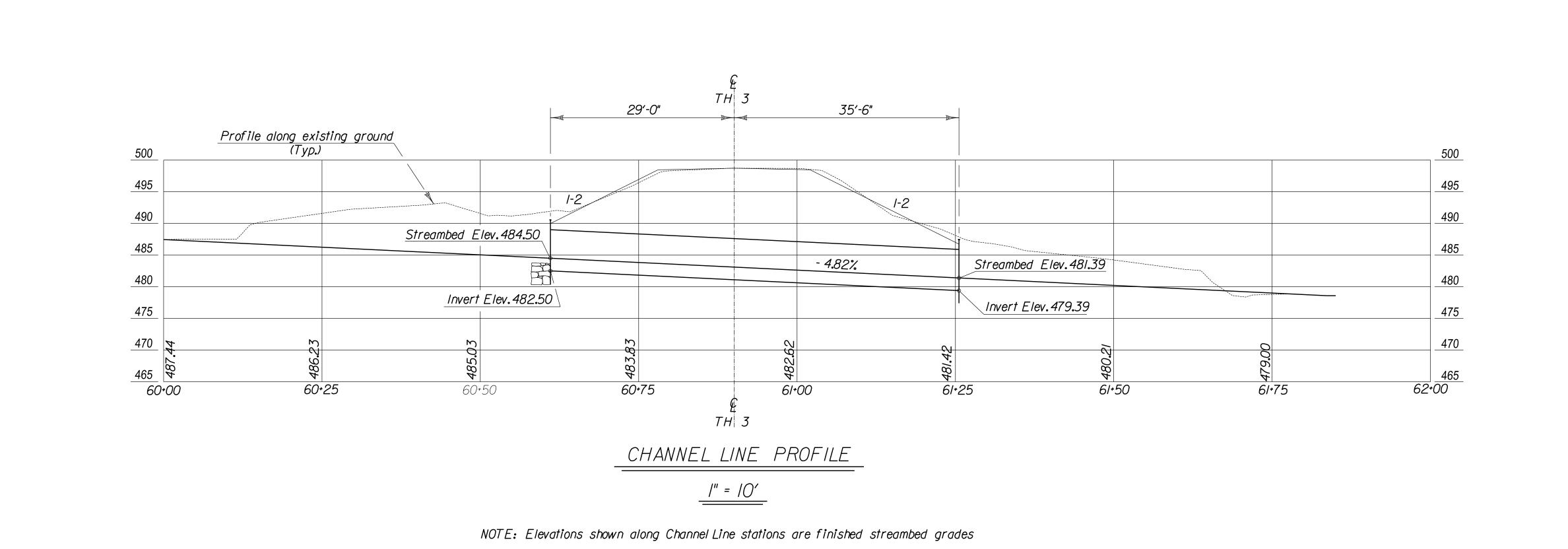


ROADWAY PROFILE

/" = /0'

NOTES: Elevations shown are existing centerline finish grades

Project to be constructed on that existing vertical alignment



Chase & Chase Surveyors & Septic Designers, Inc.

SHEET 11 OF 23

301 North Main St., Suite 301

Barre, VT 05641

(802) 479-9636

Newton Technical Services, LLC

728 South Barre Road

Barre, VT 05641

(802) 476-6900

ROADWAY PROFILE

CHANNEL LINE PROFILE

Town of East Montpelier

TH 3, Center Road TH Structures Grant Program

BC1853 FY2018

BY DATE

DES DWN

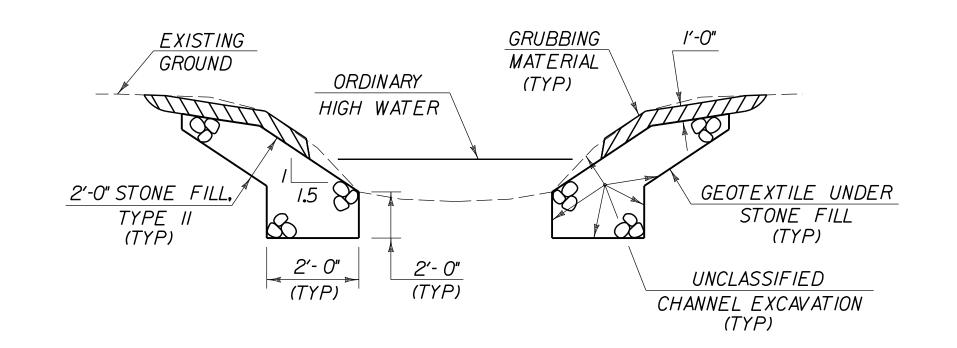
DRN DWN

CHK DWN

DATE
October 2020

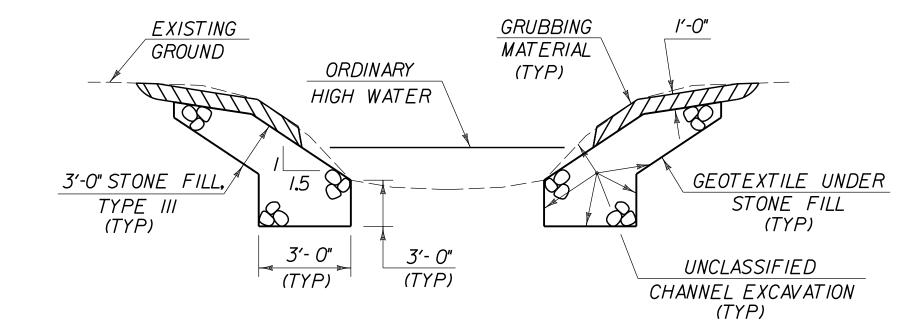
SCALE As Noted

REVISIONS



TYPICAL CHANNEL SECTION AT INLET

(NOT TO SCALE)
(See Streambed Construction Detail on this sheet)



TYPICAL CHANNEL SECTION AT OUTLET

(NOT TO SCALE)
(See Streambed Construction Detail on this sheet)

		SEEDING FORMULA		
% WT.	LBS./A.	NAME	PUR %	GERM %
37.5 37.5 5.0 15.0 5.0	22.5 22.5 3.0 9.0 3.0 60.0	CREEPING RED FESCUE TALL FESCUE RED TOP BIRDSFOOT TREFOIL ANNUAL RYEGRASS	98 95 95 98 95	85 90 90 85 85

NOTES:

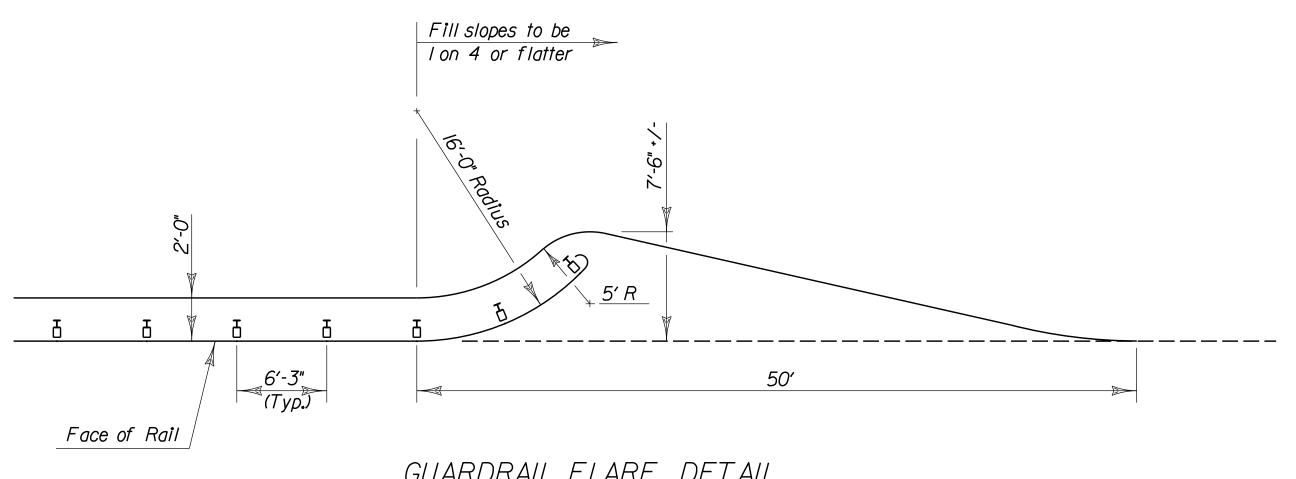
SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

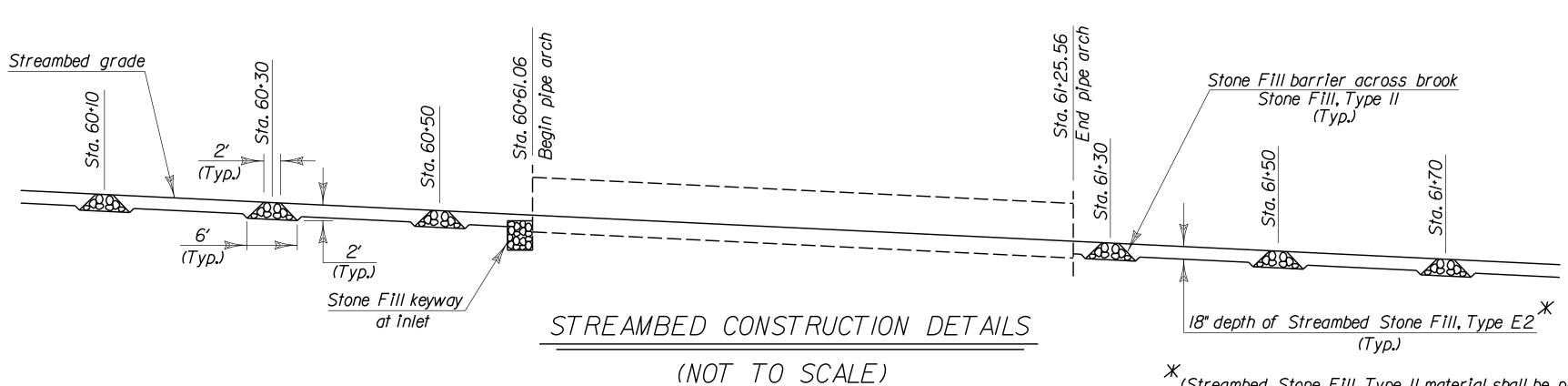
FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

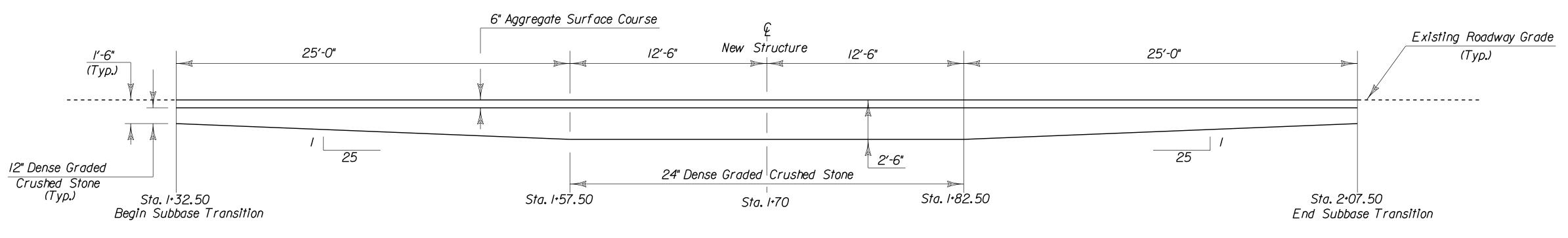
HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.





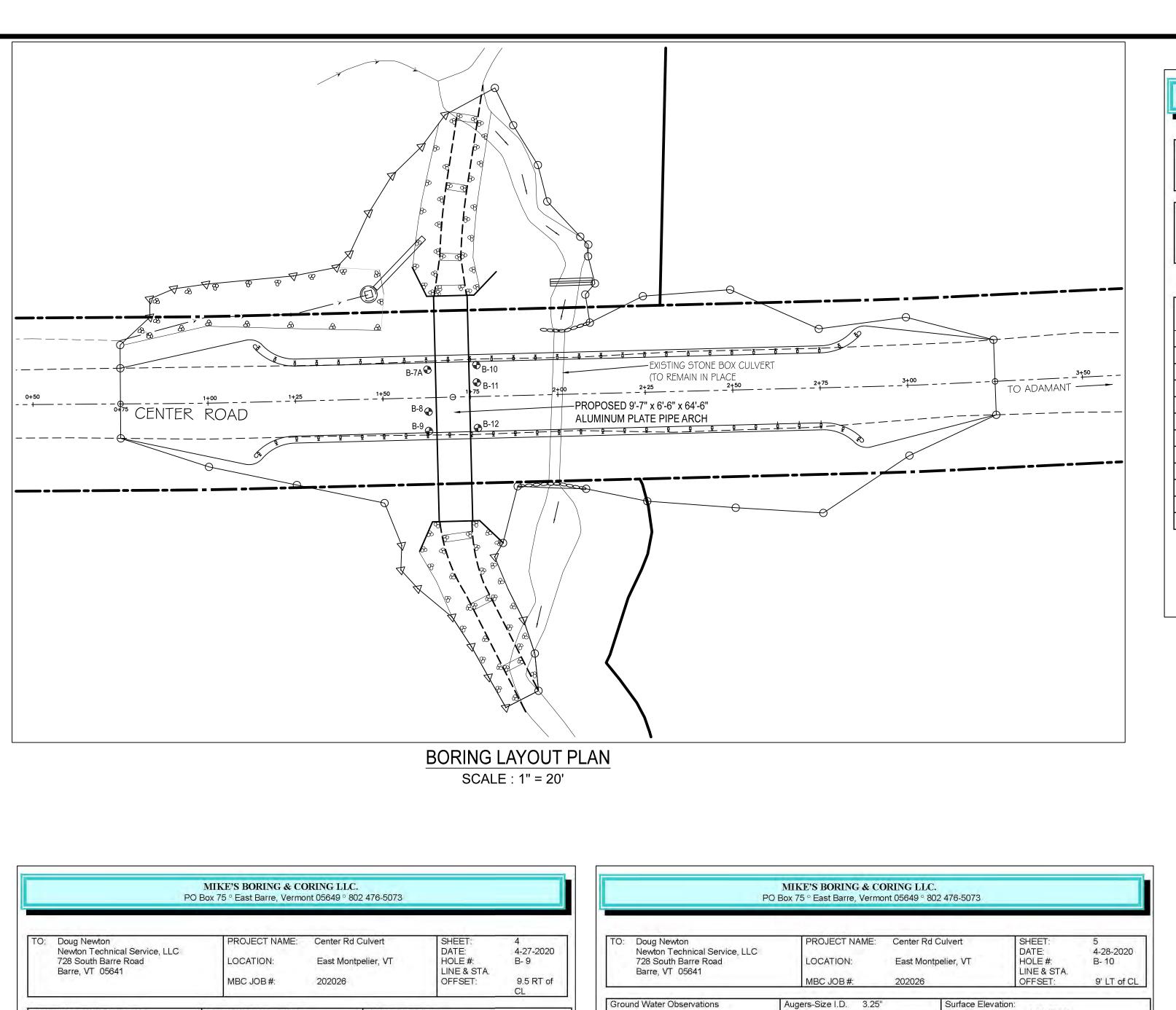


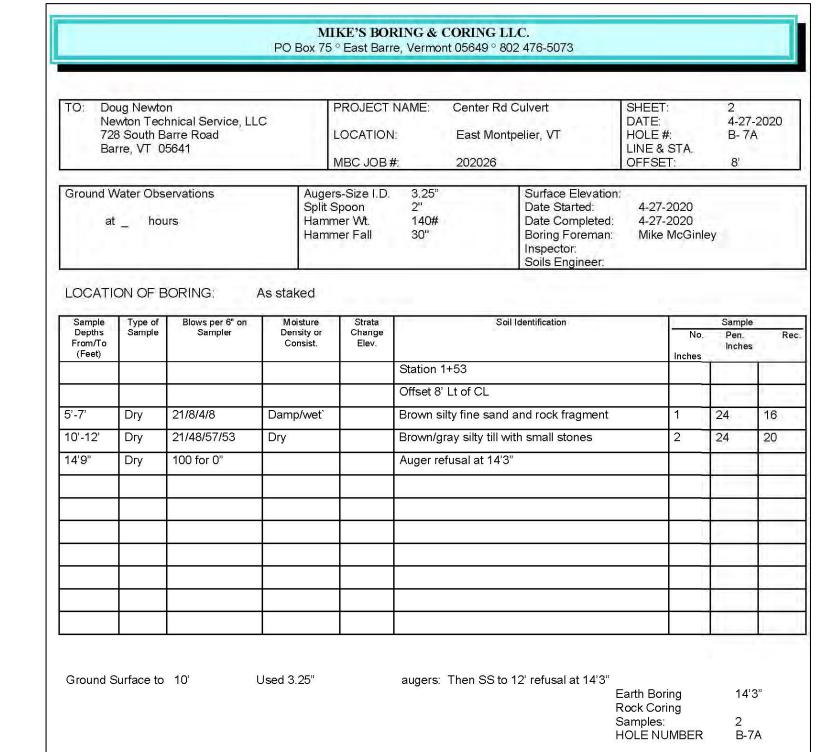
X (Streambed Stone Fill, Type II material shall be placed concurrently with the stone fill to ensure that both materials are consolidated together)

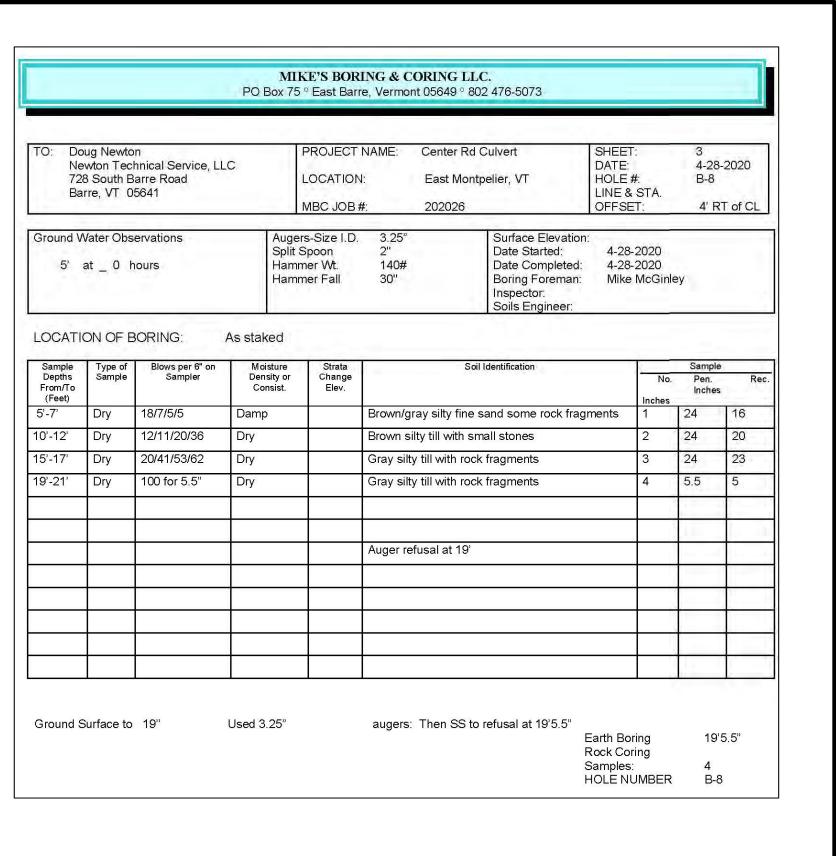


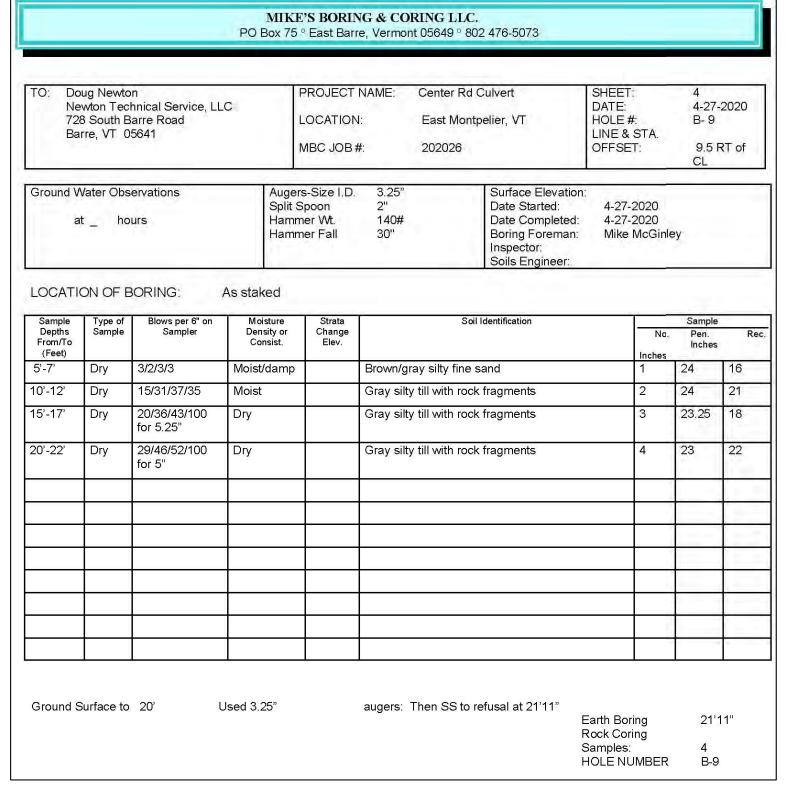
SUBBASE TRANSITION DETAILS 1/4" = 1'-0'"

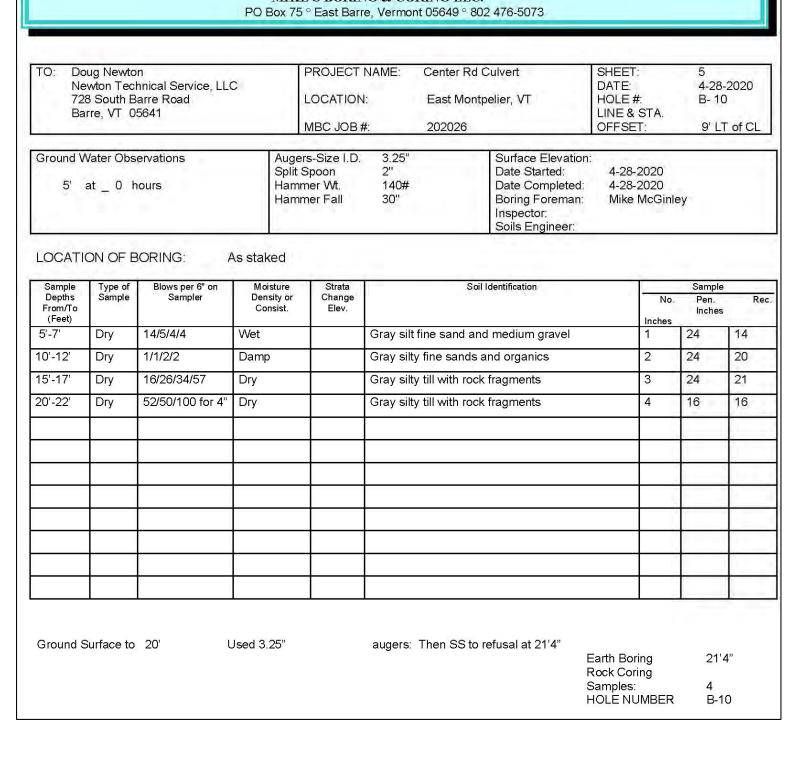
NO.	REVISIONS	BY DATE DE.	DATE November 2020	SCALE As Noted	Town of East Montpelier TH 3 — Center Road	Subbase Iransition Detail Guardrail Flare Detail Streambed Construction Details	Newton Technical Services, LLC 728 South Barre Road	Chase & Chase Surveyors & Septic Designers, Inc. 301 North Main St., Suite 301	SHEET 12 OF 23
		CHI API	PD DWN		TH Structures Grant Program FY 2018 BC 1853	Typical Channel Sections Seeding Formula	Barre, VT 05641 (802) 476-6900	Barre, VT 05641 (802) 479-9636	SHELT 12 OF 23

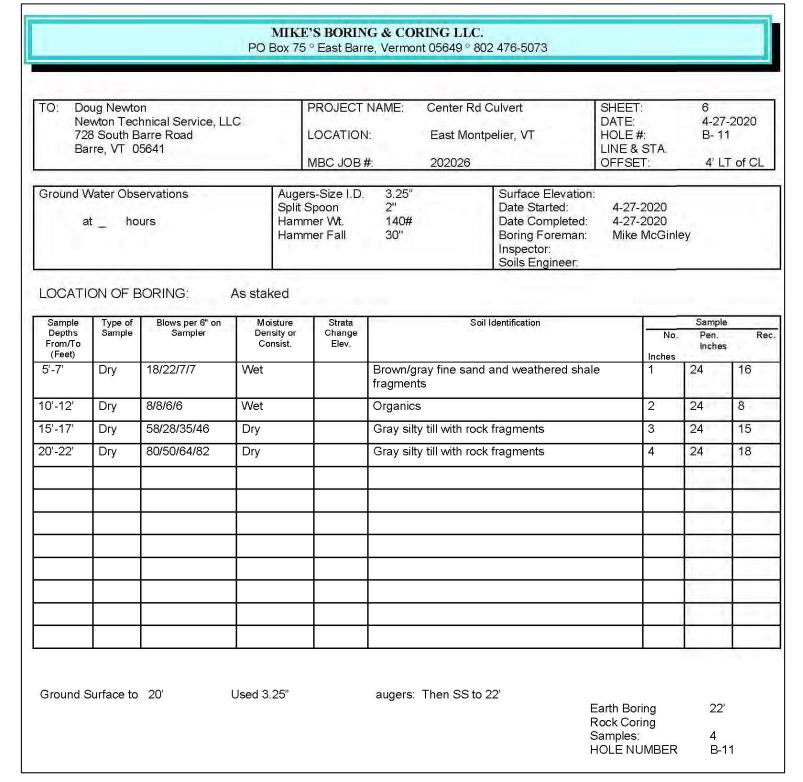












Ne 72		hnical Service, Ll Barre Road	.c	LOCATION: East Montpelier, VT DATE: HOLE LINE 8			SHEET DATE: HOLE: LINE & OFFSE	E: 4-28-2020 E #: B- 12 & STA.		2
5'	at _ 0 I		Sp Ha	gers-Size I.D. lit Spoon mmer Wt. mmer Fall	3.25" 2" 140# 30"	Surface Elevation Date Started: Date Completed: Boring Foreman: Inspector: Soils Engineer:	4-28- 4-28-	-2020 -2020 McGinl	еу	
Sample Depths From/To	Type of Sample	Blows per 6" on Sampler	Moisture Density o Consist.		S	oil Identification		No.	Sample Pen. Inches	Red
(Feet) 5'-7'	Dry	4/3/1/2	Wet/damp)	Brown/gray silty fine	e sand some gravel		Inches	24	23
10'-12'	Dry	2/4/4/4	Damp	11'	Brown silty fine sand and organics into gray silt			2	24	14
15'-17'	Dry	22/100 for 4"	Dry		Gray silty till with roo	ck fragments		3	10	10
Ground S	Surface to	15'	Used 3.25"		augers: Then SS to	o refusal at 16'3"	Earth Bo Rock Col Samples HOLE NU	ring :	16' 3 B-1	

NO.	REVISIONS	BY	DATE		DATE
				des DWN	NOV 2020
				DRN KKJ	100 2020
				CHK DWN	
				APPD	
				- · · · · -	

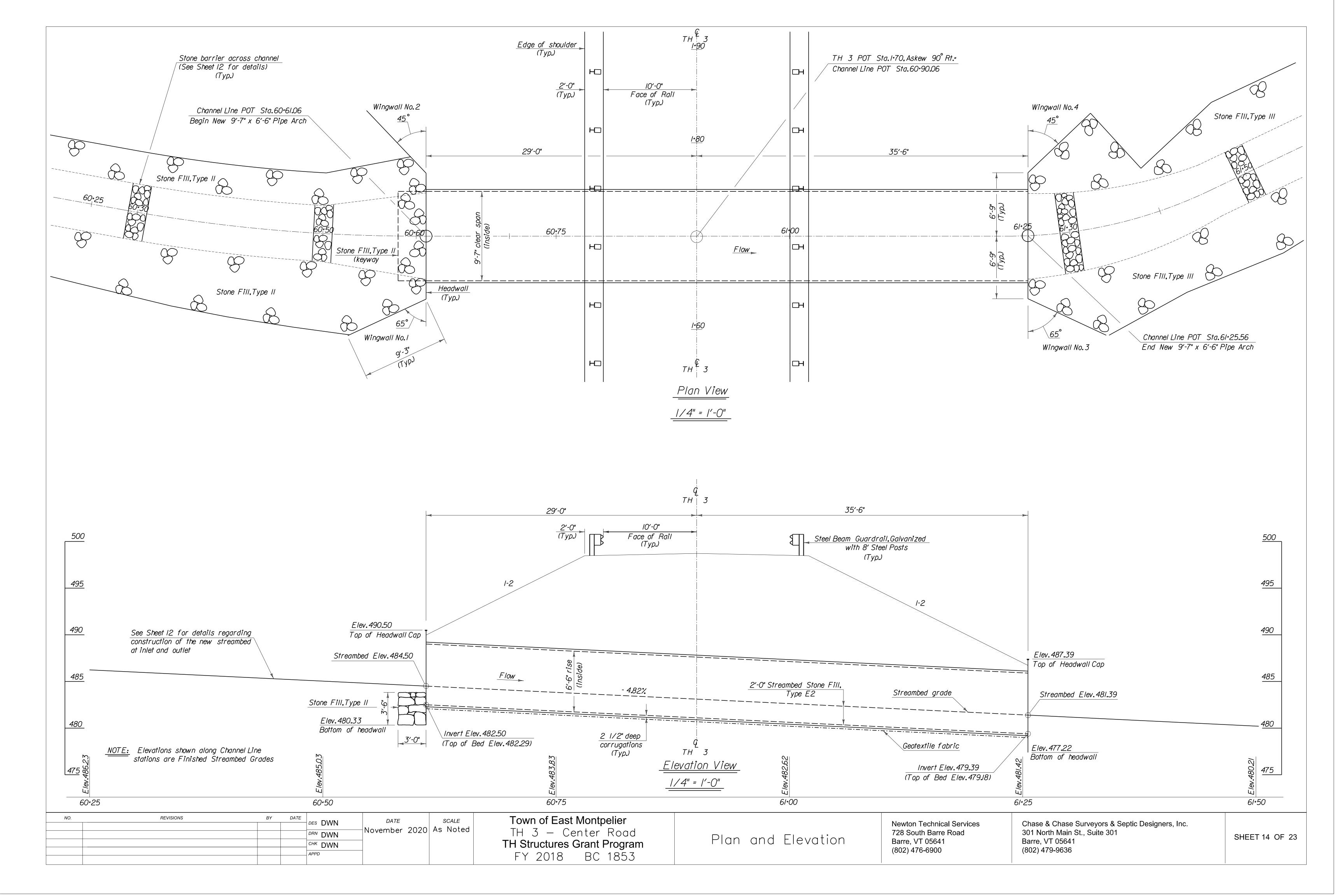
SCALE
AS SHOWN

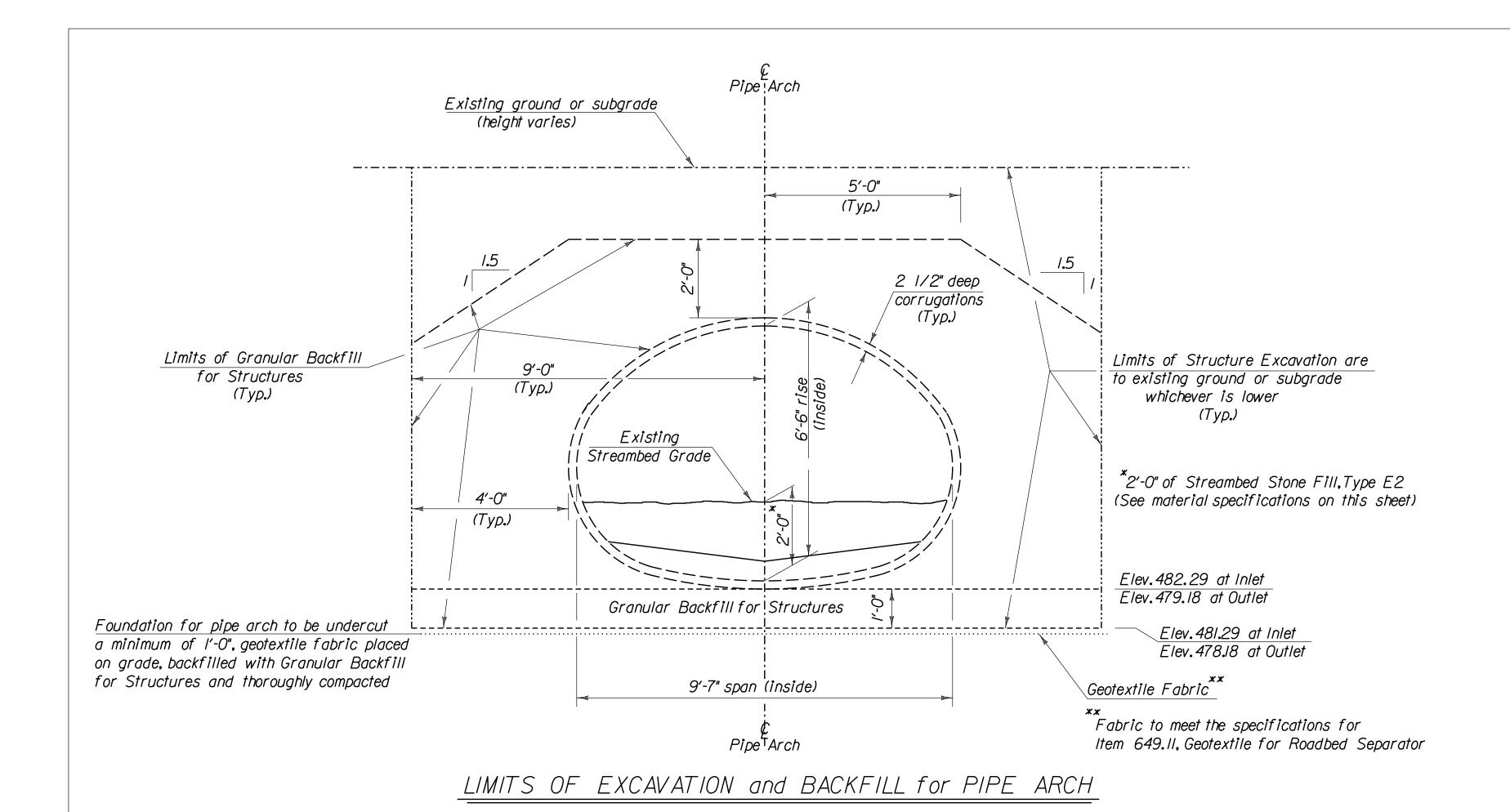
Town of East Montpelier
T.H. 3 - Center Road
TH Structures Grant Program
FY 2018 BC 1853

Boring Layout and Logs

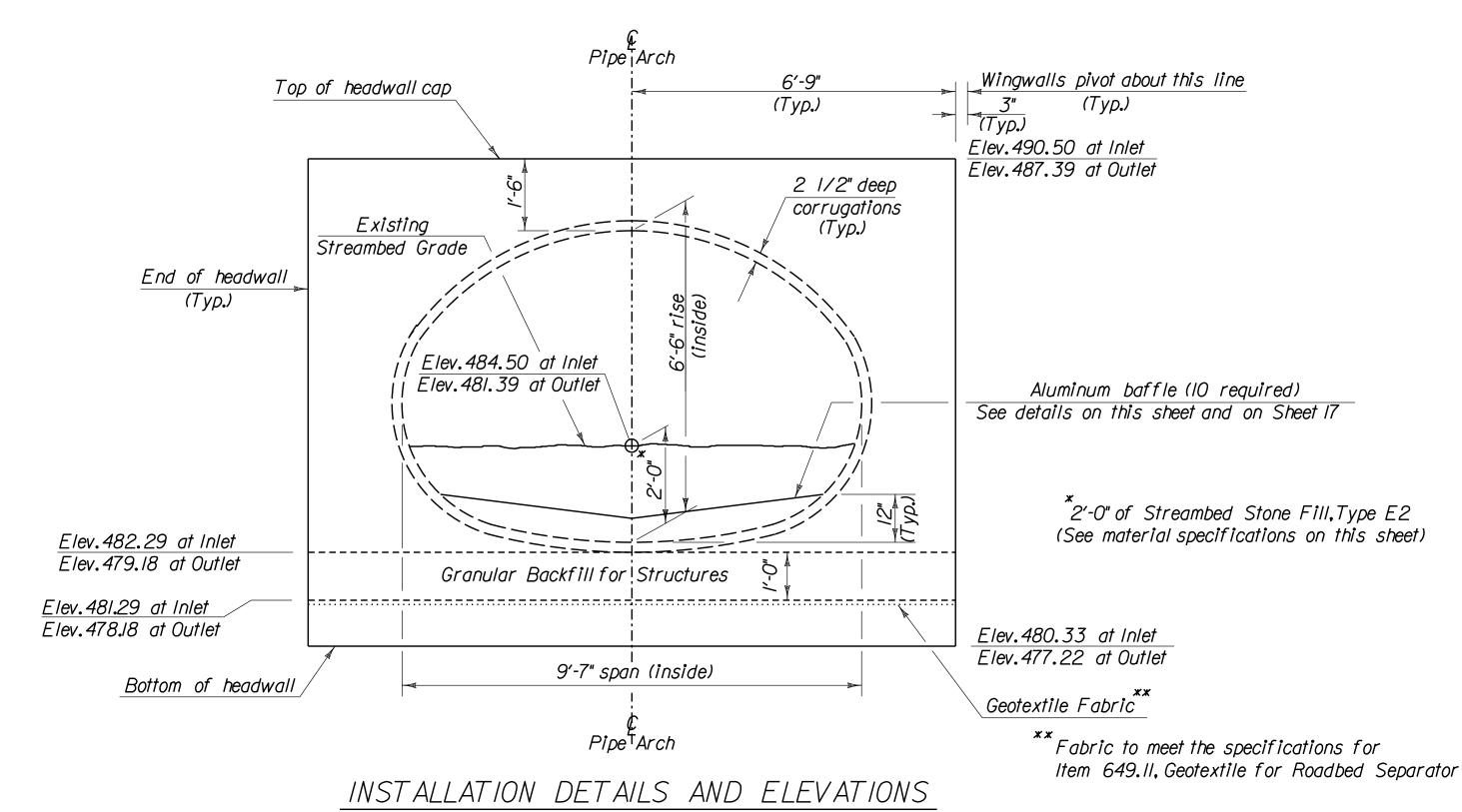
Newton Technical Services, LLC 728 South Barre Road Barre, VT 05641 (802) 476-6900 Chase & Chase Surveyors & Septic Designers, Inc. 301 North Main St., Suite 301
Barre, VT 05641
(802) 479-9636

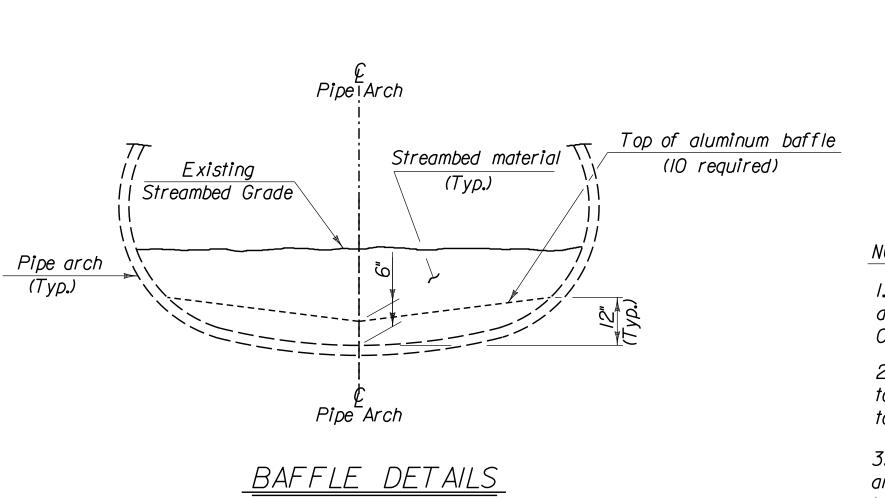
SHEET 13 OF 23





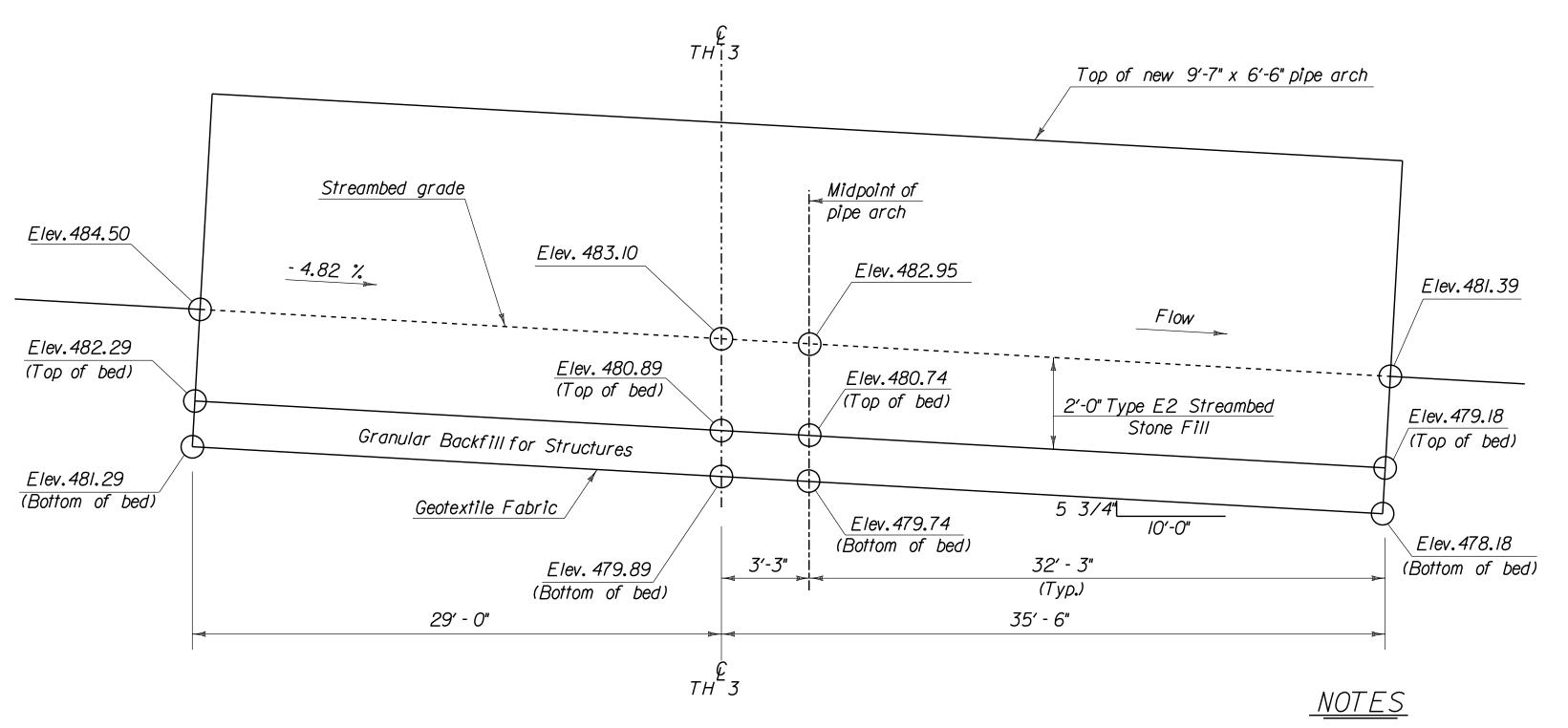
1/2" = 1'-0"





NOTES:

- I. One baffle to be placed at each end of the structure, and the other 8 to be placed along the invert as shown on CONTECH's shop drawings. (See Sheets I7 and I8)
- 2. CONTECH to furnish baffles, brackets and all hardware to attach baffles to the invert of the pipe arch. Brackets to be installed on the downstream side of the baffle.
- 3. The Contractor shall install the baffles; all work lincluding any field drilling required, and installation of the baffles shall be included under the Item, Assembly of New Structure.
- 4. Specifications for Type E2 Streambed Stone Fill:
 The longest dimension of the stone shall be at least 24 inches,
 and at least 50 percent of the volume of the stone in place
 shall have a least dimension of 18 inches, and at least 25 percent
 of the particles shall have a maximum dimension of 2 inches
 and be well-graded material.



1/2" = 1'-0"

SCHEMATIC DIAGRAM WITH ELEVATIONS

Not to Scale

I. Elevations shown for "Top of Bed" take into account the 2 1/2" (0.21') depth of corrugations

2. Headwalls not shown for clarity

NO.	REVISIONS	BY	DATE		DATE
				DES DWN	May 2019
				DRN KKJ	May 2019
				CHK DWN	

1/2" = 1'-0"

9 As Noted

Town of East Montpelier

Center Road — T.H. 3

TH Structures Grant Program
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Typical Pipe Arch Section,
Excavation and Backfill Details,
Schematic Diagram with Elevations,
and Baffle Details

Newton Technical Services, LLC 728 South Barre Road Barre, VT 05641 (802) 476-6900 Chase & Chase Surveyors & Septic Designers, Inc. 301 North Main St., Suite 301 Barre, VT 05641 (802) 479-9636

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ALUMINUM STRUCTURAL PLATE PIPE ARCH EAST MONTPELIER VT TH 3 CENTER ROAD EAST MONTPELIER, VT

661	661138-INDEX				
PAGE NUMBER	PAGE TITLE				
1	COVER SHEET				
2	PLAN VIEW				
3	CROSS SECTION				
4	PLAN VIEW 2				
5	ELEVATION VIEW				
6-8	DETAILS				
9	SPECIFICATIONS				
10	PLATE LAYOUT				

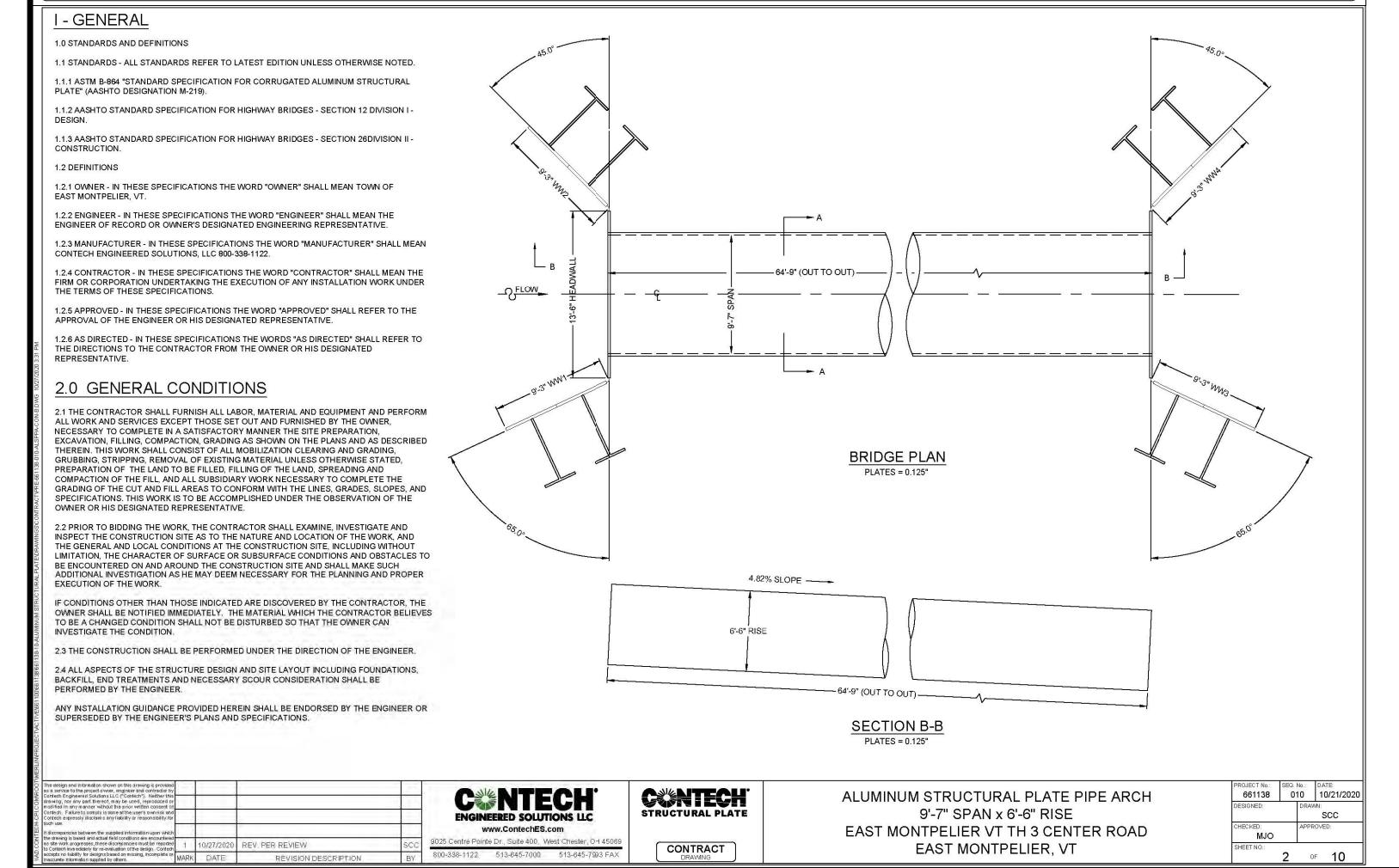
PRE-661138-010-ALSPPA-CON-B CONTECH PROJECT ID# 661138

Town of East Montpelier

T.H. 3 - Center Road

TH Structures Grant Program

FY 2018 BC 1853



SCALE

AS NOTED

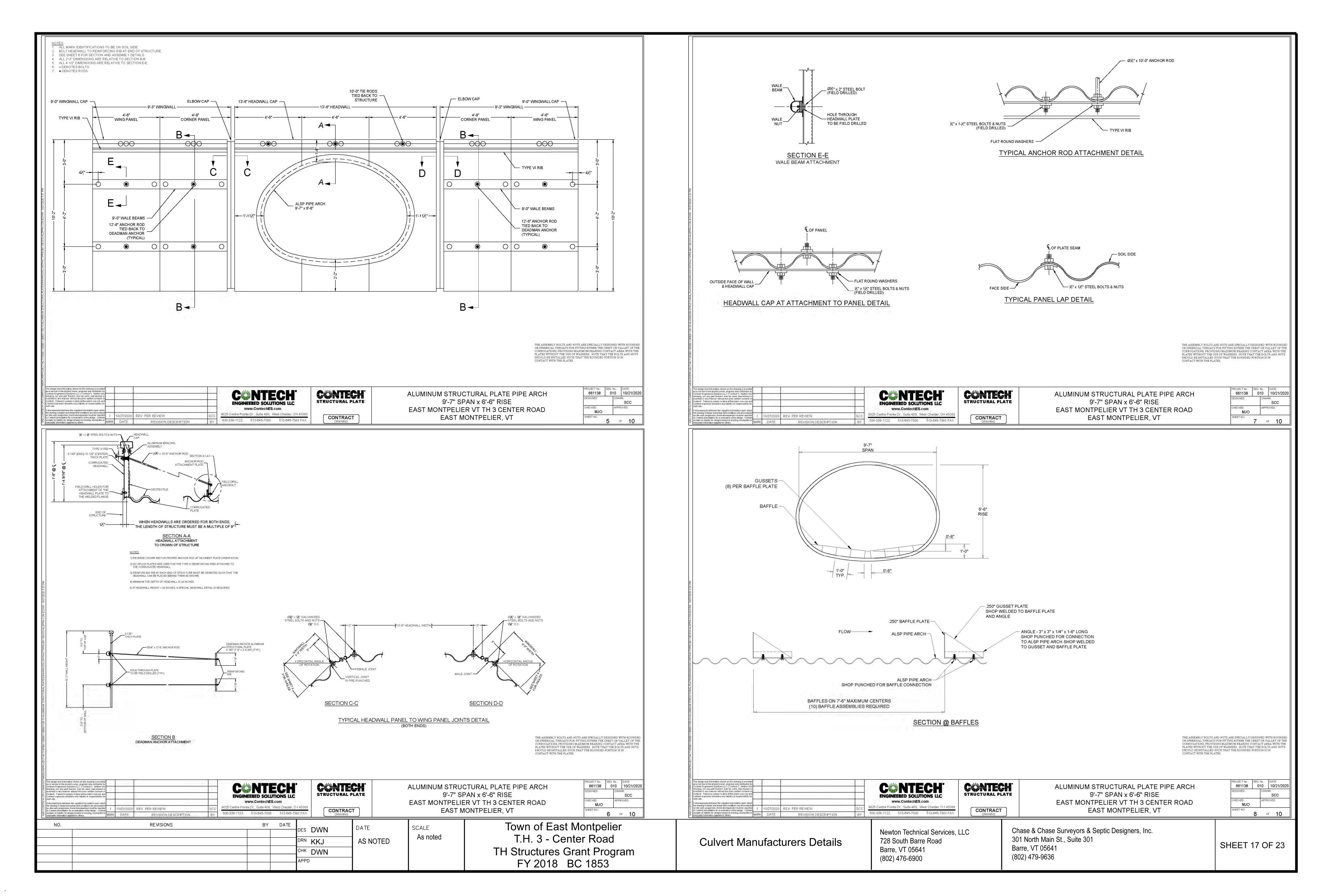
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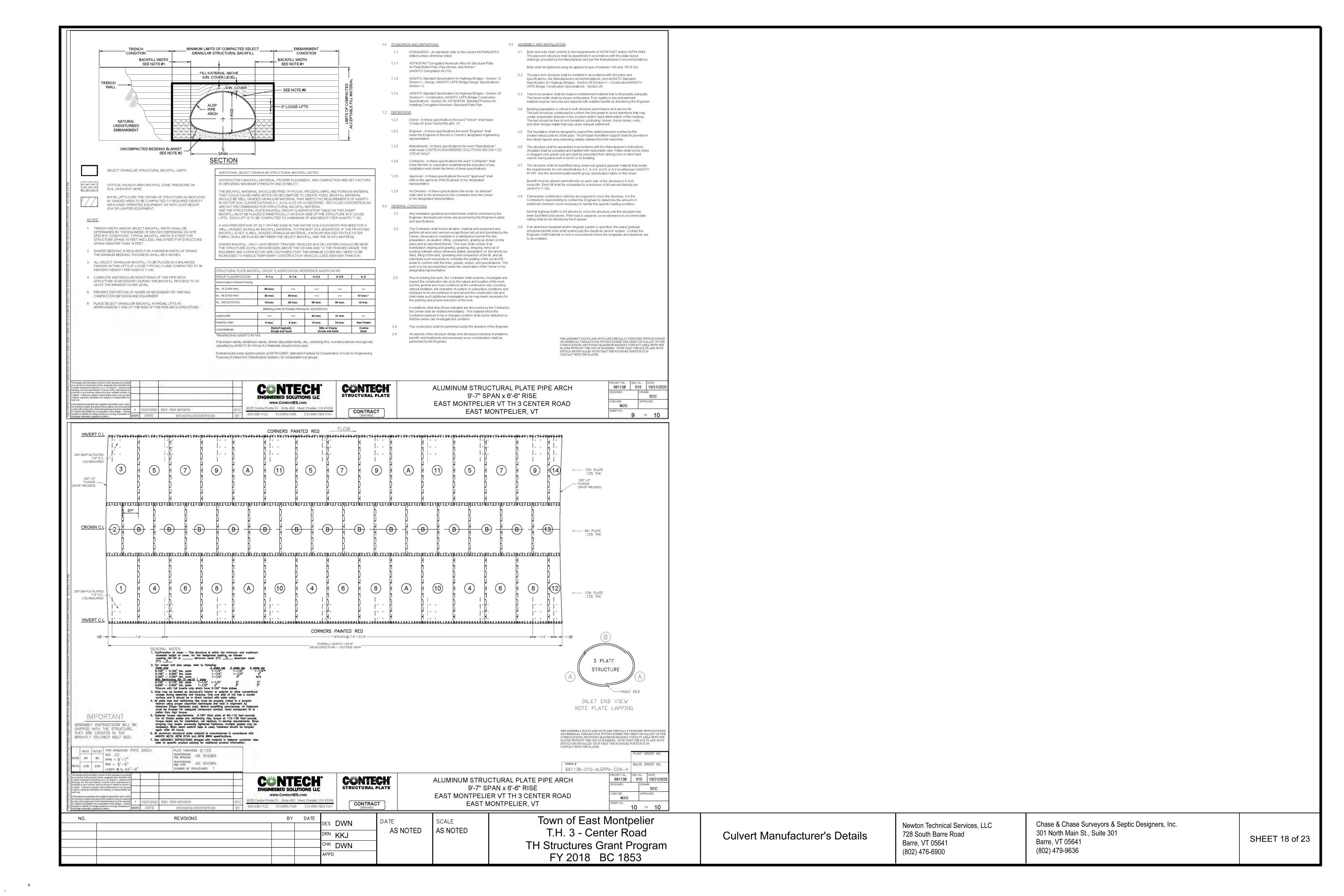
BY DATE

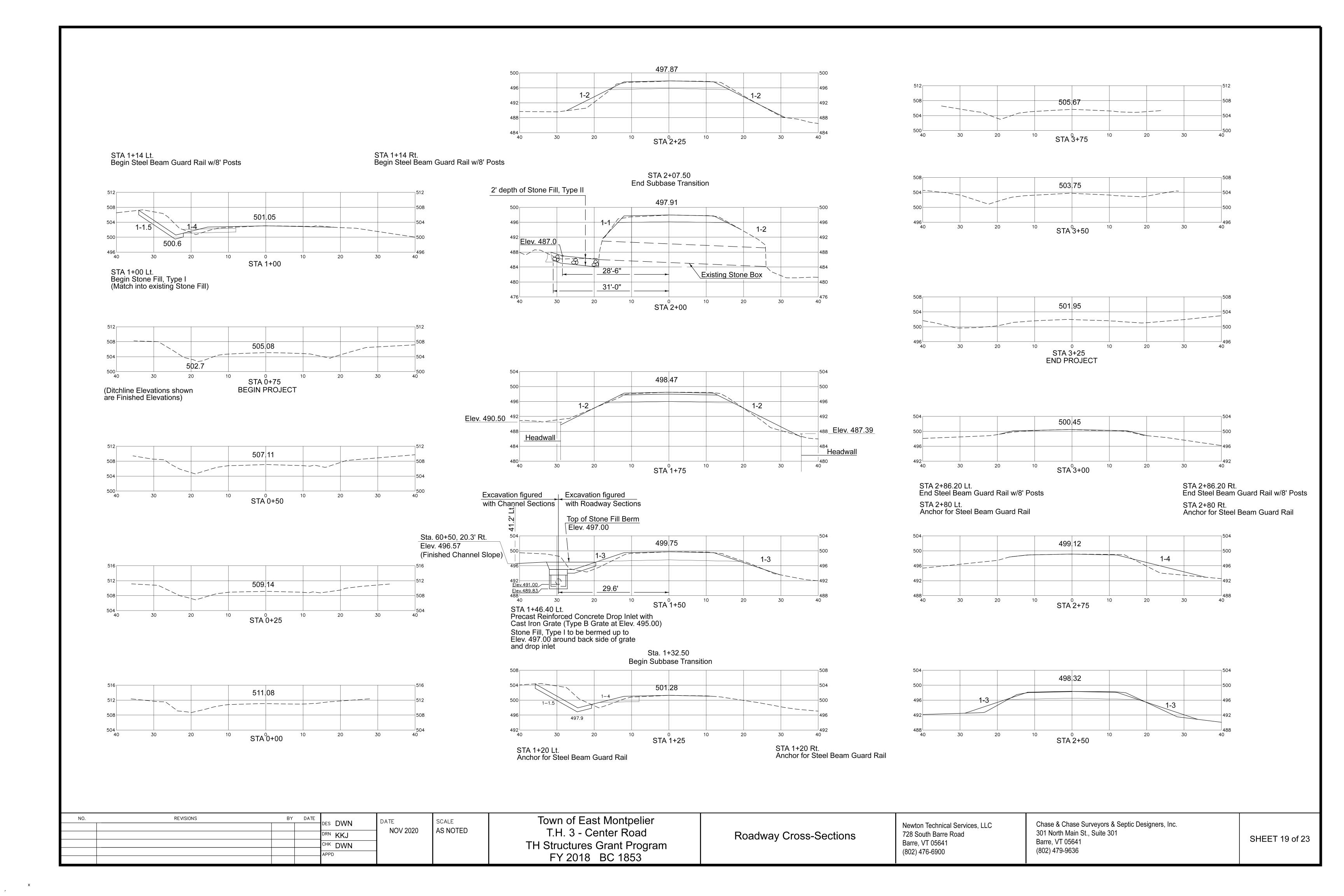
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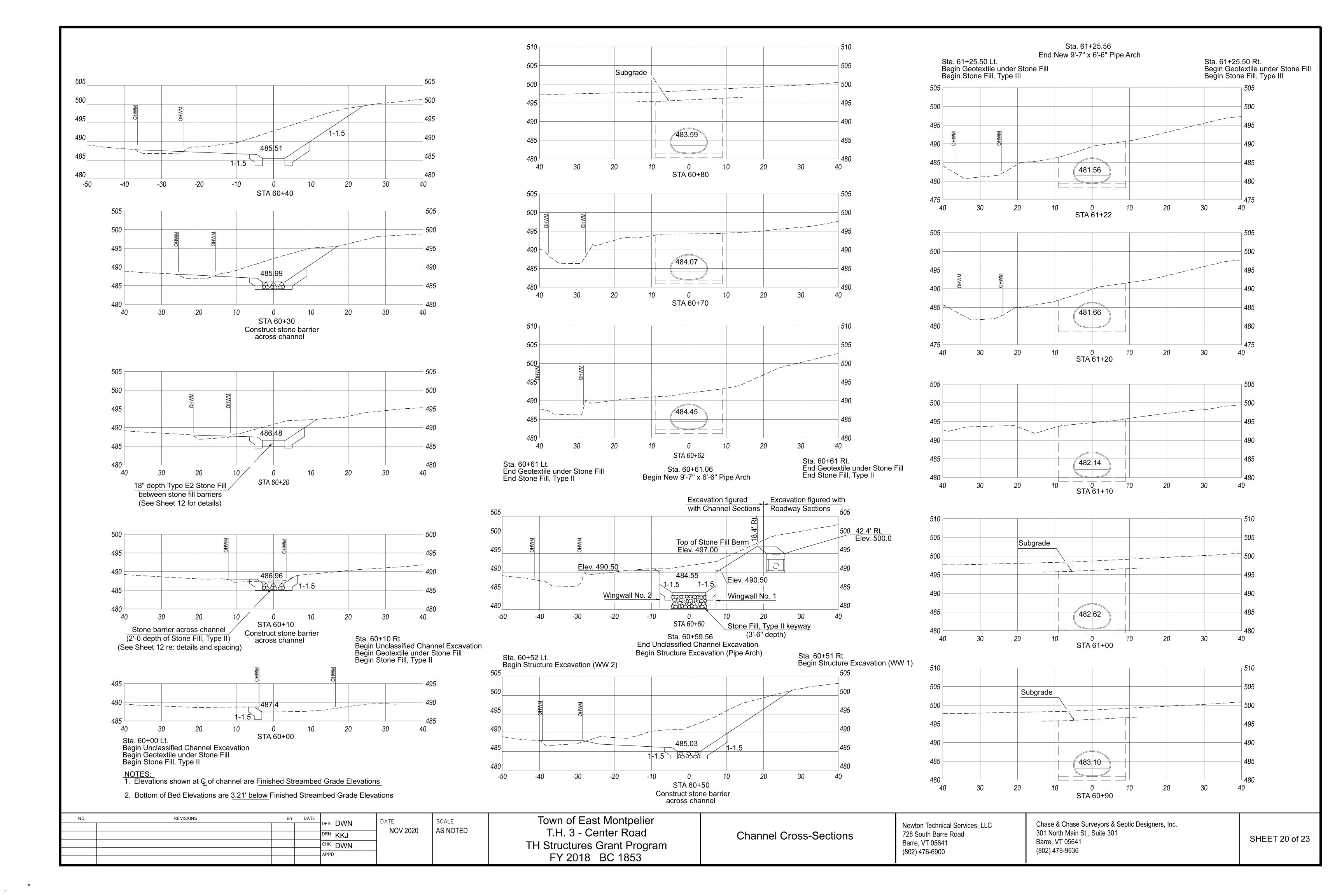
REVISIONS

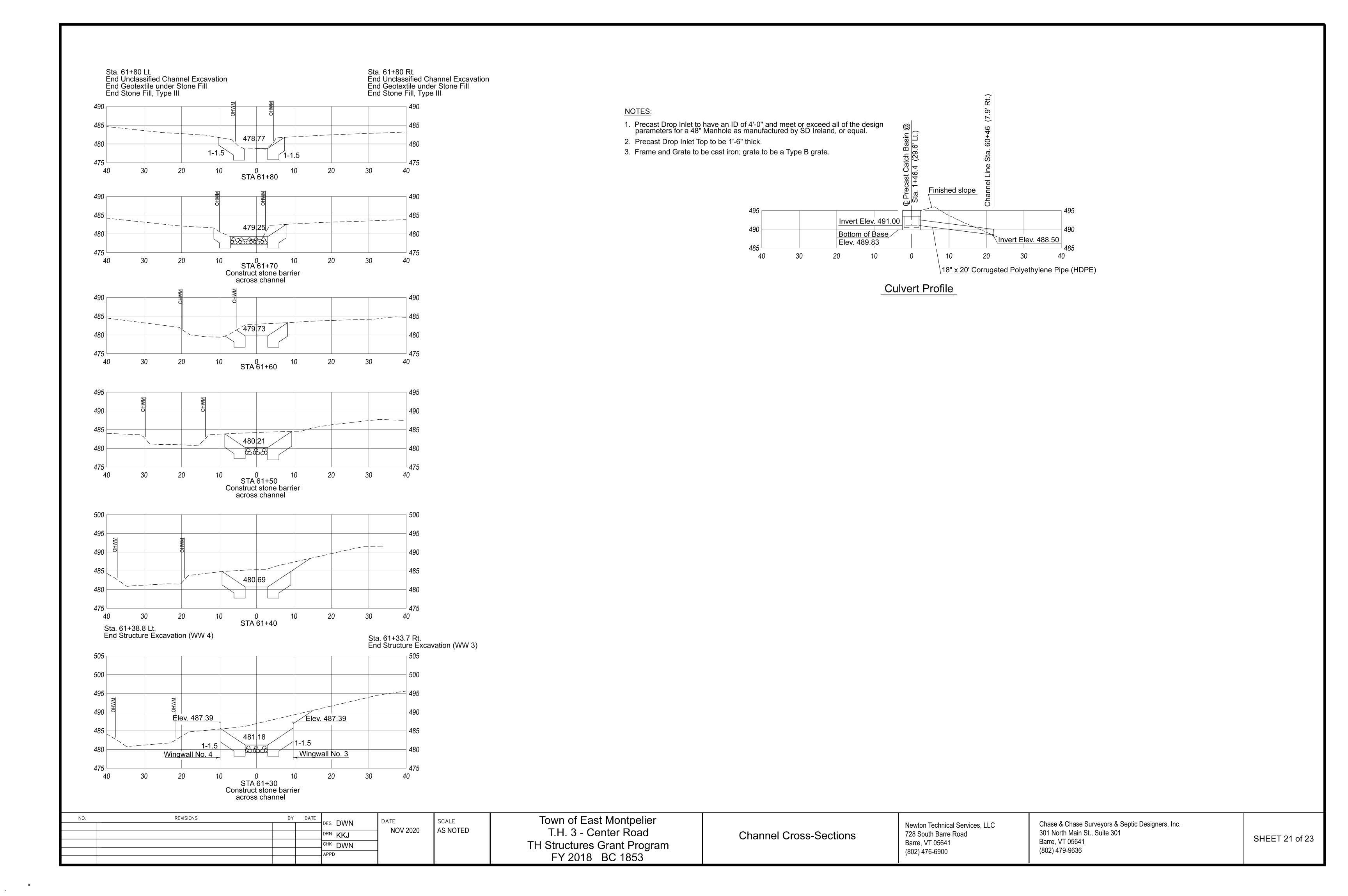
II - ALUMINUM STRUCTURAL PLATE PIPE ARCH 1.0 GENERAL 1.1 Manufacturer shall fabricate the aluminum structural plate pipe arch as shown on the plans. Fabrication shall conform to the requirements of ASTM B-864 and shall consist of plates, ribs, and appurtenant items. Plate thickness, and end treatment shall be as indicated on the plans. All manufacturing processes including corrugating, punching, curving and required galvanizing shall be performed within the United States of America 1.2 The contractor shall verify all field dimensions and conditions prior to ordering materials. 2.0 DIMENSIONS Crown Gage: 0.125 Haunch Gage: 0.125 2.1 The proposed structure shall be an ALUMINUM PIPE ARCH with the above dimensions: 2.2 All plan dimensions on the contract drawings are measured in a true horizontal plane unless otherwise 3.0 ASSEMBLY AND INSTALLATION 3.1 Bolts and nuts shall conform to the requirements of ASTM A-307 or ASTM A-449. The box culvert shall be assembled in accordance with the plate layout drawings provided by the manufacturer and per the Bolts shall be tightened using an applied torque of between 100 and 150 ft.-lbs. 3.2 The pipe arch shall be installed in accordance with the plans and specifications, the manufacturer's recommendations, and AASHTO Standard Specification for Highway Bridges - Section 26 Division II -3.3 Trench excavation shall be made in embankment material that is structurally adequate. The trench width shall be shown on the plans. Poor quality in situ embankment material must be removed and replaced with suitable backfill as directed by the Engineer. 3.4 Bedding preparation is critical to both structure performance and service life. The bed should be constructed to uniform line and grade to avoid distortions that may create undesirable stresses in the structure and/or rapid deterioration of the roadway. The bed should be free of rock formations, protruding stones, frozen lumps, roots, and other foreign matter that may cause unequal settlement. 3.5 Bedding shall provide a minimum of 4,000 psf bearing capacity. Foundation details for bearing capacity 3.6 The structure shall be assembled in accordance with the Manufacturer's instructions. All plates shall be unloaded and handled with reasonable care. Plates shall not be rolled or dragged over gravel rock and shall be prevented from striking rock or other hard objects during placement in trench or on bedding. 3.7 The structure shall be backfilled using clean well graded granular material that meets the requirements for soil classifications A-1, A-2-4, A-2-5 or A-3 modified to be more select than AASHTO M-145. See the Backfill must be placed symmetrically on each side of the structure in 6 to 8 inch loose lifts. Each lift shall be compacted to a minimum of 90 percent density per AASHTO T-180 **CROSS SECTION A-A** 3.8 Construction loads that exceed highway load limits are not allowed to cross the structure without approval from the Engineer. Normal highway traffic is not allowed to cross the structure until the structure has been backfilled and paved. If the road is unpaved, cover allowance to accommodate rutting shall be as directed by the •MEASUREMENTS ARE TO THE INSIDE CRESTS OF THE CORRUGATION. •DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES. •THE MINIMUM COVER OUTSIDE OF ROADWAY SHOULDER IS 1'-6" **C** NTECH CENTECH ALUMINUM STRUCTURAL PLATE PIPE ARCH 9'-7" SPAN x 6'-6" RISE STRUCTURAL PLATE NGINEERED SOLUTIONS LLC EAST MONTPELIER VT TH 3 CENTER ROAD www.ContechES.com Centre Pointe Dr. Suite 400, West Chester, OH 4 CONTRACT EAST MONTPELIER, VT $-\frac{3}{4}$ " X 10'-0" ANCHOR ROD (TYPICAL) TIE- BACK RIB (TYPICAL) ALSP PIPE ARCH 9'-7" SPAN x 6'-6" RISE **PLAN VIEW** 3" X 12'-6" ANCHOR ROD THE ASSEMBLY BOLTS AND NUTS ARE SPECIALLY DESIGNED WITH ROUNDES OR SPHERICAL THROATS FOR FITTING EITHER THE CREST OR VALLEY OF THI CORRUGATIONS, PROVIDING MAXIMUM BEARING CONTACT AREA WITH THE PLATES WITHOUT THE USE OF WASHERS. NOTE THAT THE BOLTS AND NUTS SHOULD BEINSTALLED SUCH THAT THE ROUNDED PORTION IS IN CONTACT WITH THE PLATES. DEADMAN ANCHOR (TYPICAL) PROJECT No.: SEQ. No.: DATE: 661138 010 10/21/2020 **CENTECH C**NTECH ALUMINUM STRUCTURAL PLATE PIPE ARCH 9'-7" SPAN x 6'-6" RISE NGINEERED SOLUTIONS LLC EAST MONTPELIER VT TH 3 CENTER ROAD www.ContechES.com MJO ntre Pointe Dr., Suite 400, West Chester, OH CONTRACT EAST MONTPELIER, VT 4 of 10 Chase & Chase Surveyors & Septic Designers, Inc. Newton Technical Services, LLC 301 North Main St., Suite 301 **Culvert Manufacturers Details** 728 South Barre Road **SHEET 16 OF 23** Barre, VT 05641 Barre, VT 05641 (802) 479-9636 (802) 476-6900

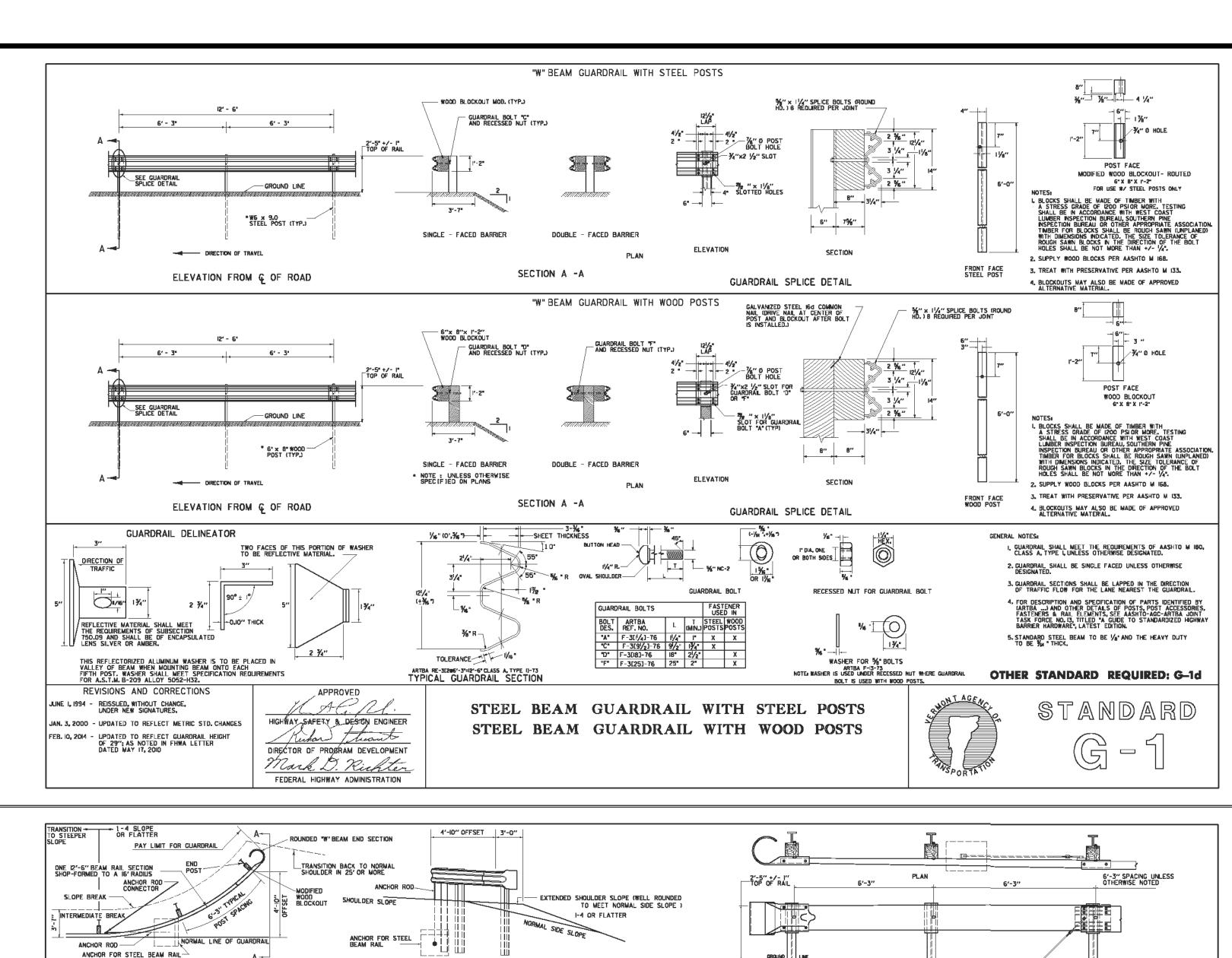


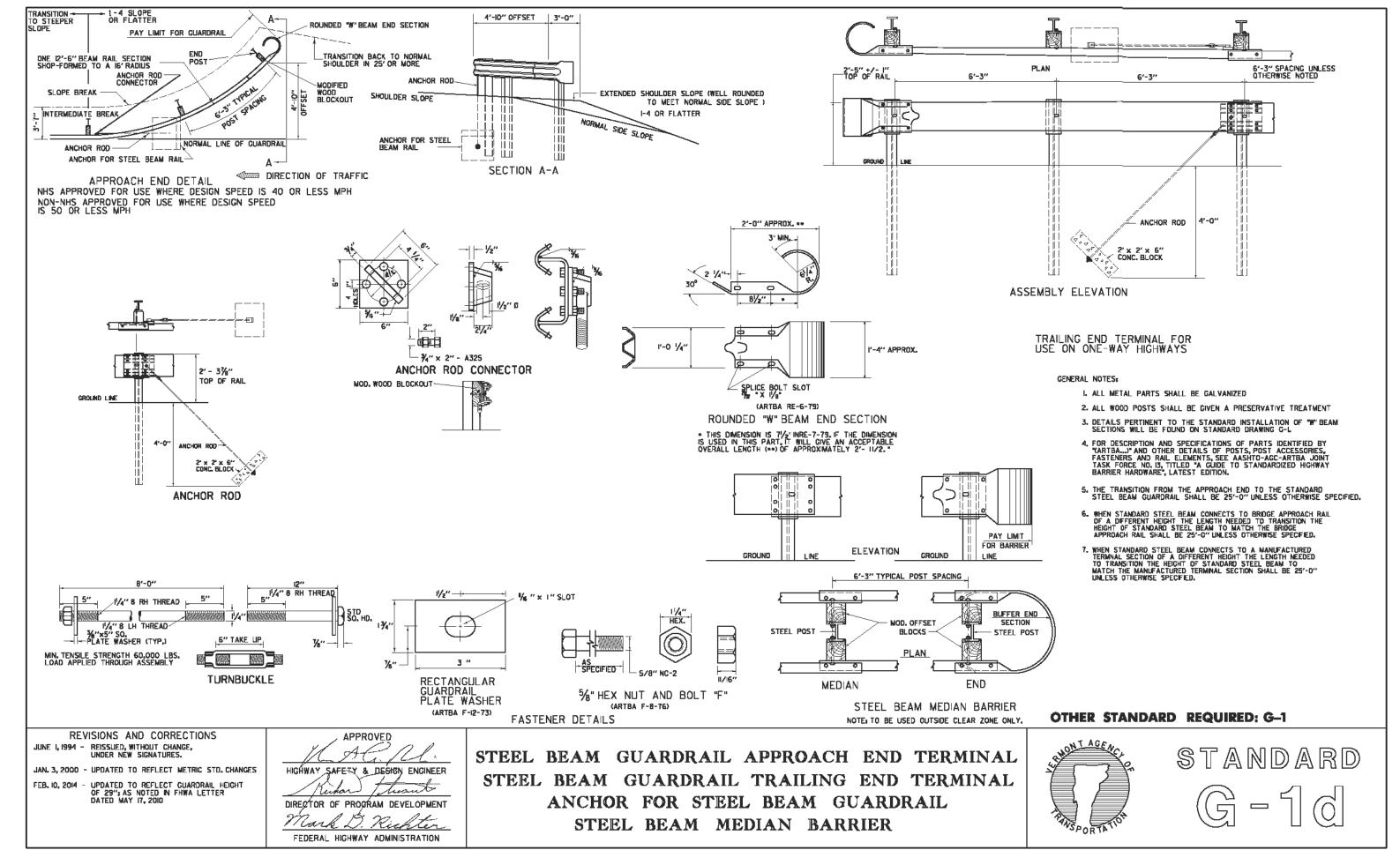












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Standards

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