



# CHURCHILL ROAD BRIDGE REPLACEMENT, BRANDON, VT ENVIRONMENTAL DOCUMENTATION

## PROGRAMMATIC CATEGORICAL EXCLUSION (PACE)



Date:  
January 23, 2020

Prepared For:  
Dave Atherton  
Brandon Town Manager

Prepared By:  
Karina Dailey, P.W.S.  
Trudell Consulting Engineers

TCE # 19-043



## PROGRAMMATIC CATEGORICAL EXCLUSION CRITERIA

TCE has determined that this project will NOT:

A. X Require a temporary detour outside existing right-of-way, or a temporary wetland or stream crossing which will require non-routine mitigation, or a ramp closure, unless the following conditions are met:

1. provisions are made for access by local traffic and the facility is posted accordingly,
2. businesses dependent upon through traffic will not be unduly affected,
3. the temporary detour or ramp closure will not interfere with local special events,
4. the temporary detour, ramp closure, wetland or stream crossing will not substantially increase the environmental consequences of the action (project)

B. X Involve construction in waterways, or wetlands totaling more than 5,000 square feet of permanent impacts, an General Permit #18 has been obtained for this work (Permit #CENAE-RDC-62, see attached). A work start notification is required to be submitted prior to construction (also attached).

C. X Require a Risk Analysis for an increase in 100-year flood water surface elevations, per EO 11988.

D. X Involve construction within, or alter drainage patterns so as to adversely affect, a Sole Source Aquifer.

E. X Require coordination with the US Fish and Wildlife Service for the preparation of a Biological Assessment for Threatened and Endangered Species, per 16 CFR Section 7.

F. X Require acquisition of additional right-of-way (including permanent or temporary construction easements) involving: more than three acres of land per mile of roadway, or a total of 10 acres of more for a non-linear improvement (such as a bridge or an intersection), or any relocation of residences of businesses.

G. X Require FHWA approval for changes in access control.

H. X Involve acquisition of, or impacts upon Prime or Unique Farmland, unless a USDA Farmland Conversion Impact Rating Part VI Site Assessment has been completed and indicates Total Site Assessment Points less than 160 (doesn't apply to designated urban areas).

I. X Adversely affect a historic or archaeological resource on, or eligible for inclusion on, the National Register of Historic Places.

J. X Require use (permanent or temporary) of a Section 4(f) resource, unless that use meets the criteria for a de minimis or Programmatic 4(f); or involve the use of a Section



6(f) resource when compensation is required (property acquired or improved using Land and Water Conservation Funds).

K. X Involve hazardous or residual waste liabilities subject to CERCLA and/or RCRA requirements.

L. X Require a bridge permit from the US Coast Guard, per 23CFR 650 Subpart H.

M. X Qualify as a Type I project and require analysis of noise abatement measures, per 23 CFR 772 and the FHWA approved VTrans Noise Policy.



Categorical Exclusion  
Environmental Analysis Sheet

Town Brandon Project No. 50FLAP004; 19-043 Route TH 22 (Churchill Road)

Project Setting: Urban        Village        Rural X  
Traffic N/A Year N/A Typical Refer to plans

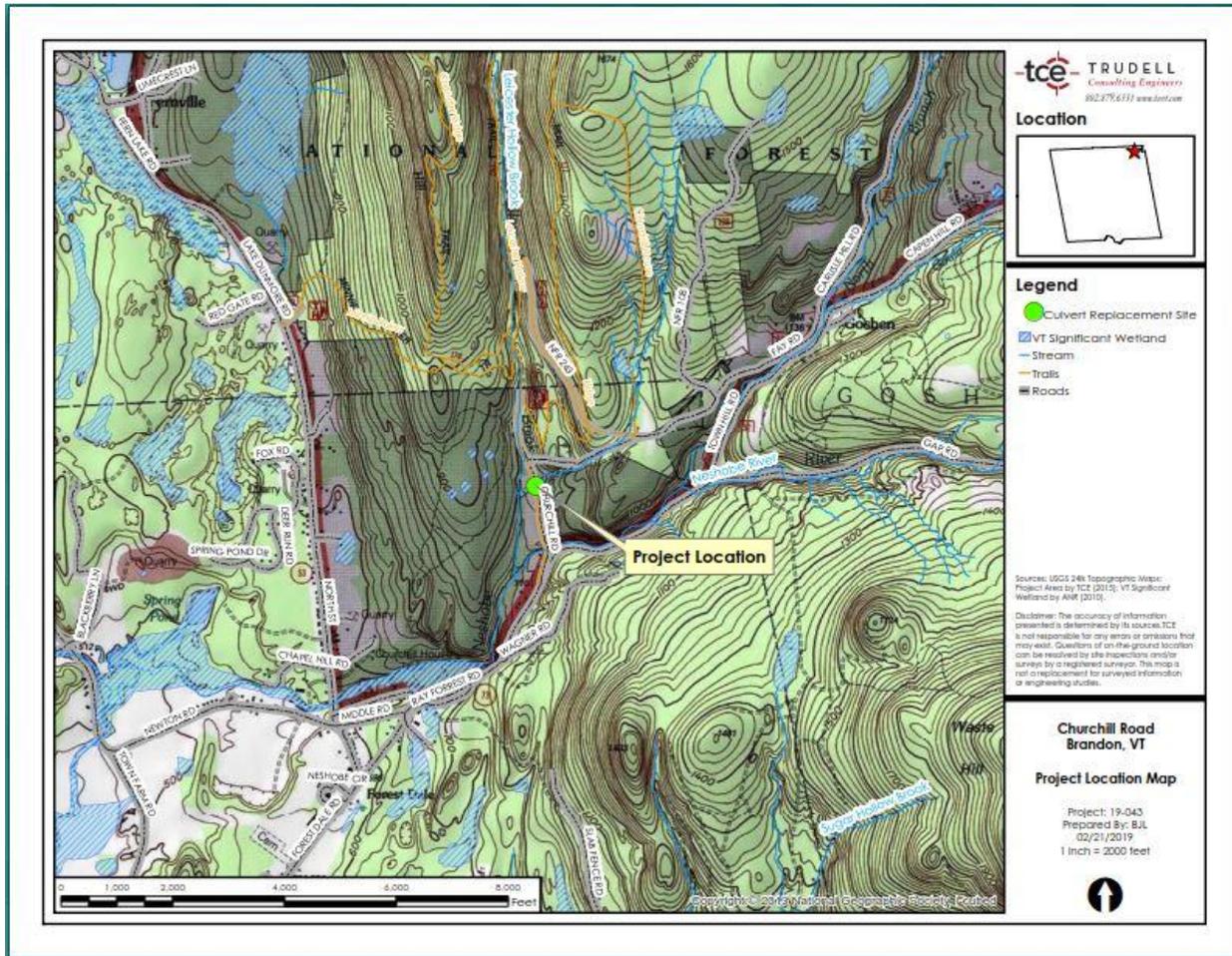
Project Purpose & Need:

A Programmatic Categorical Exclusion (PACE) for the above-mentioned project, per 23 CFR 771.117(d)(3), is proposed for a culvert replacement project located on Town Highway 22 (Churchill Road) in the Town of Brandon, Vermont. Work to be performed consists of the removal and replacement of an old wooden bridge to be replaced with a reinforced concrete, closed box culvert 14' W X 8' D X 18' L with supporting wing walls, with related approach and channel work, and incidental items.

Project Design Features:

1. Existing structure will be replaced with culvert designed to meet 25-year peak flood events with no roadway overtopping during a 100-year peak flood event.
2. Excavated fill material removed during replacement of the culvert will be temporarily stored on or adjacent to the existing road. Excavated waste material will be hauled to the closest suitable facility.
3. To accommodate the new culvert, some trees were felled; these trees were removed and disposed of off-site at a suitable facility. Prior to tree felling a USFWS Bat Emergence Survey was conducted by TCE and USFWS to confirm that no bats were roosting in subject trees. Following tree cutting, all felled trees were inspected to confirm there were no injured or killed bats.
4. The culvert replacement will occur during the late spring/summer period when streamflow is at its lowest.
5. All work will be done between 7AM and 5PM.
6. Best Management Practices (BMPs) will be implemented when performing work in the stream, including the monitoring of downstream turbidity (no further than 50 feet downstream).
8. Stream sedimentation will be mitigated through Low Risk Erosion Control Measures.
9. All disturbed areas within the clearing limits of the road and stream will be seeded with native plant species and mulched following the end of the construction activities to allow for re-vegetation.
10. Power equipment will be refueled off-site and outside of the riparian zone (150 feet minimum off of stream), at designated locations where no spilled material will reach flowing waters.
11. All stone fill slopes will have a grubbing layer on top and bedding underneath the stone.

Figure 1. Churchill Road Culvert Replacement Project Map



CRITERIA OF 23 CFR 771.117(C) APPLICABLE?  X  YES  NO

NOTE: PROJECTS THAT MEET THE CRITERIA OF 23 CFR 771.117 (C) NEED ONLY ADDRESS THOSE ISSUES MARKED WITH AN ASTERISK (\*). THIS DOES NOT PRECLUDE THE NEED TO OBTAIN APPLICABLE STATE & FEDERAL CONCURRENCES & PERMITS.

1. Air Quality

Ten year increase in ADT < 10,000 (10,000 allowed maximum per MOA)

Urban intersection improvement YES  NO  X

2. Noise

Type I Project (VTrans Noise Policy) YES  NO  X

If yes, number of receptors impacted N/A

Mitigation Requirements N/A

3. Water Quality

Lakes or Ponds

VT DEC Lakes & Ponds permit YES  NO  X ACQUIRED

Rivers or Streams



VT DEC Consultation YES  NO  Acquired Permit #SA-2191  
 VT Stream alteration permit signed on 10/2/2019 RME – Josh Carvajal, PE.

Wetlands

- \* Wetland Impact area Temporary  Permanent
  - \* Buffer Impact area Temporary  Permanent
  - \* VT DEC Wetland Permit YES  NO  Acquired
- 401 Water Quality Certification YES  NO  Acquired   
Stormwater Discharge Permit YES  NO  Acquired   
Flood plains Encroachment YES  NO  Acquired

Describe Hydraulic Changes: During construction there will be 530 square feet of impact to land below ordinary high water. Best management practices will be used to minimize erosion and sedimentation.

Ground Water/Surface Water/Well Impacts YES  NO  Describe N/A

DEC/ANR Comments: See attached Stream Permit and correspondence.

4. U.S. Army Corps of Engineers  
 Section 10 and/or Section 404 Permit Required YES  NO  Acquired   
 Permit Type General Permit Category 2, #NAE-2019-02606  
 COE Comments See attached Permit and correspondence.

5. U.S. Coast Guard  
 Navigable Waters YES  NO  Involved Waterway tributary of Neshobe River  
 Rivers & Harbors Act Section 9 and/or  
 Bridge Act of 1946 Permit(s) Required YES  NO  Acquired   
 Section 144(h) "Exemption" YES  NO  Acquired   
 USCG Comments \_\_\_\_\_

6. Threatened and Endangered Species and Habitat  
 Present in Project Area YES  NO   
 ANR Non-Game and Natural Heritage Program comments None at this time  
 USF&WS comments Attached  
 Natural Resource Clearance Comments Attached. The project is within the range of the endangered Indiana Bat and the threatened northern long-eared bat. No bats were observed during emergence surveys conducted by the GMNF/USFWS and TCE ecologists as supported in the attached correspondence.

7. Agricultural Land  
 Prime/secondary/locally important soils affected YES  NO   
 Current land use Existing roadway and bridge over a tributary of the Neshobe River. There is a hayfield northwest of the project area, a pasture to the southwest, and the land to the north and east of the project area is forested.  
 Form 1006 Parts I, III, VI, VII, completed (FHWA) YES  NO   
 Form 1006 Parts II, IV, V, completed (NRCS) YES  NO   
 VT DoA comments \_\_\_\_\_



8. Hazardous/ Residual Waste Liabilities

Present in Project Area YES \_\_\_ NO X
Determination from VANR list YES \_\_\_ NO X
Determination from field visit YES \_\_\_ NO X
Borings completed YES \_\_\_ NO X
Petroleum related wastes YES \_\_\_ NO X
CERCLA involvement YES \_\_\_ NO X
Remediation required YES \_\_\_ NO X

Describe: There are no hazardous or residual waste or material liabilities within the project area per the ANR Natural Resources Atlas online mapping 3/18/2019.

9. \*Historical or Archaeological Resources (Section 106)

Historic Resources: Present in project area YES \_\_\_ NO X Exempt \_\_\_
Archaeological Resources: Present in project area YES \_\_\_ NO X Exempt \_\_\_
Section 106 determination See attached USDA letter and concurrence by VT DHP
Memorandum of Agreement needed YES \_\_\_ NO X Executed \_\_\_
SHPO coordination completed Findings have been obtained from SHPO
Advisory Council coordination completed Not Required

10. \*Section 4(f) and 6(f) Resources

Section 4(f) resource(s) present in project area YES \_\_\_ NO X
Nature of Section 4(f)
Parks/Rec. Areas \_\_\_ Wildlife and Waterfowl Refuge \_\_\_ Historic Property \_\_\_
Temporary use of 4(f) resource YES \_\_\_ NO X
Permanent use of 4(f) resource YES \_\_\_ NO X
Section 4(f) Approval (check one)
Negative Declaration \_\_\_ de minimis 4(f) \_\_\_ Programmatic 4(f) \_\_\_ Circulated \_\_\_
Section 4(f) Comments: \_\_\_\_\_
Section 6(f) involvement (LWCF Funding) YES \_\_\_ NO X
National Park Service Conversion Approval N/A
Section 6(f) Comments: \_\_\_\_\_

11. \*Right of Way

New ROW Acquisition fee simple YES \_\_\_ NO X
permanent easement YES \_\_\_ NO X
temporary easement YES \_\_\_ NO X
Description of taking \_\_\_\_\_
Improved properties acquired YES \_\_\_ NO X
Displacements Rental Units 0 Private Homes 0 Businesses 0
Relocation services to be provided N/A
Properties available for relocation N/A

12. Public Participation Opportunity

Pre-Design Site Meeting/Posting YES X NO \_\_\_ Date \_\_\_\_\_
Public Information Posting YES X NO \_\_\_ Date \_\_\_\_\_



Public Hearing Required (502) YES \_\_\_\_ NO X Date \_\_\_\_\_

Comments by Local Officials/RPC's any comments will be on file with Town of Brandon

13. Social and Economic Concerns

Project consistent with Local and Regional Land Use Plans YES X NO \_\_\_\_

Describe Project will not change existing land use (Attach correspondence from officials)

Neighborhood and Community Concerns YES \_\_\_\_ NO X

\_\_\_\_ Churches

\_\_\_\_ Elderly

\_\_\_\_ Schools

\_\_\_\_ Handicapped

\_\_\_\_ Low Income Housing

\_\_\_\_ Environmental Justice Exec. Order 12898

\_\_\_\_ Emergency Services

\_\_\_\_ Other

Describe N/A

Effect on local business YES \_\_\_\_ NO X (Describe) \_\_\_\_\_

Temp. effect on business YES \_\_\_\_ NO X (Describe) \_\_\_\_\_

Loss of parking YES \_\_\_\_ NO X (Describe) \_\_\_\_\_

Pedestrian Facilities Sidewalk Widths Existing None Proposed None

Bicycle Facilities Paved Shoulder Widths Existing None Proposed None

If not minimum standard (sidewalk 5ft, paved shoulder 4ft), explain This is a culvert replacement project, sidewalks are not in the scope of work.

14. Aesthetic Concerns

Scenic Byway/VT Scenic Highway YES \_\_\_\_ NO X

Describe N/A

15. Effects of Temporary Detour/Bridge

Detour required YES \_\_\_\_ NO X Length \_\_\_\_\_ (attach plans)

Temporary bridge required YES \_\_\_\_ NO \_\_\_\_ (attach plans)

Impacts of Detour/Bridge N/A

Public Notification of detour N/A



**Summary of commitments, regulatory review, and applicable mitigation (if any):**

**Natural Resources**

Northern long-eared bat and Indiana Bat:

The project is within the range of the federally listed endangered Indiana Bat and the threatened northern long-eared bat. On September 9, 2019, a bat emergence survey was conducted by Kerry Monahan (biologist from VT FWS and USFWS) and TCE (Karina Dailey and Brittany LeBeau) to confirm there were no rare, threatened, or endangered bat species present in the subject trees. Following the no significant findings observation during the emergence survey an email approval was provided to allow for the cutting of trees that are ≥3" in diameter.

**VT DEC Stream Alteration**

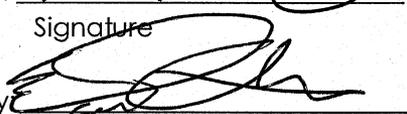
The State of Vermont Watershed Management Division has authorized the alteration of the tributary of Leicester Hollow Brook in conjunction with the installation of the culvert structure compliant with bankfull dimensions and design flows on October 2, 2019. The construction plan set was revised by McFarland Johnson on October 18, 2019 and re-submitted to River Engineer Josh Carvajal on December 20, 2019. On January 16, 2020 Josh responded via email correspondence that the Stream Alteration Permit #SA-2191 is still valid with the revised plans. He also added the condition that all stone fill slopes have a grubbing layer on top, and the geotextile underneath be replaced with bedding. The only additional conditions set forth require the contractor to schedule pre-construction meetings and provide a flow control plan to the river management engineer (RME).

**Army Corps of Engineers**

The Army Corps of Engineers authorized the placement of fill in approximately 530 square feet of the unnamed tributary of Leicester Hollow Brook in conjunction with the replacement of the deficient wooden bridge with a new concrete box culvert with headwalls on October 21, 2019 (File Number: NAE-2019-02606). On January 6, 2020, the Army Corps of Engineers approved a change in plan set (revised by McFarland Johnson on October 18, 2019) as the area of impact did not increase.

**Archaeological and Historic Resource Findings**

The Green Mountain National Forest and Vermont Division for Historic Preservation have determined that the project warrants a finding of no historic properties affected.

Prepared By:		1/23/2020
	Signature	Date
Reviewed By:		1/23/2020
	Signature	Date



## List of Attachments

1. State Wetland Review and TCE Report
2. Army Corps Permit
3. State Stream Alt Permit
4. State and USDA Historic Review Letter
5. State Biologist – T. Appleton Correspondence
6. US Forest Service Biologist – J. Mears Correspondence
7. State Wildlife Technician – K. Monahan Correspondence
8. USFWS and TCE Bat Field Reports and Data Sheets
9. State Small Mammals Biologist – A. Bennett Correspondence
10. Army Corps of Engineer – A, Michael Correspondence
11. River Management Engineer – J. Carvajal Correspondence
12. US FWS IPaC Letter
13. Brandon Culvert Final Plans – McFarland Johnson

Karina E. Dailey, PWS

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From: Courage, Zapata <Zapata.Courage@vermont.gov>  
Sent: Thursday, February 28, 2019 4:33 PM  
To: Karina E. Dailey, PWS; dburlett@townofbrandon.com; Carvajal, Joshua  
Cc: Mark Pfenning (mpfenning@campprecast.com); John Pitrowiski, P.E.; Colen Johnson; Brittany LeBeau  
Subject: RE: 19-026 Churchill Road, Brandon, VT Culvert Replacement Projects

Hello everyone, after reviewing the materials sent over by Karina and Josh, especially the photos and the surrounding vegetation and topography, I have no wetland concerns. I do not need to do a site visit. Good luck with the project. 😊

Zapata

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From: Karina E. Dailey, PWS <[Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)>  
Sent: Monday, February 11, 2019 4:01 PM  
To: Courage, Zapata <[Zapata.Courage@vermont.gov](mailto:Zapata.Courage@vermont.gov)>; [dburlett@townofbrandon.com](mailto:dburlett@townofbrandon.com)  
Cc: Mark Pfenning ([mpfenning@campprecast.com](mailto:mpfenning@campprecast.com)) <[mpfenning@campprecast.com](mailto:mpfenning@campprecast.com)>; John Pitrowiski, P.E. <[John.Pitrowiski@tcevt.com](mailto:John.Pitrowiski@tcevt.com)>; Colen Johnson <[Colen.Johnson@tcevt.com](mailto:Colen.Johnson@tcevt.com)>; Brittany LeBeau <[Brittany.LeBeau@tcevt.com](mailto:Brittany.LeBeau@tcevt.com)>  
Subject: 19-026 Churchill Road, Brandon, VT Culvert Replacement Projects

Good afternoon Zapata and Daryl,  
Attached please find TCE's natural resource assessment map, EC Plan and Wetland Assessment Memo for Churchill Road in Brandon, VT.

To summarize, no wetlands were found to be associated with the project area or its vicinity.

Zap, Daryl said he would like to visit this site with you if possible so please connect with him prior to going out. Thank you both, and don't hesitate to reach out if you have any questions.

Cheers!

**Karina E. Dailey, P.W.S., C.W.B.**  
*Senior Ecologist*

*Trudell Consulting Engineers*  
e. [Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)  
p. 802.879.6331 x110  
f. 802.879.0060



478 Blair Park Road, Williston, VT 05495  
42 Mapleville Depot, St. Albans, VT 05478



TRUDELL  
*Environmental Services*

## Wetland Assessment Field Report

To: Camp Precast

Date: February 8, 2019

From: Karina Dailey, PWS, Trudell Consulting Engineers

Re: Wetland Assessment for Churchill Road Brandon, VT

Project No.: 19-026

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This memorandum summarizes the wetland site investigation that was performed within the vicinity of an existing stone culvert stream crossing on Churchill Rd in Brandon, VT, on February 7, 2019, subsequently referred to as the project area. The assessment was conducted by Karina Dailey, P.W.S. and Brittany LeBeau, Ecologists for Trudell Consulting Engineers (TCE) at the request of Camp Precast for a proposed culvert design project.

The project area is situated on Churchill Road, approximately 0.25 miles from the intersection of VT-73 and Churchill Road, and along an unnamed tributary of Leicester Hollow Brook. The existing wooden bridge is approximately 10ft wide, lined with large stones on all sides. A fieldstone fence wall is located along the stream bank on the southeast side of the tributary. Approximately four trees (1 white ash, 2 sugar maple, and 1 eastern hemlock) exist along the upstream side of the stream bank as shown on the Existing Conditions Plan (C1-01). These trees will likely need to be removed for the proposed culvert replacement. Elevations within the project area range from 800ft at top of bank and approximately 793ft at the stream center as is depicted in the attached Natural Resources Map and EC Plan. The predominant soil type in this area is a Colton-Duxbury complex, 8 to 15 percent slopes, very stony. This soil is not listed as hydric (NRCS 2018).

The purposes of the site visit were: 1) To determine if any wetlands, as per wetland definitions in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory 1987), exist within the proposed pond area; 2) If present, to determine the approximate locations and boundaries of all wetlands within the project area; and 3) Ensure full compliance with Section 404 of the Federal Clean Water Act and the Vermont Wetland Rules.

No wetlands were found to exist within the project area or its 50ft vicinity as the stream is fairly steep in gradient along this reach with an incised natural stone bottom.



Should you have any questions please do not hesitate to contact Karina Dailey at (802) 879-6331 x110 or [karina.dailey@tcevt.com](mailto:karina.dailey@tcevt.com). For additional information please refer to the attached Natural Resource Map and Natural Resources Assessment Map of the parcel.

Attachments:

Natural Resources Assessment Map  
Existing Conditions Plan C1-01



DEPARTMENT OF THE ARMY  
US ARMY CORPS OF ENGINEERS  
NEW ENGLAND DISTRICT  
696 VIRGINIA ROAD  
CONCORD MA 01742-2751

October 21, 2019

Regulatory Division  
CENAE-RDC-62  
File Number: NAE-2019-02606

Mr. David Atherton  
Town of Brandon  
49 Center Street  
Brandon, Vermont 05733

Dear Mr. Atherton:

We have reviewed your application to place fill in about 530 sq. ft. (0.01 acre) of an unnamed stream in conjunction with the replacement of a deficient wooden bridge with a new the 14' x 8' precast concrete box culvert with headwalls on Churchill Road in Brandon, Vermont. The work is shown on the attached plans, on five sheets, entitled "CULVERT REPLACEMENT" (dated "10/03/19" and "09/18/2019") and "Culvert Replacement" (dated "04/02/2019", revised "09/18/19").

Based on the information that you have provided, we verify that the activity is authorized under General Permit #18 of the enclosed December 6, 2017 Federal permit known as the Vermont General Permits (GPs).

Please review the enclosed GPs carefully, including the general conditions beginning on page 26, to be sure that you and whoever does the work understand its requirements. A copy of the GPs and this verification letter shall be available at the project site throughout the time the work is underway. Performing work within our jurisdiction that is not specifically authorized by this determination or failing to comply with any special condition(s) provided below or all the terms and conditions of the GPs may subject you to the enforcement provisions of our regulations. You must perform this work in compliance with the terms and conditions of the GPs.

This authorization **requires you to complete and return the enclosed Work Start Notification Form** to this office before the anticipated starting date. You must also complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S.

This authorization expires on December 6, 2022. You must commence or be under contract to commence the work authorized herein by December 6, 2022, and complete the work by December 6, 2023. If not, you must contact this office to determine the need for further authorization before beginning or continuing the activity. We recommend that you contact us *before* this authorization expires to discuss reissuance. Please contact us immediately if you change the plans or construction methods for work in our jurisdiction. We must approve any changes before you undertake them. This authorization does not obviate the need to obtain other Federal, state, or local authorizations required by law.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=regulatory\\_survey](http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey)

Please contact Michael S. Adams of my staff at (802) 872-2893 if you have any questions.

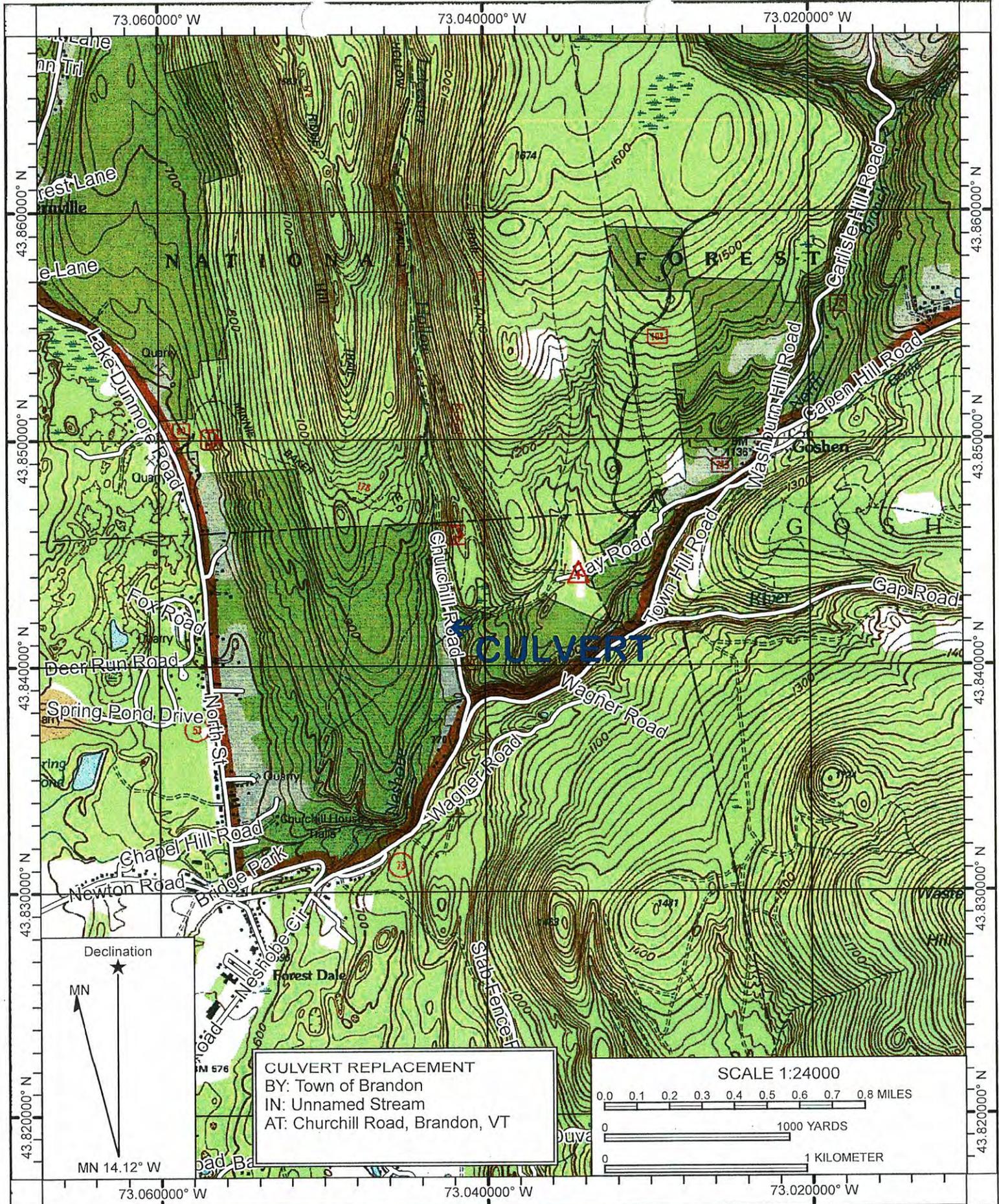
Sincerely,

  
Frank J. DelGiudice  
Chief, Permits & Enforcement Branch  
Regulatory Division

Enclosures

cc:

Mr. Josh Carvajal, Watershed Management, [Joshua.carvajal@vermont.gov](mailto:Joshua.carvajal@vermont.gov)  
Ms. Karina Dailey, Trudell Consulting Engineers, [karina.dailey@tcevt.com](mailto:karina.dailey@tcevt.com)  
Mr. David Atherton, Town of Brandon, [datherton@townofbrandon.com](mailto:datherton@townofbrandon.com)



Name: BRANDON  
 Date: 10/03/19  
 Scale: 1 inch = 2,000 ft.

Location: 43.842463° N, 73.039026° W  
 Caption: <<Type caption here.>>





# CAMP PRECAST CULVERT REPLACEMENT CHURCHILL ROAD - TH22

BRANDON, VT



**PROJECT DESCRIPTION:**  
THE PURPOSE OF THIS PROJECT IS TO INSTALL A NEW REINFORCED CONCRETE BOX CULVERT ON AN UNNAMED TRIBUTARY OF LEICESTER HOLLOW BROOK ON CHURCHILL ROAD IN BRANDON, VT. THE PROJECT INCLUDES:

1. DEMOLITION AND REMOVAL OF THE EXISTING WOODEN STRUCTURE
2. INSTALLATION OF A NEW REINFORCED CONCRETE BOX CULVERT AND RESTORATION OF THE ROADWAY AND RELATED SITE CONDITIONS TO THEIR ORIGINAL CONDITION

**CONSTRUCTION NOTES:**

1. CONTRACT DOCUMENTS: THESE PLANS WERE PREPARED BY TRUDELL CONSULTING ENGINEERS (TCE) AND ARE INTENDED TO BE USED IN CONJUNCTION WITH THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT, #C-700 PREPARED BY THE ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE (EJCDC), LATEST EDITION. COPIES ARE AVAILABLE AT [WWW.ANSFEOBG/EJCDC](http://WWW.ANSFEOBG/EJCDC).
2. UNDERGROUND IMPROVEMENTS: THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS SHOWN ARE ASSUMED BASED ON RESEARCH, UTILITY PLANS PROVIDED BY OTHERS, AND/OR SURFACE EVIDENCE AVAILABLE AND WERE OBTAINED IN A MANNER CONSISTENT WITH THE ORDINARY STANDARD OF PROFESSIONAL CARE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE DESIGN ENGINEER.
3. DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS: IF CONTRACTOR BELIEVES THAT ANY SUBSURFACE OR PHYSICAL CONDITION AT OR CONTIGUOUS TO THE SITE THAT IS UNCOVERED OR REVEALED EITHER: (1) IS OF SUCH A NATURE AS TO ESTABLISH THAT ANY "TECHNICAL DATA" ON WHICH CONTRACTOR RELIED IS MATERIALLY INACCURATE OR (2) IS OF SUCH A NATURE AS TO REQUIRE A CHANGE IN THE PLANS/ CONTRACT DOCUMENTS, OR (3) DIFFERS MATERIALLY FROM THAT SHOWN OR INDICATED IN THE PLANS/ CONTRACT DOCUMENTS; OR (4) IS OF AN UNUSUAL NATURE, AND DIFFERS MATERIALLY FROM CONDITIONS ORDINARILY ENCOUNTERED AND GENERALLY RECOGNIZED AS INHERENT IN WORK OF THE CHARACTER PROVIDED FOR IN THE PLANS/ CONTRACT DOCUMENTS, THEN CONTRACTOR SHALL PROMPTLY AFTER BECOMING AWARE THEREOF AND BEFORE FURTHER DISTURBING THE SUBSURFACE OR PHYSICAL CONDITIONS OR PERFORMING ANY WORK IN CONNECTION THEREWITH (EXCEPT IN AN EMERGENCY), NOTIFY OWNER AND ENGINEER ABOUT SUCH CONDITION. CONTRACTOR SHALL NOT FURTHER DISTURB SUCH CONDITION OR PERFORM ANY WORK IN CONNECTION THEREWITH (EXCEPT AS AFORESAID) UNTIL RECEIPT OF WRITTEN ORDER TO DO SO. ALL PARTIES INVOLVED (OWNER, ENGINEER, ARCHITECT, AND MUNICIPALITY IF APPLICABLE) SHALL AGREE UPON HOW TO PROCEED AND ANY RELATED COST IMPLICATIONS.
4. UTILITIES: PRIVATE AND PUBLIC UTILITIES SUCH AS ELECTRIC, TELEPHONE, GAS, CABLE, FIBER OPTIC, ETC. ARE THE RESPONSIBILITY OF THE RESPECTIVE UTILITY COMPANY. ANY INFORMATION SHOWN BY TCE SHOULD BE CONSIDERED PRELIMINARY (USUALLY TO ASSIST WITH PERMITTING), FINAL DESIGN, CONSTRUCTION AND MAINTENANCE ARE THE RESPONSIBILITY OF RESPECTIVE UTILITY COMPANIES. COMPLIANCE WITH EASEMENTS AND REGULATIONS (STATE AND LOCAL) ARE THE RESPONSIBILITY OF RESPECTIVE UTILITY COMPANY.
5. DIGSAFE: IN ACCORDANCE WITH VERMONT STATE LAW (VSA TITLE 30 CHAPTER 86 AND PSB RULE 3.800) THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT DIGSAFE SYSTEMS, INC. "DIGSAFE", AT LEAST 48 HOURS, EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, BUT NOT MORE THAN 30 DAYS BEFORE COMMENCING EXCAVATION ACTIVITIES, EXCEPT IN AN EMERGENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRE-MARKING THE SITE AND MAINTAINING DESIGNATED MARKINGS. FOR MORE INFORMATION ON DIGSAFE REQUIREMENTS SEE [WWW.DIGSAFE.COM](http://WWW.DIGSAFE.COM). THE TOWN OF ESSEX WATER AND SEWER SYSTEMS ARE CONSIDERED A PRIVATE UTILITY AND ARE NOT INCLUDED IN THE DIGSAFE SYSTEM AS SUCH. THE CONTRACTOR SHALL CONTACT THE TOWN OF ESSEX AT LEAST 48 HOURS BEFORE COMMENCING WORK TO LOCATE ALL WATER AND SEWER UTILITIES WITHIN THE PROJECT LIMITS.
6. JOBSITE SAFETY: NEITHER THE PROFESSIONAL ACTIVITIES OF TRUDELL CONSULTING ENGINEERS (TCE), NOR THE PRESENCE OF TCE OR ITS EMPLOYEES AND SUB CONSULTANTS AT A CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. TCE AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PRECAUTIONS. THE CLIENT AGREES THAT THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR JOBSITE SAFETY, AND WARRANTS THAT THIS INTENT SHALL BE MADE EVIDENT IN THE CLIENTS AGREEMENT WITH THE GENERAL CONTRACTOR. THE CLIENT ALSO AGREES THAT THE CLIENT, TCE AND TCE'S CONSULTANTS SHALL BE INDIVIDUALLY AND SHALL BE MADE ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S GENERAL LIABILITY INSURANCE POLICY.
7. CODES AND STANDARDS COMPLIANCE: TCE SHALL EXERCISE USUAL AND CUSTOMARY PROFESSIONAL CARE IN ITS EFFORTS TO COMPLY WITH CODES, STANDARDS, REGULATIONS, AND ORDINANCES IN EFFECT. THE OWNER ACKNOWLEDGES THAT SUCH REQUIREMENTS MAY BE SUBJECT TO VARIOUS AND CONTRADICTORY INTERPRETATIONS. TCE THEREFORE, WILL USE ITS REASONABLE PROFESSIONAL EFFORTS AND JUDGMENT TO INTERPRET APPLICABLE REQUIREMENTS AS THEY APPLY TO THE PROJECT. TCE, HOWEVER, CANNOT AND DOES NOT WARRANT OR GUARANTEE THAT THE PROJECT WILL COMPLY WITH ALL INTERPRETATIONS OF SUCH REQUIREMENTS.
8. CONSTRUCTION OBSERVATION: TCE MAY VISIT THE PROJECT AT APPROPRIATE INTERVALS DURING CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE CONTRACTOR'S WORK AND TO DETERMINE IF THE WORK IS PRECEDING IN GENERAL ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE OWNER HAS NOT RETAINED TCE TO MAKE DETAILED INSPECTIONS OR TO PROVIDE EXHAUSTIVE OR CONTINUOUS PROJECT REVIEW AND OBSERVATION SERVICES. TCE DOES NOT GUARANTEE THE PERFORMANCE OF, AND SHALL NOT HAVE RESPONSIBILITY FOR, THE ACTS OR OMISSIONS OF ANY CONTRACTOR, SUB-CONTRACTOR, SUPPLIER OR ANY OTHER ENTITY FURNISHING MATERIALS OR PERFORMING ANY WORK ON THE PROJECT. TCE SHALL NOT SUPERVISE, DIRECT OR HAVE CONTROL OVER THE CONTRACTOR'S WORK NOR HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF THE CONTRACTOR. IF THE OWNER DESIRES MORE EXTENSIVE PROJECT OBSERVATION OR FULL-TIME PROJECT REPRESENTATION, THE OWNER SHALL REQUEST SUCH SERVICES BE PROVIDED BY TCE AS ADDITIONAL SERVICES.

**DRAWING INDEX**

- C1-01 EXISTING CONDITIONS
- C2-01 SITE PLAN
- C2-02 EPSC SITE PLAN
- S-360A VTRANS BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM

**OWNER:**  
TOWN OF BRANDON  
49 CENTER STREET  
BRANDON, VERMONT

**STRUCTURAL ENGINEER:**  
DUBOIS & KING, INC.  
6 GREEN TREE DRIVE  
SO. BURLINGTON, VT 05403  
(802) 878-7661

**CIVIL ENGINEER:**  
TRUDELL CONSULTING ENGINEERS (TCE)  
478 BLAIR PARK ROAD  
WILLISTON, VT 05495  
(802) 879-6331

**FABRICATOR:**

**CAMP**  
PRECAST CONCRETE PRODUCTS  
78 PRECAST ROAD  
MILTON, VT 05468  
(802) 893-2401

**USE AND INTERPRETATION OF THE DRAWINGS**

1. Unless otherwise noted, these drawings are intended for preliminary planning, coordination with other disciplines or utilities, and/or approval from the regulatory authorities. They are not intended as construction drawings unless noted as such or marked approved by regulatory authority.
2. By use of these drawings for construction of the Project the Owner represents that they have reviewed, approved, and accepted the drawings, obtained all necessary permits, and have met with all applicable parties/disciplines, including but not limited to, the Engineer and the Architect, to ensure these plans are properly coordinated including, but not limited to, contract documents, specifications, owner/contractor agreements, building and mechanical plans, private and public utilities, and other pertinent permits for construction.
3. Owner and Architect are responsible for final design and location of buildings shown, including an area measured to establish the 3' offset around any building and coordinating the utility connection shown on these plans.
4. Effort to using these plans for construction layout, the user shall contact TCE to ensure the plan contains the most current revision.
5. These drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by TCE are the exclusive property. Changes to the drawings may only be made by TCE. If errors or omissions are discovered, they shall be brought to the attention of TCE immediately.
6. It is the User's responsibility to ensure this copy contains the most current revisions. If unsure, please contact TCE.

**BEFORE USING THESE PLANS ENSURE THAT YOU HAVE THE LATEST REVISION**

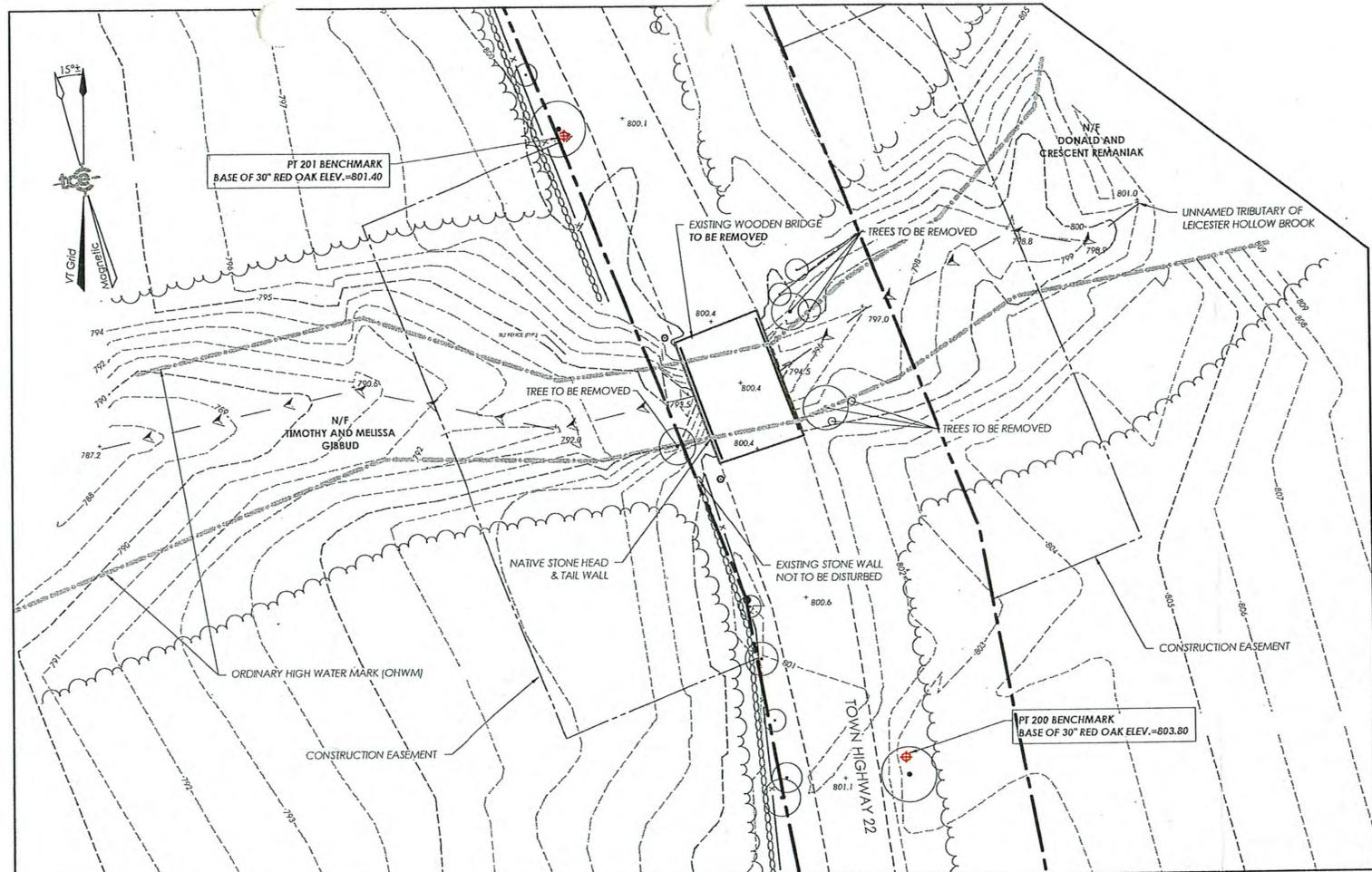
LAST REVISED: 09/18/2019

TCE PROJECT NO: 19-026



**TRUDELL CONSULTING ENGINEERS**  
478 BLAIR PARK ROAD | WILLISTON, VERMONT 05495  
802 879 6331 | WWW.TCEVT.COM

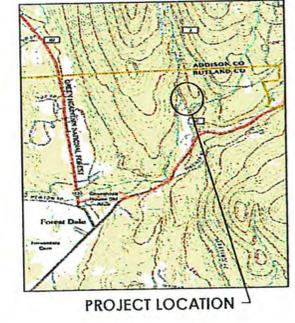




**LEGEND**

	EXISTING	PROPOSED	REMOVED/ABANDONED
GRAVEL DRIVE OR ROAD			
TREE LINE			
TOPOGRAPHIC CONTOURS			
STREAM			
PROPERTY LINE			
FENCE			
STONEWALL			
CONSTRUCTION EASEMENT			
ORDINARY HIGH WATER MARK (OHWM)			
IRON PIPE			
STEEL REBAR			
CONCRETE MONUMENT			
MARBLE OR STONE MONUMENT			
IRON PIN (IP)			
CALCULATED POINT			
BENCHMARK			
TCE CONTROL POINT			
STEEL REBAR			
TCE CONTROL POINT			
MAG NAIL			
SPOT ELEVATION			

**LEGEND NOTE:**  
SOME INFORMATION MAY BE PROVIDED BY OTHERS AND COULD BE SHOWN WITH A DIFFERENT SYMBOL NOT SHOWN ON THIS LEGEND. HOWEVER, THEY ARE LABELED ON RESPECTIVE PLANS. IN SOME CASES A CHANGE IN SCALE OR PRINTER CAN ALTER INFORMATION TO NOT SHOW AN EXACT MATCH ON THIS LEGEND. IF ANY QUESTIONS EXIST CONTACT THE ENGINEER TO CLARIFY. ADDITIONAL LEGEND INFORMATION IS SUPPLIED SEPARATELY ON EROSION CONTROL PLANS AND SOME SURVEY PLATS.



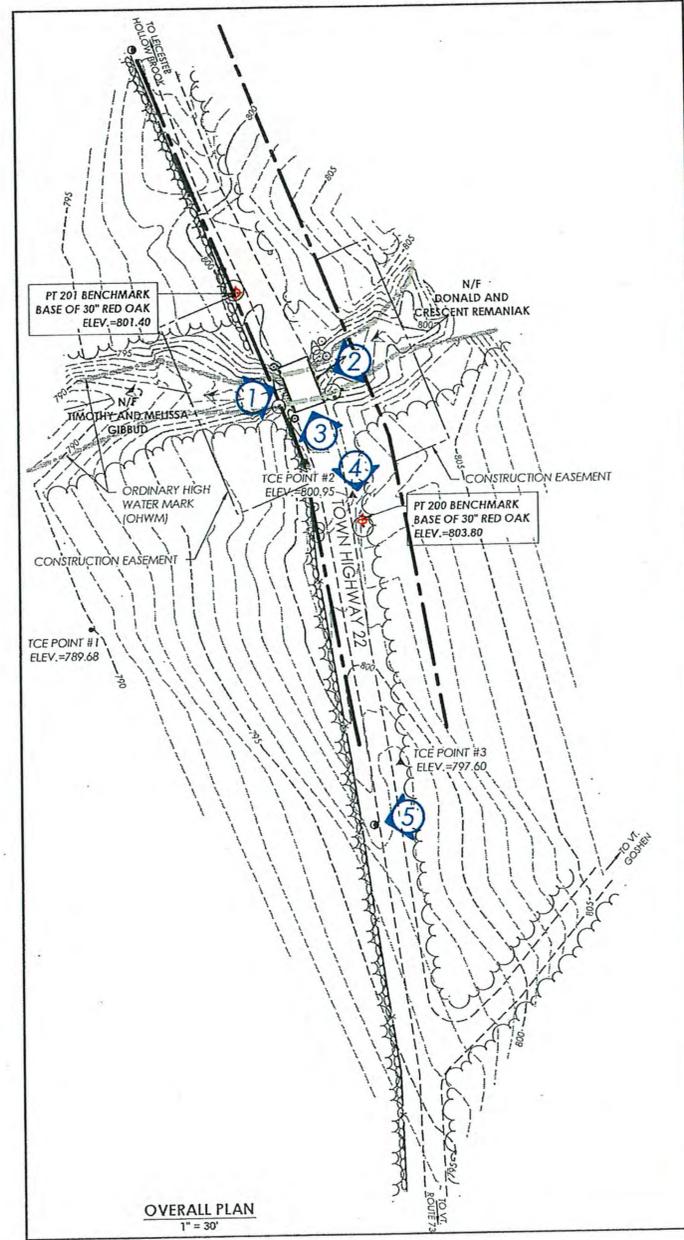
**tce**  
ENGINEERING • SURVEY  
PLANNING • ENVIRONMENTAL  
475 ELIAS PARK ROAD | WILKINSON, VERMONT 05395  
802.879.6331 | WWW.TCEVT.COM

Revisions

No.	Description	Date	By
1	ROW Revision	09/18/19	CMJ

**CONTROL POINT LIST**

POINT NO.	NORTHING [Y]	EASTING [X]	ELEV [X]	DESCRIPTION
1	489379.71	1497487.37	798.68	ISPK
2	487427.25	1497584.83	800.95	TREBAR
3	489329.37	1497601.42	797.60	TREBAR
200	489418.23	1497588.10	803.80	BENCH TIE (BM)
201	489502.20	1497542.24	801.40	BENCH TIE (BM)



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  - By use of these drawings for construction of the project, the Owner represents that they have reviewed, approved, and accepted the drawings, obtained all necessary permits, and have met with all applicable parties/disciplines, including but not limited to, the Engineer and the Architect, to issue these plans as properly coordinated including, but not limited to, contract documents, specifications, owner/contractor agreements, building and mechanical plans, private and public utilities, and other pertinent permits for construction.
  - Owner and Architect are responsible for final design and location of buildings shown, including an area measured a minimum five (5) feet around any building and coordinating final utility connections shown on these plans.
  - Prior to using these plans for construction layout, the user shall contact TCE to ensure the plan contains the most current revisions.
  - These Drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by TCE are its exclusive property. Changes to the drawings may only be made by TCE. If errors or omissions are discovered, they shall be brought to the attention of TCE immediately.
  - It is the user's responsibility to ensure this copy contains the most current revisions.



Project Title  
**CAMP**  
**Camp Precast Culvert Replacement**  
Churchill Road - TH 22  
Brandon, Vermont

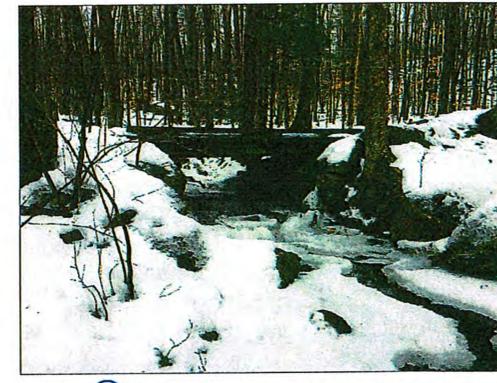
Sheet Title  
**Existing Conditions Plan**

Date:	04/02/2019
Scale:	Shows
Project Number:	19-026
Drawn By:	AAL
Project Engineer:	JPP
Approved By:	JPP
Field Book:	344

**C1-01**



1 CROSSING ENTRANCE



2 CROSSING OUTLET



3 EXISTING WOODEN BRIDGE & RUBRAILS

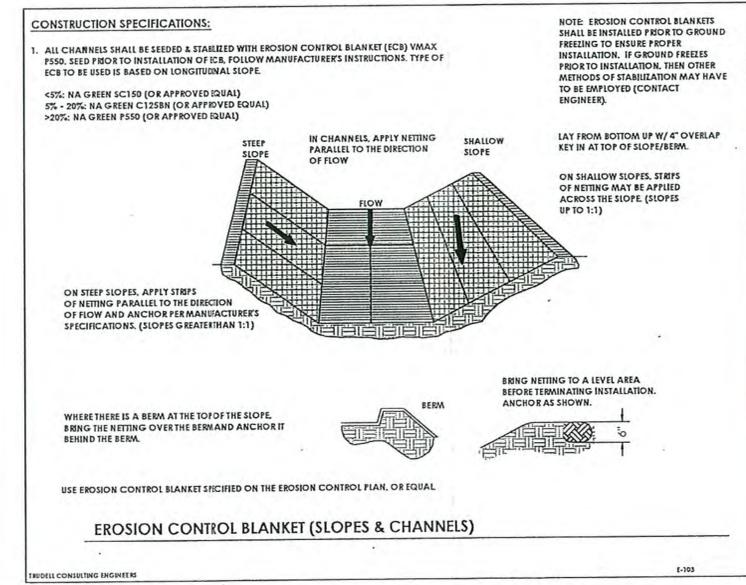
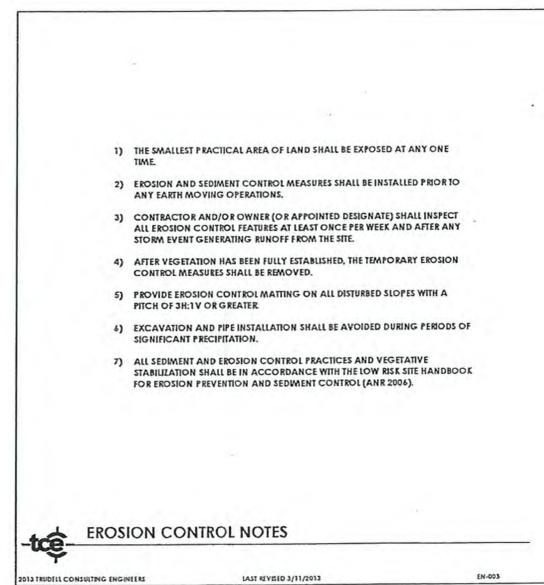
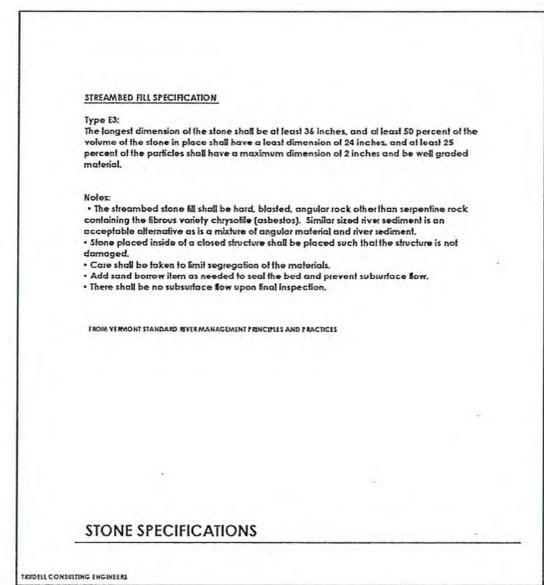
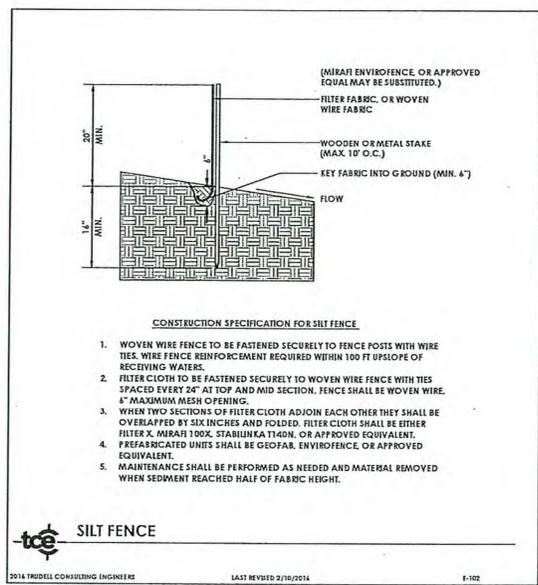
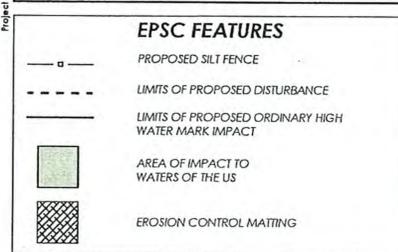
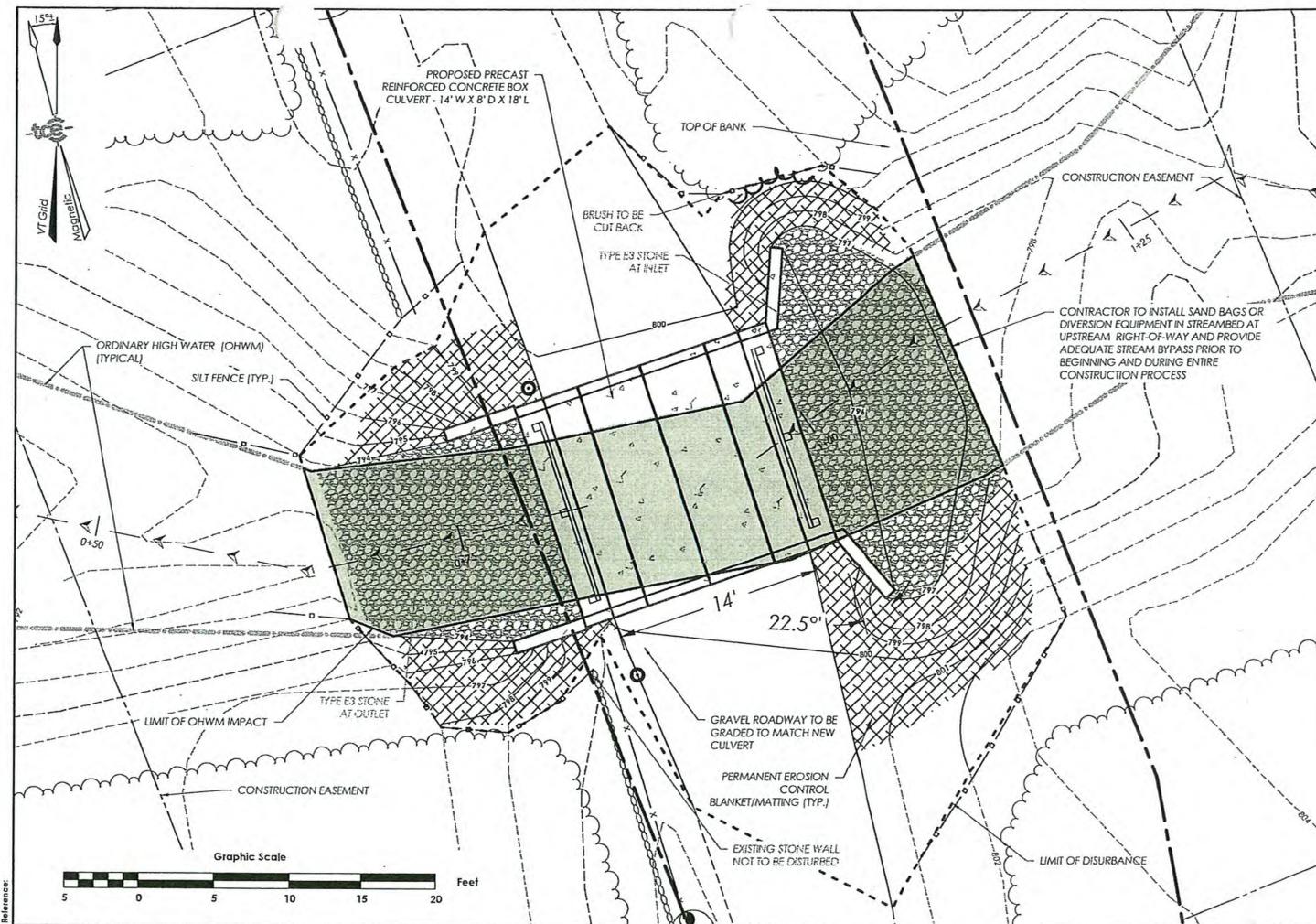


4 BENCHMARK



5 ARCHEOLOGICAL MONUMENT

- EXISTING CONDITIONS NOTES:**
- THE PURPOSE OF THE EXISTING CONDITIONS PLAN IS TO DEPICT PERTINENT EXISTING CONDITIONS BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY TCE ON FEBRUARY 07, 2019.
  - BEARINGS SHOWN ARE BASED UPON VERMONT GRID NORTH.
  - VERTICAL DATUM IS BASED ON NAVD88 (GEOID 12). A TRIMBLE R6 RTK UNIT AND ELECTRONIC TOTAL STATION WAS EMPLOYED FOR THESE OBSERVATIONS.
  - COORDINATE SYSTEM IS BASED ON VERMONT STATE PLANE (U.S. SURVEY FEET).
  - THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS SHOWN ARE BASED ON RESEARCH, UTILITY PLANS PROVIDED BY OTHERS, AND/OR SURFACE EVIDENCE ENCOUNTERED AND WERE OBTAINED IN A MANNER CONSISTENT WITH THE ORDINARY STANDARD OF PROFESSIONAL CARE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE DESIGN ENGINEER. ADDITIONAL UTILITIES NOT SHOWN MAY EXIST. ENGINEER SHALL BE NOTIFIED IF ANY DISCREPANCIES ARE ENCOUNTERED. ACTUAL LOCATION OF UNDERGROUND UTILITIES MAY VARY. DIGSAFE MUST BE CONTACTED PRIOR TO ANY EXCAVATION. CALL 1-888-DIG SAFE (344-7233).
  - PROPERTY BOUNDARIES SHOWN ARE BASED ON A SURVEY BY TINKER SURVEYS ENTITLED "CHURCHILL ROAD" T.H. NO. 22 DATED DECEMBER 2011 & RIGHT-OF-WAY PLANS BY MCFARLAND JOHNSON ENTITLED "PROPOSED IMPROVEMENT CULVERT PROJECT T.H. 22 (CHURCHILL ROAD) OVER LEICESTER HOLLOW BROOK TRIBUTARY" DATED 6/28/19.
  - A WETLAND ASSESSMENT WAS PERFORMED ON FEBRUARY 07, 2019. NO WETLAND VEGETATION WILL BE IMPACTED BY THE INSTALLATION OF THE NEW PRECAST CONCRETE CULVERT PROPOSED FOR THIS PROJECT. THE ASSESSMENT WAS PERFORMED BY KARINA DAILEY OF TRUDELL CONSULTING ENGINEERS.



**IMPACTS TO WATERS OF THE US**  
**APPROXIMATE AREA OF IMPACT BELOW ORDINARY HIGH WATER MARK (OHWM) = 530 SF**

- CONSTRUCTION NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS, METHODS AND SAFETY OF THE PROJECT AS SHOWN AND RESTORING THE SITE (ROADWAY, RIPRAP, GRADES, HEADWALLS, EROSION CONTROL, STRUCTURAL COMPONENTS AND RELATED) TO PRE-CONSTRUCTION CONDITIONS AND GOOD WORKING ORDER.
  2. EVERY ATTEMPT SHALL BE MADE TO INSTALL THE NEW CULVERT DURING LOW FLOW STREAM CONDITIONS.
  3. CONTRACTOR SHALL DIVERT WATER FLOW AROUND THE PROJECT SITE PRIOR TO CONSTRUCTION.
  4. CONTRACTOR SHALL ENSURE ADEQUATE STREAM ROUTING AROUND THE CONSTRUCTION ZONE WHILE INSTALLING THE NEW CULVERT. THIS SHALL INCLUDE BUT IS NOT LIMITED TO: SAND BAGS, OTHER SIMILAR DIVERSION MEASURES, OR PUMPS IF NEEDED.
  5. CONTRACTOR SHALL TAKE MEASURES TO PREVENT SEDIMENT FROM ENTERING WATER FLOW (STREAM.)
  6. EMERGENCY CONTINGENCY MEASURES SHALL BE IN PLACE AND ON STANDBY IN THE EVENT OF AN EMERGENCY.
  7. TYPE E3 STONE (VT-SRMPP APPENDIX M) SHALL BE INSTALLED IN AND AROUND THE CULVERT INLET AND UPSTREAM TO PROTECT THE PIPE FROM UNDERMINING OR DAMAGE FROM ICE CHUNKS OR OTHER DEBRIS. ALSO TYPE E3 STONE SHALL BE PLACED AT OUTLET.
  8. PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH STANDARD PRACTICE, STATE GUIDELINES, AND AS REQUESTED BY THE PROJECT ENGINEER AND TOWN.
  9. LIMITS OF WORK IS TO BE STRICTLY LIMITED TO THE AREA OF DISTURBANCE SHOWN ON THE PLANS. NO WORK IS TO TAKE PLACE IN THE STREAMBED OUTSIDE OF THE DENOTED AREA OF DISTURBANCE.
  10. PROVIDE SIGNAGE, BARRICADES, SNOW FENCE AND OTHER MEASURES AS NEEDED TO PROTECT THE PUBLIC FROM THE CONSTRUCTION ZONE.
  11. CONTACT PROJECT ENGINEER BEFORE INSTALLATION TO DISCUSS PROCEDURE.
  12. FILL MATERIAL AROUND NEW CULVERT SHALL BE PLACED IN 6" LAYERS ON BOTH SIDES OF THE PIPE TO THE SAME ELEVATION AND COMPACTED.
  13. NO CHANGES TO SPECIFIED CULVERT SHALL BE ALLOWED WITHOUT SECURING WRITTEN APPROVAL OF THE ENGINEER.
  14. BACKFILL SHALL CONSIST OF ON-SITE OR BORROW MATERIAL OF SOIL OR SOIL-ROCK MIXTURE FREE FROM ORGANIC MATERIAL AND OTHER DELETERIOUS SUBSTANCES. THE MATERIAL SHALL CONTAIN NO ROCKS OR LUMPS LARGER THAN 3 INCHES IN DIAMETER.
  15. CRUSHED STONE FOR BEDDING OR OTHER DESIGNATED USES SHALL BE NOMINAL 3/4 INCH SIZE AND BE REASONABLY FREE FROM DIRT AND DELETERIOUS MATERIAL AND MEET THE FOLLOWING REQUIREMENTS (REF:VAOT 704.02B)
  16. PRIOR TO EXCAVATING THE CULVERT TRENCH, EFFORT WILL BE MADE TO DETERMINE THE LOCATION OF POSSIBLE UNDERGROUND UTILITIES.
  17. DIVERSION DITCHES, DIKES, OR OTHER SUITABLE MEANS SHALL BE USED TO PREVENT SURFACE WATER FROM ENTERING AN EXCAVATION AND TO PROVIDE ADEQUATE DRAINAGE OF THE AREA ADJACENT TO THE EXCAVATION. WATER SHALL NOT BE ALLOWED TO ACCUMULATE IN THE EXCAVATION.
  18. SMOOTH AND COMPACT THE BOTTOM OF THE EXCAVATED TRENCH PRIOR TO INSTALLATION OF CRUSHED GRAVEL BEDDING MATERIAL. IF WET/UNSTABLE MATERIAL IS ENCOUNTERED, AT EXCAVATED TRENCH GRADE, THE ENGINEER IS TO BE CONTACTED. ADDITIONAL EXCAVATION, BEDDING MATERIAL, AND FILTER FABRIC MAY BE REQUIRED.

Revisions	No.	Description	Date	By
Revisions For Permitting			09/18/19	CMJ

**Use of These Drawings**

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6. It is the User's responsibility to ensure this copy contains the most current revisions.



Project Title: **Camp Precast Culvert Replacement**  
 Churchill Road - TH 22  
 Brandon, Vermont

Sheet Title: **EPSC Site Plan**

Date: 04/02/2019

Scale: 1"=5'

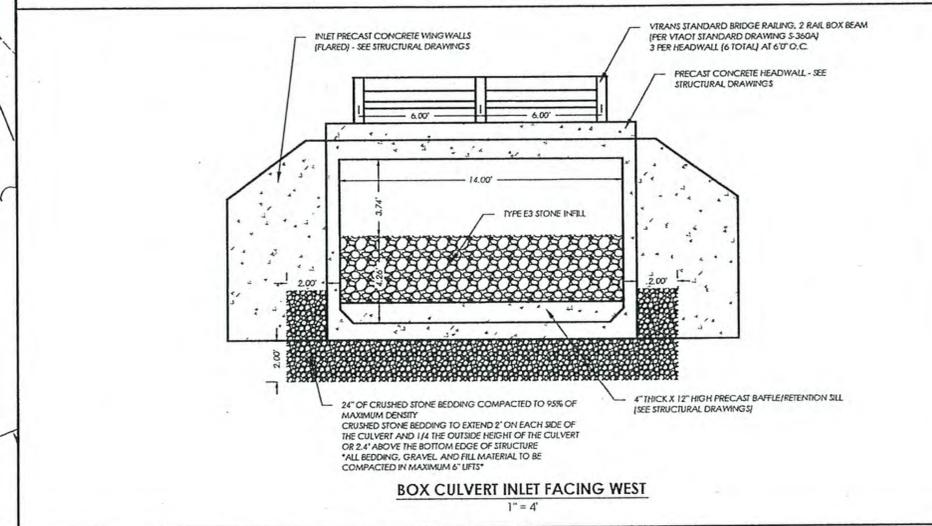
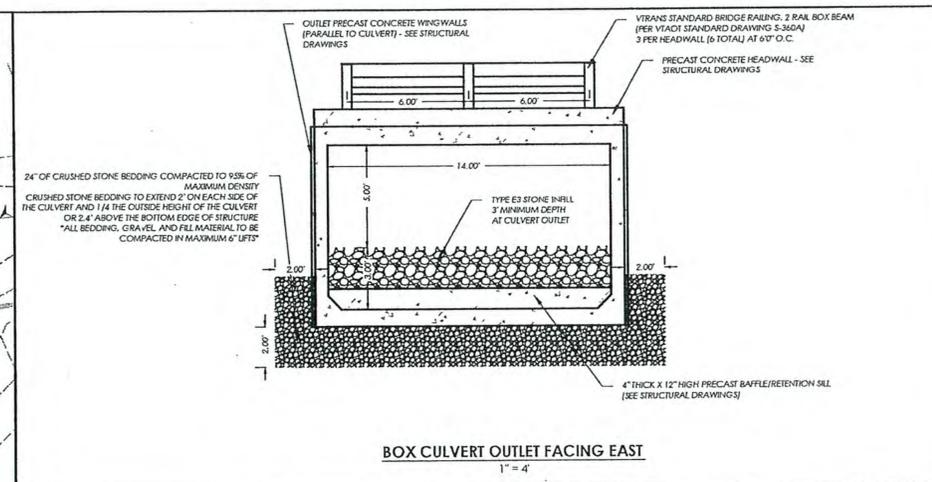
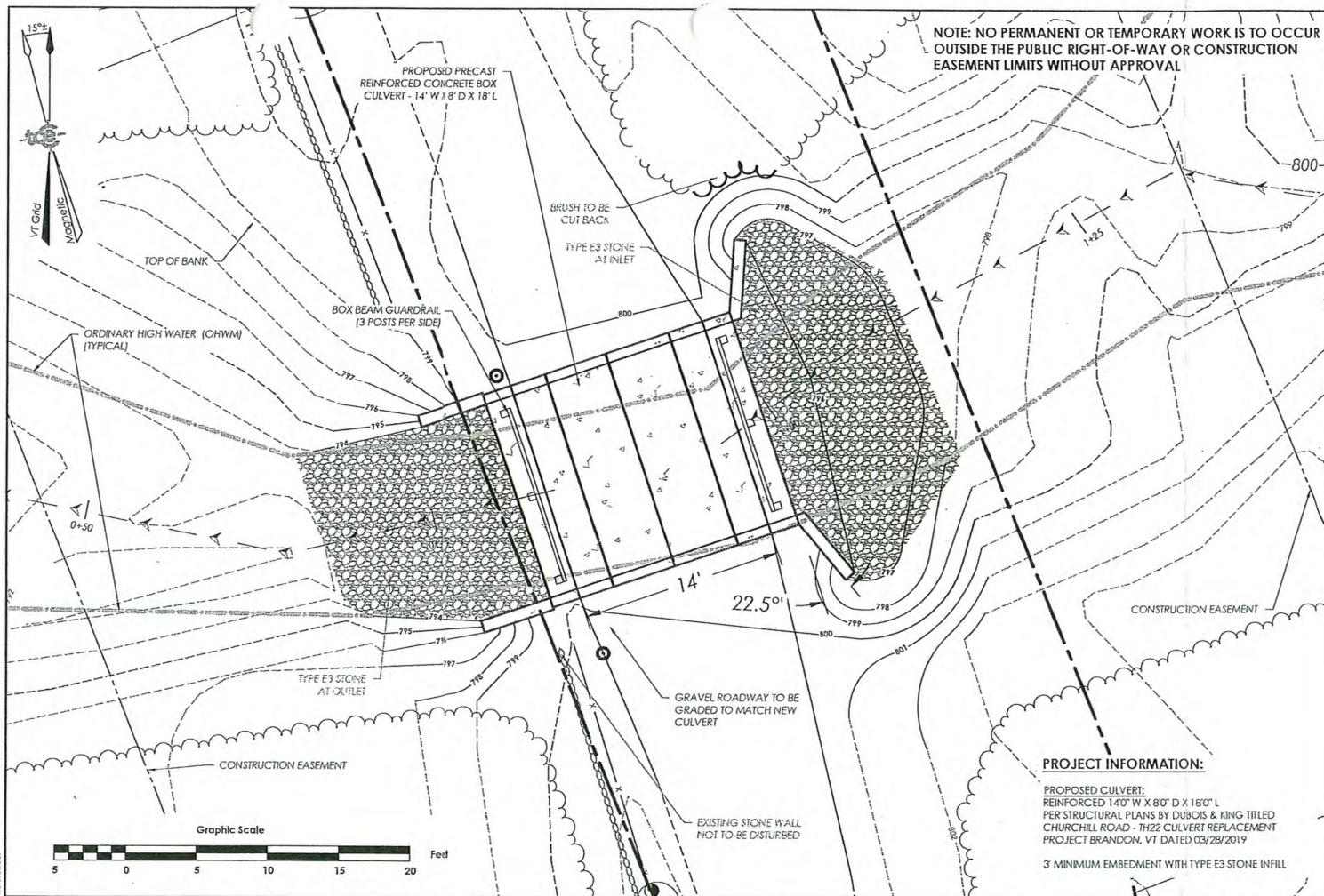
Project Number: 19-026

Drawn By: CMJ

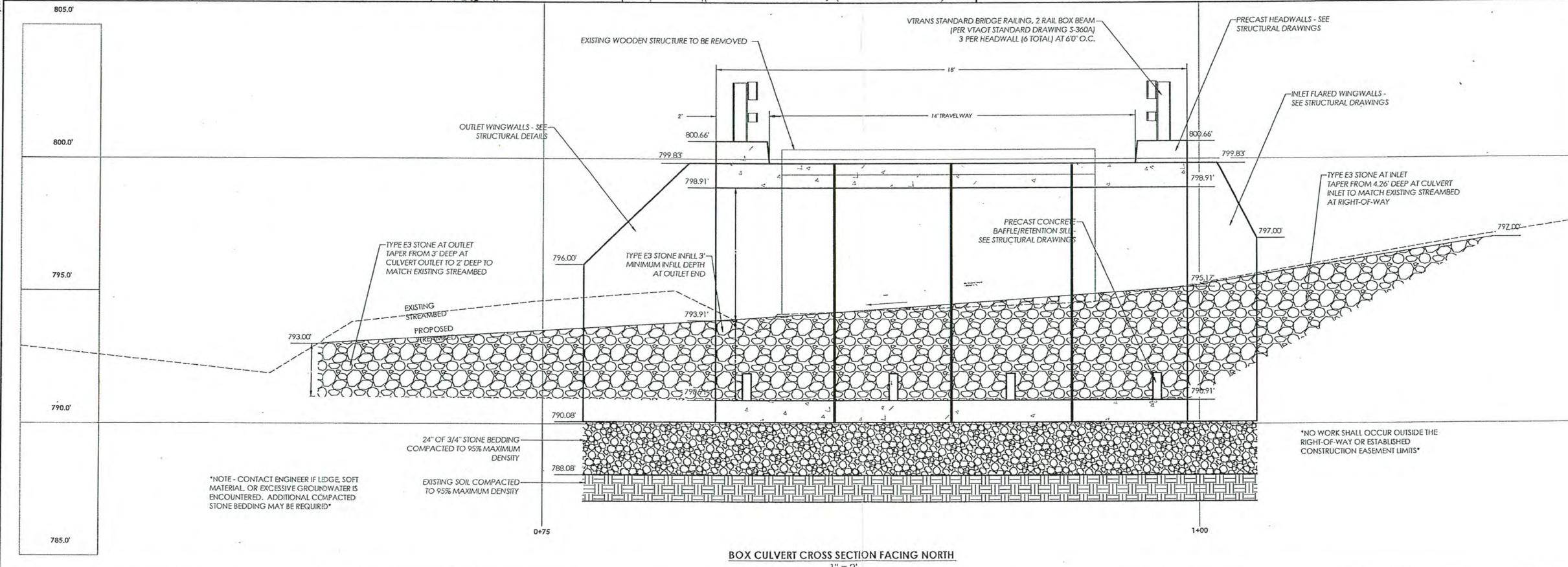
Project Engineer: JPP

Approved By: JPP

Field Book: 344



**PROJECT INFORMATION:**  
 PROPOSED CULVERT:  
 REINFORCED 14'0" W X 18'0" D X 18'0" L  
 PER STRUCTURAL PLANS BY DUBOIS & KING TITLED  
 CHURCHILL ROAD - TH22 CULVERT REPLACEMENT  
 PROJECT BRANDON, VT DATED 03/28/2019  
 3' MINIMUM EMBEDMENT WITH TYPE E3 STONE INFILL



Revisions	No.	Description	Date	By
Revisions For Permitting			09/18/19	CMJ

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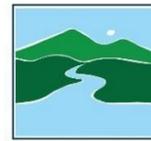


Project Title  
**Camp Precast Culvert Replacement**  
 Churchill Road - TH 22  
 Brandon, Vermont

Sheet Title  
**Site Plan**

Date:	04/02/2019
Scale:	AS SHOWN
Project Number:	19-026
Drawn By:	CMJ
Project Engineer:	JPP
Approved By:	JPP
Field Book:	344

**AUTHORIZATION TO CONDUCT  
STREAM ALTERATION ACTIVITIES**  
Pursuant to Section C.2.2, and C.2.3  
of the Vermont Stream Alteration General Permit



VERMONT DEPARTMENT OF  
ENVIRONMENTAL CONSERVATION  
**WATERSHED  
MANAGEMENT DIVISION**  
RIVERS PROGRAM

**(Reporting activities requiring Application or Registration)**

**A. Permitted Project Information:**

Project Number: <b>SA-2191</b>	Waterbody: <b>Trib to Leicester Hollow Brook</b>
Project Location: <b>Churchill Road near #386</b>	Lat:/Long: <b>43.84165 N / 73.04145 W</b>
Applicant Name: <b>Town of Brandon</b>	Email: <b><a href="mailto:datherton@townofbrandon.com">datherton@townofbrandon.com</a></b>
Mailing Address: <b>49 Center Street Brandon, VT 05733</b>	Phone: <b>802-247-3635 ext. 210</b>

**B. Findings:**

The Secretary of the Vermont Agency of Natural Resources (VT ANR) has determined that:

This project consisting of **installation of a structure compliant with bankfull dimensions and design flows.**

1. The proposed activity is eligible for coverage under the Vermont ANR Stream Alteration General Permit.
2. The proposed activity will meet the terms and conditions of the General Permit provided:
  - a) The project will be completed as shown on the plan dated **April 2, 2019**, prepared by **Trudell Consulting Engineering, as amended by RME**, and approved by the Vermont Agency of Natural Resources.

**C. Standard Conditions:**

1. The project will not adversely affect the public safety by increasing flood hazards.
2. The project will not significantly damage fish life or wildlife.
3. The project will not significantly damage the rights of riparian owners.
4. The project will not obstruct the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction.
5. The project is conducted in a manner which minimizes or avoids any discharge of sediment or other pollutants to surface waters in violation of the Vermont Water Quality Standards.
6. The River Management Engineer is notified by phone or email when construction begins and when the project is complete.
7. **In-stream working dates for all GP activities are from July 1<sup>st</sup> through October 1<sup>st</sup>; any in-stream work outside these dates will require consultation with and prior authorization from the River Management Engineer (RME).**
8. **This permit will expire: December 31, 2021**
9. **Additional Conditions: Contractor to schedule pre-construction meeting and provide flow control plan to RME**

If there are any changes in the project plan or deviation in construction from the approved plan, the Permittee must notify the River Management Engineer immediately. If the project is constructed as you have described, as shown on the above referenced approved plans and per the above conditions, there is no reason to expect any violation of Vermont Water Quality Standards.

*Please be aware that the proposed project is in a municipality that participates in the National Flood Insurance Program (NFIP). Construction or storage within the Special Flood Hazard Area (SFHA) as delineated on the FEMA Flood Insurance Rate Map). 24 VSA, Section 4424 requires communities to submit SFHA permit applications to the ANR Regional Floodplain Manager for review and comment to ensure the project is compliant with local and NFIP minimum floodplain management standards.*

Please be aware that this authorization does not constitute ANR's review and comment under 24 VSA Section 4424.

**D. Authorization:**

Signed this **2nd** day of **October, 2019**  
Emily Boedecker, Commissioner Department of Environmental Conservation

by:  River Management Engineer  
VT DEC Rivers Program, Watershed Management Division

**E. River Engineer Contact Information**

Engineer: **JOSHUA CARVAJAL, PE**  
Contact Phone: **802 490-6163**  
Email Address: **[joshua.carvajal@vermont.gov](mailto:joshua.carvajal@vermont.gov)**

State of Vermont – ANR Department of Environmental Conservation  
Watershed Management Division - Stream Alteration Permitting  
1 National Life Drive, Main 2 Montpelier, VT 05620-3522



United States  
Department of  
Agriculture

Forest  
Service

Green Mountain and Finger Lakes  
National Forests  
Supervisor's Office

231 North Main Street  
Rutland, VT 05701  
802-747-6700

File Code: 2360  
Date: May 10, 2019

Laura Trieschmann  
State Historic Preservation Officer  
Attn: James Duggan  
Historic Preservation Review Coordinator  
One National Life Drive  
Deane C. Davis Building, 6th Floor  
Montpelier, VT 05620-0501

**CONCUR**  
Vermont Division for Historic Preservation  
E-SIGNED by Laura Trieschmann  
on 2019-05-10 14:01:44 GMT  
State Historic Preservation Office

Dear Mr. Duggan,

In regards to the Churchill Road Culvert: Project # 50FLAP004; 19-043 in Brandon, VT. The Green Mountain National Forest has determined that the project warrants a finding of No Historic Properties Affected based on background information that the stone bridge abutments are less than 50 years old, and discussions during a site visit on Wednesday, May 08, 2019.

Sincerely,

Andrew M. Triplett  
Heritage Program Manager



---

From: Appleton, Tim [<mailto:Tim.Appleton@vermont.gov>]  
Sent: Tuesday, May 14, 2019 1:08 PM  
To: Karina E. Dailey, PWS  
Cc: Bennett, Alyssa; Flewelling, Joel  
Subject: RE: 19-043 NEPA Review - Churchill Road, Brandon

Karina,

Following-up with you.... Joel did find one tree that is a potential roost tree—see attached for ID and pictures. We have two choices at this point:

1. Refrain from tree cutting and removal for the period April 1-October 31. I don't think this is an option for this project as you have indicated below that the Town of Brandon wants to do the work ASAP.
2. Conduct an emergence survey as per the attached on page 2. We'll have to work with Alyssa to verify this approach, so let's discuss with her before moving forward with an emergence survey of this tree. It might be most efficient for you to work directly with Alyssa for the specifics for the emergence survey, but please keep me in the loop as we progress.

-Tim



---

Timothy J. Appleton, *Wildlife Biologist*  
[phone] 802-476-0198 [fax] 802-476-0129  
[email] [tim.appleton@vermont.gov](mailto:tim.appleton@vermont.gov)

Vermont Agency of Natural Resources  
Fish & Wildlife Department  
5 Perry Street, Suite 40  
Barre, VT 05641-4266  
[website] [www.vtfishandwildlife.com](http://www.vtfishandwildlife.com)

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THINK Before You Open!

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Karina E. Dailey, PWS

---

From: Mears, Jeremy - FS <jeremy.mears@usda.gov>  
Sent: Thursday, September 5, 2019 11:58 AM  
To: Karina E. Dailey, PWS; Monahan, Kerry  
Cc: Bennett, Alyssa; John Pitrowiski, P.E.; Staats, Sue -FS; Burbank, Michael -FS; Austin, Brian C -FS; Mattrick, Christopher J -FS  
Subject: RE: [Caution: Suspicious Attachment]FW: 19-043 NEPA Review - Churchill Road, Brandon

Hi All,  
We have a plan, please let me know if it can work for you.

Kerry Monahan will do the emergence survey Monday night, it would be good if we could get one ecologist from TCE to help her observe that evening. She will begin her survey at 7:00 pm. Please contact Kerry directly to set up a meeting time. If no bats are observed Monday night, the maple tree can be cut that morning. The tree would need to be cut early(dawn). We can have one forest service staff member on site to inspect the tree after it is felled, and transport any injured bats. There is a vehicle blocking the road and some kind of camp that is close to the tree cutting area. This person needs to move their car, and should be awake and out of the way when that tree is felled.

If the yellow birch on the other side of the road needs to be cut as well please let us know; this tree also has potential to be an Indiana bat roost tree.

Hopefully this will get us where we need to be to move forward,  
Thanks  
Jer



**Jeremy D. Mears**  
**Biologist**  
**Forest Service**  
**Green Mountain National Forest Rochester Ranger District**  
p: 802-767-4261 x5514  
[jeremy.mears@usda.gov](mailto:jeremy.mears@usda.gov)

99 ranger rd  
Rochester, VT 05767  
[www.fs.fed.us](http://www.fs.fed.us)



**Caring for the land and serving people**

Karina E. Dailey, PWS

---

From: Monahan, Kerry <Kerry.Monahan@vermont.gov>  
Sent: Monday, September 9, 2019 11:41 PM  
To: Karina E. Dailey, PWS; Mears, Jeremy - FS  
Cc: Bennett, Alyssa; John Pitrowiski, P.E.; Staats, Sue -FS; Burbank, Michael -FS; Austin, Brian C -FS; Mattrick, Christopher J -FS; Brittany LeBeau  
Subject: RE: [Caution: Suspicious Attachment]FW: 19-043 NEPA Review - Churchill Road, Brandon  
Attachments: USFWS BAT EMERGENCE SURVEY DATASHEET churchill rd.docx

Hello All,

Emergence survey is complete. No bats observed exiting out of potential roost trees around the project area. No restrictions necessary. Please see attachment for details.

GMNF wildlife technician will be present during the tree cutting to inspect felled trees for any injured or killed bats (USFWS protocol) and report to their supervisor any findings.

Best,  
Kerry

Kerry A. Monahan  
Vermont Department of Fish and Wildlife  
Wildlife Technician  
(802)917-8609  
[Kerry.Monahan@Vermont.gov](mailto:Kerry.Monahan@Vermont.gov)  
271 North Main Street Suite 215  
Rutland, VT 05701

---

From: Karina E. Dailey, PWS <Karina.Dailey@tcevt.com>  
Sent: Thursday, September 5, 2019 12:05 PM  
To: Mears, Jeremy - FS <jeremy.mears@usda.gov>; Monahan, Kerry <Kerry.Monahan@vermont.gov>  
Cc: Bennett, Alyssa <Alyssa.Bennett@vermont.gov>; John Pitrowiski, P.E. <John.Pitrowiski@tcevt.com>; Staats, Sue -FS <sue.staats@usda.gov>; Burbank, Michael -FS <michael.burbank@usda.gov>; Austin, Brian C -FS <brian.c.austin@usda.gov>; Mattrick, Christopher J -FS <christopher.mattrick@usda.gov>; Brittany LeBeau <Brittany.LeBeau@tcevt.com>  
Subject: RE: [Caution: Suspicious Attachment]FW: 19-043 NEPA Review - Churchill Road, Brandon

Hey Kerry and Jeremy,

Yes we can do that! Either myself or my co-worker Brittany LeBeau will meet you at the Churchill Rd location at 6:30-6:40pm on Monday 9/9. In the meantime we will coordinate tree felling and notify camper.

Thanks!



## Field Report

Project Name: Town of Brandon – Churchill Road Culvert Replacement

Project Number: 19-043 Date: 09/09/2019

Time Arrived Site: 6:45 pm Departed: 7:45 pm

TCE Staff: Karina Dailey, PWS, CWB and Brittany LeBeau

Others Present on Site: Kerry Monahan – GMNF/VFWD; Joel Blumenthal- volunteer

Weather: Partly cloudy, 60 degrees

Submitted to: Client Date: 9/16/2019

### Comments:

Karina and Brittany arrived on site at 6:45 pm to meet up with Kerry Monahan, who had arrived with Joel shortly before. The bat emergence survey began promptly upon arrival, and continued until it was too dark to see into the trees (approximately at 7:40 pm). No bats were seen emerging from the potential roost trees, though 3 few bats were seen flying around the survey area, mainly flying down the road, past the survey area and into the open field near the campsite). The handheld bat detector used during the survey picked up calls from a Hoary bat and two Myotis species. During the survey, one occupant of the encampment located adjacent to the project site approached to inquire about the trees that were scheduled to be cleared the following morning. Karina showed the individual the trees that were to be removed, and reminded the occupant that this area will need to be cleared for a 7:00 am tree removal start time. We departed at 7:45 pm, with plans for Brittany to return to the site the next morning at 6:45 am to meet with a Forest Service technician and Shawn Erickson from the Town of Brandon to oversee the tree removal activities.





# Field Report

Project Name: Town of Brandon – Churchill Road Culvert Replacement

Project Number: 19-043 Date: 09/10/2019

Time Arrived Site: 6:45 am Departed: 7:20 am

TCE Staff: Brittany LeBeau

Others Present on Site: Shawn Erickson – Town of Brandon; Joy – US Forest Service

Weather: Partly Cloudy, 45 degrees

Submitted to: Client – Town of Brandon Date: 9/16/2019

## Comments:

Brittany arrived on site at 6:45 am to meet up with Shawn and Joy, who had arrived shortly before. The anticipated tree clearing was to begin at 7:00 am, but upon arrival it became clear that Shawn was not willing to risk cutting the trees without first removing the campers that had set up multiple tents, outdoor kitchen, and camper trailer within the tree felling vicinity. After repeated attempts to communicate with the unresponsive campers, as well as the Town of Brandon police department’s law enforcement division, the three of us decided to postpone tree clearing activities until tomorrow morning (7am, Wednesday, September 11). Shawn was going to work with the Town and police department today to remove the campers.



# Field Report

Project Name: Town of Brandon – Churchill Road Culvert Replacement

Project Number: 19-043 Date: 09/12/2019

Time Arrived Site: 6:40 pm Departed: 7:50 pm

TCE Staff: Karina Dailey, PWS, CWB and Zoe Dubilier

Others Present on Site: N/A

Weather: Partly cloudy, 57 degrees

Submitted to: Client Date: 9/16/2019

## Comments:

Karina and Zoe arrived on site at 6:40 pm to conduct the second bat emergence survey which began promptly at 6:50pm, and continued until it was too dark to see into the trees (7:45 pm). No bats were seen emerging from the potential roost trees, though 6 few bats were seen flying around the survey area, mainly flying north down the road past the survey area and into the open field by the campsite. The campsite was set up, but no occupants were observed. Outside noises included a generator running; Coyote's began to howl loudly from the northwest at approximately 7pm and continued sporadically for 10-20 minutes, 1 barred owl to the west, and the noise of the stream. We departed at 7:50 pm, as it was too dark to see the trees or much of anything. Brittany from our office has plans to return to the site tomorrow morning at 7:45 am to meet with the Town of Brandon to oversee the tree removal activities.





# Field Report

Project Name: Town of Brandon – Churchill Road Culvert Replacement

Project Number: 19-043 Date: 09/13/2019

Time Arrived Site: 7:40 am Departed: 11:45 am

TCE Staff: Brittany LeBeau

Others Present on Site: Dave Atherton – Brandon Town Manager; McCullough Bros Tree Service Crew

Weather: Sunny, 50 degrees

Submitted to: Client Date: 9/16/2019

## Comments:

Brittany was the first to arrive on site at 7:40 am, where she was expecting to meet the town manager and a tree crew in tree cutting activities, set to begin promptly at 8:00am. At 8:05 am, Dave arrived and immediately contacted the tree service to verify their expected time of arrival. Dave and Brittany then drove to the junction of VT-53 and VT-73 to meet the tree crew and aid in their arrival on site. At 8:45 am, the party returned to Churchill Road, and Dave left. After two hours of setting up and getting the vehicles positioned correctly, the tree crew felled the small maple located on the southeast side of the wooden bridge. Next, one of the crew members scaled the ash on the northeast side of the bridge and cut the tree top down with a chainsaw, cutting the adjacent ash at the same time. The other two members sorted the downed pieces into log piles for the landowner and a wood chipper pile. Brittany joined the team to inspect felled logs for bat presence, to which she found no bats roosting in the bark. The wood chipper almost immediately malfunctioned, but was fixed promptly by the crew. The yellow birch exhibited a very large wasp nest, so the crew devised a new pulley system of felling the tree, where one crew member cut the base of the tree while one pulled the chipper truck. Once the birch was down, lying across the road north of the



wooden bridge, the crew took care of the wasp nest and sorted the lumber just as before, Brittany simultaneously inspecting the tree for bat presence. Brittany had to depart as the crew got to the maple located on the southeast side of the bridge, but instructed the lead crew member to watch for bats while up in the tree (and to call if any are seen), and instructed another crew member to take a couple pictures of the process. Photos were sent to her phone later that day of a successful maple cutting.



USFWS BAT EMERGENCE SURVEY DATASHEET

Date: September 9, 2019 Surveyor(s) Full Name: Kerry Monahan (GMNF/VFWD) Karina E. Dailey (PWS)

Britney LeBeau (PWS) Joel Blumenthal (volunteer)

State: Vermont County: Chittenden Project Name: Churchill Road Culvert

Site Name/#: Churchill Rd Roost Name/# NA Bat #: NA

Lat/Long or UTM of Roost:

Description of Roost/Habitat Feature Surveyed: Potential roost trees including a maple, yellow birch, and an ash tree in a mixed Northern hardwood forest. Trees need to be felled in order to safely replace culvert on Churchill Road.

Bat Species Known to be using this Roost/Feature (if not known, leave blank): NONE

Other Suspected Bat Species (explain): No bats were seen emerging from potential roost trees; however, we did observe a few bats flying around the survey area. The handheld bat detector an Echometer Touch Pro was used during the survey and picked up calls from a Hoary bat and 2 myotis species.

Weather Conditions during Survey (temperature, precipitation, wind speed): Partly cloudy skies 64 degrees f at the start of the survey and 61 at the end. No wind.

Survey Start Time: 18:45 Time of Sunset: 19:15 Survey End Time: 19:45

Notes: No bats seen exiting trees. 3 bats were observed flying in the area (Mainly flying down the road, past the survey area and into the campsite) A handheld acoustic detector was actively recording through the survey period. Three bats were detected, 2 myotis (MYLU/MYSO) and a Hoary. No restrictions are needed. GMNF staff will be present in the morning to watch for injured bats after the tree are felled. If any bats are observed, the staff will notify their supervisor.

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: September 12, 2019 Surveyor(s) Full Name: Karina E. Dailey (TCE) and Zoe Dubilier (TCE)

State: Vermont County: Chittenden Project Name: Churchill Road Culvert

Site Name/#: Churchill Rd Roost Name/# NA Bat #: NA

Lat/Long or UTM of Roost:

Description of Roost/Habitat Feature Surveyed: Potential roost trees including a maple, yellow birch, and an ash tree in a mixed Northern hardwood forest. Trees need to be felled in order to safely replace culvert on Churchill Road.

Bat Species Known to be using this Roost/Feature (if not known, leave blank): NONE

Other Suspected Bat Species (explain): No bats were seen emerging from potential roost trees; however, we did observe a few bats flying around the survey area (estimated to be 6).

Weather Conditions during Survey (temperature, precipitation, wind speed): Partly cloudy skies 57 degrees f at the start of the survey and 55 at the end. No wind, no rain.

Survey Start Time: 18:50 Time of Sunset: 19:20 Survey End Time: 19:45

Notes: No bats seen exiting trees. 6 bats were observed flying in the area (Mainly flying down the road, past the survey area and into the campsite). No restrictions are needed. TCE staff will be present in the morning to watch for injured bats after the tree are felled. If any bats are observed, the staff will notify USFS and VTFWD and their supervisor.

From: Bennett, Alyssa <Alyssa.Bennett@vermont.gov>  
Sent: Thursday, September 26, 2019 3:45 PM  
To: Karina E. Dailey, PWS  
Subject: RE: 19-043 Churchill - No Bats

Thank you for sending the emergence datasheet information!

Alyssa

Alyssa B. Bennett   /\^.\_.^\  
Small Mammals Biologist  
Vermont Fish & Wildlife Dept.  
111 West Street  
Essex Junction, VT 05452  
Tel: 802-353-4818  
e-mail: [alyssa.bennett@vermont.gov](mailto:alyssa.bennett@vermont.gov)  
Help Vermont's Bats at  
<http://www.vtfishandwildlife.com>

---

From: Karina E. Dailey, PWS <[Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)>  
Sent: Friday, September 13, 2019 9:51 AM  
To: Monahan, Kerry <[Kerry.Monahan@vermont.gov](mailto:Kerry.Monahan@vermont.gov)>; [datherton@townofbrandon.com](mailto:datherton@townofbrandon.com)  
Cc: Brittany LeBeau <[Brittany.LeBeau@tcevt.com](mailto:Brittany.LeBeau@tcevt.com)>; John Pitrowiski, P.E. <[John.Pitrowiski@tcevt.com](mailto:John.Pitrowiski@tcevt.com)>; Jeremy - FS Mears <[jeremy.mears@usda.gov](mailto:jeremy.mears@usda.gov)>; Bennett, Alyssa <[Alyssa.Bennett@vermont.gov](mailto:Alyssa.Bennett@vermont.gov)>  
Subject: RE: 19-043 Churchill - No Bats

Attached is the Emergence Datasheet for last night.

**Karina E. Dailey, P.W.S., C.W.B.**  
*Senior Ecologist*

*Trudell Consulting Engineers*  
e. [Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)  
p. 802.879.6331 x110  
f. 802.879.0060



478 Blair Park Road, Williston, VT 05495  
42 Mapleville Depot, St. Albans, VT 05478

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From: Monahan, Kerry [<mailto:Kerry.Monahan@vermont.gov>]  
Sent: Thursday, September 12, 2019 7:59 PM  
To: Karina E. Dailey, PWS; [datherton@townofbrandon.com](mailto:datherton@townofbrandon.com)  
Cc: Brittany LeBeau; John Pitrowiski, P.E.; Jeremy - FS Mears; Bennett, Alyssa  
Subject: Re: 19-043 Churchill - No Bats

Great work! Thank you.

Get [Outlook for iOS](#)

---

From: Karina E. Dailey, PWS <[Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)>  
Sent: Thursday, September 12, 2019 7:56:56 PM  
To: [datherton@townofbrandon.com](mailto:datherton@townofbrandon.com) <[datherton@townofbrandon.com](mailto:datherton@townofbrandon.com)>  
Cc: Brittany LeBeau <[Brittany.LeBeau@tcevt.com](mailto:Brittany.LeBeau@tcevt.com)>; John Pitrowiski, P.E. <[John.Pitrowiski@tcevt.com](mailto:John.Pitrowiski@tcevt.com)>; Monahan, Kerry <[Kerry.Monahan@vermont.gov](mailto:Kerry.Monahan@vermont.gov)>; Jeremy - FS Mears <[jeremy.mears@usda.gov](mailto:jeremy.mears@usda.gov)>; Bennett, Alyssa <[Alyssa.Bennett@vermont.gov](mailto:Alyssa.Bennett@vermont.gov)>  
Subject: 19-043 Churchill - No Bats

Emergence Survey completed, no bats in subject trees. Tree cutting is planned for tomorrow morning at 8am.

Sent from my iPhone

## Attachment 10

From: Adams, Michael S CIV USARMY CENAE (US) <Michael.S.Adams@usace.army.mil>  
Sent: Monday, January 6, 2020 7:39 AM  
To: Karina E. Dailey, PWS  
Cc: Colen Johnson  
Subject: RE: 19-026 Churchill Rd, Culvert Replacement, Brandon, VT

Karina,

This is in reference to the final design plans for the Church Hill Road culvert replacement project in Brandon, Vermont. The work was authorized under Permit No. NAE-2019-02606. Based on a review of the final plans there will be no change in the area of impact to the aquatic resources. The plans will be added to the file. No additional correspondence or documentation is required.

Best Regards,  
Mike

-----Original Message-----

From: Karina E. Dailey, PWS [<mailto:Karina.Dailey@tcevt.com>]  
Sent: Friday, December 20, 2019 10:17 AM  
To: Adams, Michael S CIV USARMY CENAE (US) <[Michael.S.Adams@usace.army.mil](mailto:Michael.S.Adams@usace.army.mil)>  
Cc: Colen Johnson <[Colen.Johnson@tcevt.com](mailto:Colen.Johnson@tcevt.com)>  
Subject: [Non-DoD Source] 19-026 Churchill Rd, Culvert Replacement, Brandon, VT

Good morning Mike,

Attached please find the revised construction plan set (by McFarland Johnson) for the Churchill Road Culvert Replacement project in Brandon, VT.

TCE would like confirmation from your office that our ACOE permit "NAE-2019-02606" is still valid despite the revised plan set by MFG, or alternatively we would like to request that a new permit be issued that recognizes these plan changes.

Upon your review of the new plans the only changes include the following:

- \* Angle of the inlet wing walls from 22 degrees (on TCE plans) to 45 degrees (MFJ plans)
- \* Longer outlet wing wall on the southwest side of the culvert
- \* Minor grading changes

Overall, we believe that the impacts below the OHW remain the same.

At your convenience please review and provide a response.

Happy Holidays!

Karina E. Dailey, P.W.S., C.W.B.  
Senior Ecologist

Trudell Consulting Engineers

e. [Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com) <<mailto:Karina.Dailey@tcevt.com>>

p. 802.879.6331 x110

f. 802.879.0060

<Blockedhttp://www.tcevt.com/>

478 Blair Park Road, Williston, VT 05495

42 Mapleville Depot, St. Albans, VT 05478

Karina E. Dailey, PWS

---

From: Carvajal, Joshua <Joshua.Carvajal@vermont.gov>  
Sent: Wednesday, January 22, 2020 4:55 PM  
To: Karina E. Dailey, PWS  
Cc: Colen Johnson; David Atherton; David -FS Donahue  
Subject: Re: 19-026 Churchill Rd, Culvert Replacement, Brandon, VT

The correct permit number is SA-2191

Josh

On Jan 22, 2020, at 4:37 PM, Karina E. Dailey, PWS <[Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)> wrote:

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

Josh, For the record, can you please clarify via email that the permit # you reference is in fact SA-2191 versus the SAGP 1291 you stated below?

Thanks,

Karina E. Dailey, P.W.S., C.W.B.  
*Senior Ecologist*

*Trudell Consulting Engineers  
e. [Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)  
p. 802.879.6331 x110  
f. 802.879.0060*

[<image001.jpg>](#)

*478 Blair Park Road, Williston, VT 05495  
42 Mapleville Depot, St. Albans, VT 05478*

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From: Carvajal, Joshua [<mailto:Joshua.Carvajal@vermont.gov>]  
Sent: Thursday, January 16, 2020 9:27 PM  
To: Karina E. Dailey, PWS  
Cc: Colen Johnson; David Atherton; David -FS Donahue  
Subject: Re: 19-026 Churchill Rd, Culvert Replacement, Brandon, VT

Hi Karina,

SAGP 1291 is still valid with the revised plans by McFarland Johnson.

All stone fill slopes need to have the grubbing layer on top.  
Geotextile under stone should be replaced with a bedding layer

Josh

On Dec 20, 2019, at 10:30 AM, Karina E. Dailey, PWS <[Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)> wrote:

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

Good morning Josh,

Attached please find the revised construction plan set (by McFarland Johnson) for the Churchill Road Culvert Replacement project in Brandon, VT. Long story but the concrete culvert was built using these plans vs. TCE plan set.

TCE would like confirmation from your office that our Stream Alt permit "SA-2191" is still valid despite the revised plan set by MFG, or alternatively we would like to request that a new permit be issued that recognizes these plan changes.

The changes to the plans include the following:

- Angle of the inlet wing walls from 22 degrees (on TCE plans) to 45 degrees (MFJ plans)
- Longer outlet wing wall on the southwest side of the culvert
- Minor grading changes

Overall, we believe that the impacts below the OHW remain the same.

At your convenience please review and provide a response.

Happy Holidays!

**Karina E. Dailey, P.W.S., C.W.B.**  
*Senior Ecologist*

*Trudell Consulting Engineers*  
e. [Karina.Dailey@tcevt.com](mailto:Karina.Dailey@tcevt.com)  
p. 802.879.6331 x110  
f. 802.879.0060



*478 Blair Park Road, Williston, VT 05495  
42 Mapleville Depot, St. Albans, VT 05478*

<Brandon Culvert Final Plans.pdf>



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>

IPaC Record Locator: 176-16042247

April 03, 2019

Subject: Consistency letter for the 'Churchill Road Culvert Replacement' project (TAILS 05E1NE00-2019-R-1305) under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated to verify that the **Churchill Road Culvert Replacement** (Proposed Action) may rely on the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action will have no effect on the endangered Indiana bat (*Myotis sodalis*) or the threatened Northern long-eared bat (*Myotis septentrionalis*). If the Proposed Action is not modified, **no consultation is required for these two species.**

**For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities:** If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency for the Proposed Action accordingly.

## **Project Description**

The following project name and description was collected in IPaC as part of the endangered species review process.

### **Name**

Churchill Road Culvert Replacement

### **Description**

Work to be performed consists of the removal and replacement of an old wooden bridge to be replaced with a reinforced concrete, closed box culvert 14' W X 8' D X 18' L with supporting wing walls, with related approach and channel work, and incidental items.

---

## Determination Key Result

Based on the information you provided, you have determined that the Proposed Action will have no effect on the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for these two species.

## Qualification Interview

1. Is the project within the range of the Indiana bat<sup>[1]</sup>?

[1] See [Indiana bat species profile](#)

**Automatically answered**

*Yes*

2. Is the project within the range of the Northern long-eared bat<sup>[1]</sup>?

[1] See [Northern long-eared bat species profile](#)

**Automatically answered**

*Yes*

3. Which Federal Agency is the lead for the action?

*A) Federal Highway Administration (FHWA)*

4. Are *all* project activities limited to non-construction<sup>[1]</sup> activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

[1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

*Yes*

---

## **Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat**

This key was last updated in IPaC on March 16, 2018. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's [February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects](#). The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

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INDEX OF SHEETS

- 1 TITLE SHEET
- 2 TYPICAL SECTIONS AND DETAILS
- 3 PROJECT NOTES AND QUANTITIES
- 4 ROADWAY PLAN
- 5 ROADWAY CROSS SECTIONS
- 6 CHANNEL PROFILE AND CROSS SECTIONS
- 7 EXISTING CONDITIONS SITE PLAN
- 8 BRIDGE RAILING DETAILS
- 9 R.O.W. DETAIL SHEET
- 10 R.O.W. PLAN

Attachment 13

# TOWN OF BRANDON, VT COUNTY OF RUTLAND PROPOSED IMPROVEMENT CULVERT PROJECT

T.H. 22 (CHURCHILL ROAD) OVER  
LEICESTER HOLLOW BROOK TRIBUTARY

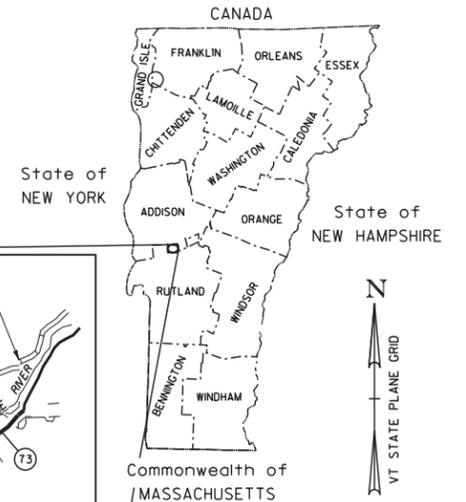
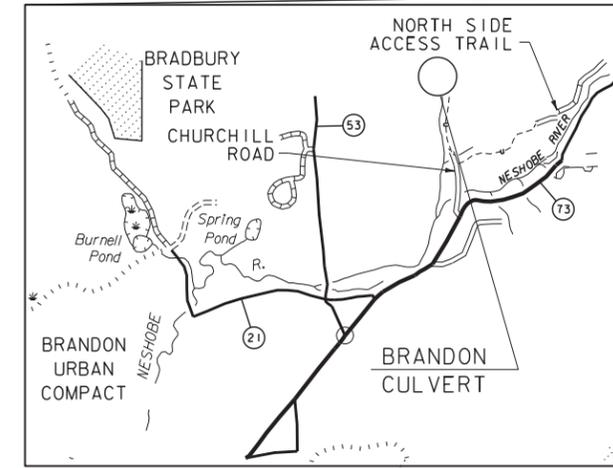
STANDARDS LIST

- G-1 STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS) (3/10/17)
- G-ID STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN) (3/10/17)
- T-1 TEMPORARY TRAFFIC CONTROL GENERAL NOTES (4/25/16)

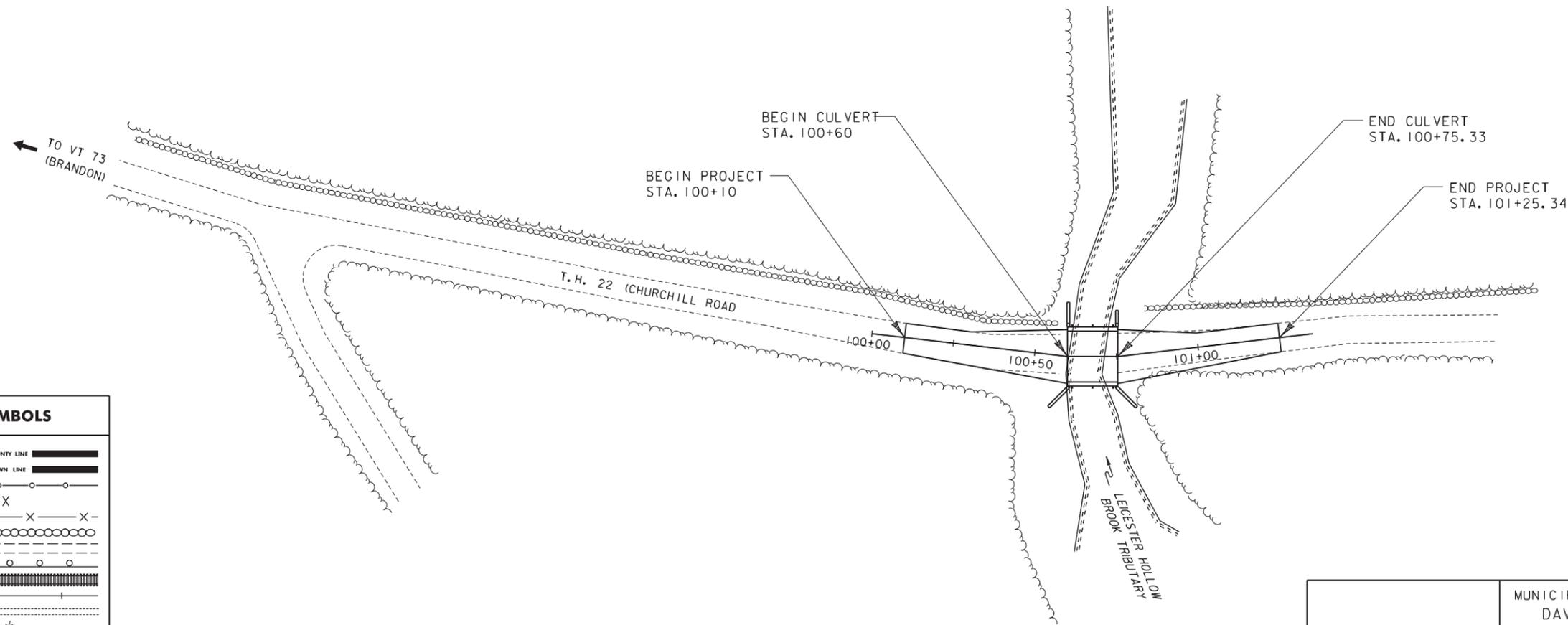
PROJECT LOCATION: BEGINNING AT A POINT ON T.H. 22, APPROXIMATELY 0.3 MILES NORTHERLY OF ITS INTERSECTION WITH VT 73, AND EXTENDING NORTHERLY 0.022 MILES.

PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE WITH PRECAST CONCRETE BOX CULVERT, WITH RELATED APPROACH AND CHANNEL WORK.

LENGTH OF STRUCTURE: 15.33 FEET = 0.003 MILES  
 LENGTH OF ROADWAY: 100.01 FEET = 0.019 MILES  
 LENGTH OF PROJECT: 115.34 FEET = 0.022 MILES



LOCATION MAP  
NOT TO SCALE



CONVENTIONAL SYMBOLS

|                    |  |
|--------------------|--|
| COUNTY LINE        |  |
| TOWN LINE          |  |
| LIMITS OF ACCESS   |  |
| POINT OF ACCESS    |  |
| FENCE LINE         |  |
| STONE WALL         |  |
| TRAVELED WAY       |  |
| GUARD RAIL         |  |
| RAILROAD           |  |
| SURVEY LINE        |  |
| CULVERT            |  |
| POWER POLE         |  |
| TELEPHONE POLE     |  |
| TREES              |  |
| CONTROL OF ACCESS  |  |
| PROPERTY LINE      |  |
| R.O.W. TAKING LINE |  |
| SLOPE RIGHTS       |  |
| TOP OF CUT         |  |
| TOE OF SLOPE       |  |

DATUM  
 VERTICAL NAVD 88  
 HORIZONTAL NAD 83 (cors 96)

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2018, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON APRIL 13, 2018 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.



MUNICIPAL PROJECT MANAGER :  
DAVID J. ATHERTON, TOWN MANAGER

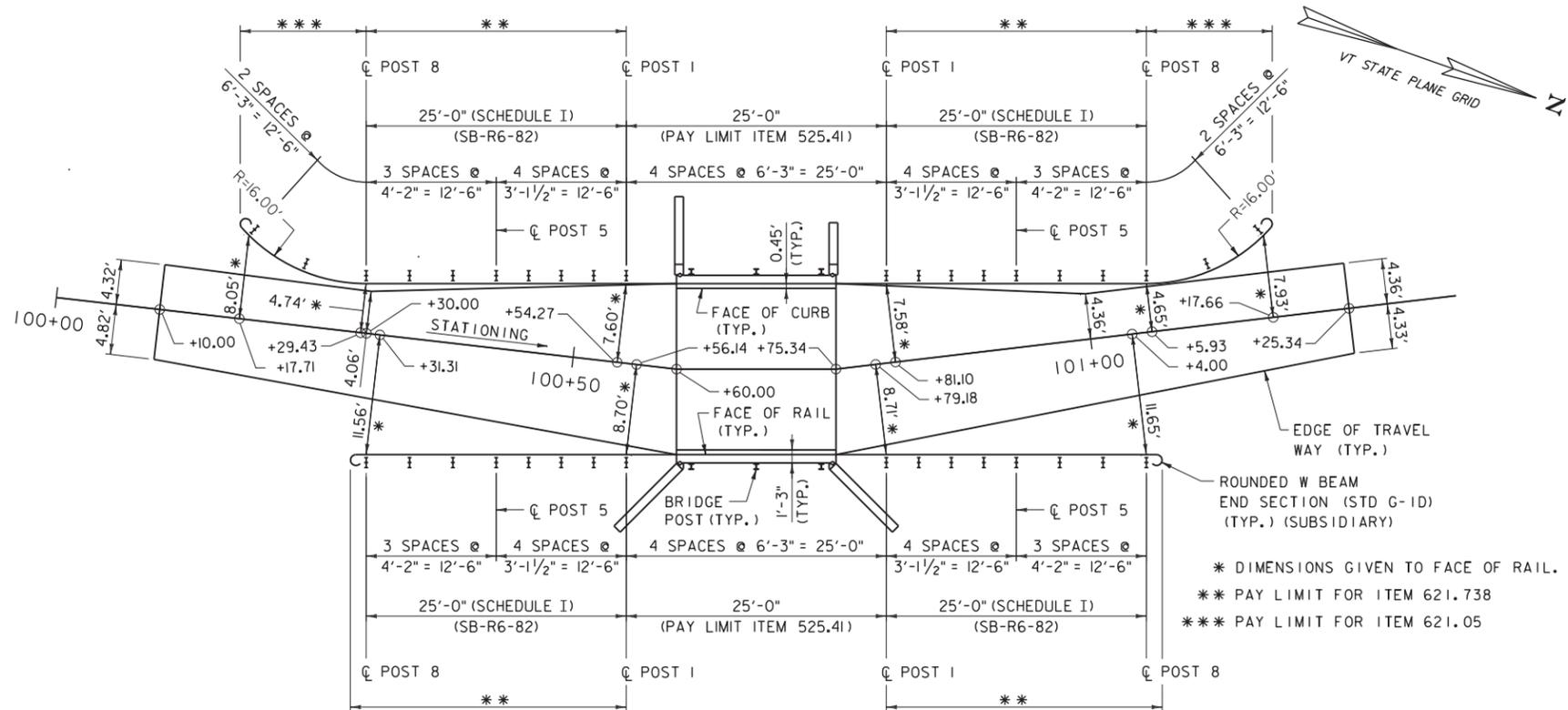
APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

PROJECT NAME : BRANDON-CHURCHILL ROAD  
CULVERT

PROJECT NUMBER : BRANDON CULVERT

SHEET 1 OF 10 SHEETS

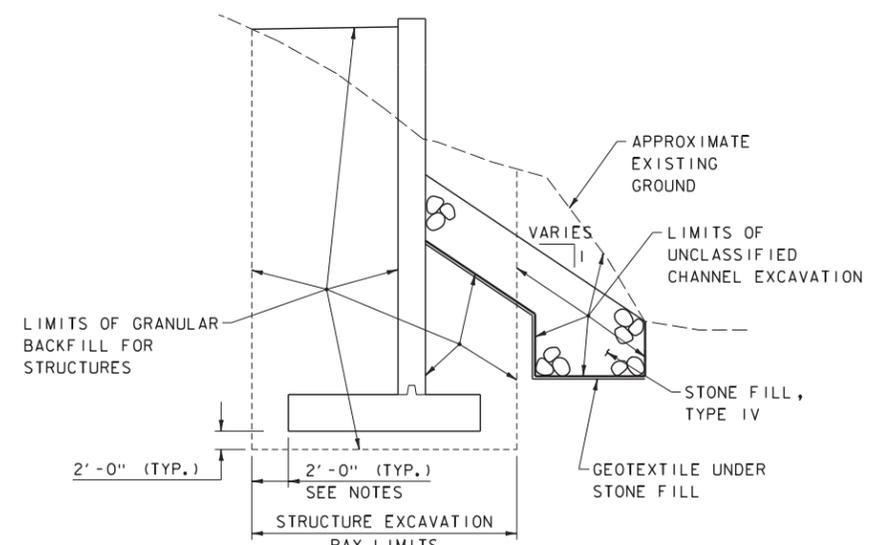




**BRIDGE AND APPROACH RAIL LAYOUT PLAN**

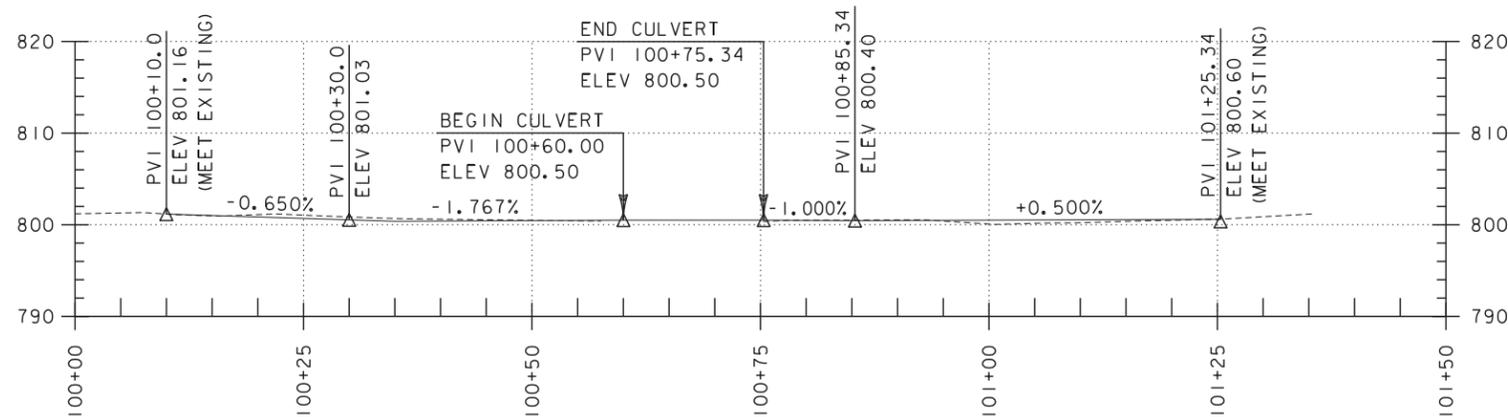
SCALE: 1" = 8'

\* DIMENSIONS GIVEN TO FACE OF RAIL.  
 \*\* PAY LIMIT FOR ITEM 621.738  
 \*\*\* PAY LIMIT FOR ITEM 621.05

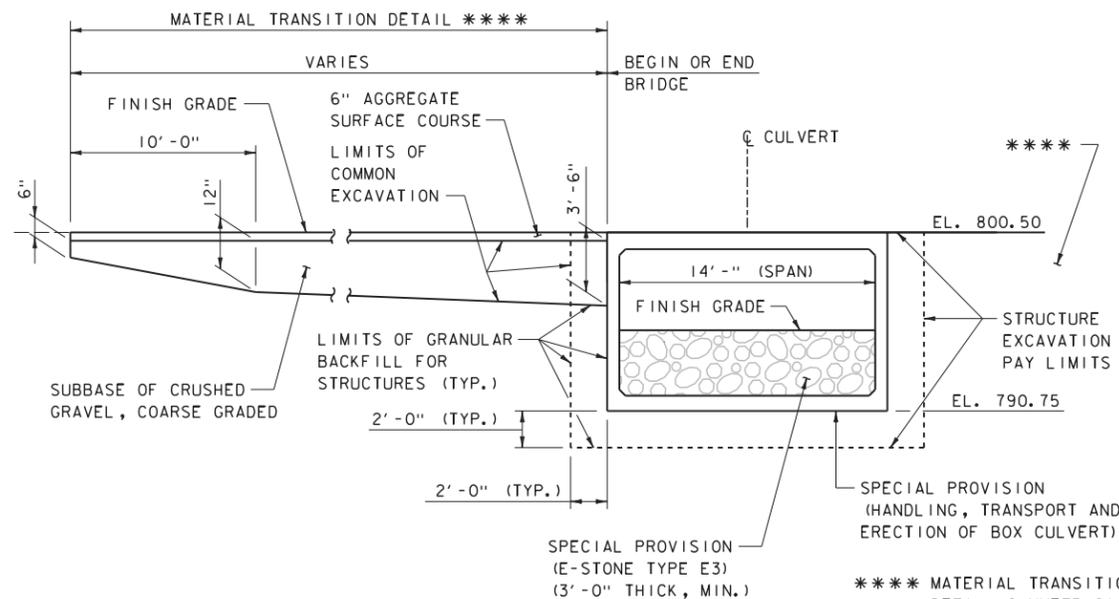


**TYPICAL WINGWALL SECTION**

NOT TO SCALE



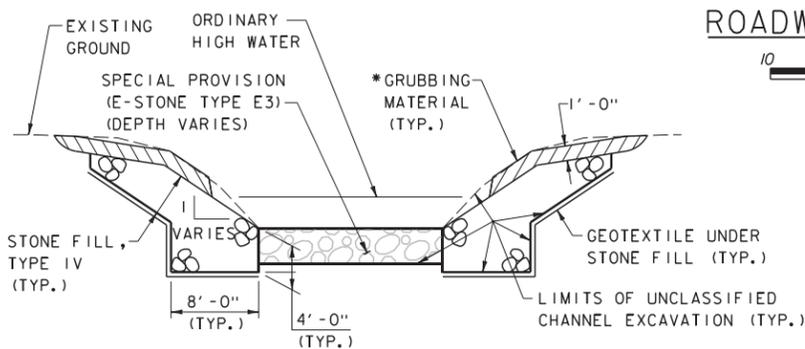
**ROADWAY PROFILE**



**CULVERT TYPICAL SECTION**

NOT TO SCALE

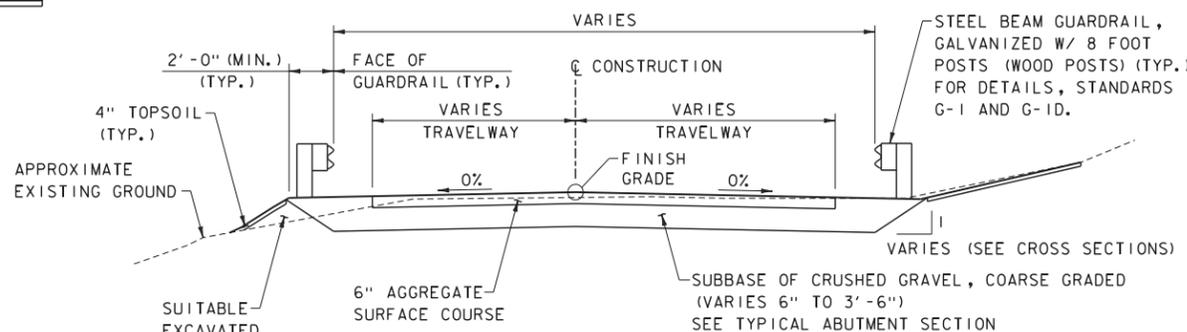
\*\*\*\* MATERIAL TRANSITION DETAIL SYMMETRICAL ABOUT CULVERT



**TYPICAL CHANNEL SECTION**

NOT TO SCALE

\* WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



**TYPICAL ROADWAY SECTION**

NOT TO SCALE



|                                          |                                                            |                       |
|------------------------------------------|------------------------------------------------------------|-----------------------|
| SHEET NAME: TYPICAL SECTIONS AND DETAILS |                                                            |                       |
| PROJECT NAME:                            | CHURCHILL RD. (TH22) OVER LEICESTER HOLLOW BROOK TRIBUTARY |                       |
| FILE NAME:                               | z17156.02+yp.dgn                                           | PLOT DATE: 10/18/2019 |
| PROJECT LEADER:                          | J. Lund                                                    | DRAWN BY: D. DePaolo  |
| DESIGNED BY:                             | R. Joy                                                     | CHECKED BY: R. Joy    |
|                                          |                                                            | SHEET 2 OF 10         |

PROJECT NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2018 STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND ITS LATEST INTERIMS.
2. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION FROM ENTERING THE BROOK.
3. REMOVAL OF STRUCTURE, ITEM 529.15, SHALL INCLUDE THE TIMBER SUPERSTRUCTURE AND STONE MASONRY ABUTMENTS.
4. TEMPORARY TRAFFIC BARRIERS SHALL BE PLACED ON THE SOUTH APPROACH TO BLOCK ACCESS TO THE BRIDGE, AS DIRECTED BY THE ENGINEER. COST SHALL BE INCLUDED IN ITEM 635.11, MOBILIZATION / DEMOBILIZATION.
5. A TRAIL TO ACCESS THE NORTH SIDE IS SHOWN ON THE LOCATION MAP (SHEET 1), AND MAY BE USED BY THE CONTRACTOR, PROVIDED THE CONTRACTOR FINDS IT SUITABLE FOR THEIR USE.
6. IF BEDROCK IS ENCOUNTERED PRIOR TO ACHIEVING THE BOTTOM OF FOOTING SUBBASE ELEVATIONS PROVIDED IN THE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY RESIDENT ENGINEER AND EXPOSE ROCK SURFACE WITHIN THE FOOTPRINT OF THE FOOTINGS. BASED ON THE ACTUAL ROCK SURFACE ELEVATIONS ENCOUNTERED, AS SURVEYED BY THE CONTRACTOR. THE ROCK SHALL BE EXCAVATED AND INCLUDED IN ITEM 204.25, STRUCTURE EXCAVATION.
7. THE PRECAST CONCRETE BOX CULVERT AND WINGWALLS HAVE BEEN FABRICATED BY CAMP PRECAST. COPIES OF THE STRUCTURAL DRAWINGS MAY BE OBTAINED FROM CAMP PRECAST. THE CONTRACTOR SHALL ERECT THE STRUCTURE TO THE GEOMETRY DETAILED IN THESE PLANS. SEE SPECIAL PROVISION (HANDLING, TRANSPORT AND ERECTION OF BOX CULVERT).
8. TEMPORARY TRAFFIC CONTROL DEVICES AND CONSTRUCTION SIGNING SHALL BE INCLUDED IN COST OF ITEM 635.11, MOBILIZATION / DEMOBILIZATION.
9. SURVEY TIES AND CONTROLS ARE AVAILABLE FROM THE TOWN'S SURVEYOR.
10. LIMITS OF CLEARING AND TREE REMOVAL SHALL BE DETERMINED BY THE ENGINEER. COST INCLUDED IN ITEM 201.10, CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS.
11. LIMITS OF EXISTING STONE WALL REMOVAL SHALL BE WITHIN LIMITS OF TEMPORARY CONSTRUCTION EASEMENT OR AS DIRECTED BY THE ENGINEER. COST INCLUDED IN ITEM 900.645, SPECIAL PROVISION (REMOVE AND RELOCATE EXISTING STONE WALL).

TEMPORARY RELOCATION OF STREAM NOTES:

1. THE CONTRACTOR SHALL PROVIDE TEMPORARY STREAM LOCATION BY PUMPING OR OTHER APPROVED METHODS AS REQUIRED DURING CONSTRUCTION.
2. SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) CONCEPT ON SHEET 4 OF 10 SHOWS A POTENTIAL STREAM RELOCATION PLAN. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING THEIR OWN SPECIFIC PLAN AND DESIGN FOR DEWATERING AND STREAM RELOCATION. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
3. PAYMENT FOR ITEM 900.645, SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM), WILL INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING WORK:
  - A. PREPARATION OF THE SITE SPECIFIC TEMPORARY RELOCATION PLAN.
  - B. DAM(S) FOR CONTROLLING WATER.
  - C. BY-PASS PUMP(S), BYPASS PIPE(S), SLEEVE(S) AND HARDWARE.
  - D. ANY EXCAVATION NEEDED TO PLACE AND REMOVE THE BYPASS PIPE THAT FALLS OUTSIDE THE PAY LIMITS OF THE STRUCTURE, COMMON EXCAVATION, OR UNCLASSIFIED CHANNEL EXCAVATION AS DEFINED IN THE PLANS.

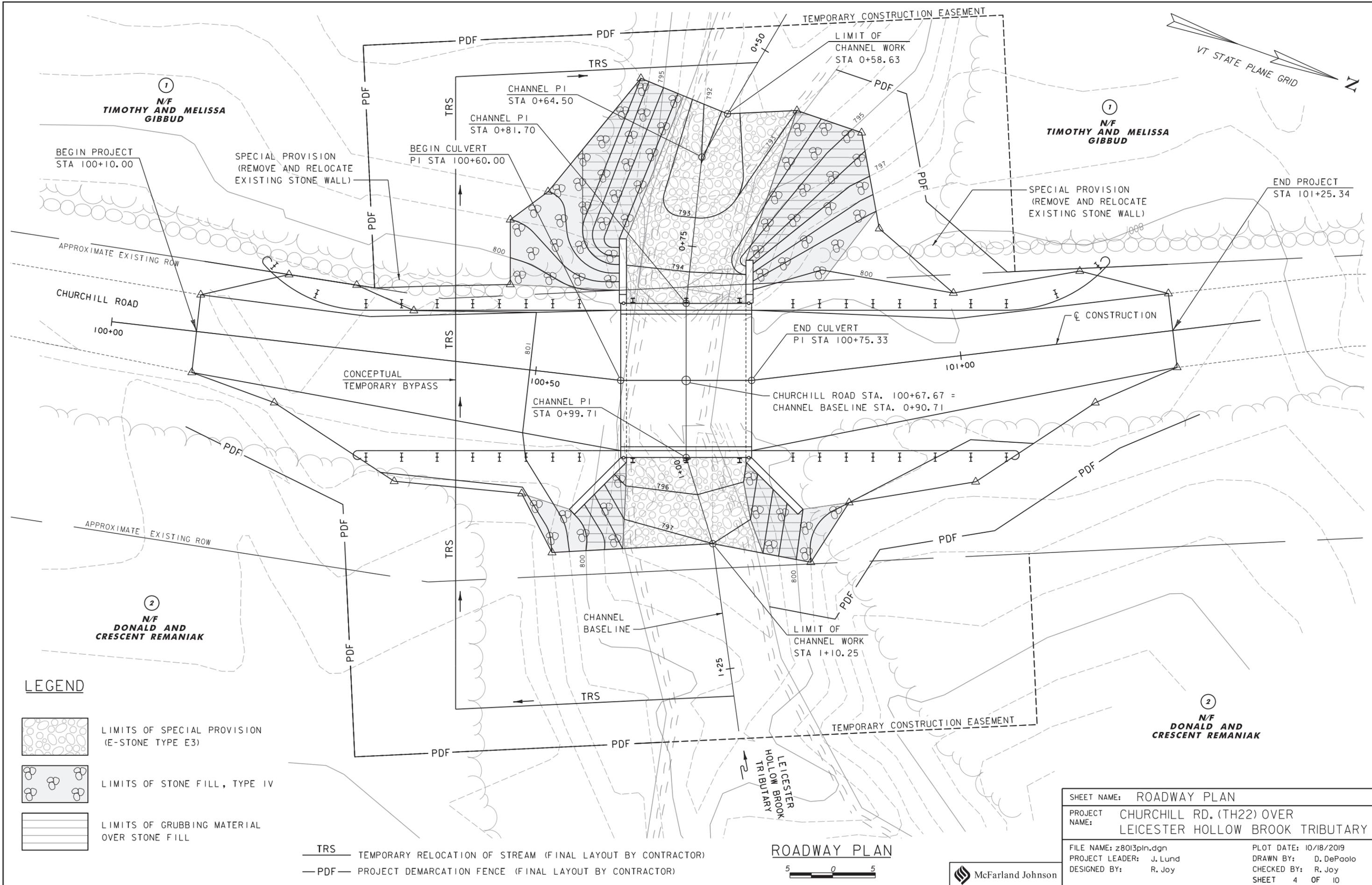
TEMPORARY RELOCATION OF STREAM NOTES (CONTINUED):

- E. ANY BACKFILL NEEDED TO PLACE THE BYPASS PIPE SUCH THAT THE EXISTING STREAM ELEVATIONS WILL MAINTAIN THE FLOW OF WATER AT ALL TIMES.
- F. MATERIAL AND LABOR TO PLACE THE BACKFILL WHICH FALLS OUTSIDE THE PAY LIMITS OF THE ROADWAY SUBBASE AND GRANULAR BACKFILL FOR STRUCTURES AS DEFINED ON THE PLANS.
- G. INCIDENTALS USED TO DIVERT THE WATER TO THE BAYPASS PIPE(S) (SANDBAGS, CHECK DAM, STONE, MATTING, SILT FENCE AND ALL EROSION CONTROL DEVICES TO SUCCESSFULLY RELOCATE THE STREAM, ETC.) TO CONSTRUCT THE CULVERT, AND RESTORE THE STREAM BED IN DRY CONDITIONS.

| ITEM NUMBER | ITEM DESCRIPTION                                                    | UNIT | TOTAL |
|-------------|---------------------------------------------------------------------|------|-------|
| 201.10      | CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS        | LS   | 1     |
| 203.15      | COMMON EXCAVATION                                                   | CY   | XX    |
| 203.27      | UNCLASSIFIED CHANNEL EXCAVATION                                     | CY   | XX    |
| 204.25      | STRUCTURE EXCAVATION                                                | CY   | XX    |
| 204.30      | GRANULAR BACKFILL FOR STRUCTURES                                    | CY   | XX    |
| 301.25      | SUBBASE OF CRUSHED GRAVEL, COARSE GRADED                            | CY   | XX    |
| 401.10      | AGGREGATE SURFACE COURSE                                            | CY   | 50    |
| 525.41      | BRIDGE RAILING, GALVANIZED HD STEEL BEAM/FASCIA MOUNTED             | LF   | 50    |
| 529.15      | REMOVAL OF STRUCTURE                                                | EA   | 1     |
| 613.13      | STONE FILL, TYPE IV                                                 | CY   | 110   |
| 621.205     | STEEL BEAM GUARDRAIL, GALVANIZED W/ 8 FEET POSTS                    | LF   | 29    |
| 621.60      | ANCHOR FOR STEEL BEAM RAIL                                          | EA   | 4     |
| 621.738     | GUARDRAIL APPROACH SECTION, GALV HD STEEL BEAM W/ 8FT POSTS         | EA   | 4     |
| 635.11      | MOBILIZATION / DEMOBILIZATION                                       | LS   | 1     |
| 649.31      | GEOTEXTILE UNDER STONE FILL                                         | SY   | 100   |
| 649.51      | GEOTEXTILE FOR SILT FENCE                                           | SY   | 150   |
| 649.61      | GEOTEXTILE FOR FILTER CURTAIN                                       | SY   | 50    |
| 651.15      | SEED                                                                | LB   | 5     |
| 651.17      | SEED, WINTER RYE                                                    | LB   | 5     |
| 651.18      | FERTILIZER                                                          | LB   | 20    |
| 651.20      | AGRICULTURAL LIMESTONE                                              | TON  | 0.5   |
| 651.25      | HAY MULCH                                                           | TON  | 0.5   |
| 651.35      | TOPSOIL                                                             | CY   | 20    |
| 651.40      | GRUBBING MATERIAL                                                   | SY   | 40    |
| 652.10      | EPSC PLAN                                                           | LS   | 1     |
| 652.20      | MONITORING EPSC PLAN                                                | HR   | 20    |
| 652.30      | MAINTENANCE OF EPSC PLAN (N.A.B.I.)                                 | LU   | 1     |
| 653.20      | ROLLED EROSION CONTROL PRODUCT, TYPE I                              | SY   | 110   |
| 653.45      | FILTER BAG                                                          | EA   | 2     |
| 653.55      | PROJECT DEMARCATION FENCE                                           | LF   | 330   |
| 900.608     | SPECIAL PROVISION (E-STONE TYPE E3)                                 | CY   | 90    |
| 900.645     | SPECIAL PROVISION (HANDLING, TRANSPORT AND ERECTION OF BOX CULVERT) | LS   | 1     |
| 900.645     | SPECIAL PROVISION (REMOVE AND RELOCATE EXISTING STONE WALL)         | LS   | 1     |
| 900.645     | SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)                  | LS   | 1     |
| 900.650     | SPECIAL PROVISION (MATERIAL SAMPLING AND TESTING (N.A.B.I.))        | LU   | 1     |



|                                        |                                                            |
|----------------------------------------|------------------------------------------------------------|
| SHEET NAME: PROJECT NOTES & QUANTITIES |                                                            |
| PROJECT NAME:                          | CHURCHILL RD. (TH22) OVER LEICESTER HOLLOW BROOK TRIBUTARY |
| FILE NAME:                             | z17156.02gen_notes.dgn                                     |
| PROJECT LEADER:                        | J. Lund                                                    |
| DESIGNED BY:                           | R. Joy                                                     |
| PLOT DATE:                             | 10/18/2019                                                 |
| DRAWN BY:                              | D. DePaolo                                                 |
| CHECKED BY:                            | R. Joy                                                     |
| SHEET                                  | 3 OF 10                                                    |

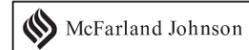


**LEGEND**

- LIMITS OF SPECIAL PROVISION (E-STONE TYPE E3)
- LIMITS OF STONE FILL, TYPE IV
- LIMITS OF GRUBBING MATERIAL OVER STONE FILL

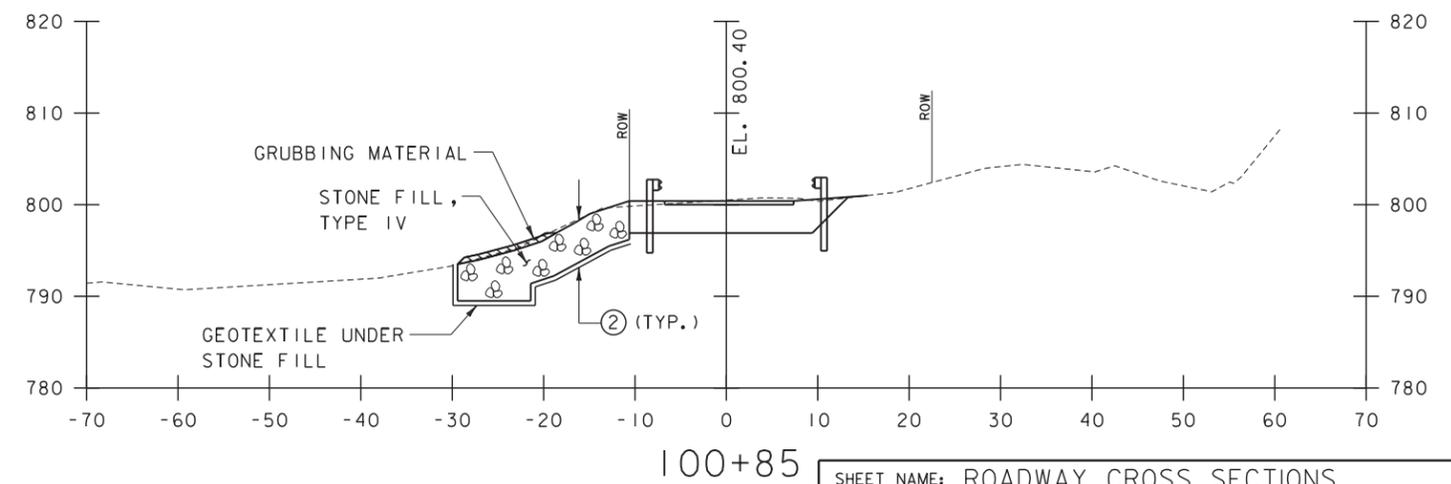
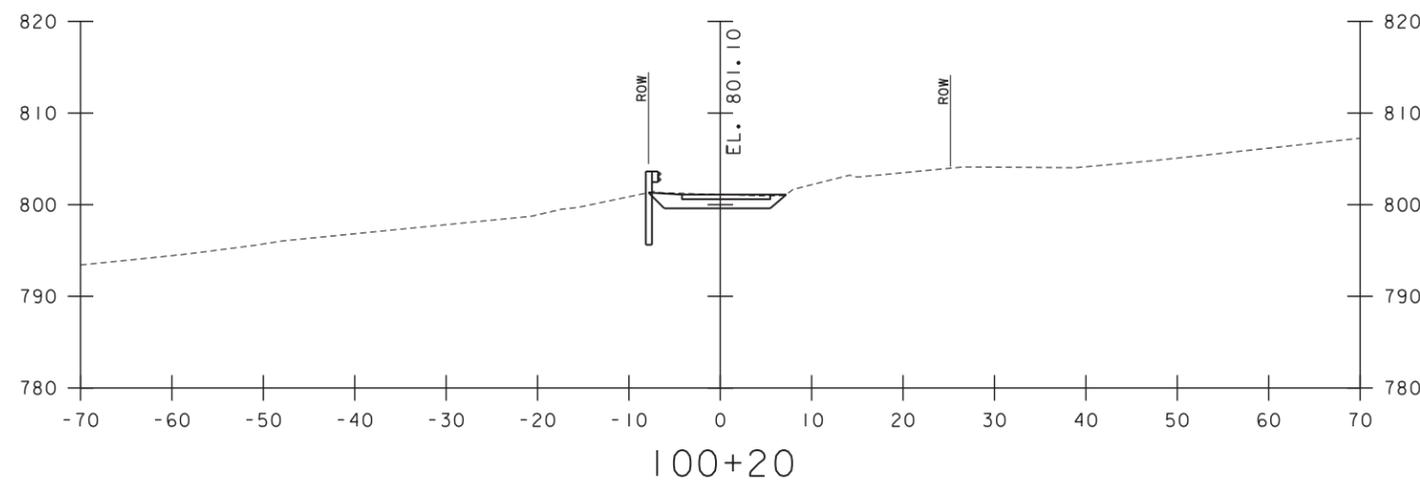
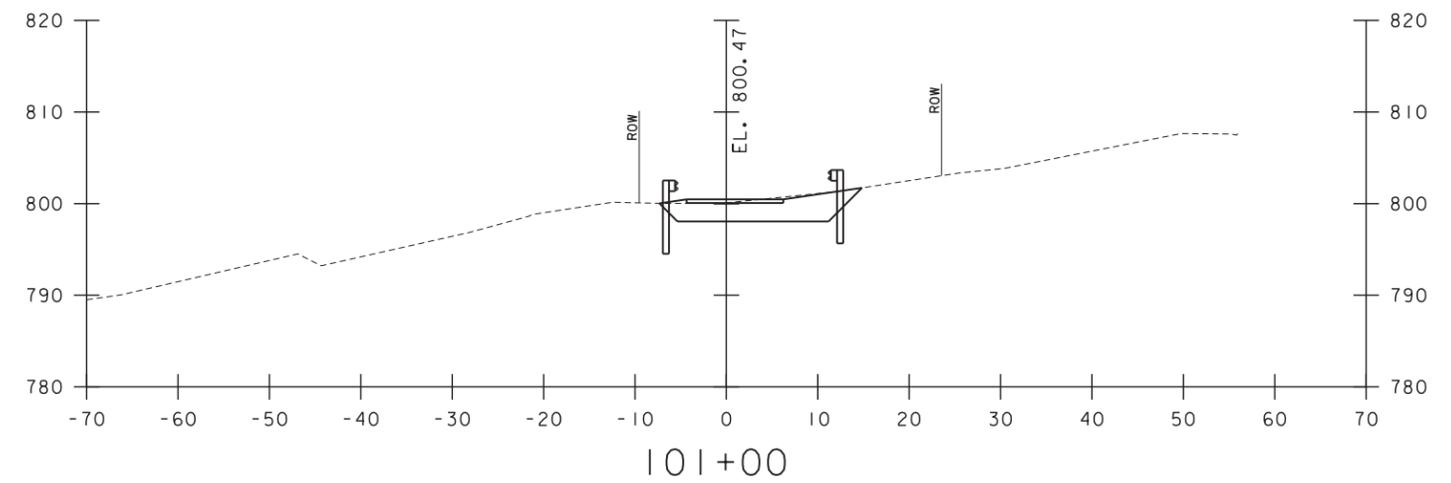
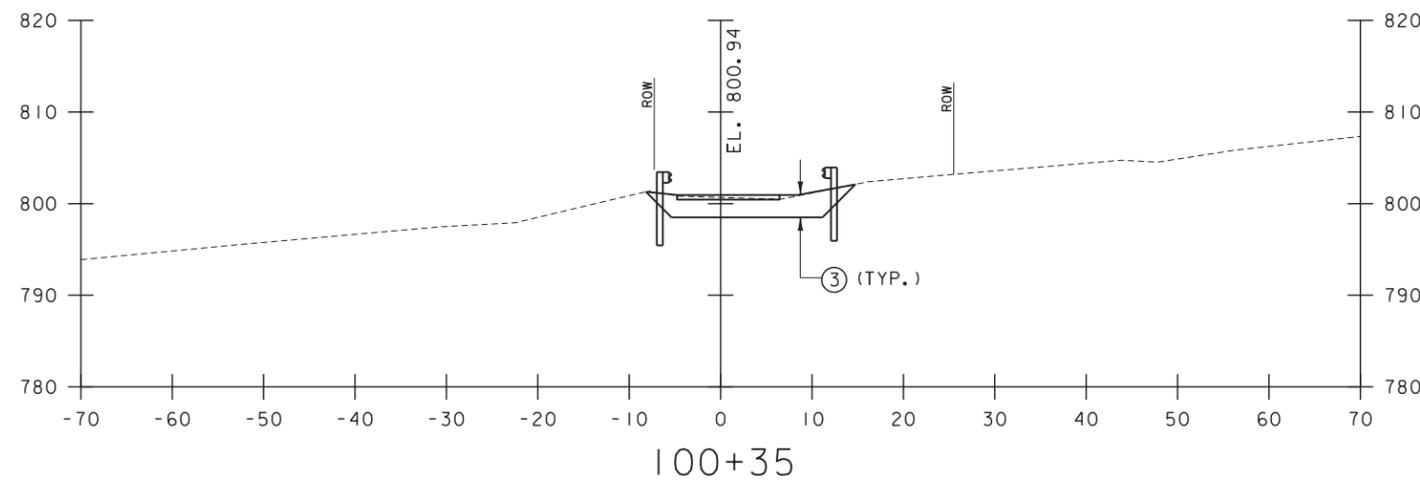
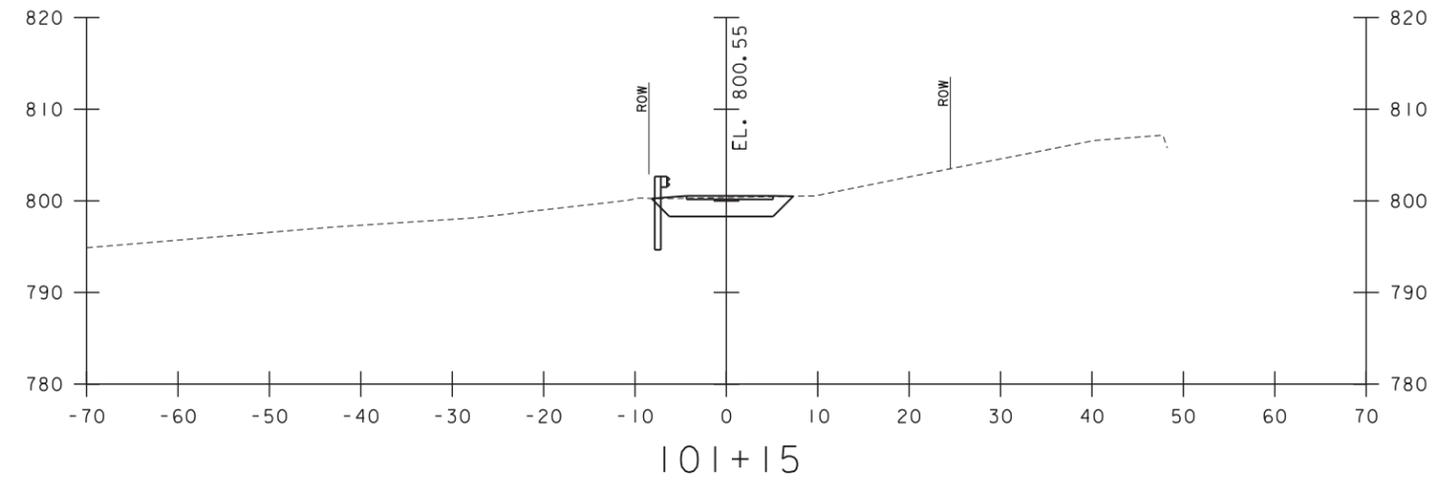
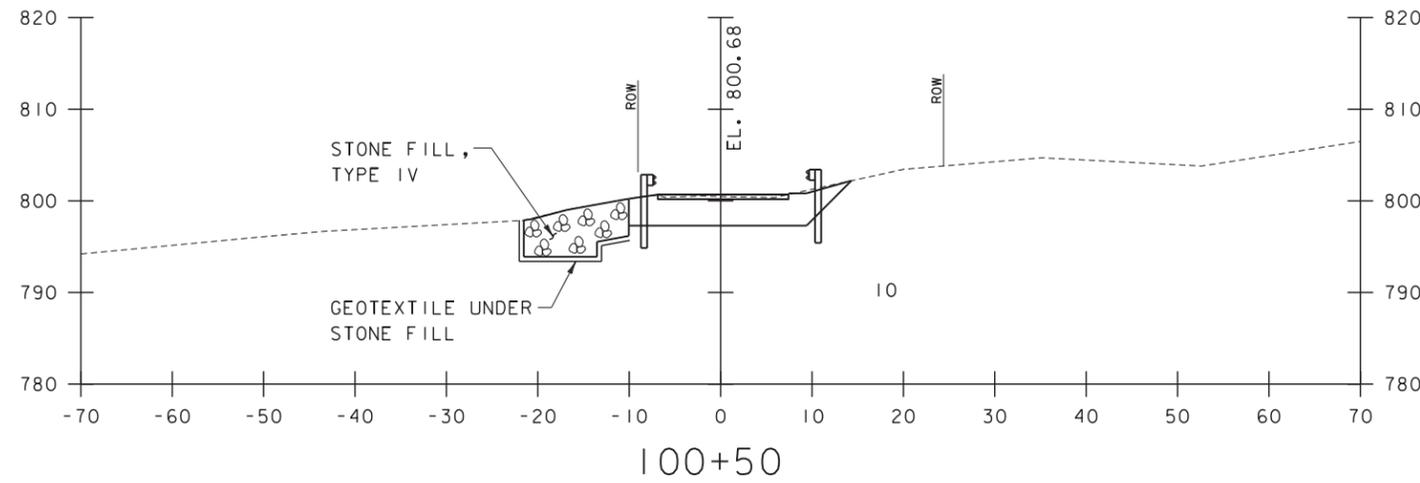
- TRS — TEMPORARY RELOCATION OF STREAM (FINAL LAYOUT BY CONTRACTOR)
- PDF — PROJECT DEMARCATION FENCE (FINAL LAYOUT BY CONTRACTOR)

**ROADWAY PLAN**



|                                                                          |                       |
|--------------------------------------------------------------------------|-----------------------|
| SHEET NAME: ROADWAY PLAN                                                 |                       |
| PROJECT NAME: CHURCHILL RD. (TH22) OVER LEICESTER HOLLOW BROOK TRIBUTARY |                       |
| FILE NAME: z8013pin.dgn                                                  | PLOT DATE: 10/18/2019 |
| PROJECT LEADER: J. Lund                                                  | DRAWN BY: D. DePaolo  |
| DESIGNED BY: R. Joy                                                      | CHECKED BY: R. Joy    |
|                                                                          | SHEET 4 OF 10         |

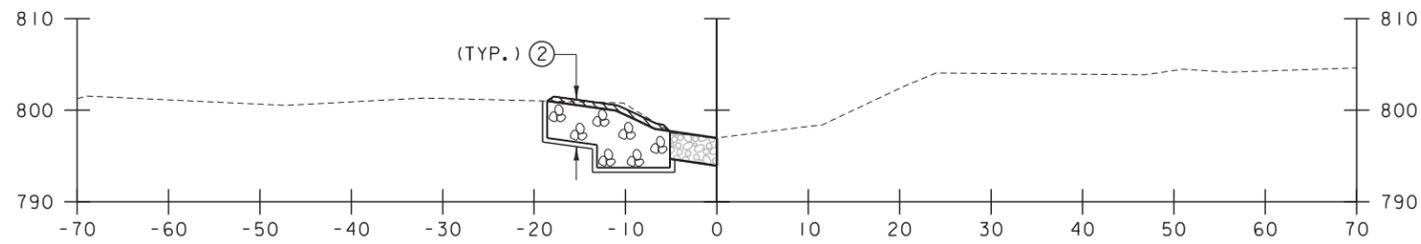
101+25.34 END PROJECT



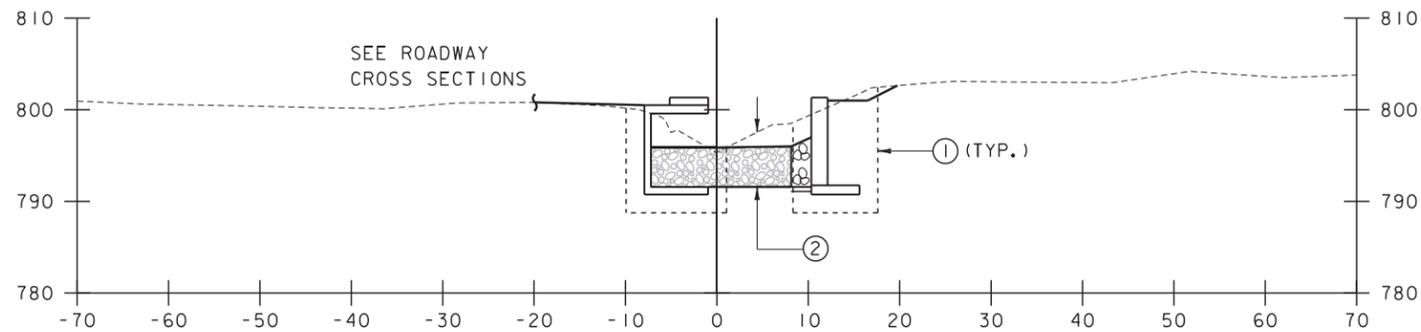
100+10 BEGIN PROJECT

- ① STRUCTURE EXCAVATION
- ② UNCLASSIFIED CHANNEL EXCAVATION
- ③ COMMON EXCAVATION

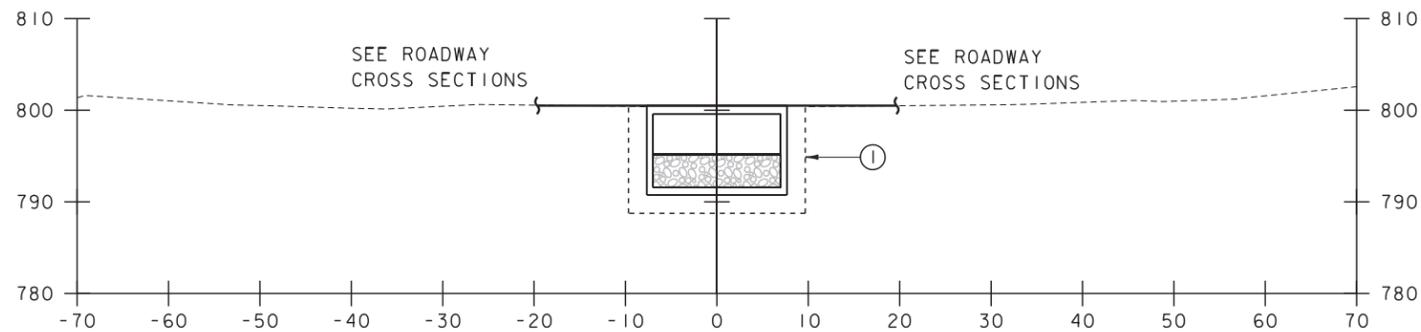
|                                    |                                                            |                       |
|------------------------------------|------------------------------------------------------------|-----------------------|
| SHEET NAME: ROADWAY CROSS SECTIONS |                                                            |                       |
| PROJECT NAME:                      | CHURCHILL RD. (TH22) OVER LEICESTER HOLLOW BROOK TRIBUTARY |                       |
| FILE NAME:                         | z17156xs_r.dgn                                             | PLOT DATE: 10/18/2019 |
| PROJECT LEADER:                    | J. Lund                                                    | DRAWN BY: D. DePaolo  |
| DESIGNED BY:                       | R. Joy                                                     | CHECKED BY: R. Joy    |
|                                    |                                                            | SHEET 5 OF 10         |



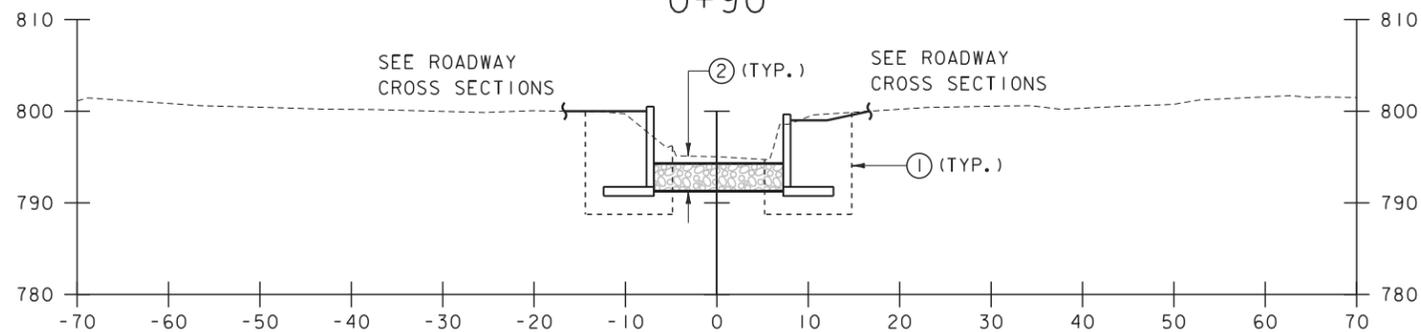
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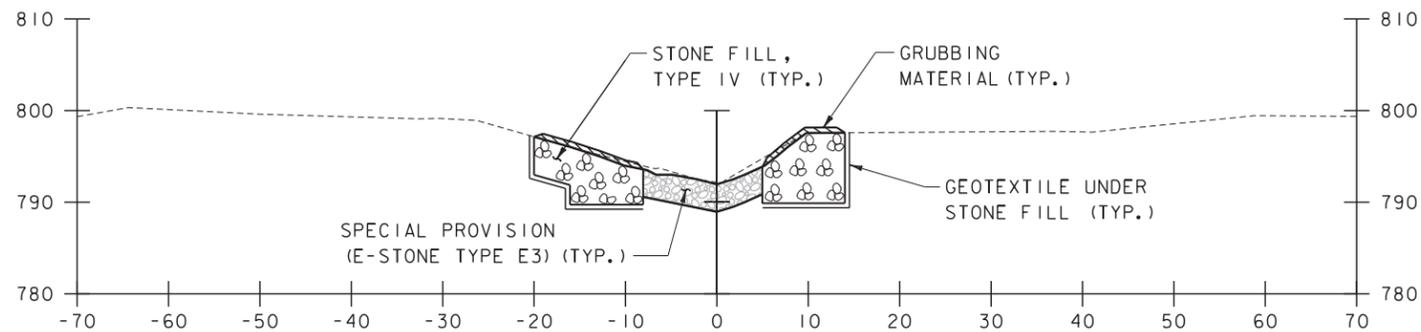
1+00



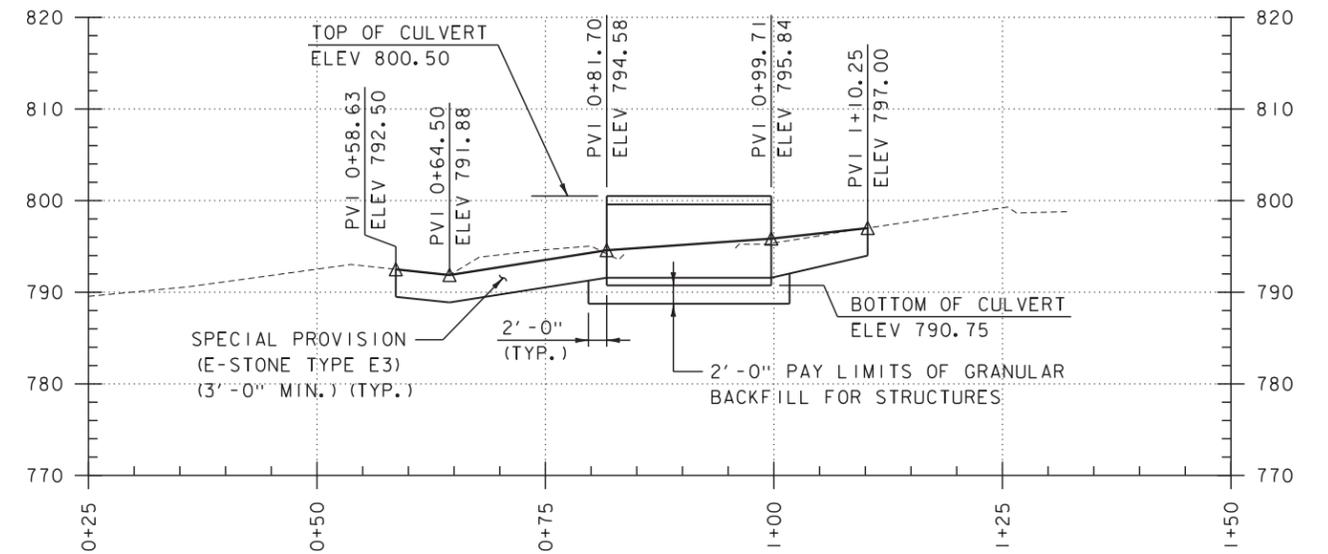
0+90



0+80



0+65

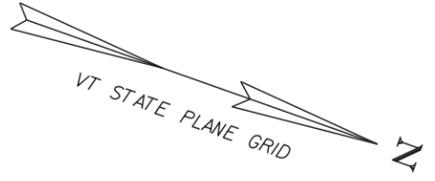
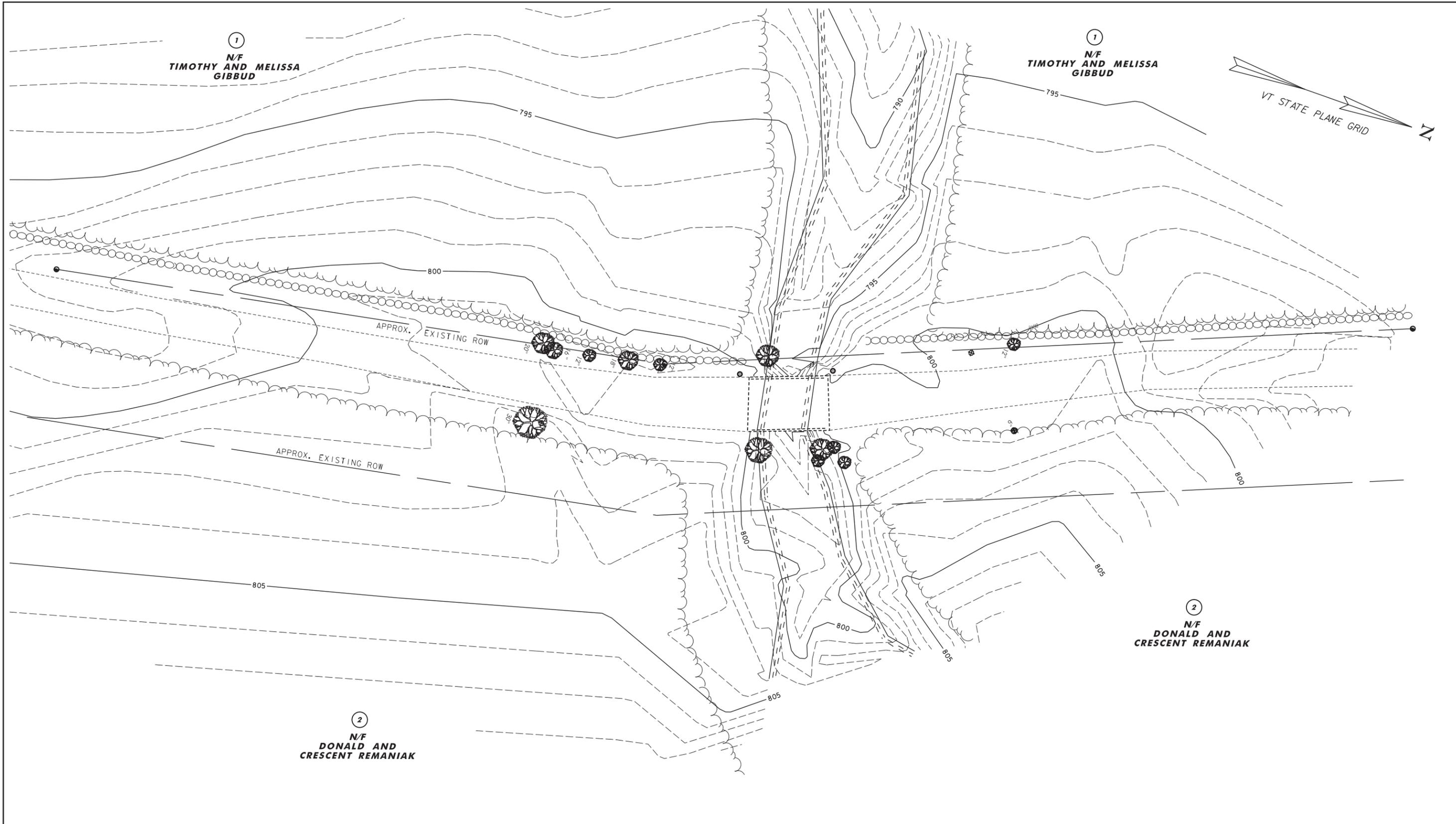


CHANNEL PROFILE



- ① STRUCTURE EXCAVATION
- ② UNCLASSIFIED CHANNEL EXCAVATION
- ③ COMMON EXCAVATION

|                                                                          |                       |  |
|--------------------------------------------------------------------------|-----------------------|--|
| SHEET NAME: CHANNEL PROFILE & CROSS SECTIONS                             |                       |  |
| PROJECT NAME: CHURCHILL RD. (TH22) OVER LEICESTER HOLLOW BROOK TRIBUTARY |                       |  |
| FILE NAME: z8013xs_chnl.dgn                                              | PLOT DATE: 10/18/2019 |  |
| PROJECT LEADER: J. Lund                                                  | DRAWN BY: D. DePaolo  |  |
| DESIGNED BY: R. Joy                                                      | CHECKED BY: R. Joy    |  |
|                                                                          | SHEET 6 OF 10         |  |



EXISTING CONDITIONS SITE PLAN



NOTE

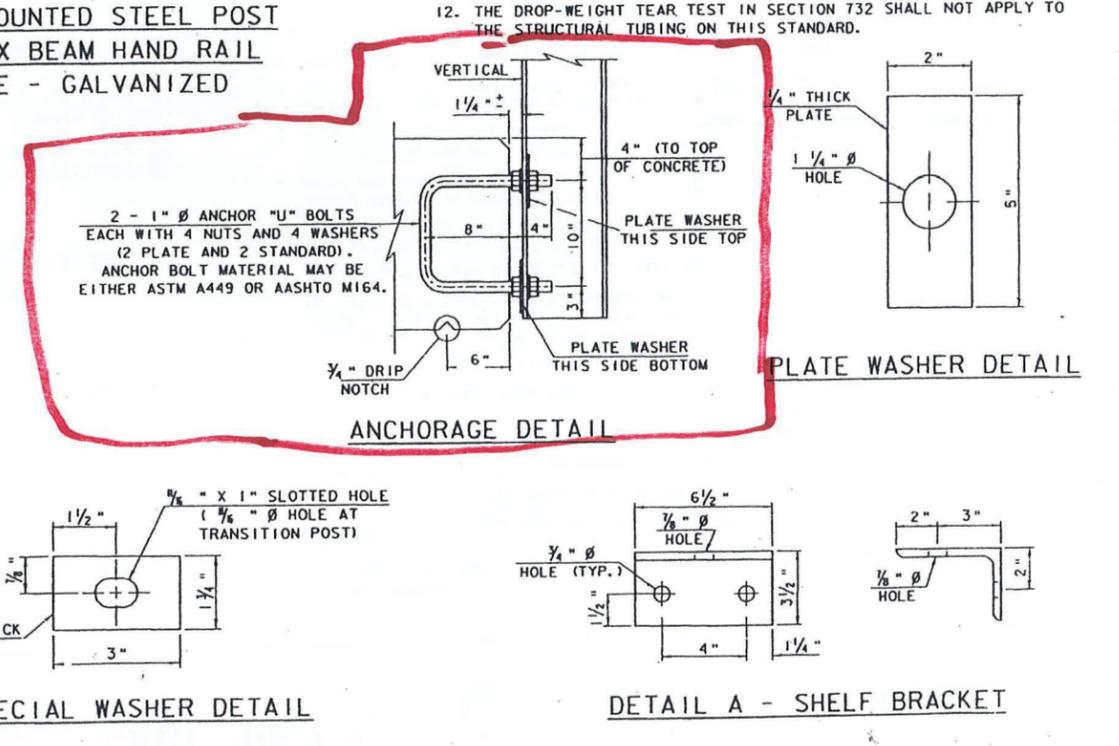
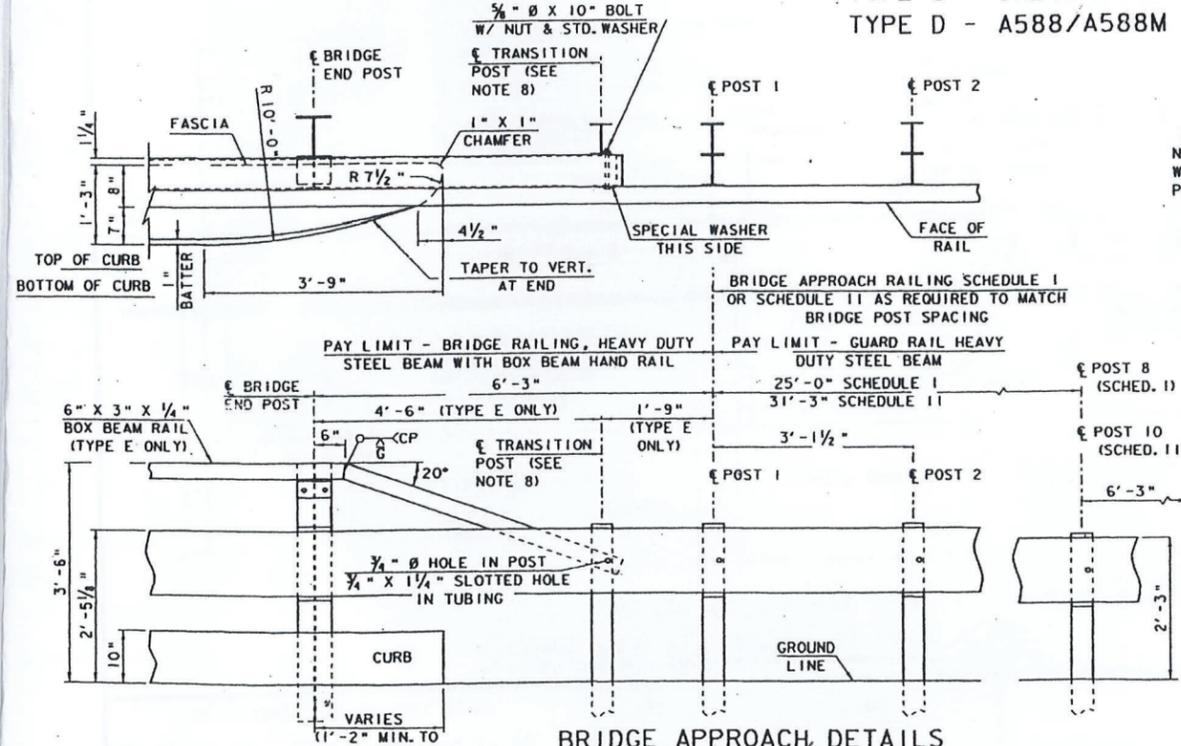
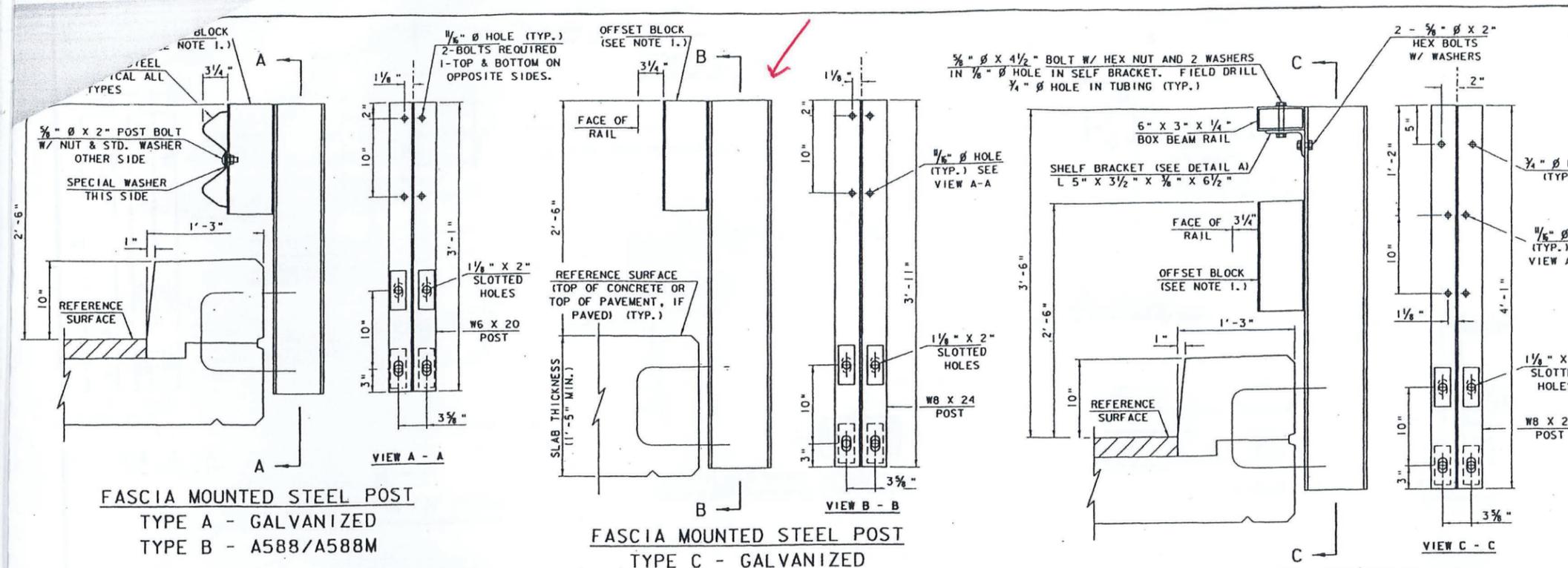
1. THIS SHEET INCLUDED FOR CONTRACTOR TO USE FOR PREPARING THE EPSC PLAN.

|                                           |                                                            |
|-------------------------------------------|------------------------------------------------------------|
| SHEET NAME: EXISTING CONDITIONS SITE PLAN |                                                            |
| PROJECT NAME:                             | CHURCHILL RD. (TH22) OVER LEICESTER HOLLOW BROOK TRIBUTARY |
| FILE NAME:                                | z8013pin.dgn                                               |
| PROJECT LEADER:                           | J. Lund                                                    |
| DESIGNED BY:                              | R. Joy                                                     |
| PLOT DATE:                                | 10/18/2019                                                 |
| DRAWN BY:                                 | D. DePaolo                                                 |
| CHECKED BY:                               | R. Joy                                                     |
| SHEET                                     | 7 OF 10                                                    |



**NOTES**

- SEE STANDARD DRAWING G-1 & G-1d FOR ADDITIONAL DETAILS OF STEEL BEAM GUARD RAIL AND STANDARD SB-R40-82 FOR ADDITIONAL DETAILS OF BOX BEAM RAIL.
- ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AND CONFORM TO SECTION 714.07.
- BRIDGE RAIL TYPES A, C & E: HEAVY DUTY STEEL BEAM RAIL SHALL BE AASHTO M180, CLASS B-TYPE 11. POST AND BRACKETS, AS WELL AS PLATE AND SPECIAL WASHERS, SHALL BE AASHTO M223/M223M STEEL. BOLTS SHALL BE ASTM A307. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION TO AASHTO M111 OR M232 (HARDWARE).
- BRIDGE RAIL TYPE B & D: HEAVY DUTY STEEL BEAM RAIL SHALL BE AASHTO M180, CLASS B-TYPE 4. POSTS AND BRACKETS, AS WELL AS PLATE AND SPECIAL WASHERS, SHALL BE AASHTO M222/M222M STEEL. BOLTS SHALL BE AASHTO M164 TYPE 1111.
- ALL POSTS SHALL BE SET NORMAL TO GRADE.
- BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY HEIGHT IN 25 FEET.
- APPROACH RAILING SHALL BE HEAVY DUTY STEEL BEAM FOR 50 FEET FROM THE END OF THE BRIDGE.
- FOR THE TYPE A, B, C, OR D BRIDGE RAILING, THE TRANSITION POST SHALL HAVE AN OFFSET BLOCK AND BE LOCATED AS CLOSE AS PRACTICAL TO THE MID-POINT BETWEEN THE BRIDGE END POST AND APPROACH RAIL POST 1.
- SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
- SEE STANDARD SHEET G-1 FOR DELINEATOR DETAILS AND PLACEMENT.
- ERECT DELINEATOR ON EVERY FIFTH POST OR APPROXIMATELY 30 FEET APART. PAYMENT SHALL BE SUBSIDIARY TO OTHER ITEMS.
- THE DROP-WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING ON THIS STANDARD.



**REVISIONS AND CORRECTIONS**

REVISION: DELINEATORS ADDED D.A.R 6-18-82  
 REVISION: BOLTS THRU BOX BEAM RAIL R.S.H. 12-13-84  
 REVISION: CHANGED BOLT HOLE THROUGH SELF BRACKET R.S.H. 12-13-84  
 REVISION: CLARIFIED BLOCK BOLT INSTALLATION R.P.G. 11-13-91  
 REVISION: ADDED SPECIAL WASHER AND CHANGED STEEL REFERENCE TO AASHTO M223/M223M (NOTE 3.) STEEL POSTS AND OFFSET BLOCKS SHOWN FOR APPROACH RAIL. J.H.W. 1-6-95

APPROVED 1/6/95 DATE

*John C. ...*  
 DIRECTOR OF CONSTRUCTION AND MAINTENANCE

*Stephen D. McArthur*  
 DIRECTOR OF ENGINEERING

*Warren B. ...*  
 STRUCTURES ENGINEER

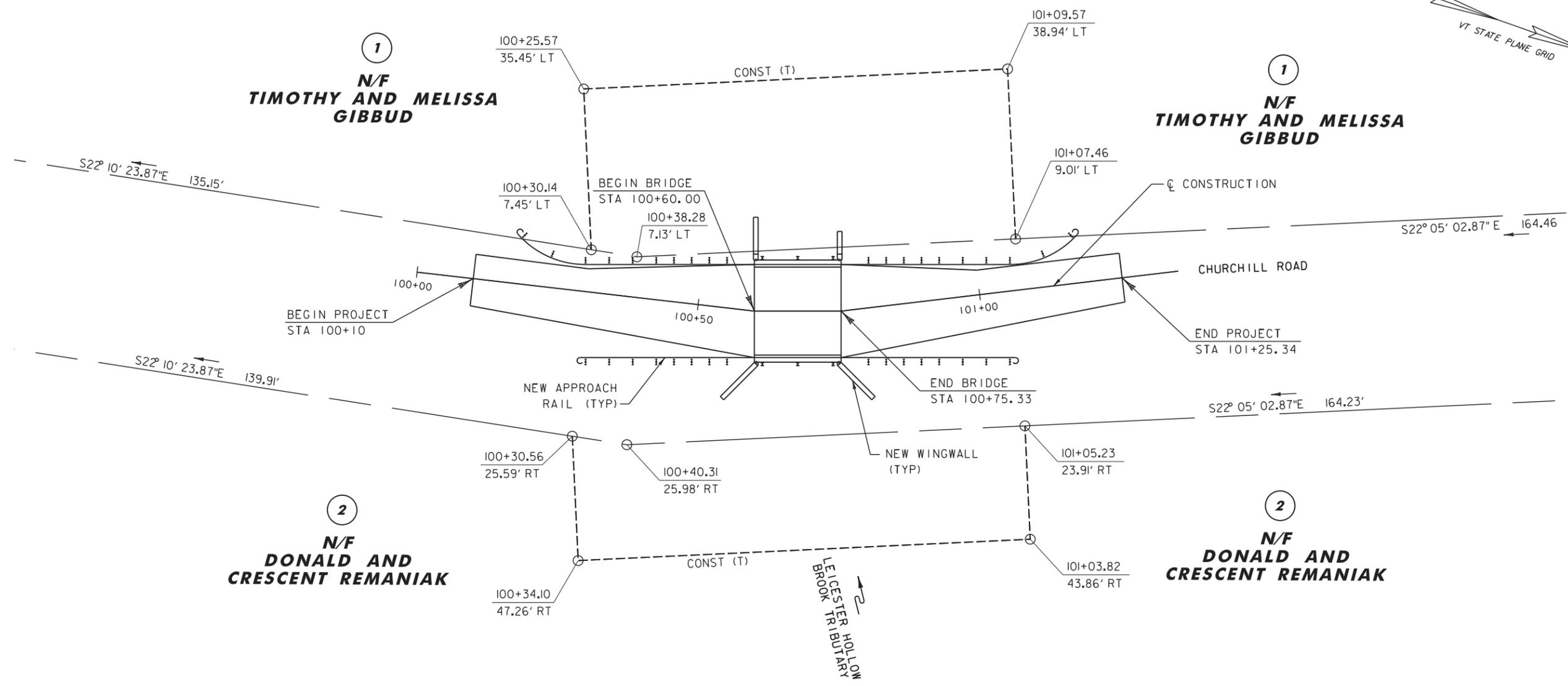
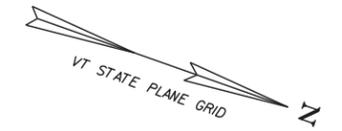
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**BRIDGE RAILING HEAVY DUTY STEEL BEAM (TYPE A, TYPE B, TYPE C, AND TYPE D)**  
**BRIDGE RAILING HEAVY DUTY STEEL BEAM WITH BOX BEAM HAND RAIL (TYPE E)**

VERMONT AGENCY OF TRANSPORTATION

**STANDARD SB-R6-82**  
 BRIDGE RAILING DETAILS  
 8 of 10





ROW LAYOUT PLAN



LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

**FOR R.O.W. USE ONLY**

|                         |                                                            |
|-------------------------|------------------------------------------------------------|
| SHEET NAME: R.O.W. PLAN |                                                            |
| PROJECT NAME:           | CHURCHILL RD. (TH22) OVER LEICESTER HOLLOW BROOK TRIBUTARY |
| FILE NAME:              | z17156row.dgn                                              |
| PROJECT LEADER:         | J. Lund                                                    |
| DESIGNED BY:            | R. Joy                                                     |
| ROW LAYOUT SHEET        | 1 OF 1                                                     |
| PLOT DATE:              | 10/18/2019                                                 |
| DRAWN BY:               | D. DePaolo                                                 |
| CHECKED BY:             | R. Joy                                                     |
| SHEET                   | 10 OF 10                                                   |

