Killington NH CULV(120) Regional Concerns Meeting

US ROUTE 4, BRIDGE 28 OVER KENT BROOK

February 12, 2024

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Introductions

Laura Stone, P.E.

VTrans Scoping Project Manager

Mahendra Thilliyar, P.E.

VTrans Design Project Manager

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Purpose of Meeting

- Provide an understanding of our approach to the project
- Provide an overview of project constraints
- Discuss our selected alternative
- Provide an opportunity to ask questions and voice concerns

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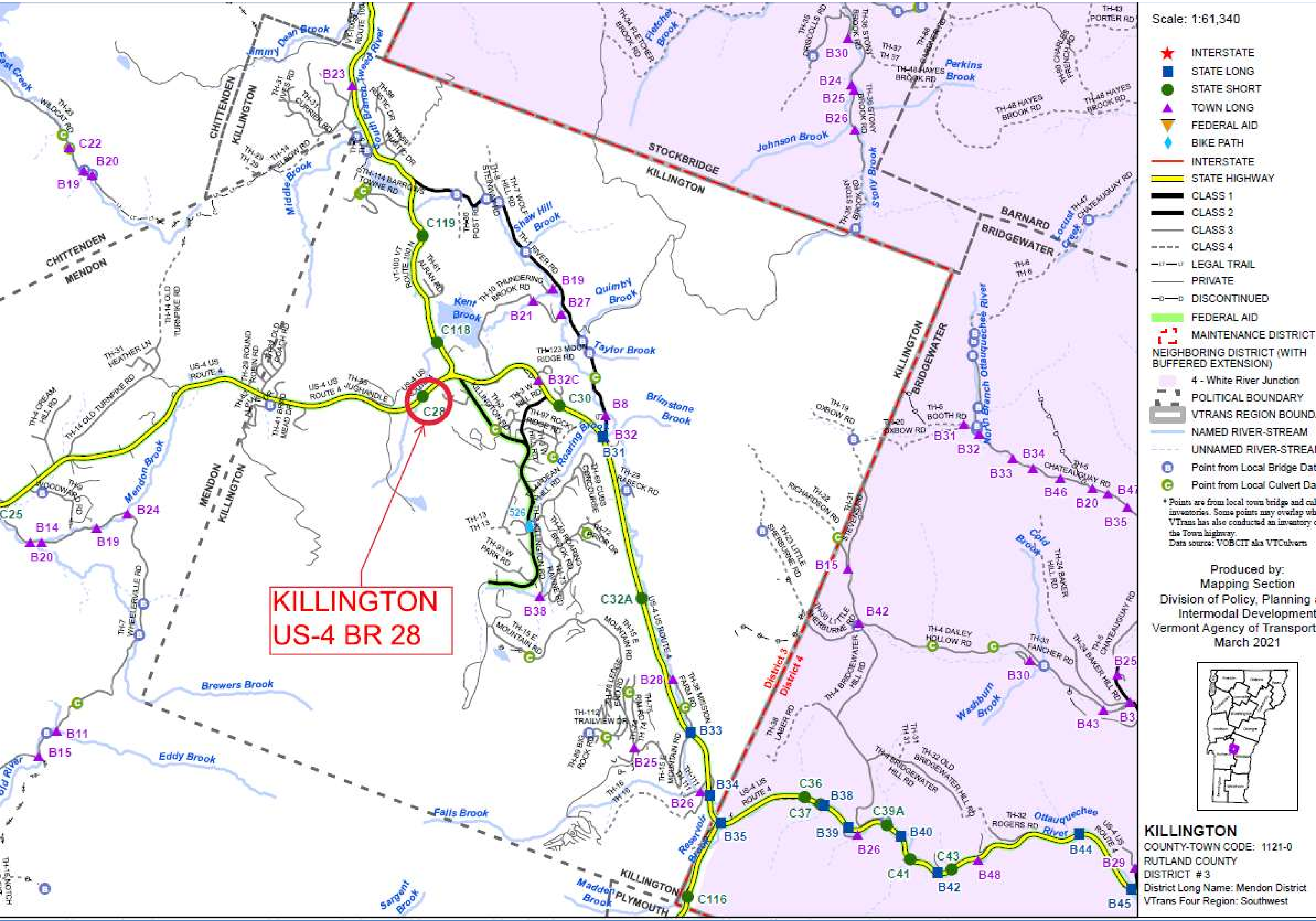

Location Map

Aerial View


Killington Mountain Homes
Green Mountain Lawyers - A Division...
Fire On The Mountain Smoke, Vape, & More
Glass shop
United States Postal Servic
Seventh Heaven Salon & Spa
ERA Mountain Real Estate
Double Bubble Cleaning
Shady Knoll Rd Pvt
Kent Brook
Bridge 28
Google

Meeting Overview

- VTrans Project Development Process
- Project Overview
  - Existing Conditions
  - Alternatives Considered
  - Selected Alternative
- Maintenance of Traffic
- Schedule
- Summary
- Questions

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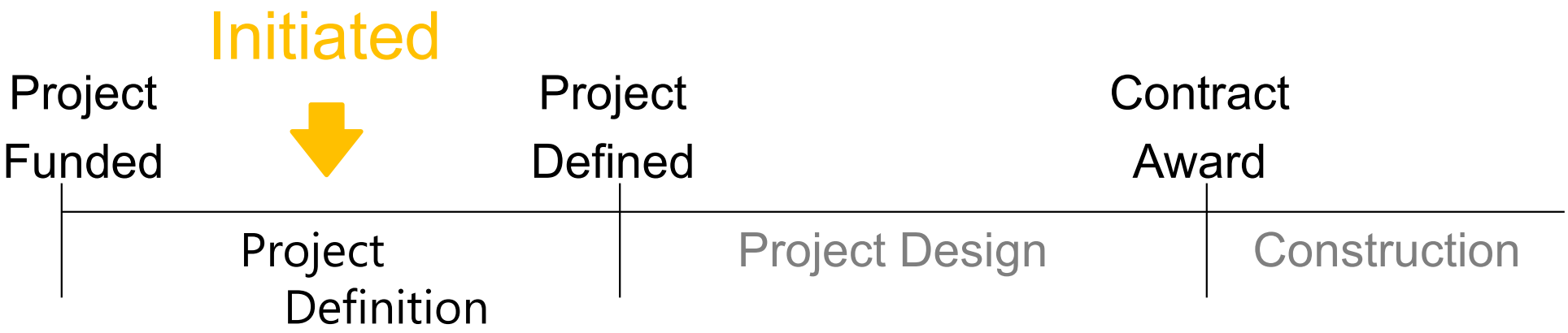
VTrans Project Development Process



- Identify resources & constraints
- Evaluate alternatives
- Public participation
- Build Consensus

- Quantify areas of impact
- Environmental permits
- Develop plans, estimate and specifications
- Right-of-Way process if necessary

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Looking Southwest

Existing Conditions – Bridge #28

- Roadway Classification – Principal Arterial (NHS)
- Bridge Type – 11 ft Span Corrugated Galvanized Multi Plate Pipe (CGMPP)
- Ownership – State of Vermont
- Constructed in 1948

Looking Northeast

Existing Conditions – Bridge #28

- Aerial utilities (electric, communications, fiberoptic, and telephone) run parallel to US4 on the southeast side
- Underground municipal utilities (sewer) run parallel to US4 on the northwest side

Existing Site Conditions – Bridge #28

- The culvert is in poor condition. The culvert has heavy rust scale along the exposed top edge of the rust line with deep pitting and moderate to heavy section loss. Scattered perforations of smaller sizes run throughout the pipe which have produced visible piping causing a noticeable minor drop in the water line along this area.

- The existing culvert does not meet the measured 30-foot bank full width of Kent Brook.

- US Route 4 has substandard shoulder widths along the US Route 4 corridor through the project area.

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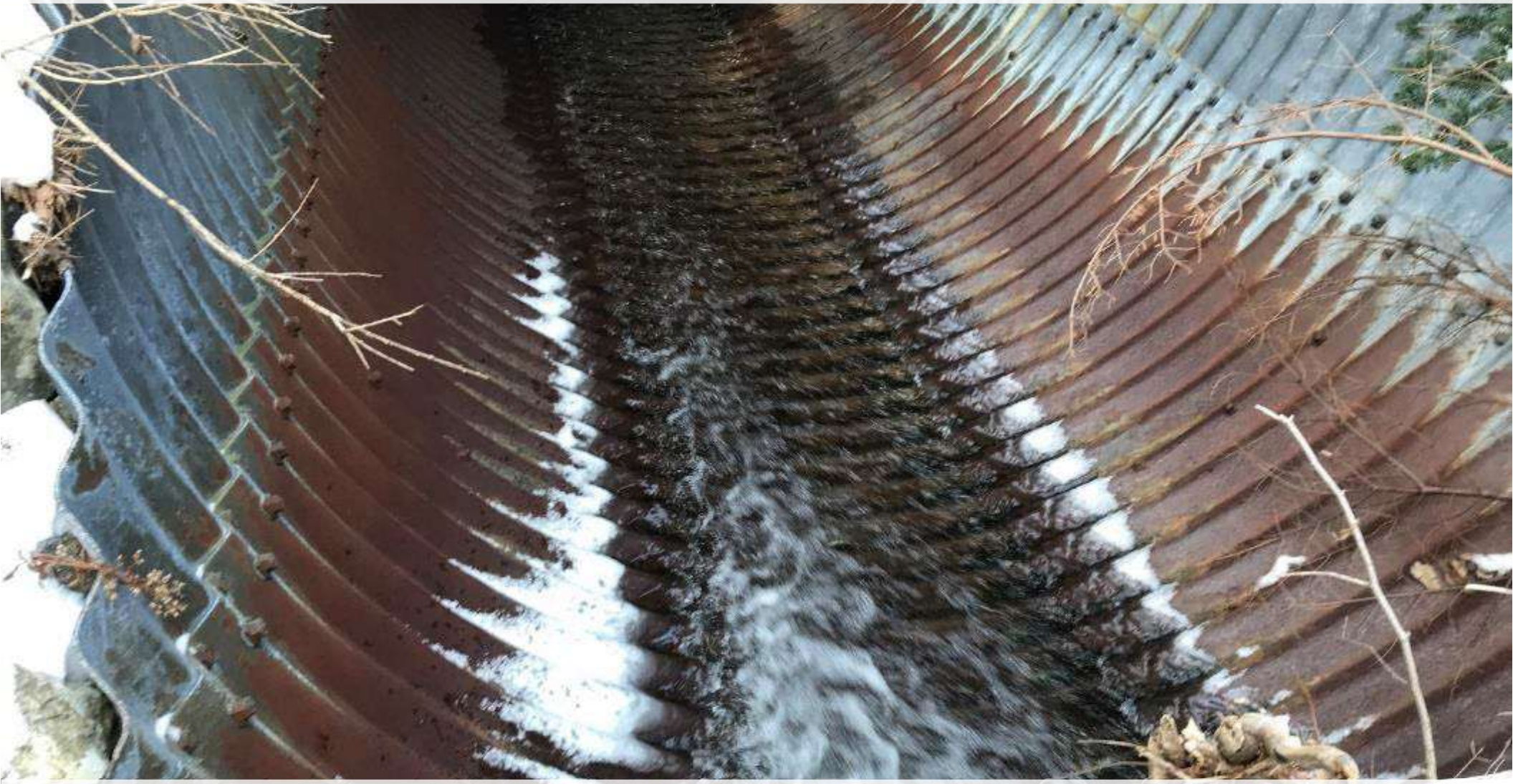


Existing Conditions - Bridge #28

- Culvert Rating 4 (Poor)
- Channel Rating 6 (Satisfactory)

Looking Downstream (North)

Existing Conditions - Bridge #28

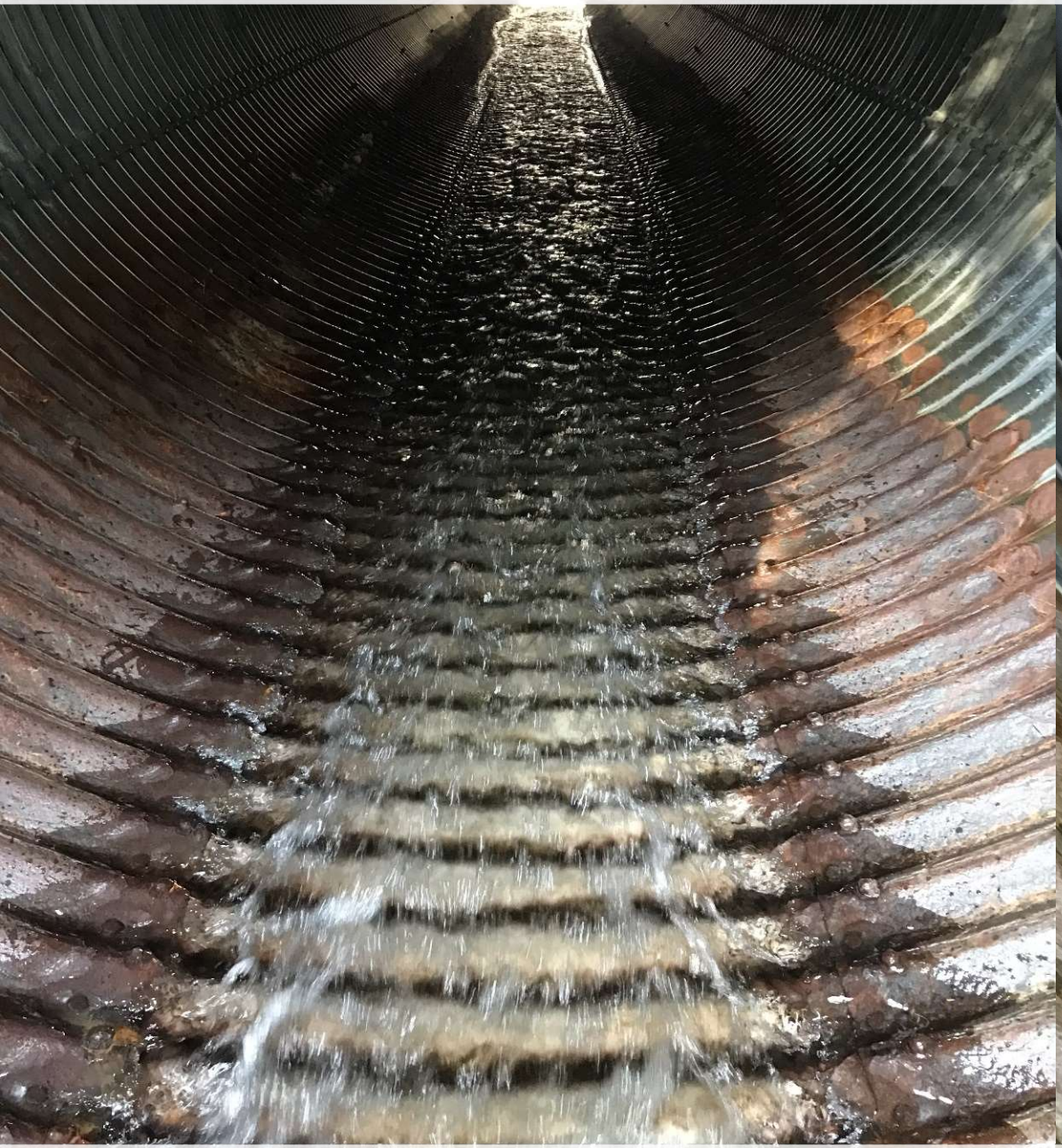
Inlet

Existing Conditions - Bridge #28

Outlet

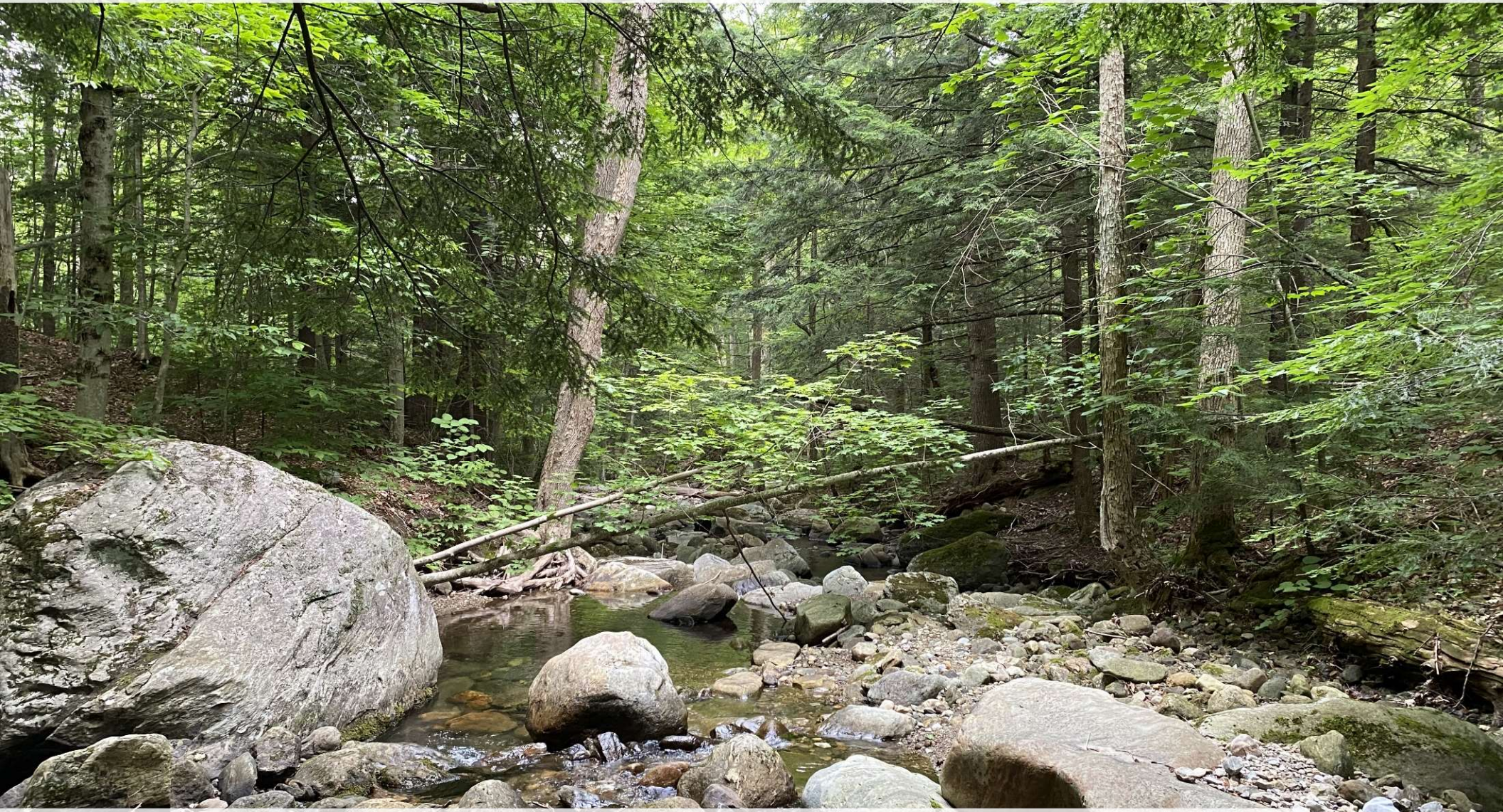
Existing Conditions - Bridge #28

Rusted and Perforated Invert



Existing Conditions - Bridge #28

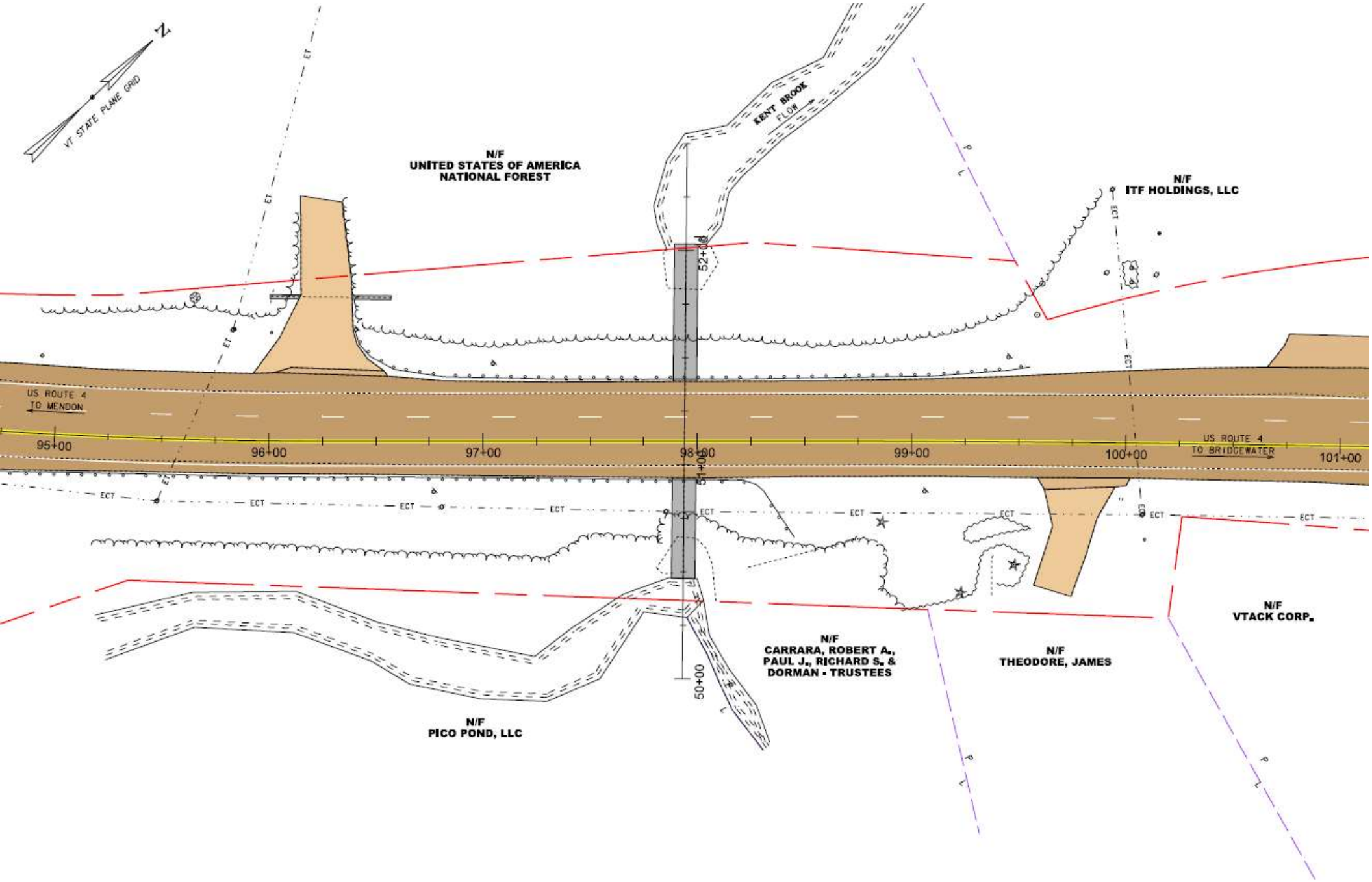
Looking Upstream (Southeast) – Existing Resources



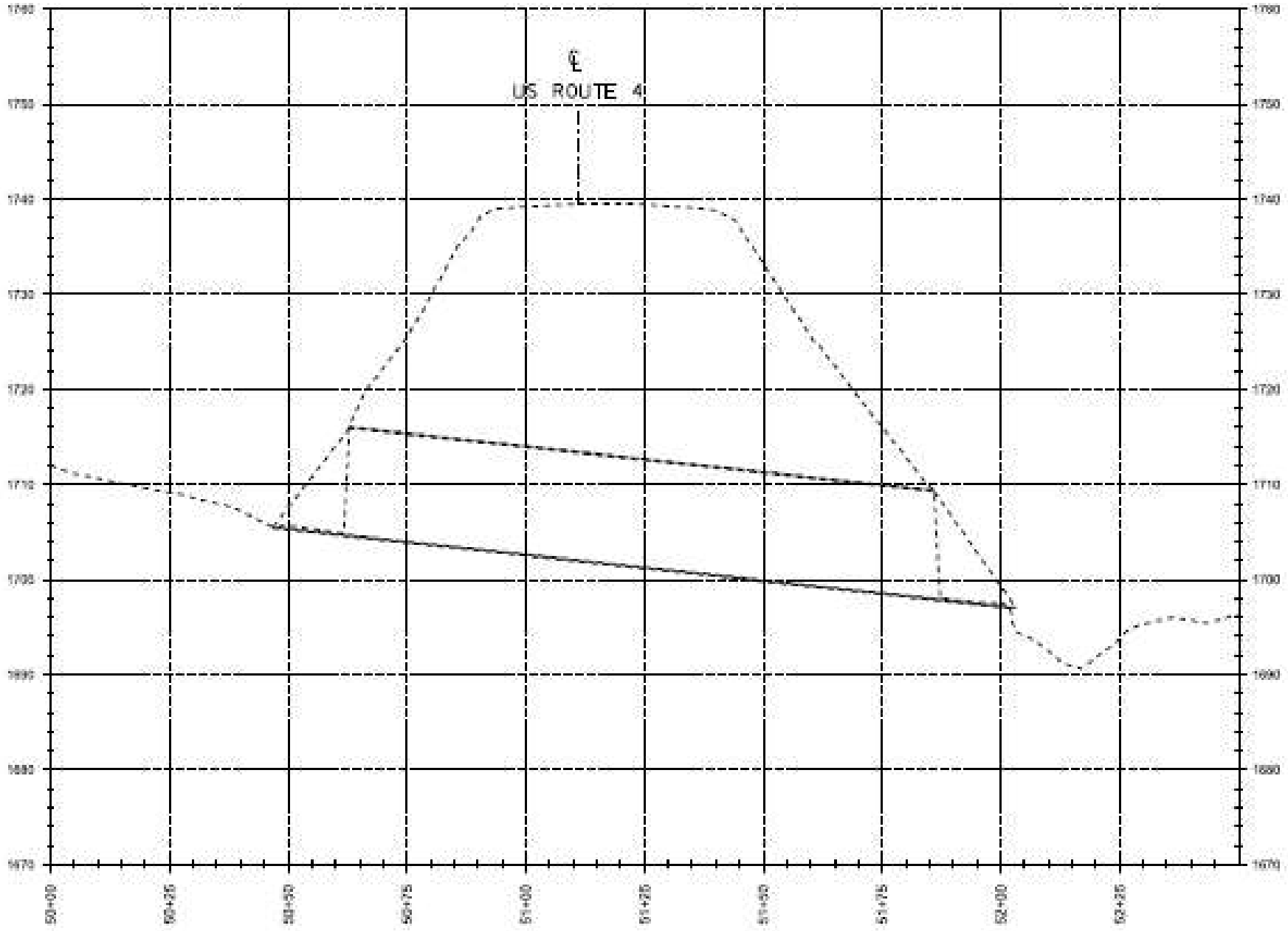
Natural Resources

- Wildlife Habitat – Top priority for wildlife passage and AOP (currently does not pass fish or wildlife)

Existing Conditions



Bridge #28 Channel Profile



CULVERT 28 CHANNEL PROFILE

Design Criteria and Considerations

- Average Daily Traffic
  - 10,100 vehicles per day
- Design Hourly Volume
  - 1,300 vehicles per hour
- % Trucks
  - 14.3%

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Alternatives Considered – Bridge #28

- No Action
  - Additional maintenance required within 10 years
- Culvert Rehabilitation
  - Invert Repair, Pipe liner, or Spray-On liner
  - 15 to 50-year design life
  - Substandard BFW and decreases hydraulic capacity
- Full Bridge Replacement – Concrete Rigid Frame or Buried Bridge
  - Meets hydraulic standards
    - 30’ minimum clear span
  - New structure length designed to meet minimum roadway width standards
  - 75-year design life
- Full Bridge Replacement – At-Grade Steel Beam Bridge
  - Meets hydraulic standards
    - 30’ minimum clear span
  - Meets geometric standards
  - 75-year design life

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Selected Alternative - Bridge #28

- Replace the existing culvert with a new 3-sided concrete rigid frame or buried bridge
  - 30-foot minimum span, open bottom, 3-sided precast concrete rigid frame
  - Minimum hydraulic standard and bank full width conditions will be met
  - 10’/11’/11’/11’/10’ roadway typical to meet minimum standard width
  - 75-year design life

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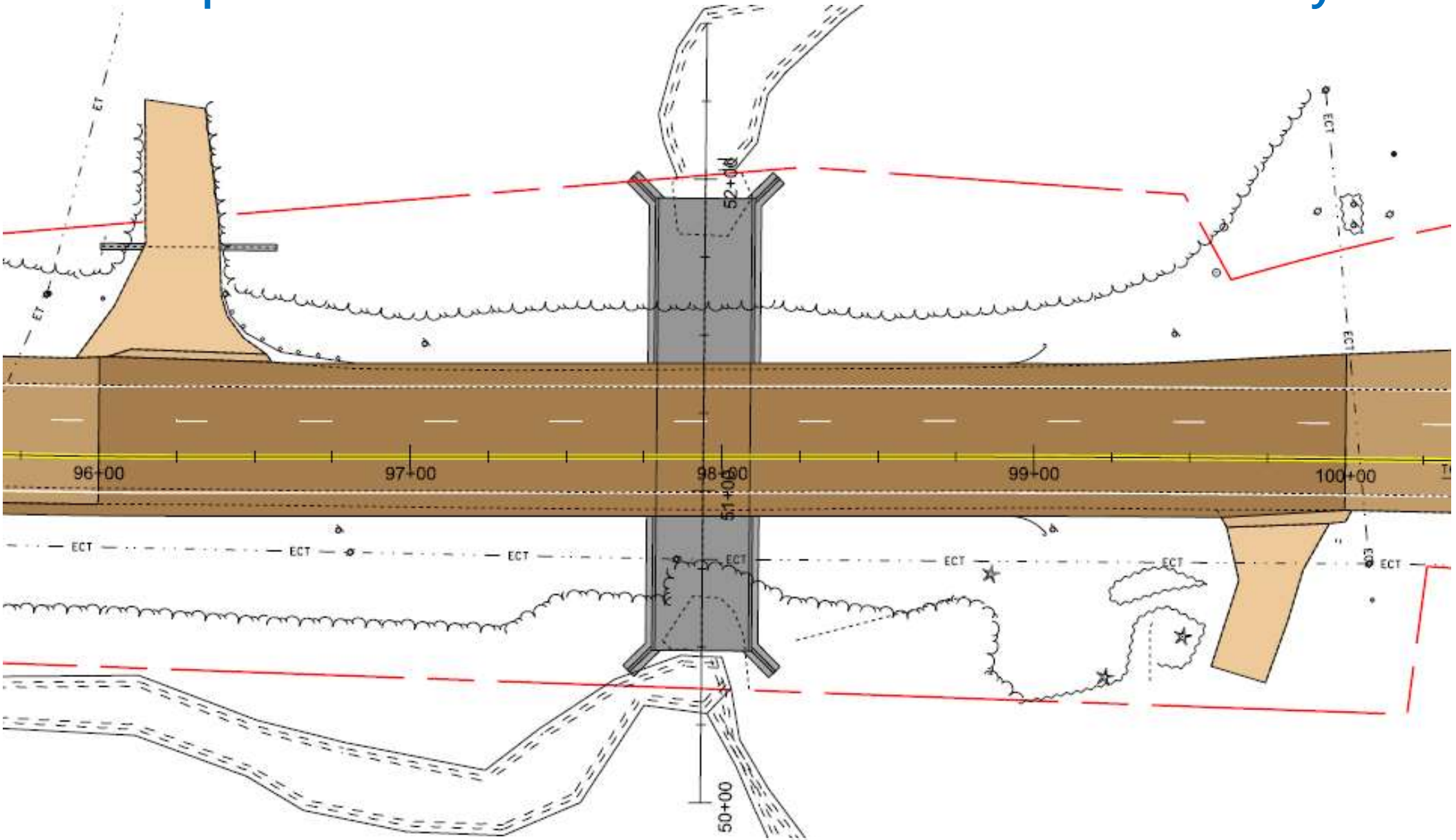
Replacement Alternative 2 – New Buried Structure Layout



- Addresses the structural deficiencies of the existing bridge
- Meets minimum roadway width standard of 53’
- Design Life; 75 years

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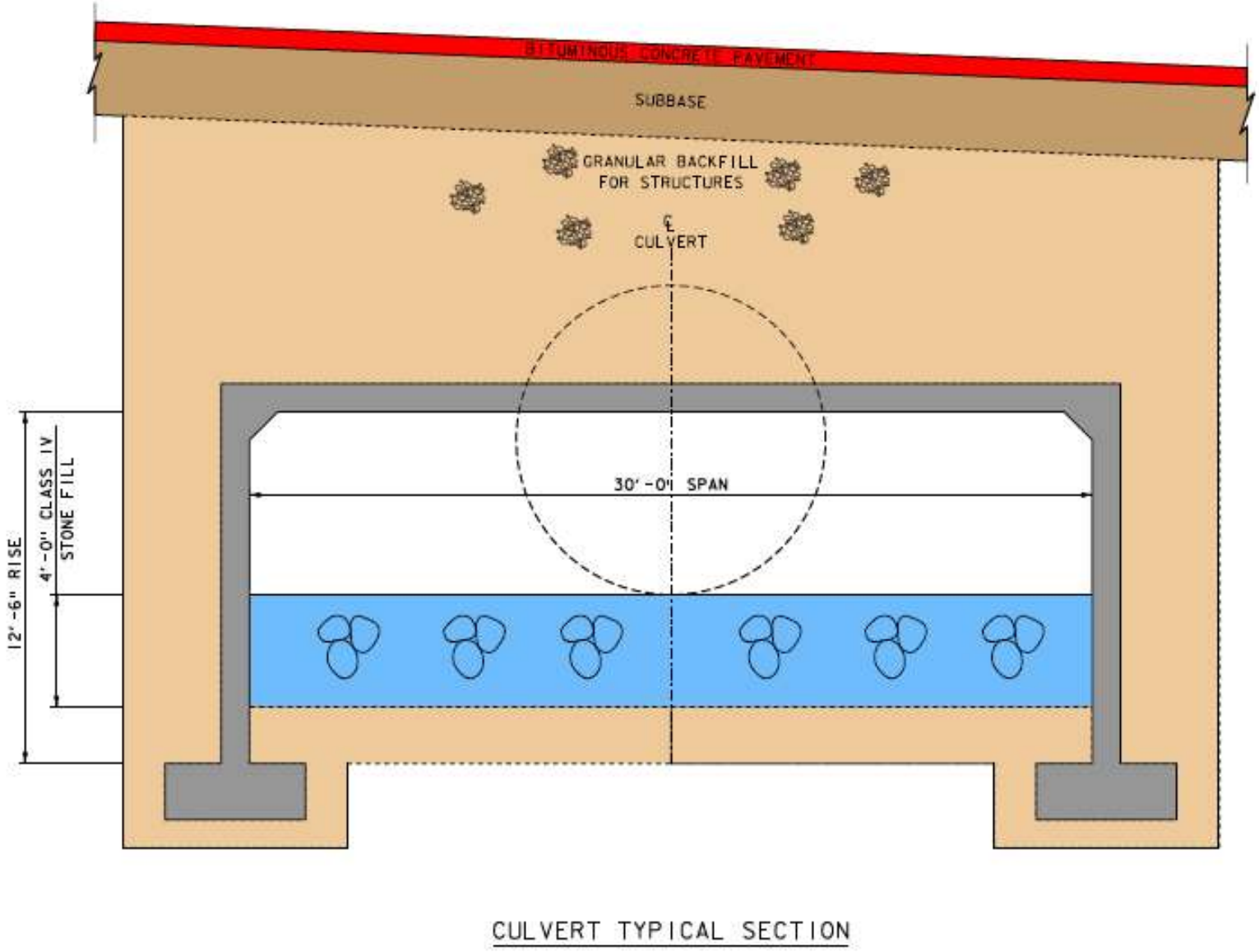
Replacement Alternative 2 – New Buried Structure Typical



CULVERT TYPICAL SECTION

- Meets minimum hydraulic standards with 30-foot minimum span

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Maintenance of Traffic Options Considered

- **Offsite Detour** – This option would close the bridge and reroute traffic onto an official, signed State detour.

- **Phased Construction** – Involves maintenance of traffic over the existing culvert while building one half at a time of the proposed structure. This allows the road to stay open during construction, but with reduced lane widths and a long construction season.

- **Temporary Bridge** - A temporary bridge on either side would have limits outside the existing Right-of-Way

Selected Maintenance of Traffic Options

- **Phased Construction** – Involves maintenance of traffic over the existing culvert while building one half at a time of the proposed structure. This allows the road to stay open during construction, but with reduced lane widths and a long construction season.
  - Current 3-lane configuration allows for phased construction with two-way traffic maintained

OR

- **Temporary Bridge** - A temporary bridge on either side would have limits outside the existing Right-of-Way
  - Two-way temporary bridge

Preliminary Project Schedule

- Construction Start – Spring/Summer 2027
  - Total Cost Estimate: $4,800,000

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Project Summary - Bridge #28

- Replace the existing culvert with a new 3-sided buried structure while maintaining 2-way traffic through project area
  - Traffic maintained via phased construction or a 2-way temporary bridge
  - 30-foot minimum span, 3-sided precast frame or buried bridge
  - Minimum hydraulic standard and bank full width conditions will be met
  - Shorter construction duration compared to an at-grade Bridge
  - 10’/11’/11’/11’/10’ roadway typical to meet minimum standard width
  - 75-year design life

For more information:

- https://outside.vermont.gov/agency/vtrans/external/Projects/Structures/23B025

Killington NH CULV(120) Questions and Comments

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