Orford, NH - Archertown Road Reconstruction Project

DuBois & King inc.

Project Team

Design Consultant - Dubois and King, Inc.

Bedford & Laconia, NH

Project Manager - James Hall, PE

Roadway Engineer – Scott Bourcier, PE

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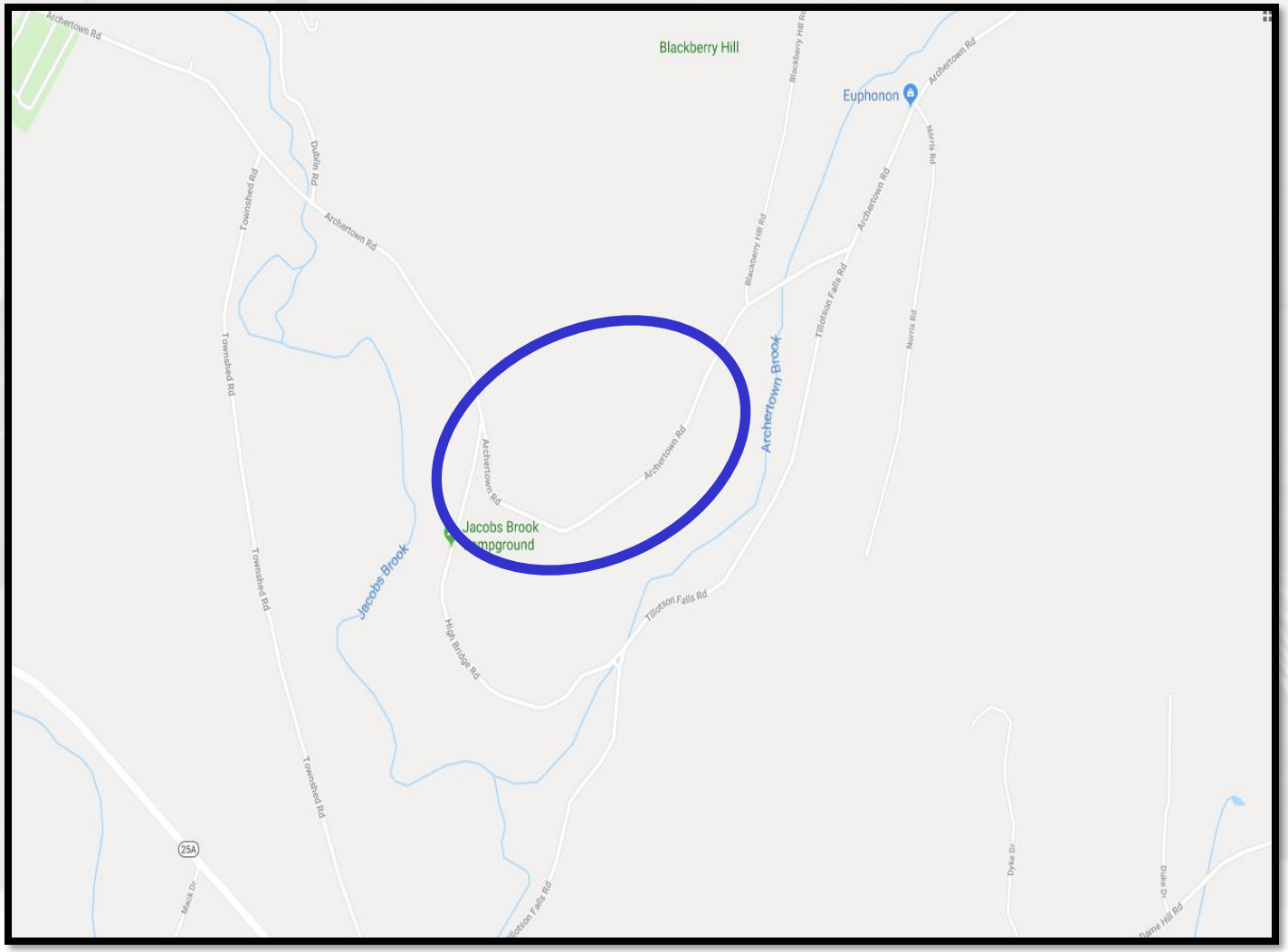
Project Location



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Existing Roadway

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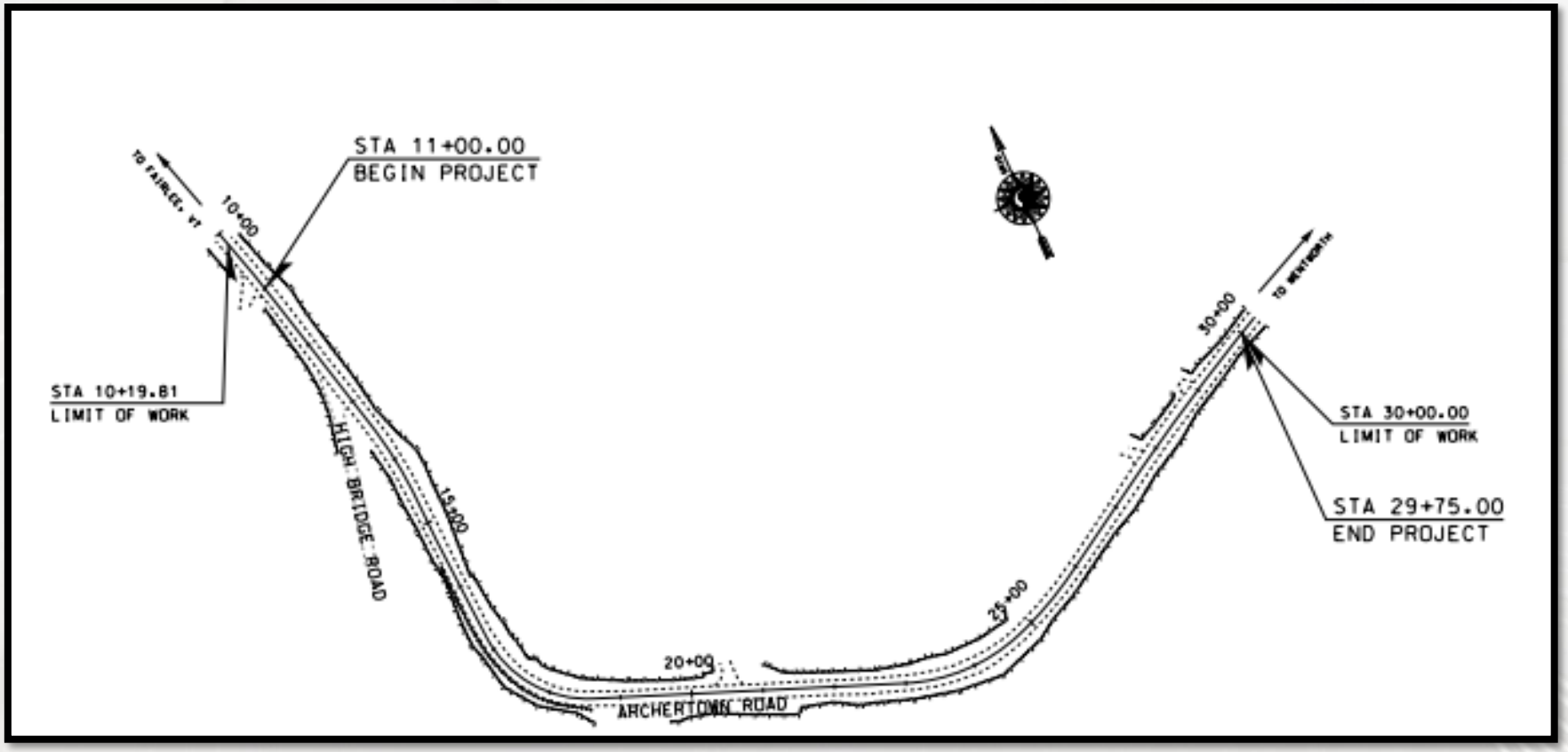
Project Site Plan



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Existing Roadway

Archertown Road

- Functional Class: Rural Collector
- Roadway Typical: (2)10’-0” Travel Lanes with no Shoulders
- Horizontal Alignment: Horizontal Curve/Tangent
- Vertical Alignment: Crest Vertical Curve up to 13% Grades (per field survey)
- Design Speed: 25 mph
- Project Length – 1900 feet
- Traffic: 380 AADT (2019)

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Existing Conditions - Roadway

Archertown Road

- Poor Roadway Condition
- Significant Roadway Cracking
- Major Frost Heaves
- Exposed Ice sheeting on Roadway
- Poor Roadway Site Distances

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Why the Poor Condition

- Steep Roadway Slope
- Insufficient Cross Slope
- Lack of Roadway Ditching
- High Ledge
- Poor Roadway Soils

Geotechnical Investigation

- Seven (7) Roadway Borings
- Soil Sampling from two (2) Borings
- Identify Roadway Thickness, including pavement and select materials
- Identify Ledge profile

- **Borings Identified Existing 6” Roadway Base Materials**
- **High Percentage of Fine and Organic Material**

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Design Team Alternatives

As a result DuBois & King to evaluated 3 alternatives:

1. Surface Treatments (Milling, Overlay, crack sealing)

2. Pavement Rehabilitation (Reclamation of pavement and base materials for reuse as new base materials)

3. Full Depth Reconstruction - Reconstruction with Underdrain and Soil Separation

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Selected Rehabilitation Alternative

- Comprehensive Rehabilitation:
  - Replace Roadway Soils
    - 12” Crushed Gravel
    - 12” Gravel
    - 4” Pavement
    - Geotextile Separation
  - Improved Roadway Cross Slope
  - Improved Roadway Vertical Profile
  - Addition of Roadway Underdrain
  - Addition of a Roadway Drainage Ditch
  - Replacement of 3 Drainage Culverts
  - Addition of 1 Drainage Culvert
  - Replacing 3 Driveway Drainage Culverts
  - Replacing Guardrail (additional 250 feet)

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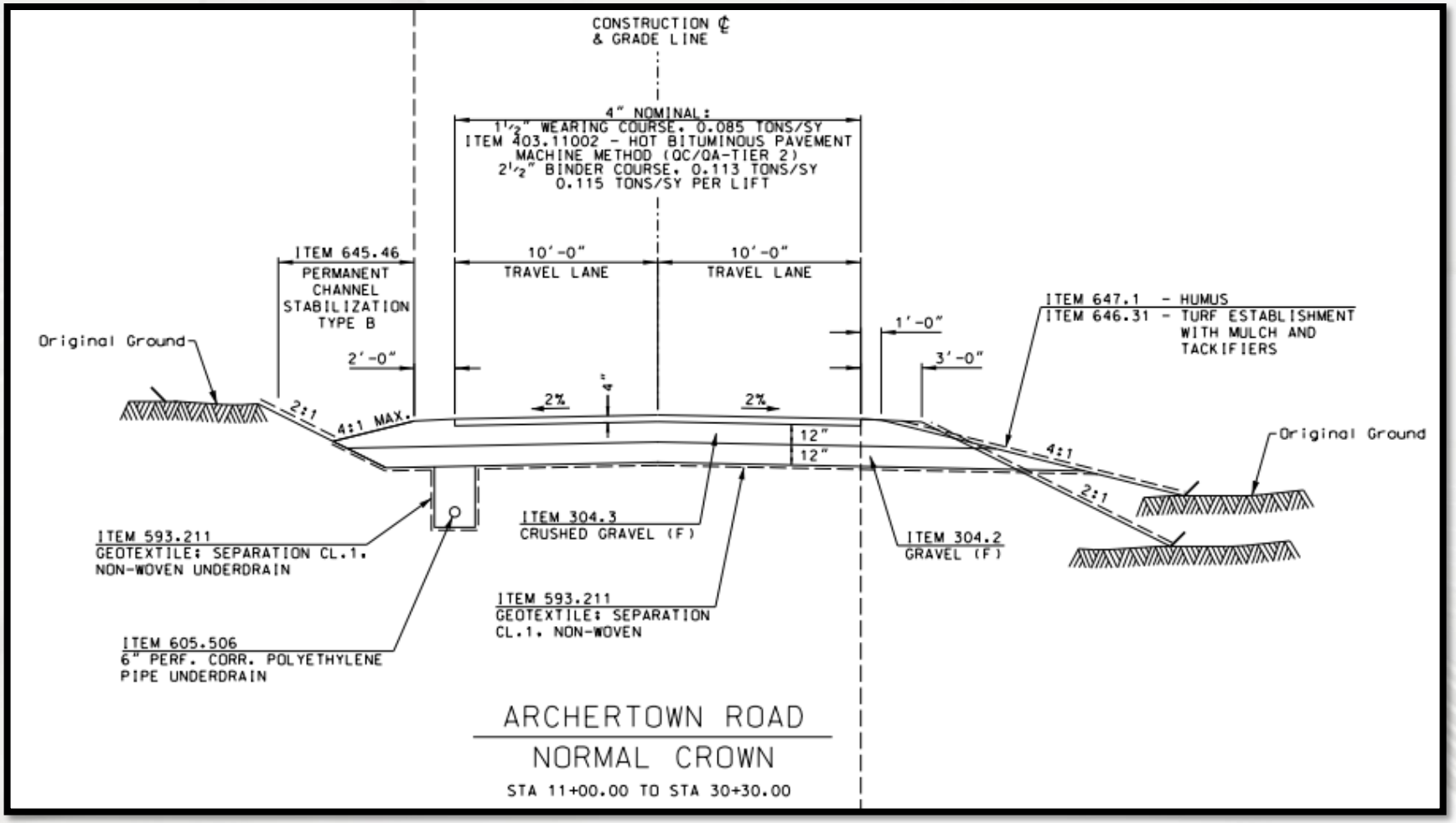
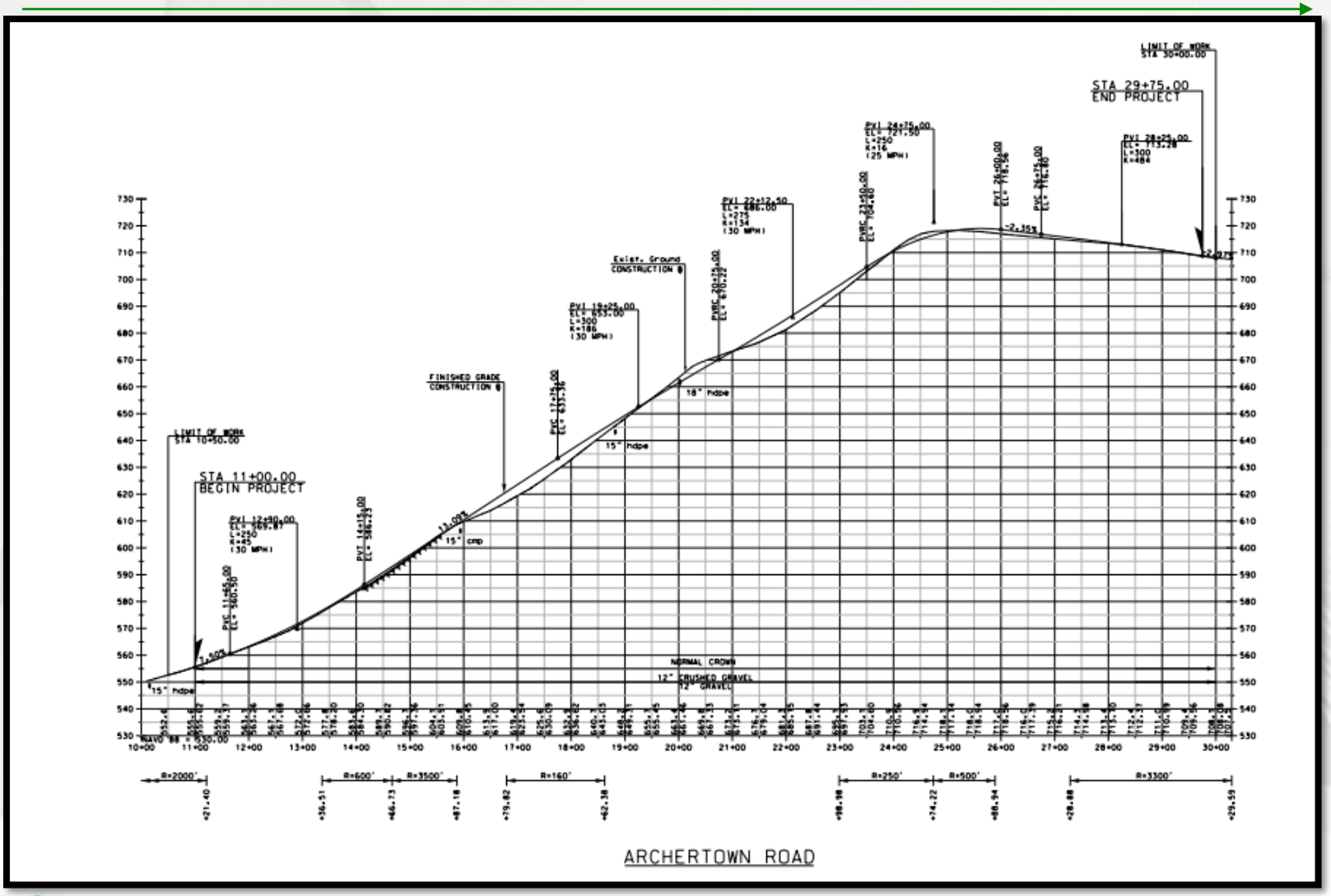
Selected Rehabilitation Alternative



Improved Roadway Profile



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Construction Staging

- High Bridge Road and Driveway impacts
- One-lane, alternating traffic is maintained on the roadway or
- Roadway is Constructed in Segments with Access from either direction
- Anticipated Construction Duration – 2 Months

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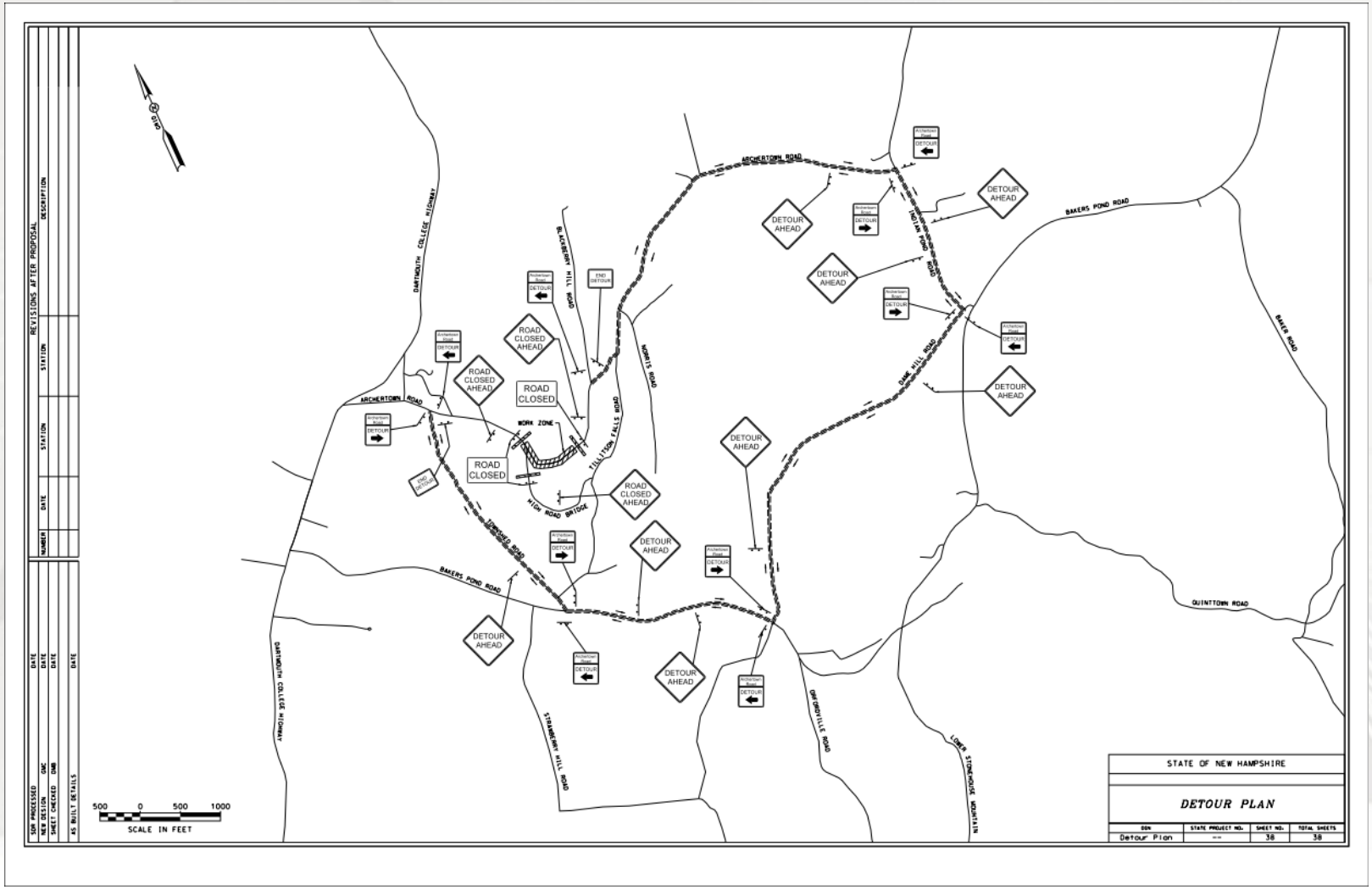
Proposed Detour



Project Status

Currently Final Design:

- Final Design Submittal to the Town in October
- Bid for Construction – Winter of 2019/2020
- Construction - 2020

Current Preliminary Engineering Estimate of Costs - **$515,000**

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Any Questions ?

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Thank You!

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