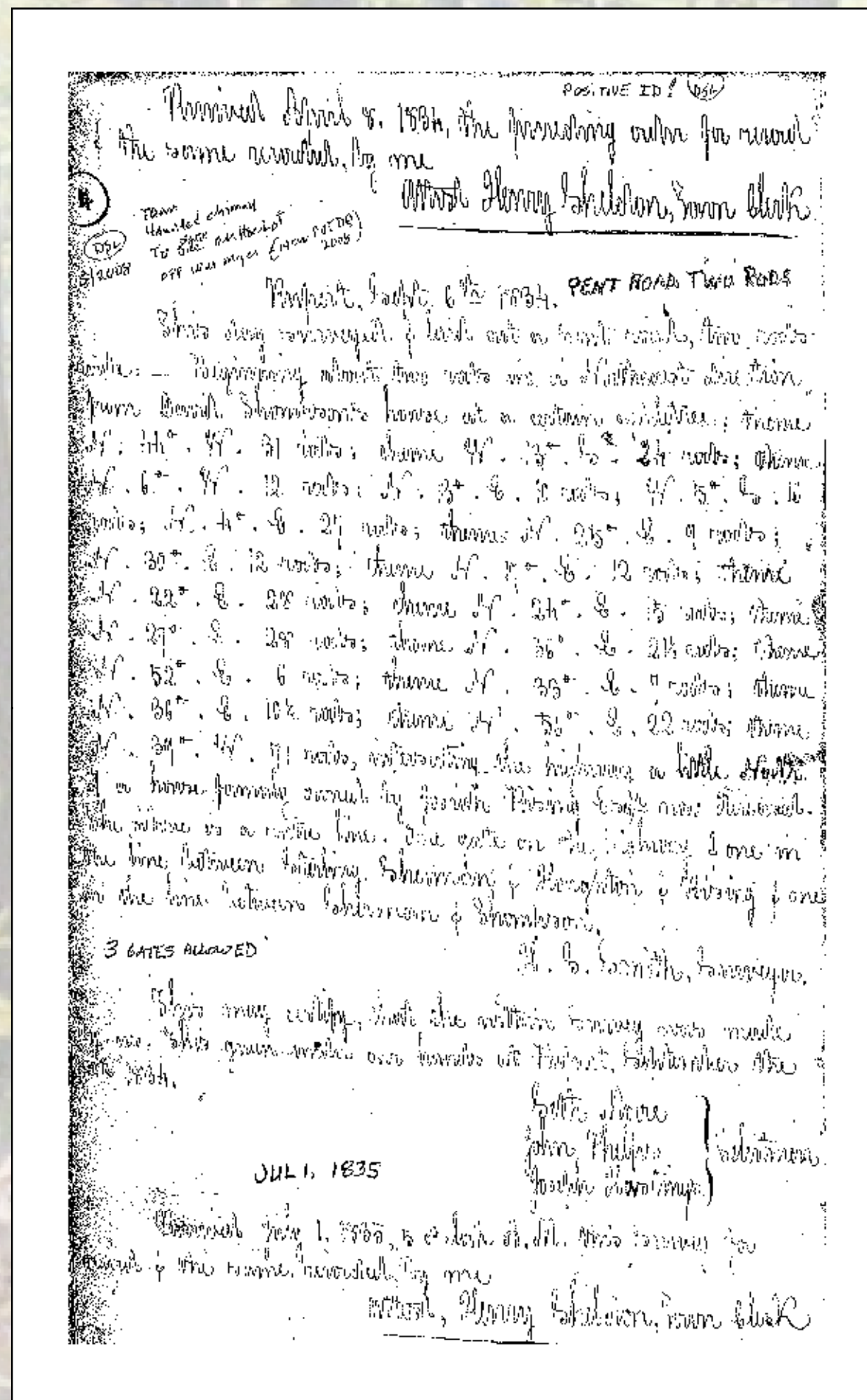


Adding an Ancient Road in Vermont

In response to Act 178 of 2006 (Unidentified Corridors), the Vermont Agency of Transportation (VTrans) Mapping Unit was presented with the challenge of mapping the additions of Class 4 town highways and legal trails using information provided from towns and any ancillary data that was available.

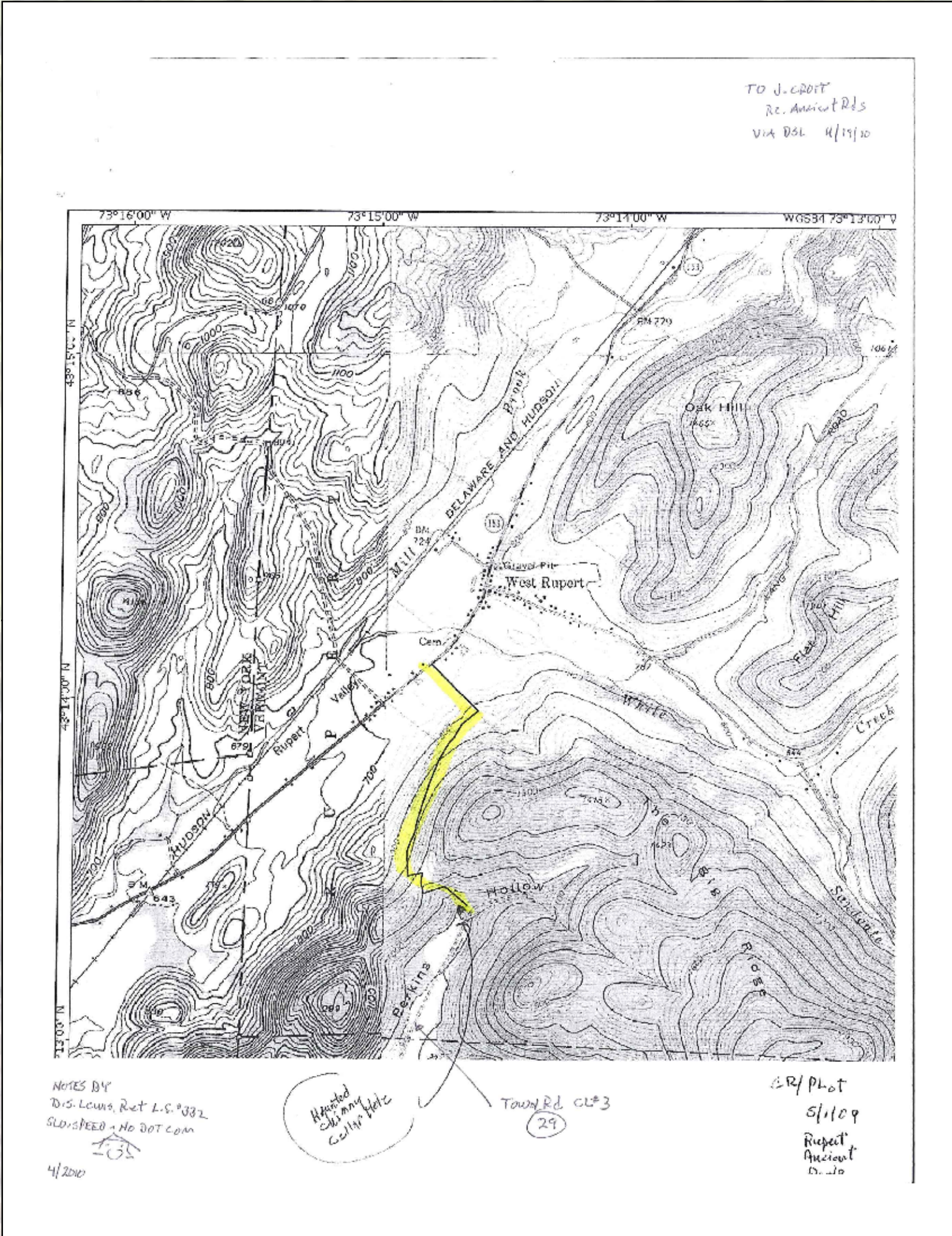
In most cases, a rudimentary sketch map accompanied the volumes of deeds, surveys, old maps, and other documents from the towns, providing a general idea of where to add the highway or trail.

A sophisticated suite of tools was employed to make the town highway map update possible, including ESRI's ArcInfo and Production Line Toolset (PLTS), plus running traverses using COGO tools.



Copy of the original 1834 laying document from the Town of Rupert records. This document includes the survey of the highway that describes its location and includes the selectmen's signatures as part of the town's acceptance of this road as a public town highway.

1
The Town does extensive research of their records to determine if there is documentation of the legal establishment of a public highway that has not been mapped on the official General Highway Map (also known as the Town Highway Map).



A sketch of the road on a U.S. Geological Survey quad sheet was included with the Town's documentation.

2
The general location of the highway is sketched on a modern map base to give an indication of the starting and ending points and general layout.

3
The historical survey is converted into 2010 ArcGIS COGO traverse format.

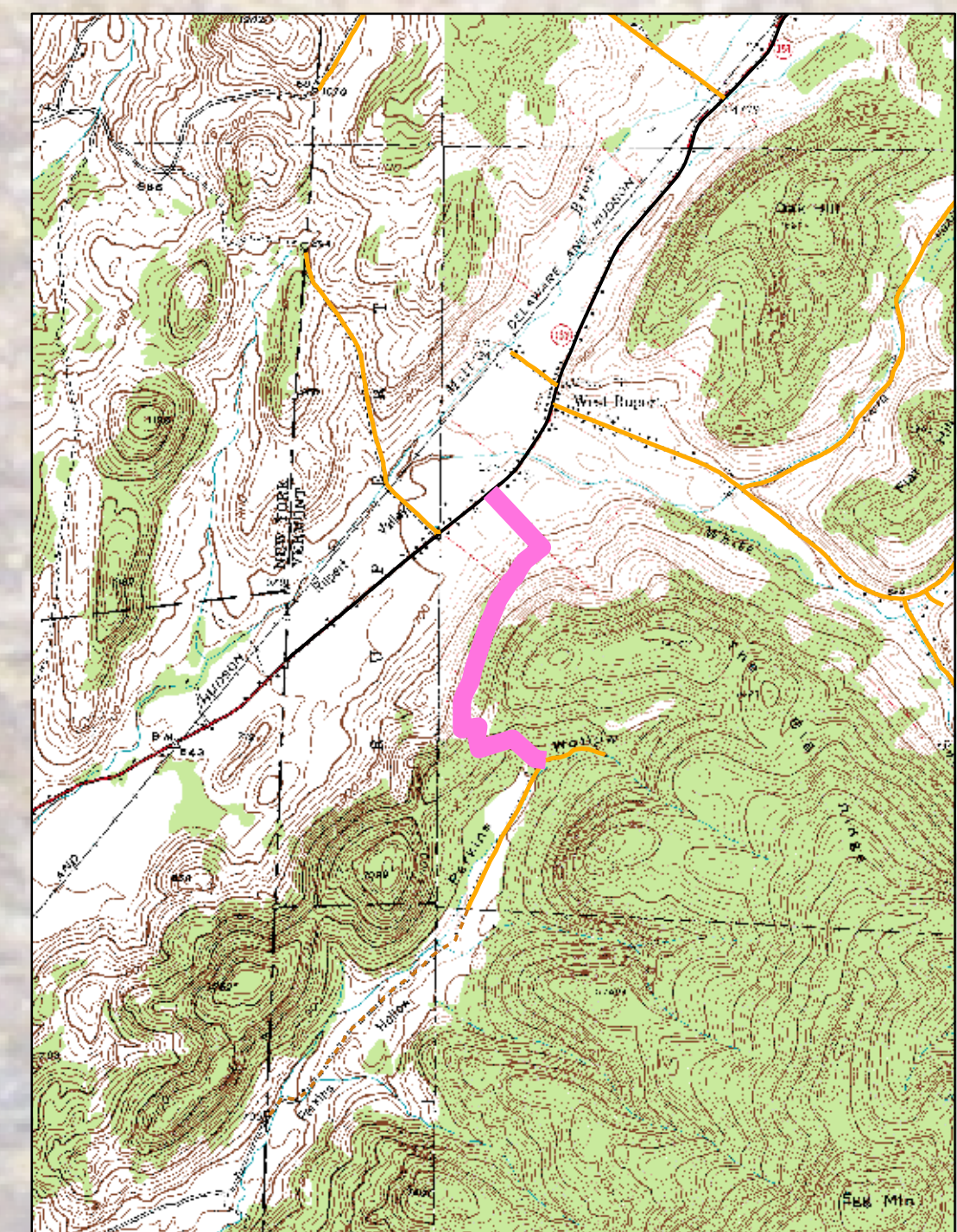
Rupert		Degrees		Rods	Feet	Meters
DT QB						
DU DMS						
SP 439618 80615						
DD N44-0-0W 155.9052	DD N44-0-0W N	44 W		31.0	511.50	155.91
DD S77-0-0W 170.9928	DD S77-0-0W S	77 W	W 13 S	34.0	561.00	170.99
DD N6-0-0W 60.3504	DD N6-0-0W N	6 W		12.0	198.00	60.35
DD N13-0-0E 50.292	DD N13-0-0E N	13 E		10.0	165.00	50.29
DD S85-0-0W 80.4672	DD S85-0-0W S	85 W	W 5 S	16.0	264.00	80.47
DD N4-0-0E 135.7884	DD N4-0-0E N	4 E		27.0	445.50	135.79
DD N25-0-0E 45.2628	DD N25-0-0E N	25 E		9.0	148.50	45.26
DD N30-0-0E 60.3504	DD N30-0-0E N	30 E		12.0	198.00	60.35
DD N17-0-0E 60.3504	DD N17-0-0E N	17 E		12.0	198.00	60.35
DD N22-0-0E 140.8176	DD N22-0-0E N	22 E		28.0	462.00	140.82
DD N24-0-0E 75.438	DD N24-0-0E N	24 E		15.0	247.50	75.44
DD N27-0-0E 140.8176	DD N27-0-0E N	27 E		28.0	462.00	140.82
DD N36-0-0E 108.1278	DD N36-0-0E N	36 E		21.5	354.75	108.13
DD N52-0-0E 30.1752	DD N52-0-0E N	52 E		6.0	99.00	30.18
DD N33-0-0E 35.2044	DD N33-0-0E N	33 E		7.0	115.50	35.20
DD N36-0-0E 52.8066	DD N36-0-0E N	36 E		10.5	173.25	52.81
DD N56-0-0E 110.6424	DD N56-0-0E N	56 E		22.0	363.00	110.64
DD N39-0-0W 357.0732	DD N39-0-0W N	39 W		71.0	1171.50	357.07

The survey was entered into a spreadsheet with the original measurement of rods converted into feet and meters. Also, note that two of the bearings are "West dominant" instead of North or South dominant. For example, the bearing W 13° E had to be converted into the current standard format of S 77° W. The left most column of the spreadsheet was used for the ESRI COGO traverse file.

DT QB
DU DMS
SP 439618 80615
DD N44-0-0W 155.9052
DD S77-0-0W 170.9928
DD N6-0-0W 60.3504
DD N13-0-0E 50.292
DD S85-0-0W 80.4672
DD N4-0-0E 135.7884
DD N25-0-0E 45.2628
DD N30-0-0E 60.3504
DD N17-0-0E 60.3504
DD N22-0-0E 140.8176
DD N24-0-0E 75.438
DD N27-0-0E 140.8176
DD N36-0-0E 108.1278
DD N52-0-0E 30.1752
DD N33-0-0E 35.2044
DD N36-0-0E 52.8066
DD N56-0-0E 110.6424
DD N39-0-0W 357.0732

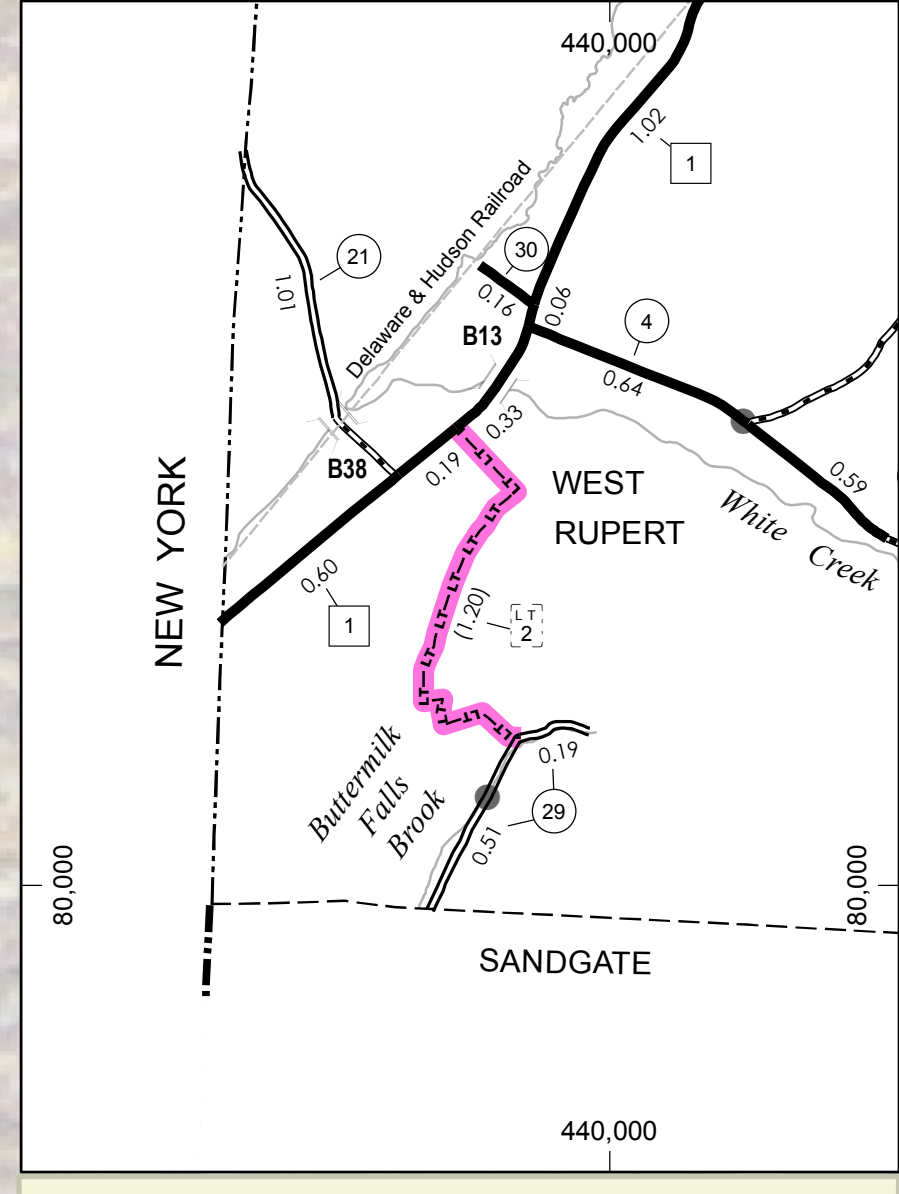
ESRI COGO Traverse File Rupert_Traverse.txt

4
The highway is generated and entered into the master road centerline data layer.



GOB_HMS.HMSADMIN.rdsml_arc	AOTCLASS
[Symbol]	INTERSTATE OR DIVIDED HIGHWAY
[Symbol]	STATE - HARD SURFACE OR PAVED
[Symbol]	CLASS 1
[Symbol]	CLASS 2
[Symbol]	CLASS 3
[Symbol]	CLASS 4
[Symbol]	LEGAL TRAIL
[Symbol]	PRIVATE ROAD
[Symbol]	DISCONTINUED

5
The official General Highway Map is created showing the newly added ancient road



Excerpt from the final Town Highway Map showing the newly added ancient road.

Selected Elements Extracted from the Town Highway Map

HIGHWAYS	ADDED ANCIENT ROAD HIGHLIGHTED
INTERSTATE	BRIDGE OR CULVERT
U.S. ROUTE	BRIDGE OR CULVERT GREATER THAN 20'
STATE ROUTE	BRIDGE OR CULVERT 6' - 20'
CLASS 1	TOWN SHORT STRUCTURE
CLASS 2	PUBLIC LAND
CLASS 3	STATE BOUNDARY
CLASS 4	COUNTY BOUNDARY
LEGAL TRAIL	TOWN BOUNDARY
RAIL TRAIL	VILLAGE BOUNDARY
INTERSTATE OR DIVIDED HIGHWAY	URBAN COMPACT BOUNDARY
STATE - HARD SURFACE OR PAVED	WATER BODIES
TOWN - HARD SURFACE OR PAVED	STREAM OR BROOK
CLASS 3	B34 / C34 STATE BRIDGE OR CULVERT IDENTIFIER
LEGAL TRAIL	B34 / C34 TOWN BRIDGE OR CULVERT IDENTIFIER
PRIVATE ROAD	STRUCTURES - SURFACE WATER NOTE:
DISCONTINUED	STRUCTURES:
	Town short structures (bridges or culverts from 6-feet to less than 20-feet) are drawn from the Vermont Online Bridge & Culvert Inventory Tool (VOCIT) database.
	NOTE: Town shorts are not consistently tagged within VOCIT.
	SURFACE WATERS:
	The surface waters are from the Vermont Hydrological Dataset (VHD). Only the named streams are shown.
	DISCLAIMER:
	The untraveled highways (laid-out town highways), discontinued highways, and legal trails shown hereon are those of which the Agency of Transportation has record; others may exist.
	Highway and bridge data by the Agency of Transportation. All other data from the Vermont Center for Geographic Information.