April 2, 2024

Mr. Eric Slosek
Public Works Director
Town of Amherst
22 Dodge Road
Amherst, NH 03031

Re: On-Call Engineering and Surveying Services
Task Order # 2 – County Road Conceptual Cost Analysis
Hoyle Tanner Project No. 23.919101.02

Dear Eric:

The Town of Amherst, NH (Town) has retained Hoyle, Tanner & Associates, Inc. (Hoyle Tanner) to complete a conceptual analysis for reconstructing approximately 1.2 miles of County Road between Village Woods Drive and Upham Road (project area) to meet the "County Rd." standards as listed in the "Geometric Road Design for Streets" provided by the Town on 1/31/2024 (Town design standards). The "County Rd." standards are a combination of the "residential 1" and "residential 2" specifications found in "Table 3-1" of the "Town of Amherst Development Regulations." For the purposes of this report, it shall be known that all references to Town design standards are referring to the "County Rd." standards, more specifically described within this letter report in Table 2. Based on our conceptual analysis, significant modifications to County Road are required in the project area to meet the Town design standards. The results of our conceptual analysis were used to develop a conceptual cost for upgrading the project area to the Town design standards. This cost was developed using material and construction requirements from the 2016 NHDOT Standard Specifications for Road and Bridge Construction along with current bid prices and Hoyle Tanner's experience with similar projects.

Table 1. Engineer's Estimate of Conceptual Cost Summary Table

Item		Cost
1	Conceptual Construction Cost	$1,752,116.00
2	Mobilization (10% of Item 1)	$175,211.60
3	Contingency (15% of Item 1)	$262,817.40
4	**Construction Total (Items 1+2+3)**	**$2,190,145.00**
5	Design Engineering (10 % of Item 4)	$219,014.50
6	ROW Acquisition (Assumed)	$30,000.00
7	Construction Engineering (10% of Item 4)	$219,014.50
8	**Total Anticipated Project Cost (Rounded) (Items 4+5+6+7)**	**$2,659,000.00**

Based on Table 1, the conceptual construction cost is $2,190,145.00 (Item 4). Conceptual costs for design engineering, right-of-way acquisition, and construction engineering (Items 5 through 7) are based on Hoyle Tanner's experience with similar projects and total $468,029.00. Item 8 reflects the rounded total project cost (construction plus engineering) of $2,659,000.

Introduction and Description of Project Area

The project area encompasses approximately 1.2 miles of County Road between Village Woods Drive and Upham Road in the Town of Amherst, NH. The existing roadway is classified as a Class V Local Road with an estimated traffic count of 183 vehicles per day in 2023. Chapter E of the Town of Amherst's Ordinances, Laws, and Regulations states that County Road within the project area is designated as a scenic roadway.

The roadway within the project area is a narrow gravel road with a varying width of approximately 12.5' to 21'. The land adjacent to the project area is largely forested and undeveloped. Dry stacked stone walls run parallel to the roadway on both sides. Subsurface Utility Engineering (SUE) is beyond the scope of this project, however, there are no known underground utilities within the project area. Overhead utilities consist of a single-phase electric line and telecommunication lines which run along County Road through the entire project area.

Existing roadway drainage consists of sheet flow into existing ditch lines or off of the roadway shoulder. Several roadway culverts are located in the project area. Based on a review of the USGS StreamStats web-based program, the culvert to the northwest of 80 County Road appears to convey an intermittent or small perennial stream with a watershed area of 0.04 square miles. All of the remaining culverts are assumed to convey stormwater runoff.

It is our understanding that a private developer intends to construct approximately 51 homes within the project area. Based on traffic volume estimates prepared by VHB dated October 27, 2023, the estimated ADT of County Road based on the proposed development will be approximately 619 vehicles per day. The purpose of this letter report is to summarize our conceptual analysis of reconstructing County Road to meet Town design standards.

Town Design Standards

A summary of the Town design standards used in the conceptual analysis as provided by the Town on 1/31/2024 are shown in Table 2 below.

Table 2. County Road Design Standards

Geometric Criteria:	
Design Speed	30 MPH
Minimum Pavement Width	22’
Minimum Grade	1%
Maximum Grade	8%
Minimum Angle of Intersections	90°
Minimum Centerline Radius of Curves	300’
Minimum Tangent Length Between Reverse Curves	200’
Minimum Road Crown	2.5%
Road Base:	
Crushed Gravel Thickness (NHDOT Item 304.3)	8”
Gravel Thickness (NHDOT Item 304.2)	16”
Sand Thickness (Over Ledge) (NHDOT Item 304.1)	12”
Bituminous Concrete Paving:	
Binder Course Thickness (NHDOT Item 403.11043)	2.5”
Wearing Course Thickness (NHDOT Item 403.11023)	1.5”

Figure 1 as referenced from The Town of Amherst Development Regulations – Roadways & Utility Standards Part 3 is the basis for the typical section used in the conceptual analysis.

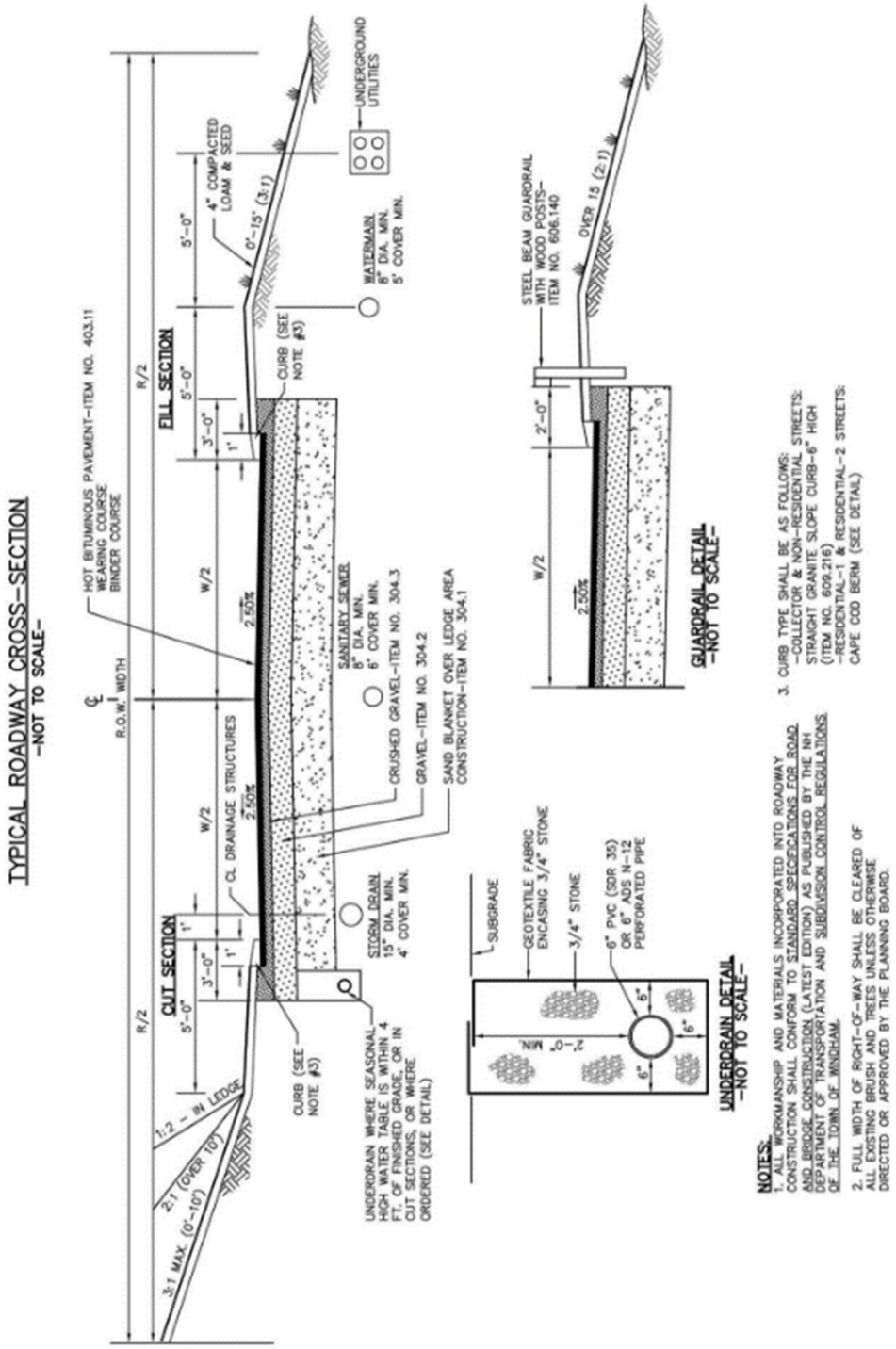


Figure 1. Town of Amherst Typical Roadway Section and Details

Conceptual Analysis Methods and Findings

Hoyle Tanner utilized Civil3D to develop conceptual horizontal and vertical alignments, to evaluate the conceptual slope impacts, and to determine conceptual earthwork quantities based on constructing the Town design standards and typical section within the project area. A topographic survey of the majority of the project area was provided to Hoyle Tanner by the Town. The limits of the topographic survey encompass the project area from 48 County Road (approximately 720' southeast of the start of the project area at the intersection with Village Woods Drive) to approximately 1400' south of the project area limits at Upham Road. The existing ground information for approximately 600' of the roadway abutting 80 County Road was not included in the provided survey information. Hoyle Tanner used Civil3D to interpolate the surface elevation data in this location to complete the conceptual analysis. Existing information for the 720' of the project area not included in the survey was approximated using existing aerial imagery.

Vertical and Horizontal Design Standards Evaluation

- In general, the existing alignment and profile of County Road meets the Town design standards for the majority of the roadway within the project area. The roadway geometry used for the letter report has been modified at the following locations in order to meet the Town Design Standards:
    - The proposed roadway centerline deviates from the existing centerline in various locations to accommodate the minimum curve radius and minimum tangent length between reverse-curves.
        - Lot 4-118-11: the "proposed" centerline deviates to the south of the existing centerline due to a reverse curve that exists in this location, and the "proposed" centerline contains a longer tangent that deviates from the existing alignment.
        - Lot 4-118-19: the existing roadway narrows on the southbound side, causing the "proposed" alignment to deviate from the existing centerline.
        - Lot 4-118-7 to Lot 4-118-3: the existing geometry contains multiple short reverse curves that cannot be followed using the Town design standards of 300' minimum radius curves and 200' between curves. The "proposed" geometry contains longer tangents and larger curve radii.
        - Lot 4-118-1 to Lot 4-116-8: the existing geometry contains multiple short reverse curves that cannot be followed using the town design standards of 300' minimum radius curves and 200' between curves. The "proposed" geometry contains longer tangents and larger curve radii.
    - The conceptual vertical alignment (roadway profile) used for this letter report abides by the Town design standards, however, slope impacts and total project costs would be reduced by allowing some profile slopes to be decreased to 0.5% minimum as compared to the Town design standard of 1% minimum. There are existing locations with significant distances that have an existing profile grade of less than 1%.

Roadway Typical Section and Right-of-Way Design Standards Evaluation

- The conceptual roadway was modeled at a consistent 22' from edge-of-pavement to edge-of-pavement, however, there are various locations that could benefit from narrowing the pavement width from 22' to 20'. In particular the locations where the proposed edge-of-pavement comes close to abutting the existing right-of-way (ROW) limits, the locations where the proposed centerline deviates from the existing centerline to a significant degree, and locations where there are significant existing obstructions, like stone walls, trees, etc. These locations include:
    - From lot 4-118-6/6-102-8 to lot 4-118-4/6-102-10
    - From lot 4-117-2/4-120 to lot 4-116-8/4-121-4
- The proposed edge of pavement remains within the existing town ROW at all locations, including the vertical and horizontal geometric revisions noted above, but the conceptual slope limits extend outside of the ROW at or around the following lot locations:
    - 6-102-1
    - 6-105-1
    - 6-105
    - 4-118-11
    - 6-102-3 to 6-102-14
    - 4-118-9 to 4-118-6
    - 4-118-3
    - 4-121 to 4-121-3
    - 4-117-2 to 4-117
    - 4-116-8

  It is important to note that the conceptual roadway was modeled using side slopes at or below the limits shown in Figure 1. Refining the side slopes by including locations of steeper fill or cut slopes will likely reduce ROW impacts, disturbance to trees and existing stone walls, and reduce total project costs.

It is likely that some of the constraints discussed above can be further optimized during a final design of the project area to reduce impacts to existing features such as utilities, wetlands, stone walls, and ROW along with reducing total construction cost. Reference Appendix B for conceptual level roll plans of the roadway plan, profile, and cross sections.

Town Ordinances Evaluation

A complete review of the Town's building codes, zoning codes, ordinances, and laws is beyond the scope of this letter report. However, consideration of the scenic road designation is important to consider for this project. The reconstruction of County road will require paving, removal of trees, and demolition of existing stone walls. Per New Hampshire RSA 231:158, these activities will require prior written consent of the planning board or other official municipal body after a public hearing.

Environmental Permitting

Determining the cost and extent of environmental permitting required to reconstruct County Road was beyond the scope of this project. However, based on Hoyle Tanner's experience, the following permits may be required.

- NHDES Site Specific Alteration of Terrain (AoT) Permit

    - This permit is required if the total area of disturbance of the project (including the existing roadway surface) exceeds 100,000 SF. Based on our conceptual analysis, this project will require preparation and submittal of a Site Specific AoT permit.
- NHDES Wetlands Permit
    - Based on a review of the topographic survey, wetlands are located adjacent to the existing roadway in multiple locations. Impacts to these wetlands are likely required to construct County Road in accordance with the Town Design Standards at the following locations:
        - Lot 4-118-5
        - Lot 6-102-8
    - As such, a NHDES wetlands permit will be required.
- EPA Construction General Permit
    - This permit is required if the total area of disturbance exceeds one acre. If the existing packed gravel roadway surface or subsurface materials are maintained and built upon, the plan area of the roadway is not used in the calculation of the disturbance area. However, based on our conceptual design, it is likely that an EPA Construction General Permit will be required.

The conceptual cost analysis includes allowances for typical erosion control items and stormwater pollution prevention items used on typical New Hampshire roadway reconstruction projects.

Based on our conceptual analysis, it is likely that all existing culverts within the project area will need to be replaced to accommodate a roadway width that meets the Town design standards. Based on a review of the NHDES WPPT and USGS StreamStats, there are no NHDES priority resource areas or tier 3 crossings (crossings with watersheds greater than 1 square mile) within the project location. As such, it is likely that all culverts can be replaced in-kind using a NHDES Routine Roadway Maintenance Activity Registration. These permits have a processing time of five days and no application fee. Costs for proposed drainage structures and existing drainage replacements are included in the conceptual cost analysis.

Utility Coordination

Based on the conceptual analysis described above, multiple utility poles will be required to be relocated to accommodate the proposed roadway geometry and to provide sufficient clear distance between the edge of pavement and the utility pole. A cost for utility relocations is not provided in the Conceptual Estimate since all existing utility poles appear to be within the Town's ROW.

<u>Conceptual Cost Estimate</u>

The conceptual cost estimate was prepared based on the findings of the conceptual analysis described above to meet the Town design standards. This cost estimate was developed using material and construction requirements from the 2016 NHDOT Standard Specifications for Road and Bridge Construction along with current bid prices and Hoyle Tanner's experience with similar projects. Since it is conceptual in nature, the cost estimate quantifies the major work items in detail (such as excavation and roadway fill/pavement construction) and uses typical percentages of project cost for miscellaneous items such as erosion and sediment control and drainage.

An evaluation of traffic control is beyond the scope of this project. However, since there are existing residences within the project area, the conceptual cost analysis assumes that a single lane of alternating traffic (at a minimum) must be maintained at all times during construction. As such, estimates for flaggers and other traffic control devices are included in the conceptual cost estimate.

A geotechnical evaluation (such as test borings or probes) to determine subsurface conditions is beyond the scope of this letter report. As such, a contingency for rock excavation and for sand blanket (as shown in Figure 1) in locations of proposed roadway cut is included in the conceptual cost analysis. The conceptual cost analysis also assumes that the existing roadway gravels are substandard and will need to be excavated (as required) to install the full roadway subbase as described in Table 2 and Figure 1 above.

Since this cost estimate is conceptual in nature, a 15% design contingency has been added to account for details and constraints not known at the time of this letter report. Final design costs to prepare construction documents and construction engineering costs to administer construction on behalf of the Town are estimated as a percentage of total construction costs based on Hoyle Tanner's experience with similar projects.

The total conceptual cost estimate in 2024 dollars is provided below in Table 1. See Appendix A for a copy of the conceptual cost estimate.

Table 1 (Repeated). Engineer's Estimate of Conceptual Cost Summary Table

Item		Cost
1	Conceptual Construction Cost	$1,752,116.00
2	Mobilization (10% of Item 1)	$175,211.60
3	Contingency (15% of Item 1)	$262,817.40
4	**Construction Total (Items 1+2+3)**	**$2,190,145.00**
5	Design Engineering (10 % of Item 4)	$219,014.50
6	ROW Acquisition (Assumed)	$30,000.00
7	Construction Engineering (10% of Item 4)	$219,014.50
8	**Total Anticipated Project Cost (Rounded) (Items 4+5+6+7)**	**$2,659,000.00**

Evaluation of options to reduce the conceptual cost estimate is beyond the scope of this letter report. However, some options to consider during final design include:

- Perform soil sampling and gradation analyses of the existing roadway subbase material. If this material meets the gradation requirements of the road base material described in Table 2 above, it is likely that this material will not need to be excavated and replaced.
- Administer construction of the roadway improvements using Town staff rather than a third-party engineering firm.
- Allow waivers to Town design standards at the following locations:
    - Allow for a pavement width of 20' from lots 4-118-6/6-102-8 to 4-118-4/6-102-10 and from lots 4-117-2/4-120 to 4-116-8/4-121-4
    - Multiple locations: Allow a minimum profile grade of 0.5% as discussed above.
    - Multiple locations: allow for steeper cut and fill slopes to reduce impacts.

Summary and Limitations

The following limitations apply to this letter report:

- The recommendations of this letter report should not be used for final design purposes.
- The information included in the topographic survey such as the location of wetlands and other environmentally sensitive lands has not been verified by Hoyle Tanner.
- The findings of this letter report are based solely on meeting the Town design standards discussed above. It is likely that waivers to multiple Town design standards would be requested in the final design of this project. A Detailed review of Town building codes, zoning codes, ordinances, and laws which may have an effect on total project costs is beyond the scope of this letter.

The findings of this letter report are based on the limitations discussed above, the current condition of the roadway, current Town design standards, current industry trends for construction pricing, and current environmental permitting regulations which are subject to change. As such, the findings of this letter report should not be relied upon for an extended period.

Should you require additional information, please contact me at (978) 795-4402 or via email at jripley@hoyletanner.com.

Sincerely,
Hoyle, Tanner & Associates, Inc.

Joseph C. Ripley, PE
Project Manager

Enclosure(s)

APPENDIX A
CONCEPTUAL COST ANALYSIS

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM/EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

CONCEPTUAL ESTIMATE - Amherst County Rd

SECTION A - MAJOR ITEMS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
201.1	CLEARING AND GRUBBING (F)	A	2.60	$ 20,000.00	$ 52,000.00
203.1	COMMON EXCAVATION	CY	16000	$ 20.00	$ 320,000.00
203.2	ROCK EXCAVATION	CY	350	$ 50.00	$ 17,500.00
203.5572	EAGRT PLATFORM ALTERNATE, TL 2 - 25'	U	4	$ 1,000.00	$ 4,000.00
203.6	EMBANKMENT-IN-PLACE (F)	CY	2700	$ 25.00	$ 67,502.50
214	FINE GRADING	U	1	$ 20,000.00	$ 20,000.00
304.1	SAND (F)	CY	135	$ 40.00	$ 5,400.00
304.2	GRAVEL (F)	CY	6400	$ 40.00	$ 256,000.00
304.3	CRUSHED GRAVEL (F)	CY	3200	$ 50.00	$ 160,000.00
304.35	CRUSHED GRAVEL FOR DRIVES	CY	13	$ 70.00	$ 910.00
403.11023	HBP-3/4" BINDER MIX, MACHINE METHOD	TON	2100	$ 100.00	$ 210,000.00
403.11043	HBP-1/2" SURFACE MIX, MACHINE METHOD	TON	1300	$ 100.00	$ 130,000.00
403.12	HOT BITUMINOUS PAVEMENT, HAND METHOD	TON	5	$ 175.00	$ 875.00
417	COLD PLANING BITUMINOUS SURFACES	SY	250	$ 12.00	$ 3,000.00
572.1	RECONSTRUCTING STONE WALL ONE STONE WIDE	LF	6450	$ 10.00	$ 64,500.00
606.1255	BEAM GUARDRAIL (TERMINAL UNIT TYPE EAGRT, TL 2) (STEEL POST)	U	4	$ 4,400.00	$ 17,600.00
606.18001	31" W-BEAM GUARDRAIL WITH 8" OFFSET BLOCK (STEEL POST)	LF	160	$ 32.00	$ 5,120.00
609.811	BITUMINOUS CURB, TYPE B (4" REVEAL)	LF	13000	$ 5.50	$ 71,500.00
628.2	SAWED BITUMINOUS PAVEMENT	LF	44	$ 3.00	$ 132.00
					$ -
			SUBTOTAL A		**$ 1,406,039.50**

SECTION B - MISCELLANEOUS ITEMS

SIGNS, MARKINGS, LOAM/HUMUS, ETC.	7%	$ 98,422.77
	SUBTOTAL B	**$ 1,504,462.27**

SECTION C - DRAINAGE ITEMS

PIPES, UNDERDRAIN, CB's, MH's, ETC.	8%	$ 120,356.98
	SUBTOTAL C	**$ 1,624,819.25**

SECTION D - TRAFFIC CONTROL

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
618.7	FLAGGERS	HR	880	$ 53.00	$ 46,640.00
619.1	MAINTENANCE OF TRAFFIC	LS	1	$ 10,000.00	$ 10,000.00
	MISCELLANEOUS TRAFFIC CONTROL		10% OF ABOVE TOTAL		$ 5,664.00
			SUBTOTAL D		**$ 1,687,123.25**

SECTION E - EROSION AND SEDIMENT CONTROL

EROSION, SEDIMENT, AND POLLUTION CONTROL (HAY BALES, SILT FENCE, SWPPP, TEMP. WATER POLL. CONTROL, ETC.)	4% OF DRAINAGE	$ 64,992.77
	SUBTOTAL E	**$ 1,752,116.02**

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM/EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

CONCEPTUAL ESTIMATE - Amherst County Rd

SECTION F - MOBILIZATION AND CONTINGENCIES

ROADWAY MOBILIZATION	10%	$	175,211.60
ROADWAY CONTINGENCIES	15%	$	262,817.40
	SUBTOTAL F	$	2,190,145.02

SECTION G - ADDITIONAL ITEMS

N/A		$	-
CONSTRUCTION ITEMS (CON)		$	2,190,145.02
CONSTRUCTION ENGINEERING (CE)	10%	$	219,014.50
RIGHT OF WAY ACQUISITION (ROW)		$	30,000.00
PRELIMINARY ENGINEERING (PE)	10%	$	219,014.50

ROUNDED ROADWAY TOTAL: $ 2,659,000.00

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
201.1	CLEARING AND GRUBBING (F)	A

Formula: CalcdQTY = Area/43560

Note: 43560 SF per 1 Acre
Areas are from Microstation

Location	Letter Designation	Area (SF)	Calculated Quantity	Quantity
Sta. xxx+xx to Sta. xxx+xx, LT/RT	A	120	0.003	0.00
	B	5310	0.122	0.12
	C	1980	0.045	0.05
	D	5127	0.118	0.12
	E	276	0.006	0.01
	F	537	0.012	0.01
	G	997	0.023	0.02
	H	5226	0.120	0.12
	I	10062	0.231	0.23
	J	10982	0.252	0.25
	K	2783	0.064	0.06
	L	24	0.001	0.00
	M	4315	0.099	0.10
	N	1038	0.024	0.02
	O	6642	0.152	0.15
	P	21678	0.498	0.50
	Q	1180	0.027	0.03
	R	6069	0.139	0.14
	S	5272	0.121	0.12
	T	225	0.005	0.01
	U	2339	0.054	0.05
	V	634	0.015	0.01
	W	12589	0.289	0.29
	X	5293	0.122	0.12
	Y	373	0.009	0.01

Subtotal Sheet 1:	2.54
Rounding:	0.06
Item Total:	2.60

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Formula:

Note:

Calculated Quantity **Quantity**

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
107+50	65.11				
		61.44	25.00	56.88	56.9
107+75	57.76				
		59.25	25.00	54.86	54.9
108+00	60.74				
		63.91	25.00	59.17	59.2
108+25	67.07				
		68.61	25.00	63.52	63.5
108+50	70.14				
		72.41	25.00	67.05	67.0
108+75	74.68				
		68.43	25.00	63.36	63.4
109+00	62.17				
		62.06	25.00	57.46	57.5
109+25	61.95				
		63.06	25.00	58.38	58.4
109+50	64.16				
		65.12	25.00	60.29	60.3
109+75	66.07				
		68.05	25.00	63.00	63.0
110+00	70.02				
		69.31	25.00	64.18	64.2
110+25	68.60				
		69.52	25.00	64.37	64.4
110+50	70.43				
		67.00	25.00	62.04	62.0
110+75	63.57				
		65.50	25.00	60.64	60.6
111+00	67.42				
		67.68	25.00	62.67	62.7
111+25	67.94				
		69.23	25.00	64.10	64.1
111+50	70.51				
		74.55	25.00	69.03	69.0
111+75	78.59				
		75.12	25.00	69.55	69.6
112+00	71.64				
		62.93	25.00	58.27	58.3
112+25	54.22				
		60.03	25.00	55.58	55.6
112+50	65.84				
		32.92	25.00	30.48	30.5

Subtotal Sheet 1: 1265.1

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
112+75	69.35				
		71.50	25.00	66.20	66.2
113+00	73.64				
		72.45	25.00	67.08	67.1
113+25	71.25				
		66.50	25.00	61.57	61.6
113+50	61.74				
		63.33	25.00	58.64	58.6
113+75	64.92				
		62.77	25.00	58.12	58.1
114+00	60.61				
		68.59	25.00	63.51	63.5
114+25	76.57				
		71.56	25.00	66.26	66.3
114+50	66.55				
		61.42	25.00	56.87	56.9
114+75	56.28				
		54.06	25.00	50.06	50.1
115+00	51.84				
		45.04	25.00	41.70	41.7
115+25	38.24				
		42.61	25.00	39.45	39.4
115+50	46.97				
		45.67	25.00	42.29	42.3
115+75	44.37				
		49.19	25.00	45.54	45.5
116+00	54.00				
		64.53	25.00	59.75	59.7
116+25	75.05				
		76.10	25.00	70.46	70.5
116+50	77.14				
		83.91	25.00	77.69	77.7
116+75	90.68				
		75.11	25.00	69.54	69.5
117+00	59.53				
		64.54	25.00	59.76	59.8
117+25	69.55				
		84.19	25.00	77.95	78.0
117+50	98.83				
		93.43	25.00	86.51	86.5
117+75	88.03				
		44.02	25.00	40.75	40.8

Subtotal Sheet 2: 1259.8

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
118+00	74.15				
		73.12	25.00	67.70	67.7
118+25	72.08				
		75.70	25.00	70.09	70.1
118+50	79.31				
		74.05	25.00	68.56	68.6
118+75	68.79				
		60.10	25.00	55.65	55.6
119+00	51.41				
		53.76	25.00	49.78	49.8
119+25	56.11				
		53.71	25.00	49.73	49.7
119+50	51.30				
		48.76	25.00	45.14	45.1
119+75	46.21				
		44.22	25.00	40.94	40.9
120+00	42.23				
		40.50	25.00	37.50	37.5
120+25	38.76				
		39.00	25.00	36.11	36.1
120+50	39.24				
		44.80	25.00	41.48	41.5
120+75	50.36				
		59.83	25.00	55.39	55.4
121+00	69.29				
		68.90	25.00	63.80	63.8
121+25	68.51				
		66.36	25.00	61.44	61.4
121+50	64.21				
		72.84	25.00	67.44	67.4
121+75	81.47				
		84.19	25.00	77.95	78.0
122+00	86.91				
		81.75	25.00	75.69	75.7
122+25	76.59				
		78.62	25.00	72.79	72.8
122+50	80.64				
		88.22	25.00	81.69	81.7
122+75	95.80				
		90.52	25.00	83.81	83.8
123+00	85.24				
		42.62	25.00	39.46	39.5

Subtotal Sheet 3: 1242.1

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
123+25	94.92				
		100.42	25.00	92.98	93.0
123+50	105.92				
		101.70	25.00	94.16	94.2
123+75	97.47				
		97.20	25.00	90.00	90.0
124+00	96.92				
		80.83	25.00	74.84	74.8
124+25	64.73				
		69.55	25.00	64.40	64.4
124+50	74.37				
		62.57	25.00	57.93	57.9
124+75	50.76				
		61.09	25.00	56.56	56.6
125+00	71.41				
		76.12	25.00	70.48	70.5
125+25	80.82				
		82.14	25.00	76.05	76.1
125+50	83.45				
		78.65	25.00	72.82	72.8
125+75	73.85				
		89.59	25.00	82.95	82.9
126+00	105.32				
		99.58	25.00	92.20	92.2
126+25	93.83				
		107.62	25.00	99.65	99.6
126+50	121.41				
		134.20	25.00	124.26	124.3
126+75	146.99				
		149.83	25.00	138.73	138.7
127+00	152.67				
		140.41	25.00	130.01	130.0
127+25	128.15				
		124.03	25.00	114.84	114.8
127+50	119.90				
		120.84	25.00	111.88	111.9
127+75	121.77				
		125.89	25.00	116.56	116.6
128+00	130.01				
		118.96	25.00	110.14	110.1
128+25	107.90				
		53.95	25.00	49.95	50.0

Subtotal Sheet 4: 1921.4

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
128+50	84.70				
		73.71	25.00	68.25	68.2
128+75	62.71				
		60.89	25.00	56.38	56.4
129+00	59.07				
		61.97	25.00	57.38	57.4
129+25	64.86				
		63.74	25.00	59.01	59.0
129+50	62.61				
		65.87	25.00	60.99	61.0
129+75	69.12				
		70.96	25.00	65.70	65.7
130+00	72.79				
		73.09	25.00	67.67	67.7
130+25	73.38				
		73.63	25.00	68.17	68.2
130+50	73.87				
		84.06	25.00	77.83	77.8
130+75	94.25				
		102.26	25.00	94.68	94.7
131+00	110.26				
		110.13	25.00	101.97	102.0
131+25	109.99				
		93.81	25.00	86.86	86.9
131+50	77.62				
		65.61	25.00	60.75	60.7
131+75	53.59				
		39.33	25.00	36.42	36.4
132+00	25.07				
		32.06	25.00	29.69	29.7
132+25	39.05				
		58.98	25.00	54.61	54.6
132+50	78.90				
		78.31	25.00	72.51	72.5
132+75	77.72				
		60.42	25.00	55.94	55.9
133+00	43.11				
		55.56	25.00	51.44	51.4
133+25	68.00				
		71.42	25.00	66.13	66.1
133+50	74.84				
		37.42	25.00	34.65	34.6

Subtotal Sheet 5: 1326.9

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
133+75	99.61				
		125.90	25.00	116.57	116.6
134+00	152.18				
		152.33	25.00	141.04	141.0
134+25	152.47				
		157.80	25.00	146.11	146.1
134+50	163.12				
		186.86	25.00	173.02	173.0
134+75	210.60				
		228.51	25.00	211.58	211.6
135+00	246.41				
		227.44	25.00	210.59	210.6
135+25	208.46				
		177.57	25.00	164.42	164.4
135+50	146.68				
		114.08	25.00	105.63	105.6
135+75	81.47				
		64.64	25.00	59.85	59.9
136+00	47.81				
		41.33	25.00	38.26	38.3
136+25	34.84				
		48.54	25.00	44.94	44.9
136+50	62.23				
		70.13	25.00	64.93	64.9
136+75	78.02				
		98.06	25.00	90.79	90.8
137+00	118.09				
		118.17	25.00	109.41	109.4
137+25	118.24				
		117.53	25.00	108.82	108.8
137+50	116.82				
		115.80	25.00	107.22	107.2
137+75	114.78				
		99.64	25.00	92.25	92.3
138+00	84.49				
		79.70	25.00	73.79	73.8
138+25	74.90				
		68.68	25.00	63.59	63.6
138+50	62.46				
		54.80	25.00	50.74	50.7
138+75	47.14				
		23.57	25.00	21.82	21.8

Subtotal Sheet 6: 2195.3

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
139+00	62.95				
		59.96	25.00	55.52	55.5
139+25	56.97				
		55.64	25.00	51.51	51.5
139+50	54.30				
		62.84	25.00	58.18	58.2
139+75	71.37				
		63.80	25.00	59.07	59.1
140+00	56.22				
		52.92	25.00	49.00	49.0
140+25	49.61				
		40.18	25.00	37.20	37.2
140+50	30.75				
		36.16	25.00	33.48	33.5
140+75	41.57				
		43.75	25.00	40.50	40.5
141+00	45.92				
		48.28	25.00	44.70	44.7
141+25	50.63				
		53.08	25.00	49.15	49.1
141+50	55.53				
		52.36	25.00	48.48	48.5
141+75	49.18				
		51.04	25.00	47.25	47.3
142+00	52.89				
		58.02	25.00	53.72	53.7
142+25	63.14				
		63.48	25.00	58.78	58.8
142+50	63.82				
		66.58	25.00	61.65	61.6
142+75	69.34				
		72.69	25.00	67.31	67.3
143+00	76.04				
		70.50	25.00	65.28	65.3
143+25	64.96				
		64.24	25.00	59.48	59.5
143+50	63.52				
		73.12	25.00	67.70	67.7
143+75	82.72				
		81.92	25.00	75.85	75.8
144+00	81.11				
		40.56	25.00	37.55	37.6

Subtotal Sheet 7: 1121.4

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
144+25	82.01				
		81.68	25.00	75.63	75.6
144+50	81.35				
		81.84	25.00	75.78	75.8
144+75	82.33				
		82.64	25.00	76.51	76.5
145+00	82.94				
		82.82	25.00	76.69	76.7
145+25	82.70				
		81.15	25.00	75.14	75.1
145+50	79.60				
		94.14	25.00	87.16	87.2
145+75	108.67				
		118.40	25.00	109.63	109.6
146+00	128.13				
		128.99	25.00	119.44	119.4
146+25	129.85				
		127.04	25.00	117.63	117.6
146+50	124.22				
		121.70	25.00	112.69	112.7
146+75	119.18				
		116.77	25.00	108.12	108.1
147+00	114.35				
		110.99	25.00	102.77	102.8
147+25	107.63				
		103.37	25.00	95.71	95.7
147+50	99.11				
		94.77	25.00	87.75	87.8
147+75	90.43				
		85.88	25.00	79.51	79.5
148+00	81.32				
		76.94	25.00	71.24	71.2
148+25	72.56				
		68.28	25.00	63.22	63.2
148+50	63.99				
		59.30	25.00	54.90	54.9
148+75	54.60				
		51.01	25.00	47.23	47.2
149+00	47.41				
		45.44	25.00	42.07	42.1
149+25	43.47				
		21.74	25.00	20.13	20.1

Subtotal Sheet 8: 1698.8

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
149+50	36.83				
		33.50	25.00	31.02	31.0
149+75	30.17				
		26.89	25.00	24.90	24.9
150+00	23.61				
		20.43	25.00	18.91	18.9
150+25	17.24				
		14.16	25.00	13.11	13.1
150+50	11.07				
		12.94	25.00	11.98	12.0
150+75	14.81				
		20.20	25.00	18.70	18.7
151+00	25.58				
		29.61	25.00	27.42	27.4
151+25	33.64				
		36.90	25.00	34.17	34.2
151+50	40.16				
		44.85	25.00	41.53	41.5
151+75	49.54				
		55.38	25.00	51.28	51.3
152+00	61.22				
		67.50	25.00	62.50	62.5
152+25	73.77				
		79.35	25.00	73.47	73.5
152+50	84.92				
		89.98	25.00	83.31	83.3
152+75	95.04				
		97.32	25.00	90.11	90.1
153+00	99.59				
		98.94	25.00	91.61	91.6
153+25	98.29				
		93.08	25.00	86.19	86.2
153+50	87.87				
		79.29	25.00	73.41	73.4
153+75	70.70				
		63.83	25.00	59.10	59.1
154+00	56.96				
		51.52	25.00	47.70	47.7
154+25	46.07				
		41.25	25.00	38.19	38.2
154+50	36.43				
		18.22	25.00	16.87	16.9

Subtotal Sheet 9: 995.5

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
154+75	27.41				
		23.33	25.00	21.60	21.6
155+00	19.25				
		18.56	25.00	17.19	17.2
155+25	17.87				
		16.51	25.00	15.29	15.3
155+50	15.15				
		10.65	25.00	9.86	9.9
155+75	6.15				
		8.98	25.00	8.31	8.3
156+00	11.80				
		32.61	25.00	30.19	30.2
156+25	53.42				
		58.24	25.00	53.93	53.9
156+50	63.06				
		110.19	25.00	102.03	102.0
156+75	157.32				
		186.47	25.00	172.65	172.7
157+00	215.61				
		244.07	25.00	225.99	226.0
157+25	272.52				
		266.27	25.00	246.55	246.5
157+50	260.02				
		203.27	25.00	188.21	188.2
157+75	146.51				
		103.87	25.00	96.17	96.2
158+00	61.22				
		46.39	25.00	42.95	42.9
158+25	31.55				
		27.51	25.00	25.47	25.5
158+50	23.46				
		33.71	25.00	31.21	31.2
158+75	43.96				
		63.57	25.00	58.86	58.9
159+00	83.18				
		90.82	25.00	84.09	84.1
159+25	98.45				
		115.86	25.00	107.28	107.3
159+50	133.27				
		131.25	25.00	121.53	121.5
159+75	129.23				
		64.62	25.00	59.83	59.8

Subtotal Sheet 10: 1719.2

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
160+00	127.87				
		108.38	25.00	100.35	100.3
160+25	88.88				
		85.35	25.00	79.03	79.0
160+50	81.82				
		73.08	25.00	67.66	67.7
160+75	64.33				
		66.11	25.00	61.21	61.2
161+00	67.89				
		69.28	25.00	64.14	64.1
161+25	70.66				
		74.38	25.00	68.87	68.9
161+50	78.09				
		73.98	25.00	68.50	68.5
161+75	69.86				
		65.51	25.00	60.66	60.7
162+00	61.16				
		57.46	25.00	53.20	53.2
162+25	53.76				
		61.04	25.00	56.52	56.5
162+50	68.32				
		72.83	25.00	67.43	67.4
162+75	77.33				
		78.94	25.00	73.09	73.1
163+00	80.54				
		78.13	25.00	72.34	72.3
163+25	75.71				
		67.27	25.00	62.29	62.3
163+50	58.83				
		49.22	25.00	45.57	45.6
163+75	39.60				
		33.20	25.00	30.74	30.7
164+00	26.79				
		33.61	25.00	31.12	31.1
164+25	40.43				
		49.92	25.00	46.22	46.2
164+50	59.40				

Subtotal Sheet 11: 1109

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.1	COMMON EXCAVATION	CY

		Subtotal Sheet 1:	1265
		Subtotal Sheet 2:	1260
		Subtotal Sheet 3:	1242
		Subtotal Sheet 4:	1921
		Subtotal Sheet 5:	1327
		Subtotal Sheet 6:	2195
		Subtotal Sheet 7:	1121
		Subtotal Sheet 8:	1699
		Subtotal Sheet 9:	996
		Subtotal Sheet 10:	1719
		Subtotal Sheet 11:	1109
		Subtotal:	15855
Rounding %	0.9%	Rounding:	145
		Item Total:	16000

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.2	ROCK EXCAVATION	CY

Formula:

Note: 2% of Common Excavation

Location	**Volume (CY)**	**Calculated Quantity**	**Quantity**
Common Ex	16500	330.000	330.00

Subtotal Sheet 1:	330.00
Rounding:	20.00
Item Total:	350.00

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.5572	EAGRT PLATFORM ALTERNATE, TL 2 - 25'	U

Notes: Reference Guardrail Summary for Additional Information

	Calculated Quantity	Quantity
Guardrail Note		
1	1	1
2	1	1
3	1	1
4	1	1

Subtotal Sheet 1: 4

Rounding % 0.0% Rounding:

Item Total: 4

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Formula:

Note:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
107+50	0.24				
		1.19	25.00	1.10	1.1
107+75	2.14				
		1.07	25.00	0.99	1.0
108+00	0.00				
		0.00	25.00	0.00	0.0
108+25	0.00				
		0.00	25.00	0.00	0.0
108+50	0.00				
		0.00	25.00	0.00	0.0
108+75	0.00				
		2.20	25.00	2.04	2.0
109+00	4.40				
		4.66	25.00	4.31	4.3
109+25	4.91				
		5.22	25.00	4.83	4.8
109+50	5.53				
		7.04	25.00	6.51	6.5
109+75	8.54				
		12.70	25.00	11.75	11.8
110+00	16.85				
		25.08	25.00	23.22	23.2
110+25	33.31				
		31.23	25.00	28.92	28.9
110+50	29.15				
		19.13	25.00	17.71	17.7
110+75	9.10				
		8.95	25.00	8.29	8.3
111+00	8.80				
		6.68	25.00	6.19	6.2
111+25	4.56				
		10.09	25.00	9.34	9.3
111+50	15.61				
		10.18	25.00	9.42	9.4
111+75	4.74				
		4.76	25.00	4.41	4.4
112+00	4.78				
		6.72	25.00	6.22	6.2
112+25	8.66				
		7.94	25.00	7.35	7.3
112+50	7.21				
		3.61	25.00	3.34	3.3

Subtotal Sheet 1: 155.7

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
112+75	1.27				
		1.56	25.00	1.44	1.4
113+00	1.84				
		2.53	25.00	2.34	2.3
113+25	3.21				
		4.50	25.00	4.16	4.2
113+50	5.78				
		3.28	25.00	3.03	3.0
113+75	0.77				
		0.88	25.00	0.81	0.8
114+00	0.98				
		3.26	25.00	3.02	3.0
114+25	5.54				
		6.73	25.00	6.23	6.2
114+50	7.92				
		10.79	25.00	9.99	10.0
114+75	13.65				
		17.19	25.00	15.91	15.9
115+00	20.72				
		24.73	25.00	22.90	22.9
115+25	28.74				
		22.65	25.00	20.97	21.0
115+50	16.55				
		18.04	25.00	16.70	16.7
115+75	19.53				
		15.71	25.00	14.54	14.5
116+00	11.88				
		7.75	25.00	7.17	7.2
116+25	3.61				
		3.00	25.00	2.78	2.8
116+50	2.39				
		1.46	25.00	1.35	1.3
116+75	0.52				
		0.81	25.00	0.75	0.8
117+00	1.10				
		1.22	25.00	1.13	1.1
117+25	1.34				
		1.33	25.00	1.23	1.2
117+50	1.32				
		3.28	25.00	3.04	3.0
117+75	5.24				
		2.62	25.00	2.43	2.4

Subtotal Sheet 2: 141.7

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
118+00	12.67				
		15.56	25.00	14.41	14.4
118+25	18.45				
		18.01	25.00	16.68	16.7
118+50	17.57				
		12.39	25.00	11.47	11.5
118+75	7.21				
		5.81	25.00	5.38	5.4
119+00	4.41				
		13.76	25.00	12.74	12.7
119+25	23.11				
		27.09	25.00	25.08	25.1
119+50	31.07				
		29.44	25.00	27.25	27.3
119+75	27.80				
		23.95	25.00	22.17	22.2
120+00	20.09				
		21.59	25.00	19.99	20.0
120+25	23.08				
		20.37	25.00	18.86	18.9
120+50	17.65				
		15.30	25.00	14.16	14.2
120+75	12.94				
		12.72	25.00	11.78	11.8
121+00	12.50				
		9.00	25.00	8.33	8.3
121+25	5.49				
		7.03	25.00	6.50	6.5
121+50	8.56				
		6.68	25.00	6.19	6.2
121+75	4.80				
		6.27	25.00	5.81	5.8
122+00	7.74				
		6.21	25.00	5.75	5.8
122+25	4.68				
		4.41	25.00	4.08	4.1
122+50	4.14				
		3.91	25.00	3.62	3.6
122+75	3.68				
		2.21	25.00	2.05	2.0
123+00	0.74				
		0.37	25.00	0.34	0.3

Subtotal Sheet 3: 242.8

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
123+25	1.16				
		1.45	25.00	1.34	1.3
123+50	1.73				
		6.78	25.00	6.28	6.3
123+75	11.83				
		17.48	25.00	16.18	16.2
124+00	23.12				
		18.36	25.00	17.00	17.0
124+25	13.60				
		13.08	25.00	12.11	12.1
124+50	12.56				
		13.15	25.00	12.18	12.2
124+75	13.74				
		10.06	25.00	9.31	9.3
125+00	6.38				
		5.94	25.00	5.50	5.5
125+25	5.49				
		9.87	25.00	9.14	9.1
125+50	14.25				
		11.18	25.00	10.35	10.3
125+75	8.10				
		6.95	25.00	6.44	6.4
126+00	5.80				
		7.69	25.00	7.12	7.1
126+25	9.58				
		4.79	25.00	4.44	4.4
126+50	0.00				
		0.07	25.00	0.06	0.1
126+75	0.14				
		0.07	25.00	0.06	0.1
127+00	0.00				
		0.00	25.00	0.00	0.0
127+25	0.00				
		0.00	25.00	0.00	0.0
127+50	0.00				
		0.00	25.00	0.00	0.0
127+75	0.00				
		0.00	25.00	0.00	0.0
128+00	0.00				
		1.55	25.00	1.43	1.4
128+25	3.09				
		1.55	25.00	1.43	1.4

Subtotal Sheet 4: 120.2

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
128+50	13.98				
		22.31	25.00	20.65	20.7
128+75	30.63				
		29.27	25.00	27.10	27.1
129+00	27.90				
		22.97	25.00	21.27	21.3
129+25	18.04				
		20.01	25.00	18.53	18.5
129+50	21.98				
		22.15	25.00	20.50	20.5
129+75	22.31				
		18.77	25.00	17.38	17.4
130+00	15.23				
		8.50	25.00	7.87	7.9
130+25	1.76				
		0.90	25.00	0.83	0.8
130+50	0.03				
		0.02	25.00	0.01	0.0
130+75	0.00				
		0.00	25.00	0.00	0.0
131+00	0.00				
		0.00	25.00	0.00	0.0
131+25	0.00				
		0.00	25.00	0.00	0.0
131+50	0.00				
		12.33	25.00	11.42	11.4
131+75	24.66				
		23.50	25.00	21.75	21.8
132+00	22.33				
		18.96	25.00	17.55	17.6
132+25	15.58				
		8.90	25.00	8.24	8.2
132+50	2.22				
		3.71	25.00	3.43	3.4
132+75	5.19				
		9.60	25.00	8.89	8.9
133+00	14.01				
		20.26	25.00	18.76	18.8
133+25	26.51				
		28.58	25.00	26.46	26.5
133+50	30.65				
		15.33	25.00	14.19	14.2

Subtotal Sheet 5: 265.0

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
133+75	20.86				
		13.86	25.00	12.83	12.8
134+00	6.85				
		3.51	25.00	3.25	3.3
134+25	0.17				
		0.09	25.00	0.08	0.1
134+50	0.00				
		0.00	25.00	0.00	0.0
134+75	0.00				
		0.00	25.00	0.00	0.0
135+00	0.00				
		0.00	25.00	0.00	0.0
135+25	0.00				
		0.08	25.00	0.07	0.1
135+50	0.16				
		11.76	25.00	10.89	10.9
135+75	23.36				
		40.04	25.00	37.07	37.1
136+00	56.71				
		62.50	25.00	57.87	57.9
136+25	68.28				
		67.85	25.00	62.82	62.8
136+50	67.41				
		60.87	25.00	56.36	56.4
136+75	54.32				
		46.71	25.00	43.25	43.3
137+00	39.10				
		33.97	25.00	31.45	31.5
137+25	28.84				
		27.33	25.00	25.30	25.3
137+50	25.81				
		23.97	25.00	22.19	22.2
137+75	22.12				
		21.91	25.00	20.29	20.3
138+00	21.70				
		15.23	25.00	14.10	14.1
138+25	8.76				
		13.34	25.00	12.35	12.4
138+50	17.92				
		14.36	25.00	13.30	13.3
138+75	10.80				
		5.40	25.00	5.00	5.0

Subtotal Sheet 6: 428.8

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
139+00	11.48				
		17.53	25.00	16.23	16.2
139+25	23.58				
		16.83	25.00	15.58	15.6
139+50	10.07				
		10.12	25.00	9.37	9.4
139+75	10.17				
		13.63	25.00	12.62	12.6
140+00	17.08				
		17.30	25.00	16.01	16.0
140+25	17.51				
		18.30	25.00	16.94	16.9
140+50	19.09				
		16.00	25.00	14.81	14.8
140+75	12.90				
		12.19	25.00	11.29	11.3
141+00	11.48				
		11.66	25.00	10.79	10.8
141+25	11.83				
		13.84	25.00	12.81	12.8
141+50	15.85				
		16.98	25.00	15.72	15.7
141+75	18.10				
		17.57	25.00	16.27	16.3
142+00	17.04				
		17.57	25.00	16.26	16.3
142+25	18.09				
		14.84	25.00	13.74	13.7
142+50	11.59				
		10.02	25.00	9.27	9.3
142+75	8.44				
		6.59	25.00	6.10	6.1
143+00	4.74				
		2.90	25.00	2.68	2.7
143+25	1.05				
		1.08	25.00	1.00	1.0
143+50	1.11				
		0.56	25.00	0.51	0.5
143+75	0.00				
		0.00	25.00	0.00	0.0
144+00	0.00				
		0.00	25.00	0.00	0.0

Subtotal Sheet 7: 218.0

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
144+25	0.00				
		0.01	25.00	0.00	0.0
144+50	0.01				
		0.01	25.00	0.00	0.0
144+75	0.00				
		0.00	25.00	0.00	0.0
145+00	0.00				
		0.00	25.00	0.00	0.0
145+25	0.00				
		0.00	25.00	0.00	0.0
145+50	0.00				
		0.00	25.00	0.00	0.0
145+75	0.00				
		0.00	25.00	0.00	0.0
146+00	0.00				
		0.00	25.00	0.00	0.0
146+25	0.00				
		0.00	25.00	0.00	0.0
146+50	0.00				
		0.00	25.00	0.00	0.0
146+75	0.00				
		0.00	25.00	0.00	0.0
147+00	0.00				
		0.00	25.00	0.00	0.0
147+25	0.00				
		0.00	25.00	0.00	0.0
147+50	0.00				
		0.00	25.00	0.00	0.0
147+75	0.00				
		0.10	25.00	0.09	0.1
148+00	0.19				
		1.25	25.00	1.16	1.2
148+25	2.31				
		4.99	25.00	4.62	4.6
148+50	7.67				
		11.67	25.00	10.81	10.8
148+75	15.67				
		19.29	25.00	17.86	17.9
149+00	22.91				
		24.71	25.00	22.88	22.9
149+25	26.50				
		13.25	25.00	12.27	12.3

Subtotal Sheet 8: 69.8

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
149+50	37.62				
		43.53	25.00	40.31	40.3
149+75	49.44				
		43.24	25.00	40.04	40.0
150+00	37.04				
		35.47	25.00	32.84	32.8
150+25	33.89				
		37.77	25.00	34.97	35.0
150+50	41.64				
		41.75	25.00	38.65	38.7
150+75	41.85				
		36.07	25.00	33.40	33.4
151+00	30.29				
		24.11	25.00	22.32	22.3
151+25	17.93				
		12.57	25.00	11.63	11.6
151+50	7.20				
		5.07	25.00	4.69	4.7
151+75	2.93				
		1.98	25.00	1.83	1.8
152+00	1.02				
		0.56	25.00	0.51	0.5
152+25	0.09				
		0.05	25.00	0.04	0.0
152+50	0.00				
		0.00	25.00	0.00	0.0
152+75	0.00				
		0.21	25.00	0.19	0.2
153+00	0.41				
		0.97	25.00	0.89	0.9
153+25	1.52				
		2.77	25.00	2.56	2.6
153+50	4.01				
		5.92	25.00	5.48	5.5
153+75	7.82				
		10.26	25.00	9.50	9.5
154+00	12.69				
		15.71	25.00	14.55	14.5
154+25	18.73				
		22.43	25.00	20.77	20.8
154+50	26.13				
		13.07	25.00	12.10	12.1

Subtotal Sheet 9: 327.2

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
154+75	35.44				
		41.10	25.00	38.05	38.1
155+00	46.75				
		50.62	25.00	46.87	46.9
155+25	54.49				
		46.16	25.00	42.74	42.7
155+50	37.83				
		46.80	25.00	43.33	43.3
155+75	55.76				
		54.64	25.00	50.59	50.6
156+00	53.52				
		43.53	25.00	40.31	40.3
156+25	33.54				
		17.39	25.00	16.10	16.1
156+50	1.23				
		0.62	25.00	0.57	0.6
156+75	0.00				
		0.19	25.00	0.17	0.2
157+00	0.37				
		0.19	25.00	0.17	0.2
157+25	0.00				
		0.00	25.00	0.00	0.0
157+50	0.00				
		0.26	25.00	0.24	0.2
157+75	0.52				
		2.79	25.00	2.58	2.6
158+00	5.05				
		12.50	25.00	11.57	11.6
158+25	19.95				
		26.80	25.00	24.81	24.8
158+50	33.65				
		31.80	25.00	29.44	29.4
158+75	29.95				
		26.64	25.00	24.67	24.7
159+00	23.33				
		17.93	25.00	16.60	16.6
159+25	12.52				
		14.44	25.00	13.37	13.4
159+50	16.36				
		16.89	25.00	15.64	15.6
159+75	17.42				
		8.71	25.00	8.06	8.1

Subtotal Sheet 10: 426.0

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

Notes:

Roadway Name: **COUNTY ROAD**

	End Area (SF)	Average Area (SF)	Length (FT)	Calculated Quantity	Quantity
160+00	18.25				
		14.26	25.00	13.20	13.2
160+25	10.27				
		8.23	25.00	7.62	7.6
160+50	6.19				
		5.88	25.00	5.44	5.4
160+75	5.56				
		5.01	25.00	4.64	4.6
161+00	4.46				
		6.78	25.00	6.28	6.3
161+25	9.10				
		11.84	25.00	10.96	11.0
161+50	14.57				
		11.39	25.00	10.54	10.5
161+75	8.20				
		9.15	25.00	8.47	8.5
162+00	10.10				
		7.59	25.00	7.03	7.0
162+25	5.08				
		3.00	25.00	2.78	2.8
162+50	0.92				
		1.44	25.00	1.33	1.3
162+75	1.95				
		0.98	25.00	0.90	0.9
163+00	0.00				
		0.20	25.00	0.18	0.2
163+25	0.39				
		3.01	25.00	2.79	2.8
163+50	5.63				
		12.42	25.00	11.50	11.5
163+75	19.20				
		23.58	25.00	21.83	21.8
164+00	27.95				
		28.67	25.00	26.54	26.5
164+25	29.38				
		30.25	25.00	28.01	28.0
164+50	31.12				

Subtotal Sheet 11: 170

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/22/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
203.6	EMBANKMENT-IN-PLACE (F)	CY

		Subtotal Sheet 1:	156
		Subtotal Sheet 2:	142
		Subtotal Sheet 3:	243
		Subtotal Sheet 4:	120
		Subtotal Sheet 5:	265
		Subtotal Sheet 6:	429
		Subtotal Sheet 7:	218
		Subtotal Sheet 8:	70
		Subtotal Sheet 9:	327
		Subtotal Sheet 10:	426
		Subtotal Sheet 11:	170
		Subtotal:	2565
Rounding %	5.3%	Rounding:	135
		Item Total:	2700

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
214	FINE GRADING	U

Formulas: Cost = (Area/9)*UnitCost

Notes: Quantity pay limits are equal to pavement area
UnitCost = $ 1.26 per SY

Pavement Item	**Area (SF)**	**Cost**	**Calculated Quantity**	**Quantity**
Item 403.11	141900	$20,000.00	1	1
Item 403.110001				

Subtotal Sheet 1: 1

Rounding % 0.0% Rounding:

Item Total: 1

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
304.1	SAND (F)	CY

Note: Contingency item for locations with ledge removal or shallow ledge. Use 2% of Gravel

Roadway Name:	**Volume (CY)**	**Calculated Quantity**	**Quantity**
County Road	6177	123.5	124

		Subtotal Sheet 1:	124
Rounding %	8.9%	Rounding:	11
		Item Total:	135

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
304.2	GRAVEL (F)	CY

Notes:

Roadway Name:	**Depth (ft)**	**Width (ft)**	**Area (SF)**	**Length (FT)**	**Calculated Quantity**	**Quantity**
County Road	1.33	22.00	29.26	5700.00	6177.1	6177

		Subtotal Sheet 1:	6177
Rounding %	3.6%	Rounding:	223
		Item Total:	6400

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
304.3	CRUSHED GRAVEL (F)	CY

Notes:

Roadway Name:	**Depth (ft)**	**Width (ft)**	**Area (SF)**	**Length (FT)**	**Calculated Quantity**	**Quantity**
County Road	0.66	22.00	14.52	5700.00	3065.3	3065

		Subtotal Sheet 1:	3065
Rounding %	4.4%	Rounding:	135
		Item Total:	3200

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
304.35	CRUSHED GRAVEL FOR DRIVES	CY

Formula: CalcdQTY = [Area*(Thickness/12)]/27

Notes: 27 CF per 1 CY

Location	Microstation Area (SF)	Thickness(IN)	Calculated Quantity	Quantity
Sta. 108+20, RT	70.0	8.0	1.73	1.7
Sta. 111+75, LT	87.8	8.0	2.17	2.2
Sta. 115+65, LT	51.4	8.0	1.27	1.3
Sta. 154+50, LT	209.70	8.0	5.18	5.2
Sta. 154+50, RT	79.50	8.0	1.96	2.0

		Subtotal Sheet 1:	12.4
Rounding %	4.8%	Rounding:	0.6
		Item Total:	13

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
403.11023	HBP-3/4" BINDER MIX, MACHINE METHOD	TON

Formula: CalcdQty = (Area/9) * Constant

Notes: **Construction Manual (Page 400-35)**

Asphaltic Pavement Constants

Depth (IN)	Constant (Tons/SY)
1	0.057
1.5	0.085
2	0.113
2.5	0.142
3	0.17
3.5	0.198
4	0.227

In granite curb areas, the limit of machine method pavement calculations will be 12" in front of the curb for all binder and base courses of pavement. Compute hand method pavement (Item 403.12) in curbed areas to complete the paving operation of base and binder courses in front of the curb (See Standard Specification Section 609.5.3).

A paving machine is typically 10' wide with 2' to 4 ½' extensions able to be mounted on either side. The width of a pavement pass generally is determined by the travelway widths. If shoulder widths are 4 feet or less, they will be assumed to be paved in the same pass with the adjacent lane. If shoulders measure greater than 4 feet wide, they will be assumed to be paved in a separate pass. The maximum width that Construction likes to use is 18 feet. Application rates are shown on the typical sections.

County Road	**Length (FT)**	**Width (FT)**	**Depth (IN)**	**Constant (Tons/SY)**	**Calculated Quantity**	**Quantity**
Binder Course						
Sta.107+50 to Sta. 164+50	5700	22	2.5	0.142	1978.53	1978.5

		Subtotal Sheet 1:	1978.5
Rounding %	6.1%	Rounding:	121.5
		Item Total:	2100.0

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
403.11043	HBP-1/2" SURFACE MIX, MACHINE METHOD	TON

Formula: CalcdQty = (Area/9) * Constant

Notes: **Construction Manual (Page 400-35)**

Asphaltic Pavement Constants

Depth (IN)	Constant (Tons/SY)
1	0.057
1.5	0.085
2	0.113
2.5	0.142
3	0.17
3.5	0.198
4	0.227

A paving machine is typically 10' wide with 2' to 4 ½' extensions able to be mounted on either side. The width of a pavement pass generally is determined by the travelway widths. If shoulder widths are 4 feet or less, they will be assumed to be paved in the same pass with the adjacent lane. If shoulders measure greater than 4 feet wide, they will be assumed to be paved in a separate pass. The maximum width that Construction likes to use is 18 feet. Application rates are shown on the typical sections.

County Road	**Length (FT)**	**Width (FT)**	**Depth (IN)**	**Constant (Tons/SY)**	**Calculated Quantity**	**Quantity**
Binder Course						
Sta.107+50 to Sta. 164+50	5700	22	1.5	0.085	1184.33	1184.3

		Subtotal Sheet 1:	1184.3
Rounding %	9.8%	Rounding:	116
		Item Total:	1300.0

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
403.12	HBP - HAND METHOD	TON

Formula: CalcdQty = (Area/9) * Constant

Notes: **Construction Manual (Page 400-35)**

Asphaltic Pavement Constants

Depth (IN)	Constant (Tons/SY)
1	0.057
1.5	0.085
2	0.113
2.5	0.142
3	0.17
3.5	0.198
4	0.227

In granite curb areas, the limit of machine method pavement calculations will be 12" in front of the curb for all binder and base courses of pavement. Compute hand method pavement (Item 403.12) in curbed areas to complete the paving operation of base and binder courses in front of the curb (See Standard Specification Section 609.5.3).

A paving machine is typically 10' wide with 2' to 4 ½' extensions able to be mounted on either side. The width of a pavement pass generally is determined by the travelway widths. If shoulder widths are 4 feet or less, they will be assumed to be paved in the same pass with the adjacent lane. If shoulders measure greater than 4 feet wide, they will be assumed to be paved in a separate pass. The maximum width that Construction likes to use is 18 feet. Application rates are shown on the typical sections.

County Road	**Microstation Area (SF)**	**Depth (IN)**	**Constant (Tons/SY)**	**Calculated Quantity**	**Quantity**
Wearing Course					
Sta. 108+20, RT	70.0	1.5	0.085	0.66	0.7
Sta. 111+75, LT	87.8	1.5	0.085	0.83	0.8
Sta. 115+65, LT	51.4	1.5	0.085	0.49	0.5
Sta. 154+50, LT	209.70	1.5	0.085	1.98	2.0
Sta. 154+50, RT	79.50	1.5	0.085	0.75	0.8

		Subtotal Sheet 1:	4.8
Rounding %	4.2%	Rounding:	0.2
		Item Total:	5.0

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/29/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
417.	COLD PLANING BITUMINOUS SURFACES	SY

Formula: CalcdQty = Area/9

Notes:

County Rd	Area (SF)	Calculated Quantity	Quantity
Sta. 100+00	1100	122.2	122
Sta. 164+50	1100	122.2	122

		Subtotal Sheet 1:	244.0
Rounding %	2.5%	Rounding:	6
		Item Total:	250

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
572.1	RECONSTRUCTING STONE WALL ONE STONE WIDE	LF

Notes:

Location	Label	Calculated Quantity	Quantity
Sta xxx+xx, LT/RT	1	243.3	243
	2	26.4	26
	3	221.3	221
	4	196.7	197
	5	126.8	127
	6	555.9	556
	7	77.9	78
	8	38.8	39
	9	45.0	45
	10	157.0	157
	11	135.1	135
	12	288.2	288
	13	11.7	12
	14	238.0	238
	15	308.2	308
	16	155.4	155
	17	281.2	281
	18	111.6	112
	19	39.4	39
	20	79.9	80
	21	713.7	714
	22	512.8	513
	23	96.6	97
	24	274.4	274
	25	193.9	194
	26	193.5	194
	27	146.1	146
	28	300.0	300
	29	38.8	39
	30	374.1	374
	31	158.7	159

		Subtotal Sheet 1:	6341.0
Rounding %	1.7%	Rounding:	109
		Item Total:	6450

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
606.1255	BEAM GUARDRAIL (TERMINAL UNIT TYPE EAGRT, TL 2) (STEEL POST)	U

Notes: Calculated Quantity is per unit.

Guardrail Note	Calculated Quantity	Quantity
1	1	1.0
2	1	1.0
3	1	1.0
4	1	1.0

		Subtotal Sheet 1:	4.0
Rounding %	0.0%	Rounding:	
		Item Total:	4.0

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
606.18001	31" W-BEAM GUARDRAIL WITH 8" OFFSET BLOCK (STEEL POST)	LF

Logic: Lengths from cross sections showing fill at a greater than 3:1 slope;
Ends is the length of need beyond the 3:1 slope for each guardrail stretch

Guardrail Note	Length	Ends	Calculated Quantity	Quantity
1	325	220	43.6	43.6
2	375	220	47.6	47.6
3	250	220	37.6	37.6
4	75	220	23.6	23.6

		Subtotal Sheet 1:	152.4
Rounding %	5.0%	Rounding:	7.6
		Item Total:	160.0

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	EMD	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
609.811	BITUMINOUS CURB, TYPE B (4" REVEAL)	LF

Notes: Calculated Quantity is per linear foot to the nearest 0.1 feet

Location	Calculated Quantity	Quantity
County Road Left	6456.3	6456.0
County Road Right	6443.7	6444.0

		Subtotal Sheet 1:	12900.0
Rounding %	0.8%	Rounding:	100
		Item Total:	13000.0

New Hampshire DOT Department of Transportation	**HIGHWAY DESIGN** CALCULATION SHEET	PROJECT	County Road		
		PROJECT NO.	23.919101.02	ROUTE	NA
		CALCULATED BY	IRM	DATE	03/27/24
		CHECKED BY	JCR	DATE	03/29/24
	SUBJECT	QUANTITIES		SHEET	1 OF 1

SECTION 618 - UNIFORMED OFFICERS ($) AND FLAGGERS (HR)

			Est. Cost/HR		w/ 5% Markup	
ITEM	618.6	- UNIFORMED OFFICERS ($)		=	$ -	(See Note #2)
ITEM	618.61	- UNIFORMED OFFICERS WITH VEHICLE ($)		=	$ -	(See Note #2)
ITEM	618.7	- FLAGGERS (HR)	$ 50.00	=	$ 53.00	

ASSUMPTIONS:

1. Duration of Construction: 2 Months (8 weeks)
2. Cost for Officers "…will be paid for at the invoice value plus a 5% mark-up" Specification 618.5.1.
3. Use the Guidance Checklist to determine Possible Traffic Control Operations (TCO), Possible Presence Operations (PO), and Possible Enforcement Operations (EO)
4. Estimated work hours per day = 8 hours
5. Estimated work days per week = 5 Days

TCO (Traffic Control Operations):

Location	TCP	Description	#	Item #	Duration (WKs)	HRs/ WK	Total HRs	Total Cost
		Excavation	2	618.7	4.0	40	320	$ 16,960
		Drainage	2	618.7	1.0	40	80	$ 4,240
		Box Materials	2	618.7	4.0	40	320	$ 16,960
		Pavement Base	2	618.7	0.5	40	40	$ 2,120
		Pavement Wearing	2	618.7	0.5	40	40	$ 2,120
		Curbing	2	618.7	1.0	40	80	$ 4,240

Sheet 1 totals				
ITEM	618.6	=	$ -	
ITEM	618.61	=	$ -	
ITEM	618.7	=	880	HR

HOYLE TANNER

Project:	Amherst County Rd		
Project No.	23.919101.02	NHDOT Project #:	
Location:	County Road		
Task:	Quantity Calculations		
Calculated By:	IRM	Date:	3/27/2024
Checked By:	JCR	Date:	3/29/2024

ITEM NO.	ITEM DESCRIPTION	UNIT
628.2	SAWED BITUMINOUS PAVEMENT	LF

Notes: Calculated Quantity is per linear foot

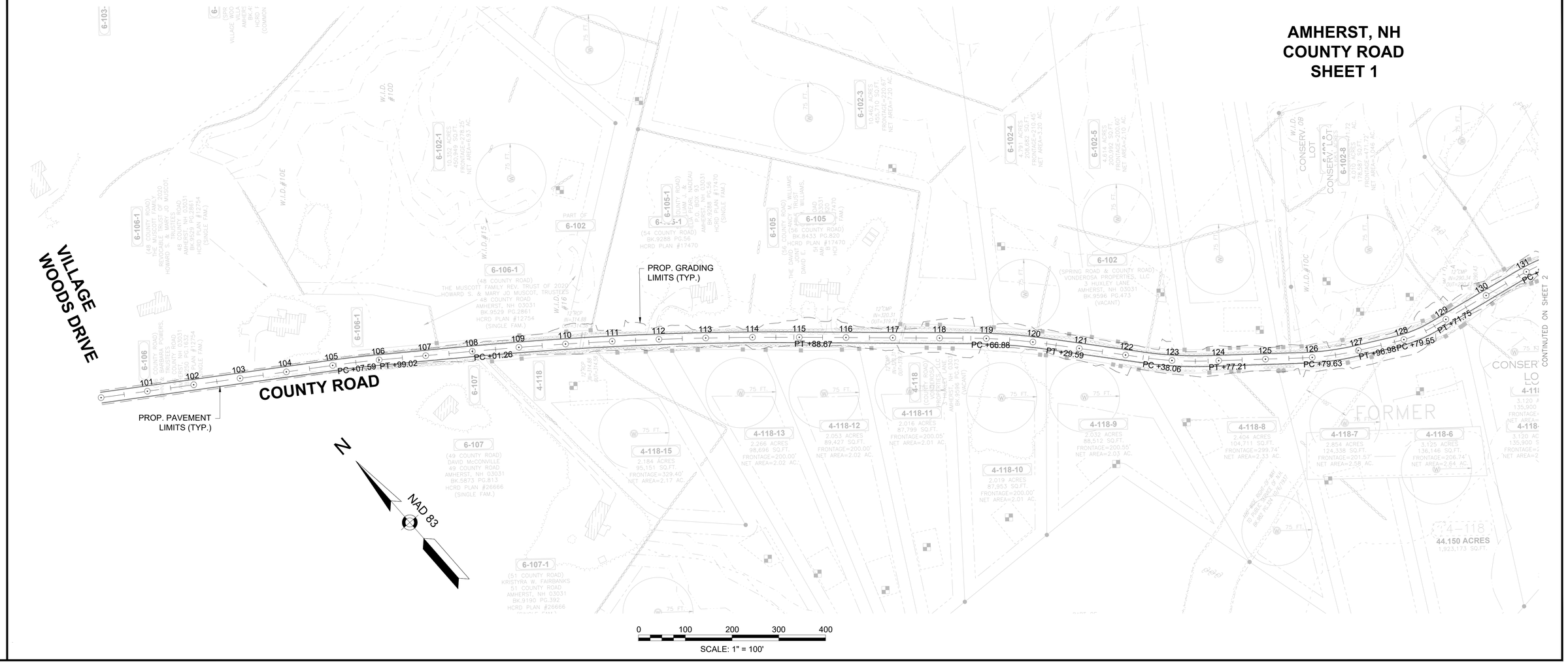
Location County Rd	**Type**	**Calculated Quantity**	**Quantity**
Sta. 100+00		22.0	22
Sta. 164+50		22.0	22

		Subtotal Sheet 1:	44.0
Rounding %	0.0%	Rounding:	
		Item Total:	44.0

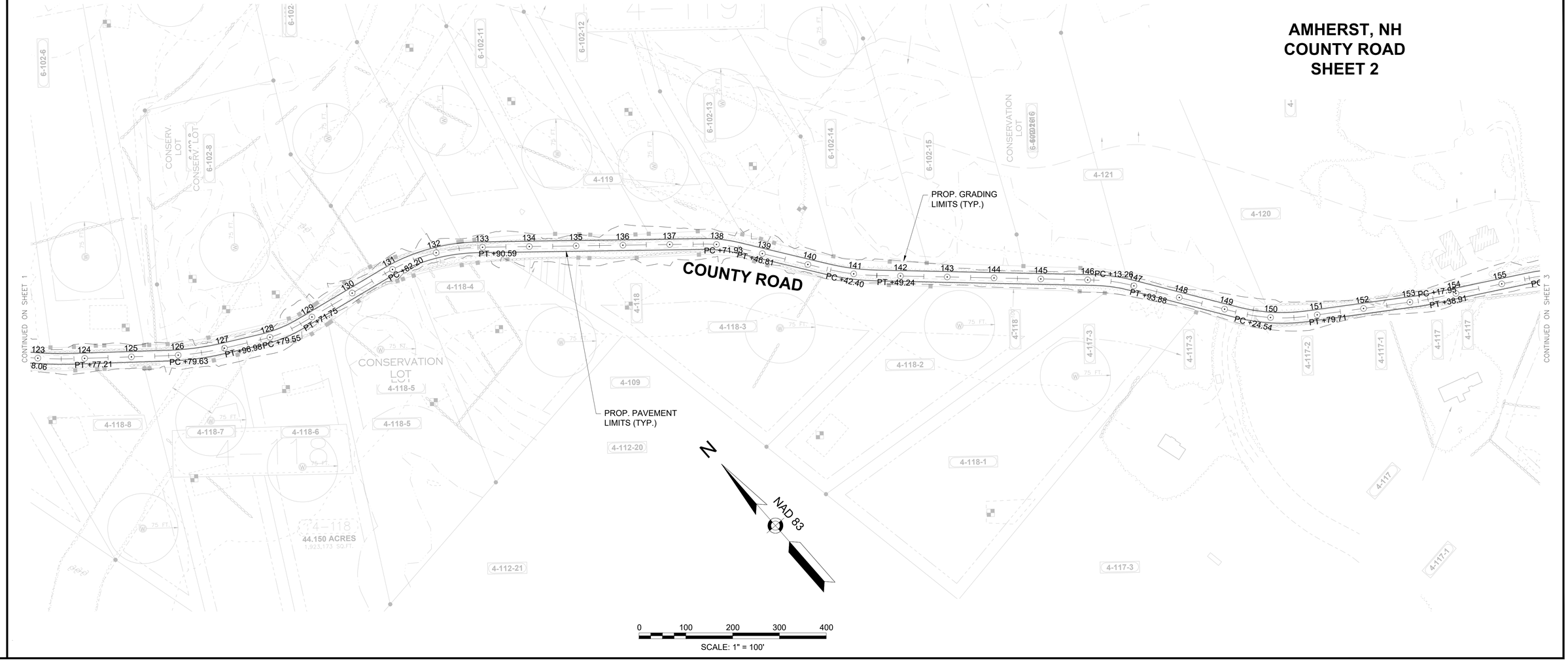
APPENDIX B
CONCEPTUAL PLAN, PROFILE, AND CROSS SECTIONS

Note: As discussed in the letter report, these plans are conceptual in nature and shall not be used for final design, permitting, or construction purposes. The intent of providing these conceptual graphics is to illustrate the required impacts to the existing conditions to reconstruct the project area to the requirements of the Town Design Standards. It is likely that the final design of County Road will incorporate multiple waivers of the Town Design Standards to limit construction impact, reduce construction costs, meet the requirements of environmental permitting, and satisfy the requirements of the scenic roadway designation.

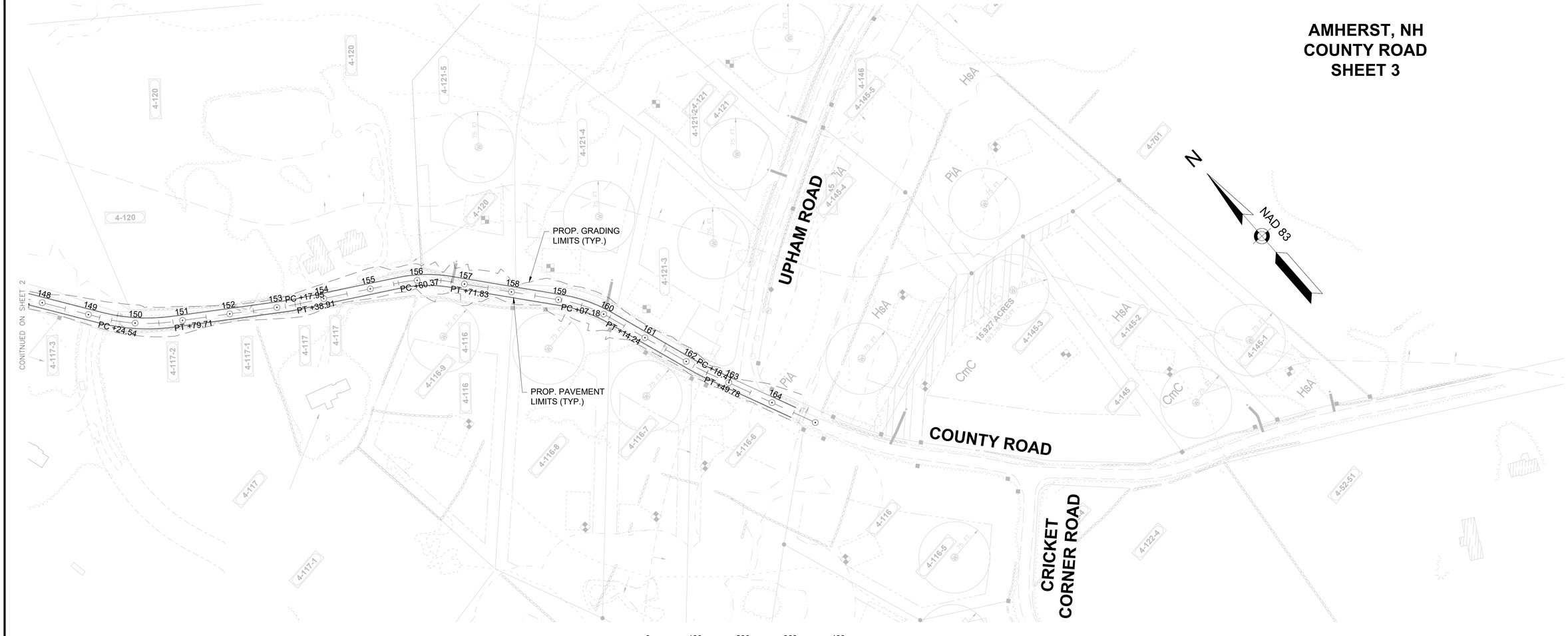
AMHERST, NH
COUNTY ROAD
SHEET 1



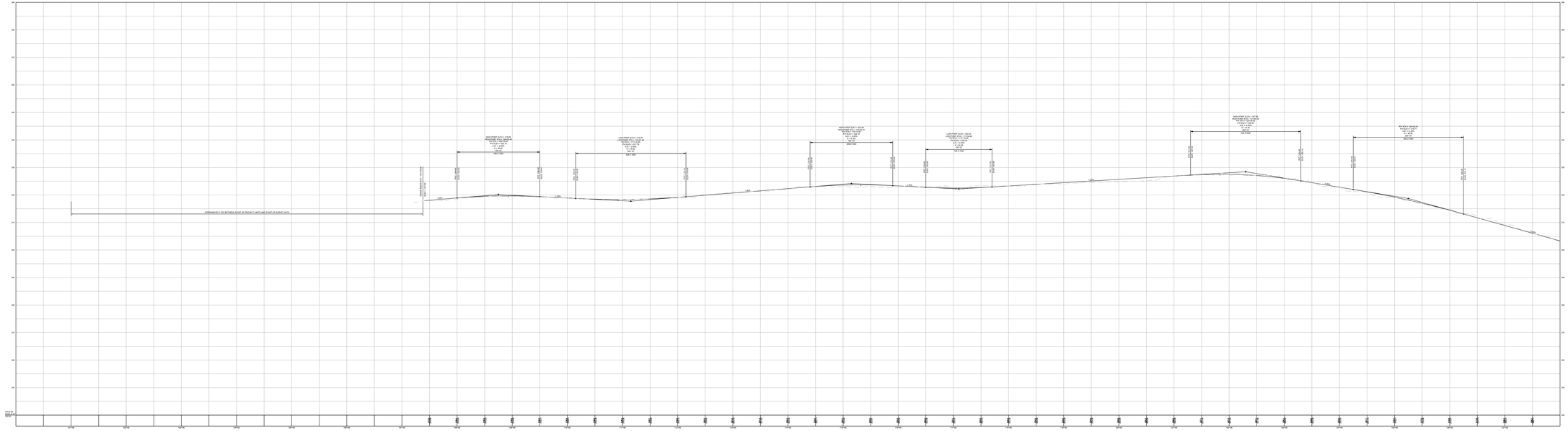
AMHERST, NH
COUNTY ROAD
SHEET 2



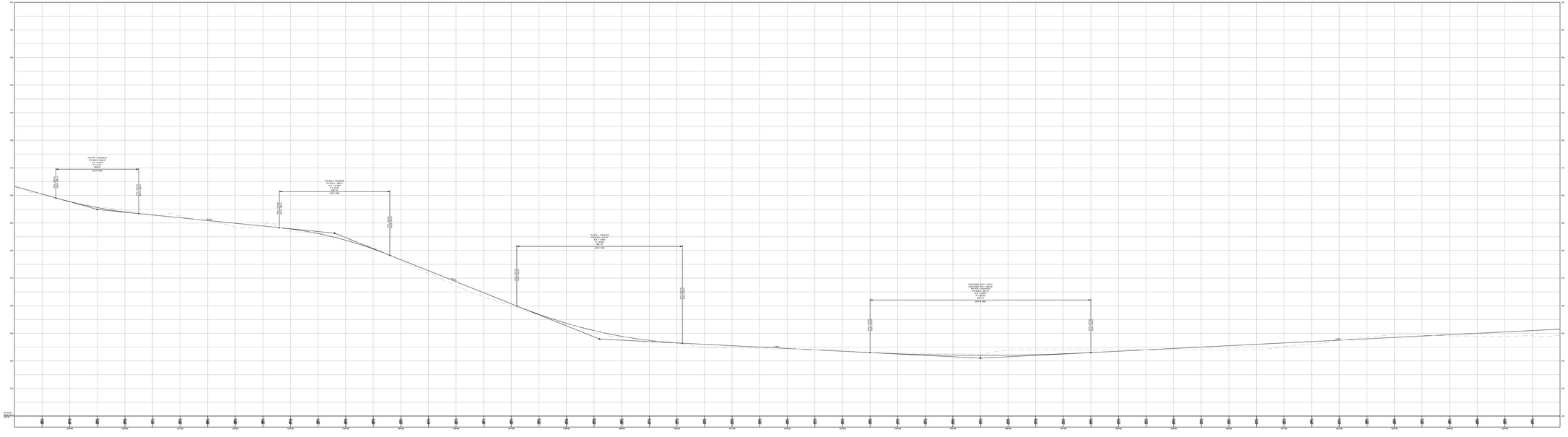
AMHERST, NH
COUNTY ROAD
SHEET 3



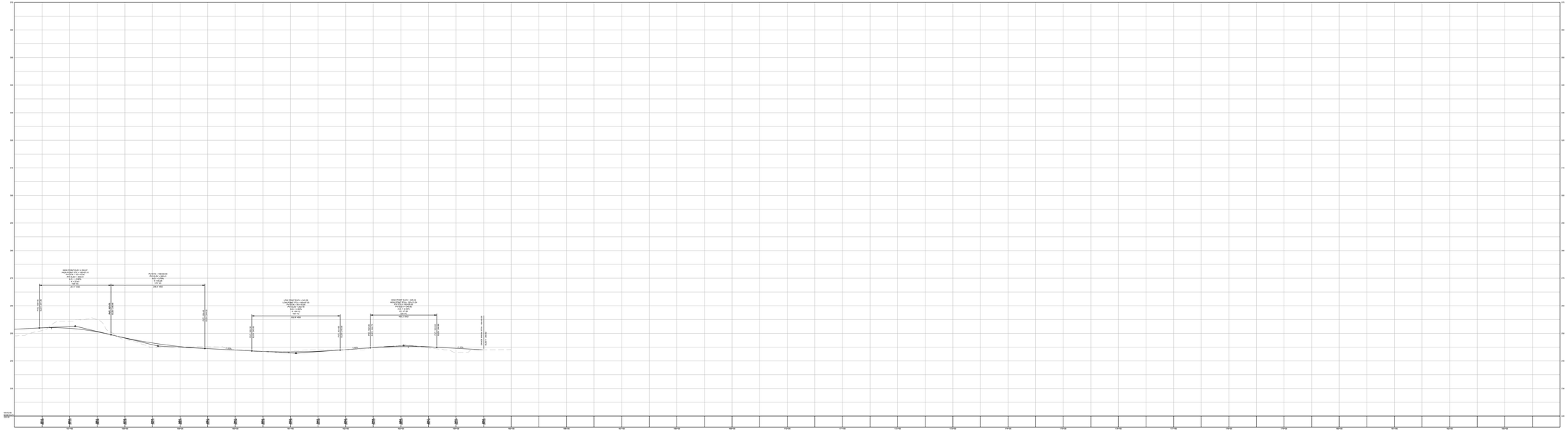
COUNTY ROAD


HIGH POINT ELEV = 5.79 M
VERTICAL POLY = 0.00 M BY
PVI ELEV = 5.79 M
PVI STA = 0+00.00
K = 0.00
L = 0.00
(MIN 0.00M)
LOW POINT ELEV = 5.00 M
VERTICAL POLY = 0.00 M BY
PVI ELEV = 5.00 M
PVI STA = 0+00.00
K = 0.00
L = 0.00
(MIN 0.00M)
HIGH POINT ELEV = 5.00 M
VERTICAL POLY = 0.00 M BY
PVI ELEV = 5.00 M
PVI STA = 0+00.00
K = 0.00
L = 0.00
(MIN 0.00M)
LOW POINT ELEV = 5.00 M
VERTICAL POLY = 0.00 M BY
PVI ELEV = 5.00 M
PVI STA = 0+00.00
K = 0.00
L = 0.00
(MIN 0.00M)
HIGH POINT ELEV = 5.07 M
VERTICAL POLY = 0.00 M BY
PVI ELEV = 5.07 M
PVI STA = 0+00.00
K = 0.00
L = 0.00
(MIN 0.00M)
PVI ELEV = 5.00 M
PVI STA = 0+00.00
K = 0.00
L = 0.00
(MIN 0.00M)
APPROXIMATELY 100 METRES START OF PROJECT UNTIL AND START OF SURVEY DATA
0.00%
0.00%
0.00%

COUNTY ROAD


PVI STA = 1+00.00
PVI ELEV = 100.00
K = 20.00
L = 200.00
(VC @ 100)
PVI STA = 1+50.00
PVI ELEV = 99.00
K = 10.00
L = 100.00
(VC @ 50)
PVI STA = 1+80.00
PVI ELEV = 97.00
K = 7.00
L = 70.00
(VC @ 35)
LOW POINT ELEV = 100.00
VERTICAL CURVE LENGTH
PVI STA = 2+50.00
PVI ELEV = 100.00
K = 20.00
L = 200.00
(VC @ 100)
-1.00%
-2.00%
-3.00%
-1.00%
0.00%
0.00%
0

COUNTY ROAD


VERTICAL CURVE
VERTICAL CURVE
VERTICAL CURVE
VERTICAL CURVE
-1.0%
-1.0%
-1.0%