RJ CONSULTING ENGINEERING, LLC
1012 Shimmering Way
Gallatin, TN 37066
Telephone: (615) 394-5285

August 13, 2026

Marshall Boyd, PE
Director of Planning and Engineering
Sumner County Government
355 N. Belvedere Drive, Rm 202
Gallatin, TN 37066

Re: Draper House and Office
2268 Hwy 25 W
Cottontown, TN 37048

Mr. Boyd

Our office visited the site to conduct a high-level structural inspection and provide initial recommendations as to our opinion for relocating or demolition of the buildings. The one building is a residence and the other as we understand was used as a local post office. We estimate these buildings to be 100± years old. Following are our findings and recommendations.

Draper House

The Draper House is approximately 24' x 45'. The original home appears to have been approximately 24' x 30' with a possible additional rear porch area. Originally the home was constructed on perimeter rock piers. The rear 15' area was later remodeled for what appears to be kitchen and bathroom upgrade. Additionally, this area has a single slope roof to the rear. Upgrades to the outside of the home include a metal roof, vinyl siding, block underpinning, and a concrete porch. The original covered siding is a wooden horizontal lap and appears to have remained on the home.

Inside the original home the floor joists (2 x 8) and roof framing appear relatively sound. The rear 15' area has 2 x 6 floor joists, ceiling joists, and single sloped rafters. Visible mold is on the exposed walls and we expect the stud walls behind these areas to have some damage also. The majority of the interior wood bead board appears sound. It is our opinion that the rear area is not structurally sound and should be demolished prior to any moving process. Additionally, the brick fireplace would have to be demolished and partially rebuilt at the new site (the fireplace does not meet code requirements for safety and does not penetrate the existing roof for venting).

If the County so choses to move this home to another relatively close location, we expect the cost for the moving of the structure would be in the range of $30,000. Additionally, the rear demolition and disposal will add cost we expect in the range of $10000-$12000. The new site will need foundation preparation and, in our opinion, immediate construction to seal up the building against weather (we estimate an additional $18000). Following would be interior and exterior reconstruction for a bid package. At a $100 per SF bid estimate, an additional $72000 will be required for restoration.

Draper Post Office (Secondary Building)

The secondary building is approximately 18’ x 26’ with an 8’ front wooden porch. The building has what appears to be original or original type vertical board and batten lumber siding. The exterior siding has some damage but we expect the building “look” could be salvaged in a restoration process. Originally the home was constructed on perimeter rock piers. These have been supplemented with blocks as well as a log foundation on the left side. 2 x 8 joists exposed from beneath appear sound. The front porch is constructed with 1 x material. Upgrades have included a metal roof.

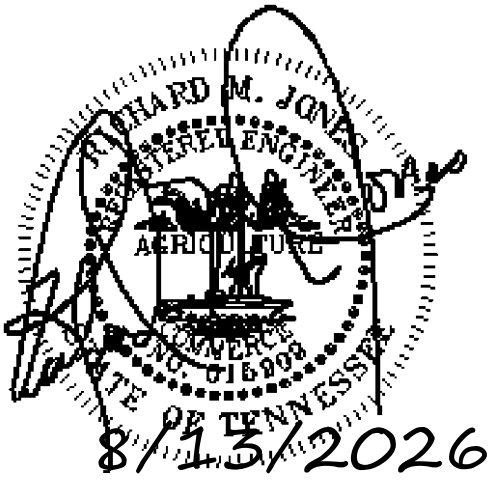
The inside of the building is a single room. The wooden floor boards overall are considered sound. The horizontal wood wall boards and ceiling boards appear sound. Electrical conduits were added (exposed within the room).

If the County so choses to move this building to another relatively close location, we expect the cost for the moving of the structure would be in the range of $20000-25,000. Minimal demolition and disposal will add cost we expect in the range of $5000. The new site will need foundation preparation and again in our opinion, immediate construction to seal up the building against weather (we estimate an additional $15000). Following would be interior and exterior reconstruction for a bid package. At an $75 per SF bid estimate, an additional $35000 will be required for restoration.

In summary, we expect both buildings are adequately sound and could be relocated to another site by a professional building moving company. If you or your office has further questions or need clarity on the above comments, please contact our office at your convenience.

Sincerely,

Richard M. Jones, P.E.
RJ CONSULTING ENGINEERING, LLC



MEMORANDUM

TO: JOHN ISBELL, COUNTY MAYOR
FROM: MARSHALL BOYD, COUNTY ENGINEER
DATE: SEPTEMBER 1, 2026
SUBJECT: DRAPER HOUSE FLOOD EVALUATION

When making improvements in the floodplain all applicants must comply with the requirements set forth in Chapter 10 of the County's Zoning Ordinance. In the case of the Draper House, if the owner wanted to improve the structure they would be required to show the cash value of the improvements compared to the appraisal value of the building. If the value of improvements exceeds 50% of the building appraisal then the structure must be brought into compliance with floodplain regulations. Based on the current condition of the building I would expect the value to exceed 50%.

The structure is located in a Zone A floodplain where the base flood elevation (BFE) is not known. Standard practice for our office would be to require an applicant hire an engineer to determine 100-year water surface elevation also known as the BFE. The finished floor elevation (FFE) of the house and all mechanical equipment would need to be raised 3' above the BFE. I have used the following methodology to quickly obtain a BFE for the Draper House.

The following table is found in the *USGS Technique for Estimating Depth of Floods in Tennessee*. The site is located in Hydrologic Area 3. The approximate drainage area is 7.63 square miles (supporting documentation attached).

Table 2.--Summary of regression equations

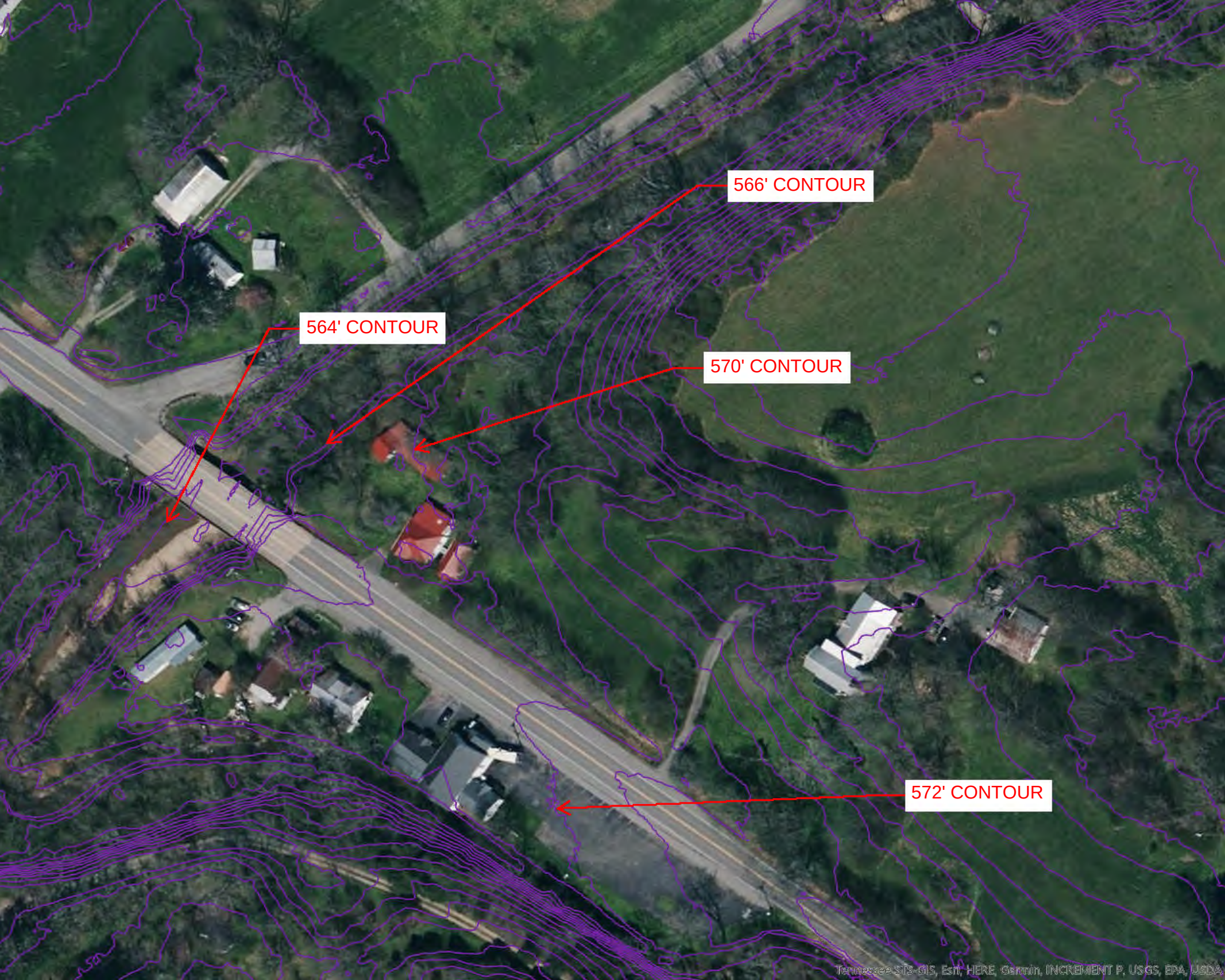
[D, Depth of flood, in feet; A, Drainage basin size, in square miles]

Hydrologic area	Number of stations	10-year flood		100-year flood	
		Depth (ft)	Standard error of estimate (percent)	Depth (ft)	Standard error of estimate (percent)
1	41	$D = 4.11 (A)^{0.184}$	28	$D = 5.32 (A)^{0.186}$	28
2	18	$D = 5.33 (A)^{0.197}$	30	$D = 7.43 (A)^{0.181}$	29
3	68	$D = 4.45 (A)^{0.246}$	26	$D = 5.91 (A)^{0.224}$	30
4	23	$D = 6.98 (A)^{0.142}$	22	$D = 9.24 (A)^{0.116}$	23

The equation yields a Depth equal to **9.32'**. Depths of floods is the depth above the stream contour crossings. The attached map displays the contours near the Draper House.

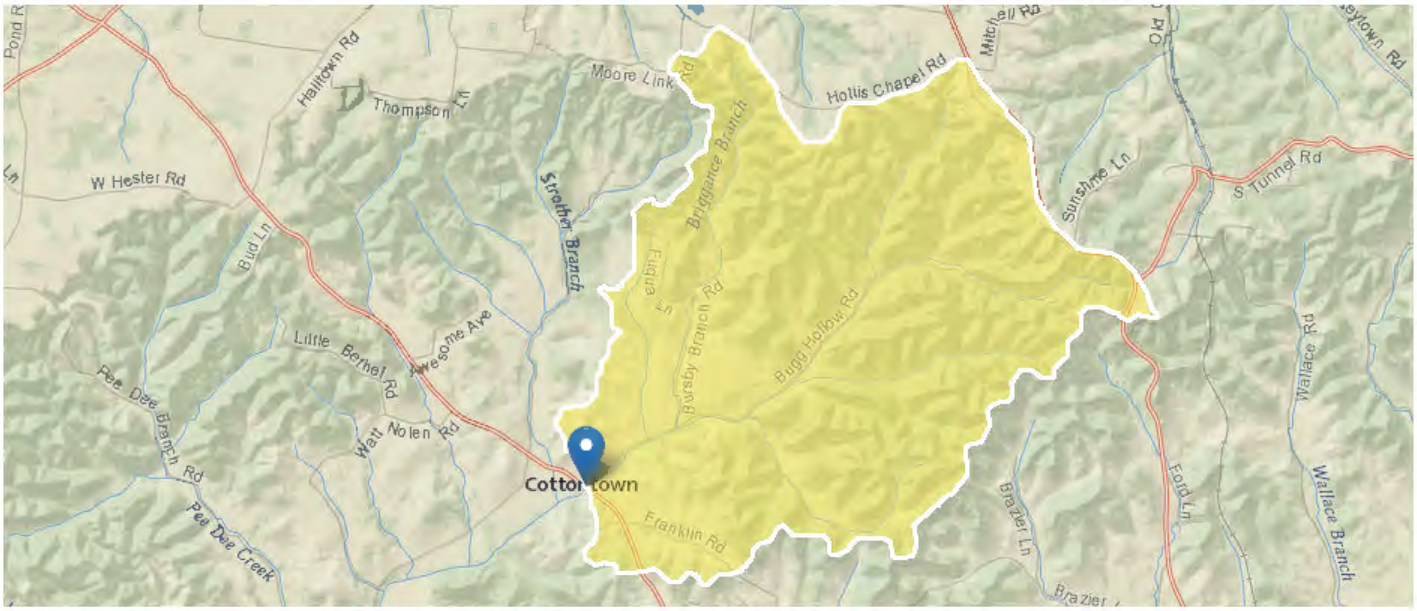
Adding the 9.32 depth to the 566' contour results in a base flood elevation of approximately 575.32'. The minimum FFE of the house would be 578.32'. The existing elevation of the Draper House appears to be nearest the 569'-570' contour. Raising the house **9-10'** would be required.

Please remember these values are approximate and the methods used are considered to be a high level and not a detailed analysis. If the project moves forward a more detailed analysis would be required.


566' CONTOUR
564' CONTOUR
570' CONTOUR
572' CONTOUR
Tennessee STS-GIS, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, USDA

StreamStats Report

Region ID: TN
Workspace ID: TN20230331151409942000
Clicked Point (Latitude, Longitude): 36.45153, -86.53761
Time: 2023-03-31 10:14:35 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CONTDA	Area that contributes flow to a point on a stream	7.63	square miles
CSL10_85	Change in elevation divided by length between points 10 and 85 percent of distance along main channel to basin divide - main channel method not known	61.48	feet per mi

Peak-Flow Statistics

Peak-Flow Statistics Parameters [100.0 Percent (7.63 square miles) MultiVariable Area 3 CDA LT 30.2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CONTDA	Contributing Drainage Area	7.63	square miles	0.173	30.2
CSL10_85	Stream Slope 10 and 85 Method	61.48	feet per mi	2.12	132

Peak-Flow Statistics Flow Report [100.0 Percent (7.63 square miles) MultiVariable Area 3 CDA LT 30.2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	ASEp	Equiv. Yrs.
50-percent AEP flood	1430	ft^3/s	812	2520	35.2	2.2

Statistic	Value	Unit	PII	PIu	ASEp	Equiv. Yrs.
20-percent AEP flood	2230	ft^3/s	1270	3920	34.9	2.7
10-percent AEP flood	2800	ft^3/s	1580	4950	35.4	3.5
4-percent AEP flood	3520	ft^3/s	1960	6320	36.4	4.5
2-percent AEP flood	4080	ft^3/s	2240	7430	37.4	5.2
1-percent AEP flood	4630	ft^3/s	2500	8580	38.6	5.8
0.2-percent AEP flood	5870	ft^3/s	3010	11400	40.5	7

Peak-Flow Statistics Citations

Law, G.S., and Tasker G.D.,2003, Flood-Frequency Prediction Methods for Unregulated Streams of Tennessee, 2000: U.S. Geological Survey Water-Resources Investigations Report 03-4176, 79p. (http://pubs.usgs.gov/wri/wri034176/)

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Application Version: 4.14.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1