PROJECT CONCEPT

ROCKBRIDGE COUNTY

THE GLADES AT NATURAL BRIDGE STATION DRAINAGE IMPROVEMENTS — ROUTE 130

Location Description

37.623858, -79.490498

"The Glades" — a low-lying, naturally flat, poorly drained corridor along US Route 130 at Natural Bridge Station, area of primary concern extending between Arnolds Valley Road and tributary to the James River (approximately 0.72 miles)

Project Purpose

Improve stormwater drainage along the Glades corridor to reduce chronic standing water in residential yards and periodic road ponding on Route 130 at Natural Bridge Station.

Additional Information Needed

a. Location of utilities
b. Stormwater infrastructure survey and mapping
c. H&H analysis
d. VDOT coordination

Background

The stretch of State Route 130 Natural Bridge Station, between Arnolds Valley Road to the west and an unnamed tributary to the James River approximately 0.75 miles to the east, is low-lying and naturally flat with a high water table. County staff have noted that during significant rain events yard flooding reaches the edges of homes and that State Route 130 is occasionally covered with ponded water, creating a vehicle safety concern. Higher ground between State Route 130 and the James River to the south pushes all runoff along this section of State Route 130 to the north and east before entering a tributary that carries flow south to the James River. Ditches and culverts along State Route 130 are intended to contain and convey stormwater along the very low slopes of this path, but during WSSI's site visit on 13 July 2026, lengths of the ditches were observed to be poorly defined or partially obstructed in several places along the approximately 0.75 mile stretch. Multiple private driveway culvert crossings of various diameters and lengths are present along the corridor. Several culvert blockages were noted at the intersection of State Route 130 and Douglas Way (**Figure 1**, **Figure 2**, **Figure 3**, and **Figure 5**), which was noted by County staff as part of the area experiencing the most flooding impacts. These blockages compound the already low-slope flow paths and often poorly defined ditches (**Figure 4**).



Figure 1. Partially blocked culvert at southwest corner of State Route 130 and Douglas Way intersection. Photo taken facing northeast.



Figure 2. Fully blocked culvert at southeast corner of State Route 130 and Douglas Way intersection. Photo taken facing north.



Figure 3. Apparent intentional culvert blockage at north side of State Route 130 and Douglas Way intersection. Photo taken facing southeast.



Figure 4. Lack of positive drainage in gas station frontage and adjacent residence.

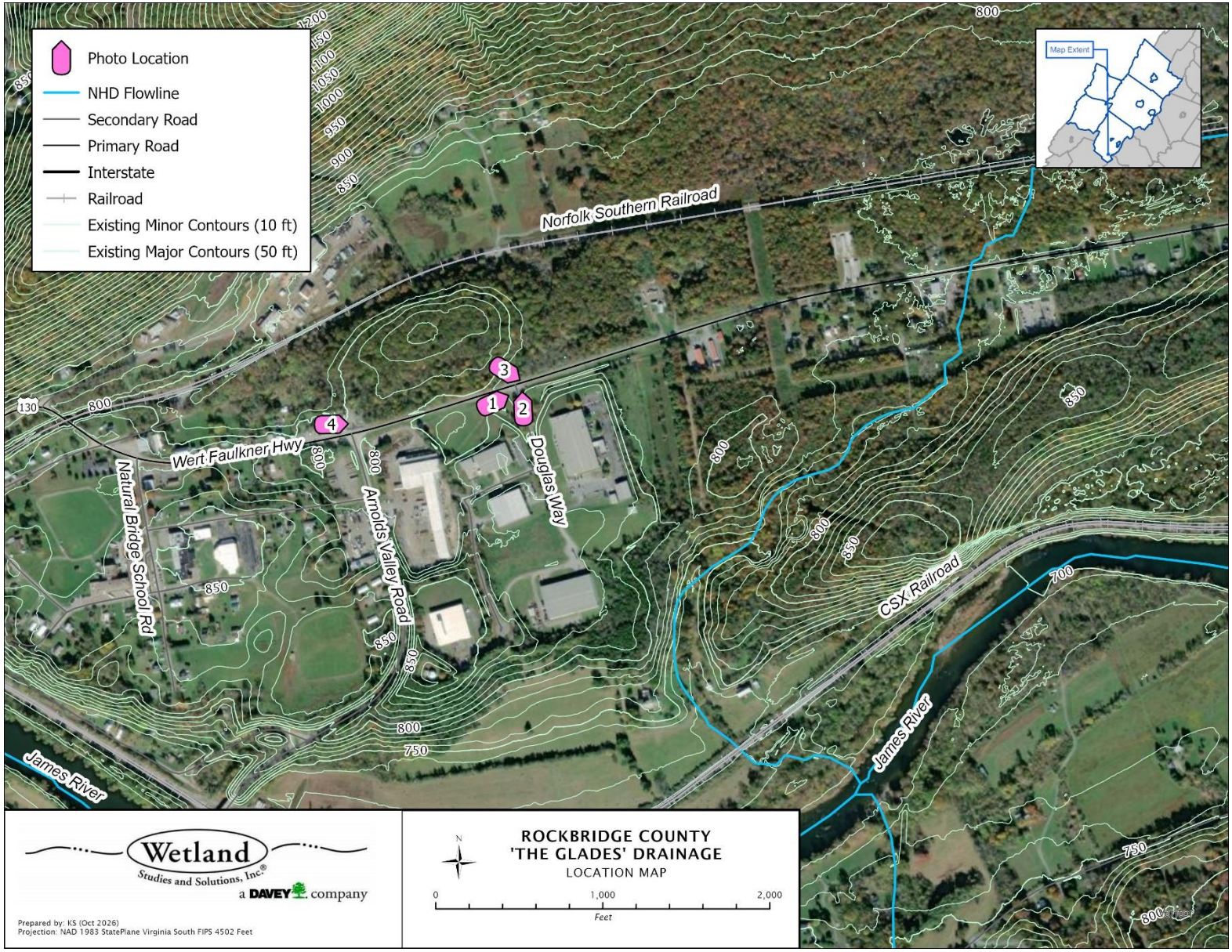

Figure 5. Location map of the Glades area experiencing flooding due to poor drainage.

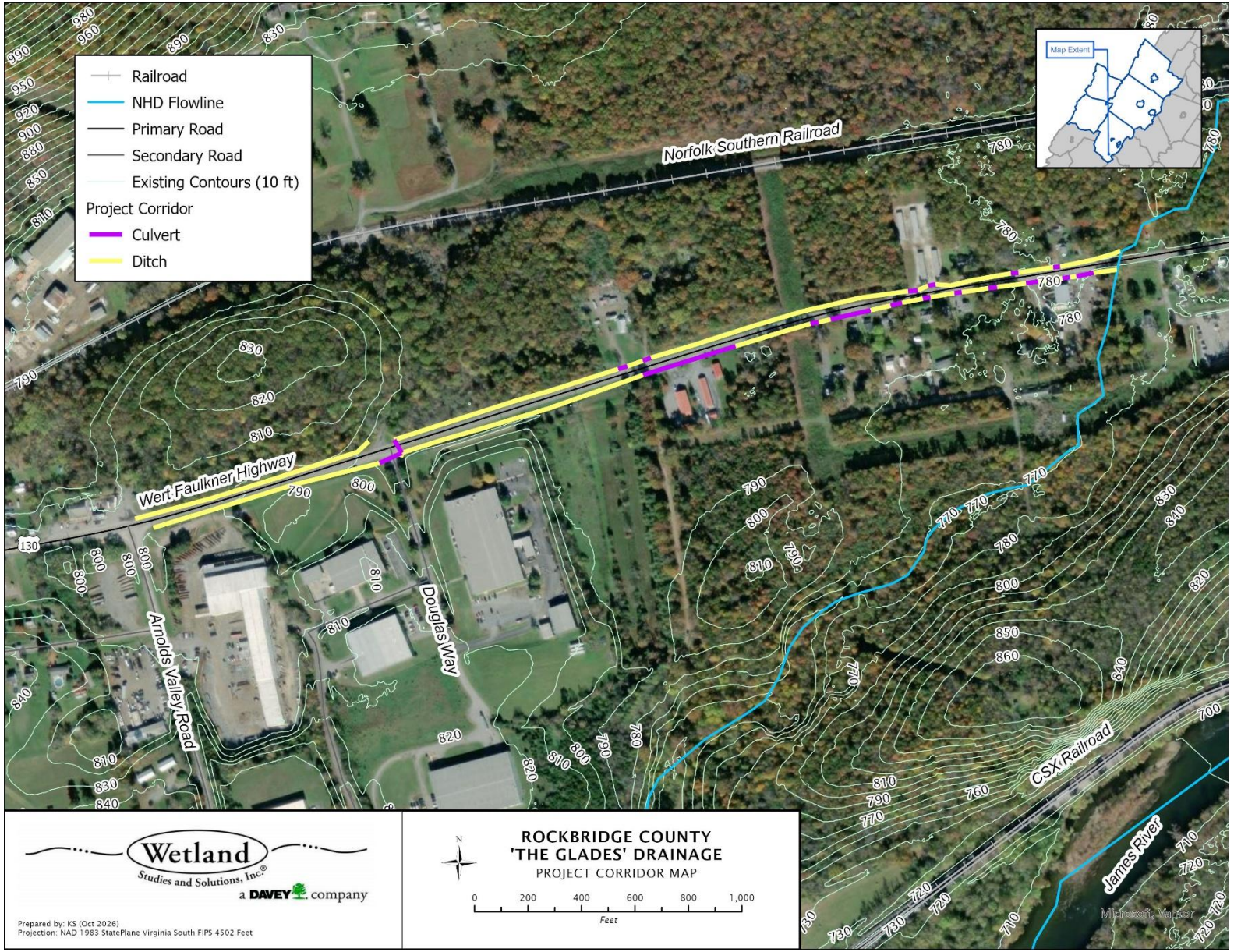

Figure 6. Layout of project corridor with approximate locations of existing ditch and culvert lengths.

Conceptual Design and Planning-Level Cost Estimate

A full survey and assessment of ditch lines and culvert locations and conditions in the project area (**Figure 6**) will guide a preliminary engineering report (PER). The PER will determine the extent of ditch re-establishment necessary and provide an evaluation of the adequacy of culverts (once restored to full capacity). No visible structural issues with culverts were noted on WSSI's preliminary site visit, aside from blockages, but a more detailed survey is necessary to verify that the existing culverts, including multiple driveway culverts, are in good working condition, as is assumed here.

Clearing of the identified blocked culverts and re-establishment of ditches along this approximately 0.72 mile stretch of State Route 130 should be coordinated with VDOT, as they are the agency responsible for maintenance of State Route 130 and its drainage infrastructure. An estimated 6,400 feet of ditches are identified along this reach of concern. In addition to the two culverts identified as partially or fully blocked above, 16 more culverts under private access roads were identified along the corridor. These culverts range in length from 30 to over 300 feet long, totaling approximately 1,160 feet. They are of varying diameters and should be included in the survey and evaluated for capacity. These private culverts are assumed to be clear of obstructions based on site observations, but obstructions should be noted in the survey and addressed as appropriate following coordination with landowners.

The order of tasks proposed here are executed should be evaluated based on resource limitations and risk evaluation. Completing the study first can inform whether certain culverts or ditches should be replaced or re-sized in the revitalization efforts, allowing all construction work to be completed as a single effort. However, it is possible that a significant portion of the flooding issues experienced in the area are related to the visibly obstructed culverts at the Douglas Way/State Route 130 intersection. These culverts could be cleared to re-establish their designed capacity prior to the completion of a PER, at the risk of potentially mobilizing construction a second time if the study supports re-sizing elements of the stormwater system or additional areas of flooding recur.

ITEM/DESCRIPTION	QTY	UNIT	UNIT COST	ITEM SUB-TOTAL	EXTENDED SUB-TOTAL
Survey and PER					**$55,000**
Survey	1	LS	$15,000	$15,000	
PER	1	LS	$40,000	$40,000	
Access and Erosion/Sediment Control					**$36,160**
Traffic Control	30	DAY	$1,000	$30,000	
Inlet Protection	2	EA	$300	$600	
Permanent Seeding	28	LB	$10.00	$280	
Erosion Control Matting	2,640	SY	$2	$5,280	

ITEM/DESCRIPTION	QTY	UNIT	UNIT COST	ITEM SUB-TOTAL	EXTENDED SUB-TOTAL
Ditch Re-establishment					**$321,000**
Survey and As-Built	1	LS	$30,000	$30,000	
Mobilization	1	LS	$15,000	$15,000	
Ditch Re-establishment	6400	LF	$40	$256,000	
Culvert Blockage Clearing	2	EA	$10,000	$20,000	
Contingency (30%)					**$123,648**
TOTAL ESTIMATED BUDGET					**$535,808**

Assumptions

The length of the project is estimated at 0.75 miles, per input from County staff. Aside from noted blockages, culverts are assumed in good working condition for the purposes of the estimated budget. The full 6,400 linear feet of ditches identified in the study area are included in the estimated budget for re-establishment, though certain portions of the ditch line may be identified in future survey and design efforts as in good working order.

Recommended Next Steps

Coordinate culvert clearing at intersection of Douglas Way and State Route 130 with VDOT and then discuss next steps and division of responsibility.