

Scene 13 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17006, -86.26915 · Generated October 23, 2026

OVERALL SCORE

6.2

Marginal



Front: Looking downstream, a narrow stream channel flows between wooded banks with bare deciduous trees. The left bank features a prominent exposed rock/stone ledge face approximately 3-4 feet high. A red and white survey rod or marker stake is visible at the bank edge. Agricultural fields and a red barn are visible in the background through the bare trees on the left side.

Right: The right bank (facing downstream) shows a densely vegetated area with bare deciduous trees and thick understory of dormant shrubs, vines, and herbaceous vegetation. The area appears to be a wooded riparian buffer zone with several Eastern Red Cedar trees (evergreen) mixed among deciduous hardwoods. Ground cover is dense with leaf litter, dormant vines (possibly Japanese honeysuckle), and low vegetation. Some green ground cover is visible even in winter.

Back: Looking upstream, the narrow stream channel winds through a wooded corridor. Both banks are lined with trees including Eastern Red Cedar and bare deciduous hardwoods. The stream bed shows exposed rock substrate and shallow flowing water with visible ripples. Rocky material is visible on both banks, with the right bank (looking upstream, which is left bank facing downstream) showing exposed flat rock ledges. Agricultural fields are visible in the background through gaps in the tree line.

Left: The left bank (facing downstream) shows an open agricultural field extending to the horizon with brown dormant grass or harvested crop stubble. The riparian buffer between the stream and the field is very narrow, consisting of a thin line of trees with a fence line visible at the edge. The field appears to be actively farmed pasture or row crop land. Hills with forested ridgeline are visible in the far background. Some stone is visible at the base of the bank edge near the camera position.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	7		fair
Hydrologic Alteration	5		Fair
Sediment Deposition	6		Fair
Left Bank Stability	5		Fair
Right Bank Stability	7		Good
Left Vegetative Protection	4		Fair
Right Vegetative Protection	7		Good
Riparian Canopy Cover	5		Fair
Floodplain Vegetation	3		Poor
Water Appearance	6		Fair
Nutrient Enrichment	7		Good
Epifaunal Substrate	-		-

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 13

Black Branch at this location (scene 13 of 53) is a narrow, low-order perennial stream flowing through an agricultural landscape in Wilson County, Tennessee. The stream rates as marginally impaired (6.2/10) with its primary limitations being an inadequate riparian buffer on the left bank where agricultural fields extend within 10-25 feet of the stream, moderate channel incision disconnecting the stream from its floodplain, and limited instream habitat diversity. The limestone bedrock substrate provides some natural stability and habitat value, and the right bank maintains a reasonable wooded buffer. No stormwater infrastructure, outfalls, or illicit discharges were observed. Priority management actions include establishing a wider riparian buffer on the left bank and enhancing instream habitat through woody debris additions.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	7	The channel appears largely natural with no visible engineered modifications such as straightening, riprap, or concrete lining. However, some incision is evident from the moderate bank heights and exposed rock ledges, suggesting the stream has downcut somewhat, likely in response to altered hydrology from surrounding agricultural land use. The channel form appears generally natural for this geologic setting.
Hydrologic Alteration	5	The channel shows moderate incision with 3-6 foot bank heights and exposed rock ledges, suggesting the stream does not frequently access its floodplain. The surrounding agricultural land use has likely increased runoff and contributed to incision. The left bank agricultural field sits well above the current stream level. The stream appears moderately disconnected from its floodplain.
Sediment Deposition	6	Some fine sediment deposition visible over the limestone bedrock substrate, particularly in lower energy areas. The slightly turbid water suggests ongoing sediment transport. Estimated 10-25% of visible bed affected by fine sediment deposition. The exposed bedrock and cobble keep much of the substrate clean, but agricultural sediment input is likely contributing to some deposition.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	4	26_50_percent	Left bank is the more vulnerable bank due to narrow riparian buffer and proximity to agricultural field. The natural limestone provides some erosion resistance but does not fully protect against undercutting. The fence line visible near the stream suggests the agricultural field extends close to the riparian zone.
Right	7	7	1_25_percent	Right bank is in better condition than the left bank with a wider riparian buffer and denser vegetation. The wooded area on the right side extends further from the stream providing better bank protection and habitat.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	During the winter leaf-off period, canopy cover is estimated at 25-50%. Eastern Red Cedars provide some year-round shade, but the majority of trees are bare deciduous. During growing season, shade would increase significantly to perhaps 50-75%. The up face shows moderate canopy coverage with open sky visible. For a warmwater stream, this level of shading is adequate but not optimal.
Left Buffer Width	10 25ft	Score: 3/10
Right Buffer Width	25 50ft	Score: 7/10
TDEC 30ft Buffer Met?	L: No / R: Yes	The left bank riparian buffer does not appear to meet TDEC's 30-foot minimum standard. Agricultural field extends to within approximately 10-25 feet of the stream bank based on visible fence line. This represents a significant buffer deficiency that should be addressed. The right bank buffer appears adequate. Buffer restoration on the left bank would significantly improve stream protection and is a high priority recommendation.

Water Quality & Infrastructure · Scene 13

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water has a slightly turbid brown tint but the stream bed is visible in most areas through the shallow water. In the down view, substrate is clearly visible at the shallow depth. The brown color may be natural (tea-colored from organic matter) or may indicate some suspended sediment from agricultural runoff. No oil sheen, foam, or algal mats observed. Visibility appears to be approximately 1-2 feet in deeper areas.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	8	No visible manure, waste, or direct livestock access to the stream. The fence line visible along the left bank suggests some separation between livestock/agricultural operations and the stream. No waste pipes or direct discharge sources visible. The agricultural field appears to be crop land or managed pasture rather than active livestock grazing area immediately adjacent to the stream. However, the fence could historically or currently contain livestock.
Surface Contamination	-	Sheen: No · Foam: No · Odor: none

Stormwater Infrastructure

No outfall detected at this location.

Instream Habitat

Metric	Score	Notes
Epifaunal Substrate	-	

Stream Characteristics

Field	Value
Stream Type	perennial
Gradient	low_flat

Management Recommendations

Action	Priority	Timeline
Document this reach in visual stream survey database with photo panoramas. Flag the inadequate left bank buffer for further evaluation.	medium	90_days
Coordinate with agricultural landowner on left bank regarding voluntary riparian buffer establishment programs (USDA CRP, EQIP, or similar).	medium	annual

Terrain360 · terrain360.com/trail/black-branch-2/scene/13/analysis