

Scene 30 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16990, -86.27040 · Generated October 22, 2026

OVERALL SCORE

5.5

Marginal



Front: Looking downstream, a narrow shallow stream channel flows through a rocky bed with exposed flat limestone/bedrock substrate. The channel is flanked by bare deciduous trees on both sides with dormant herbaceous vegetation. Open pasture/agricultural fields are visible beyond the thin riparian corridor. A small pool of water is visible mid-channel among the exposed rock.

Right: Looking toward the right bank (when facing downstream), an open grassy area extends outward with scattered bare deciduous trees. A wooden barn or agricultural outbuilding is visible in the mid-distance to the right. The grass is winter-green with some bare patches. The area appears to be mowed pasture or maintained agricultural land extending beyond the thin riparian strip. The stream bank edge is visible at the near foreground.

Back: Looking upstream, the stream channel is visible with flowing water and significant woody debris and brush piles along the left bank. There is a large accumulation of cut/fallen branches and tree debris piled along the bank, suggesting recent clearing or storm damage. The right bank shows exposed soil and root masses at the water's edge with some bank erosion. Bare deciduous trees line both sides with open pasture beyond. A leaning tree is present on the right bank.

Left: Looking toward the left bank (when facing downstream), the stream flows past with slightly turbid brown water. The bank shows some erosion and exposed soil. Beyond the bank is a mix of bare deciduous trees and dormant shrubs/herbaceous vegetation. A red structure (possibly barn or outbuilding) is partially visible through the trees in the distance. Open pasture fields are visible beyond the thin riparian corridor. The stream meanders in this direction showing the channel curving.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	7		fair
Hydrologic Alteration	6		Fair
Sediment Deposition	7		Good
Left Bank Stability	5		Fair
Right Bank Stability	6		Fair
Left Vegetative Protection	4		Fair
Right Vegetative Protection	5		Fair
Riparian Canopy Cover	3		Poor
Floodplain Vegetation	2		Poor
Water Appearance	6		Fair
Nutrient Enrichment	7		Good
Epifaunal Substrate	-		-

Urgency: SHORT TERM 1 6 MONTHS

Detailed Observations · Scene 30

Black Branch at this location is a small headwater stream with a bedrock (limestone) substrate flowing through an agricultural/pastoral landscape in Wilson County, Tennessee. The stream is in marginal condition, primarily limited by inadequate riparian buffers on both banks, limited instream habitat diversity, and evidence of recent vegetation clearing within the buffer zone. Water quality appears fair with slightly turbid but generally clear flow. The bedrock-controlled channel provides some natural resistance to geomorphic degradation, but the thin riparian corridor fails to meet TDEC 30ft minimum buffer requirements and compromises multiple ecological functions. No stormwater outfalls or illicit discharges were observed at this rural location.

Primary Stressors

riparian loss, bank erosion, sedimentation

Channel Assessment

Metric	Score	Notes
Channel Condition	7	Channel appears natural with no visible engineered modifications. Bedrock controls prevent significant downcutting. Some lateral erosion is present on banks, particularly upstream where root exposure and bank cutting are visible. The channel is functioning relatively naturally but the thin riparian buffer and adjacent pasture may be contributing to some bank instability.
Hydrologic Alteration	6	Channel shows slight incision with banks 2-4 feet high in places. However, the bedrock bed limits vertical incision. The floodplain appears accessible during moderate flood events as the banks are relatively low. Agricultural land use in the watershed likely has altered hydrology somewhat with flashier runoff, but the overall floodplain connection appears functional.
Sediment Deposition	7	Bedrock-controlled channel shows minimal sediment deposition. The exposed bedrock indicates the channel is effectively transporting its sediment load. Minor fine sediment is visible in crevices and along banks but no significant bar formation or pool infilling observed.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	4	26_50_percent	Left bank shows evidence of recent tree clearing with large brush/debris piles visible upstream. This clearing may have reduced bank stability and vegetative protection. Grass and herbaceous cover extends to bank edge in some areas. Moderate erosion present where clearing has occurred.
Right	6	5	1_25_percent	Right bank is generally stable with grass extending to the bank edge. Thin riparian buffer transitions quickly to maintained pasture/lawn. Minor scour erosion in some areas. The bank is low, allowing good floodplain connectivity.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	3	Even accounting for leaf-off conditions, the canopy cover is minimal. Trees are scattered and sparse. During full leaf-out, this reach might achieve 25-40% shading, but at the time of assessment, effective shade is under 25%. The up face confirms very open canopy with widely spaced bare branches. For a warmwater stream, this is below optimal shade levels.
Left Buffer Width	10 25ft	Score: 3/10
Right Buffer Width	10 25ft	Score: 3/10
TDEC 30ft Buffer Met?	L: No / R: No	Both banks fail to meet TDEC 30ft minimum buffer requirements. The adjacent pasture land presents excellent opportunities for buffer restoration through riparian planting programs. Recent clearing on the left bank has exacerbated the buffer deficiency. The barn/outbuilding on the right side is within the buffer zone.

Water Quality & Infrastructure · Scene 30

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water has a slight brown/tea coloration but is relatively clear. The stream bed is clearly visible through the water in the down view, indicating good clarity. Visibility appears to be approximately 1-2 feet through the water column. The brownish color may be due to dissolved organic matter and minor sediment rather than significant turbidity. No sheen, film, or algal growth observed.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No direct evidence of manure or livestock waste in or near the stream. However, the adjacent pasture/agricultural land and barn suggest livestock may be present in the area. No livestock, tracks, or manure deposits are visible at this location. Fencing is not clearly visible, so livestock access cannot be fully assessed.
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
Investigate the recent riparian vegetation clearing visible on the left bank to determine if appropriate permits were obtained	high	30_days
Document buffer deficiencies on both banks for MS4 buffer compliance tracking	medium	90_days

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