

Scene 38 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16947, -86.27111 · Generated October 22, 2026

OVERALL SCORE

4.8

Poor



Front: Looking downstream, a narrow, shallow stream channel extends into the distance flanked by cedar trees on the left bank and open mowed grass on the right bank. The channel is narrow (approximately 3-5 feet wide) with shallow water flowing over a substrate of rock and mud. A utility pole with power lines is visible in the far right background.

Right: Looking toward the right bank (when facing downstream), an open mowed grass lawn extends to residential structures in the background. Several deciduous trees (bare, winter dormant) are scattered across the lawn. A tree stump is visible near the bank edge. The riparian buffer is virtually nonexistent — mowed grass extends to within a few feet of the channel.

Back: Looking upstream, the narrow stream channel continues with exposed rock/limestone substrate visible in the bed. The channel is very shallow with water flowing over flat rock slabs and loose rock. Trees line both sides but the left bank (from upstream perspective) has mowed grass extending close to the channel. Several deciduous trees flank the channel. The substrate appears to be natural limestone bedrock with some loose cobble and gravel.

Left: Looking toward the left bank (when facing downstream), the view shows eastern red cedar trees and mixed deciduous shrubs with dormant brown grass and herbaceous vegetation. Beyond the immediate riparian strip, an open agricultural field or pasture extends to the distance. A utility pole or fence post is visible in the mid-ground. The vegetation is denser on this side than the right bank but is predominantly cedar and dormant herbaceous cover rather than a mature hardwood buffer.

Assessment Scores

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

Urgency: SHORT TERM 1 6 MONTHS

Detailed Observations · Scene 38

Black Branch at scene #38 is a small headwater stream in poor condition, primarily impaired by the near-complete absence of riparian buffer on the right bank where mowed residential lawn extends to the channel edge. The stream is very narrow (3-4 feet), extremely shallow (under 1 inch), and flows over exposed limestone bedrock with minimal habitat diversity. No large woody debris, no pools, and very limited fish or macroinvertebrate habitat are present. While water quality appears acceptable with no evidence of pollution, the severely degraded riparian zone and instream habitat represent the primary limiting factors. Riparian buffer restoration on the right bank is the highest priority management action.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	6	Channel appears relatively natural with no visible structural alterations. However, the adjacent land use (mowed lawns to channel edge) has likely altered flow regime. Minor downcutting is not evident but the channel is narrow and may have been historically modified. The lack of riparian buffer on the right bank contributes to minor lateral instability.
Hydrologic Alteration	5	Stream shows slight incision with low banks (under 3 feet). The channel appears to have floodplain access but surrounding land use (residential, agriculture) has likely increased flashiness of flows. Low banks suggest some connection to floodplain. Upstream impervious surfaces may contribute to altered hydrology.
Sediment Deposition	6	Bedrock-dominated substrate shows limited sediment deposition. Some fine sediment and mud is visible between rock fragments but overall deposition is minor. The bedrock substrate naturally limits deposition in this reach.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	6	6	1_25_percent	Left bank has better riparian cover than right bank due to cedar trees and shrubs. Buffer extends approximately 25-50 feet before transitioning to open agricultural field/pasture.
Right	5	4	1_25_percent	Right bank critically lacks riparian buffer. Mowed grass lawn extends from residential properties directly to channel edge. This is the primary concern for this location — no woody vegetation, no natural buffer, direct runoff pathway from lawn to stream.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	4	Currently in winter dormancy, canopy cover is very low (under 25%). Even during full leaf-out, the sparse tree cover and mowed right bank would provide only moderate shade (estimated 25-40% during growing season). The winter dormant condition reveals that tree density is insufficient for good canopy coverage.
Left Buffer Width	25 50ft	Score: 5/10
Right Buffer Width	under 10ft	Score: 1/10
TDEC 30ft Buffer Met?	L: No / R: No	Right bank buffer is critically deficient. Mowing extends to channel edge, eliminating all natural buffer function. Left bank buffer is marginal — cedar trees provide some function but lack hardwood diversity. Both banks would benefit from riparian buffer restoration. High restoration potential exists given the low banks and available space.

Water Quality & Infrastructure · Scene 38

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water appears slightly turbid with a brown color, likely from tannins and natural sediment. Since the water is extremely shallow (under 1 inch), the bottom is fully visible. No oil sheen, film, or surface contamination observed. The brown color may be influenced by contact with soil and leaf litter.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	8	No evidence of manure, waste, or livestock access. Adjacent land appears to be maintained residential lawn and possibly hay field/pasture, but no livestock are visible and no fecal matter observed. No waste discharge pipes visible.
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 absence of riparian buffer on right bank for MS4 permit compliance records	high	30_days
Verify that no stormwater outfalls from adjacent residential properties discharge to this reach without documentation	medium	90_days
Investigate tree stump on right bank — recent tree removal from riparian zone may constitute buffer violation	medium	30_days

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