

Scene 2 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17003, -86.26833 · Generated October 23, 2026

OVERALL SCORE

6.1

Marginal



Front: Looking downstream, the channel narrows and bends slightly to the left through a thin riparian corridor of bare deciduous trees and eastern red cedars. A flat rock/limestone ledge outcrop is visible on the left bank forming a natural step or riffle feature. Beyond the thin tree line, open agricultural fields are visible in the background with a distant red structure (barn). The channel bed shows shallow water flowing over flat rock substrate.

Right: The right bank (left bank when facing downstream) shows a moderately vegetated riparian area with bare deciduous trees, scattered shrubs, and some green herbaceous ground cover. The bank is low to moderate height with exposed root systems and minor bank erosion. The water surface is gently flowing and slightly rippled. Beyond the immediate riparian zone, hints of open land or cleared areas are visible through the bare canopy.

Back: Looking upstream, the channel extends with gentle flowing water through a wooded riparian corridor. The left bank shows bare deciduous trees and shrubs with exposed root wads at the bank edge. Some fallen and leaning woody debris is visible in and near the channel. The riparian corridor appears narrow with hints of open agricultural land visible beyond. The channel bed appears to be a mix of silt, mud, and some flat rock. Eastern red cedars are visible on the right bank.

Left: The left bank view (right bank when facing downstream) shows eastern red cedars (*Juniperus virginiana*) as prominent bank trees with exposed root systems. The channel flows downstream with shallow, gently moving water. Open agricultural fields are clearly visible beyond the thin riparian buffer, indicating the buffer is very narrow on this side—likely only 10-25 feet wide. Some fencing may be present at the field edge. The bank has bare soil exposure and minor erosion.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	7		fair
Hydrologic Alteration	7		Good
Sediment Deposition	5		Fair
Left Bank Stability	6		Fair
Right Bank Stability	7		Good
Left Vegetative Protection	5		Fair
Right Vegetative Protection	6		Fair
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 2

Black Branch at this location (#2 of 53) is a small headwater stream rated as marginally impaired, primarily due to fine sediment accumulation from adjacent agricultural land use and an inadequate riparian buffer on the left bank. The channel itself retains natural morphology with bedrock riffle features and floodplain connectivity, but instream habitat quality is limited by silt-dominated substrate, lack of woody debris, and poor pool development. No stormwater infrastructure, outfalls, or illicit discharges were observed. The primary management need is riparian buffer restoration on the left bank to reduce sediment loading and improve stream corridor functions.

Primary Stressors

sedimentation, riparian loss, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	7	The channel appears largely natural with no visible engineering modifications, riprap, or channelization. There is no evidence of active downcutting. The channel is connected to its floodplain. Minor bank erosion is present but within natural range. Score of 7 rather than higher because there are some indications of slight adjustment (excess fine sediment, minor bank erosion) likely related to agricultural land use changes.
Hydrologic Alteration	7	The channel is not deeply incised; banks are low (under 3 ft) and the stream appears to access its floodplain during moderate events. No dams or withdrawals visible. Slight incision and agricultural land use may have moderately altered the flow regime through increased runoff and reduced infiltration. Score of 7 reflects functional but slightly altered hydrology.
Sediment Deposition	5	The bed is predominantly silt/mud substrate suggesting significant fine sediment deposition likely from adjacent agricultural land. While no large bars are forming, the uniform fine sediment coverage of the bed indicates moderate deposition effects, likely in the 30-50% range. The limited pool formation and silt-dominated bed warrant a score of 5.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	6	5	1_25_percent	Left bank has thin riparian buffer with agricultural fields visible immediately beyond. Cedar trees provide some bank stabilization through root systems. The narrow buffer width is the primary concern on this bank.
Right	7	6	1_25_percent	Right bank has a wider riparian buffer than the left bank. Deciduous trees and some shrubs provide moderate bank stabilization. Minor undercutting visible in places. Root exposure is moderate.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	Currently in winter dormancy with bare deciduous canopy providing minimal shade. During growing season, canopy would likely provide 50-75% shade given the tree density. Eastern red cedars provide some year-round coverage. Current conditions show approximately 25-40% effective shade. Score of 5 reflects moderate shade conditions that are seasonally variable.
Left Buffer Width	10 25ft	Score: 3/10
Right Buffer Width	25 50ft	Score: 5/10
TDEC 30ft Buffer Met?	L: No / R: Yes	Left bank riparian buffer is critically thin with agricultural fields encroaching within the 30ft TDEC minimum. Right bank buffer is marginally adequate at approximately 25-50ft. Buffer restoration on the left bank should be a priority. Agricultural best management practices including buffer establishment would significantly improve stream corridor function.

Water Quality & Infrastructure · Scene 2

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water has a brown/tea color but is relatively clear — the bed is visible through the water in the down-facing image even in areas of 6-12 inch depth. No oil sheen, foam, or algal growth observed. The brown coloration may be from natural tannins or suspended fine sediment from the silt bed. Under dry weather conditions, this represents reasonable water quality for a small agricultural stream. Score of 6.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	8	No manure, waste, or evidence of direct livestock access to the stream observed. The adjacent agricultural land appears to be crop fields rather than pasture. A fence line may be present on the left bank which would prevent livestock access if present. No waste pipes or discharge points visible. Score of 8 — some uncertainty about livestock use in the broader area.
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 outfall mapping inventory as having no stormwater outfalls. Note agricultural non-point source as primary pollutant pathway.	low	annual
Continue visual stream survey documentation through remaining 51 scenes in this reach to identify any outfalls or illicit discharges further downstream.	medium	90_days

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