

Scene 17 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17005, -86.26952 · Generated October 23, 2026

OVERALL SCORE

6.3

Marginal



Front: Looking downstream, a narrow channel with very low flow is visible winding through a heavily wooded corridor. The bed is dominated by flat, angular limestone/shale slabs with shallow pools of still to barely flowing water. Deciduous trees are mostly bare with early spring bud break visible on a few small saplings.

Right: The right bank (left bank facing downstream) shows a steep, eroded bank approximately 3-5 feet high with exposed soil and root systems. Dense vine and shrub tangles cover the bank top. Through the bare trees, an open agricultural field or pasture is visible in the background, indicating the riparian buffer is relatively narrow on this side.

Back: Looking upstream, the narrow channel continues with shallow water flowing over exposed limestone bedrock slabs. The channel is flanked by bare deciduous trees with an open field/pasture visible through the vegetation on the right side. A person wearing high-visibility safety gear is visible, confirming wading/backpack pole capture method. The channel substrate is entirely natural bedrock/limestone.

Left: The left bank (right bank facing downstream) shows a moderately steep bank with dense shrub and vine tangles. Through the bare vegetation, open agricultural/pasture land is clearly visible. The riparian buffer appears narrow, approximately 25-50 feet wide, with a mix of small trees and dense understory. Rock fragments visible at base of bank are consistent with natural limestone bedrock.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	7		fair
Hydrologic Alteration	5		Fair
Sediment Deposition	8		Good
Left Bank Stability	5		Fair
Right Bank Stability	4		Fair
Left Vegetative Protection	6		Fair
Right Vegetative Protection	5		Fair
Riparian Canopy Cover	7		Good
Floodplain Vegetation	3		Poor
Water Appearance	7		Good
Nutrient Enrichment	8		Good
Epifaunal Substrate	-		-

Urgency: LONG TERM

Detailed Observations · Scene 17

Black Branch at this location is a small bedrock-controlled headwater stream in a rural agricultural setting near Wilson County, Tennessee. The channel exhibits moderate incision with 3-5ft banks, reducing floodplain connectivity. Water quality appears good with clear baseflow, but the narrow riparian buffer on both sides (25-50ft) adjacent to agricultural land limits filtering capacity and stream shading. Key limitations include low instream habitat diversity on the bedrock-dominated substrate, sparse large woody debris, limited pool development, and bank erosion on the outer meander. No stormwater infrastructure or outfalls were observed, and no MS4 compliance concerns were identified at this specific location.

Primary Stressors

bank erosion, riparian loss, sedimentation

Channel Assessment

Metric	Score	Notes
Channel Condition	7	Channel appears natural with no direct structural modifications. However, the moderate incision (3-5ft banks) and exposed bedrock substrate suggest some downcutting, possibly related to altered hydrology from adjacent agricultural land use changes. The channel is moderately entrenched but appears to have achieved a degree of stability on bedrock.
Hydrologic Alteration	5	Moderate channel incision (3-5ft bank heights) reduces floodplain access. The bedrock-controlled channel limits further downcutting but the stream is clearly disconnected from its floodplain for most flow events. Agricultural land use in the watershed likely contributes to flashier hydrology.
Sediment Deposition	8	Very little sediment deposition visible. The bedrock substrate is largely clean with minimal fine sediment accumulation. The bedrock-dominated channel has high sediment transport capacity that keeps the bed relatively clear. Some minor accumulation in pool margins.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	6	1_25_percent	Left bank has narrow riparian buffer with agricultural field visible beyond. Bank height moderate at 3-5 feet. Natural bedrock at base provides some resistance to erosion. Vine and shrub growth moderate but appears to include invasive species.
Right	4	5	26_50_percent	Right bank shows more active erosion than left bank. Steep face with undercutting, exposed roots, and bare soil. Narrow riparian buffer with agricultural land beyond. This bank appears to be on the outside of a slight meander, contributing to higher erosion rates.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	7	Currently minimal shade due to bare deciduous canopy in early spring. When fully leafed out in summer, canopy coverage would likely be 50-75% based on the moderate tree density overhead. The current bare canopy provides essentially no shade. Score reflects the expected summer conditions based on tree density visible in the UP face.
Left Buffer Width	25 50ft	Score: 5/10
Right Buffer Width	25 50ft	Score: 5/10
TDEC 30ft Buffer Met?	L: Yes / R: Yes	Both banks meet minimum 30ft buffer. Agricultural land immediately adjacent to narrow buffer on both sides presents opportunity for buffer widening. Current buffer width marginal for adequate filtering of agricultural runoff.

Water Quality & Infrastructure · Scene 17

Water Quality Indicators

Metric	Score	Notes
Water Appearance	7	Water is clear with good visibility to the bottom throughout the visible reach. No discoloration, sheen, or foam observed. The clear water and clean bedrock surface suggest good baseflow water quality. Slight brown tint in pools may be natural tannins from leaf litter. Score reduced slightly from optimal because the shallow depth makes full clarity assessment difficult.
Nutrient Enrichment	8	Algae: minor
Manure/Waste	8	No direct evidence of manure or waste in the stream. No livestock access points visible. However, agricultural/pasture land visible on both sides of the narrow buffer could include livestock operations. No fencing visible to prevent potential livestock access. Score slightly below optimal due to proximity to agricultural land.
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	moderate

Management Recommendations

Action	Priority	Timeline
Document this reach as part of the visual stream assessment inventory for Black Branch watershed	medium	annual
Coordinate with agricultural landowners regarding riparian buffer enhancement opportunities	low	annual

Terrain360 · terrain360.com/trail/black-branch-2/scene/17/analysis