

Scene 9 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17007, -86.26867 · Generated October 23, 2026

OVERALL SCORE

5.8

Marginal



Front: Looking downstream, the view shows dense deciduous trees and shrubs, all bare of leaves in winter condition. The ground is covered with leaf litter and dead herbaceous vegetation. Through the trees, a building or structure with a reddish-brown facade is partially visible in the background, suggesting nearby development. The bank drops off to the left where the channel appears to be located.

Right: Looking toward the right bank (facing downstream), dense bare deciduous trees and tall shrubs dominate. A large sycamore tree trunk is prominent. The channel bed is partially visible at lower right with what appears to be flat rock or flagstone substrate. The bank is steep and covered with dense vine and shrub growth. A steep wooded hillside rises beyond the immediate riparian area.

Back: Looking upstream, the view opens to reveal an agricultural field or pasture extending into the distance beyond a thin riparian buffer. A few bare deciduous trees and some evergreen (likely eastern red cedar) trees line the bank. The stream channel and rocky substrate are visible at the bottom of the frame. Open agricultural land is clearly visible through the sparse winter vegetation, indicating minimal riparian buffer on at least one side.

Left: Looking toward the left bank, a small stream channel is clearly visible with shallow water flowing over a rocky substrate of flat limestone/shale. The left bank has a thin riparian buffer of bare deciduous trees and eastern red cedar, beyond which open agricultural/pasture land extends. A red structure (possibly a barn) is visible in the far distance. The flat rock substrate in the channel is consistent with natural limestone bedrock formation. The riparian buffer is very narrow on this side, perhaps only 10-30 feet before transitioning to open pasture.

Assessment Scores

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

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 9

Black Branch at scene #9 is a small, shallow headwater stream flowing over limestone/shale bedrock in a rural agricultural setting near Lebanon, Tennessee. The stream is marginally impaired, with primary concerns being an inadequate riparian buffer on the left bank where agricultural land extends within 10-25 feet of the channel, limited instream habitat diversity due to bedrock substrate dominance and absence of large woody debris, and minimal pool development. The right bank has a more robust forested buffer extending 50-100+ feet. No stormwater infrastructure, outfalls, or illicit discharges were observed. Water quality appears fair with no obvious contamination. The most actionable management recommendation is riparian buffer restoration on the left bank to improve shade, bank stability, habitat inputs, and filtering of agricultural runoff.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	7	Channel appears natural with no visible structural alterations, straightening, or artificial armoring. Some minor bank erosion but no evidence of active downcutting. The channel maintains natural planform. Score of 7 rather than 10 because some lateral erosion is evident and the agricultural land use may have historically influenced channel form.
Hydrologic Alteration	6	Channel shows slight incision with banks 2-4 feet above the current water level. The stream appears to maintain some floodplain connection, particularly on the left (agricultural) side where banks are lower. The agricultural land use and potential drainage modifications in the watershed likely have some hydrologic effect on flow regime.
Sediment Deposition	6	Bedrock-dominated substrate limits obvious sediment deposition. Some fine sediment visible in low areas between bedrock ledges. Limited evidence of active bar formation. The bedrock nature of this reach likely transports sediment through rather than accumulating it. Score of 6 reflects that fine sediment is present but not dominant.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	5	26_50_percent	Left bank has a very narrow riparian buffer (estimated 10-30 feet) before transitioning to open agricultural/pasture land. Bank is low but showing moderate erosion. The proximity of agricultural land use is the primary concern for this bank.
Right	6	7	1_25_percent	Right bank is steeper but better vegetated and more stable than the left bank. Wooded hillside extends well beyond the riparian zone providing excellent buffer on this side. The asymmetry between left and right bank conditions is notable.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	6	In winter bare condition, shade is limited. However, during the growing season, the deciduous trees (particularly on the right bank) and cedar trees would provide approximately 40-60% canopy cover. The narrow left bank buffer limits shade from that side. Score of 6 reflects the moderate shade provision during growing season.
Left Buffer Width	10 25ft	Score: 3/10
Right Buffer Width	50 100ft	Score: 7/10
TDEC 30ft Buffer Met?	L: No / R: Yes	The left bank buffer is the primary concern. Agricultural/pasture land extends within the 30-foot buffer zone on the left bank. This is a high-priority area for buffer restoration through riparian planting. The right bank buffer meets TDEC standards.

Water Quality & Infrastructure · Scene 9

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water is slightly turbid with a brownish tint, likely from dissolved organics and minor fine sediment. The stream bed is visible through the shallow water. No sheen, film, or algal mats are visible. The brown coloration appears natural for a stream draining partially agricultural land with limestone geology. Clarity appears to be in the 1-3 foot range in the deeper areas.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No direct evidence of manure or livestock waste visible in the stream or on banks. The adjacent agricultural land appears to be cropland or hay field rather than active pasture, which is positive. No livestock fencing damage or trampled banks are visible. However, the proximity of agricultural activity means some nutrient and sediment transport potential exists. Score of 7 rather than 10 because the agricultural proximity creates some risk.
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 narrow riparian buffer condition on left bank for watershed management planning	medium	90_days
Confirm no outfalls or illicit discharges are present in adjacent reach sections	low	annual

Terrain360 · terrain360.com/trail/black-branch-2/scene/9/analysis