

Scene 31 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16982, -86.27041 · Generated October 22, 2026

OVERALL SCORE

6.3

Marginal



Front: Looking downstream, a very narrow channel with still/slow water is visible winding through bare deciduous trees. A rock/rubble accumulation is visible on the far bank forming what appears to be a natural or placed stone pile. Agricultural/pastoral fields are visible through the leafless trees in the background with rolling hills beyond.

Right: Looking to the right bank (when facing downstream), a mowed grass area extends away from the channel with scattered bare deciduous trees. An old wooden barn or outbuilding is visible in the mid-ground. The grass is mostly dormant with some green patches. The riparian buffer on this side is very narrow to non-existent — the mowed area comes nearly to the bank edge.

Back: Looking upstream, the narrow stream channel is clearly visible flowing over exposed rocky substrate. The channel is very narrow (approximately 3-5 feet wide) with shallow flow over cobble and flat rock. Both banks are visible with moderate erosion. The left bank has green grass nearly to the edge, while the right bank has more woody vegetation and dead herbaceous material. Flat angular rock fragments are abundant in and along the channel.

Left: Looking toward the left bank (when facing downstream), dense shrubby and vine-covered vegetation is visible with some evergreen trees (likely eastern red cedar). A red-roofed building or barn is partially visible through the vegetation in the background. The understory is thick with dormant vines and brush, providing relatively dense bank coverage despite being leafless. This side has more robust riparian vegetation than the right bank.

Assessment Scores

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

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 31

Black Branch 231 at this location is a small headwater stream (1st-2nd order) flowing through a rural agricultural/pastoral setting near Lebanon, Tennessee. The stream exhibits a marginal overall condition driven primarily by the severely compromised riparian buffer on the right bank, where mowing/grazing extends nearly to the channel edge, and by sparse large woody debris limiting instream habitat. The left bank maintains a better vegetative buffer with dense shrub and vine coverage, though some invasive species are suspected. Water quality appears fair to good during dry weather conditions with clear flow over natural limestone cobble substrate. No stormwater infrastructure or outfalls were identified at this location. The primary management need is right bank riparian buffer restoration to meet TDEC minimum 30ft buffer requirements.

Primary Stressors

riparian loss, bank erosion, sedimentation

Channel Assessment

Metric	Score	Notes
Channel Condition	7	The channel appears largely natural with no visible engineered alterations or straightening. There is evidence of some bank erosion and scour, but no significant downcutting. The channel maintains connection to its floodplain on at least the right side. The pastoral land use and mowing close to the bank on the right side has likely reduced buffer function but not directly altered the channel form.
Hydrologic Alteration	7	The channel shows slight incision with banks approximately 2-4 feet high. The right bank transitions gradually to the mowed floodplain, suggesting periodic flooding still occurs. No dams, withdrawals, or significant impervious area upstream apparent. Low banks relative to channel width suggest the floodplain is still somewhat accessible during higher flows.
Sediment Deposition	7	Some fine sediment and gravel accumulation is visible in the channel, but the substrate is predominantly clean cobble and limestone fragments. Minor point bar development visible. Pools downstream show some sediment accumulation but are not filled. Overall sediment deposition appears within normal range for a small agricultural stream.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	7	7	1_25_percent	Left bank has the better riparian condition of the two banks. Dense shrub/vine coverage even during dormant season provides good bank stability. A red-roofed structure is visible approximately 100+ feet from the bank. Some potential invasive vine species present in the understory.
Right	5	4	26_50_percent	Right bank lacks adequate riparian buffer. Mowed grass extends nearly to the channel edge. Scattered deciduous trees provide some protection but are not continuous. Bank erosion and bare soil exposure more pronounced on this side. An old barn/outbuilding is visible approximately 100+ feet from the bank.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	During the current dormant season, canopy cover is approximately 20-30% from bare deciduous branches and scattered evergreens. During full leaf-out, canopy would be approximately 40-60% as the mature trees would provide significant coverage but gaps would remain, especially on the right bank side. For a warmwater stream, this moderate shade level is adequate but not optimal.
Left Buffer Width	25 50ft	Score: 6/10
Right Buffer Width	under 10ft	Score: 3/10
TDEC 30ft Buffer Met?	L: Yes / R: No	The right bank riparian buffer is severely compromised by mowing/grazing extending to the channel edge. TDEC MS4 permit section 4.2.5.4 requires minimum 30ft riparian buffers. Restoration potential is high on the right bank as simply ceasing mowing activities would allow natural regrowth. Active planting could accelerate restoration. The left bank buffer appears adequate.

Water Quality & Infrastructure · Scene 31

Water Quality Indicators

Metric	Score	Notes
Water Appearance	7	Water appears clear to slightly tinted in the riffle areas with substrate clearly visible through the water column. In the downstream pool, the water appears darker due to depth and reflection but does not appear turbid. No sheen, foam, or discoloration observed. During dry weather conditions, clarity appears good.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No direct evidence of manure or animal waste in the stream or on the banks. However, the mowed pastoral area on the right bank and the barn/outbuilding suggest agricultural use that could include livestock. No fencing to exclude livestock from the stream is visible, but no direct evidence of livestock access (trampled banks, manure) was observed at this location.
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 the inadequate riparian buffer on the right bank for MS4 buffer compliance tracking	medium	90_days
Continue dry weather screening at this location during subsequent survey passes to establish baseline conditions	low	annual

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