

Scene 12 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17008, -86.26905 · Generated October 23, 2026

OVERALL SCORE

5.5

Marginal



Front: Looking downstream, a narrow stream channel winds through a deciduous riparian corridor with bare winter trees. The channel is shallow with exposed flat rock/stone substrate and very low water. In the distance, what appears to be a structure or building is partially visible through the trees.

Right: Looking toward the right bank (left bank when facing downstream), dense bare deciduous shrubs and small trees are visible with exposed root systems at the bank edge. Beyond the riparian zone, an open agricultural field/pasture is visible in the background with what appears to be bare or dormant brown grass. Significant bank undercutting is evident with exposed roots.

Back: Looking upstream, the stream channel extends with shallow turbid water over a rocky/gravel bed. The left bank shows exposed root wads from a large tree with significant undercutting. Open agricultural/pastoral land is visible on the left (right bank facing downstream) through sparse riparian trees. A fencing post or marker stake may be visible on the right side.

Left: Looking toward the left bank (right bank facing downstream), an open agricultural pasture field extends beyond a very thin riparian buffer. A red barn/agricultural structure is visible in the distance. A marker stake with red and white markings is visible at the bank edge. Flat rocks/stones are piled along the bank top, which could be placed stone or natural limestone outcrop — requires closer inspection. The riparian buffer is extremely narrow, perhaps only 10-20 feet of scattered trees.

Assessment Scores

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

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 12

Black Branch at this location is a small headwater stream in marginal condition, primarily impacted by adjacent agricultural land use that has reduced the riparian buffer to inadequate widths, particularly on the right bank. The channel is moderately entrenched (Rosgen Type F) with active bank erosion and undercutting, especially on the left bank where severe root exposure is evident. Water quality appears fair with some turbidity but no evidence of acute contamination. No stormwater infrastructure or outfalls were observed. The primary management need is riparian buffer restoration on the right bank and bank stabilization to reduce sediment inputs.

Primary Stressors

bank erosion, riparian loss, sedimentation

Channel Assessment

Metric	Score	Notes
Channel Condition	6	Channel appears natural with no direct modifications visible. However, moderate incision is evident from the bank heights (3-6 ft) relative to the narrow channel width, and the exposed root systems suggest ongoing downcutting. The channel is not artificially altered but shows geomorphic instability likely related to altered hydrology from surrounding agricultural land use.
Hydrologic Alteration	5	The channel shows moderate incision with 3-6 ft banks for a stream that is less than 10 ft wide. This degree of incision limits floodplain connectivity. The surrounding agricultural land use likely has increased runoff and reduced infiltration, altering the hydrologic regime. Flooding of the adjacent fields appears infrequent based on the incision depth.
Sediment Deposition	5	Some sediment deposition is visible in the channel, with fine sediments and gravel accumulating in the shallow runs. The turbid water color suggests active sediment transport. Point bars appear to have some sediment accumulation. Approximately 20-30% of the visible bed appears affected by recent deposition.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	4	5	26_50_percent	Left bank shows significant undercutting with exposed root systems. The narrow riparian buffer transitions quickly to agricultural pasture. Severe root exposure on mature trees suggests ongoing lateral migration and bank retreat.
Right	5	4	1_25_percent	Right bank has a very narrow riparian buffer with agricultural pasture extending to within 10-25 ft of the channel. Flat limestone rock at the bank surface provides some natural armoring. A survey/property marker stake is visible. Red barn visible in the distance across the pasture.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	During growing season, the canopy would provide approximately 40-60% shade based on the tree density visible. Currently in winter leaf-off, shade is minimal (under 25%). The mix of deciduous and some evergreen trees (cedar) provides year-round partial shade in limited areas. For a warmwater stream, the current conditions are marginally adequate.
Left Buffer Width	25 50ft	Score: 5/10
Right Buffer Width	10 25ft	Score: 3/10
TDEC 30ft Buffer Met?	L: Yes / R: No	The right bank buffer is inadequate and does not appear to meet TDEC's minimum 30 ft riparian buffer requirement. Agricultural pasture extends to within approximately 10-20 ft of the channel in some areas. Buffer restoration through planting and livestock exclusion fencing would significantly improve stream health. The left bank buffer is marginal but may meet minimum requirements.

Water Quality & Infrastructure · Scene 12

Water Quality Indicators

Metric	Score	Notes
Water Appearance	5	Water appears slightly turbid with a brownish color. Visibility appears to be approximately 1-2 ft based on the ability to see the substrate in shallow areas. No oil sheen, foam, or algal mats are visible. The brown color could be from natural tannins or sediment.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No direct evidence of manure or waste in the stream is visible. However, agricultural pasture is immediately adjacent to the right bank with a very narrow buffer. No livestock are visible but the fence/marker stake and pasture condition suggest potential livestock access. No direct manure or waste discharge observed.
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 inadequate riparian buffer on right bank for MS4 compliance records	medium	90_days
Verify agricultural land use practices adjacent to stream do not contribute to water quality impairment	medium	90_days

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