

Scene 35 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16969, -86.27081 · Generated October 23, 2026

OVERALL SCORE

5.3

Marginal



Front: Looking downstream, a narrow stream channel extends into the distance with very shallow flow over exposed rock/flat substrate. The channel is approximately 3-5 feet wide. The left bank has sparse dormant grass and scattered mature deciduous trees in bare winter condition. The right bank is lined with mowed green grass extending to scattered trees with a structure (barn/shed) visible in the far background. A yucca plant is growing on the right bank edge.

Right: The right bank view shows a mowed grass area extending away from the stream, transitioning to a thicket of dense dormant shrubs and small trees. A few scattered mature deciduous trees stand in the mowed area. The vegetation in the thicket is heavily tangled and dormant, with some potential invasive species (bush honeysuckle or privet) evident from the dense growth habit. The area appears to be rural residential or agricultural land.

Back: Looking upstream, the narrow stream channel is visible with very shallow flow over exposed flat limestone bedrock substrate. The channel curves slightly. The left bank (right side of image looking upstream) shows mowed green grass with scattered mature trees and a large tree stump/rootwad on the bank. A structure with a reddish/pink color is visible in the background through the bare trees. The right bank (left in image) has dense dormant shrubs and vine thicket. Woody debris accumulation is visible on the left bank near the channel.

Left: The left bank view shows dense dormant vegetation including a thick tangle of shrubs, vines, and small trees. Several mature deciduous trees extend above the understory. The vegetation is heavily dormant and some green leaves visible appear to be evergreen species or possibly invasive species with extended growing season (privet or Japanese honeysuckle retaining some foliage). The ground is covered in leaf litter and dead vine material. This side has a much denser riparian buffer compared to the mowed right bank.

Assessment Scores

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

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 35

Black Branch at this location is a small headwater stream (1st-2nd order) flowing over natural limestone bedrock in a rural/agricultural setting near Lebanon, TN. The stream exhibits marginal overall condition, primarily limited by a severely deficient riparian buffer on the right bank where mowed lawn extends to the channel edge, poor instream habitat diversity with uniform shallow flow over bedrock and minimal pool development, and active bank erosion on both sides. The left bank has a denser riparian zone but is compromised by invasive species (likely bush honeysuckle, privet, and Japanese honeysuckle). No stormwater infrastructure, outfalls, or illicit discharge indicators were observed. The primary management opportunity is restoration of the right bank riparian buffer, which would improve bank stability, shade, habitat, and water quality filtering.

Primary Stressors

riparian loss, bank erosion, sedimentation

Channel Assessment

Metric	Score	Notes
Channel Condition	6	Channel appears natural with no direct structural modifications, however there is evidence of moderate incision with steep, eroding banks on both sides. The channel is narrow and deeply cut relative to the surrounding floodplain. The mowed grass extending to the bank edge on the right side has likely contributed to bank instability. Some lateral erosion is evident. Score of 6 reflects a natural but moderately degraded channel with active erosion processes.
Hydrologic Alteration	5	The stream shows moderate incision with steep banks approximately 2 feet above the water surface. While the channel is not deeply entrenched, the banks are steep enough to suggest reduced floodplain access during smaller events. The surrounding land use (agriculture/rural residential) may contribute to altered hydrology through increased runoff from cleared/mowed areas.
Sediment Deposition	6	The bedrock-dominated substrate shows limited sediment deposition. Some silt/mud is visible covering portions of the bedrock, suggesting minor fine sediment transport and deposition. No significant bar development or pool filling observed. The bedrock substrate provides natural resistance to aggradation. Score of 6 reflects minor silt deposition over bedrock.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	6	1_25_percent	Left bank has dense dormant shrub/vine thicket providing reasonable riparian buffer. Bank face shows some bare soil and minor erosion at the channel edge. Potential invasive species present in understory. During growing season, this side would provide significantly more cover and root stabilization.
Right	4	4	26_50_percent	Right bank is maintained/mowed grass extending to channel edge. This significantly reduces natural bank stability compared to the left bank. Scattered mature deciduous trees provide some root mass but are insufficient to protect the full bank. Active erosion and bare soil visible on bank face. Yucca plant observed growing at bank edge. Residential/agricultural structure visible in background.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	4	Currently in winter with bare branches, the canopy cover is less than 25%. During growing season, the mature trees from both sides would likely provide 25-50% shade, but the scattered nature of trees on the right bank and the narrow stream width means full canopy closure is unlikely even in summer. The winter condition shows minimal shade. Score of 4 reflects expected growing season conditions of moderate shade.
Left Buffer Width	25 50ft	Score: 7/10
Right Buffer Width	under 10ft	Score: 3/10
TDEC 30ft Buffer Met?	L: Yes / R: No	The right bank riparian buffer is severely deficient. Mowing extends to the channel edge, eliminating natural woody vegetation within the minimum 30ft buffer zone. The left bank has adequate width but invasive species management would improve buffer function. High restoration potential exists on the right bank - simply ceasing mowing within 30-60ft of the channel would allow natural succession to begin restoring buffer function. Active planting would accelerate recovery.

Water Quality & Infrastructure · Scene 35

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water appears slightly turbid with a brownish coloration, likely from silt/mud on the bedrock substrate being stirred up. The water is shallow enough to see the bottom throughout, and visibility appears to be at least 1-2 feet in deeper areas. No oil sheen, foam, or algal mats observed. No surface film visible. The brown color may be partly from dissolved tannins in winter conditions. Score of 6 reflects slightly turbid but generally acceptable appearance.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No direct evidence of manure or waste in or near the stream. No livestock are visible, and no fencing indicates current livestock access at this specific location. However, the mowed pasture-like condition of the right bank and the rural agricultural setting suggest that livestock use may occur in the broader area. No waste discharge pipes or storage visible. Score of 7 as no direct evidence is present but the agricultural setting warrants some caution.
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 as part of visual stream survey for MS4 permit compliance. Note absence of outfalls and no evidence of illicit discharge.	medium	annual
Continue monitoring for any new outfall installations or discharges as surrounding land use may change.	low	annual

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