

Scene 15 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17006, -86.26936 · Generated October 23, 2026

OVERALL SCORE

6.4

Marginal



Front: Looking downstream, a very narrow channel (approximately 3-5 feet wide) winds through a riparian corridor of bare deciduous trees. The streambed is dominated by flat limestone/bedrock substrate with a thin sheet of water flowing over it. Open agricultural fields are visible through the trees on the left side. Some green vegetation (possible evergreen or early-emerging invasives) is visible on the right bank.

Right: The right bank (left bank when facing downstream) shows a large mature sycamore tree trunk dominating the foreground, with lichen-covered bark. Behind it, the right bank rises moderately with dormant deciduous shrubs and small trees forming a dense understory. Some green vegetation is emerging at lower levels, possibly including invasive honeysuckle or privet. The riparian zone extends into what appears to be woodland or scrubby vegetation.

Back: Looking upstream, the narrow channel continues with the same bedrock/limestone substrate and very shallow flow. The channel is bordered by bare deciduous trees and shrubs. A few evergreen trees (likely eastern red cedar) are visible in the riparian zone. Open agricultural fields can be seen through the trees on the right side. The stream appears to have a slight sinuosity as it bends through this corridor.

Left: The left bank (right bank when facing downstream) shows open agricultural fields beyond a narrow riparian strip. A red barn/outbuilding is visible in the distance across the field. The riparian buffer on this side consists of bare deciduous trees (including sycamore) and dense dormant shrubs, with some green leafy vegetation at ground level that may include invasive species such as bush honeysuckle or multiflora rose retaining some green foliage. The buffer appears relatively narrow, transitioning quickly to open pasture/cropland.

Assessment Scores

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

Urgency: LONG TERM

Detailed Observations · Scene 15

Black Branch at this location is a small headwater stream flowing over natural Ordovician limestone bedrock in a rural agricultural setting near Lebanon, Tennessee. The channel is natural and unmodified with good bank stability but limited instream habitat diversity due to the bedrock-dominated substrate and low flow conditions. The riparian buffer is narrow on the left bank adjacent to agricultural fields, with a wider buffer on the right bank. Water quality appears good with no evidence of nutrient enrichment or contamination. No stormwater infrastructure or outfalls were observed. The primary management concerns are the narrow agricultural buffer, limited large woody debris, and potential for invasive species encroachment. Overall condition is marginal, primarily limited by instream habitat deficiencies inherent to the bedrock substrate and agricultural land use impacts on the riparian zone.

Primary Stressors

riparian loss, sedimentation, stormwater

Channel Assessment

Metric	Score	Notes
Channel Condition	8	The channel appears natural with no evidence of straightening, riprap, or other structural alterations. The bedrock substrate provides natural grade control. The channel dimensions appear appropriate for the drainage area. Minor score reduction because the agricultural adjacency may have historically influenced channel form, but the channel itself shows no clear alteration.
Hydrologic Alteration	7	The channel is on bedrock which limits incision. Banks are low (under 3 feet) and the floodplain appears accessible on both sides. The agricultural land use in the watershed likely increases peak flows and flashiness. Some minor incision may be present but bedrock controls prevent significant downcutting.
Sediment Deposition	7	Bedrock-dominated channel shows minimal sediment deposition — the hard substrate resists accumulation. Some fine sediment visible in low spots between rock surfaces. Overall deposition is minor, likely less than 10% of the bed affected. The bedrock naturally prevents significant sediment storage.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	7	6	1_25_percent	Left bank has narrow riparian buffer transitioning to open agricultural field. The buffer width appears to be approximately 25-50 feet of woody vegetation before reaching cropland/pasture. A red barn/outbuilding is visible in the distance.
Right	7	7	0_percent	Right bank has wider riparian buffer extending into woodland. Large mature sycamore tree provides significant root protection and bank stabilization. Some open agricultural fields visible through vegetation on this side as well but at greater distance.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	Currently in winter with bare deciduous canopy, shade is minimal (<25%). During growing season, the canopy of sycamores and other deciduous trees would provide approximately 50-75% shade. Score reflects the annual average considering seasonal variation. The canopy is present but not dense enough for full coverage even in summer due to gaps where agricultural fields are close.
Left Buffer Width	25 50ft	Score: 5/10
Right Buffer Width	50 100ft	Score: 7/10
TDEC 30ft Buffer Met?	L: Yes / R: Yes	The left bank buffer could benefit from widening through agricultural setback or planting additional native trees and shrubs. The right bank buffer is more adequate. Both buffers would benefit from invasive species management to improve native vegetation dominance and ecological function.

Water Quality & Infrastructure · Scene 15

Water Quality Indicators

Metric	Score	Notes
Water Appearance	7	Water is mostly clear with a slight brownish tint likely from natural tannins and dissolved organics. At the shallow depths present, the bedrock substrate is easily visible through the water. No algal mats, sheens, or other water quality concerns are apparent. The slight turbidity may be from the survey crew's foot disturbance of fine sediments. Under ambient conditions, the water appears relatively clear.
Nutrient Enrichment	8	Algae: none
Manure/Waste	8	No direct evidence of manure or waste in the stream or on the banks. The adjacent agricultural land includes what appears to be cropland/pasture with a red barn visible, suggesting some agricultural activity. However, no livestock are visible and no fencing issues or direct access points are apparent. The riparian buffer appears to separate the stream from agricultural activities.
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
Continue visual stream survey documentation of this reach during annual assessment cycle	medium	annual
Confirm no outfalls present in adjacent scenes; verify agricultural drainage does not constitute an illicit discharge	low	annual

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