Scene 3 · MS4 Assessment

Cedar Creek - Main Branch

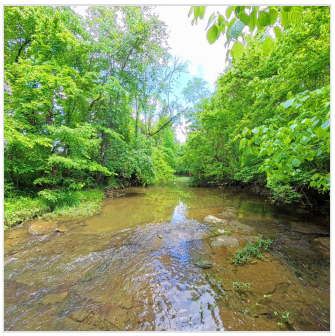
City of Lebanon TN

36.19195, -86.45047 · Generated November 22, 2026

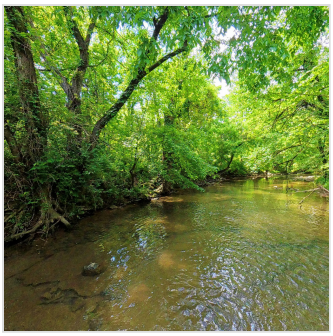
OVERALL SCORE

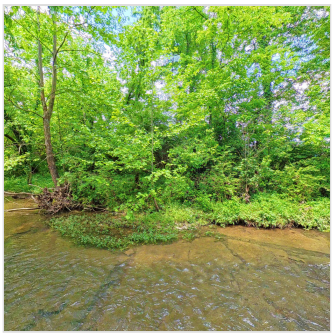
7.8

Good


Front


Right


Back


Left

Front: Looking downstream, the channel extends through a well-forested corridor with dense riparian vegetation on both sides. The water is very shallow, flowing over exposed bedrock and limestone substrate with a thin film of water creating reflective surfaces. The channel is moderately wide (~20-30ft) with overhanging trees creating partial canopy coverage over the stream.

Right: The right bank (looking downstream) shows a dense riparian forest with mature trees and thick understory shrubs. A visible trail or path appears to run along the right bank at a slightly elevated position, with what appears to be a weathered concrete pad along the bank edge near the trail access. The channel bed is exposed bedrock with very shallow water. Small trees and shrubs grow near the waterline.

Back: Looking upstream, the channel shows a deeper pool section with moderately flowing water beneath dense overhanging canopy of mature deciduous trees. The left bank (right in this upstream view) features a large tree with extensive root exposure and overhanging limbs. The water appears slightly deeper here than in the front view, with visible bed substrate through clear water. Some woody debris is visible in the channel.

Left: The left bank (looking downstream) features dense riparian vegetation with mature deciduous trees and thick herbaceous understory extending to the waterline. A fallen tree with exposed root wad is visible at the bank edge. The lower bank shows dense herbaceous and vine coverage extending into shallow water. The vegetation appears very healthy with full summer canopy. Some low-growing plants trail into the shallow water at the bank margin.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	9		good
Hydrologic Alteration	8		Good
Sediment Deposition	8		Good
Left Bank Stability	8		Good
Right Bank Stability	7		Good
Left Vegetative Protection	9		Good
Right Vegetative Protection	7		Good
Riparian Canopy Cover	9		Good
Floodplain Vegetation	4		Fair
Water Appearance	9		Good
Nutrient Enrichment	7		Good
Epifaunal Substrate	-		-

Urgency: MONITORING ONLY

Detailed Observations · Scene 3

> Cedar Creek at this location near the beginning of the Main Branch reach is in good overall condition with an intact forested riparian corridor, natural unmodified channel, and clear water over bedrock substrate. The stream's primary limiting factor is the bedrock-dominated bed which inherently limits habitat diversity for macroinvertebrates and fish compared to alluvial reaches. The riparian buffer is exceptional on both banks, meeting or exceeding TDEC buffer standards, with dense mature forest providing excellent shade, bank stability, and filtering functions. No stormwater infrastructure, outfalls, or evidence of illicit discharge were observed. The only human infrastructure is a recreational trail on the right bank with minor placed stone at an access point. Management priorities are low, focused primarily on maintaining the existing high-quality riparian buffer and monitoring for potential invasive species encroachment.

Primary Stressors

sedimentation, riparian loss

Channel Assessment

Metric	Score	Notes
Channel Condition	**9**	Channel appears entirely natural with no evidence of straightening, channelization, riprap, or other alterations. The bedrock substrate provides natural grade control preventing downcutting. The only minor deduction is from the trail access point on the right bank which includes some placed stone, but this is very localized and does not alter the channel itself.
Hydrologic Alteration	**8**	The channel shows good floodplain connectivity with low banks, particularly on the left side. The bedrock substrate prevents incision. The wide, shallow flow pattern and debris lines in vegetation suggest regular flooding. Score slightly reduced because some upstream watershed development may alter hydrology, though not apparent at this location.
Sediment Deposition	**8**	The bedrock-dominated substrate shows very little sediment deposition. The channel bed is largely clean bedrock with minimal fine sediment accumulation. Some thin biofilm/algal coating on rock but no significant sediment bars or deposits. The bedrock nature of this channel means sediment tends to transport through rather than deposit.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	**8**	**9**	0_percent	Left bank is in excellent natural condition with dense vegetation extending to the waterline. A fallen tree provides natural bank stabilization and aquatic habitat. Low bank height with gradual slope indicates good floodplain connectivity.
Right	**7**	**7**	1_25_percent	Right bank is mostly well-vegetated and stable. A trail provides access to the stream with some a weathered concrete pad at the access point creating a localized area of modification. The trail appears to be a recreational/survey access trail through the forested riparian zone.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	**9**	The upward view shows approximately 60-75% canopy coverage over the stream channel. This is within the optimal range for warmwater streams, providing good shade while allowing some light penetration for primary production. The canopy creates a mixture of shaded and sunlit conditions ideal for warmwater stream communities.
Left Buffer Width	over 100ft	Score: 9/10
Right Buffer Width	50 100ft	Score: 8/10
TDEC 30ft Buffer Met?	**L: Yes / R: Yes**	Both riparian buffers appear to exceed TDEC minimum standards. The only encroachment is a walking trail on the right bank which has minimal impact on buffer function. The forest appears to be mature second-growth with good species diversity and structural complexity. No development visible within either buffer zone.

Water Quality & Infrastructure · Scene 3

Water Quality Indicators

Metric	Score	Notes
Water Appearance	**9**	Water is exceptionally clear with the bedrock substrate plainly visible throughout the reach. At current shallow depths, the entire bed is visible with fine detail of rock texture and biofilm. No turbidity, discoloration, sheens, or odors are apparent. The clear water during dry weather baseflow conditions indicates good water quality at this time.
Nutrient Enrichment	**7**	Algae: moderate
Manure/Waste	**10**	No evidence of manure, livestock access, or waste of any kind. The dense forested riparian zone on both banks would prevent livestock access. No waste discharge pipes or other waste indicators are visible.
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 reference condition for Cedar Creek watershed assessments	low	annual
Continue annual visual stream assessment to track condition trends	medium	annual