Scene 4 · MS4 Assessment

Cedar Creek - Main Branch

City of Lebanon TN

36.19195, -86.45046 · 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 stream is wide and shallow with exposed bedrock/limestone substrate visible through clear water. The channel narrows slightly in the distance with overhanging trees providing substantial canopy cover.

Right: Looking toward the right bank (when facing downstream), the view shows dense forest vegetation with mature trees growing along a channel split or side channel area. The substrate transitions from bedrock in the water to exposed concrete pad and soil along the bank. A weathered concrete pad is visible near the bank edge, likely a remnant from prior infrastructure. Dense shrubs and understory vegetation extend behind the bank trees.

Back: Looking upstream, the channel shows a wider pool-glide area with clear water flowing over bedrock and limestone substrate. Large mature trees line both banks with extensive root systems visible along the left bank (viewer's right when looking upstream). The water is slightly deeper here with gentle flow and good clarity allowing bed visibility. Overhanging branches provide moderate to heavy shading.

Left: Looking toward the left bank (when facing downstream), a dense forested riparian zone extends from the water's edge. Mature trees with exposed root systems are visible at the bank edge, with one notable tree showing moderate root exposure where the bank meets the water. Dense understory shrubs and herbaceous vegetation fill the space between trees. The bank appears low to moderate height with good vegetative protection. Water is clear and shallow over bedrock at the channel margin.

Assessment Scores

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

Urgency: MONITORING ONLY

Detailed Observations · Scene 4

> Cedar Creek Main Branch at this location is in good condition with near-reference characteristics for a bedrock-controlled Middle Tennessee stream. The reach features clear water flowing over limestone bedrock through a densely forested corridor with excellent riparian buffers exceeding 100 feet on both banks. Water quality is excellent with no evidence of nutrient enrichment, contamination, or stormwater impacts. The primary limitations are inherent to the bedrock substrate, which limits pool formation, instream habitat diversity, and large woody debris retention. No stormwater infrastructure, outfalls, or development are visible, and no MS4 compliance concerns were identified at this location.

Primary Stressors

sedimentation, other

Channel Assessment

Metric	Score	Notes
Channel Condition	**9**	Channel appears fully natural with no evidence of straightening, armoring, or other modifications. Bedrock substrate provides natural grade control preventing downcutting. Banks are low and naturally vegetated. Very slight deduction from optimal due to the wide, shallow nature of the channel which may indicate some broadening, though this could be natural for a bedrock-controlled stream.
Hydrologic Alteration	**8**	Channel shows low banks with good floodplain connectivity. Bedrock substrate prevents incision. Evidence of regular flooding including debris deposits and low bank height. Slight deduction because low flow conditions suggest the stream may be affected by upstream watershed changes, though this could simply be normal summer baseflow.
Sediment Deposition	**9**	Very little sediment deposition visible. Bedrock substrate is largely clean with only thin algal coating. No significant point bars, mid-channel bars, or pool filling observed. Bedrock-controlled channel effectively transports sediment during higher flows.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	**8**	**9**	1_25_percent	Left bank is in good to excellent condition with dense forested riparian zone. Minor undercutting noted at tree roots but this is natural and provides fish habitat. Low bank with good floodplain access.
Right	**8**	**9**	0_percent	Right bank is stable with dense forested cover. Weathered concrete pad visible at bank toe, a remnant from prior infrastructure. Concrete surface is heavily weathered with exposed aggregate.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	**8**	Canopy coverage estimated at 50-65% based on the UP face view. There is a notable opening along the stream corridor allowing direct sunlight, which is typical for a moderate-width stream. This provides a good mixture of shaded and sun-exposed conditions beneficial for warmwater stream productivity. Score of 8 reflects ideal warmwater conditions with partial shading.
Left Buffer Width	over 100ft	Score: 9/10
Right Buffer Width	over 100ft	Score: 9/10
TDEC 30ft Buffer Met?	**L: Yes / R: Yes**	Riparian buffer exceeds TDEC MS4 permit requirements on both banks. Dense mature forest provides excellent filtration, bank stabilization, and habitat functions. No restoration needed at this location.

Water Quality & Infrastructure · Scene 4

Water Quality Indicators

Metric	Score	Notes
Water Appearance	**9**	Water is very clear with bedrock substrate fully visible across the entire channel. In deeper areas, objects are visible well beyond 3 feet. No turbidity, discoloration, or film observed. Slight greenish tint from algal coating on bedrock but water column itself is clear. No oil sheen, foam, or surface contamination. Near-reference condition water clarity.
Nutrient Enrichment	**8**	Algae: minor
Manure/Waste	**10**	No evidence of manure, waste, or livestock access. Dense forested riparian zone on both banks precludes livestock access. No waste discharge pipes, sewage indicators, or organic enrichment 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 this location as a reference reach for Cedar Creek Main Branch with no outfalls or stormwater infrastructure present	low	annual
Include in routine visual stream assessment inventory to track any changes over time	low	annual