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NPDES MS4 Annual Report

version 1.8

(Submission #: HQ5-0XXH-K13GN, version 1)

Details

Originally Started By Helen Morrison

Submission ID HQ5-0XXH-K13GN

MS4 Owner Name City of Hendersonville

Status Draft

Active Steps Form Submitted

Form Input

General Information

Permit Number

TNS075353

MS4 Owner/Operator (e.g. City of ...)

City of Hendersonville

County

Sumner

Reporting Period

Per subpart 5.1

- a. The Annual Report shall cover the period beginning on July 1st and ending on June 30th;
- b. The Annual Report shall be due on September 30th after the end of the reporting period.

Reporting Period Start Date

07/01/2023

Reporting Period End Date

06/30/2024

MS4 Population At NOI Submittal

Population greater than or equal to 50,001

Name and contact information of MS4 Responsible Authority (e.g. Mayor ...)

Prefix

Hon.

First Name Last Name

Jamie Clary

Title

Mayor

Company Name

City of Hendersonville

Phone Type Number Extension

Business 615-822-1000

Email

jclary@hvilletn.org

Address

101 MAPLE DR N
HENDERSONVILLE, TN 37075

Designated MS4 Stormwater Management Program Contact

Prefix

Mrs.

First Name Last Name

Helen Morrison

Title

Stormwater Coordinator

Company Name

City of Hendersonville

Phone Type Number Extension

Business 6155904649

Email

hmorrison@hvilletn.org

Address

101 MAPLE DR N
HENDERSONVILLE, TN 37075

MCM 1: Public Education

Below report on the educational activities completed during the reporting year. Delete unused rows (click X at end of row). Add rows (add row button on bottom of table) to report add activities.

Provide the number of activities completed during the reporting year for the Public (Subpart 4.2.1.1. of the permit).

16

Provide the number of activities completed during the reporting year for the Engineering and Development Community (Subpart 4.2.1.2. of the permit).

6

For new employees: provide the total number of employees NOT educated in accordance with the PIE plan within 6 months?

0

For existing employees: provide the total number of employees NOT educated in accordance with the PIE plan within the permit term.

0

A population of greater than or equal to 50,001 at NOI submittal was selected in the General Information Section. Per Subpart 4.2.1.1. the MS4 is required to conduct six (6) activities during the reporting year addressing each of the four (4) management measures for the public. A single activity may address multiple management measures.

You may need to use the scroll bars to view the whole table.

To Add a Row - Click Add Row near the bottom right of the table

To Delete a Row - Click the "X" at the far right end of the row.

Column Descriptions

Target Audience (This column is fixed and cannot be changed.)

Activity Description: (Provide details as to the specific activity that was conducted.)

Management Measure: Impacts on Water Quality (Select Yes if the activity listed in this row addressed the 4.2.1.1.a.General awareness of the impacts on water quality.)

Management Measure: SCM/BMP Maintenance (Select Yes if the activity listed in this row addressed the 4.2.1.1.b. Awareness of the importance of maintenance activities for operators of permanent Best Management Practices (BMPs)/Stormwater Control Measures (SCMs).)

Management Measure: Storage, Use, Disposal of Fluids (Select Yes if the activity listed in this row addressed the 4.2.1.1.c. Awareness of the proper storage, use, and disposal of pesticides, herbicides, fertilizers oil and other automotive-related fluids.)

Management Measure: Illicit Discharges (Select Yes if the activity listed in this row addressed the 4.2.1.1.d. Awareness of identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.)

Date of Activity (Enter the date the activity took place. If the activity took place across multiple days enter the Date of the first day of the activity.)

Specifically Targeted Audience (This column is used to provide more details as to the audience the activity was targeting e.g. school age children,

Homeowners with SCMs) A broad based event such as tabling at a festival may list general public as the specifically targeted audience.

of Audience (Enter the approximate number of individuals that were reached with this activity.)

Sponsored Activities (Identify if the event sponsored monetarily e.g. money or as a donation in kind e.g. goods or services by the MS4 program. If it was not a sponsored activity, leave N/A in the cell.)

Provide the status of your MS4 programs public education and outreach activities for the Public audience during the reporting period.

Target Audience	Activity Description	Management Measure: Impacts on Water Quality	Management Measure: SCMBMP Maintenance	Management Measure: Storage, Use, Disposal of Fluids	Management Measure: Illicit Discharges	Date of Activity	Specifically Targeted Audience	# of Audience	Sponsored Activities
Public	Sumner County Schools Teacher Training	Yes	Yes	No	No	07/24/2023	Teachers	49	N/A
Public	Creek Critters Program George Whitten Elementary School	Yes	No	No	No	10/13/2023	Students	48	N/A
Public	Creek Critters Program Ellis Middle School	Yes	No	No	No	11/08/2023	Students	75	N/A
Public	STEM Night Creek Critters	Yes	No	No	No	11/16/2023	Students and adults	90	N/A
Public	Creek Critters Program Station Camp Middle School	Yes	No	No	No	03/07/2023	Students and adults	125	N/A
Public	Creek Critters Program Station Camp Middle School	Yes	No	No	No	03/08/2024	Students and adults	134	N/A
Public	Hawkins Middle School	Yes	No	No	No	03/13/2024	Students and adults	168	N/A
Public	Stream Bank Repair Workshop	Yes	Yes	No	Yes	07/26/2023	Adults	73	N/A
Public	SumnerFest	Yes	Yes	Yes	Yes	08/05/2023	Adults and children	110	N/A
Public	Educational Signage-Knox-Doss Middle School	Yes	No	No	No	10/17/2023	Adults and children	1	N/A
Public	Educational Signage-George Whitten Elementary	Yes	No	No	No	03/07/2024	Adults and children	1	N/A
Public	Waterfest	Yes	Yes	Yes	Yes	06/28/2024	Adults and children	550	N/A
Public	Annual Stormwater Flyer with Property Tax Bill	Yes	Yes	Yes	Yes	10/01/2024	Adults-every property owner receiving a tax bill	22000	N/A
Public	Hendersonville Chamber of Commerce-Women in Business Panel	Yes	No	Yes	Yes	11/14/2023	Adults	35	N/A
Public	Welcome to Your Watershed Event	Yes	No	Yes	Yes	01/18/2024	HOA/POA, Public	8	N/A

A population of greater than or equal to 50,001 at NOI submittal was selected in the General Information Section. Per Subpart 4.2.1.2. the MS4 is required to conduct two (2) activities during the reporting year addressing each of the two (2) management measures for the Engineering and Development Community. A single activity may address multiple management measures.

You may need to use the scroll bars to view the whole table.

To Add a Row - Click Add Row near the bottom right of the table

To Delete a Row - Click the "X" at the far right end of the row.

Column Descriptions

Target Audience (This column is fixed and cannot be changed.)

Activity Description: (Provide details as to the specific activity that was conducted.)

Management Measure: Long Term Water Quality Impacts (Select Yes if the activity listed in this row addressed the 4.2.1.2.a Awareness of the stormwater ordinances, regulations, and guidance materials related to long-term water quality impacts.)

Management Measure: Construction Water Quality Impacts (Select Yes if the activity listed in this row addressed the 4.2.1.2.b. Awareness of stormwater ordinances, regulations, and guidance materials related to construction phase water quality impacts.)

Date of Activity (Enter the date the activity took place. If the activity took place across multiple days enter the Date of the first day of the activity.)

Specifically Targeted Audience (This column is used to provide more details as to the audience the activity was targeting e.g. restaurants, Engineers, Developers) A broad based event such as tabling at a local trade show may list commercial and development community as the specifically targeted audience.

of Audience (Enter the approximate number of individuals that were reached with this activity.)

Provide the status of your MS4 program's public education and outreach activities for the Engineering and Development Community during the reporting period.

Target Audience	Activity Description	Management Measure: Long Term Water Quality Impacts	Management Measure: Construction Water Quality Impacts	Date of Activity	Specifically Targeted Audience	# of Audience
Engineering and Development Community	Hendersonville Utility District	Yes	Yes	09/26/2023	Engineers, MS4s, Developers	12
Engineering and Development Community	River Talk- "Increase a Development's Value with A Multi-Functioning Stormwater System"	Yes	Yes	08/16/2023	Engineers, Developers, MS4s	10
Engineering and Development Community	Plan Review and Calculations for WQTV Compliance with CEC	Yes	Yes	11/30/2023	Engineers, Developers, MS4s	51
Engineering and Development Community	Streamside Salamander Field Trip and Talk with David Withers	Yes	Yes	02/08/2024	Engineers, Developers, MS4s	12
Engineering and Development Community	River Talk- Stormwater Ordinances- Guidance for Developers, Engineers, and MS4s	Yes	Yes	04/02/2024	Engineers, Developers, MS4s	46
Engineering and Development Community	Introduction to SCM Maintenance	Yes	Yes	06/13/2024	Engineers, Developers, MS4s	15

Supporting Documentation for Activities described in this section.

MS4 2024 Annual Report - Hendersonville.pdf - 07/15/2024 08:08 AM

Comment

NONE PROVIDED

Notes:

The City of Hendersonville has partnered with the Cumberland River Compact to provide water quality programming to the community.

MCM 2: Public Involvement And Participation

Below report on the involvement/participation activities completed during the reporting year. Delete unused rows (click X at end of row). Add rows (add row button on bottom of table) to report add activities.

Is your Stormwater Management Program Plan documentation available online?

No

Provide a brief description of the public records request process.

Visit <https://www.hvilletn.org/326/Request-Information-Records>.

The City of Hendersonville's applications for Records Requests can be downloaded and filled out. Once completed and printed, they must be brought to Hendersonville City Hall to the Office of the City Recorder for approval and signature.

Once the record request is received, reviewed, and approved, you will be notified with a date to retrieve or view the requested records

Was the MS4 program documentation formally placed on public notice during the reporting year?

No

Prior to the Second annual report due date the MS4 is required to complete the formal public notice process for the entire Stormwater Management Program including response to comments. A copy of the public notice and response to comments shall be provided with the appropriate Annual Report reporting year. See subpart 4.2.2

Subpart 4.2.2. requires the following in the annual report

Detail applicable changes as directed in subpart 4.4.1

This requirement will be located in the Program Modifications Section

Is information for all construction site projects accessible to the public?

Yes

Number of comments received from the public on construction site projects.

3

Are all comments from the public on construction site projects considered?

Yes

Number of reports (or complaints) during the reporting period received from the public via public reporting system (IDDE reports)?

15

Provide the number of activities completed during the reporting year for the General Public (Subpart 4.2.2.1. of the permit).

15

Provide the number of activities completed during the reporting year for the Commercial and Development Community (Subpart 4.2.2.2. of the permit).

6

A population of greater than or equal to 50,001 at NOI submittal was selected in the General Information Section. Per Subpart 4.2.2.1. the MS4 is required to conduct six (6) activities during the reporting year addressing each of the four (4) management measures for the general public. A single activity may address multiple management measures.

You may need to use the scroll bars to view the whole table.

To Add a Row - Click Add Row near the bottom right of the table

To Delete a Row - Click the "X" at the far right end of the row.

Column Descriptions

Target Audience (This column is fixed and cannot be changed.)

Activity Description: (Provide details as to the specific activity that was conducted.)

Management Measure: Pollution Prevention (Select Yes if the activity listed in this row addressed the 4.2.2.1.a Pollution Prevention Management Measure.)

Management Measure: Impacts on Water Quality (Select Yes if the activity listed in this row addressed the 4.2.2.1.b. Impacts on water quality or local stormwater management issues.)

Management Measure: Storage, Use, Disposal of Fluids (Select Yes if the activity listed in this row addressed the 4.2.2.1.c. Storage, use, and disposal of household hazardous waste, automotive related fluids, pesticides, herbicides, and fertilizers use.)

Management Measure: Illicit Discharges (Select Yes if the activity listed in this row addressed the 4.2.2.1.d. Identifying and reporting procedures for illicit connections/discharges, sanitary sewer seepage, spills, etc.)

Date of Activity (Enter the date the activity took place. If the activity took place across multiple days enter the Date of the first day of the activity.)

Specifically Targeted Audience (This column is used to provide more details as to the audience the activity was targeting e.g. school age children, Homeowners with SCMs) A broad based event such as tabling at a festival may list general public as the specifically targeted audience.

of Audience (Enter the approximate number of individuals that were reached with this activity.)

Sponsored Activities (Identify if the event sponsored monetarily e.g. money or as a donation in kind e.g. goods or services by the MS4 program. If it was not a sponsored activity, leave N/A in the cell.)

Provide the status of your MS4 program's public involvement/participation activities for the General Public audiences during the reporting period.

Target Audience	Activity Description	Management Measure: Pollution Prevention	Management Measure: Impacts on Water Quality	Management Measure: Storage, Use, Disposal of Fluids	Management Measure: Illicit Discharges	Date of Activity	Specifically Targeted Audience	# of Audience	Sponsored Activities
General Public	Lock 3 Clean Up Event	Yes	Yes	No	Yes	07/22/2023	Adults, children	7	N/A
General Public	Drakes Creek Clean Up Event	Yes	Yes	No	Yes	08/26/2023	Adults, children	7	N/A
General Public	Beautiful Hendersonville Clean Up Event along Old Hickory Lake	Yes	Yes	Yes	Yes	11/11/2023	Adults, children	15	N/A
General Public	Mallard Point Park Clean Up Event	Yes	Yes	Yes	Yes	05/18/2024	Adults, children	21	N/A
General Public	Waterfest 2024	Yes	Yes	Yes	Yes	06/28/2024	Adults, children	550	N/A
General Public	Welcome to Your Watershed	Yes	Yes	Yes	Yes	01/18/2024	Adults, HOA/POA	8	N/A
General Public	Creek Critters Programming to 6 area schools	Yes	Yes	No	Yes	07/24/2023	Adults, students (elementary, middle schools)	640	N/A
General Public	Sumnerfest	No	Yes	No	No	08/15/2023	general public	10	N/A
General Public	Streambank Repair Workshop	Yes	Yes	No	No	07/26/2023	Homeowners with streams along properties	73	N/A
General Public	Tennessee Tree Day Sponsorship	Yes	Yes	No	No	03/16/2024	General Public	50000	Monetary

A population of greater than or equal to 50,001 at NOI submittal was selected in the General Information Section. Per Subpart 4.2.2.2. the MS4 is required to conduct two (2) activities during the reporting year addressing each of the two (2) management measures for the Commercial and Development Community. A single activity may address multiple management measures.

You may need to use the scroll bars to view the whole table.

To Add a Row - Click Add Row near the bottom right of the table

To Delete a Row - Click the "X" at the far right end of the row.

Column Descriptions

Target Audience (This column is fixed and cannot be changed.)

Activity Description: (Provide details as to the specific activity that was conducted.)

Management Measure: Pollution Prevention (Select Yes if the activity listed in this row addressed the 4.2.2.2.a Pollution Prevention Management Measure.)

Management Measure: Impacts on Water Quality (Select Yes if the activity listed in this row addressed the 4.2.2.2.b. Impacts on water quality or local stormwater management issues.)

Date of Activity (Enter the date the activity took place. If the activity took place across multiple days enter the Date of the first day of the activity.)

Specifically Targeted Audience (This column is used to provide more details as to the audience the activity was targeting e.g. restaurants, Engineers, Developers) A broad based event such as tabling at a local trade show may list commercial and development community as the specifically targeted audience.

of Audience (Enter the approximate number of individuals that were reached with this activity.)

Provide the status of your MS4 programs public involvement/participation activities for the Commercial and Development Community during the reporting period.

Target Audience	Activity Description	Management Measure: Pollution Prevention	Management Measure: Impacts on Water Quality	Date of Activity	Specifically Targeted Audience	# of Audience
Commercial and Development Community	Hendersonville Utility District Field Trip- Water Treatment Plant	Yes	Yes	09/26/2023	Engineers, Developers, MS4s	12
Commercial and Development Community	River Talk- Green Infrastructure	Yes	Yes	08/16/2023	Engineers, Developers, MS4s, HOA/POA	10
Commercial and Development Community	Streamside Salamander Field Trip and Talk with David Withers	Yes	Yes	02/08/2024	Engineers, Developers, MS4s	12
Commercial and Development Community	River Talk- Stormwater Ordinances- Guidance for Developers, Engineers, and MS4s	Yes	Yes	04/02/2024	Engineers, Developers, MS4s	46
Commercial and Development Community	River Talk- Introduction to SCM Maintenance	No	Yes	06/13/2024	Engineers, Developers, MS4s, HOA/POA	15
Commercial and Development Community	Plan Review and Calculations for WQTV Compliance with CEC	Yes	Yes	11/30/2023	Engineers, Developers, MS4s	51

Supporting Documentation for Activities described in this section.

[2023-2024 Annual Report Activities.pdf - 07/15/2024 08:48 AM](#)

Comment

NONE PROVIDED

Notes:

NONE PROVIDED

MCM 3: Illicit Discharge Detection & Elimination (IDDE)

Is the storm sewer map available through Spatial Rest Services?

No

Attach Most Recent Copy of Storm Sewer Map in accordance with subpart 4.2.3

[Hendersonville MS4 Storm Sewer System Map \(Jan. - July 2024\).pdf - 08/01/2024 01:41 PM](#)

Comment

NONE PROVIDED

The number of potential illicit discharges reported by the public.

15

The number of potential illicit discharges reported by internal personnel.

6

Total number of potential Illicit discharges reported (from any source) that are under investigation at the time of the annual report.

0

Were all potential illicit discharges investigated within 7 days of receipt?

Yes

Number of identified illicit discharges

22

Were all initial enforcement actions on confirmed illicit discharges taken within seven (7) calendar days of the investigation?

Yes

Number of corrective actions plans received for confirmed illicit discharges.

13

Were all corrective actions plans reviewed in accordance with established procedures?

Yes

Total number of non-stormwater discharges or flows investigated.

0

Significant Contributor of Pollutants to the MS4

1.3.3.2. Non-stormwater Discharges

The permittee is authorized to discharge the following non-stormwater sources provided that the permittee has not determined these sources to be significant contributors of pollutants to the MS4:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rising ground waters
- Uncontaminated groundwater infiltration (Infiltration is defined as water other than wastewater that enters a sewer system, including sewer service connections and foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.)
- Uncontaminated pumped groundwater
- Discharges from potable water sources
- Foundation drains
- Air conditioning condensate
- Irrigation water
- Springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual residential car washing
- Flows from riparian habitats and wetlands
- Dechlorinated swimming pool discharges
- Street wash water
- Discharges or flows from firefighting activities

Subpart 8.1 Definitions

Significant Contributor is defined as a source of pollutants where the volume, concentration, or mass of a pollutant in a stormwater discharge can cause or threaten to cause pollution, contamination, or nuisance that adversely impact human health or the environment and cause or contribute to a violation of any applicable water quality standards for receiving water.

MCM 4: Construction Site Stormwater Runoff Pollutant Control

For reporting construction activities in this section, count all activities e.g., projects, sites that were active during the reporting period. It is understood that activities will overlap multiple reporting years. For example: If a project plan is submitted and reviewed in reporting year 1, that plan review will go only on the report for that year. If that same project begins construction in reporting year 2, it would be included in the year 2 report for active construction activity, but not the year 1 report. If a construction activity is terminated in the beginning of a reporting year before the first inspection for that reporting year is required, that activity may be left off the count.

Identify if the regulatory mechanisms for construction site runoff control have been updated to be consistent with the CGP?

In Effect

Total number of active construction activities (or sites).

35

Number of new development and redevelopment projects reviewed in accordance with established policies and procedures.
58

Were all new development and redevelopment projects reviewed in accordance with the established policy and procedure?
Yes

Number of active non-priority construction activities.
18

Were all nonpriority active construction activities inspections conducted accordance with Stormwater Management Program.
Yes

Number of active priority construction activities.
17

Total number of active non-priority construction activities with incomplete inventory information.
0

Did all Priority Construction Activities have Pre-Construction meetings?
Yes

Were all priority Construction Activities inspected at least once per calendar month?
No

MCM 5: Post Construction/ Permanent Stormwater Management

Has an offsite mitigation program or payment in lieu into a public stormwater fund been developed as outlined in subpart 4.2.5.3?
No

Did all of the projects approved meet the buffer requirements of subpart 4.2.5.4?
No

Does the Stormwater Management Program implement alternative buffer widths?
No

The 2009 scorecard can be found on TDEC's website.
[Water Quality Scorecard](#)

Scorecard
NONE PROVIDED
Comment
NONE PROVIDED

Number of all new development and redevelopment projects reviewed.
58

Number of new development and redevelopment projects reviewed in accordance with the established policy and procedure.
58

Number of sites verified that 100% of SCMs are installed per design specifications in accordance with approved plan.
12

Were all SCMs verified to be installed per design specifications in accordance with approved plan within 90 days of installation?
No

Does the permittee have adequate legal authority as required by 4.2.5.7 for all SCMs installed?
Yes

Number of SCMs that have not been properly operated or maintained.
1

Please Note: This question is asking for the number of SCM that have **NOT** been properly operated or maintained. These are going to be the SCMs with issues that require some action to return to proper operations such as maintenance or repairs.

Have enforcement actions been taken in accordance with the appropriate legal authority or ERP?
Yes

Number of public requests for SCM inventory.
0

Are all SCMs in the inventory tracking system?
Yes

Do all SCMs in the inventory tracking system have complete information?
Yes

SCM inventory tracking system information

NONE PROVIDED
Comment
NONE PROVIDED

MCM 6: Pollution Prevention/Good Housekeeping For Municipal Operations

Number of applicable Municipal Operations and Facilities under subpart 4.2.6.2.
8

Do all applicable Municipal Operations and Facilities have a O&M Facility Plan?
Yes

Number Municipal Operations Facilities NOT inspected in accordance with the Stormwater Management Program in the previous 12 months.
0

Stormwater Management Program Modification

Have any municipal facilities covered under this permit been added during the reporting term?
Yes

In the table below identify if any changes were made to your Stormwater Management Program during the reporting period.

For minor modifications that add, but neither subtract nor replace, components, controls, or requirements to the Stormwater Management Program provide a description of that modification. - See Subpart 4.4.1.1.a

For minor modifications that replace an ineffective or infeasible BMP, or SCM which is specifically identified in the Stormwater Management Program provide a description of the analysis of why the former BMP was ineffective or infeasible; Expectations on the effectiveness of the replacement BMP or SCM; and an analysis, if applicable, of why the replacement BMP or SCM will ensure the optimization of equipment use. a description of that modification. - See Subpart 4.4.1.1.e

For major modifications that subtract BMPs, SCMs, components, controls, or requirements of the Stormwater Management Program provide a description of the analysis of why the component was ineffective or infeasible; and detailed explanation of why, with the elimination of this component, the Stormwater Management Program will continue to achieve a reduction in pollutants to the MEP and shall not cause or contribute to violations of State water quality standards in the receiving stream. - See Subpart 4.4.1.2.a.

Where any changes were made to the program elements during the reporting period?

Program Elements	Changes	Modifications that Add Components	Replaced an Ineffective or Infeasible BMP or SCM	Subtracted BMP, SCM, Components, Controls etc.
MCM 1	No	NONE PROVIDED	NONE PROVIDED	NONE PROVIDED
MCM 2	No	NONE PROVIDED	NONE PROVIDED	NONE PROVIDED
MCM 3	No	NONE PROVIDED	NONE PROVIDED	NONE PROVIDED
MCM 4	Yes	NONE PROVIDED	LDP plan reviews occur concurrently with Planning review to eliminate delays in development	NONE PROVIDED
MCM 5	Yes	Incorporation of 80% TSS and WQTV table.	Yes, previous City requirement was 90% TSS. LDP plan reviews occur concurrently with Planning review to eliminate delays in development.	No
MCM 6	Yes	Firing Range Added to the Police Department Operation and Maintenance Plan. Fire Hall #7 added to the Fire Department Operation and Maintenance Plan.	N/A	N/A
QLP	N/A	NONE PROVIDED	NONE PROVIDED	NONE PROVIDED
Enforcement	Yes	Addition of a Penalty Matrix to the Enforcement Response Plan.	No	No
Monitoring & Program Evaluation	No	NONE PROVIDED	NONE PROVIDED	NONE PROVIDED

Other Program Changes not Identified above
NONE PROVIDED

Summary Of Enforcement Actions

Note: Non-traditional MS4s may not have legal authority to enforce one or more MS4 permit requirements. For example, a university campus regulated as a MS4 permittee or co-permittee may not have the legal authority to enforce MS4 permit requirements against another entity.

Summary of Enforcement Actions Taken during the reporting year

Action	IDDE	Construction	Permanent Stormwater/Post-Construction	Total
Verbal Warnings	5	74	4	83
Written Notice of Violation	13	212	2	227
Citations or Administrative Orders	0	1	0	1
Stop Work Orders	0	7	0	7
Withholding of Plan Approvals or Other Authorizations	0	2	0	2
Civil Penalties	0	1	0	1
Additional Measures	1	13	2	16
				Sum: 337

Results Of Information Collected And Analyzed (Monitoring)

Was monitoring for the reporting year performed in accordance with either 4.6.1.1.1 (Option 1) or 4.6.1.1.2 (Option 2)?

Yes

Provide a summary describing the results of information collected and analyzed, including monitoring data (analytical and non-analytical), if any, during the reporting period. If no monitoring was completed, explain.

Please see the attached E. coli sampling report. The geometric mean was 105.1 cfu/100 mL which is less than the 126 cfu/100 mL limit for recreational use. In order for a stream segment to become delisted for E. coli, the State has to provide the EPA with a 12-month geometric mean that is less than 126 cfu/100 mL; therefore, a single sampling cycle (5 samples within 30 days) is not sufficient data for the EPA. The City attempted to coordinate with the City of Goodlettsville to determine if their sampling would support delisting, but their numbers were higher than the threshold.

For your convenience, links to the required standard templates for reporting the results of your monitoring data are provided below. EDD Sheets (Field Stream Survey and Habitat Sheets, Macroinvertebrate Taxa Report, and the TDEC E. coli and Field Water Parameter Report) are in the section labelled Water Quality Assessment Publications as excel files.

[Publications](#)

Attach results of all analytical and non-analytical monitoring data collected during this reporting period.

[192267_Hendersonville_E.coliSampling_Letter.pdf - 07/22/2024 08:49 AM](#)

Comment

NONE PROVIDED

Legal Authority

Per subpart 4.7.1. The initial solicitor’s statement is required in the 2024 annual report for existing permittees and in the third annual report for new permittees.

If modifications are made to the legal authority that necessitate a new evaluation by a solicitor, a new certification statement must be submitted.

Per subpart 4.1.2. All updates to the legal authority (ordinances/resolutions etc.) required by changes to the permit shall be fully implemented and adopted.

Attach a signed solicitor’s certification statement.

NONE PROVIDED

Comment

NONE PROVIDED

In order to facilitate the review of the legal authority, please indicate if you used the 2023 MTAS MS4 Model Ordinance?

NONE PROVIDED

Attach Legal Authority - Ordinances, Resolutions, etc

NONE PROVIDED

Comment

NONE PROVIDED

Attach Legal Authority - Enforcement Response Plan and List or Table of Progressive Enforcement Actions

NONE PROVIDED

Comment

NONE PROVIDED

Stormwater Management Program Evaluation

Stormwater Management Program Evaluation

In accordance with subpart 4.6.2. The permittee shall conduct an annual evaluation of the Stormwater Management Program to evaluate compliance with

the terms and conditions of the permit, including the effectiveness of the BMPs, components, or controls of its stormwater management program, and the status of achieving the measurable requirements in the permit.

Summarize the results of the permittee's annual evaluation of the current Stormwater Management Program.

The City completed an analysis of the Stormwater Management Program with the 2022 MS4 Permit. Each of the program components have been updated to be compliant with the existing MS4 Permit. Permit required plans and procedures were developed and implemented. The City is requiring submittal of as built documents to track Permanent SCMs and Inspection and Maintenance Agreements/Long Term Maintenance Plans to ensure SCMs are inspected and maintained in perpetuity.

Identify modifications or replacement of an ineffective activity/control measure/component/BMP.

The Stormwater Management Program was modified to implement MS4 permit requirements. The Enforcement Response Plan was modified to implement a Penalty Matrix identifying monetary penalty assessments for common stormwater violations.

Summarize the assessment results, and any modifications and improvements scheduled to be implemented in the next reporting period to improve the program or remedy deficiencies or weaknesses

Each program component is meeting the minimum control measures of the MS4 Permit. The City has modified the Land Disturbance Permitting Process to incorporate EPSC reviews in the Planning Review. This helps identify critical areas prior to planning committee approvals. The Enforcement Response Plan was modified to implement a Penalty Matrix. The Permanent Stormwater Management Program implemented 80% TSS and the Water Quality Treatment Volume table. The Water Quality Riparian Buffer requirements were updated to be consistent with the MS4 Permit. Police and Fire Operation and Maintenance Plans were updated to include new facilities.

Is MCM 1: Public Education and Outreach on Stormwater Impacts compliant with Permit Requirements?

Yes

Is MCM 2: Public Involvement/Participation compliant with Permit Requirements?

Yes

Is MCM 3: Illicit Discharge Detection and Elimination (IDDE) compliant with Permit Requirements?

Yes

Is MCM 4: Construction Site Stormwater Runoff Control compliant with Permit Requirements?

Yes

Is MCM 5: Post-Construction/Permanent Stormwater Management in New Development and Redevelopment compliant with Permit Requirements?

Yes

Is MCM 6: Pollution Prevention/Good Housekeeping compliant with Permit Requirements?

Yes

Is Monitoring Program (subpart 4.6.1.1) compliant with Permit Requirements?

Yes

The following questions are from subpart 5.2 Annual Report Requirements.

Is the permittee compliant with the permit terms and conditions?

Yes

This determination should be made as to the status of the program at the end of the reporting period and the requirements applicable at that date. For example, the permanent stormwater program changes are not required to be implemented until 24 months after the effective date of the permit. So if the MS4 has not yet implemented those changes at the first annual report, they would still be in compliance, if their program meets the previously established requirements.

Please Explain

The City developed and implemented best management practices, plans, and procedures to gain full compliance with the MS4 Permit. The Stormwater Management Plan was updated to include all minimum control measure plans and procedures as required by the Permit. The SWMP was placed on Public Notice on August 9, 2024. The Public Notice and comments or questions will be submitted with the next annual report. The Stormwater Management Plan will be adopted by reference in the Stormwater Ordinance revisions in September 2024. The Stormwater Ordinance was revised to incorporate MS4 Permit changes. The revised Stormwater Ordinance projected adoption date is September 2024..

Is the permittee relying on another governmental entity to satisfy some of the permit obligations?

No

Enter additional or clarifying information not elsewhere reported in this document.

NONE PROVIDED

Any other data specifically requested by the Division to substantiate statements and conclusions reached in the Annual Reports.

NONE PROVIDED

Comment

NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
8/1/2024 1:41 PM	Hendersonville MS4 Storm Sewer System Map (Jan. - July 2024).pdf	Attachment	Helen Morrison
7/22/2024 8:49 AM	192267_Hendersonville_E.coliSampling_Letter.pdf	Attachment	Helen Morrison
7/15/2024 8:48 AM	2023-2024 Annual Report Activities.pdf	Attachment	Helen Morrison
7/15/2024 8:08 AM	MS4 2024 Annual Report - Hendersonville.pdf	Attachment	Helen Morrison

Status History

	User	Processing Status
7/10/2024 9:48:41 AM	Helen Morrison	Draft

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted		
Submission Deemed Complete		



VOLUNTEER WITH US!

MAY 18
10AM-12PM



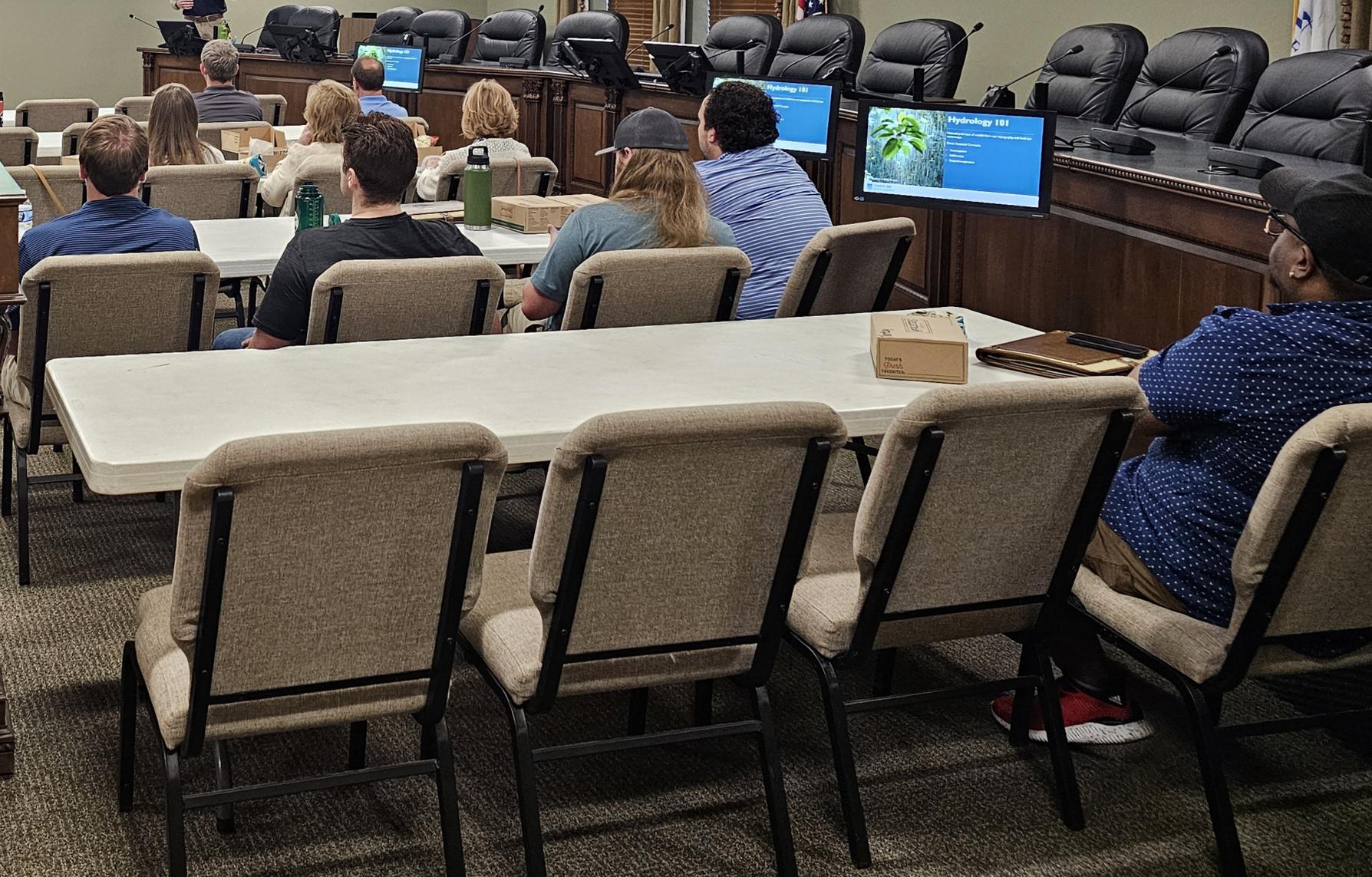
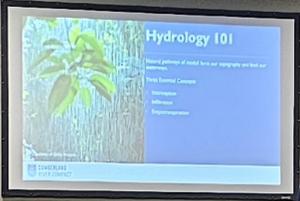
HENDERSONVILLE CLEANUP

Join the Compact and the City of Hendersonville for a cleanup of Mallard Point Park's shoreline!



**CUMBERLAND
RIVER COMPACT**
OUR WATER. OUR FUTURE.

Learn more at cumberlandrivercompact.org/volunteer





PROFESSIONAL EDUCATION

for development, engineering,
and water industries

APRIL 2
12PM



STORMWATER ORDINANCES - GUIDANCE FOR DEVELOPERS, ENGINEERS, AND MUNICIPALITIES.

**Learn about proposed changes
to your stormwater ordinances
and how to comply**



Civil & Environmental Consultants, Inc.



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RIVER COMPACT**
OUR WATER. OUR FUTURE.

Learn more and register at cumberlandrivercompact.org/events

INCREASE A DEVELOPMENT'S VALUE WITH A MULTI-FUNCTIONING STORMWATER SYSTEM

AUG 16



**CUMBERLAND
RIVER COMPACT**

With



**JULIE JONES
AND
DRAKE REEDER**

RIVER TALKS

cumberlandrivercompact.org/events

TOUR OF THE HENDERSONVILLE UTILITY DISTRICT DRINKING WATER TREATMENT

Sept
26

NEW DATE



CUMBERLAND
RIVER COMPACT



RIVER TALKS

cumberlandrivercompact.org/events

With



JOHN WUNNER



PROFESSIONAL EDUCATION

for development, engineering,
and water industries

JUNE 13
12 PM



AN INTRODUCTION TO STORMWATER CONTROL MEASURE MAINTENANCE

**Learn best practices for
maintaining stormwater control
measures with the Cumberland
River Compact.**

Supported by:



Learn more and register at cumberlandrivercompact.org/events

WELCOME TO YOUR WATERSHED!

Rainwater that falls on your school campus flows to Drakes Creek and eventually to Old Hickory Lake. Drakes Creek is a healthy waterway – providing clean and abundant water for the people and species that rely on it.



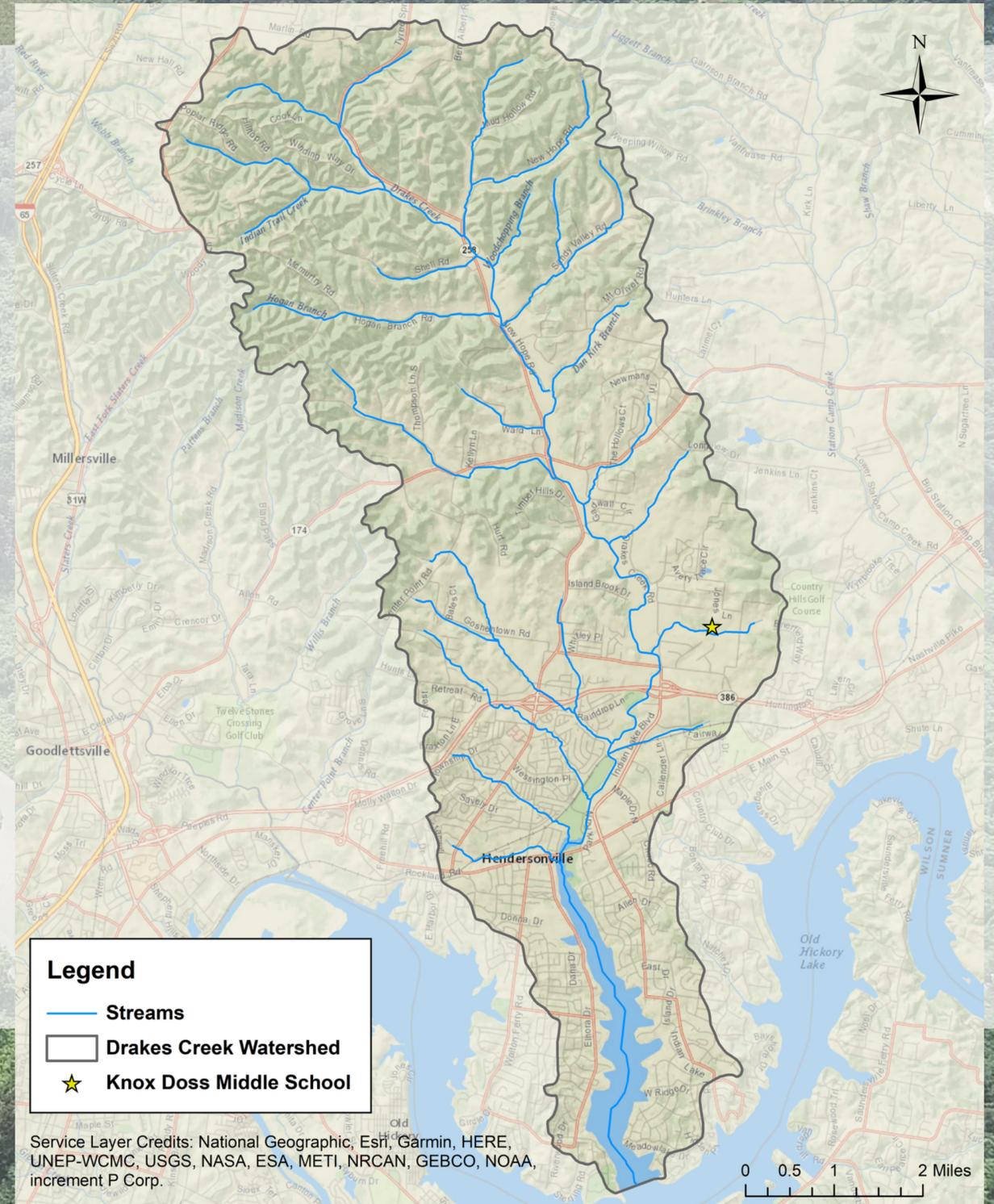
Your school is a habitat to many different plants and animals – providing important food, shelter, and resources for them to survive.



You could find salamanders, woodpeckers, aquatic insects, squirrels, and much more! What have you seen living on your school campus?



You can help keep Drake's Creek and your school habitat healthy by planting trees and native plants and picking up your trash.



**CUMBERLAND
RIVER COMPACT**
OUR WATER. OUR FUTURE.

CITY OF HENDERSONVILLE

Stormwater Training
Introduction to Stormwater Control Measure Inspection and Maintenance

Date: 6/13/2024

Name of Instructor: Chris Hornsby

Location: Hendersonville City Hall Main Meeting Room

Name	Signature
Wesley White	Wesley White
Tommy HOFFMAN	Tommy Hoffman
Dvane Allen	Dvane Allen
Van Oldham	Van Oldham
Florentino Loya	Florentino Loya
Ryan Piatt	Ryan Piatt
Helen Morrison	Helen Morrison
Suzanne Pendergrass	Suzanne Pendergrass
Jane Mills	Jane Mills
Nancy DANKO	Nancy Danko
Drew Ferguson	Drew Ferguson
Dakota Beasley	Dakota Beasley
Cameron Hill	Cameron Hill
Christina Bannister	Christina Bannister

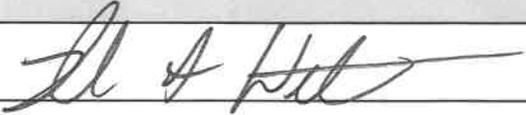
CITY OF HENDERSONVILLE

Stormwater Training
Introduction to Stormwater Control Measure Inspection and Maintenance

Date: 6/13/2024

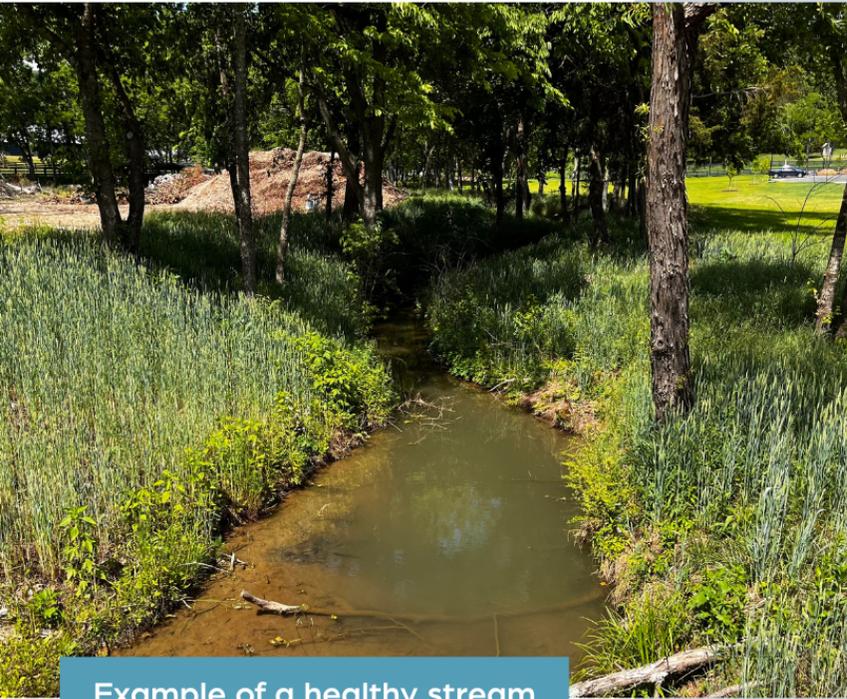
Name of Instructor: Chris Hornsby

Location: Hendersonville City Hall Main Meeting Room

Name	Signature
DAVID WITHERS TPEC-DNA	

HOMEOWNERS' STREAM BANK REPAIR WORKSHOP

Presented by the Cumberland River Compact, in partnership with the City of Hendersonville



Example of a healthy stream

Wednesday, July 26, 2023
Hendersonville City Hall
6 pm – 7 pm

Free with pre-
registration!



For more information,
please contact:

Caroline Hutchins
Working Lands Program Manager
caroline.hutchins@cumberlandrivercompact.org

The Cumberland River Compact is a non-profit organization working to ensure clean and abundant water in the Cumberland River Basin by addressing the root causes of water pollution. Our goal is to give people the tools to be smart, impactful stewards of their watershed.

CUMBERLANDRIVERCOMPACT.ORG | 615.837.1151



**CUMBERLAND
RIVER COMPACT**
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STREAMSIDE SALAMANDERS IN SUMNER COUNTY

JAN 23



CUMBERLAND
RIVER COMPACT

RIVER TALKS

cumberlandrivercompact.org/events

With





CUMBERLAND
RIVER COMPACT

Waterfest



FREE | FAMILY | FUN

WATER SLIDES, DANCING,
SNOWCONES, PRIZES, AND
MORE!



Moss Wright Park

745 Caldwell Dr, Goodlettsville, TN

June 28

10am - 12pm



LEARN MORE AT CUMBERLANDRIVERCOMPACT.ORG



WELCOME TO YOUR WATERSHED, HENDERSONVILLE!



An interactive learning experience focused on your local waterways and how you can make an impact!

**DEC 13
2023**

**THE COLLAB
HENDERSONVILLE**

cumberlandrivercompact.org/events



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HENDERSONVILLE STORMWATER EDUCATION



IMPACT REPORT: JULY 2023-JUNE 2024



CITY OF
HENDERSONVILLE
TENNESSEE



CUMBERLAND
RIVER COMPACT

SNAPSHOT



**CUMBERLAND
RIVER COMPACT**
OUR WATER. OUR FUTURE.

The Cumberland River Compact partners with the City of Hendersonville to provide effective and engaging stormwater education opportunities to the community. These programs reach local Hendersonville residents, students, and commercial and development industry professionals. The Compact's work with the City of Hendersonville supports their compliance with National Pollutant Discharge Elimination System MS4 Permit Compliance with the State of Tennessee. This annual report outlines the progress made in the partnership.

**2,217
PEOPLE
REACHED**

**27
EVENTS**

**84
VOLUNTEER
HOURS**

**8
SCHOOLS**

WATER STEWARDSHIP PROGRAMMING FOR SCHOOLS



The Cumberland River Compact’s experiential youth education programs bring the joy of waterways to classrooms. The Compact has a close relationship with Sumner County Schools, and we have reached 744 students at 8 Hendersonville–area schools. Additionally, we trained 20 Hendersonville teachers on how to bring water education to their classrooms during a district-wide training event.



WATERSHED EDUCATION: DEVELOPMENT / COMMERCIAL



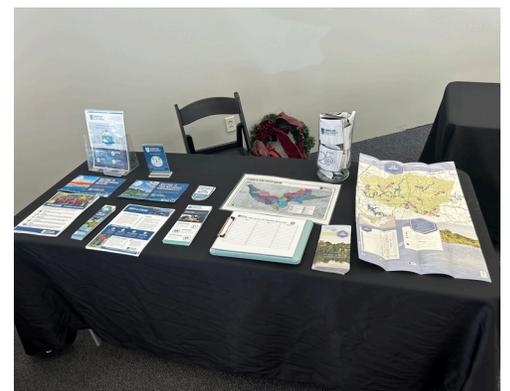
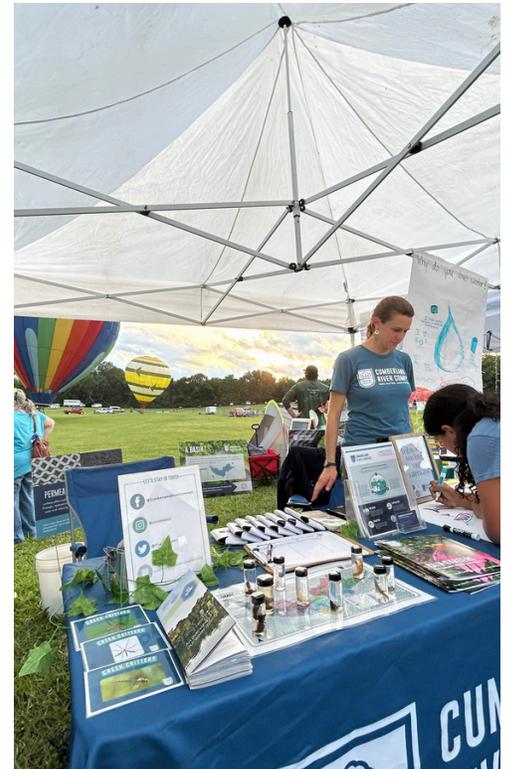
Professionals in the commercial and development industries play a crucial role in keeping our waterways clean. The Compact provides educational seminars and experiential trainings to promote best practices in watershed management. We partner with local engineering firms, landscape architects, and more to offer these events. This year we engaged 146 professionals.



WATERSHED EDUCATION: LOCAL RESIDENTS



The Cumberland River Compact engagement team brings watershed information to Hendersonville residents by attending special events and hosting educational opportunities. This year we attended SumnerFest, hosted a “Welcome to your Watershed” evening event, and spoke with the Hendersonville Chamber of Commerce. We engaged 153 members of the public at these events.



EDUCATIONAL SIGNAGE



Informative and engaging signage is an easy way to educate the community. The Compact partnered with Knox Doss Middle School and George Whitten Elementary School to design and install watershed signage on their school campuses.



WATER STEWARDSHIP EVENTS



Stream cleanups are great events to let the public experience local waterways and see the impact of common pollution issues. The Compact led 4 stream cleanup events for 50 people at Mallard Point Park, Drakes Creek, Old Hickory Lake greenway, and Lock 3 Park. These cleanups collected 28 bags of trash.



WATERFEST



Waterfest is a community festival that combines stormwater education with splashes of summer fun. The City of Hendersonville supports the annual event and is recognized on print and digital media promotions. The 2024 Waterfest was attended by 350 children and 200 adults.



SUMMARY



CUMBERLAND RIVER COMPACT

Activity	Deliverable	Progress (October 2022 to present)
Water stewardship programming to local schools	4 qualifying programs a year. 1 qualifying program for each school over contract period. A minimum of 20 education events over the 5 year duration.	9 programs complete. Schools reached include Station Camp MS, Hawkins, Knox-Doss, Indian Lake, Ellis, George Whitten, Beech ES, and Walton Ferry. Teachers trained at Beech HS, Station Camp HS, Station Camp MS, Hendersonville HS, Knox Doss MS, Ellis MS, and Merrol Hyde. 744 students reached and 143 adults/teachers reached.
Educational Signage	Install 1 outdoor educational sign per year.	2 signs designed, fabricated, and installed.
Watershed Education to Local Residents	6 Watershed Education Programs and/or Outreach per year (2 for Public and 4 for Development / Commercial)	12 Watershed Education events completed. 460 people educated.
Water Stewardship Events	2 Stream Stewardship Events Per Year	4 Stream Stewardship events completed. 50 people engaged.
Waterfest	Annual sponsorship of the summer event.	2 events complete. 820 people educated.

THANK YOU FOR YOUR PARTNERSHIP!



CITY OF
HENDERSONVILLE
TENNESSEE



CUMBERLAND
RIVER COMPACT



January 5, 2024

Ms. Sarah Lock, P.E.
Public Works Director
City of Hendersonville
101 Maple North Drive
Hendersonville, Tennessee 37075

Dear Ms. Lock:

Subject: Hendersonville Public Works – Stream Monitoring Services
Analytical Stream Monitoring, *E. coli* Sampling
City of Hendersonville, Sumner County, Tennessee
CEC Project 192-267.E.EC

Civil & Environmental Consultants, Inc. (CEC) performed *E. coli* sampling on Manskers Creek (TN05130202220_1000) for the City of Hendersonville per our proposal dated October 20, 2022. Sample collection dates were from August 23, 2023 – September 21, 2023.

The General Water Quality Criteria of Tennessee, which establishes thresholds for the various use classifications for streams in Tennessee, lists a geometric mean exceedance of 126 cfu/100 mL as impairment for recreational use. In other words, exceeding an *E. coli* concentration of 126 cfu/100 mL for the geometric mean indicates the stream does not meet the recreational use classification. The *E. coli* threshold for the recreational use classification is the lowest allowable *E. coli* threshold for designated uses. The geometric mean value for Manskers Creek was **105.1 cfu/100 mL**.

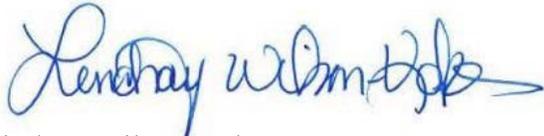
Pace Laboratory indicated a DUP Qualifier (J3) on the Day 2 Lab Results (Attachment E). The qualifier was for the relative percent difference between the original sample and the lab's duplicate sample. This means that the precision for this analysis was beyond the lab's standard limit, which is not uncommon for analyses involving *E. coli* and total coliform. The lab result of the original sample collected on Day 2 was within the same range as the results from the subsequent sampling events.

Ms. Lock – The City of Hendersonville
CEC Project 192-267.E.EC
Page 2
January 5, 2024

Please contact Lindsay Wilson-Kokes at 615-333-7797 or lwilsonkokes@cecinc.com if you should have any questions regarding this deliverable.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Lindsay Wilson-Kokes, QHP-IT
Project Manager



Janette L. Wolf, P.E., CPESC, CPSWQ
Principal

Enclosures: Attachment A – Figure 1 – Sample Collection Site Map
Attachment B – Summary of Sampling Results
Attachment C – Photographic Documentation
Attachment D – Field Data Sheets
Attachment E – Lab Results

ATTACHMENT A

FIGURE 1 – SAMPLE COLLECTION SITE MAP



\\SVR-NA\SHI\svr-fs-nas\projects\2019\192-267-GIS\Maps\E.coli_Sampling_Location_2023.mxd (1/3/2024 12:32:57 PM)



LEGEND

-  Sampling Location
-  Mankers Creek

REFERENCE

ESRI WORLD IMAGERY / ARCGIS MAP SERVICE:
 HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY,
 ACCESSED 1/3/2024, IMAGERY DATE: 2004.



Civil & Environmental Consultants, Inc.
 117 Seaboard Lane, Ste. E100 Franklin, Tennessee
 615-333-7797 • 800-763-2326
 www.cecinc.com

ANALYTICAL STREAM MONITORING
 E. COLI SAMPLING
 CITY OF HENDERSONVILLE
 SUMNER COUNTY, TENNESSEE

E. COLI SAMPLE LOCATION

DRAWN BY: CEJ	CHECKED BY: LWK	APPROVED BY: ^{*Hand signature} on file JLW	FIGURE NO: 1
DATE: 1/3/2024	SCALE: 1" = 1,000'	PROJECT NO: 192-267.E.EC	

ATTACHMENT B

SUMMARY OF SAMPLING RESULTS

Hendersonville E. coli Monitoring 2023									
Stream	Date	8/23/2023	8/31/2023	9/7/2023	9/13/2023	9/21/2023	Minimum	Arithmetic Mean	Maximum
Manskers Creek	Weather	83°F -Sunny	75°F -Sunny	77°F -Partly Cloudy	75°F -Sunny	72°F -Mostly Sunny			
	Personnel	LWK; CMC	LWK; CMC	LWK; CMC	LWK; CMC	LWK; CMC			
	Sample Time	10:20 AM	11:54 AM	9:50 AM	10:50 AM	10:34 AM			
	Temp (°C)	26.0	24.4	22.4	24.1	21.6	21.6	23.7	26.0
	DO (mg/L)	5.06	7.40	4.92	6.03	5.95	4.92	5.87	7.40
	pH	7.95	8.52	7.65	7.77	7.69	7.65	7.92	8.52
	Cond. (µS/cm)	466.7	237.6	365.2	183.4	335.2	183.4	317.6	466.7
	<i>E. coli</i> (MPN/100 mL)	162.4	32.3	285.1	38.6	222.4	32.3	148.2	285.1
									Geometric Mean 105.1

CEC Project # 192-267

ATTACHMENT C

PHOTOGRAPHIC DOCUMENTATION



Upstream Manskers Creek
September 13, 2023



Upstream Manskers Creek
September 21, 2023



Downstream Manskers Creek
September 13, 2023



Downstream Manskers Creek
September 21, 2023



Right Descending Bank
Manskers Creek
September 7, 2023

ATTACHMENT D
FIELD DATA SHEETS



E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane, Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Manskers Creek	DATE/WEATHER	8/23/2023; Sunny; 83°F
SAMPLES TAKEN	(2) 1:1; (2) 1:10; (2) 1:100	EVENT FREQUENCY	1 of 5
NOTES	No Surface Flow	FIELD REPRESENTATIVE	LWK; CMC

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
10:20 AM	26	5.06	7.95	466.7	N/A	N/A

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)	Station	
NOT RECORDED DUE TO HIGH WATER DEPTH						



E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane, Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Manskers Creek	DATE/WEATHER	8/31/2023; Sunny; 75°F
SAMPLES TAKEN	(2) 1 : 1 Dilution	EVENT FREQUENCY	2 of 5
NOTES	No Surface Flow	FIELD REPRESENTATIVE	LWK; CMC

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
11:54 AM	24.4	7.40	8.52	237.6	N/A	N/A

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)	Station	
NOT RECORDED DUE TO HIGH WATER DEPTH						



E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane, Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Manskers Creek	DATE/WEATHER	9/7/2023; 77°F; Partly Cloudy
SAMPLES TAKEN	(2) 1:1; (2) Duplicate	EVENT FREQUENCY	3 of 5
NOTES	No Surface Flow	FIELD REPRESENTATIVE	LWK; CMC

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
9:50 AM	22.4	4.92	7.65	365.2	N/A	N/A

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)	Station	
NOT RECORDED DUE TO HIGH WATER DEPTH						



E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane, Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Manskers Creek	DATE/WEATHER	9/13/23; 75°F; Sunny
SAMPLES TAKEN	(2) 1:1	EVENT FREQUENCY	4 of 5
NOTES	No Surface Flow	FIELD REPRESENTATIVE	LWK; CMC

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
10:50 AM	24.1	6.03	7.77	183.4	N/A	N/A

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)	Station	
NOT RECORDED DUE TO HIGH WATER DEPTH						



E. COLI SAMPLING FIELD INFORMATION LOG

Civil & Environmental Consultants, Inc. 117 Seaboard Lane, Suite E-100 Franklin, Tennessee 37067

STREAM NAME	Manskers Creek	DATE/WEATHER	09/21/2023; 72F; Mostly Sunny
SAMPLES TAKEN	(2) 1:1	EVENT FREQUENCY	5 of 5
NOTES	No Surface Flow	FIELD REPRESENTATIVE	LWK; CMC

Time Collected	°C	DO (mg/L)	pH	Conductivity (µs/cm)	Flow Area (sq ft)	Flow (cfs)
10:34	21.6	5.95	7.69	335.2	N/A	N/A

STREAM CROSS SECTION MEASUREMENTS					STREAM CROSS SECTION DIAGRAM	
Station (ft)	Depth of Water (ft)	Velocity (ft/s)	Area (sq ft)	Flow (cfs)	Station	
NOT RECORDED DUE TO HIGH WATER DEPTH						

ATTACHMENT E

LAB RESULTS

Civil & Environmental Consultants - TN

Sample Delivery Group: L1648877
Samples Received: 08/23/2023
Project Number: CEC #192-267
Description: City of Hendersonville
Site: MANSTERS CREEK
Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:



Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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Cp: Cover Page	1	
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Cn: Case Narrative	4	
Sr: Sample Results	5	
MANSKERS CREEK-1X L1648877-01	5	
MANSKERS CREEK-10X L1648877-02	6	
MANSKERS CREEK-100X L1648877-03	7	
FIELD BLANK L1648877-04	8	
Qc: Quality Control Summary	9	
Microbiology by Method 9223B-2004	9	
Gl: Glossary of Terms	10	
Al: Accreditations & Locations	11	
Sc: Sample Chain of Custody	12	

SAMPLE SUMMARY

MANSKERS CREEK-1X L1648877-01 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
08/23/23 10:20

Received date/time
08/23/23 11:32

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2119724	1	08/24/23 16:47	08/24/23 16:47	MEL	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

MANSKERS CREEK-10X L1648877-02 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
08/23/23 10:20

Received date/time
08/23/23 11:32

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2119724	10	08/24/23 16:47	08/24/23 16:47	MEL	Mt. Juliet, TN

⁴ Cn

⁵ Sr

MANSKERS CREEK-100X L1648877-03 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
08/23/23 10:20

Received date/time
08/23/23 11:32

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2119724	100	08/24/23 16:47	08/24/23 16:47	MEL	Mt. Juliet, TN

⁶ Qc

⁷ Gl

⁸ Al

FIELD BLANK L1648877-04 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
08/23/23 10:40

Received date/time
08/23/23 11:32

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2119724	1	08/24/23 16:47	08/24/23 16:47	MEL	Mt. Juliet, TN

⁹ Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	162.4		1	08/24/2023 16:47	WG2119724

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	259		10	08/24/2023 16:47	WG2119724

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	100		100	08/24/2023 16:47	WG2119724

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	08/24/2023 16:47	WG2119724

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3967213-1 08/24/23 16:47

Analyte	MB Result MPN/100ml	<u>MB Qualifier</u>	MB MDL MPN/100ml	MB RDL MPN/100ml
E.Coli	<1			

¹ Cp

² Tc

³ Ss

L1648955-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1648955-04 08/24/23 16:47 • (DUP) R3967213-2 08/24/23 16:47

Analyte	Original Result MPN/100ml	DUP Result MPN/100ml	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
E.Coli	<1	<1	1	0.000		20

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

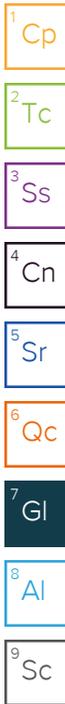
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Company Name/Address:
Civil & Environmental Consultants - TN
 117 Seaboard Ln.
 Suite E100
 Franklin, TN 37067

Billing Information:
 Accounts Payable
 117 Seaboard Ln.
 Suite E100
 Franklin, TN 37067

Report to:
Lindsay Wilson-Kokes

Email To: **lwilsonkokes@cecinc.com**

Project Description:
 City of Hendersonville

City/State Collected: **Hendersonville, TN**

Please Circle:
 PT MT CT ET

Phone: **615-333-7797**

Client Project #
CEC # 192-207

Lab Project #
CEC-E COLI

Collected by (print):
Lindsay Wilson-Kokes

Site/Facility ID #
mansters creek

P.O. #

Collected by (signature):
Lindsay Wilson-Kokes

Rush? (Lab MUST Be Notified)
 Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #
 Date Results Needed

Immediatly Packed on Ice N Y

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MANSKERS CREEK-1X	Grab	WW	Ø	8/23/23	1020	2
MANSKERS CREEK-10X		WW			1020	2
MANSKERS CREEK-100X		WW			1020	2
FIELD BLANK		WW			1040	2

Pres Chk	Analysis / Container / Preservative									
	E.coli Microbiological									

Chain of Custody Page of

Pace
 PEOPLE ADVANCING SCIENCE

MT JULIET, TN
 12065 Lebanon Rd Mount Juliet, TN 37122
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **464887**

F177

Acctnum: **CEC**
 Template: **T236382**
 Prelogin: **P1018885**
 PM: **526 - Chris McCord**
 PB: **8/22/23 CAM**
 Shipped Via: **Courier**

Remarks | Sample # (lab only)

* Matrix:
 SS - Soil AIR - Air F - Filter
 GW - Groundwater B - Bioassay
 WW - WasteWater
 DW - Drinking Water
 OT - Other _____

Remarks:

pH _____ Temp _____
 Flow _____ Other _____

Samples returned via:
 UPS FedEx Courier **clt**

Tracking # _____

Sample Receipt Checklist

COC Seal Present/Intact: NP Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N

If Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

on use

Relinquished by: (Signature)
Lindsay Wilson-Kokes

Relinquished by: (Signature)

Relinquished by: (Signature)

Date: **8/23/23** Time: **1132**

Date: Time:

Date: Time:

Received by: (Signature)
Susan Pach

Received by: (Signature)
Susan Pach

Received for lab by: (Signature)
Yan Jun

Trip Blank Received: Yes / No
 HCL / MeOH
 TBR

Temp: **4.3 to 4.7** °C

Date: **8/23/23** Time: **1132**

If preservation required by Login: Date/Time

Hold: Condition: **NCF / OK**

Civil & Environmental Consultants - TN

Sample Delivery Group: L1651526
Samples Received: 08/31/2023
Project Number: 192-267
Description: City of Hendersonville

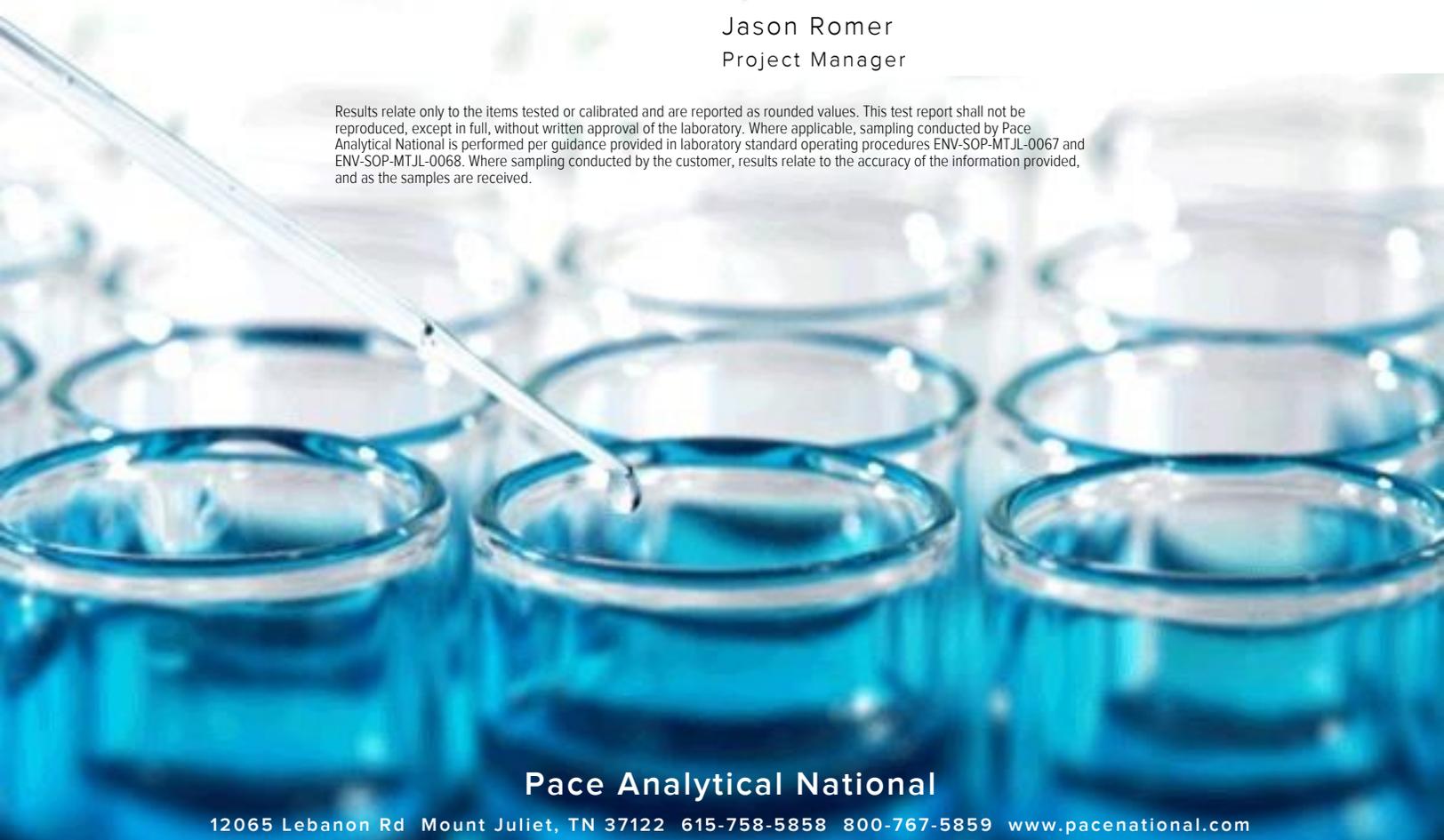
Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:



Jason Romer
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
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Sr: Sample Results	5	³ Ss
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FIELD BLANK L1651526-02	6	⁴ Cn
Qc: Quality Control Summary	7	⁵ Sr
Microbiology by Method 9223B-2004	7	
Gl: Glossary of Terms	8	⁶ Qc
Al: Accreditations & Locations	9	⁷ Gl
Sc: Sample Chain of Custody	10	⁸ Al
		⁹ Sc

SAMPLE SUMMARY

MANSKERS CREEK- L1651526-01 WW

Collected by: Lindsay Wilson Kokes
 Collected date/time: 08/31/23 11:54
 Received date/time: 08/31/23 12:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2124821	1	09/01/23 17:03	09/01/23 17:03	BGE	Mt. Juliet, TN

FIELD BLANK L1651526-02 WW

Collected by: Lindsay Wilson Kokes
 Collected date/time: 08/31/23 12:10
 Received date/time: 08/31/23 12:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2124821	1	09/01/23 17:03	09/01/23 17:03	BGE	Mt. Juliet, TN

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

CASE NARRATIVE

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Jason Romer
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	32.3	J3	1	09/01/2023 17:03	WG2124821

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	09/01/2023 17:03	WG2124821

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Method Blank (MB)

(MB) R3970738-1 09/01/23 17:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
E.Coli	MPN/100ml		MPN/100ml	MPN/100ml
	<1			

1 Cp

2 Tc

3 Ss

L1651526-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1651526-01 09/01/23 17:03 • (DUP) R3970738-2 09/01/23 17:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
E.Coli	MPN/100ml	MPN/100ml		%		%
	32.3	42.0	1	26.1	J3	20

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

GLOSSARY OF TERMS

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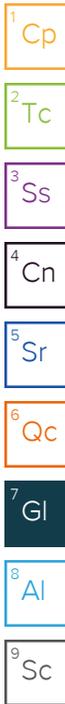
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
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Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
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Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J3	The associated batch QC was outside the established quality control range for precision.
----	--



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

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* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Company Name/Address:

Civil & Environmental Consultants - TN

117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Billing Information:

Accounts Payable
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Pres
Chk

Report to:
Lindsay Wilson-Kokes

Email To: lwilsonkokes@cecinc.com

Project Description:
City of Hendersonville

City/State
Collected: **Hendersonville,
TN**

Please Circle:
PT MT CT ET

Phone: **615-333-7797**

Client Project #
192-267

Lab Project #
CEC-E COLI

Collected by (print):
Lindsay Wilson-Kokes

Site/Facility ID #

P.O. #

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)

Quote #

Immediately
Packed on Ice N Y

___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

No.
of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Analysis / Container / Preservative									
MANSKERS CREEK-	Grab	WW	Ø	8/31/23	1154	2	E.coli Microbiological									
FIELD BLANK	1	WW	Ø	1	1210	2										
DUPLICATE		WW														

Chain of Custody Page ___ of ___



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody
constitutes acknowledgment and acceptance of the
Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **L1651526**
C159

Acctnum: **CEC**

Template: **T236384**

Prelogin: **P1018887**

PM: **526 - Chris McCord**

PB: **8/21/23 Cam**

Shipped Via: **Courier**

Remarks Sample # (lab only)

-01
-02

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Sample Receipt Checklist	
COC Seal Present/Intact:	X NP Y N
COC Signed/Accurate:	X Y N
Bottles arrive intact:	X Y N
Correct bottles used:	X Y N
Sufficient volume sent:	X Y N
If Applicable	
VOA Zero Headspace:	Y N
Preservation Correct/Checked:	Y N
RAD Screen <0.5 mR/hr:	X Y N

Samples returned via: GH Tracking # N/A
___ UPS ___ FedEx ___ Courier

Relinquished by: (Signature)
[Signature]

Date: **8/31/23**
Time: **1255**

Received by: (Signature)

Trip Blank Received: Yes (No)
HCL/MeOH
TBR

Relinquished by: (Signature)

Date: _____ Time: _____

Received by: (Signature)

Temp: **DRAB** °C
1.7+0=1.7 Bottles Received: **4**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: _____ Time: _____

Received for lab by: (Signature)

Date: **8/31/23** Time: **1255**

Hold: _____ Condition:
NCF / QK

Civil & Environmental Consultants - TN

Sample Delivery Group: L1653268
Samples Received: 09/07/2023
Project Number: 192-267
Description: City of Hendersonville

Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:



Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
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FIELD BLANK L1653268-02	6	⁴ Cn
DUPLICATE L1653268-03	7	⁵ Sr
Qc: Quality Control Summary	8	
Microbiology by Method 9223B-2004	8	⁶ Qc
Gl: Glossary of Terms	9	⁷ Gl
Al: Accreditations & Locations	10	⁸ Al
Sc: Sample Chain of Custody	11	⁹ Sc

SAMPLE SUMMARY

MANSKERS CREEK- L1653268-01 WW

Collected by
Lindsay Wilson
Kokes

Collected date/time
09/07/23 09:50

Received date/time
09/07/23 10:54

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2128210	1	09/08/23 16:17	09/08/23 16:17	BGE	Mt. Juliet, TN

FIELD BLANK L1653268-02 WW

Collected by
Lindsay Wilson
Kokes

Collected date/time
09/07/23 10:05

Received date/time
09/07/23 10:54

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2128210	1	09/08/23 16:17	09/08/23 16:17	BGE	Mt. Juliet, TN

DUPLICATE L1653268-03 WW

Collected by
Lindsay Wilson
Kokes

Collected date/time
09/07/23 09:50

Received date/time
09/07/23 10:54

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2128210	1	09/08/23 16:17	09/08/23 16:17	BGE	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	285.1		1	09/08/2023 16:17	WG2128210

- ¹Cp
- ²Tc
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ⁹Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	09/08/2023 16:17	WG2128210

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	344.8		1	09/08/2023 16:17	WG2128210

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3972476-1 09/08/23 16:17

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
E.Coli	MPN/100ml		MPN/100ml	MPN/100ml
	<1			

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

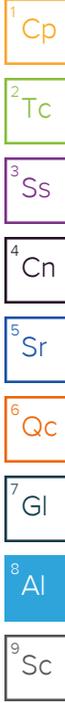
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address:

Civil & Environmental Consultants - TN

117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Report to:
Lindsay Wilson-Kokes

Project Description:
City of Hendersonville

Phone: **615-333-7797**

Collected by (print):
Lindsay Wilson-Kokes

Collected by (signature):
[Signature]

Immediately
Packed on Ice N Y

Billing Information:

Accounts Payable
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Email To: **lwilsonkokes@cecinc.com**

City/State Collected: **Hendersonville, TN**

Please Circle:
PT MT CT ET

Client Project #

192-267

Lab Project #

CEC-E COLI

Site/Facility ID #

P.O. #

Rush? (Lab MUST Be Notified)

Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #

Date Results Needed

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

MANSKERS CREEK-

FIELD BLANK

DUPLICATE

Grab	WW	Ø		9/7/23	0950	2
	WW				1005	2
	WW				0950	2

E.coli Microbiological

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **L1653268**

D049

Acctnum: **CEC**

Template: **T236384**

Prelogin: **P1018888**

PM: **526 - Chris McCord**

PB: **8/21/23 CAM**

Shipped Via: **Courier**

Remarks | Sample # (lab only)

-01

-02

-03

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other _____

Remarks:

Samples returned via:

UPS FedEx Courier **CH**

Tracking #

pH _____ Temp _____

Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact:	<input checked="" type="checkbox"/> NP	<input type="checkbox"/> Y	<input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
If Applicable			
VOA Zero Headspace:	<input type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
Preservation Correct/Checked:	<input type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/>	<input type="checkbox"/> Y	<input type="checkbox"/> N

once

Relinquished by: (Signature)

[Signature]

Date: **9/7/23**

0954

Time:

1054

Received by: (Signature)

[Signature]

Trip Blank Received: Yes / (No)

NO
HCL / MeOH
TBR

Relinquished by: (Signature)

[Signature]

Date:

9/7/23

Time:

1054

Received by: (Signature)

[Signature]

Temp: **3.2+0=3.2** °C Bottles Received: **6**

3.2+0=3.2 °C **6**

Relinquished by: (Signature)

[Signature]

Date:

9/7/23

Time:

1054

Received for lab by: (Signature)

[Signature]

Date:

9/7/23

Time:

1054

Hold:

9/7/23 1054

Condition:

NCF / OK

Civil & Environmental Consultants - TN

Sample Delivery Group: L1655169
Samples Received: 09/13/2023
Project Number: 192-267
Description: City of Hendersonville

Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:



Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	
Tc: Table of Contents	2	
Ss: Sample Summary	3	
Cn: Case Narrative	4	
Sr: Sample Results	5	
MANSKERS CREEK- L1655169-01	5	
FIELD BLANK L1655169-02	6	
Qc: Quality Control Summary	7	
Microbiology by Method 9223B-2004	7	
Gl: Glossary of Terms	8	
Al: Accreditations & Locations	9	
Sc: Sample Chain of Custody	10	

SAMPLE SUMMARY

MANSKERS CREEK- L1655169-01 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
09/13/23 10:50

Received date/time
09/13/23 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2131750	1	09/14/23 16:53	09/14/23 16:53	NAH	Mt. Juliet, TN

FIELD BLANK L1655169-02 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
09/13/23 11:15

Received date/time
09/13/23 11:56

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2131750	1	09/14/23 16:53	09/14/23 16:53	NAH	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	38.6		1	09/14/2023 16:53	WG2131750

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	09/14/2023 16:53	WG2131750

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3975229-1 09/14/23 16:53

Analyte	MB Result MPN/100ml	MB Qualifier	MB MDL MPN/100ml	MB RDL MPN/100ml
E.Coli	<1			

¹Cp

²Tc

³Ss

L1655283-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1655283-03 09/14/23 16:53 • (DUP) R3975229-2 09/14/23 16:53

Analyte	Original Result MPN/100ml	DUP Result MPN/100ml	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
E.Coli	<1	<1	1	0.000		20

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

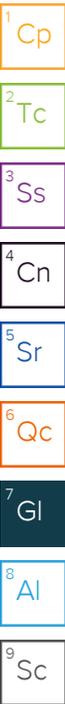
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Company Name/Address:

Civil & Environmental Consultants - TN

117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Billing Information:

Accounts Payable
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Report to:
Lindsay Wilson-Kokes

Email To: lwilsonkokes@cecinc.com

Project Description:
City of Hendersonville

City/State Collected: **Hendersonville, TN**

Please Circle:
PT MT CT ET

Phone: **615-333-7797**

Client Project #

192-207

Lab Project #

CEC-E COLI

Collected by (print):

Lindsay Wilson-Kokes

Site/Facility ID #

P.O. #

Collected by (signature):

[Signature]

Rush? (Lab MUST Be Notified)

Same Day Five Day
 Next Day 5 Day (Rad Only)
 Two Day 10 Day (Rad Only)
 Three Day

Quote #

Date Results Needed

No.
of
Cnts

Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts
-----------	-----------	----------	-------	------	------	-------------

MANSKERS CREEK-	Grab	WW	Ø	9/13/23	1050	2 ✓
FIELD BLANK	1	WW	1	1	1115	2 ✓
DUPLICATE		WW				

E.coli Microbiological



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG #

H085

Acctnum: **CEC**

Template: **T236384**

Prelogin: **P1018889**

PM: **526 - Chris McCord**

PB: **8/21/23 Cam**

Shipped Via: **Courier**

Remarks | Sample # (lab only)

01
02

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other _____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:

UPS FedEx Courier

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact: NP Y N
 COC Signed/Accurate: Y N
 Bottles arrive intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 If Applicable
 VOA Zero Headspace: Y N
 Preservation Correct/Checked: Y N
 RAD Screen <0.5 mR/hr: Y N

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes No

HCL/ MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: **DN49°C** Bottles Received: **4**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: **9/13/23** Time: **1156**

Hold:

Condition:
NCF / OK

Civil & Environmental Consultants - TN

Sample Delivery Group: L1658036
Samples Received: 09/21/2023
Project Number: 192-267
Description: City of Hendersonville

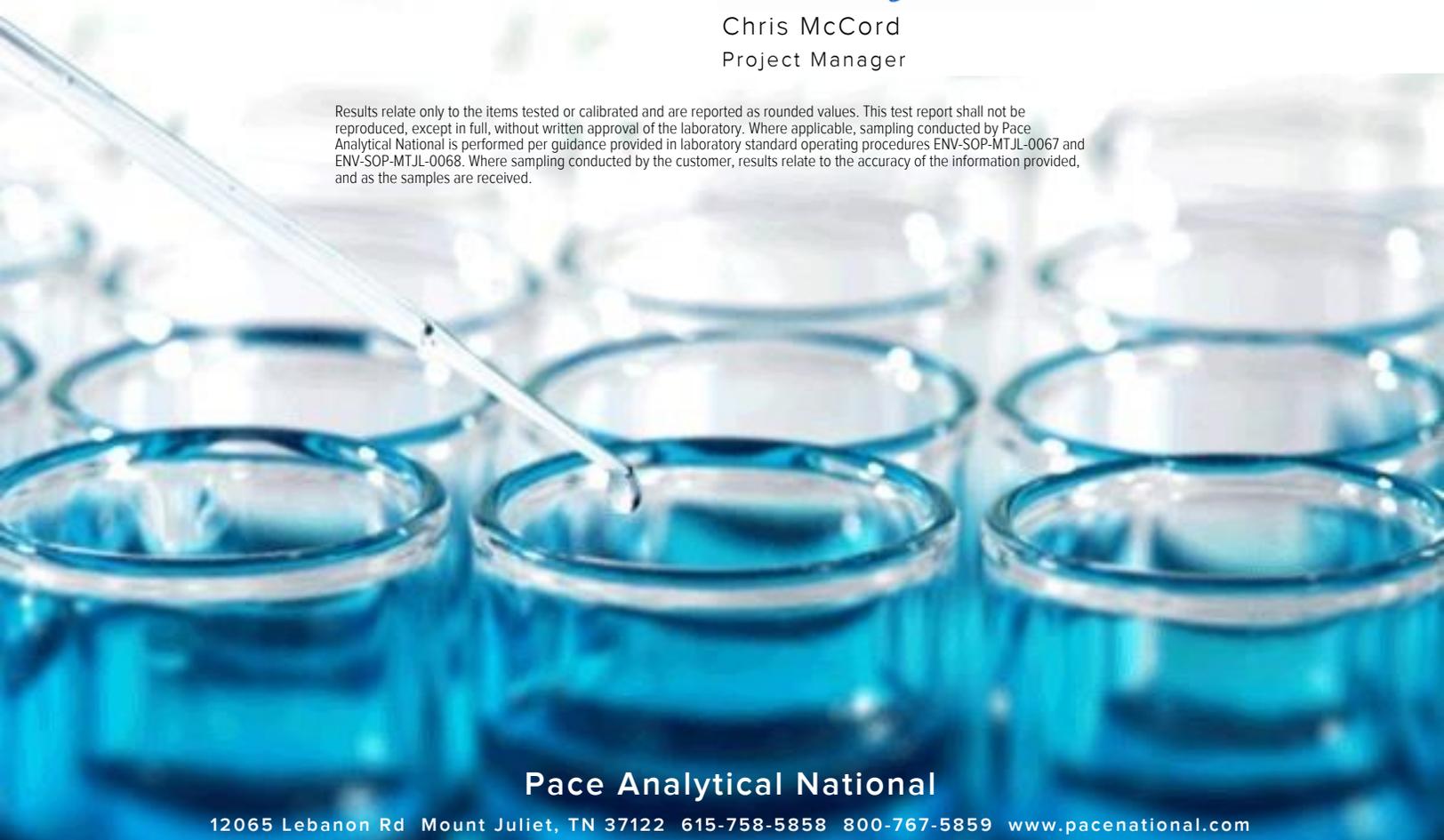
Report To: Lindsay Wilson-Kokes
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Entire Report Reviewed By:



Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

MANSKERS CREEK- L1658036-01 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
09/21/23 10:34

Received date/time
09/21/23 11:35

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2136965	1	09/22/23 17:19	09/22/23 17:19	BGE	Mt. Juliet, TN

FIELD BLANK L1658036-02 WW

Collected by
Lindsay
Wilson-Kokes

Collected date/time
09/21/23 10:46

Received date/time
09/21/23 11:35

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG2136965	1	09/22/23 17:19	09/22/23 17:19	BGE	Mt. Juliet, TN

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	222.4		1	09/22/2023 17:19	WG2136965

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
E.Coli	<1		1	09/22/2023 17:19	WG2136965

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3978929-1 09/22/23 17:19

Analyte	MB Result MPN/100ml	<u>MB Qualifier</u>	MB MDL MPN/100ml	MB RDL MPN/100ml
E.Coli	<1			

¹Cp

²Tc

³Ss

L1658052-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1658052-02 09/22/23 17:19 • (DUP) R3978929-2 09/22/23 17:19

Analyte	Original Result MPN/100ml	DUP Result MPN/100ml	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
E.Coli	<10	<10	10	0.000		20

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

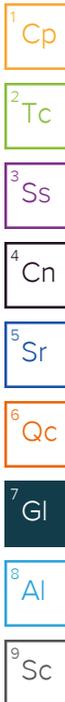
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Civil & Environmental Consultants - TN

117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Report to:
Lindsay Wilson-Kokes

Billing Information:

Accounts Payable
117 Seaboard Ln.
Suite E100
Franklin, TN 37067

Email To: lwilsonkokes@cecinc.com

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody
constitutes acknowledgment and acceptance of the
Pace Terms and Conditions found at:
<https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **L1658036**
E062

Acctnum: **CEC**
Template: **T236384**
Prelogin: **P1018886**
PM: **526 - Chris McCord**
PB: **8/21/23 CCM**
Shipped Via: **Courier**

Project Description: **City of Hendersonville**
City/State Collected: **Hendersonville, TN**
Please Circle: **PT MT CT ET**

Phone: **615-333-7797**
Client Project # **192-267**
Lab Project # **CEC-E COLI**

Collected by (print): **Lindsay Wilson-Kokes**
Site/Facility ID #
P.O. #

Collected by (signature): *[Signature]*
Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Quote #
Date Results Needed
No. of Cntrs

Packed on Ice N ___ Y
Sample ID Comp/Grab Matrix * Depth Date Time

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MANSKERS CREEK-	Grab	WW	Ø	9/21/23	1034	2
FIELD BLANK	1	WW	1	1	1046	2
DUPLICATE		WW				

E.coli Microbiological

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other _____

Remarks:

Samples returned via:
___ UPS ___ FedEx ___ Courier

Tracking #

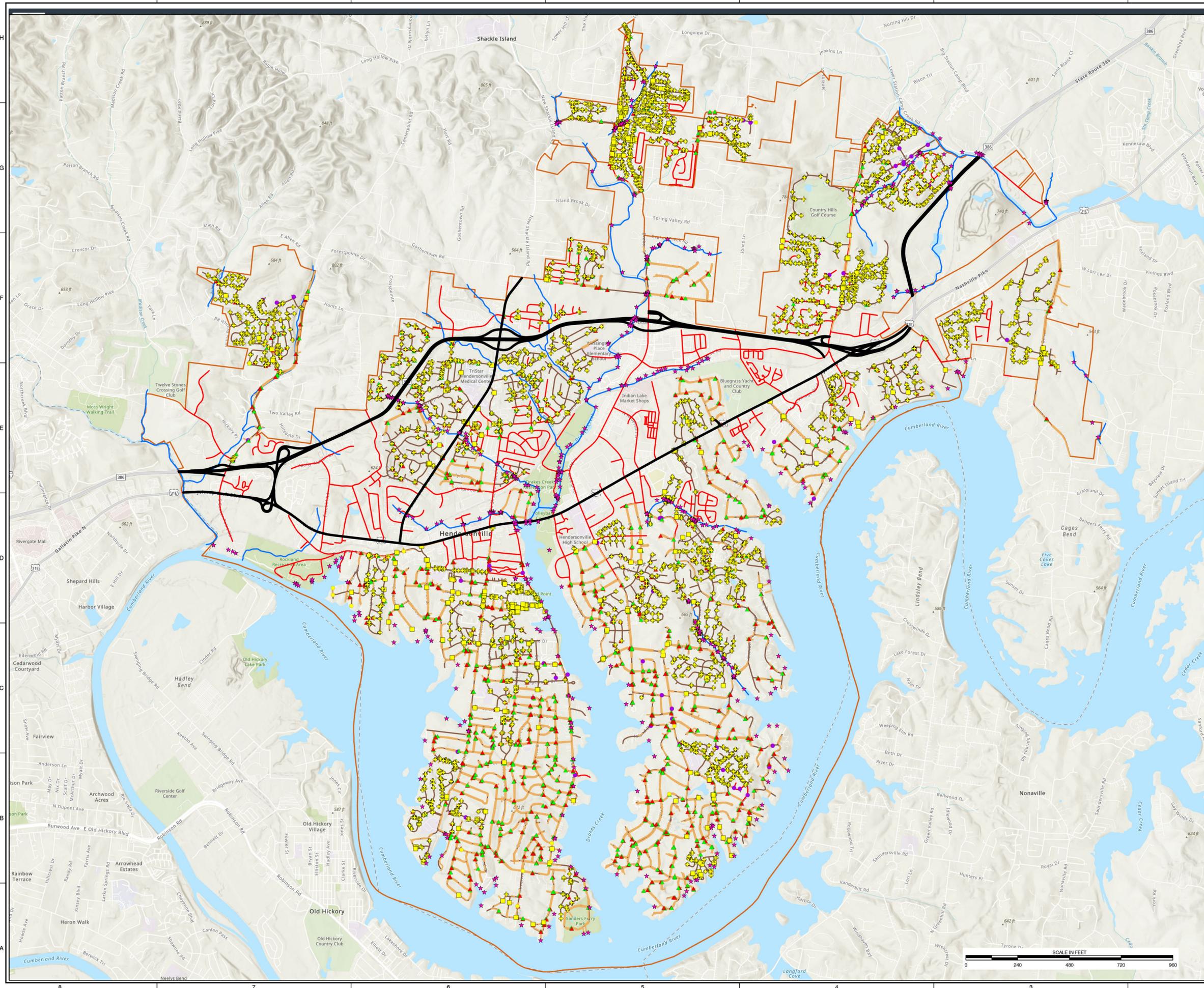
pH _____ Temp _____
Flow _____ Other _____

Sample Receipt Checklist	
COC Seal Present/Intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

on Ice

Relinquished by: (Signature) <i>[Signature]</i>	Date: 9/21/23	Time: 1135	Received by: (Signature)	Trip Blank Received: Yes/No HCL / MeOH TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 4
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) D. Ramirez (4)	Date: 09-21-23 Time: 1135

Hanna Microbiology



STORMWATER INPUT MAP DATA

Approximate Roadway Miles Assessed (January - July 2024): 255

Approximate Roadway Miles Needing Assessment: 77

Total Inlet Structures: 3,450

Total Headwalls In/Out: 1,887

- Legend**
- ★ MS4 OUTFALLS
 - TDOT ROW
 - Area Drain
 - ◆ Combination Inlet
 - ▲ Curb Cut
 - Other
 - POND
 - ▲ Headwall (In)
 - ▲ Headwall (Out)
 - Others
 - Stormwater Conveyance
 - TDEC Streams
 - Assessed Roadways
 - Roadways Needing Assessment
 - Hendersonville MS4 Boundary

REFERENCE:

USA TOPO MAPS MAP SERVICE

USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS/](http://gto.arcgis.com/maps/usa_topo_maps/)

ACCESSED 8/1/2024

 Civil & Environmental Consultants, Inc.	117 Seaboard Lane Suite E-100 Franklin, TN 37067 Ph: 615.333.7797 · 800.763.2326 www.cecinc.com
---	---

**CITY OF HENDERSONVILLE
 MS4 STORM SEWER
 SYSTEM MAP**

DRAWN BY:	CEJ	CHECKED BY:	LWK	APPROVED BY:	LWK
DATE:	8/1/2024	SCALE:	1"=200'	PROJECT NO:	324-461

INPUT MAPPING (IN-PROGRESS) FIGURE NO: **1**