

Little Sewickley Creek Watershed Association Water Quality Report

Bell Acres Borough | March 2022

Mission

The mission of the Little Sewickley Creek Watershed Association ([LSCWA](#)) is to protect and conserve the natural beauty and the environmental health of Little Sewickley Creek and its watershed.



Watershed Assessment 2017-2018



In 2017 LSCWA engaged CEC (Civil and Environmental Consultants, Inc.) to coordinate a field watershed assessment of the physical, chemical, and biological conditions in the streams of the Little Sewickley Creek watershed.

Based on the results of the watershed assessment and on data collected from a previous survey in 1981-82, LSCWA engaged CEC to do a water quality study of selected streams in the watershed.

Water Quality Study 2020-2021

Based on a preliminary survey of water samples taken from 115 separate locations in the watershed during July 2020:

Site Selection

CEC selected 20 sites where specific conductance was abnormally high. High specific conductance is an indicator of possible water pollution.

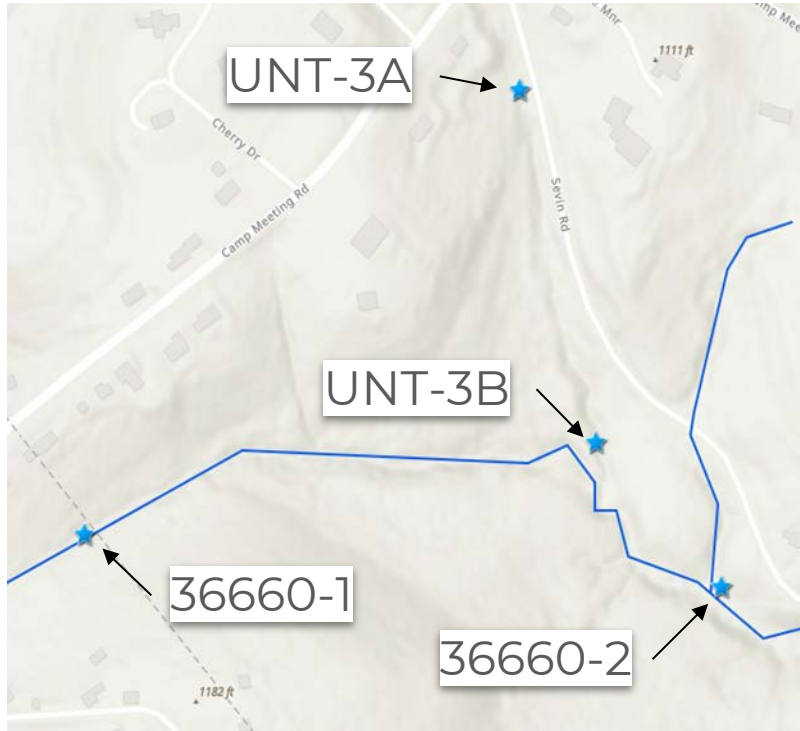
Repeat Testing

CEC collected water samples from each of these 20 sites four times. September & December 2020
March & June of 2021

Results Analysis

An independent laboratory tested all samples for 17 different pollutants. CEC analyzed the results and issued a report to LSCWA in July 2021.

Sevin Road Testing Sites



Upstream of UNT-3A



36660-1

Sevin Rd Site UNT-3A | Aluminum, Chloride & Total Dissolved Solids

Water samples at [UNT-3A](#) exceeded the [Chap. 93 PA State Water Quality Standards](#) for aluminum (0.75 mg/L), chloride (250 mg/L), and total dissolved solids (750 mg/L).

| Date | Aluminum | Aluminum Excess % | Chloride | Chloride Excess % | TDS | TDS Excess % |
|------------|----------|-------------------|----------|-------------------|------|--------------|
| Sept. 2020 | 1.1 | 46% | 388 | 55% | 1100 | 47% |
| Dec. 2020 | 0.73 | - | 490 | 96% | 1100 | 47% |
| Mar. 2021 | 0.25 | - | 1170 | 368% | 2200 | 193% |
| Jun. 2021 | 0.44 | - | 757 | 203% | 1500 | 100% |



Sevin Rd Site UNT-3B | Chloride & Total Dissolved Solids (TDS)

On multiple occasions water samples at [UNT-3B](#) exceeded the [Chap. 93 PA State Water Quality Standards](#) for chloride (250 mg/L), and total dissolved solids (750 mg/L).

| Date | Chloride | Chloride Excess % | Total Dissolved Solids | TDS Excess % |
|------------|----------|-------------------|------------------------|--------------|
| Sept. 2020 | 399 | +60% | 750 | - |
| Dec. 2020 | 230 | - | 670 | - |
| Mar. 2021 | 695 | +178% | 1300 | +73% |
| Jun. 2021 | 559 | +124% | 1200 | +60% |



Sevin Rd Site 36660-1 | Chloride & Total Dissolved Solids

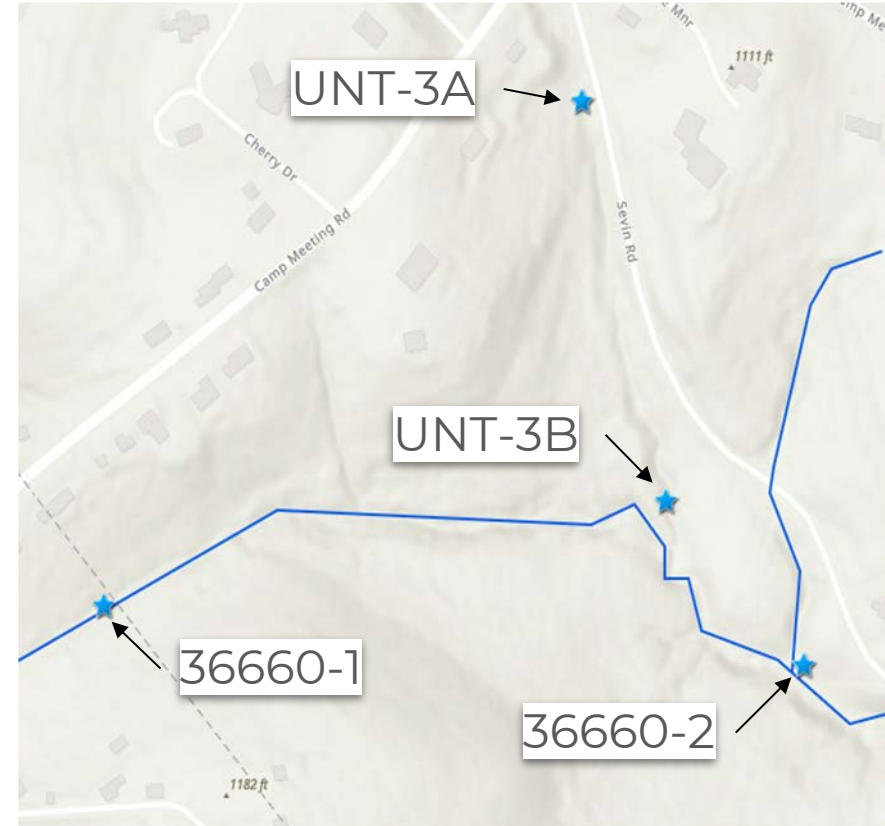
On multiple occasions water samples at [36660-1](#) exceeded the [Chap. 93 PA State Water Quality Standards](#) for chloride (250 mg/L), and total dissolved solids (750 mg/L).

| Date | Chloride | Chloride Excess % | Total Dissolved Solids | TDS Excess % |
|------------|----------|-------------------|------------------------|--------------|
| Sept. 2020 | 371 | +48% | 1000 | +33% |
| Dec. 2020 | 306 | +22% | 770 | +3% |
| Mar. 2021 | 306 | +22% | 670 | - |
| Jun. 2021 | 405 | +62% | 880 | +17% |

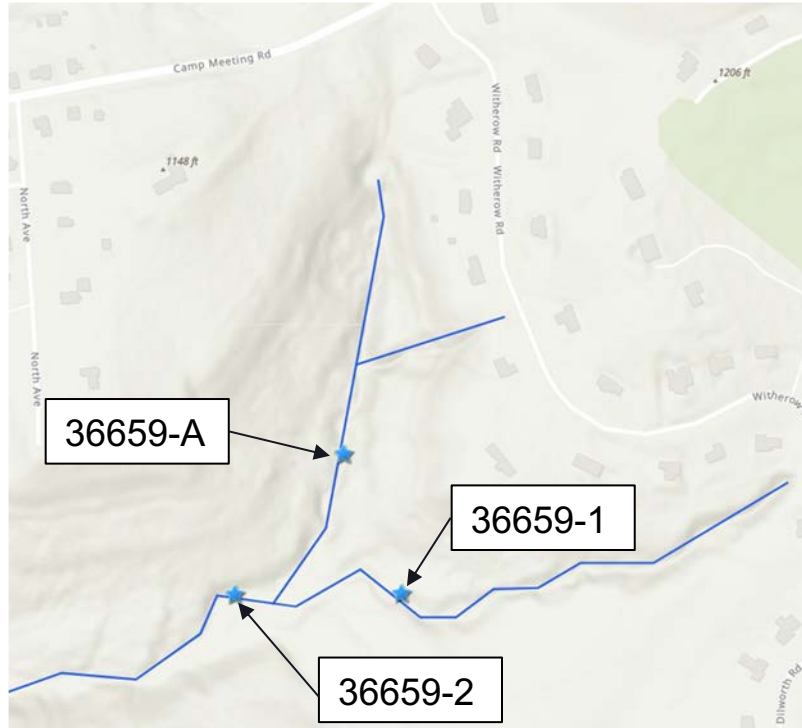


Sevin Rd Site Results | Additional Contaminants

- 13 of 16 water samples from the [four Sevin Road sites](#) contained detectable levels of **phosphate**
- 7 of 16 samples from the four Sevin Road sites contained elevated **chemical oxygen demand**
- March 2021 water samples from [UNT-3B](#) contained detectable levels of TPH (total **petroleum hydrocarbons**)
- June 2021 water samples from [UNT-3A](#) and [UNT-3B](#) contained low levels of **anionic surfactants** (used in detergents and is common in gray water)
- June 2021 water samples from [36660-2](#) exceeded **fecal coliform** standards (273 colony forming units/100 mL)



Devil's Hollow Testing Sites



Downstream of 36659-A

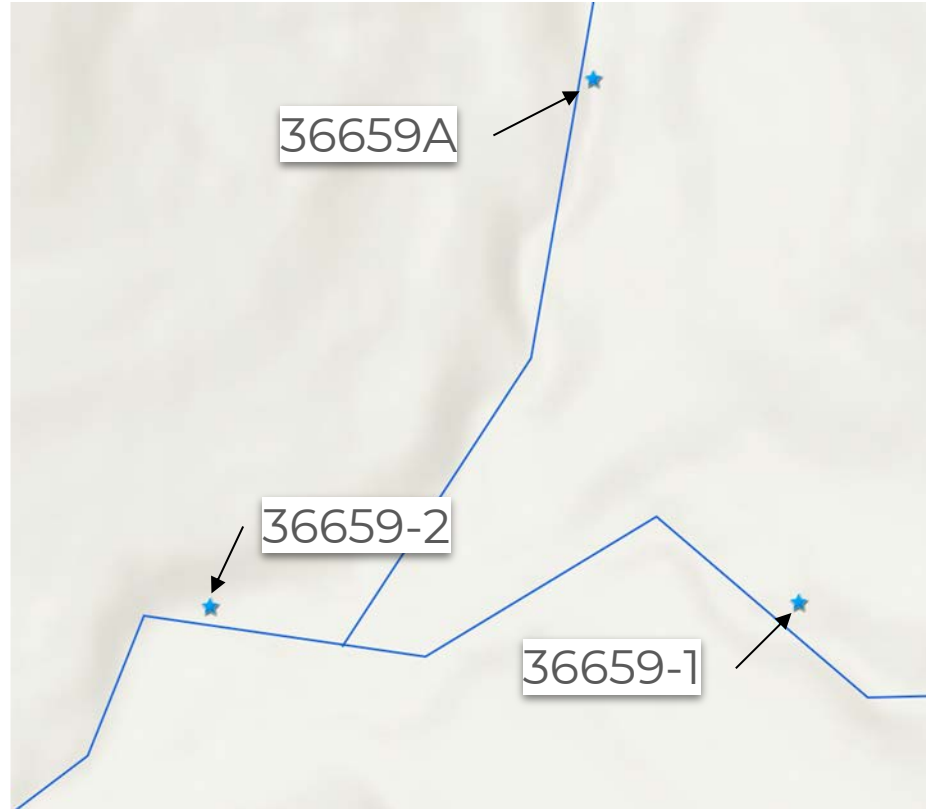


Downstream of 36659-2

Devil's Hollow Site Results | Contaminants Detected

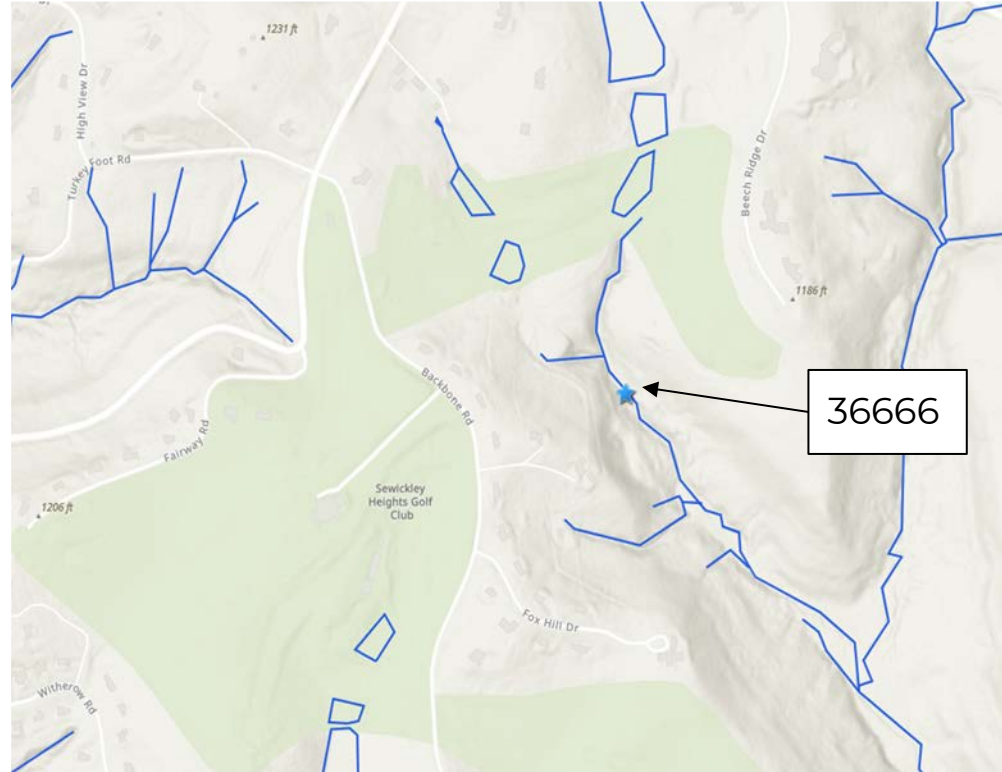
Phosphate was detected above the reporting limit at 36659-2 in June 2021 and at 36659A in September 2020, March 2021, and June 2021.

Anionic surfactants used in detergents and common in gray water were detected above the reporting limits at [36659-1](#) in Sept 2020, Dec 2020 and June 2021 and at [36659-2](#) in Sept 2020, March 2021, and June 2021.



Backbone Rd Site Results | Contaminants Detected

Anionic surfactants used in detergents and common in gray water were detected above the reporting limits at 36666 in March 2021.



Possible Conclusions-1

Chloride & Total Dissolved Solids

Road salt mixing with precipitation and entering streams would be the most likely source of elevated chloride and total dissolved solids at [36660-1](#), [UNT-3A](#), and [UNT-3B](#) along [Sevin Rd.](#)

Total Petroleum Hydrocarbons

Elevated levels of total petroleum hydrocarbons associated with elevated levels of both chloride and total dissolved solids (e.g., [UNT-3B](#) in March 2021) provides additional evidence that **runoff from nearby roads** is the likely source of pollutants.

Possible Conclusions-2

Fecal Coliform Bacteria

Elevated fecal coliform bacteria, anionic surfactants, and chemical oxygen demand at the [Sevin Road](#) sites suggests a **leaking sewer line** or **poorly draining septic fields**.

Phosphate

Elevated levels of phosphate in [Sevin Road](#) and [Devil's Run](#) tributaries could be related to **surface water runoff** from nearby residents containing **excess turf fertilizers**.

Anionic Surfactants

Elevated levels of anionic surfactants used in detergents in the [Devil's Run](#) and [Backbone Road](#) tributaries suggest **leakage of gray water** from properties along Witherow and Backbone Roads.

Possible Large Scale Mitigation Projects

Runoff Controls

Evidence of sediment accumulation was observed in many of the study areas. Installation of erosion, sediment and runoff controls could help in reducing the sedimentation loading and could reduce chloride concentrations.

Infiltration Trenches

Infiltration trenches are permanent excavated trenches three to eight feet deep that are backfilled with stone to create precipitation retention and percolation into the subsoil. Properly designed infiltration trenches are the best management practice and effectively remove sediment and other runoff pollutants.

Possible Small Scale Mitigation Projects

Municipal authorities and neighboring property owners could work together to:

Identify

Identify sources of the impacted runoff and shallow groundwater where evidence of sewage pollution, excess nutrients, and gray water occurs.

Develop

Develop plans to remove the sources and/or control the infiltration of the impacted water.

Resources

Watershed Restoration and Protection Program

<https://dced.pa.gov/programs/watershed-restoration-protection-program-wrpp/>

Civil and Environmental Consultants, Inc., 333
Baldwin Road, Pittsburgh, PA 15205, phone: 412-429-
2324 or Brianne Hastings (bhastings@cecinc.com)

[Interactive Map](#) of Little Sewickley Creek watershed

EPA www.epa.gov



Thank You

*“In every walk
with nature one
receives far more
than he seeks.”*

—John Muir