Utility System GIS/GPS Inventory and Development
Village of Somers

PROPOSAL DUE DATE: May 17, 2022
CONTRACT AWARD DATE: May 24, 2022

PROJECT DESCRIPTION:

The Village of Somers would like to expand its GIS database by completing additional GPS field data collection surveys of its water distribution, sanitary sewer, and storm sewer systems. This project will improve the accuracy, completeness, usability, and overall functionality of the infrastructure data and related information.

The project requires collection of location information and attribute data utilizing the ESRI software suite to process it. All data will be integrated into the Village's existing GIS infrastructure. Picking up data that was previously GPS'd and currently exists in the Village's GIS database is not required.

Assets collected during the course of this project will be sub 2-centimeter horizontal and vertical accuracy. All data associated with this project will be designed with the Village's existing data format to ensure integration with the existing GIS data.

The following is the minimum scope of services to complete the Water Distribution, Sanitary Sewer, and Storm Sewer GPS Inventory and GIS Development project.

SCOPE OF SERVICES

1. ATTEND PROJECT MEETINGS
    A. Conduct a project kick-off meeting with the Village to clarify project objectives and establish the project schedule.

2. PROJECT MANAGEMENT AND OVERSIGHT
    A. The consultant shall assign a project manager/point of contact that will be responsible for the timeliness and quality of your project, provide oversight of the field crew and GIS staff, and ensure that the GIS data is delivered accurately and completely.
    B. Perform the initial field survey and provide a list of items needing investigation by the Village staff by July 31, 2022.

C. Deliver the remainder of the field data to the Village for review by September 15, 2022.
D. Deliver all project related data and applications to Kenosha County by October 31, 2022.

3. PROJECT CONTROL POINTS
   A. Tie the GPS data to existing permanent survey control points as well as setting additional control points as needed.
   B. Control will be used to field verify positional accuracy of the data collected throughout the course of the project.

4. COLLECT LOCATIONS OF VILLAGE-OWNED WATER DISTRIBUTION, SANITARY SEWER, AND STORM SEWER STRUCTURES
   A. Using high-accuracy GPS equipment with an accuracy of 2- centimeter horizontal and vertical accuracy, locate and survey the Village-owned utilities and structures. Data shall be collected and processed using the following coordinate systems:
      - NAD 83 (2011) Wisconsin State Plane-South Zone-U.S. Survey Foot
      - Vertical Control NVGD 29
   B. For structures not visible from the surface, collect a position at the estimated location, along with attribute notation of the reason it could not be located (buried, cannot access, pavement, obstructed). Perform a second survey following investigation by the Village.
   C. Collect locations, attribute data, and dipping of the Village-owned water, sanitary, and storm sewer system structures. The following attributes will be collected for each feature:

      <u>WATER DISTRIBUTION ASSETS AND ASSOCIATED ATTRIBUTES</u>

      Fire Hydrants
         Location
         Fire Hydrant Model
         Verify Storz Connector
         Verify Nozzle Height
         Condition “at-a-glance” (New, Good, Fair, Poor)
         Inspection Date
      Auxiliary (Hydrant) Valve
         Location
      Main Valve
         Location

BBox/Service Valve
- Location
- House/Building Address Number

SANITARY SEWER ASSETS AND ASSOCIATED ATTRIBUTES

Manhole Structure External Attributes
- Location
- Unique Identification Number
- Inspection Date
- Rim Elevation
- Open Pick-Holes

Manhole Structure Internal Attributes
- Frame Condition
- Structure Type (precast/block)
- Drop Manhole
- Structure Size
- Flat or Tapered Top Section
- Chimney Seal Present
- Adjusting Rings Height
- Number of Pipes
- Pipe Size(s)
- Pipe Material(s)
- Pipe Direction(s)
- Pipe Invert(s)

Lift Station
- Valve Vault and Pump Vault Locations

STORM SEWER ASSETS AND ASSOCIATED ATTRIBUTES

Manhole/Inlet Structure External Attributes
- Location
- Inspection Date
- Rim/Flowline Elevation
- Casting Condition

Manhole/Inlet Structure Internal Attributes
- Structure Type (precast/block)
- Structure Size
- Adjusting Rings Height
- Number of Pipes

Pipe Size(s)
Pipe Material(s)
Pipe Direction(s)
Pipe invert(s)

Culverts/End Walls
Location
Invert Elevation
Pipe Size
Pipe Material
Condition “at-a-glance” (New, Good, Fair, Poor)

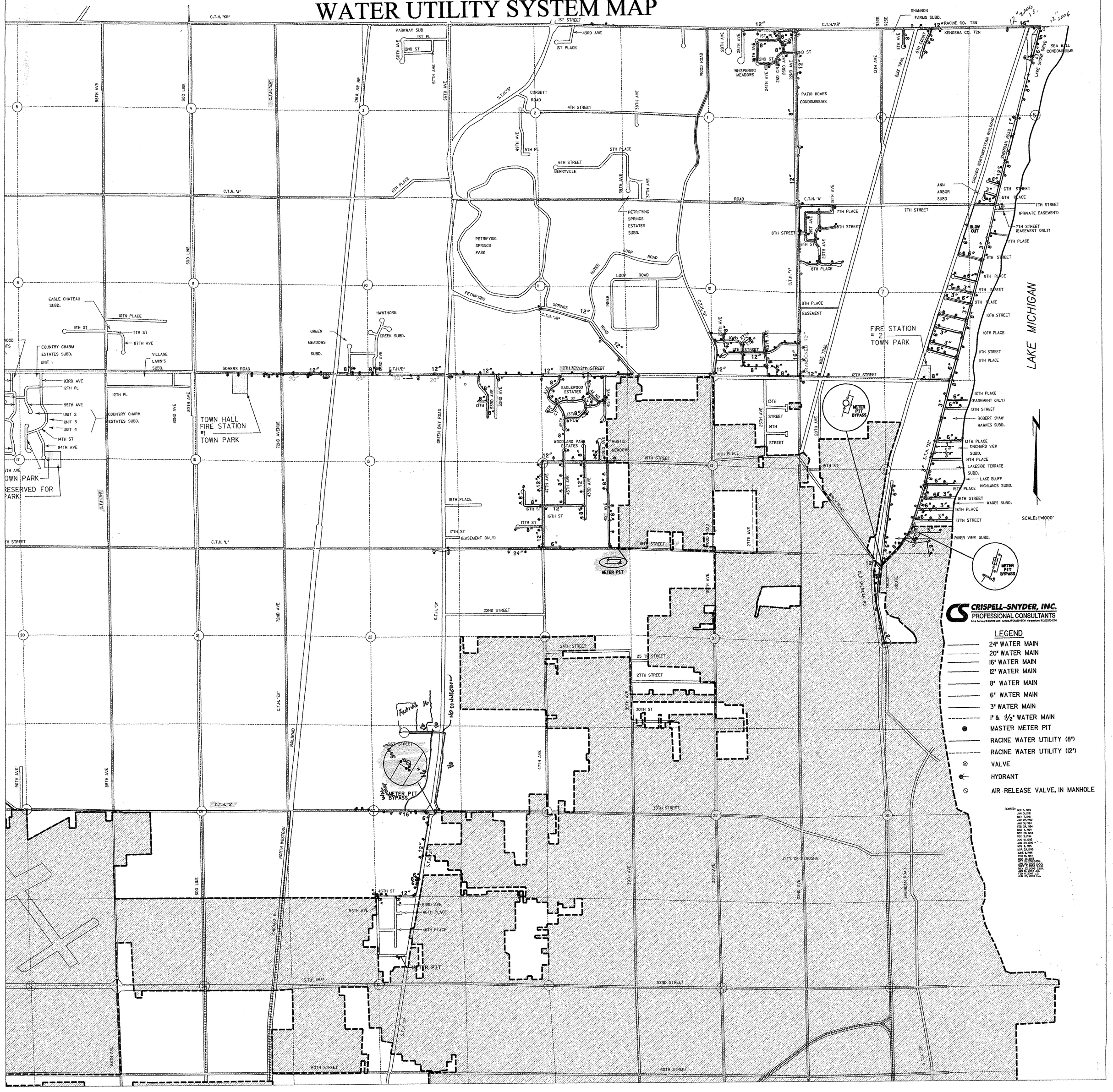
5. DATA COLLECTION METHODOLOGY
   A. Host and configure the asset data on consultant’s ArcGIS Online (AGOL) Organization Account for the purpose and timeframe of the data collection providing access to project datasets and applications while complying with ESRI’s licensing model. After the collection is complete the data will be exported to a File Geodatabase for deliverable to the Village and the County.
   B. Collect all GPS points at center of the structure/casting. All attributes required will be input while the crew is at the structure. Provide a photo of the interior of each structure.
   C. Establish a series of project control points to check and confirm any horizontal and vertical datum shifts between map coordinate systems and RTK Network/Correction coordinate systems.

6. DATA PROCESSING & QA/QC
   A. Professional Land Surveyor QA/QC
      - Provide a Professional Land Surveyor (PLS) that will provide oversite of all data collected as part of this project.
      - Review attribute data for completeness and uniformity.
   B. Pipeline data and location updates
      - After the structure point features are updated in the GIS, the corresponding linear asset data will need to be reconnected to the structures. Edit the line data and ensure that end segments are snapped to the point features to maintain the integrity of the data connectivity for a future network model.

7. FINAL PRODUCTS
    A. Atlas Maps, Electronic and Hard Copy
    B. Submit Data to the Village and Kenosha County GIS
    C. Proposal to incorporate record drawings, photos, videos, and field notes into the utility data.

8. ITEMS BY VILLAGE
    A. Locate and mark water service shut off valves prior to initial field survey.
    B. Locate, uncover, and mark missing sanitary, storm, and water features following initial field survey.
    C. Access to County GIS System.
    D. Record drawings, as needed.

TOWN OF SOMERS
WATER UTILITY SYSTEM MAP



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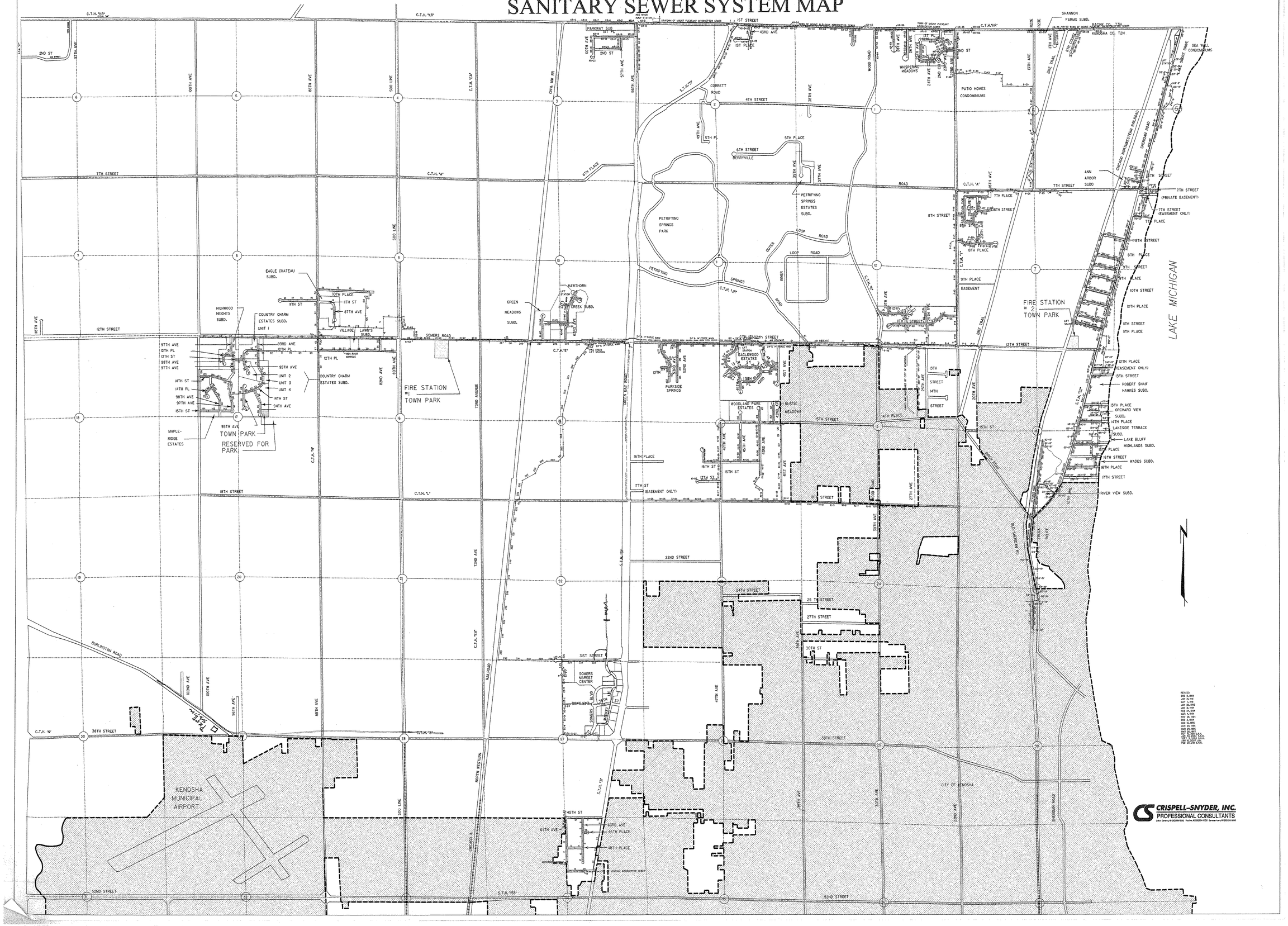
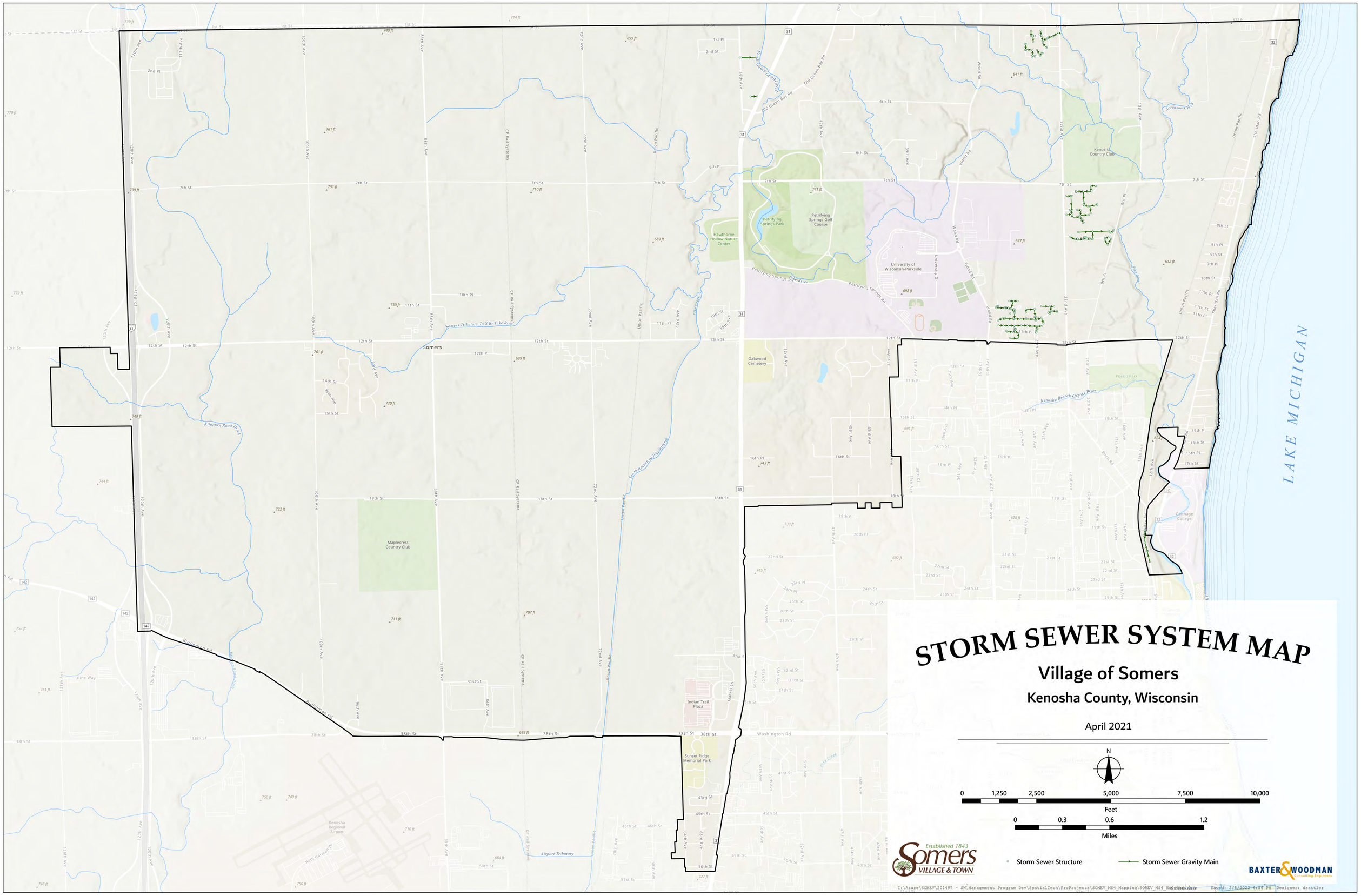
TOWN OF SOMERS
SANITARY SEWER SYSTEM MAP




STORM SEWER SYSTEM MAP
Village of Somers
Kenosha County, Wisconsin
April 2021
N
0
1,250
2,500
5,000
7,500
10,000
Feet
0
0.3
0.6
1.2
Miles
Storm Sewer Structure
Storm Sewer Gravity Main
Established 1843
Somers
VILLAGE & TOWN
BAXTER & WOODMAN
Consulting Engineers
LAKE MICHIGAN
Somers
Kenosha
Kenosha Country Club
Petrifying Springs Golf Course
Petrifying Springs Park
Hawthorne Hollow Nature Center
University of Wisconsin-Parkside
Oakwood Cemetery
Maplecrest Country Club
Indian Trail Plaza
Sunset Ridge Memorial Park
Kenosha Regional Airport
Poerio Park
Carthage College
Somers Tributary To S Br Pike River
Kilbourn Road Ditch
South Branch Of Pike River
Kenosha Branch Of Pike River
Pike Creek
Airport Tributary
Sorenson Creek
Pike River
Petrifying Springs Rd
Old Green Bay Rd
Burlington Rd
Washington Rd
Sheridan Rd
Wood Rd
Birch Rd
Uline Way
Ruth Harman Dr
Union Pacific
CP Rail Systems
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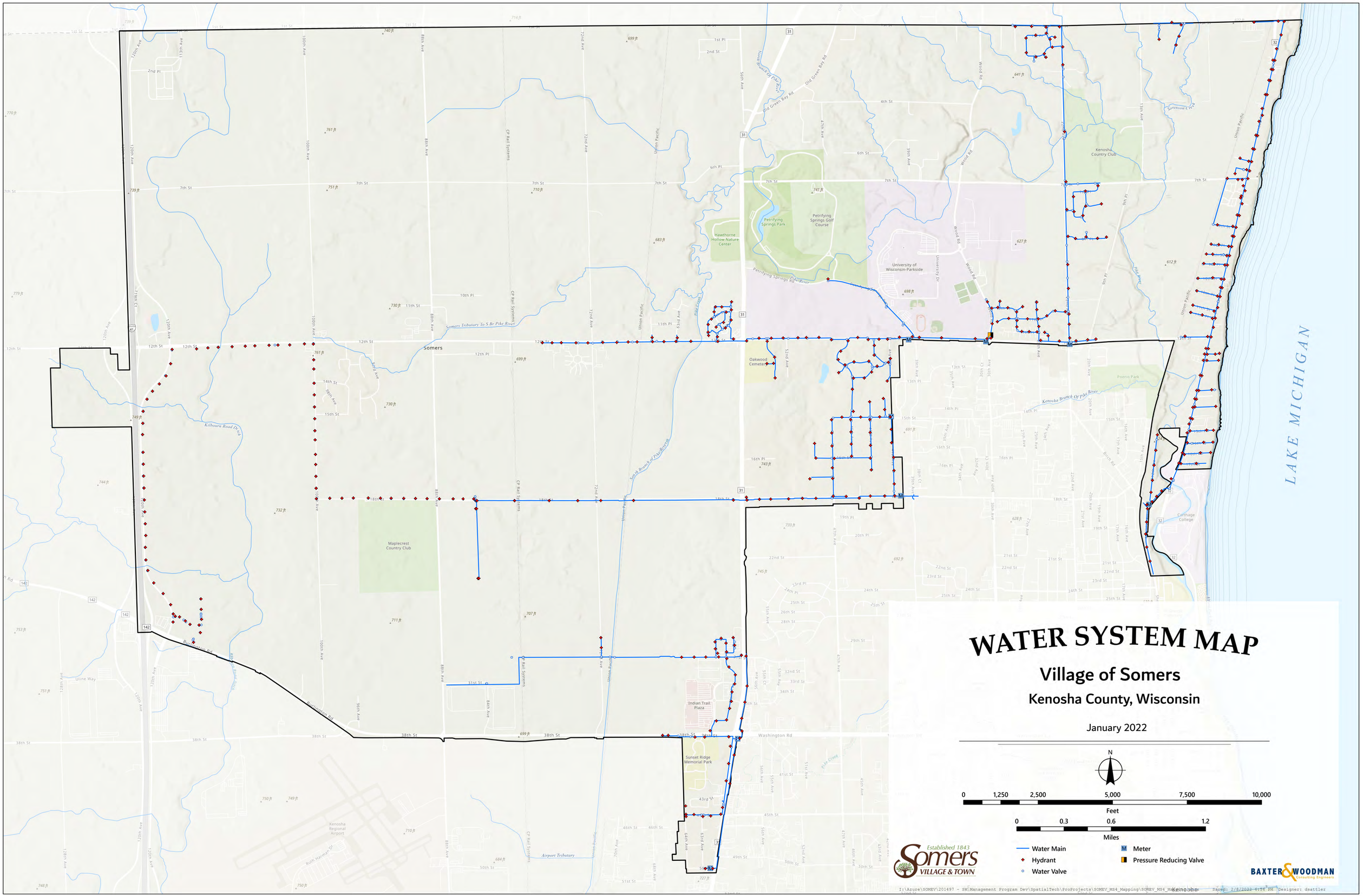
WATER SYSTEM MAP
Village of Somers
Kenosha County, Wisconsin
January 2022
N
0 1,250 2,500 5,000 7,500 10,000
Feet
0 0.3 0.6 1.2
Miles
Water Main
Hydrant
Water Valve
Meter
Pressure Reducing Valve
Established 1843
Somers
VILLAGE & TOWN
BAXTER & WOODMAN
Consulting Engineers
LAKE MICHIGAN
Somers
Kenosha Country Club
Petrifying Springs Golf Course
Petrifying Springs Park
Hawthorne Hollow Nature Center
University of Wisconsin-Parkside
Oakwood Cemetery
Maplecrest Country Club
Indian Trail Plaza
Sunset Ridge Memorial Park
Kenosha Regional Airport
Poerin Park
Carthage College
Somers Tributary To S Br Pike River
Kenosha Branch Of Pike River
South Branch Of Pike River
Kilbourn Road Ditch
Airport Tributary
Pike Creek
Sorenson Creek
Union Pacific
CP Rail Systems
Old Green Bay Rd
Wood Rd
Washington Rd
Burlington Rd
Uline Way
Ruth Harman Dr
Birch Rd
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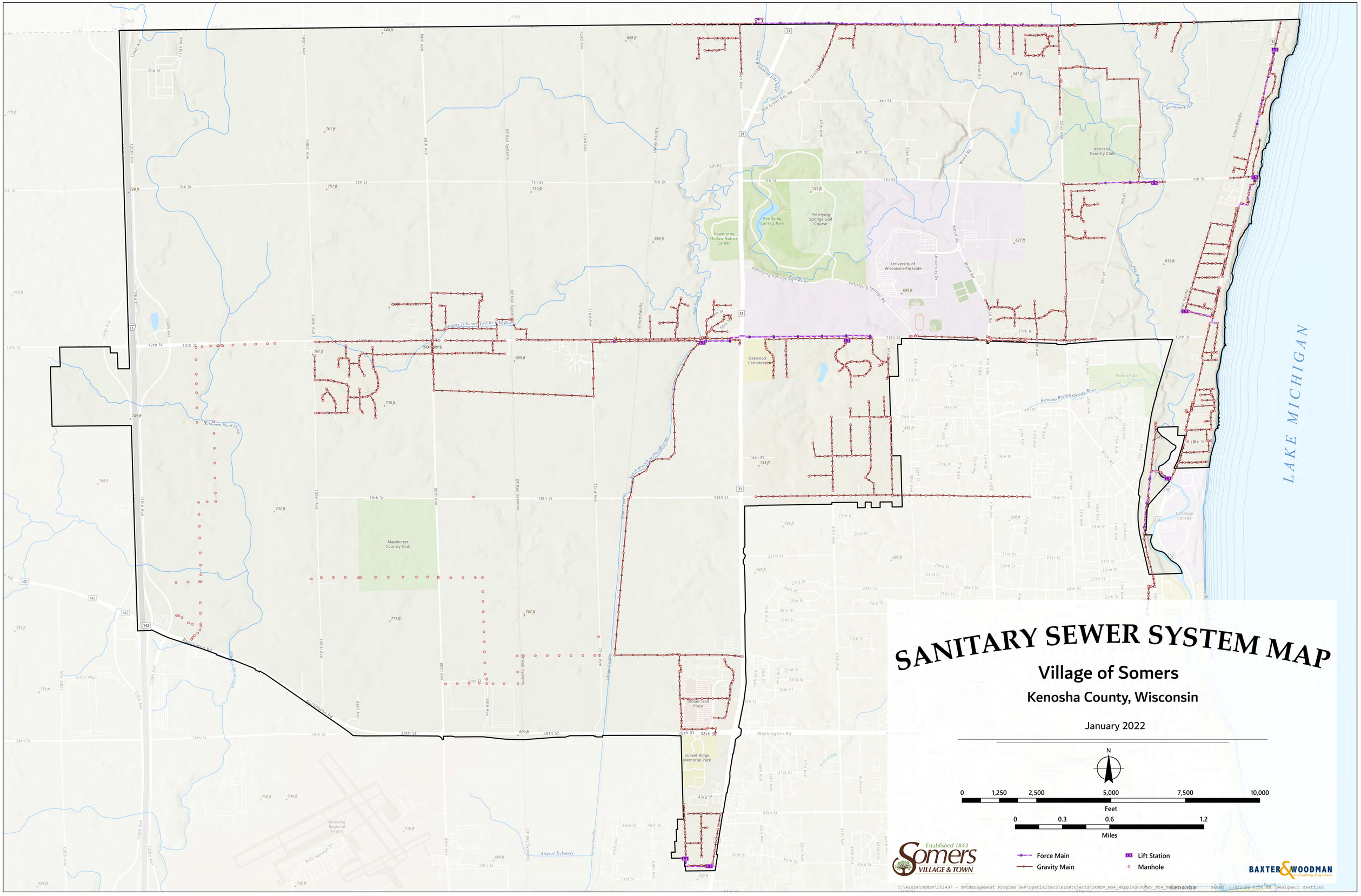
SANITARY SEWER SYSTEM MAP
Village of Somers
Kenosha County, Wisconsin
January 2022
N
0 1,250 2,500 5,000 7,500 10,000
Feet
0 0.3 0.6 1.2
Miles
Force Main
Gravity Main
Lift Station
Manhole
Established 1843
Somers
VILLAGE & TOWN
BAXTER & WOODMAN
Consulting Engineers
LAKE MICHIGAN
Somers
Kenosha Country Club
Petrifying Springs Golf Course
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North Branch Of Pike River
Airport Tributary
Pike Creek
Sorenson Creek
Petrifying Springs Rd
Old Green Bay Rd
Washington Rd
Birchwood Rd
Uline Way
Ruth Harms Dr
Birch Rd
Wood Rd
Union Pacific
CP Rail Systems
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