ENVIRONMENTAL ASSESMENT REPORT
Ash Street Pump Station and Force Main Project
Sanitation District No. 1 of Northern Kentucky,
Boone, Campbell, and Kenton Counties, Kentucky
AI#523; PLN20130001

A. Summary

Project Summary

Sanitation District No. 1 of Northern Kentucky (SD1) owns and operates all of the publicly-owned collection and treatment systems within Boone, Campbell, and Kenton Counties with the exception of the Cities of Walton and Florence.

SD1 entered into a Consent Decree with the U.S. Environmental Protection Agency (USEPA) and the Commonwealth of Kentucky to eliminate sanitary sewer overflows (SSOs) and remediate combined sewer overflows (CSOs) in April 2007. A requirement of that Consent Decree was to develop and submit a *Watershed Plan* evaluating alternatives and developing a schedule for compliance. Full implementation is expected by December 31, 2025.

The Ash Street Project is included in the watershed plan and involves the construction of a 7 million gallons per day (mgd) pump station, 27,000 linear feet of 20-inch force main, 750 linear feet of 24-inch gravity sewer upstream of the existing Silver Grove pump station, 7,600 linear feet of 12-inch force main, and 6,000 linear feet of low pressure sewers to pickup eleven homes around Silver Grove. Currently the wastewater from Melbourne and Silver Grove flow by gravity to the Silver Grove pump station then to Highland Heights pump station, which conveys all the flow to the Dry Creek wastewater treatment plant (WWTP). The proposed Ash Street pump station and force main will intercept flows from the cities of Silver Grove and Melbourne and convey all flows to the Riley Road pump station, which will convey the flows to the Eastern Regional Water Reclamation Facility. The proposed Ash Street Project will mitigate a chronic CSO in the City of Silver Grove and is part of a master plan to provide more capacity at the Dry Creek WWTP by diverting the flows to the Eastern Regional Water Reclamation Facility. The total estimated cost of the project, including construction and engineering, is $19,000,000. The proposed project will significantly reduce the volume and frequency of the Silver Grove combined sewer overflow, result in water quality benefits, and prevent risk to public health from potential exposure to untreated wastewater.

The project is located within the Northern Kentucky Area Development District and the area covered by the Florence Regional Office of the Division of Water (DOW). The environmental information document was prepared by GRW Engineers, Inc.

Funding Status

The project will be funded through low interest loan from the Clean Water State Revolving Fund in the amount of $15,187,500 and SD1 will contribute $3,812,500.

B. Existing Environment

General Description

Campbell County is located in the northern region of Kentucky and was formed in 1794. The county is bounded by water on three sides: the Ohio River on the north and the east, and the Licking River on the west. Its county seats are Alexandria and Newport. Campbell County has an area of about 155 square miles, or 99,200 acres and had a population of approximately 91,000 based on the 2010 census data. The Ash Street project planning area is located in SD1 service area. Approximately 70% of the land in Campbell County is designated residential, both single and multi-family dwellings, 14% agriculture, 8% wooded/Open Space, and the other 6% is of mixed use including, but not limited to, commercial and recreational. The northern part of the county has experienced intensive urban development.

Topography and Geology

Campbell County is located in the Outer Bluegrass Region in northern Kentucky, and is bounded by water on three sides -- the Ohio River on the east and north and the Licking River on the west. The lowest elevation in the county is 455 feet at the confluence of the Ohio and Licking Rivers.

The project area is well dissected by numerous small streams that flow into the Ohio River. Fourmile Creek cuts across the project area and flows to the Ohio River west of the project area. Flat areas are relatively scarce and generally small. Large valley flats are located along the Ohio River near Silver Grove and Melbourne, and to a lesser extent along the Ohio River to the south. Locally, ridgetops may be flat, but the areas involved are not large.

In Campbell County, groundwater is obtained from consolidated sedimentary rocks of Ordovician age and unconsolidated sediments of Quaternary and Wisconsinan (The Wisconsinan is part of the Quaternary) age. The oldest rocks found on the surface in Campbell County form the Fairview and Kope Formations, deposited in shallow seas 490 million years ago during the Early Ordovician Period. The Kope forms rugged, much-dissected topography of long, narrow, steep-sided ridges and narrow, winding V-shaped valleys with dendritic drainage pattern, and the Fairview forms the top of some of the ridges in the area. Steep slopes are littered with thin limestone slabs that remain as shale erodes and washes away. The contrast with less-rugged upland surfaces of adjacent areas is marked, except near major streams, where the change is masked by dissection. In the Late Ordovician, the seas became relatively shallow, as indicated by the amounts of mud (shale) in the sediments.

Over the last million years, unconsolidated Quaternary sediments have been deposited along the larger streams and rivers. In addition, Wisconsinan glacial and lacustrine deposits are also found in the project area.

Soils

Soils in the project area are presented in Table 1 and were reported not to be hydric (saturated soils exhibiting anaerobic conditions). All soils are classified as very limited for septic tank absorption fields.

Table 1
Soil Descriptions
Campbell County, Kentucky

Soil Association	Description
Ashton silt loam, 2-6%	Deep well drained silt loam, loam and fine sandy soils of the uplands and stream terraces with sloped of 0 to 30%. Some have gravelly and sandy sub-soils.
Avonburg silt loam, 0-4%	Poorly drained silt loam soils with a fragipan on nearly level uplands and stream terraces and moderate productivity potential.
Brashear silty clay loam, 6-12%	Deep well drained silt loam, loam and fine sandy loam soils of the uplands and stream terraces with sloped of 0 to 30%. Some have gravelly and sandy sub-soils.
Captina silt loam	Moderately well drained silt loam fragipan soils of the uplands and stream terraces with slopes of 0-12%.
Faywood silty clay loam, 6-12%	Moderately deep silty clay loam, silt loam or fine sandy loam soils of the uplands with slopes about 6-30%.
Huntington silt loam, 0-4%	Deep, well drained silt loam, loam and fine sandy loam soils of the floodplains.
Lawrence silt loam, 0-4%	Poorly drained silt loam soils with a fragipan on nearly level uplands and stream terraces.
Licking silt loam	Deep, well drained silt loam, loam and fine sandy loam soils of the uplands and stream terraces with slopes of 0-30%. Some have gravelly and sandy sub-soils.
Lindside silt loam	Deep, well drained silt loam, loam and fine sandy loam soils of the floodplains.
Negley silt loam, 2-6%	Deep, well drained loam, loam and fine sandy loam soils of the uplands and stream terraces with slopes of 0-30%. Some have gravelly and sandy sub-soils.
Newark silt loam, 0-2%	Deep, somewhat poorly drained silt loam, loam and fine sandy loam soils of the floodplains.
Nolin silt loam, 0-3%	Deep, well drained silt loam, loam and fine sandy loam soils of the floodplains.
Robertsville silt loam	Poorly drained silt loam soils with a fragipan on nearly level uplands and stream terraces.
Rossmoyne silt loam	Moderately well drained silt loam fragipan soils of the uplands and stream terraces with slopes of 0-12%.
Wheeling silt loam	Deep, well drained silt loam, loam and fine sandy loam soils of the uplands and stream terraces with slopes of 0-30%. Some have gravelly and sandy sub-soils.

Surface Waters

The project area is located within the Licking River Basin Management Unit; and Fourmile Creek watershed. The project area is drained primarily by Fourmile Creek and its tributaries, Tug Creek, Owl Creek, Uhl Creek, Duck Creek, and several unnamed tributaries. Tenmile Creek and its tributaries drain the southern part of the project area.

As per the 2010 Integrated Report to Congress, Fourmile Creek has been assessed for its designated uses and is listed as supporting warm water aquatic habitat (WAH). However, Fourmile Creek mile point 0.2 to 8.5 does not support the primary contact recreation designated use; the impairment is attributed to fecal coliform. The pollutant is fecal coliform. Suspected sources of pollution are municipal point source discharges and sanitary sewer overflows. Ten Mile Creek is assessed as partially supporting the WAH designated used from mile point 0.05 to 1.15; causes of the impairment include sedimentation/siltation, nutrient/eutrophication biological indicators and habitat assessment, sources include site clearance (land development or redevelopment), livestock (grazing or feeding operations) and crop production (crop land or dry land).

The Northern Kentucky Water District is the only water provider in the project area.

Groundwater

The Kope formation yields 100 to 500 gallons per day to drilled wells in valley bottoms along large streams, but almost no water to drilled wells on hillsides or ridgetops. It does yield water to small springs and seeps. The water is hard in valley bottoms, and may contain salt or hydrogen sulfide. Shale units have small, poorly connected openings that allow passage of only small quantities of water, restricting yields to wells and springs and preventing recharge to underlying rocks. The few thick limestone beds may yield water to small springs. On ridgetops, shale impedes downward percolation of water and supports water in the lower part of the soil and in a weathered-rock zone just beneath the soil. High up on the sides of many ridges is a zone of seeps and small springs. Drilled wells on these ridges obtain a little water at the contact between soil and bedrock, but rarely at greater depths; if water is found at depth, it is mainly in small quantities and of poor quality. Dug wells, with large wall areas, are better suited for obtaining water from these bodies of water; however, many go dry in late summer and fall.

The unconsolidated materials yield moderate to large quantities of water to drilled wells in the Ohio River valley, according to thickness and texture of the valley fill and type of well 200 to 500 gallons per minute to ordinary tubular wells and as much as 1,000 gallons per minute to gravel-packed wells (Source: Kentucky Geological Survey Website). Yields are more than 3 million gallons per day during the summer in the Covington-Newport area of the valley.

Based on the Kentucky Division of Water's (DOW) Groundwater Sensitivity Index, the project area has low-moderate sensitivity to groundwater pollution.

C. Existing Wastewater Facilities

The wastewater from the city of Melbourne is discharged to the city of Silver Grove system via a 10-inch gravity line. The Silver Grove pump station discharges all flow to the Highland Heights pump station, which ultimately conveys flows to the Dry Creek WWTP. Melbourne's system is a separate wastewater collection system, but Silver Grove's system is partially combined wastewater collection system. Silver Grove's system is also subject to infiltration and inflow, and during wet weather events the system experiences heavy sewer overflows. Average dry weather flow from Melbourne and Silver Grove is 0.17 mgd, with a peak flow of 0.3 mgd. The estimated wet weather peak hourly flow is 6.19 mgd. The Highland Heights area also experiences combined sewer overflows.

The Dry Creek wastewater treatment plant is located in the City of Erlanger and was constructed in the late 1970s. The plant discharges to the Ohio River at mile point 476.95 pursuant to Kentucky Pollutant Discharge Elimination (KPDES) Permit No. KY0021466. The DCWWTP was originally designed for an average daily flow capacity of 30 mgd and a wet weather peak capacity of 72 mgd. The facility was modified in 1991 to include additional primary and secondary treatment units. These improvements were designed to increase the average daily flow capacity of the plant to 46.5 mgd with a peak hour flow of 93 mgd. The annual average flow using data from December 2012 to November 2013 was 28.6 mgd.

In 2003 the existing rectangular grit removal units were replaced with two 50 MGD vortex grit removal units. Since 2003, the plant has also received regular upgrades to achieve higher efficiency with solids processing and improved secondary clarification. Additional improvements are currently under construction at the plant and are scheduled to be completed in 2014. These improvements include a new 110 MGD headworks facility and an odor scrubber system for the existing solids storage and dewatering facility. The plant is in good condition and in general operates within its permit limits.

Monthly average effluent limits that must be met by the Dry Creek WWTP are as follows:

Parameters	Limits
$CBOD_5$	30 mg/l
Total Suspended Solids (TSS)	30 mg/l
Ammonia Nitrogen	20 mg/l
Dissolved Oxygen	Minimum 2 mg/l
Fecal Coliform	200 colonies/100ml

The Eastern Regional Water Reclamation Facility (ERWRF), located on a site adjacent to the existing Alexandria WWTP on KY 10 just south of the City of Alexandria, was constructed in 2007. The 4 mgd secondary treatment facility is designed to treat domestic wastewater, wet weather flows and industrial wastewater. The plant discharges to Brush Creek at mile point 1.75 pursuant to KPDES Permit No. KY0105031. Flows greater than 12 mgd, but less than 20 mgd, are diverted to an aerated equalization facility located on the WWTP site. The unit processes include flow measurement, mechanical screening, grit removal, aerated equalization basins, oxidation ditches, final clarifiers, UV disinfection, post aeration, sludge holding tanks, and belt filter press. The plant is fairly new, has plenty of treatment capacity, and operates in compliance

with its permit limits. The annual average flow using data from December 2012 to November 2013 was just above 1.0 mgd.

Monthly average effluent limits that must be met by the East Regional Water Reclamation Facility are as follows:

Parameters	Limits
$CBOD_5$	15 mg/l
Total Suspended Solids (TSS)	30 mg/l
Ammonia Nitrogen	4 mg/l(summer)/10 mg/l (winter)
Total Phosphorus	1 mg/l(summer)/2 mg/l(winter)
Total Nitrogen	Report
Dissolved Oxygen	Not less than 7 mg/l
E. coli	130 colonies/100ml

D. Need for Project

The city of Silver Grove experiences combined sewer overflows during wet weather events that pose threats to public health and are partially responsible for degrading the water quality of the nearby streams including Four Mile Creek. The Ash Street project is needed to alleviate combined sewer overflows and is part of SD1's Watershed Plan as mandated by the Consent Decree with the USEPA to mitigate sanitary sewer overflows. The Ash Street project is expected to minimize risk to public health and improve the water quality of Four Mile Creek by reducing the frequency and volume of untreated wastewater entering the creek, to provide more capacity at the Dry Creek WWTP by diverting flows to the Eastern Regional Reclamation Facility, and provide access to public sewer along Four Mile Creek in Camp Spring.

E. Alternatives Analysis

A study was conducted by Hazen and Sawyer in 2009 concerning the need to divert flows from the Dry Creek WWTP to the Eastern Regional Reclamation Facility to reduce sanitary sewer overflows in the Dry Creek drainage basin. The study concluded that by constructing a new pump station (Ash Street) flows from the Silver Grove area can be diverted to the Eastern Regional Water Reclamation Facility to mitigate a typical year of combined sewer overflow in the Silver Grove area and reduce SSO in the Dry Creek wastewater facility drainage area. Five sites for the Ash Street pump station and eight alternative force main routes were investigated.

Ash Street Pump Station Location Alternatives (See Exhibit 2)

Alternative 1: This site is located on Ash Street within close proximity of Silver Grove sewer overflows. The site will be flood proofed and easily accessible during flood events. In addition, the City of Silver Grove owns the existing property at the proposed site and plans to demolish it. The estimated construction cost of this alternative is $6,000,000.

Alternative 2: This site is located along Mary Ingles Highway in the new development adjacent to the west of the "paintball" fields and just to the east of the new Dollar General Store. This site can be accessed from either Mary Ingles Highway or from the rear along the private development road. This alternative would require deep excavations, an additional 2,370 linear feet of 30-inch sewer line, and the purchase of additional land. The estimated construction cost of this alternative is $7,703,562.

Alternative 3: This site is located near the rear of the new development along Mary Ingles Highway. It is also adjacent and to the west of the "paintball" fields. This site can be accessed from the rear along the private development road. This alternative would require earth fill, an additional 2,370 linear feet of 30-inch sewer line, and the purchase of additional land. The estimated construction cost of this alternative is $6,841,062.

Alternative 4: This site is located behind the trucking/storage business at 4982 Mary Ingles Road. The site would be accessed, via existing public right-of-way, between 4994 and 4988 Mary Ingles Highway. The access right-of-way will require earth fill or retaining wall construction to access during high water events. The site is adjacent and to the east of the "paintball" field. The site is very steep and tight for typical operations. This alternative will require earth fill/retaining wall construction, an additional 1,600 linear feet of 30-inch sewer line, and the purchase of additional land. The estimated construction cost of this alternative is $6,766,425.

Alternative 5: This site is located behind the site on Ash Street (see Alternative 1 above). The site can be accessed via Ash Street and will require additional earthen fill to access during high water events. The site is approximately 10-feet lower than the Ash Street site and will require substantial earth fill, clearing of trees, an additional 500 linear feet of 30-inch sewer line, and the purchase of additional land. The estimated construction cost of this alternative is $6,493,475.

Selected Alternative for Pump Station Site: The Ash Street site (Alternative 1) is the selected alternative but with few modifications resulting in a slightly higher construction cost. The pump station facility will be located to the rear of the property so the city of Silver Grove will have ample space in the front of the property for a parking lot to serve the nearby park. In addition, the row of planted trees along the road and surrounding properties will screen the pump station and backup power generator from view. The estimated construction cost of this alternative including those minor site modifications is $6,144,123.

Force Main Route Alternatives (See Exhibit C-1)

Alternative 1: No Action: This alternative would maintain the present Silver Grove sanitary sewer overflows. The advantages to this alternative include no construction expenditure and no environmental impact due to the direct impact of construction. This alternative though doesn't correct the Clean Water Act violations, the continuing degradation of the nearby streams, and the requirements of the consent decree to correct the Silver Grove sewer overflows. This alternative does not meet the purpose and need for the project and will not be considered further.

Alternative 2: Route 1: This alternative will involve installation of force main along the corridor of Four Mile Road. All Four Mile Creek crossings will either be directional drilled or bored, the number of air release valves will be minimized, and construction near historical structures will be limited. The total construction cost of this alternative is estimated to be $8,187,050.

Alternative 3: Route 1A: This alternative is similar to Route 1. The force main will run along Four Mile Creek but at Tug Fork Road, the force main will route away from Four Mile Road, to Poplar Ridge Road, and return to Route 1, south of Camp Springs. This route would avoid Camp Springs but would require another pump station due to the high drainage divide. This alternative would also require entire road closures to install the force main because Tug Fork Road and Poplar Ridge Road are narrow and crooked county roads with little to no utility easements. These roads are unstable in several locations, so construction would be slow and difficult. Furthermore, this alternative is less protective of water quality because it will increase the number of stream crossings given that Tug Fork Road follows a stream. The total construction cost of this alternative is estimated to be $16,001,575.

Alternative 4: Route 1B: This alternative is also similar to Route 1. The force main will run along Four Mile Creek, but at Uhl Road the force main will route away from Four Mile Road and run cross country through a hilly terrain before returning to Route 1, south of Camp Springs. A second set of pumps would be required due to the high drainage divide. This alternative is less protective of the environment than alternative 2 (the selected alternative) because it requires 15-stream crossings that would require restoration while alternative 2 requires only six stream crossings, which means increasing the potential to adversely impact the waters and increase the project cost. The 17,000 feet alignment for this alternative (Route 1B), would require removal of mature trees for the force main installation, alternative 2 (Route 1) by comparison requires only 1,800 feet of tree removal. In addition, this alternative would require the clearance of more acres of forest in the Four Mile Creek valley than the selected alternative, to level sufficient space for construction equipment to access the area. The location of this alternative (Route 1B) along the hillsides of the Four Mile Creek valley also carries a significant risk of initiating hillside instability or landslides. The required cuts into the hillside would potentially affect the support needed above the cuts. With this support removed the likelihood of landslides on these private properties increases. This alternative (Route 1B) was ranked worst in the "Access to Maintenance" category because it would require significantly more air release valves than any of the other alternatives. These air release valves are needed to allow for air exchanges at highpoints in the force main alignments, and they will require routine maintenance and inspections by SD1 crews to ensure they are functioning properly. In addition, filter canisters, or inserts, designed to address potential odors emanating from these devices will be located in buried chambers and will need to be replaced periodically. Which means SD1 needs to acquire more easements in order to maintain these valves. The total construction cost of this alternative is estimated to be $10,487,631.

Alternative 5: Route 1C: This alternative is also similar to Route 1. The force main will run along Four Mile Creek, but at Uhl Road the force main will route away from Four Mile Road towards Messmer Hill Road, and run cross country to Alexandria Pike, and along the AA Highway. Similar to Route 1A, narrow, crooked, and unstable county roads will be utilized. Accessibility is also a concern in the cross country segment. A considerable amount of road would be closed to construct the force main. Where private easements would be available, a

considerable amount of tree removal will be required. In addition, another set of pumps would be required due to the high drainage divide. This alternative will result in more stream-crossings because the road runs along the streams, similar to alternative 3 (Route 1A) above. The total construction cost of this alternative is estimated to be $15,691,750.

Alternative 6: Route 2: This alternative considers a western route along KY 8, Doddsworth Road, East Alexandria Pike (East), and the AA Highway right-of-way. The route is considerably longer than Routes 1 through 1C; therefore higher potential for an adverse impact to the environment. Another pump station would be required due to the high drainage divide. Doddsworth has numerous narrow and crooked areas and will require a substantial amount of road closure for construction. Substantially more easements will be required and more trees will be removed. The total construction cost of this alternative is estimated to be $18,987,062.

Alternative 7: Route 2A: This alternative is identical to Route 2. It also considers a western route along KY 8, Doddsworth Rd., East Alexandria Pike (West), and the AA Highway right-of-way. The route is considerably longer than Routes 1 through 1C. A second pump station will be required due to the high drainage divide. Doddsworth has numerous narrow and crooked areas and will require a substantial amount of road closure for construction. Substantially more easements will be required and more trees will be removed. The total construction cost of this alternative is estimated to be $19,209,437.

Alternative 8: Route 3: This alternative considers an eastern route through Melbourne and is a longer route; therefore, increased potential for harming the environment. The route is along KY 8, Ten Mile Road, Kohls Road, and Fender Road. The right-of-way along KY 8 is congested and tight. Several utilities exist in the area. Obstructions of structures and signs exist along the KY 8 route. Ten Mile Road is narrow and crooked and similar to other county roads. A second pump station will be required due to the high drainage divide. More easements and tree removal will be required. The total construction cost of this alternative is estimated to be $19,903,687.

Alternative 9: Route 3A: This alternative is identical to Route 3 and considers an eastern route through Melbourne. The route is along KY 8, Ten Mile Road, and Fender Road. The right-of-way along KY 8 is congested and tight. Several utilities exist in the area. Obstructions of structures and signs exist along the KY 8 route. Ten Mile Road is narrow and crooked and similar to other county roads. The route is considerably longer than Routes 1 through 1C. A second pump station will be required due to the high drainage divide. Substantially more easements and tree removal would be required. The total construction cost of this alternative is estimated to be $19,682,687.

Selected Alternative for Force Main Route: Both monetary and non-monetary factors have been considered for selecting the most viable alternative. The non-monetary criteria included stream bank restoration, traffic maintenance, tree removal, cultural/historic elements, impact to properties (easements), and access to maintain the force main and air release valves. Alternative 5 (Route 1C) had the lowest non-monetary score but very high construction cost, by contrast alternative 2 (Route 1) scored in the mid-range on the non-monetary criteria, but was 50% cheaper than Alternative 5 (Route 1C). **Therefore, alternative 2 (Route 1) is the selected alternative** because it abates Silver Grove chronic combined sanitary sewer overflow, allows SD1 to remain in compliance with the terms of the consent decree, reduces risk to public health

from potential exposure to untreated wastewater, results in water quality benefits, protects cultural resources, and is the most cost effective alternative.

F. Environmental Consequences, Mitigative Measures

Impacts on Historic Properties and Archaeological Sites

A Cultural Resource Survey of the Proposed Ash Street Pump Station and Force Main project was conducted by Cultural Resource Analysts, Inc. and their report dated August 8, 2011 was submitted to the Kentucky Heritage Council (KHC) on September 26, 2011 for review and approval. In a response letter dated October 9, 2011, KHC stated that they concurred with the author's recommendations requiring no further archaeological investigations within the project area as the survey documented no archaeological evidence of prehistoric or early historic occupation in the project area. KHC also agreed with the recommendation that the underground sewer line would be unlikely to result in any adverse effects unless it directly impacted a resource. However, due to concerns with effects beyond the visual effects, including noise and odor associated with air release valves in the force main as it moves through Camp Springs raised by the consulting parties, KHC concluded that additional information is needed to understand and assess these potential effects.

Another archaeological survey was conducted by CRA and a report dated April 17, 2012 was submitted to KHC for review on May 16, 2012. KHC in a response letter dated July 19, 2013, to US Army Corps of Engineers stated that as per the criteria of adverse effect outlined in 36 CFR Part 800.5, if the project is implemented in accordance with appropriate conditions to minimize effects, it will not significantly diminish the integrity of location, design, setting materials, workmanship, feeling, or association which qualify historic properties in the area of potential effect for listing in the National Register of Historic Places. The KHC conditionally concurred with the USACE determination of no adverse effect, contingent on the plan outlined in Appendix A of May 9, 2012 Cultural Historic Survey report and the recommendations outlined in the tree survey incorporated into the Corps permit conditions for this project.

KHC also provided following additional comments:

- Odor: KHC consulted with the Kentucky Division of Water and were advised that the proposed treatment measures at the new pump station are two recognized methods of odor control systems that should significantly diminish the potential for odor escaping to the atmosphere. The additional use of carbon canisters on the air release valves was also taken into consideration as a measure which should, when properly maintained, substantially decrease the chance of odor.

- Construction Noise: The construction work schedule will start at 7 AM and end by 6 PM. But to minimize the adverse impact from noise, KHC recommends that SD-1 develop a plan to keep the residents informed a reasonable amount of time in advance of when work is to take place near their homes/businesses.

- Damage to Structures from Construction Activities: This step focuses on listed historic properties. The USACE indicated that enough information was not available on surveyed

sites-Site 74/CP-277, Site 84/CP-287, Site 96/CP-298, Site 101/CP302, Cite 109/CP-310, and Site 118/CP-318 to agree with findings of "ineligible". Of these, sites 74, 101, 109 and 118 appear to be relatively close to areas where work will take place. These sites should be reviewed to ascertain whether any of the buildings have historic masonry foundations in a similar fragile condition so that monitoring measures would be warranted.

- Tree Removal: Emphasis should be placed on the importance of working with contractors installing the lines to ensure the older trees mentioned in the arborist's report are adequately protected. The arborist's comments about the importance of larger trees overall to the setting of Camp Springs should be taken seriously, and these larger trees should be avoided not only at the historic properties identified in the report, but at stream crossings and any locations readily visible from public right-of-way. So long as only small caliper trees are being removed at these additional locations, impacts should be sufficiently minimized.

- General: This project is subject to the terms of post-review discovery outlined in 36 CFR Part 800.13. While typically applied in relation to archaeological resources, in this instance it would also be applied to buildings and identified trees. Should any damage inadvertently occur during construction, work must stop until the damage can be assessed and the effect resolved. The Corps would need to be notified immediately so that consultation on effects could take place.

Impacts on Threatened and Endangered Species

The United States Department of the Interior, Fish and Wildlife Service (USFWS) (FWS 2010-B-0086), in their December 7, 2009 letter, indicated that two federally listed species, namely Indiana bat (*Myotis sodalis*) and running buffalo clover (*Trifolium Stoloniferum*), have the potential to occur within the project vicinity.

To avoid potential impact to the Indiana bat population, the USFWS recommended;

1. Conducting a survey of the project area for potential habitat (caves, rock shelters, abandoned underground mines), identify any such habitats that may exist on-site, and avoid impacts to those sites pending an analysis of their suitability as Indiana Bat habitat by the USFWS office; and
2. Remove trees in the project area only between October 15th and March 31st in order to avoid impacting summer roosting Indiana bats. However, if any Indiana bat hibernacula are identified on the project area, the project proponent can remove trees between November 15 and March 31 in order to avoid impacting Indiana bat "swarming behavior".

However, if the above recommendations cannot be incorporated as project conditions, then the project area may be surveyed to determine the presence or absence of Indiana bats within the project area in an effort to determine if potential impacts to the Indiana bat are likely. The survey must be undertaken by a qualified biologist. If any Indiana bats are identified, USFWS should be notified for further coordination and consultation.

If the project schedule requires a clearing of potential Indiana Bat habitat during the period of April 1 to October 14, then the project proponent can either survey the project site or enter into a Conservation Memorandum of Agreement (MOA) with the Service.

The USFWS stated that as per the USACE letter the applicant has committed to seasonal tree clearing and the USACE will condition the issued permit to ensure that all project-associated tree removal will occur between the dates of October 15 to March 31. The USFWS believes that this approach would avoid direct effects to Indiana bats that may be utilizing habitat within the project area during the timeframe when the species is anticipated to be present. They concurred that the proposed project would not likely adversely affect the Indiana bat as a result of removing potential roosting habitat.

In another correspondence dated August 13, 2013, USFWS stated that the habitat assessment performed by Third Rock Consultants indicated that the proposed project area does not include areas of potential running buffalo clover habitat. Based on this site-specific information, the Service concurred that the proposed project would not likely adversely affect running buffalo clover.

The Kentucky Department of Fish and Wildlife Resources (KDFWR) stated that according to the Kentucky Fish and Wildlife Information System (KFWIS) several federally endangered species are known to occur within a 10-mile radius of the proposed project site. These include the Clubshell (*Pleurobema clava*), Fanshell (*Cyprogenia stegaria*), Peregrine falcon (*Falco peregrinus*), and Indiana bat (*Myotis sodalis*). In addition, the KFWIS indicated that several state threatened/endangered species occur within a 1-mile radius of the proposed project site: Sheepnose (*Plethobasus cyphyus*), Kirkland's snake (*Clonophis kirtlandii*), Lark sparrow (*Chondestes grammacus*), and Vesper sparrow (*Pooecetes gramineus*). The project is located in the Ohio-Brush Whiteoak 8-digit HUC Conservation Area for mussels that contain populations of threatened and endangered mussels that are especially vulnerable to disturbance. KDFWR does not expect direct impacts to mussels, due to records being located within the Licking River and Ohio River proper. Based on the project area and narrow disturbance limit, KDFWR does not expect impacts to Lark sparrow or Vesper sparrow. There are no records of Peregrine falcon nesting area within the project area, therefore impacts to the species are considered insignificant.

KDFWR recommended avoiding those areas that provide adequate habitat for bats, such as cave entrances, mine portals, and/or rock shelters that exist within the project area.

Impacts on Wetland and Streams

The United States Department of the Army, Corps of Engineers (USACE) in a letter dated August 20, 2013, stated that the project will involve installation of the force mains and gravity sewer lines using directional drill/bore and jack crossings of a section 10 navigable water (Fourmile Creek), temporary open cut crossings and temporary equipment access crossings at various locations of Fourmile Creek and unnamed tributaries of Fourmile Creek and the permanent filing of 0.393 acre of forested wetland for the construction of the pump station. They stated that the installation of utility lines at crossings 3, 7, 9, 16, and 22 would utilize directional drill or the bore and jack method and would not include the discharge of dredged or fill material into "waters of the United States", therefore, the crossings would not require authorization.

The USACE reviewed the project to determine whether a Department of Army (DA) permit will be required under the provisions of Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. They determined that the project is considered a discharge of backfill or bedding material for utility lines and temporary construction and access. The project is authorized under the provisions of Nationwide Permit (NWP) No. 12, Utility Line Activities, and NWP No. 33 Temporary Construction Access, and Dewatering, as published in the Federal Register February 21, 2012. Under the provisions of this authorization, NKSD1 must comply with the terms and conditions for NWP No. 12 and No. 33 and the following special conditions:

- The permittee must conduct all removal of trees associated with the project between the dates of October 15th to March 31st.
- The permittee shall provide a receipt to this office from an approved mitigation bank for the purchase of 0.80 wetland AMUs for impacts to 0.393 acre of wetland. Credits must be purchased prior to the discharge of fill material into "waters of the U.S."
- The permittee shall implement the plans outlined in *Assessment of Adverse Effects: Response to the Kentucky State Historic Preservation Office Comments, Ash Street Pump Station and Force Main, Sanitation District No.1 of Northern Kentucky (April 2012) and GRW, Inc. Proposed SD1 Ash St. Pump Station & Force Main and Its Related Installation and Long Term Impact to Trees on or Near Section 106 Registered Culturally Historic Sites in Camp Springs (March 2013).*
- The permittee shall restore all temporary utility line stream crossings and temporary construction and access crossings to preconstruction contours once construction is completed and must adhere to the Typical Creel Crossing Details (Gravity Sewer and Force Main) submitted on August 7, 2012, Streambank Restoration plans submitted on August 28, 2013 and Erosion Control and Site Grading plans submitted on October 1, 2012.
- The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permitteee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

Sanitation District No. 1 must also comply with the Individual Water Quality certification, issued by the Kentucky Division of Water on January 11, 2013 (WQC#2012-044-1).

The Kentucky Department of Fish and Wildlife Resources recommended the following:

- Strict erosion control measures should be implemented prior to construction to minimize siltation into streams and stormwater drainage systems located within the project area.
- Construction should be completed during a low flow period to prevent sedimentation problems during construction.
- Since the project area is located within a floodplain, jurisdictional water delineation should be completed to determine potential impacts to wetlands or streams. They recommended avoiding wetland areas that provide adequate habitat for the Kirkland's snake.

On February 18, 2014, Joseph Zimmerman, of the Environmental Section with Kentucky Fish and Wildlife wrote the following e-mail to Anshu Singh of Kentucky Division of Water:
"The species lists in the attached letter were based on radius searches to assist the agent, Third Rock Consultants, with NEPA review. No species, federal or state listed, were known to occur within the proposed project area. KDFWR does not expect direct impacts to mussel, bird, or reptile species due to the location and nature of the project. As stated in the letter, to avoid indirect impacts, KDFWR recommends avoiding impacts to wetland habitats and implementing erosion and sediment control measures to avoid sedimentation into nearby waterways. Let me know if you have any additional questions or concerns. Thanks."

Impacts on Floodplains

The project is located in a floodplain. A stream construction permit has been obtained from the DOW's Surface Water Permit Branch, Floodplain Management Section.

Impacts on Air Quality

The proposed project is not expected to adversely impact the air quality in the area.

Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at http://air.ky.gov/Pages/OpenBurning.aspx

Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Brochure located at http://air.ky.gov/Pages/OpenBurning.aspx

Miscellaneous Impacts

The environmental impact of constructing the proposed facilities includes only those temporary impacts of noise, dust, and service and traffic disruption in the construction area and on the businesses located in the project area. The proposed project is expected to drastically reduce the frequency and volume of Silver Grove sewer overflows, allow SD1 to comply with the terms of the consent decree, and result in water quality benefits.

G. Public Participation

SD1 held several informational public meetings to discuss the Ash Street project. SD1 conducted two informational meetings at Camp Springs Volunteer Fire Department. SD1 also attended a public meeting organized by local residents of Camp Springs. SD1 sent letters to all property owners along the proposed project route notifying them of the project and requesting permission to access their property to install the force main.

A final meeting was held on October 15, 2013 at the Alexandria Courthouse to discuss the proposed project and provide the public an opportunity to comment. The public hearing was advertised on the Division of Water website and in the local newspaper *The Enquirer*. The public meeting was well attended and lots of comments were received. More detailed information on the attendees, comments and responses is available through Kentucky Division of Water as part of the Environmental Information Document.

The Division of Water is aware of opposition to Ash Street project from residents of Camp Springs. Opponents voiced their objections during the public meetings. Furthermore, DOW received calls and letters from few Camp Springs residents, some residents speaking and writing on behalf of a group of residents, before and after the public meeting expressing their opposition to the Ash Street project.

The project opponents raised multiple concerns about the project including, but not limited to, the force main alignment, project cost, land easements, location of air release valves, odor, restoration of crossed properties; adverse impact on businesses, historic sites, endangered species, creek banks, trees, and property prices. The opponents want the force main to go around Camp Springs.

SD1 provided written response to the public comments and it is available on the Division of Water website.

The current monthly sewer rate, based on 4,000 gallons of usage, is $35.79. The sewer rates are not expected to increase as a result of building the Ash Street project.

H. Sources Consulted

Kentucky Department of Fish & Wildlife Resources
Kentucky Division for Air Quality
Kentucky Division of Water
Kentucky Geological Survey (website)
Kentucky Heritage Council
Kentucky State Clearinghouse
U.S. Fish & Wildlife Service
U.S. Corps of Engineer
NRCS Web Soil Survey website
GRW, Inc, Consulting Engineer
Sanitation District No. 1 of Northern Kentucky