

Wisconsin Proposal
Great Lakes Restoration Initiative Projects
January 29, 2010

Funding Opportunity Number, Focus Area, and Program: EPA-R5-GL2010-1; Nearshore Health and Nonpoint Source Pollution, Innovative Environmental Approaches

Proposal Title: Water Quality Subsurface Gravel Wetland; Green Tree Basin (Milwaukee)

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DUNS Number: 094361409

Type of Organization: Other public or non-profit private agencies, institutions, and organizations

Proposed Funding Request: \$200,000

Brief Project Description: To arrest the negative impacts of nonpoint source pollution, the Milwaukee Metropolitan Sewerage District seeks to innovate a subsurface gravel wetland that holds rainwater where it falls, infiltrates and filters it, absorbs it through plant root systems, and evapotranspires it to the atmosphere. Through this project, the Sewerage District will implement this innovative infrastructure measure in the Green Tree Basin on Lincoln Creek, a tributary of the Milwaukee River, to address six beneficial use impairments in the Milwaukee Estuary Area of Concern.

Project Location: Lake Michigan Basin, HUC: 04040003; Wisconsin, Milwaukee County, City of Milwaukee at Lincoln Creek (a tributary of the Milwaukee River), 53209

8. Full Project Description

Project Purpose.

The Milwaukee Metropolitan Sewerage District (MMSD) and its supporters (see Attachment E) seek Great Lakes Restoration Initiative (GLRI) funding for MMSD to innovate a subsurface gravel wetland (SGW) that holds rainwater where it falls, infiltrates and filters it, absorbs it through plant root systems, and evapotranspires it to the atmosphere within the GLRI grant category “Nearshore Health and Nonpoint Source Pollution, Innovative Environmental Approaches.” The project is described in detail below, and includes the following key features:

- Subsurface gravel wetlands have been demonstrated to reduce fecal coliform, total suspended solids and phosphorus (among other pollutant levels) in other parts of the country but have not yet been innovated in clay soils of the Greater Milwaukee Watersheds to MMSD’s knowledge.
- Preexisting MMSD ownership and control of the property eliminates otherwise time-consuming site acquisition and permission issues.
- Historical pre-construction in-stream Lincoln Creek monitoring at a point downstream from the proposed project provides a ready-made site at which to also monitor and compare post-construction conditions.
- **This innovative environmental approach has been proven elsewhere to work in cold climates even in wintertime, and therefore may provide greater year-round benefits than other innovative environmental approaches.**

Urbanization in the Milwaukee River Watershed and surrounding watersheds has hardened the surface of the land, causing stormwater runoff to flow in increasingly greater volumes *untreated* into receiving waters directly tributary to the Milwaukee Estuary Area of Concern (AOC) and ultimately to Lake Michigan. Nonpoint source (NPS) pollution adversely affects receiving waters in the Milwaukee Estuary AOC causing a host of problems for water chemistry and biology. To arrest the flow and reduce the pollutant concentrations of stormwater runoff, subsurface gravel wetlands (SGW) have been shown in other parts of the country to treat stormwater runoff through infiltration and filtering, absorption through plant root systems, and evapotranspiration into the atmosphere. With climate change predicted to continue increasing the severity of storms in the Midwest, sustainable infrastructure measures such as SGWs are an innovative, natural solution to nonpoint source water resource challenges faced in the Great Lakes basin.

Project Technology.

A subsurface gravel wetland is a wetland designed as a series of horizontal treatment cells preceded by a sedimentation basin, or forebay (see Attachment A). A gravel wetland is designed as “flow through” treatment, with stormwater passing through a gravel substrate with several processes at work: sedimentation, filtration, physical and chemical sorption, microbial mediated transformation, and uptake and storage predominate (Roseen, 2009). Pre-treatment, or sedimentation, of the stormwater happens in the forebay; the rest of treatment occurs much like in a dry pond. Wetland plants also perform some water quality treatment during the initial flow-through phase, which occurs above the gravel substrate. As water infiltrates through surface wetland soils, nutrients and pollutants are taken up by plants and sequestered in the soil. Most of the treatment occurs within the gravel layer; filtration, sorption, uptake and storage, and microbial-mediated transformations are all occurring on this level (Roseen, 2009). Standing water is not expected other than in large events, and this helps reduce the ability of mosquito larvae to mature. According to AECOM, with increasing regulatory emphasis on controlling, managing, and treating stormwater inputs to aquatic systems, subsurface gravel wetlands are gaining regulatory acceptance and are being used by regulatory authorities as integral components of stormwater management (www.AECOM.com). This approach has been proven successful elsewhere in the country, and is completely anticipated to be sound and with merit in southeastern Wisconsin.

The Green Tree basin is located between Good Hope Road and Green Tree Road in Milwaukee County (see Attachment B). The site is on Lincoln Creek, a tributary to the Milwaukee River and part of the Milwaukee Estuary AOC. Lincoln Creek has a long history of poor water quality. It is estimated that 40 percent of the total urban pollutant load and 56 percent of all the suspended solids generated in the entire southern part of the Milwaukee River watershed originate from this tributary (WDNR 1992, WDNR 1991). The most likely source of water quality degradation is urban runoff (Claytor, 2000). Pollutants identified as negatively affecting water quality in Lincoln Creek include heavy metals (zinc, chromium, copper, nickel), polycyclic aromatic compounds, nutrients, fecal coliform bacteria, biochemical oxygen demand (BOD), pesticides, chlorides and oil and grease (WDNR, 1991, WR-245-91). There are many sources that contribute to Lincoln Creek's degraded water quality; the principal source is storm sewer runoff. High concentrations of many of the pollutants were detected in storm outfalls and in-stream samples (Claytor, 2000). These pollutants lead to a limited fishery, degraded habitat, and poor invertebrate populations.

Green Tree basin is dominated by a mosaic of degraded grasslands, shrub thicket and (along Lincoln Creek) a forested floodplain. This site is moist most of the year except during prolonged dry periods, making it ideal for wetland-type vegetation. There is Butler's gartersnake habitat in the area, and that habitat must be taken into consideration as the species is a Threatened Species in Wisconsin preferring almost any open-canopy wetland type and adjacent semi-open canopy upland. An "incidental take permit" related to the snake will be needed in the project area to implement the project. Although there will be a slight loss in habitat for Butler's gartersnakes, that habit is plentiful in the vicinity. In addition, there will be a measurable improvement in water quality at the downstream sampling point.

The Green Tree basin is a floodwater management facility owned and maintained by MMSD that can be easily retrofitted to accommodate a subsurface gravel wetland, making this an ideal owner-controlled site for sustainable infrastructure innovation. The site has also been used for flood management for the past eight years, and this function will not change with a subsurface gravel wetland; the capacity to reduce downstream flooding will remain intact. Also, the site receives large amounts of urban stormwater runoff carrying many pollutants; this innovative infrastructure measure is expected to reduce the negative impact that urban stormwater has traditionally had on Lincoln Creek.

Besides MMSD ownership, the Green Tree basin was chosen as the site of the SGW because of its proximity to immediately downstream sampling points that have shown problems with non-point source pollutants. There are increasing trends in chromium, zinc, nickel, and copper at the downstream site on Lincoln Creek; elevated levels of metals can adversely affect fish populations by causing blood issues and respiratory damage, and can build up in tissues causing tumors. The site receives large amounts of urban runoff which is attributed to high levels of fecal coliform bacteria. Water quality sampling data has shown that this area regularly exceeds the recreation and body contact standard for fecal coliform (200 FCU/100 ml) set out by the WDNR (see Attachment C). The site also has seen regular peaks in total phosphorus; the recommended criterion or standard for phosphorus for rivers, creeks and harbors is 0.10 mg/L.

There are two MMSD water quality monitoring sites that will be important in gauging the effectiveness of the SGW (see Figure 3 Attachment B). The first site is LC-01 (North 60th Street, north of Good Hope Road) is just north of the Green Tree basin and will provide historical baseline influent pollutant levels as well as current influent pollutant levels. LC-01 is the furthest upstream sampling site immediately downstream of a golf course where the headwaters of Lincoln Creek originate. The riparian area surrounding LC-01 is grass buffered space with perennial plants and many shrubs and young trees. The Creek's substrate at LC-01 consists of sand, gravel, sediment and a few rocks. Under normal baseline flows, water depth is less than one foot.

Water quality sampling site LC-02 (Mill Road near North 51st Street and Woolworth Avenue) is just downstream of the basin and will provide historical baseline effluent pollutant levels and current effluent pollutant levels. LC-02 is approximately one-half mile downstream of the 32-acre off-line Green Tree basin. LC-02 was specifically selected for sampling to document expected water quality improvements due to the upstream basin and future SGW. The area immediately surrounding LC-02 is a grass buffer zone with residential properties bordering the west and east sides of the Creek. Water depth is less than one foot under normal base flow.

Most importantly, this project will reduce the effect stormwater runoff and the NPS pollution it carries (including fecal coliform bacteria, total suspended solids (TSS), and phosphorus) has on Lincoln Creek and subsequently the Milwaukee Estuary AOC and Lake Michigan. It will provide secondary benefits related to saving energy that might otherwise be expended for the purpose, reducing the urban heat island, sequestering carbon, and improving air quality. Water quality monitoring data will be used to provide nearly year-round information on changes in water quality (temperature, dissolved oxygen, total suspended solids, conductivity, etc.). The project will help address six beneficial use impairments or more in the AOC including (but not limited to): the degradation of fish and wildlife populations, beach closings, degradation of phytoplankton and zooplankton populations, eutrophication or undesirable algae, loss of fish and wildlife habitat, and degradation of aesthetics.

The Southeastern Wisconsin Watersheds Trust (SWWT) may also use the results of data analyses like this to address water quality concerns and provide multi-agency support. The recommendations made from this study will also be considered for use in and implementation of watershed restoration plans (WRPs) that are created and implemented by SWWT's Watershed Action Teams to improve watershed health. In addition, a WRP for the Milwaukee River is proposed separately by MMSD for Great Lakes Restoration Initiative funding and, if funded, would also commence later in 2010. This subsurface gravel wetland project could enhance that WRP, although neither is functionally dependent on the other.

Approximate Implementation Schedule.

This project is design-ready because of current land ownership, modest project complexity, and known permit issues. Because of its short-term design nature of three months, it will be shovel-ready in short order, and no delays are anticipated. In fact, MMSD has a long history of managing projects to meet strict funding deadlines while meeting requirements. For instance, MMSD spent about \$120 million over the course of several years and completed the design and restoration of Lincoln Creek in the early 2000s on a pace that was accelerated by two years. In doing so, more than 2,000 homes and businesses were successfully removed from the floodplain after significant flooding in the late 1990s, and the creek was naturalized to provide habitat and an aesthetic resource for the natural environment and surrounding economically disadvantaged neighborhoods. The same experienced management staff involved in that project is also proposed for this SGW project. MMSD can build on that considerable success with the community, its leaders, and its stakeholders to ensure this subsurface gravel wetland is completed on time and within budget, while also providing the functions and values intended.

The design and construction contracts for this project will be awarded based on a procurement process developed by the MMSD's Office of Procurement and Contract Management to ensure compliance with all necessary and applicable federal and state regulations (please also see ACORN Statement in this submittal). As such, the project will be publicly advertised (twice) to solicit design proposals and construction bids for a minimum of 30 days; neither a design consultant nor a construction firm is currently under contract for this work. The design contract will be awarded through a quality-based request for proposal (RFP) process with compensation representing one of several aspects of the selection process. The construction contract will be awarded through a competitive bid process to the lowest responsive bidder. Both contracts will be approved by the MMSD Commission comprised of 12

appointed commissioners from the MMSD service area, which includes 28 communities within and surrounding Milwaukee County.

- **Design**
 - Design Request for Proposal (RFP) Issued: early May 2010
 - Consultant Response: mid-June 2010
 - Quality-based Consultant Selection and Award: July 2010
 - Project Design: August – October 2010
- **Construction**
 - Construction Bid RFP Issued: November 2010
 - Contractor Response: January 2011
 - Cost-based Contractor Selection and Award: February 2011:
 - Project Construction: April – June 2011 (weather permitting)
 - Post-construction Vegetation Maintenance: July 2011 – June 2014
- **Education and Outreach Plan Design and Implementation:**
 - Water quality data collection and analysis: pre- and post-construction (on-going)
 - Creation of MMSD H2OCapture website, as part of a separate, but supportive project: January – August 2011
 - MMSD H2OCapture website update: monitored weekly, or as needed
- **Benefit Quantification:** June 2011-June 2014. This is related to the reduction of polluted stormwater runoff, particularly phosphorus, TSS, and fecal coliform. Water quality sampling will help determine water quality benefits. Regression equations, as part of another grant proposal, are expected to be released in 2013 and could help quantify additional water quality benefits.
- **Periodic Reporting:** Throughout project duration, as required by EPA. Karen Sands, the Project Manager, will directly and actively facilitate EPA oversight and administration of the project by careful attention to budget and reporting.
- **Final Report:** September 2011, data appendix revisions annually in December 2012, 2013 and 2014.

9. Outcomes, Outputs, and Expected Results

The expected results of the proposed project include providing region-specific recommendations for the implementation of a subsurface gravel wetland based on the measured water quality enhancements, improvement of habitat, and regional cooperation to benefit the Milwaukee Estuary AOC and Lake Michigan. Specifically, the outcomes, outputs and expected results/measures include:

Outcomes	Outputs	Expected Results/Measures
<p>Bacteria, as measured through surface water grab samples, is reduced at the nearest downstream sampling site. Total suspended solids, zinc, total phosphorus, nitrates (NO₅/NO₃), chromium, copper and fecal coliform are reduced toward levels that do not impede human use and enjoyment of the nearshore areas. The subsurface gravel wetland will particularly help reduce <i>peak</i> pollutant impacts.</p>	<ul style="list-style-type: none"> • Net decrease in fecal coliform and metals loadings in the Lincoln Creek subwatershed downstream of the site, tributary to the Milwaukee Estuary AOC. 	<ul style="list-style-type: none"> • Removal of fecal coliform from stormwater runoff and snow melt from the site. Also pollutant removal to help attain the water quality standards for total suspended solids, zinc, total phosphorus, nitrates (NO₅/NO₃), copper and chromium at the nearest downstream sampling point. • Percentage or absolute decrease noted above also occurs in wintertime. • Additional sampling sites

Outcomes	Outputs	Expected Results/Measures
		within the basin may be chosen for sampling during manageable storms (0.5"-1.0" rainstorm).
A significant reduction in the loading of sediments, nutrients, and other pollutants to Lincoln Creek is achieved through greater implementation and demonstration of this innovative practice.	<ul style="list-style-type: none"> • Establishment of a baseline for total suspended solids (TSS) loadings based on historical data and a post-construction decrease in TSS loadings at the sampling point. • Establishment of a baseline for phosphorus loadings based on historical data and a post-construction decrease in phosphorus loadings at the sampling point. 	<ul style="list-style-type: none"> • Removal of TSS from stormwater runoff and snow melt at the site to help attain the water quality standard at the nearest downstream sampling point. A 50 percent reduction of TSS at the downstream sampling site is anticipated. • Removal of phosphorus from stormwater runoff and snow melt at the site to help attain the water quality standard at the nearest downstream sampling point. A 25-50 percent removal of phosphorus at the downstream sampling site is anticipated. • Percentage or absolute decrease noted above also occurs in wintertime.
High quality, timely, and relevant information about this innovative practice and its positive impact on nearshore areas is readily available to assess progress and to inform enlightened stakeholder decision-making.	<ul style="list-style-type: none"> • Pre- and post-construction comparison of data is reported and made publicly accessible. • Recommendations are made for implementing additional innovative environmental approaches to infrastructure. 	<ul style="list-style-type: none"> • Quantification of the reduction of NPS pollution other water quality enhancements is provided via the MMSD website and disseminated by the Southeastern WI Watersheds Trust through websites, literature, community outreach and other programs. • Lessons learned influence future innovative environmental approaches.

A formal education and outreach program for this project, when implemented, will bring a heightened sense of the role that sustainable infrastructure can play in stormwater management and non-point pollution control. Additionally, continued development of a web-based GIS application that will catalog and inform municipalities and the public about sustainable infrastructure measures is being developed concurrently. It will showcase sustainable infrastructure benefits for water quality and runoff reduction through interactive mapping and photographs. The website will also highlight MMSD partnerships that have resulted in sustainable infrastructure as well as this subsurface gravel wetland and other sustainable approaches. A self-reporting tool will be useful to connect GIS application users with projects in their area and to determine the overall benefit of projects on water quality in the Milwaukee Estuary AOC.

This project is expected to fill gaps about the effectiveness and applicability of sustainable infrastructure. Subsurface gravel wetlands are particularly useful because of their myriad of benefits; by showing the effectiveness of this type of sustainable infrastructure this project may encourage the use of subsurface gravel wetlands elsewhere in the future. Evidence and recommendations will be available to help direct current and future stormwater projects such as Watershed Restoration Plans (including WRPs for the Menomonee and Kinnickinnic Rivers) by SWWT, MMSD, and other regional entities. Recommendations from this project can also be used by municipalities to attain stormwater permitting requirements, to establish better planning regulations, and to more effectively manage stormwater.

10. Collaboration, Partnerships, and Overarching Plans

This subsurface gravel wetland (SGW) project will be carried out by MMSD and is supported by the Sand County Foundation and others through their active involvement with the Southeastern Wisconsin Watersheds Trust (SWWT). MMSD will provide the technical knowledge and experience needed to research, plan, implement and sample this innovative environmental approach to NPS pollution. The SGW will be monitored by MMSD Water Quality Monitoring staff for the impact on water quality at the downstream sampling location. The MMSD's GIS user application will educate the public on the benefits of SGWs. A regional database that includes MMSD sustainable infrastructure data as well as the ability for municipalities and the public to self-report their sustainable infrastructure features will be a central portion of the education and outreach of this project. The GIS application currently being developed for this database is known as H2OCapture, and was described above in the previous section.

SWWT will help bring multi-agency support for sustainable infrastructure through its Science Committee. This is a group of scientists, academics, engineers, and local leaders from the region who have an interest in seeing benefits in water quality, runoff control and regional cooperation to achieve water resource goals. SWWT is in a unique position to provide input and disseminate the recommendations of this project and can help grow support for the implementation of this type of innovative approach if proven effective.

There are three primary goals or outcomes expected for this project in support of the overarching plans for the Great Lakes, Lake Michigan and the Greater Milwaukee Watersheds. These primary goals include:

1. Through this innovative environmental approach, bacteria and heavy metals are demonstrated to be reduced toward levels that do not impede human use and enjoyment of nearshore areas (particularly under peak conditions).
2. Also through this innovative environmental approach, sediments, nutrients and other pollutants are demonstrated to be reduced toward levels that do not impede human use and enjoyment of nearshore areas (particularly under peak conditions).
3. High quality, timely and relevant information about this innovative practice and its positive impact on the Milwaukee Estuary AOC and nearshore areas is made readily available to the public.

The impacts of polluted runoff on the AOC and the need to decrease NPS pollution through an innovative environmental approach to stormwater management is consistent with the following plans:

- **Lakewide Management Plan** (http://www.epa.gov/glnpo/lamp/lm_2008/index.html): The Plan's concern for nonpoint source pollution from air deposition, legacy sites, and sediments is directly addressed through this innovative environmental project. Several of the Plan's next steps directly relate to this project, including:
 - **Human Health:** Promote measures that will reduce or eliminate pollution sources at Great Lakes beaches.

- **Restoration & Protection:** Promote new wetlands and monitor them.
 - **Remediation & Pollution Prevention:** Address the lack of a comprehensive understanding of pollution movement and remediation.
- **Wisconsin’s Great Lakes Strategy**
(<http://www.dnr.state.wi.us/org/water/greatlakes/wistrategy/>): The strategy is supported by this project because SGWs can help reduce air pollutants, sequester carbon, and help address the impacts of climate change. This project will specifically minimize the impacts of nonpoint source pollution in urban areas through voluntary actions.
 - **Great Lakes Restoration Initiative Action Plan** (<http://www.epa.gov/glnpo/glri/>): This plan’s goal of ultimately remediating Beneficial Use Impairments (BUIs) is addressed through this project. The report, “Delisting Targets for the Milwaukee Estuary AOC: Final Report,” identifies 11 BUIs in the AOC, and this project could contribute to delisting up to six of the 11. Nearshore health and nonpoint source pollution are specifically addressed by SGWs by mitigating nonpoint source pollution that leads to (1) degradation of fish and wildlife populations, (2) beach closings, (3) degradation of phytoplankton and zooplankton populations, (4) eutrophication or undesirable algae, (5) loss of fish and wildlife habitat and (6) degradation of aesthetics.
 - **Great Lakes Regional Collaboration** (<http://www.glrc.us/strategy.html>): This subsurface gravel wetland project is consistent with this plan’s priority goals, including:
 - AOC/sediment goals toward delisting BUIs.
 - NPS pollution goals toward measurably reducing sediment and phosphorus loadings to the Great Lakes.
 - **Southeastern WI Watersheds Trust Goals**
(http://www.swwtwater.org/home/documents/SWWT_POLICIES_12_trackchanges-1.pdf) and **the Regional Water Quality Management Plan Update** (also known as the “208 Plan” prepared by the Southeastern Wisconsin Regional Planning Commission, or SEWRPC): a SWWT-goal-to-SEWRPC-plan comparison can be found beginning on p. 22 of 23 of the document cited above. This subsurface gravel wetland project is consistent with the RWQMP Update’s following objectives:
 - Water quality management objective 4: Reduction of sedimentation, other water pollution, and eutrophication.
 - Educational & informational programming object 1: Support of an informed and educated public.

11. Programmatic Capability and Past Performance

The Milwaukee Metropolitan Sewerage District (MMSD) is a special-purpose municipal corporation organized under the laws of the State of Wisconsin. The MMSD is a regional governmental agency that provides water reclamation and flood management services for about 1.1 million customers in 28 communities in the Greater Milwaukee Watersheds. MMSD is financially sound and is led by an experienced, knowledgeable, and dedicated management team. The MMSD maintains a diverse technical staff with significant experience and expertise; staff is forward-looking and willing to innovate. The attached resumes reflect the significant experience and diversity of projects completed by MMSD staff (see Attachment D). The MMSD has a successful history of regional collaboration on water quality issues. This allows us to share knowledge and expertise as well as tap into the plethora of technical expertise within the region.

The MMSD has extensive experience with grants and assistance agreements. Between 1980 and 1996 the MMSD received \$1,088,274,000 in state and federal grants that were used to fund the Water Pollution Abatement Program and since 1991 \$1,063,004,743 has been obligated to the MMSD from the Clean Water Fund Program for capital projects. The MMSD has received grant funds during the past three years for several projects from various entities including the National Fish and Wildlife Foundation, the State of Wisconsin, EPA, private entities and others. The grant projects have been completed successfully and all grant funds have been received except for those that are currently on-going.

The MMSD employs the following in-house staff to support Karen Sands, who will manage this project:

- Staff of six attorneys to provide legal expertise in the areas of operations, environment, construction and contracts and municipal relations.
- A full-time accounting office that includes general accounting, payroll, one full-time staff for grant and loan administration and one full-time staff for risk management.
- A full-time procurement department with six employees to oversee that the procurement of goods and services are in compliance with all state and federal regulations. In 2009 total purchase dollars awarded was \$91 million. There are two full-time employees to facilitate a transparent and competitive RFP process and construction bid process.
- A full-time graphics department to assist with development, design and printing of all graphics needed for this project.
- A staff of four records technicians that manage a comprehensive records system in compliance with state and federal regulations.

MMSD staff will use Primavera project management software to track project progress along its critical path. The project setup will include major task categories and key project milestones for tracking purposes using the schedule/scope consistent with this grant application. Quarterly project review related to project objectives will be conducted with management, and corrective actions will be considered, taken, and tracked to ensure scope and schedule compliance. Project change will be managed, and an adaptive approach will be taken as the project progresses, if necessary, to ensure a successful project outcome that meets the intended and stated outcomes of this grant application.

The project manager, Karen Sands, will be directly responsible for project effectiveness and efficiency. She will establish and facilitate monthly meetings and quarterly reviews to discuss progress, including data and findings. She will also coordinate a water quality report for the site with biologists, water resource technicians, and community outreach personnel at MMSD.

Grant Awards

MMSD has a successful history in completing and managing grants and assistance agreements. All reporting requirements are met by MMSD on time and as requested – this is evidenced, for instance, but funding of subsequent project phases. Besides assistance agreements, MMSD manages a large budget. The MMSD's *2008 Comprehensive Annual Financial Report*, our most recent report, can be viewed at http://v3.mmsd.com/AssetsClient/Documents/finances/2008_MMSD_CAFR.pdf .

Following are three examples of on-going or successfully completed grants or assistance agreements:

- **Little Menomonee Creek Wetland Restoration Project – Phase I (2008)** – State of Wisconsin Department of Administration, Wisconsin Coastal Management Program grant #AD089091-009.27 - \$25,000. Total project cost: \$91,000. All terms and conditions of this grant were met and completed on time.
Project Description: This project is restoring the hydrology and wildlife habitat of previously drained wetlands within the Little Menomonee River watershed. Approximately 50 acres of

farmland is being restored to its original use, or wooded wetland and shallow marsh. When restoration is complete, a 103-acre parcel will add valuable greenspace and recreational opportunities to Southeastern Wisconsin.

- **Little Menomonee Creek Wetland Restoration Project - Phase II (2009)** – State of Wisconsin Department of Administration, Wisconsin Coastal Management Program grant #AD099248-010.34 –\$50,000. Total project cost: \$130,000. Phase II was awarded given the success of Phase I. This Phase II grant work is ongoing and is expected to be completed in 2010.
Project Description: Phase I and II projects are restoring the hydrology and wildlife habitat of previously drained wetlands within the Little Menomonee River watershed. Approximately 50 acres of farmland are being restored to its original use, or wooded wetland and shallow marsh. When restoration is complete, a 103-acre parcel will add valuable greenspace and recreational opportunities to Southeastern Wisconsin.
- **Greenseams Wetland Restoration Program (2009)** – National Fish and Wildlife Foundation (NFWF) Grant Agreement #1490 - \$76,698. Total project cost: \$808,518.
Project Description: MMSD, in cooperation with the Wisconsin Department of Natural Resources, Ducks Unlimited and the NFWF, is restoring about 100 acres of land in Ozaukee County on the Little Menomonee River watershed, which directly drains to the Menomonee River, the Milwaukee Estuary AOC, and Lake Michigan. Work on the project will return the hydrology and re-contour and re-vegetate the landscape. Additionally, pre- and post-construction monitoring will provide a means of determining the benefit of this wetland for reducing flows and pollutants.

12. Budget

This project will be cost-effective and Karen Sands, the Project Manager, will directly and actively facilitate EPA oversight and administration of the project by careful attention to budget and report. The budget for this project is reasonable and appropriate because it is based on a detailed accounting of the labor and other costs necessary for this project. In addition, the Charles River Watershed Association reports costs for subsurface gravel wetlands between \$4 and \$5 per square foot (or between about \$174,000 and \$218,000 per acre. Using the Charles River Watershed Association's cost recommendations, this project should cost between about \$261,000 and \$327,000. This project's total cost estimate is \$290,566, of which \$200,000 is requested for federal funding – well within the recommended range.

Personnel	Position	Rate	Hours	Amount	Total
	Project Manager	\$ 50	\$ 150	\$ 7,500	
	WQ Staff	\$ 50	\$ 40	\$ 2,000	
	Resident Engineer	\$ 40	\$ 120	\$ 4,800	
	Resident Inspector	\$ 30	\$ 480	\$ 14,400	
					\$ 28,700
Fringe Benefits	Includes: retirement, health benefits, sick leave, life insurance, and nonworking pay				\$ 28,404
Travel	No additional cost incurred				\$ 0.00
Equipment	No additional cost incurred				\$ 0.00
Supplies	No additional cost incurred				\$ 0.00
Contractual	Contract #1	Modeling and Design, including incidental take permit for Butler's gartersnake			\$ 50,000
	Contract #2	Construction, including remediation for Butler's gartersnake			\$ 150,000
Other	None				\$ 0.00
Indirect Charges	Indirect cost rate = 116.59%				\$ 33,461
Total					\$ 290,566
MMSD share					\$ 90,566
Federal share					\$ 200,000

13. ACORN Statement

The MMSD and its subcontractors certify that no individual or entity acting in concert with the Association of Community Organizations for Reform Now (ACORN), nor any ACORN affiliate, subsidiary, or allied organization, will receive any federal funds for work under this grant application. The MMSD will ensure that all subcontractors affirmatively substantiate no funding of or involvement by an ACORN-related affiliate or person in the performance of the grant.