



Capitol Region Watershed District

1410 Energy Park Drive, Suite 4 • Saint Paul, MN 55108

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Grant Amendment No. 2

Project Name:	Lowertown Regional Ballpark
Grantee:	City of Saint Paul
Agreement #:	14-067

The Grant Agreement between Capitol Region Watershed District (DISTRICT) and City of Saint Paul (GRANTEE) approved on September 17, 2014 is hereby amended to the following:

2-1. Additional Grant Funds

Description: The grant agreement is amended to include the rainwater harvesting system improvements as described in the attached letter “CHS Field Rainwater Harvesting System” prepared by GRANTEE on April 25, 2018.

Reason for Change: Improvements required for system to function for irrigation.

Change in Agreement Award: \$11,706

2-2. Conditions

The GRANTEE shall be required to meet the following conditions for receipt of additional grant funds:

1. Statistics on the rainwater harvesting system will be made publicly available and accessible. This could be through the kiosks, scoreboard, and website. Statistics should include year-to-date information on gallons used for flushing, irrigation, total gallons saved, and current tank level.
2. The concrete etching in the concourse will be completed. Amendment 1 approved on June 15, 2015 describes the etching and DISTRICT funding, which will remain available for GRANTEE reimbursement upon its completion.

2-3. Project Completion

Description: The additional work including meeting the above conditions shall be completed no later than December 31, 2018.

Reason for Change: Additional time needed to implement project changes.

Change in Agreement Deadline: December 31, 2018

Grant Agreement Summary

Original grant award	\$325,000.00
Net change by previous amendments	\$10,000.00
Grant award prior to this amendment	\$335,000.00
Change in grant award by this amendment	\$11,706.00
New grant award including this amendment	\$346,706.00
Grant project will be completed by	December 31, 2018

_____, _____, 2018
CRWD Administrator

_____, _____, 2018
City of Saint Paul



CITY OF SAINT PAUL
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April 25, 2018

Nate Zwonitzer
Capitol Region Watershed District
1410 Energy Park Drive, Suite 4
St. Paul, MN 55108

RE: CHS Field Rainwater Harvesting System

Dear Nate:

Capitol Region Watershed District (CRWD) generously financially supported an innovative rainwater harvesting system for multiple uses at CHS Field ballpark. This catalyzed completion of a project that has had lasting powerful impact on ballpark visitors, stormwater practitioners and city policy.

The rainwater harvesting system has been operational for three seasons. As might be expected, there was an initial period of troubleshooting since it was originally commissioned in 2015. The vendor and engineer have been engaged in managing these situations in cooperation with the Saint Paul Saints.

Through these efforts the vendor has recommended several enhancements to the overall rainwater harvesting system that will improve the original design. These enhancements would add robustness to the system for water quality while minimizing operational disruptions. The vendor's letter detailing these recommendations is enclosed.

The Saint Paul Parks and Recreation Department respectfully requests the CRWD Board of Managers consider authorizing supplemental grant funding to deploy these enhancements. This includes the vendor's recommended package at a cost of \$9,253.67 plus \$2,452 for final mechanical connections by a licensed plumber. If funded, implementation would be prior to the start of Saints' baseball in late May.

Thank you for considering this request and adding to the value of this incredible system.

Sincerely,

Chris Stark

encl.

cc: Wes Saunders-Pearce, City of Saint Paul
Dave Stark, Rainwater Management Solutions
Keith Larson, Schadegg Mechanical



CAPRA Accreditation

An Affirmative Action Equal Opportunity Employer



National Gold Medal Award

April 24, 2018

To: Wes Saunders Pearce

From: Dave Stark

CC: Nate Zwonitzer, Benjamin Sojka, Christopher Stark

Subject: CHS Field - Recommended Improvements

Attachments: Irrigation Design, RMS Design Guide

Wes:

Per your request I am submitting this letter for consideration for supplemental funding for system upgrades at CHS field.

Background

Stark Rainwater and Rainwater Management Solutions (RMS) provided a system that has met the initial design requirements, specifically an output pressure of 65 psi and a flow rate of 110 gpm as specified on the mechanical drawings. We understand that the system is not functioning to the owners' expectation and specifically not providing the desired flow rate and pressure for irrigation of the ballfield and continues to have nuisance alarms.

During the design phase of this project and with our first shop drawings RMS and Stark originally recommended UV lights that did not have the pressure drop of the units that were ultimately installed. The Minnesota Department of Health requested an NSF certified Class A light be installed and that was reviewed and approved by the engineer of record. The new light we are proposing to provide does not have significant pressure drop because it does not have flow restrictors and delivers the same dosage of UV light at the specified design flow rate. Since there have been no water quality tests with positive bacteria results with the current system we feel that this would provide the minimum requirements to meet the existing design.

RMS contacted the irrigation designer this spring to determine the actual irrigation design flow rate and pressure on the irrigation system. The highest multizone flow rate is 122 GPM and required pressure at the manifold varies from 76-90 psi (see attached design). The drawings were issued after the mechanical drawings were stamped and no change order was issued previously to increase the pumps and downstream equipment to meet the irrigation design. RMS did, however, upgrade the pump and motor at no cost last year when attempting to get the existing Viqua lights to meet the desired flow and pressure. RMS cannot be held accountable for output of zones on the irrigation system that are above the original mechanical design.

If the city and owners want a system that has fewer alarms and issues, meets a higher flow rate or additional capabilities on the controls Dave Stark and RMS can provide upgraded components and labor to remove equipment and ready the skid for final hookups and commissioning. I have provided our design guide as an attachment that describes these components in further detail.

Following is a table of the proposed changes for your consideration:

Item	Retail Price	Cost to CHS Owners	RMS Cost to City of St. Paul	Comments
Remove 5 UV Lights and Prepare Skid for Final Retrofits	\$1760	\$0.00	\$0.00	Dave Stark discussed this with Keith Larson and he approved Stark deconstructing and preparing the skid. Assume two days at \$110/hr. All changes would be drafted in a schematic format for approval by Shadegg. Formal system startup and commissioning with sign off will be required. Final hookup costs by Schadegg are not included.
Provide High Flow UV Light Capable of 140 GPM	\$7,595	\$0.00	\$0.00	RMS donates the system and Viqua representative on site for commissioning.
Provide Case (Qty 50) of 50 Micron filters prior to existing 1 Micron filter.	\$329.20	\$0.00	\$263.60	<p>The system was originally designed and delivered with the ability to change filters while in operation with two housings capable of handling up to 200 GPM. Changing one of the filters to accept a 50-micron filter will reduce the turbidity that has been difficult to meet with one filter and replumbed in line. All pressure loss would need to be reviewed and approved by Keith Larson.</p> <p>The alternative to this is to place a back-flushing pre-filter prior to the current 1-micron filter at a retail cost of \$5,815. This unit is capable of flows up to 175 GPM and includes a 50-micron filter and debris off of that filter would need to be directed to the existing sanitary drain.</p>
Add Carbon Filter Housing and 8 Replacement Filters	\$2,298.34	\$0.00	\$1,838.67	One of the current parameters to meet the Department of Labor and Industry water quality standards is noticeable odor. Odors have been reported by the maintaining contractors but have not failed the test. A carbon filter would ensure odor issues are addressed and would also assist in removing organics from a dirty gravel roof that has produced gray sediment/particulates in the filters that have likely impacted turbidity readings.
Additional time to produce submittals for Schadegg, prep the skid for carbon filter.	\$1760.		\$1,000	
Estimated Shipping for Components Above Billed at Cost	\$600		\$600	
Use Existing Controls	TBD	TBD	TBD	The current RMS 200 controller delivered meets the mechanical design and provides storage tank level, pump status and vfd status. Flow meters record irrigation water use and toilet water use and that data is delivered to the Building Automation System. A change was requested by the engineer of record to control and monitor the changeover valve status through the building automation system and that change was reflected in the final RMS shop drawings. RMS recommends first discussing obtaining the data through the building automation system to

				achieve the educational objectives not captured in the mechanical design with Keith Larson from Schadeegg. Specific output requirements should be communicated to both RMS and Schadeegg. The current RMS controller cannot be re-programmed but we believe it is producing the data requested by the owners. If an upgraded controller is needed to achieve the ultimate educational communication requirements to the Kiosk, RMS would need to consult with Schadeegg and the Building Automation System supplier to better understand the needs. The cost for a new updated, changeable controller would be a minimum of \$15,700.
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Current Treatment Train

WISY Filtration 380 Microns -> 1 Micron Absolute Sediment Filter – Five Pro UV Lights

RMS Recommended Treatment Train and Cost

WISY Filter 380 Microns ->50 Micron Filter -> 1 Micron Absolute Sediment Filter->Carbon Filter -> One High Flow 140 GPM UV - **\$3,702.27**

WISY Filter 380 Microns ->50 Micron Back flushing Orival Filter -> 1 Micron Absolute Sediment Filter->Carbon Filter -> One High Flow 140 GPM UV **\$9,253.67**

Following is a partial listing of the equipment and services provided by Stark Rainwater and or RMS to troubleshoot and rectify the existing design.

- Multiple return startup visits and troubleshooting.
- Multiple trips to repair leaking bulkhead fittings and replaced liner nearly 2.5 years after initial signoff.
- Rewired the viqua controllers and replaced with communication centers for all units.
- RMS President David Crawford worked with Viqua to provide the information on the system to allow the light to be provided at no cost to the city or owners.

Last spring the following retrofit was made.

- Per the recommendation of Viqua added a 5th Pro UV light to the skid
- Upgrade pump to a Goulds 15SV6TC30 6 stage pump and SV10-22 motor
- Roundtrip shipping of skid from CHS Field to RMS manufacturing
- Added additional skid length for the new UV light
- The typical charge on a skid-based system with the above components would have been \$13,495.95
- RMS/Stark charge by Schadeegg \$5,748.97 for reconnection of skid
- Spring 2018 multiple meetings with owners, engineer, city and watershed officials to outline proposed changes.

Stark Rainwater and RMS have stepped up at every opportunity to make the existing design satisfactory. We have conservatively provided \$34,000 of additional components and labor to the project above the Stark Rainwater bid. Dave Stark has discussed these changes with Keith Larson of Schadeegg mechanical and the next step would be to provide him with a diagram of the proposed changes and product cut sheets to approve the changes. Deconstruction of the system and meetings with Schadeegg on site could start next week with the goal of having the system operational by May 21st. Should you have any additional questions don't hesitate to call me directly.

Kind Regards,

Dave Stark