

**MEETING DATE:** January 15, 2015

**TITLE:** Approval of Cost Share Funding for Arden Park Neighborhood Project

**RESOLUTION NUMBER:** 15-XXX

**PREPARED BY:** Becky Christopher

**E-MAIL:** bchristopher@minnehahacreek.org

**TELEPHONE:** 952-641-4512

**REVIEWED BY:**  Administrator  Counsel  Program Mgr. (Name): \_\_\_\_\_  
 Board Committee  Engineer  Other

**WORKSHOP ACTION:**

<input checked="" type="checkbox"/> Advance to Board mtg. Consent Agenda.	<input type="checkbox"/> Advance to Board meeting for discussion prior to action.
<input type="checkbox"/> Refer to a future workshop (date): _____	<input type="checkbox"/> Refer to taskforce or committee (date): _____
<input type="checkbox"/> Return to staff for additional work.	<input type="checkbox"/> No further action requested.
<input type="checkbox"/> Other (specify): _____	

**PURPOSE or ACTION REQUESTED:**

1. Order an MCWD cost share project for the construction of stormwater BMPs and educational signage in the Arden Park Neighborhood.
2. Authorize cost share funding in an amount not to exceed \$90,000.00 for the project, contingent on a signed grant agreement.
3. Authorize the Administrator to execute a grant agreement with the City of Edina.

**PROJECT/PROGRAM LOCATION:** Arden Park D Neighborhood in Edina (map attached)

**PROJECT TIMELINE:** Construction in Summer-Fall 2015

**PROJECT/PROGRAM COST:**

Fund name and number:	Cost Share Grant Program, 3130 (combined with LID Fund 3121 in 2015)
2015 budget:	\$832,000.00
Amount approved in 2015 to date:	\$0
Requested amount of funding:	\$90,000.00

**PAST BOARD ACTIONS:** None

**SUMMARY:**

Project Background

In August 2013, the City of Edina adopted a Living Streets Policy which is intended to balance the needs of motorists, bicyclists, pedestrians, and transit riders in ways that promote safety and convenience, improve environmental sustainability, enhance community identity, create economic vitality, and provide meaningful opportunities for active living and better health.

**DRAFT for discussion purposes only and subject to Board approval and the availability of funds.  
Resolutions are not final until approved by the Board and signed by the Board Secretary.**

In February 2014, the City of Edina approached the District with a proposal for partnership for a Living Streets Demonstration Project in the “Arden Park D” neighborhood (see attached map). This neighborhood is scheduled for street reconstruction in 2015, and the City plans to use it as an early demonstration of its Living Streets Policy. Since that time, the City and District have had several meetings to discuss partnership opportunities related to stormwater management, riparian vegetation improvement, and public education.

The City completed a subwatershed assessment to identify the most effective options for stormwater management and has applied for cost share funding for the three best management practices (BMPs) summarized below. Further details are provided in the attached memorandum from the City.

<b>Best Management Practice (BMP)</b>	<b>Treatment Area (Acres)</b>	<b>Retained Volume (Ac-Ft)</b>	<b>Total Phosphorus (lbs)</b>	<b>Total Suspended Solids (lbs)</b>	<b>Estimated Cost</b>
Halifax subsurface infiltration trench	28.2	13.0	10.6	1,923	\$94,000
Jay Place pervious paver system	2.3	1.0	1.0	215	\$70,000
Sump manholes (3 locations)	21.8	N/A	N/A	4,400	\$12,000
<b>Total</b>	<b>52.3</b>	<b>14.0</b>	<b>11.6</b>	<b>6,538</b>	<b>\$176,000</b>

Education/Demonstration Benefits

In addition to treating stormwater, this project would provide education and demonstration value. The City has agreed to work with the District to design and install signage in Arden Park that will educate park users about the various water resource improvements in the area, including the proposed stormwater BMPs, the Reach 14 and Pamela Park projects downstream, and potential future stream and park improvements that are currently in development.

The City has also agreed to conduct performance monitoring for the PaveDrain system so the District and others can learn about the effectiveness of the system as compared to other types of pervious pavement or pavers. The PaveDrain system is a fairly new product that is supposed to be more durable and require less maintenance than other pervious paver systems. Previous applications have been mainly in parking lots, and this would be one of the first street applications.

The City has also been coordinating with Master Water Stewards to engage residents in this neighborhood. The Stewards will be reaching out to residents about best practices they can implement on their property, including raingardens and native streambank plantings. They have also discussed organizing future storm drain stenciling and creek clean-up events.

Grant Criteria

To qualify for the District’s Low Impact Development Grant Program (combined with the Cost Share Program as of January 1, 2015), a project must meet the following minimum set of criteria:

1. The aggregate stormwater facilities must achieve a level of treatment that exceeds regulatory requirements.
2. The project must allow for allow for education and outreach opportunities.
3. The local government unit/property owner must assume the long-term maintenance and operations of stormwater facilities proposed in conjunction with the project.

The Arden Park road reconstruction project will narrow road widths resulting in a net reduction of impervious surface of 0.67 acres. The project is therefore exempt from the District’s Stormwater Management Rule, so all of the proposed BMPs are eligible for funding. The project provides for education and demonstration

opportunities as summarized in the previous section, and the City will assume long-term maintenance and operation of the BMPs. These education and maintenance requirements will be included in the grant agreement.

#### Approval Process

The Board reviewed the project at its November 20, 2014 meeting and expressed support for staff's preliminary recommendation for 50 percent funding. The proposal was subsequently reviewed by the Citizen Advisory Committee (CAC) at its December 10, 2014 meeting, and the CAC supported staff's recommendation to fund the project in an amount not to exceed \$90,000.00.

Per Board resolution 13-023, the District must follow procedures under Minnesota Statutes §103B.251 for public and Board review before authorizing cost share funding in excess of \$50,000.00. The project has been appropriately noticed, and the public hearing for the project will be held at the January 15, 2015 Board workshop.

#### Staff Recommendation

Staff recommends providing 50 percent funding for the proposed BMPs plus an additional \$2,000.00 to go toward educational signage for a total of \$90,000.00.

In September 2014, the District and City jointly prepared and submitted a grant application for BWSR Clean Water Funds for the project. These grants are awarded in late January 2015. If the BWSR grant is awarded, the District's contribution for the BMPs would be reduced to 50 percent of the remaining costs.

## RESOLUTION

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**RESOLUTION NUMBER:**    15-XXX

**TITLE:**            **Approval of Cost Share Funding for Arden Park Neighborhood Project**

- WHEREAS, the Minnehaha Creek Watershed District (MCWD) has adopted a watershed management plan (WMP) in accordance with Minnesota Statutes section 103B.231;
- WHEREAS, the Low Impact Development Grant Program was established by the MCWD in 2009 to partner with local communities and private developers to offset the increased costs of exceeding regulatory requirements; and
- WHEREAS, the Low Impact Development and Cost Share Grant Programs have been combined for 2015, and funds are available in the 2015 budget; and
- WHEREAS, the City of Edina has applied for cost share funding for the implementation of stormwater best management practices (BMPs) as part of a road reconstruction project in the Arden Park D Neighborhood (Project); and
- WHEREAS, MCWD staff has reviewed the proposal and finds it to be consistent with the goals of the Low Impact Development Grant Program and recommends funding 50 percent of the costs for construction of the BMPs and an additional \$2,000 for educational signage for a total of \$90,000 from the combined Cost Share and Low Impact Development fund; and
- WHEREAS, the grant proposal was reviewed by the Citizen Advisory Committee (CAC) on December 10, 2014, and the CAC made a recommendation to the Board to approve the proposal and provide funding in the amount requested; and
- WHEREAS, per MCWD Board Resolution 13-023, the District must follow procedures under Minnesota Statutes §103B.251 for public and Board review before authorizing cost share funding in excess of \$50,000; and
- WHEREAS, in accordance with Minnesota Statutes §103B.251, subdivision 3, the MCWD held a duly noticed public hearing on approval of funding for the Project on January 15, 2015, at which time all interested parties had the opportunity to speak for and against the Project; and
- WHEREAS, the Board of Managers finds that the Project will be conducive to public health and promote the general welfare, and is in compliance with Minnesota Statutes §§103B.205 to 103B.255 and the MCWD's WMP adopted pursuant to §103B.231;

NOW, THEREFORE BE IT RESOLVED that pursuant to Minnesota Statutes §103B.251 and the WMP, the MCWD Board of Managers orders the Project, with a total estimated cost share contribution from the MCWD of \$90,000; and

BE IT FURTHER RESOLVED, that the MCWD Board of Managers authorizes the administrator to execute, on advice of counsel, a grant agreement with the City of Edina providing reimbursement of 50 percent of the documented costs for construction of stormwater BMPs plus up to \$2,000 for educational signage for the Project, not to exceed \$90,000, from the Cost Share Grant Program fund.

Resolution Number 15-XXX was moved by Manager \_\_\_\_\_, seconded by Manager \_\_\_\_\_.  
Motion to adopt the resolution \_\_\_ ayes, \_\_\_ nays, \_\_\_ abstentions. Date: \_\_\_\_\_.

\_\_\_\_\_  
Secretary Date: \_\_\_\_\_



Building a Better World  
for All of Us®

## MEMORANDUM

TO: Chad Millner, PE

FROM: Toby Muse, PE

DATE: January 9, 2015

RE: Arden Park D Neighborhood Roadway Reconstruction - Proposed Stormwater Best Management Practices (BMPs)  
SEH No. EDINA 128385 14.00 14.00

This memorandum summarizes the proposed stormwater BMPs proposed for the project. Overall the project will reduce impervious area by approximately 0.7 acres via narrowing the width of existing roadways. The existing sandy subgrade soils in the neighborhood provide an opportunity to infiltrate stormwater. We understand the City of Edina and the Minnehaha Creek Watershed District will enter into a cost share agreement to fund the proposed BMPs.

### PROPOSED BMPS

Three (3) separate BMPs systems are proposed for the project as described below. The general location of each BMP is shown in Exhibit 1 attached to this memorandum.

1. Subsurface Infiltration Pipe – This system contains a perforated storm sewer pipe that bypasses low-flow events to infiltrate into the existing sandy soils. A graphic of the system is shown in Figure 1. This system will capture stormwater from the 50<sup>th</sup> Street and France Avenue business district.

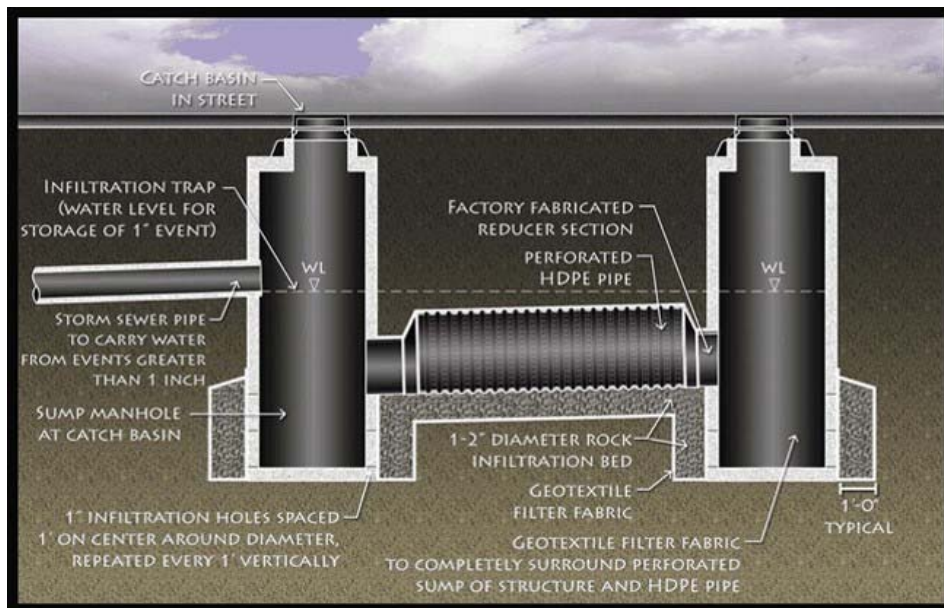


Figure 1

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 10901 Red Circle Drive, Suite 300, Minnetonka, MN 55343-9302  
SEH is 100% employee-owned | [sehinc.com](http://sehinc.com) | 952.912.2600 | 800.734.6757 | 888.908.8166 fax

2. Pervious Pavers – This system is a permeable articulating concrete block/mat that creates performance pavement for vehicle traffic and includes a reservoir to maximize onsite stormwater capacity during extreme storm events. Ultimately, stormwater from the paved parking lot owned by the Edina Covenant Church will infiltrate into the existing sandy soils. See attached pervious paver brochure labeled Exhibit 2 for more information regarding the proposed infiltration system.
3. Sump Manholes – Three (3) sump manholes are proposed in the locations shown in Exhibit 1 and will provide sediment capture of stormwater before it enters the main storm sewer pipe that drains the 50<sup>th</sup> Street and France Avenue business district. The sump manholes are designed to include a 4-foot sump depth.

## BENEFITS

Treatment benefits and their associated costs are shown in Table 1.

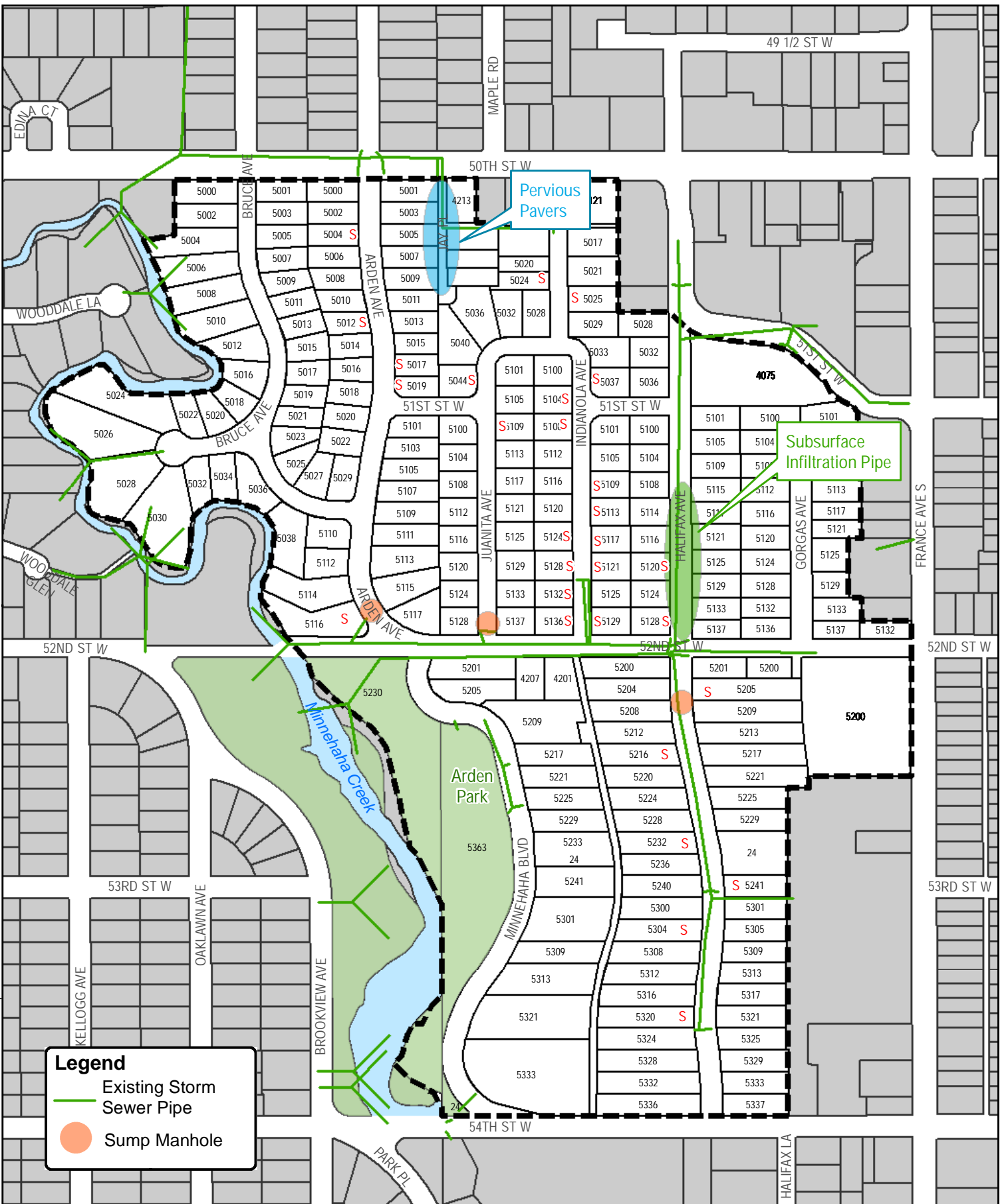
<b>BMP</b>	<b>Treatment Area (Acres)</b>	<b>Annual Retained Volume (Ac-Ft)</b>	<b>Annual Phosphorus (lbs)</b>	<b>Annual Total Suspended Solids (TSS)</b>	<b>Estimated Cost</b>
Subsurface Infiltration	28.2	13.0	10.6	1,923	\$94,000
Pervious Pavers	2.3	1.0	1.0	215	\$70,000
Sump Manholes	21.8	n/a	n/a	4,400	\$12,000
<b>Total</b>		<b>14.0</b>	<b>11.6</b>	<b>6,538</b>	<b>\$176,000</b>

Table 1

c: Ross Bintner, City of Edina

Becky Christopher, MCWD

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Path: P:\A\E\Edina\128385\GIS\Maps\130935\Storm.mxd

**Legend**

- Existing Storm Sewer Pipe
- Sump Manhole
- Pervious Pavers
- Subsurface Infiltration Pipe



0 175 350 Feet

Project: EDINA 128385  
 Date: 1/9/2015  
 Map by: MSS  
 Projection: Hennepin County Coords  
 Source: Henn. County, City of Edina, Microsoft Virtual Earth

**Arden Park D Neighborhood  
 Roadway Reconstruction  
 Edina, Minnesota**



# PAVE DRAIN

STORMWATER'S ARCH ENEMY

## Sustainable Stormwater Solutions





## Structural and Environmental Benefits

The PaveDrain® system combines modern-day functionality with a structural concept used for centuries to create *the* revolutionary permeable paving solution. This system incorporates a patented arch design in the middle of an articulating concrete block to create an internal storage chamber that can be used as a reservoir for stormwater runoff, while simultaneously providing strength for heavy vehicular loads. The PaveDrain System is designed to be a critical component of Low Impact Development (LID) allowing for the infiltration of stormwater runoff.

The PaveDrain system is an aesthetically pleasing Permeable Articulating Concrete Block/ Mat (P-ACB/M)<sup>1</sup> that provides installation ease and flexibility to meet current and future stormwater management regulations. The PaveDrain system provides infiltration, storage, detention, conveyance and a paving surface all in one. When combined, these features allow for a reduction or elimination in stormwater infrastructure costs while minimizing environmental impact. The PaveDrain system works.

<sup>1</sup>P-ACB/M is a registered certification mark of ECS Solutions, LLC

## ASTM Standards & ADA Compliance

The PaveDrain system meets the requirements of ASTM D6684-04 and is recognized by the USEPA as a structural Best Management Practice (BMP) for stormwater infiltration. The Americans with Disabilities Act (ADA) Design Guidelines require that surface openings shall not exceed 1/2" and shall be firm, stable, and slip resistant. The PaveDrain System easily exceeds all these requirements by incorporating a 1/4" gap between individual PaveDrain blocks.

## Applications

- Parking Lots
- Alley Ways
- Intersections
- Low Speed Roadways
- Emergency Access Lanes
- Residential Driveways



## Why the PaveDrain System?

As part of the Clean Water Act, the EPS developed the National Pollution Discharge Elimination System (NPDES) to improve water quality by regulating point sources and non-point sources that discharge pollutants into waters of the U.S. PaveDrain captures and treats 100% of the surface water and allows you to route stormwater and control peak flows.





# Infiltration Report

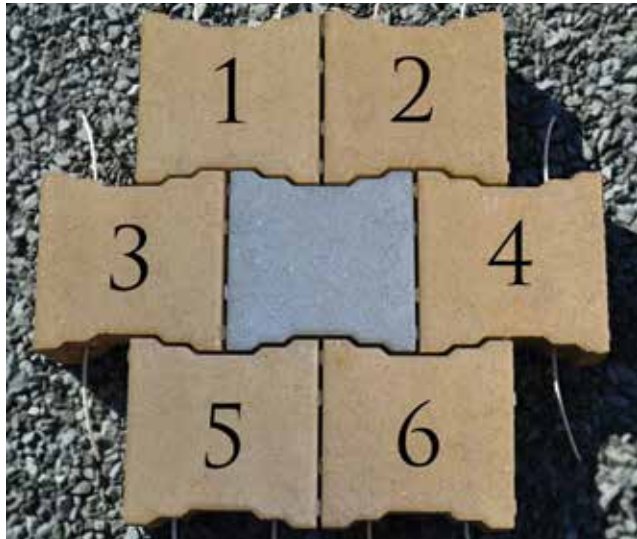
The PaveDrain® system was tested in accordance with ASTM C1701/C1701M-09 by an independent third party engineering firm. The test was conducted on a PaveDrain project that had not been maintained for 18 months and still infiltrated in excess of 4,000 inches/hour per one foot diameter. View the entire report by visiting our website at [www.pavedrain.com](http://www.pavedrain.com) and go to *How it Works* and then *Testing*.

	Test #1	Test #2
Inside Dia. of Infiltration Ring (in)	12.5	12.5
Elapsed Time of Test (sec)	7.3	7.8
Infiltration Rate (in/hr) (I=KM/(D2*t))	4,449	4,163
Avg. Infiltration Rate (in/hr)	<b>4,306</b>	

## PaveDrain® System Properties

Thickness.....5.65" (+ 1/8")  
 Unit Dimensions.....12.00" x 12.00"  
 Unit Weight.....45-49 lbs  
 Unit.....1 Sq. Ft. Nominal  
 Percentage Open Space: 7% Surface, 20% Storage Area

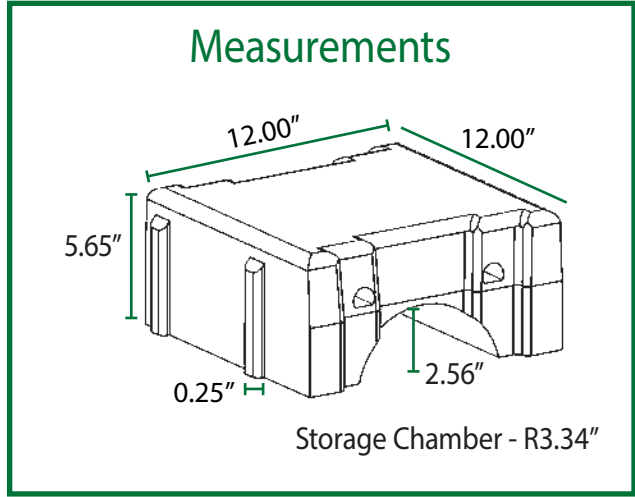
**Each individual block is interlocked by six (6) units**



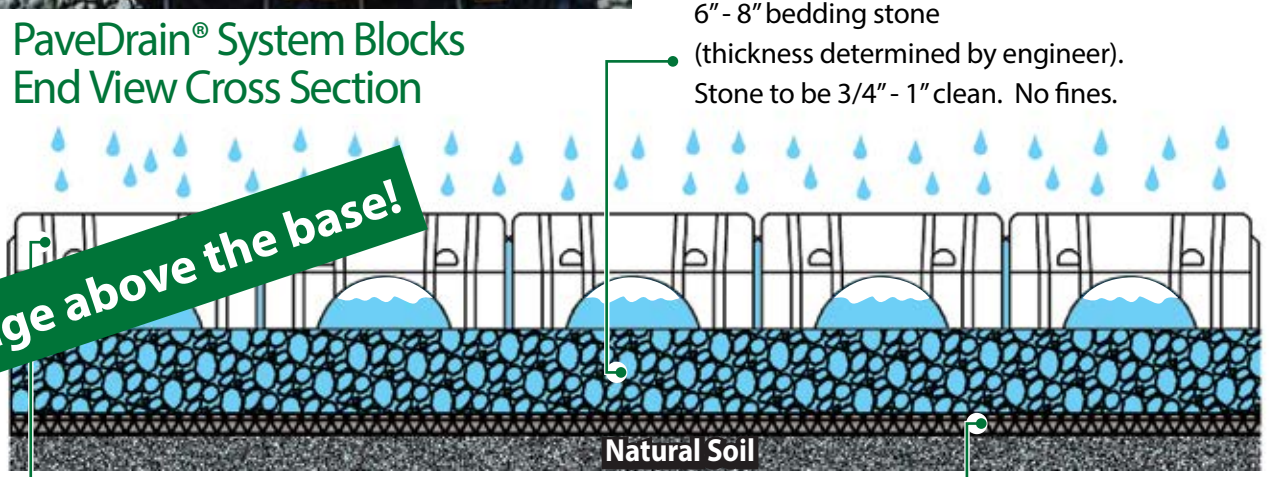
## PaveDrain® System Blocks End View Cross Section



*Bladensburg, Maryland demonstration test*  
**Passes AASHTO HS-20 and H-20 load testing**



**Storage above the base!**



6" - 8" bedding stone  
 (thickness determined by engineer).  
 Stone to be 3/4" - 1" clean. No fines.

PaveDrain® System

Engineer approved geogrid or geotextile

Natural Soil



## Maintenance and Repair

The PaveDrain System recommends an open joint concept between units. Existing installations have required little, if any maintenance over multiple years. IF the joints become filled or obstructed, maintenance is accomplished by using a conventional combination sewer vacuum truck and the PaveDrain Vac Head. If a significant amount of sediment accumulates in the aggregate bedding stone, PaveDrain can be removed allowing the subgrade to be cleaned and then the same product re-installed. Repair of individual PaveDrain blocks can be accomplished without removing the (mat) cables. For more detailed information on these topics go to [www.pavedrain.com](http://www.pavedrain.com) and select Installation & MAINTENANCE and then click on *repair*.



## Additional Benefits

- Up to 5 LEED Credits: Sustainable Sites; Credit 6.1, 6.2, 5.1, 5.7 & Materials & Resources: Credit 5.1.
- Initial installations show a drastic reduction in the use of deicing salts over traditional asphalt and concrete surfaces.
- Installed by hand or with conventional construction equipment in all types of weather for fast, economical installations.
- Available in multiple mat sizes for customized applications
- Available in several color options
- No seams to catch on steel snow plow blades.
- Increased skid resistance over traditional pavements.
- Solar Reflectance Index (SRI) range of 36 – 41 for lighter colored units.
- Unlike traditional catch basins, varmints cannot enter drainage system.
- Regional manufacturing supporting local economies.
- Adaptable to small areas (retrofits) where retention ponds are outdated or not practical.

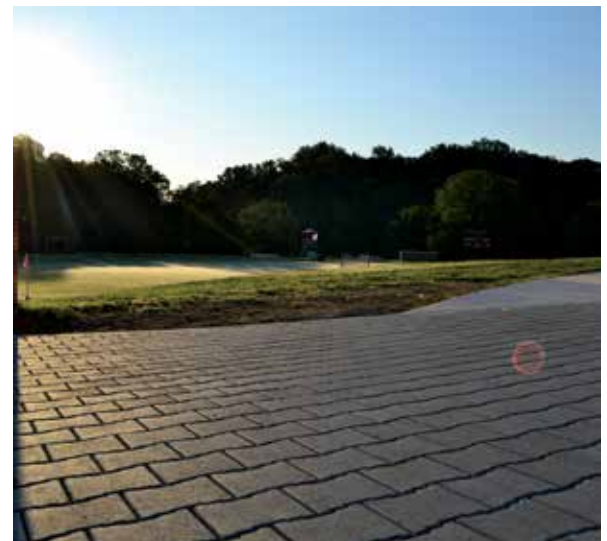
Represented Locally By:

### PaveDrain, LLC

Global Water Center  
247 Freshwater Way Milwaukee, WI 53204  
(888) 575-5339 Office  
[www.pavedrain.com](http://www.pavedrain.com)



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PaveDrain System is a registered trademark of PaveDrain, LLC



The PaveDrain System is protected by the following U.S. and Canadian Patents; U.S. No. 8,251,607, No. D609,369, No. 8,366,343 & Canadian No. 133082. Additional patents pending.