

Engineering Department CITY OF GOSHEN

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PaveDrain, LLC

Global Water Center 247 Global Water Center Milwaukee, WI 53204

City of Goshen, Indiana Jefferson Street

Attention:

Mr. Doug Buch, President

RE:

JEFFERSON STREET RECONSTRUCTION

Dear Mr. Buch,

We had multiple, experienced and respected construction people from around our area that had strong reservations to the City of Goshen's use of the PaveDrain system for the reconstruction of Jefferson Street during the Fall of 2013. The City's storm sewer in this area is currently undersized, and during some rain events the storm sewer would surcharge causing the storm sewer to back up into nearby building basements. We are pleased to report that the PaveDrain system has performed extremely well under what could only be considered exceptional circumstances. Including the following:

- ☐ Worst winter in Goshen in over 100 years with a frost depth of up to five feet along with record snowfall. The freeze-thaw and frost heave were not an issue. We snow plowed it with a rubber tipped blade to keep the surface of the block looking new.
- Multiple spring rains. The flooding and basement issues that have plagued this area have been solved.
- Bicycle Race. The City of Goshen recently held a sanctioned bicycle road race. I personally verified that the racers experienced no ill effects from riding on the PaveDrain system.
- Insues of twisting or settling blocks has not occurred.

We are pleased to announce that we are going forward with additional PaveDrain projects this year including the River Race Project that was recently awarded. We look forward to working with the PaveDrain system again in the near future.

Sincerely, Mary Cripe, P.E. City Engineer

PaveDrain *GREEN*Bicycle Path Block



PaveDrain Stroller Demonstration





Northwestern University Football Parking Evanston, IL







Logo Blocks





Logo Blocks are a GREAT way to distinguish your projects!!!









"PaveDrain Heated"

Doug Buch
PaveDrain, LLC

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www.pavedrain.com

January/February 2012 | www.stormh2o.com

STORMMATER

THE JOURNAL FOR SURFACE WATER QUALITY PROFESSIONALS

Cutting Down on Salt!

ALSO IN THIS ISSUE:

- · Modeling urban creeks
- Monitoring for pesticides
- Understanding the water balance

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CREENFIELD WI S3220-5027

25009 25725 4880 W ABBOTT AVE
POWLERS J BUCH PRESIDENT
POWLERS J BUCH PRESIDENT
#8XNOSTV TO**SCH S-DIGIT MILLI
#8XNOSTV TO**SCH S-DIGIT S3220

SNOW & SALT PARADOX

Salt has been used since 1942 to keep concrete and asphalt snow and ice free. However, its impact is proving to be harmful to the environment and infrastructure.







Liability... Maintenance???

LIABILITY: The state of Maine* estimates the average lawsuit claim due to falls from untreated surfaces is \$33,000 according to statewide statistics.
*Maine Dept. of Labor

in New Hampshire has nearly doubled the past 40 years to about 190,000 tons (\$16.15M) per year or 21.5 tons per lane mile.

*New Hampshire Dept. of Environmental Services



Don't Plow Or Shovel It.

MELT IT!

Cost Effectively. On Site.

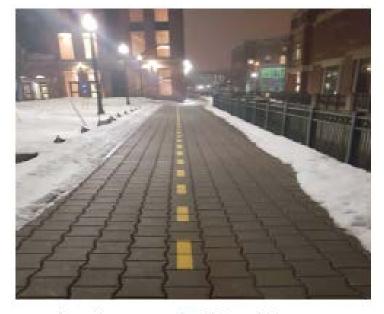
PROBLEM SOLVED!

The PaveDrain system infiltrates at over 1,000 inches per hour (ASTM C1701). When HEATED the snow or ice does NOT run off and freeze downhill causing problems or liabilities for your neighbors. The PaveDrain system is environmentally friendly year round.



We approach the PaveDrain system with an efficient solution based methodology.

- ☐ PEX TUBING
 - Hydronic with glycol for antifreeze
- □LOW VOLTAGE ELECTRIC
- □LINE VOLTAGE (HOT WIRE)

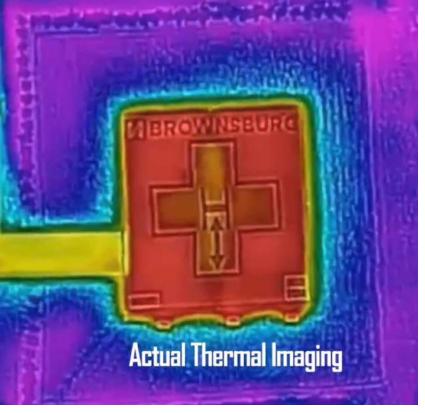


Ice & snow FREE walkways

Helipad with PaveDrain, PEX Tubing, Propylene Glycol & Mini-Boiler







Radiant Heat With PaveDrain, PEX Tubing, Propylene Glycol & Mini-Boiler



PEX tubing is commonly filled with a 40% Propylene Glycol to 60% water mixture. Propylene Glycol is a viscous, colorless liquid which is nearly odorless and is used in the production of polymers. It is produced on a large scale, but also sees use in food processing as it is graded safe for human consumption at low quantities and possesses a

faintly sweet taste

It is commonly used as a process fluid in low temperature heat exchange applications and is **ENVIRONMENTALLY SAFE.**

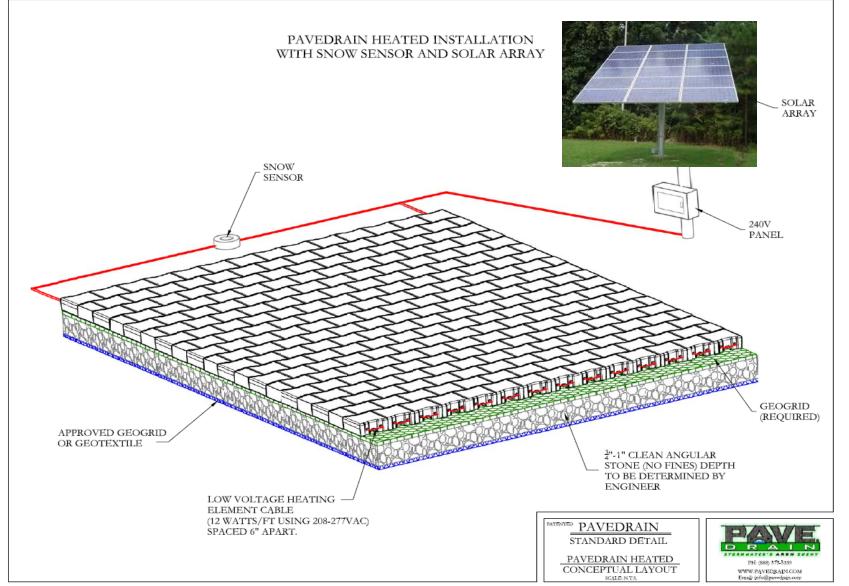


Propylene <u>Glycol Industrial Grade</u>) Benefits Include:

- Low freezing point
- The ability to decrease the freezing point of water
- Burst protection
- Low mammalian toxicity
- Low flammability
- Excellent heat transfer properties
- A high boiling point, low vapor pressure

Radiant Heat With PaveDrain ELECTRICAL – Low Voltage





Radiant Heat With PaveDrain ELECTRICAL – Line Voltage

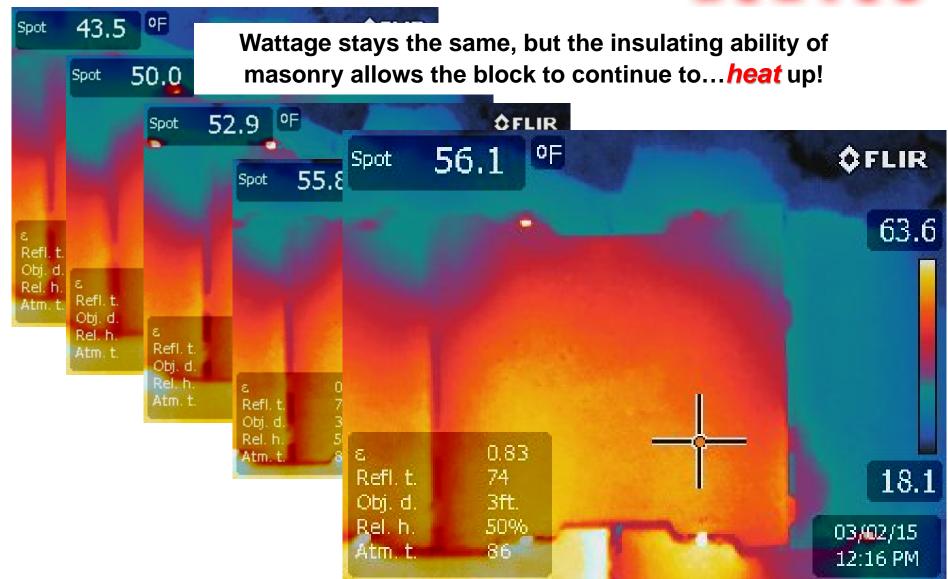




Radiant Heat With PaveDrain The Arch & Six Inch **Spacing Of The Heating Element Through The** Cable Ducts Is The Key! **GEOGRID** PAVEDRAIN (OPTIONAL)

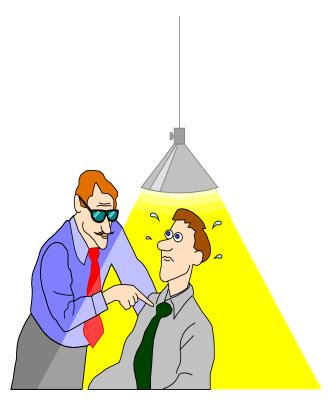
Radiant Heat With PaveDrain ELECTRICAL





THANK YOU!!!

Questions



Comments



Let's say that PaveDrain has been around since the 60's...

The asphalt and stormwater treatment world were trying to convince the engineering world to use their products...

If asphalt were new to the market...

"We know that PaveDrain is manufactured of inert concrete blocks, but what we are proposing is to take aggregate and waste oil that has no use and mix them together and then...





Pour it on the ground

"We don't exactly know the environmental impacts, but we are sure the benefits of utilizing a waste oil product will outweigh any environmental concerns."

Maintenance? Yes. There will be a little, but its cheap. After the asphalt has been installed for about a year it's going to get some cracks. We are recommending that these cracks be sealed with a thick waste oil product poured directly into the cracks. We don't exactly know the environmental impacts, but we are sure the benefits of utilizing a waste oil product will outweigh any environmental concerns."





"Here's the best part about asphalt. Once it's been in for about 3-4 years the ENTIRE surface will need to be sealed with an oil based sealant sprayed on the surface. We don't exactly know the environmental impacts, but we are sure the benefits of utilizing a waste oil product will outweigh any environmental concerns."





"Of course once the surface is covered with oil then the area will have to be re-striped with new paint."



"Stormwater runoff? Unlike PaveDrain, asphalt is not permeable. Therefore the design and purchase of a separate treatment tank or detention pond and all of the maintenance that is associated with them is required."









"Depending on the use in 5-12 years the entire surface will need to be milled up and then re-installed and the entire process will start over again."









Unlikely Partner...







Even though asphalt is considered a "flexible" paving surface. It is not meant to be directed to one concentrated spot like an 18" diameter inlet. In the words of a 50 year owner of an asphalt company "PaveDrain makes my asphalt last longer by infiltrating it to a larger surface area. My call backs on the PaveDrain and asphalt combination projects has been ZERO!

This saves me and my clients time and money."

Why would someone buy something that is more expensive?

Incandescent 60W light bulb costs \$0.85 EA.

CREE® LED 60W light bulb costs \$8.97 EA.





THE LED LIGHT BULB IS 10X's more expensive!!
WHY BUY SOMETHING THAT IS MORE
EXPENSIVE...???

Maintenance & Life Cycle Costs