

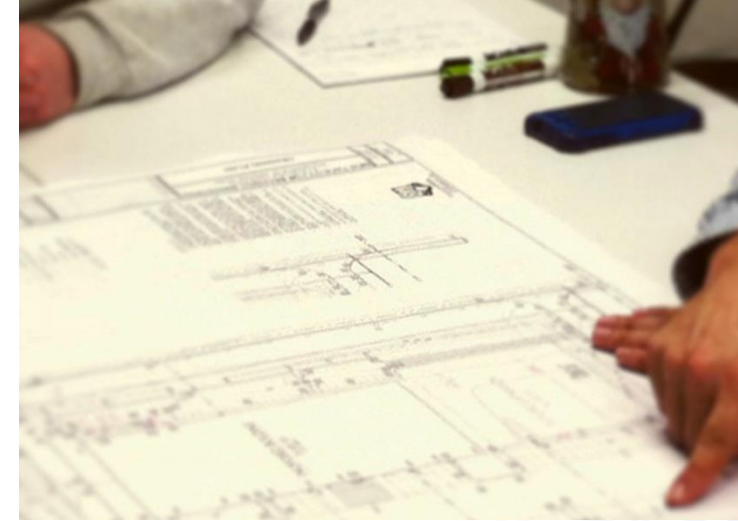
Fact or Fiction?

Challenging the Perceptions and Misperceptions of Green Infrastructure



WILLIAMS CREEK
CELEBRATING 15 YEARS





WHO ARE WE?

Williams Creek is a team of dedicated multi disciplinary professionals delivering sound **ecological engineering + natural resource construction** for the built and natural environment within communities since 2002.



WHAT DO WE DO? WE PLAN. WE DESIGN. WE DELIVER.

One of the aspects that makes **Williams Creek** unique is our multiple disciplines. We have the benefit of working side by side with engineers, landscape architects, planners, scientists, business managers, and contractors to produce a truly sustainable project and deliver improved return on investment for our client.

CONSULTING SERVICES



IMPLEMENTATION SERVICES



OUR SERVICES

OUR UNIQUE TOTAL PROJECT DELIVERY APPROACH PROVIDES THE RIGHT SUSTAINABLE SOLUTION.

Our ability to perform all tasks, from due diligence through construction and beyond, helps reduce the potential for long term environmental risk.



OUR CLIENTS

Over our history, we have built relationships with our clients in **REAL ESTATE, HEALTH CARE, HIGHER EDUCATION, POWER & ENERGY, PUBLIC WORKS & UTILITIES, and CORPORATE & INDUSTRIAL** markets, providing valuable consultation regarding sustainable water resource management and community livability.



GI PERCEPTIONS + MISPERCEPTIONS



GI PERCEPTIONS + MISPERCEPTIONS



GI PERCEPTIONS + MISPERCEPTIONS

COST: *GI is expensive. How can my community afford it?*

AESTHETICS: *GI looks bad.*

MAINTENANCE : *GI is difficult to maintain.*

BUTLER UNIVERSITY SUNSET AVENUE GATEWAY

Sunset Avenue was redesigned based on a complete streets approach to accommodate pedestrians, bicycles, and vehicle traffic. In addition to multimodal transportation elements, the streetscape design also includes linear rain gardens to manage stormwater within the right of way and reduce the volume of stormwater discharged to the nearby White River and combined sewer system.

First permeable asphalt bike lane in the City of Indianapolis

Green Infrastructure elements anticipated to **reduce runoff by up to 50%**

Rain gardens **manage stormwater from largest impervious surface** on campus

Reduce volume discharged to the nearby White River and combined system

Streetscape design serves as **gateway** to campus and one of Indianapolis's only **Complete Streets model**



BEFORE



AFTER

BUTLER UNIVERSITY SUNSET AVE

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BEFORE + AFTER



BEFORE



AFTER

BEFORE + AFTER



BEFORE



AFTER

BEFORE + AFTER



BEFORE



AFTER

BEFORE + AFTER



BEFORE



AFTER

BEFORE + AFTER



BEFORE



AFTER

BEFORE + AFTER



HINKLE RAINGARDENS



PAVER MAINTENANCE



HINKLE RAIN GARDEN REHAB

	Traditional Infrastructure	Green Infrastructure
Construction	\$3.0 M	\$2.9M
Design Fees	\$385,500	\$328,800

City of Indianapolis \$1.45M
 +
 Butler University \$1.45M
 = **\$2.9M Streetscape Project**

FINANCIAL DATA

Cost comparison performed on original design scope showed a **cost savings of 4.6%** over traditional infrastructure

CITY OF INDIANAPOLIS EAST 10TH STREET RAIN GARDENS RETROFIT

We provided design/build services to the East 10th Street Civic Association, an area non profit organization. We retrofitted the existing rain garden design to make large wheeled vehicle turning movements easier, provided a simplified and custom landscape design to make future maintenance efforts easier, supported public outreach efforts, installed the rain garden elements and provided workforce development through green infrastructure maintenance trainings.



Rain gardens were installed as part of infrastructure improvements during the XLIV Super Bowl Legacy project in Indianapolis in **support of community revitalization efforts**

Challenges were realized including turning movement difficulties and a lack in continuous maintenance

Rain gardens treat **61,000 SF** impervious area and remove **500,000 GAL** from combined system annually

This project, along with many others' hard work and dedication, **supports the continuous revitalization efforts of this area and reduced crime statistics**

Project was leveraged to train **over 80 neighborhood, reentry, and youth volunteers** on green infrastructure maintenance techniques



CITY OF INDIANAPOLIS EAST 10TH

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BEFORE



AFTER

BEFORE + AFTER

Goals: simple, beautiful, serve as redevelopment tool



BEFORE



AFTER

BEFORE + AFTER

Goals: simple, beautiful, serve as redevelopment tool



BEFORE + AFTER

Goals: simple, beautiful, serve as redevelopment tool



BEFORE



AFTER

BEFORE + AFTER

Goals: simple, beautiful, serve as redevelopment tool



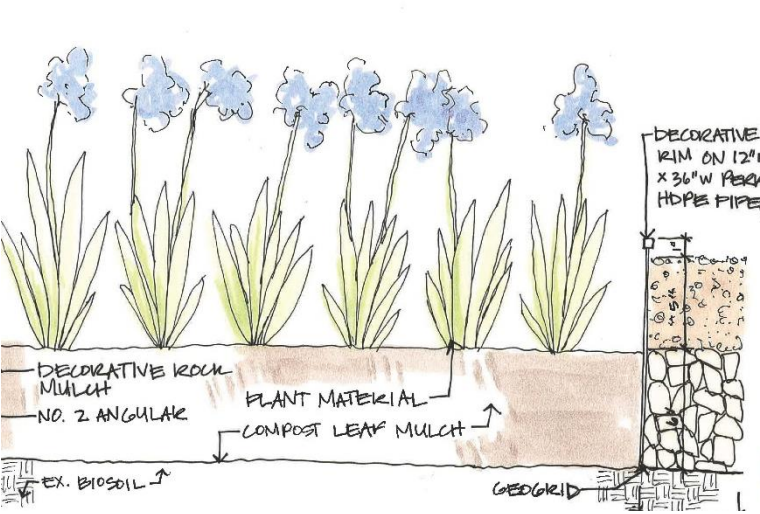
BEFORE



AFTER

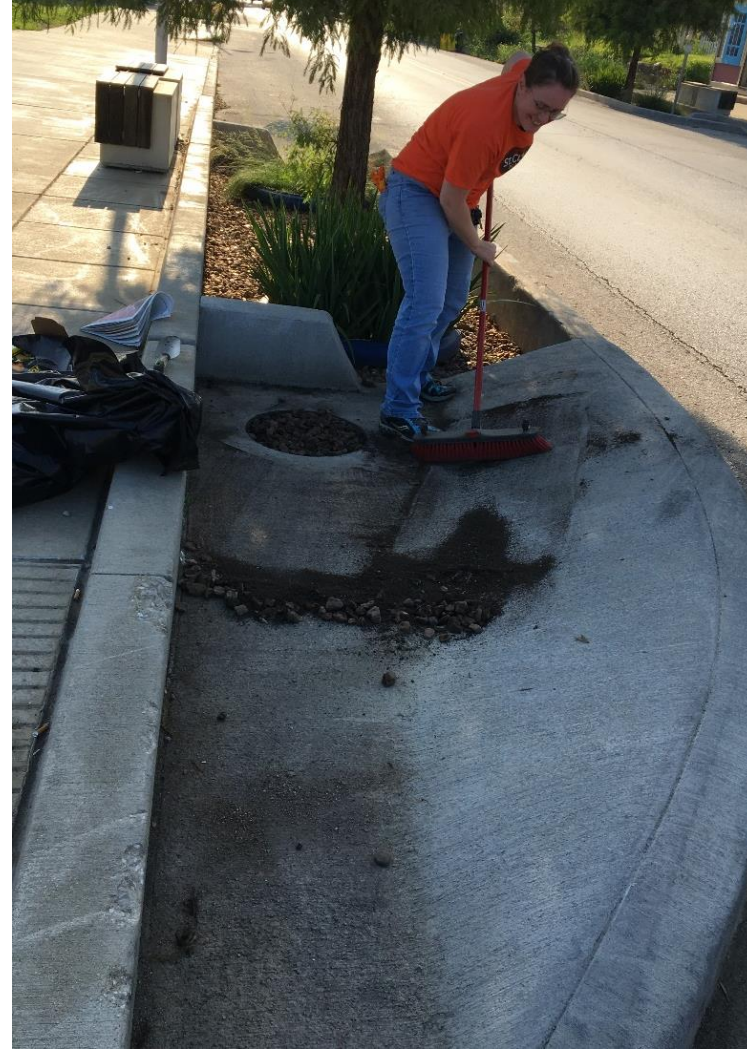
BEFORE + AFTER

Goals: improved safety + functionality



TOTAL PROJECT DELIVERY

Utilizing the expertise and foresight from our engineers, landscape architects, planners, scientists, business managers, and contractors, we provided our client with **Total Project Delivery**. We were a part of the project **from concept to construction + beyond** providing planning, public outreach, design, construction administration, installation, and maintenance. This product not only provides cohesion between all project phases, but **allows us to become an integral stakeholder, owning the project as if it was our own.**



MAINTENANCE TRAINING + PARTNERSHIPS

Reconnecting to Our Waterways (ROW) Greenspace Maintenance Training
Adopt-A-Block Program
Neighbors, Business Owners, Corporate Sponsors

NATIONAL APARTMENTS

“Williams Creek has brought both a comprehensive knowledge of sustainable practices and an understanding of how to apply them so they work from a developer’s perspective. The Williams Creek Team has allowed our development firm to be on the leading edge in creating environmentally friendly developments in a practical and economical fashion. They are an integral part of our development team and clearly add significant value to both the construction process and final product.”

Mike Higbee
President, DC Development Group

2012 City of Indianapolis Sustainability Award Winner

Removes 2.3M gal. of stormwater runoff from combined system annually

Gross **cost savings of approximately \$120,000** and **nearly 45%** to the developer



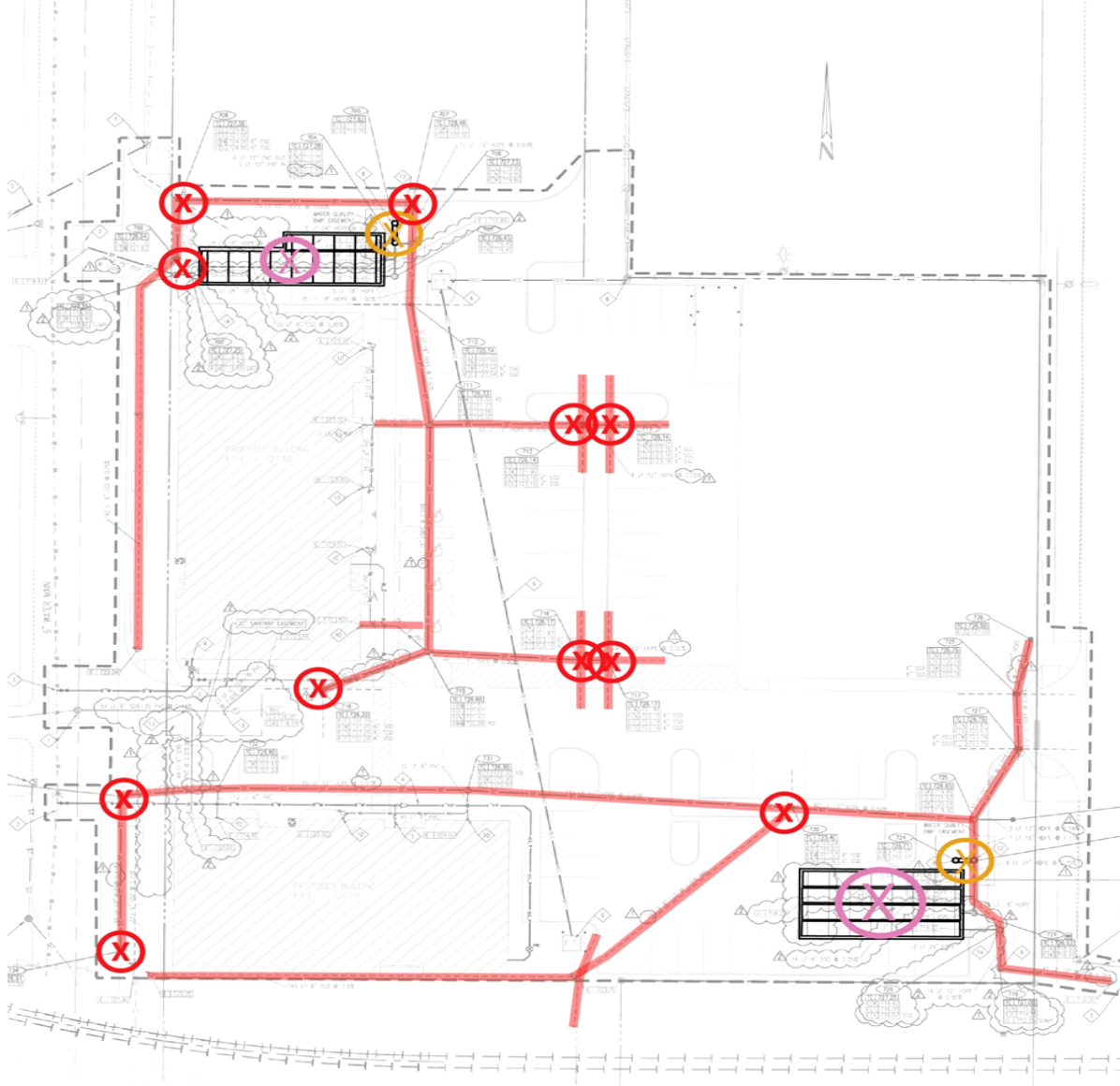


NATIONAL APARTMENTS

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LEGEND

Eliminated Pipe = 1,000 ft.

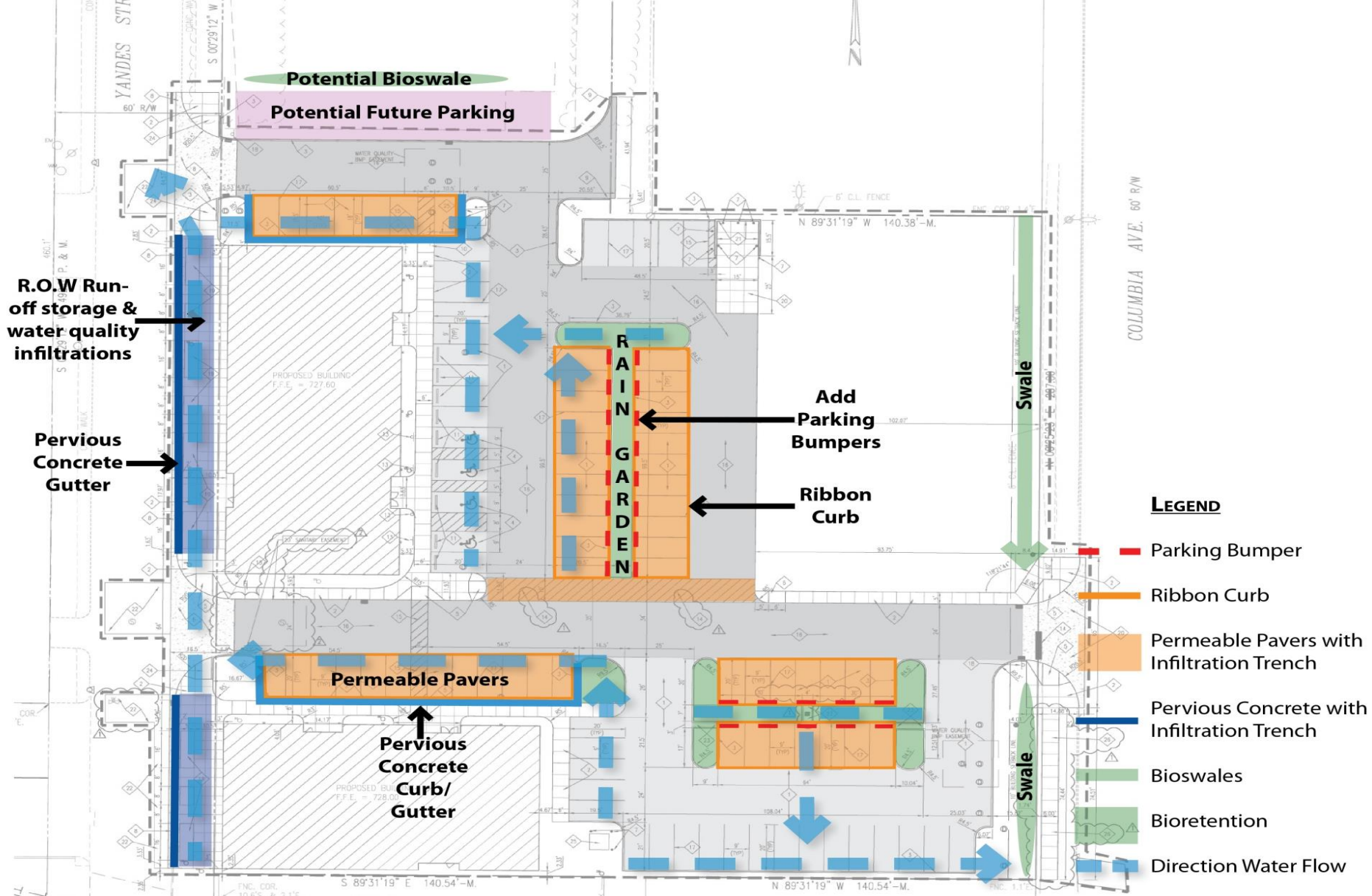
Stormwater Inlet Eliminated

Eliminated two pre-manufactured mechanical stormwater separator units

Eliminated underground detention = 9,200 cubic feet

FINANCIAL DATA

Eliminated traditional “grey” infrastructure



FINANCIAL DATA

Added **green** infrastructure

	Traditional Option National Apartments Site Redevelopment					Sustainable Infrastructure Option National Apartments Site Redevelopment			
	Quantity	Unit	\$/Unit	\$		Quantity	Unit	\$/Unit	\$
Storm Manhole	14	ea	2300	\$ 32,200.00		2	ea	2300	\$ 4,600.00
Catch Basin	3	ea	650	\$ 1,950.00		2	ea	650	\$ 1,300.00
Curb Inlet	12	ea	1500	\$ 18,000.00		0	ea	1500	\$ -
12" RCP Storm (Yandes R.O.W.)	63	lf	55	\$ 3,465.00		0	lf	55	\$ -
12" HDPE storm sewer	522	lf	44	\$ 22,968.00		0	lf	44	\$ -
15" HDPE storm sewer	238	lf	50	\$ 11,900.00		0	lf	50	\$ -
18" HDPE storm sewer	144	lf	58	\$ 8,352.00		0	lf	58	\$ -
24" HDPE storm sewer	33	lf	75	\$ 2,475.00		0	lf	75	\$ -
6" SSD	440	lf	20	\$ 8,800.00		0	lf	20	\$ -
8" SSD	246	lf	24	\$ 5,904.00		446	lf	24	\$ 10,704.00
4" Concrete Walk	0	sf	5	\$ -	no change	0	sf	5	\$ -
Concrete Curb & Gutter (only length converted)	330	lf	12	\$ 3,960.00		0	lf	12	\$ -
Pervious Concrete curb & gutter	0	lf	26	\$ -		506	lf	26	\$ 13,156.00
Integral Curb/Walk (per lf savings for conversion to reg walk)	176	lf	2	\$ 352.00		0	lf		
18" Straight curb (only length converted to ribbon)	322	lf	16	\$ 5,152.00		0	lf	16	\$ -
Ribbon Curb	0	lf	15	\$ -		850	lf	15	\$ 12,750.00
Additional Parking Bumpers	0	ea	60	\$ -		36	ea	60	\$ 2,160.00
Concrete Sidewalk/landscape planter section					no change				
Premium Landscaped Rain Garden	0	sf	10	\$ -		800	sf	10	\$ 8,000.00
Subsurface Storm Chamber Storage System	0.24	ac-ft	250,000	\$ 60,000.00		0	ac-ft	250,000	\$ -
Swirl chamber BMP	2	ea	18,000	\$ 36,000.00		0	ea	18,000	\$ -
Light Duty Asphalt pvt (converted area only)(3.5" section @ \$90/ton)	10,120	sft	1.93	\$ 19,531.60		0	sft	1.93	\$ -
Permeable Paver Section	0	sft	6	\$ -		10,120	sft	6	\$ 60,720.00
Add'l Stone Storage under Permeable Paver Section for Water Qual	0	cft	1.5	\$ -		10,150	cf	1.5	\$ 15,225.00
Earthwork		cyd			no change		cyd		
				\$ 241,009.60					\$ 128,615.00
Potential Sustainable Infrastructure Savings				\$ 112,394.60					

FINANCIAL DATA



NATIONAL APARTMENTS

COST: *GI is expensive. How can my community afford it?*

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MAINTENANCE: *GI is difficult to maintain and more expensive.*



1 PM



5 PM

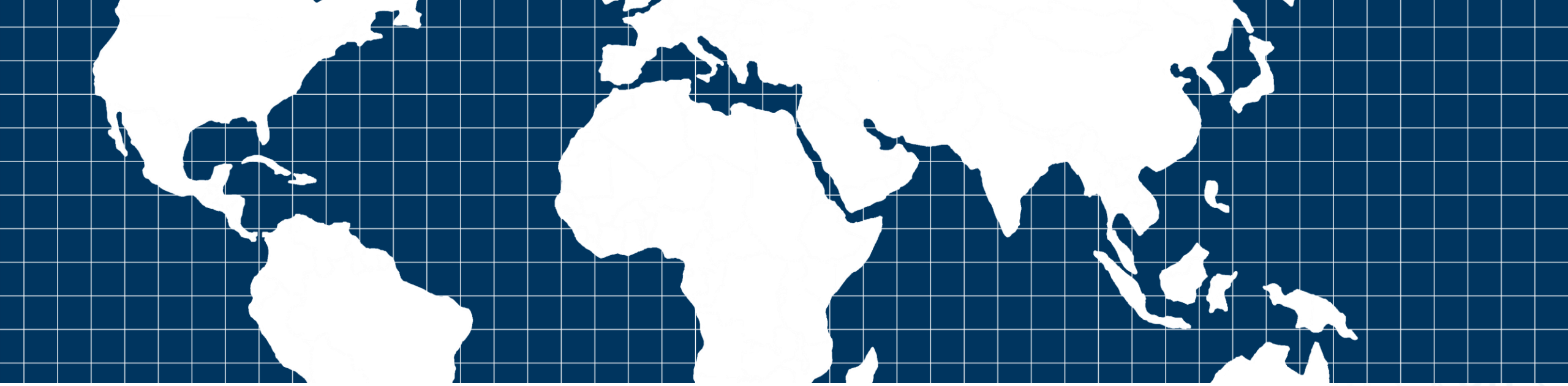
3" RAIN EVENT



3" RAIN EVENT



3" RAIN EVENT



Jim Rinehart, PE, CPSEC, CFM
Director of Operations
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QUESTIONS? CONTACT US

FROM OUR HEADQUARTERS IN INDIANAPOLIS, INDIANA, WE SERVE CLIENTS WORLDWIDE