

Opportunistic Conservation Design: Montgomery Village Hall – A Case Study in Matching Conservation Design with Project Conditions

**IAFSM 2009 Annual Conference
March 11, 2009**

Speakers:

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Engineering Enterprises, Inc.

On behalf of the Village of Montgomery



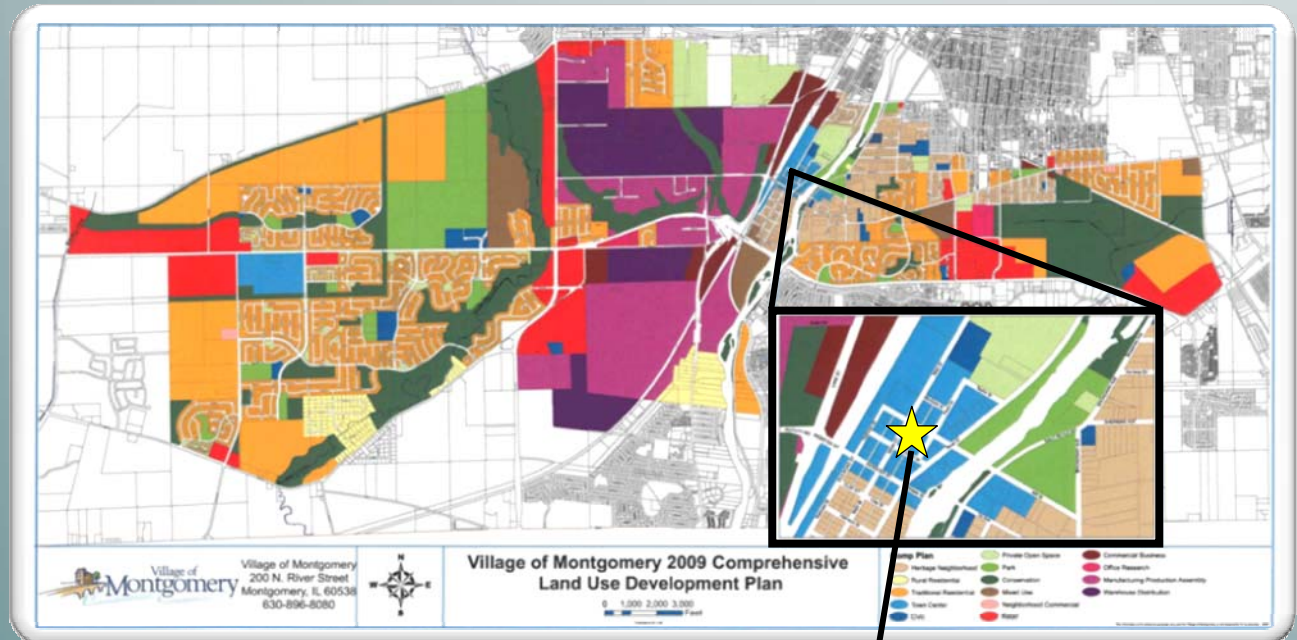
Presentation Outline

1. Village Objectives
2. Site and Project Conditions
3. Conservation Design Challenges
4. Principles Throughout the Process
5. Summary



Village of Montgomery

- Located in Northeastern Illinois in Kane and Kendall Counties
- On the Fox River
- Rapid Growth
 - 5,471 – 2000 Census
 - 16,100 – 2008 Special Census



Village Hall

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Village of Montgomery Conservation Design Objectives

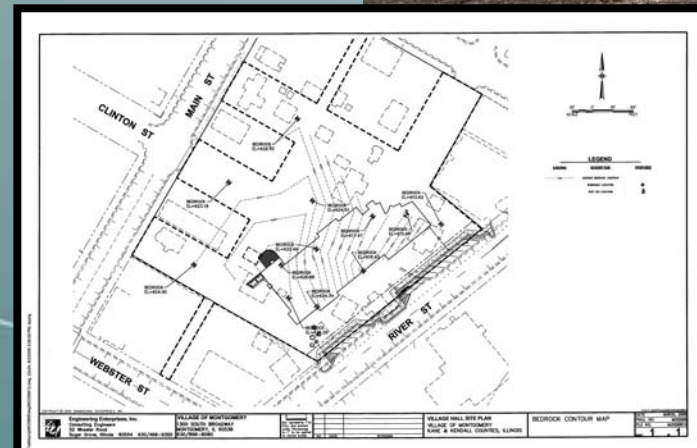
- Incorporate Conservation Design into Village Hall
- Lead by Example
- Educate and Encourage Business Community and Residents
- Set Stage for Downtown Redevelopment Vision



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Site and Project Conditions Influencing Design

- Site Geology and Topography
- Project Budget
- Vision for Building, Site, and Downtown
- Maintenance Concerns
- Existing Drainage Issues
- Adjacent and Shared Land Uses



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Montgomery Downtown



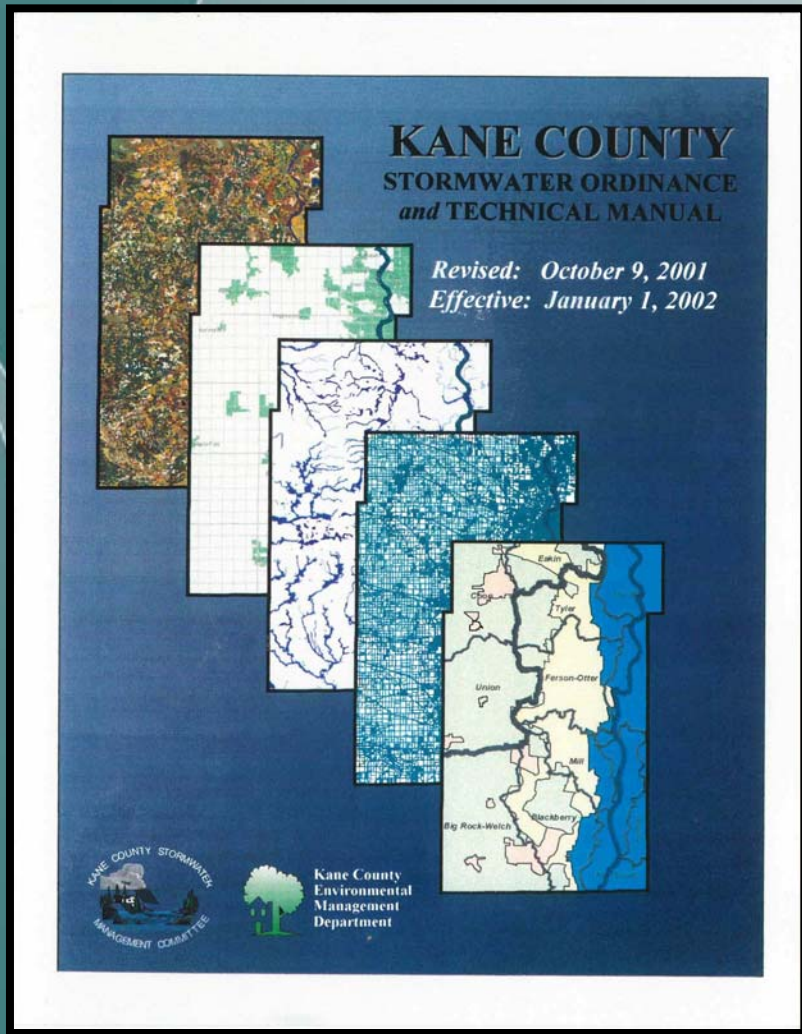
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Conservation Design Challenges

- Design and Ordinance Issues
- Opportunities to Incorporate Conservation Design
- Best Management Practices (BMPs)
- Construction Process



Design and Ordinance Issues



- Detention in Void Spaces
- Retention in Rain Garden
- Infiltration
- Fee-in-Lieu of Storage

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Opportunities to Incorporate Conservation Design

- Using BMPs to Enhance Other Design Elements
 - Permeable Paver Patterns
 - Native Vegetation
- Melding Conservation and Traditional Design
 - Pavement and Pavers
 - Rain Garden and Raised Parking Islands
- Looking for Unique Opportunities
 - Water Feature



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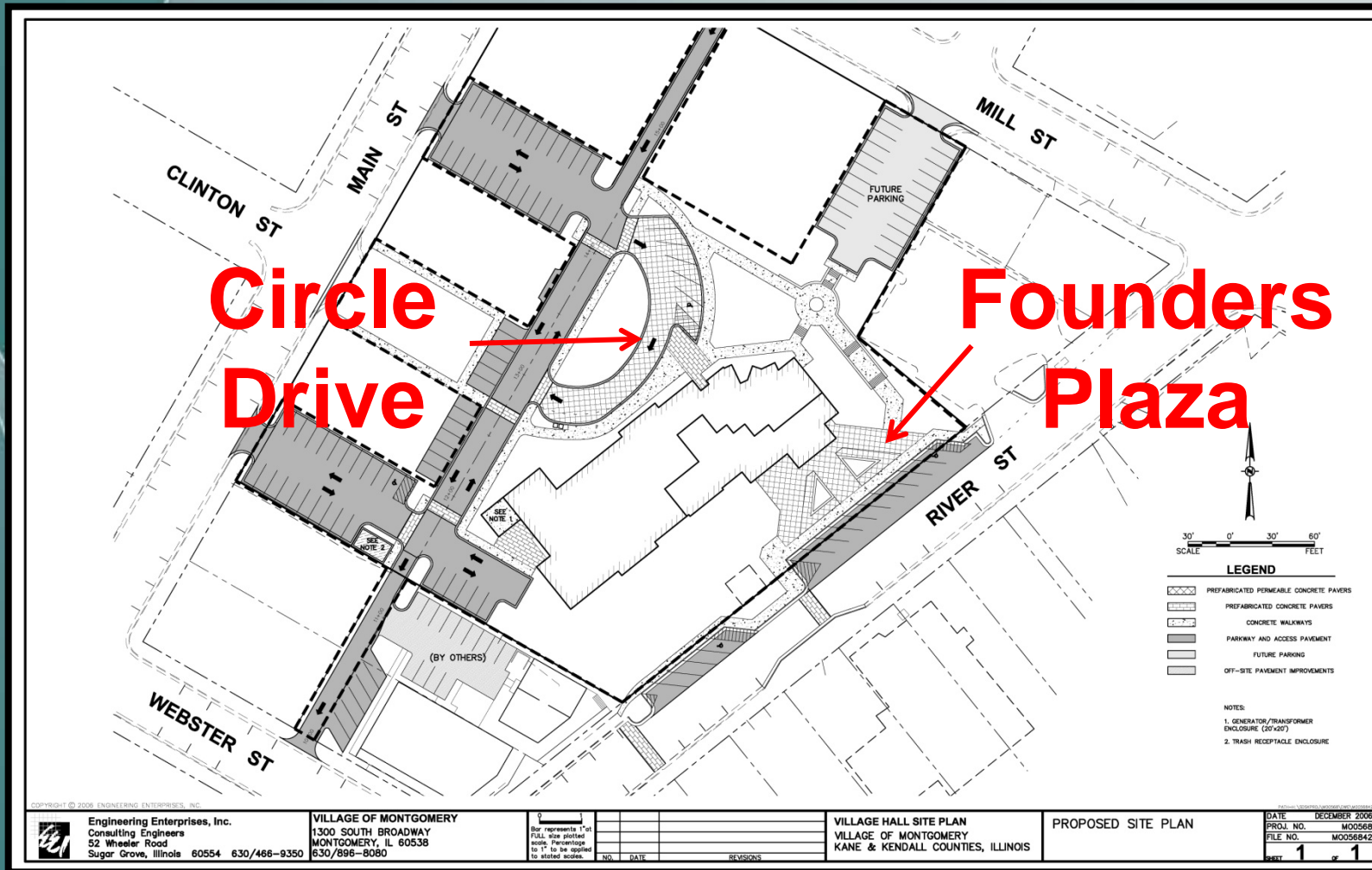
BMPs

- Rain Garden
- Permeable Pavers
- Dry Wells and Perforated Storm Sewers
- Detention Storage in Parking Lot Sub-Base
- Native Vegetation
- Fee-in-Lieu to Address Downtown Drainage



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Site Layout



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Site BMPs



MONTGOMERY VILLAGE HALL Montgomery, Illinois



MILL DISTRICT MASTER PLAN



PREPARED FOR:
Village of Montgomery
1300 South Broadway
Montgomery, IL 60538

PREPARED BY:

SCHOPPE DESIGN ASSOCIATES, Inc.
Landscape Architecture and Land Planning

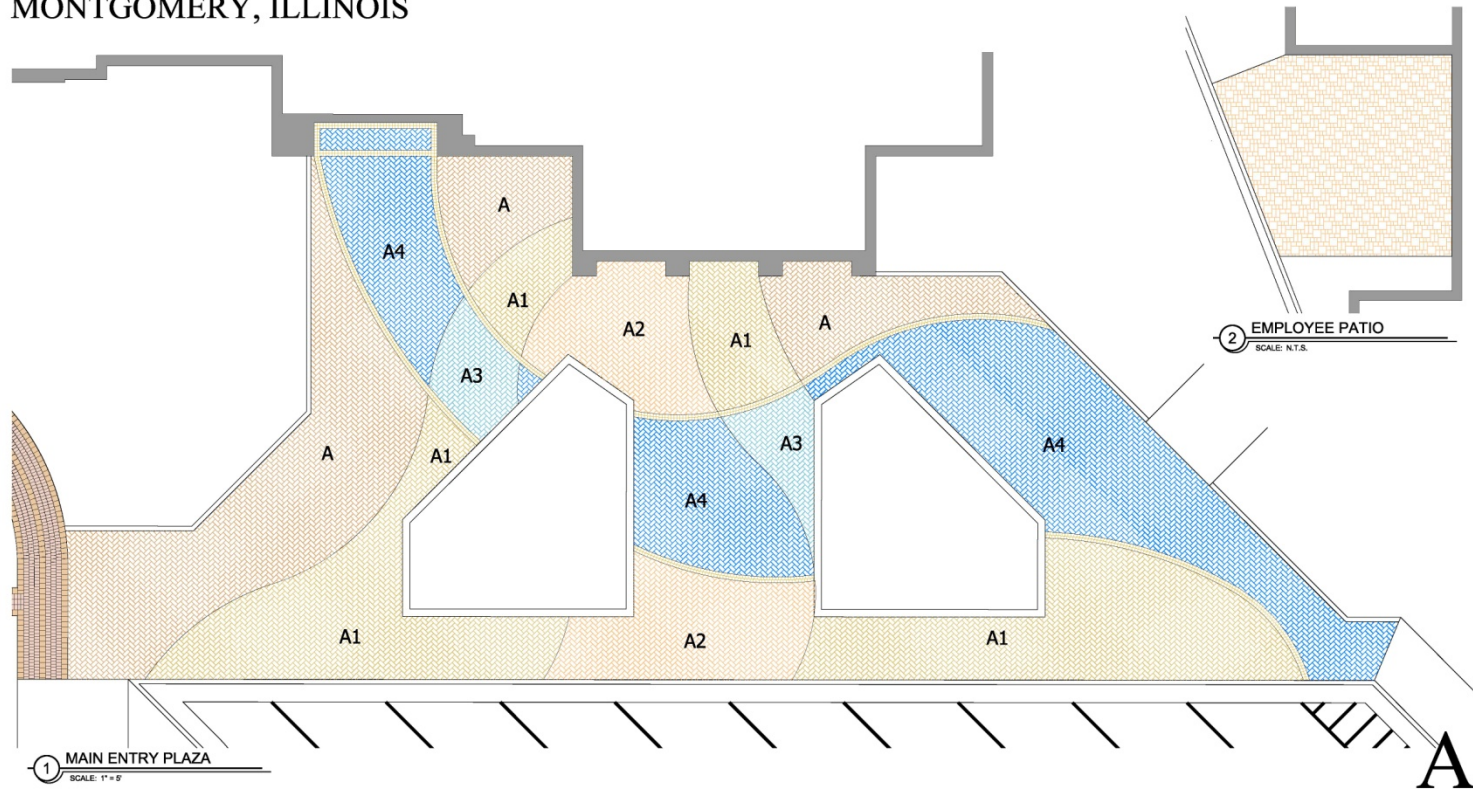
126 S. MAIN STREET PH. (630) 551-1355
OSWEGO, IL 60543 FAX. (630) 551-3819

SDA

Permeable Pavers

MONTGOMERY VILLAGE HALL

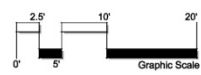
MONTGOMERY, ILLINOIS



1 MAIN ENTRY PLAZA
SCALE: 1" = 5'

2 EMPLOYEE PATIO
SCALE: N.T.S.

MAIN ENTRY
PAVER STUDY



North
Date: 06-25-2008
Scale: 1" = 5'

PREPARED FOR:
Village of Montgomery
1300 South Broadway
Montgomery, IL 60538

PREPARED BY:
sda
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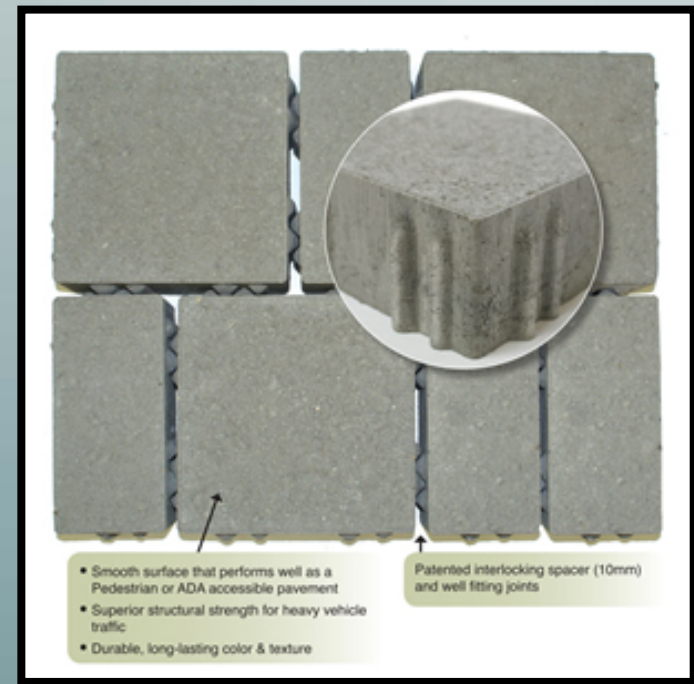
Permeable Pavers

Eco-Priora™

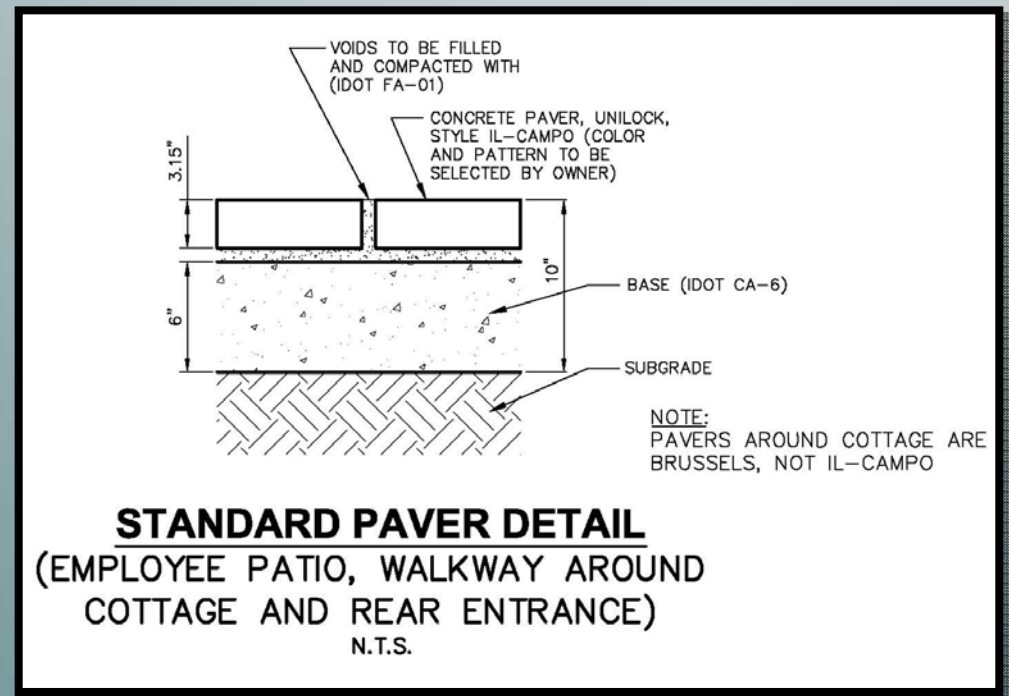
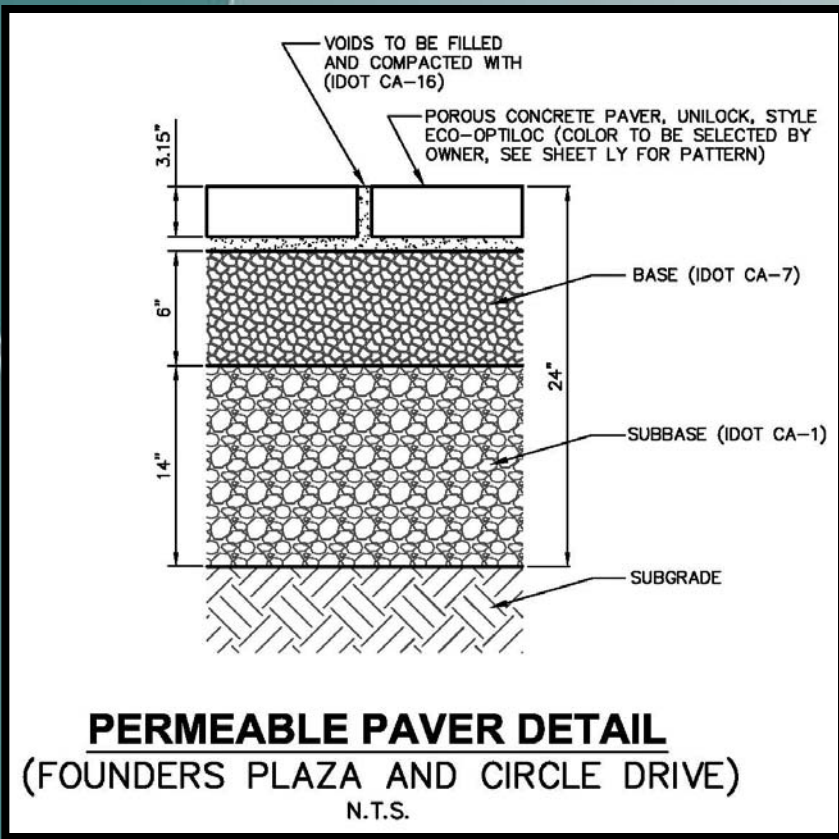


Architectural design with engineered performance.

Eco-Priora is the latest introduction into the permeable paving stone market. Combining engineering performance with architectural design requirements, Eco-Priora fills the gap that previously existed. Available in multiple shapes, this new permeable paver is also produced using face-mix technology that will increase the durability of the product and provide better color retention. Custom colors and finishes are available to offer unlimited design possibilities. Combined with a surface infiltration rate of up to 140 inches per hour, Eco-Priora provides both aesthetics and performance.



Permeable Pavers



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Permeable Pavers



6/21

Permeable Pavers



521

Permeable Pavers

- Permeable Pavers Installed at \$95/yard
- Asphalt Installed at \$45/yard
- Significant Cost Factors
 - Architectural Permeable Pavers
 - Depth of Excavation and Stone for Detention Layer



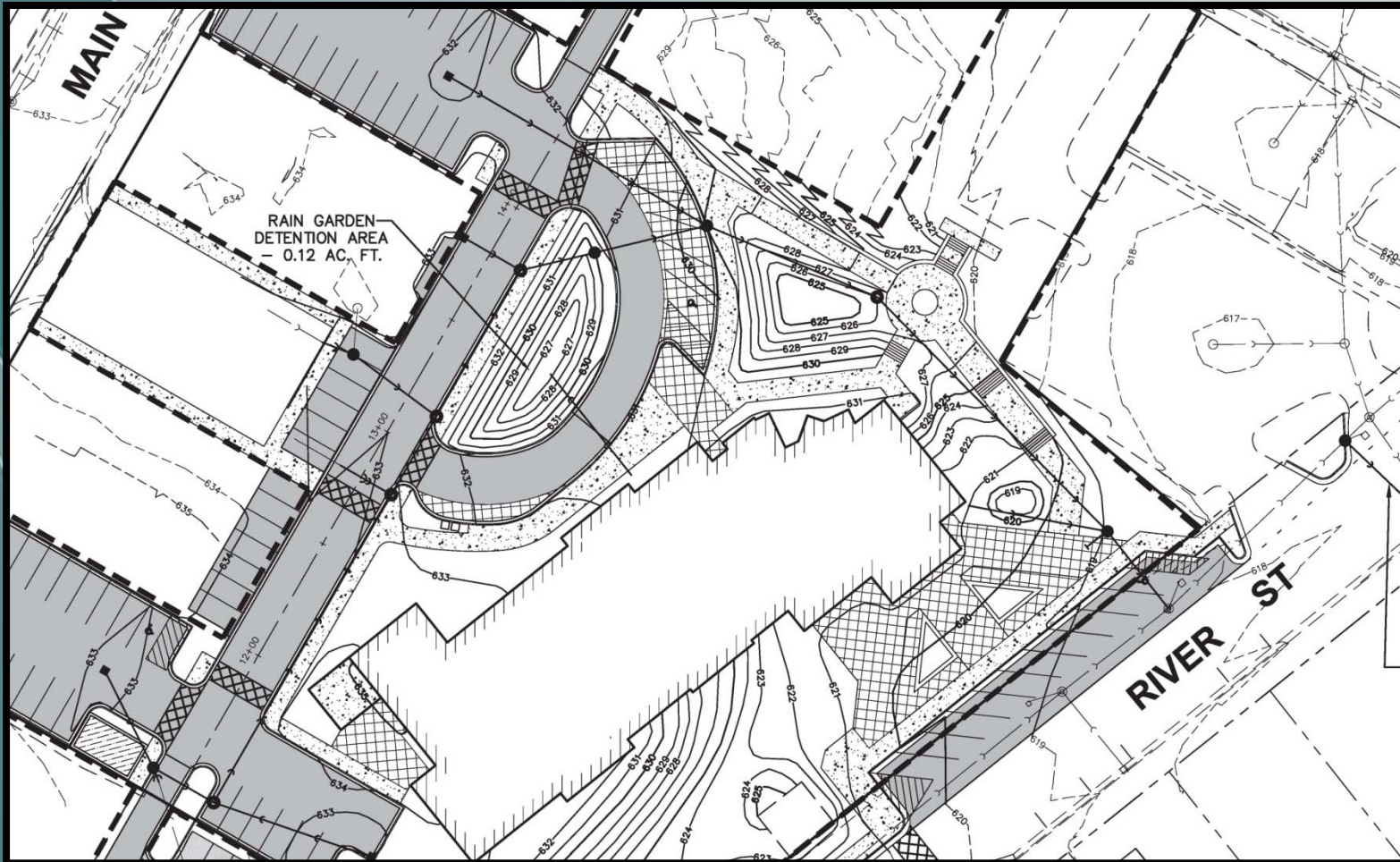
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Permeable Pavers



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Rain Garden/Water Feature



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Rain Garden/Water Feature



6/21

Rain Garden/Water Feature



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Rain Garden/Water Feature



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Introducing Conservation Design Principles Throughout the Process

- Concept Plan to Final Design and Construction
- Working With Village Staff
- Educating Village Leaders
- Community Education

 Stormwater Management

Village of Montgomery

VILLAGE HALL SITE PLAN REVIEW

The Village of Montgomery
Kane and Kendall Counties, IL

COMMITTEE OF THE WHOLE PRESENTATION
MARCH 18, 2008

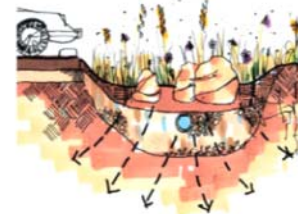


Consulting Engineers
Specializing in Civil Engineering
and Land Surveying

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Conservation Design

Bioswale



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Educating Village Leaders

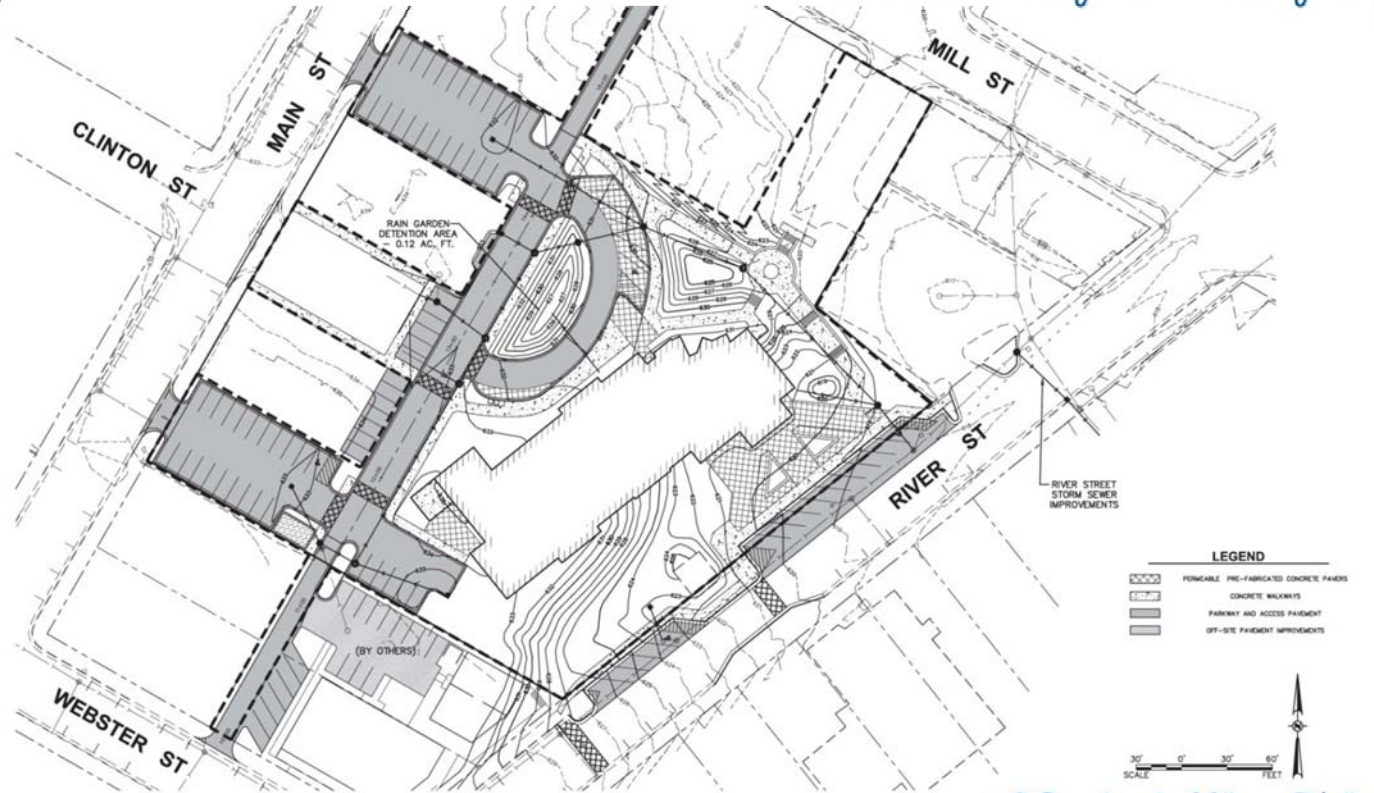
A Site for the Village Hall

Village of Montgomery - February 15, 2007



Prepared in cooperation by
Engineering Enterprises, Inc.
Houseal Lavigne Associates
Schoppe Design Associates

Stormwater Management & Grading Plan



A Site for the Village Hall

Village of Montgomery - February 15, 2007

Stormwater Runoff & Drainage

The Village will employ a variety of stormwater Best Management Practices (BMPs) to handle the stormwater management for the Village Hall Project.

To support one of our key strategies for stormwater management, maximizing the infiltration of runoff, the plan incorporates infiltration BMPs throughout the site. Parking areas will drain to 'drywell' inlets. These 'drywell' inlets allow infiltration, through holes in the side of the inlet and an open bottom, into a gravel layer and then into the subsoil. In addition, the storm sewers between the parking areas will be perforated pipe to allow further infiltration. A portion of the site will drain to a small Rain Garden detention area, which provides some detention/retention volume and promotes infiltration. In addition, to the runoff reduction provided by these infiltration BMPs, they also provide a significant water quality benefit by filtering the pollutants from the parking areas.

The plan also incorporates permeable pavers at several locations as an additional infiltration BMP. The permeable pavers...

Community Education



Montgomery Village Hall
October 2008



 **Engineering
Enterprises,
Inc.**

 **sda**





Community Education

The site selected for the new Montgomery Village Hall was the center of the Village's original business district along the Fox River in what is now known as the Montgomery Mill District. Located on the west side of River Street between Webster and Mill Streets, the site was designed to not only serve as a municipal facility, but also as a gathering place for public functions and as the anchor for redevelopment of the downtown. In an effort to lead this redevelopment by example, the Village elected to utilize conservation design throughout the site, including permeable pavement, rain gardens and naturalized plantings. The intricate landscaping design, extensive site amenities and decorative lighting will guide the downtown redevelopment for years to come and serve as the aesthetic center piece for the community. Engineering Enterprises, Inc. and Schoppe Design Associates are proud to have provided engineering and design services for the design and construction of the site improvements.

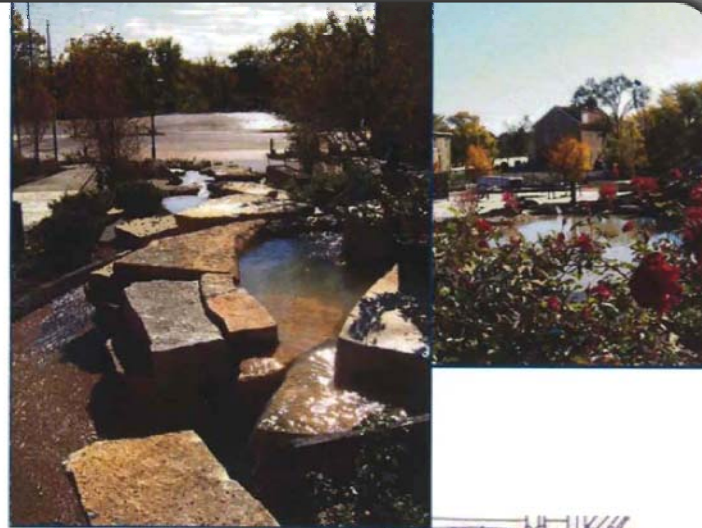


Permeable Pavement:

Permeable pavement allows surface water to pass through and percolate back into the ground. At the Village Hall, the Founder's Plaza and the circle drive at the west entry are constructed of permeable pavers; using permeable pavement in these areas reduced stormwater runoff and also served as detention facilities for the Village Hall.



Permeable Pavers, Green Alley Handbook, Chicago Department of Transportation



Rain Garden, Green Alley Handbook, Chicago Department of Transportation

Rain Gardens:

Rain gardens serve as attractive detention facilities that reduce site runoff and recharge groundwater. At the new Village Hall, a rain garden is used to collect water from the gutter downspouts providing detention while also serving as another decorative element of the site design.

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Keys to Meeting Multiple Objectives

- Identify Stakeholders and Concerns Upfront
- Village Staff and Board Expectations
- Maintenance Concerns
- Aesthetic Concerns
- Economic Objectives



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Keys to Opportunistic Conservation Design

- Education at All Stages
- Willing Partners
- Look for Unique Opportunities
- Flexible Design Criteria to Fit into Project
- Mix BMPs into Conventional Projects



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Keys to Opportunistic Conservation Design



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Thank You for Your Time



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