



# Green Infrastructure & Stormwater Management CASE STUDY

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## Amery Regional Medical Center

**Location:** Amery, WI

**Client:** Amery Regional Medical Center - CEO Mike Karuschak, Jr.

**Design Firm(s):** Emmons & Olivier Resources, Inc.

**Landscape architect/Project contact:** Kevin Biehn, ASLA

**Email:** [kbiehn@eorinc.com](mailto:kbiehn@eorinc.com)

**ASLA Chapter:** Minnesota, Wisconsin

### Project Specifications

**Project Description:** Reflecting the client's mission "to provide ... quality healthcare and to promote the health and wellness of our community", this project incorporated low impact development principles and sustainable stormwater management for a rural, regional medical facility. Located adjacent to the Apple River and as a listed 'Area of Special Natural Resource Interest' by WisDNR, the site required stricter setbacks, erosion control, and stormwater management. The project's integrated approach created an ecologically enhanced environment that met the client's mission, increased community environmental awareness and holistic health, and provided a regional precedence for the adoption of sustainable site design and landscape architecture.

#### Project Type:

Institutional/education

Part of a new development

**Design features:** Bioretention facility, rain garden, bioswale, green roof, infiltration basins, and porous firelane - grasspave.

#### This project was designed to meet the following specific requirements or mandates:

State statute, county ordinance, developer/client preference

**Impervious area managed:** greater than 5 acres

**Amount of existing green space/open space conserved or preserved for managing stormwater on site:** greater than 5 acres

**The regulatory environment and regulator was** supportive of the project.

**Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements?** ARMC's mission is "to provide... quality healthcare and to promote the health and wellness of our community." A majority of ARMC's service area in Northwestern Wisconsin consists of rural areas and small towns, often attracting people from several miles away. Hospital leadership realized their new campus could enrich, or detract, from their mission, and could be a regional precedent for green building. As an extension of this mission, the facility's architect had convinced the owner to make ARMC a Green Guide for Healthcare (GGH) pilot project. GGH represents a sustainable design approach that acknowledges the challenges of balancing sustainable design with the unique demands of healthcare facilities. However, the owner recognized that the site plan did not receive equal attention as the building through the Concept and Design Development stages. The building embodied ARMC's mission but did not extend to the site or connect to the larger community. The landscape architects (LA) were then brought on the team to extend ARMC's mission into the landscape and community.

### **Cost & Jobs Analysis**

**Estimated Cost of Stormwater Project:** \$100,000-\$500,000 (Public funding: None - private foundation grant was received for overall hospital construction)

**Related Information:** All site work including - civil, stormwater, paving, landscaping, lighting, signage, outdoor amenities - \$375,000

**Was a green vs. grey cost analysis performed?** Yes, cost comparison at schematic design showed the "green" LID approach was slightly higher than the proposed "grey" approach. Cost comparisons were not performed during final construction.

**Cost impact of conserving green/open space to the overall costs of the site design/development project:** Large rain gardens, green roof, trails, and environmental amenities increased total costs slightly.

**Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)?** Slightly increased. Large scale rain gardens increased the cost slightly - compared to traditional pipe, pond, and turf strategy, but the benefits of a unique aesthetic and highly landscaped site provided the hospital with greater overall value.

**Number of jobs created:** Not available

**Job hours devoted to project:**

Planning and Design: 1,000

Construction: 160

Annual Maintenance: Not available

## Performance Measures

### Stormwater reduction performance analysis:

Existing conditions - fallow pasture and forest along the river completed, the stormwater management plan reduced both runoff volume and peak discharge rates compared to existing conditions for 2,10, and 100-year storm events.

Percentage of runoff produce and infiltrated: 1" storm event infiltrates 83% of runoff, 2-year storm - 80%, 10-year storm - 73%, and 100-year storm- 65%

**Community & economic benefits that have resulted from the project:** Elements of community and economic benefit include: a trail system along the Apple River with contemplative rest areas (open to public), a green roof on the 1<sup>st</sup> floor visible from 2<sup>nd</sup> story patient rooms, an overall campus identity created with bold native gardens (a main entrance into the City), and several environmental education features.

Local non-profits and government agencies continue to give tours and education sessions at ARMC as a precedent for low impact development. The owner had this to say about the completed project, "... I believe the medical center's campus has become a show piece not only for our community but for western Wisconsin as well. Since we have opened... we have had many other organizations visit our community to see what can be accomplished." Hospital staff voted to name the new cafe "The Raingarden Cafe" due to the impact of the site and stormwater system on their daily work and their patients health.

## Project Recognition

2010 Wisconsin Chapter - Design Merit Award

## Additional Information

Links to images: <http://www.eorinc.com/sustainable-site-design-low-impact.php>