



Green Infrastructure & Stormwater Management CASE STUDY

Siena K-8 School

Location: Meridian, ID

Client: Joint School District No. 2

Design Firm(s): The Land Group, Inc. / KVA Architects

Landscape architect/Project contact: Matthew T. Adams, RLA, ASLA

Email: matt@thelandgroupinc.com

ASLA Chapter: Idaho/Montana



Project Specifications

Project Description: The project is an elementary school, grades K - 8, with all parking and driveaisles constructed with pervious concrete paving. The site also contains a 4.51 acre play area reserved for green space/open space and acts to infiltrate stormwater. The pervious concrete provides drainage of all "hard surface" areas including roof drainage. In addition, the pervious concrete system was thickened at areas receiving heavy loads, such as bus lanes and fire department access roads. The entire pervious paved area was 117,864 sq/ft, 274 yards of

concrete (equating to 1,213,820 lbs of cement), 301,400 lbs of flyash and 50,984 gal of water were used for the pervious concrete.

Project Type:

Institutional/education

Part of a new development

Design features: Bioretention facility - pervious concrete was utilized in all parking and drive aisle areas.

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

Local ordinance

Impervious area managed: 1 acre to 5 acres

Amount of existing green space/open space conserved or preserved for managing stormwater on site: 1 acre to 5 acres

The regulatory environment and regulator was apprehensive about the project .

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? The client did not bring the issue up, but we brought the idea to the client and validated the new approach with the client.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$100,000-\$500,000 (Public funding: State, school district bond)

Related Information:

- Drain rock base - \$70,000
- Pervious concrete - \$210,000

Was a green vs. grey cost analysis performed? Yes – the estimated cost savings of approximately \$50,000 when compared to conventional asphalt and seepage bed construction.

Cost impact of conserving green/open space to the overall costs of the site

design/development project: The green spaces incorporated into the design were also utilized as play areas that would have been included into the project regardless of the type of hard surface stormwater system used.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Slightly reduced costs (1-9% savings).

Number of jobs created: 20-25 actively involved in construction

Job hours devoted to project:

Planning and Design: 240

Construction: 4,800

Annual Maintenance: 0

Performance Measures

Stormwater reduction performance analysis:

All stormwater upto a 500-year flood event is contained on site.

Community & economic benefits that have resulted from the project: Benefits to the community include reduced heat island effect, reducing A/C loads for the school, less noise in the area as pervious surfaces are quieter than conventional paving. The design also eliminates open swales for drainage increasing safety for children and reducing mosquito breeding areas.

Additional Information

Links to images:

<https://picasaweb.google.com/thelandgroupinc/SienaK8School?feat=directlink>

Additionally, the project has been used as a showcase project increasing the awareness of pervious concrete to the design community in this community as well as the entire western region through association with producers and the Ready Mix Concrete Association.