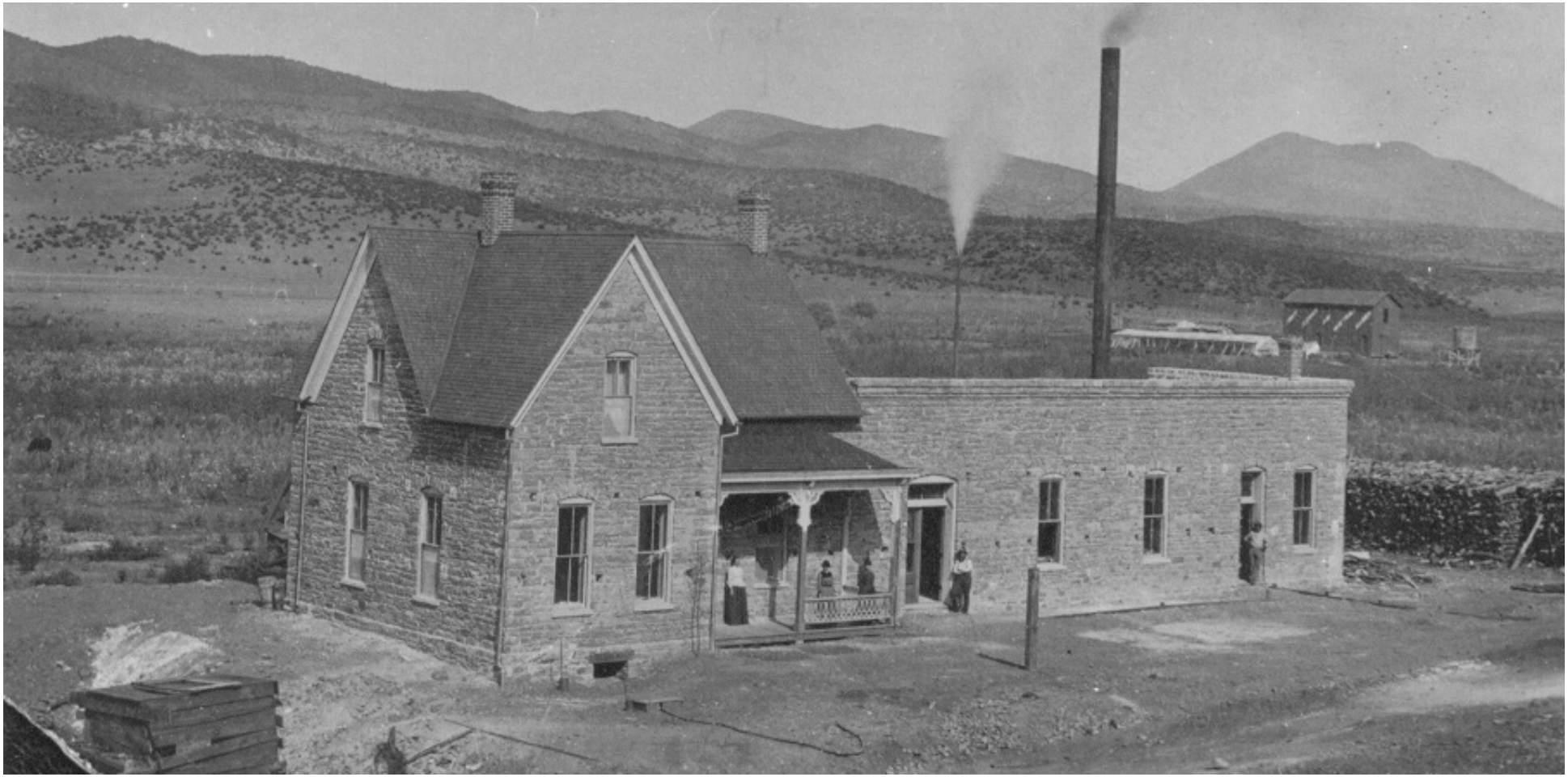


waterworks building

master plan study

Silver City, New Mexico

ACKNOWLEDGMENTS

We would like to thank Susan Berry, Nancy J. Cliff, the Gila Conservation Educational Center [GCEC] Board, and the Town of Silver City for their input and assistance in this design process.

DESIGN TEAM
RESOURCE CENTER FOR RAZA
Silver City Waterworks Master Plan
Summer 2008

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This publication has been undertaken by the School of Architecture and Planning at the University of New Mexico for educational purposes. The contents are intended to express ideas, concepts and visions and not as a basis for future physical design or planning.

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Table of contents

Context — 2

Existing Site Conditions — 4

Architectural Precedents — 6

Landscape Precedents — 9

Waterworks Design Schematic — 10

Architectural Program + Costs — 12

Waterworks Building — 14

Landscape — 22

Metal Education Building — 26

Learning Landscape — 32

Historic Preservation — 36

Sustainable Design Elements — 40

Material and Plants Design Elements — 44

Funding Opportunities — 46



Silver City

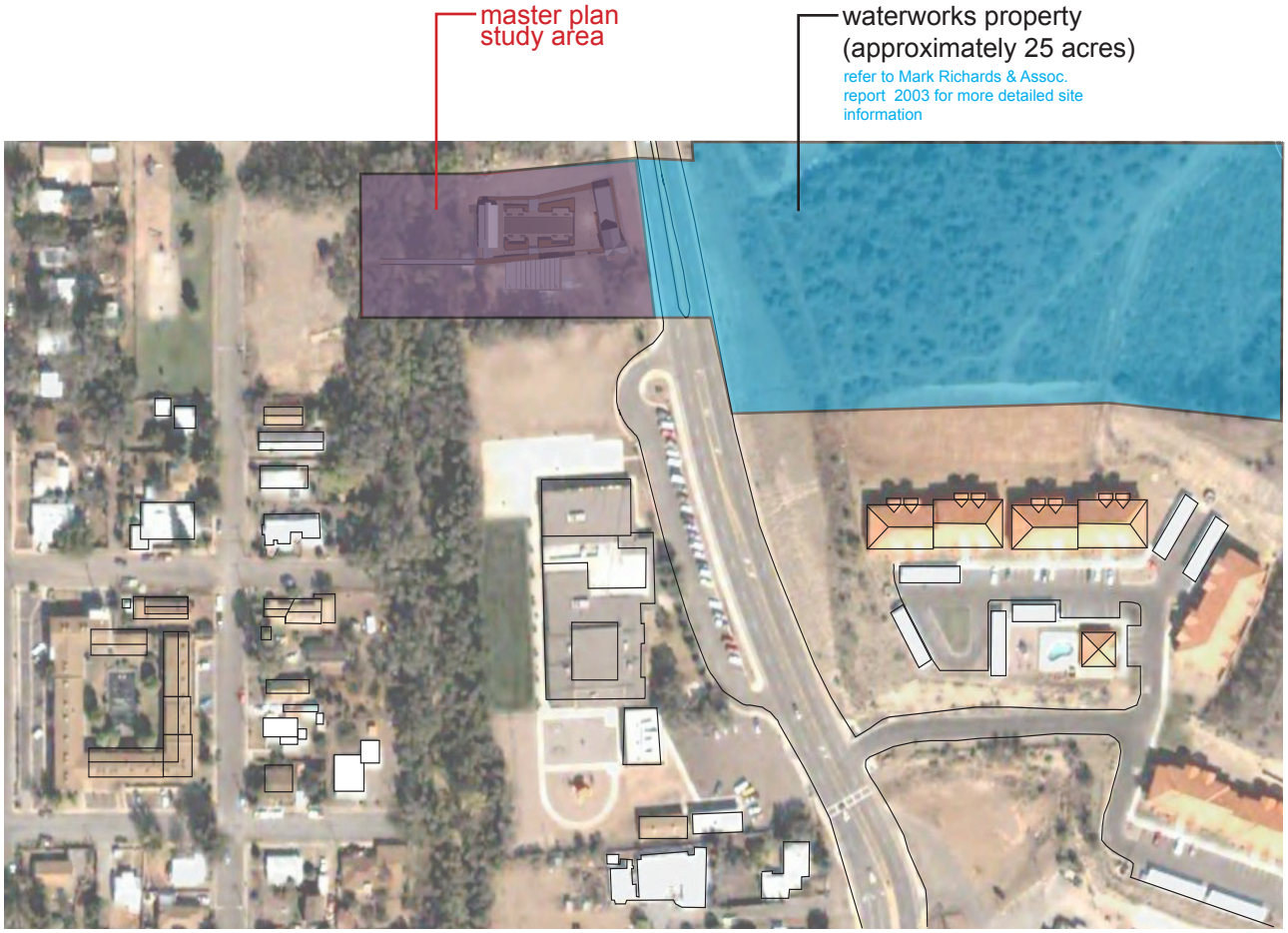
In partnership with the Town of Silver City, the University of New Mexico School of Architecture + Planning, and the Resource Center for Raza Planning developed a visioning study for adaptive reuse and rehabilitation of the town's Waterworks building.

The proposed master plan ties together both the existing historic structure and the metal shed building by designing an educational landscape that teaches about sustainability, local ecosystems and water conservation.

Preserving the Waterworks building as a relic allows residents and visitors to better understand the past function of the space. The landscape brings the flow of water back into the site as a teaching tool and a means of generating dialogue about both individual and community response to global climate change.

Adaptive reuse of the metal shed building creates a shared environment for educational programming and office space. The redesign of the metal building embodies conservation values, providing a new comfortable work and educational space that uses the natural environment and sustainable design to lighten the impact on the environment.

Taken together, the renewed activity on the site will help establish community linkages between the elementary school and the native garden across the ditch.



Water Works Site



View from the road



Looking from the Waterworks at the Shed Building



Looking East from the Shed Building



Waterpump



Looking North along the road

Finished Walls

Remove lath & plaster for inspection
Replace water damaged studs
Refinish walls disturbed by structural work
Refinish walls damaged by water/other
Refinish ceilings damaged by water/other
Paint finished walls and ceilings



Masonry Walls

Re-point masonry walls (interior)
Re-point masonry walls (exterior)



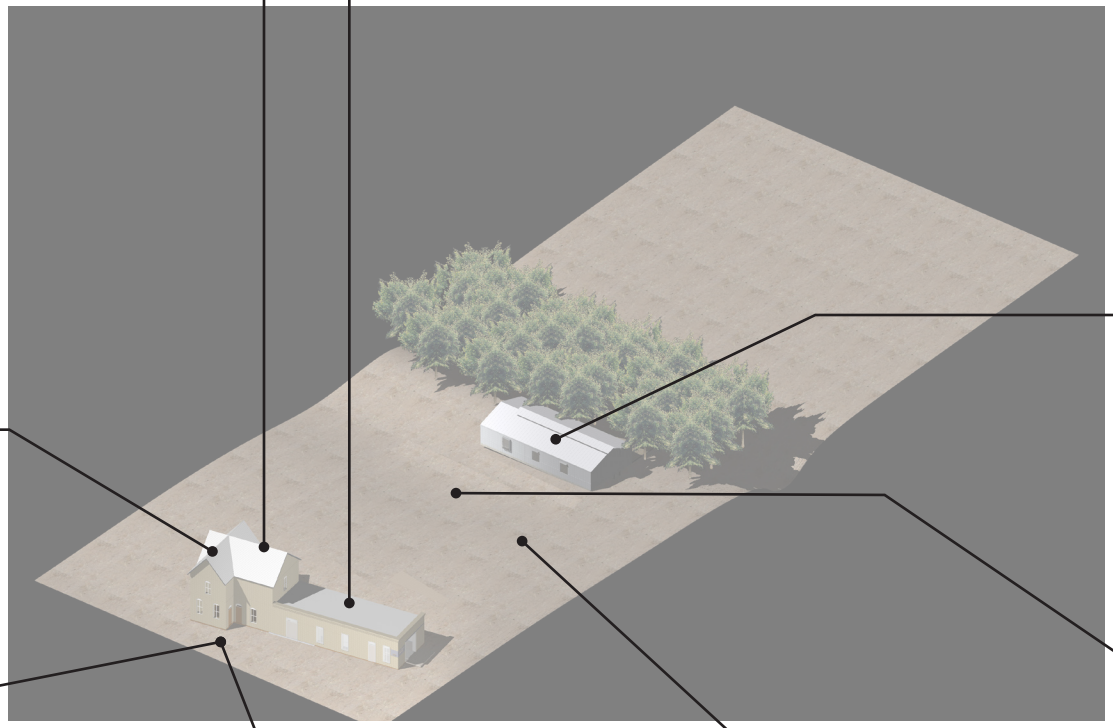
Pump Room

Demolish existing floor decking
Demolish existing floor joists
Demolish existing floor beams
Demolish existing floor support posts
Replace floor support posts
Replace floor support beam
Replace floor joists
Install joist bridging
Replace floor decking
Paint floors
Replace/repair balusters
Replace/repair railings
Re-point masonry walls (interior)
Re-point masonry walls (exterior)

Pumping Pit

Re-point masonry walls







Roof System

Repair/replace roof rafters
Demolish existing valley rafters
Replace valley rafters
Repair/replace roof rafters
Rafter splices
Repair/replace ceiling joists
Replace roof deck
Roofing lift
Shingle roof
Install gutters
Install downspouts



Shed

Refurbish walls (interior)

Refurbish walls (exterior)



Grading Site For Drainage



Basement

Re-point masonry walls
Shim or grout support posts
Replace/reconnect bridging
Build and install new basement stairs
Build and install new basement door
Construct foundation for support column

Construct support column for south chimney



Trash Removal From Site

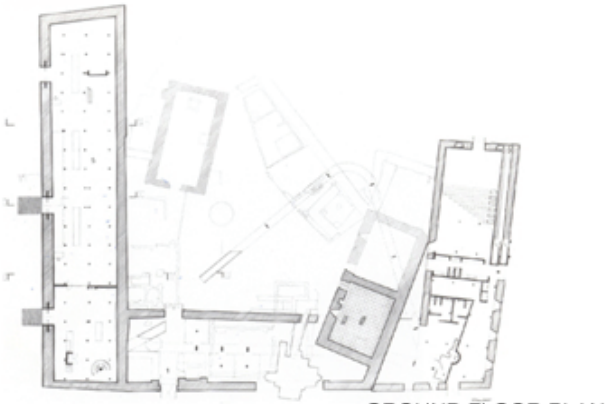
HADMARK CATHEDRAL MUSEUM
[MUSEUM]

Location: Hamar, Norway
Architect: Sverre Fehn

A collection of ruins (Archbishop's fortified palace, manor house) on an important medieval route have been rebuilt/completed using modern building techniques. This has been done in order to display artifacts connected with the place and to preserve and display the archaeology of the ruins themselves.

The buildings are penetrated by a concrete structure of ramps, platforms, balconies and rooms. The structure forms an elevated route giving the viewer an overview of revealed layers below and access to discreetly placed top-lit cells containing small historical artifacts.





GROUND FLOOR PLAN





MILL CITY MUSEUM
[MULTIPURPOSE MUSEUM]

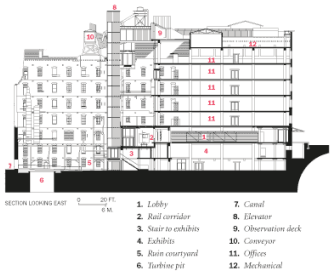
Location: Minneapolis, MN
Architecture: MS & R

The Mill City Museum's construction acts as a keystone to one the most technologically advanced 19th century grain mills in Minneapolis.

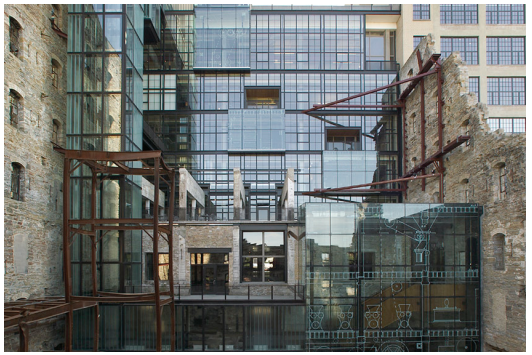
The collision of the new program and existing shell creates a dynamic spatial experience for the user. The occupants transcend between contemporary habitation, and industrial ruins.











TURTLE CREEK PUMP HOUSE

NATIVE LANDSCAPE GARDEM

Location: Dallas, Texas
Designer: MESA Design Group

Originally a pumping station supplying water to the Township of Highland Park, the Pump House is now a space for art, a venue for intellectual discussion, a temporary apartment, and playground. The project reflects the client's environmental values, and MESA, in collaboration with designer Julie Bargman of D.I.R.T. Studio, has worked closely with a native grass expert for advice on appropriate plant species. The team has designed a garden in the old south water tank and intensively planted it with native Texas grasses and perennials. A "splash basin" now stands in the north water tank; and a custom-designed, pervious paver and grass system is installed at the main driveway, the pattern carefully designed to prevent ladies heels from sinking into the grass. A garden has emerged from an industrial memory, Dallas's answer to Seattle's Gas Works Park and Pittsburgh's Mattress Factory.













ČUFARJEV SQUARE
MULTIFUNCTION SQUARE

Location: Jesenice, Slovenia
Designer: Scapelab

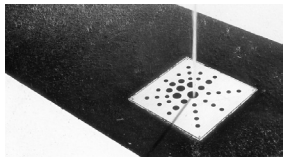
The restoration of Čufarjev Square began with the idea of creating a small public space. This, in turn, generated a transformation of the environment over the years. In spite of the square's small size, large-scale commitments are involved in the project with regard to the existing architecture, the urban link, the surrounding scenery, and the economic and social factors.

The square, surrounded by provides activities that link the surrounding public buildings. The new square is a flat, multi-use space with a traditional fountain placed away from surrounding objects.













Waterworks Site Design Schematic

Silver City, NM



Architectural Program

Proposed GCEC Program

Spaces	Square Feet
Offices	
Staff: 2 @ 100	200
Director	100
Copy Room	150
Conference Room	500
Kitchen	300
Bathroom	100
Storage	200
Total Square Footage	**1,550 s.f.**

Cost:

Educational Program

Spaces	Square Feet
Offices	
Staff: 2 @ 100	200
Copy Room	150
Classrooms	
2 @ 500	1000
Bathrooms	
2 @ 100	200
Storage	200
Total Square Footage	**1750 s.f.**

Approximate Cost:

Metal Building:

$150-$250 per square feet*

*approximation based on regional construction costs for similar building materials. A more accurate cost estimate would require construction documentation and building contractor assessment.

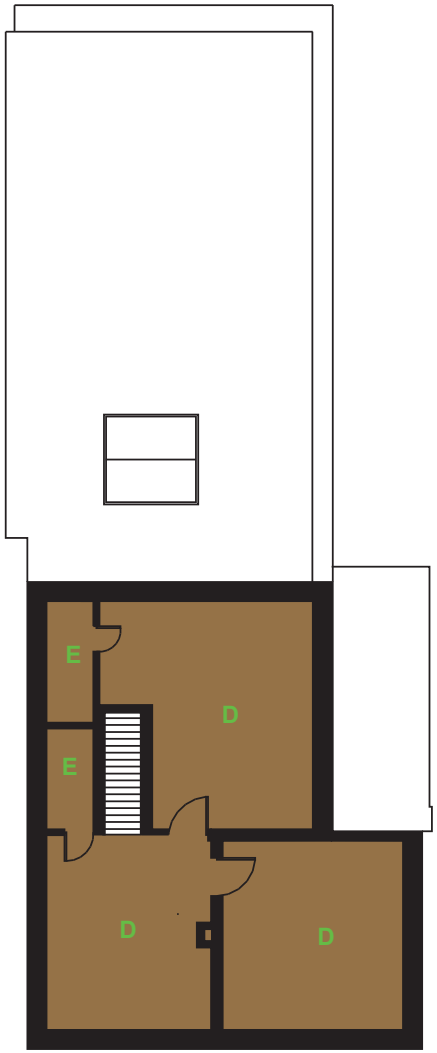
Approximate Cost:

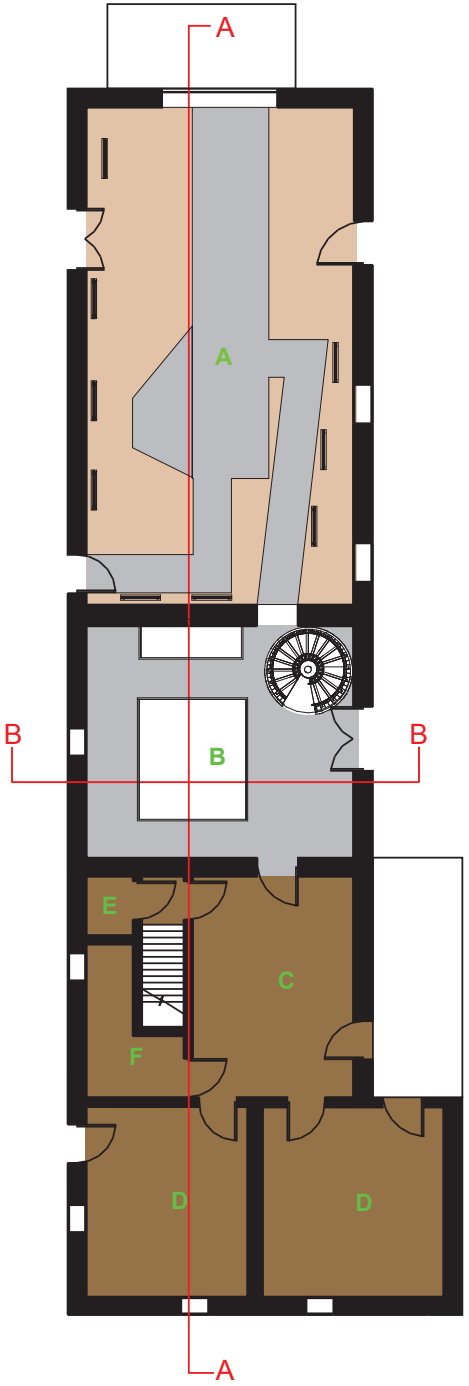
Waterworks Building:

due to complexities involved with on site historic restoration, a accurate assessment can not be made without approved architectural historic preservation construction documentation and review of licensed historic preservation contractor.

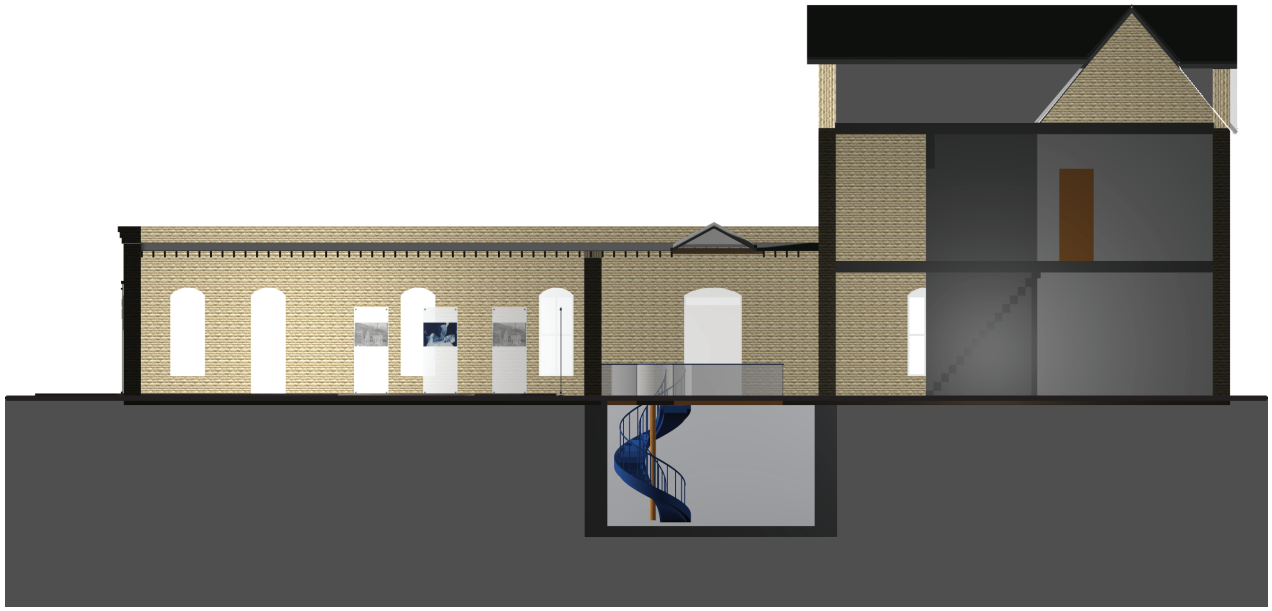
Waterworks Building


1887
waterworks
building

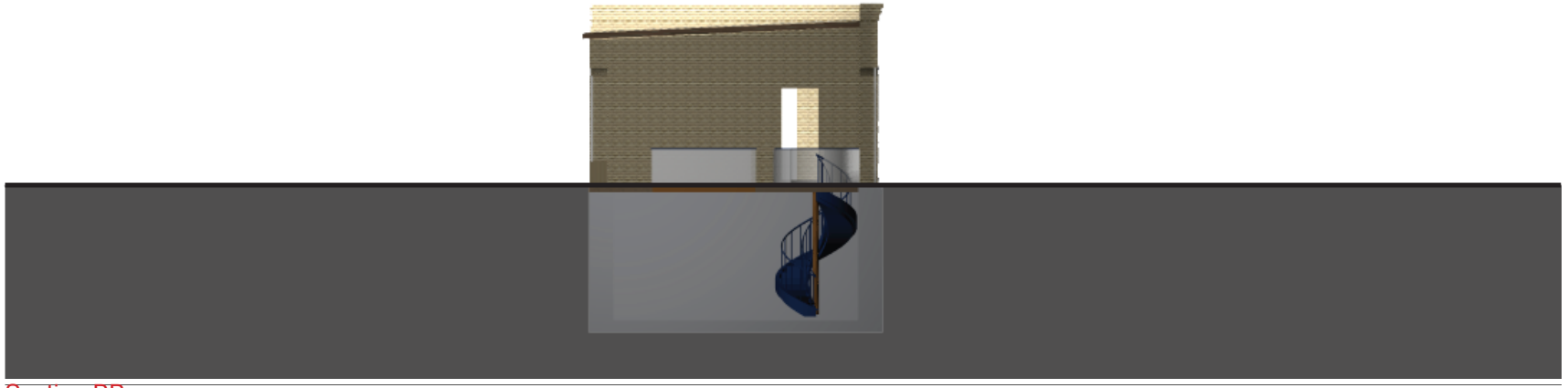




A. Boiler Room | Exhibit Space
B. Pump Room
C. Entry | Foyer
D. Office
E. Storage
F. Bathroom



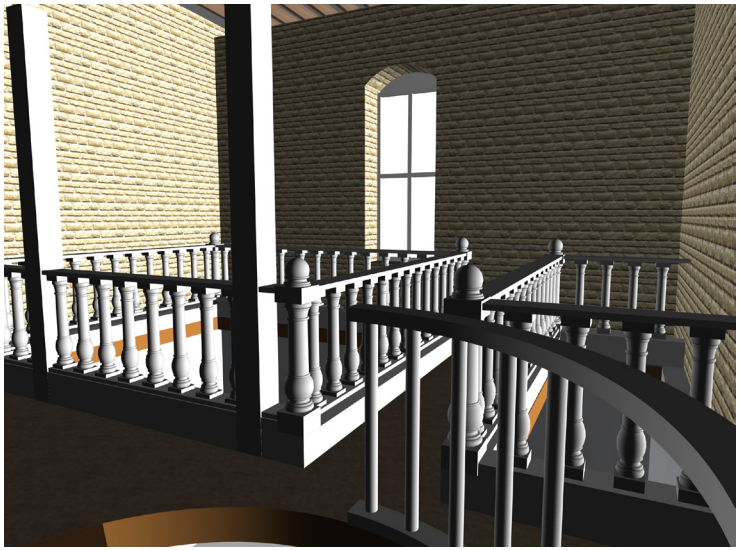
Section AA



Section BB



Perspective of Boiler Room



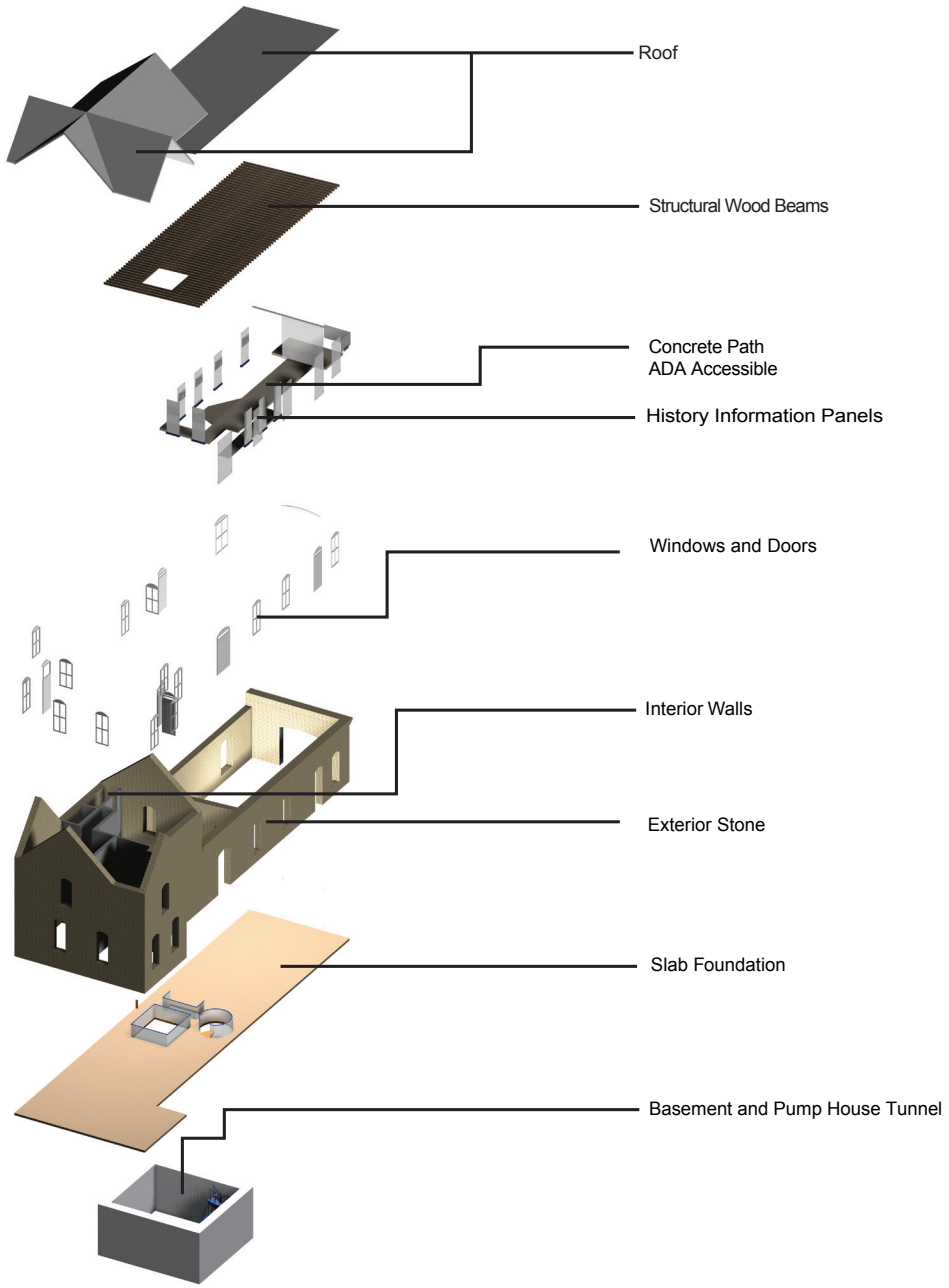
Perspective of Pump Room



Perspective of Boiler Room and Entry



Entry Perspective


Roof
Structural Wood Beams
Concrete Path
ADA Accessible
History Information Panels
Windows and Doors
Interior Walls
Exterior Stone
Slab Foundation
Basement and Pump House Tunnel



Perspective of renovative office
in Waterworks Building

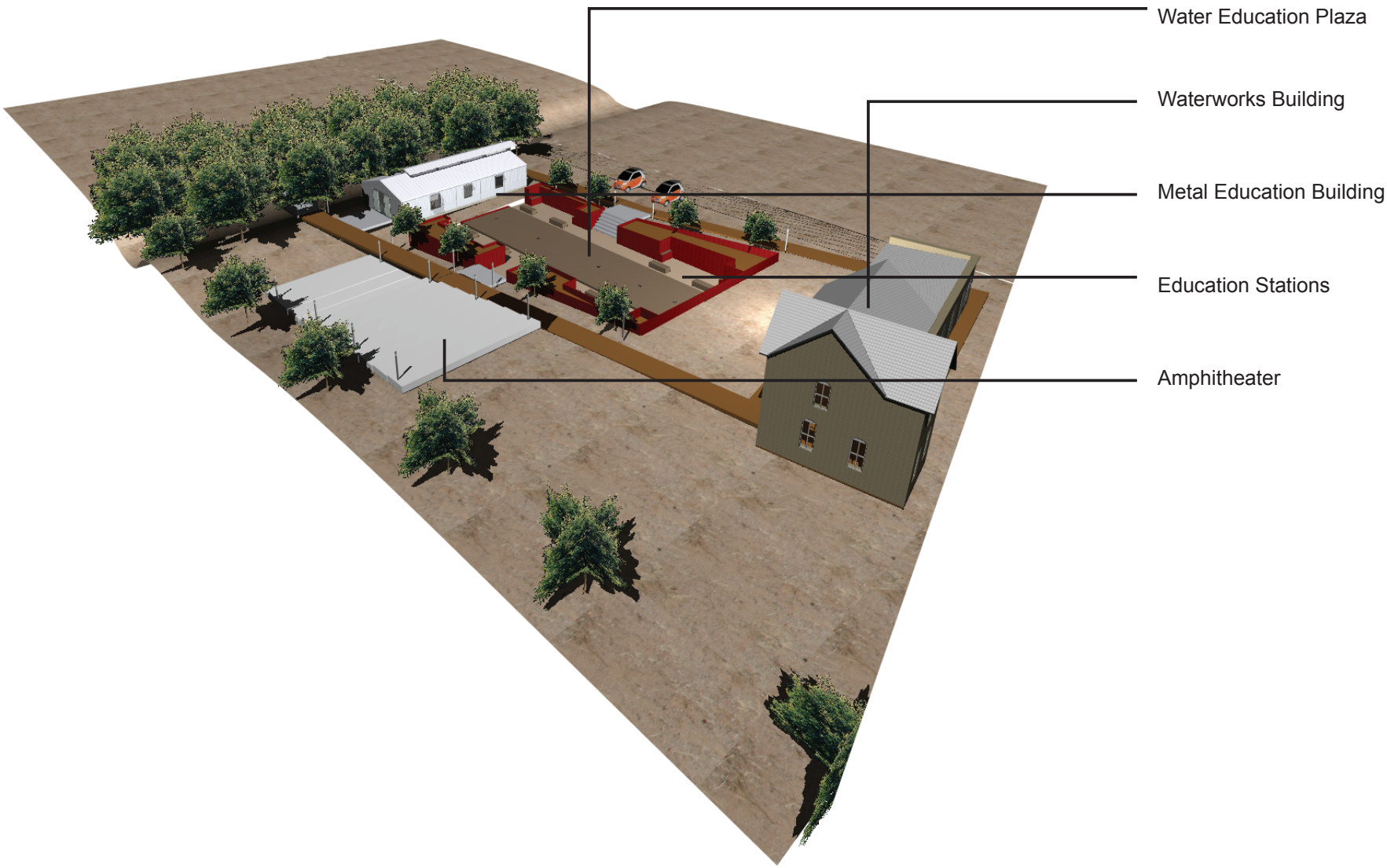


Perspective of Foyer in
Waterworks Building



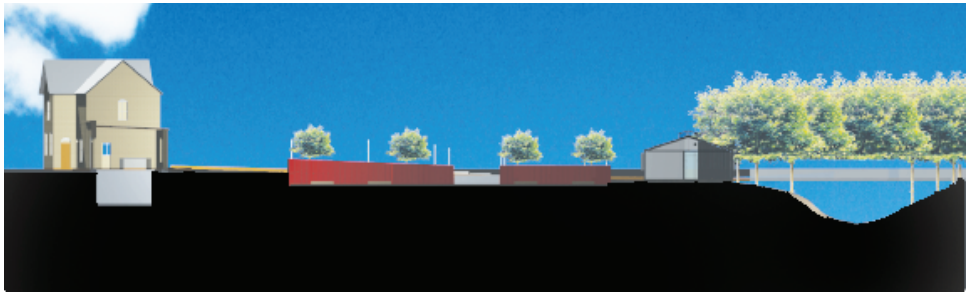
Perspective of Boiler Room as
conference/meeting room

Landscape


Water Education Plaza
Waterworks Building
Metal Education Building
Education Stations
Amphitheater

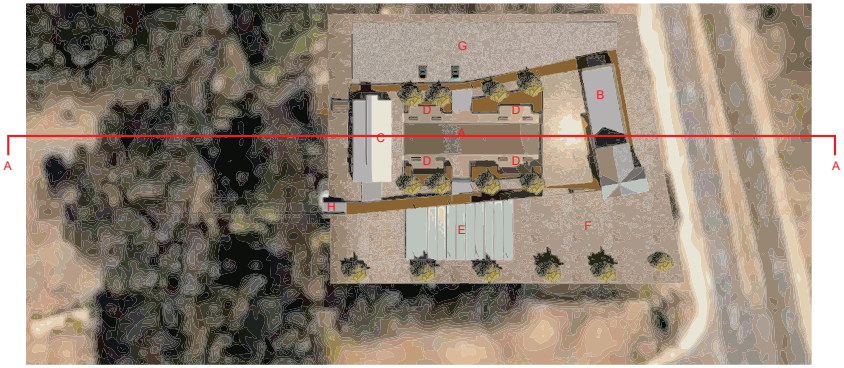
Context Site Plan





Section AA

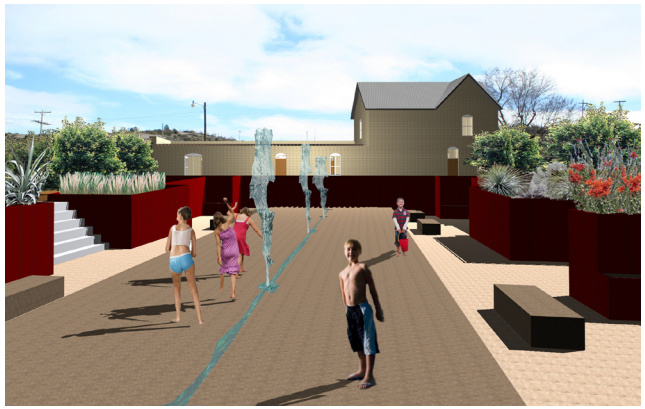
Site Plan



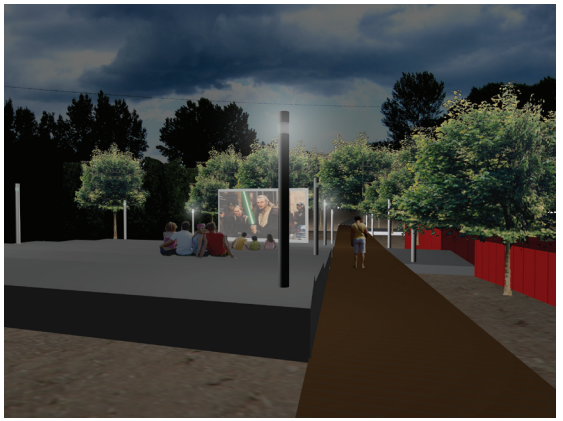
A. Water Education Plaza
B. Waterworks Building
C. Metal Education Building
D. Education Stations
E. Amphitheater
F. Education Activity Area
G. Parking
H. Bridge



Amphitheater



Water Education Plaza looking east



Amphitheater Night Movie



Path between Water Education Plaza and Ampitheater



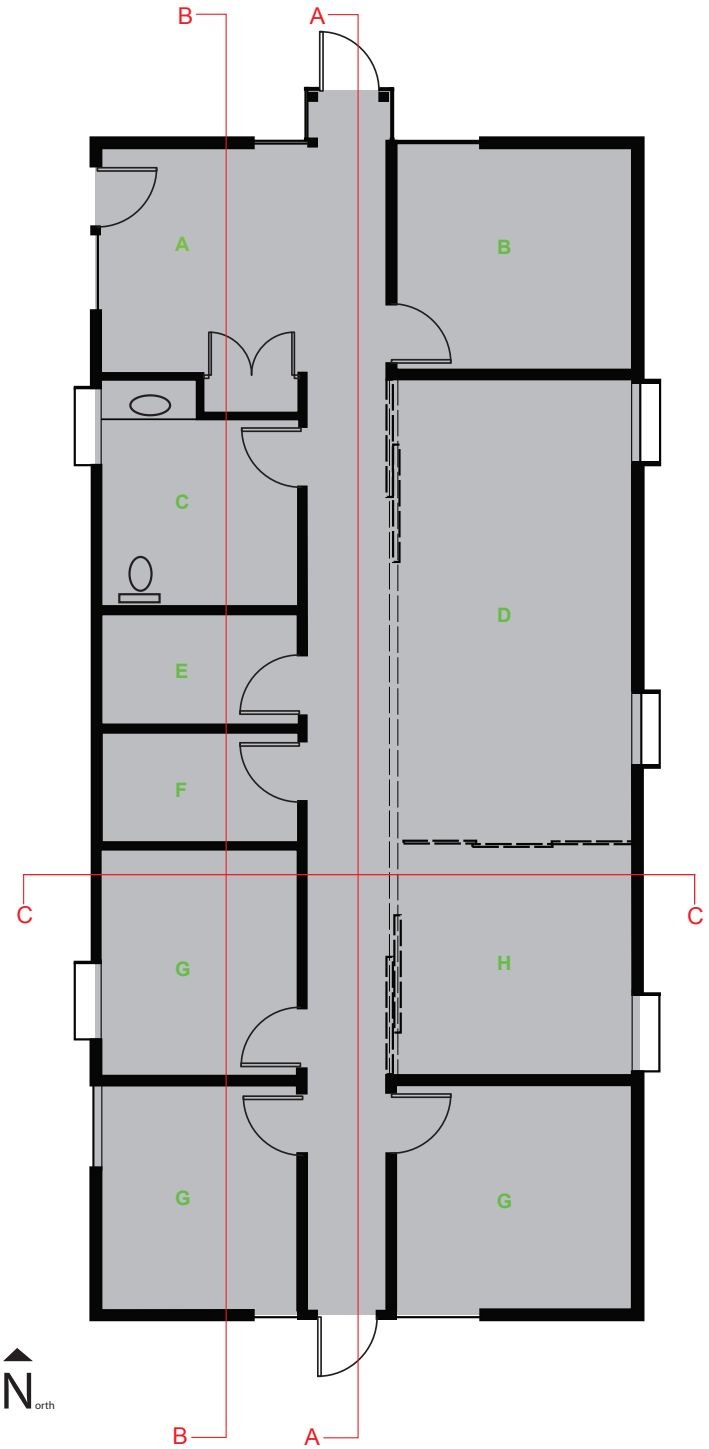
Water Education Plaza looking west



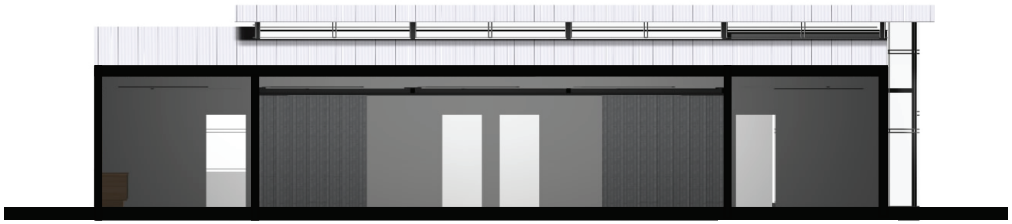
Teaching Eddy

Metal Education Building





A. Reception	168 sq ft
B. Copy/ Kitchen	147 sq ft
C. Bathroom	120 sq ft
D. Classroom	295 sq ft
E. Mechanical Room	55 sq ft
F. Storage	55 sq ft
G. Office	3 @ 387 sq ft
H. Conference Room	147 sq ft
Cirrculation	192 sq ft
Total	**= 1566 sq ft**



Section AA



Section BB



Section CC



Office Perspective



Entry Perspective

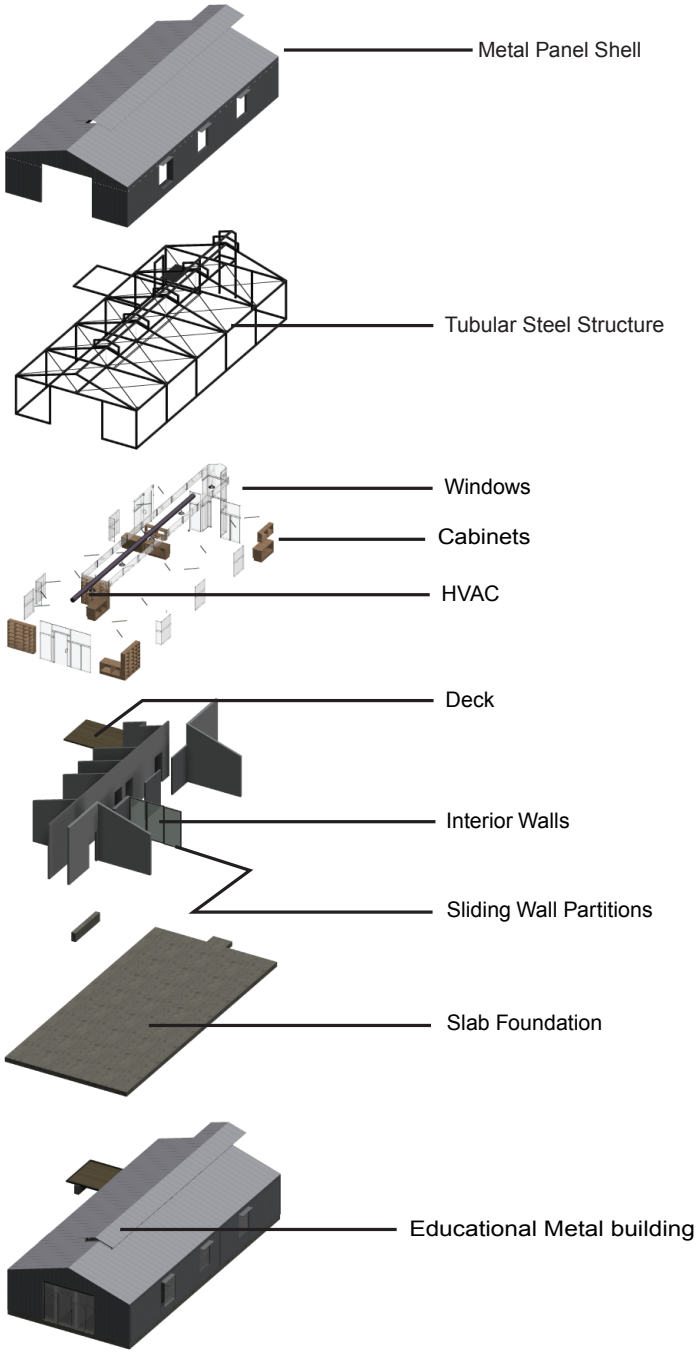


Classroom Perspective



Office Perspective

Axonometric



Learning Landscape

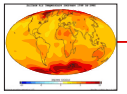


The educational landscape provides a "bioregional education", allowing students and teachers to understand the Silver City area and its ecosystem. "Ecoliteracy" provides participants with an understanding of the impact of lifestyles on the resources of their city.

Combined, these educational opportunities allow students, teachers, and the community to come to an understanding of their "Ecological identity" through four basic questions:

- What do I know about the place where i live?
- Where do things come from?
- How do I connect to the earth?
- What is my purpose as a human being?

Global Warming



This station discusses global climate change and what these changes mean for the ecological region and Silver City.

Creek



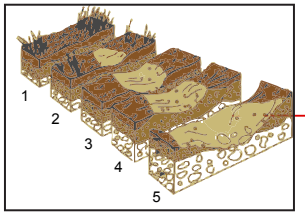
Streams and creeks provide an excellent place for students to observe aquatic plants and animals. They also provide a great opportunity to perform dissolved oxygen, pH, temperature and types of water quality tests.

Water Conservation

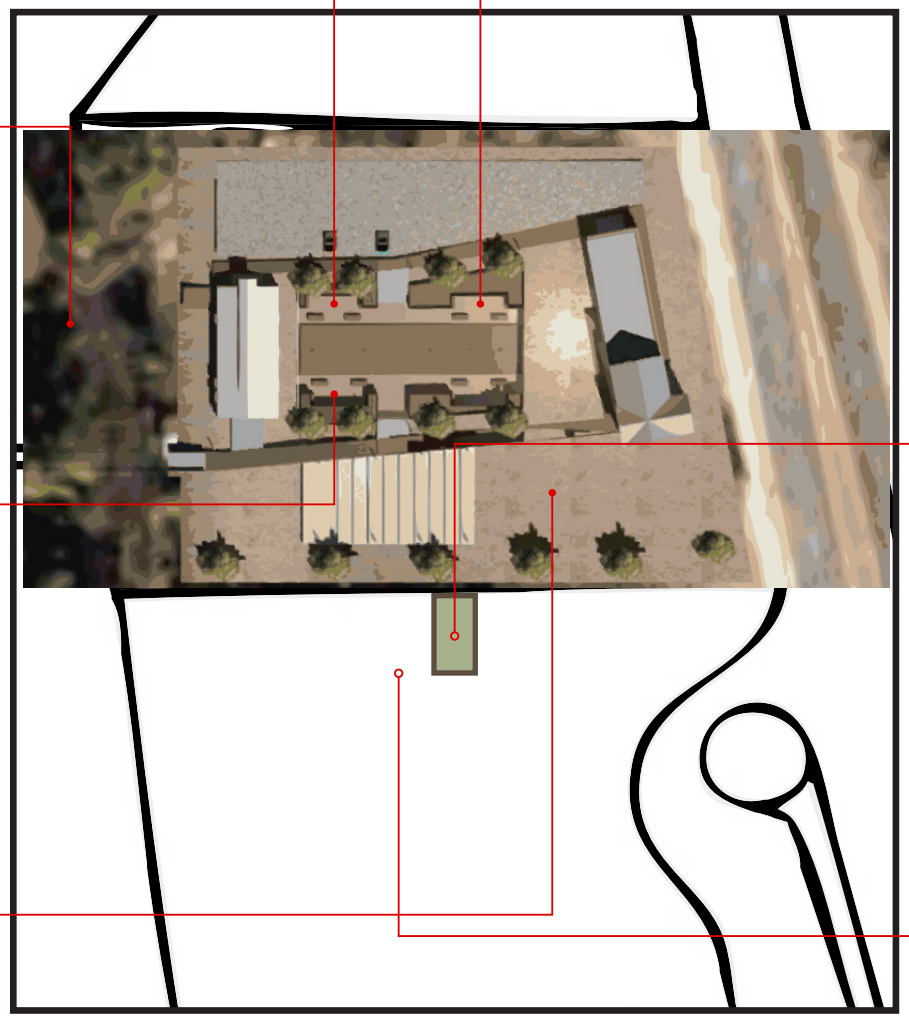


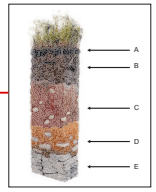
This station demonstrates techniques for domestic water conservation and provides measurements of the savings. It would also discuss why conservation is important to the regional water table and the reason for conservation. Finally, the station has information on xeriscaping and maintaining existing micro climates.

Erosion Control Demonstration Area



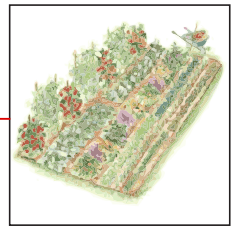
This site in the learning landscape has an erosion control area that demonstrates how erosion affects the soil. Below native planting, a downhill collection container captures the eroded material and measure the amount of sediment from each section after natural rainfall or planned flooding.





Soil Profile Area

An area set aside for studying soils is very important. A soil pit labeled with the different soil profiles does the best job of explaining the different soil types, textures and profiles, but can be hazardous. A stream bank or bank cross-section can be used to accomplish the same goal. If done properly, a core sample can also be useful.



Greenhouse Garden

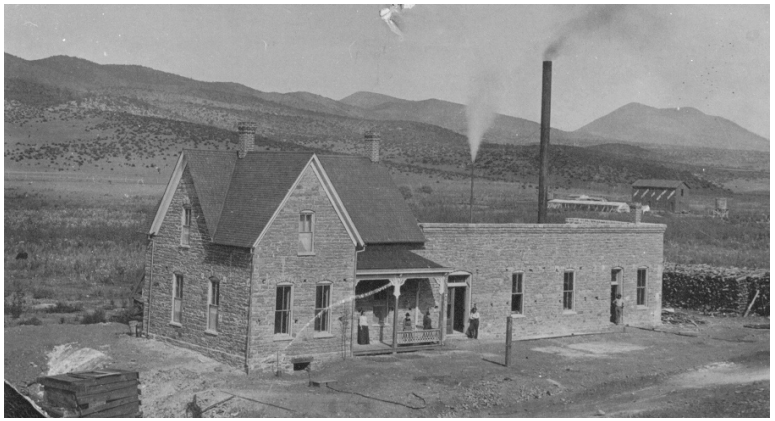
The experience of planting and managing a garden can be a valuable experience for students, teachers and the community. The garden plot can be as small or as large as desired. The garden offers the opportunity to plant fruits and vegetables that do not require constant care and that can be harvested and enjoyed during the school year.



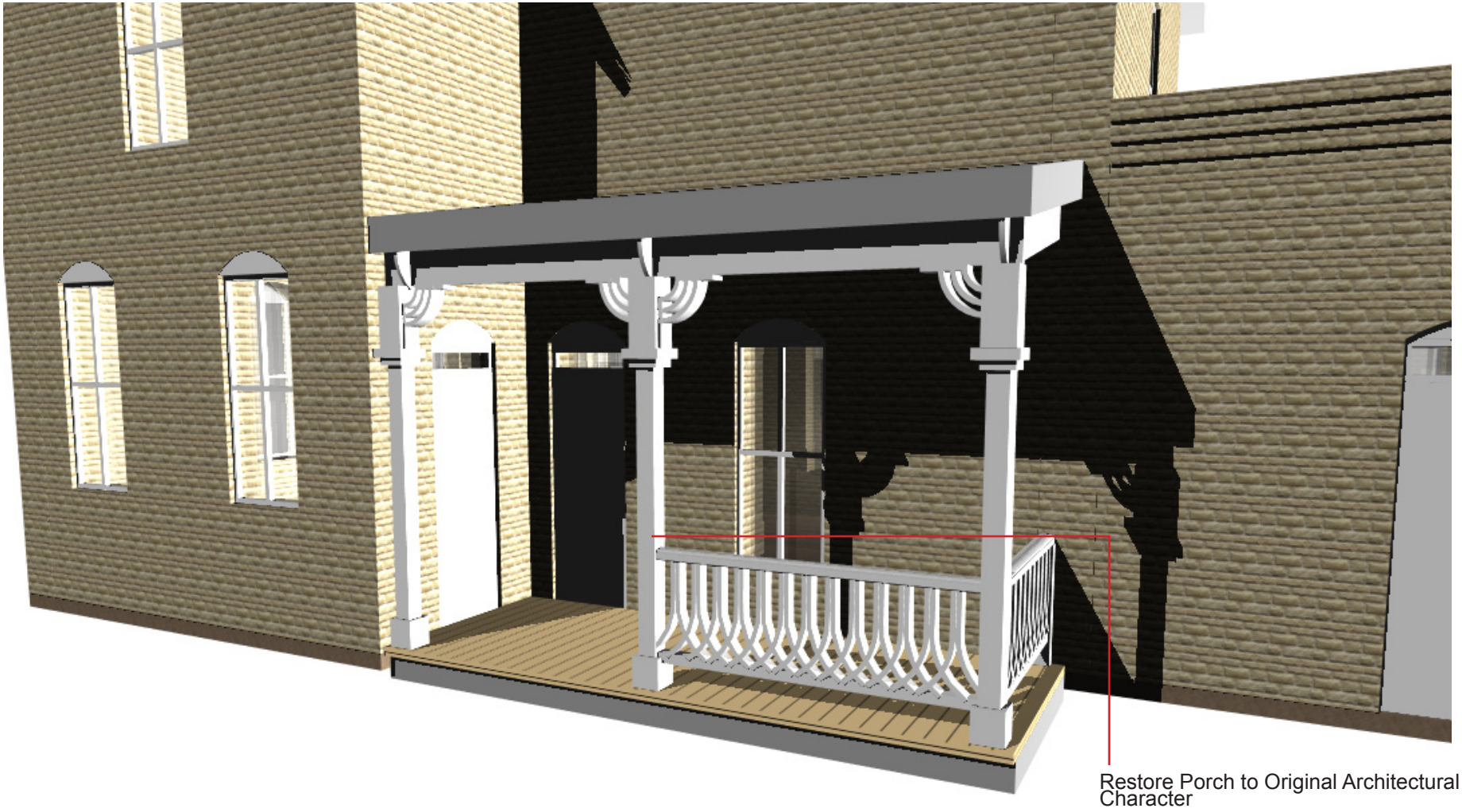
Compost Pile

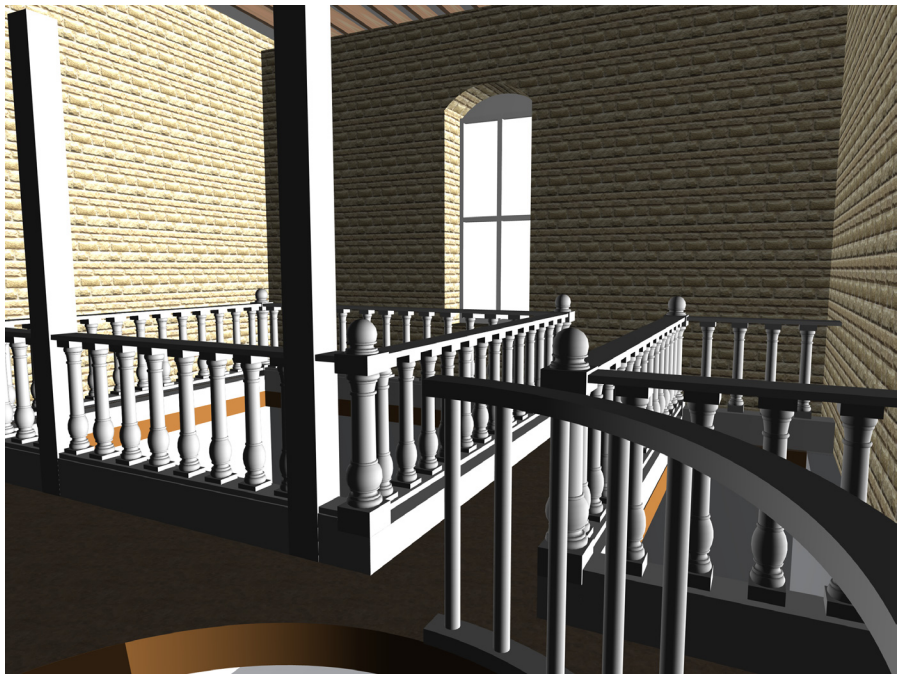
All learning landscapes with garden plot should consider adding a compost pile. A compost bin can be constructed or purchased relatively inexpensively. Grass clippings, leaves, table scraps and other debris placed in the bins can be sustainability teach tools that turn into very rich topsoil in a short period of time.

Historic Preservation

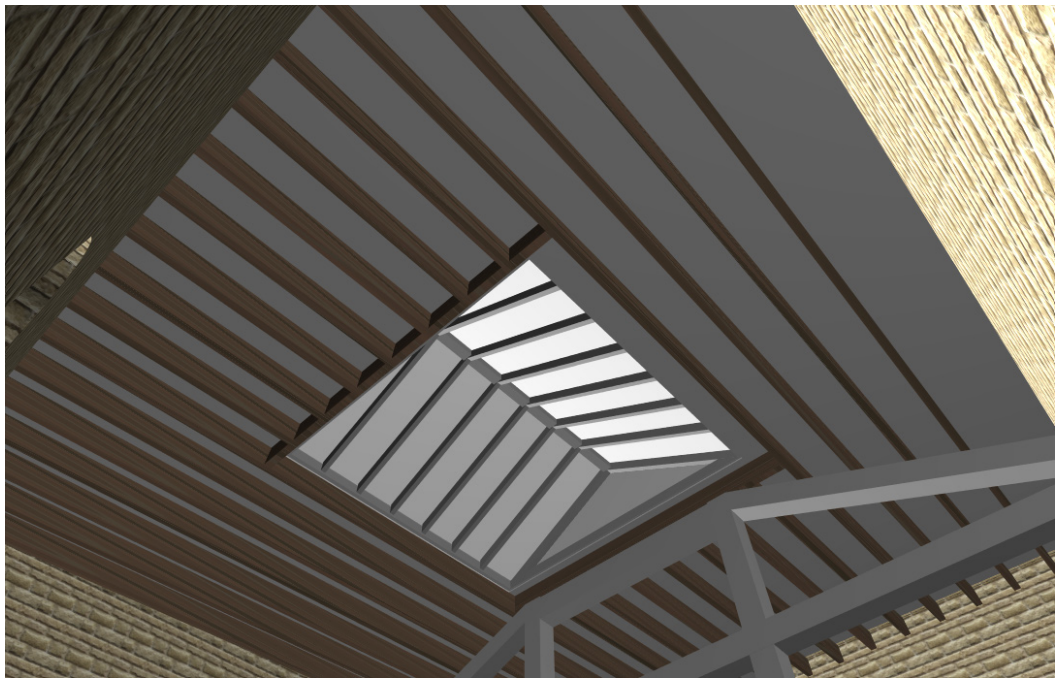


Restore Porch to Original Architectural Character (see image above)


Restore Porch to Original Architectural Character



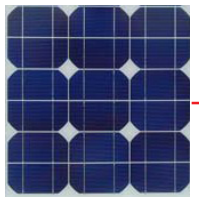
Restore balustrades in Pump Room

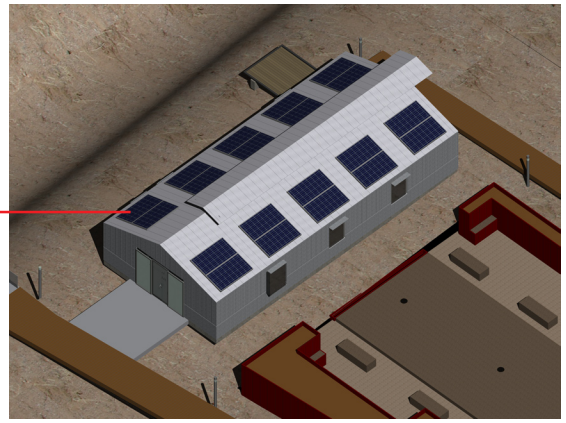


Restore skylight and structure in Pump Room

Sustainable Design Elements

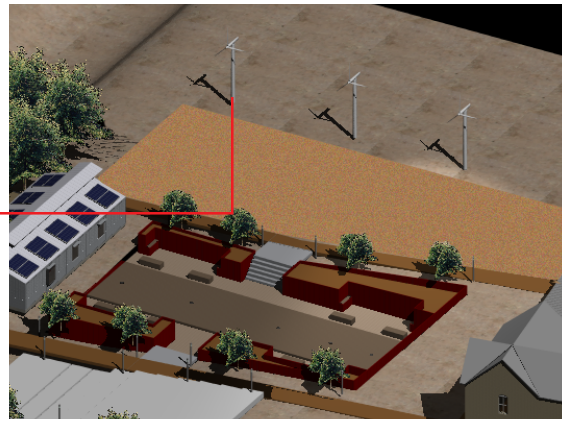
Photovoltaics



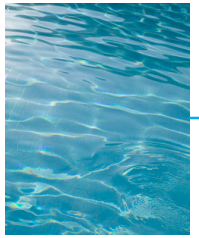


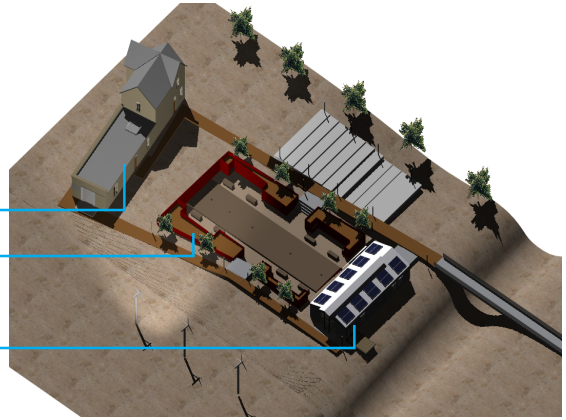
Wind Power





Water Harvesting





Information Panels



Display Panels in Boiler Room



Elevation



Axonometric

Panel Information and Display Proportions

Materials and Plants

Material and Plant Palette

PLANT LIFE


ARIZONA ASH

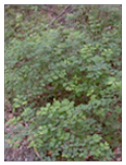

RAYWOOD ASH


ARIZONA CYPRESS


RABBITBRUSH


MUHLY


INDIAN RICEGRASS


SNOWBERRY


APACHE PLUME


BIG SAGE


OCOTILO


SOTOL


ALGERITA


AGAVE

SURFACES


CLAY BRICK PAVING


GRAVEL


COMPACT EARTH WITH
CONCRETE + FLY ASH


RECYCLED PLASTIC LUMBER.

Funding

Find Funding

The National Trust Preservation Fund of the National Trust for Historic Preservation offers several types of financial assistance to nonprofit organizations, public agencies, for-profit companies, and individuals involved in preservation-related projects. In 2005, through the National Trust Preservation Fund, we provided almost $17 million in financial assistance and direct investment to support preservation in cities, towns, and rural areas all over the United States.

National Trust Preservation Funds

National Trust Preservation Funds provide two types of assistance to nonprofit organizations and public agencies: 1) matching grants from $500 to $5,000 for preservation planning and educational efforts, and 2) intervention funds for preservation emergencies. Matching grant funds may be used to obtain professional expertise in areas such as architecture, archeology, engineering, preservation planning, land-use planning, fund raising, organizational development and law as well as to provide preservation education activities to educate the public.

http://www.preservationnation.org/resources/find-funding/npe05.pdf

The Johanna Favrot Fund for Historic Preservation provides nonprofit organizations and public agencies grants ranging from $2,500 to $10,000 for projects that contribute to the preservation or the recapture of an authentic sense of place. Individuals and for-profit businesses may apply only if the project for which funding is requested involves a National Historic Landmark. Funds may be used for professional advice, conferences, workshops and education programs.

The Cynthia Woods Mitchell Fund for Historic Interiors provides nonprofit organizations and public agencies grants ranging from $2,500 to $10,000 to assist in the preservation, restoration, and interpretation of historic interiors. Individuals and for-profit businesses may apply only if the project for which funding is requested involves a National Historic Landmark. Funds may be used for professional expertise, print and video communications materials, and education programs.

The Partners in the Field Challenge Grant for Statewide and Local Partners is a transformative challenge grant program to expand preservation field services nationwide. The grant program is a collaboration between the National Trust for Historic Preservation and Statewide and Local Partners, funded by a generous gift from Robert Wilson. The primary purpose of Partners in the Field is to expand the delivery of preservation field services across the country by building the capacity of statewide and local preservation organizations to provide these services on the ground, and by building their long-term capacity for philanthropy to sustain their preservation work. Partners in the Field challenge grants are only available to recognized National Trust Statewide & Local Partners. If you would like more information on any of these grant programs, please contact the National Trust Regional Office nearest you.

Funding Available through the National Trust Preservation Fund

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National Trust Loan Fund

The National Trust Loan Fund (NTLF) has more than 35 years of experience in supporting preservation-based community development projects across the country. As a certified Community Development Financial Institution, it has a mission of providing financial and technical resources to organizations that use historic preservation to support the revitalization of underserved and distressed communities.

NTLF specializes in predevelopment, acquisition, mini-permanent, bridge and rehabilitation loans for residential, commercial and public use projects. Eligible borrowers include not-for-profit organizations, revitalization organizations or real estate developers working in certified Main Street communities, local, state or regional governments, and for profit developers of older and/or historic buildings.

National Trust Community Investment Corporation

The National Trust Community Investment Corporation (NTCIC), makes equity investments in the rehabilitation of historic properties eligible for the 20 percent federal historic rehabilitation tax credit, and where available, state historic tax credits and the New Markets Tax Credit (NMTC). NTCIC invests in projects that have at least $6.0 million in total development costs and that generate at least $1.5 million in historic tax credit equity. Smaller deals will be referred to the Small Deal Fund for equity investment consideration. Tax-exempt nonprofit organizations and public-sector developers may be eligible for an NTCIC equity investment by creating a

limited liability partnership. NTCIC has a special interest in those projects with a high community benefit.

Save America's Treasures

Established by Executive Order in 1998, Save America's Treasures (SAT) is a public-private partnership that includes the National Trust for Historic Preservation, the National Park Service, the President's Committee on the Arts and Humanities and the federal cultural agencies. The program celebrates America's great historic and cultural legacy by identifying and raising resources to preserve historically significant sites and collections. Each year, Save America's Treasures federal challenge grants are awarded to eligible historic resources for approved preservation activities.

The public partners of Save America's Treasures recently announced that applications are now available for the fiscal year 2007 federal SAT grant round. These grants help fund preservation and/or conservation work on nationally significant intellectual and cultural artifacts and nationally significant historic structures and sites. Eligible applicants include nonprofit, tax-exempt 501(c), U.S. organizations, units of state or local government, and federally recognized Indian tribes. Grants are awarded through a competitive process and require a dollar-for-dollar, non- federal match. The minimum grant request for collections projects is $25,000 federal share; the minimum grant request for historic property projects is $125,000 federal share. The maximum grant request for all projects is $700,000 federal share.

In 2006, SAT awarded $7.6 million to 42 projects, including Birmingham's Civil Rights Landmark the Sixteenth Street Baptist Church and the Nebraska State Historical Society's Native American Collection. The average grant size for collections was $132,000 and $223,000 for historic properties.

Save America's Treasures at the National Trust for Historic Preservation, as the partnership's principal private partner, plays an important role as an on-the-ground 'eyes and ears' for the federal program. We work closely with a variety of projects across the country, meeting with project representatives, providing advice and guidance on the federal grant process, often reviewing draft applications as appropriate, and providing assistance in meeting the required match when possible. We are dedicated to reaching out and identifying strong candidates and encourage you to keep us informed of any projects you think worthy. The offices of Save America's Treasures at the National Trust are staffed by Director Bobbie Greene McCarthy, and Program Manager Fiona Lawless. Please call us at (202) 588-6012 if you have questions or would like further information.

http://www.cr.nps.gov/hps/treasures/index.htm

LOWES

Lowe's Charitable and Educational Foundation, International Paper and National Geographic Explorer! classroom magazine have partnered to create an outdoor classroom grant program to provide schools with additional resources to improve their science curriculum by engaging students in hands-on experiences outside the traditional classroom. All K-12 public schools in the United States (excluding Puerto Rico) are welcome to apply.

This program only considers outdoor classroom proposals. Please submit all other grant proposals for community improvement projects and K-12 public school initiatives to the Lowe's Charitable and Educational Foundation at www.lowes.com/community

TOOLBOX FOR EDUCATION®

This grant program provides parent groups with financial tools to help improve their children's schools. Grant awards of up to $5,000 support school improvement projects at public schools nationwide. Since 2006, through Toolbox for Education, the Lowe's Charitable and Educational Foundation has donated nearly $10 million to more than 2,000 K-12 schools, benefitting over one million schoolchildren. www.lowes.com/community

EPA Environmental Education Grants

EPA's Environmental Education Division (EED), Office of Children's Health Protection and Environmental Education, grants program supports environmental education projects that enhance the public's awareness, knowledge, and skills to make informed decisions that affect environmental quality. The deadline for applying for a 2008 grant was **December 20, 2007**. Specific instructions for submitting an application are provided at http://www.epa.gov/enviroed/grants_apply.html.

(LORRI) OTTO SEEDS FOR EDUCATION GRANT PROGRAM

Provides small monetary grants to schools, nature centers, or other non-profit educational organizations for the purpose of establishing outdoor learning centers. Encourages use of wild flowers. http://www.for-wild.org/seedmony.htm

GRANTS FOR SCHOOL AND YOUTH GARDENS

The National Gardening Association works with sponsoring companies and organizations to provide in-kind grants to projects that actively engage kids in the garden and improve the quality of life for their communities.
To be eligible for these awards your school or organization must plan to garden with at least 15 kids between the ages of 3 and 18. (Mantis Awards are also open to non-youth organizations.)
Please note that all grant winners are required to complete a year-end impact report (http://www.kidsgardening.com/grants.asp).

THE NATURE OF LEARNING GRANT PROGRAM

Supports costs associated with The Nature of Learning, a community-based conservation education initiative that uses National Wildlife Refuges as outdoor classrooms and enhances natural resource stewardship in the community.
The National Fish and Wildlife Foundation (Foundation), in cooperation with the U.S. Fish and Wildlife Service (FWS) National Wildlife Refuge System and the National Conservation Training

Center (NCTC), and National Wildlife Refuge Association, is pleased to solicit applications from organizations interested in initiating *The Nature of Learning* in their communities. http://www.nfwf.org

THE CAPTAIN PLANET FOUNDATION

The Captain Planet Foundation will fund as many projects as its annual resources allow. Please read the following guidelines thoroughly if you would like to seek funding from us. In order to maximize the impact of Foundation funds, the Board of Trustees limits their grant awards to those applications which comply with the following guidelines.

All applicant organizations or sponsoring agencies must be exempt from federal taxation under the Internal Revenue Code Section 501, in order to be eligible for funding (this includes most schools and non-profit organizations). www.**captainplanet**fdn.org/

In order to be considered for funding, proposals must:

- Promote understanding of environmental issues
- Focus on hands-on involvement
- Involve children and young adults 6-18 (elementary through high school)
- Promote interaction and cooperation within the group
- Help young people develop planning and problem solving skills
- Include adult supervision
- Commit to follow-up communication with the Foundation (specific requirements are explained once the grant has been awarded)

THE BEN & JERRY'S FOUNDATION

The Ben & Jerry's Foundation offers competitive grants to not-for-profit, grassroots organizations throughout the United States which facilitate progressive social change by addressing the underlying conditions of societal and environmental problems. All of the Foundation's funding decisions are made by a team of Ben & Jerry's employees that meets once a month to review proposals. We do not offer grants to support basic or direct social service programs. We realize that there are many fine organizations that provide social services to people in need throughout the country. However, these types of programs do not fall within the scope of the Ben & Jerry's Foundation. http://www.benjerry.com/foundation/guidelines.html