Lewis and Clark State Office Building
Site Selection, Characteristics and Development

Properly siting a building has major long-term implications on how well the building reduces its environmental impact. Harvesting sunlight to light interior spaces, eliminating the overabundance of indoor lighting to cut heat and electrical lighting costs, and establishing water protection strategies onsite before, during and after construction all work in harmony to assure the building performs well in a sustainable manner.

BNIM Architects and their subcontractors, the State of Missouri's Office of Administration and the Missouri Department of Natural Resources, through the Pollution Prevention Workgroup, developed site evaluation criteria and a rating system to determine which site had the greatest potential to meet established mission strategies developed by the selection criteria and process.

The following site evaluation criteria preamble was prepared by the Site Selection Ad-hoc committee of the DNR Pollution Prevention Workgroup (P2). The evaluation criteria rating system and associated Explanation of Site Selection Criteria were developed by the site development subcontractor.

Missouri Department of Natural Resources
"Green Building" Site Evaluation Criteria Preamble

The department's goal is to build a high-performance, energy-efficient and environmentally friendly office building to house department staff and operations. In pursuit of this goal, the site selected should allow construction of an office building that is environmentally responsible. It should minimize negative impacts on the natural environment and take advantage of natural features and technologies that are conducive to energy efficiency and a healthy work environment.

The department intends to construct and rate this building to a national standard of design for green buildings. The Leadership in Energy and Environmental Design Green Building Rating System evaluates environmental performance from a "whole building" perspective over the building's entire life cycle. It counts criteria such as site characteristics, natural features conducive to energy efficiency, environmentally responsible construction materials and efficient HVAC systems. Issues such as recycled content, reduction in health hazards, and reduced air pollutants in materials purchases also figure prominently in the construction phase. The following site selection criteria include many priority items based on the needs of the department and application of the LEED system:
total life-cycle cost of those decisions. Those non-traditional, environmentally preferable alternatives with a payback of less than 10 years should be adopted. Alternatives with a payback of 10-15 years should be given serious consideration. In general, alternatives with paybacks of over 15 years should be considered for demonstration purposes only.

Employee Health and Safety
The workplace will be continuously free of toxins and allergens to the extent feasible. Workspaces will be flexible and ergonomically designed. The building design will encourage environmentally protective and healthy behaviors.

SITE SELECTION CRITERIA – RATING SYSTEM

Taliaferro & Browne Inc., Engineers and Architects

		Site 1	Site 2	Site 3
Site Characteristics	Size/expansion potential			
	Buildable area			
	Slope/topography			
	Aspect ratio			
	Flood plain			
	Surface drainage			
Environmental Conditions	Natural ecosystem			
	Prime farmland			
	Damage present			
	Urban infill/brownfield potential			
Resources	Mass transit			
	Public water system			
	Sanitary sewer			
	Electric power system			
	Natural gas			
	Telecommunications grid			
	Road network			
Other	Easement/restrictions			
	Development cost			
	Availability			

E = excellent G = good S = satisfactory F = fair P = poor

Explanation of Site Selection Criteria

Site Characteristics

Size/Expansion potential: The ideal site will allow for future expansion and consolidation of the department into a campus style configuration.

Buildable area: The site should allow new construction, renovation or expansion of a building with an approximate 120,000 sq. ft. of floor space. Sites where major regrading is necessary are undesirable.

Slope/topography: Most desirable would be a flat site or a slight gradual slope downward to the south. The least desirable site would have a steep slope facing any other direction. If the site has not previously been developed, it would be desirable to have soils present which would support new vegetation. The site should maximize solar access.

Aspect ratio: The site should allow the construction of the building to maximize a southern exposure, the building being about five times as long to the east and west as it is wide to the north and south. This takes advantage of sunlight to minimize energy costs and lighting needs (passive solar ratio of at least 4:1).

Floodplain: The most acceptable sites are those that were not affected by the major flooding in 1993. The minimum acceptable site must be above the 100-year floodplain.

Surface drainage: Sites with good surface drainage away from the building location would be most desirable. Avoid sites where significant drainage runs through from off-site locations and where adequate vegetated areas are not present to enhance storm water infiltration.

Environmental Conditions

Natural ecosystem: The site should allow for construction of the building with as little site disturbance as possible. Site topography should be conducive to preserving natural ecosystems to the extent possible. Construction should not require significant deforestation or rerouting of existing wetlands.

Prime farmland: Avoid sites that have previously been used as prime farmland.

Damage present: Sites which have previously suffered environmental degradation can be considered for this building. Degradation can include loss of restorable habitats, existing contamination, or waste areas (illegal dumps). The damage should be reversible and economically feasible for the department to mitigate. Least desirable would be a site which has not been previously developed and has high-quality natural features.

Urban infill / brownfield potential: Sites that have previously been developed, or contain a suitable structure and are in densely developed areas, or are in a state of urban blight, are desirable.

Resources

Mass transit: Ideally, the site should be within one-quarter mile of two or more bus lines. Nearby sidewalks are desirable and should be extendable to the site.

Public water system: Proximity to an accessible public water system is necessary. The site topography should not limit the ability of the public water system to provide extensions to the building. There should be adequate water pressure for fire protection.

Sanitary sewer: The site must be accessible to a public sewer district for sanitary sewage disposal. Most desir-

able would be a site which would also allow for future construction of an onsite treatment area for gray water.

Electric power system: Adequate electrical power should be available on or adjacent to the site. Least desirable would be a site where major improvements would be required to upgrade the electrical power system to the building.

Natural gas: Most desirable would be a source of natural gas on or adjacent to the property. Least desirable would be a site where major improvements would be required to upgrade the natural gas delivery system to the building.

Telecommunications grid: The department requires access to a state government data information system, involving an underground cable system. The ideal site would be adjacent to an existing section of this grid, and would also be adjacent to an existing telephone system. Least desirable would be a site where major improvements would be required to upgrade the telecommunications access systems to the building.

Road network: Existing access roads to the site should be capable of handling an increased traffic load dependent upon parking availability near the building. The site should be convenient to state highways.

Other

Easement/restrictions: The existing easements or legal restrictions on the site should have no effect on construction or future operations. There should be few or no limitations on the use of the site. Adjacent sites should not be zoned for heavy industry.

Development cost: The site should require the minimum preparation and construction possible, to limit development costs. However, redevelopment is desirable and a cost trade-off is possible.

Availability: There must be legal evidence of clear title to the property. If not a current state property, the property owners must be willing to sell or otherwise convey the property to the state. The department will not consider properties which must be secured through eminent domain.

Initial cost: The cost for the site should not exceed the amount budgeted for land acquisition.

Site Analysis

Jefferson City, Mo. is a rural capital city community. Many of the sites selected for evaluation were being used for cattle and crop production, had been quarried for road projects or clear-cut, promoting urban sprawl in all directions surrounding the city.

Each site had to contain at least 10 acres in order to be considered. A southern exposure was required in order to incorporate solar energy measures in the building. Criteria also suggested consideration of a future campus and a greenway. The 17 sites were evaluated against 27 criteria covering site cost, characteristics, environmental conditions and existing infrastructure, among others.

The top four scoring sites were selected for further, more in-depth consideration. Topographic maps of the four sites were required as part of the in-depth analysis. The sites were then evaluated against the criteria with two properties being identified by Taliaferro & Browne as suitable. Taliaferro & Browne was asked to review information provided regarding the properties, to provide comments regarding the suitability of the two sites, to identify the relative difficulties and cost to provide utility services to each of the sites, and to evaluate possible grading for the sites, based on the conceptual site layouts prepared for each site.

Existing sites that had been degraded – such as this quarry along Hwy. 54 south of Jefferson City – or sites used as prime farmland, were excluded from consideration due to their negative impact on the environment, or because they encouraged urban sprawl.

Selected Site

The final Site Evaluation Study was completed on March 26, 2001. The study and associated site evaluation identified property located in the inner city core within the historic Missouri State Penitentiary (MSP) redevelopment site as the preferable location. The MSP redevelopment site consists of 144 acres and contains the oldest prison west of the Mississippi River, the State Surplus Property facility and a wooded area east of State Surplus Property.

The State Surplus Property site is owned by the State of Missouri and is currently used for the storage of state surplus materials. The entire, original 30-acre site was not made available to the Office of Administration, Division of Design and Construction due to the costs related to relocation of the State Surplus Property operation.

A 4.2 acre parcel of land was made available to OA/D&C north of the primary State Surplus Property facility. The property was a multiple-use property consisting of a portion of the State Surplus Property facility, a 500,000 gallon water tower supporting the prison population and a three-story block-and-brick building, formerly used as a women's prison.

A view of the former Women's Prison Building No. 1 from atop the prison water tower. The tower was subsequently disassembled, surplused to a local community and reassembled for reuse soon after the Lewis and Clark State Office Building was completed. A Civil War mansion was renovated in 1926 to serve as the prison. Part of the building was torn down in 1964 and eventually used for various Department of Corrections' functions. The remaining structure was demolished in 2003.

Building construction began prior to movement of male prisoners from the MSP to a newly constructed prison east of Jefferson City in Cole County. The new green building would then serve as a linchpin between the decommissioned prison redevelopment site to the west and the natural wooded area to the east. The wooded area then connects to a large city park facility. The setting also is located on bluffs overlooking the Missouri River to the north, where the building would connect with its natural surroundings. A unique opportunity would then exist allowing the department's Division of State Parks to be involved in the redevelopment of the decommissioned state prison complex, as well as help preserve the natural wooded area east of the building.

The availability of the 4.2-acre site was contingent upon vacating a small, sparsely used area, employed by State Surplus Property, and the former women's prison would need to be demolished.

Female Department Farm No. 1 Prison Site

The Female Department Farm No.1 site, located on Minor's Hill overlooking the Missouri River, first utilized the renovated Gen. James L. Minor pre-civil-war mansion as the first women's prison onsite in 1926. A three-story block and red brick prison was added onto the mansion between 1937-38. The Minor mansion and new prison building existed together until 1964, when the mansion was razed, leaving the three-story prison building.

After prisoners were moved off-site in 1960, the building was used for various purposes by the Department of Corrections, including a corrections officers' training academy. The site also was used as a staging area for corrections officers responsible for transport of prisoners between correctional facilities.

Parson's Inc. conducted a National Preservation Act Section 106 review of archeological resources on the site. Department of Natural Resources staff also worked through several local community preservation and Native American groups to determine what historical significance the women's prison building had on the community, as well as the surrounding property as a former Native American habitat and Civil War encampment.

The Section 106 Phase I review determined that the building site would not be recommended for Phase II assessment or recommended for inclusion onto the National Register of Historic Places due to previous heavy site disturbance and lack of site integrity. Community preservation and Native American groups confirmed that recommendation, indicating there was little historical preservation significance. The groups agreed that a green building would fit well with future redevelopment prospects of the MSP redevelopment site.

This rock post, wall and stone plaque along the driveway lead to the building. An adjacent, horseshoe-shaped wall originally contained a flower and herb garden on the site. These are all that remain of the women's prison on Minor Hill.

Female Department Farm No. 1 Prison Demolition

Bulk material samples of suspect asbestos-containing materials was collected by TSI Engineering, Inc. Asbestos inspection revealed that asbestos was present in pipe insulation, interior duct lining, floor tiles and roofing materials. Removal was performed by a certified and licensed asbestos abatement contractor according to Department of Natural Resources and local regulations prior to demolition activities.

A lead-based paint inspection was performed by Geotechnology, Inc. revealed specific building components as lead bearing. These components were associated with windows, doors, cabinets, ceilings, handrails and concrete block walls. Approval was sought from the Department of Natural Resources to use concrete-bearing lead-based

(left) Major demolition of the former Women's Prison No. 1 begins in January, 2003.

(above) The Lewis and Clark State Office Building is well on its way to completion in September, 2004.

paint as fill material. Tests concluded none of the samples contained 5,000 parts per million lead, based on federal HUD definition, and the project manager proceeded to use the material as fill.

A small, onsite block-and-brick storage shed was tested for cyanide using wipe samples. The results were negative.

The Women's Prison demolition began on Jan. 22, 2003 and was completed on March 14, 2003. The demolition contractor, Schneiders Construction Co. Inc., removed asbestos through the department's statutory review process prior to demolition. The contractor also demolished the building in a manner that saved much of the red brick façade. These bricks were recycled for use on some of the Lewis and Clark State Office Building's interior

and exterior architectural features.

The demolition contract also contained language requiring the contractor to avert as much solid waste as possible for sale as scrap or reuse.

During Construction of the LCSOB, the following amounts of solid waste materials were averted from area landfills:

- 2,629 tons of concrete used as fill for the project.
- 131,360 pounds of ferrous metal.
- 150 cubic yards of red brick.
- 49 eight-foot fluorescent lamps.
- 262 pounds of fluorescent lamp ballasts.

Only 50.9 tons of wood and plaster solid waste debris were landfilled.

MISSOURI DEPARTMENT OF NATURAL RESOURCES

PO Box 176 1101 Riverside Dr.
Jefferson City, MO 65102

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DNR