

**A PRESENTATION OF THE SCHEMATIC DESIGN FOR THE CHEMISTRY BUILDING RENOVATION PROJECT WILL TAKE PLACE AT THE MAY MEETING**

AGENDA ITEM 23a

**MEMORANDUM**

**To:** Board of Regents

**From:** Board Office

**Subject:** Register of University of Iowa Capital Improvement Business Transactions for Period of March 11, 2004, Through April 21, 2004

**Date:** May 10, 2004

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**Recommended Actions:**

1. Take the following actions for the major capital projects, as defined by Board policy adopted in June 2003.
    - a. **Chemistry Building Renovation** project (see pages 3 through 11).
      1. Acknowledge receipt of the University's final submission of information to address the Board's capital project evaluation criteria (pages 9 through 11);
      2. Accept the Board Office recommendation that the project meets the necessary criteria for Board consideration; and
      3. Approve the schematic design, project description and budget (\$35,200,000), and architectural agreement with Brooks Borg Skiles, Des Moines, Iowa (\$2,778,984) with the understanding that this approval will constitute final Board approval and authorization to proceed with construction.
    - b. **Kinnick Stadium Renovation** project (see pages 12 through 15).
      1. Approve the agreement with Mortenson, Minneapolis, Minnesota (\$5,996,385) for construction management services for the construction phase of the project.
  2. Approve the remainder of the items on the Register of Capital Improvement Business Transactions for the University of Iowa.
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**Executive Summary:**Requested  
Actions

The University requests approval of the following items for major capital projects (new construction or renovation projects with estimated budgets of \$1 million or more):

Schematic design, project description and budget (\$35,200,000), and architectural agreement with Brooks Borg Skiles, Des Moines, Iowa (\$2,778,984) for the **Chemistry Building Renovation** project which would provide a modern, code-compliant instructional and research facility for the Department of Chemistry, and general university classroom space, through the demolition and renovation of existing space, construction of new space, and upgrade of building systems (see page 3).

- Representatives of the project architects, Brooks Borg Skiles, will present the schematic design at the May Board meeting; the schematic design booklet is included with the Board's docket materials.

Agreement with Mortenson, Minneapolis, Minnesota (\$5,996,385) for construction management services during the construction phase of the **Kinnick Stadium Renovation** project (see page 12).

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The University requests approval of a project description and budget (\$976,000) and engineering agreement with Shive-Hattery, Iowa City, Iowa (\$73,660) for the **Oakdale Steam and Condensate Replacement—Phase 1** project which would replace a portion of the deteriorating high pressure steam and condensate distribution system on the Oakdale Campus (see page 15).

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**Chemistry Building Renovation**

Project Summary

	<u>Amount</u>	<u>Date</u>	<u>Board Action</u>
Architectural Selection (Brooks Borg Skiles, Des Moines, IA)		Jan. 2003	Approved
Negotiated Architectural Agreement— Programming and Schematic Design (Brooks Borg Skiles, Des Moines, IA)	\$ 649,000	April 2003	Approved
Initial Review and Consideration of Capital Project Evaluation Criteria		Sept. 2003	Received with Capital Request
Interim Review and Consideration of Capital Project Evaluation Criteria		March 2004	Received Report
Program Statement		March 2004	Approved
Final Review and Consideration of Capital Project Evaluation Criteria		May 2004	Receive Report
Schematic Design		May 2004	Requested
Project Description and Budget	35,200,000	May 2004	Requested
Architectural Agreement—Design Development Through Construction (Brooks Borg Skiles, Des Moines, IA)	2,778,984	May 2004	Requested

**Background**

The Chemistry Building, located adjacent to the T. Anne Cleary Walkway on the east campus, houses the majority of the teaching, research, and administrative functions of the Department of Chemistry. (A map indicating the location of the facility is included as Attachment A.)

- The Department of Chemistry is a core University department which supports many University academic programs including medicine and other health-related sciences, engineering, physical sciences and education.

A large portion of the Chemistry Building was constructed in the 1920s; much of the building, including the instructional laboratories, is functionally obsolete and the plumbing; electrical; and heating, ventilating and air conditioning systems are in need of replacement.

The poor condition of the teaching and research space in the Chemistry Building has been detrimental to the retention and recruitment of faculty.

The Chemistry Building master planning study, completed by the architectural firm of Rohrbach Carlson, analyzed the building's capability to accommodate research, instructional laboratories, and classrooms, and recommended a combination of renovation and new construction to modernize the building.

The renovation of the Chemistry Building was the University's top project priority for FY 2005 capital appropriations funding; the project was included in the multi-year bonding proposal for Regent academic buildings approved by the Board in December 2003 and included in SF 2298, awaiting gubernatorial action.

Project Scope

The project would include the following:

- Relocation of Chemical Stores (which provides bulk chemical storage for the instructional laboratories) to address existing code deficiencies, and demolition of the rooftop greenhouse and replacement of the roof at that location to alleviate water penetration into the building.
- The University has indicated that these are the most urgent project components.
- Demolition of the Chemistry–Botany Annex in the north-central portion of the site (approved by the Board in October 2003), and the Chemistry Building central core area, and reconstruction of space at these locations within the central building core.
- Replacement of undergraduate chemistry instructional laboratories and chemistry research laboratories with modern, code-compliant laboratories to accommodate state-of-the-art instruction and research.
- Construction of a Chemistry and Geosciences Library, five general university classrooms, and a new administrative office area.
- Upgrade of mechanical, electrical, plumbing and communications infrastructure, including construction of an electrical substation, and other building-wide upgrades to improve egress routing and correct code deficiencies.
- Replacement of windows.

Schematic  
Design

Overview

The focus of the project is reconstruction of the Chemistry Building's central building core which would result in a more efficient grouping of program areas, improved separation between academic and research functions, improved circulation and student accessibility, and centralized building mechanical and electrical services.

The proposed schematic design incorporates academic areas within the central building core. A Chemistry Lecture Room on the first floor, Chemistry and Geosciences Library and a general assignment classroom on the second floor, and a total of ten instructional laboratories on the third and fourth floors would be included. These locations would provide maximum student accessibility from the building's main third floor entrance from the Cleary Walkway.

Research laboratories would be placed in the north wings to isolate these activities from academic areas, with new corridor connections between the wings for improved circulation.

The following are highlights of the **interior** design.

#### Ground Floor

The Chemical Stores area would be located along the west wall, which would meet chemical storage code requirements.

With the exception of a mechanical room and power room, the remaining laboratory and building support areas on this level would remain unchanged.

#### First Floor

The Chemistry Lecture Room with seating for 125 students, and mechanical, shop/storage, and other building support areas would be located in the central core and southeast wing.

The west auditorium and remaining research and office areas throughout this level would remain unchanged.

#### Second Floor

The Chemistry and Geosciences Library and support areas, and one general assignment classroom, would be located within the central core.

Four general assignment classrooms and other academic and student support areas, including the Chemistry Center (undergraduate service and tutoring center), would be located in the southeast and southwest wings.

Five large research laboratories would be located in the northeast and northwest wings, with office areas situated adjacent to the northeast laboratories.

The west auditorium and the remaining computer, laboratory and office areas on this level would remain unchanged.

#### Third Floor

Five general chemistry instructional laboratories would be located within the central core.

Five large research laboratories would be located in the northwest and northeast wings with office areas situated adjacent to the northeast laboratories, and administrative offices along the east wall.

The remaining research laboratories and office areas generally located along the west and south perimeters of this level would remain unchanged.

### Fourth Floor

Five instructional laboratories (one for general chemistry and four for advanced chemistry courses) would be located within the central core.

Five large research laboratories would be located in the northwest and northeast wings with office areas situated adjacent to the northeast laboratories, and a staff support area sited along the east wall.

The remaining research laboratories and office areas generally located along the west and south perimeters of this level would remain unchanged.

### Fifth Floor

The mechanical penthouse would be placed within the central core. Five large research laboratories and adjacent office areas would be located in the northeast wing and along the east wall.

The remaining mechanical area in the northwest wing, research laboratories and office areas in the southeast wing, and other building support space on this level would remain unchanged.

### Accessibility

The main building entrance at the third floor from the Cleary Walkway, which provides a fully-accessible entrance area, would remain.

The project would construct two new exterior stair towers along the west wall (near the west auditorium), as required by life safety codes. The stairways would provide access to the first and second floor corridors from the ground floor building exterior. Two fully-accessible building entrances would also be located at the ground level.

Demolition of the Biology Annex in the north-central portion of the site would allow development of a new north entrance, with courtyard area, which would provide access to the second floor corridors. The existing south entrance would continue to provide access to an interior stairway that serves the first through fourth floors.

The existing elevator near the central building core, which serves all floors of the building, would remain. A second elevator would be installed in the east wing to serve the second through fifth floors.

### Restrooms

The restrooms in the project area would provide a total of 48 female toilet fixtures and 30 female lavatories, and ten male toilet fixtures, nine urinals, and 13 male lavatories.

The following are highlights of the **exterior** and **site** design.

The new north entrance would feature a new brick exterior wall and courtyard area. The brick masonry and window detailing would complement the exterior of the two existing north wings, which were constructed in the 1920s and 1960s.

The two new west stair towers would be constructed of brick masonry compatible with the existing brick of the west auditorium.

The building's windows would be replaced and a new electrical substation constructed west of the building's northwest wing. The substation would upgrade the electrical service for the building.

The project would install a new roof for the building's central core, and replace portions of the roof of the west auditorium and at the site of the existing rooftop greenhouse, which will be removed.

- The new roof areas would consist of a rubber membrane material, similar to the remainder of the Chemistry Building roof, which was selected for its durability and life expectancy (15 to 20 years).

#### Parking

The parking lot on the west side of the Chemistry Building currently provides parking for 58 vehicles and serves faculty and staff on the east campus. The University reports that the proposed schematic design and the site plan would result in the loss of 12 parking spaces; six spaces would be lost with construction of the west stair towers, and six spaces would be lost with construction of the electrical substation.

The University has been evaluating various alternatives to minimize the loss of parking with the Chemistry Building renovation project. The University reports that it will continue to review additional options during the design development phase of the project, particularly with respect to the location of the electrical substation, in an effort to further reduce the loss of parking spaces at the site.

- According to the University, the electrical upgrade for the Chemistry Building requires the use of an external electrical substation, located a specific distance from the building, to avoid interference with the operations of the existing Nuclear Magnetic Resonance (NMR) facility on the ground floor.

Square Footage Table The following table compares the detailed square footages for the schematic design with the square footages in the approved building program.

<u>Detailed Building Program</u>		<u>Building Program</u>	<u>Schematic Design</u>	
	Research Laboratories and Support	21,078	20,315	
	Instructional Laboratories and Support	17,100	17,100	
	Administrative Offices	12,740	12,224	
	General University Classrooms	9,415	9,415	
	Library	7,660	7,660	
	Chemical Stores	2,895	2,895	
	Departmental Computer Server Room and Storage/Shop Areas	<u>0</u>	<u>2,878</u>	
	Total Net Assignable Space	<u>70,888</u>	<u>72,487</u>	nsf
	Total Gross Square Feet (project area only)	<u>138,903</u>	<u>138,903</u>	nsf

Net-to-Gross Ratio (schematic) = 52 percent

Program/Schematic Comparison With the exception of the addition of the computer server room and storage and shop areas, the square footages of the schematic design is generally consistent with the square footages presented for the building program.

Schedule Phase 1a, which includes relocation of Chemical Stores, demolition of the rooftop greenhouse, and possibly construction of the electrical substation, is anticipated to commence in the summer of 2004, with completion expected approximately six months following the initiation of construction.

Phase 1b is anticipated to commence in the spring of 2005 with an anticipated completion date of spring 2007.

Phase 2 is anticipated to commence in the fall of 2006 with an anticipated completion date of summer 2008.

Design Agreement The agreement with Brooks Borg Skiles would provide design development, construction document, bidding and construction phase services for a fee of \$2,778,984, including reimbursables.

Funding Proceeds from the sale of Academic Building Revenue Bonds authorized by the 2004 General Assembly in SF 2298 (the bill which is awaiting action by the Governor), supplemented by Utility Improvement Funds, Income from Treasurer's Temporary Investments, and/or Building Renewal Funds.

Project Budget

Construction	\$ 28,160,000
Design, Inspection, and Administration	4,224,000
Contingencies	<u>2,816,000</u>
TOTAL	<u>\$ 35,200,000</u>

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Evaluation Criteria Since the project meets the Board's definition of a major capital project, the University has provided the following information in response to the Board's evaluation criteria.

Institutional Mission/Strategic Plan Much of the Chemistry Building is obsolete functionally and the core infrastructure of the building – plumbing, HVAC, electrical service – is in need of replacement.

Renovation of the Chemistry Building will replace undergraduate instructional laboratories built three generations ago with modern laboratories that are designed with effective teaching in mind. Modern laboratories provide more effective line-of-sight for demonstrations and instructions, are safer due to less crowding and enhanced ingress/egress, and are constructed with utilization of technology – particularly computerized data acquisition and display – in mind.

The College of Liberal Arts and Sciences has long had the goal of increasing the size of the Chemistry faculty to 30–32 FTE (a goal based on recommendations from the 1994 and 2000 reviews of the Department.) At its present size, the tenured/tenure-track Chemistry faculty cover only 45% of the student credit hours taught in Chemistry. A much higher proportion of students need to be enrolled in tenure-track faculty-taught courses, particularly at the introductory and intermediate levels. By restoring the Department to a faculty size of 30-32 FTE, the proportion of faculty-taught student credit hours could increase to at least 80%.

There is not enough quality research space currently available to the Department of Chemistry to allow both faculty growth through new faculty hiring, and retention and growth of the current faculty research programs. The poor condition of the teaching and research space in the Chemistry Building has been a major factor in the Department's difficulty in recruiting new faculty as current faculty retire, and in convincing faculty to stay at Iowa in the face of an external opportunity.

As a core discipline, the Department of Chemistry is highly central to the University's teaching mission. It is among the top three departments in the College of Liberal Arts and Sciences in the number of course seats it offers (~7500/year). Undergraduate majors and programs that *require* Chemistry for their plans of study include:

- Biochemistry
- Biological Sciences
- Environmental Sciences
- Exercise Science
- Geoscience
- Microbiology
- B.S. in Geography
- Pre-medical
- Pre-dental
- Pre-pharmacy and pharmacy
- Clinical Medical Sciences Program
- Engineering
- College of Education teacher certification in the sciences
- Natural sciences component of the General Education Program of the College of Liberal Arts and Sciences.

In addition, the Department of Chemistry teaches courses that are taken by graduate students in the Colleges of Liberal Arts and Sciences, Pharmacy, Engineering, and Medicine.

Political, industry and civic leaders have emphasized the need to attract highly trained people to the state, and to keep those who we train here, for employment in technology-oriented industries. States that have been most successful in attracting high-technology industries have offered a core of expertise and resources centered on high-quality university science programs.

The renovation will allow us to systematically address the safety issues surrounding the storage and transportation of chemicals for research and teaching.

Other Alternatives  
Explored

A master planning study authorized by the Board Office and completed in 2002 evaluated appropriate use of space that will be vacated in CB and determined that it was more cost-effective to reuse this space for modern research laboratories, as well as for teaching and office uses.

The master plan and a follow-up implementation study for the CB considered new construction, but ultimately renovation of the building was recommended as the best alternative. These studies suggested that while the facility has obvious code, accessibility, and building system challenges, a properly funded and executed series of major renovation projects could result in a modern, functional instruction/research facility for many years to come.

Impact on Other Facilities and Square Footage	<p>A portion of the building will be abandoned by the relocation of the Botany Department to the renovated Biology Building, and by the replacement of lecture hall 300 with a new 400-seat lecture hall in the Pomerantz Center. This provides tremendous opportunity to renovate the Chemistry Building.</p> <p>Space will be assigned to meet the needs for additional faculty and graduate student laboratories; for larger, safer instructional laboratories; for safer laboratory support areas; and for shared study and collaboration spaces.</p>
Financial Resources for Construction Project	<p>The project will be primarily funded from the proceeds of academic building revenue bonds. It is currently the highest priority construction project on the Regents capital request list for the University of Iowa. Additional, supplemental University commitments will assure that all critical aspects of the project within the project boundaries can be accomplished.</p>
Financial Resources for Operations and Maintenance	<p>The University General Fund currently funds the operations and maintenance of the Chemistry Building. O&amp;M costs are not expected to increase, but the utility cost component of O&amp;M will increase marginally due to air change requirements.</p>
External Forces	<p>The renovation of the Chemistry Building will substantially improve the building's compliance level with a number of requirements, including the areas of fire safety, environmental, and accessibility for persons with disabilities. It will also facilitate the recruitment of Chemistry faculty who are expected to successfully compete for external grants and who are needed to meet core teaching responsibilities for the UI. (See also response to question #1 above)</p>

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**Kinnick Stadium Renovation**

Project Summary

	<u>Amount</u>	<u>Date</u>	<u>Board Action</u>
Permission to Proceed		March 2003	Approved
Architectural Selection (Neumann Monson Architects, Iowa City, IA)		June 2003	Approved
Initial Review and Consideration of Capital Project Evaluation Criteria, Subject to Further Review with Master Plan		July 2003	Received Report
Architectural Agreement—Programming, Master Planning and Schematic Design Services (Neumann Monson Architects, Iowa City, IA)	\$ 1,599,000	July 2003	Approved
Authorization for Use of Construction Manager Services		Sept. 2003	Ratified <sup>1</sup>
Construction Manager Selection (Mortenson, Minneapolis, MN)		Sept. 2003	Approved
Authorization for Executive Director to Approve Negotiated Construction Manager Agreement		Sept. 2003	Approved
Master Plan Presentation		Dec. 2003	Received
Interim Review and Consideration of Capital Project Evaluation Criteria		Dec. 2003	Preliminarily Approved
Program Statement		Dec. 2003	Preliminarily Approved
Modified Program Statement		March 2004	Approved
Final Review and Consideration of Capital of Project Evaluation Criteria		March 2004	Received Report
Schematic Design		March 2004	Approved
Project Description and Total Budget	86,825,000	March 2004	Approved <sup>2</sup>
Architectural Agreement—Design Development and Construction Phase Services (Neumann Monson Architects, Iowa City, IA)	7,676,454	March 2004	Approved <sup>3</sup>
Construction Manager Agreement— Preconstruction Services (Mortenson, Minneapolis, MN)	761,372	March 2004	Approved <sup>3</sup>
Construction Manager Agreement— Construction Phase Services (Mortenson, Minneapolis, MN)	5,996,385	May 2004	Requested

<sup>1</sup> Authorized by Executive Director

<sup>2</sup> Approval for schematic design Option E

<sup>3</sup> Approval based on selection of schematic design Option E

## Background

The **Kinnick Stadium Renovation** project will address the most critical deficiencies with the stadium, including replacement of the south end zone bleacher area and west side press box; renovation of the concourse, concession and restroom areas; and replacement of mechanical, plumbing, and electrical systems. The total project budget is \$86,825,000.

Preparation of the site will begin in the summer of 2004 and the work will be undertaken in two major phases, with a total of 25 to 30 construction packages, which will be scheduled to optimize productivity and on-site coordination while maintaining a safe environment for both game-day and non-game-day activities in and around the stadium.

- The first phase is scheduled to begin at the completion of the 2004 football season, and the second phase is scheduled to begin after the 2005 football season; substantial completion of the project is expected prior to the 2006 football season.

In April 2004, the Board approved the project description and budget (\$2.3 million) for the **West Campus Utility Extension** project, which will extend utilities through the Kinnick Stadium site to provide potable water and fire protection for the future stadium improvements and provide reliability and capacity improvements for the water service for the west campus facilities.

- The University plans to commence construction of the utility work in June 2004 with completion expected in early 2005.

## Construction Management Services

In September 2003, the Board approved the selection of Mortenson of Minneapolis, Minnesota, to provide construction management (CM) services consisting of cost estimating, contractor coordination and management, and construction scheduling services, to ensure the successful completion of the project on budget and on schedule, without disruption of the football seasons and with maximum participation by Iowa-based construction firms.

- Mortenson will serve as the University's agent (CM as agent) and will not be permitted to perform any of the construction work on the project; the University will hold all of the prime construction contracts for the various phases of the project which will be bid, awarded and administered in accordance with Board policy.

The CM approach is significantly different from the University's standard approach for construction projects in which one general contractor coordinates and manages all of the trade contractors.

- The general contractor includes within its bid the appropriate staff and general conditions to manage the project; this includes project managers, project engineers, schedulers, safety engineers, quality control engineers, superintendents and administrative support, who are responsible for the coordination and management of all subcontractors and suppliers.

- The general contractor also includes a fee within its bid to cover corporate overhead and profit.

The CM for the Kinnick Stadium Renovation project will replace the general contractor, and will coordinate and manage the various trade contracts in lieu of the general contractor; this includes the contracts for the utility and parking projects associated with the stadium renovation project.

Agreement for  
Pre-Construction  
Services

In March 2004, the Board approved the agreement with Mortenson for pre-construction services which includes constructability evaluations of schematic design concepts, cost estimating, project timing and phasing, labor force evaluations, and coordination with potential contractors.

Agreement for  
Construction  
Phase Services

The agreement for construction phase services would provide coordination and management of the overall construction effort over the life of the construction project.

The scope of services would include:

- Coordinating and managing all on-site construction activities;
- Monitoring and controlling scheduling and resource allocation;
- Overseeing construction phasing and scheduling;
- Communicating with and recruiting Iowa-based construction firms;
- Communicating and coordinating with University personnel and the project architects;
- Reviewing contractor pay applications;
- Managing the overall quality control and safety programs;
- Ensuring that materials are ordered with sufficient lead times to maintain the construction schedule; and
- Coordinating contractors and labor on the construction site.

Mortenson would provide the services of a project director, project and contract managers, specialty engineers, superintendents, and administrative support; these services are estimated to total more than 42,300 hours over the estimated 2.5 year construction period.

The agreement would provide construction phase services for a fee not to exceed \$5,996,385, including reimbursables totaling \$3,806,121.

The proposed fee structure is based on the following:

- Number of project phases and construction period;
- Size and complexity of project scope, particularly with respect to the local/state construction market;
- Required coordination with Owner's representatives;
- On-site staffing requirements;
- Capacity of trade contractors and effort required to solicit bidders; and
- Number and timing of bid packages.

The reimbursable expenses do not include general conditions work which may be performed by Mortenson to facilitate the overall construction effort; the University would negotiate an amendment to the agreement if these additional services are needed.

Justification for Fee

To determine a fair market value price for the CM construction phase services, the University investigated CM costs for similar projects at large universities across the country, and collected information on projects of significant size where Mortenson served as the CM. The University reports that the CM fees for these projects range from 7 percent to 10 percent of total construction dollars managed.

The University further reports that the negotiated fees with Mortenson relative to the total construction estimates for the Kinnick Stadium and associated projects, for both pre-construction and construction phase services, are consistent with this range.

**Oakdale Steam and Condensate Replacement—Phase 1**

Project Summary

	<u>Amount</u>	<u>Date</u>	<u>Board Action</u>
Project Description and Total Budget	\$ 976,000	May 2004	Requested
Engineering Agreement (Shive-Hattery, Iowa City, IA)	73,660	May 2004	Requested

Background

The existing high pressure steam and condensate distribution system on the Oakdale Campus has surpassed its life expectancy and is leaking condensate.

Project Scope

The project would replace a portion of the Oakdale Campus steam and condensate lines (885 linear feet) and construct and expand concrete vaults to accommodate the new lines.

As indicated on the map included as Attachment B, the new lines would be installed from the Oakdale Power Plant west to Old Farmstead Road, and north through the site of the Physiology Research Laboratory with steam line connections to the Physiology Research Laboratory also being replaced.

- The University anticipates replacement of the remainder of the steam system loop with future development of the Oakdale Campus.

The new steam and condensate lines would be sized to meet the anticipated capacity requirements for the new Hygienic Laboratory proposed for construction on the Oakdale Campus. (The proposed site is located west of the Institute for Rural and Environmental Health as indicated on the attached map).

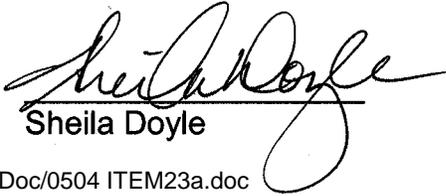
Design Agreement            The agreement with Shive-Hattery would provide design and construction administration services for a fee of \$73,660, including reimbursables.

Funding                      Utility Improvement and Replacement Funds.

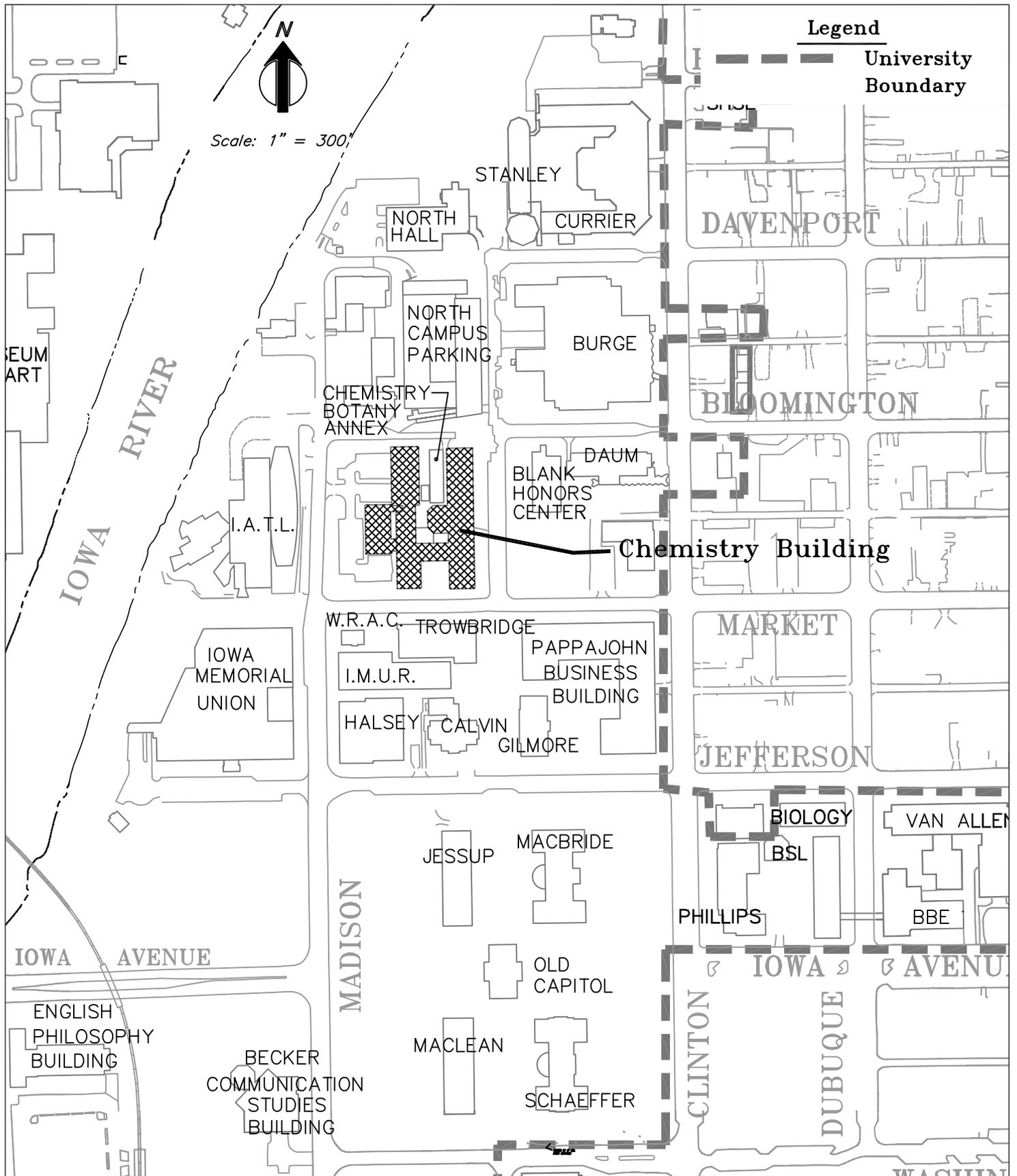
Project Budget

Construction	\$ 775,230
Design, Inspection, and Administration	
Consultants	73,660
Design and Construction Services	48,540
Contingencies	<u>78,570</u>
TOTAL	<u>\$ 976,000</u>

Also presented for Board ratification are 16 project budgets less than \$250,000, one architectural amendment approved by the Executive Director, six construction contracts awarded by the Executive Director, and the acceptance of four completed construction contracts. The register prepared by the University is included in the Regent Exhibit Book.

  
Sheila Doyle

Approved:   
Gregory S. Nichols

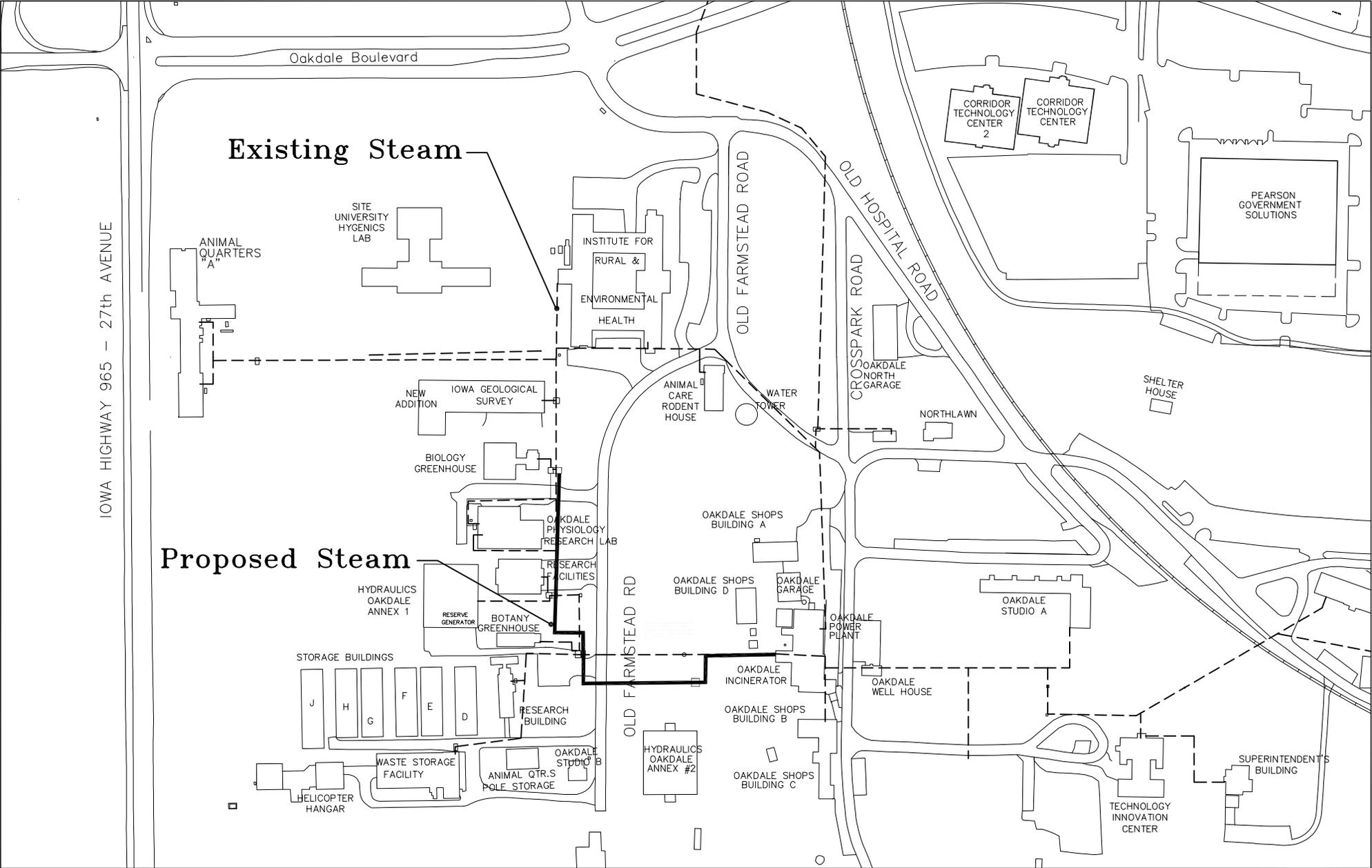


**THE UNIVERSITY OF IOWA**

*CBrenovation.dwg  
 Plotted: February 17, 2004*

**Location Map:**

**Chemistry Building Renovation**



Existing Steam

Proposed Steam

**THE UNIVERSITY OF IOWA**

LOCATION MAP

**Oakdale Steam & Condensate Replacement**

**Phase 1**



Scale: 1" = 250'

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