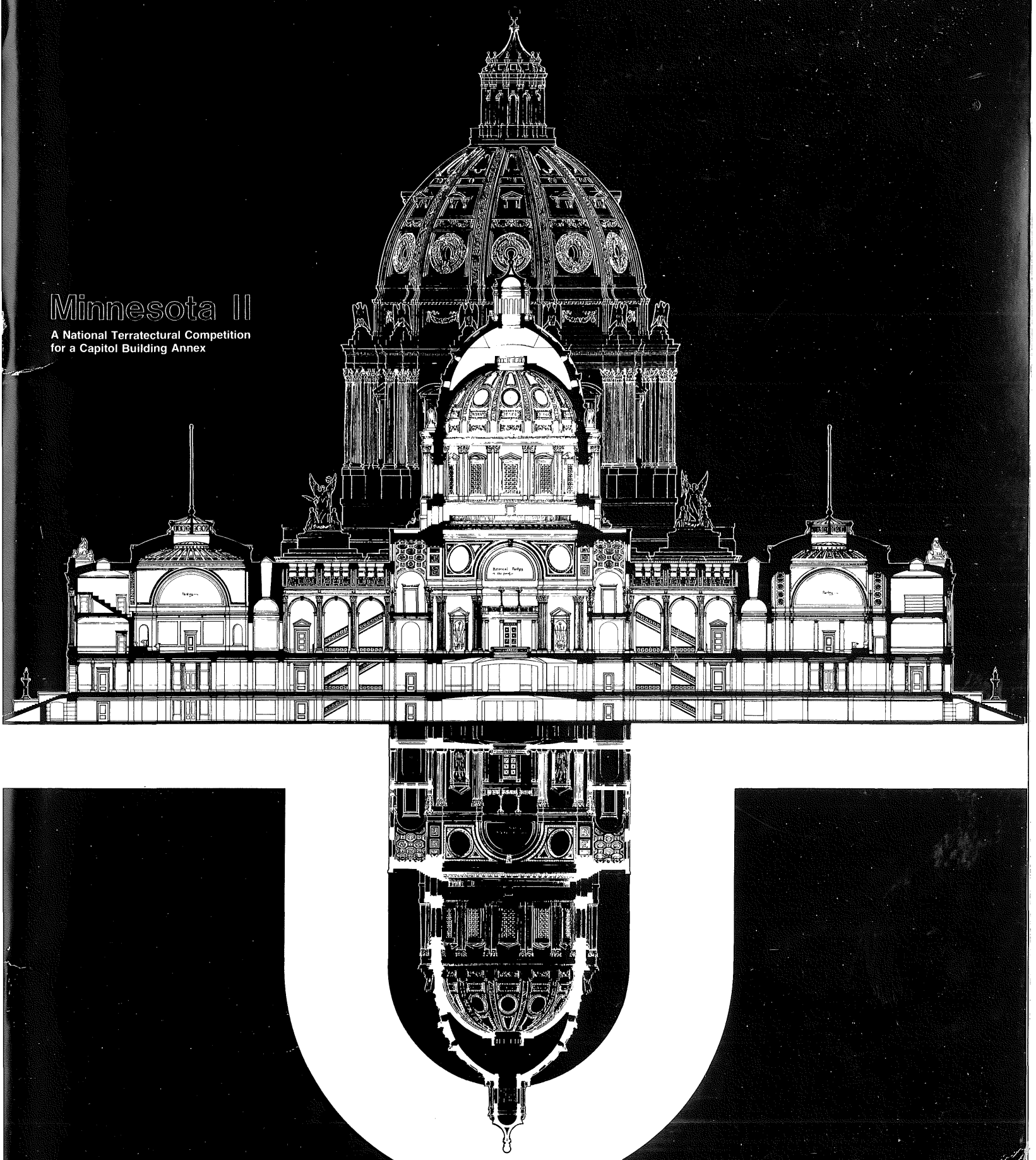
Minnesota II

A National Terratectural Competition for a Capitol Building Annex



This document is made available electronically by the Minnesota Legislative Reference Library as part of an ongoing digital archiving project. http://www.leg.state.mn.us/lrl/lrl.asp

Graphics Designer: David R. Kroos, AIA, The Wold Association

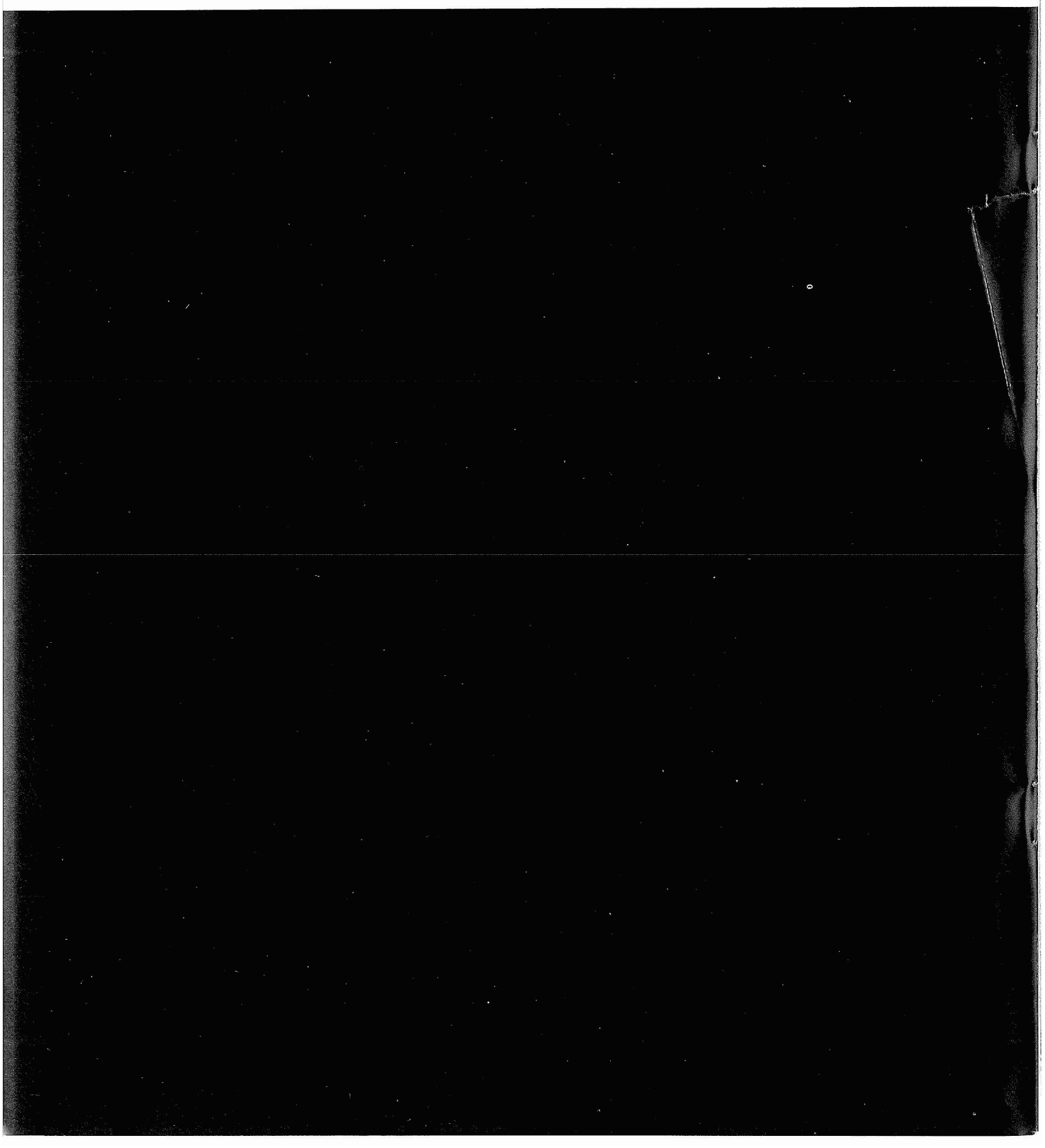
Minnesota II

A National Terratectural Competition for a Capitol Building Annex

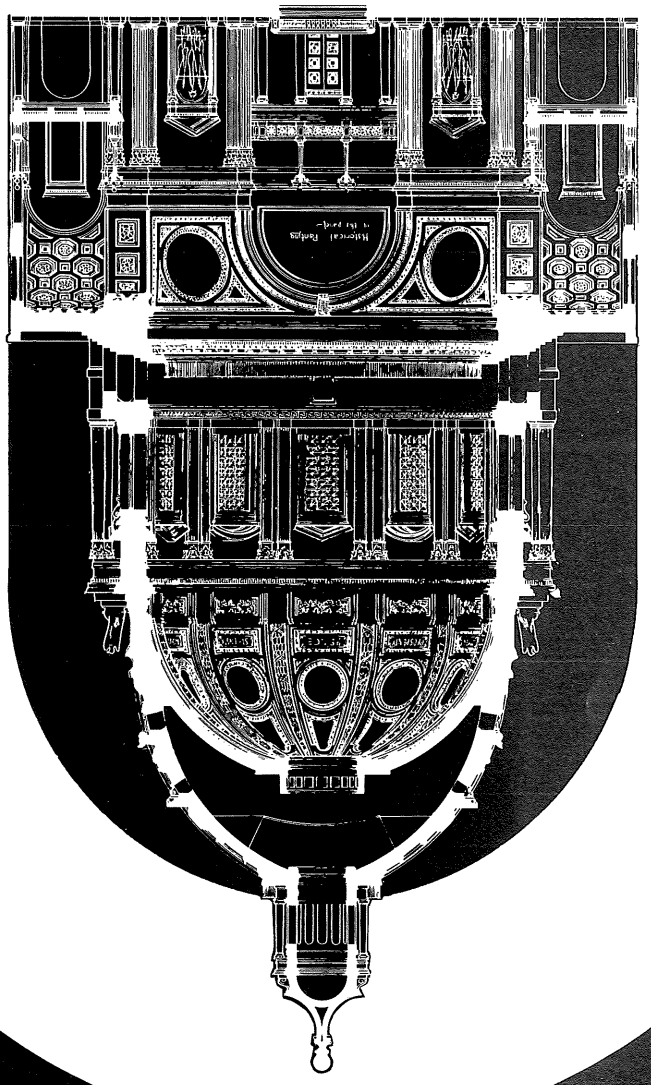
Sponsor
Capitol Area Architectural and Planning Board
State of Minnesota

Professional Advisor
Clark D. Wold, FAIA
Capitol Area Architectural and Planning Board
G-13 State Capitol
St. Paul, Minnesota 55155

Index



History and Philosophy



History and Philosophy

Site History

Of all design elements interposed into the Capitol area composition, the Capitol Building with its monumental scale is without question the most important. In addition to being an historic building and a symbolic building representing the seat of the State Government, it is the dominant focal point of all Capitol area activity — the central idea around which the existing plan revolves and that future planning must respect. Earlier planning recognized the central importance of the Capitol Building by giving it a monumentality and a prominent site from which it could be viewed from great distances. The building is a landmark and a point of orientation on the urban skyline of St. Paul.

In 1893 the Seabury Commission, appointed by Governor Knute Nelson, authorized a national competition for the design of a new State Capitol Building. The winning proposal was submitted by St. Paul architect Cass Gilbert. His design was approved, and the building was completed in 1905 on its present site. The Minnesota State Capitol Building has since been recognized as a triumphant expression in stone, symbolizing the seat of government for the State of Minnesota. Its grand spaces, monumental scale, beautiful material, and elegant detail have become a part of our heritage. For the dedication of the completed Capitol Building, the Seabury Commission recommended that responsibility for the development of the Capitol area be placed in the hands of an independent authority.

In 1967, the Minnesota Legislature created the Capitol Area Architectural and Planning Board. This is a permanent body, responsible for the architecture and comprehensive planning for the Capitol area. The Board, chaired by the Lieutenant Governor, is composed of six other members; four appointed by the Governor and two by the Mayor of St. Paul. Advising the Board is an Architectural Committee of three nationally prominent architects.

Directions given by the State Legislature state that the purpose of the Board is:

(1) to preserve the dignity, beauty and architectural integrity of the Capitol, the buildings immediately adjacent to it and the Capitol grounds;
(2) to protect, enhance, and increase the open spaces within the Capitol area when deemed necessary and desirable for the improvement of the public enjoyment thereof;
(3) to develop proper approaches to the Capitol area for pedestrian movement, the highway system, and mass transit system so that the area achieves its maximum importance and accessibility; and;
(4) to establish a flexible framework for growth of the Capitol buildings which will be in keeping with the spirit of the original design.

In 1973 the State Legislature passed a bill authorizing an appropriation for preliminary plans for a Capitol Building Annex. That facility will contain legislative hearing rooms, Historical Society educational services and museum space, an auditorium, a cafeteria, and parking. The entire complex is to be under the mall in front of the State Capitol Building and is the facility outlined in further detail in the body of this competition program.

Philosophy — Legislative

The State of Minnesota has long enjoyed a tradition of a very high level of public participation in its governmental processes. From its town meeting halls to the State Capitol that heritage is being preserved. The tradition of public involvement has fostered an atmosphere of openness in government, honesty in political decision-making, and responsiveness to public concerns. The Minnesota Legislature has passed one of the strongest open meeting laws in the nation. By providing a central, easily accessible location for legislative and executive branch meetings, the new facility will be a practical and logical manifestation of that open meeting law as well as an expression of the values of political openness and honesty of its people.

The necessity for the Legislature and executive branch agencies to hold public meetings in close proximity to the Capitol Building has influenced the site locations available for the facility. A joint legislative committee has approved the mall site directly in front of the Capitol Building as being appropriate. The concern for preserving and enhancing the grandeur of the Capitol area has commit-

ted the Legislature to the idea that any new construction in the area must not in any way interfere with the view and vista of the Capitol itself. Therefore, the most appropriate solution to these requirements is a facility built underground and adjacent to the Capitol.

Philosophy — Minnesota Historical Society

The Minnesota Historical Society was founded in 1849 with the hopes and expectations of the new Territory. During its 127 year history, the Society has focused its efforts on collecting and preserving the records of the past and its holdings represent significant preservation of Minnesota's history and heritage.

Specifically, the Historical Society seeks to use its space within the legislative/history center to provide a central location for its education programming division, which presently services 300,000 visitors to the Capitol complex and an assumed visitation of 500,000 annually.

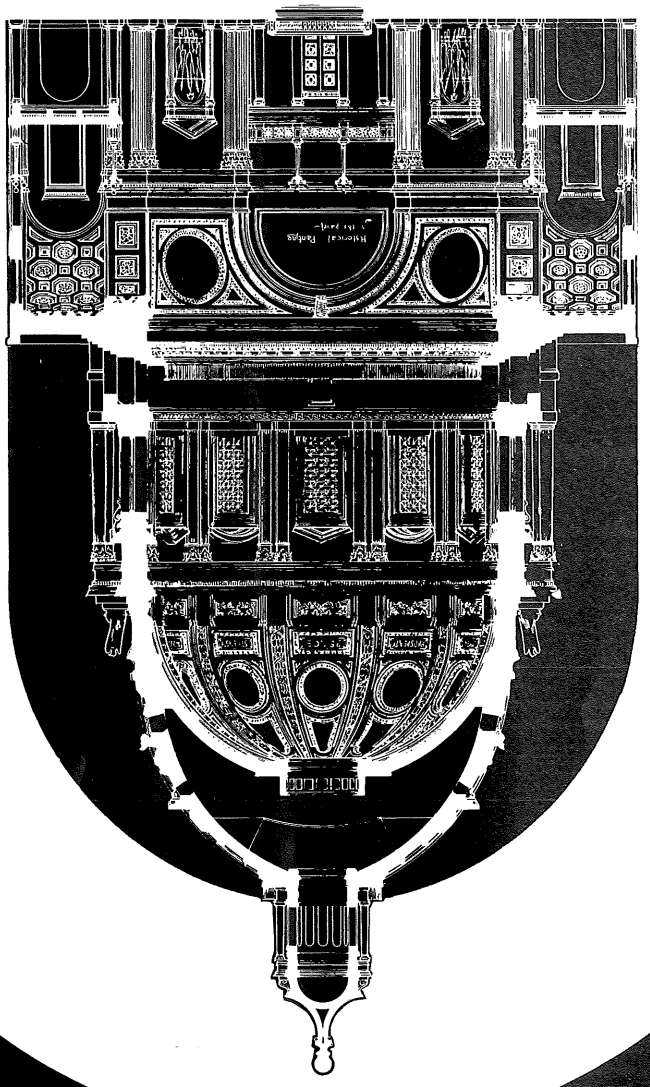
The expectation is that if a child, teacher, or lay-adult has a question about Minnesota history, or political history in particular, there is one central facility which can assist in providing an answer.

The Society does not view history as passive, but rather as a dynamic force which aids people in understanding themselves and their communities. History is not something to stand back from, but rather to participate in. Discovering in an exhibit cooking utensils like one's grandmother used helps people to see themselves as a part of history. Reading biographies of immigrants to the state from a resource unit encourages the individual to explore his own family history. Talking with a legislator during Government Days helps students understand the difficult choices government leaders have always had to make. Touring the Capitol can provide insights into the values of people at the turn of this century and raise the question, What would be included if the building were being designed today?

The museum exhibits will be designed to present how different cultures at different times in the history of Minnesota have sought to answer important human questions. They will illustrate how all people have had to balance their dreams with their realities. The entire space will provide each individual visitor with an opportunity to see himself as a part of history and discover how various historical factors have influenced his own life. In providing this, the Society will bring to bear its entire holdings utilizing the most sophisticated audio-visual exhibit techniques.

The museum will be integrated with the other services performed in the facility and cannot be viewed separately. The Society administers the Capitol tour program, Government Days for students, adult programs, participatory class programs in the museum, the development of curriculum resources, and teacher training programs related to Minnesota history.

Competition Rules and Regulations



Competition Rules and Regulations

Rules and Regulations

1. Proposed Facility

The State of Minnesota proposes to erect a Capitol Building Annex on the site at Parcel #1 and Parcel #2, Design District "A", as designated on the Comprehensive Plan for the Minnesota State Capitol Area and as indicated on exhibit number 7 in the enclosed envelope.

2. Authority and Definition of Owner

This competition is being held by the State of Minnesota. The State of Minnesota, by law, has delegated and authorized the Capitol Area Architectural and Planning Board (CAAPB) the authority to select a design by competition; such competition shall be conducted under the rules prescribed by the Board and may be of any type which meets the competition standards of the American Institute of Architects. Reference: (M.S.A. 1974 Chapter 15.50 Subd. 2 (e)).

Upon selection of the Architect, the Owner-Architect agreement is made with the Department of Administration of the State of Minnesota who serves as the client for planning and construction administration as defined in the proposed Owner-Architect agreement. This includes final acceptance of the project.

The CAAPB must approve any substantial changes in the approved design. Reference: (M.S.A. 1974 Chapter 15.50 Subd. 2 (c)).

3. Architectural Advisor

The CAAPB has appointed as its Professional Advisor, Clark D. Wold, FAIA, The Wold Association, Inc., competition address: CAAPB, G-13 State Capitol, St. Paul, Minnesota 55155, to prepare this program and act as their Advisor in the conduct of competition. The Advisor has appointed Nancy S. Cameron as Program Director of Competition to help in preparation of this program and aid in conducting the competition. All correspondence should be directed to the Professional Advisor, Capitol Area Architectural and Planning Board, G-13 State Capitol, St. Paul, Minnesota 55155.

4. Those Eligible to Compete

Participation in this competition is open to all Architects registered, resident and with principal offices in the United States of America who have made application to the Professional Advisor on or before October 4, 1976, and who have submitted with their entry evidence as to being licensed to practice architecture and who also visit the site before November 5, 1976. Association of competitors with other Architects and professionals in related disciplines is encouraged, and if so, such association must continue for the duration of the project. The Program contains the Competitor's Statement required for the competition. This form must be submitted in the sealed envelope with other required materials (Article 13).

Members of the Jury, associates (with the exception of academic associates) and employees of Jury members and of the Professional Advisor are excluded from this competition. This competition will allow one (1) entry from each duly registered competitor.

5. Jury of Award and Recommendation

A. The CAAPB agrees that there will be a Jury of Award and Recommendation which will consist of the following members:

Pierce Butler, St. Paul, Minnesota
John C. Harkness, FAIA, Cambridge, Massachusetts
Dan Kiley, Charlotte, Vermont
William LeMessieur, Cambridge, Massachusetts
Representative Fred Norton, St. Paul, Minnesota
Ralph E. Rapson, FAIA, Minneapolis, Minnesota
Hideo Sasaki, Watertown, Massachusetts
Judge Joseph P. Summers, St. Paul, Minnesota
Dr. Donald R. Torbert, Minneapolis, Minnesota

B. **Advisory Panel:** The co-chairmen of the Joint Legislative Committee on Capitol Area Space Needs shall appoint four persons and the Director of the Historical Society shall appoint one person to the Advisory Panel for the first and second stage judging to provide necessary input in regard to functional solutions and fiscal appropriation procedures. This panel shall be present at the Jury deliberations, but shall not participate in deliberations or vote on the winning design.

Any communication between the Advisory Panel and the Jury shall be made through the Professional Advisor. No additional information that might be a major factor in the selection of the winning design shall be given to the Jury that was not made available to the competitors by the Competition Program and the written question and answer period.

C. The Jury proceedings will be open to the public in compliance with the Minnesota open meeting law. It is the intent to allow the public an opportunity to view the entries prior to each Jury deliberation and to be present in a separate area should they so desire during deliberations. They will not be permitted to speak or interrupt the proceedings. The Professional Advisor will make every effort to assure anonymity and complete fairness to all competitors.

D. Should any member of the Jury be unable to act, the CAAPB shall appoint a substitute, upon recommendation by the Professional Advisor.

6. Authority of Jury

The CAAPB agrees that the Jury will have authority to select one of the Stage II designs submitted as the winning competition design, and the Jury will make such a selection unless no design is submitted which fulfills the mandatory requirements of the program.

This selection of the Jury will be the Jury's recommendation to the CAAPB for the design of the Capitol Building Annex, and the CAAPB shall award the first prize to this competitor. The CAAPB has the authority to adopt the design for the Capitol Building Annex.

7. Examination of Designs and Selection of Competitors

The Professional Advisor will examine the designs to ascertain whether they comply with the mandatory requirements of the program, and will report to the Jury any instance of failure to comply with these mandatory requirements. The Owner further agrees that the Jury will satisfy itself of the accuracy of the report of the Professional Advisor, and will place out of competition and make no award to any design which does not comply with these mandatory requirements.

The Jury will carefully study the program and any modification thereof, which may have been made through communications (see Article 12), and will then consider the remaining designs, holding at least two sessions on separate days, and will recommend five (5) winning designs. The Professional Advisor will notify the winning designers and will subsequently release the names of the five winning entries at the end of the first stage to the public. The Professional Advisor shall notify the second stage winner and four finalists as to the Jury's selection of the winning design.

In making the first and second stage awards, the Jury will thereby affirm to the Professional Advisor that it has made no effort to learn the entry of the various competitors, and that it has remained in ignorance of such identity until after the selection of the recommended final designs or Stage II recommended winning design.

The CAAPB agrees that the selection of winners and award of prizes will be made as described in Article 10 COMPENSATION TO WINNERS.

8. Award of Contract for Architectural Service

It is the intent of the Owner to employ as Architect for the proposed project the author of the second stage design recommended by the Jury and adopted by the CAAPB as the design for the Capitol Building Annex. The first prize or fee advance shall be awarded to the competitor selected by the Jury. The contract between the winner and the Owner shall contain the "Conditions" hereinafter stated. If the CAAPB considers the winner lacking in experience or training, availability or adequate size, it may require the winner to associate with an Architect of the winner's choosing who is of recognized experience and standing and who maintains principal offices in Minnesota; such choice must be approved by the Owner. The fee for the execution of work will not be increased by reasons of such association.

Competition Rules and Regulations

9. The Report of the Jury

The Jury will make a full report of its selections to the CAAPB which will state its reasons for the selection of the five finalists at the first stage judging, and for the selection of the winning design for the second stage judging of the designs, and a copy of these reports accompanied by the names of the first stage prize winners and the eventual winner will be available to each competitor upon completion of the competition.

10. Compensation to Winners

In full discharge of his obligations to them, the Owner agrees that five (5) individual prizes of $25,000 each will be awarded to successful Stage I participants. Disbursement of $12,500 will be made within ten (10) days of selection of Stage I winners and $12,500 will be paid within ten (10) days of completion and submittal of Stage II entries. It is the intent of the Owner that the contract for architectural services will be awarded to the Stage II winner along with a fee advance of $100,000 to be disbursed within thirty (30) days of the announcement of the winner. If for any reason the project is abandoned, the fee advance will constitute the final prize to the Stage II winner.

11. Exhibition of Drawings

Entry materials will be put on display to allow the public an opportunity to view the entries prior to Jury deliberation in both Stage I and Stage II. It is agreed that entry materials shall become the property of the CAAPB and on this account it is suggested that prints and not original drawings be submitted. All entries other than those chosen as the five finalists can be picked up until March 31, 1977, at the offices of the CAAPB, Room G-13 State Capitol, St. Paul, Minnesota, 55155; after this date entries may be destroyed.

12. Communications (Mandatory)

If any competitor desires information of any kind in regard to the competition, or the program, he shall ask for this information by anonymous letter addressed to the Professional Advisor, and in no other way. The answer thereto will be sent simultaneously to each competitor if, in the opinion of the Professional Advisor, the question is useful and relevant, but no request received after November 1, 1976, in Stage I will be answered and no request received after January 24, 1977 in Stage II. No questions will be accepted or answered by telephone or means other than simultaneous written communication.

13. Anonymity of Drawings (Mandatory)

The drawings to be submitted shall bear no name or mark which could serve as a means of identification, nor shall any competitor directly or indirectly reveal the identity of his designs, or hold communication regarding the competition with the Owner, or any member of the Jury, or with the Professional Advisor or their staff, except as provided for under "COMMUNICATIONS". It is understood that in submitting a design, each competitor thereby affirms that he has complied with the foregoing provisions in regard to anonymity and agrees that any violation of them renders null and void this agreement and any agreement arising from it. With each set of drawings must be enclosed a plain, opaque, sealed envelope without any superscription or mark of any kind, containing the name and address of the competitor and proof of registration and site visit (See Article 4) and should be attached to the upper left corner of the first board. These envelopes shall be opened by the Professional Advisor at the Stage I selections and he will notify Stage I winners. The Stage II winning envelope shall be opened by the Professional Advisor in the presence of the CAAPB and Jury. The drawings shall be double wrapped. The inner wrapping of opaque paper shall bear no mark or identification of any kind.

14. Delivery of Drawings (Mandatory)

Stage I drawings shall be addressed to the Professional Advisor, Capitol Area Architectural and Planning Board, G-13 State Capitol, St. Paul, Minnesota 55155, and postmarked not later than 12:00 midnight, December 10, 1976; or if hand-delivered, delivered no later than 5:00 p.m., December 10, 1976. The express company's or post office's receipt bearing date and name of competitor shall be mailed immediately to the Professional Advisor as evidence of submission. The competitor should request a return receipt of delivery from his source to insure delivery has actually been made to the CAAPB office. **NEITHER THE PROFESSIONAL ADVISOR OR THE CAAPB SHALL BEAR ANY RESPONSIBILITY WHATSOEVER FOR THE SAFE OR TIMELY DELIVERY OF THE COMPETITOR'S MATERIAL.**

15. **Site** (Mandatory) Stage I

A visit to the site by each competitor will be required for Stage I consideration. A Competitor's Statement, herewith enclosed, signed by the competitor stating the site has been visited on or before November 5, 1976, must be included with the competitor's Stage I submission in the envelope provided for in Article 13.

16. Area

A. Floor Area (Mandatory) Stage I

All entries shall include tables showing separately:

1. Net area of each space, floor by floor, and total thereof.
2. Gross area, floor by floor, and total thereof.
3. Number of parking stalls per level.

Gross area shall be taken outside of the building walls.

B. Cube Diagram (Mandatory) Stage II

1. Gross cubic area of each space, floor by floor, and total thereof.
2. The diagram should show tabulation method of how the cube foot total was obtained.
3. Statement of probable cost based on an anticipated bid opening date of June, 1978.

17. **Stage I Requirements** (Mandatory)

A. Drawings shall be mounted on only two (2) 30″ × 40″ sheets of white foam core. Nothing should project beyond the surface of the paper and no frames will be allowed. Drawings shall be in any black and white medium. It is the intent that the first stage drawings be as simple and clear as possible, indicating an overall solution. Indicate all stairs, elevators, escalators, ramps, toilets and approximate allowance for heating, ventilation, air conditioning, vent shafts and electrical equipment.

B. Site Plan at scale 1″ = 100′. Show a complete site plan. The site plan enclosed in the accompanying envelope to the program (exhibit number 7) is at this scale and should be used as a guide for presentation parameters. Indicate all streets, walks, and paved areas. Show all landscape treatment and exact development of entire building site. Site Plan shall include the existing State Capitol Building and surrounding pertinent area including the State Office Building, existing Minnesota Historical Society Building, proposed scheme for portal design, and southwardly to Columbus Avenue.

C. Floor Plans at scale 1/64″ = 1′-0″.
Floor Plans at all levels. Entrances to all other buildings must be clearly indicated. Floor plans should not be rendered.

D. Two sections at scale 1/64″ = 1′-0″.
Longitudinal Sections (North/South including the Capitol Building entry)
Cross Section (East/West including the State Office Building and Historical Society Building entries)
The sections should not be rendered.

E. Perspective
One perspective (small scale) sketch (or photo of a model) illustrating a view or feature selected by the competitor and deemed to be particularly noteworthy to help illustrate the competitor's concept. No additional drawings or photographs may be included.

F. In addition to the requested drawings, each competitor shall submit one plain, unidentified white 8½ × 11 typewritten page explaining his design philosophy as applied to the project. This is to be attached to the upper left corner of the first board. Boards should be marked in upper left corner 'A' and 'B'.

18. **Stage II Requirements** (Mandatory)

These requirements shall constitute the Schematic Design Phase, Article II of the proposed contract.

A. No major changes in design concept will be permitted from original Stage I submissions. This stage is meant to refine the original concept and provide detailed information for estimating and clearer understanding of all systems and components.

B. Site Plan as in Stage I at scale 1″ = 50′.

C. Floor plans at 1/16″ = 1′-0″.
Sections North/South and East/West at 1/16″ = 1′-0″
Elevations (*as required to describe scheme*) at 1/16″ = 1′-0″.
(*Include approximate soil depths for planting*)

D. Schematic Diagrams of mechanical systems:
1. HVAC
2. Plumbing (*including irrigation system*)
3. Electrical (*interior and exterior*)
4. Structural
5. Circulation diagrams to solve possible future public transportation system may be requested of the finalists.

E. A diagrammatic model at 1/32″ = 1′-0″.

F. Perspective drawings and model photographs and slides (*as required to describe the design*). Minimum submissions include:
1. A view from Cedar Street entering the building.
2. A view in the building complex at the curb unloading within the main building.
3. A view within the main lobby.
4. A view from the Capitol's top step overlooking the redesigned mall.

G. Cost estimating information prepared in accordance with instructions to be given by Owner (CAAPB).

H. Any further detailed information that will be required from the Stage II entries shall be given to the five finalists by the Professional Advisor at the time of notification of finalist winners.

I. Variances from the existing State Energy Code *may be* allowed for energy conserving options that the competitor may propose.

J. Stage II finalists shall be issued pertinent building codes and zoning documents and possible other information believed helpful to them for further development of their designs.

19. Explanatory Notes (Mandatory Stages I and II)

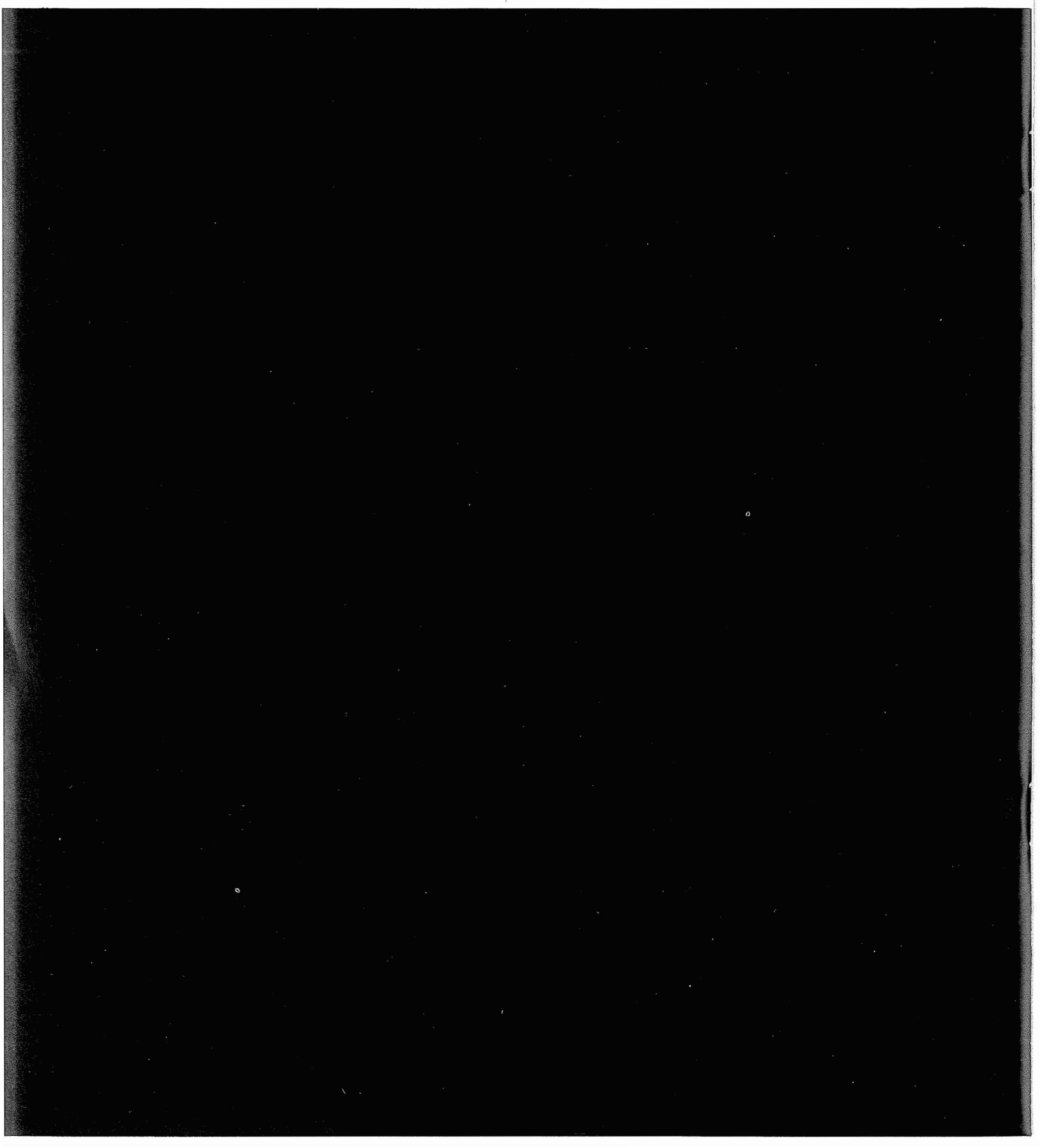
Notations about the structure, principal materials and finishes, tabulation of square footage and parking stalls shall be included on one or more boards, but must not interfere with the easy readability of the drawings. The notes should cover only those matters of structure and the like that are not readily understandable on the drawings.

20. Tentative Schedule of Dates

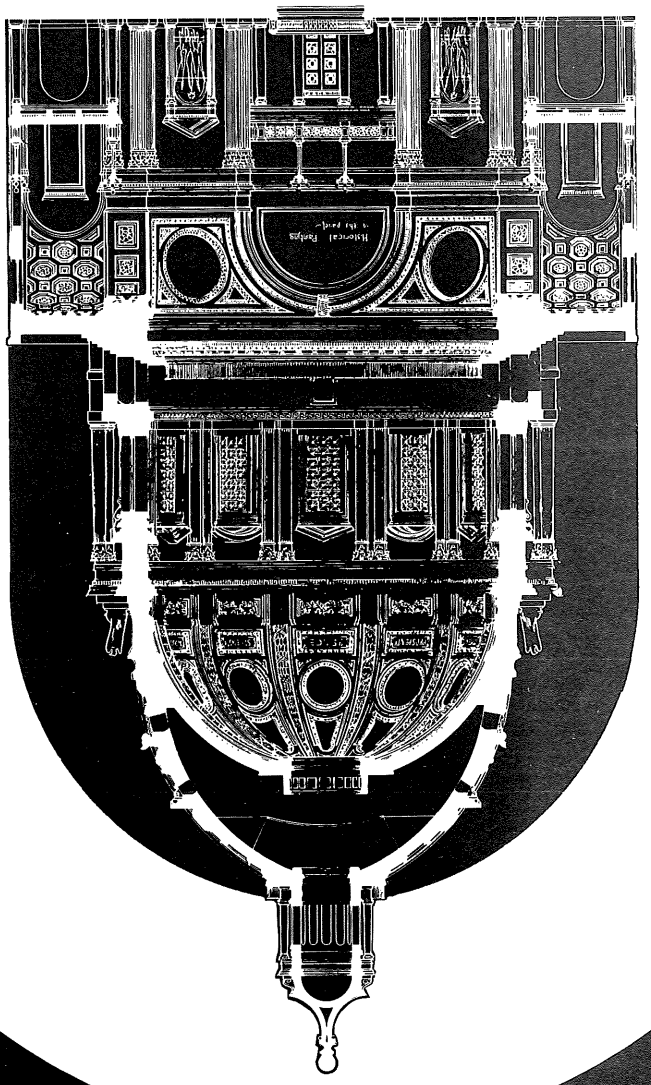
Notice of Competition Released	August 25, 1976
Registration Opens	August 25, 1976
Conditions of Competition Available	September 20, 1976
Registration Closes	October 4, 1976
Stage I Question Period Closes	November 1, 1976
Stage I Entries Due	December 10, 1976
Stage I Jury Meets	December 17, 1976
Stage II Question Period Closes	January 24, 1977
Stage II Entries Due	February 28, 1977
Stage II Jury Meets	March 7, 1977
CAAPB Approval	March 10, 1977

21. Agreement Between Owner and Competitors

In consideration of the submission of drawings and the agreement by the Owner, that the author of the entry selected by the Jury and adopted by the CAAPB shall be employed as Architect for the project, the author of the first-placed entry agrees to enter into the appended contract.



Program Requirements and Space Definitions



Program Requirements and Space Definitions

Program Requirements and Space Definitions (Mandatory)

I. Minnesota Historical Society Requirements

All areas indicated as square feet.

A. Museum Exhibition Space

1. Space designed to house flexibly a core exhibit experience surveying the history of the midwest geographic region. Four separate areas should be defined to reflect the social, political, economic, and religious history of the area. Four defined areas, but designed as a total theme. Approximate height range 22′ – 24′.
   4 @ 5,000 = **20,000**
2. Space designed as a shell to highlight particular aspects of Minnesota's history and significant collections of the Society. Ten "satellite" areas related to the main exhibition space but defined as smaller units of the whole museum experience. Areas should allow for experimentation in exhibit techniques. Approximate height range 10′ – 12′.
   10 @ 1,200 = **12,000**
3. Space designed to house creatively, traveling exhibits from other institutions or organizations.
   1 @ 1,500 = **1,500**
4. Space designed to accommodate a maximum of 100 adults in orientation sessions, room should be capable of providing flexible audio-visual presentations and the capacity to video tape programs and demonstrations.
   1 @ 1,600 = **1,600**
5. GENERAL REQUIREMENTS: Museum Exhibition Space
   a. Audio-visual mechanisms for retrieval of additional historical information and/or information on particular regions of the state and process and activity oriented spaces should be provided. Special services required such as hot and cold water, sinks, gas, exhaust, additional light, etc. at these locations. Space required should be taken from Item 2., this section. A total of 7–8 such areas should be provided: One for each of the four main exhibit areas and 3–4 in the additional "satellite" areas.
   b. The major exhibition spaces should have provision for security gates which separate it from public programs held in the auditorium and classrooms which are held during non-museum hours.
   c. While space requirements of the historical components will be set, there should be great flexibility within each of those spaces to change or adopt programs and exhibits as necessary. Actual exhibits are not to be designed, but rather the space that houses them.
   d. Exhibitions will integrate all facets of the Society's collections, utilizing the most effective exhibit and audio-visual techniques.
   e. Ceilings should be of varying heights to meet functional requirements and yet provide an intimate display space.
   f. Seating areas for resting should be integrated throughout exhibition areas.
   g. A central security area monitoring the entire historical facility should be provided. Additional master sites for controlling light and sound at each of the major exhibit areas and at "satellite" areas is required for individual flexibility to respond to varying types of exhibits.
   h. A lobby area should be provided (*see Joint Facilities*) to create impact and identity for the the Historical Society. Within the area, spaces for information distribution and Minnesota Historical Society individual donor service should be provided. Space should be adjacent to coatrooms and toilets. Include staging area for addressing large groups of arriving individuals.
   i. The Historical Society's existing building should maintain great identity with the new complex. One entrance to the new facility will be through the Historical Building. This should not be viewed as a "back door". The entrance should open onto the exhibit area and in fact might itself be part of the exhibit area and should be equipped with an information desk. It should also have a security gate, closing off either facility when the other is in use.
   j. Circulation to and from the Museum component is from the public mostly arriving by bus or automobile. Anticipated yearly visitation approximates 500,000.

   Sub Total Net **35,100**
   Sub Total Gross @ 1.6 =**56,160**

B. Historical Art Gallery

1. Space designed as a core exhibit experience permanently displaying the most significant pieces from the Society's art collection.

   1 @ 1,500 = **1,500**

2. Space designed to house exhibition experiences for temporary shows.

   2 @ 925 = **1,850**

3. GENERAL REQUIREMENTS: Historical Art Gallery
   a. Provide total lighting flexibility for proper and varying display and preservation of art works.

Sub Total Net	**3,350**
Sub Total Gross @ 1.6	= **5,360**

C. Classrooms

1. Space designed to accommodate 240 students in varying sized groups from 15 to 120. A maximum of two rooms which can be divided into 4 areas is recommended. Movement for project activity will be encouraged in the area. Classroom seating and instruction space is also required.

   1 @ 7,200 = **7,200**

2. GENERAL REQUIREMENTS: Classrooms
   a. Classrooms designed to expand or reduce in area depending upon the size of groups and the required or desired program.
   b. Areas designed for a variety of audio-visual equipment and secured storage.
   c. Provide one classroom area to serve as a "workshop" with sinks, hot and cold water, storage, etc.
   d. Location off major exhibition space, fairly close to the main facility entrance.

Sub Total Net	**7,200**
Sub Total Gross @ 1.5	= **10,800**

D. Teacher Resource Center

1. Space designed to serve as a library for teachers seeking curriculum materials for their classrooms (*Included: Display and storage of resource kits, cassets, tapes, and stacking for approximately 15,000 volumes*).

   1 @ 1,200 = **1,200**

2. Space designed to accommodate teacher preparation and planning, workshop configuration with open tables that can be grouped for training sessions and discussion.

   1 @ 800 = **800**

3. Individualized carrels area for independent study and active audio-visual use.

   1 @ 200 = **200**

4. Offices
   a. Teachers Education Coordinator — 1 @ 200 = **200**
   b. Staff Offices — 3 @ 100 = **300**

Sub Total Net	**2,700**
Sub Total Gross @ 1.5	= **4,050**

E. Educational Services Division & Exhibition Workshop

1. Space designed for coordinators and staff facilitating work in all program areas including: research and writing, publications and audio-visual production, graphic and exhibit design and assembly, maintenance of audio-visual materials, program consultation, reception and staff meeting rooms. Specific areas include:
   a. Education Services Supervisor — 1 @ 280 = **280**
   b. Managing Editor — 1 @ 200 = **200**
   c. Curriculum Resources Coordinator and staff of five — 1 @ 200 = **200**; 500 = **500**
   d. Adult Programs Coordinator and staff of five — 1 @ 200 = **200**; 500 = **500**
   e. Museum and Capitol Programs Coordinator, part-time — 1 @ 200 = **200**
      staff of 30, provide lockers and lounge — 2 @ 50 = **100**
      for guides of the Capitol and museum facility. — 1 @ 300 = **300**

f. Exhibits Coordinator and staff of seven — 1 @ 200 = **200**; 700 = **700**

g. Reception area for services division offices — 1 @ 200 = **200**

h. Staff meeting room — 1 @ 400 = **400**

i. Exhibit workshop area providing storage for traveling exhibits and assembly of museum exhibits. Close proximity to loading dock and exhibition space is required for optimum efficiency. The exhibit workshop, exhibition spaces and loading dock should all provide large entrance openings to accommodate the transfer of extremely large exhibit objects. — 1 @ 2,000 = **2,000**

j. Staff rest rooms should be in close proximity.

Sub Total Net **5,980**
Sub Total Gross @ 1.6 = **9,568**

2. GENERAL REQUIREMENTS: Educational Services Division
   a. All coordinators' offices or spaces shall have acoustic privacy with visual barriers partially separating them from staff and other areas. Space should all be designed to facilitate easy communication. Private office spaces are not required, but acoustic isolation from one group to another is desired.

F. Bookstore and Gift Shop

1. Space designed to provide flexibility for display of various types of gift items and books and for storage of same.
2. Include space for a manager's office.
3. Adjacency to main lobby area desired.

Sub Total Net **2,000**
Sub Total Gross @ 1.6 = **3,200**

II. State Legislature Requirements

A. Hearing Rooms — House of Representatives

1. Space designed to accommodate open hearings with adequate area for legislators, staff, public and press. Provide a small area for generalized storage (*podiums, gavels, etc.*) capable of allowing separate areas for legislative and state agencies. Shelf storage that is enclosed and locked; this area should approximate 5% of the total net area for each hearing room.

   a. Type A: Total of three

   A minimum of one but no more than two of these rooms shall be equipped with auditorium seating (*Adequate space for 150 auditorium seats or 105 individual lounge chairs*)

30 legislators) 5 staff)	1,050	
105 – 150 public & press	1,375	
Secured storage, shelves for stacking	120	
	2,545	3 @ 2,545 = **7,635**

   b. Type B: Total of eight

15 legislators) 5 staff)	700	
55 Public & Press	715	
Secured storage, shelves for stacking	70	
	1,485	8 @ 1,485 = **11,880**

B. Hearing Rooms — Senate

1. Space designed to accommodate open hearings with adequate area for legislators, staff, public, and press. Provide a small area for generalized storage capable of allowing separate areas for legislative and state agency shelf storage that is enclosed and locked.

a. Type B: Total of two

15 legislators)	700	
5 staff)		
55 public & press	715	
Secured storage, shelves for stacking	70	
	1,485	2 @ 1,485 = **2,970**

b. Type C: Total of three

20 legislators)	875	
5 staff)		
90 public & press	1,175	
Secured storage, shelves for stacking	100	
	2,150	3 @ 2,150 = **6,450**

c. Type D: Total of one

This room should be suitable for holding joint hearings. Legislative and public seating could vary in ratio, therefore, seating should be flexible and capable of handling the variance created.

22 legislators)	945	
5 staff)		
150 public & Press	1,950	
Secured storage, shelves for stacking	145	
	3,040	1 @ 3,040 = **3,040**

C. General Requirements — Hearing Rooms

1. The legislative component of the new facility should reflect clear separation and strong, easily recognized identity from the Historical Society through its architectural design statement.
2. The hearing room component should have the ability to be closed off and made secure independently from the rest of the facility.
3. The hearing rooms will also meet the need for public meeting room space for executive branch agencies. Therefore, the spaces should provide furnishings with the capability of responding to various group sizes, types of meetings, and different configurations.
4. Spaces should be dignified and warm in feeling. Dramatic emphasis should be placed on "Legislators" or "Boards" that are meeting via focus accomplished through architectural statement and environment.
5. Flexibility: Spaces should be designed to provide annual economic structural flexibility with minimum changes required in mechanical and electrical systems to accommodate varying configurations and sizes of committees now and in the future. This does not preclude sloping or stepping of floors.
6. Two means of entrance will be required for each hearing room. The entrances must be separated to provide a private entry for legislators and staff and a general entry for the press and public.
7. Tunnel access to the State Office Building and Capitol Building must be open for legislative traffic at all times. Provide independent security for after hours traffic.
8. The hearing rooms will be used by both the Legislature and executive branch agencies for open public meetings. Attendance at meetings will be by both Legislators and public, mainly arriving by automobile. Anticipated use on a yearly basis will range from 175,000–200,000.

Sub Total Net **31,975**
Sub Total Gross @ 1.6 = **51,160**

III. Legislative Services Facilities and Joint Historical Society/Legislative Facilities Requirements

A. Lobby, coat rooms, first aid station and rest space, and reception area

They shall be central to both facilities and the lobby should be capable of housing a large 3-dimensional object. Space should be designed to give great impact to the facility; dignified and exciting environment is mandatory. The inclusion of a light court to view the Capitol is con-

sidered allowable as a design component. The area should provide clear identification and orientation of the major building components and architecturally provide direction to each. The lobby should also be directly accessible from the passenger and bus unloading area.

Sub Total Net **5,000**
Sub Total Gross @ 1.5 = **7,500**

B. Storage and Materials Handling Dock

1. Materials handling dock to accommodate convenient delivery and necessary handling of paper products, furniture, Historical Society exhibits, and large equipment (paths through the lobby will not be acceptable). The dock consists of five spaces, divided into the following categories:

   1 berth for a semi trailer that would be used largely by the Historical Society and located to facilitate this useage. It should therefore be convenient to the Museum exhibit spaces.
   1 @ 12′ × 57′ × 14′-8″ H

   2 spaces to accommodate delivery trucks located for use by the cafeteria facility.
   2 @ 12′ × 35′

   2 areas for van or automobile delivery that would be used almost exclusively by the Legislative wing. Adjacency should provide for this useage.
   2 @ 10′ × 20′
   Direct Total 1924 = **2000**

2. Storage area to accommodate miscellaneous needs of the hearing room facilities — additional chairs, equipment, etc.
   Storage: 1 @ 1,400 = **1,400**
   Sub Total Net **3,400**
   Sub Total Gross @ 1.5 = **5,100**

C. Multimedia Area

This space should include a press conference area that is convenient to the hearing rooms, but acoustically isolated from same. Area should be dignified, yet comfortable in color and atmosphere and geared to television broadcasts.

Area for television and taping equipment is required for production and broadcast of informative events and hearings. Provide a lockable area for a control booth.

Sub Total Net **1,000**
Sub Total Gross @ 1.5 = **1,500**

D. Legislative Information Services

1. Public reception with immediate and identified accessibility to miscellaneous legislative information, auxiliary index, and bill copy service. This area should be within or an adjunct to the main lobby with a counter and information distribution space.
2. Workroom space should be provided for actual copying, storage of different information materials, distribution materials, etc. This area should be adjacent to the public reception space, but visually screened.

Sub Total Net **900**
Sub Total Gross @ 1.5 = **1,350**

E. Auditorium

1. Space designed to seat 400 adults for legislative hearings, and educational programs that include assemblies, dramatic and music presentations, and lectures. Design should provide acoustic excellence in all aspects. A sloped floor to assure excellent visibility from all seats is desired.
2. Spaces included:

Lobby	1,000	Prep. area	500	
Seating	3,800	Dressing Rooms	300	
Projection	300	Coat room	200	
Stage	2,000	Storage	500	= **8,600**

3. GENERAL REQUIREMENTS: Auditorium
   a. Adjacency to major toilet facilities should be provided.
   b. Security system should be designed to allow public entrance for programs after usual museum hours.

c. The facility will be equipped with the most flexible and advanced audio-visual equipment, including, but not limited to, the use of slide, film, and overhead projectors with integrated sound systems.

d. A booth with central lighting, sound, and projection controls should be provided.

e. Lighting and acoustics should be designed for a variety of program types including musical performances and dramatic presentation.

f. The stage area should allow for a variety of programs but provide ease of communication with different size audiences.

g. The auditorium should be equipped to allow television production and transmission.

h. One of the main uses of this space will be for continued orientation programs for tours of the State Capitol and the Historical Museum. The auditorium should be conveniently available to the Legislature, Museum and other agencies of state government as well as being directly accessible to the public, but its scheduling and use will be under the administration of the Historical Society.

Sub Total Net **8,600**
Sub Total Gross @ 1.6 = **13,760**

F. Parking Facilities for Public, Legislators, the Supreme Court and Constitutional Officers

250 Legislators, Judges, and Constitutional Officers
200 Public

450

Sub Total Net 450 @ 300 = **135,000**
Sub Total Gross = **200,000**

1. A portion of the new parking facility should in part be constructed to provide structural flexibility such that the space could be remodeled in the future into expansion space for the new building. The area to be allowed for remodeling should approximate 30,000 square feet net, this same space should originally be designed to allow van parking which requires a minimum vehicular height clearance of 9′-0″. This area should be in proximity to the main lobby.
2. 200 public parking stalls will be accomplished on an hourly basis with a check out point for payment. These stalls should be located with access to the lobby. The 250 stalls allocated for Legislators, Judges and Constitutional Officers, will be located in one area and should provide direct access for these officials to the State Capitol with convenient circulation paths. These stalls should be located with proximity to the State Office Building and be leased on a monthly contract basis.
3. The parking spaces should be provided one main entry point to simplify circulation within the ramp.
4. Space must be provided inside the building to accommodate loading and unloading of three buses of visitors along with space for passenger drop off. Safety of this area is of utmost importance — major useage by school children should be anticipated. The area should also be designed to allow the safe and expedient loading and unloading of city bus passengers. Vehicular height clearance this area: Minimum 14′-8″.
5. Flexibility in the design of the parking area is desirable, so as to change the ratio of public and assigned stalls if desired.

G. Cafeteria

Provide a cafeteria style facility to accommodate Legislators, staff and Capitol area employees, and visitors to the Capitol and Historical Museum.

1. Requirements
   400 Museum Visitors
   200 Legislators
   600 Staff
   200 Capitol employees
   200 Capitol visitors

   1,600

Planning Assumptions:
— that one-third of that population would eat in the facility
— that each occupant requires 15 net square feet
— that 2.5 meals can be served per chair each day
— that an area equal to 35 percent of the eating area is required for food preparation

2. Also provide 5 private separate dining spaces to seat the following:
   1 @ 30 seats
   2 @ 20 seats
   2 @ 10 seats
3. GENERAL REQUIREMENTS: Cafeteria
   a. Because the Historical Museum would be a seven-day operation, a vending machine area and security would be required. The majority of the one hundred children who eat there each day will require access to vending machines and should have seating available.
   b. Cafeteria spaces should be clean in feeling, comfortable, relaxing, and capable of taking heavy use. This area is seen as a space where people will want to go, and should provide a pleasant atmosphere. The separate dining spaces should be "high quality environment", but not exclusive in feeling.
   c. The cafeteria eating space should be capable of use as a large meeting room, but offer architectural separation within the area.

Sub Total Net	**6,147**
Sub Total Gross @ 1.6	= **9,835**

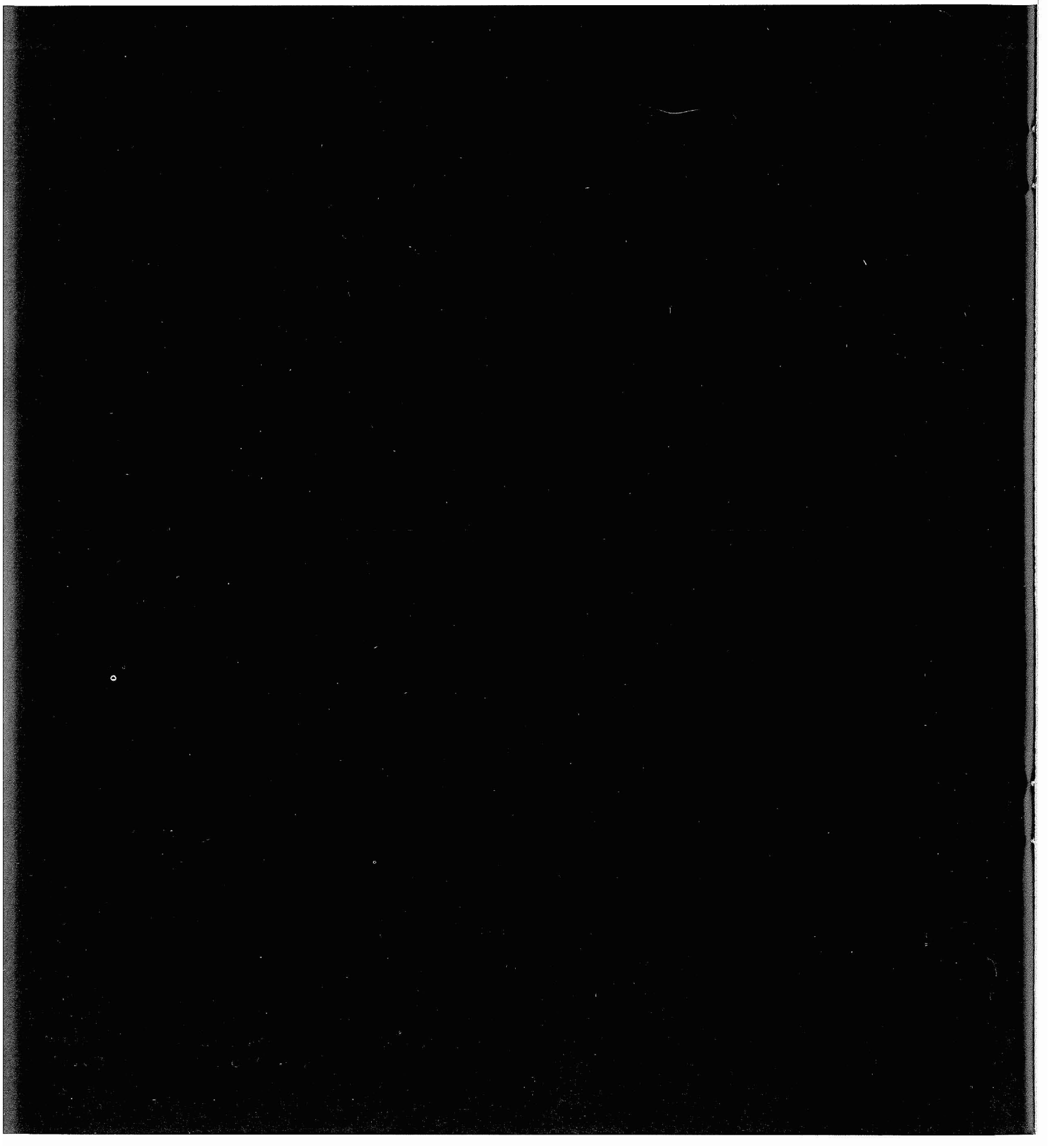
H. Toilets

Provide toilet facilities as required throughout the building complex and as code requires.

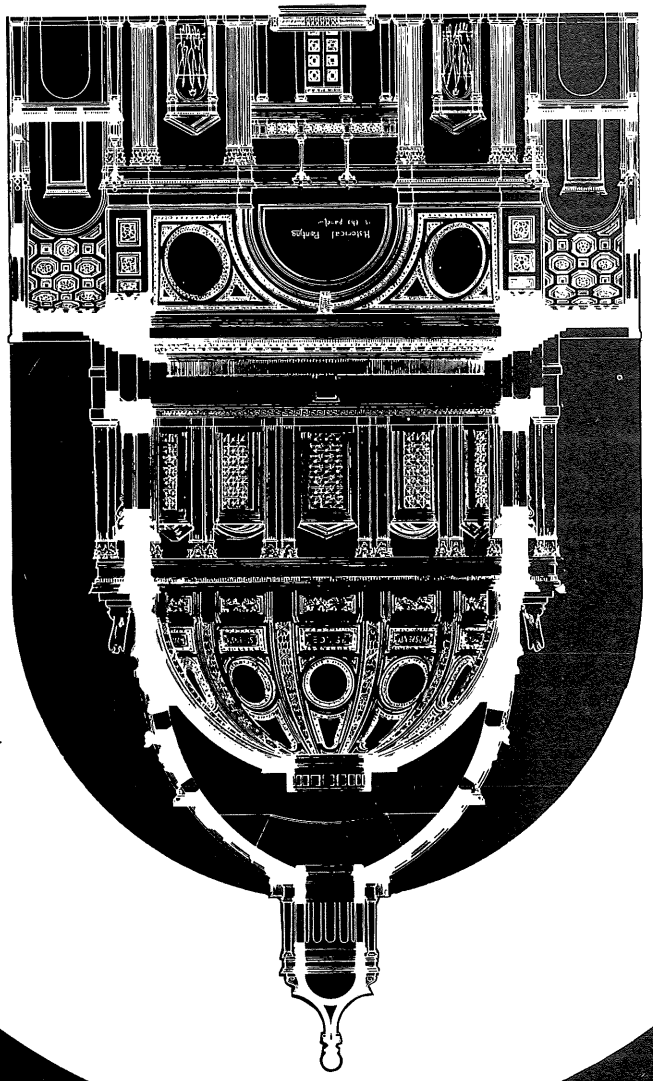
Summary of Building Complex Space Requirements

All spaces indicated as gross square feet

I. MINNESOTA HISTORICAL SOCIETY		
Museum Exhibition		**56,160**
Historical Art Gallery		**5,360**
Classrooms		**10,800**
Teacher Resource Center		**4,050**
Educational Services Division & Exhibition Workshop		**9,568**
Bookstore & Gift Shop		**3,200**
	Sub Total	**89,138**
II. STATE LEGISLATURE		
Hearing Rooms		**51,160**
	Sub Total	**51,160**
III. LEGISLATIVE SERVICES FACILITIES AND JOINT HISTORICAL SOCIETY/LEGISLATIVE FACILITIES		
Lobby		**7,500**
Storage & Materials Handling Dock		**5,100**
Multi-Media Area		**1,500**
Legislative Information Services		**1,350**
Auditorium		**13,760**
Parking and Circulation		**200,000**
Cafeteria		**9,835**
	Sub Total	**239,045**
	GRAND TOTAL	**379,343**



Design Considerations and Guidelines



Design Considerations and Guidelines

Design Considerations & Guidelines

A. Site

1. Entry and Exit

The Architect must provide a solution to the building complex and its entrances and exits that utilizes tunnel connections and grade considerations which do not permit projection above an elevation established by a nearly straight line that slopes from the north curb of Aurora Avenue to the north curb of Wabasha Street (*refer to Exhibit No. 1.*).

No occupied space or structural element can project above this established elevation. This does not apply, however, to decorative items, landscaping considerations, earth berming, or other elements that might help resolve the portal design; other exits, light wells, etc. Any such protrusions shall not obstruct the current vista of the complete Capitol Building from the south mall or of the south mall from the base of the Capitol steps. (*Exhibit 1.*)

It is intended that both Cedar Street and John Ireland Boulevard shall provide vehicular entry and exit to the building. Pedestrian access should also be provided at these points. Both streets shall remain two way streets and shall continue through the building; however, it is not intended to allow through street traffic.

It is the intention of the Master Landscape Plan that both streets be recessed as necessary south of the building so as to enter below grade. The final design documents and construction of streets outside the building shall be by the Owner.

The through vehicular area under the building must be of adequate width so as not to restrict programmed traffic movement in either direction and must be a minimum of 16 feet in height.

A separate lane should be provided for passenger curb loading and unloading and turn off/on lanes provided for entry and exit from the parking area(s).

The design of the entry and exit portals is of vital importance to the site development. Major consideration should be given to sculptural, architectural and landscaping elements in the design of the entry and exit portals.

The purpose of the mandatory requirements regarding elevation limits, sight lines, landscaping that compliments the proposed master plan and restoring of sculpture are meant to assure that proper emphasis will be placed on a terratectural design that will meet the following objectives:

a. Continued or improved emphasis on the Minnesota State Capitol Building.
b. Preservation and enhancement of the dignity and beauty of the south mall of the Minnesota Capitol Building.
c. Preserve and enhance the vista of the Capitol mall.
d. The incorporation of spaces all of short term occupancy without requirement for natural light, that can be functionally related to other buildings.
e. An energy conserving concern for the required introverted space requirements.
f. A vehicular and pedestrian circulation pattern that will improve the access to the Capitol, State Office Building and Historical Society Building without major aesthetic change to the approach or appearance of these three historic buildings.

2. Master Landscape Plan

Illustrations indicating the proposed landscaping of the area (*excluding the area considered the building site*) are provided in the program. The building site landscaping shall be of the utmost importance in the design solution and be integrated with the total Master Landscape Plan. The final solution will require coordination with the author of the Master Landscape Plan during the design development and construction document phases by the winning competitor. This site should become a welcoming space for use by its visiting pedestrians. Exhibit No. 8. is provided to indicate entry and exit from the building site.

There should be adequate soil volume to sustain the proposed planting and landscape treatment. Total site design, including planting, proposed lighting, walks, irrigation, etc., must be considered and shown in concept in Stage I and in detail Stage II.

3. **Existing Monuments**

Considered mandatory for the new design are statues of Christopher Columbus, Floyd B. Olson, Knute Nelson, John Albert Johnson, shown on the existing site plan. The figures of Christopher Columbus and Floyd B. Olson need not remain in their original locations on the Capitol site but must be integrated into the new site plan. It is considered highly desirable that the figures of Knute Nelson and John A. Johnson should resume their approximate original locations, but it is not mandatory. Modification or redesign of bases is permitted.

4. **Other:**

A view of the Capitol is permissible by the incorporation of a light court or courts and/or skylights, from the main lobby or joint spaces of the complex. Heights restrictions for the perimeters of the light court are as stated in Item 1., this section, and shall apply as a restriction so as to not disrupt the view of the State Capitol from the southern end of the mall looking toward the Capitol and from the Capitol looking southward. If such court(s) or skylights are provided, provisions shall be made for pedestrian safety and normal building security, and maintenance.

Ceremonial gathering space and emergency vehicle access (*without use of roads*) will be required as site considerations at the State Capitol and must be a part of the proposed landscaping solution.

An architectural and landscaping design solution must be incorporated for all mechanical and other required openings for the complex.

B. Criteria for Design Selection

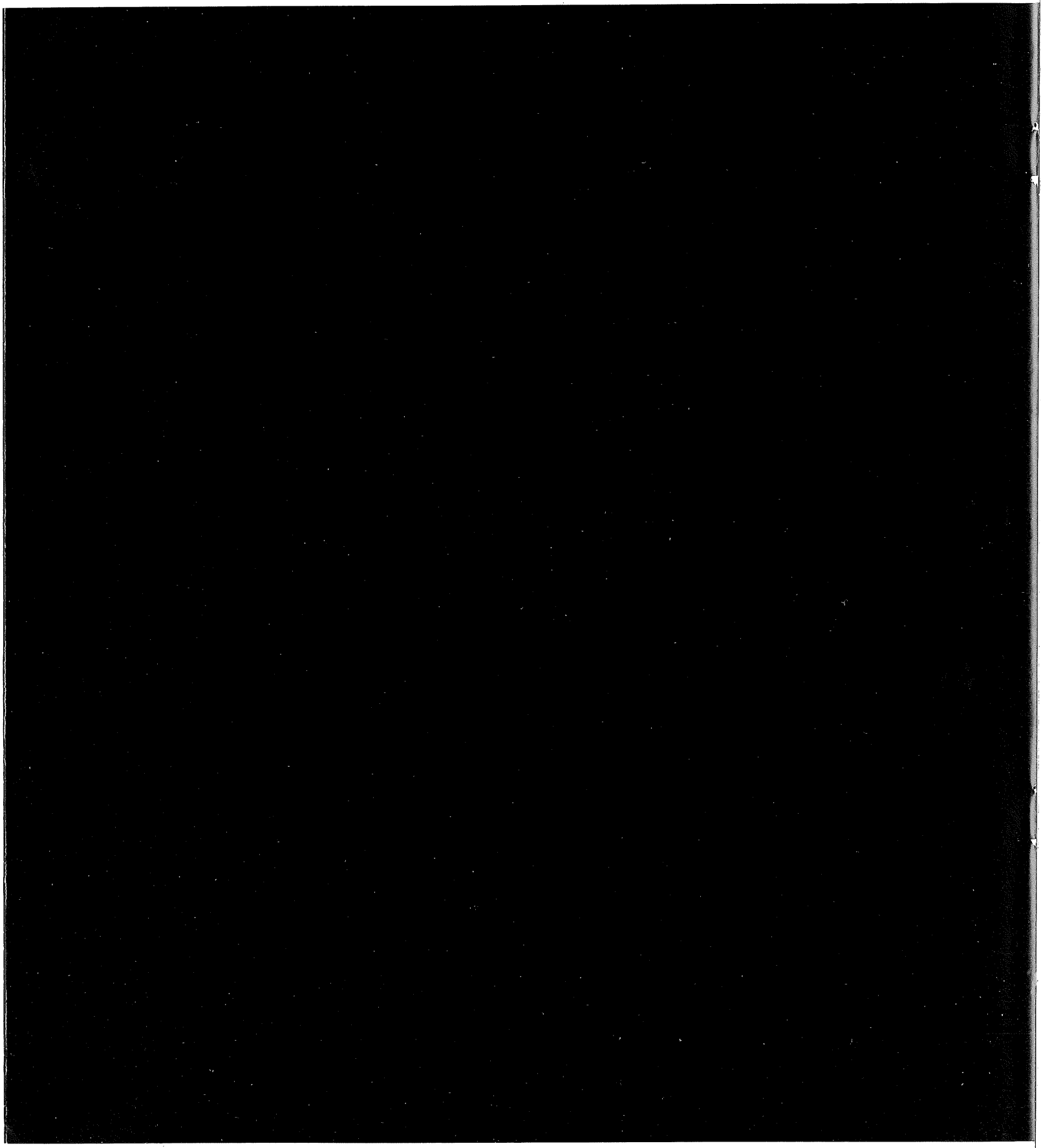
1. The design should provide exciting and functional spaces that meet the needs and goals of its inhabitants as described in detail in the program.
2. The design solution should pay special attention to the detail and organization of space, surface treatment and landscaping of the building site. Since it is of major importance that the integrity and historical heritage of the Capitol area be preserved, the landscaping of the area will be a definite and important consideration of the Jury.
3. No occupied space or structural element can project above the established elevation line as shown in Exhibit No. 1. The building complex is to be underground, however, this does not apply to decorative items, landscaping, berming, etc.
4. The decision to build an underground structure provides a unique opportunity for a fuel efficient design which will minimize the impact of Minnesota's supply situation (*natural gas, oil and coal*) and which will minimize the life cycle costs of energy supplies to the facility. The State of Minnesota is committed to energy efficiency as a goal, and therefore, it will become one of the criteria for review and selection of the winning design. Further input in this regard will be requested from the five finalists.
5. Cost of the project will also be a consideration in the judging of entries. This factor points to the advisability of designing for a reasonably economical ratio between gross area and net usable area. The anticipated construction cost established for this project is $22,000,000 – $24,500,000. The maximum allowable construction cost does not include movable equipment and furnishings, provisions for vehicular entry and exit, removal and modification of streets, landscaping beyond building site, professional consultants' fees, surveys, tests, legal and administrative costs. Landscaping of building construction area shall be included. Excavation under Wabasha Street will not be allowed except to provide the needed exits and entries to other buildings.

C. General

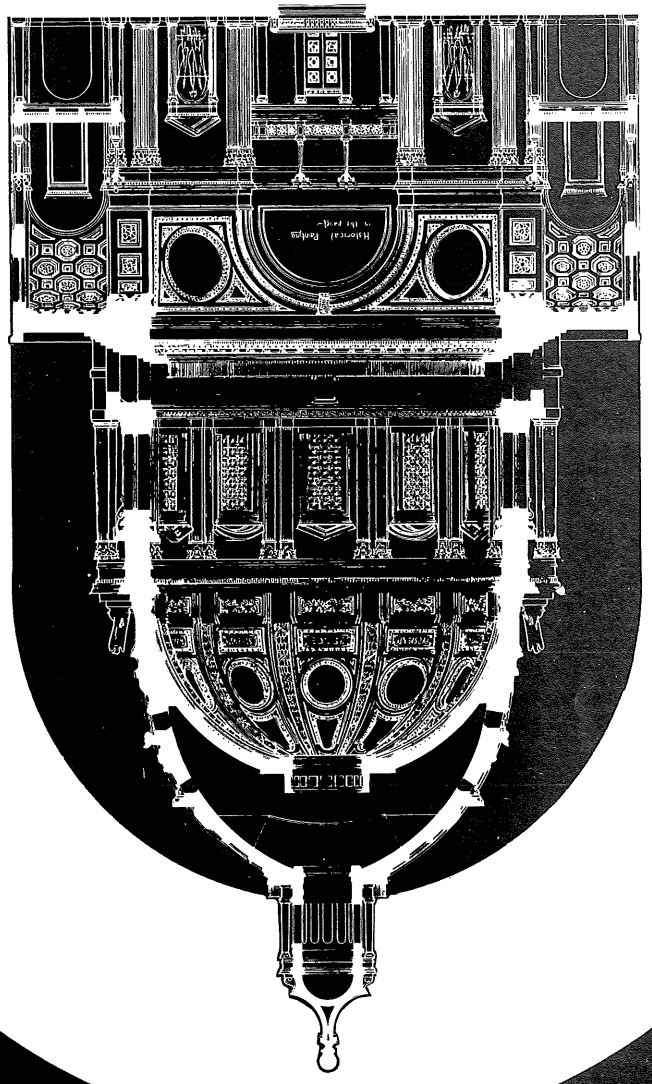
1. All net spaces will be allowed a modest variance which will consequently affect total gross square footage. Maximum variance shall be limited to 5% for specific room requirements and the total program requirements.
2. All gross square footages are inclusive of building circulation and required toilet areas, spaces

required for heating, ventilation, air conditioning, vent shafts, electrical requirements, janitorial spaces, walls, etc.

3. Provisions must be made for mechanical spaces for ventilation equipment as required by the Minnesota State Building Code. Steam, chilled water, and other service requirements will be provided by the State from outside facilities.
4. The design solution should provide the minimum impact on Minnesota's supply situation (*natural gas, oil and coal*) and minimize life cycle costs of energy supplies to the facility.
5. The new building complex should be strong, and dignified in its design. It should express the values of political openness and honesty of the people in its governmental function and its dedication to preserving and sharing its heritage with the people in its historical functions.
6. The Minnesota State Building Code is the established code for the building project.
7. All requirements concerning access to the handicapped are mandatory in the building complex and connections to the Capitol, State Office Building and Historical Society. Reference and Code: [Chapter 55 of the Minnesota State Building Code]. In addition, consideration should be given all connections as to the expedient and workable transportation of materials moved with hand carts, etc., within them.



Exhibits

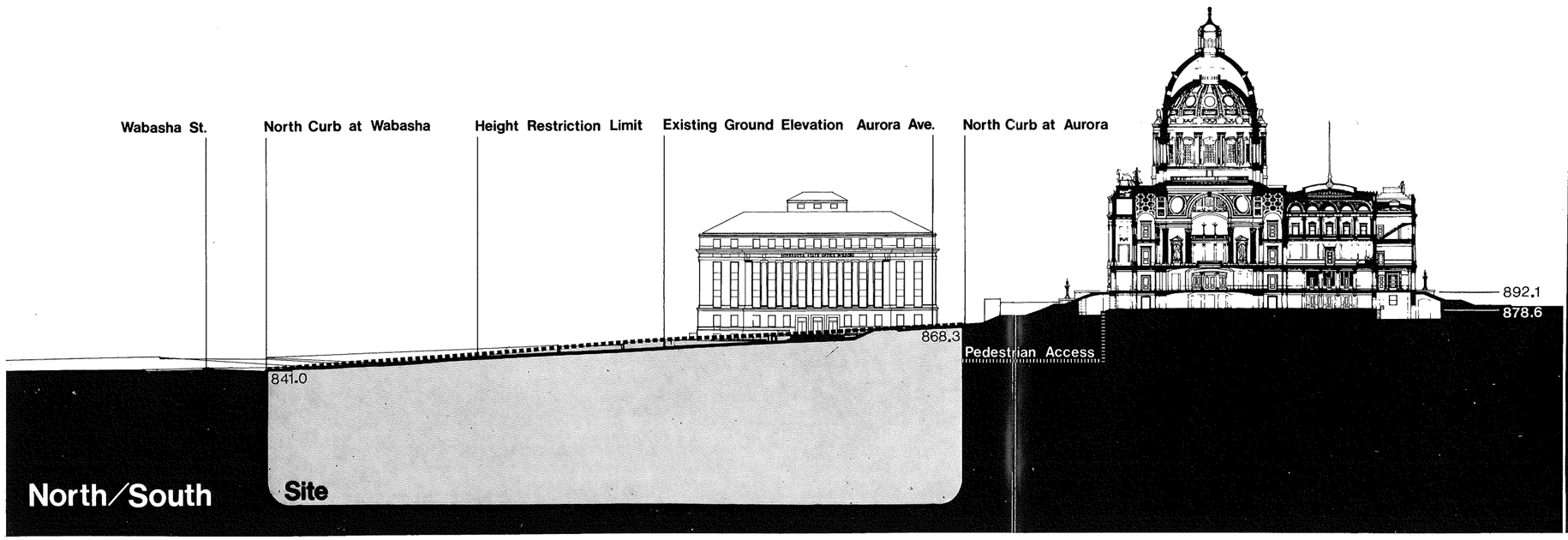


Exhibits 1 & 2

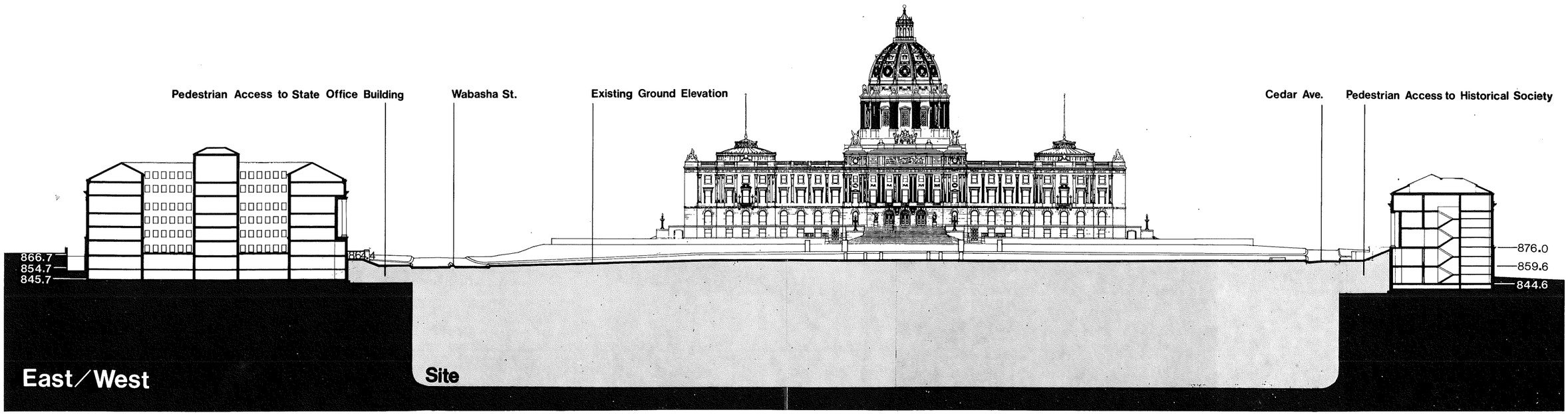
Exhibits 1 & 2

Sections

Building floor elevations are conditional — final elevations will be determined prior to Stage II work



North/South



East/West

0 20 40 80 160

Exhibit 3

Exhibit 3

Public Utilities

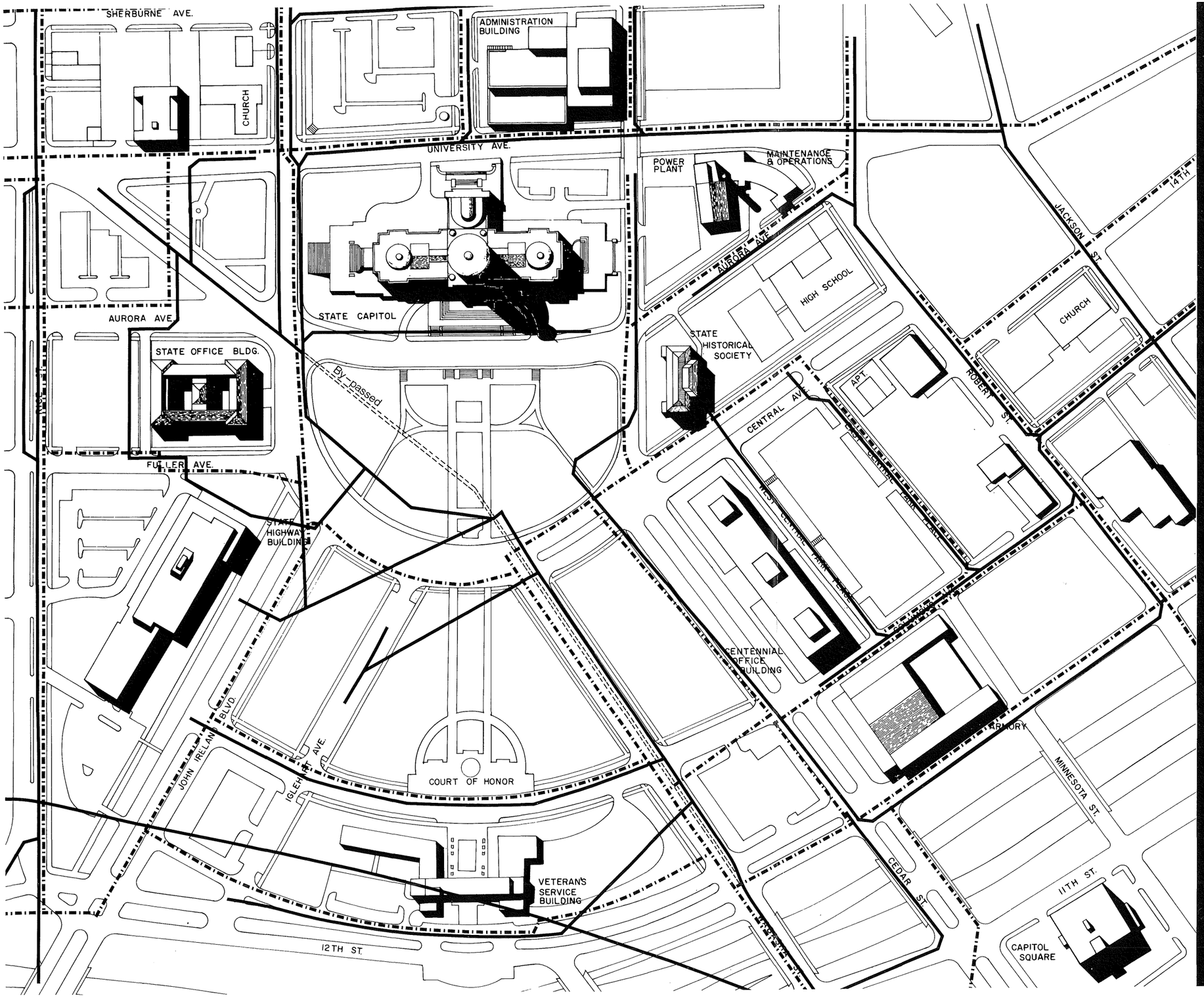
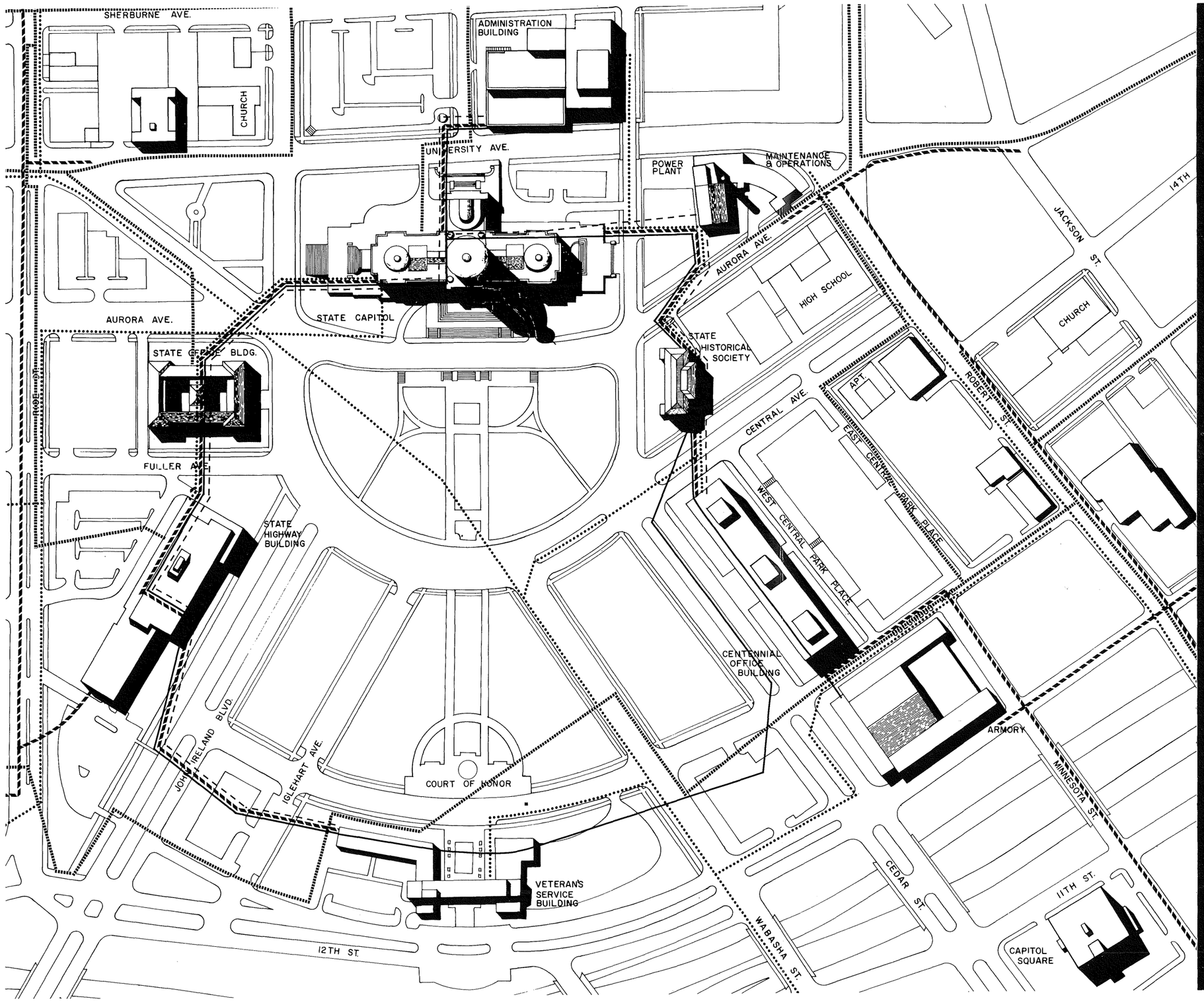


Exhibit 4

Exhibit 4

Private Underground Utilities



Gas
Steam
Electrical
Telephone
Proposed Chilled Water

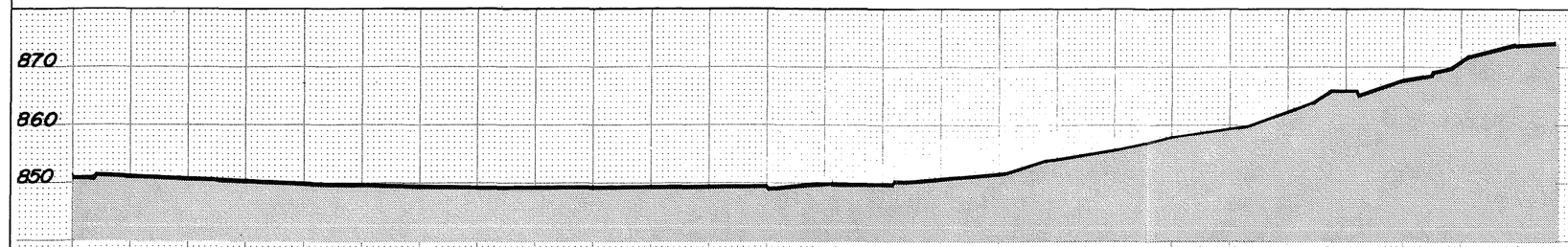
0 50 100 200 400

Exhibit 5

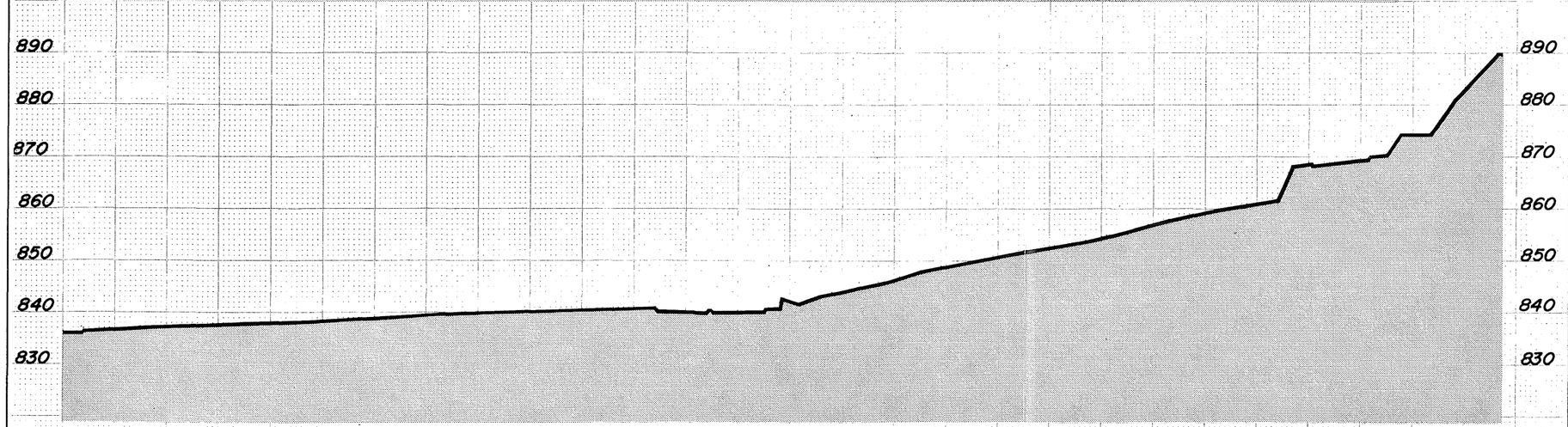
Exhibit 5

Topographical Sections

Section CC



Section BB



Section AA

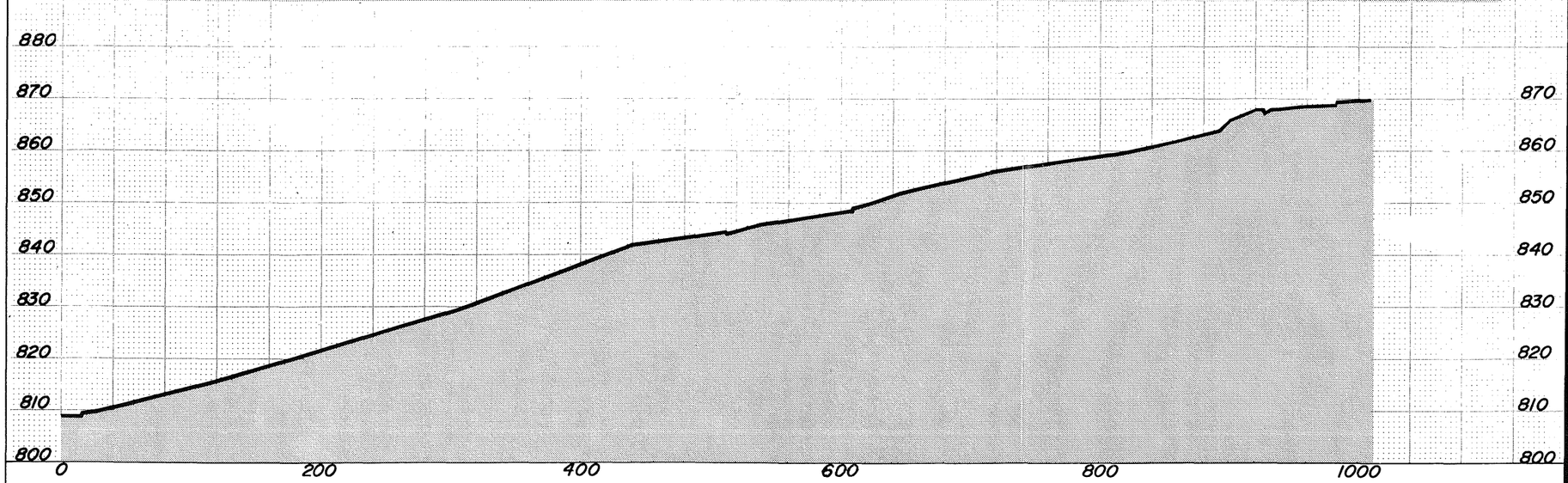
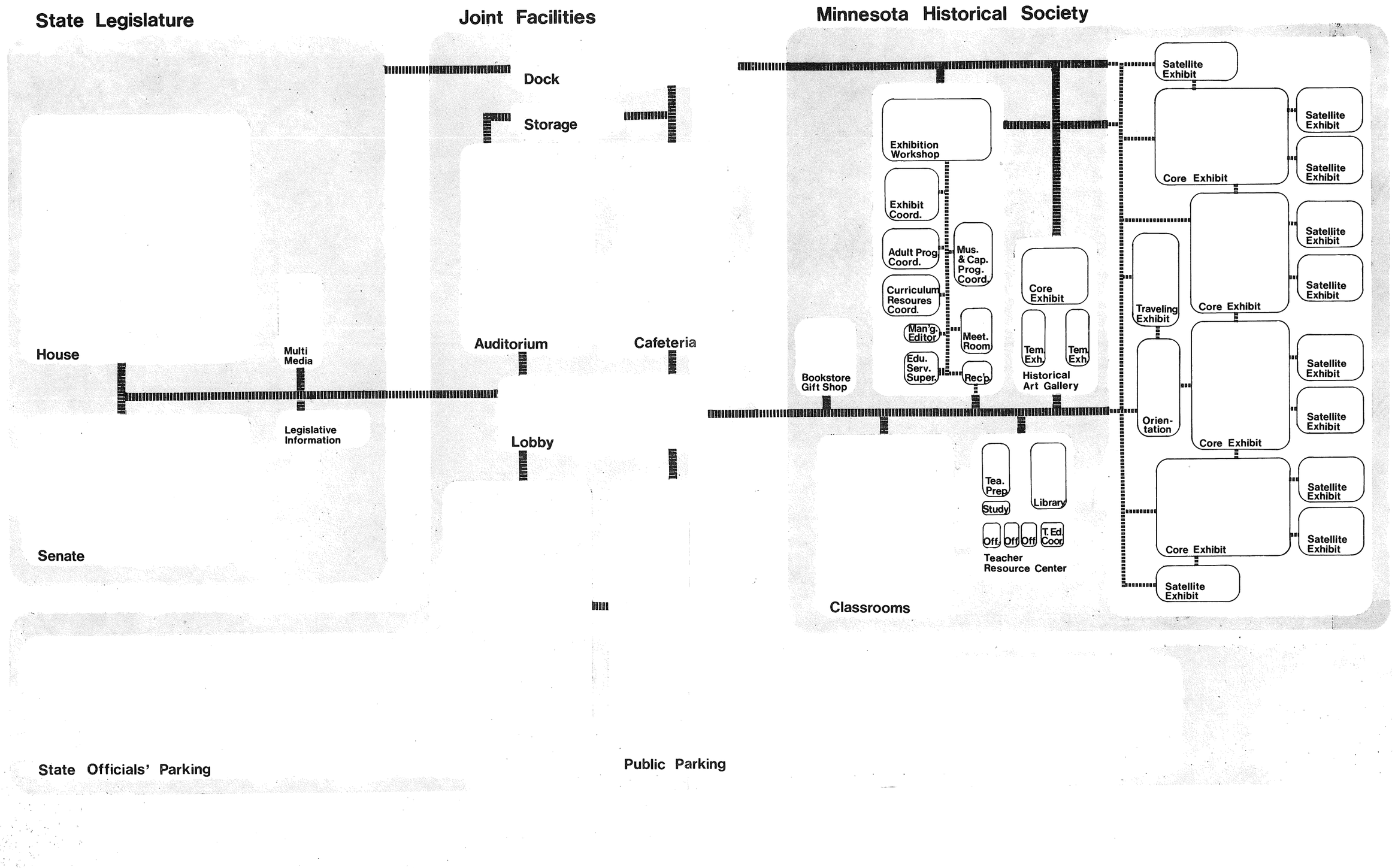
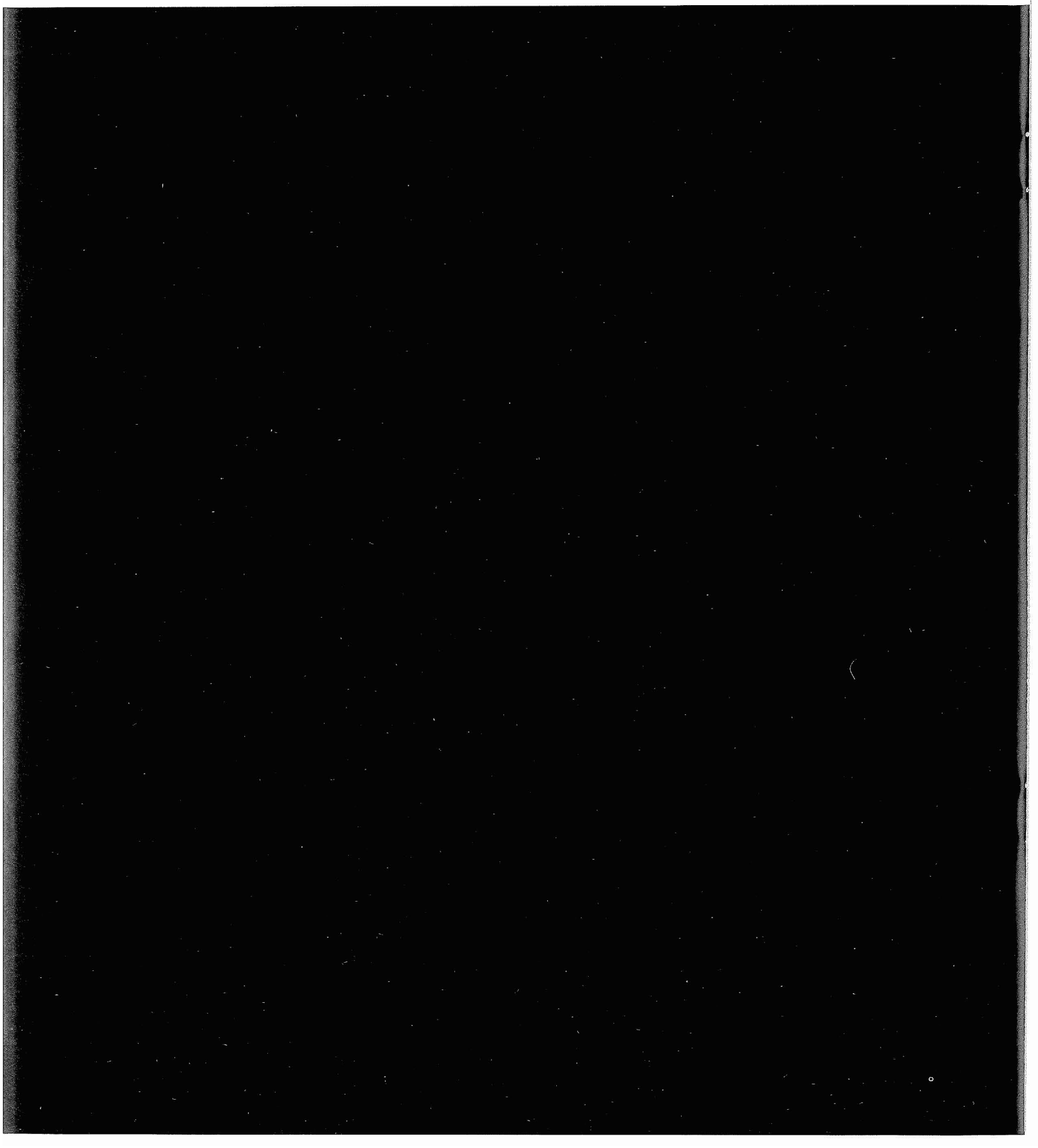


Exhibit 6

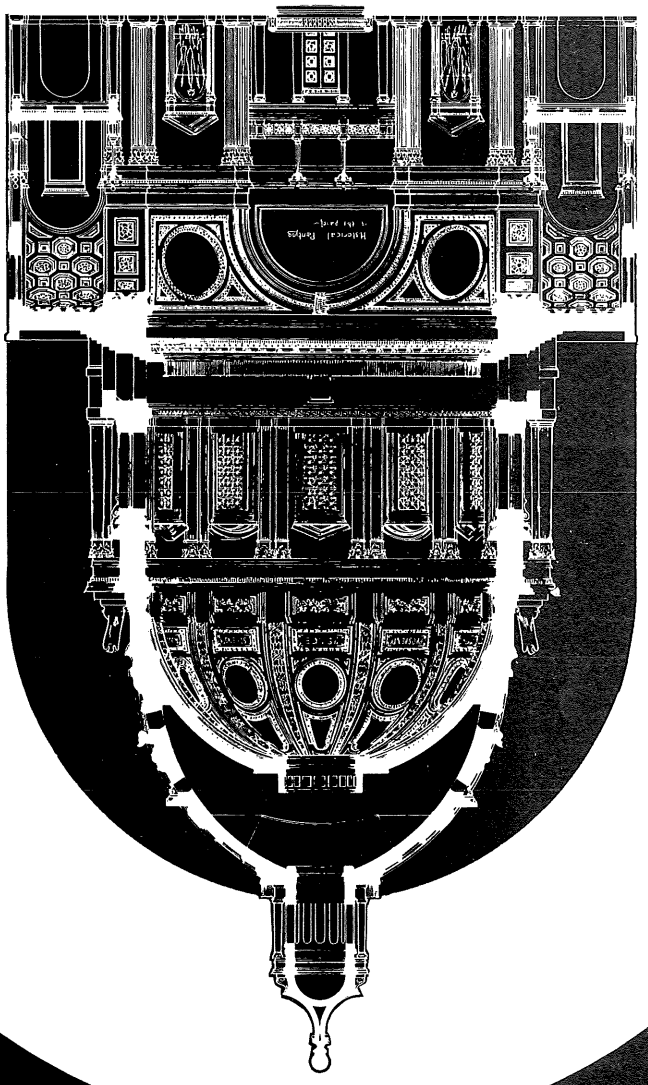
Exhibit 6

Adjacency Diagram





Appendix



REPORT OF SOIL INVESTIGATION

PROPOSED LEGISLATURE BUILDING

CAPITOL COMPLEX

ST. PAUL, MINNESOTA

#22014

INTRODUCTION

This report presents our findings and recommendations pertaining to the soil investigation and engineering analysis for the referenced project. The purpose of this report is to describe the soil conditions encountered at the site, to analyze and evaluate these conditions, the laboratory test results, and, based on this data, to recommend possible foundation designs and construction procedures.

FIELD INVESTIGATION PROCEDURES

Ten soil test borings were made during a period from October 6 through 9, 1975. The borings were put down approximately at the locations given on the photo map furnished to us, as shown on the attached sketch. The surface elevations were referenced to the top of the hydrant, where shown on the sketch, taken as 162.41', an elevation obtained from the City of St. Paul.

Soil sampling was performed in accordance with ASTM: D 1586-67. Using this procedure, a 2" O. D. split barrel sampler is driven into the soil by a 140 lb weight falling 30". After an initial set of 6", the number of blows required to drive the sampler an additional 12" is known as the penetration resistance or N value. The N value is an index of the relative density of cohesionless soils and the consistency of cohesive soils.

As the samples were obtained in the field, they were visually and manually classified by the crew chief in accordance with ASTM: D 2488-69. Representative portions of all samples were then returned to the laboratory for further examination and for verification of the field classification. In addition, selected samples were submitted to a program of laboratory tests. Logs of the borings indicating the depth and identification of the various strata, the N value, water level information and pertinent information regarding the method of maintaining and advancing the drill holes are attached. Charts illustrating the soil classification procedure, the descriptive terminology and symbols used on the boring logs are also attached.

SITE AND SOIL CONDITIONS

Site Conditions

These borings were put down at two alternate building sites. Borings 1 through 5 were put down south of the capitol and borings 6 through 10 were put down west of the capitol. The borings south of the capitol are in the mall area and the surface elevations at our boring locations vary by about 17'. This area generally slopes down to the south. This is a landscaped area with shrubs, trees, sidewalks, drives, etc., within the proposed building site. The surface elevations at our boring locations west of the capitol vary by about 8' and generally this site slopes down to the southwest. The northeast portion of this site is also a landscaped area, whereas the southwest portion is an existing parking lot. There is a street running in a southeast to northwest direction through about the center of this site.

Site Geology

The general stratigraphic profile in the capitol area is glacial drift overlying bedrock. The term drift refers to any material deposited by a glacial

advance and can be divided into two categories: till and alluvium (outwash). Till generally consists of complex, unstratified mixtures of gravel, sand, silt and clay deposited in direct contact with glacial ice. Alluvium typically is composed of stratified and sorted layers of sand with lesser amounts of silt and clay. The alluvium (outwash) found in glacial drift was deposited by the melt waters of glacial ice. Alluvium may be divided according to particle size into two categories; coarse, sand and gravel; and fine, silt and clay. Alluvial deposits may also occur as mixtures of fine and coarse particles. The coarser alluvium was deposited in more rapidly moving streams while the finer material was dropped from more quiet or standing water.

The drift was deposited during successive advances and retreats of glacial ice. The Twin Cities area has been most affected by two glacial advances, both of Wisconsin age of the Pleistocene Epoch. The earlier was the Superior Lobe, which came from the northeast carrying reddish brown sandy drift. The later advance was the Grantsburg Sublobe which was an offshoot of the Des Moines Lobe. The Des Moines Lobe moved over Minnesota from the northwest, however, the Grantsburg Sublobe followed low land into the Twin Cities area from the southwest covering all but the eastern portion of the area. The Grantsburg drift, which is gray and generally contains more clay than the Superior drift, overrode and intermixed with the Superior deposits. As the Grantsburg withdrew, areas of alluvium were deposited over the till in melt-waters.

The Capitol area lies on the edge of the intersection of two glacial river valleys. To the south is the Glacial River Warren valley and to the east is another glacial valley. Both of the valleys have been partially filled by drift so the boundaries of valleys which were carved in the bedrock are

not now visible. Therefore, the thickness of the drift and the formation found beneath the drift will vary, depending upon the exact position of the valley. The bedrock profile consists from youngest to oldest, of the Platteville Formation (limestone), the Glenwood Formation (sandy shale), and the St. Peter sandstone. These formations are of Ordovician Period. The rock record of events between the Ordovician sediments and the Pleistocene glacial deposits is absent.

Soil Conditions

The logs of the borings show somewhat variable soil conditions within each building site; however, the soil conditions encountered at the two sites are quite similar. The borings closest to the capitol (borings 1, 2, 3, 9 and 10) show that the predominant soil consists of lenses and layers of silt, sandy silt and fine grained sands and silty sands. At the other boring locations, medium grained or medium to fine grained sand containing varying amounts of gravel were encountered and these sands extended to a depth of about 23' at boring 4 and 18' at boring 5. The finer grained sands and silts were then encountered underlying the medium grained sands. At borings 6, 7 and 8, the medium grained sands were predominant. Glacial till, consisting of clayey sand, silty sand or lean clay were encountered near the depths of borings 2, 3, 4, 5, 6 and 8. Fill was encountered at the surface of all borings to depths ranging from about 2' to 10½' at the site south of the capitol and from about 1' to 14' at the site west of the capitol. The fill at the site west of the capitol, at least in the deeper fill areas, did contain some rubble. A layer of clayey silt or silty clay was encountered underlying the fill at borings 7 and 8.

The penetration resistance (N value) indicates the density of the cohesionless soil ranges from very loose to very dense. The consistency of the cohesive soil ranges from medium to very stiff. In general, the soils encountered in the upper 15' to 20' of the borings had the lowest penetration resistance. The loosest soil was the sandy silt encountered to a depth of about 8½' at boring 10.

GROUND WATER

Ground water entered all borings at the times and levels as shown or noted on the attached logs. The ground water elevation would appear to be quite variable over the site with water being encountered at depths ranging from about 26' to 44' below the surface. In addition, there would appear to be some areas where water may be perched at a higher elevation, such as at boring 3, where the samples recovered at about the 15' depth were wet. Both seasonal and yearly fluctuations of the ground water table can be expected.

LABORATORY TESTS

To aid in identifying the soil, a mechanical analysis was conducted on representative samples of the sandy and silty soils. The results of these tests are shown on attached data sheets.

ANALYSIS AND RECOMMENDATIONS

Project Information

No actual building details were available at the time this work was done. We understand the proposed building will probably be a multi-level structure possibly as much as five floors. Also, we understand that if the building is built south of the capitol, the majority of the building will be below grade, at least adjacent to the existing capitol. Since specific foundation

recommendations would depend on the actual location of the building, building loads and final floor elevations, our recommendations in this report will be kept very general. When more specific details are known, we suggest you contact us for a further evaluation of the soil conditions.

Spread Footing Construction

Our general recommendations would be to extend all foundations through the existing fill, silty clay or clayey silt layers and any very loose sandy or silty soils. If the building has a deep basement, it would appear that foundations would be through these soils although there may be areas where foundations would have to be extended deeper. The density of the underlying soil was quite variable, and in general, the denser soils were encountered nearer the capitol. Based on the density of the soils encountered, loadings in the range of 3000 psf (pounds per square foot) to 5000 psf could be used at either site with the actual loading depending on bottom of footing elevation. Where the looser soils are medium grained sands, the bearing capacity could be improved by surface compaction. Also, the bearing capacity could be improved by subcutting, surface compacting and then refilling with an engineered fill. By improving the density of the soils by the above methods, it would be our judgment that foundations at either site could be designed for a maximum soil bearing pressure of 5000 psf, if this magnitude of loading would be required.

Deep Foundations

If building loads are sufficiently heavy so that spread footing construction would not be feasible, then the structure would have to be supported on a deep foundation. It was not within the scope of this investigation to evaluate deep foundations and our borings were not taken sufficiently deep

for this purpose. Generally, deep foundations would consist of drilled piers to bedrock or piling. The depth to bedrock in this area can be extremely variable and our general geologic information would indicate that bedrock would probably be higher west of the capitol. Driven pile would probably not be feasible at least close to the existing capitol, since vibrations set up by this type of installation may be damaging. Additional deeper borings would have to be put down to evaluate possible deep foundation plans.

Other Foundation Considerations

If several floors of the structure are below grade, then the walls will have to be designed to withstand relatively high lateral loads. In addition, if the structure is placed close to the existing capitol and if the excavation for the new building would extend below the foundation elevation of the existing capitol, then the excavation would have to be shored and braced or tied back to prevent possible damage to the existing capitol. To further evaluate this, the actual loading conditions and bottom of footing elevations of the existing capitol, as well as the details for the proposed structure would have to be known.

REMARKS

The recommendations and/or suggestions contained in this report are our opinions based on data which are assumed to be representative of the site explored; but because the area of the borings in relation to the entire area is very small, and for other reasons, we do not warrant conditions

below the depth of our borings, or that the strata logged from our borings are necessarily typical of the entire site.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Gordon J. Smith

GORDON J. SMITH

Date 10-30-75 Reg. No. 9242

SOIL EXPLORATION COMPANY

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 1

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINN

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 177.0')	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
	FILL, mixture of SAND and SILTY SAND, some silt, a little gravel, brown and a little dark brown and black	FILL	6	*	1	SS				
			5		2	SS				
			7		3	SS				
			5		4	SS				
10½					5	SS				
	SILT, brown, moist, dense, a few lenses of silty sand (ML)	FINE ALLUVIUM	20		6	SS				
			28		7	SS				
			29		8	SS				
18										
	SILTY SAND, fine grained, brown, moist to wet, dense to very dense, lenses and layers of sand (SM)	COARSE ALLUVIUM	26		9	SS				M.A.
			44		10	SS				
			46		11	SS				
32										
	Continued on next page									

SOIL EXPLORATION company

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 1 Continued

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
32	SANDY SILT, brown, moist to wet, very dense, some lenses of wet to waterbearing sand (ML)	FINE ALLUVIUM	45		12	SS				
			38		-	---				
41	SILT, brown, wet, very dense (ML)		52		13	SS				
					14	SS				
50½	SILTY SAND, fine grained, brown, wet, very dense, some lenses of silt and waterbearing sand (SM)	COARSE ALLUVIUM	50							
			61		15	SS				
			56		16	SS				
61½	End of Boring									

*Note: water level appears to be between 35' to 41' based on observation while sampling and on appearance of samples.

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
10-6		16'	14½'		to	None
10-7	9:15	61½'	14½'		to	*
10-7	9:30	None	None		to	*
					to	

START 10-6-75 COMPLETE 10-7-75

METHOD 3¼ HSA 0' - 14½' @ 9:15

DM 16' - 59½'

CREW CHIEF LeMay

SE-2 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 2

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 178.4')	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
	FILL, mixture of SILTY SAND, CLAYEY SAND, and SANDY SILT, a little gravel, black and dark brown	FILL	9	*	1	SS				
2	SAND, fine grained, light brown, moist, medium dense, some lenses of silty sand and silt (SP-SM)	COARSE ALLUVIUM	15		2	SS				
			13		3	SS				
			9		4	SS				
			11		5	SS				
12	SILT, brown, moist, dense to very dense, some lenses and layers of sand and silty sand (ML)	FINE ALLUVIUM	16		6	SS				
			19		7	SS				
			34		8	SS				M.A.
			35		9	SS				
29	SILTY SAND, fine grained, light brown, moist, very dense, lenses of silt and sand (SM)	COARSE ALLUVIUM	39		10	SS				
36	Continued on next page		43		11	SS				

SE-3 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 2 Continued

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
36										
40	SILT, brown, moist to wet, very dense, some lenses of silty sand (ML)	FINE ALLUVIUM	46		12	SS				
44	No samples recovered. Appears to be Sand, fine grained, brown, water-bearing, dense, based on action of drilling equipment and on evidence of material returned in drilling fluid (SP-SM)	COARSE ALLUVIUM	23		-	--				
			24		-	--				
53	SILT, brown, wet, dense, a few lenses of silty sand and waterbearing sand (ML)	FINE ALLUVIUM	25		13	SS				
58	CLAYEY SAND, a little gravel, brown, stiff, a few lenses of silty sand (SC)	TILL	19		14	SS				
62	End of Boring *Note: Water level appears to be between 42' to 44½' based on observation while sampling and on appearance of samples. ** drilling fluid									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
10-8		13½'	12'		to	None
10-9	10:30	62'	14'		to	8**
10-9	10:50	62'	None		to	10**
					to	

START 10-8-75 COMPLETE 10-9-75

METHOD 3¼ HSA 0' - 14' @ 10:30

DM 13½' - 59½'

CREW CHIEF LeMay

SE-2 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 3

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 164.0')	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
	FILL, mixture of SILTY SAND and SAND, a few slabs of concrete, black and brown	FILL	11	*	1	SS				
3					2	SS				
	SAND, fine grained, brown, moist, medium dense (SP-SM)	COARSE ALLUVIUM	35							
5½					3	SS				
	SILTY SAND, fine grained, brown, moist, medium dense (SM)		10							
7					4	SS				
	SILT, brown, moist to wet, medium dense to dense (ML)	FINE ALLUVIUM	11		5	SS				
			12		6	SS				
			16		7	SS				
16			16		8	SS				
	SILTY SAND, fine grained, brown, moist to wet, dense, lenses of silt and sand (SM)	COARSE ALLUVIUM	21		9	SS				M.A.
			23		10	SS				
29										
	SAND, fine grained, a trace of gravel, brown, moist, dense (SP)		26		11	SS				
33										
	Continued on next page									

SOIL EXPLORATION company

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 3 Continued

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
33	SANDY SILT, brown, wet, dense to very dense (ML)	FINE ALLUVIUM	20		12	SS				
			33		13	SS				
42	SAND, fine grained, brown, water-bearing, dense, a few lenses of clayey silt (SP-SM)	COARSE ALLUVIUM	29		14	SS				
48	CLAYEY SAND, a little gravel, brownish gray, stiff to very stiff, a few lenses of silty sand and waterbearing sand (SC)	TILL	22		15	SS				
			34		16	SS				
56½	End of Boring									

*Note: Water level appears to be between 32' - 34½' (and a possible perched water level at about 15') based on observation while sampling and on appearance of samples.

** Drilling fluid

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
10-8	10:15	56½'	18'		to	6**
10-8	10:35	56½'	None		to	8**
					to	
					to	

START 10-7-75 COMPLETE 10-8-75

METHOD 3¼ HSA 0' - 18' @ 10:15

DM 18 - 54½'

CREW CHIEF LeMay

SE-2 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 4

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 161.1')	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LAB TESTS W	D	L.L./P.L.	Qu
	FILL, mixture of SILTY CLAY, CLAYEY SILT, SILTY SAND and SAND, a little gravel, brown, dark brown and black	FILL	14	*	1	SS				
			22		2	SS				
6			8		3	SS				
	SAND, medium grained, a little gravel, light brown, moist, loose to dense to medium dense (SP)	COARSE ALLUVIUM	8		4	SS				
			16		5	SS				
13			10		6	SS				
	SAND, medium to fine grained, a trace of gravel, light brown, moist, medium dense (SP)		11		7	SS				
18										
	SAND, medium grained, some gravel, brown, moist, dense (SP)		22		8	SS				
23										
	SANDY SILT, brown, moist to wet, dense, a few lenses of sand (ML)	FINE ALLUVIUM	28		9	SS				M.A.
28										
	Continued on next page									

SOIL EXPLORATION COMPANY

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 4 Continued

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
28	SILT, brown to brownish gray, wet, dense (ML)		24		10	SS				
			16		11	SS				
38	SILTY SAND, fine grained, brownish gray, wet, dense (SM)	COARSE ALLUVIUM	22		12	SS				
			21		13	SS				
48	CLAYEY SAND, a little gravel, grayish brown, medium (SC)	TILL	8		14	SS				
51½	End of Boring									
	*Note: Water level appears to be at about 30' based on observation while sampling and on appearance of samples.									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
10-7		17'	14½'		to	None
10-7	2:30	51½'	19'		to	*
10-7	2:50	51½'	None		to	*
					to	

START 10-7-75 COMPLETE 10-7-75

METHOD 3¼ HSA 0' - 19' @ 2:30

DM 19' - 49½'

CREW CHIEF LeMay

SE-2 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 5

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 161.8')	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
2	FILL, mostly SILTY CLAY, black and dark brown	FILL	11		1	SS				
	SAND, medium grained, a little gravel, light brown, moist, loose to medium dense, some lenses of fine sand between about 12' to 14' (SP)	COARSE ALLUVIUM	8		2	SS				
			6		3	SS				
			11		4	SS				
			9		5	SS				M.A.
			10		6	SS				
18			11		7	SS				
	SAND, fine grained, light brown, moist, medium dense (SP)		14		8	SS				
23	SANDY SILT, brown, moist to wet, dense, a few lenses and layers of moist to waterbearing sand (ML)	FINE ALLUVIUM	18		9	SS				
			21		10	SS				
34										

Continued on next page

SE-3 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 22014 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 5 Continued

PROJECT PROPOSED LEGISLATURE BUILDING - CAPITOL COMPLEX - ST. PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
34			24	▼	11	SS				
39	SAND, fine grained, brown, waterbearing, dense, some lenses of silty sand (SP-SM)	COARSE ALLUVIUM	24		12	SS				
			21		13	SS				
48	CLAYEY SAND, a little gravel, brownish gray, rather stiff (SC)	TILL	14		14	SS				
51½	End of Boring									

* Influenced by drilling fluid

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
10-8	2:00	36'	34½'		to	36'
10-8	2:30	51½'	49½'		to	29'*
10-8	2:40	51½'	39½'		to	37'
10-8	2:45	51½'	34'		to	37'
10-8	2:50	51½'	29'	40'	to	36½'
10-8	3:00	51½'	None	31'	to	None
					to	
					to	

START 10-8-75 COMPLETE 10-8-75

METHOD 3¼ HSA 0' - 49½' @2:30

JW 39½' - 49½'

CREW CHIEF LeMay

SE-10 (73-A)

REPORT OF ADDITIONAL SUBSURFACE INVESTIGATION

PROPOSED CAPITOL BUILDING ANNEX

ST. PAUL, MINNESOTA

#23081

INTRODUCTION

This report presents our findings and recommendations regarding an additional subsurface investigation and engineering analysis we have conducted for the proposed capitol building annex in St. Paul. The purpose of this report is to describe the subsurface conditions encountered and to evaluate those conditions relative to the proposed construction.

We have conducted a previous subsurface investigation for this project. The previous investigation included putting down five test borings, designated #1 - #5, in this area. The results of that investigation were included in our report #22014 to you, dated October 30, 1975.

The additional investigation included extending four of the previous borings and adding two borings designated #11 and #12. The borings extended include borings 1, 2, 4 and 5. In addition to putting down the borings, four piezometers were installed to monitor ground water conditions. The borings and piezometers were put down during a period from August 20 to 27, 1976. The borings were put down at locations discussed with you, as shown on the attached sketch. The surface elevations were referenced to the top of the fire hydrant located about 100' southeast of boring 5. The elevation of the hydrant was taken as

162.41', an elevation obtained earlier from the City of St. Paul.

SITE AND SOIL CONDITIONS

Site Conditions

The boring site is located just south of the existing capitol building in St. Paul. The ground surface in the area slopes downward from north to south with an elevation difference of about 25'. Surface elevations at the boring locations range from a low of about 153.6' at boring 11 and 12 to 177.0' to 178.4' at borings 1 and 2.

Subsurface Conditions

The borings indicate a variable profile with alluvial and glacial drift deposits extending to limestone and sandstone bedrock. According to a bedrock map for the area, the proposed construction site lies within a panel eroded in the bedrock. The existing capitol building is located just on the north edge of this channel. The boring logs are attached.

GROUND WATER

Ground water was measured in the piezometers at the levels and times of recording as shown on the boring logs. The piezometer readings indicate the surface of the ground water slopes downward from northwest to southeast with the elevation ranging from a high of 130.5' at boring 1 to a low of elevation 124.3' at boring 12. Based on inspection of the samples, it appears that the water may be water perched in the sandy and silty soils above the more impervious clayey sand glacial drift. Some variations in the conditions can be expected seasonally and annually. We expect the ground water may be somewhat lower than normal at this time due to the abnormally dry spring and summer season during the past year.

LABORATORY TESTS

Samples of the soils were submitted to the laboratory for tests to aid in evaluating the engineering properties of those materials. The results of gradation tests are shown on the attached data sheet. The other test results are shown on the boring logs opposite the samples upon which the tests were made.

ENGINEERING ANALYSIS

Project Information

We understand the proposed structure will be a three level structure and would be almost entirely below grade with final grade at about the same elevation as the existing ground surface. This would tentatively put the lowest level of the structure at a depth ranging from about 35' below present grade in the south portion to about 55' in the north portion. At those depths, the lowest level would be at about elevation 115' to 120'. We understand the interior column loads could be as high as 1000-1200 kips.

Foundation Recommendations

The proposed structure could be supported on footing foundations resting on the natural soils present at or just below the lowest level elevation of about 115'. In fact, the soils present at a depth of more than about 15' below the present ground surface would be suitable for supporting footing foundations. The maximum soil bearing pressure of 5000 psf is recommended. This load intensity should not produce any significant settlement since the foundation loadings would not be appreciably greater than that due to the present overburden.

We have considered the relatively low N values obtained at or just below elevation 115' in borings 2-A, 4 and 12. The soils encountered at these locations consist of clayey sand or sand with layers of clayey sand. It is our judgment that this particular soil condition resulted in some disturbance of the material during the sampling, thus producing lower N values than would normally be expected. When construction proceeds, we recommend that two or three additional borings be put down in the area of each of these three borings to verify that this is not an extensive condition of loose soil. After the building excavation has been made, these borings could be put down at minimum cost.

Ground Water Control

Ground water can be expected in an excavation extending below about elevation 125' to 130', with the highest level at boring 1. If the structure does extend down to elevation 115' or so, we estimate the ground water flow toward the excavation could be as high as 2500 gallons per minute if the water level is to be maintained at a level no higher than elevation 110' during and following construction. We estimate the seepage rate would be about 1900 gallons per minute if the water level is to be maintained at about elevation 120'.

For dewatering the site, we anticipate a series of well points would be necessary. However, deep wells may also be possible.

Protection of Nearby Buildings

Based on the dense soil conditions beneath the ground water zone, we do not feel that ground subsidence would be caused by dewatering. Therefore, this

does not appear to be a problem for nearby structures, including the existing capitol building.

However, consideration must be given to protecting the existing capitol building from undermining of existing footings when the excavation for the proposed structure is made. According to information, including foundation plans we inspected, furnished to us by State Facilities Management and Maintenance personnel, the existing capitol building is supported on spread footings with the bottom footing elevation varying from about 4' to 7½' below the lowest floor which is at elevation 175'. The existing foundations presumably consist of poured concrete strip foundations and granite block isolated footings. The lowest footing levels are in the rotunda area. We have no information on the actual loadings, but we assume the loadings are substantial. Since the footings are resting at a relatively high elevation of about 170', the existing footings must be resting on soil.

For an open cut excavation, we recommend a maximum slope steepness in the range of 1.5:1 to 2:1 from existing grade adjacent to the capitol building. If the existing steps on the south side of the capitol are to be saved, the excavation slope in that area should be no steeper than 1,5:1 from the bottom of the steps. If the excavation will encroach beyond this zone toward the building, we recommend bracing the excavation with sheeting and shoring or tie backs. The dense granular soils encountered would be well suited for earth anchors. If nearby streets and utilities are to be left in operation during construction, similar bracing of the excavation in those areas would be necessary.

Additional Recommendations

Since details regarding the proposed building have not been established at this time, there are many questions which may arise during the planning and designing for the structure. We are available to discuss such questions as they may arise. However, at this time there should be sufficient subsurface information on the site to evaluate the feasibility of the project, including deep foundations if they are necessary. At this time, however, we do not feel that deep foundations would be necessary,

FIELD INVESTIGATION PROCEDURES

Sampling

Soil sampling was done according to the procedure described by ASTM: D 1586-67. Using this procedure, a 2" O. D. split barrel sampler is driven into the soil by repeated blows of a 140 lb weight falling 30". After an initial set of 6", the number of blows required to drive the sampler an additional 12" is known as the penetration resistance or N value. The N value is an index of the relative density of cohesionless soils and the consistency of cohesive soils. Thin wall tube samples were obtained according to ASTM:D 1587-67 where indicated by appropriate symbol on the boring logs. Rock core samples were obtained by rotary core drilling in accordance with ASTM: D 2113-62T.

Classification

As the samples were obtained in the field, they were visually and manually classified by the crew chief in accordance with ASTM: D 2487-69 (Unified Soil Classification System) and ASTM: D 2488-69. Representative portions of all samples were then sealed and returned to the laboratory for further

examination and for verification of the field classification. In addition, selected samples were submitted to a program of laboratory tests. Logs of the borings indicating the depth and identification of the various strata, the N value, the laboratory tests data, water level information and pertinent information regarding the method of maintaining and advancing the drill holes are attached. Charts illustrating the soil classification procedure, the descriptive terminology and symbols used on the boring logs are also attached.

INVESTIGATION LIMITATIONS

The recommendations and/or suggestions contained in this report are our opinions based on data which are assumed to be representative of the site explored; but because the area of the borings in relation to the entire area is very small, and for other reasons, we do not warrant conditions below the depths of our borings, or that the strata logged from our borings are necessarily typical of the entire site.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Donovan K. Stormoe

DONOVAN K. STORMOE

Date 9-3-76 Reg. No. 10493

SOIL EXPLORATION company

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 1-A

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 177.1'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
0	NO SAMPLES TAKEN (Refer to previous Boring No. 1, Report #22014)									
64	CLAYEY SAND, a little gravel, a few boulders, grayish brown, very stiff, a few lenses of waterbearing sand (SM)	TILL	47		17	SS				
68	SAND, medium to fine grained, a little gravel, a few boulders, brown, waterbearing, very dense (SP-SM)	COARSE ALLUVIUM	43/0.4		18	SS				
72	WEATHERED LIMESTONE, brown and gray	WEATHERED LIMESTONE			19	*				
					20	*				
83.0	Continued on next page									

SOIL EXPLORATION COMPANY

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 1-A Cont.

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N or R	WL	SAMPLE NO.	SAMPLE TYPE	LAB TESTS W	D	L.L./P.L.	Qu
83.0	LIMESTONE, light gray and gray mottled	PLATTEVILLE FORMATION HIDDEN FALLS MEMBER	36.6%			NQ				
		MIFFLIN MEMBER	100%			NQ				
			98%			NQ				
99±		PECATONICA MEMBER	100%			NQ				
	SHALE, gray to about 101½' then brown, sandy shale below 101½'	GLENWOOD FORMATION								
102±	SANDSTONE, brown to tan, cemented above about 104'	ST PETER FORMATION	52%			NQ				
106.0	End of Boring									

R = percent of core recovery

*Drilling fluid wash sample

**No measurement recorded due to presence of drilling/coring fluid. Refer to previous Boring No. 1, Report #22014 for water level information.

Note: Piezometer installed in boring with bottom of well screen point at depth of 70.5' below ground surface.

***Piezometer measurement

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
8-24	2:00	106.0'	83.0'		to	**
8-25	1:05				to	31.0'***
8-27	12:00				to	47.0'***
9-1	3:05				to	46.6'***

START 8-23-76 COMPLETE 8-24-76

METHOD 6 FA 0-9½',4C 0-12' @ 2:00 D.M. (Revert) 9½-83.0', NWC 0-83.0', NQ wireline-cored 83.0'-106.0'

CREW CHIEF Brabender

SE-2 (70-A)

SOIL EXPLORATION company

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 2-A

PROJECT PROPOSED CAPITOL BUILDING COMPLEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 178.4'	GEOLOGIC ORIGIN	N or R	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
0	NO SAMPLES TAKEN (Refer to previous Boring No. 2, Report #22014)									
64	CLAYEY SAND, a little gravel, brown to grayish brown, stiff to medium, some lenses of silty sand (SC-SM)	TILL	19		15	SS				
			7		16	SS	14	123	16/11	
72										
73.0	SILTY SAND, a little gravel (see #1)				17	3T				
	LIMESTONE, light gray to about 77½' then light grayish brown, weathered above 74.3'	PLATTEVILLE FORMATION MAGNOLIA MEMBER	100%			Bx				
79.3	End of Boring									

R = percent of core recovery

#1-a few cobbles, brownish gray, wet, very dense, lenses of clayey sand (SM)

*No measurement recorded due to presence of drilling/coring fluid. Refer to previous boring No. 2, Report #22014 for water level information.

Note: Piezometer installed in boring with bottom of well screen point at depth of 73.0' below ground surface.

**Piezometer measurement

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
8-26	12:45	79.3'	12'		to	*
8-27	12:00				to	34.0'**
9-1	3:00				to	48.9'**
					to	

START 8-25-76 COMPLETE 8-26-76

METHOD 6 FA 0-9½' @ 12:45

4C 0-12', D.M. (Revert) 9½-74.3'

Bx diamond bit-cored 74.3-79.3'

CREW CHIEF Brabender

SE-2 (70-A)

SOIL EXPLORATION company

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 4-A

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 161.3')	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
0	NO SAMPLES TAKEN (Refer to previous Boring No. 4, Report #22014)									
52	CLAYEY SAND, a little gravel, grayish brown, stiff to very stiff, a few lenses of clayey silt, silty sand and waterbearing sand (SC)	TILL	20		15	SS				
			34		16	SS				
64	SILTY SAND, a little gravel, grayish brown, moist, very dense, a few lenses of waterbearing sand (SM)		73		17	SS				
			79		18	SS				
71	End of Boring *No measurement recorded due to presence of drilling fluid. Refer to previous Boring No. 4, Report #22014 for additional water level information.									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
8-27	10:15	71'	14½'		to	*
7-27	11:00	71'	None		to	*
					to	
					to	

START 8-26-76 COMPLETE 8-27-76

METHOD 3¼ HSA 0-14½' @ 10:15

D.M. 14½-69½'

CREW CHIEF Brabender

SE-2 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 5-A

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 161.7')	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
0	NO SAMPLES TAKEN. (Refer to previous Boring No. 5, Report #22014)									
53	SILTY CLAY, a trace of gravel, a few boulders, grayish brown, very stiff, some lenses of sand, silty sand and clayey sand (CL)	TILL	81		15	SS				
57	SAND, medium to fine grained, a little gravel, brown, waterbearing, very dense (SP-SM)	COARSE ALLUVIUM	140		16	SS				
63	CLAYEY SAND, a little gravel, grayish brown and gray mottled, very stiff, lenses of silty sand and sand (SC)	TILL	100/0.7		17	SS				
67	SAND, fine grained, a trace of gravel, brown, moist, very dense (SP-SM)	COARSE ALLUVIUM	100/0.7		18	SS				
73	SAND, medium to fine grained, a little gravel, brown, moist, very dense (SP-SM)		100/0.6		19	SS				
77	SILTY SAND, a little gravel, a few cobbles, brown, moist, very dense, a few lenses of sand (SM)		100/0.3		20	SS				
83	Continued on next page									

SE-3 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 5-A Cont.

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L. / P.L.	Qu
83	SAND, fine to medium grained, a little gravel, brown, moist, very dense, lenses of silty sand and silt below about 89' (SP-SM)		100/0.7		21	SS				
			100/0.7		22	SS				
93	SAND, fine to medium grained, a little gravel, grayish brown, moist, very dense, a few lenses of silty sand (SP-SM)		100/0.6		23	SS				
98	SILTY SAND, fine to medium grained, a little gravel, brown, moist, very dense (SM-SP)		100/0.2		24	SS				
104	SAND, fine to medium grained, a trace of gravel, light brown, moist, very dense (SP-SM)		100/0.4		25	SS				
106	Continued on next page									

SOIL EXPLORATION COMPANY

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 5-A Cont.

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L. / P.L.	Qu
106	SAND, medium to fine grained, a little gravel, a few cobbles, brown, moist, very dense, a few lenses of silty sand (SP-SM)		100/0,4		26	SS				
			100/0,2		27	SS				
118	SILTY SAND, medium grained, a little gravel, a few cobbles and a slab of limestone, brown, moist, very dense, lenses of sand (SM)		100/0,2		28	SS				
121	SANDSTONE, white	ST. PETER FORMATION	100/0,2		29	SS				
129.7	End of Boring		100/0,2		30	SS				

*No measurement recorded due to presence of drilling fluid. Refer to previous Boring No. 5 Report #22014 for additional water level information.

Note: Visual inspection of samples reveals that the previous recorded water level information represents a perched water condition which exists down to a depth of approximately 63'.

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
8-21	3:00	129.7'	12'		to	*
8-23	8:30	129.7'	None		to	*
					to	
					to	

START 8-20-76 COMPLETE 8-21-76

METHOD 6 FA 0-9½' @ 3:00

4C 0-12'

D.M. 9½-129½'

CREW CHIEF Brabender

SE-2 (70-A)

SOIL EXPLORATION company

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 11

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 153.6'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
	FILL, mixture of CLAYEY SAND, SILTY SAND and SAND, a little silty clay, brick, concrete and gravel, brown, dark brown and some black	FILL	9		1	SS				
			11		2	SS				
			6		3	SS				
			20		—	—				
			8		4	SS				
			5		5	SS				
16			4		6	SS				
	SAND, medium grained, a little gravel, brown, moist to about 27' then waterbearing, dense to medium dense, some lenses of fine sand (SP)	COARSE ALLUVIUM	19		7	SS				
			21		8	SS				
			21		9	SS				M.A.
26										

Continued on next page

SOIL EXPLORATION company

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 11 Cont.

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
26				**						
			13		10	SS				
			14		11	SS				
			11		12	SS				MA
43	SAND, coarse to medium grained, a little gravel, brown, waterbearing, very dense (SP)				13	SS				
45½	SAND, medium grained, some gravel, brown, waterbearing, dense (SP-SM)		36		14	SS				
48	CLAYEY SAND, a little gravel, reddish brown, stiff (SC-SM)	TILL	25		15	SS				
52	Continued on next page									

SE-3 (70-A)

SOIL EXPLORATION company

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 1i Cont.

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
52	CLAYEY SAND, a little gravel, brown to grayish brown, stiff to very stiff (SC-SM)		26		16	SS				
			24		17	SS				
			33		18	SS				
			43		19	SS				
71	End of Boring *No measurement recorded due to presence of drilling fluid. Note: Piezometer installed in boring with bottom of well screen point at depth of 60.0' below ground surface. **Piezometer measurement									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
8-25	11:40	71'	17'		to	*
8-27	12:00				to	27.0'**
9-1	3:15				to	27.3'**
					to	

START 8-24-76 COMPLETE 8-25-76

METHOD 6 FA 0-7' @ 11:40

4C 0-17'

D.M. (Revert) 7-69½'

CREW CHIEF White

SE-2 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 12

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 153.6')	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L. / P.L.	Qu
	FILL, mostly SILTY CLAY, brown and black	FILL	5		1	SS				
2										
	FILL, mixture of SILTY SAND and SAND, a little gravel, brick and concrete, black and brown		9		2	SS				
					3	SS				
5			15							
	FILL, mostly SAND, some silty sand, a little gravel, brown and a little black				4	SS				
					5	SS				
			5		6	SS				
			23		—	—				
11										
	SAND, medium grained, a little gravel, brown, moist, medium dense to loose to dense, a few lenses of fine sand (SP)	COARSE ALLUVIUM	12		7	SS				
			7		8	SS				M.A.
			11		9	SS				
25½					10	SS				
	SAND, fine grained, light brown, moist, dense (SP)		16		11	SS				
27		— — —								

Continued on next page

SOIL EXPLORATION COMPANY

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 12 Cont.

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
27	SAND, medium grained, a little gravel, brown, moist to about 29' then waterbearing, medium dense to loose, a few lenses of clayey sand below about 38' (SP)			**						
			11		12	SS				
			14		—	—				
			6		13	SS				
43	CLAYEY SAND, a little gravel, grayish brown, rather stiff (SC)	TILL	15		14	SS	10	132	17/11	
48½	SILTY SAND, a little gravel, grayish brown, moist, very dense (SM)		100/0.6		15	SS				
			68		16	SS				
58	Continued on next page									

SE-3 (70-A)

SOIL EXPLORATION COMPANY

JOB NO. 23081 VERTICAL SCALE 1" = 4' LOG OF TEST BORING NO. 12 Cont.

PROJECT PROPOSED CAPITOL BUILDING ANNEX - ST PAUL, MINNESOTA

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	L.L./P.L.	Qu
58	SAND, medium to fine grained, a little gravel, brown, moist, very dense, a few lenses of silty sand (SP-SM)	COARSE ALLUVIUM	100/0.5		17	SS				
62	SAND, fine to medium grained, a little gravel, grayish brown, moist, very dense (SP-SM)		100/0.8		18	SS				
68	SAND, medium grained, a little gravel, grayish brown, moist, very dense (SP-SM)		100/0.9		19	SS				
71	End of Boring *No measurement recorded due to presence of drilling fluid. Note: Piezometer installed in boring with bottom of well screen point at depth of 60.5' below ground surface. **Piezometer measurement Note: Water level shown (29') represents a perched water condition which exists down to depth of between 45'-50' based on visual inspection of samples.									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
8-23	4:00	71'	6'		to	*
8-27	12:00				to	29.0'**
9-1	3:10				to	29.3'**
					to	

START 8-23-76 COMPLETE 8-23-76

METHOD 6 FA 0-4' @ 4:00

4C 0-6'

D.M. (Revert) 6-69½'

CREW CHIEF White

SE-2 (70-A)

REPORT OF TESTS OF SOIL

PROJECT: PROPOSED CAPITOL BUILDING ANNEX
ST PAUL, MINNESOTA

September 2, 1976

REPORTED TO: State of Minnesota

LABORATORY NO. 23081

BORING AND SAMPLE NUMBER		11-9	11-12	12-8
Depth Sample Taken (ft)		25'-26'	40'-41'	15'-16'
Classification	(ASTM: D 2487-69)	SP-SM)	SP	SP
Description	(ASTM: D 2488-69)	Sand, medium to fine grained	Sand,medium to fine grained	Sand, medium to fine grained

MECHANICAL ANALYSIS:

Dry Weight of Total Sample (grams)		222	243	166
Based on Total Sample:				
Gravel - %	(On #4)	22	23	3
Based on -#4 Material				
Sand - %	(#4 - #10)	9	16	3
	(#10 - #40)	46	54	55
	(#40 - #100)	34	23	36
	(#100 - #200)	3	2	1
Fines - %	(#200 Down)	8	5	5

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS

SYMBOL	DEFINITION
C.S.	Continuous Sampling
P.D.	2-3/8" Pipe Drill
C.O.	Cleanout Tube
3¼ HSA	3¼" I.D. Hollow Stem Auger
4 FA	4" Diameter Flight Auger
6 FA	6" Diameter Flight Auger
2½ C	2½" Casing
4C	4" Casing
D.M.	Drilling Mud
J. W.	Jet Water
H. A.	Hand Auger
NXC	Size NX Casing
BXC	Size BX Casing
AXC	Size AX Casing
SS	2" O.D. Split Spoon Sample
2T	2" Thin Wall Tube Sample
3T	3" Thin Wall Tube Sample

LABORATORY TEST SYMBOLS

SYMBOL	DEFINITION
W	Moisture content - percent of dry weight
D	Dry density-pounds per cubic foot
LL, PL	Liquid and plastic limits determined in accordance with ASTM D 423 and D 424
Qu	Unconfined compressive strength-pounds per square foot in accordance with ASTM D 2166-66

Additional insertions in Qu column

Pq	Penetrometer reading-tons/square foot
Ts	Torvane reading-tons/square foot
G	Specific gravity - ASTM D 854-58
SL	Shrinkage limit - ASTM D 427-61
pH	Hydrogen ion content-meter method
O	Organic content-combustion method
M.A.*	Grain size analysis
C*	One dimensional consolidation
Qc*	Triaxial compression

*See attached data sheet and/or graph

WATER LEVEL

SYMBOL – ▼

Water levels shown on the boring logs are the levels measured in the borings at the time and under the conditions indicated. In sand, the indicated levels can be considered reliable ground water levels. In clay soil, it is not possible to determine the ground water level within the normal scope of a test boring investigation, except where lenses or layers of more pervious waterbearing soil are present and then a long period of time may be necessary to reach equilibrium. Therefore, the position of the water level symbol for cohesive or mixed texture soils may not indicate the true level of the ground water table. The available water level information is given at the bottom of the log sheet.

DESCRIPTIVE TERMINOLOGY

DENSITY

TERM	"N" VALUE
Very loose	0-4
Loose	5-8
Medium Dense	9-15
Dense	16-30
Very Dense	Over 30

CONSISTENCY

TERM	"N" VALUE
Soft	0-4
Medium	5-8
Rather Stiff	9-15
Stiff	16-30
Very Stiff	Over 30

Standard "N" Penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2 inch OD split spoon.

RELATIVE PROPORTIONS

TERM	RANGE
Trace	0-5%
A Little	5-15%
Some	15-30%
With	30-50%

PARTICLE SIZES

Boulders	Over 3"
Gravel	
Coarse	¾"-3"
Fine	#4-¾"
Sand	
Coarse	#4-#10
Medium	#10-#40
Fine	#40-#200
Silt and Clay	Determined by plasticity Characteristics

Note: Sieve sizes shown are U.S. Standard

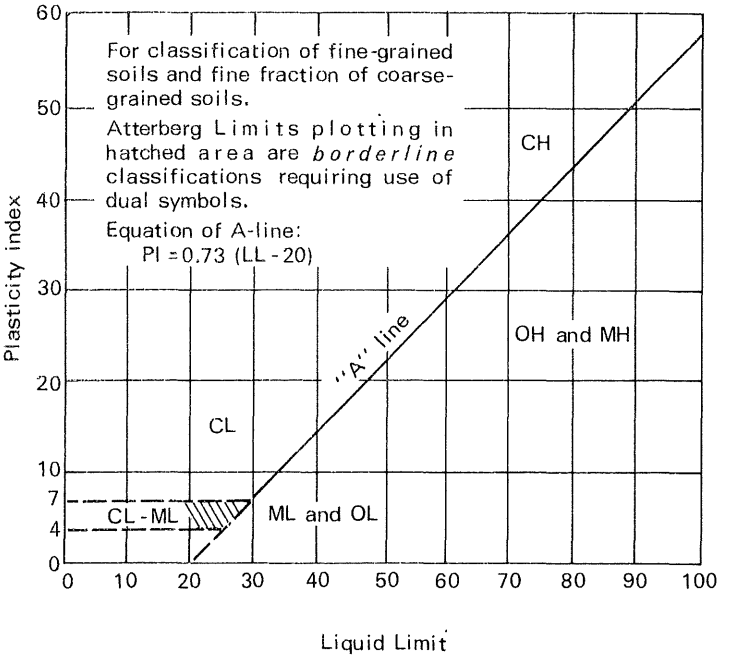
CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 – 69 AND D 2488 – 69

(Unified Soil Classification System)

Major divisions			Group symbols	Typical names	Classification criteria		
Coarse-grained soils More than 50% retained on No. 200 sieve*	Gravels 50% or more of coarse fraction retained on No. 4 sieve	Clean gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Classification on basis of percentage of fines Less than 5% pass No. 200 sieve . . . . . GW, GP, SW, SP More than 12% pass No. 200 sieve . . . . . GM, GC, SM, SC 5 to 12% pass No. 200 sieve . . . . . *Borderline* classifications requiring use of dual symbols	$C_U = \frac{D60}{D10}$ greater than 4; $C_Z = \frac{(D30)^2}{D10 \times D60}$ between 1 and 3	
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines		Not meeting both criteria for GW	
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
	Sands More than 50% of coarse fraction passes No. 4 sieve	Clean sands	SW	Well-graded sands and gravelly sands, little or no fines		$C_U = \frac{D60}{D10}$ greater than 6; $C_Z = \frac{(D30)^2}{D10 \times D60}$ between 1 and 3	
			SP	Poorly graded sands and gravelly sands, little or no fines		Not meeting both criteria for SW	
		Sands with fines	SM	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils 50% or more passes No. 200 sieve*	Silts and clays Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands			
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL	Organic silts and organic silty clays of low plasticity			
	Silts and clays Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts			
			CH	Inorganic clays of high plasticity, fat clays			
			OH	Organic clays of medium to high plasticity			
	Highly organic soils		Pt	Peat, muck and other highly organic soils			

Plasticity Chart



*Based on the material passing the 3 in. (76 mm) sieve.

OWNER-ARCHITECT AGREEMENT

THIS AGREEMENT, is made by and between the STATE OF MINNESOTA, acting through its Commissioner of Administration, hereinafter referred to as "STATE" as party of the first part, and,

hereinafter referred to as "CONSULTANT", as party of the second part,

WITNESSETH:

WHEREAS, STATE intends to erect a Capitol Building Annex,

hereinafter referred to as the "Project", for which funds amounting to _____ dollars ($_____), have been appropriated pursuant to Minnesota Laws 19___, c.____, S_____, Subd._____, for the construction and equipment of the Project, from which has been allocated _____ dollars ($_____) for the cost of construction of the Project (including a construction contingency), said amount hereinafter referred to as the "Allocated Construction Cost".

WHEREAS, CONSULTANT represents that he is qualified to provide architectural and engineering services as required by this Agreement and is duly registered pursuant to Minnesota Statutes 1975, 326.02 - 326.16,

WHEREAS, (Applicable to corporations and partnerships only) CONSULTANT represents and warrants that it is duly authorized as an Architect to practice architecture in the State of Minnesota, and that during the term of this Agreement it will comply with the provisions of Minnesota Statutes 1974, 326.14, and all other laws of the State of Minnesota.

NOW THEREFORE, it is hereby agreed by and between the parties hereto:

I
GENERAL REQUIREMENTS

1. Authorized Agent. For the purpose of administration of this contract, the State Architect is STATE's authorized agent. CONSULTANT shall render all services pursuant to this Agreement under the direction and supervision of the authorized agent or his designated representative.

2. Satisfactory Performance. All services provided hereinunder by CONSULTANT shall meet all specifications, standards, timetables and criteria as set forth in this Agreement. (The timetables and conditions as contained in CONSULTANT's proposal. Exhibit A are hereby incorporated into and made a part of this Agreement).

3. Personnel. CONSULTANT represents that he has or will secure at his own expense, all personnel required in the performance of this Agreement, except for personnel furnished by STATE. Such personnel shall not be employees of or have any contractual relationship with STATE. CONSULTANT further represents that all of the services required hereunder will be performed by CONSULTANT or under his supervision, and, as applicable, all personnel so engaged shall be fully qualified and shall be authorized under state or local law to perform such services. STATE reserves the right to disapprove CONSULTANT's selection of associated architects and engineers, at any time during the term of this Agreement.

4. Cost Estimates. In the preparation of construction cost estimates as required by this contract, it shall be the responsibility of CONSULTANT to design the Project so that such estimates will not exceed the Allocated Construction Cost. All cost estimates submitted by CONSULTANT shall include a construction contingency amount. Whenever CONSULTANT finds that in his opinion the cost of construction of Project will exceed the Allocated Construction Cost, CONSULTANT shall immediately stop work and notify COMMISSIONER OF ADMINISTRATION in writing. If so directed by STATE, CONSULTANT shall at no cost to the STATE revise or redraft any and all documents necessary for the construction of the Project so as to bring the estimated cost of construction within the limit established by Allocated Construction Cost.

5. Tests. STATE shall engage and pay for surveys, boring, or test pits, and for chemical, mechanical or other tests when proposed by the CONSULTANT and approved in writing by the STATE.

6. Records. STATE represents that it will assure full access to necessary records, reasonable cooperation on the part of affected officials and employees, and expeditious decisions on matters which affect the progress of work under this Agreement. Accounting records of CONSULTANT pertaining to the Project shall be kept on a generally recognized accounting basis and shall be available to the COMMISSIONER OF ADMINISTRATION and LEGISLATIVE AUDITOR at mutually convenient times, which times shall be no later than seven calendar days after a written request is delivered to CONSULTANT. Such records shall remain available to STATE for three years after completion of the Project.

7. Ownership of Documents. Except for original tracings and copies of additional material, all drawings, samples, surveys, maps, models, photographs, reports, data, studies, specifications and all other finished or unfinished documents prepared by CONSULTANT under this Agreement shall be deemed the property of STATE whether or not the Project for which they are made is completed or this Agreement is cancelled prior to

termination. Original design competition drawings and documents remain the property of the CAAPB.

8. Arbitration. In case any dispute or controversy arises between CONSULTANT and STATE out of any provisions herein contained, such dispute or controversy shall be referred to any neutral individual or organization designated by the COMMISSIONER OF ADMINISTRATION, such as the American Arbitration Association or the State Board of Hearing Examiners, whose decision shall be final and binding upon all parties. All costs of arbitration shall be borne by the party demanding arbitration subject to any award of costs by the arbitration panel. No action under this paragraph shall be maintained by the CONSULTANT unless commenced within 90 days after said CONSULTANT has been furnished by the STATE with a final payment under his contract, or, at the election of the CONSULTANT, within six months after the work provided for under the contract is completed.

9. Successors and Assigns. CONSULTANT binds himself jointly and severally, his successors, executors, administrators, and assigns to STATE in respect to all covenants of this Agreement. He shall not assign, sublet or transfer any part of his interest in this Agreement except upon written approval of STATE. CONSULTANT agrees that he will not employ for the performance of this contract, or any part thereof, professional services of any person or persons not on the regular staff of CONSULTANT without written consent of STATE OF MINNESOTA therefore in each instance.

10. Until funds for this Agreement have been encumbered by the Department of Finance, this Agreement shall not be valid or effective, there shall be no liability upon the STATE for payment, and CONSULTANT shall have no obligation to commence work until funds have been encumbered.

II
SCHEMATIC DESIGN PHASE

1. CONSULTANT's competition design material for the Project constitutes the Schematic Design Phase requirements.

2. The Schematic Design Phase for the Project is approved and the CONSULTANT is hereby authorized to proceed with the Design Development Phase as set forth in Part II of this Agreement.

III
DESIGN DEVELOPMENT PHASE

1. The Design Development Phase shall commence with the preparation of the Design Development Documents. Such documents shall be prepared by CONSULTANT from the approved Schematic Design Studies and shall consist of plans, elevations and other drawings, and outline specifications, for the purpose of fixing and illustrating the size and character of the entire project in its essentials as to kinds of materials, type of structure, grade elevations, sidewalks, utilities, roads, parking areas,

mechanical and electrical systems and such other work as may be required.

2. CONSULTANT shall submit to STATE an estimated completion date of construction and a Preliminary Construction Cost Estimate.

3. CONSULTANT shall submit three complete, bound copies of the design development documents and cost estimates to STATE.

4. CONSULTANT shall not proceed with the Construction Documents Phase as set forth in Part IV of this Agreement until he has both (a) received written approval of STATE of the Design Development Phase, and (b) received written authorization and direction from STATE to proceed with the Construction Documents Phase.

IV
CONSTRUCTION DOCUMENTS PHASE

1. The Construction Documents Phase shall commence with the preparation of the Construction Documents. Such documents shall be prepared by CONSULTANT from the approved Design Development Documents and shall include working drawings and specifications setting forth in detail and describing: (a) the construction work to be done; (b) the materials workmanship, finishes, and equipment required for the architectural, electrical, structural and mechanical systems; and (c) the necessary bidding information and the General Conditions, Supplementary General Conditions and Special Conditions of the contract. The General Conditions of the contract shall include AIA Document A201 except as modified by STATE in writing prior to or during the term of Agreement.

2. When CONSULTANT is approximately one-half completed with the construction documents phase, he shall furnish a revised estimated completion date of construction and a Detailed Construction Cost Estimate. CONSULTANT shall not proceed to completion of this Phase until he has received written approval from STATE of his Detailed Construction Cost Estimate. CONSULTANT shall submit a final estimated completion date of construction and Final Detailed Construction Cost Estimate.

3. The Design of mechanical, electrical and structural systems, and the coordination and observation of construction of such systems, shall be performed by qualified engineers under the direction of CONSULTANT.

4. Upon submission of the contract and bidding forms to STATE, CONSULTANT shall also furnish STATE with two complete sets of plans and specifications for approval by STATE. A set of plans and specifications shall consist of documents for the general, structural, mechanical, electrical systems which adequately describe the construction project.

5. CONSULTANT shall furnish two sets of plans and specifications to each of the following State-local agencies: State Building Code, State Board of Electricity for approval of all provisions relating to

electrical installations, State Board of Health for approval of all provisions relating to plumbing, State Fire Marshal for approval of all provisions relating to fire protection, Department of Labor and Industry for approval of all provisions relating to high pressure steam piping and appurtenances, elevators, and OSHA (Occupational Safety and Health Act) requirements, the Metropolitan Sewer Board, if the project is to be constructed within its jurisdiction, and any local agencies having jurisdiction.

6. CONSULTANT shall receive written approval of STATE upon completion of the Construction Documents including written acceptance by STATE of plans and specifications, the final Detailed Construction Cost Estimate and final estimated completion date of construction before proceeding with the Bidding Phase as set forth in Part V of this Agreement.

V
BIDDING PHASE

1. The Bidding Phase shall commence with the preparation of documents, in addition to those prepared under the Construction Documents Phase, which are necessary to the bidding procedure. In addition to plans and specifications and other documents previously prepared, CONSULTANT shall prepare advertisements, and all other documents necessary for the invitation of bids from construction contractors.

2. Upon approval by STATE of the bidding documents, CONSULTANT shall issue plans and specifications to prospective bidders, assist STATE in obtaining proposals from contractors and in the awarding and preparation of construction contracts.

3. No changes shall be made in the Project program or the various documents prepared by CONSULTANT after bids have been invited, except upon prior written approval of STATE.

4. CONSULTANT is primarily responsible for adherence to the Allocated Construction Cost after approval by the STATE of the Schematic Design Phase. In the event that the lowest acceptable construction bids exceed the budget, CONSULTANT agrees to promptly re-design the Project so that construction can be completed with available funds if so requested by STATE and approved by the CAAPB. These re-design services shall be performed expeditiously and at no cost to the STATE. The providing of such service shall be the limit of the CONSULTANT's responsibility in this regard, and having done so, CONSULTANT shall be entitled to compensation in accordance with this Agreement.

NOTE: Bidding phase may be restated if options other than a lump sum bid for construction are adopted by the STATE.

VI
CONSTRUCTION PHASE

1. The Construction Phase shall begin with the notice to proceed given by STATE to the successful bidders and CONSULTANT shall fully administer the construction contracts in accordance with the provions thereof.

2. CONSULTANT, as representative of STATE during the Construction Phase, shall advise and consult with the construction contractors and all of STATE's instructions to construction contractors shall be issued through CONSULTANT. CONSULTANT shall have the authority to act on behalf of STATE to extent provided in the General Conditions of the construction contracts unless otherwise directed by STATE.

3. CONSULTANT shall provide daily observation of the Project to assess progress and quality of the construction work, and assure that the construction work is proceeding in accordance with contract documents. Office space and telephone will be provided for the CONSULTANT as part of the construction contract.

4. CONSULTANT shall not be responsible for construction means, methods, techniques, sequences or procedures or safety precautions and programs in connection with the construction work, and shall not be responsible for a contractor's failure to carry out the work in accordance with the contract documents. However, where such deficiencies are observed or where CONSULTANT observes contractor failing to execute the construction work in accordance with the contract documents, CONSULTANT shall promptly notify the contractor in writing of all such deficiencies and shall provide STATE a copy of each notification. CONSULTANT shall have authority to reject work which does not conform to the contract documents. CONSULTANT shall also have authority, upon written approval of STATE in each instance, to require the construction contractors to stop work whenever in his reasonable opinion it may be necessary for the proper performance of the contract.

5. CONSULTANT shall be, in the first instance, the interpreter of the requirements of the contract documents. In case of any dispute or controversy arising between CONSULTANT and a contractor, such disputes and controversies shall be referred to COMMISSIONER OF ADMINISTRATION. The COMMISSIONER's decision shall be final and binding upon all parties.

6. CONSULTANT shall review and approve shop drawings, samples or other submissions of contractor for conformance with the design concept of the Project and with the contract documents.

7. CONSULTANT shall prepare all change orders and related documents as required for the successful completion of the Project as requested by STATE.

VII
CONSULTANT'S FEE

1. CONSULTANT's exclusive fee for all services required by Articles I through V of this Agreement shall be a lump sum in the amount of One Million One Hundred Thousand Dollars ($1,100,000)

2. Upon completion and acceptance by STATE of the various project phases, CONSULTANT shall be entitled to payment of a portion of his fee in accordance with the following schedule:

a.	Schematic Design Phase	15 %
b.	Design Development Phase	30 %
c.	Construction Documents Phase	50 %
d.	Bidding Phase	5 %

For any services beyond a, b, c, and d, above for construction observation (Article VI), and program coordination with other elements affecting the Project, the CONSULTANT shall be paid his direct personnel cost multiplied by a factor of two and one-half (2.5). No payment shall be made for such services unless a properly executed supplement has been made to this Agreement.

3. All travel required to be performed in connection with the services to be rendered under this contract shall be without additional expense to STATE.

4. In addition to CONSULTANT's fee as hereinbefore established, CONSULTANT shall be reimbursed at cost for printing of plans and specifications. The number of sets of plans and specifications printed shall be determined by STATE. If CONSULTANT prints his own plans and specifications, reimbursement will be made according to the following schedule:

Plans - Blue Line Prints @ $.07 per square feet

30" x 42" sheet = $0.62 each

24" x 36" sheet = $0.42

Specifications - Multilith or Instant Print
.04 per sheet (each face)

5. Payments shall be made upon presentation of invoices to STATE by CONSULTANT in a format prescribed by STATE.

6. No deductions shall be made from payments to CONSULTANT on account of penalties, liquidated damages or other amounts assessed against contractors for the construction cost of the project, provided no payment shall be made to CONSULTANT for services which do not meet the conditions and specifications stipulated herein.

VIII
CANCELLATION, TERMINATION BY ABANDONMENT OR SUSPENSION, REDUCTION IN SCOPE, EXPIRATION

1. Cancellation. If through any cause other than force majeure, strikes, fire, or by delay authorized by STATE, CONSULTANT shall fail to submit drawings and other documents as required herein and according to the stated timetables, or if CONSULTANT shall violate any of the covenants, agreements, or stipulations of this Agreement, or perform such services in an unsatisfactory manner, STATE shall have the right to cancel this Agreement upon three (3) days written notice to CONSULTANT. If, upon cancellation, STATE incurs additional cost as a result of CONSULTANT's failure to perform, CONSULTANT shall be liable for the purpose of set-off, until such time as the exact amount of such additional cost is determined and CONSULTANT has rendered payment thereof. CONSULTANT shall only be entitled to payment for services satisfactorily performed as of the date of Notice of Cancellation in accordance with the schedule as established in Part VII of this Agreement.

2. Termination by Abandonment or Suspension, Change in Scope. At any time during the term of this agreement, STATE may abandon the project entirely, suspend it for an indefinite time or change the scope or quality of the project upon seven days written notice to CONSULTANT.

a. In the event that STATE abandons the project entirely or suspends same for more than ninety calendar days, CONSULTANT shall only be entitled to compensation for services satisfactorily rendered as of the date of Notice of Abandonment or suspension in accordance with the payment schedule set forth in Article VII, Clause 2 of this Agreement.

b. In the event the STATE reduces or increases the scope of the Project above or below that defined in the competition, CONSULTANT's fee shall be adjusted in accordance with the increase or decrease in anticipated allocated construction cost. Such fee adjustment shall be made by a properly executed Supplement to this contract.

3. Expiration. Unless otherwise cancelled or terminated, this Agreement shall expire twelve (12) months after the completion of the Project and final acceptance by STATE.

IX
OTHER CONDITIONS

1. CONSULTANT shall furnish, upon completion of this Project, a complete and accurate set of all drawings, details and specifications showing the Project as built.

2. Liability for the inadequacy of the total Project design (including all architectural, structural, mechanical, electrical and all specialized elements) rests solely with the CONSULTANT. In this regard the CONSULTANT is fully responsible to the STATE for his own, his associates and his consultant's work.

At the time of signing this Agreement, the CONSULTANT shall furnish, for approval by the STATE, a copy of a policy of Professional Liability insurance. The STATE shall determine the amount to be required and shall pay for any amount in excess of the CONSULTANT's normal policy, as a reimbursable expense.

IN WITNESS WHEREOF, STATE has caused this Agreement to be duly executed in its behalf and CONSULTANT has caused the same to be duly executed on its behalf.

STATE OF MINNESOTA

Richard L. Brubacher
Commissioner of Administration

Date_____

Approved as to Form and Execution

WARREN SPANNAUS
Attorney General

By_____
Special Assistant Attorney General

Date_____

Approved

Department of Finance

CONSULTANT

By_____

Title_____

Date_____

By_____

Title_____

Date_____

ARCHITECTURAL SERVICES PROPOSAL

The following is our proposal for providing architectural services to the STATE OF MINNESOTA for the project known as

We have read over and understand the terms of the contract which will be used upon acceptance of our proposal.

(a) Name of lead architect_____

(b) Name of engineer (1) Structural_____

(2) Mechanical_____

(3) Electrical_____

(c) Name of site planner_____

(d) Name of cost estimator_____

(e) Time schedule for the various phases of the project including what is expected from State Agencies and at what time in the schedule

SCHEMATIC PHASE

DESIGN DEVELOPMENT PHASE

CONSTRUCTION DOCUMENTS PHASE

BIDDING PHASE

CONSTRUCTION PHASE

(f) Other Conditions_____

_____

_____

(g) We attach herewith, Schedule B, direct personnel expense rates for personnel in our firm, including principals.

CONSULTANT

_____ Date_____

Nº 0983