

University of California, Berkeley  
Request for Qualifications: Geotechnical Engineering Services

Project 12313B: Helios Building

The Lawrence Berkeley National Laboratory (LBNL), requests your proposal to provide geotechnical engineering services for the Helios Building Project. The Laboratory wishes to engage a firm willing to commit to work closely with the design consultants in a team effort to optimize the project design and value. Key objectives include a thorough understanding and cost efficient resolution of geotechnical design and construction issues.

### PROJECT DESCRIPTION

Construction type: New construction

Location: LBNL, west of Buildings 67 and 72

Square footage: 160,000 g.s.f.

Functional use: Laboratory, office and assembly uses

Structural type: TBD

Number of stories: Up to 6

Number of levels below grade on four sides: varies, 2 maximum

Number of levels below grade on three or less sides: varies, 4 maximum

Adjacent structures: none closer than 40 feet

Illustrative plans and sections are attached.

Specific design objectives: Very low vibration isolation (125 micro-inches per second) for some portion of the first story lab spaces (slab on grade); the balance of the facility will have vibration tolerances around 2000 micro-inches per second.

#### Structural design data

Vertical dead and live loads: TBD

Seismic performance objectives: TBD

#### Project schedule by phase:

Schematic Design	May 15 - August 1, 2007
Design Dev	August 1 - November 15, 2007
Construction Docs.	November 15 2007 - May 15, 2008
Construction Admin.	March 1 - December 30, 2008

Project Architect:	Smith Group
Project Structural Engineer:	Rutherford & Chekene
Project Civil Engineer:	Sandis

LBNL Project Director:	Joe Harkins
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Project Seismic Consultant: Craig Comartin  
Project Structural Peer Reviewer: TBD

## PREVIOUS RELEVANT REPORTS AND INFORMATION

LBNL has the following reports, documents, and other materials on file that may be relevant to the current geotechnical issues. These may be reviewed at LBNL by proposing firms prior to submitting a proposal by contacting Fred Angliss, 486-4168 or Steve Blair, 486-5927.

Geotechnical and geologic reports: LBNL Geotechnical Files Number 28, 40, 41, 155, 157, 158, 159, 197, 235, 287, 321, 352, 373, 374, 375, 382, 399, 400, 402 and <http://www.lbl.gov/ehs/erp/html/documents-rfi-2000.shtml>.

Utility maps: Drawing numbers 4B00U151, 4B00U173, 4B00U195 and 4B00U217.

Topographic maps: Drawing numbers 4B00Q150, 4B00Q151, 4B00Q172, 4B00Q173, 4B00Q195 and 4B00Q217.

## GEOTECHNICAL ISSUES

Considering the overall objectives of the project LBNL and the project design consultants initially have identified the following key geotechnical issues. Proposing geotechnical firms are expected and encouraged to expand upon, modify, or add to this list. It is expected that the successful resolution of these issues will contribute significantly to the project:

Cost efficient foundation design for vertical and lateral loads to meet performance expectations

Realistic seismic performance characteristics of site soil materials.

Construction excavation and shoring (construction and long term)

De-watering (construction and long term)

Control of vibrations (construction and long term)

Site paving and grading

Site stabilization

Slope stability under normal ground water conditions and during the maximum credible seismic event

## SCOPE OF WORK

The general scope of geotechnical services required for the project is as follows:

### Schematic Design Phase

Review of relevant existing data

Orientation meeting with appropriate members of the LBNL Helios Project team and consultants  
Initial field investigations and testing  
Laboratory testing  
Development of design alternatives  
Schematic Design (SD) period coordination and meetings with design consultants  
SD level geotechnical report draft

- Site characterization
- Summary of key geotechnical issues
- Seismic design parameters
  - Dynamic force-deformation characteristics of foundation components in accordance with the nonlinear inelastic procedures of FEMA 356 and ATC40.
- Site classification

Presentation and discussion of foundation design alternatives

- Shallow spread footings
- Drilled piers and caps
- Mat footing
- Tie-downs and pin piles

Preliminary recommendations for construction

- Shoring
- Excavation and backfill
- De-watering
- Etc.

Recommendations for supplement investigations or testing  
SD presentation to U.C. Berkeley Seismic Review Committee (SRC)  
SD response to comments and questions

#### Design Development Phase

Supplemental investigations and testing  
Design Development (DD) period coordination and meetings with design consultants  
Finalization of foundation design recommendations  
Finalization of construction recommendations  
Review of DD drawings and specifications  
DD level revised geotechnical report draft  
DD presentation to U.C. Berkeley SRC  
DD response to comments and questions

#### Construction Documents Phase

Construction Document (CD) period coordination and meetings with design consultants  
Review of CD drawings and specifications  
Final geotechnical report

#### Construction Administration Phase

Review and commentary on selected bid documents  
Construction observation and reports

## PROPOSAL REQUIREMENTS

LBNL requires that proposals for geotechnical services include the following elements. Your firm has been determined to be capable of the project work. Promotional material for the firm is neither necessary nor desired.

Review and commentary on geotechnical issues for specific project-

This section should respond to the initial list provided above with a basic understanding of project objectives and site conditions. Proposing firms should confirm or modify the issues as they see fit in an effort to demonstrate understanding and creative thinking for this specific project.

Qualifications of proposed lead engineer related specifically to the current project-

The assignment and qualification of the lead engineer is the most critical factor in selecting a geotechnical consultant. Others proposed for work on the project should also be identified including personnel qualifications. It is important that qualifications be specifically related to the needs of this project.

Three references with familiarity with past performance of firm and lead engineer-

These may be contacted to assess past performance on similar projects.

Detailed work plan and schedule to address geotechnical issues and meet project goals-

Communications and coordination with design consultants and LBNL

Site characterization

Existing documents and research

Field observations and testing

Laboratory testing

Engineering analysis

Design alternatives and recommendations

Performance based seismic design parameters

Construction recommendations

Reports and deliverables

Review of design documents

Construction services

Cost breakdown

Basic services by design phase

Schematic design

Design development

Construction documents

Construction administration

Additional services if required

## EVALUATION AND SELECTION PROCESS

The selection of the geotechnical engineer for the Helios Building project will be made in general conformance with the following process and schedule:

Submission of proposals	July 2, 2007
Review by LBNL and design consultants	July 3, 2007
Interviews, if required by LBNL	July 6, 2007
Requests for supplemental data, if required by LBNL	TBD
Announcement of selection	July 9, 2007

#### EVALUATION CRITERIA

The selection of the geotechnical engineer for the Helios Building project will be based upon the following criteria:

- Basic understanding and creative response to key project issues
- Qualification and past performance of lead engineer and project staff
- Demonstrated capability to produce effective and economical design and construction recommendations
- Geotechnical work plan for project

The successful firm will be required to sign the University's Professional Services Agreement, which is available for review at <http://www.cp.berkeley.edu/PSA.pdf>.

All Statements of Qualifications must be received at Facilities Services at the address below no later than 4:30 PM, on July 2, 2007.

Facilities Services  
1936 University Ave, 2<sup>nd</sup> Floor  
Berkeley CA 94704-7027  
Attn: Joseph Harkins

All responses must reference: Helios Project

Address questions to Joseph Harkins, 510-486-7486; fax 510-486-6470.

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