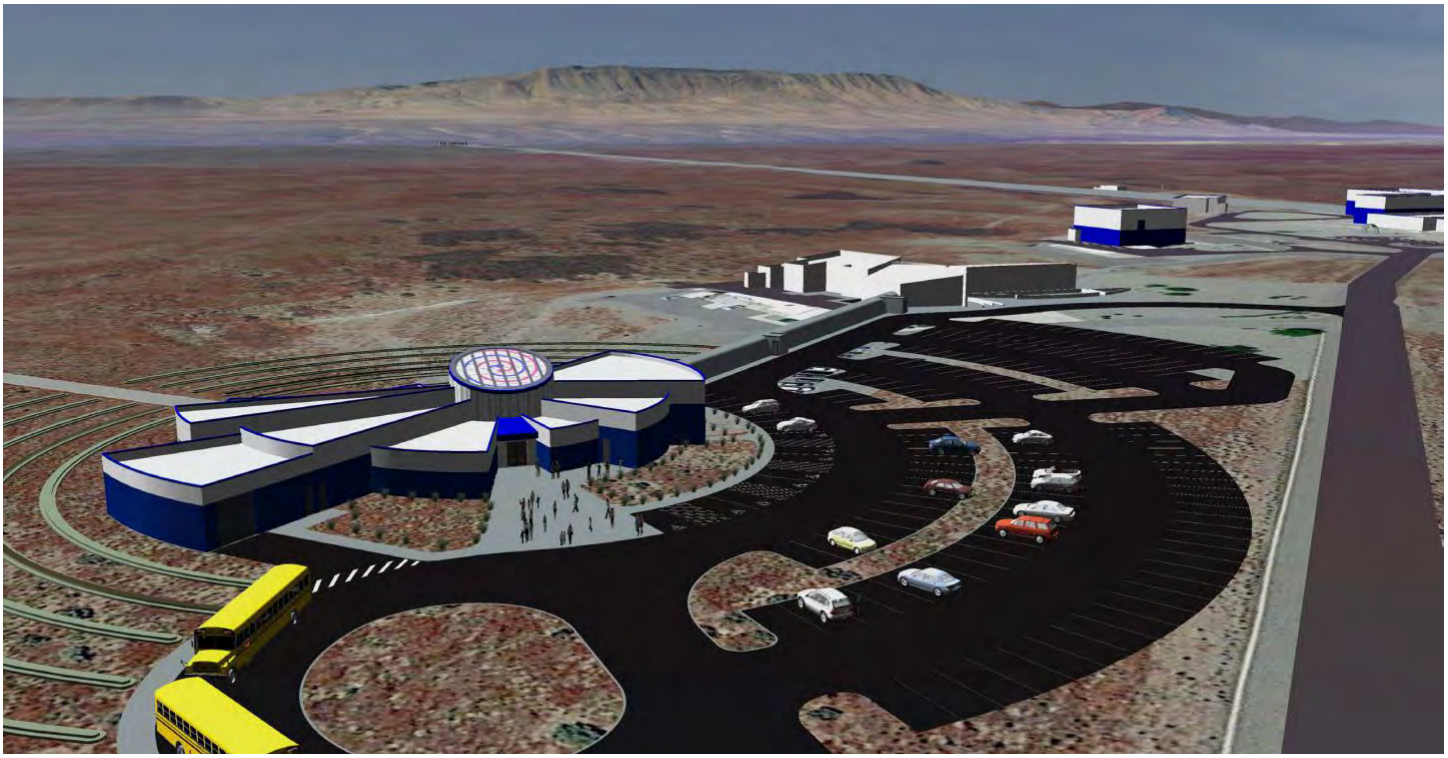
LEXC - THE LIGO EXPLORATION CENTER



State of Washington
Capital Projects Advisory Review Board (CPARB)
PROJECT REVIEW COMMITTEE (PRC)

APPLICATION FOR APPROVAL TO UTILIZE BRIDGING D/B PROJECT DELIVERY

SUBMITTED BY
CALIFORNIA INSTITUTE OF TECHNOLOGY
LIGO HANFORD OBSERVATORY
FEBRUARY 20, 2020

State of Washington
Capital Projects Advisory Review Board (CPARB)
PROJECT REVIEW COMMITTEE (PRC)

APPLICATION FOR PROJECT APPROVAL
To Use the Design-Build (DB)
Alternative Contracting Procedure

The CPARB PRC will only consider complete applications: Incomplete applications may result in delay of action on your application. Responses to sections 1-7 and 9 should not exceed 20 pages *(font size 11 or larger)*. Provide no more than six sketches, diagrams or drawings under Section 8.

Identification of Applicant

a) Legal name of Public Body (your organization): **California Institute of Technology**
b) Address: **1200 East California Blvd, Pasadena, CA 91125**
c) Contact Person Name: **Michael Landry** Title: **Head of LIGO Hanford Observatory**
a) Phone Number: **509-372-8133** E-mail: **mlandry@caltech.edu**

1. Brief Description of Proposed Project

a) Name of Project: **Construction of a LIGO Exploration Center at the LIGO Hanford Observatory**
b) County of Project Location: **Benton County**
c) Please describe the project in no more than two short paragraphs. *(See Attachment A for an example.)*

LIGO, the Laser Interferometer Gravitational-wave Observatory, is an astrophysical observatory outside of Richland, WA funded by the US National Science Foundation. Part of LIGO's mission is to share its science with the public and support the next generation of STEM professionals. To accomplish this, LIGO has a vibrant and successful outreach program that has been in place for over a decade. First detections of gravitational waves and awards such as the 2017 Nobel Prize in Physics for LIGO founders have increased the public's awareness of, and interest in, LIGO. To increase its ability to serve the community, LIGO will construct an interactive science center for K-12, college, and general public use at the site of LIGO's detector facility. The LIGO Exploration Center (LExC) will be a 13,000 sq.ft. free-standing building and comprise an exhibit hall, classrooms, office space, lobby, restrooms, nursing room, support rooms, and an experiential tunnel that connects the Center to a neighboring building housing a 175-person auditorium. The Center's exhibit hall will provide 5,000 sq.ft. of high-ceilinged space for exhibits, with flexible lighting that will optimize the illumination of different types of up to 50 interactive exhibits designed to engage visitors in the physics, engineering, astronomy, mathematics and technology of LIGO's astrophysics research. In close proximity to the exhibit hall, the classroom and makerspace will host a wide variety of activities ranging from informal student presentations and discussions, to hands-on family-based activity sessions, to teacher workshops. Movable furnishings and flexible lighting will optimize the usefulness of the classroom, and this space will augment the lunch seating that is available for field trip students.

LIGO's research provides unique challenges for the construction of the LExC. LIGO is a seismically-sensitive experiment, such that noise from heavy construction must occur in down periods between observation runs. That is, observation runs in which we search for astrophysical gravitational waves, held in tandem with other gravitational-wave observatories around the world, cannot proceed with construction activities situated a few hundred meters from the detector, as per the LExC. The schedule for observation runs is the result of input from and collaboration with international partners across astronomy. The next planned observing run will begin in January 2022, resulting in a finite window for LExC construction activities. Based on the unique challenges of building at an active

observatory and the limited construction window LIGO has determined the Design/Build delivery method would provide the highest likelihood of successful, on-time completion of the project. LIGO has worked with Terrence Thornhill Architecture to provide detailed bridging documents and an engineering cost estimate for the LExC project. The design and construction cost is approximately $6.2 million, with a total project budget of approximately $7.9 million. Construction is anticipated to begin in Oct 2020 with occupancy beginning November 2021.

The LExC will be a pre-engineered metal building. RCW 39.10.300 exempts pre-engineered metal buildings from the requirements to obtain approval from the Project Review Committee. As noted above, time is of the essence in constructing this facility so that Caltech can obtain the funds allocated by the legislature and have construction occur within the limited window between observation runs. Caltech reviewed the statute and conducted research including examining similar projects such as the Hanford Reach Project and discussing the issue with members of the PRC as well as individuals from the Office of the Superintendent of Public Instruction, the entity that is issuing the funds. Based on its research, Caltech determined that the LExC project fits within the exception for pre-engineered metal buildings and has fully complied with the statute. Indeed, Caltech's RFQ highlighted the requirement that the building be a pre-engineered metal building and specifically noted that the building should fit within the exception in RCW 39.10.300 to make sure that the design-build teams complied with its requirements. Caltech did not want a design-build team to submit a design that would run afoul of the RCW.

Caltech received a letter from Walter Schacht, chair of the Capital Projects Advisory Review Board, noting his personal belief that the LExC does not fit within the statutory exception for pre-engineered metal buildings and that Caltech is required to obtain approval from the PRC. Mr. Schacht objected to the fact that Caltech would like a building with "significant programmatic, technical and design requirements including LEED Silver certification." Mr. Schacht also noted several issues with the procurement that did not comply with the statute. Caltech immediately hired Robynne Thaxton to assist it in amending the RFQ and making the procurement fully compliant with the statute. Ms. Thaxton replied to Mr. Schacht's letter providing her expert opinion that the project fully fits within the exception. The statutory exception merely states that "pre-engineered metal buildings" do not require PRC approval. It does not include an additional exception for those pre-engineered metal buildings that also make an attempt to look nice. We note that Caltech does not have time in its extremely limited schedule to engage in an argument with respect to whether it needs to obtain permission from the PRC. However, in an abundance of caution, Caltech has determined that it would request approval from the PRC for the project. Because the schedule for this project is crucial, Caltech made the determination that it would continue with the procurement; however, it would not initiate negotiations with the highest scored finalist until after the PRC hearing.

2. Projected Total Cost for the Project:

A. Project Budget

Costs for Professional Services (A/E, Legal etc.)	$ **708,000.00**
Estimated project construction costs *(including construction contingencies)*:	$ **5,511,654.28**
Equipment and furnishing costs	$ **118,000.00**
Off-site costs	$ **N/A**
Contract administration costs (owner, cm etc.)	$ **400,000.00**
Contingencies (design & owner)	$ **562,965.43**
Other related project costs (LEED certification, commissioning)	$ **115,000.00**
Sales Tax	$ **532,565.29**
Total	$ **7,948,185.00**

B. Funding Status

Please describe the funding status for the whole project. *Note: If funding is not available, please explain how and when funding is anticipated*

In 2018, LIGO was awarded $411k for conceptual designs and plans for the SEC (State of Washington Department of Commerce contract number 18-96616-107). A 30% conceptual design and bridging documents were produced. After the completion of the bridging documents $248k of those funds remained available for further designs and planning. Included in the 2019-2021 Washington State Capital Budget is $7.7M for construction of the Center. Total funds available for the planning and construction of the LExC are thus $7,948,185.00.

3. Anticipated Project Design and Construction Schedule

Please provide *(See Attachment B for an example schedule.)*:

The anticipated project design and construction schedule, including:

a) Procurement;
b) Hiring consultants if not already hired; and
c) Employing staff or hiring consultants to manage the project if not already employed or hired.

Task	Start	Finish
Bridging Document Development	Dec 2018	Oct 2019
PRC Application	Jan 2020	Feb 20, 2020
PRC Presentation	Mar 26, 2020	Mar 26, 2020
Design/Build RFQ Process	Dec 9, 2019	Feb 10, 2020
Design/Build RFP Process	Feb 18, 2020	Mar 26, 2020
DOE cultural and ecological approval	Jan 2020	Oct 2020
Contract Negotiations	Mar 27, 2020	April 27, 2020
Design	May 2020	Sept 2020
Permitting	Aug 2020	Sept 2020
Mobilization	Sept 2020	Sept 2020
Construction	Oct 2020	Oct 2021
Occupancy/Move In	Nov 2021	Dec 2021

4. Explain why the DB Contracting Procedure is Appropriate for this Project

Please provide a detailed explanation of why use of the contracting procedure is appropriate for the proposed project. Please address the following, as appropriate:

- If the construction activities are highly specialized and a DB approach is critical in developing the construction methodology (1) What are these highly specialized activities, and (2) Why is DB critical in the development of them?
- If the project provides opportunity for greater innovation and efficiencies between designer and builder, describe these opportunities for innovation and efficiencies.
- If significant savings in project delivery time would be realized, explain how DB can achieve time savings on this project.

LIGO is an astrophysical observatory investigating the universe through gravitational waves. Unlike conventional astronomy in which images are formed by collecting electromagnetic waves such as light, radio, and X-rays, LIGO detects distortions in the fabric of spacetime emitted by some of the most powerful events in the universe. These include collisions of pairs of black holes and neutron stars.

In order to detect these incredibly faint signals, which modify the length of our 4km-long arms by 1/1000th the size of a proton, LIGO operates our detectors on seismically quiet sites (one in Louisiana and one in Washington) during *observation runs*. For instance, we are currently in the Third Observing run of Advanced LIGO, collecting data 24/7 for 12 months (Apr 2019 – May 2020, with one month of maintenance in Oct 2019). Given the experiment is seismically sensitive, we must minimize ground motion on our site in order to not negatively impact the noise levels in our detectors. For this reason, activities such as construction, digging, and tamping by nearby machinery can only occur between observation runs in narrow windows of time.

As we expect a 20-month window between the Third (O3) and Fourth (O4) Observing runs, of which about half the time we can tolerate excess ground motion, the LIGO Exploration Center (LExC) *must be constructed in a 10 month period after O3 ends*. For this reason, we believe the Design-Build pathway critical to efficient design, construction, and completion of the LExC. Early involvement of the builder will allow for input into the project and sequence of construction, including the use of features and construction techniques such as pre-engineered/prefabricated construction assemblies and the interweaving design and early construction activities as needed. Involvement of the builder will help inform the designer of concerns with any material choices that may require a long lead time to procure. Changes in materials to ones with long lead times can be similarly guarded against by the builder.

The use of DB methodology additionally provides for early collaboration between the LIGO team and the architect and builder to identify innovations and efficiencies in facility design and construction which will facilitate the LExC to meet LIGO's vision for use of the facility and yet remain within our fixed budget.

5. Public Benefit

In addition to the above information, please provide information on how use of the DB contracting procedure will serve the public interest. For example, your description must address, but is not limited to:

- How this contracting method provides a substantial fiscal benefit; or
- How the use of the traditional method of awarding contracts in a lump sum *(the "design-bid-build method")* is not practical for meeting desired quality standards or delivery schedules.

LIGO is funded by the United States National Science Foundation to observe the gravitational-wave universe, collaborate with astronomers world-wide to create Multi-Messenger astronomy with light, particles and gravitational waves, and inform the public of our science and discoveries. In order to succeed concurrently in all these missions, we require a LExC construction schedule that can be interweaved with our Observation runs (which themselves are coordinated with astronomers throughout the globe). The use of the traditional design-bid-build method would likely result in an extended schedule and potential significant increased costs due to design changes that will likely be needed to accommodate construction methodologies compatible with LIGO observation periods. Furthermore, the use of DB methodology permits the issuance of early design packages for construction and/or fabrication prior to the total design being complete. Design-build will permit the early start of construction activities such as site development while the final facility design continues to develop. The ability to perform early construction packages combined with the relatively easier construction requirements of pre-engineered metal buildings will be essential to meet our relatively short on-site construction window.

6. Public Body Qualifications

Please provide:

- A description of your organization's qualifications to use the DB contracting procedure.

LIGO has subcontracted to Lucas Engineering and Management Services, Inc. (Lucas) to provide project and construction management support services for the design/build of the LExC project.

Lucas is a Washington State corporation headquartered in Richland, Washington which has been providing project management support services for federal and commercial projects since 1994. Lucas and their staff have extensive relevant experience with the management of DB contracts, including the Hanford Reach Interpretive Center that was completed in 2014 utilizing DB methodology. The project management staff assigned to this project have a combined 60 years of experience with all phases of project execution, including DB contracts.

Additionally, Robynne Thaxton, JD, FDBIA with Thaxton Parkinson PLLC will assist Caltech's general counsel and in preparation of the D-B procurement and contract documents and other legal matters. Both Lucas and Thaxton Parkinson have performed the same scope of work for a variety of recent projects, listed in Attachment D.

- A project organizational chart, showing all existing or planned staff and consultant roles.
  Note: The organizational chart must show the level of involvement and main responsibilities anticipated for each position throughout the project (for example, full-time project manager). If acronyms are used, a key should be provided. (See Attachment C for an example.)

Please see Exhibit A for the LExC project organizational chart, associated with this document.

Lucas' assigned Project Manager is Delise Savior. Delise's primary interface with LIGO will be with Glynn Gateley, LIGO/Caltech's Facility Manager. Another key interface for Delise is with Amber Strunk, LIGO/Caltech's technical lead for the LExC project. Delise as Project Manager will provide the management and technical oversight of the selected DB contractor team.

LIGO/Caltech will award the contract to the selected DB contractor and will provide contract management with support from Ms. Savior. Dolly Richards is the LIGO/Caltech Contracting Officer for both the subcontract with Lucas for Project/Construction Management Services and the selected LExC DB contractor.

Delise Savior will not be available to the project until in March, 2020. This coincides with the planned selection of the DB contractor and award of that contract. During the DB contractor acquisition phase Mr. Ken Lucas, President of Lucas is currently serving as acting PM and provided support to LIGO in the development of the DB Statement of Work (SOW), acquisition documents, and contractor selection. Mr. Lucas has over 40 years of project and construction management experience including extensive experience with SOW development and contract acquisition strategies.

He has been supported by Ms. Connie Corcoran of Lucas Engineering in the writing of the DB SOW. Connie has nearly 30 years of project and construction management experience including multiple DB projects.

Following award of the LExC DB contract to the selected contractor Ms. Savior will assume the full-time role as Project Manager for the design and construction of the LExC facility. Mr. Lucas and Ms. Corcoran will provide support to Ms. Savior as may be required during the design/construction phase.

Amber Strunk, LIGO/Caltech's lead for this project reports directly to Dr. Michael Landry the Head of the LIGO Hanford Observatory. An Advisory Committee consisting of Dr. Frederick Rabb,

Director of Operations; Ms. Terri Mestas, Caltech Director for Facilities Design and Construction; and Jeff Jones, LIGO Hanford Observatory Operations Manager will provide project oversight and advise as required.

As noted above, Robynne Thaxton, JD, FDBIA with Thaxton Parkinson PLLC will assist Caltech's general counsel and in preparation of the D-B procurement and contract documents and other legal matters.

- Staff and consultant short biographies that demonstrate experience with DB contracting and projects (not complete résumés).
  - **Delise Savior, Project/Construction Manager:**
    - **Delise has over twenty (20) years of professional experience with nineteen (19) in construction and project management. For the past ten years she has demonstrated herself as a top-notch construction and project manager on multiple projects, including design/build projects:**
    - **Design/Build, Construction and Modification of the Nuclear Hazard Category 2 – 324 Building Disposition Project, May 2018 to Present. Program Director /Cost Account Manager, CHPRC, Department of Energy/Hanford, Richland WA**
    - **Construction and Commissioning of the new Nuclear Hazard Category 2 105KW Annex, modifications to the 105KW Basin and T-Plant in support of Engineered Container Sludge Retrieval (ECRTs), July 2013 to May 2018.**
    - **Design/Build, Construction and Commissioning of the 200 West Pump and Treat - The 200 West Pump and Treat is one of the largest groundwater treatment facilities in the U.S. Department of Energy's Environmental Management sites. November 2009 – September 2012 – Construction Project Manager, CHPRC; Department of Energy; Hanford; ARRA Funded; Richland WA.**
  - **Ken Lucas, P.E., Acting Project Manager during Acquisition Phase and Project Management Advisory Support during design, construction**
    - **40 years of project management experience. Licensed P.E. Civil (Washington State)**
    - **Brings experience from the Hanford Reach Interpretive Center (HRIC) DB project**
    - **He will provide primary support to the front-end SOW development, and DB contract acquisition phase of the project. He will provide advisory support to Delise as required during the execution of the DB Contract.**
  - **Robynne Thaxton, JD, FDBIA, Thaxton Parkinson, consultant and attorney.**

    Robynne is one of the leading experts in construction law and alternative procurement both in Washington State and on a national basis. She was appointed to the Washington State Capital Projects Advisory Review Board in 2019. She served on the National Design Build Institute of America Board of Directors from 2010 - 2016. In addition, she is a member of the DBIA National Education Committee and the former chair of the DBIA National Legal and Legislation Committee, where she continues to serve and is instrumental in drafting and revising the DBIA form Design-Build contracts and subcontracts. Robynne has been a designated Design-Build Professional since 2005 and is in the first class of Design-Build Designated Fellows. Robynne was named as a Washington Super Lawyer in 2010-2020 and is also a Fellow with the Construction Lawyers Society of America. Robynne is an instructor for the DBIA Contracts and Risk Management course as well as the Best Practices in Progressive Design-Build course. Robynne has assisted many public owners with their design-build projects. Recent representative projects include the City of Bothell's Fire Stations 42 and 45, City of Tacoma's Alder station re-wind, Seattle City Light's Boundary Dam re-wind and Cedar Falls substation projects,

Western Washington University New Residence Hall and Consolidated Academic Support Services building, University of California San Diego Triton Pavilion, Los Angeles County Consolidated Correctional Facility project, Grant County PUD's Substation Reliability Project and Load Growth Project, Port of Seattle's AUF Facility and Concourse D Hardstand projects, City of Richland's Firehouse and City Hall projects, and City of Portland's Portland Building project. Robynne has also assisted both the Washington State Department of Enterprise Services and the University of California System in developing their form progressive design-build procurement documents and contracts.

- **Connie Corcoran, Principal Engineer- Support during Acquisition Phase with SOW development**

  - **Nearly 30 years of project and construction management experience on diverse projects around the world. Experienced with D/B projects and all phases of project execution.**
  - **Supported the development of the Hanford Cesium Strontium Capsule Removal Project SOW. The capsule handling, packaging, and storage system was a Design/Build Contract**
  - **Key support for the development of SOW for a Design/Build contract for a facility to assemble Low Activity Waste (LAW) melters for the Vitrification Plant, Hanford DOE site.**
  - **She will support Ken Lucas with the development of the SOW and the acquisition phase of the Project.**

California Institute of Technology – LIGO Hanford Observatory Staff

- **Glynn Gateley**
  - **LIGO Hanford Observatory Technical Point of Contact for LExC construction**
  - **Over 35 years in the construction industry, mostly involving light to heavy industrial, commercial and some residential construction, with the last 25 years as supervising contractor for various projects which include:**
    - **Contractor Supervisor for LIGO Hanford Observatory A+ Upgrade Project, including 300 meter beamtube addition and associated new Filter-Cavity Endstation Building**
    - **Installation Supervisor (18 years) at Apollo Mechanical Contractors for numerous start to finish projects.**
    - **Site Services Contractor Supervisor (10 years) for Bechtel Contractors on a Nuclear Power Plant.**

- **Terri Mestas (Caltech)**
  - **Senior Director for Facilities Design and Construction, California Institute of Technology**
  - **Consultant to LIGO Hanford Observatory on the LExC Design/Build construction project**
  - **Ms. Mestas has over 25 years of design and construction experience in the federal, commercial, industrial, K-12, and higher education field delivering projects utilizing Design/Bid/Build, Integrated Project Delivery, Multi-Prime, and Design Build contracting methodologies.**
  - **Ms. Mestas' most recent Design Build experience includes the delivery of 42 laboratory research projects totaling $72M.**

- **Ms. Mestas is currently the Owner's Representative for the $210M, 151,000 sq.ft. Chen Neuroscience Research Building at Caltech which is a Design-Build contract. The project is approximately 60% percent complete, on schedule and on budget, with a completion date of October 1, 2020.**

- **LIGO Hanford Observatory/Caltech Management Team**
  - **Amber Strunk, LExC Lead, Education and Public Outreach Coordinator**
  - **Jeff Jones, Operations Manager**
  - **Dr. Michael Landry, Observatory Head**
    - **Dr. Landry has over 20 years with Caltech and the LIGO Laboratory. In 2010-2014 as Advanced LIGO Installation Lead at LIGO Hanford Observatory, he oversaw the assembly, test, and installation of $80M worth of detector hardware that constituted the Advanced LIGO interferometer. This instrument was one of two detectors that made the historic first detection of gravitational waves on September 14, 2015.**
- **Dr. Frederick J. Raab (Caltech/LIGO Hanford Observatory)**
  - **Advisory Committee Member, and Associate Director for Operations, LIGO Laboratory**
  - **Dr. Raab has over 30 years of experience with LIGO laboratory. As previous Observatory Head he oversaw the construction of the LIGO Hanford Observatory outside of Richland, WA, a $292M project that included the construction of 8 buildings on the Hanford site with highly specialized technical requirements and instrumentation. As Associate Director of Operations, Dr. Raab is responsible for overseeing the operations of both LIGO Hanford and LIGO Livingston Observatories, and is the LIGO Laboratory Liaison for the LIGO-India Project, sharing his experience on their $430M project.**
  - **Dr. Raab served as the President of the Richland Public Facilities District from 2011-2016, during which time they were responsible for building the Hanford Reach Interpretive Center (The Reach) in Richland, WA. The Reach was a $11Million project completed using the design/build delivery method for the building construction (approximately $4M). Dr. Raab was closely involved during the entire process from the development of the construction strategy and procurement process throughout the completed construction, exhibit installation and early operations. Dr. Raab believes strongly that a design/build is the preferred method for the LExC project as it allows for greatly reduced time of delivery and optimization of delivered scope at a fixed price.**

- Provide the ***experience and role on previous DB projects*** delivered under RCW 39.10 or equivalent experience for each staff member or consultant in key positions on the proposed project. *(See Attachment D for an example. The applicant shall use the abbreviations as identified in the example in the attachment.)*

See Attachment D.

- The qualifications of the existing or planned project manager and consultants.
  Note: For design-build projects, you must have personnel who are independent of the design-build team, knowledgeable in the design-build process, and able to oversee and administer the contract.

Lucas brings demonstrated expertise and experience with DB projects. They will be completely independent from the selected DB team. Their proposed personnel are experienced in all phases of the DB process, including the development of SOW's, support to the acquisition process, and oversight of the design and construction phases, including contract management. In addition, Robynne Thaxton's extensive design-build experience is outlined in Attachment D.
Bios of the Project Manager and the rest of the LExC project team are provided above.

- If the project manager is interim until your organization has employed staff or hired a consultant as the project manager indicate whether sufficient funds are available for this purpose and how long it is anticipated the interim project manager will serve.

LIGO has hired under subcontract Lucas to provide project and construction management support services for the LExC DB project. Due to the unavailability of Ms. Savior (PM) until sometime in March 2020, Mr. Ken Lucas will serve as Acting Project Manager through the DB contractor acquisition phase of the project. Following Ms. Savior becoming available in March 2020 she will assume the role of PM, with Mr. Lucas moving to an advisory role to the project.

- A brief summary of the construction experience of your organization's project management team that is relevant to the project.

Lucas and their assigned personnel are highly experienced with the construction phase of a project. They are experienced with the construction of industrial as well as public facilities such as the LExC. In addition to qualified construction management staff they have health and safety, quality assurance, and multi-discipline engineering personnel. Lucas's assigned support staff bring over 100 years of combined experience in construction management. This include multiple DB projects. Lucas has been a license general contractor in Washington State (LUCASEM972LK) since 2004.

Lucas's assigned Construction Manager, Delise Savior, has nearly twenty (20) years' experience in project and construction management.

- A description of the controls your organization will have in place to ensure that the project is adequately managed.

We will utilize a Critical Path Method (CPM) schedule to plan and manage this work scope. This CPM schedule will be jointly developed by the LIGO and DB contractor team. The baseline schedule will be used to establish a shared vision with all members if the LExC project team, identifying the work to be accomplished, the sequencing of activities, and opportunities for efficiencies. A well-planned detailed schedule is critical in establishing and maintaining a shared vision and delivering a successful project.

Project status during both design and construction will be reviewed on a weekly basis, with the project schedule being updated on a monthly basis, at a minimum. During the weekly project status meetings, the 3-week look schedule will be reviewed, identifying anticipated activities, interface points with the LIGO facility and project scope and schedule milestones.

During negotiations of the final DB contract a project budget and pay schedule will be established and incorporated in the contract. During weekly meetings with the DB team any real or potential impacts to the established project costs will be discussed along with mitigating actions. Also reviewed and discussed during these weekly meetings will be opportunities for cost reductions and schedule enhancements. Any changes to project costs or schedule milestones will be handled through the contract change process.

- A brief description of your planned DB procurement process.

As noted above, Caltech originally undertook this procurement prior to PRC approval because the project is exempt under RCW 39.10.300. Therefore, Caltech has completed its procurement process with the exception of negotiating with the highest scored proposer. Caltech hired Robynne Thaxton to provide design-build best practices and to make sure the procurement was compliant with RCW 39.10. The final RFQ and RFP fully complied with the statute. The project received four Statements of Qualification, and Caltech determined that two of these proposers were qualified to continue with

the procurement. As of the date of this application, Caltech has issued its RFP. By the time of the PRC hearing, Caltech plans to have received Proposals from its shortlisted finalists. Caltech will not enter into negotiations with the highest scored finalist until after the conclusion of the PRC hearing. Because of the nature of pre-engineered metal buildings and the experience of the owner, the project is well suited for a traditional design competition. Caltech provided a stipend that was commensurate with the deliverables requested during the RFP phase and expects to have successfully received two design proposals and lump sum price.

- Verification that your organization has already developed (or provide your plan to develop) specific DB contract terms.

- **The contract was based on one used by Caltech in previous design-build projects and reviewed and edited by Robynne Thaxton. It is a fair contract that incorporates design-build best practices and is fully compliant with RCW 39.10.**

7. Public Body (your organization) Construction History:

Provide a matrix summary of your organization's construction activity for the past six years outlining project data in content and format per the attached sample provided: *(See Attachment E. The applicant shall use the abbreviations as identified in the example in the attachment.)*

See Attachment E

8. Preliminary Concepts, sketches or plans depicting the project

To assist the PRC with understanding your proposed project, please provide a combination of up to six concepts, drawings, sketches, diagrams, or plan/section documents which best depict your project. In electronic submissions these documents must be provided in a PDF or JPEG format for easy distribution. Some examples are included in attachments E1 thru E6. At a minimum, please try to include the following:

- A overview site plan *(indicating existing structure and new structures)*
- Plan or section views which show existing vs. renovation plans particularly for areas that will remain occupied during construction.

  Note: applicant may utilize photos to further depict project issues during their presentation to the PRC

Please see Exhibits B through E associated with this document.

9. Resolution of Audit Findings On Previous Public Works Projects

If your organization had audit findings on any project identified in your response to Question 7, please specify the project, briefly state those findings, and describe how your organization resolved them.

Not applicable.

10. Subcontractor Outreach

Please describe your subcontractor outreach and how the public body will encourage small, women and minority-owned business participation.

Caltech will work with the design-build team to perform outreach to small, women and minority owned businesses.

CAUTION TO APPLICANTS

The definition of the project is at the applicant's discretion. The entire project, including all components, must meet the criteria of RCW 39.10.300 to be approved.

SIGNATURE OF AUTHORIZED REPRESENTATIVE

In submitting this application, you, as the authorized representative of your organization, understand that: (1) the PRC may request additional information about your organization, its construction history, and the proposed project; and (2) your organization is required to submit the information requested by the PRC. You agree to submit this information in a timely manner and understand that failure to do so may delay action on your application.

PRC strongly encourages all project team members to read the Design-Build Best Practices Guidelines as developed by CPARB, and attend any relevant applicable training. If the PRC approves your request to use the DB contracting procedure, you also understand that: (1) your organization is required to participate in brief, state-sponsored surveys at the beginning and the end of your approved project; and (2) the data collected in these surveys will be used in a study by the state to evaluate the effectiveness of the DB process. You also agree that your organization will complete these surveys within the time required by CPARB.

I have carefully reviewed the information provided and attest that this is a complete, correct and true application.

Signature: _____

Name: *(please print)* ____ **David Reitze**_____ *(public body personnel)*

Title: ____**Executive Director, LIGO Laboratory, Caltech**_____

Date: ____ **February 20, 2020**_____

Attachment D

	Name	Summary of Experience	Project Names	Project Size	Project Type	Role during Project Phases: Planning	Design	Construction	Role Start	Role Finish
1	Delise Savior, Lucas Engineering	Delise has over twenty (20) years of professional experience with nineteen (19) in construction and project management. For the past ten (10) years she has demonstrated herself as a top-notch construction and project manager on multiple projects, including design/build projects.	324 Building Disposition Project	$150M	D-B		PM	PM	May-18	Feb-20
			105KW Annex	$20M	DBB	PM	PM	PM	Jul-13	May-18
			200 West Pump & Treat Facility	$100M	D-B	PM	PM	PM	Nov-09	Sep-12
2	Ken Lucas, Lucas Engineering	Ken has over 40 years of professional experience and a project engineer, project manager, and business owner. He is a	Hanford Reach Interpretive Center	$4.2M	D-B	PM Support	PM Support	PM Support	Jan-13	Jul-14
			Hanford Cesium and Stontium Storage Project	$23M	D-B	PM Support			Aug-15	Sep-17
3	Connie Corcoran, Lucas Enginee	Nearly 30 years of project and construction management experience on diverse projects around the world. Experienced with D/B projects and all phases of project execution.	Hanford Cesium and Stontium Storage Project	$23M	D-B	PM Support			Aug-15	Sep-17
			Replacement LAW Melter Assembly Facility	$18M	D-B	PM	PM	PM Support	Oct-18	Ongoing
4	Robynne Thaxton, JD, FDBIA, D	Design-Build consultant, attorney, and advisor with over 30 years' experience as an attorney and over 20 years' experience in design-build.	University of California, San Diego Triton Pavilion Project	$250M	PDB	Consultant	As needed	As needed	18-Mar	19-Oct
			East County Advanced Water Purification Project	$400 M	PDB	Consultant	As needed	As needed	19-Aug	ongoing
			City of West Richland Police Station	$12 M	PDB	Consultant	As needed	As needed	19-Nov	Ongoing
			City of Richland Fire Station/Public Safety 73 and 75	$9M	PDB	Consultant	As needed	As needed	20-Jan	ongoing
			City of Tacoma Alder Re-Wind	$4 M	DB	Consultant	As needed	As needed	18-Mar	Ongoing
			Morrow County, OR Administration Bldg	$8 M	PDB	Consultant	As needed	As needed	19-Feb	Ongoing
			City of Bothell Fire stations 42 and 45	$35 M	PDB	Consultant	As needed	As needed	19-May	19-Dec

Western Washington University New Residence Hall Project	$65 M	PDB	Consultant	As needed	As needed	18-Aug	Ongoing
WWU Academic Support Services Project	$10 M	PDB	Consultant	As needed	As needed	18-Aug	19-Jun
Seattle City Light Cedar Falls project	$13M	DB	Consultant	As needed	As needed	18-Jul	19-May
Seattle City Light Boundary Dam Re-wind project	$40M	DB	Consultant	As needed	As needed	17-Aug	19-Feb
Okanogan County PUD Enloe Dam Project	$40M	PDB	Consultant	As needed	As needed	16-Oct	Ongoing
Seatac International Arrivals Facility	$700M	PDB	Consultant	As needed	As needed	15-Jun	16-Mar
Seatac Auxiliary Utility Facility	$28M	System Procurement	Consultant	As needed	As needed	16-Nov	17-Mar
Seatac Concourse D Hardstand	$30M	DB	Consultant	As needed	As needed	16-Nov	17-Apr
City of Spokane Post Street Bridge	$11M	PDB	Consultant	As needed	As needed	17-Sep	19-Mar
City of Spokane Riverfront Pavilion	$19M	PDB	Consultant	As needed	As needed	17-Sep	18-May
Grant Count Load Growth Project			Consultant	As needed	As needed	19-Mar	ongoing
Grant County PUD Substation Reliability Project	$27M	PDB	Consultant	As needed	As needed	17-Mar	16-Nov
City of Richland Town Hall Project	$12.5M	PDB	Consultant	As needed	As needed	16-Mar	16-Aug
City of Richland Fire Station #74	$3.2M	PDB	Consultant	As needed	As needed	15-Feb	15-May
Los Angeles County Correctional Treatment Facility	$1.2B	DB	Consultant	As needed	As needed	16-Dec	19-Feb
City of Portland, Portland Building	$100M	PDB	Consultant	As needed	As needed	16-Mar	15-May

Attachment E - California Institute of Technology

Project #	Project Name	Project Description	Contracting Method	Planned Start	Planned Finish	Actual Start	Actual Finish	Planned Budget	Actual Budget	Reason for Budget or schedule overrun
1	Chen Neuroscience Research Building	New 175,000 SF 5 story building	D-B	30-May	5-Oct	15-May	TBD	$200M	$212M	Users added requirements after design completion
2	Hameetman Center	New 24,500sf building housing Meeting Rooms, Music Rehersal Hall, Coffe Shop, Student Book Store and General Gathering Areas	IPD	Aug-17	Jul-18	Jan-18	Jan-19	$15.1M	$18.3M	Caltech Student Services added ~$1M of additional scope the other $2.2 was due to unforeseen conditions
3	Bechtel Residence	New 100,000sf, 212 bed dormatory facility	IPD	16-Aug	18-Oct	16-Aug	18-Sep	$64.3M	$64M	

Lucas Engineering and Management Services - Project/Contruction Management Experience

Project #	Project Name	Project Description	Contracting Method	Planned Start	Planned Finish	Actual Start	Actual Finish	Planned Budget	Actual Budget	Reason for Budget or schedule overrun
1	Hanford Reach Interpretive Center	17,000 sq. ft. public facility providing historical and eductional exhibits for the Hanford Reach. Facility included exhibit hall, auditorium, office areas and support space.	D-B	Jan-13	Jul-14	Jan-13	Jul-14	$4.0M	$4.2M	Routine evolution of the design primarily in final facility finishes
2	PM and Engineering Support for Hanford Cesium and Strontium Capsule Storage Project	Lucas provided CH2M Hill Plateau Remediation Company (CHPRC) project management support and "front-end" engineering support for a DB project to provide a system to retrieve and package cesium and strontium capsules from wet storage to dry extended storage. Support included development of acqusition strategy; alternative analysis, concept design, and Statement of Work. Lucas support ended upon award of DB contract for Capsule Storage Project	Lucas contract with CHPRC was T&M. Capsule Storage Project was D-B (FP)	Aug-15	Sep-17	Aug-15	Sep-17	$1.14M (Lucas Contract) DB Contract for System was $23M	$1.13M (Lucas Contract) - DB Contract for System remains at approx $23M and is ongoing	

3	PM/CM support for Mission Support Alliance for Hanford Site Instructure Projects	Providing MSA with multiple (currently over 20 staff) Project Management, Construction Management, Construction Engineers, and Field Work Supervisors to manage the design and construction of over $150M of site infrastucture upgrade projects. Projects include roads, water and sewer,communications, facility upgrades and a new fire station facility.	Lucas's contract with MSA is T&M. Projects managed include D-B; D-B-B	Jan-16	Ongoing	Jan-16	Ongoing	N/A	Currently $10M + in support since 2016

Exhibits:

- Exhibit A: LIGO Exploration Center (LExC) Planning and Construction Organizational Chart
- Exhibit B: Existing LIGO Hanford Observatory grounds, eastern boundary of the Department of Energy Hanford Site, Richland WA
- Exhibit C: LExC Conceptual Design
- Exhibit D: LExC Conceptual Design Site Vicinity Plan and relation to existing structures, plan view
- Exhibit E: LExC Conceptual Design Floorplan

Exhibit A

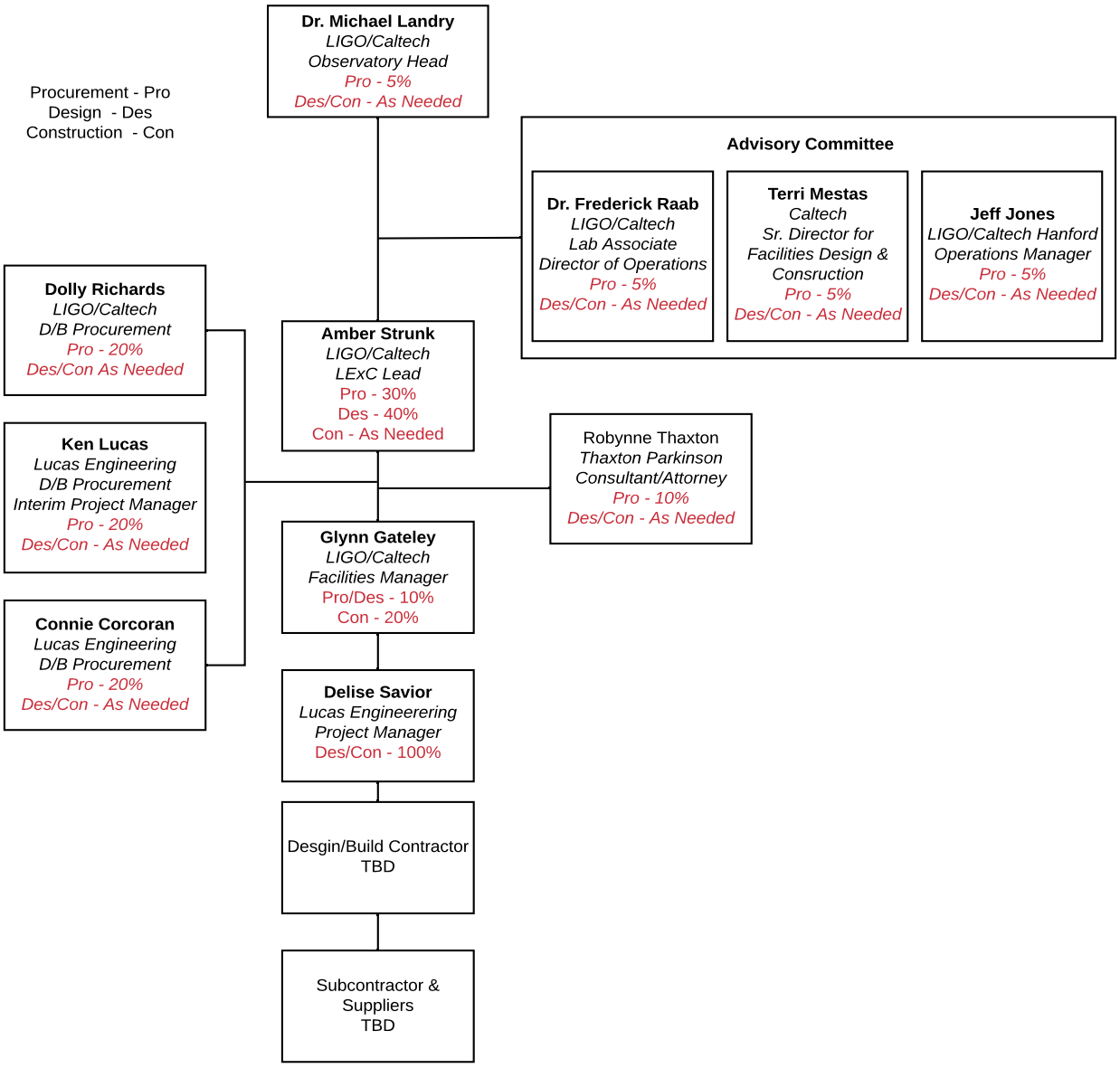

Procurement - Pro
Design - Des
Construction - Con
Dr. Michael Landry
LIGO/Caltech
Observatory Head
Pro - 5%
Des/Con - As Needed
Advisory Committee
Dr. Frederick Raab
LIGO/Caltech
Lab Associate
Director of Operations
Pro - 5%
Des/Con - As Needed
Terri Mestas
Caltech
Sr. Director for
Facilities Design &
Consruction
Pro - 5%
Des/Con - As Needed
Jeff Jones
LIGO/Caltech Hanford
Operations Manager
Pro - 5%
Des/Con - As Needed
Dolly Richards
LIGO/Caltech
D/B Procurement
Pro - 20%
Des/Con As Needed
Ken Lucas
Lucas Engineering
D/B Procurement
Interim Project Manager
Pro - 20%
Des/Con - As Needed
Connie Corcoran
Lucas Engineering
D/B Procurement
Pro - 20%
Des/Con - As Needed
Amber Strunk
LIGO/Caltech
LExC Lead
Pro - 30%
Des - 40%
Con - As Needed
Robynne Thaxton
Thaxton Parkinson
Consultant/Attorney
Pro - 10%
Des/Con - As Needed
Glynn Gateley
LIGO/Caltech
Facilities Manager
Pro/Des - 10%
Con - 20%
Delise Savior
Lucas Engineererring
Project Manager
Des/Con - 100%
Desgin/Build Contractor
TBD
Subcontractor &
Suppliers
TBD

Exhibit B

Figure 1: LIGO Hanford Observatory, west of route 10 on the east edge of the DOE Hanford Reservation, Richland WA.

Exhibit C

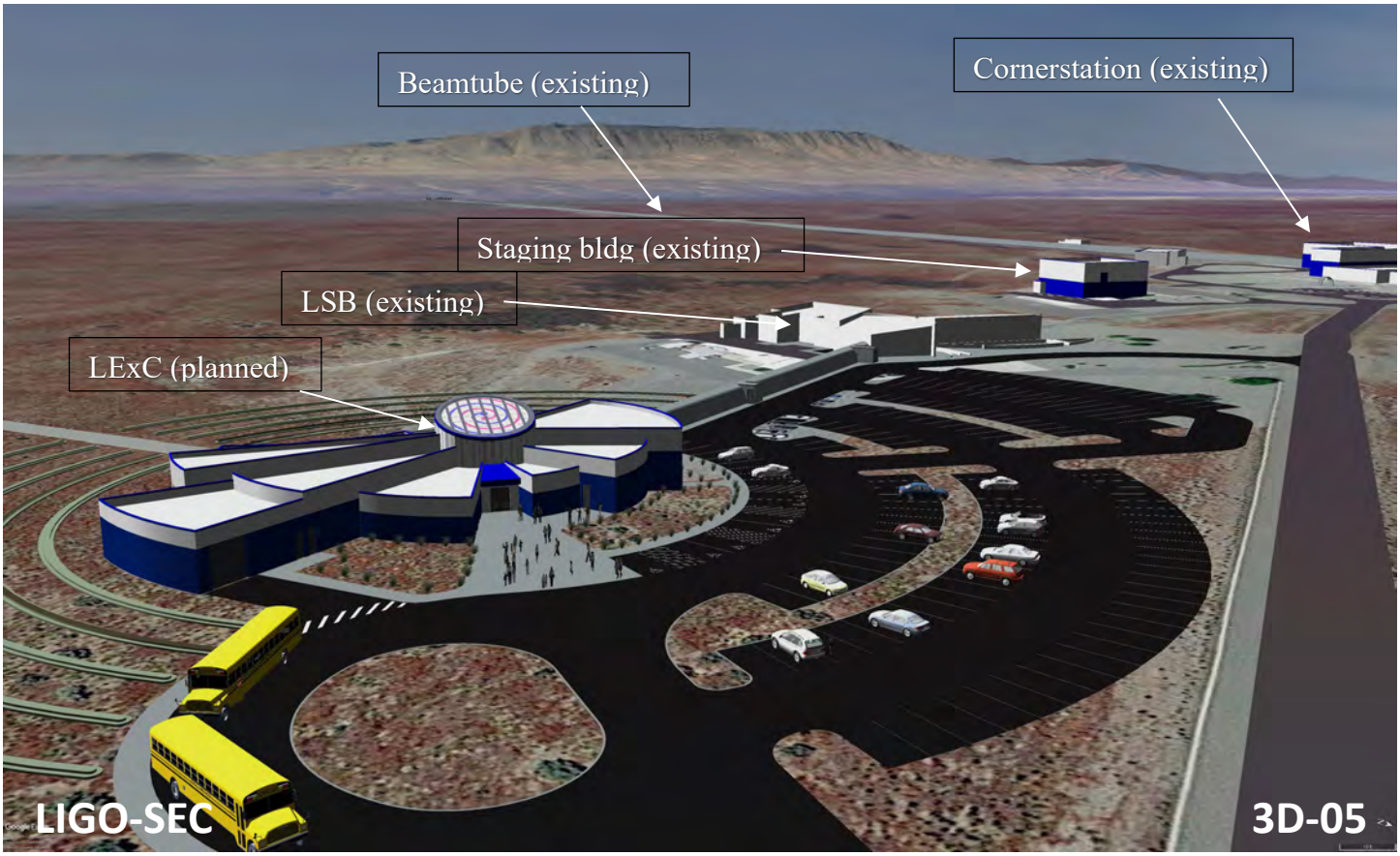


Figure 2: LIGO Exploration Center (LExC) concept. The LExC would be connected to the existing LSB building (which includes a 175-seat auditorium) via an experiential tunnel. Drawing by Terence L. Thornhill Architect.

Exhibit D

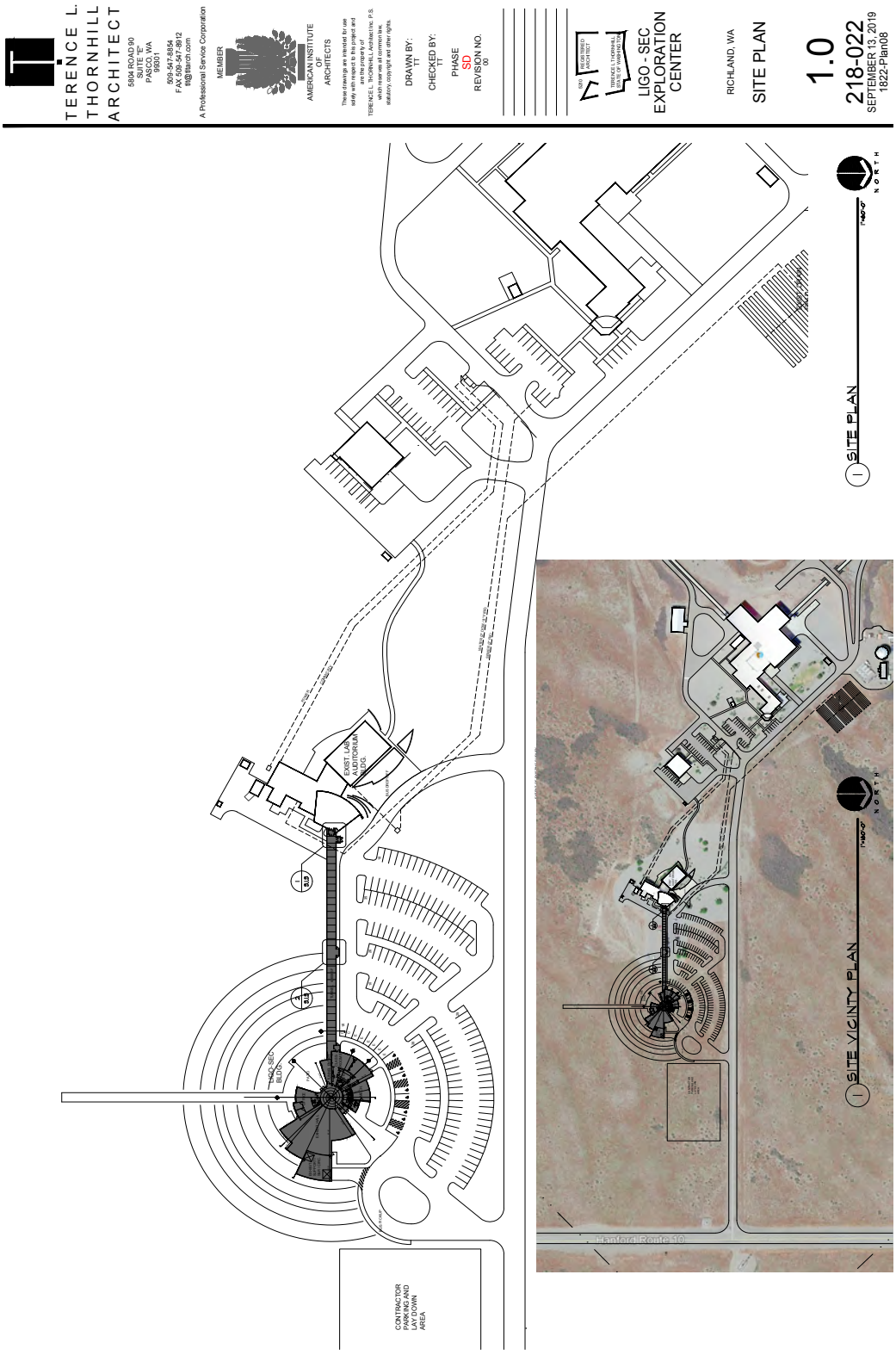


Figure 3: LExC plan view showing neighboring (existing) LSB building.

Exhibit E

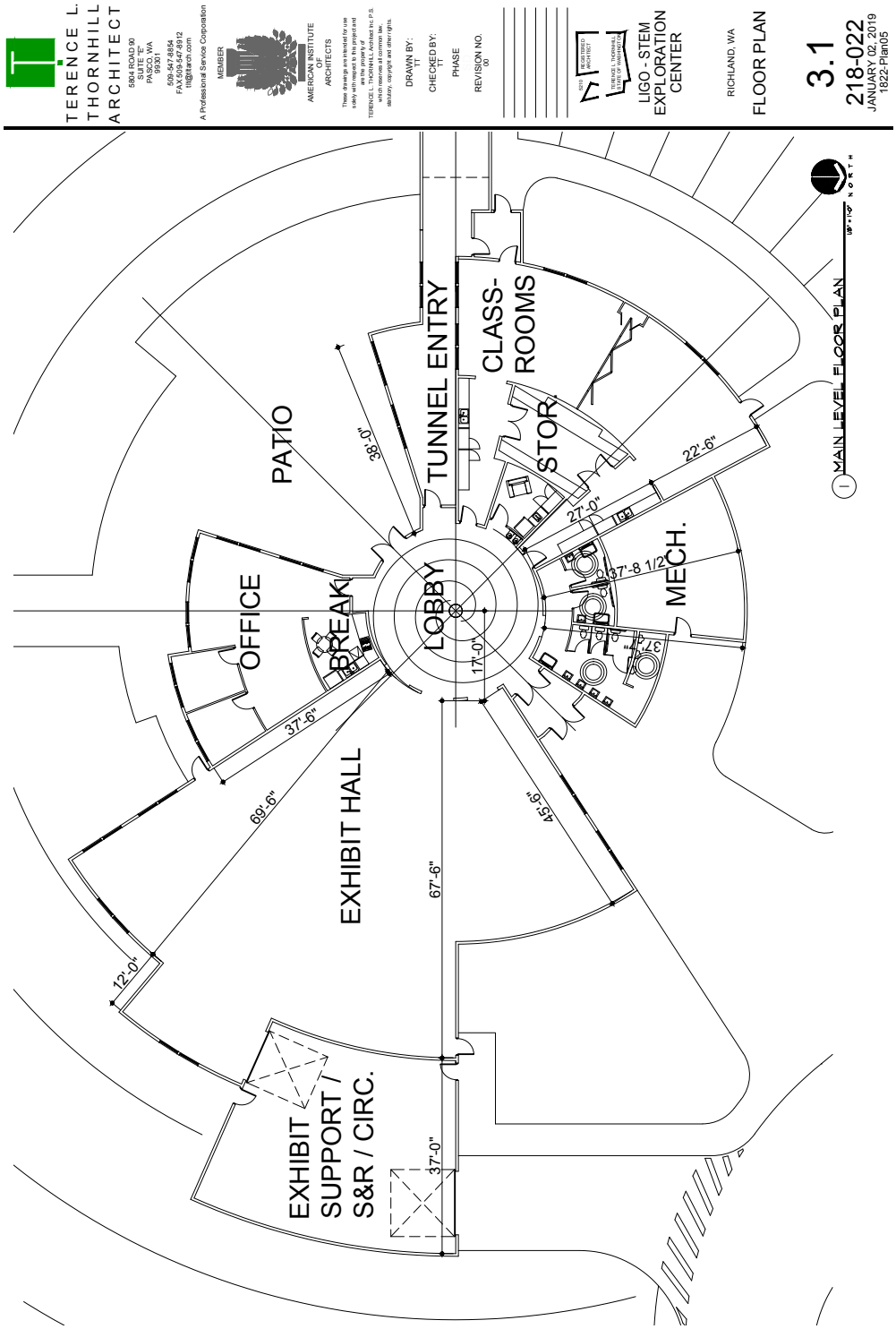


Figure 4: LExC conceptual design floorplan.