SECTION 011100

SUMMARY OF WORK

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes Summary of construction Work and Work Restrictions including:

1. Work Covered By Contract Documents.
2. Negotiated Contract Items, Allowances and Alternates.
3. Work Under Other Contracts.
4. Future Work.
5. Work Sequence.
6. Work Days and Hours.
7. Shutdown for Discovery of Cultural Resources.
8. Cooperation of Design-Build Entity and Coordination with Other Work.
9. Partial Occupancy/Utilization Requirements.
10. Design-Build Entity Use of Site.
11. Air Quality Standards.
12. Construction Staking and Monument Protection.
13. Protection of Existing Structures and Underground Facilities.
14. Permits.
15. Actual Damages for Permit Violations.

1.2 CONSTRUCTION WORK COVERED BY CONTRACT DOCUMENTS

A. Construction Work comprises the construction of the Ventura County Todd Road Jail Health and Programming Unit located in Santa Paula, California. The Work includes, without limitation, as defined in Document 005201, Bridging Documents, Appendix 1. Contract Documents (including without limitation final approved Construction Documents required by all Agencies having Jurisdiction) fully describe the Work.

B. The Work of this Contract comprises construction of all the Work indicated, described in the Bridging Documents, or otherwise required by the Contract Documents. Unless provided otherwise in the Contract Documents, all risk of loss to Work covered by Contract Documents shall rest with Design-Build Entity until Final Acceptance of the Work. Cost of maintenance of systems and equipment prior to Final Acceptance will be considered as included in prices set forth in the Contract Documents and no direct or additional payment will be made therefore.

C. For all Contract items, furnish and install all Work, including connections to existing systems, indicated and described in Specifications and all other Contract Documents. Work and requirements applicable to each individual Contract item, or unit of Work, shall be deemed incorporated into the description of each Contract item. Any Contract item may be deleted from the Work and Contract Sum, in total or in part, prior to or after award of Contract without compensation in any form or adjustment of other Contract items or prices therefore.

1.3 NEGOTIATED CONTRACT ITEMS, ALLOWANCES AND ALTERNATES

A. Allowances.

1. FFE

B. Alternates.

1. Additive Enhancements and Voluntary Enhancements that do not become part of Work at time of award shall each become an Alternate, with the Price contained in the Proposal Form remaining fixed through each Enhancement's applicable County Decision Point Date contained in the Proposal.

1.4 WORK UNDER OTHER CONTRACTS

NOT USED

1.5 FUTURE WORK

NOT USED

1.6 WORK SEQUENCE

NOT USED

1.7 WORK DAYS AND HOURS

A. Work Days and hours: Monday-Friday inclusive, 7:00 a.m.-5:00 p.m. local time unless Design-Build Entity requests otherwise from Owner in writing at least 48 hours in advance and Owner approves in its sole discretion.

B. Work at the Site on weekends or holidays is not permitted, unless Design-Build Entity requests otherwise from Owner in writing at least 48 hours in advance and Owner approves in its sole discretion. Design-Build Entity must pay or reimburse Owner for Owner's additional costs, including, but not limited to Construction Management and Owner staff.

1.8 SHUTDOWN FOR DISCOVERY OF CULTURAL RESOURCES

A. If discovery is made of items of historical archaeological or paleontological interest, immediately cease all Work in the area of discovery. Archaeological indicators may include, but are not limited to, dwelling sites, locally darkened soils, stone implements or other artifacts, fragments of glass or ceramics, animal bones, human bones, and fossils. After cessation of excavation, immediately contact Owner. Do not resume Work until authorization is received from Owner. When resumed, excavation or other activities shall be as directed by Owner.

1.9 COOPERATION OF DESIGN-BUILD ENTITY AND COORDINATION WITH OTHER WORK

A. Coordinate with Owner and any Owner forces, or other contractors and forces, as required by Document 00 7253 (General Conditions).

1.10 PARTIAL OCCUPANCY / UTILIZATION REQUIREMENTS

A. Allow Owner to take possession of and use any completed or partially completed portion of the Work during the progress of the Work as soon as is possible without interference to the Work.

B. Possession, use of Work, and placement and installation of equipment by Owner shall not in any way evidence the completion of the Work or any part of it.

C. Design-Build Entity shall not be held responsible for damage to the occupied part of the Work resulting from Owner occupancy.

D. Make available, in areas occupied, on a 24 hour per day and 7 day per week basis if required, any utility services, heating, and cooling in condition to be put in operation at the time of occupancy.

1. Responsibility for operation and maintenance of said equipment shall remain with Design-Build Entity.
2. Make, and Owner shall certify, an itemized list of each piece of equipment so operated with the date operation commences.
3. Itemized list noted above shall be basis for commencement of warranty period for equipment.
4. Owner shall pay for utility cost arising out of occupancy by Owner during construction.

E. Use and occupancy by Owner prior to acceptance of Work does not relieve Design-Build Entity of its responsibility to maintain insurance and bonds required under the Contract until entire Work is completed and accepted by Owner.

F. Prior to date of Final Acceptance of the Work by Owner, all necessary repairs or renewals in Work or part thereof so used, not due to ordinary wear and tear, but due to Defective materials or workmanship or to operations of Design-Build Entity, shall be made at expense of Design-Build Entity, as required in Document 007253 (General Conditions).

G. Use by Owner of Work or part thereof as contemplated by this Section 011100 shall in no case be construed as constituting acceptance of Work or any part thereof. Such use shall neither relieve Design-Build Entity of any responsibilities under Contract, nor act as waiver by Owner of any of the conditions thereof.

H. Owner may specify in the Contract Documents that portions of the Work, including electrical and mechanical systems or separate structures, shall be substantially completed on dates described in this Section 011100, if any, prior to Substantial Completion of all of the Work. Notify Owner in writing when Design-Build Entity considers any such part of the Work ready for its intended use and Substantially Complete and request Owner to issue a Certificate of Substantial Completion for that part of the Work.

1.11 DESIGN-BUILD ENTITY USE OF SITE

A. Site area for the Todd Road Jail Health and Programming Unit is defined in the Bridging Documents. In exercising its control over the Site, Design-Build Entity shall, without limitation:

1. Confine operations at Site to areas permitted by Contract Documents, permits, ordinances, and laws. Do not unreasonably encumber Site with materials or equipment.
2. Assume full responsibility for protection and safekeeping of products stored on premises. Move any stored products that interfere with operations of Owner or other contractor(s) working in the area.
3. Coordinate parking, storage, staging, and Work areas with Owner and in accordance with the Bridging Documents. Owner will not provide a storage area for Design-Build Entity's equipment and materials beyond the “site” areas described in this paragraph 1.11.

B. Prior to commencement of Work or excavation, Design-Build Entity and Owner shall jointly survey the area adjacent to the Project area making permanent note and record of such existing damage such as cracks, sags or other similar damage. This record shall serve as a basis for determination of subsequent damage to structures, conditions or other existing improvements due to Design-Build Entity’s operations. All parties making the survey shall sign the official record of existing damage. Cracks, sags or damage of any nature to the adjacent Project area, not noted in the original survey but subsequently noted, shall be reported immediately to Owner.

C. The Design-Build Entity shall follow all County ordinances in force during the duration of this Contract. The Design-Build Entity shall follow all City ordinances in force during the duration of this Contract when working in the City right-of-way. It is essential that the Design-Build Entity perform the Work with as little interference and disturbance as possible to the surrounding streets.

D. When suspect materials, outside the scope of Work, are encountered during the Work or restoration process, the Design-Build Entity shall immediately contact the Construction Manager for evaluation and approval of the methods for dealing with the material.

1.12 AIR QUALITY STANDARDS

A. Ensure that idling time for all heavy equipment is minimized to reduce on-Site emissions.

B. Maintain equipment in good mechanical condition.

C. Cover trucks hauling dirt.

D. Limit dust emissions during periods of high winds (greater than 15 miles per hour).

E. Replace ground cover in disturbed areas as soon as possible.

F. Enclose, cover, water, or apply soil binders to exposed stockpiles.

G. Remove earth tracked onto neighboring paved roads at least once daily.

H. Limit equipment speed to 10 miles per hour in unpaved areas.

1.13 CONSTRUCTION STAKING AND MONUMENT PROTECTION

A. Owner will provide recorded surveys for Design-Build Entity's use in locating monuments and establishing construction staking which is necessary for Design-Build Entity to proceed with the Work.

B. Design-Build Entity shall be responsible for laying out the Work, shall protect and preserve the property monuments, and shall make no changes or relocations without the prior written approval of Owner. Whenever Design-Build Entity knows or reasonably should know that any Work activity is likely to damage or destroy any property monuments, or require relocation because of necessary changes in grades or locations, provide at least 2 Business Days advance notice to Owner. In any event, notify Owner whenever any property monuments are lost or destroyed or require relocation because of necessary changes in grades or locations.

C. Destroyed property monuments shall be replaced at Design-Build Entity's expense.

1.14 GEOTECHNICAL DATA AND EXISTING CONDITIONS

A. Available Documentation: In accordance with, and subject to, the provisions of Document 00 3100 (Available Project Information) and Document 00 3132 (Geotechnical Data and Existing Conditions), the following documentation is available for review. This information is not part of the Contract Documents.

1. Refer to Document 00 3100 (Available Project Information) and Document 00 3132 (Geotechnical Data and Existing Conditions).

1.15 PROTECTION OF EXISTING STRUCTURES AND UNDERGROUND FACILITIES

A. The Bridging Documents may indicate existing above- and below-grade structures, drainage lines, storm drains, sewers, water lines, gas lines, electrical lines, hot water lines, and other similar items and Underground Facilities that are known to Owner. At least 2 Business Days, or as otherwise noted, prior to commencement of excavation, notify the Construction Manager.

B. Where overhead service to a structure, known to receive service, does not exist, then underground service shall be assumed to exist.

C. Attention is also directed to the existence of overhead power and telephone lines.

D. Perform pot-holing by hand within 24 inches (in any direction) of the Underground Facilities. This may be done on an area-by-area basis, but shall be accomplished at least 7 Days in advance of the date of construction within such area.

E. In addition to reporting, if a utility is damaged, Design-Build Entity must take appropriate action as provided in Document 00 7253 (General Conditions).

F. Additional compensation or extension of time on account of utilities not indicated or otherwise brought to Design-Build Entity's attention including reasonable action taken to protect or repair damage shall be determined as provided in Document 007253 (General Conditions).

1.16 PERMITS

A. Permits, agreements, written authorizations, and/or approvals that are known by Owner to apply to this Project include but are not necessarily limited to the following:

1. State Water Resources Control Board: Storm Water Pollution Prevention.
2. Cal/OSHA Permit: Obtain, as applicable, permit(s) as required by Cal/OSHA.
3. Ventura County Permit and Resource Management Department: Construction Documents approval and Building/Grading/Stormwater/Demolition permits.
4. State Fire Marshal: Construction Documents approval.
5. Santa Paula Fire Department (first responder): Construction Documents approval.
6. City of Santa Paula: Encroachment permits and utility connections.
7. Pacific Gas & Electric Company: Private utilities.

B. Permits, agreements, written authorizations, and/or approvals have not been applied for and shall be obtained by Design-Build Entity.

C. All applicable permit fees shall be paid by Design-Build Entity unless specified otherwise in Document 00 7253 (General Conditions).

1.17 ACTUAL DAMAGES FOR PERMIT VIOLATIONS

A. In addition to damages which are impracticable or extremely difficult to determine, for which liquidated damages will be assessed as described in Document 005200 (Agreement) and Document 00 7253 (General Conditions), Owner may incur actual damages, including fines imposed by any regulatory agency, resulting from failure to obtain proper permits or violation of legal or regulatory requirements where the violations result from Design-Build Entity's activities.

B. Design-Build Entity shall be liable for and shall pay Owner the amount of any actual losses in addition to liquidated damages or other remedies provided by the Contract Documents.

C. The amount of liquidated damages provided in Document 00 5200 (Agreement) and Document 00 7253 (General Conditions) is not intended to include, nor does the amount include, any damages incurred by Owner for reasons other than those listed in that paragraph. Any money due or to become due to Design-Build Entity may be retained by Owner to cover both the liquidated and the actual damages described above and, should such money not be sufficient to cover such damages, Owner shall have the right to recover the balance from Design-Build Entity or its sureties.

PART 2 – DESIGN SERVICES

2.1 SUMMARY

A. This section includes specific Design-Build Entity design obligations including:

1. Preliminary Design Services.
2. Construction Documents and Construction Phase Design Services.
3. Project Close–Out Phase Services.
4. Design-Build Entity's Responsibility for Finished Construction.

B. Unless specifically excluded from this Contract, Design-Build Entity shall provide Owner with all professional architectural, engineering and design services, including without limitation all civil, electrical, fire protection, mechanical, structural engineering, landscape, and cost estimating services necessary to perform Design-Build Entity's design obligations under this Section 011100 Part 2 and other provisions of Contract Documents, including Bridging Documents, and to complete the Project.

2.2 DELIVERABLES REQUIRED UNDER THIS SECTION – GENERALLY

A. All deliverables required under this Section shall be submitted in full compliance with the Contract Documents, shall be submitted in at least triplicate (or such greater number as the Owner may reasonably request) and, when contained on electronic media, shall be submitted in printed form as well as on electronic media when requested by Owner.

B. Deficiencies in deliverables and modifications to conform to Project requirements and modifications to achieve acceptability of deliverables to Owner, shall be promptly performed, and the cost thereof included in the Contract Price.

2.3 INCREMENTAL DESIGN PACKAGES

A. Design-Build Entity shall submit designs and deliverables meeting the requirements of this Section 011100 Part 2. Design-Build Entity may, in its sole discretion, elect to create incremental packages of major building components or activities it deems advantageous towards scheduling or permitting efficiencies, and if it so elect shall comply with the requirements of this Section for each increment separately. Design-Build Entity shall be fully responsible for all consequences of electing incremental packages, including satisfying all Project milestones and deadlines.

B. In order to comply with the rules and regulations pertaining to State Lease Revenue Bond Financing projects, no construction work on any design package may be performed prior to State Fire Marshal approval of that design package.

2.4 CONSISTENCY WITH BRIDGING DOCUMENTS

A. Design-Build Entity shall perform all design services consistent with the Project Bridging Documents for all stages of design. Design-Build Entity shall perform all design services in accordance with Document 005201 (Bridging Documents) and Document 007253 (General Conditions – Design-Build).

B. Bridging Documents set forth Owner's minimum design and construction requirements for the Project that Design-Build Entity must meet. Design-Build Entity shall prepare designs to meet these requirements and submit deliverables as described in this Section 011100 Part 2. In the event of any conflict between the Bridging Documents and any other provision of Contract Documents, the more stringent requirement providing Owner with the greater scope of work shall control. The requirements of this Section 011100 Part 2 supplement but do not supersede the requirements of Bridging Documents.

C. Bridging Documents may be amended or supplemented to include elements or ideas from Design-Build Entity's Proposal or other proposals, but only to the extent Owner expressly

agrees in writing. Design-Build Entity is solely responsible for confirming the extent of any changes to the Bridging Documents.

2.5 DESIGNERS AND DESIGNER AGREEMENTS

A. Design-Build Entity shall perform its design services using the Designers listed in its Proposal and may substitute Designers only with Owner's written consent, which may be withheld or delayed in Owner's discretion.

B. Design-Build Entity shall fully coordinate all architectural and engineering disciplines and Designers involved in completing the Work. All Designers shall fully coordinate with Design-Build Entity and all architectural and engineering disciplines and Designers involved in completing the Work.

C. To the extent of the Services to be performed by a Designer, Design-Build Entity shall require each Designer's written agreement (1) to be bound to the terms of Contract Documents and (2) to assume vis-à-vis Design-Build Entity all the obligations and responsibilities that Design-Build Entity assumes toward Owner under the Contract Documents. These agreements include for example, and not by way of limitation, all ownership and copyrights in Designer work product, warranties, claims procedures and rules governing submittals of all types to which Design-Build Entity is subject under the Contract Documents.

D. Owner shall be deemed to be an intended third-party beneficiary of all Design agreements, and each such agreement shall so provide.

E. At Owner's request, Design-Build Entity shall provide Owner with a complete copy of all executed agreements between Designers and Design-Build Entity or between Designers (of any tier).

F. Owner at all times shall have the right (but not the duty) to review Design-Build Entity's design services, whether performed by Design-Build Entity or a Designer, and whether in a final or preliminary form, to determine progress and conformance to the requirements of Bridging Documents and other Contract Documents. In the event Owner should ever dispute the conformance of any design services (at any stage) with the intent of the Contract Documents, then Owner's determination shall control and Design-Build Entity and/or its Designers shall perform the disputed design services to completion in accord with Owner's determination. Design-Build Entity shall, however, retain its rights under the procedure in Document 00 7253 (General Conditions) Article 12 for claims and disputes, and Design-Build Entity may under that procedure, in its name, advance any claim of any Designer.

2.6 PRELIMINARY DESIGN PHASES

A. Schematic Design Phase:

1. Period of Service.

   a) After acceptance by Owner of Design-Build Entity's Proposal, execution of Contract Documents, and issuance of Notice to Proceed With Design Services, Design-Build Entity shall proceed with the performance of Services called for in the Schematic Design Phase.
   b) Design-Build Entity shall submit the deliverables required by the Schematic Design Phase.
   c) All items that are inconsistent with Bridging Documents, other Owner program requirements, or other prior Owner directions, acceptances or approvals, shall be expressly and separately identified and submitted for approval.

2. Schematic Design Phase Documents. Schematic Design Phase Documents shall consist of plans and reports containing conceptual layouts, sketches and schematic design criteria with appropriate exhibits, sufficient to present the complete concept of

the Project, including all major elements of the building(s), system(s), machinery, equipment, structure(s), and site design(s), proposed for construction which complies with the current program and cost limitations. By way of example, documents in this phase shall include, but are not limited to, the following (where applicable):

a) Plan list.
b) Site plan(s).
c) Schedule of building types, equipment, machinery, systems, [Owner to Complete].
d) Wall sections and elevations.
e) Outline specifications including architectural, structural, mechanical, electrical, and instrumentation systems and materials proposed.
f) Project-specific analysis of codes, ordinances and regulations.
g) Three-dimensional line plans or plans.
h) Initial construction phasing recommendations.
i) Tabulation of both gross and assignable floor areas including a comparison to the initial program area requirements.

3. Criteria. Reports, plans and exhibits shall incorporate all Bridging Documents requirements and any other Owner program requirements, and shall include structural concepts, site utilization plans, floor plans, elevations, sections, study perspectives and other plans necessary to describe the Project. Schematic Design Phase reports and exhibits shall indicate clearly the considerations involved, including but not limited to applicable requirements of governmental authorities having jurisdiction or private licensing, patent, easements, or other legal restrictions, as well as an exposition of how the design reflects the Owner's program objectives. Reports and exhibits shall indicate any alternative solutions available to Owner and set forth Design-Build Entity's findings and recommendations.
4. Design-Build Entity shall identify, analyze and conform to the requirements of governmental and private authorities having jurisdiction to approve the design of the Project and participate in consultations with such authorities.
5. Owner Review. Design-Build Entity shall develop Schematic Design Phase reports, plans and exhibits until Owner has approved an acceptable design concept that complies with the intent of the Bridging Documents. Design-Build Entity shall participate in progress meetings with Owner representatives at Owner's request, up to twice monthly.
6. Design Basis Report. Design-Build Entity shall provide a narrative report by each design discipline describing its proposed design philosophy with a description of, and the rationale for: the proposed structural systems, mechanical systems, electrical, electronics and security systems, types of equipment, materials and finishes, and site development and landscaping as required by the Project. The rationale shall include initial costs, lifecycle costs, and life expectancy and maintenance considerations.
7. Present Schematic Documents to Owner. Design-Build Entity shall present Schematic Design Phase documents to Owner and secure its acceptance.

B. Design Development Phase:

1. Period of Service.

a) After acceptance by Owner of Design-Build Entity's Schematic Design Phase deliverables, and upon written authorization from Owner, Design-Build Entity shall proceed with the performance of the services called for in the Design Development Phase. The intent of Design-Build Entity's Design Development Phase submittal is to obtain Owner approval for design revisions, refinements, and concept elaborations produced by Design-Build Entity during Design Development prior to Construction Document production.
b) Design-Build Entity shall submit the deliverables required by the Design Development Phase.

c) Design-Build Entity shall at the outset of this Phase make full written disclosure to Owner, and obtain Owner's express written approval of any proposed innovative, unique, proprietary, or sole source design features. Owner retains full discretion to disapprove such features.

d) All items that are inconsistent with approved Schematic Phase Design Documents, or (unless previously approved) Bridging Documents, other Owner program requirements, or other prior Owner directions, acceptances or approvals, shall be expressly and separately identified and submitted for approval.

2. Design Development Documents. Design-Build Entity shall prepare and submit to Owner design development documents. Design-Build Entity shall revise these documents consistent with the requirements and criteria established by Owner and shall meet with Owner and involved subconsultants twice monthly, to review and verify Owner gives its written confirmation of a Design Development Document. These documents shall include the following:

a) Final Design Criteria Plans (architectural, civil, electrical, mechanical and structural) sufficient to fix and illustrate project's scope and character in all essential design elements, including but not limited to, site plans, architectural, structural, mechanical, electrical and plumbing floor and equipment connection plans, elevations; cross sections and other mutually agreed upon plans deemed necessary to describe the developed design; single line electrical and mechanical plans, and structural plans with Schematic sizing of major structural elements.

b) Revised Drawing List.

c) A tabulation of both gross and assignable floor, pavement and/or yard areas in a comparison to the approved conceptual program area requirements and to the initial program area requirements*.*

d) As appropriate, Design-Build Entity shall provide to Owner for its approval a color and materials board, samples of textures and finishes of all materials proposed in the Work.

e) Recommendations for scheduling and phasing of construction.

f) Outline specifications for each technical specification section, following Construction Specification Institute 2010 conventions, with Part 2 Products of each section completed, describing the size, character and quality of the entire Project in its essentials as to kinds and locations of materials; equipment selections; and types of structural, mechanical and electrical systems*.* For major equipment and system specifications, Design-Build Entity shall also submit first cost and lifecycle cost analysis, with comparative analysis for the selected equipment/system item and two other alternative equipment/system items considered by Design-Build Entity but not selected.

g) Confirmation that Design-Build Entity has prepared schematic engineering calculations for all disciplines, including realistic loads, that are sufficiently complete for work on Construction Documents to proceed. To the extent required by State Fire Marshal, BSCC or any other authority having jurisdiction, prepare for acceptance updated written design criteria for mechanical, electrical and plumbing systems (for example, temperature, humidity, lighting levels and floor live load design shall be stated for general and special occupancy areas).

h) A grading and drainage plan and a site plan from architectural information showing a final development of the site. This Drawing will also include a horizontal and vertical control plan and utility connections to the infrastructure plan. The services described in this subparagraph shall be provided by a Designer who is a professional civil engineer under an agreement with Design-Build Entity.

3. Additional Data or Services. Design-Build Entity shall advise Owner in writing if additional data or services of the following types are necessary and obtain such data and services as directed in writing by Owner:

    a) Borings, probings and subsurface explorations, hydrographic surveys, laboratory tests and inspections of samples, materials and equipment;
    b) Appropriate professional interpretations of the foregoing; and
    c) Other special data or consultations necessary or useful in completion of the Project.

4. Report on Additional Permits or Reports. Advise in writing if any of the following are required:

    a) Governmental permits of any type; and
    b) Reports of any type to governmental agencies.

5. Review with Owner. Prepare, for review by Owner for compliance with Bridging Documents, written design criteria for mechanical, security, and electrical systems.
6. State Fire Marshal Coordination and other Authorities Having Jurisdiction. Design-Build Entity shall be fully responsible for obtaining and coordinating all necessary State Fire Marshal approvals, and all approvals from all other authorities having jurisdiction.

2.7 CONSTRUCTION DOCUMENTS AND CONSTRUCTION PHASES DESIGN SERVICES

A. Construction Documents Phase:

1. Period of Service.

    a) After acceptance by Owner of the Design Development Documents and any other required deliverables in the Design Development Phase, and upon written authorization from Owner, Design-Build Entity shall proceed with the performance of the services called for in the Construction Documents Phase.
    b) Design-Build Entity shall submit the deliverables required by the Construction Documents Phase within the stipulated period required in the Project Schedule.
    c) All items that are inconsistent with approved Design Development Documents, or (unless previously approved) Schematic Phase Design Documents, Bridging Documents, other Owner program requirements, or other prior Owner directions, acceptances or approvals, shall be expressly and separately identified and submitted for approval.

2. Construction Documents. On the basis of the Owner-approved Design Development Documents, Design-Build Entity shall prepare final Drawings and Specifications (together, “Construction Documents”) to show the work to be furnished and performed by Design-Build Entity. Construction Documents shall set forth in detail the requirements for construction of all Work to be performed, and shall be Contract Documents, but shall not supersede other Contract Documents (including Bridging Documents) where other Contract Documents contain a more stringent requirement.
3. Construction Documents shall be prepared in accordance with industry standards. Construction Documents Specifications shall be prepared in conformance with the thirty-three-division format of the Construction Specification Institute and paragraph 2.7 A.5 below. Design-Build Entity shall have complete responsibility to secure timely review by all authorities with jurisdiction.
4. The same architectural and engineering team (and team personnel) that prepared the Design Development Documents shall complete the Construction Documents and do all final coordination and quality review of the Construction Documents, including without limitation, following revisions requested or final comments made by authorities with jurisdiction. Where Drawings and Specifications are submitted to the State Fire Marshal or other regulatory agencies and/or other authorities with jurisdiction, then the same architectural and engineering team (and team personnel)

that prepared the submittal shall complete the Drawings and Specifications. If the submittal is incomplete in any manner, then Design-Build Entity shall continue working on Drawings and Specifications after the submittal in order to complete it, including completing all Designer services, fully coordinating the Drawings, and doing a quality control review. All Drawings shall be brought to ninety-five percent level of completion at either the submittal, or shortly thereafter, and then coordinated and checked. The purpose of this paragraph is to require Design-Build Entity to finish the design, so far as practical, either at the time of the submittal or shortly thereafter, to retain continuity in the design team and their familiarity with the Project. For good cause, Design-Build Entity may request relief from this paragraph. Owner may, but is not required to, conduct a peer review on the completed Drawings.

5. Format of Technical Specifications. Design-Build Entity shall prepare and transmit to Owner final technical specifications in conformance with the 2010 conventions of the Construction Specification Institute. Design-Build Entity shall cooperate with Owner in coordinating the Drawings and technical specifications with Owner's Divisions 0 and 1 General standard specifications included in Contract Documents.
6. AutoCAD and Other Electronic Data. Provide AutoCAD or Revit (latest release as of the Agreement date) files of all Drawings including as-bid, as-built, and all record Drawings, in electronic formats as requested by Owner. Prepare electronic record sets and sets of reproducible record prints or Drawings showing those changes made during the construction process, based on the marked-up prints, marked-up Technical Specifications, Drawings and other data furnished by Design-Build Entity to Owner. Electronic data shall be generated in AutoCAD or Revit and shall conform to Owner standards package (to be supplied.)
7. Compliance with Codes, Regulations and Requirements. All Drawings, Specifications, structural design calculations, site data, and cost estimates required by State or Federal law shall comply with State and federal standards. Design-Build Entity shall comply with any other requirements of authorities with jurisdiction over the Project or the Plans and Specifications. Design-Build Entity shall comply with the applicable standard of care when preparing Drawings and Specifications to comply with applicable building codes, ordinances, statutes, laws, standards, governmental regulations and private restrictions, applicable to the Services, including, but not limited to, those listed in Contract Documents, all environmental, energy conservation, and disabled access requirements, regulations and standards of the State Fire Marshal or other authorities having jurisdiction over the Project.
8. Supply of Design Calculations. Design-Build Entity shall provide Owner with copies of all final electrical, mechanical and structural design calculations, organized by specification. Design-Build Entity shall provide Owner with a final update on the final design criteria utilized.
9. Make full written disclosure to Owner, and obtain Owner's express written approval of any proposed innovative, unique, proprietary, or sole source design features.
10. Warranty. Design-Build Entity warrants to Owner that the final design, as expressed in the Construction Documents:

    a) Will be constructible, workable, watertight, and within Design-Build Entity's detailed Project schedule (per Section 01 3200);
    b) Will comply in all respects with the requirements of the Contract Documents (including without limitation Bridging Documents);
    c) Will not call for the use of hazardous or banned materials; and
    d) Will fully comply with applicable building codes, ordinances, standards, governmental regulations, and private restrictions applicable to the Work.

11. Design-Build Entity shall prepare and submit draft Construction Documents at the 65% level of completion to Owner for review. Each submittal shall include an updated transmittal log, identifying all items included within the submittal and which items have been changed, as well as all other items required by Section 01 3300 (Submittals). Bridging Architect, on behalf of Owner, shall conduct such review as necessary on

the 65% Construction Documents and shall advise Design-Build Entity of any necessary modifications, amendments and additions as reasonably required by Owner. Following receipt of Owner's comments, Design-Build Entity shall complete final Construction Documents. Such complete Construction Documents shall be deemed the Construction Documents for the Project.

12. Design-Build Entity shall take all steps to secure BSCC and State Fire Marshal approvals and all other required reviews and approvals of the design documents.
13. Upon completion of Construction Documents, Design-Build Entity shall submit such Drawings and Specifications for acceptance to Owner's representatives (as Owner shall designate) and any other applicable agency, and obtain necessary permits for the construction of the Project as specified in the Construction Documents. During the same time period, Design-Build Entity shall submit to Owner three (3) complete sets of Construction Documents for final acceptance.
14. Following State Fire Marshall approval of final Construction Documents, and before issuance of Notice to Proceed with Construction, Design-Build Entity shall provide listing all final Drawings and Specifications.
15. Permits. To the extent not otherwise provided in Section 011100 (Summary of Work – Design-Build Contractor Services) or other provisions of Contract Documents, Design-Build Entity shall assist Owner in securing all necessary permits and approvals, by identifying all necessary permits and approvals, securing necessary forms, and either applying for such permits and approvals in Design-Build Entity's name or by providing Owner with signature ready completed forms for Owner's review and execution. This duty includes, but is not limited to, providing technical criteria, written descriptions and design data for use in filing applications for permits with or obtaining approvals of such governmental authorities as have jurisdiction to approve the design of the Project, and engage in consultations with appropriate authorities.

B. Substitutions:

1. Design-Build Entity must base its design on products and systems specified in the Contract Documents or listed by name in Addenda.
2. Design-Build Entity may submit requests for substitutions (including without limitation "or equal" substitutions. See Document 007253 (General Conditions) no later than 14 days before submission of final Construction Documents to State Fire Marshal for approval.
3. Submittals of substitutions shall contain all required information set forth in Document 006325 (Substitution Request Form) and Specification Section 016000 (Product Requirements). Insufficient information shall be grounds for rejection of substitution.
4. Subject to the foregoing, Owner may consider Specifications/Bridging Documents final upon Contract award, however, and will consider substitutions following award in its sole discretion.

C. Construction Phase:

1. Following Owner's acceptance and State Fire Marshal approval of Design-Build Entity's Construction Documents (or applicable portion thereof), Design-Build Entity may commence construction of the Project (or applicable portion thereof).
2. General Administration of Construction. Design-Build Entity's Designers shall make regular visits to the site at intervals appropriate to the various stages of construction as necessary to assure that construction conforms to the final design as approved.
3. Quality Control and Reporting. Design-Build Entity's Designers shall participate fully in Design-Build Entity's required quality control program and shall advise Design-Build Entity and Owner in writing of any observations of defective work, work not in conformance with Drawings and Specifications or other Contract Documents, and lack of progress consistent with the schedule of work in areas associated with their Services.

4. Coordination of Inspections. Design-Build Entity is responsible to coordinate inspections by BSCC and to implement any corrections required by BSCC.

2.8 PROJECT CLOSE-OUT PHASE SERVICES

A. Operation/Close Out. During the Operation/Project Close-Out Phase, Design-Build Entity and its Designers shall, when requested by Owner, provide all necessary architectural, design and engineering services, for:

B. Refining, adjusting and correcting of any equipment or systems.

C. Start-up, testing and placing in operation all equipment and systems.

D. Completion of punch list work.

E. Training Owner's staff to operate and maintain all equipment and systems.

F. Assist Owner in developing systems and procedures for control of the operation and maintenance of and record keeping for the Project.

G. Prepare electronic record sets and sets of reproducible record prints or Drawings showing those changes made during the construction process, based on the marked-up prints, Drawings and other data.

H. Together with Owner, visit the Project to observe any apparent defects in the completed construction, correct such deficiencies, and supply information as needed regarding replacement, correction, or diminished value of defective work.

2.9 DESIGN-BUILD ENTITY'S RESPONSIBILITY FOR FINISHED CONSTRUCTION

A. Owner's right to review Design-Build Entity's design and deliverables, including without limitation Design Development Documents, Construction Documents, shop drawings, samples and Submittals, as specified in the Contract Documents, including any review by Bridging Architect or other Owner advisor, shall not relieve Design-Build Entity of its responsibility for a complete design and construction complying with the requirements of the Contract Documents; but rather, such review shall be in furtherance of Owner's monitoring and accepting the design as developed and issued by Design-Build Entity, consistent with these Contract Documents. Design-Build Entity's responsibility to design and construct the Project in conformance with the Contract Documents including, but not limited to, the applicable performance standards and any fully executed change orders, shall be absolute. Such duty may not be altered or diminished by any action other than a signed Change Order.

B. See Section 01 7839 (Project Record Documents) for certain markup and record documents requirements.

PART 3 – CONTRACTOR SERVICES

3.1 DESIGN-BUILD CONTRACTOR SERVICES

A. Design-Build Entity shall provide Owner with professional construction and design-build general contractor services in connection with the Project.

B. Services under this Section 01 1100 Part 3 include:

1. Existing Conditions Review and Verification.
2. Construction Progress Planning.
3. Securing of Necessary Permits and Approvals For Design-Build Entity's Work – Verification and Assistance.
4. Public Relations Activities.
5. Operations and Safety Program.

6. Federal, State and Local Coordination/Processing.
7. Recommendations for Professional Consultants.
8. Subcontractor Procurement Plan.
9. Master Project Schedule.
10. Monthly Project Reports.
11. Recordkeeping Requirements.

C. Services under this Section 011100 Part 3 shall proceed concurrently with other Contract Documents services, including without limitation design services under Section 011100 Part 2 Summary of Work – Design Services. Identifying and numbering of Tasks in this Section shall not control Design-Build Entity in its planning, sequencing or execution of the Work or otherwise relieve Design-Build Entity of its all-inclusive design-build responsibilities or any other responsibilities under Contract Documents, including without limitation requirements relating to Contract Modifications and claims.

3.2 TASK #1: EXISTING CONDITIONS REVIEW AND VERIFICATION.

A. Consistent with the standard of care of an experienced design-build contractor building a similar size and nature facility in the geographic locale of the Project, Design-Build Entity shall conduct a comprehensive review of Project site conditions and contiguous site conditions, sufficient to successfully perform all aspects of the Work, including, but not limited to:

1. Site logistics, site access restrictions or requirements, traffic, noise restrictions, hourly work restrictions, requirements of public and/or private authorities with jurisdiction, and any other restriction or consideration that may affect Design-Build Entity's Work.
2. Existing conditions information provided by Owner including, but not limited to, review and study of all available as-built information, geotechnical reports, engineering studies, previous contracts, measurements, surveys, documents and materials described and/or provided in the series 003100 Documents.
3. Any other investigations deemed necessary by Design-Build Entity to fully acquaint itself with existing conditions for purposes of its Work.

B. Design-Build Entity shall perform the investigations promptly after contract award and report to Owner in writing, any additional information Design-Build Entity needs, lacks, or would assist Design-Build Entity in assessing existing conditions. Owner and Design-Build Entity shall work collaboratively to secure any further, additional information required by Design-Build Entity, to the extent reasonably available.

C. Design-Build Entity's performance of this Task #1 is intended to supplement, not replace, its pre-Proposal investigations, and Design-Build Entity remains fully responsible for any deficiencies in its pre-Proposal investigations.

3.3 TASK #2: CONSTRUCTION PROGRESS PLANNING.

A. For the Owner's planning purposes, Design-Build Entity shall provide Owner with a report on specific requirements to maintain construction progress. Requirements shall specifically include, but are not limited to, the following:

1. Required Owner Coordination for Early Procurement – Approvals, Selections, Planning. Design-Build Entity will advise Owner regarding materials or equipment that require early procurement to maintain the Project schedule, and steps, approvals, reviews or other Owner actions, that Design-Build Entity may require to maintain this part of the schedule. Design-Build Entity will provide Owner with a written report evaluating early procurement requirements and identifying the dates by which decisions must be made.
2. Logistics. Design-Build Entity will advise Owner regarding the effect of site logistics on schedule, specific requirements or requirements to manage such logistics with the

expected construction and construction progress, and will make recommendations for improving site or other logistics to reduce the potential for interferences or increased costs. All recommendations must consider functionality, the effect of logistics on the operation of Owner's facilities, and Design-Build Entity's contract commitment to manage and execute the Project in a manner that meets the requirements of the Contract Documents, including but not limited to, non-interference with continuing Owner operations on and adjacent to the Site.

3.4 TASK #3: SECURING OF NECESSARY PERMITS AND APPROVALS FOR DESIGN-BUILD ENTITY'S WORK – VERIFICATION AND ASSISTANCE

A. Federal, State and County Requirements. Design-Build Entity will provide all necessary information, applications, documents and forms, as may be required by City, County, and other regulatory and permitting agencies, necessary to secure the necessary approvals and permits, necessary to perform the Work. Design-Build Entity shall provide Owner with a listing of all information, approvals, and/or consents, required from Owner, to perform this requirement. Design-Build Entity shall provide Owner with such listing significantly in advance of the required information, approvals and/or consents, to permit Owner reasonable time for compliance.

B. Permits. Design-Build Entity shall conduct the necessary research, investigations and inquiry to determine and verify that Owner, Design-Build Entity, and any other Project participants have applied for and secured all building permits, special permits, and approvals necessary for Design-Build Entity to perform its Work and/or for the permanent improvements, financing, permitting, and operation of the Project and each Subproject. This task shall apply to City and County requirements, as well as other federal, state, local, and special district or other regulatory requirements.

C. Fees and Assessments. Design-Build Entity shall verify that each applicant for a permit required for construction, has paid applicable fees and assessments, and filed necessary reports and or materials, and that responsible parties have secured such permits. Design-Build Entity shall assist and coordinate efforts of Owner and other consultants in connection with Design-Build Entity's responsibility for filing documents required for approvals of City/County and other applicable public regulatory authorities having jurisdiction.

D. Utilities. Design-Build Entity shall take primary responsibility to assist, manage and (if necessary) verify that Owner has applied for any applicable utility permits (if such permits must be in Owner's name), and that any such applicable fees and assessments are paid. Design-Build Entity shall take primary responsibility to assist Owner in obtaining approvals and securing such utility permits from public and/or private authorities having jurisdiction over the Project. Design-Build Entity shall coordinate any on-site activities of utility companies, materials and soils testing engineering and regulatory agencies, utility outages or other connections or re-routing of services.

E. Statutory Approvals. Design-Build Entity shall assist Owner in obtaining statutory approvals or local approvals, for example, State of California Board of State and Community Corrections. Design-Build Entity is responsible for obtaining approvals from State Fire Marshal, and City and County Fire and Building Departments. Owner will assist with obtaining these approvals where possible.

3.5 TASK #4: PUBLIC RELATIONS ACTIVITIES

A. Design-Build Entity shall designate a Design-Build Entity representative to attend, and will assist Owner in, all public relations matters including, but not limited to, preparing Project information and attending internal, permitting, and public meetings as required including site meetings and meetings with Federal, State, County, civic, and other authorities having jurisdiction.

B. A designated Owner representative shall be the point of contact for the entire community during all phases of construction in regards to any complaints, questions, safety issues, noise problems, dust problems, and the like, except for such specific areas Owner's representative delegates to Design-Build Entity.

3.6 TASK #5: OPERATIONS AND SAFETY PROGRAM.

A. Design-Build Entity will be responsible for developing and implementing an Operations and Public Safety Program ("Operations and Safety Program"), which shall be a specific written deliverable provided by Design-Build Entity to Owner and that Design-Build Entity shall implement once Owner has completed its review. The Operations and Safety Program shall specifically include, but is not limited to:

1. Project-specific measures for coordination of the Project with on-going Owner operations and other businesses or operations at or contiguous to the Site, to assure that such operations shall continue unimpeded (without adversely affecting safety) during the Work. These measures include coordination of construction operations including, but not limited to, noise, traffic, vibration, and any other issues that may be foreseeable with such operations.
2. Temporary measures including, but not limited to, covered walkways, barriers and walls, pavement, directional signage, lighting, and ventilation. Design-Build Entity shall provide these temporary measures to maintain the continued, uninterrupted operation of Owner facilities, Owner operations, adjacent businesses and structures, including traffic flow, during the Construction phase of the Work. The first priority for all such temporary measures shall be the continued, uninterrupted operations of the Owner, the safety of the general public, and substantially unimpeded vehicular and pedestrian traffic flow.
3. Coordination of construction, delivery, installation, commissioning, testing and turnover, of products, equipment, and systems, with responsible Owner and/or other authorities with jurisdiction, including the identification of organizational responsibility and authority for decisions, consents or approvals, to ensure performance of such work without delays resulting from lack of required consents.
4. For any Work within an existing facility, a clear identification of the physical boundaries in which all Work is to take place.
5. Design-Build Entity shall be exclusively responsible for determining the requirements and assignment of safety responsibilities included in the Contract Documents.

3.7 TASK #6: FEDERAL, STATE AND LOCAL COORDINATION/PROCESSING.

A. Design-Build Entity, in cooperation with Owner, shall have primary responsibility for the coordination and processing of all necessary applications, permits, changes, paperwork, approvals, instruction bulletins, accommodating meetings and inspections, and close-out documents with the City/County and any other applicable public agency.

3.8 TASK #7: RECOMMENDATIONS FOR PROFESSIONAL CONSULTANTS.

A. Design-Build Entity shall advise Owner of any need for the any additional, professional services of surveyors, special consultants and testing laboratories, not foreseen at the time of contracting. Design-Build Entity shall then, to the extent such consultants are not covered in Design-Build Entity's scope of work under this Contract, assist the Owner, if required, in selecting and retaining such consultants, and coordinate their services, as and if necessary for the Project or for Design-Build Entity to perform its services

3.9 TASK #8: SUBCONTRACTOR PROCUREMENT PLAN.

A. Design-Build Entity shall develop and submit to Owner a Subcontractor Procurement Plan which is consistent and complies with Subcontractor procurement requirements in Document 007253 General Conditions.

B. See Document 007253 (General Conditions) paragraph 4.3 regarding various Subcontractor procurement requirements, including providing Owner with additional versions of Document 004330 (Subcontractors List).

3.10 TASK #9: MASTER PROJECT SCHEDULE.

A. By no later than the first payment application, Design-Build Entity will develop a Master Project Schedule, subject to review and acceptance by Owner, which will contain key milestones to be accomplished by the Project participants for design, construction and project management.

B. The Master Project Schedule shall also include:

1. The Master Project Schedule shall meet the requirements of Section 013200, Progress Schedule, and will reflect the detail and progress of the Project Schedule appropriate to the stage of planning, design, and construction.
2. Preconstruction and construction services under this Section 011100 Part 3, at the top of the schedule.
3. The first level of detail from Subcontractors, Design-Build Entity's design team, inspectors and other parties interfacing with the Project, including necessary reviews, approvals, permitting and authorization milestones.
4. Long lead item procurement.
5. Subcontractor packages and critical construction milestones.
6. Owner review and approval requirements.
7. Schedule of Shop Drawings and Sample Submittals, as described in Section 013300 (Submittal Procedures).

3.11 TASK #10: MONTHLY PROJECT REPORTS.

A. Design-Build Entity shall provide Owner with monthly written reports covering the Project and that address the general status, problems, concerns, and progress of the Project and a 90-day look ahead schedule.

B. A progress summary shall be the first page of the Monthly Project Report. The report shall indicate in column format

1. The original and forecast cost and dates of completion;
2. The original and adjusted contract sums;
3. Pending change order requests and claims; and
4. The original and projected completion dates.

C. The Monthly Project Report shall include construction progress and updates.

1. Construction progress: generally since prior report, and percentage completion. Design-Build Entity shall include a narrative of the work performed and an updated task list and identify areas of concern, actions and approvals needed.
2. Design-Build Entity schedule: work progress against schedule. The report shall clearly identify actual performance with respect to the current approved version of the schedule. The narrative shall include any problems or delays encountered, causes of delays, proposed ways to work around any problems that arise and schedule assessment.

D. Design Status. The Monthly Project Report shall include a section on design status for the Project. The report shall also include a list of any Contract deliverables and identification of areas of concern, actions and approvals needed, and recommendations regarding ongoing design work with respect to value engineering, constructability coordination of design services with other Project items, and any and all design changes affecting appearance, size, function, usage or cost of the Project or any Subproject.

E. Subcontractor Procurement. The Monthly Project Report shall include a section on subcontractor procurement. The narrative shall include progress on and changes to the original Subcontractor Procurement Plan.

F. Design-Build Entity's Safety Program. The Monthly Project Report shall include a section on the Design-Build Entity's Safety Program. The narrative shall include incident reports and statistics and other Design-Build Entity recommended information to demonstrate and promote the effectiveness of its Safety Program.

G. Disputes and claims. The Monthly Project Report shall include a section on disputes and claims. For the Project and each Subproject, the narrative shall include a discussion on disputes, potential claims, and claims made.

H. Look Ahead Task List. The Monthly Report shall include a 90-day look ahead/task listing for Owner planning purposes, of Owner-specific activities, inspections, approvals, tie-ins, connections, consents, and decisions, necessary from the Owner to facilitate Design-Build Entity's progress.

I. Daily log (electronic copy only). Design-Build Entity shall keep a daily log containing a record of weather, contractor activities, and subcontractors working on the site, number of workers, work accomplished, problems encountered, impacts on the Work and specific activities, and other relevant data or such additional data as Owner may require. Design-Build Entity shall maintain the log electronically in a format acceptable to Owner, with each data-point maintained separately for separate sorting, charting or study by Owner if necessary. Design-Build Entity shall submit such electronic file monthly, with the Monthly Progress Report.

3.12 TASK #11: RECORDKEEPING REQUIREMENTS

A. Design-Build Entity shall maintain construction records to include, but not limited to, the following documents to be maintained on a current basis and available on site: a record copy of the Contract Documents, drawings, specifications, addenda, change orders, change modifications and other modifications, organized, in good order and marked to record all as-built changes made during construction; shop drawings; product data/material data sheets; samples; submittal; purchases; materials; equipment; inspections; applicable Federal and State and local titles, regulations publications, handbooks or manuals of requirements and codes applicable to the design and construction of the facility; maintenance and operating manuals and instructions; other related documents and revisions which arise out of the Construction Contracts. Design-Build Entity shall maintain records in duplicate, of principal building layout lines, elevations for the bottom of footings, floor levels, and key site elevations (certified by a qualified surveyor or professional engineer, if necessary).

B. Design-Build Entity shall make all such records available to Owner. At the completion of the Project, Design-Build Entity shall deliver all such records to the Owner to have a complete set of record as-built drawings.

C. Design-Build Entity's failure to comply with recordkeeping requirements under this subparagraph entitles Owner to withhold five percent of any Application for Payment until compliance.

END OF SECTION

SECTION 012000

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section includes description of requirements and procedures for determining amount of Work performed and for obtaining payment for Work performed.

1.2 REFERENCES

A. California Public Contract Code.
B. Code of Civil Procedures.
C. Government Code.

1.3 COMPOSITION AND SCOPE OF CONTRACT SUM

A. Scope of Contract Sum:

1. The Contract Sum for performance of the Work under the Contract Documents, or under any allowance or Alternate, shall include full compensation for all Work required under the Contract Documents, including without limitation, all design, architecture, professional services, labor, materials, taxes, transport, handling, storage, supervision, administration, and all other items necessary for the satisfactory completion of the Work, whether or not expressly specified or indicated, incidental work and unexpected expenses, and all terms, conditions, requirements and limitations set forth in the Contract Documents.

2. Contract Sum shall be deemed to include all costs necessary to complete required Work, including Design-Build Entity overhead and profit, all costs (if any) for loss or damage arising from nature of Work or prosecution of the Work, and from action of elements.

3. Unless Contract Documents expressly provide otherwise, the Contract Sum shall be deemed to include:
   a) Any and all costs arising from any unforeseen difficulties which may be encountered during, and all risks of any description connected with, prosecution of Work or any Work item (whether lump sum or unit price) until acceptance by Agency;

   b) All expenses incurred due to suspension, or discontinuance of Work or any Work item (whether lump sum or unit price) as provided in Contract Documents;

   c) Escalation to allow for cost increases between time of Contract Award and completion of Work or any Work item (whether lump sum or unit price).

B. Lump Sum Items:

1. When estimated quantity for specific portion of Work is not indicated and/or Work is designated as lump sum, payment will be on a lump sum basis for Work satisfactorily completed in accordance with Contract Documents.

2. Payment for lump sum Work, or items of Work subject to a lump sum (e.g. without limitation, change order work), shall be made on the basis of satisfactory completion of such Work or work item, earned in progressive stages in accordance with the Contract Documents, up to but not exceeding the Design-Build Entity's percentage completion of the Work or item.

3. Lump sum items shall be paid based upon the approved Schedule of Values, which shall be used to measure progressive payments based upon satisfactory progress towards completion of the item.

1.4 PAYMENT PROCEDURES

A. Work Breakdown Structure/Schedule of Values

1. Within ten Days after Document 005100 (Conditional Notice of Award) becomes unconditional, and prior to the Design-Build Entity's first Application for Payment, Design-Build Entity will participate in a meeting with the Agency to establish how the Schedule of Values must be sequenced and costs distributed to satisfy State Grant accounting requirements associated with the State bond funding for the project.

2. Within ten days following the Schedule of Values meeting, Design-Build Entity shall submit a detailed breakdown of the Contract Sum specified in Document 004200 Proposal Form) by scheduled Work items and/or activities, including, but not limited to, all design phases (Schematic, Design Development and Construction Documents), coordination responsibilities, and Project Record Documents responsibilities. Where more than one Designer or Subcontractor comprises the work of a Work item or activity, the Schedule of Values shall show a separate line item for each design agreement or subcontract. Design-Build Entity shall furnish such breakdown of the total Contract Sum by assigning dollar values (cost estimates) to each applicable Progress Schedule network activity, which cumulative sum equals the total Contract Sum. This breakdown may be referred to as the Schedule of Values, Work Breakdown Structure or both.

3. Design-Build Entity's overhead, profit, insurance, cost of bonds (except to the extent expressly identified in a Contract item) and/or other financing, as well as "general conditions costs," (e.g., Site cleanup and maintenance, temporary roads and access, off-Site access roads, temporary power and lighting, security, and the like), shall be prorated through all activities so that the sum of all the Schedule of Values line items (including all allowances unless otherwise) equals Design-Build Entity's total Contract Sum. Scheduling, record documents and quality assurance control shall be separate line items.

4. Agency will review the breakdown in conjunction with the Progress Schedule to ensure that the dollar amounts of this Schedule of Values are, in fact, reasonable cost allocations for the Work items listed. Upon favorable review by Agency, Agency will accept this Schedule of Values for use. Agency shall be the sole judge of fair market cost allocations.

5. Agency will reject any attempt to increase the cost of early activities, i.e., "front loading," resulting in a complete reallocation of moneys until such "front loading" is corrected. Repeated attempts at "front loading" may result in suspension or termination of the Work for default, or refusal to process progress payments until such time as the Schedule of Values is acceptable to Agency.

6. Schedule of Values shall be revised to reflect Change Orders, subject to Agency approval.

B. Design-Build Entity's Requests for Progress Payments

1. Progress payments will be made monthly, under the following conditions:

2. On or before the 25th Day of each month, Design-Build Entity shall submit to Agency five copies of an Application for Payment for the cost of the Work put in place during the period from the last Day of the previous month to the end of the current month, along with one copy of an updated Progress Schedule. Such Applications for

Payment shall be for the expected total value of activities completed or partially completed, based upon Schedule of Values prices (or Contract item prices if unit price) of all labor and materials incorporated in the Work up until midnight of the last Day of that one month period, less the aggregate of previous payments. Accumulated retainage shall be shown as separate item in payment summary. Agency and Design-Build Entity will reconcile any differences in the field, based on the reconciled monthly report sheets. If Design-Build Entity is late submitting its Application for Payment, that Application may be processed at any time during the succeeding one-month period, resulting in processing of Design-Build Entity's Application for Payment being delayed for more than a Day for Day basis.

3. In addition to all required submissions to the Labor Commissioner or Compliance Monitoring Unit (e.g., Document 007253 paragraph 16.7) or as otherwise required by Agency, concurrently with each Application for Payment, Design-Build Entity shall submit to the Agency the Design-Build Entity's and its Subcontractors' certified payroll records required to be maintained pursuant to Labor Code Section 1776 for all labor performed during pay periods ending during the period covered by the Application for Payment.

4. No progress payment will be processed prior to Agency receiving all requested, acceptable schedule update information and certified payrolls, and in Agency's sole and absolute discretion, Agency may deny the entire Application for Payment for noncompliance.

5. Each Application for Payment shall list each Change Order and Change Directive ("CD") executed prior to date of submission, including the Change Order/CD Number, and a description of the Work activities, consistent with the descriptions of original Work activities. Design-Build Entity shall submit a monthly Change Order/CD status log to Agency.

6. If Agency requires substantiating data, Design-Build Entity shall submit information requested by Agency, with cover letter identifying Project, Application for Payment number and date, and detailed list of enclosures. Design-Build Entity shall submit one copy of substantiating data and cover letter for each copy of Application for Payment submitted.

7. If Design-Build Entity fails or refuses to participate in monthly Work reconciliations or other construction progress evaluation with Agency, Design-Build Entity shall not receive current payment until Design-Build Entity has participated fully in providing construction progress information and schedule update information to Agency.

C. Agency's Review of Progress Payment Applications

1. Agency will review Design-Build Entity's Application for Payment following receipt and during the Progress Schedule and Billing Meeting. If adjustments need to be made to percent of completion of each activity, Agency will make appropriate notations and return to Design-Build Entity. Design-Build Entity shall revise and resubmit. All parties shall update percentage of completion values in the same manner, i.e., express value of an accumulated percentage of completion to date.

2. If Agency determines that portions of the Application for Payment are not proper or not due under the Contract Documents, then Agency may approve the other portions of the Application for Payment, and in the case of disputed items or Defective Work not remedied, may withhold up to 150 percent of the disputed amount from the progress payment.

3. Pursuant to California Public Contract Code §20104.50, if Agency fails to make any progress payment within 30 Days after receipt of an undisputed and properly submitted Application for Payment from Design-Build Entity, Agency shall pay interest to the Design-Build Entity equivalent to the legal rates set forth in subdivision (a) of Section 685.010 of the California Code of Civil Procedure. The 30-Day period shall be reduced by the number of Days by which Agency exceeds the seven-Day return requirement set forth herein.

4. As soon as practicable after approval of each Application for Payment for progress payments, Agency will pay to Design-Build Entity in manner provided by law, an amount equal to 95 percent of the amounts otherwise due as provided in the Contract Documents, or a lesser amount if so provided in Contract Documents, provided that payments may at any time be withheld if, in judgment of Agency, Work is not proceeding in accordance with Contract, or Design-Build Entity is not complying with requirements of Contract, or to comply with stop notices or to offset liquidated damages accruing or expected. In Agency's sole discretion, if Design-Build Entity has failed to comply with either its Progress Schedule update or project record documents requirements, Agency may retain an additional 5% of any earned amounts until such requirements are satisfied.

5. Before any progress payment or final payment is due or made, Design-Build Entity shall submit satisfactory evidence that Design-Build Entity is not delinquent in payments to employees, Subcontractors, suppliers, or creditors for labor and materials incorporated into Work. This specifically includes, without limitation, conditional lien release forms for the current progress payment and unconditional release forms for past progress payments. This also includes copies of certified payroll from Design-Build Entity and subcontractors for the current payment period.

D. Payment for Material and Equipment Not Yet Incorporated Into the Work

1. No payment shall be made for materials or equipment not yet incorporated into the Work, except as specified elsewhere in the Contract Documents or as may be agreed to by Agency in its sole discretion. Where Design-Build Entity requests payment on the basis of materials and equipment not incorporated in the Work, Design-Build Entity must satisfy the following conditions:

2. The materials and/or equipment shall be delivered and suitably stored at the Site or at another local location agreed to in writing, for example, a mutually acceptable bonded and insured warehouse.

3. Full title to the materials and/or equipment shall vest in Agency at the time of delivery to the Site, warehouse or other storage location. Obtain a negotiable warehouse receipt, endorsed over to Agency for materials and/or equipment stored in an off-site warehouse. No payment will be made until such endorsed receipts are delivered to Agency.

4. Stockpiled materials and/or equipment shall be available for Agency inspection, but Agency shall have no obligation to inspect them and its inspection or failure to inspect shall not relieve Design-Build Entity of any obligations under the Contract Documents. Materials and/or equipment shall be segregated and labeled or tagged to identify these specific Contract Documents.

5. After delivery of materials and/or equipment, if any inherent or acquired defects are discovered, defective materials and/or equipment shall be removed and replaced with suitable materials and/or equipment at Design-Build Entity's expense.

6. At Design-Build Entity's expense, insure the materials and/or equipment against theft, fire, flood, vandalism, and malicious mischief, as well as any other coverages required under the Contract Documents. No payment will be made until proper evidence of such insurance, including certificates identifying Agency as loss payee, is delivered to Agency.

7. Design-Build Entity's Application for Payment shall be accompanied by a bill of sale, invoice or other documentation warranting that Agency has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect Agency interest therein, all of which must be satisfactory to Agency. This documentation shall include, but not be limited to, conditional releases of mechanics' liens and stop notices from all those providing materials and equipment as to which the Application for Payment relates, as well as unconditional releases of the same from the same as to the previous Application for Payment for which they have not already been provided. Amounts previously paid for materials and equipment prior to incorporation into the Work shall be deducted from amounts otherwise due Design-Build Entity as they are incorporated.

1.5 FINAL PAYMENT

A. Final Payment:

1. As soon as practicable after all required Work is completed in accordance with Contract Documents, including punchlist, testing, record documents and Design-Build Entity maintenance after Final Acceptance, Design-Build Entity shall submit its Application for Final Payment.

2. Provided Design-Build Entity has met all conditions required for Final payment, Agency will pay to Design-Build Entity, in manner provided by law, unpaid balance of Contract Sum of Work (including, without limitation, retentions), or whole Contract Sum of Work if no progress payment has been made, determined in accordance with terms of Contract Documents, less sums as may be lawfully retained under any provisions of Contract Documents or by law.

1.6 BASIS AND EFFECT OF PAYMENT

A. Payment will be made by Agency, based on Agency review of Design-Build Entity prepared plans and specifications, observations at the Site and the data comprising the Application for Payment. Payment will not be a representation that Agency has:

1. Made exhaustive or continuous on-Site inspections to check the quality or quantity of Work;

2. Thoroughly checked Design-Build Entity prepared Design Development and/or Contract Documents for compliance with Bridging Documents, code and other agency requirements;

3. Reviewed construction means, methods, techniques, sequences, or procedures;

4. Reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by Agency to substantiate Design-Build Entity's right to payment; or

5. Made examination to ascertain how or for what purpose Design-Build Entity has used money previously paid on account of the Contract Sum.

B. Agency does not expressly, or by implication, agree, warrant, or represent in any manner, that actual amount of Work will correspond with amount shown or estimated and reserves

right to increase or decrease amount of any class or portion of Work, to leave out entire Work Item or Items, or to add work not originally included in Design-Build Entity's Proposal or Contract Documents, when in its judgment such change is in best interest of Agency. No change in Work shall be considered a waiver of any other condition of Contract Documents. No claim shall be made for anticipated profit, for loss of profit, for damages, or for extra payment whatever, except as otherwise expressly provided for in Contract Documents, because of any differences between the amount of work actually done and estimated amount as set forth herein, or for elimination of Work Items.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 012100

ALLOWANCES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

2. Include in the Lump Sum Base proposal, all Allowances stated in the Contract Documents. Items covered by Allowances shall be supplied for such amounts and by such persons or firms as Agency's Representative may direct.

1.2 RELATED SECTIONS

A. Section 005200 – Agreement.
B. Section 011100 – Summary Of Work.
C. Section 012000 – Measurement and Payment.
D. Section 013300 – Submittals.

1.3 ALLOWANCE FOR FURNITURE FIXTURES AND EQUIPMENT (FFE)

A. Design Build Entity shall design, procure, and install the FFE items noted as Group 1 in Volume 1B Space Design Criteria.

B. Allowance for FFE is included in the Contract Sum and controlled by Agency. Agency shall determine in its sole discretion which, if any, costs it will authorize in writing to be paid from the Allowance.

C. Design-Build Entity’s costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, differing site conditions and equipment rental will be included in Change Orders authorizing expenditure of funds from this Allowance.

D. Funds will be drawn from Allowance only with prior Agency approval in Owner’s sole discretion, evidenced by a Change Order.

E. At Contract Closeout, funds remaining in Allowance will be returned to Agency in the form of a credit Change Order.

1.4 OTHER ALLOWANCES (IF ANY)

A. See Section 011100 (Summary of Work), paragraph 1.3.

1.5 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Agency of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Agency's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Agency from the designated supplier.

1.6 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.7 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.8 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Design Builder of specific products and materials ordered by Agency under allowance and shall include taxes, freight, and delivery to Project site.

B. Design Builder's costs for receiving and handling at Project Site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Agency under stated allowance shall be included as part of the allowance.

1.9 UNUSED MATERIALS

A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Agency, after installation has been completed and accepted.

1. If requested by Agency, prepare unused material for storage by Agency when it is not economically practical to return the material for credit. If directed by Agency, deliver unused material to a designated storage space. Otherwise, disposal of unused material is Design Builder's responsibility.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION- NOT USED

END OF SECTION

SECTION 012200

ENHANCEMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This section includes administrative and procedural requirements for Enhancements.

1.2 RELATED SECTIONS

A. Document 001119 – Request for Proposals
B. Document 005200 – Agreement
C. Document 006536 – Guaranty
D. Section 011100 – Summary Of Work.
E. Section 012000 – Measurement and Payment.
F. Section 013300 – Submittals.

1.3 DEFINITION

A. Enhancement: A demonstrated benefit to the Project that is beyond the minimum requirements established in the RFP. The total cost associated with each enhancement proposed by Design Build Entity shall be stated on the Proposal Form. Enhancement costs may be added to or deducted from the Lump Sum Base Proposal amount if the Agency decides to accept.

1. The cost or credit for each Enhancement is the net addition to or deduction from the Contract Sum to incorporate an Enhancement into the Work. No other adjustments are made to the Contract Sum.

2. Design, engineering, coordination, labor, materials, equipment, accessories, and Design Builder and subcontractor overhead, mark-up and profit required for the Enhancement work shall be included in the Enhancement cost

B. Additive Enhancements are defined by Agency.

C. Voluntary Enhancements are presented by Proposers.

1.4 PROCEDURES

A. Modify or adjust affected adjacent work as necessary to completely integrate work of the selected Enhancements into the Project. Include as part of each Enhancement, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of Enhancement.

B. Immediately following award of the Contract, notify each party involved, in writing, of the status of each Enhancement. Indicate if Enhancements have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to Enhancements.

C. Execute accepted Enhancements under the same conditions as other work of the Contract.

D. Complete accepted Enhancements within the time stipulated for the Work in the Agreement.

E. Hold the price for each Enhancement for the period stated on the Schedules includes in the Proposal Form.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 LIST OF ADDITIVE ENHANCEMENTS

A. Provide Fully Operable Sliding Doors at Entrance to Day Rooms
   1. Furnish and install fully operable pneumatic sliders at the dayroom entry doors equal to the existing Airteq sliders.

   2. Furnish and install a Pneumatic compressor system sized for the connected sliders.

   3. Pneumatic lock compressor shall be separate from the existing facility and include dryers, drains, and filters to ensure maximum operational life for all components.

   4. Sliders shall be controlled from the local control station with takeover by Central Control.

B. Accelerate Project Completion by 60 Days
   1. See Critical Success Factor #1 on Document 001119

   2. The TRJHPU must be staffed, occupied, and operational by October 31, 2020

C. Provide two (2) year warranty in lieu of one (1) year
   1. See Document 006536

   2. Warranty period shall be 2 years following date of Final Acceptance

D. Provide a water treatment//softening system for the entire facility

E. Upgrade existing security electronic controls in all current housing units to match the new system installed in TRJHPU
   1. Furnish a locking control retrofit of the existing security controls in the existing central control, section control, and the housing control rooms.

   2. Locking control retrofit shall include new touchscreens in each control room and new PLC controlls in each security electronics room.

   3. Reuse existing intercoms, locks, door position switches, wiring, and miscellaneous devices.

   4. Provide new millwork where control graphic panels are built into existing millwork.

   5. Furnish and install a complete, integrate, and functional system

END OF SECTION

SECTION 012600

MODIFICATION PROCEDURES & PRICING OF CHANGED WORK

PART 1 GENERAL

1.1 SUMMARY

A. Section includes requirements that supplement Document 007253 (General Conditions)

B. Requirements for Changes affecting State Bond funding.

C. Description of procedures for modifying Contract Documents, including final approved Construction Documents, and determining costs for changes in contract amounts.

1.2 STATE BOND FUNDING REQUIREMENTS

A. Change Orders for "substantial changes" and "substantial modifications" as described in the Board of State and Community Corrections Jail Construction Agreement ("BSCC Agreement") must be approved in writing by BSCC, State Fire Marshal and/or State Public Works Board ("SPWB"). Agency shall have no obligation under any Change Order requiring such approval unless and until obtained.

B. Without limiting the foregoing, BSCC approval is required for all of the following:
   1. More than minor changes that affect the design or scope of the Project.

   2. A delay or change in the date of substantial completion or Final Completion.

   3. A more than minor change to the design, location, size, capacity or quantity of major items of equipment. As used herein "substantial" is defined in the State Administrative Manual, section 6863 (see http://sam.dgs.ca.gov/).

   4. A change in approved budget categories, or movement of dollars between budget categories as indicated in JCA Exhibit B.

   5. Any change that would impact BSCC or State Fire Marshal construction or operational regulations including, without limitation, Titles 15 and 24 of the CCR, or which affects the security of fire and life safety of the facility.

C. In addition to all other Change Order documentation required by this Section 012600, Design-Build entity shall provide all documentation required by BSCC, State Fire Marshal and/or SPWB for any Change Order requiring any of their approval.

1.3 PROCEDURES FOR DESIGN-BUILD ENTITY INITIATED CHANGE ORDER

A. Design-Build Entity-Initiated Change Proposal Request and Procedures:

   1. Design-Build Entity may initiate changes by submitting a Change Proposal Request ("CPR").

   2. All CPRs must contain a complete breakdown of costs, credits, deducts and extras; itemizing materials, labor, taxes, Markup and any requested changes to Contract Time. All Subcontractor Work shall be so indicated. Individual entries on the CPR form shall include applicable Schedule of Values code, with all amounts determined as provided herein. After receipt of a CPR with acceptable documentation, Agency will respond within (20) days.

3. If Agency accepts a CPR, Agency will prepare a Change Order for Agency and Design-Build Entity signatures.

4. If CPR is not acceptable to Agency because it does not agree with Design-Build Entity's proposed cost and/or time, Agency will provide comments.

5. When necessity to proceed with a change does not allow Agency sufficient time to conduct a proper check of a CPR (or revised CPR), Agency may issue a Change Directive (CD) according to the procedures described in this Section 012600.

6. Each CPR shall be given a unique number for identification purposes. Revisions will be identified by the letter A after the unique number. (subsequent revisions to have the letter B, C, D as follows)

7. Design-Build Entity and Subcontractors shall, upon Agency's request, permit inspection of the original unaltered cost estimates, subcontract and design agreements, purchase orders relating to the change, and documents substantiating all costs associated with its CPR.

1.4 DESIGN-BUILD ENTITY-INITIATED REQUEST FOR INFORMATION (RFI) PROCEDURES, REQUIREMENTS AND LIMITATIONS:

1. Design-Build Entity may submit RFI's for clarifications in Agency-prepared Contract Documents (such as Bridging Documents)

2. Whenever Design-Build Entity requires information regarding the Project or Agency-prepared Contract Documents, or receives a request for such information from a Subcontractor, Design-Build Entity may prepare and deliver an RFI to Agency. Under no circumstances may Design-Build Entity deliver an RFI to Agency relating to any Design-Build Entity-prepared Construction Document.

3. Design-Build Entity shall reference each RFI to an activity of Progress Schedule and shall note time criticality of the RFI, indicating time within which a response is required. Design-Build Entity's failure to reference RFI to an activity on the Progress Schedule and note time criticality on the RFI shall constitute Design-Build Entity's waiver of any claim for time delay or interruption to the Work resulting from any delay in responding to the RFI.

4. Design-Build Entity shall be responsible for its costs to implement and administer RFIs throughout the Contract duration. Regardless of the number of RFIs submitted, Design-Build Entity shall not be entitled to additional compensation for the effort required to submit the RFIs.

5. Agency will respond within ten (10) days from receipt of RFI. Design-Build Entity shall distribute response to all appropriate Subcontractors. Agency may return RFI requesting additional information should original RFI be inadequate in describing condition.

6. If Design-Build Entity is satisfied with the response and does not request a change in Contract Sum or Contract Time, then the response shall be executed without a change.

7. If Design-Build Entity believes the response is incomplete, Design-Build Entity shall issue another RFI (with the same RFI number with the letter “A” indicating it is a follow-up RFI) to Agency clarifying original RFI.

B. Time Requirements:

1. If Design-Build Entity believes that an Agency response to an RFI results in a change to the Contract Sum or Contract Time, Design-Build Entity shall notify Agency within (10) days after receiving Agency’s response.

2. If Design-Build Entity requires more time to accurately identify the required changes to the Contract Sum or Contract Time, Design-Build Entity may submit a CPR within (14) days after submitting notification of change noted above.

3. If Agency agrees with Design-Build Entity’s CPR then, Agency will prepare a Change Order for Agency and Design-Build Entity signatures. If Agency disagrees with Design-Build Entity, then Design-Build Entity may give notice of potential claim as provided in Article 12 of Document 007253 (General Conditions), and proceed thereunder.

1.5 PROCEDURES FOR AGENCY INITIATED CHANGE ORDERS

A. Agency Initiated Change Order or Request for Proposal:

1. Agency may initiate changes in the Work or Contract Time by issuing a Request for Proposal (“RFP”) which will detail all proposed changes in the Work and request a quotation of changes in Contract Sum and Contract Time from Design-Build Entity.

2. In response to an RFP, Design-Build Entity shall furnish a Change Proposal Request (CPR) within twenty-one (21) Business Days of Agency’s RFP.

3. If the parties agree on price and time for the work, the Agency will issue a Contact Change Order (“CO”). If the parties do not agree on the price or time for a CPR, Agency may either issue a Change Directive (as described below) or decide the issue per Article 12 of Document 007253 (General Conditions).

B. Agency Initiated Change Directives:

1. Agency may order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with or without adjustment to Contract Sum or Contract Time by issuing a Change Directive (“CD”).

2. If at any time Agency believes in good faith that a timely Change Order will not be agreed upon, or at any other time, Agency may issue a CD with its recommended cost and/or time adjustment (if any).

3. Upon receipt of CD, Design-Build Entity shall promptly proceed with the change of Work involved and respond to Agency within ten (10) Days.

4. Design-Build Entity’s response to a CD must be any one of following:

a) Return CD signed, thereby accepting CD and indicating agreement with terms indicated, including adjustment to time and cost (if any). Such agreement shall be effective immediately and shall be finalized as a CO within (14) days.

b) Submit a (revised if applicable) Cost Proposal with supporting documentation

c) Give notice of intent to submit a claim as described in Article 12 of Document 007253 (General Conditions), and submit its claim as provided therein.

1.6 PROCEDURES THAT APPLY TO DESIGN-BUILD ENTITY-AND AGENCY-INITIATED CHANGE ORDERS

A. Adjustment of Schedules to Reflect COs or CDs:

1. Design-Build Entity shall revise Schedule of Values and Application for Payment forms to record each executed CO or CD as a separate line item and adjust the Contract Sum as shown thereon prior to the next monthly pay period.

2. Design-Build Entity shall revise the Progress Schedules prior to the next monthly pay period, to reflect CO or CD.

3. Design-Build Entity shall enter changes in Project Record Documents prior to the next monthly pay period.

B. Required Documentation for Adjustments to Contract Amounts:

1. For all changes and cost adjustments requested, Design-Build Entity shall provide documentation of change in Contract Amounts asserted, with sufficient data to allow evaluation of the proposal.

2. In all requests for compensation, cost proposals, estimates, claims and any other calculation of costs made under the Contract Documents, Design-Build Entity shall breakout and quantify costs of labor and professional services, equipment and materials identified herein, for Design-Build Entity and subcontractors of any tier.

3. Design-Build Entity shall, on request, provide additional data to support computations for:
   a) Quantities of products, materials, labor and equipment.
   b) Taxes, insurance, and bonds.
   c) Justification for any change in Contract Time and new Progress Schedule showing revision due, if any.
   d) Credit for deletions from Contract, similarly documented.

4. Design-Build Entity shall support each claim or computation for additional cost, with additional information including:
   a) Origin and date of claim or request for additional compensation.
   b) Dates and times Work was performed and by whom.
   c) Time records and wage rates paid.
   d) Invoices and receipts for products, materials, equipment, subcontracts and design agreements, similarly documented.
   e) Credit for deletions from Contract, similarly documented.

C. Responses and Disputes:

1. For all responses for which the Contract Documents do not provide a specific time period, recipients shall respond within a reasonable time.

2. For all disputes arising from the procedures herein, Design-Build Entity shall follow Article 12 of Document 007253 (General Conditions).

PART 2 COST DETERMINATION FOR CHANGES IN CONTRACT AMOUNTS

2.1 COST DETERMINATION FOR CHANGES IN CONTRACT AMOUNTS

A. When the price of change order work cannot be agreed upon, the Agency will pay for the extra work based on the accumulation of costs as provided herein:

1. Direct cost of labor

a) Cost of Labor shall be calculated as: Cost of labor for workers (including forepersons when authorized by Agency) used in actual and direct performance of the subject work, whether employer is Design-Build Entity, Subcontractor or other forces, in the sum of the following:

i) Actual Wages: Actual wages paid shall include any employer payments to or on behalf of workers for health and welfare, pension, vacation, and similar purposes.

ii) Labor surcharge: Payments imposed by local, county, state, and federal laws and ordinances, and other payments made to, or on behalf of, workers, other than actual wages as defined, such as worker's compensation insurance. Such labor surcharge shall not exceed generally accepted standards in the State for labor rates in effect on date upon which extra Work is accomplished.

iii) Cost of labor shall include no other costs, fees or charges.

iv) Nondirect labor costs, including superintendence, payroll taxes, all types of insurance, and all other labor costs, not specifically provided for, shall be considered to be paid for as part of the markups defined below.

b) Cost of labor shall be recorded and documented in certified payroll records, maintained in the form customary and/or required in the State, delivered to Agency weekly.

c) Cost of Professional Services shall be at agreed rates for licensed architects and engineers established in Design-Build Entity's Proposal, provided that under no circumstances may the applicable rate for any individual exceed his or her regular rate for work and services on other California public entity projects.
i)

2. Direct cost of equipment

a) For rented equipment, cost will be based on actual rental invoices, appropriate for the use and duration of the work. Equipment used on extra Work shall be of proper size and type. If, however, equipment of unwarranted size or type and cost is used, cost of use of equipment shall be calculated at rental rate for equipment of proper size and type, as determined by Agency.

b) Equipment rental cost for Design-Build Entity or Subcontractor-owned equipment, shall be determined by reference to, and not in excess of, the generally accepted standards in the State for equipment rental rates in effect on date upon which extra Work is accomplished. If there is no applicable rate for an item of equipment, then payment shall be made for Design-Build Entity- or Subcontractor-owned equipment at rental rate listed in the most recent edition of the Caltrans Standard Schedules and Specifications, and absent a rental rate therein, then the Association of Equipment Distributors (AED) book.

c) No payment will be made for the use of tools which have a replacement value of $200 or less.

d) The rental rates paid shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals

e) Necessary loading and transportation costs for equipment used on the Extra Work shall be added to the other costs.

f) If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to the Agency than holding it at the work site, it shall be returned, unless the Contractor elects to keep it at the work site at no expense to the Agency.

g) The reported rental rates for equipment already at the work site shall be for the duration of its use on the Extra Work, commencing at the time it is first put into actual operation on the Extra Work, plus the time required to move it from its previous site, and move it back to its previous site or to a closer site of next use.

3. *Direct cost of materials*

a) The cost of materials reported shall be at invoice or lowest current price at which such materials are locally available and delivered to the Work site in the quantities involved, plus sales tax, freight and delivery.

b) The Agency reserves the right to approve materials and sources of supply, or to supply materials to the Contractor if necessary for the progress of the Work. No markup shall be applied to any material provided by the Agency.

4. *Markup*

a) Work by Design-Build Entity

i) Allowable markup on direct costs of labor (except as provided below), equipment, and materials shall be 15%

ii) Allowable markup for cost of professional services shall be 5%

iii) On proposals covering both increases and decreases in cost, Markup shall be allowed on the net increase only as determined above. When the net difference is a deletion, Markup percentage will be a deduction

b) Work by Subcontractor

i) The markups established above shall be applied to subcontractor's direct costs.

ii) Design-Build Entity markup on subcontractor costs shall be 5%

iii) The maximum allowable markup on direct cost of any work shall be 20%. This limitation shall apply regardless of the actual number of subcontract tiers.

c) Markup provides for complete compensation to Design-Build Entity for profit, overhead, risks, general conditions and general requirements.

5. *Bonds, insurance, and taxes*

a) Bonds, insurance, and taxes consists of the cost of bonds, insurance and taxes, also referred to as "BIT". All State sales and use taxes, applicable County and

applicable City sales taxes, shall be included. Federal and Excise tax shall not be included.

b) There is no mark up on BIT.

c) To the sum of the cost and markups provided above, (1) percent shall be added as compensation for bonding.

PART 3 EFFECT OF PAYMENT

3.1 CHANGE ORDER COMPENSATION IS ALL INCLUSIVE

A. Payment of calculated cost of extra work constitutes full and complete compensation for costs or expense arising from the extra Work, and is intended to be all inclusive.

B. Payment for Direct Cost of Design and Construction (Component 1 or LEMS) is intended to be all-inclusive. Any costs or risks not delineated within cost of labor, professional services, equipment or materials herein, shall be deemed to be within the costs and risks encompassed by the applicable Markups and unallowable in any separate amount.

C. Payment of Markup (Component 2) is intended to be all-inclusive. Design-Build Entity waives claims for any further or different payment of cost and risk items delineated herein, other than the allowable percentage markup on costs set forth in the Contract Documents; such separate, further or different cost or risk items shall be unallowable, waived and liquidated within the allowable percentage markup.

D. Design-Build Entity shall recover no other costs or markups on extra work of any type, nature or description.

3.2 EXCEPTION FOR CHANGES EXTENDING THE CONTRACT TIME

A. Where a change in the Work extends the Contract Time, Design-Build Entity may request and recover additional, actual direct costs, provided Design-Build Entity can demonstrate such additional costs are (i.) actually incurred performing the Work, (ii.) not compensated by the Markup allowed, and (iii) directly result from the extended Contract Time. Design-Build Entity shall make such request and provide such documentation following all required procedures, documentation and time requirements in the Contract Documents, and subject to all contract limitations of liability.

3.3 RECORDS AND CERTIFICATION

A. All charges shall be recorded daily and summarized in Change Proposal Request form attached hereto. Design-Build Entity or authorized representative shall complete and sign form each day. Design-Build Entity shall also provide with the form: the names and classifications of workers and hours worked by each; an itemization of all materials used; and a list by size type and identification number of equipment and hours operated.

B. Agency shall have the right to audit all records in possession of Design-Build Entity relating to activities covered by Design-Build Entity's claims for modification of Contract, including CD Work. This right shall be specifically enforceable, and any failure of Design-Build Entity to voluntarily comply shall be deemed an irrevocable waiver and release of all claims then pending that were or could have been subject to Article 12 of Document 007253 (General Conditions).

PART 4 PRODUCTS – NOT USED

PART 5 EXECUTION – NOT USED

END OF SECTION

SECTION 013119

PROJECT MEETINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes description of required project meetings for design phase, pre-construction phase, and construction phases of the Work.

B. Meetings in addition to those described below may be required for special purposes as determined by the Agency.

1.2 DESIGN PROGRESS MEETINGS

A. The Agency's Representative will schedule weekly Design Progress Meetings to determine the progress of the development of the Design portion of the Work prior to allowing construction to commence.

B. Attendees: Design Progress Meetings shall be attended by:
   1. The Agency's Representative and Agency's Consultants
   2. The Design Builder's Design Professional, Project Principal/Director, Drawing Development Director, Project Manager, Superintendent, field engineer(s)
   3. Major subcontractors
   4. Others as directed by the Agency's Representative.

C. Agenda: The Design Builder shall be responsible for developing the meeting agendas. The purpose of the meetings is to discuss significant items that could affect the completion of the Construction Drawings and Specifications and have a major impact of the quality, cost and overall schedule for the Work. The weekly agenda shall be submitted for approval to the Agency's Representative a minimum of 48 hours prior to the meeting.

D. Minutes: The Design Builder will record and distribute meeting minutes.

1.3 USER GROUP MEETINGS

A. Participate in Agency's User Group meetings as requested by the Agency's Representative.

B. Attendees: User Group Meetings shall be attended by:
   1. Agency's Representative
   2. Agency User Group members
   3. Design Builder's Project Manager
   4. Other Design Builder Project Team members, as appropriate
   5. Others as directed by the Agency's Representative

C. Agenda: Receive input from Agency/User Groups regarding project objectives, requirements, concerns. Make presentations and provide project status updates to User Groups as requested by the Agency's Representative.

D. Minutes: The Design Builder or Agency's Representative will record and distribute meeting minutes depending on the purpose of the meeting.

1.4 PRECONSTRUCTION CONFERENCE

A. Preconstruction Conference. Agency will call for and administer Preconstruction Conference at time and place to be announced (usually the week prior to start of Work at the Site).

B. Attendees: The Preconstruction Conference shall be attended by:
   1. Agency's Representatives
   2. Design Builder's Senior Officer, Project Manager, field engineer(s) and superintendent(s)
   3. Major subcontractors and suppliers
   4. Other concerned parties

C. Agenda may include, but not be limited to, the following items (to the extent not previously resolved):
   1. Procedures to be followed during performance of the Work.
   2. Design Build Entity's Initial Progress Schedule.

3. Design Build Entity's Schedule of Values.
4. Design Build Entity's Schedule of Submittals.
5. Critical work sequencing and long-lead items.
6. Introduction/designation of key personnel and their duties.
7. Personnel security clearance procedures.
8. Use of the premises and if applicable, existing building(s).
9. Location of the Design Build Entity's on-site facilities.
10. Housekeeping.
11. Submittal and RFI procedures.
12. Inspection and testing procedures, on-Site and off-Site.
13. Utility shutdown procedures.
14. Control and reference point survey procedures.
15. Preparation of Record Documents.
16. Construction waste management.
17. Equipment deliveries and priorities.
18. Work restrictions and working hours
19. Safety.
20. Jurisdictional Agency requirements.

D. The Design Builder will record and distribute meeting minutes. Attendees shall have 7 Days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of Preconstruction Conference.

1.5 SCHEDULE REVIEW MEETING

A. Refer to Section 013200 Progress Schedules and Reports for required schedule meetings.

1.6 WEEKLY CONSTRUCTION PROGRESS MEETINGS

A. Attend progress meetings at weekly intervals. Coordinate dates and location of meetings with the Agency's Representative.

B. Attendees: Weekly Construction Progress Meetings shall be attended by:
   1. Agency's Representatives
   2. Inspector of Record or designee
   3. Design Builder's Project Manager and Superintendent
   4. Design Professionals, as appropriate
   5. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work. Others may be invited as directed by the Agency's Representative.

C. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics of discussion that are appropriate to the Project status, which may include, but are not limited to:
   1. Design Builder's Contract Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Design Builder's Contract Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
      a) Review look-ahead schedule for next period.
   2. Review present and future needs of each entity present, including the following:
      a) Interface requirements.
      b) Sequence of operations.
      c) Status of submittals.
      d) Deliveries.
      e) Off-site fabrication.
      f) Access.
      g) Site utilization.
      h) Temporary facilities and controls.
      i) Project site access, traffic control and logistics issues

j) Work hours.
k) Hazards and risks.
l) Progress cleaning.
m) Quality and work standards.
n) Status of correction of deficient items.
o) Field observations.
p) Requests for interpretation (RFIs).
q) Contract modifications.
r) Documentation of information for payment requests.
s) CSFM and/or BSCC field visits

D. Minutes: The Design Builder will record and distribute meeting minutes.

E. Schedule Updating: Revise Design Builder's Contract Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.7 PREINSTALLATION CONFERENCES

A. Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

B. Attendees: Preinstallation Conferences shall be attended by:
1. The Design Builder's Project Manager
2. Superintendent
3. The installer
4. Representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow.
5. Subcontractors whose work will interface or be affected by the installation, if any.

C. Advise the Agency's Representative of scheduled meeting dates a minimum of 7 days in advance. Others may attend as directed by the Agency's Representative.

D. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
1. The Contract Documents.
2. Options.
3. Related requests for interpretations (RFIs).
4. Related Change Orders.
5. Purchases.
6. Deliveries.
7. Submittals.
8. Review of mockups.
9. Possible conflicts.
10. Compatibility problems.
11. Time schedules.
12. Weather limitations.
13. Manufacturer's written recommendations.
14. Warranty requirements.
15. Compatibility of materials.
16. Acceptability of substrates.
17. Temporary facilities and controls.
18. Space and access limitations.
19. Regulations of authorities having jurisdiction.
20. Testing and inspecting requirements.
21. Installation procedures.
22. Integration procedures
23. Coordination with other work.
24. Required performance results.
25. Protection of adjacent work.
26. Protection of construction and personnel.

E. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
F. Minutes: The Design Builder will record and distribute meeting minutes.
G. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

1.8 PROGRESS SCHEDULE AND BILLING MEETINGS

A. Refer to Sections 012000 (Measurement and Payment) and 013200 (Progress Schedules and Reports) for Progress Schedule and Billing Meetings.

1.9 SPECIAL MEETINGS

A. Any party may call special meetings by notifying all desired participants and Agency five (5) Days in advance, giving reason for meeting. Special meetings may be held without advance notice in emergency situations.
B. At any time during the progress of Work, Agency shall have authority to require Design Build Entity to schedule a meeting with Agency and of any or all of the Subcontractors engaged in Work or in other work, to address matters of concern to the Agency.
C. Design Build Entity shall schedule and conduct coordination meetings as necessary to discharge coordination responsibilities in Document 007253 (General Conditions). Design Build Entity shall give Agency five (5) Days written notice of coordination meetings. Design Build Entity shall maintain minutes of coordination meetings. Attendees shall have seven (7) Days to submit comments or additions to minutes. Minutes will constitute final memorialization of results of coordination meetings.
D. Design Build Entity to submit minutes of meetings to all attendees within three (3) days of the meeting in a format acceptable to the Agency.

1.10 SAFETY MEETINGS

A. Conduct Design Build Entity Safety Committee meetings as stipulated in Design Build Entity's Safety Plan and (as applicable) Document 007319.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 013200

PROGRESS SCHEDULES AND REPORTS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of design and construction during performance of the Work, including the following:
   1. Preliminary Baseline Design/Construction Schedule.
   2. Design-Build Entity's Detailed Final Baseline Design/Construction Schedule.

1.2 DEFINITIONS

A. Activity:
   1. A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a design or construction schedule consume time and resources.
   2. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times, have no float and are on the longest path through the schedule.
   3. Predecessor Activity: An activity that precedes another activity in the network.
   4. Successor Activity: An activity that follows another activity in the network.

B. Cost-loading:
   1. The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Stipulated Sum, unless otherwise approved by the Owner.

C. CPM:
   1. Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Todd Road Jail Health and Programming Unit (TRJHPU).

D. Critical Path:
   1. The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall TRJHPU duration and contains no float.

E. Event:
   1. The starting or ending point of an activity.

F. Float:
   1. The measure of leeway in starting and completing an activity.
   2. Float time is not for the exclusive use or benefit of either Owner or Design-Build Entity, but is a jointly owned, expiring TRJHPU resource available to both parties as needed to meet schedule milestones and Contract completion dates. Design-Build Entity’s use of float must be pre-approved by the Owner prior to use.
   3. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
   4. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned TRJHPU completion date.

G. Fragnet
   1. A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

H. Major Area:
   1. A story of construction, a separate building, or a similar significant construction element.

I. Milestone:
   1. A key or critical point in time for reference or measurement.

J. Network Diagram:

1. A graphic diagram of a network schedule, showing activities and activity relationships.

K. Resource Loading:
   1. The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.3 SUBMITTALS

A. Scheduling Manager Qualification Data:
   1. Submit qualifications for a full-time Scheduling Manager. See 1.6. D. below.

B. Submittal Schedule:
   1. Submit three copies of the Submittal Schedule. Arrange the following information in a tabular format:
      a) Scheduled date for first submittal.
      b) Final Specification Section number and title, cross-referenced to Performance Specifications in the Bridging Documents.
      c) Submittal category (action or informational).
      d) Name of subcontractor.
      e) Description of the Work covered.
      f) Scheduled date for the Owner's final release or approval.

C. Preliminary Baseline Design/Construction Schedule:
   1. Submit two opaque copies, large enough to show entire network for entire design and construction periods. Show logic ties for activities.

D. Design-Build Entity’s Detailed Final Baseline Design/Construction Schedule
   1. Submit two opaque copies of initial schedule, large enough to show entire schedule for entire design and construction periods.
   2. Submit an electronic copy of schedule, using software, and labeled to comply with requirements for submittals. Include type of schedule (Initial, Master or Updated) and date on label.

E. CPM Reports:
   1. Concurrent with CPM schedule, submit three copies of each of the following computer-generated reports. Format for each activity in reports must contain activity number, activity description, cost and resource loading, original duration, remaining duration, Early Start Date, early finish date, late start date, late finish date, and total float in calendar days.
      a) Activity Report: List of all activities sorted by activity number and then Early Start Date, or Actual Start Date if known.
      b) Activity Report: List of all activities sorted by Early Start Date or Actual Start Date if known.
      c) Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then Early Start Date, or Actual Start Date if known.
      d) Total Float Report: List of all activities sorted in ascending order of total float.
      e) Earnings Report: Compilation of Design-Build Entity's total earnings from the Notice to Proceed (NTP) until most recent Application for Payment.

1.4 QUALITY ASSURANCE

A. Pre-scheduling Conference:
   1. Conduct pre-scheduling conference to review methods and procedures related to the Preliminary Design/Construction Schedule and Design-Build Entity's Design/Construction Schedule, including, but not limited to, the following:
      a) Review software limitations and content and format for reports.
      b) Verify availability of qualified personnel needed to develop and update schedule.
      c) Discuss constraints, including phasing, work stages, area separations, interim milestones, and partial Owner occupancy.
      d) Review anticipated AHJ review times, including BSCC and State Fire Marshal.
      e) Review delivery dates for Owner-furnished products.
      f) Review time to acquire, set up and occupy the field office(s).

g) Review dates established in the Owner's TRJHPU Milestone Schedule and other milestones of important events.
h) Review dates of all mobilization activities on site, including notices and permits.
i) Review dates detailing the planned design schedule, including submittals and reviews.
j) Review schedule for work of Owner's separate contracts.
k) Review time required for review of other submittals and resubmittals.
l) Review requirements for tests and inspections by independent testing and inspecting agencies.
m) Review time required for completion and startup procedures.
n) Review and finalize list of construction activities to be included in schedule.
o) Review submittal requirements and procedures.
p) Review procedures for updating schedule.

1.5 COORDINATION

A. General:
1. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
2. Coordinate Design-Build Entity's Design/Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
3. Secure time commitments for performing critical elements of the Work from parties involved.
4. Coordinate each design and construction activity in the network with other activities and schedule them in proper sequence.

1.6 GENERAL SCHEDULING REQUIREMENTS

A. The Design-Build Entity will develop and maintain the Design/Construction Schedule for the scope of work contained in the Contract. The purpose of the Design/Construction Schedule will be to:
1. Assure adequate planning, scheduling, and reporting during execution of the design, construction and related activities so they may be prosecuted in an orderly and expeditious manner, within the Contract Time and the Milestones stipulated by the Agreement or other Contract Documents;
2. Assure coordination of the work of the Design-Build Entity and the various Designers, subcontractors and suppliers at all tiers;
3. Assist in the preparation and evaluation of the Design-Build Entity's monthly progress payments;
4. Assist in monitoring the progress of the work and evaluating proposed changes to the Contract and the Construction Schedule; and,
5. Assist in detecting problems for the purpose of taking corrective action and to provide a mechanism or tool for determining and monitoring such corrective actions.

B. The Work will be prosecuted such that it will insure meeting the specified Contract Time. By execution of the Agreement, the Design-Build Entity represents that it has analyzed the work, the requirements of design, the materials and methods involved, the systems of the building, availability of qualified professional personnel and labor, restrictions of the site, constraints imposed, their own workload and capacity to perform the work, and agrees that the specified times are reasonable considering the existing conditions prevailing in the locality of the work, including weather conditions, and other factors, with only the allowance for variations from average or ideal conditions otherwise permitted in Contract Documents.

C. The work under this Contract will be planned, scheduled, executed and reported using the Precedence Diagraming Technique of the Critical Path Method (hereinafter referred to as CPM).

D. The Design-Build Entity must employ the full-time services of at least one Scheduling Manager (not the Project Manager, Project Engineer, Foreman or Superintendent) fully

qualified in critical path scheduling of projects of similar size and scope for the duration of the Contract.

1. Scheduling Manager shall be experienced in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within twenty four (24) hours of the Owner's request. Scheduling Manager must show at least ten (10) years in scheduling similar projects and expertise in the use of all scheduling software required.

E. Any and all milestones listed in these specifications, or elsewhere in the Contract Documents, represent only certain major items of design or construction work. The milestone completion dates indicated are considered essential to the satisfactory performance of this Contract and to the coordination of all work on the TRJHPU. The Owner reserves the right to require the Design-Build Entity to prosecute the work in accordance with the specified milestone dates.

PART 2 SCHEDULING SUBMITTALS

2.1 SUBMITTAL SCHEDULE

A. Preparation:

1. Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittals, ordering, manufacturing, fabrication, and delivery when establishing dates.
2. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Design-Build Entity's Construction Schedule.
3. Initial Submittal: Submit concurrently with Preliminary Baseline Design/Contraction Schedule. Include submittals required during the first 120 calendar days of design and construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
4. Final Submittal: Submit concurrently with the first complete submittal of Design-Build Entity's Detailed Final Baseline Design/Construction Schedule.

2.2 GENERAL SCHEDULE REQUIREMENTS

A. Time Frame:

1. Extend schedule from date established for the NTP to date of Completion.
2. Contract completion date will not be changed by submission of a schedule that shows an early or late completion date, unless specifically authorized by Change Order.

B. Activities:

1. Treat each story or separate area as a separate numbered activity for each principal element of the Work.
2. Activity Duration: Define activities so no activity is longer than fifteen (15) working days, unless specifically allowed by the Owner.
3. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than sixty (60) calendar days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
4. Submittal Review Time: Include review and re-submittal times required in Section 013300 Submittals in the schedule. Coordinate submittal review times in Design-Build Entity's Construction Schedule with Submittals Schedule.
5. Startup and Testing Time: Include not less than ten (10) working days for startup and testing.
6. Completion: Indicate completion in advance of date established for Completion, and allow time for all authorities having jurisdiction to issue a Certification of Completion.

C. Constraints:

1. Include constraints and work restrictions required in the Contract Documents (including Bridging Documents, preliminary design phase documents (if any) and final Construction Documents) and as follows in schedule, and show how the sequence of the Work is affected.

a) Phasing: Arrange the list of activities on the schedule by phase. Include the major phasing required such as Design and Construction Phases with sub-phases of work below them.
b) Work by the Owner: Include a separate activity for each portion of work performed by the Owner.
c) Products Ordered in Advance: Include a separate activity for each product. Include the earliest possible delivery dates.
d) The Owner-Furnished Products: Include a separate activity for each product.

D. Work Restrictions: Show the effect of the following items on the schedule:
1. Coordination with existing construction.
2. Limitations of continued occupancies.
3. Uninterruptible services.
4. Partial occupancy before Completion.
5. Use of premises restrictions.
6. Provisions for future construction.
7. Environmental control.

E. Work Stages: Indicate important stages of design and construction for each major portion of the Work, including, but not limited to, the following:
1. Construction Documents and other design phases under Section 011101 (Summary of Work – Design-Build Design Services)
2. Subcontract awards.
3. Submittals.
4. Purchases.
5. Mockups.
6. Fabrication.
7. Sample testing.
8. Deliveries.
9. Installation.
10. Tests and inspections.
11. Commissioning.
12. Adjusting.
13. Curing.
14. Placement into final use and operation.

F. Area Separations: Identify each major area of construction for each major portion of the construction Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
1. Structural completion.
2. Permanent space enclosure.
3. Completion of mechanical installation.
4. Completion of electrical installation.
5. Completion.

G. Cost Correlation:
1. At the front of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
2. Refer to Section 012000, (Measurement and Payment), for cost reporting and payment procedures.
3. Design-Build Entity will assign cost to construction activities on the CPM schedule. Costs must be assigned to each submittal activity line item on the Schedule of Values. Costs must be listed under the required principal subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, ADBHU Record Documents, and demonstration and training.
4. Each activity cost will reflect an accurate value subject to approval by the Owner.
5. Total cost assigned to activities must equal the total Stipulated Sum.

H. Contract Modifications:

1. For each proposed Contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

I. The Design-Build Entity must use the latest version of Microsoft Project to create schedules, unless approved otherwise by Agency. With each schedule submittal, Design-Build Entity will provide compact disks with back-up files of the entire schedule in the scheduling software program. PDF's are acceptable for historical record only.

2.3 PRELIMINARY BASELINE DESIGN/CONSTRUCTION SCHEDULE

A. Within thirty (30) calendar days after the date of the NTP, the Design-Build Entity must submit for the Owner's review and acceptance a Preliminary Baseline Schedule. This schedule must show the general plan for the work to be completed in the first one hundred and twenty (120) calendar days of the Contract. Indicate each significant activity separately and identify the first workday of each week with a continuous vertical line. Include a Summary Bar diagram for the remainder of the Work showing major milestones and summary activities with a cash requirement prediction based on required activities.

B. The Preliminary Baseline Schedule must define milestones for the TRJHPU. The milestones must include but are not limited to the TRJHPU Milestones identified in the Agreement, and as follows:

1. Design Schedule Milestones (show milestones for each Incremental Design Package as appropriate and for each Agency reviewing them):
   a) Notice to Proceed.
   b) Complete Survey and Confirmation of Existing Utilities, Services and Geotechnical Explorations.
   c) Complete Management Plans.
   d) Partnering Session(s).
   e) Complete Code Analysis/Life Safety Plan.
   f) Complete Site Mobilization, Lay Down Areas and Parking Plans.
   g) Complete Design and Construction Package Phasing Plan.
   h) Start Schematic Design Documents.
   i) Submit Schematic Design Documents CDs for Review.
   j) Schematic Design Documents Approved.
   k) Complete Schematic Design Documents.
   l) Start Design Development Documents.
   m) Submit Design Development Documents for Review.
   n) Design Development Documents accepted.
   o) Complete Design Development Documents.
   p) Start 65% CDs.
   q) Submit 65% CDs for Review.
   r) 65% CDs accepted.
   s) Complete 65% CDs.
   t) Start 100% CDs.
   u) Submit 100% CDs for Review.
   v) 100% CDs accepted.
   w) Complete 100% CDs.
2. Construction Schedule Milestones (including but not limited to):
   a) Start Construction (per Incremental Package Phase).
   b) Approve Construction Schedule.
   c) Obtain Licenses, Fees, Permits.
   d) Temporary Power Available.
   e) Start Owner's On-Site Field Office.
   f) Complete Owner's On-Site Field Office (Occupancy).
   g) Facility Watertight.
   h) Permanent Power Available.
   i) Other Utilities (Gas, Water, Fire Service, Sewer, Phone, etc.) Available.
   j) Start Functional Testing.

k) Start Training and Demonstrations.
l) Complete Construction (per Incremental Package Phase).
m) Start FEE Installation.
n) Completion of Work (Including receipt of all licenses).
o) Certification of Completion.
p) Complete Demobilization.
q) Complete Commissioning.

3. Key Personnel Staffing Schedule:
   a) The Preliminary Baseline Schedule shall include a staffing schedule that provides a separate task for each Key Personnel (as defined in Document 001119 paragraph 3.2. A. that shall parallel the Project's design and construction activities. For each Key Personnel, the schedule shall indicate the start time, anticipated duration of commitment to work on the Project, and for all portions of the duration the time percentage of commitment to work on the Project. If a Key Personnel's commitment to the Project will vary over the course of the Project, additional tasks shall be provided for that Key Personnel to clearly identify the commitment variances and their relationship to the Project's design and construction schedule.

C. Proposed Procurement Activities to be accomplished during the first one hundred and twenty (120) calendar days of the Contract.
   1. Procurement activities must include mobilization, major shop drawing and sample submittals and the fabrication and delivery of key and long lead procurement elements and must indicate intended submittal, review and approval, and realistic delivery dates for fabrication and delivery activities.
   2. Procurement activities will later be incorporated into the Detailed Design/Construction Schedule (discussed hereinafter) including all requested revisions.

D. Proposed Design/Construction Activities to be accomplished during the first one hundred and twenty (120) calendar days of the Contract.

E. Other items not indicated above which are necessary to properly identify:
   1. The Cost-loaded Preliminary Baseline Schedule will be the basis for progress payments during the first one hundred and twenty (120) calendar days of the Contract while the Detailed Final Baseline Design/Construction Schedule (discussed hereafter) is being developed and accepted.
   2. The Preliminary Baseline Schedule must be updated on a monthly basis while the Detailed Final Baseline Design/Construction Schedule is being developed. The monthly updating of the Preliminary Baseline Schedule must be consistent with the procedures and requirements described in the "Schedule Updating" section of this specification section.
   3. The Preliminary Baseline Schedule must be used for the preliminary review of time extension request(s) during the first one hundred and twenty (120) calendar days of the Contract while the Detailed Final Baseline Design/Construction Schedule is being developed.
   4. Within twenty (20) calendar days after receipt by the Owner of the Preliminary Baseline Schedule, the Owner will make recommendations to the Design-Build Entity as to adjustments to the Preliminary Baseline Schedule. These recommendations, if accepted by both the Owner and Design-Build Entity, will be incorporated into the development of the Detailed Final Baseline Design/Construction Schedule. The Design-Build Entity must provide a response to the concerns of the Owner, to the satisfaction of the Owner, before the submittal of the Detailed Design/Construction Schedule.

2.4 DETAILED FINAL BASELINE DESIGN/CONSTRUCTION SCHEDULE

A. Within ninety (90) calendar days following Notice to Proceed, Design-Build Entity will submit to the Owner a proposed Detailed Final Baseline Design/Construction Schedule in CPM format for the Design-Build Entity's design and construction work scope.

B. The proposed Detailed Final Baseline Design/Construction Schedule will be reviewed in the following manner:
    1. Within twenty (20) calendar days after receipt by the Owner of the proposed Detailed Final Baseline Design/Construction Schedule, the Owner must notify the Design-Build Entity of any concerns the Owner may have in regard to the Schedule.
    2. If the Owner questions the Design-Build Entity's proposed activities, logic, durations, manpower, or cost loading, the Design-Build Entity must, within seven (7) calendar days after receipt of the Owner's request, provide a satisfactory revision to, or adequate justification for, these activities, logic, durations, manpower, or Cost-loading to the satisfaction of the Owner.
    3. In the event the Design-Build Entity fails to define any element of work, activity or logic and the Owner review does not detect this omission or error, such omission or error, when discovered by the Design-Build Entity or Owner, must be corrected by the Design-Build Entity at the next monthly Schedule Update and or weekly progress meeting, (discussed hereinafter) and will not affect the Contract Time.

C. Upon the acceptance of the changes to the proposed Detailed Final Baseline Design/Construction Schedule by the Owner, the Design-Build Entity and Owner will demonstrate their mutual acceptance by signing the front of the Detailed Final Baseline Design/Construction Schedule.

D. Upon acceptance, the design/construction schedule will be utilized as a BASELINE SCHEDULE for evaluation of all work yet to be performed.

E. No accepted activity will be deleted from the Detailed Design/Construction Schedule. In the event that an activity is no longer appropriate to the plan, either by change order or otherwise, it will be statused with "zero duration" as of the date such determination is made and offsetting cost adjustment made as required to balance within the activity's cost account.

F. Redistribution of costs between Contract bid line items will not be allowed.

G. Acceptance by the Owner of the Design-Build Entity's Detailed Final Baseline Design/Construction Schedule will be a condition precedent to the making of any progress payments under the Contract after the first one hundred and twenty (120) calendar days of the Contract.

H. Upon acceptance of the Detailed Final Baseline Design/Construction Schedule by the Owner, the cost-loaded values of the Schedule will be used as a basis for determining progress payments based on work completed to date, in conjunction with the Schedule of Values. Monthly progress payments will be based upon information developed at the monthly Schedule Update. The computer-produced Cost Report will be structured to directly roll up to the accepted billing summary and utilized by the Owner for verification of the Application for Payment submitted by the Design-Build Entity.Acceptance by the Owner of the Design-Build Entity's Detailed Final Baseline Design/Construction Schedule does not relieve the Design-Build Entity of any of Design-Build Entity's responsibility whatsoever for the accuracy or feasibility of the Detailed Design/Construction Schedule, or of the Design-Build Entity's ability to meet the Contract completion date or milestone dates, nor does such acceptance acknowledge or admit the reasonableness of the activities, logic, durations, manpower, or Cost-loading of the Design-Build Entity's Detailed Design/Construction Schedule.

I. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates must be consistent with Article 2 of the Agreement.

J. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
    1. Format:
        a) Identify and mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
        b) Sub-networks on separate sheets are permissible for activities clearly off the critical path.

K. Initial Issue of Schedule:
   1. Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical path activities. Prepare tabulated reports showing the following:
      a) Design-Build Entity or Designer or subcontractor and the Work or activity.
      b) Description of activity.
      c) Principal events of activity.
      d) Immediate preceding and succeeding activities.
      e) Early and late start dates.
      f) Early and late finish dates.
      g) Activity duration in workdays.
      h) Total float or slack time.
      i) Average size of workforce.
      j) Dollar value of activity (coordinated with the Schedule of Values).

L. Schedule Updating:
   1. Concurrent with making revisions to schedule, prepare a narrative with each update and tabulated reports showing the following:
      a) Identification of activities that have changed.
      b) Changes in early and late start dates.
      c) Changes in early and late finish dates.
      d) Changes in activity durations in workdays.
      e) Changes in the critical path.
      f) Changes in total float or slack time.
      g) Changes in the Contract Time.

M. Value Summaries:
   1. Prepare two cumulative value lists, sorted by finish dates.
   2. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
   3. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
   4. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
   5. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
      a) In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
      b) Submit value summary printouts 2 business days before each regularly scheduled progress meeting.

PART 3 TECHNICAL REQUIREMENTS

3.1 TECHNICAL REQUIREMENTS FOR DESIGN-BUILD ENTITY SCHEDULES

A. The Design-Build Entity will consider the following guidelines in the development of the Construction schedule:
   1. The Schedule must be developed utilizing the Precedence Diagramming Method.
   2. Milestone dates must be adhered to and will be clearly identified on the Schedule.
      a) Milestone dates may not be changed without the written consent of the Owner.
      b) Contract Start Milestones will be constrained by “Start No Earlier Than” constraints.
      c) Contract Completion Milestones will be constrained by “Finish No Later Than” constraints.
      d) “Mandatory”, “Start On”, and “Finish On” constraints will not be allowed.
   3. The Schedule must clearly identify the activities illustrating accomplishment of the time(s) for completion of the TRJHPU set forth in the Agreement. If the Schedule indicates earlier completion time(s) than that set forth in the Agreement, the difference between the Schedule and the Agreement dates will be considered to be part of the total float available. This float is a resource available to both the Owner

and the Design-Build Entity. If the Design-Build Entity presents a schedule with an early completion date, the Owner reserves the right to issue a Contract change order revising the Contract Completion Date and associated milestones to those indicated in the Design-Build Entity's schedule. However, the Contract time will not be revised unless a Contract change order has been issued and executed by both parties.

4. In developing the Schedule, the Design-Build Entity will be responsible for assuring that subcontractor work at all tiers, as well as Design-Build Entity's own work, is included in the Schedule.
5. The Schedule must show the sequence and interdependence of activities required for complete performance of the work. The Design-Build Entity will be responsible for assuring all work sequences are logical and the Schedule shows a coordinated plan of the work.
6. Failure by the Design-Build Entity to include any element of work required for performance of the Contract or failure to properly sequence the work will not excuse the Design-Build Entity from completing all work within the Contract Time.
7. The level of detail of the Design-Build Entity's Schedule will be a function of the complexity of the work involved. The total number of activities will be subject to approval by the Owner. Construction activities must represent the continuous work of a single crew in a defined work area or location and have a duration of not longer than fifteen (15) workdays, without prior acceptance of the Owner. Non-construction/non-design activities (such as procurement, fabrication, etc.) may have durations in excess of 15 work days.
8. Normal weather conditions will be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures, wind, and/or precipitation to ensure completion of all work within the Contract Time.
9. Expected weather delays shall be added as an activity to the back of the schedule and treated as weather float. The use of this weather float must be requested by the Design-Build Entity and approved by the Owner in advance of adjusting the schedule. The total duration of the weather float activity shall not exceed thirty (30) total working days for the entire Contract Time.
    a) Work will be planned to minimize the impact of rain and include the grading of the work area, installation of dewatering pumps and provision of covers.
    b) Keep drainage and dewatering systems operable 24 hours and 7 days each week throughout construction.
    c) No weather days will be allowed for rain less than <0.10" per day as measured at the NOAA weather station nearest the jobsite.
    d) No weather days will be allowed if it occurs before Agency approval to begin construction activities
10. Schedule activities must meet the following criteria:
    a) Activity descriptions must be clear and concise. All activity ends must be tied into the schedule by logical restraints.
11. Proposed durations assigned to each activity will be the Design-Build Entity's best estimate of time required to complete the activity considering the scope and resources planned for the activity. Resources and Labor (Man-hours) allocated to each activity must be consistent with activity duration and supported by the Design-Build Entity's estimate and industry standard estimating/productivity guides such as "Means" and/or "Walker's".
12. Responsibility for each activity must be identified with a single performing organization, typically the Subcontractor name.
13. Schedule activities will be cost-loaded in whole dollars and the assigned dollar value (cost-loading) of each activity of the Network must cumulatively equal the Total – Stipulated Sum Amount. The tasks and amounts in the cost-loaded schedule will be utilized as the Schedule of Values for progress payment purposes. Mobilization, bond and insurance costs may be shown separately; however, other General Condition's costs, overhead, profit, etc., will be prorated throughout all activities. For any items that the Design-Build Entity intends to bill for stored materials, these items need to

be shown as separate “material procurement” activities in the schedule and the material dollars only placed on these activities. Billing for stored materials on any other schedule activities not broken out in this manner will not be allowed.

14. Design-Build Entity will assign manpower-loading for each activity of the Network. In addition, the Design-Build Entity will prepare and submit a separate manpower summary analysis in graphic format depicting manpower by subcontractor and aggregate. The graph(s) must show the number of man-days of effort, by month, over the duration of the Construction Schedule.
15. For all major equipment and materials fabricated or supplied for this TRJHPU Project, the network must show a sequence of activities including:
    a) Preparation of shop drawings and sample submissions. Any accepted costs associated with submittal preparation will be assigned to the approval of the particular submittal.
    b) Review and approval of shop drawings and samples: allow 30 calendar days for review of major submittals and samples, and 14 calendar days for review of all other submittals).
    c) Shop fabrication and delivery (including transit time). Advanced purchases such as mill orders or other major equipment purchases will be carried as separate Cost-loaded activities.
    d) Erection or installation.
16. Field Testing of Equipment and Materials. Testing and Inspection will be cost- and labor-loaded to the extent of the effort necessary in the field.
    a) The schedule must include a detailed plan for preparation, submittal, review, re-submittal, if required, and acceptance for detailed MEPS/Structural/Architectural Coordination Documents prepared by the individual trade subcontractors utilizing CAD backgrounds supplied by the Architect of Record.
    b) If requested by the Owner, the Design-Build Entity will furnish a written narrative of the Design-Build Entity’s determination of durations for critical activities. Such explanation must include the number of crews, crew composition, number of shifts per day, number of hours in a shift and the number of work days per week. The Design-Build Entity will provide a list of the major items of construction equipment intended for use on this Project’s operations including types, number of units, unit capacities and the proposed time each piece of equipment will be on the job, keyed to the activities on which the equipment will be used.
17. For each Construction Schedule submittal, as well as for each Schedule Update, the Design-Build Entity will provide the following to the Owner as specified in the “Required Reports section of this specification:
    a) Compact Disc containing the Construction Schedule in the native format of the scheduling software. All schedules, graphics and reports in PDF format.
    b) Three (3) color prints of all schedules, graphics, and reports.
18. The schedule must consider all foreseeable factors or risks affecting, or which may affect the performance of the work, including historical and predicted weather conditions, applicable laws, regulations or collective bargaining agreements pertaining to labor, transportation, traffic, air quality, noise and any other applicable regulatory requirements.
19. The Design-Build Entity will not use any “float suppression” techniques such as preferential sequencing or logic, special led/lag constraints or unjustifiably over-estimating activity durations in preparing its schedule.
20. The Design-Build Entity will not use negative lag.
21. All activities requiring time to complete must be included in the schedule as an activity (Cure time, etc.). The Design-Build Entity will not consume time by the use of finish-to-start relationships with positive lag.
22. The Design-Build Entity must attach a narrative report which explains assumptions used for activity durations, its assumptions regarding crew sizes, equipment requirements and production rates, any potential areas of concern or specific areas

requiring coordination it may have identified and any long-lead time materials or equipment in the work.

23. The Design-Build Entity's Scheduling Manager will formally present the detailed time-scaled CPM network for the duration of the Contract time, demonstrating compliance with -Article 2 of the Agreement and other requirements to the Owner clearly showing the critical path(s) of the TRJHPU through completion.

PART 4 REPORTS

4.1 REQUIRED SCHEDULING REPORTS

A. As a part of the Detailed Design/Construction Schedule submittals, as well as for each Schedule Update, the Design-Build Entity must submit the following reports and graphics as indicated:

1. Graphics:
   a) Detailed CPM Network with critical path highlighted sorted by Early Start Dates.
   b) Detailed Gantt chart grouped by WBS and sorted by Early Start ascending, Early Finish ascending. (Initial Submittal and When Revised).
   c) Short-interval Gantt chart showing 1 week of history and 3 weeks of future work (Weekly).
   d) Cost curve and histogram (Initial Submittal and When Revised.)
   e) Manpower curve and histogram (Initial Submittal and When Revised.)
   f) Milestones only.
2. Computerized schedule reports:
   a) Activity listing report showing all schedule activities, sorted by activity number. (Initial Submittal.)
   b) Milestone Summary Report listing all milestones.
   c) Precedence report showing activity predecessors and successors, including relationship type and lag, sorted by activity number. (Initial Submittal and When Revised.)
   d) Total float report, sorted by total float from low to high. (Initial Submittal and When Revised.)
   e) Early start report, grouped and sorted by Early Start Date.
   f) Cost report showing activity dollar value, dollar value of work in place to-date, and dollar value for current period. (Initial Submittal and When Revised.)
   g) Resource report showing man-day allocations by specific trade on each activity. (Initial Submittal and When Revised.)
   h) Variance report comparing current dates to target dates. (Monthly Updates.)
   i) Cash flow report showing monthly projections of expenditures. (Initial Submittal and When Revised.)
3. Narrative schedule report including:
   a) Description of the actual work accomplished during the reporting period. (Monthly Updates)
   b) Description of any problem areas. (Initial Submittal and Monthly Updates.)
   c) Description of current and anticipated delays with recommended corrective actions to mitigate such delays. (Monthly Updates.)
   d) A list of major construction equipment used on the work during the reporting period and any construction equipment idle during the reporting period. (Monthly Updates.)
   e) A total number of men by craft actually engaged on the work during the reporting period, with such total Stated separately as to office, supervisory, and direct labor. (Monthly Updates.)
   f) A list of Design-Build Entity-supplied permanent materials, long lead items and equipment indicating current availability and anticipated job site delivery date. (Initial Submittal and When Revised.)
   g) A list and explanation of proposed modifications, additions, deletions, and changes in logic to the approved construction schedule. If modifications are

proposed a when Revised schedule demonstrating the effects of such modifications is to be submitted. (Monthly Updates.)

PART 5 FLOAT

5.1 FLOAT TIME

A. Float is not for the exclusive use or benefit of either the Design-Build Entity or the Owner. Float time will be apportioned according to the needs of the TRJHPU as approved by the Owner.

B. Pursuant to the float sharing requirements as set forth in paragraph 5.1 A., use of float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations, or constrained dates may be cause for rejection of the Construction Schedule and any revisions or updates.

PART 6 SCHEDULE MEETINGS

6.1 PRE-CONSTRUCTION CONFERENCE:

A. The Design-Build Entity will schedule and conduct a schedule preconstruction conference. Design-Build Entity must be prepared to review and discuss the schedule and sequence of operations plus cost and manpower loading methodology. The conference will be attended by:
   1. Design-Build Entity's Project Manager, Superintendent, and Scheduler.
   2. Any other Design-Build Entity's key personnel (including without limitation all Key Personnel referenced in paragraph 2.3. C.3. above), Subcontractor's representatives, and major supplier's representatives that the Design-Build Entity deems advisable to attend.
   3. Representatives from the Owner and other agencies will also be invited to attend.

B. Procedures will be reviewed for the following:
   1. Development of the Detailed Design/Construction Schedule by the Design-Build Entity.
   2. Periodic updating of schedule activities and method of determining schedule percent complete.
   3. Organizational / WBS / Account Code Structures required for the TRJHPU.
   4. Cost-loading of activities.
   5. Manpower loading of activities.
   6. Procedures for making modifications to the schedule.
   7. Procedures for assessing schedule impacts, schedule delays, and time extensions.
   8. Development of recovery schedules.
   9. Data exchange and communications.

6.2 WEEKLY SCHEDULE MEETINGS:

A. Once each week, on a day mutually agreed to by the Owner and the Design-Build Entity, a meeting will be held to assess the progress achieved by the Design-Build Entity during previous work week. The Design-Build Entity must submit a progress schedule listing the activities completed and in progress for the previous week and the activities scheduled for the succeeding 3 weeks. A bar chart directly derived from the Detailed Design/Construction Schedule will be used to generate the three week window. All activities shown in this short interval schedule will be identified by the same activity numbers and descriptions as shown in the Construction Schedule. The Design-Build Entity may add further details to monitor this Short Interval Schedule.

PART 7 SCHEDULE UPDATING AND PROGRESS PAYMENTS

7.1 SCHEDULE UPDATING

A. A meeting will be held on approximately the 25th of each month to review the Schedule update submittal and progress payment application. This updating process will be performed by the Owner and Design-Build Entity making an assessment of schedule activity progress during a joint job-site walk through. Use of a Schedule Update Report to

log this activity progress is recommended. Information to be recorded consists of activity actual start and finish dates, activity percent complete, and (if applicable) dollar amounts earned for each activity.

B. Once this information has been recorded, this data will be processed by computer by the Design-Build Entity, and will be used as the basis for the Design-Build Entity's monthly Application for Payment. Allowable billing amounts for each activity will be the activity's budgeted cost amount times the updated percent complete.

C. Upon finalization of the computerized schedule update, the Design-Build Entity must submit the required schedule reports, as detailed in the "Required Reports" section, to the Owner for the processing of the Design-Build Entity's payment application.

D. In addition to these monthly updates, interim updates may be performed on the Design/Construction Schedule at the discretion of the Owner. While these interim updates will not be for Payment Application purposes, Design-Build Entity will be expected to contribute update data to the Owner as required to complete these updates.

E. Monthly update/status of electronic database must include recording of all Actual Start Dates and Actual Finish Dates and status of activities in progress.

F. Review of "Planned" versus "Actual" work force allocations and progress for the preceding month.

G. Review of revisions, added or deleted work and how those activities are being integrated into the Design-Build Entity's work plan.

H. Review of Design-Build Entity's interface and coordination with other work on the TRJHPU site.

I. Review of all impacts to the work during the preceding month and to date, Design-Build Entity evaluation of those impacts and any recovery plans or remedial actions required to comply with the Contract schedule.

7.2 PROGRESS PAYMENTS

A. The submission and acceptance of progress updates and the cost reports calculating the value of work done for any given pay period for each activity, based on the percentage complete for that activity, will be the basis for monthly progress payments. The Design-Build Entity will be entitled to progress payments only as determined from the current updated and approved Schedule Cost Report generated as a result of the monthly progress update.

B. The monthly updating of the Design/Construction Schedule must be an integral part and basic element of the estimate upon which progress payments will be made. If, in the judgment of the Owner, the Design-Build Entity fails or refuses to provide information required to accomplish a complete Design/Construction Schedule Update or revision as specified hereinafter, the Design-Build Entity will be deemed to have not provided the required estimate upon which progress payments may be made, and will not be entitled to progress payments until it has furnished the information necessary for a complete Schedule Update to the satisfaction of the Owner.

PART 8 SCHEDULE MODIFICATIONS

8.1 REVISIONS TO THE DESIGN/CONSTRUCTION SCHEDULE

A. If, as a result of the monthly Schedule Update, it appears the Design/Construction Schedule no longer represents the actual prosecution and progress of the work, the Owner may require the Design-Build Entity to submit a revision to the Design/Construction Schedule. Such revisions to the Schedule must not alter any of the Contract milestone constraints.

B. The Design-Build Entity may also request revisions to the Construction Schedule in the event the Design-Build Entity's planning for the work is revised. If revisions to the Construction Schedule are contemplated, the Design-Build Entity must notify the Owner in writing at least fourteen (14) calendar days prior to the next Schedule Update meeting. The Design-Build Entity must submit fragnets of the proposed changes along with a written narrative of the proposed changes. Such revisions to the Schedule must not alter any of

the TRJHPU Milestone dates. If accepted by the Owner, these fragnets will be incorporated into the Construction Schedule.

C. Updating the Design/Construction Schedule to reflect actual progress will not be considered a revision to the Design/Construction Schedule.

D. Schedule revision must be submitted utilizing a copy of the updated construction schedule as modified with proposed changes; a narrative explanation of the change(s); and a copy of a detailed comparison with the current updated schedule detailing all changes.

E. Upon acceptance of a revision, the revised current Design/Construction Schedule must be the basis for evaluating future status, impacts, and/or changes.

PART 9 PROGRESS

9.1 SCHEDULE IMPACTS, SCHEDULE DELAYS, TIME EXTENSIONS

A. During the course of the TRJHPU Project, it may be appropriate to revise the Schedule to incorporate impacts or delay issues into the TRJHPU Schedule. If the Design-Build Entity feels it has encountered schedule impacts that it feels may warrant a time extension, it will present an Impacted Schedule to the Owner supporting his claim.

B. The procedure for incorporating impacts into the schedule is as follows:

1. Create a schedule activity (or activities) that represent the scope of the change or delay.
2. Assign durations and cost/manpower resources to these new activities.
3. Determine appropriate logic ties for these new activities. Assign predecessors and successors so that these activities can tie into the existing schedule activities. Every effort to mitigate the potential delay by either isolating the impact of the delay or planning “work-around” approaches to the work will be considered and incorporated where deemed effective.
4. These impact activities should be loaded into a copy of the updated schedule that immediately preceded the impact issue’s time frame. For instance, if an impact issue occurs during mid-April, the new activities should be input into the March 31 (status date) update.
5. After the Schedule is recalculated with these impact activities in place, the affect they have on the TRJHPU Milestones will determine if any time extension is merited.

C. The Impacted Schedule, along with the Time Impact Evaluation (“TIE”) and other backup data describing the new schedule activities and logic ties which comprise the impact/delay issues, must be submitted to the Owner for review and approval. If approved, these impact/delay issues will become a permanent part of the TRJHPU Schedule. The Design-Build Entity will not unilaterally make changes to the TRJHPU Schedule to justify schedule impacts without the approval of the Owner.

D. Activity delays will not automatically mean that an extension of the Contract Time is warranted or due the Design-Build Entity. It is possible that an impact or delay will not affect existing critical activities or cause non-critical activities to become critical. An impact or delay may result in only absorbing a part of the available total float that may exist within an activity chain of the Network, thereby not causing any effect on the Contract Completion Date or other Contract Milestone dates.

E. Float is not for the exclusive use or benefit of either the Owner or the Design-Build Entity. Contract time extensions will be granted only to the extent that equitable time adjustments to the activity or activities affected by the impact or delay exceeds the total float along the critical path of activities at the time of the delay.

F. The Owner will not have any obligation to consider any time extension request unless the requirements of Document 007253 Article 15 and of this specification section are complied with. The Owner will not be responsible or liable to Design-Build Entity for any design or constructive acceleration due to failure of the Owner to grant time extensions under the Contract Documents should Design-Build Entity fail to comply with the submission requirements and the justification requirements of this Contract for time extension requests.

G. Design-Build Entity is responsible for all costs associated with the preparation of TIE's, and the process of incorporating TIE's into the current schedule update.
H. In the event the Design-Build Entity fails to submit a TIE prior to the completion of impacted work, the impact of delays will be limited to that portion of actual delay attributable to those legitimate impacts enumerated herein.

9.2 RECOVERY SCHEDULE

A. The Design-Build Entity must furnish such manpower, materials, facilities and equipment and will work such hours, including shift work and overtime, as may be necessary to insure the progress and completion of the work in accordance with the approved and currently updated Construction Schedule. If work falls behind schedule due to Design-Build Entity actions to the extent that any of the Milestone dates or completion dates will not be met, the Design-Build Entity agrees that he will, as necessary, and within 48 hours of written notice, take some or all of the following actions at no additional cost to the Owner, as required to substantially eliminate, in the judgment of the Owner, the backlog of work:
   1. Increase manpower in quantities and crafts necessary;
   2. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of equipment, or any combination of the foregoing, and/or
   3. Reschedule activities to achieve maximum practical concurrency of accomplishment.
B. The Design-Build Entity must also submit to the Owner a supplementary recovery schedule in the form of a fragnet which displays how the Design-Build Entity intends to reschedule activities to regain compliance with the construction schedule's milestone dates.
C. The obligations of this paragraph 9.2 supplement, and do not replace, Owner's rights and Design-Build Entity's obligations under Document 007253 paragraph 11.2.
D. Failure of the Design-Build Entity to substantially comply with these requirements may be considered grounds for a determination by the Owner that the Design-Build Entity is failing to prosecute the work with sufficient diligence to ensure its completion within the Contract time. Upon making this determination, the Owner may pursue any of the remedies described in Document 005200 (Agreement) and Document 007253 (General Conditions).

END OF SECTION

SECTION 013232

PHOTOGRAPHIC DOCUMENTATION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes description of requirements and procedures for documenting progress of Construction of the Todd Road Jail Health and Programming Unit (TRJHPU) project.

1.2 SUBMITTALS

A. Key Plan:
   1. With each set of photographs, submit a key plan of the TRJHPU site and building(s) with vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same label information as corresponding set of photographs.

B. Construction Photographs for Monthly TRJHPU Progress Report:
   1. See also Section 011102 “Summary of Work – Design-Build Contractor Services”.
   2. Submit one print each of a minimum of six (6) photographic views in each copy of the Monthly TRJHPU Report.
   3. Format: 8-by-10-inch smooth-surface matte prints on single-weight commercial-grade photographic paper, enclosed back to back in clear plastic sleeves that are punched for standard 3-ring binder.
   4. Identification: On back of each print, provide an applied label or rubber-stamped impression with the following information:
      a) Name of TRJHPU.
      b) Name of Design-Build Entity.
      c) Date photograph was taken if not date stamped by camera. Ventura County Todd Road Jail Health and Programming Unit, Santa Paula, California and Ventura County Contract Number.
      d) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
      e) Unique sequential identifier.

C. Digital Photographic Images:
   1. Submit a complete set of digital image hard copy as a TRJHPU Record Document. 8-by-10-inch smooth-surface matte prints on single-weight commercial-grade photographic paper, enclosed back to back in clear plastic sleeves that are punched for standard 3-ring binder. Identify as per Monthly Report identification requirements.
   2. Submit a complete set of digital image electronic files as a TRJHPU Record Document on CD-ROM. Identify electronic media with date photographs were taken. Provide index information necessary to link key plan as described in paragraph 1.2. A.1. Submit images that have same aspect ratio as the sensor, uncropped.

D. Digital Video Record:
   1. Prior to start of construction, in the presence of the Agency’s Representative, Design-Build Entity must video survey (digitally record) buildings and grounds affected by this TRJHPU Project and submit itemized list of defects, e.g. broken glass, window screens, salvage items, paving, walks, etc. Design-Build Entity must make a copy of the Digital Video Disc (DVD) record for Design-Build Entity’s use and deliver the original to the Agency for use at TRJHPU closeout. At completion of TRJHPU, defects not noted on that list or not verifiable on the original DVD must be corrected or replaced by Design-Build Entity at no cost to the Agency.
   2. Submit two copies of each DVD with protective case within seven days of recording. Prevent accidental re-recording (“locked format”).
   3. On each copy, provide an applied label with the following information:
      a) Name of TRJHPU.
      b) Name of Design-Build Entity.
      c) Date digital recording was made.

d) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
e) Weather conditions at time of recording.

4. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as corresponding video. Include name of TRJHPU and date of video on each page.

E. Periodic Construction Digital Images
1. See paragraph 1.2. C.2. for similar format and identification requirement. Photos must be distributed to Agency via shared web-based TRJHPU management system or CD/DVD.

1.3 COORDINATION

A. If a professional photographer is utilized, cooperate with photographer, including access to TRJHPU site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs without obscuring shadows.

1.4 USAGE RIGHTS

A. General:
1. Obtain and transfer copyright usage rights from photographer to the Agency for unlimited reproduction of photographic documentation.

PART 2 PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images:
1. Provide images in uncompressed .TIFF format, produced by a digital camera with minimum sensor size of 4.0 megapixels, and at an image resolution of not less than 1600 by 1200 pixels.

B. Digital Video Format:
1. Provide high-quality color recording in DVD format.
2. Quality must be adequate to create photographic prints to be made from individual frames.

PART 3 EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. General:
1. Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
2. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Digital Images:
1. Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
2. Date and Time: Include date and time in filename for each image.
3. Field Office Images: Maintain one set of images on CD-ROM or DVD in the field office at TRJHPU site, available at all times for reference. Identify images same as for those submitted to Construction Manager.

C. Periodic Construction Photographs: Take a minimum of 25 digital photographs weekly, with timing each month adjusted to coincide with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

D. Agency-Directed Construction Photographs: From time to time, the Agency will instruct photographer about number and frequency of digital photographs and general directions of vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.

E. Aerial Photographs: Design-Build Entity will provide a minimum of three (3) aerial photographs upon final completion of the construction process. Aerial photographs must include the entire Site of the Work.
F. Emergency Situation/Accident Photographs: Accidents and/or emergency situations must be documented and shared with the Agency and investigative agencies.
G. Completion Construction Photographs: Take twenty-four (24) color photographs after date of Completion for submission as TRJHPU Record Documents. Consult the Agency regarding desired vantage points.

3.2 DIGITAL TRAINING VIDEOS

A. Refer Section 017900 Demonstration and Training.

END OF SECTION

SECTION 013236

VIDEAO MONITORING AND DOCUMENTATION

PART 1 GENERAL

1.1 SUMMARY

A. The Contractor shall provide a Robotic High Definition Megapixel Webcam for users to remotely view the project on a secure connection via a network connection. The camera will provide a full view of the work area on the construction site of the Todd Road Jail Health and Programming Unit (TRJHPU) project.

1.2 CONTRACTOR REQUIREMENTS

A. Jobsite Requirements:
   1. The Contractor shall secure a nearby structure for camera mounting or provide a fixed pole (40 foot / 12 meters height recommended) and 3 inch / 8 centimeters minimum diameter as per System Vendor's instruction. The Contractor shall supply all equipment required for safe and secure access to the camera location for technicians performing installation and maintenance services, including building access, bucket truck and/or lift. The System Vendor will consult on and provide recommendations for optimal camera placement and provide professional installation services as required.

B. Camera Maintenance:
   1. The Contractor shall provide all service and maintenance, including cleaning, of the camera system throughout the life of the project including making appropriate arrangements for camera to remain in operation up to and through finalization of all structural, landscaping and "completed state" condition necessary for beginning-to-end time-lapse record.

PART 2 PRODUCTS

2.1 CAMERA SYSTEM

A. Consist of a thermostatically controlled environmentally sealed enclosure and the following features:
   1. Precise, Pan/Tilt robotic base designed to provide consistent imaging in all environments
   2. Capable of maintaining multiple preset compositions
   3. Live video stream in H.264 format
   4. 1080p broadcast quality video clip capability
   5. H.264, MPEG-4 Part 10/AVC, Motion JPEG video compression
   6. 50/60fps in all resolutions
   7. 2.1 Megapixel images (1920 x 1080 pixels)
   8. Up to 150 Megapixels auto-generated 360° panoramas
   9. Lens: 3.8 – 38mm, f/1.8 – 3.4, 10X Optical, 12X Digital, HD image sensor
   10. Auto Features: Focus and Day/Night
   11. Communications: RJ-45 10BASE-T/100BASE-TX PoE
   12. 4G cellular modem
   13. 16GB On-Board Data Back-Up to provide a minimum of thirty days of on-board image retention
   14. 120VAC, 220-230VAC or 12VDC power:

PART 3 EXECUTION

3.1 INTERNET BASED ONLINE INTERFACE

A. The camera will be accessible via an internet based Software as a Service (SaaS) solution. This online interface will be managed and supported by the System Vendor. The service will be available for the term of the project and allow the viewing of live video and

High Definition digital still images captured and stored of the project on both mobile and desktop platforms.

The Internet Based Online Interface shall include the following features:

1. Responsive HTML5 design for cross-platform access on desktop and mobile devices
2. Display project name and logo
3. Project Dashboard for viewing and accessing multiple cameras
4. Real-time live video viewing
5. User-controllable Robotic Pan, Tilt and Zoom
6. User-controllable settings for creating and editing multiple preset compositions
7. Automatically generated daily panoramas
8. Monthly and on demand ultra HD panoramas
9. Onscreen control button for wiper control to allow for remote cleaning of the viewing window
10. Picture in picture capability for viewing live video and High Definition Megapixel images simultaneously
11. Digital Pan, Tilt and Zoom capability within a High Definition image
12. Instant live snapshot capability in addition to preset scheduled archives
13. Timeline navigation system for selecting specific images and times
14. Multifunction Image Browsing
15. Time-lapse feature with optional time date overlay for instant time-lapse viewing, downloading and embedding
16. Full Screen Mode for displaying video and complete image without any graphical frame
17. Photo Filters and Graphical Markup Tools for detailing and creating notes with graphical overlays on images, including project title, logo and time date stamp
18. Image Comparison Tool for comparing two images taken at different times, overlayed on top of each other
19. Share Image Tool for saving, printing, emailing and posting to Hall of Fame
20. Marketing Section for posting and sharing camera images with notes
21. Social Media Integration Tools for sharing project images and notes on Facebook and Twitter
22. Automatically generated daily/weekly project progress update email with camera image and weather
23. Graphical Weather applet displaying local weather data with satellite and updating radar imaging
24. Integration of maps, aerial and satellite imagery
25. Graphical Data Management Tools showing archived and current system status of solar amperage, battery power remaining, wireless radio connectivity, and device location.

3.2 SECURITY AND MANAGEMENT

A. Access to account protected by Account Security feature which includes four levels of password protection, IP address block/permission and SSL protection of user login password.

B. The system shall capture and upload images every 5 minutes, 24 hours per day.

C. The system shall have M2M – Machine to Machine 24/7 Support with active self-healing technology and automatic software upgrades to maintain the quality, consistency and reliability of all images.

D. Images will be maintained on the System Vendor’s servers for reference available at all times during the life of the project and for no less than 60 days after completion. All images will be protected on servers owned and operated by the System Vendor and located in a secure area at the System Vendor’s location.

3.3 PUBLIC WEBSITE

A. The System Vendor shall provide custom public website development. Website shall be separate from the Online Interface, match the look and colors of the project's website, and be delivered as embed code or standalone web page. Additional features include Facebook and Twitter integration, full screen mode, image comparison, weather, multiple logos, and graphical background image and project description.

3.4 END OF PROJECT TIME-LAPSE MOVIE

A. The System Vendor shall provide time-lapse movie(s) at the end of the project. Time-lapses shall be professionally edited by a video editor using image stabilization software. The movie will start with a graphic, incorporating project title, date and logo. Periods of bad weather or inactivity shall be removed to produce a compelling and consistent movie. A machine edited movie will not be acceptable.

END OF SECTION

SECTION 013250

WEB BASED CONSTRUCTION MANAGEMENT SOFTWARE

PART 1 GENERAL

1.1 SUMMARY

A. The Agency and Design Builder shall utilize Procore, a Web-based building project management system, for electronic submittal of all data and documents (unless specified otherwise by the Agency) throughout the duration of the Contract.

B. Procore will be made available to the key Design Builder's personnel, and Quality Control Specialist personnel working for subcontractors and the Design Professional of Record. The joint use of this system is to facilitate; electronic exchange of information, key processes, and overall management of the contract. Procore shall be the primary means of project information submission and management. When required by the Agency's Representative, paper documents will also be provided (e.g., the signature of Contract Modifications and submission of Contract Claims). In the event of discrepancy between the electronic version and paper documents, the paper documents will govern.

C. Procore provides a central online location for up-to-date project information that is accessible anytime to any team member who needs it. By allowing clients and contractors to share information online, Procore speeds the exchange of documents, reduces revision cycles, and simplifies asset tracking and approvals. Procore helps track all the key issues to identify and mitigate risk. Procore includes forms, logs, and reports that enable greater visibility and project control.

D. Procore is registered trademarks of Procore. Microsoft, Internet Explorer, Outlook, Word, and Excel are registered trademarks of Microsoft Corporation in the U.S.A. Adobe and Acrobat are registered trademarks of Adobe Systems Incorporated.

1.2 USER ACCESS LIMITATIONS

A. The Agency will control the Design Builder's access to Procore by allowing access and assigning user profiles only to accepted personnel. User profiles will define levels of access into the system; determine assigned function-based authorizations (determines what can be seen) and user privileges (determines what they can do).

B. Subcontractors will be allowed direct access to Procore, upon request from Design-Build Entity. Entry of information exchanged and transferred between the Design Builder and its Design Professional of Record, subcontractors and suppliers on Procore shall be the responsibility of the Design Builder.

C. Joint Ownership of Data

1. Data entered in a collaborative mode (entered with the intent to share as determined by permissions and workflows within the Procore system) by the Agency and the Design Builder will be jointly owned.

1.3 AUTOMATED SYSTEM NOTIFICATION AND AUDIT LOG TRACKING

A. Review comments made (or lack thereof) by the Agency on Design Builder submitted documentation shall not relieve the Design Builder from compliance with requirements of the Contract Documents. The Design Builder is responsible for managing, tracking, and documenting the Work to comply with the requirements of the Contract Documents. Agency acceptance via automated system notifications or audit logs extends only to the face value of the submitted documentation and does not constitute validation of the Design Builder's submitted information.

1.4 COMPUTER REQUIREMENTS

A. The Design Builder shall use computer hardware and software that meets the requirements of the Procore system as recommended by Procore. As recommendations are modified by Procore, the Design Builder will upgrade their system(s) to meet the recommendations or better. Upgrading of the Design Builder's computer systems will not be justification for a cost or time modification to the Contract.

B. System Requirements: use of Procore can be easily achieved with a computer and internet connection. Performance is typically driven from the speed of the internet connection as Procore is a web-based product. Design-Build Entity is responsible for ensuring equipment used meets the recommendations of Procore.

1.5 DESIGN BUILDER RESPONSIBILITY

A. The Design Builder shall be responsible for the validity of the information it places in Procore and for the abilities of their personnel. Accepted users shall be knowledgeable in the use of computers, including Internet Explorer, e-mail programs such as Outlook, word processing programs such as Word, spreadsheet programs such as Excel, and Adobe Portable Document Format (PDF) document distribution program.

B. The Design Builder shall utilize the existing forms in Procore to the maximum extent possible. If a form does not exist in Procore and the Design Builder must include as an attachment or by uploading the data file, PDF documents will be created through electronic conversion rather than optically scanned.

C. The Design Builder is responsible for the training of their personnel in the use of Procore and the other programs indicated above as needed. All costs associated with the use of this system, except for initial training, will be evenly distributed in the project overheads and spread across the duration of the contract; a separate cost line item will not be allowed.

1. User Access Administration
    a) Provide a list of Design Builder's key Procore personnel for the Agency Representative's acceptance. Notify the Agency’s Representative immediately of any users that are to have access removed. Resubmit the personnel list whenever modified. User changes will take effect within one working day of accepting the requested change. The Agency’s Representative reserves the right to perform a security check on all potential users.

1.6 CONNECTIVITY PROBLEMS

A. Procore is a web-based environment and therefore subject to the inherent speed and connectivity problems of the Internet. The Design Builder is responsible for its own connectivity to the Internet. Procore response time is dependent on the Design Builder's equipment, including processor speed, modem speed, Internet access speed, etc. and current traffic on the Internet. The Agency will not be liable for any delays associated with the use of Procore including, but not limited to: slow response time, down time periods, connectivity problems, or loss of information. Under no circumstances shall the use of the Procore be grounds for a time extension or cost adjustment to the contract.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.1 PROCORE UTILIZATION

A. Procore shall be utilized in connection with construction management activities required as indicated in the Division 01 General Requirements. The following list is in addition to those requirments:

1. Design Document Submittals
   a) Provide all design drawings and specifications in file formats specified in other sections of the contract documents.

2. Shop Drawings
   a) Shop drawing and design data documents shall be submitted as PDF attachments to the Procore submittal workflow process and form. All PDF shop drawing submittal documents shall have the Design Builder's review and submittal stamp (including signatures) as specified in Section 0101330 Submittals the same as if submitted as hard copy. Examples of shop drawings include, but are not limited to:
      i) Standard manufacturer installation drawings.
      ii) Drawings prepared to illustrate portions of the work designed or developed by the Design Builder.
      iii) Coordination and Clash Detection Drawings
      iv) Steel fabrication, piece, and erection drawings.

3. Product Data
   a) Product catalog data and manufacturers instructions shall be submitted as PDF attachments to the submittal workflow process and form, except that color charts and similar color oriented pages shall be submitted as hard copy separate from and in addition to the PDF copy. Submittal forms shall indicate when hard copy color documents are submitted. All PDF product data submittal documents shall have the Design Builder's review and submittal stamp (including signatures) as specified in Section 0101330 Submittals the same as if submitted as hard copy. Examples of product data include, but are not limited to:
      i) Manufacturer's printed literature.
      ii) Preprinted product specification data and installation instructions.

4. Samples
   a) Sample submittals shall be physically submitted as specified in Section 0101330 Submittals. Design Builder shall enter submittal data information into Procore with a copy of the transmittal form(s) attached to the submittal. Examples of samples include, but are not limited to:
      i) Product finishes and color selection samples.
      ii) Product finishes and color verification samples.
      iii) Finish/color boards.
      iv) Physical samples of materials.

5. Administrative Submittals
   a) All correspondence and Preconstruction submittals shall be submitted on Procore. Examples of administrative submittals include, but are not limited to:
      i) Digging permits and notices for excavation.
      ii) List of Design Builder personnel accessing Procore.
      iii) List of contact personnel.
      iv) Notices for roadway interruption, work outside regular hours, and utility cutovers.
      v) Requests for Information (RFI).
      vi) Construction Schedules and associated reports and updates.
      vii) Each schedule submittal specified in Specification Section 013200 Progress Schedule and Reports shall be submitted as a native backed-up file (.PRX or .STX) of the scheduling program being used. The schedule will also be posted as a PDF file. Due to data transfer rates, do not display relationship lines in the graphical depiction of the schedule.
      viii) Submittal Register: Design Builder shall submit a submittal register with input data for dates for submission and upon acceptance of the register,

load the register up to Procore and update as required by the Contract documents.

ix) Plans for safety, demolition, environmental protection, and similar activities.

x) Quality Control Plan(s), Testing Plan and Log, Quality Control Reports, Production Reports, Quality Control Specialist Reports, Preparatory Phase Checklist, Initial Phase Checklist, Field Test reports, Summary reports, Rework Items List, etc.

xi) Meeting minutes for Post Award Kick-off Meeting, design review meetings, quality control meetings, progress meetings, pre-installation meetings, etc.

xii) Any general correspondence submitted.

6. Compliance Submittals
   a) Test report, certificate, and manufacture field report submittals shall be submitted on Procore as PDF attachments. Examples of compliance submittals include, but are not limited to:
      i) Field test reports.
      ii) Quality Control certifications.
      iii) Manufacturer's documentation and certifications for quality of products and materials provided.

7. Record and Closeout Submittals
   a) Operation and maintenance data and closeout submittals shall be submitted on Procore as PDF documents during the approval and review stage as specified, with actual set of documents submitted for final. Examples of record submittals include, but are not limited to:
      i) Operation and Maintenance Manuals: Final documents shall be submitted as specified.
      ii) As-built Drawings: Final documents shall be submitted as specified.
      iii) Extra Materials, Spare Stock, etc.: Submittal forms shall indicate when actual materials are submitted.

8. Exceptions
   a) Documents with legal consequences, contract modifications, contract claims, security implications, and those required by other agencies may require an additional submittal as original hard copy with original signatures and seals. Hard copies of these documents shall be submitted as specified or as directed by the Agency's Representative.

END OF SECTION

SECTION 013300

SUBMITTALS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Administrative and procedural requirements for submitting required submittals.
   2. Procedures for substitutions.

1.2 DEFINITIONS

A. Action Submittals:
   1. Written and graphic information that requires Owner responsive action.
      a) Action Submittals require Owner approval.
   2. Within twenty (20) days after Notice to Proceed (NTP), Design-Build Entity shall provide Owner a comprehensive list of all Action Submittals for review for compliance with the Bridging Documents.
      a) Items indicated to be for approval by Owner.

B. Informational Submittals:
   1. Written information that does not require Owner's responsive action. Submittals may be rejected for not complying with requirements.
   2. Within twenty 20 days after NTP, Design-Build Entity shall provide Owner a comprehensive list of all Informational Submittals for review for compliance with the Bridging Documents.

1.3 SUBMITTAL PROCEDURES

A. General:
   1. Submittals may be forwarded entirely via electronic means. Owner has established the use of Procore for the purposes of electronic communication. The Design-Build Entity must become well versed in the use of Procore for purposes of communicating information via a web based system. Design-Build Entity will be responsible for uploading data into the Procore system for all Design-Build Entity initiated communications, including, but not limited to drawings, submittals, RFIs, change requests, reports, certifications, guarantees, warranties, O&M manuals and commissioning documents.
   2. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review.
   3. Submittals not required by the Contract Documents may not be reviewed and may be discarded.
   4. The specific content and format requirements for the standard submittals are detailed herein and in the individual Specifications. The submittals will be submitted in no less than both hard copy and electronic form. The electronic form will be compiled in the most current form of Adobe Acrobat Pro, Release 10.0 or better. The electronic file will be bookmarked according to its Table of Contents, but will contain no less than the book marking identification in descending order of section, system, subsystem, equipment, component, etc., where applicable. The goal is to make the submittals both manageable and user friendly for Owner’s use.
   5. Drawing submittals must be in Computer Aided Design (CAD) format.
   6. Prior to the implementation of the design work and prior to the formal submittal process, provide a list and cut sheets of all major mechanical and electrical equipment (to Owner for review and approval) along with the preliminary system calculations that together will drive the mechanical and electrical design and layout.

B. Coordination:
   1. Coordinate preparation and processing of submittals with performance of design and construction activities.

2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
3. Coordinate multidiscipline design phase submittals and construction documents prepared by Design-Build Entity's design professionals of record.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    a) Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Submittals Schedule:
1. Comply with requirements in Section 013200 Progress Schedules and Reports for submittal schedule requirements for scheduled performance of related construction activities.
2. Submit all Basis of Design submittals together for all disciplines and prior to the start of any demolition and/or construction activity. Subsequent Construction Document submittals can be submitted in phases prior to construction activity related to that phase.

D. Processing Time:
1. Allow enough time for submittal review, including time for resubmittals, as follows. Time for review will commence on receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
2. Initial Review: Allow at least twenty-one (21) days for initial review of each submittal. Allow an additional ten (10) days of time if coordination with subsequent submittals is required from the receipt of the subsequent submittal. Construction Manager will advise Design-Build Entity when a submittal being processed must be delayed for coordination.
3. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
4. Resubmittal Review: Allow ten (10) working days for review of each resubmittal.

E. Identification:
1. Place a permanent label or title block on each submittal for identification.
2. Indicate name of firm or entity that prepared each submittal on label or title block.
3. Provide a space approximately 6 by 8 inches on label or beside title block to record Design-Build Entity's review and approval markings and action taken by Owner.
4. Include the following information on label for processing and recording action taken:
    a) Ventura County Todd Road Jail Health and Programming Unit name.
    b) Date.
    c) Name and address of Owner.
    d) Name and address of Design-Build Entity.
    e) Name and address of subcontractor, including design professionals for design phase submittals.
    f) Name and address of supplier.
    g) Name of manufacturer.
    h) Submittal number or other unique identifier, including revision identifier.
        i) Submittal number must use Performance Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals must include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
    i) Number and title of appropriate Performance Specification Section.
    j) Drawing number and detail references, as appropriate.
    k) Location(s) where product is to be installed, as appropriate.
    l) Other necessary identification.

F. Deviations:
1. Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents and/or Bridging Documents (as applicable) on submittals. See also

Section 011101 Summary of Work – Design-Build Design Services for specific design submittal requirements involving variances from Bridging Documents or previously approved design documents

G. Copies
   1. Action Submittals:
      a) General: Submit 6 Copies to Owner. Owner will return 2 Copies
      b) Samples: Submit 3 full sets. Owner will return 2 sets.
      c) Operation and Maintenance Manuals: See Section 017823
      d) Project Record Documents: See Section 017839
      e) Demonstration and Training: See Section 017900
   2. Information Submittals:
      a) General: Submit 3 Copies to Owner. Owner may return one (1) copy.

H. Additional Copies:
   1. Unless additional copies are required for final submittal, or unless Owner observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
   2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

I. Transmittal:
   1. Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Owner will return submittals, without review, received from sources other than Design-Build Entity.
   2. Transmittal Form: Owner-approved form indicating the following information:
      a) Name.
      b) Date.
      c) Destination (To :).
      d) Source (From :).
      e) Names of subcontractor, manufacturer, and supplier.
      f) Category and type of submittal.
      g) Submittal purpose and description.
      h) Performance Specification Section number and title.
      i) Drawing number and detail references, as appropriate.
      j) Transmittal number, numbered consecutively.
      k) Submittal and transmittal distribution record.
      l) Remarks.
      m) Signature of transmitter.
   3. On an attached separate sheet, prepared on Design-Build Entity's letterhead, record relevant information, requests for data, revisions other than those requested by Owner on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
   4. For design-phase submittals, item 2.a is names of applicable Designers and item 2.h is Performance Specifications (Bridging Documents) number and title.

J. Resubmittals:
   1. Make resubmittals in same form and number of copies as initial submittal.
   2. Note date and content of previous submittal.
   3. Note date and content of revision in label or title block and clearly indicate extent of revision.
   4. Resubmit submittals until they are marked with Owner's approval notation.

K. Distribution:
   1. Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers and authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

L. Use for Construction:
   1. Use only final submittals with mark indicating approval by Owner.

M. Record Documents: Retain a final copy of all submittals as a Todd Road Jail Health and Programming Unit (TRJHPU) Record Document

1.4 SUBMITTAL CLASSIFICATIONS

A. General:
   1. Submittals for the TRJHPU are classified as follows:
      a) TRJHPU Proposal submittals. For requirements for these submittals, refer to Document 001119 Request for Proposals, and other Proposal Requirements.
      b) Schematic Design and Design Development (Preliminary Design Phases).
      c) Construction Documents –Design Phase Submittals.
      d) Construction Submittals.
      e) TRJHPU Closeout Submittals.
      f) Commissioning Submittals.

1.5 PRELIMINARY DESIGN PHASE SUBMITTALS

A. General:
   1. Submit these items during the Preliminary Design Phase.
   2. For the requirements for these Submittals, refer to the Bridging Documents/Performance Criteria, and Section 011101 Summary of Work – Design-Build Design Services

1.6 CONSTRUCTION DOCUMENT PHASE SUBMITTAL

A. General:
   1. Submit these items during the period of preparation of the Construction Documents.
   2. For the general requirements for these Submittals, refer to the Bridging Documents/Performance Criteria, and Section 011101 Summary of Work – Design-Build Design Services.
   3. Organize these submittals in accordance with the Bridging Documents/Performance Specification, using the same title numbers and titles.
   4. Submit electronic files of submittals directly to extranet specifically established for TRJHPU and hard copies of submittals to Owner.
   5. Submittals in this Phase are as follows:
      a) Action Submittals:
         i) See Section 011101
         ii) 65% Construction Documents.
         iii) 100% Construction Documents.
      b) Information Submittals: Manufacturer's Certificates, Product Certifications.

1.7 CONSTRUCTION PHASE SUBMITTALS

A. General:
   1. Prepare and submit Submittals required for the TRJHPU conditions and Design by individual Performance Specification Sections.
   2. For the general requirements for these Submittals, refer to the Performance Criteria.
   3. Submit submittals prior to fabrication, purchasing and installation.
   4. Submit electronic submittals directly to extranet specifically established for TRJHPU.

B. Action Submittals:
   1. Action Submittals include Samples, Schedules, and Applications for Payment, Subcontracts List, and others as applicable to the TRJHPU.
   2. Mechanical/Electrical equipment and systems submittals for those systems to be commissioned for review by Commissioning Authority.
   3. Items submitted as substitutions or as "equal" to listed manufacturer(s).

C. Informational Submittals:
   1. Prepare and submit Informational Submittals required by Performance Specification Sections.
   2. Informational Submittals Include Quality Assurance Submittals, Schedules, Applications for Payment, Insurance Certificates and Bonds, Construction Photographs and Videotapes, and others as applicable to the TRJHPU.

3. Design-Build Entity's subcontractor Design professionals of Record will review and stamp all construction submittals for conformance with the construction documents prepared and signed by the California Registered Design Professionals.
4. Shop drawings and equipment submittals not directly related to commissioning or required for review by commissioning authority.
5. Retain copies of all submittals at job site trailer.
6. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications must be signed by an officer or other individual authorized to sign documents on behalf of that entity.
7. Test and Inspection Reports: Comply with requirements specified in Division 01 Section 014000 "Quality Requirements."
    a) Informational Submittals: Coordination Drawings, Qualification Data, Quality Assurance Certifications, Field Testing Reports, Compatibility Reports, and others as applicable to the TRJHPU.

1.8 PROJECT CLOSEOUT SUBMITTALS

A. General:
1. Comply with requirements specified in Sections 017700 "Closeout Procedures", 017823 "Operations and Maintenance Data", 017839 "Project Record Documents", and 019100 "General Commissioning Requirements".

1.9 NOT USED

1.10 COMMISSIONING SUBMITTALS

A. General
1. Comply with all commissioning requirements.

1.11 REQUIREMENTS FOR EACH SUBMITTAL CATEGORY

A. Product Schedule or List:
1. As required in individual Performance Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
    a) Type of product. Include unique identifier for each product.
    b) Number and name of room or space.
    c) Location within room or space.

B. Product Data:
1. Collect information into a single submittal for each element of construction and type of product or equipment.
2. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
3. Mark each copy of each submittal to show which products and options are applicable.
4. Include the following information, as applicable:
    a) Manufacturer's written recommendations.
    b) Manufacturer's product specifications.
    c) Manufacturer's installation instructions.
    d) Standard color charts.
    e) Manufacturer's catalog cuts.
    f) Wiring diagrams showing factory-installed wiring.
    g) Printed performance curves.
    h) Operational range diagrams.
    i) Mill reports.
    j) Standard product operation and maintenance manuals.
    k) Compliance with specified referenced standards.
    l) Testing by recognized testing agency.
    m) Application of testing agency labels and seals.
    n) Notation of coordination requirements.
5. Submit Product Data before or concurrent with Samples for Initial Selection.

C. Samples for Initial Selection:
   1. Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   2. Number of Samples: Submit three full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner will return two submittals with options selected.

D. Manufacturer Certificates:
   1. Prepare written statements on manufacturer’s letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

E. Shop Drawings:
   1. Prepare TRJHPU-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
   2. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
      a) Dimensions.
      b) Identification of products.
      c) Fabrication and installation drawings.
      d) Roughing-in and setting diagrams.
      e) Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
      f) Shop work manufacturing instructions.
      g) Templates and patterns.
      h) Schedules.
      i) Design calculations.
      j) Compliance with specified standards.
      k) Notation of coordination requirements.
      l) Notation of dimensions established by field measurement.
      m) Relationship to adjoining construction clearly required.
      n) Seal and signature of professional engineer if specified.
      o) Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
   3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at minimum 8-1/2 by 11 inches but no larger than 30 by 40 inches.

F. Samples:
   1. Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
   2. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
   3. Identification: Attach label on unexposed side of Samples that includes the following:
      a) Generic description of Sample.
      b) Product name and name of manufacturer.
      c) Sample source.
      d) Number and title of appropriate Performance Specification Section.
   4. Disposal: Maintain sets of approved Samples at Project Site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
      a) If approved by Owner, certain Samples may be incorporated into the Work. Such Samples must be in an undamaged condition at time of use.
      b) Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Design-Build Entity.
   5. Samples for Verification:
      a) Submit full-size units or Samples of size required, prepared from same material to be used for the Work, cured and finished in manner specified, and physically

identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

b) Number of Samples: Submit three sets of Samples. Owner will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a TRJHPU Record Sample.
   i) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
   ii) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

G. Design-Build Entity's Design and Construction Schedule:
   1. Comply with Section 013200 Progress Schedules and Reports.

H. Submittals Schedule:
   1. Comply with Section 013200 Progress Schedules and Reports.

I. Application for Payment:
   1. Comply with Section 012000 Measurement and Payment.

J. Schedule of Values:
   1. Comply with Section 012000 Measurement and Payment.

K. Subcontract List:
   1. Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
   2. Name, address, and telephone number of entity performing subcontract or supplying products.
   3. Number and title of related Specification Section(s) covered by subcontract.
   4. Drawing number and detail references, as appropriate, covered by subcontract.
   5. See also Task #8 under Section 011102 Summary of Work Design-Build Contractor Services.

L. Coordination Drawings:
   1. Comply with [TBD].

M. Qualification Data:
   1. Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of project architects and owners, and other information specified.

N. Welding Certificates:
   1. Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

O. Installer Certificates:
   1. Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific TRJHPU Project.

P. Product Certificates:
   1. Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

Q. Material Certificates:
   1. Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

R. Material Test Reports:

1. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

S. Product Test Reports:
   1. Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

T. Research/Evaluation Reports:
   1. Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for TRJHPU. Include the following information:
      a) Name of evaluation organization.
      b) Date of evaluation.
      c) Time period when report is in effect.
      d) Product and manufacturers' names.
      e) Description of product.
      f) Test procedures and results.
      g) Limitations of use.

U. Schedule of Tests and Inspections:
   1. Comply with Section 014523 Quality Requirements.

V. Preconstruction Test Reports:
   1. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with Performance Specifications in the Contract Documents.

W. Compatibility Test Reports:
   1. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

X. Field Test Reports:
   1. Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

Y. Maintenance Data:
   1. Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Section 017823 Operations and Maintenance Data."

Z. Design Data:
   1. Prepare written and graphic information, including, but not limited to, performance and Design Requirements, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and Design Requirements and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

AA. Manufacturer's Instructions:
   1. Prepare written or published information that documents manufacturer’s recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
      a) Preparation of substrates.
      b) Required substrate tolerances.
      c) Sequence of installation or erection.
      d) Required installation tolerances.
      e) Required adjustments.
      f) Recommendations for cleaning and protection.

BB. Manufacturer's Field Reports:
    1. Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
        a) Name, address, and telephone number of factory-authorized service representative making report.
        b) Statement on condition of substrates and their acceptability for installation of product.
        c) Statement that products at TRJHPU site comply with requirements.
        d) Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
        e) Results of operational and other tests and a statement of whether observed performance complies with requirements.
        f) Statement whether conditions, products, and installation will affect warranty.
        g) Other required items required in individual Performance Specification Sections.

CC. Insurance Certificates and Bonds:
    1. Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

DD. Construction Photographs and Digital Recordings (DVDs):
    1. Comply with requirements specified in Section 013232 Photographic Documentation.

EE. Regulatory Agency:
    1. Submit licenses, permits, certifications, and proof of fee payments for all regulatory agencies.

1.12 DESIGN-BUILD ENTITY REVIEW

A. General:
    1. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents (including where applicable Bridging Documents). Note corrections and field dimensions. Mark with approval stamp before submitting to Owner.

B. Approval Stamp:
    1. Stamp each submittal with a uniform, approval stamp. Include TRJHPU name and location, submittal number, Specification Section title and number, name of reviewer, date of Design-Build Entity's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
    2. The Design-Build Entity's licensed design professional Designers must review and stamp all Construction submittals. Designers must review Construction submittals for conformance to final Construction Documents prepared by the registered design professionals of record for the TRJHPU.

C. Design Phase Submittals
    1. Review each submittal and check for coordination with other submittals of the same design phase and for conformance with approved design-submittals from prior phases. Note all deviations as required in paragraph 1.3. F. above.

1.13 OWNER'S ACTION

A. General:
    1. Where action is required by Owner, Owner will not review submittals that do not bear Design-Build Entity's approval stamp and will return them without action.

B. Action Submittals:
    1. Owner will review each submittal, make marks to indicate corrections or modifications required, and return it to the Design-Build Entity.

C. Informational Submittals:
    1. Owner will review each submittal and may return it to the Design-Build Entity stamped appropriately with comments.

PART 2 PRODUCTS

2.1 PROGRESS SCHEDULE

A. Prepare and submit Progress Schedule of operations as required by Section 011102 Summary of Work Design-Build Contractor Services and Section 013200 Progress Schedules and Reports.

B. Relate Progress Schedule to entire TRJHPU. Indicate dates for submission of required submittals.

C. Submit Schedule of Values with Progress Schedule. Refer to Section 0 2000 Measurement and Payment and Section 013200 Progress Schedules and Reports for additional cost breakdown requirements.

2.2 PRODUCT CERTIFICATIONS

A. Where specifically indicated by pertinent Specification Sections, submit proper certification by recognized producer or association. Certifications must attest to product's compliance with requirements of Contract Documents.

2.3 SHOP DRAWINGS

A. Submittals must be made in electronic and hard copy form (see also Part 1.3 herein) and include one reproducible transparency of each original and 6 prints of each transparency, name and location of TRJHPU, name of Design-Build Entity, work order and Contract numbers and cross references to Contract documents. Number shop drawings consecutively. Make drawings legible and complete in every respect. Electronic drawing submittals must be in consistent AutoCAD format.

B. If Shop Drawings show variations from Contract requirements because of standard shop practice or other reason, make specific mention of such variations in letter of transmittal, as well as on drawings, in order that (if acceptable) suitable action may be taken for proper adjustment of Contract. Unless specific changes have been noted and accepted, no deviations from Contract Documents will be permitted.

C. Transparencies will be returned to Design-Build Entity for Design-Build Entity’s reproduction and use. Owner will make prints for its own use.

2.4 PRODUCT DATA/MATERIAL LIST

A. Manufacturer's Standard Schematic Drawings:
   1. Modify drawings to delete information which is not applicable to TRJHPU.
   2. Supplement standard information to provide additional information applicable to TRJHPU.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data:
   1. Clearly mark each copy to identify pertinent materials, products or models.
   2. Show dimensions and clearances required.
   3. Show performance characteristics and capacities.
   4. Show wiring diagrams and controls.
   5. Include calculations when applicable.

C. Material Safety Data Sheets (MSDS): Include for materials which require manufacturer’s warnings and application instructions listed on MSDS provided by the product manufacturer.

2.5 SAMPLES

A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.

B. Where size of samples is not specified, office samples should be of sufficient size and quantity to clearly illustrate:
   1. Functional characteristics of product or material, with integrally related parts and attachment devices.
   2. After review, samples may be used in construction of TRJHPU.

C. Field Samples and Mockups:
   1. Erect at TRJHPU site at location acceptable to Owner, unless otherwise approved.

2. Construct each sample or mockup complete, including work of all trades required in finished work.
3. Within twenty (20) days after NTP, Design-Build Entity shall provide Owner a comprehensive list of all Mockups to be completed at the TRJHPU. Owner will review and approve this list.

2.6 SUBSTITUTIONS

A. Owner's written acceptance is required for implementation or utilization of any substitution.
   1. Contract is based on materials, equipment and methods described in Bridging Documents and approved Construction Documents.
   2. Do not use alternative materials, equipment or methods unless such substitution has been specifically accepted for this work by Owner.
   3. Refer to Section 016000, Product Requirements for requirements and additional related information.

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 013554

BUILDING INFORMATION MODELING (BIM) REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. The Building Information Modeling (BIM) guidelines outline Agency's expectations for the Design-Build Entity's utilization of BIM in executing the Todd Road Jail Health and Programming Unit (TRJHPU) Project and with collaborating and coordinating with Agency's TRJHPU Project delivery team and stakeholders.

B. BIM EXECUTION PLAN (BEP) - Within 20 days of Notice to Proceed With Design (NTP) the Design-Build Entity must present its BEP demonstrating how it will meet the Contract requirements. The BEP must include, at a minimum, the following information:
   1. Proposed BIM staff with resumes and references, for DBE's designer's and designated subcontractors
   2. Software selections
   3. Schedule of BIM activities
   4. Schedule of BIM submittal milestones during design and construction
   5. All submittals generated by BIM, organized by Work Packages.
   6. Process proposed to utilize 3-D visualization 'walk-thru' video in presentations to the TRJHPU stakeholders (both local and remote) File folder structure
   7. File Naming Conventions (Nomenclature)
   8. Hardware and Software for BIM Share Site
   9. BIM Data Security Protocol and Narrative
   10. Responsibilities of DBE's BIM Staff to perform all required BIM functions
   11. Methodology for ensuring the validation of in-field installation compared to coordinated BIM
   12. Methodology for validating in-progress and the final As-Built Models

C. The Bridging Architect will provide a base AutoCad file.

D. The Design-Build Entity (DBE) must develop and submit for approval an LOD 300/400 Federated Model (Federated Model) utilizing Building Information Modeling (BIM) as defined by this Section. In implementing the BIM requirements the DBE must:
   1. Work with Agency's representative and the DBE's Subcontractors to develop the Federated Model throughout the Work of the TRJHPU.
   2. Submit a Level of Detail (LOD) 300/400 Federated Model to Agency's representative for review and approval as part of the DBE's submittals prior to start of construction.
      a) Shop Drawings:
      b) Approved Change Orders
      c) Fabrication, assembly and detailing
      d) Field Modifications
      e) Submit the Design Model and Federated Model to Agency's Representative for review and approval
      f) The Design Model and Federated Model will be located on a designated File Sharing System as defined by the DBE. Agency's representative will review and approve the Models at significant TRJHPU milestones and defined upload schedules.

E. As-Built Model:
   1. Provide a final "as-built" LOD 400/500 Federated Model to Agency's Project Manager as of the TRJHPU Close-Out phase ("As-Built Model"). Model deliverables must include final, last revision, Design Models (native files) for reference. The Federated As-Built model must contain active links to all the appropriate Models that make up the Federated model. The folders and Native Files must be organized and the active links maintained for future modification.
   2. Paragraph 2.7 below contains other As-Built Model requirements.

F. Geo-Reference Controls:

1. The Design Build Entity must establish geo-reference controls for all Models based on California County Plan, Zone 3, NAD83 (1983) feet coordinate systems and NAVD 88 vertical datum.

1.2 DEFINITIONS AND ACRONYMS

A. BIM: Building Information Modeling. The process of generating and managing building data (geometry, dimensions, nomenclature, element specifications, material, equipment type, etc.) during a defined life cycle.
B. Model: The 3D virtual representation of the TRJHPU Project and its Objects. The Model is generally an assemblage of several Models produced by various disciplines, each of which is comprised of numerous Objects.
C. Model Element: A portion of the BIM representing a component, system or assembly within a building or building site.
D. MEA: Model Element Author. The primary party who will develop the content of a specific Model Element to the LOD listed for a particular phase of the TRJHPU.
E. As-Built Model: A Federated Model incorporating all construction phase modifications to the Construction Model. See 1.1. E. above and 2.7 below.
F. BIM Manager: The individual responsible for managing the Design-Build Entity's (DBE) modeling and coordination process, including managing the Design-Build Entity's BIM staff and all other aspects of the DBE's BIM requirements.
G. BIMF: BIM Files.
H. Bid Model: The Federated Model established by Agency as part of the Criteria Documents.
I. Collaboration Model: The Federated Model used during the trade coordination phase. The model is comprised of design input from all major designers and integrated according to spatial relationships, design intent, and means and methods.
J. Facility Model: The 3D model that incorporates all major equipment and components that require service and maintenance.
K. Federated Model: The Federated Model combines different modeled elements or assemblies through the process of linking files from their native platforms, maintaining their native properties. It is a virtual representation of the entire TRJHPU developed to a specified LOD. The Federated Model must consist of the primary disciplines for construction, for example, Civil, Architectural, Structural, Mechanical, Electrical, Fire Protection, and Special Equipment.
L. Linking Files: A process to externally reference a native file into the Federated Model.
M. MEPF: Mechanical, Electrical, Plumbing, and Fire Protection systems.
N. Native Model: A Model created in a specific CAD platform, i.e., Revit.
O. Nomenclature: A system of principles, procedures and terms related to assignment of a location, object or property.
P. Agency Model: The final Federated model integrating the as-built model, collaboration model, and the facility model.
Q. Proposal Model: The Federated Model developed by Design-Build Entity as the basis of their proposal.
R. Transferred Model: The Native Model(s) and/or Federated Model provided to Agency for Agency's agreed utilization.
S. Object: The term used to describe the 3D virtual representation of separate sub-parts of a Model such as doors, walls, equipment etc.
T. Room: Any space within the enclosing walls of the building.
U. Level of Development (LOD): Term, based on the AIA Document E 202 – 2008, used to describe the fullness and definitiveness of the Model; each Model can have a varying LOD depending on the phase of the TRJHPU life-cycle, and agreed utilization of the Model.

1.3 FEDERATED MODEL

A. Intent: The Federated Model must be developed for design intent, engineering reference, trade coordination, spatial facilities placement, and for as-built reference and rectification. The Federated Model must be a reference source for communication and collaboration throughout each phase of the TRJHPU. At the completion of the Work, the Federated Model must be turned over to Agency. Agency will have exclusive rights to the model for

their use: 1) as a baseline model for future modifications to the facility, and 2) as a source of data in operating and maintaining the facility. Therefore, the model must be complete and contain all Linked files for future use.

B. Use: The Federated Model may vary in level of detail for individual elements, but at a minimum must include sufficient data to support use and analysis of:
   1. Functional and visual representation of spaces.
   2. Constructability review of DBE's documents.
   3. Clash detection and correction of all major systems.
   4. Construction scheduling.
   5. Energy and sustainability.
   6. Cost estimating.
   7. As-built documentation and modeling.
   8. Label and identify all major components and equipment.

C. Basis of Information for Modeling: The final Construction Documents (Drawings and Specifications) shall be derived using information from the Federated Model. If the Design Model or any or all of the Bridging Architect's models are available for use by the DBE in developing the Federated Model, such usage will be for reference only.

D. Changes to Federated Model: Any changes to the Federated Model, once Construction Documents have been approved, must be stored in Agency's defined File Storage System.

1.4 OMNICLASS CONSTRUCTION CLASSIFICATION

A. General: The OmniClass Construction Classification System (OCCS) is a classification system for the construction industry developed by the Construction Specification Institute (CSI). It builds upon MasterFormat for work results, UniFormat for elements and EPCI (Electronic product Information Cooperation) for structuring products. OmniClass is a reference library system that will serve as the foundation upon which information is transferred between the construction and operations phases.

B. OmniClass Assignment: The Design Build Entity, upon selection of OmniClass coding, must include, when appropriate, OmniClass classification in the list of property attributes that is assigned to the Objects.

1.5 LEVEL OF DEVELOPMENT (LOD)

A. General: Regardless of LOD, the model(s) must be capable of being presented in three dimensions, and will be an object-based parametric database system. Each enclosed space must be identified as a unique Room with associated parameters.

B. LOD 100: Programming level. Buildings and/or structures must be modeled as masses indicative of area, height, volume, spatial location, and orientation.

C. LOD 200: Planning level. Buildings and/or structures including major architectural, structural, mechanical, electrical, and plumbing objects must be modeled as generalized systems or assemblies with approximate quantities, approximate configuration, spatial location, and orientation.

D. LOD 300: Design level. Buildings and/or structures including all objects must be modeled as specific systems or assemblies with accurate quantities, recognizable configuration, spatial location, and orientation.

E. LOD 400: Construction level. Buildings and/or structures including all objects must be modeled as specific systems or assemblies with accurate quantities, recognizable configuration, spatial location, and orientation, with complete fabrication, assembly, and detailing information.

F. LOD 500: As-built level. Buildings and/or structures including all objects must be modeled as constructed systems or assemblies with accurate quantities, shape, spatial location, and orientation, with complete fabrication, assembly, and detailing information.

1.6 BIM STAFF

A. The DBE will provide qualified BIM staff to manage the BIM process and develop the required BIM Execution Plans (BEP). This staff will oversee development of all submittals generated from BIM data and manage the coordination process, including managing the

information of the BIM Staff and subcontractor's responsible for creating models, analyzing "clashes" and resolving coordination issues.

1.7 BIM WORK ROOM

A. In the contractors trailer a conference space for viewing BIM work shall be provided with the following;
B. Provide hardware to support BIM presentations and BIM Coordination work sessions.
C. Provide projectors and interactive viewing screens sufficient to support collaborative reviews of BIM models.
D. The DBE must provide web and voice conferencing capabilities on site for the duration of the TRJHPU Project with allowance for a minimum of 15 concurrent participants.

1.8 BIM SHARE SITE/FILE STORAGE SYSTEM

A. Agency, through its BIM Coordinator, will define a BIM Share Site (also known as the File Storage System) to host all BIM files. Models on this shared site must be fully accessible on line to all members of the TRJHPU Team. The DBE's BIM Manager will assign site users and passwords, must submit updates to the site on agreed schedules, must coordinate and approve the BIM information that is updated into the shared site, monitor usage and ensure capacity and function of this system. The site will contain revision control capabilities and the DBE's BIM Manager must administer read/write rights and hierarchy. The DBE's BIM Manager will comply with all requests from Agency's BIM Coordinator.

1.9 BIM DATA SECURITY

A. The DBE must establish a data security protocol to prevent any possible data corruption, virus "infections" and data misuse or deliberate damage by users of the BIM Share Site. The DBE must establish adequate user access rights to prevent data loss or damage.
B. Submit a narrative description of the data security protocol to Agency's BIM Coordinator for acceptance as part of the final draft of the BIM Execution Plan.

PART 2 PRODUCTS

2.1 SOFTWARE REQUIREMENTS

A. General: The Native Model(s) must be developed to include parametric components of major building and site elements as defined in this Section. All discipline Native Models must be linked to the Architectural Native Model.
B. Accuracy of the Models: The Federated Model and each of its Native Models must be developed to within a dimensional tolerance of a minimum of ¼" plus or minus.
    1. Imperial units. One (1) unit in the model equals 0'-1"; model granularity – models may vary in level of detail for individual elements within a model, but at a minimum, must include all features that would be included on a quarter inch (1/4" = 1'-0") scaled drawing. The 1/4" scale model requirement means that all of the following drawings are generated from content that is in the BIM.
    2. BIM application(s) and software(s) for the Federated Model must:
        a) Use the current version of Autodesk® Navisworks software.
        b) For any additional electronic model information that is not supported by the Revit or the primary software solution approved by Project Manager, and for constructing 4D models, the DBE must utilize Navisworks software (Manage, Review, Simulate and Freedom) to create and utilize files.
    3. The Native Model software must be as listed in the following matrix. The first software listed for each discipline is preferred. Where second or third software is listed, it is only acceptable if the discipline provides the Object Parametric Attributes as required by these specifications. The software must be fully object-based, parametric, database system, and must be the most current version available at the start of work on the TRJHPU Project.

Suggested Native Model Software Matrix

Discipline	Native Model Software	Comments
Architectural	Revit Architecture	
Fixtures, and Equipment	Revit Architecture	Applies to stationary items only
Structural	Revit Structure	
HVAC	Revit MEP AutoCAD MEP CAD-Duct	
Plumbing	Revit MEP AutoCAD MEP CAD-Pipe	
Fire Protection	AutoSPRINK v 7	
Electrical	Revit MEP AutoCAD MEP	
Security Electronics	Revit MEP AutoCAD MEP	
Civil	AutoCAD Civil 3D	
Landscape	Revit Architecture	

2.2 NOMENCLATURE

A. Object Identification: Every Object in the Model must have a Unique Identification (UID) parameter and a Common Name parameter attached to it in the Native Model.

B. Unique Identification: The UID must be readable by the user of the Native Model software without additional software applications. The UID may be in the form of alpha, numeric, or alpha-numeric.

C. If the UID form is alpha-numeric, it must be a consistent string format for all Objects, within its discipline, and must be readable by any commonly available database. The UID is an "Instance" parameter.

D. If the Native Model software is not a full object-based, parametric, database platform, such as some of the older 3D CAD programs, the UID must be attached to the Object manually, if necessary, so that it can be read by the user without additional software applications.

E. Common Name: In addition to the UID, each Object must have a Common Name parameter attached to it in the Native Model. The Common Name must be approved by Agency prior to modeling. Examples of a Common Name include such as: door, window, toilet, VAV Box, etc. Typically the Common Name will be generated automatically by the software, but if not, it will be input manually in the Native Model. The Common Name is an Object "Type" parameter.

F. Object Parametric Attributes - The following attributes must be attached to each Object. Note: If a required attribute is not automatically generated by Native Model software, it will be manually imputed in the Native Model, or provided in an Excel or Access document that includes the UID.
   1. Unique Identification.
   2. Common Name.
   3. Omni Code Classification.
   4. Native Model Assembly Code.
   5. Manufacturer (where applicable).
   6. Model Number (where applicable).

G. Room Association: Every Object in the Model must be associated with either a Room or a Floor and must have an association “Instance” parameter attached to it in the Native Model. Any Object that will be visible in a Room of the completed facility must be associated with that specific Room. This includes all Objects regardless of responsible discipline; examples include without limitation: electrical switches and outlets, electrical switch gear and panel boards, plumbing equipment and fixtures, access panels to concealed Objects, cabinets, doors and frames, wainscot, light fixtures, HVAC supply and return grilles, fire sprinkler heads and valves, etc.

H. Floor association: Any Object that will be concealed in a wall or interstitial space (but would be visible if the finish surface or item was non-existent) must be associated with the specific Floor level that it is within. This includes all Objects regardless of responsible discipline; examples include without limitation: electrical conduit, plumbing piping and valves, HVAC supply and return ducts, HVAC equipment, fire sprinkler lines and valves, etc.

I. Objects extending beyond Room boundaries: Floors, walls, and/or ceilings are sometimes modeled as objects that extend beyond individual Room boundaries. Where this occurs, the architectural discipline Native Model must be modeled as follows:
   1. Floors: Structural floor Objects may extend beyond Room boundaries, however, finish flooring such as carpet, resilient flooring, etc., must be modeled as Objects, with extents contained within the Room boundaries, and with appropriate Room association.
   2. Walls: Structural wall and non-structural partition Objects may extend beyond Room limits, however, the surface material such as gypsum wallboard, wall covering, etc., must be modeled as Objects, or scheduled in the Room Finish Schedule, with extents contained within the Room boundaries, and with appropriate Room association.
   3. Ceilings: Structural ceiling Objects may extend beyond Room limits, however, finish surface material such as gypsum wallboard, acoustical ceiling tiles, etc., must be modeled as Objects, with extents contained within the Room boundaries, and with appropriate Room association.

2.3 SYSTEM DISCIPLINE MODELS

A. Civil Systems: The Civil Systems Model must be a sub-system model linked to the Architectural System Model. The Civil Systems Model must serve as the basis for project shared coordinates through which the position of building elements on the site will be coordinated. Provide model Objects of:
   1. Topography: existing natural and/or graded contours, and new grades and finish contours.
   2. Planting: existing major landscaped areas, existing trees to remain, new landscaped areas, new trees, and Irrigation lines over 2” diameter.
   3. Surface Improvements: pavements, curbs and gutters, retaining walls, exterior non-building structures such as pools, shade structures, etc.
   4. Storm Water and Sanitary Sewers: existing lines (over 3” diameter), boxes and structures within TRJHPU area, all new lines, boxes and structures, and existing public lines, boxes and structures beyond the TRJHPU Project area but serving as points of connection for the Design-TRJHPU Project.
   5. Utilities: existing domestic and fire water main and branch lines (2” and larger diameter) within TRJHPU area, all new domestic and fire water lines, existing electrical overhead and underground lines within TRJHPU area, all new electrical lines outside buildings, existing telephone and data lines within TRJHPU area, all new telephone and data lines outside buildings, existing gas lines within TRJHPU area, all new gas lines outside buildings.
   6. Roads and Parking. All necessary roadways and parking lots or parking structures, including necessary intelligence to produce accurate plans, profiles and cross-sections

B. The Architectural Systems Model must be the primary model to which others are linked. Provide model Objects of:

1. Spaces: net square footage of all occupied spaces, gross constructed floor area, room names and numbers, and floor, base, wall, and ceiling finishes. NOTE: Model room names and numbers must match Agency's Architectural Program space names and numbers.
2. Exterior Walls and Curtain Walls: type and composition, height, length, and width, and thermal, acoustic, fire, and security ratings.
3. Partitions: type and composition, height, length, and width, and thermal, acoustic, fire, and security ratings.
4. Floors: type and material, thickness, and finishes with manufacturer's name and product numbers. Link floor structure to the Structural Systems Model.
5. Ceilings: type and composition, height, length, and width, and thermal, acoustic, fire, and security ratings.
6. Roof Coverings and Openings: configuration, drainage system, and penetrations for modeled building components.
7. Exterior Doors, Windows, and Louvers: and material, height, width, and thickness, thermal, acoustic, fire, and security rating, location, and hardware elements or group.
8. Interior Doors, Windows, and Louvers: type and material, height, width, and thickness, 3) thermal, acoustic, fire, and security rating, location, and hardware elements or group.
9. Stairs and Ramps: stairs and railings, ramps and railings, and handrails and guardrails.
10. Elevators and Escalators: elevator cabs and doors, elevator hoist-way doors and trim, elevator machinery and equipment, escalator belts and railings, and escalator machinery and equipment.
11. Casework and Counters: type and material, height, width, and depth, location, and hardware.
12. Plumbing Fixtures: type and material, location, trim, and finishes. Link fixtures and trim to the Mechanical Systems Model.
13. HVAC Grills and Registers: type and material, location, trim, and finishes. Link fixtures and trim to the Mechanical Systems Model.
14. Electrical Fixtures and Equipment: type and material, bulb type and wattage, location, trim, and finishes. Link fixtures and trim to the Electrical Systems Model.
15. Miscellaneous Fittings: toilet partitions, toilet room accessories, grab bars, personal storage lockers, display cases, and other surface applied quasi-permanent items such as mirrors etc.

C. Structural Systems: The Structural Systems Model must be a sub-system model. Provide model Objects of:
1. Foundations and footings: type and configuration, and depth, length, and width.
2. Slab(s) on-grade: type and configuration, under-slab base and waterproofing, recesses, curbs, pads, closure pours, and major penetrations.
3. Basement Walls: type and composition, height, length, and width, and thermal, acoustic, fire, and security ratings.
4. Elevated Floors: columns and beams, primary and secondary framing members, bracing, connections, and framed, composite, and/or slab decks.
5. Roofs: columns and beams, primary and secondary framing members, bracing, connections, and framed, composite, and/or slab decks.
6. Joints: expansion and/or contraction, and seismic.
7. Stairs and Ramps: openings and framing, and railing supports.
8. Shafts and Pits: openings and framing, and railing supports.
9. Fireproofing: Fireproofing is not to be included in the BIM but clash detection studies must include definition of tolerances for conflict detection.
10. Color Code: color code structural steel from other elements.

D. Mechanical: The Mechanical Systems Model must be a sub-system model. Provide model Objects of:
1. Heating, Ventilating, and Air Conditioning: all heating, ventilating, air-conditioning, exhaust fans, and specialty equipment, air supply, return, ventilation and exhaust

ducts, including space-consuming elbows and transitions, fire dampers with ratings, mechanical piping, and registers, diffusers, grills and hydronic baseboards. Coordinate and link fixtures and trim to the Architectural Systems Model.
2. Plumbing: all domestic plumbing piping and fixtures, floor and area drains, valves (regardless of pipe size) and related equipment.
3. Piping larger than 1 .5" diameter must be modeled.
4. Roof Drainage: all piping and fixtures, and related equipment.
5. Piping larger than 1 .5" diameter must be modeled.
6. Equipment Clearances: Clearances for major equipment and all M/E/P Equipment and Architecturally Significant Specialty Equipment, as model objects for conflict detection and maintenance access requirements.
7. Color Code: separate color code for each type element.

E. Electrical: The Electrical Systems Model must be a sub-system model. Provide model Objects of:
1. Interior Electrical Power and Lighting: all interior electrical components, lighting, receptacles, special and general purpose power receptacles, lighting fixtures, panel-boards and control systems, and conduit and cable trays.
2. Individual conduit larger than 1 .5" diameter must be modeled.
3. Groups or clusters runs, and cable trays of conduit of all sizes must be modeled.
4. Exterior Building Lighting: all exterior electrical components, lighting, receptacles, special and general purpose power receptacles, lighting fixtures, panel-boards and control systems, and transformers, and utility connection and equipment.
5. Telephone, Data, Television, and Other Low Voltage: all interior low voltage components, outlets, receptacles, special and controls, fixtures, panel-boards, equipment racks, and control systems, and conduit and cable trays.
6. Equipment Clearances: Clearances for major as model objects for conflict detection and maintenance access requirements.
7. Color Code: separate color code for each type element.

F. Fire Suppression: The Fire Suppression Systems Model must be a sub-system model. Provide model Objects of:
1. Fire Suppression System:
   a) Valves and risers.
   b) All main, branch, and drains lines.
   c) Sprinkler heads, and fittings.
   d) Pumps.
2. Fire Alarms:
   a) Alarm and notification devices.
   b) Detection systems.
3. Equipment Clearances: Clearances for major equipment as model objects for conflict detection and maintenance access requirements.
4. Color Code: separate color code for each type element.

G. Specialty Equipment: The Specialty Equipment Model must be a sub-system model. Specialty Equipment includes without limitation such specialties as: medical equipment and systems, security equipment and systems, conveyance equipment and systems, manufacturing equipment and systems, etc.

2.4 DEVELOPMENT AND SUBMITTAL OF BIM MODELS

A. The DBE must develop the Federated Model and its discipline systems Native Models in compliance with the Contract Documents and the following:
1. 100% of Design Development Drawings (DD).
2. 100% Construction Documentation including approved Fire Marshal Backcheck;
3. Develop and submit all discipline systems Native Models concurrently. Qualified deferred approvals may be submitted separately.
4. Submit updated discipline systems Native Models complying with final shop drawing submittals.

2.5 COORDINATION WITH OTHER CONTRACTORS

A. DBE is responsible to coordinate its respective work with other contractor teams assigned to the TRJHPU.

2.6 UPDATING THE MODELS DURING CONSTRUCTION

A. The Federated Model must be routinely updated/revised to keep it current with construction activity. This must occur at a minimum on a monthly basis and uploaded to the File Storage System.

B. After commencement of construction, the DBE must:
   1. Utilize coordinated Native Models for manufacturing and prefabrication.
   2. Meet at TRJHPU site with installer and representatives of manufacturers and fabricators who are involved in or affected by such Work prior to installation of any Work which requires coordination and interfacing with other Work, and review fully coordinated BIM, progress of other Work and preparations for particular Work under consideration.
   3. Submit the As Built BIM revisions by posting them on a Share Site within 24 hours of each update or revision.

2.7 SUBMITTAL OF FINAL AS-BUILT MODELS

A. The final, approved updated and revised LOD 400/500 Federated Model and all its discipline systems Native Models ("As-Built Model") must be submitted to Agency as part of the close-out submittals.

B. The As-Built Federated Model and all its discipline systems Native Models must be:
   1. Editable for future expansion or remodel projects.
   2. Functional for use with 3-D Facilities Operations & Maintenance
   3. Organized and properly filed in an equivalent Document Control System for archival and reference.

2.8 SUBMITTAL OF OPERATIONS AND MAINTENANCE (O&M) DOCUMENTS

A. General: Section 017823 (Operations and Maintenance Data) also governs the work of this paragraph, with additional requirements contained herein.

B. Electronic O&M Documents: In addition to the submission of hard copy (paper) documents required by Section 013300, the DBE must provide all required O&M documents in individual Portable Document Format (PDF) files. The O&M documents must include at a minimum:
   1. Object Identification: Unique ID number, and Common Name.
   2. Manual: Product data, installation, maintenance, and operating instructions.
   3. Shop Drawings: Item data, installation, and maintenance instructions.
   4. Warranty: Manufacturer's warranty, Subcontractor's warranty.
   5. Training: special instructions for maintenance work.

C. Organization of O&M Documents:
   1. Common Name: Each O&M document must be assigned a PDF file name that corresponds to the Object's Common Name.
   2. Individual Documents: O&M documents must be organized and submitted as individual documents, not as parts of a larger group document. For example: each Object with a "type" parameter Common Name of "Toilet" must be submitted as an individual document, not grouped with other plumbing fixtures.
   3. Quality PDFs: All PDF documents must be high quality, clean, straight, high contrast documents. Documents must be created directly from the origin software or document. Copies of copies are not acceptable. Scanned documents are not acceptable unless directly created documents are not available. If scanning is required the resultant PDF quality must meet the quality criteria described herein.

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 014100

REGULATORY REQUIREMENTS
(SB 863)

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:
   1. Regulatory requirements applicable to Contract Documents.
   2. Required provisions under Local Agency Disputes Act.
   3. Required references under federal law.

1.2 GENERAL

A. Compliance with Laws**:**
   1. Conform to all applicable codes, laws, ordinances, rules and regulations, which shall have full force and effect as though printed in full in these Specifications. Codes, laws, ordinances, rules, regulations and ordinances ("Regulatory Requirements") are not furnished to Design-Build Entity, because Design-Build Entity is assumed to be familiar with these requirements.
   2. Any listing of Regulatory Requirements for hazardous waste abatement Work in the Contract Documents is supplied to Design-Build Entity as a courtesy and shall not limit Design-Build Entity's responsibility for complying with all applicable Regulatory Requirements having application to the Work. Where conflict among the Regulatory Requirements or with these Specifications occurs, the most stringent requirements shall be used.
   3. Specific reference in the Specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency in effect at the time Design-Build Entity executes Document 005200 (Agreement), except as may be otherwise specifically stated in the Contract Documents.

B. Precedence:
   1. Where specified requirements differ from Regulatory Requirements, the more stringent requirements shall take precedence. Where Drawings or Specifications require or describe products or execution of better quality, higher standard or greater size than required by Regulatory Requirements, then Drawings and Specifications shall take precedence so long as such increase is legal. Where no requirements are identified on Drawings or in Specifications, comply with all Regulatory Requirements of governing authorities having jurisdiction.
   2. Should any conditions develop not covered by the Contract Documents wherein the finished Work will not comply with current codes, a Change Order detailing and specifying the required Work shall be submitted to and approved by Owner before proceeding with the Work.

1.3 REGULATORY REQUIREMENTS

A. Applicable Codes:
   1. Codes that apply to Contract Documents include all Codes applicable to construction are identified in the Bridging Documents.

B. Applicable Laws, Statutes, Ordinances, Rules, and Regulations:
   1. During prosecution of Work to be done under Contract Documents, Design-Build Entity shall comply with applicable laws, ordinances, rules and regulations, including, but not limited to, the following:
      a) Federal:
         i) Americans With Disabilities Act of 1990.
         ii) 29 CFR, Section 1910.1001, Asbestos.
         iii) 40 CFR, Subpart M, National Emission Standards for Asbestos.
         iv) Executive Order 11246.

v) Prison Rape Elimination Act and implementing regulations (e.g. 28 CFR 115.18(a) and (b)), to the extent applicable to designing or acquiring new facilities, and installing or updating a video monitoring system, electronic surveillance system, or other monitoring technology).
vi) Federal Endangered Species Act.
vii) Clean Water Act.

b) State of California:
i) California Code of Regulations, Titles 5, 8, 15, 17, 19, 21, 22, 24 and 25.
(a) Title 24 Part 11 (CALGreen) Tier 2.
ii) California Public Contract Code.
iii) California Health and Safety Code.
iv) California Government Code.
v) California Labor Code.
vi) California Civil Code.
vii) California Code of Civil Procedure.
viii) CPUC General Order 95, Rules for Overhead Electric Line Construction.
ix) CPUC General Order 128, Rules for Construction of Underground Electric Supply and Communications Systems.
x) Cal/OSHA.
xi) OSHA: Hazard Communications Standards.
xii) California Endangered Species Act.
xiii) Water Code.
xiv) Fish and Game Codes.
xv) State Administrative Manual.

c) State of California Agencies:
i) State and Consumer Services Agency.
ii) California Board of State and Community Corrections.
iii) Office of the State Fire Marshal.
iv) Department of Fish and Game.
v) All Air Quality Management Districts with jurisdiction.
vi) All Regional Water Quality Control Boards with jurisdiction.
vii) State Water Resources Control Board.

d) All Local Agencies with jurisdiction (cities, counties, fire departments).

C. Change Orders and Claims:
1. The California Public Contract Code, including but not limited to Section 7105(d)(2), and the California Government Code Section 930.2 et seq., apply to all contract procedures for changes, time extensions, change orders (time or compensation) and claims. Federal law (*U.S. v. Holpuch* 326 U.S. 234) shall supplement California law on the enforceability of these requirements.
2. Any change, waiver, or omission to implement contract change order and claim procedures shall have no legal effect unless expressly permitted in a fully executed change order approved by Design-Build Entity and Owner and approved as to form by their respective legal counsel.

D. Required Provisions on Contract Claim Resolution:
1. The California Public Contract Code specifies required provisions on resolving contract claims less than $375,000, which are set forth below, and constitute a part of this Contract.
2. For the purposes of this section, “Claim” means a separate demand by Design-Build Entity of $375,000 or less for (1) a time extension, (2) payment or money or damages arising from Work done by or on behalf of Design-Build Entity arising under the Contract Documents and payment of which is not otherwise expressly provided for or the Claimant is not otherwise entitled to, or (3) an amount the payment of which is disputed by Owner. In order to qualify as a Claim, the written demand must state that it is a Claim submitted under paragraph 12 of Document 007253 (General Conditions) and be submitted in compliance with all requirements of Document 007253 (General Conditions), Article 12. Separate Claims which total more than $375,000 do not

qualify as a “separate demand of $375,000 or less,” as referenced above, and are not subject to this section.

3. A voucher, invoice, payment application, or other routine or authorized form of request for payment is not a Claim for purposes of this section. If such request is disputed as to liability or amount, then the disputed portion of the submission may be converted to a Claim under this section by submitting a separate claim in compliance with Contract Documents claim submission requirements.
4. Caution: This section does not apply to tort claims and nothing in this section is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 and Chapter 2 of Part 3 of Division 3.6 of Title 1 of the California Government Code.
5. Procedure:
    a) The Claim must be in writing, submitted in compliance with all requirements of Document 007253 (General Conditions), Article 12, including, but not limited to, the time prescribed by and including the documents necessary to substantiate the Claim, pursuant to Document 007253 (General Conditions), Article 12. Claims must be filed on or before the day of final payment. Nothing in this section is intended to extend the time limit or supersede notice requirements for the filing of claims as set forth in Document 007253 (General Conditions), Article 12 or elsewhere in the Contract Documents.
    b) For Claims of fifty thousand dollars ($50,000) or less, Owner shall respond in writing within forty-five (45) days of receipt of the Claim, or Owner may request in writing within thirty (30) days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims Owner may have against Claimant. If additional information is thereafter required, it shall be requested and provided in accordance with this section upon mutual agreement of Owner and Claimant. Owner’s written response to the Claim, as further documented, shall be submitted to Claimant within fifteen (15) days after receipt of further documentation or within a period of time no greater than taken by Claimant in producing the additional information, whichever is greater.
    c) For Claims over Fifty Thousand Dollars ($50,000) and less than or equal to $375,000: Owner shall respond in writing within sixty (60) days of receipt of the Claim, or Owner may request in writing within thirty (30) days of receipt of the Claim, any additional documentation supporting the Claim or relating to any defenses or claims Owner may have against Claimant. If additional information is thereafter required, it shall be requested and provided in accordance with this section, upon mutual agreement of Owner and Claimant; Owner’s written response to the Claim, as further documented, shall be submitted to Claimant within thirty (30) days after receipt of further documentation or within a period of time no greater than taken by Claimant in producing the additional information, whichever is greater.
    d) Meet and Confer: If Claimant disputes Owner’s written response, or Owner fails to respond within the time prescribed above, Claimant shall notify Owner, in writing, either within fifteen (15) days of receipt of Owner’s response or within fifteen (15) days of Owner’s failure to timely respond, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon demand Owner will schedule a meet and confer conference within thirty (30) days for settlement of the dispute.
    e) Following the meet and confer conference, if the Claim or any portion remains in dispute, Claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the California Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time Claimant submits its written claim as set forth herein, until the time that Claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

E. Compliance with Americans with Disabilities Act:
   1. Design-Build Entity acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a Design-Build Entity, must be accessible to the disabled public. Design-Build Entity shall provide the services specified in the Contract Documents in a manner that complies with the ADA and any and all other applicable federal, state and local disability rights legislation. Design-Build Entity agrees not to discriminate against disabled persons in the provision of services, benefits or activities provided under the Contract Documents and further agrees that any violation of this prohibition on the part of Design-Build Entity, its employees, agents or assigns shall constitute a material breach of the Contract Documents.

F. Compliance with IRCA:
   1. Design-Build Entity acknowledges that Design-Build Entity, and all subcontractors hired by Design-Build Entity to perform services under this Agreement, are aware of and understand the immigration Reform and Control Act ("IRCA"). Design-Build Entity is and shall remain in compliance with the IRCA and shall ensure that any subcontractors hired by Design-Build Entity to perform services under this Agreement are in compliance with the IRCA. In addition, Design-Build Entity agrees to indemnify, defend and hold harmless Owner, its agents, officers and employees, from any liability, damages or causes of action arising out of or relating to any claims that Design-Build Entity's employees, or employees of any subcontractor hired by Design-Build Entity, are not authorized to work in the United States for Design-Build Entity or its subcontractor and/or any other claims based upon alleged IRCA violations committed by Design-Build Entity or Design-Build Entity's subcontractors.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 014200

REFERENCES AND DEFINITIONS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Reference standards, abbreviations, symbols, and definitions used in Contract Documents.
   2. Full titles are given in this Section for standards cited in other Sections of Specifications.

1.2 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES; REPORTING AND RESOLVING DISCREPANCIES

A. References:
   1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code, or laws or regulations in effect at the time Design-Build Entity executes Document 005200 (Agreement), except as may be otherwise specifically stated in the Contract Documents.
   2. If during the performance of the Work, Design-Build Entity discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such law or regulation applicable to the performance of the Work or of any such standard, specification, manual, or code or of any instruction of any supplier, Design-Build Entity shall report it in writing at once to Owner's Representative and Bridging Architect, and Design-Build Entity shall not proceed with the Work affected thereby until consent to do so is given by Owner.

B. Precedence:
   1. Except as otherwise specifically stated in the Contract Documents or as may be provided by Change Order, Change Directive, or Supplemental Instruction, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
      a) The provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
      b) The provisions of any such laws or regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such law or regulation).
   2. No provision of any such standard, specification, manual, code, or instruction shall be effective to change the duties and responsibilities of Owner, Owner's Representative, Bridging Architect or Design-Build Entity, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents, nor shall it be effective to assign to Owner, Bridging Architect, or any of their consultants, agents, representatives or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

C. Referenced Grades, Classes, and Types:
   1. Where an alternative or optional grade, class, or type of product or execution is included in a reference but is not identified in Drawings or in Specifications, provide the highest, best, and greatest of the alternatives or options for the intended use and prevailing conditions.

D. Edition Date of References:

1. When an edition or effective date of a reference is not given, it shall be understood to be the current edition or latest revision published as of the date Design-Build Entity executes Document 005200 (Agreement).
2. All amendments, changes, errata and supplements as of the effective date shall be included.

E. ASTM and ANSI References. Specifications and Standards of the American Society for Testing and Materials (ASTM) and the American National Standards Institute (ANSI) are identified in the Drawings and Specifications by abbreviation and number only and may not be further identified by title, date, revision, or amendment. It is presumed that Design-Build Entity is familiar with and has access to these nationally- and industry-recognized specifications and standards.

1.3 DEFINITIONS

A. Basic definitions. The following definitions apply to the Contract Documents.

1. The term “TRJHPU” means the Todd Road Jail Health and Programming Unit. See Document 000111 (Project Summary); see also Project.
2. The term “Acceptance” means the formal written acceptance by the Agency of the Work which has been completed in all respects in accordance with the Contract Documents
3. The term “Addenda’ means written or graphic instruments issued prior to Design-Build Entity’s execution of Document 005200 (Agreement), which clarify, correct, or change the Request for Proposal requirements or the Contract Documents. Addenda shall not include the minutes of any Pre-Proposal Conference and/or Site Visit unless otherwise expressly indicated.
4. The term “Agency” means Owner of the Project and the legal entity for which the Work is being performed.
5. The term “Agency Representative” means the Agency Responsible Administrator identified in the Agreement and his or her designee as authorized to administer the Contract for Agency,
6. The term “Agreement” means Document 005200 (Agreement).
7. The term “AHJ” means authority having jurisdiction.
8. The term “Alternate” means a Work element identified as such in Proposal which, shall be added to or deducted from Work, if accepted by Owner following Contract award as provided in Contract Documents.
9. The term “Application for Payment” means a written application for monthly or periodic progress or final payment made by Design-Build Entity in compliance with the Contract Documents.
10. The term “Approved Equal” means approved in writing by Owner as being of equivalent quality, utility and appearance.
11. The term “Architect/Engineer” means Bridging Architect.
12. The term ”asbestos” includes any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by OSHA or Cal/OSHA.
13. The term “Bid” means Proposal.
14. The term “Bidder” Proposer.
15. The term “Board” means the officer or body constituting the awarding authority of the Agency.
16. The term “Bridging Architect” means a person (or that person’s firm) holding a valid California State Architect’s or Engineer’s license that prepared some or all of the Bridging Documents, and represents the Owner in the administration of certain aspects of Contract Documents. Bridging Architect may be an employee of or an independent consultant to Owner. When Bridging Architect is referred to within the Contract Documents and not an employee of Owner, Bridging Architect shall be construed to include employees, consultants and subconsultants of Bridging Architect. When Bridging Architect is an employee of Owner, his or her authorized representatives on the Project will be included under the term Bridging Architect. If

Bridging Architect is an employee of Owner, Bridging Architect is the beneficiary of all Design-Build Entity obligations to Owner, including without limitation, all releases and indemnities. Bridging Architect may also be referred to as Architect/Engineer, Architect or Engineer.

17. The term “Bridging Documents” means the Performance Criteria, Concept Drawings and other items included, referenced or described in Document 005201 Bridging Documents.
18. The term ‘BSCC,” means the California Board of State and Community Corrections, or successor, with responsibilities for, among other things, establishing minimum standards for local adult and juvenile detention facilities and reviewing architectural plans for construction of such facilities.
19. The term “business day” means any day other than Saturday, Sunday, and the following days that have been designated as holidays by Owner. If a holiday falls on a Saturday, the preceding Friday will be the holiday. If a holiday falls on a Sunday, the following Monday will be the holiday.
    a) New Year’s Day, January 1;
    b) Martin Luther King Jr.’s Birthday, third Monday in January;
    c) Lincoln’s Birthday, February 12;
    d) Presidents’ Day, third Monday in February;
    e) Memorial Day, last Monday in May;
    f) Independence Day, July 4;
    g) Labor Day, first Monday in September;
    h) Veterans’ Day, November 11;
    i) Thanksgiving Day, fourth Thursday in November;
    j) The Day following Thanksgiving Day;
    k) Christmas Day, December 25; and
    l) Each day appointed by the Governor of California and formally recognized by the County Board of Supervisors as a day of mourning, thanksgiving, or special observance.
20. The term “Change Directive” (“CD”), has the same ,meaning as Construction Change Directive.
21. The term “Change Order” means a written instrument prepared by Owner and signed by Owner and Design-Build Entity, stating their agreement upon all of the following:
    a) A change in the Work;
    b) The amount of the adjustment in the Contract Sum, if any; and
    c) The amount of the adjustment in the Contract Time, if any.
22. The term “CDCR” means the California Department of Corrections and Rehabilitation, or successor.
23. The term “Code Inspector” means a local or state agency responsible for the enforcement of applicable codes and regulations.
24. The term “Compensable Delay” means a delay that entitles the Design Builder to an adjustment of the Contract Sum and an adjustment of the Contract Time pursuant to Article 15 of Document 007253 (General Conditions).
25. The term “Construction Change Directive” (“CCD”) means a written order prepared and signed by Owner, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both.
26. The term “Construction Documents” is defined in Section 011100 (Summary of Work).
27. The term “Construction Manager” means the person or entity so identified in the Agreement or otherwise in writing by Owner, with such rights and responsibilities as may be set forth in Contract Documents.
28. The term “Contract” shall have the meaning identified in Article 4 of the Agreement.
    The term “Contract Amount” means a change order price, line item price, Contract Sum, or other price assigned to a scope of work.

29. The term “Contract Documents” means all documents listed in Article 4 of the Agreement.
30. The term “Contract Modification” includes any of the following:
    a) A written amendment to Contract signed by Design-Build Entity and Owner; or
    b) A Change Order; or
    c) A Construction Change Directive; or
    d) A written directive for a minor change in the Work issued by Owner.
31. The term “Contract Sum” means the sum stated in the Agreement and, including authorized adjustments, the total amount payable by Owner to Design-Build Entity for performance of the Work and the Contract Documents. The Contract Sum is also sometimes referred to as the Contract Price or the Contract Amount.
32. The term “Contract Time” means the period of time to fully complete the Work as indicated in Article 2 of the Agreement.
33. The term “Contractor” means Design-Build Entity.
34. The terms “Design-Build Entity,” “DBE” or “Design Builder” mean the entity identified and referred to as “Design-Build Entity” in the Agreement.
35. The term “Design-Build Entity’s Employees” means persons engaged in execution of Work under Contract as direct employees of Design-Build Entity, as Subcontractors, or as employees of Subcontractors.
36. The term “Designers” means the qualified, licensed architects, engineers and other design professionals retained or employed by Design-Build Entity or a Subcontractor (of any tier) to furnish design services required by Section 011100 and other provisions of Contract Documents.
37. The term “County” means the County of Ventura, the Owner, except that the term “County Fire Marshall” means the Ventura County Fire Protection District Fire Marshall.
38. The term “day” shall mean calendar day unless otherwise specifically provided.
39. The term “Defective” , when modifying the term “Work,” means any Work that is unsatisfactory or unsuited for the use intended, faulty, or deficient, that does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents (including but not limited to approval of Samples and “or equal” items), or has been damaged prior to final payment (unless responsibility for the protection thereof has been assumed by Owner). Unapproved substitutions are defective. Owner is the judge of whether Work is Defective.
40. The term “DOF” means the State of California Department of Finance, or successor.
41. The term “Drawings” means the graphic and pictorial portions of Contract Documents, wherever located and whenever issued, including without limitation prepared by Design-Build Entity, Subcontractors or their Designers showing the final design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams. However, unless the context clearly requires otherwise, Drawings do not include any Bridging Documents.
42. The term “Enhancement” means Work identified as such in the Proposal which is added to or deducted from the Work in the base Proposal as indicated in the Proposal form.
43. The term “Equal” means equal in opinion of Owner. Burden of proof of equality is responsibility of Design-Build Entity.
44. The terms “Final Acceptance” or “Final Completion” mean Owner’s acceptance of the Work as satisfactorily completed in accordance with Contract Documents. Requirements for Final Acceptance/Final Completion include, but are not limited to:
    a) Final cleaning is completed.
    b) All systems having been tested and accepted as having met requirements of Contract Documents.
    c) All required instructions and training sessions having been given by Design-Build Entity.

d) All Project Record Documents having been submitted by Design-Build Entity, reviewed by Owner, and accepted by Owner.
e) All punch list Work, as directed by Owner, having been completed by Design-Build Entity.
f) Generally all Work, except Design-Build Entity maintenance after Final Acceptance/Final Completion, having been completed to satisfaction of Owner.

45. The term “Furnish” means to supply only, without installing.
46. The term “IOR” means Inspector of Record engaged by Owner.
47. The term “Install” means to install or apply, without furnishing.
48. The term “Latent” means not apparent by reasonable inspection, including but not limited to, the inspections and research required as a condition to proposing or performing construction work under Document 007253 (General Conditions).
49. The word ”material” shall be construed to embrace machinery, manufactured articles, materials of construction (fabricated or otherwise), and any other classes of material to be furnished in connection with Contract, except where a more limited meaning is indicated by context.
50. The term “Milestone” means an event specified in Contract Documents relating to a key or critical intermediate completion date or time prior to Substantial Completion of all Work.
51. The term “Not in Contract” or “NIC” means Work that is outside the scope of Work to be performed by Design-Build Entity under Contract Documents.
52. The term “Notice of Completion means a “notice of completion” under Civil Code §9000 et seq.
53. The term “Off Site” means outside geographical location of the Project.
54. The term “Owner” has the same meaning as Agency.
55. The term “Partial Utilization” means use by Owner of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all of the Work.
56. The term “PCBs” means polychlorinated biphenyls.
57. The term “Phase” means a specified portion of the Work (if any) specifically identified as a Phase in Document 005200 (Agreement) or Document 011100 (Summary).
58. The term “Product Data” means that information (brochures, catalog sheets, manufacturer’s cut sheets, etc.) supplied by vendors having technical and commercial characteristics of the supplied equipment or materials and accompanying commercial terms such as warranties, instructions, and manuals.
59. The term “Proposal” means the offer or proposal for award of the Contract to the Proposer to serve as the Design-Build Entity for the Project submitted on the prescribed form(s) and setting forth the prices for the Work to be performed.
60. The term “Proposer” means one who submits a Proposal.
61. The term “Proposal Documents” means all documents comprising the Project Manual (including all documents and Specification Sections listed in Document 000110 [Table of Contents]), including documents supplied for proposal purposes only and Contract Documents included in Agency’s request for proposals .
62. The term “Progress Report” means a periodic report submitted by Design-Build Entity to Owner with progress payment invoices accompanying progress schedule.
63. The term “Project” means the total design and construction of the TRJHPU of which Work performed under Contract Documents may be whole or part.
64. The term “Project Manager” means a person representing a party in the administration of the Contract Documents.
65. The “Project Manual” consists of Proposal Requirements, Agreement, Bonds, Certificates, Contract Conditions, Bridging Documents, Drawings, and Specifications.
66. The term “Project Record Documents” means all Project document deliverables required under the Contract Documents, including without limitation, as built

drawings; Installation, Operation, and Maintenance Manuals; and Machine Inventory Sheets.

67. The term “Provide” means furnish and install.
68. The term “PWB” means SPWB.
69. The term “Request for Information” (“RFI”) means a document prepared by Design-Build Entity requesting information regarding the Project or Contract Documents. The RFI system is also a means for Owner to submit Contract Document clarifications or supplements to Design-Build Entity.
70. The term “Request for Proposals” (“RFP”) means a document issued by Owner to Design-Build Entity whereby Owner may initiate changes in the Work or Contract Time as provided in Contract Documents.
71. The term “Request for Substitution” (“RFS”) means a document prepared by Design-Build Entity requesting substitution of materials as permitted and to the extent permitted in Contract Documents.
72. The term “RFI-Reply” means a document consisting of supplementary details, instructions, or information issued by Owner that clarifies or supplements Contract Documents, and with which Design-Build Entity shall comply. RFI-Replies do not constitute changes in Contract Sum or Contract Time except as otherwise agreed in writing by Owner. RFI-Replies will be issued through the RFI administrative system.
73. The term “Samples” means physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
74. The term “Services” is defined in Article 2 of Document 007253 (General Conditions).
75. The term “Shop Drawings” means all drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Design-Build Entity (other than Drawings and Specifications) and submitted by Design-Build Entity to illustrate some portion of the Work.

76. The term “Site” means the particular geographical location of Work performed pursuant to the Contract Documents.
77. The term “Specifications” means the written portion of the Contract Documents consisting of requirements for materials, equipment, construction systems, standards, and workmanship for the Work; performance of related services. However, unless the context clearly requires otherwise, Specifications do not include any Bridging Documents.

78. The term “SPWB” means the California State Public Works Board, or successor.
79. The term “State Fire Marshall” means the office of the California Department of Forestry and Fire Protection responsible for preparing and adopting, and in certain cases, enforcing, building standards relating to fire and panic safety in certain types of public facilities, including the Project.
80. The term “Subcontractor” means a person or entity that has a contract with Design-Build Entity or with a Subcontractor of Design-Build Entity to perform a portion of the Work at the Site. Unless otherwise specifically provided, the term Subcontractor includes Subcontractors of all tiers. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and neutral in gender and means a Subcontractor or an authorized representative of the Subcontractor.
81. The term “Substantial Completion” means the Work (or a specified part thereof) has progressed to the point where, in the opinion of Owner as evidenced by a notice or certificate of Substantial Completion, the Work is sufficiently complete, in accordance with Contract Documents, so that Owner may occupy or utilize the Work (or specified part) for the purposes for which it is intended, and unperformed or incomplete work elements are minor in nature; or if no such certificate is issued, when the Work (or specified part) is complete and ready for final payment as evidenced by written recommendation of Owner for final payment. The terms “Substantially Complete” and

"Substantially Completed" as applied to all or part of the Work refer to Substantial Completion thereof.

82. The term "Supplemental Instruction" means a written directive from Owner to Design-Build Entity ordering alterations or Modifications that do not result in change in Contract Sum or Contract Time, and do not substantially change Drawings or Specifications.
83. The terms "testing agency" or "testing and special inspection agency" mean an independent entity engaged to inspect and/or test the workmanship, materials, or manner of construction of the Work, to determine if such construction complies with the Contract Documents and applicable codes.
84. The term "Underground Facilities" means all pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities that have been installed underground to furnish any of the following services or materials: electricity, gases, chemicals, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems, or water.
85. The term "Unit Price Work" means Work for which a unit price is provided in the Contract.
86. The term "Work" has the meaning identified in Article 1 of the Agreement and includes any part of the Work, whether completed or partially completed, provided or to be provided by Design-Build Entity to fulfill its obligations under the Contract. The Work may constitute the whole or a part of the Project..

B. Other Defined Terms. The following terms are not necessarily identified with initial caps; however they shall have the meaning set forth below:
   1. Wherever words "as directed," "as required," "as permitted," or words of like effect are used, it shall be understood that direction, requirements, or permission of Owner is intended. Words "sufficient," "necessary," "proper," and the like shall mean sufficient, necessary, or proper in judgment of Owner. Words "approved," "acceptable," "satisfactory," "favorably reviewed," or words of like import, shall mean approved by, or acceptable to, or satisfactory to, or favorably reviewed by Owner.
   2. Wherever the word "may" or "ought" is used, the action to which it refers is discretionary. Wherever the word "shall" or "will" is used, the action to which it refers is mandatory.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 014523

QUALITY REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY OF QUALITY REQUIREMENTS

A. Section Includes:
   1. Administrative and procedural requirements for quality assurance and quality control.
   2. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Design-Build Entity of responsibility for compliance with the Contract Document requirements.
   3. Specific quality-assurance and control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
   4. Specified tests, inspections, and related actions do not limit Design-Build Entity's other quality-assurance and control procedures that facilitate compliance with the Contract Document requirements.
   5. Requirements for Design-Build Entity to provide quality-assurance and control services required by the Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DESCRIPTION

A. Establish and maintain a Quality Assurance/Quality Control (QA/QC) program as described in this section. The QA/QC program must cover construction operations on-site and off-site and must be keyed to the proposed construction sequence and serve as the foundation on which the Commissioning Plan will be built and executed for the mechanical and electrical systems.

B. The process of assuring quality and compliance for the Todd Road Jail Health and Programming Unit (TRJHPU) Project will take place in two ways. QA/QC must implement a program to monitor, verify, and accept the work of TRJHPU Design-Build Package during the construction installation, especially the equipment and the system components. The QA/QC program will coordinate with the Commissioning of TRJHPU Design-Build Package and dovetail the monitoring and requirements for systems and equipment identified under both programs. The Commissioning program will plan, monitor, verify, and accept the operation and the performance of the equipment and systems. In particular, the operation and performance of the mechanical and electrical systems will only be available for verification and acceptance upon the successful execution of the QC/QA program with regard to their installation.

1.3 REQUIREMENTS

A. QA/QC Program Requirements - The QA/QC program consists of a QA/QC Organization, a Quality Control (QC) Plan, attending a QA/QC Plan meeting with the Owner, attending a Coordination and Mutual Understanding Meeting with the Owner, conducting QA/QC meetings on site, performing three phases of control: performing submittal review, ensuring testing is performed, and preparing QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations which comply with the requirements of this Contract. In addition this Section consists of the coordination of the QA/QC program with the Commissioning program.

1.4 DEFINITIONS

A. Quality Assurance Services:
   1. Activities, actions, and procedures performed at a level above Quality Control to assure the work performed has in effect a quality control procedure and process performed by those doing the Work to guard against defects and deficiencies and assure that proposed construction will comply with requirements. Includes submittals, certifications, and other actions to assure that the proposed products and services

will meet the Contract requirements. Services do not include Contract enforcement activities performed by the Owner.

B. Quality Control Services:
   1. Tests, inspections, procedures, and related actions at the level where the work is performed, during and after execution of the Work, to evaluate that actual products and completed construction comply with all Contract requirements.

C. Mockups:
   1. Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups:
   1. Full-size, physical assemblies that are constructed at a testing facility to verify performance characteristics.

E. Preconstruction Testing:
   1. Tests and inspections that are performed specifically for the TRJHPU Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing:
   1. Tests and inspections that are performed by a Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality Control Testing:
   1. Tests and inspections that are performed at the source, i.e., Plant, mill, factory, or shop.

H. Field Quality Control Testing:
   1. Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency:
   1. An entity engaged by the Owner or Owner’s Construction Manager to perform specific tests, inspections, or both. Testing laboratory will mean the same as testing agency. The testing agency will be under the control of the Owner’s Construction Manager.

J. Installer/Applicator/Erector:
   1. Design-Build Entity or another entity engaged by Design-Build Entity as an employee, Subcontractor, or Sub-subcontractor experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for TRJHPU, whose work has resulted in construction with a record of successful in-service performance
   2. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced:
   1. When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to TRJHPU; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

L. Test:
   1. All tests to be performed in the presence of the Owner.

M. Manufacturer Qualifications:

1. A firm experienced in manufacturing products or systems similar to those indicated for TRJHPU and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

N. Fabricator Qualifications:
   1. A firm experienced in producing products similar to those indicated for TRJHPU and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

O. Professional Architect/Engineer Qualifications:
   1. A professional Architect/Engineer who is legally qualified and licensed to practice in California and who is experienced in providing Architecture and Engineering services of the kind indicated. Architect/Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for TRJHPU in material, design, and extent.

P. Specialists:
   1. Certain sections of the Specifications require that specific construction activities will be performed by entities that are recognized experts in those operations. Specialists must satisfy qualification requirements indicated and must be engaged for the activities indicated.
   2. Requirement for specialists must not supersede building codes and regulations governing the Work.

Q. Testing Agency Qualifications:
   1. An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to America Society for Testing of Materials (ASTM) E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
   2. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
   3. NVLAP: A testing agency accredited according to National Institute of Standards and Technology's (NIST) NVLAP.

R. Factory-Authorized Service Representative Qualifications:
   1. An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for TRJHPU.

S. Preconstruction Testing:
   1. Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods.

1.5 REGULATORY REQUIREMENTS

A. General:
   1. All applicable federal, County and local requirements will govern the construction and completion of the Work; all must be current enforced editions.

B. Copies of Regulations:
   1. Copies of the applicable regulations and codes, federal, County and local to be retained at TRJHPU site to be available for reference by parties who have a reasonable need.

C. Enforcement:
   1. References in the Contract Documents to "code" or to "building code" not otherwise identified will mean the foregoing specified codes, together with the additions, changes, amendments and interpretations adopted by the enforcing agency, and in effect on the date the Contract is executed.
   2. Nothing on the Contract Documents will be interpreted as requiring or permitting work that is contrary to these rules, regulations and codes.
   3. Where other codes or standards are referenced in the Contract Documents, the affected work must meet or exceed the applicable requirements of such codes and standards.

4. The code, specification or standard referred to will have full force and effect as though printed in the Contract Documents, except as modified.
5. Where the Contract Documents call for or describe materials, work quality or construction of a better quality, higher standard or larger size than is required by said laws, codes, rules and regulations, the provisions of the Contract Documents will take precedence over said laws, codes, rules and regulations.

D. Other Applicable Laws and Regulations:
1. Applicable federal, County, and local laws, and the rules and regulations of governing utility districts and the various other authorities having jurisdiction over the construction and completion of TRJHPU, including the latest rules and regulations of the California Labor Code, will apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though printed in the Contract Documents.
2. If laws, ordinances, rules, regulations or orders of public agency having jurisdiction require work to be inspected, tested or approved by some authority other than the Owner or Design-Build Entity, the Design-Build Entity must give required notices and make arrangements, deliver to the Owner the certificates of inspection, test, or approval of such public agency, and pay costs therefore unless otherwise provided in the Contract Documents.

1.6 CONFLICTING REQUIREMENTS

A. General:
1. If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Owner for a decision before proceeding.

B. Minimum Quantity or Quality Levels:
1. The quantity or quality level shown or specified must be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner for a decision before proceeding.

1.7 QUALITY ASSURANCE/QUALITY CONTROL ON INSTALLATION

A. Monitoring - Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship to produce work of the specified quality.

B. Compliance - Comply fully with manufacturers' instructions including each step in sequence and comply fully with the Contract documents inclusive of the entirety of the intent of the Design Criteria.

C. Conflicts - Should manufacturers' instructions conflict with the Contract Documents, request clarification from University's Representative before proceeding.

D. Standards:
1. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, code, or specified requirements indicate higher standards or more precise workmanship.
2. Perform Work by persons qualified to produce workmanship of specified quality.

E. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, code, or specified requirements indicate higher standards or more precise workmanship.

F. Coordination of all above-ceiling work is mandatory prior to any installation.
1. Documentation of such coordination will be required prior to applicable installation taking place in the specific area concerned.

1.8 VERIFICATION OF CONDITIONS

A. Prior to installing any portion of the Work, Design-Build Entity must inspect the work already in place to receive the work to be installed and arrange for correction of defects in

the existing workmanship, material or conditions that may adversely affect work to be installed. Such inspections must include test applications of the materials to be installed as required to establish the correct condition of surfaces involved. Where the specifications require a material to be installed under the supervision or inspection of the material manufacturer or its representative, Design-Build Entity must ensure that the manufacturer or its representative also inspects the work in place and issues a letter of approval to the Owner.

1.9 REFERENCES

A. The publications listed below form a minimum part of this specification to the extent referenced. The current editions of the publications are referred to in the text by the basic designation only.
   1. ASTM A 880 - Criteria for Use in Evaluation of Testing Laboratories and Organizations for Examination and Inspection of Steel, Stainless Steel, and Related Alloys
   2. ASTM C 1077 Laboratories Testing Concrete and Concrete Aggregates for Use In Construction and Criteria for Laboratory Evaluation
   3. ASTM D 3666 (Rev. A) - Evaluating and Qualifying Agencies Testing and Inspecting Bituminous Paving Materials
   4. ASTM D 3740 - Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
   5. ASTM E 329 - Evaluation of Testing and Inspection Agencies as Used in Construction
   6. ASTM E 543 (Rev. A) - Determining the Qualification of Non-Destructive Testing
   7. ASHRAE – American Society of Heating, Refrigeration, and Air Conditioning Engineers
   8. AWS – American Welding Society
   9. SMACNA – Sheet Metal and Air Conditioning Contractors National Association
   10. ACI – American Concrete Institute
   11. AABC – American Air Balance Council
   12. NETA – International Electrical Test and Acceptance Association
   13. IEEE – Institute of Electrical and Electronic Engineers
   14. All other standards as referenced throughout this set of Specifications

1.10 SUBMITTALS

A. Quality Assurance/Quality Control (QA/QC) Plan: Submit a QA/QC Plan for the Owner's review within thirty (30) days prior to commencement of construction.

B. Schedule of Tests and Inspections:
   1. Prepare in tabular form and include the following, as applicable:
      a) Specification Section number and title.
      b) Applicable plan and details
      c) Description of test and inspection.
      d) Identification of applicable standards.
      e) Identification of test and inspection methods.
      f) Number of tests and inspections required.
      g) Time schedule or time span for tests and inspections.
      h) Entity responsible for performing tests and inspections.
      i) Requirements for obtaining samples.
      j) Unique characteristics of each quality control service.

C. Reports:
   1. QA/QC Reports.
      a) Daily Inspection Reports.
      b) Public Utility Acceptance Reports.
      c) State of California Inspection Reports
      d) Visitor Observation Reports.
      e) Product Manufacturers Inspection Reports (roofing, waterproofing, etc.).
   2. Prepare and submit certified written reports that include the following:
      a) Date of issue.

b) TRJHPU title and number.
c) Name, address, and telephone number of testing agency.
d) Dates and locations of samples and tests or inspections.
e) Names of individuals making tests and inspections.
f) Description of the Work and test and inspection method.
g) Identification of product and Specification Section.
h) Complete test or inspection data.
i) Test and inspection results and an interpretation of test results.
j) Record of temperature and weather conditions at time of sample taken and testing and inspecting.
k) Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
l) Recommendations on retesting and reinspecting.

D. Permits, Licenses, and Certificates:
1. For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

E. Testing Agency Responsibilities:
1. Submit a certified written report of each test, inspection, and similar quality-assurance service to the Owner, with copy to Design-Build Entity. Interpret tests and inspections in each report whether tested and inspected work complies with or deviates from the Contract Documents.

F. Design-Build Entity Responsibilities:
1. Include the following:
a) Provide test specimens representative of proposed products and construction.
b) Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c) Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance specifications.
d) Build site-assembled test assemblies and mockups using installers who will perform same tasks for TRJHPU.
e) Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
f) When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on TRJHPU.
g) Provide a full-time QA/QC Manager committed to TRJHPU.

G. Mockups
1. Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
2. Build mockups in location and of size indicated or, if not indicated, as directed by the Owner.
3. Notify the Owner seven (7) days in advance of dates and times when mockups will be constructed.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain the Owner’s approval of mockups before starting work, fabrication, or construction. Allow seven days for initial review and each re-review of each mockup.
6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
7. When directed, demolish and remove mockups.

H. Laboratory Mockups
1. Comply with requirements of pre-construction testing and those specified in individual Sections and Divisions.

1.11 QA/QC ORGANIZATION

A. QA/QC Manager:

1. Duties: The QA/QC Manager's duties on TRJHPU are limited to the responsibility of managing and implementing the QA/QC program on a full-time basis. The QA/QC Manager is required to attend the QA/QC Plan meeting, attend the Coordination and Mutual Understanding Meeting, conduct the QA/QC meetings, perform submittal review, ensure testing is performed and prepare QA/QC certifications and documentation required in this Contract. The QA/QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by the QA/QC specialists. No Work or testing may be performed unless the QA/QC Manager or the Designated Alternate QA/QC Manager is on the TRJHPU site. The QA/QC Manager must report directly to an officer of the Design-Build Entity's Entity and must not be the same individual as, nor be subordinate to, the ADBHU Superintendent or the Design-Build Entity's Project Manager. The QA/QC Manager will coordinate the QA/QC activities with the Owner and the IOR, insuring a consistent and progressive verification of the mechanical and electrical systems from the installation Quality Control program through the operation and performance acceptance of the TRJHPU Project.
2. Commissioning program. The QA/QC Manager must assure that inspections by the Design-Build Entity's work force have occurred prior to calling on the Owner's Inspectors for an inspection. This will minimize the failed inspections recorded and documented by the Owner.
3. Qualifications: A graduate of a four-year, accredited college program in one of the following disciplines: Engineering, Architecture, Construction Management, Engineering Technology, Building Construction, or Building Science with a minimum of ten (10) years' experience as an inspector, QA/QC Manager, project manager, or construction manager on major and complex projects of similar size and scope. Submit qualifications for review and acceptance by the Owner. Show examples where candidate performed similar duties and responsibilities. Examples should describe QA/QC Programs of similar type Projects, including health facilities.

B. Alternate QA/QC Manager Duties and Qualifications: Designate an alternate for the QA/QC Manager at the TRJHPU site to serve in the event of the designated QA/QC Manager's absence. The educational and experience requirements for the Alternate QA/QC Manager will be similar to those for the QA/QC Manager. This individual must also act as an alternate to the TRJHPU QA/QC and will serve in the event of the designated QA/QC's absence.

C. QA/QC Specialists Duties and Qualifications: Provide a QA/QC specialist at the TRJHPU site for each of the areas of responsibilities specified below, who will assist and report to the QA/QC Manager, and who will have no duties other than performing the three phases of control and preparing documentation required in this Contract. Pertinent QA/QC specialists are required to attend the Coordination and Mutual Understanding Meeting, QA/QC meetings, and perform the three phases of control and prepare documentation for each definable feature of Work in their area of responsibility at the frequency specified below. The mechanical and electrical specialists will also assist in the commissioning activities, specifically the monitoring of the Start Up and Functional Performance Tests (FPT).

TABLE A

QUALIFICATION EXPERIENCE IN AREA OF RESPONSIBILITY	AREA OF RESPONSIBILITY	(FREQUENCY)
Plumbing, fire protection and/or piping installation contractor, mechanic, or superintendent with 10 years' experience.	Installation and testing of piping systems; assist in the monitoring of the Start Up and FPT's.	Full-time during roughing plumbing and piping installations
Sheet metal contractor, mechanic, or superintendent with 10 years' experience.	Installation & testing all ductwork systems; assist in the monitoring of the Start Up and FPT's.	Full-time during ductwork installation
Building controls manufacturer's representative with 5 years' experience.	Operation and performance of the controls system, review controls submittals	Part-time during the submittal and installation stage. Full time during the point-by-point evaluation of the system
Electrical contractor/journeyman w/ CA license as electrician and a fire alarm contractor/journeyman or vendor.	Installation & testing normal and essential power systems; assist in the monitoring of the Start Up and FPT's.	Full-time during installation, wiring, connection, etc. & testing; Part- time during submittal, raceway rough in
Roofing Manufacturer's representative with 5 years minimum.	Installation and testing of the roofing systems	Full-time during roofing operations
Waterproofing consultant/manufacturer's Technical Representative.	Installation & testing of waterproofing systems	Full-time during waterproofing operations

D. Submittal Review Duties and Qualifications:
   1. Submittal Assistant: Provide a full-time Submittal Assistant at the TRJHPU site until 95 percent of the submittals have been approved. Sole duty of the Submittal Assistant will be to assist the QA/QC Manager in processing, certifying QC compliance and maintaining files for submittals. Submittal Assistant must have a minimum of (3) years' experience as a project engineer, scheduler or construction- related worker.

1.12 QA/QC PLAN

A. Requirements: Provide for review by the Owner, a QA/QC Plan that covers both on-site and off-site Work, and includes the following:
   1. A chart showing the QA/QC organizational structure and its relationship to the production side of the organization.
   2. Names and qualifications, in resume format, for each person in the QA/QC organization.
   3. Duties, responsibilities and authorities of each person in the QA/QC organization.

4. Documentation procedures, including proposed report formats for all reports required herein.
5. A letter signed by an officer of the firm appointing the QA/QC Manager and stating that he/she is responsible for managing and implementing the QA/QC program as described herein, and that the QA/QC Manager reports to an officer of the firm, someone other than Design-Build Entity's Project Manager. Include in this letter the QA/QC Manager's authority to direct the stopping, removal and replacement of non-conforming Work.
6. Procedures for reviewing, approving and managing submittals. Provide the name(s) of the person(s) in the QA/QC organization authorized to review and certify submittals prior to approval.
7. A Testing Plan and Log that includes the tests required, referenced by the specification paragraph number requiring the test, test procedures, the frequency, schedule activity number and the person responsible for each test.
8. [omitted]
9. Procedures to identify, record, track and complete rework items, including schedule activity numbers.
10. A listing of outside organizations such as, architectural and consulting engineering firms that will be employed by Design-Build Entity and a description of the services and resumes of personnel these firms will provide.
11. A list of the definable features of work. A definable feature of work is a task that is separate and distinct from other tasks and requires separate control requirements. As a minimum, unless otherwise accepted by the Owner, consider each section of the specifications as a definable feature of work. However, there may be more than one definable feature of work in each section of the specifications.
12. A personnel matrix showing, for each section of the specification, who will review and approve submittals, who will perform and document the three phases of control, and who will perform and document the testing.
13. Provide procedures describing mandatory above ceiling coordination prior to the execution of any above ceiling work.

B. Preliminary Work Authorized Prior to Review and Acceptance: The only work that is authorized to proceed prior to the acceptance of the QA/QC Plan is mobilization of storage and office trailers and surveying, the preparation of excavation shoring systems, and removal of hazardous materials. Design-Build Entity must not proceed on other activities without written authorization from the Owner.

C. Acceptance of conformance with Bridging Documents: Acceptance of the QA/QC Plan for conformance to the Bridging Documents is required before the start of construction. Owner reserves the right to require changes in the QA/QC Plan and operations as necessary to ensure the specified quality of Work. Owner reserves the right to interview any member of the QA/QC organization at any time in order to verify his/her submitted qualifications.

D. Notification of Changes: Submit written notification to Owner of any proposed change, including changes in the QA/QC organization personnel, a minimum of seven (7) days prior to a proposed change. Design-Build Entity must receive Owner approval prior to implementing such proposed changes.

1.13 QUALITY ASSURANCE

A. General:
   1. Qualifications paragraphs in this Article establish the minimum qualification levels required; see this Section, Part 3 – Execution. Individual Specification Sections specify additional requirements.

B. Design-Build Entity's Records:
   1. Maintain accurate, current records on an appropriate form for all inspections and tests performed, instructions received from the Owner, firm or individual performing test, and actions taken as a result of those instructions.

2. These records must include evidence that the required inspections or tests have been performed (including type and number of inspections or tests, nature of defects, causes for rejection, etc.), proposed or directed remedial action, and corrective action taken.
3. Document inspections and tests as required by each Specification Section

C. Design Quality Program:
1. The Design-Build Entity's Quality Control Program must include, but not limited to, Design-Build Entity's procedures for thoroughly reviewing the Design Documents for:
a) Functionality.
b) Design Excellence.
c) Sustainability.
d) Maintainability.
e) Coordination among disciplines.
f) Constructability.
g) Value Engineering.
h) Quality Engineering.
i) Life Cycle.
j) Energy Efficiency.
k) Fire Life Safety.
l) Code Compliance.

D. Construction Quality Control Plan:
1. The Design-Build Entity's Quality Control Program must include, but not limited to, Design-Build Entity's procedures to review construction through completion of the TRJHPU with emphasis on the following:
a) Installation of construction site security and monitoring.
b) Maintenance of fire & life safety program.
c) Coordination.
d) Mitigation for noise, dust, runoff during construction and all California Environmental Quality Act (CEQA) Mitigation issues.
e) Payment of all fees permits and licenses.
f) Monitoring for construction and employee, parking, deliveries and storage.
g) Protection of the Public and their use of the right of way surrounding the construction site.
h) Protection of archaeological resources (if applicable).
i) Protection of the plants and trees.
j) Protection, reinstatement of existing utilities and services.
k) Staging and shoring of all excavations.
l) Excavation of sub-grade and placement of compacted fill.
m) Excavation, placement, backfill and compaction of utilities and services.
n) Testing, inspections, certifications and placement of concrete foundations and structures.
o) Testing, inspections, certifications, erection and assembly of structural components.
p) Testing, inspection, certifications of all electrical services, transformers, switchgear and equipment
q) Testing, inspection, certifications of all pipelines, valves and equipment, including but not limited to:
i) Diesel and gas.
ii) Steam and condensate.
iii) Cooling water, supply and return.
iv) Water reticulation, including domestic and well systems.
v) Filtration and conditioning systems.
vi) Sewer and storm drainage systems.
vii) Testing, inspection, and certification of all machinery, mechanisms and equipment.
r) Testing, inspection, certification of upgrade and integration of controls systems.

s) Not Used
t) Testing, inspection of all architectural features and finishes.
u) Commissioning, occupancy, post occupancy and handover including but not limited to:
i) Landscape and gardens.
ii) Buildings and structures.
iii) Plant machinery, mechanisms, and equipment.
iv) Utilities and services.
v) Controls and security systems.

1.14 TESTING LABORATORY SERVICES

A. Testing Responsibility:
1. The Owner's Construction Manager will employ and pay for services of an independent testing laboratory to perform specified testing per CCR Title 24, and any other testing specifically indicated in the Contract Documents to be the Owner's responsibility.
a) The Owner will furnish Design-Build Entity with names, addresses, and telephone numbers of the independent testing laboratory and the Owner Representative responsible for monitoring the testing.
b) Design-Build Entity must cooperate with laboratory to facilitate execution of its required services.
2. Design-Build Entity will employ and pay for services related to testing, adjusting, and balancing of systems as specified under individual sections.

B. Required Tests and Inspection
1. Testing and inspection services are required to verify compliance with the Contract Documents. These services will, in no way, relieve the Design-Build Entity from its obligations to perform the work of the Contract.
a) Required testing and inspection services for specific construction and/or material production activities are referenced in individual Sections, as applicable.
b) Specified tests, inspections, and related activities do not preclude Design-Build Entity's quality control procedures that facilitate compliance with the Contract Document requirements.

C. Design-Build Entity's Responsibilities
1. Cooperate with laboratory personnel and Owner representative; provide access to work and to manufacturer's operations.
2. Provide laboratory with adequate quantities of representational samples of materials proposed to be used which require testing.
3. Provide to laboratory preliminary design mix proposed to be used for concrete, and other material mixes which require control by testing laboratory.
4. Furnish copies of products tests reports as required.
5. Furnish incidental labor and facilities:
a) To provide access to work to be tested.
b) To obtain and handle samples at the TRJHPU site or at source of product to be tested.
c) To facilitate inspections and tests.
d) For storage and curing of test samples.

D. Notify Owner representative 48 hours in advance of operations to allow for laboratory assignment of personnel and scheduling of tests and/or inspections. When tests or inspections cannot be performed after such notice due to any factors for which Design-Build Entity is responsible, Design-Build Entity must reimburse the Owner for all laboratory personnel labor and travel expenses incurred.
1. Notifications must include:
a) Specification section number and title.
b) Description of test and/or inspection.
c) Identification of all applicable standards.

d) Identification of test and inspection methods.
e) Number of tests and inspections required.
f) Time schedule or time span for tests and inspections.
g) Requirements for obtaining samples.
h) Any unique characteristics or required test or inspection.

2. Retesting or additional inspection required due to nonconformance with the Contract Documents must be performed by the Owner's Construction Managers independent testing laboratory at the Design-Build Entity's expense.
3. Testing and inspection requested by Design-Build Entity and not required by the Contract Documents are Design-Build Entity's responsibility.
4. When additional testing services are needed for Design-Build Entity's convenience, Design-Build Entity will employ and pay for the services of a separate, equally qualified independent testing laboratory or make arrangements with Owner's laboratory and pay for such additional samples and tests.
5. The Owner Representative will have the right to reject materials and workmanship which are defective or to require correction. Rejected workmanship must be satisfactorily corrected and rejected materials must be removed from the premises without charge to the Owner. If Design-Build Entity does not correct such rejected work within a reasonable time, fixed by written notice, the Owner may correct same and charge the expense to Design-Build Entity.
6. Should it be considered necessary or advisable by the Owner at any time before Acceptance of the Work to make examination of work already completed by removing or tearing out same, Design-Build Entity must, on request, promptly furnish necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of Design-Build Entity or subcontractor, will defray all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet requirements of the Contract Documents, additional cost of labor and material necessary involved in the examination and replacement will be allowed the Design-Build Entity.

1.15 TEST AND INSPECTION LOG A

A. General:
1. Prepare a record of tests and inspections. Include the following:
a) Date test or inspection was conducted.
b) Description of the Work tested or inspected.
c) Date test or inspection results were transmitted to Owner.
d) Identification of testing agency or special inspector conducting test or inspection.
2. Maintain log at TRJHPU site. Post changes and modifications as they occur. Provide access to test and inspection log for the Owner's reference during normal working hours.
3. As a minimum, Design-Build Entity must obtain the following tests and/or inspections:
a) Soils:
i) Test and analyze fill and backfill materials.
ii) Test compaction of fill and backfill materials.
iii) Inspect bearing surfaces of foundation excavation.
iv) Test compaction trench backfill.
v) Test compaction aggregate under asphalt concrete paving.
vi) Test compaction aggregate under site concrete.
b) Asphalt concrete:
i) Test asphalt.
ii) Test compaction of asphalt.
c) Concrete:
i) Test identified reinforcing steel.
ii) Test cement.
iii) Test aggregate for suitability.
iv) Review concrete mix design.

v) Perform continuous batch Plant inspection.
vi) Test concrete for air content.
vii) Inspect concrete placement.
viii) Perform shrinkage tests.
ix) Make slump tests.
x) Cast compression test cylinders. Test cylinders at 7 and 28 days.

d) Post-tensioning:
i) Continual post-tension inspections.
ii) Test identified strands.

e) Structural steel:
i) Review mill certificates for shapes and plates.
ii) Visually inspect shop and field welding.
iii) Test full penetration welds.

f) Metal fabrications:
i) Visually inspect shop and field welding.
ii) Test full penetration welds.

g) Exterior and interior stone veneer:
i) Modulus of rupture, flexure, and other tests.
ii) Accelerated aging tests.
iii) Production testing.

h) Fireproofing:
i) Test fireproofing.
ii) Test thickness and density.

1.16 QA/QC PLAN MEETING

A. Prior to submission of the QA/QC Plan, meet with Owner and IOR to discuss the QA/QC Plan requirements of this Contract. The purpose of this meeting is to develop a mutual understanding of the QA/QC Plan requirements prior to plan development and submission.

1.17 COORDINATION AND MUTUAL UNDERSTANDING MEETING

A. After submission of the QA/QC Plan, but prior to the start of construction, meet with Owner to discuss the QA/QC program required by this Contract. The purpose of this meeting is to develop a mutual understanding of the QA/QC details, including forms to be used for documentation, administration for on-site and off-site Work, and the coordination of Design-Build Entity's management, production and QA/QC personnel with the Owner. As a minimum, Design-Build Entity's personnel required to attend must include the project manager, project superintendent, QA/QC Manager, and QA/QC specialists. Minutes of the meeting must be prepared by the QA/QC Manager and signed by both Design-Build Entity and Owner.

1.18 QA/QC MEETINGS ON SITE

A. After the start of construction, the QA/QC Manager must conduct weekly QA/QC meetings at the TRJHPU site with the project superintendent (not "superintendent staff") and QA/QC specialists. The QA/QC Manager must prepare the minutes of the meeting and provide a copy to Owner within two working days after the meeting. Owner may attend these meetings. The QA/QC Manager must notify Owner at least (2) working days in advance of each meeting. As a minimum, the following must be accomplished at each meeting:
1. Review the minutes of the previous meeting;
2. Review the schedule and the status of Work:
a) Work or testing accomplished since last meeting.
b) Rework items identified since last meeting.
c) Rework items completed since last meeting.
d) Review the mandatory coordination of all above-ceiling work.
3. Review the status of submittals:
a) Submittals reviewed and approved since last meeting b. Submittals required in the near future.

4. Review the Work to be accomplished in the next fourteen (14) days and documentation required. Schedule the three phases of control and testing:
    a) Establish completion dates for rework items.
    b) Preparatory Phases required.
    c) Initial phases required.
    d) Follow-up phases required.
    e) Testing required.
    f) Status of off-site Work or testing.
    g) Documentation required.
5. Resolve QA/QC and production problems.
6. Address items that may require revising the QA/QC Plan:
    a) Changes in QA/QC organization personnel.
    b) Changes in procedures.

1.19 THREE PHASES OF CONTROL

A. The QA/QC Manager must perform three phases of control to ensure that Work complies with requirements of the Performance Criteria, and the Specifications. The three phases of control must adequately cover both on-site and off-site Work and must include the following for each definable feature of Work: a definable feature of Work is a task which is separate and distinct from other tasks and requires separate control requirements as defined in Paragraph 1.12 A.11. herein.

1. Preparatory Phase: This phase is defined as: The QA/QC control phase, which occurs before the specific Work. During this phase the QA/QC team gathers information, prepares preliminary documentation and meets to discuss the work condition and process. Notify Owner at least (2) working days in advance of each Preparatory Phase meeting. Conduct a Preparatory Phase meeting with the QA/QC specialists, the Superintendent, subcontractor and the foreman responsible for the definable feature. The Preparatory Phase meeting must be conducted a minimum of five (5) working days and a maximum of ten (10) working days prior to the scheduled start of work for the definable feature. Owner may attend these meetings. The Commissioning Authority (CA) will attend these meetings. The QA/QC Manager must prepare minutes of the Preparatory Phase meetings and provide a copy to Owner within two (2) working days after each meeting. Document the results of Preparatory Phase actions in the daily Design-Build Entity Quality Control Report. Perform the following tasks and submit a completed Preparatory Phase check off report to Owner within two (2) working days prior to beginning work on each definable feature of work:
    a) Review each paragraph of the applicable specification sections.
    b) Review the Contract Document documents including the Design Criteria.
    c) Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required.
    d) Review the testing plan and testing schedule and ensure that provisions have been made to provide the required QA/QC testing. The testing plan must list the parts of the testing process, application, phasing, pass/fail and remedy.
    e) Examine the work area to ensure that the required preliminary work has been completed.
    f) Examine the required materials, equipment and sample Work to ensure that they are on hand and conform to the approved shop drawings and submitted data.
    g) Review the safety plan and appropriate activity hazard analysis to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted.
    h) Discuss construction methods and construction methods form.
    i) Confirm above ceiling coordination is reconciled and that the intended systems' installations will be accessible for servicing. Provide written documentation that

this coordination has, in fact, been completed prior to any installation taking place in the specific area concerned.

2. Initial Phase: This phase is defined as: The QA/QC control phase, which occurs as the specific Work begins. Notify Owner at least two (2) working days in advance of each Initial Phase. When construction crews are ready to start work on a definable feature of work, conduct the Initial Phase with the QA/QC Specialists, the Superintendent, and the foreman responsible for that definable feature of work. Observe the initial segment of the definable feature of Work to ensure that the Work complies with Contract requirements. Document the results of the Initial Phase in the daily Design-Build Entity Quality Control Report. Repeat the Initial Phase for each new crew to work on-site, or when quality falls below specified acceptable levels. Perform the following for each definable feature of Work:
   a) Each system being tested at one time.
   b) The test procedure reference.
   c) The pass/fail criteria.
   d) The schedule for tests.
   e) Confirm the quality of Workmanship required.
   f) Resolve potential conflicts.
   g) Review the Safety Plan and the appropriate activity hazard analysis to ensure that applicable safety requirements are met.
   h) Ensure that testing is performed by the approved laboratory.
3. Follow-Up Phase: This phase is defined as: The QA/QC control phase which occurs as the specific Work continues to progress until its completion. Perform the following for on-going work daily, or more frequently, as necessary, until the completion of each definable feature of Work. Document in the daily Design-Build Entity Quality Control Report:
   a) Ensure the work is in compliance with Contract requirements, including final sign off by the Inspector of Record (IOR).
   b) Verify the quality of workmanship required.
   c) Ensure that testing is performed by the approved laboratory.
   d) Ensure that rework items are being corrected.

1. Notification of Three Phases of Control for Off-Site Work: Notify Owner at least fourteen (14) days prior to the start of the Preparatory and Initial phases.

1.20 QA/QC CERTIFICATIONS

A. Design-Build Entity Quality Control Report Certification: Each Design-Build Entity Quality Control Report must contain the following Statement: "On behalf of Design-Build Entity, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the Contract Documents to the best of my knowledge, except as noted in this report."

B. Invoice Certification: Furnish a certificate to Owner with each Application for Payment, signed by the QA/QC Manager, attesting that Record Drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with Contract requirements.

C. Completion Certification: Upon completion of all or a designated portion of the Work, furnish a certificate to Owner, signed by the QA/QC Manager, attesting that "the work has been completed, inspected, tested and is in compliance with the Contract requirements".

1.21 DOCUMENTATION

A. Maintain current and complete records of on-site and off-site QA/QC program operations and activities, as well as Owner testing.
   1. Design-Build Entity Daily Report: Reports are required for each day that Work is performed and must be attached to Design-Build Entity Quality Control Report prepared for the same day. Account for each day throughout the life of the Contract. The reporting of Work must be identified by terminology (activity number and description) consistent with the Construction Schedule. Design-Build Entity Daily

Reports must be prepared, signed and dated by Design-Build Entity's Project Superintendent and must include the following information:

a) Date of report, name of Design-Build Entity, title and location of Contract and Superintendent present.
b) Weather conditions in the morning and in the afternoon including maximum and minimum temperatures.
c) A list of Design-Build Entity and subcontractor personnel on the TRJHPU site, their trades, employer, work location, description of work performed (keyed to schedule activity numbers) and hours worked.
d) A list of job safety actions taken and safety inspections conducted. Indicate that safety requirements have been met including the results on the following:
    i) Was a job safety meeting held? (If YES, attach a copy of the meeting minutes.)
    ii) Were there any lost time accidents? (If YES, attach a copy of the completed OSHA report.)
    iii) Was trenching/scaffold/high voltage electrical/high work done? (If YES, attach a statement or checklist showing inspection performed.)
    iv) Was hazardous material/waste released into the environment? (If YES, attach report of actions taken.)
    v) Meetings held.
e) Include a "remarks" section in this report which must contain pertinent information including directions received, problems encountered during construction and delays, conflicts or errors in the drawings, specifications or coordinated drawings, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered and a record of visitors to the TRJHPU site.

2. Design-Build Entity Quality Control Report: Reports are required for each day that Work is performed and for every seven (7) consecutive days of no-work and on the last day of a no-work period. Account for each day throughout the life of the Contract. The reporting of Work must be identified by terminology and activity codes consistent with the construction schedule. Design-Build Entity Quality Control Reports must be prepared, signed and dated by the QA/QC Manager and must contain the following information:
    a) Identify the control phase (Preparatory, Initial, and Follow-up) and the definable feature of work.
    b) Results of the Preparatory Phase meetings held including the location of the definable feature of work and a list of personnel present at the meeting. Indicate in the report that for this definable feature of work, the drawings and specifications have been reviewed, submittals have been approved, materials comply with approved submittals, materials are stored properly, preliminary work was done correctly, the testing plan has been reviewed, and work methods and schedule have been discussed.
    c) Results of the Initial Phase meetings held including the location of the definable feature of work and a list of personnel present at the meeting. Indicate in the report that for this definable feature of work the preliminary work was done correctly, samples have been prepared and approved, the workmanship is satisfactory, test results are acceptable, work is in compliance with the Contract requirements, and the required testing has been performed and include a list of who performed the tests.
    d) Results of the Follow-up Phase inspections held including the location of the definable feature of work. Indicate if the report for this definable feature of Work that the work complies with the Contract requirements as approved in the Initial Phase, and that required testing has been performed and include a list of who performed the tests.
    e) Results of the three Phases of Control for off-site work, if applicable, including actions taken.

f) List the rework items identified, but not corrected by close of business.
g) List the rework items corrected from the rework items list along with the corrective action taken.
h) Include a "remarks" section in this report which must contain pertinent information including directions received, quality control problem areas, deviations from the QA/QC Plan, construction deficiencies encountered, QA/QC meetings held, acknowledgement that as-built drawings have been updated, corrective direction given by the QC Organization and corrective action taken by Design-Build Entity.
i) Design-Build Entity Quality Control Report certification.

3. Reports from the QC Specialist(s): Reports are required for each day that Work is performed in their area of responsibility. QC specialist reports must include the same documentation requirements as Design-Build Entity Quality Control Report for their area of responsibility, QC specialist reports must be prepared, signed and dated by the QC specialists and must be attached to Design-Build Entity Quality Control Report prepared for the same day.
4. Testing Plan and Log: As tests are performed, the QA/QC Manager must record on the "Testing Plan and Log" the date the test was conducted, the date the test results were forwarded to IOR, remarks and acknowledgement that an accredited or approved testing laboratory was used. Attach a current updated copy of the "Testing Plan and Log" to the last daily Design-Build Entity Quality Control Report of each month.
5. Rework Items List: The QA/QC Manager must maintain a list of work that does not comply with the Contract requirements, identifying what items need to be reworked, the date the item was originally discovered, and the date the item was corrected. Attach the current copy of the "Design-Build Entity Rework Items List" to the last daily Design-Build Entity Quality Control Report of each month. Design-Build Entity will be responsible for including on this list items needing rework including those identified by Owner.
6. Record Drawings: The QA/QC Manager is required to review the Record Drawings to ensure that the drawings are kept current on a daily basis and marked to show precise locations of items, or any deviations, which have been made from the Construction Drawings. The QA/QC Manager, or QC Specialist assigned to an area of responsibility, must initial each deviation and each revision. Upon completion of Work, the QA/QC Manager must furnish a certificate attesting to the accuracy of the Record Drawings and verification by the IOR prior to submission to Owner.
7. Report Forms:
   a) The reporting format must contain the following information:
      i) Design-Build Entity Daily Report.
      ii) Design-Build Entity Quality Control Report and Separate Continuation Sheets.
      iii) Testing Plan and Log.
      iv) Rework Items List.
      v) Construction Methods Form.
      vi) QA/QC Manager’s Preparatory Phase Check-off Report.
   b) Report forms must be transmitted via a method acceptable to Owner. All original documents, reports, completed forms, etc. must be forwarded to the Owner.

1.22 REPAIR AND PROTECTION

A. General:
1. Repair and protection are Design-Build Entity's responsibility, regardless of the assignment of responsibility for quality control services. Comply with Section 017329, Cutting and Patching.
2. On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes. Protect construction exposed by or for quality control service activities.

3. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

PART 2 PRODUCTS NOT USED

PART 3 EXECUTION

3.1 QUALITY CONTROL TEAM AND QUALIFICATIONS

A. The Design-Build Entity must employ the services an American Society for Quality (ASQ) - certified engineer, or equivalent or better. He will comply with Paragraph 1.11, have a four-year degree, at least three (3) years' experience in QA/QC (10 years' experience overall), and a complete understanding of the following fundamentals:

1. Liaison with construction management staff, trades and subcontractors, Plant operational staff, fire and life safety officers, security officers to ensure continued seamless execution of site development from mobilization thru to post occupancy.
2. Quality philosophies, principles, systems, methods, tools, standards, organizational and team dynamics, customer expectations and satisfaction, supplier relations and performance, leadership, training, interpersonal relationships, improvement systems and professional ethics.
3. Quality system and its development, documentation and implementation to domestic and international standards or requirements.
4. Audit process including types of audits, planning, preparation, execution, reporting results and follow-up.
5. Implementation of quality programs, including tracking, analyzing, reporting and problem solving.
6. Be able to plan, control and assure product and process quality in accordance with quality principles, which include planning processes, material control, acceptance-sampling and measurement systems.
7. Have basic knowledge of reliability, maintainability, and risk management, including key terms and definitions, modeling, systems design, assessment tools and reporting.
8. Have a thorough understanding of problem-solving and quality improvement tools and techniques. This includes knowledge of management and planning tools, quality tools, preventive and corrective actions, and how to overcome barriers to quality improvements.
9. Be able to acquire and analyze data using appropriate standard quantitative methods across a spectrum of business environments to facilitate process analysis and improvements.

END OF SECTION

SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Design-Build Entity Field Office
   2. Agency Field Office.
   3. Site Logistics.
   4. Temporary Electricity.
   5. Temporary Communications.
   6. Temporary Water.
   7. Fences.
   8. Protection of Public and Private Property.
   9. Temporary Sanitary Facilities.
   10. Temporary Barriers and Enclosures.
   11. Water Control.
   12. Pollution Control.
   13. Construction Aids.
   14. Erosion Control.
   15. Noise Control.
   16. Traffic Control.
   17. Removal of Temporary Facilities and Controls.

1.2 DESIGN-BUILD ENTITY FIELD OFFICE

A. Design-Build Entity shall provide and maintain it's own field office facility. Placement shall be approved by Agency.

1.3 AGENCY FIELD OFFICE

A. Design-Build Entity shall provide and maintain separate on-Site field office, and related equipment, furniture, furnishings, and services, for exclusive use by Agency during the entire time of Project construction beginning at the commencement date stated in the notice to proceed for Construction until notice of acceptance of the Project.

B. Field office shall be located convenient to the construction operations and as approved by Agency.

C. Further requirements of the field office are as follows:
   1. Adequately sized and furnished to accommodate a minimum of six (6) Agency staff members working full time in the field office.
   2. Adequately heated, cooled and ventilated
   3. Adequately serviced with temporary communications and data service (including internet capabilities).
   4. Include a minimum of two plan tables mounted at a height for a standing desk and capable of holding full size plan sheets.
   5. Plan racks capable of holding at least 2 sets of plans and associated shop drawings.
   6. Two lockers with hasps for padlocks.

D. Field offices shall be removed upon completion of work.

1.4 SITE LOGISTICS

A. Site Access: Access to the project site will be from Todd Road

B. Design-Build Entity shall provide and maintain an internal access road, separate from the public access road, used solely for construction purposes.

C. The entire SB 863 project site will be available for Design-Build Entity's use (for field offices, laydown, etc.) except where indicated.

D. Use of a portion of the on-site current farm land to the north-west of the TRJ may be allowed for Design-Build Entity Site Logistic purposes, with approval from Agency.

E. Construction Personnel Parking in existing public lot or employee lot is not allowed. Design-Build Entity must provide space for all necessary parking on the project site.

1.5 TEMPORARY ELECTRICITY

A. Design-Build Entity shall provide and maintain electrical power at the Site for construction purposes and for Design-Build Entity's and trailers and any other site offices or trailers required by Agency herein or in accordance with the Bridging Documents.

1.6 TEMPORARY COMMUNICATIONS

A. Provide, maintain, and pay for all applicable communications and data services to field office and any other site offices or trailers required by Agency herein or as required by the Bridging Documents, commencing at time of Project mobilization, including all installation and connection charges.

1.7 TEMPORARY WATER

A. Provide and maintain suitable quality water service required for construction operations.

B. All water required for and in connection with the Work, including without limitation for dust control, shall be furnished by Design-Build Entity and it's own expense.

C. Design-Build Entity shall not draw water from any fire hydrant (except to extinguish a fire) without obtaining permission from the water utility owner and Agency.

1.8 FENCES

A. All existing fences affected by the Work shall be maintained by Design-Build Entity until Final Completion. Fences which interfere with construction operations shall not be relocated or dismantled until Owner gives written permission to do so, and the period the fence may be left relocated or dismantled has been agreed upon. Where fences must be maintained across the construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use.

B. On completion of the Work across any tract of land, Design-Build Entity shall restore all fences to their original or to a better condition and to their original locations.

1.9 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

A. Design-Build Entity shall protect, shore, brace, support, and maintain all underground pipes, conduits, drains, and other underground construction uncovered or otherwise affected by its construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences, and other surface structures affected by construction operations, together with all sod and shrubs in yards, parkways, and medians, shall be restored to their original condition, whether within or outside the easement. All replacements shall be made with new materials.

B. Design-Build Entity shall be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges, and other public or private property, regardless of location or character, which may be caused by transporting equipment, materials, or workers to or from the Work, Site or any part thereof, whether by Design-Build Entity or Subcontractors. Design-Build Entity shall make satisfactory and acceptable arrangements with the Owner, or the agency or authority having jurisdiction over the damaged property, concerning its repair or replacement or payment of costs incurred in connection with the damage.

C. All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

1.10 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required temporary buildings with sanitary toilets for use of all workers. At a minimum, sanitary facilities shall be located at trailer site, staging area, and adjacent to work area.

B. Provide and maintain separate sanitary facilities for exclusive use by Agency.

C. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 persons. Design-Build Entity shall enforce the use of such sanitary facilities by all personnel at the Site. Use of existing sanitary facilities within the TRJ is not allowed.

D. Comply with all minimum requirements of the Health Department or other public agency having jurisdiction; maintain in a sanitary condition at all times.

E. Design-Build Entity shall keep sanitary facilities free from graffiti.

1.11 TEMPORARY BARRIERS AND ENCLOSURES

A. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide barricades required by governing authorities for public access to existing buildings.

C. Protect vehicular traffic, stored materials, Site, and structures from damage.

1.12 STORM WATER CONTROL

A. Control Storm water on site in accordance with the Bridging Documents.

1.13 POLLUTION CONTROL

A. Design-Build Entity shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris, and other substances resulting from construction activities. No sanitary wastes shall be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris, or other substance shall be permitted to enter sanitary sewers without authorization of the receiving sanitary sewer service, and all possible Best Management Practices (BMPs) shall be taken to prevent such materials from entering any drain to watercourse. Rate of discharge for storm water may not be increased by the Project during or following construction.

B. Design-Build Entity shall comply with required storm water pollution control requirements. The Design-Build Entity shall implement BMPs during construction activities as specified in the applicable governing requirements for California Storm Water Best Management Practices Handbook and/or the Manual of Standards for Erosion and Sediment Control Measures (ABAG, 1995). Erosion and sedimentation control practices shall include installation of silt fences, straw wattle, soil stabilization, re-vegetation, and runoff control to limit increases in sediment in storm water runoff, including but not limited to, retention basins, straw bales, silt fences, check dams, geo-fabrics, drainage swales, and sand bag dikes.

C. In the event that dewatering of excavations is required, Design-Build Entity shall obtain the necessary approval and permits for discharge of the dewatering effluent from the local jurisdiction. Design-Build Entity shall be responsible for assuring that water quality of such discharge meets the appropriate permit requirements prior to any discharge.

1.14 CONSTRUCTION AIDS

A. Design-Build Entity shall furnish, install, maintain, and operate all construction aids required by it and its Subcontractors in the performance of the Work, except as otherwise provided herein. Such construction aids shall include elevators and hoists, cranes, temporary enclosures, swing staging, scaffolding and temporary stairs. Construction aids shall be furnished without charge to the Subcontractors, and all necessary erection, maintenance, and operating personnel shall be included. In the event of conflict, Design-Build Entity furnishing the equipment shall determine priorities in the best interest of the Project.

1.15 EROSION CONTROL

A. Design-Build Entity shall prevent soil erosion in accordance with the Contract.

1.16 NOISE CONTROL

A. When required by OSHA Standards, construction workers shall be provided with ear protection to operate equipment.

B. Design-Build Entity shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound-muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work. During construction activities on or adjacent to occupied buildings, and when appropriate, Design-Build Entity shall erect screens or barriers effective in reducing noise in the building and shall conduct its operations to avoid unnecessary noise which might interfere with the activities of building occupants.

C. Ensure and provide certification to Owner that all construction equipment and vehicles used for the Work are:
   1. Maintained in good mechanical condition
   2. Equipped with properly installed engine mufflers

1.17 TRAFFIC CONTROL

A. All traffic associated with the construction, including without limitation delivery and mail trucks, shall enter the Design-Build Entity's access gate. Design-Build Entity shall provide signs directing construction and delivery traffic to this gate. Construction truck traffic shall be controlled to minimize disruption to public traffic to the highest extent possible.

1.18 REMOVAL OF TEMPORARY FACILITIES AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials prior to final inspection.

B. Remove underground installations.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 015600

SITE SECURITY AND SAFETY

PART 1 GENERAL

1.1 SUBMITTALS

A. See Section 013300 (Submittals).
B. See Document 002110 (Operational Security and Safety Procedures)
C. Site Security.
D. Safety Program – See also Section 007319 (Safety Standards Manual – OCIP Projects).

1.2 PROTECTION

A. Continuously maintain protection as necessary to protect the Work, as a whole and in part, and adjacent property and improvements from accidents, injuries or damage.
B. Properly protect the Work:
   1. With lights, guard rails, temporary covers and barricades.
   2. Enclose excavations with proper barricades.
   3. Brace and secure all parts of the Work against storm and accident.
   4. Provide such additional forms of protection that may be necessary under existing circumstances.
C. Provide and maintain in good condition all protective measures required to adequately protect the public from hazards resulting from the Work and to exclude unauthorized persons from the Work. When regulated by Building Code, Cal OSHA, or other authority, such legal requirements for protection shall be considered as minimum requirements. Be responsible for the protection in excess of such minimum requirements as required.

1.3 DESIGN-BUILD ENTITY'S PERSONNEL SECURITY REQUIREMENTS

A. All personnel accessing the Todd Road Jail Health and Programming Unit (TRJHPU) site must comply with the requirements of Document 002110 Operation Security and Safety Procedures. Failure to comply will result in immediate removal from the Site and the Design-Build Entity will be asked to terminate the employment of any employee found in violation of this provision.

1.4 SITE SECURITY

A. As part of the Work included within the Contract Sum, Design-Build Entity shall take and be fully responsible for all reasonably required measures to protect and maintain the security of persons, existing facilities and property at the Site, including without limitation preventing theft, loss, vandalism and improper concealment of personal property of the Owner and all persons lawfully present on the Site, and including times where workers are not present on the Site. Design-Build Entity's measures shall include, at a minimum, maintaining a log of all persons entering and leaving the Site and who they represent, what they are delivering and to whom.
B. No claim shall be made against Owner by reason of any act of an employee or trespasser, and Design-Build Entity shall repair all damage to Owner's property resulting from Design-Build Entity's failure to provide adequate security measures.
C. Design-Build Entity shall maintain a lock on the Construction access gate at all times. Design-Build Entity shall appoint one person to let people through the gate and maintain the sign-in/out list, with person's name, company, reason for entering, what they are delivering, time and date. Alternatively, Design-Build Entity shall provide a full-time guard at the gate at all times to control access and maintain the sign-in/out list. The sign in/out list shall be available to Owner at any time upon request. If Owner determines that the gate has been left unlocked, Design-Build Entity shall if requested by Owner provide a full time guard at no additional expense to the Owner.
D. Design-Build Entity shall supply additional security fencing, barricades, lighting, and other security measures as required to protect and control the Site.

1.5 SAFETY PROGRAM

A. Within 15 days after Notice to Proceed, submit a Safety Program that has been reviewed and approved by an Industrial Hygienist certified by the American Board of Industrial Hygiene or a Certified Safety Professional. The Safety Program shall include the name, certification number, and certification seal of the Industrial Hygienist or Certified Safety Professional. Comply with the Safety Program and all applicable federal, state, and local regulation codes, rules, law and ordinances.

B. Receipt and/or review of the Safety Program by Owner, Engineer or Owner's representative shall not relieve Design-Build Entity of any responsibility for complying with all applicable safety regulations.

C. It is essential that Design-Build Entity and each Subcontractor implement an effective and vigorous Safety and Health Program to cover their respective portions of the Work. Subject to Design-Build Entity's overall responsibility for Project safety, it shall be understood that the full responsibility for providing a safe place to work with respect to their respective portions of the Work rests with Design-Build Entity and each individual Subcontractor.

D. Safety Program components:
   1. Injury and Illness Prevention Program (IIPP): Conforming to the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203), and the California Labor Code (Section 6401.7).
   2. Site-Specific Safety and Health Plan (SSHP): Describing health and safety procedures that shall be implemented during the Work in order to ensure safety of the public and those performing the Work. Follow the guidelines for a SSHP listed in CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5192, Item (b)(4) f.
   3. Confined Space Program: The Site contains permit- and non-permit-confined spaces. Owner will provide Design-Build Entity with any available information regarding permit space hazards, entry operations, and safety information relating to work in the permit spaces as set forth in the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5157). Permit space entry is allowed only through compliance with a permit space program meeting the requirements of Section 5157 of the General Industrial Safety Orders. During entry operations, or at the conclusion of entry operations, verbally notify Engineer of the permit space program followed and of any hazards confronted or created in permit spaces during entry operations.

E. The wearing of hard hats shall be mandatory at all times for personnel on Site. Supply sufficient hard hats to equip properly all employees and visitors.

F. Whenever an exposure exists, appropriate personal protective equipment (PPE) shall be used by all affected personnel. Supply PPE to all personnel under Design-Build Entity's direction.

1.6 SAFETY REQUIREMENTS

A. Standards. Maintain the Project in accordance with state and local safety and insurance standards.

B. Hazards Control.
   1. Store volatile wastes in covered metal containers and remove from premises daily.
   2. Prevent accumulation of wastes that create hazardous conditions.
   3. Provide adequate ventilation during use of volatile or noxious substances.

C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
   1. Do not burn or bury rubbish or waste material on the Site.
   2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
   3. Do not dispose of wastes into streams or waterways.

D. Provide accident information on the forms provided by Design-Build Entity. This information shall be provided on the same day as the occurrence of said incident.

1.7 SITE SAFETY OFFICER

A. Designate one of Design-Build Entity's staff as "Site Safety Officer" whose duties shall include the responsibility for enforcing the environmental protection provisions of the Contract Documents including safety and health, the requirements of the Occupational Safety and Health Act, and other applicable federal, state and local standards. Submit for review by Owner Design-Build Entity's intended traffic flow plan, security plan, program for temporary structures, housecleaning plan, demolition program, and environmental safety and health plan. After review by Owner, the implementation and enforcement of these plans shall become the responsibility of the Site Safety Officer. Any changes in the plans shall be requested by Design-Build Entity through the Site Safety Officer for written concurrence by Owner.

B. Owner's risk management representative(s) shall be allowed access to accident/injury and illness reports, inspection reports, scheduling and construction meetings, and safety meetings.

1.8 ADDITIONAL SAFETY CONTROLS

A. According to industry practices, it is the responsibility of Design-Build Entity and Subcontractors of every tier to exercise reasonable care to prevent work-related injuries, property and equipment damage at the Project site, as well as minimize risk to the public and third-party property. Design-Build Entity and Subcontractors shall undertake loss control prevention practices according to those requirements set by federal, state and city laws, statutes and specific project procedures developed for this project.

B. Should the Owner opt to proceed with an Owner Controlled Insurance Program, in the event of an accident it will be the responsibility of Design-Build Entity and Subcontractors of every tier to see that injured workers or members of the public are given immediate medical treatment and that all appropriate medical and claim forms are filed with the appropriate State Authorities and in accordance with the claim procedures developed for this project.

C. Should the Owner opt to proceed with an Owner Controlled Insurance Program, failure of Design-Build Entity or any Subcontractor to submit Safety documents to the OCIP Administrator will result in the assessment of liquidated damages against the Design-Build Entity in the amount of $200 for each Document.

D. Regardless of the insurance program chosen by the Owner, Design-Build Entity and Subcontractor participating in the Project will be expected to comply with the following safety and loss control requirements:

1. All Subcontractors shall identify their contact person(s) to the Design-Build Entity.
2. Owner procedures regarding dealing with the media.
3. All construction employees will be required to be attired in workpants, shirt and appropriate boots or closed toe shoes.
4. Controlling access to the construction site will be a very high priority, and Design-Build Entity will be required to take whatever preventative measure, such as barriers, fencing, etc., as outlined in the contract specifications.
5. Design-Build Entity will be required to respond to any Owner complaints about objectionable levels of dust or noise and will be required to provide the appropriate abatement as quickly as possible.
6. Fall protection is mandatory on all projects in accordance with CAL OSHA, OSHA and any other appropriate code.
7. A site specific Injury and Illness Prevention Program shall be available on site with the Design-Build Entity. All Design-Build Entity and Subcontractor employees shall abide by this program.
8. Personal radios, headsets, CD players and other music devices are not allowed on the job-site.
9. All Design-Build Entity and Subcontractor employees must attend the pre-construction safety meeting.

10. No sexual reference or preference shall be permitted on any piece of clothing or the hardhat. Any employee observed disregarding this policy shall be removed from the job site until further notice.
11. All Design-Build Entity's employees shall park in accordance with the Bridging Documents.
12. All Design-Build Entity's employees shall control the break time activities of the employees to assure the cleanup of all soda cans, food wrappers, plastic bottles, or food containers from the break area. Such areas shall be cleaned immediately after the break and all waste placed in trash receptacles. No glass containers are permitted on the site.
13. Theft or willful damage to any property of the Owner, or other Contractors will be prosecuted fully.

E. Design-Build Entity and Subcontractors participating in the TRJHPU project will further be expected to comply with the following safety and loss control requirements:
1. The Design-Build Entity shall assume overall responsibility for project safety compliance.
2. The Emergency Response Plans (with particular emphasis on access and egress routes).
3. The Design-Build Entity will agree to conduct and fund post-injury drug screening of their employees. Those employees failing the test will be removed permanently from the job site.
4. The Owner Representative has the right to instruct the Design-Build Entity to correct an unsafe act or condition. If the Design-Build Entity fails to correct the unsafe act or condition within the requested time frame, the Owner or its representative may have the condition corrected and bill the non-compliant Design-Build Entity for the costs associated with the correction.
5. The County Representative may require a follow-up meeting or contact if there is a death, serious and willful claim, serious disabling injury, adverse loss experience, major fire, or serious third party claim.
6. Any Design-Build Entity, Subcontractor employee displaying, in the opinion of the Design-Build Entity or Owner representative, a repeated disregard for safety can be removed from the job-site.

F. The Design-Build Entity will advise those non-English speaking employees in their native language either in a written format or via an interpreter of these policies.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

DOCUMENT 015719

ENVIRONMENTAL

ARTICLE 1 – GENERAL

1.1 SUMMARY

A. This Section includes requirements for Stormwater Pollution Control Plan (SWPCP) and Stormwater Pollution Prevention Plan (SWPPP) requirements, State NPDES General Permit for Stormwater Discharges and Ventura County NPDES Municipal Separate Storm Sewer System (MS4) Permit No. CAS004002.

B. Included is this Section are the requirements for compliance with the Ventura County Technical Guidance Manual for Stormwwater Quality Control Measures (TGM), Manual Update 2011, Errata Update May 2, 2015.

1. The TGM can be downloaded through the link below: http://www.vcstormwater.org/images/stories/NPDES_Documents/TGM/Ventura_TGM_Errata_Update_2015-paginated_20150806_reduced.pdf
2. The TGM electronic tool to assist applicants in meeting the requirements can be downloaded through the following link: http://www.vcstormwater.org/documents/subcommittees_planning/TGM%20Tool%202011%20FINAL.zip

C. Related Sections include the following:

1. Section 01-05000 "Temporary Facilities and Controls" for limitations on utility interruptions and other work restrictions.

2. Scope of Work for specific requirements applicable laws.

1.2 WATER POLLUTION CONTROL

A. The Design Builder shall prevent, control, and abate discharges of pollutants from the construction site in order to protect the storm drain system, which includes pipes, channels, streams, waterways, and other bodies of water, by the construction, installation or performance of water pollution control measures as shown on the Stormwater Pollution Control Plan (SWPCP) or Stormwater Pollution Prevention Plan (SWPPP) depending on the land area affected by the construction activity. The Design Builder shall ensure compliance with the current State NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activity (General Construction Permit), NPDES No. CAS000002 and current Ventura County NPDES Municipal Separate Storm Sewer System (MS4) Permit No. CAS004002.

Compliance with NPDES General Construction Permit

1. Construction Sites
   a) If the Work involves construction activity that results in soil disturbance of one acre or more of total land area, or results in soil disturbances of less than one acre but is a part of a work area larger than one acre, the Design Builder shall

comply with the requirements of the General Construction Permit NPDES No. CAS000002. Construction activity includes clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement. Construction activity does not include routine maintenance such as, maintenance of original line and grade, hydraulic capacity, or original purpose of the facility.

b) The Design Builder shall comply with requirements of the General Construction Permit (NPDES No. CAS000002), obtained by the Agency, including a site-specific Storm Water Pollution Prevention Plan (SWPPP) for the Work to be developed by Qualified SWPPP Developer (QSD) and implemented by the Qualified SWPPP Practitioner (QSP). After July 1, 2010, the Agency will electronically file all required Permit Registration Documents (PRDs) through the State Water Board's Stormwater Multi-Application and Report Tracking System (SMARTS) website, as required prior to the commencement of construction activity. PRDs consist of the Notice of Intent (NOI), Risk Assessment, Post-Construction Calculations, a Site Map, the SWPPP, a signed certification statement by the Legally Responsible Party (LRP), and the first annual fee. For the Permit application, the Design Builder shall submit to Agency's Representative the following:
   i) The completed site-specific Risk Assessment
   ii) Post-construction calculations if applicable for the project, and
   iii) Site-specific SWPPP developed in accordance with applicable Permits.

2. Linear Utility Projects; Design Builder shall comply with the requirements of the General Construction Permit NPDES No. CAS000002 for Linear Underground/Overhead projects (LUPs) one acre or greater.

Compliance with NPDES MS4 Permit

a) Construction Sites Less Than One Acre:

The Design Builder shall ensure implementation of an effective combination of erosion and sediment control Best Management Practices (BMPs) listed in Table 6 of the Ventura County NPDES MS4 Permit. The Design Builder shall develop and implement a Storm Water Pollution Control Plan (SWPCP).

b) Construction Sites One Acre but Less Than 5 Acres:

The Design Builder shall ensure implementation of an effective combination of appropriate erosion and sediment control BMPs from Table 7 (BMPs at Construction sites 1 acre or greater but less than 5 acres) of the Ventura County NPDES MS4 Permit in addition to the ones identified in Table 6 (BMPs at Construction sites less than 1 acre) to prevent erosion and sediment loss, and the discharge of construction wastes. For all construction sites one acre or greater, the Design Builder shall submit the SWPPP to the Agency for review and certification as the Local SWPPP.

c) Construction Sites 5 Acres and Greater:

The Design Builder shall ensure implementation of an effective combination of the following BMPs in Tables 8 (BMPs at Construction sites 5 acres or greater) in addition to the ones identified in Table 6 (BMPs at Construction sites less than 1 acre) and Table 7 (BMPs at Construction sites 1 acre or greater but less than 5 acres) at all construction sites 5 acres and greater to prevent erosion and sediment loss, and the discharge of construction wastes. For all construction sites one acre or greater, the Design Builder shall submit the SWPPP to the Agency for review and certification as the Local SWPPP.

d) Enhanced Construction BMP Implementation:

Construction sites located on hillsides, adjacent or directly discharging to CWA 303(d) listed waters for siltation or sediment, and directly adjacent to Environmentally Sensitive Areas are termed “high risk sites.” Design Builder shall implement enhanced practices that preclude impacts to water quality posed by the high-risk sites.

Design Builder shall ensure that high risk sites are inspected by the Qualified SWPPP Developer, Qualified SWPPP Practitioner, or Certified Professionals in Erosion and Sediment Control (CPESC) at the time of BMP installation, at least weekly during the wet season, and at least once each 24 hour period during a storm event that generates runoff from the site, to identify BMPs that need maintenance to operate effectively, that have failed or could fail to operate as intended.

3. Plan

a) The SWPCP, required for construction projects less than one acre, shall be prepared in accordance with the requirements of current Ventura County NPDES MS4 Permit No. CAS004002 and County Ordinance No. 4142.

b) The SWPPP, required for construction projects one acre or greater, shall be prepared in accordance with the requirements of the state’s General Construction Permit NPDES Permit CAS000002, Ventura Countywide Stormwater Quality Management Program, NPDES MS4 Permit No. CAS004002, and County Ordinance No. 4142.

c) The SWPCP/SWPPP shall identify potential pollutant sources on the construction site that may affect the quality of discharges, whether non-stormwater or stormwater, from the site and design the use and placement of water pollution control measures, BMPs, to effectively prohibit the entry of pollutants from the site into the storm drain system during construction. At a minimum, and depending on the size of the project area, the SWPCP/SWPPP will include all appropriate minimum BMPs as required by the Ventura Countywide Stormwater Quality Management Program, NPDES MS4 Permit No. CAS004002 (Tables 6 through 9). The SWPCP/SWPPP must utilize the measures recommended in the California Stormwater Quality Association (CASQA) Stormwater BMPs Handbook for Construction (January 2015 of current version). Starting July 1, 2010 SWPPP shall be prepared by QSD as defined in the NPDES Permit CAS000002. The Design Builder shall complete, sign and submit the SWPCP/SWPPP for review and final approval by the Agency’s Representative, prior to issuance of the Notice to Proceed.

d) For all construction projects one acre and greater, the Design Builder shall submit the SWPPP to the Agency for review and certification as Local SWPPP in accordance with NPDES MS4 Permit No. CAS004002 prior to the Notice to Proceed.

4. Measures

a) All water pollution control measures shall conform to the requirements of the submitted SWPCP/SWPPP. If circumstances during the course of construction require changes to the original SWPCP/SWPPP, a revised SWPCP/SWPPP shall be promptly submitted to the Agency’s Representative in each instance.

The SWPPP shall be amended or revised by QSD. A copy of the current SWPCP/SWPPP including revisions and amendments shall be kept at the site to ensure that field personnel have access to the current document at all times. If measures being taken are inadequate to control water pollution effectively, the Agency's Representative may direct the Design Builder to revise the operations and no further work shall be performed until adequate water pollution control measures are implemented. Effective September 2, 2011, implementation of the SWPPP shall be overseen by the Design Builder's QSP as defined in the General Construction Permit NPDES No. CAS000002. All work installed by the Design Builder in connection with the SWPCP/SWPPP but not specified to become a permanent part of the Work shall be removed and the site restored in so far as practical to its original condition prior to completion of the Work.

b) Post-Construction Standards; Agency's Representative shall ensure that applicable post-construction standards are implemented to meet applicable project requirements of the Ventura County NPDES MS4 Permit and General Construction Permit NPDES No. CAS000002 (effective September 2, 2012).

c) Active Treatment Systems; Design Builder shall comply with requirements of the General Construction Permit NPDES No. CAS000002 for active treatment systems as applicable.

5. Monitoring and Reporting

a) Monitoring; In accordance with the General Construction Permit NPDES No. CAS000002, the Design Builder shall develop and implement monitoring program for Risk Level 2 and 3 sites. In addition, at Risk Level 3 sites, Design Builder shall perform receiving water monitoring to meet Permit requirements.

b) Reporting; the Design Builder shall ensure that all submittals and reports are prepared and submitted to the RWQCB in accordance with the applicable Permits. At minimum the reports will include Annual Report (for applicable projects due September 1st), Rain Event Action Plan (due 48 hrs. prior to the rain event for the applicable projects), Numeric Action Levels (NAL) Exceedance Report (as required), Numeric Effluent Limitations (NELs) Violation Report (within 24 hours after NEL exceedance is identified). Design Builder shall submit required reports to the Agency's Representative for review and approval prior to submittal to the RWQCB.

6. Dewatering Activities

All dewatering activities shall be performed in accordance with applicable regulatory requirements issued by the Los Angeles Regional Water Quality Control Board, including specific requirements contained in the Waste Discharge Requirements (WDR) when issued for the Work.

7. Payment

The Contract lump sum price for water pollution control shall include full compensation for furnishing all labor, materials, tools, equipment, services and incidentals and for doing all work involved in water pollution control as specified herein. Payment for water pollution control will be made as the Work proceeds and is in compliance with the approved Water Pollution Control Plan, on the following basis.

Partial payment estimate (excluding mobilization & water pollution control payments) as a percentage of the original Contract price (excluding the mobilization & water pollution control Bid items).		Cumulative amount of water pollution control pay item earned is the lesser of the amounts as computed by these two columns.	
Equal to or greater than	Less than	Percentage of water pollution control pay item	Percentage of the original Contract total.
5	10	10	1
10	20	20	2
20	50	50	3
50	Completion of Work	75	5
Completion of Work		100	

Where no Bid item is provided for water pollution control, payment for water pollution control shall be considered to be included in the other Bid items.

8. Drainage Control.

The Design Builder shall maintain drainage within and through the Work areas. Earth dams will not be permitted in paved areas. Temporary dams of sandbags, asphaltic concrete or other acceptable material will be permitted when necessary to protect the Work, provided their use does not create a hazard or nuisance to the public. Such dams shall be removed from the site as soon as their use is no longer necessary.

9. Sanitary Sewers.

a) General. The flow of sewage shall not be interrupted. Should the Design Builder disrupt the operation of existing sanitary sewer facilities, or should disruption be necessary for performance of the Work, the Design Builder shall bypass the sewage flow around the Work. Sewage shall be conveyed in closed conduits and disposed of in a sanitary sewer system. Sewage shall not be permitted to flow in trenches nor be covered by backfill. Whenever sewage bypass and pumping is required by the Plans or Specifications, or the Design Builder so elects to perform, the Design Builder shall submit a working drawing conforming to detailing its proposed plan of sewage bypass and pumping.

b) Sewage Bypass and Pumping Plan. The plan shall indicate the locations and capacities of all pumps, sumps, suction and discharge lines. Equipment and piping shall be sized to handle the peak flow of the section of sewer line to be bypassed and pumped. Equipment and piping shall conform to 7-10, the Plans, and the Special Provisions. Bypass piping, when crossing areas subject to traffic loads, shall be constructed in trenches with adequate cover and otherwise protected from damage due to traffic. Lay-flat hose or aluminum piping with an adequate casing and/or traffic plates may be allowed if so approved by the Agency's Representative. Bypass pump suction and discharge lines that extend into manholes shall be rigid hose or hard pipe. Lay flat hose will not be allowed to extend into manholes. The Design Builder shall provide a backup bypass pumping system in case of malfunction. The backup bypass system shall provide 100 percent standby capability and be in place and ready for immediate use. Each standby pump shall be a complete unit with its own suction and discharge piping. In addition to the backup system, the Design Builder shall

furnish and operate vacuum trucks when required by the Plans or Special Provisions.

c) Spill Prevention and Emergency Response Plan. The Design Builder shall prepare and submit a spill prevention and emergency response plan. The plan shall address implementation of measures to prevent sewage spills, procedures for spill control and containment, notifications, emergency response, cleanup, and spill and damage reporting.

d) The plan shall account for all storm drain systems and water courses within the vicinity of the Work which could be affected by a sewage spill. Catch basins that could receive spilled sewage shall be identified. Unless otherwise specified in the Special Provisions, these catch basins shall be sealed prior to operating the bypass and pumping system. The Design Builder shall remove all material used to seal the catch basins when the bypass and pumping system operations are complete.

e) The Design Builder shall be fully responsible for containing any sewage spillage, preventing any sewage from reaching a watercourse, recovery and legal disposal of any spilled sewage, any fines or penalties associated with the sewage spill imposed upon by the Agency and/or the Design Builder by jurisdictional regulatory agencies, and any other expenses or liabilities related to the sewage spill.

B. The water quality impacts associated with the project development is addressed through a Post Construction Stormwater Management Plan (PCSMP). The post-construction storm water management control measures to be implemented on this project are to be designed to comply with the TGM in reducing the Effective Impervious Area (EIA) to less than or equal to five percent (≤5%) of the total project area, unless infeasible, or qualify for Alternative Compliance.

Compliance with stormwater control requirements of the TGM

1. Determine the Project Applicability

Proposed on an already developed site, the project will be subject to the requirements for Redevelopment Projects, triggered by “land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site”. Refer to TGM Section 1.5 Applicability for additional requirements.

2. Assess Site Conditions

Obtain the site information pertinent to the type of Best Management Practices (BMPs) proposed, including but not limited to, topography, soil type and geology, groundwater, geotechnical considerations, off-site drainage, existing utilities, Environmentally Sensitive Areas, and soil and infiltration testing. Refer to TGM Section 3.1 for detailed guidance on assessing site conditions and other constraints.

3. Apply Site Design Principles and Techniques

Site Design Principles and Technique are discussed in detail in TGM Section 4. Application of these techniques will aid in maximizing the effectiveness of Retention BMPs. It is important to consider the following criteria, listed in the TGM, early on in the

design phase to ensure sufficient area for the proposed BMPs and that runoff requiring treatment can be conveyed to that area.

- Retention BMPs should be considered as early as possible in the site planning process.
- A multidisciplinary approach at the initial phases of the project is recommended and should include planners, engineers, landscape architects, and architects.
- Individual Retention BMPs should be distributed throughout the project site as feasible and may influence the configuration of roads, buildings and other infrastructure.
- The project must demonstrate disconnection of impervious surface such that the 5% EIA requirement is achieved. If fully meeting the 5% EIA requirement using Retention BMPs is not technically feasible, the project must still utilize Retention BMPs to the maximum extent practicable.
- Flood and hydromodification control should be considered early in the design stages. Even sites with Retention BMPs will still have runoff that occurs during large storm events, but Retention facilities can have flood and hydromodification control benefits. It may be possible to simultaneously address flood and hydromodification control requirements through an integrated water resources management approach.

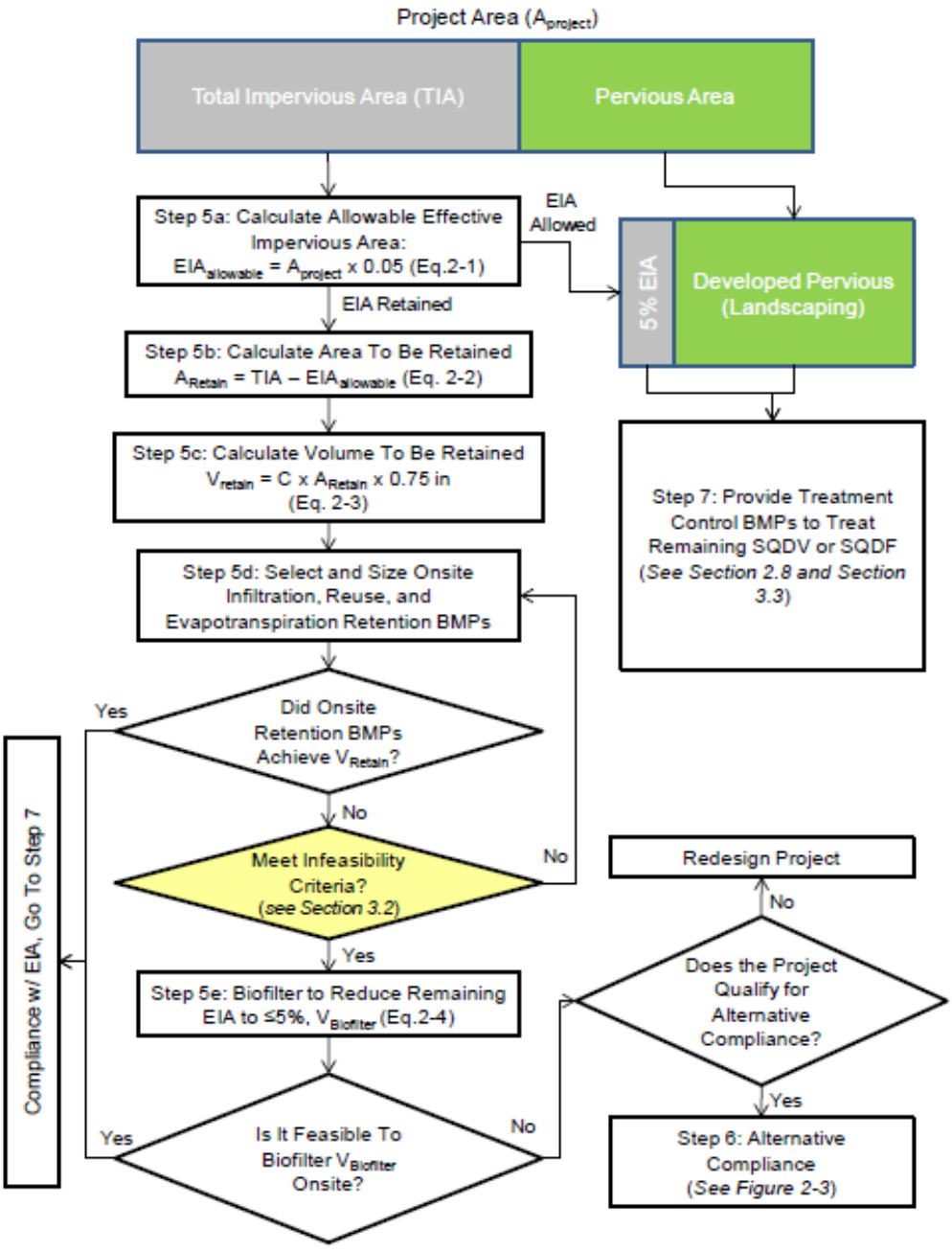
4. Apply Source Control Measures

The project shall implement the following Source Control Measures discussed in the TGM, where applicable. Detailed guidance is found in TGM Section 5.

- S-1: Storm Drain Message and Signage
- S-2: Outdoor Material Storage Area Design
- S-3: Outdoor Trash Storage Area Design
- S-4: Outdoor Loading/Unloading Dock Area Design
- S-5: Outdoor Repair/Maintenance Bay Design
- S-6: Outdoor Vehicle/Equipment/Accessory Washing Area Design
- S-7: Fueling Area Design
- S-8: Proof of Control Measure Maintenance

5. Apply BMPs to Reduce Effective Impervious Area (EIA) to ≤ 5%

The primary type of BMP required to render impervious surfaces “ineffective” are Retention BMPs, unless deemed technically infeasible. This is achieved through either infiltration, rainwater harvesting, and/or evapotranspiration of the design storm volume. Biofiltration BMPs may be used to achieve the 5% EIA standard if Retention BMPs are technically infeasible. The following flow chart is an excerpt from TGM to aid in the design and application of BMPs to reduce the EIA to less than or equal to 5%.



6. Alternative Compliance

Particular new and redevelopment project types, listed in TGM Section 2.7, are eligible for alternative compliance measures, with the qualification that implementing onsite Retention and/or Biofiltration BMPs is technically infeasible to meet the 5% EIA standard. Alternative compliance is achieved through the following options, but shall be confirmed with the local approving agency that such options are available in their jurisdiction:

- Offsite mitigation project located within the same hydrologic area and must be completed, at the latest, 4 years of the certificate of occupancy for the original project; or

- Offsite mitigation fee. May not be available in all jurisdictions.

7. Apply Treatment Control Measures

Stormwater runoff from EIA and developed pervious surfaces, as depicted in the preious flow chart, shall be mitigated using Retention BMPs, Biofiltration BMPs, or Treatment Control Measures. Refer to TGM Section 2.8 for the allowable methodologies and procedures to determine the Stormwater Quality Design Volume (SQDV) and Stormwater Quality Design Flow (SQDF) used in sizing the proposed BMPs. Additionally, Appendix E of the TGM provides BMP Sizing Worksheets and Design Examples.

8. Continue Project Design Process: Flood Control and Hydromodification Requirements

a) Flood Control Requirements: Applicants shall comply with Ventura County and local approval agency regulations on floodplain and floodway management.

b) Hydromodification (Flow/Volume/Duration) Control Criteria: To prevent accelerated erosion and to protect stream habitat in downstream natural drainage systems, Projects meeting the applicability criteria contained in Section 4.E.II of Order R4-2010-0108 (presented in Section 1.5 of the 2011 TGM) are required to implement hydrologic control measures. These measures may include onsite, subregional, or regional Hydromodification Control Measures, Retention BMPs, or stream restoration measures. Preference must be given to onsite Retention BMPs and Hydromodification Control Measures.

c) Interim Hydromodification Control Criteria: For Projects disturbing less than 50 acres must comply with the Stormwater Management Standards contained in the 2011 TGM (i.e., a combination of Retention BMPs, Biofiltration BMPs, and/or Treatment Control Measures).

d) Exemptions: The following is a list of exemptions for New and Redevelopment Projects

- Single-family structures, unless such projects disturb one acre or more of land or create, add, or replace 10,000 square feet or more of impervious surface area.

- All projects that disturb less than one acre.

- Projects that are replacement, maintenance, or repair of an Agency's existing flood control facility, storm drain, or transportation network.

- Redevelopment projects in existing urban areas [see maps in Appendix B of the TGM] that do not increase the effective impervious area or decrease the infiltration capacity of pervious areas compared to the pre-project condition.

- Projects that have any increased discharge directly or via a storm drain to a sump, lake, area under tidal influence, into a waterway that has a 100-year peak flow (Q100) of 25,000 cubic feet per second (cfs) or more, or other receiving water that is not susceptible to hydromodification impacts.

- Projects that discharge directly or via a storm drain into concrete or improved (not natural) channels (e.g., rip rap, sackcrete, etc.), which, in turn, discharge into receiving water that is not susceptible to hydromodification impacts (as in #5 above).

9. Develop Maintenance Plan

The Ventura Countywide Stormwater Quality Management Program (Program) requires the submittal of a Maintenance Plan and execution of a Maintenance Agreement with the owner/operator of any stormwater control that requires maintenance including Site Design Principles and Techniques; Source Control Measures; and Retention BMPs, Biofiltration BMPs, and Treatment Control Measures. Maintenance Plans must include guidelines for how and when inspection and maintenance should occur for each control. Section 7 and Appendices H and I of the TGM provide additional information and guidance on compliance with maintenance requirements.

1.3 WORK SITE MAINTENANCE

A. General Throughout all phases of construction, including suspension of the Work, and until acceptance, the Design Builder shall keep the Work site clean and free from rubbish and debris. Rubbish and debris collected on the Work site shall only be stored in roll-off, enclosed containers prior to disposal. Stockpiles of such will not be allowed.

B. When required by the Special Provisions, the Design Builder shall provide a self-loading motorized street sweeper equipped with a functional water spray system. The sweeper shall clean all paved areas within the Work site and all paved haul routes at least once each working day.

C. The Design Builder shall ensure there is no spillage along haul routes. Any such spillage shall be removed immediately and the area cleaned.

D. Should the Design Builder fail to keep the Work site free from rubbish and debris, the Agency's Representative may suspend the Work until the condition is corrected.

E. E. Air Pollution Control: The Design Builder shall not discharge smoke, dust, equipment exhaust, or any other air contaminants into the atmosphere in such quantity as will violate any Federal, State, or local regulations. The Design Builder shall also abate dust nuisance by cleaning, sweeping and spraying with water, or other means as necessary. The use of water shall conform to the contract documents.

F. F. Noise Control. Noise generated from the Design Builder's operations shall be controlled as specified in Section 01-00620 1.6 A & B.

G. G. Storage of Equipment and Materials.

1. General Materials and equipment shall be removed from the Work site as soon as they are no longer necessary. Before inspection by the Agency's Representative for acceptance, the Work site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance.

2. Excess excavated material shall be removed from the Work site immediately unless otherwise specified in the Special Provisions.

3. Forms and form lumber shall be removed from the Work site as soon as practicable after stripping.

4. Storage in Public Streets. Construction materials and equipment shall not be stored in streets, roads, or highways for more than 5 days after unloading unless otherwise specified in the Special Provisions or approved by the Agency's Representative. All materials or equipment not installed or used in construction within 5 days after unloading shall be stored at a location approved by the Agency's Representative.

5. Excavated material, except that which is to be used as backfill in the adjacent trench, shall not be stored in public streets unless otherwise specified in the Special Provisions or approved by the Agency's Representative. Immediately after placing backfill, all excess material shall be removed from the Work site.

ARTICLE 2 – PRODUCTS

ARTICLE 3 – EXECUTION

END OF DOCUMENT

SECTION 015813

TEMPORARY PROJECT SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary Project signage.

1.2 PROJECT SIGN (WITH RENDERING)

A. Provide two (2) 8 foot wide x 8 foot high x 3/4" thick project signs of exterior grade "B" or better Douglas Fir veneer permanently factory surface with a smooth, resin fiber coating and wood frame construction, painted with exhibit lettering by professional sign painter, to Owner's design and colors. Building rendering as provided. Install on three (3) 4 x 4 x 8 foot redwood posts with bottom 4 feet above finish grade and locate on site per Owner's instructions.

B. List title of Project, names of County Board of Supervisors, County Department Heads, Bridging Architect/Construction Manager, Design-Build Entity and other information specified by Owner.

C. Signs to be installed at specific locations directed by, and at time approved by and coordinated with, appropriate Todd Road Jail Health and Programming Unit (TRJHPU) personnel. Subject to their approval, Design-Build Entity should anticipate erecting signs within five (5) working days after issuance of Document 005500 Notice to Proceed With Construction.

D. No other signs are allowed except those required by law.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 016000

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Products.
B. Product Options and Substitutions.
C. Product Delivery Requirements.
D. Shipping Requirements.
E. Product Storage and Handling Requirements.

1.2 PRODUCTS

A. Products: New material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
C. For similar components, provide interchangeable components of the same manufacturer.

1.3 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Summary. This paragraph describes procedures for selecting products and requesting substitutions of unlisted materials in lieu of materials named in the Specifications or Bridging Documents or approved for use in Addenda that were not already the subject of a Document 006325 (Substitution Request Form) submittal. For “or equal” items, it is the Design-Build Entity’s responsibility to demonstrate that the items meet all of the requirements by following the Request for Substitution process.
B. “Or Equal” Substitutions. Owner will consider substitution requests only for “or equal” items. If Design-Build Entity wishes to use any “or equal” item, it must submit Request for Substitution (RFS), including all information contained in this Section 016000 (Product Requirements) and a fully executed Document 006325 (Substitution Request Form), no later than the date indicated in Section 011101 (Summary of Work – Design-Build Design Services). After that date, Owner will not accept “or equal” substitution requests. To assess “or equal” acceptability of product or system, submittals of substitutions shall contain the information required in Document 006625 and set forth in this Section 016000. Insufficient information will be grounds for rejection of substitution. Owner shall, within a reasonable period of time after having received a Request for Substitution, issue in writing its decision as to whether the proposed substitute item is an Equal item. Owner’s decision shall be conclusive on Design-Build Entity.
C. Design-Build Entity’s Options:
    1. For products specified only by reference standard: Select any product meeting that standard.
    2. For products specified by naming one or more products or manufacturers:
        a) Select products of any named manufacturer meeting Specifications or Bridging Documents.
        b) If product becomes unavailable due to no fault of Design-Build Entity, submit RFS.
D. Substitutions:
    1. Owner will consider Design-Build Entity’s substitution requests only when product becomes unavailable due to no fault of Design-Build Entity.
    2. Requests for review of proposed substitute items will not be accepted from anyone other than Design-Build Entity. The RFS shall state the extent, if any, to which the evaluation and acceptance of the proposed substitute will prejudice Design-Build Entity’s achievement of Substantial Completion on time, and whether or not acceptance of the substitute for use in the Work will require a change in any of the

Specifications, Bridging Documents or other Contract Documents (or in the provisions of any other direct contract with Owner for work on the Project).

3. Submit separate RFS (and five copies) for each product and support each request with:
   a) Product identification.
   b) Manufacturer's literature.
   c) Samples, as applicable.
   d) Name and address of similar projects on which product has been used, and dates of installation.
   e) Name, address, and telephone number of manufacturer's representative or sales engineer.
   f) For construction methods: Detailed description of proposed method; drawings illustrating methods.
4. Where required, itemize a comparison of the proposed substitution with product specified and list significant variations including, but not limited to dimensions, weights, service requirements, and functional differences. If variation from product specified is not pointed out in submittal, variation will be rejected even though submittal was favorably reviewed. Identify all variations of the proposed substitute from that specified in the RFS and indicate available maintenance, repair, and replacement service.
5. State whether the substitute will require a change in any of the Contract Documents (or provisions of any other direct contract with Owner for work on the Project) to adapt the design of the proposed substitute, and whether or not incorporation or use of the substitute in connection with Work is subject to payment of any license fee or royalty. Submit data relating to changes in construction schedule.
6. Include accurate cost data comparing proposed substitution with product and amount of net change in Contract Sum including, but not limited to, an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors, Designers and Subcontractors affected by the resulting change, all of which will be considered by Owner in evaluating the proposed substitute. Owner may require Design-Build Entity to furnish additional data about the proposed substitute.
7. Owner will not consider substitutions for acceptance (or, in Owner's sole discretion, Owner may make Design-Build Entity solely responsible for all resulting costs, expenses and other consequences) when a substitution:
   a) Results in delay meeting design or construction Milestones or completion dates.
   b) Is indicated or implied on submittals, including without limitation any design submittals, without formal request from Design-Build Entity.
   c) Is requested directly by a Designer, Subcontractor or supplier.
   d) Acceptance will require substantial revision of Contract Documents.
   e) Disrupts Design-Build Entity's job rhythm or ability to perform efficiently.
8. Substitute products shall not be ordered without written acceptance of Owner.
9. Owner will determine acceptability of proposed substitutions and reserve right to reject proposals due to insufficient information.
10. Accepted substitutions will be evidenced by a Change Order. All Contract Documents requirements apply to Work involving substitutions.

E. Design-Build Entity's Representation and Warranty:
   1. Design-Build Entity's RFS constitute a representation and warranty that Design-Build Entity.
      a) Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.
      b) Will provide the same warranty for substitution as for specified product.
      c) Will coordinate installation and make other changes that may be required for Work to be complete in all respects.
      d) Waives claims for additional costs which may subsequently become apparent.

e) Will compensate Owner for additional redesign costs associated with substitution.
f) Will be responsible for Construction Schedule slippage due to substitution.
g) Will be responsible for Construction Schedule delay due to late ordering of available specified products caused by requests for substitution that are subsequently rejected by Owner.
h) Will compensate Owner for all costs; including extra costs of performing Work under Contract Documents, extra cost to other contractors, Designers and Subcontractors , and any claims brought against Owner, caused by late requests for substitutions or late ordering of products.

F. Owner's Duties:
1. Review Design-Build Entity's RFS with reasonable promptness.
2. Notify Design-Build Entity in writing of decision to accept or reject requested substitution.

G. Administrative Requirements:
1. Specified products, materials, or systems for Project may include engineering or on-file standards required by the regulatory agency. Design-Build Entity's substitution of products, materials or systems may require additional engineering, testing, reviews, approvals, assurances, or other information for compliance with regulatory agency requirements or both. Provide all agency approvals or other additional information required and pay additional costs for required Owner services made necessary by the substitution at no increase in Contract Sum or Contract Time, and as a part of substitution proposal.

1.4 PRODUCT DELIVERY REQUIREMENTS

A. Deliver products in accordance with manufacturer's instructions.
B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

1.5 SHIPPING REQUIREMENTS

A. Preparation for Shipment: All equipment shall be suitably packaged to facilitate handling and to protect against damage during transit and storage. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All equipment shall be protected from exposure to the elements and shall be kept dry at all times.
1. Painted and coated surfaces shall be protected against impact, abrasion, discoloration, and other damage. Painted and coated surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of Owner.
2. Grease and lubricating oil shall be applied to all bearings and similar items.

B. Shipping: Before shipping each item of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

1.6 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store products only in staging area per provisions of Section 011102 (Summary of Work – Design-Build Contractor Services).
B. Handle, store, and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate-controlled enclosures.
C. For exterior storage of fabricated products, place on appropriate supports, above ground.
D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
E. Store loose granular materials on solid flat surfaces in a well-drained area.
F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

H. Without limiting the foregoing:
   1. Design-Build Entity shall bear the responsibility for delivery of equipment, spare parts, special tools, and materials to the Site and shall comply with the requirements specified herein and provide required information concerning the shipment and delivery of the materials specified in Contract Documents. These requirements also apply to any sub-suppliers making direct shipments to the Site. Acceptance of the equipment shall be made only after it is installed, tested, placed in operation and found to comply with all the specified requirements.
   2. All items shall be checked against packing lists immediately on delivery to the Site for damage and for shortages. Damage and shortages shall be remedied with the minimum of delay.
   3. No metalwork (miscellaneous steel shapes and reinforcing steel) shall be stored directly on the ground. Masonry products shall be handled and stored in a manner to hold breakage, chipping, cracking, and spalling to a minimum. Cement, lime, and similar products shall be stored off the ground on pallets and shall be covered and kept completely dry at all times. Pipe fittings and valves may be stored out of doors, but must be placed on wooden blocking. PVC pipe, geomembranes, plastic liner, and other plastic materials shall be stored off the ground on pallets and protected from direct sunlight.
   4. Electrical equipment, and all equipment with antifriction or sleeve bearings shall be stored in weathertight structures maintained at a temperature above 60°F. Electrical equipment, controls, and insulation shall be protected against moisture and water damage. All space heaters furnished in equipment shall be connected and operated continuously.
   5. Equipment having moving parts such as gears, bearings, and seals, shall be stored fully lubricated with oil, grease, etc., unless otherwise instructed by the manufacturer. Manufacturer's storage instructions shall be carefully followed by Design-Build Entity.
   6. When required by the equipment manufacturer, moving parts shall be rotated a minimum of twice a month to ensure proper lubrication and to avoid metal to metal "welding". Upon installation of the equipment, Design-Build Entity shall, at the discretion of Owner, start the equipment at one-half load for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.
   7. When required by the equipment manufacturer, lubricant shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment by Design-Build Entity at the time of acceptance.
   8. Equipment and materials shall not show any pitting, rust, decay, or other deleterious effects of storage when installed in the Work.
   9. In addition to the protection specified for prolonged storage, the packaging of spare units and spare parts shall be for export packing and shall be suitable for long-term storage in a damp location. Each spare item shall be packed separately and shall be completely identified on the outside of the container.
   10. Handling. Stored items shall be laid out to facilitate their retrieval for use in the Work. Care shall be taken when removing the equipment for use to ensure the precise piece of equipment is removed and that it is handled in a manner than does not damage the equipment.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 017400

CLEANING AND WASTE MANAGEMENT

PART 1 GENERAL

1.1 CLEANING

A. A. Perform cleaning and disposal work as specified, complete. This Section forms a part of all other Sections of the specifications and will be coordinated with such additional cleaning and disposal requirements as may be specified in other Sections.

1.2 CLEANING IN GENERAL

A. Design-Build Entity must at all times keep premises free from accumulations of waste material or rubbish caused by Design-Build Entity's employees or work, or employees or work of subcontractors, and must remove rubbish from and about areas of Work and Design Builder's and subcontractors' tools, scaffolding and surplus materials and must leave the Work "broom clean", or its equivalent, except as hereinafter specified. In case of dispute between Design-Build Entity and subcontractors employed on or about the work areas, as to responsibility for removal of rubbish, etc., or in case debris is not promptly removed as herein required, the County may remove rubbish, etc., and back charge the Design-Build Entity.

B. At all times, the Todd Road Jail Health and Programming Unit (TRJHPU) Project working area and site must be kept clean and orderly. Dirt, debris, waste, rubbish and disused implements and equipment must be removed frequently and not allowed to accumulate more than 24 hours. Flammable and toxic materials must not be stored in structures.

1.3 PROGRESS CLEANING

A. General:
   1. Clean TRJHPU site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
   2. Comply with requirements in National Fire Protection Association (NFPA) 241 for removal of combustible waste materials and debris.
   3. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
   4. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site:
   1. Maintain TRJHPU site free of waste materials and debris.

C. Work Areas:
   1. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   2. Remove liquid spills promptly.
   3. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work:
   1. Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces:
   1. Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas:
   1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Completion.

G. Waste Disposal:
   1. Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. Progress Cleaning:
   1. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Completion.
   2. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

I. Limiting Exposures:
   1. Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

1.4 FINAL CLEANING

A. A. Within Agreement limits, clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
   1. Clean equipment and fixtures to sanitary condition, clean or replace filters of mechanical equipment.
   2. Clean roofs, gutters, downspouts and drainage systems.
   3. Glass: Clean all glass, interior and exterior, affected by Work of TRJHPU; including removal of foreign material from glass.

B. Clean site: Sweep paved areas, rake clean other surfaces.

C. Remove waste and surplus materials, rubbish and construction facilities from TRJHPU and from site.

D. Dust, dirt, stains, hand marks, paint spots, and like defects must be completely removed from surfaces. Metal surfaces must be cleaned, using only non- corrosive and non-abrasive materials.

E. Final Inspection: Deficient cleaning operations, as determined by the County, must be immediately corrected as directed.

1.5 DISPOSAL

A. Under no circumstances will rubbish or waste material be disposed of in site fills or backfills. Debris, rubbish, and waste or surplus material must be removed from the County.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 017700

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
   1. Design-Build Entity Punchlist
   2. Owner Punchlist
   3. Completion
   4. Acceptance

1.2 DESIGN-BUILD ENTITY PUNCHLIST

A. Design-Build Entity must prepare its comprehensive punch-list and declare the Work is complete prior to requesting punchlist inspection by the Owner. Design-Build Entity must submit three paper copies and one electronic copy of its punchlist to the Owner.
   1. Punchlist must identify items noted by each of the Design-Build Entity's engineering and architectural disciplines.
   2. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Design-Build Entity that are outside the limits of construction.
   3. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
   4. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   5. Include the following information at the top of each page:
      a) Project name.
      b) Date.
      c) Name of Construction Manager.
      d) Name of Design-Build Entity.
      e) Page number, of total pages.

1.3 OWNER PUNCHLIST

A. Design-Build Entity must submit a request for Final Inspection. The Owner will review the work, and all reports, documents, warranties, guarantees, certificates, and releases. Design-Build Entity must make the following deliverables available for review prior to Completion. Upon review and approval by the Owner, the Design-Build Entity must submit the approved final deliverables in the required amounts as Stated in the Contract Documents.
   1. Daily Inspection Reports.
   2. Independent Laboratory's Test and Inspection Reports.
   3. Public Utility Acceptance Reports.
   4. State Inspection Reports, including but not limited to acceptance by the State Fire Marshal, Board of Sate and Community Corrections, Regional Air Quality Management District.
   5. County Inspection Reports, including but not limited to acceptance by the County Fire Marshal, County Health Department.
   6. Visitor Observation Reports.
   7. Product Manufacturers Inspection Reports.
   8. Design-Build Entity Punchlist including status of correction.
   9. Advise Owner of pending insurance changeover requirements.
   10. Submittal of binders for all warranties, workmanship bonds, maintenance service agreements, certifications, and similar documents.

11. Submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases and Project Design Build Record Documents.
12. Submit damage or settlement surveys, property surveys, and similar record information.
13. Deliver tools, spare parts, extra materials/stock, and similar items to location designated by the Owner. Label with manufacturer's name and model number where applicable.
14. Changeover in security provisions.
15. Completion startup testing of systems log.
16. Submit test/adjust/balance records.
17. Submit commissioning and functional testing logs.
18. Changeover in heat and other utilities.
19. Submit information for use, operation, and maintenance of area and equipment.
20. Submit pest-control inspection report and warranty.
21. Submit Section 017900 Demonstration and Training Manuals, DVD's and copies of attendance certificates.
22. Submit Section 013232 Photographic Documentation.
23. Submit Section 017839 Project Record Documents.

B. The Owner will perform the Final Inspection and issue a Punchlist. When all work has been completed as identified on the Design-Build Entity and or Owner Punchlists, Design-Build Entity will request a re-inspection. The results of the re-inspection will form the basis of requirements for Completion.

C. Re-inspection procedure: The Owner will re-inspect the work upon receipt of notice that the Work, including inspection list items from earlier inspections, have been completed, except items for which completion has been delayed because of circumstances acceptable to the Owner.
   1. Upon completion of re-inspection, the Owner will prepare a Certificate of Acceptance, or advise the Design-Build Entity of work that is incomplete or of obligations that have not been fulfilled but are required for Acceptance.
   2. If necessary, re-inspection will be repeated.

1.4 COMPLETION

A. Preliminary procedures: Before requesting inspection for Completion, complete the following. List all exceptions in the request.
   1. In the application for payment that coincides with, or first follows the date Completion is claimed, show 100 percent completion for the portion of the work claimed as complete. Include supporting documentation for completion as indicated in the Contract Documents and a Statement showing an accounting of changes to the Stipulated Sum.
      a) If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons why the Work is not complete.
   2. Advise Owner of pending insurance change-over requirements.
   3. Submit drafts of all warranties, workmanship bonds, maintenance agreements, final certifications and similar documents to the Owner before execution. Such items shall not detract from or confuse requirements or interpretations of Contract Documents. Final warranties shall be signed by manufacturers and, where specified, be countersigned by applicable installers and Subcontractors.
   4. Obtain and submit releases so the Owner can have unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates and similar releases.
   5. Submit record documents, maintenance manuals, final Project photographs, damage or settlement survey, property survey, and similar final record information per Section 017839 Project Record Documents.
   6. Make final change-over of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of change-over in security provisions.

7. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, materials, equipment and similar elements.
8. Repair damage caused by installation or use of temporary facilities, and restore permanent facilities used during construction to specified condition.
9. Complete final clean-up per Section 017400 Cleaning.
10. Touch-up, including touch-up painting and otherwise repair and restore marred exposed finishes.

B. Inspection procedures: Upon receipt of a request for inspection, the Owner will either proceed with inspection or advise the Design-Build Entity of unfulfilled requirements. The Owner will prepare the Certificate of Final Completion following inspection, or advise the Design-Build Entity of construction that must be completed or corrected before the certificate will be issued.
1. The Owner will repeat inspection when requested and assured that the Work has been completed.
2. Results of the completed inspection will form the basis of requirements for Acceptance.

C. Warranty of Title:
No material, supplies, or equipment for Work under the Contract shall be purchased subject to any chattel mortgage, security agreement, or under a conditional sale or other agreement by which an interest therein or any part thereof is retained by seller or supplier. The Design-Build Entity warrants good title to all material, supplies, and equipment installed or incorporated in the Work and agrees upon completion of all the Work to deliver the premises, together with improvements and appurtenances constructed or placed thereon by Design-Build Entity, to the Owner free from any claim, liens, security interest, or charges, and further agrees that neither the Design-Build Entity nor any person, firm, or corporation furnishing any labor, materials or services for any Work covered by the Contract shall have right to lien upon the premises or improvement or appurtenances thereon. Nothing contained in this paragraph, however, shall defeat or impair right of persons furnishing labor, services or materials under bond given by the Design-Build Entity for their protection or any rights under law permitting persons to look to funds due the Design-Build Entity in hands of the Owner.

1.5 ACCEPTANCE

A. Acknowledgment of completion of the Work will occur prior to Acceptance by the Agency. Acceptance will only occur after all Contract requirements have been fulfilled, such as training, submission of warranties, maintenance manuals, record drawings, Release on Contract and the like. Acceptance by the Agency will occur when the Engineer signs the Notice of Completion.
The Work will be inspected by the Engineer promptly upon receipt of the Contractor's written assertion that the Work has been completed. If, in the Engineer's judgment, the Work has been completed in accordance with the Plans and Specifications, the Engineer will acknowledge completion of the Work. Completion of the Work, as used above, shall include the Contractor showing evidence of having received an occupancy clearance from Building and Safety, or other permit issuing agency, when a building, plumbing electrical, grading, or other permit is required for the Work. The Engineer will, in acknowledging completion of the Work, set forth in writing the date when the Work was completed. This will be the date when the Contractor is relieved from responsibility to protect the Work. This will also be the date to which liquidated damages will be computed.

B. Before requesting Final Inspection for Certification of Acceptance and final payment, complete the following:
1. Preliminary procedures: List exceptions in the request.
a) Submit final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required per Contract Requirements.

b) Submit an updated final Statement, accounting for final additional changes to the Stipulated Sum.
c) Submit a certified copy of the Owner's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for Acceptance and the list has been endorsed and dated by the Owner.
d) Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Completion, or when the Owner took possession of and responsibility for corresponding portions of the Work.
e) Submit consent of surety to final payment.
f) Submit a final liquidated damages settlement Statement, when applicable.
g) Submit evidence of final, continuing insurance coverage complying with insurance requirements.

C. Final Adjustments of Accounts:
1. Submit a final statement of accounting to the Owner, showing all adjustments to the Contract Sum and complete and execute Document 006530 (Agreement and Release of Claims).
2. If so required, the Owner shall prepare a final Change Order for submittal to Design-Build Entity, showing adjustments to the Contract Sum that were not previously made into a Contract Modification.

1.6 **RELEASE OF CONTRACT**

A. After completion of all work required by the contract, Agency will furnish Contractor a Release on Contract form stating the amount of total authorized payments for the project. Contractor shall execute and return said form within 21 days of receipt. Said form shall release and discharge the Agency from all claims of and liability to the Contractor for all manner of debts, demands, accounts, claims, and causes of action under or by virtue of said Contract except:
1. The claim against the Agency for the remainder, if any, of the amounts retained as provided in 9-3.2, and any amounts retained as required by Stop Notices or Labor Code provisions.
2. Any unsettled claims or disputes listed on the Release on Contract form which has been processed incompliance with the requirements for making claims under the Contract, including given timely notice pursuant to the applicable provisions of the Contract and following the procedure set forth in 6-12.

B. Acceptance of the Release on Contract by the Agency shall not be deemed a waiver or release of the Agency's right to contest either the substantive or procedural validity of any listed unsettled claims or disputes.

C. When executing the Release on Contract, the Contractor shall certify that each unsettled claim or dispute listed thereon has been processed in compliance with the requirements for making claims under the Contract, including giving timely notice pursuant to the applicable provisions of the Contract and following the procedures for resolution of disputes or claims set forth in 6-12 and that acceptance of the Release on Contract by the Agency shall not be deemed a waiver or release of the Agency's right to contest either the substantive or procedural validity of any listed unsettled claims or disputes.

D. If Contractor fails to execute and submit a Release on Contract within the 21 day time period set forth above, the Release on Contract shall be deemed to have been submitted with no unsettled claims or disputes listed on the Release on Contract. A payment of $1.00 will be made to the Contractor for such Release on Contract and waiver.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 017823

OPERATIONS AND MAINTENANCE DATA

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Administrative and procedural requirements for preparing operations and maintenance manuals, including the following:
      a) Operations and maintenance documentation directory.
      b) Emergency manuals.
      c) Operations manuals for systems, subsystems, and equipment.
      d) Maintenance manuals for the care and maintenance of products, materials and finishes, systems, and equipment.

1.2 DEFINITIONS

A. O&M Manual or Manual:
   1. Any operations manual, maintenance manual, emergency manual, or directory, described in this Section 017823 or other applicable portion of Contract Documents.
B. System:
   1. An organized collection of parts, equipment, or subsystems united by regular interaction.
C. Subsystem:
   1. A portion of a system with characteristics similar to a system.

1.3 REQUIREMENTS

A. Content and Form all Operations and Maintenance (O&M) Manuals:
   1. The specific content and format requirements for all O&M manuals are detailed herein, under Products, Part 2, and in the individual Specifications. The O&M Manuals will be submitted in both hard copy and electronic form. The electronic form will be compiled in the most current form of Adobe Acrobat, Release DC or better. The electronic file will be bookmarked according to its Table of Contents, but will contain no less than the book marking identification in descending order of section, system, subsystem, equipment, component, etc., where applicable. The goal is to make the manuals both manageable and user friendly for the Owner's use.
   2. All manual documents must be word searchable, scanned images of text will not be acceptable.
B. Design-Build Entity Design Team Contribution. The Design-Build Entity will include, in the beginning of each O&M manual, a separate section describing the systems, including:
   1. The Basis of Design narrative prepared by the Design-Build Entity's Designers, updated to as-built status by the Designers.
   2. Simplified, professionally-drawn, single-line system diagrams on 8-1/2" x 11" or 11" x 17" sheets. These must include chillers, water system, condenser water system, heating system, supply air systems, exhaust systems etc. These must show major pieces of equipment such as pumps, chillers, boilers, control valves, expansion tanks, coils, service valves, electrical distribution and controls systems, etc.
C. Owner Review and Approval:
   1. Prior to completion, the Owner will review the O&M manuals, documentation, and redlined as-builts to verify compliance with the Performance Criteria and other applicable Contract Documents (including Bridging Documents). The Owner will also review each equipment warranty to verify that all requirements to keep the warranty valid are clearly stated. The Owner will communicate observed deficiencies to the Design-Build Entity for correction, but no Owner review or failure to observe deficiencies or request corrections will limit any other Design-Build Entity obligation under Contract Documents.

1.4 SUBMITTALS

A. Initial Submittal:
   1. Prepare and submit two (2) draft copies of each manual (emergency, operations, maintenance, and directory) within sixty (60) days following completion of the construction phase submittal process, but in no case later than one hundred and twenty (120) days prior to completion. The drafts will be reviewed, approved, and corrections noted where applicable by the Owner.
   2. The Owner will also mark on draft directories whether general scope and content are acceptable.

B. Final Submittal:
   1. Following a satisfactory approval of the draft by the Owner, submit two copies of each manual in final form at least sixty (60) days before completion. The Owner will return one copy with any further comments within thirty (30) days before completion.
   2. Correct or modify each manual to comply with the Owner's comments. Submit 3 copies of each corrected manual and two copies on CD-R of the electronic file(s) of the corrected manual within fifteen (15) days of receipt of the Owner's comments and prior to the commencement of any training related activities.

1.5 COORDINATION

A. General:
   1. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Operations and Maintenance Documentation Directory:
   1. Prepare a separate manual that provides an organized reference to each type of manual, including without limitation emergency, operations, and maintenance manuals.

B. Organization:
   1. Include a Section in the directory for each of the following:
      a) Master table of contents for directory.
      b) List of contacts.
      c) List of systems and subsystems.
      d) List of equipment.
      e) Tables of contents.

C. List of Contacts
   1. List systems/equipment contacts; list by system, alphabetically.

D. List of Systems and Subsystems:
   1. List systems alphabetically. Include references to operations and maintenance manuals that contain information about each system.

E. List of Equipment:
   1. List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

F. Tables of Contents:
   1. Include every table of contents for each emergency, operation and maintenance manual.

G. Identification:
   1. In the documentation directory and in each operations and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Construction Documents. If no designation exists, assign a designation according to American Society of Heating Refrigerating & Air Conditioning Engineers (ASHRAE) Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS – GENERAL

A. Organization:
   1. Unless otherwise required, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system.
   2. Each manual must contain the following materials, in the order listed:
      a) Title page.
      b) Table of contents.
      c) Manual contents.

B. Title Page:
   1. Enclose title page in transparent plastic sleeve. Include the following information:
      a) Subject matter included in manual.
      b) Name and address of Ventura County Todd Road Jail Health and Programming Unit.
      c) Date of submittal.
      d) Name, address, and telephone number of Design-Build Entity.
      e) Cross-reference to related systems in other operations and maintenance manuals.

C. Table of Contents:
   1. List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in final Contract Documents.
   2. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents:
   1. Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
   2. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf D-ring binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
      a) If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
      b) Identify each binder on front and spine, with printed title "OPERATIONS AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number (and volume count) for multiple-volume sets.
   3. Dividers: Heavy-paper dividers with plastic-covered tabs for each Section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the Section on each divider, cross-referenced to Specification Section number and title of Contract Documents.
   4. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
   5. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
   6. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
      a) If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
      b) If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

E. Manufacturers' Data:

1. Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Construction Documents. Identify data applicable to the Work and delete references to information not applicable.
2. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

F. Drawings:
1. Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Project Record Drawings to ensure correct illustration of completed installation.
2. Do not use original TRJHPU Project Record Documents as part of operation and maintenance manuals.
3. Comply with requirements of newly prepared Record Drawings in Section 017839, Project Record Documents.

2.3 EMERGENCY MANUALS

A. Emergency Manual:
1. Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by the Owner for types of emergencies required.

B. Content:
1. Organize manual into a separate section for each of the following:
a) Type of emergency.
b) Emergency instructions.
c) Emergency procedures.

C. Type of Emergency:
1. Where applicable for each type of emergency required below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
a) Fire.
b) Flood.
c) Gas leak.
d) Water leak.
e) Power failure.
f) Water outage.
g) System, subsystem, or equipment failure.
h) Chemical release or spill.

D. Emergency Instructions:
1. Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of the Owner for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures:
1. Include the following, as applicable:
a) Instructions on stopping.
b) Shutdown instructions for each type of emergency.
c) Operating instructions for conditions outside normal operating limits.
d) Required sequences for electric or electronic systems.
e) Special operating instructions and procedures.

2.4 OPERATIONS MANUALS

A. Operations and Maintenance Manuals:
1. Assemble a complete set of operations and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

2. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
3. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by the Owner.
4. Prepare a recommended general overall preventative maintenance manual and include a schedule for use by the Owner.

B. Content:
1. In addition to requirements in this Section, include operations data required in individual Specification Sections and the following information:
a) Contacts.
i) List names.
ii) Addresses.
iii) Phone numbers (direct contact, where possible).
iv) Email addresses.
b) System, subsystem, and equipment descriptions.
c) Performance and design requirement if Design-Build Entity is delegated design responsibility.
d) Operating standards.
e) Operating procedures.
f) Operating logs.
g) Wiring diagrams.
h) Control diagrams.
i) Piped system diagrams.
j) Precautions against improper use.
k) License requirements including inspection and renewal dates.

C. Descriptions:
1. Include the following:
a) Product name and model number.
b) Manufacturer's name.
c) Equipment identification with serial number of each component.
d) Equipment function.
e) Operating characteristics.
f) Limiting conditions.
g) Performance curves.
h) Engineering data and tests.
i) Complete nomenclature and number of replacement parts.

D. Operating Procedures:
1. Include the following, as applicable:
a) Startup procedures.
b) Equipment or system break-in procedures.
c) Routine and normal operating instructions.
d) Regulation and control procedures.
e) Instructions on stopping.
f) Normal shutdown instructions.
g) Seasonal and weekend operating instructions.
h) Required sequences for electric or electronic systems.
i) Special operating instructions and procedures.

E. Systems and Equipment Controls:
1. Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems:
1. Diagram piping as installed, and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual:

1. Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content:
   1. Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Source Information:
   1. List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Contract Documents.

D. Product Information:
   1. Include the following, as applicable:
      a) Product name and model number.
      b) Manufacturer's name.
      c) Color, pattern, and texture.
      d) Material and chemical composition.
      e) Reordering information for specially manufactured products.

E. Maintenance Procedures:
   1. Include manufacturer's written recommendations and the following:
      a) Inspection procedures.
      b) Types of cleaning agents to be used and methods of cleaning.
      c) List of cleaning agents and methods of cleaning detrimental to product.
      d) Schedule for routine cleaning and maintenance.
      e) Repair instructions.

F. Repair Materials and Sources:
   1. Include lists of materials and local sources of materials and related services.

G. Warranties and Bonds:
   1. Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   2. Include procedures to follow and required notifications for warranty claims.

2.6 MAINTENANCE MANUAL INFORMATION FOR SYSTEMS AND EQUIPMENT

A. Content:
   1. For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information:
   1. List each system, subsystem, and piece of equipment included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Contract Documents.

C. Manufacturers' Maintenance Documentation:
   1. Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
      a) Standard printed maintenance instructions and bulletins.
      b) Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
      c) Identification and nomenclature of parts and components.
      d) List of items recommended to be stocked as spare parts.

D. Maintenance Procedures:
   1. Include the following information and items that detail essential maintenance procedures:

a) Test and inspection instructions.
b) Troubleshooting guide.
c) Precautions against improper maintenance.

2. Disassembly, component removal, repair, and replacement; and reassembly instructions.
3. Aligning, adjusting, and checking instructions.
4. Demonstration and training videotape, if available.

E. Maintenance and Service Schedules:
1. Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
2. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
3. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information:
1. Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts:
1. Include copies of service and maintenance agreements provided by the supplier or manufacturer of any equipment or materials used in the Project and provided by any subcontractors that performed any portion of the Project Work. The duration of any service or maintenance agreements supplied to Owner shall be from the date of Final Completion of the Project Work. Provide each with name and telephone number of service agent.

H. Warranties and Bonds:
1. Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
2. Include procedures to follow and required notifications for warranty claims.

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 017839

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements for Project Record Documents.

B. Project Record Documents required include:
   1. Marked-up copies of Drawings.
   2. Marked-up copies of Shop Drawings.
   3. Newly prepared Drawings.
   4. Marked-up copies of Specifications, Addenda, Change Orders and CCDs.
   5. Marked-up Product Data submittals.
   6. Record Samples.
   7. Field records for variable and concealed conditions.
   8. Record information on Work that is recorded only schematically.

C. Specific Project Record Documents requirements that expand requirements of this Section may be included in individual Sections of Divisions 02 through 33.

D. Also comply with all As-Built BIM and related requirements under Section 01 3554 (BIM Requirements).

E. General Project closeout requirements are included in Section 01 7700 (Closeout Procedures).

F. Maintenance of Documents and Samples:
   1. Store Project Record Documents and Samples in the field office apart from Contract Documents used for construction.
   2. Do not permit Project Record Documents to be used for construction purposes.
   3. Maintain Project Record Documents in good order and in a clean, dry, legible condition.
   4. Make Documents and Samples available at all times for inspection by Owner.

1.2 PROJECT RECORD DRAWINGS

A. Mark-up Procedure: During the construction period, maintain a set of blueline or blackline prints of Contract (final) Drawings and Shop Drawings for Project Record Documents purposes. Label each document (on first sheet or page) “PROJECT RECORD” in 2-inch high printed letters. Keep record documents current. Note: A reference by number to a Change Order, CCD, RFI, RFQ, RFP, Field Order or other such document is not acceptable as sufficient record information on any record document. Do not permanently conceal any Work until required information has been recorded.
   1. Mark these Drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:
      a) Dimensional changes to the Drawings.
      b) Revisions to details shown on the Drawings.
      c) Depths of various elements of foundation in relation to main floor level or survey datum.
      d) Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
      e) Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
      f) Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub outs, invert elevations, and similar items.
      g) Actual numbering of each electrical circuit.
      h) Field changes of dimension and detail.

i) Revisions to routing of piping and conduits.
j) Revisions to electrical circuitry.
k) Actual equipment locations.
l) Duct size and routing.
m) Changes made by Change Order or CCD.
n) Details not on original Contract Drawings.

2. Mark completely and accurately Project Record Drawing prints of Contract Drawings or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.
3. Mark Project Record Drawing sets with red, erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location.
4. Mark important additional information that was either shown schematically or omitted from original Drawings.
5. Note CCD numbers; alternate numbers, Change Order numbers, and similar identification.
6. Responsibility for Mark-up: Where feasible, the individual or entity who obtained Project Record Drawing data, whether the individual or entity is the installer, Subcontractor, or similar entity, is required to prepare the mark-up on Project Record Drawings.
   a) Accurately record information in an understandable and legible drawing technique.
   b) Record data as soon as possible after it has been obtained. In the case of concealed installations, record and check the mark-up prior to concealment.

B. Preparation of Record Drawings: Immediately prior to inspection for Certification of Substantial Completion, review completed marked-up Project Record Drawings with Owner. When authorized, prepare a full set of correct transparencies of Contract Drawings and Shop Drawings.
   1. Incorporate changes and additional information previously marked on print sets. Erase, redraw, and add details and notations where applicable. Identify and date each Drawing; include the printed designation “PROJECT RECORD DRAWING” in a prominent location on each Drawing.
   2. Refer instances of uncertainty to Owner for resolution.
   3. Distribution: Whether or not changes and additional information were recorded, organize and bind original marked-up set of prints that were maintained during the construction period into manageable sets. Bind the set with durable paper cover sheets, with appropriate identification, including titles, dates, and other information on cover sheets.

C. Distribution of Marked-Up Drawings: Submit the marked-up Project Record Drawings set to Owner for Owner’s records.

D. Shop Drawings and Samples: Maintain as record documents; legibly annotate Shop Drawings and Samples to record changes made after review.

E. In addition to requirements of this Section, comply with any supplemental requirements of Divisions 2 through 33.

1.3 PROJECT RECORD SPECIFICATIONS

A. During the construction period, maintain one copy of the Project Specifications, including addenda and modifications issued, for Project Record Documents purposes.

B. Mark the Project Record Specifications to indicate the actual installation where the installation varies substantially from that indicated in Specifications and Modifications issued. Note related Project Record Drawing information, where applicable. Give particular attention to substitutions, selection of product options, Change Order and Construction Change Directive work, and information on concealed installation that would be difficult to identify or measure and record later.

1. In each Specification Section where products, materials or units of equipment are specified or scheduled, mark the copy with the proprietary name and model number of the product furnished.
2. Record the name of the manufacturer, catalog number, supplier and installer, and other information necessary to provide a record of selections made and to document coordination with Project Record Product Data submittals and maintenance manuals.
3. Note related Project Record Product Data, where applicable, for each principal product specified, indicate whether Project Record Product Data has been submitted in maintenance manual instead of submitted as Project Record Product Data.
4. Upon completion of mark-up, submit Project Record Specifications to Owner for Owner's records.

1.4 ADDITIONAL REQUIREMENTS FOR FINAL PROJECT RECORD DOCUMENTS

A. Note all changes for the final Project Record Documents and provide one set of mylar reproducibles, one set of revised Specifications and one set of disks or CDs to be submitted to Owner.
B. After Substantial Completion and before Final Completion, carefully transfer all data shown on the job set of Record Drawings to the corresponding computer files, coordinating the information as required.
C. Clearly indicate at each affected detail and other drawings a full description of changes made during construction, and the actual location of items as previously specified.
D. "Cloud" all affected areas.
E. Stamp each Record Drawing with the following information:
   1. Project Record Document.
   2. Prepared by: Design-Build Entity's name, permanent address.
   3. Date prepared.
   4. Design-Build Entity's signature.
   5. Owner Contract Number.

1.5 PROJECT RECORD PRODUCT DATA

A. During the construction period, maintain one copy of each Project Record Product Data submittal for Project Record Document purposes.
   1. Mark Project Record Product Data to indicate the actual product installation where the installation varies substantially from that indicated in Project Record Product Data submitted. Include significant changes in the product delivered to the Site, and changes in manufacturer's instructions and recommendations for installation.
   2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
   3. Note related Change Orders and mark-up of Project Record Drawings, where applicable.
   4. Upon completion of mark-up, submit a complete set of Project Record Product Data to Owner for Owner's records.
   5. Where Project Record Product Data is required as part of maintenance manuals, submit marked-up Project Record Product Data as an insert in the manual, instead of submittal as Project Record Product Data.
   6. Design-Build Entity is responsible for mark-up and submittal of Project Record Product Data for its own Work.
B. Material, Equipment, and Finish Data:
   1. Provide data for primary materials, equipment and finishes as required under each Specification Section.
   2. Submit two sets prior to final inspection, bound in 8-1/2 inches by 11 inches three-ring binders with durable plastic covers; provide typewritten table of contents for each volume.
   3. Arrange by Specification Section number and give names, addresses, and telephone numbers of Subcontractors and suppliers. List:
      a) Trade names.
      b) Model or type numbers.

c) Assembly diagrams.
d) Operating instructions.
e) Cleaning instructions.
f) Maintenance instructions.
g) Recommended spare parts.
h) Product data.

1.6 MISCELLANEOUS PROJECT RECORD SUBMITTALS

A. Refer to Bridging Documents and other Specification Sections for miscellaneous record keeping requirements and submittals in connection with various construction activities. Immediately prior to Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for use and reference. Submit to the Owner for Owner's records. Categories of requirements resulting in miscellaneous records include, but are not limited to, the following:
   1. Field records on excavations and foundations.
   2. Field records on underground construction and similar work.
   3. Survey showing locations and elevations of underground lines.
   4. Invert elevations of drainage piping.
   5. Surveys establishing building lines and levels.
   6. Authorized measurements utilizing unit prices or allowances.
   7. Records of plant treatment.
   8. Ambient and substrate condition tests.
   9. Certifications received in lieu of labels on bulk products.
   10. Batch mixing and bulk delivery records.
   11. Testing and qualification of tradespersons.
   12. Documented qualification of installation firms.
   13. Load and performance testing.
   14. Inspections and certifications by governing authorities.
   15. Leakage and water-penetration tests.
   16. Fire resistance and flame spread test results.
   17. Final inspection and correction procedures.

1.7 RECORDING

A. Post changes and modifications to the Contract Documents as they occur. Do not wait until the end of the Project. Owner may periodically review Project Record Documents to assure compliance with this requirement.

1.8 SUBMITTAL

A. At completion of Project, deliver Project Record Documents to Owner.
B. Accompany submittal with transmittal letter containing:
   1. Date.
   2. Project name and number.
   3. Design-Build Entity's name and address.
   4. Number and title of each Project Record Document.
   5. Certification that each document as submitted is complete and accurate, and signature of Design-Build Entity or Design-Build Entity's authorized representative.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 017900

DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.1 SUMMARY

A. Administrative and procedural requirements for instructing the Owner, including the following:
   1. Demonstration of operation of systems, subsystems and equipment.
   2. Training in operation and maintenance of systems, subsystems and equipment.
   3. Demonstration and training Interactive Digital Video Display (DVD).
   4. Special requirements for mechanical equipment training.

1.2 SUBMITTALS

A. Instruction Program:
   1. Submit two copies of outline of instructional program for demonstration and training, including: the agenda for the training; a schedule of proposed dates and times; length of instruction time for each section of training, and instructors' names for each training module. Include learning objective and outline for each training module. Each training submittal must be provided a minimum of three weeks before the proposed training date.
   2. Complete the Training Orientation Plan and Training Agenda forms for each training session to be conducted. Submit to the Owner no later than sixty (60) days before training begins.
   3. At completion of training, submit two complete training manual(s) in both paper and electronic format for the Owner's use. Electronic format to be word searchable.

B. Qualification Data:
   1. For facilitator, instructor, and videographer.

C. Attendance Record:
   1. For each training module, submit list of participants and length of instruction time.
   2. Complete the Training Record form included for each training session conducted. Submit to the Owner within seven (7) calendar days of each session being completed.

D. Evaluations:
   1. For each participant and for each training module, submit results and documentation of performance-based test.

E. Demonstration and Training Interactive DVDs:
   1. Submit two copies within seven (7) calendar days of end of each training module.
   2. Identification: On each copy, provide an applied label with the following information:
      a) Name of Project.
      b) Name and address of videographer.
      c) Name of Design-Build Entity and Construction Manager.
      d) Name of Design-Build Entity.
      e) Date Interactive DVD was recorded.
      f) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
   3. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy- duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding Interactive DVD. Include name of Project and date of Interactive DVD on each page. Include copy of relevant DVD in plastic sleeve.

F. Training Planning, Agenda, and Record Forms:
   1. Forms follow on subsequent pages.
      a) Overall Staff Training and Orientation Plan (one page).
      b) Training and Orientation Agenda (two pages).
      c) Staff Training and Orientation Record (one page).

Overall Staff Training and Orientation Plan

Project: Ventura County Todd Road Jail Health and Programming Unit

Date: _____

Prepared by: _____ Company: _____

(To be filled out by the Commissioning Authority in consultation with the Owner)

Equipment / System	Spec Section	Total Hours (if spec'd)	[5] Scope Code	[6] Trainee Type (list no. of ea.)	Primary Responsible Party	Trainer's Company	Agenda Rec'd?	Planned Training Date(s)
Mechanical / HVAC								
Electrical								
Re-Commissioning[1]								
Architect[2]								
Mechanical Designer[3]								
Electrical Designer[4]								

[1] **Re-commissioning.** The Commissioning Authority will provide instruction on the use of blank functional test forms for periodic re-commissioning of equipment and systems, per the specification.

[2] **Architect.** The Design-Builder's architect will provide a general overview of the facility, its use, special features, tenant and public considerations, etc.

[3] **Mechanical Design Engineer.** The mechanical designer will provide an overview of the major systems and equipment in the facility, including for each system: the design intent, why the system was chosen, an overview of its operation, and interactions with other systems, any special areas to be aware of, issues regarding future expansion and remodeling, etc.

[4] **Electrical Design Engineer.** The electrical designer will provide an overview of the major electrical systems and equipment in the facility, particularly the lighting control systems, fire alarm, security and emergency power, focusing on the design intent, why the sys-tem was chosen, an overview of its operation, and interactions with other systems, any special areas to be aware of, issues regarding future expansion and remodeling, etc.

[5] **General Scope Codes** (refer to the specifications and to the specific equipment Training Agenda for additional details)

A Provide an ***overview*** of the purpose and operation of this equipment, including required interactions of trainees with the equipment.

B At an ***intermediate level***, provide technical information regarding the purpose, operation and maintenance of this equipment, expecting that serious malfunctions will be addressed by factory reps.

C At a ***very technical level,*** provide information regarding the purpose, operation, troubleshooting and maintenance of this equipment, expecting that almost all operation, service and repair will be provided by the trainees.

[6] **Trainee Types** FM = facility manager, FE = facility engineer and assistants, FT = facility technician / maintenance, PM = project manager, T=tenants, O = other

*CSCI = County supplied, Design-Build Entity installed

TRAINING AND ORIENTATION AGENDA

Project: **Sonoma County Adult Detention Behavioral Health Unit** Date: _____

Equipment / System: _____ Spec Section: _____

Section 1 – Audience and General Scope *(Owner and Commissioning Authority fill out this section and transmit entire form to the responsible party. Attach training specification section.)*

Intended Audience Type *(enter number of staff)*:

____ Facility Manager(s) ____ Facility Engineer(s) ____ Facility Technician(s) ____ Project Manager(s)

____ Tenant(s) ____ Other _____

General Objectives and Scope of Training: *(check all that apply)*

____ A. Provide an overview of the purpose and operation of this equipment, including required interactions of trainees with the equipment.
____ B. Provide technical information regarding the purpose, operation and maintenance of this equipment at an intermediate level, expecting that all serious malfunctions will be addressed by factory representatives.
____ C. Provide technical information regarding the purpose, operation, troubleshooting and maintenance of this equipment at a very detailed level, expecting that almost all operation, service and repair will be provided by the trainees.

Section 2 – Instructors *(Commissioning Authority fills in Company. Trainer fills out the balance, prior to training.)*

ID	Trainer	Company	Position / Qualifications
1)			
2)			
3)			

Section 3 – Agenda *(The responsible parties will have their trainers fill out this section and submit it to the Owner and Commissioning Authority for review and approval prior to conducting training.)*

Site (location): _____ Date: _____

Classroom (location): _____ Date: _____

Agenda of General Subjects Covered *(√ all that will be covered)* *(√ when completed)*	Duration (min.)	Instructor (ID)	Completed (√)
_____ General purpose of this system or equipment (design intent)			
_____ Review of control drawings and schematics (have copies for attendees)			
_____ Startup, loading, normal operation, unloading, shutdown, unoccupied operation, seasonal changeover, etc., as applicable			
_____ Integral controls (packaged): programming, troubleshooting, alarms, manual operation			
_____ Building automation controls (BAS): programming, troubleshooting, alarms, manual operation, interface with integral controls			
_____ Interactions with other systems, operation during power outage and fire			
_____ Relevant health and safety issues and concerns and special safety features			
_____ Energy conserving operation and strategies			
_____ Any special issues to maintain warranty			
_____ Common troubleshooting issues and methods, control system warnings and error messages, including using the control system for diagnostics			
_____ Special requirements of tenants for this equipment's function			
_____ Service, maintenance, and preventative maintenance (sources, spare parts inventory, special tools, etc.)			
_____ Question and answer period			
Other Subjects Covered, Specific to the Equipment			
_____ _____			
_____ _____			
_____ _____			
_____ _____			
_____ _____			
Total Duration of Training (hours)			

Training Methods that will be Included (clarify, as needed) *(Check all that apply.)*
(Each attendee will be provided: 1) The control drawing schematic and sequence of operations; 2) A copy of this agenda.)

_____	Use of the O&M manuals, illustrating where the verbal training information is found in writing	_____
_____	Discussion/lecture at site	_____
_____	Site demonstration of equipment operation	_____
_____	Written handouts	_____
_____	Manufacturer training manuals	_____
_____	Classroom lecture	_____
_____	Classroom hands-on equipment	_____
_____	Video presentation	_____
_____	Question and answer period	_____

Section 4 - Approvals and Use *(Once the Agenda has been filled out by the Trainer, the Owner and Commissioning Authority will review it, make edits, sign and return to Design-Build Entity who will provide it to the Trainer for use during training. Copies of Agenda will be provided to trainees.)*

This plan has been approved by the following individuals, subject to any additions and clarifications noted.
(This is not an approval of training completion.)

_____ _____
Owner's Representative Date

_____ _____
Commissioning Authority Date

STAFF TRAINING AND ORIENTATION RECORD

Project: **Sonoma County Adult Detention Behavioral Health Unit** Date: _____

Equipment / System: _____ Prepared By: _____

	Trainee(s) Signature and Position(s)[1]	Total Req'd Hours[2]	Actual Hours	Training Date	General Topics Covered	Trainer Signature and Company	CxA Initials
1.							
2.							
3.							
4.							
5.							
6.							

[1] Trainee signs after the training session is completed. Notes attached (Y/N): _____

[2] The hours of required training have been filled out from the *Specifications*. Refer to the *Specifications* for additional details regarding the training requirements.

Final Approval of Training Completion According to the Agreement:

_____ _____

Owner's Representative Date

1.3 QUALITY ASSURANCE

A. Facilitator Qualifications:
   1. A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that required for the Todd Road Jail Health and Programming Unit (TRJHPU), and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications:
   1. A factory-authorized service representative, complying with requirements in Section 014523, Quality Requirements, experienced in operation and maintenance procedures and training.

C. Videographer Qualifications:
   1. A professional videographer who is experienced digitally recording construction projects.

D. Pre-Instruction Conference:
   1. Conduct conference at TRJHPU site to comply with requirements in Section 013100 Project Management and Coordination, similar to “Pre-Installation Conference.” Review methods and procedures related to anticipated demonstration and training including, but not limited to, the following:
      a) Inspect and discuss locations and other facilities required for instruction.
      b) Review and finalize instruction schedule and verify availability of educational materials, instructors’ personnel, audiovisual equipment, and facilities needed to avoid delays.
      c) Review required content of instruction.
      d) For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.
      e) Review “Training and Orientation Agenda” with video director so as to, coordinate any Trade or Level breaks that will be used in editing for creation of video clips.

1.4 COORDINATION

A. General:
   1. Coordinate instruction schedule with the Owner's operations. Adjust schedule as required to minimize disrupting the Owner’s operations.
   2. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
   3. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by the Owner.

1.5 INSTRUCTION PROGRAM

A. Program Structure:
   1. Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:
      a) Motorized doors, including overhead coiling doors overhead coiling grilles and automatic entrance doors.
      b) Equipment, including video screens, loading dock equipment, waste compactors, service equipment, and other equipment as applicable to TRJHPU Project.
      c) Fire-protection systems, including fire alarm, fire pumps, and fire- extinguishing systems.
      d) Security systems.
      e) Conveying systems.
      f) Refrigeration systems, including chillers, cooling towers, condensers, pumps, thermal energy storage and distribution piping.
      g) Steam plant systems, including boilers, deaerators, Feedwater pumps, condensate return system

h) HVAC systems, including air-handling equipment, air distribution systems, and terminal equipment and devices.
i) EMCS, HVAC instrumentation and controls.
j) Electrical service and distribution, including transformers, switchboards, panelboards, uninterruptible power supplies, and motor controls.
k) Packaged engine generators, including transfer switches.
l) Black start generators
m) Emergency generators
n) Lighting equipment and controls.
o) Communication systems, including intercommunication, surveillance, clocks and programming, voice and data, and television equipment.
p) Steam Turbine Generator system and equipment
q) Power monitoring, control system and UPS
r) Other systems and equipment as applicable to Project.

B. Training Modules:
1. Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master.
a) For each scene of the module define the Trade and Level of target participant. Some cross-over is expected.
b) Participant category and subcategory to be determined in consultation with the Owner.
c) Example Trades are: Controls, Electrical, Mechanical
d) Example Levels: Operation, Maintenance, Trouble-shooting
2. Design Requirements, Operational Requirements, and Performance Specifications: Include the following:
a) System, subsystem, and equipment descriptions.
b) Performance Specifications
c) Design Requirements.
d) Operating standards.
e) Regulatory requirements.
f) Equipment function.
g) Operating characteristics.
h) Limiting conditions.
i) Performance curves.
3. Documentation: Review the following items in detail:
a) Emergency manuals.
b) Operations manuals.
c) Maintenance manuals.
d) TRJHPU Project Record Documents.
e) Identification systems.
f) Warranties and bonds.
g) Maintenance service agreements and similar continuing commitments.
4. Emergencies: Include the following, as applicable:
a) Instructions on meaning of warnings, trouble, indications, and messages
b) Instructions on stopping
c) Shutdown instructions for each type of emergency
d) Operating instructions for conditions outside of normal operating limits
e) Sequences or electric or electronic systems.
f) Special operating instructions and procedures
5. Normal Operations: Include the following, as applicable:
a) Startup procedures.
b) Equipment or system break-in procedures.
c) Routine and normal operating instructions.
d) Regulation and control procedures.
e) Control sequences.
f) Safety procedures.

g) Instructions on stopping.
h) Normal shutdown instructions.
i) Operating procedures for system, subsystem, or equipment failure.
j) Seasonal and weekend operating instructions.
k) Required sequences for electric or electronic systems.
l) Special operating instructions and procedures.

6. Adjustments: Include the following:
   a) Alignments.
   b) Checking adjustments.
   c) Noise and vibration adjustments.
   d) Economy and efficiency adjustments.
7. Troubleshooting: Include the following:
   a) Diagnostic instructions.
   b) Test and inspection procedures.
8. Maintenance: Include the following:
   a) Inspection procedures.
   b) Types of cleaning agents to be used and methods of cleaning.
   c) List of cleaning agents and methods of cleaning detrimental to product.
   d) Procedures for routine cleaning
   e) Procedures for preventive maintenance.
   f) Procedures for routine maintenance.
   g) Instruction on use of special tools.
9. Repairs: Include the following:
   a) Diagnosis instructions.
   b) Repair instructions.
   c) Disassembly; component removal, repair, and replacement; and reassembly instructions.
   d) Instructions for identifying parts and components.
   e) Review of spare parts needed for operation and maintenance.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 PREPARATION

A. General:
   1. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
   2. Set up instructional equipment at instruction location.
   3. Script training module video clips to focus on defined staff Trade and Level.

3.2 INSTRUCTION

A. Facilitator:
   1. Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Design-Build Entity and the Owner for number of participants, instruction times, and location.

B. Instructors:
   1. Engage qualified instructors to instruct the Owner to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
   2. The Owner will furnish an instructor to describe the Owner's operational philosophy.
   3. The Owner will furnish Design-Build Entity with names and positions of participants.

C. Scheduling:
   1. Provide instruction at mutually agreed upon times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
   2. Design-Build Entity must coordinate with the Owner to create as comprehensive an overall training schedule as possible to facilitate the limited numbers of Owner staff

that must be trained in all aspects of the new facilities. Schedule training with the Owner with at least twenty-one (21) calendar days advance notice.

D. Evaluation:
   1. At conclusion of each training module, assess and document each participant's mastery of module by use of an oral, written, or demonstration performance-based test, as applicable.

E. Cleanup:
   1. Collect used and leftover educational materials and give to The Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

F. Post Video Editing:
   1. Instructor to edit transcript so as to identify video clips that are targeted for different Operation and Maintenance (O&M) sections, Staff Trade & Level.

3.3 DEMONSTRATION AND TRAINING VIDEO INTERACTIVE DVD'S

A. General:
   1. Engage a qualified commercial videographer to record all demonstration and training video Interactive DVDs. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
   2. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Interactive DVD Format:
   1. Provide high-quality color Interactive DVDs with hard plastic snap-case for each.
   2. All videos are to be shot by the same videographer.

C. Cameras:
   1. Provide two identical cameras with a minimum resolution of 1080i High-definition at 30 frames per second.
   2. Cameras to be mounted on fluid head tripods.

D. Camera Setup:
   1. Two identical cameras are to be used.
   2. Camera one is a medium to wide shot which includes the trainer and display materials, white board, charts, etc. Camera does minimal panning and zooming. Camera one is the default camera: All footage from camera one to be continuously usable. A lavaliere (lapel) microphone, is connected to Camera one.
   3. Camera two is a close-up camera capturing details of whiteboards, machinery and, controls, etc. Camera two is outfitted with a medium-length shotgun microphone for clean back-up sound on audio channel 1. Audio channel 2 on camera two is outfitted with second microphone at director's station for scene descriptions and notes.
   4. Both cameras shoot continuously to ease synchronization in editing.
   5. The Director watches monitors of both camera angles and directs camera operators via wireless headset. Director monitors sound from camera one and also takes notes regarding any missed shots for pick-up at conclusion of training session. Monitor and sound from camera one is recorded (digitally) with time code, generating the window dub for transcription.
   6. Supplemental lighting may be required depending on room size/on-site or details being filmed.

E. Video Format:
   1. Window Dubs: Provide minimum standard definition (SD) resolution, full color, on DVD.
   2. Original Footage: High definition (HD) Digital video (DV) at full camera resolution.
   3. Edited Video Clips:
      a) Original camera resolution as digital media files supplied on Data DVD. (For archiving)

b) Recompressed clips in H.264 WMV or quality-comparable Windows environment compatible compression, supplied on Data DVD. (For in-house server-based training stations.)
c) Bookmarked & Menu'd DVDs in SD (For review, checks of edits and alternate training methods)
d) Bookmarked & Menu'd DVDs in HD (For review, checks of edits and alternate training methods)

F. Recording:
1. Mount camera one on tripod before starting recording. Display continuous running time.
2. Mount camera two on tripod before starting recording, unless otherwise necessary to show area of demonstration and training. Display continuous running time.
3. Shoot a slate at start of each session including Module, Trainer, Location, Date and Time.

G. Narration:
1. Describe scenes on video Interactive DVD by audio narration by microphone while video Interactive DVD is recorded, or by dubbing the sound after recording, whichever gives better results and clarity. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

H. Transcript:
1. Provide a typewritten transcript of the narration. Display images and running time captured from video Interactive DVD opposite the corresponding narration segment.
2. Transcripts to be generated from window dubs (raw video footage).
3. Raw transcript to be delivered to the trainer for marking of the video, tagging with the trade and level information and any content edits, for each video clip.
4. Trainer content edits to be incorporated into final transcript.

I. Video Editing Products & Organization:
1. Required Products:
a) Clips edited and compressed for use with local-network training stations.
b) Clips edited and compiled into DVDs & HD DVDs for alternate training methods. (Classroom, offsite, etc.)
c) Edit video into clips per trainers edits of transcript. Name clips so as to facilitate compilation by trade and level. (Example: M16T05L03)
d) A five second title card to appear at front of each clip identifying: Trade, Level, O&M section, instructor, facility, and date of recording.
2. Compile video clips by sequence, trade and level into the following movies. Provide menu for access by the following selections on DVDs & HD DVDs:
a) Entire module in sequence
b) By Trade: Where more than one trade is identified in the module assemble the clips in sequence for that trade.
c) By Level: Where more than one level is identified in the module, assemble the clips in sequence for that level.
d) By O&M documentation section.

3.4 ELECTRONIC DOCUMENTATION LINKING

A. Hyperlink each training module video clip to the corresponding section of the narration and corresponding O&M document section.

3.5 SPECIAL TRAINING FOR MECHANICAL EQUIPMENT

A. Training Responsibilities:
1. Require that the mechanical subcontractor be responsible for mechanical training coordination, scheduling and ultimately to ensure that training is completed.
a) Provide designated Owner personnel with a comprehensive training plan for mechanical equipment two months before the planned training.
b) Provide the Owner with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece

of mechanical equipment including, but not limited to, chillers, boilers, pumps, air handling units, fans, terminal units and controls systems, etc.

2. Start training with classroom sessions followed by hands-on training on each piece of equipment, which must illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.
3. If during demonstration the system fails to perform in accordance with the requirements of the O&M manual or sequence of operations, repair or adjust the system as necessary and repeat the demonstration.
4. Engage the appropriate trade or manufacturer's representative to provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing Design-Build Entity or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the training.
5. The controls subcontractor must attend sessions other than the controls training, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.
6. The training sessions must follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.
7. Training must include:
    a) Use of the printed installation, operation and maintenance instruction material included in the O&M manuals. This material must be submitted and approved prior to being used in training.
    b) A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training must include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
    c) Discussion of relevant health and safety issues and concerns. Discussion of warranties and guarantees.
    d) Common troubleshooting problems and solutions.
    e) Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.
    f) Discussion of any peculiarities of equipment installation or operation.
    g) The format and training agenda in "The Commissioning Process," ASHRAE Guideline 2005 is recommended.
    h) Classroom sessions must include the use of overhead projections, slides, video/audio Interactive DVD material as might be appropriate.
    i) Hands-on training must include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.
    j) The mechanical subcontractor must fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.
    k) Training must occur after functional testing is complete, unless approved otherwise by the Owner.
    l) Require the mechanical subcontractor to provide training on each piece of equipment according to the requirements identified in the Performance Specifications.

END OF SECTION

SECTION 019100

GENERAL COMMISSIONING REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. This section describes the elements of Commissioning common to all Divisions of the project. The requirements listed here are in addition to, or are expected to coordinate with, the requirements in the related documents and specifications including detailed administrative and procedural requirements covering individual responsibilities, submittals, meetings, documentation, equipment inspections, startup and testing procedures, training, operating and maintenance manuals, and any related work during the Warranty Period.

B. Drawings and general provisions of the Contract Documents, including General and Supplementary Conditions and other sections in Division 1 are fully applicable to this Section, as if repeated herein.

C. The Todd Road Jail Health and Programming Unit (TRJHPU) Project is requiring a LEED rating however following USGBC LEED 2009 Enhanced Commissioning requirements is recommended and is referenced herein.

1.2 REFERENCES

A. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE):
   1. Guideline 0 – 2005: The Commissioning Process.
   2. Application Handbook – 2015: Chapter 43 – New Building Commissioning.
   3. Guideline 4 – 1993: Preparation of Operation and Maintenance Documentation for Building Systems.

1.3 DEFINITIONS

A. Acceptance Phase: Phase of construction after Startup and Pre-Functional checkout when Functional Performance Tests, operation and maintenance documentation review and training occurs.

B. Approval: Acceptance that a piece of equipment or system has been properly installed and is functioning in tested modes according to the Contract Documents and Commissioning Plan.

C. Basis of Design (BOD): A document that records concepts, calculations, decisions and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document both narrative descriptions and lists individual items that support design process.

D. Building Automation System (BAS): The automated building system providing control and user interaction with select building systems.

E. Commissioning: The systematic process of ensuring that the building's systems are operating in accordance with the Contract Documents, that the systems perform interactively in accordance with the Contract Documents and that Facility Personnel are prepared to operate and maintain the building and its systems. This includes, but may not be limited to, pre-functional testing of equipment, functional testing of systems, system interoperability testing, training of Facility personnel, delivering Operations and Maintenance (O&M) documentation and turnover of completed systems.

F. Commissioning Authority (CxA): The designated third-party entity that provides oversight and review of the commissioning process in concert with the commissioning team. Owner will engage the CxA under a separate contract.

G. Commissioning Issue: A condition that affects, prevents or inhibits commissioning, and must be resolved to complete the commissioning process. Commissioning Issues are documented on the Commissioning Issues Log.

H. Commissioning Issues Log: A log maintained by the CxA listing all Deficiencies and Commissioning Issues documented during the commissioning process. All issues require action, correction and closure, and will be categorized as Open or Closed.

I. Commissioning Plan (Cx Plan): A document that outlines the organization, coordination, allocation of resources, and documentation requirements of the commissioning process.
J. Design-Build Entity: The Design-Build Entity is directly contracted to the Owner with overall responsibility for TRJHPU Project, and all commissioning activities described. The Design-Build Entity is responsible for all work within its Contract scope, including that of the Installation Subcontractors.
K. Design-Build Entity's Commissioning Coordinator (CxC): Individual designated by the Design-Build Entity who plans, schedules, directs and coordinates all the Design-Build Entity's commissioning activities, and serves as the Commissioning Authority's (CxA) single point of contact for all administrative and coordination issues.
L. Data Logger: A stand-alone measuring device installed separate from the BAS to monitor and record equipment parameters such as flow, current, status, pressure, temperature and the likes.
M. Deferred Testing: Any Pre-Functional Checks & Tests or Functional Performance Testing which cannot be completed when scheduled due to building structure, required occupancy condition or other Deficiency causing delay. CxA and Owner must approve deferral of testing.
N. Deficiency: A condition in the installation or function of a component, piece of equipment or system that is not in compliance with the requirements of the Contract Documents. A Deficiency will be considered a Commissioning Issue and documented on the Deficiencies & Resolutions Log.
O. Design Professional: The Design Professional(s) responsible for design of each portion of TRJHPU being commissioned.
P. Functional Performance Test (FPT): A test of the dynamic function, operation and control sequences of equipment and systems under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, alarm, power failure, etc. The FPTs can include Monitoring or Trending of the system to verify integrated operation and system performance to the fullest extent.
Q. Indirect Indicators: Indicators of a response or condition, such as reading from a control system screen reporting a damper to be 100 percent open.
R. Installation or Installing Subcontractor: Subcontractor responsible for construction of a specific division of work.
S. Installation Verification: Field verification and documentation of proper installation of system equipment, assemblies and components prior to Startup. Process is complete when systems are ready for Startup. Installation Verifications are organized under the System Readiness Checklist (SRC) forms.
T. Manual Test: Using hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted with analyzing monitored data to make the observation).
U. Monitoring: The recording of parameters (flow, current, status, pressure and the like) of equipment operation using data-loggers or the Trending capabilities of BAS.
V. Non-Compliance: See Deficiency
W. Non-Conformance: See Deficiency
X. Owner's Project Requirements (OPR): Written narrative describing the operational, functional, aesthetic, and energy efficiency requirements for TRJHPU, and expectations of how the facility will be used and operated, as defined by the Owner. This document provides an explanation of the ideas, concepts, goals, criteria, and supporting information that are considered to be important to the Owner and is often the documented outcome of the budgeting, programming, and pre-conceptual TRJHPU phases. Includes Bridging Documents as applicable.
Y. Percent Sampling: Inspecting or testing only a fraction of the total number of identical or near-identical pieces of equipment such as VAV boxes.
Z. Pre-Functional Checks & Tests: Based primarily on the manufacturer's detailed installation, startup and checkout sheets, these are the various checks and tests performed on a piece of equipment or system just before or after preparing the equipment and system for initial operation. They are typically performed to confirm that equipment

and individual components are working properly, such as electrical spot measurements on motors, spot flow measurements, pressure testing, pipe flush-out and cleaning, control point-to-point checks, sensor calibration, actuator testing, etc., and include such things as mechanical system test and balance (TAB). Pre-Functional Checks & Tests are organized under the System Readiness Checklist (SRC) forms and must be completed prior to Functional Performance Testing.

AA. Seasonal Tests: Functional tests that are deferred until conditions closer to design loads or weather conditions are experienced.

BB. Startup: Initial starting or activating of equipment usually performed by the Installation Subcontractor.

CC. System Readiness Checklist (SRC): A summary checklist, ideally a one or two page cover sheet, covering the necessary commissioning tasks to conduct, and verify proper installation and startup of the equipment, prior to Functional Performance Testing. System Readiness Checklists include all necessary inspections and procedures to prepare equipment and systems for Functional Performance Testing. The Design-Build Entity or Installation Subcontractor completed Installation Verification, Startup and Pre-functional forms must be attached to the related SRC organized by equipment.

DD. TAB: Testing, Adjusting, and Balancing or Test and Balance.

EE. Installation Subcontractor: Typically a subcontractor to the Design-Build Entity who provides and installs specific building components and systems.

FF. Test Procedures: The step-by-step process which must be executed to fulfill the Test Requirements.

GG. Test Requirements: Requirements, indicating what modes and functions must be tested.

HH. Trending: Monitoring using the Building Automation Systems (BAS) to aid in functional testing and verify system operation and performance under actual operating conditions.

II. Warranty Issues: Operational and outstanding issues and deficiencies identified during the Warranty Period.

JJ. Warranty Period: Warranty Period for the entire TRJHPU, including components. Refer to General Conditions, Warranty, Guaranty, and Inspection of Work, for Warranty, Extended Guarantees, and Correction Period provisions.

1.4 SYSTEMS TO BE COMMISSIONED

A. This specification section is applicable to the following systems and equipment to be commissioned in TRJHPU:

1. All equipment of the heating, ventilating and air conditioning (HVAC) systems, such as condenser/hot/chilled water systems, natural ventilation systems, boilers, air handling units, terminal units, exhaust fans, smoke evacuation fans, etc.
2. Central building automation system
3. Plumbing (domestic hot water generators and pumps).
4. Lighting controls (scheduled or occupancy sensors.
5. Daylight dimming controls.
6. Refrigeration systems.
7. Electrical (line voltage electrical power systems transformers, power monitoring controls, emergency generators including fuel oil and leak detection system, UPS, ATS, MCCs and power distribution panels.
8. Fire alarm, fire detection, fire suppression, fire annunciation, and other required fire systems.
9. Security systems including CCTV and access control.
10. Communication systems (public address, audio / visual, IT backbone, static and variable signage).
11. Vertical transportation systems (elevators, and other machinery devices.
12. Domestic, grey and other water systems.
13. Plumbing (sewage ejector system, sump pumps, domestic booster pumps, toilets, showers and lavatories, storm drainage system).
14. Water saving vacuum wastewater system, recycled water, and landscape irrigation systems.

15. Chemical treatment system for boilers.

1.5 SUMMARY DESCRIPTION OF COMMISSIONING

A. Commissioning is a systematic process of ensuring that building systems are installed and perform functionally and interactively as intended according to the Owners Operational Requirements (OPR), Basis of Design (BOD), and the requirements of the Contract Documents (including Bridging Documents).

B. Commissioning during the design phase is intended to achieve the following specific objectives in development of the Contract Documents:
   1. Review the OPR and BOD for clarity and completeness. The Owner and Designers must update the OPR and BOD, respectively, as required.
   2. The CxA reviews the Design Documents, prior to mid-phase construction documents completion, for adherence to the OPR and BOD, and back-checks the review comments in the subsequent design submission.
   3. Incorporate commissioning requirements into the Contract Documents.

C. Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:
   1. Finalize the Commissioning Plan.
   2. Review Design-Build Entity submittals applicable to the systems being commissioned. The CxA review must be concurrent with the DP reviews and submitted to the Designers and Owner.
   3. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and to industry-accepted minimum standards and that they receive adequate operational checkout and testing by the Installation Subcontractors.
   4. Verify and document proper performance of equipment and systems.
   5. Verify that operation and maintenance documentation is provided and is complete.
   6. Develop a systems manual that provides future operating staff the information necessary to optimally operate the commissioned systems.
   7. Verify that the Owner's facilities and operations personnel are trained per the Contract Document requirements.

D. Commissioning during the warranty phase is intended to achieve the following specific objectives according to the Contract Documents:
   1. Perform any seasonal or deferred testing.
   2. Review operational issues prior to end of warranty period so that warranty items are identified and corrected.

E. The commissioning process does not take away from or reduce the responsibility of the Design-Build Entity to provide a finished and fully functioning product. The Design-Build Entity has overall responsible to assure that all systems are properly tested and commissioned, and that all required commissioning documents are completed and provided to the Owner.

1.6 COMMISSIONING TEAM

A. Owner's Representatives.
B. Design Professionals (DP).
C. Commissioning Authority (CxA).
D. Design-Build Entity.
E. Design-Build Entity's Commissioning Coordinator (CxC).
F. Installing Subcontractors responsible for specific types of systems being commissioned:
   1. Mechanical Subcontractor.
   2. Electrical Subcontractor.
   3. Plumbing Subcontractor.
   4. HVAC Controls Subcontractor.
   5. Testing and Balance (TAB) Subcontractor.
   6. Emergency Generator Installing Subcontractor.
   7. UPS Installing Subcontractor.
   8. Security and CCTV Installing Subcontractor.

9. Telecomm and IT Installing Subcontractors.
10. Signage Installing Subcontractors.
11. Paging Systems Installing Subcontractors.
12. Fire Alarm, Detection and Fire Suppression Systems Installing Subcontractors.

G. Any Testing Subcontractor and 3rd party testing agencies for commissioned systems.

1.7 COMMISSIONING PLAN

A. The CxA will develop the preliminary overall commissioning plan, which is then prepared in detail by the CxD which shall be included in the project schedule when approved by the State. The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur.
   1. Commissioning during construction begins with an initial commissioning meeting conducted by the CxA where the commissioning process is reviewed with the project commissioning team members.
   2. Equipment documentation is submitted to the CxA after review by the CxD, through the State, during normal submittals, including detailed startup procedures.
   3. The pre-functional checklists, provided by the CxD, under review of the CxA, are to be completed by the installing Contractor prior to startup to demonstrate equipment is ready for start-up.
   4. Pre-functional checklists, equipment startup, and TAB must be completed before performance testing.
   5. Items of non-compliance in material, installation, or setup shall be corrected at no expense to the State.
   6. The Contractor ensures that the subcontractors' construction and pre-functional checklists are executed and documented and that startup and initial checkout are performed. The CxA verifies that the TAB, construction checklists and startup were completed according to the approved plans. This includes the CxD and CxA approving TAB, checklists and startup plans. This also includes witnessing startup of selected equipment. Any testing failure is to be corrected at no additional cost to the State, and a re-test is to be performed, observed, and documented.
   7. The CxD develops and implements equipment and system performance test procedures. These procedures are approved by the CxA and the State.
   8. The performance tests are executed by the Contractor under the direction of the CxD. All documentation is completed and submitted to the he CxA for approval.
   9. The CxD and the CxA reviews the O&M documentation for completeness and provides the commissioning record for the O&M manuals.
   10. The CxD develops reviews, pre-approves and verifies the training provided by the Contractor, under review by the CxA.
   11. Deferred testing is conducted as specified or required.

1.8 COMMISSIONING PROCESS OVERVIEW

A. The following narrative provides an overview of the typical commissioning tasks during construction and the general order in which they occur:
   1. The Commissioning Authority (CxA) prepares a Preliminary Cx Plan during the TRJHPU final design phase. The Cx Plan provides guidance in the execution of the commissioning process during construction.
   2. Commissioning during construction begins with a kickoff meeting conducted by the CxA where the commissioning process and systems to be commissioned are reviewed with the commissioning team members, including the Design-Build Entity and Installation Subcontractors. The Preliminary Cx Plan is presented and reviewed, and specific requirements are discussed. The Design-Build Entity will designate the CxC at or before this meeting.
   3. The CxA must review Design-Build Entity submittals applicable to systems being commissioned for conformance to the construction documents, BOD and OPR. This review will run concurrent with Engineer of Record reviews and written comments submitted to the Design-Build Entity and the Owner.

4. As part of the commissioning submittals, the Design-Build Entity must submit to the CxA equipment documents and proposed commissioning forms for completing Installation Verification, Startup, and Pre-Functional Checks & Tests. The CxA will review these commissioning forms and will provide final approval and acceptance of these forms prior to their use by the Design-Build Entity and/or Installation Subcontractors.
5. These forms include standard Manufacturer or Installation Contactor installation checklists, detailed startup procedures, proposed startup and pre-functional checks and tests, and other TRJHPU specific requirements and forms.
6. The CxA reviews these Design-Build Entity-submitted commissioning forms for completeness including any TRJHPU specific requirements.
7. The CxA may request additional data, changes and/or additions to these forms to make sure they are complete. If the Design-Build Entity submitted forms are not available or not sufficient, then the CxA will develop specific forms or supplemental forms, based on the construction documents and specifications, manufacturer installation manuals and procedures, and/or industry standards or guidelines.
8. The CxA develops System Readiness Checklist (SRC) forms which summarize and track the Installation Verifications, Startup, and Pre-Functional Checks & Tests required for each system and equipment to be commissioned prior to FPT. The Design-Build Entity must complete the SRC forms, and include (attach) completed Installation Verification, Startup, and Pre-functional Checks and Test forms to document that systems and equipment are ready for FPT. The CxC must submit the completed SRCs and associated documents to the CxA and Owner for approval before proceeding to Functional FPT.
9. The CxA will update the Cx Plan with equipment specific documentation, check-lists, and test forms.
10. Additional meetings will be conducted throughout construction with Commissioning Team members, as required, to plan, scope, coordinate, and schedule commissioning activities, review documentation, and resolve Commissioning Issues and Deficiencies.
11. CxA will perform various inspections and back-checks of the completed Installation Verification forms submitted by the CxC as part of the SRC.
12. Installing Subcontractors, as directed by the CxC, must perform Startup and Pre-Functional Checks & Tests. The CxC must document completion of the Installation Verification, Startup and Pre-Functional Checks & Tests on the SRC and attach completed forms to the SRC. The CxA will witness select Start-up and Pre-Functional Checks & Tests, and perform a sample number of inspections and back-checks where determined to be necessary.
13. The CxA will develop final equipment and system Functional Performance Test (FPT) procedures and forms. These test procedures are submitted to the Design-Build Entity and Installation Subcontractors for review and comment.
14. Once systems to be commissioned are verified ready for FPTs by the completion of the SRC, the FPTs are executed by the Installation Subcontractors under direction of the CxC, and witnessed by the CxA. The FPTs may be achieved by, or any combination of: Manual Testing; Monitoring via the BAS system Trending capabilities; or by stand-alone Data Loggers and analyzing the results.
15. During Installation Verification, Startup, Pre-Functional Checks & Tests, and Functional Performance Testing, all Deficiencies and Commissioning Issues are recorded by the CxA on the Commissioning Issues Log. The Design-Build Entity and its Installation Subcontractors must correct Commissioning Issues and retest the system(s) without delay at no additional cost to the Owner.
16. The Design-Build Entity must compile and complete the Operations & Maintenance Manuals per the Contract documents requirements. The CxA will review for completeness and provide comments to the Owner and Design-Build Entity on the Operation and Maintenance documentation.

17. The CxA will review and provide comment to the Owner and Design-Build Entity on the specified training provided by the Installation Subcontractors and must verify that it has been completed.
18. The CxA will review the Systems Manual requirements with the CxC and will provide assistance to the CxC in preparing this document.
19. The CxA will complete the Final Construction Phase Commissioning Report for the Owner.

1.9 SUBMITTAL REQUIREMENTS FOR COMMISSIONING

A. Normal Submittals:
   1. For all systems and equipment commissioned, the CxA will review equipment submittals concurrently to the Design Professional as part of the normal submittal process. Electronic files are acceptable.
   2. The CxA will receive from the Design-Build Entity a copy of approved submittals for equipment and systems to be commissioned. Electronic files are acceptable.

B. Commissioning Submittals. Submittals to CxA for use in developing the Cx Plan and all commissioning forms will include, but not be limited to the following. Electronic files are acceptable.
   1. Detailed manufacturer installation and startup manuals with checklists, troubleshooting procedures, operating and maintenance procedures for the equipment and systems to be commissioned. These are contained within the manufacturer O&M Manuals, as required in Division 01 “Operations and Maintenance Data.”
      a) This commissioning submittal will be after equipment submittals are approved and prior to equipment onsite installation. This commissioning submittal can be part of the preliminary O&M Manuals submittal, if submitted prior to equipment onsite installation.
      b) The manufacturer installation and startup checklists and procedures will be used by the CxA to review Design-Build Entity submitted commissioning forms (item 3) and developing supplemental forms, if needed, before equipment onsite installation.
   2. A copy of the installation and checkout materials actually shipped with equipment, including actual field checkout forms to be used by factory or field technicians.
   3. Design-Build Entity, Installation Subcontractor or Manufacturer commissioning forms for Installation Verification and Startup and Pre-Functional Checks & Tests.
      a) The CxA reviews these Design-Build Entity submitted commissioning forms for completeness including any TRJHPU specific requirements.
      b) The CxA may request additional data, changes and/or additions to these forms to make sure they are complete.
   4. Shop drawings including detailed sequences of operation.

1.10 OPERATING AND MAINTENANCE & SYSTEMS MANUALS

A. The Design-Build Entity must compile Operation and Maintenance Manuals as specified in the Contract Documents. The O&M manual documents must be clearly marked to highlight the actual equipment and features installed. In addition, the following must be included for all systems and equipment commissioned:
   1. Specification sections copied from the design documents including any addenda.
   2. Approved submittal data, cut sheets and appropriate shop drawings.
   3. Manufacturer’s Operation and Maintenance Instructions which must include:
      a) Installation, startup and break-in instructions.
      b) All starting, normal shutdown, emergency shutdown, manual operation, seasonal changeover and normal operating instructions.
      c) Operation, Maintenance and Installation instructions originally shipped with the unit.
      d) Detailed preventative maintenance and service procedures including a schedule matrix checklist (checked as weekly, monthly, quarterly, etc.).
      e) Troubleshooting procedures.

f) Parts list, edited to omit reference to items which do not apply.
g) Lists of special tools required to service or maintain the equipment.
h) Performance data, ratings and curves, etc.
i) Warranty documents clearly identifying conditions required to maintained warranty, and specific conditions which may void the warranty.
j) Any service contracts issued.

4. Design-Build Subcontractors must include as-built controls drawings and as-built detailed sequences of operation for each piece of commissioned equipment and its components.

B. For all systems and equipment commissioned, CxA will review for required content inclusion and completeness in O&M manuals.

C. For all systems and equipment commissioned. Provide a separate "Systems Manual" which focuses on operating rather than maintaining equipment, particularly the interaction between equipment to include the following;
1. The final version of the BOD.
2. System single line diagrams.
3. As-built "Sequences of Operation", control drawings and original set points.
4. Operating instructions for integrated building systems.
5. Recommended schedule of maintenance requirements and frequency if not already included in the TRJHPU O&M manuals.
6. Recommended schedule for retesting of commissioned systems with blank test forms from the original Commissioning Plan.
7. Recommended schedule for calibrating sensors and actuators.

1.11 RESPONSIBILITIES

A. General:
1. The Commissioning Team and all others involved in the commissioning process must follow the Commissioning Plan, attend commissioning kickoff meeting, and additional commissioning meetings as necessary.

B. B. Commissioning Authority (CxA)
1. The primary role of the CxA is to organize and lead the commissioning team, to develop the Commissioning Plan, and assist the CxC in coordination and execution of the commissioning process.
2. Prepare the Cx Plan and work with the Owner and Design-Build Entity to schedule commissioning activities.
3. Confirm that all project submittals have been forwarded to the owner representative for review and approval.
4. Review submittals for compliance with the Cx Plan and the need for developing commissioning forms.
5. Convene commissioning team meetings, prepare meeting agendas and distribute meeting minutes.
6. Perform inspections and back-checks of Design-Build Entity completed Installation Verification.
7. Observe and inspect system and equipment installation, start-up, checkout, and testing for compliance with the OPR, BOD, and Contract Documents, review completion of commissioning documentation, and record any Deficiencies and Commissioning Issues on the Deficiencies & Resolutions Log.
8. The CxA will develop FPT forms for review and comment by the Design-Build Entity and Installation Subcontractors. The CxA will witness the execution of the FPTs by the Installation Subcontractors. The CxA will witness one (1) re-test of any commissioned equipment or system.
9. Review and comment on Operation and Maintenance documentation and training plans.
10. Assist the Design-Build Entity in developing the Systems Manual.
11. Assemble the commissioning documents and include in a Commissioning Report.
12. The CxA is not responsible for:

a) Design concept or design criteria.
b) Review for code compliance.
c) Design and construction scheduling.
d) Cost estimating.
e) Construction management.
f) Providing tools and test equipment used for commissioning and data collection.
g) Scheduling Startup or Functional Performance Testing.
h) Coordinating the work of Installation Subcontractors, vendors and any special testing agents.
i) Performing Pre-functional checks and tests, Startup and Functional Performance Tests.

C. C. Design-Build Entity:
1. Design-Build Entity is responsible for all commissioning tasks to be performed, including tasks assigned to Installation Subcontractors. The Design-Build Entity must ensure that all commissioning responsibilities are assigned to and completed by competent personnel.
2. Include the cost for the Design-Build Entity and Installation Subcontractor's support of the commissioning process in the Stipulated Sum.
3. Schedule and coordinate the commissioning kickoff meeting and other selected meetings with the CxA to facilitate the commissioning process.
4. Plan, schedule, coordinate and facilitate the commissioning work performed by Design-Build Entity and Installation Subcontractors. Provide sufficient lead-time of at least 10 days to notify the CxA in advance of commissioning activities. Update the master construction schedule periodically with commissioning progress and required activities.
5. Review, comment and accept the Cx Plan prepared by the CxA.
6. Furnish a copy of any Design-Build Entity or Installation Subcontractor construction related documents such as change orders, approved submittals, and shop drawings related to commissioned systems to the CxA. Electronic files are acceptable.
7. Include requirements for submittal data, installation manuals, operation and maintenance data, commissioning tasks, and training in each purchase order or subcontract written for commissioned systems. Electronic files are acceptable.
8. Ensure that all Installation subcontractors execute commissioning responsibilities according to the Contract Documents, Cx Plan, and schedule.
9. Using SRC and FPT forms, document and certify that all work is complete and systems are installed, operational and functionally tested, according to the Contract Documents, including calibration of instrumentation and controls.
10. Evaluate installation and performance deficiencies identified on the Commissioning Issues Log and any inspection and test reports. Commissioning Issues will be tracked according to the responsible entity. Collaborate with Installation Subcontractors responsible for system and equipment installation and recommend corrective action for Installation Subcontractor Deficiencies. Assure all Installation Subcontractor Deficiencies and Commissioning Issues are resolved.
11. Prepare a training plan, submit to CxA and Owner for review. Execute training of Owner's personnel per approved training plan.
12. Prepare Operation and Maintenance Manuals in accordance with the Contract Documents.
13. For all systems commissioned, document Warranty Issues for the Owner.
14. Pay additional costs and back-charges for additional CxA services resulting from excessive retests.

D. Installation Subcontractors:
1. See Bridging Documents for reference to other specifications sections for responsibilities relating to specific systems and Divisions. Installation Subcontractors responsibilities may be re-assigned as seen fit by the Design-Build Entity.
a) Include and itemize all cost for Installation Subcontractors commissioning tasks.

b) Provide additional submittal data, installation manuals, manufacturer's detailed installation checks and startup procedures Operation and Maintenance data, required warranty procedures, and any other requested documentation for equipment and systems to be commissioned.
c) Attend commissioning meetings as directed by the CxC to facilitate the commissioning process.
d) Assign personnel with expertise and authority to act on behalf of the Installation Subcontractor and schedule them to participate in and perform assigned commissioning tasks.
e) Assist CxA in preparing the Functional Performance Test Procedures, clarifying the operation and control of commissioned equipment where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures. Review the Functional Performance Test procedures to ensure feasibility, safety and equipment protection, and provide necessary written alarm limits to be used during the tests.
f) Provide Owner training for systems commissioned. Submit a training plan for CxA and Owner review and approval.
g) Perform and document Startup and checkout. Complete all Pre-Functional Checks & Testing documentation clearly and legibly. Provide a copy of all forms to the CxC and CxA as part of completing the System Readiness Checklists.
h) Address Installation Subcontractor applicable Deficiencies & Resolution Log items promptly. All installation and Startup issues must be resolved before Function Performance Testing can proceed.
i) Coordinate with CxA and perform Functional Performance Testing. Execution of tests must be witnessed by the CxC and CxA.
j) Assist the CxA in collecting all requested Monitoring / Trending data associated with FPTs.
k) Prepare Operation and Maintenance Manuals according to the Contract Documents, including all additional documentation required by these specifications.
l) During construction, maintain as-built red-line drawings and make available for CxA review during the commissioning process.

E. Testing and Balancing (TAB) Subcontractor:
1. The commissioning responsibilities of the TAB Subcontractor for commissioning in addition to those listed in "Installation Subcontractors" section are:
a) Submit the outline of the TAB plan and approach for each system and component to the CxA and Design-Build Entity prior to starting TAB. This plan must be developed after the TAB Subcontractor is familiar with all control systems.
b) Immediately report any Deficiencies discovered which may affect or delay the commissioning process.
c) Provide draft TAB report to DP, CxA and CxC for review.

F. F. Equipment Suppliers:
1. Provide all requested submittal data, including detailed installation checks, startup and checkout procedures and forms, and O&M manuals.
2. Provide factory test data and documentation per the Design-Build Entity Documents.
3. Assist in equipment testing per any agreements with Installation Subcontractors.
4. Include all special tools and instruments specific for a piece of equipment which are only available from equipment supplier and required for testing the equipment according to Contract Documents.
5. Provide information and support requested by the CxA regarding equipment sequences of operation and testing procedures.
6. Coordinate balance activities with activities of the mechanical and controls contractors. Verify that coordination, installation, quality control and final subcontractor's testing have been completed to allow proper balancing work to be performed.

7. Test, Adjust, & Balance the system per specification requirements.
8. Perform field verification of 10% of total TAB measurements under the direction of CxA to confirm accuracy of TAB report as provided in Division 23 of the Specifications. A total of 40 hours, not including hours needed to resolve identified issues and perform follow-up testing if required, shall be provided for this testing.

G. Third Party Testing Subcontractors and Agencies:
1. Include the cost for support of the commissioning process.
2. Immediately report any Deficiencies discovered which may affect or delay the commissioning process.
3. Plan, schedule, coordinate and facilitate the commissioning work performed by Design-Build Entity and Installation Subcontractors. Provide sufficient lead-time and notify CxA well in advance of commissioning activities. Update the master construction schedule periodically with commissioning progress and required activities.
4. Review, comment and accept the Cx Plan prepared by the CxA.
5. Evaluate installation and performance deficiencies identified on the Commissioning Issues Log and any inspection and test reports. Collaborate with Installation Subcontractors responsible for system and equipment installation and recommend corrective action for Deficiencies. Assure all Deficiencies and Commissioning Issues are resolved.
6. Provide copies of all forms and field reports that include commissioned equipment to the CxA for review.

PART 2 PRODUCTS

2.1 TEST EQUIPMENT

A. All standard testing equipment required to perform Startup, Pre-Functional Checks & Tests and Functional Performance Testing must be furnished by the Installation Subcontractor responsible for the equipment and systems being commissioned.

B. Special equipment, tools and instruments (only available from the vendor, specific to a piece of equipment) required for testing equipment must be included in the base bid price, and turned over to the Owner at TRJHPU Project completion.

C. All testing equipment must be of sufficient quality and accuracy to test and/or measure system performance with the tolerance specified in the Contract Documents. If not otherwise specified, the following minimum requirements apply:
1. Temperature sensors and digital thermometers must have a certified calibration within the past year to an accuracy of 0.5 degree F and a resolution to + or – 0.1 degree F.
2. Pressure sensors must have an accuracy of + or – 2.0 percent of the value range being measured (not full range of meter) and have been calibrated within the last year.
3. All equipment must be calibrated according to the manufacturer's recommended intervals and recalibrated when dropped or damaged.
4. Calibration tags must be affixed or certificates readily available for all test equipment.

2.2 COMMISSIONING FORMS

A. Installation Verification Form:
1. Forms used to provide field verification and documentation of proper installation of equipment and system components prior to Startup.
2. Forms will be developed by the Design-Build Entity or Installation Subcontractor, CxA referencing the Contract documents and manufacturer provided documentation provided during submittal. The CxA will review the forms and may request changes and/or additions to these forms or supplemental forms to make sure they are complete.

B. Startup and Pre-Functional Checks & Tests forms
1. Forms primarily consist of Manufacturer and Installation Subcontractor Startup and Pre-Functional checkout sheets, and must be used where required and appropriate.

The CxA will review all forms to ensure manufacturer-recommended procedures and tests are fully included.

2. The CxC and Installation Subcontractor must review all Functional Performance Tests (FPT) documents provided by the CxA prior to including them in the final Commissioning Plan.
3. Installation Subcontractor must use Functional Performance Test forms provided by CxA.

PART 3 EXECUTION

3.1 SCHEDULING AND COORDINATION

A. The CxA will provide an initial schedule of commissioning events to the CxC at the commissioning kickoff meeting.

B. Design-Build Entity must develop a detailed Start-up Schedule for all systems to be commissioned and coordinate with CxA to include commissioning milestones. The Design-Build Entity will integrate all commissioning activities into the master construction schedule.

C. The CxC must provide sufficient notice to the CxA and Owner for scheduling and coordinating commissioning activities. A minimum 10 days' notice must be provided to the CxA for witnessing equipment Start-ups, Pre-Functional Checks & Tests, and Functional Performance Testing.

D. The Commissioning Team must address scheduling problems and make necessary notification in a timely manner in order to expedite the commissioning process.

3.2 MEETINGS

A. When commissioning team member attendance is required, as determined by the CxA and CxC, be punctual and attentive during the meeting.

1. The CxA will conduct a commissioning kick-off meeting, usually within 60 days of the commencement of construction. All team members involved in the commissioning process must attend the kick-off meeting.
2. The CxA will plan other commissioning meetings as deemed necessary as construction progresses. These meetings will cover planning and coordination, and Commissioning Issues resolution.
3. The frequency of meetings will vary through construction, but generally increase during start-up and commissioning activities.

B. The CxA will write and distribute meeting minutes documenting the meeting discussion, conclusions, and actions for each team member.

3.3 SYSTEMS READINESS: INSTALLATION VERIFICATION, STARTUP, PRE-FUNCTIONAL CHECKS & TESTS

A. Design-Build Entity must utilize and complete System Readiness Checklists (SRC) to ensure equipment and systems are complete, operational, and ready for Functional Performance Testing. The SRCs are checklists which summarize and track the completion of Installation Verification, Startup, and Pre-Functional Checks & Tests.

1. SRCs are developed by the CxA with input from the CxC and Installation Subcontractors.
2. Design-Build Entity must document the progress and completion of Installation Verification, Startup, and Pre-Functional Checks & Test on the SRC. Upon completion, Design-Build Entity must attach all associated Installation Verification, Startup and Pre-Functional Checkout & Testing forms to the SRCs and submit to the CxA for approval.
3. Approval of completed SRC by the CxA is required prior to Functional Performance Testing of equipment and system.
4. Each SRC may have more than one Installation Subcontractor responsible for its execution.

B. Design-Build Entity must provide complete Installation Verification, Startup and Pre-Functional Checkout & Testing forms for each commissioned system.

1. Each piece of equipment and system will receive a full Installation Verification, Startup, and Pre-Functional Checks & Tests.
2. The CxA must perform the Installation Verification. The Design-Build Entity will be responsible for the completion of all Startup and Pre-Functional Check & Tests and associated forms.
3. All completed forms must be attached to the SRC and submitted for CxA and approval before proceeding with Functional Performance Testing.
4. At the discretion of the CxA and per the approved Cx Plan, Percent Sampling may be used for multiple identical pieces of non-life-safety or non-critical equipment.

C. All tests and start-up procedures must be conducted without compromise to human or equipment safety. The Design-Build Entity will be responsible for the liability and safety of conducting all tests.

D. Design-Build Entity must clearly identify and list any Deficiencies resulting from the Installation Verification, Start-up and Pre-Functional Checks & Tests on the SRC forms and immediately notify the CxA. Once Deficiencies are corrected and verified or tested, update and resubmit SRC and associated forms.

3.4 FUNCTIONAL PERFORMANCE TESTING (FPT)

A. The CxA will develop test procedures and Function Performance Test (FPT) forms for each piece of equipment and system to be commissioned. At the discretion of the CxA and per the approved Cx Plan, percent sampling may be used for selected, multiple identical pieces of non-life-safety or non-critical equipment (example: VAV boxes).
1. Design-Build Entity will assist the CxA in development of FPT forms by providing the required submittal data and updates, and providing additional equipment and system operation information when requested by CxA.
2. Prior to execution, the CxA will provide a copy of the test procedures to the Design-Build Entity and Installation Subcontractor. The Design-Build Entity and Installation Subcontractor must review and approve the tests procedures for feasibility, safety, equipment and warranty protection.

B. Installation Design-Build Entity will execute all Functional Performance Tests per the approved test procedures on the FPT forms. All testing results must be documented on the FPT forms; the forms must be signed and dated by the representative performing the tests. Off hours or weekend work may be required to complete the FPTs.

C. The CxA must witness all FPT procedures per the Cx Plan. Design-Build Entity must coordinate all Functional Performance Tests with the CxA, and provide a minimum of 10 days' notice prior to conducting each system test.

D. Functional Performance Testing for each system must be successfully completed and signed by the CxA prior to formal Approval of system commissioning.

E. Functional Performance Tests may be conducted using these approved test methods:
1. Manually manipulating the equipment settings and observe performance and/or monitoring performance by analyzing results using the control system's trending capabilities.
2. Overwriting control system sensor values to simulate a condition, such as overwriting the outside air temperature to be something other than it actually is.
3. Altering set points to force equipment into a mode of operation to verify a sequence. For example, to see the AC compressor lockout work at an outside air temperature below 55 degrees F, when the outside air temperature is above 55 degrees F, temporarily change the lockout set point to be 2 degrees F below the current outside air temperature.
4. Using Indirect Indicators for testing responses will be allowed only after the actual conditions represented by the Indirect Indicators have been visually and directly verified, calibrated and documented on the SRC.

F. Setup:
1. Each function and test must be performed under conditions that simulate actual conditions as close as is practically possible.

2. The Installation Subcontractor executing the test must provide all necessary materials, system modifications, etc. to produce the necessary flows, pressures, temperatures, etc. necessary to execute the test according to the specified conditions.
3. At completion of the test, the Installation Design-Build Entity must return all affected building equipment and systems to their pre-test normal condition.

G. Functional testing must be performed and documented for 100% of all equipment in the scope of commissioning. At the discretion of the CxA, the CxA may witness a sampling of the functional tests.

H. Where the CxA requires BAS trending, the CxA will provide within a FPT form a points list that may include both hardware (inputs, outputs) and virtual / software points, and appropriate trending intervals.
1. The Design-Build Entity must provide trend data to the CxA in electronic format. As an Owner approved alternative, the Design-Build Entity can provide the CxA remote access to the control system and provide training that will allow the CxA to directly download trend data.
2. The CxA will analyze and review the trend data and associated system performance.

3.5 DEFICIENCIES AND COMMISSIONING ISSUES

A. During the Installation Verification, Startup, and Pre-Functional Checks & Tests, all Deficiencies and Commissioning Issues will be documented on the inspection and test forms in use, and will additionally be documented by the CxA on a Commissioning Issues Log.

B. Immediate correction of minor Deficiencies identified during testing may be allowed at the discretion of the CxA. In such cases the Deficiency and identified resolution must still be documented on the commissioning form in use.

C. When Commissioning Issues are identified during Functional Performance Testing, the CxA will discuss with the executing Installation Design-Build Entity and/or CxC and determine whether testing can proceed or be suspended. The Commissioning Issue and any identified resolution will be documented on the commissioning test form in use in addition to the Commissioning Issues Log.

D. The CxA will maintain and update the Commissioning Issues Log, and document the issues resolution process. Copies will be distributed to the Design-Build Entity, Owner, and Installation Subcontractors as appropriate.

E. All Deficiencies and Commissioning Issues must be corrected promptly. The responsible party must correct the issue and inform the Design-Build Entity and CxA in writing of the resolution and completion date. The CxA will record completion on the Commissioning Issues Log and the CxC must reschedule testing with the CxA and Installation Subcontractor. Testing must be repeated until passing performance is achieved or the Owner accepts the noted issue.

F. When there is a dispute regarding a Commissioning Issue, whether it is valid or who is responsible, additional parties may be brought into the discussion as appropriate. The CxA must have the final interpretive authority and the Owner will have the final approval authority.

G. The CxA may recommend solutions to Deficiencies and Commissioning Issues. However, the burden of responsibility to solve, correct and perform required retests is with the Design-Build Entity, Installation Subcontractors, and the Design Professional(s).

H. Retesting:
1. For all Commissioning Issues identified during Functional Performance Testing, retesting is required to verify the resolution of the issue and to complete the FPT.
2. The CxA will witness one re-test for each equipment or system. A minimum 48 hours' notice is requested for scheduling any re-testing, though the CxA will work to accommodate a shorter timeframe if feasible.
3. Any required retesting must not be considered a justified reason for a claim of delay or for a time extension.

3.6 TRAINING OF OWNER PERSONNEL

A. The CxC must coordinate and schedule the training for Owner Personnel. The CxC must ensure that training is completed per the requirements of the construction documents and specifications.

B. Installation Subcontractors responsible for specific equipment and system training must submit a written training plan to the Design-Build Entity for all equipment and systems to be commissioned no less than (30) days prior to start of training. Design-Build Entity must submit training plan(s) to CxA and Owner for review and approval. The training plan(s) will cover the following elements:
   1. Equipment and/or systems included in training
   2. Intended audience
   3. Location of training
   4. Subjects covered (description, duration of discussion, presentation methods, etc.)
   5. Instructor's name and qualifications

C. The CxA must review the training plans to verify compliance with the Specifications.

D. Design-Build Entity must submit to CxA an 'attendee signed' attendance sheets for each training session conducted.

3.7 DEFERRED AND SEASONAL TESTING

A. Before or during the end of the first year Warranty Period, any Seasonal Testing or Deferred Testing as defined in the Cx Plan, must be completed as part of this Contract. Tests must be conducted by the Installation Subcontractor responsible for the equipment and systems, completed in the same manner as all other commissioning tests, and must be witnessed and by the CxA.

B. Design-Build Entity must coordinate with CxA and Owner and schedule all Deferred and Seasonal Testing including the proposed testing schedule.

C. Design-Build Entity must make final adjustments to the Operations and Maintenance Manual and as-builts needed for any modifications made during Deferred or Seasonal Testing.

3.8 TRJHPU PROJECT CLOSEOUT

A. Upon completion of all commissioning activities, the CxA will prepare and submit to the Owner a Final Commissioning Report detailing the Cx Plan and all commissioning activities. The CxC will support this effort by providing all Design-Build Entity coordinated commissioning documentation.

3.9 NEAR-WARRANTY-END- REVIEW

A. A. No later than 90 days prior to the expiration of the first year of Warranty Period, the Design-Build Entity must schedule and participate in a review of the commissioned systems with the Owner, O&M staff, Designers, appropriate Installation Subcontractors, and the CxA to identify any Warranty Issues.

B. A list of Warranty Issues will be developed by the Owner and CxA. The Design-Build Entity will be responsible for and will ensure the cooperation of appropriate Installation Subcontractors to resolve Warranty Issues prior to the end of the Warranty Period.

C. After correcting noted Warranty Issues, the Design-Build Entity must notify the CxA in writing, the CxA will back-checking and verify Warranty Issue as resolved.

D. Issues identified during the Warranty Period will remain Warranty Issues until satisfactory completion by Design-Build Entity and back-check verification by CxA, even if the Warranty Period expires during the correction and back-check period.

END OF SECTION