PART 1 - GENERAL

1.1 PROJECT

A . Project Name: Jim Bieri Regional Training Facility

B . Project Location: Twin Falls, Idaho.

C . Owner's Name: City of Twin Falls and Twin Falls Fire Department.

1. Owner's Representative: Les Kenworthy

D . Architect's Name: Pivot North Architecture.

1. Architect's Representative: Clint Sievers.

E . The Project consists of the grading, drainage, utilities, and associated site work of the Twin Falls Training facility.

1. Site development.
2. Site Grading and Drainage with Utilities.

1.2 DESCRIPTION OF WORK

A . Scope of work is as shown on Drawings and as specified in the Project Manual.

1.3 DESCRIPTION OF DEMOLITION WORK

A . Scope of demolition and removal work is shown on Civil Drawings.

1.4 OWNER OCCUPANCY

A . Owner intends to occupy the Project upon Substantial Completion.

B . Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

C . Schedule the Work to accommodate Owner and tenant occupancy.

1.5 CONTRACTOR USE OF SITE AND PREMISES

A . General: Contractor shall have full use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors to perform simultaneous work on portions of this Project. In such instances Contractor shall access and courteous assistance to others as required for all parties to complete their work in a timely manner.

B . Construction Operations: Limited to areas noted on Drawings.

C . Arrange use of site and premises to allow:

1. Work by Owner.

D . Provide access to and from site as required by law and by Owner:

1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
2. Do not obstruct roadways, sidewalks, or other public ways without permit.

E . Time Restrictions:

1. Limit conduct of especially noisy exterior work to hours approved by Owner.

F . Utility Outages and Shutdown:

1. Prevent accidental disruption of utility services to other facilities.

G . Nonsmoking Building: Smoking is not permitted within the new building or within 25 feet of any entrances, operable windows, or outdoor-air intakes.

H . Controlled Substances: Use of alcohol, and other controlled substances on project site is not permitted.

I . Contractors performing work are subject to federal and state laws regarding affirmative action, equal employment opportunity, sexual harassment, and sexual offenders.

1.6 WORK SEQUENCE

A . Coordinate construction schedule and operations with Owner and Architect.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Procedures for preparation and submittal of applications for progress payments.

B . Documentation of changes in Contract Sum and Contract Time.

C . Change procedures.

D . Correlation of Contractor submittals based on changes.

E . Procedures for preparation and submittal of application for final payment.

1.2 RELATED REQUIREMENTS

A . Agreement Between Owner and Construction Manager/General Contractor: Contract Sum, retainages, percentage allowances for overhead and profit, and payment period.

B . General Conditions and Supplementary Conditions: Additional requirements for progress payments, final payment, changes in the Work.

C . Section 00 60 00 – Project Forms: Forms to be used.

1.3 SCHEDULE OF VALUES

A . Coordinate preparation of schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
    a. Application for Payment forms with Continuation Sheets.
    b. Submittal Schedule.
    c. Contractor's Construction Schedule.
2. Submit the Schedule of Values to the Architect and Construction Manager at earliest possible date, but no later than 2 days before the first submittal of Application for Payment.
3. When the Schedule of Values is approved by the Architect and Construction Manager it will be the basis for future Contractor Applications for Payments. The Contractor will not be entitled to payment until receipt and acceptance of the Schedule of Values.

B . Format and Content: The Schedule of Values to be submitted on the form AIA G703 Continuation Sheet.

1. Use Project Manual Table of Contents as a guide to establish line items. Provide at least one line item for each Specification Section.
2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.

a. Include separate line items under Contractor and principal subcontractors for Project closeout requirements in an amount totaling five percent of the Contract sum and subcontract amount.

3. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

4. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

   a. Differentiate between items stored on-site and items stored off-site. If required include evidence of insurance.

5. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

6. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicated Owner payments or deposits, if any, and balance to be paid by Contractor.

7. Each item in the schedule of values and Applications for Payment to be complete. Include total cost and proportionate share of general overhead and profit for each item.

   a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

8. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PROGRESS PAYMENTS

A . Payment Period: The date for each progress payment is indicated in the Agreement Between Owner and CM/GC. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

B . Forms to be used: AIA G702 Application and Certificate for Payment and AIA G703 Continuation Sheet.

C . Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without notice.

1. Entries to match data on the approved Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.

2. Include amounts of work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.

3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

4. Indicated separate amounts for work being carried out under Owner-request project acceleration.

D . Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:
    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

E . Submit three signed and notarized original copies of each Application for Payment to the Architect.

1. Include the following with the application:
    a. Transmittal letter as specified for Submittals in Section 01 30 00.
    b. Construction progress schedule, revised and current as specified in Section 01 32 16.
    c. Current construction photographs specified in Section 01 30 00.
    d. Partial release of liens from major Subcontractors and vendors.
    e. Subcontractor payment waivers.
    f. Project record documents as specified in Section 01 78 00, for review by Owner which will be returned to the Contractor.
    g. Affidavits attesting to off-site stored products.

F . Construction Progress Schedules: Provide schedule with each Application for Payment. Applications for Payment without schedule will not be processed. The Contractor will deliver this application and schedule to the Architect who will verify accuracy and amount completed. The Architect will then transmit application and schedule to the Owner for approval and payment.

G . Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Submittal schedule (preliminary if not final).
5. Report of preconstruction conference.

H . Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

1.5 MINOR CHANGES IN THE WORK

A . Minor Changes in the Work: Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time, on AIA G710 Architect's Supplemental Instructions.

1.6 MODIFICATION PROCEDURES

A . Construction Change Directive: For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.

1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
2. Promptly execute the change.
3. Maintain detailed records on a time and material basis of work required. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
4. Form: AIA G714 Construction Change Directive.

B . Owner-Initiated Proposal Requests: For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change. Contractor shall prepare and submit an estimated price quotation within 20 days.

1. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
2. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
3. Include costs of labor and supervision directly attributable to the change.
4. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Form: AIA G709 Work Changes Proposal Request.

C . Contractor-Initiated Proposals: Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 25 00.

1. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

2. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
3. Include costs of labor and supervision directly attributable to the change.
4. Include an updated Contractor's construction schedule that indicated the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

D . Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

E . Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract, on AIA G701 Change Order.

1. Form: AIA G701 Change Order.

F . After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

G . Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

H . Promptly enter changes in Project Record Documents.

1.7 APPLICATION FOR FINAL PAYMENT

A . Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B . Application for Final Payment will not be considered until the following have been accomplished:

1. All closeout procedures specified in Section 01 70 00.
2. Requirements from General Conditions have been met.
3. Evidence has been provided that all claims have been settled.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Procedural requirements for proposed substitutions.

1.2 RELATED REQUIREMENTS

A . Section 01 30 00 - Administrative Requirements: Submittal procedures, coordination.

B . Section 01 60 00 - Product Requirements: Fundamental product requirements, product options, delivery, storage, and handling.

1.3 REFERENCE STANDARDS

A . Substitutions: Changes from Contract Documents requirements proposed by Contractor to materials, products, assemblies, and equipment.

1. Substitutions for Cause: Proposed due to changed Project circumstances beyond Contractor's control.

a. Unavailability.

b. Regulatory changes.

B . Substitutions for Convenience: Proposed due to possibility of offering substantial advantage to the Project.

1.4 REFERENCE STANDARDS

A . CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage); Current Edition.

B . CSI/CSC Form 13.1A - Substitution Request (After the Bidding/Negotiating Phase); Current Edition.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A . A Substitution Request for products, assemblies, materials, and equipment constitutes a representation that the submitter:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product, equipment, assembly, or system.

2. Agrees to provide the same warranty for the substitution as for the specified product.

3. Agrees to provide same or equivalent maintenance service and source of replacement parts, as applicable.

4. Agrees to coordinate installation and make changes to other work that may be required for the work to be complete, with no additional cost to Owner.

5. Waives claims for additional costs or time extension that may subsequently become apparent.
6. Agrees to reimburse Owner and Architect for review or redesign services associated with re-approval by authorities.

B . Document each request with complete data substantiating compliance of proposed substitution with Contract Documents. Burden of proof is on proposer.

C . Content: Include information necessary for tracking the status of each Substitution Request, and information necessary to provide an actionable response.

1. Forms indicated and included in the Project Manual are adequate for this purpose, and must be used.

D . Limit each request to a single proposed substitution item.

1. Submit an electronic document, combining the request form with supporting data into single document.

3.2 SUBSTITUTION PROCEDURES DURING PROCUREMENT

A . Instructions to Bidders specifies time restrictions for submitting requests for substitutions during the bidding period, and the documents required.

B . Submittal Form (before award of contract):

1. Submit substitution requests by completing CSI/CSC Form 1.5C - Substitution Request (During the Bidding/Negotiating Stage). See this form for additional information and instructions. Use only this form; other forms of submission are unacceptable.

3.3 SUBSTITUTION PROCEDURES DURING CONSTRUCTION

A . Submittal Form (after award of contract):

1. Submit substitution requests by completing CSI/CSC Form 13.1A - Substitution Request. See this form for additional information and instructions. Use only this form; other forms of submission are unacceptable.

B . Architect will consider requests for substitutions only within 15 days after date of Agreement.

C . Submit request for Substitution for Cause within 14 days of discovery of need for substitution, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

D . Submit request for Substitution for Convenience immediately upon discovery of its potential advantage to the project, but not later than 14 days prior to time required for review and approval by Architect, in order to stay on approved project schedule.

1. In addition to meeting general documentation requirements, document how the requested substitution benefits the Owner through cost savings, time savings, greater energy conservation, or in other specific ways.
2. Document means of coordinating of substitution item with other portions of the work, including work by affected subcontractors.
3. Bear the costs engendered by proposed substitution of:

4. Owner's compensation to the Architect for any required redesign, time spent processing and evaluating the request.

E . Substitutions will not be considered under one or more of the following circumstances:

1. When they are indicated or implied on shop drawing or product data submittals, without having received prior approval.

2. Without a separate written request.

3.4 RESOLUTION

A . Architect may request additional information and documentation prior to rendering a decision. Provide this data in an expeditious manner.

B . Architect will notify Contractor in writing of decision to accept or reject request.

1. Architect's decision following review of proposed substitution will be noted on the submitted form.

3.5 ACCEPTANCE

A . Accepted substitutions change the work of the Project. They will be documented and incorporated into work of the project by Change Order, Construction Change Directive, Architectural Supplementary Instructions, or similar instruments provided for in the Conditions of the Contract.

3.6 CLOSEOUT ACTIVITIES

A . See Section 01 78 00 - Closeout Submittals, for closeout submittals.

B . Include completed Substitution Request Forms as part of the Project record. Include both approved and rejected Requests.

END OF SECTION

Advancement of Construction Technology

SUBSTITUTION REQUEST

(During the Bidding Phase)

Project: _____

_____

To: _____

Re: _____

Substitution Request Number: _____

From: _____

Date: _____

A/E Project Number: _____

Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

A/E's REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01330.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: Date:

Supporting Data Attached: ☐ Drawings X☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐_____

Advancement of Construction Technology

SUBSTITUTION REQUEST

(After the Bidding Phase)

Project: _____

_____

To: _____

Re: _____

Substitution Request Number: _____

From: _____

Date: _____

A/E Project Number: _____

Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer Address: _____ Phone: _____ _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone _____

History: ☐ New product ☐ 2-5 years old X☐ 5-10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

_____

_____

X☐ Point-by-point comparative data attached

Reason for not providing specified item: _____

_____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: X ☐ No ☐ Yes; explain _____

_____

Savings to Owner for accepting substitution: _____ ($ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

SUBSTITUTION REQUEST
(Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

Attachments: _____

_____

_____

_____

A/E's REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01330.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: Date:

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E ☐ _____

_____

_____

_____

_____

_____

_____

_____

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . General administrative requirements.

B . General coordination procedures.

C . Electronic document submittals.

D . Preconstruction meeting.

E . Preinstallation meetings.

F . Progress meetings.

G . Project closeout meeting.

H . Progress photographs.

I . Coordination drawings.

J . Requests for Information (RFIs).

K . Submittals for review, information, and project closeout.

1. General information only, refer to sections below for detailed submittal requirements.
    a. Section 01 40 00 - Quality Requirements.
    b. Section 01 60 00 - Product Requirements.
    c. Section 01 78 00 - Closeout Submittals.
    d. Individual Project Sections.

L . Number of copies of submittals.

M . Requests for Interpretation (RFI) procedures.

N . Submittal procedures.

1.2 RELATED REQUIREMENTS

A . General Conditions and Supplementary Conditions: Dates for applications for payment and duties of the Construction Manager/General Contractor.

B . Section 01 32 16 - Construction Progress Schedule: Form, content, and administration of schedules.

C . Section 01 60 00 - Product Requirements: General product requirements.

D . Section 01 70 00 - Execution and Closeout Requirements: Additional coordination requirements.

E . Section 01 78 00 - Closeout Submittals: Project record documents; operation and maintenance data; warranties and bonds.

1.3 GENERAL ADMINISTRATIVE REQUIREMENTS

A . Comply with requirements of Section 01 70 00 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.

1.4 GENERAL COORDINATION PROCEDURES

A . Project Coordinator: Construction Manager.

B . Coordination: Coordinate construction operations included in different Sections of the Project Manual to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

C . Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

D . Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

E . Construction Manager:

1. Cooperate with the Construction Manager in allocation of mobilization areas of site; for field offices and sheds, for traffic access, traffic, and parking facilities.
2. During construction, coordinate use of site and facilities through the Construction Manager.

3. Comply with Construction Manager's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
4. Comply with instructions of the Construction Manager for use of temporary utilities and construction facilities.
5. Coordinate field engineering and layout work under instructions of the Project Coordinator.
6. Make the following types of submittals to Architect through the Project Coordinator:
    a. Requests for interpretation.
    b. Requests for substitution.
    c. Shop drawings, product data, and samples.
    d. Test and inspection reports.
    e. Design data.
    f. Manufacturer's instructions and field reports.
    g. Applications for payment and change order requests.
    h. Progress schedules.
    i. Coordination drawings.
    j. Correction Punch List and Final Correction Punch List for Substantial Completion.
    k. Closeout submittals.

F . Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 ELECTRONIC DOCUMENT SUBMITTALS

A . All documents transmitted for purposes of administration of the contract are to be in electronic (PDF, MS Word, or MS Excel) format, as appropriate to the document, and transmitted via an Internet-based submittal service that receives, logs and stores documents, provides electronic stamping and signatures, and notifies addressees via email.

1. Besides submittals for review, information, and closeout, this procedure applies to Requests for Interpretation (RFIs), progress documentation, contract modification documents (e.g. supplementary instructions, change proposals, change orders), applications for payment, field reports and meeting minutes, Contractor's correction punchlist, and any other document any participant wishes to make part of the project record.
2. Contractor to provide submittal service such as Procore, www.procore.com or other service approved by Architect.
3. It is Contractor's responsibility to submit documents in allowable format.

4. Subcontractors, suppliers, and Architect and Architect's consultants will be permitted to use the service at no extra charge.
5. Users of the service need an email address, internet access, and PDF review software that includes ability to mark up and apply electronic stamps (such as Adobe Acrobat, www.adobe.com, or Bluebeam PDF Revu, www.bluebeam.com).
6. Paper document transmittals will not be reviewed.
7. All other specified submittal and document transmission procedures apply, except that electronic document requirements do not apply to samples or color selection charts.

3.2 PRECONSTRUCTION MEETING

A . Construction Manager will schedule a meeting before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after Notice to Proceed..

B . Attendees:

1. Authorized representatives of the Owner.
2. Architect and their consultants.
3. Construction Manager.
4. Contractor and it's superintendent.
5. Major subcontractors and suppliers.
6. Other concerned parties.
7. Participants at the meeting to be familiar with Project and authorized to conclude matters relating to the Work.

C . Agenda: Discuss items of significance that could affect progress, including the following:

1. Tentative construction schedule.
2. Phasing.
3. Critical work sequencing and long-lead items.
4. Designation of key personnel and their duties.
5. Lines of communications.
6. Procedures for processing field decisions and Change Orders.
7. Procedures for RFIs.
8. Procedures for testing and inspecting.
9. Procedures for processing Applications for Payment.
10. Distribution of the Contract Documents.
11. Submittal procedures
12. Preparation of record documents.
13. Use of the premises.
14. Work restrictions.
15. Working hours.
16. Responsibility for temporary facilities and controls.

17. Construction waste management and recycling.
18. Office, work, and storage areas.
19. First aid.
20. Security.
21. Progress cleaning

D . Record minutes and distribute copies with three days after meeting to Architect, Owner, Construction Manager, participants, and those affected by decisions made.

3.3 PREINSTALLATION MEETINGS

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

1. Attendees:
    a. Authorized representatives of the Owner.
    b. Architect.
    c. Special Consultants.
    d. Construction Manager.
    e. Contractor's Superintendent.
    f. Installers.
    g. Manufacturers and/or fabricators.
    h. Others involved in or affected by the installation and its coordination or integration with other materials that preceded or will follow.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Submittals.
    f. Review of mockups.
    g. Possible conflicts.
    h. Compatibility requirements.
    i. Time schedules.
    j. Weather limitations.
    k. Manufacturer's written instructions.
    l. Warranty requirements.
    m. Compatibility of materials.
    n. Acceptability of substrates.
    o. Temporary facilities and controls.

p. Space and access limitations.

q. Regulations of authorities having jurisdiction.

r. Testing and inspecting requirements.

s. Installation procedures.

t. Coordination with other work.

u. Required performance results.

v. Protection of adjacent work.

w. Protection of construction and personnel.

B . Record minutes and distribute copies with three days after meeting to Architect, Owner, Construction Manager, participants, and those affected by decisions made.

1. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.

2. Do not proceed with installation if the meeting 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.

3.4 PROGRESS MEETINGS

A . Schedule and administer meetings throughout progress of the Work at maximum weekly intervals. Coordinate dates of meetings with preparation of payment requests.

1. Construction Manager will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

a. Distribute copies of the agenda and minutes to the Architect and Owner prior to each meeting.

B . Attendees:

1. Authorized representatives of the Owner.

2. Architect.

3. Special Consultants.

4. Construction Manager.

5. Contractor's Superintendent.

6. Installers.

7. Manufacturers and/or fabricators.

8. Entities concerned with current progress or involved in planning, coordination, or performance of future activities.

9. Participants at the meeting to be familiar with Project and authorized to conclude matters relating to the Work.

C . Agenda:

1. Review and correct or approve minutes of previous meetings.

2. Review of Work progress since last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction

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.

3. Field observations, problems, and decisions.
4. Identification of problems that impede, or will impede, planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of RFIs and proposal requests.
7. Review of off-site fabrication and delivery schedules.
8. Maintenance of progress schedule.
9. Corrective measures to regain projected schedules.
10. Planned progress during succeeding work period.
11. Coordination of projected progress.
12. Maintenance of quality and work standards.
13. Effect of proposed changes on progress schedule and coordination.
14. Other business relating to work.

D . Record minutes and distribute copies with two days after meeting to Architect, Owner, Construction Manager, participants, and those affected by decisions made.

1. Schedule Updating: Revise Contractor's construction 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.

3.5 PROJECT CLOSEOUT MEETING

A . Schedule and conduct a project closeout meeting, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.

B . Attendees:

1. Authorized representatives of the Owner.
2. Architect and their consultants.
3. Construction Manager.
4. Contractor and it's superintendent.
5. Major subcontractors and suppliers.
6. Other concerned parties.
7. Participants at the meeting to be familiar with Project and authorized to conclude matters relating to the Work.

C . Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

1. Preparation of record documents.

2. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
3. Submittal of written warranties.
4. Requirements for preparing operations and maintenance data.
5. Requirements for delivery of material samples, attic stock, and spare parts.
6. Requirements for demonstration and training.
7. Preparation of Contractor's punch list.
8. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
9. Submittal procedures.
10. Owner's partial occupancy requirements.
11. Installation of Owner's furniture, fixtures, and equipment.
12. Responsibility for removing temporary facilities and controls.

D . D. Record minutes and distribute copies with two days after meeting to Architect, Owner, Construction Manager, participants, and those affected by decisions made.

3.6 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 32 16

3.7 PROGRESS PHOTOGRAPHS

A . Submit photographs with each application for payment, taken not more than 3 days prior to submission of application for payment.

B . Photography Type: Digital; electronic files.

C . Provide photographs of site and construction throughout progress of work produced by an experienced photographer, acceptable to Architect.

D . In addition to periodic, recurring views, take photographs of each of the following events:

1. Completion of site clearing.
2. Excavations in progress.
3. Foundations in progress and upon completion.
4. Structural framing in progress and upon completion.
5. Enclosure of building, upon completion.
6. Final completion, minimum of ten (10) photos.

E . Views:

1. Provide non-aerial photographs from four cardinal views at each specified time, until date of Substantial Completion.
2. Consult with Architect for instructions on views required.
3. Provide factual presentation.
4. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.

5. Point of View Sketch: Provide sketch identifying point of view of each photograph.

F . Digital Photographs: 24 bit color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.

1. Delivery Medium: Via email.
2. File Naming: Include project identification, date and time of view, and view identification.
3. Point of View Sketch: Include digital copy of point of view sketch with each electronic submittal; include point of view identification in each photo file name.
4. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.

3.8 COORDINATION DRAWINGS

A . Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable.
    a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
    b. Coordinate the addition of trade-specific information to the coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
    c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
    e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
    f. Indicate required installation sequences.
    g. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B . Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.

2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:
    a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
    b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
    c. Fire-rated enclosures around ductwork.
7. Electrical Work: Show the following:
    a. Runs of vertical and horizontal conduit 1-1/4 inches (32 mm) in diameter and larger.
    b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
    c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
    d. Location of pull boxes and junction boxes, dimensioned from column center lines.
8. Fire-Protection System: Show the following:
    a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
9. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will inform Contractor, who shall make changes as directed and resubmit.

C . Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
2. File Submittal Format: Submit or post coordination drawing files using Portable Data File (PDF) format.
3. Architect will furnish contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
    a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

b. Contractor will execute a data licensing agreement in the form of AIA G201 or form provided by Architect.

3.9 REQUESTS FOR INFORMATION

A . General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
3. If clarification of an item is required of a document known to have been prepared by a consultant to the Architect, the Contractor may not direct the RFI directly to the consultant. Each RFI shall be processed through the Architect.

B . Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. RFI number, numbered sequentially.
2. RFI subject.
3. Specification Section number and title and related paragraphs, as appropriate.
4. Drawing number and detail references, as appropriate.
5. Field dimensions and conditions, as appropriate.
6. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
7. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C . RFI Form: Form approved by Architect in PDF format.

D . Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:
   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for approval of Contractor's means and methods.
   d. Requests for coordination information already indicated in the Contract Documents.
   e. Requests for adjustments in the Contract Time or the Contract Sum.
   f. Requests for interpretation of Architect's actions on submittals.
   g. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 20 00 - Price and Payment Procedures.

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of RFI response.

E . RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.

1. Form: Use CSI RFI Log Form 13.2B or form approved by Architect.

F . On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect with 7 days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

3.10 GENERAL INFORMATIONAL SUBMITTALS

A . Subcontract List: 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.

1. Form: Use CSI Subcontractors and Major Material Suppliers Form 1.5A or form approved by Architect.

B . Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

3.11 SUBMITTALS FOR REVIEW

A . When the following are specified in individual sections, submit them for review:

1. Product data.
2. Shop drawings.
3. Samples for selection.
4. Samples for verification.

B . Contactor to review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

C . Submit to Architect for review for the limited purpose of checking for general conformance with the design concept and the information given in the Construction Documents. Corrections or comments made on the submittal during this review do not relieve the Contractor from compliance with the requirements of the drawings and specifications.

Review of a specific item shall not include review of an assembly of which the item is a component. The Contractor is responsible for quantities; dimensions to be confirmed and correlated at the jobsite; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all other trades and performing all Work in a safe and satisfactory manner. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicated action.

D . Samples will be reviewed for aesthetic, color, or finish selection.

E . After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - Closeout Submittals.

3.12 SUBMITTALS FOR INFORMATION

A . When the following are specified in individual sections, submit them for information:

1. Design data.
2. Certificates.
3. Test reports.
4. Inspection reports.
5. Manufacturer's instructions.
6. Manufacturer's field reports.
7. Other types indicated.

B . Contactor to review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. **Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.**

C . Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

3.13 SUBMITTALS FOR PROJECT CLOSEOUT

A . Submit Correction Punch List for Substantial Completion.

B . Submit Final Correction Punch List for Substantial Completion.

C . When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 01 7800 - Closeout Submittals:

1. Project record documents.
2. Operation and maintenance data.
3. Warranties.
4. Bonds.
5. Other types as indicated.

D . Submit for Owner's benefit during and after project completion.

3.14 NUMBER OF COPIES OF SUBMITTALS

A . Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

1. Post PDF files directly to Architect's FTP site specifically established for Project.
2. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
3. File name to use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

B . Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.

1. Transmit samples that contain multiple, related components such as accessories together in one submittal package.
2. Provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
3. Retained samples will not be returned to Contractor unless specifically so stated.

3.15 SUBMITTAL PROCEDURES

A . Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

B . Schedule submittals to expedite the Project, and coordinate submission of related items. Coordinate with Owner for items to be reviewed concurrently by Owner's Facility Team.

C . Shop Drawing Procedures:

1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
2. Do not reproduce the Contract Documents to create shop drawings.
3. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing shop drawings.

4. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
5. Contractor will execute a data licensing agreement in the form of AIA G201 or form provided by Architect.

D . Transmittals:

1. Transmittal Form: Form provided or approved by Architect.
2. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
3. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.
4. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

E . Review Time: Allow time for submittal review, including time for resubmittals, as follows. 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.

1. Initial Review: Allow 15 working days excluding delivery time to and from the Contractor. Submittals received by Architect after 1:00 p.m. will be considered as received the following working day. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process in same manner as initial submittal.
3. Resubmittal Review: Allow 15 working days for review of each resubmittal. Resubmittals received by Architect after 1:00 p.m. will be considered as received the following working day.
4. Concurrent Consultant and Owner Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect, Architect's consultants, and Owner's Representatives, allow 15 working days for review of each submittal. Submittals received by Architect after 1:00 p.m. will be considered as received the following working day. Submittal will be returned to Architect before being returned to Contractor.

F . Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

G . When revised for resubmission, identify all changes made since previous submission.

H . Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

I . Submittals not requested will not be recognized or processed.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Preliminary schedule.

B . Construction progress schedule, with network analysis diagram and reports.

1.2 RELATED REQUIREMENTS

A . Section 01 10 00 - Summary: Work sequence, occupancy, and owner-furnished items.

1.3 SUBMITTALS

A . Within 10 days after date established in Notice to Proceed, submit preliminary schedule defining planned operations for the first 90 days of Work, with a general outline for remainder of Work.

B . If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C . Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.

1. Include written certification that major contractors have reviewed and accepted proposed schedule.
2. Include written letter clearly indicating the dates that the Owner is to furnish any materials, equipment, or the like, to be incorporated into the Work by the Contractor.

D . Within 10 days after joint review, submit complete schedule.

E . Submit updated schedule with each Application for Payment to Architect. Applications for Payment without schedule will not be processed.

F . Submit under transmittal letter form specified in Section 01 30 00 - Administrative Requirements.

G . Format for Submittals:

1. PDF electronic file and one paper copy.

1.4 QUALITY ASSURANCE

A . Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with two years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.5 SCHEDULE FORMAT

A . Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B . Diagram Sheet Size: Maximum 22 x 17 inches (560 x 432 mm) or width required.

C . Scale and Spacing: To allow for notations and revisions.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 PRELIMINARY SCHEDULE

A . Prepare preliminary schedule in the form of a preliminary network diagram.

3.2 CONTENT

A . The schedule shall include contractually specified interim completion dates and milestones.

B . Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

C . Identify each item by specification section number.

D . Identify work of separate stages and other logically grouped activities.

E . Provide sub-schedules for each phase of Work identified in Section 01 1000.

F . Provide sub-schedules to define critical portions of the entire schedule.

G . Include conferences and meetings in schedule.

H . Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

I . Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.

J . Indicate delivery dates for owner-furnished products.

K . Coordinate content with schedule of values specified in Section 01 2000 - Price and Payment Procedures.

L . Provide legend for symbols and abbreviations used.

3.3 NETWORK ANALYSIS

A . Prepare network analysis diagrams and supporting mathematical analyses using the Critical Path Method. The CPM schedule shall be developed using Primavera, MS Project, or Suretrack unless otherwise authorized by the Owner.

B . Illustrate order and interdependence of activities and sequence of work; how start of a given activity depends on completion of preceding activities, and how completion of the activity may restrain start of subsequent activities.

C . Mathematical Analysis: Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:

1. Preceding and following event numbers.
2. Activity description.
3. Estimated duration of activity, in maximum 14 day intervals.
4. Earliest start date.
5. Earliest finish date.
6. Actual start date.
7. Actual finish date.
8. Latest start date.
9. Latest finish date.
10. Total and free float; float time shall accrue to Owner and to Owner's benefit.
11. Monetary value of activity, keyed to Schedule of Values.
12. Percentage of activity completed.
13. Responsibility.

D . Unless otherwise authorized by the Owner's Representative, no more than 40 percent of all activities may be identified as critical path items. The relationship between non-critical activities and activities on the critical path shall be clearly shown on the network diagram.

E . Required Reports: List activities in sorts or groups:

1. By preceding work item or event number from lowest to highest.
2. By amount of float, then in order of early start.
3. By responsibility in order of earliest possible start date.
4. In order of latest allowable start dates.
5. In order of latest allowable finish dates.
6. Contractor's periodic payment request sorted by Schedule of Values listings.
7. Listing of basic input data that generates the report.
8. Listing of activities on the critical path.

3.4 REVIEW AND EVALUATION OF SCHEDULE

A . Participate in joint review and evaluation of schedule with Architect at each submittal.

B . Evaluate project status to determine work behind schedule and work ahead of schedule.

C . After review, revise as necessary as result of review, and resubmit within 10 days.

3.5 UPDATING SCHEDULE

A . Schedule shall be updated at least once a month and submitted with each pay request.

B . Maintain schedules to record actual start and finish dates of completed activities.

C . Indicate progress of each activity to date of revision, with projected completion date of each activity.

D . Update diagrams to graphically depict current status of Work.

E . Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

F . Indicate changes required to maintain Date of Substantial Completion.

G . Submit reports required to support recommended changes.

H . Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect including the effects of changes on schedules of separate contractors.

3.6 SCHEDULE RECOVERY

A . If the Work represented by the critical path falls behind more than 7 days, the project schedule shall be redone within 14 days showing how the Contractor shall recover the time. A narrative that addresses the changes in the schedule from the previously submitted schedule shall be submitted along with the schedule in both hard copy and electronic copy. The Contractor shall comply with the most recent schedules.

3.7 DISTRIBUTION OF SCHEDULE

A . Distribute copies of updated schedules to Contractor's project site file, to subcontractors, suppliers, Architect, Owner, and other concerned parties.

B . Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Submittals.

B . Delegated Design.

C . Quality assurance.

D . References and standards.

E . Testing and inspection agencies and services.

F . Control of installation.

G . Mock-ups.

H . Tolerances.

I . Manufacturers' field services.

J . Defect Assessment.

1.2 RELATED REQUIREMENTS

A . General Conditions and Supplementary Conditions: Inspections and approvals required by public authorities.

B . Document 00 31 32 – Geotechnical Investigation: Soil investigation report.

C . Section 01 30 00 - Administrative Requirements: Submittal procedures.

D . Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.3 SUBMITTALS

A . See Section 01 3000 - Administrative Requirements, for submittal procedures.

B . Designer's Qualification Statement: Submit for Architect's knowledge as contract administrator, or for Owner's information.

1. Include information for each individual professional responsible for producing, or supervising production of, design-related professional services provided by Contractor.

a. Full name.

b. Professional licensure information.

c. Statement addressing extent and depth of experience specifically relevant to design of items assigned to Contractor.

C . Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.

1. Include calculations that have been used to demonstrate compliance to performance and regulatory criteria provided, and to determine design solutions.
2. Include required product data and shop drawings.
3. Include a statement or certification attesting that design data complies with criteria indicated, such as building codes, loads, functional, and similar engineering requirements.
4. Include signature and seal of design professional responsible for allocated design services on calculations and drawings.

D . Test Reports: After each test/inspection, promptly submit two copies of report to Architect, Contractor, and Construction Manager.

1. Include:
   a. Date issued.
   b. Project title and number.
   c. Name of inspector.
   d. Date and time of sampling or inspection.
   e. Identification of product and specifications section.
   f. Location in the Project.
   g. Type of test/inspection.
   h. Date of test/inspection.
   i. Results of test/inspection.
   j. Compliance with Contract Documents.
   k. When requested by Architect, provide interpretation of results.
2. Test report submittals are for Architect's knowledge as contract administrator for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents, or for Owner's information.

E . Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.

1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

F . Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

G . Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.

1. Submit report in duplicate within 30 days of observation to Architect for information.

2. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

H . Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.

1. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in the Contract Documents.

2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

1.4 DELEGATED-DESIGN SERVICES

A . Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B . Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.5 QUALITY ASSURANCE

A . Testing Agency Qualifications:

1. Prior to start of work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.

2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.

3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.

1.6 REFERENCES AND STANDARDS

A . For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B . Comply with reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C . Obtain copies of standards where required by product specification sections.

D . Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E . Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F . Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from Contract Documents by mention or inference otherwise in any reference document.

1.7 TESTING AND INSPECTION AGENCIES AND SERVICES

A . Owner will employ and pay for services of an independent testing agency to perform specified testing and inspection.

B . Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 CONTROL OF INSTALLATION

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

B . Comply with manufacturers' instructions, including each step in sequence.

C . Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D . Comply with specified standards as minimum quality for the work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E . Have work performed by persons qualified to produce required and specified quality.

F . Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G . Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.2 MOCK-UPS

A . Before installing portions of the Work where mock-ups are required, construct mock-ups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.

B . Accepted mock-ups establish the standard of quality the Architect will use to judge the Work.

C . Integrated Exterior Mock-ups: Construct integrated exterior mock-up as indicated on Drawings. Coordinate installation of exterior envelope materials and products as required in individual Specification Sections. Provide adequate supporting structure for mock-up materials as necessary.

D . Room Mock-ups: Construct room mock-ups as indicated on drawings. Coordinate installation of materials, products, and assemblies as required in specification sections; finish according to requirements. Provide required lighting and any supplemental lighting where required to enable Architect to evaluate quality of the mock-up.

E . Notify Architect fifteen (15) working days in advance of dates and times when mock-ups will be constructed.

F . Provide supervisory personnel who will oversee mock-up construction. Provide workers that will be employed during the construction at Project.

G . Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

H . Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

I . Obtain Architect's approval of mock-ups before starting work, fabrication, or construction.

1. Architect will issue written comments within seven (7) working days of initial review and each subsequent follow up review of each mock-up.
2. Make corrections as necessary until Architect's approval is issued.

J . Accepted mock-ups shall be a comparison standard for the remaining Work.

K . Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

L . Where possible salvage and recycle the demolished mock-up materials.

3.3 TOLERANCES

A . Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B . Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C . Adjust products to appropriate dimensions; position before securing products in place.

3.4 TESTING AND INSPECTION

A . See individual specification sections for testing and inspection required.

B . Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of Work tested or inspected.

3. Date tests or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.
5. Maintain log at Project Site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and Commissioning Authority's, reference during normal working hours.

C . Testing Agency Duties:

1. Provide qualified personnel at site. Cooperate with Architect, Contractor, and Construction Manager in performance of services.
2. Perform specified sampling and testing of products in accordance with specified standards.
3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
4. Promptly notify Architect, Contractor, Construction Manager of observed irregularities or non-conformance of Work or products.
5. Perform additional tests and inspections required by Architect.
6. Attend preconstruction meetings and progress meetings if required by Owner.
7. Submit reports of all tests/inspections specified.

D . Limits on Testing/Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the Work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the Work.

E . Contractor Responsibilities:

1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
3. Provide incidental labor and facilities:
    a. To provide access to Work to be tested/inspected.
    b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    c. To facilitate tests/inspections.
    d. To provide storage and curing of test samples.
4. Notify Architect, Construction Manager and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

F . Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

G . Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

H . Repair and Protection: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 7000 - Execution and Closeout Requirements.
2. Protect construction exposed by or for quality-control service activities.
3. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

3.5 MANUFACTURERS' FIELD SERVICES

A . When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B . Submit qualifications of observer to Architect 30 days in advance of required observations.

1. Observer subject to approval of Architect and Owner.

C . Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.6 DEFECT ASSESSMENT

A . Replace Work or portions of the Work not complying with specified requirements.

B . If, in the opinion of Architect and Owner, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Dewatering

B . Temporary telecommunications services.

C . Temporary sanitary facilities.

D . Temporary Controls: Barriers, enclosures, and fencing.

E . Security requirements.

F . Vehicular access and parking.

G . Waste removal facilities and services.

H . Project identification sign.

I . Field offices.

J . Temporary fire protection.

1.2 RELATED REQUIREMENTS

A . Section 01 51 00 - Temporary Utilities.

1.3 DEWATERING

A . Provide temporary means and methods for dewatering all temporary facilities and controls.

B . Maintain temporary facilities in operable condition.

1.4 TEMPORARY UTILITIES - SEE SECTION 01 51 00

1.5 TELECOMMUNICATIONS SERVICES

A . Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B . Telecommunications services shall include:

1. Windows-based personal computer dedicated to project telecommunications, with necessary software and laser printer.
2. Telephone Land Lines: One line, minimum; one handset per line.
3. Internet Connections: Minimum of one; DSL modem or faster.
4. Email: Account/address reserved for project use.
5. Facsimile Service: Fax-to-email software on personal computer.

1.6 TEMPORARY SANITARY FACILITIES

A . Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B . Maintain daily in clean and sanitary condition.

C . At end of construction, return site to same or better condition as originally found.

1.7 BARRIERS

A . Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations.

B . Provide barricades and covered walkways required by governing authorities for public rights-of-way.

C . When pedestrians are routed around construction areas additional barricades will be required to prevent damage to adjacent landscaped areas. Barricades shall be placed to route pedestrians around affected areas using existing paved surfaces when possible.

D . Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.8 FENCING

A . Construction: Commercial grade chain link fence.

B . Provide 6 foot (1.8 m) high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.9 EXTERIOR ENCLOSURES

A . Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.10 SECURITY

A . Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.

B . Coordinate with Owner's security program.

1.11 VEHICULAR ACCESS AND PARKING

A . Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B . Coordinate access and haul routes with governing authorities and Owner.

C . Provide and maintain access to fire hydrants, free of obstructions.

D . Provide means of removing mud from vehicle wheels before entering streets.

E . Designated existing on-site roads may be used for construction traffic.

F . Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.12 WASTE REMOVAL

A . Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B . Provide containers with lids. Remove trash from site weekly.

C . If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D . Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

E . No on-site burning allowed.

1.13 PROJECT IDENTIFICATION

A . Provide project identification sign of design and construction approved by Architect.

B . Sign Materials:

1. Structure and Framing: New, wood or metal, structurally adequate.
2. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4 inch (19 mm) thick, standard large sizes to minimize joints, painted white.
3. Rough Hardware: Galvanized.
4. Lettering: Exterior quality paint, contrasting colors.

C . Project Identification Sign:

1. One painted sign, size as indicted on Drawings.
2. Content:
    a. Project title, logo and name of Owner as indicated on Contract Documents.
    b. Names and titles of Architect and Consultants.
    c. Name of Prime Contractor and Major Subcontractors.
    d. Color project rendering.
3. Graphic design, colors, style of lettering: Designated by Architect.

D . Installation:

1. Install project identification sign within 30 days after date fixed by Notice to Proceed.
2. Erect at location of high public visibility, adjacent to main entrance to site.

3. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.
4. Install sign surface plumb and level, with butt joints. Anchor securely.

E . No other signs are allowed without Owner permission except those required by law.

1.14 FIELD OFFICES

A . Construction office for the use of the Owner, Architect, and Architect's Consultants shall be provided by Contractor. Construction office shall include a table with 12 chairs, a plan rack, a plan table, and a two-drawer file. This office shall be maintained by the Contractor and shall have data, heat and air conditioning. It shall be maintained in clean condition.

B . Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack, and drawing display table.

C . Provide space for Project meetings, with table and chairs to accommodate 12 persons minimum.

D . Locate offices a minimum distance of 30 feet (10 m) from existing and new structures.

1.15 TEMPORARY FIRE PROTECTION

A . Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with IFC 906, "Code for Portable Fire Extinguishers", and IBC Chapter 33 and IFC Chapter 14 "Fire Safety During Construction".

1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor.
2. Store combustible materials in containers in fire-safe locations.
3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities. Prohibit smoking in hazardous fire exposure areas.
4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A . Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B . Remove underground installations to a minimum depth of 2 feet (600 mm). Grade site as indicated.

C . Clean and repair damage caused by installation or use of temporary work.

D . Restore new permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Temporary Utilities: Provision of electricity, lighting, heat, ventilation, and water.

1.2 RELATED REQUIREMENTS

A . Section 01 50 00 - Temporary Facilities and Controls:

1. Temporary telecommunications services for administrative purposes.
2. Temporary sanitary facilities required by law.

1.3 TEMPORARY ELECTRICITY

A . Cost: By Contractor.

B . Provide power service required from utility source.

C . Power Service Characteristics: 208 volt, three phase, four wire / 120 volt, single phase.

D . Complement existing power service capacity and characteristics as required.

E . Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.

F . Provide main service disconnect and over-current protection at convenient location.

G . Permanent convenience receptacles may be utilized during construction.

H . Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.

1. Provide 20 ampere, duplex outlets, single phase circuits for power tools.
2. Provide 20 ampere, single phase branch circuits for lighting.

1.4 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A . Provide and maintain LED, compact fluorescent, or high-intensity discharge lighting as suitable for the application for construction operations in accordance with requirements of 29 CFR 1926 and authorities having jurisdiction.

B . Provide and maintain 1 watt/sq ft (10.8 watt/sq m) lighting to exterior staging and storage areas after dark for security purposes.

C . Provide and maintain 0.25 watt/sq ft (2.7 watt/sq m) H.I.D. lighting to interior work areas after dark for security purposes.

D . Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

E . Maintain lighting and provide routine repairs.

F . Permanent building lighting may be utilized during construction.

1.5 TEMPORARY HEATING

A . Cost of Energy: By Contractor.

B . Provide heating devices and heat as needed to maintain specified conditions for construction operations. Provide source that will not add unnecessary moisture to the interior of the building.

C . Maintain minimum ambient temperature of 50 degrees F (10 degrees C) in areas where construction is in progress, unless indicated otherwise in specifications.

D . Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

1.6 TEMPORARY COOLING

A . Cost of Energy: By Contractor.

B . Provide cooling devices and cooling as needed to maintain specified conditions for construction operations.

C . Maintain maximum ambient temperature of 80 degrees F (26 degrees C) in areas where construction is in progress, unless indicated otherwise in specifications.

D . Prior to operation of permanent equipment for temporary cooling purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.

1.7 TEMPORARY WATER SERVICE

A . Cost of Water Used: By Contractor.

B . Provide and maintain suitable quality water service for construction operations at time of project mobilization.

C . Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Prevention of erosion due to construction activities.

B . Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.

C . Restoration of areas eroded due to insufficient preventive measures.

D . Performance bond.

E . Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

F . Coordinate with Civil Drawings.

1.2 PERFORMANCE REQUIREMENTS

A . Comply with requirements of EPA (NPDES) for erosion and sedimentation control, as specified by the NPDES, for Phases I and II, and in compliance with requirements of Construction General Permit (CGP), whether the project is required by law to comply or not.

B . Also comply with all more stringent requirements of State of Idaho Erosion and Sedimentation Control Manual.

C . Develop and follow an Erosion and Sedimentation Prevention Plan and submit periodic inspection reports.

D . Do not begin clearing, grading, or other work involving disturbance of ground surface cover until applicable permits have been obtained; furnish all documentation required to obtain applicable permits.

1. Obtain and pay for permits and provide security required by authority having jurisdiction.
2. Owner will withhold payment to Contractor equivalent to all fines resulting from non-compliance with applicable regulations.

E . Provide to Owner a Performance Bond covering erosion and sedimentation preventive measures only, in an amount equal to 100 percent of the cost of erosion and sedimentation control work.

F . Timing: Put preventive measures in place as soon as possible after disturbance of surface cover and before precipitation occurs.

G . Storm Water Runoff: Control increased storm water runoff due to disturbance of surface cover due to construction activities for this project.

1. Prevent runoff into storm and sanitary sewer systems, including open drainage channels, in excess of actual capacity or amount allowed by authorities having jurisdiction, whichever is less.

2. Anticipate runoff volume due to the most extreme short term and 24-hour rainfall events that might occur in 25 years.

H . Erosion On Site: Minimize wind, water, and vehicular erosion of soil on project site due to construction activities for this project.

1. Control movement of sediment and soil from temporary stockpiles of soil.
2. Prevent development of ruts due to equipment and vehicular traffic.
3. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

I . Erosion Off Site: Prevent erosion of soil and deposition of sediment on other properties caused by water leaving the project site due to construction activities for this project.

1. Prevent windblown soil from leaving the project site.
2. Prevent tracking of mud onto public roads outside site.
3. Prevent mud and sediment from flowing onto sidewalks and pavements.
4. If erosion occurs due to non-compliance with these requirements, restore eroded areas at no cost to Owner.

J . Sedimentation of Waterways On Site: Prevent sedimentation of waterways on the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.
2. If sediment basins are used as temporary preventive measures, pump dry and remove deposited sediment after each storm.

K . Sedimentation of Waterways Off Site: Prevent sedimentation of waterways off the project site, including rivers, streams, lakes, ponds, open drainage ways, storm sewers, and sanitary sewers.

1. If sedimentation occurs, install or correct preventive measures immediately at no cost to Owner; remove deposited sediments; comply with requirements of authorities having jurisdiction.

L . Open Water: Prevent standing water that could become stagnant.

M . Maintenance: Maintain temporary preventive measures until permanent measures have been established.

1.3 SUBMITTALS

A . See Section 01 3000 - Administrative Requirements, for submittal procedures.

B . Erosion and Sedimentation Control Plan:

1. Erosion and Sediment Control Plan will be included in Contract Documents.
2. Contractor to obtain the approval of the Plan by authorities having jurisdiction and Owner.

C . Certificate: Mill certificate for silt fence fabric attesting that fabric and factory seams comply with specified requirements, signed by legally authorized official of manufacturer; indicate actual minimum average roll values; identify fabric by roll identification numbers.

D . Inspection Reports: Submit report of each inspection; identify each preventive measure, indicate condition, and specify maintenance or repair required and accomplished.

E . Maintenance Instructions: Provide instructions covering inspection and maintenance for temporary measures that must remain after Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A . Mulch: Use one of the following:

1. Straw or hay.
2. Wood waste, chips, or bark.
3. Erosion control matting or netting.
4. Cutback asphalt.
5. Polyethylene film, where specifically indicated only.

B . Grass Seed For Temporary Cover: Select a species appropriate to climate, planting season, and intended purpose. If same area will later be planted with permanent vegetation, do not use species known to be excessively competitive or prone to volunteer in subsequent seasons.

C . Bales: Air dry, rectangular straw bales.

1. Cross Section: 14 by 18 inches (350 by 450 mm), minimum.
2. Bindings: Wire or string, around long dimension.

D . Bale Stakes: One of the following, minimum 3 feet (1 m) long:

1. Steel U- or T-section, with minimum mass of 1.33 pound per linear foot (1.98 kg per linear m).
2. Wood, 2 by 2 inches (50 by 50 mm) in cross section.

E . Silt Fence Fabric: Polypropylene geotextile resistant to common soil chemicals, mildew, and insects; non-biodegradable; in longest lengths possible; fabric including seams with the following minimum average roll lengths:

1. Average Opening Size: 30 U.S. Std. Sieve (0.600 mm), maximum, when tested in accordance with ASTM D4751.
2. Permittivity: 0.05 sec^-1, minimum, when tested in accordance with ASTM D4491.
3. Ultraviolet Resistance: Retaining at least 70 percent of tensile strength, when tested in accordance with ASTM D4355/D4355M after 500 hours exposure.
4. Tensile Strength: 100 pounds-force (450 N), minimum, in cross-machine direction; 124 pounds-force (550 N), minimum, in machine direction; when tested in accordance with ASTM D4632/D4632M.
5. Elongation: 15 to 30 percent, when tested in accordance with ASTM D4632/D4632M.

6. Tear Strength: 55 pounds-force (245 N), minimum, when tested in accordance with ASTM D4533.
7. Color: Manufacturer's standard, with embedment and fastener lines preprinted.

F . Silt Fence Posts: One of the following, minimum 5 feet (1500 mm) long:

1. Steel U- or T-section, with minimum mass of 1.33 pound per linear foot (1.98 kg per linear m).
2. Softwood, 4 by 4 inches (100 by 100 mm) in cross section.
3. Hardwood, 2 by 2 inches (50 by 50 mm) in cross section.

G . Gravel: See Civil Drawings.

H . Concrete: See Section 03 30 00.

PART 3 - EXECUTION

3.1 EXAMINATION

A . Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

3.2 PREPARATION

A . Schedule work so that soil surfaces are left exposed for the minimum amount of time.

3.3 SCOPE OF PREVENTIVE MEASURES

A . In all cases, if permanent erosion resistant measures have been installed temporary preventive measures are not required.

B . Construction Entrances: Traffic-bearing aggregate surface.

1. Width: As required; 20 feet (7 m), minimum.
2. Length: 50 feet (16 m), minimum.
3. Provide at each construction entrance from public right-of-way.
4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.

C . Linear Sediment Barriers: Made of silt fences.

1. Provide linear sediment barriers:
   a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.
   b. Along the top of the slope or top bank of drainage channels and swales that traverse disturbed areas.
   c. Along the toe of cut slopes and fill slopes.
   d. Perpendicular to flow across the bottom of existing and new drainage channels and swales that traverse disturbed areas or carry runoff from disturbed areas; space at maximum of 200 feet apart (at maximum of 60 m apart).
   e. Across the entrances to culverts that receive runoff from disturbed areas.

2. Space sediment barriers with the following maximum slope length upslope from barrier:
    a. Slope of Less Than 2 Percent: 100 feet (30 m)..
    b. Slope Between 2 and 5 Percent: 75 feet (23 m).
    c. Slope Between 5 and 10 Percent: 50 feet (15 m).
    d. Slope Between 10 and 20 Percent: 25 feet (7.5 m).
    e. Slope Over 20 Percent: 15 feet (4.5 m).

D . Storm Drain Curb Inlet Sediment Trap: Protect each curb inlet using one of the following measures:
1. Filter fabric wrapped around hollow concrete blocks blocking entire inlet face area; use one piece of fabric wrapped at least 1-1/2 times around concrete blocks and secured to prevent dislodging; orient cores of blocks so runoff passes into inlet.
2. Straw bale row blocking entire inlet face area; anchor into pavement.

E . Storm Drain Drop Inlet Sediment Traps: As detailed on drawings.

F . Temporary Splash Pads: Stone aggregate over filter fabric; size to suit application; provide at downspout outlets and storm water outlets.

G . Soil Stockpiles: Protect using one of the following measures:
1. Cover with polyethylene film, secured by placing soil on outer edges.
2. Cover with mulch at least 4 inches (100 mm) thickness of pine needles, sawdust, bark, wood chips, or shredded leaves, or 6 inches (150 mm) of straw or hay.

H . Mulching: Use only for areas that may be subjected to erosion for less than 6 months.
1. Wood Waste: Use only on slopes 3:1 or flatter; no anchoring required.
2. Asphalt: Use only where no traffic, either vehicular or pedestrian, is anticipated.

I . Temporary Seeding: Use where temporary vegetated cover is required.

3.4 INSTALLATION

A . Traffic-Bearing Aggregate Surface:
1. Excavate minimum of 6 inches (150 mm).
2. Place geotextile fabric full width and length, with minimum 12 inch (300 mm) overlap at joints.
3. Place and compact at least 6 inches (150 mm) of 1 1/2 to 3 1/2 inch (40 to 90 mm) diameter stone.

B . Silt Fences:
1. Store and handle fabric in accordance with ASTM D4873.
2. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16 inch (405 mm) high barriers with minimum 36 inch (905 mm) long posts spaced at 6 feet (1830 mm) maximum, with fabric embedded at least 4 inches (100 mm) in ground.

3. Where slope gradient is steeper than 3:1 or barriers will be in place over 6 months, use nominal 28 inch (710 mm) high barriers, minimum 48 inch (1220 mm) long posts spaced at 6 feet (1830 mm) maximum, with fabric embedded at least 6 inches (150 mm) in ground.
4. Where slope gradient is steeper than 3:1 and vertical height of slope between barriers is more than 20 feet (6 m), use nominal 32 inch (810 mm) high barriers with woven wire reinforcement and steel posts spaced at 4 feet (1220 mm) maximum, with fabric embedded at least 6 inches (150 mm) in ground.
5. Install with top of fabric at nominal height and embedment as specified.
6. Embed bottom of fabric in a trench on the upslope side of fence, with 2 inches (50 mm) of fabric laid flat on bottom of trench facing upslope; backfill trench and compact.
7. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches (460 mm), with extra post.
8. Fasten fabric to wood posts using one of the following:
    a. Four nails per post with 3/4 inch (19 mm) diameter flat or button head, 1 inch (25 mm) long, and 14 gage, 0.083 inch (2.11 mm) shank diameter.
    b. Five staples per post with at least 17 gage, 0.0453 inch (1.150 mm) wire, 3/4 inch (19 mm) crown width and 1/2 inch (12 mm) long legs.
9. Fasten fabric to steel posts using wire, nylon cord, or integral pockets.
10. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches (300 mm) high with post spacing not more than 4 feet (1220 mm).

C . Straw Bale Rows:

1. Install bales in continuous rows with ends butting tightly, with one bale at each end of row turned uphill.
2. Install bales so that bindings are not in contact with the ground.
3. Embed bales at least 4 inches (100 mm) in the ground.
4. Anchor bales with at least two stakes per bale, driven at least 18 inches (450 mm) into the ground; drive first stake in each bale toward the previously placed bale to force bales together.
5. Fill gaps between ends of bales with loose straw wedged tightly.
6. Place soil excavated for trench against bales on the upslope side of the row, compacted.

D . Mulching Over Large Areas:

1. Dry Straw and Hay: Apply 2-1/2 tons per acre (6350 kg per hectare); anchor using dull disc harrow or emulsified asphalt applied using same spraying machine at 100 gallons of water per ton of mulch.
2. Wood Waste: Apply 6 to 9 tons per acre (15,200 to 20,800 kg per hectare).
3. Asphalt: Apply at 1200 gallons per acre (11,000 L per hectare).
4. Erosion Control Matting: Comply with manufacturer's instructions.

E . Mulching Over Small and Medium Areas:

1. Dry Straw and Hay: Apply 4 to 6 inches (100 to 150 mm) depth.
2. Wood Waste: Apply 2 to 3inches (50 to 75 mm) depth.
3. Asphalt: Apply 1/4 gallon per square yard (1 L per 100 sq m).
4. Erosion Control Matting: Comply with manufacturer's instructions.

F . Temporary Seeding:

1. When hydraulic seeder is used, seedbed preparation is not required.
2. When surface soil has been sealed by rainfall or consists of smooth undisturbed cut slopes, and conventional or manual seeding is to be used, prepare seedbed by scarifying sufficiently to allow seed to lodge and germinate.
3. If temporary mulching was used on planting area but not removed, apply nitrogen fertilizer at 1 pound per 1000 sq ft (0.5 kg per 100 sq m).
4. On soils of very low fertility, apply 10-10-10 fertilizer at rate of 12 to 16 pounds per 1000 sq ft (6 to 8 kg per 100 sq m).
5. Incorporate fertilizer into soil before seeding.
6. Apply seed uniformly; if using drill or cultipacker seeders place seed 1/2 to 1 inch (12 to 25 mm) deep.
7. Irrigate as required to thoroughly wet soil to depth that will ensure germination, without causing runoff or erosion.
8. Repeat irrigation as required until grass is established.

3.5 MAINTENANCE

A . Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches (13 mm) or more rainfall at the project site, and daily during prolonged rainfall.

B . Repair deficiencies immediately.

C . Silt Fences:

1. Promptly replace fabric that deteriorates unless need for fence has passed.
2. Remove silt deposits that exceed one-third of the height of the fence.
3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

D . Straw Bale Rows:

1. Promptly replace bales that fall apart or otherwise deteriorate unless need has passed.
2. Remove silt deposits that exceed one-half of the height of the bales.
3. Repair bale rows that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

E . Clean out temporary sediment control structures weekly and relocate soil on site.

F . Place sediment in appropriate locations on site; do not remove from site.

3.6 CLEAN UP

A . Remove temporary measures after permanent measures have been installed, unless permitted to remain by Architect.

B . Clean out temporary sediment control structures that are to remain as permanent measures.

C . Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . General product requirements.

B . Transportation, handling, storage and protection.

C . Product option requirements.

D . Substitution limitations.

E . Procedures for Owner-furnished products.

F . Maintenance materials, including extra materials, spare parts, tools, and software.

G . Warranties.

1.2 RELATED REQUIREMENTS

A . Section 01 10 00 - Summary: Lists of products furnished and provided by Owner.

B . Section 01 25 00 - Substitution Procedures: Substitutions made during procurement and/or construction phases.

C . Section 01 30 00 - Administrative Requirements: Submittal procedures and requirements.

D . Section 01 40 00 - Quality Requirements: Product quality monitoring.

1.3 DEFINITIONS

A . Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.

2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.

3. Proposed Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product

B . Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 SUBMITTALS

A . Refer to Section 01 30 00 - Administrative Requirements for submittal procedures and additional requirements.

B . Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

1. Submit within 15 days after date of Notice to Proceed.

2. For products specified only by reference standards, list applicable reference standards.

C . Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

D . Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

E . Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

1.5 QUALITY ASSURANCE

A . Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

A . Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

4. Where products are accompanied by the term "as selected," Architect or Owner will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products

2.2 NEW PRODUCTS

A . Provide new products unless specifically required or permitted by Contract Documents.

B . Use of products having any of the following characteristics is not permitted:

1. Made using or containing CFC's or HCFC's.
2. Made of wood from newly cut old growth timber.
3. Containing lead, cadmium, or asbestos.

C . Where other criteria are met, Contractor shall give preference to products that:

1. Are extracted, harvested, and/or manufactured closer to the location of the project.
2. Have longer documented life span under normal use.
3. Result in less construction waste.
4. Are made of recycled materials.
5. If made of wood, are made of sustainably harvested wood, wood chips, or wood fiber.

2.3 PRODUCT OPTIONS

A . Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B . Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C . Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

D . Products Specified by Basis-of Design: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Submit a request for substitution for any manufacturer not named if provision for substitutions is included.

E . Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with Substitution Procedures for proposal of product.

F . Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.4 MAINTENANCE MATERIALS

A . Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B . Deliver to Project site; obtain receipt prior to final payment.

PART 3 - EXECUTION

3.1 SUBSTITUTION LIMITATIONS

A . See Section 01 25 00 - Substitution Procedures.

3.2 OWNER-FURNISHED PRODUCTS

A . See Section 01 10 00 for identification of Owner-furnished products.

B . Owner's Responsibilities:

1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
2. Arrange and pay for product delivery to site.
3. On delivery, inspect products jointly with Contractor.
4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
5. Arrange for manufacturers' warranties, inspections, and service.

C . Contractor's Responsibilities:

1. Review Owner reviewed shop drawings, product data, and samples.
2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install and finish products.
4. Repair or replace items damaged after receipt.

3.3 TRANSPORTATION AND HANDLING

A . Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B . If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C . Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D . Transport and handle products in accordance with manufacturer's instructions.

E . Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F . Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G . Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H . Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.4 STORAGE AND PROTECTION

A . Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. See Section 01 7419.

B . Store and protect products in accordance with manufacturers' instructions.

C . Store with seals and labels intact and legible.

D . Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.

E . For exterior storage of fabricated products, place on sloped supports above ground.

F . Provide off-site storage and protection when site does not permit on-site storage or protection.

G . Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

H . Comply with manufacturer's warranty conditions, if any.

I . Do not store products directly on the ground.

J . Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

K . Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

L . Prevent contact with material that may cause corrosion, discoloration, or staining.

M . Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

N . Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

3.5 PRODUCT WARRANTIES

A . Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B . Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C . Submittal Time: Comply with requirements in Section 01 78 00 - Closeout Submittals.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Examination, preparation, and general installation procedures.

B . Pre-installation meetings.

C . Cutting and patching.

D . Surveying for laying out the work.

E . Cleaning and protection.

F . Starting of systems and equipment.

G . Demonstration and instruction of Owner personnel.

H . Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

I . General requirements for maintenance service.

1.2 RELATED REQUIREMENTS

A . Section 01 30 00 - Administrative Requirements: Submittals procedures.

B . Section 01 40 00 - Quality Requirements: Testing and inspection procedures.

C . Section 01 50 00 - Temporary Facilities and Controls: Temporary exterior enclosures.

D . Section 01 51 00 - Temporary Utilities: Temporary heating, cooling, and ventilating facilities.

E . Section 01 57 13 - Temporary Erosion and Sediment Control: Additional erosion and sedimentation control requirements.

F . Section 01 78 00 - Closeout Submittals: Project record documents, operation and maintenance data, warranties, and bonds.

G . Section 01 79 00 - Demonstration and Training: Demonstration of products and systems to be commissioned and where indicated in specific specification sections.

H . Section 02 41 00 - Demolition: Demolition of whole structures and parts thereof; site utility demolition.

I . Section 07 84 00 - Firestopping.

J . Individual Product Specification Sections:

1. Advance notification to other sections of openings required in work of those sections.
2. Limitations on cutting structural members

1.3 SUBMITTALS

A . See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B . Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.

1. On request, submit documentation verifying accuracy of survey work.
2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in compliance with Contract Documents.
3. Submit surveys and survey logs for the project record.

C . Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.

1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences. Include design drawings and calculations for bracing and shoring.
2. Identify demolition firm and submit qualifications.
3. Include a summary of safety procedures.

D . Cutting and Patching: Submit written request in advance of cutting or alteration that affects:

1. Structural integrity of any element of Project.
2. Integrity of weather exposed or moisture resistant element.
3. Efficiency, maintenance, or safety of any operational element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate Contractor.
6. Include in request:
    a. Identification of Project.
    b. Location and description of affected work.
    c. Necessity for cutting or alteration.
    d. Description of proposed work and products to be used.
    e. Alternatives to cutting and patching.
    f. Effect on work of Owner or separate Contractor.
    g. Written permission of affected separate Contractor.
    h. Date and time work will be executed.

E . Project Record Documents: Accurately record actual locations of capped and active utilities.

1.4 QUALIFICATIONS

A . For demolition work, employ a firm specializing in the type of work required.

1. Minimum of 5 years of documented experience.

B . For surveying work, employ a land surveyor registered in the State in which the Project is located and acceptable to Architect. Submit evidence of surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate. Employ only individual(s) trained

and experienced in collecting and recording accurate data relevant to ongoing construction activities,

C . For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in the State in which the Project is located. Employ only individual(s) trained and experienced in establishing and maintaining horizontal and vertical control points necessary for laying out construction work on project of similar size, scope and/or complexity.

D . For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

1.5 PROJECT CONDITIONS

A . Use of explosives is not permitted.

B . Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

C . Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

D . Perform dewatering activities, as required, for the duration of the project.

E . Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

F . Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.

1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.

G . Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

1. Refer to Section 01 5713 - Temporary Erosion and Sediment Control and Civil Drawings.

H . Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

1. Outdoors: Limit conduct of especially noisy exterior work to the hours of 8 am to 5 pm.

I . Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

1. Pest Control Service: Monthly treatments.

J . Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.6 COORDINATION

A . See Section 01 10 00 for occupancy-related requirements.

B . Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

C . Notify affected utility companies and comply with their requirements.

D . Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

E . Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on drawings. Follow routing indicated for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

F . In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G . Coordinate completion and clean-up of work of separate sections.

H . After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A . Comply with requirements specified in other Sections.

2.2 PATCHING MATERIALS

A . New Materials: As specified in product sections; match existing products and work for patching and extending work.

B . Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C . Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00 - Product Requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A . Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B . Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C . Examine and verify specific conditions described in individual specification sections.

D . Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E . Verify that utility services are available, of the correct characteristics, and in the correct locations.

F . Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

A . Clean substrate surfaces prior to applying next material or substance.

B . Seal cracks or openings of substrate prior to applying next material or substance.

C . Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.3 PREINSTALLATION MEETINGS

A . When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B . Require attendance of parties directly affecting, or affected by, work of the specific section.

C . Refer to Section 01 30 00 - Administrative Requirements for additional meeting requirements.

3.4 LAYING OUT THE WORK

A . Verify locations of survey control points prior to starting work.

B . Promptly notify Architect of any discrepancies discovered.

C . Contractor shall locate and protect survey control and reference points.

D . Control datum for survey is that indicated on drawings.

E . Protect survey control points prior to starting site work; preserve permanent reference points during construction.

F . Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

G . Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

H . Utilize recognized engineering survey practices.

I . Establish a minimum of two permanent bench marks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.

J . Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:

1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
2. Grid or axis for structures.
3. Building foundation, column locations, ground floor elevations.

K . Periodically verify layouts by same means.

L . Maintain a complete and accurate log of control and survey work as it progresses.

M . Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

N . On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

3.5 GENERAL INSTALLATION REQUIREMENTS

A . In addition to compliance with regulatory requirements, conduct construction operations in compliance with NFPA 241, including applicable recommendations in Appendix A.

B . Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

C . Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

D . Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

E . Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

F . Make neat transitions between different surfaces, maintaining texture and appearance.

G . Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

A . Whenever possible, execute the work by methods that avoid cutting or patching.

B . Perform whatever cutting and patching is necessary to:

1. Complete the work.
2. Fit products together to integrate with other work.

3. Provide openings for penetration of mechanical, electrical, and other services.
4. Match work that has been cut to adjacent work.
5. Repair areas adjacent to cuts to required condition.
6. Repair new work damaged by subsequent work.
7. Remove samples of installed work for testing when requested.
8. Remove and replace defective and non-complying work.

C . Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

D . Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

E . Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

F . Restore work with new products in accordance with requirements of Contract Documents.

G . Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

H . At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 8400, to full thickness of the penetrated element.

I . Patching:

1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.7 OWNER-INSTALLED PRODUCTS

A . Site Access: Provide access to Project site for Owner's construction personnel.

B . Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

A . Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B . Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C . Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D . Collect and remove waste materials, debris, and trash/rubbish from site weekly and dispose off-site; do not burn or bury.

3.9 PROTECTION OF INSTALLED WORK

A . Protect installed work from damage by construction operations.

B . Provide special protection where specified in individual specification sections.

C . Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D . Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E . Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F . Protect work from spilled liquids. If work is exposed to spilled liquids, immediately remove protective coverings, dry out work, and replace protective coverings.

G . Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

H . Prohibit traffic from landscaped areas.

I . Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

3.10 SYSTEM STARTUP

A . Coordinate schedule for start-up of various equipment and systems.

B . Notify Architect and Owner seven days prior to start-up of each item.

C . Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D . Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E . Verify that wiring and support components for equipment are complete and tested.

F . Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G . When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H . Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A . See Section 01 79 00 - Demonstration and Training.

3.12 ADJUSTING

A . Adjust operating products and equipment to ensure smooth and unhindered operation.

B . Testing, adjusting, and balancing HVAC systems: Refer to Mechanical Drawings and Division 23.

3.13 FINAL CLEANING

A . Execute final cleaning prior to Substantial Completion.

1. Clean areas to be occupied by Owner prior to final completion before Owner occupancy.

B . Use cleaning materials that are nonhazardous.

C . Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

D . Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

E . Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

F . Replace filters of operating equipment.

G . Clean debris from roofs, scuppers, overflow drains, area drains, and drainage systems.

H . Clean site; sweep paved areas, rake clean landscaped surfaces.

I . Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 PROTECTION OF INSTALLED CONSTRUCTION

A . Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B . Comply with manufacturer's written instructions for temperature and relative humidity.

3.15 CLOSEOUT PROCEDURES

A . Make submittals that are required by governing or other authorities.

1. Provide copies to Architect and Owner.

B . Accompany Construction Manager on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C . Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D . Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.

E . Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

F . Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G . Accompany Construction Manager on Contractor's preliminary final inspection.

H . Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

I . Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.16 MAINTENANCE

A . Provide service and maintenance of components indicated in specification sections.

B . Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C . Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D . Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E . Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Project Record Documents.

B . Operation and Maintenance Data.

C . Warranties and bonds.

1.2 RELATED REQUIREMENTS

A . General Conditions and Supplementary Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B . Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C . Section 01 70 00 - Execution and Closeout Requirements: Contract closeout procedures.

D . Individual Product Sections: Specific requirements for operation and maintenance data.

E . Individual Product Sections: Warranties required for specific products or Work.

1.3 SUBMITTALS

A . Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B . Operation and Maintenance Data:

1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
4. Submit two sets of revised final documents in final form within 10 days after final inspection.

C . Warranties and Bonds:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

D . Digital Submittal Requirements:

1. Provide two copies of Project Record Documents, Operation and Maintenance Manuals, and Warranties and Bonds in PDF Format.

a. All CD-ROM's shall be authored with Adobe Acrobat. The authoring shall, but not be limited to include the following:

1) All information on the shall be printable on 8.5 x 11 inch or 11 x 17 inch plain paper.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 PROJECT RECORD DOCUMENTS

A . Maintain on site one set of the following record documents; record actual revisions to the Work:

1. Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed shop drawings, product data, and samples.
6. Manufacturer's instruction for assembly, installation, and adjusting.

B . Ensure entries are complete and accurate, enabling future reference by Owner.

C . Store record documents separate from documents used for construction.

D . Record information concurrent with construction progress.

E . Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F . Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:

1. Measured depths of foundations in relation to finish first floor datum.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
4. Field changes of dimension and detail.
5. Details not on original Contract drawings.

3.2 OPERATION AND MAINTENANCE DATA

A . Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B . Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C . Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D . Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.3 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A . For Each Product, Applied Material, and Finish:

1. Product data, with catalog number, size, composition, and color and texture designations.

2. Information for re-ordering custom manufactured products.

B . Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C . Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D . Additional information as specified in individual product specification sections.

E . Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

3.4 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A . For Each Item of Equipment and Each System:

1. Description of unit or system, and component parts.

2. Identify function, normal operating characteristics, and limiting conditions.

3. Include performance curves, with engineering data and tests.

4. Complete nomenclature and model number of replaceable parts.

B . Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C . Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

D . Include color coded wiring diagrams as installed.

E . Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.

F . Emergency Procedures: Where applicable include instructions and procedures for shutdown and operating outside normal limits.

G . Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

H . Provide servicing and lubrication schedule, and list of lubricants required.

I . Include manufacturer's printed operation and maintenance instructions.

J . Include sequence of operation by controls manufacturer.

K . Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

L . Provide control diagrams by controls manufacturer as installed.

M . Provide Contractor's coordination drawings, with color coded piping diagrams as installed.

N . Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

O . Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

P . Include test and balancing reports.

Q . Additional Requirements: As specified in individual product specification sections.

3.5 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A . Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B . Where systems involve more than one specification section, provide separate tabbed divider for each system.

C . Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D . Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E . Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

F . Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G . Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H . Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I . Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

J . Arrangement of Contents: Organize each volume in parts as follows:

1. Project Directory.
2. Table of Contents, of all volumes, and of this volume.
3. Operation and Maintenance Data: Arranged by system, then by product category.
    a. Source data.
    b. Product data, shop drawings, and other submittals.
    c. Operation and maintenance data.
    d. Emergency procedures.
    e. Field quality control data.
    f. Photocopies of warranties and bonds.
4. Design Data: To allow for addition of design data furnished by Architect or others, provide a tab labeled "Design Data" and provide a binder large enough to allow for insertion of at least 20 pages of typed text.

3.6 WARRANTIES AND BONDS

A . Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial completion is determined.

B . Verify that documents are in proper form, contain full information, and are notarized.

C . Co-execute submittals when required.

D . Retain warranties and bonds until time specified for submittal.

E . Manual: Bind in commercial quality 8-1/2 by 11 inch (216 by 279 mm) three D side ring binders with durable plastic covers.

F . Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

G . Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

H . Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A . Demonstration of products and systems where indicated in specific specification sections.

B . Training of Owner personnel in operation and maintenance is required for:

1. All software-operated systems.
2. HVAC systems and equipment.
3. Plumbing equipment.
4. Electrical systems and equipment.
5. Conveying systems.
6. Landscape irrigation.
7. Door hardware.
8. Items specified in individual product Sections.

C . Training of Owner personnel in care, cleaning, maintenance, and repair is required for:

1. Roofing, waterproofing, and other weather-exposed or moisture protection products.
2. Finishes, including flooring, wall finishes, ceiling finishes.
3. Fixtures and fittings.
4. Items specified in individual product Sections.

1.2 RELATED REQUIREMENTS

A . Section 01 78 00 - Closeout Submittals: Operation and maintenance manuals.

B . B. Other Specification Sections: Additional requirements for demonstration and training.

1.3 SUBMITTALS

A . See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B . Training Plan: Owner will designate personnel to be trained; tailor training to needs and skill-level of attendees.

1. Submit to Architect for transmittal to Owner.
2. Submit not less than four weeks prior to start of training.
3. Revise and resubmit until acceptable.
4. Provide an overall schedule showing all training sessions.
5. Include at least the following for each training session:
    a. Identification, date, time, and duration.
    b. Description of products and/or systems to be covered.
    c. Name of firm and person conducting training; include qualifications.

d. Intended audience, such as job description.

e. Objectives of training and suggested methods of ensuring adequate training.

f. Methods to be used, such as classroom lecture, live demonstrations, hands-on, etc.

g. Media to be used, such a slides, hand-outs, etc.

h. Training equipment required, such as projector, projection screen, etc., to be provided by Contractor.

C . Training Manuals: Provide training manual for each attendee; allow for minimum of two attendees per training session.

1. Include applicable portion of O&M manuals.

2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.

3. Provide one extra copy of each training manual to be included with operation and maintenance data.

D . Training Reports:

1. Identification of each training session, date, time, and duration.

2. Sign-in sheet showing names and job titles of attendees.

3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.

E . Video Recordings: Submit digital video recording of each demonstration and training session for Owner's subsequent use.

1. Format: DVD Disc.

2. Label each disc and container with session identification and date.

1.4 QUALITY ASSURANCE

A . Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.

1. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.

2. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 DEMONSTRATION – GENERAL

A . Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.

B . Demonstration may be combined with Owner personnel training if applicable.

C . Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.

1. Perform demonstrations not less than two weeks prior to Substantial Completion.
2. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D . Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.

1. Perform demonstrations not less than two weeks prior to Substantial Completion.

3.2 TRAINING – GENERAL

A . Conduct training on-site unless otherwise indicated.

B . Owner will provide classroom and seating at no cost to Contractor.

C . Provide training in minimum two hour segments.

D . Training schedule will be subject to availability of Owner's personnel to be trained; re-schedule training sessions as required by Owner; once schedule has been approved by Owner failure to conduct sessions according to schedule will be cause for Owner to charge Contractor for personnel "show-up" time.

E . Review of Facility Policy on Operation and Maintenance Data: During training discuss:

1. The location of the O&M manuals and procedures for use and preservation; backup copies.
2. Typical contents and organization of all manuals, including explanatory information, system narratives, and product specific information.
3. Typical uses of the O&M manuals.

F . Product- and System-Specific Training:

1. Review the applicable O&M manuals.
2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
3. Review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
4. Provide hands-on training on all operational modes possible and preventive maintenance.
5. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
6. Discuss common troubleshooting problems and solutions.
7. Discuss any peculiarities of equipment installation or operation.

8. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
9. Review recommended tools and spare parts inventory suggestions of manufacturers.
10. Review spare parts and tools required to be furnished by Contractor.
11. Review spare parts suppliers and sources and procurement procedures.

G . Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removing existing vegetation.
2. Clearing and grubbing.
3. Removing above- and below-grade site improvements.
4. Disconnecting, capping or sealing, protecting and abandoning site utilities in place.
5. Temporary erosion and sedimentation control measures.

B. Related Sections:

1. Division 01 Sections
2. Division 31 “Earth Moving”.
3. Idaho Standards for Public Works Construction, Current Edition.
4. City of Twin Falls Revisions to the Idaho Standards for Public Works Construction, 2017.
5. Geotechnical Engineering Report and Addenda as prepared by Materials Testing & Inspection, MTI File Number: T200068g.
6. SWPPP Documents.

1.2 DEFINITIONS

A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.3 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site. Conform to applicable code for disposal of debris.

B. The Owner has secured a Dump Site for disposal of unsuitable and excess fill material scheduled to be removed from the Project Site.

1. The Dump Site is located at the Magic Valley Regional Airport, 492 Airport Loop, Twin Falls, ID 83301, approximately 6-miles from the Project Site.
2. Access to the Dump Site will be via gravel road off N 2800 E/Grandview Dr S directly east of the Magic Valley Speedway.
3. Contractor shall supply a full-time Gate Guard to provide security and monitoring of trucks and equipment entering/exiting the secure Dump Site.
4. All operations for fill disposal shall be coordinated with Matt Barnes, Airport Operations Supervisor via phone at 208-308-7236 and/or email at mbarnes@tfid.org.

1.4 SUBMITTALS

A. Operations & Maintenance Data: Submit Record Drawings identifying and accurately showing locations of utilities and other subsurface structural, electrical, and mechanical conditions.

1.5 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

C. Utility Locator Service: Notify utility locator service for area where Project is located before beginning site clearing operations. Contact locator service at 811 or (208) 342-1585.

D. Do not commence site clearing operations until temporary erosion and sedimentation measures are in place.

E. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist. Refer to Geotechnical Evaluation for Soft Subgrade Construction Approach Recommendations.

F. Dust Control: Per Agency Having Jurisdiction.

1.6 WARRANTY

A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earthmoving"

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner’s Representative.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of Agencies Having Jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

E. Coordinate with SWPPP documents.

3.3 EXISTING UTILITIES

A. Contractor shall coordinate with Owner’s Representative to arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

C. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner's Representative not less than two (3) days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner Representative's written permission.

D. Excavate for and remove underground utilities indicated to be removed. Backfill & compact excavated utility trenches per specification section 312000.

3.4 CLEARING AND GRUBBING

A. Comply with Geotechnical Engineering Report.

B. Remove trees, shrubs, and other vegetation to permit installation of new construction.

C. Remove debris, obstructions, pipes, excess soil, etc. to permit installation of new construction.

D. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 6-Inches and compact each layer to a density equal to adjacent original ground.
2. All fill material placed must be compacted and tested. Coordinate with Owner's Representative for testing.

3.5 TOPSOIL STRIPPING

A. Comply with Geotechnical Engineering Report.

B. Contractor shall remove all organic, disturbed or undocumented fill soils beneath proposed pavements, flatwork, floor slabs, structural fills and building foundations.

C. All organic or disturbed soils shall be removed to depths of 12-inches minimum and stockpiled for later use in landscape areas or removed from site. Stripping depths shall be adjusted in the field to ensure that the entire root zone, disturbed zone or topsoil are removed prior to placement and compaction of structural fill materials.

D. Exact removal depths should be determined during grading operations by the Geotechnical Engineer and should be based upon subgrade soil type, composition, and firmness or soil stability.

E. Stripped topsoil may be stockpiled and used in future landscape areas only. Topsoil shall not be used as structural fill.

3.6 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut adjacent to line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

C. If underground storage tanks, underground utilities, wells, or septic systems are discovered during construction activities, they must be decommissioned then removed or abandoned in accordance with governing Federal, State, and local agencies. Excavations developed as a result of such removal must be backfilled with structural fill materials. See section 312000.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Disposal of unsuitable and excess fill material at the Dump Site shall be free of garbage, organic material, large diameter branches or logs (3-inch diameter or larger), root wads, large concrete rubble or debris, metal, plastic pipe, etc.

1. Concrete and asphalt debris shall not exceed 3-feet in measurement in any direction and must be broken up or omitted from disposal at the Dump Site.

C. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavation and backfilling for slabs-on-grade, walks and pavements.
2. Excavation and backfilling for building floor slabs, building foundations and structures.
3. Excavation and backfilling geotechnical test pits.
4. Temporary erosion and sedimentation control measures.

B. Related Sections:

1. Division 01 Sections.
2. Division 31 Section "Site Clearing" for site stripping, grubbing, stripping topsoil, and removal of above- and below-grade improvements and utilities.
3. Idaho Standards for Public Works Construction, Current Edition.
4. City of Twin Falls Revisions to the Idaho Standards for Public Works Construction, 2017.
5. Geotechnical Engineering Report and Addenda as prepared by Materials Testing & Inspection, MTI File Number: T200068g.
6. SWPPP Documents.

1.2 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe. Initial backfill shall be Bedding Course.
2. Final Backfill: Backfill placed over initial backfill to fill a trench. Final Backfill shall be Bedding Course or Granular Structural Fill.

B. Base Course (Crushed Aggregate Base): Aggregate layer placed between the base course and hot-mix asphalt paving or concrete flatwork or cast in place concrete.

C. Subbase Course (Structural Fill): Aggregate layer placed between the subgrade and Base Course.

D. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

E. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

F. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes

upward capillary flow of pore water.

G. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

H. Fill: Soil materials used to raise existing grades.

I. Satisfactory Soil: Soil material in compliance with the Geotechnical Engineering Report.

J. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, base course or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D 2487.
2. Laboratory compaction curve according to ASTM D 1557 (for rigid structures) or ASTM D 698 (for flexible pavements).
3. Sieve analysis for all structural fill materials.

C. Operations & Maintenance Data: Submit Materials Testing reports for compaction testing of all subgrades and fill materials.

1.4 QUALITY ASSURANCE

A. Pre-excavation Conference: Conduct conference at Project site.

B. All gravel, base course, subbase, and other imported fill materials other than landscape fill and topsoil shall only be stockpiled in proposed impervious areas. No gravel or rock materials shall be stockpiled or temporarily placed in proposed landscape areas in order to prevent landscape areas from being contaminated with rock materials. If landscape areas become contaminated, the contractor shall restore them to specified requirements at no cost to the Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk materials with appropriate certificates.

1.6 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earthwork operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations. Contact locator service at 811 or 208-342-1585.

C. Do not commence earthwork operations until temporary erosion- and sedimentation-control measures are in place.

D. Soft Subgrade Conditions: This site contains native silts and/or clays that that are relatively high in moisture content and prone to pumping and rutting from rubber-tired construction equipment. Earth Moving methods which limit destabilizing areas of the site during earth moving activities shall be employed.

E. Construction operations during dry, warm weather conditions will help to limit development of unstable subgrade conditions. Construction during wet weather may not be possible, depending on the amount of precipitation.

F. SWPPP: Coordinate with SWPPP documents.

G. Dust Control: Per Agency Having Jurisdiction.

1.7 WARRANTY

A. Contractor shall warrant work as provided by the General and Supplementary Conditions and Division 01 Specifications.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations. Materials shall be in compliance with the Geotechnical Engineering Report.

B. Structural Fill: Soils classified as GW, GP, SW, and SP in accordance with the USCS (ASTM D2487) as identified by the geotechnical engineer. Use of silty soils (USCS designation of GM, SM, and ML) as structural fill may be acceptable. However, use of silty soils and lean clay soils (GM,SM, CL, and ML) as structural fill below footings and building floor slabs is prohibited. Native and undocumented stockpile/fill materials on-site may classify as Structural Fill.

C. Subbase Course (Granular Structural Fill): 6-Inch minus select, clean, granular soil with no more than 50 percent oversize (greater than 3/4-Inch) material and no more than 12 percent fines (passing No. 200 sieve). Refer to the ISPWC Section 801 for material gradation and requirements.

D. Base Course (Crushed Aggregate Base):

1. 3/4" maximum size- complying with ISPWC Section 802 – 3/4-inch (Type I) for material gradation and requirements.
2. Crushed Aggregate Base as defined herein shall be used as Free Draining Granular Mat as indicated by the geotechnical engineering report.
3.

E. Filter Sand:

1. Per ISPWC Section 801 – in compliance with the following material gradation:

Sieve Size	Percent Passing
3/8-inch	100
No. 4	95-100
No. 16	45-80
No. 50	10-30
No. 100	2-10
No. 200	0-4

F. Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288.
2. Grab Tensile Strength: 157 lbf; ASTM D 4632.
3. Sewn Seam Strength: 142 lbf; ASTM D 4632.
4. Tear Strength: 56 lbf; ASTM D 4533.
5. Puncture Strength: 56 lbf; ASTM D 4833.
6. Apparent Opening Size: No. 70 sieve, maximum; ASTM D 4751.
7. Permittivity: 0.5per second, minimum; ASTM D 4491.

8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

G. Woven Geotextile: Woven geotextile fabric, manufactured for subgrade stabilization and soil improvements complying with the following minimum properties, measured per test methods referenced:

1. CBR Puncture: 700 lb; ASTM D 6241.
2. Grab Tensile Strength: 200 lb; ASTM D 4632.

PART 3 - EXECUTION

3.1 SITE PREPARATION

A. Refer to Geotechnical Engineering Report for additional information.

B. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

C. Protect and maintain erosion and sedimentation controls during earthwork operations.

D. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

E. The site shall be watered as required to moisture condition the native soils.

F. Notify Owner’s Representative of unexpected subgrade conditions and discontinue affected work in area until notified to resume work.

3.2 EXCAVATION: GENERAL

A. Refer to Geotechnical Engineering Report for additional information.

B. All excavation depths noted in this section shall be from existing ground surface. Total excavation depth from existing ground elevation may be greater than depth listed. Coordinate with drawings for more information.

C. Identify required lines, levels, contours and datum.

D. Protect above and below grade utilities which are to remain.

E. Grade top perimeter of excavation to prevent surface water from draining into excavation.

F. Following excavation to subgrade and prior to fill placement; subgrade surfaces shall be proof rolled in the presence of the geotechnical engineer. Correct Soft Subgrade Soil areas as identified and directed by the Geotechnical Engineer. Proof rolling of subgrade soils shall be accomplished using a heavy rubber-tired, fully loaded, tandem-axle dump truck or equivalent.

G. Inspection & compaction testing shall be completed per the Division 01 Specifications.

3.3 EXCAVATION AND BACKFILL AT GEOTECHNICAL TEST PITS

A. Refer to Geotechnical Engineering Report for location and depth of test pits.

B. Excavate full depth of test pit or utility until undisturbed, native subgrade is encountered.

C. Place Granular Structural Fill to total depth necessary to bring test pit to proposed subgrade elevation. Place in maximum 12-inch loose lifts and compact to a minimum of 95% per ASTM D1557.

D. Surface of compacted structural fill shall be smooth, even surface. Remove ridges and fill depressions.

E. Coordinate placement and grade with Excavation for Structures, Building Slabs, Building Foundations, Concrete Flatwork & Pavements, this section.

F. Inspection & compaction testing shall be completed per the Division 01 Specifications.

3.4 EXCAVATION FOR STRUCTURES, BUILDING SLABS AND BUILDING FOUNDATIONS

A. Excavate to indicated lines, cross sections, elevations, and subgrades.

B. All excavation depths noted in this section shall be from existing ground surface.

C. Existing top soil material must be completely removed from below building slabs and building foundation elements. Coordinate with specification section 31 10 00.

D. Uncontrolled fill materials must be completely removed from below proposed structures, building slabs and foundations. Minimum excavation depth shall be in accordance with Geotechnical Engineering Report. Extend excavation 10-feet beyond wall locations. Remove excavated soil material and dispose of off Owner’s property.

E. The exposed subgrade shall be proof-rolled and approved by the Geotechnical Engineer.

F. Repair soft subgrade soil areas as identified and directed by the Geotechnical Engineer.

3.5 EXCAVATION FOR CONCRETE FLATWORK AND PAVEMENTS

A. Excavate to indicated lines, cross sections, elevations and subgrades.

B. The exposed subgrade shall be proof-rolled and approved by the Geotechnical Engineer.

C. If uncontrolled fill remains below the removal depth noted in the Geotechnical Engineering Report, the exposed subgrade shall be compacted to 95% of the maximum dry density as determined by ASTM D698.

D. Repair soft subgrade soil areas as identified and directed by the Geotechnical Engineer.

E. Excavate to adequate depth for placement of Structural Fill, Subbase Course and/or Base Course Soil Materials.

3.6 SUBGRADE INSPECTION

A. Notify Owner's Representative when excavations have reached required subgrade elevations.

B. Prior to placement of subbase course and base course material at building and paved areas, the exposed subsoil surface should be proof-rolled under the observation of the Geotechnical Engineer.

C. Cut out soft or otherwise unsuitable areas of subgrade not capable of supporting structural loads. Backfill with Granular Structural Fill and compact to density equal to or greater than requirements for subsequent backfill material. Prior to placing Granular Structural Fill, the Geotechnical Engineer shall evaluate the over-excavated subgrade to determine if a Geotextile should be placed on the over-excavated subgrade.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Owner's Representative.

3.7 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Protect as necessary to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations.
2. Coordinate stockpile requirements with the requirements of the Agency Having Jurisdiction and acceptable BMP's.

3.8 BACKFILL - GENERAL

A. Upon approved preparation and compaction of subgrade, placement of Structural Fill, Subbase Course and Base Course Fill shall proceed.

B. Place Backfill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Surface of Backfill shall be smooth, even surface. Remove ridges and fill depressions

as required to meet finish grades.

3.9 STRUCTURAL FILL - GENERAL

A. Soils for use as Structural Fill shall be as defined the by Geotechnical Engineering Report and this section.

B. Place Structural Fill as required to achieve correct subgrade elevation for placement of Subbase Course and Base Course fill.

C. Structural Fill materials should be placed in layers not to exceed 6-inches in loose thickness.

D. Structural Fill material should be moisture-conditioned to achieve optimum moisture content prior to compaction.

E. Each layer of fill should be compacted to the following density:

1. Below Rigid Pavements: A minimum of 95% of maximum dry density, as determined by ASTM D 1557.
2. Below Flexible Pavements: A minimum of 92% of ASTM D1557 or 95% of ASTM D698.

3.10 GRANULAR STRUCTURAL FILL - GENERAL

A. Soils for use as Granular Structural Fill shall be as defined by this section.

B. Fill materials should be placed in layers not to exceed 12-inches in loose thickness.

C. Granular Structural Fill material should be moisture-conditioned to achieve optimum moisture content prior to compaction.

D. Each layer of fill should be compacted to the following density:

1. Below Structures and Rigid Pavements: A minimum of 95% of maximum dry density, as determined by ASTM D 1557.
2. Below Flexible Pavements: A minimum of 92% of ASTM D1557 or 95% of ASTM D698.

3.11 SUBBASE COURSE FILL

A. Upon approved preparation and observed proof-rolling of subgrade, placement of Subbase Course Fill shall proceed.

B. Place Granular Structural Fill as required to achieve correct subgrade elevation for placement of Base Course fill and indicated surface improvements. Place Subbase Course fill in maximum 12-inch lose lifts and compact as noted below.

C. Surface of Subbase Course Fill shall be smooth, even surface. Remove ridges and fill depressions as required to meet finish grades.

D. Coordinate with Specification Section 033000 and Architectural and Structural Drawings for placement for Building Foundations and Building Floor Slab.

E. Each layer of Subbase Course fill should be compacted to the following density:

1. Below Building Foundations, Building Floor Slab, Structures and Rigid Pavements: A minimum of 95% of maximum dry density, as determined by ASTM D 1557.
2. Below Flexible Pavements: A minimum of 92% of ASTM D1557 or 95% of ASTM D698.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus ½-inch.
3. Pavements: Plus or minus ½-inch.

C. Site drainage should be directed away from structural areas, to avoid ponding of waters during storm events.

D. Grading inside Building Lines: Finish subgrade to a tolerance of 1/4 inch when tested with a 10-foot straightedge.

3.13 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Division 1.

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Owner's Representative.

E. Testing agency will perform compaction testing at the following locations and frequencies:

1. Pavement, Walks and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 5,000 SF (Building Slab) and every 10,000 SF (paved areas) but in no case fewer than three tests.
2. Geotechnical Test Pits & demolished utilities: one test at each compacted fill layer at each test pit or demolished seepage bed.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; re-compact and retest until specified compaction is obtained.

3.14 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Owner's Representative; reshape and re-compact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

B. Refer to specification section 31 10 00 for disposal of unsuitable and excess fill material at Owner provided Dump Site.

END OF SECTION 312000