ADDENDUM A

Supplementary Terms and Conditions

This Addendum A and the corresponding Exhibit A together comprise the project specific requirements that are supplementary to the requirements of the Fermilab Subcontract General Provisions contained in FL-1 and the Fermilab Construction Subcontract Terms and Conditions contained in FL-3.

Project Information

Project Name: _____

Engineering Project No. _____

Issue Date: _____

Fermilab Project Team

Construction Manager:

_____

Fermilab Construction Coordinator:

_____

Fermilab ES&H Coordinator:

_____

Note

Items and descriptions highlighted (see example below) indicate additional information, descriptions and requirements are contained in Addendum A.

Example:

Refer to **ADDENDUM A, SECTION 1.1** for the specific…

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Drawings/Specifications

Specifications

10000 Something
3600 Concrete

Drawings

G-1 General Sheet
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1.0 Site Location

The project is located…..

Tip: Specify if the project is located in Kane County or DuPage County

2.0 Scope of Work

The Subcontractor's scope of work is in no way limited to the general work outline described below. The Subcontractor shall perform all work required to complete the construction work in strict accordance with the drawings and/or specifications. The description and quantities listed below are general in nature and are only intended to describe the range and complexity of this scope of work. They are not to be used as the basis for establishing a cost proposal. Specific quantities and definitions of the scope of work for bidding purposes shall be based solely on estimates developed by the Offer from the drawings, specifications, Exhibit A and information obtained from examination of the project site.

The project is consists of the work ……

Tip: Include the major trades in the scope of work description

3.0 Items Affecting Work Planning

Tip: List special training, access requirements or anything else that would cause difficulty and therefore increase the cost of the work. Examples include radiological (8-hour) training, on-going machine shop operations, covering and protecting lab equipment.

3.2 Environmental Issues Affecting the Work

The following environmental issues….

Tip: Include permit requirements, wetland concerns, asbestos remediation, hazard waste, light ballasts, etc.. that could increase coordination and cost.

If the project includes excavation, include the following either here in 3.2 or, preferably, on the drawings or in the specs:

Soil Erosion and Sediment Control: On all projects involving excavations, the following requirements apply:

1. *Erosion Control Structures:*
   a. *Subcontractor shall have all required erosion control devices required by the SESCP or SWPPP (if required) and as shown on the drawings, in place prior to commencing any work for which they are required.*

b. *As the work evolves, additional interim control structures may be required in order to protect waterways and/or comply with permit terms and conditions.*
c. *Costs for installation and maintenance of these structures shall be considered incidental to the project and included in the original proposal.*
d. *The Subcontractor shall install all such structures within 24 hours of notification by Fermilab.*

2. *Maintenance of Erosion Control Structures:*
   a. *Subcontractor shall be required to perform inspections of all control structures as specified in the drawings and to maintain all control devices until final stabilization of all disturbed areas..*
3. *Temporary and Permanent Seeding and Stabilization*
   a. *The Subcontractor shall be required to follow seeding dates and requirements as specified and in accordance to the Illinois Urban Manual.*
   b. *The Subcontractor shall be responsible for providing appropriately vegetated surfaces as outlined in the Exhibit B or specified on the drawings*
   c. *The Subcontractor shall be responsible for establishing sufficient final vegetation required for stabilization as accepted by Fermilab before the erosion control structures may be removed. Any permanent seeding operations completed at the end of the growing season shall be carried out per dormant seeding requirements (Illinois Urban Manual Standard 880C)*
   d. *Subcontractor shall be required to maintain seeded areas into the following growing season until vegetation growth reaches 80% coverage.*
   e. *The Subcontractor shall not remove erosion control structures until final acceptance of vegetation by Fermilab. If the conditions do not allow for the removal at the time of final acceptance, the Subcontractor shall remove the erosion control structures at no additional cost at a later date determined by Fermilab.*

3.5 Identification Badging & Subcontractor Employee Orientation

State if subcontractor will or will not be required to have Fermilab's ID badges.

3.6 Materials Furnished by Fermilab

The materials and equipment will be provided by Fermilab for installation by the Subcontractor:

Tips:

- *Include quantities, model numbers and weights;*
- *State if the Subcontractor will be required to pick it up, transport and unload it;*
- *State if it will be delivered by Fermilab to the project site and if so, who unloads it;*
- *State if it's on site already or if it's going to be delivered from a vendor, include expected delivery date;*
- *Include reference to Section 17 of FL-1 that references Fermi-furnished property*
- *If none, say "There is no*

3.7 Buy American Act

Fermilab maintains a preference for domestic construction material. In accordance with Section 25 of FL-3, Fermilab Construction Subcontract Terms and Conditions, the following construction material or components are exempt from the Buy American Act:

Tip: In most cases, we will not list an exemption, so say "There are no exemptions for this project"

3.8 Services Furnished by Fermilab

The following services will be provided by Fermilab:

3.8.e – Electrical Power

Tip: Specific voltage, location, etc.. you might say "120v for hand tools will be provided at the project site." Or say "Fermilab will not provide electric power for this project"

3.8.f – Drinking Water

Tip: "A source of potable water for drinking will be at …." Or say "Fermilab will not provide drinking water for this project"

3.8.g – Toilet Facilities

Tip: "Toilet facilities are located…." Or say "Fermilab will not provide toilet facilities for this project"

3.12 Parking and Staging Area

The parking and staging area for the Subcontractor is located…

Tip: Be as specific as possible. Include requirement if the staging area is to be fenced, where trailers can be locate, etc.. In Wilson Hall, describe if the Subcontractor is allowed a couple of parking stalls and if he is expected to park in the lot with the rest of us.

3.14 Off-Site Disposal

Tip:

- *State if regulated waste is expected to be encountered. If so, what kind.*
- *State if the Subcontractor is expected to dispose of the regulated waste. Usually, the Lab takes care of this, but confirm.*
- *Ok, to say "No regulated waste is anticipated for this project"*
- *Subcontractor shall submit recycling data from vendor.*

4.1 Subcontractor's Safety Representative Responsibilities

Tips:

- *This is the place where you would specify if, based on the project complexity, that you would like a separate safety representative. If that's the case, be specific in what you require for this role in qualifications, years of experience, etc..*
- *If you require a separate safety representative, include a statement like "The Subcontractor's Safety Representative must be present on the Fermilab site whenever work activities are being performed."*
- *If you require a separate safety representative, include a statement like "Should more than one (1) work shift be required, the Subcontractor shall identify and assign a Subcontractor's Safety Representative for each shift."*
- *If the project is straightforward, you can state "For this project, the Subcontractor's Field Superintendent can serve as the Subcontractor's Safety Representative."*

5.3 Construction Schedule

This project includes the following milestones

1. Milestone 0 – 0 Calendar Days - Notice to Proceed
   This milestone marks the point where construction work may begin

2. Milestone 1 – XX Calendar Days – Something
3. Milestone 2 – XX Calendar Days – Something

4. Milestone 3 – XX Calendar Days - Project Complete
   This milestone marks the completion of the project including punchlist items, clean-up and acceptance of as-built drawings and submittals.

Tips:

- *You should always have at least two (2) milestones (NTP and Project Complete)*
- *Add as many milestones as you feel appropriate, but be specific in what constitutes completion.*
- *Add as much project specific schedule requirements as appropriate such as pay items, logic, etc…*

5.7 Submittals

Tips:

- *If you require submittals, insert the section listed below.*
- *If you don't want to review submittals, add a statement like "No submittals are required for this project"*

Submittals are defined as shop drawings, material samples,operations and maintenance manuals for all materials and assemblies used on the project which are normally required in the construction industry. The following information and requirements pertain to submittals for this project:

1. Shop drawings shall conform to the requirements of Section 5.5 through 5.8 of FL-3, **Fermilab Construction Subcontract Terms and Conditions;**
2. Submittals shall include a cover sheet that includes (at a minimum) the following information:
   a. Subcontractor name, address, contact information;
   b. Subcontract purchase order number;
   c. FESS/E project name and number;
   d. Specification and/or drawing number that defines the product;
   e. Confirmation that the submittal complies with 5.5 of FL-3, Fermilab Construction Subcontract Terms and Conditions.
3. The Subcontractor shall submit one (1) one electronic copy of submittals;
4. The Subcontractor shall supply two (2) printed copies and one (1) electronic copy of all operation and maintenance manuals for equipment furnished by the Subcontractor or his Sub-tier contractor prior to final acceptance of the project by Fermilab.
5. Electronic submittals shall be in the "portable document format" (PDF) as developed by Adobe, Incorporated;
6. Fermilab will review submittals and return one (1) electronic copy of all submittals within 10 (ten) working days with one (1) of the following actions:

a. "No exception Taken" response on the Subcontractor's shop drawings submittal and "**NET**" as shown on the Material Submittal for Review form indicates the Subcontractor may proceed with procurement, fabrication, manufacture and installation of the material and/or product.
b. "Revise & Resubmit – Fabrication May Proceed" on the Subcontractor's shop drawing submittal and "**R/R**" as shown on the Material Submittal for Review form indicates the Subcontractor may proceed with procurement, fabrication, and manufacture of the material and/or product assuming the noted items on the submittal are incorporated into the final design and/or product. The Subcontractor will revise the shop drawings and resubmit them to Fermilab for approval, but will not be able to erect and/or install any material until he has received either the "No Exception Taken (NET)" or the "Make Corrections and Proceed (MCP)" action by Fermilab.
c. "Make Corrections & Proceed" response on the Subcontractor's shop drawing submittal and "**MCP**" as shown on the "Material Submittal for Review" form indicates the Subcontractor may proceed with procurement, fabrication, manufacture and installation of the material and/or product assuming the noted items on the submittal are incorporated into the final design and/or product.
d. With the "Rejected" response on the Subcontractor's shop drawing submittal and "**R**" as shown on the Material Submittal for Review form, the reasons for the disapproval will be stated on the shop drawing submittal. The Subcontractor will revise the shop drawing submittal to conform with the drawings and specifications and resubmit them to Fermilab for approval. No procurement, fabrication, manufacture or installation shall be performed by the Subcontractor until one of the above actions listed under Section 6(a), 6(b), or 6(c).
e. "For Information Only" response on the Subcontractor's shop drawing submittal and "**FIO**" on the Material Submittal for Review form acknowledges receipt of such items as test results, professional engineering calculations, welding certificates and inspection reports.

5.11 Project Bulletin Board

Tips:

- *There are two (2) options based on project scope, complexity and duration.*
- *If you want a project bulletin board include the statement "The Subcontractor shall provide a Project Bulletin Board that complies with Section 32 of FL-3, Fermilab Construction Subcontract Terms and Conditions."*
- *If you don't want a huge bulletin board, include a statement like "In lieu of the Project Bulletin Board described in Section 32 of FL-3, Fermilab Construction Subcontract Terms and Conditions, the Subcontractor will provide a folder or clipboard that contains the same information at a visible location on the project site, available for review and inspection"*

5.13 Quality Requirements

Tips:

- *If you want a separate Quality Control Plan, insert the section listed below.*
- *If you don't want a separate plan, add a statement like "No extraordinary quality requirements are required for this project"*

Project Quality Control Plan

The Subcontractor shall submit a Project Quality Control (PQC) Plan which identifies personnel, procedures, control, instructions, test, records, and forms to be used specific to this project at Fermilab. The PQC Plan shall include, as a minimum, the following information to cover all construction operations, both onsite and offsite, including work by sub-tier contractors, fabricators, suppliers, and purchasing agents:

1. The name, qualifications, duties, responsibilities, and authorities of each person assigned a Quality Control function, including the identity of the Project Quality Control Manager.
2. As a minimum, the Project Quality Control Manager shall be responsible for the following:
   a. Interface with Fermilab Construction Coordinator on all quality matters;
   b. Maintain all quality related records;
   c. Review, submittal and tracking of submittals;
   d. Coordinate and participate in all preparatory, initial and follow-up meetings;
   e. Attend weekly construction meetings;
   f. Assure all required testing is performed;
   g. Develop and maintain deficiency list;
   h. Prepare and submit daily quality control reports;
   i. Participate in beneficial occupancy, punchlist and final inspections;
3. The Subcontractor shall provide as part of the Quality Control organization, specialized personnel to assist the Quality Control Manager for the discipline(s) specified below. These individuals may be employees of the Subcontractor or Sub-tier contractor; will be responsible to the Quality Control Manager; must be physically present at the construction site during work on their areas of responsibility; must have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned Quality Control duties.
4. Control, verification, and acceptance testing procedures for each specific test required by the Subcontractor;
5. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
6. A list of the definable features of work. A definable feature of work is a task that is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment.
7. The PQC Plan shall incorporate any changes in scope of work, due to directed field changes or supplemental agreements, as these changes occur.
8. Fermilab reserves the right to require the Subcontractor to make changes in his PQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified (see Section 34.3 of FL-3, Fermilab Construction Subcontract Terms and Conditions).

Implementation

The Subcontractor shall ensure that the construction, including work by sub-tier contractors and suppliers, complies with the requirements of the subcontract. At least three (3) phases of control shall be conducted by the Quality Control Manager for each definable feature of work as follows:

1. Preparatory Phase: This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:
   a. The Fermilab Construction Coordinator shall be notified at least 24 hours in advance of beginning the preparatory control phase;
   b. This phase shall include a meeting conducted by the Quality Control Manager and attended by the superintendent, other Quality Control personnel (as applicable), and the foreman responsible for the definable feature;
   c. The Subcontractor shall document any discussions during this phase;
   d. The Subcontractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet subcontract specifications;
   e. A review of the subcontract documents applicable to this feature of work, including appropriate clauses in FL-3, Fermilab Construction Subcontract Terms and Conditions; e.g., sections 2 and 9;
   f. Review of provisions that have been made to provide required control inspection and testing;
   g. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the subcontract;

   h. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored;
   i. A review of the appropriate activity hazard analysis to assure safety requirements is identified;
   j. Discussion of procedures for controlling quality of the work including repetitive deficiencies;
   k. Verification of construction tolerances and workmanship standards for that feature of work;
2. Initial Phase: This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:
   a. The Fermilab Construction Coordinator shall be notified at least 24 hours in advance of beginning the initial phase.
   b. The Subcontractor shall document any discussion during this phase.
   c. The work completed in this phase sets the standard for future work and should be identified for future reference.
   d. A check of work to ensure that it is in full compliance with subcontract requirements. Review minutes of the preparatory meeting.
   e. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards.
   f. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity hazard analysis with each employee, particularly new workers.
3. Follow-up Phase: Daily checks shall be performed by the Quality Control Manager to assure quality control activities, including quality control testing, are providing continued compliance with Subcontract requirements, until completion of the particular feature of work. The Subcontractor shall document these checks in the Daily Quality Control Report.

Testing

The Subcontractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to Subcontract requirements. The following describes the minimum requirements:

1. Results of all tests taken, both passing and failing tests, shall be recorded on the Quality Control report for the date taken;
2. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given;
3. An information copy of tests performed by an offsite or commercial test facility shall be provided in the form of submittal;
4. The Daily Quality Report recording testing results shall be resubmitted.

Documentation

The following describes the requirements for the quality control documentation required for this project:

1. The Subcontractor shall maintain current records providing factual evidence that required Quality Control activities and/or tests have been performed;
2. The quality control records shall be submitted weekly to the Fermilab Construction Coordinator on a weekly basis;
3. The quality control records shall include the work of sub-tier contractors and suppliers.

6.10 Job Site ES&H Meetings

Tips:

- *If you want a monthly job site ES&H meeting, add this statement* "Monthly ES&H meetings shall be conducted by the Subcontractor's Field Superintendent at the job site. The purpose of these meetings is to assist in highlighting and reinforcing the Subcontractor's ES&H Plan. It is expected that these meetings will typically last one (1) hour."

- *If you don't want monthly meeting, add a statement like "No separate monthly ES&H meetings are anticipated for this project"*

EXHIBIT A

Supplementary Terms and Conditions

This Exhibit A and the corresponding Addendum A together comprise the project specific requirements that are supplementary to the requirements of the Fermilab Subcontract General Provisions contained in FL-1 and the Fermilab Construction Subcontract Terms and Conditions contained in FL-3.

Note

Items and descriptions highlighted (see example below) indicate additional information, descriptions and requirements are contained in Addendum A.

Example:

Refer to **ADDENDUM A, SECTION 1.1** for the specific…

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1.0 SITE LOCATION

The project is located on the Fermi National Accelerator Laboratory (Fermilab) Site, adjacent to the city of Batavia, Illinois. Refer to **Section 1.0 of Addendum A** for the specific project (work) location on the Fermilab site.

2.0 SCOPE OF WORK

The Subcontractor shall furnish all required supervision, labor, materials, tools, plant and appurtenances necessary to perform diligently and fully all work as described in the drawings and technical specifications. This includes transportation, overhead, bonding costs, safety oversight, quality control oversight, and supervision as required to construct the project described in the drawings, technical specification and the detailed description contained in **Section 2.0 of Addendum A**.

3.0 ITEMS AFFECTING WORK PLANNING

Items affecting the work planning include the specific items listed in **Section 3.0 of Addendum A**. and the following items:

3.1 Existing Utilities, Equipment and Structures

a. Utility Identification and Location:

i. Fermilab will identify through drawings, notations and field locates, the approximate location of known utilities and underground structures;

ii. The information concerning structures and utilities indicated on the drawings are provided in accordance with Section 30 of FL-3;

iii. In accordance with Section 35 of FL-3, the Subcontractor shall protect all existing utilities, equipment and structures during all phases of the work;

iv. Vacuum excavation methods, consisting of air or water to break up the soil and a vacuum device to collect the spoil, shall be used to locate electrical cables and gas lines.

b. Work on Existing Utilities:

i. No work shall be performed on existing in-service utility systems without prior approval and coordination of the system outage by the Fermilab Construction Coordinator;

ii. Pressure shall be relieved on all piping systems before opening up and starting work;

iii. Lockout/Tagout shall be used by the Subcontractor for all valves, blank-offs and relief lines;

iv. "Hot Tap" connections shall not be permitted unless specified by the job and specific procedures have been submitted and accepted by Fermilab;

c. Fermi Access for Information Gathering:

i. Fermilab utilizes a GPS system for on-site mapping and documentation of underground utilities;

ii. The Subcontractor shall provide access for data gathering;

iii. The Subcontractor shall notify the Fermilab Construction Coordinator two (2) working days prior to backfilling.

3.2 Environmental Issues Affecting the Work

Environmental issues affecting the work planning specific to this project can be found in **Section 3.2 of Addendum A**.

3.3 Advance Notice of Work Activities

The following activities require the Subcontractor to provide written notification to the Fermilab Construction Coordinator a minimum of three (3) business days prior to the commencement of work:

a. Interruption of road traffic;

b. Closure of any roads;

c. Connection to or interruption of any existing underground utility;

d. Intended use of ICW from any hydrant;

e. Connection to temporary electric power sources;

f. Request for disablement of fire alarms or related safety devices;

g. Request for disablement of fire protection systems;

h. Intended activity beyond the specified construction limits;

i. Intended access to or work within a confined space;

j. Connection to or interruption of any existing 13.8kV power system;
k. Saw cutting or core drilling at manholes, foundations and paved areas;
l. Excavation activities;
m. Backfilling of underground utilities;
n. Delivery of a radioactive source on the Fermilab site.

Fermilab will provide written notification to proceed on the above listed work activities.

3.4 Subcontractor Use of Radioactive Sources for Testing

The use of radioactive testing sources is subject to monitoring and oversight by Fermilab based on the following:

a. Nuclear density meters will be inspected at the construction site by Fermilab ES&H personnel. Review for Department of Transportation compliance with survey and inspection requirements will be completed at that time;
b. When required by specification, Subcontractor use of radiography sources will require five (5) business days advance notice to the Fermilab Construction Coordinator. During this time, the Subcontractor shall submit to the Fermilab Construction Coordinator documentation showing the Subcontractor's NRC or Agreement State license for the material;
c. When the source is brought to the Fermilab site, Fermilab ES&H staff will meet the subcontractor, escort him/her to the construction site, and monitor the use of the source during the testing activity;
d. Any work with radiography will occur outside normal business hours.

3.5 Identification Badging & Subcontractor Employee Orientation

The Subcontractor employees and sub-tier Subcontractor will be required to obtain identification badging for access onto the Fermilab site, unless otherwise stated in **Section 3.5 of Addendum A**.

a. The Fermilab Construction Coordinator will assist in the process of identification badging;
b. As part of the identification badging process, all employees must complete Fermilab Orientation Training;
c. The orientation and badging efforts require approximately one (1) hour;
d. Once identification badges are obtained, they shall be worn at all times while on the Fermilab site;
e. Deliveries and incidental, escorted work activities under eight (8) hours in duration may be exempted from the badging requirement if approved in advance by the Fermilab Construction Coordinator;
f. Reference **Section 3.5 of Addendum A** for project specific training requirements provided by Fermilab.

3.6 Materials Furnished by Fermilab

Information concerning materials furnished by Fermilab can be found in **Section 3.6 of Addendum A.**

3.7 Buy American Act

Section 3.7 of Addendum A contains information regarding construction materials that are exempt from the Buy American Act as described in Section 25 of FL-3, Fermilab Construction Subcontract Terms and Conditions.

3.8 Services Furnished by Fermilab

Fermilab will furnish the services as described below and/or in **Section 3.8 of Addendum A** to the Subcontractor.

a. Fermilab furnished services shall be coordinated with the Fermilab Construction Coordinator;

b. Fermilab coordinates issuance of permits (see Section 5.6 for additional information);
c. Fermilab coordinates requests for and provides disablement of existing systems;
d. Availability and use of existing Fermilab utility services will comply with Section 37 of FL-3;
e. Electrical Power:
   i. **Section 3.8 of Addendum A** describes the electric power that will be furnished by Fermilab for the Subcontractor's use;
   ii. Installation of the Subcontractor's electrical power distribution shall include ground-fault circuit protection and shall be subject to Fermilab approval;
   iii. Any additional power required not specified in Addendum A shall be furnished and paid for by the Subcontractor.
f. Drinking Water:
   i. **Section 3.8 of Addendum A** describes the drinking water that will be furnished by Fermilab for the Subcontractor's use;
   ii. Drinking water distribution containers shall be approved by Fermilab Construction Coordinator and shall be adequate, clean and shall be dispensed from a fully enclosed potable water container with individual paper drinking cups;
   iii. Any additional potable water required not specified in Section 3.8 of Addendum A shall be furnished and paid for by the Subcontractor.
g. Toilet Facilities:
   i. **Section 3.8 of Addendum A** describes the Fermilab toilet facilities that will be available for the Subcontractor's use;
   ii. When Fermilab toilet facilities are not available to the Subcontractor, the Subcontractor shall provide an adequately serviced chemical toilet for every twenty (20) personnel on the project;
   iii. Toilet type and locations shall be approved by Fermilab.

3.9 Electronic Project Drawings

Fermilab may, at the Subcontractor's request and in accordance with Exhibit "B" specifications, release "electronic" project drawings for use in preparation of shop drawings by the Subcontractor or Sub-tier subcontractors or vendors. These electronic drawings will be distributed to the Subcontractor utilizing Fermilab's current file and media format. Fermilab assumes no responsibility for the information contained in these "electronic" drawings, including, but not limited to: Drawing scale, dimensions, details, accuracy, etc. It is the responsibility of the Subcontractor to verify all information contained in these drawings with actual site conditions.

3.10 Site Access and Hauling

Fermilab site access and hauling shall be subject to the following conditions:

a. Electronic communication devices, such as cell phones, texting devices, laptops, etc. must not be used while driving any motor vehicle on Fermilab's site.
b. All roads shall remain open to emergency traffic at all times;
c. All equipment and vehicles shall be confined to operating along defined construction roads and approved access routes;
d. No overland hauling or off-road travel shall be permitted in order to avoid damage to wetland areas, wooded areas, archaeological sites, survey monuments or other areas to be preserved in their natural state;
e. Interruption of normal traffic patterns or temporary road closings necessitated by movement of equipment or delivery of materials or utility installations shall

require advance notice as outlined in Section 3.3 of this Exhibit A, and shall require proper barricades, signage and flag persons to safely divert normal traffic;

f. Traffic on paved roads shall be restricted to rubber-tired vehicles. Where crawler mounted equipment is required to cross paved roads or areas, the pavement shall be suitably protected from damage to the satisfaction of the Fermilab Construction Coordinator;

g. Dust, debris and litter on any Fermilab roads caused by the Subcontractor's operations shall be removed by the Subcontractor in a manner as directed by the Fermilab Construction Coordinator;

h. Illinois Rules of the Road shall apply to the Subcontractor's use of all existing roads;

3.11 Transportation of Equipment and Materials

Transportation of equipment and materials shall be subject to the following conditions:

a. Transportation of equipment and materials used by the Subcontractor at the job site shall be furnished by the Subcontractor at his own expense;

b. The Subcontractor shall be responsible for minimizing any interference with local traffic, other Subcontractors and Fermilab operations;

c. The Subcontractor shall coordinate the anticipated schedule for major material deliveries and site hauling of excavated materials with the Fermilab Construction Coordinator;

3.12 Parking and Staging Areas

Subcontractor parking and staging areas shall be subject to the following conditions:

a. Parking of the Subcontractor's and the Sub-tier subcontractor's vehicles shall be confined to the Subcontractor's designated construction area or general public parking spaces;

b. The Subcontractor's parking and staging area is described in **Section 3.12 of Addendum A**;

c. No material shall be stored beyond the construction limits unless prior written arrangements have been made through the Fermilab Construction Coordinator.

3.13 Temporary Services and Facilities

Temporary services and facilities shall be subject to the following conditions:

a. Temporary services and facilities required during the construction period shall be furnished, installed, and paid for by the Subcontractor;

b. All installations shall be subject to Fermilab approval;

c. Temporary Lighting shall be installed throughout the project to provide safe access and exit conditions and adequate lighting for the various work operations. The installation shall comply with the National Electrical Code (NFPA 70);

d. Telephone Service for the project will be provided by and paid for by the Subcontractor;

e. Temporary Fire Protection:

   i. Temporary fire protection shall be in accordance with the OSHA 29CFR1926;

   ii. An approved fire extinguisher shall be provided by the Subcontractor on all trucks and similar equipment, at all enclosures, and at on-site construction offices;

   iii. Each extinguisher shall be inspected monthly and a date tag certifying adequacy of the charge and workability of the extinguisher shall be affixed;

   iv. The Subcontractor shall remove the extinguishers at the conclusion of the job.

f. Temporary Ventilation shall be sufficient to provide a safe working environment for construction personnel. Subcontractor shall provide exhaust and supply air fans, ducting and other equipment as needed.

g. Temporary Heat:
   i. Temporary Heating shall include heating devices, protective coverings and temporary enclosures as necessary to protect the work and to provide a safe working environment for personnel;
   ii. Coal or kerosene type salamanders, pots or open fires shall not be permitted;
   iii. Where permanent heating equipment has been installed and made operational prior to completion of the project, the Subcontractor may request temporary use of such equipment, at no cost, provided it is properly maintained by the Subcontractor and that all required warranties are extended to include the period of use by the Subcontractor prior to Final Acceptance of the project by Fermilab.

h. Temporary Drainage:
   i. Temporary Drainage shall be sufficient to remove standing water and prevent flooding;
   ii. Subcontractor shall furnish pumping equipment and other dewatering equipment as required for proper operation;
   iii. Pump discharges shall be intercepted by silt removal or sedimentation basins before being directed to natural drainage courses and away from adjacent work limits of other subcontractors.

3.14 Off Site Disposal

Off-site disposal shall be subject to the following conditions:

a. All disposal shall be in accordance with Section 38 of FL-3, Fermilab Construction Subcontract Terms and Conditions;
b. Off-site disposal of recycled materials, trash, debris, demolished material, pallets, crates, packing materials, rubbish and all waste material shall be the responsibility of the Subcontractor. The goal for recycling construction and demolition waste is 80% based on weight.
c. The Subcontractor shall furnish all necessary dumpsters or similar containers to prevent dispersion of debris both within and outside of the construction site;
d. Recycling:
   i. The Subcontractor shall utilize a recycling waste hauler, obtain a report on percentage recycled by weight from the vendor and submit the report to the Fermilab Construction Coordinator;
   ii. The minimum amount of recycled material is 50% as measured by weight;
   iii. The Subcontractor shall submit a report that details the percentage, by weight, of recycled materials.
e. Regulated Waste:
   i. Where regulated waste is generated (Resource Conservation and Recovery Act Hazardous, Toxic Substance Control Act, Illinois Special Waste, etc.) the Subcontractor shall immediately notify the Fermilab Construction Coordinator;
   ii. Unless specified in **Section 3.14 of Addendum A**, all regulated waste shall be disposed through the Fermilab Hazard Control Technology Team.

3.15 Fermilab Closures

The Fermilab site is closed for major holiday and no construction activities shall occur on these days:

a. New Year's Day – January 1st
b. Martin Luther King Jr. Day – 1st Monday after January 15th
c. Memorial Day – Last Monday in May
d. Independence Day – July 4th
e. Labor Day – 1st Monday in September
f. Thanksgiving Day – 4th Thursday in November
g. Day After Thanksgiving – Friday after Thanksgiving
h. Christmas Eve (1/2 Day) – December 24th
i. Christmas Day – December 25th
j. New Year's Eve (1/2 Day) – December 31st

If any of these holidays occur on a weekend day, a weekday will be used for the holiday.

4.0 PROJECT COORDINATION

This section describes the requirements, responsibilities and expectations for the project coordination aspects of this project.

4.1 Subcontractor's Project Team

4.1.1 Field Superintendent

The Subcontractor shall, at all times during the progress of the work, provide a competent superintendent in accordance with FL-3, Section 10. In addition, the following requirements for the Field Superintendent are described below:

a. The Subcontractor shall provide a competent Field Superintendent, who is the Subcontractor's representative designated for the duration of the project to the running of the day-to-day operations of the work including safety, quality control and sub-tier subcontractor coordination responsibilities.
b. The Field Superintendent shall have knowledge and experience of Occupational Safety and Health Administration (OSHA) and other related safety standards, and has the authority to enforce such standards in the field.
c. The Field Superintendent must be present on the Fermilab project site whenever work activities are ongoing.
d. In the absence of the designated Field Superintendent, the Subcontractor shall identify an alternate individual with similar qualifications acceptable to Fermilab.
e. Should more than one work shift be required on this project, the Subcontractor shall identify and assign a designated individual meeting the above requirements for each work shift.
f. In the event that excavations are part of the project scope, the Subcontractor shall provide a competent person for excavation activities who meets the requirements of OSHA 29 CFR 1926.32 (f).
g. In the event that scaffolding is be utilized during the execution of the project, the Subcontractor shall provide a competent person for scaffolding who meets the requirements of OSHA 29 CFR 1926.32 (f).

4.1.2 Safety Representative

The Subcontractor shall employ a Safety Representative who acts as a properly authorized agent of the Subcontractor, responsible for safety activities of all work sites under this subcontract. Unless stated otherwise in **Section 4.1 of Addendum A**, the Subcontractor's Field Superintendent can function as Safety representative. The Safety Representative shall interface with the Fermilab Construction Coordinator on all safety matters, and assure the subcontractor does the following:

a. Interface with Fermilab Construction Coordinator on all safety matters;
b. Preparing and submitting Hazard Analyses including revisions and updates;
c. Reviewing and accepting sub-tier safety plans and hazard analyses;
d. Assuring all sub-tier contractors have accepted the ES&H Plan;

e. Updating the ES&H Plan as required;
f. Maintaining a list of Competent Persons;
g. Assuring Hazard Analyses are understood and signed by all workers;
h. Inspecting work in progress;
i. Identifying, reporting and correcting deficiencies;
j. Assuring personal protective equipment is available;
k. Conducting tool box meetings;
l. Conducting monthly safety meetings;
m. Maintaining all safety records including minutes, training records, inspections, etc.
n. Maintaining safety related signage;
o. Assuring equipment inspections are performed;
p. Attending weekly construction meetings;
q. Coordinate permit applications with Fermilab Construction Coordinator;
r. Investigating all incidents;
s. The Subcontractor's Safety Representative or the alternate shall be present at all meetings between the Subcontractor and Fermilab at which changes in construction methodology are discussed. The Subcontractor's Safety Representative shall approve these changes.

4.2 Fermilab Project Team

4.2.1 Fermilab Construction Manager

The Fermilab Construction Manager is a Fermilab person with overall responsibility for the construction phase of the project.

4.2.2 Fermilab Construction Coordinator

The Fermilab Construction Coordinator is a Fermilab person specifically assigned to oversee the work of a project for conformance to the subcontract requirements. The Fermilab Construction Coordinator is the primary point of contact with the Subcontractor.

4.2.3 Fermilab Procurement Administrator

The Procurement Administrator is a Fermilab person specifically assigned to the project and is responsible for negotiation and administration of the subcontract terms and conditions. All modifications to the subcontract shall come from the Procurement Administrator or designee, in writing. The Procurement Administrator or designee is the sole entity that can modify the subcontract or initiate change orders.

4.2.4 Fermilab ES&H Coordinator

The Fermilab ES&H Safety Coordinator will make periodic construction site visits to provide support to the Fermilab Construction Coordinator for Laboratory oversight of the Subcontractor's safety program. Any deficiencies noted shall be brought to the attention of Fermilab Construction Coordinator for follow up with the Subcontractor. As noted in Exhibit A, Section 6.1, the ES&H Coordinator has authority to stop work activities for imminent danger, fatality, or major environmental release, but does not have authority to direct changes in the work scope of the project or the Subcontractor's means and methods of construction.

5.0 PROJECT EXECUTION

The Subcontractor shall commence work under this Subcontract on the dates set forth in the Notice To Proceed, execute the work with diligence and energy, and timely complete the work to be performed under this Subcontract (the work and work activities). In this regard, time is of the essence to the Subcontractor's performance of all activities necessary for completion of the work. Timely and successful completion of the work requires careful planning and scheduling of all work activities. The Subcontractor is responsible for the planning, scheduling, management, and execution of the work in accordance with the Subcontract requirements.

5.1 Preconstruction Meeting

A Preconstruction Meeting is required for Subcontracts which require bonding. This meeting, chaired by the Fermilab Procurement Administrator, will typically be held after Subcontract award and before Notice to Proceed is issued. The Subcontractor's Field Superintendent is expected to attend this meeting.

5.2 Notice To Proceed

The Notice To Proceed (NTP) represents the basis of the start of the project duration. The following describes the requirements for the Notice to Proceed:

a. The NTP is issued by the Fermilab Procurement Administrator;
b. The issuance of the NTP restricts the start of work on the Fermilab Site;
c. Submittals and other work efforts not on the Fermilab site may proceed after award of subcontract and prior to NTP.
d. Submittals Required Prior to Notice to Proceed. Within ten (10) business days after subcontract award, the Subcontractor shall submit the following to Fermilab for acceptance. These items must be submitted and accepted by Fermilab prior issuance of Notice-To-Proceed (NTP).
   i. Project Hazard Analysis (if NTP is waived, a project Hazard Analysis is still required prior to commencement of work);
   ii. Project-specific Quality Control Plan (if required by Section 5.13);
   iii. Project-specific ES&H Plan (if required by Section 6)
   iv. Cost-loaded Construction Schedule (see Section 5.3 below)
   v. Soil Erosion and Sediment Control Plan (if required by Section 3.2)

5.3 Construction Schedule

The Subcontractor shall submit a practicable construction schedule as described in **Section 23 of FL-3** that will be the basis for determining job progress and payments. The format of the construction schedule shall be based on the overall project cost as described below:

a. For projects with a construction cost exceeding $3.5 million, a computer-based, cost loaded, critical path-method construction schedule is required;
b. For progress payments on projects with a construction cost of $3.5 million with a Fermilab provision (or a Subcontractor request) a cost loaded bar chart for schedule is required;
c. The construction schedule shall incorporate the Fermilab project milestones contained in **Section 5.3 of Addendum A**;
d. Project durations shall be in calendar days from the date of the NTP;
e. Dollar values shall be indicated for all work activities that result in the installation of some portion of the permanent work;
f. Off-site activities, such as procurements, shop drawings, fabrications, and mobilization shall receive a zero dollar value;
g. The dollar value of all the work activities listed in the schedule shall equal the overall subcontract price.

5.4 Weekly Progress Meetings

Weekly progress meetings will be held unless otherwise specified in **Section 5.3 of Addendum A** to coordinate the work of the Subcontractor and Fermilab. The roles and responsibilities of the participants are as follows:

a. Fermilab Construction Coordinator:
   i. Responsible for chairing the weekly progress meetings;
   ii. Responsible for meeting documentation;
   iii. Identification of the work completed since the previous progress meeting;
   iv. Identification of deficiencies in the quality of construction;
b. Fermilab Design Coordinator or Fermilab Construction Coordinator:
   i. Submittal status;
   ii. Status of Request for Information;
c. Subcontractor's Field Superintendent:
   i. Prior to the weekly progress meeting, the Subcontractor shall submit a "two week look ahead" schedule that will present the status of activities that are currently in progress or expected to begin within two (2) calendar weeks from the date of the weekly progress

meeting;

ii. Subcontractor's Environment, Safety and Health observations;

iii. Submit Quality Control documentations (if required by Section 6 of Exhibit A);

iv. Status of deficiency list of those items of the work that do not conform to the subcontract documents;

v. Providing a summary of the work-hours worked during the previous week;

vi. Identification of any impact to the project cost or schedule due to the activities of Fermilab;

vii. Identification of any work activities commenced or expected to commence that are outside the scope of the subcontract.

5.5 Monthly Construction Schedule Update Meetings

The construction schedule shall be updated monthly to accurately reflect the execution of the project. The construction schedule update shall include the following:

a. Actual start and completion dates for activities that finished during the update period;

b. Percent complete and predicted completion date for those activities that are in progress;

c. Any necessary changes to the schedule required to accurately reflect the actual sequence of work;

d. Clear identification of the critical path work activities and logic ties;

e. The Fermilab Construction Coordinator and the Subcontractor shall jointly review all construction schedule updates prior to formal submittal;

f. The date of the update will be selected by Fermilab to coincide with accepted Fermilab financial accounting periods;

g. The construction schedule shall reflect all subcontract changes that have been issued via supplemental agreement;

h. A revision summary of the changes shall be maintained on the schedule;

i. The Subcontractor shall submit a Schedule Variance (SV) report when any of the projected Fermilab specified milestones are behind schedule by more than 5% (SV=0.95 or less) of the total remaining project schedule. This report shall identify those activities that are contributing to the schedule variance;

j. When the construction schedule indicates that a Fermilab-specified milestone will be late by more than 5% of the total remaining schedule the Subcontractor shall submit a recovery schedule that will mitigate the schedule variance. This recovery shall identify those activities that are contributing to the schedule variance and the actions the Subcontractor is proposing to mitigate the variance as required by Section 23.2 of FL-3.

5.6 Permits

Fermilab conducts work through the use of on-site permits. Information concerning permits is listed below:

a. All Fermilab required permits will be identified to the Subcontractor by the Fermilab Construction Coordinator, who will arrange for all necessary permits at no cost to the Subcontractor;

b. No work activity shall be performed without the required permits;

c. Activities requiring permits include, but are not limited to:

i. Work notification;

ii. Excavation (see below);

iii. Electrical work;

iv. Burning/welding (see below);

v. Modification to drinking water or sanitary sewer systems;
vi. Radioactive sources on site;
vii. Working with/on radioactive material, working in radiological areas;
viii. Moving government or Fermilab property off site;

d. The Subcontractor will comply with all restrictions or provisions listed on permits;

e. All requests for permits shall be made a minimum of two (2) working days prior to the need for the permit;

f. Excavation Permit: An Excavation Permit issued by Fermilab via the Fermilab Construction Coordinator is required before any excavation/digging can begin at a construction site. The following requirements are associated with the Excavation Permit:
   i. Subcontractor shall coordinate the preparation of the excavation permit application with the Fermilab Construction Coordinator;
   ii. Excavation permits require a minimum of five (5) working days to process;
   iii. No excavation shall proceed without an Excavation Permit, signed by the Subcontractor Competent Person and attached to the HA. This excavation permit does not relieve the Subcontractor of his responsibility to use proper excavating techniques to find hidden and unknown utilities prior to excavating.

g. Confined Space Permit: The following sets forth the minimum acceptable requirements for confined space work at Fermilab:
   i. The Fermilab Construction Coordinator shall identify all existing confined work spaces to the Subcontractor;
   ii. If a Subcontractor is required to enter a permit-required confined space as part of their contract with Fermilab, the subcontractor shall provide the Fermilab Construction Coordinator with the following at the pre-construction meeting or at least five (5) working days prior to entry:
      a) A written copy of the Subcontractor's confined space entry program;
      b) Training records for potential entrants, attendants, and entry supervisors;
      c) Evidence that all air monitoring equipment is properly calibrated within the calibration period specified by the subcontractor's program or manufacturer's instructions. This may be in the form of a calibration log, certification indicator on the instrument, or other means. (It is imperative that the equipment used by the Subcontractor be capable of monitoring for the contaminants associated with the confined space to be entered;
   iii. It will be the Subcontractor's responsibility to provide all of their own personal protective equipment (PPE), such as lifelines, harnesses, respirators, tripods, ventilators, etc., as specified by the entry permit;
   iv. In addition to complying with the permit space requirements listed above, each Subcontractor retained to perform permit-required confined space entry operations shall:

a) Obtain any available information regarding permit space hazards and entry operations from the Fermilab Construction Coordinator;
b) Coordinate entry operations with Fermilab, when both Fermilab personnel and Subcontractor personnel will be working in or near permit spaces;
c) Prior to entry, inform the Fermilab Construction Coordinator of the specific permit space procedures the Subcontractor will follow;
d) Inform the Fermilab Construction Coordinator who will inform the Fermilab Fire Department prior to entering the space;
e) Inform the Fermilab Construction Coordinator of any unanticipated hazards encountered during confined space entry;
f) Provide the Fermilab Construction Coordinator with a copy of the Subcontractor's confined space permit, reclassification form or written certification once the work has been completed.

h. Burning/Welding Permit:
Information concerning the burning/welding permit is listed below:
i. The Fermilab Construction Coordinator will contact the Fermilab Fire Department (FFD) and secure the Burn Permit;
ii. Members of the FFD will meet with the Fermilab Construction Coordinator and the Subcontractor's Field Superintendent and examine the proposed operation, prescribe precautions, assure appropriate instructions are understood, and then issue a written Burn Permit;
iii. The Subcontractor must arrange for fire watches during burning, welding, or other fire or spark generating work. This fire watch must continue for a minimum of thirty minutes after work is complete;
iv. It is the Subcontractor's responsibility to furnish the proper number and type of fire extinguishers for any welding, cutting, or brazing activities as specified in the Burn Permit;
v. The extinguishers must be located in clear sight and no farther than 50 feet from the work areas;
vi. All welding shall be in accordance with the requirements of the American Welding Society (AWS) Standard: Safety in Welding, Cutting, and Allied Process (ANSI/ASC Z49.1-94).
vii. UL or FM listed check valves shall be installed on oxygen-fuel torch cutting equipment.

5.7 Submittals

See **Section 5.7 of Addendum A** for submittal requirements for this subcontract.

5.8 Material Substitutions

In accordance with Section 5.6 of FL-3, Fermilab Construction Subcontract Terms and Conditions, products or materials which are equal to, or the equivalent of, those specified will be considered for approval by Fermilab. The submittal procedure described in Section 5.7 of Exhibit A will be followed, with the following additional conditions:

a. In addition to the required information for the proposed substitute material, the submittal shall contain the same information pertaining to the original

specified product for purposes of comparison;

b. The submittal shall explain fully the differences, if any, between the original specified product and proposed substitute product;

c. Any change to the drawings or specifications for related work required for proper installation of the proposed substitute product shall be indicated in the submittal;

d. If the proposed substitute product requires alterations of any kind to other equipment or construction, or necessitates any engineering design changes for its proper installation, such alterations and engineering design changes shall be accomplished at no cost to Fermilab;

e. The substitute submittal must contain a statement detailing the cost and schedule impact of the proposed substitution;

f. Fermilab is the sole judge of the acceptability of the proposed substitution.

5.9 Documentation

The following section describes the documentation typically required during the execution of the subcontract:

a. Weekly Progress Meeting Minutes: The Fermilab Construction Coordinator will prepare meeting minutes including a list of deficient items, corrective actions, and status of these items. These minutes will be signed by the Fermilab Construction Coordinator and the Subcontractor, and will become part of the Fermilab project file.

b. Quality Control Documentation (if required by Section 5.13 of Exhibit A);

c. Deficiency List: As segments of the work are completed, the Subcontractor's Field Superintendent shall update the list of outstanding deficient items which do not conform to the approved subcontract documents and their current status. This list will be kept current during the project and made part of the Weekly Progress Meeting Minutes.

d. Notification of Noncompliance: The Fermilab Construction Coordinator will notify the Subcontractor of deficiencies and/or discrepancies in the quality of the construction.

   i. These notifications will include:

      a) Date Identified;

      b) Identifier;

      c) Location;

      d) Description including specification or drawing reference.

   ii. The Subcontractor shall, within ten (10) working days, submit a proposed corrective action plan that details the mitigation method including a schedule for the correction of the noncompliance

e. As-Built Documentation:

   The following describes the as-built documentation required for this project:

   i. The Subcontractor shall maintain a set of prints of the Subcontract drawings in the construction office at the project site;

   ii. A daily record, in red, shall be kept on these prints of the work installed with all modifications or changes thereon. This set of prints shall be available to Fermilab for inspection at all times and print copies provided upon request to Fermilab within 24 hours of the request being made;

   iii. The Fermilab Construction Coordinator and the Subcontractor's Field Superintendent shall review the as-built drawings prior to the Monthly Construction Schedule Updates

described in Section 5.5, in order to determine if the as-built mark-up set is current and accurate. The processing of the monthly payment request is contingent of the up-to-date status of the as-built documentation;

iv. Prior to Final Acceptance described in Section 5.10, the Subcontractor shall transmit the complete set of marked-up prints to Fermilab following the submittal process described in Section 5.5;

v. The Final Acceptance submittal shall include a statement from the Subcontractor that indicates that the work was installed as shown thereon;

vi. Final Acceptance of the work is contingent on the receipt and approval of the complete as-built documentation.

f. Final Acceptance Documentation: Final Acceptance of the work is contingent on the receipt and approval of the following documentation:

i. As-built documentation as described in Section 5.9.5 above;

ii. Shop drawing record set as described in Section 5.7 (Specifications and Drawings for Construction) of FL-3, Fermilab Construction Subcontract Terms and Conditions;

iii. Operations and Maintenance manuals.

5.10 Acceptance

Acceptance shall be made by Fermilab of all work as required by subcontract documents. In addition to the information contained in Section 9 (Inspection of Construction) of FL-3, Fermilab Construction Subcontract Terms and Conditions, the following acceptance types may be required by this project:

a. Beneficial Occupancy: An interim inspection process used when Fermilab assumes responsibility for portions of the work listed in Section 5.3 of Exhibit A. The following details concern Beneficial Occupancy:

i. The Subcontractor shall provide a 10-day notice to the Fermilab Construction Coordinator before this inspection is performed;

ii. The Subcontractor's deficiency list with status noted shall be attached to the Beneficial Occupancy documentation;

iii. The Fermilab Construction Coordinator will complete the Beneficial Occupancy form;

iv. For further information, reference Section 27 (Use and Possession Prior to Completion) of FL-3, Fermilab Construction Subcontract Terms and Conditions.

b. Punch-list Inspection: An inspection of the uncompleted items of the subcontract documents. The following describes the punchlist process:

i. When the Subcontractor believes the work is substantially complete, the subcontractor shall update the deficiency list for presentation to the Fermilab Construction Coordinator;

ii. The Subcontractor shall provide a 10-day notice to the Fermilab Construction Coordinator before this inspection is performed;

iii. The Fermilab Construction Coordinator will arrange for an inspection visit of Fermilab stakeholders to verify the accuracy of the Subcontractor's deficiency list and to add, as necessary, those items of work that are not complete;

iv. The Fermilab Design Coordinator will develop a comprehensive

punchlist and issue it to the Subcontractor;

v. The Subcontractor and the Fermilab Construction Coordinator will sign off on the completion of each punchlist item.

c. Final Acceptance: This inspection will document the completion of the project scope. The following describes this process:

i. The Subcontractor shall provide a five (5) day notice prior to the Final Acceptance inspection;

ii. The Subcontractor shall submit documentation that the work associated with the punchlist is complete;

iii. The Fermilab Construction Coordinator will coordinate the final inspection walkthrough with Fermilab stakeholders;

iv. The Fermilab Construction Coordinator will develop and issue the final acceptance documentation.

5.11 Project Bulletin Board

Section 5.11 of Addendum A contains information regarding the requirements for a project bulletin board.

5.12 Jobsite Safeguards

The Subcontractor shall be responsible for providing and implementing the necessary precautions to safeguard material and equipment at the project site.

In the event of theft or damage to Subcontractor property, Fermilab property, and/or Government property, the Subcontractor shall immediately notify Security Dispatch by telephone (630) 840-3414.

5.13 Quality Requirements

The Subcontractor is responsible for all activities necessary to manage, control, and document that work complies with the Subcontract documents. The Subcontractor's responsibility includes ensuring adequate Quality Control services are provided for work accomplished on- and off-site by his/her organization, suppliers, sub-tier contractors, technical laboratories, and consultants. The work activities include safety, submittal management, testing and inspection, and all other functions relating to the requirement for quality construction. See **Section 5.13 of Exhibit A** for the project specific requirements for the work under this subcontract.

6.0 ENVIRONMENT SAFETY AND HEALTH

This section describes the requirements, responsibilities and expectations for the environment, safety and health aspects of this project.

6.1 Stop Work Authority

Any Fermilab employee may stop a work activity if there is imminent danger of serious injury, fatality, or major environmental release. If the hazard cannot be abated in a timely manner, the work activity shall be stopped through the use of a Stop Work Order. Work shall not be permitted to continue until the hazardous situation has been eliminated and Fermilab has issued a Restart Work Order.

6.2 Environment Safety and Health Program

The Subcontractor shall have an effective Environment, Safety and Health (ES&H) program incorporating the philosophy of Integrated Safety Management (ISM), defined as a system for performing work safely and in an environmentally responsible manner. The term "integrated" is used to indicate that the Environment, Safety & Health (ES&H) management systems are normal and natural elements of accomplishing work. The intent is

to integrate the management of ES&H with the management of the other primary elements of construction: quality, cost, and schedule. Fermilab subscribes to the philosophy of Integrated Safety Management (ISM) by following the program outlined in this section. Fermilab also requires this of subcontractors and sub-tier subcontractors.

6.3 Environment Safety and Health Plan

The Subcontractor shall have an ES&H Plan that is commensurate with the complexity and nature of the work activities. This ES&H Plan will describe the Subcontractor's overall commitment to safety and measures that will be taken specific to this project work scope and site. The following describes the ES&H Plan requirements:

a. Per FL-14, all subcontracts that require performance bonding will require the Subcontractor shall submit to Fermilab one (1) printed copy and one (1) electronic copy in Adobe portable document format (PDF);

b. The ES&H Plan is to address the Subcontractor's commitment to each of the following principals. A brief explanation and key elements to be addressed follows each:

i. Line Management Responsibility for Safety: Line management shall be responsible and accountable for the protection of the employees, the public, and the environment. Examples of expected items to support this statement are:

a) Statement of ES&H policy and goals;
b) Workforce is held accountable for strict compliance with subcontractor's ES&H plan;
c) Process for progressive discipline;
d) Means of holding sub-tier contractors accountable for compliance with ES&H requirements;
e) Evidence of worker participation;
f) Participation of management in safety meetings, inspection, and documentation;
g) Process for employees to identify and help resolve ES&H issues quickly, including stop work authority; and
h) Management support without hint of retribution or harassment.

ii. Clear Roles and Responsibilities: The roles and responsibilities, and authority at all levels of the organization, including potential sub-tier subcontractors are clearly identified. Examples of expected items to support this statement are:

a) ES&H and Quality Control responsibilities for principals, field superintendent, foremen, competent person, ES&H officer, and workforce are documented; and
b) Stop work authority.

iii. Competence Commensurate with Responsibility: Personnel possess the experience, knowledge, skills, and abilities that are necessary to discharge their responsibilities. Examples of expected items to support this statement are:

a) Identification of required training & experience of field superintendent, foremen, competent person, ES&H personnel, and workforce;
b) Identification of process for documenting completion of training;
c) Process for assuring sub-tier contractors are adequately skilled to perform their work activities; and
d) Training for employees and sub-tiers employees on Integrated Safety Management and hazard analysis.

iv. Balanced Priorities: Resources are effectively allocated to address safety,

programmatic, and operational considerations. Protecting the public, the workers, and the environment shall be a priority whenever activities are planned and performed. Examples of expected items to support this statement are:

a) Management commitment of resources to adequately implement their ES&H program;
b) Selection process for sub-tier contractors that include cost, quality, schedule adherence, and safety performance; and
c) Process for subcontractor to authorize start of work by sub-tier contractors.

v. Identification of Safety Standards and Requirements: Before work commences, the associated hazards are evaluated and an agreed upon set of safety standards and requirements are established which will provide adequate assurance that the public, the workers, and the environment are protected from adverse consequences. Examples of expected items to support this statement are:

a) Subcontractor ES&H Program Plan, by reference;
b) Subcontractor QC Program Plan, by reference; and
c) Hazard analysis process which includes defining scope of work, analysis of hazards, identification of hazard controls, requirement to perform work within these controls, and means to provide feedback and improvement.

vi. Hazard Controls Tailored to Work Being Performed: Administrative and engineering controls, tailored to the work being performed, are present to prevent and mitigate hazards. Examples of expected items to support this statement are:

a) Hazard analysis process;
b) Subcontractor ES&H Program Plan, by reference;
c) Planning and selection of appropriate and effective protective measures;
d) Active regimen of workplace inspections and prompt abatement of identified hazards; and
e) Inspections, assessment, and audits of sub-tier contractor's adherence to ES&H and QC program.
f) Daily work planning and hazard reviews at the worker level.

vii. Operations Authorization: The conditions and requirements to be satisfied for operations to be initiated and conducted are clearly established and understood by all. Examples of expected items to support this statement are:

a) Process to assure workers are informed of hazards and required protective measures before work is allowed to begin;
b) Process to assure workers, including sub-tier contractors are appropriately trained to do their job safely;
c) Process to assure that when an incident occurs, the scene is secured until the incident investigation is complete.
d) Investigation process includes analysis, examination of trends and lessons learned, and a means to report to Fermilab in a timely manner.
e) Process to assure that applicable Fermilab permits are in place prior to allowing work to commence.

c. The ES&H Plan shall include site-specific information of the Subcontractor's activities at Fermilab and shall encompass all applicable aspects of 29 CFR 1910, "OSHA Safety and Health Standards for General Industry"' and 29 CFR 1926, "Safety and Health Regulations for Construction".

d. The ES&H Plan should describe the following:
   i. Basic Safety And Health Provisions including Emergency Action/Response Plan, Accident Investigation Program, Recording and Reporting of Injuries, Housekeeping, Hazard Communication Plan, Personal Protective Equipment and Fire Protection and Prevention.
   ii. Hazard Analysis Process: including how hazards are identified and analyzed, preventive controls and the periodic inspection program;
   iii. Waste Handling And Disposal including characterization of waste, packaging and labeling requirements and assurance that appropriate transportation and handling facilities will be used;
   iv. Erosion Control And Environmental Protection including Storm Water Pollution Prevention Plan (SWPPP) when required and Erosion/Sediment Control Plan(s).
   v. Other Programs (as dictated by the scope of this work) including the following:
      a) Control of Hazardous Energy (Lockout/Tagout);
      b) Confined Space Entry;
      c) Hearing Conservation;
      d) Ionizing Radiation;
      e) Nonionizing Radiation;
      f) Lead, Beryllium, or Other Metals;
      g) Electrical (including Power Transmission and Distribution);
      h) Welding and Cutting;
      i) Scaffolds;
      j) Fall Protection;
      k) Excavations;
      l) Signs, Signals, And, Barricades;
      m) Tools - Hand and Power;
      n) Ladders & Stairways;
      o) Commercial Diving Operations;
      p) Motor Vehicles, Mechanized Equipment, and Marine Operations;
      q) Cranes, Derricks, Hoists, Elevators, and Conveyors;
      r) Concrete and Masonry Construction;
      s) Steel Erection;
      t) Underground Construction, Caissons, Cofferdams, & Compressed Air;
      u) Demolition;
      v) Blasting and the Use of Explosives
e. Changes and Updates: The ES&H Plan is a living program and updates that reflect changes to processes and plans shall be submitted as changes are made. Changes may be required for acceptance of plan by Fermilab prior to Notice To Proceed. Once accepted by Fermilab, the Subcontractor shall be required to comply with the requirements set forth in their plan. Once accepted, all revisions shall be submitted to PM for review and acceptance.
f. All sub-tier subcontractors employed by the Subcontractor must either agree in writing to follow the Subcontractor's ES&H Program Plan or submit to the Subcontractor for acceptance one (1) printed copy and one (1) electronic version in Adobe portable document format (pdf) of the Sub-tier subcontractor's ES&H Plan.

6.4 Job Site Orientation

The Subcontractor shall ensure and demonstrate; through a documented job site orientation program that sub-tier subcontractor personnel are aware of the ES&H requirements of the job. The Sub-tier subcontractors working for the Subcontractor shall follow and perform all required ES&H programs defined by the Subcontractor's

approved and accepted ES&H program for the job site. Depending on the complexity of the project the hazard analysis (see Section 6.5 below) may serve as the job site orientation.

6.5 Hazard Analysis

The hazard analysis details the specific hazards associated with the work activities and mitigating actions (including personal protective equipment) that the Subcontractor and Sub-tier subcontractors will take to reduce or eliminate the risk of injury. The following information concerns the analysis:

a. A Fermilab accepted hazard analysis shall be required for all work activities;
b. The initial hazard analysis shall be submitted and accepted by Fermilab prior to notice to proceed (NTP). This initial HA shall include hazard analysis for work tasks planned for the beginning phases of the project;
c. All subcontractor and sub tier subcontractor employees are required to sign the analyses affecting their work thereby acknowledging understanding of the hazards and the mitigation activities. The signature list shall be available for review by the Fermilab Construction Coordinator. As the analysis is updated, the subcontractor and sub-tier subcontractor employees shall be advised of the new information and re-sign the document;
d. Prior to the start of subsequent new work activities, the Subcontractor shall review and revise the hazard analysis, or develop a new hazard analysis, as necessary to incorporate new hazards. Each revision must be submitted and accepted by Fermilab before the associated element of work is begun;
e. Material Safety Data Sheets (MSDS) or Safety Data Sheet (SDS) of products that may significantly impact the safety of Fermilab or subcontractor personnel are to be submitted as part of the hazard analysis process;
f. The name of Competent Persons shall be included on the hazard analysis and communicated to all affected workforces;
g. Specific procedures in the areas of fall protection, excavation, confined space, hoisting and rigging, and Lockout/Tagout may be required as job conditions dictate;
h. The Fermilab Construction Coordinator will provide informal hazard analysis training for Subcontractor and sub-tier contractor personnel upon request.

6.6 Reporting Requirements

The following requirements concern Subcontractor reporting requirements:

a. All emergencies occurring at the Fermilab site must be reported immediately by dialing extension 3131 from a Fermilab phone or 630-840-3131. The types of emergencies to be reported include: injury or illness requiring emergency care, fire, explosion, security incident, vehicle accident, radiation incident, utility failure, tornado sighting, and hazardous material spill or release;
b. All incidents, including any injury/illness, any non-emergency incident and near misses must be reported immediately to the Fermilab Construction Coordinator. All incident scenes involving injuries shall be preserved and secured by the Subcontractor to enable Fermilab and DOE to conduct any necessary investigations. After any necessary emergency response is made, the scene shall be left unchanged and protected until the Fermilab Construction Coordinator is notified and releases the incident site for work to continue;
c. The Subcontractor must investigate all incidents (including near misses). The Subcontractor shall submit, within 48 hours of an incident, a written report of

an investigation. The investigation must include root causes, corrective actions and preventive measures.

6.7 Subcontractor Training

The following requirements concern Subcontractor training:

a. All Subcontractors working at Fermilab shall attend Subcontractor Orientation which is a half-hour presentation conducted weekdays at 7:30 a.m. All Subcontractor employees will receive a card documenting attendance. This training must be repeated every two years;
b. The Subcontractor shall be responsible for assuring that their employees and sub-tier Subcontractor employees, who do not speak English, understand all ES&H requirements. The Subcontractor must be able to communicate any necessary instructions to those employees;
c. Subcontractors shall maintain and provide to Fermilab upon request any and all records related to ES&H training that was provided by the Subcontractor or others and received by Subcontractor employees performing subcontractor activities at Fermilab. Records of safety meetings, which include training, shall also be maintained by the Subcontractor and provided to Fermilab upon request.
d. All Subcontractors performing work at Fermilab shall provide to their employees any necessary ES&H training as may be required by Federal/State regulations and as appropriate for their Subcontract activities at Fermilab. Exceptions involve hazards, which are unusual for the trade of the Subcontractor's employees. In particular, Fermilab normally provides appropriate training for Subcontractors working in radiation areas or oxygen deficient hazard areas, and expected emergency response.

6.8 Subcontractor Safety and Health Records

The following requirements concern Subcontractor training:

a. Subcontractors shall maintain and provide to Fermilab upon request, any and all occupational safety and environmental records. Such records include, but are not limited to, the records required to be maintained by federal/state regulation. Such records include OSHA injury/illness logs, training records, inspection records, safety meetings, and incident investigations. Additional records appropriate for the Subcontractor's activities shall also be maintained and provided to Fermilab upon request (e.g., crane inspections, welding certifications, etc.).
b. If the Subcontractor intends to administer first aid or Cardio Pulmonary Resuscitation (CPR), the Subcontractor must comply with 29 CFR 1926 and have available the list of names of any employee who will administer first aid or CPR, along with current certifications.

6.9 ES&H Inspections

After the start of construction and throughout the entire construction period, the Subcontractor shall monitor and inspect the construction area and operations for compliance with the Subcontractor's accepted ES&H plan. The Subcontractor's Field Superintendent is expected to conduct these inspections and correct any deficiencies found. These inspections shall be documented by the Subcontractor. Records shall be available for review upon request.

6.10 Job Site ES&H Meetings

The following requirements concern Job Site ES&H meetings:

a. <u>Daily Work Planning Meetings</u> in the form of daily briefings shall be conducted by the Subcontractor with his employees to

discuss the planned work activities, review the applicable hazard analysis, and allow for employee questions and feedback regarding the work activity;

b. Weekly Toolbox Meetings of approximately five (5) minutes duration shall be conducted at the job site by the various area/job foreman or superintendents for their specific crafts. These meetings shall emphasize the current construction operations and provide an opportunity for inspection of tools and personal protective equipment;

c. Monthly ES&H Meetings may be required for this project. See **Section 6.10 of Addendum A**;

d. The Subcontractor will document meetings (date, topic, attendance, etc.) and provide a copy to Fermilab;

e. The Fermilab Construction Coordinator will be notified of all job site ES&H meetings and may attend.

6.11 Personal Protective Equipment

The Subcontractor shall furnish personal protective equipment (PPE) as required to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels. Listed below are the minimum acceptable PPE for work on the Fermilab site:

a. Hard hats shall be furnished by the Subcontractor and shall be worn in the construction work areas as designated in the Hazard Analysis and/or applicable OSHA standards. Hard hats shall meet the ANSI Z89.1 standard as required by 29 CFR 1926.100 and bear the "Z89.1" designation. High voltage exposure work requires hard hats that meet the ANSI Z89.2 standard and bear the "Z89.2a" designation;

b. Safety glasses with side shields shall be furnished by the Subcontractor and shall be worn in the construction work areas as designated in the Hazard Analysis and/or applicable OSHA standards. Safety glasses shall meet the ANSI Z87.1 standards;

c. Clothing suitable for the work and weather conditions is required. In construction areas, the minimum shall be short (1/4 length) sleeve shirt, long trousers, and hard sole leatherwork boots providing ankle protection. In addition, any work that presents a greater hazard to the feet or toes requires the use of safety toed or metatarsal guards, meeting ANSI Z41. Canvas, tennis, or deck shoes are not permitted within the construction work area.

6.12 Electrical Work

The following sets forth the minimum acceptable requirements for work on electrical systems at Fermilab:

a. All electrical work shall be performed in accordance with NFPA 70E, Standard for Electrical Safety in the Workplace;

b. The Subcontractor personnel must be trained in Lockout/Tagout (LOTO) prior to participating in LOTO of hazardous energy sources and working on LOTO systems or equipment;

c. The Subcontractor shall provide ground fault circuit interrupter protection for electric hand held tools, portable generators, temporary electrical extension cords and other wiring, etc. The assured equipment-grounding program is not an acceptable alternative at Fermilab.

6.13 Oxygen Deficient Hazards

The following sets forth the minimum acceptable requirements for oxygen deficient hazard (ODH) work at Fermilab:

a. Fermilab has policies and procedures governing work in ODH areas. The Fermilab Construction Coordinator will

communicate specific requirements and work practices to the Subcontractor;

b. All Subcontractor and Sub-tier contractor personnel who must enter designated ODH areas must have and display a level of medical fitness acceptable to Fermilab prior to entering those areas;

c. Fermilab will assess the need for ODH training for Subcontractor personnel. If ODH training is necessary Fermilab will provide it free of charge.

d. Oxygen monitoring equipment will be supplied to the Subcontractor personnel, as necessary. The Subcontractor is responsible for returning this equipment upon request or upon completion of the work;

e. Fermilab will furnish emergency evacuation equipment. Care, use, and the return of such equipment will be the responsibility of the Subcontractor.

6.14 Radiation Protection

The following sets forth the minimum acceptable requirements for radiation protection at Fermilab:

a. Fermilab has policies and procedures governing radiological work. The Fermilab Construction Coordinator will advise the Subcontractor of the requirements and work practices, if potential for radiation affects the work scope;

b. Fermilab will assess the need for radiological training for Subcontractor personnel. If radiological training is necessary it will be provided free of charge by Fermilab;

c. Radiation dosimeters will be supplied to the Subcontractor personnel, as necessary. The Subcontractor is responsible for returning this equipment upon request or upon completion of the work;

d. Fermilab will furnish protective clothing. Disposal of such clothing will be the responsibility of Fermilab;

e. Prescribed procedures for material handling and segregation shall be followed explicitly. Potentially radioactive material must be surveyed prior to removal from site. The Fermilab Construction Coordinator shall coordinate this survey.

6.15 Environmental Protection

All construction work on the Fermilab site shall comply with all applicable environmental executive orders, laws, regulations, and permits. All Subcontractors and sub-subcontractors shall conduct their activities in an environmentally sound manner that limits the risks to the environment and protects the public health. The following sets forth the minimum acceptable requirements for environmental protection at Fermilab:

a. See **Section 3.2 of Addendum A** for the Soil Erosion and Sedimentation Control (SESC) requirements for this project;

b. If required, the Subcontractor shall install all erosion control in accordance with SESC plan prior to the start of excavation activities;

c. Excavation at or adjacent to streams' tributaries, or other drainage outfalls shall be done only after notification to the Fermilab Construction Coordinator;

d. The Fermilab Construction Coordinator will inform the Subcontractor if any wetlands are present in work area and what protective measures are necessary;

e. Unexpected environmental impacts shall be immediately reported to the Fermilab Construction Coordinator and mitigated by the Subcontractor;

f. Flammable and/or combustible liquids, fuels, and oils shall be provided with containment and shall not be stockpiled beyond one day's usage. Storage of these materials, plus maintenance and fueling

areas used by the Subcontractor, shall be properly graded and maintained and shall be located a minimum of 100 feet away from a wetland or water body boundary so that adverse effects on the environment are eliminated;

g. The Subcontractor shall make routine inspections to assure that all motorized equipment is free of leaks of petroleum and other toxic or hazardous materials. The Subcontractor shall keep sufficient cleanup supplies on hand (e.g. oil dry, absorbent booms, etc.) to contain/absorb any spill or leak of fuels, oils, etc. that could potentially leak from his equipment. If a spill or leak should occur, the Subcontractor should immediately take appropriate steps to contain spills, move equipment out of sensitive areas (near wetland or water body) and immediately notify the PM;

h. At the close of each workday, the Subcontractor's Field Superintendent shall inspect the complete construction site to insure that all erosion controls, drainage patterns, excavations and staging areas are in environmentally sound condition for the weather conditions anticipated.

6.16 Open Burning, Fire Barrels, Coal or Kerosene Type Salamanders

Open burning, fire barrels, coal or kerosene type salamanders, or open flame heating devices that have exposed fuel below the flame are not allowed on the Fermilab site. The following sets forth the minimum acceptable requirements for temporary heating devices at Fermilab:

a. Spark arresters shall be provided on all stacks or burning devices having forced drafts;

b. Temporary heating devices, used in any enclosed building, room, or structure, shall be listed by UL, FM, ETL, or other approval-testing laboratory and vented to the outside.

c. Flammable liquid fixed heaters shall be listed by UL, FM, ETL, or other approval-testing laboratory and equipped with a primary safety control to stop flow of fuel in the event of a flame failure. Barometric or gravity oil feeds are not acceptable primary safety controls.

6.17 Smoking

Smoking is prohibited in locations where flammable and/or combustible materials are stored. "No smoking" signs shall be posted in these areas. Smoking is prohibited in all Fermilab buildings except in designated areas.

6.18 Fuel Storage Tanks

The following sets forth the minimum acceptable requirements for vehicles and equipment at Fermilab:

a. Above ground fuel storage tanks for construction vehicles shall not be permitted on the Fermilab site;

b. Fuel tanks mounted on pick-up trucks shall conform to the requirements of the Illinois State Fire Marshall's Office;

c. Fuel tanks mounted on pick-up trucks shall be removed from the Fermilab site at the end of each workday;

d. Refueling of equipment while the motor is running is prohibited;

e. During refueling from truck-mounted fuel tanks or with portable fuel cans, etc., a 20-pound (minimum) A-B-C dry chemical fire extinguisher must be present;

f. Maintenance and fueling areas used by the Subcontractor shall be properly graded and maintained and shall be located a minimum of 100 feet away from a wetland or water body boundary to avoid adverse effect on the environment.

6.19 Explosives

The use of explosives is not permitted without prior written approval of the Fermilab Director or his designee

6.20 Vehicles and Equipment

The following sets forth the minimum acceptable requirements for vehicles and equipment at Fermilab:

a. Operators must have an appropriate, valid driver's license when operating vehicles on site. Seat belts are required to be provided and worn for the operators and passengers of all vehicles;
b. All vehicles and mobile powered equipment, except automobiles and pickup trucks, shall have reverse signal alarms (a.k.a. backup alarms) audible above the surrounding noise level. If backup alarms are not present on the equipment, a spotter (other than the driver of the vehicle) must be present to warn pedestrians and the drivers of other moving equipment;
c. If required by the equipment manufacturer, roll over protection structures shall be provided;
d. Personnel lifts must be equipped with audible motion alarms. These alarms must be in operation and audible over the surrounding ambient noise when the lift is in use. Additionally, all lifts require two distinct actions in order to make the lift move in a forward or backward direction or in an upward or downwards direction. A foot pedal is considered one of the actions if independent of the other controls;
e. The equipment manufacturer must approve any modifications to lifting and hoisting equipment;
f. All hand and power tools must be checked prior to use on each shift to assure that they are maintained in a safe condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.
g. Equipment inspection and modification (The subcontractor shall comply with 29 CFR 1926.600, Subpart O):
   i. The Subcontractor must inspect all heavy equipment before use on site, prior to use on each shift, and during use to make sure it is in safe operating condition. Defective equipment shall be removed from service;
   ii. The Subcontractor is to assure that regulatory inspection records are complete and up-to-date and that operating manuals are available;
   iii. In no case shall the original safety factor of the equipment be reduced.
h. All tools and equipment brought on site by the Subcontractor are subject to inspection by Fermilab. Items found to be out of compliance shall be repaired or immediately removed from service, tagged out of service.

6.21 Emergency Egress and Severe Weather

The following sets forth the minimum acceptable requirements for emergency egress and severe weather protection at Fermilab:

a. All emergency egress routes shall be kept clear at all times;
b. Severe weather shelter locations and specific evacuation procedures will be provided by the Fermilab Construction Coordinator;
c. The Subcontractor shall communicate egress routes and severe weather shelter to his employees and all sub-subcontractors.

6.22 Work Completion and Clean Up

All work and clean-up operations shall be in compliance with the Subcontractor's ES&H Plan. Requested documentation for all aspects of the ES&H program shall be complete and submitted prior to Subcontract close-out.