

Scope of Work Trenching Project

Location: The Department of Interior - DOI
U.S. Geological Survey - USGS
Flagstaff Science Campus - FSC
2255 North Gemini Drive
Flagstaff, Arizona 86001

Scope: The Contractor shall dig and/or bore a trench to install conduit and data fiber for the relocation of the campus data server. The Contractor shall dig and/or bore a trench to install conduit and communication wire to relocate the campus Telecommunication Demarcation point. The Contractor shall provide all supervision, labor, materials, and equipment and any other items necessary to complete the construction services required at the Flagstaff Science Campus.

Data Fiber Relocation: Data trench shall be routed from HH7510 to the north side of building 6, where it will enter the building and terminate at room 663. Room 663 will be the new location of the campus server.

- Dig and/or bore a trench from existing HH 7510 (Depicted in Figure 1) at the SW corner of Gemini and Cooley Drive. The new Data path will run along Gemini Dr north and turn 90 degrees west to the North side of Building 6.
- Data Trench: Install approximately 1,200 linear feet – 1 1/2" HDPE (High-Density Polyethylene) schedule 40 innerduct conduit along data path.
- Data Trench: Install approximately 1,200 linear feet - 4" HDPE (High-Density Polyethylene) schedule 40 innerduct conduit along data path.
- Primary 4 - inch diameter conduit for data path should be provided with 7 each 1 inch or 1-1/4 - inch diameter innerducts with a pull cord (Mule Tape) in each innerduct.
- Fiber Optic cables shall be provided by contractor, installed and tested.
- The data connections will need to be tested and verified prior to any cutover. This will mean concurrent access during the testing phase.

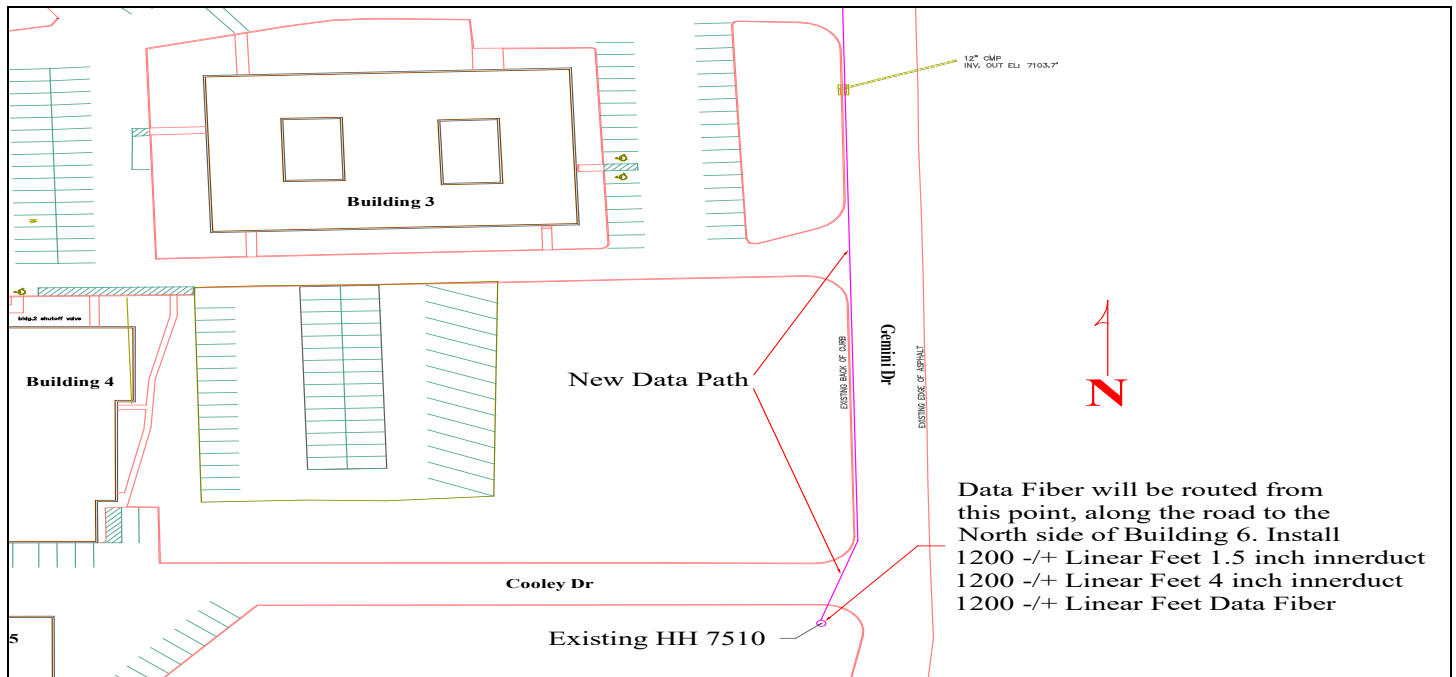


Figure 1: SE Section of Campus: The current data service is provided out of the US West Handhole Box 7510 at the SW corner of N Gemini Dr. and Cooley Dr.

- An approved weather proof fiber cable junction box shall be installed above ground, at the exterior NW corner of room 652. The conduit and fiber installation will continue into building 6 from this point, (see figure 2).
- The exterior surface mounted 4” and 1.5” conduit shall be made of steel material, schedule 80, to prevent crushing or damage of fiber cable.
- The conduit shall penetrate the soffit at the northwest corner of room 652 and travel through the ceiling to terminate in room 663, see figure 2.
- The data path enters building 6 at the NW corner of room 652 (Depicted in Figure 2). The 4” and 1.5” conduit for the fiber run will continue into the building above ground and above the suspended ceiling from this point and terminate in room 663.
- An appropriate junction box shall be installed on the east wall at the termination of the Fiber cable, in room 663.

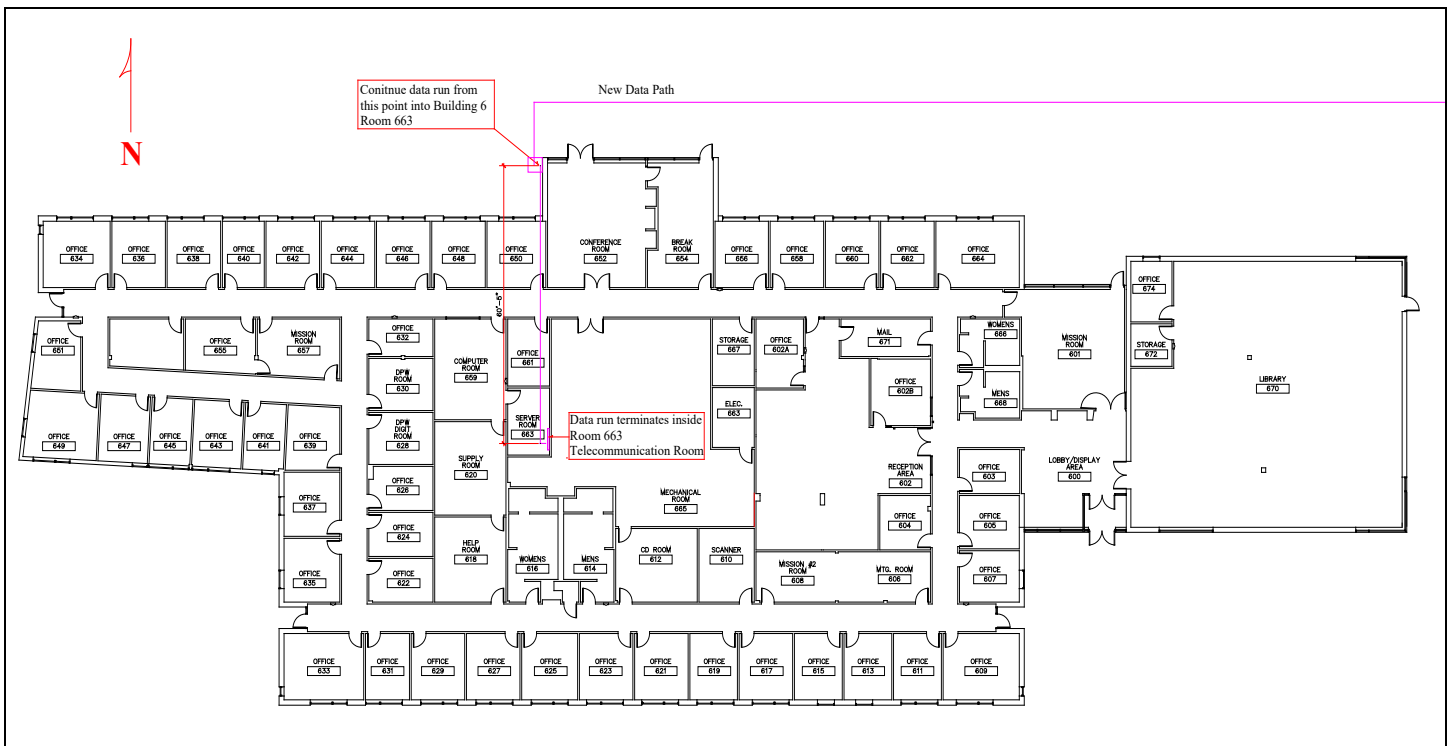


Figure 2: Building 6 Data Fiber Installation

Communication DMARC Relocation: The Contractor shall dig and/or bore a trench from the telephone riser located on the West side of the Campus (Depicted in Figure 3). Install a 4" HDPE schedule 40 conduit and stub up conduit next to the existing handhole at the SW corner of Building 6, also depicted in figure 3. Conduit will be stubbed up for a pedestal.

- Install approximately 260 linear feet - 4" HDPE schedule 40 conduit for telecommunication path (Southwest of Building 6)
- Install approximately 900 Linear feet – 2 each approximately 450 linear feet - 600 pair Telecommunication cable to relocate DMARC to Building 6.

The current DMARC on the south side of Building 4 (Depicted in Figure 4) connects to the telephone riser on the West side of campus. (See Figure 3). The telecommunication service will be rerouted from the telephone riser to building 6. The DMARC will be relocated to Building 6, south wall in room 663. The contractor shall Install approximately 260 linear feet of 4" HDPE schedule 40 conduit and stub the conduit up next to the existing handhole, depicted in the drawing below. The contractor shall also install 2 each, approximately 450 linear feet of 600 pair telecommunication cables to relocate DMARC to Building 6, room 663.

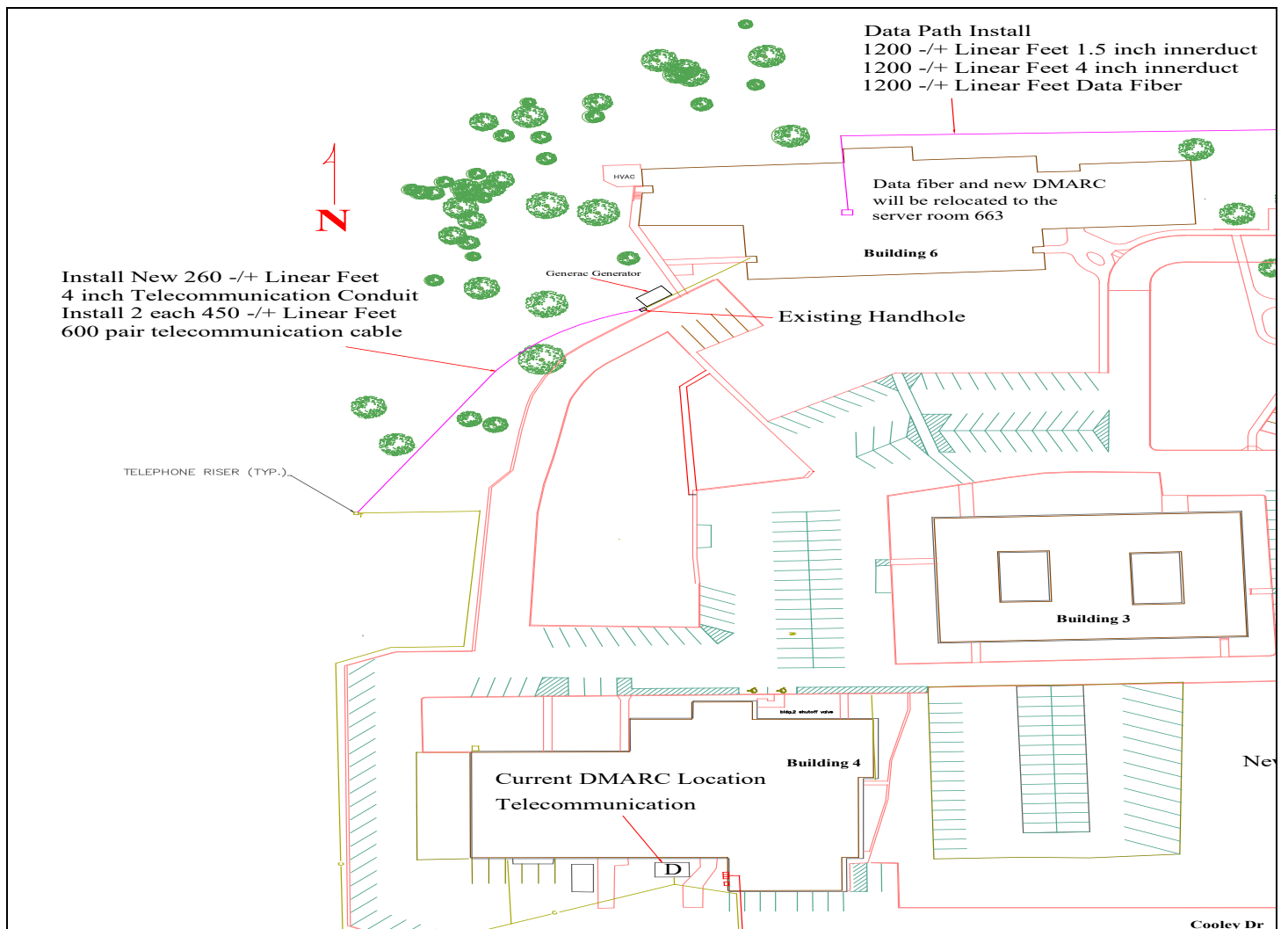


Figure 3: NW Section of USGS Campus, Telecommunication Trench, proposed path of communication service to relocate DMARC.

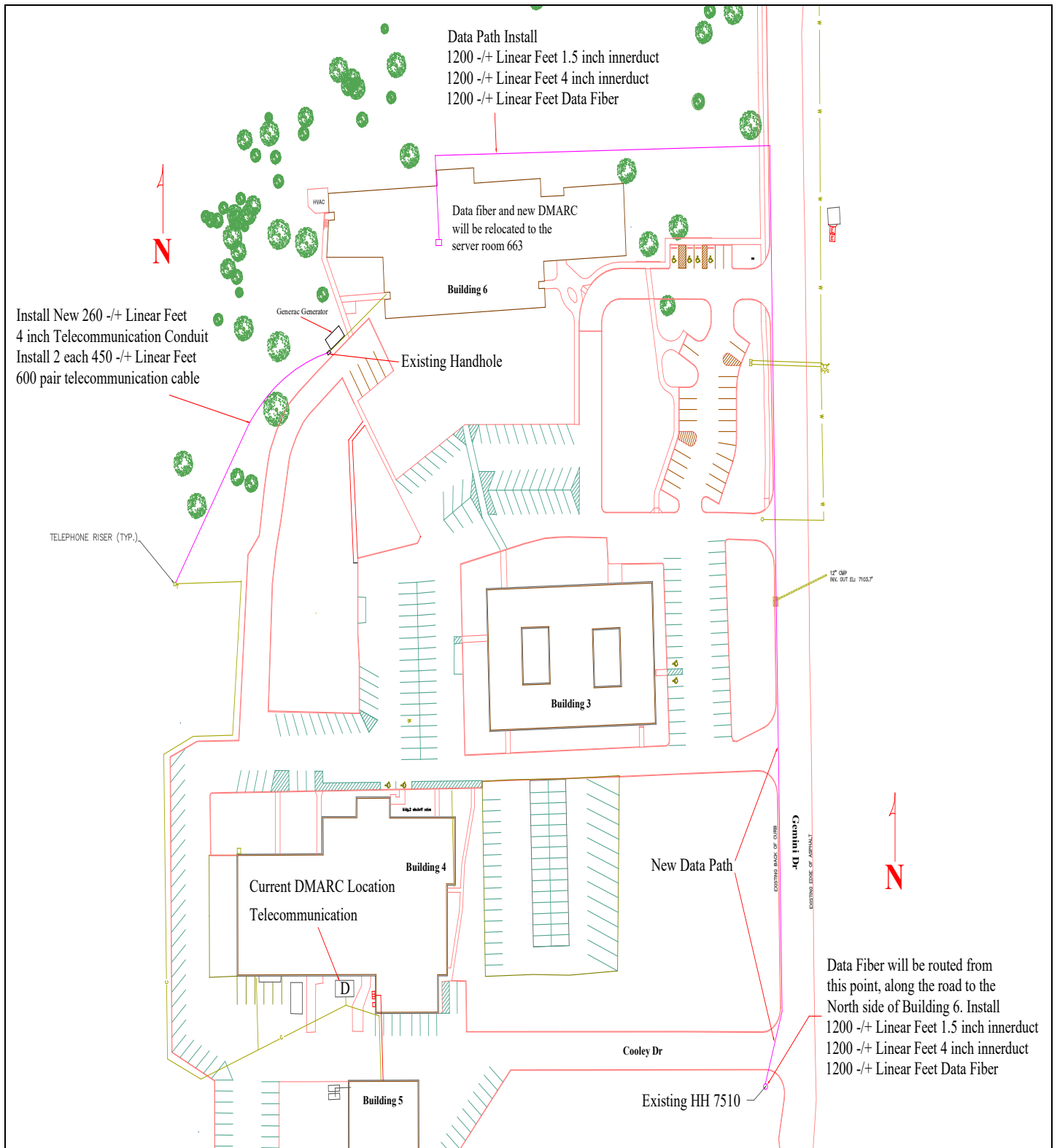


Figure 4: Flagstaff Science Campus – Current telecommunication and data plan. Includes proposed path for Data and communication service.

Deliverables:

The contractor shall provide engineered signed drawings to be approved by USGS and the City of Flagstaff.

The Contractor shall provide all supervision, labor, materials, and equipment and any other items necessary to complete the construction services required at the Flagstaff Science Campus.

Meeting Minutes: The Contractor shall take minutes of all conferences and other meetings with the USGS to include site visits, pre-construction meetings and shall provide a copy to the Technical Liaison for a concurrence signature.

Provide access points/handholes along the conduit path in accordance with telecommunication codes and standards for ease of fiber/cable installation.

Requirements:

Structures, including asphalt, pavement, concrete curb and gutter, concrete sidewalks that are damaged or removed for the purpose of this installation, shall be replaced in kind. There shall be no dirt mounds left behind. Disturbed landscape shall blend in with surrounding landscape.

The Contractor shall perform operation and testing and submit reports to the City of Flagstaff. The City of Flagstaff shall complete the final inspection.

A blue stake must be performed prior to any excavation or trenching of the data and communication path.

Conduits will be placed in each trenched and/or bored path. Each conduit will also be buried in sand (a layer above and a layer below). The conduits to be at a depth below the freeze line (36 inches). A tracer wire and warning tape must be installed 12 inches below the surface of the ground directly above each conduit, which will provide a way of locating and identifying the cable, its specific locations, and helps with damage prevention. If the pipes should be bored in, the pipe shall have a tracer wire attached.

Only steel conduits and fittings are accepted for above ground installation. Die cast, PVC or pot metal material is not acceptable. Schedule 80 steel pipe shall be used on exterior building surface.

Internal conduits that run exposed or in drop ceiling areas must be supported by trapeze type hangers. Unistrut or equal support systems are acceptable. If conduits run exposed on sheet rock or other surfaces, only two-hole straps are acceptable.

Coordinate with existing providers for accessibility to existing start points. CenturyLink (Voice) and Verizon (Data)

Conduits will not cross the central part of the campus.

Conduits to be installed parallel with building lines.

All junctions must have smooth edges to prevent wear on the cable.

All materials provided by contractor to be new and of premium quality.

Any electrical shut down to be preapproved by the USGS, at least 24hour notice prior to actual shut down date.

All curves and junction boxes will allow for the minimum required fiber bend radius. The minimum bend radius will be in accordance with the ANSI/TIA-568-C.0 standard.

Upon completion of exterior work, contractor to remove all trash from site and leave site landscaping as found.

Provide protection for existing trees in the area during construction.

Store all equipment and tools when not in use after each shift. USGS will not be held responsible for lost or stolen property.

All work will be performed Monday- Friday 7 AM to 4:30 PM unless prearranged.

Administrative:

Post award and issuance of the Notice to Proceed, a site visit shall be coordinated through the Technical Liaison.

All work shall comply with all Local, State and Federal requirements.

Contractor must have obtain all pertinent permits to work within local and state boundaries.0

Contractor shall obtain ROW (Right of Way) permit/permits through City of Flagstaff. This will require the contractor to submit a complete ROW application, construction drawings and/or site plan, traffic control plan and a copy of a certificate of Commercial General Liability Insurance at limits of a minimum of \$1,000,000 per occurrence, naming the City as an additional insured per section 13-15-001-0001.B of the Engineering Standards.

Contractor shall coordinate and notify City Facilities and Roads Department of any demolition, modifications, new construction or temporary closures of City facilities prior to any construction.

Pre-construction Meeting:

Contractor will schedule and conduct a mandatory post award meeting, on site, with the Technical Liaison and FSC staff to review the requirements and conditions of this contract and to receive inputs and suggestions for scheduling specific elements of the work, mobilization, deliveries, etc. The Contractor's project manager, field superintendent and all subcontractors shall attend. An initial walk through safety inspection shall be performed at the post award meeting and prior to work beginning.

Time and Period of Performance:

All Contractor employees shall follow the FSC visitor sign-in procedures. The Contractor shall employ enough personnel and equipment to begin the work of this contract within ten (10) work days of the Notice to Proceed. Contractor shall notify the Technical Liaison in writing, seven (7) days prior to when construction is scheduled to begin. The Contractor shall submit a progress schedule within seven (7) days after receipt of the Notice to Proceed. The progress schedule shall be a chart which graphically depicts the proposed sequence to accomplish each work feature or operation. It shall show start dates and completion dates for each event on a horizontal time scale. The progress schedule time scale shall begin with the Notice to Proceed and indicate the number of days to completion. The schedule will be the reference to which the Contractor's progress and effort are compared. The Contractor shall not work Saturdays, Sundays, legal holidays, or non-normal working hours unless authorized by the Contracting Officer. Requests to work outside normal working hours shall be made in writing.

Safety:

On-site personnel reserve the right to stop work for any safety or environmental violation.

All open trenches are to be barricaded or otherwise guarded to prevent injury to persons.

Contractor shall have all protective equipment necessary to proceed and shall take all necessary precautions and measures to prevent injuries to anyone working in or entering the facilities.

Contractor shall take all necessary measures and precautions to control, protect, and avoid damage to or loss of any property on the work site.

Contractor operations shall be conducted in a safe and professional manner.

Contractor shall submit immediate notification and information concerning any accidents and incidents to the Technical Liaison. Detailed reports of all accidents or incidents shall be reported in writing within one week of occurrence to the Program Manager. Contractor shall provide OSHA Form 300, A Summary of Work-Related Injuries and Illnesses pertaining to their work to the Technical Liaison.

Demolition:

The Contractor shall schedule all demolition with the Technical Liaison prior to starting. The Contractor shall remove all materials as set forth in the Specifications and Plans.

New construction:

The contractor shall complete all work as specified in the Written Specification and as shown on the Drawings. The Contractor shall do field verifications to verify all measurements and quantities. The contractor shall point out any discrepancies between the Specification, Drawings, Statement of Work and existing conditions and drawings during the site tour.

Phasing:

The Contractor shall coordinate with the Technical Liaison on all phases of the project from start to finish.

Measurements:

It is the responsibility of the Contractor to field verify all measurements (including counting of items). All work listed shall be coordinated with the Technical Liaison.

Outages and Interruptions: The facility will continue normal operations during the performance of the contract. The Contractor shall notify the facility manager one week in advance if it becomes necessary to interrupt any function at the FSC. Any work that requires shutting down of a facility system, mechanical, electrical, etc., shall be planned for early morning or late afternoon to the maximum extent possible, to minimize the impact on the facility's operation. This would be least disruptive to staff. Work shall be performed when the demands on the system best permit, even to the extent of working outside of normal working hours at no additional cost to the government.

The Contractor shall not proceed without the written approval of the facility manager and not until such time, as provisions are made to modify the Center operations as required. All work as mentioned above shall be coordinated with the Technical Liaison and the facility manager. The contractor shall notify the Technical Liaison and facility manager in writing, one week in advance of the intended date to perform this work.

Organization at the Site:

Contractor parking will be in the dirt parking lot. The Contractor shall utilize the areas only within the project limits to perform work and for the storage of equipment, materials and trailers during the life of the contract.

Storage will be confined to areas approved by the facility manger or the Technical Liaison. The Contractor shall be responsible for the security of all tools, material and equipment.

The Contractor shall be responsible for making all arrangements for the receipt of materials and supplies at the job site. Government personnel are not permitted to receive or to sign for items delivered to the site. Deliveries may be received near the Building 5 Warehouse, but a clear lane must be maintained for other traffic, and vehicles may not permanently park in that area.

The Technical Liaison shall designate areas where the Contractor can store or place materials and equipment for short-term storage. There is limited on-site storage space of Contractor equipment and materials, and there is no indoor storage space available. Storage and security of materials and equipment as required for the performance of the contract requirements is the responsibility of the Contractor.

Transporting of Debris and Material:

The Contractor shall provide all equipment necessary for transporting construction debris from the job site to the dumpsters and for the stocking and transporting of materials to the job site.

Environmental Protection:

All work shall be accomplished in such a manner that all waste materials, pollutants, and potential pollutants shall be completely retrievable for disposal in a manner suitable to the Technical Liaison and in accordance with all applicable regulations and laws. At no time shall operations be attempted or permitted where or when such operations present a possibility of fouling the facility with waste materials, pollutants, or potential pollutants.

Site Cleanliness:

The Contractor shall clean up and dispose of daily, all rubbish and accumulated waste.

The Contractor shall provide dust protection and shall maintain cleanliness of the work site by promptly removing debris, tools and excess material, vacuuming carpeted floors, and wet-mopping tile floors.

The Contractor shall provide plastic sheeting and shall cover any & all remaining nearby furniture, carpet tile, floor tile, and computer and lab equipment to prevent any dust from settling directly on these items.

The Contractor shall remove tools and equipment and leave the premises clean at the completion of the project.

The Contractor shall repair or otherwise return to original condition, any parts of the existing facilities or grounds which becomes damaged, as a result, of the Contractor's work, except as otherwise specified and shall restore the site to its original condition, as approved by the Technical Liaison or Center Director and no additional cost to the Government.

There shall be no smoking in the FSC buildings. All personnel that smoke will do so in the designated smoking area.

Utilities:

The Government shall provide electricity to the contractor, only as a convenience, from existing Government outlets. The Government will not provide electrical assistance if Contractor's equipment does not conform to FSC's electrical power supply. Any long term or large capacity power supply requirements shall be provided by the Contractor. The Contractor shall provide portable restroom facilities for workers.

Specifications and Drawings: The Contractor shall submit to the Technical Liaison for review and approval, shop drawings of enough detail to indicate proposed materials conformance to specifications listed above. Shop drawings shall

also indicate proposed methods of connection to existing systems or structures. Contractor will deliver all submittals, Requests for Information (RFIs) and schedules to the Technical Liaison. Any request shall be presented to the site Technical Liaison for routing and approvals.