

1. DEFINITIONS

a. Drawings

Drawings referred to in and accompanying the Design/ Build Guidelines consist of Drawings prepared by and bearing name of owner's technical consultants listed below, bearing the date **DATE**, and entitled **Guidelines Name**.

b. Owners Technical Consultants

b.1. Architect

Firm Name

Address

Phone #

Fax #

b.2. Mechanical & Electrical and Plumbing Engineer

Firm Name

Address

Phone #

Fax #

b.3. Structural Engineer

Firm Name

Address

Phone #

Fax #

b.4. Civil Engineer

Firm Name

Address

Phone #

Fax #

c. Consultant Procedures and Design Guidelines

The Consultant Procedures and Design Guidelines are located at:

<https://www.umsystem.edu/ums/fa/facilities/guidelines/>

d. Other Definitions: See Article 1., General Conditions.

2. SPECIAL SCHEDULING REQUIREMENTS **[used if applicable to project and as**

approved by the Project Manager. Describe Special Scheduling requirements supplemental to the PROJECT COMPLETION section of the Proposal Form]

- a. Special scheduling requirements supplemental to the bid form **[Examples follow.]**

Design/Builder shall perform all work in the designated areas between **[MM/DD/YY]** and **[MM/DD/YY]**.

Design/Builder shall perform all work in the designated areas outside of regular working hours, which are **[H:MM]** a.m. to **[H:MM]** p.m., Monday through Friday.

Design/Builder may not begin work in the designated areas until **[MM/DD/YY]**.

Design/Builder shall coordinate installation of _____ by a separate contract.

3. SCOPE OF WORK

- a. The Design/Builder shall furnish all labor, materials, tools, equipment necessary for, and incidental to, design and construction of this project as indicated on Drawings and specified herein.

- b. Work shall include everything requisite and necessary to finish work properly, notwithstanding that every item of labor or materials or accessories required to make project complete may not be specifically mentioned.

- c. General Description of Work: **[Write brief project description as required.]**

(1) Project consists of _____.

(2) Demolition shall consist _____.

(3) Architectural, structural, mechanical, electrical and civil work shall consist of all design and construction services necessary to successfully complete the project within the time allotted and as described in the Design Build Guidelines.

4. LOCATION

Work shall be performed under this Contract on campus of the University of Missouri –**[Campus]**, at **[Write building name and general location.]**

5. NUMBER OF CONSTRUCTION DOCUMENTS

- a. The Owner's Representative will furnish the Design/Builder a copy of executed Contract.

6. SUBMITTALS

- a. The Design/Builder shall submit for approval to the Owner and the Owner's Technical Consultants, equipment lists and Shop Drawings, as expediently as possible. Failure of the Design/Builder to submit Shop Drawings in a timely manner will result in the Owner holding back Design/Builder payments. (See General Conditions)
- b. The material and equipment lists shall be submitted and approved before any material or equipment is purchased and shall be corrected to as-built conditions before the completion of the project.
- c. The Design/Builder shall submit all required Shop Drawings, material list and equipment list bearing the Design/Builder's "Approved" stamp for the Design/Builder's A/E's review and approval. After Design/Builder's A/E has approved submittals and bear the Design/Builder's A/E's "Approved" stamp, submit:
 - three (3) copies to the Owner's Representative, and one (1) copy to Owner's Technical Consultant

After Owner's review, Owner will return written comments to the Design/Builder for appropriate action.

- 1) The Design/Builder shall identify each submittal item with the following:
 - (a) Project Title and Location
 - (b) Project Number
 - (c) Supplier's Name
 - (d) Manufacturer's Name
 - (e) Contract Specification Section and Article Number
 - (f) Contract Drawing Number
- d. The Design/Builder shall submit to the Owner's Technical Consultant, four (4) bound copies of all required Operating Instructions and Service Manuals for the Owner's Technical Consultant's and the Owner's sole use prior to completing 50% of the adjusted contract. Payments beyond 50% of the contract amount may be withheld until all Operating Instructions and Service Manuals are received.

7. NOTIFICATION

Prior to beginning Demolition Work or service outages, the Design/Builder shall provide, at minimum, seventy-two (72) hours advance notice to Owner's Representative for purpose of verifying utility locations including, but not limited to, gas, telecommunications, electric, water, sewer. Design/Builder shall minimize the number of outages and related work shall be continuous until the utility is restored.

8. USE OF PREMISES

[Describe any special access requirements below.]

- a. Access: Access to construction site shall be as indicated on Drawings and as directed by the Owner's Representative.

[Use the parking requirements below as directed by the Project Manager. Number of parking permits is project specific.]

- b. Parking: Design/Builder shall be issued parking permits for _____ (_____) service vehicles to park in location directed by the Owner's Representative. Employee parking shall be on public streets or where directed by the Owner's Representative

- b. Parking:

- (1) The Owner will issue Design/Builder _____ (_____) service vehicle parking permits for use in University Parking lot ____ (____). The permits will be issued at no cost to the Design/Builder up to the contract completion date. After the contract completion date, the permits will be re-issued on an as available basis at the Design/Builders expense. These permits are to be used for Design/Builder or subcontractor owned and labeled vehicles only. Personal vehicles are prohibited from use of these permits. Violation of this requirement may result in ticketing and/or towing at the vehicle owner's expense and suspension of progress payments.
- (2) Parking of personal vehicles within project access/lay down/staging areas is prohibited. Violation of this requirement may result in ticketing and/or towing at the vehicle owner's expense and suspension of progress payments.
- (3) Parking or driving on sidewalks, landscaped areas, within fire and service lanes or generally in areas not designated for vehicular traffic is prohibited except as allowed in the contract documents. Violation of

this requirement may result in ticketing and/or towing at the vehicle owner's expense and suspension of progress payments.

[Use the following additional paragraphs for Columbia Campus projects.]

- (4) Free parking for Design/Builder employees is available in the Ashland Road Contractor lot on an as available basis. This space is for use by Design/Builder employees for parking their personal vehicles only and is not to be used for staging or storage.
 - (5) Vendor Permits may be purchased by Design/Builder management personnel on an as available basis by contacting the Parking and Transportation office in the Turner Avenue Parking Structure. These permits will allow Design/Builder management personnel to park in various University lots while conducting business on University construction projects.
 - (6) Temporary University parking permits may be purchased by Design/Builder employees for use with their personal vehicles on an as available basis by contacting the Parking and Transportation office in the Turner Avenue Parking Structure.
 - (7) Conley Avenue between Missouri Avenue and University Avenue and Hitt Street between University Avenue and the Memorial Union are designated for pedestrian use only during the work week between the hours of 8:15 AM and 3:45 PM. Unless otherwise indicated in the contract documents, this area is strictly off limits to vehicular traffic without authorization from the Owner's Representative.
- c. Storage of materials: The Design/Builder shall store all materials within project limits. The Design/Builder shall confine apparatus, materials, and operation of workers to location established by the Owner's Representative. The Design/Builder shall not unreasonably encumber premises with materials. **[For Columbia Campus projects add: In addition, storage trailer locations may be available within 1-1/2 miles of project site as directed by the Owner's Representative.]** Storage trailer locations shall be subject to approval by the Owner's Representative and are available to the Design/Builder without cost.
- d. Utilities: Drinking water, water required to carry on work, and 120 volt electrical power required for small tool operation may be obtained without cost to the Design/Builder from existing utilities at locations designated by the Owner's Representative. Provisions for obtaining power, including temporary extensions, shall be furnished and maintained by the Design/Builder. Upon completion of work such extensions shall be removed and any damage caused by use of such extensions shall be repaired to satisfaction of the Owner's

Representative, at no cost to the Owner.

[Use the following paragraph for Columbia Campus projects as directed by the Project Manager, when the building or major parts of a building will be turned over to the Design/Builder.]

- d. Utilities: Steam, water, sewer, and electricity can be obtained from existing utilities at locations designated by the Owner's Representative at the following rates:

Provisions for obtaining power, including temporary extensions, shall be furnished and maintained by the Design/Builder. Upon completion of the work, such extensions shall be removed and any damage caused by use of such extensions shall be repaired to the satisfaction of the Owner's Representative, at no cost to the Owner.

[Insert Current UMC Utility Rates From Appendices]

[Retain one applicable restroom paragraph below.]

- e. Restroom: The Design/Builder shall provide and maintain, in a sanitary condition, chemical type portable toilet facilities at work site for use by his personnel. Toilets and toilet location shall be subject to approval by the Owner's Representative.

- e. Restroom: Existing toilet facilities within Project Limits or Restrooms designated by the Owner's Representative for use by the Design/Builder will be available. Failure of the Design/Builder to maintain restrooms in a clean condition will be cause for the Design/Builder's discontinued use of the restroom.

[Retain Smoking Policy paragraph below.]

- f. Smoking is prohibited at the University of Missouri and all properties owned, operated, leased or controlled by the University of Missouri. Violation of the policy is defined as smoking any tobacco products, including e-cigarettes.

[Use the following paragraphs g and h below for Columbia Campus projects.]

- g. Landfill: The Design/Builder shall not use the Owner's landfill. Dumping or disposal of excavated or demolition materials on Owner's property shall not be permitted. The Design/Builder shall remove and legally dispose of excavated or demolished materials off the Owner's property.

- h. Care of Project Work Site: The Design/Builder shall be responsible for maintaining the construction site in a reasonably neat and orderly condition by

regular cleaning and mowing of the premises as determined by the Owner's Representative.

- i. Discharge to Sewer Request: The University of Missouri's MS4 permit and NPDES Storm Water Discharge Permits along with the City of Columbia's POTW Operating Permit as well as local ordinances, and state and federal environmental regulations prohibit hazardous materials from being disposed into either the storm water or sanitary sewer systems. Unless specifically approved, all chemical products such as paints, dyes, lawn care products, maintenance products, and oil is are prohibited from drain disposal. Any product, including contaminated water, being discarded into the storm water or sanitary sewer systems requires written approval from the Owner through a formal "Discharge to Sewer Request" form obtained at Discharge to Sewer Request Form. The contractor should submit the form to the Owner's Representative, not to the Department of Environmental Health and Safety as the form indicates.
- j. All concrete waste material including washout water shall be totally contained and removed from the Owner's property.
- k. Artifacts Found During Construction: Contractor shall immediately notify the Owner's Representative when artifacts are uncovered or found during the demolition or construction process. Artifacts include, but are not limited to, tools, drawings (construction or other), photographs, books and other objects/devices which may hold historical importance/significance. Do not remove or disturb the object(s) in question. Artifacts are not considered part of demolished materials and shall remain the property of the University of Missouri.

[Note to Consultants: The University wants to communicate certain information on "permit confined spaces" to the construction contractors performing university work. The below language shall be included in the Special Conditions for all projects. Use the language that applies for 1) projects which do include known "permit required confined spaces"; or 2) projects which do not include known "permit required confined spaces". This information shall be provided by the University's Project Manager. The consultant shall request this information at least four weeks prior to submission of final review documents.]

- i. **"Permit Required Confined Space" Entry Communication and Coordination**
(See OSHA 1926 subpart aa – Construction Confined Space for the definition of "permit required confined spaces" - Note: OSHA does not apply to the University. However, the University will provide a list of all known "permit required confined spaces")

The following are the known locations of "permit required confined spaces"

currently identified within the project limits:

(1) List and enumerate permit required confined spaces and their locations here.

The hazards or potential hazards in each “permit required confined space” or the reason it is a “permit required confined space”:

(1) List and enumerate hazards, potential hazards or reasons here.

Any precautions that the owner or previous contractors have implemented for the protection of employees in the “permit required controlled space”:

(1) List and enumerate previous precautions here.

The above list of known confined spaces within the project limits may not be a complete listing. Each contractor shall survey the project to identify all confined spaces. It is incumbent upon each contractor to list all “permit required spaces”.

The Contractor shall notify the Owner’s Representative if 1) conditions change resulting in a non-permit required confined space being reclassified to a “permit required confined space” after evaluation of the space by a competent person; 2) a space previously thought to be non-permit required space is classified as a “permit required confined space” after evaluation by a competent person; or 3) during the course of construction a “permit required confined space” is created after evaluation by a competent person.

The Contractor shall submit to the Owner’s Representative a copy of the cancelled confined space entry permit and a written report summarizing the permit space program followed and all hazards confronted or created during entry operations. This information shall be submitted within one week of cancelling the permit.

Or;

- i. “Permit Required Confined Space” Entry Communication and Coordination**
(See OSHA 1926 subpart aa – Construction Confined Space for the definition of “permit required confined spaces” - Note: OSHA does not apply to the University. However, the University will provide a list of all known “permit required confined spaces”)

There are no known “permit required confined spaces” within the project limits. Each contractor shall conduct a survey to confirm whether or not any

confined spaces exist within the project limits. It is incumbent upon each contractor to list all "permit required spaces".

The Contractor shall notify the Owner's Representative if 1) conditions change resulting in a non-permit required confined space being reclassified to a "permit required confined space" after evaluation of the space by a competent person; 2) a space previously thought to be non-permit required space is classified as a "permit required confined space"; or 3) during the course of construction a "permit required confined space" is created after evaluation by a competent person.

The Contractor shall submit to the Owner's Representative a copy of the cancelled confined space entry permit and a written report summarizing the permit space program followed and all hazards confronted or created during entry operations. This information shall be submitted within one week of cancelling the permit.

9. PROTECTION OF OWNER'S PROPERTY

- a. The Design/Builder shall be responsible for repair of damage to building exterior and interior, drives, curbs, streets, walks, grass, shrubbery and trees, which was caused by workmen or equipment employed during progress of work. All such repairs shall be made to satisfaction of the Owner's Representative, at no cost to the Owner, or reimburse the Owner if the Owner elects to make repairs. **[For Columbia projects add]** For landscape damage, the Owner shall make such repairs. Compensation for these repairs shall be determined by the Owner's Representative using the "Valuation of Landscape Trees, Shrubs, and other Plants" as published by the International Society of Arboriculture, as last revised.

[Use one of fencing options below as directed by the Project Manager and edit to suit project if necessary. Indicate the project fencing limits on the site plans]

- b. Construction Project Fencing:
 - (1) Fencing requirements, as indicated on Drawings, shall be constructed of 9 or 11-gauge chain link not less than six (6) feet in height and not more than 2-inch mesh with posts spaced not more than ten (10) feet apart and all corner and gate posts imbedded in concrete. All other posts shall be sufficiently secured in ground to maintain proper and adequate support of fence. Fenced in area shall have at least two (2) access gates and all gates shall be lockable.

[Include paragraph (2) below on highly visible projects as directed by the Project Manager.]

(2) Fence screening fabric shall be used on all perimeter fencing. Fabric shall be green **[check the color with the Project Manager]** in color, full height of the project fence, securely attached and properly maintained throughout the duration of the project.

(1) Fencing requirements, as indicated on Drawings and/or described in Specifications and where necessary to protect public and Owner's property shall be constructed of woven wire or plastic woven fencing not less than five (5) feet in height and supported by metal tee-posts anchored securely in ground at not more than ten (10) foot intervals.

(1) Project worksite shall be kept continuously protected with, at minimum, a temporary portable fence constructed of woven wire or plastic woven fencing not less than five (5) feet in height and supported by metal tee-posts spaced not more than ten (10) feet apart and imbedded in five (5) gallon buckets of concrete or an equivalent method of support. In lieu of five gallon buckets of concrete, metal posts may be driven into ground or asphalt. Fencing shall have reflective devices, such as, tape, ribbon, and/or be painted in a bright fluorescent color. Portions of fence shall be reinstalled when work activities cease and during all non-work periods.

[Retain paragraph below for all projects not requiring fencing.]

(1) Fencing will not be required as a part of work.

[Retain four paragraphs below for all fencing.]

(2) Using existing landmarks, lamp posts, trees or other Owner property for support of fencing is strictly prohibited unless a written waiver is obtained from Owner's Representative.

(3) Use of ribbon, snow fence, chicken wire, rope, and wooden barricades as fencing is prohibited.

(4) Fencing shall be maintained in an "as-installed" condition throughout the life of the project.

(5) The Design/Builder may use used fencing provided it is in good condition and is satisfactory to the Owner's Representative.

c. Preserving and Protecting Existing Vegetation:**[add as required]**

(1) Protection and compensation for damages:

- (a) Trees and shrubs within work area designated to remain shall be protected from damage during construction by fixed chain link fencing or armoring as indicated on Drawings or specified herein. Plant protection devices shall be installed before work has begun and shall be maintained for duration of work unless otherwise directed by Owner's Representative.

[For Kansas City, Rolla and St. Louis projects add paragraph (2) below]

- (b) In the event that damage(s) to the Owner's trees, shrubs or vegetation occurs as a result of the Design/Builder's unauthorized operations, the Design/Builder shall pay or allow to the Owner compensation for said damage(s). Compensation shall be determined by the Owner's Representative using the "Valuation of Landscape Trees, Shrubs, and other Plants" as published by the International Society of Arboriculture, as last revised.

[For Columbia projects delete paragraphs 4, 5, and 8 below]

- (2) Plants within work area designated for removal shall be removed by Design/Builder.
- (3) To prevent compaction of soil over tree roots, vehicles or equipment shall not at any time park or travel over, nor shall any materials be stored within drip line of trees designated to remain.
- (4) Area within drip line of trees and shrubs shall be protected from work area by use of a standard 60" high woven plastic or woven wire fence mounted on standard steel posts set not more than 10' apart. Tree protection shall be removed during work in area of protection only when necessary to perform grading and other work required by Drawings and only as authorized by Owner's Representative.
- (5) Only minimal grading or disturbance will be allowed to area within and adjacent to drip line of trees or shrubs designated to remain. Design/Builder shall obtain approval from Owner's Representative prior to starting any grading work in these areas. Unnecessary cutting of plant roots shall not be permitted. The Design/Builder shall stop work immediately and shall notify Owner's Representative immediately if root system is exposed or if any roots over 1 1/2" in diameter are encountered. Roots exposed and/or damaged during construction shall be immediately cut off cleanly behind exposed or damaged area, and cut surface treated in accordance with established horticultural standards and covered with top soil.

- (6) Owner's Representative will stop work immediately when proper measures are not being employed to protect trees and shrubs. Design/Builder will be notified to resume work after required protection measures are implemented.
- (7) Pruning of limbs necessary to repair damage or provide clearance for work shall be **[for Columbia Campus projects insert - done by the MU Landscape Services Department]** done by approved, trained tree maintenance personnel at the direction of the Owner's Representative. Limbs shall be cut off cleanly and cut surfaces treated according to established horticultural standards.
- (8) Design/Builder shall repair tire ruts and other damages to existing lawn areas. Repairs shall match surrounding area.

10. SUBSTITUTIONS and EQUALS

[Choose one of the following sections and allow a minimum of 4 weeks if limiting substitutions to the bid phase only.]

- a. Substitutions are defined in General Conditions article 3.11.8 for and Equals are defined General Conditions Article 3.12.
- b. Substitutions and/or Equals of the item(s) listed below will be allowed only prior to receipt of bids provided that a written request for approval has been received by both the Architect and the Owner at least ten calendar days prior to the date for receipt of Bids. All other substitution and/or Equals items shall follow the procedures set forth in the General Conditions.

| <u>Item</u> | <u>Specification Section</u> |
|-------------|------------------------------|
|-------------|------------------------------|

To be considered, bidder's proposal shall include a complete description of the proposed substitution and/or equal and a comparison of significant qualities of the proposed substitution and/or equal with those specified including drawings, performance and test data, and other information necessary for an evaluation. The Architect's decision on the approval or disapproval of a proposed substitution and/or equal shall be final.

- b. Use of materials, products or equipment other than those named and described in the Contract Documents are substitutions and/or equal. Substitutions and/or equals of any item described in the Contract Documents will be allowed only prior to the receipt of bids provided that a request for approval has been received by both the Architect and the Owner at least ten calendar days prior to the date for receipt of Bids. To be considered, bidder's proposal shall include a complete description of the proposed substitution and/or equal and a comparison of significant qualities of the proposed substitution and/or equal with those specified including drawings, performance and test data, and other information necessary for an evaluation. The Architect's decision on the approval or disapproval of a proposed substitution and/or equal shall be final.

- b. Use of materials, products or equipment other than those named and described in the Contract Documents are substitutions and/or equal. Substitutions and/or equals submitted during the bidding period shall be received by both the Architect and the Owner at least ten calendar days prior to the date for receipt of bids. To be considered, bidder's proposal shall include a complete description of the proposed substitution and/or equal and a comparison of significant qualities of the proposed substitution and/or equal with those specified including drawings, performance and test data, and other information necessary for an evaluation. The Architect's decision on the approval or disapproval of a proposed substitution and/or equal shall be final.

- c. If the Architect and Owner approve a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approval made in any other manner.

[Use the following paragraph if any sole source items are incorporated into the design. Renumber paragraph as appropriate.]

- c. No substitutions and/or equal will be allowed for the following items:

| <u>Item</u> | <u>Specification Section</u> |
|-----------------------|------------------------------|
| Lock Cylinders [Best] | 08710 |

[List of items as approved by the Project Manager.]

11. CODES AND STANDARDS

The Design/Builder shall comply with applicable codes and standards as listed in General Conditions. The following codes and standards shall also apply:

[Use a. Where applicable.]

- a. City of Columbia - Sewer Line Installation Standards - Department of Public Works

“All sanitary sewer construction shall be in accordance with the City of Columbia Specifications and Standards and in conformance with the rules and regulations of the Missouri Clean Water Commission.”

- a. City of Kansas City - Water, Storm, and Sanitary Sewer Standards - Department of Public Works.
- a. City of Rolla - Water, Storm, and Sanitary Sewer Standards - Department of Public Works.
- a. St. Louis County - Storm and Sanitary Sewer Standards - Metropolitan Sewer District.
- b. St. Louis County - Water Standards - St. Louis County Water Division.

[List additional codes and standards below that project may require in addition to those listed in the General Conditions Article 13. Delete paragraph if no additional codes and standards apply.]

12. PERMITS

[Permits for work on UM property are typically not required. However, permits are necessary for work on or along other Owner’s property and for installation of boilers and pressure vessels. Ask the Project Manager if applicable.]

Before commencement of Boilers, Water Heaters or Pressure Vessels the Design/Builder must obtain an installation permit from the State of Missouri, Division of Fire Safety, Boiler and Pressure Unit as required by 11 CSR 40-2.010 through 11 CSR 40-2.065. The permit applications are available at www.dfs.dps.mo.gov/dfsboil.htm.

13. SPECIALTIES

[List anything particular about the project, such as Owner furnished materials, closing public streets, specialty requirements, or items not germane to other Special Conditions paragraphs. Delete if not applicable.]

[On Columbia Campus, Retain one applicable topsoil paragraph below.]

- a. Owner furnished topsoil: **[Default, include as directed by the Project Manager]** The contractor shall place Owner provided topsoil and grade to the finish elevation as indicated in the contract. The Owner will deliver the topsoil to the project site in the quantity required. The contractor is required to notify the Owner a minimum of five working days in advance of the needed topsoil. Topsoil shall be placed with rubber tracked equipment to minimize

compaction. Placement shall be sequenced to minimize compaction and damage to the topsoil. Topsoil or subsoil damaged, contaminated, or compacted during topsoil placement shall be repaired or replaced as directed by the Owner's Representative. Hand work shall be required next to adjacent structures and around utilities. Erosion control measures shall be maintained throughout and after topsoil placement.

- (1) The sub-grade is to be left at minus six inches (6") in all areas unless indicated otherwise. All planting bed sub-grades are to be left a minus eighteen inches (18"). The contractor is to remove all deleterious material from the sub-grade prior to placing topsoil. All subgrade areas shall contain at least 6" of subsoil, (ie. cover clean rock backfilled areas). All subgrade areas shall be "ripped" a minimum of 6" deep and a maximum of 12" apart in opposite directions with minimal tire traffic to follow. All exposed deleterious material and unacceptable rock shall be removed.
 - (2) The contractor shall adjust all yard boxes valve boxes, pull boxes, cleanouts, and manhole lid rings etc. (includes irrigation, sewers, water and electric), to the indicated finish grade.
 - (3) Final plantings will be by the Owner. The Owner will water and maintain all seed, sod and landscaping.
- a. Owner furnished topsoil: The contractor shall place Owner provided topsoil and grade to the finish elevation as defined in the contract. The contractor will load and haul topsoil from the Owner's stockpile located within two (2) miles of the project site. The contractor is required to notify the Owner a minimum of five working days in advance of the needed topsoil. Topsoil shall be placed with rubber tracked equipment to minimize compaction. Placement shall be sequenced to minimize compaction and damage to the topsoil. Topsoil or subsoil damaged, contaminated, or compacted during topsoil placement shall be repaired or replaced as directed by the Owner's Representative. Hand work shall be required next to adjacent structures and around utilities. Erosion control measures shall be maintained throughout and after topsoil placement.
- (1) The sub-grade is to be left at minus six inches (6") in all areas unless indicated otherwise. All planting bed sub-grades are to be left a minus eighteen inches (18"). The contractor is to remove all deleterious material from the sub-grade prior to placing topsoil. All subgrade areas shall contain at least 6" of subsoil, (ie. cover clean rock backfilled areas). All subgrade areas shall be "ripped" a minimum of 6" deep and a maximum of 12" apart in opposite directions with minimal tire traffic to follow. All exposed deleterious material and unacceptable rock shall be removed.

- (2) The contractor shall adjust all yard boxes valve boxes, pull boxes, cleanouts, and manhole lid rings etc. (includes irrigation, sewers, water and electric), to the indicated finish grade.
 - (3) Final plantings will be by the Owner. The Owner will water and maintain all seed, sod and landscaping.
- a. Owner furnished topsoil: The Owner will place the topsoil and provide final grade. The contractor shall rough grade to the following specification:
- (1) The sub-grade is to be left at minus six inches (6") in all areas unless indicated otherwise. All planting bed sub-grades are to be left a minus eighteen inches (18"). The contractor is to remove all deleterious material from the sub-grade prior to placing topsoil. All subgrade areas shall contain at least 6" of subsoil, (ie. cover clean rock backfilled areas). All subgrade areas shall be "ripped" a minimum of 6" deep and a maximum of 12" apart in opposite directions with minimal tire traffic to follow. All exposed deleterious material and unacceptable rock shall be removed.
 - (2) The contractor shall adjust all yard boxes valve boxes, pull boxes, cleanouts, and manhole lid rings etc. (includes irrigation, sewers, water and electric), to the indicated finish grade.
 - (3) Final plantings will be by the Owner. The Owner will water and maintain all seed, sod and landscaping.

14. PRE-BID INSPECTION

All pre-bid inspections of work areas shall be scheduled with pre-bid inspection guide, telephone: **[Insert as directed by the Project Manager, for Columbia Campus projects use (573) 882-2228.]**

15. ROOF WARRANTY REQUIREMENT

- a. The Design/Builder shall submit, before issuance of the "Notice to Proceed", a copy of University of Missouri Roof System Manufacturer's Certification, which shall be manually signed by an authorized representative of Manufacturer of each proposed roofing system. Certification shall have original signature. **[Use for roofing installation projects. Not applicable for new buildings and major renovation projects. Ask Project Manager for clarification.]**
- a. The Design/Builder shall submit, before the first progress payment, a copy of University of Missouri Roof System Manufacturer's Certification, which shall

be manually signed by an authorized representative of Manufacturer of each proposed roofing system. Certification shall have original signature. **[Use for new buildings and major renovation projects. Ask Project Manager for clarification.]**

- b. Following final inspection and acceptance of the roofing system(s) by the Owner and the roofing system manufacturer(s), the Design/Builder shall submit a manually signed standard warranty agreement provided and executed by the roofing system manufacturer for each roofing system provided. Standard warranty agreement(s) shall be of the duration specified in Division 7.
- c. University of Missouri three (3) year Contractor's Roofing/Flashing/Sheetmetal Guarantee shall be signed by the roofing contractor after final inspection and acceptance of each roofing system by Manufacturer and by Owner.
- d. The Roofing contractor or subcontractor shall provide the Owner with an Application for a Roof Warranty.

[Or use for existing roofs.]

- a. Owner has an existing roof warranty on roof of _____ and is included at the end of this section. The Design/Builder shall verify roofing manufacturer and warranty provider. The Design/Builder shall use a licensed applicator of existing roofing system to make and repair roof penetrations in order for the Owner's existing warranty to remain in full force and effect.

Roof System Manufacturer:

Name

Roof Type:

Installer:

Manufacturer's Warranty:

Substantial Completion:

Expiration Date:

16. MODIFICATIONS TO GENERAL CONDITIONS

[For a project where Asbestos work is specified, Asbestos Liability Insurance is required. Add the following as approved by the Project Manager]

- a. Add to the Insurance Requirements in General Conditions Article 11, Asbestos Liability Coverage, for specified asbestos abatement in the contract documents, in a limit no less than \$1,000,000 combined single limit, per occurrence and

aggregate, for both bodily injury and property damage combined. The Owner will accept coverage from the Asbestos Removal Subcontractor in lieu of the Design/Builder subject to all requirements set forth in article 11.

[For a project where hazardous waste disposal is specified, Pollution Liability Coverage is required. Add the following as approved by the Project Manager]

- b. Add to the Insurance Requirements in General Conditions Article 11, Pollution Liability Coverage, for specified hazardous waste disposal in the contract documents, in a limit no less than \$1,000,000 combined single limit, per occurrence and aggregate, for both bodily injury and property damage combined. The Owner will accept coverage from the Hazardous Waste Disposal Subcontractor and/or Hauler in lieu of the Design/Builder subject to all requirements set forth in article 11.

[For a project where special hazards exist, Insurance covering Special Hazards is required. Add the following as approved by the Project Manager]

- c. The Commercial General Liability policy or policies specified in Article 11 shall provide coverage for special hazards, where they exist, such as, but not limited to, the operation of material hoist, blasting or other use of explosives, and damage to underground property.

[For major projects, the Owner may increase the basic project General Liability Insurance requirements. The Project Manager will contact the UM Executive Director Facilities Planning & Development for a determination]

- d. Reference: General Conditions Article 11.5.2 Liability Insurance General/Other Requirements.

Delete in the last sentence of 11.5.2 "\$10,000,000 per occurrence" and insert "**dollar amount** per occurrence."

17. PROJECT SCHEDULING

The project scheduling specification for the project are included immediately after the Special Conditions. For this project the Contractor shall meet the following scheduling requirements.

[Use one of scheduling options below as directed by the Project Manager and edit to suit project if necessary. Schedule Spec Selected shall be included immediately after the Special Conditions]

Option 1: Project Controlled Scheduling- Contractor is responsible for the schedule. However, University shall hire a Third Party Scheduling Consultant, at the University's

expense. See Project Controlled Scheduling Specification included in these documents.

Option 2: Contractor Schedule – Contractor is responsible for the schedule and he may provide with in-house personnel or hire a third party scheduling consultant. See Contractor Schedule Specification included in these documents.

Option 3: Contractor Schedule with Third Party Scheduling Consultant – Contractor is responsible for the schedule, but the Contractor will hire a Third Party Scheduling Consultant, approved by the Owner, at the Contractor's expense. See Contractor Schedule with Third Party Scheduling Consultant Specification included in these documents.

18. PROJECT COORDINATION

[Include only if directed by the Project Manager.]

- a. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection, and operation.
 - (1) Schedule construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - (2) Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
 - (3) Make provisions to accommodate items scheduled for later installation.

19. BUILDING SYSTEM COMMISSIONING

[Include on Columbia Campus projects as directed by the Project Manager.]

- a. Design/Builder shall provide all personnel and equipment required to complete the commissioning activities referenced in the Commissioning Plan. The requirements of the commissioning plan shall be completed in their entirety before substantial completion and submitted as referenced in the Closeout Log.
- b. The Design/Builder shall designate a competent person, separate from the superintendent or Project Manager, to act as the Design/Builder's commissioning coordinator. The commissioning coordinator is responsible for

planning, scheduling, coordinating, conducting and verifying all commissioning activities required by the commissioning plan and ensuring all building systems are complete, operable and ready for use by the Owner. At a minimum, building ventilation systems, chilled/hot water generation systems, hydronic distribution systems, power distributions systems and fire detection and alarm systems, as applicable.

[On Columbia Campus projects, the log is provided by the Owner. On other projects, the log will be provided by the Consultant (if a part of Consultant services) or a commissioning consultant hired directly by the Owner.]

20. PROJECT MANAGEMENT/COMMUNICATION REQUIREMENTS

- a. The Design/Builder shall be represented at the site by both a competent full-time project manager and a full-time, competent superintendent with no other assigned duties or responsibilities from the beginning of the work until its final acceptance, unless otherwise permitted by the Owner's Representative. The superintendent for the Design/Builder for the general building work shall exercise general supervision over all subcontractors of any tier engaged on the work with decision-making authority of the Design/Builder.
- b. The Design/Builder shall use a current industry standard (Primavera, Microsoft Project, etc.) project scheduling software which provides as a minimum: Critical paths, milestones, estimated and actual start and completion dates, scheduled vs. actual progress, and detailed task and subtask breakdown. The following schedules shall be provided as a minimum and kept current: Overall project schedule, four- (4-) week look-ahead, and two- (2-) week look-ahead.
- c. The Design/Builder shall furnish on-site Internet access for use by his project manager and superintendent. The University is providing an on-line, secure project communications web site which will be used as a major method of communicating and storing project information. This web site will be used to communicate directed and group email, RFIs, change order requests and authorizations, and general correspondence. It will serve as a project message board, file storage and retrieval system, and will provide access to and storage of digital photos and contract documents and revisions.
- d. The Design/Builder shall provide at least two (2) job site FM handheld communication radios (walkie-talkies) for use by the on-site superintendent and the Owner's Representative or the Design/Builder shall provide his on-site superintendent with a handheld cellular telephone.

21. SAFETY PRECAUTIONS AND PROGRAMS

[Include as directed by the Project Manager]

- a. The Bidder's Statement of Qualifications includes a requirement that the Bidder provide its Worker's Compensation Experience Modification Rates (EMR) and Incidence Rates for the three recent years. The Bidder shall also include the EMR and Incidence Rates of listed major subcontractors on the Bid for Lump Sum Contract. If the EMR exceeds 1 or the Incidence Rate exceeds 13, the Design/Builder or major subcontractor shall take additional safety measures including, but not limited to, developing a site specific safety plan and assigning a Safety Manager to the Project to perform inspections on a schedule as determined acceptable by the Owner with written reports to be submitted to the Owner. The Owner reserves the right to reject a Bidder or major subcontractor whose rates exceed these stated rates.
- b. The Design/Builder shall provide Emergency Contact Information for the Design/Builder's on-site staff and home office management as well as contact information for all major subcontractor personnel. This information shall contain business and personal phone numbers for each individual for contact during or after hours in case of an emergency. This information shall be submitted within 15 days of the Notice to Proceed.

22. HOT WORK PERMITTING AND GENERAL REQUIREMENTS

[Include this section on projects where Hot Work is expected to be performed]

Hot work Requirements: The contractor shall comply with the following hot work requirements and the requirements of the International Fire Code and 2014 NFPA 51B.

- a. Hot work shall be defined as any work involving burning, welding, grinding, cutting, or similar operations that are capable of initiating fires or explosions.
- b. The Contractor shall utilize the hot work permit decision tree and permit provided in the 2014 NFPA 51B for all Hot Work operations.
- c. A hot work permit shall be used on all hot work performed outside a designated hot work area. The hot work permit shall be posted and clearly visible within proximity of the hot work area. The hot work permit authorizing individual (PAI) shall be as designated by the Contractor.
- d. Notify the Owner's Representative 24 hours prior to starting hot work in buildings with operational fire alarm or fire suppression systems. The Owner's Representative will coordinate the appropriate system outage with Campus Maintenance personnel.
- e. Unless otherwise instructed by the Owner's Representative, the Contractor shall

post a copy of each completed hot work permit to the Owner's project management file system the following business day.

- f. [Optional section] Special hot work requirements: Use thermal imaging cameras after hot work operations- describe criteria in detail (for historically significant buildings of wood construction); designate additional fire watch monitoring beyond the NFPA 30 minute post hot work requirement (project has a greater potential for reflash or smoldering fire due to concealed combustible building elements, etc.).

23. GENERAL REQUIREMENTS FOR CRANE AND HOISTING OPERATIONS

[Include this section when steel erection, hoisting, or other crane operations will be necessary to complete the project]

All crane and hoisting operations shall be performed in compliance with OSHA 29 CFR 1926. All Operators, riggers, and signal persons must have the proper qualifications and training necessary to perform the intended hoisting activities for this project.

- a. Only fully certified and evaluated Operators shall perform equipment operations. Operators in an "Operator in Training" status shall not be used.
- b. Submittal requirements:
 1. Submit copies of Operator certifications, licenses, and evaluations to the Owners Representative.
 2. Submit Rigger and Signal Person qualifications to the Owners Representative.
 3. Unless otherwise directed by the Owners Representative, submit a lift plan and conduct a lift coordination meeting for hoisting or crane operations for any lift greater than 2,000 pounds, or for any multi pick lift. Include protective measures for existing underground utilities, occupied buildings, pedestrian and vehicle pathways, adjacent buildings and overhead power lines. If the lift is to occur over an occupied building, provide a registered structural engineer's review and verification that the building can resist the impact of a dropped load for the intended lift. If evacuation of an occupied building is necessary to conduct the lift, the decision for building evacuation or scheduling the lift for off-hours will be determined by the Owner.

24. CONSTRUCTION WASTE MANAGEMENT (for projects without a Division 02 specification)

The Contractor shall have as a goal the diversion of [xxxxx] percent (xx%) of construction waste from deposit in a sanitary landfill. The goal is to recycle and/or salvage [xx]% of non-hazardous construction and demolition. Contractor shall track and report all efforts related to recycling, reusing, and/or re-selling of all salvaged material from the project (including clean fill material). Report total weight of all demolition waste and clean fill material diverted from a landfill. Report all material types and weights, where material was diverted, type of diversion, documentation of this diversion, and applicable dates. Total weights and percentages of total demolition material shall also be reported.

This information shall be in tabular form utilizing the [Construction Waste Management Plan](#). (This information shall be updated monthly with final submission prior to substantial completion).

22. WARRANTY WALKTHROUGH

Contractor shall attend a walk-thru with the Owner at 11 months after acceptance to review and document any warranty items to be addressed as part of the 12 month warranty stated in article 3.1 of the General Conditions.

END OF SPECIAL CONDITIONS

Option #1 – Project Controlled Scheduling

1. GENERAL

a) Time is of the essence for this contract.

The time frames spelled out in this contract are essential to the success of this project. The University understands that effective schedule management, in accordance with the General Conditions and these Special Conditions is necessary to insure that the critical milestone and end dates spelled out in the contract are achieved.

b) Related Documents

Drawings and general provisions of the Contract, including General Conditions' Article 3.17 shall apply to this Section.

c) Stakeholders

A Stakeholder is anyone with a stake in the outcome of the Project, including the University, the University Department utilizing the facility, the Design Professionals, the Contractor and subcontractors.

d) Weather

(1) Contractor acknowledges that there will be days in which work cannot be completed due to the weather, and that a certain number of these lost days are to be expected under normal weather conditions in Missouri.

(2) Rather than speculate as to what comprises “normal” weather at the location of the project, Contractor agrees that it will assume a total of 44 lost days due to weather over the course of a calendar year, and include same in its as planned schedule. For projects of less than a calendar year, lost weather days should be prorated for the months of construction in accordance with the following schedule.

(3) Anticipated weather days for allocation/proration only. For projects lasting 12 months or longer, the 44 days per year plus whatever additional months are included will constitute normal weather.

| | | | |
|--------------|--------------|--------------|--------------|
| Jan – 5 days | Feb – 5 days | Mar – 4 days | Apr – 4 days |
| May – 3 days | Jun – 3 days | Jul – 2 days | Aug – 2 days |
| Sep – 3 days | Oct – 4 days | Nov – 4 days | Dec – 5 days |

2. SCHEDULING PROCESS

a) The intent of this section is to insure that a well-conceived plan, that addresses the milestone and completion dates spelled out in these documents, is developed with input from all stakeholders in the project. Input is limited to all reasonable requests that are consistent with the requirements of the contract documents, and do not prejudice the Contractor's ability to perform its work consistent with the contract documents.

Further, the plan must be documented in an understandable format that allows for each stakeholder in the project to understand the plan for the construction and/or renovation contained in the Project.

b) Project Controlled Scheduling

The content (Activity Descriptions, Activity Codes, Durations, Predecessors and Successors) of the Project Schedule will be the responsibility of the Contractor. However, the University will provide the services of a Third Party Scheduling Consultant (TPSC), at the University's expense, to prepare and maintain the CPM schedule program for the duration of the project. Upon Contractor's compliance with the requirements listed below, TPSC will take responsibility for organizing the Project CPM schedule, which reflects the Contractor's plan, using Primavera Project Planner (P3) or Oracle 6, in a manner that complies with this section of the Special

Conditions.

c) Contractor Requirements

(1) Schedule Development

Contractor shall fully cooperate with the TPSC Consultant to make personnel available to describe the Contractor's plan for executing the work. Personnel shall be made available as noted for the series of meetings/working sessions listed below.

(2) Schedule Strategy (Week 1-2)

Within 10 days of award, the Project Executive, Project Manager, Project Engineer(s) and Project Superintendent (Contractor Team) will meet with TPSC to establish the general plan and sequencing of the project. At this meeting, the Contractor Team will agree upon the overall work plan, commit to the level of detail to be included in the schedule, the number of activity codes necessary for effective project control, the necessity of cost loading and/or crew loading the schedule. It is anticipated that this meeting(s) will take between 2 and 4 hours.

(3) Activity Identification and Logic Development (Weeks 3-4)

During the two weeks following the Strategy Meeting, Contractor will make the Project Team (minimum of Project Manager and Project Superintendent) available, up to ½ time, to identify the specific activities that will be included in the schedule and determine the specific logic that the contractor intends to follow in constructing the project. This effort is normally accomplished in a few ½ day sessions, with the TPSC facilitating the discussion and recording the plan. The Project Team will provide preliminary durations for all activities, including those of subcontractors. Final durations will be developed after receiving input from the major subcontractors and/or craft superintendents, during the Schedule Reconciliation Phase described below.

Contractor will provide TPSC with a complete submittal list, from which the TPSC and Project Team will determine which submittals and procurement activities are necessary to include in the CPM schedule in order to effectively manage the project.

(4) Schedule Development (Weeks 5)

During Week #5 TPSC will produce a Preliminary Schedule "fragnet" or "subnet" that describes the work plan for the first 90 days of the project. This "fragnet" will be used to monitor the work on the project until the final schedule is prepared and accepted by the University and the Project Team.

By the end of week 5, the TPSC will have all of the identified activities, durations, logic and activity codes input into the schedule, ready to review with each major subcontractor and/or craft superintendent.

Contractor will distribute one full copy of the schedule and one copy of each individual subcontractors scheduled activities to each subcontractor for review.

(5) Subcontractor Review (Week 6)

(6) Schedule Reconciliation (Week 7)

Contractor will arrange a series of meetings with each major subcontractor and/or craft superintendent. Project Manager and/or Project Superintendent must be present at each meeting. Meetings should take between 1 to 2 hours, depending on the subcontractor's scope, capability and work complexity. Upon completion of this series of meetings, each subcontractor's reconciled schedule will be printed out and the subcontractor will sign the

printout, signifying its commitment to performing in accordance with the reconciled schedule.

(7) Final Schedule Development (Week 8)

During this time frame, TPSC and Project Team will secure subcontractor commitment to the finished schedule. TPSC will finalize all agreed upon activity coding and resource loading. TPSC will print out the final schedule, including various “fragnets” for review by the entire Project Team, TPSC and the University, at a Schedule Finalization Meeting, to be held prior to final acceptance of the schedule by the entire Project Team.

(8) Schedule Updates.

(a) Schedule Updates will be conducted once a month, at a minimum. TPSC will provide Contractor with a “Schedule Update Form”, which contains blanks for Actual Start and Actual Finish dates, Percent Complete and Remaining Duration. Actual Start and Finish dates should be recorded regularly during the month. Percent Complete, or Remaining Duration shall be updated as of the data date, just prior to Contractor’s submittal of the update data.

(b) Contractor will submit completed update form to TPSC.

(c) TPSC will copy the previous months schedule and will input update information into the new monthly update version.

(d) TPSC will meet with Contractor to review the draft of the updated schedule. At this meeting, TPSC and Contractor will:

(i) Review out of sequence progress, making adjustments as necessary,

(ii) Add any fragnets necessary to describe changes or other impacts to the project schedule and

(iii) Review the resultant critical and near critical paths to determine any impact of the occurrences encountered over the last month.

(9) Schedule Narrative

After finalization of the update, the TPSC will prepare a Narrative that describes progress for the month, impacts to the schedule and an assessment as to the Contractor’s entitlement to a time extension for occurrences beyond its control during the month and submit in accordance with this Section.

(10) Progress Meetings

(a) Review the updated schedule at each monthly progress meeting. Payments to the Contractor may be suspended if the progress schedule is not adequately updated to reflect actual conditions.

(b) Submit progress schedules to subcontractors to permit coordinating their progress schedules to the general construction work. Include 4 week look ahead schedules to allow subs to focus on critical upcoming work.

3. CRITICAL PATH METHOD (CPM)

a) This Section includes administrative and procedural requirements for the critical path method (CPM) of scheduling and reporting progress of the Work.

b) Refer to the General and Special Conditions and the Agreement for definitions and specific dates of Contract Time.

c) Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships and network calculations determine when activities can be performed and the critical path of the Project.

b) Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall project duration.

- c) Network Diagram: A graphic diagram of a network schedule, showing the activities and activity relationships.
- d) Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling, the construction project. Activities included in a construction schedule consume time and resources.
- e) Critical activities are activities on the critical path.
- f) Predecessor activity is an activity that must be completed before a given activity can be started.
- g) Milestone: A key or critical point in time for reference or measurement.
- h) Float or Slack Time: The measure of leeway in activity performance. Accumulative float time is not for the exclusive use or benefit of the Owner or Contractor, but is a project resource available to both parties as needed to meet contract milestones and the completion date.
- i) Total float is herein defined as the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date.
- j) Weather: Adverse weather that is normal for the area must be taken into account in the Contractor's Project Schedule. See 1.d.3, above.
- k) Force Majeure Event: Any event that delays the project but is beyond the control and/or contractual responsibility of either party.
- l) Schedule shall including the following, in addition to Contractor's work.
 - (1) Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:
 - (a) Requirements for phased completion and milestone dates.
 - (b) Work by separate contractors.
 - (c) Work by the Owner.
 - (d) Coordination with existing construction.
 - (e) Limitations of continued occupancies.
 - (f) Uninterruptible services.
 - (g) Partial occupancy prior to Substantial Completion.
 - (h) Area Separations: Use Activity Codes to identify each major area of construction for each major portion of the Work. For the purposes of this Article, a "major area" is a story of construction, a separate building, or a similar significant construction element.

1. TIME EXTENSION REQUESTS

- a) Refer to General Conditions of the Contract for Construction, Article 4.7 Claims for Additional Time.
- b) Changes or Other Impacts to the Contractor's Work Plan

The Owner will consider and evaluate requests for time extensions due to changes or other events beyond the control of the Contractor on a monthly basis only, with the submission of the Contractor's updated schedule, in conjunction with the monthly application for payment. The Update must include:

 - (1) An activity depicting the event(s) impacting the Contractors work plan shall be added to the CPM schedule, using the actual start date of the impact, along with actually required predecessors and successors.
 - (2) After the addition of the impact activity(ies), the Contractor shall work with the TPSC to identify subsequent activities on the critical path, with finish to start relationships that can be realistically adjusted to overlap using good, standard construction practice.
 - (a) If the adjustments above result in the completion date being brought back within the contract time period, no adjustment will be made in the contract time.
 - (b) If the adjustments above still result in a completion date beyond the contract completion date, the delay shall be deemed excusable and the contract completion date shall be extended by the number of days indicated by the analysis.
 - (c) Contractor agrees to continue to utilize its best efforts to make up the time caused by the delays. However the Contractor is not expected to expend costs not contemplated in its contract, in making those efforts.

- c) Questions of compensability of any delays shall be held until the actual completion of the project. If the actual substantial completion date of the project based on excusable delays, excluding weather delays, exceeds the original contract completion date, AND there are no delays that are the responsibility of the contractor to consider, the delays days shall be considered compensable. The actual costs, if any, of the Contractor's time sensitive jobsite supervision and general conditions costs, shall be quantified and a change order issued for these costs.

Option #2 – Contractor Schedule

1. GENERAL

a) Time is of the essence for this contract.

The time frames spelled out in this contract are essential to the success of this project. The University understands that effective schedule management, in accordance with the General Conditions and these Special Conditions is necessary to insure that the critical milestone and end dates spelled out in the contract are achieved.

b) Related Documents

Drawings and general provisions of the Contract, including General Conditions' Article 3.17 shall apply to this Section.

c) Stakeholders

A Stakeholder is anyone with a stake in the outcome of the Project, including the University, the University Department utilizing the facility, the Design Professionals, the Contractor and subcontractors.

d) Weather

(1) Contractor acknowledges that there will be days in which work cannot be completed due to the weather, and that a certain number of these lost days are to be expected under normal weather conditions in Missouri.

(2) Rather than speculate as to what comprises "normal" weather at the location of the project, Contractor agrees that it will assume a total of 44 lost days due to weather over the course of a calendar year, and include same in its as planned schedule. For projects of less than a calendar year, lost weather days should be prorated for the months of construction in accordance with the following schedule.

(3) Anticipated weather days for allocation/proration only. For projects lasting 12 months or longer, the 44 days per year plus whatever additional months are included will constitute normal weather.

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| Jan – 5 days | Feb – 5 days | Mar – 4 days | Apr – 4 days |
| May – 3 days | Jun – 3 days | Jul – 2 days | Aug – 2 days |
| Sep – 3 days | Oct – 4 days | Nov – 4 days | Dec – 5 days |

2. SCHEDULING PROCESS

a) The intent of this section is to insure that a well-conceived plan, that addresses the milestone and completion dates spelled out in these documents, is developed with input from all stakeholders in the project. Input is limited to all reasonable requests that are consistent with the requirements of the contract documents, and do not prejudice the Contractor's ability to perform its work consistent with the contract documents.

Further, the plan must be documented in an understandable format that allows for each stakeholder in the project to understand the plan for the construction and/or renovation contained in the Project.

b) Contractor Requirements

(1) Schedule Development

Contractor shall prepare the Project Schedule using Primavera P3 or Oracle P6.

(2) Schedule Development

Within 4 weeks of the NTP, contractor shall prepare a schedule, in CPM format, that reflects the contractor's and each subcontractors plan for performing the contract work.

Contractor shall review each major subcontractor's schedule with the sub and obtain the subcontractor's concurrence with the schedule, prior to submitting to the University.

(3) Schedule Updates.

- (a) Schedule Updates will be conducted once a month, at a minimum.

Actual Start and Finish dates should be recorded regularly during the month. Percent Complete, or Remaining Duration shall be updated as of the data date, just prior to Contractor's submittal of the update data.

- (b) Contractor will copy the previous months schedule and will input update information into the new monthly update version.

- (c) Contractor will meet with the Owner's Representative to review the draft of the updated schedule. At this meeting, Owner's Representative and Contractor will:

- (i) Review out of sequence progress, making adjustments as necessary,
- (ii) Add any fragments necessary to describe changes or other impacts to the project schedule and
- (iii) Review the resultant critical and near critical paths to determine any impact of the occurrences encountered over the last month.

(4) Schedule Narrative

After finalization of the update, the Contractor will prepare a Narrative that describes progress for the month, impacts to the schedule and an assessment as to the Contractor's entitlement to a time extension for occurrences beyond its control during the month and submit in accordance with this Section.

(5) Progress Meetings

- (a) Review the updated schedule at each monthly progress meeting. Payments to the Contractor may be suspended if the progress schedule is not adequately updated to reflect actual conditions.

- (b) Submit progress schedules to subcontractors to permit coordinating their progress schedules to the general construction work. Include 4 week look ahead schedules to allow subs to focus on critical upcoming work.

3. CRITICAL PATH METHOD (CPM)

- a) This Section includes administrative and procedural requirements for the critical path method (CPM) of scheduling and reporting progress of the Work.

- b) Refer to the General and Special Conditions and the Agreement for definitions and specific dates of Contract Time.

- c) Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships and network calculations determine when activities can be performed and the critical path of the Project.

- d) Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall project duration.

- e) Network Diagram: A graphic diagram of a network schedule, showing the activities and activity relationships.

- f) Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling, the construction project. Activities included in a construction schedule consume time and resources.

- g) Critical activities are activities on the critical path.

- h) Predecessor activity is an activity that must be completed before a given activity can be started.

- i) Milestone: A key or critical point in time for reference or measurement.

- j) Float or Slack Time: The measure of leeway in activity performance. Accumulative float time is not for the exclusive use or benefit of the Owner or Contractor, but is a project resource available to both parties as needed to meet contract milestones and the completion date.

- k) Total float is herein defined as the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date.

- l) Weather: Adverse weather that is normal for the area must be taken into account in the Contractor's Project Schedule. See 1.d.3, above.
- m) Force Majeure Event: Any event that delays the project but is beyond the control and/or contractual responsibility of either party.
- n) Schedule shall including the following, in addition to Contractor's work.
 - (1) Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:
 - (a) Requirements for phased completion and milestone dates.
 - (b) Work by separate contractors.
 - (c) Work by the Owner.
 - (d) Coordination with existing construction.
 - (e) Limitations of continued occupancies.
 - (f) Uninterruptible services.
 - (g) Partial occupancy prior to Substantial Completion.
 - (h) Area Separations: Use Activity Codes to identify each major area of construction for each major portion of the Work. For the purposes of this Article, a "major area" is a story of construction, a separate building, or a similar significant construction element.

4. TIME EXTENSION REQUESTS

- a) Refer to General Conditions of the Contract for Construction, Article 4.7 Claims for Additional Time.
- b) Changes or Other Impacts to the Contractor's Work Plan
 The Owner will consider and evaluate requests for time extensions due to changes or other events beyond the control of the Contractor on a monthly basis only, with the submission of the Contractor's updated schedule, in conjunction with the monthly application for payment. The Update must include:
 - (1) An activity depicting the event(s) impacting the Contractors work plan shall be added to the CPM schedule, using the actual start date of the impact, along with actually required predecessors and successors.
 - (2) After the addition of the impact activity(ies), the Contractor will identify subsequent activities on the critical path, with finish to start relationships that can be realistically adjusted to overlap using good, standard construction practice.
 - (a) If the adjustments above result in the completion date being brought back within the contract time period, no adjustment will be made in the contract time.
 - (b) If the adjustments above still result in a completion date beyond the contract completion date, the delay shall be deemed excusable and the contract completion date shall be extended by the number of days indicated by the analysis.
 - (c) Contractor agrees to continue to utilize its best efforts to make up the time caused by the delays. However the Contractor is not expected to expend costs not contemplated in its contract, in making those efforts.
- c) Questions of compensability of any delays shall be held until the actual completion of the project. If the actual substantial completion date of the project based on excusable delays, excluding weather delays, exceeds the original contract completion date, AND there are no delays that are the responsibility of the contractor to consider, the delays days shall be considered compensable. The actual costs, if any, of the Contractor's time sensitive jobsite supervision and general conditions costs, shall be quantified and a change order issued for these costs.

Option #3 – Contractor Schedule with 3rd Party Scheduling Consultant

1. GENERAL

- a) Time is of the essence for this contract.
The time frames spelled out in this contract are essential to the success of this project. The University understands that effective schedule management, in accordance with the General Conditions and these Special Conditions is necessary to insure to that the critical milestone and end dates spelled out in the contract are achieved.
- b) Related Documents
Drawings and general provisions of the Contract, including General Conditions' Article 3.17 shall apply to this Section.
- a) Stakeholders
A Stakeholder is anyone with a stake in the outcome of the Project, including the University, the University Department utilizing the facility, the Design Professionals, the Contractor and subcontractors.
- b) Weather
 - (1) Contractor acknowledges that there will be days in which work cannot be completed due to the weather, and that a certain number of these lost days are to be expected under normal weather conditions in Missouri.
 - (2) Rather than speculate as to what comprises "normal" weather at the location of the project, Contractor agrees that it will assume a total of 44 lost days due to weather over the course of a calendar year, and include same in its as planned schedule. For projects of less than a calendar year, lost weather days should be prorated for the months of construction in accordance with the following schedule.
 - (3) Anticipated weather days for allocation/proration only. For projects lasting 12 months or longer, the 44 days per year plus whatever additional months are included will constitute normal weather.

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| May – 3 days | Jun – 3 days | Jul – 2 days | Aug – 2 days |
| Sep – 3 days | Oct – 4 days | Nov – 4 days | Dec – 5 days |

2. SCHEDULING PROCESS

- a) The intent of this section is to insure that a well-conceived plan, that addresses the milestone and completion dates spelled out in these documents, is developed with input from all stakeholders in the project. Input is limited to all reasonable requests that are consistent with the requirements of the contract documents, and do not prejudice the Contractor's ability to perform its work consistent with the contract documents.
Further, the plan must be documented in an understandable format that allows for each stakeholder in the project to understand the plan for the construction and/or renovation contained in the Project.
- b) Project Controlled Scheduling
The content (Activity Descriptions, Activity Codes, Durations, Predecessors and Successors) of the Project Schedule will be the responsibility of the Contractor. The Contractor will provide the services of a Third Party Scheduling Consultant (TPSC), at the Contractor's expense, to prepare and maintain the CPM schedule program for the duration of the project. Upon Contractor's compliance with the requirements listed below, TPSC will take responsibility for organizing the Project CPM schedule, which reflects the Contractor's plan,

using Primavera Project Planner (P3), in a manner that complies with this section of the Special Conditions.

c) Contractor Requirements

(1) Schedule Development

Contractor shall fully cooperate with the TPSC Consultant to make personnel available to describe the Contractor's plan for executing the work. Personnel shall be made available as noted for the series of meetings/working sessions listed below.

(2) Schedule Strategy (Week 1-2)

Within 10 days of award, the Project Executive, Project Manager, Project Engineer(s) and Project Superintendent (Contractor Team) will meet with TPSC to establish the general plan and sequencing of the project. At this meeting, the Contractor Team will agree upon the overall work plan, commit to the level of detail to be included in the schedule, the number of activity codes necessary for effective project control, the necessity of cost loading and/or crew loading the schedule. It is anticipated that this meeting(s) will take between 2 and 4 hours.

(3) Activity Identification and Logic Development (Weeks 3-4)

During the two weeks following the Strategy Meeting, Contractor will make the Project Team (minimum of Project Manager and Project Superintendent) available, up to ½ time, to identify the specific activities that will be included in the schedule and determine the specific logic that the contractor intends to follow in constructing the project. This effort is normally accomplished in a few ½ day sessions, with the TPSC facilitating the discussion and recording the plan. The Project Team will provide preliminary durations for all activities, including those of subcontractors. Final durations will be developed after receiving input from the major subcontractors and/or craft superintendents, during the Schedule Reconciliation Phase described below.

Contractor will provide TPSC with a complete submittal list, from which the TPSC and Project Team will determine which submittals and procurement activities are necessary to include in the CPM schedule in order to effectively manage the project.

(4) Schedule Development (Week 5)

During Week #5 TPSC will produce a Preliminary Schedule "fragnet" or "subnet" that describes the work plan for the first 90 days of the project. This "fragnet" will be used to monitor the work on the project until the final schedule is prepared and accepted by the University and the Project Team.

By the end of week 5, the TPSC will have all of the identified activities, durations, logic and activity codes input into the schedule, ready to review with each major subcontractor and/or craft superintendent.

Contractor will distribute one full copy of the schedule and one copy of each individual subcontractors scheduled activities to each subcontractor for review.

(5) Subcontractor Review (Week 6)

(6) Schedule Reconciliation (Week 7)

Contractor will arrange a series of meetings with each major subcontractor and/or craft superintendent. Project Manager and/or Project Superintendent must be present at each

meeting. Meetings should take between 1 to 2 hours, depending on the subcontractor's scope, capability and work complexity. Upon completion of this series of meetings, each subcontractor's reconciled schedule will be printed out and the subcontractor will sign the printout, signifying its commitment to performing in accordance with the reconciled schedule.

(7) Final Schedule Development (Week 8)

During this time frame, TPSC and Project Team will secure subcontractor commitment to the finished schedule. TPSC will finalize all agreed upon activity coding and resource loading. TPSC will print out the final schedule, including various "fragnets" for review by the entire Project Team, TPSC and the University, at a Schedule Finalization Meeting, to be held prior to final acceptance of the schedule by the entire Project Team.

(8) Schedule Updates.

- (a) Schedule Updates will be conducted once a month, at a minimum. TPSC will provide Contractor with a "Schedule Update Form", which contains blanks for Actual Start and Actual Finish dates, Percent Complete and Remaining Duration. Actual Start and Finish dates should be recorded regularly during the month. Percent Complete, or Remaining Duration shall be updated as of the data date, just prior to Contractor's submittal of the update data.
- (b) Contractor will submit completed update form to TPSC.
- (c) TPSC will copy the previous months schedule and will input update information into the new monthly update version.
- (d) TPSC will meet with Contractor to review the draft of the updated schedule. At this meeting, TPSC and Contractor will:
 - (i) Review out of sequence progress, making adjustments as necessary,
 - (ii) Add any fragnets necessary to describe changes or other impacts to the project schedule and
 - (iii) Review the resultant critical and near critical paths to determine any impact of the occurrences encountered over the last month.

(9) Schedule Narrative

After finalization of the update, the TPSC will prepare a Narrative that describes progress for the month, impacts to the schedule and an assessment as to the Contractor's entitlement to a time extension for occurrences beyond its control during the month and submit in accordance with this Section.

(10) Progress Meetings

- (a) Review the updated schedule at each monthly progress meeting. Payments to the Contractor may be suspended if the progress schedule is not adequately updated to reflect actual conditions.
- (b) Submit progress schedules to subcontractors to permit coordinating their progress schedules to the general construction work. Include 4 week look ahead schedules to allow subs to focus on critical upcoming work.

3. CRITICAL PATH METHOD (CPM)

- a) This Section includes administrative and procedural requirements for the critical path method (CPM) of scheduling and reporting progress of the Work.
- b) Refer to the General and Special Conditions and the Agreement for definitions and specific dates of Contract Time.

- c) Critical Path Method (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships and network calculations determine when activities can be performed and the critical path of the Project.
- d) Critical Path: The longest continuous chain of activities through the network schedule that establishes the minimum overall project duration.
- e) Network Diagram: A graphic diagram of a network schedule, showing the activities and activity relationships.
- f) Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling, the construction project. Activities included in a construction schedule consume time and resources.
- g) Critical activities are activities on the critical path.
- h) Predecessor activity is an activity that must be completed before a given activity can be started.
- i) Milestone: A key or critical point in time for reference or measurement.
- j) Float or Slack Time: The measure of leeway in activity performance. Accumulative float time is not for the exclusive use or benefit of the Owner or Contractor, but is a project resource available to both parties as needed to meet contract milestones and the completion date.
- k) Total float is herein defined as the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date.
- l) Weather: Adverse weather that is normal for the area must be taken into account in the Contractor's Project Schedule. See 1.d.3, above.
- m) Force Majeure Event: Any event that delays the project but is beyond the control and/or contractual responsibility of either party.
- n) Schedule shall including the following, in addition to Contractor's work.
 - (1) Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by the following:
 - (a) Requirements for phased completion and milestone dates.
 - (b) Work by separate contractors.
 - (c) Work by the Owner.
 - (d) Coordination with existing construction.
 - (e) Limitations of continued occupancies.
 - (f) Uninterruptible services.
 - (g) Partial occupancy prior to Substantial Completion.
- o) Area Separations: Use Activity Codes to identify each major area of construction for each major portion of the Work. For the purposes of this Article, a "major area" is a story of construction, a separate building, or a similar significant construction element.

4. TIME EXTENSION REQUESTS

- a) Refer to General Conditions of the Contract for Construction, Article 4.7 Claims for Additional Time.
- b) Changes or Other Impacts to the Contractor's Work Plan

The Owner will consider and evaluate requests for time extensions due to changes or other events beyond the control of the Contractor on a monthly basis only, with the submission of the Contractor's updated schedule, in conjunction with the monthly application for payment. The Update must include:

 - (1) An activity depicting the event(s) impacting the Contractors work plan shall be added to the CPM schedule, using the actual start date of the impact, along with actually required predecessors and successors.

- (2) After the addition of the impact activity(ies), the Contractor shall work with the TPSC to identify subsequent activities on the critical path, with finish to start relationships that can be realistically adjusted to overlap using good, standard construction practice.
 - (a) If the adjustments above result in the completion date being brought back within the contract time period, no adjustment will be made in the contract time.
 - (b) If the adjustments above still result in a completion date beyond the contract completion date, the delay shall be deemed excusable and the contract completion date shall be extended by the number of days indicated by the analysis.
 - (c) Contractor agrees to continue to utilize its best efforts to make up the time caused by the delays. However the Contractor is not expected to expend costs not contemplated in its contract, in making those efforts.

- c) Questions of compensability of any delays shall be held until the actual completion of the project. If the actual substantial completion date of the project based on excusable delays, excluding weather delays, exceeds the original contract completion date, AND there are no delays that are the responsibility of the contractor to consider, the delays days shall be considered compensable. The actual costs, if any, of the Contractor's time sensitive jobsite supervision and general conditions costs, shall be quantified and a change order issued for these costs.