DIVISION 33 UTILITIES

GENERAL

American University views the campus site as an integral piece of the University mission and Facilities Management (FM) Energy and Engineering takes care to ensure reliability and continuity of needed campus wide services to enable University success in this endeavor. The design of the current campus utility distribution system provides the cost effective needed infrastructure for today's needs and tomorrows anticipated de- mand. The Project Manager and Designer for new utility work will:

- Consult with FM Energy and Engineering on design and selection
- Include site specific Facilities Management Master Plan requirements
- Protect existing utilities during new work
- Minimize impact of outages for new service tie-in

The designer may include project specific underground utility work in Divisions 22, 23 or 26 provided scope and execution meets the intent of Division 33.

DESIGN CONSIDERATIONS

The Designer shall include life cycle cost including installed price, maintenance and operations, and utility use as selection criteria for major campus infrastructure projects. Include payback criteria for option selection by American University. The university may elect to use the analysis in a more general basis to determine thresholds for using specific material types, installation methods, etc. on a project-by-project basis.

The cost of annual maintenance and upkeep requirements shall be included in the selection criteria for utility products on the distribution system. FM will identify such information during the Owners Project Requirements for incorporation into the Basis of Design. See the control and monitoring, integration, compatibility and similar American University requirements in appropriate system division.

American University does not permit overhead utility distribution. This includes permanent utilities for the Main Campus, East Campus and Washington College of Law. Off- campus buildings on a single site to follow District of Columbia requirements.

The Consultant shall provide a written description of how the entire system is designed to operate. This Basis of Design (BOD) narrative also shall describe how project objectives are being met. It shall be provided in a format that can be easily understood by a layperson, the end user.

The narrative identifies items that specifically meet the Owners Project Requirements (OPR) and the most recent Facilities Management (FM) or department System Master Plan(s) and articulate a rationale for any variance. Changes in the BOD that differ substantially from the original conceptual submission shall be updated prior to issued-for-construction (IFC) documents.

For renovations, the systems selected shall be compatible with the existing building's mechanical systems. The integrity of the basic existing building system shall not be compromised, except where agreed to by the Owner. Work shall be designed and sequenced to minimize impact and interruptions in occupied buildings.

For site work, the Consultant shall indicate all existing underground work such as piping, valves, manholes, electric wiring and telephone, whether new connections are being made or not. Profiles of all piping need to be shown to facilitate coordination with the crossing of other utilities.

EXECUTION

The contractor shall protect existing site and restore any damage to the satisfaction of the University. This includes, but is not limited to sidewalks and pavers, existing vegetation and irrigation, roadways, utility poles, drains and covers, and street or informational signs.

Relocate or transplant existing trees, shrubs and other plants per the direction of the project Facilities Management Grounds and the American University Landscape Architects. Design to include specific direction on required protection, moving instructions and replanting directions. Site and tree protection requirements are project specific.

Product selections by the Designer not listed herein will be included in the Basis of Design document for Facilities Management Energy and Engineering to review, comment and concur.

Contractor shall secure work zone and de-mark per contract documents. Include alternative directions, signs, and road/crowd control in work plan. Submit to Project

Manager prior to start of work for internal American University review, concurrence and campus notification.

The contractor is responsible for any damage stemming from the uncoordinated interruption of existing utilities and building services.

STORMWATER PERMITS

The contractor is responsible for obtaining any required stormwater permits to perform underground utility work. Consultant will provide design drawings to be used to obtain the stormwater permit and will include a minimum of one revised set based upon stormwater permit review comments. Refer to Division 1.

COMMON WORK RESULTS FOR UTILITIES – 33 05 00

Refer to Divisions 22, 23 and 26 for common work results.

Inactive utilities are not to be abandoned unless approved by the Owner. When approved by the Owner, abandoned utilities shall be filled with flowable fill and piping capped or plugged with it or compatible material.

New underground utility vaults shall be precast unless approved otherwise by the Owner. Penetrations shall be made watertight using Linkseal or approved equal. Vaults shall be provided with integral sump, two manway openings and stainless steel lad- der(s). Include vaults to scale in utility profile drawings.

Integrity testing and associated fill, flush, passivation or chlorination/ treatment shall be consistent for exterior and interior wet utilities and/or tie-in to campus systems. In no case shall the new work allow untreated hydronic systems to interconnect with campus utilities. See Division 22 Plumbing and Division 23 Mechanical.

Dry utilities shall not be energized until the AU stakeholder (E&E Master Electrician, Office of Technology, or University Safety and Security Services) have confirmed the new work. See Division 26 Electrical.

STORMWATER CONVEYANCE – 33 42 00

Place structures where access by maintenance personnel and equipment will minimize damage to existing site amenities. Consider pedestrian walk paths and repair or service impact duration in final layout.

Pumped systems, not including sump pumps in vaults, require monitoring and alarms to

the Building Automation System as described in Division 25. Heat Trace requirements may also apply.

SUB DRAINAGE – 33 46 00

The Designer should consider and suggest sustainable reuse or avoidance alternatives to discharge volume for American University to receive a DC Water sewer credit.

UTILITIES PRODUCTS AND MANUFACTURERS

Subject to compliance with project requirements, basis-of-design manufacturer(s) (and model number if applicable) shall be:

N/A – Project specific

Subject to compliance with project requirements, acceptable manufacture(s) include, but are not limited to, the following:

N/A – Project specific

Acceptable products include, but are not limited to, the following: Water:

Main - Ductile Iron, C900, Laterals – copper, fused HDPE

Sewer: Main - SDR 26 PVC, Ductile Iron, Laterals – Schedule 40/80 pvc, Ductile Iron

Storm: Double/triple wall HDPE, Sanitite Polypropylene, Gasketted Reinforced Concrete, Ductile Iron

END OF DIVISION 33