# SECTION 01720 - FIELD ENGINEERING

## PART 1 - GENERAL

### 1.1 REQUIREMENTS INCLUDED

A. General: This Section specifies administrative and procedural requirements for field engineering services, including, but not necessarily limited to, the following:

1. Land survey work.
2. Civil engineering services.

### 1.2 RELATED REQUIREMENTS

A. Section 01120 - MULTIPLE CONTRACT SUMMARY

B. Section 01330 - SUBMITTAL PROCEDURES

C. Section 01770 - CLOSEOUT PROCEDURES

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### 1.3 SUBMITTALS

A. Submit name, address and telephone number of Engineer before starting survey work.

B. Upon request, submit documentation verifying accuracy of survey work.

C. All drawings, documentation, and other submittals of the Professional Engineer or Registered Land Surveyor shall bear the appropriate seal of the Professional evidencing licensure in the State where the project is located.

D. Certificates: Submit a certificate signed by the Land Surveyor or Professional Engineer certifying that the location and elevation of improvements comply with the Contract Documents.

E. Project Record Documents: Submit a record of Work performed and record survey data as required under provisions of Section 01330, "Submittal Procedures" and Section 01770, "Contract Closeout Procedures".

### 1.4 QUALITY ASSURANCE

A. Surveyor: Engage a Registered Land Surveyor registered in the State where the project is located to perform land surveying services required.

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

## 3.1 EXAMINATION

A. Verify locations of survey control points prior to starting work. Promptly notify Construction Manager of any discrepancies discovered.

B. The Contractor shall verify all measurements of the building and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of differences between actual dimensions and the measurements indicated on the Drawings; any difference which may be found shall be submitted to the Construction Manager for consideration before proceeding with the Work.

C. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks before proceeding to layout the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.

1. Do not change or relocate benchmarks or control points without prior written approval from Construction Manager. Promptly report to Construction lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.

2. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.

D. Establish and maintain a minimum of one (1) permanent benchmark on the site, referenced to data established by survey control points.

E. Existing Utilities and Equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction.

1. Prior to construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer and water service piping.

## 3.2 PERFORMANCE

A. Working from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.

1. Advise entities engaged in construction activities, of marked lines and levels provided for their use.

2. As construction proceeds, check every major element for line, level and plumb.

B. Surveyor's Log: Maintain a surveyor's log of control and other survey Work. Make this log available for reference.

1. Record deviations from required lines and levels, and advise the Construction Manager when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.

C. Site Improvements: Contractor responsible for site improvements to locate and layout site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means.

D. Building Lines and Levels: General Trades Contractor to maintain controls for structures, building foundations, column grids and locations, floor levels and control lines and levels required for building Work. Verify grades, lines, levels, locations, and dimensions as indicated. Report any errors or inconsistencies in the above and obtain direction from the Construction Manager before commencing Work.

E. Existing Utilities: Contractor encountering a conflict shall furnish information necessary to adjust, move or relocate existing structures, utility poles, lines, services or other appurtenances located in, or affected by construction to local authorities having jurisdiction.

END OF SECTION