

## SECTION 01056 GPS DATA COLLECTION

### PART 1 – GENERAL

#### 1.01 WORK FOR THIS SECTION

- A. The purpose of this work is to establish the position of asset points in the sanitary sewer collection system using the Global Positioning System (GPS); establish the minimum quality of data; and, specify how the data will be delivered. The GPS position will be established for newly identified sanitary sewer system assets and corrected in the event of existing incorrectly mapped assets. GPS position will also be gathered for locations as noted in all other Sections of these Specifications.
- B. GPS capture is required as described below.
1. For all new assets located in the field or assets currently mapped incorrectly, Level 1 survey shall be performed. This includes all coordinates of all points X, Y & Z to the nearest 2 cm. When +/- 2 cm vertical/elevation relative accuracy tolerance is required RTK GPS. The relative horizontal and vertical accuracy shall conform to the 2 cm accuracy standard per NGS Guidelines.
  2. For all other assets not included in Level 1, Level 2 survey shall be performed. This includes all coordinates of all points X, Y & Z to the nearest 3 meters. When +/- 1 meter vertical/elevation relative accuracy tolerance is required RTK GPS. The relative horizontal and vertical accuracy shall conform to the 3 m accuracy standard.
  3. When GPS capture cannot be achieved on manholes, due to canopy or building interferences, the position will be obtained by conventional survey methods tied to the stated reference system or other applicable methods. at the accuracy listed above.

#### 1.02 SUBMITTALS

- A. The Contractor shall provide to the Program Manager in writing the following information prior to the set deadline, or at the indicated frequency, whichever is applicable.

<u>Type of Submittal</u>	<u>Time/Frequency of Submittal</u>
Digital Data related to New Assets	Weekly
Digital Data and revisions related to Existing Assets	Weekly

- \* Other submittals required at frequency as directed by the Program Manager for other assessment activities that include GPS data collection such as Smoke Testing, Dye Testing and additional assessments.

### 1.03 RELATED SECTIONS

- A. The Work of the following Sections apply to the Work of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of the Work.
1. 01510: Sanitary Sewer Main Television & Sonar Inspection
  2. 01530: Manhole Condition Assessment
  3. 01555: Acoustic Sewer Inspections
  4. 01550: Smoke Testing
  5. 01560: Dye Testing
  6. 02956: Sanitary Sewer Cleaning

### 1.04 EXPERIENCED WORKERS

- A. Supervisor of the field crews shall have received proper training in this function and have a minimum of three years' experience in performing such work including safe working practices, etc.
- B. Crew Leaders/Field Supervisors obtaining GPS data shall have received proper training in this function and have a minimum of one year experience in performing such work including safe working practices, etc.
- C. The Contractor shall provide the Program Manager with written documentation indicating all Crew Leaders/Field Supervisors responsible for obtaining GPS data have received the proper training and, where required, the requisite experience.
- D. The Contractor shall provide a detailed account of satisfactory GPS experience during the last three years. Those references shall include contact, agency, telephone number and address.

### 1.05 REFERENCE COORDINATE SYSTEM

- A. The horizontal (X&Y) position of points will be referenced to the Georgia State Plane West NAD-83 coordinate system.

### 1.06 PROVIDED BY County/Program Manager

- A. A map of each area of work will be provided by the Program Manager from the County's existing GIS map. The map will contain, when available, streets with names, aerial imagery, sewer manholes with asset IDs and sewer lines with existing GIS information available.

### 1.07 CALIBRATION

- A. Calibration shall be carried out in accordance with the GPS equipment manufacturer's instructions. Additional calibrations may be required during the course of the working day for large fluctuations of temperature and/or humidity, also in accordance with the manufacturer's instructions and tolerances.

## 1.08 INTERFERENCE

- A. Contractor must obtain a GPS position of sanitary point structures regardless of the overhead conditions or other nearby obstructions interfering with satellite signals, at no additional cost. Coverage conditions will not allow all positions to be obtained by setting directly over the point to be obtained. Contractor may use conventional surveying methods to obtain the position of the point.

## PART 2 – PRODUCTS

(not used)

## PART 3 – EXECUTION

### 3.01 GENERAL

- A. The Contractor shall furnish all labor, tools, materials, software and equipment necessary for capturing the position of all points specified.

### 3.02 PREPARATION

- A. Mission Planning: Contractor shall plan the collection of GPS data, using the appropriate software, to optimize the accuracy and speed of data collection while minimizing the impact and interference on traffic and other activities.

### 3.03 DATA

- A. The inventory database deliverable(s) for newly discovered assets or existing mapped assets with incorrect existing position shall be submitted as an ESRI shapefile or geodatabase with each feature type represented in a different feature class (manholes, mains, etc.). Each attribute for manholes and mains are to be populated as provided in the attribute templates provided below. The data must be in the correct datum capable to be integrated into County's ESRI ArcGIS system which is the County's standard GIS software.

- B. Manholes Attributes Template

ID	Northing	Easting	Top of Cover Elevation	Invert Elevation

- C. For assets with only incorrect coordinate location information but already located within the mapped inventory, only the corrected coordinates will be provided by the Contractor. Necessary data will be logged so that uncorrected positions can be post-

processed and coordinated with DWM GIS division, at the discretion of the County and Program Manager, to obtain more accurate positions.

- D. For other assessment activities, including MACP, Smoke Testing, Dye Testing, Acoustic Inspection, and any other activity described in these Specifications, coordinates will be gathered per the instruction procedures of each respective assessment Specification Section. The GPS data collection for these activities as well as others should adhere to the coordinate system, accuracy level, and all additional procedures outlined in this Specification Section.

### 3.04 DELIVERABLES

- A. Map corrections to the printed map will be illustrated on the printed map with red markings and delivered at the completion of each week. Supplemental sketches will be provided, as necessary, to clearly depict the actual site conditions.
- B. Coordinate and attribute data will be provided in GIS digital format as described in these Specifications on a weekly basis or as directed by the Program Manager.

**END OF SECTION**