

APPENDIX F

SPECIFICATIONS FOR ELECTRONIC SUBMISSION

Within a GIS, there are two types of data, spatial (graphic) and tabular. Graphic data will be extracted from the CADD/GIS file for mains, laterals, and manhole identification codes. Tabular data will be obtained separately in dBase Format (.dbf) for main, manhole and lateral information.

I. FILE REQUIREMENTS FOR AUTOCAD DRAWING EXCHANGE FILE (.DWG preferred or .DXF)

A. GENERAL FILE SPECIFICATIONS

1. A physical survey is required to obtain acceptable accuracy level. A level of accuracy consistent with that of a GPS (Global Positioning Systems) Survey ($\pm 1/2$ feet horizontal and vertical) is preferred. Provide GPS data for the following: lateral stakes, manholes, and cleanouts.
2. A geodetic control method must be provided. All plans must be in Pennsylvania State Plane Coordinate System North Zone, using the North American Datum of 1983 (NAD83) and the North American Vertical Datum of 1988 (NAVD88). Units shall be in US survey feet.
3. All digitally submitted CADD/Shapefiles-(Shapefiles are preferred) files must be spatially correct and the data tables must meet requirements as specified in Section C below.
4. Provide .tif or .pdf format images for all sheets in drawing submission as specified in General Sewer Specifications.

B. SPATIAL DATA LAYERS – The following data layers are to be provided as a CADD file independent of the Engineering firm's rendition of a completed CADD file. This CADD file should **only** include the following layers.

1. As-Built Sanitary Sewer Pipes
 - Defined layer must exist for all and only mains that are being designed for construction. This excludes existing mains.
 - This layer will be named ASB_PIPE.
 - All lines will be drawn in the direction of flow, or from upstream manhole to downstream manhole.
 - Lines must break at each manhole.
 - All lines must have snapped endpoints at the center of each manhole.
2. As-Built Laterals
 - Defined layer must exist for all and only laterals that are being designed for construction. This excludes existing laterals.
 - This layer will be named ASB_LAT.
 - All lines must be extended to/trimmed by the main from which it connects.
 - All lines will be drawn in the direction of flow, or from upstream endpoint to downstream connection to main.

- Every lateral must have a lower-left justified number snapped to the upstream endpoint that corresponds with the database information for that lateral. This number must also exist in the laterals database. This is essential to link the graphics with the database information.

3. As-Built Manholes

- Defined layer must exist for all and only manholes that are being designed for construction. This excludes existing manholes. The Manholes point layer must be a separate layer from the manhole annotation layer.
- This layer will be named ASB_MH.
- Text with lower-left justification will be snapped to end of mains to create a manhole. The justification point will be used in GIS to create a graphic point.
- The text must consist of the manhole-id.
- The manhole id will be established from a prefix and manhole identification code. Prefixes are logical created based on Subdivision name (i.e. Greenleaf Manor). New prefixes must be approved by UAJA to eliminate duplication. (i.e. 'GM-22' may become 'GLM-22' if prefix 'GM' already exists in UAJA system.) If new development occurs in an existing subdivision, then correspondence with UAJA is necessary to ensure unique manhole-id's.

4. Proposed Centerlines

- Defined layer must exist for all proposed street centerlines being designed for construction.
- This layer will be named ASB_CL.

5. Proposed Pavement Edges

- Defined layer must exist for all proposed edges of pavement being designed for construction.
- This layer will be named ASB_PAVMT.

6. Existing Sanitary Sewer Pipes

- Defined layer must exist for all and only mains that are existing.
- This layer will be named EX_PIPE.

7. Existing Laterals

- Defined layer must exist for all and only laterals that are existing.
- This layer will be named EX_LAT.

8. Existing Manholes

- Defined layer must exist for all and only manholes that are existing.
- This layer will be named EX_MH.

9. All Other Existing Spatial Data

- Data layers including existing street centerlines, existing pavement, existing curbs, existing buildings, streams, and existing property lines may and should be included in CADD file. These layers may include corresponding text layers (i.e. road names).

C. TABULAR DATA

Template data tables will be provided in a database. UAJA will supply the correct .dbf, which can be opened and edited within Excel. It is downloadable from our web site (www.uaja.com).

1. As-Built Sanitary Sewer Pipes
 - The following data fields must exist in a table: Upman, Reclength, Diameter, Material, Slope, Upelev, Dnelev, and Sew_type (refer to Table 1).
 - Each data field must contain valid information for each main.
 - Table must be saved in DBASE format.
 - File must be named as <corresponding CADD file>p.dbf (i.e. 94152p.dbf)

2. As-Built Laterals
 - The following data fields must exist in a separate lateral table: Reclength, Wye_sta, End_lat_sta, Wye_info, End_elev, Inv_elev, Polelength, Depth, and Reducer (refer to Table 2).
 - Each data field must contain valid information for each lateral.
 - Table must be saved in DBASE format.
 - File must be named as <corresponding CADD file>l.dbf (i.e. 94152l.dbf)

3. As-Built Manholes
 - The following data fields must exist in the main table: Mh_id, Tc_elev, Cleanout, Ventpipe, Flush, Flapprgate, Dish, and Pumpsta (refer to Table 1).
 - Each data field must contain valid information for each manhole.
 - Table must be saved in DBASE format.
 - File must be named as <corresponding CADD file>m.dbf (i.e. 94152m.dbf)

II. FILE REQUIREMENTS FOR ESRI SHAPEFILE (.SHP)

A. GENERAL FILE SPECIFICATIONS

1. A physical survey is required to obtain acceptable accuracy level. A level of accuracy consistent with that of a GPS (Global Positioning Systems) Survey ($\pm 1/2$ feet horizontal and vertical) is preferred. Must provide any available GPS data.

2. Projection must be in State Plane Coordinate system with the following parameters:
 - Pennsylvania North Zone
 - Datum NAD83
 - Datum NAVD88
 - Units Feet.

B. SPATIAL DATA LAYERS

1. Pipe, lateral, and manhole data layers should be included with each submittal.
2. Each data layer must contain all and only the data for that particular layer.
3. Files must be named as <File><data layer initial>.<extension>. Examples:
 - 94152p.shp, .shx, .dbf

C. TABULAR DATA

1. Corresponding database files (.DBF – shapefiles) must contain the same structure as the template database files.
2. Each data field must contain valid information for each feature.