DIGITAL DATA SUBMISSION STANDARDS

City of Indianapolis - Marion County Digital Data Submission Standards

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Introduction

Please read this complete document carefully prior to entering any data.

The City of Indianapolis/Marion County (hereinafter referred to as City/County) has adopted geographic information system (GIS) technologies to store, manage and maintain geographic/spatially-related data. Included in this data are representations of the City/County's storm and sanitary sewer systems, edges of pavement, sidewalks, parcels, rights-of-way, structures, etc. The majority of the civil engineering community has evolved to the point where the predominating design environment is computer aided design and drafting (CAD). It is the goal of the City/County to use these technologies, GIS and CAD, to expedite the design and review processes within the administration, by developing standards and procedures for integration of digital engineering CAD drawings into the GIS environment maintaining the integrity and positional accuracy of the data. The City/County requires Digital Plan Data and Digital GIS Data to be submitted based on the standards set forth in this document.

Disclaimer: The Indianapolis Mapping and Geographic Infrastructure System (IMAGIS) data is not warranted for accuracy or merchantability. Use of IMAGIS data is appropriate only for preliminary engineering and corridor layout studies.

Definitions and Terms

DPW: The City of Indianapolis Department of Public Works

IMAGIS: Indianapolis Mapping and Geographic Infrastructure System

City Project Manager: The City Lead Project Manager or Senior Project Manager responsible to provide items listed in the Professional Service Agreement to be supplied by City.

GIS Data Support Person: Individual responsible to providing the GIS Data (IMAGIS and database files), and reviewing all digital submittals.

Design Consultant: The firm contracted in the Professional Services Agreement with the DPW for the design of a project.

Records Specialist: Individual assigned to manage the Records Archives.

Design Consultant Project Manager: Project Manager assigned to the project by the consultant under contract to design the project.

Inspection Consultant: The firm contracted in the Professional Services Agreement with DPW for the inspection of a project.

Inspection Consultant Project Manager: Project Manager assigned to the project by the consultant under contract to inspect the construction of the project.

Resident Project Representative (RPR): On-Site representative of the Inspection Consulting Firm who coordinates and reports on construction activities and inspection of those activities.

As-Bid Plans: Plans created and prepared for bidding or quoting for construction of a project.

As-Bid Digital Plan Data: Digital files of the actual plans used for bidding or quoting.

As-Bid Digital GIS Data: Digital Data submitted for use by the Inspection Consultant to prepare Record Plans Digital Submittals. This data shall be prepared per the most recent digital standards.

Record Drawing Plans: Final plans corrected to represent the project as it was built in the field (also referred to as "As-Builts", though that term is technically incorrect for this document).

Record Drawing Digital Plan Data: Digital files of the Record Drawing Plans representing the project as it was built in the field.

Record Drawing Digital GIS Data: Digital Data submitted by the Inspection Consultant per the digital standards representing the project as it was built in the field. This data shall be prepared per the most recent digital standards.

Digital Data Submission Process

STEP 1. Negotiations with Design Consultant identifying Digital Requirements; (City Project Manager)

As part of the negotiations with the Design Consultant for design, the City Project Manager is to provide IMAGIS data. The data can be in several formats and delivered in several ways. In addition, blank databases files shall be provided to the Design Consultant. These items are to be produced by the GIS Data Support Person. Upon the request of the City Project Manager, the GIS Data Support Person shall provide all GIS data and database files needed.

STEP 2. As-Bid Plans; (Design Consultant Project Manager)

Once the project has been bid, two copies of a disc, containing the As-Bid Digital Plan Data and the As-Bid Digital GIS Data, and one set of As-Bid Reproducible Plans are to be submitted from the Design Consultant Manager to the City Project Manager.

STEP 3. Receiving As-Bid Digital Submittals; (City Project Manager)

City Project Manager ensures all As-Bid submittals, including appropriately completed check-off sheets, are received.   The City Project Manager then submits all Digital Data Submittals to the GIS Data Support Person.

STEP 4. Reviewing As-Bid Digital Submittals; (GIS Data Support Person)

The GIS Data Support Person receives Digital Submittals, logs them into the system, and checks for usability and compliance with the Digital Data Submission Standards and the DPW Drafting Standards.

If any of the submittals are found to be "Not Accepted", the submittals with comments will be returned to the City Project Manager to work with the Design Consultant Project Manager to correct and re-submit until the submittal is "Accepted".

Once the submittals are accepted, the GIS Data Support Person will return one copy of the As-Bid Digital Submittal to the City Project Manager. The City Project Manager then gives the copy of the As-Bid Digital Submittal and a set of As-Bid Reproducible Plans to the Inspection Consultant Project Manager or the RPR for their use in developing the Record Drawings Submittals. The second copy of the As-Bid Digital Submittal is given to the Records Specialist to be kept in the City/County archives.

STEP 5. As-Bids to Record Drawings; [Resident Project Representative (RPR)]

Once the project is constructed, the RPR changes all As-Bid Digital Data and Plans to represent the project as constructed. These Digital Submittals and Plans are considered the Record Drawing Digital Data and Plans.

At the completion of the project, the Inspection Consulting Firm must submit two copies of a disc, containing Record Drawing Digital Plan Data and Record Drawing GIS Data, and one set of Record Drawing Reproducible Plans to the City Project Manager. These submittals must be checked and accepted prior to final payment to the Inspection Consultant.

STEP 6. Receiving Record Drawing Digital Submittals; (City Project Manager)

City Project Manager ensures all Record Drawing Submittals, including appropriately completed check-off sheets, are received. The City Project Manager then submits all Digital Data Submittals to the GIS Data Support Person.

STEP 7. Reviewing and Storing Record Drawing Digital Submittals; (GIS Data Support Person)

The GIS Data Support Person receives the Record Drawing Digital Submittal, logs it into the system, and checks for usability and compliance with the Digital Data Submission Standards.

If any of the submittals are found to be "Not Accepted", the submittal with comments will be returned to the City Project Manager to work with the Inspection Consultant Project Manager to correct and re-submit until the submittal is "Accepted".

Once the submittal is accepted, the GIS Data Support Person will submit one copy of the Record Drawing Digital Submittal to the City/County GIS Group for input into the City/County GIS system. The second copy of the Record Drawing Digital Submittal is given to the Records Specialist to be kept in the City/County archives.

Contents of Digital Data Submission

If a project requires a set of As-Built Plans for the project, Digital Plan Data is required for both the As-Bid Digital Data Submittal and the Record Drawing Digital Data Submittal. If a project adds new, alters existing, or removes existing infrastructure, then Digital GIS Data is required for both the As-Bid Digital Data Submittal and the Record Drawing Digital Data Submittal.

For As-Bid Digital Data Submittals two copies of a disk containing the following shall be required:

> **As-Bid Digital Plan Data:** Digital files of the actual plans used for bidding or quoting. The digital data shall be in a .dwg or .dxf file format <u>AND</u> in either Adobe Acrobat (.pdf) or Tagged Image File (.tif) format.

> **As-Bid Digital GIS Data:** Digital Data submitted by the Design Consultant for use by the Inspection Consultant to prepare the Record Drawing Digital Data Submittal. This data shall be prepared per the most recent Digital Data Submission Standards. It consists of an overall site map showing the new, altered, or removed infrastructure and any applicable attribute tables. The digital data shall be in a .dwg or .dxf file format.

For Record Drawing Digital Data Submittals two copies of a disk containing the following shall be required:

> **Record Drawing Digital Plan Data:** Digital files of the Record Drawing Plans representing the project as it was built in the field. The digital data is to be in Adobe Acrobat (.pdf) or Tagged Image File (.tif) format. When adjusting plans to reflect the project as it was constructed in the field, the original design is to be left intact and changes to actual construction information is to be marked up as cross-outs and/or revision clouds. It is also acceptable to adjust the plans by hand so long as any mark-ups are clear and legible. Mark-ups done by hand should be scanned so that the final version is in a pdf or tif format. The Inspection Consultant is to certify the plans as it pertains only to as-built information.

> **Record Drawing Digital GIS Data:** Digital Data submitted by the Inspection Consultant shall be prepared per the most recent Digital Data Submission Standards representing the project as it was built in the field. This data is to be per the most recent digital standards. It consists of an overall site map showing the new, altered, or removed infrastructure and any applicable attribute tables. The digital data shall be in a .dwg or .dxf file format.

Standard transfer media will be accepted. This includes CD-ROM and DVD disks. ***The media shall be properly labeled with a DPW project number, if applicable, the type of drawing (i.e. As-Bid, Record, etc.), the title of the GIS drawing (i.e. drawing name), a City Project Manager or contact name, the unit of measure (feet or meters), name of the firm or organization creating the submittal, and the submittal/creation date of the media.***

Detailed Requirements

The City/County shall provide the Design Consultant with a dxf file(s) of the existing IMAGIS features in the design area, for City/County projects, at the start of the design process. For City/County projects, IMAGIS data is available through the City Project Manager. For private projects, IMAGIS data is available for purchase through the IMAGIS office (Phone: 317-327- 2155 for order information, Admin. Phone: 317-327-2154).

The information in the file(s) shall be displayed in either US feet or metric units (State Plane Coordinates, Indiana East Zone, NAD83) as specified by the contractor/engineer. The data shall be extracted from existing City/County GIS data and provided to a contractor in dxf format. The intent is to provide base data for the engineer's use as appropriate. It is recognized that the extent to which this data is usable shall depend on the project being undertaken and that such data is appropriate only for preliminary engineering and corridor layout studies. It may also be appropriate for engineering associated with the layout and design of a preliminary subdivision plat, particularly since a new subdivision must not only close but must correctly juxtapose with existing adjacent subdivisions and/or parcels. Use of the GIS data is at the engineer's discretion. In addition, the GIS schema (layer and color definitions) shall be provided in a text file format shown in Appendix B.

In addition to the IMAGIS data, the City/County shall provide the Design Consultant with the following:

- A copy of the most recent revision of the Digital Data Submission Standards in Adobe Acrobat (pdf) format.
- A set of blank database files to be used for the entry of attribute information.
- Sample storm sewer drawings and their corresponding populated attribute tables to be used as a reference when preparing Digital GIS Data.
- Other relevant files.

Requests for data and other supporting file(s) should be made through the City Project Manger.

Design Consultant shall acknowledge the IMAGIS copyright by stating "Source data provided by IMAGIS", "Design by _____".

Digital Plan Data Requirements

With each Digital Data Submission the appropriate As-Bid or Record Drawing Digital Plan Data is required. An Adobe Acrobat (pdf) version of the drawing sheets is to be included in the As-Bid and Record Drawing Digital Submittal. A CAD version of the working drawings, including title sheet, details, plan/profile sheets, cross-sections, etc. is to be included in the As-Bid Digital Submittal. The CAD version of the working drawings is not subject to the Digital GIS Data Requirements set forth in the Digital Data Submission Standards. These drawings will be checked for their ability to be opened and read, for their format, and their completeness. Specifically, the following requirements should be met:

- An index of drawings, preferably in a text or Adobe Acrobat (pdf) format.

- The complete original CAD drawing files in dwg or dxf format shall be provided to the City/County. The CAD design drawings shall also be submitted in Adobe Acrobat (PDF) or Tagged Image File (tif) format shall be submitted.

- Only drawings relevant to the project's phase of submittal shall be included. Do not include drawings or documents that would not normally be included in the set of printed drawings, except for base drawing(s) or drawing(s) to be externally referenced.

- Do not use symbols or linetypes, in CAD drawings, from third-party software as some of these will not be visible by City/County GIS when opening the drawings.

Figure 1 shows an example of a Profile/Detail drawing. These and other design sheets are not subject to the requirements of the Digital Data Submission Standards.

Figure 1: **AutoCAD LT window showing an example of a plan/profile drawing. These and other design sheet drawings are not subject to the requirements of the Digital Data Submission Standards.**
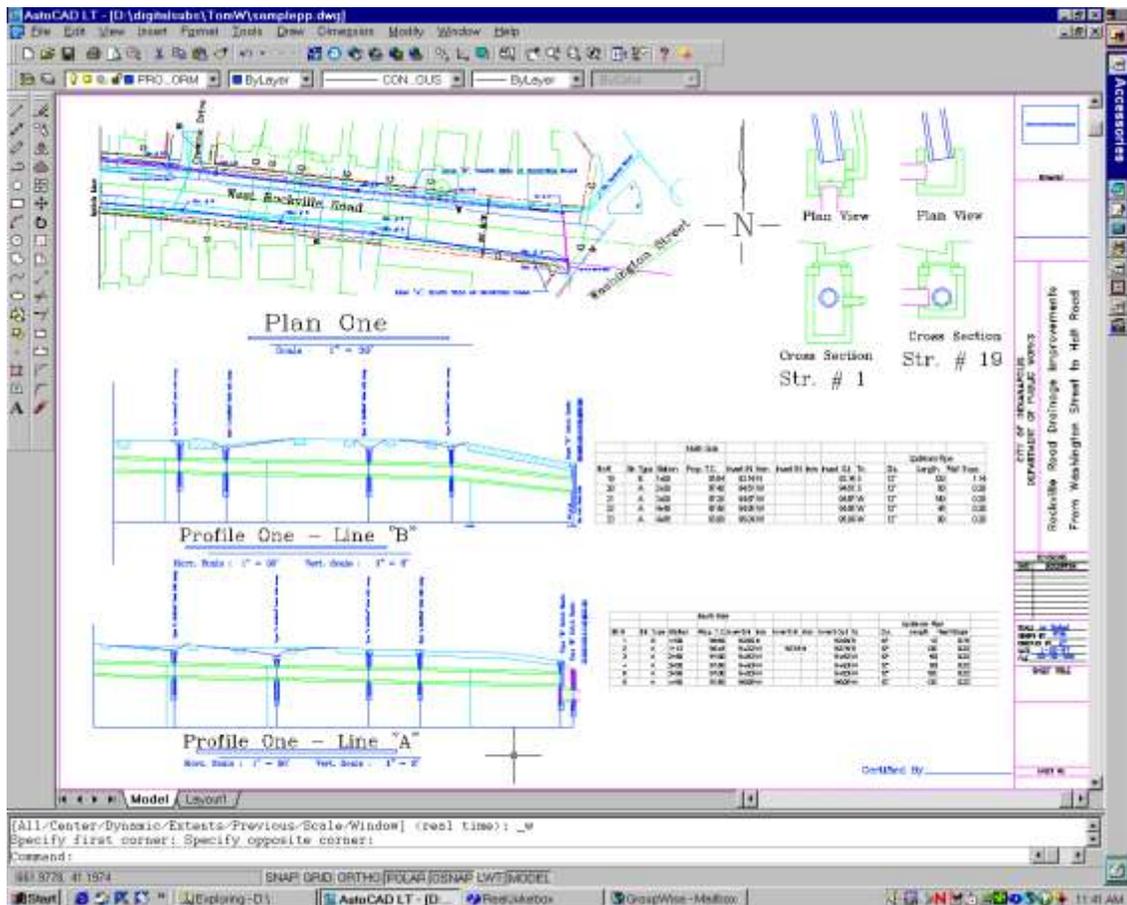
Digital GIS Data Requirements

With each Digital Data Submission the appropriate As-Bid or Record Drawing Digital GIS Data is required. Submittals require an overall plan view of the affected construction area to be submitted in one encompassing drawing file showing the new construction, deletion or alteration of existing infrastructure and its related properties. More specifically if infrastructure impacted during construction is returned to its original condition, these features need not be included as a part of the Digital GIS Data. The City/County only wishes to receive new information in the hopes of keeping the City/County GIS system up-to-date. Therefore, only the changes to infrastructure are required to be shown.

This drawing is subject to the requirements of the Digital GIS Data Requirements, and will be used by the City/County GIS department to input data into the City/County GIS system. These Digital GIS Data

Requirements apply to the process of creating the proposed or altered features within the overall plan drawing. These must be adhered to in order for the data to be efficiently input in the City/County GIS system.

Highlighted below are the requirements for the submission of As-Bid and Record Drawing Digital GIS Data as required for City/County construction projects.

- **A Plan View of the affected construction area shall be submitted in one encompassing drawing file.** It is understood that engineering design is completed in a drawing (digital file) that includes several plan and profile drawing sheets. When the digital file is submitted to the City/County in the same format as used for the design, it cannot logically be imported into the GIS unless the standards for the coordinate system and layer naming convention are used. Therefore, all information for new or altered GIS structures in the work area and all accompanying geodetic control (*Geodetic Control is discussed later in this document.)* shall be copied into a file showing one plan view for the construction area.

- **File format shall be AutoCAD (dwg) or Drawing Interchange File (dxf) format**. .dxf files can be created from all major CAD and GIS packages.

- **The drawing shall be submitted in State Plane coordinates with two points of geodetic control for spatial reference**. Features in drawing files that are stored in drawing units will be translated to real world locations. The geodetic control chosen must correspond to existing features in the City/County GIS. The new structures and features must be geographically registered to the geodetic control. Acceptable control includes section corners and quarter section corners. State Plane coordinates exist for most quarter section corners in Marion County. Control assistance can be obtained from the Marion County Surveyor's Office. It is a requirement that the control used be referenced and shown in the plan drawing. If the point of control is located *within* the project limits it should be symbolically indicated and annotated in the design file. If the nearest control is located well *outside* of the project area then it should be tied to one of the other geodetic control points used, and a reference tie annotated and indicated in the design file. Street "network lines" are present in the IMAGIS data but this information should not be assumed to be the legal platted street centerline. Any land survey information, such as basis of bearings and or any assumptions must be submitted and annotated on the design file. This information is necessary for any post processing required by the City/County GIS staff.

- **Digital GIS Data will follow required graphic specifications including layer names and color number definitions**. Graphic file specifications are shown in Appendix B. All features included in the submitted Digital GIS Data view will follow these specifications in the following manner:

  – Data shall be in Indiana State Plane coordinates, East Zone, 1983. Units: feet.
  – Drawing shall be in AutoCAD (.dwg) or (.dxf) format.
  – The features shall be submitted on the specified layer (Appendix B). CAD systems which use a numbering system for layers instead of names shall also include a conversion chart explaining which layer number corresponds to the appropriate City/County GIS layer name.
  – New or altered infrastructure features should use a different color number than the Original Color Number (Appendix B).
  – Only layers that contain data shall be included in submission.
  – Sewer lines (sanitary and storm) are to be entered as a single line between structures, as opposed to double lines or a continuous polyline running through structures. Each sewer or open channel section between structures must be a separate single-line entity. Avoid using polylines, except where turns in the line do not have structures present, i.e. along force mains, open channels, or instances where flexible pipe is used to follow a curved path.
  – Do not include residential driveway culverts in with the storm data. However, culverts crossing under roadways, railroads, commercial drives, or parking areas should be included as storm lines. If driveway culverts and their associated ditches are new, use a single polyline to represent the flowline of the ditch.

- Sanitary, storm and open channel lines must be digitized in the direction of their physical flow. The beginning point of the line shall be its upstream end and the ending point shall be its downstream end.
- Structures and the endpoints of lines shall be input as points or nodes only. City/County GIS cannot properly import AutoCAD "blocks" or MicroStation "cells".
- The end points of sewer or open channel lines shall be snapped to nodes.
- New or altered infrastructure features, such as manholes, inlets, or runs of sewer pipe are to each have a unique identifier, ID number, shown in the drawing. For existing infrastructure use the City/County established ID for those structures.
- It is required that a single segment (the portion of sewer line between two structures) of sanitary sewer, for example, have the exact same ID number as its upstream structure.
- ID numbers should be placed on the features layer for which they describe.
- The ID number should be visible on the drawing in a standard font and the lower left-hand corner of the text should touch the point or linear graphic feature to which it corresponds, unless legibility requires that the label be moved and accompanied by a leader arrow.
- Do not use AutoCAD "leaders" as these are not visible to GIS. Instead, use a simple line on a separate layer apart from those used by City/County GIS.
- Miscellaneous features and text (except ID numbers) should be placed on separate layers, apart from those used by City/County GIS.

Figure 2: Shows an example of added storm lines and channels that shall be submitted on the layer named STORMLIN. The new lines may be any color number but 23. Existing GIS database lines/channels are also shown on that layer in color 23. Any entity on a layer other than STORMLIN may also be color 23 because entities are translated with layer first, then color. It is also not important that both 23 and 0 may appear to be BLUE, only the number is used.
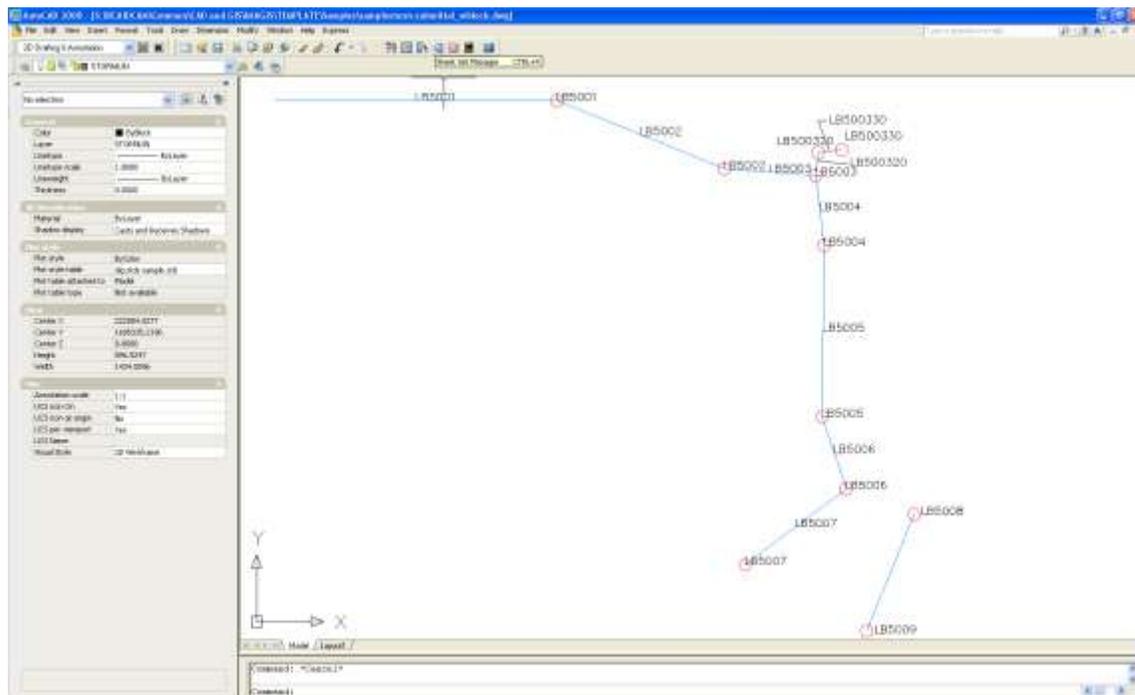
Figure 2 **AutoCAD 2008 window showing Sample_storm.dwg sewer lines.**

Note: Existing sewer facilities found on site/in the field may not be present within the City/County IMAGIS data provided and should be identified and noted as such when submitting the Digital GIS Data drawing by inserting text or a callout on a layer apart from those used by City/County GIS.

Attribute Table Requirements

Many of the City/County features, including sanitary sewers and appurtenances have a significant number of descriptive attributes stored in databases. These attributes are derived from the plans submitted to the City/County. The database file shall be formatted for the entry of the descriptive data for each added feature. The required information will be similar to the information now required in a Structure Data Table.

Each record in the file shall be assigned a unique ID number, which will correspond to text labels in the CAD file showing the referenced feature. The ID numbers must be unique within the entire design file. The unique numbers for each feature shall be listed down the first column, with the corresponding attributes for each feature provided in the corresponding rows. This will allow the City GIS personnel to sort and import these data into the GIS and assign them to the appropriate features imported from the dxf design file. All attributes are required for new or moved features. A new ID number will be used for new features or when relocating existing features. Removed or abandoned features need the field "Servstat" populated with an "O" for out of service. Only the attributes denoting the change in a feature are required for altered existing features. Requested attributes for selected features are shown in Appendix C.

The database files shall be returned in the same file format as was given (i.e. same fields, same layout, same data types). Those files that are populated with data shall be returned with the same fields in the same order regardless of the fields holding any data. Please refer to the appropriate lookup table for 'required' entry codes as noted in the following sections describing the 'Structures Tables'. These must be followed and adhered to for any files to be accepted. **(i.e. All attribute fields with a 'YES' flag under the 'Required' column must be populated with the appropriate data for us to accept the entire drawing.)**

APPENDIX A:
Check Lists

Digital GIS Data
Graphic (Map) Checklist

A single site map drawing representing the entire project area must be submitted and must contain graphic representations of new, altered, or removed infrastructure, according to the following requirements:

☐ Data in Indiana State Plane coordinates, East Zone, 1983. Units: feet.

☐ Drawing format in AutoCAD (.dwg) or a universal DXF. AutoCAD is preferred.

☐ Proposed/as-built data on the same layers as existing data, but in a color different from that layer's original color. If the CAD system uses numbered layers instead of named layers, a conversion table specifying which layer number equals which layer name must be used.

☐ New, altered, or removed infrastructure with a corresponding layer from Appendix B digitized.

☐ Sewer lines digitized in the same direction as their physical flow (from upstream to downstream).

☐ Sewer lines digitized as a single-line, individual entity, for each sewer segment between structures, on layer "SANSEWER" (sanitary) or "STORMLIN" (storm).

☐ Force mains digitized as a continuous polyline between structures/nodes, bends and curves included.

☐ Open channels/ditches digitized as a continuous polyline between structures/nodes, bends and curves included.

☐ Do not include residential driveway culverts in with the storm data. However, culverts crossing under roadways, railroads, commercial drives, or parking areas should be included as storm lines. If driveway culverts and their associated ditches are new, use a single polyline to represent the flowline of the ditch

☐ Sewer line ends snapped together.

☐ Sewer structures/nodes digitized as point features, on layer "SANSTR" (sanitary) or "STORMSTR" (storm).

☐ Sewer structure points snapped to the sewer line endpoints.

☐ Sewer lines and structures labeled with a logical UNITID numbering scheme.

☐ Sewer line UNITID exactly the same as its upstream structure number.

☐ UNITID placed on the same layer as their respective features.

☐ UNITID positioned for legibility and clarity. Structure numbers that are block attributes cannot be read by GIS, so they must be ordinary text.

☐ UNITID numbers shown in drawing match UNITID numbers entered in the attribute data tables.

☐ Lift Stations placed on the "SANSTR" layer as point features. All incoming and outgoing sewer lines must be snapped to this point, even if it requires adding bends to complete the connection.

☐ Levees shall be drawn as the centerline of the levee crown with nodes placed in between each segment in a similar fashion to sewers.

☐ Other entities, such as leaders and notes, placed on a non-GIS layer. AutoCAD dimension leaders are "invisible" to GIS software and cannot be seen. Please use ordinary lines for this purpose.

General Notes:

- If the project includes the resetting or replacement of existing pipes or structures that are currently in IMAGIS, but their locations are not moving horizontally, do not renumber them with new unit ID numbers, but label them with the existing numbers and use those same ID numbers in the attribute tables.

- Do not include residential driveway culverts in the storm data. Culverts crossing under roadways, railroads, commercial drives, or parking areas should be included as storm lines. If the driveway culverts and its associated ditch are new, use a single polyline to represent the flowline of the ditch.

- If existing map data does not agree with features as located by survey, do not edit the existing data. Instead, make a note of major discrepancies on a separate layer. Example: an existing sewer manhole to be used as a

connection point may be ten feet from the location identified in the field. Indicate with a note that the connection is to be made at that particular structure- do not move the existing structure and sewer line.

- If there are features that are specific to the project, but there is no appropriate existing GIS layer to include them on, contact the GIS Support Person for instructions on how to indicate such features.
- For storm systems, a "node" point needs to be placed and numbered in the following instances.
    1. Where there is a change in pipe size, material, or a transition from pipe to open channel and there is no structure at said point.
    2. Also, a "node" needs to be placed at the ends of pipe and channels if there is no structure there.

    These nodes are to be numbered in the same manner as structures (i.e. be given a logical ID). Storm Nodes are to be entered in the "compstnd" attribute table.
- For sanitary sewers, a "node" point needs to be added per similar instructions given for storm sewer structures. Sanitary nodes are to be entered in the "compsnd" attribute table.
- If it is unclear how a line or structure should be drawn please consult with the GIS Data Support Person for clarification prior to delivering your digital data submittal.

Digital GIS Data
Attribute Table Checklist

Blank attribute tables in dBaseIV format are included in the materials which DPW supplies to the consultant. The fields are already formatted and are to be used for providing attribute information that corresponds to the infrastructure drawn in the Digital GIS Data drawing. Instructions for populating the tables are in the Digital Data Submission Standards document (Appendix C). The tables are to be populated per the following requirements:

- ☐ Do not rename any of the attribute tables.
- ☐ Do not alter the original formatting and structure of the attribute tables, or replace them with similar tables.
- ☐ "link" provided tables to an MSAccess database that you create.
- ☐ Attribute tables saved in original dBaseIV format. It is acceptable to populate the tables using Excel and save as dBaseIV format.
- ☐ Correct table being used for each sewer line, structure type, or other feature. Look carefully at the descriptions in the Digital Data Submission Standards.
- ☐ UNITID numbers entered in the attribute data tables match the UNITID numbers shown in drawing.
- ☐ All required fields filled in with appropriate data. Additional information entered in the non-required fields is also helpful.
- ☐ Correct units and precision used for pipe diameter, pipe length, upstream elevation, etc.
- ☐ Correct code from the lookup tables used when required. The lookup tables can be found in Appendix D of the Digital Data Submission Standards. Whenever possible use the code that most accurately describes the item.
- ☐ **Removed or abandoned features need the field "Servstat" populated with an "O" for out of service.**

General Notes:
- The lookup tables are not linked to the attribute tables, so they are used as a reference.
- Adhere to the requirements in the "Field Type" column in the Attribute Table Requirements (Appendix C). This formatting must be adhered to in order for the attribute information to be used properly.
- Excel (.xls) files can be accepted for the attribute tables as long as the formatting is kept the same and none of the field names are changed or deleted, however **the original dBaseIV file format is preferred**. The dBaseIV attribute tables can simply be opened with excel.
- If it is unclear which attribute tables should be used or how to code any of the required fields please consult with the GIS Data Support Person prior to delivering your digital data submission.

APPENDIX B:
Graphic File Specifications

General Linear and Text Specifications

LAYER DESCRIPTION	ORIGINAL COLOR NUMBER	LAYER NAME	FEATURE TYPE
Building Outlines	1	BUILDING	POLYGON
Citizens Gas Utility Easements	2	CGCUESMT	LINESTRING
Citizens Gas Main Gas Lines	3	CGCUMAIN	LINESTRING
Centerlines	4	CNTRLIN	LINESTRING
Geodetic Control	5	CONTROL	POINT
Curbs	35	CURB	LINESTRING
Ditches	6	DITCHES	LINESTRING
DPW Easements	7	DPWESMT	LINESTRING
Utility Easement	8	EASEMENT	LINESTRING
Fences	9	FENCES	LINESTRING
Parcels and ROW (See attached list for linear specifications required for new subdivisions)	10	PARCELS	POLYGON
Indianapolis Water Co. Hydrants	11	IWCHYD	POINT
Indianapolis Water Co. Mains	12	IWCMAIN	LINESTRING
Lift Stations	13	LIFTSTAT	POINT
Misc. manholes (Other than Sanitary Sewer and Storm)	14	MISCMH	POINT
Parking	15	PARKING	LINESTRING
Pavement Edges	16	PAVEMENT	LINESTRING
Poles	17	MISCPOLES	POINT
Railroads	18	RAILROAD	LINESTRING
Rights of Way	19	RGTOFWAY	LINESTRING
Rivers	20	RIVERS	LINESTRING
Sanitary Manholes (Include Sanitary Nodes)	21	SANSTR	POINT
Sanitary Sewer Mains	22	SANSEWER	LINESTRING
Section Corners	29	SECCOR	POINT
Sidewalk	28	SIDEWALK	LINESTRING
Sidewalk Ramps	36	ADARAMPS	POINT
Storm Drainage Lines & Channels	23	STORMLIN	LINESTRING
Storm Structures (Include Storm Manholes and Nodes)	24	STORMSTR	POINT
Streams	25	STREAMS	LINESTRING
Unpaved Roads	26	UNPAVED	LINESTRING
Signal Controller Cabinets	30	SIGCOCAB	POINT
Traffic Signal Heads	31	SIGHEAD	POINT
Signal Mast Arms/Span Guys	32	SIGSPAN	POINT
Signal Access Holes	33	SIGHOLE	POINT
Traffic Signal Poles	34	SIGPOLE	POINT
Walls	27	WALLS	LINESTRING
Levees	27	LEVEES	LINESTRING
Levee Nodes	28	LEVEENODES	POINT

Other added infrastructure including signal related facilities such as loops, conduit, and the detector housing shall not be incorporated into GIS at this time, but should still be placed on individual unique layers for future use.

Subdivision Linear and Text Specifications

LAYER DESCRIPTION	ORIGINAL COLOR NUMBER	LAYER NAME	FEATURE TYPE
Parcels and ROW Centroids	7	PARCELS	POINT
Lines delineating Subdivision and parcels	1	PS	LINESTRING
Lines delineating Subdivision only	2	S	LINESTRING
Lines delineating Subdivision, ROW and Parcels	3	PRS	LINESTRING
Lines delineating Subdivision and ROW	4	RS	LINESTRING
Lines delineating both ROW and Parcel	5	PR	LINESTRING
Lines delineating ROW only	6	R	LINESTRING
Lines delineating Parcel only	7	P	LINESTRING
Subdivision Name Text	19	SUB_NAM	TEXT
Landhooks	8	LHOOK	LINESTRING
Address Number Text	21	ADD_TXT	TEXT
Lot Numbers	19	LOT_NO	TEXT
Block Numbers	14	BLOCK_NO	TEXT
Lot dimension Text	13	LOT_DIM	TEXT
Miscellaneous Lines	9	MISC	LINESTRING
Miscellaneous Text	9	MISC	TEXT

APPENDIX C:
Attribute Table Requirements

A database file shall be provided in a dbf format for each of the following facilities. Columns in the database file shall be labeled with the following Column Names and shall be formatted to accept data in the listed sizes. Descriptions of each column are provided here.

Linking Blank dBaseIV Attribute Tables to MS Access Database
MS Access 97-2003

1. Copy the blank attribute tables to your hard drive.

2. Open Access and begin 'New database'; enter unique name and specify storage location.

3. Pick 'Create' button.

4. Under the 'File' pulldown, select 'Get external data', then 'Link tables'.

5. 'Look in:' Folder where you stored blank dbase attribute tables.

6. Under 'Files of type:' select 'dBaseIV'.

7. Select appropriate file, then click 'Link' button.

8. Click 'Cancel' in "Select index file' window that pops up.

9. You should get message: 'Successfully linked (table name)'

10. Close link window. Database list table will open.

11. Highlight and open desired table; enter data into fields, using the codes in the lookup tables where necessary. The applicable lookup tables are noted in the Digital Data Submission Standards document.

12. When finished, do a normal save. The entered data will be saved in the original linked dBaseIV table. Do not save out as an Access database file (.mdb). What is needed are the original dBaseIV tables with the fields populated.

Note: Do not delete any fields in any of the attribute tables. Do not re-name the attribute tables once stored on your hard drive. Simply add in the appropriate data.

Linking Blank dBaseIV Attribute Tables to MS Access Database
MS Access 2007

1. Copy the blank attribute tables to your hard drive.

2. Open Access and begin 'New Blank Database'; enter unique name and specify storage location.

3. Pick 'Create' button.

4. Click the "External Data" tab.

5. In the "Import" section, click the "More" drop-down tab, then click "dBase File".

6. In pop-up window browse for the attribute table that you have stored on your hard drive for which you wish to input data.

7. Click button to "Link to the data source by creating a linked table".

8. Pick "OK" button.

9. Database table list will open and your linked table will be present.

10. Repeat steps 4-9 to link additional tables.

11. Highlight and open desired table; enter data into fields, using the codes in the lookup tables where necessary. The applicable lookup tables are noted in the Digital Data Submissions Standards document.

12. When finished, do a normal save. The entered data will be saved in the original linked dBase IV table. Do not save out as an Access database file (.mdb). What is needed are the original dBaseIV tables with the fields populated.

Note: **Do not delete any fields in any of the attribute tables. Do not re-name the attribute tables once stored on your hard drive. Simply add in the appropriate data.**

Storm Mains – *Graphical Layer Name "STORMLIN"*
Attribute Table Name – "compstmn.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
MAINCOMP1	YES	CHAR (4)	Type of structure at upstream end of main from *comptype* lookup table
UNITID	YES	CHAR (16)	ID of upstream structure
MAINCOMP2	YES	CHAR (4)	Type of structure at downstream end of main from *comptype* lookup table
UNITID2	YES	CHAR (16)	ID of downstream structure
PARLINENO		CHAR (1)	Distinguish between parallel pipes with the same upstream and downstream structures
STNO		CHAR (6)	Upstream structure address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Upstream structure address street name
CITY		CHAR (20)	Upstream structure address city
STATE		CHAR (2)	Upstream structure address state
ZIP		CHAR (10)	Upstream structure address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the upstream structure ID.
SUBAREA		CHAR (3)	First three characters of Township in which the main is located
LOC		CHAR (4)	Main location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
MAINTYPE		CHAR (6)	Type of main from lookup table *tbl123*
PIPESHP		CHAR (4)	Shape of main from lookup table *tbl048*
PIPEDIAM	YES	NUMBER (6,2)	Diameter of circular pipe in inches. Width of non-circular pipe in inches
PIPEHT	YES*	NUMBER (6,2)	Height of non-circular pipe in inches
PIPELEN	YES	NUMBER (7,2)	Length of pipe in decimal feet
PIPETYPE	YES	CHAR (6)	Pipe material from lookup table *tbl049*
JTTYPE		CHAR (6)	Type of joint from lookup table *tbl042*
JTLEN		NUMBER (6,2)	Length of pipe sections used
DSGNFLOW		NUMBER (8,2)	Design flow of pipe
FFACTOR		NUMBER (7,3)	Design friction factor of pipes
SLP		NUMBER (7,5)	Slope of pipe in percent
UPSDPTH	YES	NUMBER (6,2)	Depth of the pipe. Measured from the top of casting of the upstream structure to the pipes invert in decimal feet (rounded to nearest $1/100^{th}$)
DWNDPTH	YES	NUMBER (6,2)	Depth of the pipe. Measured from the top of casting of the downstream structure to the pipes invert in decimal feet (rounded to nearest $1/100^{th}$)
UPSELEV	YES	NUMBER (7,2)	Upstream invert elevation of pipe in decimal feet
DWNELEV	YES	NUMBER (7,2)	Downstream invert elevation of pipe in decimal feet
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
SURF		CHAR (4)	Predominant surface material over pipe from lookup table *tbl068*
CRIT		CHAR (4)	Criticality rating of the main
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
SPECINST		CHAR (254)	Other comments about the main
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

*Only required if non-circular pipe is used.

Storm Channels – *Graphical Layer Name "STORMLIN"*
Attribute Table Name – "compstch.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
MAINCOMP1	YES	CHAR (4)	Type of structure at upstream end of channel from lookup table *comptype*
UNITID	YES	CHAR (16)	ID of upstream structure
MAINCOMP2	YES	CHAR (4)	Type of structure at downstream end of channel from lookup table *comptype*
UNITID2	YES	CHAR (16)	ID of downstream structure
STNO		CHAR (6)	Upstream structure address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Upstream structure address street name
CITY		CHAR (20)	Upstream structure address city
STATE		CHAR (2)	Upstream structure address state
ZIP		CHAR (10)	Upstream structure address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the upstream structure ID. See delivered data for assistance.
SUBAREA		CHAR (3)	First three characters of Township in which the main is located
LOC		CHAR (4)	Channel location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
CHNLTYPE	YES	CHAR (6)	Type of channel from lookup table *tbl033*
SHAPE	YES	CHAR (6)	Shape of channel from lookup table *tbl048*
CONMATL	YES	CHAR (6)	Construction material of channel from lookup table *tbl037*
BASEWID		NUMBER (6,2)	Base width of channel in decimal feet
CHNWID		NUMBER (6,2)	Channel width in decimal feet
EASEWID		NUMBER (6,2)	Easement width in decimal feet
LFBNKMATL		CHAR (6)	Left bank material from lookup table *tbl037*
RTBNKMATL		CHAR (6)	Right bank material from lookup table *tbl037*
LFBNKHT		NUMBER (6,2)	Left bank height in decimal feet
RTBNKHT		NUMBER (6,2)	Right bank height in decimal feet
LFBNSL		NUMBER (7,5)	Left bank slope in percent
RTBNSL		NUMBER (7,5)	Right bank slope in percent
LENGTH		NUMBER (8,2)	Channel length in decimal feet
SLP		NUMBER (7,5)	Channel slope in percent
UPSDEPTH		NUMBER (6,2)	Depth of the pipe. Measured from the top of casting of the upstream structure to the pipes invert in decimal feet (rounded to nearest 1/100th)
DWNDEPTH		NUMBER (6,2)	Depth of the pipe. Measured from the top of casting of the downstream structure to the pipes invert in decimal feet (rounded to nearest 1/100th)
DSGFLOW		NUMBER (8,2)	Design flow of channel in GPM or MGD
DSGCAP		NUMBER (8,2)	Design capacity of channel
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
VEGE		CHAR (6)	Vegetation type from lookup table *tbl068*
SPECINST		CHAR (254)	Other comments about the channel
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Structures

All structures in the storm drainage system are stored in the STORMSTR GIS layer. They each have different required attribute data dependant on structure type. Each feature in the STORMSTR layer should have a record in one of the following tables.

Storm Manholes – *Graphical Layer Name "STORMSTR"*
Attribute Table Name – "compstmh.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
MHID	YES	CHAR (16)	ID of the manhole
STNO		CHAR (6)	Manhole address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Manhole address street name
CITY		CHAR (20)	Manhole address city
STATE		CHAR (2)	Manhole address state
ZIP		CHAR (10)	Manhole address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the MHID. See delivered data for assistance.
SUBAREA		CHAR (3)	First three characters of Township in which the manhole is located
LOC		CHAR (4)	Manhole location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
MHTYPE	YES	CHAR (6)	Type of manhole from lookup table *tbl040*
MHDPTH	YES	NUMBER (7,2)	Depth of manhole in decimal feet (rounded to nearest 1/100th)
SURF		CHAR (4)	Surface cover material around manhole from lookup table *tbl068*
CVRDIAM	YES	NUMBER (6,2)	Cover diameter of manhole in inches
CVRTYPE	YES	CHAR (4)	Manhole cover type from lookup table *tbl034*
BARLDIAM	YES	NUMBER (6,2)	Barrel diameter in inches
FRAMETYPE	YES	CHAR (4)	Manhole casting material from lookup table *tbl035*
RINGSTYPE	YES	CHAR (4)	Riser ring material from lookup table *tbl038*
CONETYPE	YES	CHAR (4)	Cone material from lookup table *tbl038*
WALLTYPE	YES	CHAR (4)	Wall material from lookup table *tbl038*
BENCHTYPE	YES	CHAR (4)	Bench type from lookup table *tbl038*
CHNLTYPE	YES	CHAR (4)	Channel type from lookup table *tbl038*
BASETYPE	YES	CHAR (4)	Base material from lookup table *tbl038*
STEPSTYPE	YES	CHAR (4)	Type of steps from lookup table *tbl038*
HYDIST		NUMBER (6,2)	Distance to nearest hydrant in decimal feet
METERED	YES	CHAR (1)	Y or N
DROPMH	YES	CHAR (1)	Y or N
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
SPECINST		CHAR (254)	Other comments about the manhole
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Inlets – *Graphical Layer Name "STORMSTR"*
Attribute Table Name – "compstin.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
INLETID	YES	CHAR (16)	ID of the inlet
STNO		CHAR (6)	Inlet address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Inlet address street name
CITY		CHAR (20)	Inlet station address city
STATE		CHAR (2)	Inlet address state
ZIP		CHAR (10)	Inlet address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the INLETID. See delivered data for assistance.
SUBAREA		CHAR (3)	First three characters of Township in which the Inlet is located
LOC		CHAR (4)	Inlet location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
INLETTYPE	YES	CHAR (6)	Inlet type from lookup table *tbl023*
MATL	YES	CHAR (6)	Inlet material from lookup table *tbl037*
GRATETYPE	YES	CHAR (6)	Grate type from lookup table *tbl080*
INLLEN	YES	NUMBER (6,2)	Inlet length in inches
INLWID	YES	NUMBER (6,2)	Inlet width in inches
INLDPTH	YES	NUMBER (6,2)	Inlet depth in decimal feet (rounded to nearest 1/100th)
OUTLDPTH	YES	NUMBER (6,2)	Outlet depth in decimal feet (rounded to nearest 1/100th)
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
MAINCONN		CHAR (4)	Type of main into which inlet eventually discharges from lookup table *comptype*
DWNTYPE1		CHAR (4)	Type of structure at upstream end of main from lookup table *comptype*
DWNID1		CHAR (16)	ID of upstream structure of main
DWNTYPE2		CHAR (4)	Type of structure at downstream from lookup table *comptype*
DWNID2		CHAR (16)	ID of downstream structure of main
DWNSTINLID		CHAR (16)	ID of inlet into which inlet immediately discharges, if any
CONNLEN		NUMBER (6,2)	Length of outlet pipe from inlet in decimal feet
CONNPIPETY		CHAR (6)	Pipe material of outlet pipe from lookup table *tbl049*
CONNSZ		NUMBER (6,2)	Pipe diameter of outlet pipe in inches
UPSINV		NUMBER (6,2)	Invert elevation of outlet pipe in decimal feet at inlet end
DWNINV		NUMBER (6,2)	Invert elevation of outlet pipe in decimal feet at downstream end
DWNCONN		CHAR (4)	Type of connection between the main or channel and the inlet from lookup table *tbl085*
DWNDIS		NUMBER (6,2)	Distance between outlet connection to main or channel and upstream or downstream structure of main or channel
DWNFR		CHAR (2)	U or O indication if distance measured is from upstream or downstream structure
SPECINST		CHAR (254)	Other comments about the inlet
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Nodes – *Graphical Layer Name "STORMSTR"*
Attribute Table Name – "compstnd.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
NODEID	YES	CHAR (16)	ID of the node
STNO		CHAR (6)	Node address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Node address street name
CITY		CHAR (20)	Node address city
STATE		CHAR (2)	Node address state
ZIP		CHAR (10)	Node address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the NODEID. See delivered data for assistance.
SUBAREA		CHAR (3)	First three characters of Township in which the node is located
LOC		CHAR (4)	Node location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
NODETYPE	YES	CHAR (6)	Type of node from lookup table *tbl084*
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
SPECINST		CHAR (254)	Other comments about the node
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Lift Stations – *Graphical Layer Name "LIFTSTAT"*
Attribute Table Name – "compstls.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
LSID	YES	CHAR (16)	Lift station ID
LSNAME	YES	CHAR (30)	Lift station name
STNO		CHAR (6)	Lift station address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Lift station address street name
CITY		CHAR (20)	Lift station address city
STATE		CHAR (2)	Lift station address state
ZIP		CHAR (10)	Lift station address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the LSID. See delivered data for assistance.
SUBAREA		CHAR (3)	First three characters of Township in which the lift station is located
LOC		CHAR (4)	Lift station location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
LSTYPE		CHAR (6)	Lift Station type
SERNO		CHAR (20)	Serial number of lift station
MODELNO		CHAR (20)	Model number of lift station
WETWLVOL		NUMBER (7,2)	Wet well volume in gallons
WETWLELEV		NUMBER (7,2)	Wet well bottom elevation in decimal feet
OVFLELEV		NUMBER (7,2)	Wet well overflow elevation in decimal feet
NOPUMPS		NUMBER (5)	Number of pumps in the lift station
PUMPCAP		NUMBER (9,1)	Pump capacity of station in GPM or MGD
PUDISSIZE		NUMBER (7,2)	Size of the forcemain in inches
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
TDH		NUMBER (9)	TDH of pumps in feet
SPECINST		CHAR (254)	Other comments about the lift station
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Sanitary Sewer Mains – *Graphical Layer Name "SANSEWER"*
Attribute Table Name – "compsmn.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
MAINCOMP1	YES	CHAR (4)	Type of structure at upstream end of main from lookup table *comptype*
UNITID	YES	CHAR (16)	ID of upstream structure
MAINCOMP2	YES	CHAR (4)	Type of downstream structure from lookup table *comptype*
UNITID2	YES	CHAR (16)	ID of downstream structure
PARLINENO		CHAR (1)	Used to distinguish between parallel pipes with the same upstream and downstream structures
STNO		CHAR (6)	Upstream structure address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Upstream structure address street name
CITY		CHAR (20)	Upstream structure address city
STATE		CHAR (2)	Upstream structure address state
ZIP		CHAR (10)	Upstream structure address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the upstream structure ID.
SUBAREA		CHAR (3)	First three characters of Township in which the main is located
LOC		CHAR (4)	Main location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
MAINTYPE		CHAR (6)	Type of main from lookup table *tbl123*
PIPESHP		CHAR (4)	Shape of main from lookup table *tbl048*
PIPEDIAM	YES	NUMBER (6,2)	Diameter of circular pipe in inches. Width of non-circular pipe in inches.
PIPEHT	YES*	NUMBER (6,2)	Height of non-circular pipe in inches
PIPELEN	YES	NUMBER (7,2)	Length of pipe in decimal feet
PIPETYPE	YES	CHAR (6)	Pipe material from lookup table *tbl049*
JTTYPE		CHAR (6)	Type of joint from lookup table *tbl082*
JTLEN		NUMBER (6,2)	Length of pipe sections used
DSGNFLOW		NUMBER (8,2)	Design flow of pipe
FFACTOR		NUMBER (7,3)	Design friction factor of pipes
SLP		NUMBER (7,5)	Slope of pipe in percent
UPSDPTH	YES	NUMBER (6,2)	Depth of the pipe. Measured from the top of casting of the upstream structure to the pipes invert in decimal feet (rounded to nearest 1/100th)
DWNDPTH	YES	NUMBER (6,2)	Depth of the pipe. Measured from the top of casting of the downstream structure to the pipes invert in decimal feet (rounded to nearest 1/100th)
UPSELEV	YES	NUMBER (7,2)	Upstream invert elevation of pipe in decimal feet
DWNELEV	YES	NUMBER (7,2)	Downstream invert elevation in of pipe decimal feet
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
SURF		CHAR (4)	Predominant surface material over pipe
CRIT		CHAR (4)	Criticality rating of the main
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
SPECINST		CHAR (254)	Other comments about the main
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

*Only required if non-circular pipe is used

Sanitary Sewer Manholes and Nodes

Sanitary Sewer Nodes are placed at the intersection of sewer pipes where there is no manhole. They are included in the "SANSTR" GIS layer but have a separate attribute table.

Sanitary Sewer Manholes – *Graphical Layer Name "SANSTR"*
Attribute Table Name – "compsmh.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
MHID	YES	CHAR (16)	ID of the manhole
STNO		CHAR (6)	Manhole address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Manhole address street name
CITY		CHAR (20)	Manhole address city
STATE		CHAR (2)	Manhole address state
ZIP		CHAR (10)	Manhole address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the MHID
SUBAREA		CHAR (3)	First three characters of Township in which the manhole is located
LOC		CHAR (4)	manhole location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
MHTYPE		CHAR (6)	Type of manhole from lookup table *tbl040*
MHDPTH	YES	NUMBER (7,2)	Depth of manhole in decimal feet (rounded to nearest 1/100th)
SURF		CHAR (4)	Surface cover material around manhole from list of codes
CVRDIAM	YES	NUMBER (6,2)	Cover diameter of manhole in inches
CVRTYPE	YES	CHAR (4)	Manhole cover type from lookup table *tbl034*
BARLDIAM	YES	NUMBER (6,2)	Barrel diameter in inches
FRAMETYPE	YES	CHAR (4)	Manhole casting material from lookup table *tbl035*
RINGSTYPE	YES	CHAR (4)	Riser ring material from lookup table *tbl038*
CONETYPE	YES	CHAR (4)	Cone material from lookup table *tbl038*
WALLTYPE	YES	CHAR (4)	Wall material from lookup table *tbl038*
BENCHTYPE	YES	CHAR (4)	Bench type from lookup table *tbl038*
CHNLTYPE	YES	CHAR (4)	Channel type from lookup table *tbl038*
BASETYPE	YES	CHAR (4)	Base material from lookup table *tbl038*
STEPSTYPE	YES	CHAR (4)	Type of steps from lookup table *tbl038*
HYDIST		NUMBER (6,2)	Distance to nearest hydrant in decimal feet
METERED	YES	CHAR (1)	Y or N
DROPMH	YES	CHAR (1)	Y or N
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
SPECINST		CHAR (254)	Other comments about the manhole
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Sanitary Sewer Nodes – *Graphical Layer Name "SANSTR"*
Attribute Table Name – *"compsnd.dbf"*

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
NODEID	YES	CHAR (16)	ID of the node
STNO		CHAR (6)	Node address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Node address street name
CITY		CHAR (20)	Node address city
STATE		CHAR (2)	Node address state
ZIP		CHAR (10)	Node address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the NODEID. See delivered data for assistance.
SUBAREA		CHAR (3)	First three characters of Township in which the node is located
LOC		CHAR (4)	Node location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
NODETYPE	YES	CHAR (6)	Type of node from lookup table *tbl084*
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
SPECINST		CHAR (254)	Other comments about the node
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Sanitary Sewer Lift Stations – *Graphical Layer Name "LIFTSTAT"*
Attribute Table Name – "compsls.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
LSID	YES	CHAR (16)	Lift station ID
LSNAME		CHAR (30)	Lift station name
STNO		CHAR (6)	Lift station address street number
PREDIR		CHAR (3)	E,N,S,W if included in address
STNAME		CHAR (20)	Lift station address street name
CITY		CHAR (20)	Lift station address city
STATE		CHAR (2)	Lift station address state
ZIP		CHAR (10)	Lift station address zip code
ADDRQUAL		CHAR (254)	Additional location information
AREA		CHAR (10)	First two characters of the LSID. Work area for lift station
SUBAREA		CHAR (3)	First three characters of Township in which the lift station is located
LOC		CHAR (4)	Lift station location from lookup table *tbl030*
MAPNO		CHAR (14)	DPW 2 foot contour reference map number
LSTYPE		CHAR (6)	Lift station type
SERNO		CHAR (20)	Serial number of lift station
MODELNO		CHAR (20)	Model number of lift station
WETWLVOL		NUMBER (7,2)	Wet well volume in gallons
WETWLELEV		NUMBER (7,2)	Wet well elevation in decimal feet
OVFLELEV		NUMBER (7,2)	Wet well overflow elevation in decimal feet
NOPUMPS		NUMBER (5)	Number of pumps in the lift station
PUMPCAP		NUMBER (9,1)	Pump capacity of station in GPM of MGD
PUDISSIZE		NUMBER (7,2)	Size of the forcemain in inches
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
ASBLT		CHAR (10)	As-built number
PCPIRNO		CHAR (10)	Project number of PC/PIR project
TDH		NUMBER (9)	TDH of pumps in feet
SPECINST		CHAR (254)	Other comments about the lift station
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Easement Lines – *Graphical Layer Name "DPWESMT"*
Attribute Table Name – "easement.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
EASEMENTID	YES	CHAR (16)	ID of the EASEMENT
NAME		CHAR (4)	Easement Type
ASBLT		CHAR (10)	As-built number
SPECINST		CHAR (254)	Other comments about the Easement

Levee – *Graphical Layer Name "LEVEES"*
Attribute Table Name – "levee.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
MAINCOMP1	YES	CHAR (10)	Type of structure at upstream end of levee segment from *comptype* lookup table (most likely storm node, STND)
UNITID	YES	CHAR (16)	ID of upstream structure
MAINCOMP2	YES	CHAR (10)	Type of structure at downstream end of levee segment from *comptype* lookup table (most likely storm node, STND)
UNITID2	YES	CHAR (16)	ID of downstream structure
LOWGRDELEV	YES	NUMBER (8,2)	Low ground elevation in decimal feet
LEVCROWNUS	YES	NUMBER (8,2)	Levee crown elevation at upstream end of segment in decimal feet
LEVCROWNDS	YES	NUMBER (8,2)	Levee crown elevation at downstream end of segment in decimal feet
US100YR	YES	NUMBER (8,2)	100 year flood elevation at upstream end of segment in decimal feet
DS100YR	YES	NUMBER (6,2)	100 year flood elevation at downstream end of segment in decimal feet
NAME	YES	CHAR (50)	Name of Levee
WATERWAY	YES	CHAR (35)	Name of Waterway
INSTDATE	YES	DATE	Date Installed MM/DD/YYYY (Estimate for As-Bid submission)
DESCRIPTION	YES	CHAR (35)	Brief description of the levee segment

Levee Nodes – *Graphical Layer Name "LEVEENODES"*
Attribute Table Name – "leveend.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
NODEID	YES	CHAR (16)	ID of the node
NODETYPE	YES	CHAR (6)	Type of node from lookup table *tbl084*
WATERWAY	YES	CHAR (35)	Name of Waterway

Traffic Signal Poles – *Graphical Layer Name "SIGPOLE"*
Attribute Table Name – "sigpole.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
DCAM_NO	YES	CHAR(6)	DCAM Intersection Number (leading zeros required)
POLE_NO	YES	CHAR(16)	Identifying Number
SHAPE		CHAR(6)	Pole Shape
MATERIAL		CHAR(6)	Pole Material
FUNCTION		CHAR(6)	Pole Function
ARM_TYPE		CHAR(6)	Arm Type
ARM_LENGTH		NUMBER(6,2)	Arm Length to nearest foot
HEIGHT		NUMBER(6,2)	Pole Height to nearest tenth of foot
FND_TYPE		CHAR(6)	Foundation Type
SPAN_NO		NUMBER(2)	Number of Span Cables Attached to Pole
TETH_NO		NUMBER(2)	Number of Tether Cables Attached to Pole
CAT_NO		NUMBER(2)	Number of Catenary Cables Attached to Pole
DATE_INST		DATE	Date Installed MO/DA/YR
IMAGIS_X		NUMBER(8,2)	
IMAGIS_Y		NUMBER(8,2)	

Traffic Signal Heads – *Graphical Layer Name "SIGHEAD"*
Attribute Table Name – "sighead.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
DCAM_NO	YES	CHAR (6)	DCAM Intersection Number (leading zeros required)
HEAD_NO	YES	CHAR (16)	HEAD Number
POLE_1		CHAR (16)	Identifying Number for First Attached Pole
POLE_2		CHAR (16)	Identifying Number for Second Attached Pole
HEAD_CD		CHAR(15)	Head Code
MOUNT_TYPE		CHAR(6)	Mounting Type
MOUNT_HGHT		NUMBER(6,2)	Mounting Height from Pavement to hundredth Foot
TRAF_DIR		CHAR(1)	Traffic Direction (N, S, E, W)
HEAD_ALGN		CHAR(1)	Head Alignment (H – horizontal or V - vertical)
STROBE		CHAR(1)	Strobe Light Present – Y (Yes) or N (No)
DATE_INST		DATE	Date Installed MO/DA/YR
IMAGIS_X		NUMBER(8,2)	
IMAGIS_Y		NUMBER(8,2)	

Traffic Access Holes – *Graphical Layer Name "SIGHOLE"*
Attribute Table Name – "sighole.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
DCAM_NO	YES	CHAR(6)	DCAM Intersection Number (leading zeros required)
HOLE_NO	YES	CHAR(16)	Identifying Number – Unique for file
TYPE		CHAR(4)	Hole Type
DATE_INST		DATE	Date Installed MO/DA/YR
IMAGIS_X		NUMBER(8,2)	
IMAGIS_Y		NUMBER(8,2)	

Traffic Signal Cabinets – *Graphical Layer Name "SIGCOCAB"*
Attribute Table Name – "sigcocab.dbf"

FIELD NAME	REQUIRED	FIELD TYPE	DESCRIPTION
DCAM_NO	YES	CHAR(6)	DCAM Intersection Number (leading zeros required)
CAB_NO	YES	CHAR(5)	Identifying Number
MOUNT_TYPE		CHAR(6)	Mounting Type
FND_TYPE		CHAR(6)	Foundation Type
MON_TYPE		CHAR(16)	Conflict Monitor Type
TBC_TYPE		CHAR(16)	TBC Type
WIRE		CHAR(1)	Telephone Wire Present – Y (Yes) or N (No)
MODEM_TYPE		CHAR(16)	Modem Type
CLOCK		CHAR(1)	External Clock Present – Y (Yes) or N (No)
AMP		CHAR(1)	Amplifier Present – Y (Yes) or N (No)
SWITCH_NO		NUMBER(2)	Number of Load Switches Present
DIAL_NO		NUMBER(2)	Number of Dials Present
INTERCONN		CHAR(1)	Is cabinet interconnected – Y (Yes) or N (No)
L_CNT_TYPE		NUMBER(2)	Local Controller Type
L_CONT_NO		CHAR(15)	Local Controller Serial Number
M_CNT_TYPE		NUMBER(2)	Master Controller Type
M_CONT_NO		CHAR(15)	Master Controller Serial Number
F_SIZE		CHAR(6)	Filter Size 3 dimensions
DATE_INST		DATE	Date Installed MO/DA/YR

APPENDIX D:
Lookup Tables

Lookup Tables – *Table Name "comptype"*

CODE DESCRIPTION	CODE	CODE DESCRIPTION	CODE
APPURTENANCE	APP	STORM CHANNEL	STCH
BUILDING	BLDG	STORM INLET	STIN
BRIDGE	BR	STORM LIFT STATION	STLS
COMPLEX	CPLX	STORM MANHOLE	STMH
ELECTRIC METER	EMTR	STORM MAIN	STMN
EQUIPMENT	EQ	STORM MISCELLANEOUS	STMS
FACILITY	FAC	STORM METER	STMT
FLUID STORAGE UNIT	FSU	STORM NODE	STND
GAS MAIN	GMN	STORM SERVICE LINE	STSL
GAS MISCELLANEOUS	GMS	STORM VALVE	STV
GAS METER	GMTR	SEWER VALVE	SV
GAS SERVICE LINE	GSL	SIDEWALK	SW
GAS VALVE	GV	TREE	TR
HYDRANT	HY	VEHICLE	VEH
INTERSECTION	IN	WATER BACKFLOW	WBF
INDUSTRIAL WASTE BACKFLOW	IWBF	WELL	WELL
INDUSTRIAL WASTE LIFT STATION	IWLS	WATER MAIN	WMN
INDUSTRIAL WASTE MANHOLE	IWMH	WATER METER	WMTR
INDUSTRIAL WASTE MAIN	IWMN	WATER MISCELLANEOUS	WMS
INDUSTRIAL WASTE MISCELLANEOUS	IWMS	WATER NODE	WND
INDUSTRIAL WASTE NODE	IWND	WATER PUMP	WP
INDUSTRIAL WASTE SERVICE LINE	IWSL	WATER TREATMENT PLANT	WPL
LANDSCAPE	LAND	WATER PUMP STATION	WPS
STREET LIGHT	LGHT	WATER SERVICE LINE	WSL
PARK	PARK	WATER STORAGE UNIT	WSU
PLANT MISCELLANEOUS	PMS	WATER VALVE	WV
POLE	POLE	RAIL CROSSING	XING
RAIL APPURTENANCE	RAPP		
RAIL SEGMENT	RSEG		
RAIL SIGNAL	RSGL		
RAIL SIGN	RSGN		
RAIL STATION	RSTN		
ROADWAY SETUP	RW		
RAIL YARD	RYRD		
SEWER BACKFLOW	SBF		
STREET SEGMENT	SEG		
SIGNAL	SGNL		
STREET SIGN	SIGN		
SEWER LIFT STATION	SLS		
SEWER MANHOLE	SMH		
SEWER MAIN	SMN		
SEWER MISCELLANEOUS	SMS		
SEWER METER	SMTR		
SEWER NODE	SND		
SEWER TREATMENT PLANT	SPL		
SEWER SERVICE LINE	SSL		
STORM BACKFLOW	STBF		

Lookup Tables – *Table Name "tbl023"*

CODE DESCRIPTION	CODE
BEE HIVE	BH
BEEHIVE BASIN	BB
CLEAN OUT	CO
CURB CATCH BASIN	CB
CURB INLET	CI
DIVERSION MANHOLE	DM
GRATE CATCH BASIN	GB
GRATE INLET	GI
MANHOLE	MH
MANHOLE BASIN	MB
OPEN PIPE	OP
OTHER	OTH
OVERFLOW STRUCTURE	OS
SAND BOX	SB
STREET GRATE	SG
SUB INLET(WILLIAMS CREEK ONLY)	SI

Lookup Tables – *Table Name "tbl030"*

CODE DESCRIPTION	CODE
STREET ROW, ACCESS UNKNOWN	A
STREET ROW, HEAVY TRAFFIC	B
STREET ROW, LIGHT TRAFFIC	C
EASEMENT,ADJ TO STREET ROW	D
EASEMENT, ACCESS UNKNOWN	E
EASEMENT, POOR ACCESS	F
EASEMENT, GOOD ACCESS	G
PARKING LOT, ACCESS UNKNOWN	H
PARKING LOT, POOR ACCESS	I
PARKING LOT, GOOD ACCESS	J
ALLEY	K
OTHER	OTH
NO DATA REQUIRED	Y
NO DATA REQUIRED	Z

Lookup Tables – *Table Name "tbl033"*

CODE DESCRIPTION	CODE
ASPHALT CHANNEL	ASP
CONCRETE CHANNEL	CCH
EARTH/SOD CHANNEL	EAR
OTHER	OTH
RIP-RAP	RIP

Lookup Tables – *Table Name "tbl034"*

CODE DESCRIPTION	CODE
MULTI-HOLE	A
BEEHIVE	B
TWO-HOLE	C
BOLTED DOWN	D
CONCEALED PICKHOLES	E
OTHER	OTH
GRATE	G
SOLID	S
TWIST LOCK LID	T
BEEHIVE COVER	BEE
OPEN FACE INLET	OPEN
THREE PIECE CASTING	3PC
ROLL CURB GRATE	ROLL

Lookup Tables – *Table Name "tbl035"*

CODE DESCRIPTION	CODE
MULTI-HOLE	A
FOUR-HOLE	B
TWO-HOLE	C
SIDE SLOTS-SOLID	D
CONCEALED PICKHOLES	E
OTHER	OTH
STEEL	G
ALUMINUM	H
CAST IRON	I
CONCRETE	J

Lookup Tables – *Table Name "tbl037"*

CODE DESCRIPTION	CODE
ALUMINUM	ALUM
BOTTOM	BOT
BRICK	BRK
CAST IRON	CI
CLAY BLOCK	CBK
ENGINEER GRADE	ENG
FIBERGLASS	FIB
HALF	HLF
HIGH INTENSITY	HI
MANHOLE BLOCK	MBK
MIXED MATERIALS	F
OTHER	OTH
PIPE	P
PLASTIC COATED STEEL ROD	PCS
POLYETHYLENE	POL
POURED	POU
POURED CONCRETE	CON
PRECAST CONCRETE	PRC
PRECAST ECCENTRIC CONE	I
PRECAST FLAT TOP	H
STEEL REBAR COATED IN PLASTIC	SR
TOP	T
UNKNOWN	UNK
VINYL	VIN
VIP DIAMOND GRADE	VIP
VITRIFIED CLAY PIPE	VCP
WOOD	0001

Lookup Tables – *Table Name "tbl038"*

CODE DESCRIPTION	CODE
BOTTOM	BOT
BRICK	BRK
CAST IRON	CI
CLAY BLOCK	CBK
FIBERGLASS	FIB
HALF	HLF
MANHOLE BLOCK	MBK
MIXED MATERIALS	F
OTHER	OTH
PIPE	P
PLASTIC COATED STEEL ROD	PCS
POLYETHYLENE	POL
POURED	POU
POURED CONCRETE	CON
PRECAST	M
PRECAST CONCRETE	PRC
PRECAST ECCENTRIC CONE	I
PRECAST FLAT TOP	H
STEEL REBAR COATED IN PLASTIC	SR
TOP	T
UNKNOWN	UNK
VITRIFIED CLAY PIPE	VCP

Lookup Tables – *Table Name "tbl040"*

CODE DESCRIPTION	CODE	CODE DESCRIPTION	CODE
ANGLE POINT	ANG	SANITARY MANHOLE	SMH
BEEHIVE CATCH BASIN	BB	SEDIMENTATION MANHOLE	SDM
BEEHIVE INLET	BS	SPLITTER MANHOLE	SPL
BOLT DOWN LID	BDD	STUB	STB
BRIDGE	BR	SUMMIT MANHOLE	SMT
CATCH BASIN	CB	SUMP	SUM
CATCH BASIN MANHOLE	CBM	TRAP MANHOLE	TRP
CHANGE SHAPE	CSH	TREATMENT PLANT	TP
CHANGE SIZE	CSZ	TWIST LOCK LID	TLL
CLEAN OUT OR FLUSHER	CO	VALVE GATE	VG
CONFLUENCE	CF	WEIR MANHOLE	WER
CURB INLET	CI		
CURB INLET CATCH BASIN	CIB		
DAM	DM		
DEAD END/PLUGGED LINE	DE		
DETENTION POND INLET	DPI		
DETENTION POND OUTLET	DPO		
DIVERGENCE	DG		
DIVERSION MANHOLE	DIV		
DOUBLE LID MANHOLE	DBL		
DROP MANHOLE	DMH		
END WALL/OPEN OUTLET	EW		
FLAP GATE	FG		
FLOW MONITOR	FLM		
FORCE MAIN ENTRY	FME		
GRADE BREAK	GRB		
GRATE INLET	GI		
HAND LAID BLOCK	BLK		
HAND LAID BRICK	BRK		
HEADWALL/OPEN INLET	HW		
HOUSE CONNECTION	HSC		
INLET STRUCTURE(WILLIAMS CREEK	IS		
JUNCTION OR WYE (NO MH)	WYE		
JUNCTION STRUCTURE	JS		
LAMPHOLE	LMP		
LIFT STATION	LFT		
LIFT STATION	LS		
MANHOLE (STORMWATER)	MH		
MANHOLE INLET	MHI		
NODE POINT (STORMWATER)	NO		
OTHER	OTH		
OUTFALL	OF		
OVERFLOW MANHOLE	OVR		
POURED IN PLACE CONCRETE	PIP		
PROJECTING PIPE END	PJ		
PUMP STATION	PMP		
REINFORCED CONCRETE BARREL	RCB		

Lookup Tables – *Table Name "tbl042"*

CODE DESCRIPTION	CODE
STATUE	STATUE
STREET SWEEPING AREA	STSWP

Lookup Tables – *Table Name "tbl048"*

CODE DESCRIPTION	CODE
BOX CULVERT	BC
CIRCULAR	CIRC
CONNECTIVITY LINE	CN
CULVERT PIPE	CP
DETENTION/RETENTION POND	DP
EGG SHAPE	EGG
FORCED MAIN	FM
HORSESHOE SHAPE	HRSH
NATURAL CHANNEL	NCHN
OPEN CHANNEL	OC
OTHER	OTH
OVAL	OVAL
PIPED SYSTEM	PS
RECTANGULAR CHANNEL	RCHN
RECTANGULAR BOX	RECT
SEMI-ELLIPTICAL	SEMI
TRAPEZOIDAL CHANNEL	TCHN
VARIABLE SHAPE	VAR

Lookup Tables – *Table Name "tbl049"*

CODE DESCRIPTION	CODE	CODE DESCRIPTION	CODE
ACRYLONITRILE BUTADIENE STYR.	ABS	WOODEN PIPE	WOD
ASBESTOS CEMENT PIPE	ACP		
ASPHALT CHANNEL	ASP		
BRICK	BRK		
CAST IRON PIPE	CIP		
CIPP OVER ABS PIPE	INA		
CIPP OVER BRICK	INB		
CIPP OVER CONCRETE	INC		
CIPP OVER RCP PIPE	INR		
CIPP OVER TRUSS PIPE	INT		
CIPP OVER VCP	INV		
CONCRETE CHANNEL	CCH		
CORRUGATED METAL PIPE	CMP		
CORRUGATED METAL PIPE - ARCHED	CPA		
CORRUGATED METAL PIPE - STEEL	CSP		
CORRUGATED METAL PIPE ALUMINUM	CAP		
CURED-IN-PLACE PIPE	CPP		
DUCTILE IRON PIPE	DIP		
EARTH/SOD CHANNEL	EAR		
ELLIPTICAL CONCRETE PIPE	ECN		
FIBERGLAS REINFORCED PIPE	FRP		
LINED METAL PIPE	LMP		
METAL CONDUIT / PIPE	MTC		
NO DATA REQUIRED	XXX		
NON-REINFORCED CONCRETE PIPE	NCP		
ORANGEBERG	ORG		
OTHER	OTH		
PLASTIC LINED PIPE	PLP		
POLYETHLINE PIPE	PE		
POLYETHYLENE PIPE	PEP		
POLYVINYLCHLORIDE PIPE	PVC		
POURED IN PLACE CONCRETE	CON		
REINFORCED CONCRETE BOX	RCB		
REINFORCED CONCRETE PIPE	RCP		
REINFORCED PLASTIC MORTAR PIPE	RPM		
RIP-RAP	RIP		
SHOTCRETE OVER BRICK	SHB		
SHOTCRETE OVER CONCRETE	SHC		
SHOTCRETE OVER VCP	SHV		
STEEL PIPE	STL		
TRUSS PIPE	TRS		
UNKNOWN	UNK		
UNREINFORCED CONCRETE	URC		
VARIABLE MATERIAL	VAR		
VITRIFIED CLAY PIPE	VCP		
VITRIFIED SEGMENTED DUCT	VSG		
VITRIFIED SEWER BRICK	VSB		

Lookup Tables – *Table Name "tbl068"*

CODE DESCRIPTION	CODE
ASPHALT STREET	ASPH
BLACKTOP	BLAK
BRICK	BRK
BRUSH	BRUS
CLOSE TO FENCE	FENC
CONCRETE	CONC
CONCRETE STREET	B
DIRT / GRASS	DIRT
GRAVEL	GRAV
HIGHWAY	HWY
HIGHWAY OR RUNWAY	L
MOVABLE BUILDING	MVBD
NO DATA REQUIRED	NONE
OPEN AREA	OPEN
OTHER	OTH
OVERHEAD UTILITIES	OHUT
PIPE ABOVE GROUND	PIPE
RAILROAD	RR
SIDEWALK	WALK
SLOPED SURFACE	SLOP
TREES/SHRUBS	TREE
TURF	TURF
UNMOVABLE BUILDING	UNMV
UNPAVED STREET	C
WATERWAY OR RAILWAY	K

Lookup Tables – *Table Name "tbl080"*

Code Description	Code
BEE-HIVE INLET	BEE
BICYCLE UNSAFE GRATE	BUG
DUAL INLET GRATE	DUAL
FLAT GRATE INLET	FLAT
MULTI-HOLE	A
OPEN FACED	OF
OTHER	OTH
ROLL CURB INLET	ROLL
SOLID	S
THREE-PIECE CASTING	3PC

Lookup Tables – *Table Name "tbl084"*

CODE DESCRIPTION	CODE
BRIDGE	BR
CONFLUENCE	CF
FLAIRED END	FL
FLAP GATE	FG
HEADWALL/OPEN INLET	HW
NODE POINT (STORMWATER)	NO
OTHER	OTH
OUTFALL	OF
PROJECTING PIPE END	PJ
VALVE GATE	VG

Lookup Tables – *Table Name "tbl085"*

CODE DESCRIPTION	CODE
BASIN	B
BOX CULVERT	A
CLEAN OUT	C
CONNECTIVITY LINE	L
CULVERT	V
DETENTION/RETENTION	D
FORCE MAIN	F
INLET	I
MAIN CHANNEL	M
MANHOLE	T
NATURAL FLOW CHANNEL/CREEK	N
OPEN CHANNEL/DITCH	H
OTHER	OTH
OVERFLOW	O
PARALLEL PIPES	P
PIPED SYSTEM	E
STREAM CROSSING	X
SYPHON	S

Lookup Tables – *Table Name "tbl123"*

CODE DESCRIPTION	CODE
BASIN	B
BOX CULVERT	A
CLEAN OUT	C
CONNECTIVITY LINE	L
CULVERT	V
DETENTION/RETENTION	D
FORCE MAIN	F
INLET	I
INTERCEPTOR	INT
LOW PRESSURE SYSTEM	LP
MAIN CHANNEL	M
MANHOLE	T
NATURAL FLOW CHANNEL/CREEK	N
OPEN CHANNEL/DITCH	H
OTHER	OTH
OVERFLOW	O
PARALLEL PIPES	P
PIPED SYSTEM	E
STREAM CROSSING	X
SYPHON	S

Revision History

- Revisions 7/6/98: Changed the names of storm and sanitary tables due to an upgrade of Hansen IMS. Changed attribute table format from xls to dbf to keep field structures.
- Revisions 3/15/99: Added in labeling requirements for the data exchange media. Added in table information for sewer layers. Identified fields that must be populated with data.
- Revisions 3/29/99: Added in required graphic specification for line input direction on page 2 within the first bullet.
- Revisions 8/10/99: Added in missing table information for sewer layers that was left off from earlier revision to match the .dbfs. Changed the UNITID names where appropriate to match the .dbf headings.
- Revisions 3/14/00: Changed all SUBAREA Field Types to read CHAR (3) instead of CHAR (4) and added appropriate wording to the description field. Changed the lookup table 038.dbf to 035.dbf in the description for FRAMETYPE on Storm and Sanitary Manhole sections.
- Revisions 6/16/00: Added in new sub-bullet under 'Required graphic specifications…' bullet on page 2 describing how line segments should be input so that each node/structure constitutes an end of that line segment.
- Revisions 8/16/00: Removed SEGID Field from the Compstmn.dbf, the Compstch.dbf and the Compsmn.dbf tables. These descriptions did not match the actual tables and therefore are not needed. Added the IMS lookup table tbl084 to the NODETYPE field description for the Storm Node (Compstnd.dbf) section.
- Revisions 12/22/00: Added missing lookup table tbl085.dbf for DWNCONN field under the Storm Inlet (Compstin.dbf) section to the IMS Lookup Tables and amended the description field accordingly on page 10.
- Revisions 02/08/01: Added clarification information on page 3 under the second point concerning attribute information submitted in a database file. The second paragraph was added to state that we need all database files returned with the digital submission.
- Revisions 02/19/01: Added more language to the same point as above and added the sub-title/instruction line on first page.
- Revisions 08/21/01: Added example photos on pages 2 & 3 and changed text to match the layer & line types as shown in the picture. Added City name to Title.
- Revisions 08/24/01: Added last bullet on page 4 describing existing sewer features not found in GIS data.
- Revisions 09/24/01: Changed Figure 1 from an ArcView snapshot to an AutoCAD snapshot of the same data and area. Modified a few words in the description to match the new snapshot.
- Revisions 04/07/08: Changed Contractor to Design consultant (contractor) where needed on page 4 and added information statement to AREA field in dbf table lists for help finding id numbers. Added 'overall project' to the section directly above Figure 2 and added information to the title of Figure 2.
- Revisions 05/12/08: Added some clarifying language to the top paragraph of page 3 and Figure 2.
- Revisions 12/21/10: Creation of version 2.1.1