BUILDING A PIPELINE DESIGN SUPPORT SYSTEM WITH GIS

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IEA

INTEGRATED PIPELINE

trwd

dallas water utilities

city of dallas

OUR CHALLENGES

- Integrate geophysical survey data and associated interpretations into Tarrant Regional Water District's (TRWD) pipeline data model, a part of their immense enterprise GIS system
- Process vast amounts of geophysical survey data (over 140,000 features) and provide the data in a usable format to design teams for their decision making process

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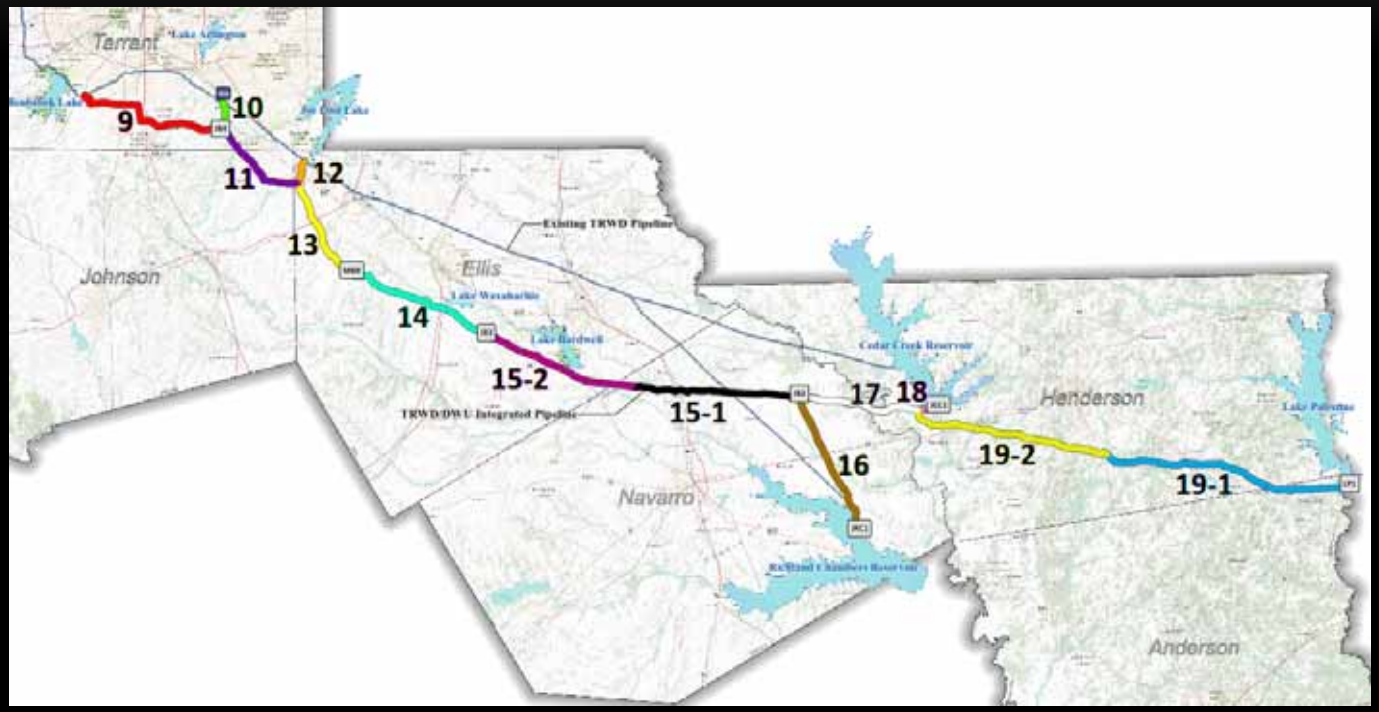
IPL PROJECT MAP



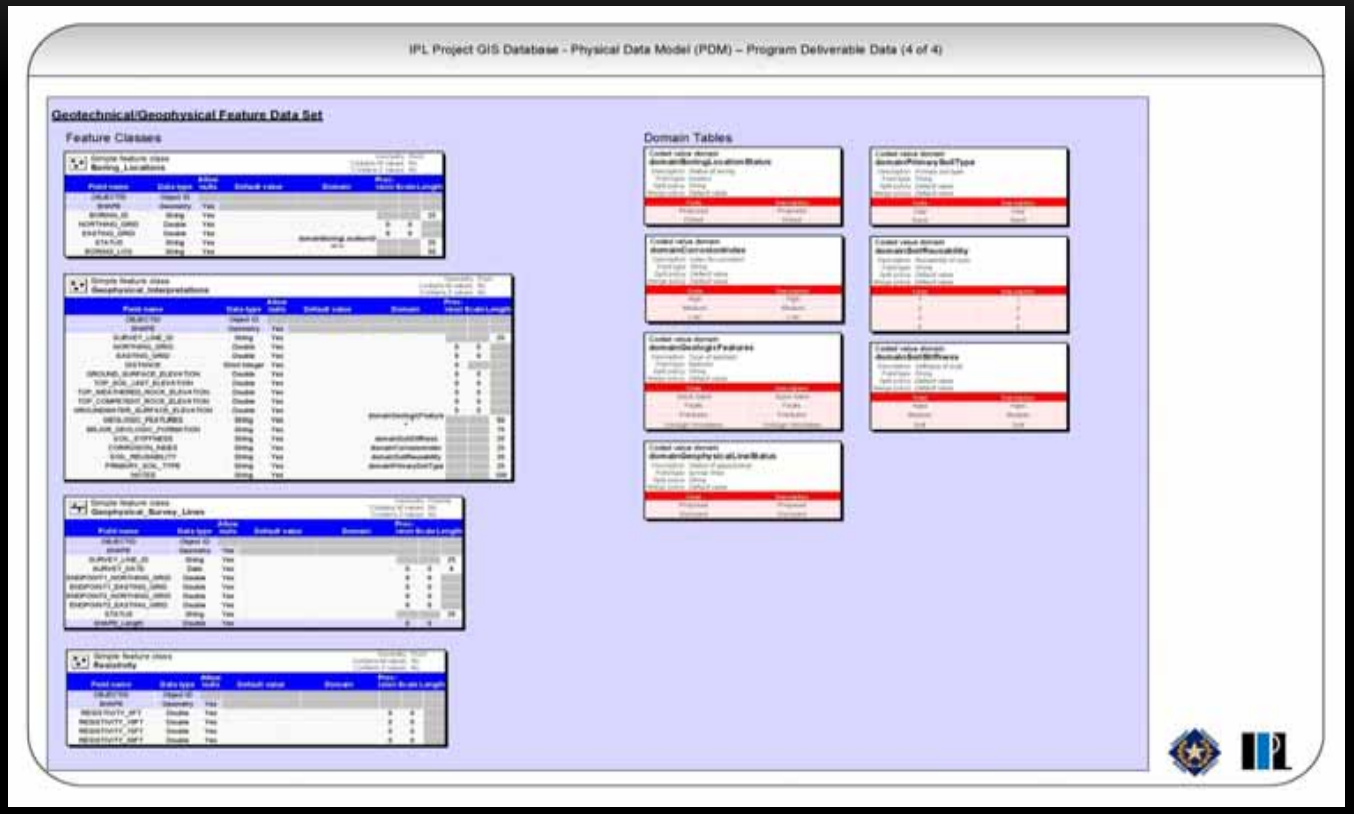
GEOPHYSICAL/GEOTECHNICAL DATA

- Data Collected
  - Electrical resistivity tomography (ERT) survey lines
  - Induced polarization survey lines
  - Borings

PIPELINE DATA MODEL

- Geotechnical Dataset Feature Classes
  - Borings
  - Geophysical Interpretations
  - Geophysical Survey Lines
  - Resistivity

PIPELINE DATA MODEL

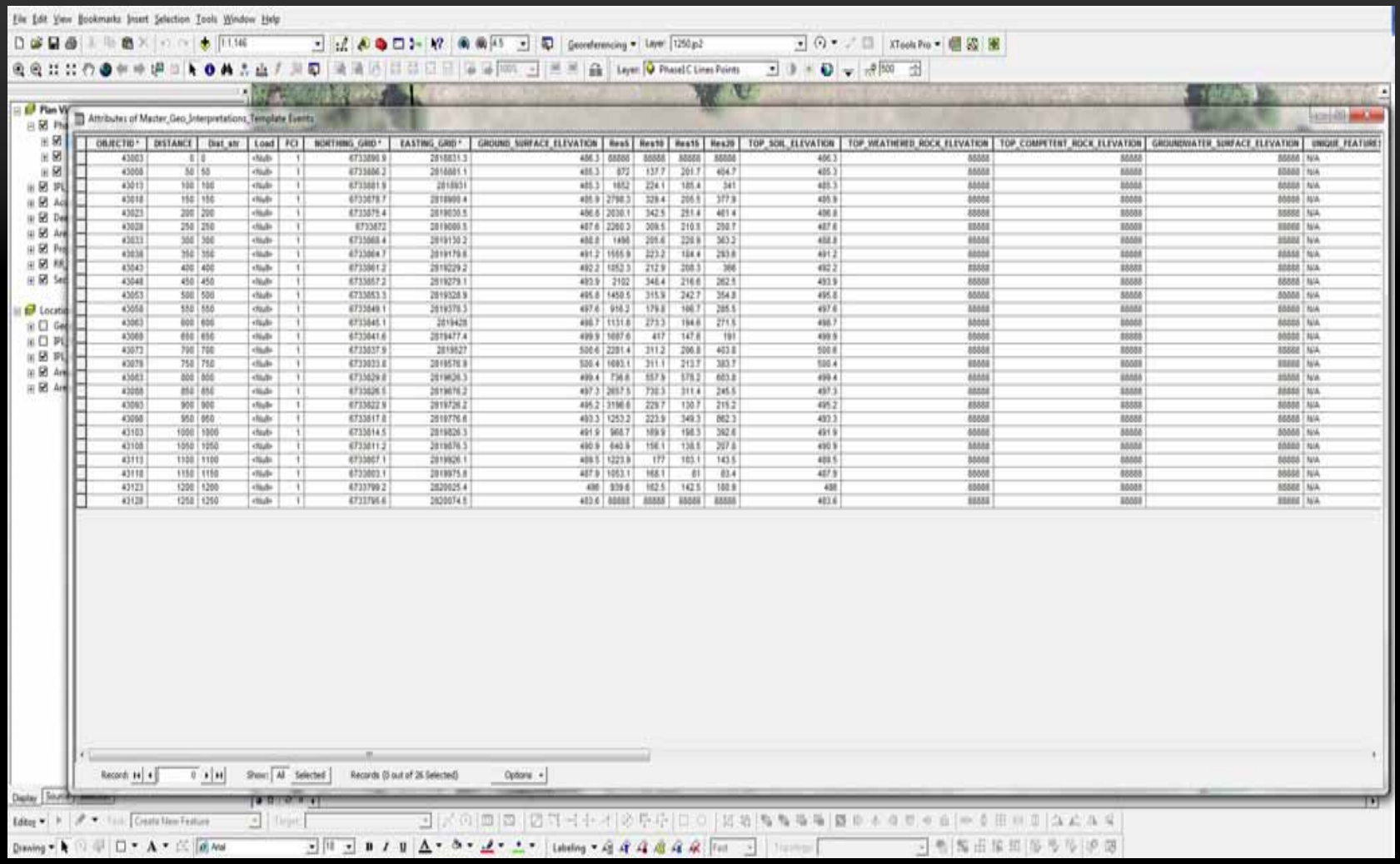


PROCESS

- Geophysical survey data is processed, checked, then loaded into a working geodatabase
- Survey data is displayed graphically on plan and profile sheets
  - ERT or IP profile image and values from the resistivity feature class and geophysical interpretations feature class
- Checked and interpreted by geophysical scientist/geologist
- Geophysical scientist/geologist draws interpreted lines on the ERT profile image

PROCESSED CONTINUED...

- Interpreted profiles are georeferenced, then digitized
- Elevation values are extracted and loaded into the working geodatabase
- Final plan and profile sheet checked and the data is loaded into a replica geodatabase
- Geodatabase feature classes checked and synchronized with the master geodatabase residing in TRWD's enterprise GIS system



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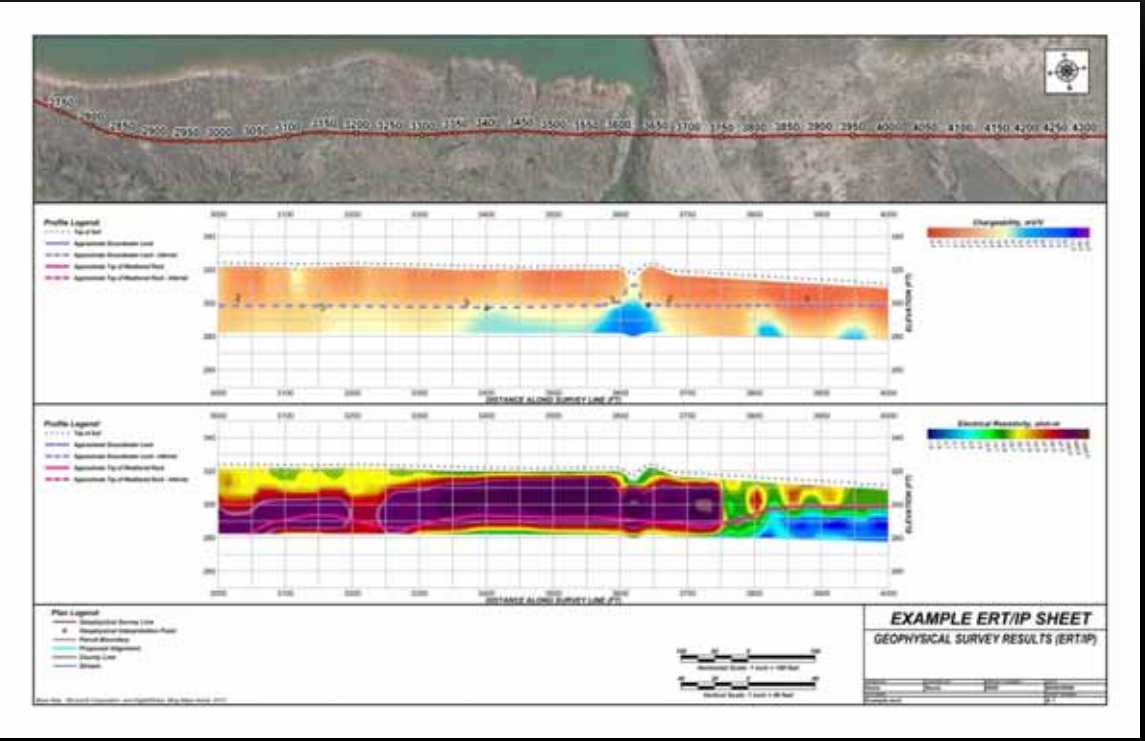
EXAMPLE PLAN AND PROFILE SHEET



BENEFITS

- By using GIS, it is a powerful alternative to the traditional bound report format because it enables the sharing of the geophysical data to support multiple users and their decision making process.

- Utilizing a dynamic system to support the long term operations and maintenance of the pipeline

QUESTIONS?

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