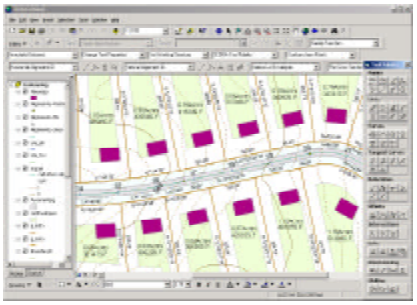
CEDRA-AVland™

Road and Site Design Applications

Using ESRI's ArcGIS™ Software

CEDRA 2017™

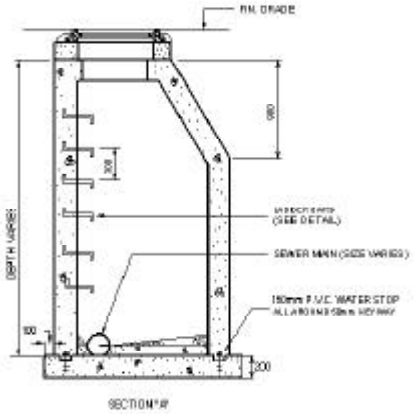


Field Survey Data

- Extract GIS database information
- Customized point/line symbology
- Radial and/or cross sectional surveying
- Produce fully automated topographic maps
- Update the GIS database information

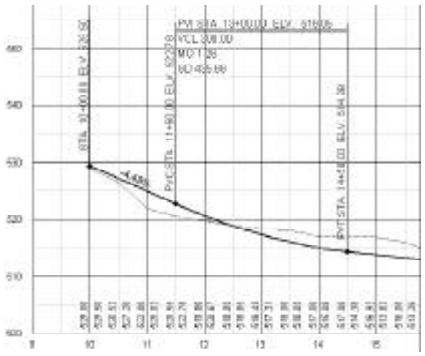
Plan Preparation Drafting

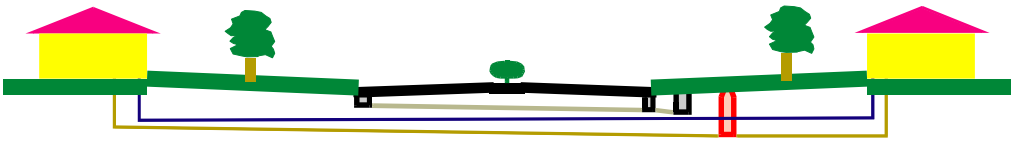
- Cover sheets
- Typical section sheets
- Plan & Profile sheets
- General notes
- Details
- Etc.



Design Functionality

- Access survey information
- Extract OG sections
- Transcribe deed information
- Interactive alignment design
- Draft typical street sections
- Generate pavement ribbons
- Generate alignment reports
- Compute earthwork
- Account for Shrinkage, swelling and muck
- Automatic subdivision of land blocks as per zoning regulations
- Create house envelopes
- Mass annotation of lot metes, bounds, areas, etc.
- Stationing annotation
- Annotated plan and profile drawings
- Interface with 3D Analyst
- Interface with CEDRA-AVsand and CEDRA-AVwater
- Generate OG contours
- Extract OG profiles
- Extensive COGO functions
- Interactive profile design
- Introduce design criteria
- Generate ROW lines
- Plot multi-surface sections
- Generate earthwork tables





Contact **The CEDRA Corporation** on how to order:
CEDRA-AVcad™ for general feature editing, annotation and CAD tools, **CEDRA-AVcogo™** for comprehensive COGO tools, **CEDRA-AVland™** for roadway and site engineering, **CEDRA-AVparcel™** for parcel mapping and maintenance, **CEDRA-AVsand™** for sanitary, storm and combined sewer modeling, **CEDRA-AVwater™** for water distribution and quality modeling, **CEDRA-DataEditor™** for data entry and maintenance, **CEDRA-DxfExport™** for DXF file exporting.

The CEDRA Corporation™

Total CADD for Engineers ™
Bridging Engineering and GIS ™

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PUBLIC WORKS ENGINEERING USING CEDRA-AVland™ for ArcGIS®

ArcGIS™ has introduced a new technology, that of GeoDatabases. Two of the prime impacts of this technology are (a) the provision of an efficient environment for multi-user and multi-departmental use, and (b) the ability to store multiple data sources in a single database. The former is particularly applicable to Public Works agencies, and consulting engineers, while the latter facilitates the management and maintenance of spatial as well as tabular data.

In building a GIS database, a City should consider that the GIS be used not only for planning and general information analysis, but also for in-house engineering design applications. Utilizing this approach, a City can create a comprehensive and dynamic database which can be used to manage and meet the ever evolving needs of its infrastructure (streets, sewers, water, and other components). Such a database also provides Public Works engineers the ability to access right-of-way, buildings, contours, water lines, wastewater and storm water sewer lines and many other layers of data from a central repository relevant to their work.

To facilitate the map preparation process, CEDRA-AVland allows for the creation of customized survey point codes and line symbology. Specialized import commands can be used to produce fully annotated topographic maps. Existing feature descriptions (topo notes) can be annotated along, and offset, from the survey base line, thus leaving the plan sheet area within the confines of a new design for construction information.

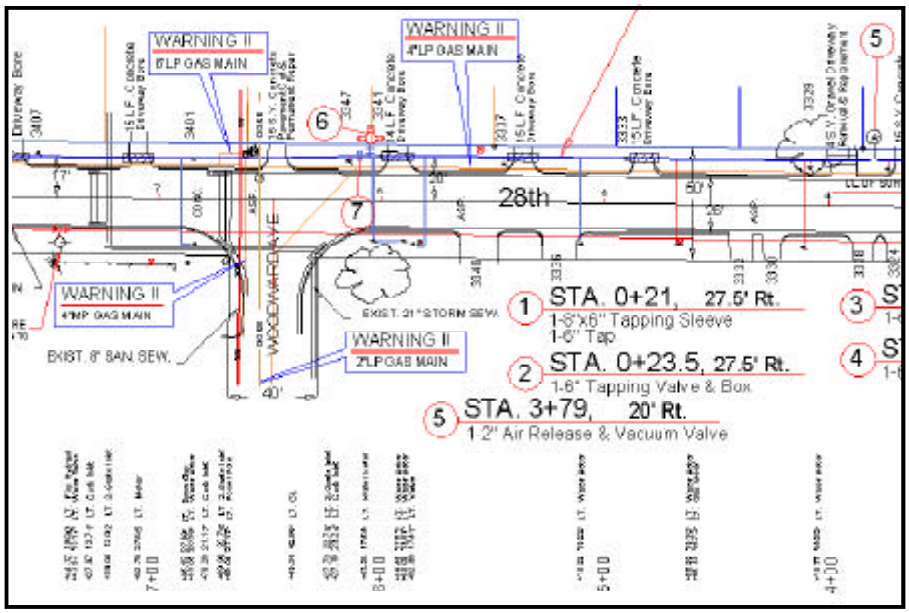
Employing the geodatabase technology, CEDRA-AVland creates a Personal GeoDatabase (PGD) to store the horizontal and vertical alignments of a street, its cross-sections, profiles, and all associated annotation. The PGD will also contain elevation data (Z's), which when used with the 3D Analyst™, allows for the creation of 3D images.

Working entirely within ArcMap™, an engineer is able to interactively transcribe deeds, carry out general coordinate geometry (COGO), design roadway alignments, extract original ground cross sections and profiles along any alignment, design new roadway profiles, introduce typical roadway sections (templates), generate individual or multi-surface (existing and proposed conditions) roadway cross sections, develop existing and proposed roadway contours and merge them to create a new ground model, and compute earthwork quantities, all within ArcGIS.

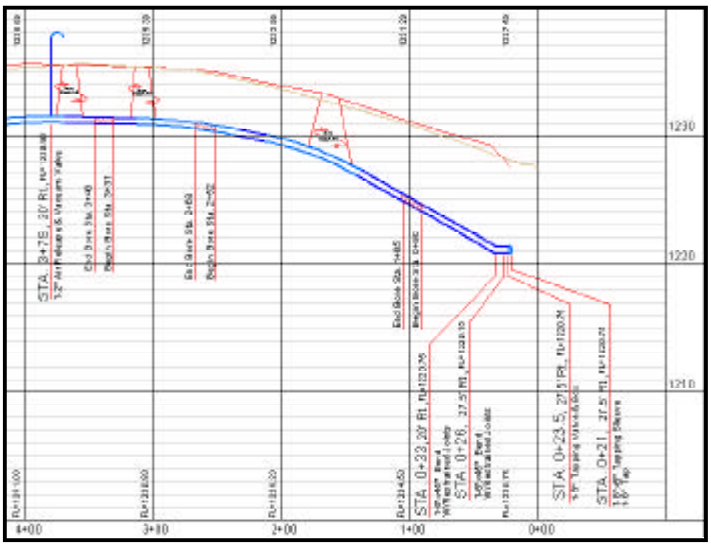
Based on the principle that drafting should be a by-product of the design process, a major portion of the drafting of the new roadway design is done by the engineer during the design phase within ArcMap. In addition to the automation of the drafting of design information, CEDRA-AVland provides the ability to carry out general drafting operations, and generate drafted plan and profile sheets, as well as detail sheets.

CEDRA-AVland provides engineers who are involved in land development projects (subdivision design) with the ability to (a) introduce local zoning geometric regulations, and subdivide, in mass, blocks of land into lots in accord with said zoning regulations, (b) introduce house envelopes, and (c) mass annotate individual, or all lots with their metes and bounds, lot numbers and areas.

Utilizing ArcMap and the GeoDatabase technology, in conjunction with CEDRA-AVland, a Civil Engineer now has available a true GIS based design tool.



Plan view of new water main design
(Courtesy of the City of Oklahoma City
Department of Water and Wastewater Utilities - Engineering Division)



Profile of new water main design
(Courtesy of the City of Oklahoma City
Department of Water and Wastewater Utilities - Engineering Division)