Modern Topographic Survey Methods

HDS BC Hydro Case Studies

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Agenda

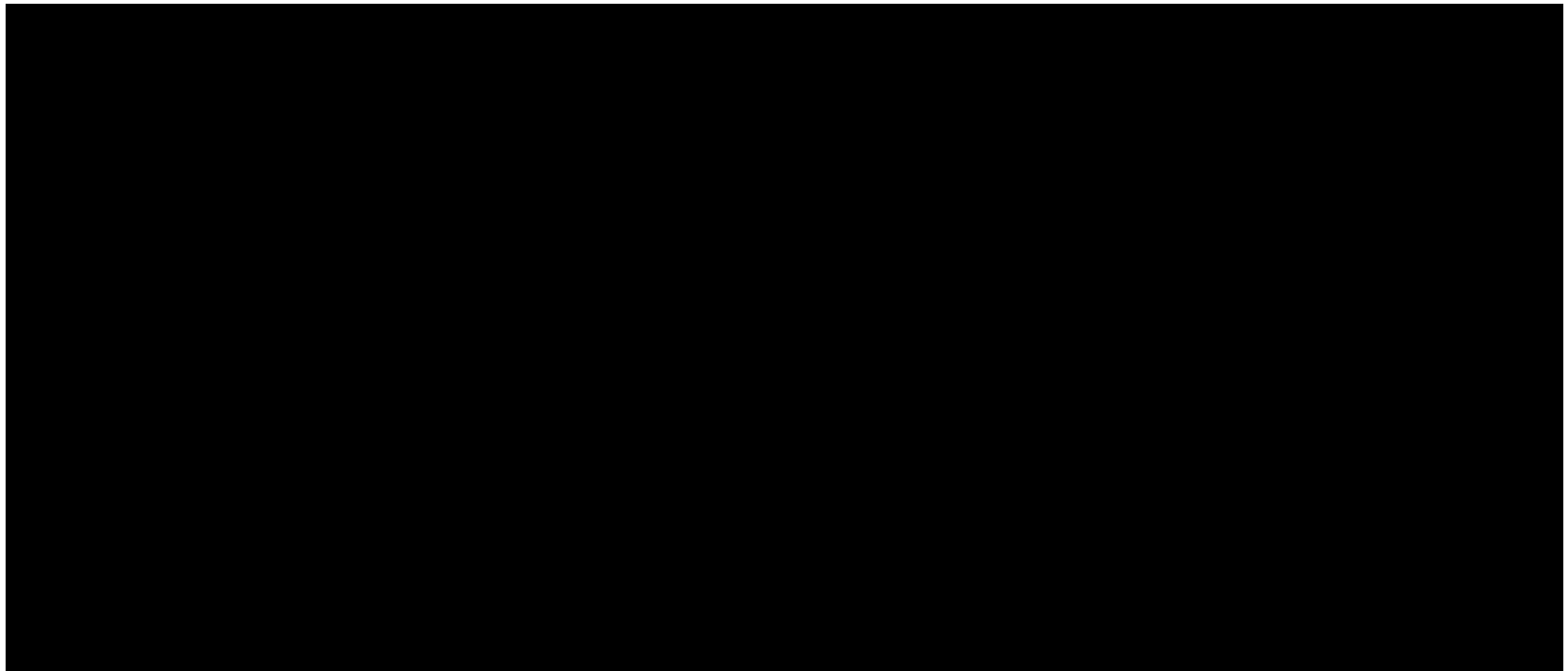
1. High-Definition Survey Overview – SLAM	Chris	5 min
2. BC Hydro Survey Project Workflow	Nicole	5 min
3. Summary	Chris	3 min

HD Topographic Survey Workflow

- Capture everything on site from the scanner perspective
- Process scans together to create a dense point cloud
- Extract standard site plans or create other deliverables

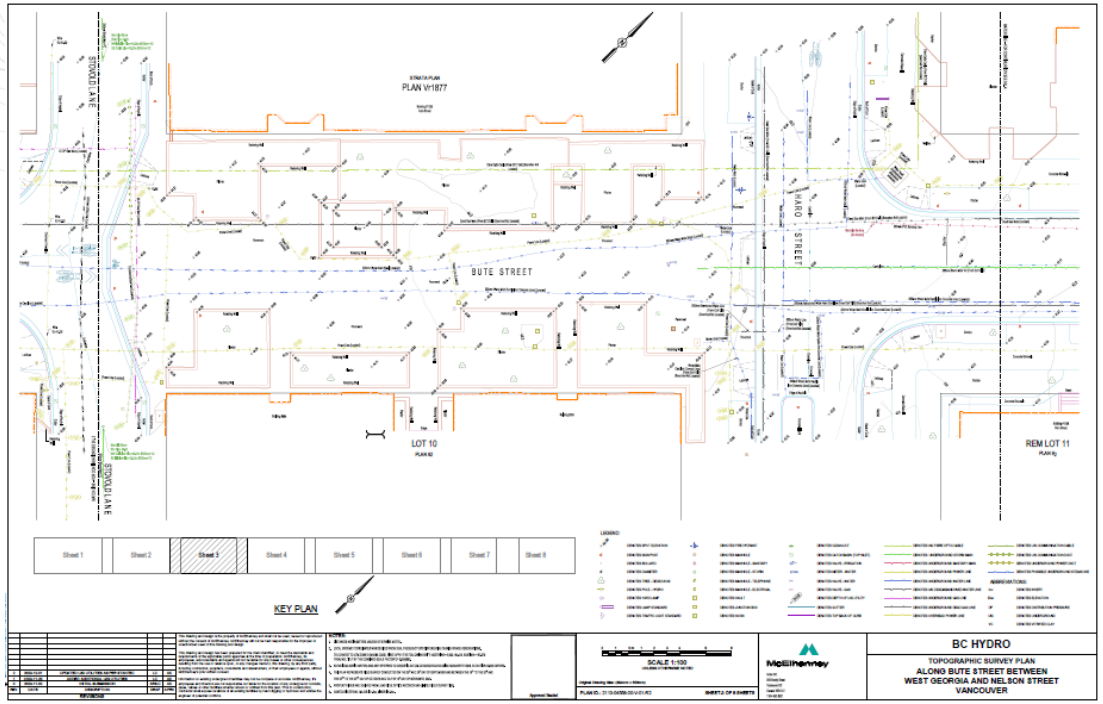
Capture Technology

- Tools used: terrestrial scanners, RPAS, SLAM scanners
- NavVis VLX3 (LiDAR based), Looq (photogrammetry) – collect data as you walk through site
- Adjust to control set with RTK or total station

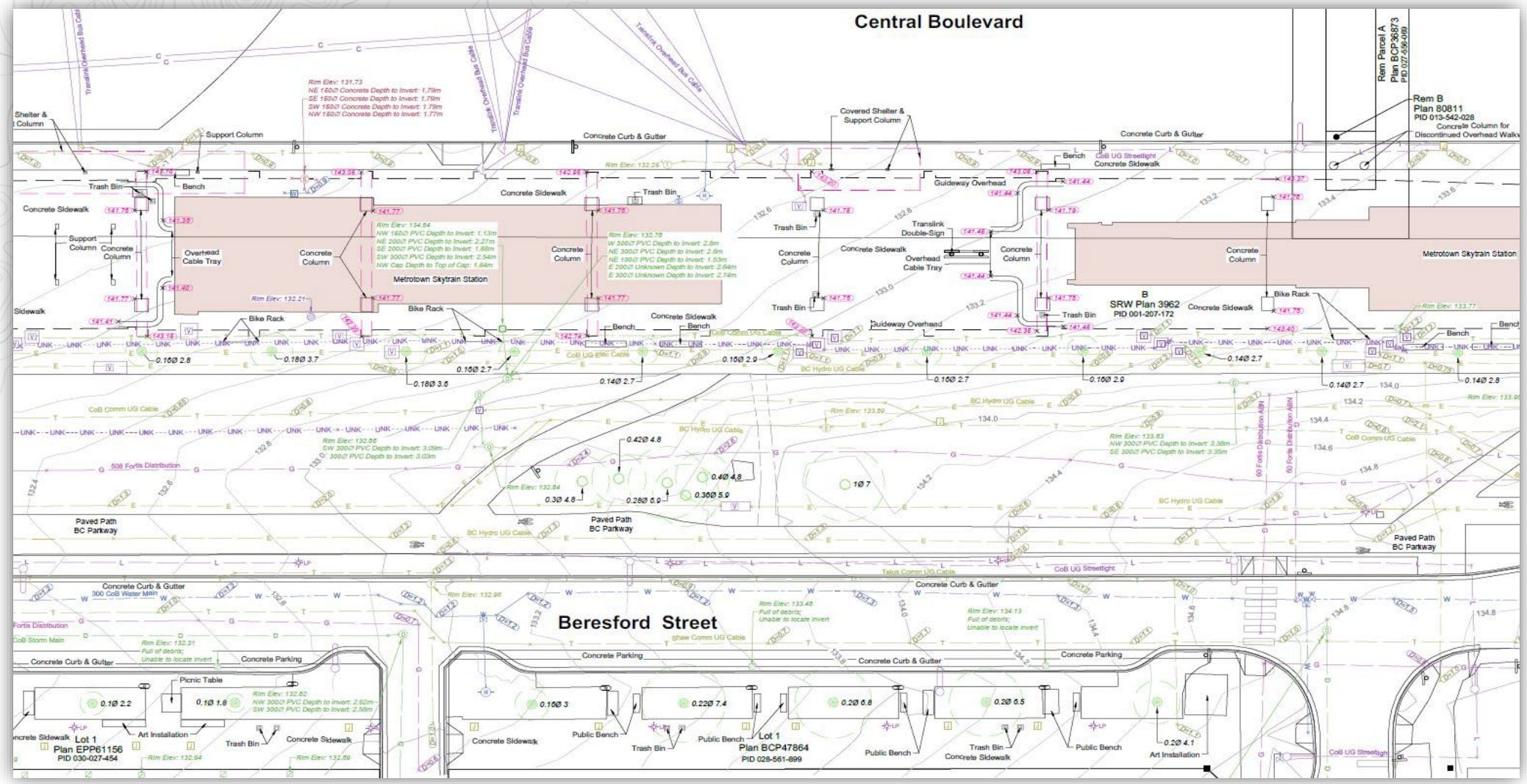


Extraction

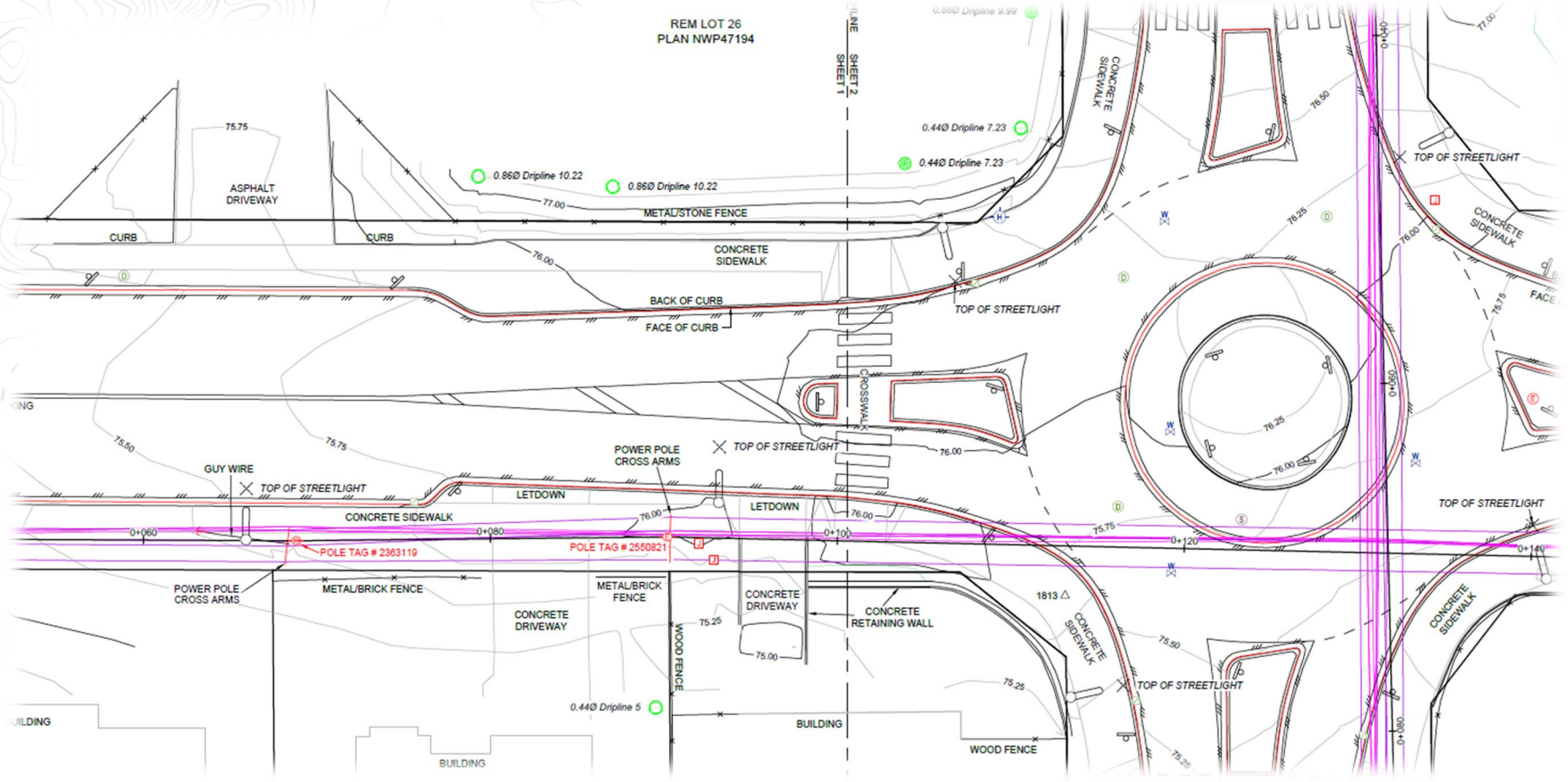
- Use point cloud to extract CAD lines and points
- Several features now have highly automated tools for extraction – poles, wires, ground surface, etc. – full extraction soon done with AI
- Create a standard site plan



BC Hydro Survey Workflow



Site Plans for Electrical Infrastructure Design

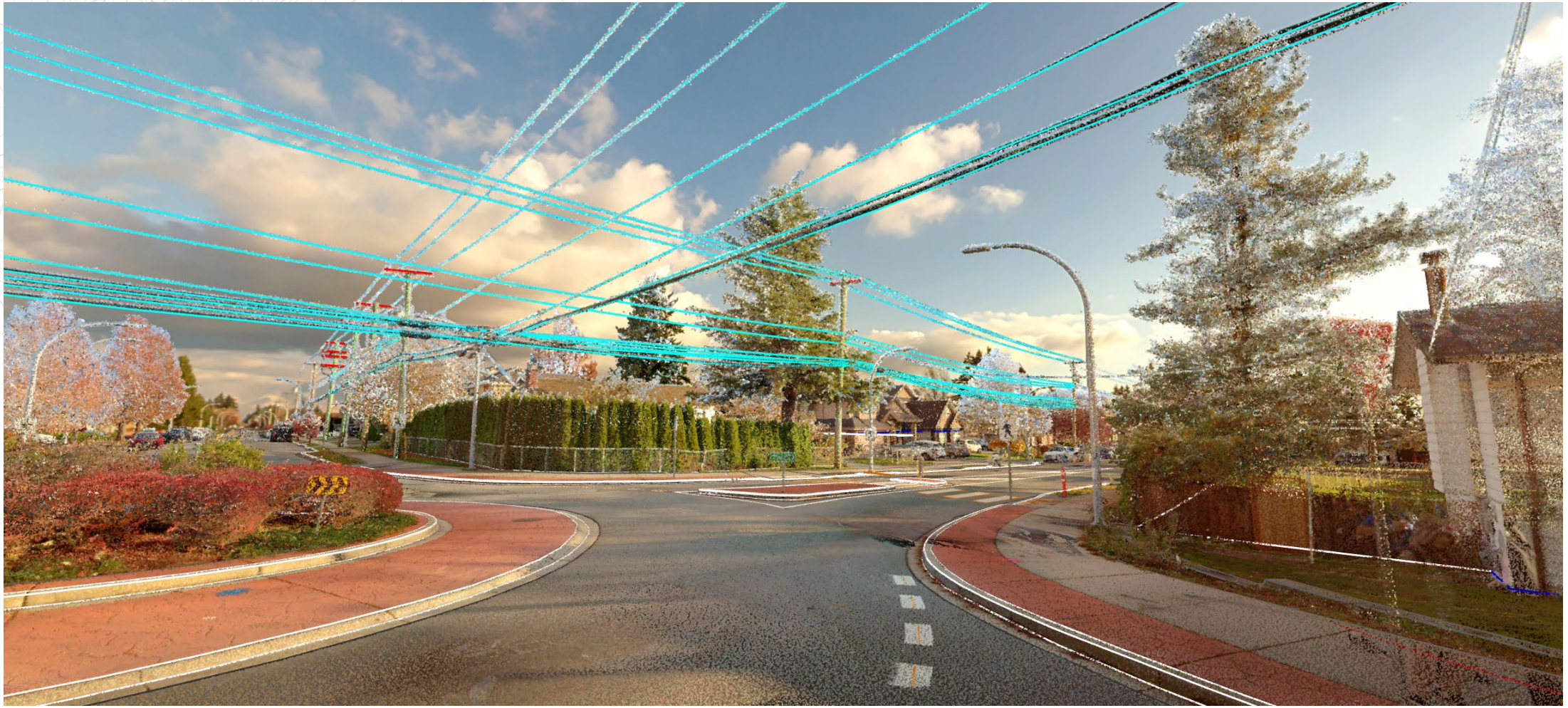


Property Boundaries	Topographic Features
Underground Utilities	Overhead Wire Profiles

Field Data Collection

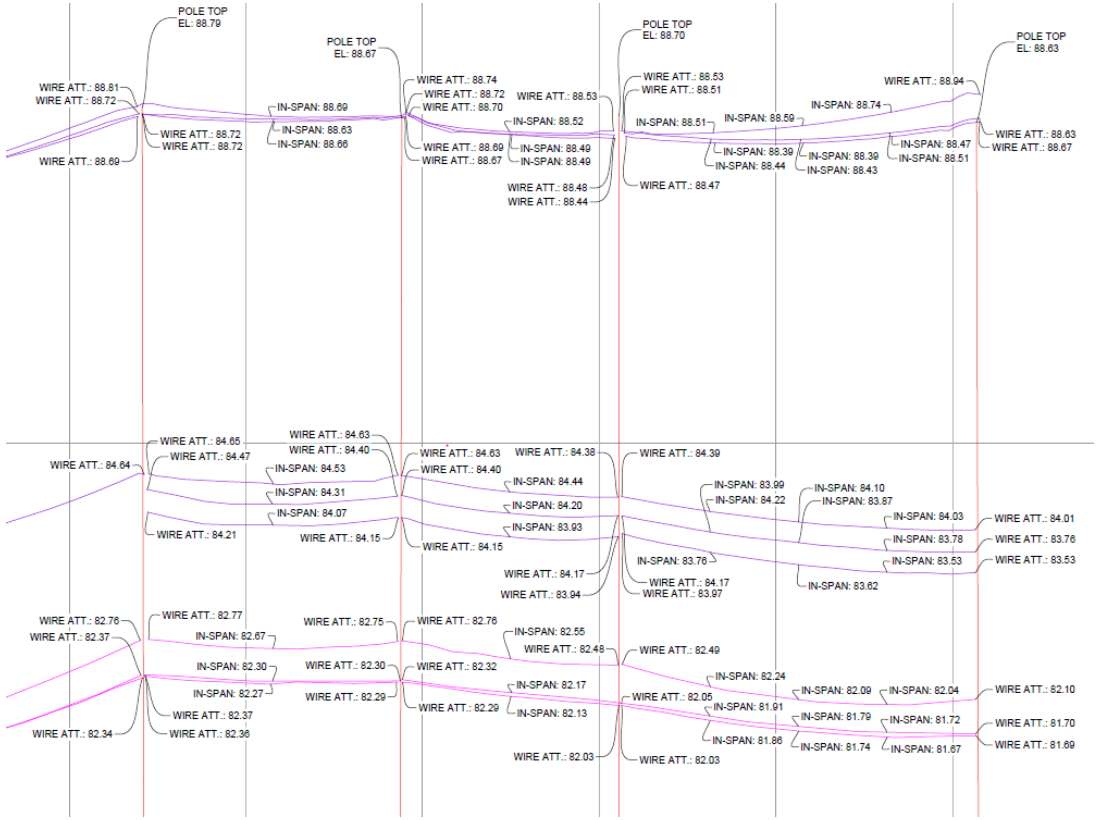
- Legal and Control
  - Conventional Survey
- Topographic Features
  - SLAM
  - Terrestrial Scanning
  - Ortho/LiDAR

Feature Extraction

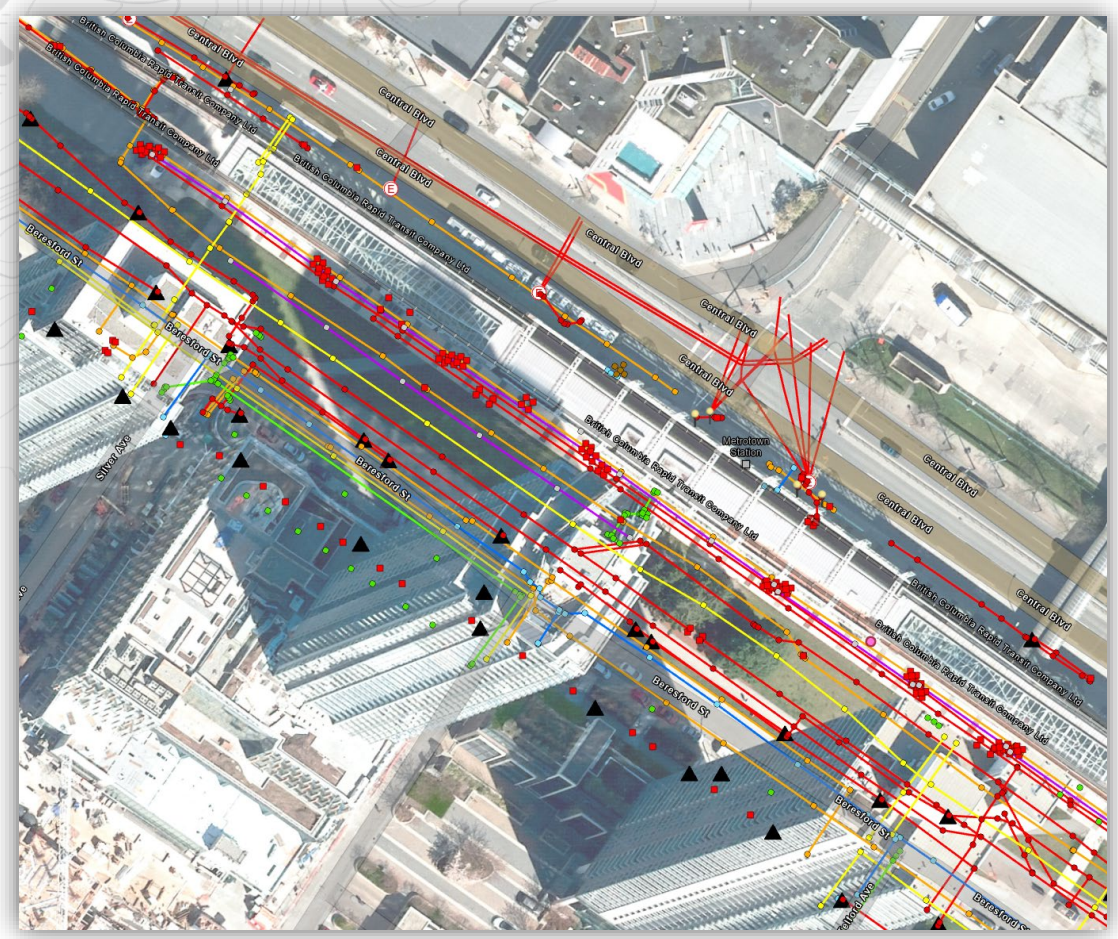


Overhead Wires – Automated Profiles

- Data collection – 3D scans
- Graphic profile generated in AutoCAD
- Automated Labelling



GIS Integration – Master Utility Database



- Compilation of Utility data from several sources
  - Municipal Records
  - BC 1 Call Reports
  - Owner Records
  - ICIS Database (Integrated Cadastral Information Society)
- Overlay with Surveyed Physical Locates
- QC and Attribution

Summary

- HDS methods are disrupting the survey industry - lower cost, easier to use, automated, faster, demand for visuals
- Technology is advancing rapidly
- Clients are benefiting from the technology and asking for it
- Increased demand for graduates with strong foundation in 3D geospatial who are adaptable

Thank You

McElhanney

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