

Professional Land
Surveyors
Business Group



The Silent Infrastructure

Sharing the Responsibility
Sharing the Cost

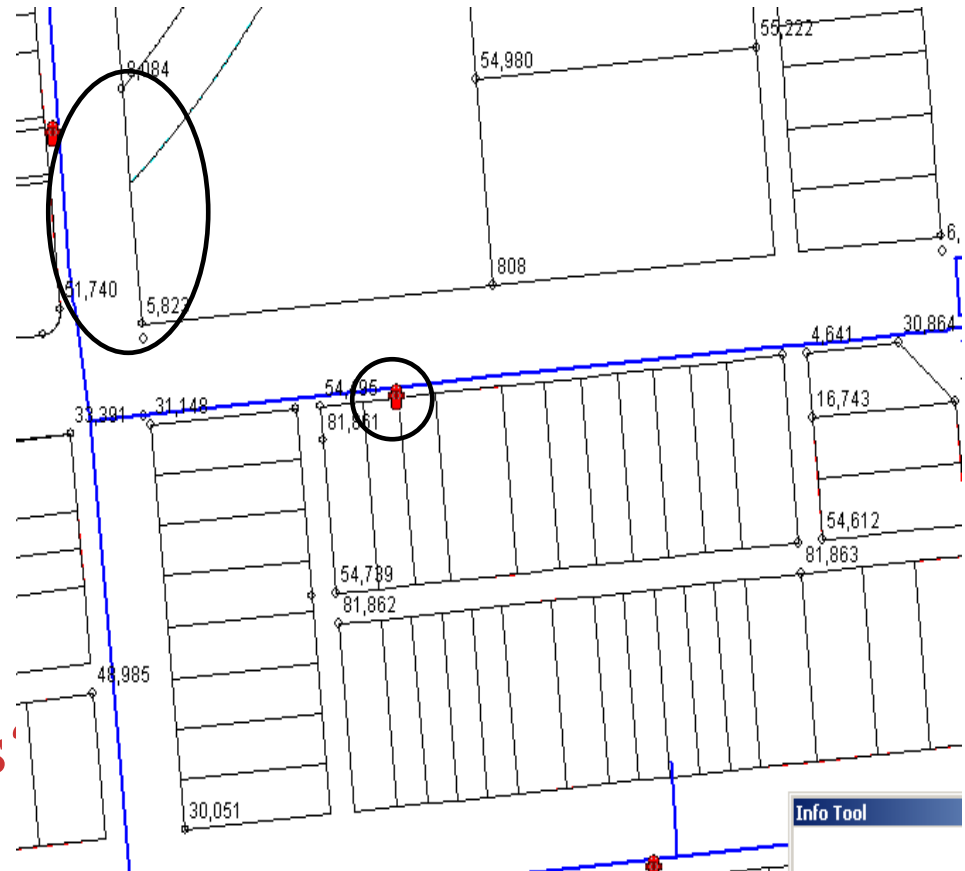
Infrastructure

Water lines

Pavement

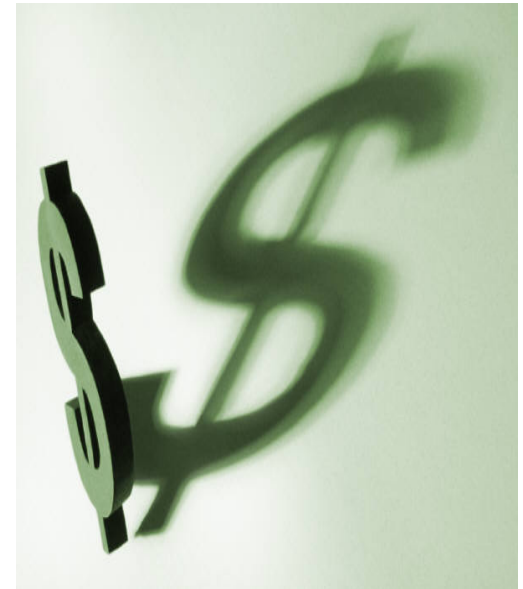
Hydrants

Survey Monuments'



Why Protect Survey Monuments:

- 70,000+ outline survey monuments worth an estimated \$35 to \$70 million
- In 1999, over 30% of these 70,000 positions were missing or damaged.
- Current liability \$10 to \$20 million



Survey Monuments

■ What is a survey monument

■ What is an outline monument



Protection Legislation

- The Land Surveyors Act C.C.S.M. c. L60
 - Offence and penalty
- The Surveys Act C.C.S.M. c. S240
 - Outline monuments public property
 - Persons and municipalities to protect outline monuments
- The Criminal Code of Canada R.S., 1985, c. C-46
 - Interfering with Boundary Lines
 - Interfering with International Boundary marks, etc.

Restoration Legislation

- The Surveys Act C.C.S.M. c. S240
 - After improvements monuments to be restored to original location
 - Remedying of disturbance of monuments



How to Protect Survey Monuments:

Development Agreements

Construction Project Management

- Municipal projects
- Utilities or other engineering projects
- Commercial building sites



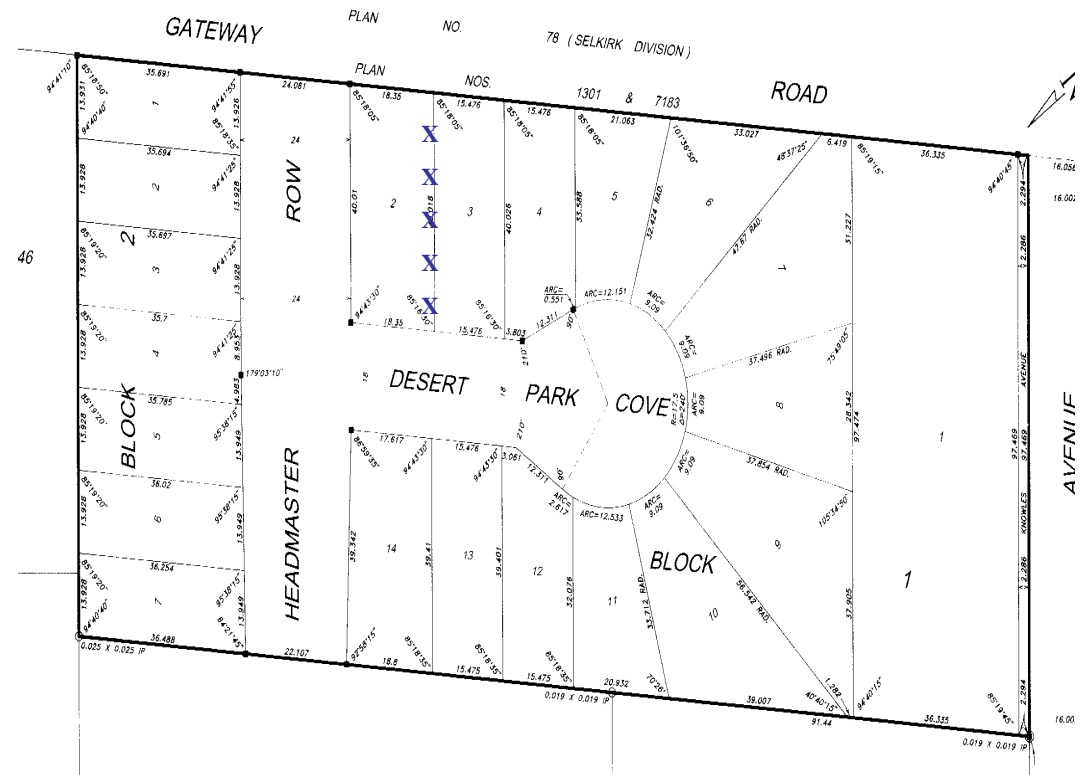
Development

- Survey infrastructure placed
- Top soil removed
- Sewer, water, pavement placed
- Basements excavated
- Landscaping completed



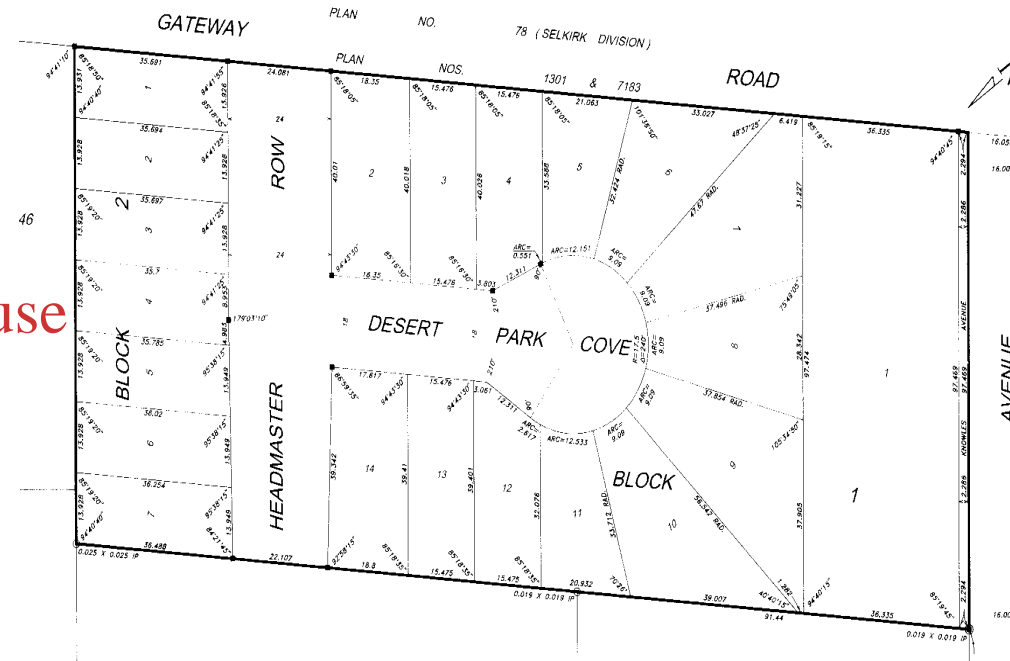
Your Inherited Responsibility

- Joe Citizen to build fence
- Surveyor to stake lot
- Infrastructure damaged
- Restoration expenses



Development Agreements

- Developer applies to subdivide and submits preliminary plan
- City identifies need for monument protection clause
- Developer submits legal survey plan
- City calculates amount of security



Development Agreements

Developer Submits Security

- Letter of Credit
- Cash Deposit

Developer hires Land Surveyor

Surveyor submits certificate

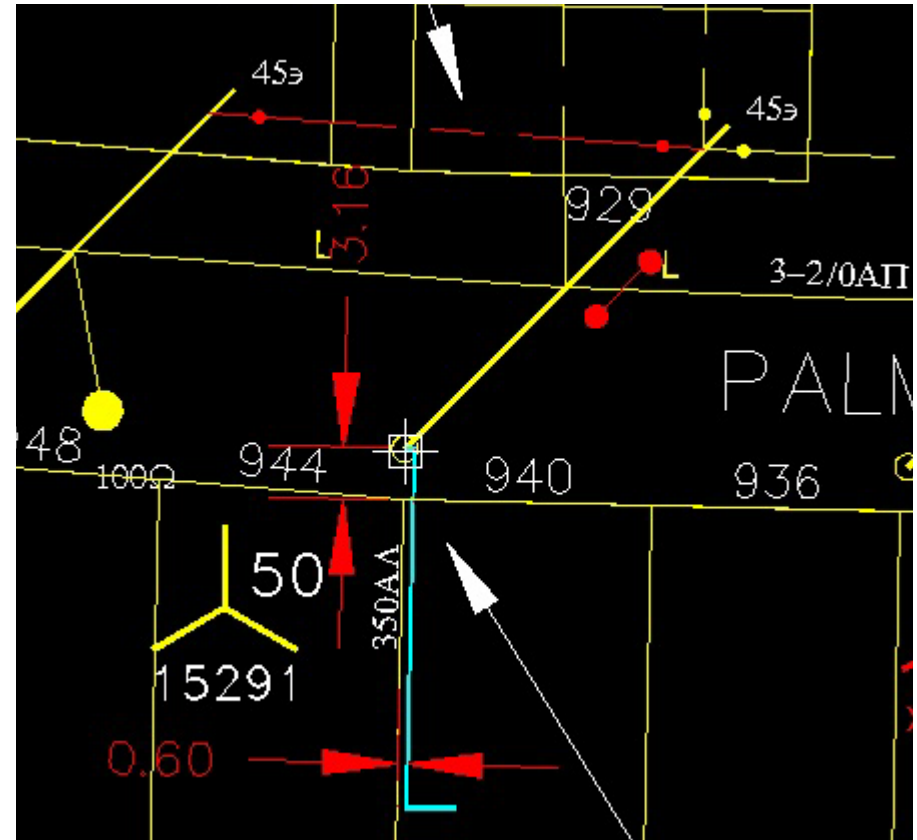
City relinquishes security

Payment to the City of a deposit /letter of credit for survey monument replacement costs in the amount of \$_____.

Subsequent to the completion of any works that may damage the survey monuments in the subdivision, the applicant will provide the Planning, Property and Development Department and the Winnipeg Land Titles Office a Survey Monument Replacement Certificate, confirming the positions of all survey monuments within the planned area. Upon receipt of this Certificate, the deposit/ letter of credit will be refunded.

Construction Projects

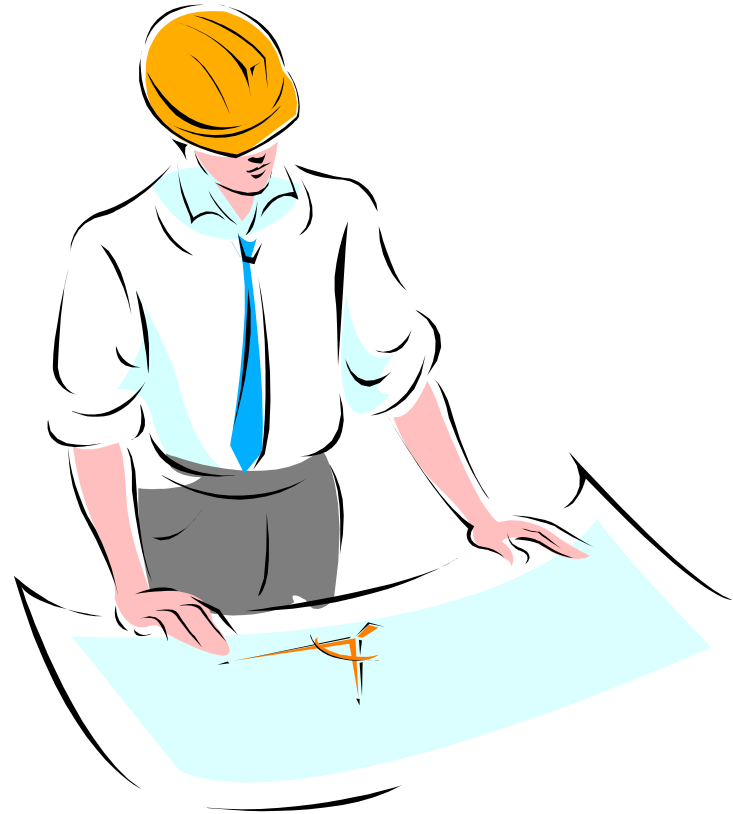
- Causes the most damage to your infrastructure
- Awareness
 - “I didn’t know there was a monument there”
 - “The monuments are always on property lines”



Construction Project Management

- Contractor supplies construction drawings
 - Municipal
 - Utilities
 - Others

- Monument positions plotted on drawings



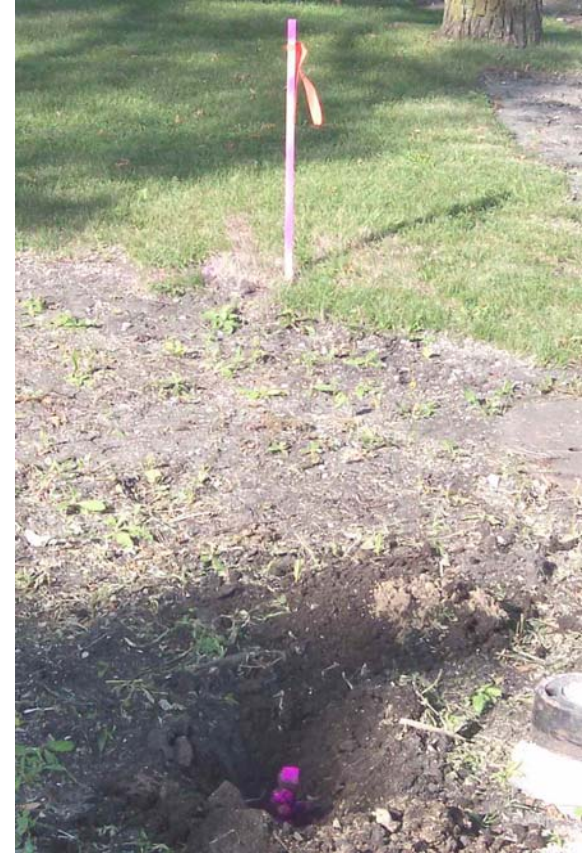
Construction Project Management

Contact the Contractor

- Notify contractor of liabilities

Pre-construction

- Contractor hires Land Surveyor liaison



Construction Project Management

- Post-construction inspection
 - Land Surveyor reports on conditions

- Restoration costs to Contractor
 - Hire private Land Surveyor
 - Or payment for damages



The City of Winnipeg GIS

- GIS of survey infrastructure.
 - Survey monuments mapped
 - Data entered into database
- Areas mapped showing Development and Construction
 - Database tracking who, what, when

The screenshot displays a software interface for job management. At the top, it shows 'JOBNO: 20060925' and 'Job Name: MTS CABLE BRAZIER & WINTERTON'. Below this, there are fields for 'Task Description: Construction' and 'Type Description: Utilities'. A table lists activities with their respective dates and comments. To the right of the table are buttons for 'Edit', 'New Job', 'Post', 'Browse File', 'Locate', and 'Exit'. Below the table, there are fields for 'Assigned' (RD), 'Date In' (11/15/2006), and 'Date Out'. Another table shows 'File Number' (89(h)-10) and 'Department' (PDS, MTS). At the bottom, there are buttons for 'Job Location', 'To Field Crew Form', 'To DA Form', 'To Contract Form', 'View Scan', 'Account Info', and 'Excel Form'.

| Activity | Time in Decimal Hrs | Date In | Date Out | Comments |
|----------------------------------|---------------------|------------|------------|-----------------------------|
| Received Notice for Construction | | 11/15/2006 | 11/15/2006 | RECEIVED DRAWING FROM TERRY |
| Review Plans | | 11/15/2006 | 11/15/2006 | NO MONUMENTS EFFECTED |
| Job Closed | | 11/15/2006 | 11/15/2006 | returned to terry |

| Assigned | Date In | Date Out |
|----------|------------|----------|
| RD | 11/15/2006 | |

| File Number | Department |
|-------------------|------------|
| 89(h)-10 | PDS |
| Network # 9048406 | MTS |

| Company, Group, Individual Name | Type | Contact |
|---------------------------------|--------|-----------------------|
| MTS | CLIENT | TERRY JORGENSEN (MTS) |

Geographic Information Systems (GIS)

■ Inexpensive software available

- Google Earth
- GRASS
- Quantum

■ Free data through the MLI (Manitoba Land Initiative)



Summary

Awareness

- Reduces damage
- Monitors degradation

Education

- Assigns responsibility
- Restoration cost recovery or reduction

Effective Management Saves Money