



Site Name: _____ Project #: _____

Site Address: _____

City: _____ State: _____ Zip: _____

Site Contact Name: _____ Phone: _____

Contact Email: _____ Site-Specific Notes: _____

- Call 811 and submit markout ticket request for locate in public areas, Ticket# _____
- Collect site-specific data related to site history, previous excavation, past construction history and site usage. _____

Contract with Qualified Private Utility Location Contractor:

- Scanning contractor shall submit record of certification of training that exceeds ASNT, "Practice SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing Level I," GPR. 8 hours classroom /60 hours field GPR practice.
- Field personnel at minimum certified OSHA 10 Construction Safety Training. Specific safety training may apply per site specifics.

Underground Utility Designation Work Scope:

- Locate and mark all underground utilities and anomalies in contractor/owner designated area utilizing at least two different technologies for redundant results, Ground Penetrating RADAR GPR, EM Pipe Locator.

- Confirm work scope communication with site contact.
 EM System Model# _____ GPR System Model# _____

Anticipated Utilities:

- | | |
|---|---|
| <input type="checkbox"/> Water | <input type="checkbox"/> Communications |
| <input type="checkbox"/> Gas | <input type="checkbox"/> Industrial Process |
| <input type="checkbox"/> Sanitary Sewer | <input type="checkbox"/> Steam |
| <input type="checkbox"/> Electric | <input type="checkbox"/> Electric Other |
| <input type="checkbox"/> Site Lighting | <input type="checkbox"/> Gas Other |
| <input type="checkbox"/> Drainage | |

SIM Investigative Technologies:

- | | |
|---|---|
| <input type="checkbox"/> Ground Penetrating RADAR (GPR) | <input type="checkbox"/> Metal Detector |
| <input type="checkbox"/> EM Pipe Locator | <input type="checkbox"/> Sewer Push Camera |
| <input type="checkbox"/> Traceable Rodder | <input type="checkbox"/> Multiple GPR Antenna |
| <input type="checkbox"/> Traceable Sonde | <input type="checkbox"/> EMI/Split Box |



SIM Pre-Investigation Checklist:

- Confirm Job Hazard Analysis (JSA), form review, or equal site safety review documentation.
- Confirm and sign site safety plan if applicable.
- Perform site walk and review project scope meeting, review scan locations. Note: Field technician to look for visible clues such as electrical rooms, service access ports like manholes and other utility boxes, visible conduits, etc.
- Perform site contact interview, review known utilities, discuss possible unknowns, and anticipated critical targets. Review site post scan scope of work. Suggest scan area options.
- Utilize job site information, available as-builts and prints/plans and previously detailed equipment to locate and mark out underground facilities and unknown anomalies.
- Review of equipment capabilities and potential job-site performance impedances.
- Confirm if GPR data samples be required for reporting.
- Confirm acceptable on-site type of markings (paint, flags, other), Specify _____
- Review client deliverable requirements, report format/documentation. GPS Mapping etc.

SIM Quality Assurance Procedures:

- Calibrate the GPR system to the conditions at each site per SIM spec guidelines.
- Perform several test scans through the scan area to determine the approximate maximum depth penetration and to gauge the probability of success in finding the desired targets.
- Review the clarity of the scan data. Adjustments in gain, depth range, filters, and other settings may be necessary.

SIM Investigation Methods for Complete Concrete Investigation:

- Trace all known utilities as reviewed in pre-scan meeting.
- Use EM Locator at visible features valve, manhole, riser, etc.
- Use direct connection method when possible.
(Do not connect directly to potentially live electrical wires)
- Use induction clamp if direct connection is not possible.
- Use induction method if induction clamp is not possible.
- After connecting or inducing with the transmitter, use the receiver to complete a full 360° sweep around the connection point.
- Mark and trace all potential fields that are detected.
- During this sweep, measure mA levels on the receiver in order to assist in correctly identifying the target line.
- Identify the target line by tracing it to the connection point or at least to the next feature.
- After tracing and marking any utility, sweep parallel to the utility on both sides in order to check for laterals/T's.
- Insert traceable rodder or sonde into known sewer, storm and drain lines.
- Trace the rodder or sonde using the receiver.
- Use EM receiver to attempt to locate any unidentified, known utilities from features using passive modes (Power/Radio).
- Sweep using passive modes parallel to the utility on both sides in order to check for laterals/T's.



SIM Investigation Methods for Complete Underground Utility Investigation (GPR):

- Scan with GPR utility antenna, typical frequency 400 MHz or 350 Hyper stacking antenna.
- Calibrate GPR settings to current site conditions.
- Use GPR to attempt to locate any unidentified, known utilities.
- Collect scans with GPR parallel to any marked utility in order to check for laterals/T's.
- Document any known utilities that could not be located.
- Redundancy strategy, EM used in conjunction with GPR, perform passive sweeps with electromagnetic locator to locate unknown utilities.
- Redundancy strategy, EM used in conjunction with GPR, Sweep all areas in a grid with spacing determined by site conditions.
- Redundancy strategy, EM used in conjunction with GPR, Sweep separately with Power mode and Radio mode (and Cathodic Protection mode when applicable) Collect GPR scans to locate unknown utilities.
- Scan all areas in a grid with spacing determined by site conditions.
- Collect GPR scans across all previously located utilities to confirm locations and approximate depths. Document findings with photos and additional reporting/mapping if required.

SIM Post Investigation Hand Off:

- Conduct a recap and review of findings with site contact.
- Explain scan findings--Where did the technologies work well and where results were inconclusive due to interference and or soil conditions.
- Explain markings and depth estimates.
- Review original scope to confirm expectations were met/exceeded.

Notes Regarding Scan Data Collection and Quality:

Additional Investigation Notes: _____

This checklist details steps and methods that ensure the best nondestructive underground utility location results. The SIM approach, (experienced-based training combined with multiple technologies, and step-by-step site methods) has proven to be consistently accurate and efficient in accounting for site variability.

Please visit www.simspec.org for more information and detailed SIM specification.