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• **S.U.E. and the Surveyor**



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What is S.U.E.?

Subsurface **U**tility **E**ngineering

Why Is S.U.E. Important to Surveyors?

Surveyors are often called upon to find and locate buried utilities as part of the mapping process.

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There are 4 Levels of S.U.E. Investigation!

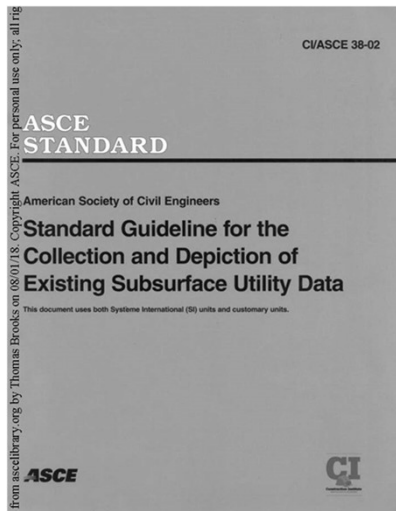
Knowing and understanding the S.U.E. levels of Investigation can help you define you Scope of Work and negotiate with your client.

These levels are defined by the American Society of Civil Engineers (ASCE) in the "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data"

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CV/ASCE 38-02

ASCE STANDARD

American Society of Civil Engineers


Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data

This document uses both Systeme International (SI) units and customary units.

ASCE

CI

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Level D "Desk Top"

Typical Tasks:

1. Conduct Utility Research
2. Collect Utility Owner Records
3. Review Records
4. Make a Drawing showing "Record" utilities.

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Level C "Site Visit"

Typical Tasks:

1. Do Everything in Level D, PLUS:
2. Make a One Call
3. Correlate Records to Ground Features
4. Locate all above ground evidence
5. Make a Drawing showing "Record" utilities and visible evidence.

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Level B "Get the Pipe Locator Out"

Typical Tasks:

1. Do Everything in Levels D and C, PLUS:
2. Do a subsurface investigation by electronic methods
3. Make a Drawing showing "Record" utilities, visible evidence, and subsurface information.

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Level A "DIG IT UP!"

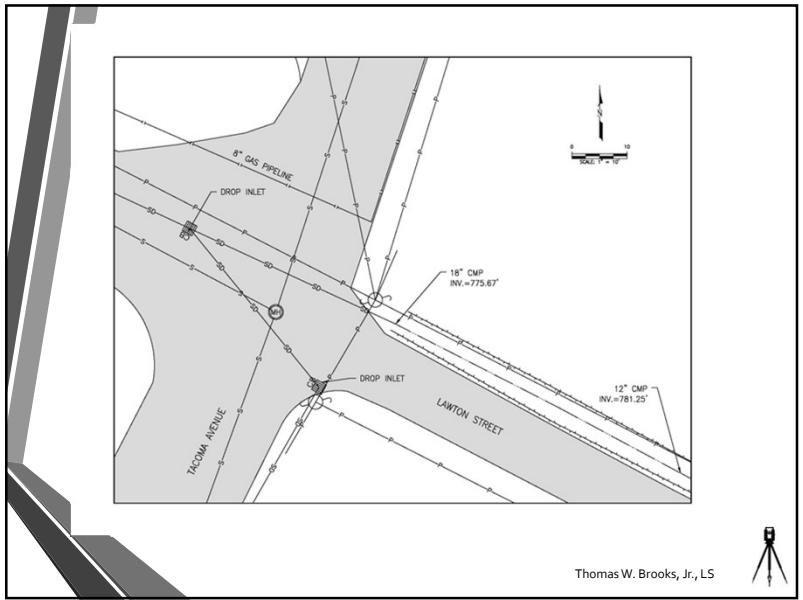
Typical Tasks:

1. Do Everything in Levels D, C and B, PLUS:
2. Verify the location of each utility by exposing it with a test hole
3. Make a Drawing showing "Record" utilities, visible evidence, subsurface detections and test hole data.

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One Call - 811

JULIEBEFOREYOU.DIG.COM
Protect Yourself And Your Family

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One Call - 811

One Call must be made at least 72 hours (working days) prior to excavation, but not more than 10 days.

One Call ticket is good for 25 days, extensions allowed

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UNIFORM COLOR CODE

White	PROPOSED EXCAVATION
Fluorescent Pink	TEMPORARY SURVEY MARKINGS
Red	ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES
Yellow	GAS, OIL, STEAM, PETROLEUM OR GASEOUS MATERIALS
Orange	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT
Blue	POTABLE WATER
Purple	RECLAIMED WATER, IRRIGATION AND SLURRY LINES
Green	SEWERS AND DRAIN LINES

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Existing Records Investigation

Begin Records Investigation by identifying anyone who may have underground utilities at or near your site. These could include:

1. County or Municipal Governments
2. Power Companies
3. Gas Companies (both distribution and transportation)
4. Water Companies – Independent
5. Cable Companies
6. Transportation Pipelines
7. Private Utilities

Always check One Calls web-site for their member list.

Contact each operator for information on their utility at your project location.



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Visible Above Ground Evidence:

Can include but not limited to:

1. Pipeline Markers
2. Manholes
3. Valve Covers
4. Meters
5. Sprinkler Heads
6. Fire Hydrants
7. Curb Inlets, Yard Inlets, Drop Inlets.
8. Exposed Pipe
9. Utility Pedestals, Power Boxes
10. Free Standing Lights, Satellite Dishes, Antenna
11. Wires running down Poles or Buildings



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Subsurface Investigation Methods

1. Magnetic Locators (Pin Finders) - Good for finding meter boxes and shallow metal pipes.
2. Pipe (Cable) Locators – Works well with metal pipes, electric utilities, and utilities that can transmit a signal. Does not work well with PVC or Tile pipe.
3. Probe Rods – A good way to verify the depth of a utility. NEVER probe without the operator's permission. (requires an 811 call).
4. Ground Penetrating Radar (GPR) – Good for shallow (6 feet and under) utilities and finding non-metallic pipe.
5. Hydro-Vac – Uses high pressure water and a vacuuming system to expose utilities (requires an 811 call).



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Subsurface Investigation Safety The Public

What are safety issues facing the public:

1. Open holes
2. Explosions
3. Traffic Hazards
4. Utility Outages



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Subsurface Investigation Safety The Surveyor

What are safety issues facing the surveyor:

1. Open holes
2. Explosions
3. Traffic Hazards
4. Electrocutation
5. Confined Space Hazard
6. Irate Land Owners
7. Wildlife



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Subsurface Investigation Safety The Operator

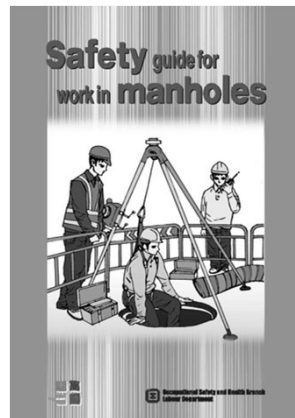
What are safety issues facing the operator:

1. Service Interruption
2. Employees exposed to same hazards as surveyor
3. Damaged Equipment
4. Irate customers



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Manholes and OSHA



<https://www.labour.gov.hk/eng/public/os/D/Manhole.pdf>

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LIABILITY

Understanding the four levels of S.U.E. will help you communicate better with your client. This will enable you too:

1. Get a better defined Scope of Work
2. Allow each party to understand their role in the project.
3. Communicate better with the utility operators
4. Communicate better with the 811 departments
5. Define your costs more accurately.



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