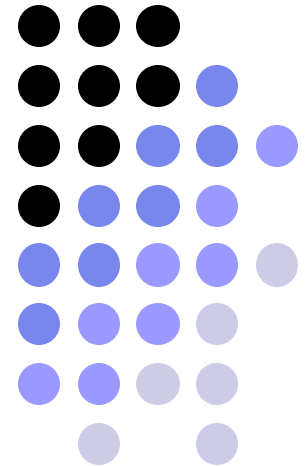


CONSTRUCTION METHODS AND MATERIALS

LECTURE – WEEK 3



Roger J. Marino, PhD, PE

This Week's Topics

- Site Development Considerations
- Brief Discussion of Geotechnical (Soil) Aspects
- Environmental Site Assessment
- Guest Speaker (Video) – Prof. John Anton ,
Professional Geologist

Soil (Geotechnical) Considerations

- Bearing Strength
- Permeability
 - Septic Systems
 - Stormwater Management
 - Basement Wall Pressure
 - Water Supply
 - Contaminant Plume Transport Potential
- Water Table Depth
- Contamination Present?

Environmental Site Assessment

- Start with Phase One Site Assessment (ASTM 1527 et.seq.)
- May be required by Lending Institution or by Governmental Regulation (ex. CERCLA – Comprehensive Environmental Response Compensation and Liability Act)
- Researches past use of site, past environmental violations, State and Federal Records including Superfund, Leaking Underground Storage Tanks, etc)
- Site Inspection Required



Environmental Site Assessment I

Components of the audit may include:

- Interviews of current owners and tenants (questionnaire)
- Interviews with former owners and occupants
- Interviews with neighboring or nearby property owners or occupants

Environmental Site Assessment II

- Review of historic sources

Aerial Photos

Bureau of Fire Safety (City Fire Department)

Building Department

Sanborn Fire Insurance Maps

Historical Society

Libraries – ex. Phila. Library (Fire Insurance Maps –
Weston)

Environmental Site Assessment III

Records of Activity and Use Limitations:

- State Right-to-Know information (LUST – Leaking Underground Storage Tanks)
- Federal records (CERCLA – Superfund)
- Resource Conservation Recovery Act – Registering cradle-to-grave constituents
- Known Contaminated Sites List

Environmental Site Assessment IV

- Government Records Review (can be performed by another company/ service for you)

Environmental Data Resources for ex.

Components of Site Inspection I

- Take lots of photographs
- Look for:
 - Soil subsidence
 - Stressed vegetation
 - Soil staining
 - UST fill ports or vents
 - AST presence, condition, signs of overflow or release

Components of Site Inspection II

Look for:

- Surface discharges
- Sheening in ponded areas
- Drums (in-use or discarded) –
 - if in use, look for labeling of contents and state of corrosion
 - if discarded, look for labeling, evidence of release, state of corrosion
- Potential impacts from adjacent site (grading, discharge points, etc.)

Components of Site Inspection

- If Phase I yields concerns, move on to Phase II (subsurface investigation)
- Phase II Concerns:
 - How many borings do you need to get enough information?
 - What chemical constituents are you testing for?
 - What is the cost to provide a degree of assurance/protection to your Client?