Installer- Need to Know

I. The professional will understand the general overall site planning and preparation.

A. Reading a drawing
   1. Benchmarks
   2. Elevations
   3. Surveying
      a. Equipment
      b. Surveying techniques

B. General check of siting, design and soils

C. Design changes
   1. Installer
      a. Tank location
      b. Equivalent to specifications
   2. Designer
      a. Tank sizing
      b. Pretreatment sizing
      c. Soil treatment location

D. Plumbing
      a. Flow meter location
      b. Filter
         (1) Use of pump event counter /timer for flow calculation

E. Site conditions
   1. Climatic
   2. Topography
   3. Frozen Soils
   4. Soil moisture
   5. Use of septic tank as holding tank until system can be constructed

F. System layout
   1. Problem identification
   2. Staking
   3. Setbacks
   4. Tank accessibility
   5. Equipment accessibility

G. System installation plan
   1. Ground pressure/compaction
   2. Backhoe bucket width
   3. Travel pathways over the site
   4. Work from upslope

H. Surface water diversion and erosion control

II. Professional with understand OSHA safety requirements (general)/ competent person

III. Professional will understand installation issues with system components.

A. Building sewer specifications
    1. Pipe specifications
    2. Depth
    3. Slope (with and without solids)
    4. Freezing
    5. Cleanouts
    6. Sub-base density (no settling/bellies)
    7. Cleaning, priming and gluing joints
B. Septic Tank
    1. Location (not under eaves, or in low area, setbacks)
    2. Setting and securing a tank in a standing water table
    3. Dimension/capacity check
    4. Verification if existing tank is used
    5. Baffling
        a. Materials
        b. Fasteners
        c. Dimensions
    6. Sealing between joints, inlet and outlet pipes
    7. Constructing pour-in-place tanks
        a. Design (dimensions, strength, etc)
        b. Concrete Type
        c. Rear requirements
        d. Climatic conditions
    8. Max depth of manhole 6”
    9. “Securing” manhole covers
    10. Manhole warning label
    11. Backfilling (crowning)
    12. Inspection pipe locations, security
    13. Insulating tanks
    14. Age of tank check
C. Distribution System
    1. Supply pipes
    2. Materials
    3. Size
    4. Slope
    5. Sub base requirements
    6. Freezing (w/distribution pipes)
    7. Cleaning, priming and gluing joints
D. Gravity
    1. Distribution Boxes
        a. Placement
        b. Settling
        c. Cleaning, priming and gluing joints
    2. Drop Boxes
        a. Elevation
        b. Box specs

c. Proper slope of pipes in and out of box
d. Hole configuration
e. Sub base requirements
f. Soil cover requirements

E. Pressure
1. Manifold requirements (changing pipe sizing)
2. Floats
a. Types
b. Setting
3. Choosing a pump
a. Wiring/electrical
(1) Must be done by a licensed electrician
4. Alarm
a. Types/wiring
5. Event counter
6. Distribution Pipe
a. suitable types
b. hole drilling and bur removal
c. Cleaning, priming and gluing joints
d. Leveling
e. Manifold construction

F. Soil Treatment System
1. Principles
a. Excavation
b. Keep the installation dry
(1) Plastic limit (how to do it, where to take it)
(2) Exposure to rainfall
c. Keep the installation natural
(1) Equipment (traffic, weight, bucket)
(2) Smearing
(3) Driving or walking on surface bottom (beds)
d. Keep the installation level
e. Keep the installation shallow
2. Media
a. Different types (installation advantages, disadvantages)
b. Placement of rock (compaction while placing)
(1) Geotextile
(a) Specs
(b) Placement
c. Material check for size, durability and cleanliness of rock.

G. In-ground systems
1. Surface preparation
a. Soil moisture
b. Equipment
2. Media placement
3. Inspection pipes

H. At-Grades
    1. Surface preparation
        a. Soil moisture
        b. Equipment
    2. Media placement
    3. Inspection pipes
I. Mounds
    1. Surface preparation
        a. Soil moisture
        b. Equipment
    2. Sand
        a. Spec
        b. Testing
        c. Placement
            (1) Minimum depth
            (2) Equipment
    3. Distribution media placement
    4. Inspection pipes
J. Backfill
    1. Types
    2. Quantities generated
K. Topsoil
    1. Quality
    2. Quantify
        a. Compaction
    3. Placement with minimal compaction
L. Landscaping
    1. Who is responsible
    2. Vegetation establishment requirement
        a. Seeding/sod recommendation
    3. Frost and erosion protection the first year

IV. Professional will understand the installation inspection requirements.

A. Who is responsible to see if it happens
B. Check local ordinances for notification requirements for an inspection
C. Designated registered professional needs to be on site during
D. Preparation of as-built drawings
    1. As-built requirements

V. Professional will understand proper tank and soil treatment system abandonment

A. Procedure and requirements
    1. Tank
    2. Soil treatment system

VI. Professional will understand general information which is useful to homeowners.

A. Keep in vegetation
B. Do not drive or build on it
C. Winter time precautions
D. As-built drawings given to them
E. Water use
F. Suitable discharges
G. Tank maintenance
H. Overall system maintenance
I. Alarm system
J. Do not damage/use second site
K. Do not locate irrigation over septic system

VII. Professional must have general math skills.

A. Add, subtract, multiply and divide
    1. Slope
    2. Unit conversion
    3. Metric vs. English
B. Basic algebra/geometry
C. Graphing (pump curves)