

Site Prep for a Moveable High Tunnel

in a changing climate

WVU Extension High Tunnel Workshop
Web Based Session 4 Site Prep and EC
Management

High Tunnel Workshop



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Agriculture and Natural Resources

Things I will cover today

- Management of top soil, A horizon
- Establishment of vegetation on slopes
- Running utilities, water (rain & well) and electric
- Capturing rainwater
- Management of storm water
- Building the site for weather extremes
- Steps to take to build a 4 Seasons Tools v-track high tunnel

Site planning before moving earth

- Sheep shed torn down
- Metals recycled, wood structure burned
- Surface of site cleaned
- 3 structures, utility/potting shed next to a 17 by 60 ft. stationary hoop house and the two location 30 by 72 ft. moveable high tunnel
- USDA EQIP Contract
- Visit other High Tunnel sites for ideas and learned mistakes



Tom's High Tunnel with Driveways



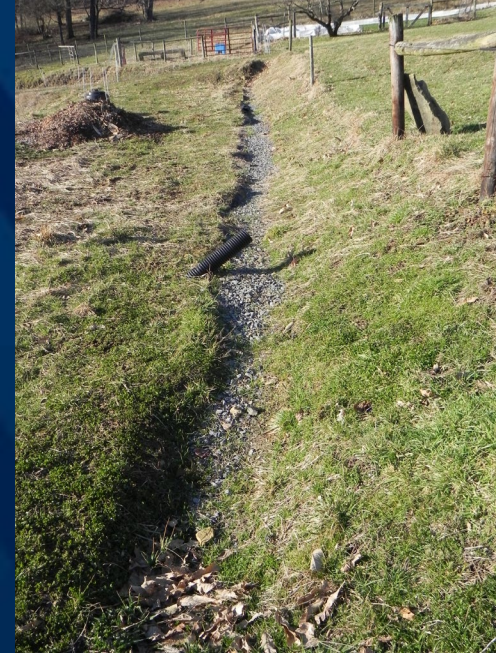
Find a good equipment Operator

- Day to day prework planning meetings critical part of site development
- Stay with the operator to be his guide and shovel man
- Ben's compensation \$4,000 Money well spent



Pad for Potting Shed & Hoop House

- Pad width 23 ft length 90 ft.
- Hoop house 17 ft. width allowing 3 ft. walkway on each side
- French Drain to pond
- Rainwater capture for gutters of gutter connected hoop house
- 4 inch solid plastic pipe to storage tank



Utilities from the Farmhouse

- Five of the house gutter downspouts plumbed to the rainwater storage tank @ utility shed area
- 220 volt line in conduit buried and run to the utility shed area, 110 in conduit out to the two pads
- Backup irrigation Well water run, two frost free faucets located on both pads
- Two copper Ground rods, one for the 220 box/line and another for an electric fence energizer, animal control



Moveable High Tunnel Pad Build

- Tunnel footprint: 30 by 72 tunnel, two locations, 6 ft gap between tunnel locations and 3 ft. track on each end.
 $3+72+6+72+3= 156\text{ft}$
- Plus 10 ft driveways on all sides for UTV with snow blade
- Total Footprint: 176 by 50 ft.
- With a pond on one end, we ran out of room and ended up with a rock wall allow for a driveway
- Final grade to pond 1-2% so moving the high tunnel uphill is possible

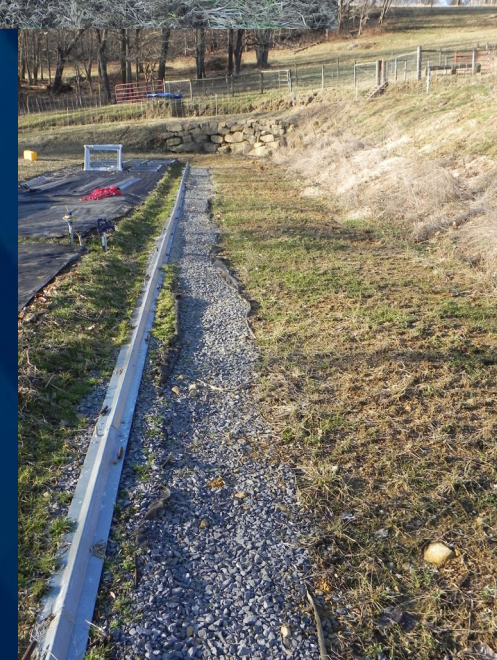


Storage and Recovery of Top Soil



High Tunnel Site Prep

- Picking rocks, my topsoil is loaded
- USDA Drainage on hill side edge of tunnel
- 1 ft. deep, 2 ft wide, no drain pipe required, but needed
- Gravel placed in trench using UTV dump bed to avoid tractor on topsoil area



Catchment Drainage Issues

- Above the two pad locations is a road culvert
- Storm runoff has damaged my neighbors pasture
- To intercept that surface runoff Ben came back & developed a diversion ditch



Engineering Considerations for a movable high tunnel

- Structure moves, so track and tunnel must fit with each other
- Your best friend is a laser level
- First track placed is easy, lay and pin with rebar
- Second track, not so easy



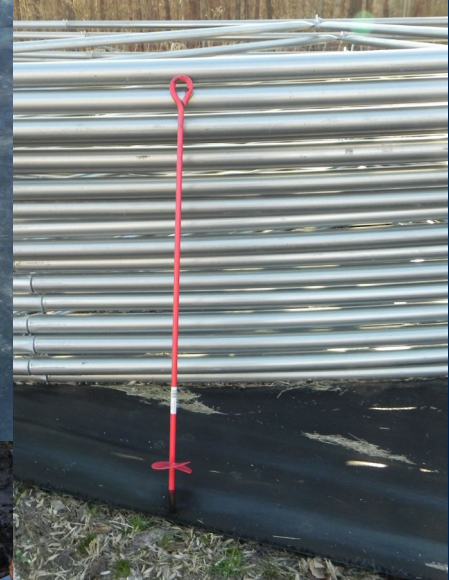
Engineering Considerations for a movable high tunnel

- Elevation was determined every 40 ft to match first track.
- Easy right triangle math.
- Used a sliding hanging rod from string to gauge track bed elevation
- Cut carry and fill soil until the bed was complete



Securing the Moveable High Tunnel

- There are two places this style of tunnel locks to the ground.
- the tunnel using turnbuckles is secured to the v-track every 20 ft.
- In the ground beside the v-track these red mobile home anchors are placed and then using turnbuckles to secure the tunnel
- I plan to put these into concrete filled holes



Final Thoughts

- What did I get myself into?
- Pad ready for walls & hoops to go up
- Lots to consider with a movable structure
- Read your directions as these are complex toys

