



Site Identification and Development

The quality of your composting site will have a significant impact on your management efficiency, the ease of pile management and the quality of the compost produced on the site. Most importantly, the space available for composting and moisture management on the site will affect how you compost, what is required of you to produce quality compost, and how much material you can compost. Additionally, the site is also the interface between your nutrient-rich feedstocks and the surrounding ecology. Developing a site that meets your physical and logistical needs, is easily managed and accessed, and prevents the movement of nutrients and pathogens from entering surface or ground water requires foresight into your developing and changing composting program, an understanding of management factors, and time to plan effectively. The following overview on site development covers the major considerations in identifying and developing a composting site.

Identifying a Composting Site:

I. Sizing your Composting Site

Your space requirements for composting will significantly impact where you locate your site based on the space available to you. While your site development process will balance a variety of factors, start your process by sizing the site so that you know what your baseline criteria for space is. For assistance sizing your site see Highfields' "Determining Your Composting Pad Size" worksheet or seek technical assistance.



➤ **Identify what information you need for sizing your site**

- What feedstocks will you be composting?
- Will you require a permit for composting any of your anticipated feedstocks (this may impact the physical requirements of the site)?
- How much material do you anticipate composting?
- How frequently will you handle incoming feedstock?
- Do you plan on composting year-round?
- How much space will you require?
- Does the site require improvements?
- What equipment and practices will you use to manage materials?

➤ **Identify the space requirements of the site**

- Feedstock Storage area
- Receiving area
- Mixing area
- Active Composting area – piles and work area
- Curing area
- Finished product storage
- Access roads, loading areas, truck turn around, etc.
- Storm water and runoff management

➤ **Logistical and Infrastructure Considerations**

- a. Your volume estimates
 - Actual livestock time in barn (hrs per day, seasonal changes)
 - Will you be composting all of your manure?
 - Achieving volume reduction in barn
 - Barn bedding and cleaning strategy
 - Seasonal influxes of material
 1. Winter stock-piling and packs from pack barns
 2. Seasonal yard waste
 - Future needs/ changes
- b. Management options
 - Can you reduce your feedstock retention time on the site or pad?
 - Can you arrange/ organize your pile management to reduce workspace required (ex. – can an alley be eliminated between two piles which can be turned toward each other, and eventually combined?)?
- c. Infrastructure
 - Access roads
 - Receiving bays or covered spaces
 - Sheds - wash shed, equipment shed, feedstock shed

The space requirements for your Active Composting area, as well as your total site area can be calculated with Highfields' "Determining Your Composting Pad Size" worksheet.

2. What are the physical characteristics of the site and surrounding area?

Local, state and federal regulations, as well as site-specific features such as soil type and the existence of water Source Protection Areas, should be reviewed for determining minimum requirements specific to your site. The following are general recommendations, applicable in most situations.

- Depth of soil to bedrock and seasonally high ground water
 - i. Minimum recommended distance to bedrock: 3-6 feet*
 - ii. Minimum recommended distance to ground water: 1 ½ - 3 feet*
- Distance to property boundaries and public roads
 - i. 100' is a generally recommended minimum separation distance from boundaries unless neighbor consent is obtained. Larger separation distances are recommended for potentially sensitive neighbors, such as nursing homes, retail and food-related businesses, and schools, or if feedstocks or management systems pose a significant potential for odors.
- Distance to wells, springs, surface waters or wetlands
 - i. 100 (upslope) – 300 (down slope) feet minimum
 - ii. A site should not be located in an area with a potential for flooding or a designated Source Protection Area
- Site slope
 - i. 2-3% slope is ideal, a range of 1.5-6% is tolerable
- Seasonal workability and access for incoming feedstock and outgoing compost
- Drainage
- What are sources of clean storm water that might enter the site?
- Where will storm water and runoff go? Are there conservation concerns, such as surface waters? How will dirty water be managed?
- Vicinity of site to other critical infrastructure – barns, water, etc.
- Soil type and topography



Developing your composting site

1. Do you need a permit?

Permits may be required for your composting site, some of which may be required prior to initiating site improvements. It is recommended that all permits be obtained prior to embarking on any site improvements. Permits may be required for your site from local, state and federal government. Contact a technical service provider or permit specialist for assistance identifying the permits necessary for your operation.

2. Do you need to improve your pad?

Pads are commonly improved for several reasons, including moisture management, permitting requirements, and workability. Managing site moisture is critical both in terms of site access and workability year-round, but also in terms of protecting ground and surface water quality. Your need to permit your site with the state or federal government will be based on the amount and type of feedstocks you are composting, as well as the definitional status of your operation – exempt, agricultural, or commercial. Composting agricultural byproducts on the farm from which it originates does not require a permit in most US states, however other organic materials, such as food scraps, sourced from off the farm may require that the site be permitted. Workability of the site will be affected by the grade and level of the site, as well as its configuration and moisture management.

3. Improving/ Working with a Site

- Divert clean water
- Obtain or maintain separation distances to water sources of at least 100' down slope and 25' upslope
- Improve your pad surface
- Grade site – 2-3% slope if possible
 - I. Terracing can be used effectively to reduce slopes
- Consider various pad materials for improving workability, permitting and moisture management
- Management Choices – length of processing period
- Consider the infrastructure you will need – sheds, push walls, access road, turn around, etc.
- Use swales, buffer strips and other conservation measures as needed
- In planning the site, orient piles with slope to prevent ponding
- Manage storm water
- Protect soil and stabilize exposed surfaces



4. Desired pad characteristics

- Adequate vertical separation distances to ground water and bedrock
- Drains easily
- Maintains a firm surface

5. Pad surfaces

- Bank-run gravel
- Concrete
- Lime-hardened clay
- Native soil
- Bark mulch/ wood chip

6. Managing storm water

- Divert clean water before it enters the site whenever possible
 - a. Gutters
 - b. Swales
 - c. Curtain drain
- Capture site runoff if necessary – if potential discharges pose a risk to natural resources or human or animal health it is important to capture and treat this runoff effectively. Seek technical assistance to evaluate your risk potential and for estimating runoff from your site. Some runoff management systems include:
 - a. Evaporation ponds
 - b. Reapplication to active compost piles or field application
 - c. Manure or retention pits
 - d. On-site filtration or treatment
- Site Management
 - a. Keep site free of ruts and other low spots where moisture will accumulate
 - b. Orient piles with slope to prevent ponding



With these considerations accounted for, a functional management system can be achieved in which efficiency is gained and environmental and human health is protected.