

**POULTRY MANURE DRY STACK STRUCTURE**  
**DESIGN WORKSHEET**  
**(THREE OPEN SIDES)**

Conservation District: \_\_\_\_\_ Field Office: \_\_\_\_\_

Cooperator: \_\_\_\_\_ Location: \_\_\_\_\_

Identification No.: \_\_\_\_\_ Field No.: \_\_\_\_\_

$V_L$  = Volume of litter stored ( See Form FL-ENG-317B, "Storage Requirements"): \_\_\_\_\_ ft<sup>3</sup>

$W_L$  = Width of litter (calculate below)

$W_b$  = Width of building: \_\_\_\_\_ ft.

$h_m$  = Height of pile (Max. 7 ft.): \_\_\_\_\_ ft.

$h_w$  = Height to wall ( $h_m$  + Freeboard): \_\_\_\_\_ ft.

$h_s$  = Height of pile at side walls (Max. for wooden wall = 5 ft): \_\_\_\_\_ ft.

$h_e$  = Height to gable end closure wall: \_\_\_\_\_ ft.

$h_r$  = Height to roof eave: \_\_\_\_\_ ft.

$A_x$  = Cross sectional area of pile (calculate below)

$L_m$  = Length of manure pile (calculate below)

$L_i$  = Length of building (initial calculation) including freeboard ( $FB_e$ ).

$L_T$  =  $L_i$  adjusted to account for spacing between side posts

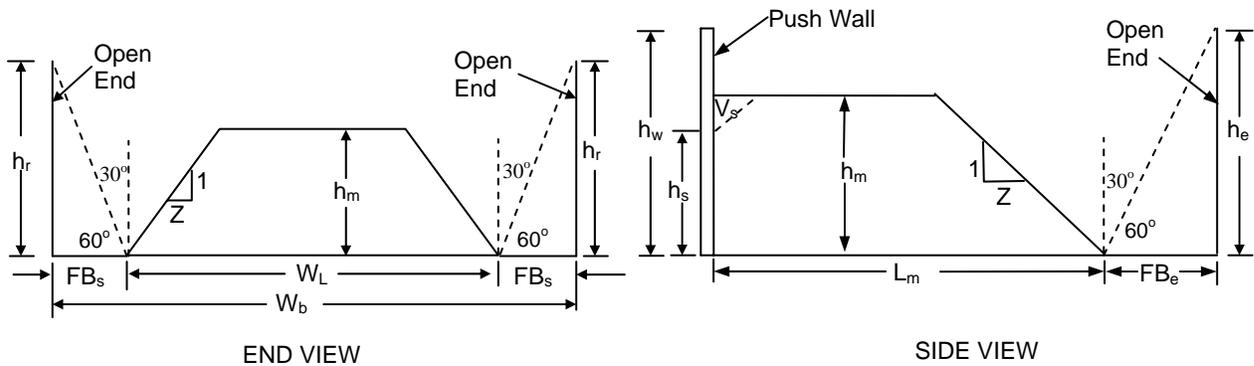
$FB_s$  = Freeboard from toe of pile to posts on each side (calculate on back).<sup>1/</sup>

$FB_e$  = Freeboard between end of pile and open end of building (calculate on back).<sup>1/</sup>

$Z$  = Side slopes: \_\_\_\_\_ (see diagram)

<sup>1/</sup> *Recommend 30 degrees from the vertical on all exposed sides to prevent windblown rainfall from impacting the containment area.*

Assume: (1) trapezoidal x-section of pile; (2) side slopes of pile = Z (If Z is not known, use 1.5)



Note 1: When  $h_s < h_m$ , the volume  $V_s$  is negligible and is not deducted from total volume.

$$FB_e = h_e / \tan 60^\circ = \underline{\hspace{2cm}} / \tan 60^\circ = \underline{\hspace{2cm}} \text{ ft}$$

$$FB_s = h_r / \tan 60^\circ = \underline{\hspace{2cm}} / \tan 60^\circ = \underline{\hspace{2cm}} \text{ ft}$$

$$W_L = W_b - 2FB_s = \underline{\hspace{2cm}} - 2 \times (\underline{\hspace{2cm}}) = \underline{\hspace{2cm}} \text{ ft}$$

$$A_x = (h_m \times W_L) - Zh_m^2 = (\underline{\hspace{2cm}} \times \underline{\hspace{2cm}}) - (\underline{\hspace{2cm}} \times \underline{\hspace{2cm}}^2) = \underline{\hspace{2cm}} \text{ ft}^2$$

$$L_m = V_L / A_x + (0.5 \times Z \times h_m) = (\underline{\hspace{2cm}} / \underline{\hspace{2cm}}) + (0.5 \times \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}) = \underline{\hspace{2cm}} \text{ ft}$$

$$L_i = L_m + FB_e = \underline{\hspace{2cm}} \text{ ft} \quad \text{Post Spacing: } \underline{\hspace{2cm}} \text{ ft c-c}$$

$$L_T = \underline{\hspace{2cm}} \text{ ft (NOTE: Round } L_i \text{ up or down to accommodate post spacing.)}$$

$$\text{Floor area} = W_b \times L_T = \underline{\hspace{2cm}} \text{ ft}^2$$

Designed by: _____	Date: _____
Checked by: _____	Date: _____
Approved by: _____	Date: _____