Metro Public Health Department

Pollution Control Division
311 23rd Avenue North
Nashville, Tennessee 37203
Phone: (615) 340-5653
Fax: (615) 340-2142

AIR CURTAIN DESTRUCTOR GUIDELINES

In order to obtain an Air Curtain Destructor Permit, the applicant must submit the following:

(1) An Air Curtain Destructor Permit Application;

(2) A permit filing fee of $100. All checks must be made payable to the Metro Public Health Department; and

(3) A site map, extending at least 1,000 feet in all directions from the location of the proposed pit. The map must identify the proposed pit and the distances to each of the following properties:

(a) Nursing Homes;

(b) Hospitals;

(c) Day Care Centers;

(d) Schools;

(e) Residences; and

(f) Airports

As a general guideline the following distances should be considered when proposing a location for the air curtain destructor pit:

(1) Nursing Homes – 1,000 feet;

(2) Hospitals – 1,000 feet;

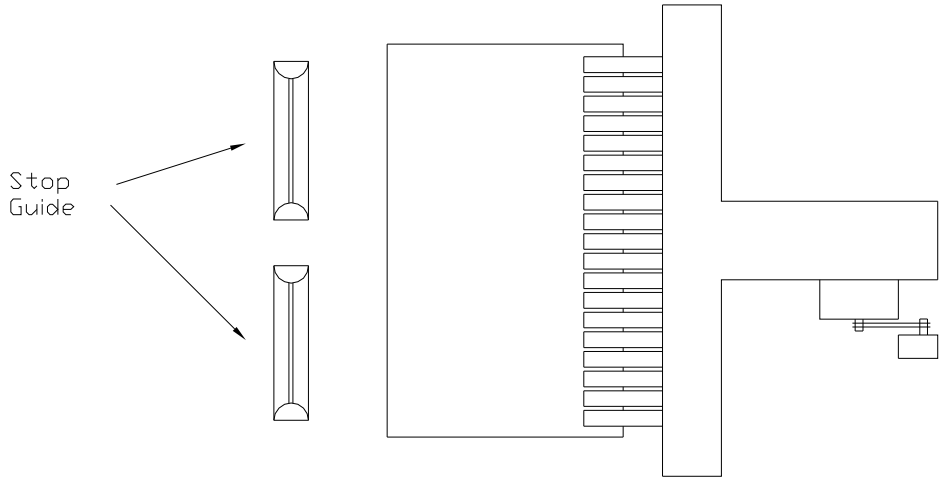
(3) Day Care Centers – 1,000 feet;

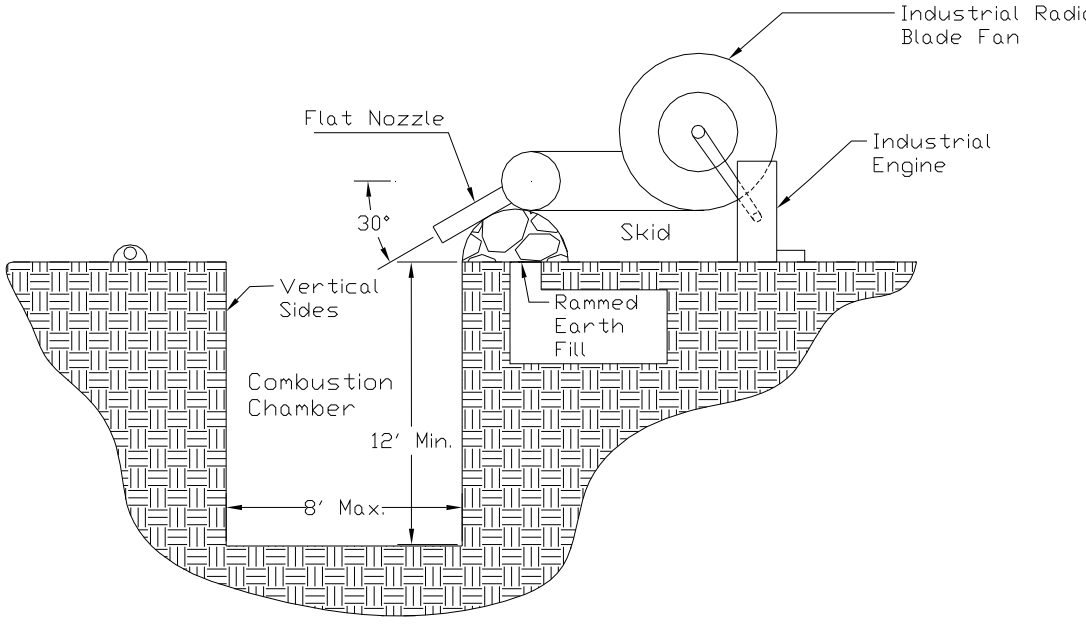
(4) Schools – 1,000 feet;

(5) Residences – 300 feet; and

(6) Airports – 0.5 miles

Once the above information has been received and reviewed by the Pollution Control Division, the applicant will be contacted regarding approval or disapproval of the proposed pit location. Upon approval, the pit must be designed and installed as outlined in the following pages. When the pit has been prepared to the required specifications, the applicant must contact the Pollution Control Division to set up an inspection. Once an onsite inspection has been performed and the air curtain destructor is deemed to be in compliance with the siting and design requirements, an Air Curtain Destructor Permit will be issued.





(1)

AIR CURTAIN DESTRUCTOR

FAN AND NOZZLE DESIGN

The fan should be design to deliver 800 scfm of air per foot of length over the length of the pit, against a static pressure in the plenum of 10 inches of water. The nozzle slits should also be designed to discharge 800 scfm per foot of length over the length of the pit.*

* Geyer, Otto W. and Rudolph, Edward A., "Minimizing Air Pollution from Open Burning With an Air Curtain Destructor, " Paper No. 70-143, presented at the 63rd Annual Meeting of the Air Pollution Control Association (1970), St. Louis, Missouri, June 14-18, 1970.

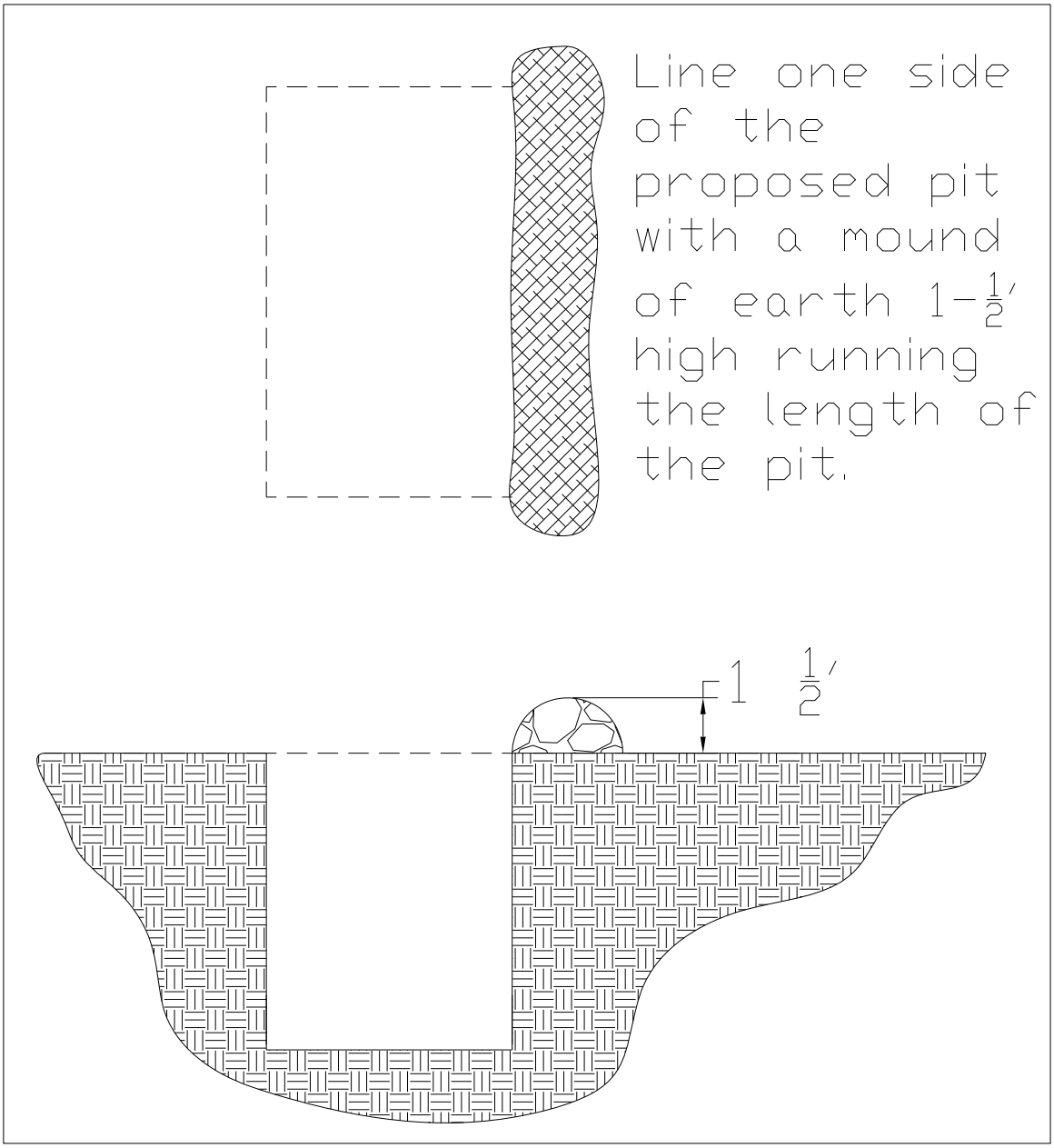


Figure 1. SITE PREPARATION

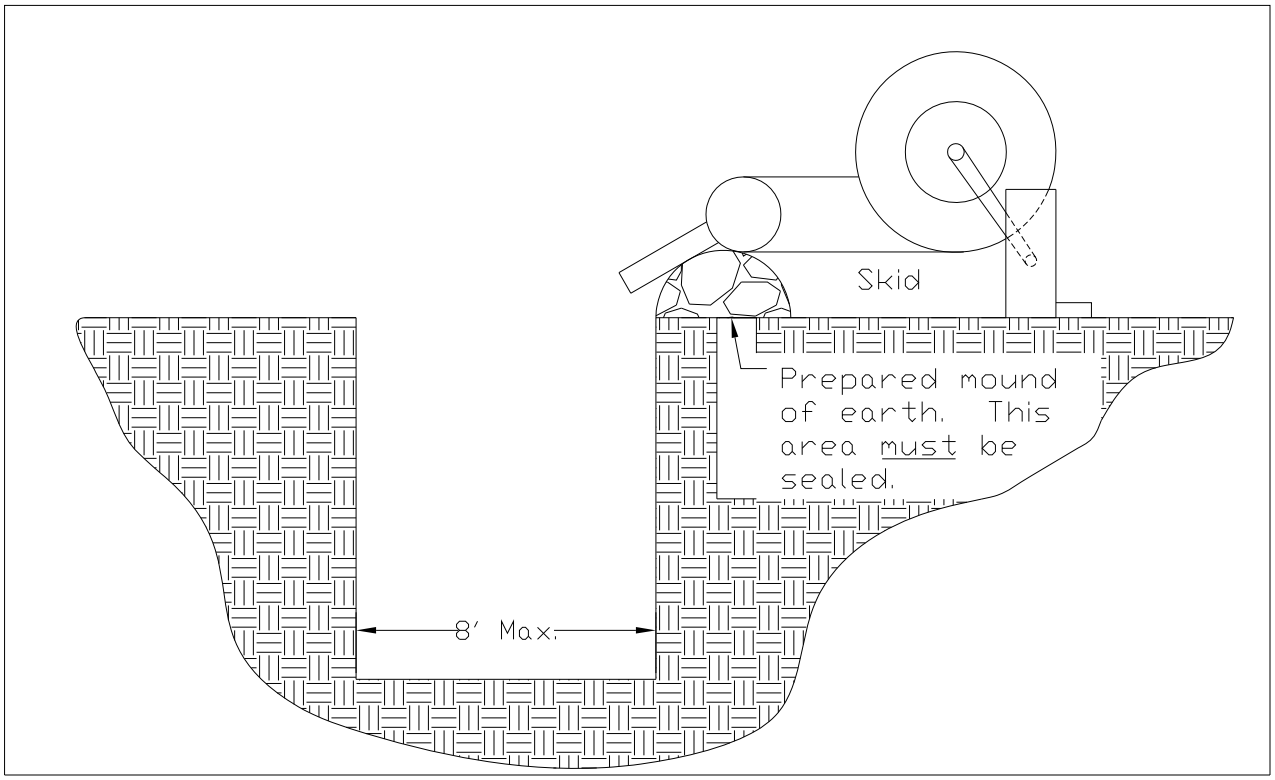


Figure 2. EQUIPMENT SET-UP

Set the destructor down with the plenum and nozzles resting on the prepared mound of earth.

PIT PREPARATION

After placing the equipment, dig the pit using a front-end loader or a back hoe. Pit dimensions are 8' wide X 12' to 15' deep X length depending on the size of the destructor used. In no case should the width exceed 8 feet.

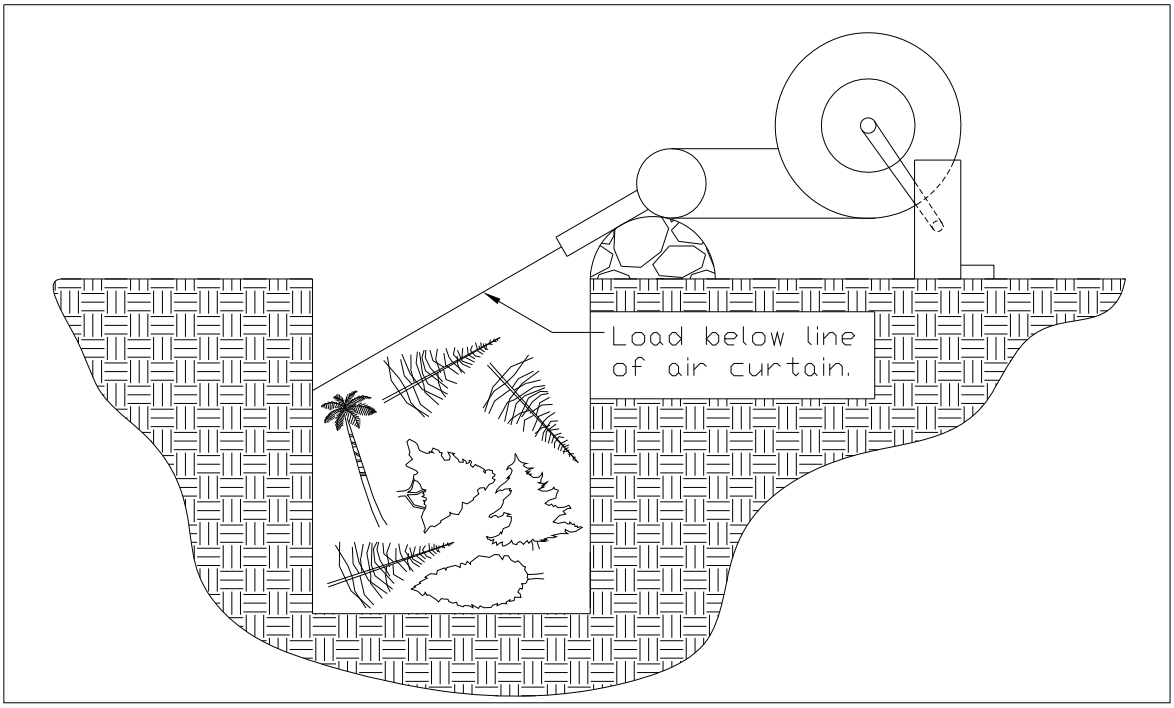


Figure 3. START-UP PROCEDURE

LOADING PROCEDURE

The intervals between chargings may be determined by observing the burning rate. Generally, if the fire is kept at its maximum intensity it will keep one man, operating a front end loader or clamshell bucket, busy constantly. The chargings should be alternated between light and heavy material. Also, the material should be charged towards the back of the pit.

The pit should not be overloaded, that is, the material should not be piled so high that it will protrude above the air curtain. Also, no material should extend outside the boundaries of the pit and air curtain where sufficient air is not available from the nozzles. In order to assure that the material remains inside the pit at its open end, it is recommended that a mound of earth be placed as a temporary barrier.

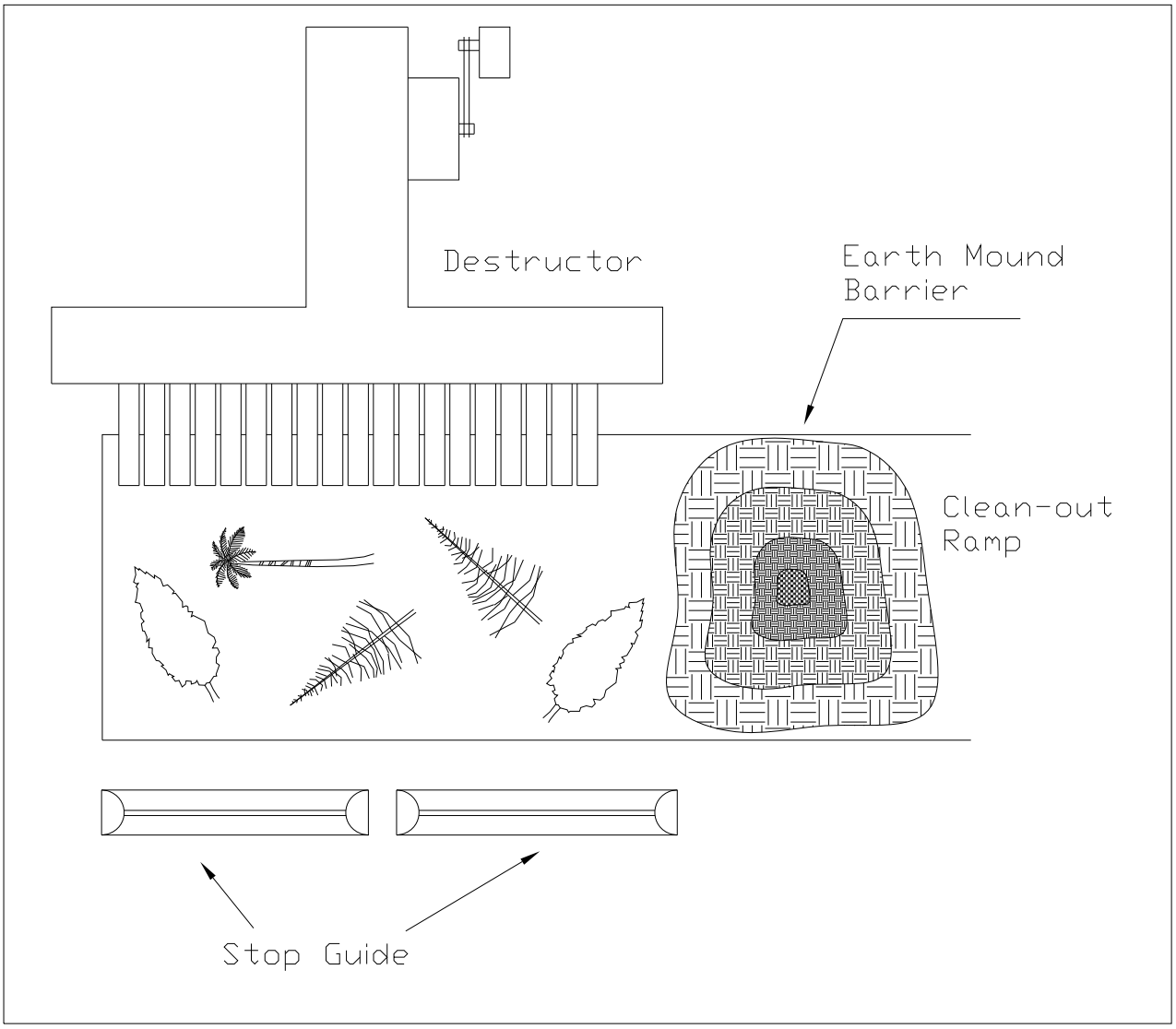


Figure 4.

MAINTENANCE AND SAFETY REQUIREMENTS

Ash removal is required in order to maintain efficient and proper combustion. Ashes should not be allowed to build up in the pit to higher than 1/3 the pit depth or to the point where they begin to impede combustion, whichever occurs first.

For reasons of public safety it is recommended that a fence or barrier surround the combustion pit.

To protect against the possible accident of a loader falling into the pit while charging, it is recommended that the pit be dug in stable soil and/or where necessary use earth anchors, buckstays, and wire mesh for additional support.

Also a "stop guide" or restraining board should be provided at the loading end of the pit in order to keep the loader from getting too close to the pit during charging operations. (See Figure 4.)