

Council of Bay Area Resource Conservation Districts

Equine Facilities Assistance Program

“Working with horse owners to protect San Francisco Bay Area water resources.”

## Horse Paddocks: Designed and Managed to Protect Water Quality

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### Participating Resource Conservation Districts

Alameda County RCD  
Contra Costa RCD  
Marin County RCD  
San Mateo County RCD  
Southern Sonoma County RCD

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### Non-point source pollution

consists of the diffuse discharge of pollutants that can occur over an extensive area. As water from rainfall, snowmelt, or human activity moves over and through the ground it picks up and transports natural and manmade pollutants, eventually depositing them into surface and ground water.

**Water quality:** a neutral term that relates to water's chemical, biological and physical characteristics. The quality of water often determines its specific use or its ability to support various beneficial uses.

**Paddocks\*** (corrals) refer to small, non-irrigated, non-grazable holding pens or exercise lots, often adjacent to horse stalls. They are used as a place to hold horses rather than as a source of pasture feed. Paddocks may appear as bare, dry lots because of heavy usage. Even though most of the ground in a paddock is not protected by vegetation, paddocks should be managed to protect soil and water resources.

**Size.** Minimize the size of the paddock or corrals. There should be at least 600 sq. ft per horse but paddocks should be less than one acre.

**Shape.** Adjust the shape of the paddock to account for the topography, drainage patterns, availability of land, and horse's requirements, e.g. consider a paddock 20' x 100' versus 40' x 50'.

**Surface.** The weather, slope, soil conditions and local regulations may dictate the type of surface required. The surface can be as simple as adding 2 inches of sand to the existing surface or more complex such as building a drain field under the entire surface (Figure 1 and 2). Keeping the paddock surface dry with adequate drainage will not only minimize contaminated runoff but also may prevent hoof disease and parasite problems.

**Fencing.** Fencing around a paddock should be strong and free from sharp or jagged protrusions. There are a variety of fencing materials available. Wood rails are attractive, but require a lot of maintenance. Horses confined to stalls or paddocks frequently resort to chewing wood or other material. Non-toxic repellents can be painted on wood surfaces to discourage chewing. Pipe fencing or smooth wire may be the most economical and attractive fencing material in the long run. Never use barbed wire for a horse paddock.

\* This definition of a paddock should not be confused with the division of a pasture into grazing cells which may also be called paddocks.

**Location.** Locate the paddock where there is proper drainage, with less than 5% slope. Any drainage should go into a buffer area or vegetated filter strip and never directly into a creek or waterbody.

- Avoid low, frequently wet and muddy areas.
- Do not locate a paddock over any part of a septic system, including the leach field.
- Locating a paddock to the south, west and east of structures will help it to dry out, especially compared to paddocks placed to the north which are more often in the shade.
- Route any irrigation water or rain-water runoff away from the paddock to keep it dry.

## Paddock Design Examples

A single horse can be housed in a paddock 12 ft wide and 24 ft long. A 2% slope from a three-sided shelter to an absorption pit improves drainage. The absorption area can vary according to need. The pit can be from 1 ft to 5 ft deep. It can be filled with rock and gravel. The surface can be covered with sand or turf. If the paddock is to be built on level ground or if the slope must be otherwise adjusted, an area equal to the area of the paddock can be excavated to a depth of 1 ft. The soil from this excavation can then be used to adjust the slope and elevate the shelter to improve drainage. Surround paddocks with grass "buffer" strips to filter any additional runoff.

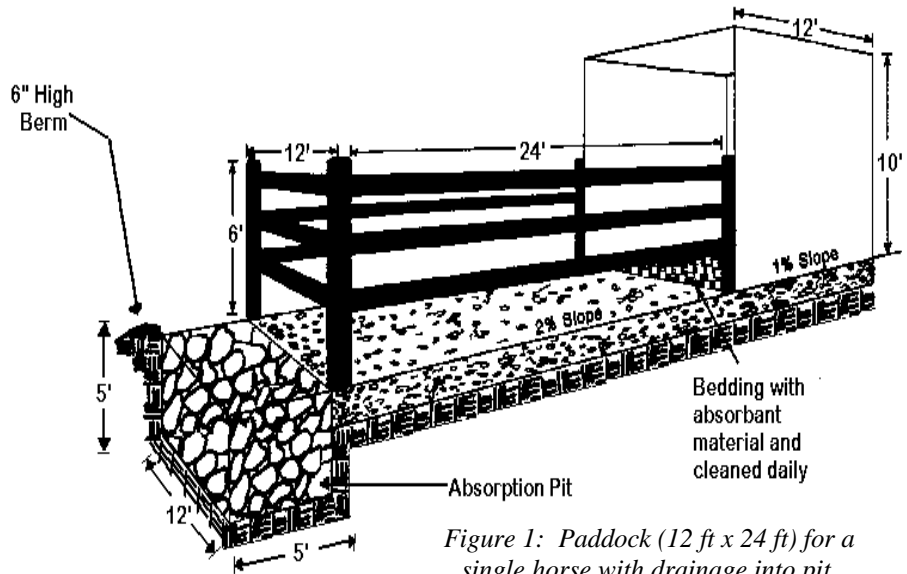


Figure 1: Paddock (12 ft x 24 ft) for a single horse with drainage into pit.

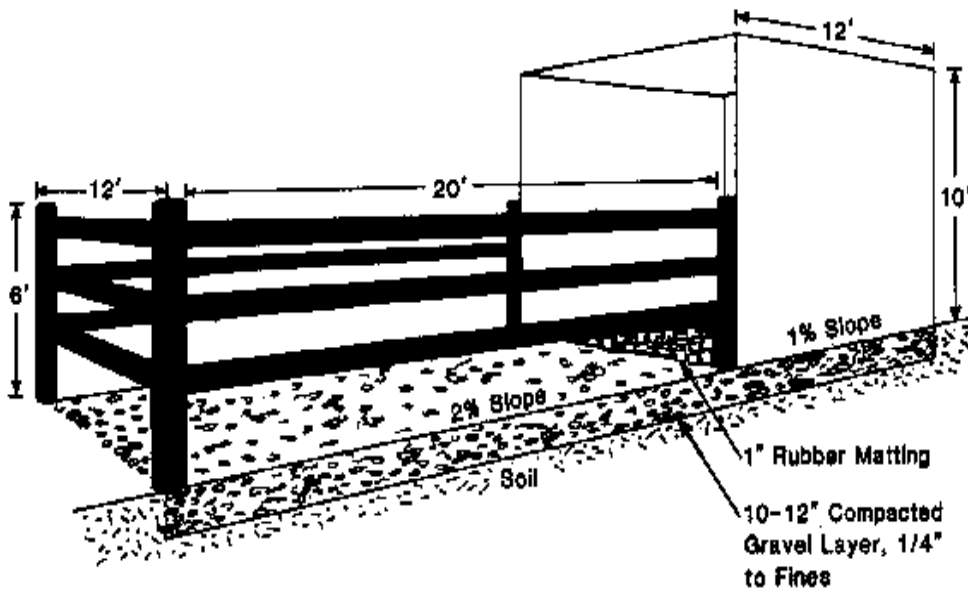


Figure 2 provides another example of a paddock (12 ft. wide by 20 ft. long) for a single horse. In this design the entire surface is prepared for adequate drainage. A 10" to 12" layer of pea gravel is covered with decomposed granite (DG) to serve as a cushion and help prevent foot sores and lameness. Under the shelter, the DG layer is covered with 1" rubber matting.

Both of these paddock designs provide for a single horse. Additional horses could be housed in similar paddocks or in larger paddocks with appropriate shelter space.

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