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# LIVESTOCK AND LAND

www.livestockandland.org

Healthy Management of Land and Livestock

## Water Quality Site Evaluation & Plan for Horse and Livestock Facilities Self-Assessment Worksheet

Originally developed by the Alameda County Resource Conservation District  
 Edited for the Livestock and Land Program by Ecology Action

### GENERAL PROPERTY DESCRIPTION

*Watershed:* \_\_\_\_\_

Nearest Creek (name): \_\_\_\_\_

Distance from property line: \_\_\_\_\_

Name/Ranch: \_\_\_\_\_ Date: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

*Total number of acres:* \_\_\_\_\_

Number of years at property: \_\_\_\_\_

Number of years livestock present: \_\_\_\_\_

Livestock	
Type	Total

Plans for future livestock? (circle one) Yes No If yes, describe below:

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Does the property allow for additional livestock? (circle one) Yes No

Has the property historically housed livestock? (circle one) Yes No

If yes, describe: \_\_\_\_\_

\_\_\_\_\_

Do you have a site map? (circle one) Yes No  
(If No, please draw or print a site map)

Describe your property:

**A. What best describes the general/overall slope of your property?**

- Flat or nearly flat land (slope less than 3%)
- Slightly sloping (slope 3% - 5%)
- Moderately sloping (slope 6% - 10%)
- Steep slope (above 10%)

**B. Soil Type(s):**

- |   |   |                                     |
|---|---|-------------------------------------|
| <input type="checkbox"/> Fine Sand      | <input type="checkbox"/> Very Fine Sand       | <input type="checkbox"/> Loamy Sand |
| <input type="checkbox"/> Sandy Loam     | <input type="checkbox"/> Very Fine Sandy Loam | <input type="checkbox"/> Silt Loam  |
| <input type="checkbox"/> Clay Loam      | <input type="checkbox"/> Silty Clay Loam      | <input type="checkbox"/> Silty Clay |
| <input type="checkbox"/> Compacted Base |   |                                     |

C. Waterways (streams, ponds, storm drains, drainage ditches etc.) on or adjacent to your property - Please note if they have seasonal or year round flow and distances from property line:

\_\_\_\_\_

\_\_\_\_\_

D. Are the above identified on your site map? (circle one) Yes No  
(If No, please include on your site map)

*Useful Tip: Include known or estimated distances on map*

E. Number of and Size/Dimensions of:

	Total #	Dimension	Dimension (if applicable)	Dimension (if applicable)
a. <i>Pastures</i>				
b. <i>Corrals / Turnouts</i>				
c. <i>Paddocks</i>				
d. <i>Stalls</i>				
e. <i>Arenas</i>				
f. <i>Wash areas</i>				

F. Are the above identified on your site map? (circle one)                      Yes      No  
 (If No, please include on your site map.)  
*Useful Tip: Outline all roofed areas on map*

G. Do you have an identified manure storage area? (circle one)                      Yes      No  
     a. Is it identified on your site map? (circle one)                      Yes      No  
     (If No, please include on your site map)

H. Do you have a manure management plan? (circle one)                      Yes      No  
 (If yes, please attach a copy to this document)

I. Do you have a dust management strategy? (circle one)                      Yes      No

Please describe. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

K. Do you have a mud management strategy? (circle one)                      Yes      No

Please describe. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Technical Assistance Documents/References:

- [http://www.livestockandland.org/Publications\\_and\\_Links/index.html](http://www.livestockandland.org/Publications_and_Links/index.html)
- Conservation Measures to Reduce Non-Point Source Pollution at Horse Facilities
- Conservation Practices for Horse Owners
- Horse Paddocks: Designed and Managed to Protect Water Quality
- Fall in Place: A Checklist for Preparing Your Horse Property for Winter
- 20 Things Every New Horse Owner Should Know

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Identified items to be addressed/corrected:

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Landowner management goals for property and natural resources:

Short term goals

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Long term goals

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## MANURE

OBJECTIVE 1: Manage stockpiled, accumulated, spread or stored manure to reduce/eliminate potential pollutants to local watersheds, surface water or groundwater.

Things to remember:

-  Divert surface runoff (stormwater) and clean water away from manure and manure storage areas.
-  Locate manure storage areas away from drainages and environmental water sources.
-  Prevent leaching from manure into soil - especially in areas where groundwater protection is a priority.
-  Cover manure.
-  Make access to storage areas convenient, size them adequately and have a contingency plan for when waste volume exceeds capacity.

### Manure Storage Areas

1. What is the calculated **volume of manure** in pounds AND cubic yards produced on site on a monthly basis?

Calculated:

A. Pounds: \_\_\_\_\_ x 45 lbs/day\* = \_\_\_\_\_ x 30 days/month = \_\_\_\_\_ lbs/month  
# of horses

$$\# \text{ of Horses} \times 45 \times 30 = \text{Lbs of manure/month}$$

B. Cubic Yards (yrd<sup>3</sup>): \_\_\_\_\_ x 0.75 ft<sup>3</sup>/day\* = \_\_\_\_\_ x 30 days/month =  
# of horses  
\_\_\_\_\_ ÷ 27 ft/yrd<sup>3</sup> = \_\_\_\_\_ yrd<sup>3</sup>/month

**ANSWER #1**

$$\# \text{ of Horses} \times 0.75 \times 30 \div 27 = \text{Cubic yards of manure/month}$$

C. Actual (if known):

Pounds: \_\_\_\_\_ lbs/month      Cubic Yards: \_\_\_\_\_ yrd<sup>3</sup>/month

Note: The average 1000 lb horse produces approximately 45 lbs of manure/day. Spatially that equates to approximately 0.75 cubic feet/day.



8. Do you or will you use dumpsters or other waste hauler containers or drop boxes to store your manure and spent shavings until they are hauled off site?

No - Skip to question 9

Yes - Please answer A - E

A. Type of containers: \_\_\_\_\_

B. Container capacity: \_\_\_\_\_

C. Frequency of removal:

Weekly  2x Weekly  Monthly  Other: \_\_\_\_\_

D. Name of Hauler/Service Provider: \_\_\_\_\_

E. Is there all-weather access?  Yes  No

*If yes, describe access.*

*If no, describe your contingency plan for loss of access due to weather, or to other causes (hauler unavailable):*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. Is manure and spent bedding stockpiled?

No - Skip to question 10

Yes - Please answer A - S

C. Stockpile Area Specifications:

Area 1

Length: \_\_\_\_\_ft Height: \_\_\_\_\_ft

Width: \_\_\_\_\_ft Capacity: \_\_\_\_\_ yrd<sup>3</sup>

Area 2 (if applicable)

Length: \_\_\_\_\_ft Height: \_\_\_\_\_ft

Width: \_\_\_\_\_ft Capacity: \_\_\_\_\_ yrd<sup>3</sup>

D. *Is the storage area covered by a roof?*  Yes (answer below)  NO (skip to D)

E. Does the roof drain water away from the storage area?  Yes  No  
*i.e. Roof run-off does not drain through storage area*

F. Is a temporary cover (i.e. tarp) utilized during months with precipitation?  Yes  No

G. *Is the storage area located on an impermeable surface (i.e. concrete, engineered lined surface)?*

Yes - Skip to question J

No - Please answer F - I

H. How deep is the water table under or near the pile? \_\_\_\_\_

I. Is groundwater protection a concern in the area?  Yes  No

J. What is the soil type and depth under or near the pile ?

Soil Type: \_\_\_\_\_

Soil Depth: \_\_\_\_\_ft

K. How will you ensure that pollutants will not leach downward into the soil and groundwater?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

L. Is runoff near storage area diverted around or drained away from the area in a non-erosive manner? Describe

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

M. Where and what does this water drain into? How does it get there? (drainage ditches, pipes etc)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

N. *What best describes the area where your manure is stored?*

Flat or nearly flat land (slope less than 3%)

Slightly sloping (slope 3% - 5%)

Moderately sloping (slope 6% - 10%)

Steep slope (above 10%)

O. Is your manure storage area located near a drainage way, spring, pond, creek or other waterbody?

No - Skip to Q       Yes - Please answer N - Q

P. *How far is the nearest natural water source?* \_\_\_\_\_

Q. Is there a vegetated filter strip between the storage area and the water?       Yes       No

R. Describe different slope, soil and vegetation conditions between the storage area and the water.

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S. What, When, Where and How of managing storage area:

Frequency of removal:

Weekly     Monthly     Every \_\_\_\_ Months     Other: \_\_\_\_\_

When:

Full     Compost Completed     Hauler Scheduled

Other: \_\_\_\_\_

Material removed from area via: \_\_\_\_\_

Is necessary Equipment Available?       Yes       No

T. Where is manure/bedding taken when the storage area is emptied?

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U. Describe contingency plan(s) for storage area if you exceed capacity.

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10. List other manure stockpiling/storage plans not identified above:

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11. Do you plan to spread manure on site?

No - Skip to question 12     Yes - Please answer A - L

A. How will it be spread?  Raw    Aged    Composted    Other: \_\_\_\_\_

B. Spreading:

Location(s): \_\_\_\_\_

Frequency:

Daily    Weekly    Monthly    Other: \_\_\_\_\_

Method: \_\_\_\_\_

C. Manure spread as:    Fertilizer    Soil Conditioner    Both

D. Will it be disked in?    Yes    No

E. Type of vegetation present where manure is to be spread:

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F. Number of years manure has been spread in same location: \_\_\_\_\_

G. Describe contingency plan if your storage capacity is exceeded before manure can be spread.

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H. Are manure spreading areas identified on site map? (circle one) Yes    No  
(If No, please include on your site map)

I. Is there a vegetative buffer strip or grass filter strip between spreading area and drainage ways, wells or water bodies to trap pollutants?

No - Needs to be addressed       Yes - Please answer J - L

J. How wide is/are the strip(s)? \_\_\_\_\_

K. Are they identified on the site map? (circle one)      Yes      No  
(If No, please include on your site map)

L. Filter Strip Condition:

Slope: \_\_\_\_\_%

Soil Type: \_\_\_\_\_

Vegetation Condition in Filter Strip: \_\_\_\_\_

\_\_\_\_\_

12. Are horses maintained in unroofed/uncovered areas such as paddocks, turnouts, corrals, pipe pens, arenas etc.?

No - Skip to question 13       Yes - Please answer A - J

A. How often are paddocks, corrals, arenas etc. cleaned?

2x Daily     Daily     Weekly     Other: \_\_\_\_\_

B. How are they cleaned? What equipment do you use?

\_\_\_\_\_  
\_\_\_\_\_

C. Approximate slope of confinement area(s): \_\_\_\_\_%

D. Is there surfacing material applied to these areas?     Yes     No

What kind in each area?

Area	Surfacing Material

E. Is there adequate drainage in these confinement areas, or does water puddle or pond during and after storms?

Yes - Drainage is adequate (No ponding or puddling)

No - Drainage is inadequate

F. Does water run through or into confinement areas from adjacent hillsides, adjacent roofs or other adjacent water sources?

No

Yes - Identify the sources

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G. Can this excess water be diverted away from the confinement areas?

No

Yes - Describe how

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H. Describe measures implemented to prevent puddling or ponding of water in confinement areas.

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I. Does water run off the confinement areas?  Yes  No

J. Does water drain to a drainage way, seasonal waterway or year round waterway?

No - Skip to question 13

Yes - Please answer K - P

K. How far is the confinement area from the drainage way, creek, stream, pond or other waterbody? \_\_\_\_\_

L. Is there a grass filter strip between the confinement area and drainage way to trap manure and soil particles?

No - Skip to P

Yes

M. How wide is the filter strip? \_\_\_\_\_

N. Is it shown on your site map? (circle one) Yes                      No  
(If No, please include on your site map)

O. Filter Strip Condition:

Slope: \_\_\_\_\_%

Soil Type: \_\_\_\_\_

Vegetation Condition in Filter Strip: \_\_\_\_\_

\_\_\_\_\_

P. Describe measures implemented to prevent confinement area manure and soil particles from draining into waterways.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

13. Which best describes your overall current manure management:

- Infrequent Removal, No cover on pervious surface
- Removed 2 times/week, Tarp cover on a pervious surface
- Removed 2 times/week, No cover on impervious surface
- Removed every other day, Tarp cover on impervious surface
- Removed 1 time/day, Permanent roof on a pervious surface
- Removed more than 1 time/day, Permanent roof on impervious surface
- Other, describe below:

\_\_\_\_\_

\_\_\_\_\_

Technical Assistance Documents/References:

- <https://www.livestockandland.org/resources/>
- Composting Horse Manure
- 5 Easy Steps to Compost
- Horse Manure Management
- Using Manure in the Garden
- 5 Great Ways to Conquer Mount Manure

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Identified items to be addressed/corrected:

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Site improvement/development goals:

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Identified changes/recommendations to management practices:

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## DRAINAGE

OBJECTIVE 2: Keep waste water from horse facilities out of drainage areas, storm drains, surface water and ground water.

Things to remember:

-  Keep clean water clean. Do not mix with waste water.
-  Minimize the volume of waste water generated.
-  Drain waste water into septic systems, sewer systems or designed and designated vegetated filter strips for treatment.
-  Do not discharge waste water directly into storm drains, drainages, creeks, ponds etc.

### Horse Wash Areas

1. Do you have designated horse wash areas at your facility?

No - Skip to next section

Yes - Please answer A - F

A. Is the horse wash facility at your site located near a drainage way, creek or pond?

No

Yes - Approximate distance: \_\_\_\_\_

B. Does the wash area have a hard surface with a drain?

No

Yes

C. Where does the wash water drain into? \_\_\_\_\_

D. Is the wash water "treated" (discharged into a grass filter strip, settling pond etc.) on site?

No

Yes - How? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

E. Filter Strip Condition:

Slope: \_\_\_\_\_%

Soil Type: \_\_\_\_\_

Vegetation Condition in Filter Strip: \_\_\_\_\_

\_\_\_\_\_

F. Are the wash area, drainage and filter strips identified on your site map? (circle one)  
(If No, please include on your site map)

Yes No

### Stall Cleaning

1. Do you have indoor stalls with impermeable solid flooring (not soil or other permeable surface materials)?

No - Skip to next section

Yes - Please answer A - D

A. Do you wash out your stalls with water containing soap or other chemicals?

Yes

No

B. Where does the wash water drain? \_\_\_\_\_

C. Is there a plan for treating the dirty water?  Yes  No

If so, please describe: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

D. List the frequency of and reason for stall washing:

Frequency of cleaning:

Daily  Weekly  Monthly  Other: \_\_\_\_\_

Reason(s) for stall washing:

\_\_\_\_\_

### Roof Drainage

\* Note: There is approximately 7.5 gallons of water in a cubic foot. Therefore 100 square feet (10 foot x 10 foot) of impervious area, such as a roof, will capture/yield approximately 62.5 gallons of rainwater with each inch of rainfall. This statistic may prove helpful in evaluating your current runoff management from barn and stall roofs.

1. Do you have gutters and down spouts on all barn, stall and paddock roofs?

Yes  No

2. Do the down spouts tie into a drainage system that keeps the clean water away from potential contaminants such as manure, urine or bare ground?  Yes  No

3. Where do the gutters outlet? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. If you do not have gutters, how is clean water kept out of potential contaminated areas (areas with manure, urine or bare ground)?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. *Stable/Covered stalls or roofed areas:*

Area: \_\_\_\_\_ft<sup>2</sup>

**Property Drainage**

1. Do you have drainage systems installed on your property?  Yes  No

2. Do you have a backup plan in case of a system failure? Explain.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Is entire drainage system identified on your site map? (circle one) Yes No  
(If No, please include on your site map)

4. Does the drainage that carries effluent water outlet into a filter area?  Yes  No

Explain:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Do you combine your clean and dirty/soiled water into the same outlet area?

Yes

No

Explain:

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*Paddock / Hardened Turnout Areas and Pens*

1. *Area:* \_\_\_\_\_ft<sup>2</sup>

2. *Soil type*

Fine Sand

Very Fine Sand

Loamy Sand

Sandy Loam

Very Fine Sandy Loam

Silt Loam

Clay Loam

Silty Clay Loam

Silty Clay

Compacted Base

3. *Organic Matter*

<0.5%

2%

4%

4. *Slope:* \_\_\_\_\_%

5. *Type of cover:*

None

Native Vegetation

Grasses

Technical Assistance Documents/References:

- <https://www.livestockandland.org/resources/>
  - Conservation Practices for Horse Owners
  - Conservation Measures to Reduce Non-Point Source Pollution at Horse Facilities
  - Stormwater Runoff Management at High Use Areas
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Identified items to be addressed/corrected:

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Site improvement/development goals:

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Identified changes/recommendations to management practices:

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## PASTURES

OBJECTIVE 3: Prevent grazing livestock from overgrazing pastures, eroding creek banks and damaging riparian (streamside) vegetation.

Things to remember:

-  Maintain a minimum height of four (4) inches of grass on pastures (can be dry grass at the end of the season) to protect soil from erosion and to maintain plant vigor.
-  Fence out livestock from creeks and ponds when possible; provide other sources of drinking water.
-  Practice rotational grazing; divide up pastures and move livestock from one to another to allow pastures to rest and recover.
-  Confine livestock in paddocks when pastures are wet or when forage is no longer available in pastures. Keep livestock out of the pastures during wet months.
-  Develop water sources to attract livestock to remote portions of pastures.
-  Manage weeds.

\* Note: In this worksheet "Pastures" are considered to be areas where grass is grown for forage for livestock and maintained to prevent erosion; pastures are distinguishable from "Paddocks" in that paddocks are smaller in size and are considered confinement areas with little to no vegetative cover.

1. **Area:** \_\_\_\_\_ ft<sup>2</sup>

2. **Soil type**

- |   |   |                                     |
|---|---|-------------------------------------|
| <input type="checkbox"/> Fine Sand      | <input type="checkbox"/> Very Fine Sand       | <input type="checkbox"/> Loamy Sand |
| <input type="checkbox"/> Sandy Loam     | <input type="checkbox"/> Very Fine Sandy Loam | <input type="checkbox"/> Silt Loam  |
| <input type="checkbox"/> Clay Loam      | <input type="checkbox"/> Silty Clay Loam      | <input type="checkbox"/> Silty Clay |
| <input type="checkbox"/> Compacted Base |   |                                     |

3. **Organic Matter**

- <0.5%       2%       4%

4. **Slope:** \_\_\_\_\_%

5. **Type of cover:**

- None       Native Vegetation       Grasses

6. Do livestock graze in pastures located on your property?  No  Yes

7. Do you board livestock kept in pastures full time that do not have access to stalls or a paddock?

No - Skip to question 3

Yes - Please answer A - B

A. How many? \_\_\_\_\_

B. What is the size of the pastures? \_\_\_\_\_

8. Does the livestock have direct, unlimited access to drainage ways, stream channels or ponds?  No  Yes

If no, please explain:

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9. Do you have more than one pasture?  No  Yes

A. Do you practice rotational grazing?  No  Yes

B. Do you irrigate any of your pastures?  No  Yes

10. Are livestock moved away from pastures, when necessary, to protect pastures from erosion and damage to the grass? (i.e. when the soil is saturated or when they have grazed it to four (4) inches or lower)  No  Yes

11. Do you confine livestock to paddocks or turnout areas in order to protect the pastures from excessive trampling or compaction?  No  Yes

12. *Which best describes current condition of exclusionary fencing:*

- No fencing
- Exclusion w/fenced stock crossing in water
- Fenced buffer to water way: 10' or less
- Fenced buffer to water way: >30' buffer
- Exclusion w/fenced stock crossing over culvert
- No access to water: >50' setback / buffer
- Other, describe below:

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13. Please list any additional measures or practices you employ to protect your pastures from overgrazing and/or erosion?

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14. Do you manage your pastures to limit or control weeds?  No  Yes

If yes, please explain:

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15. *Which best describes current conditions of pastures:*

- No vegetation and no drainage controls
- Drainage controls with no vegetation
- Patchy/Sparse vegetation with no drainage controls
- Vegetation with no drainage controls
- Patchy/Sparse vegetation with proper drainage controls
- Significant vegetation year round and proper drainage controls
- Other, describe:

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Technical Assistance Documents/References:

- <https://www.livestockandland.org/resources/>
  - Dryland Pasture for Horses
  - Pasture Management
  - Five Keys to Better Pastures
  - Creating and Using a Sacrifice Area for Horses
  - Natural Solutions for Fertilizers, Weed Control and Pest Control
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Identified items to be addressed/corrected:

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Site improvement/development goals:

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Identified changes/recommendations to management practices:

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