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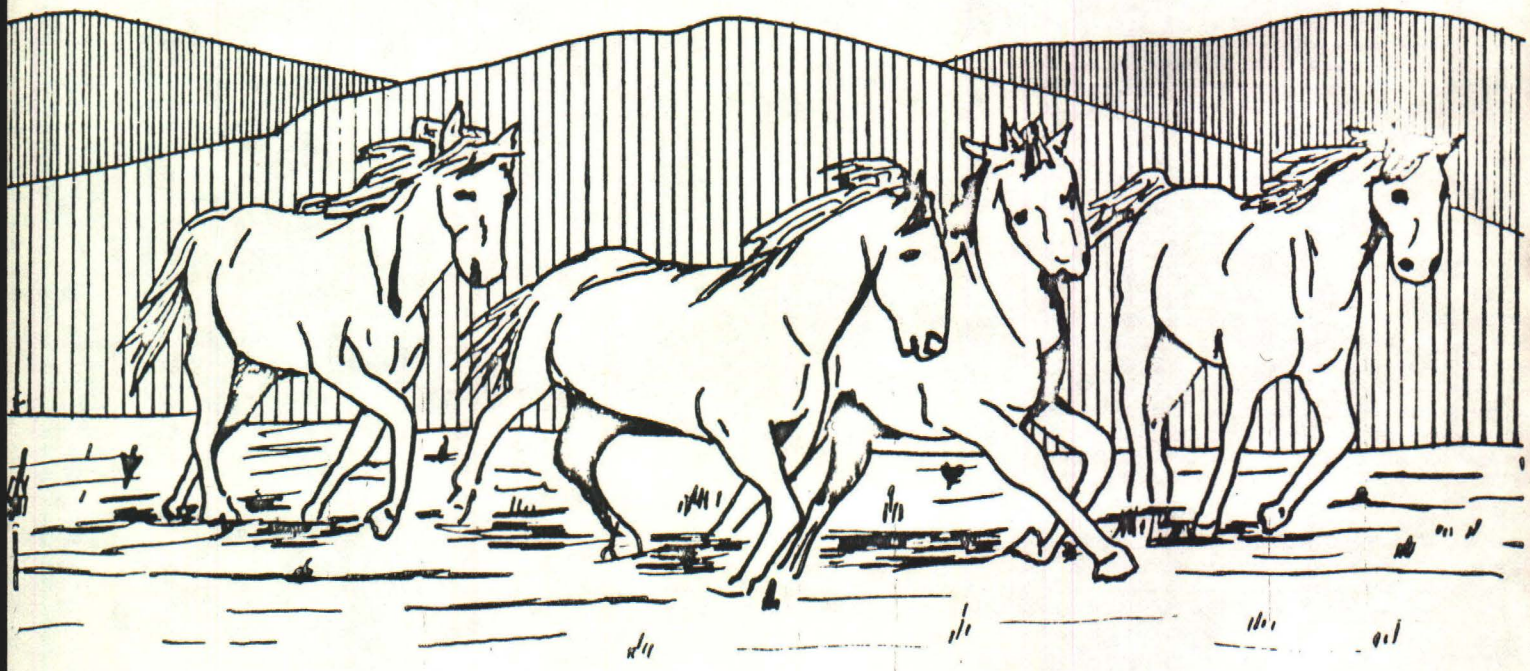
WILD HORSE

CAPTURE TECHNIQUES



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Draft

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WILD HORSE CAPTURE TECHNIQUES

By: Ron Hall

Man has devised many methods of capturing wild horses for commercial or other reasons. Now, management of horses under P.L. 92-195 requires the use of previously developed techniques and the development of more efficient methods of capturing horses.

There are essentially two situations in which it will be necessary to capture wild horses: (1) Population Reduction, and (2) Study. For study purposes many of the methods in this paper will work. Population reductions are an entirely different manner. Many of the methods will prove too costly in terms of time and manpower when attempting to catch large numbers of horses. Methods of capture include water trapping, dry trapping, immobilization and roping.

Water Trapping

Water trapping is a proven, effective technique in areas of scarce water supplies. If designed and operated correctly they will prove more effective than other techniques in terms of number of animals captured and cost per animal. Illustration 1 is an example of a typical

water trap. The particular design of the trap depends upon the location, topography and needs of the manager. The basic idea of Illustration No. 1 is sound and may be modified to almost any situation.

When planning a water trap, consideration must be given to all factors that will effect the success of the trap. The number of horses watering at the facility and the suitability of the topography for construction of a trap are primary considerations. Equally important are distance to and use of alternate waters and vehicle access to the trap site. Other factors include the feasibility of shutting off alternate water sources, ease of transporting horses, providing adequate food and water at the holding facility and if located away from the trap the distance to the facility and method of moving the horses.

Wild horses will not voluntarily enter a new facility if alternate known sources of water are available within trailing distance. Depending upon topography and temperature, horses may easily trail up to 20 miles to water. Horses must be given time to adjust to new facilities or be forced to use them. In some cases the adjustment period may be as much as two years. One must remember that when using water as a trapping incentive you are working with all water sources known to the horses within their traveling capability.

Before building any facility a capture plan should be worked out and all alternatives considered. Working with several traps which may be

used alternately will prove more effective than trying to use a single trap. Water sources that are to be closed to use may be effectively shut off by using a five wire fence.

Particular care must be taken when closing off waters and utilizing water traps. Some horses may be inadvertently shut out of water even if the traps are checked several times throughout the day and night. For this reason, it is often wise to operate the traps every third day. Once facilities are constructed and in operation most of the horses will probably water at night. If possible, the traps should be checked at least twice a night.

If permanent holding facilities are not to be constructed adjacent to the trap, temporary facilities should be provided. This will greatly increase the flexibility and effectiveness of the trap. The first horses caught in the trap may be pushed into the holding facility and the trap reset for additional horses. This may enable several bands of horses to be captured during the night. During the design phase the manager must remember that horses will probably have to be moved into the holding facility at night on foot. Design must be compatible with the behavior of captured horses. Horses should be funneled into the holding facility. Designs on both Illustrations Nos. 1 and 2 should allow the manager to corral horses at night on foot.

The gate to the trap may be closed manually, mechanically or electronically. Manually closing the gate will result in wasted time and lost

horses. A man must be stationed at the trap twenty-four hours a day or must periodically sneak up to the trap and close the gate. The latter technique is inefficient, but if used, hay should be scattered around the water to prolong the horses time in the trap.

Electronic trip devices are on the market or may be fabricated. Experience has shown that they are more expensive and just as prone to failure or malfunction as mechanical devices. An effective trip device is depicted on Illustration Nos. 1, 2 and 3 with a close-up view on Illustration No. 4. Figure 5 is an illustration of the gate and how it functions. Latches may be installed on the gate to fasten it when it closes or one may rely upon the weight to keep the gate closed. Some type of latch which fastens securely when the gate closes will prove more effective.

If a temporary holding facility has not been provided, animals must be moved from the trap to a centralized holding facility to await final disposition. If vehicle access and a loading ramp have been provided, it will be a simple matter to transport the horses. If the trap is located in remote terrain other methods will have to be used.

Animals may be taken out by the use of a saddle horse and rope. Unless halter broken the horses will not lead. The rider should position himself behind the wild horse with the rope attached to the saddle horn and around the wild horse's neck and drive the horse. A leading rider will often help to get a balky horse started.

Wild horses may be halter broken in four or five hours and may then be led to the holding facility. This is, obviously, a time consuming process. If one is working with many horses, the number of personnel it takes to utilize this technique becomes prohibitive.

Another technique that has proven effective is tying a rope around a horse's flank with a bolan knot and running the rope forward and tying it to a front foot. The front foot should be tied in the normal standing position. This will enable the horse to walk but not to run. After the first few minutes this is a humane and effective technique for movement of wild horses. A few riders can drive and maneuver several wild horses.

Horses tied head to tail can also be maneuvered by a few riders. If this technique is used the horses must first be well halter broken. A halter and rope is placed on the animal and the rope is tied to the doubled tail of another horse. This process is repeated until the desired number of horses have been hooked together. The front horse is then led by a rider with other riders flanking and following.

Many other techniques have been tried in the past by mustangers. Most of these are ineffective or inhumane to use.

Construction

Water traps have been constructed out of every conceivable material. If horses are to be managed in the area on a continuing basis, a solid, permanent facility should be constructed. A fence of 6'6" is

adequate to hold wild horses, but an extra foot will provide a greater margin of safety. Since horses must be worked in the trap, boards should be placed 3" apart above 3' in the working facility. (See Illustration No. 7 for typical fence design.) If this is not done the fence should be covered with canvas or other material at crucial places. When being worked, horses will try to run through a fence they can see through. The logic of leaving the top boards 3" apart above 3' is to allow the fence to be easily scaled.

Figure 2 depicts a water trap with temporary holding facilities. The horses should be allowed as much room as possible between the gate and the trip wire. When horses come into water they are often strung out so a maximum distance between gate and trip wire should eliminate splitting bands of horses up.

Dry Traps

Dry traps are usually located in an area where a number of trails converge or where horses tend to travel when being chased. Care must be taken to conceal traps to the extent possible. Effective use of dry traps is dependent upon intimate knowledge of horse trail systems and movement patterns.

Illustration No. 3 depicts a typical dry trap. Most facilities will be constructed differently because topography must be used to conceal the trap. If the trap is closed manually by a rider, he must be immediately behind the horses as they go into the trap. If not, the horses will turn

around and go back through the gate. Once out the gate it will be almost impossible to drive them back into the trap.

Portable facilities may be used in certain situations. Portable corrals are available on the open market or a manager may fabricate his own out of net wire, cable and canvas. Panels to portable corrals are heavy, bulky and require vehicle access to the trap site.

Portable facilities are flexible and quick to erect and remove. When horses learn of a traps location, it becomes extremely difficult to corral them. This is one disadvantage of a permanent dry trap. However, if a permanent trap is used for short periods of time and left open the rest of the year, chances of success will be improved. Dry traps are normally concealed in drainage bottoms, over the crests of hills or in heavy cover. If permanent facilities are constructed in drainage bottoms, they may be occasionally damaged by runoff.

When using dry traps horses must be moved to a centralized holding facility where water and food can be provided. (Discussion on movement under water traps.)

Holding Facilities

Two major types of holding facilities may be provided: (1) decentralized and (2) centralized. The decentralized facility offers the advantage of not having to move the horses twice. Disadvantages are the number of facilities that must be constructed and the effort involved in caring for the horses in scattered locations.

A unique centralized holding facility is depicted in Figure 6. In certain situations the working corral may also serve as a water trap. If horses are to be removed and disposed of, elaborate holding facilities must be available. The more horses that are being managed the more extensive facilities must be.

Figure 6 offers the maximum utilization of space and ease in handling and caring for horses. This illustration is not scaled and may be modified to fit any particular need.

Studs must be separated or given a large area in which to space themselves. If not, they will be continually fighting. The alleys should be wide enough to allow a rider to easily turn around in them. The loading ramp should be narrow enough to prohibit a horse from turning in it. The working corral, alleys and loading ramp should be built with boards spaced 3" apart above 3'. See Illustration No. 8. The powder river type gate has proven effective in working and containing wild horses.

Immobilization

Immobilization is a useful and effective study technique. It is not an efficient means of population reduction if many animals are involved. The humane disposal of animals on the open range through the use of a remotely injected drug is not as efficient nor more humane than a well placed rifle bullet.

Several drugs are commercially available and have proven effective in immobilizing wild horses. Currently, one of the more effective is Succynlcholine chloride, which is marketed under several trade names (Sucostrin, Utha-Sol, Anectine and others).

Succynlcholine chloride

Advantages:

1. Quick knockdown 1½ - 2 minutes
2. Inexpensive and often readily available at local hospitals or drug supply houses.
3. The animal is in fairly good control of his senses until he goes down.
4. Recovery time approximately 10 minutes.
5. Drug volume is always 5cc or less so the smaller more stable darts may be used.

Disadvantages:

1. An antidote is not available.
2. After the drug is in solution it must be kept on ice during warm weather.
3. Occasionally animal reaction and tolerance level to the drug will vary.

Succynlcholine chloride comes in a powder form and is normally mixed at a concentration of 100mg/cc. When in solution it must be kept on ice during hot weather and precautions should be taken to prevent it from freezing during the winter. The drug is relatively inexpensive

so it should be discarded at the end of each work day. Due to the number of variables present, the manager must strive to eliminate as many as possible. One such action is to make sure a fresh, full strength supply of drug is available at all times.

Succynlcholine chloride affects the skeletal muscle system and causes relaxation. In the event of an overdose, the diaphram is depressed and may cease functioning. If this occurs artificial respiration should be administered immediately by pumping on the chest cavity. If reached rapidly enough the animal may be saved. Aspiration of the stomach contents is a possibility especially if an animal falls with its head downhill. If trouble is noted the animal should be positioned uphill and if possible be placed in the sternal position.

The drug should be fired into an area of large muscles such as the hind quarters or the front shoulders. Injection into an area of fatty deposits will result in slow absorption. When injecting intramuscularly the effective dose level varies with the condition of the animal. Condition is a function of time of year and associated animal condition. Illustration No. 8 reflects dose levels developed by this researcher in Montana, Nevada, and Utah at various times of the year. Some of these values have been extrapolated but represent a total of approximately 125 immobilized horses. The manager must develop his own effective dose level for his particular situation. This graph is a general guide only. A normally safe initial dose is around 25 mg/100 pounds.

A lower tolerance level is exhibited by certain color phases of horses. Specifically Blue Roans, Red Roans and Grulla's cannot tolerate a dose level that would be effective in a horse of different color but comparable weight. This variation cannot presently be explained. It has been found that horses of different breeding (draft vs. thoroughbred) react differently to certain drugs and require different dose levels. Data is not available on the reactions of white or pinto horses.

If an animal has been running for an extended period of time it is not wise to inject them with Succynlcholine chloride. Extreme variance can be expected. The animals circulatory system is speeded up and he is breathing rapidly. The drug is distributed through the system rapidly and may result in death.

If a researcher is going to be working on a horse under Succynlcholine chloride for over ten minutes it is advisable to tie the animal down. In any event, the head should be held to prevent the animal from slamming it against the ground.

Once an effective dose level has been established the most critical factor becomes the accurate estimation of horse weights. There is no substitute for experience. Since scales will normally not be available in the field the manager must take every opportunity to estimate weights for experience. He should estimate and weigh saddle horses used in the field. Experience may also be obtained at horse sales where horses are normally weighed. The inexperienced observer will almost always over-estimate the weights of wild horses. At a distance, with only other wild

horses as a basis for comparison, the horses will look large. Normally, even the largest horse in the band will still weigh 10-20 percent less than an average saddle horse.

M99 - Etorphine (Immobilizer M50-50 Diprenorphine (Antagonist). Available through American Cyanamid Company, Princeton, New Jersey.

M99 is an alkaloid and a derivative of opium. Since it is a narcotic the researcher must be registered with the Bureau of Narcotics and Dangerous Drugs. M99 is relatively expensive and often difficult to obtain. M50-50 is an antagonist that negates the narcotic effect of M99.

Advantages:

1. Broad tolerance level.
2. Antagonist counters the effect of M99.
3. Stable chemical (refrigeration not necessary).

Disadvantages:

1. A narcotics license is necessary.
2. This is an experimental drug not being produced commercially so it is expensive and often difficult to obtain.
3. Slow knockdown - approximately 10 minutes.
4. Unless in a corral the animal must be contained (roped) during the last few minutes.
5. M99 places horses under considerable stress.

M99 is an alkaloid that depresses the central nervous system. Dose levels from .2mg/100 lb. up to 4.3 mg/100 lb. have proven effective in horses.

It is, however, safer to give the maximum dose rather than the minimum effective dose. In fact, underdosing may cause hyper-excitability, hyperventilation and alkalosis that may result in death. A rapid reversal of M99 may be obtained by injecting M50-50 intravenously. Recovery time will vary from 15 seconds to 2 minutes. The general rule is dose heavily and reverse quickly. Due to dart size becoming cumbersome and difficult to shoot accurately, the drug dose should be kept under 10cc and preferrably 7cc or less. Wind has a substantial effect on larger darts.

The following side effects may be noted in horses injected with M99:

1. Increased heart rate.
2. Increased blood pressure.
3. Reduction of respiratory rate.
4. Muscular tremor.
5. Rigidity.
6. Elevated temperature with profuse sweating.

The following visual responses may be expected over time after injection of M99:

2-3 min - first visual effect a mincing trot.

3-5 min - increasing mincing trot with slight staggering.

5-7 min - beginning of myotic effect-stumbling increasing.

7-10 min - myotic effect extreme - stumbling - normally lateral recumbancy.

Pregnant animals should not be injected with M99 according to the literature released by the American Cyanamid Co. It is often difficult to determine if a mare is pregnant especially during the first five or six months. At least three pregnant mares have been injected with M99 and produced an apparently normal colt. This is not intended to indicate that use of M99 on pregnant animals is without hazard to mother and young.

If animals have been under considerable environmental or physical stress it is best to refrain from using M99. The combination of stresses may prove too much for an animal's system. Some work has been done in horses with M99 in combination with a tranquilizer - phenothiazine. This combination is reputed to have reduced stress. The results were unpublished so data is not available on appropriate dose levels.

Rompun-Zylazine

Preliminary indications are that this drug is not effective in immobilizing wild horses with an intramuscular injection. Up to 20cc have been injected I.M. into a 900 lb. horse without immobilizing it. In addition to not going down, animals may exhibit periods of hyper-excitability.

Other

A readily obtainable, effective, safe drug has not yet been developed to immobilize horses by remote injection. Other drugs are being worked on and may be available in the future. One that initially seems promising

is a drug termed 744. This drug has not been field tested on wild horses and is not now commercially available. Hopefully, field testing will be allowed in the near future.

Remote injection equipment is available from Palmer Chemical and Equipment Co., Inc., Douglasville, Georgia. Once the manager learns how to fire the gun and understands its capability at various ranges, the first small step has been taken toward becoming efficient at immobilizing. Effective use of the drug, equipment and the ability to handle horses takes a lot of experience. In immobilizing situations, rapid decisions must be made and invariably some of them will be wrong.

Death loss may be expected when using either M99 or Succynlcholine chloride. This is due to individual animal response to the drug and to general animal condition. If care is taken death loss should be maintained at well below 10%.

Roping

Chasing horses and roping them is costly and time consuming. It is possible to capture horses using this technique if skilled personnel are available. This technique may be feasible if removing only a few younger horses. The chasing necessary when roping horses may cause considerable disruption to the population.

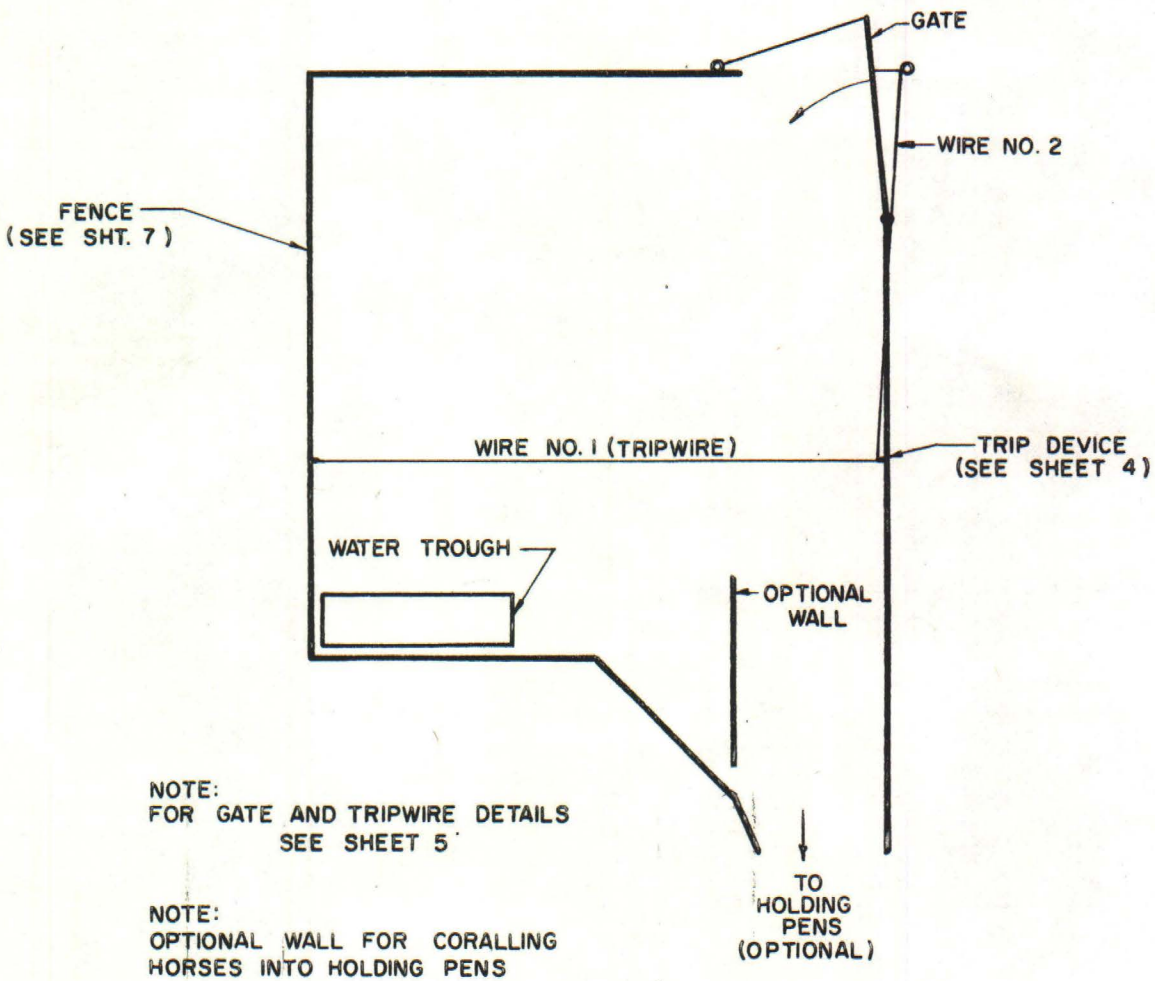
Conclusion

Regardless of the technique used the manager must have intimate knowledge of the behavior of the horses on the terrain in which they live. Even if we are someday allowed the use of aircraft in the management of wild horses, this will not alleviate the necessity of thorough knowledge of wild horse behavior.

As the field of wild horse management develops into a more exact science other methods of capture and control will be developed. Under current restrictions the control aspect of wild horse management is an expensive process. The manager must use all the ingenuity at his disposal to humanely capture horses while attempting to keep costs within fundable levels.

Note: Since finalization of this paper M-99 became commercially available through D-M Pharmaceuticals, Inc., Rockville, Maryland. Prices have skyrocketed to $56.20 per 20 ml. vial. Since M-99 and its antagonist M-50 50 must be used equally, cost per shot is approximately $16.00 if a 3 cc dosage level is used.

NOTE:
DIMENSIONS ADJUSTABLE
TO CONDITIONS



NOTE:
FOR GATE AND TRIPWIRE DETAILS
SEE SHEET 5

NOTE:
OPTIONAL WALL FOR CORALLING
HORSES INTO HOLDING PENS

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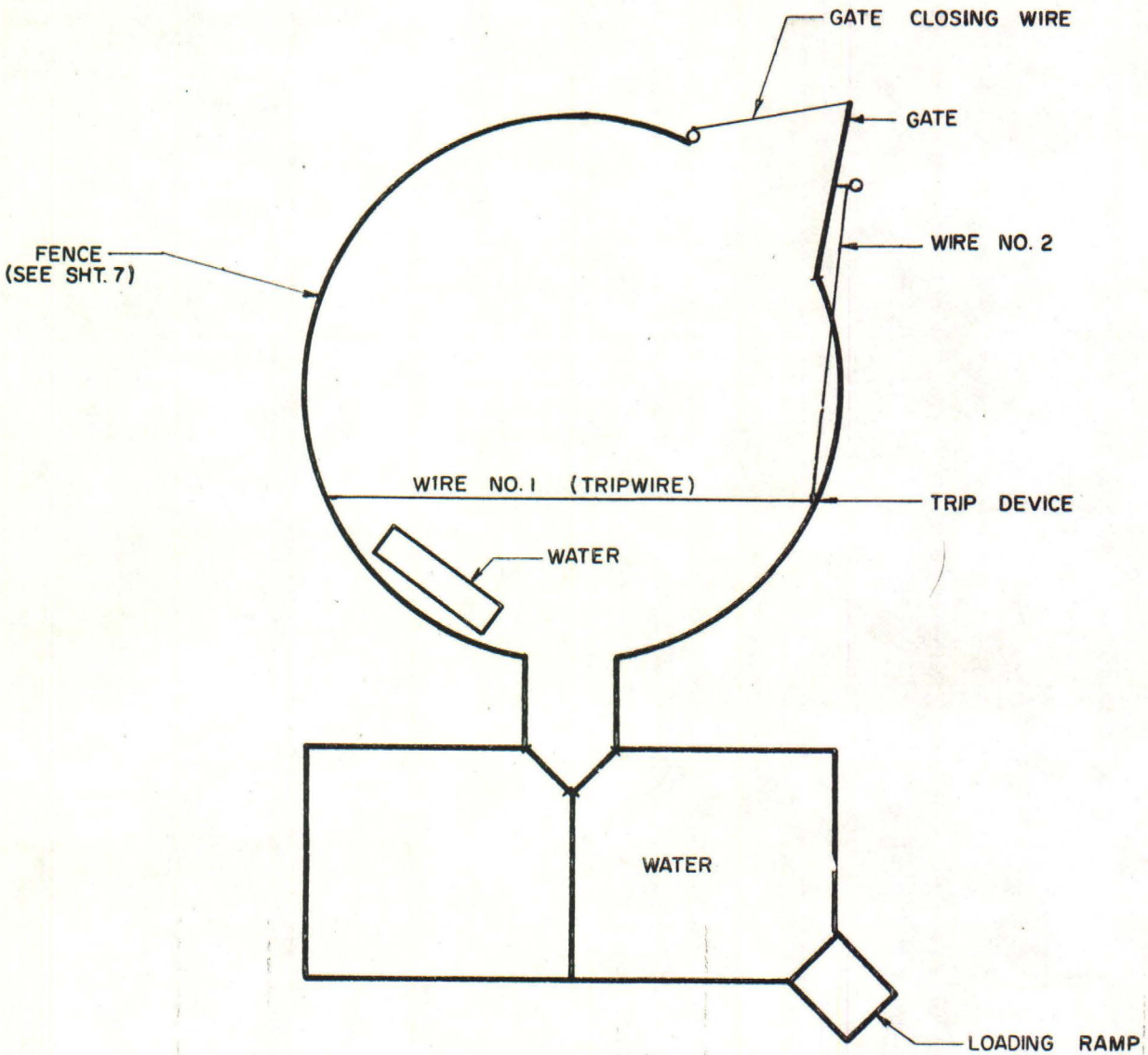
WATER TRAP WITH TRIPWIRE	
SCALE: NONE	SHEET 1 OF 8

NOTE:
DIMENSIONS ADJUSTABLE
TO CONDITIONS

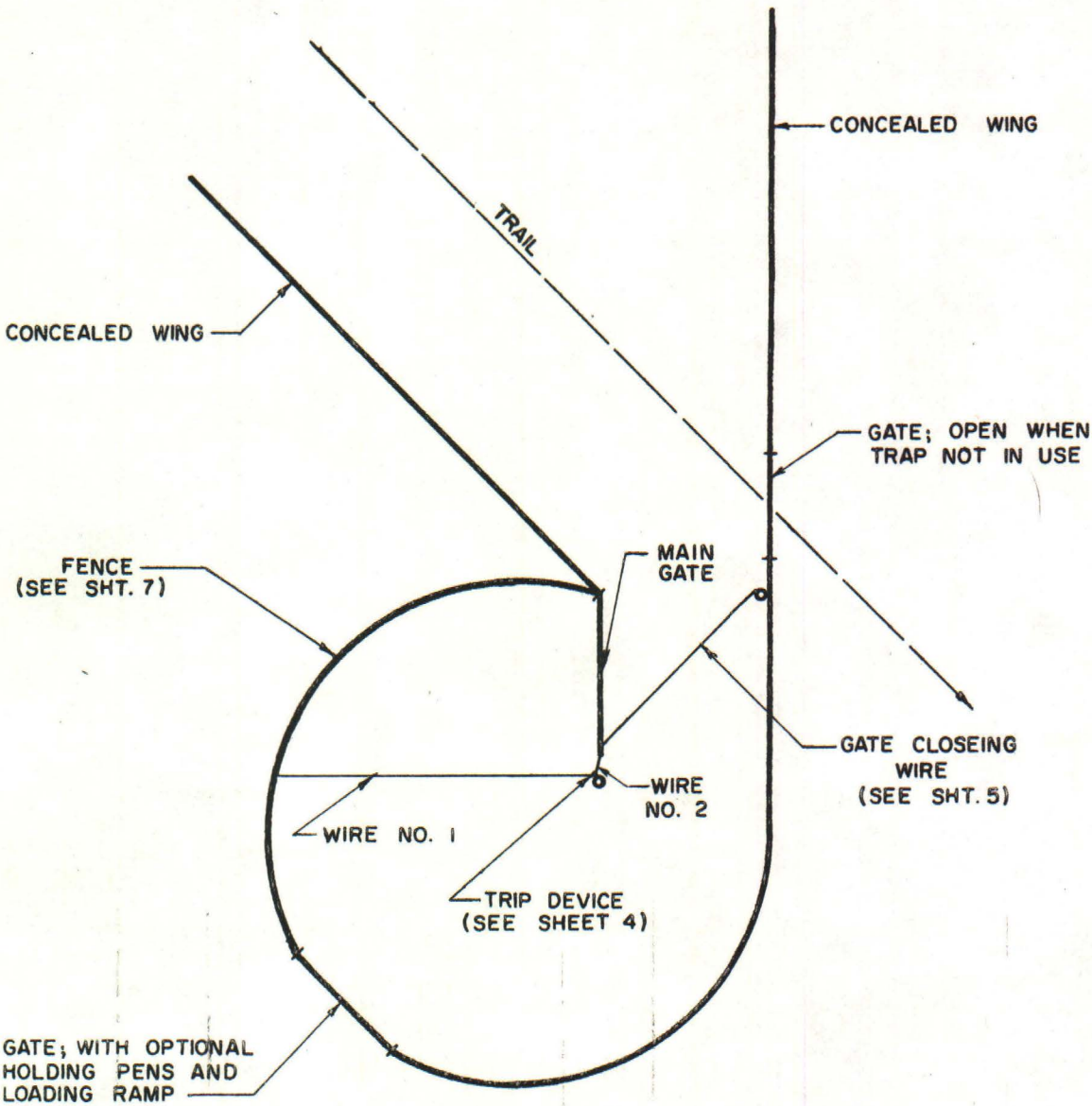


NOTE:
FOR GATE CLOSING SYSTEM
DETAILS SEE SHEET 5

DESIGNED BY RON HALL

TYPICAL TRAP WITH SMALL HOLDING CAPACITY	
SCALE: NONE, SEE NOTE	SHEET 2 OF 8

NOTE:
DIMENSIONS ADJUSTABLE
TO CONDITIONS



NOTE:
FOR MAIN GATE AND
TRIPWIRE DETAILS
SEE SHEET 5

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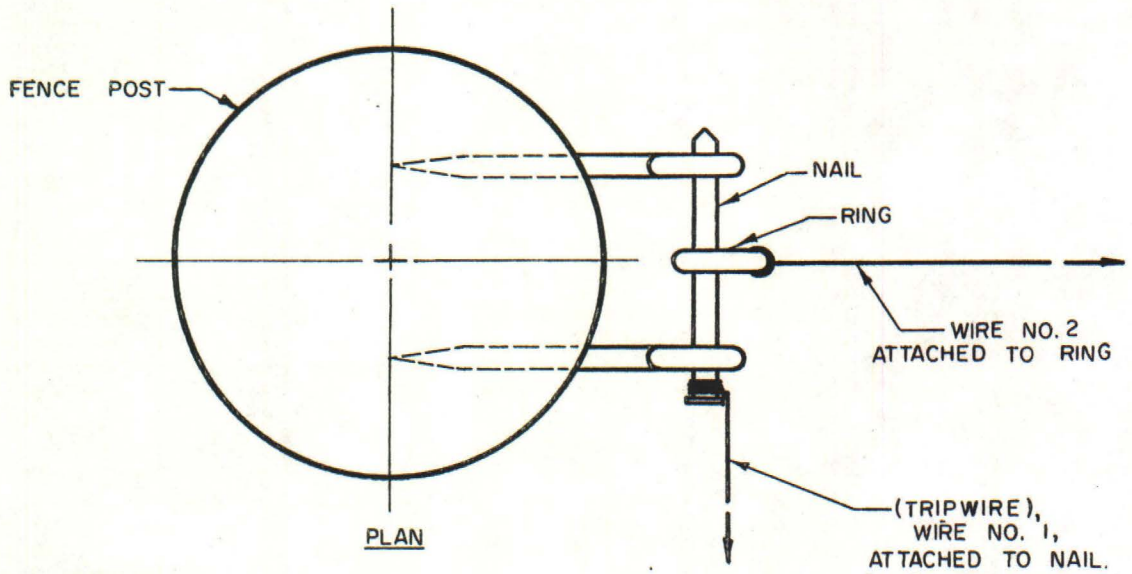
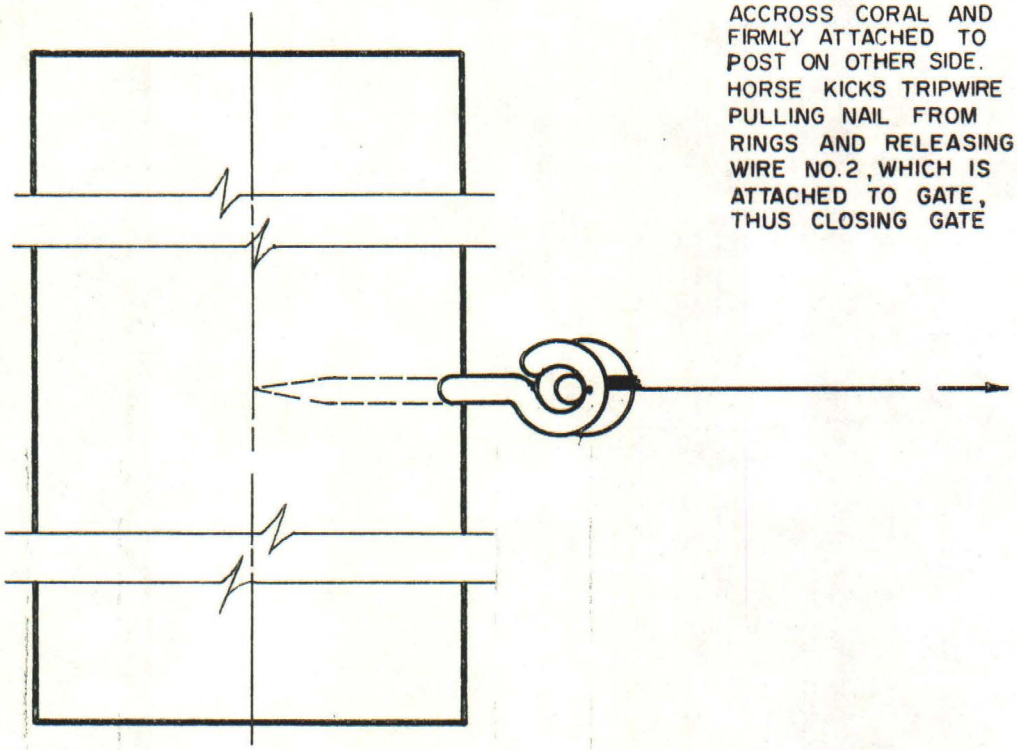
DRY TRAP	
SCALE: NONE	SHEET 3 OF 8

NOTE:
DIMENSIONS VARIABLE ACCORDING
TO MATERIALS USED



PLAN



ELEVATION

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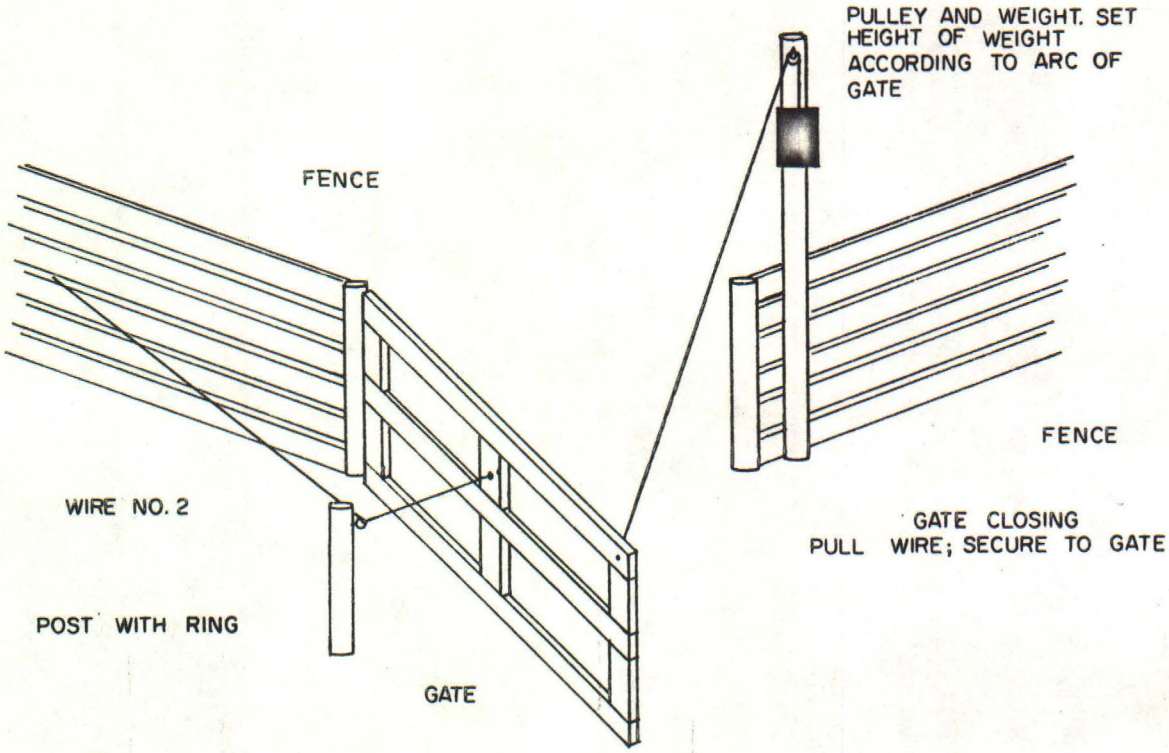
TRIP DEVICE DETAIL	
SCALE: NONE SEE NOTE	SHEET 4 OF 8

NOTE:
DIMENSIONS ADJUSTABLE
TO CONDITIONS



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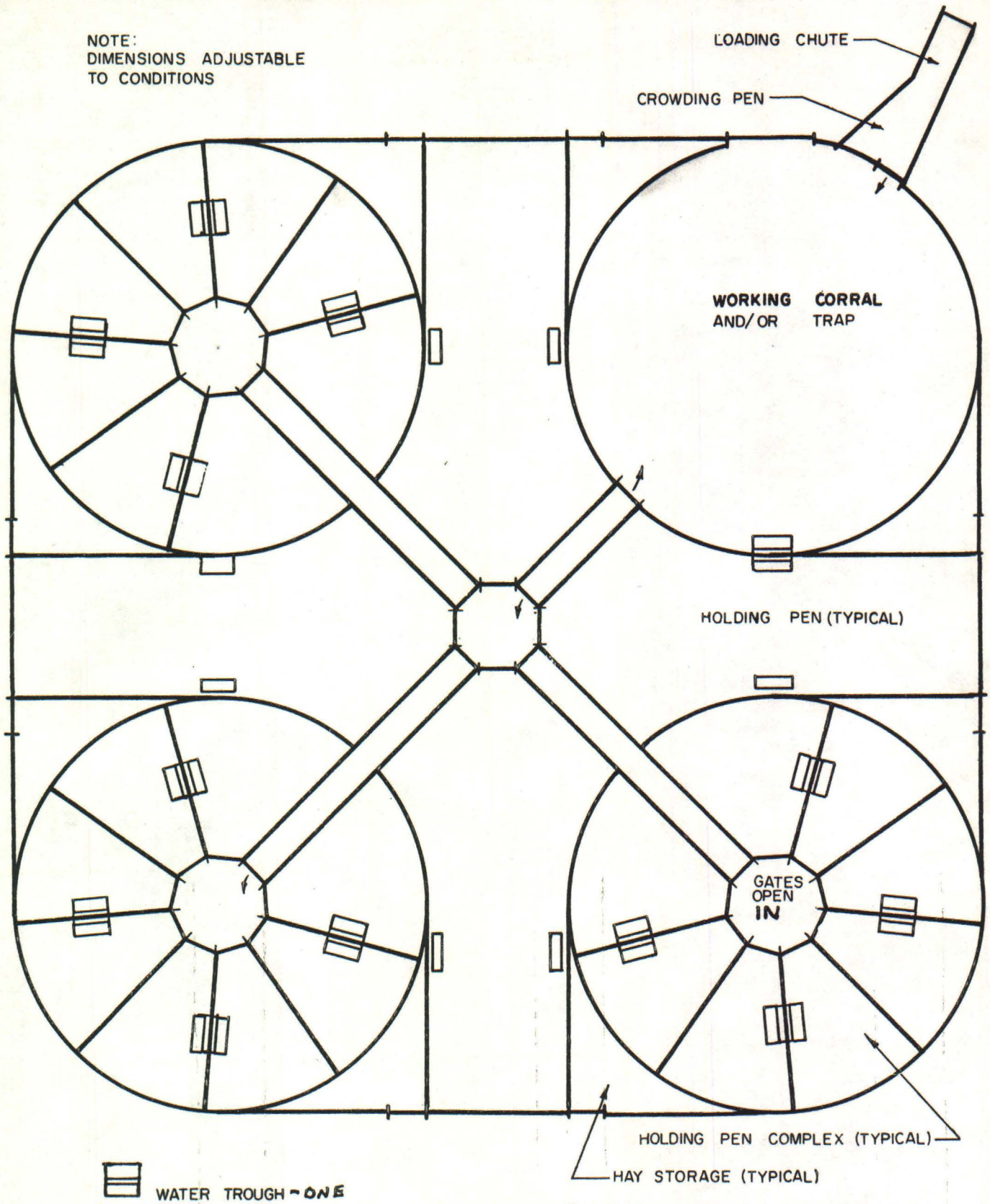
GATE DETAILS	
SCALE: NONE SEE NOTE	SHEET 5 OF 8



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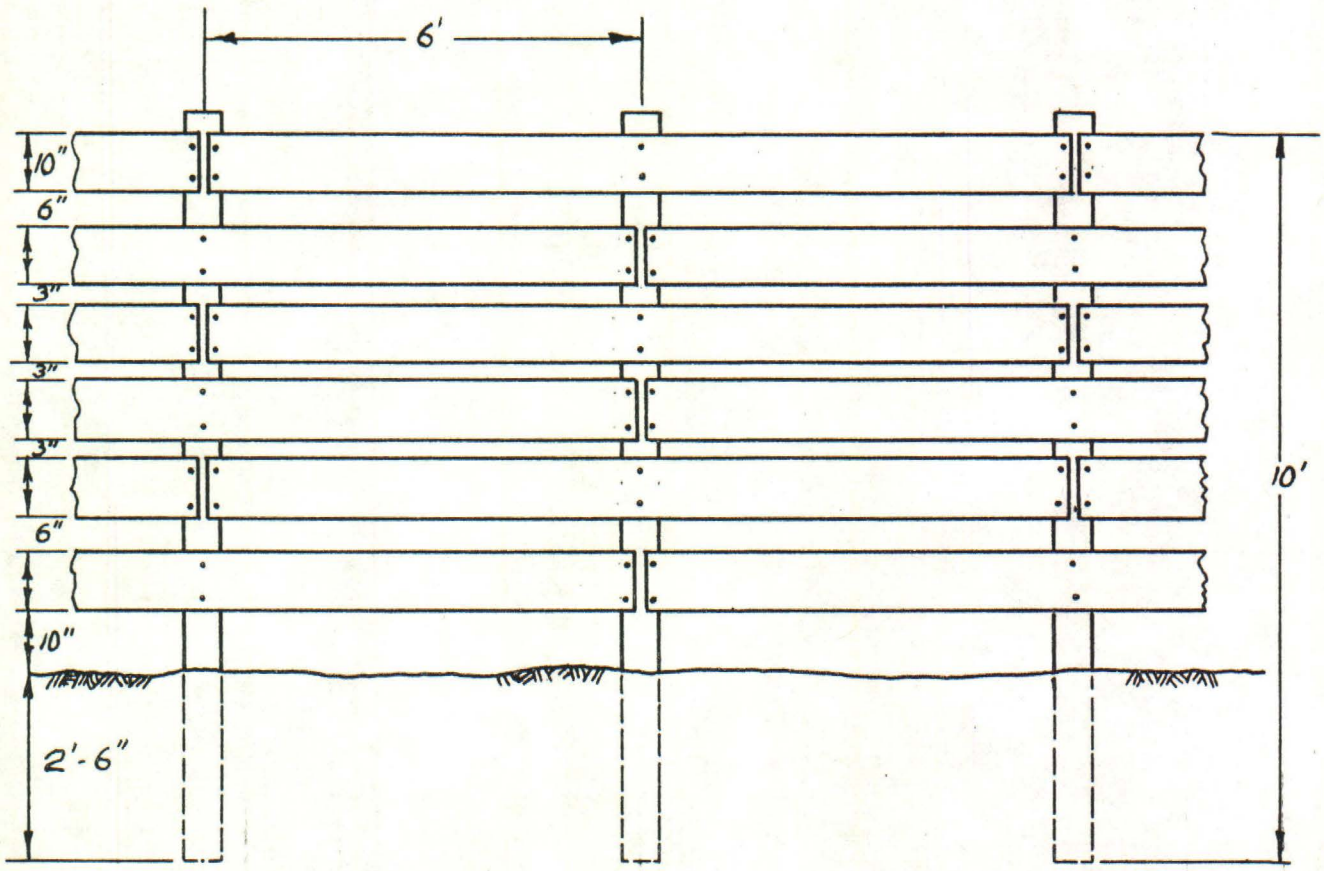
WILD HORSE HOLDING FACILITY	
SCALE: NONE SEE NOTE	SHEET 6 OF 8

OVERALL HEIGHT 7'- 6"



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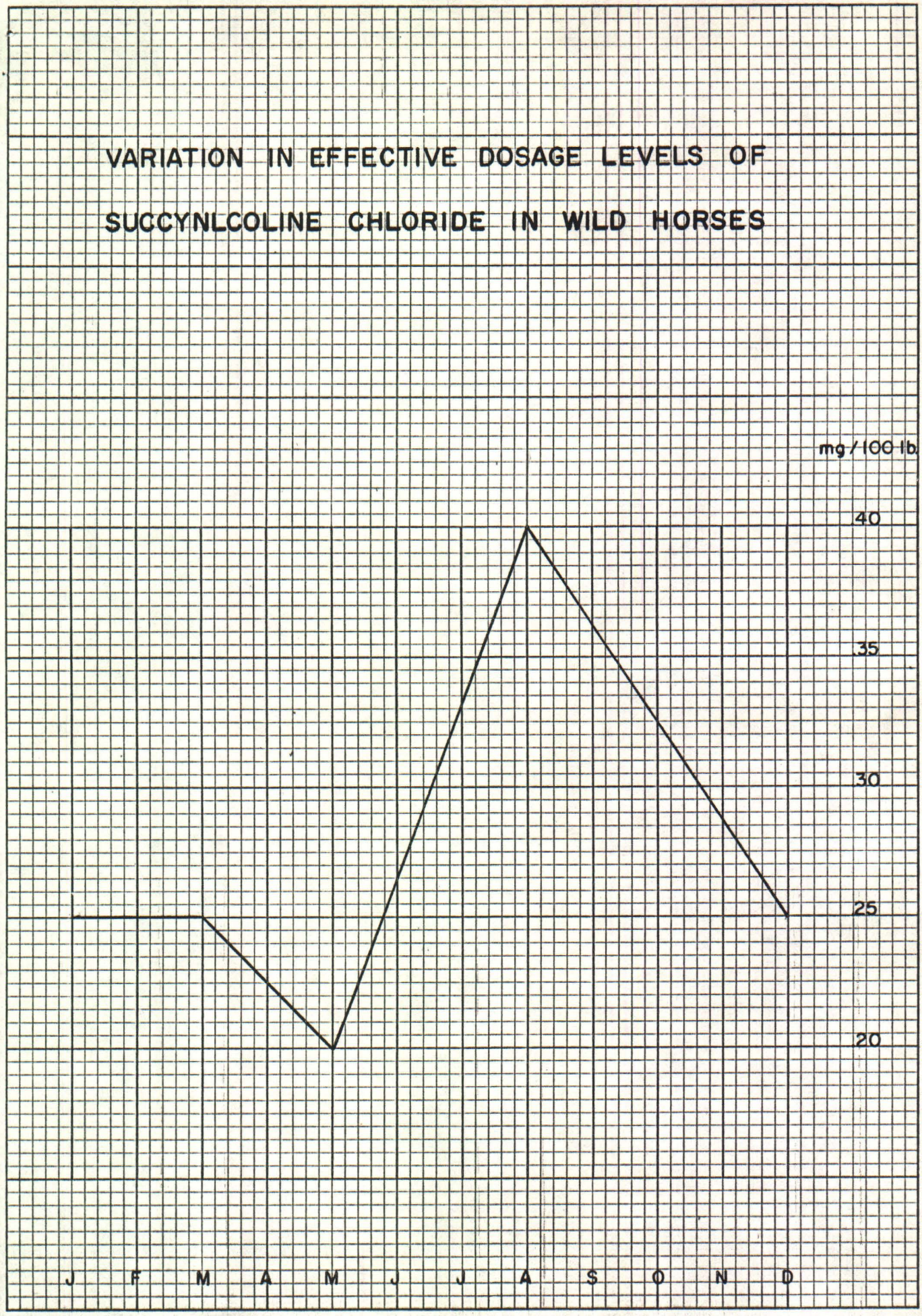
TYPICAL FENCE DESIGN	
SCALE: 3/8"= 1'-0"	SHEET 7 OF 8

VARIATION IN EFFECTIVE DOSAGE LEVELS OF SUCCYNLCOLINE CHLORIDE IN WILD HORSES



KEUFFEL & ESSER CO.