## (Continued from Page D3)

15 years.

•How is the area surrounding your farm likely to change in the next 5-15 years? Will the area remain agricultural or are nonagricultural users creeping into the area?

For good planning, you need a description (maps, photos, words) of all possible sites and locations along with an evaluation of any existing facilities and their expected use. A simple map of the possible building sites is a must! This should indicate existing buildings, roads, streams, property lines, utility lines, drainage ways, wells, neighbors, and any other sensitive areas. With these resources and a team approach, site evaluation can be done very efficiently and effectively.

**Resources for Site Evaluation** There are several resources available for site evaluation. Conservation maps, ASCS aerial maps, topographical maps, and soil survey maps not only provide valuable information, but give a different perspective of the site to be evaluated. Many farms have aerial display photographs that provide a good view of the existing farmstead and potential nearby sites.

Various people with different expertise can provide more ideas and view points than one person alone. Outsiders may see possibilities that you have missed. A team approach to site evaluation is very helpful. This team may consist of yourself, a cooperative extension agent, someone from your local

Yes

No

Service (NRCS) or Conservation District office, a design engineer, your veterinarian, and your lending institution or financial advisor.

After identifying possible sites, develop a list of their characteristics. These preliminary sites are simply picked as possibilities and should not be ranked in preference until the last step of the evaluation process. Evaluate each site against a list of site factors. This list should include: water, drainage, required area, off-farm factors, utilities and access, climate, wastes, regulation/zoning, and personal preferences. Once the list of characteristics has been established, the selection of a site is more logical and objective.

**Essential Site Factors** Sites that cannot meet the following four essential site factors should be eliminated.

1) Water: Water needs to be available at the site in the quality and quantity needed. If this cannot be met don't even consider the site. Twenty to twenty-five gallons per day per cow of drinking water is needed in addition to that used in the milking center and household.

2) Drainage: An animal facility needs to have proper surface and subsurface drainage. The topography of the site needs to allow clean water diversion away from the animal facility. A slope of 2 to 6% will provide drainage without erosion. Good subsurface drainage will help prevent frost heaving of foundations. Don't build in a

## **Site Factors Checklist**

Yes

No

		Water			Utilities and Access
		quality quantity (20-25 gal/day/cow plus			distance from electric, gas, telephone, and main road
		milking center and household)			terrain that must be crossed to get to the site
		Drainage slope 2-6%			easements, power lines, or buried pipelines
		subsurface high ground			fire prevention and protection safety
		critical areas (wells, fish streams, public/private water supplies)			security
		Required area			Climate
	<u></u>	animal units milking center			prevailing winds for ventilation snow drifting, removal, and storage
		convenient access for milk hauler with no backing			excessive rainfall problems orientation to the sun
<b></b>		cow traffic to present and future animal housing			Wastes
		wastewater disposal feed center			environmental regulations topography for drainage of manure
		bunker silos	••••••		area for storage
		commodity sheds			soils evaluation for type of storage
		grain bins		<u></u>	prevailing winds, air drainage, and distance to dilute odors
		manure storage			
		separation for ventilation and fire vehicular traffic			Location
		parking for cars, trucks, and equipment			relation to existing buildings for

Site Evaluation For Dairy Housing Systems Natural Resource Conservation

**Site Characteristics** 

traffic, water and electric upgrade, youngstock housing, manure handling, and adequate separation from neighbors must also be considered. Room will be needed to collect and control contaminated water from the animal units. Separation of the buildings is needed to prevent fire spread and allow good natural ventilation. How much grading will be required to develop an adequate building site? 4) Off-farm factors: These

hole!

factors include the surrounding environment such as urban developments, building codes, and pollution requirements. The site needs to meet building codes and pollution requirements and should provide isolation from the surrounding environment.

3) Required area: This

includes more than the size of the

animal housing unit. The feed

area, machine storage, vehicular

**Other Site Factors** 

Several other site factors are also important and may vary with different building systems.

1) Access: How hard will it be to construct drives and lanes to the new facilities? Is there access to crop fields for bringing in crops and hauling our manure? Fire prevention and protection, safety, and security are often related to access.

2) Utilities: What are the distances that electric, gas, and telephone lines need to be run?

3) Restrictions: Does the site have any easements, power lines, buried pipelines, or buried fuel tanks that may cause problems?

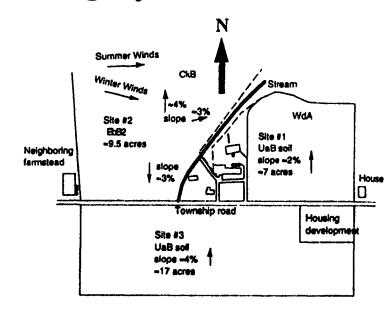
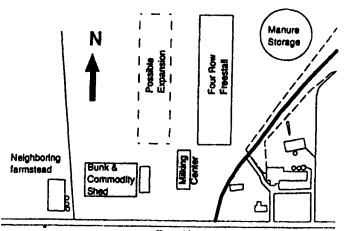


Figure 1. Site map of existing facilities, possible sites, and neighboring land.



Township road

Figure 3. Proposed layout of new facilities, with additional expansion, in relation to the existing farmstead.

4) Climate: What are the prevailing wind directions in the summer and winter? Is the site prone to drifting snow problems? Will excessive rainfall cause any problems? Will buildings be exposed to summer breezes for optimum cow comfort? Can the orientation of the building allow the sun to warm and dry surfaces in the winter, but provide shade in the summer?

5) Manure and Liquid Wastes: Can the site conform with all environmental regulations? Is the topography satisfactory for control of runoff from outside animal lots? Is there a satisfactory location for a manure storage to be built now or in the future? Can manure flow by gravity to the storage or will pumping be necessary? A soils evaluation will help tell what type of manure storage can be built on the site. Are prevailing winds, air drainage, and distance to sensitive areas such that the odors are directed any from sensitive areas?

6) Relation to Existing Facilities: Does the location of the site in relation to existing buildings allow incremental expansion? How far will the cows need to be moved and over what type of terrain?

more of the possible sites identified.

3) Use the remaining site factors to finish the list of characteristics. See the check list on the back page of this fact sheet.

4) From this list of site characteristics the selection of a preferred site can be determined.

With the site selected, check the layout of the desired facilities to see if they will fit. This is an iterative process, and some changes may need to be made in the facilities layout to fit them to the site. The facilities and dimensional sizes used in the site evaluation were only to give a rough idea of size requirements and may need altered to conform to the site. However, if compromises are made to the point that the facilities are no longer useful, then another site needs to be considered. After a layout is determined, stake out the buildings on the site. This will give a much better feeling for how the facility will look. Do areas left for drainage ways, turning trucks and equipment look adequate? Site evaluation is not a process that will be done in an hour, but it is a very important step in a farm building project. The site selected will affect future decisions for years to come and should reflect the long-term goals of your operation. Site evaluation is best done with a team approach to bring out as many ideas and view points as possible. Some extra time planning now will save headaches and money in the future. Make your mistakes with pencil and paper, not concrete and re-bar. Remember, be sure 10 !cave room for future growth cr changes. A farmstead is always changing. Plan this project to be the first step in your future modern dairy production system, not just an addi-

rking for c s, trucks, and equip youngstock

Olf-farm factors

building codes/regulations zoning/set back requirements highways, streams and property lines pollution requirements isolation from surrounding environment public or private water supply protection zones

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ation to existing building incremental expansion distance and terrain to be traveled by cows

## Steps for Evaluation

Use 5, 10 and 15 year goals, space required for building systems, and site factors to work through the following four steps.

1) Make a scale map, including existing facilities if applicable, and locate the possible sites for construction. Include slopes, soil types, and size. Also, identify direction to fields, roads, off-farm influences such as neighbors, and critical environmental areas.

2) Use the four essential site factors to evaluate possible sites. This process may eliminate one or tion to the past!