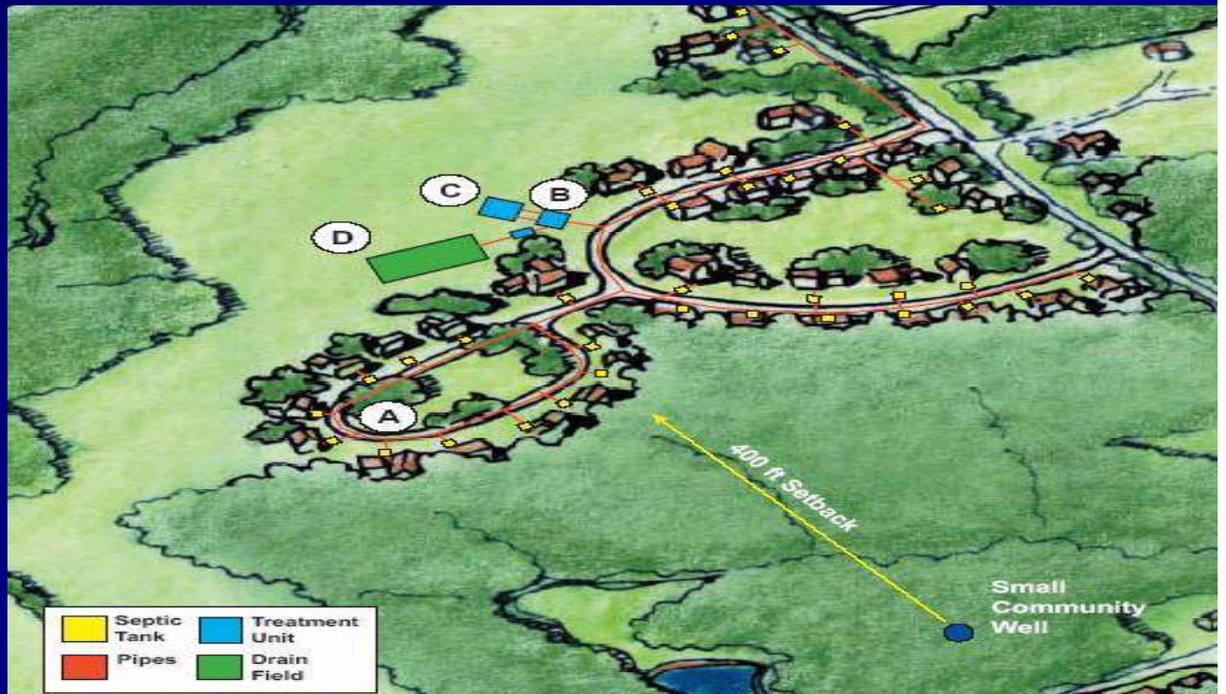


# Conservation Subdivision Design

## Minimizing the Impact of Subdivisions



Picture courtesy of State of Rhode Island Department of Environmental Management

**Carolyn B. Russell, AICP**  
**NH Department of Environmental Services**

# Definition:

**Conservation subdivision design** goes beyond the simple goal of clustering buildings together and preserving a portion of the parcel as open space

**Conservation subdivision design** is

- Based on the **natural and cultural resource attributes** of the property
- Reflects the **broader environmental and social goals** of the community
- Allows for greater **flexibility in design** to provide for greater natural resource protection

**Conventional**



**Conservation Design**

# Conservation Subdivision Design

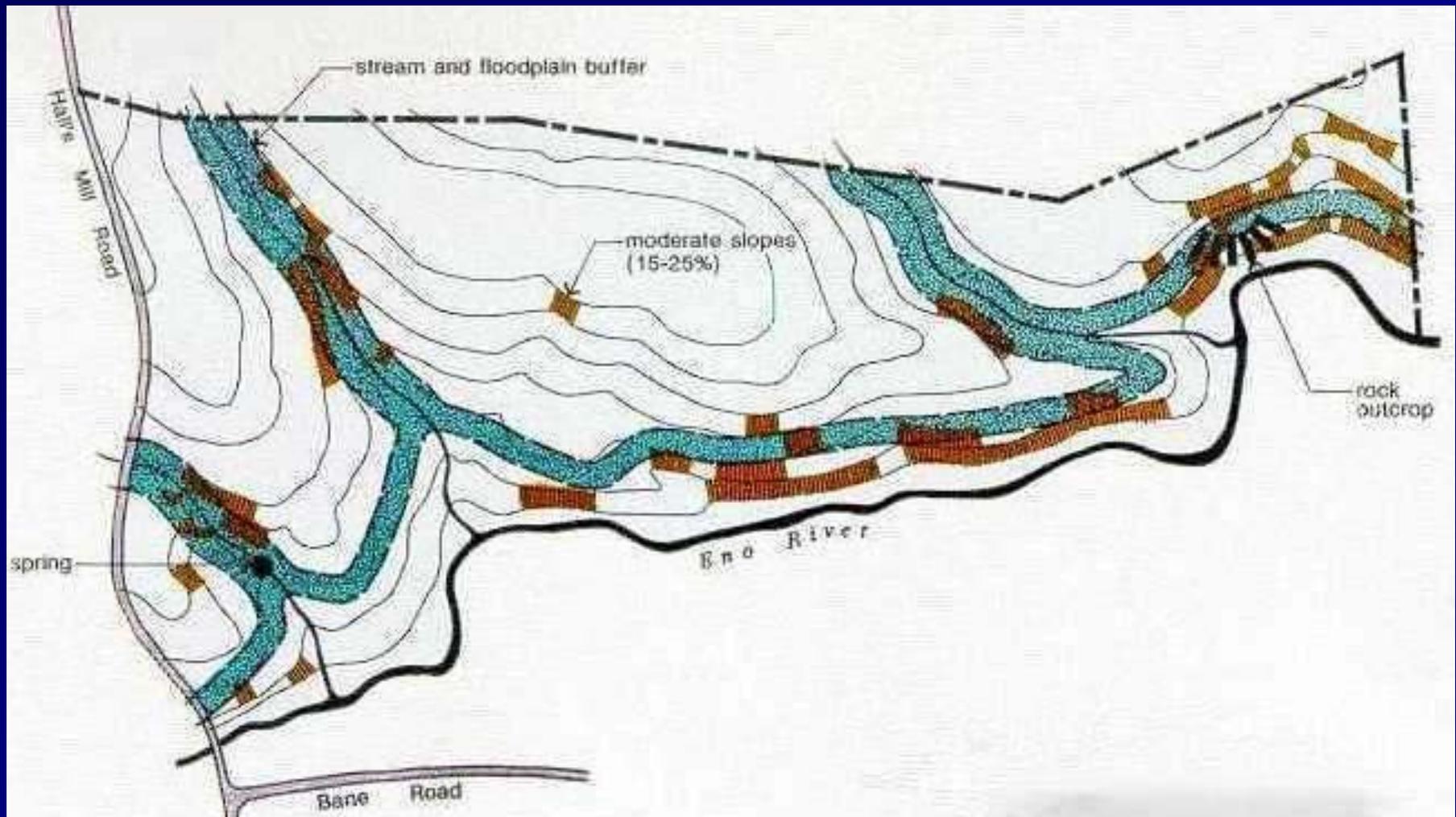
- Same number of housing units
- 10-50% less impervious surface
- Reduces amount of infrastructure
- Flexibility to tailor development to the land and preserve natural & cultural features

# Review Process

- Detailed Site Inventory of Parcel Features and Conceptual Plan submitted **PRIOR** to Formal Application
- Approach to design is responsive to site characteristics

# Conservation Subdivision Design

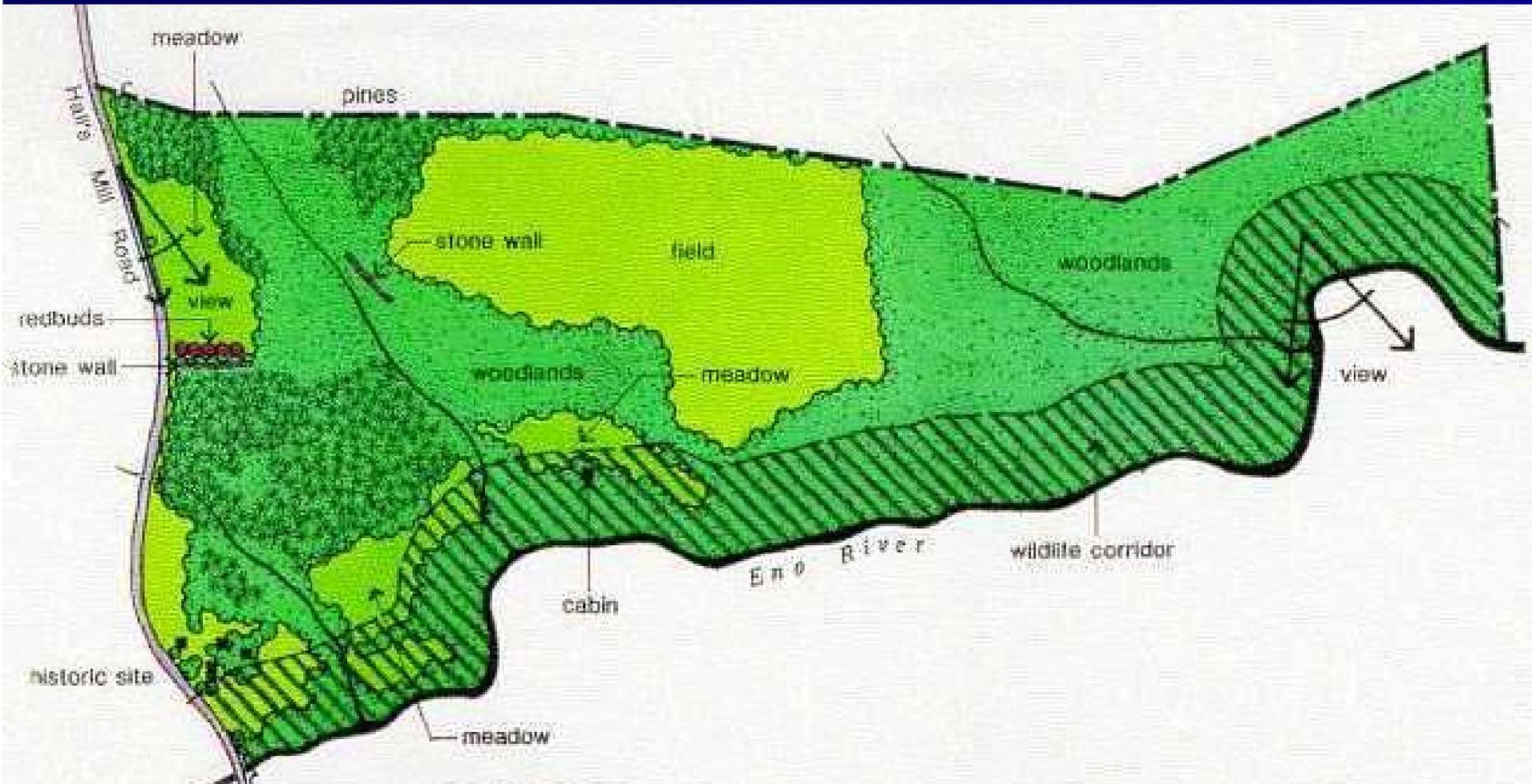
## ■ Step 1: Identify Primary Conservation Areas



Source: Arendt et al: *Open Space Design Guidebook for the Albemarle-Pamlico Estuarine Region*, NC Assoc of County Commissioners, 1996.

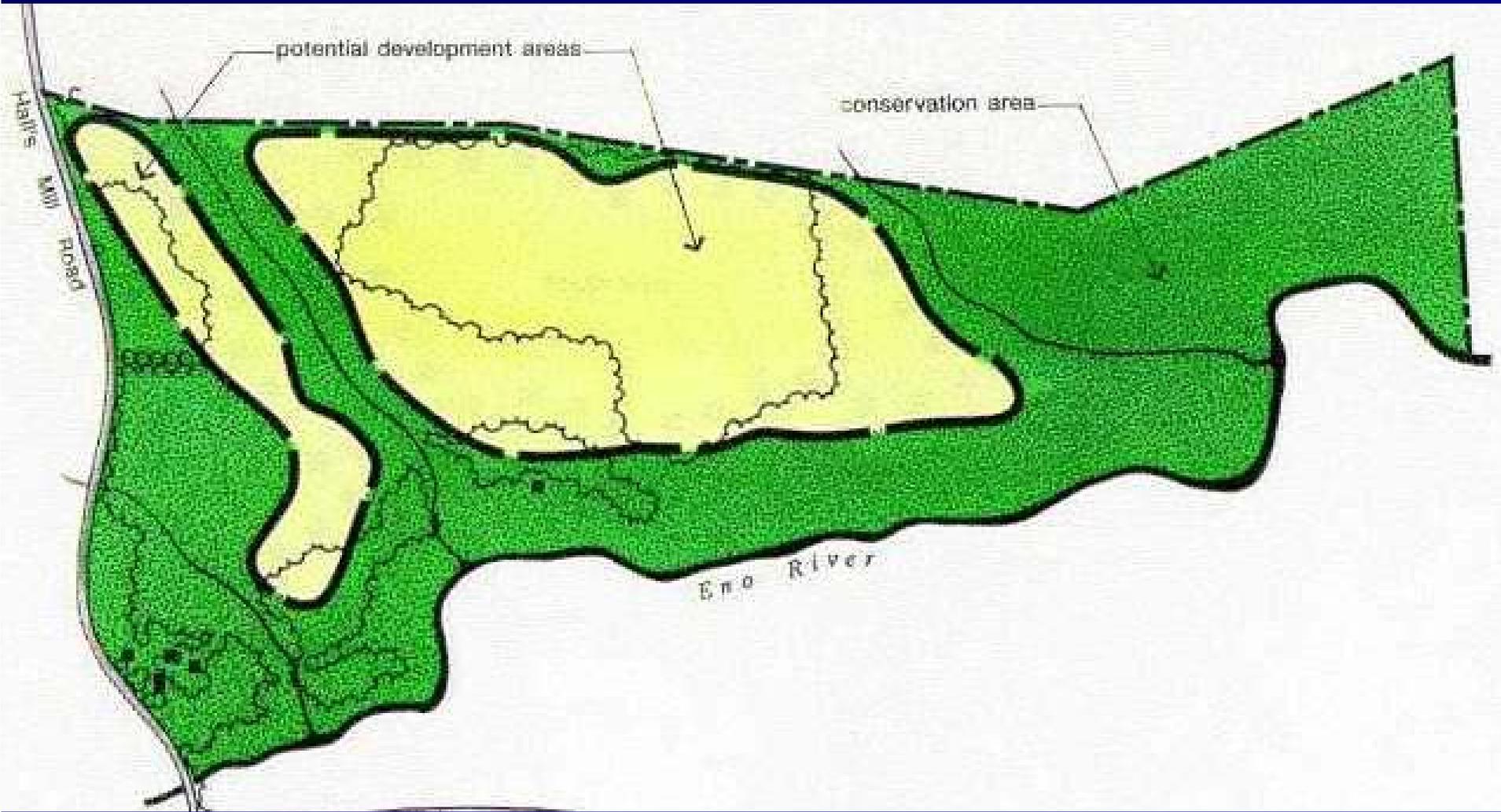
# Conservation Subdivision Design

## ■ Step 2: Identify Secondary Conservation Areas



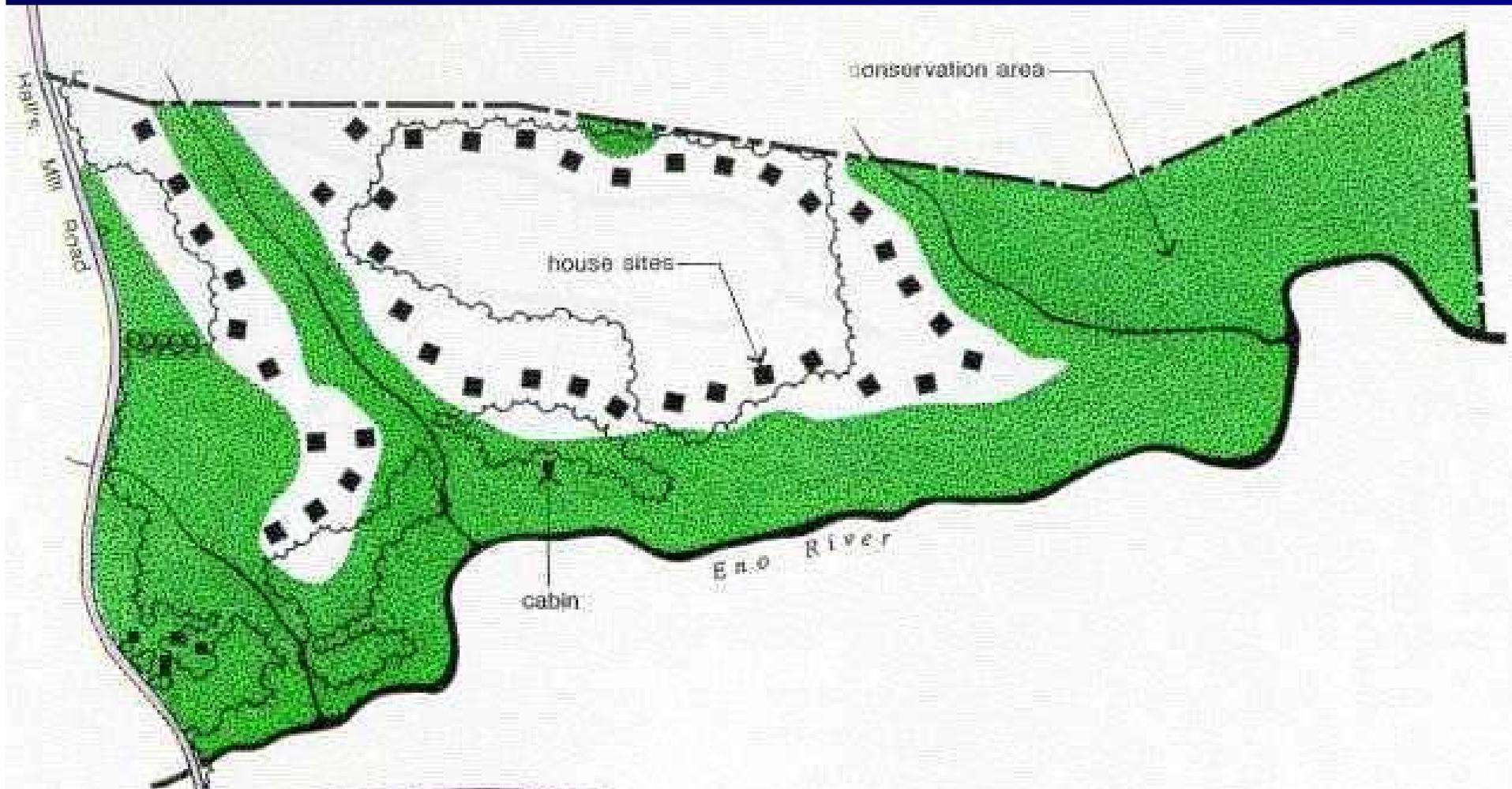
# Conservation Subdivision Design

## ■ Step 3: Identify Potential Areas for Development



# Conservation Subdivision Design

## ■ Step 4: Locate Potential House Sites



# Conservation Subdivision Design

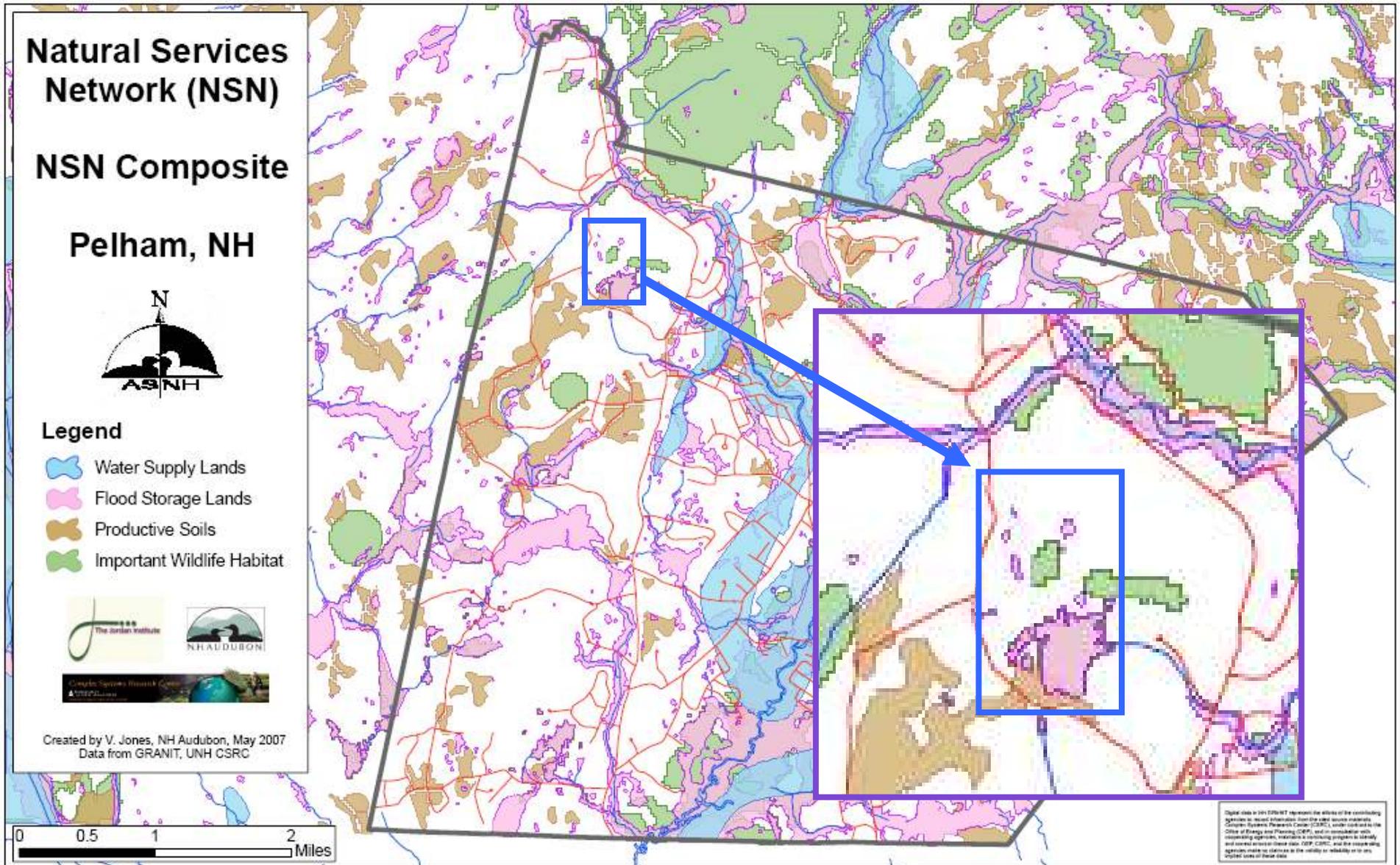
## Step 5: Lot Lines, Roads and Trails



Source: Arendt et al: *Open Space Design Guidebook for the Albemarle-Pamlico Estuarine Region*, NC Assoc of County Commissioners, 1996.



# Important Natural Areas in Pelham



# Improve Plan / Design Review Process

“Before Review” – With Conventional Standards



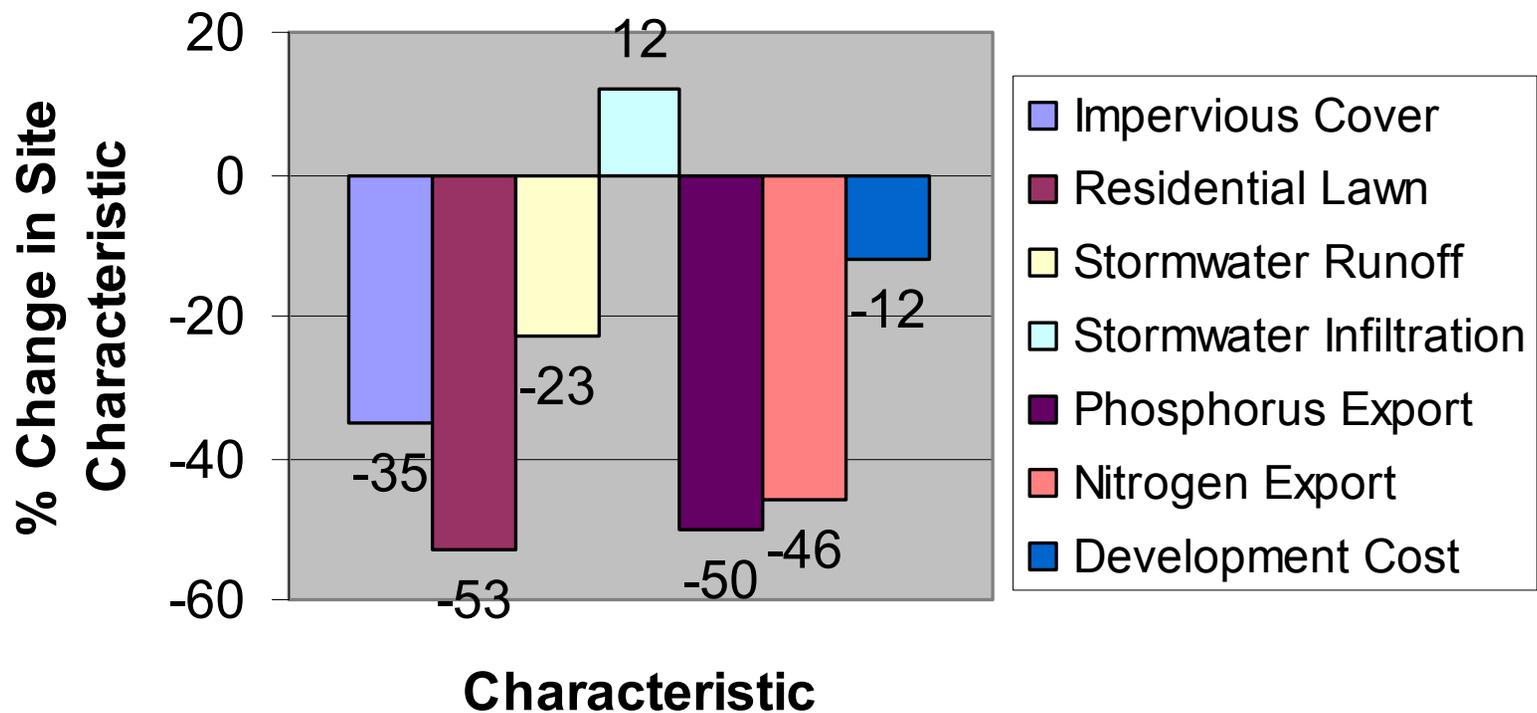
**More impervious surface (long driveways, wide road, more grass), direct stormwater drainage, and less open space**

“After Review” – With Better Design Standards

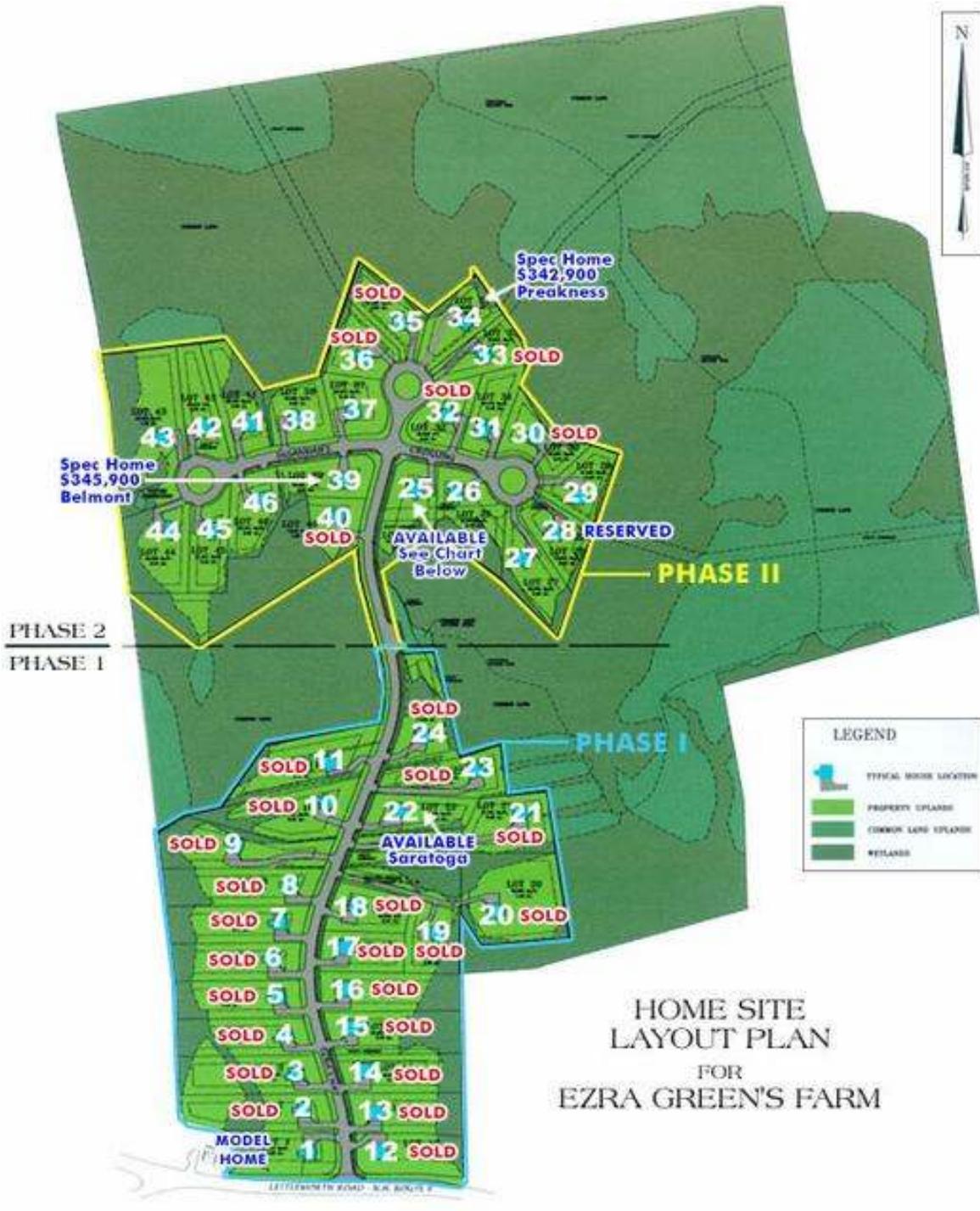


**Less impervious surface (shorter driveways, narrower road, less grass), onsite stormwater treatment, and more open space**

## Percentage Change in Key Site Characteristics



Study by the Center for Watershed Protection, "The Benefits of Better Site Design in Residential Development."



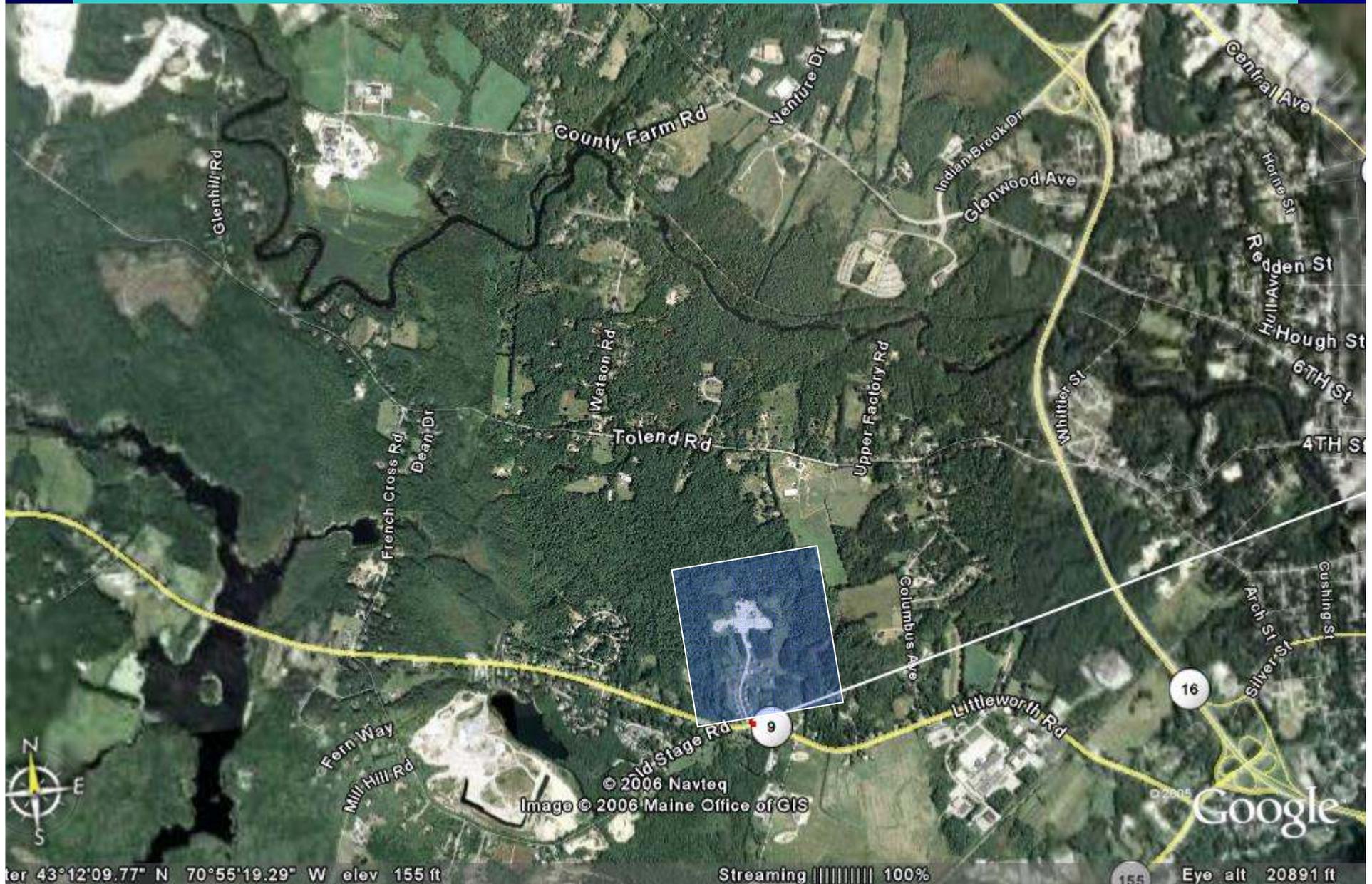
## Examples

### Ezra Green's Farm

Dover, NH

- 46 homes grouped on 40% of property (60% conserved)
- Protects wetlands and adjacent uplands

# Ezra Green's Farm, Dover

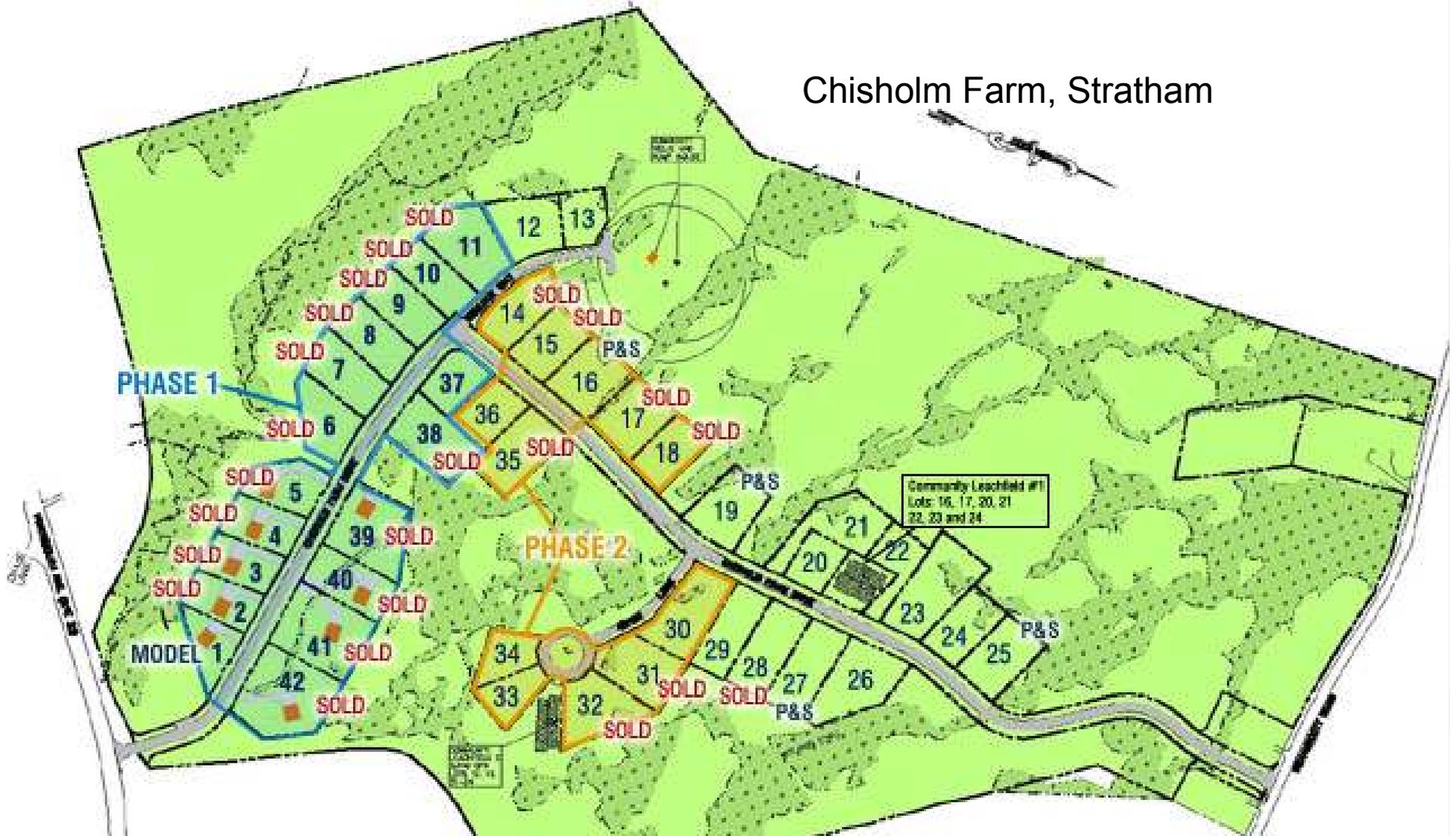


ter 43°12'09.77" N 70°55'19.29" W elev 155 ft

Streaming | 100%

Eye alt 20891 ft

## Chisholm Farm, Stratham

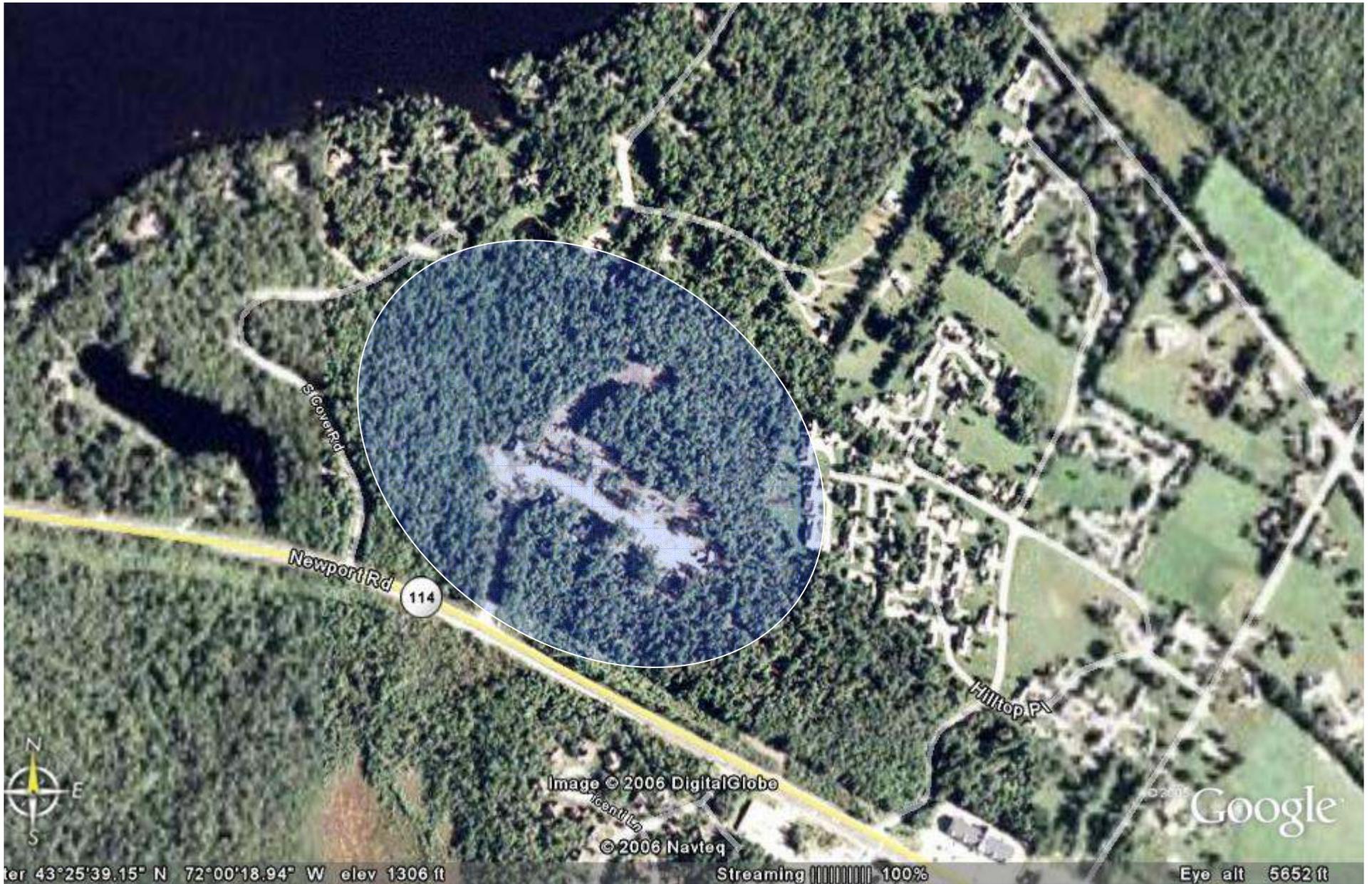


- 115 acres, 85 acres as open space (74%)
- 42 house lots (1/3+ to just under 1 acre)
- Community Leachfield and Community Well



**Chisholm Farm, Stratham**





# Great Pines, New London, New Hampshire



**Great Pines, New London**





- 40 acre parcel, 12 acres conserved (30%)
- 14 lots on 28 acres (1.4-2.5 acres/each)



**Hopkinton**



# Two Conservation Developments Hanover, NH



# Caldwell Farm Newbury, MA

125 acre site, 100 acres conserved  
(80%)

open space includes fields, forest,  
freshwater, and saltwater wetlands  
adjacent to the Parker River National  
Wildlife Refuge and an Area of Critical  
Environmental Concern (ACEC).



66 units (includes 4 bonus units)

# Number of Dwelling Units

- Formula Approach Preferred
- Yield Plan Approach Option
  - Can be required for certain types of situations
- Additional Units may be Awarded for desired characteristics, e.g.:
  - Greater Area Conserved
  - Public Access
  - Third-party held Conservation Easement

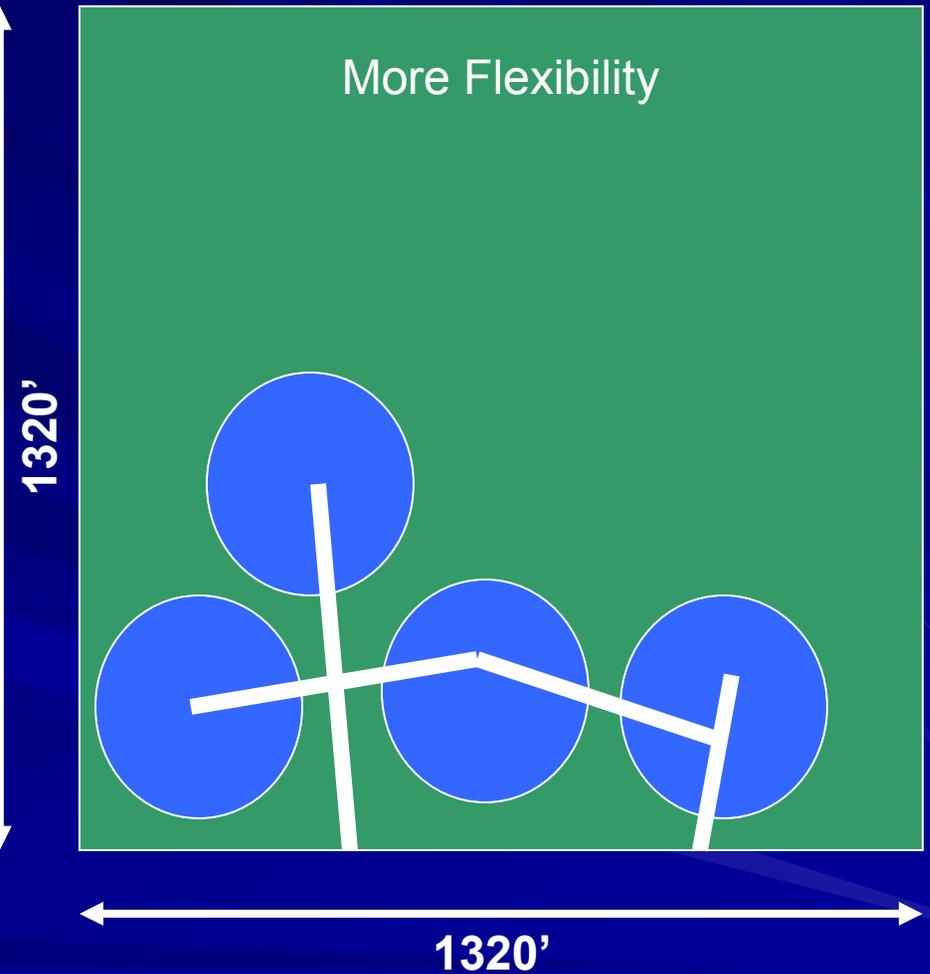
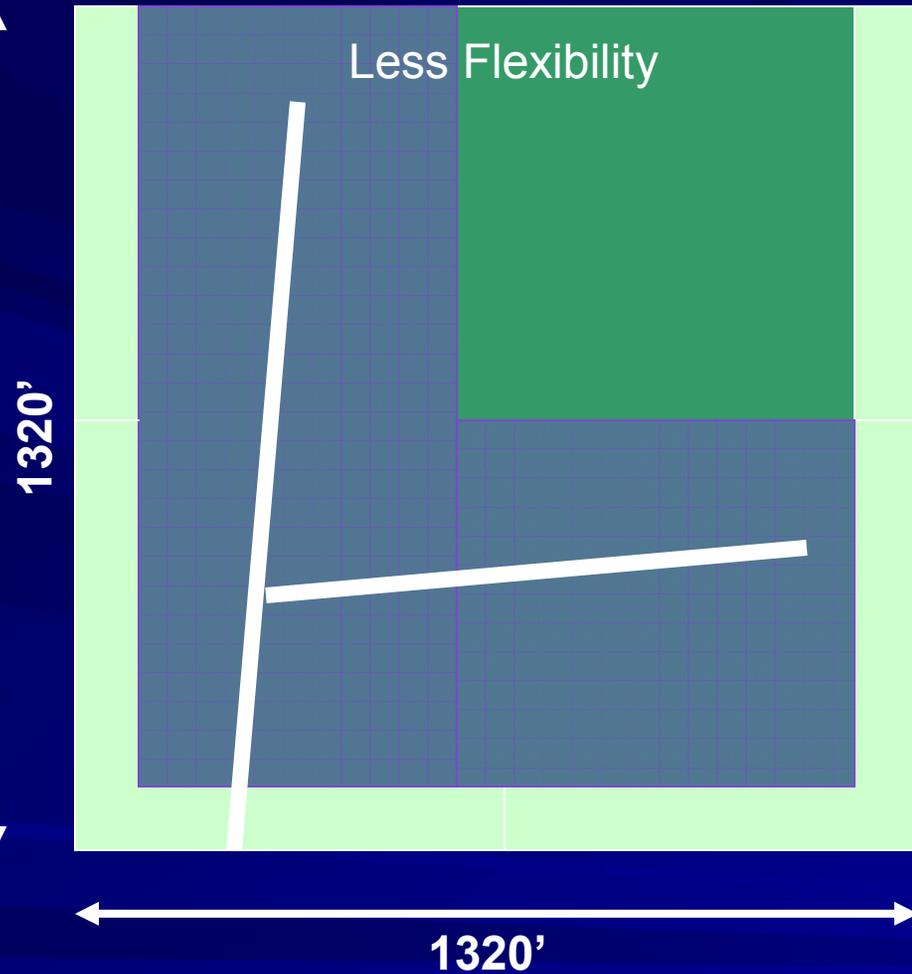
# Designated Open Space

- 50% of Parcel (minimum)
- Specify priorities for conservation, layout, and any uses allowed
- Require appropriate management and stewardship

# Design Standards

- Reduced dimensional requirements to increase flexibility to “fit” development to landscape
- Conditional Use Permit may be issued by the Planning Board to allow variation from Dimensional and Design Standards
- Additional design standards for developed area and open space added to Subdivision Regulations

# COMPARE



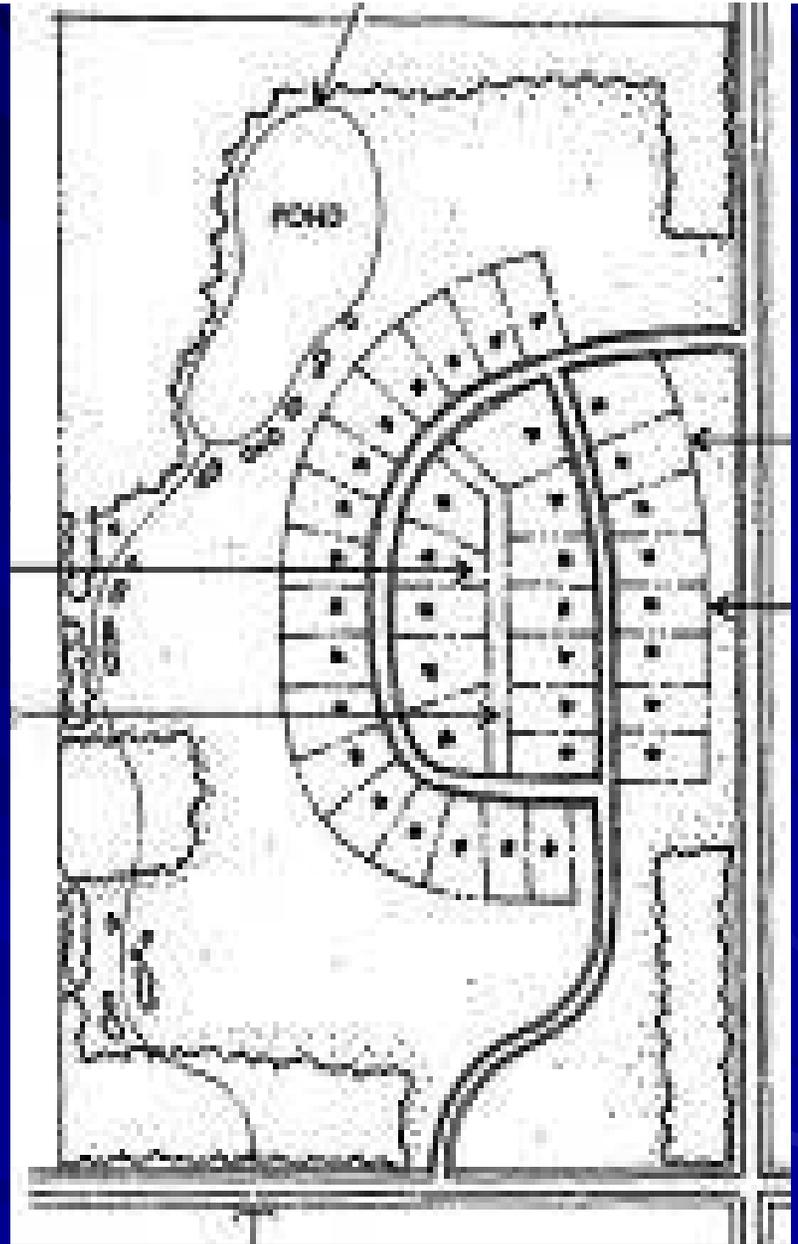
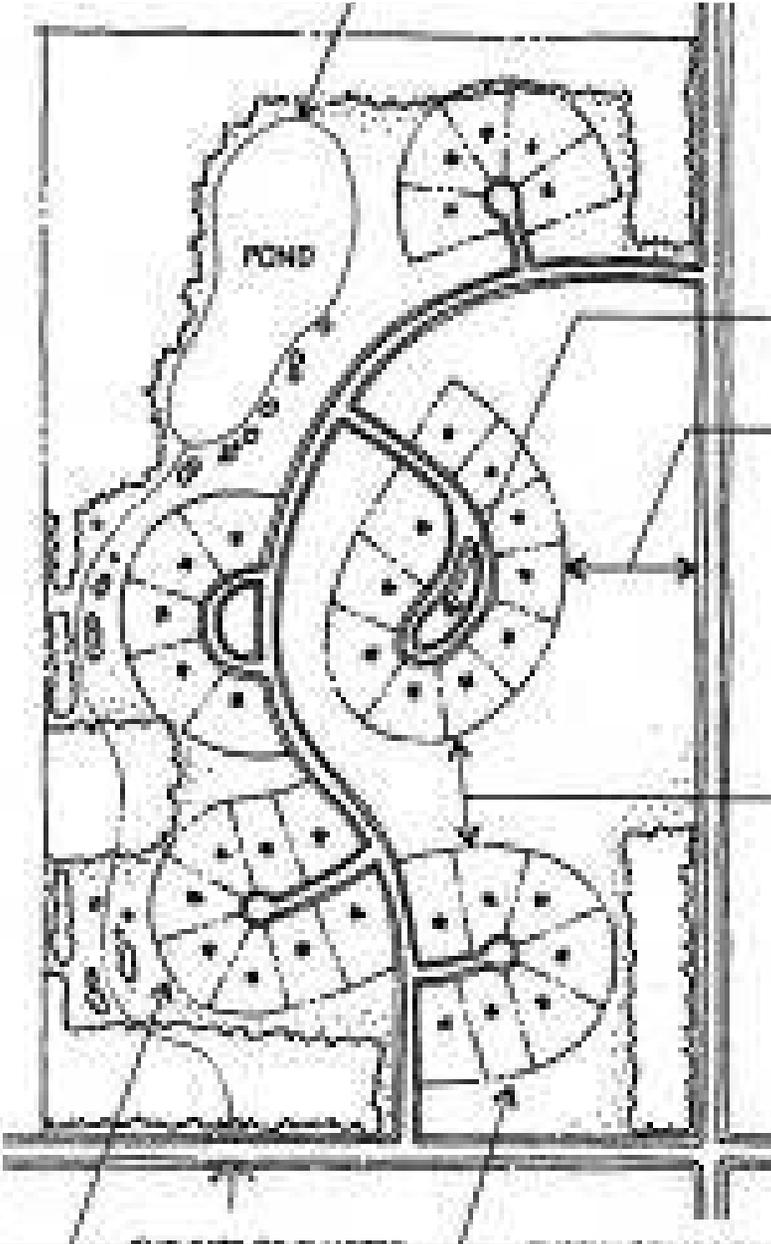
**About 13 acres contiguous  
“backland” as open space**

**About 25 acres contiguous  
“backland” as open space**

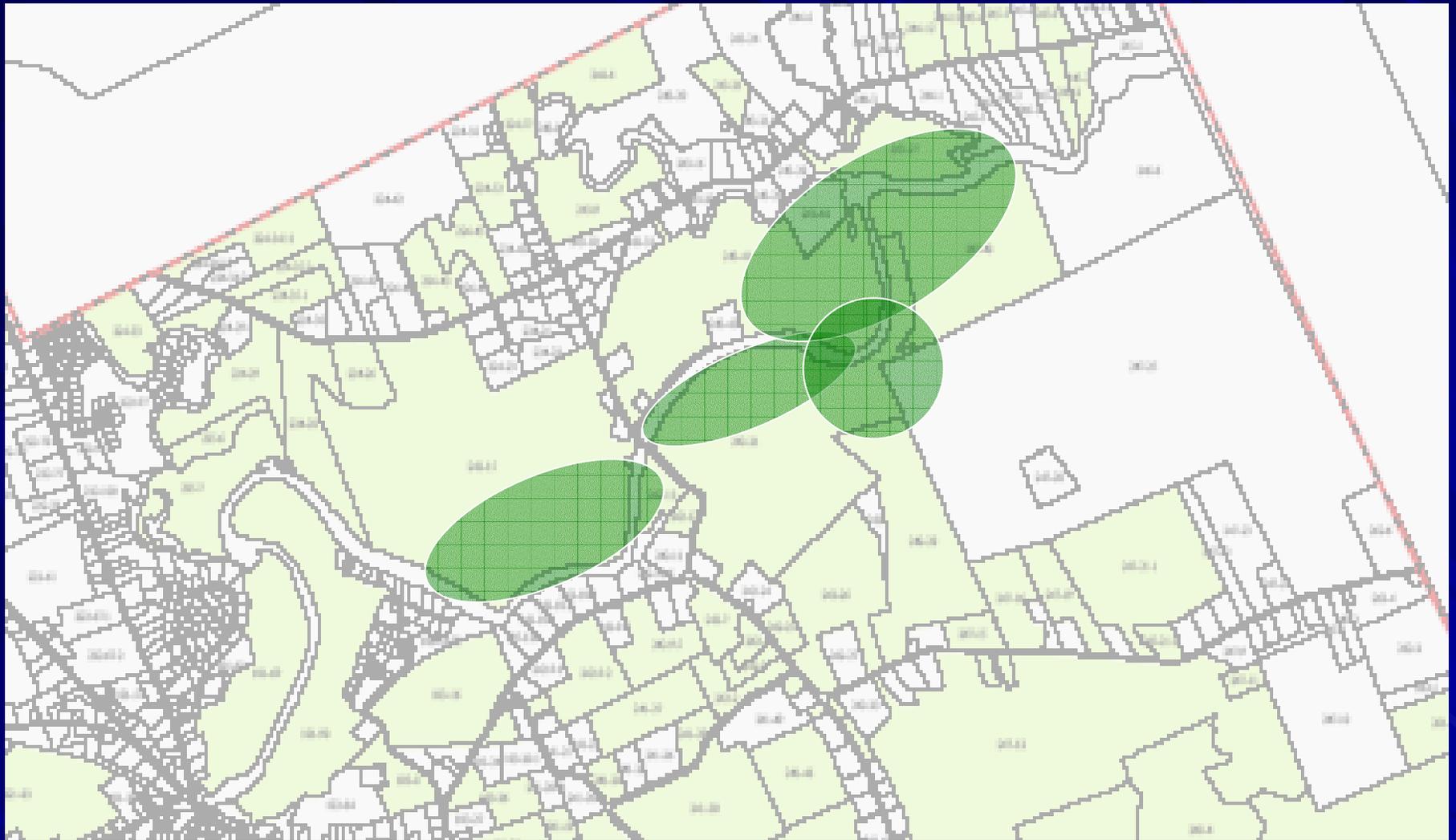
# Site Development and Design Standards Are Important – Consider Applying to All Development



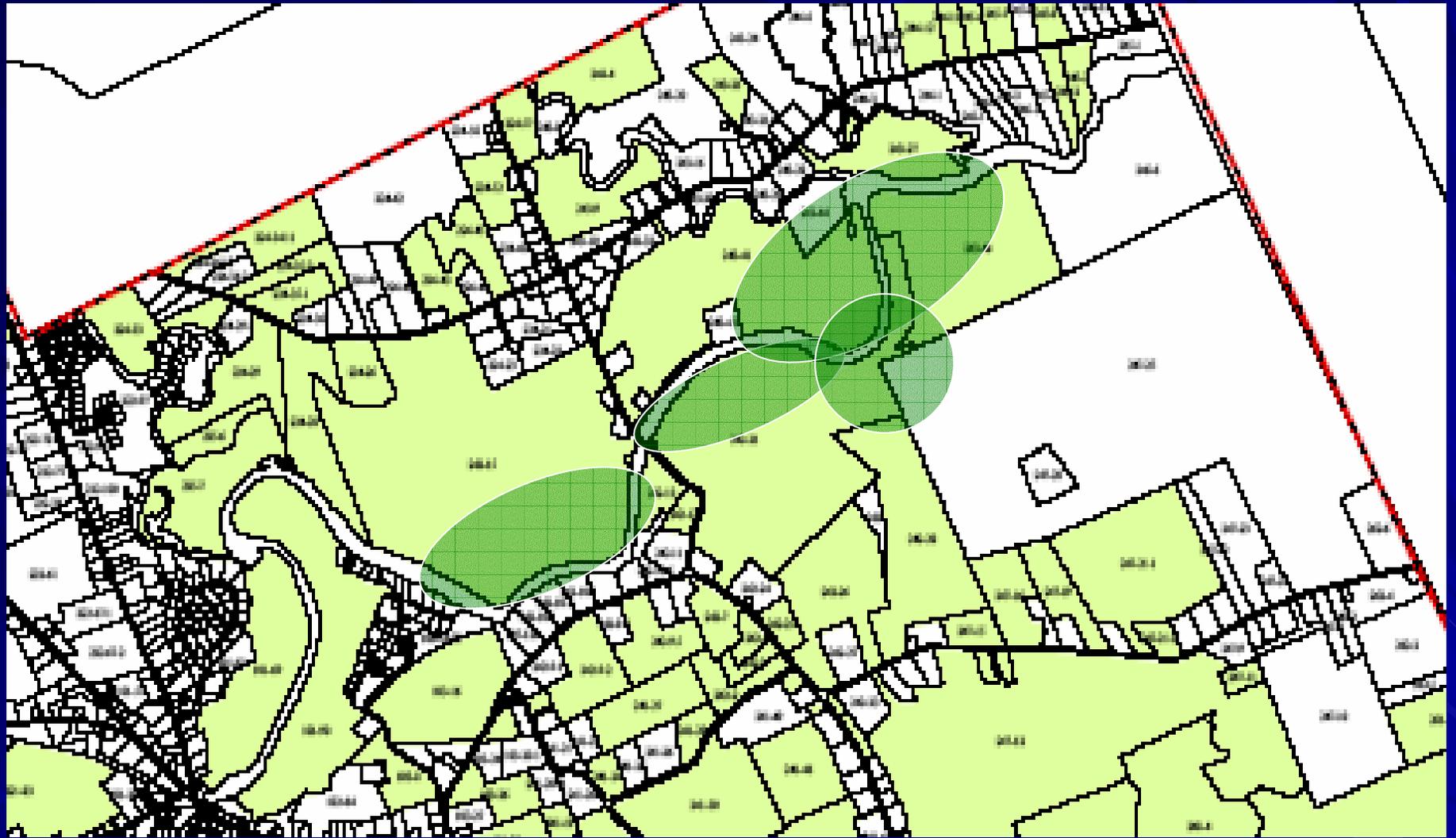
Examples: Clearing, Grading,  
Retention of Mature Vegetation,  
Architectural Design



Alternative Layouts



## Using Conservation Subdivision Approach with Natural Resource Inventory



## Using Conservation Subdivision Approach with Natural Resource Inventory

# Getting the Most from Conservation Subdivision Design Approach

- Make Process Simple – Focus on Goal
- Flexibility but with Standards for Design
- Coordinate with Local/Regional Open Space or Conservation Plan

# Resources:

## ■ Randall Arendt

– [www.greenerprospects.com](http://www.greenerprospects.com)

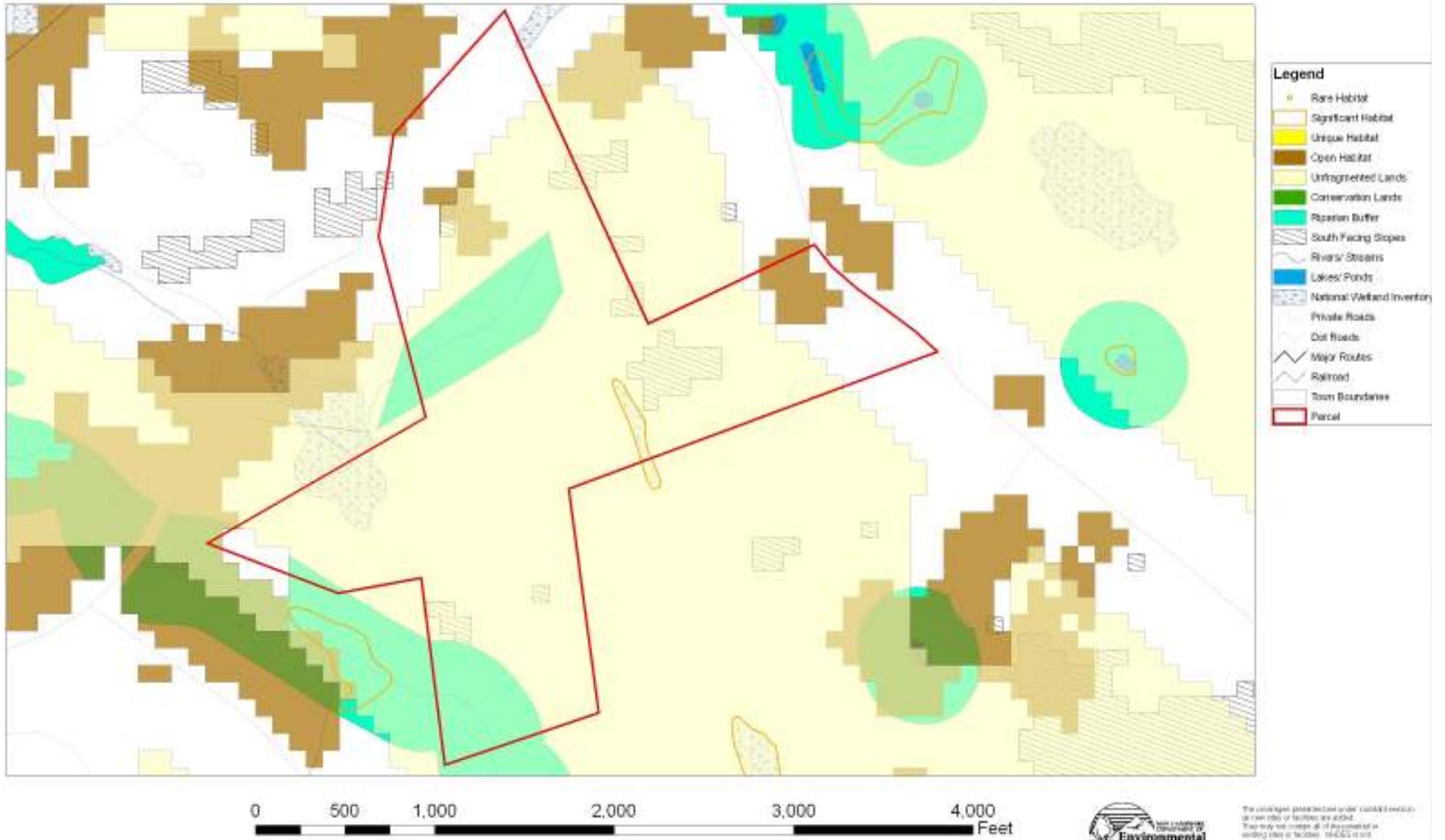
– *Conservation Design for Subdivisions*, 1996

■ “The Conservation Subdivision Design Project: Booklet for Developing a Local Bylaw,” Boston Metropolitan Area Planning Council, available from <http://commpres.env.state.ma.us/#>

# Exercise

- Design a 40 unit development on 90 acres based on the natural resource information for the property using a Conservation Subdivision Design approach
- Steps:
  - Identify areas to target for conservation & why
  - Identify home sites
  - Consider well, septic and stormwater management options
  - Identify road placement
  - Summarize factors considered in your design

# Subdivision Parcel

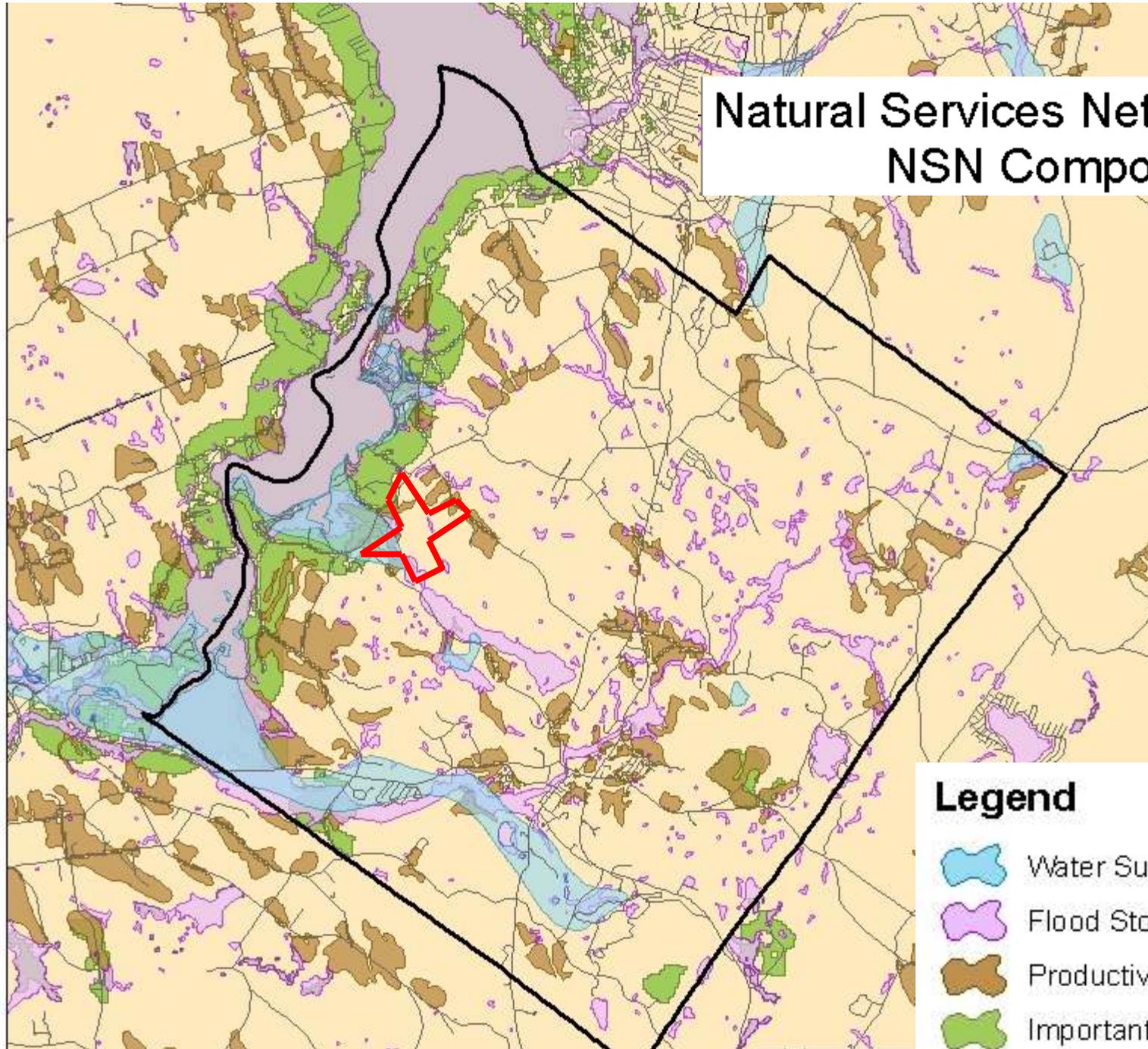


0 500 1,000 2,000 3,000 4,000 Feet



The ecological potential under stated conditions may vary from that shown. This map is not a warranty of accuracy or liability. NCS is not responsible for the use or misinterpretation of this information. Not intended for legal purposes.

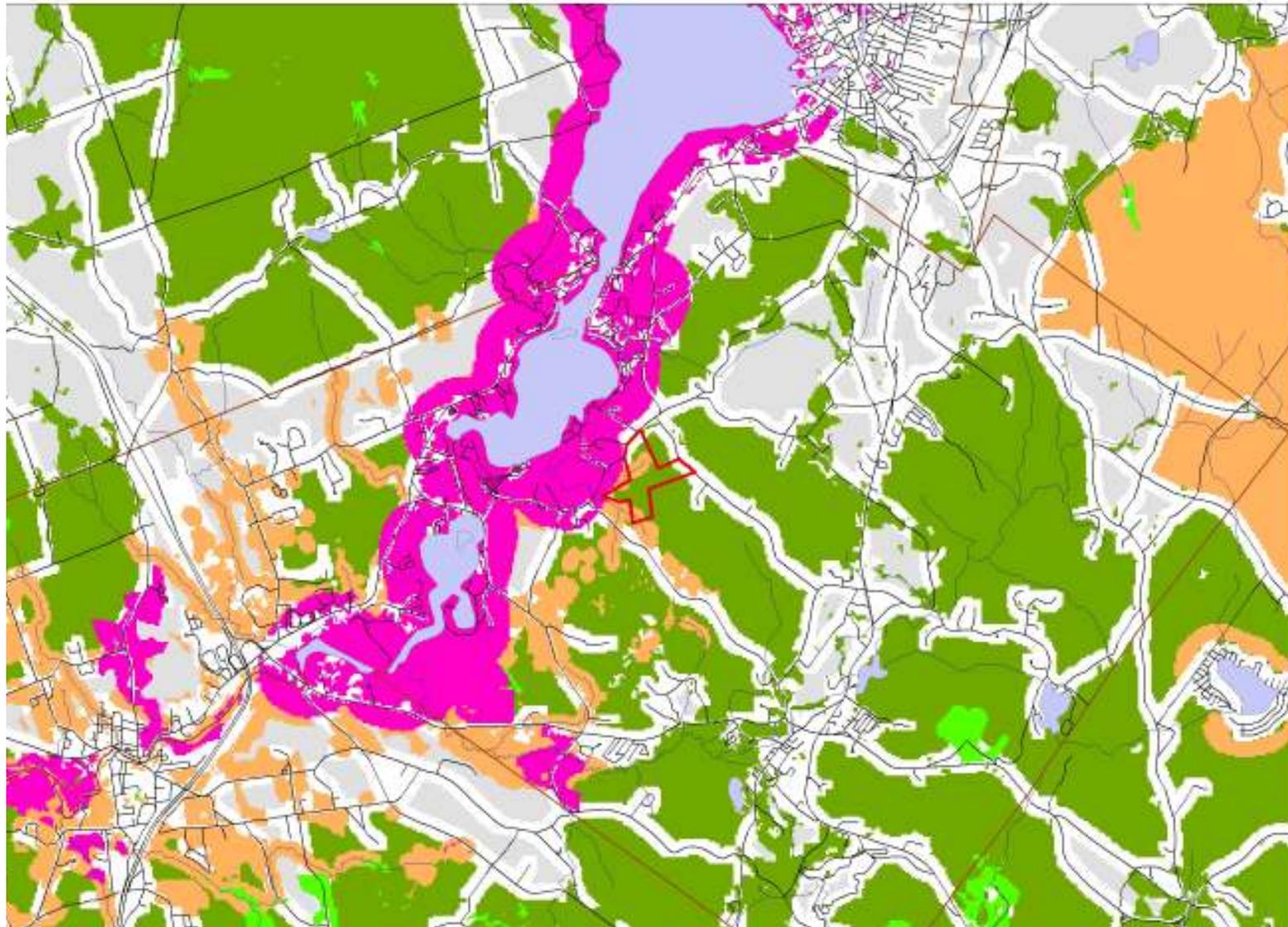
# Natural Services Network (NSN) NSN Composite



## Legend

-  Water Supply Lands
-  Flood Storage Lands
-  Productive Soils
-  Important Wildlife Habitat

# Parcel Subdivision Context Map NH Wildlife Action Plan



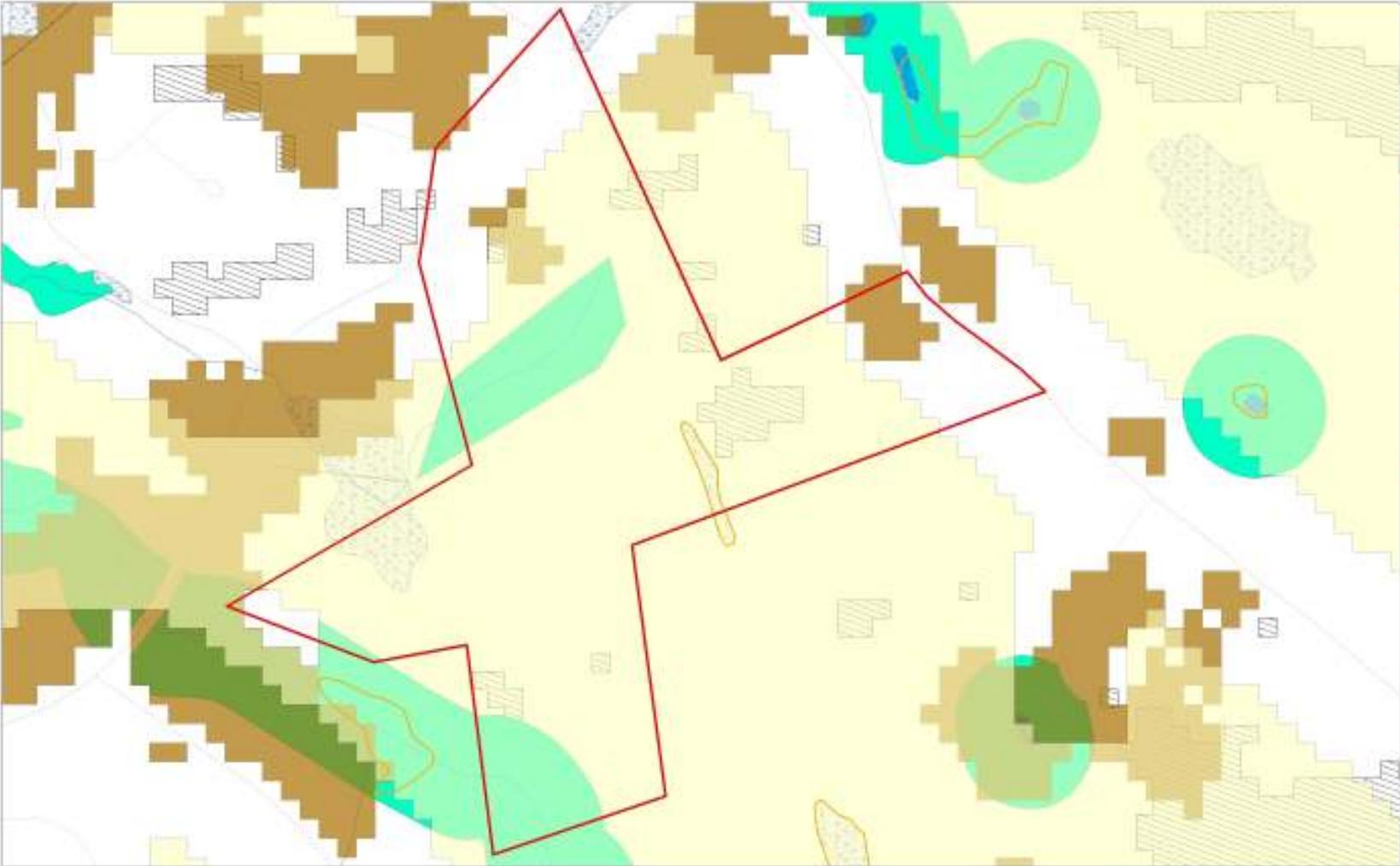
**Legend**

- Parcel
- Lakes
- Highest quality habitat in NH tier 1
- Highest quality habitat in biological region tier 2
- Supporting Landscapes tier 3
- Wildlife data not yet ranked
- Unfragmented Habitat (2005 coarse filter data)
- River/Streams
- Roads

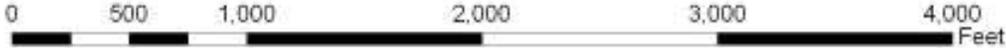


The coverage presented on this context map is an advisory tool only and should not be used as a basis for any legal action. The data is not complete and the presence or absence of any habitat, resource, or species is not guaranteed. For the use or interpretation of this information, the user is advised to consult the appropriate laws and regulations.

# Subdivision Parcel

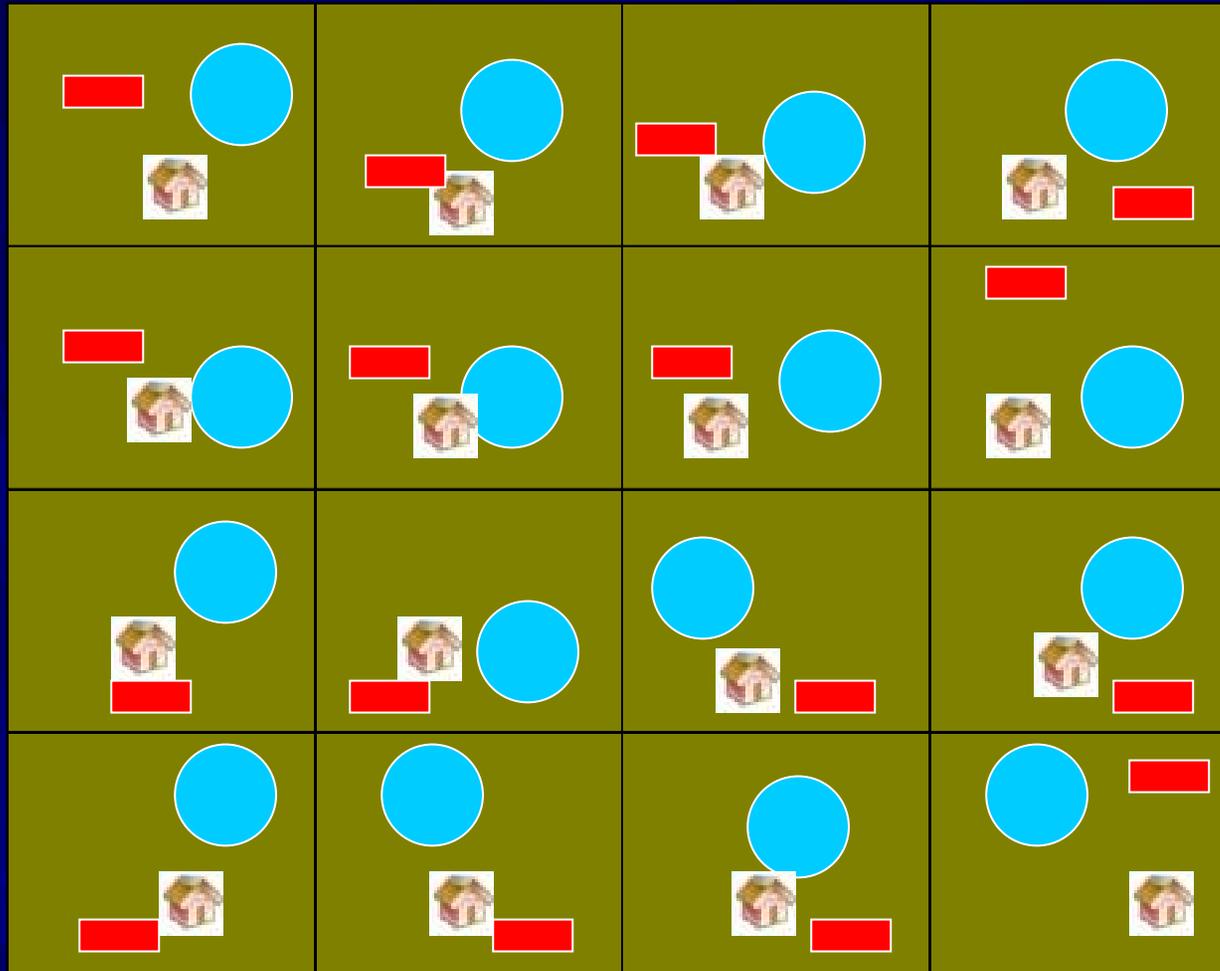


- Legend**
- Rare Habitat
  - Significant Habitat
  - Unique Habitat
  - Open Habitat
  - Unfragmented Lands
  - Conservation Lands
  - Riparian Buffer
  - South Facing Slopes
  - Rivers/Streams
  - Lakes/Ponds
  - National Wetland Inventory
  - Private Roads
  - Dirt Roads
  - Major Routes
  - Railroad
  - Town Boundaries
  - Parcel



The ecological potential under various conditions of use may vary. This map is not intended to be used as a basis for any legal action. The user assumes all responsibility for the use of information shown on this map. No warranty is made for any purpose.

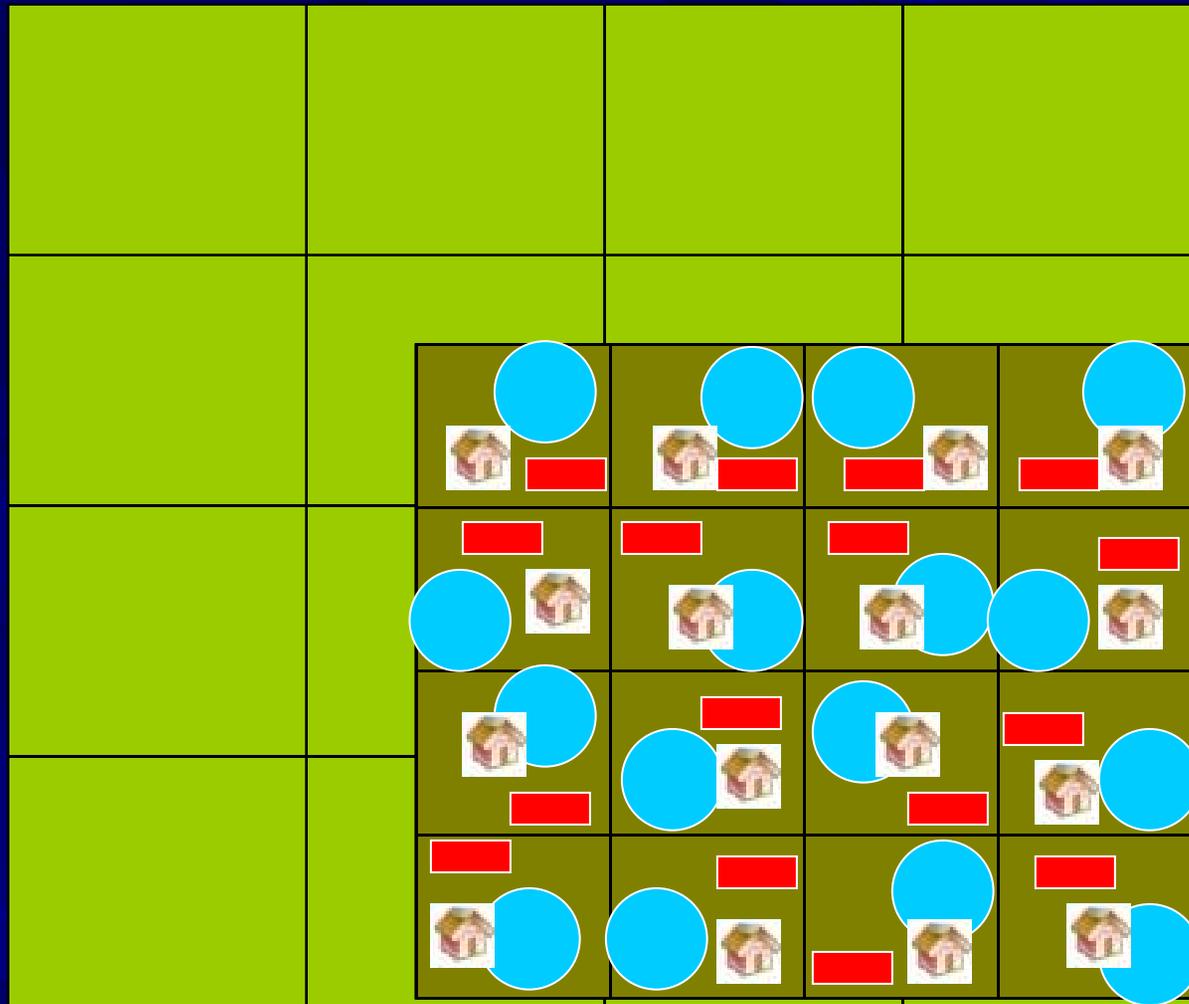
# Conventional



32 acre parcel with sixteen Typical 2-acre lots

No Open Space

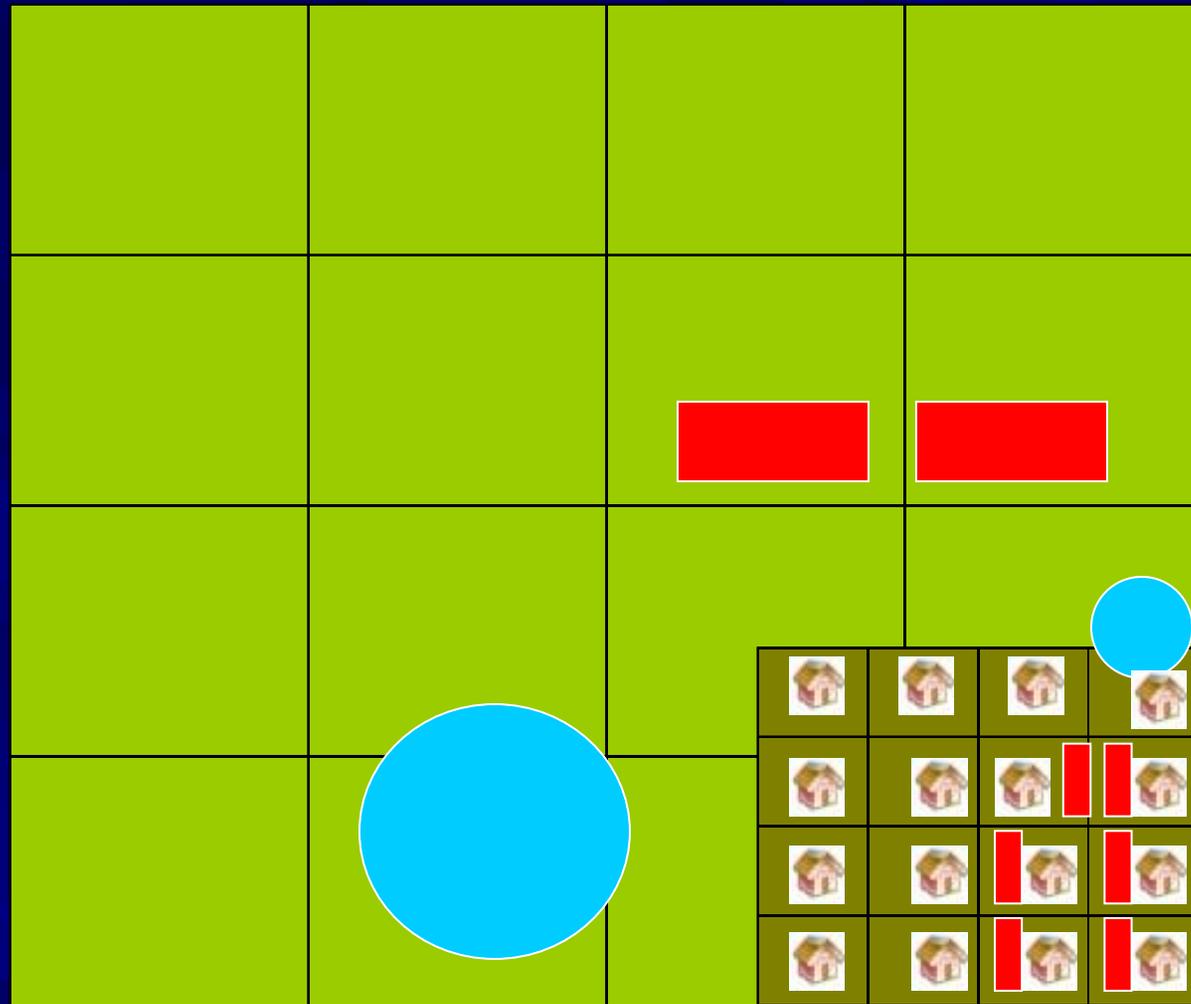
## Conventional – Soil-Based Lot Size



32 acre parcel with sixteen 0.68-acre lots

21+ acres open space

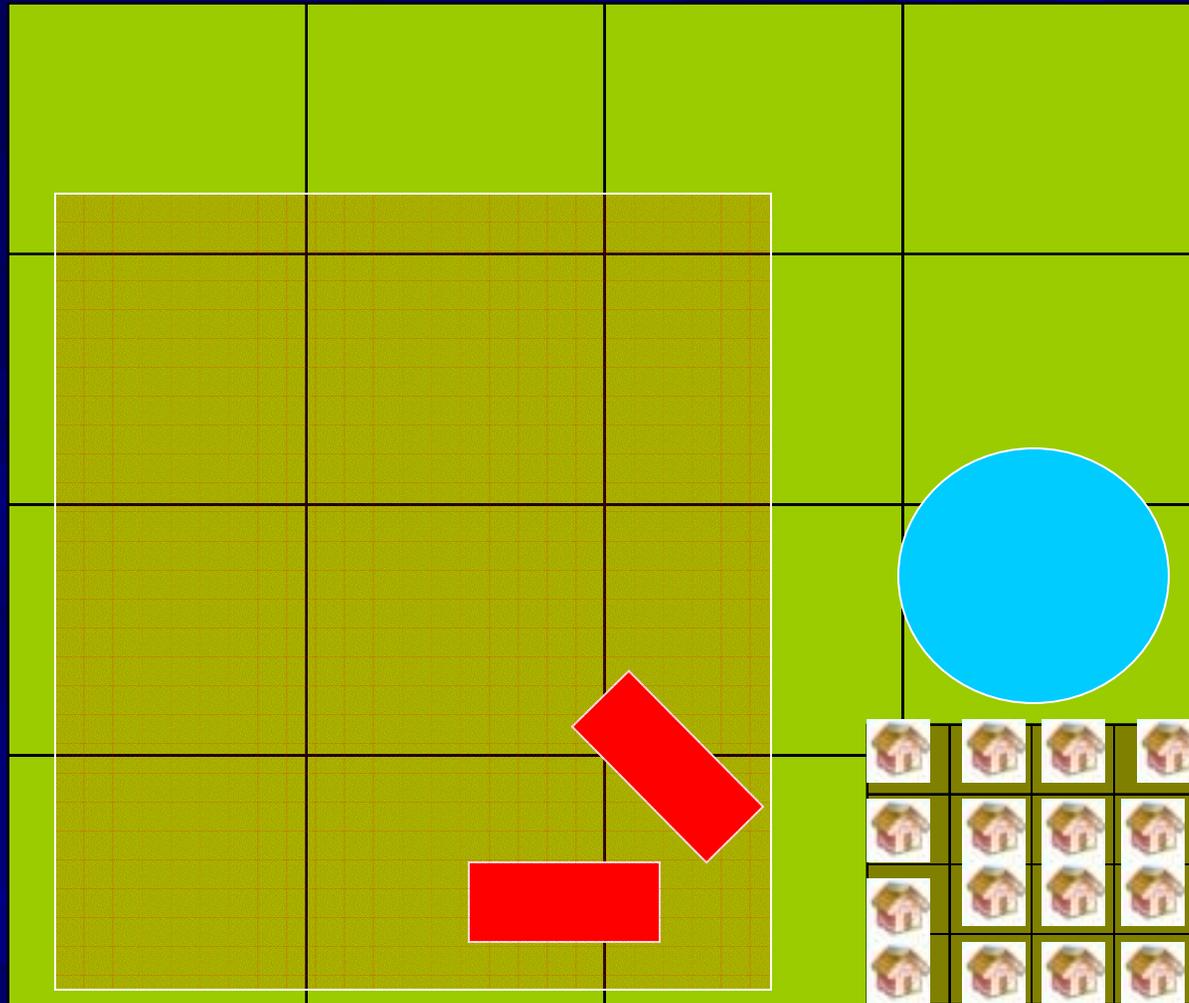
# Cluster



32 acre parcel with sixteen 0.25-acre lots

28 acres open space (except for well & septic fields)

## Traditional (1005.03 d)



32 acre parcel with no State minimum lot size

29.6 acres mostly undisturbed in example (0.15 acre lots)