



Sustainability Scavenger Hunt

Duke Farms Living Habitats

Using the map attached, explore the Farm Barn Orientation Center and the Grounds, put a check in the box as you find each item and answer the question that follows.

1. Go to the **men's or ladies room**. Notice the sustainable elements in this room.
 - a. What do you see that's different in this bathroom? _____
 - b. Where does the wastewater go from here? _____
 - c. Where does the wastewater go from your home or school restroom?

2. Walk around the **Farm Barn Orientation Center**. Notice how bright it is.
 - a. Where is most of the light coming from? _____
 - b. How does this save energy? _____

3. Take a walk into the **café**.
 - a. What do you notice that is sustainable in here? _____
 - b. What ideas can you take from here and incorporate into your school cafeteria?

4. Walk through the doors at the end of the café. Follow the path to the next building.
Notice the **electric vehicle chargers**
 - a. You may not be able to afford an electric vehicle yet, what type of transportation can you use to get to places you need to be in a more sustainable way?

 - b. Electric vehicles still use electricity for the energy to move from one place to another. Much of the electricity used throughout the country is created from fossil fuels. If this is the case are electric vehicles better for the environment than traditional vehicles? _____ Why? _____

 - c. The electricity at Duke Farms comes from Solar Panels. Why is this a more sustainable option for electric vehicles? _____

5. Follow the path and head to the Community Garden. At the back of the community garden you will notice a **compost pile**.
- What do you throw away in the garbage at home that can be composted?

 - What do you throw away at school that can be composted?

 - Why is composting sustainable? _____
 - What is the value of a Community Garden?

6. Go back to the main path and visit the **Solar Array**. This array has 3,120 solar panels that generate the electric for all of the buildings around you and the electric vehicles.
- Why do you think the panels are tilted?

 - List another place you can think of that has solar panels.

 - It would take 46 panels to power one typical home in NJ. How many homes could this array run? _____
7. Between the Solar Array and the Parking lot is a **rain garden**.
- Where can you build a rain garden at home?

 - Where can you build a rain garden at school?

 - Besides slowing down rain water and cleaning it before it gets to local streams, what other benefits does a rain garden offer the environment?

8. Now walk back to the **parking lot**. There a number of sustainable features of the parking lot.
- What is the biggest difference between this parking lot and others?

 - How do plants in the parking lot help the environment?

 - Why do you think the pavement is light colored instead of black?

9. Head over to the **Tram Stop**. Notice the roof. It is a **green roof**. The materials used to make this building were all **reclaimed** from other areas of the property.

a. How does a green roof improve water quality?

b. Why is it important to reuse materials whenever possible?

10. Follow the path to the left towards the two large white tanks. This is the site of our **constructed wetlands**.

a. How is the wastewater treated in this location?

11. Continue to follow the path to the field that has many small green circles located between the Farm Barn and the Constructed Wetlands. Each of these green circles covers a **geothermal well**. These wells use the constant temperature of air 400' below ground to reduce the energy needed to heat and cool the buildings you see here.

a. Why do you think sending 55° air into the Farm Barn during each part of the year helps to reduce the amount of energy needed to heat and cool the buildings?

Glossary:

Adaptive Reuse - the process of adapting old structures for purposes other than those initially intended.

Bioswale - landscape element designed to remove silt and pollution from surface runoff water

Cistern - a waterproof receptacle for holding liquids, usually water

Community Garden - a single piece of land gardened collectively by a group of people

Compost - Decayed organic material used as a plant fertilizer.

Constructed Wetland - an artificial wetland created as a new or restored habitat for native and migratory wildlife, for anthropogenic discharge such as wastewater, storm water runoff, or sewage treatment, for land reclamation after mining, refineries, or other ecological disturbances such as required mitigation for natural wetlands lost to a development.

Fossil Fuel - A natural fuel such as coal or gas, formed in the geological past from the remains of living organisms.

Geothermal - Of, relating to, or produced by the internal heat of the earth.

Green Roof - a roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane.

Heat-Island Effect - modification of the land surface by urban development which uses materials which effectively retain heat

LEED Certification- consists of a suite of rating systems for the design, construction and operation of high performance green buildings, homes and neighborhoods

Light Pollution - Brightening of the night sky that inhibits the observation of stars and planets, caused by street lights and other man-made sources.

Native Plant - a term to describe plants endemic (indigenous) to a given area in geologic time

Organic Gardening - Organic gardening is a process that promotes and enhances biodiversity, natural biological cycles and soil biological activities that restore, maintain and enhance ecological harmony. Organic gardening basic tenets are feeding the soil through decaying organic matter and utilizing natural cycles and predators for disease and pest control.

Permeable - Allowing liquids or gases to pass through it.

Rain Garden - a planted depression or a hole that allows rainwater runoff from impervious urban areas like roofs, driveways, walkways, parking lots, and compacted lawn areas the opportunity to be absorbed.

Reclaimed Materials - Reclaimed material) material that has been previously used in a building or project which is then re-used in another project

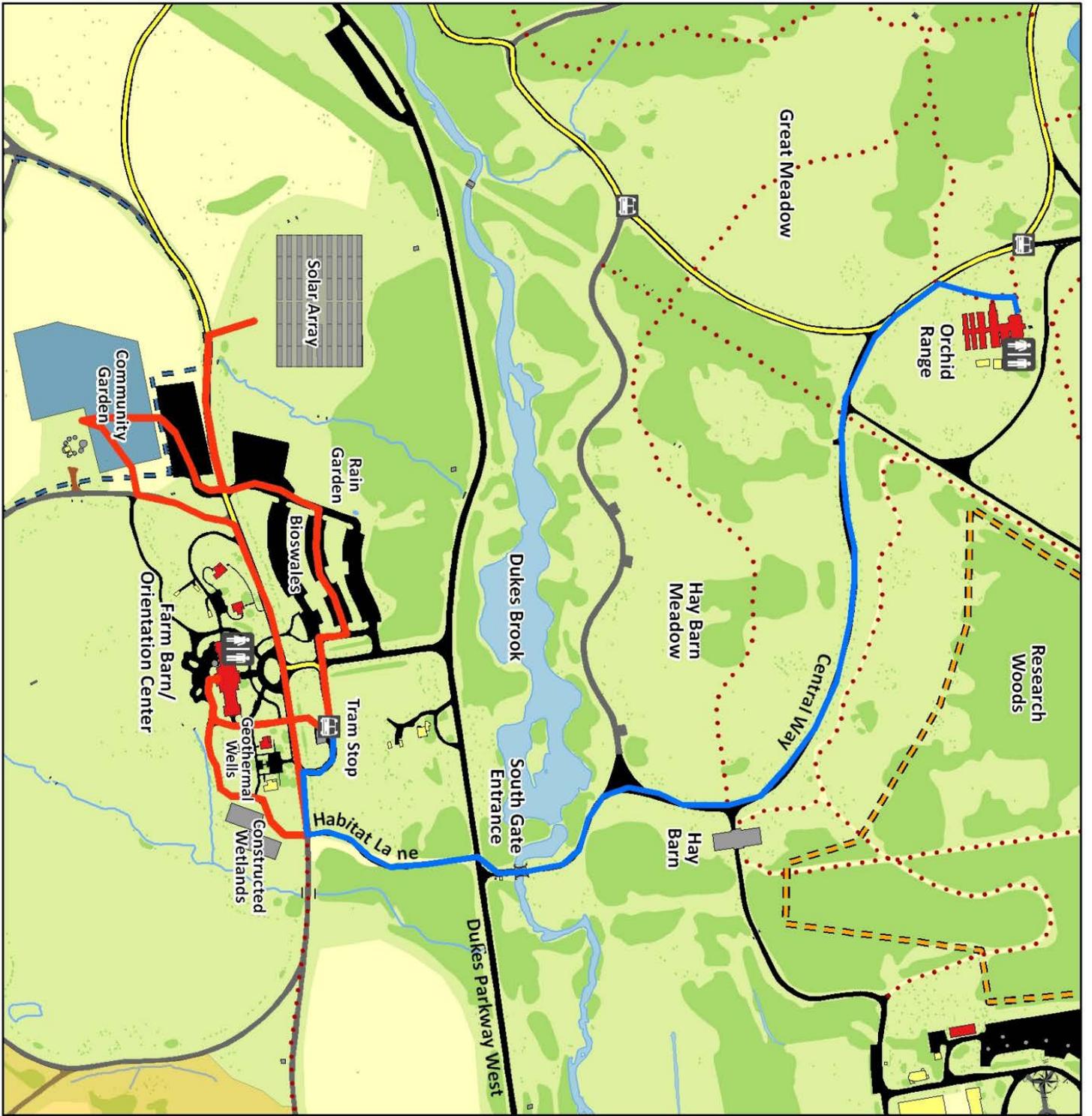
Recycled - Convert (waste) into reusable material

Runoff - The draining away of water (or substances carried in it) from the surface of an area of land, a building or structure, etc

Solar Array - electrical device consisting of a large array of connected solar cells

Sustainable - esp. of development, exploitation, or agriculture) Conserving an ecological balance by avoiding depletion of natural resources

Wastewater - any water that has been adversely affected in quality by anthropogenic influence. Municipal wastewater is usually treated in a combined sewer, sanitary sewer, effluent sewer or septic tank



A Bird's-Eye View of Sustainable Design

