ARLINGTON STONEHAM WINCHESTER

SUSTAINABLE LANDSCAPE WORKSHOP SERIES

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INTRODUCTIONS

- Town Representatives
  - Ken Pruitt, Sustainability Director, Town of Winchester
  - Erin Wortman, Director of Planning and Community Development
  - David Morgan, Environmental Planner + Conservation Agent, Town of Arlington
- Bohler
  - Leslie Fanger, Senior Landscape Architect & Project Manager
  - Lindsey Corse, Senior Landscape Designer

SUSTAINABLE LANDSCAPE WORKSHOP SERIES

+ Grant received from MAPC
+ 3 Workshops: Stoneham (Design), **Winchester (Construction),** Arlington (Maintenance)
+ Sustainable Landscape Guidebook and training videos to follow
+ Goal: Educate and encourage residents, Town Agencies and Businesses to implement sustainable landscape practices

WORKSHOP SERIES

Workshop 1:
DESIGN

Tues, April 11,
5:00-7:00PM

STONEHAM
Town Hall

Workshop 2:
CONSTRUCTION

Sat, May 20,
1:00-3:00PM

WINCHESTER
Library

Workshop 3:
MAINTENANCE

Thurs, June 8,
11:00AM-1:00PM

ARLINGTON
Community Center

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WORKSHOP #2 AGENDA

1:15-2pm: *REVIEW PRINCIPALS OF SUSTAINABLE LANDSCAPE CONSTRUCTION*

- Sustainable Design
- Durability
- Energy Efficiency
- Waste Reduction
- Less Paving/Increased Rainfall Infiltration
- Water Conservation
- Sustainable Building Materials

2-3pm: *ACTIVITY – BUILD YOUR SUSTAINABLE YARD - BOARD GAME!!*

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SUSTAINABLE CONSTRUCTION

PRINCIPLES OF SUSTAINABLE LANDSCAPE CONSTRUCTION

*"Main goals of sustainable landscape design are to **conserve water and energy, reduce waste and decrease runoff…** Residential gardens should **treat water as a resource, value soil, preserve existing plants, use only native/native cultivars or adaptive plants and conserve material resources.**"* https://www.landscapingnetwork.com

1. Sustainable Design (WORKSHOP #1)
    a) Conserve water and energy
    b) Reduce waste
    c) Decrease stormwater runoff
2. Treat water as a resource
3. Value soil
4. Preserve existing native plants
5. Install mostly native plants (70% native, 30% cultivar/adapted)
6. Remove invasive species
7. Conserve material resources: reduce/reuse/recycle

***"Adapted plants** are species originally native to other regions of the world that have become acclimated and established in a new area. These plants thrive in the new location without being harmful to existing native plants or wildlife, and are able to grow and reproduce without intervention."*
https://txmg.org/elpaso/learn/gardening-in-el-paso-articles/why-we-landscape-with-native-and-adaptive-plants/

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SUSTAINABLE CONSTRUCTION

CONSTRUCTION PROCESS

1. **DESIGN IS COMPLETE** (WORKSHOP #1. Best done during winter)
2. **PRIORITIZE BASED ON AVAILABLE BUDGET**
3. **WHO IS DOING THE WORK?** You, contractor, combination?
4. **PREPARE A MATERIALS LIST**
5. **DETERMINE IF CONSTRUCTION EQUIPMENT IS NEEDED**
6. **KNOW WHAT'S UNDERGROUND**
7. **PROJECT AREA LAYOUT**
8. **SITE PREPARATION**
9. **GO SHOPPING!**
10. **ARRANGE FOR DELIVERY**
11. **INSTALL** your sustainable landscape design!

    MAINTAINENANCE – (WORKSHOP #3!!!)

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2. PRIORITIZE BASED ON BUDGET

- **Analyze what you can accomplish now and what needs to wait.**
- Create a phasing plan to complete entire project
  - What can you accomplish within the year?
  - In what order should projects be completed?
  - Can projects overlap? How long will they take?
  - Start early! Plan in the winter to prepare for spring work
  - (Could be 5 year plan?)

3. WHO IS DOING THE WORK?

You, Contractor, or combination?

- You – Understand what you're capable of doing
- Contractor – Solicit multiple bids from reputable landscape contractors the winter *before* you want your work completed
- Combination - of you and contractor, see above!

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4. PREPARE A MATERIALS LIST

Based on your phase 1 budget, list things you need but don’t yet have.

- Tools
- Raw materials
  - Hardscape (paving, furniture)
  - Softscape (plant material, soil amendments, mulch)

5. DETERMINE IF CONSTRUCTION EQUIPMENT IS REQUIRED

- Can the work be done manually, or do you need to rent equipment or hire an operator?
- Ask someone you know!
- Access restrictions
  - Determine HOW construction equipment will get to your yard and plan ahead. Do you have a fence? Will the equipment fit through a gate?

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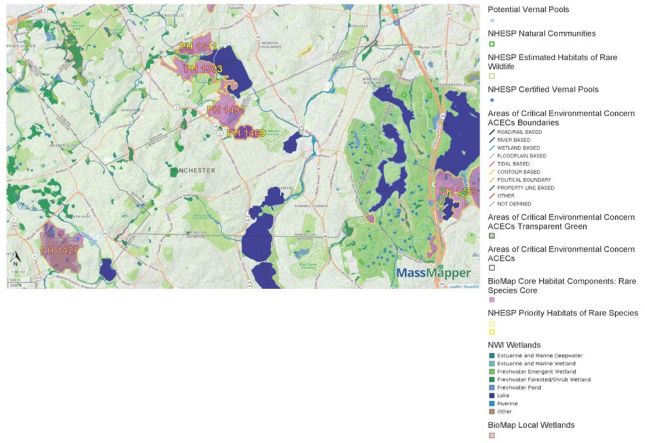
6. KNOW WHAT'S UNDERGROUND

Before digging any holes, find out where underground utilities are located on your property.

- Call DIGSAFE (811) BEFORE construction
  - (Not necessary if you are only using hand tools)
- Check MASSMAPPER for information about your property.
  - Use the search icon to find layers and toggle them on



7. PROJECT AREA LAYOUT

Materials you can use to outline your project area:

+ Garden hose
+ Wood stakes
+ Spray chalk
+ Landscape flags
+ Rope
+ Edge the soil using a shovel

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8. SITE PREPARATION

REMOVE INVASIVE SPECIES

Herbicides are a last resort. Try this instead:

- Full root removal
- Consistent cutting
- If herbicides are necessary, they can be limited by cutting stems and dabbing plant with herbicide
- **Planting natives immediately after removal helps prevent invasive regrowth**

+ Full root removal of barberry

+ Herbicide application on cut stems

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8. SITE PREPARATION

RELOCATE VALUED EXISTING PLANTS

Transplanting: Replanting either a whole plant or divided portion.

- Thoroughly water the plant beforehand
- Dig a new hole for your plant
- Dig up plant – avoid main root ball
- Put plant in the new hole at ground level or slightly higher
- Backfill
- Water, monitor, and mulch
- Timing: Replant before the plant blooms, or after it's finished. Pick a mild day

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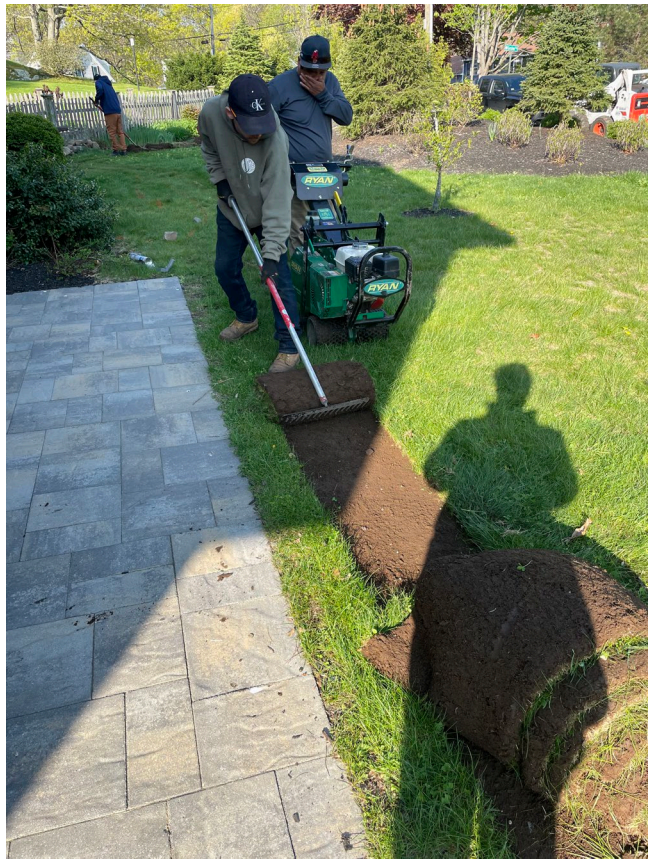
8. SITE PREPARATION
RELOCATE VALUED EXISTING PLANTS

Sod Rolls

+ Where lawn is being removed for garden areas
+ Harvest existing lawn
+ Replenish other areas of your yard



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8. SITE PREPARATION

AMEND EXISTING SOIL

Get a Routine Soil Analysis done

+ Mail or drop-off sample
+ **pH and nutrient recommendations are included with test results**
+ One cup of dry soil in a Ziploc bag

+ Amend existing soil (Native plants likely won't need any)

UMass Extension

UMass Soil & Plant Nutrient Testing Laboratory
Paige Laboratory, Room 203
161 Holdsworth Way
Amherst, MA 01003
(413) 545-2311
soiltest@umass.edu
http://soiltest.umass.edu

USE THIS FORM FOR ROUTINE SOIL ANALYSIS – HOME GROUNDS AND GARDENS

Visit our website to download a copy of Sampling Instructions for Routine Soil Analysis, which includes a description of routine and optional soil tests offered. Send your sample(s), completed submission form and payment to the address listed above. Enclose check payable to UMass for $20 for each sample plus additional fees for optional tests requested below.

Main Contact	Send Copy to	Method of Receiving Results
Name:	Name:	☐ **US Mail** (Please include $2 per order for postage & handling)
Business Name:	Business Name:	
Street Address:	Street Address:	
City, State, Zip	City, State, Zip:	☐ **Email**
Phone:	Phone:	
Email Address:	Email Address:	

LAB # (Leave blank)	Sample ID (You create this)	Approx. area Represented by Sample (Sq. ft. or Acres)	Crop Code, limit of 3 (See reverse side of this form)	Routine Analysis ($20.00)	Organic Matter ($6.00)	Soluble Salts ($6.00)	Nitrate ($8.00)
				☑	☐	☐	☐
				☑	☐	☐	☐
				☑	☐	☐	☐
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				☑	☐	☐	☐

Order Total $_____.

Office Use Only	
Received	Due
Check#	PO#
Cash	Date

Please make check payable to the University of Massachusetts or "UMass"

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8. SITE PREPARATION

EROSION CONTROL

Stormwater runoff on slopes can create erosion issues.

Techniques for protecting soil and/or redirecting water flow:

- Native Plants and Natural Mesh/Netting

- Retaining Wall (Professional Recommended)

- Riprap or Dry Stream Bed

- Rain Garden

9. GO SHOPPING
PERVIOUS PAVING

Shop for Materials That Are:

+ Locally sourced
+ Renewable
+ Made from recycled materials
+ Re-purposed, reclaimed, or ‘Freecycled’
+ Pervious/Porous/Permeable
+ Low-Energy Input (When created)

+ Tools

+ Furniture

+ Soil amendments

+ Hardscape materials

+ Nursery plants

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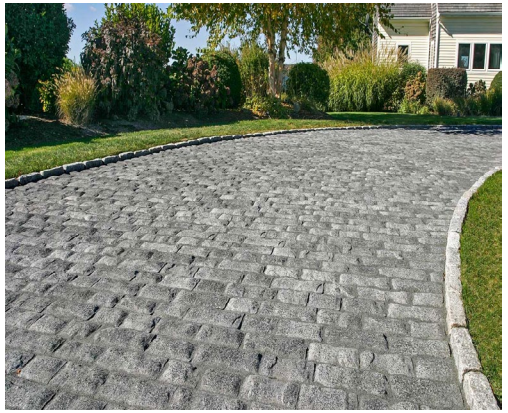
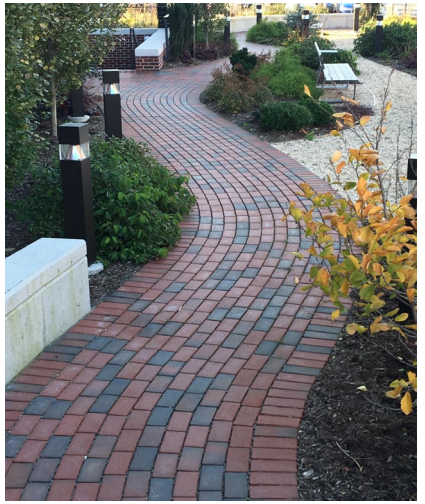
9. GO SHOPPING!
PERVIOUS HARDSCAPE MATERIALS

+ Interlocking concrete pavers

+ Crushed gravel



+ Cobblestone



+ Permeable brick

+ Pervious asphalt

+ Stepping stones with mulch

+ Crushed gravel or shell

+ ‘Ribbon’ driveway

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9. GO SHOPPING! OR DON'T!

FREECYCLE

+ Palette patio (Not for garden beds)

+ Reclaimed brick

+ Dig! Free rocks!

+ Plant swaps

+ Kiddie Pool

+ Urbanite (Used, broken concrete)

+ Urbanite plant beds

+ Leaf mulch

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10. ARRANGE FOR DELIVERY

+ Designate an area for your delivered materials to be stored or staged.
+ This area should be *outside of the project work zone.*
+ Best to lay out a tarp for most materials to be delivered on.
+ Make sure delivery vehicle will be able to access this spot.
+ Be prepared to cover materials if it rains before they get installed

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11. INSTALL
TREE PLANTING

Soil Preparation:

+ Avoid creating areas where standing water exists
+ Soil test will determine nutrients your soil needs

Organic amendments:

+ Place throughout the area where roots will spread

Ideal planting time:

+ FALL – September to Mid-October
+ SPRING – Before buds break

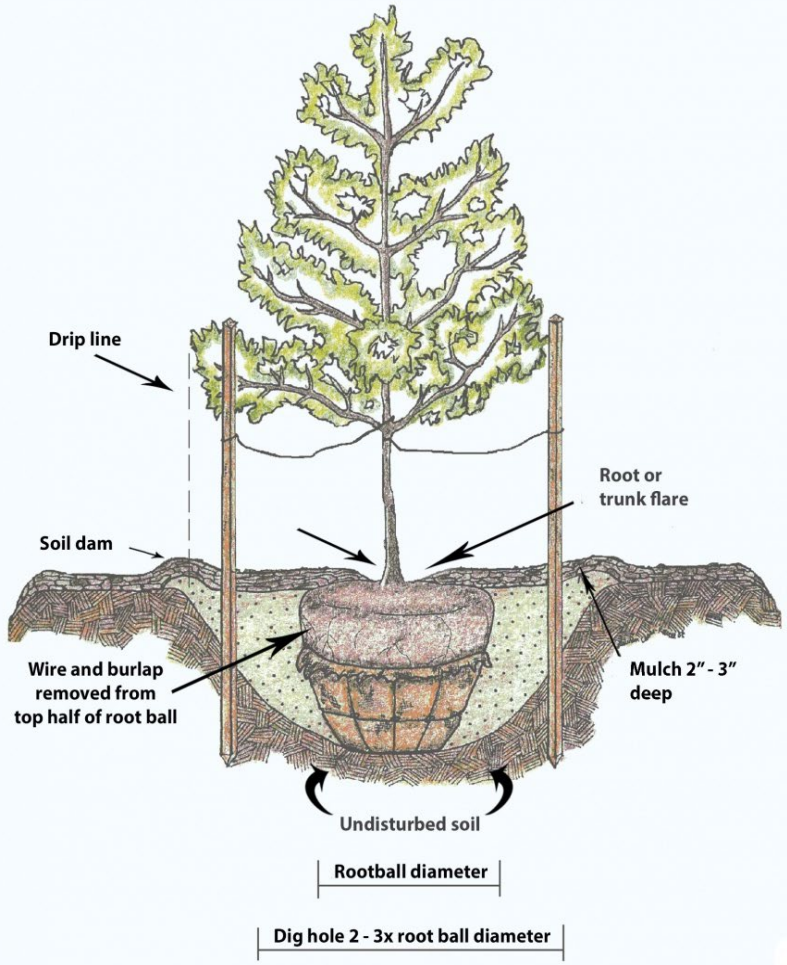

Diagram 1: This B&B tree has been planted at the proper depth, and has had the wire and burlap removed from the top half to allow new roots to grow outwards. Drawing by Lauren Chase-Rowell

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11. INSTALL
TREE PLANTING

+ **Installation process varies based on how your tree is packaged**
+ Nursery-grown trees are packaged in one of three ways:

+ **Ball and Burlap**

+ **Container/Potted**

+ **Bare Root**

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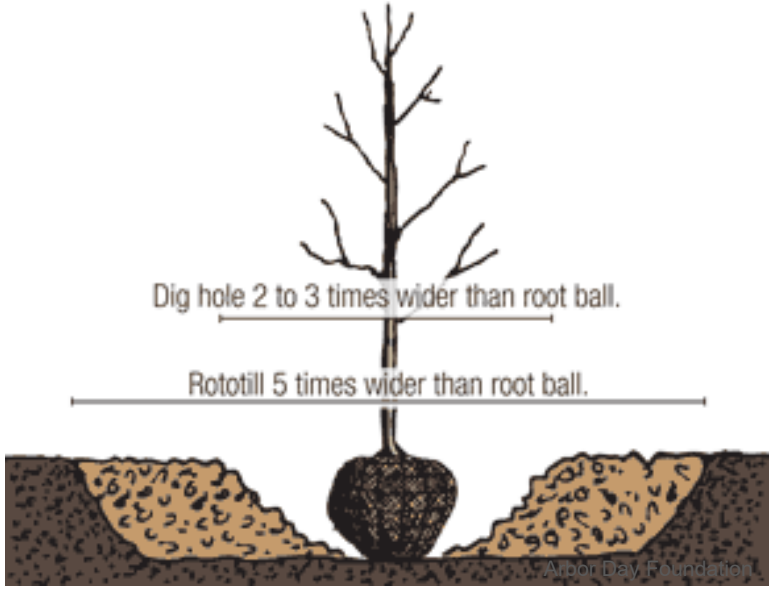
11. INSTALL
BALL AND BURLAP TREES

Dig A Hole:

+ WIDTH: 2-3 x wider than the root ball
+ DEPTH: Only as deep as the root ball
+ <u>Keep trunk base/top of roots level with ground</u>
  Remove wire or twine from ball.
+ Cut burlap away
+ Best practice: Do not leave any burlap or wire
+ Backfill halfway



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11. INSTALL
BALL AND BURLAP TREES

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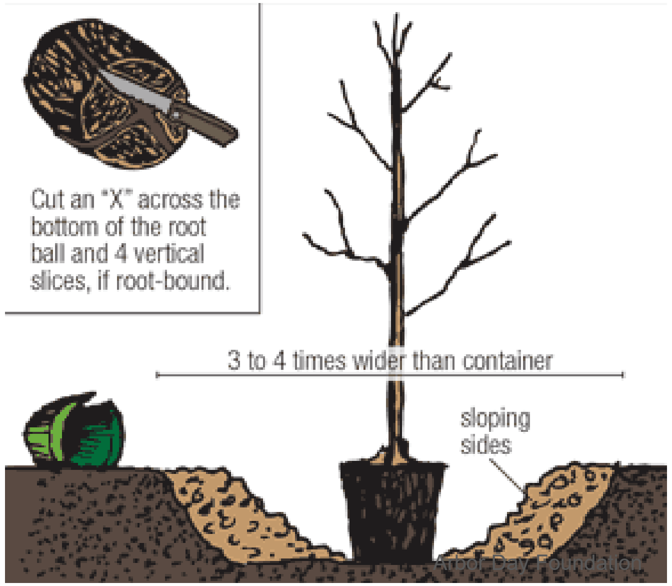
11. INSTALL
CONTAINER TREES

+ Carefully remove container
+ Gently break up roots to encourage growth (Use knife if roots are tightly packed)

Dig a Hole:

+ WIDTH: 2-3 x wider than container
+ <u>Keep trunk base/top of roots level with ground</u>
+ Backfill



11. INSTALL
CONTAINER TREES

11. INSTALL
BARE ROOT TREES

+ Similar process
+ Roots must be kept moist
+ Very fragile
+ Root washing
    + (Allows you to plant at proper depth
    + take a look at the roots
    + quickly anchor into native soil)

Root washing

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11. INSTALL
MULCH

+ Helps retain moisture
+ Keep 1-2” AWAY from trunk
+ 2-4” layer of mulch
+ More on mulch in Workshop 3

Mulch volcano


Proper mulch saucer

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11. INSTALL
WATERING

+ **Watering during the first year is crucial to establish new plants**
+ Use drip irrigation
+ Keep soil moist, *not soggy*
+ Early morning or evening to retain moisture
+ Slowly but thoroughly
+ Water mulch, not leaves

Watering Schedule:

1. Immediately after planting
2. The day after planting
3. Daily for the first week
4. Twice a week for the next month or so
5. Gradually decrease frequency

+ If dry to the touch, it needs water

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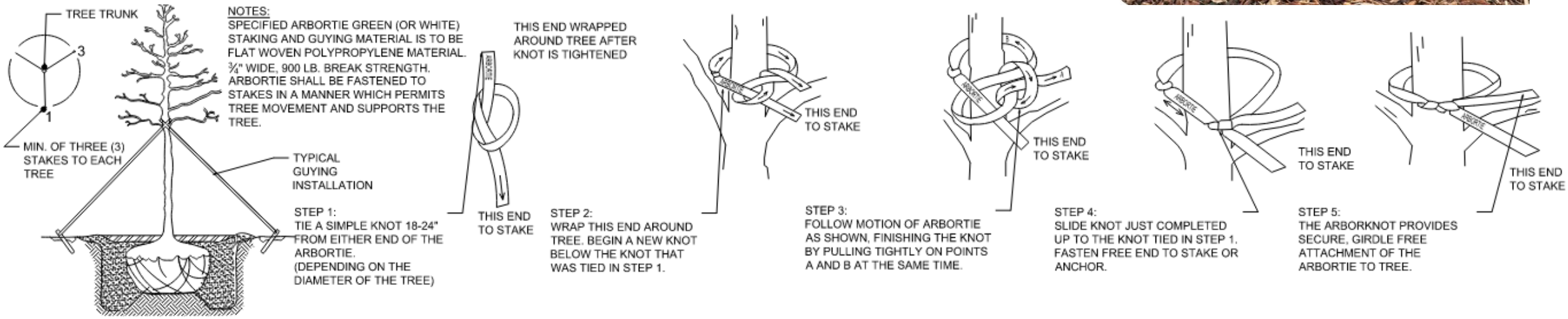
11. INSTALL
TREE STAKING

+ May not be necessary unless your site is windy and there's a high chance of falling over
+ Remove stakes after 1 year



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11. INSTALL
RAIN GARDEN

Rain gardens divert and control runoff. Great for areas with ponding or erosion.

1. Lay out proposed rain garden. Use a hose or stakes to outline the area
2. Dig a bowl-shape about 6-8" deep. Deepest in the middle, (slightly) sloped slides
3. If the spot is sloped, building a berm on the downhill edge helps a rain garden hold stormwater
4. Add native species (Water until established)
5. Mulch

+ The down-slope edge of this garden is bermed to hold water like a bowl

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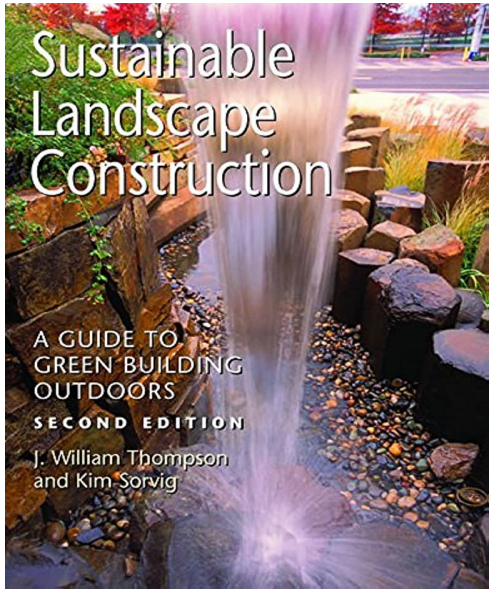
THINGS YOU CAN START TODAY

- **Research**
- **Stormwater Capture/Erosion Control**
  - Rain gardens/Dry stream bed/Retaining Wall
- **Use Pervious Paving**
  - Walkways
  - Driveways
  - Patios
- **Limit/Lessen Paved Areas**
- **Increase Vegetated Areas**
- **Talk to Professionals**
- **Get Cost Estimates**
- **Create a Budget**
- **Use Sustainable Materials**
  - Locally sourced
  - Sustainably produced
  - Recycled or repurposed
  - Use what you already have
- **Be Creative!!**



- **"Sustainable Landscape Construction" by J. William Thompson and Kim Sorvig**

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RECAP - BITE-SIZED PROJECTS

+ Start small. You don’t need a large space to make an impact.
+ See what you can easily accomplish at home!
+ Use resources for guidance.
+ Don’t be intimidated.
+ Ask your design professionals or contractors questions. Ask them about implementing sustainable practices.
+ Buy a little more material than you need!
+ Use what you already have and be creative.

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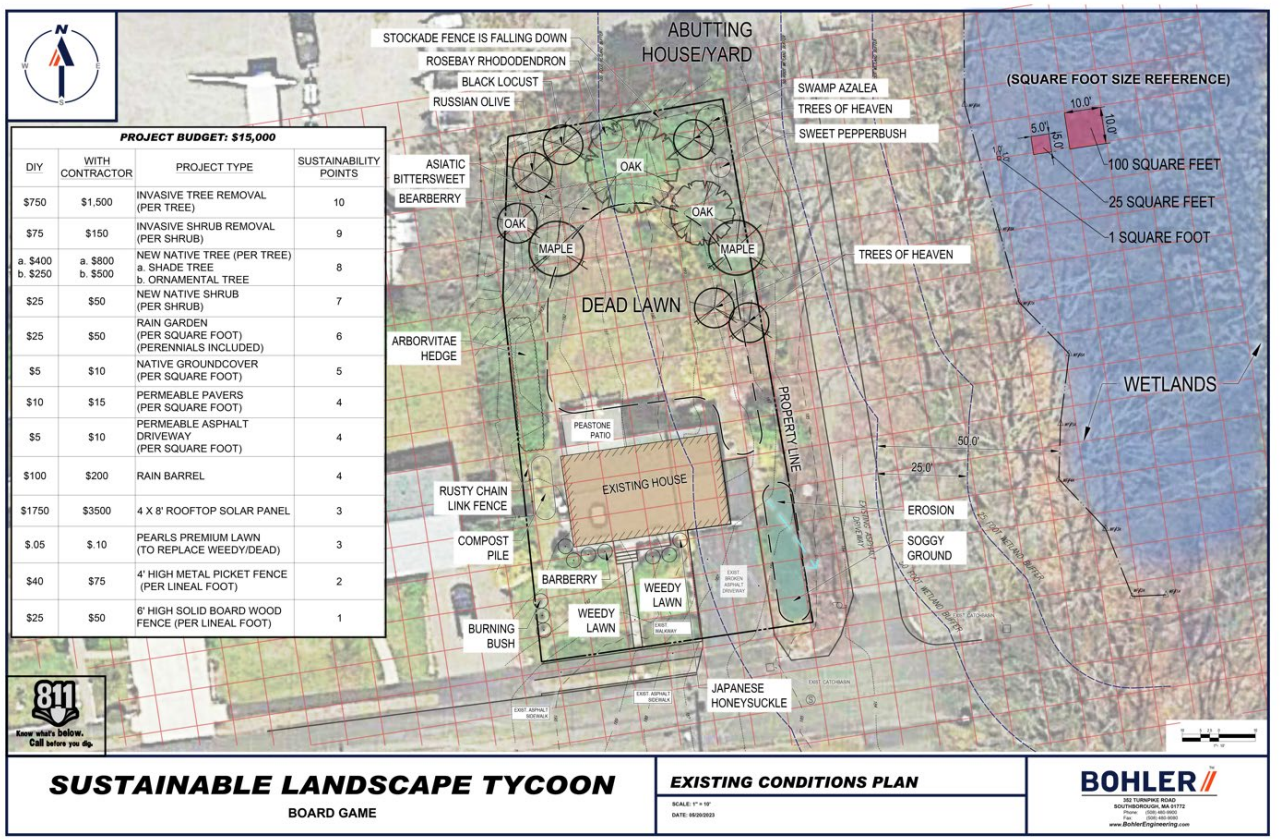
ACTIVITY!
BOARD GAME

BOARD GAME

Game Rules:

+ You will have 1 hour to work with your group
+ **You have been allotted a $15,000 Sustainable Construction Projects budget.** Do not exceed your budget.
+ Gather as many ‘Sustainability Points’ as you can. The team with the most points wins.
+ Use sticky notes to label your ‘Projects’
+ Each group will be given an invasive species list for reference
+ See plan for square footage reference
+ PRESENTATION of Sustainable Solutions

(If time permits!)



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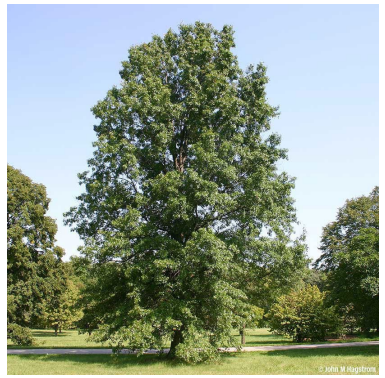
ABBREVIATED NATIVE PLANT PALETTE

TREES

+ Red Maple



+ Pin Oak

+ River Birch

+ Thornless Honeylocust

+ Tupelo

ORNAMENTAL TREES

+ Serviceberry

+ Flowering Dogwood

+ Chokecherry

+ Black Cherry

SHRUBS

+ Winterberry

+ Inkberry

+ Arrowwood viburnum

+ Red Osier Dogwood

+ Cinquefoil

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THANK YOU!

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