



2013-133

Doug 8848
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Administrative Authorization Application Portland, Maine

Planning and Urban Development Department, Planning Division

PROJECT NAME: Dole Brook Buffer Planting

PROJECT ADDRESS: Riverside Municipal Golf Course CHART/BLOCK/LOT: 365 A001 357-A-1

APPLICATION FEE: N/A (\$50.00)

PROJECT DESCRIPTION: (Please Attach Sketch/Plan of the Proposal/Development)

Point buffer plantings along 1,000 feet of Dole Brook (See attached 'Dole Brook Buffer Planting Plan')

CONTACT INFORMATION:

OWNER/APPLICANT

Name: City of Portland C/O Doug Roncarati
Address: Congress Street
Portland, ME 04101
Work #: (207) 874-8848
Cell #: _____
Fax #: _____
Home #: _____
E-mail: dar@portlandmaine.gov

CONSULTANT/AGENT

Name: FB Environmental Associates
Address: 97A Exchange street, Suite 305
Portland, ME 04101
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Cell #: 207-650-7597
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E-mail: info@fbenvironmental.com

Criteria for an Administrative Authorization: (see section 14-523(4) on pg .2 of this appl.)

Applicant's Assessment Y(yes), N(no), N/A

- | | |
|---|------------|
| a) Is the proposal within existing structures? | <u>N/A</u> |
| b) Are there any new buildings, additions, or demolitions? | <u>N</u> |
| c) Is the footprint increase less than 500 sq. ft.? | <u>N/A</u> |
| d) Are there any new curb cuts, driveways or parking areas? | <u>N/A</u> |
| e) Are the curbs and sidewalks in sound condition? | <u>N/A</u> |
| f) Do the curbs and sidewalks comply with ADA? | <u>N/A</u> |
| g) Is there any additional parking? | <u>N/A</u> |
| h) Is there an increase in traffic? | <u>N/A</u> |
| i) Are there any known stormwater problems? | <u>N</u> |
| j) Does sufficient property screening exist? | <u>N/A</u> |
| k) Are there adequate utilities? | <u>N/A</u> |
| l) Are there any zoning violations? | <u>N</u> |
| m) Is an emergency generator located to minimize noise? | <u>N/A</u> |
| n) Are there any noise, vibration, glare, fumes or other impacts? | <u>N</u> |

| | |
|--|-------------------------|
| Signature of Applicant: <u>F. B. [Signature]</u> | Date: <u>05/22/2013</u> |
|--|-------------------------|

IMPORTANT NOTICE TO APPLICANT: The granting of an Administrative Authorization to exempt a development from site plan review does not exempt this proposal from other required approvals or permits, nor is it an authorization for construction. You should first check with the Building Inspections Office, Room 315, City Hall (207)874-8703, to determine what other City permits, such as a building permit, will be required.

Administrative Authorization Decision

Application #: 2013-133

Name: Point buffer plantings

Address: RIVERSIDE ST

Description: Point buffer plantings along 1,000 feet of Dole Brook

| <u>Criteria for an Administrative Authorization:</u> <u>(See Section 14-523 (4) on page 2 of this application)</u> | <u>Applicant's Assessment</u> | | <u>Planning Division</u> <u>Use Only</u> |
|---|-------------------------------|-----|---|
| | <u>Yes, No, N/A</u> | | |
| a) Is the proposal within existing structures? | N/A | N/A | |
| b) Are there any new buildings, additions, or demolitions? | No | No | |
| c) Is the footprint increase less than 500 sq. ft.? | N/A | N/A | |
| d) Are there any new curb cuts, driveways or parking areas? | N/A | | An existing stone dust path will be relocated to the otherside of the green and outside of the stream buffer. |
| e) Are the curbs and sidewalks in sound condition? | N/A | N/A | |
| f) Do the curbs and sidewalks comply with ADA? | N/A | N/A | |
| g) Is there any additional parking? | N/A | N/A | |
| h) Is there an increase in traffic? | N/A | N/A | |
| i) Are there any known stormwater problems? | No | | The replanting is to stablize erosion and create a buffer for the stream. |
| j) Does sufficient property screening exist? | N/A | N/A | |
| k) Are there adequate utilities? | N/A | N/A | |
| l) Are there any zoning violations? | No | No | |
| m) Is an emergency generator located to minimize noise? | N/A | N/A | |
| n) Are there any noise, vibration, glare, fumes or other impacts? | No | No | |

The Administrative Authorization for the Point buffer plantings was approved by Barbara Barhydt, Development Review Services Manager on May 31, 2013, with the following condition of approval listed below:—

- 1) The proposal to revegetate and stabilize the banks of the Dole Book within the Riverside Golf Course is approved and there are no conditions of approval..



Barbara Barhydt
 Development Review Services Manager
 Approval Date: May 31, 2013

Dole Brook Buffer Planting Plan

Riverside Municipal Golf Course

Portland, Maine



May 9, 2013

FB Environmental Associates
97A Exchange St., Suite 305
Portland, ME 04101
www.fbenvironmental.com



DOLE BROOK BUFFER PLANTING PLAN

1. PURPOSE

The purpose of this document is to provide guidance for the Dole Brook buffer enhancement project located at the 17th hole of the Riverside Municipal Golf Course in Portland, Maine. The planting plan will discuss planting rationale (species selection, size and spacing), as well as planting methods, and a summary of maintenance requirements to ensure both short and long-term viability of the plantings. A detailed operations and maintenance guidance document will be provided to the golf course superintendant upon completion of buffer implementation as a separate project deliverable.

2. BACKGROUND

Dole Brook, a small tributary of the Presumpscot River, flows approximately 1.6 miles through the City of Portland, Maine. The Dole Brook watershed area includes 896 acres (1.4 sq mi), which includes a portion of the Riverside Municipal Golf Course. Dole Brook is a class B freshwater stream listed on the Clean Water Act's 303(d) list of impaired waters. The stream does not meet water quality standards for aquatic life use (benthic-macroinvertebrates). This impairment can be associated with erosion, streambank and habitat degradation, and polluted urban runoff.



Figure 1: View of the project area at Dole Brook on the 17th fairway at Riverside Municipal Golf Course.

The stream's headwaters are located in a wooded area just west of Washington Avenue. The stream flows north through a commercial development along Riverside Industrial Parkway, and passes under the Maine Turnpike south of Exit 52, and then flows into several wetlands prior to crossing under Riverside Street and entering the golf course. Dole Brook flows for an estimated 2,500 feet, or just under a half mile,

3. EXISTING NATIVE VEGETATION

While some native vegetation was documented along the banks of the stream within the project area, there are large portions of the brook that lack any vegetation other than grass. This is because the area has been managed as a golf course, and cut short to the edge of the stream in many locations. FBE documented existing vegetation throughout the project area, as well as within the natural riparian corridors to the south and north of the site. In many cases, plant species within the naturalized areas were recommended for the planting plan within each zone. The species selected for the 2006 planting plan (FBE, 2006) were also taken into consideration. The 2006 plant list included:

Vaccinium corymbosum (high bush blueberry)

Swida sericia (red osier dogwood)

Spiraea alba (meadowsweet)

Spiraea tomentosa (steepleshub)

Alnus incana (speckled alder)

Viburnum dentatum (arrowwood viburnum)

Ilex verticillata (common winterberry)

Prunus virginiana (chokeberry)

Viburnum trilobum (cranberry bush)

In addition to the species listed above, coniferous trees were planted in 2006 at the request of the golf course superintendent. This list includes *Pinus strobus* (eastern white pine), *Abies balsamea* (balsam fir), *Pinus resinosa* (red pine), and *Tsuga canadensis* (eastern hemlock). Existing vegetation observed in each of the four zones within the project area along Dole Brook during the April 8, 2013 site visit is described below.

Zone 1

The upstream section of Dole Brook is adjacent to a natural wooded corridor to the south. Other than grass, no vegetation was observed in this reach, as mowing occurs right to the edge of the brook. Species found within the wooded area to the south include:

Salix discolor (pussy willow)

Solidago sp. (golden rod)

Fraxinus pennsylvanica (green ash)

Spiraea alba (meadowsweet)

Onoclea sensibilis (sensitive fern)

Alnus incana (speckled alder)



Existing vegetation in Zone 2 - looking northeast from the cart path crossing.



Zone 1 - Looking south west from the cart path crossing.

4. VEGETATION SELECTION AND SPACING

Utilizing the FBE 2006 plant list, list of documented native vegetation, and expert recommendations, the section of the planting plan will describe species selection, plant spacing and rationale for each zone.

Plant spacing is based on past experience with similar buffer enhancement projects, and personal communication with Pierson's Nursery (Pierson, 2012). Shrubs and small trees will have an average spacing of 8-10 feet. Small shrubs, groundcovers, and herbaceous species will have an average spacing of 1-4 feet.

Recommended plant size is for mid-range to larger plants, and more established plants, as larger plants will be more capable of withstanding occasional grazing by wildlife, and require less maintenance during the early stages of growth. This in turn, will be a more cost effective approach to the buffer planting plan. Larger plants will also be more competitive with other grasses and forbs growing within the natural buffer. Smaller/herbaceous plants will require weeding and regular inspection, or otherwise may be out-competed by fast-growing grasses and existing species along Dole Brook.

Zone 1

Due to limited existing vegetation within this area, the goal in Zone 1 is to build upon species present in the naturally wooded riparian corridor to the south. In addition, high bush blueberry (*Vaccinium corymbosum*) is recommended here for aesthetics and wildlife considerations. Edible berries and flowers will be attractive to golfers playing the 17th hole, as well as birds and other wildlife. However, since blueberries prefer slightly acidic soils, soil amendments will be considered in this location to ensure plant success. Through personal communication with the golf course superintendent, Gene Pierotti, we found that plant height is not of concern in this zone as it is mostly out-of-play for golfers. To build up the natural buffer, various willow species, meadowsweet, steplebush, dogwood and alders will be used.

Meadowsweet and steplebush are wetland plants that can adapt to a variety of wet habitats including stream banks. They have large white or pink pyramidal-shaped flowering pinnacles that bloom mid-summer through early fall. These flowers attract bees, butterflies and birds. Red osier dogwood also has attractive flowers in the spring and summer that turn into berries that last well into winter. Alders are ideal for areas of frequent flooding along with willows which also have great rooting depth (NRCS, 2013). Black willow, in particular, can get quite tall when mature. These are recommended in this zone because height is not of concern here.

The proposed addition of high bush blueberry and rhodora along the southern banks was selected due to flood tolerance and species association. Both these species are flood tolerant which is necessary since this zone experiences seasonal flooding; especially near the cart path crossing culvert.

Adjacent to the stream crossing is an area of severe erosion potentially caused by misalignment of the culvert. Willow staking is suggested in this area (approximately 5' x 5') in addition to vegetative plantings to further stabilize the bank and limit exposed soils.

plants (NRCS, 2013). The area of the cart path needs to be vegetated by a spreading shrub to ensure that golfers stay out of the buffer area. This area of Dole Brook is close to the fairway, and for aesthetic purposes, will also have a variety of hardy and flowering shrubs that are attractive to both golfers and wildlife.

Plant List for Zone 3

| | |
|---|--|
| <i>Amelanchier arborea</i> (downy serviceberry) | <i>Swida sericia</i> (red osier dogwood) |
| <i>Salix nigra</i> (black willow) | <i>Spiraea tomentosa</i> (steepleshub) |
| <i>Salix petiolaris</i> (meadow willow) | <i>Alnus incana</i> (speckled alder) |
| <i>Ilex verticillata</i> (common winterberry) | <i>Aronia melanocarpa</i> (black chokeberry) |

Zone 4

The old stone bridge at the most downstream point of the reach is a historic focal point within the golf course, and therefore, an important design consideration for the buffer enhancement. At the request of the golf course superintendant, low growing perennial species will be planted nearest to the bridge to ensure that the unique features of the bridge remain visible to the public. The selected vegetation will add to the beauty of the stream crossing, incorporating perennial ferns, flowering shrubs, and groundcovers that are attractive to wildlife and visually pleasing to the golfers playing the 17th hole. Hardier shrubs, such as winterberry, willow, summersweet and dogwood, will be planted farther upstream of the bridge to prevent further bank erosion, and prevent cart traffic through the newly established buffer zone.

The buffer in this stream segment is more gently sloping compared with the stream banks in the other three zones, allowing for a greater variety of vegetation planted closer to the brook. Also, as in other zones, perennial plantings are recommended around the footbridge paths for aesthetic purposes.

Plant List for Zone 4

| | |
|---|--|
| <i>Ilex verticillata</i> (common winterberry) | <i>Salix petiolaris</i> (meadow willow) |
| <i>Swida sericia</i> (red osier dogwood) | <i>Salix bebbiana</i> (long-beaked willow) |
| <i>Spiraea tomentosa</i> (steepleshub) | <i>Salix sericia</i> (silky willow) |
| <i>Spiraea alba</i> (meadowsweet) | <i>Clethra alnifolia</i> (summersweet) |
| <i>Amelanchier arborea</i> (downy serviceberry) | <i>Athyrium filix-femina</i> (lady fern) |
| <i>Vaccinium angustifolium</i> (low bush blueberry) | <i>Comptonia peregrina</i> (sweet fern) |
| <i>Lobelia cardinalis</i> (cardinal flower) | |

5. PLANTING METHODOLOGY

Methods for plan implementation are based on Portland Water District's facts sheets for Planting and Maintaining Buffers. Additionally, Maine DEP sedimentation and erosion control BMPs for vegetated buffers and permanent vegetation will be followed when applicable. Willow staking methods will be based on Portland Water District guidelines outlined in the live staking procedures fact sheet. This document discusses stake species and size, installation, spacing and maintenance of live stake areas.

Erosion Control Plan

Erosion controls will be used during the cart path removal, seeding of loamed areas, and during the buffer planting implementation. Minimal soil will be disturbed as point plantings will be dug using an auger, and immediately back filled and covered with erosion control mulch upon placement of vegetation.

Sediment barriers will be used along Dole Brook within the cart path removal areas. Though minimal soil disturbance, proper controls will be in place in case of rain or storm event. Erosion control filter socks will be utilized for this project. FBE feels this will be most effective in providing erosion control during cart path removal and planting implementation. Sediment barriers such as silt fences and hay bales could further erode areas around Dole Brook prone to slumping and be less effective along this sinuous stretch of the Brook.



Erosion control socks used to prevent sediment from moving on a slope in California.

Sediment barriers will be installed prior to the cart path removal and removed only when all areas of disturbed soils are stabilized following buffer planting implementation. Areas of exposed soils will be covered with erosion control mulch and the cart path removal areas will be seeded. FBE will conduct site visits once a week to determine when erosion controls can be removed. Sediment barriers must be removed within 30 days of final site stabilization (NRPA, Chapter 305).

Planting Layout and Method

The planting layout is located in **Appendix A**. FBE will serve as the lead for plan implementation, working with volunteers and other technical staff to implement the planting plan in July 2013. A technical leader will be assigned to each planting zone to assist inexperienced volunteers. Prior to planting, the technical leader will flag the location of all plants within the zone, and place markers in each plant to ensure that the right plants are planted in the proper location.

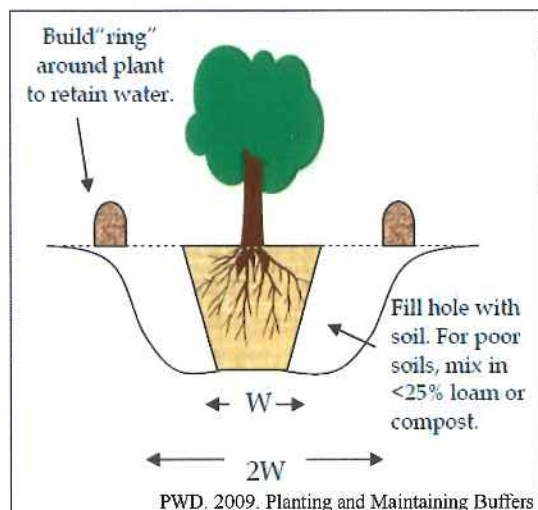


Figure 4: *Planting method for the Dole Brook buffer enhancement.*




Figure 3 (right) shows how each plant should be properly placed in the ground. Note that the top of the root ball should always be level or slightly above the ground. Planting too deep can potentially kill the plant. Once the plant is securely in the ground, 2 – 4 inches of erosion control mulch should be placed over areas of exposed soil (PWD, 2009).

7. REFERENCES

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Appendix A
Dole Brook Planting Plan Layout

LEGEND

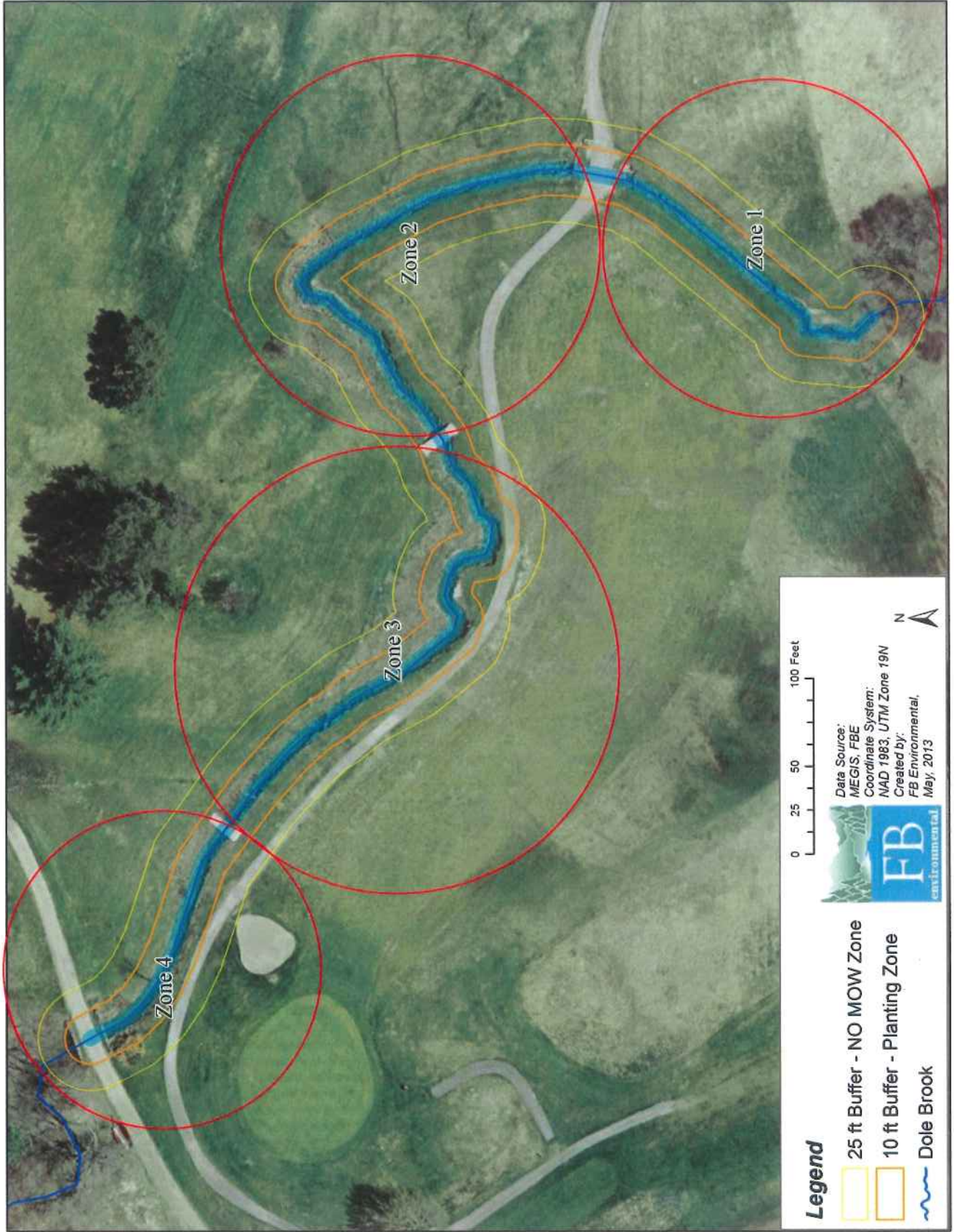
-  *Vaccinium corymbosum* (high bush blueberry)
-  *Spida sericea* (red osier dogwood)
-  *Cornus racemosa* (gray dogwood)
-  *Spiraea alba* (meadowsweet)
-  *Spiraea tomentosa* (steeplebush)
-  *Rhododendron canadense* (rhodora)
-  *Amelanchier arborea* (downy serviceberry)
-  *Aronia melanocarpa* (black chokeberry)
-  *Ilex verticillata* (winterberry)
-  *Vaccinium angustifolium* (low bush blueberry)
-  *Lobelia cardinalis* (cardinal flower)
-  *Comptonia pergrina* (sweet fern)
-  *Athyrium filix-femina* (lady fern)
-  *Alnus incana* (speckled alder)
-  *Salix bebbiana* (long-beaked willow)
-  *Salix sericea* (silky willow)
-  *Salix discolor* (pussy willow)
-  *Salix nigra* (black willow)
-  *Salix petiolaris* (meadow willow)
-  *Clethra alnifolia* (summersweet)
-  Existing Vegetation
-  Perennial Plantings
-  Willow Staking Area
- 25 foot Buffer
- 10 foot Buffer

Dole Brook Buffer Planting Enhancement Plan Layout

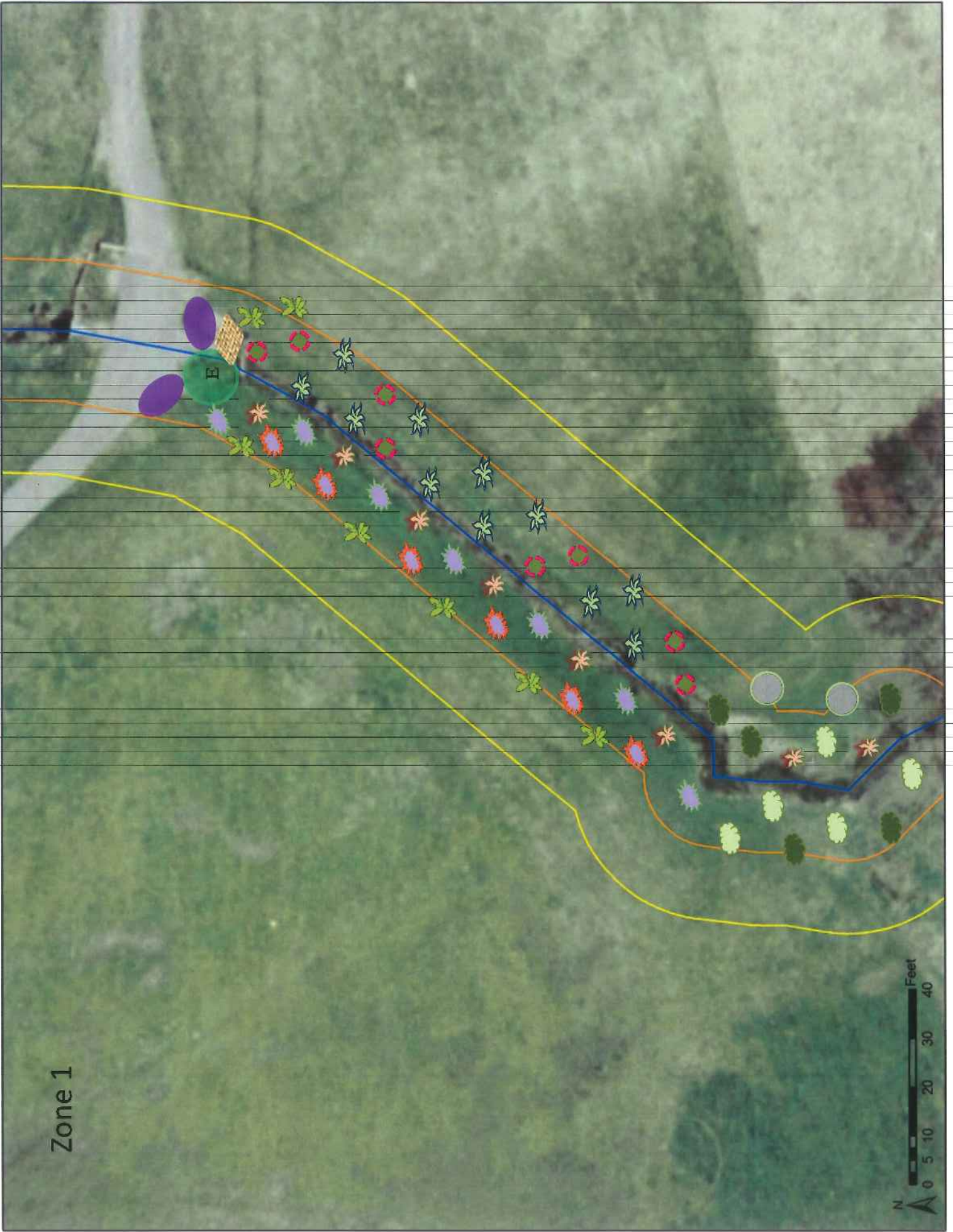
Portland, Maine



DOLE BROOK PLANTING ZONES 1-4



Zone 1



Zone 2

Rough cut for footbridge access



Zone 3

Rough cut for footbridge access

stakings
Willow
on banks



Zone 4

Rough cut for forbridge access

