Parks & Public Works Committee
Agenda Item Report

FROM: Michelle Gibson- Administrative/Project Coordinator

MEETING DATE: February 24, 2026

SUBJECT: Mt. Baldhead Revegetation

DESCRIPTION:
City Staff reached out to multiple organizations to solicit proposals in providing revegetation of Mt. Baldhead. Proposals were received from the Kalamazoo Nature Center and the Outdoor Discovery Center. Additional outreach included contact with Davey Research Group; a Zoom meeting was scheduled but did not occur, and no further communication was received. Staff also contacted Black River Habitats but did not receive a response following follow-up emails confirming continued interest. Staff also reached out to MSU Extension, a voicemail was left and no response has been received to date. The invasive species control plan prepared by the Land Conservancy of West Michigan and the City's Project Charter were provided to interested vendors. Based on these efforts, the enclosed proposals represent the complete set of responses received by the City.

The Outdoor Discovery Center proposal includes targeted revegetation of exposed dune areas north of the stairway using native trees, shrubs, grasses, and forbs selected for erosion control, site conditions, and long-term resilience. The scope also includes exclusion fencing and tree tubing, installation of informational and restoration signage to reduce off-trail impacts, and supplemental native seeding to further stabilize soils following invasive species management.

After review, staff recommends proceeding with the Outdoor Discovery Center proposal, which best aligns with the project's restoration goals and long-term objectives for Mt. Baldhead.

BUDGET ACTION REQUIRED:
N/A

COMMITTEE/COMMISSION REVIEW:
N/A

LEGAL REVIEW:
N/A

SAMPLE MOTION:
Move to approve the Outdoor Discovery Center proposal for revegetation of Mt. Baldhead.

Saugatuck Invasive Species Evaluation and Eradication Project Charter

Goal: Identify all invasive species in Saugatuck City public areas including all parks and street rights-of-way. Develop comprehensive plans to replace invasive species with non-invasive species with an emphasis on native plants and wildlife benefits.

Objectives

- Inventory invasive species in all public spaces
- Develop eradication plans and identify areas where replacement plants are required to avoid introduction of new invasive species

Participants

Leader – Nancy Kimble
PPW Committee Members - TBD
Potential External Resources –ODC, Kalamazoo Nature Center, and Allegan Conservation District
Saugatuck Staff – Scott Herbert, Michelle Gibson

Background

Many areas of Saugatuck have significant quantities of invasive species. The ODC inventoried invasives in Saugatuck Wilds Natural Area in July of 2023. The West Michigan Land Conservancy inventoried the Saugatuck Harbor Natural Area in October 2024. The Allegan Conservation District identified invasive species present on Mount Baldhead in the area that requires revegetation. Altogether, the list of previously identified invasives is long. In addition to invasive plants, the Hemlock Wooly Adelgid has previously been identified and treated in some areas. Milfoil has been treated in Kalamazoo Lake/River.

The following areas have been identified for study:

- Mount Baldhead Park
- Mildred E. Peterson Nature Preserve
- Remaining Parks (these are manicured so few invasives are anticipated)
- Saugatuck Roadsides

Approach

- Contact potential vendors that could help with the identification of invasive species and potentially work with us to eliminate these in the future
- Identify vendors that can provide removal services and request RFP submission. The following vendors have been identified
    - Allegan Conservation District
    - Kalamazoo Nature Center
    - Outdoor Discovery Center
- Provide vendors with this project charter and city maps that specify the areas to be evaluated

Project Exclusions

Deep water aquatic areas are excluded from this project as they are already covered by another project

Saugatuck Invasive Species Evaluation and Eradication Project Charter

Project Risks and Mitigation:

Risks:

Costs for species removal and replacement plants could be significant. Budgeted funds may not be available in 2026.

External resources may not be available in our timeframe.

Target End Date: 12/31/2026

Charter Preparation Date: 5/12/2025

Charter Prepared by: Nancy Kimble

Tree Removal, Replacement, and Erosion Control Plan

Mt. Baldhead

Allegan County, Michigan

10/7/2013

Prepared For:

Land Conservancy
OF WEST MICHIGAN

[redacted]

Prepared by:

Cardno JFNew

[redacted]

WEST MICHIGAN TREE SERVICES
A division of GRAND ARBOR GROUP, INC.

[redacted]

Tree Removal, Replacement, and Erosion Control Plan
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INTRODUCTION

At the request of The Land Conservancy of West Michigan, Cardno JFNew and West Michigan Tree Services have been contracted to write a remediation plan for Mount Baldhead Park in Saugatuck, Michigan. The purpose of the remediation plan is to design a successful strategy to recreate the native habitat that was lost due to tree losses that occurred as a result of Oriental bittersweet control treatments..

To control a growing infestation of Oriental bittersweet on Mount Baldhead, the City of Saugatuck gave permission to the Land Conservancy of West Michigan to administer applications of herbicides for Oriental bittersweet control. These herbicide applications occurred in 2010 and 2011.

Oriental bittersweet (*Celastrus orbiculatus)* is an exotic, invasive vine that can destroy native habitats. The vine overruns trees, woody-plants, and ground covers. Oriental Bittersweet can become so pervasive the vines block sunlight to the foliage of desirable trees and native plants.

This remediation plan is intended to address the removal and replacement of impacted trees, as well as any soil erosion that may have occurred as a result of said impacts.

2.0 MT. BALDHEAD IMPACTS

Tree Impacts

Tree impacts were limited to the northeast side of Mount Baldhead and the perimeter of the parking area at the base of the hill. The area inspected extends from the top of the hill to the base of the hill, and from the path on the northeast side of the hill southward to approximately thirty feet south of the stairway.

The majority of the herbicide damage was limited to deciduous trees (there are very few conifer trees on Mount Baldhead). The size of the trees did not appear to have any influence on the extent of herbicide injury. Tree species, however, did have an influence. Sugar maples, red oaks and American basswoods were acutely affected. The mulberry trees and locusts incurred less damage. There is a grove of trees, approximately fifty feet in diameter, located three quarters of the way up the slope that suffered no damage.

Of the 191 trees inspected, 148 trees are dead or suffered more than fifty percent crown loss and have little to no chance of survival (Table 1). Forty three trees were not affected or suffered less than fifty percent crown loss.

Maple, oak and basswood comprised two-thirds of the trees examined. The remaining species consisted of ash, wild cherry, American elm, American beech, sassafras, locust, mulberry, walnut, tulip poplar, and Ailanthus.

Three of the trees examined died due to being overrun by the Oriental Bittersweet vines and a few trees (not listed in the inventory) were dead prior to 2010. Most of the damage we encountered was caused by the herbicide applications. Unless otherwise noted on the tree inventory, trees listed as being dead have perished due to the bittersweet treatments.

Table 1. Dead, or >50% Crown Loss Trees

	Sugar Maple	White Oak	Red Oak	Ash	Basswood	Sassafras	Cherry	Elm	Tulip	Black Locust	Tree of Heaven	Walnut	Beech	Mulberry
By North Home														
By South Parking Lot				1	1									
By South Home			1											
North of Path			2											
3/4 Up the Center of the Hill														
Mount Baldhead	55	8	22	2	33	5	2	1	3	1	1	1	1	1
South Side of Stairs	`		4		3									
Totals	55	8	29	3	37	5	2	1	3	1	1	1	1	1

Site Erosion

The loss of tree canopy has had several effects on the understory of the ecosystem. These effects include an increased amount of sunlight that has allowed the establishment of an herbaceous understory not likely present prior to the tree impacts. Dominant species in the understory include garlic mustard (*Alliaria petiolata*), bedstraw (*Galium aparine*), soapwort (*Saponaria officinalis*), and Oriental bittersweet (*Celastrus orbiculatus).* These opportunistic species establish in recently disturbed areas, such as those present at the impacted portion of Mt. Baldhead. One positive side effect is the new vegetative cover is helping to stabilize the soil..

When comparing the trees south of the staircase to the trees north of the staircase, there is a noticeable absence of vegetative diversity on the north side. The more native ecosystem south of the stairs has layers of herbaceous shrubs and tree cover, while the north side vegetation is limited to primarily the afore mentioned herbaceous cover. The north side will become more stable if these vegetative layers can be re-established.

The soil on the north side has few signs of active erosion. The vegetation and detritus that are present are minimizing erosion. However, small amounts of soil movement/erosion s are evident. The erosion is primarily superficial and limited to comparatively small (10-20 square foot) areas. No new erosional rills or gullies were observed. What erosional activity has occurred is primarily where there is a lack of detritus or herbaceous vegetation, or where public use has created disturbances.

There is a walking path on the north side of Mt. Baldhead. Although not related to invasive species treatments, this path creates potential instability because vegetation is unable to become established. With the loss of tree canopy cover, this path has a greater potential to erode if public use continues to inhibit the ability for vegetation to become established.

As a critical dune, Mt. Baldhead has been historically subject to movement. This is particularly evident where a wood retaining wall was installed at the toe of the slope to impede soil movement. Soil movement/erosion has historically been minimized by the presence of vegetation and detritus throughout the dune, as is evident in pre-disturbance photos and an evaluation of the non-impacted south side of Mt. Baldhead. Long-term stability of the impacted north side of the dune will depend on the presence of vegetation and detritus in some form. Recommendations for increasing stability are provided below.

3.0 TREE REMOVAL AND REPLACEMENT

Tree removal and tree replacement are required to address the 148 trees that suffered mortality. In order to maximize the unique social, cultural, and environmental benefits provided by Mt. Baldhead, tree removal and tree replacement measures must account for public safety, soil stability, and the ecology of the dune ecosystem.

Tree Removal

There are currently 148 trees (Figure 2) on Mt. Baldhead that have been identified as dead or dying as a result of invasive species treatments. For public safety and soil stability reasons, each of these 148 trees must be addressed in a manner that will protect the public safety and enhance resident ecological community.

Of the 148 dead or dying trees, 42 trees (Figure 3) have been identified as hazard trees. A hazard tree is defined as any dead and/or damaged tree caused by the application(s)

of non-selective herbicides, where limbs and/or the whole tree has the potential to fall and reach park visitors using the stairway, foot paths, private homes, and/or the parking lot or pavilion area. For public safety reasons, all hazard trees should be removed and the wood and brush scattered throughout the site, as described below.

In addition to the 42 hazard trees, an additional 45 trees should be removed to reduce potential soil erosion that could be caused by wind throw and to encourage the re-establishment of the native ecological community.

Scattering tree trunks and crowns throughout the site will re-introduce detritus to the system, provide microbial habitat and also serve to stabilize the soil. The remaining dead trees should be left standing in place for wildlife habitat.

Tree Removal Methodology

Removal of dead or dying trees shall be treated in one of two ways. They will either be left standing in place or they will be cut and scattered in appropriate locations for the reasons described above. Trees will be cut by the safest and most practical means necessary. Stumps will be cut flush to grade. Wood and brush will be spread throughout bare or open areas so as not to form “heaps” or piles. Tree crowns will be cut small enough to lay on the hill so that no portion extends more than four feet vertically from the ground surface. All cut material will be placed on the hillside in a manner that mimics natural detritus and minimizes erosion—cut material will not be placed in a manner that exacerbates erosion in any way.

Tree Replacement

To replace the 148 impacted trees, a combination of potted and bare-root trees should be installed. The 148 impacted trees should be replaced at a 1:1 ratio with potted stock, while additional bare-root stock will be installed at a 2:1 ratio. This would bring the total proposed tree replacement to a 3:1 ratio.

The unique ecology of Mt. Baldhead suggests that an emphasis be placed on selecting native tree species from local tree sources. This will best insure a re-establishment of the pre-application native conditions. However, not all of the impacted species are commercially available from local (Michigan-grown) genotypes. The recommended tree replacements have been narrowed based on commercially available local genotype species available from Michigan sources.

Oriental bittersweet continues to inhabit portions of Mt. Baldhead. As this plant will inhibit the establishment of native trees, it will need to be addressed.

Table 3. Proposed Tree Replacement

Botanical Name	Common Name	Qty (3-5 gallon potted)	Qty (bare-root)
Acer saccharum	Sugar Maple	55	110
Juglans nigra	Black Walnut	2	4
Liriodendron tulipfera	Tulip	1	2
Quercus alba	White Oak	5	10
Quercus rubra	Red Oak	30	60
Tilia americana	Basswood	37	74
Tsuga canadensis	Canadian hemlock	18	36

4.0 EROSION CONTROL MEASURES

Natural dune stability primarily results from the presence of vegetation and detritus. Therefore, mitigating future erosion on Mt. Baldhead will require the re-introduction of the recommended trees as well as vegetation and detritus to the dunes slope.

Woody shrubs are a critical vegetative layer for dunes stability. The shrub layer has not yet shown signs of re-growth. Therefore, re-introducing a shrub layer will more quickly stabilize the slope and minimize future erosion. Proposed shrub species are provided in Table 4. Quantities have been determined by assuming that approximately 50% of the 1.73 acre area will be planted with shrubs spaced 10' on-center.

In addition to the shrubs, a native seed mix (Table 5) should be installed in any disturbed areas. Seed should be installed by hand-spreading and covered with straw mulch.

Table 4. Proposed Shrubs for Erosion Control

Botanical Name	Common Name	Qty (bare-root)
Cornus florida	Flowering Dogwood	75
Hamamelis virginiana	Witch hazel	75
Lindera benzoin	Spicebush	75
Sassafras albidium	Sassafras	75
Viburnum acerifolium	Maple-leaved Vibrunum	75

Table 5. Proposed Seed Mix for Disturbed Areas

Botanical Name	Common Name	Oz/acre
Allium cernuum	Nodding wild onion	2
Anemone cylindrica	Thimbleweed	1
Aquilegia canadensis	Wild columbine	1
Aster lateriflorus	Side-flowering aster	2
Aster sagittifolius	Arrow-leaved aster	2
Avena sativa	Seed oats	640
Bromus pubescens	Woodland brome	2
Elymus canadensis	Canada wild rye	16
Elymus hystrix	Bottlebrush grass	32
Geranium maculatum	Wild geranium	1
Helianthus divaricatus	Woodland sunflower	2
Lolium multiflorum	Annual rye	5
Monarda punctata	Horse mint	2
Schizachyrium scoparium	Little bluestem grass	8
Solidago caesia	Blue-stemmed goldenrod	1
	Total PLS Ounces	**701.00**
	Total PLS Pounds	**43.81**

5.0 CONCLUSIONS

A multi-tiered approach is needed to address the impacts to Mt. Baldhead. Removing the recommended trees and scattering the cut material on the slope will provide detritus and slow erosion. Replanting the site with the recommended trees and shrubs will re-establish the native vegetation that was lost due to the herbicide applications.

Table 2. Tree Removal

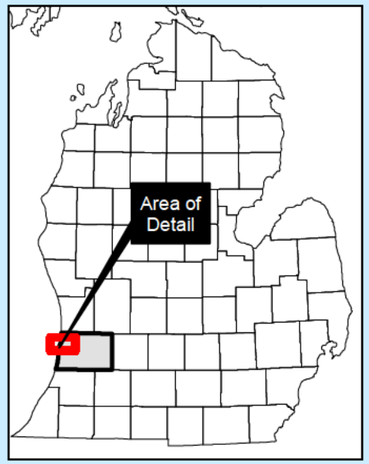
DBH	SPECIES	CONDITION	ID#
8.3	Basswood	Dead	1
10	Basswood	Dead	2
6.4	Basswood (clump)	Dead	3
7.9	Basswood (clump)	Dead	3
7.1	Basswood (clump)	Dead	4
14	Basswood (clump)	Dead	4
16.2	Maple	Dead	5
11.3	Maple	Dead	6
11.8	Maple (clump)	Dead	7
12.3	Maple (clump)	Dead	7
12.4	Maple (clump)	Dead	8
18.4	Maple (clump)	Dead	8
8.7	Maple	Dead	9
19.9	Maple	Dead	10
6.9	Maple	Dead	11
23.2	Basswood	Dead	12
14.6	Basswood	Dead	13
10.7	Basswood	Dead	14
8.5	Basswood	Dead	15
12	Maple	50% Dead	16
18.8	Basswood	Dead	17
23.8	Maple	Unaffected	18
20.1	Cherry	Dead	19
10	Basswood	Dead	20
7.9	Maple	Mainly unaffected – previously blown out top	21
7.5	Ash	Dead – No evidence of EAB	22
12.1	Maple	90% dead – Part was previously dead	23
8.2	Ironwood	Unaffected	24
7.7	Ash	Dead – No evidence of EAB	25
13.2	Elm	Dead	26
7.6	Maple	Unaffected	27
23	Beech	50% from herbicide – previously blown out top	28
17.1	Maple	90% Dead	29
19.7	Maple	75% Dead	30
13.5	Maple	Dead	31
21	Cherry	Dead	32
14.7	Maple	75% Dead	33
16	Oak	Dead	34
7.2	Maple	40% Dead	35
8.7	Maple	60% Dead	36
8.6	Maple	Dead	37
16.1	Maple	30% Dead	38
9.5	Elm	Unaffected	39
13.2	Maple	Dead	40
14.8	Maple	Dead	41
10.1	Maple	Dead	42
9.9	Oak	Dead	43
6.8	Maple	95% Dead	44
9	Maple	10% Dead	45
17.4	Oak	Dead	46
8.7	Maple	Dead	47
13.6	Maple	Dead	48
15.6	Maple	Dead	49
14.7	Maple	Dead	50
12.9	Maple	Dead – Lots of vines	51
21.7	Oak	Dead	52
6.8	Oak	Dead	53
10.4	Basswood	Dead – Lots of vines	54
6.3	Maple	10% Dead	55

DBH	SPECIES	CONDITION	ID#
23.7	Maple	Dead	56
8.1	Maple	Dead	57
8.9	Maple	Dead	58
13.6	Oak	Dead	59
15.9	Maple	Dead	60
6.6	Maple	Dead	61
15.4	Oak	Dead	62
16.3	Oak	Dead	63
24.8	Maple	Dead	64
12.3	Maple	Dead	65
12.1	Maple	Dead	66
18	Basswood	Dead	67
12.7	Basswood	Dead	68
18.5	Basswood	Dead	69
8.1	Basswood	Dead	70
15	Black Locust	90% Canopy loss	70
4	Red Oak	Dead	71
9	Red Oak	Dead	71
9	Sugar Maple	Dead	72
17	Red Oak	Dead	73
16	Sugar Maple	Dead	74
18	Sugar Maple	Dead	75
12	Sugar Maple	Dead	76
9	Beech	Unaffected	77
22	Beech	Unaffected	78
12	Sugar Maple	Dead	79
8	Sugar Maple	Dead	80
24	Basswood	Dead	81
20	Sugar Maple	Dead	82
16	Sugar Maple	Unaffected	83
15	Sugar Maple	Dead	84
12	Sugar Maple	Dead	85
13	Sugar Maple	Dead	86
18	Basswood	Dead	87
16	Sugar Maple	10% Crown loss	88
18	Red Oak	Dead	89
16	Red Oak	Dead	90
15	Sugar Maple	Dead	91
19	Red Oak	Dead	92
11	Sugar Maple	Dead	93
13	Sugar Maple	Dead	94
26	Red Oak	Dead	95
11	Red Oak	Dead	96
17	Red Oak	Dead	97
6	Sugar Maple	Dead	98
11	Red Oak	Dead	99
17	Red Oak	Dead	100
16	Red Oak	Dead	101
7	Maple	Dead	102
14.3	Sugar Maple	20% Canopy Loss	111
24.8	White Oak	15% Canopy Loss	112
14.9	Ash	Dead	131
10.5	Basswood	Dead	132
10.5	Red Oak	Dead	133
8.3	Basswood	Dead	140
15.3	Basswood	Dead	141
20.9	Oak	Dead – Lots of vines	142
5.6	Basswood	Dead	143
7.6	Basswood	Dead	143

DBH	SPECIES	CONDITION	ID#
8.5	Sassafras	Dead	144
9	Sassafras	Dead	145
10.4	Sassafras	Dead	146
6.9	Maple	90% Dead	147
16.2	Basswood	Dead	148
26	Basswood	Dead	148
12.5	Maple	85% Dead	149
11.1	Basswood	Dead	150
11.9	Basswood	Dead	150
6.4	Basswood	Dead	151
8.5	Basswood	Dead	151
13.6	Basswood	Dead	151
6.2	Sassafras	Dead	152
5.2	Mulberry	Unaffected	153
5.4	Mulberry	Unaffected	153
6.9	Mulberry	Unaffected	153
28.3	Oak	Dead	154
7.2	Tree of Heaver	Dead	155
25.2	Maple	Dead	156
13	Oak	Dead	157
8.2	Maple	Dead	158
21.3	Oak	Dead	159
11.6	Tree of Heaver	10% Dead	160
6.5	Maple	Unaffected	161
14.2	Maple	Dead	162
16.3	Sassafras	Dead	163
29	Walnut	50% Dead	164
5.1	Locust	Tip die back	201
7	Locust	Tip die back	201
9.5	Locust	Tip die back	201
13.3	Scotch Pine	Unaffected	202
21.3	Tulip	Dead	203
9.9	Red Oak	Dying	204
21	Tulip	Dead	205
6.3	Locust	Slight tip die-back	206
22	Tulip	25% crown loss	207
7.3	Sugar Maple	Healthy	208
17.2	Red Oak	Dying	209
7.6	Sugar Maple	Dead	210
6	Sugar Maple	Unaffected – Healthy	211
15.3	Tulip	Dead	212
13.3	Red Oak	Dead	213
18.8	Red Oak	Dead	214
6.3	Basswood	Dead	215
16.2	Red Oak	Dying – 80% crown loss	216
15.6	Sugar Maple	Viable – 10% loss	217
13.9	Basswood	Dead	218
18.5	Beech	Dead	219
18.1	Basswood	Dead	220
15.6	Red Oak	Dead	221
16.2	Red Oak	80% crown loss	222
11.7	Red Oak	50% crown loss	223
23.9	Red Oak	80% crown loss	224
10.8	Sugar Maple	Unaffected	225
7.3	Sugar Maple	Unaffected	226
8.3	Sugar Maple	15% Canopy Loss	227
11.7	Red Oak	Dead from vines	228
16.2	Red Oak	Dead	229
9.2	Red Oak	Dead from vines	230
15.2	Mulberry	Dead from vines	231
17.5	Sugar Maple	80% crown loss	232
12.4	Basswood	Dead	233
9.2	Basswood	Dead	234
6.2	Basswood	???	235
7.6	Basswood	???	235
10.2	Basswood	20% Canopy Loss	235
19.7	Basswood	Dead	235

	<50% Canopy or unaffected
	Hazard tree--remove and scatter on site
	Non-hazard dead tree, remove and scatter on site
	Non-hazard dead tree, leave standing in place

FIGURES



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Section: 09
Township: 03 N
Range: 16 W
Project No. 1210007.01

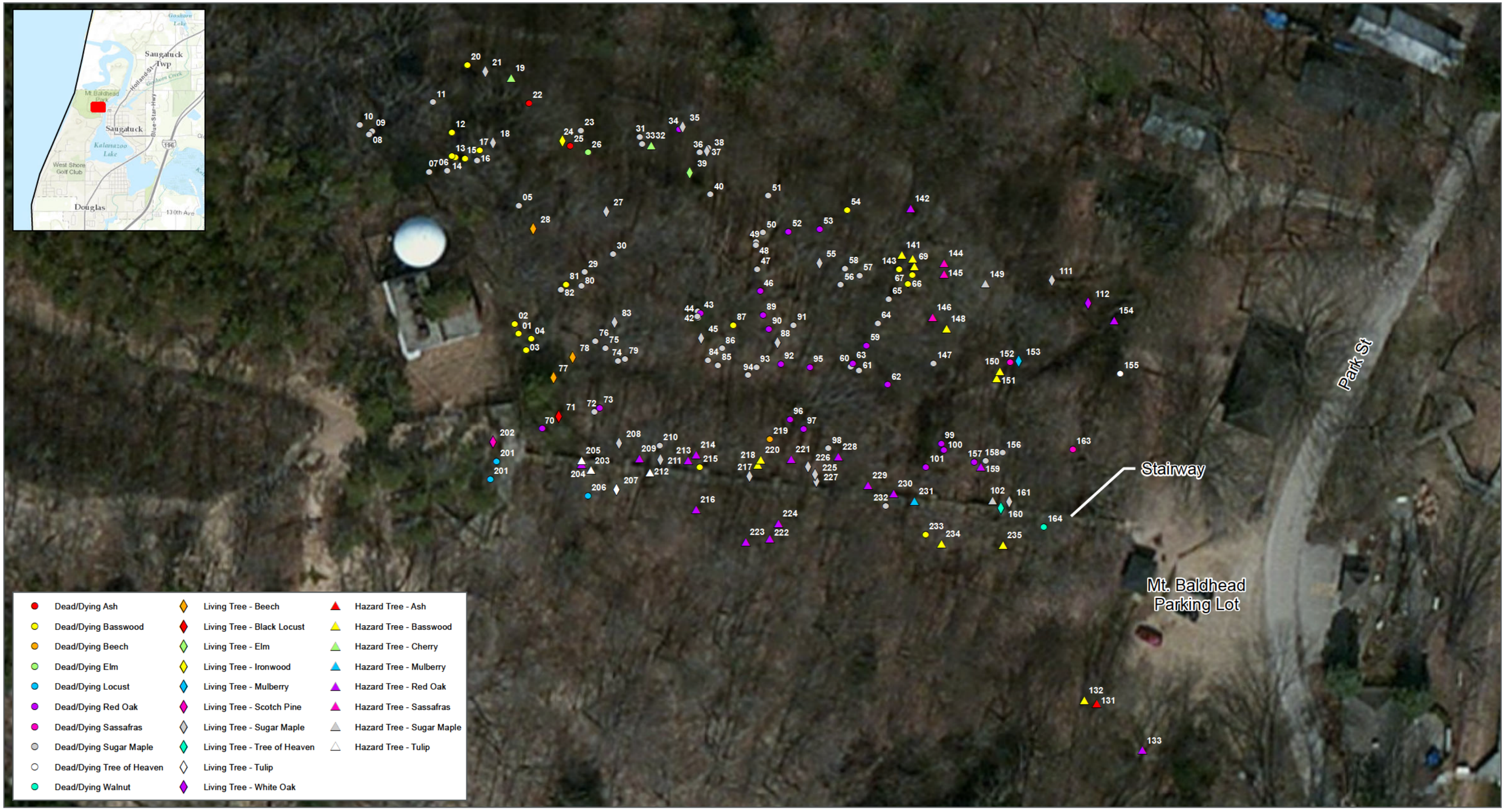
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Figure 1 - Site Location Map
Mt. Baldhead Site
Land Conservancy of West Michigan
Allegan County, Michigan

0 0.5 1 Miles
0 0.5 1 1.5 Kilometers

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Section: 09
Township: 03 N
Range: 16 W
Project No. 1210007.01

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Figure 2 - Tree Locations
Mt. Baldhead Site
Land Conservancy of West Michigan
Allegan County, Michigan

0 25 50 Feet
0 15 Meters

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Section: 09
Township: 03 N
Range: 16 W
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Figure 3 - Hazard Tree Locations
Mt. Baldhead Site
Land Conservancy of West Michigan
Allegan County, Michigan

0 25 50 Feet
0 15 Meters

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Section: 09
Township: 03 N
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Figure 4 - Tree Removal Plan
Mt. Baldhead Site
Land Conservancy of West Michigan
Allegan County, Michigan

0 25 50 Feet
0 15 Meters

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Analyst: erin.ferrante-cook



N
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Section: 09
Township: 03 N
Range: 16 W
Project No. 1210007.01

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Figure 4a - Tree Removal Plan

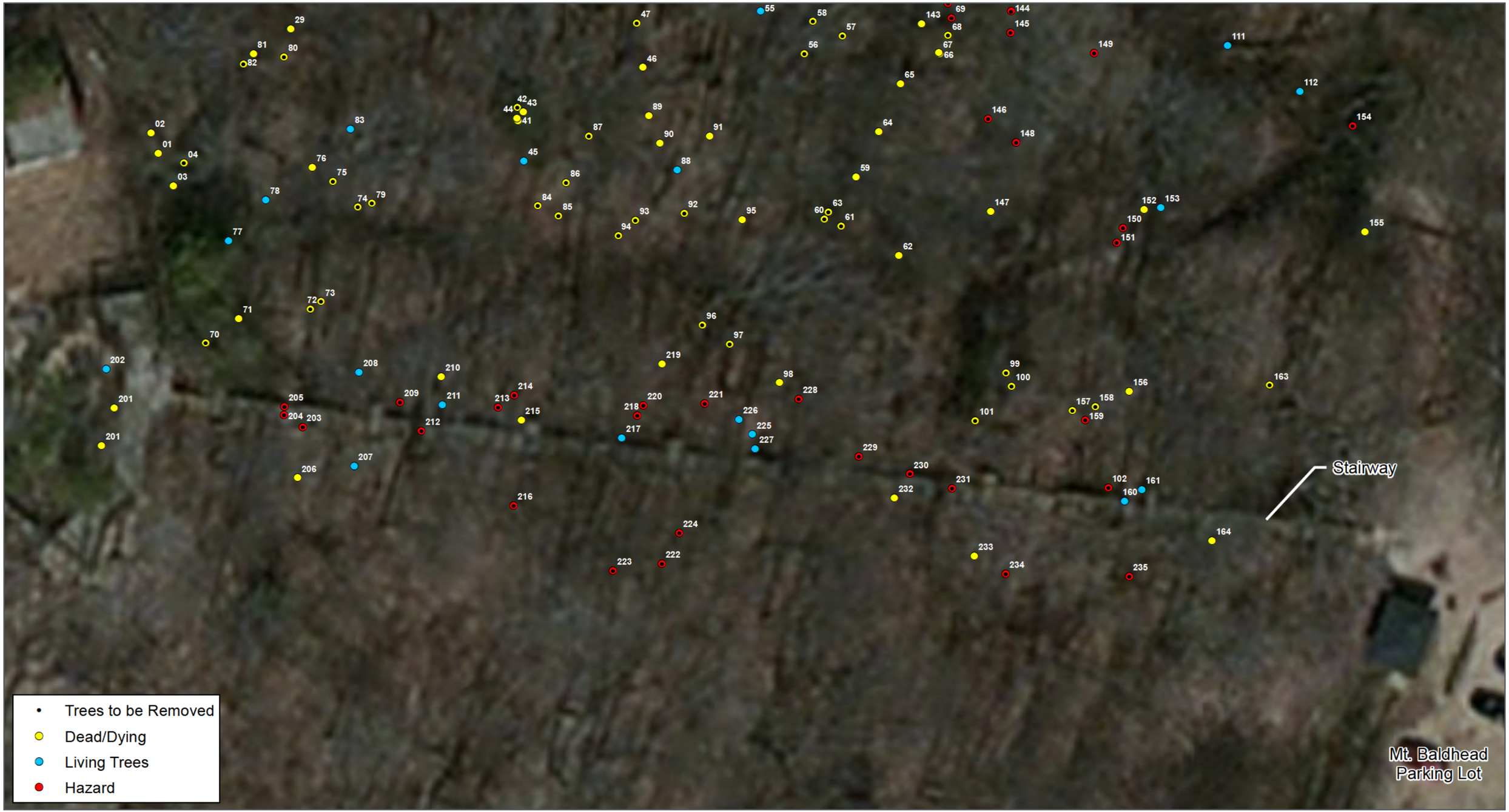
Mt. Baldhead Site
Land Conservancy of West Michigan
Allegan County, Michigan

0 12.5 25 Feet
0 4 8 Meters

Cardno JFNew

Date Created: 10/3/2013 Date Revised: 10/3/2013 File Path: R:\Projects\12\10\1210007_LandConsofWMI_MtBaldhead\GIS\Report Figures\Fig4a_TreeRemovalPlan.mxd
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Figure 4b - Tree Removal Plan
Mt. Baldhead Site
Land Conservancy of West Michigan
Allegan County, Michigan

0 12.5 25 Feet
0 4 8 Meters

Cardno JFNew

Date Created: 10/3/2013 Date Revised: 10/3/2013 File Path: R:\Projects\12\10\1210007_LandConsofWMI_MtBaldhead\GIS\Report Figures\Fig4b_TreeRemovalPlan.mxd
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Analyst: erin.ferrante-cook

PROPOSAL FOR CONSERVATION SERVICES

This proposal was created for:

City of Saugatuck – Mount Baldhead Park
Mt Baldhead Park Trail, Saugatuck, MI 49453

General Background and Scope of Work:

The purpose of this proposal is to restore ecological health at Mount Baldhead through targeted invasive species management and the replanting of native dune vegetation. Previous control efforts done by a separate contractor inadvertently caused mortality to significant canopy cover and reduced dune stabilization, creating openings now dominated by invasive plants. Following a recent survey of the site, our team recommends the following management and replanting plan for 2026:

1. **Invasive Species Management** (see *Appendix A* for map)
    - Several highly invasive species are present that threaten the integrity of the dune habitat, including: garlic mustard, multiflora rose, Asian bittersweet, Japanese barberry, tree-of-heaven, phragmites, and black locust.
    - Our management approach will prioritize **safe and targeted** control methods that avoid unnecessary herbicide use and prevent damage to surrounding vegetation. Hand pulling will be implemented where practical, while cut-stump and hack and squirt treatments will be used to ensure precise and minimal herbicide applications. When foliar applications are necessary, they will be applied selectively and with safeguards to prevent off-target impacts.
    - Includes procurement of all necessary permitting to apply herbicides through EGLE and MDARD.
        - **Note:** Many of the invasive species listed above typically require sustained and repeated management to successfully control. Effective treatment generally requires repeated management efforts over a period of multiple years to achieve meaningful reduction or eradication. Our team will continue to monitor the population annually and will provide updated pricing and management recommendations each year. The allows for adaptive management strategies based on observed changes in site conditions and treatment efficacy year-to-year.

2. **Dune Revegetation**
    - Large areas of exposed soil across the dune north of the stairway currently face high risks of erosion and rapid recolonization by adjacent invasive species. To stabilize these areas, prevent further invasive spread, and enhance both habitat quality and aesthetics, we propose installing a diverse mix of native trees, shrubs, grasses, and forbs in the vacant space.
    - Species selection will highlight erosion control, drought tolerance, and deer resistance, recognizing the heavy browsing pressure present at this site. Plantings will be matched to each micro-site's soil and sunlight conditions to maximize survival rates and ecological value.
        - **Trees**: Sugar Maple (*Acer saccharum*), Tulip Poplar (*Liliodendron tulipifera*), Basswood (*Tilia americana*), White Pine (*Pinus strobus*), Oak (*Quercus spp.)*, Bladdernut (*Staphylea trifolia*), Serviceberry (*Amelanchier spp.)*, etc.
        - **Shrubs**: Witch Hazel (*Hamamelis virginian*a), Sand Cherry (*Prunus pumila*), Ninebark (*Physocarpus opulifolius*), Spicebush (*Lindera benzoin*), Arrowwood Viburnum (*Viburnum dentatum)*, Northern Bush Honeysuckle (*Diervilla Ionicera*), Sweet Fern (*Comptonia peregrina*), etc.
        - **Forbs/graminoids**: Canada Wild Rye (*Elymus canadensis*), Bottlebrush Grass (*Elymus hystrix*), Little Bluestem (*Schizachyrium scoparium*), Beach Grass (*Ammophila breviligulata*), Sand Reed (*Calamovilfa longifolia*), Penn Sedge (*Carex pensylvanica*), Columbine (*Aquilegia canadensis*), Hairy Puccoon (*Lithospermum caroliniense*), Dotted Mint (*Monarda punctata)*, Flowering Spurge (*Euphorbia corollata*), etc.

- Approximately **500** native plants will be installed throughout the unit, including, bare-root, 1-3 gallon, and 4" plugs.
    - Protective exclusion measures such as tree tubes and four 900 ft^2 sections of 6'-tall exclusion fencing will be implemented where applicable to prevent herbivory and physical damage to developing plantings (See *Appendix B* for layout).
    - Informational signage will be installed in high-traffic and erosion-prone areas to encourage public awareness, limit off-trail usage, and protect restoration efforts (See *Appendix B* for examples).
        - **"Sensitive Habitat Area – Keep Out"** signs (4"x6") will be placed at key intervals and potential access points throughout the unit as needed.
        - A total of four (4) "**Restoration in Progress**" signs (2'x3') will be placed in key locations to minimize off-trail use and reduce disturbance from hikers.
    - In addition to the live plantings, a custom native seed mix highlighting dune-adapted forbs and graminoids will be seeded following invasive species management efforts to enhance diversity and further stabilize exposed soils.

Project Timeline:

- Invasive species management ongoing during the 2026 growing season
- Live plantings and native seeding will be phased as invasive species treatments allow, from spring through early fall of 2026
- Signage and exclusion fencing will be installed immediately following planting.

Project Budget:

- **Invasive Species Management in 2026** - **$10,000** (billed in June 2026) ☐
- **Dune Revegetation** (500 plants) - **$11,860** (billed in June 2026) ☐

PLEASE CHECK THE APPROPRIATE BOXES ABOVE TO INDICATE ACCEPTED SERVICES

Note: *This proposal accounts for pricing of all labor, materials, and equipment necessary in order to perform the outlined invasive species management plan. If additional work is required beyond the scope of this proposal, we will provide written notification and pricing will be determined on a time and materials basis.*

Exclusions: This proposal does not account for:

- Installation of exclusion fencing beyond what is outlined in this proposal.
- Production and installation of signage beyond what is outlined in this proposal.
- Installation or management of irrigation features.
- Removal of standing dead plant material following invasive species control measures.
- Replacement of damaged lawn, landscape plants, trees or shrubs as a result of nearby invasive species control measures.
- Replanting of native vegetation following invasive species control measures (unless otherwise stated on the proposal).

***** We are happy to assist with any of the above items upon request through a separate proposal.***
For custom signage inquiries or quotes, please contact:

INITIAL_____

Qualifications:
ODC Conservation Services staff are highly qualified conservation professionals.

- ODC Network, and its subsidiaries, is a fully insured 501c3 and carries an extensive liability policy to conduct habitat improvement services in Michigan
- State licensed herbicide applicators with certifications in Forest Pest, Right-of-Way, and Aquatic pesticide application
- Combined 25+ years experience in invasive species management
- Successfully restored over 250 acres of native prairie
- Successfully installed over 25 native gardens and landscape beds
- Manage 2,000+ acres of high quality natural area
- Experienced Michigan flora and fauna identification
- Advanced wetland delineation certification
- Experienced GIS professionals

We appreciate the opportunity to submit this proposal. We look forward to discussing the opportunity further with you. Please do not hesitate to ask questions or clarifications. If you choose to accept this proposal, please sign and return a copy.

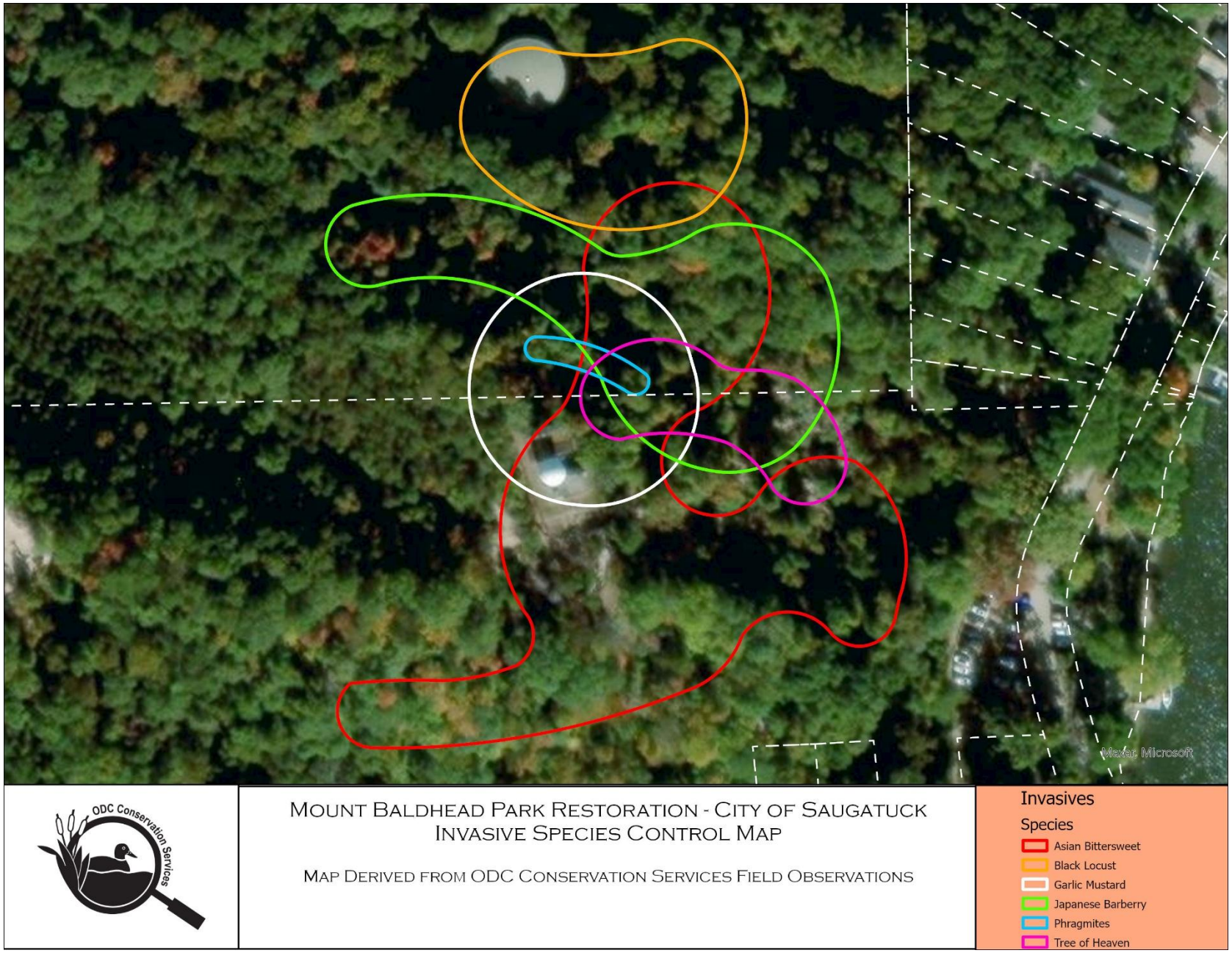
Tanner Bricker, Conservation Services Director

If you wish to accept this proposal, please initial each page, as well as sign and date below:

_____ _____
Signature of Authorized Property Owner/Manager Date

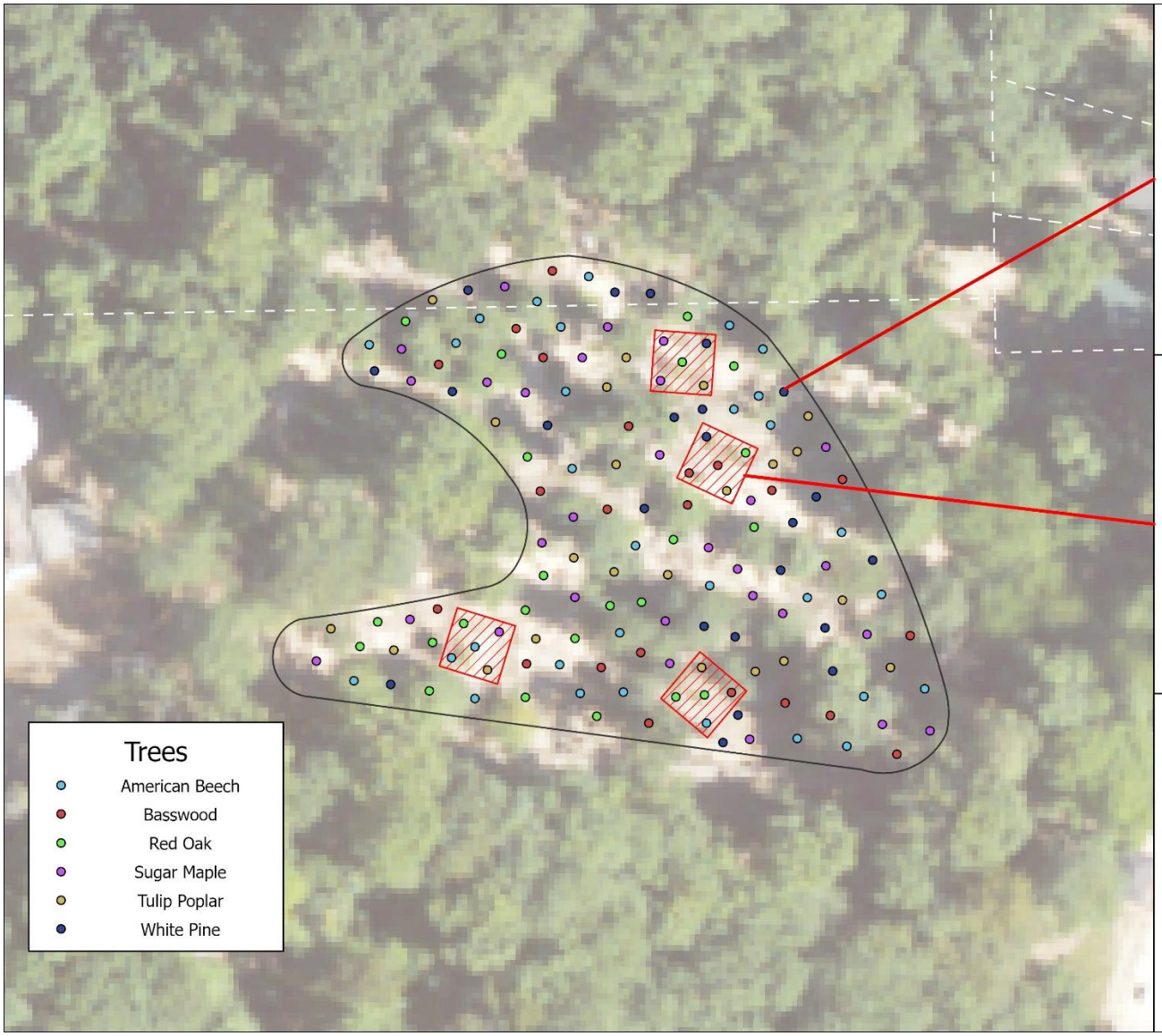
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Appendix A: Map of Surveyed Invasive Species



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Appendix B: Replanting Zones and Tree Exclusion Areas



Individual Tree Protections

Trees will receive a 4' tree tube following planting to discourage herbivory of meristems and destruction of periderm. Tubes also increase humidity around young tree to increase survivability.



Deer Exclusion Zones



30'x30' areas will be fenced off to prevent deer and anthropogenic disturbance while the plant community develops. Exclusion areas are strategically placed in sparsely vegetated areas prone to erosion.

Signage Options



Custom Sign Printing Available upon request

INITIAL_____

Kalamazoo Nature Center

[redacted]

PROJECT WORK PLAN AND ESTIMATE FOR

City of Saugatuck
Scott Herbert
[redacted]
Saugatuck MI, 49453
[redacted]
[redacted]

Date: 9/2/2025

TOTAL ESTIMATE	$23,514.50

Client Name	Project Description	Project #	Estimate good for
City of Saugatuck	Revegetation of Mt. Baldhead Backdune	26001 C	90 days

Day	Description	Qty	Units	Cost	Line Total
	Equipment: Planting tools	3	days	$ 60.00	$ 180.00
	Labor: Project Lead	28.5	hours	$ 75.00	$ 2,137.50
	Labor: Supporting Crew of 5	142.5	hours	$ 65.00	$ 9,262.50
	Mileage: Truck + Trailer	306	miles	$ 2.00	$ 612.00
	Supplies: Dune grass sprigs	20000	sprigs	$ 0.35	$ 7,000.00
	Supplies: Bare root trees/shrubs + tree guards	150	seedlings	$ 8.00	$ 1,200.00
	Supplies: Custom backdune seed - Native Connections	31	lbs	$ 1,400.00	$ 1,400.00
	Supply Pickup/handling & transport			$ 500.00	$ 500.00
	Project Management	15.00	hours	$ 75.00	$ 1,125.00
	Administrative	1.5	hours	$ 65.00	$ 97.50

Site Lead: Luke Allison
Site Address: Mt. Baldhead - 769 Park Street, Saugatuck MI, 49453
Service Description: KNC staff to purchase, transport, and plant dunegrass, bare root seedlings, and seed to revegetate the backdune face of Mt. Baldhead.
Area (acres): 1.5
of Workers: 6
of Work Days: 3

Labor	$ 13,122.50
Mileage	$ 612.00
Equipment	$ 180.00
Supplies	$ 9,600.00
SUBTOTAL	**$ 23,514.50**

GRAND TOTAL	**$ 23,514.50**

This is an estimate, actual invoices will be based on specific costs and quantities of materials purchased and actual labor time spent on the project.
View Full Terms and Conditions in the Client Agreement. The Project must be accepted by signing the Client Agreement before work can begin.

For questions regarding this estimate or to set a work schedule, please contact

Proceeds from our client services ensure the sustainability of KNC's longstanding bird observatory, programs that engage the community in wildlife research, and the

Kalamazoo Nature Center

[redacted]

PROJECT WORK PLAN AND ESTIMATE FOR

City of Saugatuck
Scott Herbert
[redacted]

Date: 9/2/2025

TOTAL ESTIMATE	$10,107.00

Client Name	Project Description	Project #	Estimate good for
City of Saugatuck	Invasive Species Management at Mt. Baldhead Backdune	26001 A	90 days

Day	Description	Qty	Units	Cost	Line Total
	Herbicide and Equipment	3	days	$ 60.00	$ 180.00
	Labor: Project Lead	25.5	hours	$ 75.00	$ 1,912.50
	Labor: Supporting Crew of 4	102	hours	$ 65.00	$ 6,630.00
	Mileage: Truck + Trailer	306	miles	$ 2.00	$ 612.00
	Project Management (3hr/day)	9.00	hours	$ 75.00	$ 675.00
	Administrative (1.5hr/mth)	1.5	hours	$ 65.00	$ 97.50

Site Lead: Luke Allison/Kyle Martin
Site Address: Mt. Baldhead - 769 Park Street Saugatuck, MI 49453
Service Description: 3 days of invasive species management on the east facing back dune habitat of Mt. Baldy. KNC staff will perform foliar treatment of smaller invasive species such as Jap. Barberry. For larger species such as Tree of Heaven, Privet, and Bittersweet stem injection techniques will be utilized to minimize any off target impacts and soil drift.
Area (acres): 3.25
of Workers: 5
of Work Days: 3

Labor	$ 9,315.00
Mileage	$ 612.00
Equipment	$ 180.00
Supplies	$ -
SUBTOTAL	**$ 10,107.00**

GRAND TOTAL	**$ 10,107.00**

This is an estimate, actual invoices will be based on specific costs and quantities of materials purchased and actual labor time spent on the project.
View Full Terms and Conditions in the Client Agreement. The Project must be accepted by signing the Client Agreement before work can begin.

For questions regarding this estimate or to set a work schedule, please contact

Proceeds from our client services ensure the sustainability of KNC's longstanding bird observatory, programs that engage the community in wildlife research, and the

KNC-Mt Baldy, Saugatuck-SMW-2025
Dune Seed Mix Summary
8/28/2025

Graminoids - Scientific Name	Common Name	PLS Oz/A	Total PLS Oz	Seeds per sq. ft.	% by weight	% by native seeds	C-Value	Wetland Code	Conserv. Status	Hydrology: Dry	Dry-mesic	Mesic	Wet-mesic	Wet	Emergent	Shade Tolerance: Full Sun	Part	Shade	Soil Type: Clay	Loam	Sand	Muck	Legume	Height (ft)	Color
Calamovilfa longifolia	Sand Reed Grass	4.00	8.000	0.83	4.35%	1.34%	10	UPL	-	X	-	-	-	-	-	X	-	-	-	-	S	-	-	3-6'	g
Elymus canadensis	Canada Wild Rye	32.00	64.000	3.82	34.78%	6.19%	5	FACU	-	X	X	X	-	-	-	X	X	-	C	L	S	-	-	5'	g
Elymus hystrix	Bottlebrush Grass	12.00	24.000	2.09	13.04%	3.39%	5	FACU	-	X	X	X	-	-	-	-	X	X	-	L	S	-	-	3'	g
Koeleria cristata (K. macrantha, pyramidata)	June Grass	4.00	8.000	18.37	4.35%	29.77%	9	UPL	-	X	X	-	-	-	-	X	X	-	-	L	S	-	-	2'	g
Panicum virgatum	Switchgrass	4.00	8.000	1.29	4.35%	2.08%	4	FAC	-	X	X	X	X	-	-	X	-	-	C	L	S	M	-	4'	g
Schizachyrium scoparium	Little Bluestem	8.00	16.000	2.75	8.70%	4.46%	5	FACU	-	X	X	X	-	-	-	X	-	-	-	L	S	-	-	3-4'	g
	Grasses Oz per Acre	**64.00**		**Grasses sds/sq ft**	**Total**	**Total**																			
	Grasses Lbs per Acre	**4.00**		**29.15**	**69.57%**	**47.24%**																			
Herbaceous Forbs - Scientific Name																									
Anemone cylindrica	Thimbleweed	2.00	4.000	1.19	2.17%	1.93%	6	UPL	-	X	X	X	-	-	-	X	X	-	-	L	S	-	-	2'	wht
Anemone virginiana	Tall Thimbleweed	2.00	4.000	1.29	2.17%	2.08%	3	FACU	-	X	X	X	-	-	-	X	X	X	-	L	S	-	-	3'	wht
Aquilegia canadensis	Wild Columbine	3.00	6.000	2.62	3.26%	4.24%	5	FACU	-	X	X	X	-	-	-	X	X	X	-	L	S	-	-	2'	red
Asclepias syriaca	Common Milkweed	4.00	8.000	0.37	4.35%	0.60%	1	UPL	-	X	X	X	X	-	-	X	X	-	C	L	S	M	-	3'	pur
Coreopsis lanceolata	Lance-leaf Coreopsis	8.00	16.000	3.67	8.70%	5.95%	8	FACU	-	X	X	-	-	-	-	X	-	-	-	L	S	-	-	2'	yel
Monarda punctata	Horsemint	2.00	4.000	4.13	2.17%	6.70%	4	UPL	-	X	-	-	-	-	-	X	-	-	-	-	S	-	-	2'	pur
Oenothera biennis	Common Evening Primrose	6.00	12.000	12.40	6.52%	20.09%	2	FACU	-	X	X	X	X	-	-	X	X	-	C	L	S	M	-	6'	yel
Solidago nemoralis	Old-field Goldenrod	1.00	2.000	6.89	1.09%	11.16%	2	UPL	-	X	X	-	-	-	-	X	-	-	-	L	S	-	-	2'	yel
	Forbs Oz per Acre	**28.00**		**Forbs sds/sq ft**	**Total**	**Total**																			
	Forbs Lbs per Acre	**1.75**		**32.55**	**30.43%**	**52.76%**																			
Woody Shrubs, Vines - Scientific Name																									
	Woodies Oz per Acre	**0.00**		**Woodies sds/sq ft**	**Total**	**Total**																			
	Woodies Lbs per Acre	**0.00**		**0.00**	**0.00%**	**0.00%**																			

Annuals, Temp Nurse Crop, etc.	Common Name	Bulk Oz/A	Bulk LBs	Temp Seeds per sq. ft.
Avena sativa	Seed Oats	400.00	50.000	9.18
	Temp Oz per Acre	**400.00**		**Temp sds/sq ft**
	Temp Lbs per Acre	**25.00**		**9.18**



Total PLS Lbs/Acre 'Natives'	5.75
Total Lbs/Acre 'ALL'	30.75

Total Acres	2.00
Total PLS Lbs 'Natives'	11.50
Total PLS Lbs 'ALL'	61.50

# of Native Grass Species	6
# of Native Forb Species	8
# of Native Woody Species	0
# of Temp Species	1

Mix 'Natives'	weight (lbs)	seeds/sq ft	Avg C
Total per acre	**5.75**	**61.70**	4.93
% Forbs	30.43%	52.76%	**FQI**
% Woodies	0.00%	0.00%	18.44
% Grasses	69.57%	47.24%	

Mix 'ALL'	weight (lbs)	seeds/sq ft
Total per acre	**30.75**	**70.88**
% Forb Spp	5.69%	45.93%
% Woodies	0.00%	0.00%
% Grass Spp	13.01%	41.12%
% Temp Spp	81.30%	12.96%

NOTE: Species availability not guaranteed. Substitutions may be required. All species to be adjusted to 100% PLS (Pure Live Seed) as noted.