

Memorandum

To: City of Bayfield Parks and Recreation Committee
 From: Kate Kitchell (Chair) and Matt Carrier (Council Member)
 Subject: Managing Vegetation to Maintain the View of the Historic Iron Bridge
 Date: December 4, 2020

Purpose: The purpose of this document is to capture and convey ideas developed through a collaborative process on how to manage vegetation at the lower end of the Big Ravine near the Gil Larsen Trailhead to maintain the view of the historic Iron Bridge in a sustainable manner.

Background: The Iron Bridge spanning the creek in Bayfield's Big Ravine is an historic icon cherished by Bayfield residents as well as visitors. Not only does it reflect the City's unique history, it is also an important asset to the Big Ravine Preserve and the associated trails. Historically the Bridge has been highly visible and greatly appreciated from Washington Ave. and along the Gil Larsen Nature Trail. This was especially the case prior to the 1940's following the great cutover and the great flood of 1942. Prior to disturbance, the ravine was likely more forested with changes in vegetation following natural events like windstorms, heavy rains and floods. For years, the City's public works department (PWD) routinely cleared trees and shrubs along the creek between the debris catchment and the dam to prevent debris from clogging the spillway culvert, maintain the view of the Bridge and to protect the bridge from abrasion or undermining by encroaching vegetation. During the last few years, due to budget constraints and more limited capacity, the PWD has not been able to continue this practice and the views of the Bridge have become obscured by trees that have rapidly grown in. This issue surfaced in several discussions associated with the improvements at the Gil Larsen trailhead and construction of the Iron Bridge Link trail during the summer of 2020. Concurrent with this, the recently completed Erosion Control and Restoration Plan for the Big Ravine Preserve prepared by Bay Area Environmental Consulting, recommends invasive species removal and plantings of shorter-statured native species along the creekside and near the dam which long-term would significantly minimize the need for future clearing of shrubs and trees while also providing critical wildlife habitat.

Planning Process: Recognizing the importance of maintaining this view, conserving the riparian (streamside) habitat, and protecting against stormwater runoff and erosion, a group of interested and knowledgeable folks convened to discuss developing a balanced and sustainable strategy for vegetation management. There is consensus among all parties that maintaining a view of the Iron Bridge from the trailhead and Washington Ave. is important. Another goal is to minimize the need for frequent cutting by planting with lower growing native trees, shrubs and forbs.

The first meeting occurred on September 2, 2020. Participants included:

- Matt Carrier, City Council member & Parks & Recreation Committee member
- Kate Kitchell, Parks & Recreation Committee Chair
- Tom Kovachevich, Public Works Director
- Erika Lang, Landmark Conservancy
- Sheree Peterson, member of Gil Larsen Trailhead project committee
- Michael Sinclair, Bay Area Environmental Consulting

Others invited but unable to attend included: Megan Boyle (BHA), Neil Howk (member of Trailhead committee), and Bob Nelson (member of original WCC crew, BHA, AIHPC).

This topic was on the City Parks and Recreation Committee meeting agendas starting in August 2020 through December 2020. At the October meeting, the Committee agreed in concept to the proposed approach with recognition that further discussion was needed to determine how it would be implemented.

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At the December meeting it was also recognized that this undertaking must comply with the City's Conservancy ordinance as it is applicable on this parcel.

An onsite meeting was held on December 4, 2020 to flesh out all considerations and to agree upon a course of action. Meeting participants included:

- Matt Carrier, City Council member & Parks & Recreation Committee member
- Kate Kitchell, Parks & Recreation Committee Chair
- Diane Fizell, Parks & Recreation Committee member
- Keith Ray, Parks & Recreation Committee member
- Beth Cozzi, City Forester and Chair of the City Tree Board
- Tom Kovachevich, Public Works Director
- Unable to attend: Skye Bingham, Parks & Recreation Committee member

This group agreed to the strategy outlined below. There was a quorum of the Parks and Recreation Committee present; thus this agreement constituted a decision to proceed from the Committee (this had been posted as an official meeting, thereby complying with open meeting requirements). Approval was granted by the Tom K., Public Works Director and concurrence given by Beth Cozzi, City Forester and Tree Board Chair.

Priority was placed on cutting black willows, two red pines by the boardwalk, and a few select maples that are impeding the view. Nothing on the slopes would be touched. The stumps of most of the cut trees would be treated under contract by Bay Area Environmental Consultants as they are certified and properly equipped for this work. Stumps on the creek bank would not be treated in order to retain the root mass stabilizing the bank and to avoid any potential chemical exposure into the creek. The group also agreed that a grant proposal for treating invasives and replanting with low and slow-growing native plants should be submitted, with the goal of implementing next spring.

Vegetation Management Strategy: There are basically 3 “areas” to be addressed in a phased approach.

1. Area 1: The wet floodplain directly behind the dam on the west side of the creek.
2. Area 2: Along the creek between the first boardwalk and the debris catchment structure.
3. Area 3: Under the bridge.

A Phased Approach: The strategy would take a phased approach, starting first with cutting the larger trees (maples & black willows) that are most obviously blocking the view and treating the stumps with an herbicide to impede re-sprouting. Cutting and treating would likely occur in the late fall or early spring while leaves are off the trees, but while the herbicide treatment is still effective (over 20 degrees). The preferred approach would be to chip the cut vegetation to use it along the trail. Another alternative could be to distribute the cut brush up on the slopes; although this could cause erosion issues and impede growth of native vegetation. Fire risk from piling brush is low due to the rapid decomposition rate and high moisture levels in this setting. Because cutting trees would open up the canopy and let in more sunlight, a phased approach is necessary to minimize the potential for increasing the establishment of invasive species including reed canary grass.

- Phase 1 basically entails cutting and treating the most obvious “culprit trees” that are blocking the view. Planting of low-growing natives behind them is the other important first phase step.
- Beyond Phase 1, into 2021 and 2022, the important steps would be to monitor and manage invasive species, identify and remove other trees that are encroaching upon the view, and planting more low-growing natives and possibly a few select taller trees (balsam, black spruce, or tamarack) outside the core viewshed to maintain the forested setting in the long term.

Area 1: The most notable and immediate action would be to cut the black willows that have grown up directly behind the dam and are blocking the view. It is also recommended that 2 -3 of the remaining red pines along the trail be cut as they potentially threaten the boardwalk structure. This could be done during the fall of 2020 by volunteers, followed by herbicide treatment by BAEC. Planting of trees and low-growing species could occur in the fall or spring, depending upon availability of funding and people power.

Tree species recommended for planting would include: black spruce, balsam, cedar, tamarack and mountain maple, and striped maple. Black spruce can grow up to 30-50' in height and 20-30' in width and balsam fir can grow to 45-75' in height and 20-25' in width. However, both species are very slow growing, they have narrow canopies and are only wide at the base. To minimize the long-term conflict with the viewshed, these species could be planted only along the edges, leaving a viewshed open in the center. This would help "frame" the bridge while also providing tree diversity

Lower growing species would also be planted. This would include planting alder within 20 feet of the existing stream. Red osier dogwood (*Cornus sericea*), already on site on the flat floodplain outside of the 20-foot buffer, will help to choke out invasive species, notably the reed canary grass. Other shorter species to be considered for planting throughout this area would include:

- *Cornus alternifolia* -Pagoda dogwood
- *Aronia melanocarpa* – Chokeberry
- *Viburnum opulus* – American Cranberrybush
- *Hamamelis virginiana* – Witch Hazel
- *Salix discolor* – Pussy Willow
- Native Ferns and Grasses

Reed canary grass would be treated in the spring and for subsequent 3-5 years (per the BAEC restoration plan).

Area 2: Two tall maples were identified as the primary "culprits" blocking the view, both from the trailhead and from the bridge looking toward the lake. A scraggly large black willow on the east side of the creek is also a good candidate for cutting and treatment. Again, these would be cut and treated with herbicide, with planning of low-growing natives to follow. The area could then be monitored to determine if other trees would merit removal in future years. Along the trail between the first boardwalk and the base of the Iron Bridge there are some willows draped over and encroaching along the trail that should be cut or trimmed and treated appropriately.

Planting balsam, black spruce or tamarack in select locations along the edge of the trail and outside the primary viewshed could be considered to retain a forested setting in the long term.

Area 3: Due to the association with the bridge this area likely falls under the purview of the City's PWD. The area directly under the bridge and next to the trail includes trees that are growing up along and into the bridge framework. These should be cut and treated. It is probably not necessary to plant anything in their place. Further up the hill, toward the concrete foundation, there are some trees growing up against the bridge's wooden platform. They could potentially dislodge the platform, and thus should be cut.

Next Steps:

- December: Cut and treat the black willows and tall maples that are impeding the view. Cut two red pines posing risk to the boardwalk.
- December: hire BAEC to treat cut stumps
- Submit grant proposal for invasive control and planting
- Spring: Plant low-growing natives (see list above)

**Excerpted from The Big Ravine Erosion Control and Restoration Plan
Prepared by Bay Area Environmental Consultants – Michael Sinclair & Nile Merton**

Site 7: Habitat Restoration near Trailhead and Concrete Water Control Structure

This site lies between the Washington Avenue erosion control structure and the Iron Bridge. Following a meeting of city officials and stakeholders, this goals for this site were identified as 1) enhancing the view of the Iron Bridge from Washington Avenue and the trailhead, 2) controlling invasive species present, and 3) planting and encouraging native species that fit with the viewshed goal. By doing so, the hope is to minimize the amount of cutting necessary in this area, prevent erosion, and protect the erosion control structure.

To improve the view, “culprit” trees were identified that block the view of the bridge. Most of these trees fall in the Viewshed Management Area (outlined in yellow on map below). Two tall maples were identified as particularly blocking the view, both from the trailhead and from the bridge looking toward the lake. A scraggly large black willow on the east side of the creek is also a good candidate for cutting and treatment. Two to three unhealthy red pine near the trail should also be removed to enhance the view. Additionally, several willows are encroaching on the trail and should be removed or trimmed as appropriate. Stumps will be treated with 15-25% triclopyr 4 in an oil carrier (diluent oil, diesel, etc). In the canopy gaps, semi-shade tolerant low-growing natives will be planted including pagoda dogwood (*Cornus alternifolia*), beaked hazel (*Corylus cornuta*), and tag alder (*Alnus incana*). The area will then be monitored to determine if other trees would merit removal in future years or if invasive species are encroaching.

At the beginning of the trail is an open area with grasses and small trees, the Floodplain Restoration Area, outlined on the map below. The site is 0.26 acres and is bounded by the trail on the north, concrete water control structure on the south, and the forest edge on the east and west.

This area has patches of invasive reed canary grass and tansy. The patches are mostly contained within the green outline below but are not continuous throughout this area. We suggest treating these invasive species for 3-5 years by applying foliar aquatic-safe herbicide (like Rodeo). Nothing should be planted within those patches until after at least 2 years of herbicide application to avoid accidentally killing plantings. Areas not being treated could be planted sooner. Spot spraying will continue as needed to control invasives present.

Along the edges of this floodplain restoration area, taller conifers and boreal deciduous trees will be planted to mimic historic ravine forests of the region. Within the Tall Vegetation Planting Zone, outlined in blue below, black spruce, white cedar, balsam fir, tamarack, mountain maple, and striped maple will be planted at 6'x6' spacing. These taller species will be kept to the edge to prevent blocking the viewshed as they grow up and will help ‘frame’ the view of the bridge.

Short-statured shrub species will be planted into the open areas of the Floodplain restoration zone. Tag alder (*Alnus incana*) will be planted within 20 feet of the streambanks. Red-osier dogwood (*Cornus sericea*) will be planted across the floodplain to help shade out and prevent the spread of invasive species. To provide diversity and pollinator habitat, other short-statured species will be planted along the trail. These species will include pagoda dogwood (*Cornus alternifolia*), chokeberry (*Aronia melanocarpa*), American highbush cranberry (*Viburnum opulus*), witch hazel (*Hamamelis virginiana*), elderberry (*Sambucus canadensis* and *racemosa*), and pussy willow (*Salix discolor*). All will be planted at 6'x6' spacing.

All the planted species other than red osier dogwood and tag alder will be sprayed with deer repellent each fall until tall enough that deer are not a threat (about 5 years).

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Area between Iron Bridge and erosion control structure where vegetation will be managed to enhance the view of the Iron Bridge, to control invasive species, and encourage native species.

Cost

Materials

- Plants (total **\$1083.68** plus about **\$500** delivery fees)
 - Canopy openings (12 total)
 - 2 pagoda dogwood \$8.44
 - 6 beaked hazel \$31.78
 - ~~4 tag alder \$12.03~~
 - Tall vegetation planting zone (70 total)
 - 15 black spruce \$40.51
 - 15 white cedar \$38.61
 - 15 balsam fir \$42.89
 - 15 tamarack \$53.96
 - 5 mountain maple \$105.50
 - 5 striped maple \$21.10
 - Floodplain zone (235 total)
 - 3 pagoda dogwood \$12.66
 - 5 chokeberry \$36.13
 - 5 American highbush cranberry \$36.13
 - 5 witch hazel \$22.16
 - 10 elderberry (red and white) \$72.27
 - 10 pussy willow \$31.65
 - ~~96 tag alder \$288.65~~

- 102 red-osier dogwood \$229.21
 - Note: if planting occurs before reed canary controlled, order 65 red-osier for initial planting and 37 for planting in sprayed areas
 - Note: by the time that this order is placed, prices could go up by \$300-\$400 as nurseries update their costs. This is the best estimate we can provide 11/25/20.
- Rodeo herbicide **\$70.00**
- Deer repellent for 5 years **\$100.00**

Labor

- Stump treatment: \$100.00 +/-
- Spraying invasives (total for 2 years) **10 hours, \$500.00**
- Planting trees **8 hours, \$400.00**
- Applying deer repellent (total for 5 years) **10 hours, \$500.00**

Total: \$3253.68

All proposed activities must conform with the following City ordinance, applicable to this location:

§ 500-21. W-1 Conservancy District. [Amended 6-10-2013 by Ord. No. 369]

1. Purpose. The W-1 District is intended to preserve the natural state of undeveloped lands that, due to their topography, soil composition, or other similar factors, are not suitable for significant development because of the potential hazards to public or private property or the public welfare that would result therefrom.
2. Permitted uses.
 1. (1) Management of forestry, wildlife and fish.
 2. (2) Harvesting of wild crops such as marsh hay, ferns, moss, berries, fruit trees, and tree seeds.
 3. (3) Essential services.
 4. (4) Horticulture and gardening.
3. Conditional uses.
 1. (1) Drainage where such activity will not be in conflict with the stated purposes of this district.
 2. (2) Public and private parks.
 3. (3) Dams.
 4. (4) Grazing where such activities will not be in conflict with the stated purposes of this district.
 5. (5) Orchards and wild crop harvestings.
 6. (6) Telephone, telegraph and power transmission towers, poles and lines, including transformers, substations, relay and repeater stations, equipment housings and other necessary appurtenant equipment and structures, above and below ground.
 7. (7) Signs, subject to the provisions of this chapter.
 8. (8) Screening and fencing over four feet in height.
 9. (9) Outdoor classes.
 10. (10) Recreational trails.
4. No use shall involve dumping or filling of mineral soil, or peat removal or any other use that would disturb the natural fauna, flora, watercourses, water regimen, or topography.