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consulting engineers

Part C:

ECOLOGICAL RESOURCES MANAGEMENT PLAN

Part C: Ecological Resources Management Plan

The ecological resource component of the Strategy includes a review of proposed land uses and recommendations for managing ecological value within differing land uses, as proposed, with particular focus on the sensitive bog ecosystem and other ecological resources. Prioritized opportunities for ecological restoration and enhancement are identified as means to best restore and protect the existing bog ecosystem and other ecological values in perpetuity as a valued component of Richmond's Ecological Network. Potential cumulative effects of adjacent land use, storm water drainage, recreation and invasive plant species are considered. Strategies are also recommended to ensure GCL optimizes the 'free benefits' that intact natural systems can provide. Finally, an adaptive management framework is proposed to learn and develop a better understanding of wetland (bog, fen, marsh) ecosystems and for monitoring the outcomes of specific management actions to support future decision-making.

14. Ecological Management

The 2014 Garden City Landscape Legacy Plan envisions restoration of a raised bog/lagg (fen) complex. That drains to the southwest of the site. Currently the site is indicative of a semi-modified bog with a plant community that has been influenced by its urban setting. Concurrent with the Legacy Plan, a primary goal is to restore this ecosystem back to as natural a state as possible within the limitations of its location.

It is unclear how effective the perimeter hydrological barriers will be at retaining water in the conservation area because monitoring of the groundwater was done during a spring and summer that were very dry in comparison to typical seasonal conditions, which is key to determining if a bog ecosystem can be restored over time. Efforts to restore a functioning bog will take significant resources and are dependent on the effectiveness of the perimeter subsurface hydraulic barriers and surface berms. Therefore, it is recommended that, in conjunction with the groundwater monitoring program, a long term adaptive management approach on site be taken to develop a fuller understanding of the site's hydrogeology and its influence on plant communities within the conservation area.

The following sections provide a summary of current ecological conditions on site, as identified in the 2014 Biophysical Inventory and potential vegetation management objectives.

14.1 Existing Conditions: Ecological Conservation Area

The 2014 Biophysical Inventory identified 7 vegetation types on GCL. The area that has been envisioned for conservation supports types V1, V3, V4, V5 and V6. Vegetation types V2 and V7 are areas that are proposed for agricultural development and are not discussed in this report. For the purposes of framing the restoration options on site, the area has been divided into four conservation zones based on vegetation types. These zones are outlined in Table 14-1 and illustrated in Figure 14-1: Vegetation Polygons. Discussion of management options for each conservation zone is presented in Sections 14.2 through 14.5.

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Table 14-1: GCL Conservation Zones as Related to the Biophysical Inventory Vegetative Polygons

Conservation Zones	Vegetation Polygon ID	Comments
Recreation Interface	V1 and edge of Westminster Hwy	The highly disturbed area forms the northern and eastern boundaries of the conservation areas, and includes elevated fill that support a diversity of mostly introduced plant species, including grasses, which are most dominant. No species of significance or peat is present. In addition, the narrow edge along the south side of the conservation area has been included in this zone. This area includes the fill slope associated with Westminster Hwy. Due to its low environmental value, the area will likely be converted into berms and recreation walkways.
Remnant Bog	V3	Plants associated with this area are more tolerant of acidic conditions typical of bog ecosystems. This area provides the best opportunity to preserve and enhance species that represent the remnant bog.
Lagg (fen)	V4, V6	The lagg area has a high water table providing site conditions suitable for plant species that are more tolerant of hydrophilic conditions. This area has poor drainage and low plant species diversity and is almost entirely dominated by fen associated species, including native Sitka sedge and hardhack.
Marsh	**V5**	The marsh area has a high water table but has had some disturbance in the past. Species present include almost entirely native species including Sitka sedge with pockets of hardhack and bracken fern.

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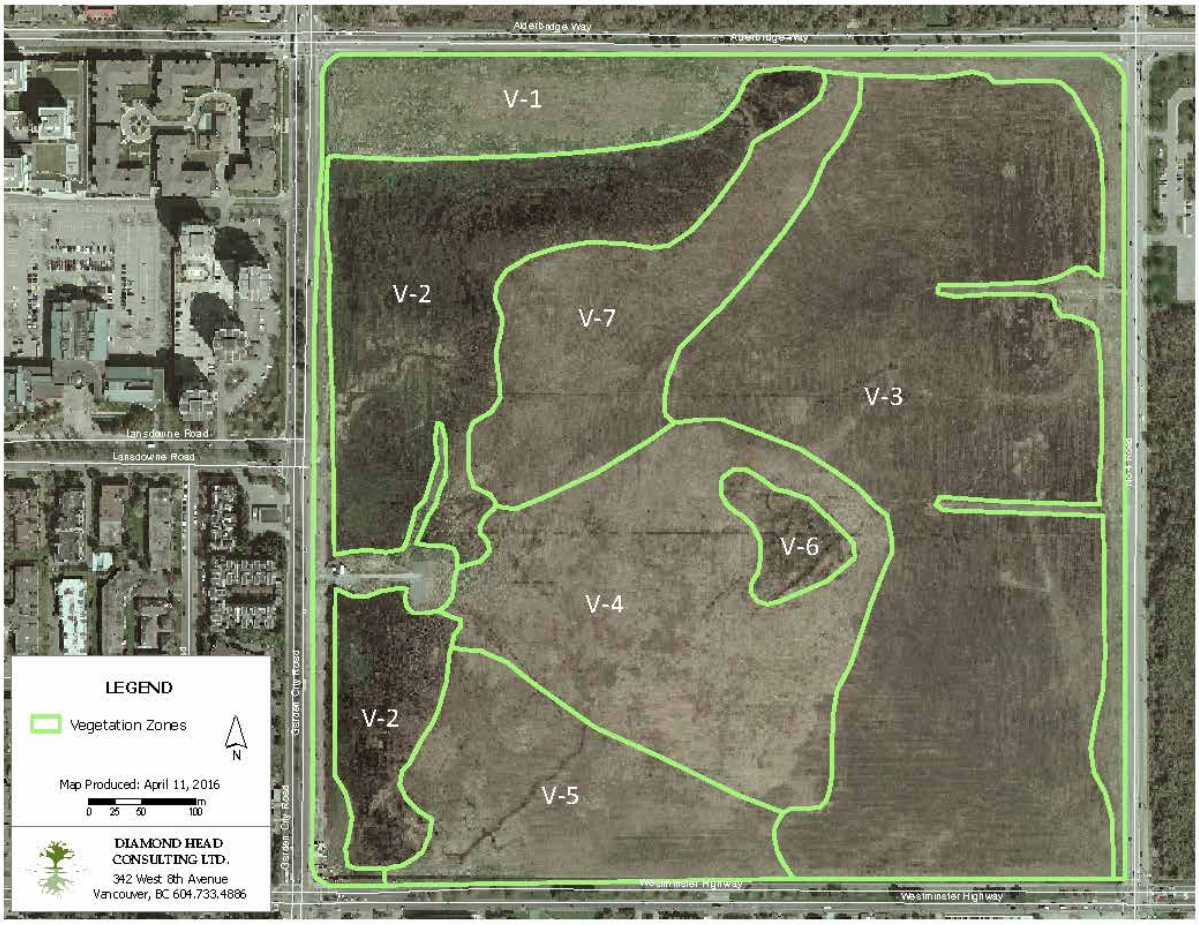

Figure 14-1: Vegetation Polygon as Designated in the Biophysical Inventory

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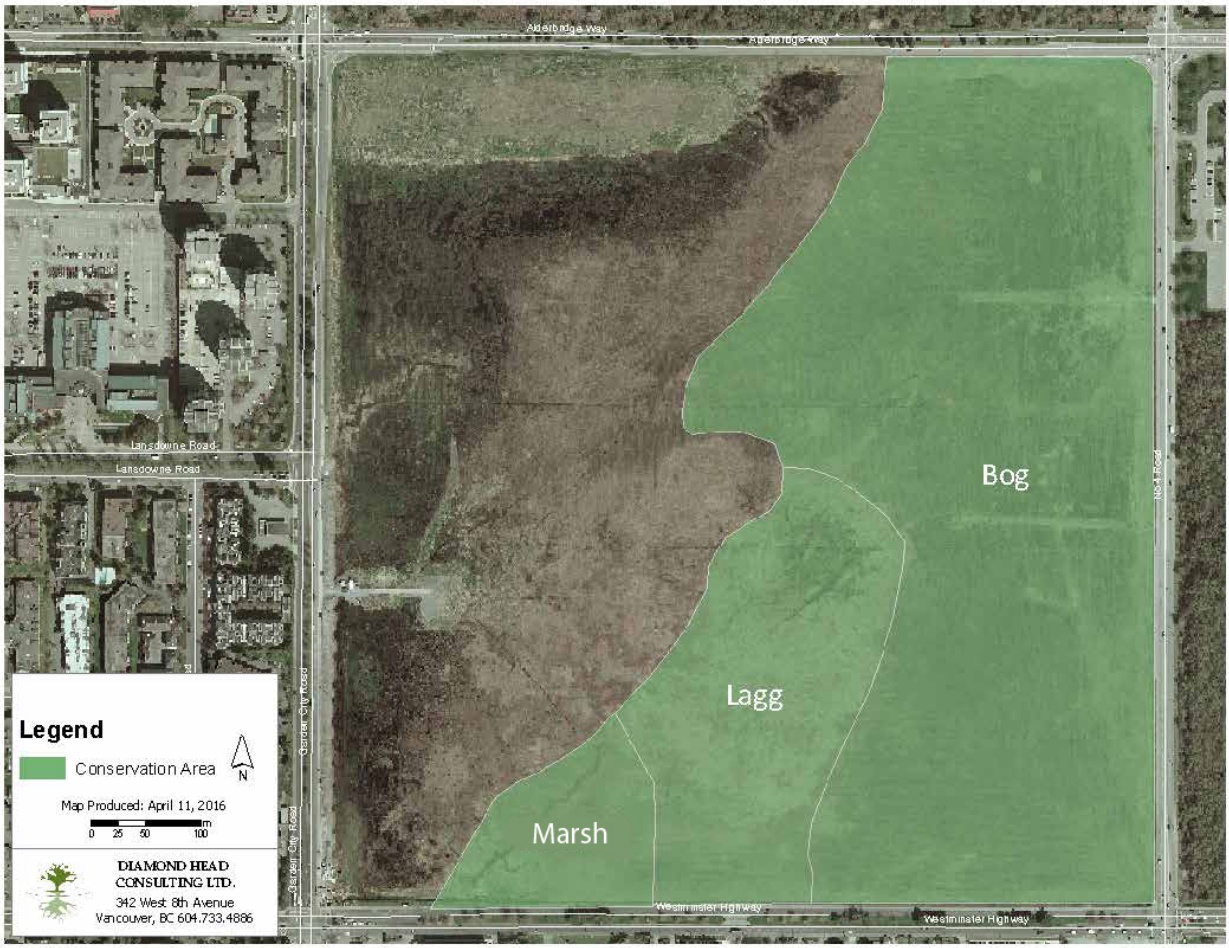

Figure 14-2: Proposed Conservation Zones

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Figure 14-3: Concept Restoration for the Conservation Area

14.2 Recreation Interface Zone

Areas around the perimeter of GCL have been subject to historical disturbance. These areas are associated with fill that was placed during construction of the perimeter roads, including two spur roads off of No. 4 Road that lead to former radio tower sites. There is a high diversity of plant species found in these areas; however, most are non-native, invasive species that aggressively colonize disturbed sites. The south edge of the conservation area consists of a short fill slope and ditch constructed as part of Westminster Highway.

This area is proposed to be redeveloped as perimeter berms to support recreational walkways, while at the same time, isolating the hydrology on site. Design of the berms will include an impermeable membrane that will isolate the fill from the peat topsoil in the bog. These features will prevent on-site water from draining off-site as well as isolating the bog from off-site water that has the potential to threaten the integrity of the bog's ecology.

Landscaping is proposed as a vegetated buffer between the perimeter road and the conservation areas. These will be linear planted areas that are fragmented by walkways and/or bike lanes. These areas are expected to be raised above the bog and at the level of the adjacent roadways. The ecology is therefore expected to be moderately dry. It is recommended that only native tree and shrub species be planted in these areas.

The two spur roads that extend from the east edge of the site may be incorporated into the future trail system for the site. If not, restoration of these areas should target upland native plant communities. Species to be considered for the perimeter walkways and the two spur roads should be limited to species listed in Table 14-2. Paper birch (*Betula papyrifera)* has the potential to naturally seed into the Bog Zone but is not preferred for that plant community; as a result, this species should not be planted in the Recreation Interface Zone.

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Table 14-2: Trees and Plants Shrubs Species to be Considered for the Recreation Interface Zone

Shrubs		Trees	
Scientific Name	**Common Name**	**Scientific Name**	**Common Name**
Gaultheria shallon	Salal	*Pinus Contorta*	Lodgepole pine
Rubus parviflorus	Thimbleberry	*Pseudotsuga menziesii*	Douglas-fir
Rubus spectabilis	Salmonberry	*Thuja plicata*	Western redcedar
Rosa nutkana	Nootka Rose	*Tsuga heteropphylla*	Western hemlock
Rosa gymnocarpa	Baldhip Rose	*Picea sitchensis*	Sitka spruce
Symphoricarpos albus	Snowberry		
Sambucus racemosa	Red elderberry		
Holodiscus discolor	Oceanspray		
Amelanchier alnifolia	Saskatoon		
Ribes sanguineum	Red-flowering currant		
Acer circinatum	Vine Maple		
Corylus cornuta	Beaked hazelnut		

14.3 The Remnant Bog Zone

Plant communities found at the eastern edge of the GCL represent the closest plant community to natural bog conditions. This area is currently dominated by invasive species including a high percentage cover of Scotch heather; however, it also supports a number of species that are representative of bog ecosystems. This area has been historically mowed and, as a result, tall shrubs and trees have not established.

The long term vision for this area includes establishing a stable shrub dominated plant community with wide-ranging hummocks and mats of sphagnum as well as scattered individual or small groupings of lodgepole pine trees. However, it is unclear based on our current understanding of the hydrological regime what effect the potential management interventions will have on existing vegetation communities or whether the restoration of a stable native bog ecosystem is even possible. Therefore, interim measures to manage the existing modified bog ecosystem focus primarily on vegetation management, specifically: reducing competition to sphagnum and regionally rare plants (cloudberry, velvet-leaved blueberry, bog rosemary) that exist on site; and managing invasive/introduced plant species (European birch, highbush blueberry and Scotch heather).

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Photo 14-1: View East from the Centre of the GCL Site Towards the Bog Zone

The following four vegetation management options are presented with a range of outcomes, arranged in order of increasing cost to implement and manage (and discussed in further detail in the following subsections):

1. No management - allow natural succession
   - Expected outcome: invasive birch/blueberry dominated forest
2. Mowing to maintain a low shrub community
   - Expected outcome: existing low shrub/herb plant community with a high cover of invasive Scotch heather
3. Manage invasive species - manual/mechanical removal
   - Expected outcome: mosaic of shrub species and scattered pine
4. Remove invasive species and plant bog species
   - Expected outcome: mosaic of shrub and herb species with pockets of sphagnum and scattered pine

Because it is unclear at this time how effective the perimeter hydrological barriers will be at retaining water in the conservation area, efforts to restore a functioning bog will take significant resources and are dependent on the effectiveness of the human-made systems. Therefore, it is recommended that, in conjunction with the groundwater monitoring program, a long term adaptive management approach be taken for managing plant communities within the conservation area. After sufficient monitoring has provided a better understanding of the hydrological regime and plant communities, one of these strategies or a combination of these may be adopted. Recommended timelines are provided in the Implementation section of this report.

Option 1: No Management (Natural Succession)

If the plant community were left to develop without any intervention, it would likely evolve to resemble many areas of the Richmond Nature Park (RNP). The non-native and invasive European birch (*Betula pendula*) would likely establish and become the dominant tree species. The shrub layer would likely be quickly taken over by the non-native and invasive highbush blueberry (*Vaccinium corymbosum*). Many

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of the ground level plants would likely be outcompeted and would slowly disappear, including the regionally rare bog-rosemary, cloudberry and velvet-leaved blueberry. This process of succession is expected to occur over 10-20 years.

Table 14-3 specifies the plant species that would be expected to establish if the site was left unmanaged. These include invasive species of concern (in red). In this scenario, it is likely that many of the bog indicator species would be outcompeted by the invasive plant species regardless of the effectiveness of the hydrological barriers.

Table 14-3: Plants Expected to Dominate the Site through Natural Succession

Scientific Name	Common Name	Percent Cover
Vaccinium corymbosum	High bush blueberry	>25
Betula pendula	European birch	>25
Calluna vulgaris	Scotch heather	10-20
Gaultheria shallon	Salal	<5
Vaccinium myrtilloides	Velvet-leaved blueberry	<5
Note: *black = native species; red = invasive species*		

Photo 14-2: Invasive Species Scotch Heather

Photo 14-3: Invasive Species European Birch

Option 2: Mowing to Maintain the Existing Plant Community

The site could be maintained as it is today with continued annual mowing. The resulting plant community is expected to remain more or less the same. Some of the species that prefer high water tables including sphagnum are expected to expand if hydrological barriers prove to be effective. Table 14-4 specifies the plant species that are found to dominate the site, invasive species of concern (in red), and species that are indicators of bog ecosystems (in green). Mowing would continue to effectively control the two highest risk invasive species (European birch and highbush blueberry). Non-native Scotch heather would predominate.

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Table 14-4: Plants Expected to Dominate the Site through Regular Mowing

Scientific Name	Common Name	Percent Cover
Calluna vulgaris	Scotch heather	20-40
Vaccinium myrtilloides	Velvet-leaved blueberry	5-10
Gaultheria shallon	Salal	<5
Vaccinium corymbosum	Highbush blueberry	<1
Betula pendula	European birch	<1
Sphagnum capillifolium	Sphagnum	<1
Andromeda polifolia	Bog rosemary	<1
Rubus chamaemorus	Cloudberry	<1
Eriophorum chamissonis	Chamisso's cotton-grass	<1
Rhododendron groenlandicum	Labrador tea	<1

Note:
black = native species; green = native bog indicator species; red = invasive species

Photo 14-4: View North Across the Bog Zone.

Option 3: Remove Invasive Species

One of the greatest risks to this ecosystem is invasive plant species that have already proven to aggressively establish in the adjacent natural areas to the east. Highbush blueberry and European birch have established on site and pose a high risk of dominating the site if they are not managed. This option proposes manually and/or mechanically removing these species and allowing other existing native plant species to grow. Scotch heather is invasive and covers a significant portion of the site. It would be very difficult to eradicate without significant soil disturbance. These plants produce high numbers of seeds. Manual removal is expected to loosen soil and release a high number of seeds, which will then re-establish on the site. All Scotch heather should be cut as close to the ground as possible to reduce its vigour and to prevent seed development. This should take place between April

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and May while flowers are developing. It is expected that Scotch heather will be naturally reduced over time due to shade cast by taller shrubs. Himalayan blackberry and Evergreen blackberry are starting to establish around the edge of the GCL adjacent to the roadways. These pose a high risk of invading the interior portions of the site and their roots should be excavated by hand.

The response to these mitigation efforts would be assessed in the first 5 years through the monitoring period. It is expected that there will be some natural regeneration of tree species, including Lodgepole pine (*Pinus contorta*).

Table 14-5: Plants expected to dominate the site through management of invasive species

Scientific Name	Common Name	Percent Cover
Calluna vulgaris	Scotch heather	10-15
Vaccinium myrtilloides	Velvet-leaved blueberry	5-15
Pinus contorta	Lodgepole pine	<5
Gaultheria shallon	Salal	5-10
Sphagnum capillifolium	Sphagnum	<1
Andromeda polifolia	Bog rosemary	<1
Rubus chamaemorus	Cloudberry	<1
Eriophorum chamissonis	Chamisso's cotton-grass	<1
Rhododendron groenlandicum	Labrador tea	<1

Note:
black = native species; green = native bog indicator species; red = invasive species

Photo 14-5: Non-native Blueberry

Photo 14-6: Invasive Evergreen Blackberry

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Option 4: Remove Invasive Species and Plant/Promote Bog Species and Sphagnum

Historical annual mowing has prevented tall shrubs and trees from establishing and as a result, it is unclear whether the restoration of a stable native bog ecosystem is possible due to the hydrological regime. However, with existing site hydrology, ongoing commitment to restore a plant community that best represents a bog ecosystem could be pursued. Requiring a higher level of effort and resources than Options 1 -3, Option 4 proposes removal of invasive species, management of existing bog species, and replanting of additional bog plant species.

Establishment of a bog-like ecosystem would require that the invasive highbush blueberry and European birch be manually and/or mechanically removed annually. Scotch heather is invasive but covers a large area and would be very difficult to eradicate without significant soil disturbance. Efforts should be made to reduce its cover over time and replace it with native bog species. Patches should be cut strategically to reduce its vigor and prevent seed dispersal. It is expected that Scotch heather will be naturally reduced over time due to shading by taller shrubs.

Areas that support sphagnum should be identified, and competition managed to promote its growth. Trials are recommended to spread sphagnum propagules in trial plot areas to monitor establishment.

In addition to promoting growth of sphagnum, select native species, including lodgepole pine and salal should be planted in small groups to mimic a native bog plant community. These species should be planted away from existing areas supporting sphagnum. Depending on the level of commitment and resources available, other plant species that are representative of a bog could also be planted and maintained. The viability of transplanting bog species should be tested through select vegetation monitoring plots in the first 3-5 years.

Table 14-6: Plants Expected to Dominate the Site through Removal of Invasive Species and Planting of Bog Species

Scientific Name	Common Name	Percent Cover
Pinus contorta	Lodgepole pine	10-25
Calluna vulgaris	Scotch heather	10-15
Gaultheria shallon	Salal	10-15
Vaccinium myrtilloides	*Velvet-leaved blueberry*	5-10
Sphagnum capillifolium	Sphagnum	5-10
Rubus chamaemorus	Cloudberry	<1
Eriophorum chamissonis	Chamisso's cotton-grass	<1
Andromeda polifolia	Bog rosemary	<1
Kalmia microphylla	Bog Laurel	<1
Vaccinium uliginosum	Bog blueberry	<1
Oxycoccus oxycoccus	Bog cranberry	<1
Rhododendron groenlandicum	Labrador tea	<1

Note:
black = native species; green = native bog indicator species; red = invasive species

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Photo 14-7: Bog Blueberry

Photo 14-8: Lodgepole Pine

14.4 The Lagg Zone

The area to be managed as a lagg ecosystem exists to the southwest of the bog area where water naturally drains on site. The lagg is a transition zone that acts as an important buffer between a raised bog (and its acidic, nutrient poor environment) and the surrounding landscape, which is influenced by more nutrient rich water inputs. As such, the lagg typically contains vegetation representative of both bogs and fens, and the hydrological conditions and soil type will influence the pattern of vegetation across the landscape.

The existing plant community supports low plant species diversity, and is almost entirely dominated by fen-associated plants such as Sitka sedge and hardhack; however, bracken fern is also quite common. This area has been historically mowed and therefore tall shrubs have not been able to establish. To increase the diversity of vegetation, recommended enhancement includes planting clusters of tall shrub species typical of Fraser Lowland bog margins. The target plant community would be diverse in species and structure. It would create a patchwork of plants varying from low growing sedge dominated areas to pockets of tall shrubs and single to small groupings of trees. Table 14-7 specifies the target plant species in the lagg ecosystem.

Table 14-7: Plant/Promote Species Recommended for a Lagg Zone

Scientific Name	Common Name	Percent Cover
Picea sitchensis	Sitka spruce	10-25
Alnus rubra	Red alder	10-25
Carex sitchensis	Sitka sedge	>50
Spiraea douglasii	Hardhack	10-25
Salix Sp	Willow	<5 in clusters
Cornus sericea	Red-osier dogwood	<5 in clusters
Rubus spectabilis	Salmonberry	<5 in clusters
Malus fusca	Pacific crabapple	<5
Lonicera invoilucrata	Black twinberry	<5
Sambucus racemosa	Red elderberry	<5

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Photo 14-9: View West of the Lagg Zone

14.5 The Fen Wetland Zone

The fen wetland area, situated in the southwest corner of the site, is the lowest point of GCL. The water table is high and almost entirely dominated by fireweed, Sitka sedge, hardhack and bracken fern. Less acidic and more nutrient rich compared to the bog and lagg ecosystems because of higher water flows, this area could be enhanced to support a greater diversity of vegetation and provide habitat characteristics that are not provided by the bog or lagg areas. Installation of a buffer between zones with differing hydrological requirements will help to support establishments of a healthy fen wetland zone.

The goal for this area would be to support areas of standing water for most of the year. The area holds standing water through the wetter portions of the year, and has a natural drainage swale running south. Efforts required to enhance this area will be dependent on the effectiveness of the hydrological barriers. If after 3 years, there is no standing water in this area, test sites should be treated to excavate swales and ponds that are 0.5 to 0.7 m below the current ground level. Excavation should not extend below the existing peat layer and should not include any portion of the clay aquitard. The excavated peat should be mounded to create small islands between these open water features or used to top dress the fill slopes of berms. The islands could be planted with taller shrubs and low growing trees.

Wetland species could be planted along the wetted edges of the water features. Table 14-8 specifies the target plant species for the fen wetland ecosystem.

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Table 14-8: Plant Species Suitable for a Fen Wetland Ecosystem

Scientific Name	Common Name	Percent Cover
Carex sitchensis	Sitka sedge	>50%
Spiraea douglasii	Hardhack	10-25%
Salix sp	Willow	<5% in clusters
Cornus sericea	Red-osier dogwood	<5% in clusters
Typha latifolia	Common cattail	<5% on water's edge
Scirpus americanus	American bulrush	<5% on water's edge
Juncus effusus	Common rush	<5% on water's edge

Photo 14-10: View South of the Wetland Zone. The Natural Drainage Swale is Visible.

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15. Habitat Enhancement Opportunities

A variety of wildlife inhabits Garden City Lands. Although some small mammals (e.g. rodents) may be present year round, most species will use GCL either seasonally or as part of a larger home range, including DND lands and the Richmond Nature Park (RNP). Richmond is located along the coastal bird migration corridor and many bird species make use of the area for forage and/or nesting. GCL also supports two species at risk: Barn Swallow (*Hirundo rustica*) and Barn Owl (*Tyto alba*).

Habitat enhancement can support wildlife by improving the conditions (e.g. vegetation, ground cover, structural diversity) necessary to meet their individual needs. The following enhancement opportunities are expected to increase habitat value for a diversity of wildlife species.

15.1 Agricultural Stormwater Channels

Two stormwater channels are planned to drain the active agricultural area on the western portion of the Garden City Lands site. These can be designed to capture and filter runoff using natural processes before entering the City's stormwater system. There is little grade change through these features; however, shallow chambers could be designed to ensure that water is filtered through pervious soils and dense native wetland plant communities. The objective of these features is to remove any toxins and reduce nutrient loading that originates from farming. The final design of these stormwater channels is dependent on predicted site stormwater runoff and on geotechnical limitations on the depth of channel excavation as discussed in this strategy. Recommended wetland plant communities that could be planted in these chambers are summarized in Table 15-1.

Table 15-1: Plant Species Suitable for Stormwater Treatment Wetlands

Scientific Name	Common Name
Carex obtupta	Slough sedge
Carex sitchensis	Sitka sedge
Spiraea douglasii	Hardhack
Salix Sp	Willow
Cornus sericea	Red-osier dogwood
Typha latifolia	Common cattail
Scirpus americanus	American bulrush
Juncus effusus	Common rush

15.2 Structural Habitat Features

GCL currently lacks structural habitat features that are of value to a diversity of wildlife such as raptors and small mammals. Targeted habitat enhancement strategies are recommended to support biodiversity, while mitigating human-wildlife conflicts that may be associated with additional agricultural use, recreational activity and traffic. The habitat features described below mimic those found in healthy bog and lagg ecosystems and are appropriate regardless of the ecological management option pursued. Machinery should not be permitted to travel over the bog area due to its sensitivity to compaction. Therefore, these habitat features should be installed close to the perimeter berms within reaching distance of an excavator. To improve efficiency, these habitat structures should be installed during construction of the perimeter berms and hydrological barriers.

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Large Woody Debris

Large tree trunks that have fallen are often called downed wood or large woody debris. These features provide shelter, feeding sites, and movement pathways for wildlife. They also act as nurse logs for plants and add organic matter and nutrients to the soil. Large woody debris cover is generally low in natural bog ecosystems and consists of smaller diameter stems. Therefore, only a small number of pine stems should be placed on site to best replicate natural conditions. In the initial stages of the restoration program, this would be limited to the edges of the recreation pathways/berms where excavators could easily reach in to the bog area and avoid compaction:

- Target density is 200 pieces per hectare (two per 100 m^2);
- Preferred source is native lodgepole pine. Other native conifers are acceptable if pine is not available. Use of western redcedar should be limited due to the amount of auxins (plant hormone) present in the wood; and
- Logs should be a minimum of 20 cm in diameter and 4 m long.

Photo 15-1: Examples of CWD Placement on Restoration Sites at KM4 in the Lower Seymour Conservation Reserve (District of North Vancouver) and in Tynehead Regional Park (City of Surrey).

Standing Wildlife Trees

Dead standing trees or 'planted wildlife trees' are important habitat features for birds, mammals, amphibians and other organisms. They provide forage, roosting and nesting sites for a diversity of bird species. They are also a source of organic nutrient inputs. While excavators are being used to install the perimeter berms and hydrological barriers, wildlife trees should be installed on the fill slope extending down to and including the bog area:

- Logs should be native conifer species;
- One third to one half the length of a wildlife tree should be buried to ensure stability;
- Trees should be placed leaning away from structures and people;
- Logs should be a minimum of 40 cm in diameter and 6 m long; and
- Wildlife trees should be installed at variable spacing with an average of one per linear 50m around the perimeter of the bog and lagg area.

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Photo 15-2: Examples of Standing Wildlife Tree Placement on Restoration Sites at Lynn Creek and in Tynehead Regional Park

Raptor Perches

Barn owl, red-tailed hawk, and northern harrier have been observed on Garden City Lands. The site is considered ideal hunting location for these species due to its open terrain. Raptors often use perch sites to act as vantage points when hunting prey; however, there is a distinct lack of these structures in GCL. Raptor perches should be installed along the edges of the bog area, away from trails and roads (to reduce the risk of being hit by cars while hunting). Preferred locations are along the central berm and one at the end of each of the spur roads. Perches can be metal or wood poles with a platform or nesting structure at the top.

Nest Boxes/Structures

If vegetation communities are allowed to develop naturally there will be a good diversity of ground cover and forage for wildlife. Insect activity is expected to be high for birds and bats. Nesting boxes and structures should be installed to support bird and bat species. Target species should include barn owl and barn swallow, purple martin, and other cavity nesters. Nest boxes/structures should be installed along the east edge of the central berm within the marsh and lagg (fen) areas. Nest boxes and structures should be monitored and managed in coordination with local stewardship groups. Educational signage may also be erected to help support these initiatives.

15.3 Protection of Habitat for Wildlife

The conservation zone is located within a highly urbanized area and has different habitat types to support a diversity of wildlife species. Establishment of the conservation zone supports the objectives of the Ecological Network Management Strategy (ENMS) and will promote biodiversity within the city's highly urbanised areas.

Some wildlife species are more sensitive to human disturbance, particularly during certain periods of the year (e.g., breeding season). Establishing a wildlife viewing area with controlled access that limits disturbance from humans and pets can support biodiversity, while also providing opportunities for nature appreciation.

An optimal location for the wildlife viewing area is in the southern portion of the conservation zone (Figure 15-1). Ideally, the designated areas would include some of the wetland, portions of the lagg and

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the south end of the remnant bog. Together these areas provide a diversity of habitat. Standing water in the southeast corner of the site in combination with the sedges available for forage are likely to attract waterfowl in the winter months. Thickets of taller shrubs in the lagg area and clusters of trees will provide cover for nesting birds.

This area should support a lower density of trails that are designed to support wildlife viewing. Educational signage should specifically limit human or pet disturbance of wildlife, and trails should be designated as on-leash areas for dogs.

Figure 15-1: Proposed Location of the Wildlife Viewing Area