National Spiritual Assembly of the Bahá'ís of Canada

National Bahá'í Centre of Canada and Canadian National Temple

7200 and 7290 Leslie Street,
City of Markham

Landscape Restoration and Enhancement Strategy

January 2024

Prepared by:

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GEI Consultants

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1.0 Introduction

The National Spiritual Assembly of the Bahá'ís of Canada ("NSA Bahá'ís") and the Association for the Bahá'í Studies owns a total of 16.7 hectares (41 acres) of land across 3 separate properties located on Leslie Street, north of Steeles Avenue East in the city of Markham, Ontario. NSA Bahá'ís is proposing to construct a new National Bahá'í Centre of Canada at 7200 Leslie Street and the Canadian National Temple at 7290 Leslie Street as illustrated in the overall Master Plan (Figure 1.0) for their lands. The National Centre will provide expanded administrative and institutional functions, including meeting facilities, lodging rooms, and a multi-purpose and educational/conference facility. The new National Centre will replace the existing building at 7200 Leslie Street and will include one level of underground parking. As part of the overall Master Plan, the NSA Bahá'ís lands in Markham have been selected for the future home of the Bahá'í Temple of Canada (Canadian National Temple). After completing seven continental temples across the world, the Bahá'í community is now focused on constructing a national temple within various countries across the world. This new Canadian National Temple is proposed just north of the National Centre at 7290 Leslie Street. These two properties, 7200 and 7290 Leslie Street, are the subject of an Official Plan Amendment (OPA) and all three properties, 7015, 7200 and 7290 Leslie Street, are the subject of an Zoning By-law Amendment (ZBA) to support the implementation of the proposed Master Plan.

Figure 1.0 – Master Plan

Proposed National Centre at 7200 Leslie Street.
The existing building at 7200 Leslie Street is currently the administrative headquarters for the NSA Bahá'ís. A new National Centre will be constructed to replace the existing facility. The new National Centre will include not only space for the administrative functions of the NSA Bahá'ís, but it will also provide space for meetings, seminars, conferences, and short term stays for members of the Bahá'í community attending functions at the National Centre.

Proposed Canadian National Temple at 7290 Leslie Street.
The Canadian National Temple component of the Master Plan will include the following: Proposed Canadian National Temple including two separate welcome centres, parking areas and trails to access the temple at 7290 Leslie Street. The temple structure will be a stand-alone building that only houses the sanctuary or place of worship space. Washrooms, reception areas, and other welcome functions will be provided in two separate buildings, one southwest of the proposed temple and one north of the proposed parking lot.

Don Valley Education Centre at 7015 Leslie Street
7015 Leslie Street currently houses the Don Valley Education Centre ("DVEC") within the buildings and land formerly occupied by the Mayfield Tennis Club and then subsequently the Adventure Valley Day Camp. The Bahá'í community purchased this property for their programming and plan to continue use of this property and the existing building in-situ for programming and events offered by the Bahá'í Training Institute of Ontario, such as plenary sessions, small group study, educational and service events, and other community outreach programs, such as youth day camps, arts and crafts activities, outdoor play, and recreation. Furthermore, the property is used for other gatherings and meetings organized by the Bahá'í community, such as holy day celebrations, community and administrative meetings, conferences, and storage of educational books and materials. The DVEC currently includes a large parking area, a clubhouse-like building with an outdoor pool and numerous outdoor tennis courts.

2.0 Overview

The lands that are subject of the planning application comprise three parcels in the city of Markham, as described below:

- 7015 Leslie Street – This parcel is located on the east side of Leslie Street, north of Steeles Avenue East. The parcel is described as 'Lot 4' or the Don Valley Education Centre ("DVEC") and it encompasses an existing building, outdoor sports facilities including tennis courts, play fields, a swimming pool, and other amenities, as well as an associated parking area. This property is owned by The Association for the Bahá'í Studies. It is intended that the building will continue to function as private facility for programming and events offered by the Bahá'í Training Institute of Ontario, such as plenary sessions, small group study, educational and service events, and other community outreach programs including youth day camps, arts and crafts activities, outdoor play, and recreation. Lot 4/7015 Leslie Street is not the subject of the proposed Official Plan Amendment (OPA). It is only subject to the Zoning By-Law Amendment (ZBLA) application. Landscape restoration initiatives are proposed within Lot 4 with the goal of enhancing the extent, biodiversity, and sustainability of the Natural Heritage System (NHS), as well as to mitigate potential impacts on the NHS that could occur as a result of the implementation of the proposed

improvements to Leslie Street, and the proposed extension of the Lake-to-Lake Trail southward to Steeles Avenue East.

- 7200 Leslie Street – This parcel is located on the west side of the Leslie Street right-of-way, north of Waterloo Court and comprises Lot 1. This property is owned by the NSA Bahá'ís. The existing National Centre is located within this property.
- 7290 Leslie Street – This parcel is located north of 7200 Leslie Street and comprises Lots 2 and 3. This parcel encompasses an existing residence as well as forest and cultural woodland communities. Lot 3 encompasses a portion of the former Sabiston landfill site and includes cultural woodland, cultural thicket, and cultural meadow vegetation communities. This property is owned by the NSA Bahá'ís and is the site of the proposed Canadian National Temple.

The site of the proposed Canadian National Temple is located within a cultural woodland (CUW-1) that comprises a high proportion of non-native/invasive species of vegetation as documented by GEI Consultants (GEI) in the Environmental Impact Report. Based upon the detailed ecological inventory work that was completed by GEI, it is proposed that the cultural woodland that is located within the site of the proposed temple be removed from the Greenway System. The implementation of the temple, new National Centre and Welcome Centres and associated infrastructure will necessitate the removal of a portion of the cultural woodland, as well as other individual trees that are situated within Lots 1 and 2.

This Landscape Restoration and Enhancement Strategy (LRES) has been prepared with the goal of offsetting the potential impacts of proposed tree removal and enhancing the extent, diversity, and sustainability of the NHS through the implementation initiatives within the properties at 7015, 7200 and 7290 Leslie Street.

3.0 Objectives

The LRES was designed to achieve the following objectives:

- Increasing the area of native woodland within the German Mills Creek Valley corridor.
- Protecting and enhancing the existing German Mills Meadow and Natural Habitat (GMMNH) and creating new meadow habitat within Lot 3.
- Restoring areas that are prone to erosion along German Mills Creek.
- Enhancing connectivity by infilling voids in the forest communities and linking existing woodlands.
- Converting existing hard surfaces and maintained landscapes to naturalized landscapes that are targeted to become native woodlands.
- Removing/managing non-native/invasive plant communities with the intent of expanding/sustaining native vegetation.
- Enhancing vegetation protection zones adjacent to existing forest communities.
- Enhancing species diversity throughout the three land parcels.

Figure 3.0 illustrates the areas that are proposed to be restored as components of the overall Landscape Restoration and Enhancement Strategy.

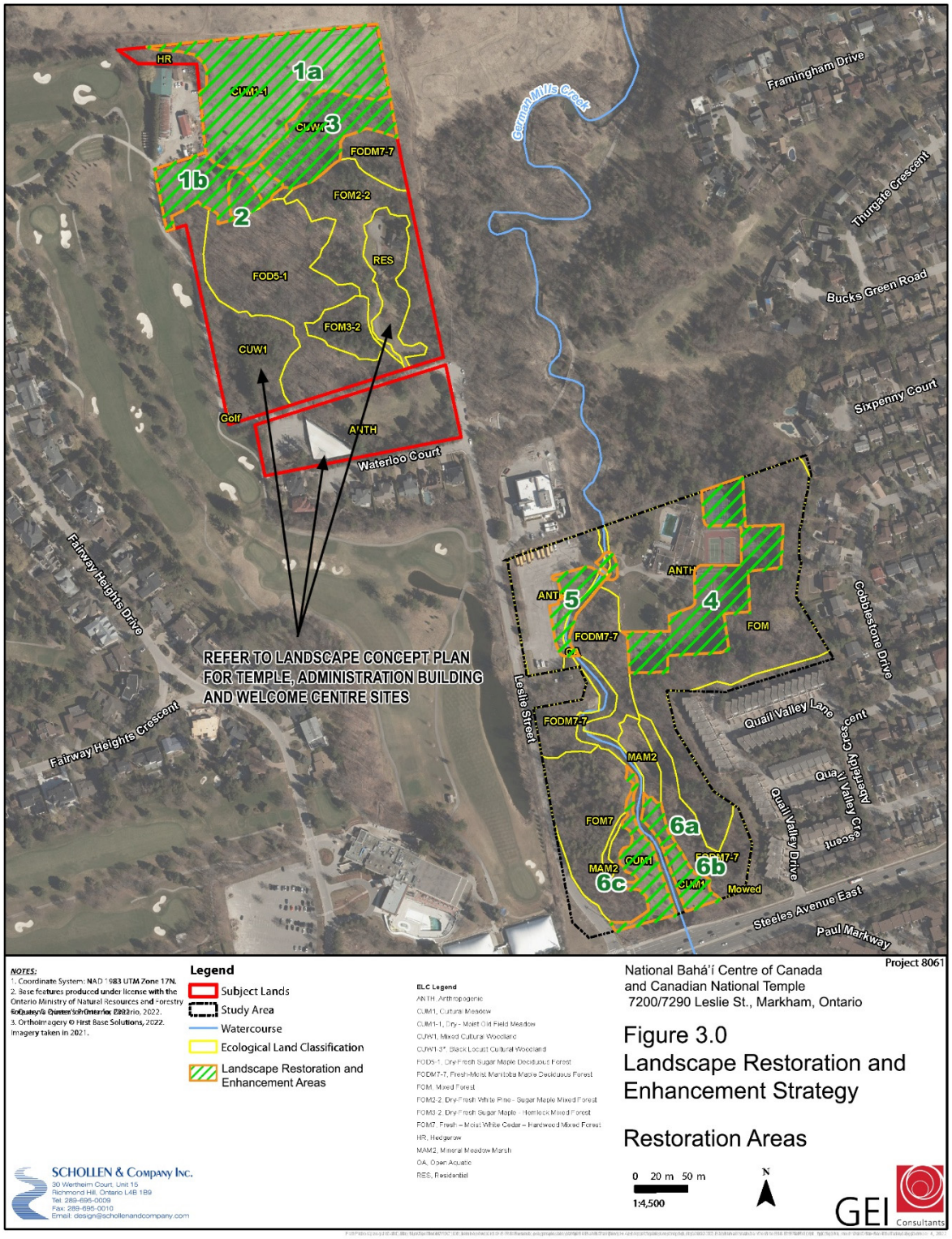

Figure 3.0 – Landscape Restoration and Enhancement Strategy – Restoration Areas

In addition to the broad objectives as set out above, the LRES is intended to compensate for the removal of trees in accordance with City of Markham requirements. In order to determine specific compensation requirements, a comprehensive tree inventory and assessment was completed by Schollen & Company Inc. (SCI). This tree inventory addressed the areas within the 7200 and 7290 Leslie Street parcels where development/site alteration is proposed. The tree inventory report includes an assessment of the value of the trees that are proposed to be removed utilizing the methodology that is set out in the City's 'Trees for Tomorrow Streetscape Guideline'. Based upon the tree inventory and assessment, 43 trees over 40 cm DBH are proposed to be removed. The combined calculated value of these trees is $216,300.00. One hundred and twenty-four (124) trees with a DBH of 20-40cm are proposed to be removed at a compensation rate of 2 trees for each tree that is proposed to be removed. This will necessitate the planting of 248 trees as a component of the landscape works associated with the implementation of the project. The implementation of the proposed restoration initiatives will exceed this compensation value. In addition, as noted by GEI, a total area of approximately 0.16 ha of significant woodland and woodland VPZ is anticipated to be impacted. The implementation of the LRES is aimed at compensating for and offsetting this anticipated impact.

4.0 Components

The LRES includes initiatives that are proposed to be implemented within both the 7015 and 7290 Leslie Street parcels. Figure 3.0 – 'Landscape Restoration Areas' illustrates the location and extent of the proposed restoration initiatives. Restoration Areas 1, 2 and 3 are situated within Lots 2 and 3 (7290 Leslie Street) and Restoration Areas 4, 5 and 6 are situated within Lot 4 (7015 Leslie Street).

In conjunction with the LRES, a Landscape Concept Plan that addresses the Canadian National Temple site, the new National Centre and the Welcome Centre components of the project has been prepared. The initiatives proposed within the Landscape Concept Plan include site specific restoration proposals that complement the LRES, including the following:

- Canadian National Temple Site – Existing non-native/invasive vegetation is proposed to be removed and the new landscape is proposed to comprise:
  - Native woodland restoration in the area north and west of the proposed Canadian National Temple and associated amenities
  - Native 'woodland gardens' that will surround the temple. These gardens will comprise assemblages of native ground flora, shrubs and trees and are intended to represent the elements of the 'Canadian Landscape'. These gardens are proposed to enhance the temple and create an appropriate transition to the existing forest community.
  - Enhanced vegetation protection zones which will include infill and understorey plantings with the objective of buffering the edge of the existing forest and improving the diversity of the vegetation community. The removal of existing invasive plants is proposed within these areas to support the establishment of new native trees and understorey vegetation.

The landscape within the site of the proposed Canadian National Temple is intended to be natural in appearance and function, with the objective of immersing visitors in nature and enhancing spiritual awareness of the natural environment.

- National Centre – The landscape associated with the National Centre is proposed to include extensive tree planting to enhance the existing buffers along the south and west perimeters of

the site, as well as formal lawns and landscaped areas to support the internal functions of the proposed administration centre.

- Welcome Centre – The landscape concept for the Welcome Centre proposes the removal of the existing lawn area and non-native ornamental ground flora, and the planting of this area with native trees and shrubs to enhance the edge condition at the interface between the existing forest and the proposed Welcome Centre and parking area. Tree and shrub planting comprising native trees, shrubs and ground flora are proposed to expand the woodland and improve diversity. Proposed plantings will extend beneath the dripline of the existing trees to convert existing maintained turf and ornamental garden areas into a self-sustaining native vegetation community.

The Landscape Concept Plan is aimed at sensitively integrating the proposed Canadian National Temple, National Centre, and Welcome Centre into the existing landscape context.

5.0 Landscape Restoration and Enhancement Areas

The restoration and enhancement proposals for each of the six landscape restoration and enhancement areas are described below.

The restoration and enhancement prescriptions for each area include both active and passive restoration techniques, as well as short-term and long-term management recommendations that are aimed at ensuring that the desired ecological outcomes are achieved.

7290 Leslie Street

Restoration Area 1

Existing Condition – Restoration Area 1 is located at the north end of the 7290 Leslie Street parcel and encompasses a portion of the former Sabiston Landfill site.

The ecological Land Classification (ELC) for this restoration area is CUM1 and the existing condition as characterized by GEI as being dominated by non-native vegetation including Reed Canary Grass (*Phalaris arundinacea*) and areas of Dog-strangling Vine (*Cynanchum rossicom)* infestation.

Restoration Area 1 comprises two components, sub-areas 1A and 1B. Sub-area 1A exists as an open landscape that is dominated by Dog-strangling vine and Reed canary grass, as well as areas where Black Locust (*Robinia pseudoaccacia*) has become established.

Sub-area 1B encompasses a component of the larger cultural woodland and includes areas that were utilized for the storage associated with the Bayview Golf and Country Club maintenance facility, which is located on the adjacent property to the west.

Restoration Sub-Area 1A

This area is largely devoid of woody vegetation as a result of its location on top of the former landfill site and the shallow depth of topsoil that was identified within this area by Terraprobe Inc. and documented in the report entitled '*Phase Two Environmental Site Assessment – 7200 and 7290 Leslie Street, Markham Ontario*', dated September 14, 2022. The Terraprobe report also identified exceedances in the level of mercury at a shallow depth within boreholes 25 and 26, which are located at the northwest corner of Lot 2, southeast of the Bayview Golf and Country Club maintenance compound.

Area 1A is proposed to be restored to create a new meadow that will complement the GMMNH, which is located immediately north of the Lot 3. The shallow depth of topsoil over the landfill cap within Restoration Area 1A limits the ability for woody vegetation to thrive. The targeted ecological endpoint for the restoration of this area is to create a new meadow that comprises native grasses and wildflowers, with the overall objective of expanding the extent of meadow habitat.

Restoration Strategy

The following restoration actions comprise the restoration strategy for Area 1A:

A. Eradicate existing non-native/invasive woody and herbaceous vegetation through targeted herbicide application.
B. Remediate areas where mercury has been found in accordance with the recommendations provided by Terraprobe Inc.
C. Seed the area with a native upland grass/wildflower seed mix and appropriate nurse crop.
D. Install a sand layer to optimize seed contact with the soil surface.
E. Irrigate as required to stimulate germination.
F. Overseed as required to ensure optimal cover comprising desired native species.

Since a population of deer and other animals that browse on vegetation have been observed in the area, the newly seeded area should be protected through the installation of exclusion fences until the meadow has become established.

Given the presence of non-native and invasive species in the vicinity of this site, periodic monitoring will be required to be implemented to identify potential infestations of undesirable non-native species early in the process of their establishment. If observed, an invasive species management program should be implemented eradicate undesirable vegetation during the period of establishment of the newly planted vegetation.

The implementation of the restoration initiatives within Area 1 will result in the establishment of approximately 1.59 ha of new meadow habitat within Lot 3 and will reduce the threat of migration of invasive species into the GMMNH.

<u>Restoration Sub-Area 1B</u>
Area 1B is proposed to be restored to native woodland to complement the adjacent native forest community and to provide an enhanced buffer between the Temple and the Bayview Golf and Country Club.

Restoration Strategy

The following restoration actions comprise the restoration strategy for Area 1B:

A. Eradicate existing non-native/invasive herbaceous vegetation through targeted herbicide application.
B. Remediate areas where mercury has been found in accordance with the recommendations provided by Terraprobe Inc.

C. Import and spread topsoil to achieve a minimum depth of 300mm of growing medium over top of existing subgrade.
D. Seed the area with a native upland grass/wildflower seed mix and appropriate nurse crop.
E. Install native trees and shrubs comprising pioneer/early succession species. Plant material installation and propagation can be implemented using a combination of the following:
    a. Intensive planting of whip stock (trees) and bare root stock (shrubs).
    b. Installation of nucleation nodes comprising several large trees of seed-bearing size.

Since a population of deer and other animals that browse on vegetation have been observed in the area, plant material should be protected through the installation of rodent guards, exclusion fences, brush mats and rodent repellant.

Restoration Area 2

Existing Condition – Restoration Area 2 is characterized by GEI as CUT1-1 am comprises primarily Staghorn Sumac (*Rhus typhina*) with some Black Locust (*Robinia pseudoacacia*). A segment of trail is proposed to be constructed within this Restoration Area. Construction of the trail will entail grading of the slope and the removal of the existing area of Black locust trees, saplings, and seedlings. To enable the restoration of this area, it is necessary that all of the Black locust trees be removed, either by mechanical means or through the application of herbicide, or a combination of both methods. The Sumac can remain in areas where it has not become colonized with invasive vegetation.

Restoration Strategy

Once the Black locust and other invasives have been removed and the grading to accommodate the proposed trail has been implemented, the following restoration actions comprise the restoration strategy for Area 2:

A. Import and spread topsoil as required to achieve a minimum depth of 300mm over subgrade.
B. Seed the area with a native upland grass/wildflower seed mix. In areas where slopes exceed a 3:1 (H:V) gradient, it is preferred that the seed mix be installed in conjunction with a compost/mulch utilizing a blower truck to encourage rapid germination and the establishment of contiguous vegetation cover.
C. Install native trees, shrubs and ground flora using a combination of seeding and whip stock. Native species should be selected based on site specific conditions, including degree of exposure to sunlight. Species should complement the vegetation community within the adjacent FOD5-1 forest community.

Restoration Area 3

Existing Condition – Restoration Area 3 comprises two Sub-areas:
Sub-area 3A which is a cultural woodland (CUT1-3*, 'Black Locust Cultural Woodland'); and,
Sub-area 3B which is a wooded area that is dominated by Manitoba maple (*Acer negundo*) as characterized by GEI as FODM7-7

As with Restoration Area 2, a segment of trail is proposed to traverse this area, necessitating the removal of existing vegetation and alterations to the existing grades. Beyond the areas that are required to be

disturbed to facilitate the construction of the proposed trail, all of the remaining Black locust trees should be removed in order to enable restoration to native woodland plant community.

Restoration Sub-Area 3A

Restoration Strategy

The strategy for Restoration for Sub-area 3A is similar to that which is recommended for Area 2. Within Sub-area 3A, full eradication of the Black locust stand is required. This will entail:

A. Cutting of the Black locust trees to grade.
B. Applying an herbicide to the cut stumps.
C. Waiting the length of time as directed by the herbicide manufacturer to ensure that the Black locust trees are dead.
D. Reapplication of herbicide as required to ensure complete eradication.

Once total eradication has been achieved, the restoration planting program can be initiated.

Ongoing monitoring will be required throughout the grow-in period to ensure that potential re-colonization by invasive species is discovered early, so that appropriate management actions can be implemented in response.

Restoration Sub-Area 3B

Restoration Strategy
Sub-area 3B has been identified as '*Candidate Significant Woodland*' by GEI. In response, the Restoration Strategy for this area is aimed at increasing the quantity and species diversity of native trees within this Manitoba maple dominated woodland. Restoration Sub-area 3B encompasses approximately 2330 m2. The restoration prescription for Sub-area 3B comprises the following components in sequence:

A. Identifying and removing aggressive non-native/invasive species in the understorey of the woodland utilizing targeted herbicide application.
B. Planting the understorey with seedlings and whip stock comprising native species that are present in ELC communities FOD5-1 and FOM2-2.
C. Monitoring to gauge the success of the new plants and to identify potential issues related to re-colonization by undesirable non-native species.

As noted previously, protection from browse by rodents, deer and other mammals will be required to be implemented to optimize the rate of survival of the understorey plantings.

7015 Leslie Street

Restoration Area 4

Existing Condition – Restoration Area 4 is located on the east side of German Mills Greek, within Lot 4 at 7015 Leslie Street. The site is characterized as 'ANTH' by GEI and includes the tennis courts, maintained open fields and hard surface play areas associated with the present Don Valley Education Centre and the former 'Mayfair Tennis Club' and 'Adventure Valley' uses. Many of the tennis courts and hard surface

areas have fallen into a state of disrepair. This situation presents a significant opportunity to restore the landscape within the German Mills Creek corridor and connect woodland communities and habitats.

Restoration Strategy

The strategy for restoring Area 4 comprises the following actions:

A. Demolishing and removing four existing tennis courts including the removal and off-site disposal of fences, pavement, retaining walls, lighting systems and associated infrastructure.
B. Grading the area to restore the original valley landform and toe of slope configuration.
C. Importing topsoil and spread to a minimum depth of 300mm over the disturbed areas of the site.
D. Tilling existing turfgrass areas and supplementing with additional topsoil as required to achieve a 300mm depth of topsoil.
E. Seeding the area with a native lowland seed mix comprising grasses and wildflowers.
F. Installing native lowland trees, shrubs and ground flora using a combination of seeding and whip tree stock and bare root shrubs.

The Restoration of Area 4 will result in the removal of 7570 m^2 of hard surface pavement from the valley and the restoration of 9265 m^2 of area to native woodland.

It is important to note that a portion of Restoration Area 4 is located within the Regional Floodplain. The placement of additional fill within the floodplain is not generally permitted. Consequently, sub-excavation may be required to enable the importation of topsoil in certain areas. The demolition work may also entail the removal of an existing retaining wall and the restoration of the former valley slope, subject to the approval of the Toronto and Region Conservation Authority (TRCA).

Restoration Area 5

Existing Condition – Restoration Area 5 encompasses the lands on both sides of German Mills Creek, adjacent to the existing parking area, and extends from the existing pedestrian bridge upstream to approximately the southern end of the existing paved parking area. German Mills Creek within Restoration Area 5 exhibits erosion and includes segments of degraded gabion basket bank revetments. The failed gabions are exacerbating erosion which in-turn is accelerating the loss of vegetation along the banks of the river. The restoration strategy for Area 5 is aimed at enhancing the stability of the watercourse and improving the extent and quality of the riparian vegetation community.

Restoration Strategy

The restoration actions proposed within Area 5 include the following:

A. Removing existing degraded and/or failed gabion revetments and install planted field stone revetments to stabilise the banks.
B. Removing a portion of the existing asphalt parking area and reinstate this area with topsoil and native seed mixes and plant material.
C. Installing native riparian shrubs within existing non-vegetated areas along the watercourse to infill gaps and enhance the stability of the riparian zone.
D. Installing instream aquatic habitat enhancements where flow conditions are conducive.

In conjunction with the above, the implementation of Low Impact Development (LID) techniques to intercept and tract number that emanates from the existing parking area should be considered.

Restoration Area 5 is located entirely within the floodplain and therefore a permit will be required from TRCA to enable grading/site alternation within the floodplain. Additional technical assessments, hydraulic modeling and habitat assessment may be required to be completed to facilitate the design of fieldstone revetments and in-stream works.

Restoration Area 6

Existing Condition – Restoration Area 6 comprises three Sub-areas, 6a, 6b and 6c which are located along German Mills Creek. These Sub-areas exist as "gaps' in the valleyland forest community, presenting the opportunity to infill the gaps with native woodland vegetation.

Restoration Strategy

All three Sub-areas appear to have a sufficient depth of topsoil to support the installation of restoration plantings. Some invasive species are present within the restoration Sub-areas and in the vicinity. The elimination of invasive species should be undertaken prior to the initiation of the proposed restoration actions as prescribed below.

A. Till existing surface soil layer and amend as required to achieve adequate fertility to sustain the proposed restoration plantings.
B. Install native woodland trees and shrubs. Species selection should complement the composition of the adjacent FOM and FOD-7 ELC communities.
C. Install native lowland seed mixes appropriate to soil moisture regime and extent of exposure to sunlight.

Monitoring will be necessary to identify incursions into the restoration Sub-areas by invasive plants. Exclusion fences should be erected to prevent damage to newly planted areas caused by deer and other mammals.

6.0 Restoration Outcomes

The following matrix provides a summary of the anticipated outcomes of the implementation of the LRES.

Restoration Area	Area of Vegetation Restoration (m2) (Woodland + Meadow)	Area of Vegetation Enhancement (m2)	Length of Watercourse Rehabilitation (m)	Area of Hard Surface/ Impervious Area Removed from Valley Corridor (m2)
1a	15940			
1b	4270			
2	1000			
3a	6365			
3b		2330		
4	9265			7570
5	2500		110	650
6a	800			
6b	1485			
6c	2960			
TOTAL	44585	2330	110	8220

Table 6.1 – Restoration Outcomes

7.0 Compensation Valuation

Based upon the valuation that was completed as a component of the tree inventory and assessment, the calculated compensate value of the trees that are proposed to be removed to facilitate the implementation of the proposed National Centre and Canadian National Temple is $ 216,300.00. In addition, 248 trees are required to be planted in compensation for trees under 40cm DBH that are proposed to be removed. With respect to anticipated impacts on the significant woodland, valleyland and related VPZ, a total area of 0.90 is proposed for removal or encroachment into the NHN, totalling 3.14 ha of required compensation efforts. More specifically, the 0.52 ha of CUW1 proposed for removal and the 0.03 ha of significant woodland impacted by the proposed trail will require a 5:1 compensation ratio based on the TRCA's Guideline for Determining Ecosystem Compensation (2018), meaning that 2.75 ha of the compensation area must be reforestation efforts. Therefore, a minimum of 2.75 ha of reforestation will occur between Restoration Areas 1b, 2, 3, 4 and 6.

Restoration Description	Restoration Area	Area of Vegetation Restoration (m2) (Woodland + Meadow)
Invasive Species Management & Meadow Habitat Creation	1a	15940
Invasive Species Management & Woodland Restoration	1b, 2, 3a, 6a, 6b & 6c	16880
Woodland Enhancement	3b	2330
Woodland Restoration (in conjunction with impervious surface removal)	4	9265
Watercourse Restoration & Enhancement	5	2500
	TOTAL	46915*

**Total does not include area of proposed imperious surface removal of 8220 m2.*

Table 7.1- Summary of Restoration/Compensation Areas by Habitat Type

In summary, there will be a significant net gain to the broader German Mills Creek valley corridor. This will include a variety of restoration efforts, from a minimum of 2.75 ha of reforestation efforts, maintaining and protecting the existing meadow community connected to German Mills Settlers Park, re-naturalizing portions of the stream corridor and returning valleyland floodplain from tennis courts to a natural community. In terms of compensation and enhancement, approximately 4.6 ha has been proposed for restoration and compensation of tree removal elsewhere compared to the 0.90 ha that will be directly impacted by the proposed development.

Regarding long term management, invasive species that pose a threat to the existing natural vegetation communities will be removed and will receive continued management to protect the abutting significant woodland. These efforts will be supported by the reforestation initiatives, and the shrub and herbaceous plantings planned to increase and support biodiversity, including pollinator, songbird, bat, and a variety of other wildlife species. The specifics of the proposed restoration areas specified in the sections above will be further detailed at the SPA stage. Lastly, the long-term management of the Subject Lands includes a 400-year plan for maintaining the areas woodlands and trail systems, while continuing to engage the local community in appreciating the natural Canadian landscape, presenting an unique opportunity for long term monitoring within an important linkage corridor within the City of Markham.

8.0 Compensation Cost Estimate

In addition to the costs associated with the implementation of the LRES, the Landscape Concept Plan illustrates additional planting that will be implemented as a component of the build-out of the proposed

National Centre and Canadian National Temple. The estimated cost of implementing the works as illustrated on the Landscape Concept Plan have not been included in the compensation valuation.

The following matrices provide a breakdown of the estimated probable cost of implementing the LRES.

Landscape Restoration and Enhancement Strategy – Estimate of Probable Cost of Implementation.

Landscape Restoration and Enhancement Strategy - Area 1a						
Item	**Description**	**Size**	**Estimated Quantity**	**Unit**	**Unit Price**	**Subtotal**
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 4,500.00	$ 4,500.00
1.2	Sediment Control Fence		500	lm	$ 20.00	$ 10,000.00
1.3	Tree Preservation Fence		450	lm	$ 25.00	$ 11,250.00
1.4	Invasive Species Removal (Herbicide)		15940	m2	$ 3.00	$ 47,820.00
1.5	Tree Removal		1	ls	$ 20,000.00	$ 20,000.00
1.6	Debris Removal		1	ls	$ 10,000.00	$ 10,000.00
1.7	Soil Remediation		1	ls	$ 15,000.00	$ 15,000.00
				1.0 SITE PREPARATION Subtotal		**$ 118,570.00**
2.0	**SITE GRADING**					
2.1	Supply and Install Topsoil (300 mm depth)		15940	m2	$ 5.00	$ 79,700.00
2.2	Fine Grading		15940	m2	$ 2.00	$ 31,880.00
				2.0 SITE GRADING Subtotal		**$ 111,580.00**
3.0	**PLANTING AND SEEDING**					
3.1	Seeding (Native Seed & Nurse Crop)		15940	m2	$ 6.00	$ 95,640.00
3.2	Sand Overlay		15940	m2	$ 3.00	$ 47,820.00
				3.0 PLANTING AND SEEDING Subtotal		**$ 143,460.00**
4.0	**POST-CONSTRUCTION WORKS**					
4.1	Exclusion Fence		600	lm	$ 15.00	$ 9,000.00
4.3	Demobilization		1	ls	$ 1,500.00	$ 1,500.00
				4.0 POST-CONSTRUCTION WORKS Subtotal		**$ 10,500.00**
5.0	**SUMMARY**					
					Subtotal Items 1.0 - 4.0	**$ 384,110.00**
					15% Contingency	$ 57,616.50
					TOTAL Area 1a	**$ 441,726.50**

Landscape Restoration and Enhancement Strategy - Area 1b

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 4,500.00	$ 4,500.00
1.2	Sediment Control Fence		500	lm	$ 20.00	$ 10,000.00
1.3	Tree Preservation Fence		450	lm	$ 25.00	$ 11,250.00
1.4	Invasive Species Removal (Herbicide)		4270	m2	$ 3.00	$ 12,810.00
					1.0 SITE PREPARATION Subtotal	**$ 38,560.00**
2.0	**SITE GRADING**					
2.1	Supply and Install Topsoil (300 mm depth)		4270	m2	$ 5.00	$ 21,350.00
2.2	Fine Grading		4270	m2	$ 2.00	$ 8,540.00
					2.0 SITE GRADING Subtotal	**$ 29,890.00**
3.0	**PLANTING AND SEEDING**					
3.1	Deciduous Trees		285	ea.	$ 125.00	$ 35,625.00
3.2	Coniferous Trees		475	ea.	$ 75.00	$ 35,625.00
3.3	Shrubs		1900	ea.	$ 6.00	$ 11,400.00
3.4	Seeding (Native Seed & Nurse Crop)		4270	m2	$ 4.00	$ 17,080.00
					3.0 PLANTING AND SEEDING Subtotal	**$ 99,730.00**
4.0	**POST-CONSTRUCTION WORKS**					
4.1	Exclusion Fence		600	lm	$ 15.00	$ 9,000.00
4.3	Demobilization		1	ls	$ 1,500.00	$ 1,500.00
					4.0 POST-CONSTRUCTION WORKS Subtotal	**$ 10,500.00**
5.0	**SUMMARY**					
					Subtotal Items 1.0 - 4.0	**$ 178,680.00**
					15% Contingency	$ 26,802.00
					TOTAL Area 1b	**$ 205,482.00**

Landscape Restoration and Enhancement Strategy - Area 2

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 4,000.00	$ 4,000.00
1.2	Sediment Control Fence		125	lm	$ 20.00	$ 2,500.00
1.3	Tree Preservation Fence		65	lm	$ 25.00	$ 1,625.00
1.4	Invasive Species Removal (Woody)		1000	m2	$ 30.00	$ 30,000.00
1.5	Clearing and Grubbing		1000	ls	$ 30.00	$ 30,000.00
					1.0 SITE PREPARATION Subtotal	**$ 68,125.00**
2.0	**PLANTING AND SEEDING**					
2.1	Deciduous Trees		25	ea.	$ 125.00	$ 3,125.00
2.2	Coniferous Trees		30	ea.	$ 125.00	$ 3,750.00
2.3	Shrubs		325	ea.	$ 6.00	$ 1,950.00
2.4	Seeding (Native Seed & Nurse Crop)		1000	m2	$ 4.00	$ 4,000.00
					3.0 PLANTING AND SEEDING Subtotal	**$ 12,825.00**
3.0	**POST-CONSTRUCTION WORKS**					
3.1	Exclusion Fence		125	lm	$ 15.00	$ 1,875.00
3.2	Demobilization		1	ls	$ 1,000.00	$ 1,000.00
					4.0 POST-CONSTRUCTION WORKS Subtotal	**$ 2,875.00**
4.0	**SUMMARY**					
					Subtotal Items 1.0 - 3.0	**$ 83,825.00**
					15% Contingency	$ 12,573.75
					TOTAL Area 2	**$ 96,398.75**

Landscape Restoration and Enhancement Strategy - Area 3a

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 4,000.00	$ 4,000.00
1.2	Sediment Control Fence		385	lm	$ 20.00	$ 7,700.00
1.3	Tree Preservation Fence		200	lm	$ 25.00	$ 5,000.00
1.4	Invasive Species Removal (Woody)		6350	m2	$ 30.00	$ 190,500.00
					1.0 SITE PREPARATION Subtotal	**$ 207,200.00**
2.0	**PLANTING AND SEEDING**					
2.1	Deciduous Trees		170	ea.	$ 125.00	$ 21,250.00
2.2	Coniferous Trees		170	ea.	$ 75.00	$ 12,750.00
2.3	Shrubs		600	ea.	$ 6.00	$ 3,600.00
2.4	Seeding (Native Seed & Nurse Crop)		6350	m2	$ 4.00	$ 25,400.00
					2.0 PLANTING AND SEEDING Subtotal	**$ 63,000.00**
3.0	**POST-CONSTRUCTION WORKS**					
3.1	Exclusion Fence		200	lm	$ 15.00	$ 3,000.00
3.1	Demobilization		1	ls	$ 6,000.00	$ 6,000.00
					4.0 POST-CONSTRUCTION WORKS Subtotal	**$ 9,000.00**
4.0	**SUMMARY**					
					Subtotal Items 1.0 - 3.0	**$ 279,200.00**
					15% Contingency	$ 41,880.00
					TOTAL Area 3a	**$ 321,080.00**

Landscape Restoration and Enhancement Strategy - Area 3b

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 2,000.00	$ 2,000.00
1.4	Invasive Species Removal (Woody)		2330	m2	$ 15.00	$ 34,950.00
					1.0 SITE PREPARATION Subtotal	**$ 36,950.00**
2.0	**PLANTING AND SEEDING**					
2.1	Deciduous Trees - Seedings		100	ea.	$ 20.00	$ 2,000.00
2.2	Deciduous Trees - Whips		100	ea.	$ 75.00	$ 7,500.00
2.3	Coniferous Trees - Seedings		100	ea.	$ 20.00	$ 2,000.00
2.4	Coniferous Trees - Whips		100	ea.	$ 75.00	$ 7,500.00
					2.0 PLANTING AND SEEDING Subtotal	**$ 19,000.00**
3.0	**POST-CONSTRUCTION WORKS**					
3.1	Tree protection / Rodent guards		1	ls	$ 2,000.00	$ 2,000.00
3.1	Demobilization		1	ls	$ 1,000.00	$ 1,000.00
					4.0 POST-CONSTRUCTION WORKS Subtotal	**$ 3,000.00**
4.0	**SUMMARY**					
					Subtotal Items 1.0 - 3.0	**$ 58,950.00**
					15% Contingency	$ 8,842.50
					TOTAL Area 3b	**$ 67,792.50**

Landscape Restoration and Enhancement Strategy - Area 4

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 5,000.00	$ 5,000.00
1.2	Sediment Control Fence		300	lm	$ 20.00	$ 6,000.00
1.3	Tree Preservation Fence		300	lm	$ 25.00	$ 7,500.00
1.4	Removal/Disposal of Existing Paving		7570	m2	$ 20.00	$ 151,400.00
1.5	Removal/Disposal of Existing Structures/Fences		1	ls	$ 20,000.00	$ 20,000.00
					1.0 SITE PREPARATION Subtotal	**$ 189,900.00**
2.0	**SITE GRADING**					
2.1	Rough Grading to Subgrade		9265	m2	$ 8.00	$ 74,120.00
2.2	Supply and Install Topsoil (300 mm depth)		3000	m2	$ 5.00	$ 15,000.00
2.3	Fine Grading		9265	m2	$ 2.00	$ 18,530.00
					2.0 SITE GRADING Subtotal	**$ 107,650.00**
3.0	**PLANTING AND SEEDING**					
3.1	Deciduous Trees		300	ea.	$ 125.00	$ 37,500.00
3.2	Coniferous Trees		300	ea.	$ 75.00	$ 22,500.00
3.3	Shrubs		900	ea.	$ 6.00	$ 5,400.00
3.4	Seeding (Native Seed & Nurse Crop)		9265	m2	$ 4.00	$ 37,060.00
					3.0 PLANTING AND SEEDING Subtotal	**$ 102,460.00**
4.0	**POST-CONSTRUCTION WORKS**					
4.1	Exclusion Fence		720	lm	$ 15.00	$ 10,800.00
4.2	Demobilization		1	ls	$ 1,500.00	$ 1,500.00
					4.0 POST-CONSTRUCTION WORKS Subtotal	**$ 12,300.00**
5.0	**SUMMARY**					
					Subtotal Items 1.0 - 4.0	**$ 412,310.00**
					15% Contingency	$ 61,846.50
					TOTAL Area 4	**$ 474,156.50**

Landscape Restoration and Enhancement Strategy - Area 5

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 4,000.00	$ 4,000.00
1.2	Sediment Control Fence		110	lm	$ 20.00	$ 2,200.00
1.3	Tree Preservation Fence		60	lm	$ 25.00	$ 1,500.00
1.4	Removal/Disposal of Existing Paving		650	m2	$ 20.00	$ 13,000.00
1.5	Removal/Disposal of Existing Structures/Fences		1	ls	$ 1,500.00	$ 1,500.00
1.6	Removal/Disposal of Ex. Gabion Revetments		50	lm	$ 25.00	$ 1,250.00
1.7	Clearing and Grubbing		500	m2	$ 10.00	$ 5,000.00
1.8	Flow Diversion		1	ls	$ 3,000.00	$ 3,000.00
				1.0 SITE PREPARATION Subtotal		**$ 31,450.00**
2.0	**WATERCOURSE RESTORATION**					
2.1	Fieldstone Boulder Revetment		110	lm	$ 65.00	$ 7,150.00
2.2	Grade Control Structure		2	ea.	$ 2,500.00	$ 5,000.00
				2.0 WATERCOURSE RESTORATION Subtotal		**$ 12,150.00**
3.0	**SITE GRADING**					
3.1	Rough Grading to Subgrade		650	m2	$ 8.00	$ 5,200.00
3.2	Supply and Install Topsoil (300 mm depth)		650	m2	$ 5.00	$ 3,250.00
3.3	Fine Grading		650	m2	$ 2.00	$ 1,300.00
				3.0 SITE GRADING Subtotal		**$ 9,750.00**
4.0	**PLANTING AND SEEDING**					
4.1	Deciduous Trees		190	ea.	$ 125.00	$ 23,750.00
4.2	Coniferous Trees		190	ea.	$ 75.00	$ 14,250.00
4.3	Shrubs		285	ea.	$ 6.00	$ 1,710.00
4.4	Seeding (Native Seed & Nurse Crop)		2500	m2	$ 4.00	$ 10,000.00
4.5	Fieldstone Boulder Planting		110	lm	$ 25.00	$ 2,750.00
				4.0 PLANTING AND SEEDING Subtotal		**$ 52,460.00**
5.0	**POST-CONSTRUCTION WORKS**					
5.1	Exclusion Fence		110	lm	$ 15.00	$ 1,650.00
5.2	Demobilization		1	ls	$ 1,000.00	$ 1,000.00
				5.0 POST-CONSTRUCTION WORKS Subtotal		**$ 2,650.00**
6.0	**SUMMARY**					
					Subtotal Items 1.0 - 5.0	**$ 108,460.00**
					15% Contingency	$ 16,269.00
					TOTAL Area 5	**$ 124,729.00**

Landscape Restoration and Enhancement Strategy - Area 6a

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 2,000.00	$ 2,000.00
1.2	Sediment Control Fence		100	lm	$ 20.00	$ 2,000.00
1.3	Tree Preservation Fence		60	lm	$ 25.00	$ 1,500.00
1.4	Invasive Species Removal (Herbicide)		800	m2	$ 3.00	$ 2,400.00
				1.0 SITE PREPARATION Subtotal		**$ 7,900.00**
2.0	**PLANTING AND SEEDING**					
2.1	Deciduous Trees		16	ea.	$ 125.00	$ 2,000.00
2.2	Coniferous Trees		16	ea.	$ 75.00	$ 1,200.00
2.3	Shrubs		100	ea.	$ 6.00	$ 600.00
2.4	Seeding (Native Seed & Nurse Crop)		800	m2	$ 4.00	$ 3,200.00
				2.0 PLANTING AND SEEDING Subtotal		**$ 7,000.00**
3.0	**POST-CONSTRUCTION WORKS**					
3.1	Exclusion Fence		90	lm	$ 15.00	$ 1,350.00
3.2	Demobilization		1	ls	$ 1,000.00	$ 1,000.00
				3.0 POST-CONSTRUCTION WORKS Subtotal		**$ 2,350.00**
4.0	**SUMMARY**					
					Subtotal Items 1.0 - 3.0	**$ 17,250.00**
					15% Contingency	$ 2,587.50
					TOTAL Area 6a	**$ 19,837.50**

Landscape Restoration and Enhancement Strategy - Area 6b

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 2,000.00	$ 2,000.00
1.2	Sediment Control Fence		190	lm	$ 20.00	$ 3,800.00
1.3	Tree Preservation Fence		100	lm	$ 25.00	$ 2,500.00
1.4	Invasive Species Removal (Herbicide)		1485	m2	$ 3.00	$ 4,455.00
					1.0 SITE PREPARATION Subtotal	**$ 12,755.00**
2.0	**PLANTING AND SEEDING**					
2.1	Deciduous Trees		30	ea.	$ 125.00	$ 3,750.00
2.2	Coniferous Trees		30	ea.	$ 75.00	$ 2,250.00
2.3	Shrubs		300	ea.	$ 6.00	$ 1,800.00
2.4	Seeding (Native Seed & Nurse Crop)		1485	m2	$ 4.00	$ 5,940.00
					2.0 PLANTING AND SEEDING Subtotal	**$ 13,740.00**
3.0	**POST-CONSTRUCTION WORKS**					
3.1	Exclusion Fence		180	lm	$ 15.00	$ 2,700.00
3.2	Demobilization		1	ls	$ 1,000.00	$ 1,000.00
					3.0 POST-CONSTRUCTION WORKS Subtotal	**$ 3,700.00**
4.0	**SUMMARY**					
					Subtotal Items 1.0 - 3.0	**$ 30,195.00**
					15% Contingency	$ 4,529.25
					TOTAL Area 6b	**$ 34,724.25**

Landscape Restoration and Enhancement Strategy - Area 6c

Item	Description	Size	Estimated Quantity	Unit	Unit Price	Subtotal
1.0	**SITE PREPARATION**					
1.1	Mobilization		1	ls	$ 2,000.00	$ 2,000.00
1.2	Sediment Control Fence		150	lm	$ 20.00	$ 3,000.00
1.3	Tree Preservation Fence		300	lm	$ 25.00	$ 7,500.00
1.4	Invasive Species Removal (Herbicide)		2960	m2	$ 3.00	$ 8,880.00
				1.0 SITE PREPARATION Subtotal		**$ 21,380.00**
2.0	**PLANTING AND SEEDING**					
2.1	Deciduous Trees		60	ea.	$ 125.00	$ 7,500.00
2.2	Coniferous Trees		60	ea.	$ 75.00	$ 4,500.00
2.3	Shrubs		600	ea.	$ 6.00	$ 3,600.00
2.4	Seeding (Native Seed & Nurse Crop)		2960	m2	$ 4.00	$ 11,840.00
				2.0 PLANTING AND SEEDING Subtotal		**$ 27,440.00**
3.0	**POST-CONSTRUCTION WORKS**					
3.1	Exclusion Fence		450	lm	$ 15.00	$ 6,750.00
3.2	Demobilization		1	ls	$ 1,000.00	$ 1,000.00
				3.0 POST-CONSTRUCTION WORKS Subtotal		**$ 7,750.00**
4.0	**SUMMARY**					
					Subtotal Items 1.0 - 3.0	**$ 56,570.00**
					15% Contingency	$ 8,485.50
					TOTAL Area 6c	**$ 65,055.50**

Summary of Estimate of Probable Cost

Restoration Area	TOTAL ESTIMATE
1a	$ 441,726.50
1b	$ 205,482.00
2	$ 96,398.75
3a	$ 321,080.00
3b	$ 67,792.50
4	$ 474,156.50
5	$ 124,729.00
6a	$ 19,837.50
6b	$ 34,724.25
6c	$ 65,055.50
TOTAL	$ 1,850,982.50

The unit costs noted above are based on current contractor rates for similar work completed within the GTA in 2023. It should be noted that the planting of trees and shrubs as well as some of the other proposed actions could be undertaken by volunteers. In addition, the total cost of implementing the restoration program could be reduced by combining restoration efforts within two or more areas to reduce mobilization and demobilization costs.

9.0 Implementation

The LRES is intended to be implemented in phases over a number of years. Initial efforts will be focussed on eradicating invasive vegetation and converting the Cultural Woodland within the Canadian National Temple site to a native woodland composition. Certain restoration actions will need to be sequenced with the timing for construction of the proposed National Centre, Canadian National Temple and the Welcome Centre. For example, the topsoil that will be required to be removed from the National Centre site will be re-used to augment the soil condition within Restoration Area 1.

The implementation of restoration activities within areas 4 and 5 will require permits from the TRCA which will influence the timing of these initiatives. The timing of some of the restoration works will be dictated by regulated species-specific timing windows as dictated by federal and provincial legislation.

10.0 Summary

The implementation of the LRES will afford significant benefits to the NHS within the 7015, 7200 and 7290 Leslie Street sites. The outcomes will include an increase in the extent and diversity of natural cover, protection of the GMMNH and expansion of meadow habitat, improved habitat connectivity and enhanced long-term sustainability of both the existing woodlands and the new woodland areas that will be created as a product of the implementation of the LRES.

The implementation of the LRES will achieve a substantial net gain in the size, quality, and ecological function of the Greenway System.

11.0 References

GEI Consultants Limited. Scoped Environmental Impact Study – Bahá'í National Centre and Temple, Markham, Ontario. January 2024.

Schollen & Company Inc. Tree Inventory and Assessment Report – Bahá'í National Centre and Temple, 7200 & 7290 Leslie Street, Markham, ON. January 2024