



City of Richmond

Report to Committee

To: General Purposes Committee

Date: March 27, 2020

From: Todd Gross
Director, Park Services

File: 06-2345-20-
GCIT1/Vol 01

Re: **Agricultural Land Commission Non-Farm Use Application by the City of Richmond for the Garden City Lands Community Farm and Conservation Bog Area at 5560 Garden City Road**

Staff Recommendation

That the Agricultural Land Commission Non-Farm Use Application by the City of Richmond for the Garden City Lands Community Farm and Conservation Bog Area at 5560 Garden City Road, be endorsed and forwarded to the Agricultural Land Commission for approval.

Todd Gross
Director, Parks Services
(604-247-4942)

Att. 10

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Engineering	<input checked="" type="checkbox"/>	
Community Bylaws	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Development Planning	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

The purpose of this report is to describe the scope of work for the continued improvement of the Garden City Lands proposed to be submitted for approval by the Agricultural Land Commission (ALC) and to receive a Council Resolution in support of the City's Application. If endorsed by Council, this ALC Non-Farm Use Application (Attachment 1) will be forwarded to the ALC for their consideration. If City Council does not endorse the Application, the Application will not proceed to the ALC for consideration.

This report was not brought forward for Council's consideration at the same time as the report titled "Agricultural Land Reserve Non-Farm Use Application by the City of Richmond to Host the Farm Fest at the Garden City Lands on August 8, 2020, located at 5560 Garden City Road," dated March 11, 2020, to the General Purposes Committee meeting on April 6, 2020, because the timeline to have the Farm Fest Application reviewed by the ALC is much more time sensitive than the Comprehensive Application for the entire site.

Findings of Fact

The City-owned Garden City Lands (the "Lands") are approximately 55.2 hectares (136.5 acres), located on the eastern edge of Richmond City Centre (Attachment 2). It is a unique site resulting from centuries of natural processes and human impacts. The Lands are designated a city-wide park because they are located in a high-density neighbourhood and are envisioned as an agriculturally productive space and bog conservation area. Several existing and planned greenway and pedestrian connections will also make the Lands a destination for many visitors.

The site is located within the Agricultural Land Reserve (ALR) and all activities on ALR land are overseen by the ALC. Therefore, all activities on the site are subject to the policies and regulations of the ALC. It is designated for "Agriculture" in the 2041 Official Community Plan (OCP), which permits primarily farming, food production and supporting activities. The City of Richmond is required to submit a "Non-Farm Use" Application to the ALC for a decision authorizing the City to implement the remaining portions of the plan to permit full public access to the site and construction of the park.

To date, the City of Richmond has submitted the following Applications to the ALC:

- 2016: ALC #55588 – Transportation, Utility, or Recreational Trail Uses within the ALR (for permission to build the perimeter trails);
- 2016: ALC #56243 – Dike Structure (to hydrologically separate the bog from the western agricultural portion of the site);
- 2017: ALC #56199 – Application to Place Soil (to create the farm leased to Kwantlen Polytechnic University (KPU));
- 2017: ALC #56243 – Non-Farm Use Application (Harvest Festival); and
- 2018 and 2019: ALC #57671 and #58812 – Non-Farm Use Application (Farm Fest).

The City of Richmond has received approvals for all these Applications.

City staff were advised by the ALC that it would be preferable to make a single Application under the “Non-Farm Use” category for the remaining improvements identified in the Garden City Lands Park Development Plan (Attachment 3). City staff have been in regular contact with the ALC regarding this recommended approach for a comprehensive Non-Farm Use Application.

Subject to Council’s endorsement, this Application will be forwarded to the ALC for review/approval. City staff expect to host a site visit by the South Coast Panel to the Lands as part of its application evaluation process.

Analysis

The City’s Application includes all the items identified in the Garden City Lands Legacy Landscape Plan and Garden City Lands Park Development Plan, that is, both Farm and Non-Farm Use related activities. In order to fully understand the entire vision for the Lands, all aspects of the project will be explained in the City’s Application to the ALC.

Non-Farm Use Related Activities (ALC approval required)

The Application will be divided into the following five main categories:

1. Site Access Features;
2. Site Infrastructure;
3. Agricultural and Food Production Related Elements;
4. Agriculture and Ecological Centre; and
5. Soil Use for the Placement of Fill Application

The Non-Farm Use related activities proposed for the Lands are summarized in Attachments 4 and 5.

1. Site Access Features

Internal Circulation System

Internal circulation will be primarily for pedestrian access. The two proposed types of paths are Paths and Farm Service Roads and Wooden Boardwalks.

All paths will be universally accessible. The paths will also direct visitors to minimize impacts on cultivated growing areas, landscape buffers and ecologically sensitive environments while permitting an opportunity to explore this large space.

Paths and Farm Service Roads

There will be two path and road types on the site and these will be located in the agricultural portion of the site, west of the dike as well as on the dike itself. The path types are public and Farm-Use and Farm-Use Only.

The Public and Farm-Use paths will provide site access throughout the site to both the public and City staff. Vehicular access will be restricted to farm and service vehicles only. These paths will be wider, multi-use in nature and carrying all forms of traffic. This is the predominant pathway type. These paths will be constructed with permeable materials, such as crushed stone material of several gradations as base material. A finishing layer of fine, crushed stone dust will be rolled and compacted to provide a smooth and accessible surface. Farm-Use Only paths will be located within and immediately around the farm fields. Public access will be restricted as the farm fields are areas of cultivation and open, therefore public access is not a compatible activity for safety and practical purposes. Surface treatment will likely be turf and/or woodchips.

Wooden Raised Boardwalks

Due to the ecologically sensitive nature of bog environments and the typically saturated water conditions (surface water will be present for most of the year), the best management practice for providing limited public access to bog sites is to build boardwalks. The boardwalk will be universally assessable and the only manner to walk through the bog, with non-slip surfacing and a low timber barrier curb along the edge.

Site Entry Nodes

At each of the four corners of the site, an entry node will be constructed to serve as formal access points to the Lands. Each entry will include wayfinding, interpretive and site identification signage, lighting, seating and native planting. The surface treatment will be a mix of materials including concrete pavers, natural stone and wood.

Pedestrian Level Lighting

A network of pedestrian level light poles is proposed along the perimeter recreational trail. Lighting will be installed in the narrow landscape buffer between the paths. The design will consider site usage patterns and any potential adverse environmental impacts. Any lighting system includes installing significant sub-grade infrastructure and connection points.

Seating and Trash Receptacles

Seating and trash receptacles are necessary to support the visitors' use and enjoyment of the Lands. They will be conveniently located for site users and maintenance, primarily along high traffic paths and junction points.

Interpretive and Wayfinding Signage

Interpretive signage will be installed throughout the site to assist park users to better understand the agricultural and ecological framework, the purpose of the Garden City Lands and explain the current aim of the Lands as a centre for conservation, ecology and active sustainable agriculture production.

Wayfinding signage will be located at key points throughout the site and will display site maps and directional signage pillars.

The Rise: Picnic Areas, The Meadows and Play Structure

Located in the northwest corner of the site, the Rise is a landform which provides a view over the entire site as it is the highest point of land on the site.

This area will also host a picnic area and children's play structure.

Public Art

Working with the Public Art Program, a series of agriculturally themed public art, inspired by the site and Richmond's rich agricultural history, is proposed for the site. The public art will enrich the park users' understanding and experience of the site by highlighting the hidden processes and beauty of the site similar to the art situated in Terra Nova Agricultural Park.

Lookout Tower

The Landscape Legacy Plan envisioned a tall structure at a central location to offer site visitors a broad, 360 degree view over the entire site. The potential location could be off of the central dike in the centre of the Lands on the farm side of the dike.

2. Site Infrastructure

Many site infrastructure elements have been already described above, but additional utilities are required to support the proposed program and structures.

Parking Lots

The Lands are expected to attract visitors from the immediate community and throughout Richmond and Metro Vancouver. While public transit and alternative forms of transportation are encouraged, a limited number of parking facilities are still required. All parking facilities on ALR land are required to have permeable surfacing although it is proposed any universal access stalls will be paved. Parking will be provided at the three following locations:

1. The Garden City Road parking lot will be constructed as part of the proposed Agriculture and Ecology Centre (the "Centre"). This parking lot is the largest of the three proposed and would likely host public events such as a weekly farmer's market. See applicable section below for more information.
2. The Alderbridge Way parking lot near May Drive. The proposed site is a previously compacted, disturbed site. It is located at the convergence of the Dike and the Perimeter Trails.
3. Parallel Layby parking stalls along No. 4 Road will be located between the existing curb and the perimeter trail. These series of stalls will provide parking spots in proximity to the bog.

Municipal Services/Utility Connections

Municipal services will be required to service the site. Currently, two water connections provide KPU's Farm School fields with water for irrigation. Based on the proposed site improvements, all typical municipal services and utility connections will be required. Sanitary service options are being explored.

Washrooms

Two locations for public washrooms are being contemplated: one is proposed to be a stand-alone structure located near the proposed May Drive parking lot, and the other is integrated within the proposed Agriculture and Ecology Centre. The design will emphasize durability, cost effectiveness, ease of maintenance and integration with the overall site design language.

EV Charging Stations

Charging stations for electric vehicles will be considered for installation at the parking lot attached to the proposed Agriculture and Ecology Centre.

Bridge Structure

One vehicle-rated bridge structure is being contemplated for the site. This farm service road will be crossing a proposed linear canal connected to the existing pond.

3. Agricultural and Food Production Related Elements

The area east of the dike is focused on bog conservation and ecosystem education. The area west of the dike is planned for intensive agricultural production, public education programs and passive recreational activities. Infrastructure such as drainage systems, water supply and a network of service roads and pathways will be installed to support proposed agricultural production.

Large Scale Public Events

Since 2017, the City has hosted an annual event on the Lands to celebrate Richmond's farming heritage and culture. ALC approval is required for each individual event. As part of this Non-Farm Use Application, the City will request approval to host an event on an on-going annual basis.

Farmers Market

Establishing a regularly scheduled weekly or bi-weekly farmers market will provide local and on-site producers opportunities to market their crops and engage with the community. KPU is expected to be a primary participant. Hosting farmers markets supports local farmers and positions the Lands as a hub for local farm production.

4. Agriculture and Ecology Centre

The Garden City Lands Landscape Legacy Plan proposes a Garden City Lands Agriculture and Ecology Centre (Attachment 6) as the programmatic and infrastructural hub of the entire project area. The building is envisioned to be sustainably-designed. Though envisioned to support the interpretation activities on the site, the Centre's primary function will be to support agricultural activities. Similar to a barn on a typical farm, the Centre is envisioned to be a landmark on the site. The all-weather, permanent structures will support the dual focused mission of the Lands as follows:

1. The current and proposed agricultural activities; and
2. The ecological interpretation and education of the site, namely sustainable agriculture and the bog.

Agricultural Support

As stated, the Lands have been established to cultivate and harvest food. Any intensive agricultural activity of the scale and diversity as is proposed will require a barn to support these activities. The barn will house farm vehicles (tractors), farm implements (seeders and plows) and supplies (seeds and tools). Additionally, the barn will have a tool and repair workshop, work areas, secured and unsecured/open storage areas, offices, walk-in refrigeration unit and a field crop washing and processing area. It will support both KPU's and other farmers' activities on the site.

Site Ecology and Interpretation

The Centre is envisioned to host an interpretative program to educate visitors about the site and the complex biological activities occurring on the bog. This would include signage and graphics inside and outside of the building, classrooms, offices and other education facilities to host visitor programs and educational events. Bog conservation groups and other non-profit societies could possibly operate out of this facility.

Size and Phasing

Preliminary plans call for the Centre to be built in two phases:

Phase 1: A barn structure and parking lot for approximately 64 parking stalls, outdoor circulation space, storage space, multi-use (flex) space and landscaping. The program would focus on a storage barn, crop processing areas, farmers market and public washrooms.

Phase 2: A building with offices, meeting rooms, classrooms and community kitchen. This phase would provide the City the capacity to facilitate the community outreach, public ecological and agricultural education, and site interpretive programs planned for the Lands.

Timing

The Centre will be built as funding sources are identified and secured. The type of building and anticipated uses envisioned may require a future rezoning application.

Base and Preload Material

Fill will be required for the construction of the Centre to raise the grade to meet minimum required flood construction level (FCL) flood elevations. This would include the amount required for preloading the site as well as the volume and quality of fill to support the building's foundation. Through the detailed design process, the required volume will be confirmed and dictated by the British Columbia Building Code and City building standards.

5. Soil Use for the Placement of Fill Application

Project Overview

The City will request the ALC's approval to deposit 9,570 cubic metres of soil at a number of locations on the site to build a parking area, preload and base material for a washroom, preload and base material for a Community Hub Centre and for pathways and trails.

Each specific project will utilize different types of soil including sand (preload), granular material, and sub-soil. Attachment 7 provides a soil deposit summary table identifying the location, type, volume and purpose of the soil proposed to be deposited on the property.

The estimated duration of the soil deposit undertaking for the Garden City Lands project is variable for each aspect of the project. The timing of preload deposition and length of time in which preloading for the structures and parking lot remains on the property will be dependent on a number of variables including a geotechnical engineer's assessment and direction, obtaining necessary building permits, and purchasing the sand from an appropriate vendor. The duration of time to complete the raised beds for the community gardens is heavily dependent on finding a suitable source(s). Despite the aforesaid, the duration of time required to complete the soil deposition aspect of the project is not expected to exceed two (2) years.

Agricultural Considerations

The City retained Bruce McTavish (MSc, MBA, PAg, RPBio) who has provided a soil sourcing protocol to be implemented when sourcing soil to be deposited on the property (Attachment 8). Mr. McTavish will be required to inspect and approve all source sites prior to soil being imported from said sites. When appropriate, the City will engage other Qualified Environmental Professional's (QEP) (for example, geotechnical and/or civil engineers) to manage the placement of other soils such as preloading or base material.

Should the proposal receive approval, Mr. McTavish will be retained to monitor the project and provide assistance regarding soil integrity, including confirmation that course fragment content meets acceptable standards. He will review soil documentation and any source sites to ensure that only approved soil is imported onto the property. This will include a review for invasive species.

Soil for the community gardens (i.e., planters) shall only be accepted from source sites that meet agricultural land standards and as per the protocol outlined in Attachment 8. Soil will be

primarily sourced from sites located in Richmond. Staff are working with the development industry to utilize currently farmed soil for placement on the Lands.

Preload (i.e., sand) and granular material will be sourced and purchased from a reputable licenced supplier(s).

The City will oversee this project subject to the same requirements as any other applicant.

Drainage & Geotechnical Considerations

Based on previous and recent geotechnical assessments (Attachment 9) for the proposed fill volume, no impact to the City's utilities or any neighbouring properties is expected.

Based on recent drainage modelling for the proposed fill volume, no impact to the City's drainage system is expected.

Environmental Considerations

There are no Environmentally Sensitive Areas or Riparian Management Areas designated within the property. In addition, there will be no impacts to trees.

Erosion and sediment control measures are to be installed and inspected by a qualified professional prior to soil deposit operations commencing. City staff will also inspect to ensure compliance prior to the importation of any soil.

A soil deposit permit triggers the *Environmental Management Act's* site profile system. Prior to soil permit issuance, the applicant will be providing a completed Ministry of Environment and Climate Change Strategy Site Profile (the "Profile") for forwarding to the province. The Profile outlines previous uses for the Property and the potential for contamination due to previous use. Staff are currently working to complete the Profile. No permit will be issued until such time as the applicant has met the aforesaid requirement.

Road and Traffic Considerations

Transportation staff have reviewed the proposal. A Traffic Management Plan will be required to be submitted and reviewed by City staff prior to a permit being issued to ensure site traffic is properly managed and public safety is addressed.

Security Bonds

The following security bonds are typically collected prior to permit issuance:

- \$5,000 pursuant to s. 8(d) of the current *Boulevard and Roadway Protection Regulation Bylaw No. 6366* to ensure that roadways and drainage systems are kept free and clear of materials, debris, dirt, or mud resulting from the soil deposit activity; and

- \$10,000 pursuant to s. 4.2.1 of the current *Soil Removal and Fill Deposit Regulation Bylaw No. 8094* to ensure full and proper compliance with the provisions of this Bylaw and all other terms and conditions of the permit.

As this is a City project, the bonds may not be collected; however, internal agreements will be in place in order to ensure any costs incurred such as road cleaning, damage to infrastructure, etc. will be covered by the Parks Services.

As a condition of any approval, a performance bond may be required by the ALC in a form and amount deemed acceptable by the ALC. The ALC performance bond is collected to ensure that all ALC approval requirements are satisfied and to ensure the rehabilitation of the property in the event the project is not completed. The performance bond would be held by the ALC.

Financial Costs and Considerations for the Applicant

The City will purchase materials from reputable suppliers under the guidance of the qualified professional. Should material be identified which could be deposited onto the Lands as a source of revenue, fees charged would be per the City's Consolidated Fees Bylaw No. 8636 and the Garden City Lands Soils Deposits Fees Bylaw No. 9900.

Staff Comments

Similar to any other development requiring soil on ALR land, City staff will prepare a comprehensive permit that addresses a number of key issues, including but not limited to, source site inspection and on-site monitoring and reporting requirements to be undertaken by the QEP, public safety, drainage, eliminating impacts to neighbouring properties and City infrastructure.

No soil will be permitted to be imported and deposited until such time as all City and ALC requirements have been satisfied and a permit has been issued by the City's Community Bylaws department.

The permit holder will be required to maintain an accurate daily log of trucks depositing soil on the site. At the sole discretion of the City, alternate measures may be required (i.e., survey, etc) in order to determine the volume of soil deposited on the properties.

As a condition of the permit, staff will require that the project be monitored by a QEP and that they provide the City inspection reports every 3,000 cubic metres unless determined otherwise by the ALC or upon request by City staff. Regular reporting will include that the QEP inspect the soil at the source site(s) and provide a written assessment report prior to delivery to ensure that only the appropriate soil is delivered to the site.

Permit conditions will provide staff the latitude to request a geotechnical report at any time should the Manager of Community Bylaws or designate consider it necessary. Staff will require a closure report from the geotechnical engineer following completion of the project.

In addition to the expected City and ALC reporting requirements of the QEP, City staff will maintain proactive inspection that will include the following:

- multiple site inspections per week of the property at the onset of the project to ensure conditions of the permit are being maintained;
- weekly site assessments to continue to be undertaken when soil importation is underway to ensure the permit conditions are respected;
- maintain communications with the QEP and the project coordinator on a regular basis during soil importation;
- review the QEP's reports to ensure conditions of the permit are being satisfied; and
- advise the ALC of any concerns relative to the project and request that ALC staff undertake inspections to ensure compliance with the ALC approval conditions.

Farm Related Activities (No ALC Approval Required)

A description of existing and proposed agriculture activities are provided for information only. These activities do not require ALC approval to proceed and are included in the City's Non-Farm Use Application to provide the ALC the overall vision for the Garden City Lands.

Soil Management

Existing and imported soils will be amended with amendments such as composts, manures and the incorporation of cover crops.

KPU Sustainable Agriculture Farm School Fields

The KPU Sustainable Agriculture and Food Systems Program are currently cultivating approximately six acres of the 20 acre (8 ha) total area they have committed to farming. Under the terms of the License to Use Agreement KPU signed with the City, the City is responsible to provide the fill and infrastructure to facilitate farming on the site, including water connections and drainage infrastructure. In return, KPU will farm the site following sustainable farming best management practices for a 20-year term, supporting the City in public outreach and education efforts and providing a Farm Management Plan for all agriculture activities on the site (area west of the Dike).

Farm Management Plan

The KPU Sustainable Agriculture and Food Systems Program has provided the City a Farm Management Plan outlining the overall management of the site according to sustainable and organic farming practices. Principles of agro-ecology, conservation focused soil management techniques as well as sustainable farming practices will be occurring on this site.

Ponds and Ditches

The Garden City Lands Park Development Plan identifies two larger ponds and a linear canal to be excavated on the Lands for the purposes of providing potential source of irrigation water for field crops. The limited capacity and recharge during the summer has been considered by staff;

options for increase storage capacity will be explored. Additionally, a network of ditches and sub-grade drainage systems will be installed to manage on-site surface water as is widely practiced throughout Richmond due to the area's high water table and soil properties.

Community Farm Fields

The area of the western half of the Lands surrounding the Centre and extending south to Westminster Highway are envisioned to host a number of agriculturally productive uses including community gardens and farms. These farm fields will be subject to the KPU produced Farm Management Plan and overseen by the City. It is envisioned farmers working on these sites will be signing leases with the City while cultivating their designated plots. Prior to any agricultural activities are allowed to proceed, this area will be extensively studied to delineate and characterize the areas of contamination. If the placement of soil is required to support active farming, this will be the subject of a separate Application to the ALC.

Community and Allotment Gardens

Current plans call for approximately 100 standard community garden plots. Establishment of these plots can be achieved in a relatively short time once the appropriate volume and quality of fill is provided. Minimal infrastructure is required and water services are already in place. The Gardens will be overseen by the Richmond Food Security Society.

Larger plots or allotment gardens maybe considered on the Lands. Currently there are no larger plot community gardens in the City but the site could support plots which could provide a significant source of food for individuals and families.

Incubator Farms

Graduates from the KPU Sustainable Agriculture and Food Systems Program currently have an opportunity to access plots of land for a two-year term at another location in the City. The 'incubator farm' plots provide recent graduates opportunities to develop the skills acquired thru their formal education. Sites on the Lands would provide novice farmers on-going mentorship from the KPU Sustainable Agriculture and Food Systems Program and have access to shared resources such as tools, farm equipment, implements and professional advice. These sites are proposed for the southwest portion of the site.

Intensive Market Gardens

Staff are contemplating the possibility of activating quarter to one-acre farm plots for intensive farm production by local farmers. These plots would be leased from the City for a possible five to 10-year period after a vetting and evaluation process. Utilizing small plot intensive (SPIN) farming practices, these plots would be farmed organically and grow high-market value crops for local consumption and sale.

Additional Agriculture Uses

Apiaries or designated areas hosting domestic bee hives are under consideration. As the site's development evolves, staff will look at future possibilities to host appropriate small livestock as

a demonstration of urban farming best management practices. Livestock which could be considered for the Lands include limited and manageable numbers of pigs, goats and chickens.

Perennial fruit tree and berry production will occur at several locations throughout the Lands including the KPU Farm, the Rise and south of the Centre. These fruit tree orchards and berry patches would be managed by professional farmers or horticulturalists according to organic farming practices. They would be programed as opportunities for public outreach and education; for example, annual pruning workshops for home and community gardeners could be held on site.

Consultation

The Food Security and Agricultural Advisory Committee (FSAAC) reviewed the proposal on February 20, 2020, and passed the following motion (Attachment 10):

That the Food Security and Agricultural Advisory Committee support the Garden City Lands Non-Farm Use Application (AG 18-837641) as presented.

Financial Impact

None.

Conclusion

Throughout the planning and design process, Council and the public have expressed their support for this unique site in the City Centre area. As a result of the comprehensive planning and design that has occurred in the last five years, there is broad public interest and support to use the Garden City Lands for both agriculture and recreation.

Without ALC approval, the Garden City Lands project cannot be fully implemented as envisioned by the Garden City Lands Legacy Landscape Plan including public access throughout the entire site.

With Council's endorsement, staff will be authorized to submit an Application to the ALC for approval of the remaining scope of work. A successful Application will bring to reality the City's vision as set out in the Garden City Lands Park Development Plan.



Alex Kurnicki
Research Planner II
(604-276-4099)

- Att. 1: Provincial Agricultural Land Commission Applicant Submission #58154
2: AG 18-837641 Garden City Lands Non-Farm Use Application Subject Property
3: Garden City Lands Park Development Plan

- 4: Garden City Lands ALC Non-Farm Use Application #58154 Approvals Matrix
- 5: Approvals Matrix Support Maps
- 6: Garden City Lands Community Hub and Farm Centre Feasibility Study
- 7: Garden City Lands Proposed Fill Volumes
- 8: McTavish Source Soil Management Protocol
- 9: Garden City Lands Hydrotechnical Modelling & Geotechnical Assessment Application
- 10: Food Security and Agricultural Advisory Committee Meeting Minutes Excerpt
(February 20, 2020)



Provincial Agricultural Land Commission - Applicant Submission

Application ID: 58154

Application Status: N/A

Applicant: The City of Richmond

Local Government: City of Richmond

Local Government Date of Receipt: This application has not been submitted to local government yet.

ALC Date of Receipt: This application has not been submitted to ALC yet.

Proposal Type: Non-Farm Use

Proposal: The purpose of this proposal is to gain approval from the ALC to permit public access onto the site, facilitate farming, protect the existing bog ecosystem, host support programs and events that showcase agriculture and bog conservation and implement the City's plans for the Garden City Lands as described in this Application.

The Garden City Lands is a 55 ha (136.5 acre) site in Richmond's City Centre area. It is zoned AG1-Agriculture. The City's vision is to create a publicly accessible Community Farm and Bog Conservation Area. The Lands would be hosting a mix of farm and non-farm use related activities throughout the site.

This Application summarizes all the activities proposed for the Garden City Lands. The proposal requests approval to:

- permit public access along designated trails throughout the site;
- build a Community Hub and Farm Centre (to host public education programs for bog conservation and sustainable farming practices);
- construct two community gardens (minimum 50 plots each);
- to place up to approximately 8,000 cubic meters of material (see attached table) ;
- build public washrooms;
- install wayfinding and interpretive signage;
- build parking lots;
- install public art;
- install site furniture;
- build boardwalks and trails;
- build service and access roads;
- build a playground; and,
- host regular Farmers Markets and one annual large scale public event celebrating the site (with more than 150 visitors per event).

The specific requests are quantified and summarized in the attached Approvals Matrix, Fill Material Summary Table and accompanying maps.

The Lands are roughly divided in half, along the curved north/south dike structure running down the middle of site. The purpose of this dike is to hydrologically isolate the sensitive bog area from the farmed portion of the site. Restricted public access to the eastern half will be along a limited number of boardwalks due to the bogs sensitive ecology. This portion of the site will focus on bog conservation and public education. The bog conservation area is approximately 30 ha.

The primary focus of the site west of the dike structure is sustainably managed agriculture. Any programming for public access will be oriented around and will not impede agricultural activities. This portion of the site will include:

- orchards;

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Applicant: The City of Richmond

community gardens;
a barn;
field production areas;
publicly accessible trails;
a bog and farm education centre;
a parking lot; and,
farm services roads and other recreational site features.

Farming activities will be conducted according to the attached Agricultural Management Plan. As per that Plan, public access will be restricted to paths outside of the farm plots and to service roads. In short, the public will not be permitted to walk in the fields under cultivation. The area outlined in the above program is approximately 20 ha.

The remaining 5 ha of the site are comprised of the perimeter path and associated agricultural buffer, the raised portion of the site at the northwest corner of the site along Alderbridge Way and other site areas such as the pond along Garden City Road between Lansdowne and Alderbridge Way. Proposed site improvements include:

pedestrian level pathway lighting;
entry nodes with seating and permeable paving;
a parking lot along Alderbridge; and,
an agriculturally-inspired playground on The Rise.

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V7C 5B2
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Mobile Phone: (778) 554-7839

Email: akurnicki@richmond.ca

Parcel Information

Parcel(s) Under Application

1. **Ownership Type:** Fee Simple

Parcel Identifier: 024-741-418

Legal Description: SECTION 3 BLOCK 4 NORTH RANGE 6 WEST NEW WESTMINSTER DISTRICT EXCEPT: FIRSTLY: PLAN WITH FEE 5758F, SECONDLY: PLAN WITH FEE 5759F THIRDLY: PART SUBDIVIDED BY PLAN 24067 FOURTHLY: PARCEL D (BYLAW PLAN 50488) FIFTHLY: PART DEDICATED ROAD ON PLAN LMP43167 SIXTHLY: 1.84 ACRES FILING 16918 SEVENTHLY: PARCEL F (BYLAW PLAN LMP24326) EIGHTHLY: PARCEL C (BYLAW PLAN 73626)

Parcel Area: 55.2 ha

Civic Address: 5555 No. 4 Rd, Richmond BC

Date of Purchase: 04/13/2010

Farm Classification: No

Owners

1. **Name:** The City of Richmond

Address:

6911 No.3 Road
Richmond, BC
V6Y 2C1
Canada

Phone: (604) 276-4099
Email: akurnicki@richmond.ca

2. **Ownership Type:** Fee Simple
Parcel Identifier: 009-299-564
Legal Description: L 1 SEC 3 BK 4 NORTH R 6 W NEW WESTMINSTER DISTRICT PL 24067
Parcel Area: 3.2 ha
Civic Address: 5040 Garden City Road, Richmond BC
Date of Purchase: 12/23/1987
Farm Classification: No
Owners
1. **Name:** The City of Richmond
Address:
6911 No.3 Road
Richmond, BC
V6Y 2C1
Canada
Phone: (604) 276-4099
Email: akurnicki@richmond.ca
-

3. **Ownership Type:** Fee Simple
Parcel Identifier: 003-682-285
Legal Description: PCL D (BYLAW PL 50488) SEC 3 BK 4 N R 6 W
Parcel Area: 0.9 ha
Civic Address: 9111 Westminster Hwy, Richmond BC
Date of Purchase: 01/19/1979
Farm Classification: No
Owners
1. **Name:** The City of Richmond
Address:
6911 No.3 Road
Richmond, AB
V6Y 2C1
Canada
Phone: (604) 276-4099
Email: akurnicki@richmond.ca
-

Current Use of Parcels Under Application

1. Quantify and describe in detail all agriculture that currently takes place on the parcel(s).

The City of Richmond established a 2.6ha farm area in 2017 which is currently under intensive cultivation by the Kwantlen Polytechnic University (KPU) Sustainable Agriculture Farm Program. KPU has signed a 20 year lease with the City to farm a total of 8ha of the Garden City Lands. Following sustainable agricultural principles and practices, KPU is pursuing organic certification for this 2.6ha teaching farm for the students enrolled in the four year applied science degree. Crops currently under production include a wide range of vegetables typically found in local farmers market stalls throughout the growing season in the Lower Mainland. A substantial portion of the fields are currently under cover crop.

2. Quantify and describe in detail all agricultural improvements made to the parcel(s).

The City of Richmond deposited soil under Non-Farm Use Application 56199 to establish the first phase

of the farm area currently leased to KPU (see above). Prior to KPU commencing agricultural production, field drainage was installed. Additionally, the soil was extensively amended with organic matter, manures and cover crops. Service connections to the City's water system were made and an irrigation system installed. The fields are being actively cultivated by KPU's program. KPU has built a geodesic dome greenhouse structure and rolling high tunnels.

3. Quantify and describe all non-agricultural uses that currently take place on the parcel(s).

As per Non-Farm Use Application 55588, the perimeter recreational trails have been established and are currently open to the public for active use. While the City has not studied usage rates, we are aware that local residents regularly walk, run and ride bikes along the perimeter path. Signage has been installed to inform site users of restricted access beyond the perimeter trail, that is, to points within the site.

The City has submitted two Non-Farm Use Applications to host one-time public events on the site. As per Application 56243, the Richmond Harvest Fest occurred on the site in October, 2017. This event hosted nearly 5,000 visitors, nine market vendors and 12 community partners including BC Dairy, Poultry in Motion, Richmond Farm Watch, Richmond Food Security Society and the Young Agrarians.

The Farm Fest at Garden City Lands has been held over the last two years. For each event, there were over 5,000 visitors attending the events with over 30 Farmers Market and Food Vendors (including Cherry Lane Farms and Easterbrook Farms) and community partners (in addition to the aforementioned) BC Association of Farmers Markets, Steveston Farmers Market Association, Richmond Beekeepers Association and the BC Farm Museum Association. Easterbrook Farms brought live chickens and KPU hosted plowing and other farm equipment demonstrations and a chicken coop display.

For many attendees, it was their first time visiting the Garden City Lands and also their first time being exposed to farming operations and farming equipment. The event improved the level of public awareness and appreciation for the Garden City Lands as a new community farm and bog conservation area in the City Centre. Though these two events were temporary in nature, strong public interest in both demonstrates the value of the community and the site's current programming and future capacity to host more regular farm related and non-farm use activities.

Adjacent Land Uses

North

Land Use Type: Residential

Specify Activity: Multi-Family Residential

East

Land Use Type: Other

Specify Activity: Federal Government (DND)

South

Land Use Type: Residential

Specify Activity: Multi-Family Residential

West

Land Use Type: Residential

Specify Activity: Multi-Family Residential

Proposal

GP – 102

Applicant: The City of Richmond

1. How many hectares are proposed for non-farm use?

47 ha

2. What is the purpose of the proposal?

The purpose of this proposal is to gain approval from the ALC to permit public access onto the site, facilitate farming, protect the existing bog ecosystem, host support programs and events that showcase agriculture and bog conservation and implement the City's plans for the Garden City Lands as described in this Application.

The Garden City Lands is a 55 ha (136.5 acre) site in Richmond's City Centre area. It is zoned AG1-Agriculture. The City's vision is to create a publicly accessible Community Farm and Bog Conservation Area. The Lands would be hosting a mix of farm and non-farm use related activities throughout the site.

This Application summarizes all the activities proposed for the Garden City Lands. The proposal requests approval to:

permit public access along designated trails throughout the site;
build a Community Hub and Farm Centre (to host public education programs for bog conservation and sustainable farming practices);
construct two community gardens (minimum 50 plots each);
to place up to approximately 8,000 cubic meters of material (see attached table) ;
build public washrooms;
install wayfinding and interpretive signage;
build parking lots;
install public art;
install site furniture;
build boardwalks and trails;
build service and access roads;
build a playground; and,
host regular Farmers Markets and one annual large scale public event celebrating the site (with more than 150 visitors per event).

The specific requests are quantified and summarized in the attached Approvals Matrix, Fill Material Summary Table and accompanying maps.

The Lands are roughly divided in half, along the curved north/south dike structure running down the middle of site. The purpose of this dike is to hydrologically isolate the sensitive bog area from the farmed portion of the site. Restricted public access to the eastern half will be along a limited number of boardwalks due to the bogs sensitive ecology. This portion of the site will focus on bog conservation and public education. The bog conservation area is approximately 30 ha.

The primary focus of the site west of the dike structure is sustainably managed agriculture. Any programming for public access will be oriented around and will not impede agricultural activities. This portion of the site will include:

orchards;
community gardens;
a barn;
field production areas;
publicly accessible trails;
a bog and farm education centre;
a parking lot; and,
farm services roads and other recreational site features.

Farming activities will be conducted according to the attached Agricultural Management Plan. As per that Plan, public access will be restricted to paths outside of the farm plots and to service roads. In short, the public will not be permitted to walk in the fields under cultivation. The area outlined in the above program is approximately 20 ha.

The remaining 5 ha of the site are comprised of the perimeter path and associated agricultural buffer, the raised portion of the site at the northwest corner of the site along Alderbridge Way and other site areas such as the pond along Garden City Road between Lansdowne and Alderbridge Way. Proposed site improvements include:

*pedestrian level pathway lighting;
entry nodes with seating and permeable paving;
a parking lot along Alderbridge; and,
an agriculturally-inspired playground on The Rise.*

3. Could this proposal be accommodated on lands outside of the ALR? Please justify why the proposal cannot be carried out on lands outside the ALR.

The Garden City Lands is fundamentally unique. It is a large area of publicly owned agricultural land within the ALR located in Richmonds City Centre. It is also a remnant of the Greater Lulu Island Bog. That combination of characteristics and context exists nowhere else in the City. This means that the combination of uses suitable for the land, and the synergies between them, are also unique.

The plan for the Garden City Lands is based on the Garden City Lands Legacy Landscape Plans four land-use framework with associated outcomes that incorporate the essential characteristics of the Lands and its context.

1. Urban Agriculture. Since the Lands are in the ALR, the intent is to demonstrate that agriculture can be successfully integrated into the urban and ecological fabric of the City. The Plan proposes cultivation of up to 20 acres of lands with a focus on smaller, intensively farmed plots along with demonstration plots and community gardens. The intended outcome would be a showcase for innovative and sustainable agricultural practices with community benefits within a public site.

2. Natural Environment. The Lands includes the edge of the former Greater Lulu Island Bog. Along with the quarter sections to the east, the DND lands and the Richmond Nature Park, it is a significant part of Richmonds ecological network and has been designated in the Official Community Plan (OCP) for conservation. It has been and is being managed differently than those other properties and as a result, the bog ecosystem is different. The outcome of this ecological management approach to the bog portion of the Lands is a highly valued, biologically diverse and resilient natural environment. The bog is vital to the Citys overall Ecological Network and community health.

3. Community Wellness and Active Living. The Lands are located in Richmonds City Centre with a population of over 33,000 residents in the adjacent quarter sections. With the City Centre population projected to double over the next 20 years, the value of this unique site to the community will increase. By providing public access to the Lands, an accessible, safe and appealing public open space will be provided to the Citys residents. Access will promote healthy lifestyles and community cohesiveness through social, environmental, agricultural and recreation amenities and programs.

4. Cultural Landscape and Place Making. The site is already a landmark in the City due to its size and proximity to the City Centre. Adding a layer of understanding to the site through the addition of educational signage, public art, site-inspired design of furniture and opportunities to explore historical and ecological features will enrich the visitors experience of the Lands. The intended outcome is the creation of a rich and vibrant place with a distinct identity that reflects and highlights the unique characteristics of the site. By creating a rich cultural experience, fond memories, community pride and a deep appreciation of the agricultural and ecological values of the Lands will be generated.

While each of these land uses exist elsewhere in the Citys parks and open space system, there is nowhere else where they intersect, creating a space for building awareness of agriculture and ecology and the relationship between them and offering direct experiences to people living in dense, urban neighbourhoods.

4. Does the proposal support agriculture in the short or long term? Please explain.

Many of the elements proposed in this application will support agriculture in both the short and long term.

In the short term (the next five to ten years) improvements to the 11ha in the southwest quadrant of the site (eg. potential future soil placement, amendment, drainage and irrigation) and the development of the Community Hub, especially the barn, will enable agricultural production and agricultural related community outreach programs so that the Garden City Lands can become a showcase for urban agriculture. The Farm Management Plan, attached to this application, describes how the site will be managed with the expectation there will be multiple farmers who share farm-related and support facilities and equipment (eg. farm implements, tractors, food processing and agricultural equipment). This model will be especially suitable for incubator farms which support new or novice farmers. The Farm Management Plan also provides a framework for oversight of activities and participants actively farming on the site. Standards for organic farming practices, certification, use of chemicals, governance structure and guidelines for planting of hedgerows and crops are provided in the Plan.

The City has corresponded with potential partners who would like to farm on the Lands. The Richmond Food Security Society and the Young Agrarians have approached the City to request access to areas designated for agricultural production on the site.

The City of Richmond has committed to the long term protection of a large parcel (the Garden City Lands) of land located in the ALR. The property has been designated as a Conservation Area in the City's Official Community Plan in recognition of the ALR legislation. The designation defines the types of allowable uses as recreational, park, agricultural and food production purposes. The Council endorsed Legacy Landscape Plan has established a vision for the Lands that is consistent with the Official Community Plan with agriculture and food production as a key land-use and programming focus. Kwantlen Polytechnic University (KPU) is a key stakeholder on the site with a 20 year, renewable lease on the 8 ha farm on the site. The City of Richmond sees the relationship KPU has with the local farming community as a key success factor in making the Garden City Lands a relevant outreach opportunity and resource for the local farming community.

To date, the City of Richmond has been working closely with ALC staff on the planning and implementation of this project. City staff have met with ALC staff several times to review the scope of this comprehensive application. City staff are also in regular contact with ALC staff having set up a standing monthly conference call to provide project updates, consider upcoming issues and respond to any questions or concerns as they arise. The City of Richmond is confident that this effective cooperation and communication will ensure the ultimate success of this project and will ensure the City's vision for the Lands adheres to the ALC's primary mandate of protecting agricultural land.

The City of Richmond strongly believes the Garden City Lands project, if approved for implementation by the ALC, will support the Commission's purpose and mandate to protect farm land in British Columbia.

5. Do you need to import any fill to construct or conduct the proposed Non-farm use?

Yes

Proposal dimensions

Total fill placement area (to one decimal place) 2.4 ha

Maximum depth of material to be placed as fill 1 m

Volume of material to be placed as fill 9570 m³

Estimated duration of the project. 5 Years

Describe the type and amount of fill proposed to be placed.

The attached fill summary table provides an overview of the location, type, quantity and purpose of the proposed fill. For preloading material the quantity, extent and duration will be determined by a qualified geotechnical professional prior to placement. All preload material will be removed from the site prior to

GP - 105

Applicant: The City of Richmond

construction although this material may be re-used on site per the proposed uses outlined below.

Community Gardens: The Garden City Lands is a remnant bog with the underlying material comprised of predominantly peat based soils. Past practices on the site have resulted in contaminated existing soils. As per the recommendations of the Human Health and Ecological Risk Assessment (May, 2019) prepared for the City by Hemmera, approximately 1m of clean soil is recommended to be placed a capping material in order to facilitate agricultural activity on the site. The City will also be exploring an alternative approach whereby self-contained raised beds will be provided. All soils will be suitable for agricultural activities and meeting applicable BC Contaminated Sites Regulation (BC CSR) standards (see below for more information).

Alderbridge Parking Lot: This area was previously disturbed with granular material already in place resulting from historical activities. Existing grades closely match the road grades on Alderbridge. Permeable, granular material will need to be imported to create a level gravel parking lot. After construction, the area will be landscaped with native trees, shrubs and groundcovers.

Corner Entry Points: The site is a square quarter section of land. Corner entry points are proposed to connect the existing perimeter pedestrian trails to the adjacent roadway and sidewalks. Each entry node will include seating, signage, planting, a combination of permeable surface treatments (concrete pavers, gravel and wood boardwalk) connecting to the perimeter paths. The volume of fill varies depending on each location. Fill is required to provide a level grade transition into the site which meets universally accessible design standards.

Trails: The ALC has previously approved the construction of perimeter trails and the dike structure bisecting the site (see attached Park Development Plan). The trails will be constructed in a similar manner. The material is constructed with a 350mm (minimum) deep base course of 200mm minus crushed rock placed over geotextile and geogrid on top of the peat base material. The next course is 150mm deep, 19mm minus granular road base followed by a 100mm deep top course of 9mm minus crushed screenings. All material to be compacted prior to placement of the next layer of material.

Washroom: Compacted granular material to provide a stable base for this permanent washroom structure. Walking surfaces around the building will be constructed per trail standards (see above). Prior to construction, the temporary placement of preload material will be required. The washroom is likely to be connected to an on-site septic system.

Community Hub and Farm Centre: Compacted granular material to provide a stable base for these permanent structures as well as permeable surfaces for connecting pathways, gathering spaces and the parking lot. The material required for the parking lot area will match the grades of adjacent roadways. The existing grades need to be raised to meet City standards for flood elevation grades. Prior to construction, the temporary placement of preload material will be required.

All soil placement activities will be conducted in accordance with the City of Richmonds Soil Removal and Fill Deposit Regulation Bylaw #8094 and will be overseen by qualified professionals (eg. Professional Agrologists, McTavish Resource Management Consultants).

Briefly describe the origin and quality of fill.

Wherever possible, the soil material will be sourced from sites located in the City of Richmond. Specific origin sites have not yet been determined at this time.

The pre-load material is typically sand similar to the type utilized as pre-load material on development projects sites.

Granular material will be similar to that which was placed for the perimeter recreational trails per ALC Application #55588.

The soil to be placed on the Lands will meet good to fair criteria. It will be free of stone, void of concrete, asphalt or other contaminants and be of course to medium texture with particle sizes less than 25mm minus. Sub-soil is defined as fill material to raise the grade of the community garden and will have a high mineral content. This material will originate from a source site meeting BC Contaminated Sites Regulation (BC CSR) standards for agricultural land as well as the soil specification for the project. This

soil will be sourced from a site where the sub-soil horizon is moved to the Garden City Lands for placement.

The top soil will be amended as necessary to improve fertility and organic matter content with the addition of organic matter in the form of decomposed peat, compost and/or manure. Cover cropping will be encouraged to take place by the community gardeners. It is expected that these soil improvements will upgrade the agricultural capability of the soil to a consistently good soil class.

Applicant Attachments

- Other correspondence or file information - Approval Matrix Support Maps
- Other correspondence or file information - Proposed Fill Summary Table
- Other correspondence or file information - Approval Matrix
- Other correspondence or file information - GCL Fill Summary Table
- Other correspondence or file information - Community Hub and Farm Centre Building Study
- Other correspondence or file information - Farm Management Plan
- Other correspondence or file information - Soil Specification and Management
- Other correspondence or file information - McTavish Source Soil Management Protocol
- Proposal Sketch - 58154
- Certificate of Title - 024-741-418
- Certificate of Title - 009-299-564
- Certificate of Title - 003-682-285

ALC Attachments

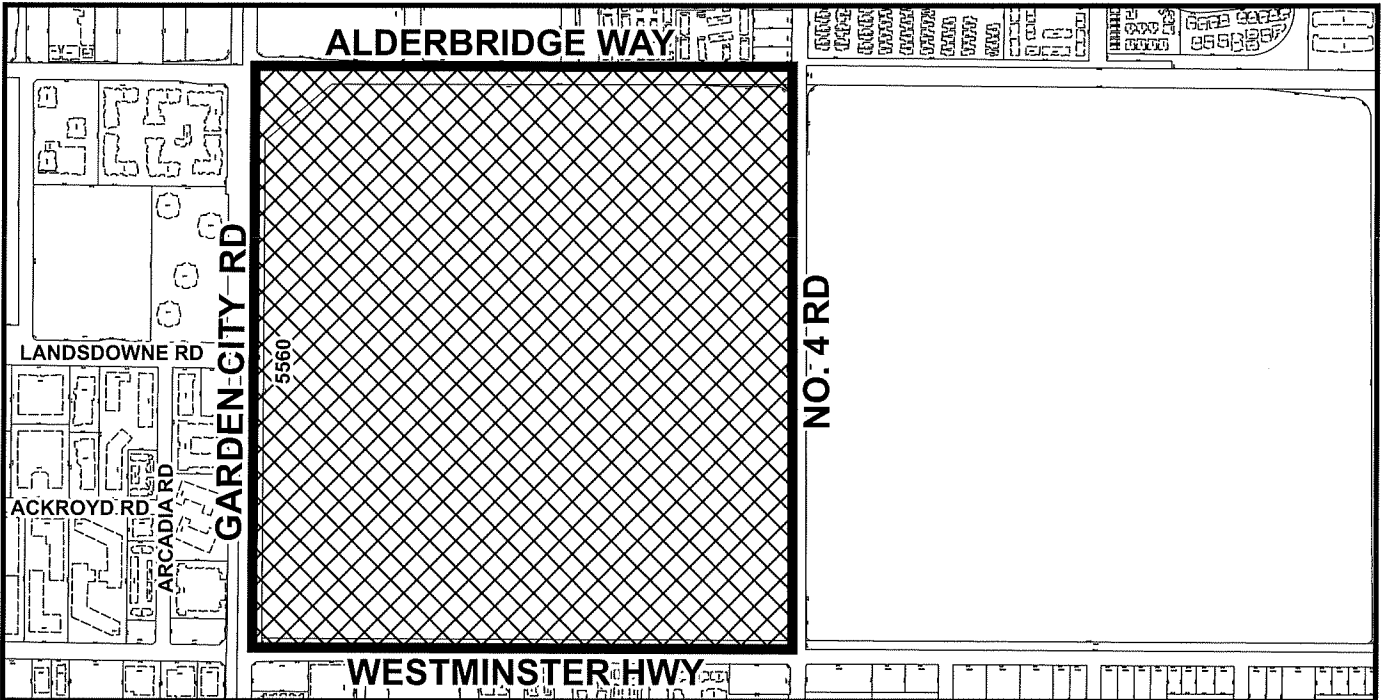
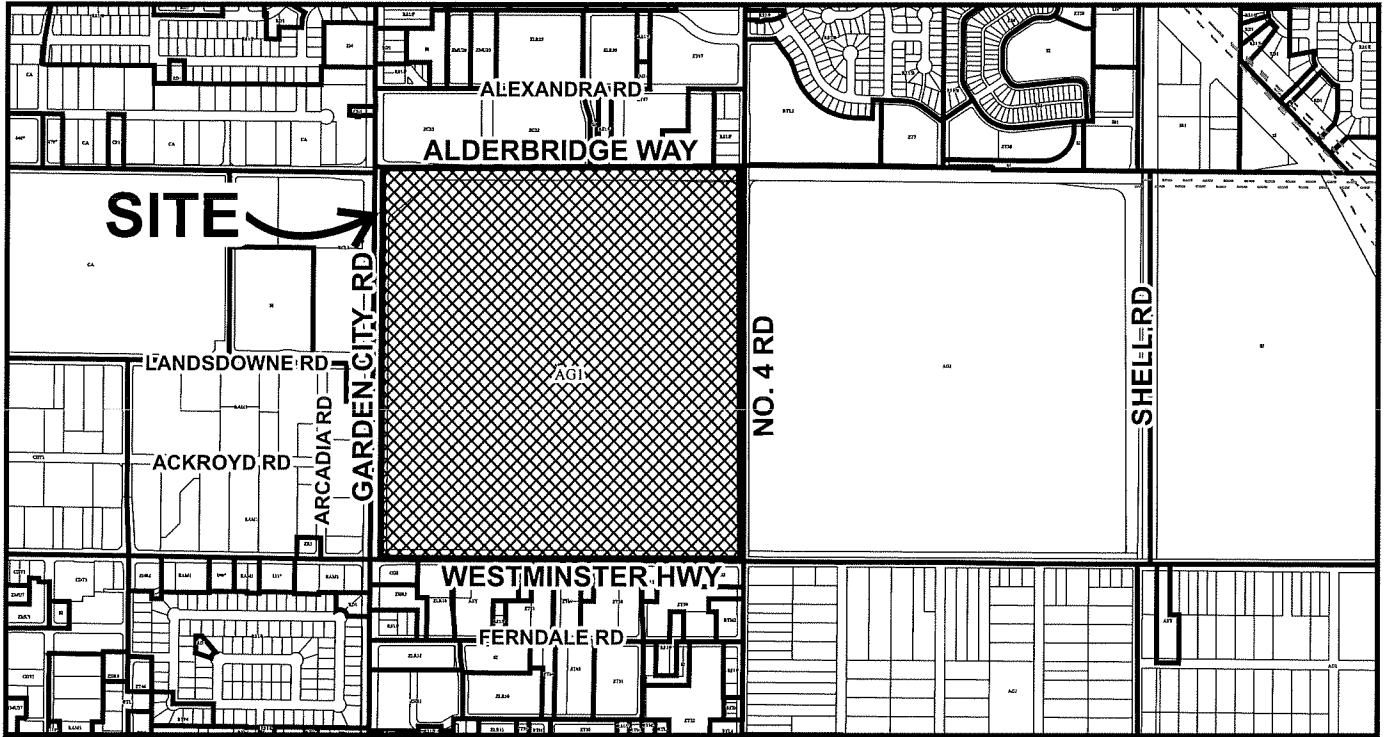
None.

Decisions

None.



City of Richmond



AG 18-837641
Garden City Lands
Non-Farm Use Application

Original Date: 09/17/18
Revision Date: 03/24/20
Note: Dimensions are in METRES



City of Richmond



AG 18-837641
Garden City Lands
Non-Farm Use Application

Original Date: 09/17/18

Revision Date: 03/24/20

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LEGEND

THE AGRICULTURAL LANDS

- 1 Multi-Functional Building and Parking
- 2 Rainwater Storage for Agricultural Irrigation
- 3 Farm Drainage Ditch
- 4 Agricultural Fields
- 5 Orchard
- 6 Demonstration Orchard
- 7 Community Gardens
- 8 Hedgerows & Beetle Banks
- 9 Sliding High Tunnels
- 10 Farm Fields
- 11 Soil Amendment Trials

THE BOG

- 12 Bog Conservation Area
- 13 The Fen
- 14 Boardwalk with Rest Points

THE RISE

- 15 Meadow / Informal Recreation
- 16 Children's Play

THE NODES

- 17 Garden City Lands Main Entrance
- 18 Entry Node
- 19 Entry Allée
- 20 Viewing Platform
- 21 Crosswalk
- 22 Parking Lot with Accessible Stalls
- 23 Parallel Parking with Accessible Stalls

THE DYKE

- 24 Multi-use Path with Farm Access

THE PERIMETER TRAILS

- 25 Native Forest Plantings
- 26 Street Trees
- 27 Perimeter Trails - Separated Paths
- 28 Rain Garden



Garden City Lands ALC Non-Farm Use Application #58154 Approval Matrix

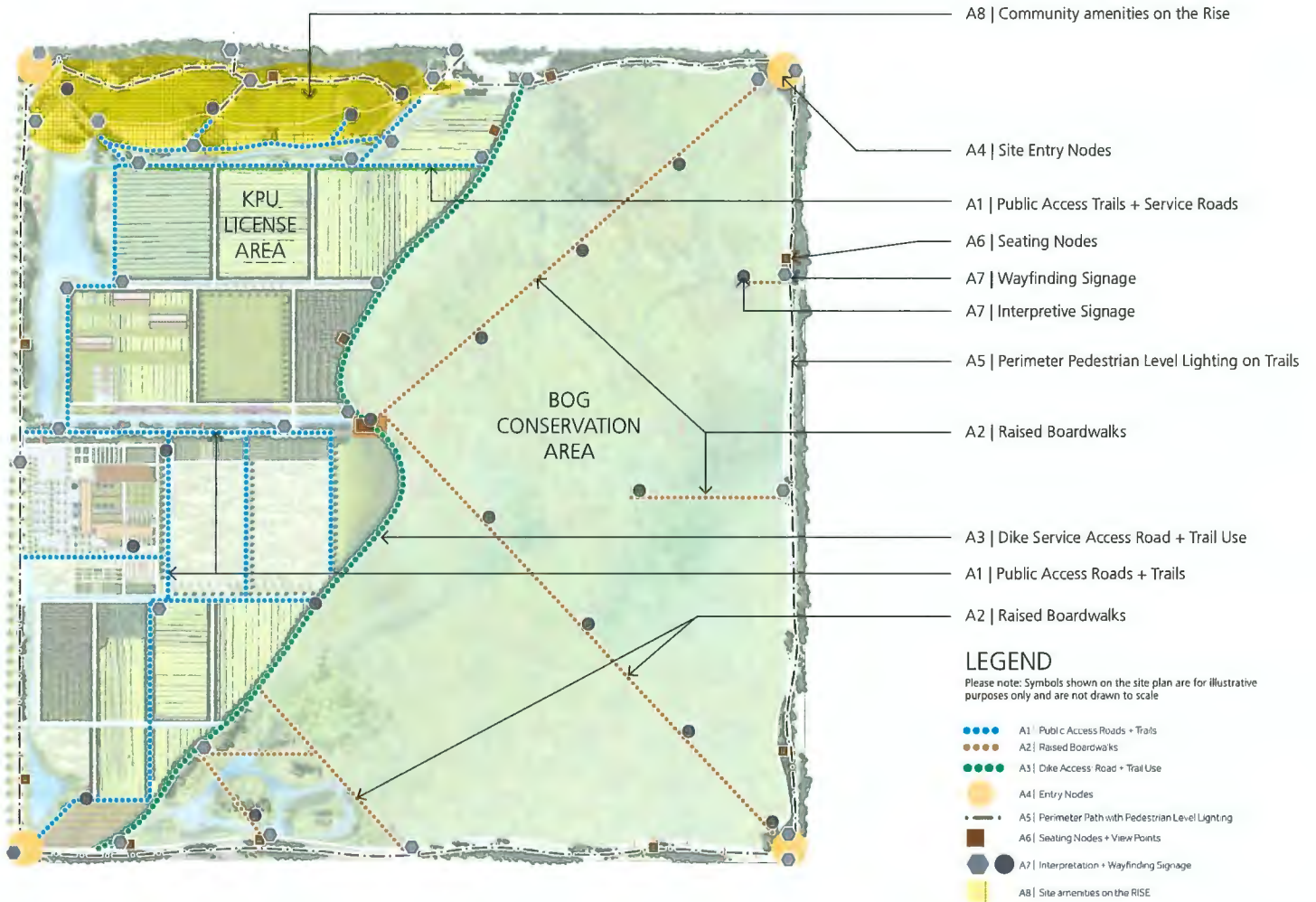
Notes
(For graphic representation of these proposed land uses, please see Maps attached to this Application)

Item	Non-Farm Use (ALC Approval Required)	Farm Use (Notification Only)	Quantity	Notes
A Site Access Features (see Map A)				
1	Public Access Trails & Service Roads		Approx. 3,500 LM	Includes pedestrian and farm/service vehicle rated roads constructed of gravels and finished with crushed stone for a permeable and accessible surface. Min. 3m wide.
2	Raised Boardwalks		1,600 LM	Boardwalks constructed of timber and on piles to raise boardwalk above bog surface. Approximately 1,600LM x 2.5m wide= 4,000sq.m + 1,200sq.m in seating nodes
3	Dike, Service Access Road & Trail Use		900 LM	Similar to A1, the road along the Dike is multi-functional built to accommodate service vehicles and pedestrians; 900LM x 3.8M wide=3,500 sq.m
4	Site Entry Nodes		4 nodes, 1,000 SqM	Materials: timber, concrete pavers, gravel, all permeable and accessible surface materials. Located at each corner of the site (4 in total). Total area covered: 4x 600sq.m
5	Perimeter Trail Pedestrian Level Lighting		111 units	Includes conduit for cables, lamp bases and light poles. Located along the 2.9km perimeter path. Estimated up to 111 lights (both single- and double-sided fixtures)
6	Seating Nodes & View Points		10	Materials: timber, concrete pavers, gravel. Along circulation paths, overlook points and timber boardwalks (E end of Canal and one at Fen), along circulation paths. Total number: 10
7	Interpretive & Wayfinding Signage		See notes	The nature and extent TBD. The aim is to get signage throughout the site for wayfinding and education/interpretation
8	Public Amenities on The Rise		Approx. 2.5 HA	Focused on passive recreation, views of the site and agriculture use of the Garden City Lands, Floric Areas, Meadows and a 1,200 sqm Children's Play Structure area
B Site Infrastructure (see Map B)				
9	Parking Lot off Alderbridge Way		Approx. 3,200 SqM	Approx. 3,200 sq.m with min. 15 standard and 4 universal stalls, 1 EV Charging Station. One way in and out. Minimal fill anticipated.
10	Public Washroom at Alderbridge Way P-Lot		1	Universal access, two stalls, with storage, septic system, water and electrical services, approx.max size: 50 sq.m.
11	No.4 Rd Lay-By Parking Pockets		7 nodes; 2,100 SqM	7 Nodes for parallel parking. 63 standard and 7 accessible parking spots; each node= 235 sq.m; total= 2,115 sqm
12	BC Hydro Connection; Perimeter Trail Lighting		3	Three connections on the perimeter of the site to provide power to perimeter lighting system (in addition to power supply for Farm Related activities)
13	Site Furniture		See Notes	Minimum 10 Trash & Recycling Receptacles; 20 Single and double sided benches; Bike Racks at entry points (total # TBD)
14	Bridge and Culverts over Drainage Features		1 over Canal	Currently contemplating one bridge structure over Canal near Hub; crossings over minor ditches for vehicles and foot traffic via concrete culverts
15	Bog Conservation Area		30 HA	Program and site management includes public education, conservation management, removal of invasives, replanting native species
C Agricultural & Food Production Related Elements				
C1 General (see Map C1):				
16	Farmers Market		Approx. 3,000 SqM	Seasonal weekly farmers market for produce grown on site and local farmers. Support infrastructure required. Approximate size: 3,000sq.m
17	Public Event Space		1 HA	Annual event similar in size and program to the past events held in 2017 and 2018, consistent with previously approved applications. Would occupy 1 HA in the vicinity of the proposed Barn and Interpretive Centre.
18	Plantings and Landscaping		See Notes	Hedges/agricultural buffers, trees, orchards, meadow hydroseeding. Will require addition of compost and amendments to prepare site
19	Orchards and Berry Production		See Notes	Blueberries, cranberry production demonstration projects, community orchards for public demonstration and food production
20	Drainage Infrastructure		See Notes	Rainwater storage structures for supplemental irrigation; 2 ponds and the canal separating the Community Hub and the KPU license area. Swale along the base of The Rise (southern toe of slope), field perimeter ditches, field sub-grade drainage pipes
C2 KPU Farm (see Map C2):				
21	Farm Education and Research		8 HA	KPU program; teaching, 4 year applied science degree program, academic research on farm fields and community outreach throughout the site
22	Orchards & Berries		approx. 1 HA	Orchard, blueberries and alternative cranberry production methods as demonstration project to local industry
23	Field Crop Production		7 HA	Raised beds and cover crops, geodesic dome, rolling high tunnel greenhouse
24	Water Connection		2	For crop irrigation and primary processing of produce grown on site
C3 Community Farm Fields (see Map C3):				
25	Field Crop Production (Future)		8 HA	Field rotations, cover cropping, manure application, sustainable soil management; potential tenure agreements for Incubator Farms and leased plots. Will require water supply and electrical connections. Shared storage spaces for farm and ag- related equipment. Area includes internal path. Area subject of additional site investigation.
26	Community Gardens		100 plots; 3,000 SqM	Two community gardens, likely 100 plots minimum total. Anticipated size with specifics TBD based on demand and current recommended best practices. Will require water supply connection, storage, gathering spaces, compost areas. Placement of soil to facilitate soil based food production at grade. Granular material for pathways.
27	Potential Livestock Production		See Notes	Further to additional research and Council Approval. Contemplated uses include aparies; chickens and other livestock suitable for agriculture in an urban setting
D Community Hub & Farm Centre (see Map D)				
28	Barn		Approx. 700 SqM	700sq.m foot print. Agriculture primary use: primary food processing, equipment storage, honey and seed rooms, washrooms. Will require preload and structural fill. Approx. 1.2m of fill = 3,200 cubic meters of fill; preload volume TBD.
29	Municipal services (to Barn)		See notes	Electricity, communications/digital connections, sewer and water supply for agriculture related activities
30	Outdoor work spaces		2,000 SqM	Covered and open air work spaces, pedestrian and vehicular circulation & public gathering spaces (area in and around Barn)
31	Interpretive Centre		Approx. 1,000 SqM	Bog and farm/lag interpretive centre, offices, classrooms, public washroom, community kitchen and meeting room. Outdoor circulation space up to 1,500 SM. Preload, structural fill, permeable and impervious surfaces; first floor floor elevation: 2.9m as per CoR Flood Plain Bylaw. 1,000 sqm foot print of building and circulation space x 1.1 m fill= 1,200 cubic meters of fill.
32	Municipal services (to Interpretive Centre)		See notes	Storm drainage, sewer, water supply, electricity and communications/digital connections
33	Interpretive Centre Parking Lot		Approx. 5,200 SqM	Adjacent to proposed Barn and Interpretive Centre; 2 EV charging stations; 60 standard stalls, 4 universally accessible, 1 loading bay. Fill for preload and to raise grade to meet street elevation. Estimated, 3m of fill required= 2,700 cubic meters
Abbreviations: LM= Linear Meter SqM= Square Meter CM= Cubic Meter HA= Hectare				



GARDEN CITY LANDS ALC NON-FARM USE APPLICATION
Previously Approved Non-Farm Use Applications 2016-2018

For additional information about this site map, please refer to the Approval Matrix



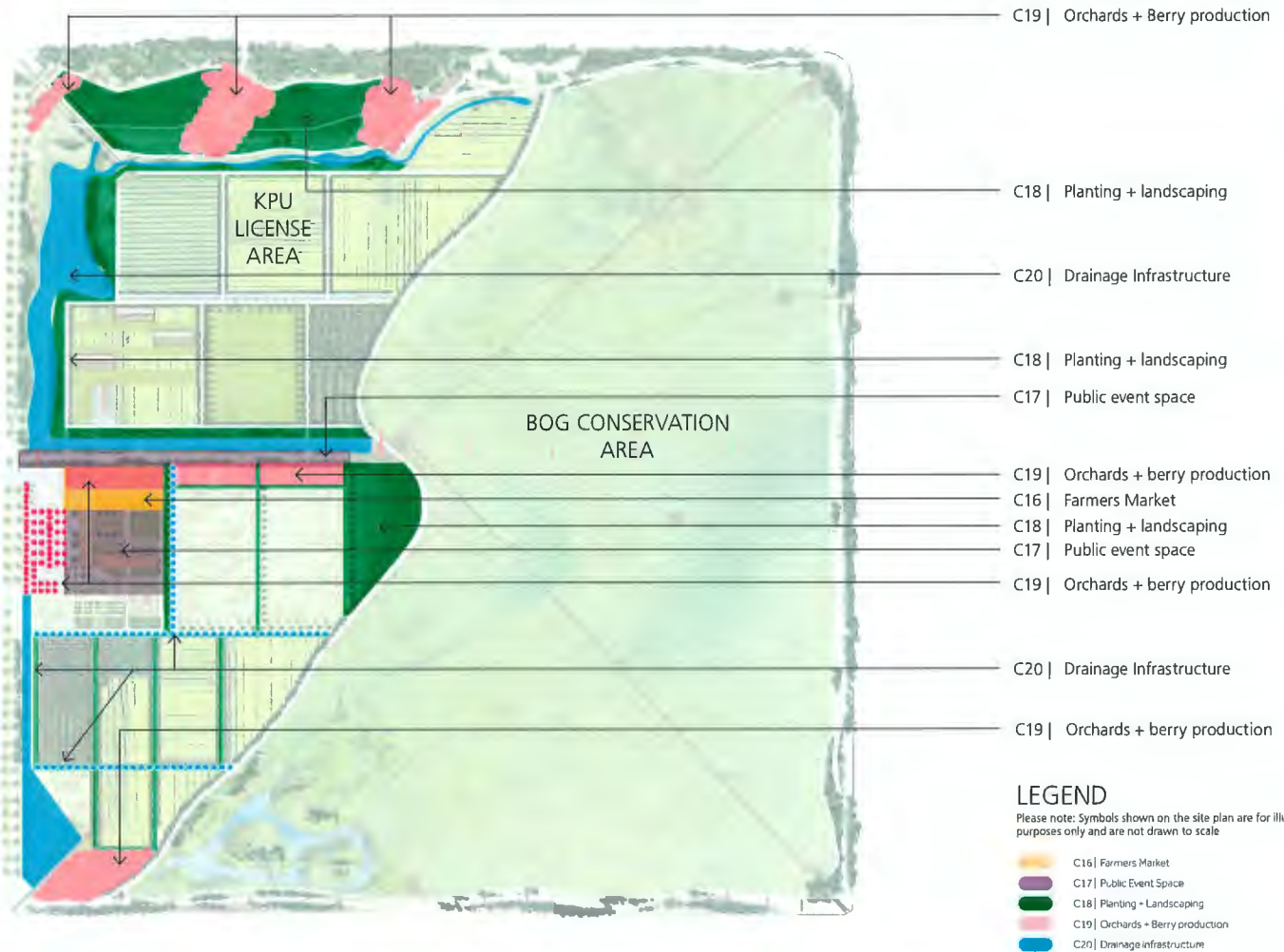
GARDEN CITY LANDS ALC NON-FARM USE APPLICATION
Map A: Site Access Features

For additional information about this site map, please refer to the Approval Matrix



GARDEN CITY LANDS ALC NON-FARM USE APPLICATION
 Map B: Site Infrastructure

For additional information about this site map, please refer to the Approval Matrix



GARDEN CITY LANDS ALC NON-FARM USE APPLICATION
 Map C1: Agricultural and Food Production Related Elements - General

For additional information about this site map, please refer to the Approval Matrix



GARDEN CITY LANDS ALC NON-FARM USE APPLICATION
 Map C2: Agricultural and Food Production Related Elements - KPU Farm

For additional information about this site map, please refer to the Approval Matrix



C27 | Potential livestock production

C26 | Community Gardens

C25 | Field Crop production

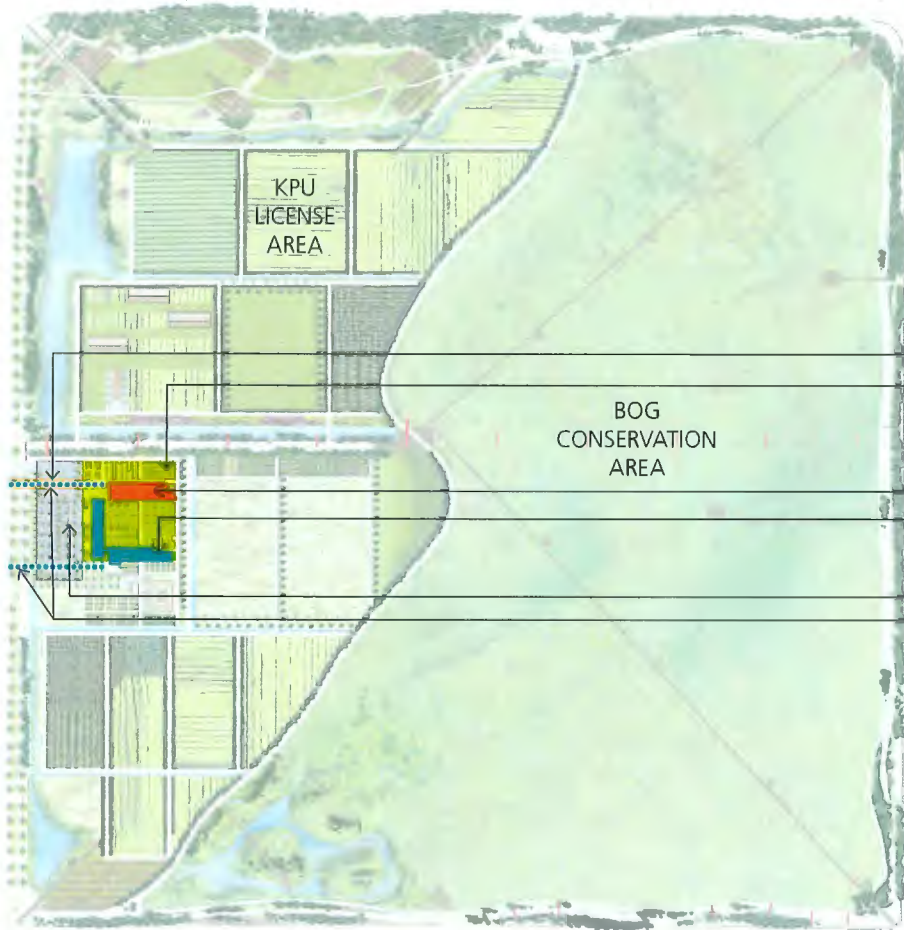
LEGEND

Please note: Symbols shown on the site plan are for illustrative purposes only and are not drawn to scale

- C25 | Farm Crop production
- C26 | Community Gardens
- C27 | Livestock production

GARDEN CITY LANDS ALC NON-FARM USE APPLICATION
 Map C3: Agricultural and Food Production Related Elements - Community Farm Fields

For additional information about this site map, please refer to the Approval Matrix



- D29 | Municipal Services (to Barn)
- D30 | Outdoor work spaces
- D28 | Barn
- D31 | Interpretive Centre
- D33 | Parking lot
- D32 | Municipal Services (to Interpretive Centre)

LEGEND

Please note: Symbols shown on the site plan are for illustrative purposes only and are not drawn to scale

- D28 | Barn
- D29 | Municipal Services (to Barn)
- D30 | Outdoor Workspaces
- D31 | Interpretive Centre
- D32 | Municipal Services (to Interpretive Centre)
- D33 | Interpretive Centre parking lot

GARDEN CITY LANDS ALC NON-FARM USE APPLICATION
 Map D: Community Hub and Farm Centre

For additional information about this site map, please refer to the Approval Matrix

DRAFT
2018-JAN-19

**CITY OF RICHMOND
GARDEN CITY LANDS
COMMUNITY HUB AND FARM CENTRE FEASIBILITY CENTRE**

JANUARY 2018



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DRAFT
2018-JAN-19

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EXECUTIVE SUMMARY

OVERVIEW

A local architectural firm, The Andrews Architects Inc., was engaged by The City of Richmond in August 2017 for architectural programming services to develop both a program and site orientation for a proposed community farm hub, to be located on the Garden City Lands. This resulting "Feasibility Study" assembles information gathered during many stakeholder meetings throughout the fall of 2017, and includes a base of information and analysis for the future schematic design of the complex. It includes a program of key components complete with gross floor area requirements and relationships, siting, and proposed phasing. City provided "order of magnitude" budgeting completes the base information for future planning.

PROJECT BACKGROUND & SCOPE

The Garden City Lands (GCL), acquired by the City from the Federal government in 2010, comprise a remarkable 55.2 hectare site within the heart of Richmond. This open space, part of the Agriculture Land Reserve (ALR), is bounded by Westminster Highway, Alderbridge Way, Garden City Way and No. 4 Road. Guiding principles, as outlined in the 2014 "Garden City Lands Legacy Landscape Plan", propose that future development should:

- Encourage Community Partnerships and Collaboration
- Respect Agriculture Land Reserve
- Strive for Environmental Sustainability
- Promote Community Wellness and Active Living
- Maximize Connectivity and Integration
- Allow for Dynamic and Flexible Spaces
- Develop Science-based Resource Management Plans

Need of a Community Hub and Farm Centre was also identified. The facility is envisioned as a multi-purpose, secure and fully serviced public facility with both temporary and permanent programs with three primary functions: farm support, educational programs and public gathering. Operation will be a partnership between the City of Richmond and External Stakeholders, particularly the Farm Program at Kwantlen Polytechnic University (KPU) and non-profit societies such as the Richmond Food Security Society (RFSS).

The hub is to include outdoor and indoor support spaces, and will be a prominent feature on the land. It is to be innovative, but with minimal impact on the land. It is to be sustainable and should derive design inspiration from the location, farm related uses and the guiding principles as developed for the GCL.

FARM HUB RESEARCH

Local and international precedents were reviewed in order to draw ideas and strategies for the development. No one project or image provided a definitive direction, however, the accumulation of programming and design ideas have evolved into a customized approach for this unique setting and program.

PROJECT SITING

The "Garden City Lands Legacy Landscape Plan" identified the general site for the Community Hub and Farm Centre as midway along the western edge of the property, along Garden City Road at the eastern terminus of Lansdowne Road. The Feasibility Study team agreed that this is an ideal location for public visibility, accessibility (to, from and within the site) and proximity to the KPU and community garden fields, and to future wetland access points and nature trails. The site is a key ecological node, linking the proposed civic ceremonial route from the river at the Richmond Olympic Oval, eastward along Lansdowne Road to the Garden City Lands. This lying together of land and water, has been and will continue to be economically, culturally and symbolically important to the evolution of Richmond as a unique "Garden City".

The Community Hub and Farm Centre becomes a significant entry point for the overall site. Situated just across the road from a built-up urban edge, it transitions to a lower, more rural scale, linking the vital working farm components of the site with views and controlled access opportunities to the ecological areas to the east beyond.

PROGRAM DEVELOPMENT & PROJECT PHASING

The Feasibility Study Team worked closely to develop a workable spatial program for the farming and support services components of the site for the City, non-profit groups and for KPU. In addition to establishing these requirements, the team needed to determine which resources could be shared in order to minimize duplication and to establish essential relationships between spaces and the site. With the long list of both indoor and outdoor spaces established, the team filtered it into essential components for the viability of the site. While looking at siting options, these components were conceptually grouped on the site for possible phasing (Phase 1, Phase 2 and Future).

BUDGET

The City of Richmond (Capital Buildings & Project Development) has looked at preliminary budgeting based on the program developed in this Feasibility Study. Please refer to separate documentation for this information.



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PROJECT TEAM / STAKEHOLDERS

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Other Non-Profit Societies

Community Gardeners

Farmers Market Vendors

General Public

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PROJECT UNDERSTANDING & APPROACH

Working with City of Richmond Staff, it was determined that feedback from three stakeholder groups was required for programming of the GCL Hub, particularly: City of Richmond staff with potential understanding of the site and future activities, Kwantlen Polytechnic University staff involved in the planning of their future Garden City Lands agriculture program, and the Richmond Food Security Society as potential administrator of the City of Richmond portion of the Hub. During sessions with each of the groups, they were asked for a vision of the site and to identify program components for the Farm Hub buildings. Following, is a summary of the feedback and recommendations.

INTERNAL STAKEHOLDER INPUT: City of Richmond

- Four aspects to the Garden City Lands are: Bio/Ecology, Kwantlen Polytechnical University farm program, community gardens, and the GCL Hub
- Given that the proposed GCL Hub project is part of the Agricultural Land Reserve (ALR), approval from the Agriculture Land Commission (ALC) is required
- Programming for the GCL Hub requires input from the CoR Stakeholders, including Project Development, Parks, Public Works, Transportation, IT and Sustainability/Environmental
- Require a building or buildings to support activities of the Garden City Lands, a hub and farm centre with community activities, community gardens, education and farming interpretation - or as further developed in the programming process
- Program requirements to include a main barn, basic storage of equipment, tools (garden tools located locally to gardens), and tractor, classrooms and places for gathering, offices for park programmer, facilitators and staff, refrigeration unit for storage of harvest produce, kitchen (for education and community building events), all modern utilities including power, water, sanitary, telephone, gas, security, wifi, bike storage (secure, covered) and vehicular parking

COMMUNITY SERVICES

- **Parks**
 - GCL Hub is the eastern terminus of the future enhancement of Lansdowne as Richmond's ceremonial route
 - Opportunities for both city-run programs and for non-profit society (such as Richmond Food Security Society) programs, to include community garden classes/workshops, educational centre, seed sorting and storage
 - To facilitate regularly scheduled or seasonal events such as a Farmers Market, Richmond Harvest Festival, Big City/Life Farm

ENGINEERING & PUBLIC WORKS

- **Transportation**
 - Site access needs to be designed to accommodate general needs of public, including parking
 - Need to encourage alternate modes of transportation for arriving at site, such as promoting connection to Oval and river to the west as a major cycling route
 - Increasing vehicular, pedestrian and cycling access by adding extra lanes to Lansdowne
 - Encouraging "Green" initiatives with permeable paving, charging stations, bicycle parking

Public Works

- Sewer is a challenge, septic is tough, given the high water table
- Need to consider approach options given the ALR jurisdiction
- Store and collect ground water for irrigation - although may be minimal
- Ground water is too high in iron for agricultural use

Information Technology

- Services to be connected from the street - need to move junction boxes
- New services to include utility closets for lighting, audio, visual, security and communication, LMT kiosk, lighting and communication conduit for outdoor use

- Will is a growing need for interior spaces and possibly outdoors for public and/or visitors, also for security monitoring of fields

Sustainability & Environment

- Limit the impact of people and buildings on the land & consider "Green" initiatives including "LEED" or passive design
- Promote educational programming for understanding the impact of agriculture to the environment

EXTERNAL STAKEHOLDER INPUT: Kwantlen Polytechnic University (KPU)

KPU's Ideas for the Garden City Lands

- The farming portion of the site would likely contain 4 components:
 1. a KPU restricted area for university related farm use (listed here for information only - not part of this study): complete a Storage Facility, a 30x10 external Cooler, Field Offices (2), solar panels, lunch room and small Washroom
 2. City of Richmond restricted area, for maintenance and utility components
 3. Semi-public area for GCL Hub Stakeholder use (Richmond Food Security Society (RFSS) or others): facilities shared with KPU as listed below
 4. Public Areas: parking lot and areas to be determined through the program exercise
- The GCL Hub would likely be managed by an oversight committee with a clear farm management plan

KPU's Program Requirements for the GCL Hub

There will be both KPU restricted areas (as noted) and some sharable facilities:

- Main Barn
- Storage areas including:
 - a covered tractor area (preferably part of barn space)
 - Cooler (insulated room) - this can be part of Barn or on KPU site
 - Seed storage with good ventilation and insulation
 - Restricted KPU Workshop for services equipment, tool storage, building products
 - GCL Hub Workshop for services equipment, tool storage, building products
 - Walk-in Cooler for GCL Hub (and possibly KPU)
 - Fertilizer / Pesticide Storage Room
 - Shelving Areas
- Work areas, including:
 - Honey room for processing and hive storage (with heat)
 - Seed processing and sifting room (separate - it can get messy)
 - Workshop (restricted to KPU) for mechanics and farming tools
 - Mud room with washing station for participants with showers, washrooms
- Processing Area (possibly Canada/Global GAP certified), including:
 - Primary produce processing stations (stainless steel) with large sinks and counters for washing and packing
 - Intermediate processing facility (loading area)
 - Kitchen for secondary processing by others (option)
- Dividable multi-purpose spaces for workshops, classes (30 student maximum), and meetings
- Staff room / lunch room
- Exterior covered area for flexible use including a winter market
- Need easy access for delivery trucks to load and unload

Other Ideas and Resources

- Richmond Food Security Society as facilitator of City-run area
- Offered the model of the Kentucky State University agriculture facility
- Providing processing areas with glass for the general public to see
- Encouraging "Incubator Farmers"
- Providing entrepreneurs with value-added options by having a GAP certified kitchen
- Stressed the importance of strong core values, a strong vision and accountability for the site and Hub
- Additional information provided by KPU:
 - equipment list for barn (required items and sizes)
 - description of spaces required in barn (list of areas and sizes)
 - description of a farm facility at Kentucky State University, with some similar features

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EXTERNAL STAKEHOLDER INPUT: Richmond Food Security Society (RFSS)

Background on RFSS

- Established in 2009 as an independent society, helped to set up the Richmond Food Charter (endorsed by Richmond City Council in 2016) and to establish the Metro Vancouver Regional Food Action Plan (MVRSAF)
- Currently located in the basement of the caretaker's suite at the Paulik Neighbourhood Park in Richmond
- Goals of society: "grow a food literate community", "nurture urban agriculture", "enrich organizational foundation"
- Activities include youth leadership programs ("Get Rooted", "Stir It Up"), school programs, field trips, seed-saving and exchanging, surplus fruit recovery program, community garden allotment management, and various food security dialogue and advocacy initiatives
- Special events include: "Seedy Saturday", "Richmond Harvest Festival", Development of the "Local Eating Guide" brochure, locating local organic farms and resources

Current Location (Paulik Neighbourhood Park)

- Currently have 2 rooms with a bathroom, including 6 desk spaces for 2 permanent + 1 part-time staff, and volunteers
- Missing the workshop space they had while located at the facility at Terra Nova
- 10 board members, but no room for their monthly meetings
- Currently manage 9 community garden sites

Richmond Food Security's Program List for the GCL Hub Buildings

- Office space / stations: 10-15
- Meeting Room: to fit 15-20 people, particularly for monthly board meetings
- Gathering spaces for training workshops for 20-30 people
- Storage Areas: room for ladders and equipment, fruit storage (including bins, supplies, refrigeration), tool sheds (adjoining each of the community garden locations)
- Community Kitchen (for learn to cook program)
- Staff lunchroom
- Washrooms
- Vehicular parking
- Covered outdoor space for festivals and workshops

Other Ideas for the GCL Hub

- More community gardens, larger plot options
- New agriculture models such as the "Food Forest"
- Need to look at produce theft management options
- Space for growth
- Potential museum opportunities
- Revenue generation options including catering from a GAP certified kitchen (in-house operation or rented out to entrepreneurs), cidery distillery, cafe, farmers' market, community centre.



PRECEDENT IMAGES AND FACILITIES - LOCAL

The following projects are a few local examples with some similar features to the proposed GCL Hub as indicated. The team has visited and reviewed these facilities and sites, incorporating relevant concepts.

COLONY FARM REGIONAL FARM: Coquitlam, BC



CLOCKWISE FROM TOP LEFT: old Caretaker's House and new Washroom Building, trails through Wetlands and Bridges over Waterways, Community Gardens

* **Features:** 643 acres of open fields wetlands and hedgerows home to 200 bird species and small animals, and also including: wildlife habitat areas, Wilson Farm habitat rehabilitation, trails (including portion of the PoCo Trail), community gardens, heritage buildings (only the caretaker house and hall remain from the original Wilson farm)

* **Ownership / Management / Partners:** Metro Vancouver, Colony Farm Park Association, Colony Farm Community Gardens, Pacific Parklands Foundation

* **Events:** "Discover Schools" programs, group field trips

KIRKLAND HOUSE AND BARN: Delta (Ladner), BC



LEFT TO RIGHT: Renovated House and Barn (Photos Courtesy of Kirkland House Foundation)

* **Features:** Heritage house, renovated 112-year-old Harris Barn (used for rentals) and implement shed (as a museum of historical farming equipment) on 4.5 acres of land (including a 2.5 acre garden), accessible washrooms, gazebo

* **Ownership / Management / Partners:** Corporation of Delta, Kirkland House Foundation

* **Events:** Canada Day celebrations, house tours, barn rentals

THE SHARING FARM AND MARY'S BARN: Richmond, BC



CLOCKWISE FROM TOP LEFT: Trellised gathering place with fields beyond, Tractor Shed at Mary's Barn, front of Mary's Barn at the annual Garlic Festival

* **Features:** part of the Terra Nova Rural Park, the area includes community gardens, a woodlot, agricultural fields, a hazelnut orchard, School Yard Project, several community buildings including Mary's Barn

* **Ownership / Management / Partners:** City of Richmond, The Sharing Farm Society

* **Events:** Schools and Seniors' programs, Garlic Festival

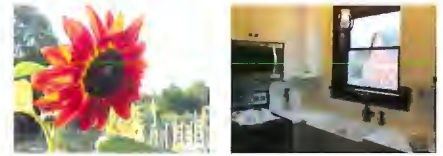
RICHMOND NATURE PARK: Richmond, BC

* **Features:** A bog-forest nature park (eastern neighbour to the Garden City Lands) within the city of Richmond with 200 acres of raised peat bog, trails, bog ecology protection zone, 2 community buildings (1 for events, 1 as an interpretive centre), outdoor picnic area, washrooms, playground, parking

* **Ownership / Management / Partners:** City of Richmond, Richmond Nature Park Society

* **Events:** Many events throughout the year relating to the location, including: "Wild Mushroom Show", "Natuuro Indoors" school program, "Cranberry Sale"

LONDON HERITAGE FARM: Richmond (Steveston), BC



CLOCKWISE FROM TOP LEFT: Community gardens, View from the renovated farmhouse Kitchen, House and Garden in winter

* **Features:** 4.06 acre heritage site with the 1880's London family farm overlooking the south arm of the Fraser River, community gardens, bees, chickens, flower garden, gift shop

* **Ownership / Management / Partners:** City of Richmond, London Heritage Farm Society

* **Events:** Afternoon tea, house tours, "Doors Open" venue, "London Family Farm Day", private weddings

BURNS BOG ECOLOGICAL CONSERVANCY AREA: Delta, BC



THE BOG (Photo Courtesy of David Meredith)

* **Features:** 5045 acres (of the total 8000 acres of raised bog - the largest raised bog on the coast of the Americas) in the Fraser River Delta between the south arm of the Fraser River and Boundary Bay, trails (including 2 km boardwalk)

* **Ownership / Management / Partners:** Corporation of Delta, Burns Bog Conservation Society

* **Events:** Jog for the Bog, Burns Bog Classroom Program, Earth Day Pilgrimage

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PRECEDENT IMAGES AND FACILITIES - INTERNATIONAL

Many of the international examples that we explored were more for a look at creative approaches to context and sustainable design rather than an understanding of similar programs. The closest program may be the Kentucky State University example which is largely a university agricultural program with some opportunities for public events. It also incorporates a "barn style" vocabulary for the buildings, indoor/outdoor and covered spaces - as we are proposing for the GCL Hub.

KENTUCKY STATE UNIVERSITY RESEARCH AND DEMONSTRATION FARM: Frankfort, KY, USA



KYSU Research & Demonstration Farm Buildings (Photo Courtesy of KYSU Website)

- **Features:** University program with organic and experimental farming (including yearly public outreach) with farm, research buildings and experimental fields within a university campus setting
- **Ownership / Management / Partners:** State, University
- **Events:** With private and public funding, "Farm City Field Day", which includes educational tours, livestock shows, vegetable processing display, environmental education research display, thoroughbred nutritional kitchen tour

BEACON FOOD FOREST: Seattle, WA, USA



Beacon Food Forest Schematic Site Plan (Photo: Hanson Design Landscape Architects)

- **Features:** Started as a school permaculture project on a 5+ acre plot of City-owned (Seattle Public Utilities) land in the Beacon Hill neighbourhood of Seattle. It evolved into a community-led endeavor to create an "edible Arboretum"
- **Ownership / Management / Partners:** City, Beacon Food Forest Committee
- **Events:** Education, work parties, community stewardship outreach, technical networking

FRUCHTLAND | NATURE CULTURE AGRICULTURE: Bern, Germany



Fruchtland Gallery Building (Photo Courtesy of Mark Pawell)

- **Features:** Site sensitive gallery building set in an agricultural setting (particularly the fields of an Agricultural University Program), including: Children's Creative Centre, Paul Klee Museum, Music/Literature/Theatre Centre
- **Ownership / Management / Partners:** Municipal, State (public funding)
- **Events:** Most of the public events revolve around the art exhibits

URBAN FARM UNIT (designbloom.com): currently in Zurich, Berlin, Brussels



UFU Shipping Container Agriculture (Photo: designbloom.com)

- **Features:** Damien Chivaille set out to address issues of limited space and toxicity in farming and aquaculture by transforming used shipping containers into aquaponic units for easy incorporation into any environment.



PROGRAM ANALYSIS & PHASING

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Program Summary for **Garden City Lands Farm Hub Area** from Stakeholder Input

Abbreviations: KPU: Kwantlen Polytechnic University; OS: Outside Stakeholder (Richmond Food Security Society or Other); CoR: City of Richmond; TBC: To Be Confirmed

SPACE / ITEM	SHARED SPACE		PROXIMITIES / LOCATION	QTY	DIMENSIONS OF SPACE	AREA OF SPACE	AREA OF SPACE	NOTES
	YES	NO						

PHASE 1: FARM HUB ESSENTIAL COMPONENTS - Market Area, Barn, Storage, Primary Processing and Associated Washrooms

KPU REQUESTS (Farm Hub Area only)

1	Farm Tool Storage	N	In Barn near Garden Plots	1	10' x 5'		50	5	50 sf with restricted access to KPU section - part of shared space
2	Walk-in Cooler	N	Initial: Near Fields Future: In Barn		300 sq ft - <i>Not included in Proposal</i>				Initial solution: temporary shipping container cooler near plots - could later use secured portion of new cooler in "barn" with size as indicated
3	Covered Tractor, Vehicle & Equipment Storage	N	In/near Main Barn	1	45' x 90' including (15' x 90' drive aisle)	4,050		376	Prefer for the tractor area to be part of the barn - KPU tractor and equipment would be secure & restricted
4	Covered Outdoor Storage Area	N	Initial: Near Fields						KPU Restricted area for equipment storage - Hub area req't not defined at this time
5	Workshop	N	Inside Barn		10' x 20' - Part of the 45' x 90'				200 sf - KPU Restricted area for services equipment, tool storage, building products
6	Fertilizer Pesticide Storage Room	N	In/near Main Barn		Part of the 45' x 90' TBC				Shared room with restricted access to KPU section
7	Shelving Area	N	Inside Barn		30' x 3' - Part of the 45' x 90'				30 sf
8	Primary Processing Area	Y	Inside Barn						Shared space with CoR - see below
SUBTOTAL (KPU Req'ts)							4100	381	

CoR REQUESTS (Including OS)

9	Farm Tool Storage	N	In Barn near Garden Plots	2	10' x 10'		200	19	This is main storage in Barn - may also be multiple "sheds" near plots
10	Walk-in Cooler	Y	Inside Barn	1	10' x 20'		200	19	Requirements for City and OS
11	Covered Tractor, Vehicle & Equipment Storage	N	In/near Main Barn	1	14' x 24'		336	31	Requirements for City and OS
	Covered Outdoor Storage Area								See Exterior Requests below
12	Workshop	Y	Inside Barn	1	10' x 20'		200	19	Requirements for City and OS
13	Fertilizer Pesticide Storage Area	Y	In/near Main Barn	1	5' x 5'		25	2	Requirements for City and OS - Restricted to Approved Users
14	Additional Shelving Area	Y	Temp / Hum. Controlled	1	10' x 10'		100	9	Requirements for City and OS

PROGRAM ANALYSIS & PHASING

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Program Summary for **Garden City Lands Farm Hub Area** from Stakeholder Input

Abbreviations: KPU: Kwantlen Polytechnic University; OS: Outside Stakeholder (Richmond Food Security Society or Other); CoR: City of Richmond; TBC: To Be Confirmed

SPACE / ITEM	SHARED SPACE		PROXIMITIES / LOCATION	QTY	DIMENSIONS OF SPACE WxLxH	AREA OF SPACE sq ft	AREA OF SPACE sq m	NOTES
	YES	NO						
15 Primary Processing Area	Y		Inside Barn	1	20' x 30'	600	56	Requirements for KPU, City and OS
SUBTOTAL (CoR / OS Req'ts)						1661	155	
OTHER INTERIOR SHARED REQUESTS								
16 <i>Secured Storage</i>		N	Inside / Near Barn	1	50' x 10'	500	46	
17 Utility: Mech / Elect / Communication Rooms		N	In/near Barn & Future Interpretive Centre	4	10' x 10'	400	37	
18 Bicycle Covered Parking (Inside Building)								None
19 Washrooms with Direct Exterior Access	Y		Near Barn & Gardens	3 M/F	each 6' x 7.5'	135	13	
SUBTOTAL PHASE I (Interior Shared Req'ts)						1035	96	
TOTAL INTERIOR AREAS						6796	632	
GROSS UP				25%		8495	790	Higher gross - up factor in order to allow for additional washroom requirements
OTHER EXTERIOR SHARED REQUESTS								
20 Farm-use Wash-off Area	Y		Near Barn & Gardens	2	@ 5' x 5'	50	5	
21 Covered Multi-use Area	Y		Near Barn, Gardens, Parking	1	30' x 50'	1500	139	
22 Covered Walkway	Y		Near Barn, Gardens, Parking	1	250' x 10'	2500	232	
23 Seasonal Market Stalls	Y		Near Barn, Gardens, Parking	27	12' x 12'	3988	361	Modular, collapsable units
24 IT Closet		N	Near Hub	1	4' x 6'	24	2	Handled by CoR - Site Servicing
25 I-IT Kiosk		N	Near Garden City Road	1	4' x 6'	24	2	Handled by CoR - Site Servicing
26 Vehicular Parking & Drive Aisles	Y		Farm Hub Access	1	116' x 267.25'	31,001	2880	Handled by CoR - Site Servicing - need to limit paving to entry driveway, loading and accessible parking - other areas to be permeable
27 Accessible Parking Stalls	Y		Farm Hub Access	4	@ 12' x 18'	864	80	
28 Loading	Y		Farm & Farm Hub Access	1	12' x 60'	720	67	



PROGRAM ANALYSIS & PHASING

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Program Summary for **Garden City Lands Farm Hub Area** from Stakeholder Input

Abbreviations: KPU: Kwanten Polytechnic University; OS: Outside Stakeholder (Richmond Food Security Society or Other); CoR: City of Richmond; TBC: To Be Confirmed

SPACE / ITEM	SHARED SPACE		PROXIMITIES / LOCATION	QTY	DIMENSIONS OF SPACE	AREA OF SPACE	AREA OF SPACE	NOTES
	YES	NO						
29 Exterior Bicycle Parking (Covered)	Y		Near Farm Hub					Accessible to all - need to look at options for security and weather protection
30 Exterior Landscaping	Y							
31 Exterior Pathways	Y							
32 Gardens - Plot Prep	Y							
SUBTOTAL PHASE 1 (Exterior Shared Req's)						40571	3768	
PHASE 2: FARM HUB FOR EXPANDED PUBLIC INTERFACE - Additional Farm Facilities, Offices, Classrooms, Interpretative Centre, Certified Kitchen and Associated Washrooms								
KPU REQUESTS (Farm Hub Area only)								
33 Seed Dryer & Temperature-controlled Storage Room	Y		Inside Barn	1	10' x 10'	100		9' Including 2 Dryers @ 4'Wx6'H, Counters, Shelving - Shared room with secured areas
CoR REQUESTS (Including OS)								
34 Honey Room (Processing & Hive Storage)	Y		Inside Barn	1	10' x 20'	200		19 Needs to be well insulated - shared facility
OTHER INTERIOR SHARED REQUESTS								
35 Office / Work Stations	Y		Interpretive Centre, Near Barn	3 Offices + Open Office Area	3@ 80 sf + 300 sf	540		50 Requirements for City and OS
36 Dividable Classrooms	Y		Interpretive Centre, Near Barn	1	26' x 50'	1,300		120 Shared by all User Groups: 1 Classroom for 20 to 30 people dividable into smaller spaces
37 Meeting Room	Y		Interpretive Centre, Near Barn	1	12' x 15'	180		17 Shared by all User Groups: Min 1 for 15-20 People with table
38 Additional Interpretive Area	Y		Interpretive Centre, Near Barn	1	26' x 50'	1,300		120 Requirements for City and OS
39 Staff / Utility Room	Y		Interpretive Centre, Near Barn	1	10' x 10'	100		9 Requirements for City and OS - TBC

PROGRAM ANALYSIS & PHASING

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Program Summary for **Garden City Lands Farm Hub Area** from Stakeholder Input

Abbreviations: KPU: Kwanten Polytechnic University; OS: Outside Stakeholder (Richmond Food Security Society or Other); CoR: City of Richmond; TBC: To Be Confirmed

SPACE / ITEM	SHARED SPACE		PROXIMITIES / LOCATION	QTY	DIMENSIONS OF SPACE	AREA OF SPACE	AREA OF SPACE	NOTES
	YES	NO						
SUBTOTAL PHASE 2 (Interior Shared Req'ts)						3720	344	
GROSS UP				25%		4650	430	Higher gross - up factor in order to allow for washroom requirement
OTHER EXTERIOR SHARED REQUESTS								
Add'l Exterior Landscaping								
Add'l Exterior Pathways								
Add'l Gardens								
SUBTOTAL PHASE 2 (Exterior Shared Req'ts)						0	0	
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TOTAL PHASE 1 + 2 (Interior Shared Req'ts)						10516	976	
GROSS UP				25%		13145	1220	

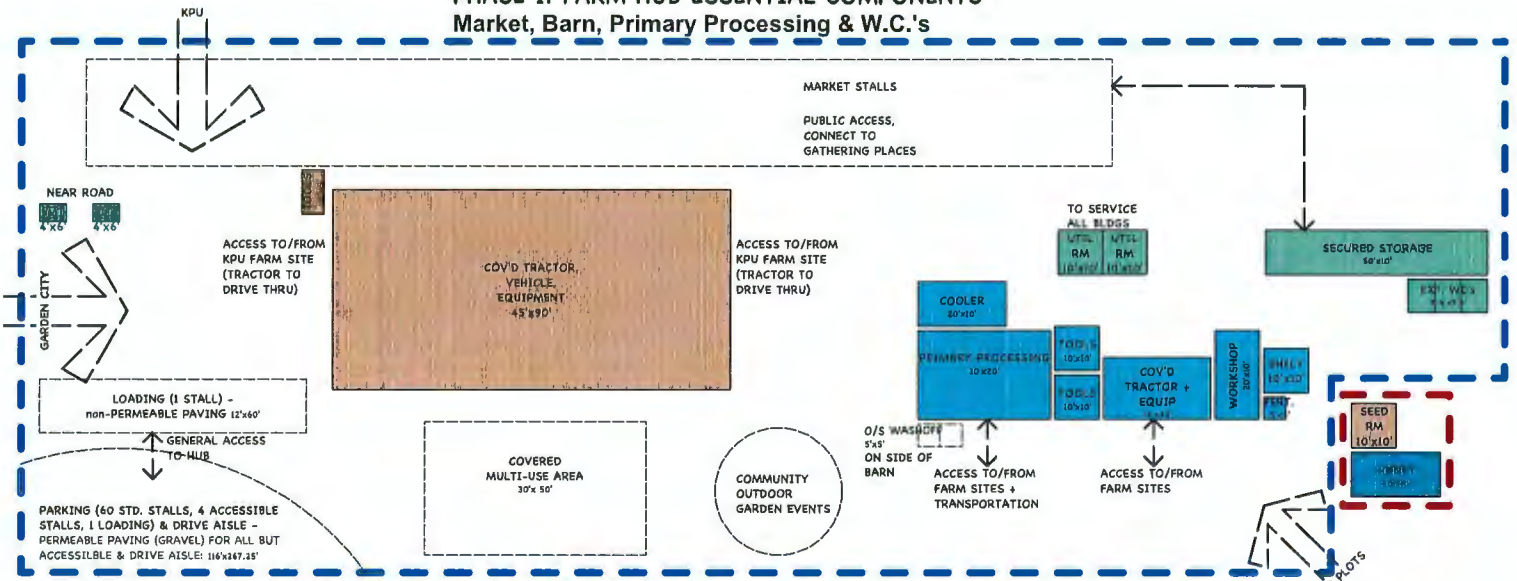


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PROGRAM DIAGRAM
SPACES & PROXIMITIES

Program development for the GCL Hub evolved out of the input from the Internal and External Stakeholders and into the components as summarized in the preceding pages. Key to understanding these components was determining the space sizes, their proximity to one another, and understanding sharability. Graphic representations of the spaces were developed in order to explore the variables.

PHASE 1: FARM HUB ESSENTIAL COMPONENTS -
Market, Barn, Primary Processing & W.C.'s

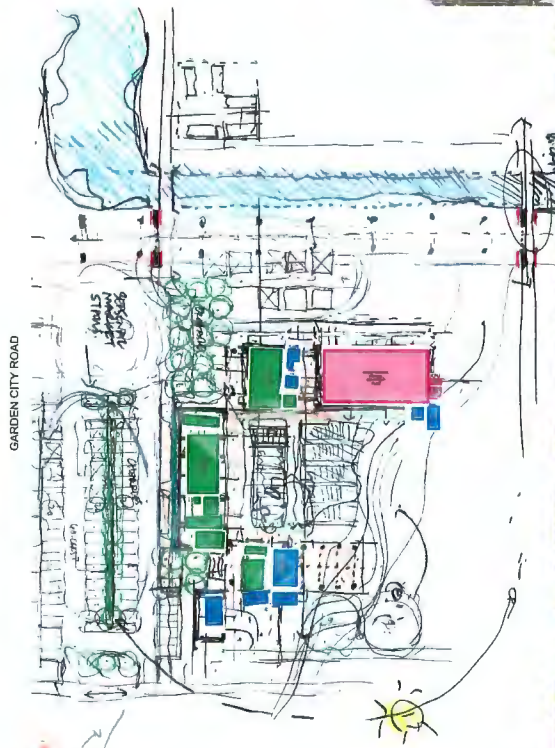


PHASE 2: FARM HUB FOR EXPANDED PUBLIC INTERFACE -
Additional Farm Facilities, Offices, Classrooms, Interpretive Centre, Com'ty Kitchen & WC's

CITY OF RICHMOND
GARDEN CITY LANDS FARM HUB
FEASIBILITY STUDY

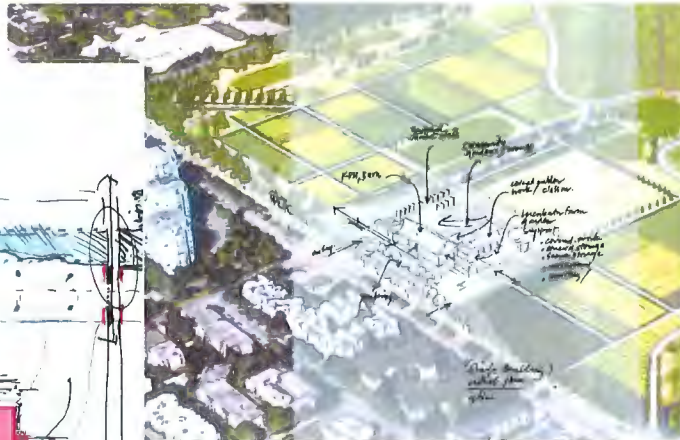
CONCEPT DIAGRAMS
EARLY EXPLORATIONS

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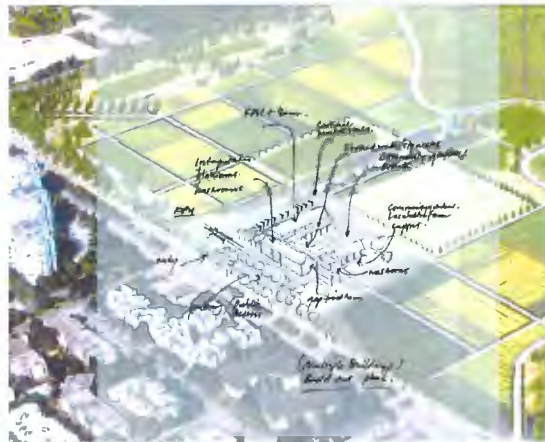


PROGRAMMING EXERCISE - CREATING A CENTRAL GATHERING PLACE

- TEAM FEEDBACK:**
- Liked the views, links, relationships, opportunities for flexible community spaces
 - Opportunities for a low-impact sustainable response and creative "of the earth" forms
 - Need to phase the project
 - More compact, simple forms may be more economical



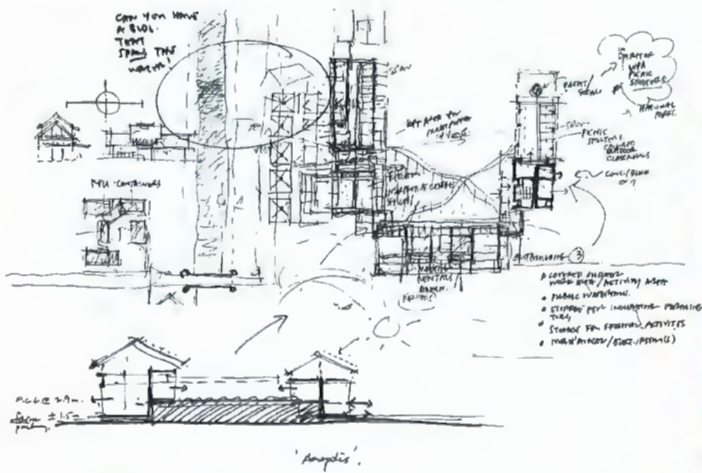
SITE CONCEPT - MAIN BARN ORIENTATION NORTH / SOUTH



SITE CONCEPT - MAIN BARN ORIENTATION EAST / WEST

CONCEPT DIAGRAMS
EARLY EXPLORATIONS

DRAFT
2018-JAN-19



SITING CONCEPT - ACROPOLIS

RAISED AREA FOR LOOKOUT OR ACTIVITY CONNECTIONS
Responding to flood plain concerns and indoor / outdoor relationships



PRECEDENT IMAGES FOR BUILDING OPENINGS & PROVIDING SHELTER



PRECEDENT COVERED AREAS

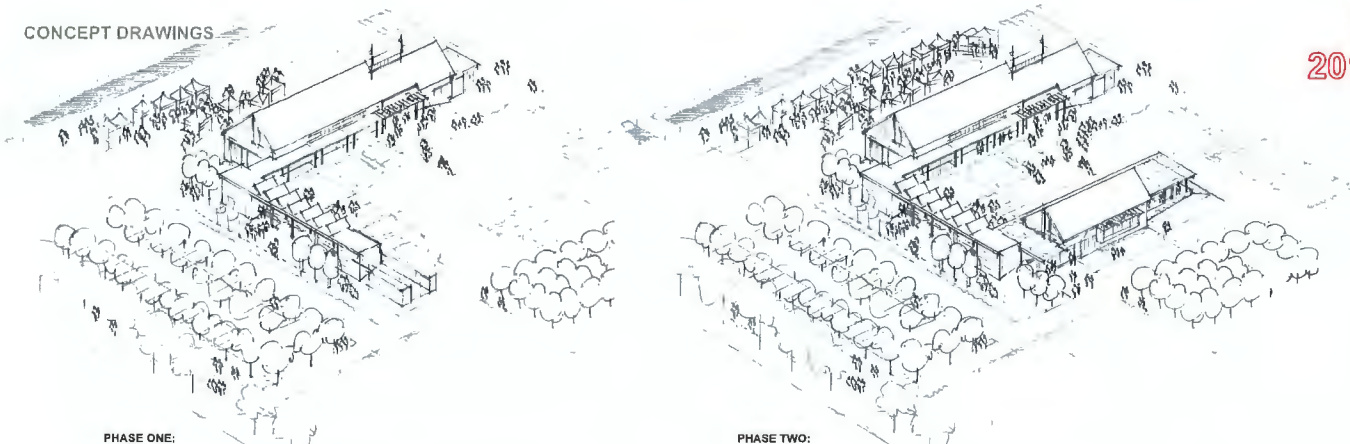


PRECEDENT IMAGES FOR "THE LOOKOUT"



DRAFT
2018-JAN-19

CONCEPT DRAWINGS



PHASE ONE:

- MAIN BARN WITH ANCILLARY SPACES IN EAST WEST ORIENTATION FOR EASY ACCESS FOR KPU SITE AND CITY GARDENS
- SERVICE SPACES (UTILITY, W.C.'S) WITH CONNECTING BREEZEWAY TO CREATE AN "L-SHAPED BUILDING FORM FOR THE PROJECT, PROVIDING ACCESS AND VIEWS THROUGH TO AN "INTERIOR" GARDEN
- GREEN ROOFS ON "FLAT" ROOFED BUILDINGS BUILDINGS, SOLAR PANELS ON BREEZEWAY ROOF (AND POTENTIALLY ON SOUTH-SLOPING BARN ROOF)
- AREAS FOR FARMERS MARKETS OR SPECIAL EVENTS
- PARKING "IN THE ORCHARD" ON PERMEABLE PAVING OR GRAVEL
- FOCUS ON AGRICULTURE AND THE GARDEN CITY LANDS

PHASE TWO:

- MAIN BARN EXTENDED WITH SEED AND HONEY ROOMS
- ADDITIONAL BUILDING SPACES TIED INTO THE BUILDING TO CREATE A U-SHAPEO BUILDING AROUND THE "INTERIOR" GARDEN
- GREEN ROOFS CONTINUED ON "FLAT" ROOFED BUILDINGS BUILDINGS
- ADDITIONAL AREA ALLOCATED FOR FARMERS MARKETS OR SPECIAL EVENTS
- ADDITIONAL PARKING, STILL WITH "IN THE ORCHARD" DESIGN FEATURES
- ALWAYS A FOCUS ON AGRICULTURE AND THE GARDEN CITY LANDS



PRECEDENT IMAGES FOR THE BREEZEWAY & IDEAS OF "LOOKING THROUGH" THE BUILDING

CITY OF RICHMOND
 GARDEN CITY LANDS FARM HUB
 FEASIBILITY STUDY
 15

CONCLUSIONS & NEXT STEPS

GARDEN CITY LANDS HUB: A "BUILDING OF & IN THE FIELD"

Buildings and gathering places in the field and connections between the elements are the main themes that evolved from this preliminary Feasibility Study. Going forward a number of items will need to be honed in on, including:

- Firming up the activity and spatial programs
- Confirming shared spaces and arrangements
- Establishing a preliminary budget
- Identifying a vocabulary for the buildings
- Engaging the community and decision-makers
- Engaging Design Consultants for further study of the ideas



TRADITIONAL BARN "IN THE FIELD"



CONCEPT DRAWING IN GCL CONTEXT



PRECEDENT IMAGE OF AGRICULTURAL BUILDING "IN THE FIELD"

DRAFT
2018-JAN-19



PRECEDENT IMAGES OF AGRICULTURAL BUILDINGS "IN THE FIELD"



GCL Proposed Fill Volumes⁵

		Area (m ²)	Pre-Load ¹	Granular Material ²	Sub-Soil ³	Top Soil/Growing Medium ⁴
1	Community Gardens (Farm-Use)	3,000	n/a	n/a	1,500	1,500
	Approval Matrix Reference: Line C26					
2	Alderbridge Parking Lot (Non-Farm Use-NFU)	3,200	n/a	1,000	n/a	n/a
	Approval Matrix Reference: Line B9					
3	Corner Entry Points (NFU)	1,000	n/a	500	n/a	200
	Approval Matrix Reference: Line A4					
4	Trails (NFU)	10,500	n/a	2,000	n/a	n/a
	Approval Matrix Reference: Line A1					
5	Washroom (Alderbridge P lot) (NFU)	50	70	500	n/a	n/a
	Approval Matrix Reference: Line B10					
6	Community Hub & Farm Centre (NFU)	6,200	1,100	1,200	n/a	n/a
	Approval Matrix Reference: Line D31 & D33					
	Sub-Total:	23,950 (2.4 ha)	1,170	5,200	1,500	1,700

Notes:

1. The volume and duration of pre-load material (to be placed prior to the construction of permanent site improvements) are gross estimates to be confirmed prior to construction. **The pre-load material is temporary and will be removed from site.**
2. Granular Material is defined as sand or native crushed stone material for the purposes of constructing a compacted, permeable, stable and, if required, removable surface suitable for driving vehicles (cars, municipal services vehicles and farm equipment), parking said vehicles, pedestrians (rolling and foot traffic) and cyclists.
3. Sub-soil material to provide a stable base for site improvements. Material to be well drained.
4. Top soil imported from either commercial soil providers and/or imported from other source sites. Material to meet the soil specification for the Garden City Lands (previously provided to the ALC).
5. Volumes provided are the estimated maximum required. All material measured in cubic meters (m³). The type of fill and, where applicable, the duration of placement to be determined by a qualified engineering professional.



#300 – 15300 Croydon Drive
Surrey BC
V3S 0Z5

Date: December 19, 2017

Attn: Alex Kurnicki

From: Bruce McTavish

Re: Source Soil Management

This memo outlines the steps to take place when soil is sourced for transport and deposit at the Garden City project.

The soil for the Garden City must adhere to the ALC guidelines for soil and the BC Contaminated Site Regulations (BCCSR) – Schedule 4 for Agricultural Lands.

The owner or contractor of the source soil will need to provide a Phase 1 Environmental Assessment.

When a source of soil has been identified, the following steps will be taken:

- 1) On behalf of the City of Richmond, an Agrologist with expertise in soil science and soil handling will review available documentation including a Phase I Site Investigation (environmental assessment) report for the site from which the soil originates.
- 2) The Agrologist must visit the source site and evaluate the soil for suitability as fill on the Garden City lands, and report on whether and how conditions of the ALC for soil will be met. This evaluation starts with on site visual observations of the site and the soil. Based on the observations and review the Agrologist can:
 - a. Reject the soil
 - b. Approve the soil and then
 - c. Proceed with a soil investigation program, including sampling and sample analysis.
 - d. Ensure that soil meets the KPU specification attached to ALC decision 56119
- 3) The Agrologist must prepare a protocol for the soil handling before transportation of the soil to the Garden City Lands. The protocol will be site specific and include:
 - a. Supervision of soil handling
 - b. Separation and set aside of topsoil
 - c. Separate transport of topsoil and other soil to the Garden City property
 - d. Placement of soil and topsoil to mimic the original profile, and
 - e. Monitoring of stoniness
 - f. Monitoring of non-soil inclusions such as asphalt and concrete and procedures for removal of such items.

The Agrologist may recommend that screening of the soil to remove inclusions takes place before transport of the soil to the Garden City property.



Bruce McTavish MSc MBA PAg RPBio
Senior Agrologist



TECHNICAL MEMO

ISSUED FOR REVIEW

To:	Mr. Alex Kurnicki	Date:	March 20, 2020
cc:	Josh Weidner, E.I.T.	Memo No.:	1
From:	David Moschini, P.Eng.	File:	704-ENG.WTRI03021-01

Subject: GCL Hydrotechnical Modelling & Geotechnical Assessment Re: Application #6357384

This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

1.0 INTRODUCTION

The City of Richmond Parks department has retained Tetra Tech Canada Ltd. (Tetra Tech) to provide guidance in the submission of an application to the Agricultural Land Commission (ALC) which will permit additional public access to the Garden City Lands Site. The parks department is proposing a series of site improvements which require the placement of fill within the agricultural boundaries of the park. Improvements include the construction of parking lots, small entry plazas, walking trails, washrooms, a Community Hub, and a Farm Centre (a barn and buildings for educational programs). The total amount of fill proposed is approximately 8,000m³.

Tetra Tech has prepared this technical memo commenting on the hydraulic and hydrogeological impacts the proposed fill may have on the site and providing geotechnical guidance for preload requirements and foundation conditions of the proposed facilities.

To evaluate the hydrotechnical impacts, Tetra Tech has built upon its previously developed hydrologic/hydraulic PCSWMM model of the GCL system. Tetra Tech staff conducted a field visit on March 9th, 2020 to confirm present day conditions.

Our geotechnical recommendations are based on a preliminary field investigation conducted on the in-situ soil conditions on March 4th, 2020.

2.0 HYDROTECHNICAL ASSESSMENT

A PCSWMM model was developed to simulate the hydrologic and hydraulic processes defining the drainage system within GCL. The 2018 model contained two parts. A two-dimensional model to replicate the ground and surface water flow within the GCL site and a one-dimensional model to simulate the inlets and pipe connections to the City's storm network. These two models are linked within the PCSWMM software to reproduce the GCL's overall flow patterns.

For this assignment Tetra Tech built upon this previously developed model to improve its accuracy and precision. Some of the improvements made are as follows.

- The 2-Dimensional mesh resolution was enhanced from 20 m to 5 m.
- Manning's roughness coefficients for the 2-Dimensional conduits were revised to be area specific depending on current and future land use.
- Modified Green Ampt Infiltration Parameters were further regionally focused and refined. Hydrogeological monitoring data was reviewed to ensure chosen parameters were in keeping with field observations as in Figure 2-1 below.
- The central dike was retraced and inserted to better reflect the features footprint.
- Perimeter connections on the north, south and east boundaries were updated to better reflect potential runoff onto the Richmond street network.
- Invert elevation, size and material information was reviewed from the City's online GIS database and updated as applicable.

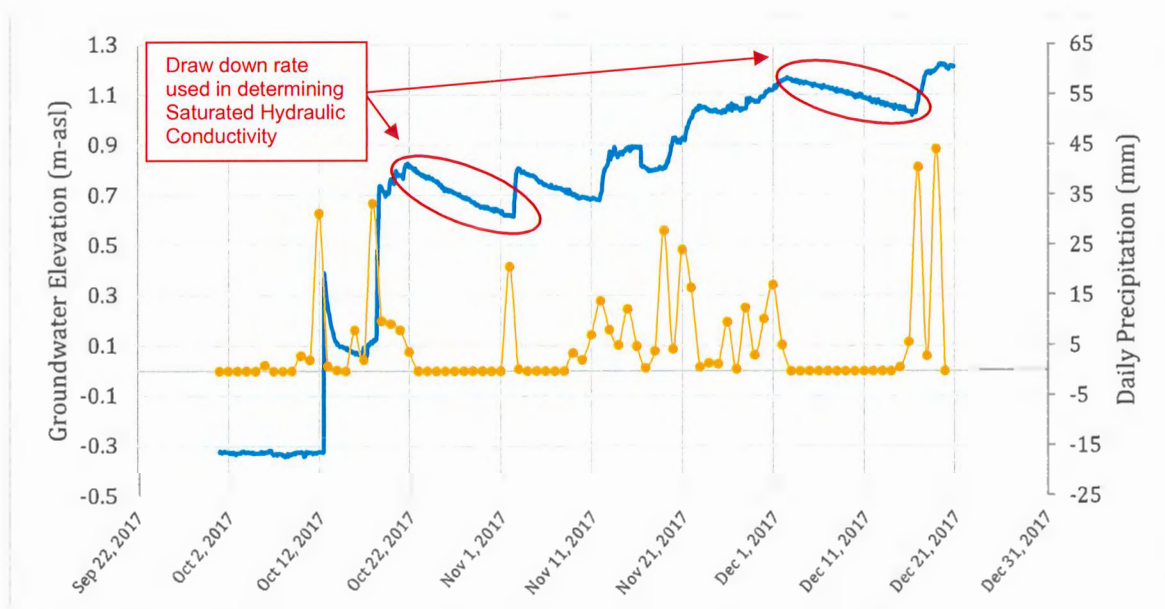


Figure 2-1: Shallow Groundwater Well 15-8S Water Level and Daily Precipitation

As with previous work, the rainfall intensity-duration-frequency (IDF) curve developed by the City of Richmond in the Engineering Design Specifications Storm Drainage document for the 10 Year – 24 Hour storm event was used as the design event in the 2-D model. To better replicate the antecedent conditions, the Richmond design storm is preceded with 24hrs of moderate precipitation - 1.5 mm/hr. Watershed parameters applied to the PCSWMM model included the watershed topography, surface roughness, and modified Green-Ampt infiltration parameters (used to characterise the soils hydrologic properties).

Three models were developed to represent each phase of development.

- Phase 1 - The “Pre-Park Development” scenario replicated physical parameters at the site prior to construction of the cross dike, KPU farmland and northwest pond. To better represent the parks improved retention capabilities – outlets along Garden City Road and Westminster Hwy remain in place as in other scenarios.
- Phase 2 - The “Present Day” scenario replicates physical conditions as they stand currently. The cross dike is in place; Kwantlen Polytechnic farmland has been raised to accommodate farming activities; and the north west pond has been constructed. City of Richmond storm outlets are in place north and south of Lansdowne along Garden City Road as they presently exist to attenuate the release of water into the City’s storm system.
- Phase 3 - The “Application #6357384 Implementation” scenario replicates future conditions after the infill proposed under this application is placed. Figure 2-2 below highlights the location of said infills, while Table 2-1 specifies the depth and composition of infill placements used in replicating this scenario. Garden City Road outlets, as presently existing, remain in place north and south of Lansdowne to attenuate the release of water into the City’s storm system.



Figure 2-2: Infill / Proposed Development Locations as Modelled.

Table 2-1: Infill Locations, Volumes and Depths

Proposed Development	Area (m ²)	Granular Material (m ³)	Sub-Soil (m ³)	Top Soil/Growing Medium (m ³)	Average Depth of infill to be added (m)
Community Gardens (Farm-Use)	3,000		1,500	1,500	1.0
Alderbridge Parking Lot (Non-Farm Use-NFU)	3,200	1,000			0.31
Corner Entry Points (NFU)	1,000	500		200	0.5
Trails (NFU)	10,500	2,000			0.19
Washroom (Alderbridge P lot) (NFU)	50	500			1.0
Community Hub & Farm Centre and Parking Lot(NFU)	6,200	1,200			0.20
Total:	23,950 (2.4 ha)	5,200	1,500	1,700	

Each of the three identified scenarios was modelled for the 10 Year – 24 Hour event. A site map with labelled locations can be found in Figure 8. Modelled schematics of max water depths throughout the GCL can be found in Appendix A.

3.0 MODELLING RESULTS

For each of the outlined scenarios, Tetra Tech reviewed the following hydrologic/hydraulic responses (Refer to Appendix A for locations):

1. South Farm – Water Depths
2. KPU Farm - Water Depths
3. City Storm System Outlet - Flow
4. South Ditch - Flow
5. Bog – Water Depths
6. Northwest Pond – Water Depths

South Farm – Water Depths

The south farm area was assumed to be the region south of the new interpretive centre. It was observed that water depths will increase slightly from existing. This in turn leads to an insignificant amount of additional flow being diverted to the City’s storm system as discussed below. The increased ponding can be attributed to the increased runoff predominantly from the compacted granular fill placed to accommodate the proposed Garden City Road Parking Lot and Interpretive Centre. The new Community Garden was shown to have a minor dampening effect due to the inherent nature of top soil to retain and infiltrate water within its structure.

When comparing to the Pre-park Development scenario, ponding has been reduced at this end of the site. Based on the prior modelling assignment it was observed that a major contributor to this change was the construction of the cross dike and it's clay core retaining water within the bog area.

In line with previous remarks, Tetra Tech is continuing to recommend the completion of slated but not yet build outlet structures along Garden City Road along with raising their rim elevations to allow for control of storm water release. Figure 2 shows the existing drainage pipes at the South Farm area as modelled in Phases 1-3. The location of an outlet control point with the headwall not yet installed south of Lansdowne Rd. is shown in Figure 3-1.



Figure 3-1: Present day not yet completed outlet the south of Lansdowne Rd. along Garden City Rd. as of March 9th 2020.

KPU Farm - Water Depths

As modelled, the KPU Farm area experiences no significant change in maximum water depths after the development of the interpretive centre and parking lot area. As noted during previous modelling, a drop is observed following the construction of the cross dike, placement of fill over the KPU farm area and the construction of the Northwest Pond as associated with the Present Day scenario.



Figure 3-2: Water flowing to outlet control structure north of Lansdowne Rd as of March 9th 2020.



Figure 3-3: Present day headwall control structure installed north of Lansdowne Rd.

City Storm System Outlet – Flow

Our modelling confirms that effects on discharge rates into the City’s storm system are minor. A slight increase is observed due to additional impervious area associated with the compacted gravel parking lots. Overall flow during the 10 Yr – 24 Hr event is expected to increase by 0.01 m³/s. This increase can be offset with changing the outlet conditions in the vicinity of the parking lot along with grading the Garden City Road parking lot towards the Northwest Pond – as discussed further below.

The transition from the Pre-development conditions to present day was shown to provide the greatest reduction in outflows to the City’s storm system. This can be attributed to the additional storage created by the northwest pond and the installation of the central dike to promote the retention of water within the bog. Overall these changes show peak flow being reduced by approximately 0.12 m³/s compared to pre-development flows.

Flows at the GCL outlet point to Richmond’s storm system across all phases is shown in Figure 3-4. The blue line represents current conditions and the green line shows flows once the applications proposed features are fully in place. As detailed, the increase in peak flows to the city’s system are minor to insignificant.

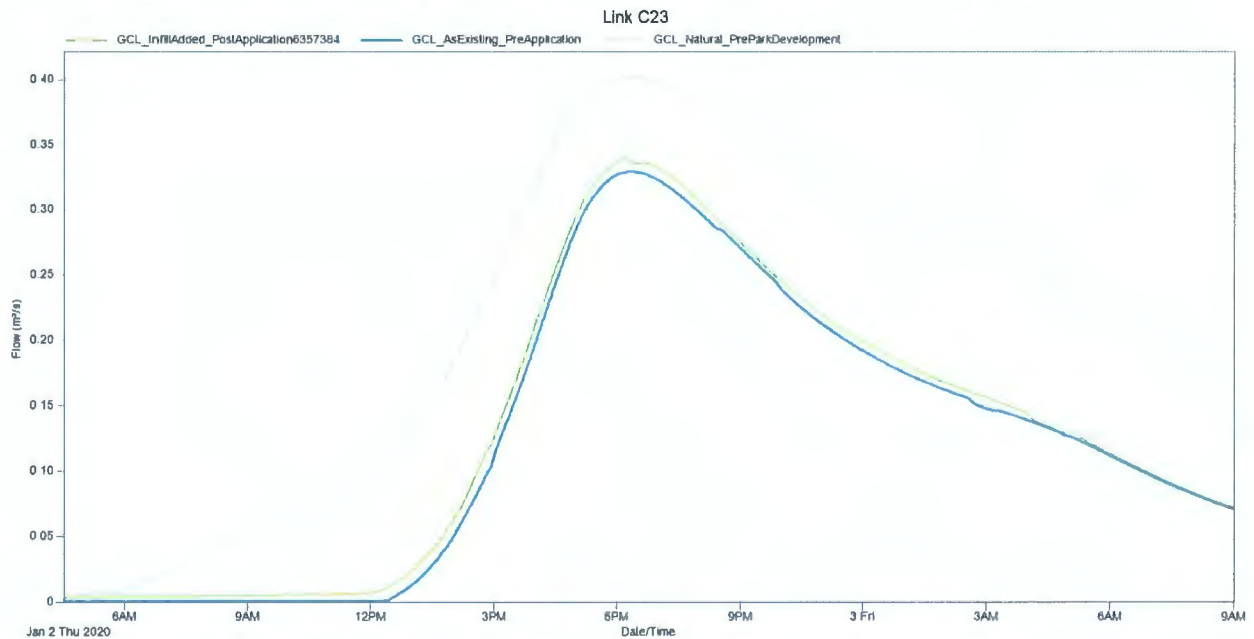


Figure 3-4: Flows at outlet point to Richmond stormwater system

South Ditch (Draining Bog) - Flows

Water discharging over the stop-log structure is conveyed by a roadside ditch flowing west along Westminster Highway referred to as the south ditch. The south ditch ties the bog overflows into the City’s piped storm system which then runs north along Garden City Road. South ditch flows were reviewed to confirm the stop-log structure impact/benefits in protecting the City’s storm system. These flows were reviewed under previous modelling work. With the new and updated model, Tetra Tech was able to reaffirm previous conclusions.

The installed headwall complete with the stop-logs is effectively controlling the discharge of water into the South Ditch (See Figures 3-6 and 3-7 below). Maximum flows that could be expected during a 10 Yr – 24 Hr event are on

the order of 0.25 m³/s assuming that water retention has reached the maximum stop log level when the event occurs.



Figure 3-5: South Ditch looking upstream from outlet headwall.

Bog – Water Depths

As with the previous model - depths at the bog outlet point show significant ponding during the 10 Year – 24 Hour event. Maximum depths observed are approximately 0.6 m, which demonstrates the high storage potential of the bog. A view of the stop-logs structure used to backup water into the bog is shown in Figures 3-6 and 3-7 below.



Figure 3-6: Stop log structure from front during dry season as modelled in Phases 2-4



Figure 3-7: Stop log structure creating a weir outlet condition at the southern end of the bog site

The development pieces proposed for the bog side under Application #6357384 consist of the Alderbridge Parking lot and washroom. No impacts were observed to the depth of water within the bog due to the implementation of these features. Appendix A highlights the modelling results and the extent of the ponding within the Bog.

These results are reinforced by the findings highlighted by the hydrogeological monitoring program's most recent Technical Memorandum, issued in November 2019. The development of the Bog and therefore the formalising of a large storage cell allows for retention of upwards of 10,000m³ of water. In turn, the retention of the runoff reduces the overall impact GCLs may have had on the City's Storm System. More importantly, the retention of water is helping the development of a healthier environment where the Bog can thrive.



Figure 3-8: Ponding at the southern extent of the bog backing up from the stop log structure

Northwest Pond – Water Depths

Modelled depths within the Northwest pond modestly decreased with the proposed developments. This is contrary to expectations. Typically, as floodplains are infilled, the loss of storage capacity translates into higher water levels within the surrounding lands. This can be explained given the assumptions that were made about the parking lots construction. It was assumed that additional runoff create by the parking lots compacted gravel would be shed equally in all directions thus preventing a portion of runoff from reaching the pond. Under present day conditions, the natural flow pattern in the area conveys almost all runoff towards the pond.

The pond was designed to accommodate the increase in runoff and as such protect the City's storm system from the impacts associated with the placement of fill in the GCL's floodplain. If the City chooses to grade the new parking lot towards the pond this minor loss of retention could be avoided. Figure 3-9 shows existing pond conditions during the 2019 Summer. Figure 3-10 shows a graph of the modelled depths in the pond area through all phases.



Figure 3-9: Northwest pond looking north from western side of park

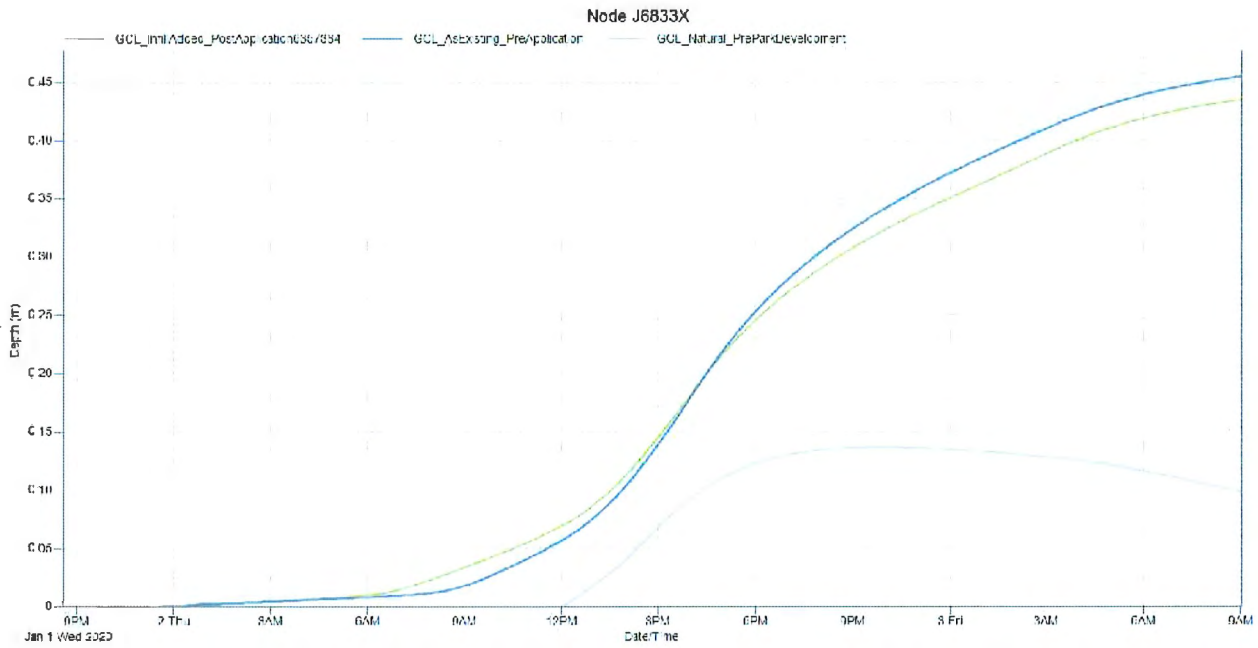


Figure 3-10: Pond Depths through Phases 1-4 of Development. Note Pond not installed for Post Dike and Pre-

4.0 GEOTECHNICAL ASSESSMENT

The following sections details the results of a preliminary subsurface exploration, and includes preliminary foundation and construction recommendations. Anticipated structural loads of the proposed structures were not available to Tetra Tech at the time of writing; therefore, the following geotechnical assessment should be considered preliminary and subject to change following structural design and associated detailed foundation conditions assessment.

4.1 Preliminary Subsurface Investigation

On March 4, 2020, Tetra Tech personnel Casey Watamaniuk E.I.T., G.I.T. conducted a preliminary subsurface exploration of the subject site. The subsurface exploration included geotechnical soil logging and sampling of three hand auger test holes. The locations of the test holes focused on the footprints of proposed structures located near the intersection of Garden City Road and Lansdowne Road (Photograph 1) and at the northern extent of the site, along Alderbridge Way (Photograph 2). Test hole locations are provided in Figure 4-1.

This exploration supplements geotechnical information obtained for the site during a topsoil placement study conducted in October 2018 and geotechnical services provided for dyke construction throughout 2017.

Prior to commencing the subsurface exploration, Tetra Tech placed a BC One Call for the area and reviewed all responses to confirm there would be no utility conflicts with the proposed hand auger holes.

Test hole depths ranged from 1.7 m (HA20-03) to 2.2 m (HA20-01). Test holes were terminated when it became too difficult to extract the hand auger due to suction or when significant sloughing of the hole was observed. During the advancement of the test holes, Tetra Tech completed on-site logging of the material encountered and retained select soil samples for further geotechnical assessment. No geotechnical laboratory testing has been completed for this preliminary assessment.

Table 4-1 summarizes the test hole completion details and all geotechnical logs are provided in Appendix B. Selected photographs from the exploration work are provided in Appendix C.

Table 4-1: Geotechnical Site Exploration Summary

Testhole	Location (UTM Zone 10) ¹			Depth (mbgs ³)	Comments
	Collar Elevation (masl ²)	Northing (m)	Easting (m)		
HA20-01	3	5446741	491026	2.2	Located at the south-east corner of the proposed Farm Hub footprint near the intersection of Garden City Road and Lansdowne Road. Location shown in Photograph 3.
HA20-02	3	5446811	490993	1.9	Located at the north-west corner of the proposed Farm Hub footprint near the intersection of Garden City Road and Lansdowne Road. Location shown in Photograph 4.
HA20-03	2	5447139	491385	1.7	Located at the proposed washroom location along Alderbridge Way. Location shown in Photograph 5.

1. Testhole locations and collar elevations were obtained on site using a handheld GPS and should be considered approximate.

2. masl – metres above sea level

3. mbgs – metres below ground surface

4.1.1 Observed Soil Stratigraphy

The results of the geotechnical site exploration are generally consistent with subsurface conditions observed in previous work on the subject site. The interpreted soil stratigraphy is described in Table 4-2.

Table 4-2: Interpreted Stratigraphy Summary

Unit	Unit Name	Start Depth (mbgs)	Thickness (m)	Unit Description
A	TOPSOIL	Surface	0 – 0.4	Root mat, including living and decomposing vegetation. HA20-02 did not encounter this unit.
B	PEAT	Surface – 0.4	0.1 – 0.8 m	Amorphous with some identifiable root and wood remnants, black-brown, moderately decomposed, wet, strong briny odour. The thickness of this unit appears to be highly variable across the site, from 0.1 m in HA20-01 to 0.8 m in HA20-03. This unit was observed at surface in HA20-02.
C	ORGANIC SILT (CLAYEY TO SOME CLAY)	0.5 – 1.1	1.0 – terminus depth	Very soft, organic silt with some clay and fine sand. Intermixed with peat, wood debris, and other organic detritus. Strong briny odour and mottled brown-grey colouring
D	CLAYEY SILT	1.5	To terminus depth	Homogenous, soft clayey silt with trace fine sand. Dark grey and odourless. Becomes firm at depth. This unit was only encountered in HA20-01.

4.1.2 Groundwater Conditions

Groundwater was observed at surface across the subject site. The area of the proposed Farm Hub buildings near the intersection of Garden City and Lansdowne Roads is generally characterized by a bog with standing water up to approximately 0.5 m deep. At the northern extent of the site (HA20-03), groundwater was encountered at 0.3 mbgs. Surface and groundwater observed during the site exploration had a strong briny odour, which indicates saline groundwater conditions.

4.2 Discussion and Preliminary Recommendations

The results of the subsurface investigation indicate that it is likely feasible to construct the proposed structures on the subject site. However, this is dependant on final footprint dimensions, structural loading conditions, and settlement tolerances. Further site exploration would be required to provide specific foundation recommendations and design parameters once structural loads have been determined. All discussion and recommendations in the following sections are high level and should be considered preliminary.

4.2.1 Conceptual Construction Recommendations

Construction of buildings on the site would require preloading and dewatering of the peat, organic silt, and clayey silt units (Units B, C, D). This may be achieved by stripping the topsoil (Unit A) from the proposed footprints and constructing gravel pad foundations. Gravel pads should be underlain by geotextile to prevent fines migration and constructed with clean, well graded 25 mm aggregate. To prevent puncture of the geotextile, the first lift of gravel may need to be a minimum of 0.5 m thick and left uncompacted. Subsequent lifts of gravel should be a maximum of 0.3 m thick and suitably compacted. The total thickness of the gravel pad would depend on the expected high water elevation.

The gravel pad could be extended to 1 m above final grade and left to settle for up to 4 months, with settlement monitoring, then removed to the under side of slab elevation.

Alternatively, the buildings could be constructed on monolithic raft slabs with flexible utility connections to accommodate settlement. The first option with 1 m of preload is considered more effective at minimizing future settlement.

Any survey should be conducted using equipment of suitable accuracy and a fixed datum (such as a sidewalk or a fire-hydrant).

Table 4-3 below provides the approximate preload volumes anticipated assuming 1 m of preload extending 1 m outside of all building areas. This carries with it the assumption that the buildings will be relatively light and generally single storey. More substantial building structures will change these requirements. If unexpected soil conditions, such as deep peat are encountered during the detailed investigation that will also change this requirement.

Table 4-3: Anticipated Preload Volume Summary

Proposed Development	Area (m ²)	Approximate Preload Required (m ³)
Alderbridge Parking Lot Washroom	50	70 ¹
Community Hub & Farm Centre	1000	1,100 ¹
Total:	23,950 (2.4 ha)	1,170

1. Note that this is only the preload volume and does not include the subsurface foundational fill that will remain in place.

4.2.2 Detailed Site Exploration

Once structural designs are provided, Tetra Tech recommends a subsequent site exploration to inform detailed foundation design recommendations. Recommendations for the scope of this investigation will be provided when the building design is further advanced.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis conducted by Tetra Tech we can make the following conclusions and recommendations:

- The proposed development under Application #6357384 will have negligible increase in load on the City's stormwater system. If completed in conjunction with the raised headwall outlets south of Lansdowne Road impact on the City's storm water infrastructure could be eliminated.
- To ensure the Northwest pond continues sees the same inflows it is recommended that the new Garden City Road parking lot be predominantly graded to the north.
- Further modelling has reaffirmed the overall conclusions made in the November 2019 Hydrogeology Monitoring Memo, and November 2018 Hydrotechnical Modelling Memo regarding the hydrogeological processes within the Garden City Lands including the effects of the cross dike and the Northwest pond.

6.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of City of Richmond and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than City of Richmond, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech Canada Inc.'s Services Agreement. Tetra Tech's Limitations on the Use of this Document are attached to this memo (Appendix D).

7.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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Prepared by:
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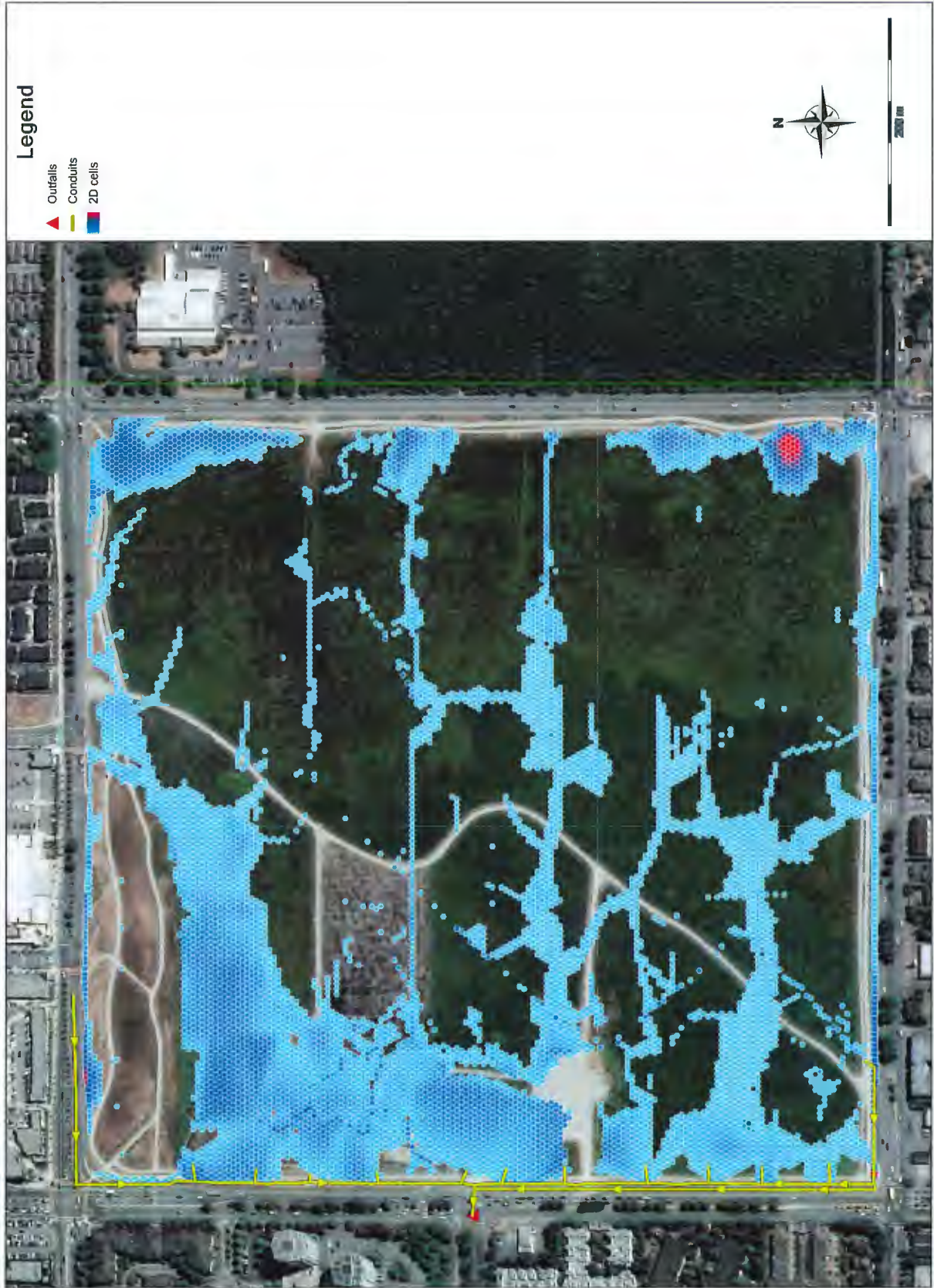
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APPENDIX A

HYDROTECHNICAL FIGURES



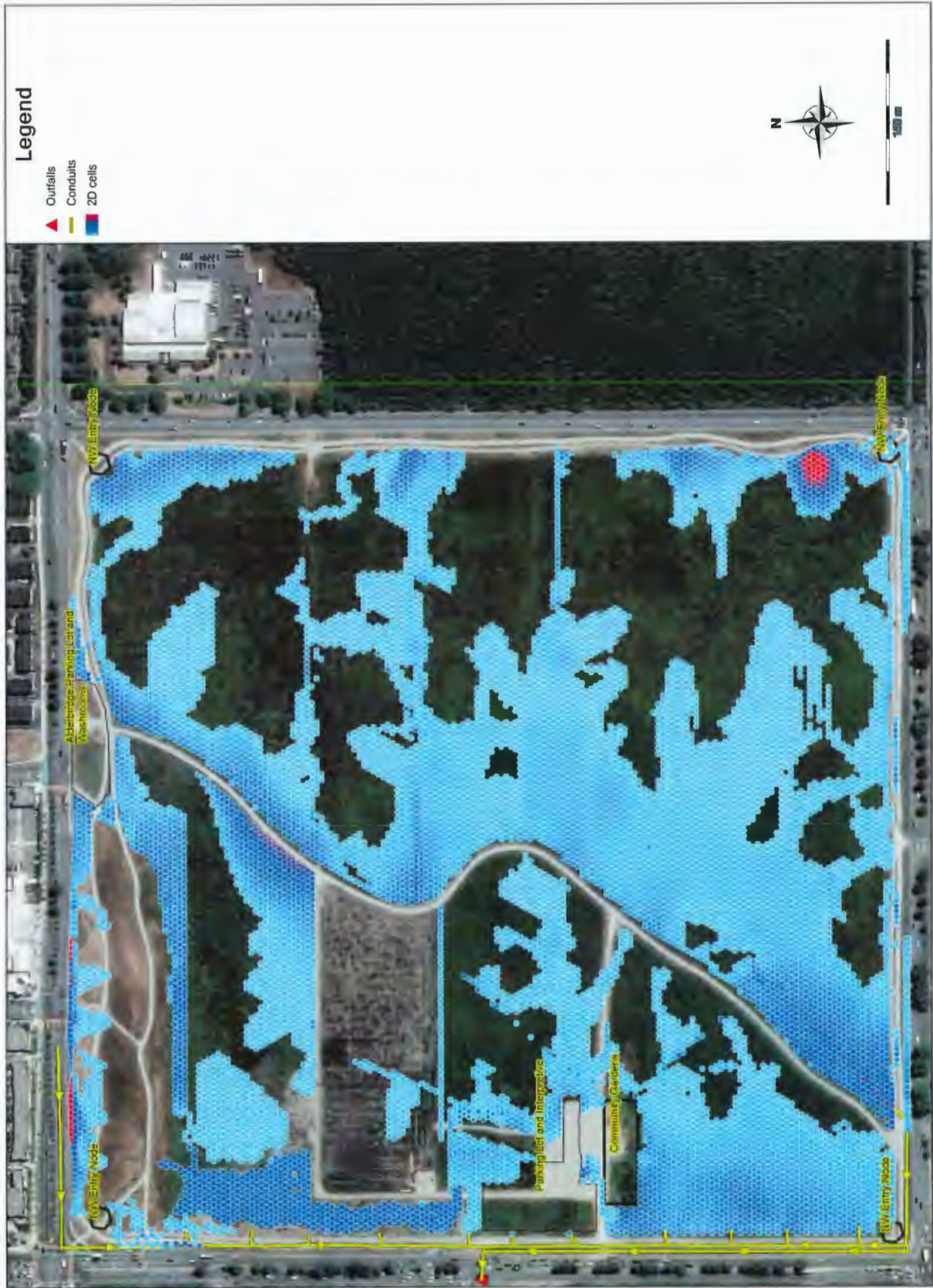
Pre-Park Development Scenario - Max Depths Map



Present Day Scenario - Max Depths Map



Post Applications #6357384 Implementation Scenario - Max Depths Map



APPENDIX B

TEST HOLE LOGS



Testhole No: HA20-01

Project: GCL Geotechnical Assessment

Project No: 704-WTR.WTRM03023-02

Location: Garden City Lands

Ground Elev: 3 m

Richmond, BC

UTM: 491026 E; 5446741 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Moisture Content (%)			Elevation (m)
							Plastic Limit	Moisture Content	Liquid Limit	
0		ROOT MAT (TOPSOIL), decomposing and living plant material.			S1					3
		Organic SILT and SAND (TOPSOIL), trace clay, heterogeneous, wet, very soft, non-plastic, mottled grey/brown, strong briney odour, significant rootlets and organic debris; sand is fine.								
		PEAT, black-brown, strongly decomposed (H7), very wet (B4), mainly amorphous with recognizable root and woody remnants (F1, R2, V1), strong briney odour (A3), minimal tensile strength (T1). Plastic limit test not possible (P0). Plant types not identified.								
		Organic SILT, some clay, some sand, some amorphous peat, heterogeneous, wet, very soft to soft, non-plastic to low plasticity, dark brown/grey mottling, strong briney odour, some rootlets and wood fibre; sand is fine. Ponding water at surface and significant free water observed in-situ.			S2					2
	Hand Auger	- below 1.3 m, less peat observed and only slight briney odour			S3					
		SILT, clayey to some clay, trace sand, homogeneous, wet, very soft to soft, low-plasticity, rapid dilatancy, dark grey, odourless; sand is fine.								
		- below 2.1 m, becomes firm			S4					1
2.5		Testhole terminated at 2.2 m (due to difficulty extracting hand auger). - Upon completion, the testhole was backfilled with excavated soil. - Soil descriptions and estimates of soil consistency were interpreted from drilling effort and visual classification of recovered samples. These estimates are based on engineering judgement. - Testhole locations and elevations were estimated based on field measurements with a hand-held GPS and are approximate.								

	Contractor: Tetra Tech Canada Inc.	Completion Depth: 2.2 m
	Drilling Rig Type: Hand Auger	Start Date: March 4, 2020
	Logged By: CW	Completion Date: March 4, 2020
	Reviewed By: KJ	Page 1 of 1

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Testhole No: HA20-02

Project: GCL Geotechnical Assessment	Project No: 704-WTR.WTRM03023-02
Location: Garden City Lands	Ground Elev: 3 m
Richmond, BC	UTM: 490993 E; 5446811 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Moisture Content (%)			Elevation (m)	
							Plastic Limit	Moisture Content	Liquid Limit		
0							20	40	60	80	3
	Hand Auger	PEAT, black-brown, trace organic clay, moderate to strongly decomposed (H6), very wet (B4), mainly amorphous with moderate to high degree of root and woody remnants (F2, R2, V2), strong briney odour (A3), minimal tensile strength (T1). Plastic limit test not possible (P0). Plant types not identified.			S1						
		Organic SILT, clayey, trace sand, homogeneous, wet, soft, low plasticity, slow dilatancy, mottled brown-grey, slight briney odour, some peat, wood debris and rootlet inclusions; sand is fine.				S2					
1		- below 1.3 m becomes sticky and difficult to advance auger									
2		Testhole terminated at 1.9 m (due to difficulty extracting hand auger). - Upon completion, the testhole was backfilled with excavated soil. - Soil descriptions and estimates of soil consistency were interpreted from drilling effort and visual classification of recovered samples. These estimates are based on engineering judgement. - Testhole locations and elevations were estimated based on field measurements with a hand-held GPS and are approximate.									1
2.5											



Contractor: Tetra Tech Canada Inc.	Completion Depth: 1.9 m
Drilling Rig Type: Hand Auger	Start Date: March 4, 2020
Logged By: CW	Completion Date: March 4, 2020
Reviewed By: KJ	Page 1 of 1

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Testhole No: HA20-03

Project: GCL Geotechnical Assessment

Project No: 704-WTR.WTRM03023-02

Location: Garden City Lands

Ground Elev: 2 m

Richmond, BC

UTM: 491385 E; 5447139 N; Z 10

Depth (m)	Method	Soil Description	Graphical Representation	Sample Type	Sample Number	Moisture Content (%)	Moisture Content (%)			Elevation (m)
							Plastic Limit	Moisture Content	Liquid Limit	
0		ROOT MAT (TOPSOIL), decomposing and living plant material.					20	40	80	2
		Organic SILT and SAND (TOPSOIL), trace clay, heterogeneous, moist to wet, soft, non-plastic, mottled grey/brown, slight briney odour, peat, rootlets, and organic debris inclusions; sand is fine.								
	Hand Auger	PEAT, black-brown, strongly decomposed (H7), very wet (B4), mainly amorphous with recognizable root and woody remnants (F2, R2, V1), strong briney odour (A3), no tensile strength (T0). Plastic limit test not possible (P0). Plant types not identified.			S1					
1		Organic SILT, some clay, some sand, homogeneous, wet, very soft to soft, non-plastic to low-plasticity, rapid dilatancy, mottled grey-brown, slight briney odour, some peat, rootlet and wood debris inclusions; sand is fine.								
		Testhole terminated at 1.7 m (due to difficulty extracting hand auger). - Upon completion, the testhole was backfilled with excavated soil. - Soil descriptions and estimates of soil consistency were interpreted from drilling effort and visual classification of recovered samples. These estimates are based on engineering judgement. - Testhole locations and elevations were estimated based on field measurements with a hand-held GPS and are approximate.			S2					
2										0
2.5										



Contractor: Tetra Tech Canada Inc.

Completion Depth: 1.7 m

Drilling Rig Type: Hand Auger

Start Date: March 4, 2020

Logged By: CW

Completion Date: March 4, 2020

Reviewed By: KJ

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Page 1 of 1

APPENDIX C

GEOTECHNICAL PHOTOGRAPHS



Photograph 1

Photo Date: March 4, 2020

Description: Proposed Farm Hub building footprint at intersection of Garden City and Lansdowne Roads.



Photograph 2

Photo Date: March 4, 2020

Description: Proposed washroom building footprint at northern extent of site.



Photograph 3

Photo Date: March 4, 2020

Description: HA20-01, located in the south-east corner of the proposed Farm Hub footprint.



Photograph 4

Photo Date: March 4, 2020

Description: HA20-02, located in the north-west corner of the proposed Farm Hub footprint.



Date & Time: Wed, Mar 04, 2020, 12:57:46 PST
Position: 10 N 491384 5447140 (± 6.0 m)
Altitude: 2 m (± 3.0 m)
Datum: WGS-84
Azimuth/Bearing: 079° N79E, 1298mils True ($\pm 15^\circ$)
Elevation Angle: +05.4°
Horizon Angle: -00.7°
Zoom: 1.0x
HA20-03
Tetra Tech Canada

Photograph 5

Photo Date: March 4, 2020

Description: HA20-03, located at the proposed washroom location in the northern extent of the site, along Alderbridge Way.

APPENDIX D

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

HYDROTECHNICAL

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1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

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This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless expressly agreed to in the Services Agreement, TETRA TECH was not retained to investigate, address or consider, and has not investigated, addressed or considered any environmental or regulatory issues associated with the project.

1.8 LEVEL OF RISK

It is incumbent upon the Client and any Authorized Party, to be knowledgeable of the level of risk that has been incorporated into the project design, in consideration of the level of the hydrotechnical information that was reasonably acquired to facilitate completion of the design.

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

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TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to explore, address or consider and has not explored, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems, methods and standards employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historical environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional exploration and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

Construction activity can impact structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques, and construction sequence are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, and the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function. Where temporary or permanent drainage systems are installed within or around a structure, these systems must protect the structure from loss of ground due to mechanisms such as internal erosion and must be designed so as to assure continued satisfactory performance of the drains. Specific design details regarding the geotechnical aspects of such systems (e.g. bedding material, surrounding soil, soil cover, geotextile type) should be reviewed by the geotechnical engineer to confirm the performance of the system is consistent with the conditions used in the geotechnical design.

1.16 DESIGN PARAMETERS

Bearing capacities for Limit States or Allowable Stress Design, strength/stiffness properties and similar geotechnical design parameters quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition used in this report. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions considered in this report in fact exist at the site.

1.17 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

1.18 APPLICABLE CODES, STANDARDS, GUIDELINES & BEST PRACTICE

This document has been prepared based on the applicable codes, standards, guidelines or best practice as identified in the report. Some mandated codes, standards and guidelines (such as ASTM, AASHTO Bridge Design/Construction Codes, Canadian Highway Bridge Design Code, National/Provincial Building Codes) are routinely updated and corrections made. TETRA TECH cannot predict nor be held liable for any such future changes, amendments, errors or omissions in these documents that may have a bearing on the assessment, design or analyses included in this report.

**Excerpt from the Meeting Minutes of the
Food Security and Agricultural Advisory Committee (FSAAC)**

Held Thursday, February 20, 2020 (7:00 pm)
M.2.002
Richmond City Hall

In Attendance:

Members: Steve Easterbrook (Chair); Sarah Drewery; Laura Gillanders; Lynn Kemper; Ian Lai; Kent Mullinix; Allen Rose; Miles Smart

Non-Members: Councillor Harold Steves (Council Liaison); Barry Konkin (Policy Planning); Steven De Sousa (Policy Planning); Todd Gross (Parks); Paul Brar (Parks); Alex Kurnicki (Parks); Magnus Sinclair (Parks); Carli Williams (Community Bylaws); Mike Morin (Community Bylaws); Nadia Mori (Ministry of Agriculture); Shannon Lambie (Agricultural Land Commission)

Regrets:

None.

Garden City Lands Non-Farm Use Application at 5560 Garden City Road

Alex Kurnicki, Research Planner 2, introduced the Garden City Lands Non-Farm Use Application, provided a summary of the site history and previous approvals, and provided the following comments:

- As per advice from the Agricultural Land Commission (ALC), one comprehensive application is submitted for the entire project;
- The non-farm use application includes site access features (e.g. entry nodes and view points, wayfinding signage, boardwalks, trails, access roads), site infrastructure (e.g. bog conservation area, parking lot, public washrooms, site furniture, culverts and bridges, and lighting) and agricultural and food production components (e.g. planting and landscaping, public event space, farmers markets);
- Other agricultural and food production components are included for information purposes and do not require approval from the ALC (e.g. farm infrastructure, field crop and livestock production);
- Community hub and farm centre are also included in the proposal; and
- The primary purpose of the application is to facilitate public access beyond the perimeter trail, construct the infrastructure to support the safe use of the site, and

activate the space with public education programs, urban agriculture, site interpretation, and bog conservation.

Discussion ensued regarding septic systems, livestock production, and potential opportunities for revenue sources by leasing land to farmers.

Councillor Steves noted that collection of rainwater from adjacent buildings and pumping from the water table should be reviewed as potential water sources.

Carli Williams, Manager of Business Licence and Bylaws, indicated there is a soil deposit component to the project, including material for structures and paths, and topsoil for the community gardens.

In response to questions from the Committee, Parks staff noted that options to manage soil contamination are currently being investigated, including additional testing, and staff are working with the Garden City Conservation Society to manage and plant trees on-site.

The Committee passed the following motion:

That the Food Security and Agricultural Advisory Committee support the Garden City Lands Non-Farm Use Application (AG 18-837641) as presented.

Carried Unanimously