



## Selected Works Portfolio

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Department of Landscape Architecture  
Undergraduate + Graduate Works



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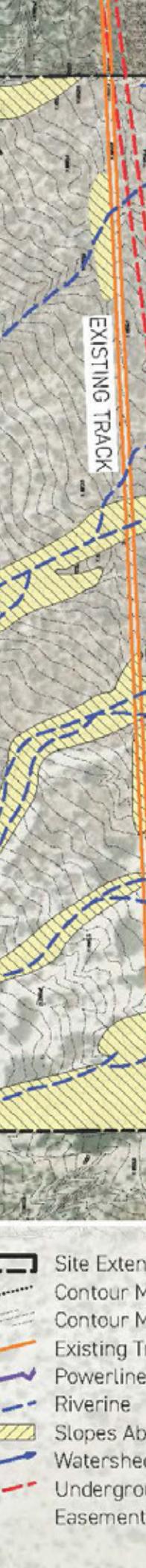
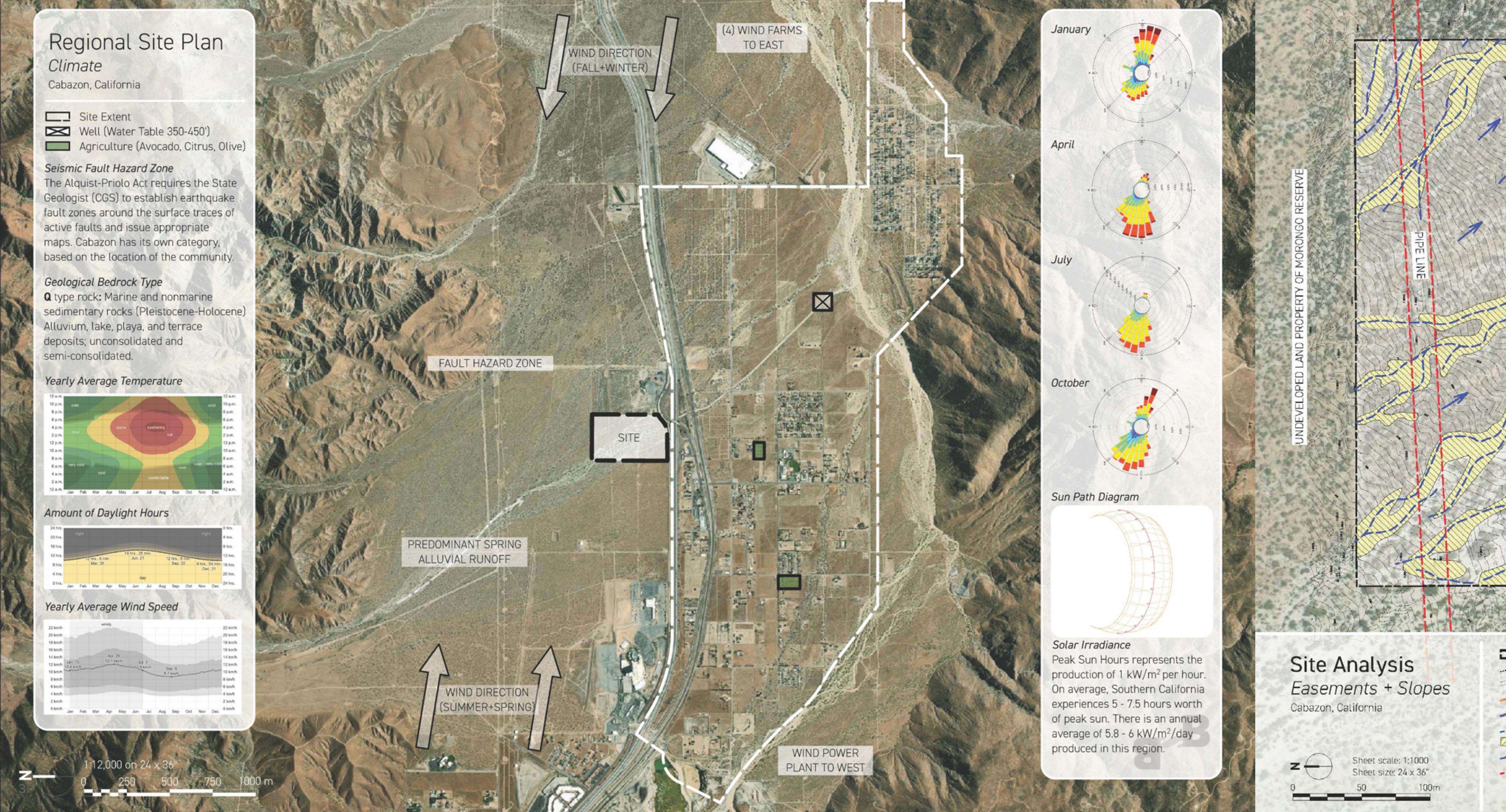
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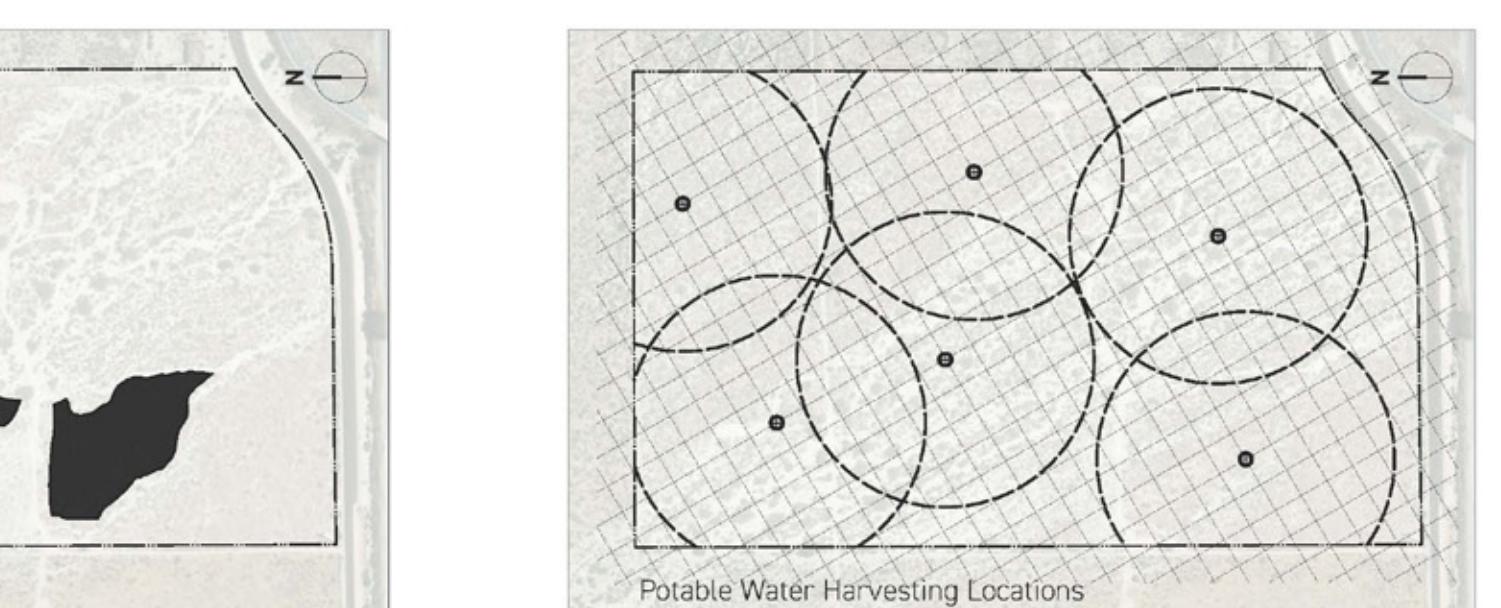
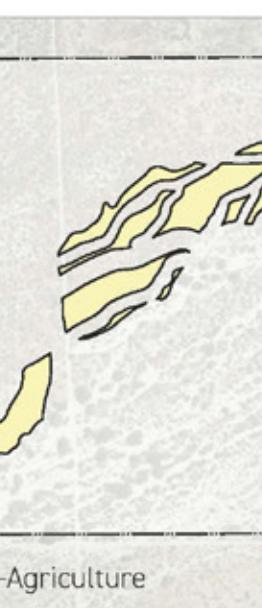
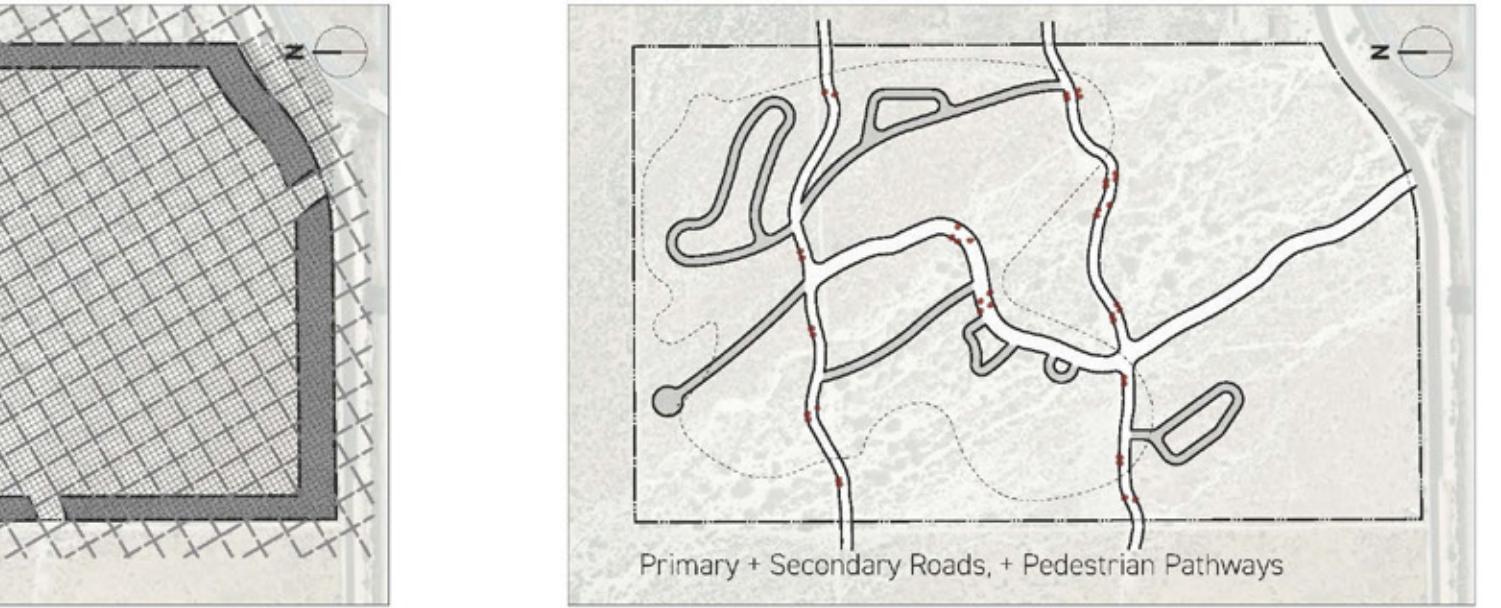
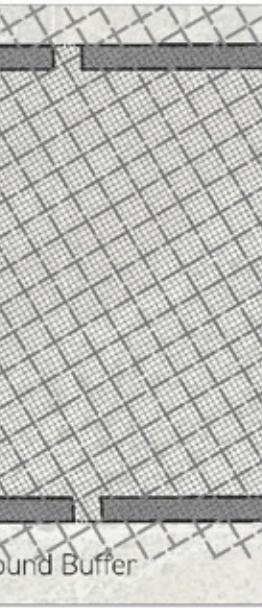
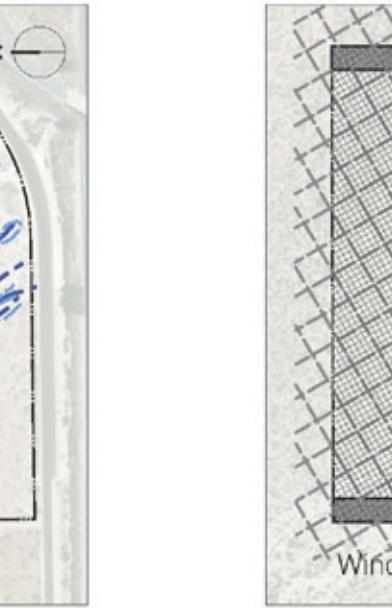


## Gorgonio Sands

**Term** Summer 2022 **Class** ARCG 7102 - Summer Studio  
**Instructor(s)** Emeka Nnadi **Duration** 4 Weeks  
**Programs** Vectorworks, TwinMotion, Photoshop  
**Group Members** Benjamin Gaudes, Simranpreet Kaur

The design intention of this group project was to create a development that would address sustainable energy production, water supply, food production and urban agriculture, and affordable housing. These objectives were achieved through harvesting solar and wind energy, utilizing groundwater and alluvial melt, urban orchards and greenhouses, and pre-fabricated modular housing. This development is located near Cabazon, California.







## Master Plan Gorgonio Sands

Cabazon, California



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- Site Extent
- Primary Road
- Sidewalk/Shared Road
- Tertiary Road
- Park Pathway
- Pathway Bridge
- Park
- Residential Lots
- Setback
- House
- Greenhouse
- X Wind Energy

50

100m



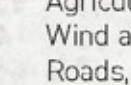
Distance to  
Major Bus Stop

1.5 miles



## Master Plan Render

Cabazon, California



0

50

100m

**Housing Density = 132 Units / 5.25 Hectares = 25 Units/Hectare**

### Solar Power Calculations

Average Daily Production per House = 240 kWh / house / day  
Average Yearly Production per House = 87,600 kWh / house / year  
Average Community Production (132 Houses) = 31,680 kWh / day  
Average Yearly Community Production (132 Houses) = 11,563,200 kWh / year

### Wind Power Calculations

VORTEX Bladeless Production = 8 W / m<sup>2</sup> @ 3.6 m/s @ 2.75m Height  
VORTEX Bladeless Production = 0.124 kWh / m<sup>2</sup> @ 13 km/h @ 2.75m Height  
VORTEX Bladeless Production = 12 W / m<sup>2</sup> @ 3.6 m/s @ 9m Height

### Land Use Percentages:

35%

Natural Resource Management

Housing

Agriculture

Wind and Sound Buffer

Wind Energy

Roads, Sidewalks, + Pathway

Parks and Recreation

Wind Energy

Solar Energy

Potable Water

Wind Energy

Solar Energy

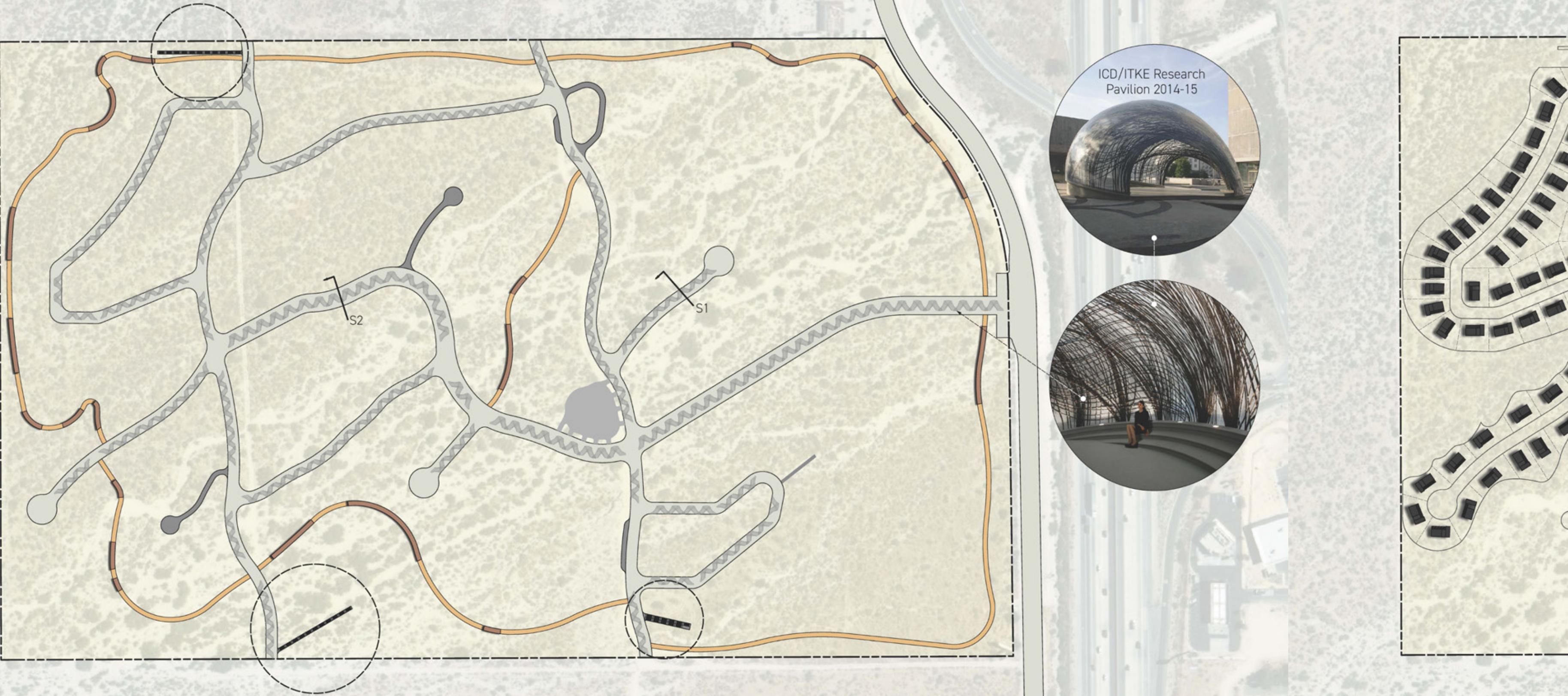
Potable Water

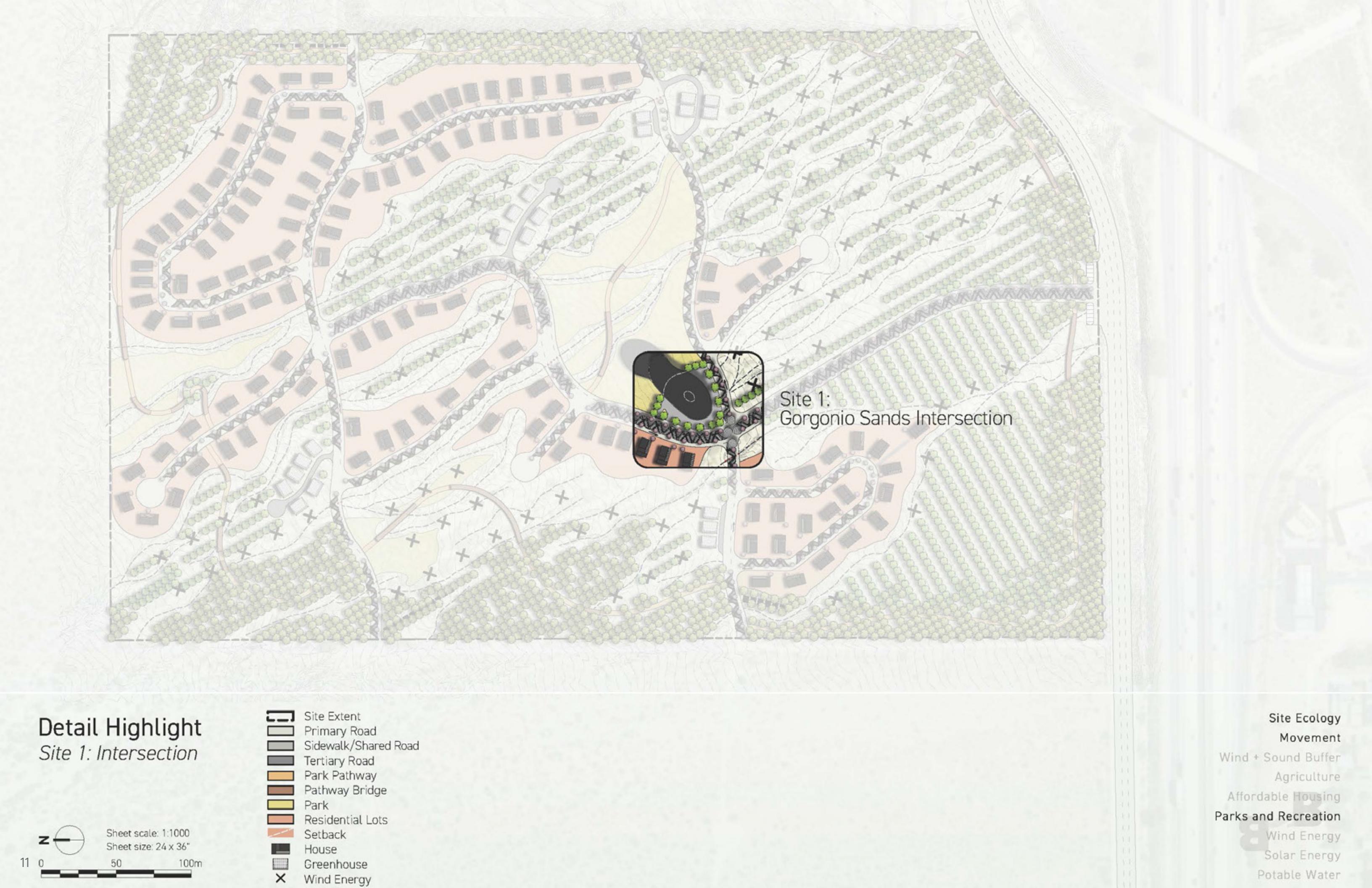
### Water Resource Management Calculations

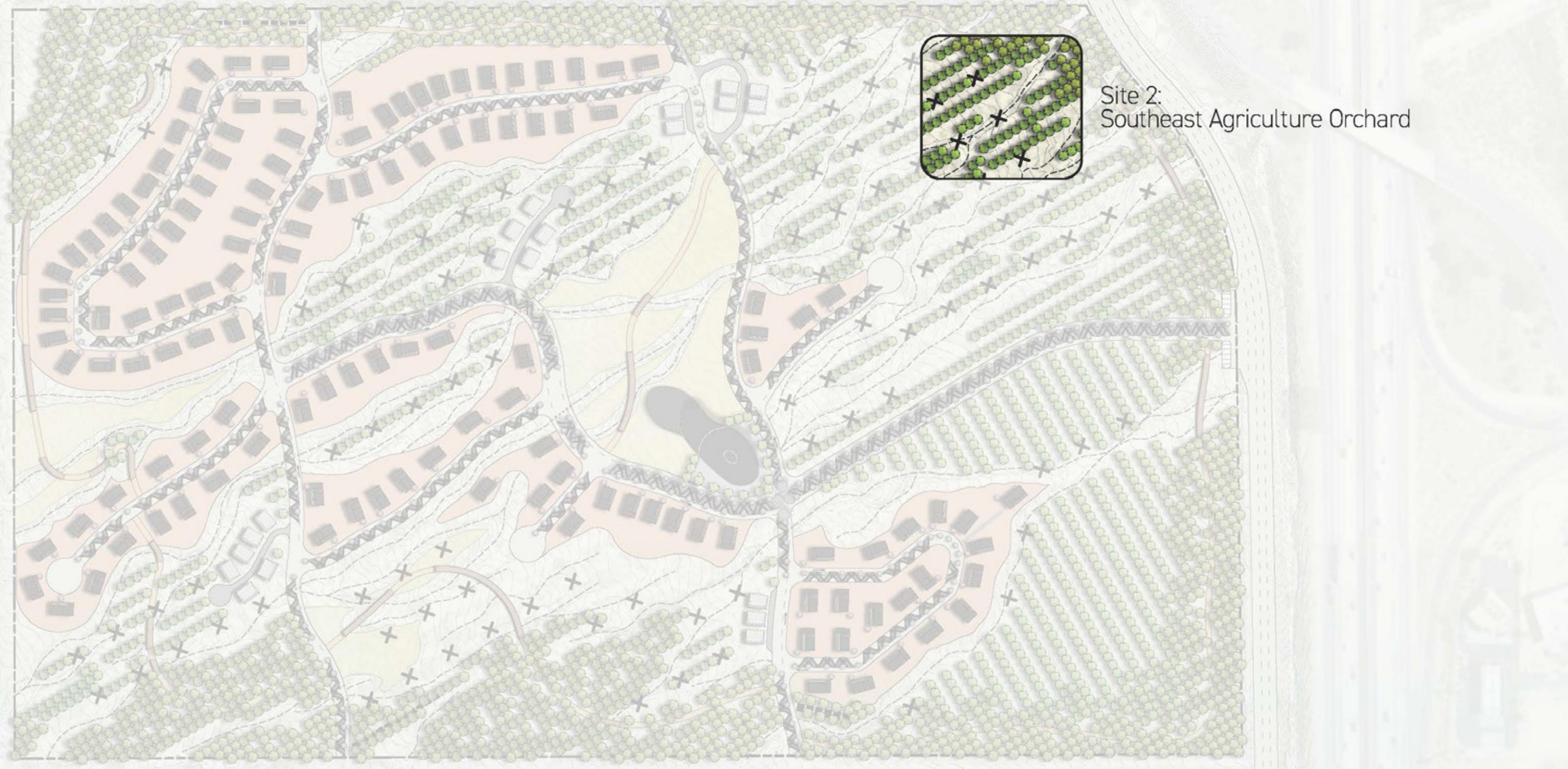
Average Household (4 Person) Daily Use = 200 gallons / day  
Well Volume Yield = 260 gallons // Tripled = 780 gallons  
Minimum Residential Pump = 1.5 hp @ 450' @ 6 gallons / minute

- Site Ecology
- Movement
- Wind + Sound Buffer
- Agriculture
- Affordable Housing
- Parks and Recreation
- Wind Energy
- Solar Energy
- X Potable Water

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### Detailed Highlight Site 2: Orchard

- Site Extent
- Primary Road
- Sidewalk/Shared Road
- Tertiary Road
- Park Pathway
- Pathway Bridge
- Park
- Residential Lots
- Setback
- House
- Greenhouse
- Wind Energy

Sheet scale: 1:1000  
Sheet size: 24 x 36"

13 0 50 100m

- Site Ecology
- Movement
- Wind + Sound Buffer
- Agriculture
- Affordable Housing
- Parks and Recreation
- Wind Energy
- Solar Energy
- Potable Water

### Agriculture Orchard Detailed Design

Riprap to Protect and Preserve Agriculture Area

- Riverine Ground Species
- Blue Elf Aloe (*Aloe 'Blue Elf'*)
- Elijah Blue Fescue (*Festuca glauca 'Elijah Blue'*)
- Matilija Poppy (*Romneya coulteri*)
- Angelina Stonecrop (*Sedum rupestre 'Angelina'*)
- Blue Chalksticks (*Senecio serpens*)
- California Fuchsia (*Zauschneria californica 'Calistoga'*)
- Site Ecology
- Movement
- Wind + Sound Buffer
- Agriculture
- Affordable Housing
- Parks and Recreation
- Wind Energy
- Solar Energy
- Potable Water





Agriculture Orchard  
Detailed Design

Buffer Trees

Desert Willow (*Chilopsis linearis*)  
Australian Willow (*Geijera parviflora*)  
Coast Live Oak (*Quercus agrifolia*)

Abacus Planting Blends Buffer and Agriculture Trees



Agriculture Orchard  
Detailed Design

Orchard Trees

Moro Blood Orange (*Citrus sinesis 'Moro'*)

Brown Turkey Fig (*Ficus carica 'Brown Turkey'*)

Olive Leaf (*Olea europaea L. folium*)

Hass Avocado (*Persea americana 'Hass'*)

Site Ecology  
Movement

Wind + Sound Buffer

Agriculture

Affordable Housing

Parks and Recreation

Wind Energy

Solar Energy

Potable Water



Site Ecology  
Movement  
Wind + Sound Buffer  
Agriculture  
**Affordable Housing**  
Parks and Recreation  
Wind Energy  
Solar Energy  
Potable Water

18



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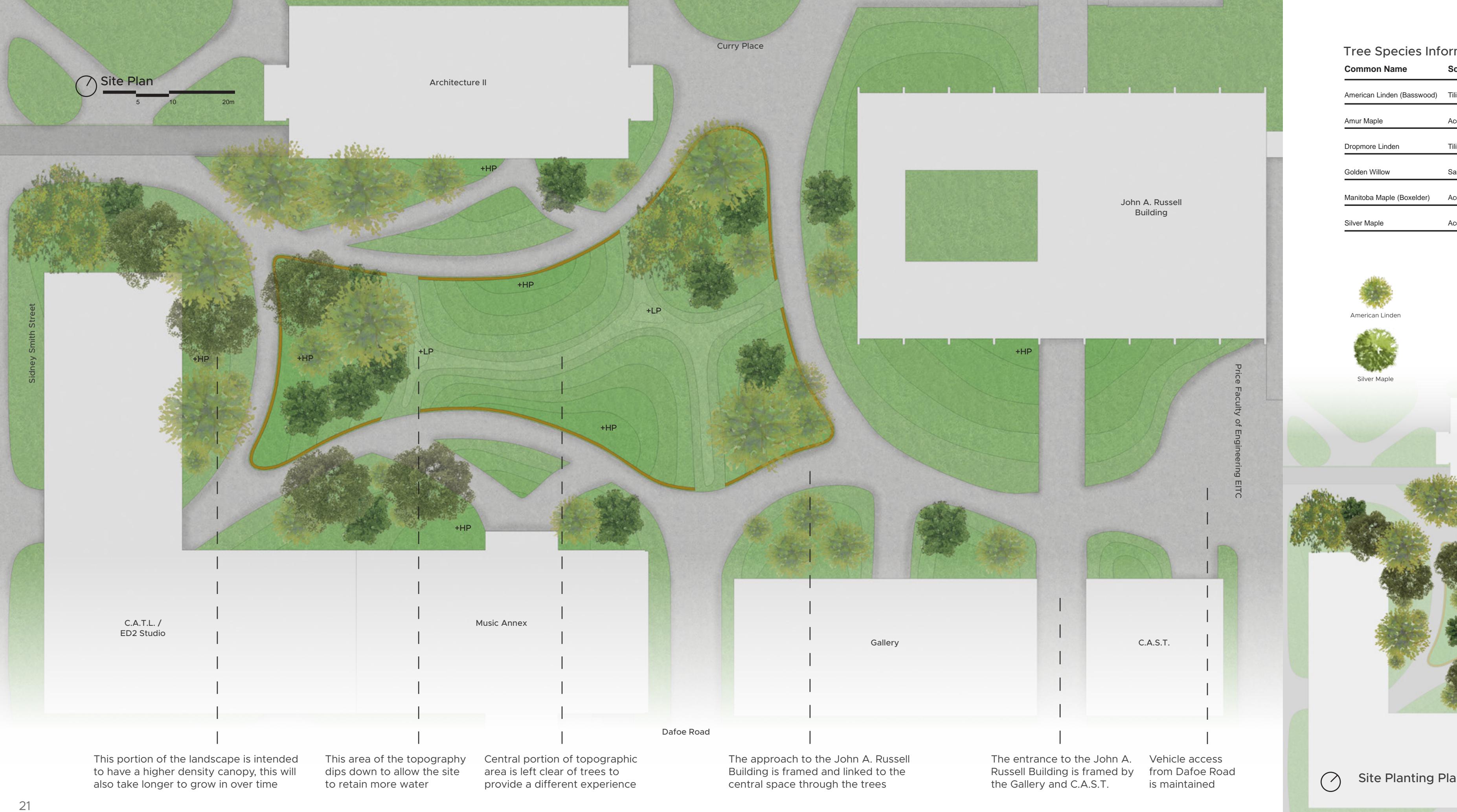
## Design Precinct

**Term** Winter 2020 **Class** EVLU 3008 Studio 4

**Instructor(s)** Brenda Brown **Duration** 6 Weeks

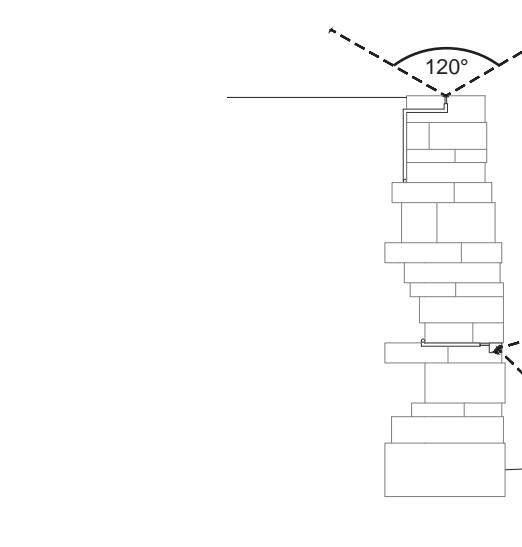
**Programs** Modelling, Photoshop, Illustrator + Rhino3D

The premise of this project was to design a new “precinct” for the Faculty of Architecture at the University of Manitoba, with input provided from members of the faculty, staff, and students. With this data in mind, sketch models were created to explore the space further. This particular layout was inspired by a plasticine and cardboard model, with the final model being constructed out of Architectural Butter Board and Preserved Reindeer Moss.

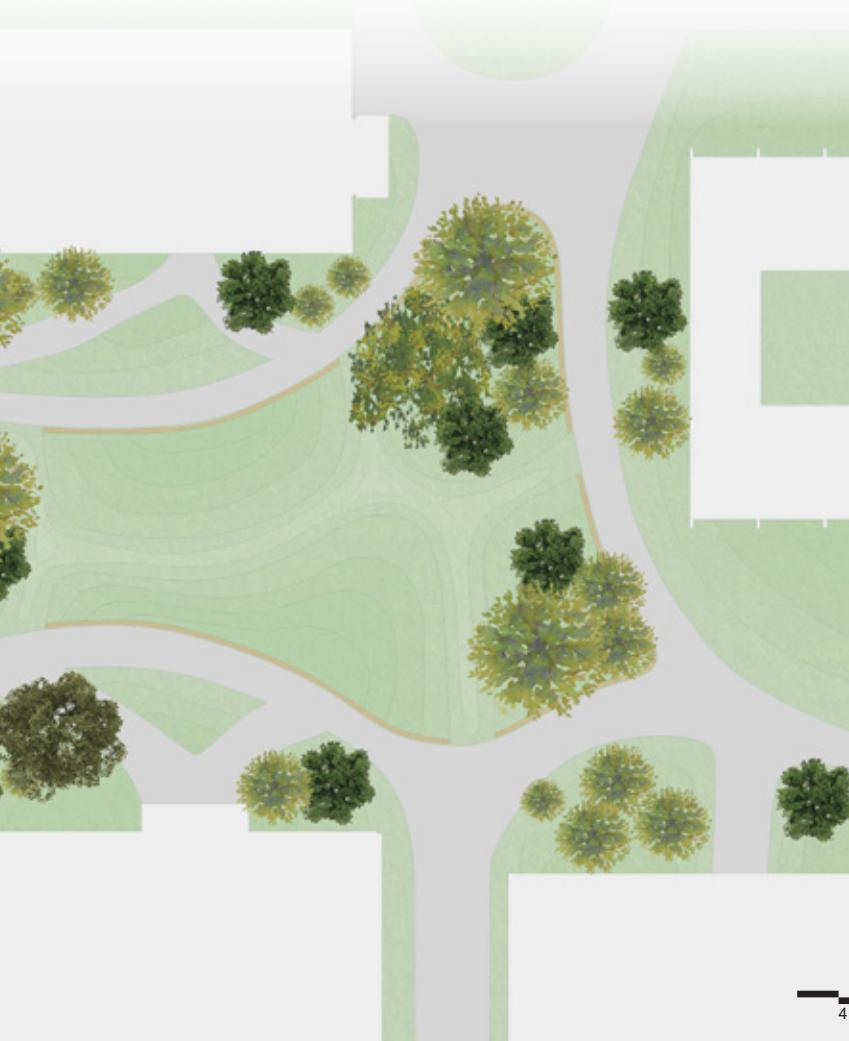
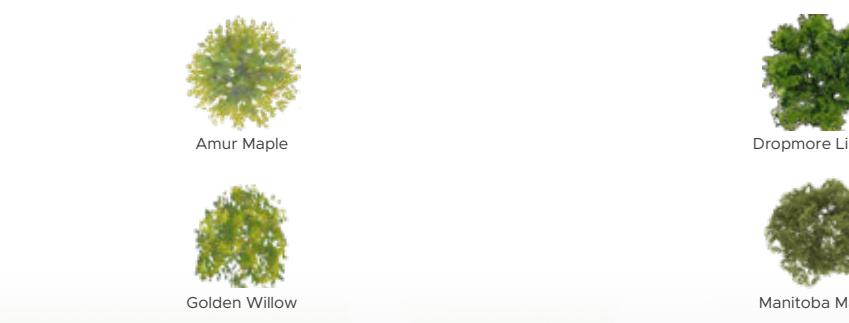
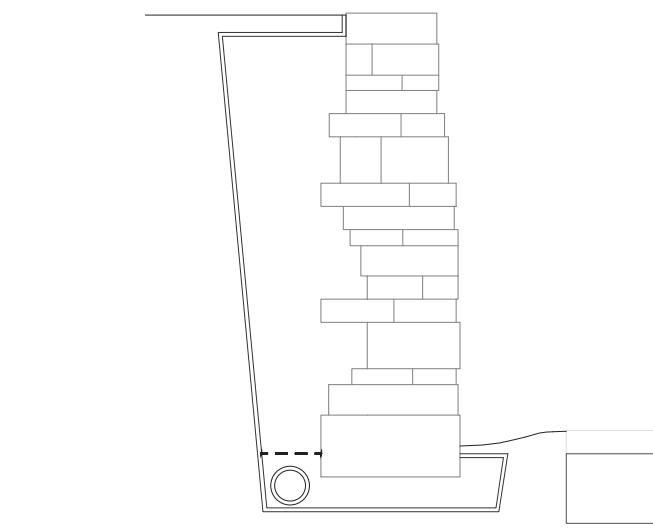


### Tree Species Information

Common Name	Scientific Name	Soil Type	Max. Height	Max. Canopy Size	Seasonal Gradient
American Linden (Basswood)	<i>Tilia americana</i>	Well-drained, Moist	80' (24.4 m)	40' (12.2 m)	
Amur Maple	<i>Acer ginnala</i>	Well-drained, Moist	20' (6.1 m)	18' (5.5 m)	
Dropmore Linden	<i>Tilia x flavescens 'Dropmore'</i>	Well-drained, Moist	25' (7.6 m)	18' (5.5 m)	
Golden Willow	<i>Salix alba 'Vitellina'</i>	Moist, Any	50' (15.2 m)	40' (12.2 m)	
Manitoba Maple (Boxelder)	<i>Acer negundo</i>	Moist, Deep	45' (13.7 m)	20' (6.1 m)	
Silver Maple	<i>Acer saccharinum</i>	Well-drained, Moist	80' (24.4 m)	15' (4.6 m)	



- Flexfire LEDs (Dynamic Tunable) would be used within the retaining walls to provide under-lighting to the trees along curves, and to certain stretches of pathway
- The LEDs have a beam angle of 120° which is similar to a Wide Flood
- This particular type of LED is IP65 graded and would run at 4200K



### Sectional Perspectives

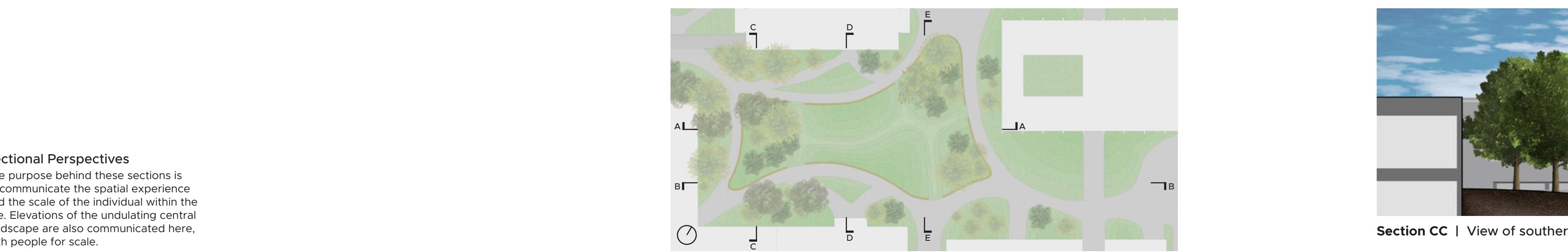
The purpose behind these sections is to communicate the spatial experience and the scale of the individual within the site. Elevations of the undulating central landscape are also communicated here, with people for scale.



Section AA | View facing north-west through site



Section BB | View facing south-east through site



Section CC | View of southern portion of central topography space



Section DD | View of central topography space with retaining walls



Section EE | View of northern portion of central topography space



Perspective facing North



Perspective facing Northeast



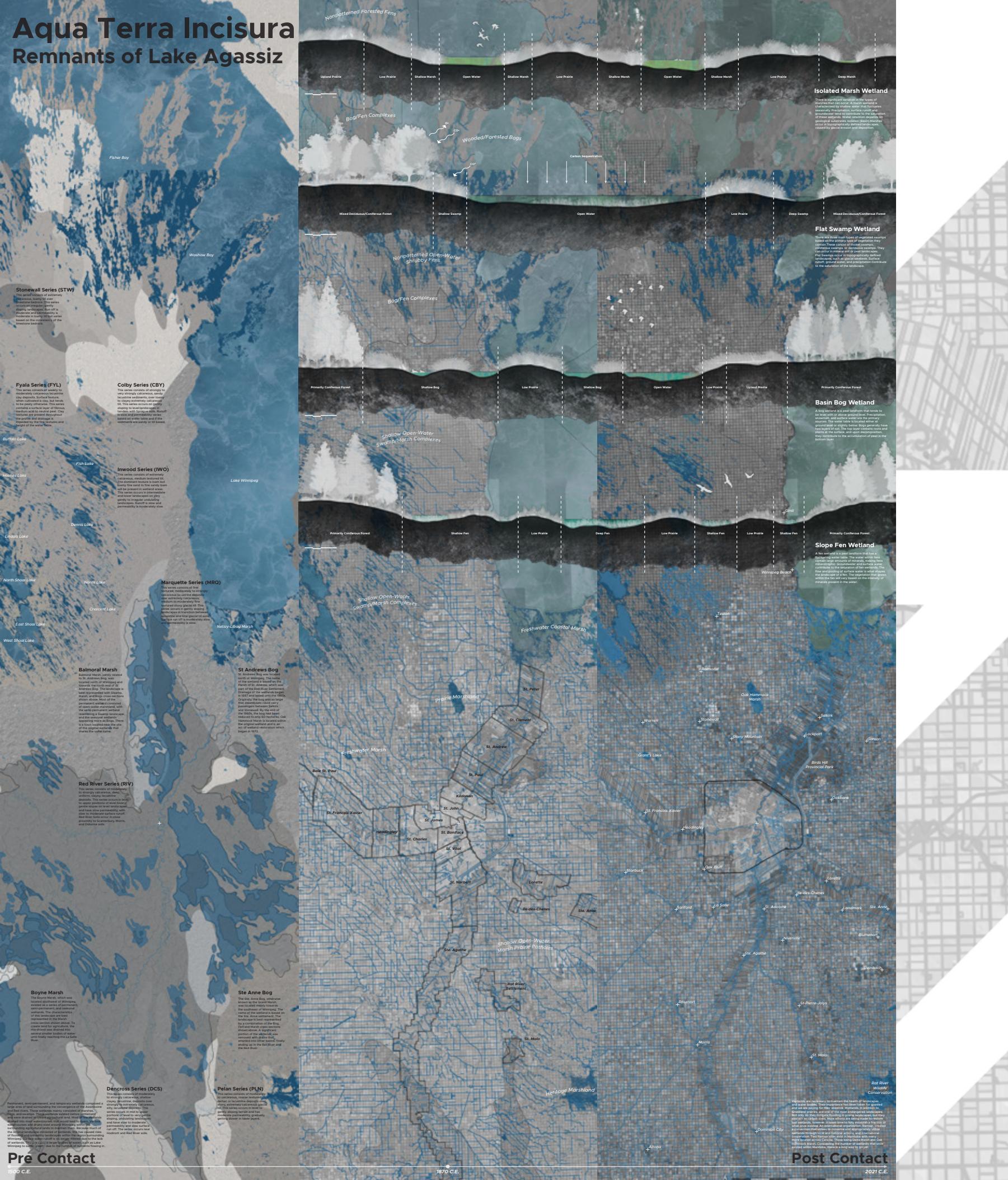
Perspective facing South



Perspective facing Southwest

# Aqua Terra Incisura

## Remnants of Lake Agassiz



# Aqua Terra Incisur

**Term** Fall 2021 **Class** LARC 7340 Studio  
**Instructor(s)** Dietmar Straub **Duration** 6 Weeks  
**Programs** Photoshop, Illustrator, QG

This project began with research on the ghost creeks that once existed within Winnipeg before permanent settlement within the region. Further investigation led to the analysis of temporary, semi-permanent, and permanent wetlands that would have existed within the area before European contact. To understand the nature of these wetlands, it was necessary to understand the geological history of the lands on which these wetlands once stood and the settlements around them.

# Pre - Contact Wetlands c. 1500 C.E.

## 1 Balmoral Marsh

Balmoral Marsh, jointly related to St. Andrews Bog, was located north of Winnipeg and towards the north end of St Andrews Bog. The landscape is best represented with Swamp, Marsh, and Bogs cross-sections shown above. Most of the permanent wetland consisted of open-water marshland, with the semi-permanent wetland resembling a Swamp landscape, and the seasonal wetlands appearing more as Bogs. There is a town located near the site of the original wetlands that shares the same name.

## 2 St Andrews Bog

St. Andrews Bog was located north of Winnipeg. The name of the wetland is based on the Parish of St. Andrew, which was part of the Red River Settlement. Drainage of the wetlands began in 1897 and lasted until the 1960s. Originally, the bog was so large that steamboats could carry passengers between Selkirk and Stonewall. By the end of the 1960s, the bog had been reduced to only 60 hectares. Oak Hammock Marsh is located within the original wetland and is an act of wetland restoration which began in 1972.

## 3 Ste Anne Bog

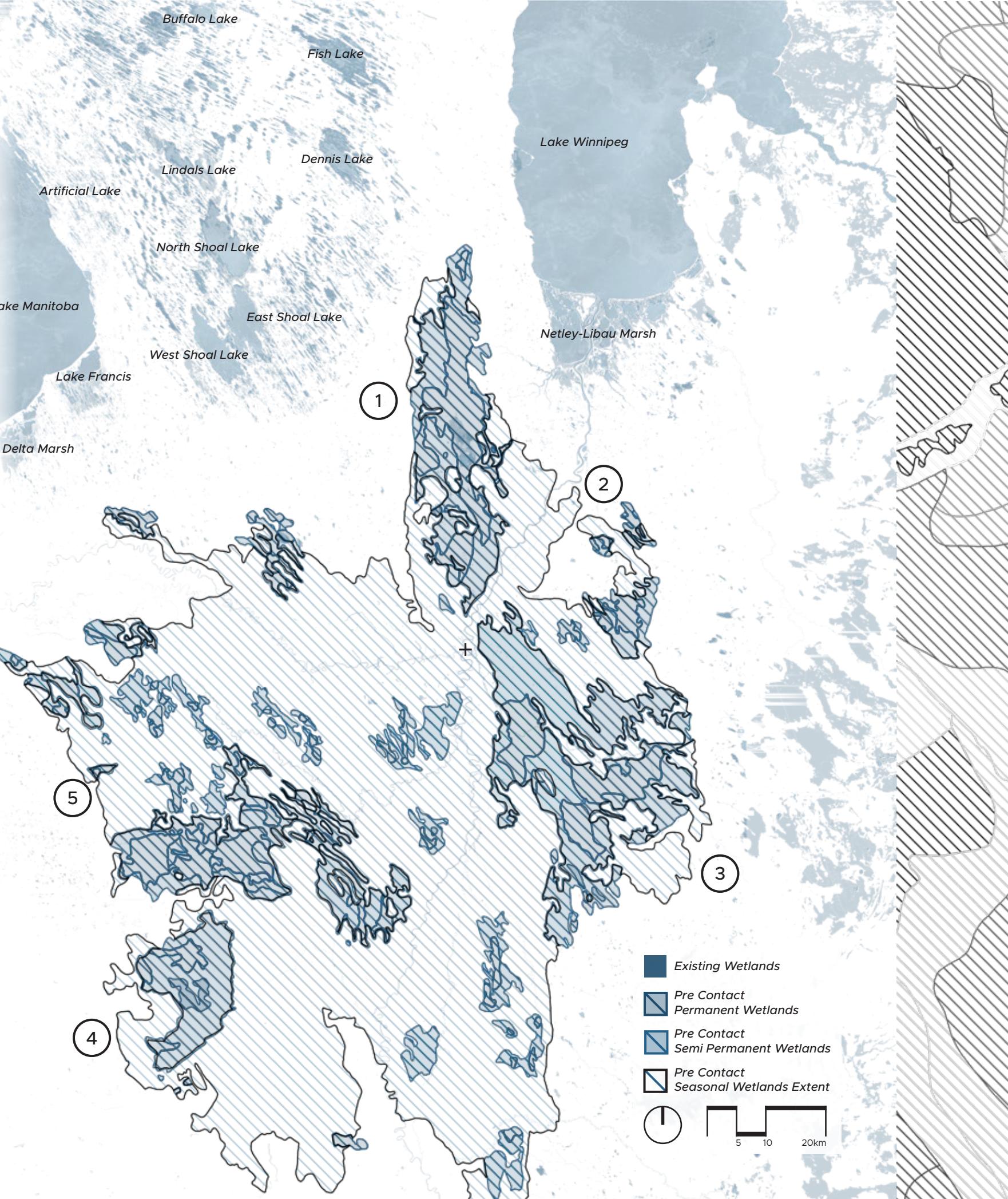
The Ste. Anne Bog, otherwise known as the Grand Marsh, was located mainly towards the southeast of Winnipeg. The name of the wetland is based on the Ste. Anne settlement. The landscape is best represented by a combination of the Bog, Fen and Marsh cross-sections shown above. A significant portion of the wetlands was removed with drains that emptied into other basins, finally ending up in the Rat River and the Red River.

## 4 Tobacco Creek Swamp

The Tobacco Creek Swamp was a wetland adjacent to the Boyne Marsh. Similar to the Boyne Marsh, drainage was undertaken between 1880 and 1889 but was considered incomplete. It was not until 1898 that a plan was put in place to drain the Boyne River and Tobacco Creek run-off into the Morris and Red Rivers. The project was only completed by 1907.

## 5 Boyne Marsh

The Boyne Marsh, which was located southwest of Winnipeg, existed as a series of permanent, semi-permanent, and seasonal wetlands. The characteristics of this landscape are best represented in the Marsh cross-section shown above. To create land for agriculture, the marshland was drained into several smaller bodies of water until finally reaching the La Salle River.



# Select Existing Soil Series c. 1970 C.E.

## A Inwood Series (IWO)

This series consists of extremely calcareous, medium textured till. The dominant texture is loam but loamy fine sand to fine sandy loam will be present in wetland areas. This series occurs in intermediate and lower landscapes on very gently to irregular undulating landscapes.

Runoff is slow and permeability is moderately slow.

## B Marquette Series (MRQ)

This series consists of fine textured, moderately to strongly calcareous lacustrine deposits over extremely calcareous, medium to moderately fine textured stony glacial till. This series occurs in gently sloping landscapes in transition between lacustrine and lime glacial till soils.

Surface runoff is moderately slow and permeability is slow.

## C Red River Series (RIV)

This series consists of moderately to strongly calcareous, deep, uniform, clayey, lacustrine deposits. This series occurs in level to upper positions of level to very gentle slopes on level landscapes and have slow permeability, with slow to moderate surface runoff.

Red River Soils occur in close proximity to Scanterbury, Morris, and Osborne soils.

## D Pelan Series (PLN)

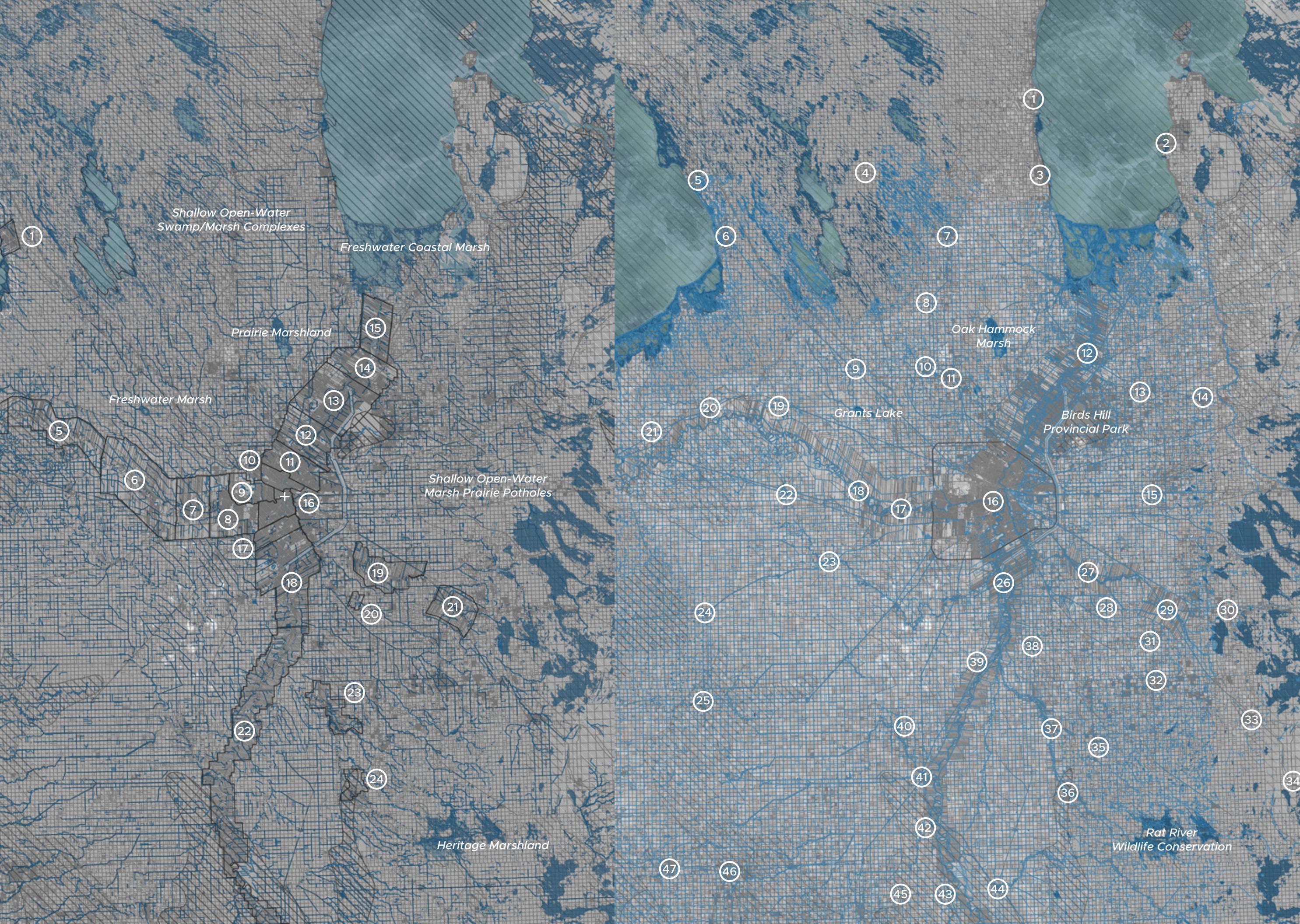
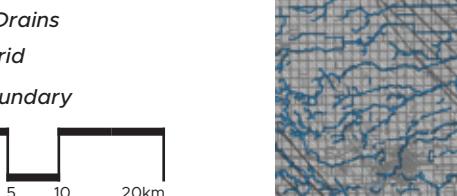
This series consists of moderately to calcareous, coarse textured deltaic or lacustrine deposits over stony, extremely calcareous glacial till. This series occurs in level to gently sloping terrain and has moderate permeability, gradually getting slower in lower layers.

## E Dencross Series (DCS)

This series consists of moderately to strongly calcareous, shallow clayey, lacustrine, deposits over strongly to extremely calcareous, silty, lacustrine deposits. This series occurs in mid to upper portions of level to very gentle sloping, undulating landscapes and have slow to moderate permeability and slow surface runoff. The series occurs near Hodinott and Red River soils.

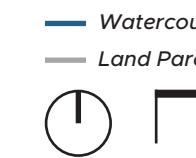
# Red River Settlement Parishes c. 1870 C.E.

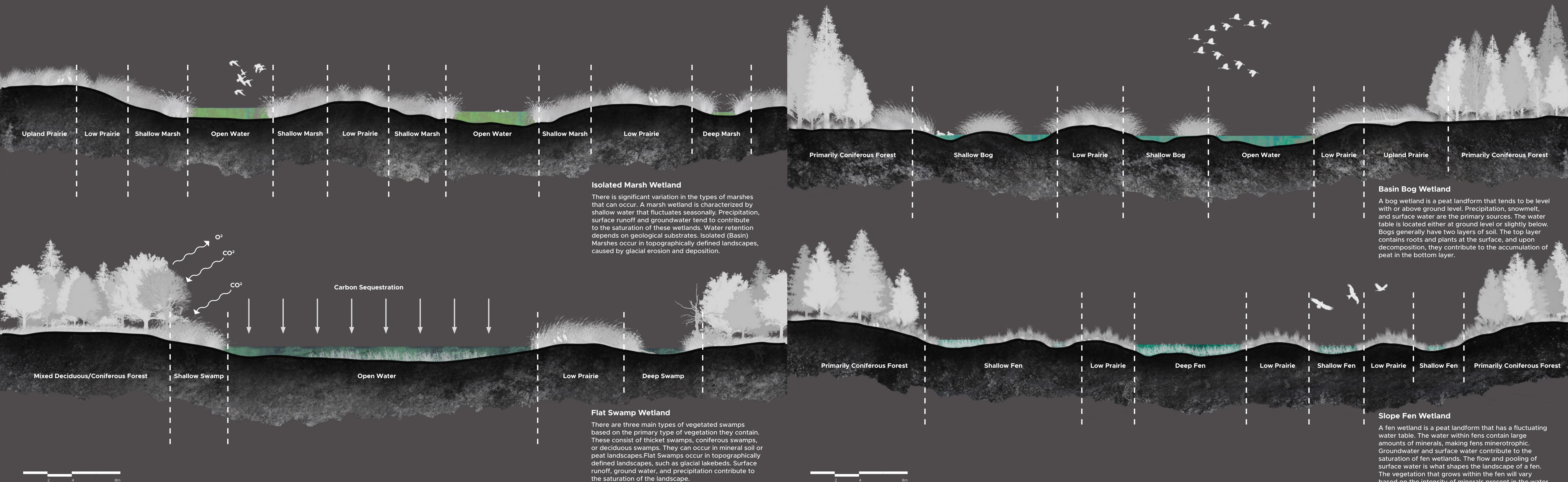
- |                         |                     |
|-------------------------|---------------------|
| (1) St. Laurent         | (13) St. Andrew     |
| (2) Portage La Prairie  | (14) St. Clement    |
| (3) High Bluff          | (15) St. Peter      |
| (4) Poplar Point        | (16) St. Boniface   |
| (5) Baie St. Paul       | (17) St. Vital      |
| (6) St. Francois Xavier | (18) St. Norbert    |
| (7) Headingley          | (19) Lorette        |
| (8) St. Charles         | (20) Ile-des-Chenes |
| (9) St. James           | (21) Ste. Anne      |
| (10) St. John           | (22) Ste. Agathe    |
| (11) Kildonan           | (23) Rat River      |
| (12) St. Paul           | (24) St. Malo       |



# Existing Urban Settlements c. 2021 C.E.

- |                     |                          |                        |
|---------------------|--------------------------|------------------------|
| (1) Gimli           | (17) Headingley          | (33) Marchand          |
| (2) Grand Marais    | (18) St. Francois Xavier | (34) Woodridge         |
| (3) Winnipeg Beach  | (19) Marquette           | (35) Grunthal          |
| (4) Inwood          | (20) Poplar Point        | (36) St. Malo          |
| (5) Oak Point       | (21) High Bluff          | (37) St. Pierre-Jolys  |
| (6) St. Laurent     | (22) Elie                | (38) Niverville        |
| (7) Teulon          | (23) Starbuck            | (39) Ste. Agathe       |
| (8) Balmoral        | (24) Elm Creek           | (40) Rosenort          |
| (9) Warren          | (25) Carman              | (41) Morris            |
| (10) Stonewall      | (26) St. Norbert         | (42) St. Jean Baptiste |
| (11) Stony Mountain | (27) Lorette             | (43) Letellier         |
| (12) Selkirk        | (28) Landmark            | (44) Dominion City     |
| (13) Garson         | (29) Ste. Anne           | (45) Altona            |
| (14) Beausejour     | (30) Richer              | (46) Winkler           |
| (15) Anola          | (31) Blumenort           | (47) Morden            |
| (16) Winnipeg       | (32) Steinbach           |                        |





## References and Citations

"Agriculture: Province of Manitoba." Province of Manitoba - Agriculture. Accessed October 12, 2021. [https://www.gov.mb.ca/agriculture/soil/soilsurvey/pubs/description\\_of\\_soil\\_series\\_in\\_mb.pdf](https://www.gov.mb.ca/agriculture/soil/soilsurvey/pubs/description_of_soil_series_in_mb.pdf).

"Conserving Canada's Wetlands." Ducks Unlimited Canada, October 8, 2021. [https://www.ducks.ca/assets/2020/05/Ducks-Unlimited-Canada\\_Landowners-Guide.pdf](https://www.ducks.ca/assets/2020/05/Ducks-Unlimited-Canada_Landowners-Guide.pdf).

"Local Heritage: Special Places." Carman / Dufferin Heritage, October 9, 2021. <https://www.carmandufferinheritage.ca/local%20heritage/special%20places/loc-her-spec-pl.html>.

Woolison, Garth. "Water Works." Thesis Practicum, University of Manitoba, 2018. <http://hdl.handle.net/1993/32989>.

### MANITOBA PROPERTY ASSESSMENT METADATA

Manitoba Property Assessment  
Originator: Manitoba Municipal Relations  
Publication: December 23, 2016  
Title: MG\_ROLL\_ENTRY\_POLY  
Edition: 1.0  
Geospatial\_Data\_Presentation\_Form: shape file  
Online\_Linkage: <https://univmb.maps.arcgis.com/home/item.html?id=8106acf39b124422a5f03a5c4e55d269>  
Abstract: Boundary geometry for all of the assessed property within the Province of Manitoba. The purpose is to provide end users with a digital map of Manitoba's property assessment boundaries and summary assessment data. This data layer is suitable for GIS georeferencing. The Manitoba Property Assessment Information data reflects the most current mapping data available and was originally uploaded to Manitoba Maps as a feature layer on December 23, 2016.

### PRE CONTACT WETLANDS METADATA

Pre Contact Wetlands, Temporary, Semi Permanent, and Permanent  
Originator: LARC 7340 Fall 2021 Studio  
Publication: N/A  
Title: Temporary, Semi Permanent, and Permanent  
Edition: 1.0  
Geospatial\_Data\_Presentation\_Form: shape file  
Online\_Linkage: <https://www.flickr.com/photos/manitobamaps/2326505715/in/album72157603347076165/>  
Abstract: Shapefile created based on 1974 map – Wet Prairie Zones of the Winnipeg Region Before Settlement and Drainage.

### RED RIVER SETTLEMENT PARISHES METADATA

Red River Settlement Parishes  
Originator: LARC 7340 Fall 2021 Studio  
Publication: N/A  
Title: RR\_Parishes  
Edition: 1.0  
Geospatial\_Data\_Presentation\_Form: shape file  
Online\_Linkage: [http://roostertown.lib.umanitoba.ca/wp-content/uploads/2018/10/1\\_ManitobaParishes-Map-V6.jpg](http://roostertown.lib.umanitoba.ca/wp-content/uploads/2018/10/1_ManitobaParishes-Map-V6.jpg)  
Abstract: Shape file traced from map provided in Rooster Town publication – Red River Settlement parishes, Manitoba, 1870.

### SOIL LAYER METADATA

Soil - Land Cover and Surficial Geology  
Originator: Government of Manitoba  
Publication: N/A  
Title: Soils  
Edition: N/A  
Geospatial\_Data\_Presentation\_Form: Shape File  
Online Linkage: <http://mli2.gov.mb.ca/adminbnd/index.html>

Abstract: Soil series in Manitoba.

### WATER BODIES LAYER METADATA

1:20 000 Water Bodies  
Originator: Manitoba Department of Conservation  
Publication: March, 2002  
Title: WaterBodies  
Edition: 1.0  
Geospatial\_Data\_Presentation\_Form: vector digital data  
Online\_Linkage: [https://mli2.gov.mb.ca/t20k/meta\\_files/hyd\\_bas\\_20k\\_py.htm](https://mli2.gov.mb.ca/t20k/meta_files/hyd_bas_20k_py.htm)  
Abstract: The 1:20 000 scale Topographic Base Map series are digital map layers that show lakes, rivers, streams, marshes, contours, and elevations of surrounding land. Additional features such as classified roads, railway lines, towns, villages and buildings are also shown. This data was collected photogrammetrically from 1:60 000 aerial photography.

### WATERCOURSES LAYER METADATA

Hydrography - Watercourses  
Originator: Manitoba Department of Conservation  
Publication: N/A  
Title: Watercourses  
Edition: 1.0  
Geospatial\_Data\_Presentation\_Form: vector digital data  
Online\_Linkage: [https://mli2.gov.mb.ca/t20k/index\\_seamless.html](https://mli2.gov.mb.ca/t20k/index_seamless.html)  
Abstract: Digital layer displaying all water courses within the province, including any ditches, drains, diversions, rivers, and creeks.

### WATER DRAINS LAYER METADATA

Designated Drain Watercourses  
Originator: Manitoba Land Initiative  
Publication: N/A  
Title: Drains  
Edition: 1.0  
Geospatial\_Data\_Presentation\_Form: vector digital data  
Online\_Linkage: [https://mli2.gov.mb.ca/water\\_resources/des\\_drain\\_index.html](https://mli2.gov.mb.ca/water_resources/des_drain_index.html)  
Abstract: Digital layer displaying all drainage ditches within the province.

### WINNIPEG ASSESSMENT PARCEL METADATA

Map of Assessment Parcels  
Originator: City of Winnipeg, Assessment and Taxation Department  
Publication Date: August 24, 2017 (updated February 24, 2021)  
Title: geo\_export\_7c182e2a-5ea5-401a-a965-ac8eb6289354  
Edition: N/A  
Geospatial Data Presentation Form: vector digital data  
Online Linkage:  
<https://data.winnipeg.ca/Assessment-Taxation-Corporate/Map-of-AssessmentParcels/rt7t3m4m>  
Abstract: Map of all Assessment Parcels from the Assessment and Taxation Department.

### WINNIPEG GHOST CREEKS METADATA

Winnipeg Ghost Creeks  
Originator: LARC 7340 Fall 2021 Studio  
Publication: 2021  
Title: ghost\_creeks  
Edition: 1.0  
Geospatial\_Data\_Presentation\_Form: shape file  
Online\_Linkage: N/A  
Abstract: Shapefile indicated ghost creeks and previously existing waterbodies within and near Winnipeg. Based on the document created by Garth Woolison, accessible at <https://mspace.lib.umanitoba.ca/xmlui/handle/1993/32989>.

### WINNIPEG ROAD NETWORK METADATA

Winnipeg Road Network  
Originator: City of Winnipeg  
Publication: February 13, 2018 (updated November 1, 2021)  
Title: Roads  
Edition: N/A  
Geospatial Data Presentation Form: Shape File  
Online Linkage: <https://data.winnipeg.ca/City-Planning/Road-Network/2eba-wm4h>  
Abstract: Single lane road network of the City of Winnipeg. Data includes bridges and address ranges.  
Adobe Inc. Photoshop. V. 19.1.6. Adobe Inc. PC. 2018.

QGIS Development Team. QGIS Geographic Information System. V. 3.10.10-A Coruña. QGIS Development Team. PC. 2020.

Bird of Peace Silhouette PNG. Digital Image. 41.3 x 27.1 cm. [https://www.pngitem.com/middle/JmhRbx\\_silhouette-bird-peace-dove-flying-olive-branch-bird/](https://www.pngitem.com/middle/JmhRbx_silhouette-bird-peace-dove-flying-olive-branch-bird/).

Bird of Prey Silhouette PNG. Digital Image. 33.8 x 18.3 cm. [https://www.pngitem.com/middle/iRhbxsi\\_silhouette-bird-of-prey-hd-png-download/](https://www.pngitem.com/middle/iRhbxsi_silhouette-bird-of-prey-hd-png-download/).

Crane Silhouette PNG. Digital Image. 11.1 x 23.5 cm. [https://www.pngitem.com/middle/wTxRRx\\_transparent-crane-clipart-bird-silhouette-clipart-black-and-](https://www.pngitem.com/middle/wTxRRx_transparent-crane-clipart-bird-silhouette-clipart-black-and-)

Dead Conifer Tree Silhouette PNG. Digital Image. 11.1 x 39.6 cm. [https://www.pngitem.com/middle/Jmibob\\_silhouette-vector-dead-tree-hd-png-download/](https://www.pngitem.com/middle/Jmibob_silhouette-vector-dead-tree-hd-png-download/).

Dead Tree PNG. Digital Image. 54.4 x 10.8 cm. [https://www.pngitem.com/middle/Jmiomh\\_dead-tree-silhouette-png-transparent-png/](https://www.pngitem.com/middle/Jmiomh_dead-tree-silhouette-png-transparent-png/).

Duck on Water Silhouette. Digital Image. 27.1 x 14.7 cm. [https://www.pngitem.com/middle/xbb0Jh\\_duck-on-water-silhouette-hd-png-download/](https://www.pngitem.com/middle/xbb0Jh_duck-on-water-silhouette-hd-png-download/).

Dirt Texture. Digital Image. 33.1 x 26.4 cm. <https://www.sketchuptextureclub.com/textures/nature-elements/soil-ground/ground-texture-seamless-12865>.

Falcon Silhouette PNG. Digital Image. 39.3 x 63.5 cm. [https://www.pngitem.com/middle/ixhwRi\\_clip-art-silhouette-portable-network-graphics-falcon-transparent/](https://www.pngitem.com/middle/ixhwRi_clip-art-silhouette-portable-network-graphics-falcon-transparent/).

Flat Field Stone - Stone 148. Digital Image. 210.4 x 140.3 cm. <https://texturelabs.org/>.

Flock of Birds PNG. Digital Image. 16.3 x 15.1 cm. [https://www.pngitem.com/middle/Jimhbbs\\_flock-of-birds-clipart-branch-clip-art-ducks/](https://www.pngitem.com/middle/Jimhbbs_flock-of-birds-clipart-branch-clip-art-ducks/).

Foaming Water Texture. Digital Image. 74.5 x 55.9 cm. <https://jooinn.com/img/startdownload>.

Jumping Frog Silhouette PNG. Digital Image. 31.9 x 12.7 cm. [https://www.pngitem.com/middle/boxxoo\\_silhouette-of-jumping-frog-jumping-frog-silhouette-hd/](https://www.pngitem.com/middle/boxxoo_silhouette-of-jumping-frog-jumping-frog-silhouette-hd/).

Ornamental Tall Grass PNG. Digital Image. 15.9 x 13.2 cm. [https://www.pngitem.com/middle/bboxww\\_transparent-ornamental-grass-png-png-download/](https://www.pngitem.com/middle/bboxww_transparent-ornamental-grass-png-png-download/).

Seaweed Ocean Aquatic Plant PNG. Digital Image. 14.7 x 13.7 cm. [https://www.pngitem.com/middle/oohhJx\\_seaweed-ocean-aquatic-plants-transparent-aquatic-plant-png/](https://www.pngitem.com/middle/oohhJx_seaweed-ocean-aquatic-plants-transparent-aquatic-plant-png/).

Sitting Frog Silhouette PNG. Digital Image. 25.9 x 16.3 cm. [https://www.pngitem.com/middle/JoTwRx\\_frog-shape-frog-silhouette-png-transparent-png/](https://www.pngitem.com/middle/JoTwRx_frog-shape-frog-silhouette-png-transparent-png/).

Sweet Grass PNG. Digital Image. 27.1 x 6.8 cm. [https://www.pngitem.com/middle/hRbxTo\\_grass-clipart-green-png-sweet-grass-transparent-png/](https://www.pngitem.com/middle/hRbxTo_grass-clipart-green-png-sweet-grass-transparent-png/).

Transparent Tall Grass PNG. Digital Image. 25.3 x 12.7 cm. [https://www.pngitem.com/middle/bbxihx\\_transparent-tall-grass-png-transparent-transparent-background-tall/](https://www.pngitem.com/middle/bbxihx_transparent-tall-grass-png-transparent-transparent-background-tall/).

Turquoise Paint Texture. Digital Image. 16.9 x 22.5 cm. <https://ar.pinterest.com/pin/493566440386710645/>.

Winter Tree PNG. Digital Image. 20.4 x 2.6 cm. [https://www.pngitem.com/middle/hmJiomR\\_cutout-winter-tree-png-transparent-png/](https://www.pngitem.com/middle/hmJiomR_cutout-winter-tree-png-transparent-png/).

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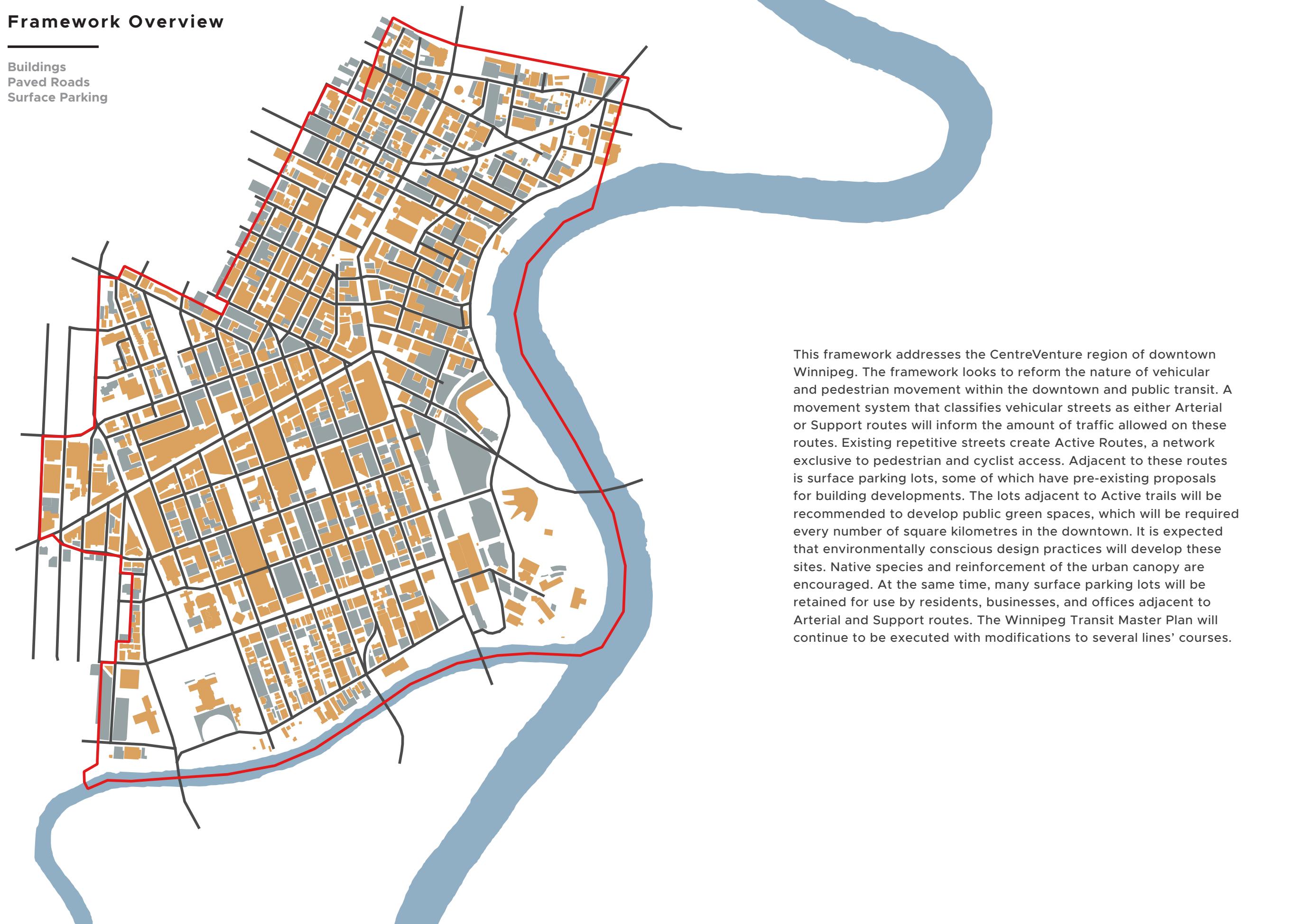
## Carlton Grove CentreVenture Development

**Term** Winter 2022 **Class** LARC 7330 Studio 3  
**Instructor(s)** Alan Tate **Duration** 6 Weeks  
**Programs** Photoshop, Rhino3D, TwinMotion, QGIS

The entire studio studied the CentreVenture development area of downtown Winnipeg, with groups of individuals having a specific aspect of analyzing. As a result, a personal framework for the area's development was produced, followed by site selection. Carlton Grove is located east of the RBC Convention Centre, bordered by York Avenue to the north, Hargrave Street to the east, and Carlton Street, the namesake, to the west. The nature of the on-site climate, mainly summer sunlight and winter wind, informed the site's layout, including the orientation of trees, boardwalks, and pathways.

## Framework Overview

Buildings  
Paved Roads  
Surface Parking

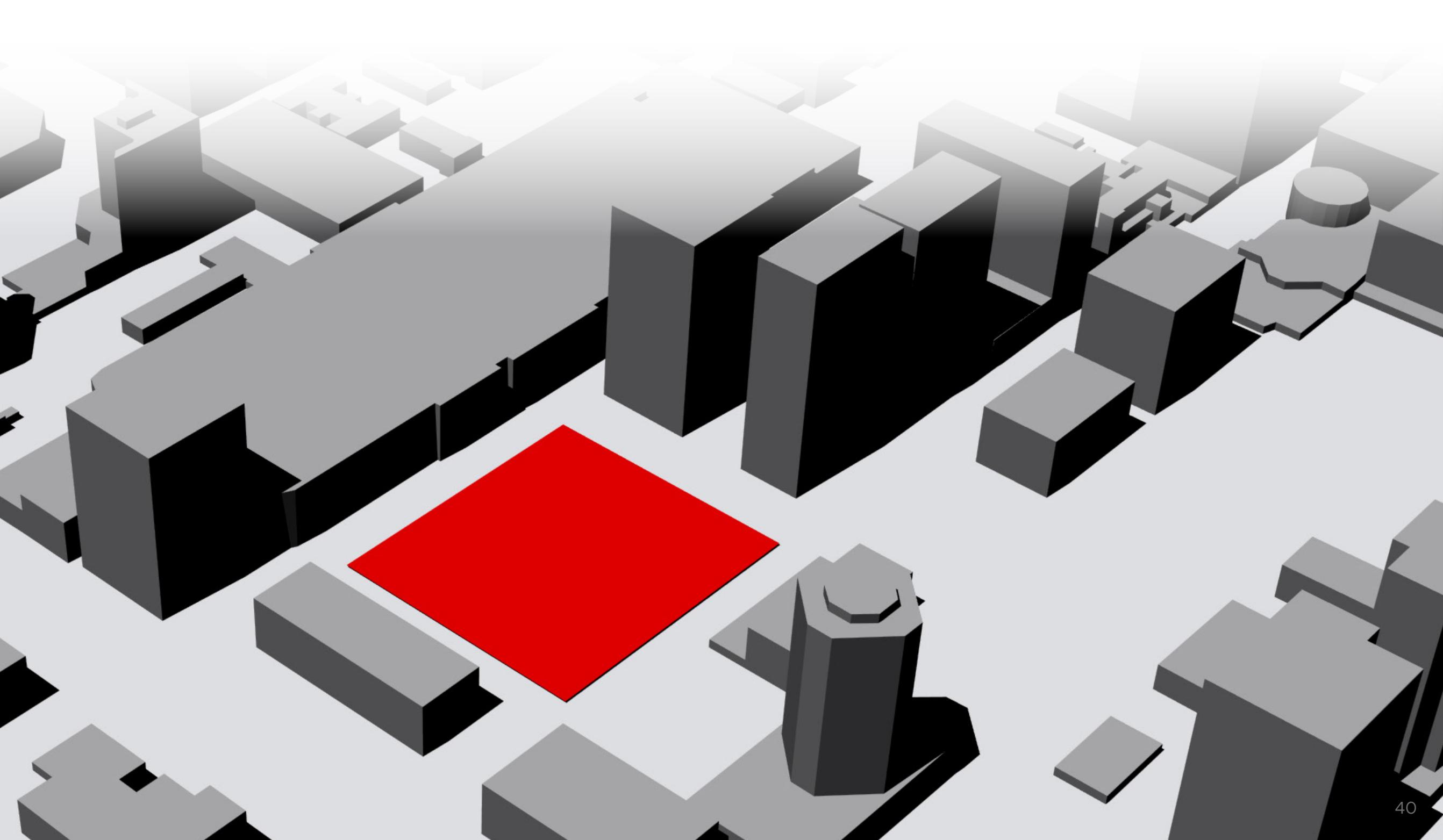


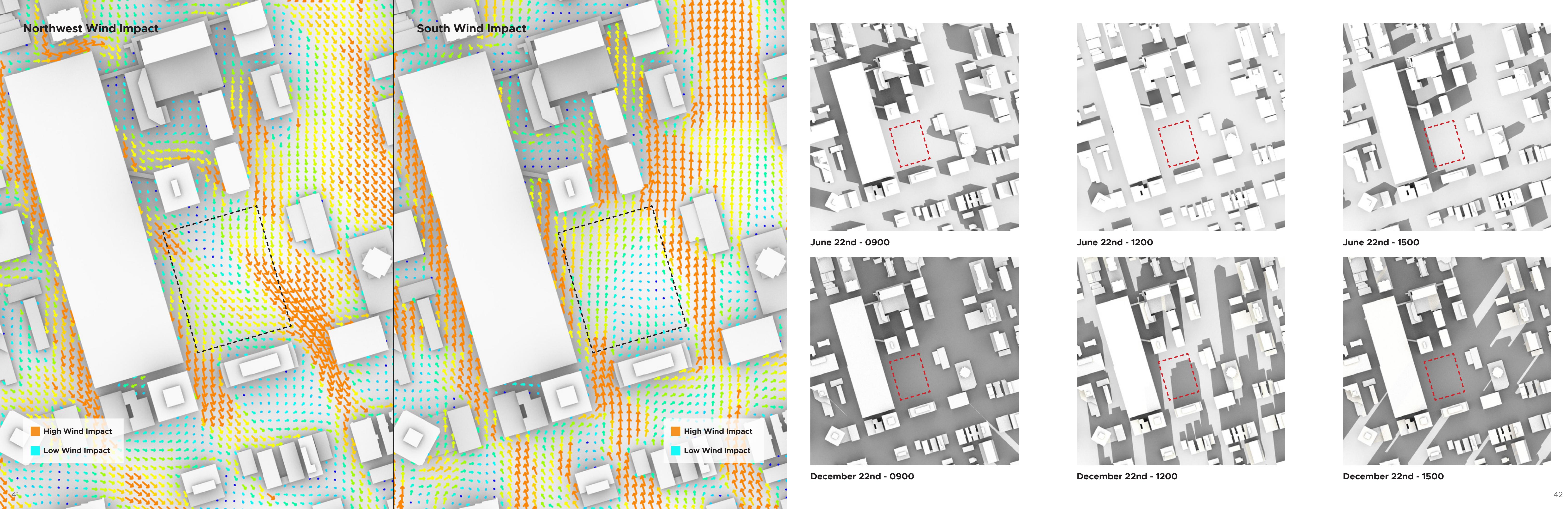
This framework addresses the CentreVenture region of downtown Winnipeg. The framework looks to reform the nature of vehicular and pedestrian movement within the downtown and public transit. A movement system that classifies vehicular streets as either Arterial or Support routes will inform the amount of traffic allowed on these routes. Existing repetitive streets create Active Routes, a network exclusive to pedestrian and cyclist access. Adjacent to these routes is surface parking lots, some of which have pre-existing proposals for building developments. The lots adjacent to Active trails will be recommended to develop public green spaces, which will be required every number of square kilometres in the downtown. It is expected that environmentally conscious design practices will develop these sites. Native species and reinforcement of the urban canopy are encouraged. At the same time, many surface parking lots will be retained for use by residents, businesses, and offices adjacent to Arterial and Support routes. The Winnipeg Transit Master Plan will continue to be executed with modifications to several lines' courses.

## Site Development

Buildings  
Movement Routes  
Development Lots

To the east of the RBC Convention Centre and north of Broadway, this surface parking lot will be developed as a public green space to serve as a precedent for other site developments within the CentreVenture region of downtown Winnipeg. Since there is an Active Route to the east of the site with other lots slated for development, the design of this site should break down the borders created by the presence of the previously existing roadway. This site was selected because of its proximity to Broadway and centrality within the neighbourhood. In addition, it may serve as exterior expansion space for the RBC Convention Centre.



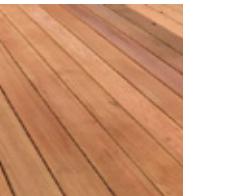


## Site Materials

- ① **Barkman Concrete Paver**  
Broadway Plank 100MM Ash



- ② **Dimensional Cedar Lumber**  
Decking / Pergola



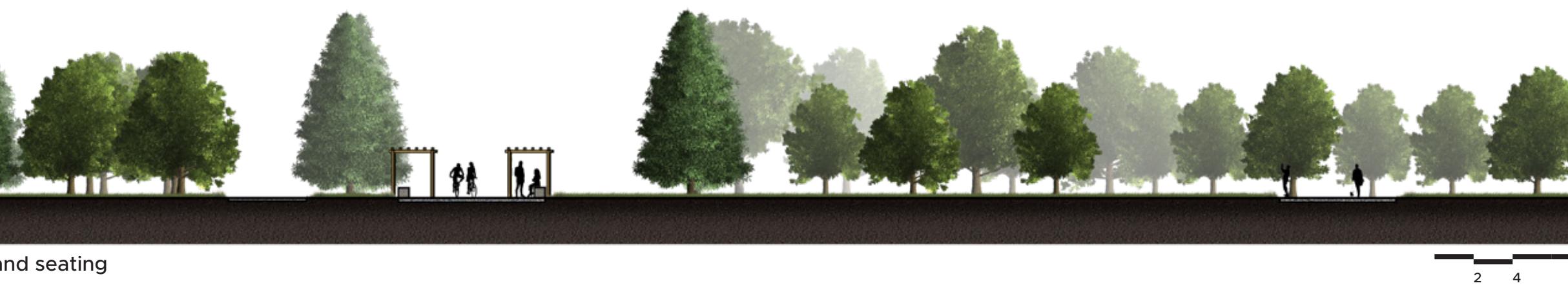
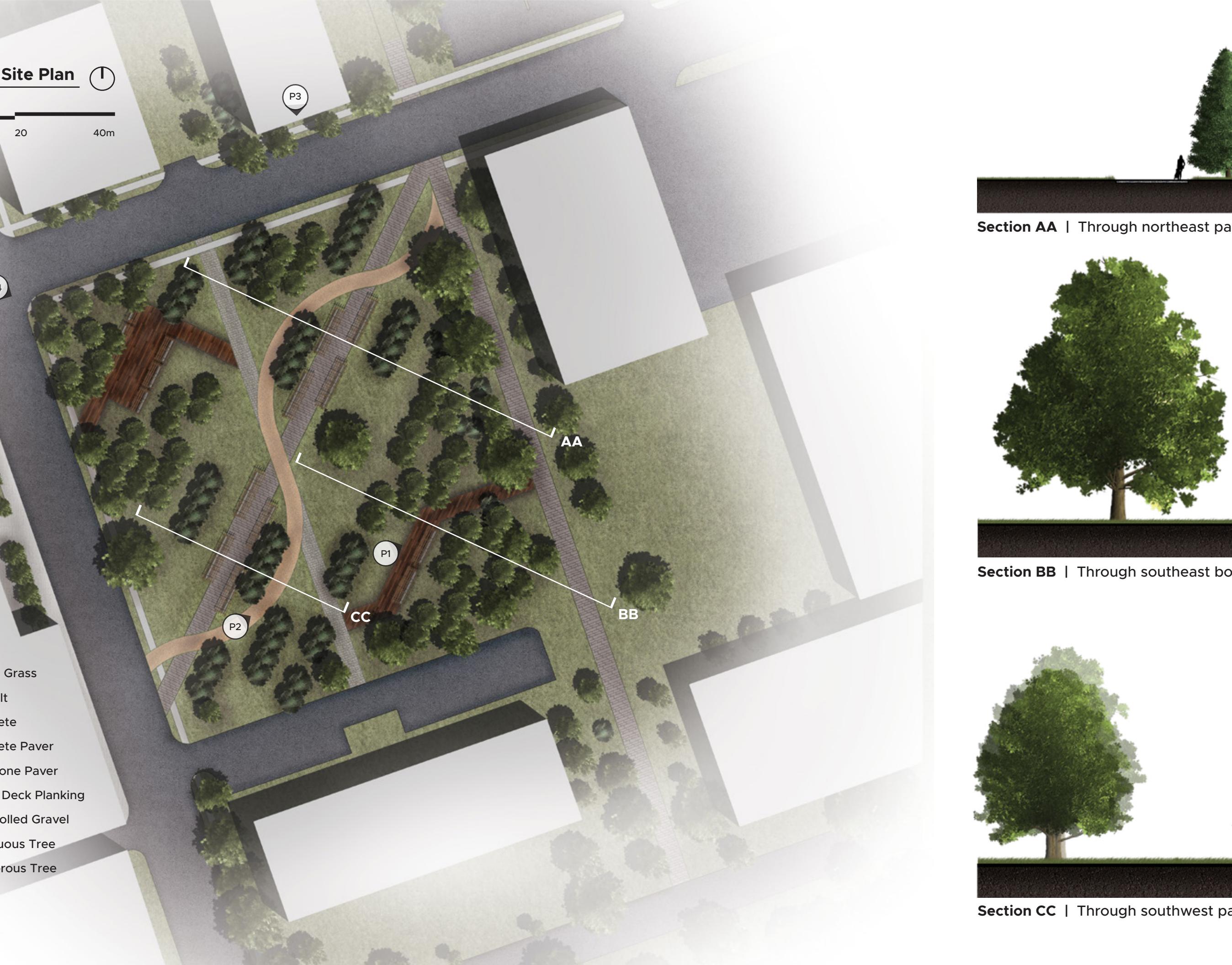
- ③ **Fine Rolled Gravel**

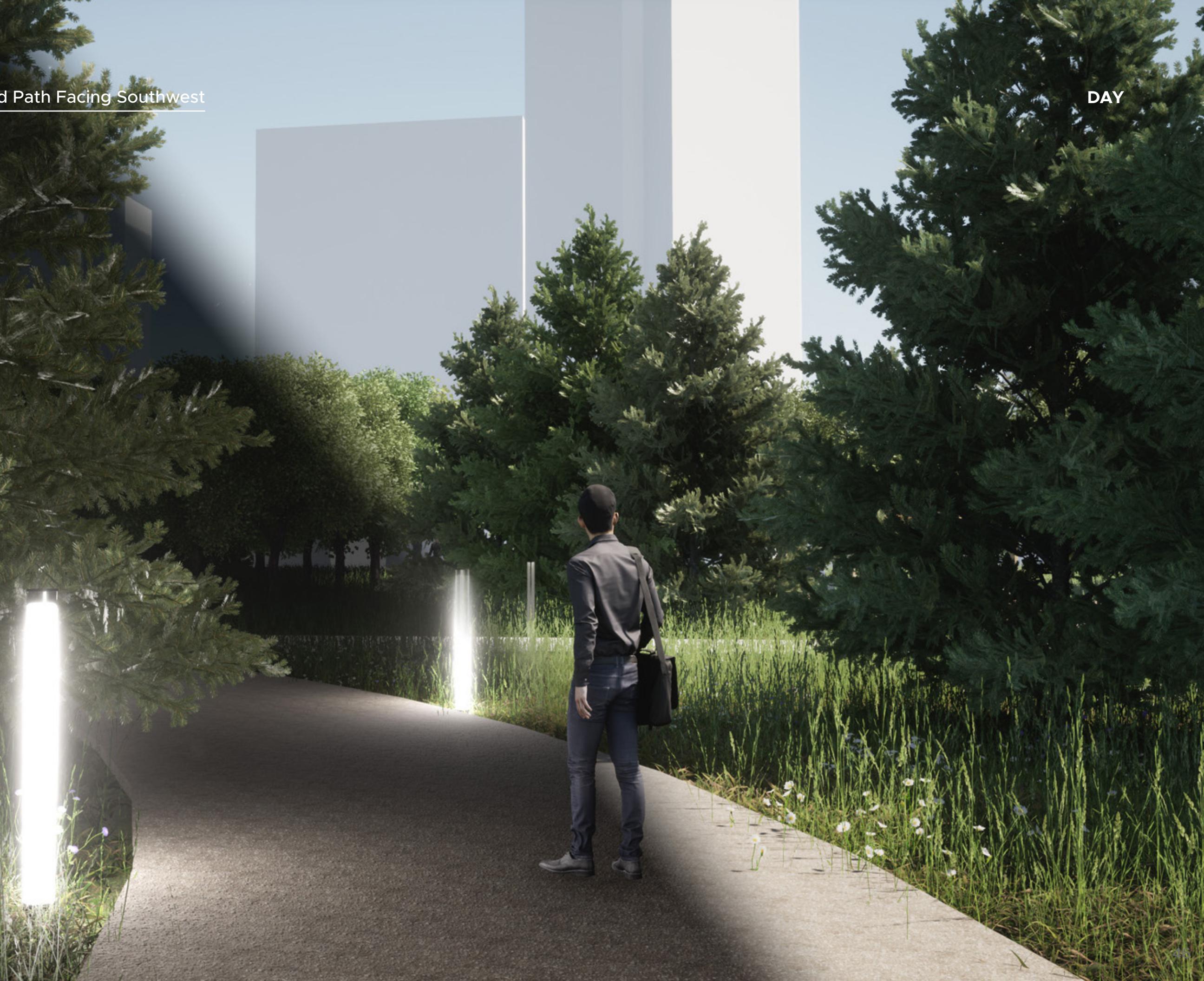


- ④ **Poured Concrete**  
Seating and Slab

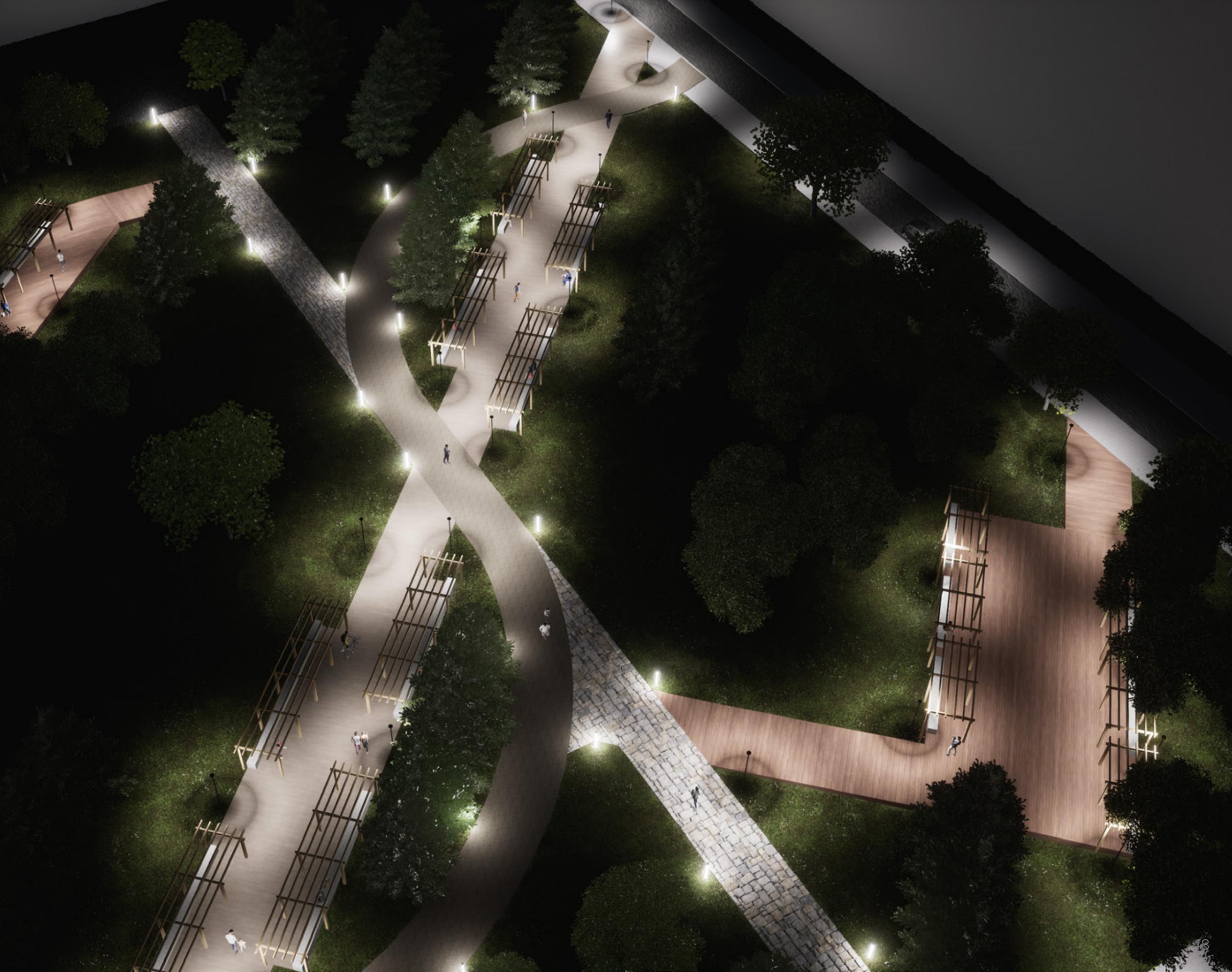
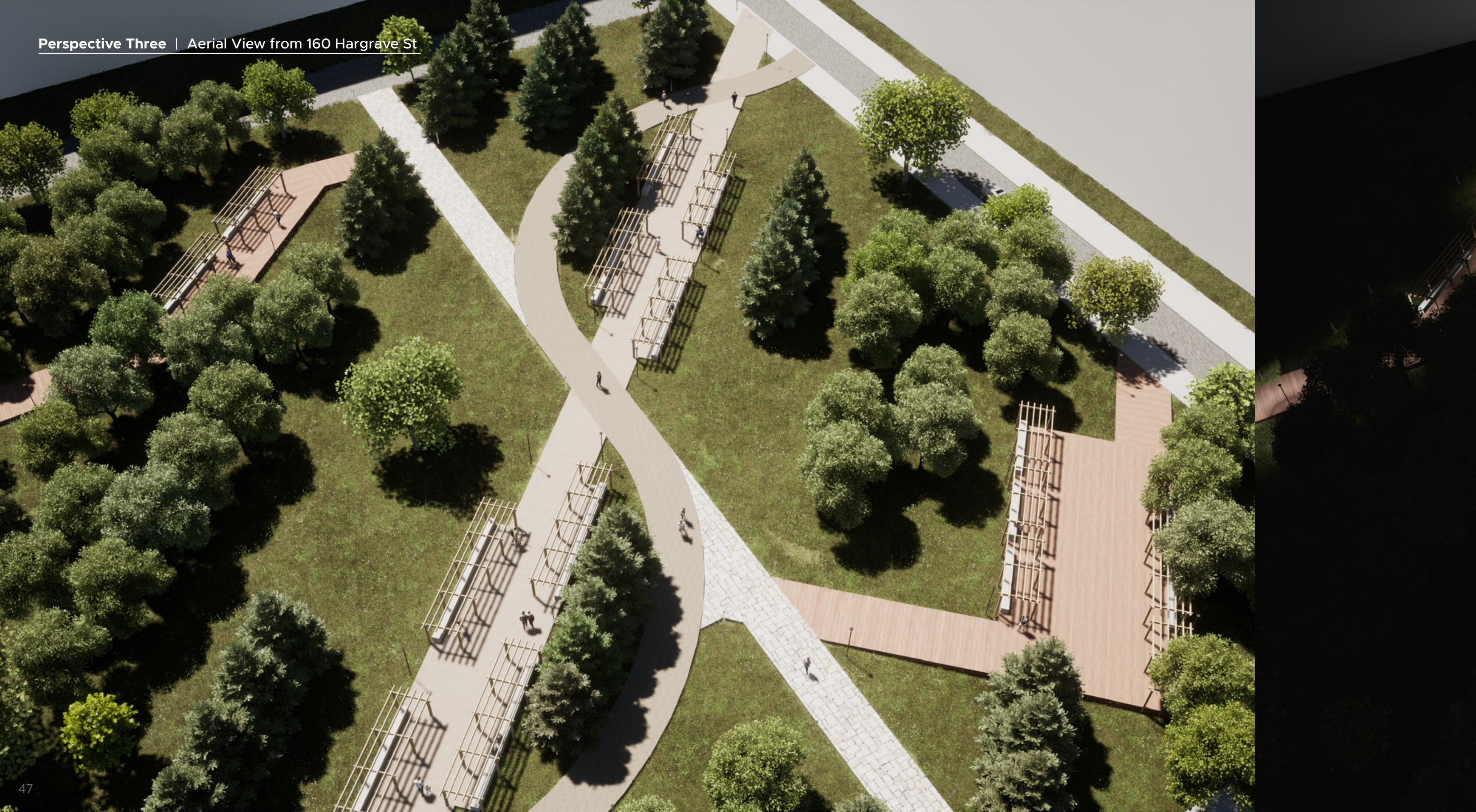


- ⑤ **Repurposed Concrete Flagstone**





Perspective Three | Aerial View from 160 Hargrave St



Perspective Four | View from RBC Convention Centre



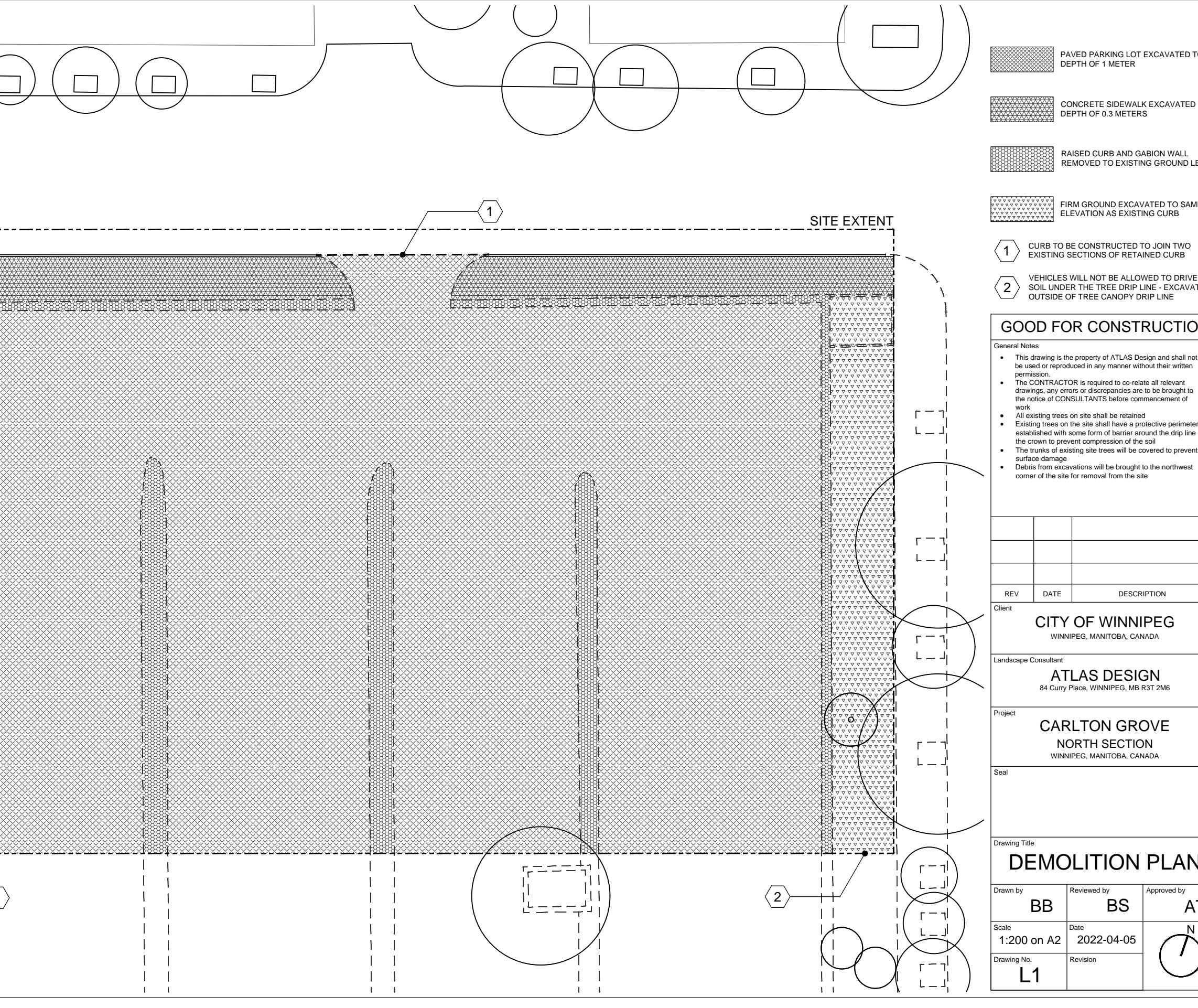
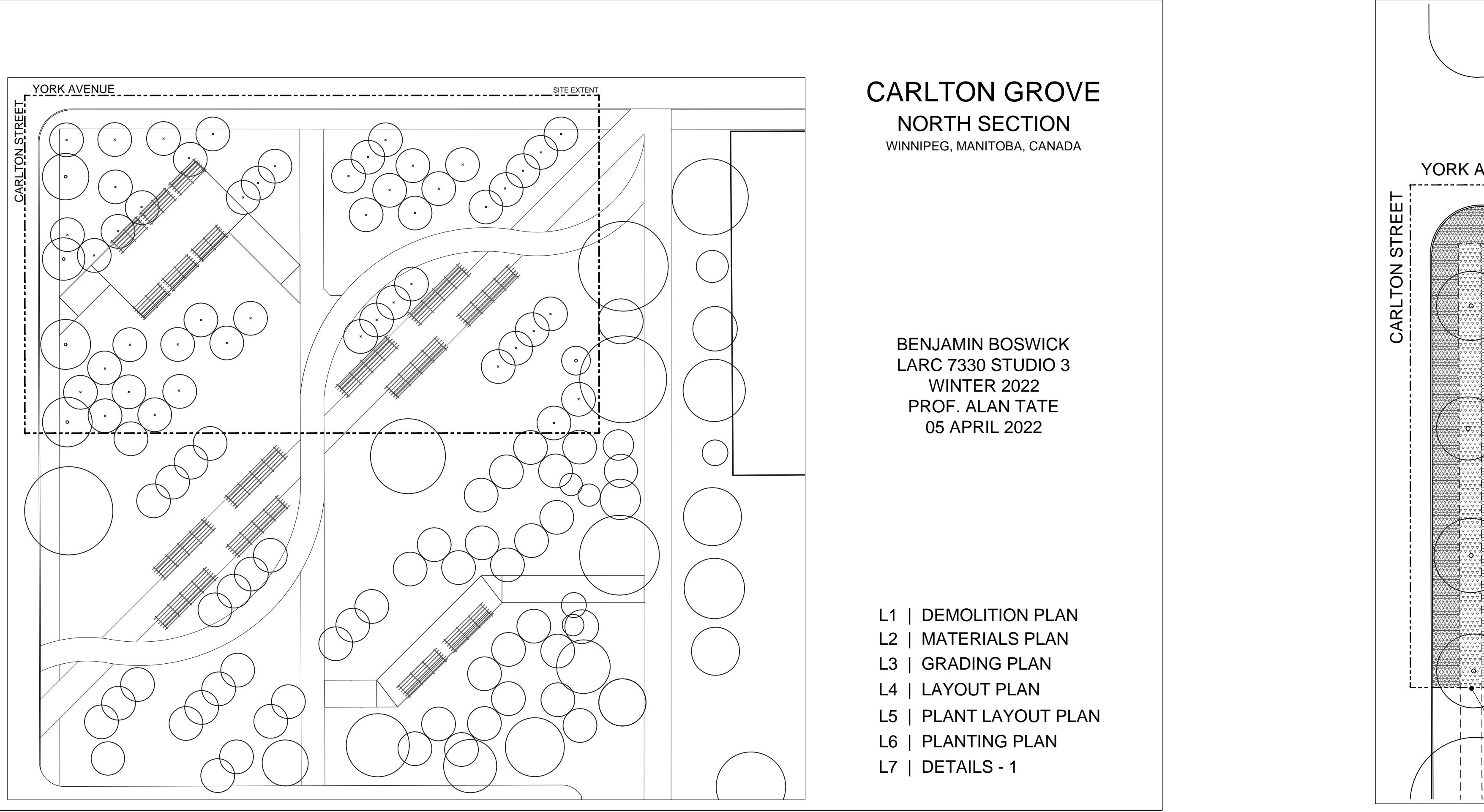


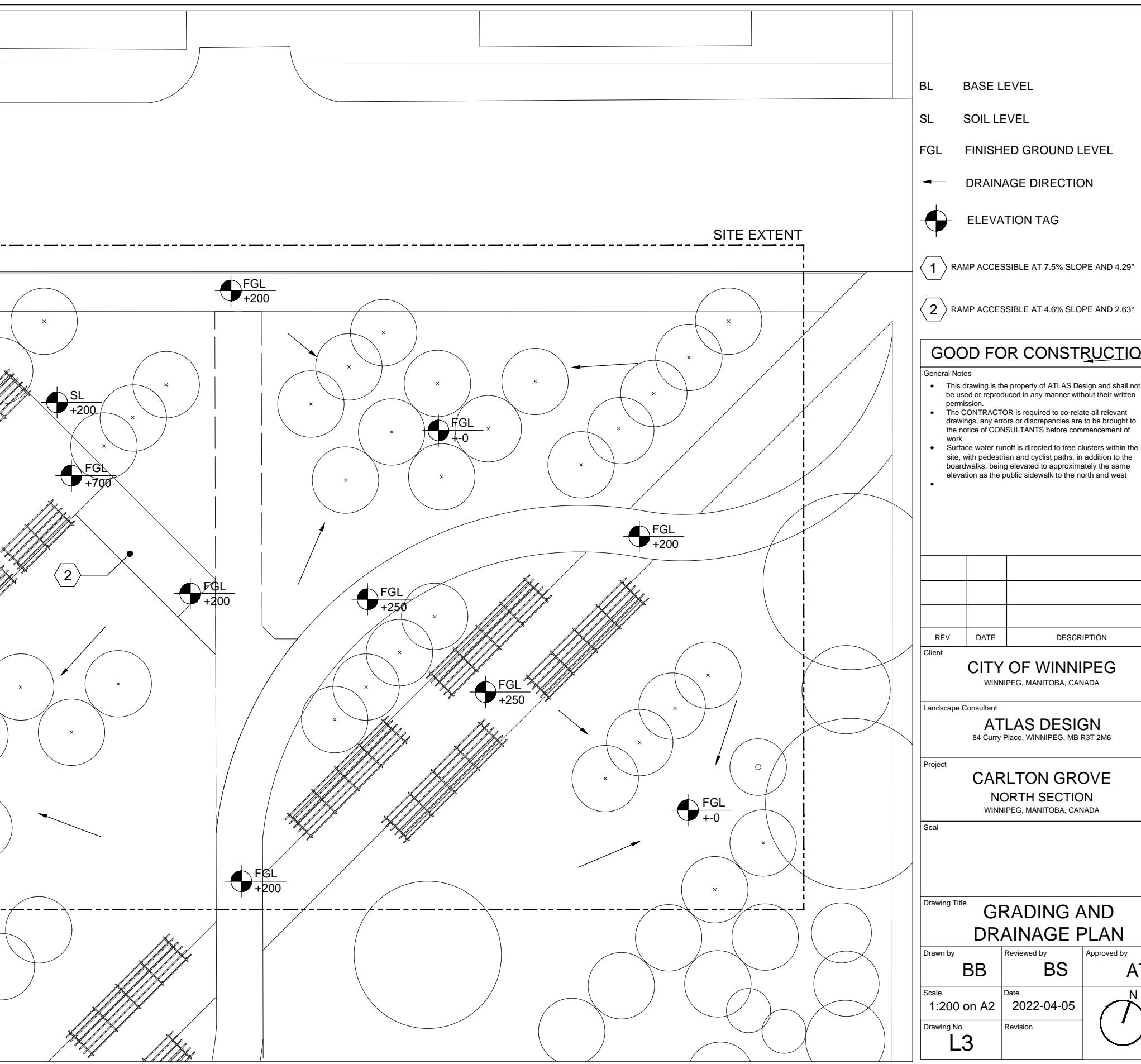
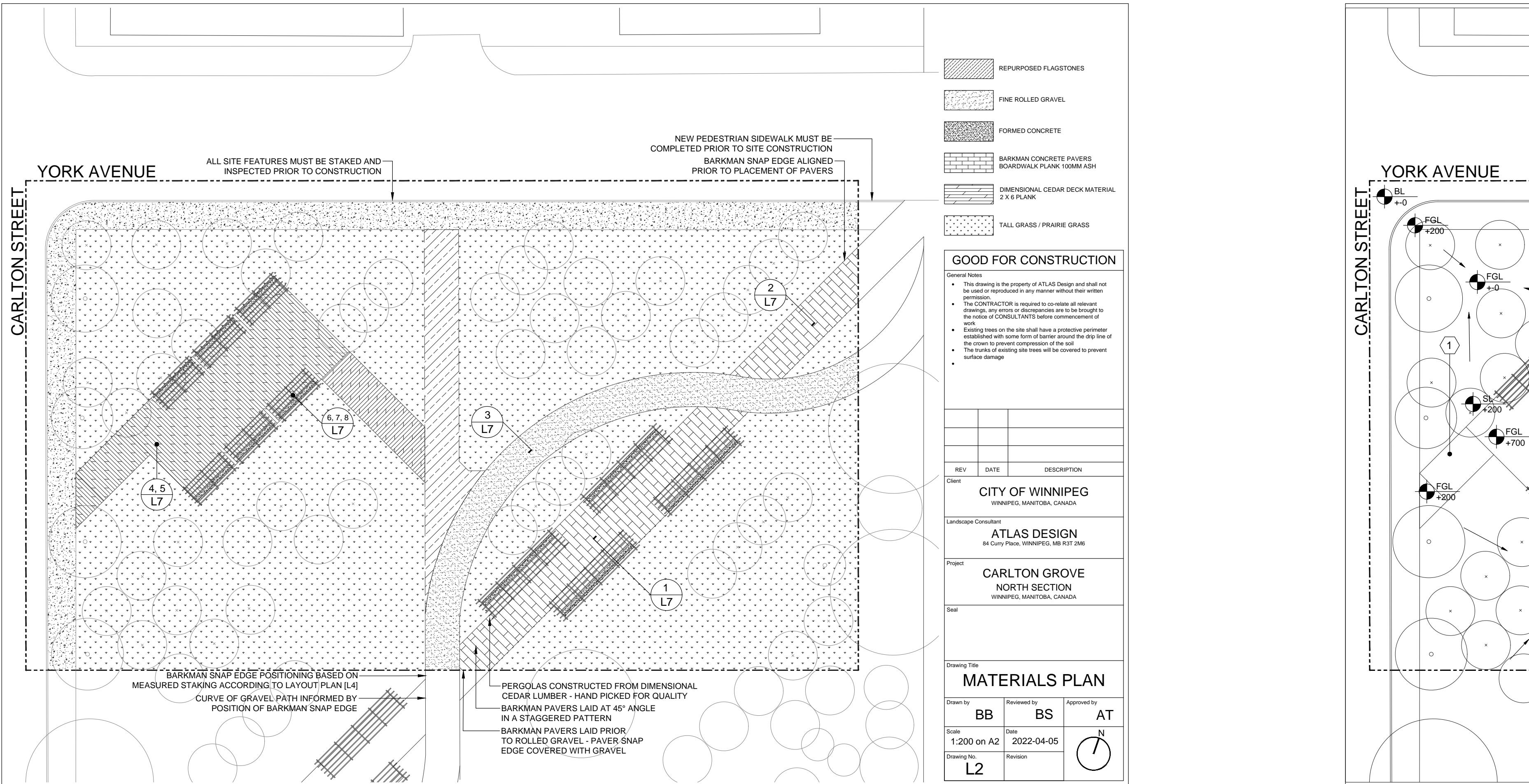
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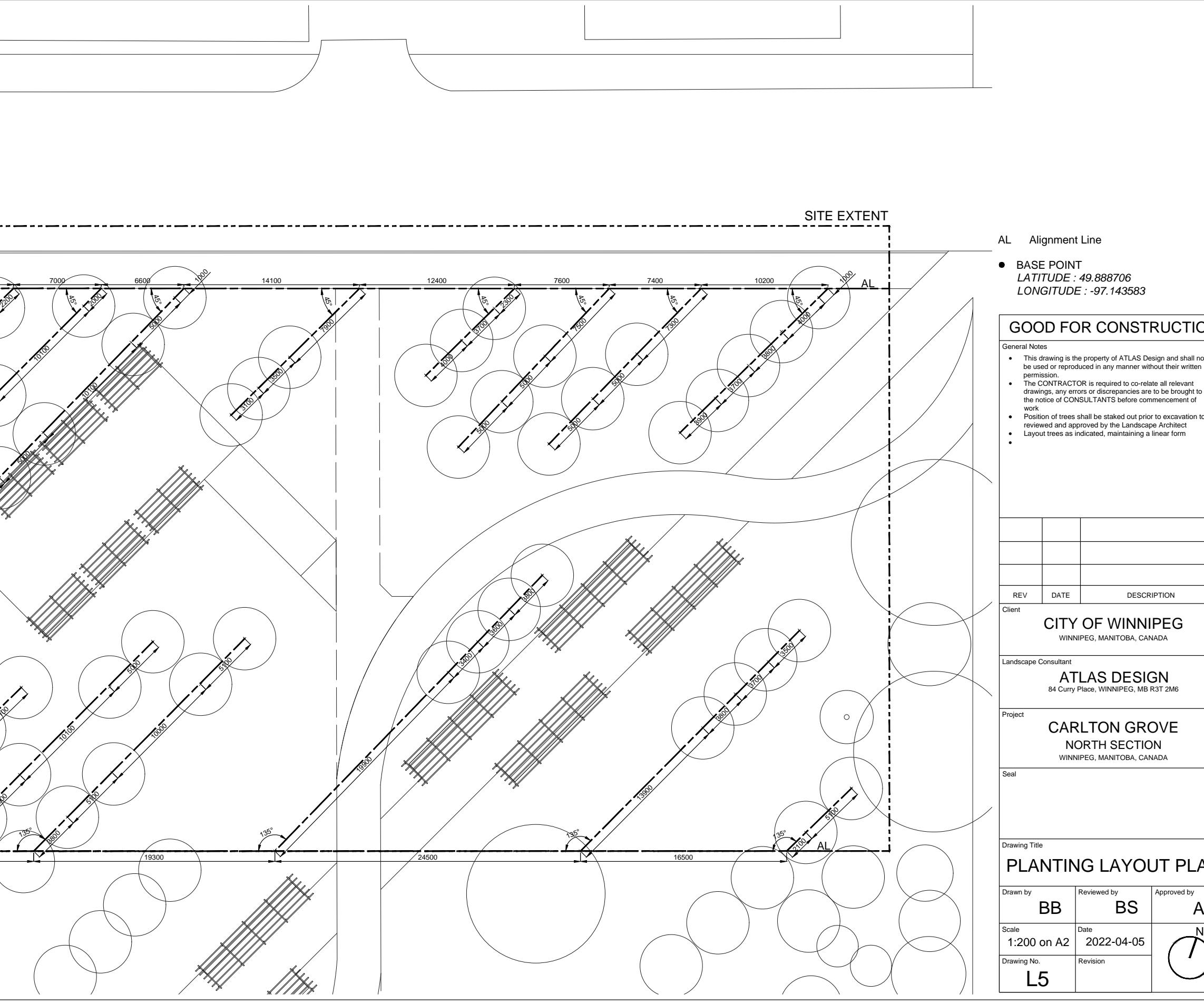
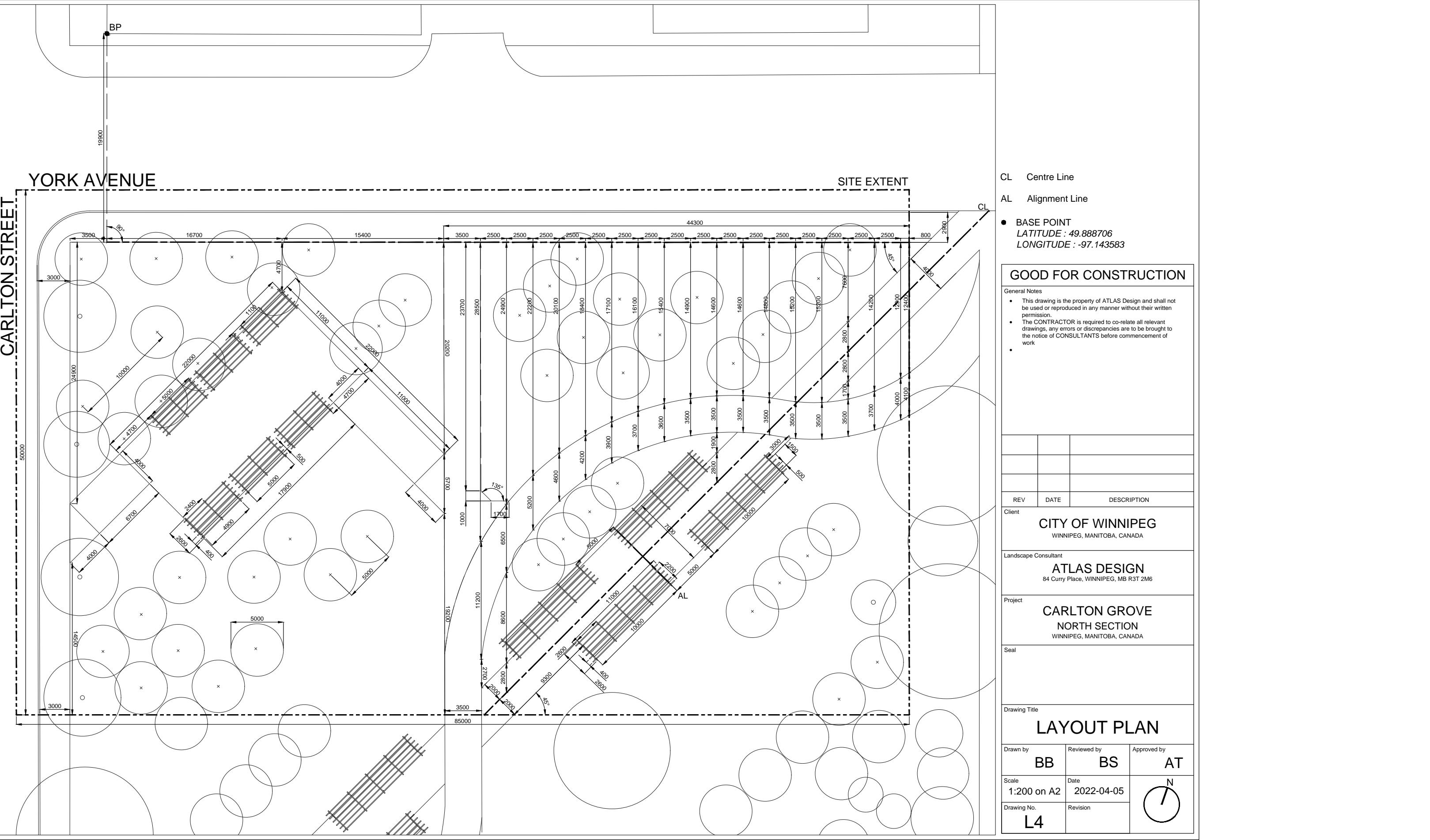
## **Carlton Grove Drawing Set** CentreVenture Development

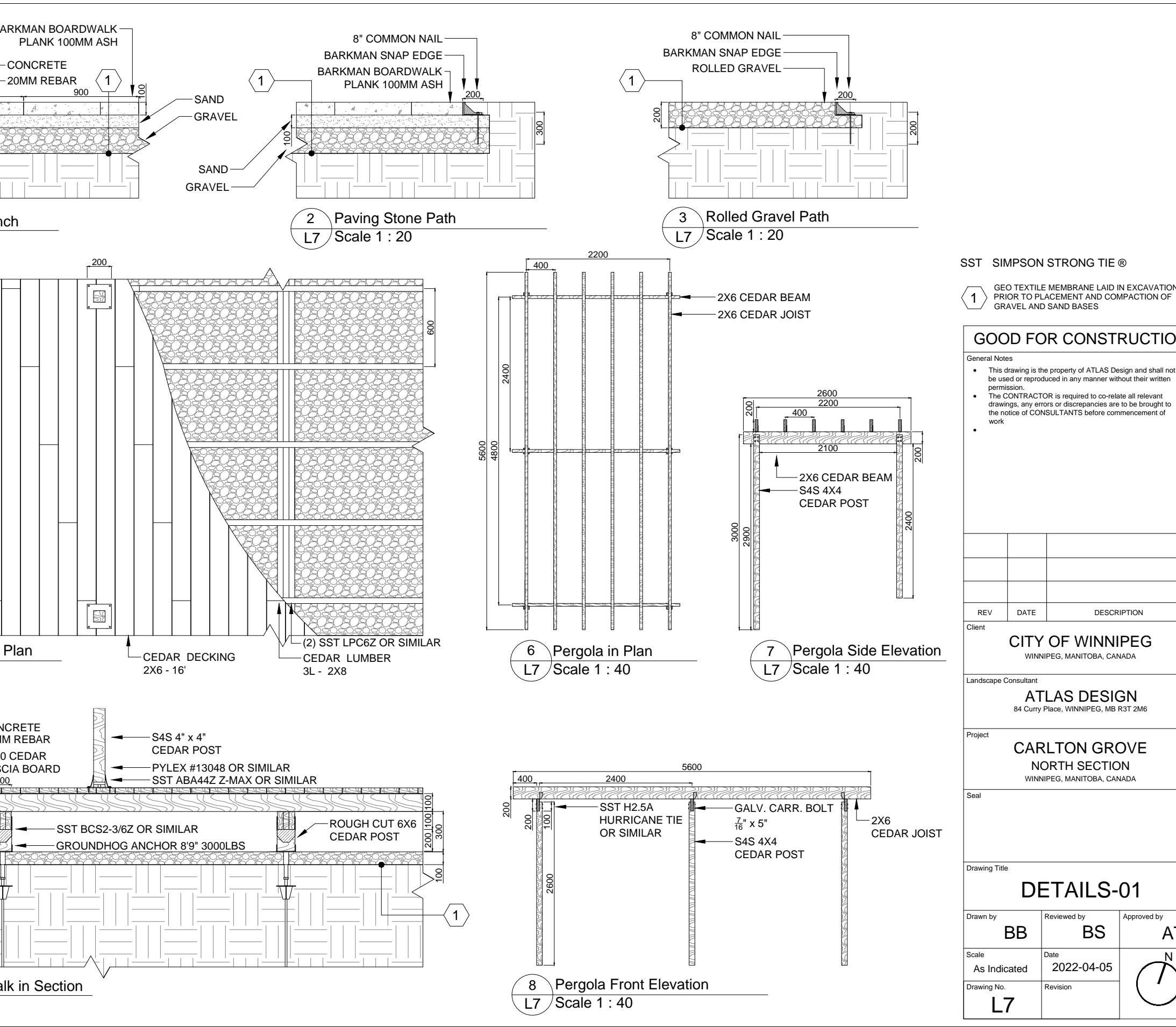
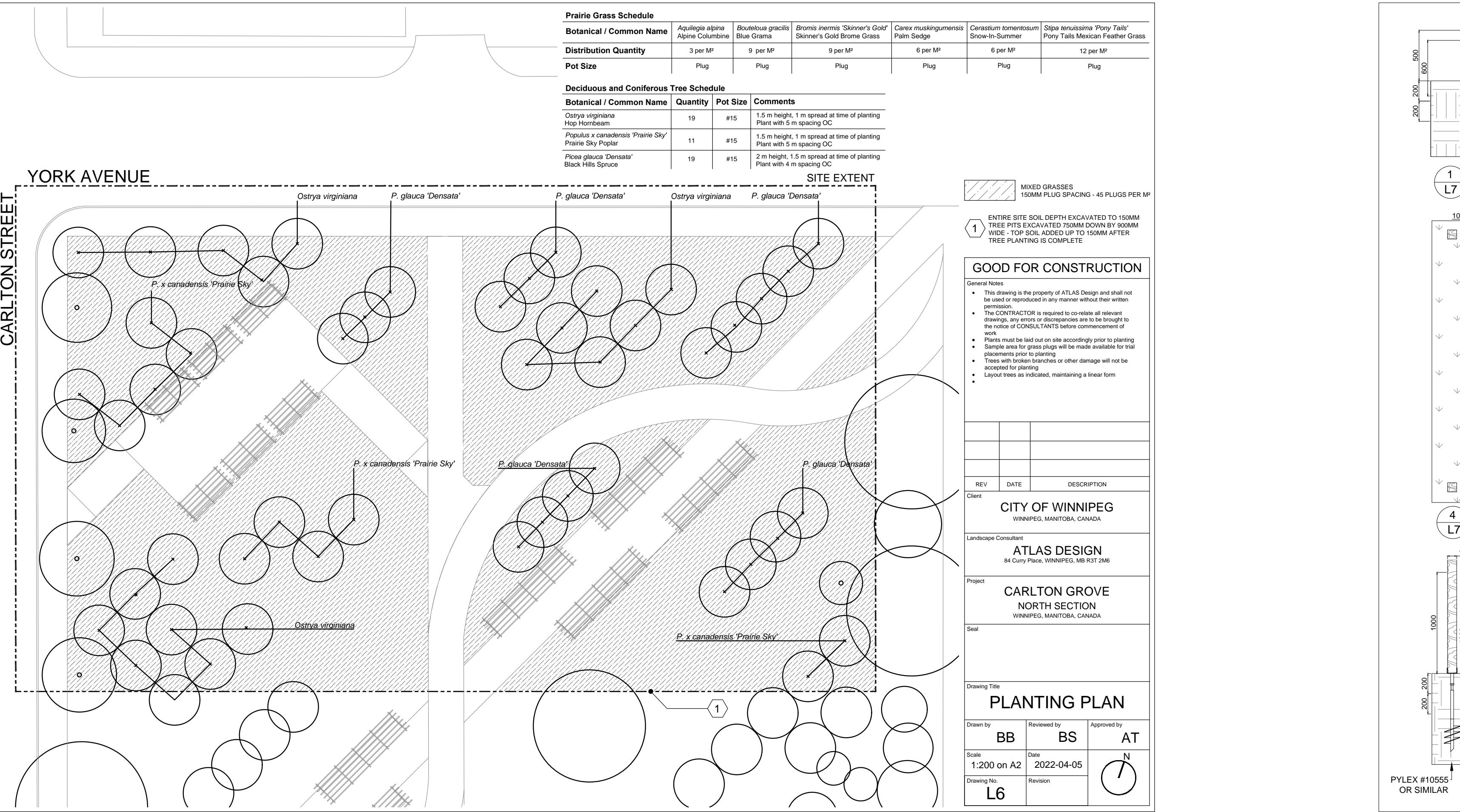
**Term** Winter 2022 **Class** LARC 7330 Studio 3  
**Instructor(s)** Alan Tate **Duration** 2 Weeks  
**Programs** AutoCAD

This landscape architectural drawing set relates to the Carlton Grove design project. Working drawings were developed to ensure a realistic design was possible, beginning with a demolition plan, followed by materials, elevations, layouts, plantings, and details. From the details, a 1:2 model of the pergolas had been built.









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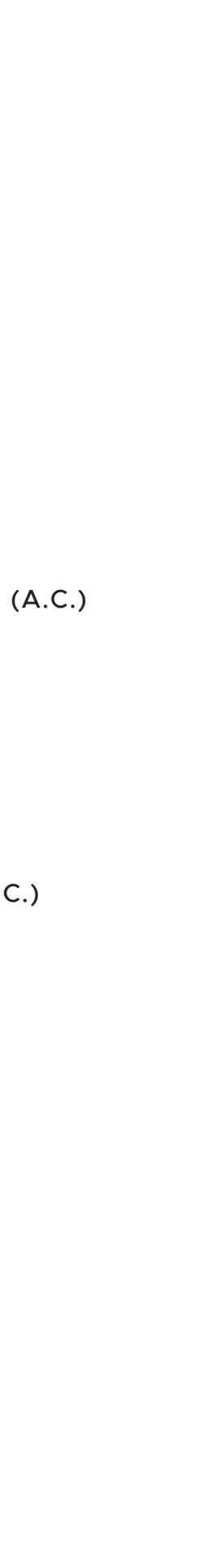
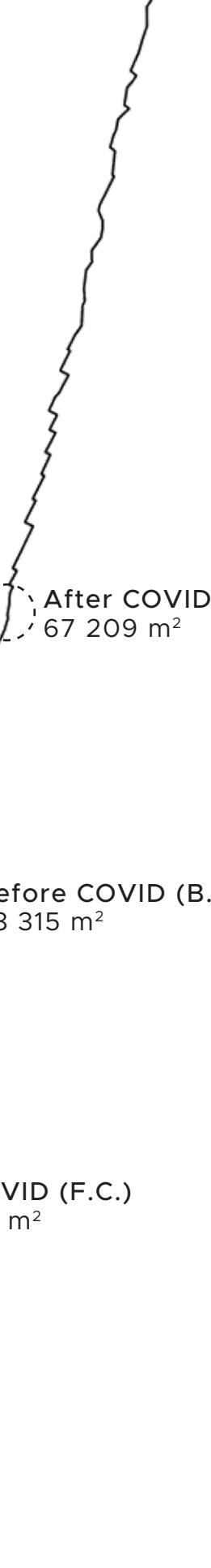
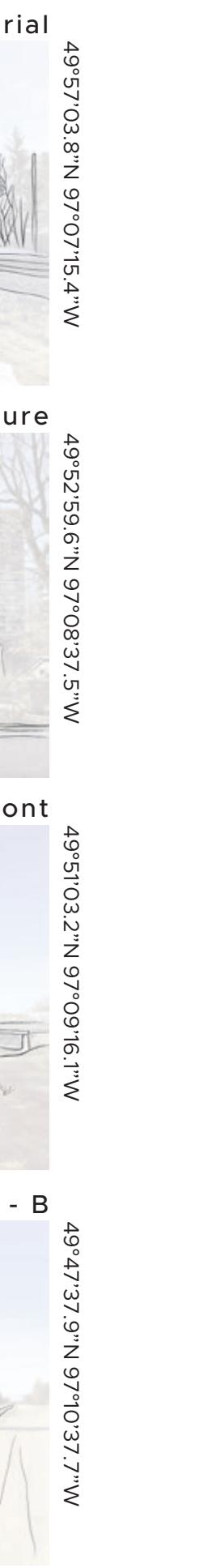
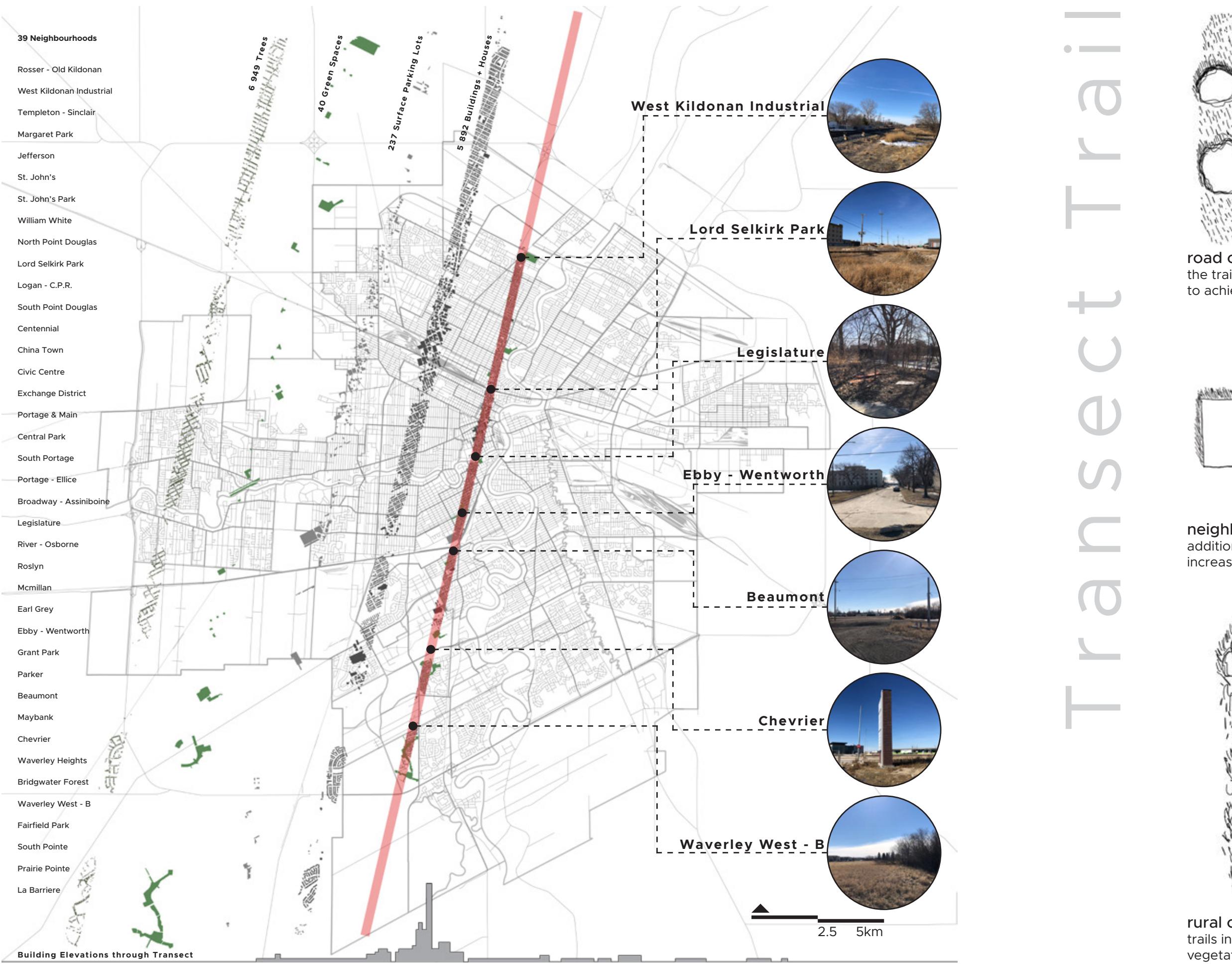


## Reconcile

**Term** Winter 2021 **Class** EVLU 4014 Studio 6  
**Instructor(s)** Marcella Eaton **Duration** 5 Weeks  
**Programs** QGIS, Rhino3D, TwinMotion, Photoshop + Illustrator

Early on in this project a transect through Winnipeg was selected to capture the variety of the environments encountered within Winnipeg. Through this transect, a path is created that will vary in condition based on the environment that it is in. Additionally, three Paradise Gardens were designed in chosen places that address the feelings of a time before, during and after COVID-19. A focus was placed on the design of the after covid (a.c.) garden, located downtown, adjacent to the Logan-C.P.R. railway to the south and Main Street to the East. The design of the garden imagines life after COVID, where people continue to spend their time outside, within a space that affords many uses. The garden is divided naturally with rows of trees that create secluded spaces. Educational and physical activity are characteristics that are encouraged within the proposed programming of the space. With reconciliation in mind, some of these design characteristics are just potential possibilities.

# transect Trail





Before COVID (B.C.) Site Plan

25 50 100m



For COVID (F.C.) Site Plan

25 50 100m

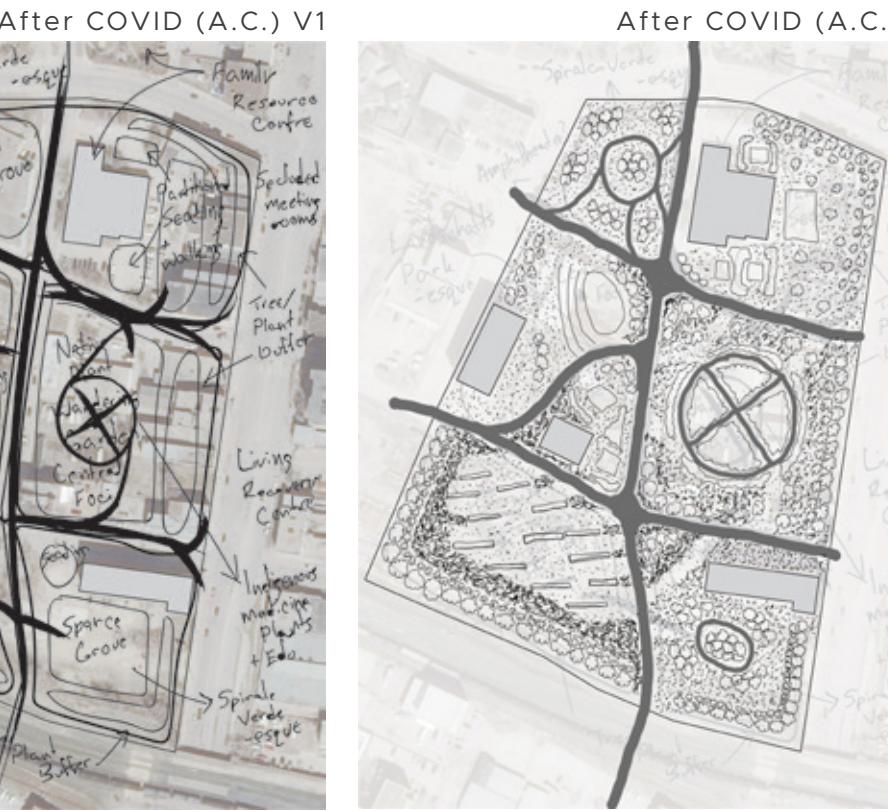


After COVID (A.C.) Site Plan

25 50 100m



After COVID (A.C.) V1



After COVID (A.C.) V2



After COVID (A.C.) V3



After COVID (A.C.) V4

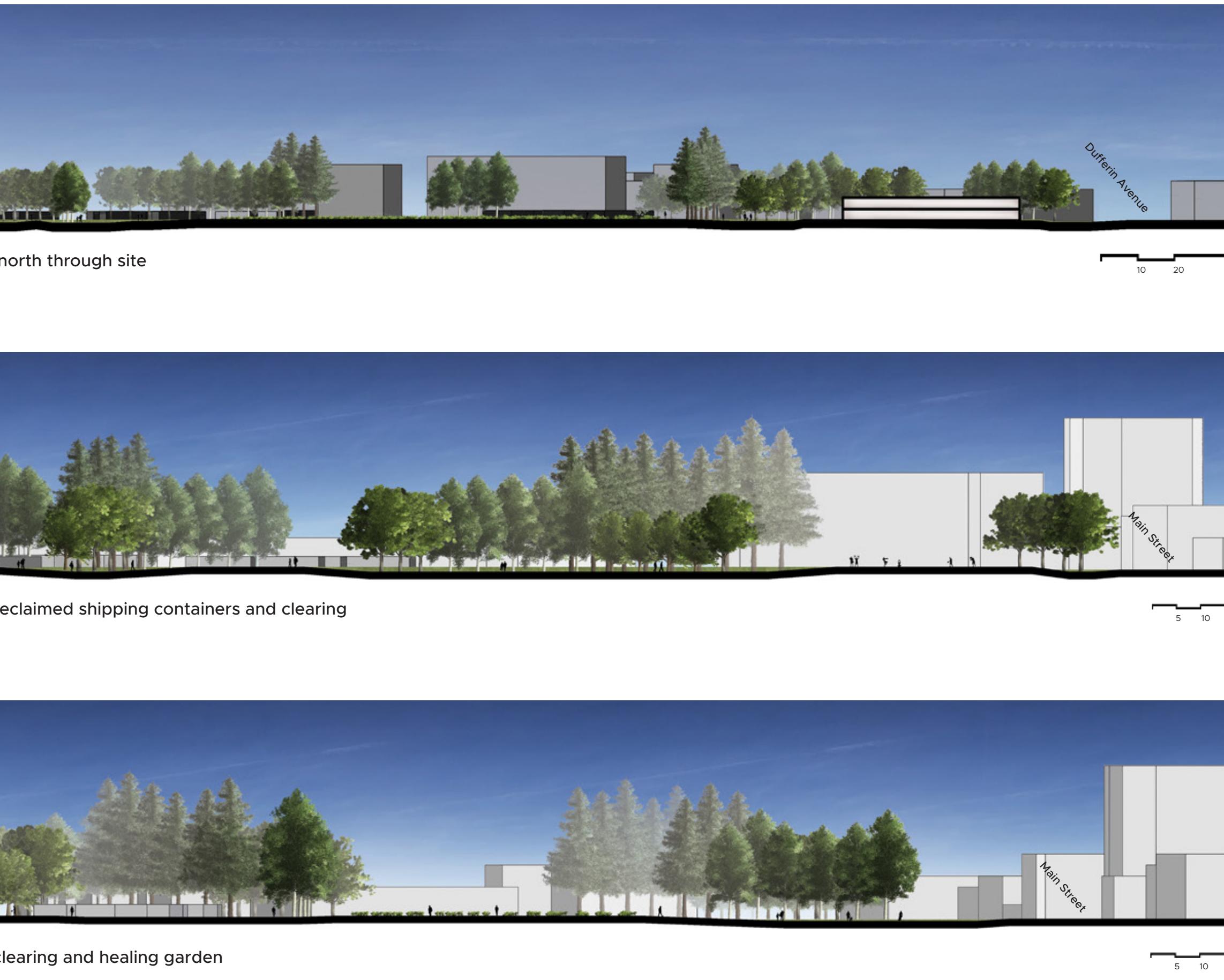
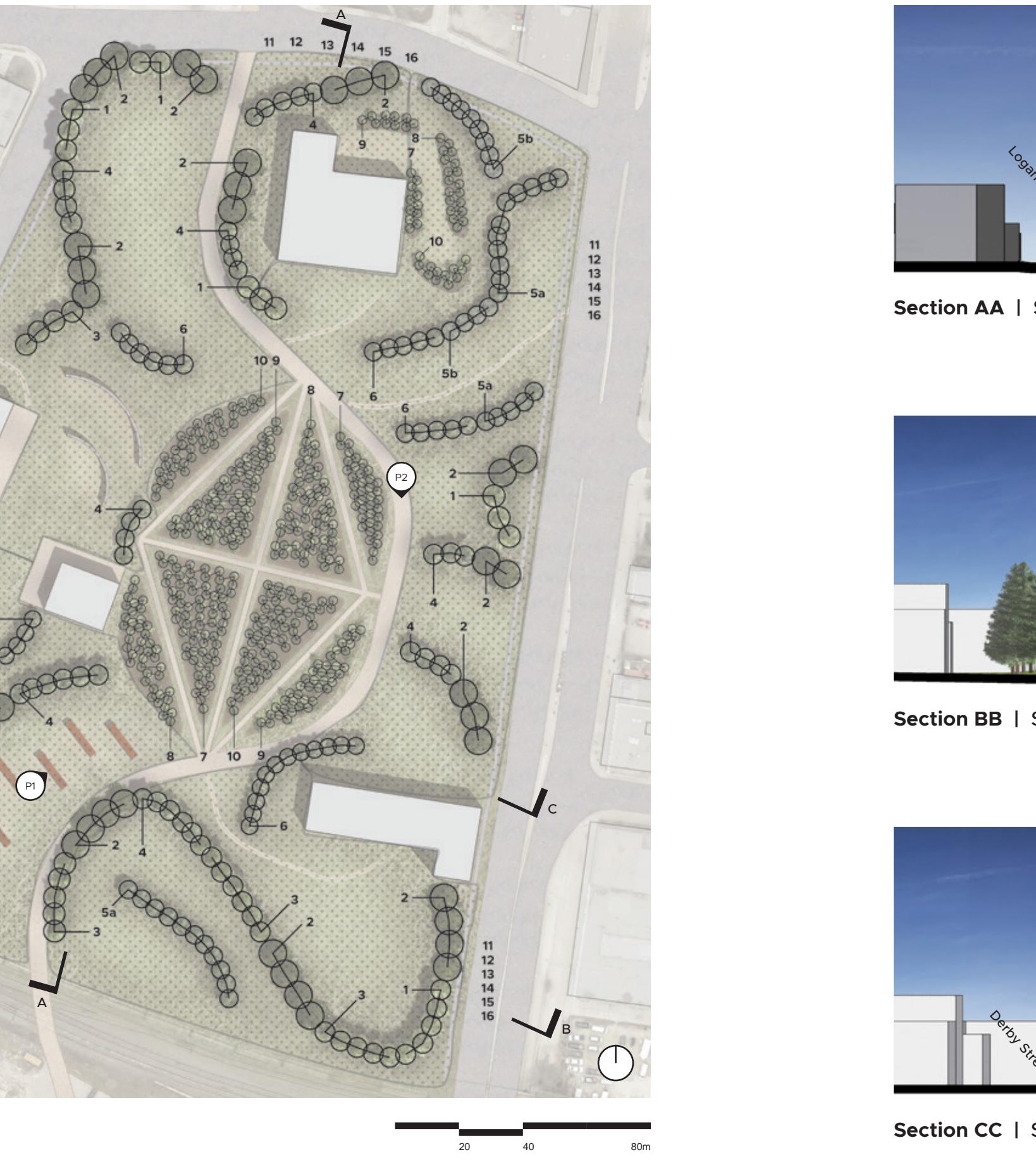
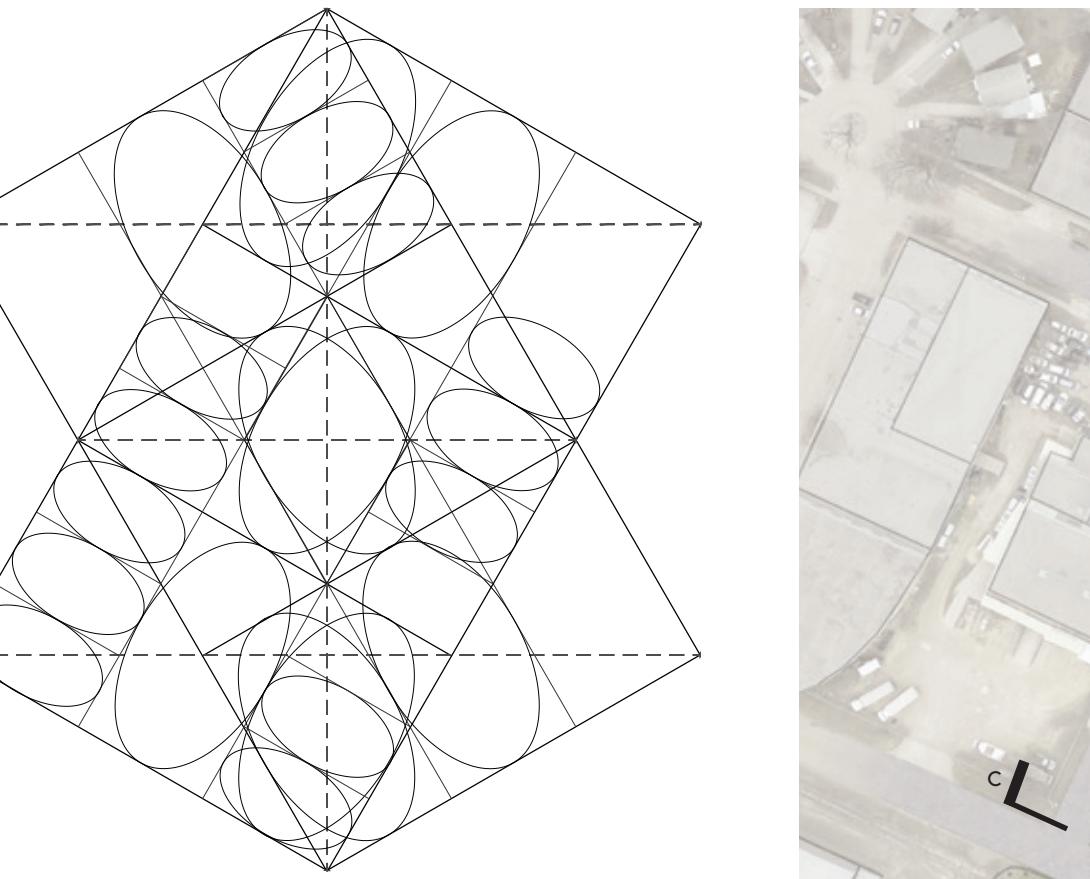
### Geometry of the Design

The layout of the garden is based on two overlapping Root Three Rectangles that contain inset Golden Ellipses. These ellipses were used to inform the position of vegetation and spaces within the garden.

The design of the healing garden at the centre of the paradise garden is based on the medicine wheel with equal parts and traditional plantings.

Additional spaces throughout the paradise garden look to educate individuals who may occupy the garden, as well as provide space for recreational activities for all ages.

Deciduous Trees	Scientific Name	Code	Quantity	Sun	Soil	Spread @ Maturity	Height @ Maturity	Spacing
American Linden	<i>Tilia americana</i>	1	16	☀️	💧	12m	25m	As Shown
Bur Oak	<i>Quercus macrocarpa</i>	2	42	☀️	💧	20m	25m	As Shown
Manitoba Maple	<i>Acer negundo</i>	3	31	☀️	💧	12m	15m	As Shown
Trembling Aspen	<i>Populus tremuloides</i>	4	36	☀️	💧	8m	20m	As Shown
Coniferous Trees	Scientific Name	Code	Quantity	Sun	Soil	Spread @ Maturity	Height @ Maturity	Spacing
Colorado Spruce	<i>Picea pungens</i>	5a	44	☀️	💧	8m	20m	As Shown
Eastern White Pine	<i>Pinus strobus</i>	6	34	☀️	💧	12m	25m	As Shown
White Spruce	<i>Picea glauca</i>	5b	13	☀️	💧	6m	20m	As Shown
Deciduous Shrubs	Scientific Name	Code	Quantity	Sun	Soil	Spread @ Maturity	Height @ Maturity	Spacing
Diamond Willow	<i>Salix bebbiana</i>	7	118	☀️	💧	1.5m	4m	As Shown
Coniferous Shrubs	Scientific Name	Code	Quantity	Sun	Soil	Spread @ Maturity	Height @ Maturity	Spacing
Common Sage	<i>Salvia officinalis</i>	8	123	☀️	💧	1m	0.5m	As Shown
Juniper	<i>Juniperus communis</i>	9	122	☀️	💧	4m	2m	As Shown
Perennials	Scientific Name	Code	Quantity	Sun	Soil	Spread @ Maturity	Height @ Maturity	Spacing
Canadian Mint	<i>Mentha canadensis</i>	10	112	☀️	💧	1m	1m	As Shown
Prairie Grasses	Scientific Name	Code	Quantity	Sun	Soil	Spread @ Maturity	Height @ Maturity	Spacing
Indian Grass	<i>Sorghastrum nutans</i>	11	Natural Occurrence	☀️	💧	As Shown	1m	As Shown
Little Bluestem	<i>Schizachyrium scoparium</i>	12	Natural Occurrence	☀️	💧	As Shown	0.6m	As Shown
Prairie Dropseed	<i>Sporobolus heterolepis</i>	13	Natural Occurrence	☀️	💧	As Shown	0.6m	As Shown
Side Oats Grama	<i>Bouteloua curtipendula</i>	14	Natural Occurrence	☀️	💧	As Shown	0.7m	As Shown
Sweetgrass	<i>Hierochloe odorata</i>	15	Natural Occurrence	☀️	💧	As Shown	0.6m	As Shown
Switch Grass	<i>Panicum virgatum</i>	16	Natural Occurrence	☀️	💧	As Shown	1m	As Shown





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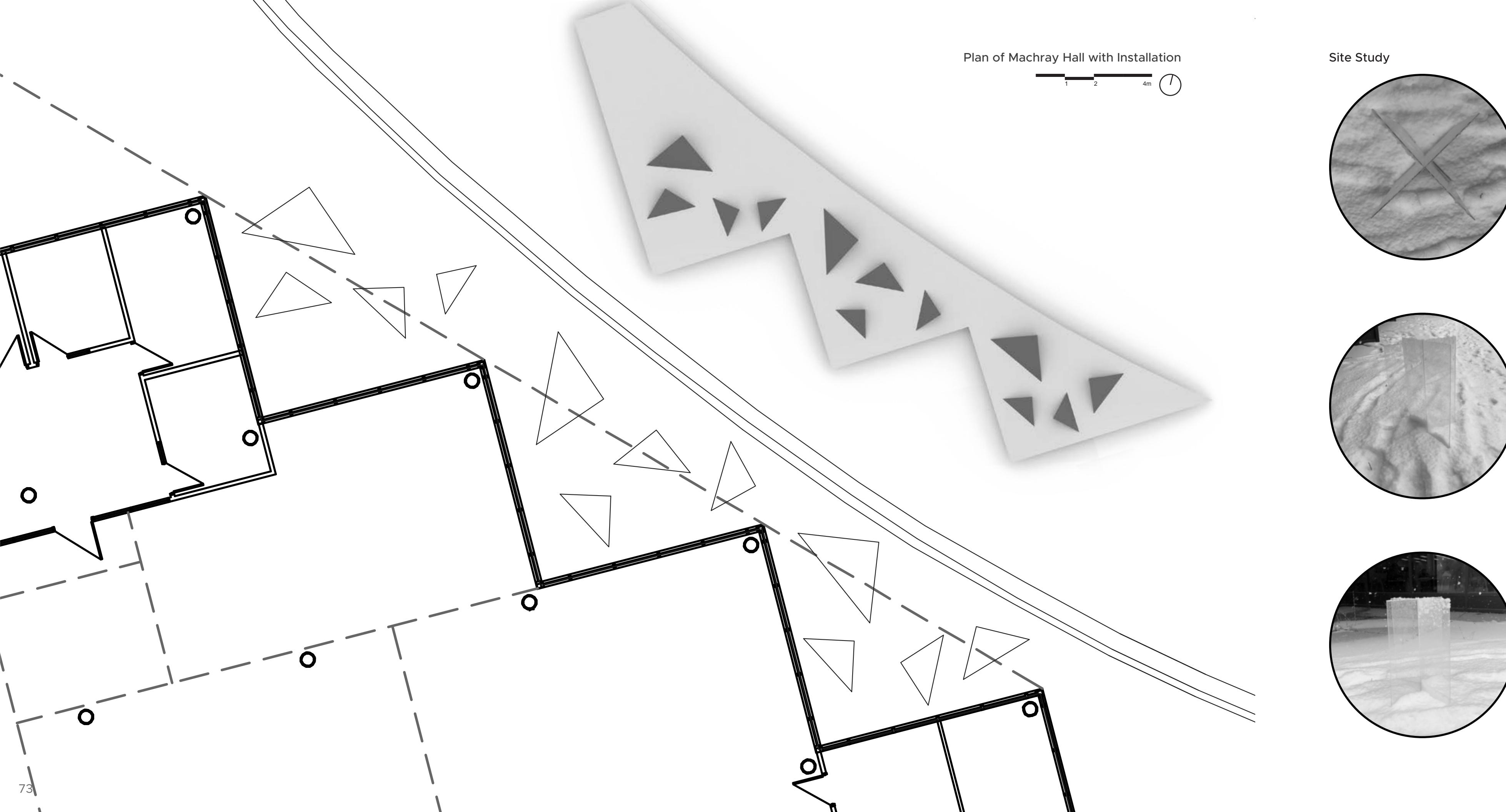


## Snow Garden

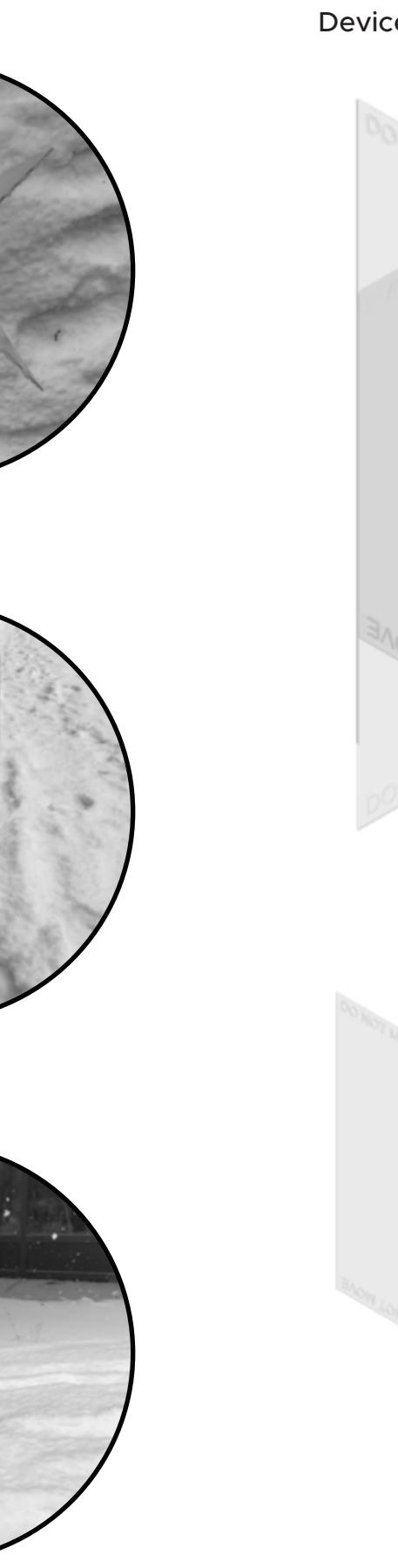
**Term** Winter 2020 **Class** EVLU 3008 Studio 4  
**Instructor(s)** Brenda Brown **Duration** 4 Weeks

**Programs** Modelling, Photoshop, Illustrator, AutoCAD + Rhino3D

This project began with a rigorous observation and analysis of the interior and exterior environments of our chosen site. Upon constructing a model of the interior portion of the site, a separate exterior portion was added to test layouts of our intervention. Following this, studio reviews were done and a vote was conducted to see which projects would be built. This project was chosen within the first round and was successfully constructed within sixteen hours by a team of three people. This team consisted of Bryce Stovin, Matthew Glowacki, and myself. The shapes were constructed by packing snow into a form that was made using Polystyrene Rigid Insulation. Once the forms were removed the shape was touched up slightly.



Plan of Machray Hall with Installation

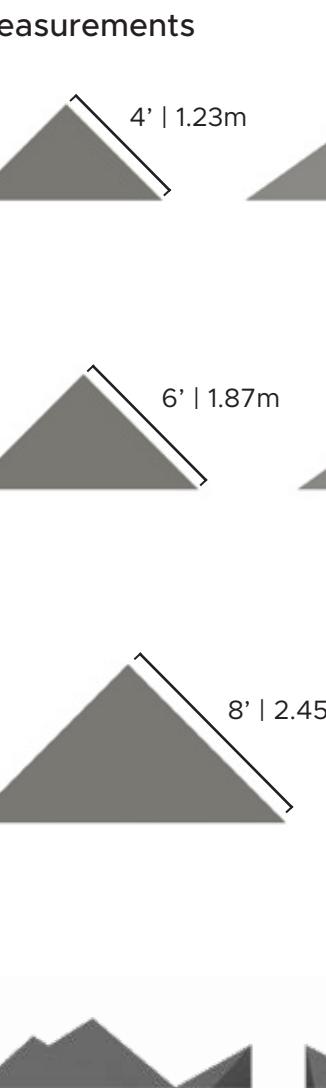


Site Study

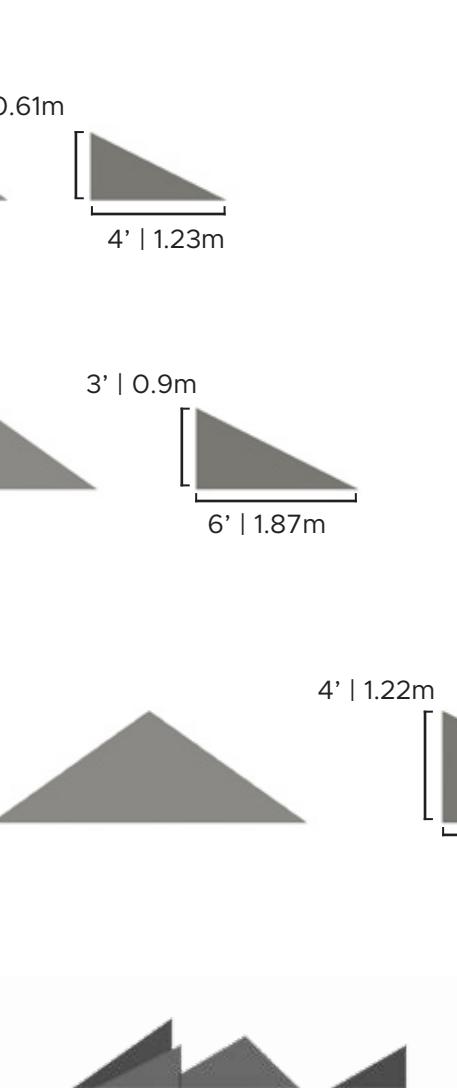


Device Detail

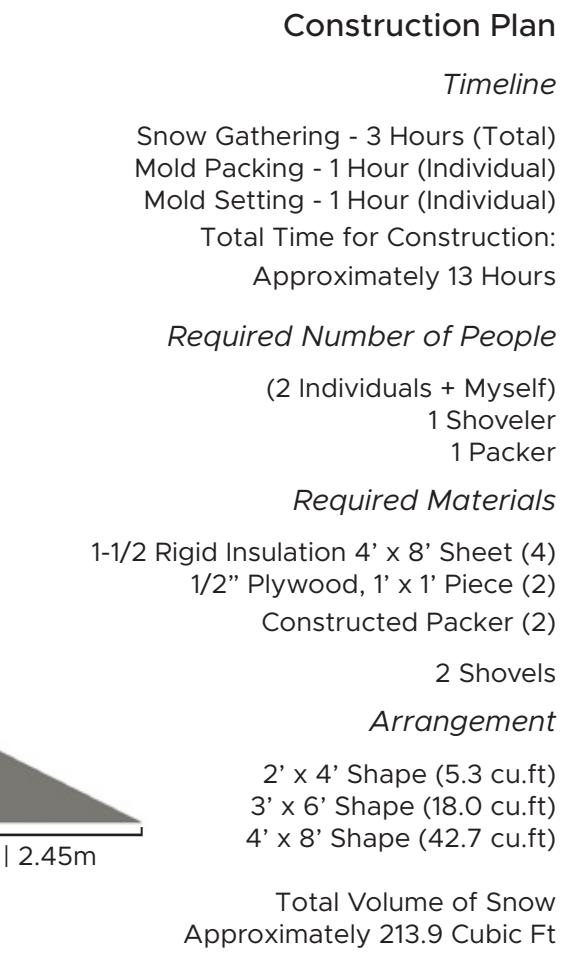
Scale 1:5



Measurements



Measurements



Construction Plan

Timeline

Snow Gathering - 3 Hours (Total)  
Mold Packing - 1 Hour (Individual)  
Mold Setting - 1 Hour (Individual)  
Total Time for Construction:  
Approximately 13 Hours

Required Number of People

(2 Individuals + Myself)  
1 Shoveler  
1 Packer

Required Materials

1-1/2 Rigid Insulation 4' x 8' Sheet (4)  
1/2" Plywood, 1' x 1' Piece (2)  
Constructed Packer (2)

2 Shovels

Arrangement

2' x 4' Shape (5.3 cu.ft)  
3' x 6' Shape (18.0 cu.ft)  
4' x 8' Shape (42.7 cu.ft)

Total Volume of Snow  
Approximately 213.9 Cubic Ft



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## Miscellaneous Work

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**Term** Summer 2019, Summer 2020 + Summer 2021  
**Programs** Photoshop, AutoCAD, Rhino3D + TwinMotion

My miscellaneous work focuses on the translation and reimagination of my direct physical environments. This has allowed me to experiment with methods of representation, as well as contribute directly to the design process for several current projects within or adjacent to these environments.

## Cottage Deck Extension

located in the cottage area of Grand Beach Provincial Park, the original cottage was constructed in the 1970s. Two previous additions had been constructed in 1990 - 91 to the west and south sides of the cottage.

rior to the construction of the original structure in the 1970s, another cottage known as the 'Nifty Inn' had existed in southeast corner of the lot, roughly where the existing shed is located.

This extension of the deck would add approximately 144 sq ft. of deck surface to the south side of the cottage. In addition to the extension, the existing deck area would be screened in.

on

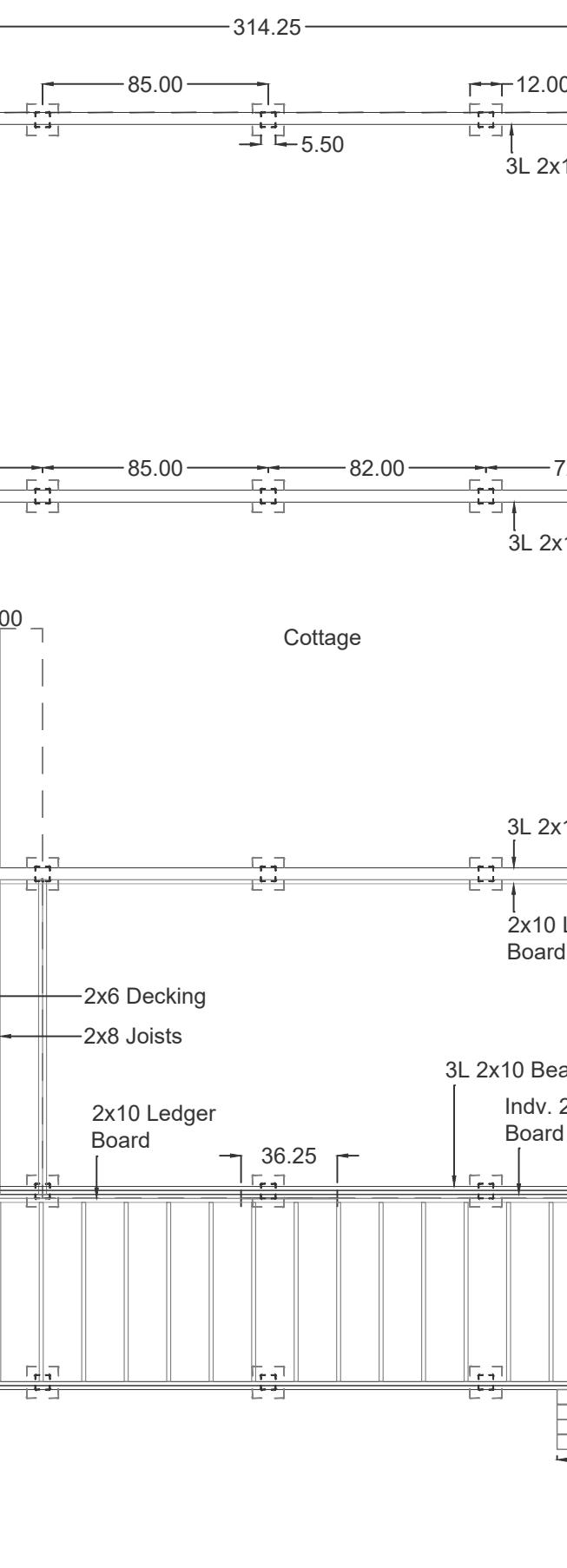
<i>Beams</i>	<i>Posts and Footings</i>
6 x 12' (2)	6 x 6 x 8' Treated Post (1)
8 x 8' (4)	18 x 18 x 4 Footing Pad (5)
3 x 16' (4)	
<i>Surface</i>	<i>Joists</i>
3 x 8' (2)	2 x 6 x 12' (11)
6 x 8' (12)	
x 12' (19)	
x 16' (12)	
<i>Ledger</i>	<i>Fasteners</i>
8 x 12' (1)	2 x 6 Joist Hangers (19)
8 x 16' (1)	2 x 6 - 2 Joist Hangers (1)
	1/2" x 5" Galv. Lag Screws (18)
	1/2" Galv. Flat Washers (18)
	2-1/2" Deck Screws ( $\pm 1500$ )
<i>Railing</i>	<i>Back Stairs</i>
4 x 12' (4)	2 Step Metal Stringer (3)
	2 x 6 x 12' (2)
<i>Front Stairs</i>	3/8" x 2-1/4" Carridge Bolts (24)
<i>pre-built</i>	3/8" Flat Washer (24)
	3/8" Hex Nut (24)



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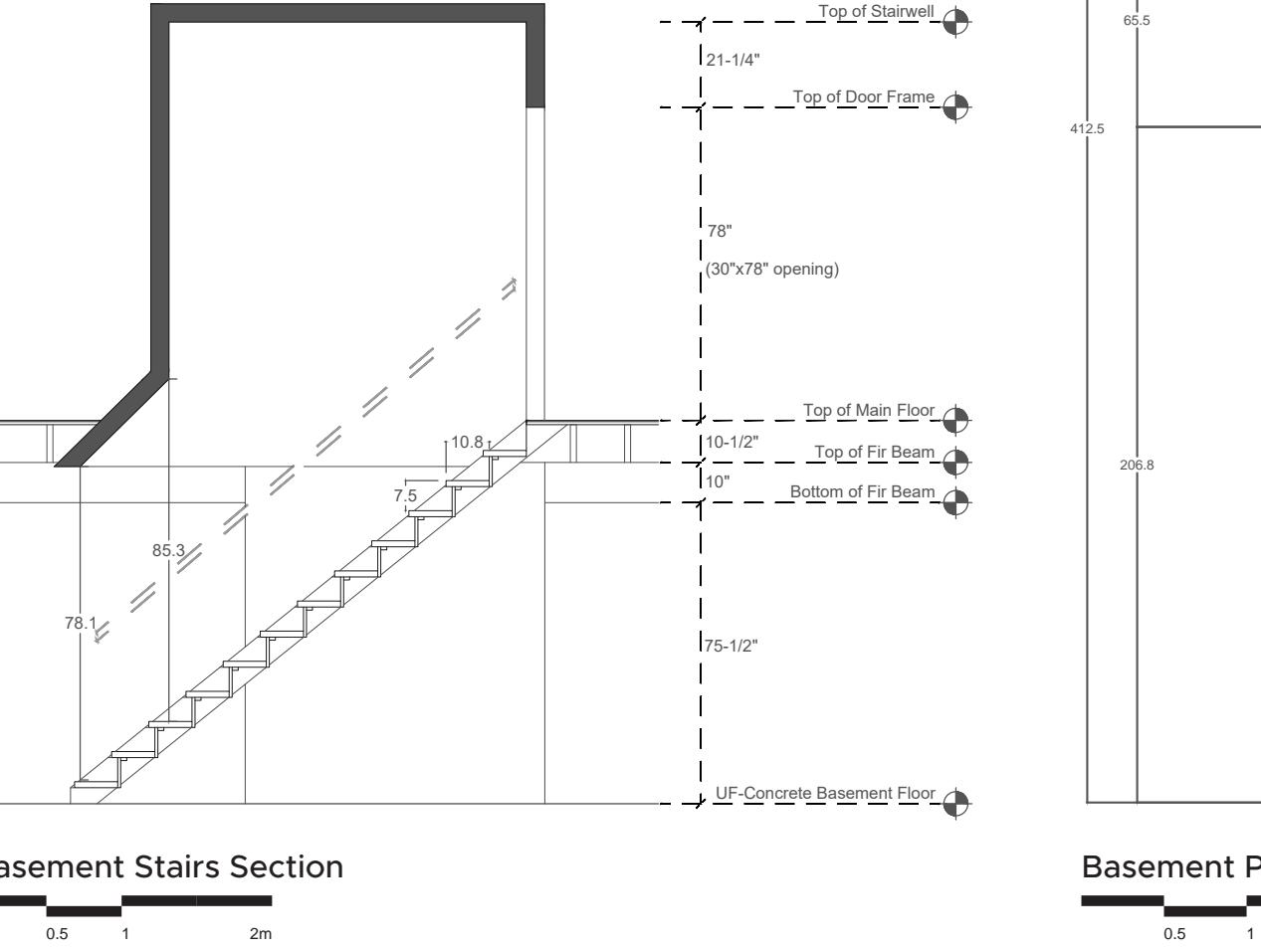
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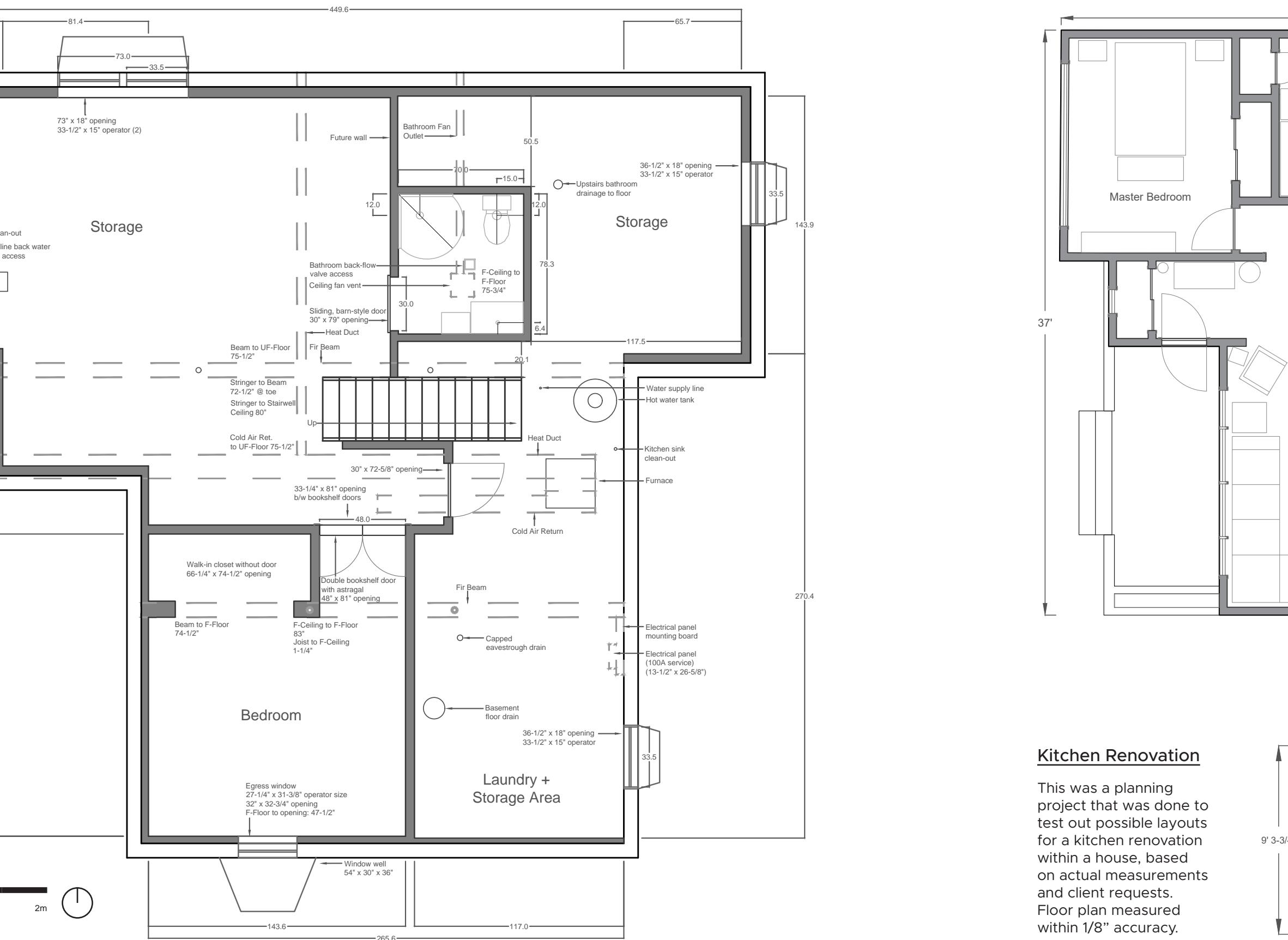
# Basement Renovation Plan

plan of the basement was created submit for a permit to complete the bathroom. A section of the basement stairs had been requested to ensure adequate access.

Additional modifications to the plan  
are going to be made in the future  
to indicate potential layouts of the  
entertainment space.



## **Basement Stairs Section**



10.1002/anie.201907002



A diagram showing a horizontal beam supported by two vertical columns. A horizontal arrow points to the left from the center of the beam, indicating a force or displacement.

A schematic diagram of a flow system. It features two parallel horizontal pipes. The top pipe has an arrow pointing from left to right. The bottom pipe has an arrow pointing from right to left. The pipes are connected to various components, including a vertical pipe on the right and several rectangular and circular shapes representing valves or fittings.

