



## Selected Works Portfolio

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Benjamin Boswick  
Landscape Architectural Intern  
Undergraduate, Graduate, Professional Works  
2019 - 2024



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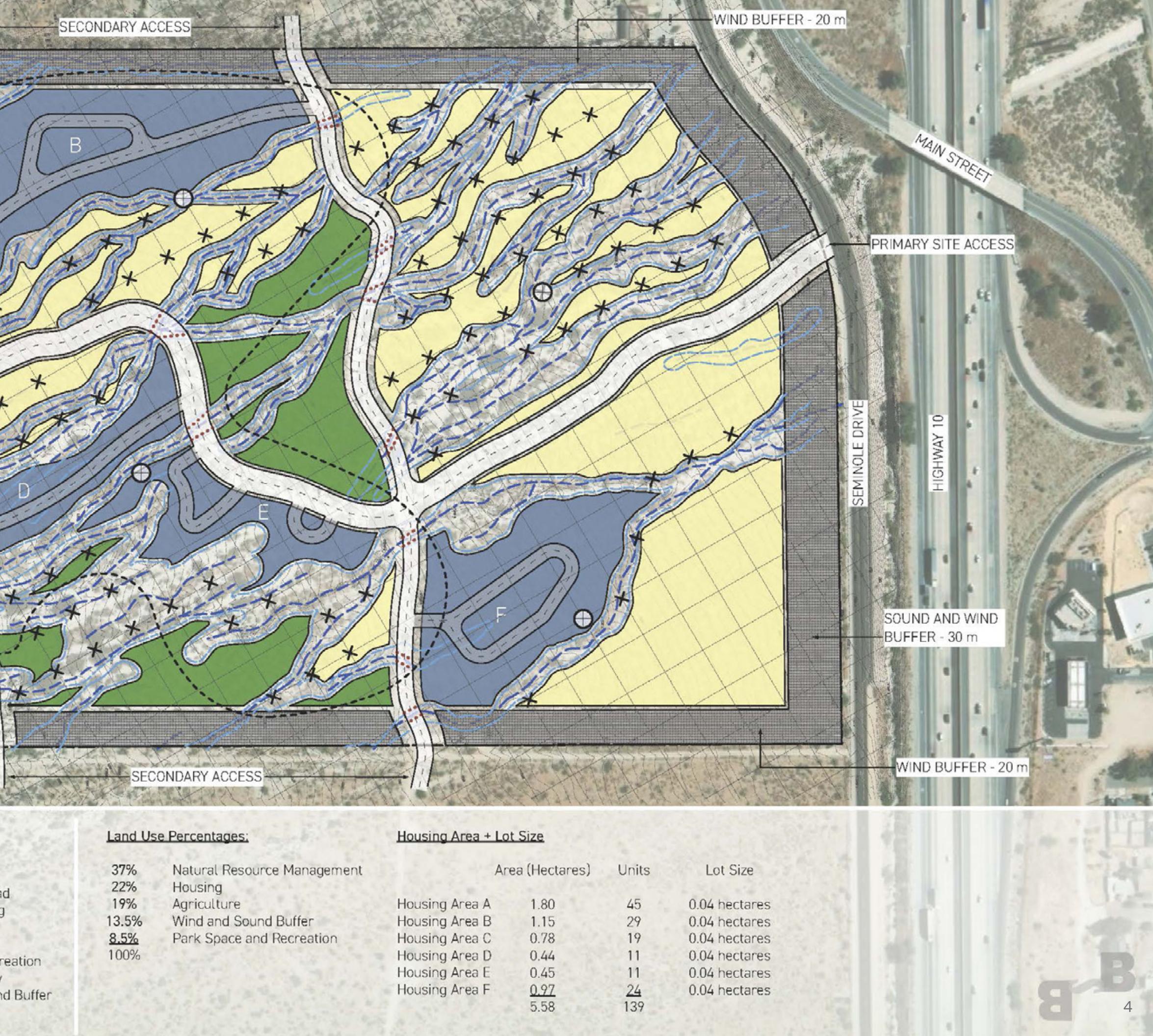
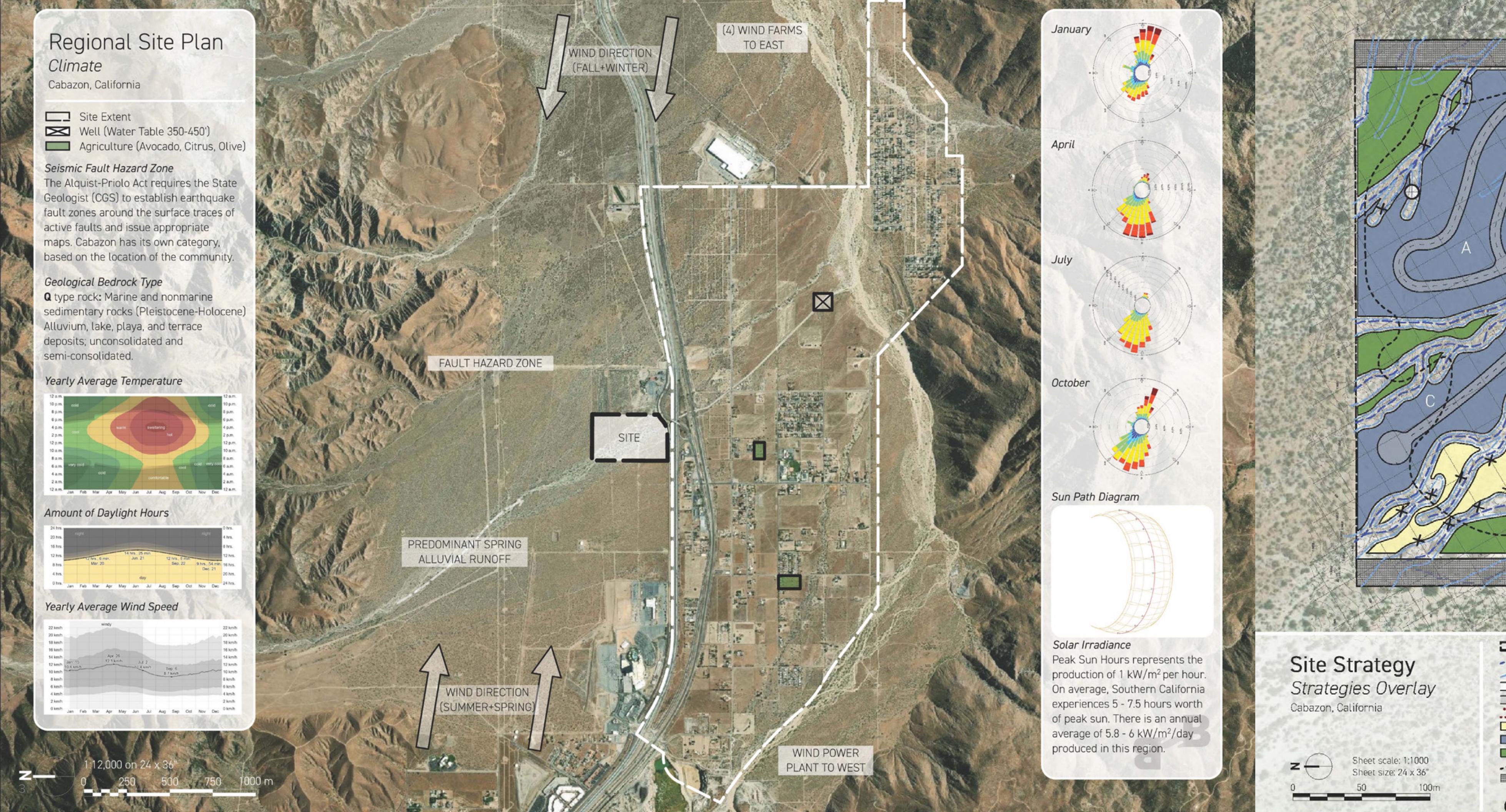
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## Gorgonio Sands

**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



5

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

0

50

100m



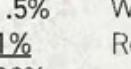
Distance to  
Major Bus Stop

1.5 miles



## Master Plan Render

Cabazon, California



0

50

100m

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

### Land Use Percentages:

35%	Natural Resource Management
21%	Housing
21.5%	Agriculture
21.5%	Wind and Sound Buffer
1%	Wind Energy
100%	Solar Energy
100%	Potable Water

### **Solar Power Calculations**

#### Average Daily Production per House = 240 kWh / house / day

= 200 gallons / day

Well Volume Yield = 260 gallons // Tripled

= 780 gallons

Minimum Residential Pump

= 1.5 hp @ 450' @ 6 gallons / minute

### **Wind Power Calculations**

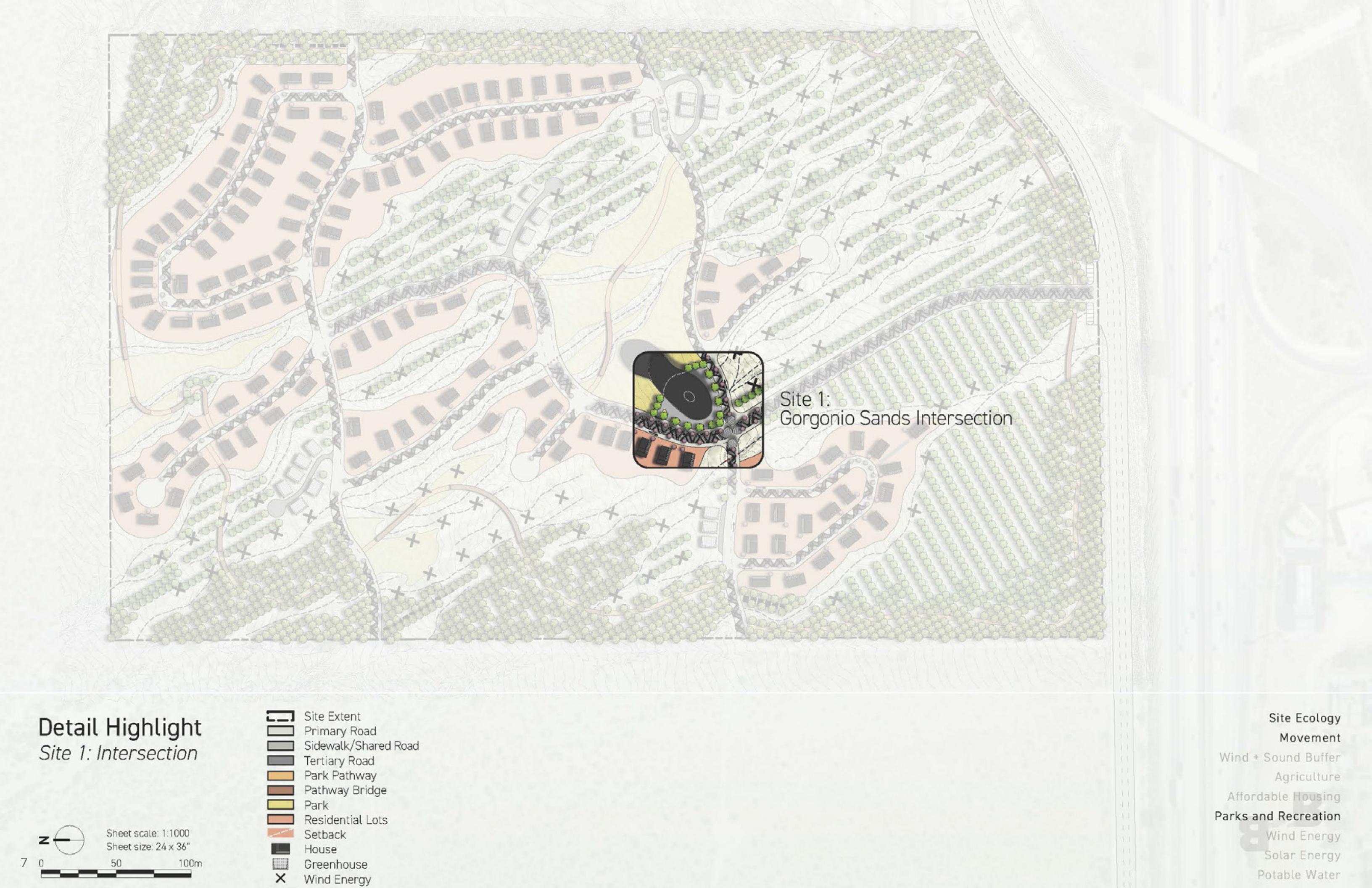
#### VORTEX Bladeless Production = 8 W / m<sup>2</sup> @ 3.6 m/s @ 2.75m Height

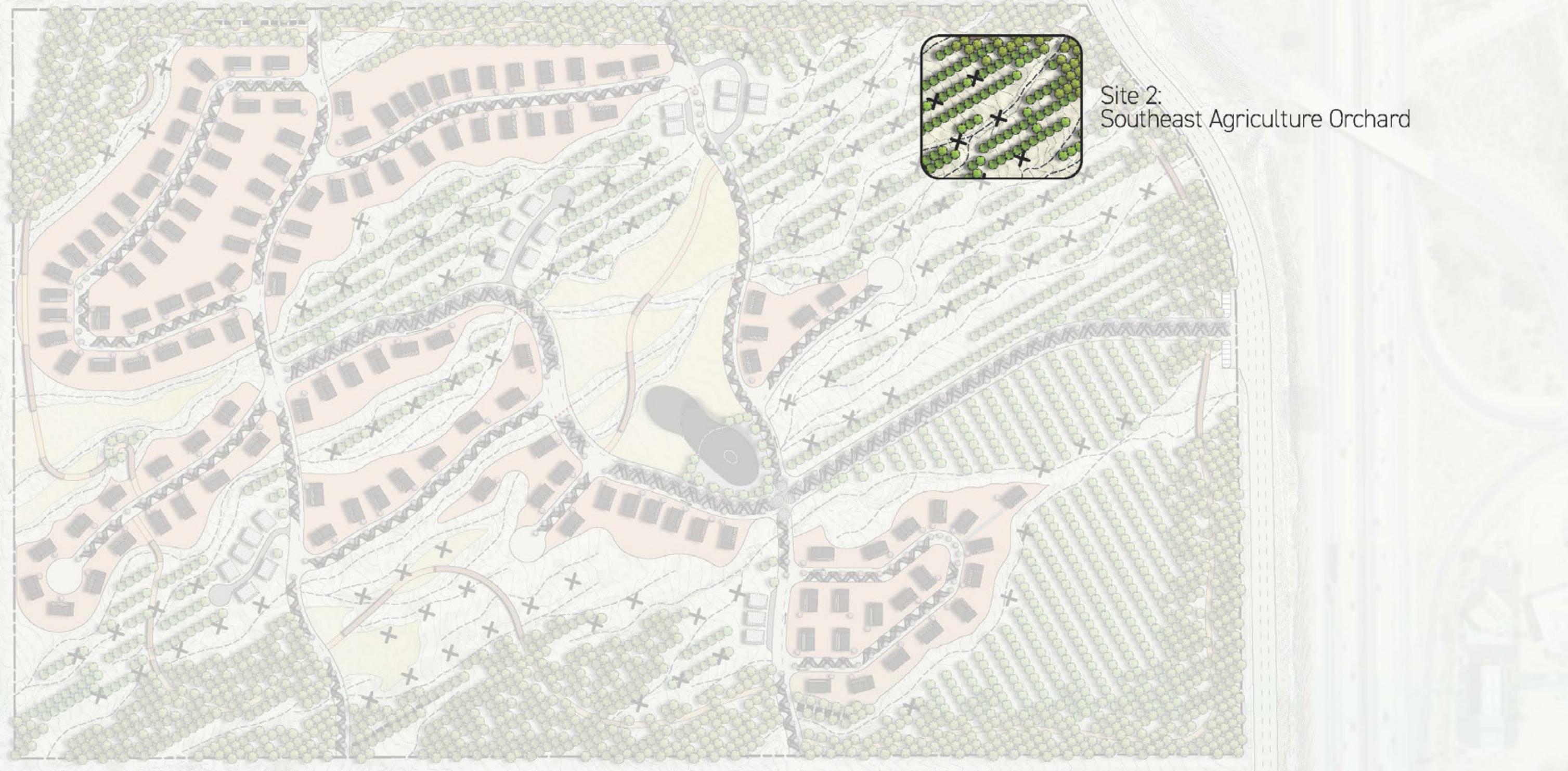
VORTEX Bladeless Production = 0.124 kWh / m<sup>2</sup> @ 13 km/h @ 2.75m Height

VORTEX Bladeless Production = 12 W / m<sup>2</sup> @ 3.6 m/s @ 9m Height

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

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

9 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

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## 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

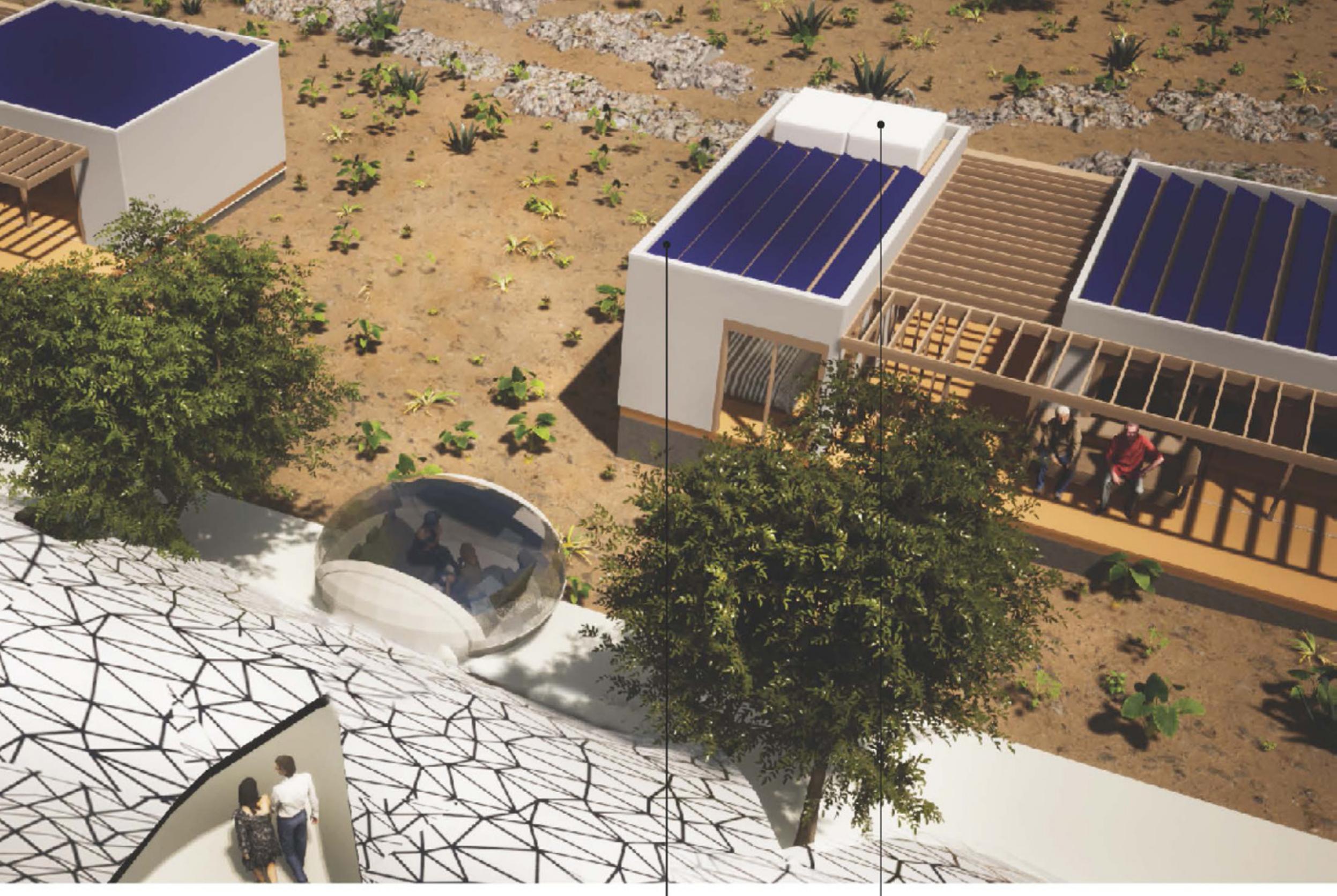


## Detailed Highlight Site 3: Housing

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

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## Affordable Housing Detailed Design

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

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14

13

14

- Housing Patio Space
- Solar Panels to Power Homes
- Potable Water Tank For Gravity-Fed Taps
- 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



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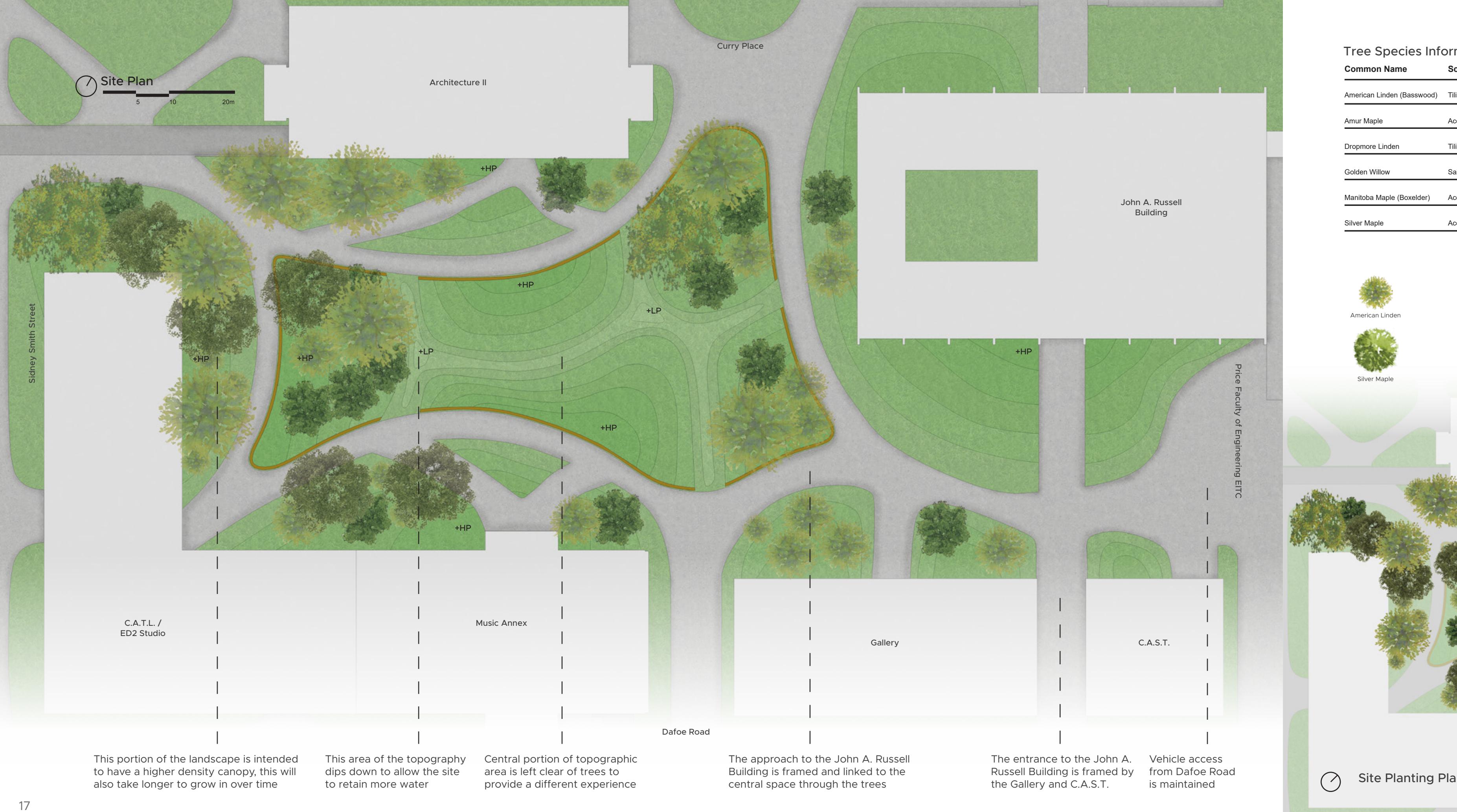
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## Design Precinct

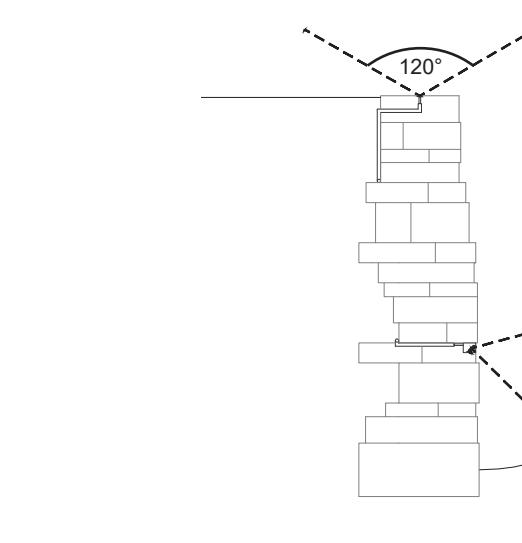
**Term** Winter 2020 **Class** EVLU 3008 Studio 4  
**Instructor(s)** Brenda Brown **Duration** 6 Weeks  
**Programs** Modelling, Photoshop, Illustrator + Rhino3D

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.

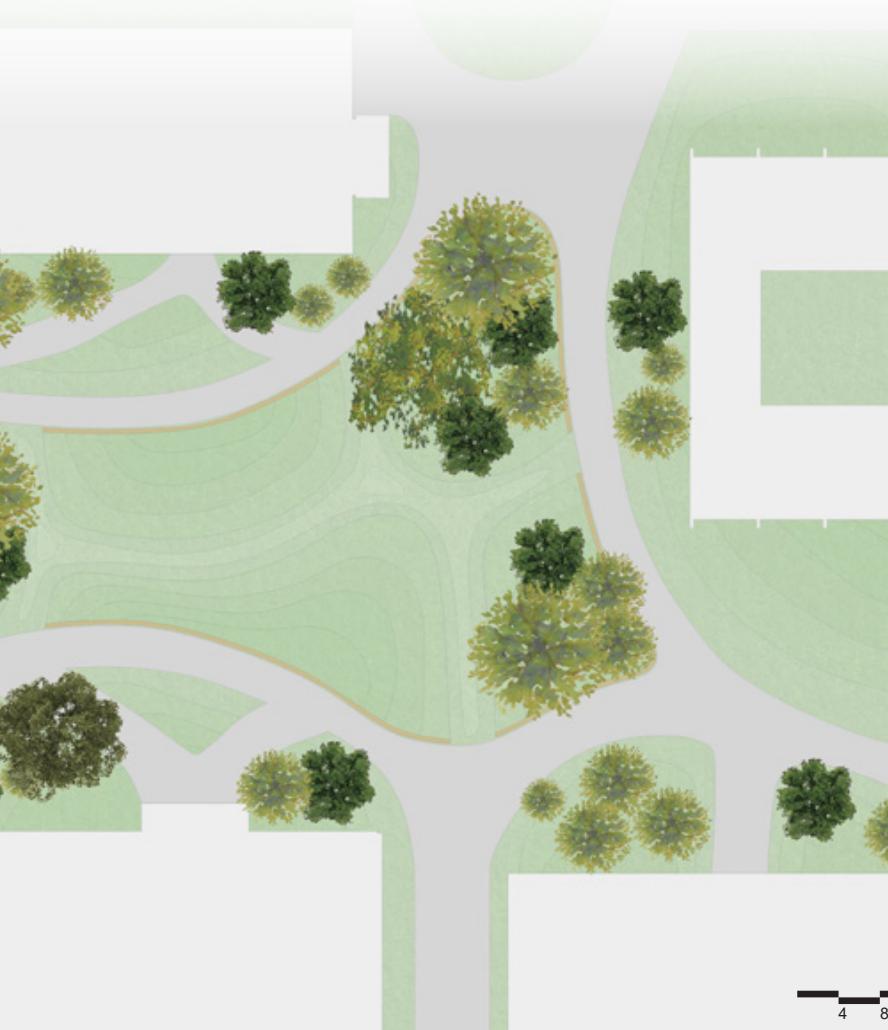
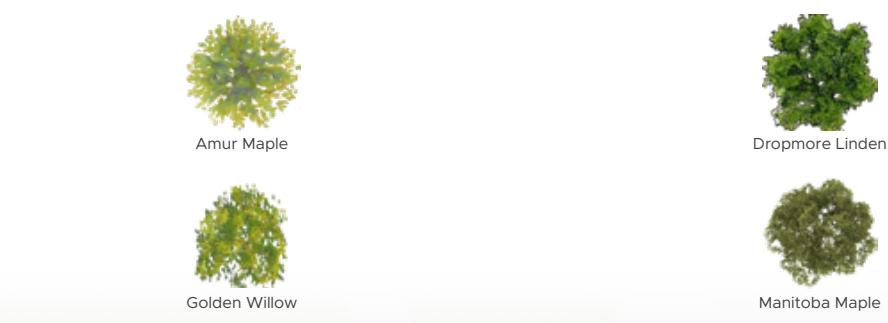
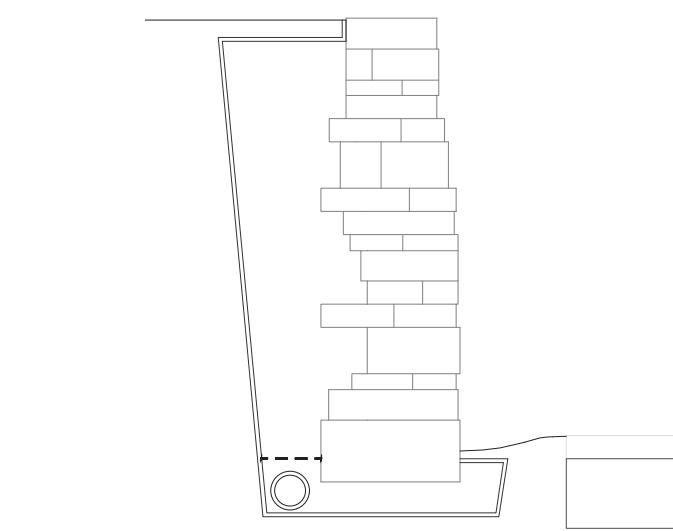


### Tree Species Information

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

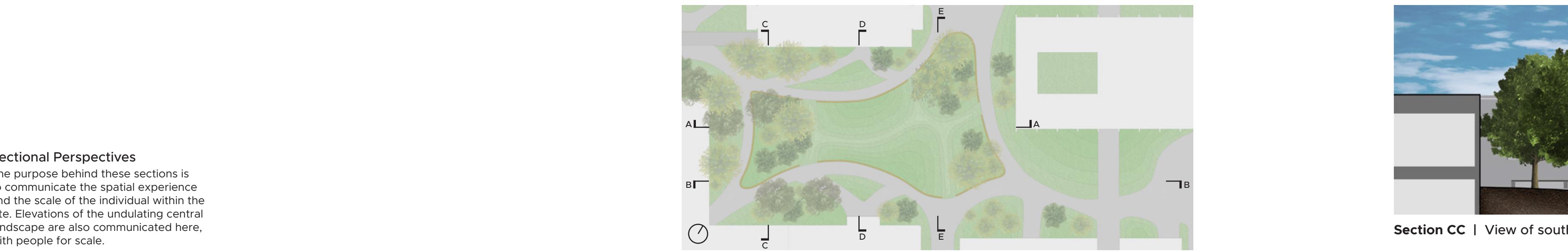
The purpose behind these sections is to communicate the spatial experience and the scale of the individual within the site. Elevations of the undulating central landscape are also communicated here, with people for scale.



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

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## Re-Naturalizing the Norquay Channel

A Strategy to Improve Water Quality

Advisor(s)

Brenda Brown, Kamni Gill, Daniel Reault

Programs

VectorWorks, Rhino3D, TwinMotion, QGIS, Photoshop

## Re-Naturalizing the Norquay Channel

### A Strategy to Improve Water Quality

**Term** Winter 2023 - Summer 2024 **Class** Thesis Practicum  
**Advisor(s)** Brenda Brown, Kamni Gill, Daniel Reault  
**Programs** VectorWorks, Rhino3D, TwinMotion, QGIS, Photoshop

Wetlands are necessary to maintain the health of landscapes and water bodies. Wetlands, especially in grassland prairies, typically referred to as wet prairies, are one of the most endangered landscapes in the world. Not only do they mitigate flooding in prairie landscapes, but they also act as carbon sinks. A wet prairie landscape used to dominate in southeast Manitoba, but now agriculture dominates. For this reason, I have worked to design a landscape in which wetlands, grasslands, and agriculture coexist. My project is aimed at creating wetlands alongside man-made drainage, to improve water quality and limit the amount of nutrients entering downstream waterways.

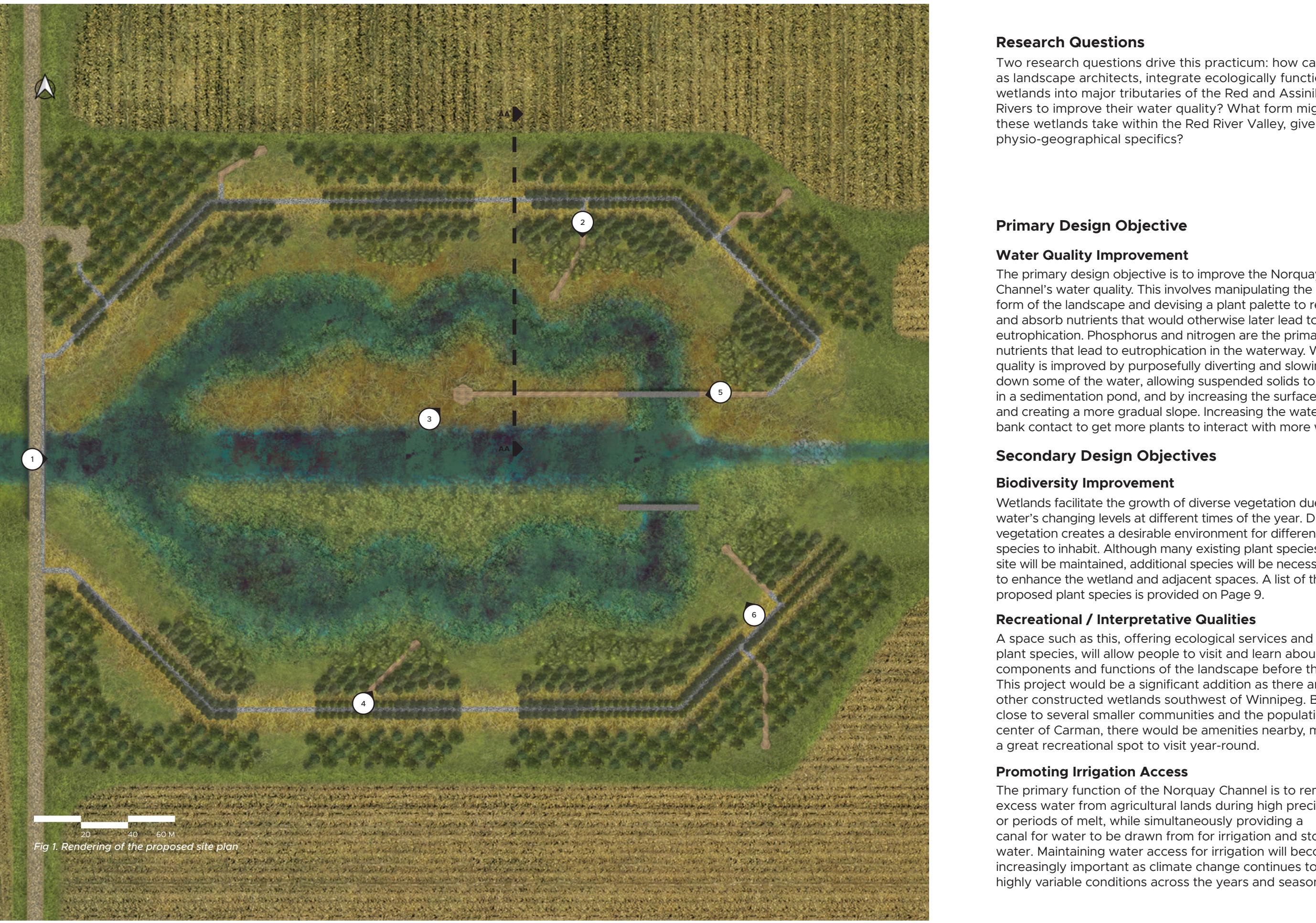


Fig 1. Rendering of the proposed site plan

### Research Questions

Two research questions drive this practicum: how can we, as landscape architects, integrate ecologically functioning wetlands into major tributaries of the Red and Assiniboine Rivers to improve their water quality? What form might these wetlands take within the Red River Valley, given its physio-geographical specifics?

### Primary Design Objective

#### Water Quality Improvement

The primary design objective is to improve the Norquay Channel's water quality. This involves manipulating the form of the landscape and devising a plant palette to retain and absorb nutrients that would otherwise later lead to eutrophication. Phosphorus and nitrogen are the primary nutrients that lead to eutrophication in the waterway. Water quality is improved by purposefully diverting and slowing down some of the water, allowing suspended solids to settle in a sedimentation pond, and by increasing the surface area and creating a more gradual slope. Increasing the water-to-bank contact to get more plants to interact with more water.

### Secondary Design Objectives

#### Biodiversity Improvement

Wetlands facilitate the growth of diverse vegetation due to water's changing levels at different times of the year. Diverse vegetation creates a desirable environment for different animal species to inhabit. Although many existing plant species on site will be maintained, additional species will be necessary to enhance the wetland and adjacent spaces. A list of the proposed plant species is provided on Page 9.

#### Recreational / Interpretative Qualities

A space such as this, offering ecological services and varying plant species, will allow people to visit and learn about the components and functions of the landscape before them. This project would be a significant addition as there are no other constructed wetlands southwest of Winnipeg. Being close to several smaller communities and the population center of Carman, there would be amenities nearby, making it a great recreational spot to visit year-round.

#### Promoting Irrigation Access

The primary function of the Norquay Channel is to remove excess water from agricultural lands during high precipitation or periods of melt, while simultaneously providing a canal for water to be drawn from for irrigation and stock water. Maintaining water access for irrigation will become increasingly important as climate change continues to create highly variable conditions across the years and seasons.



Fig 2. View walking through wet meadow and wetland trees



Fig 3. Approach to one of the boardwalk destinations



Fig 4. Boardwalk destination in the middle of the wetland on the north side of the channel



Fig 5. View over the water control structure on the north side of the channel

## Proposed Tree Species

Two categories of tree species were chosen for this design based on anticipated soil saturation, duration of saturation, and proximity to the wetland. Wetland species may experience 30 to 120 days of saturated soil yearly, whereas wet meadow species can survive up to 30 days in saturated soils. The coniferous species were chosen to add winter interest and protection to the site. Similarly, Ohio Buckeye, Golden Willow, and American Larch were selected for their autumn seasonal interest. The trees planted with the primarily wet meadow plant species tend to fare better during high water. These species include Silver Maple, Red Maple, River Birch, and Eastern Cottonwood. Northern Catalpa, Black Tupelo, and Golden Willows are planted closer to the water as they can withstand moderate to highly saturated soil for longer. Since hardiness zones are expected to change from Zone 2 to 4 and beyond due to climate change, additional species were included for added diversity.

As no trees are currently on the existing design site, all proposed tree species will have to be introduced to the site. Trees may be planted in five- to ten-gallon pots. A watering and pruning schedule would need to be made for each species, as required attention may vary. All drawings will present trees at their expected mature size.

## Proposed Wet Meadow Tree Species

- Acer rubrum* (Red Maple)
- Acer saccharinum* (Silver Maple)
- Aesculus glabra* (Ohio Buckeye)
- Tilia americana* (American Linden)
- Picea glauca* (White Spruce)
- Picea mariana* (Black Spruce)



Figure 6. Section AA - Section cut through the meandering portion of the wetland on the north side of the channel.

## Proposed Plant Species

Three main categories of plant species were chosen based on anticipated soil saturation and its duration. The three categories are not exclusive; two or more are expected to mix in some areas. Mixing species would also be beneficial when there is a fluctuation in water levels. The tall grass prairie species are located at higher elevations, further away from the wetland. The wet meadow species are expected to have moderate soil saturation and are situated between the higher and lower elevations. The wetland/emergent plant species are located adjacent to and within the water at the projected summer depth and would be temporarily submerged during high projected spring water depths. All species listed fall within hardiness Zones 2 to 4.

The tall grass prairie plant species would need to be reintroduced to the design site as they are native to the area but are not currently prominent on the site. All proposed wet meadow plant species currently exist on-site in varying quantities, but additional plantings would be done in specific areas to achieve the expected mixture of species. All proposed wetland/emergent plant species would need to be introduced to the design site as there was no current evidence of these species there. These wetland/emergent plant species were selected for their ability to facilitate nutrient uptake from the water and soil.

Seeding for the first season will be required, followed by the next year with plugs of species that are more rare or that did not take root. A yearly harvest of most wetland/emergent species would be required to encourage the plants to uptake nitrogen and phosphorus. Mowing may be necessary for the wet meadow and tall grass prairie plants.

## Proposed Wetland Tree Species

- Betula nigra* (River Birch)
- Catalpa speciosa* (Northern Catalpa)
- Larix laricina* (American Larch)
- Nyssa sylvatica* (Black Tupelo)
- Populus deltoides* (Eastern Cottonwood)
- Salix alba* (Golden Willow)

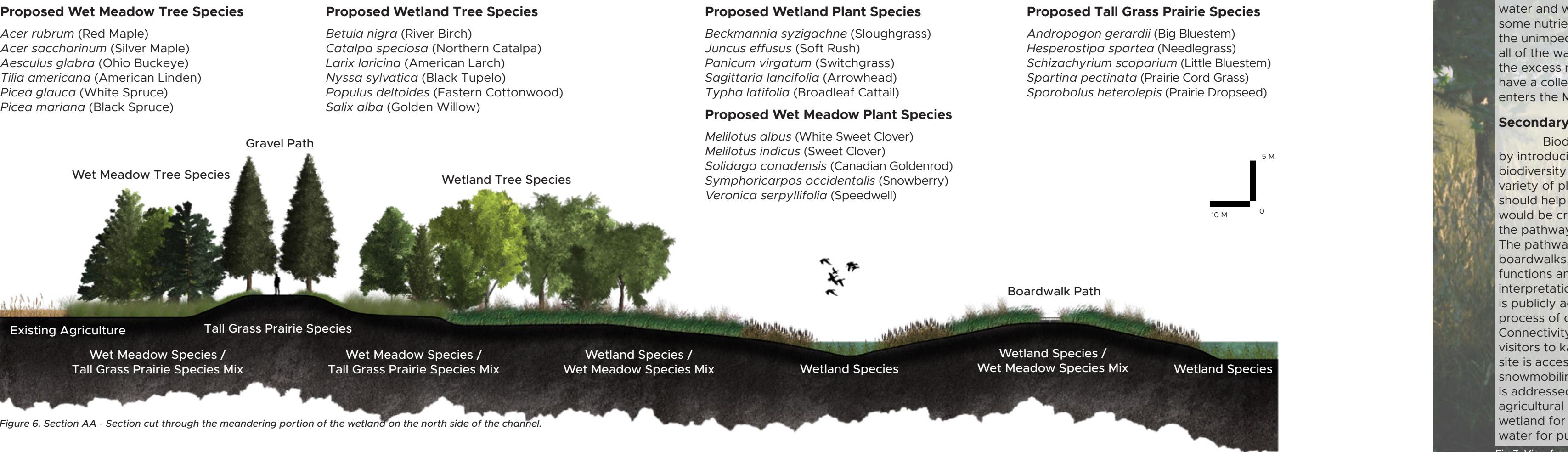


Figure 6. Section AA - Section cut through the meandering portion of the wetland on the north side of the channel.

## Proposed Wetland Plant Species

- Beckmannia syzigachne* (Sloughgrass)
- Juncus effusus* (Soft Rush)
- Panicum virgatum* (Switchgrass)
- Sagittaria lancifolia* (Arrowhead)
- Typha latifolia* (Broadleaf Cattail)

## Proposed Wet Meadow Plant Species

- Melilotus albus* (White Sweet Clover)
- Melilotus indicus* (Sweet Clover)
- Solidago canadensis* (Canadian Goldenrod)
- Symphoricarpos occidentalis* (Snowberry)
- Veronica serpyllifolia* (Speedwell)

## Proposed Tall Grass Prairie Species

- Andropogon gerardii* (Big Bluestem)
- Hesperostipa spartea* (Needlegrass)
- Schizachyrium scoparium* (Little Bluestem)
- Spartina pectinata* (Prairie Cord Grass)
- Sporobolus heterolepis* (Prairie Dropseed)



## How have the Design Objectives been Addressed?

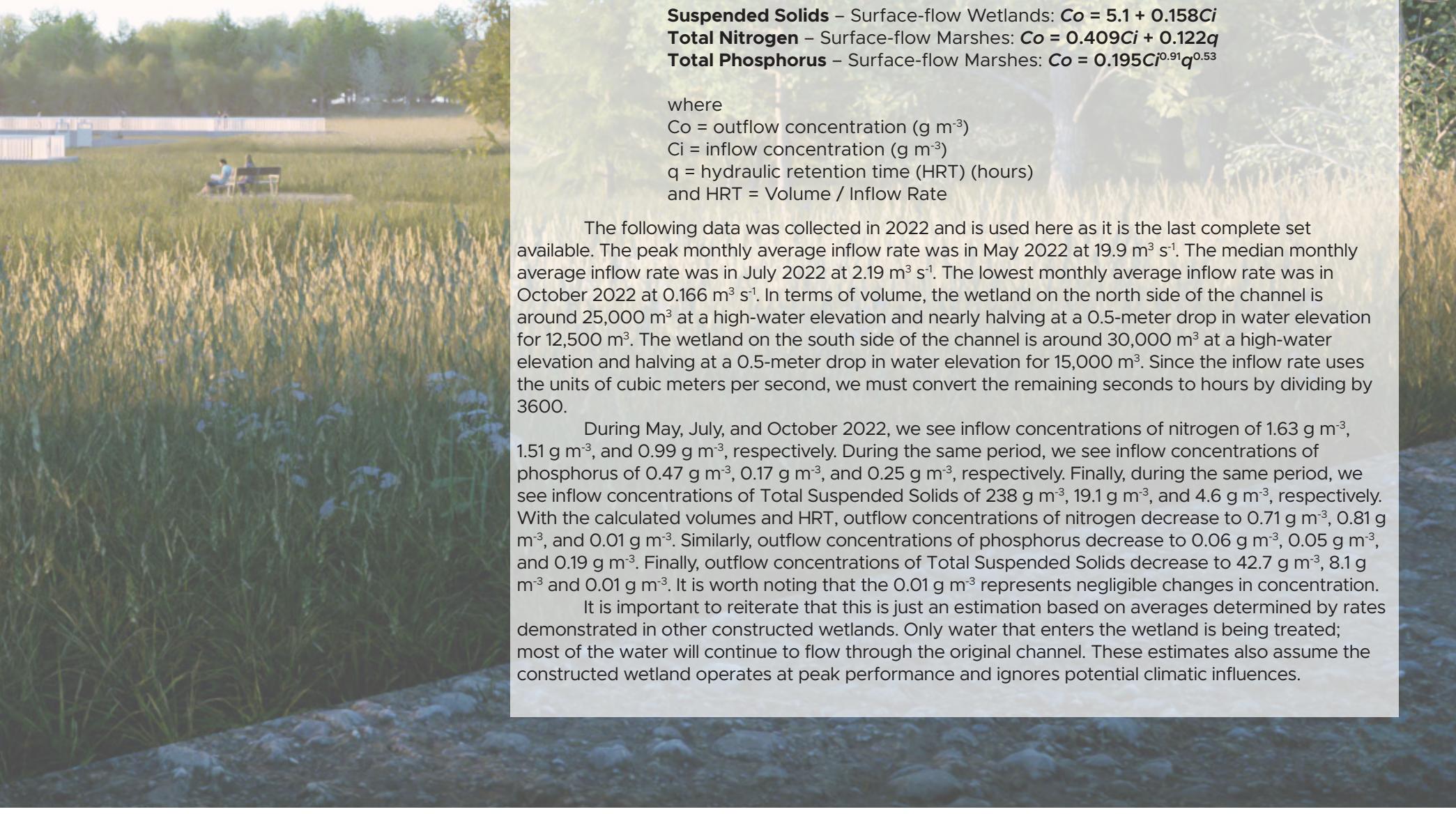
### The Primary Design Objective

Improving water quality has been addressed in several ways. The wetland intervention slows down some water flowing down the channel. The water entering the wetland passes through a sedimentation pond, allowing suspended solids to settle. Throughout the wetland, emergent vegetation slows down the water and facilitates nutrient uptake through biofilm on the rootstock and roots from nutrients deposited to the soil. The wetland's meandering form helps further slow the water and increases surface area contact between the water and wetland vegetation. These features help retain some nutrient content that would otherwise continue through the unimpeded channel. Although it is not possible to retain all of the water that passes through the channel or retain all of the excess nutrients, a series of sites down the channel would have a collective positive impact on the water quality as it enters the Morris River to the east.

### Secondary Design Objectives

Biodiversity improvement has been addressed by introducing the wetland. Wetlands provide incredible biodiversity due to their fluctuating water levels, allowing a variety of plants to flourish. Increased vegetative biodiversity should help increase animal biodiversity since new habitats would be created. Recreation quality is addressed through the pathway system which provides water-based site access. The pathway system, which consists of gravel paths and boardwalks, features information based on the wetland functions and vegetation found on site which addresses the interpretation quality. One of the two water control structures is publicly accessible, allowing visitors to understand the process of controlling water during the different seasons. Connectivity with the existing channel is provided, allowing visitors to kayak or canoe into the wetland. In the winter, the site is accessible for snowshoeing, cross-country skiing, and snowmobiling. Irrigation access to adjacent agricultural land is addressed by maintaining a clearing with access to the agricultural land. These clearings act as an access point to the wetland for harvesting plant material during mowing and the water for pumping.

Fig 7.



## Estimated Impacts on Water Quality within the Design Site

Different variables influence the wetland's ability to reduce excess nutrients in the channel. If the nutrient load at any given time is higher, the wetland will retain fewer nutrients, as the system will be overloaded. This factor is essential to consider during the spring when inflow rates are higher, nutrient concentrations are higher, and plants may remain dormant. During times of lower nutrient loads, when the inflow rate is lower, and therefore the nutrient load is lower, the wetland should operate more effectively.

Mitsch's research provides data on the average retention rates of constructed wetlands. These averages are based on a study of constructed wetlands that receive a low concentration of nutrients originating from non-point sources. For Surface-Flow constructed wetlands, when there is a load of 277 g m<sup>-2</sup> yr<sup>-1</sup> of nitrogen, 126 g m<sup>-2</sup> yr<sup>-1</sup> of nitrogen is retained for 45.6%. When there is a load of 4.7 to 56 g m<sup>-2</sup> yr<sup>-1</sup> of phosphorus, 2.1 to 45 g m<sup>-2</sup> yr<sup>-1</sup> of phosphorus is retained for 46 to 80%. When there is a load of 107 to 6,520 g m<sup>-2</sup> yr<sup>-1</sup> of suspended solids, 65 to 5,570 g m<sup>-2</sup> yr<sup>-1</sup> of suspended solids are retained for 61 to 98%. This data comes from constructed wetlands in warm and cold climates. No information on dissolved solids is provided in this source.

To estimate the impact of this wetland intervention in an ideal scenario, Mitsch provides empirical equations to estimate the outflow concentrations based on inflow concentrations and hydraulic retention times.

$$\text{Suspended Solids} - \text{Surface-flow Wetlands: } Co = 5.1 + 0.158Ci$$

$$\text{Total Nitrogen} - \text{Surface-flow Marshes: } Co = 0.409Ci + 0.122q$$

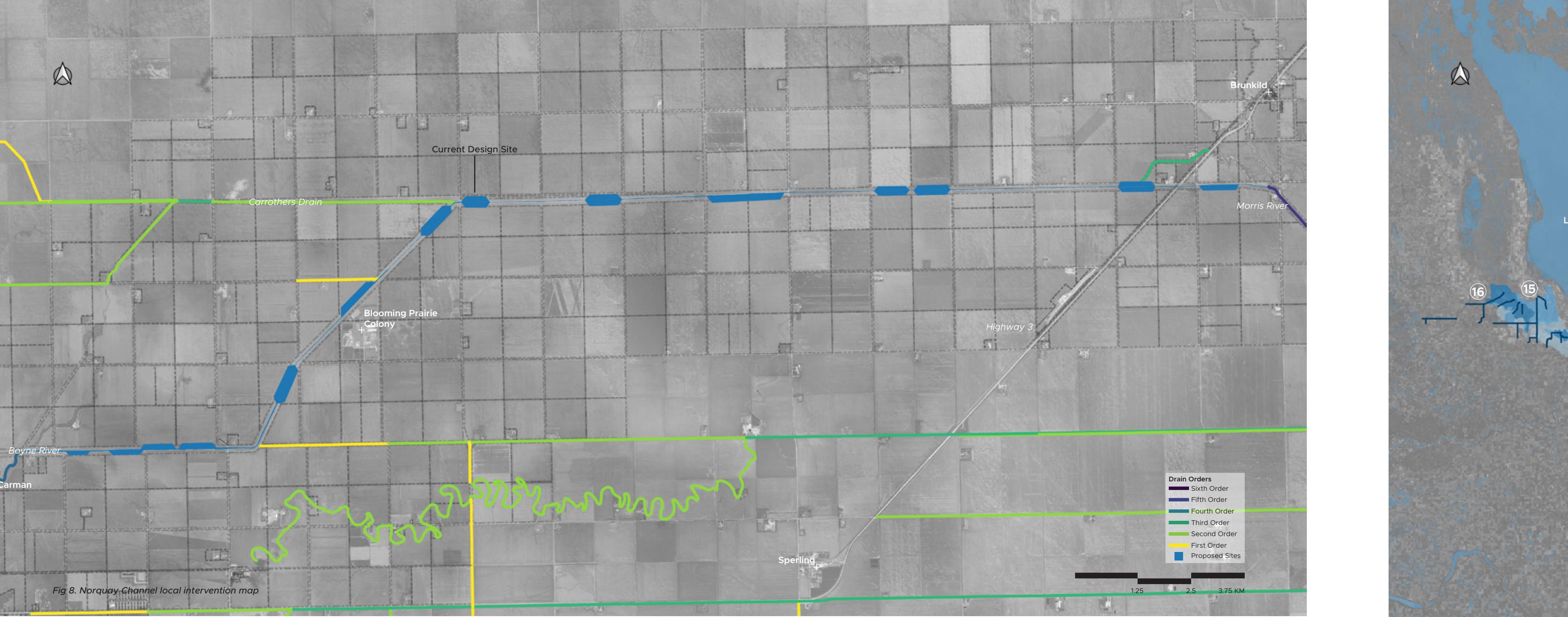
$$\text{Total Phosphorus} - \text{Surface-flow Marshes: } Co = 0.195Ci^{0.91}q^{0.53}$$

where  
 $Co$  = outflow concentration (g m<sup>-3</sup>)  
 $Ci$  = inflow concentration (g m<sup>-3</sup>)  
 $q$  = hydraulic retention time (HRT) (hours)  
and HRT = Volume / Inflow Rate

The following data was collected in 2022 and is used here as it is the last complete set available. The peak monthly average inflow rate was in May 2022 at 19.9 m<sup>3</sup> s<sup>-1</sup>. The median monthly average inflow rate was in July 2022 at 2.19 m<sup>3</sup> s<sup>-1</sup>. The lowest monthly average inflow rate was in October 2022 at 0.166 m<sup>3</sup> s<sup>-1</sup>. In terms of volume, the wetland on the north side of the channel is around 25,000 m<sup>3</sup> at a high-water elevation and nearly halving at a 0.5-meter drop in water elevation for 12,500 m<sup>3</sup>. The wetland on the south side of the channel is around 30,000 m<sup>3</sup> at a high-water elevation and halving at a 0.5-meter drop in water elevation for 15,000 m<sup>3</sup>. Since the inflow rate uses the units of cubic meters per second, we must convert the remaining seconds to hours by dividing by 3600.

During May, July, and October 2022, we see inflow concentrations of nitrogen of 1.63 g m<sup>-3</sup>, 1.51 g m<sup>-3</sup>, and 0.99 g m<sup>-3</sup>, respectively. During the same period, we see inflow concentrations of phosphorus of 0.47 g m<sup>-3</sup>, 0.17 g m<sup>-3</sup>, and 0.25 g m<sup>-3</sup>, respectively. Finally, during the same period, we see inflow concentrations of Total Suspended Solids of 238 g m<sup>-3</sup>, 19.1 g m<sup>-3</sup>, and 4.6 g m<sup>-3</sup>, respectively. With the calculated volumes and HRT, outflow concentrations of nitrogen decrease to 0.71 g m<sup>-3</sup>, 0.81 g m<sup>-3</sup>, and 0.01 g m<sup>-3</sup>. Similarly, outflow concentrations of phosphorus decrease to 0.06 g m<sup>-3</sup>, 0.05 g m<sup>-3</sup>, and 0.19 g m<sup>-3</sup>. Finally, outflow concentrations of Total Suspended Solids decrease to 42.7 g m<sup>-3</sup>, 8.1 g m<sup>-3</sup> and 0.01 g m<sup>-3</sup>. It is worth noting that the 0.01 g m<sup>-3</sup> represents negligible changes in concentration.

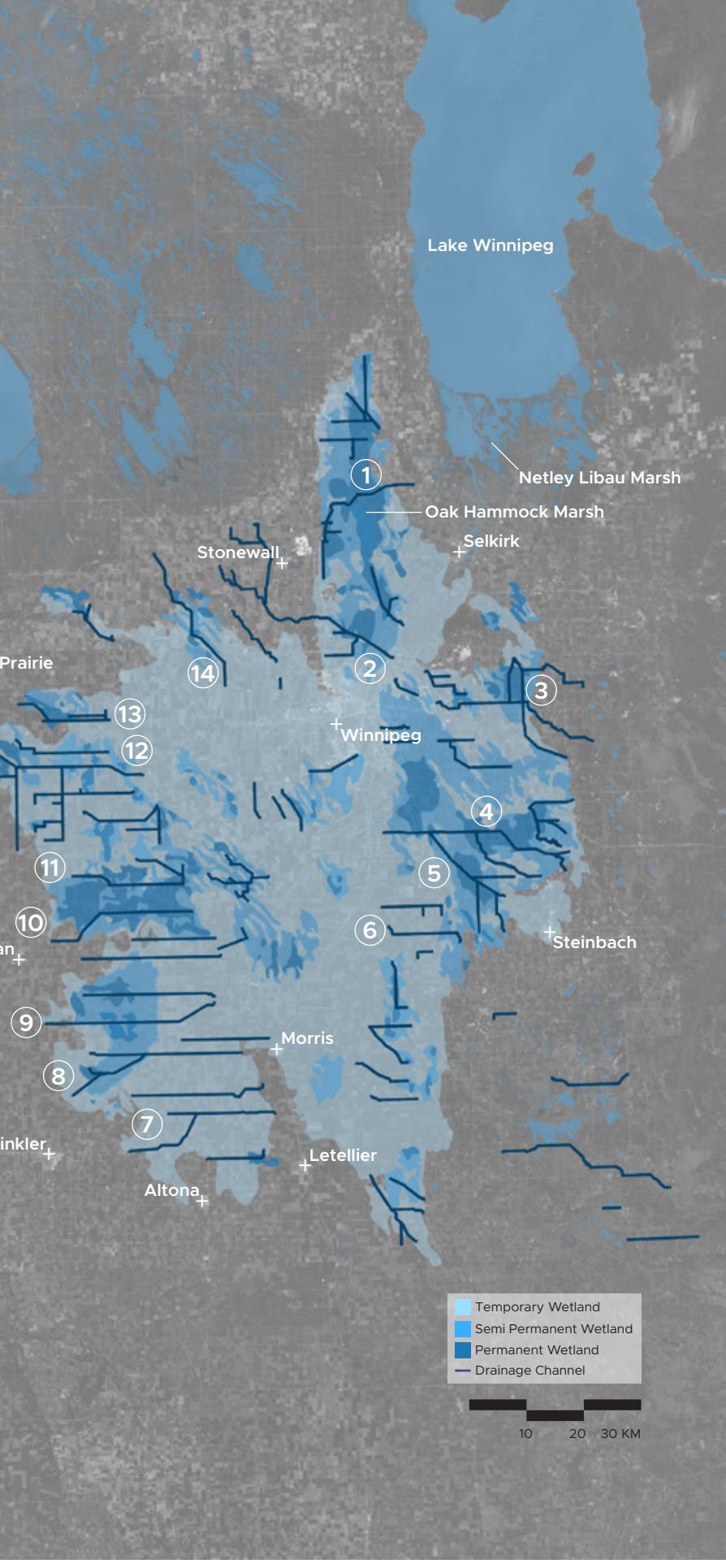
It is important to reiterate that this is just an estimation based on averages determined by rates demonstrated in other constructed wetlands. Only water that enters the wetland is being treated; most of the water will continue to flow through the original channel. These estimates also assume the constructed wetland operates at peak performance and ignores potential climatic influences.



#### Potential Intervention Sites along the Norquay Channel

Although the proposed site design will positively impact water quality, its contribution to lowering Lake Winnipeg's nutrient loading is like a drop in the bucket. Therefore, within the Norquay Channel designated drainage area, I propose other sites along the channel where interventions are possible. These sites are similar to my proposed site design, although water depths and land available for the intervention will vary. In total, approximately twenty agricultural parcels would be affected by the proposed layout in Figure 10.

These proposed sites were chosen because they minimize the amount of agricultural land being taken, do not require demolition or moving of existing structures, and are close to existing road infrastructure, so that there is access to the sites for maintenance and public access. As suggested before, these sites' designs may vary from that I have proposed. Sites may extend perpendicular to the channel, be narrower, or extend for longer distances parallel to the channel. There is a wide array of possibilities. Given that each parcel is 160 acres, twenty parcels would add up to 3,200 acres. The total area of the proposed intervention would compose approximately 400 acres.



#### Interventions at a Regional Scale

The Norquay Channel is just one of many Fifth-Order drains within southern Manitoba. Approximately twelve miles south of the Norquay Channel is the Tobacco Creek Channel. Shannon Creek is three and a half miles south of the Tobacco Creek Channel. Three miles north of the Norquay Channel is the 11-A Drain. These are just a few examples of other substantial drains near the Norquay Channel. Each of these drains offers similar potentials as the Norquay Channel does. As shown in Figure 11, many of these channels overlap with the previously existing wetlands. When selecting waterways here, I prioritized third-, fourth-, fifth- and Sixth-Order waterways that appear artificial or have semi-artificial portions. These waterways would be similar in scale to the Norquay Channel and be expected to handle a similar volume of water during peak times. The best place to restore wetlands is where they used to exist. Although each waterway's conditions may vary and need to be adequately evaluated, I propose that wetland interventions should be considered along all viable waterways shown in Figure 11.

The site design I proposed in this document would have a positive local impact, but minimally, on Lake Winnipeg. The effect of the design becomes greater when several sites are located in series along the Norquay Channel, and the idea is expanded to other significant waterways in the Red River Valley. These agricultural waterways provide a means of reanimating the wetlands that once existed in the same area. Draining the original wetlands was a large-scale effort over a short period, and now, the same ambition should be applied to recover the wetlands. This effort is done to address climate change in general, as well as the eutrophication of Lake Winnipeg. Manitoba has a history of managing water, but now, it is for a different purpose.

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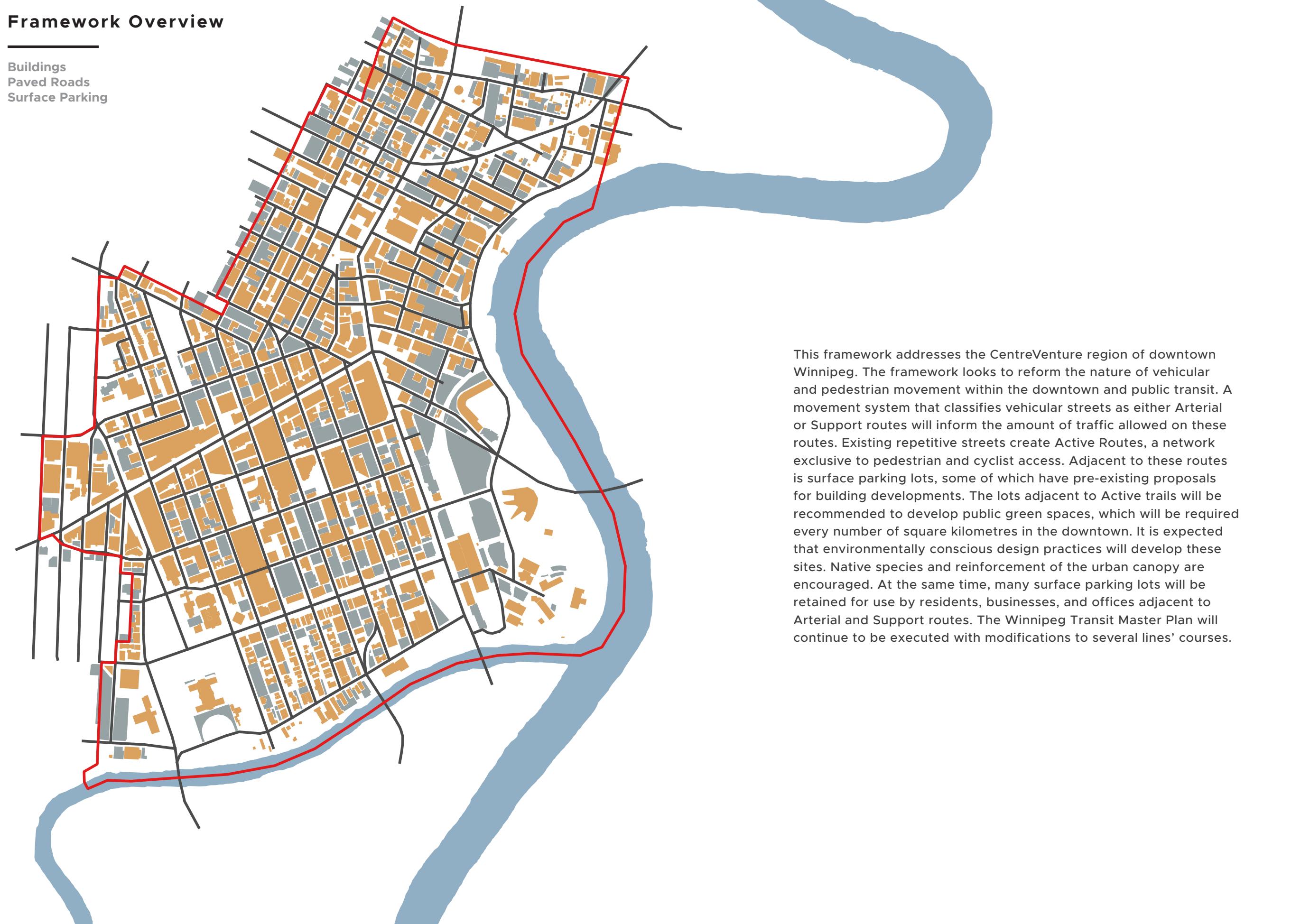
## **Carlton Grove CentreVenture Development**

**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

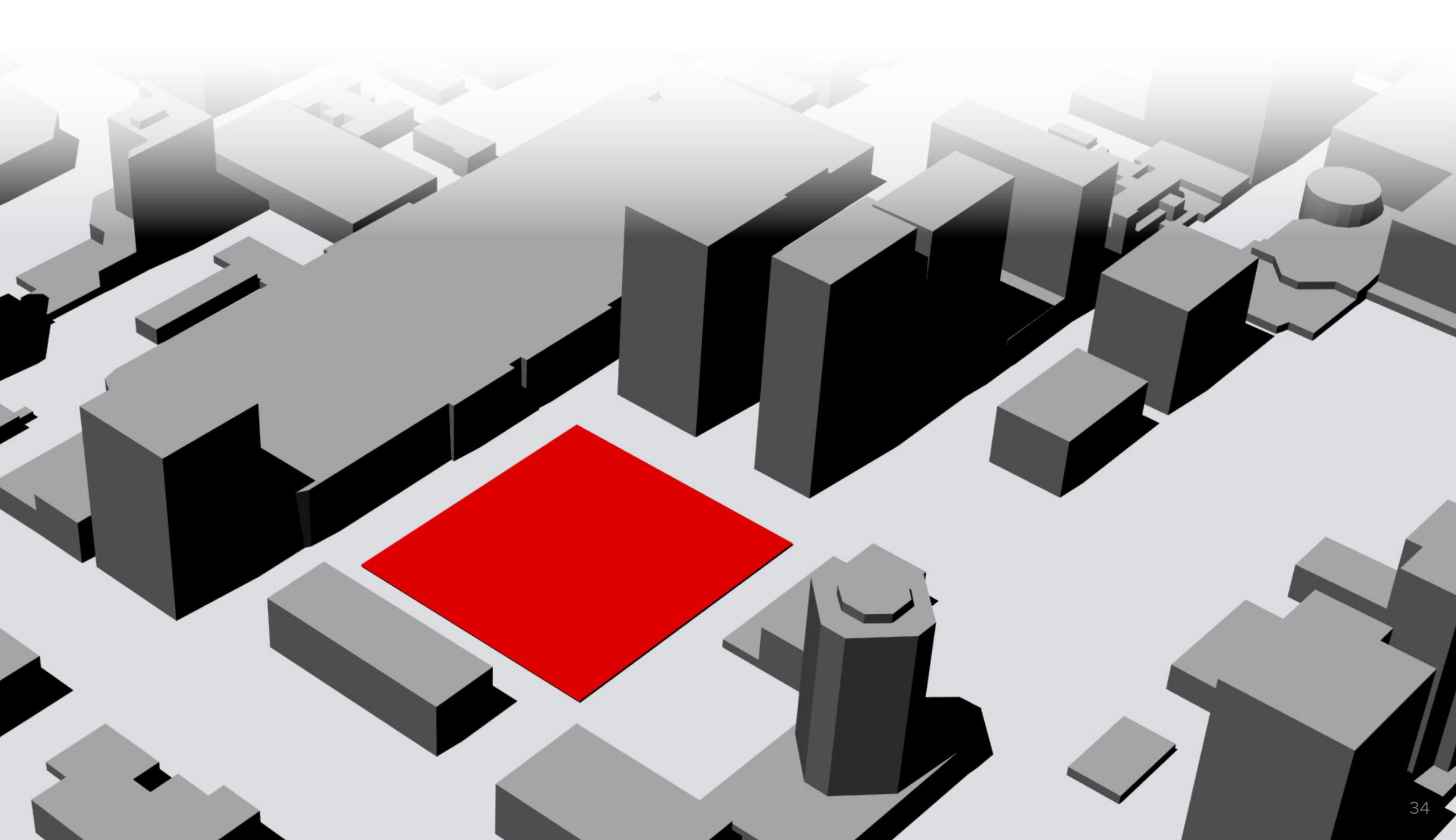


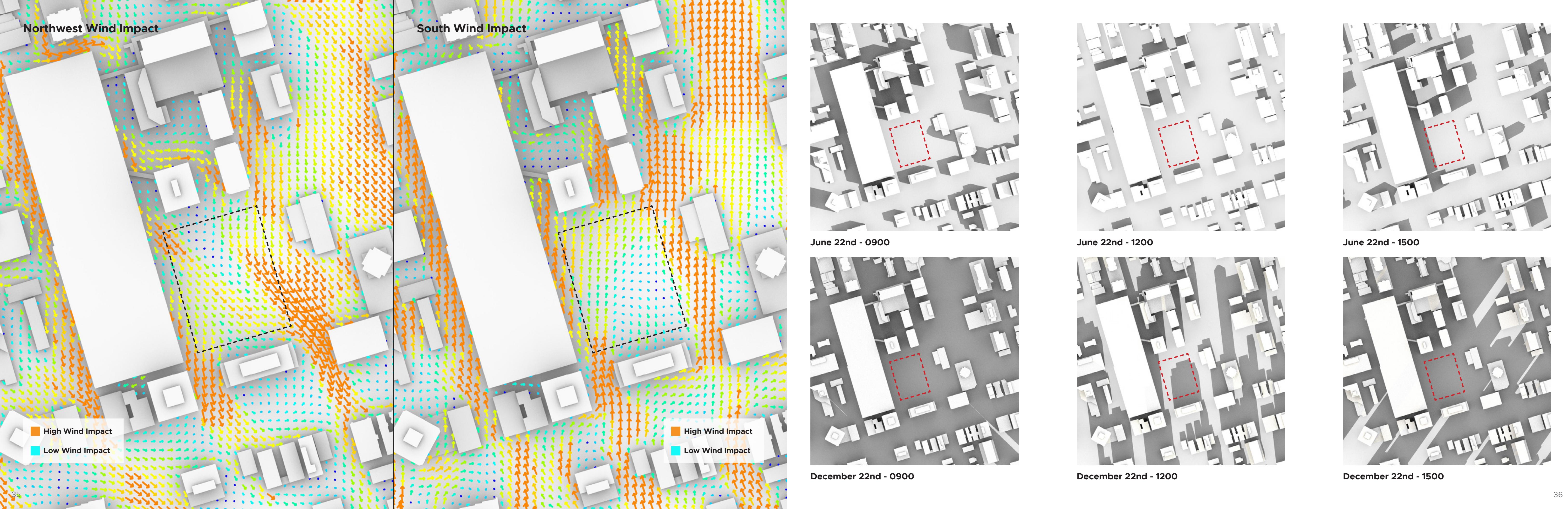
This framework addresses the CentreVenture region of downtown Winnipeg. The framework looks to reform the nature of vehicular and pedestrian movement within the downtown and public transit. A movement system that classifies vehicular streets as either Arterial or Support routes will inform the amount 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

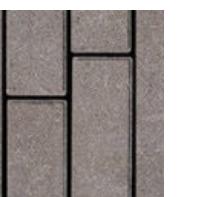
To the east of the RBC Convention Centre and north of Broadway, this surface parking lot will be developed as a public green space to serve as a precedent for other site developments within the CentreVenture region of downtown Winnipeg. Since there is an Active Route to the east of the site with other 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.



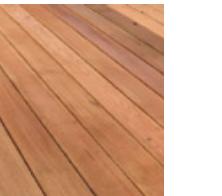


## Site Materials

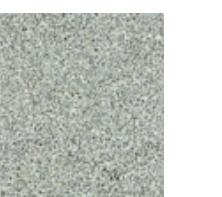
- ① **Barkman Concrete Paver**  
Broadway Plank 100MM Ash



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



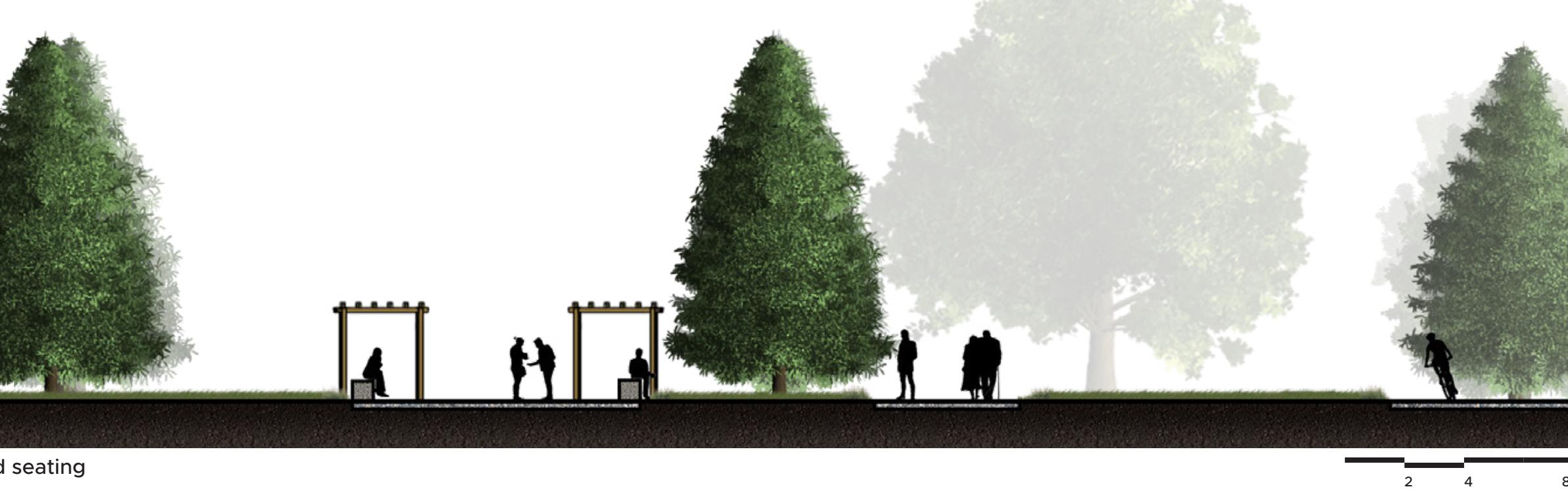
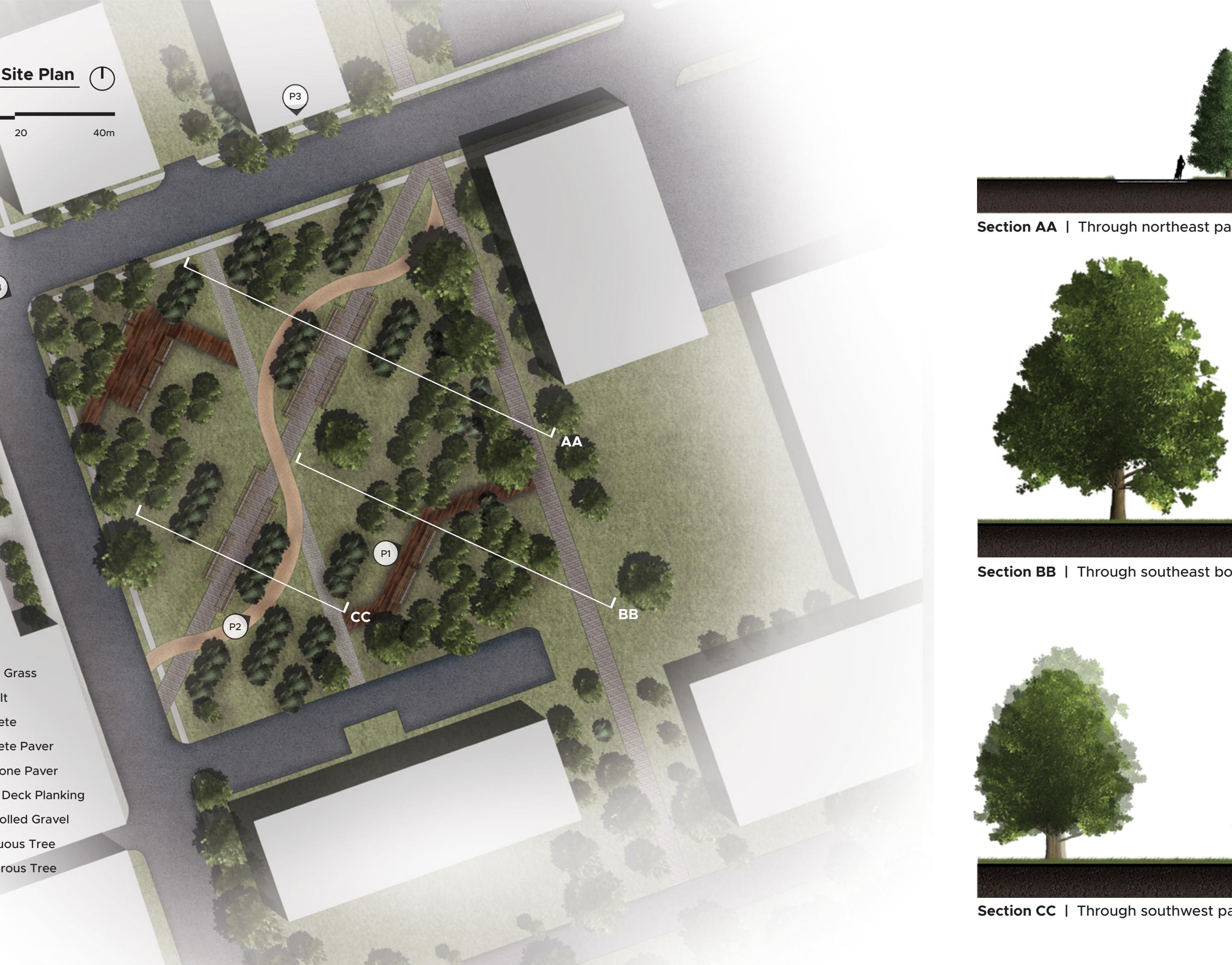
- ③ **Fine Rolled Gravel**



- ④ **Poured Concrete**  
Seating and Slab

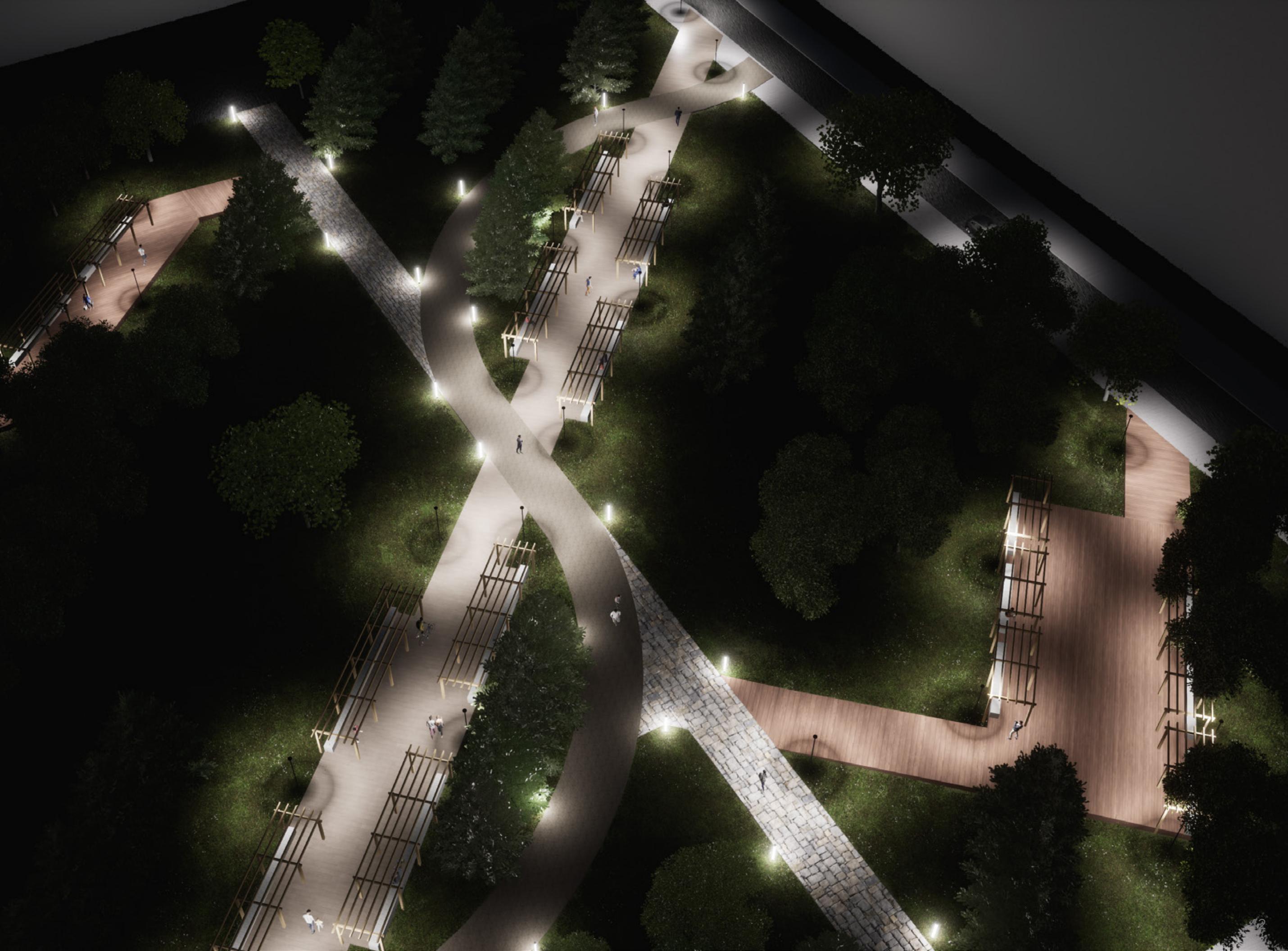
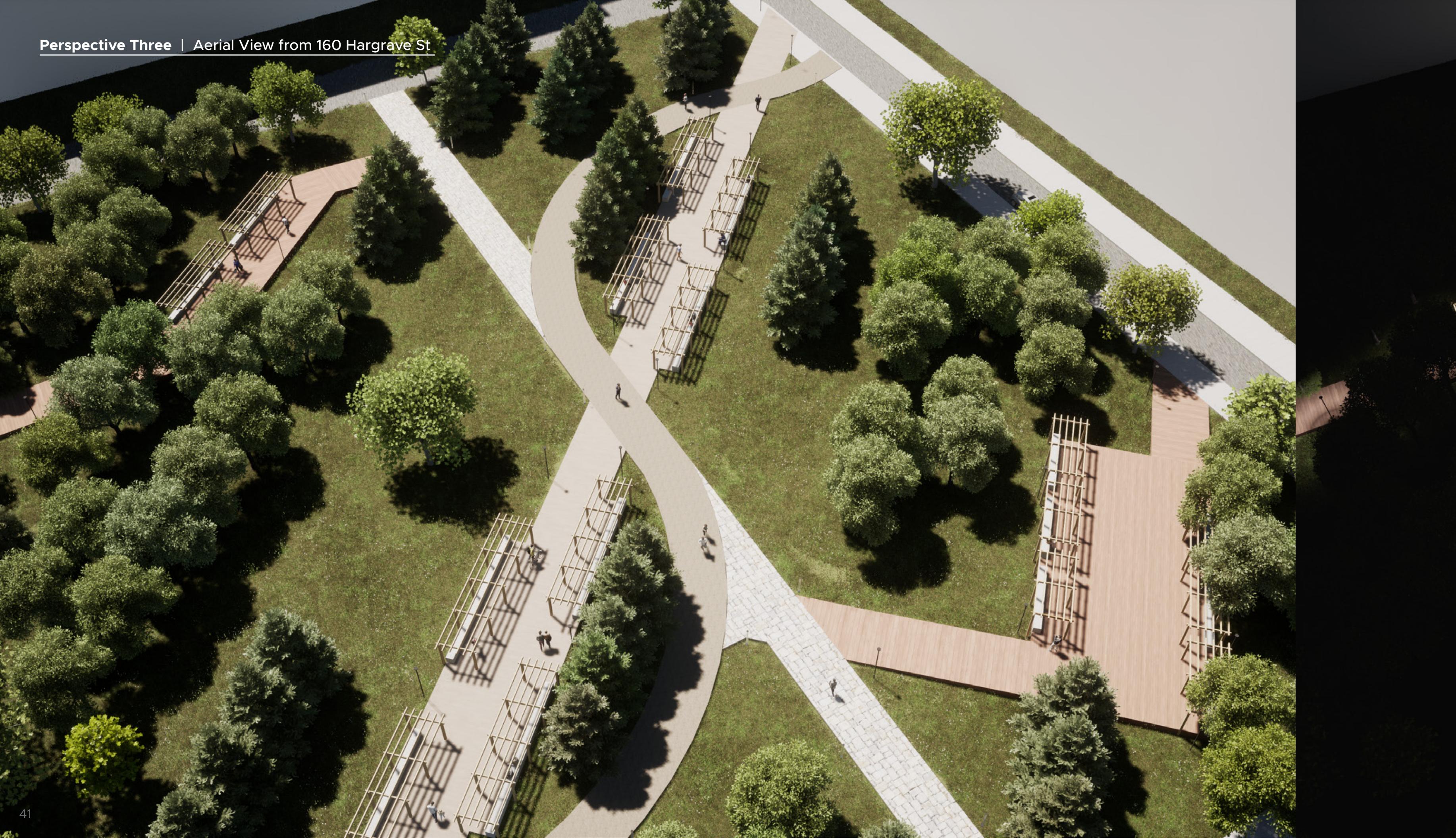


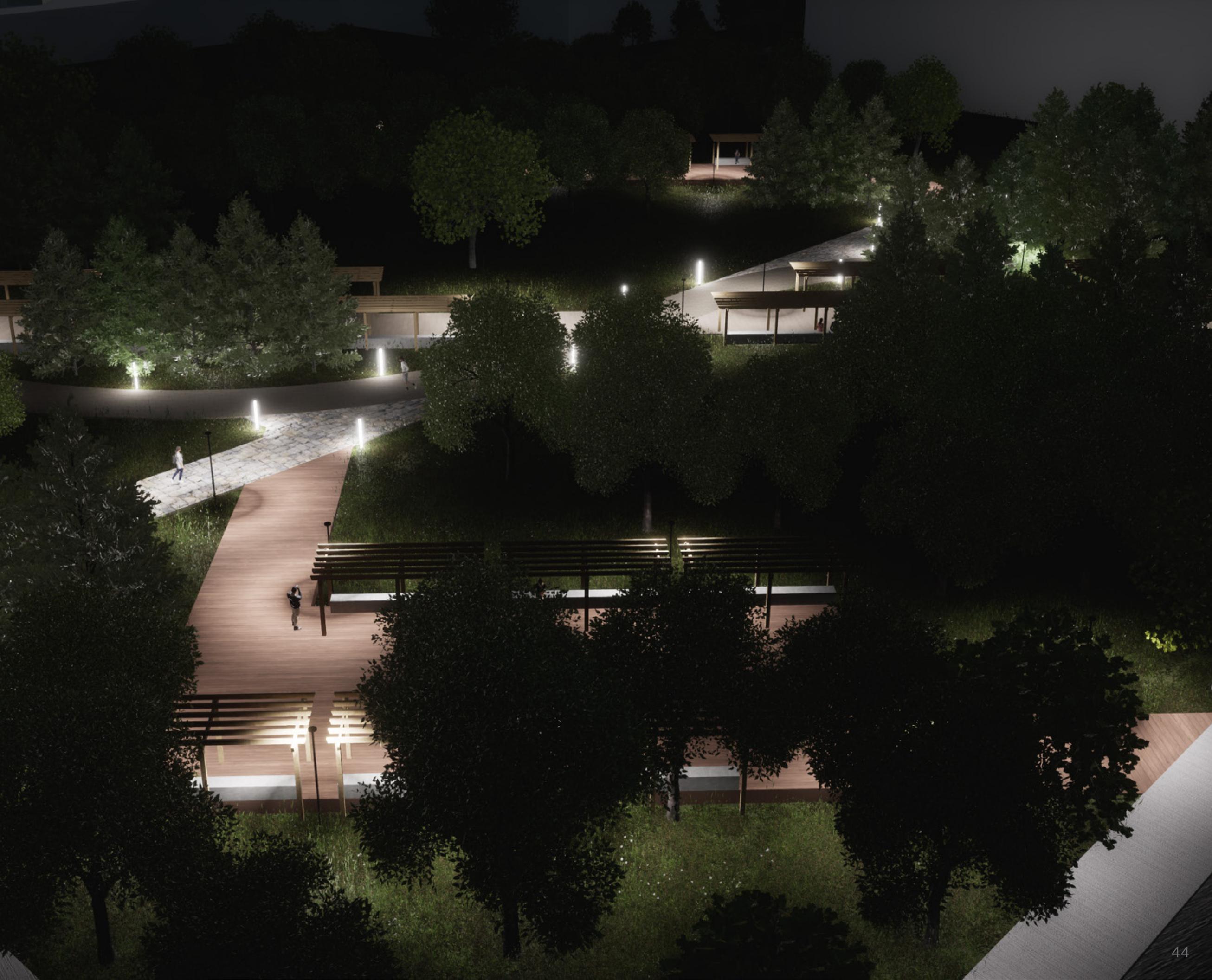
- ⑤ **Repurposed Concrete Flagstone**





Perspective Three | Aerial View from 160 Hargrave St





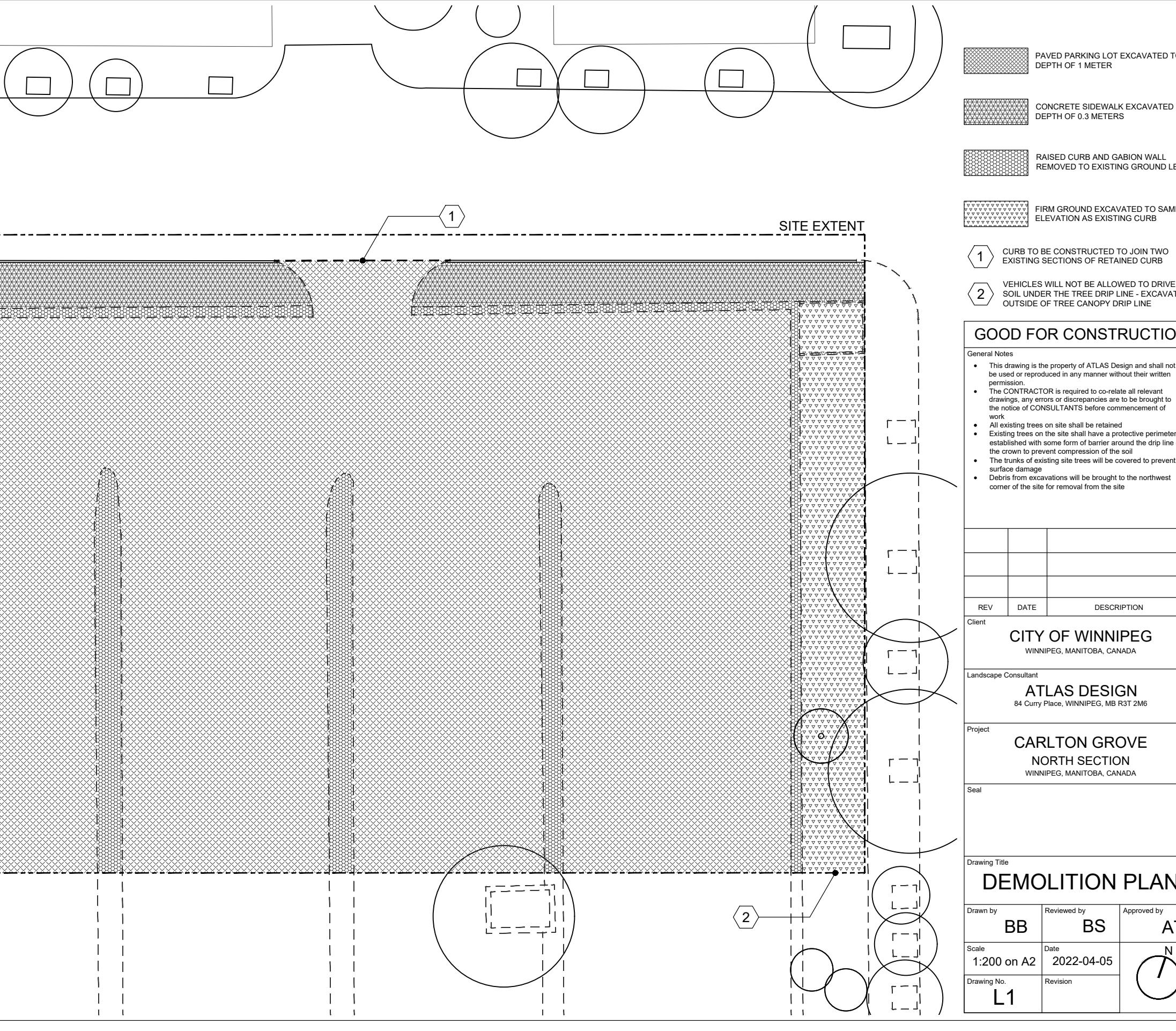
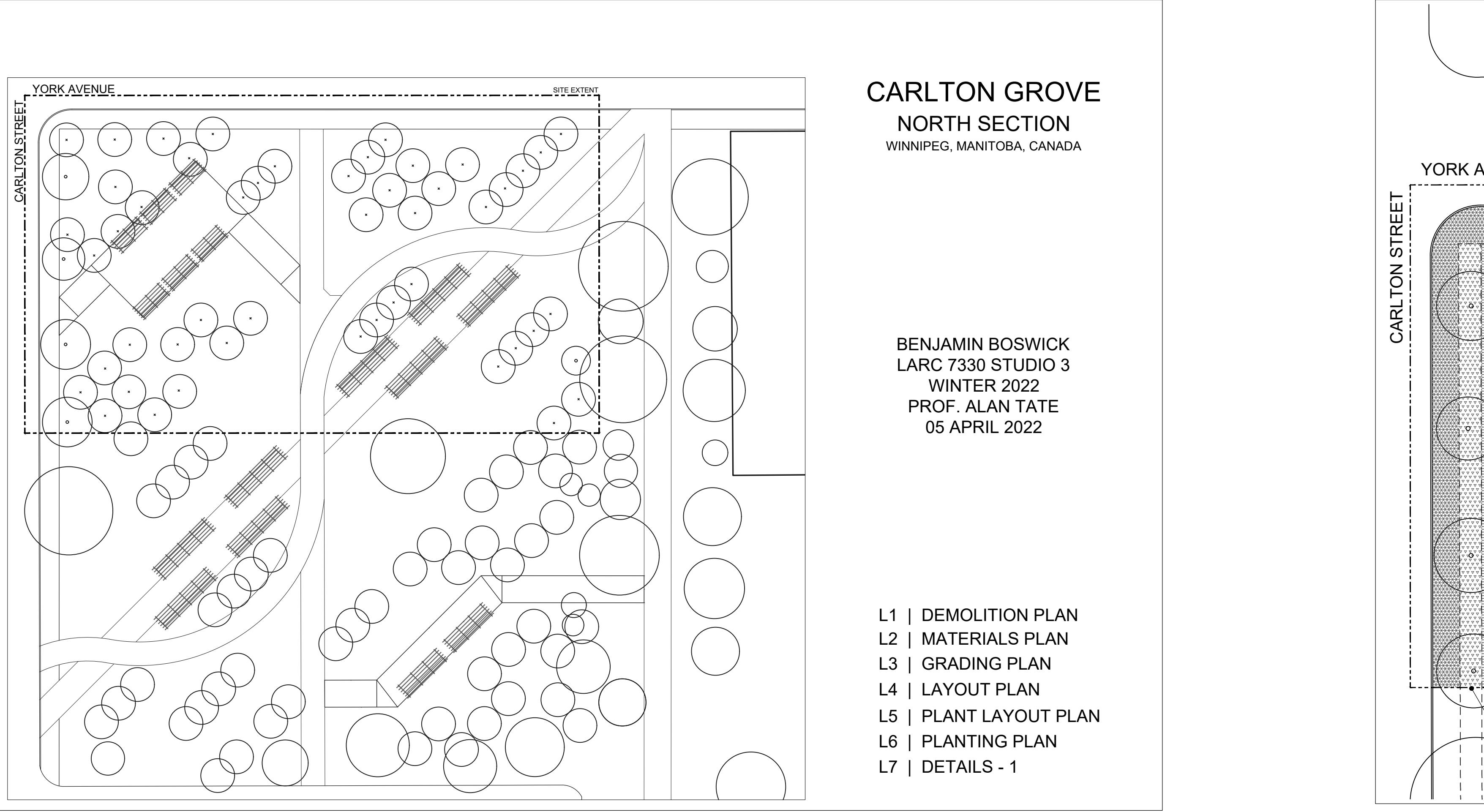
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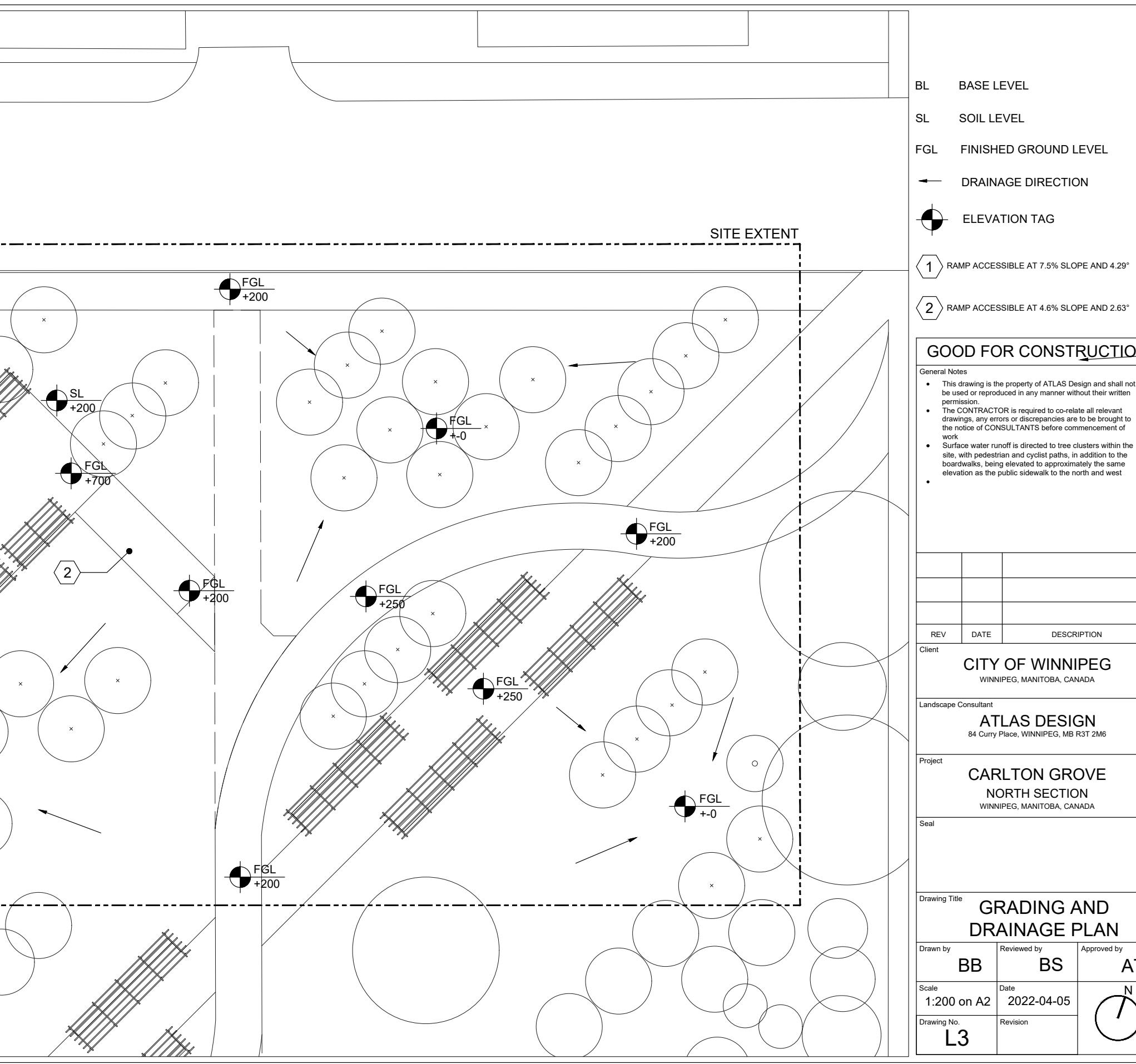
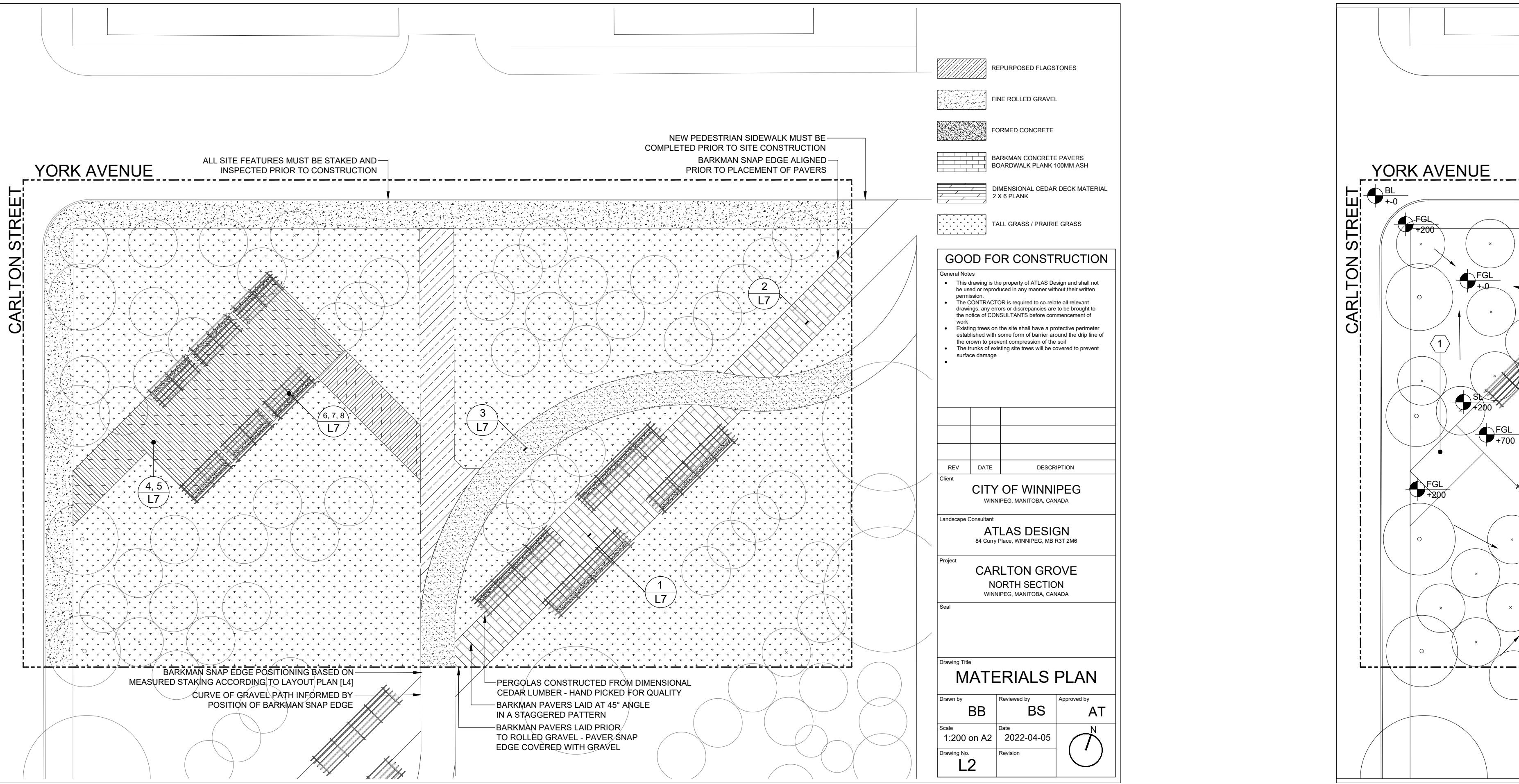


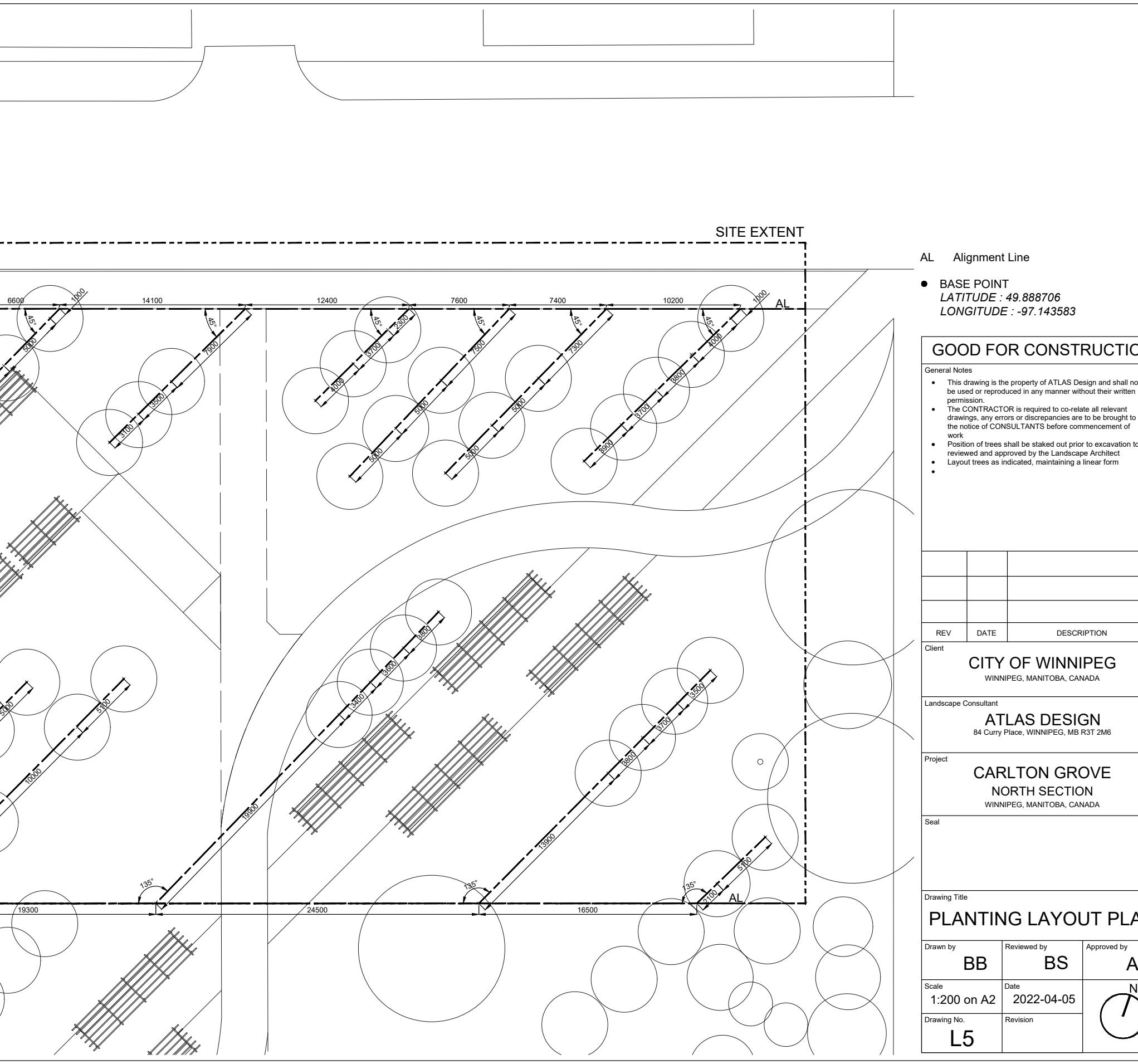
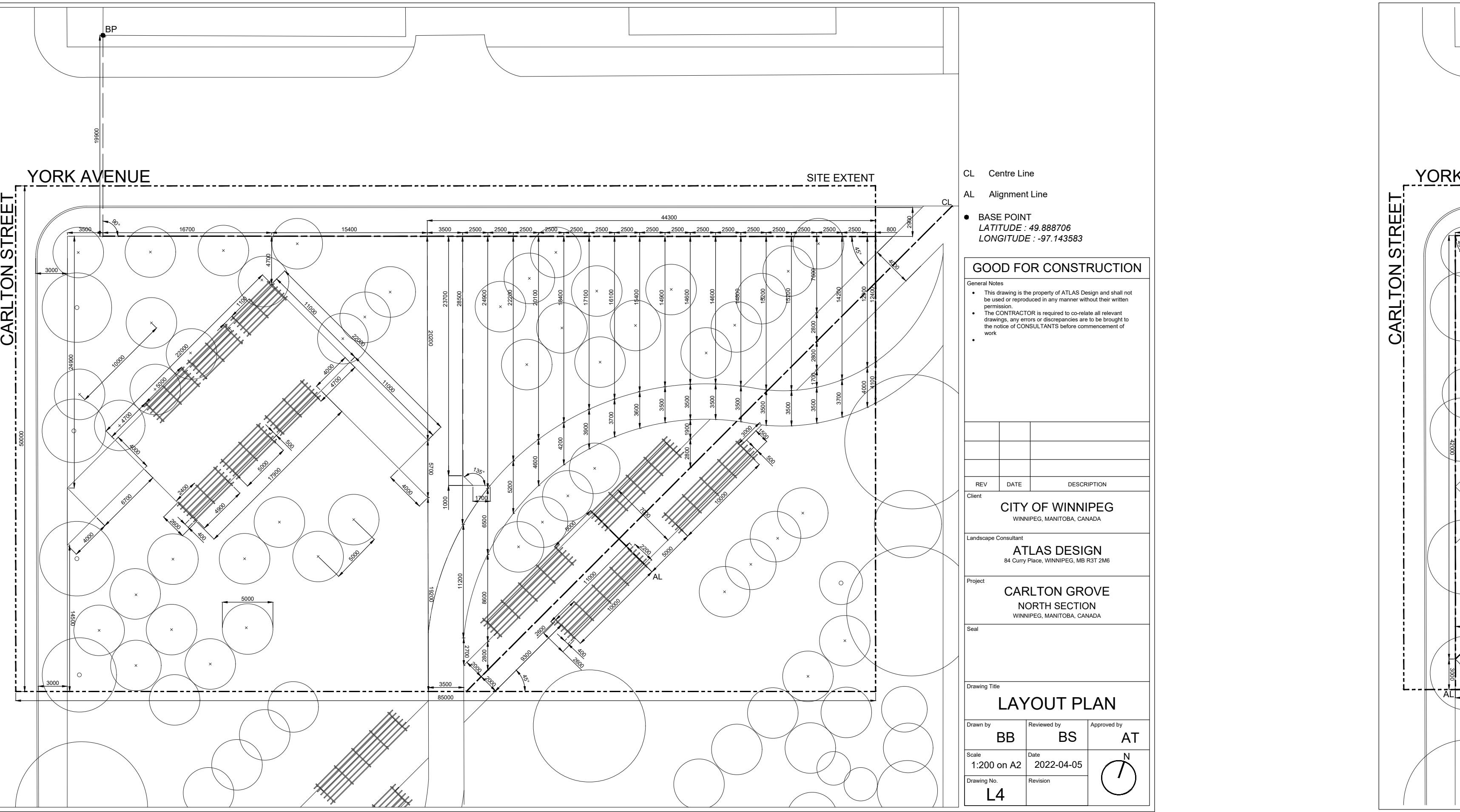
## **Carlton Grove Drawing Set** CentreVenture Development

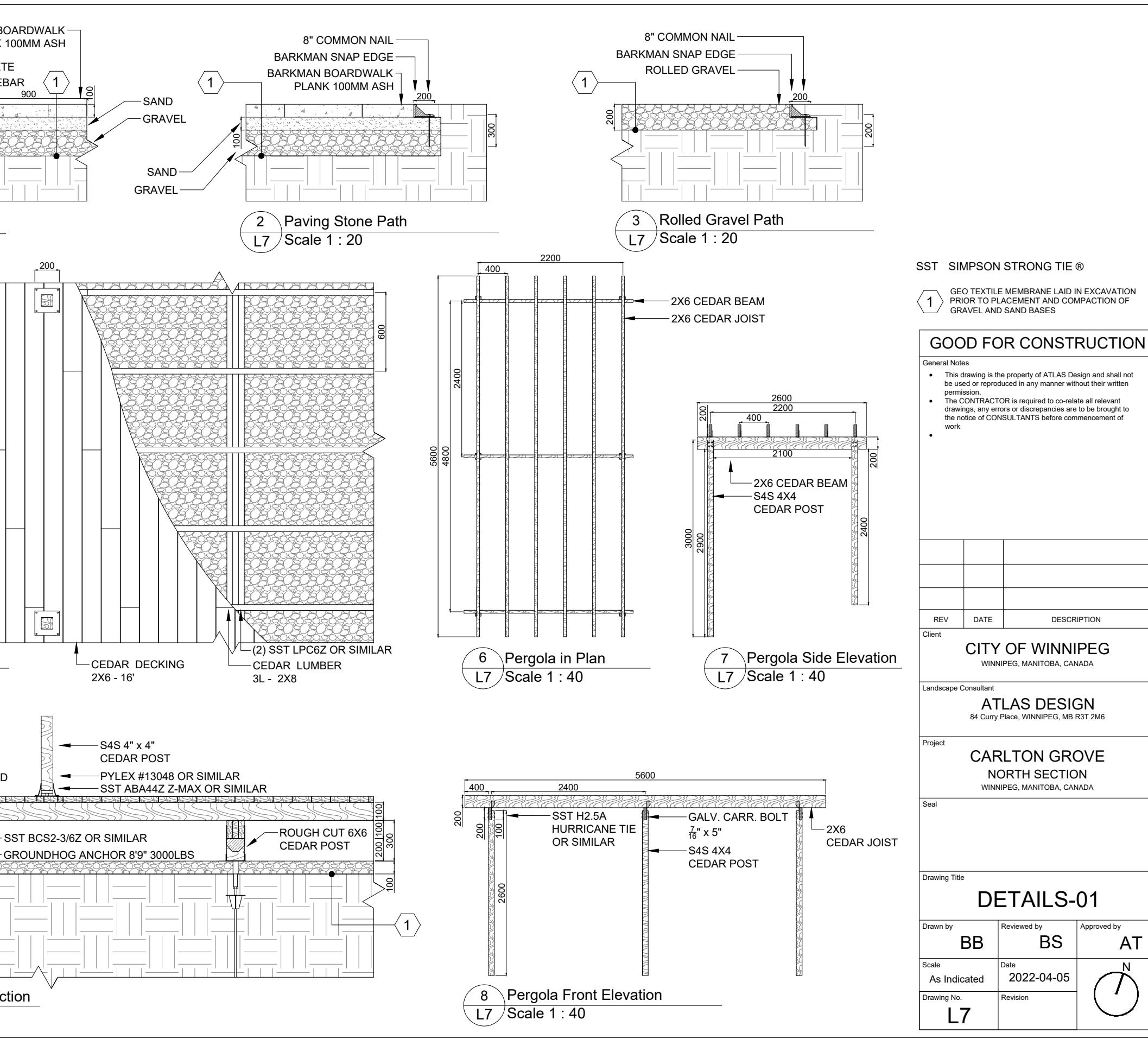
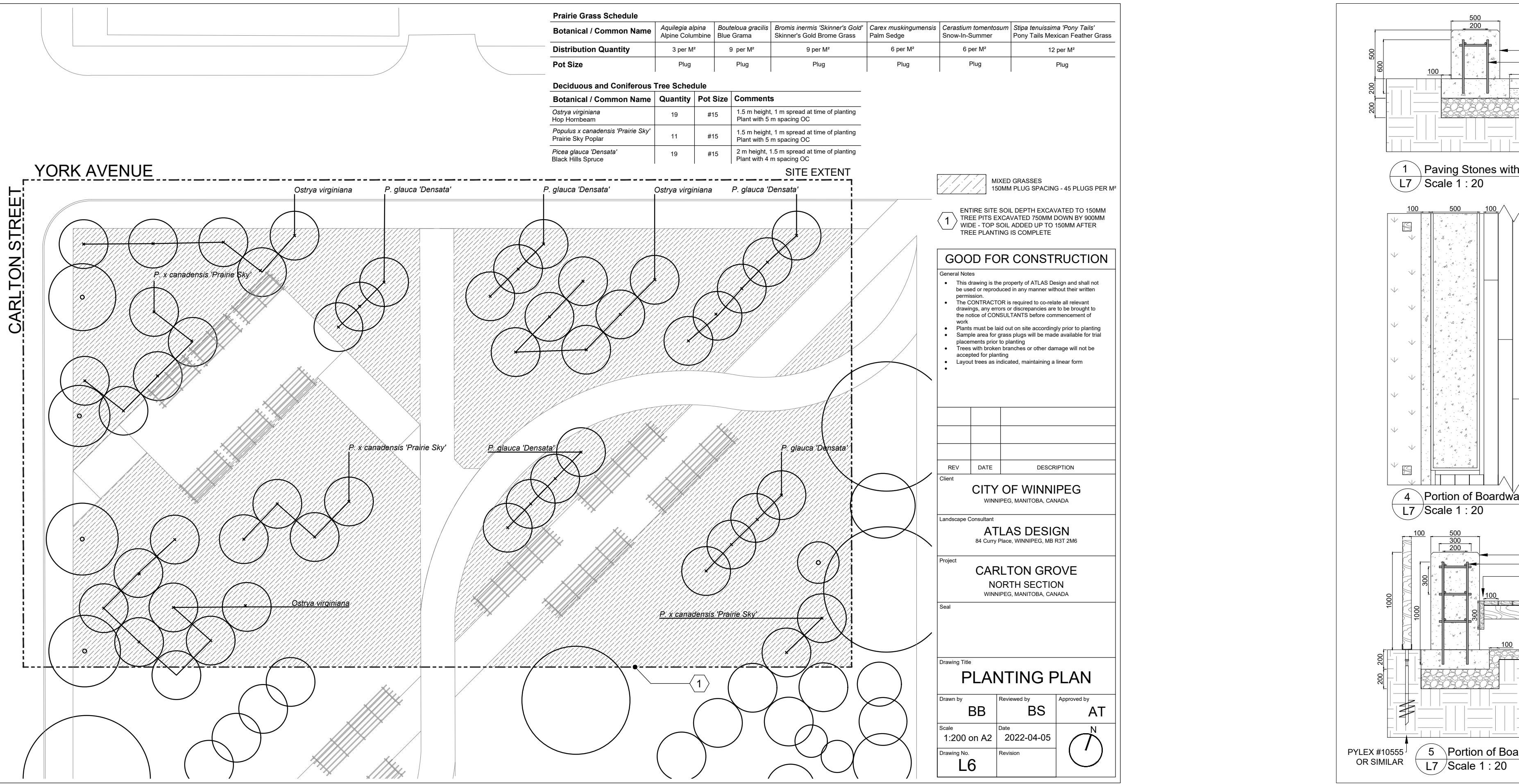
**Term** Winter 2022 **Class** LARC 7330 Studio 3  
**Instructor(s)** Alan Tate **Duration** 2 Weeks  
**Programs** AutoCAD

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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## Personal Work

**Term** Summer 2019, Summer 2020, 2021, 2022, On-going  
**Programs** Photoshop, AutoCAD, Rhino3D + TwinMotion, Other

My personal work includes projects that I have done for family and myself. This has allowed me to experiment with methods of representation, as well as contribute directly to the design process of other projects. This work also includes hobby interests that are separate from the field of landscape architecture.

## Personal Construction Project

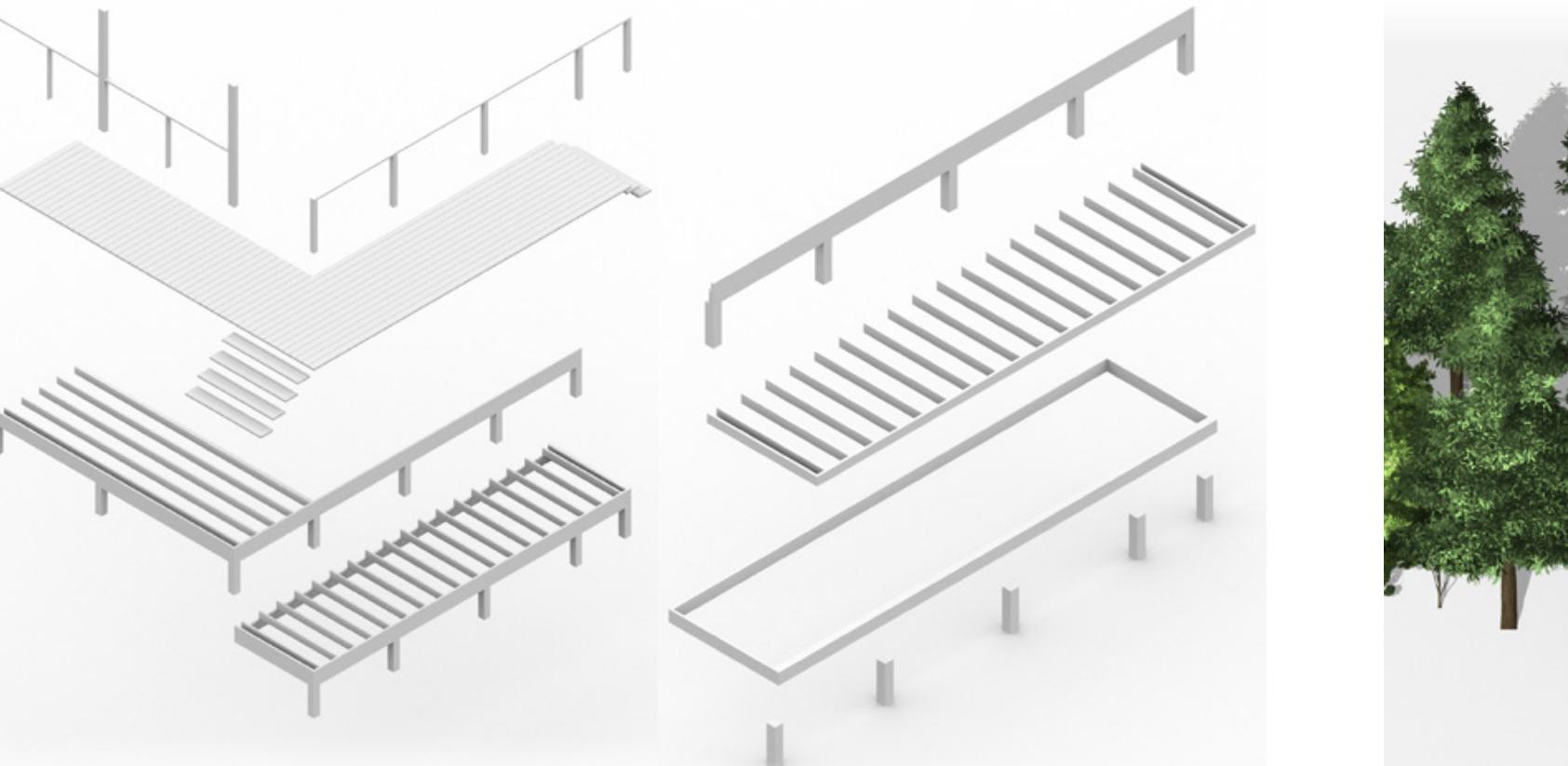
After working several years at a retail hardware store, I became accustomed to creating material estimations. I have used this knowledge to assist in personal construction projects.

### 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.

Prior 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.



## Material Estimation

	Beams
Posts and Footings	
Deck Surface	
Ledger	
Railing	
* Front Stairs are pre-built	

**Beams**  
2 x 6 x 12' (2)  
2 x 8 x 8' (4)  
2 x 8 x 16' (4)

**Posts and Footings**  
6 x 6 x 8' Treated Post (1)  
18 x 18 x 4 Footing Pad (5)

**Joists**  
2 x 6 x 12' (11)

**Fasteners**  
2 x 6 Joist Hangers (19)  
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 ( $\pm 1500$ )

**Ledger**  
2 x 8 x 12' (1)  
2 x 8 x 16' (1)

**Back Stairs**  
2 Step Metal Stringer (3)  
2 x 6 x 12' (2)

**Railing**  
2 x 4 x 12' (4)

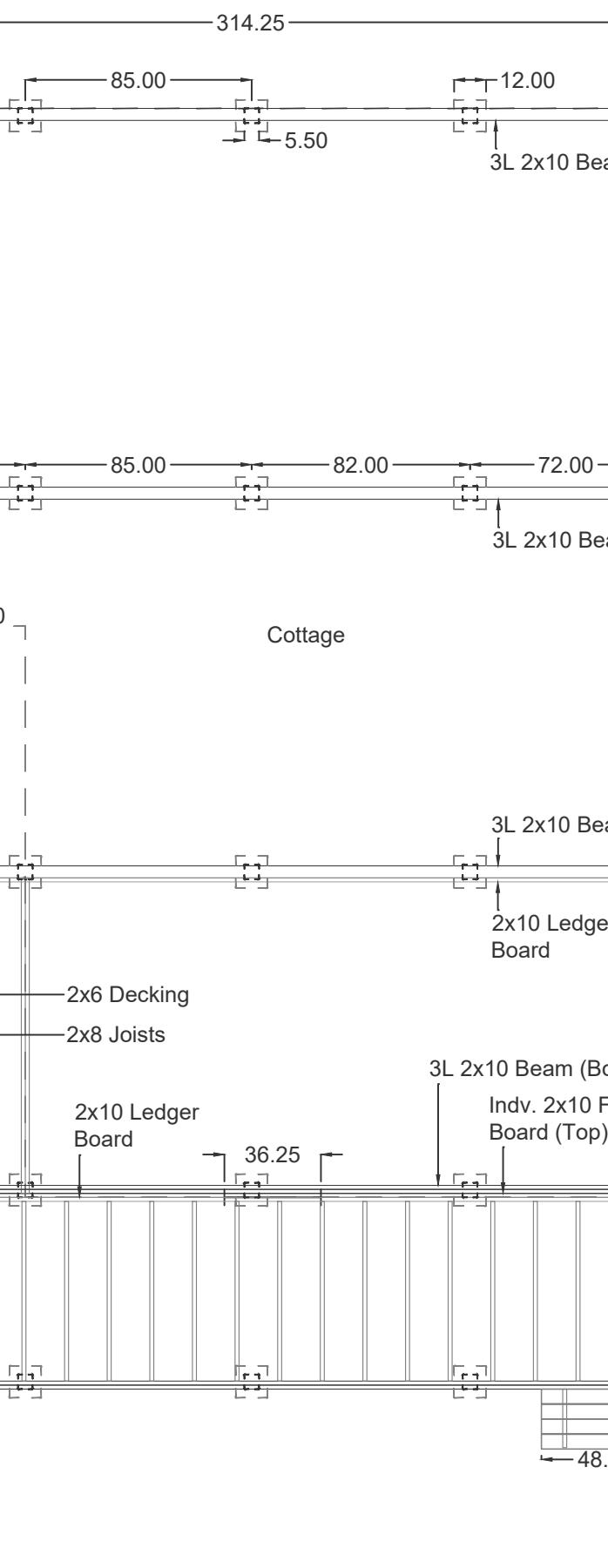
**\* Front Stairs are pre-built**  
3/8" x 2-1/4" Carriage Bolts (24)  
3/8" Flat Washer (24)  
3/8" Hex Nut (24)



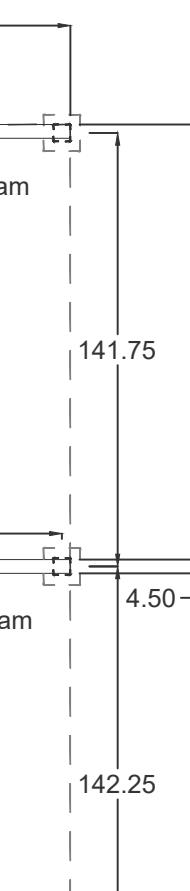
## Existing Conditions



## Proposed Conditions



Cottage Deck Extension Plan  
0.5 1 2m



## Photography

I have enjoyed photography for a long time, especially as a way to remember specific moments from various trips near and far. Although it's nowhere near professional, I have enjoyed experimenting with filters and colour adjustments to enhance the visual. These are some of my favourite photos from trips to Grand Beach, Manitoba, as well as Vancouver, British Columbia, Cartagena, Colombia, and Amsterdam, Netherlands.

