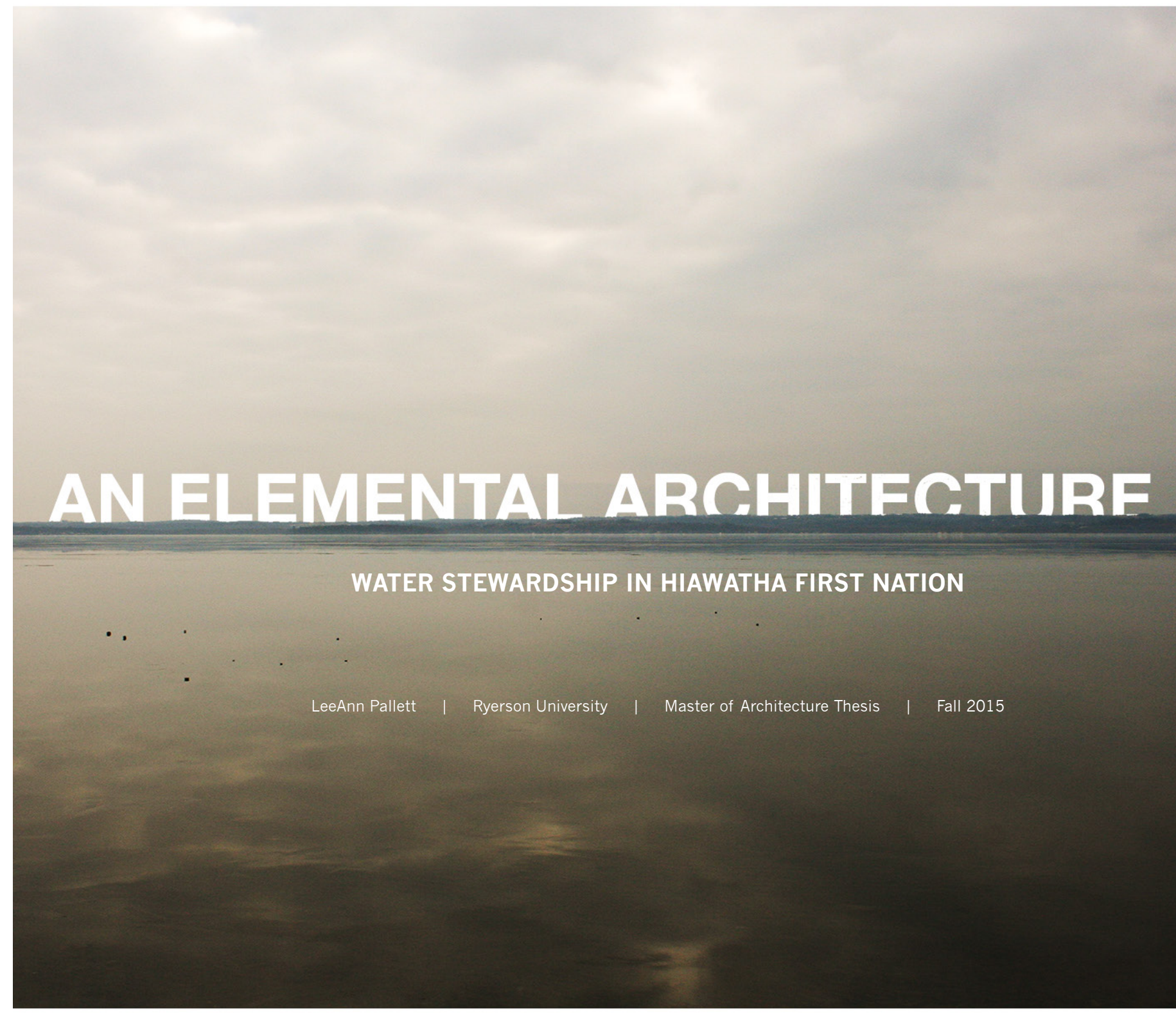


AN ELEMENTAL ARCHITECTURE

LEEANN PALLETT



AN ELEMENTAL ARCHITECTURE

WATER STEWARDSHIP IN HIAWATHA FIRST NATION

LeeAnn Pallett | Ryerson University | Master of Architecture Thesis | Fall 2015

AN ELEMENTAL ARCHITECTURE:
WATER STEWARDSHIP IN HIAWATHA FIRST NATION

by

LeeAnn Pallett

Bachelor of Architectural Science, Ryerson University,
2012

A design thesis project
presented to Ryerson University
in partial fulfillment of the
requirements of the degree of
Master of Architecture
Toronto, Ontario, Canada, 2015

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ABSTRACT

Dozens of First Nations in Canada lack access to safe and secure water resources. This thesis proposes the decentralization of water treatment in First Nations, and explores how architecture might integrate and decentralize water collection, purification, and storage strategies in Hiawatha First Nation. It simultaneously explores the very deep and layered spiritual connection between women and water in Anishinaabe culture.

Feminist theory is used as a lens through which the research and design is approached. Synthesizing vernacular strategies with contemporary technologies led to the development of a regionally sensitive architecture that creates much needed space for purification, healing, and growth of the community and the individual.

The Pimaadashkodeyaang Cultural Centre in Hiawatha First Nation investigates Anishinaabe architecture and culture, feminist theory and space, and water and productive landscapes. Multiple design strategies emerged that inform how to design with water from both a pragmatic and mythopoetic perspective.

ACKNOWLEDGMENTS

Thank you to Marco Polo for your guidance, patience, and encyclopedic knowledge. I sincerely appreciate the freedom you have allowed me in pursuing this unconventional work, and your confidence that I could achieve the goals I set out for myself played a huge role in my ability to do so. Through this process you have revealed to me the kind of architect, and more importantly, the kind of person that I strive to be. It has been a privilege to learn from you.

Thank you to Scott Sørli for your enthusiasm, knowledge, and compassion. You have taught me to question everything, be open to everyone, and to have the confidence to follow my own instincts. This journey has allowed me to grow enormously as a designer and more fully into myself. For that I am endlessly grateful.

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A final thank you to all of my colleagues for keeping me (mostly) sane these past two years. I could not imagine having this experience without you. I am looking forward to seeing the incredible things you all accomplish in the years to come.

DEDICATIONS

For Mum, Dad, and Carolyn,
Your support through this process has been infinite and my gratitude is impossible to put into words. This is as much your achievement as mine.

For Nonna, Tony, and G'ma,
Mission accomplished.

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0.0 CONVICTIONS

The following is a self-addressed letter written on July 11th, 2014 upon completion of the Inundation 3 Studio in Jakarta led by professors Scott Sørli and Dr. Etienne Turpin.

“Never try to prove that you are an architect. What you are doing is architecture because you are doing it. Never apologize for your point of view. You have allies. Make the discipline respond to you. Make a new middle, don’t make a new edge.”

—Sara Dean

I feel very privileged to have participated in Inundation 3 in Jakarta this term. Beyond the subject matter specifically, the aspect of this studio that most inspired me was how the project was organized and carried out. The relationships between different roles were much different than any architecture studio I previously participated in. This was the first time that I felt I was a part of a team and working collaboratively with my professors, towards our collective research goals. Working alongside instructors, organizations, and the community meant that the project became a communal effort, in which everyone felt equally responsible and equally valued.

This horizontal organization allowed for a much more open communication between

individuals, and also created a relationship where each individual was open to sharing work, building upon it, and being open to learning from one another in a two-way dialogue.

This studio has allowed me to better articulate the following convictions:

1. I believe an organic, bottom-up design process can lead to far more intriguing and successful architecture. Architectural design is a powerful tool when created not to defend a position but as a medium for initiating communication and debate.
2. As expressed by Dr. Etienne Turpin in our final meeting, I believe in “the process of making ethical work by embracing exposure to issues that test our convictions.”

Throughout my career as an architecture student I have struggled internally to reconcile the demands of the architectural profession with my personal career goals. Until now they have felt contradictory, and it has been difficult to determine how

best to integrate my ambitions into the strict construct of the Master of Architecture curriculum. I am now aware that I have many allies in the direction that I would like my career to move, and my experience in Inundation 3 has allowed me to tap into an entirely new network of like-minded individuals.

Moving forward, I would like to maintain a non-hierarchical perspective with the understanding that I can learn far more from the people I encounter in my research than I have the hope of teaching them. I have great confidence in the work that results from being perceptive and open to new experiences and inputs. I hope for my thesis that I am able to embody the aforementioned convictions and embark on a career characterized by ethical, responsible work that grows from and serves the greater community.

A handwritten signature in black ink, appearing to read 'L. Pallett', with a long horizontal flourish extending to the right.

LeeAnn Pallett

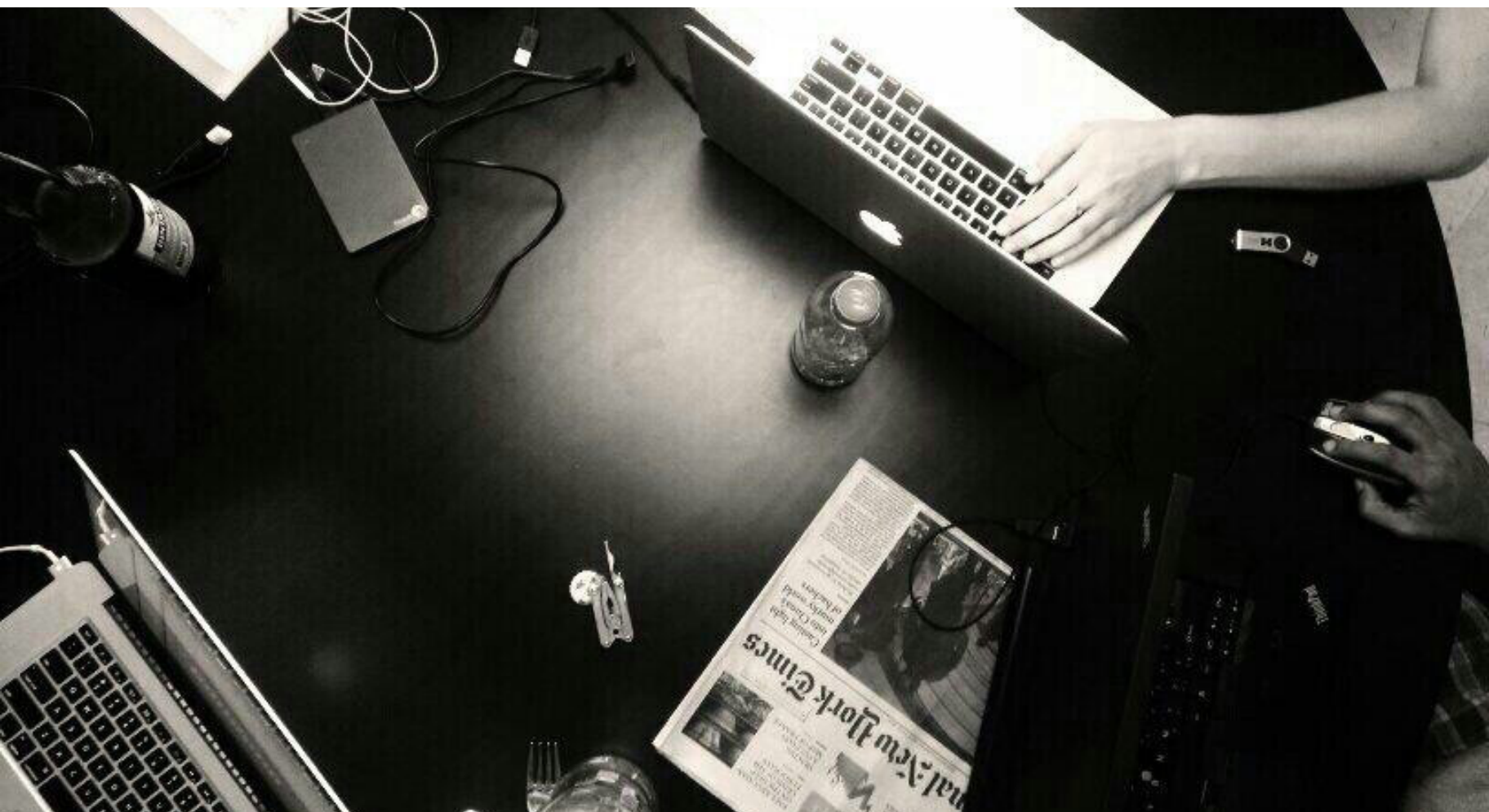




FIGURE 01: RUNNING THE V
by Michael Robinson
Acrylic on canvas, 16" diameter

THE POET AND THE SONG

MICHAEL ROBINSON¹

Born on a star path
worn by Eagles and wind
I live in the heart of the sun.
My mother's heart
is the river of time.
The dark forest wall
is where my father sleeps,
where he gave me passage
to this small bend in the river.
The forest stands before me
an ancient doorway
I can silently slip through
to dwell among the colours
the shadows
and the spirits living there.
I can sing out
with a raven's tongue
and fly above the night
to touch the fire
of starlight
and dance on the moon
until the end of time

**but the river
marks my beginning
and my end
and here
I shall tell my story.**

¹ Michael Robinson. "The Poet and the Song." *Michael Robinson*. Accessed March 25, 2015. <http://www.michaelrobinson.ca/2007/new/2007poet-and-the-song.html>.

1.0 EVOLUTION OF THINKING

This thesis began with a general concern for the global water crisis, specifically the difficulties that many communities face in accessing potable water. The fact that there are currently an estimated 748 million people who do not have access to a safe and secure water source is startling. Of these, 173 million rely on untreated surface water, over 90% of which live in rural areas.¹ I chose to explore this issue in the first year of the Master of Architecture program through a series of studio projects in locations such as South Africa and Southeast Asia.

I then discovered that a lack of safe water resources not only still exists in Canada, but is often as severe as in many less developed nations. In Canada, the issues exist predominantly on First Nations reserves due to lack of funding, crumbling infrastructure, and contamination. I began to investigate the issues and was led to a very rich and complex body of research. The surface issue of finding ways to address the potable water crisis in First Nations communities evolved into an inquiry of the stratified complexity of First Nations history, culture, politics, and social structures in Canada.

Canada prides itself on being a multicultural and inclusive nation, but this cannot be true if the people from whom this land was stolen are unable to access something as fundamental as clean water. So many of the underlying social, cultural, and political issues that Aboriginal women face stem from binary, patronizing modes of thinking that saturate western culture.

¹ World Health Organization. *Water Quality and Health Strategy 2013-2020*, (World Health Organization, 2013), 8.

The research was initially broken down into the practical and mythopoetic characteristics of designing with water, purely from an architectural perspective. As it proceeded, the psychological division between pragmatism and symbolism became increasingly blurred. This was only the first of many ambiguities that would arise, and it was at this point that feminist theory became an ideal lens through which to look at the issues.

Change is long overdue. As one of the primary influences on how people live their lives and interact with one another, architecture has the potential to contribute immensely to this change. There is a dire need to incorporate a diversity of perspectives in order to most fully and sensitively undertake this enormous task. It begins with building support structures, a term which I use in the sense that Celine Condorelli writes:

Everything starts from this intuition: that what I define as support structures can release potential, and that support is not to be reduced to a reactive, symptomatic, and redeeming gesture, but that through its uttering we may be able to hear the unspoken, the unsatisfied, the late and the latent, the in-process, the pre-thought, the not-yet manifest, the undeveloped, the unrecognized, the delayed, the unanswered, the unavailable, the not-deliverable, the discarded, the over-looked, the neglected, the hidden, the forgotten, the un-named, the un-paid, the missing, the longing, the invisible, the unseen, the behind-the-scene, the disappeared, the concealed, the unwanted, the dormant.²

² Celine Condorelli and Gavin Wade. *Support Structures*, (Berlin: Sternberg Press, 2009), 13.



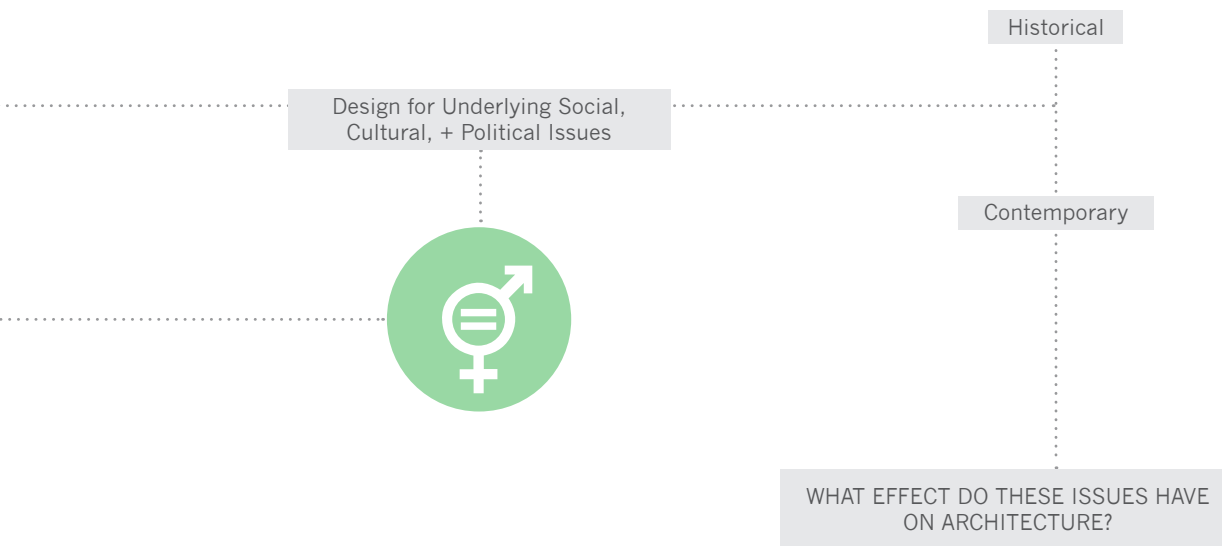


FIGURE 02: EVOLUTION OF THINKING summarizes the trajectory of the early research and was used as a visual aid for me to revisit, edit and build upon as I continued through the writing and design of the thesis.

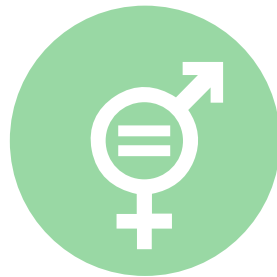
THEORY STREAMS

The theoretical research diverged into the three major streams: Anishinaabe architecture and culture, feminist theory and space, and water and productive landscapes. All have been considered with regard to their potential effects on the design of a building in a First Nation. Though at first the three streams appear quite disparate, there are several parallels between each of them, and all have significant architectural consequences.

The term ‘stream’ is used strategically here, as opposed to ‘category’ or ‘group’, because the research trajectories are by no means restrictive. There are common themes that have been found to run through the majority of the literature referenced in the thesis that provide the theoretical basis for this work. The thesis argument is centered around non-hierarchical thinking, and the term ‘stream’ reflects the flowing, ambiguous boundaries of the subject matter.



ANISHINAABE ARCHITECTURE + CULTURE



FEMINIST THEORY + SPACE



WATER + PRODUCTIVE LANDSCAPES



Λ

FIGURE 03: WATER AS LIFE

AMERICAN INDIAN POEM

OJIBWA, MINNESOTA¹

Anishinaabekwe, the Daughter,
You are the keepers of the water.
I am Nibi... water... the sacred source.
The blood of Aki, Mother Earth,
The force filling dry seeds to great bursting.
I am the womb's cradle.
I purify.

Nibi, the life giver.
Forever the Circle's charge
I have coursed through our Mother's Veins.
Now hear my sorrow and my pain
In the river's rush, the rain...

I am your grandchildren's drink
Listen, Daughters, always.
You are the keepers of the water.
Hear my cry,
For the springs flow darkly now
Through the heart of Aki

¹ Cecilia Rose LaPointe, "Cecelia Rose LaPointe," *Ojibwa Poem*. October 23, 2010. Accessed March 25, 2015. <http://www.anishinaabekwe.com/2010/10/ojibway-poem.html>.

2.0 FEMINIST THEORY + SPACE

The ability to rationalize is among humanity's greatest gifts. This incredible capacity has allowed us to detect patterns and variations that help us to understand the universe. Categorization is an intrinsic product of this rationality that is both massively beneficial and detrimental to our continued pursuit of understanding.

This insatiable need to organize our discoveries and experiences into neat categories and binary relationships means that we often negate the potential of ambiguity. Since the Enlightenment and the advent of the scientific method, it has become increasingly difficult for us to come to terms with the fact that perhaps not everything can be explained rationally. It may be beneficial for us to embrace ambiguity as another equally valid way of seeking understanding.

There has been tension between the arts and sciences for centuries. From my perspective, the realm of architecture is one of the most critical intersections of the arts and sciences that has constantly negotiated the imaginary boundary between the two. Architecture is an immensely ambiguous concept that cannot be easily or permanently defined. In practice, architecture is a fluid, constantly changing entity that is quickly deprived of its potential when we attempt to contain it within a single definition.

The most fundamental function of architecture is to provide shelter and delineate space; reducing it to a human scale and providing the backdrop to our lives. The

boundary between building and architecture is heavily debated, particularly in academia. This boundary is highly relative and can change or dissolve very easily. In my opinion, mere building transcends into architecture when it has a deeper effect on the individual. This effect, however, is not always perceived. Architectural design, as with other design fields, can be so well considered as to slip beneath our consciousness, though its effects are no less profound.

This thesis seeks these imperceptible, intuitive qualities as a way through which feminist theory can be applied spatially. The relationship between feminist theory and space is multi-layered and nonlinear. Like attempting to define architecture, it is extremely ambiguous, yet similarly it is here that the potential exists.

The spaces in which we live, work and play contribute heavily to the ways that we interact with one another. Feminist theory argues for the inclusion and equality of all in order to break down harmful gendered and racist stereotypes that have been propagated over time. This thesis approaches this philosophy in a number of ways, always seeking the edges, ironies, and ambiguities that exist in the issues addressed in the work, strategies including peeling away, revealing, or deconstructing systems and structures are integral to the design. What is considered building or landscape, public or private, interior or exterior? These relationships, of course, are not binary. The thesis embraces these ambiguities as a reflection of the grey area that surrounds the issues addressed in the work.

A text of primary importance to the thesis is *Feminist Practice*, a groundbreaking collection of essays by female authors compiled by Lori A. Brown that analyze both the theory of feminism in architecture and use case studies of projects that demonstrate them in their work. In the introductory chapter of the book, Brown states:

*The subject of feminism insists that spaces are extraordinarily complex... Its multidimensionality refers to a complicated and never self-evident matrix of historical, social, sexual, racial and class positions which women occupy, and its geometry is one strung out between paradoxical sites. These feminist maps are multiple and intersecting, provisional and shifting...*¹

In her essay entitled “A Brief History of the Marginalization of Aboriginal Women in Canada,” Erin Hanson examines “how space can be highly gendered and racialized, and has studied how gendered and racialized urban spaces have encouraged and condoned violent behaviour against Aboriginal women.”² This gendered and racialized space is more easily understood in theory than in practice because its characteristics are not immediately discernible. It can be argued that there is no such thing as feminist space, but if architecture is considered a manifestation of

1 Lori A. Brown, *Feminist Practices: Interdisciplinary Approaches to Women in Architecture*, (Farnham: Ashgate, 2011), 5.

2 Erin Hanson, “A Brief History of the Marginalization of Aboriginal Women in Canada,” *Aboriginal Foundations*. Accessed October 10, 2014, <http://Aboriginalfoundations.arts.ubc.ca/home/community-politics/marginalization-of-aboriginal-women.html>.

the society in which it exists, then it also has the great power to address issues that it seeks to change.

2.1 CRITICAL SPATIAL PRACTICE

A fundamental part of Brown's philosophy is the use of what she calls a "critical spatial practice." This refers to the Deleuzian view of the relationship between theory and practice as fragmentary and partial:

Practice is a set of relays from one theoretical point to another, and theory is a relay from one practice to another. No theory can develop without eventually encountering a wall and practice is necessary for piercing this wall.¹

I propose a different approach to architecture involving a critical feminist practice that employs design as a way to address underlying feminist issues. It demands an iterative mode of working that was at times contradictory to many existing conventions and my own academic tendencies. It is a subjective and nonlinear way of thinking that required me to shed many of the habits and methodologies I have developed through my time in academia as a way to be more open to a multitude of research outcomes, or perhaps none at all. My critical feminist practice was employed throughout the thesis in the way the research was conducted, the design methodology, the approach to writing as well as the final representation of the work.

Critical spatial practice has been used as a tool to ensure that each element of the building reinforces a feminist agenda of engaging the radically ambiguous edges,

¹ Lori A. Brown, *Feminist Practices: Interdisciplinary Approaches to Women in Architecture*, (Farnham: Ashgate, 2011), 21.

overlaps, and fissures between interior and exterior, public and private, horizontal and vertical, natural and artificial, etc.

James Corner emphasizes the danger of positioning ideas as binary oppositions where he writes:

*"The fallacies of progressivist and objectivist practices are sustained in large measure by another primary characteristic of the modern paradigm: The tendency to construct binary oppositions, as in the polarization of the human and social world from the natural world. This dualism parallels the dichotomy between subject and object, wherein concepts such as "environment" are conceived as things that are external to humankind."*²

This thesis seeks congruence with the work of other feminist architects by positioning the idea of architecture as a methodology, rather than as the end result of the method or process that makes a building. This can be interpreted as a radical departure from a traditional architectural practice.

² James Corner, "Ecology and Landscape as Agents of Creativity," In *The Landscape Imagination: The Collected Essays of James Corner, 1990-2010*, edited by Alison Bick Hirsch, (New York: Princeton Architectural Press, 2014).

2.2 APPLICATIONS

SANDAL MAGNA PRIMARY SCHOOL BY SARAH WIGGLESWORTH WAKEFIELD, UNITED KINGDOM

“There’s the whole thing about ‘Is there feminist architecture and what might that mean?’ I get asked all of the time, ‘What would that look like?’ It’s a stupid question. It might look like all kinds of things. It’s about the underlying issues that you want to address.”

- Sarah Wigglesworth ¹

The Sandal Magna Primary School manifests several of Sarah Wigglesworth’s priorities as a feminist architect, including but not limited to: community collaboration, site sensitivity, flexibility of spaces and ecological design. The \$9.4-million project was completed in 2010 for the Wakefield Metropolitan District Council.

LEXICON

feminism: the advocacy of women’s rights on the grounds of political, social, and economic equality to men.

feminist theory: the extension of feminism into theoretical or philosophical discourse. It aims to understand the nature of gender inequality.

¹ Sarah Wigglesworth, interview by Andrew Wade, “Sarah Wigglesworth.” *The Architectural League of New York*. Accessed October 27, 2014. <http://archleague.org/2013/03/sarah-wigglesworth-2/>.

FIGURE 04: COMMUNITY COLLABORATION 
The Sandal Magna Primary School at dusk
(Mark Haddan).



BARKING TOWN SQUARE BY MUF ARCHITECTURE/ART BARKING, UNITED KINGDOM

"Consultation can also be an exchange... Project by project we designed contemporary accommodation for voices and knowledge, which... were big enough for difference."

-Liza Fior and Katherine Clarke¹

muf is an interdisciplinary design firm that often strays from the boundaries of what might typically be called architecture. The four founders come from backgrounds of architecture, art, and urban theory. The Barking Town Square project is exemplary of this amalgamation in muf's work. The research for this thesis has required an interdisciplinary approach that has encouraged a consideration of the many potential spatial capacities of seemingly disparate ideas.

Interdisciplinary cooperation and networking is fundamental to every muf project, and the Barking Town Square is an ideal manifestation of this exchange. The \$4-million project was completed in 2010 for Redrow Regeneration with the London Borough of Barking and Dagenham.

LEXICON

interdisciplinary: of or relating to more than one branch of knowledge.

multidisciplinary: combining or involving several academic disciplines or professional specializations in an approach to a topic or problem.

¹ muf, "The Lived and the Built," In *this is what we do: a muf manual*. (London: Ellipsis, 2001), 11.

FIGURE 05: PLAY >
A father and daughter play in the Barking
Town Square.





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**FIGURE 06: WISDOM OF THE
UNIVERSE**
by Christi Belcourt (2014)
Acrylic on canvas, 171 × 282 cm

“As long as I live, I’ll hear waterfalls and birds and winds sing. I’ll interpret the rocks, learn the language of flood, storm, and the avalanche. I’ll acquaint myself with the glaciers and wild gardens, and get as near the heart of the world as I can.”

- JOHN MUIR¹

¹ Linnie Marsh Wolfe, *Son of the Wilderness: The Life of John Muir*. (New York: A.A. Knopf, 1945), 144.

3.0 THE MYTHOPOETIC SIGNIFICANCE OF WATER

As the element fundamental to life, water is revered and occupies a realm of mythology in every culture on earth. Deities have been attributed to it in its many forms. Water is considered in many cultures to be a feminine element, therefore a great number of water deities are female personifications. The recorded existence of such goddesses and spirits goes back as far as Nammu, the Sumerian goddess of the ocean. More recent incarnations include the water nymphs of ancient Greece, Sedna, the Inuit goddess of the sea, to Oshun, the river goddess of the Yoruba in Nigeria. These deities are often representative of love, and motherhood, but are equally often portrayed as fearsome monsters.

In other cases, sacred water is understood in a more abstract way. Many bodies of water are considered holy amongst different faiths and are revered in infinite ways: Hinduism worships the Ganges, Judeo-Christianity the Jordan River, Roman Catholicism the fountain of Lourdes, Islam the Zamzam Well.

Water is also a central aspect of endless religious and spiritual rituals of purification, healing and cleansing.

FIGURE 07: WATER DEITIES >

07.1: NAMMU
Sumerian goddess of the sea

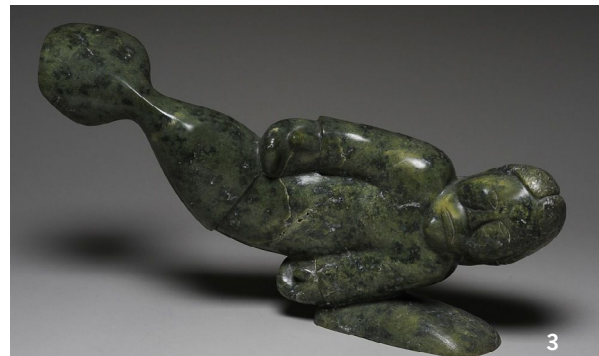
07.2: OSHUN
Yoruba goddess of rivers

07.3: SEDNA
Inuit goddess of the ocean

07.4: THE NAIADS
Ancient Greek water nymphs

07.5: CHALCHIUHTLICUE
Aztec water goddess

07.6: MAZU
Chinese goddess of the sea



3.1 WATER AS THE RESPONSIBILITY OF WOMEN

In pre-industrial times, women were traditionally the primary users of water: for cooking, washing, family hygiene, and sanitation. This is still the case in many less developed nations where about half of a woman's day is occupied by household work.¹ Women in both rural and urban areas are responsible for fetching water for domestic use, often walking very long distances with very heavy loads. As a result:

Women have been thought responsible, historically, for the “healthy” functioning of (usually domestic) architecture, and by extension the health of the family.²

This is an unfortunate product of gender bias, but it continues to be the reality for millions of women around the world.

FIGURE 08: WATER COLLECTORS >
Women retrieve water from communal sources.

08.1: NICARAGUA

08.2: KENYA

08.3: INDIA

08.4: BANGLADESH

08.5: UGANDA

08.6 VIETNAM

¹ Alice Aureli and Claudine Brelet. *Women and Water: An Ethical Issue*. (Paris: Unesco, 2004), 9.

² Lori A. Brown, *Feminist Practices: Interdisciplinary Approaches to Women in Architecture*, (Farnham: Ashgate, 2011), 86.



3.2 WATER + THE ANISHINAABEK

The First Nations peoples of North America have a strong spiritual connection to the natural world. North America is home to hundreds of different Nations with immensely varied cultures, but a reciprocal relationship with nature is a common characteristic among them that emerges from their ancient subsistence ways of life. This relationship is demonstrated through each aspect of their cultures. The Assembly of First Nations explains:

Our traditional activities depend on water for transportation, for drinking, cleaning, purification, and provides habitat for the plants and animals we gather as medicines and foods. Our ability to access good water shapes these traditional activities and our relationships with our surroundings. As Indigenous peoples, First Nations recognize the sacredness of our water, the interconnectedness of all life and the importance of protecting our water from pollution, drought and waste.¹

The relationships vary from nation to nation, and even from band to band. In electing to pursue this thesis topic, I felt the immense responsibility to be deeply cognizant and respectful of these cultural differences. It therefore became necessary to narrow the focus of the thesis to one nation so that the architectural design could be as contextually specific as possible.

In order to do this, I met with Sto:lo teacher, author and poet Lee Maracle at the

¹ “Honouring Water,” *Assembly of First Nations*, Accessed October 1, 2014, <http://www.afn.ca/index.php/en/honoring-water>.

University of Toronto First Nations House in September 2014. We discussed the relationship between women and water that was mentioned in the work of a number of different authors I had read to that point, as well as her subjective experience of this connection. It was she who first informed me that there is a particularly strong connection between Anishinaabe women and water.

In sweat ceremonies, men are the bringers of fire; responsible for building and tending to the fire outside of the sweat lodge on which the stones, called grandmothers and grandfathers, are heated. Once the stones are brought into the lodge, the water is brought forth by the women. It is through this union of men and women, masculine and feminine, that ceremony is possible.

There is a deep spiritual connection between Anishinaabe women and water, and it is their responsibility to care for it, meaning they work to keep it clean, ensure that others respect it, and lead ceremonies to honour it. Ceremonies may involve singing water songs, saying prayers and giving offerings to the spirit of water. I began to research this specific connection and became immersed in a wealth of knowledge and tradition that has been passed down through generations but only recently translated into English.

Women, like Mother Earth, are givers of life. Therefore, the water that flows across the earth can be interpreted as veins; carriers of our mother's blood and the source

of all life. Through the cycle of birth and death, there are major connections between water, blood, the earth, community, past and future. Jan Longboat puts it elegantly when she says:

*"Water is what sustains us. Water is what brings us into this world, and water is what keeps us in this physical world. And so it's our life."*²

Dr. Kim Anderson, a Cree/Métis writer and educator currently at the University of Waterloo has conducted extensive research into the spiritual connections between Aboriginal women and water, from a wide spectrum of Aboriginal cultures. In preparing her report called *Aboriginal Women, Water and Health*, she conducted interviews with a number of Aboriginal, Inuit, and Métis grandmothers³ from across Canada in order to explore the diversity and commonalities between their relationships with water. The grandmothers spoke about the role of water as a conduit between the spiritual realm and the physical realm:

² Kim Anderson, *Aboriginal Women, Water and Health: Reflections from Eleven First Nations, Inuit, and Métis Grandmothers*. (Winnipeg: Prairie Women's Health Centre of Excellence, 2010), 7.

³ Anderson uses the term grandmother to refer to female elders.

*As Maria (Métis) pointed out, 'You can't have birth without water. That time between the spirit world and being born, you can't have that without water.' Pauline talked about this role in terms of 'the great, shining, pure lake' that transports human consciousness from one realm to the other.'*⁴

The spiritual relationship between women and water is echoed by Tom Porter's transcription of Iroquois oral tradition where he writes:

*The water is not just water, it is sacred. Every water is sacred. Every water is holy everywhere in the whole world. The water has spirit, it has a soul, it has life in it. The Creator said to the water, 'And your job, Water, is to move, to look for the humans, look for the birds, look for the bears, look for the deer.' That is why the water is moving. It's doing its job, going looking around for the life. And then it goes into the big river and then into the big ocean and then back into the clouds. Around and around refreshing because it is alive. It is refreshing because it gives life. That is what the waters do, they quench our thirst and they clean and purify our body so that we may have a healthy, good life. Then when you listen to the oceans and the big lakes, you hear the heartbeat of the water. You see that it is living. The big waves come, and they hit Mother Earth. It is the same thing as what is going on right in your heart. It is beating with a rhythm because it is living.'*⁵

4 Kim Anderson, *Aboriginal Women, Water and Health: Reflections from Eleven First Nations, Inuit, and Métis Grandmothers*. (Winnipeg: Prairie Women's Health Centre of Excellence, 2010), 7.

5 Tom Porter and Lesley Forrester, *And Grandma Said...: Iroquois Teachings, as Passed down through the Oral Tradition*, (Philadelphia: Xlibris, 2008), 12.

We come into the world preceded by water, and it is the single element critical for our survival, much like the blood flowing through our veins.

Josephine Mandamin is one Anishinaabekwe who has taken her responsibility to the water very seriously. She advocates for the conservation of the Great Lakes through her “Mother Earth Water Walks” that have brought awareness to the state of the lakes and rivers in southern Ontario. Beginning in 2003, Josephine began the long journey around Lake Superior carrying a copper bucket full of lake water.⁶ This symbolic load speaks to the concept of women as carriers of water. As she continued, word of the walks spread and her entourage expanded with more and more people wanting to follow her example. She expresses the relationship she feels to the water in saying:

There's that feeling of sensing Mother Earth. There's times when I stand by the water, and I can feel the pulsing, the pulsing of the water standing by the shore. I can feel that connection myself with the water.⁷

6 “About Us.” *Mother Earth Water Walk*. Accessed September 15, 2013, <http://www.motherearthwaterwalk.com/>.

7 Kim Anderson, *Aboriginal Women, Water and Health: Reflections from Eleven First Nations, Inuit, and Métis Grandmothers*. (Winnipeg: Prairie Women's Health Centre of Excellence, 2010), 12.

As of 2009 she had walked the perimeter of all five Great Lakes, as well as the length of the St. Lawrence River. She continues to advocate for the protection of our lakes and rivers, and has inspired many other Aboriginal women to also raise awareness of their responsibility to care for the water.

FIGURE 09: JOSEPHINE MANDAMIN ➤

Grandmother Josephine Mandamin on her
Mother Earth Water Walk



3.3 WATER AS MATERIAL

In the design of this thesis I have considered water as an architectural material in itself, as integral to the design as wood, concrete, or steel. Water is the element that makes the earth unique amongst all known planets through its ability to foster life. As such, it must be treated with the utmost respect. To design with water as material is to understand that it is an element in constant flux.

Water is the material basis of man's relationship with his environment, and often stands as a symbol of it. It creates links and is in a state of permanent exchange in relation to warmth, climate, air, soil and gravity. Growth, metabolic change and vital functions are inconceivable without water.¹

I felt it my responsibility in using water as an architectural material not to harness it, but to allow these natural cycles to take place within the architecture. Water manifests itself in an extraordinary spectrum of ways as it shifts through the different phases, as vapour, liquid, and solid. It was imperative to exhibit these different states and cycles through the architecture.

When designing with water, there are a number of factors to consider:

¹ Herbert Dreiseitl and Dieter Grau, *New Waterscapes Planning, Building and Designing with Water*, (Basel: Birkhäuser, 2005), 42.

- Setting: dry, wet, cold, damp
- Containment: defined, undefined, open, closed
- Movement: fast, still
- Lighting: light, dark, subtle, bright
- Wind: texture
- Sound: materials, patterns, rhythm, volume
- Colour: materials, reflections
- Depth: colour, safety, light

I have endeavoured to use this wonderful dynamism to its fullest potential by embracing the beauty of water in all of its states. Consideration has also been given to the effects that each of the aforementioned factors might have on specific atmospheres within the project as well as on one's overall experience.

The design of the thesis aims to use water in its liquid state in multiple ways, such as through the use of plunge pools to contrast the heat and vapour used in the sweat lodge ceremony. There is also the intention to collect rain water and funnel it down into a cistern to fulfill a portion of the building's water requirements. Constructed wetlands are implemented to purify the building's greywater output before releasing it back into the environment. Formally, the curves in the roofscape of the building are inspired by snow drifts, and the negative spaces between the wings of the building encourage snow drifting to occur. The façade treatment allows for icicles to form.

3.4 APPLICATIONS

THERME VALS BY PETER ZUMTHOR GRAUBUNDEN CANTON, SWITZERLAND

"When I concentrate on a specific site or place for which I am going to design a building, I try to plumb its depths, its form, its history and its sensuous qualities."

- Peter Zumthor ¹

Zumthor's expert use of water and light as materials are the source of Therme Vals' palpable atmospheric qualities. The juxtaposition of the two emphasizes the best characteristics of both elements. The Therme Vals is one of the great works of architecture that accentuates the therapeutic characteristics of water. Zumthor uses extreme care in the placement, scale, and orientation of each space's pools and openings so as to create a variety of experiences within the project. I have sought to emulate Zumthor's treatment of light and water as integral architectural materials in the thesis design.

The \$23-million project was completed in 1996 for the Village of Vals.

LEXICON

phenomenology: is the study of structures of consciousness as experienced from the first-person point of view. The central structure of an experience is its intentionality, its being directed toward something, as it is an experience of or about some object.

¹ Peter Zumthor, "From Passion for Things to the Things Themselves," In *Thinking Architecture 3rd Expanded ed.* (Basel: Birkhäuser, 2010), 36.

FIGURE 10: WATER AS MATERIAL >



TROLLSTIGEN VISITOR CENTRE BY REIULF RAMSTAD ARCHITECTS ROMSDALEN, GEIRANGER FJORD, NORWAY

"At Trollstigen, water can be experienced as snow on the mountains, as a glistening mirror, as a swirling but controlled cascade or as a dramatic waterfall, all of which is reflected in the Visitor Centre's design."

- Reiulf Ramstad ¹

The Trollstigen Visitors Centre embraces the use of water as a material by treating the water flowing through the site in a number of ways. The project is situated in an incredibly ethereal location that feels simultaneously timeless and in constant flux. The architects use a strong contrast of water and stone to juxtapose the two. The project sits comfortably in its landscape, camouflaging itself into the changing seasons by using water in all its states. This project is also particularly relevant because of the similarities between the climates of Norway and northern Canada.

The 600 000 m² project was completed in 2012 for the Norwegian public roads administration with a budget of \$23-million.

¹ "Trollstigen Visitor Centre by Reiulf Ramstad Architects, Norway," *Wallpaper* Magazine*, September 30, 2014, Accessed November 1, 2014, <http://www.wallpaper.com/architecture/trollstigen-visitor-centre-by-reiulf-ramstad-architects-norway/5890>.

FIGURE 11: ALPINE REFLECTIONS ➤
The Trollstigen Visitor Centre in summer.



3.5 WATER + PRODUCTIVE LANDSCAPES

A productive landscape can be defined as a landscape capable of providing a product or ecological service to fulfill the social, economic and/or environmental requirements and aspirations of present and future generations at the local, national and global levels. Productive landscapes can include one or more functions that include intensified agriculture, wood production, water collection, purification, and storage, ecosystem restoration, biodiversity conservation and biomass storage.¹ Utility is the key element here.

There are many ways that water might be integrated into a productive landscape, some of which have been used for thousands of years and others that depend on contemporary technology to function at their highest capacity. In the summer of 2014, I traveled to south and southeast Asia where I witnessed some of these incredible landscapes first hand.

I learned from these experiences that smart water management does not need to be expensive or complex, and that some of these strategies may be integrated into an architectural project in the Canadian context to ameliorate the lack of safe water resources on First Nations reserves. I have therefore selected the following case studies as specific productive landscapes to incorporate into the thesis.

¹ “Towards Productive Landscapes - Increasing Food and Water Security,” *NEXUS*, February 24, 2014, Accessed October 10, 2014, http://www.water-energy-food.org/en/news/view__1553/towards-productive-landscapes-increasing-food-and-water-security.html.

3.6 APPLICATIONS

SA PA, VIETNAM

“No one lives up there!”
“Why not?”
“You can’t grow rice there! If you can’t grow rice, how you gonna live?!”

- Giang Thi Chan on Mount Fansipan¹

In Sa Pa, a frontier town in northern Vietnam, rice constitutes approximately half of each individual’s daily food consumption. The predominantly tribal population living in the mountains surrounding Sa Pa has an ancient and ingenious method of managing irrigation water. The terrain is steep and difficult for agriculture, but the hill tribes began terracing their rice fields thousands of years ago. Apart from providing spectacular views, the terracing makes the land productive for agriculture, minimizes erosion, and allows the farmers to control the flow of water from higher elevations downward. The ability to control which fields are irrigated is a huge advantage and in years of drought can ensure that the landscape remains productive.

¹ Chan is a Hmong woman and one of two guides I spoke with in Sa Pa during a visit there in July 2014.

LEXICON

productive landscape: a landscape capable of providing a product or ecological service to fulfill the social, economic and/or environmental requirements and aspirations of present and future generations at the local, national and global level.

FIGURE 12: CONTOUR >
Rice paddies in Ta Van, a village near Sa Pa in northern Vietnam.



KERALA, INDIA

“Water laws and rules are aplenty in this country. Many of them are paper tigers and few of them facilitate breeding ground for corruption as what is happening in the present rooftop harvesting rules. But whether it is necessary to facilitate corruption for this noble cause or not is matter for discussion and policy adoption.”

-Jos C Raphael¹

The Government of Kerala has begun an initiative to install rainwater harvesting systems on all new construction for a number of different building occupancies. I witnessed this at a home stay I visited in Allappuzha, Kerala, where the system included a rainwater catchment system, storage tank and mechanical filtration. This is a progressive step forward in dealing with the struggle for potable water in India, and is a pilot project that could be expanded to other Indian states. There is criticism that the authorities are not enforcing the policy and that the systems are not functioning due to poor maintenance.

¹ Jos C. Raphael, *Rooftop Harvesting Rhetoric in Urban Areas of Kerala*, (Kizhakepuram: Centre for Community Organisation and Development), 5.

LEXICON

paper tiger: a term that refers to something that seems threatening but is ineffectual and unable to withstand challenge.

FIGURE 13: RAIN WATER HARVESTING TANK >

The Government of Kerala, the southernmost state in India, looks to make rainwater harvesting mandatory for all new construction.



AUROVILLE, INDIA

“Auroville, in an attempt to be self-sufficient in its energy needs and to cause minimal atmospheric pollution, has a policy of experimenting with and implementing use of renewable and non-polluting energy sources together with appropriate building technologies.”

- *The Auroville Handbook*¹

Auroville is a contemporary experiment in communal living that engages in a number of different sustainable initiatives. It is the largest project of its kind in India. Some of the initiatives include: sustainable construction, water conservation and rainwater harvesting, wastewater recycling, solar energy, agriculture, and a massive reforestation program. Many of these initiatives provide inspiration for alternate contexts.

LEXICON

appropriate technology: refers to processes and tools that are appropriate to the climate, socioeconomic conditions, and natural resources of an area, and which contribute to sustainable development.

FIGURE 14: DECENTRALIZING WATER TREATMENT >

More than 60 natural wastewater treatment systems are in use in Auroville. Most recycling systems combine a pre-treatment device, a main treatment planted filter, and a post-treatment holding facility, usually consisting of one or more ponds or polishing tanks. Research and development has shifted to more efficient pre-treatment. Auroville has several units which are actively implementing waste water treatment systems, including CSR, Aqua engineers, and others.

1 *The Auroville Handbook*. Auroville: Abundance Publications, 2003.



LESSONS OF A MOTHER

LAURALEE K. HARRIS¹

We are made up of
every drop that falls,
every ripple we make,
and the mist that shrouds us.

We are the moisture,
the droplets of the morning
dew.

We are the moment
the clouds start forming
until the end of a storm.

We are all that we make
for ourselves
from the moment of birth
and our death.

We make the ripples
that change our wake
and the wake of others.

¹ Lauralee K. Harris, Excerpt from "Lessons of a Mother," *Lauralee K Harris Gallery*, Accessed August 1, 2015, <http://www.lauraleekharris.com/gallery.php?ser=avail>.



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FIGURE 15: LESSONS FROM MOTHER
by LauraLee K. Harris
Acrylic on oak

4.0 THE ANISHINAABE

Oral tradition indicates that the Anishinaabe originated on the shores of the “Great Salt Water,” presumably the Atlantic Ocean near the Gulf of St. Lawrence. They were instructed by seven prophets to follow a sacred *miigis* shell westward until they reached a place “where food grew upon the water.”¹ They began their migration some time around 950 CE stopping several times along the way, most significantly at Baawitigong, Sault Ste. Marie, where they stayed for a long time, and where two subgroups chose to remain. These became the Potawatomi and Ottawa nations. The other clans continued west to what is now Minnesota and Wisconsin.²

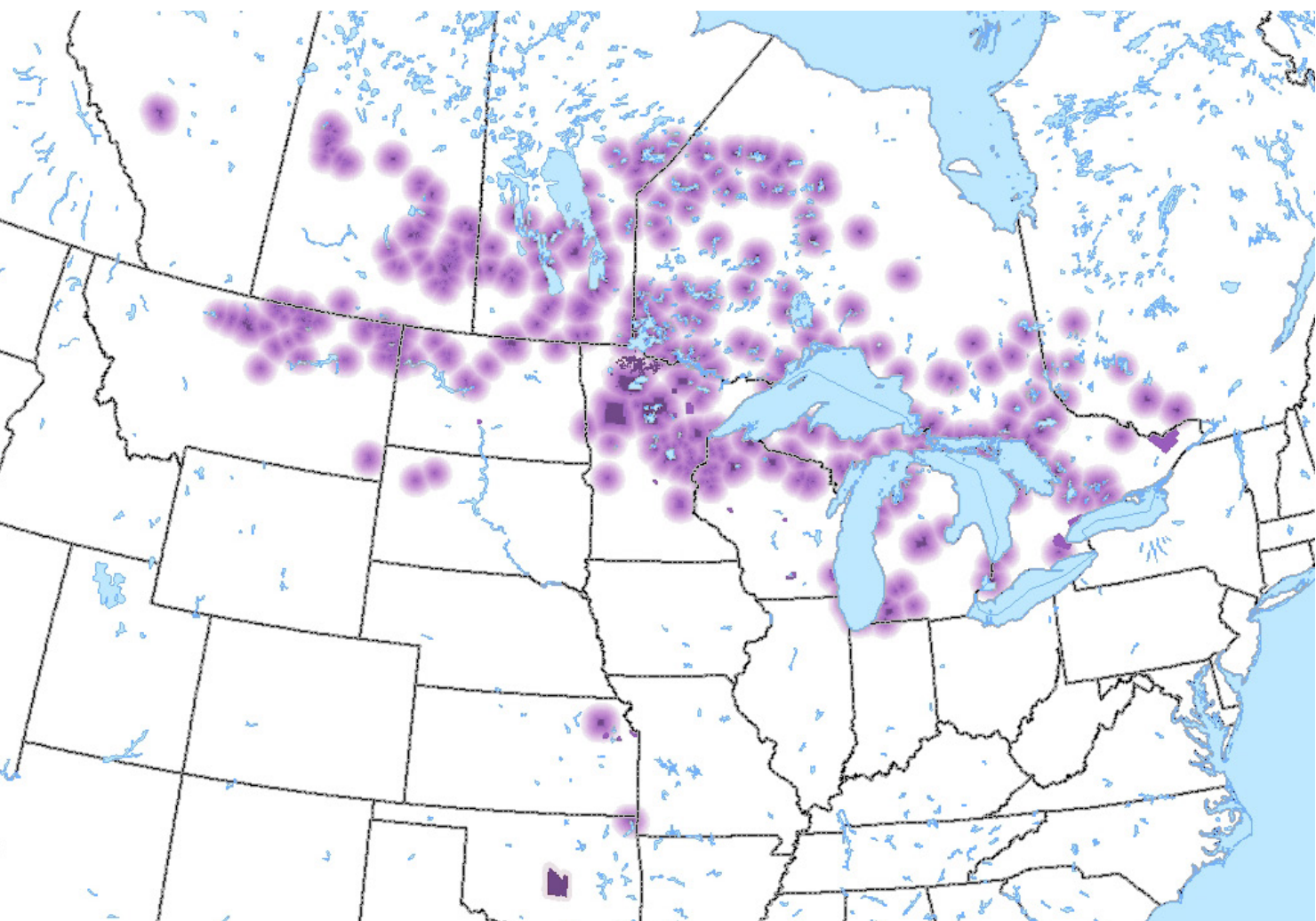
1 Susan Blight (Aboriginal Student Life Coordinator at First Nations House - University of Toronto) in discussion with the author, October 8, 2014.

2 Lorie Roy, “Ojibwa,” *Countries and Their Cultures*, Accessed October 20, 2014, <http://www.everyculture.com/multi/Le-Pa/Ojibwa.html>.

FIGURE 16: DISTRIBUTION OF ANISHINAABEK



This map indicates all of the Anishinaabe Reservations/Reserves in North America, with diffusion rings about communities speaking an Anishinaabe language. Cities with Anishinaabe population also shown.



4.1 ETYMOLOGY

The Anishinaabe have been referred to by many names since first contact but today are most commonly known as the Ojibway in Canada and Chippewa in the United States. There are a number of possible explanations for the origin of the name “Ojibwa.” One possibility is that it stems from the French word for “puckered,” referring to their distinctive moccasins with high cuffs and a puckered seam. Another is that the French used the word o-jib-i-weg or ‘pictograph’ because the Anishinaabe utilized symbols in their written language.¹

I have elected to refer to the Nation by the autonym Anishinaabe out of respect.

¹ Lorie Roy, “Ojibwa,” *Countries and Their Cultures*, Accessed October 20, 2014, <http://www.everyculture.com/multi/Le-Pa/Ojibwa.html>.



Anishinaabe

Autonym meaning 'original people'

Ojibwa

Ojibway

Ojibwe

*Anglicized from French 'outchibouec' or
from Ojibwa 'o'chepe'wag' meaning 'puckered'*

Chippewa

Chippeway

Most commonly used in the United States

4.2 THE IMPORTANCE OF LANGUAGE

The root of most pervasive social issues is fear; of the unknown, of those different from us, of insecurity, etc. This fear can make it difficult for people to be open and compassionate towards others, instead we often become defensive of our way of life. Fear can also be interpreted as feeling a loss of control, therefore people commonly become aggressive or offensive in an attempt to regain control and suppress their fear. This can lead to a sense of superiority and a desire to regain control, a pervasive theme throughout human history that has driven the systematic oppression of peoples deemed ‘uncivilized.’ Colonialism is one such unfortunate consequence.

Feminist theory argues for universal social, economic, and political equality among all sexes, genders, races, classes, and abilities. An intersectional approach to feminist theory is critical to the thesis intentions. One extraordinary way to comprehend different worldviews is through language. Language is the primary medium through which humans interact with one another and experience the world. Every language has developed within a specific context and social group, and tapping into this resource can provide invaluable insight into the worldview of its native speakers.

The diversity of perspectives afforded to us through language is one method by which we may begin the project of deconstruction of harmful gendered and racial stereotypes that contribute to institutional bigotry.

The English language is made up predominantly of nouns. Nouns are objects, by nature separate from us, which creates a psychological distance between ourselves and the world. This technique has been used throughout history as a way to reduce an entire race or cultural group to something that can be owned or controlled. The long and brutal history of colonialism in Canada used this strategy impeccably with regard to Aboriginal peoples. For example, the harmful stereotypes of the promiscuous squaw and Indian princess are still widespread.

Anishinaabemowin, by contrast, is comprised of approximately 70% verbs. This is manifest in the Aboriginal animist worldview, where all of nature is seen as animate and has its own unique spiritual essence. The language has developed over several millennia, and therefore many of the traditional Anishinaabe teachings are implicit in the very structure of the language. Deborah McGregor emphasizes this when she writes:

“Not only are Aboriginal forms of knowledge distinct from Western forms of knowledge, but they are also highly diverse and embedded in language.”¹

¹ Deborah McGregor, “Linking Traditional Knowledge and Environmental Practice in Ontario,” *Journal of Canadian Studies/Revue D’études Canadiennes* 43, no. 3 (2009): 74.

Every Aboriginal woman I have spoken with in my research reinforces this fact. It is impossible to speak Anishinaabemowin without acknowledging yourself in relation to all things.²

In Anishinaabemowin, the word for water is a verb. For example, the word for bay in Anishinaabemowin is *wiikwegamaa*, which translates loosely into 'it is in a state of being a bay.' This endows the thing with a spirit, which completely changes the relationship between it and the subject. Unlike Judeo-Christian culture, the Anishinaabe have no binary gender associations such as male and female. Instead, gender is defined as animate or inanimate. When non-human entities are acknowledged as having a consciousness, it is only natural that there be a more reciprocal relationship characterized by a far greater level of respect.

This non-hierarchical thinking also manifests in the differences between Judeo-Christian and Aboriginal worldviews. The Judeo-Christian perspective believes that:

*A God dwelling only in heaven endowed human beings with a spirit and fashioned nature for their exclusive use and benefit. The Judeo-Christian ethic counselled human dominion and control over a natural world valued more for its utility than its inherent worth.*³

² Susan Blight (Aboriginal Student Life Coordinator at First Nations House - University of Toronto) in discussion with the author, October 8, 2014.

³ Glenn C. Reynolds, "A Native American Water Ethic," *Arts and Letters* 90 (2003): 144.

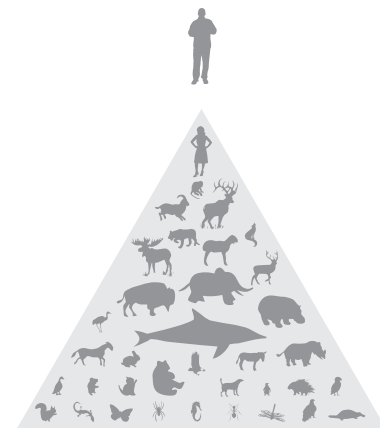


FIGURE 18: JUDEO-CHRISTIAN WORLDVIEW
Man is superior to nature. Nature is created by God for Man's exploitation.



^

FIGURE 19: ABORIGINAL WORLDVIEW
 Humanity is equal to all of nature.

I regard this perspective as being incredibly dangerous. In a monotheistic Judeo-Christian culture, there is a very clear hierarchy of relationships between God, man, and nature. God is understood to exist independent of humanity. Humanity largely sees itself as a superior species whom all of nature was created to serve. Consequently, the natural world is being exploited beyond its capacity to regenerate the resources we extract from it. The deliberate separation of the Creator, nature, and humanity is fundamentally opposed to the Aboriginal worldview, where everything is endowed with a spirit or essence. No being is considered to be more or less integral to the balance of the universe than another, including humanity. From this perspective, we are an equal and fundamental part of nature's complexity.

This is echoed in Gregory Bateson's approach to ecology from his 1972 book, *Steps to an Ecology of Mind* in which he states:

*"We are not outside of the ecology for which we plan-we are always and inevitably a part of it. Herein lies the charm and terror of ecology."*⁴

⁴ Chris Reed and Nina-Marie Lister, *Projective Ecologies*, (Boston: Actar and Harvard Graduate School of Design, 2014) i.

James Corner's essay "Ecology and Landscape as Agents of Creativity"⁵ is a seminal text for students of landscape architecture, and having read it for research into his philosophies of landscape architecture, I realize that he was arguing many of the same points that arise in this discussion of the importance of language. He also argues against the false impression that man is superior to or separate from nature. Corner is quite explicit that landscape is a cultural construction and that without language and interpretation 'landscape' ceases to exist.

Corner's emphasis on subjectivity, ambiguity, and the interconnectedness of humanity and the natural world in fact parallel many aspects of feminist theory. In interpreting his work through this feminist lens, I have found a deeper meaning to his words that further blur the boundaries and reveal circular relationships between feminism, space, landscape and culture.

5 James Corner, "Ecology and Landscape as Agents of Creativity," In *The Landscape Imagination: The Collected Essays of James Corner, 1990-2010*, edited by James Corner and Alison Bick Hirsch, (New York: Princeton Architectural Press, 2014).

4.3 ANISHINAABEKWE ISSUES

Pre-contact, the Anishinaabe lived a semi-nomadic lifestyle in extended family groups. People's roles were assigned based mainly on ability as opposed to gender. Clans were matriarchal and matrilineal. Post-contact, a patriarchal family model was introduced, and people's roles were assigned based on gender. The patriarchy was imposed on the 'uncivilized' native people through the use of sexual regulation, capitalism, and religion.¹

Aboriginal communities, and women in particular, were demoralized and disenfranchised in order to foster the patriarchy, Christianity, and capitalism. This led to the objectification and marginalization of these women, a systematic form of slow violence that continues today.² This violence has been carried out over generations and has been devastating to First Nations communities across the continent.

The primary tools used by the Canadian Government to propagate its genocidal agenda were the Indian Act of 1876, and the residential school system.

1 Mary Kelm and Lorna Townsend. *In the Days of Our Grandmothers: A Reader in Aboriginal Women's History in Canada*, (Toronto: University of Toronto Press, 2006), 307

2 Angela Sterritt, *Racialization of Poverty Aboriginal Women, the Indian Act and Systemic Oppression : Reasons for Resistance*, (Vancouver: Vancouver Status of Women, 2007), 8.

“The Indian Act worked and continues to serve as a weapon to oppress and assimilate Aboriginal people in an effort to steal Aboriginal territories, control resources, and build the Canadian nation-state. Without question, the Indian Act remains the primary legislation responsible for the cultural genocide and impoverishment of Aboriginal peoples in the occupied ancestral lands of what is now called Canada.”³

The residential school system was run by the Church and aimed to “remove the Indian from the child” by severing the ties to Aboriginal children’s families and cultures by literally removing them from their families and forcing them into boarding schools often hundreds of miles away. Their treatment was cruel and inhumane. Thousands of children died from disease and starvation, and more were mentally, physically, and sexually abused. The last residential school was closed in 1996, but the painful legacy lives on.

It is extremely disheartening to know that the brutality has continued for so long, and yet it took until 2008 for Prime Minister Stephen Harper to offer a formal apology for the residential school system, and until July 2015 for the report of the Truth and Reconciliation Commission to be released. For the first time in history was the term ‘cultural genocide’ used to describe Canada’s Aboriginal policy. Cultural genocide is defined in the report as follows:

³ Angela Sterritt, *Racialization of Poverty Aboriginal Women, the Indian Act and Systemic Oppression : Reasons for Resistance*, (Vancouver: Vancouver Status of Women, 2007), 4.

Cultural genocide is the destruction of those structures and practices that allow the group to continue as a group. States that engage in cultural genocide set out to destroy the political and social institutions of the targeted group. Land is seized, and populations are forcibly transferred and their movement is restricted. Languages are banned. Spiritual leaders are persecuted, spiritual practices are forbidden, and objects of spiritual value are confiscated and destroyed. And, most significantly to the issue at hand, families are disrupted to prevent the transmission of cultural values and identity from one generation to the next.

In its dealing with Aboriginal people, Canada did all these things.⁴

As a result, there are a number of major contemporary issues facing the Anishinaabek including: the need for economic development to reduce unemployment, the defense of the wild rice industry from commercial growers, improved medical treatment to combat illnesses such as diabetes and alcoholism, better management of natural resources, protection of treaty rights and attainment of sovereignty, and increased emphasis on higher education to train specialists and renew cultural ties.⁵ These issues are of utmost importance to all members of the nation, though they have distinct consequences for the lives of women. First Nations women as a whole face

⁴ Truth and Reconciliation Commission of Canada. *Honouring the Truth, Reconciling for the Future: Summary of the Final Report of the Truth and Reconciliation Commission of Canada*. 2015.

⁵ Lorie Roy, "Ojibwa," *Countries and Their Cultures*, Accessed October 20, 2014, <http://www.everyculture.com/multi/Le-Pa/Ojibwa.html>.

FIGURE 20: ABORIGINAL ACTIVISM

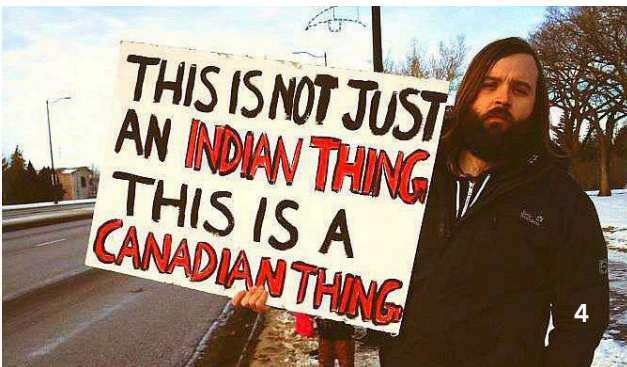
Men and women protesting issues of concern to Aboriginal communities including: The Idle No More Movement, missing and murdered Indigenous women, and environmental degradation.

20.1: IDLE NO MORE

20.2: TREATY RIGHTS

20.3: AM I NEXT?

20.4: A CANADIAN THING



poverty, homelessness, racism, incarceration and violence at a far higher rate than other Canadian women.

The most admirable characteristic of many First Nations women and communities is their resilience in the face of such oppression. It takes incredible patience and strength to have had their experiences and still be willing to fight for their rights and their culture. I have the utmost respect for their determination, and this has strengthened my own resolve to learn as much as possible from them and to contribute something of meaning through this thesis project.

I believe architecture has an enormous effect on the ways we interact with one another. It can be used as a tool to strengthen traditional social relations in First Nations communities in order to make improvements to a number of these issues.



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FIGURE 21: INTO THE WOODS
by Rorex Bridges
Painting reproduction on brushed aluminum

“Our whole party... contemplated in mute astonishment the awful display of creative power, at whose base we hung; and no sound broke upon the ear to interrupt the careless roaring of the waters. No cathedral, no temple built with human hands, no pomp of worship could ever impress the spectator with such humility, and so strong a conviction of the immense distance between him and the Almighty Architect.”¹

-Pictured Rocks at Lake Superior as described by **GENERAL LEWIS CASS**

¹ George Copway, *The Traditional History and Characteristic Sketches of the Ojibway Nation*, (London: C. Gilpin, 1850), 27.

5.0 ARCHITECTURAL DESIGN WITHIN FIRST NATIONS

VERNACULAR

It is important to look at the vernacular architecture of the Anishinaabe because there are many strategies employed in contemporary Aboriginal architecture that stem from those originating in the vernacular. Prior to European contact, and long after, the Anishinaabe lived a semi-nomadic lifestyle. The wigwam was the most common housing type in the Great Lakes region, along with the less common tepee.

CONTEMPORARY

Contemporary architectural design within First Nations is a relatively recent phenomenon, paralleling the political and cultural rise in interest of First Nations culture and heritage.

The majority of architecture within First Nations is designed by non-Aboriginal architects, however, there are a number of Aboriginal architects currently in practice in Canada including the very famous Douglas Cardinal, Étienne Gaboury (Gaboury Prefontaine and Perry Architects, Manitoba), and Alfred Waugh (Formline Architecture, West Vancouver), among others. The work of each firm varies immensely, but they each share an acute interest in the social and environmental impacts of their work.

5.1 CHALLENGES OF BUILDING IN FIRST NATIONS IN CANADA

There are a number of challenges presented when designing architecture in First Nations in Canada including; financial obstacles, environmental degradation, the state of critical infrastructure, the scarcity of land, and cultural appropriation. Many of these issues are similar to those facing economic development and housing.

Financial obstacles arise due to the contentious and bureaucratic systems in place between individual First Nations and the federal government. Though on paper and in law First Nations are considered sovereign, this is not the case in practice. The federal government still considers reservations to be 'on loan' to each community, and therefore financial institutions will not issue loans or mortgages to Aboriginal communities or individuals because they do not have the option to seize land as collateral for foreclosures.

5.2 THE VERNACULAR

WIGWAM OF THE GREAT LAKES REGION

"The portability of Ojibwa lodging—the wigwam— enabled moves to be made quickly and easily. Wigwams could be built in a day by bending peeled green ironwood saplings into arches; lashing the arches into a circular or oval shape with basswood fibre; and weaving birch bark strips or rush, cedar bark, or cattail mats around the saplings. The dwelling had two openings, a door and a hole on top to emit smoke from the cooking fire located directly below."

- Loriene Roy¹

The vernacular architecture of the Anishinaabe was lightweight, portable and easy to assemble due to their semi-nomadic lifestyle. Complex and changing family structures meant that flexibility was key. Wigwams were built using all natural, found materials and their semi-spherical form could withstand extremely strong winds and heavy snow and rain loads. The frames of wigwams were typically left in place when the community migrated, unlike the frames of tepees which were more portable. The benefit of this is that the community could return to previous settlements with structures still intact the next season.² The wigwam is an incredible early example of architecture that is simultaneously site, material, and climate responsive.

¹ Loriene Roy, "Ojibwa," *Countries and Their Cultures*, Accessed October 20, 2014, <http://www.everyculture.com/multi/Le-Pa/Ojibwa.html>.

² Ibid.

LEXICON

vernacular: architecture concerned with domestic and functional rather than monumental buildings.

semi-nomadic: a people living usually in portable or temporary dwellings and practicing seasonal migration but having a base camp at which some crops are cultivated.

wigwam: a dome-shaped hut or tent made by fastening mats, skins, or bark over a framework of poles, used by some North American Indian peoples.

tepee: a portable conical tent made of skins, cloth, or canvas on a frame of poles, used by American Indians of the Plains and Great Lakes regions.

FIGURE 22: BIRCH BARK WIGWAM >



5.3 APPLICATIONS

AANISCHAAUKAMIKW CREE CULTURAL INSTITUTE BY DOUGLAS CARDINAL + RUBIN ROTMAN ARCHITECTS OIJÉ-BOUGOUMOU, QUÉBEC

“Centrally shared services such as schools, hospitals, playgrounds, and industries should be integrated into the total community so that all facets of the community’s Indian culture and sense of values are not only tolerated but allowed to grow.”

- Douglas Cardinal

The cultural program of the Aanischaaukamikw Cree Cultural Institute places a focus on the arts, which is a predominant sector of employment for Canadian Aboriginal populations. There are also many flexible, multi-purpose spaces that are critical to successful architecture in remote locations. The institute is inspired formally by the shaptuan and makes wonderful use of wood and other local materials.

The \$10-million project has an area of 1462 m² and was completed in 2011 for the Aanischaaukamikw Cree Cultural Institute.¹

LEXICON

shaptuan: a Cree traditional longhouse.

¹ “The Building,” *Aanischaaukamikw Cree Cultural Institute*, Accessed October 27, 2014, <http://www.creeculturalinstitute.ca/en/about/architecture/>.

**FIGURE 23: AANISCHAAUKAMIKW CREE
CULTURAL INSTITUTE AT NIGHT** ➤



SQUAMISH LIL'WAT CULTURAL CENTRE BY ALFRED WAUGH ARCHITECT SQUAMISH, BRITISH COLUMBIA

"With the technology available to us today, we are able to design and build structures that are more elegant and more economical in their use of materials than their traditional precedents. The challenge is to capture the spirit of the past and reinterpret it in a contemporary way."

- Eric Karsh¹

The building is designed to evoke the longhouses of the Squamish people and the Istken of the Lil'wat people. The centre was built to commemorate the longstanding cooperation of the Squamish and Lil'wat nations who have lived side by side for millenia. It makes use of sustainably sourced heavy timber to exhibit the rich cultures and traditions of these two groups. This project is also carved into its site and exhibits many of the qualities of 'building as verb' that will be discussed in section 6.2.

The \$10-million project has an area of 3350 m² and was completed in 2008.²

1 "Squamish Lil'Wat Cultural Centre," *Naturally:wood*, Accessed October 27, 2014, <http://www.naturallywood.com/sites/default/files/Squamish-LilWat-Cultural-Centre-Case-Study.pdf>.

2 Ibid.

LEXICON

longhouse: an aptly named wooden dwelling most common in the Great Lakes region that housed several family groups.

Istken: a Lil'wat earthen pit house.

FIGURE 24: SQUAMISH LIL'WAT CULTURAL CENTRE AT NIGHT >





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FIGURE 25: FOUNTAIN

by Rebecca Belmore

Still from film created for the 2005 Venice
Biennale

“Every new work of architecture intervenes in a specific historical situation. It is essential to the quality of the intervention that the new building should embrace qualities which can enter into a meaningful dialogue with the existing situation. For if the intervention is to find its place, it must make us see what already exists in a new light. We throw a stone into the water. Sand swirls up and settles again. The stir was necessary. The stone has found its place. But the pond is no longer the same.”¹

- PETER ZUMTHOR

1 Peter Zumthor, “A Way of Looking at Things,” In *Thinking Architecture*, 3rd Expanded Edition (Basel: Birkhäuser, 2010), 18.

6.0 MAKING CONNECTIONS

6.1 GUIDING PRINCIPLES

As a result of this research, the following principles were devised to guide the architectural design.

- Implement simple and intuitive technologies wherever possible to eliminate the need for trained labour and maintenance.
- Employ flexible and adaptable spaces.
- Be created for the long term, with a focus on craft and a material palette that will age well.
- Make use of local and natural materials in all possible applications.
- Make use of or emulate natural systems and processes.
- Ensure that each design element addresses the underlying issues.

6.2 DESIGN STRATEGIES

As a way of concluding the background research portion of the thesis and opening the design discussion, I adopt the perspective of Felix Guattari. Writing in *The Three Ecologies*, Guattari argues that:

*Ecology is as much bound up in issues of social and economic power, demographics, and political struggles and engagement as it is operating in relationship to environmental forces.*¹

Ecology refers to the relations of organisms to one another and to their physical surroundings. Guattari's statement broadens the scope of factors that affect ecology, and I conceive of architecture as a part of ecology; as a living organism in its own right. Thinking about architecture in this manner allowed me to distill two primary design strategies: building as verb and building as landscape. These strategies encourage the emulation of natural forms and processes.

The issues facing First Nations communities are perfectly reflected in Guattari's understanding of ecology. Each design gesture of the thesis has been carefully considered with Guattari's perspective in mind.

¹ Chris Reed and Nina-Marie Lister, *Projective Ecologies*, (Boston: Actar and Harvard Graduate School of Design, 2014), 15.

BUILDING AS VERB

The confluence of the three research streams: Anishinaabe architecture and culture, feminist theory and space, and water and productive landscapes prompts a multitude of dynamic intersections. Here I am influenced by James Corner where he states:

The processes of which ecology and creativity speak are fundamental to the work of... architecture. Whether biological or imaginative, evolutionary or metaphorical, such processes are active, dynamic, and complex, each tending toward the increased differentiation, freedom, and richness of a diversely interacting whole. There is no end, no grand scheme for these agents of change, just a cumulative directionality toward further becoming. It is in this productive and active sense that ecology and creativity speak not of fixed and rigid realities but of movement, passage, genesis, and autonomy of propulsive life unfolding in time.²

This relates back to the importance of the Anishinaabemowin language in fully understanding the Aboriginal worldview. When the heavy emphasis on verbs (as opposed to nouns) is translated into architectural language, it is clear that the architecture must be composed of verbs; dynamic, adaptive, and flexible elements that reflect the qualities of ecological processes described by Corner.

² James Corner, "Ecology and Landscape as Agents of Creativity," In *The Landscape Imagination: The Collected Essays of James Corner, 1990-2010*, edited by James Corner and Alison Bick Hirsch, (New York: Princeton Architectural Press, 2014), 257.

BUILDING AS LANDSCAPE

This strategy ensued from Corner's insights on the processes of ecology. Such processes are based on the tension between static and dynamic flows. I strove to create tensions through the juxtaposition of static and dynamic elements while taking inspiration from the Serpent Mounds site, which is discussed in more detail in section 8.0. I aim to infuse the architecture with an awareness of its surroundings by embracing the delicacy of the landscape, thus harmonizing the human flow with the natural environment.

Building as landscape also evokes a different time scale, which calls forth different ways through which to fuse the building into the landscape. The idea emerged of an architecture that one might happen upon on a walk through the woods, and be unsure of whether you are approaching a mound or a building. This strategy is most emphatic through the form of the project. Hard and soft edges flow into one another in a long, graceful movement through the site. The earth is pulled up and over the structure, embedding the building into the site.

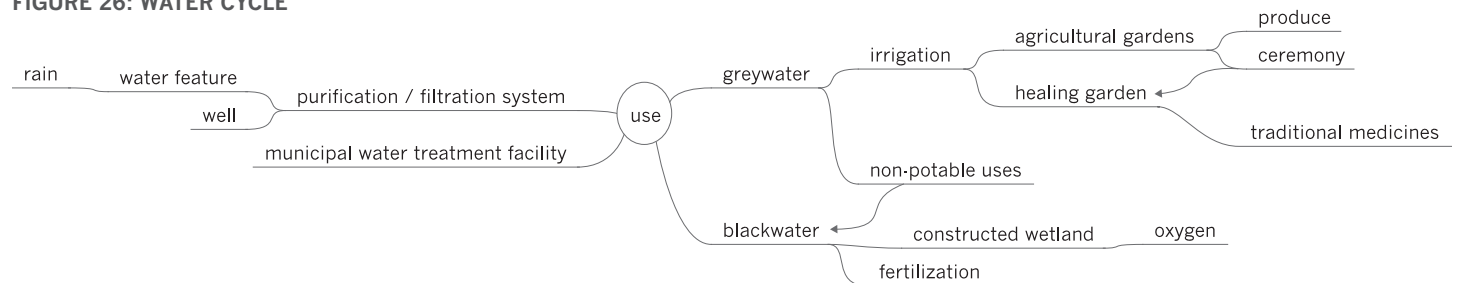
WATER RECYCLING CONSIDERATIONS

- Is there a current septic system?
- What is the climate of the site?
- Where is the source of the water to be purified?
- What is the desired output of recycled water?
- What is the projected use of the recycled water?
- Is the proposed system government approved?

WATER DESIGN CONSIDERATIONS

- Setting: dry, wet, cold, damp
- Containment: defined, undefined, open, closed
- Movement: fast, still
- Lighting: light, dark, subtle, bright
- Wind: texture
- Sound: materials, patterns, rhythm, volume
- Colour: materials, reflections
- Depth: colour, safety, light

FIGURE 26: WATER CYCLE



6.3 APPLICATIONS

NK'MIP DESERT CULTURAL CENTRE BY HBBH ARCHITECTS + URBANISTES OSOYOOS, BRITISH COLUMBIA

"... It will only be through a more sophisticated understanding of ecology - one that transcends its status as a descriptive and analytical natural science and recognizes it metaphorically as a cultural construction - that ecology's significance for a more creative and meaningful landscape architecture might be realized."

- James Corner¹

The Nk'Mip Desert Cultural Centre is a spectacular manifestation of what it means to build as landscape. It is located adjacent to a remnant of the Great Basin Desert, which is one of the only landscapes of its kind in Canada. The project is carved into the slope that ascends behind it while the earth flows up and over the building, allowing it to blend seamlessly into its site. The building is embraced by the largest rammed earth wall in North America that shelters it from view. In addition to being visually integrated into the landscape, the project also makes use of a number of strategies that minimize its impact on the surroundings including: thermal mass from the rammed earth wall and green roof, water saving technologies, xeriscaping, and the use of local materials.²

¹ James Corner, "Ecology and Landscape as Agents of Creativity," In *The Landscape Imagination: The Collected Essays of James Corner, 1990-2010*, edited by James Corner and Alison Bick Hirsch, (New York: Princeton Architectural Press, 2014), 268.

² "Nk'Mip Desert Cultural Centre - HBBH Architects," *ArchDaily*, December 22, 2008, Accessed October 25, 2014, <http://www.archdaily.com/10629/nkmip-desert-cultural-centre-hbbh-architects>.

LEXICON

ecology: the branch of biology that deals with the relations of organisms to one another and to their physical surroundings.

xeriscape: landscape (an area) in a style which requires little or no irrigation.

FIGURE 27: NK'MIP DESERT CULTURAL CENTRE >



YOKOHAMA INTERNATIONAL PASSENGER TERMINAL BY FOREIGN OFFICE ARCHITECTS YOKOHAMA, JAPAN

"The circulation operates as a continuous looped diagram, directly rejecting any notion of linearity and directionality. Visitors are taken through paths that meander vertically and horizontally before arriving at any destination, and their sight lines through space are comparably tortuous and indirect."

- David Langdon¹

The Yokohama International Passenger Terminal is masterful for its circulation system described in the above quote. The building is defined by a network of ramps, stairs, and terraces that lead visitors from one end to the other in multiple and simultaneous possible routes. This non-linear and layered circulation system has been adopted in the design of the thesis for its sensitivity to the landscape and the gentleness of the sloping ramps.

The 430 meter-long project was completed in 2002 after eight years of construction with a budget of £150 million.²

¹ David Langdon, "AD Classics: Yokohama International Passenger Terminal / Foreign Office Architects (FOA)," *ArchDaily*, October 7, 2014, Accessed May 17, 2015, <http://www.archdaily.com/554132/ad-classics-yokohama-international-passenger-terminal-foreign-office-architects-foa>.

² Ibid.

LEXICON

directionality: the property, quality, or state relating to, or indicating direction in space.

linearity: the property, quality, or state of being linear.

FIGURE 28: YOKOHAMA INTERNATIONAL PASSENGER TERMINAL >



WELCOME TO YOKOHAMA

1/2

KUGLUKTUK RECREATION COMPLEX BY PIN/TAYLOR ARCHITECTS KUGLUKTUK, NUNAVUT

"... A modern Inuit culture continues to evolve that merges the traditional and the contemporary in unique and innovative ways. Can architecture, which has largely failed this region both technically and socially, be equally innovative and adaptive?"

- Lateral Office¹

The Kugluktuk Recreation Complex is one of several Pin/Taylor projects that manifest the beginnings of an arctic vernacular, which is an extremely difficult endeavour in a location where shelter is traditionally built from the only available materials, ice and snow. This project in particular emphasizes the dynamic possibilities of water in its different states.

The project was completed for the Hamlet of Kugluktuk in 1997.²

LEXICON

dynamic: refers to a process or system characterized by constant change, activity, or progress.

1 Lateral Office, "Project," *Arctic Adaptations*, Accessed October 1, 2014, <http://www.arcticadaptations.ca/project/>.

2 PinTaylor Architects, "Kugluktuk Recreation Complex," *PinTaylor Architects*, Accessed November 1, 2014, <http://ptayk.ca/kugluktuk-recreation-complex/>.

FIGURE 29: KUGLUKTUK RECREATION COMPLEX



Snow drifts react to the Kugluktuk Recreation Complex, playing on the dynamism of water in a northern context.



**TRENT UNIVERSITY CHEMICAL SCIENCES BUILDING BY TEEPLE ARCHITECTS
PETERBOROUGH, ONTARIO**

The Trent University Chemical Sciences Building is an extremely contemporary foil to the rest of the university campus designed by Ron Thom, though it has a similar sensitivity to landscape. The project engages the site by following its contours and seducing occupants through views above and below grade. This is a particularly interesting case study due to its proximity to the thesis site and its spatial organization.

**FIGURE 30: TRENT CHEMICAL SCIENCE >
BUILDING AT NIGHT**





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FIGURE 31: PICTOGRAPHS

Pictographs of two canoes and Mishipeshu, the great water lynx, from the Agawa pictograph site in Lake Superior Provincial Park, ON.

WALKING THE REZ ROAD

JIM NORTHRUP¹

Tobacco swirled in the lake
as we offered our thanks.
The calm water welcomed us,
rice heads nodded in agreement.
Ricing again, miigwetch Manidoo.
The cedar caressed the heads
ripe rice came along to join us
in many meals this winter.
The rice bearded up.
We saw the wind move across the lake,
an eagle, a couple of coots,
the sun smiled everywhere.
Relatives came together
talk of other lakes, other seasons
fingers stripping rice while laughing, gossiping,
remembering.
It's easy to feel a part of
the generations that have riced here before.
It felt good to get on the lake.
It felt better getting off carrying a canoe load of food
and centuries of memories

1 Jim Northrup, *Walking the Rez Road*, (Stillwater: Voyageur, 1993), 98.

7.0 SITE SELECTION

DISTRIBUTION OF ANISHINAABEK

The Anishinaabek are the second largest First Nation remaining in Canada next to the Cree. It is believed that they originated in what is sometimes called the Wabanaki, now Eastern Canada, and migrated westward following a series of prophecies as described in a very important teaching called the Seven Fires Prophecy. Oral tradition states that:

Originally, the prophecies were given by eight prophets in seven different time periods. According to oral tradition, all Algonquian nations located in the Wabanaki [what is now Eastern Canada] heard the first prophet. The remaining seven prophets appeared before and were recorded by the Anishinaabeg. A prophecy of each of these seven periods were then called a “fire”.¹

The First Fire instructed the Anishinaabek to begin a great migration following the sacred Miigis (cowrie) shell to the chosen ground of the Anishinaabe. It continues:

¹ Benton-Banai, Edward. The Mishomis Book: The Voice of the Ojibway. 2nd ed. Minneapolis: University Of Minnesota Press, 2010. 90-103.

FIGURE 32: APPROXIMATE ANISHINAABE 
MIGRATION ROUTE



You are to look for a turtle shaped island that is linked to the purification of the earth. You will find such an island at the beginning and end of your journey. There will be seven stopping places along the way. You will know the chosen ground has been reached when you come to a land where food grows on water. If you do not move you will be destroyed.²

The Anishinaabe, heeding this prophecy, began their migration along what is now called the St. Lawrence River. They did not reach their chosen ground until the coming of the Third Fire which said:

In the Third Fire the Anishinaabe will find the path to their chosen ground, a land in the west to which they must move their families. This will be the land where food grows on water.³

It was at this point, at the channel of water that connects Lake Huron and Lake Michigan where the vision ended and the Anishinaabe divided into three groups: The Potawatomi, the Ottawa, and the Ojibwa. These three subgroups of the Anishinaabe are sometimes referred to as the Three Fires.⁴

2 Edward. Benton-Banai, *The Mishomis Book: The Voice of the Ojibway*, 2nd ed., (Minneapolis: University Of Minnesota Press, 2010), 90-103.

3 Ibid.

4 Lorie Roy, "Ojibwa," *Countries and Their Cultures*, Accessed October 20, 2014, <http://www.everyculture.com/multi/Le-Pa/Ojibwa.html>.

The various groups settled across the Great Lakes region in what is now southern Ontario, as well as in Manitoba, and Saskatchewan, and the northern United States. I felt it necessary to personally visit a number of sites in order to observe first hand their distinct atmospheres and perform a site analysis. I thus chose to narrow my search to reserves located within a two hour driving radius of Toronto, so that I might visit two or more in a day.

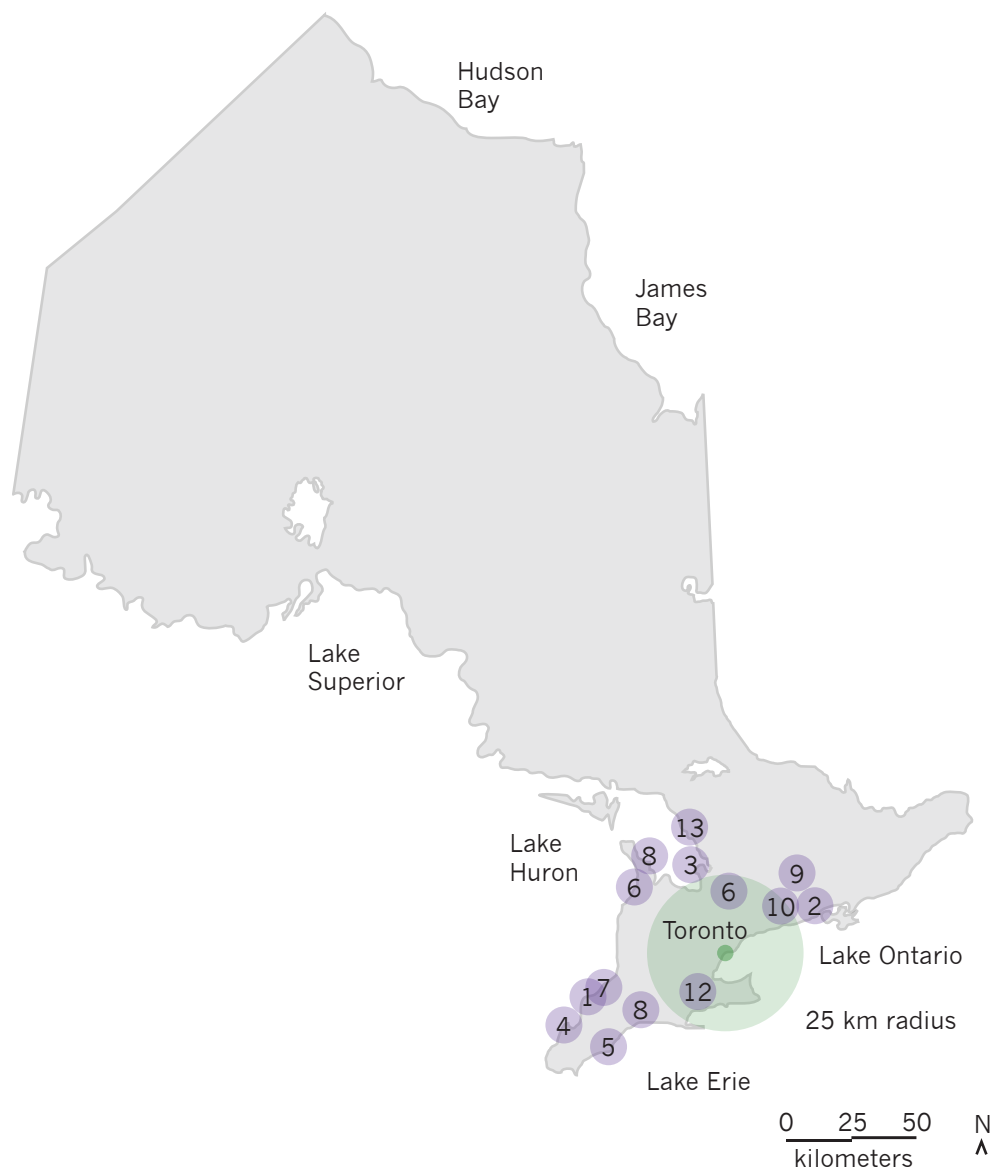
Visiting each site allowed me to speak with a number of wonderful individuals who were happy to tell me all they could about the reserves in general, as well as more specific information about issues regarding access to clean water, environmental degradation, housing, etc. In this way, I was able to form a more personal relationship with each reserve that aided me in selecting the final site.

7.1 THIRTEEN NATIONS

Thirteen Anishinaabe Nations in southern Ontario were selected as potential sites for the thesis. Accessibility was a critical part of the selection process, as the opportunity to visit the First Nation chosen as the site for the thesis design project was a critical element of my design philosophy.

Research Approvals were sought, albeit unsuccessfully, from the following Anishinaabe First Nations.

01. Aamjiwnaang First Nation - Sarnia, ON
02. Alderville First Nation - Alderville, ON
03. Beausoleil First Nation - Christian Island, ON
04. Bkejwanong Territory - Walpole Island, ON
05. Caldwell First Nation - Point Pelee, ON
06. Chippewas Of Georgina Island - Georgina Island, ON
07. Chippewas of Kettle and Stony Point First Nation - Sarnia, ON
08. Chippewas of Nawash Unceded First Nation - Bruce Peninsula, ON
09. Curve Lake First Nation - Curve Lake, ON
10. Hiawatha First Nation - Otonabee Township, ON
11. Saugeen First Nation - Bruce Peninsula, ON
12. Six Nations - Ohsweken, ON
13. Wasauksing First Nation - Parry Sound, ON



I then decided that a series of site visits was the next step to take to determine the site of the thesis.

On November 21 and 22 of 2014, I conducted site visits to the following four Nations: Aamjiwnaang First Nation, Bkejwanong Territory (Walpole Island First Nation), Curve Lake First Nation, and Hiawatha First Nation. Each site visit made clear that there is a great diversity of potable water issues even within the limits of southern Ontario.

FIGURE 33: THIRTEEN NATIONS

Map of Ontario indicating the thirteen nations for which Research Approvals were sought.

7.2 SITE VISITS: AAMJIWNAANG FIRST NATION

STRENGTHS

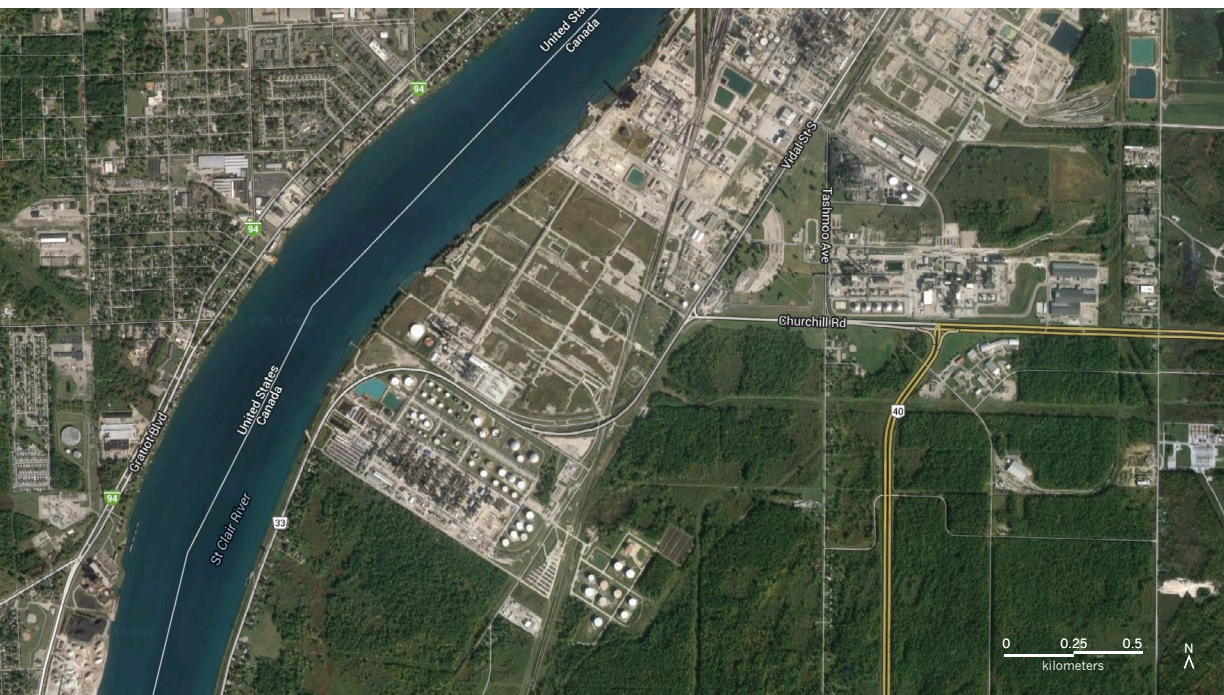
- Suburban context in Sarnia
- Has higher rates of economic development and employment
- Ease of construction due to location
- Situation on St. Clair River

WEAKNESSES

- Located in ‘Chemical Valley,’ bordered on three sides by Canada’s largest petrochemical refining concentration (40% of Canada’s Petrochemical refineries)¹

1 The Canadian Press, “First Nations Exposed to Pollutants in ‘Chemical Valley,’” *CBCnews*, November 24, 2013, Accessed October 8, 2014. <http://www.cbc.ca/news/canada/windsor/first-nations-exposed-to-pollutants-in-chemical-valley-1.2438724>.





OPPORTUNITIES

- 2:1 ratio of females born to males, possibly due to ingestion of expectant mothers to chemical pollutants and effluent
- Adjacency to national border
- Currently investing in wind power

THREATS

- Water pollution consisting of mercury, heavy metals and industrial chemicals
- Disproportionate amount of pollution resulting in illnesses, including an extremely high rate of miscarriages amongst pregnant women

FIGURE 34: AAMJIWNAANG FIRST NATION

SITE VISIT: BKEJWANONG TERRITORY / WALPOLE ISLAND FIRST NATION

STRENGTHS

- Unceded territory
- Historical significance during the War of 1812
- Relatively healthy lands and resources, citizens can still support their families through hunting, fishing, trapping, and guiding
- High level water treatment facility built in 2008



WEAKNESSES

- Situation on river delta may be difficult for construction
- Extremely rapid deterioration of water quality





OPPORTUNITIES

- Island location with large landmass
- Adjacency to national border
- Diversity of natural landscape
- High level of biodiversity

THREATS

- Downstream from 'Chemical Valley'
- Passing ocean-going freighters
- Water pollution including agricultural runoff of pesticides and fertilizers, and e coli

FIGURE 35: BKEJWANONG TERRITORY /
WALPOLE ISLAND FIRST NATION

SITE VISIT: CURVE LAKE FIRST NATION

STRENGTHS

- Home of the First Anishinaabe Woman Chief in Canada – Elsie Knott (1954)
- Relatively healthy lands and resources
- Located on the Trent-Severn waterway

WEAKNESSES

- Isolated, single entrance/exit into community
- Most residences have poorly maintained septic systems and dug wells





OPPORTUNITIES

- Land area includes a mainland peninsula and island that split Buckhorn Lake and Chemong Lake
- Very strong arts community, items sold at Whetung Arts Centre
- Natural wetlands

THREATS

- Water pollution, mainly e. coli presumably from septic systems leaking into groundwater
- Flooding and poor stormwater drainage
- Lack of land use planning has led to destructive settlement patterns
- Heavy boat traffic during summer months

FIGURE 36: CURVE LAKE FIRST NATION

SITE VISIT: HIAWATHA FIRST NATION

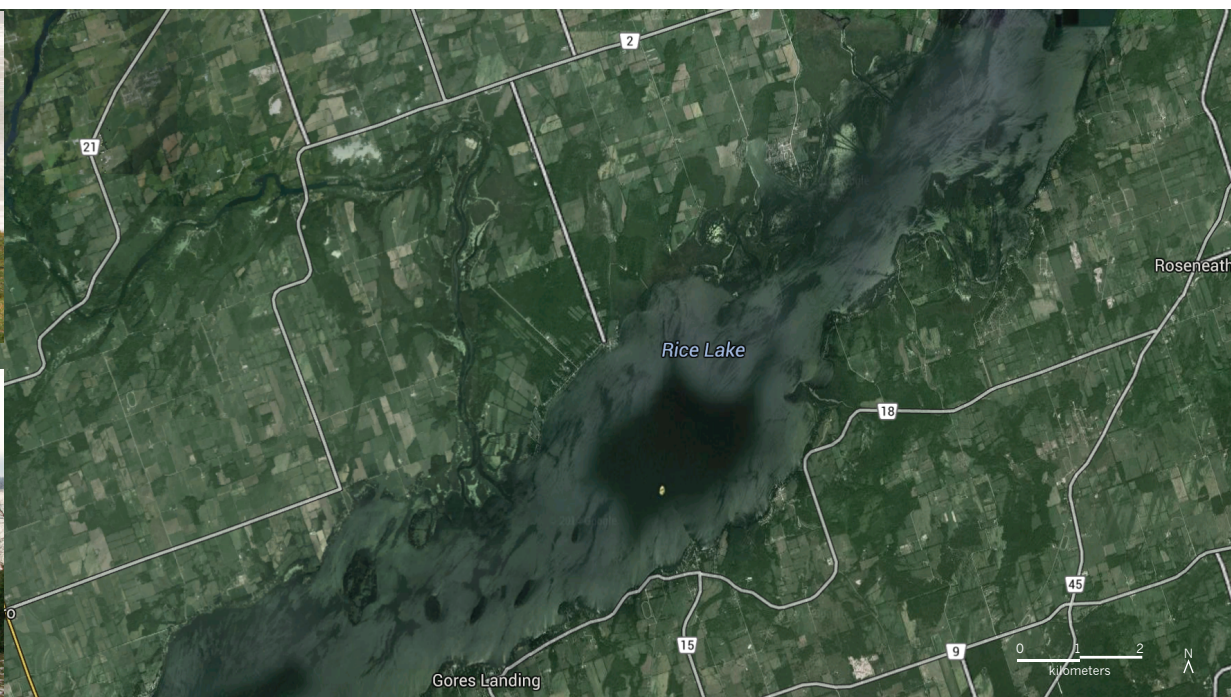
STRENGTHS

- Location on the north shore of Rice Lake, a very culturally significant site for the Anishinaabe
- Connection to the Trent-Severn Waterway, Rice Lake, and the Otonabee River
- Proximity to Serpent Mounds and Trent University
- More manageable water purification issues in terms of scale and severity

WEAKNESSES

- Crumbling infrastructure
- Isolated, one road to access community





OPPORTUNITIES

- Small, tightly knit community
- Rolling hills and views of the lake provide interesting site conditions
- Potential to revive wild rice beds
- Strong arts community

THREATS

- Heavy boat traffic and tourism during summer months
- Rising water level due to climate change and the Trent-Severn waterway

FIGURE 37: HIAWATHA FIRST NATION

7.3 FINAL SITE SELECTION

After conducting the site visits and SWOT analyses for these four sites, a number of criteria for site selection emerged. First, the scale of the issues to be confronted were considered. Secondly, it was important to choose a site that had intriguing environmental constraints, including topography, water features, and vegetation.

Aamjiwnaang First Nation and Bkejwanong Territory were ruled out early, as it was determined that the severity of water pollution in the St. Clair river and Sarnia area was beyond the scope of the thesis. Additionally, it is the opinion of the author that the social, psychological, and biological consequences of the pollution required far more community engagement than was possible without the Research Approvals that were sought at the outset of the research.

The decision between Curve Lake First Nation and Hiawatha First Nation was determined by the cultural significance of Rice Lake. There is much potential to begin an ecological project that will begin to restore Rice Lake to its unaltered state using contemporary strategies and technologies.

As a result, the site selected for the thesis was Hiawatha First Nation in Hiawatha, Ontario.

FIGURE 38: RICE LAKE LOOKING WEST
View of Rice Lake from the selected site
looking west on November 22, 2014.





JIBAY OR AANDIZOOKE

LEANNE SIMPSON

all along the north shore of pimaadashkodeyaang
(you might call it rice lake)

all along the north shore of pimaadashkodeyaang
are those burial mounds

gore landing, roach point, sugar island,

cameron's point, hastings, le vesconte.

big mounds. ancient mounds.

mounds

that cradle the bones

of the ones that came before us.

this summer

this summer some settlers

who live right on the top of that burial mound in

hastings,

right on top

were excavating

renovating

back hoeing

new deck. new patio. new view.

"please pass the salsa."

this summer some settlers

who live right on the top of that burial mound in

hastings,

right on top,

were excavating

renovating

back hoeing

and they found a skull.

call 911

there's a skull

call 911

there's more

call 911

jiibay.

breathe.

we're supposed to be on the lake.

breathe

we're supposed to be

gently knocking

and

gently parching

and

gently dancing

and

gently winnowing.

breathe.

we are

not

supposed to be

standing

on

this desecrated mound

looking

not looking

looking

not looking

looking

not looking

looking

not looking

did i see that right?

my skull in a cardboard box

in that basement?

my bones are under an orange tarp from canadian tire,
cracked,
rattling plastic in the wind.

my grave is desecrated

my skull is in that white lady's basement

my bones are under that orange tarp from canadian
tire

cracked

rattling plastic in the wind like a rake on the sidewalk.

my body is tired

from carrying

the weight

of this zhaganashi's house.

ah nokomis

this shouldn't have happened.

your relatives took such good care.

the mound so clearly marked.

ah nokomis

how did this happen?

what have you come to tell us?

why are you here?

aahhhhh my zhaganashi

welcome to kina gchi nishnaabe-ogaming

enjoy your visit.

but like my elder says

please don't stay too long.

In Anishnaabemowin: jiibay is a ghost, a skeleton, aandizooke a messenger, a being from a traditional story, nokomis is grandmother, zhaganashi is a white person, kina gchi nishnaabeg-ogaming is a mississauga nishaabeg name for our homeland.¹

1 Leanne Simpson, "jiibay or aandizooke." In *Islands of Decolonial Love: Stories & Songs*, 2nd ed., (Winnipeg: ARP Books, 2014), 67-69.

8.0 HIAWATHA FIRST NATION

Hiawatha First Nation is home to the Mississaugas of Rice Lake and is located just over 20 kilometers southwest of Peterborough.

RICE LAKE

Hiawatha First Nation is situated on the north shore of Rice Lake, which is connected to the Trent-Severn Waterway which flows into the lake by the Otonabee River and out via the Trent River. Thus the lake experiences a high level of boating traffic in the summer months. The shore of the lake is largely occupied by small detached houses and cottages. Rice Lake is said to be the lake with most fish in Ontario and is known for its recreational and sport fisheries.

WILD RICE

Rice Lake is one of the sacred sites where the Anishinaabe settled because it was a place where manoomin (wild rice) grew abundantly on the water, fulfilling the prophecy of the First Fire as described previously in section 7.0. Since the connection of the lake to the Trent-Severn Waterway, the wild rice has all but disappeared.

FIGURE 39: RICE LAKE LOOKING SOUTHEAST >

View of Rice Lake from the selected site.
Taken by the author on November 22, 2014.





SERPENT MOUNDS

Serpent Mounds is an ancient Aboriginal burial ground that has evidence of the occupation of this land dating as far back as 58 BCE. Archaeologists have discovered evidence that documents large settlements around the lake where communities gathered to camp, hunt, fish, collect freshwater mussels, and harvest the plentiful crop of wild rice.¹

Serpent Mounds consists of nine earthen burial mounds that house the graves of the Point Peninsula Native people. The Hiawatha First Nation website describes the site as follows:

The largest mound, shaped like a serpent, is approximately 60 meters long and 8 meters wide, and the only one of its kind in Canada. It is from this mound that the site and Park derives its name. Surrounding the serpentine mound are eight oval or round mounds, often described as the “serpent’s eggs”. Aboriginal people who lived in nearby settlements built these mounds to bury their dead and revere their ancestors. This sacred place continues to hold deep cultural, historical and spiritual meaning to the Mississaugii people of this area and to First Nation people across North America.²



FIGURE 40: SERPENT MOUNDS ARCHAEOLOGICAL SITE

The excavation of a burial mound at Serpent Mounds in 1957.

¹ “Serpent Mounds Park,” *Hiawatha First Nation*, Accessed November 29, 2014, <http://www.hiawathafirstnation.com/business-tourism/serpent-mounds-park/>.
² Ibid.

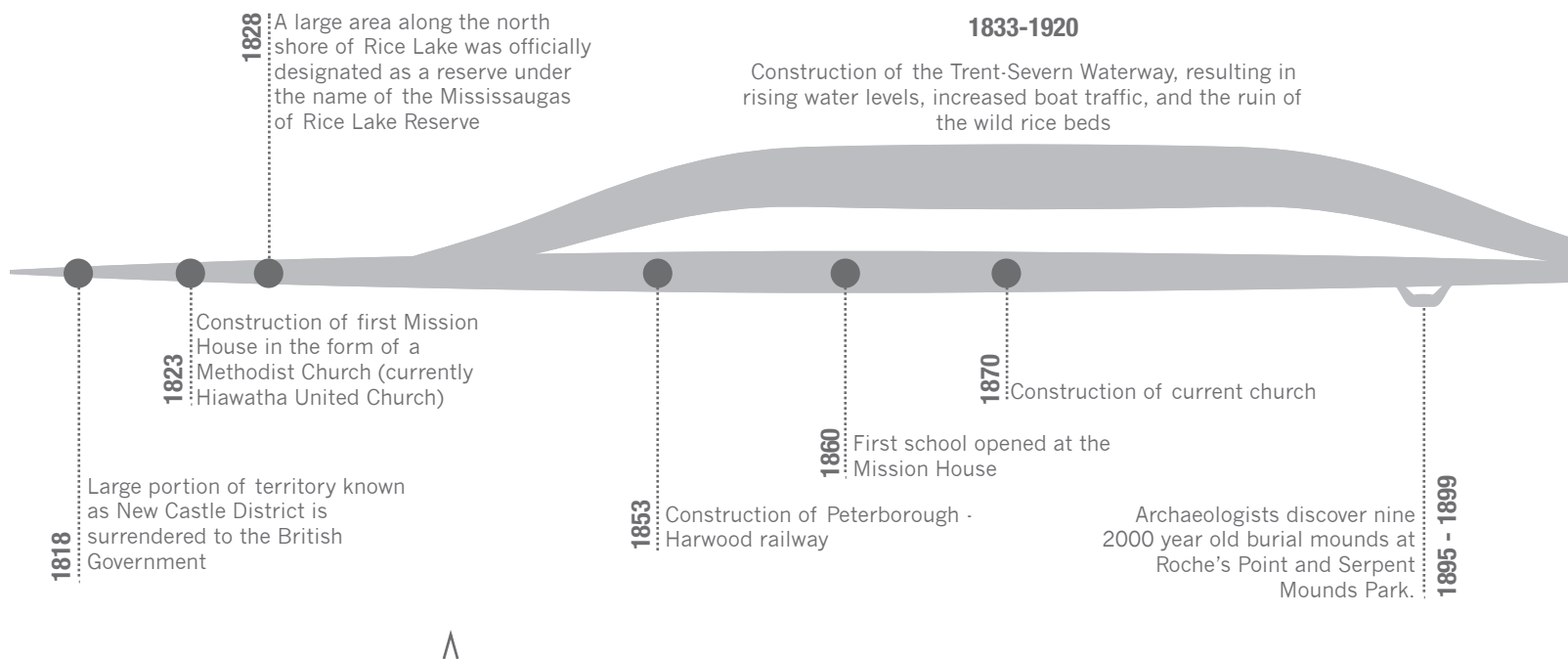
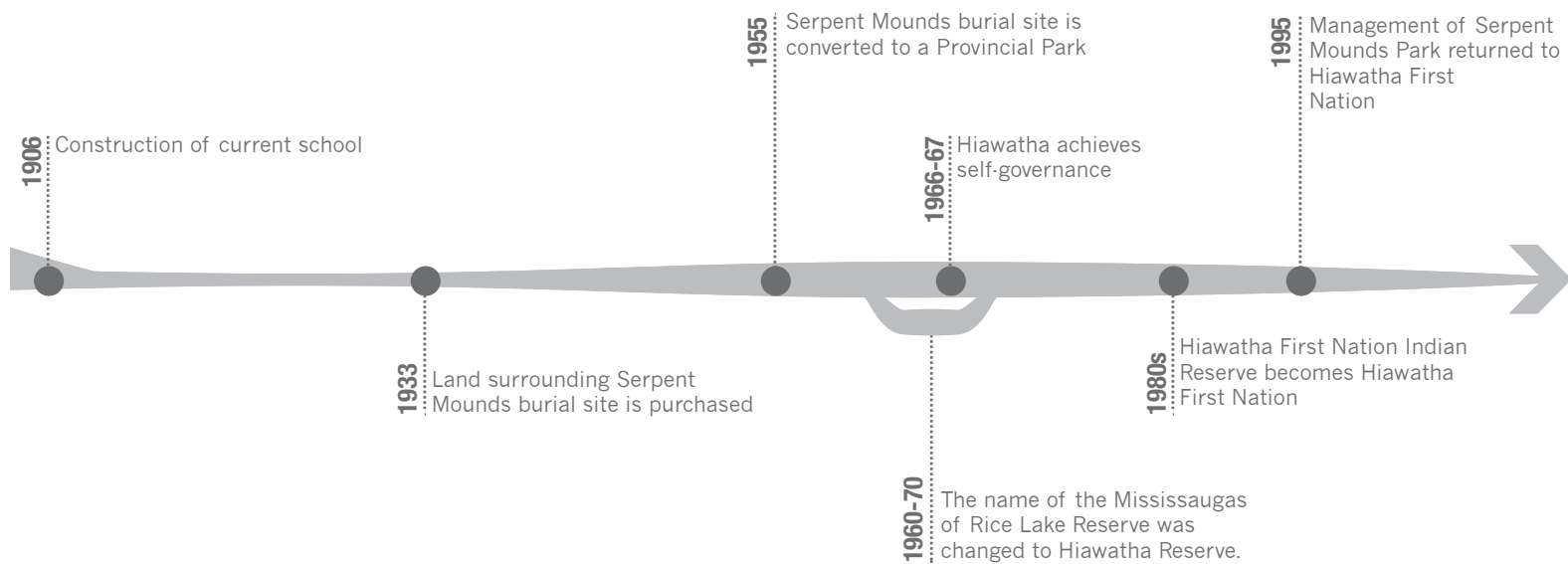


FIGURE 41: SIGNIFICANT DATES¹

¹ "History," *Hiawatha First Nation - Mississaugas of Rice Lake*, Accessed October 27, 2014, <http://www.hiawathafirstnation.com/about-us/history/>.



SITE VIEWS

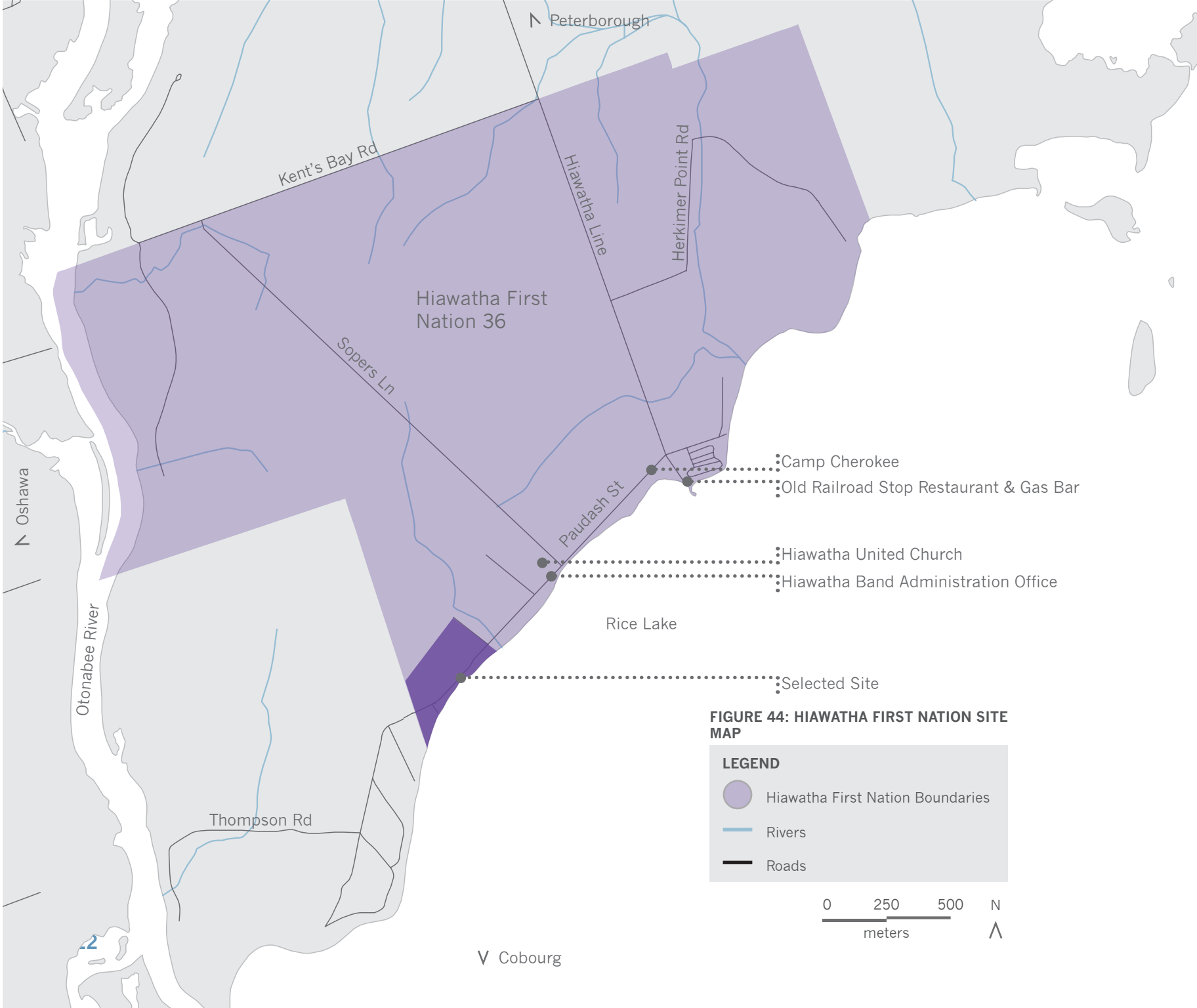
FIGURE 42:
NOVEMBER



FIGURE 43: JULY







8.1 SITE CONSIDERATIONS

The site is currently undeveloped and is entirely blanketed with underbrush. There is a small creek to the east that runs down the gentle slope to Rice Lake.

This large site is located on Paudash St. at the western end of Hiawatha First Nation. I propose to selectively clear the land to convert portions to constructed wetlands in addition to the architectural intervention. The project aims to retain as much of the existing landscape as possible.

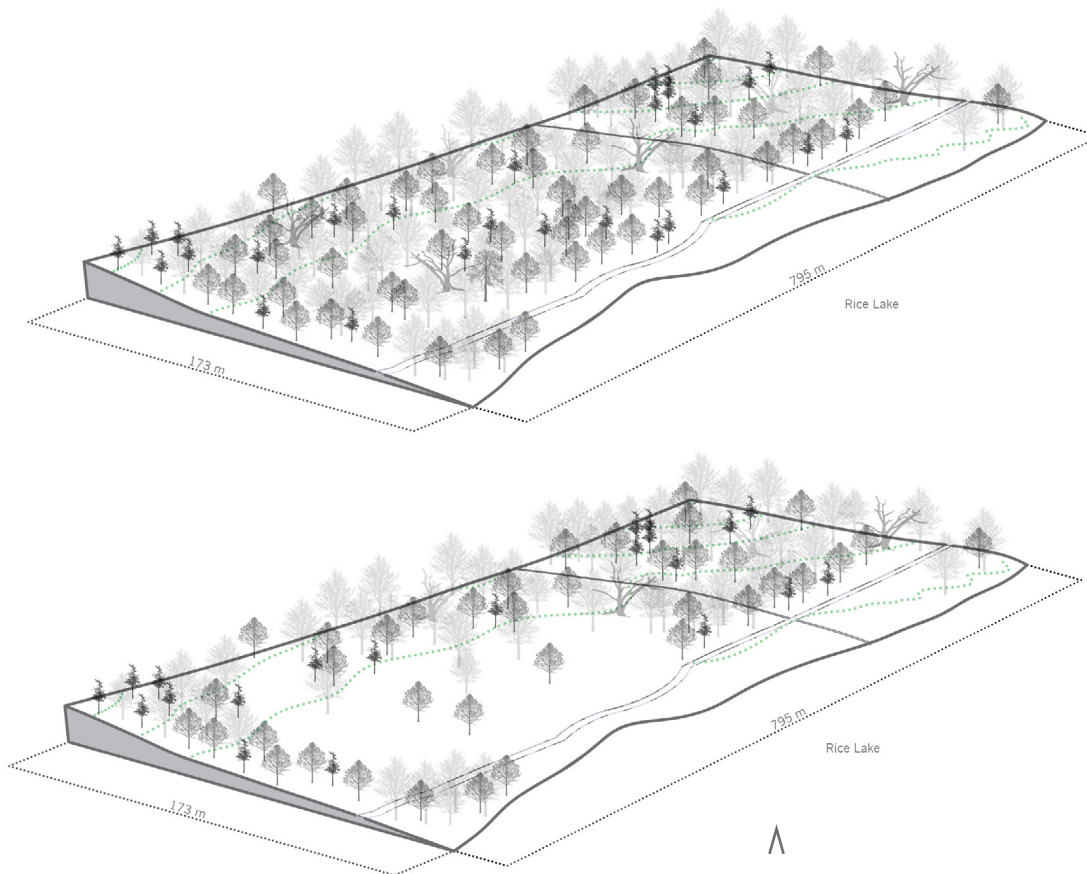
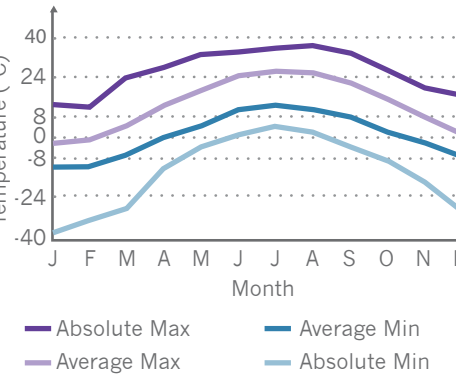


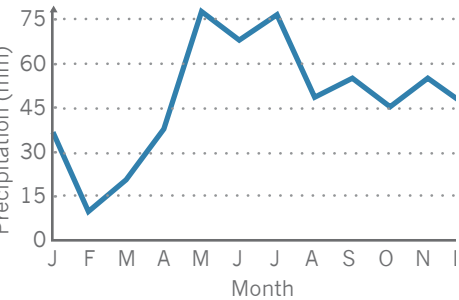
FIGURE 45: SELECTIVE CLEARING

CLIMATE DATA

TEMPERATURES



PRECIPITATION



SNOW DAYS

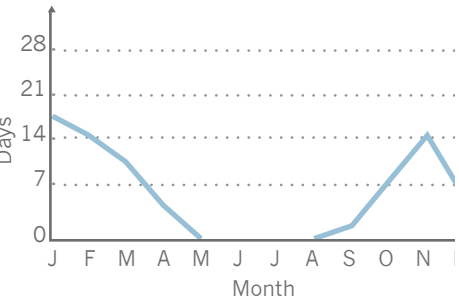
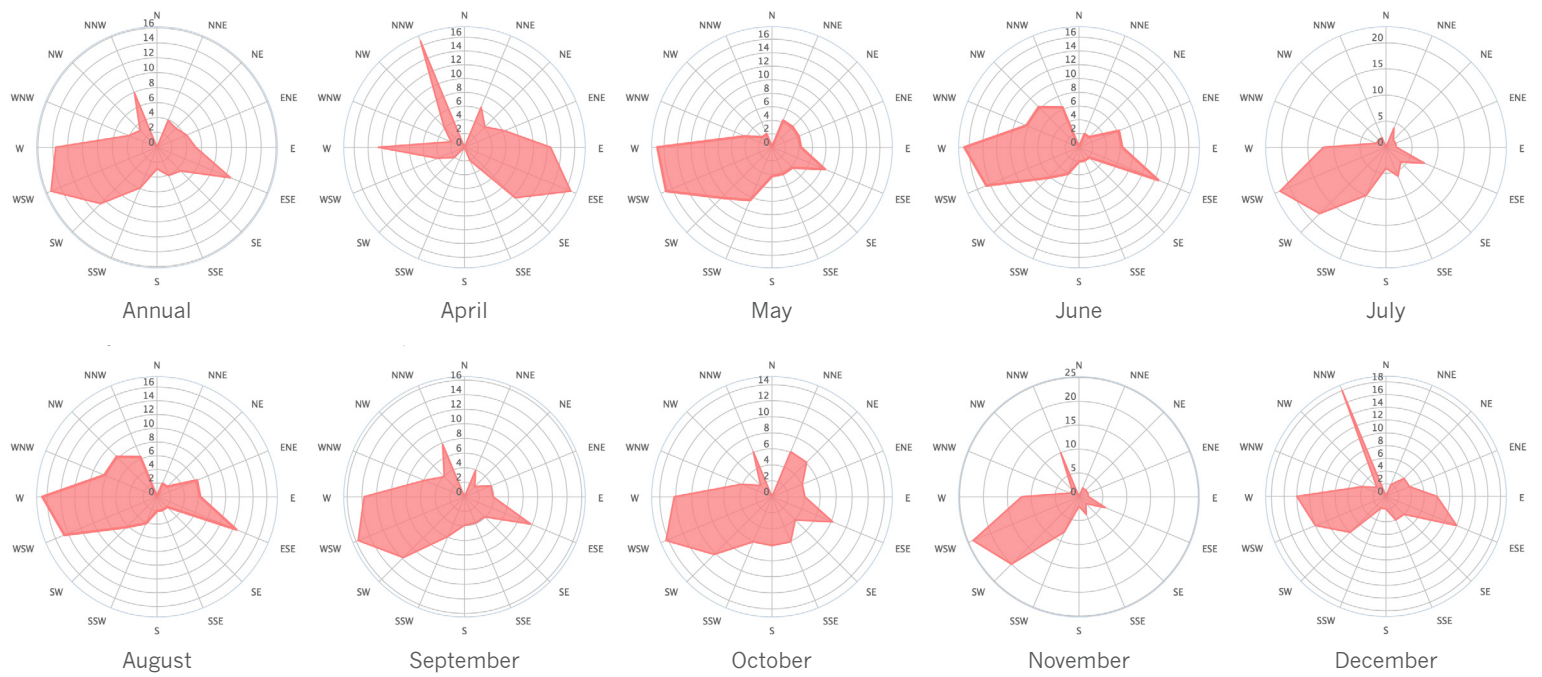


FIGURE 46: TEMPERATURES AND PRECIPITATION ¹

¹ “Peterborough Climate History,” *Weather2*, Accessed December 1, 2014, <http://www.myweather2.com/City-Town/Canada/Ontario/Peterborough/climate-profile.aspx>.



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FIGURE 47: PREVAILING WINDS

SITE + SITUATION

FIGURE 48: SITE AXES + VIEWS

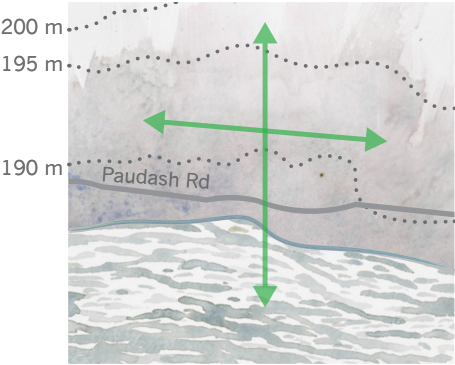


FIGURE 49: SOLAR PATH

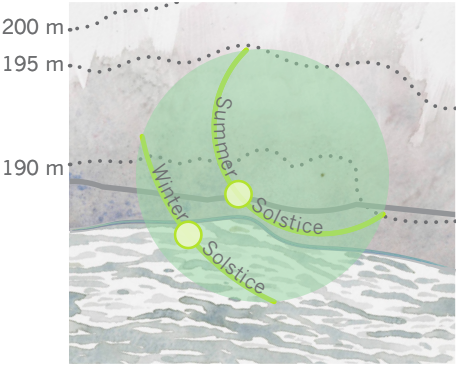
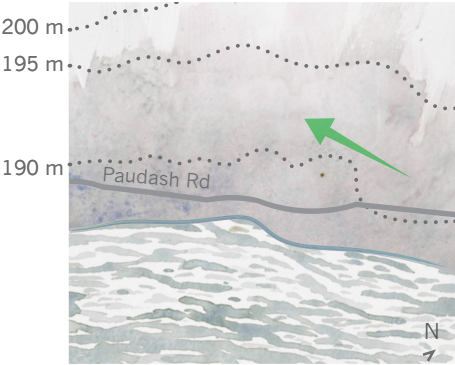


FIGURE 50: SITE ACCESS

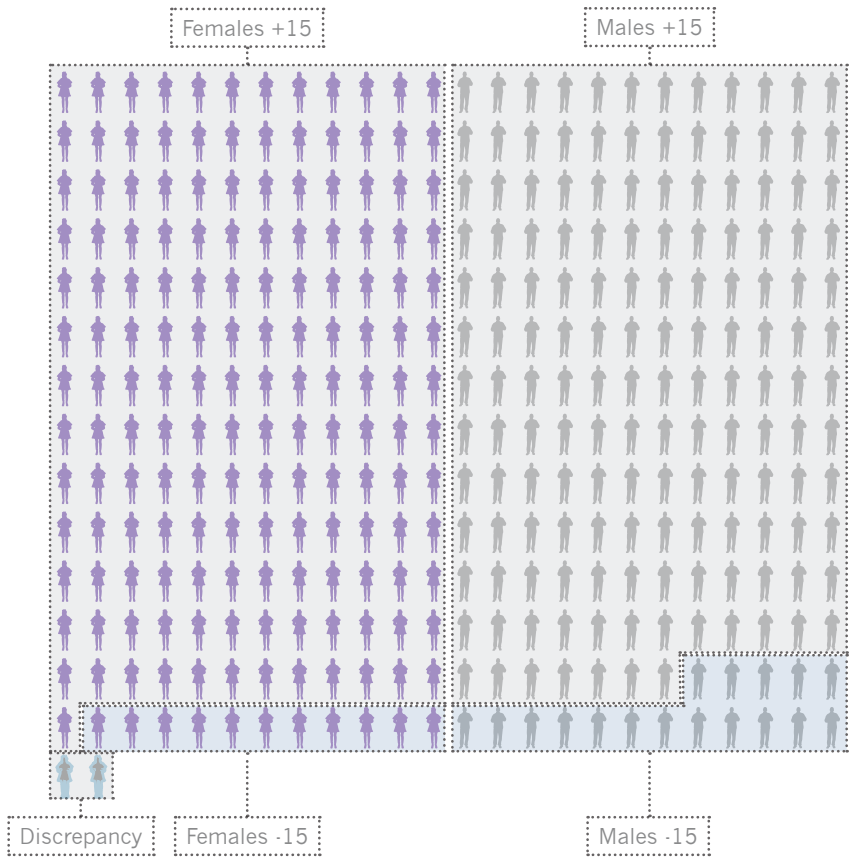


8.2 DEMOGRAPHICS

Population in 2006: 483
Population in 2011: 362
2006 to 2011 population change: -25.1%
Female population: 180
Male population: 180
Total number of children: 50
Median age: 45.5
Percentage of females +15: 90.3% ¹

When I came upon this demographic information for Hiawatha First Nation, I was skeptical about the equal division of males and females as well as the discrepancy between these numbers and the total number of on-reserve residents. There is also a very small percentage of the population under the age of 15 which is quite unusual; across Canada aboriginal children under the age of 14 make up 28% of the total Aboriginal population, as opposed to

¹ "Census Profile - Hiawatha First Nation." *Statistics Canada*. April 28, 2011. Accessed November 23, 2014. <http://www12.statcan.gc.ca>



16.5% for non-Aboriginal children.²

Statistics Canada³ has published a list of recent trends regarding Aboriginal peoples and the census that explain why the data may be inaccurate. Most of them stem from a general unwillingness by many First Nations groups to participate in the national census because it is seen as an affront on their sovereignty. For the purposes of this thesis, I have used the published numbers as a base for the occupancy requirements of the architectural design.

Women are the primary targeted occupants of the building, and many of the women on reserve have children who may be accompanying them. According to the census data for those living on reserve, 90.3% of all women (or 162.54 total) are over the age of 15, and there are a recorded 50 children under the age of 15. Therefore, I presume the potential maximum occupancy of the building to be approximately 200.

◀ **FIGURE 51: DEMOGRAPHICS**
Division of males, females and children in
Hiawatha First Nation

2 Annie Turner, *Aboriginal Peoples in Canada: First Nations People, Métis and Inuit : National Household Survey, 2011*, (Ottawa: Statistics Canada = Statistique Canada, 2013), 5.
3 Ibid., 6.



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**FIGURE 52: CREATION IN
DIALOGUE WITH THE SEASONS**
by Mark Anthony Jacobson
Acrylic on canvas

"Morning ghosts ride with our dreams over the tribal stories from the past, dark waves, slow waves, water demons under our ocean skin waves, trickeries and turtle memories under the storm waves, under the word gates, through the earth where we hold our origins with the trees and the wind, creation myths with ocean roots..."¹

- GERALD ROBERT VIZENOR

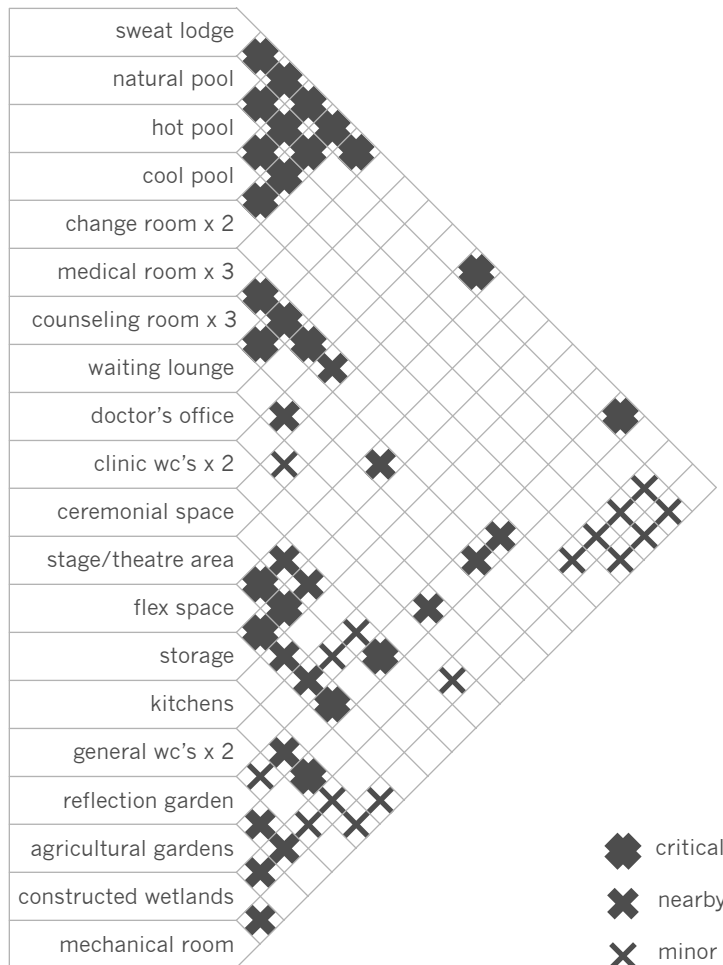
¹ Gerald Robert Vizenor, *Crossbloods: Bone Courts, Bingo, and Other Reports*. (Minneapolis: U of Minnesota, 1990), 93.

9.0 PIMAADASHKODEYAANG CULTURAL CENTRE

The primary goal of the thesis is to harness and embrace the therapeutic qualities of water, while simultaneously addressing the very real issues concerning access to safe water resources in First Nations communities. A health care facility seemed an obvious program through which to achieve this goal, but I quickly realized that any architectural intervention designed for this community would need to be highly multifunctional due to the lack of funding and space within the boundaries of the reserve.

I then began to consider the different aspects of health, including but not limited to physical, mental, spiritual, and cultural health. Ceremony, an integral element of Anishinaabe culture, emerge as one way to address all of these aspects simultaneously.

Thus, the concept of ceremony became the binding force among three research streams set out at the beginning of the thesis. From this intention, a building program was devised that included spaces for different types of ceremony, as well as ancillary spaces to complement them and allow for other types of healing to occur.



9.1 PROGRAM DEVELOPMENT

After completing the adjacent proximity matrix, it became clear that there are three main programmatic categories in the thesis made up of the pools, clinic, and ceremonial spaces. As these categories emerged, I decided that they could be titled with verbs in order to speak both to the structure of Anishinaabemowin as well as the intentions of the project to “build as verb.” Therefore the three categories were titled “purify,” “heal,” and “grow” respectively.

< **FIGURE 53: PROXIMITY MATRIX**

FIGURE 54: PROGRAM SCALE RELATIONSHIPS

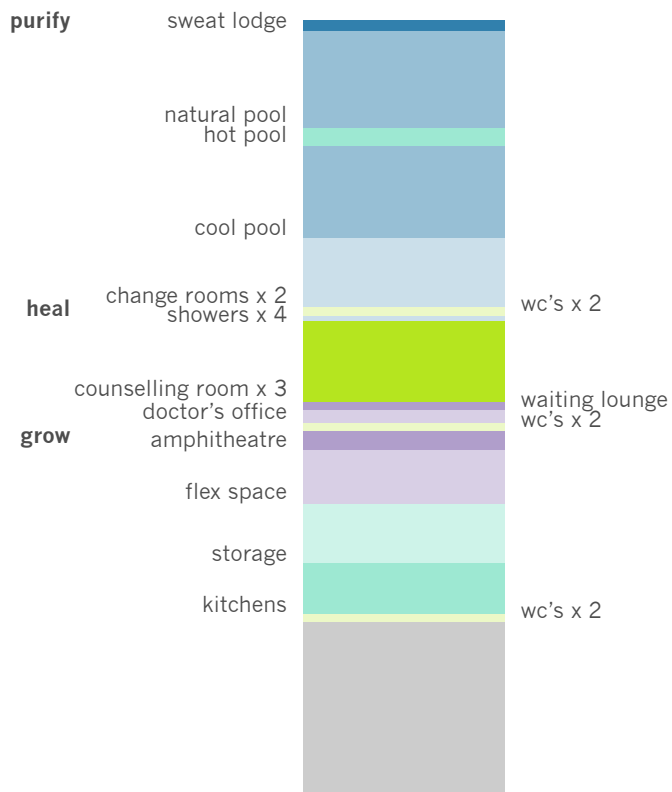


FIGURE 55: PRIVACY REQUIREMENTS

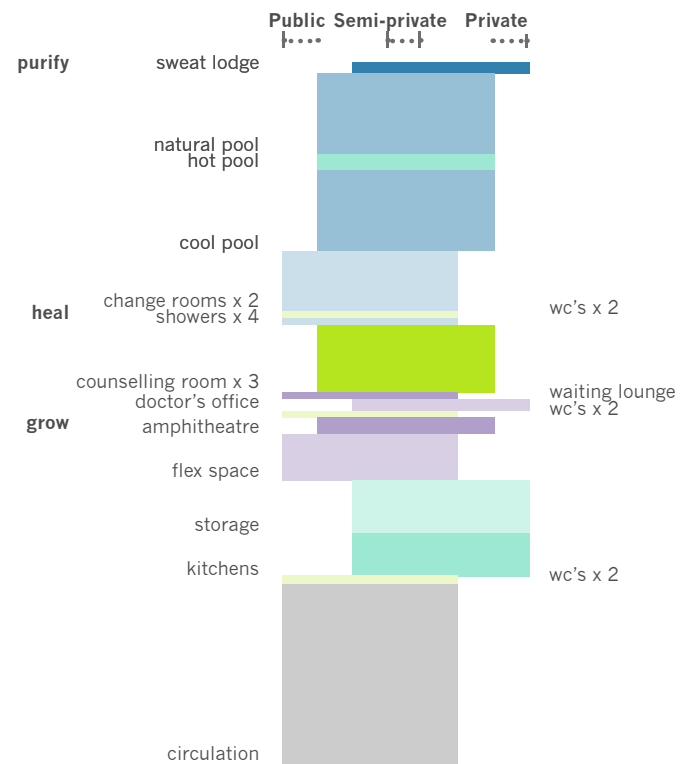


FIGURE 56: INTERIOR PROGRAM



FIGURE 57: EXTERIOR PROGRAM

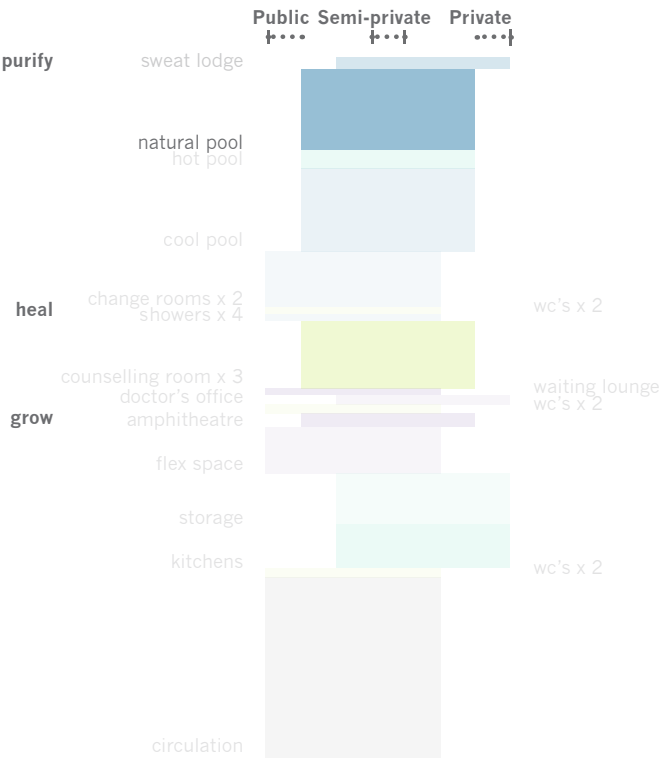
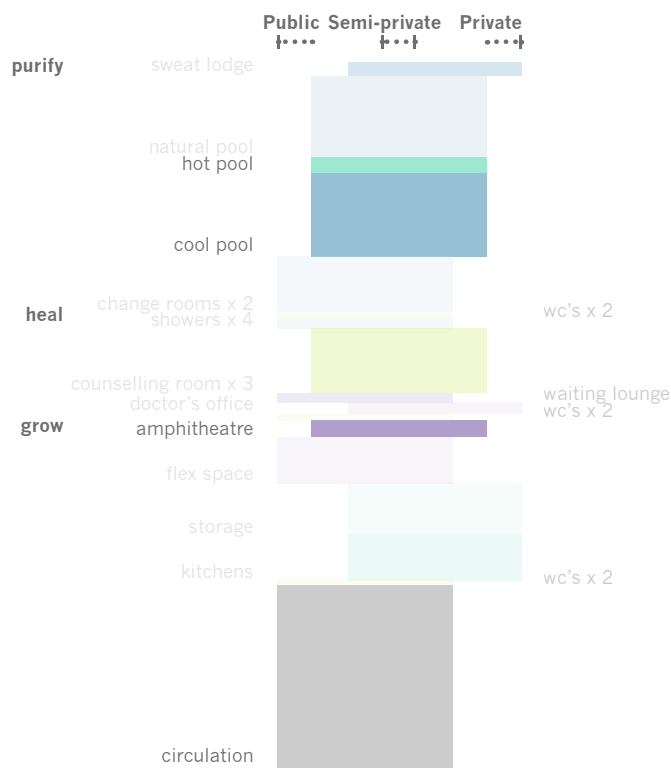


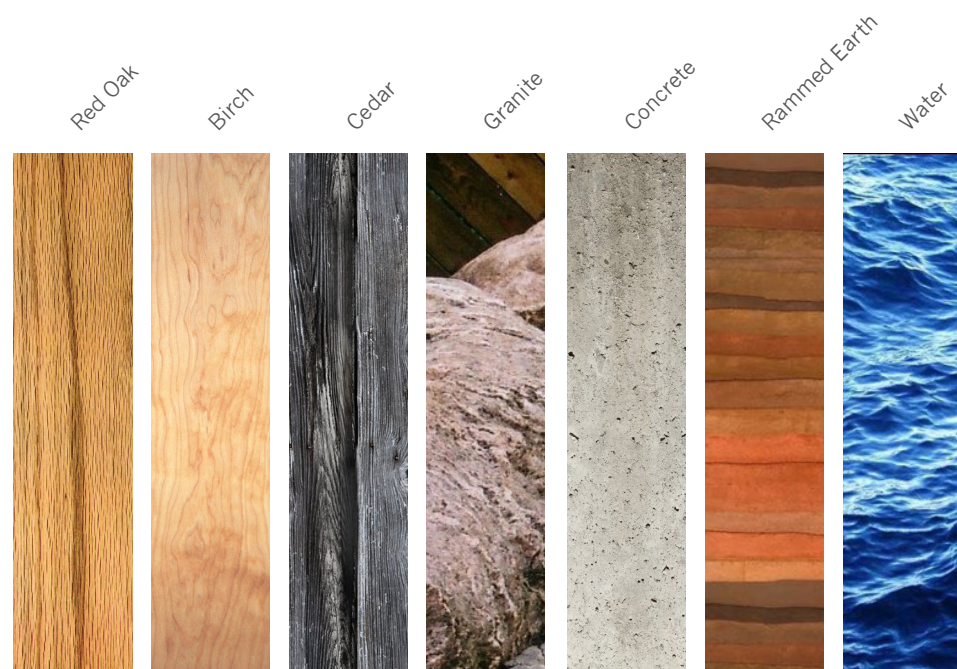
FIGURE 58: SEMI-INTERIOR PROGRAM



9.2 MATERIALITY

As previously discussed in section 4.2 The Importance of Language, the programmatic elements of the thesis are conceptualized as verbs. It thus becomes apparent that the materials used in the project be treated as adverbs. In selecting the application of each material, I questioned “What makes earth ‘earthy?’” or “What makes water ‘watery?’” This became a mantra through which I explored the real tectonic implications of each material and its application within the project.

The materials have additionally been selected for potential use in the design based on their local availability, traditional use, climactic suitability, weather resistance, and longevity. Several of these materials encourage certain processes such as weathering, moss and lichen growth that will add character to the building over time.



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FIGURE 59: MATERIAL SPECTRUM

9.2 XERISCAPE

The xeriscaping strategy for the project makes use of native plant species that require minimal water and maintenance. Included are the four sacred medicines which are each associated with the cardinal directions: tobacco (east), sweetgrass (south), sage (west), and cedar (north). Wild rice paddies are to be planted as an homage to Rice Lake as it was prior to its connection to the Trent-Severn Waterway.¹ An assortment of native tree species including white spruce, red oak, as well as silver and sugar maple² have been selected for their changing colours as the seasons turn.

1 Susan Blight (Aboriginal Student Life Coordinator at First Nations House - University of Toronto) in discussion with the author, October 8, 2014.

2 "The Tree Atlas: South Central Region 6E-8," *Ontario.ca*, Accessed June 9, 2015, <http://www.ontario.ca/environment-and-energy/tree-atlas/ontario-southcentral/6E-8>.



^

FIGURE 60: XERISCAPE PLANTING



FIGURE 61: WATER, WATER
by Alex Janvier

“Places on this continent are native creations in the sense that the heart of stories is never an absolute history. So the creation of a native place is in the memory of the story. Places are not passive, and so the creation of a new native nation in my novels is more memorable than a mere name on the map. The place we create is the place we remember, the place we continue in stories. The Anishinaabe creation is out of water, the presence of water as a place. We are water, and there is no presence without water and trickster stories of that creation.”¹

- GERALD ROBERT VIZENOR

¹ Gerald Robert Vizenor and A. Robert Lee, *Postindian Conversations*, (Lincoln: U of Nebraska, 1999), 135.

10.0 IMAGES

The building runs parallel to the shore of Rice Lake and takes advantage of the view down to the water on the southeasterly axis. It is buried into the site, materializing from the earth, pushing up the soil and ground cover that forms the green roof blanketing the majority of the structure.

The building is approached from the northeast where a new road has been constructed to guide traffic off of Hiawatha Line, as opposed to approaching from Paudash Street to the south. This decision was made to create a more processional entry sequence. People traveling on Paudash Street might glimpse the building through the trees as they pass by.

The building acts as a threshold from the forest down to the water. A ceremonial area for the construction of sweat lodges is located at the northwest of the site, accompanied by a natural pool and water fountain to refresh after the sweat. The constructed wetlands to the south buffer the building from Paudash Street while improving the quality of the building’s greywater output before it is released back into the environment.

The three programmatic groupings of the Pimaadashkodeyaang Cultural Centre: purify, heal, and grow, were translated into three distinct wings on the site. These wings create negative spaces between them which are occupied by three different types of gardens. The four sacred medicines are planted in beds at the east end of



FIGURE 62: SITE PLAN >
1:1000



SWEAT

REFRESH

Wild Rice

Sacred Medicines

Rice Lake

the site and slope up onto the green roof. Extending off the north wing is a series of wild rice beds as an homage to the history of Rice Lake.

The Pimaadashkodeyaang Cultural Centre is approached from the northeast, visitors pass under a heavy concrete overhang that sweeps down from the roof of the building. This cavernous, shaded entrance gives way to a mezzanine that looks over the gathering space and through to the constructed wetlands and the lake beyond.

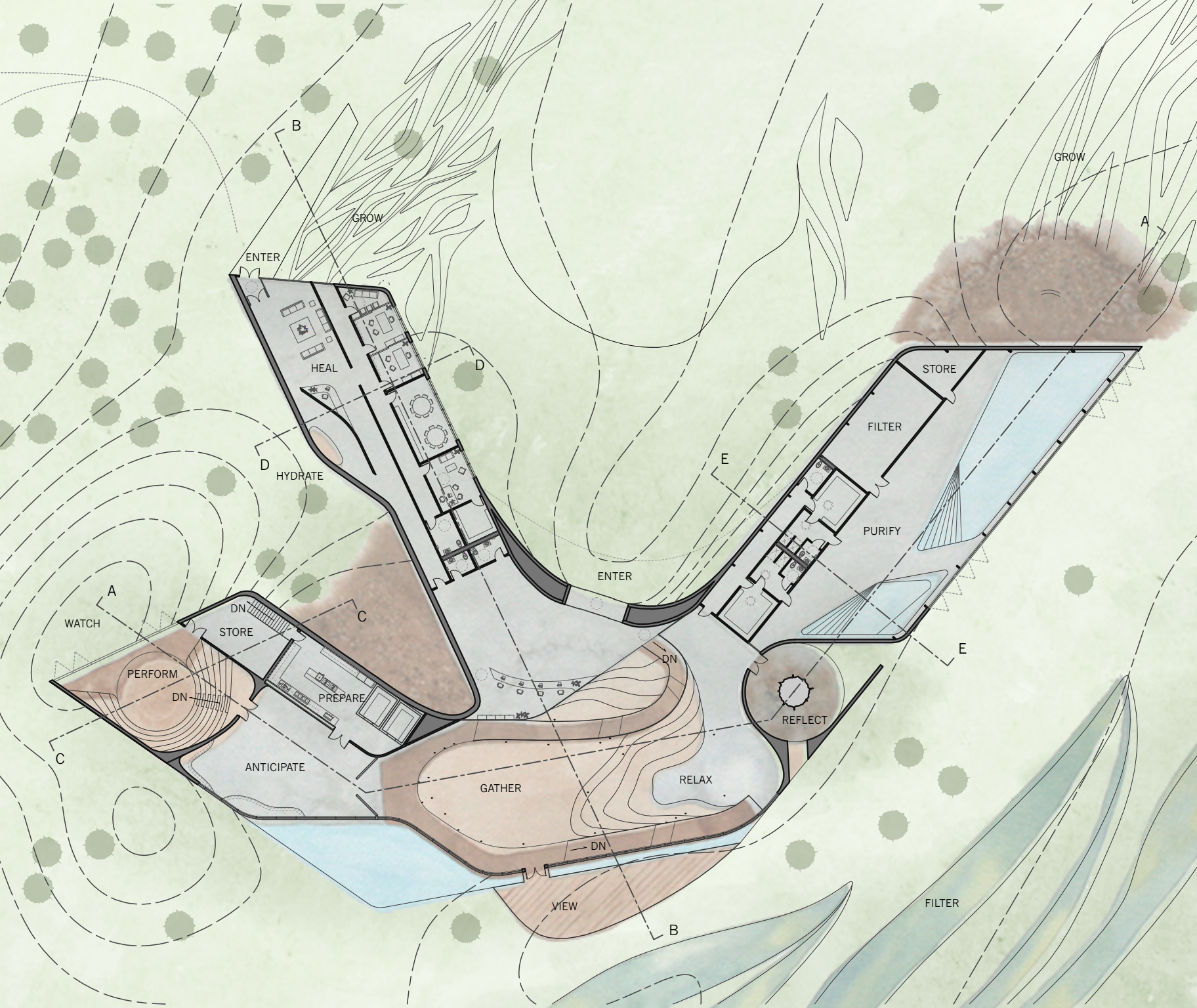
Here one might choose to walk north into the healing space, a central feature of which is the sculptural water fountain where people can hydrate after participating in ceremony. There are spaces to meet one on one with elders that employ operable partitions that allow for flexibility of meeting sizes.

Alternatively, one may proceed south down the serpentine ramp into the gathering space. This space provides a venue for events that might be unsuitable for the amphitheatre, such as dinners or game nights. The space is defined by a constructed landscape of sculptural birch seating. The diagrid glulam roof structure that arches over this vast space is supported by narrow cylindrical cedar columns that allude to the forest on the site.

At 1500 mm below grade, the ramp plateaus and leads west through two large



FIGURE 63: GROUND FLOOR PLAN >
1:500



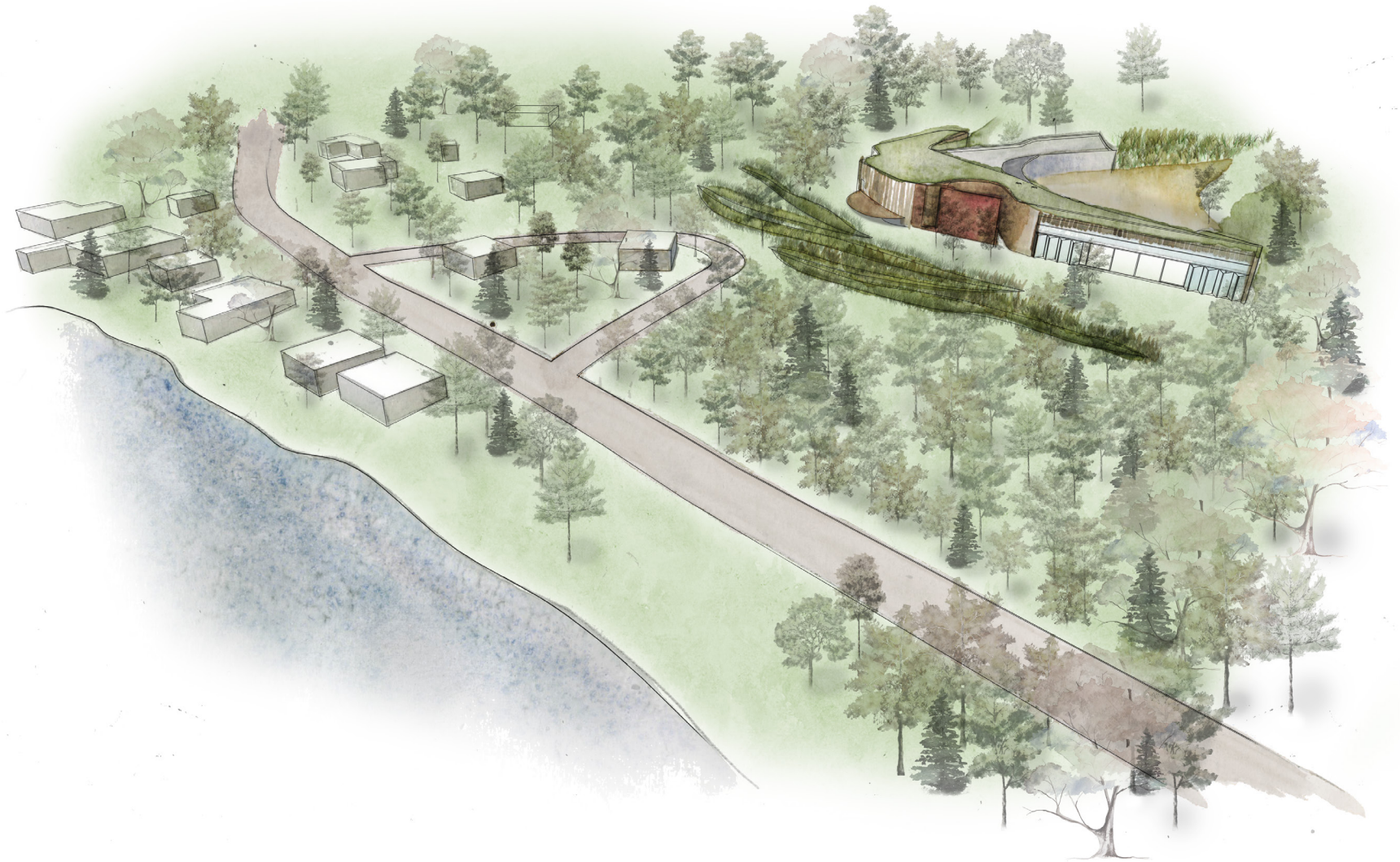
glass doors into the anticipation space. Upon entering the performance space, the audience descends to a circular arrangement of wooden seating. The circle motif represents the medicine wheel and is used in only three specific locations in the cultural center. Here there are operable partitions that allow for performances with larger audiences to spill out into the landscape and up the hill beyond.

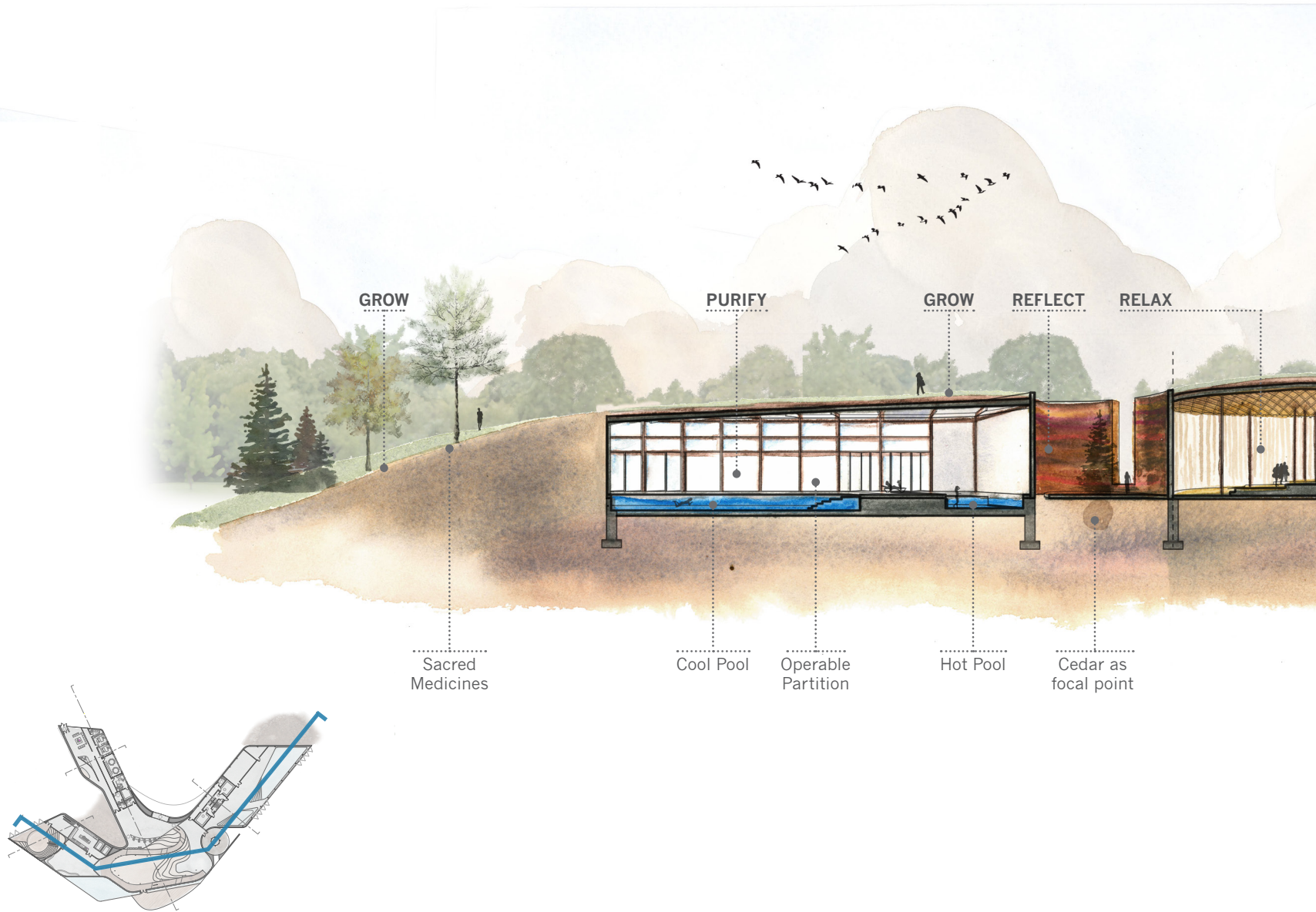
Also located at this level is an exit out over a short bridge to a viewing platform that provides the clearest vista of Rice Lake. Beginning in the west and running along the south facade of the building between the raw-edge cedar louvred facade and the viewing platform is a reflecting pool, which creates a calming lighting effect on the ceiling within the gathering and anticipation spaces.

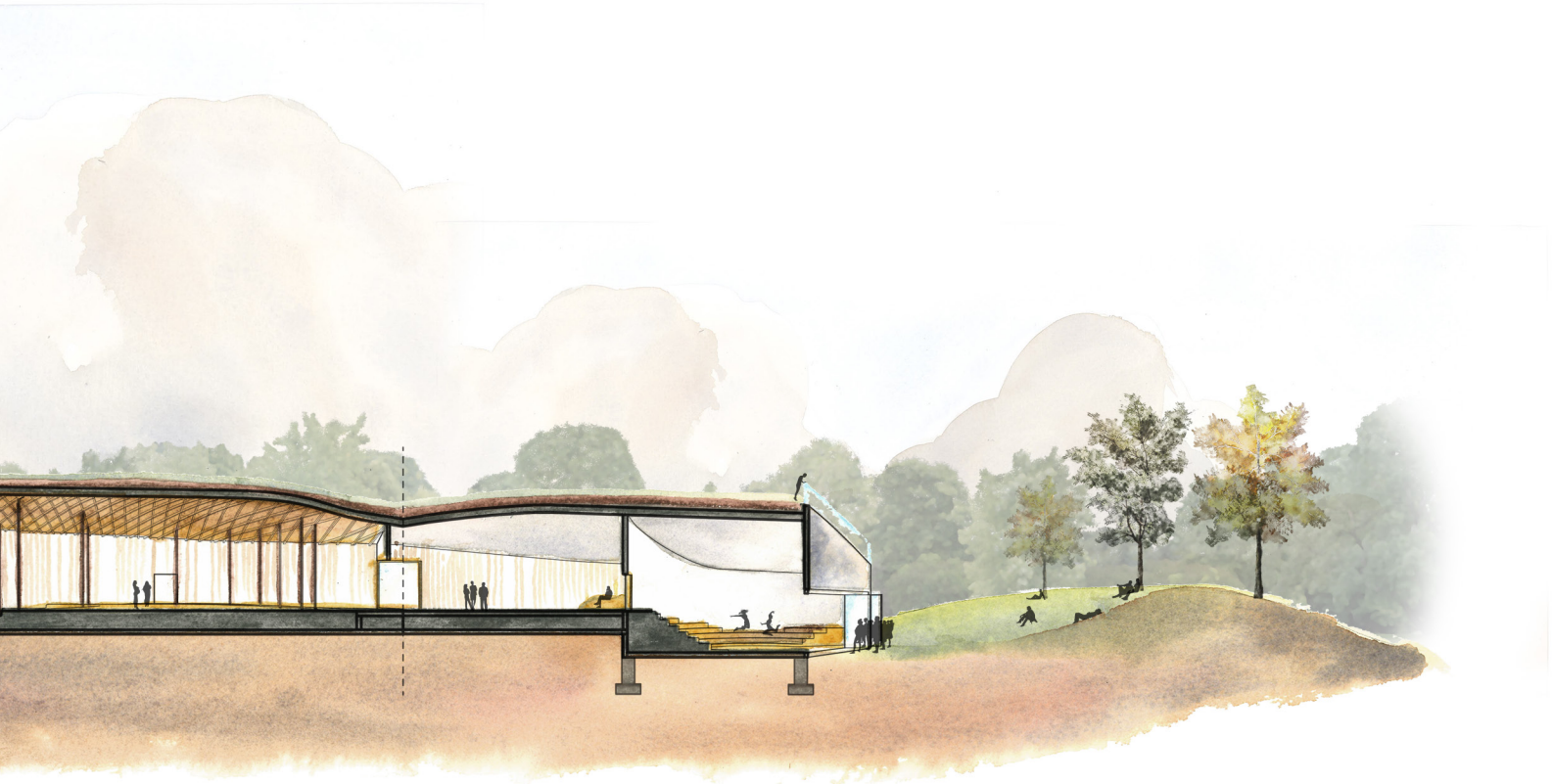
Continuing down the ramp another 1500 mm to the lowest level, one approaches the reflection garden. There is a single cedar tree planted within the cylindrical rammed earth walls. There is a slice removed from the rammed earth wall at the exact alignment of the sun at noon on the winter solstice in recognition of the Anishinaabe New Year as a symbol of renewal. The wall is broken to allow smooth passage from the garden out over the wetlands and down to the water.

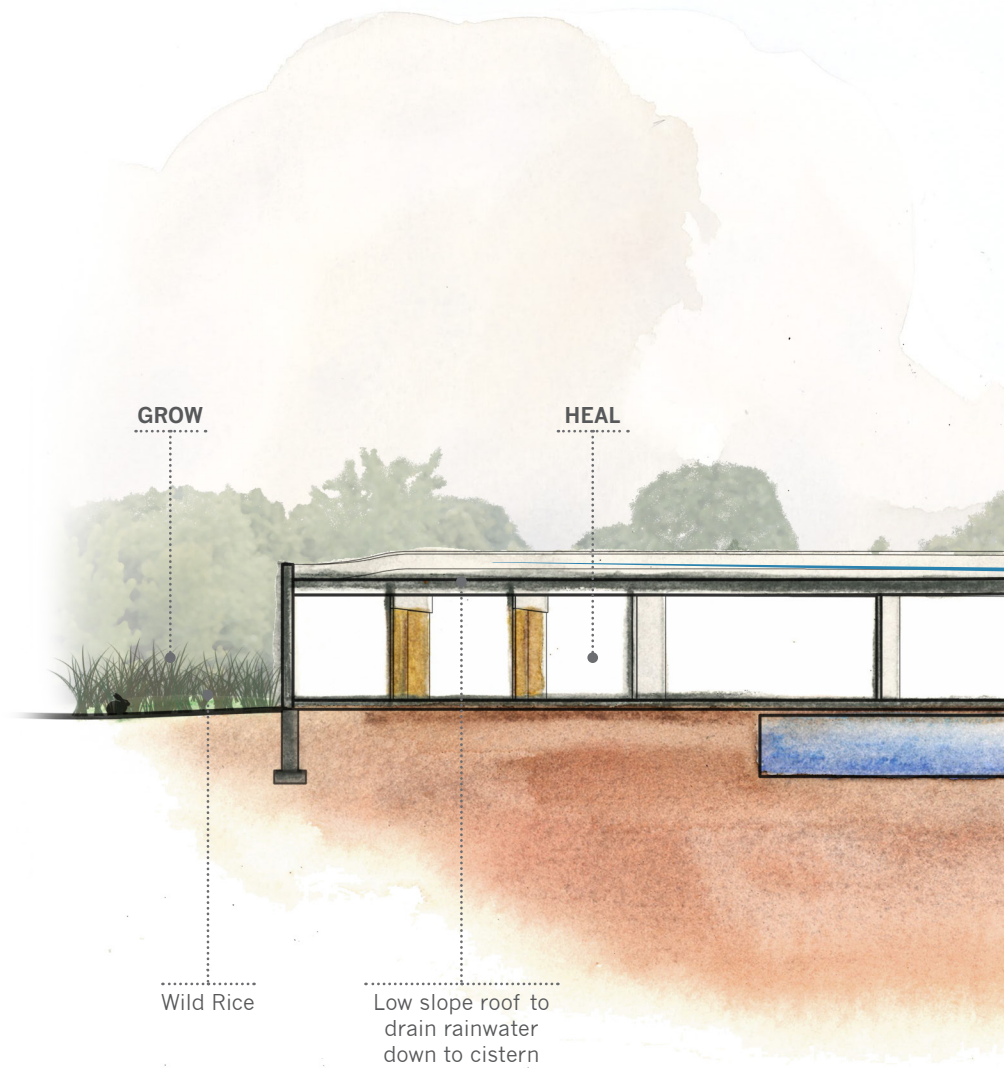
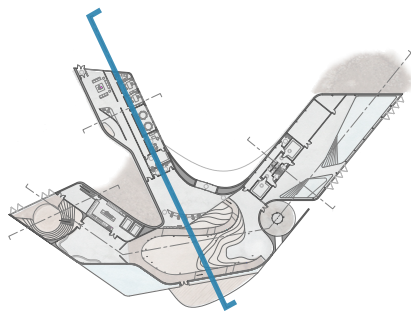
The final wing of the building contains the purification areas. One enters a corridor to the skylit change rooms and through to the purification space that includes hot and cool pools, with operable partitions on the southeast facade to once again blur the boundary of interior and exterior in the summer months.

FIGURE 64: AERIAL PERSPECTIVE ➤









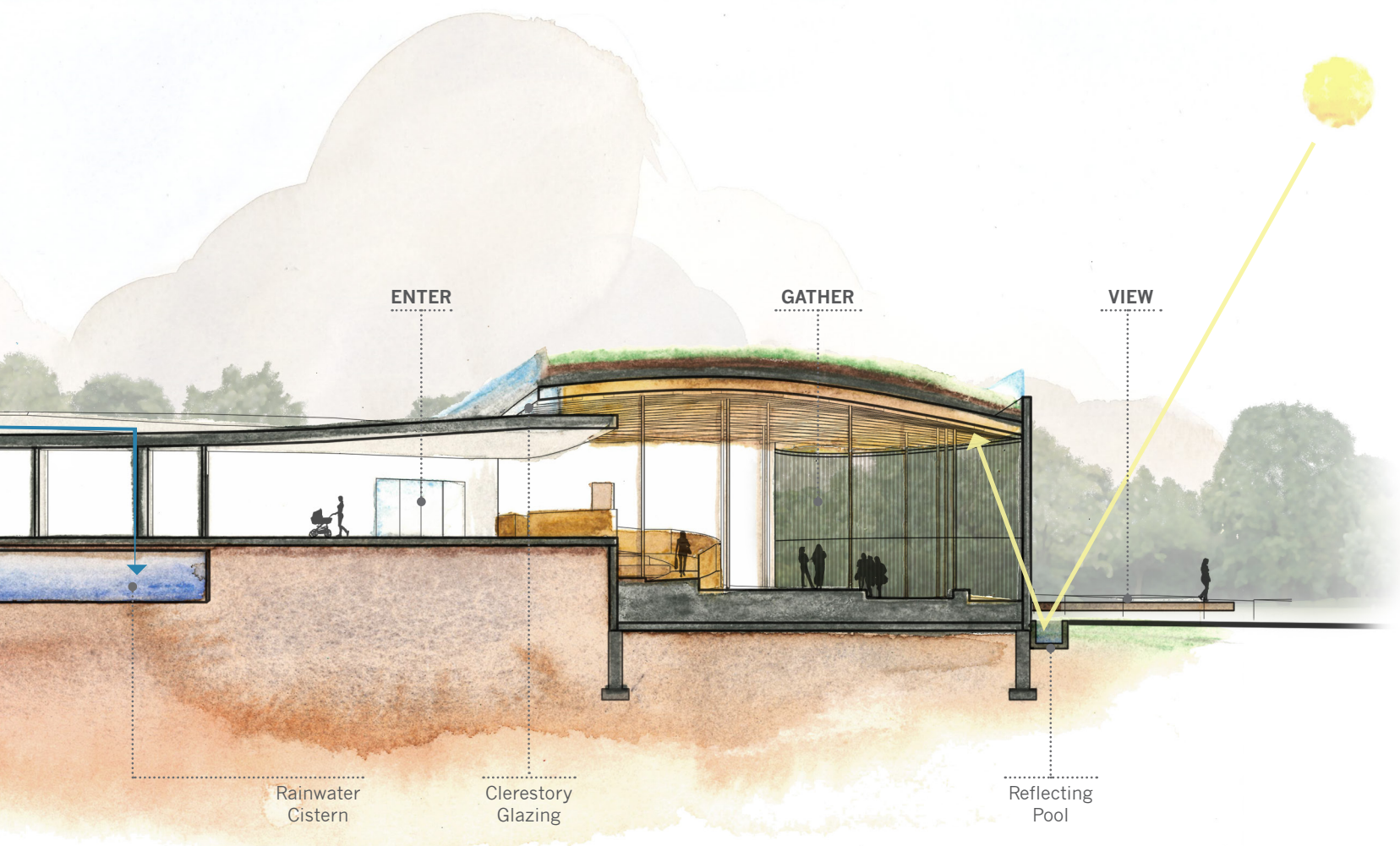
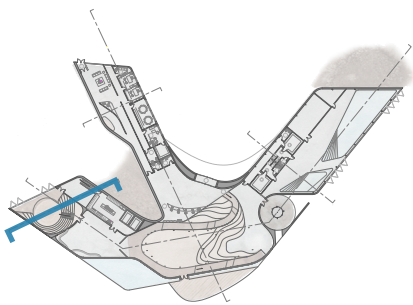


FIGURE 66: PERSPECTIVE SECTION B-B
LOOKING EAST
1:300



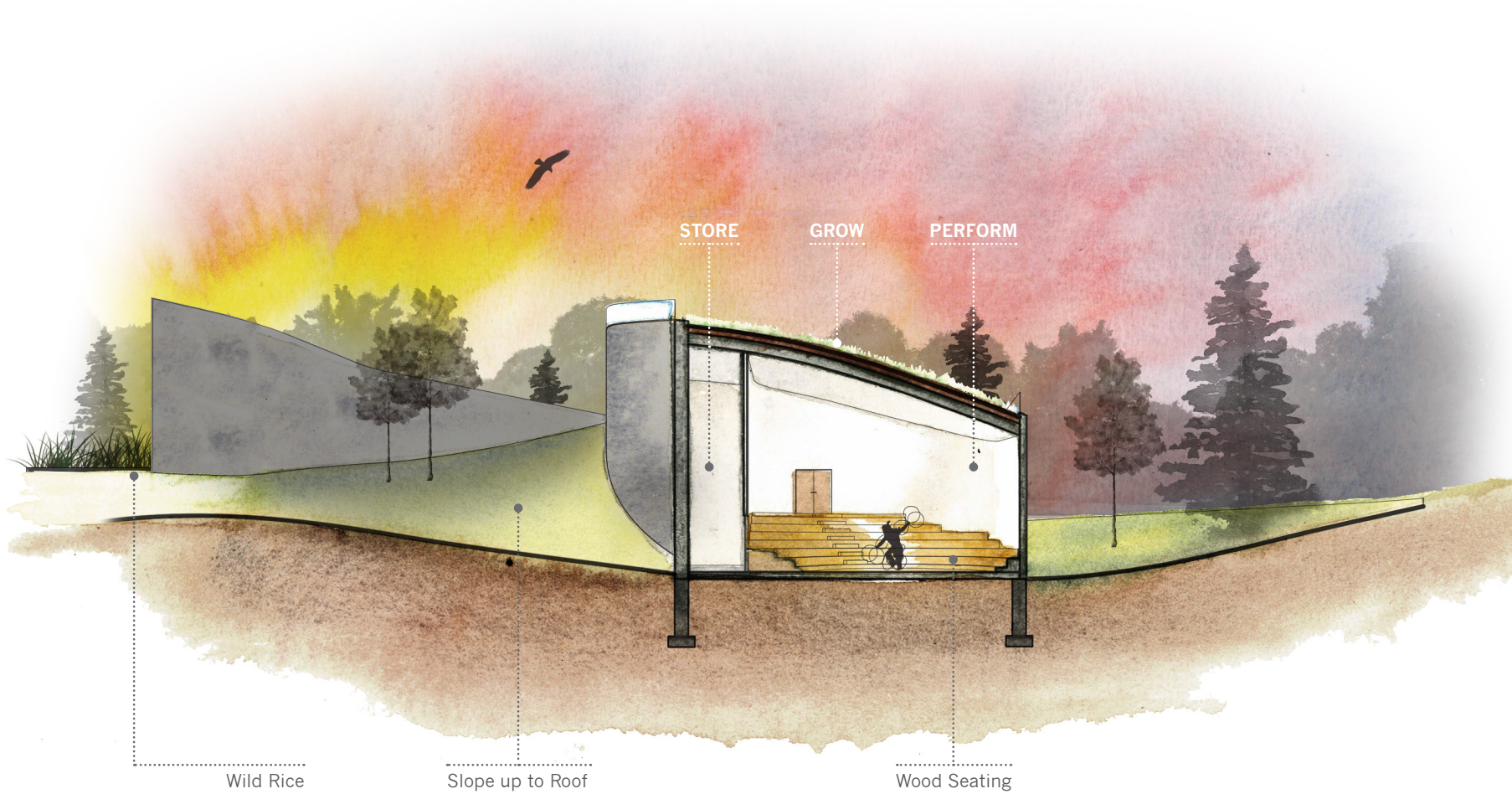
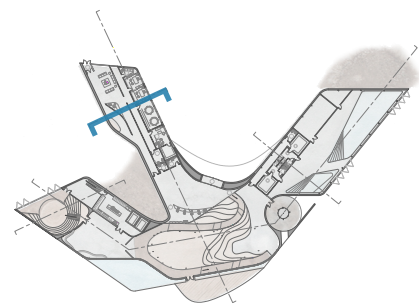


FIGURE 67: PERSPECTIVE SECTION C-C
LOOKING WEST
1:300

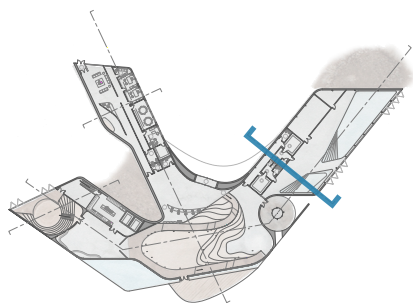


GREEN ROOF

Skylights



FIGURE 68: PERSPECTIVE SECTION D-D
LOOKING SOUTH
1:300



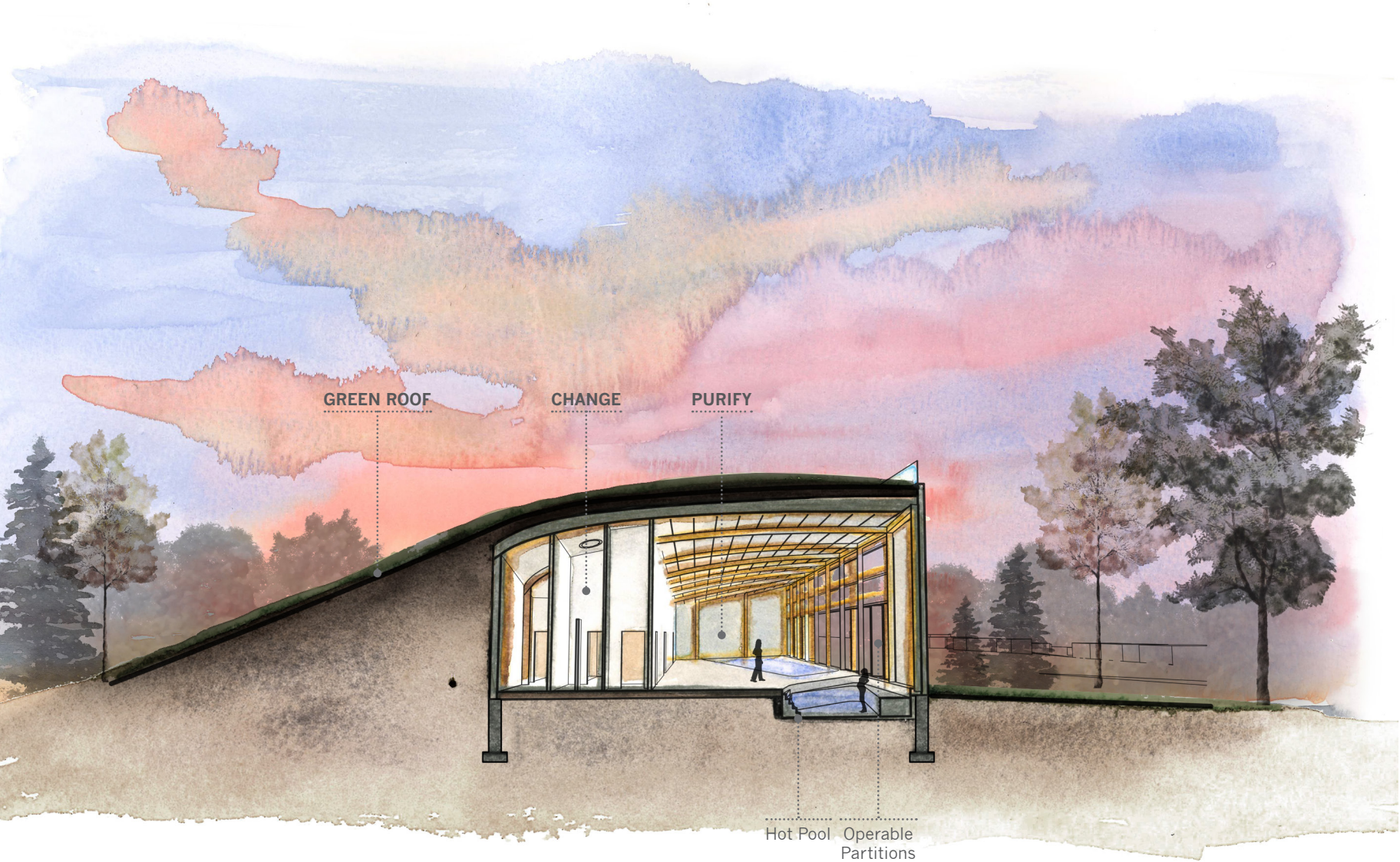
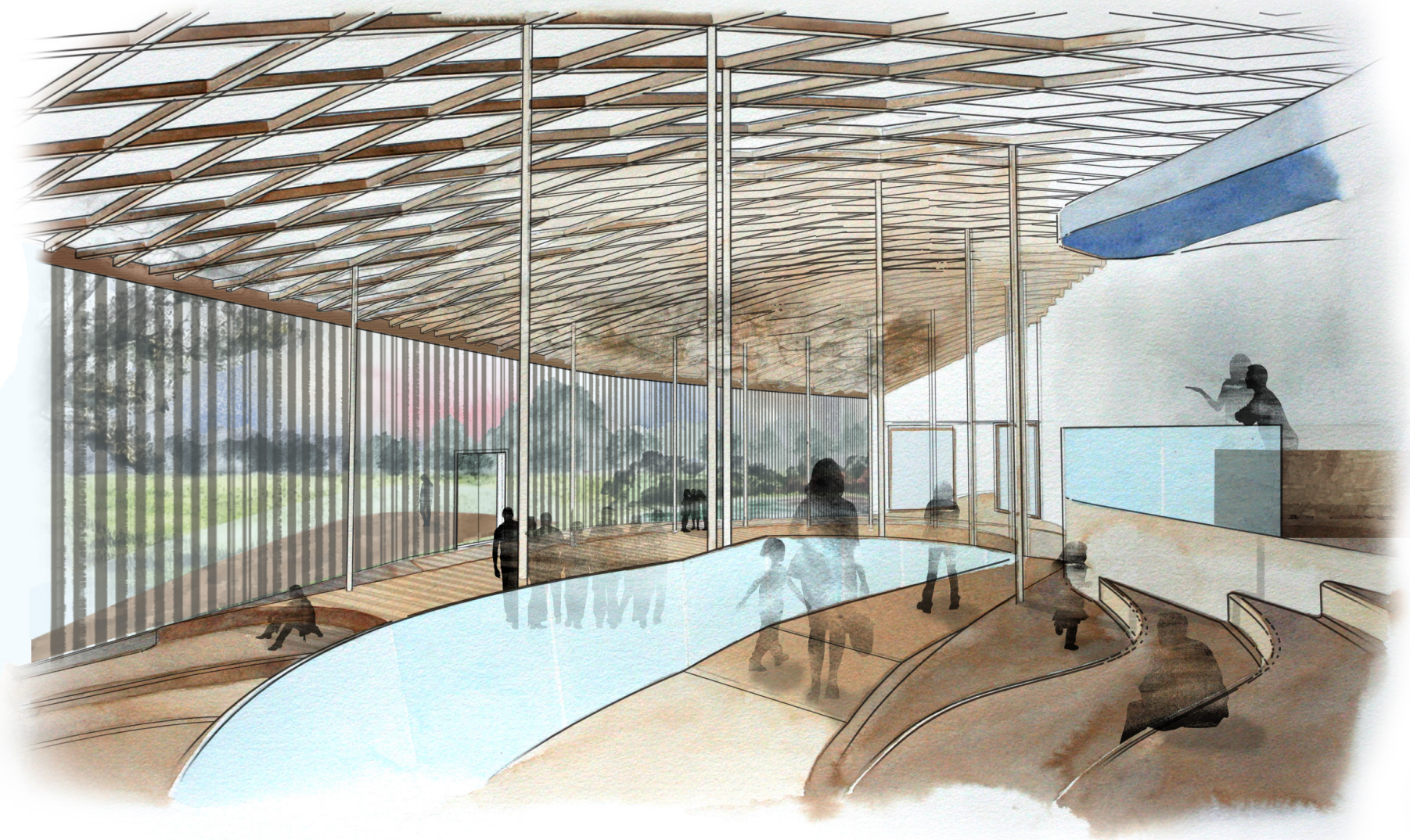
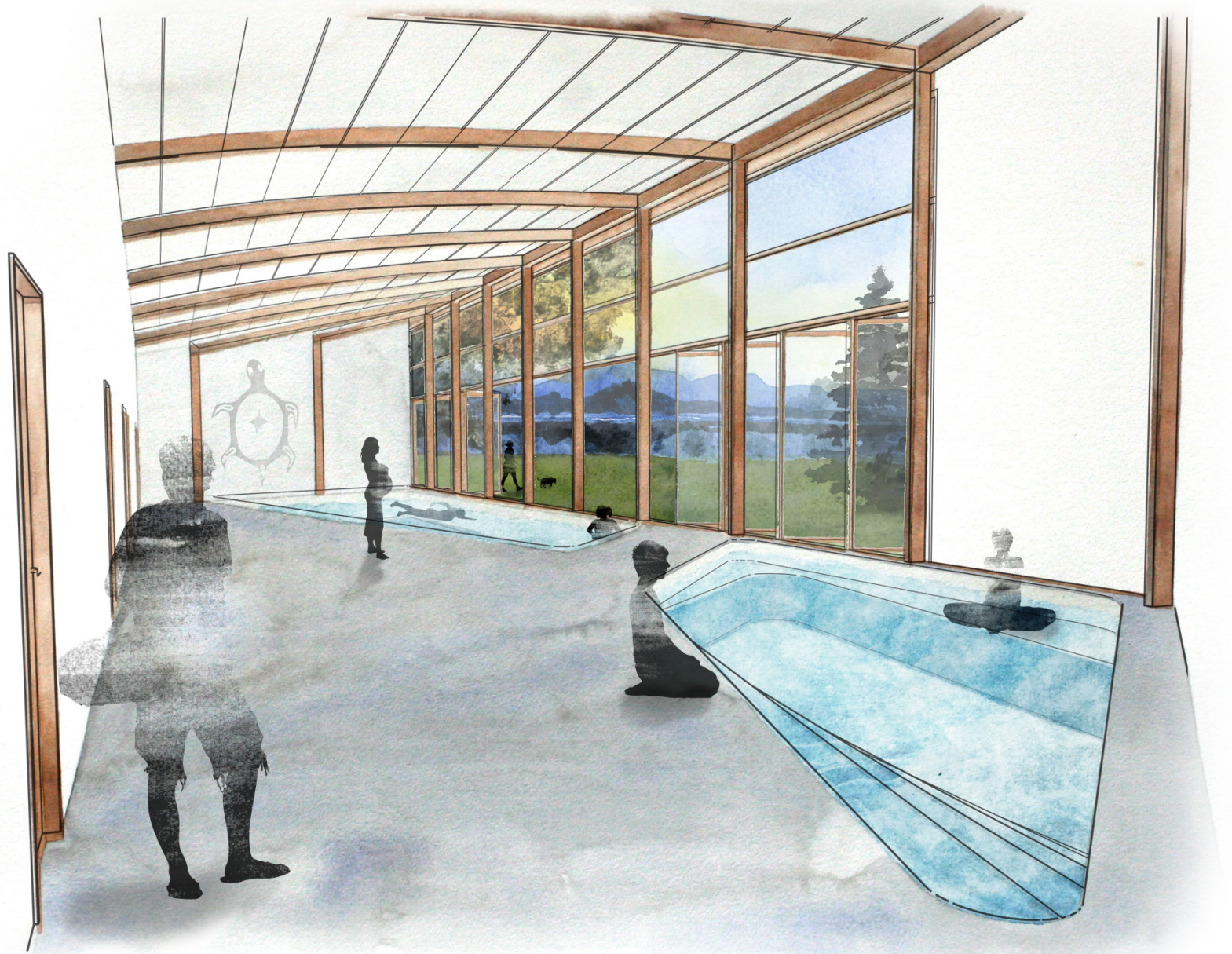
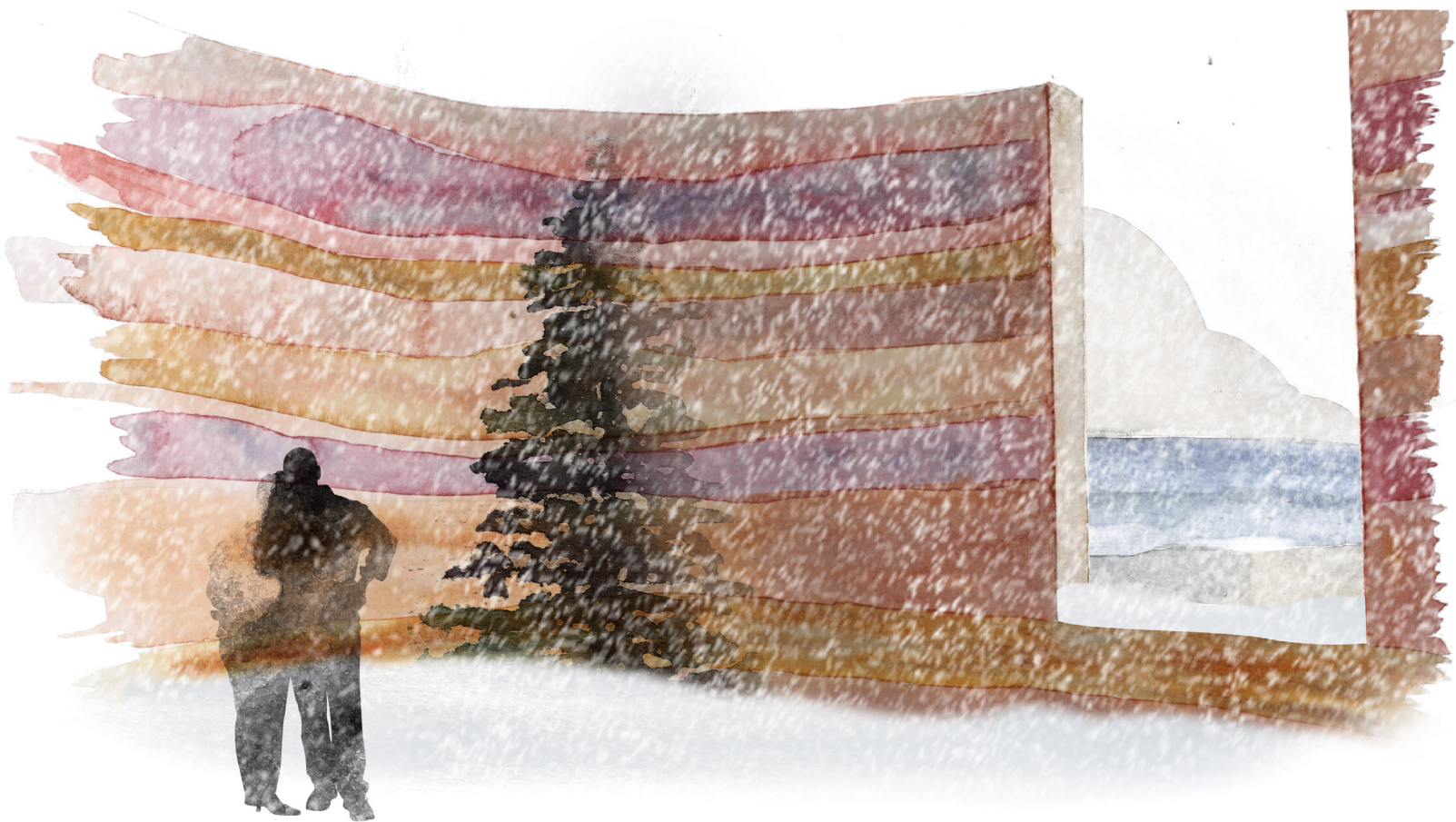


FIGURE 69: PERSPECTIVE SECTION E-E
LOOKING EAST
1:300









◀ FIGURE 73: REFLECTION GARDEN



◀ FIGURE 74: WINTER PERSPECTIVE

11.0 CONCLUSIONS

This Master of Architecture thesis encapsulates an entirely new way of thinking about architectural design that I had not previously engaged in. This way of thinking has opened me up to a more radical notion of what architecture can represent, and liberated me from the constraints of a traditional architectural practice.

I set out on the thesis journey with the goal of decentralizing water treatment in First Nations in Canada in order to improve the dire need for safe potable water sources in these communities. However, the project evolved into a much more allegorical endeavor that placed far more emphasis on the spiritual and cultural significance of water. I do not believe that this thesis achieved the initial goal, though I see now that the project was truly a way to develop my own philosophy that architecture should be more inclusive and democratic.

This project forced me to engage with issues that test my convictions, as set out in the self-addressed letter at the outset of this thesis. I was required to confront three key concerns:

- How my own social, cultural, and political positioning might affect the outcomes of my work,
- How my position of privilege acts as both a resource and a barrier to democratic and inclusive creative practice,
- And how I might challenge the limits of my perspectives, to work at preventing them from reinforcing the boundaries i wish to bridge or blur.

Contemplating these three concerns through the Master of Architecture thesis has informed not only the kind of architect, but the kind of person that I strive to be.

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