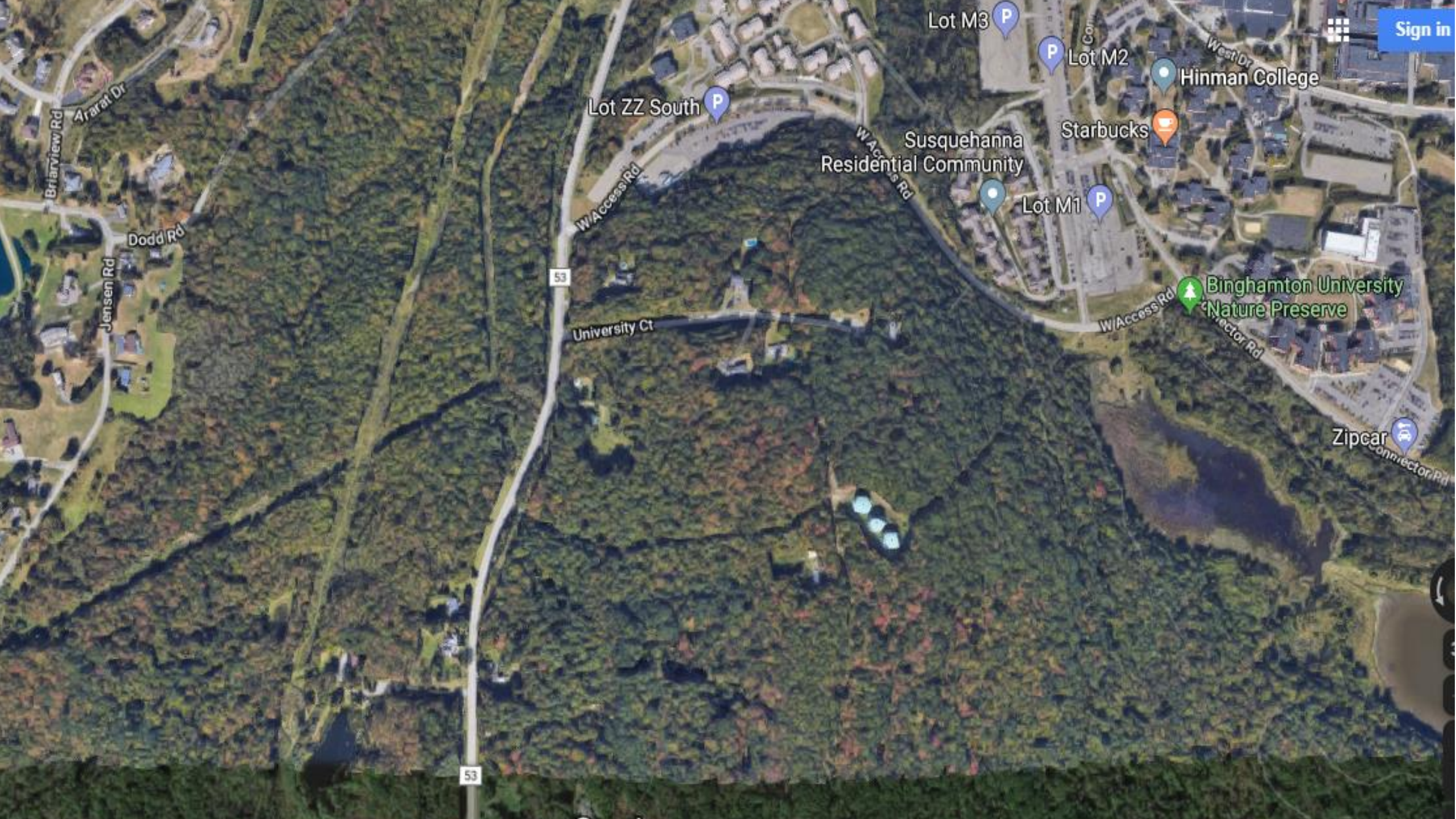




# Sustainable Architecture Initiatives at Binghamton University:

Updates on the Living Building and the Welcome Center





Sign in

Lot M3 P

Lot M2 P

Hinman College

Lot ZZ South P

Susquehanna Residential Community

Starbucks

Lot M1 P

53

University Ct

Binghamton University Nature Preserve

Zipcar

53









# Purpose Statement

**To...design and build a living building**

**In a way...that embodies, emulates and enhances the essence of the place**

**So that...through experimentation and hands on research, education is transformed, a bridge is built between the University and the community, and we demonstrate how humans can be positive contributors to natural systems**





What is the  
Living  
Building  
Challenge?




LIVING  
BUILDING  
CHALLENGE<sup>SM</sup>  
3.0


A Visionary Path to a  
Regenerative Future



# SUMMARY MATRIX

The 20 Imperatives of the Living Building Challenge: Follow down the column associated with each Typology to see which Imperatives apply.

 Imperative omitted from Typology

 Solutions beyond project footprint are permissible

	LIVING BUILDING CHALLENGE 3.1			
	BUILDINGS	RENOVATIONS	LANDSCAPE + INFRASTRUCTURE	
PLACE				01. LIMITS TO GROWTH
	SCALE JUMPING		SCALE JUMPING	02. URBAN AGRICULTURE
			SCALE JUMPING	03. HABITAT EXCHANGE
				04. HUMAN-POWERED LIVING
WATER			SCALE JUMPING	05. NET POSITIVE WATER
ENERGY			SCALE JUMPING	06. NET POSITIVE ENERGY
HEALTH + HAPPINESS				07. CIVILIZED ENVIRONMENT
				08. HEALTHY INTERIOR ENVIRONMENT
				09. BIOPHILIC ENVIRONMENT
MATERIALS				10. RED LIST
			SCALE JUMPING	11. EMBODIED CARBON FOOTPRINT
				12. RESPONSIBLE INDUSTRY
				13. LIVING ECONOMY SOURCING
				14. NET POSITIVE WASTE
EQUITY				15. HUMAN SCALE + HUMANE PLACES
				16. UNIVERSAL ACCESS TO NATURE + PLACE
			SCALE JUMPING	17. EQUITABLE INVESTMENT
				18. JUST ORGANIZATIONS
BEAUTY				19. BEAUTY + SPIRIT
				20. INSPIRATION + EDUCATION



# PLACE



- Don't build on virgin land
- Incorporate agriculture
- Offset developed land with permanent habitat elsewhere
- Encourage human powered movement



WATER



- Net-Zero Water
- Rainwater
- Waste Water Treatment



# ENERGY

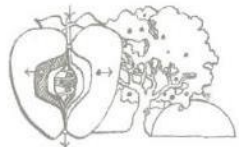


- Net Positive
- No On-Site Combustion
- Resilience

Rooftop Solar Array at The Bullitt Center  
Seattle, WA  
Photo: Benjamin Benschneider



# HEALTH & HAPPINESS



- Operable windows
- Indoor air quality
- Biophilia



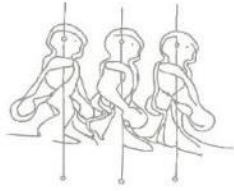
# MATERIALS



- Most challenging
- Red list of materials/chemicals
- Understand and offset embodied carbon
- Regional materials
- Reduce or eliminate waste



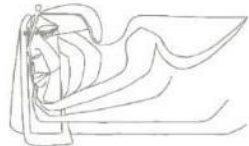
# EQUITY



- Human Scale
- Universal Design



BEAUTY



VanDusen Botanical Garden  
Visitor Center, Vancouver, BC  
Photo: Nic Lehoux / Courtesy: Perkins+Will

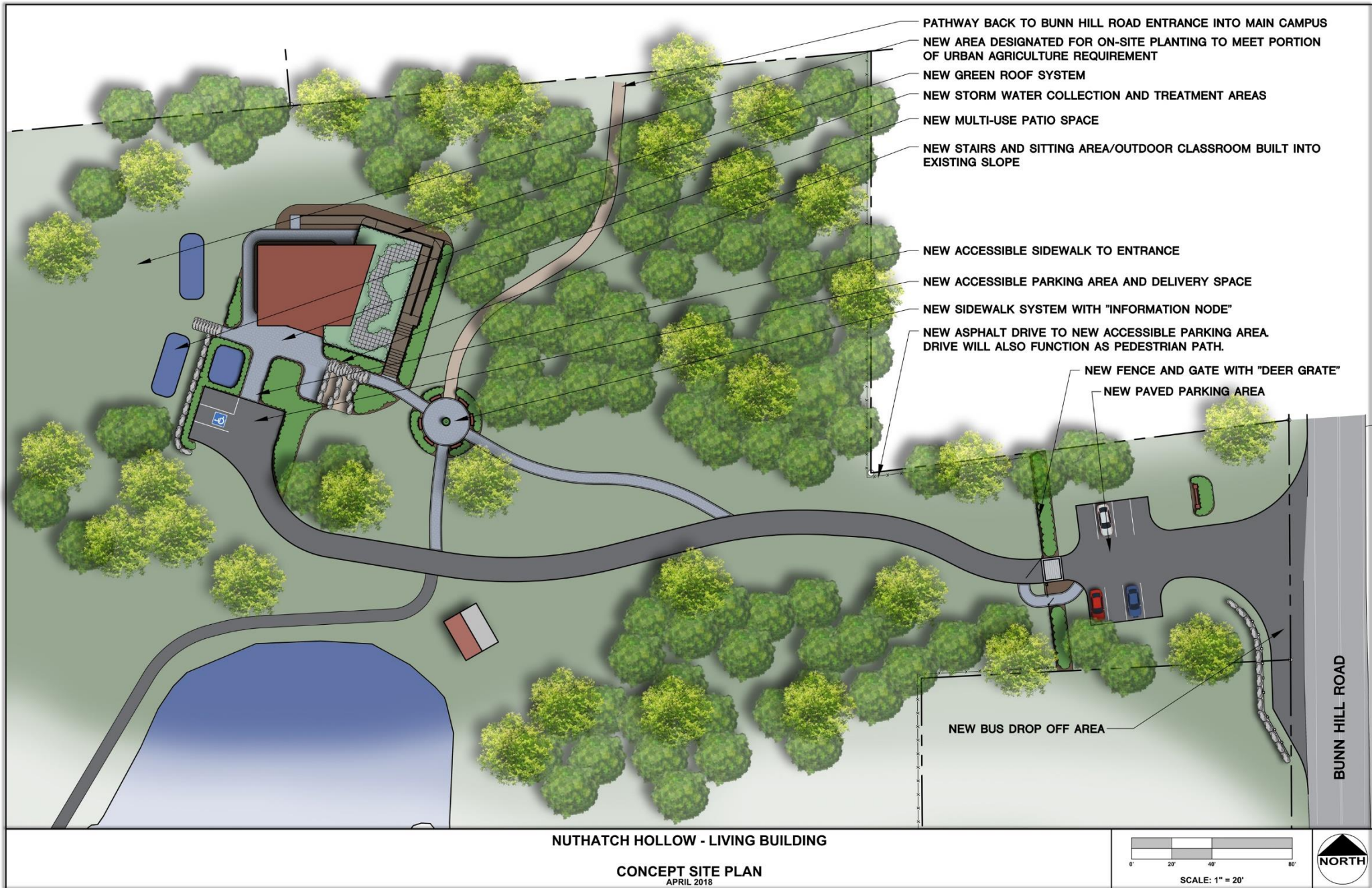
- Occupant Well-Being



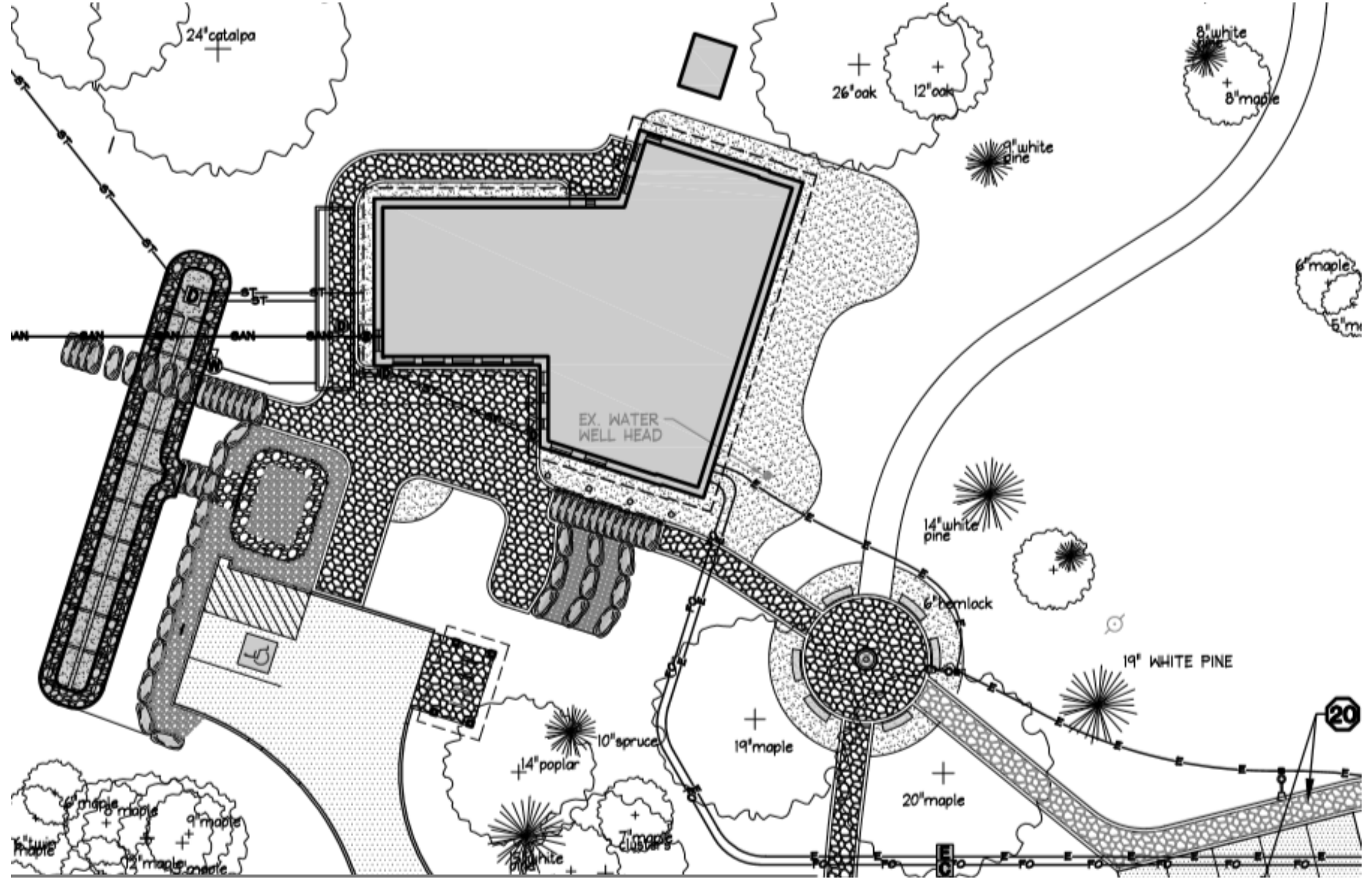


DESIGN UPDATE































# Net Zero Water

- Reuse existing well – predicted water use is 70 gallons per day (GPD) total
- Ultra low flow faucets- 44 GPD hot water
- Clivus Multrum Waterless Composting Toilet
- Leach Field for greywater

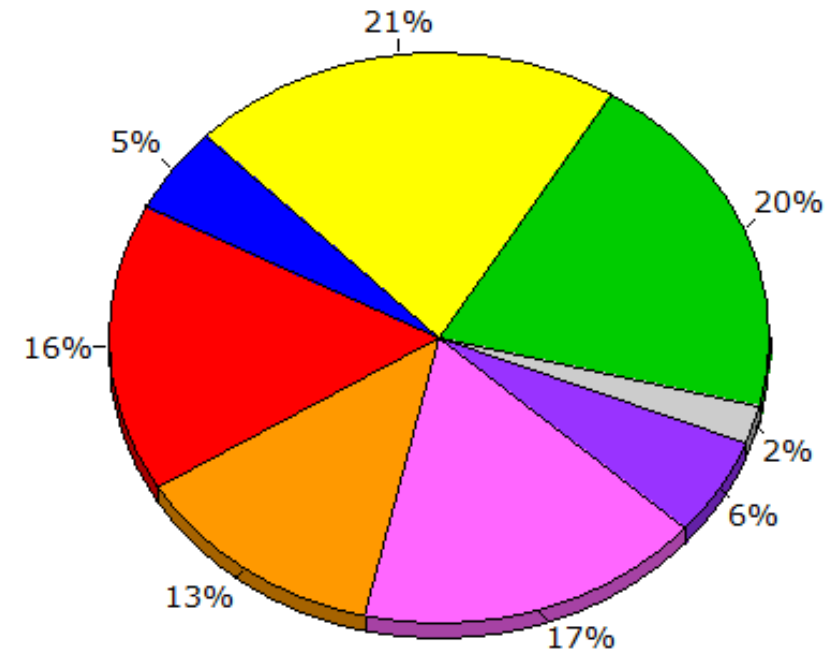




# Energy Modeling – eQUEST

## Annual Energy Consumption by Enduse

	Electricity kWh
Space Cool	708
Heat Reject.	-
Refrigeration	-
Space Heat	2,358
HP Supp.	-
Hot Water	1,810
Vent. Fans	2,437
Pumps & Aux.	793
Ext. Usage	316
Misc. Equip.	2,884
Task Lights	-
Area Lights	3,068
<b>Total</b>	<b>14,375</b>





# Challenges

- Coordination
- Materials research
- Public bid process
- Keeping momentum
- Existing perceptions



# Success

- Involvement and interest from many diverse groups
- Pushing the envelope to change existing notions
- Creating a toolbox of skills for future projects



# What's next?

- Bid documents – December 2019
- Construction – Spring 2020 to Summer 2021
- Performance Period – Fall 2021 to Fall 2022
- LBC Certification – Spring of 2023













BINGHAMTON  
UNIVERSITY



# Lessons Learned for Future Projects

- Energy modeling and designing for the intended use
- Focusing on locally sourced, more sustainable, healthy materials







Thank You

Danielle Moyer