



**OLDS
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Constructed Wetlands for Research, Training and Industry Support at Olds College

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Olds College Centre for Innovation**

Constructed Wetland Research

- Latest of Olds College applied research initiatives
- Focus on the use of constructed wetlands for pollution control and abatement in cold climates
- Will serve as outdoor laboratory for our students, scientists, faculty and staff



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We Recognize

The need to:

- Improve the health of aquatic environments in Alberta
- Improve water availability and quality for human use and economic development
- Recycle and reuse wastewater for environmental and ecological enhancement



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Alberta Water for Life

- Availability of water
- Water treatment and quality

For

- Human/Domestic
- Economic development and growth
- Environmental/Ecological health



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Treatment Wetlands and Botanical Gardens

- 12 hectares of wetlands
- Up to \$5.8 million spent to date
- 20 treatment ponds
 - 17 treatment ponds research ponds
 - 2 storage and 1 display pond
- Research – onsite research, offsite applications
- Training
- Enhancement of Biodiversity
- Water Conservation
 - More than triple our water storage capacity
 - Drought proofing
- Aesthetics

BOREAL FOREST AREA

CENTRAL
PARKLAND
AREA
CENTRAL
PARKLAND
AREA

15
NEW
OVERFLOW
POND

8 FOOT HIGH CHAIN LINK
FENCE WITH 5 STRANDS /
BARBED WIRE ABOVE

20

THE
MEADOWS

STONE
PATH
PERENNIAL
GARDENS
W/ HERBARIUM
ACCESSIBLE
W/ REAR T.B.D.
STONE PATH

CRAB APPLE
TREE PATHWAY
AMPHITHEATRE

DEMONSTRATION
PLOT AREA

CONSERVATORY

ARBORETUM

COMMON
AREA
(TENT SITE)

POND SCORING
ANALYSIS POINT
POND
WATER FEATURE

CECIL TRILLIS
WATER FEATURE

19

EXISTING
BUILDING
(RED BARN)

1

2

3

4

5

6

7

8

9

10

11

12

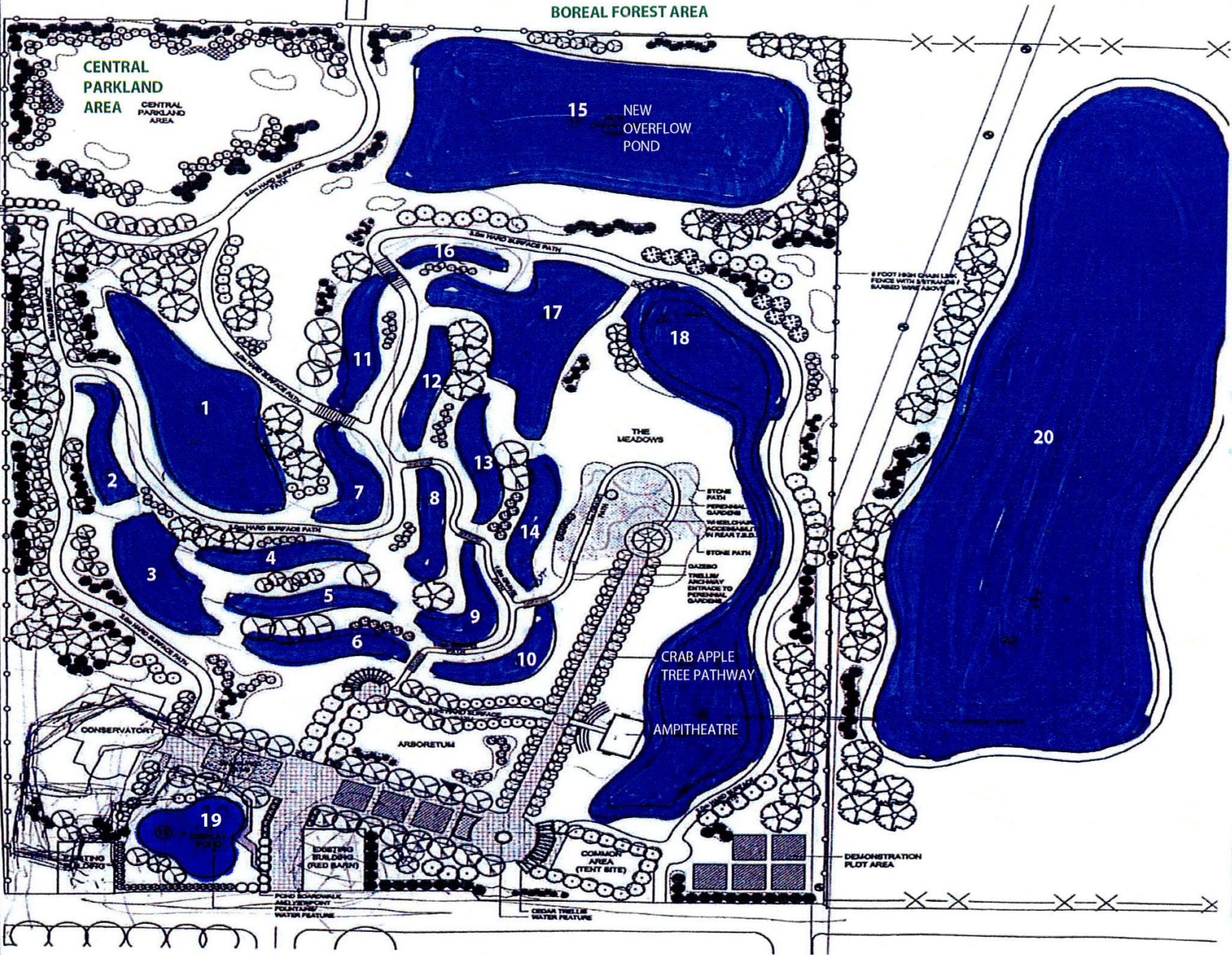
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Objectives

- Construct a research-scale “polishing wetlands” and desalination system at Olds College for the treatment of wastewater and produced water,
- Integrate wetland technologies to achieve the goals of the Alberta Water for Life strategy
- Produce high quality recycled water through removal of sediments, contaminants and undesirable nutrients from wastewater and produced water

Objectives

- Reduce the impacts on biological stages of the municipal wastewater treatment plant through treatment of swimming pool wastewater
- Reduce municipal salt costs for swimming pools and road application, through brine recycling
- Drought-proof the Olds College campus by tripling the water storage capacity.



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Research

Wastewater Treatment

- Storm water
- Grey water
- Saline water
 - Swimming pool
 - Produced water from Oil & Gas e.g. CBM
- Leachate and runoff from livestock and composting operations



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Research

Botanical

- Research on wetland plant species for Phytoremediation of contaminants
- Propagation and production of wetland plant species to meet market demands



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NSERC Research Funding Opportunities

- Applied Research and Development
 - Level 1 –
 - \leq \$25,000, one time
 - Level 2 –
 - \leq \$75,000 /year for up to 3 years
 - 1/3 industry contribution
 - Level 3
 - \geq \$75,000 per year for up to 3 years
 - 1/2 industry contribution
- Innovation Enhancement



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Resources

- Students, staff and faculty
- Facilities
- Collaborations
 - University of Alberta
 - University of Lethbridge
 - University of Calgary
- Partners



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Interpretive Complex

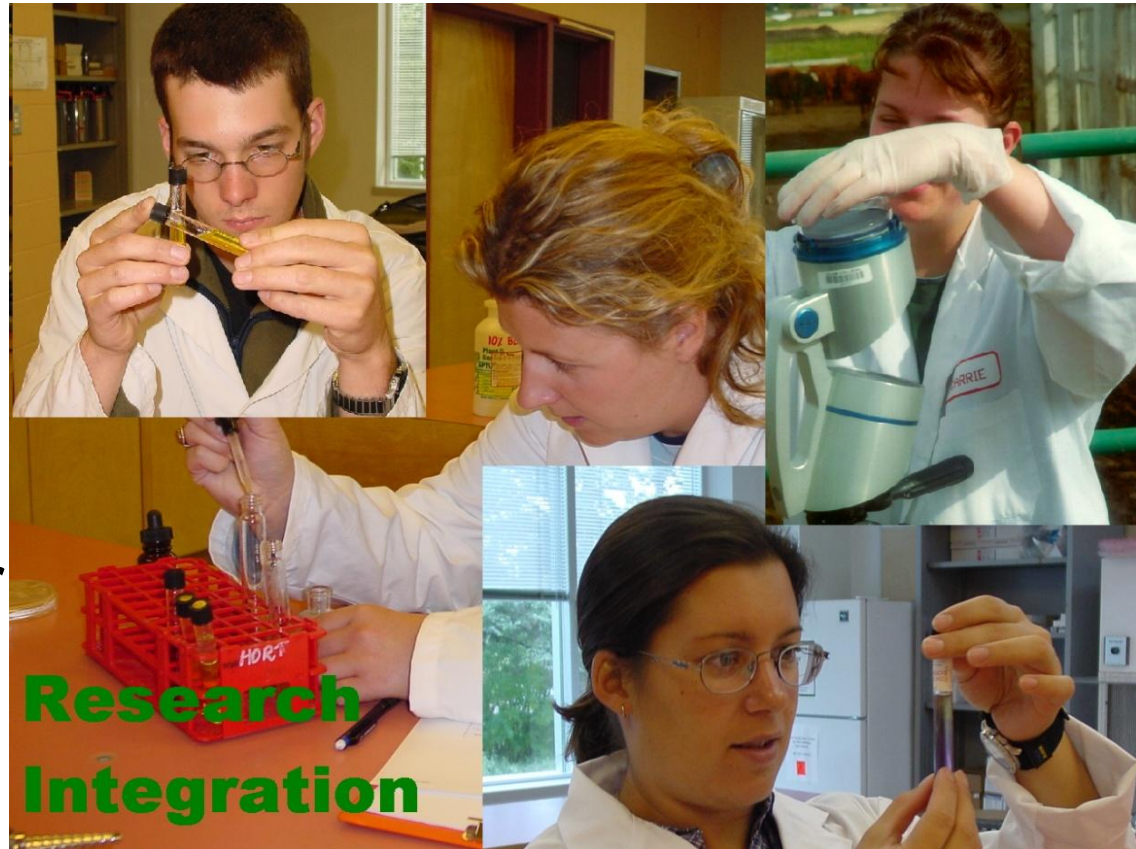
Includes the
Red Barn,
gazebo,
amphitheatre
and ecological
pathways



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Training Needs

- ▶ Wetlands
 - Outdoor laboratory students
- ▶ Industry training site
- ▶ Specialized laboratory for research and water quality testing
- ▶ Community programs



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Benefits of Partnership

- Access creative new ideas, people, facilities and equipment
- Stretch your research dollars (NSERC can match research dollars, contributions tax deductible)
- Link to problem-solving expertise and facilities
- Technology verification
- Reduced risk & cost
- Confidentiality maintained

What Next?

Olds College

- ▶ Construction completed
- ▶ Planting of wetlands species
- ▶ Soft landscaping
- ▶ Arboretum – Botanical gardens
- ▶ Continuous monitoring of wetlands performance and water quality.

Industry

- ▶ Your input and support for a successful wetlands research network
- ▶ One on one meetings with potential partners
- ▶ Detail project activities & research agreements
- ▶ Initiate research activities



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**Foothills
Landscaping Ltd.**

**Westhoff
Engineering
Resources, Inc.**



THE CITY OF
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Thank you



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Questions?