



CPS Engineering & Construction

2018 in Review

2019 Projects

Long Range Planning

Energy Assessment

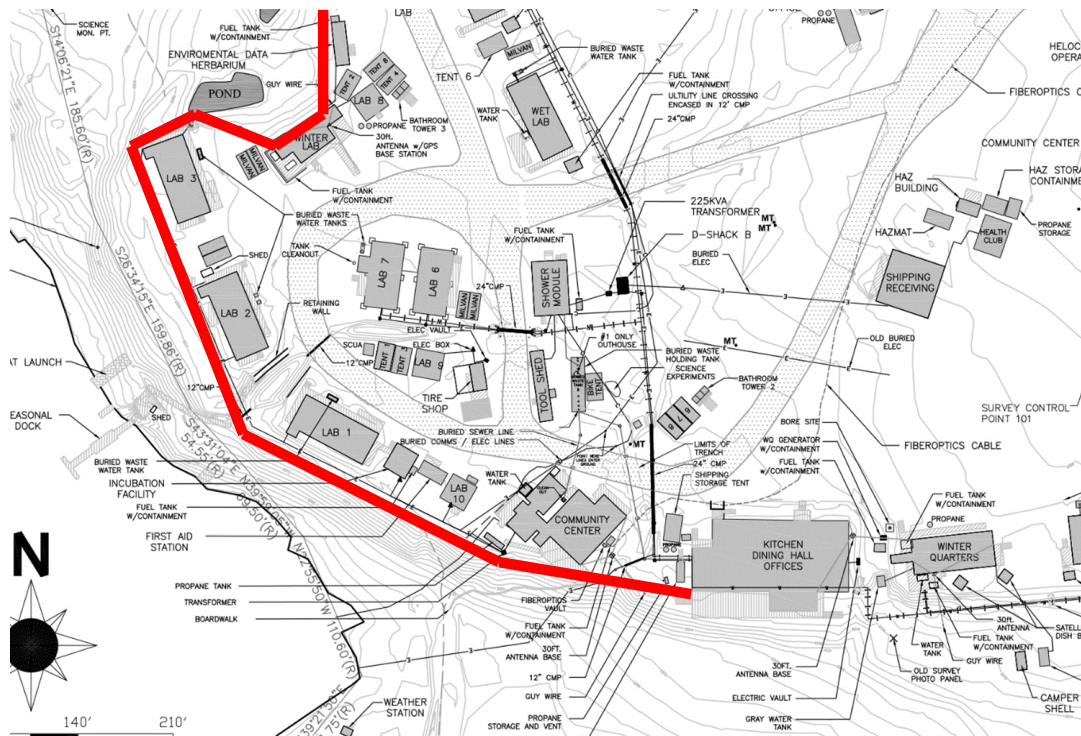
2018 Construction Projects

Dorms 7 & 8, Tent City outhouse



2018 Construction Projects

Fiber Ring Completion





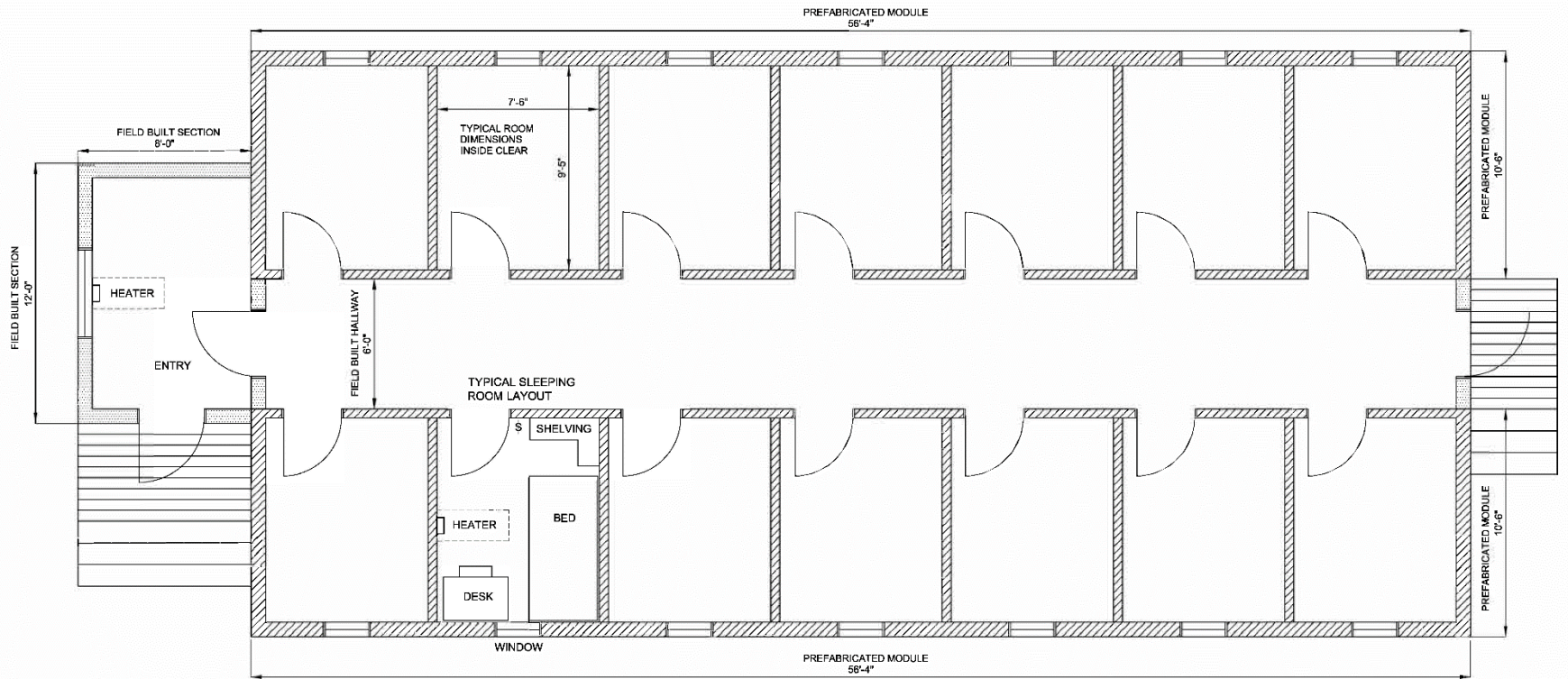
2018 Construction Projects

- Replacement 5000-gallon unleaded fuel tank
- Tent City electrical code compliance project
- Garage Unit Heater replacement
- Cottongrass Dormitory window replacement
- Safety Audit corrective actions

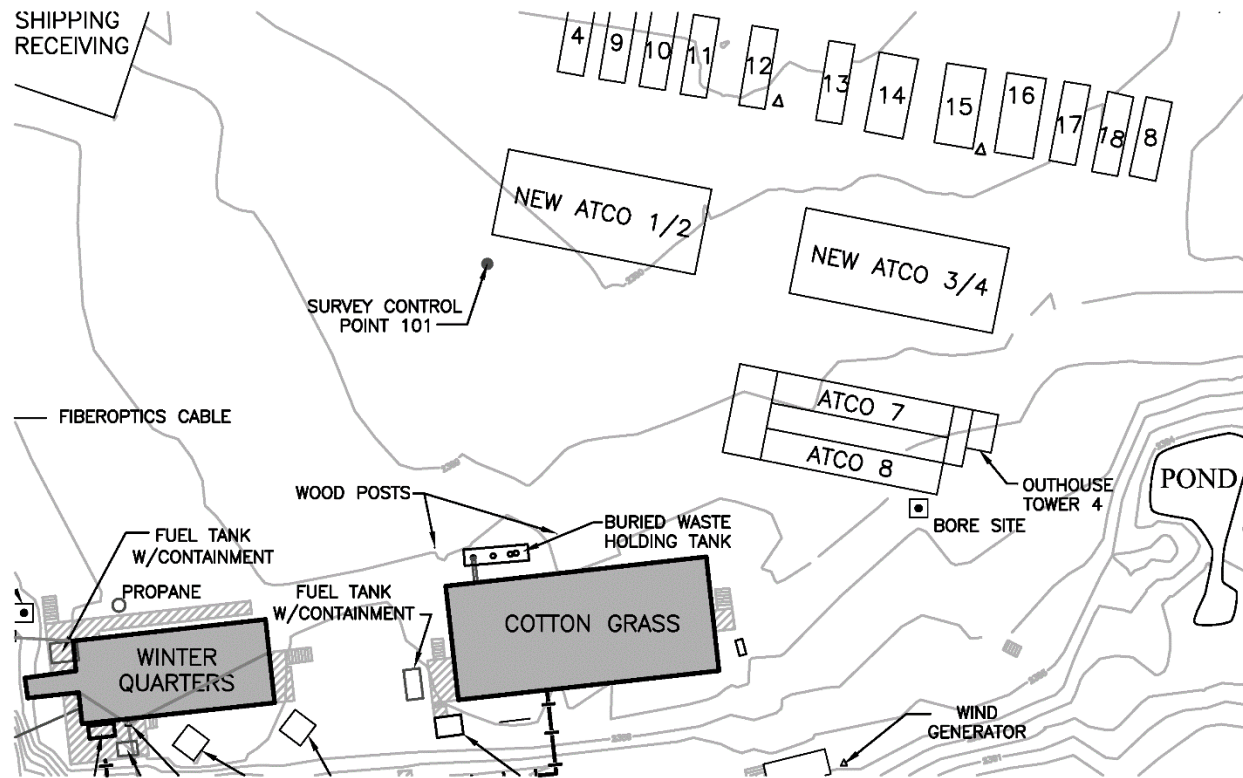
2019 Construction Projects

- Replacements for ATCOs 1-4
 - Two 14 bed units – 28 total beds
 - Single occupancy rooms
 - Prefabricated modules with field built hallway and entry, similar to Dorm 7/8
 - Designed for 3-season use
 - Cottongrass, Winter Quarters, and Dorm 7/8 are primary winter housing

ATCO 1-4 replacement



ATCO 1-4 replacement



2019 Construction Projects, continued

- Lab 6 flooring replacement
- Dining Facility ADA access ramp
- GIS trailer windows and flooring
- Cooling unit for Flux Hut
- UV reactor replacement in the water treatment system
- New fire suppression system for generator module 2
- Exterior paint for Labs 1-4
- Dorm 5 and 6 Hallway electrical upgrades
- Incubation Facility electrical upgrade
- Shipping/Receiving cover replacement
- Old weatherport blanket replacement – 4 each
- Single wall fuel tank replacement – 2 double wall tanks
- Generator fuel supply pipe replacement
- Waste Heat extension to Dining Facility (for summer hot water production)
- Small electrical projects: Lab 2, Old Pantry, NADP site, hardwire historical campers
- Common-use boardwalk upgrades

2019 Boardwalk and Science Construction

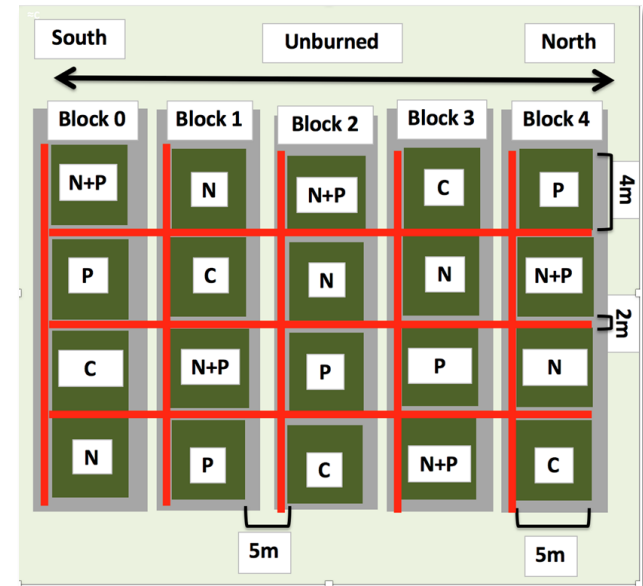


Worn tundra between the LTER boardwalk and Flux Hut



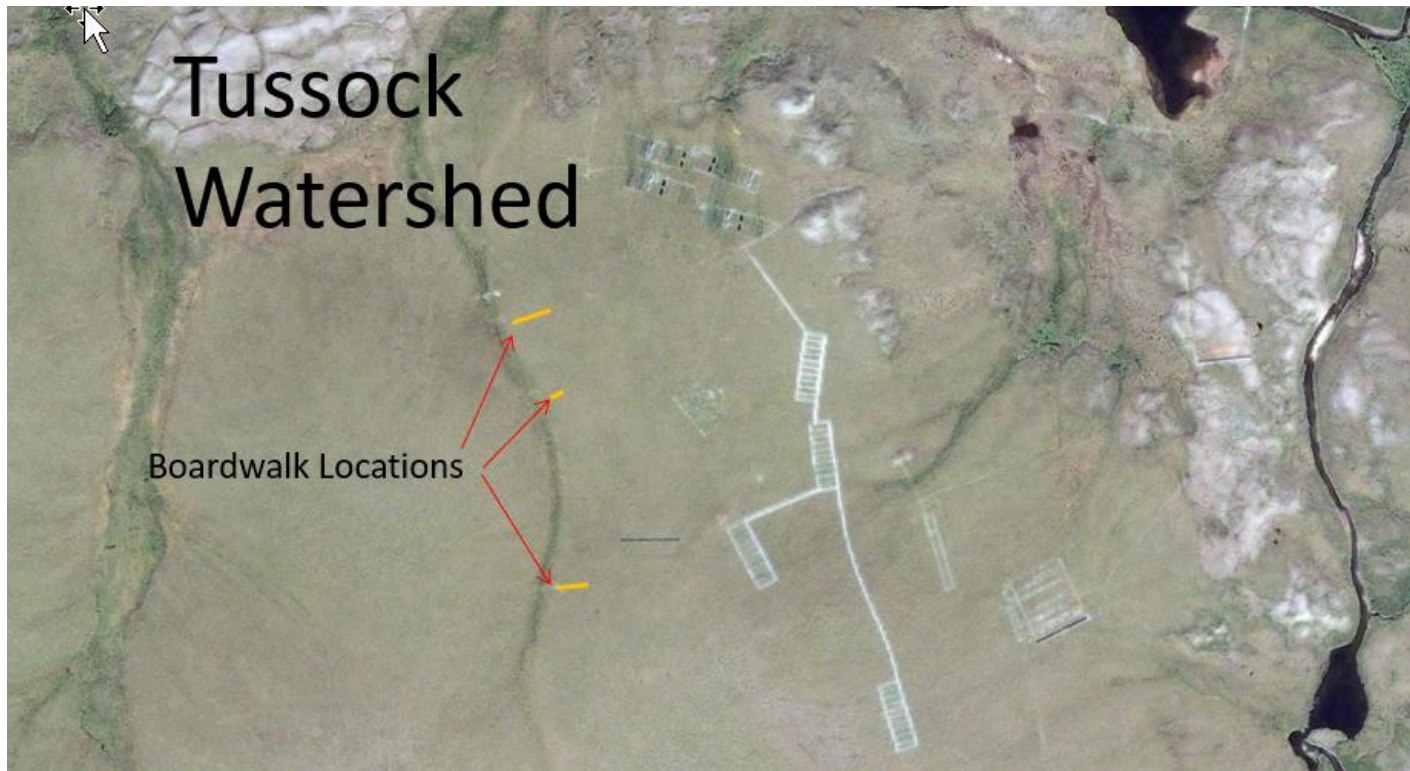
Rocha Boardwalk at Burn Site

- 30 meters of Tommydock-style boardwalk between their three tower sites and associated solar panel boxes
- 490 meters of plank boardwalk in a grid through their vegetation plots



LTER – 500 plank, location TBD

200 proposed new feet



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Snowfence Boardwalk

Areas that need attention in red

ITEX



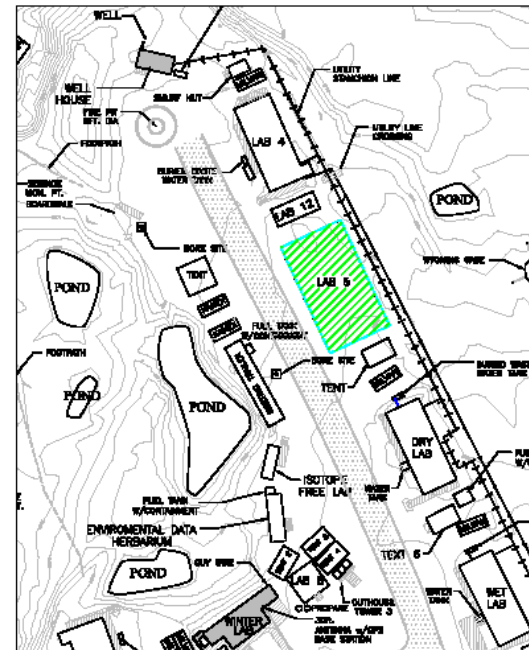
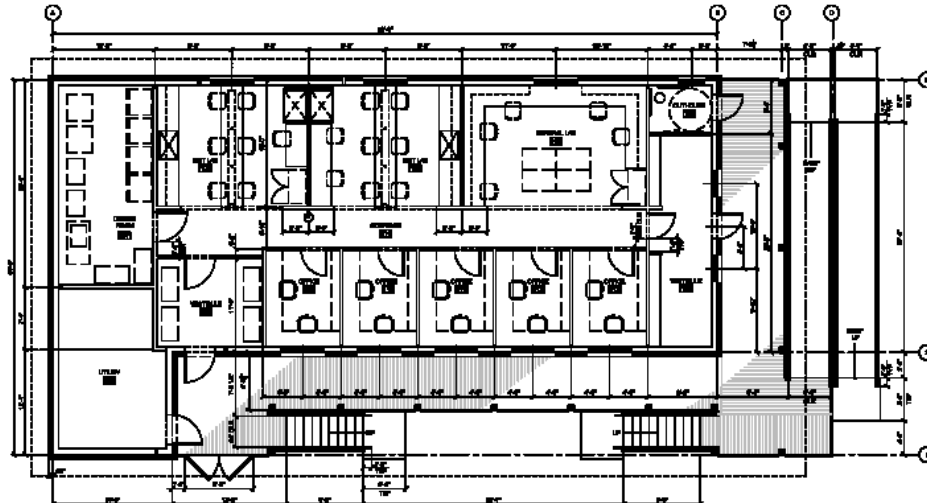
Helicopter Support

- Second year of Pollux contract – similar to last year
- Two R44 aircraft
- May 22nd to mid-September
- 267 estimated flight hours

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TOOLIK FIELD STATION - Lab #5



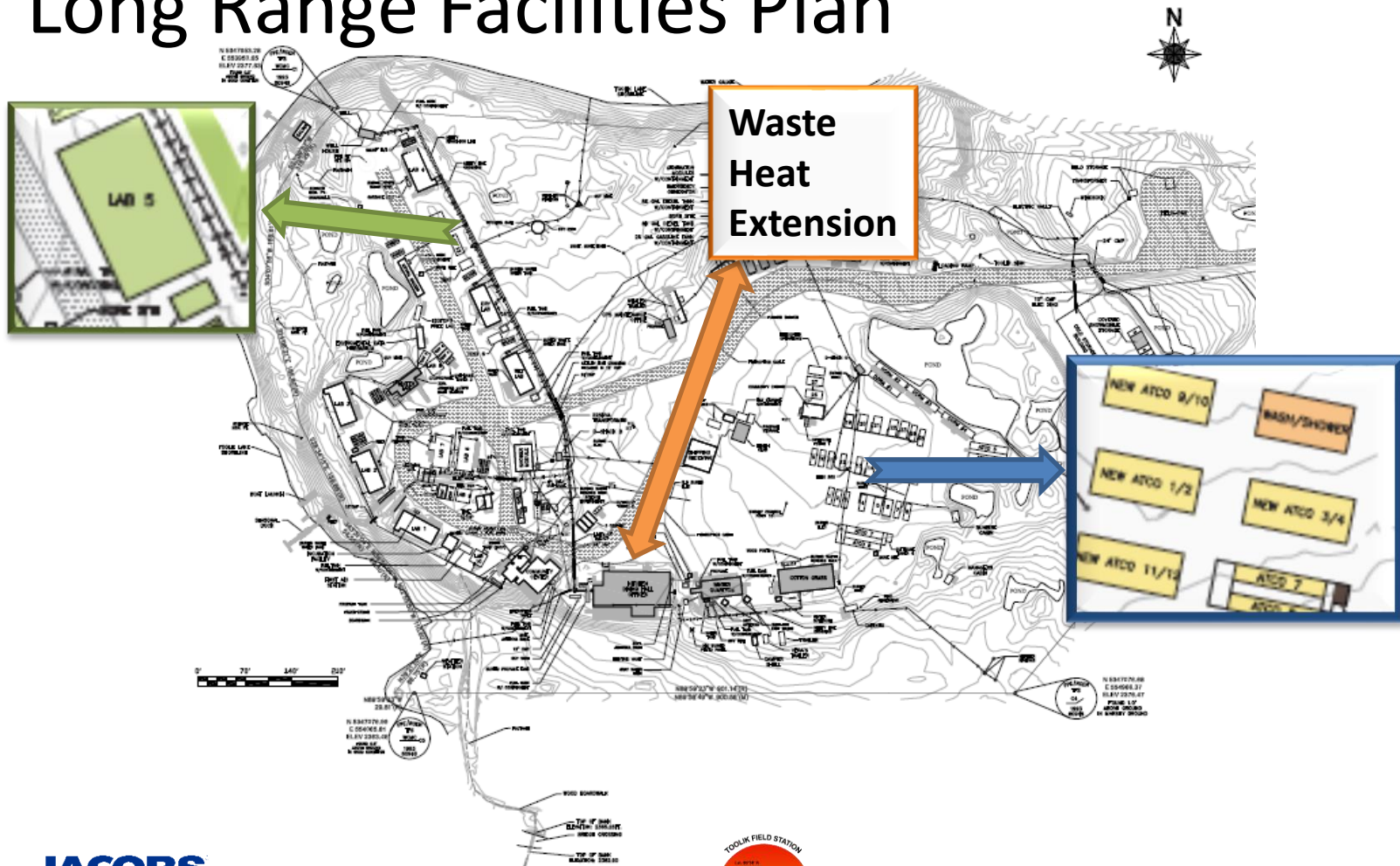
- General Purpose + Wet Lab space, offices
- Scheduled for completion in Fall 2020
- ~ \$2M construction cost

Long Range Facilities Plan

- Background
- Development history
- 2018 update

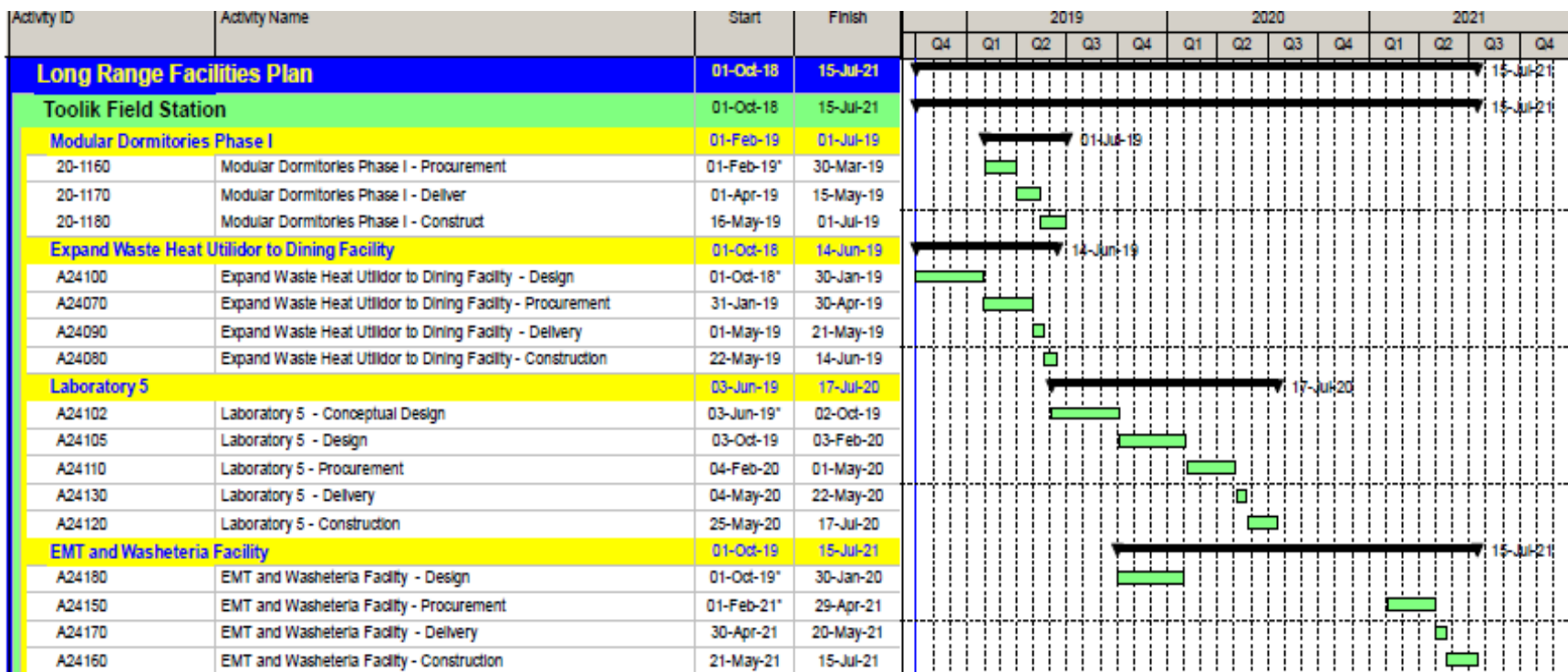


Long Range Facilities Plan



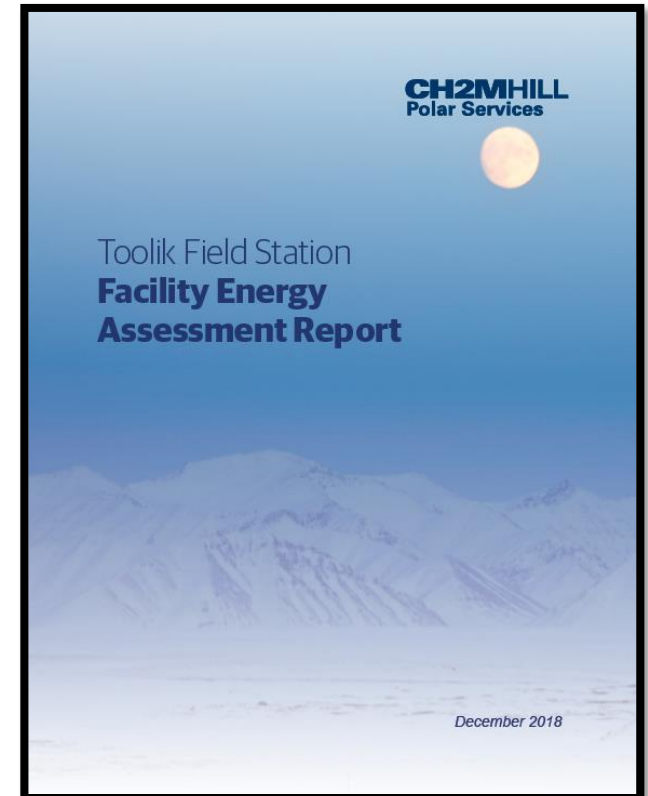
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Long Range Facilities Plan



Facility Energy Assessment

- Objective
 - Identify energy conservation measures for buildings with utility services
 - General data collection for facility systems (lighting, water, HVAC)
 - Energy and water profiles using provided meter/usage data to obtain baselines



Facility Energy Assessment

- Observations
 - LEDs, Occupancy Light Sensors, Programmable Thermostats, Waste Heat Recovery, Heat Recovery Ventilation, Occupant Awareness and Participation
 - Older facilities typically become more inefficient as aging occurs (ex: ATCOs 1 - 4)
 - Accuracy in data is a critical component to understanding energy usage (historically and future)

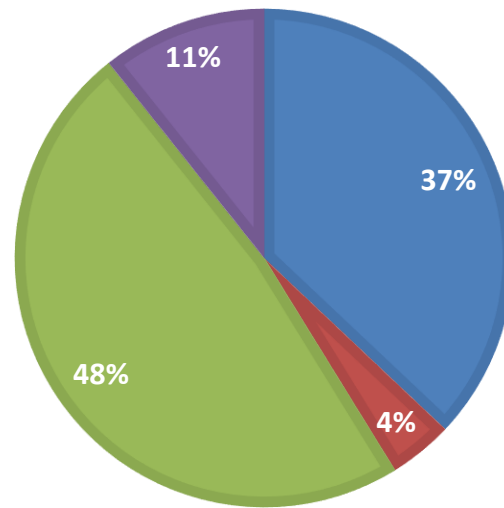
Facility Energy Assessment

Total Cost Savings

\$51,986

PERCENTAGE OF ENERGY SAVINGS BY TECHNOLOGY

■ Lighting ■ Water ■ HVAC Controls ■ Envelope



Facility Energy Assessment

- What's Next?
 - Energy Management (site-wide analysis)
 - Achieve Overall View of “Where We Are”
 - Renewable Technology Analyses and Path Forward Recommendations
 - Waste Heat Expansion Opportunities
 - Fuel Switch Analysis and Potential Recommendations
 - Waste Management Opportunities
 - Others
 - Provide a View of “Where We Can Be” and a Path Forward