

Westside Irrigation Rehabilitation Project

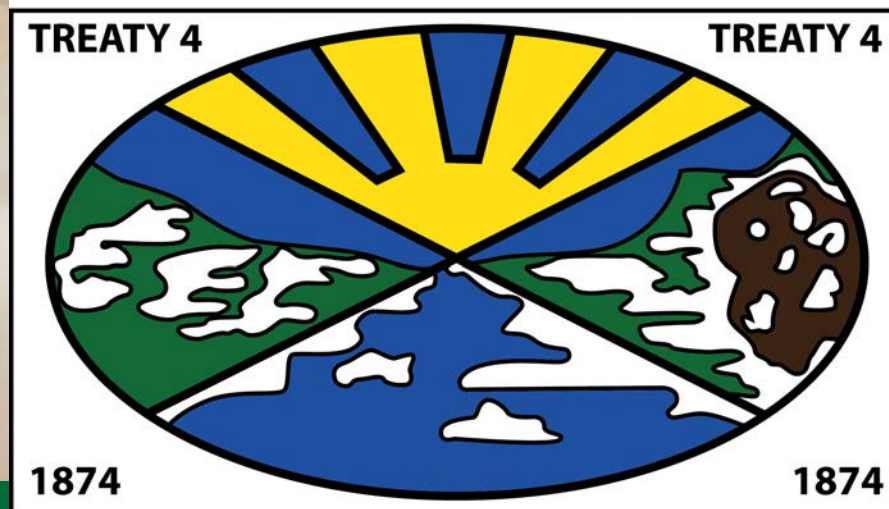
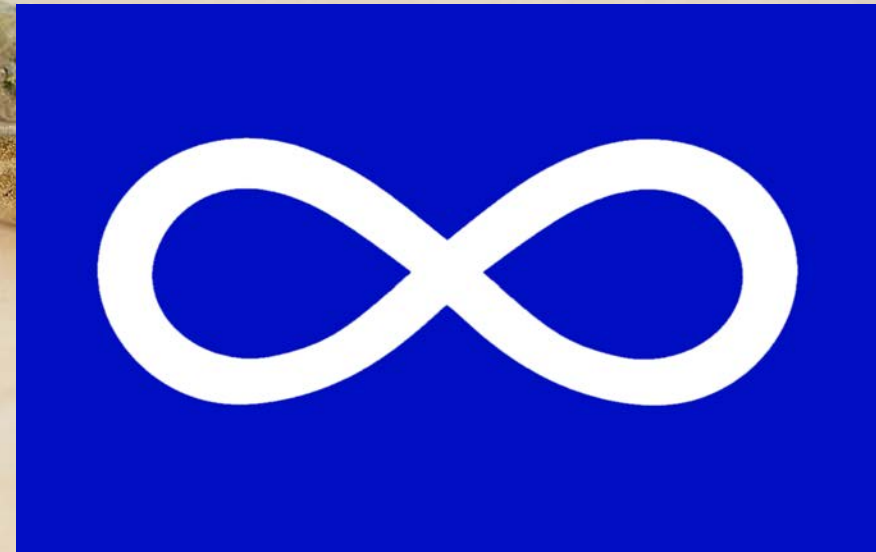
Introductory Project Presentation

Saskatchewan has a great irrigation story to tell. This is one of those stories.

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We acknowledge....





Project Description Summary

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Lake Diefenbaker: Water Use Sustainability

Vision was for 500,000 acres of flood irrigation

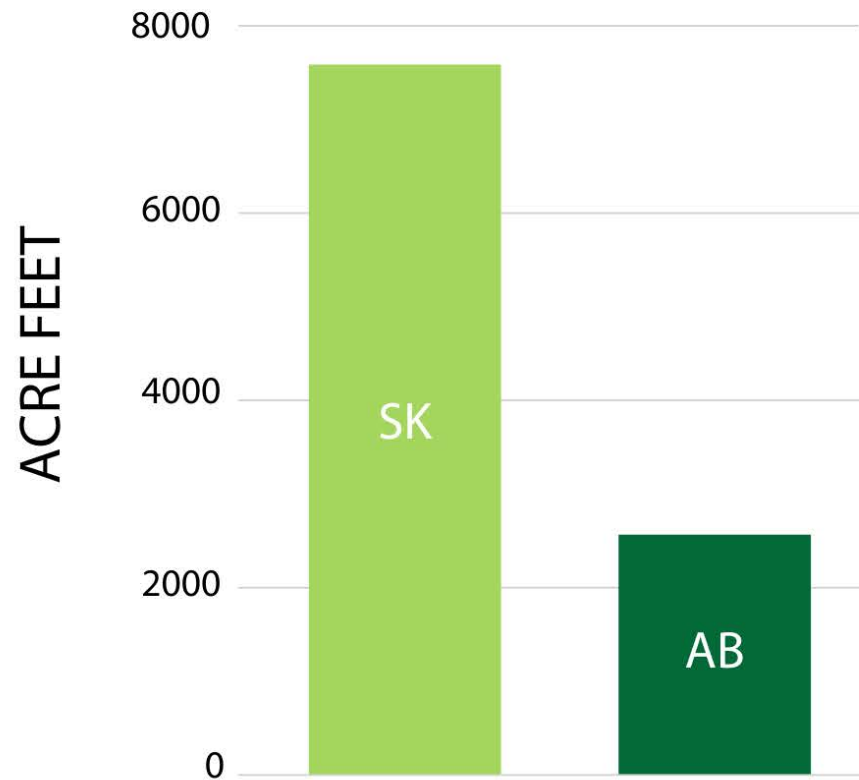
- Lake Diefenbaker is one of the largest untapped sources of water in Canada.
 - 9.6 million dam³ (7.8 million ac-ft) storage
 - 225 km long, with 800 km of shoreline
 - Surface area is ~110,000 acres
 - Maximum depth of 58 m (190 ft)
- One metre of water provides 300,000 individuals with water for 18 years.
- Lake Diefenbaker supplies water to 60 per cent of Saskatchewan's population.



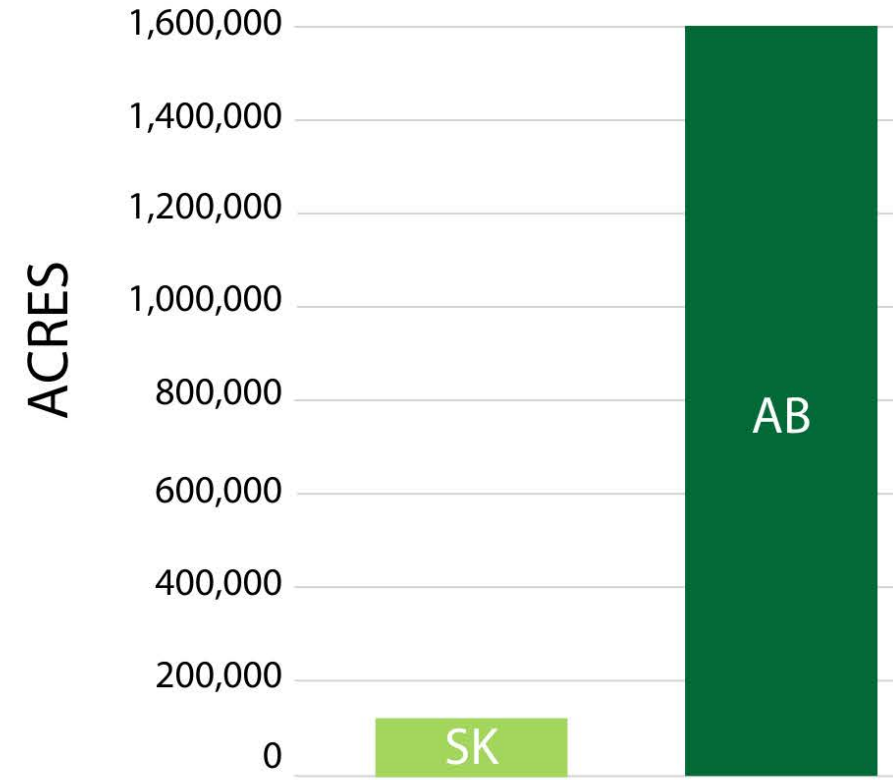
Apportionment and Priority of Use

Water Use Sustainability

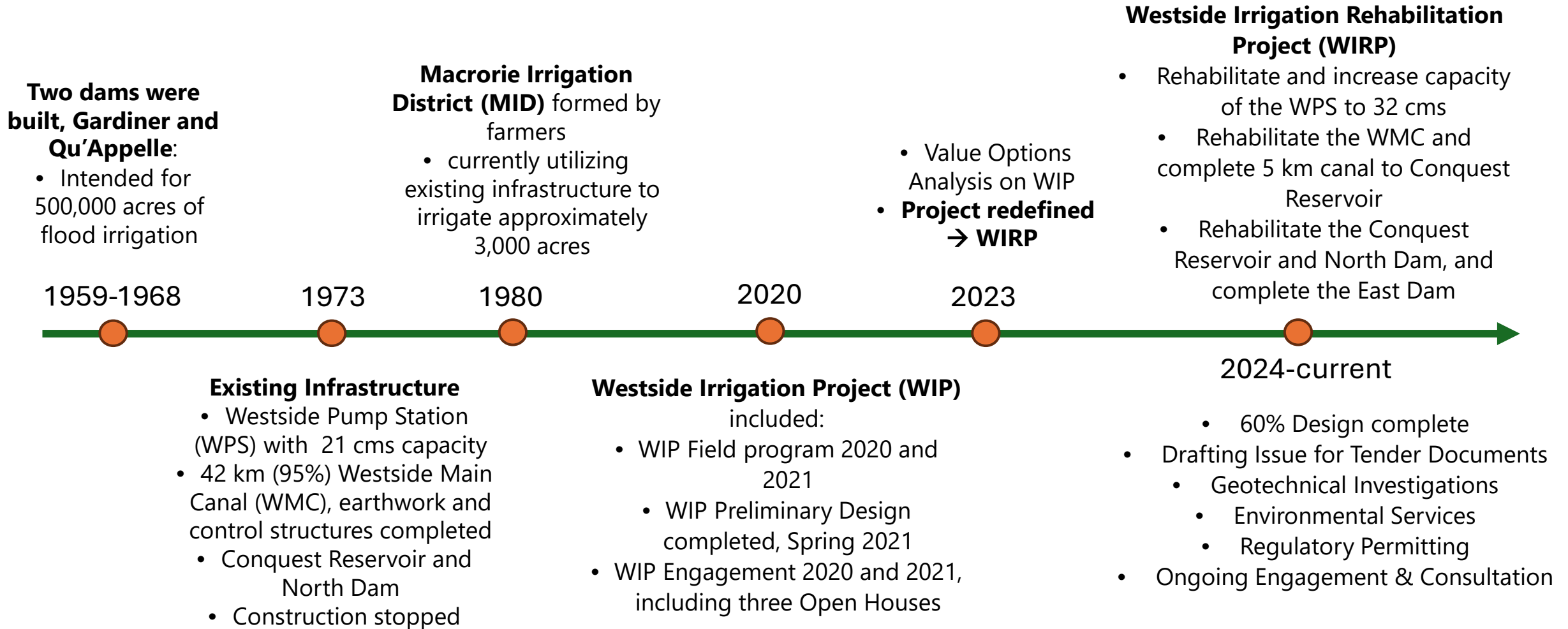
Water Storage Comparison



Irrigated Acres

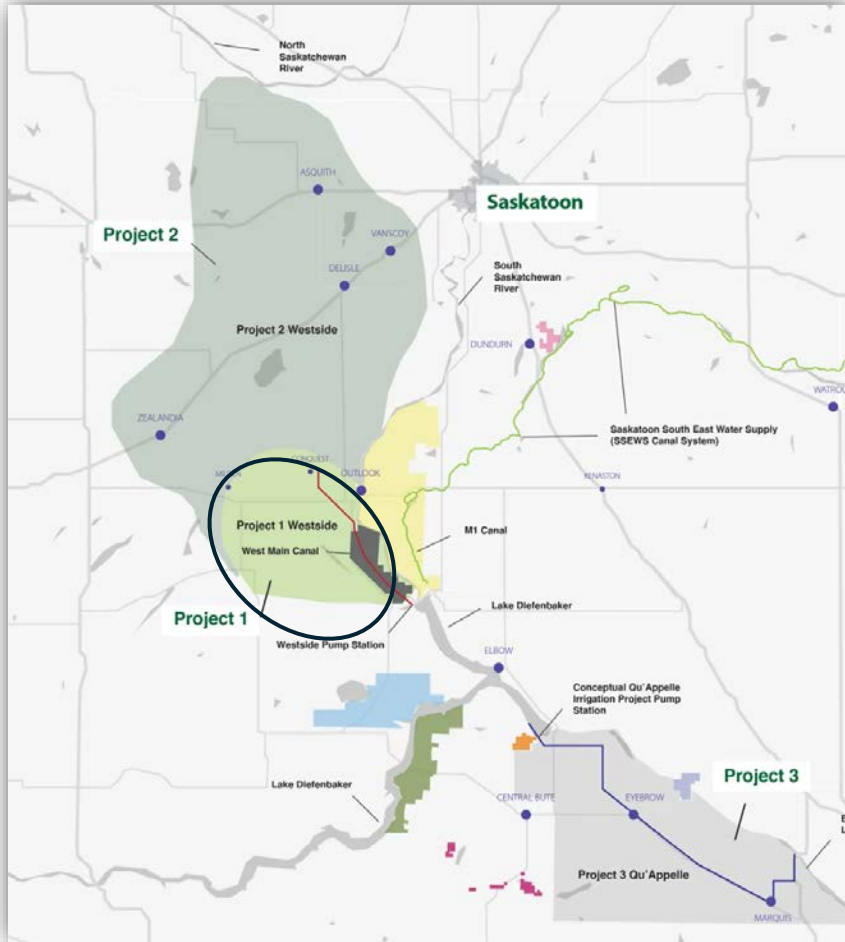


Evolution of the Westside Irrigation Projects

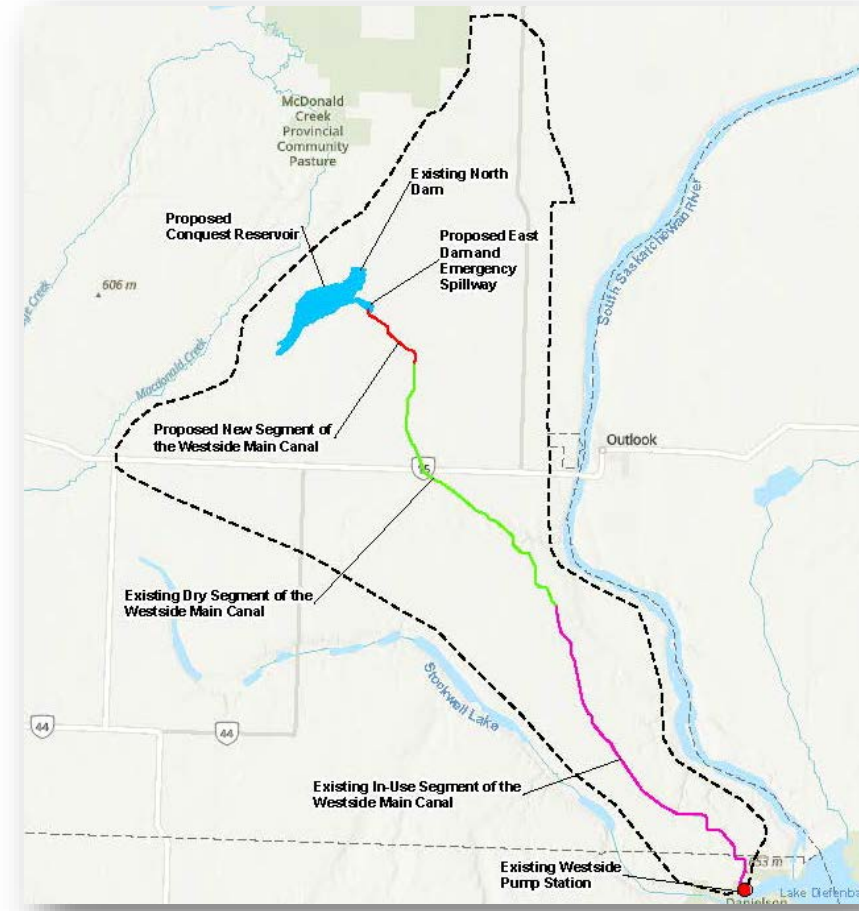


Evolution of the Westside Irrigation Projects

Westside Irrigation Project (WIP)



Westside Irrigation Rehabilitation Project (WIRP, Current Project)



Westside Irrigation Rehabilitation Project (WIRP)

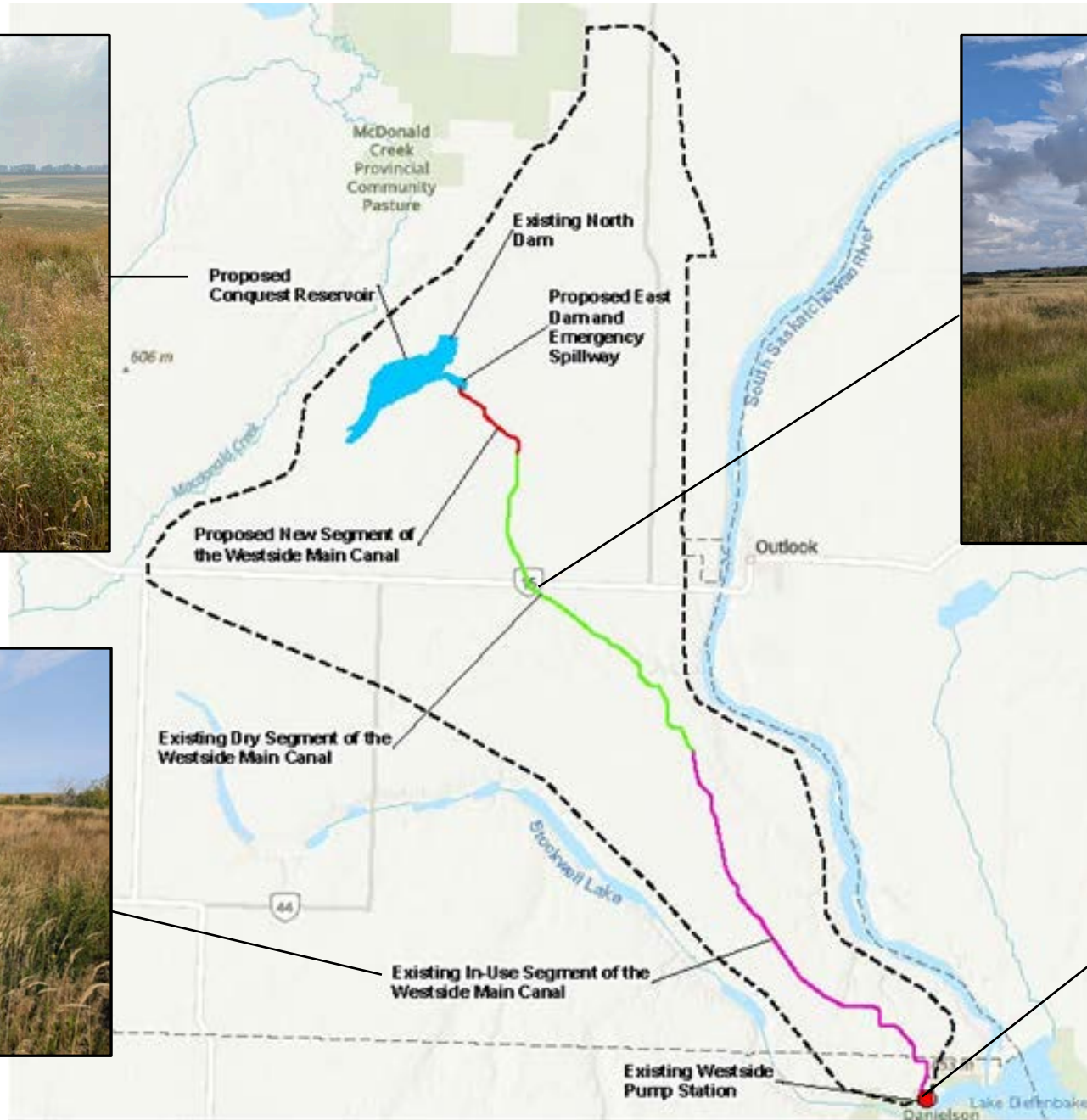
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Vision: A sustainable project that is supported by producers.

To move forward on the 100,000-acre project we need to:

- Maximize the capacity of the pump station
- Rehab and complete the Westside Main Canal (WMC)
- Finish the Conquest Reservoir
- Support distribution opportunities





Existing Project Components

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- Westside Pump Station (WPS): stopped construction at completion of substructure
- Westside Main Canal (WMC): original construction was 95% complete (42 kilometres) before discontinuation in 1973
- Conquest Reservoir (CR): The larger North Dam was completed for the Conquest reservoir
- This infrastructure is currently being used by the Macrorie Irrigation District

Westside Pump Station

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- Existing pump station will be rehabilitated
- Modifications to increase capacity 50% from 21 cubic metres per second (cms) to the maximum of 32 cms when required
- Design adjustments based on discussions with DFO to evaluate screen size for intakes (2.54 mm slot openings)
- Approach velocity 0.1 m/s

Westside Main Canal

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Existing Wet Westside Main Canal



Existing Dry Westside Main Canal



Eastside Canal (28 m³/s)

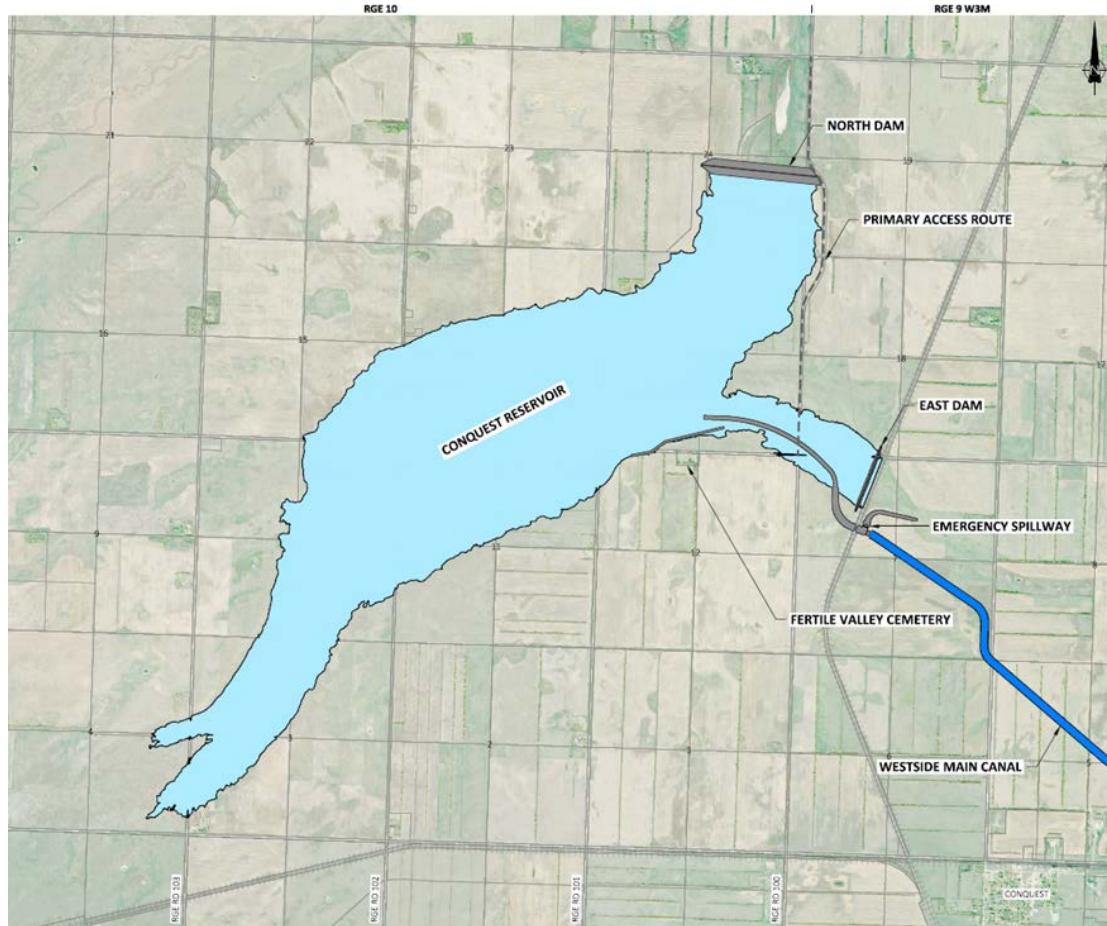
- Rehabilitation of 42 km of existing canal (23 km wet, 19 km dry)
- Increase the canal to 32 cms
- Optimize the current Right-of-Way
- Fully lined (buried plastic liner)
- Rehabilitation or replacement of existing cross drains
- 5 km of new canal to connect the current infrastructure to Conquest Reservoir

Conquest Reservoir

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Design Items

- Upgrades to the existing North Dam (in photo)
- Construction of a new East Dam
- Designed as a closed system
- Emergency spillway to direct water back to the South Saskatchewan River in a greater than 1:1,000-year event



View from North Dam looking south to Conquest Reservoir

Project Update

Planning and Design Activities:

- Modeling of Project Impacts to Lake Diefenbaker
- Additional Soils Investigations
- Regulatory Permitting
- Heritage Resource Surveys
- Geotechnical Supplementary Investigations
- Irrigation System Design
- Lands discussions
- Borrow pit and aggregate investigations



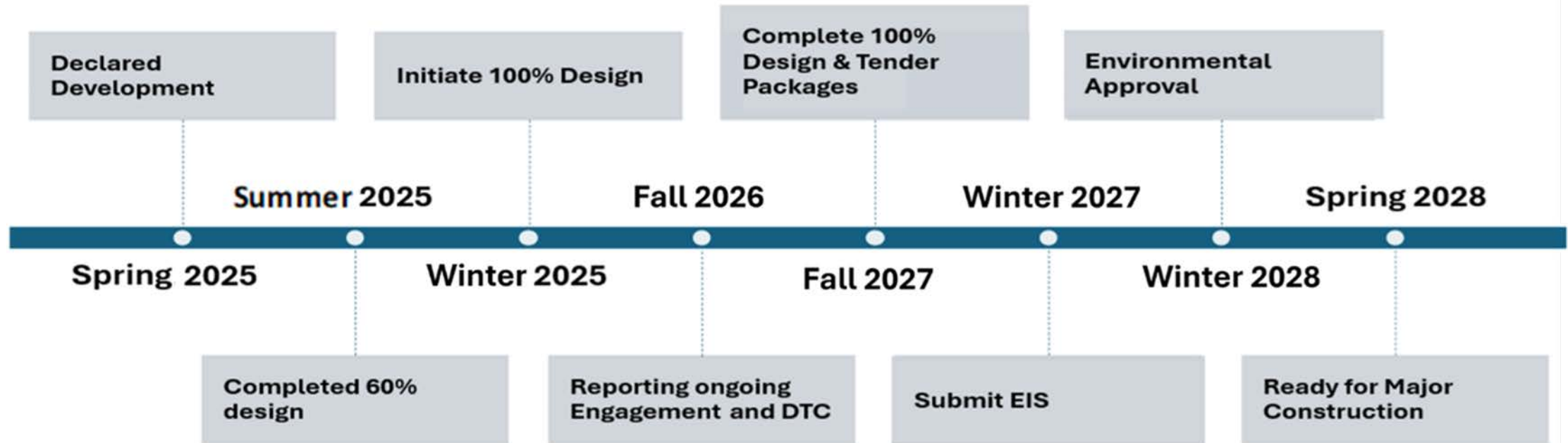
Project Update

Studies Completed and Underway

- Amphibian auditory
- Amphibian visual
- **Archaeology**
- Avian migration
- Bat Acoustics
- Burrowing owl
- Common nighthawk
- Fish habitat
- Fish sampling
- Grassland breeding bird
- Groundwater sampling
- Prairie raptor
- Piping plover
- Sharp-tailed grouse
- Short-eared owl
- Soil sampling
- Surface water sampling
- Vascular plant (Terrestrial and Aquatic)
- Vegetation community surveys



Current Project Schedule





Environmental Impact Statement (EIS): Valued Components and Field Studies

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Provincial Environmental Assessment Process

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Key purposes of the environmental assessment process are to:

- Identify and evaluate potential impacts to the environment attributable to the Project
- Compare alternative means to development
- Identify mitigation and monitoring measures, as needed
- Support informed decision making
- Support sustainable development
- Encourage public and Indigenous participation



Provincial Environmental Assessment Process – Terms of Reference

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Terms of Reference (TOR) – approved January 2026

- The TOR integrated feedback from ENV on the biophysical, socio-economic, and cultural components that are assessed in the Environmental Impact Statement (EIS)
- The TOR outlines aspects to be assessed in the EIS and defines consultation and engagement requirements



Westside Irrigation
Rehabilitation Project (WIRP)
Terms of Reference

Pursuant to
The Environmental Assessment Act

 Water Security
Agency

wsask.ca

Provincial Environmental Assessment Process – Environmental Impact Statement

Environmental Impact Statement (EIS) – underway

- The EIS builds from the TOR to assess the biophysical, socio-economic, and cultural components that have been identified as valued components.
- Valued components (VCs) are environmental attributes identified as having legal, scientific, cultural, economic or aesthetic value.
- The goal of the EIS is to identify potential impacts to the VCs resulting from Project-related activities. Additionally, the EIS will:
 - Incorporate feedback from consultation and engagement
 - Proactively identify alternatives and mitigations to reduce or avoid impacts
 - Assess cumulative effects

Engagement, DTC and TLU Study

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- **Engagement**
- **Consultation** with First Nation and Métis communities guided by the provincial *First Nation and Métis Consultation Policy Framework*.
 - Duty to Consult has been triggered
- **Traditional Land Use Study**



Provincial Environmental Assessment Process – Engagement Objectives

Why is engagement important?

- Identify potential issues, interests, and concerns related to the Project
- Feedback will be integrated into the EIS for assessing Project effects and potential mitigations
- The general public and stakeholders will be provided with an opportunity to comment on the final EIS and technical review comments prepared by the Ministry of Environment

EIS - Valued Components (VCs)

- Air Quality
- Acoustic Environment
- Topography and Soils
- Groundwater Quality and Quantity
- Surface Water Quality and Quantity
- Fish and Fish Habitat
- Vegetation and Wetlands
- Wildlife and Wildlife Habitat
- Social, Economic and Health
- Archaeology and Heritage
- First Nations and Métis Land Use (Traditional Knowledge)



Technical Data Reports (TDRs)

The objective of TDRs are to summarize and assess data collected during biophysical field surveys. They establish a baseline from which to evaluate potential Project-related effects, including residual and cumulative effects, in the EIS.

TDRs for the following VCs will be completed and appended to the EIS:

- Topography and soils
- Surface water
- Groundwater
- Fish and fish Habitat
- Vegetation and Wetlands
- Wildlife and Wildlife Habitat
- Traditional Land and Resources Use Report

Air Quality

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Rationale for Inclusion

Potential for the Project to result in a:

- Change in air quality
- Change in greenhouse gases from construction and operations of the Project

Baseline

- Review of publicly available information e.g., historical ambient air monitoring data

Field Studies

- None completed

Next Steps

- Assess potential change in air quality in the EIS, provide mitigation measures where effects are identified.



Photo: Example of an agricultural field with irrigation pivot.

Acoustic Environment

Rationale for Inclusion

Potential for the Project to result in a:

- Change in sound levels

Baseline

- Review of publicly available data in the context of Health Canada Guidance for Evaluating Human Health Effects in Impact Assessment: Noise, Alberta Utilities Commission Rule 012: Noise Control, etc.

Field Studies

- Noise monitoring conducted in 2022 near the existing WPS and within the Sandy Shores Resort

Next Steps

- Complete Noise Assessment for the Westside Pump Station.
- Assess potential change in acoustic environment in the EIS, provide mitigation measures where effects are identified.



Photo of the existing Westside Pump Station

Topography and Soils

Rationale for Inclusion

Potential for the Project to result in a:

- Change in topography
- Change in soil quantity
- Change in soil quality

Baseline

- Review of publicly available information e.g., Canadian Soil Information Services, Saskatchewan Soil Information Service, The Soils of Rosetown Map Area, etc.

Field Studies

- Soil surveys were completed in 2025 within the WMC and CR north of Conquest, SK:
 - 16 soil inspection locations

Next Steps

- Complete Technical Data Report.
- Assess potential change in soil quantity and quality in the EIS, provide mitigation measures where effects are identified.



Photo of soil test pit

Groundwater

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Rationale for Inclusion

Potential for the Project to result in a:

- Change in groundwater quantity (groundwater levels/pressure regimes and flow patterns)
- Change in groundwater quality (hydrochemical composition of groundwater)

Baseline

- Review of publicly available geologic/hydrogeologic information.

Field Studies

- Groundwater sampling, geotechnical data, baseline hydrochemical information
 - 33 stations were tested with depths ranging from approximately 5 – 12 m

Next Steps

- Completion of groundwater modeling for the Conquest Reservoir.
- Groundwater results will be analyzed and summarized in a Technical Data Report.
- Assess potential change in groundwater in the EIS, provide mitigation measures where effects are identified.



Photo of groundwater monitoring station

Surface Water Quality

Rationale for Inclusion

Potential for the Project to result in:

- Changes in water quality

Baseline

- Review of publicly available information e.g., Canadian Soil Information System, Canadian Digital Elevation Model, Canadian Climate Normals, etc.

Field Studies

- Existing data provided by WSA and from monitoring stations within or near the PDA.
- Surface water sampling.

Next Steps

- Results will be analyzed and summarized in a TDR.
- Assess potential change in water quality in the EIS, provide mitigation measures where effects are identified.



Photo of the existing wet (in use) Westside Main Canal

Surface Water Quantity

Rationale for Inclusion

Potential for the Project to result in:

- Changes in water quantity

Baseline

- Review of hydrometric data for the Saskatchewan River Basin
- Review of publicly available river and watershed studies
- Review of the WSA water use policies

Field Studies

- Existing data provided by the WSA and from monitoring stations within or downstream of the PDA

Next Steps

- RiverWare modeling being completed, results will be incorporated into a Technical Data Report.
- Assess potential change in water quantity in the EIS, provide mitigation measures where effects are identified



Photo of the South Saskatchewan River

Fish and Fish Habitat

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Rationale for Inclusion

Potential for the Project to result in a:

- Change in fish mortality
- Change in distribution of Aquatic Invasive Species (AIS)
- Change in habitat

Baseline

- Review of publicly available information e.g., HABISask, Saskatchewan Conservation Data Centre, and aerial imagery.

Field Studies

- Fish habitat and fish sampling were completed in 2021 in Coteau Bay, WMC, and CR with supplemental studies in 2025 in the South Saskatchewan River and along the emergency spillway flood extent
- Surveys included: minnow traps, hoop net, surface water quality sampling, gill net, egg search/suction, electrofishing, aquatic habitat surveys, etc.

Next Steps

- Complete Technical Data Report.
- Assess potential change in fish and fish habitat in the EIS and provide mitigation measures where effects are identified.



Photo of fish sampling location in Coteau Bay

Fish and Fish Habitat

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Fish species captured during surveys:

- Lake whitefish
- Northern pike
- Shorthead redhorse
- Silver redhorse
- Spottail shiner
- Walleye
- White sucker
- Yellow perch
- Brook stickleback
- Fathead minnow
- Lake chub
- Creek chub



Photo of fish habitat survey location within the emergency spillway drainage pathway

Vegetation and Wetlands

Rationale for Inclusion

Potential for the Project to result in a:

- Change in vegetation communities
- Change in plant SOCC
- Change in wetlands

Baseline

- Review of publicly available information e.g., aerial imagery, Hunting, Angling and Biodiversity Information of Saskatchewan (HABISask) project screening report, Species at Risk Public Registry, etc.



Photo of least mouselink observed during surveys

Vegetation and Wetlands

Field Studies

- Vascular plant surveys (aquatic and terrestrial) and wetland surveys completed in 2021 and 2022 along the WPS, WMC and CR, with supplemental terrestrial vascular plant surveys along the emergency spillway drainage pathway and vegetation community field studies in 2025 throughout the Project footprint
- Three plant species of conservation concern (SOCC) were found in 2025:
 - least mouseltail (*Myosurus minimus*)
 - northern blue-eyed grass (*Sisyrinchium septentrionale*)
 - narrow-leaved water plantain (*Alisma gramineum*)

Next Steps

- Complete Technical Data Report.
- Assess potential change in vegetation and wetlands in the EIS and provide mitigation measures where effects are identified.



Photo of existing dry Westside Main Canal

Wildlife and Wildlife Habitat

Rationale for Inclusion

Potential for the Project to result in a:

- Change in habitat
- Change in mortality
- Change in movement

Baseline

- Review of publicly available information e.g., aerial imagery, HABISask project screening report, Species at Risk Public Registry, etc.



Photo of short-eared owl

Wildlife and Wildlife Habitat

Field Studies

- Field surveys completed in 2021 and 2022 along the WPS, WMC, and CR with supplemental studies along the emergency spillway drainage pathway in 2025:
 - Acoustic Bat (5 Song Meter SM4BAT detectors)
 - Amphibian Auditory (35 sites)
 - Amphibian Visual (10 wetlands along emergency spillway flood extent)
 - Avian Migration (25 sites)
 - Burrowing Owl (23 sites)
 - Common Nighthawk (47 sites)
 - Grassland Breeding Bird (68 sites)
 - Prairie Raptor (21+ sites)
 - Piping plover (shoreline of Lake Diefenbaker in Coteau Bay)
 - Sharp-tailed Grouse Lek (11+sites)
 - Short-eared Owl (48 sites)

Next Steps

- Complete Technical Data Report.
- Assess potential change in wildlife and wildlife habitat in the EIS and provide mitigation measures where effects are identified.



Photo of short-eared owl

Wildlife and Wildlife Habitat

SOCC Observations

Amphibians

- western tiger salamander (*Ambystoma mavortium*)
- northern leopard frog (*Lithobates pipiens*)
- Canadian toad (*Anaxyrus hemiophrys*)

Birds

- sharp-tailed grouse (*Tympanuchus phasianellus*) leks
- common nighthawk (*Chordeiles minor*)
- long-billed curlew (*Numenius americanus*)
- red-necked phalarope (*Phalaropus lobatus*)
- lesser yellowlegs (*Tringa flavipes*)
- Franklin's gull (*Leucophaeus pipixcan*)
- Caspian tern (*Hydroprogne caspia*)
- black tern (*Chlidonias niger*)
- common tern (*Sterna hirundo*)
- horned grebe (*Podiceps auritus*)
- eared grebe (*Podiceps nigricollis*)
- common loon (*Gavia immer*)
- double-crested cormorant (*Nannopterum auritum*)
- American bittern (*Botaurus lentiginosus*)
- great blue heron (*Ardea herodias*)
- American white pelican (*Pelecanus erythrorhynchos*)
- turkey vulture (*Cathartes aura*)

- osprey (*Pandion haliaetus*)
- Cooper's hawk (*Astur cooperii*)
- bald eagle (*Haliaeetus leucocephalus*)
- short-eared owl (*Asio flammeus*)
- peregrine falcon (*Falco peregrinus*)
- loggerhead shrike (*Lanius ludovicianus*)
- northern shrike (*Lanius borealis*)
- bank swallow (*Riparia riparia*)
- barn swallow (*Hirundo rustica*)
- Sprague's pipit (*Anthus spragueii*)
- American tree sparrow (*Spizelloides arborea*)
- Baird's sparrow (*Centronyx bairdii*)
- bobolink (*Dolichonyx oryzivorus*)
- rusty blackbird (*Euphagus carolinus*)

Mammals

- river otter (*Lontra canadensis*)
- pronghorn (*Antilocapra americana*)
- American badger (*Taxidea taxus taxus*)
- silver-haired bat (*Lasionycteris noctivagans*)
- eastern red bat (*Lasiurus borealis*)
- hoary bat (*Lasiurus cinereus*)
- little brown myotis (*Myotis lucifugus*)
- long-eared bat (*Myotis evotis*)
- northern myotis (*Myotis septentrionalis*)

Social, Economic and Health

Rationale for Inclusion

Potential for the Project to result in a:

- Change in land and resource use
- Change in visual aesthetics
- Change in employment and economy
- Change in infrastructure and services

Baseline

- Review of publicly available desktop data and existing reports, for example:
 - Economic Value of Irrigation, KPMG 2025
 - Statistics Canada data

Field Studies

- None completed

Next Steps

- Assess potential changes in social, economic, and health components in the EIS and provide mitigation measures where effects are identified.



Photo of the existing wet (in use) Westside Main Canal

Archaeology and Heritage

Rationale for Inclusion

Potential for the Project to result in a:

- Change to the context and integrity of heritage resources which are irreversible and permanent

Baseline

- Review of publicly available information e.g., aerial imagery, soils, and topography

Field Studies

- Preliminary Heritage Resource Impact Assessment (HRIA) in 2021 along the WMC
 - Documented 11 archaeological sites
- HRIA scheduled for spring/summer of 2026 for the CR, emergency spillway, and remaining gaps

Next Steps

- Completion of HRIA Report
- Assessment of potential impacts to archaeology and heritage resources and provide mitigation measures where effects are identified in the EIS.



Photo of a heritage test pit

First Nations and Métis Land Use (Traditional Knowledge)

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Rationale for Inclusion

Potential for the Project to result in a:

- Change in availability
- Change in access
- Change in experience

Baseline

- Publicly available information, engagement, and DTC is ongoing

Next Steps

- Continued engagement, consultation, and TLU study
- Assess potential changes in land use in the EIS and provide mitigation measures where effects are identified.



Photo of the existing wet (in use) Westside Main Canal

WE WANT TO HEAR FROM YOU!

Westside Irrigation Rehabilitation Project

Feedback and Questions to:

WSAirrigation@wsask.ca

Learn More at:

<https://diefenbakerirrigation.ca/>



Lake Diefenbaker

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