

Special Areas Water Supply Project

Environmental Impact Assessment

Special Areas Board
Community Information Sessions

Environmental Impact Assessment Documents



Alberta Transportation Special Areas Water Supply Project Environmental Impact Assessment



Volume I – Introduction and Background



ISO 9001
ISO 14001
OHSAS 18001
November 2018



Alberta Transportation Special Areas Water Supply Project Environmental Impact Assessment



Volume II – Environmental Impact Assessment



A05111803



Alberta Transportation Special Areas Water Supply Project Environmental Impact Assessment



Volume III – Socio-Economic Impact Assessment



A05111803



Alberta Transportation Special Areas Water Supply Project Environmental Impact Assessment



Volume IV - Technical Data Reports



A05111803

ISO 9001
ISO 14001
OHSAS 18001
September 2018

Volume I - Introduction and Background

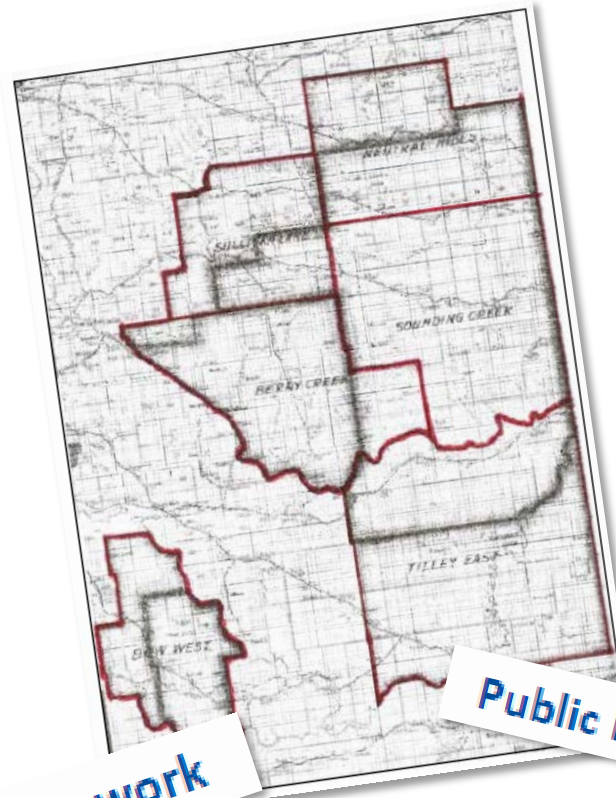
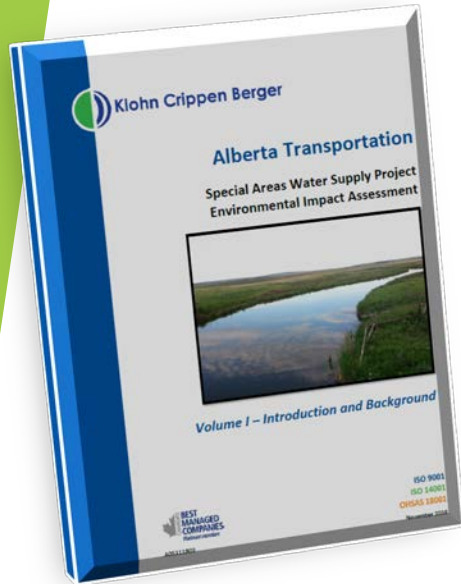


Table 1.1 Regional water use within the Red Deer River Watershed

Licence Purpose	All of Red Deer River Watershed		Withdraws from Red Deer River and unnamed tributaries	
	Number of Licences	Volume (dam³)	Number of Licences	Volume (dam³)
Municipal	53	76,569	36	74,953
Irrigation	487	68,954	211	50,186
Water Management	136	42,735	32	30,951
Industrial	29	37,927	2	22,634
Habitat Enhancement	32	35,598	18	30,355
Agricultural	181	19,616	15	845
Dewatering	1,000	8,378	179	1,123
Recreation	6	6,361	1	6
Management of Fish	25	4,998	4	83
Management of Wildlife	7	3,095	1	123
Other Purpose Specified by the Director	6	52	1	9
Disturbance	2	18	1	3
Totals	1,989	304,313	501	211,271

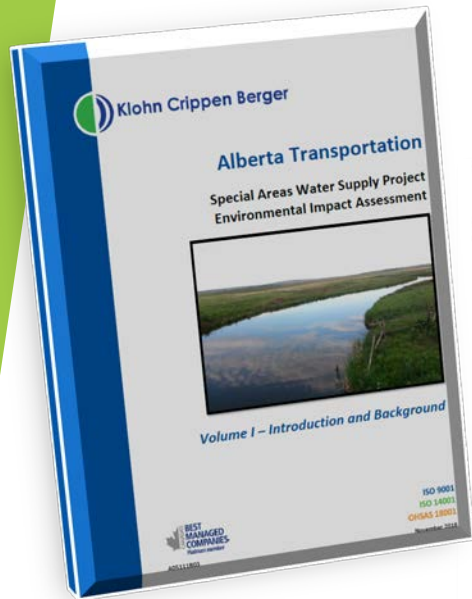
Source: Alberta Water Licence Viewer (GoA 2018)

Regulatory Framework

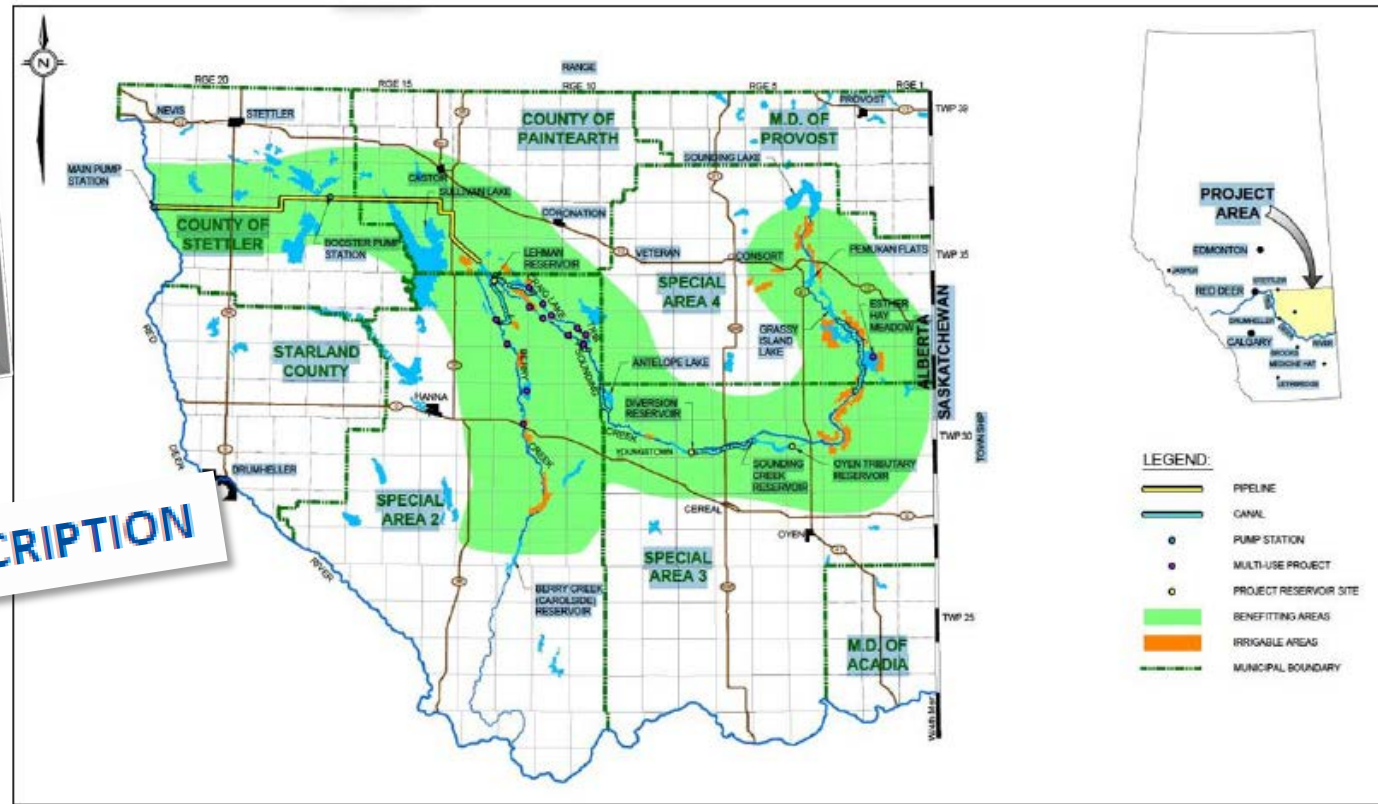
Government Agency Consultation

Public Engagement and First Nations Consultation

Volume I - Introduction and Background



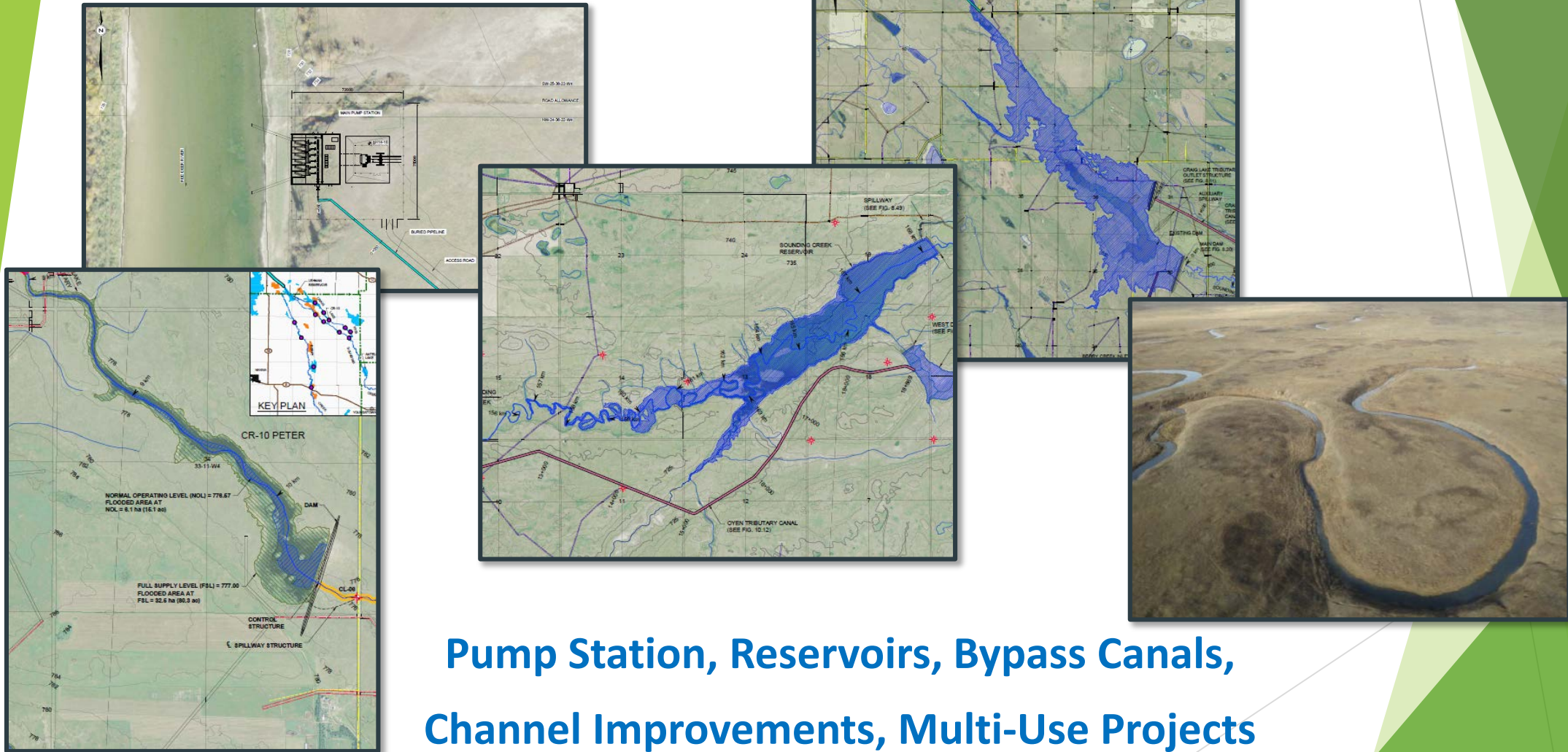
PROJECT DESCRIPTION



Pump Station, Reservoirs, Bypass Canals,
Channel Improvements, Multi-Use Projects

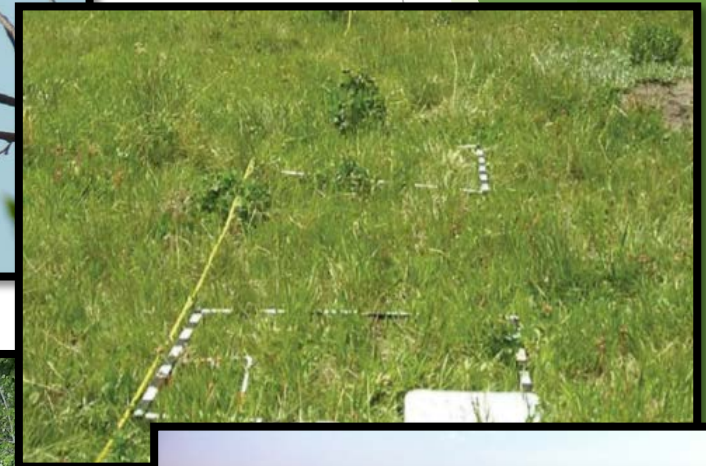
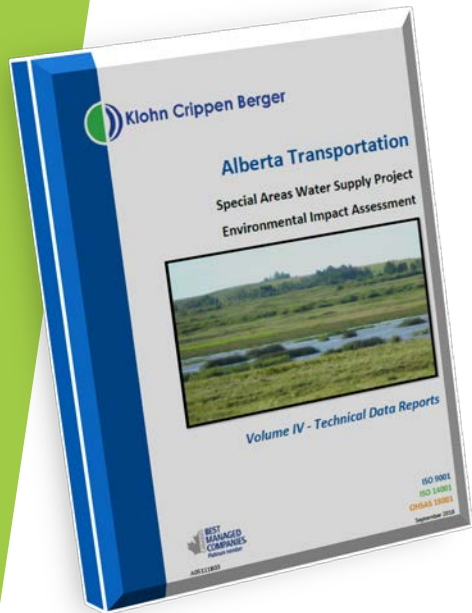
PROJECT DESCRIPTION

Volume I - Introduction and Background

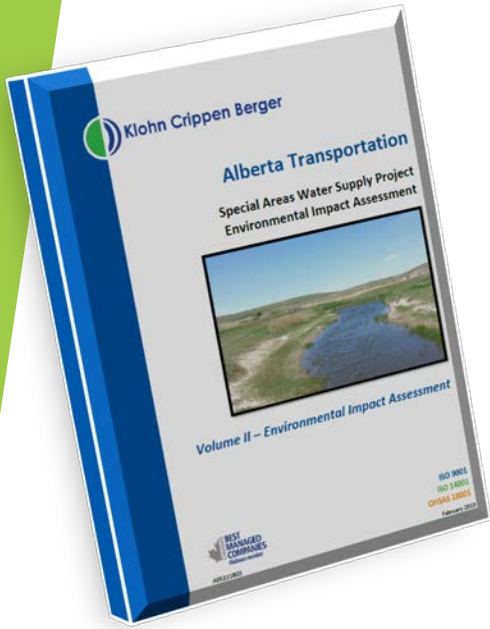


**Pump Station, Reservoirs, Bypass Canals,
Channel Improvements, Multi-Use Projects**

Volume IV - Technical Baseline Reports



Volume II - Environmental Impact Assessment



1.2.1 Assessment Scales

Two scales of assessment were defined for the Project:

- a Regional or General Project scale extent covering the full extent of the SAWSP; and
- a Local Scale assessment covering individual SAWSP components (such as individual reservoirs or systems).

Components Assessed:

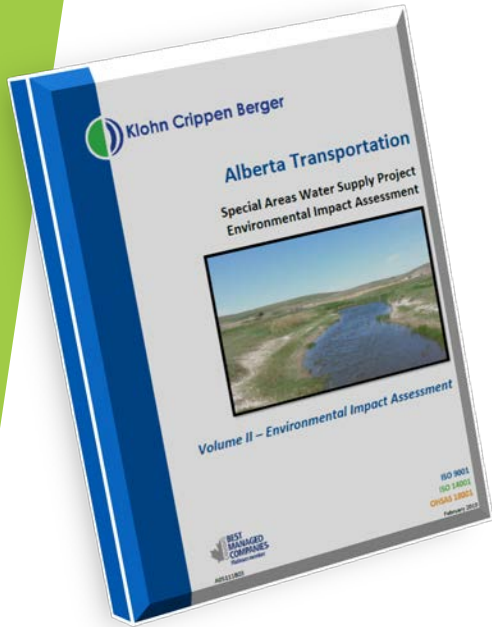
- Air Quality and Noise
- Surface Water Quality and Quantity
- Hydrogeology
- Fish and Fish Habitat
- Soils and Terrain
- Vegetation and Wetlands
- Wildlife and Wildlife Habitat
- Land Use and Management
- Infrastructure
- Historical Resources

Volume II - Environmental Impact Assessment

Standard Mitigations

Alberta Transportation's practices and policies would be the primary controls to minimize or remove most of the potential Project effects. The practices and policies include:

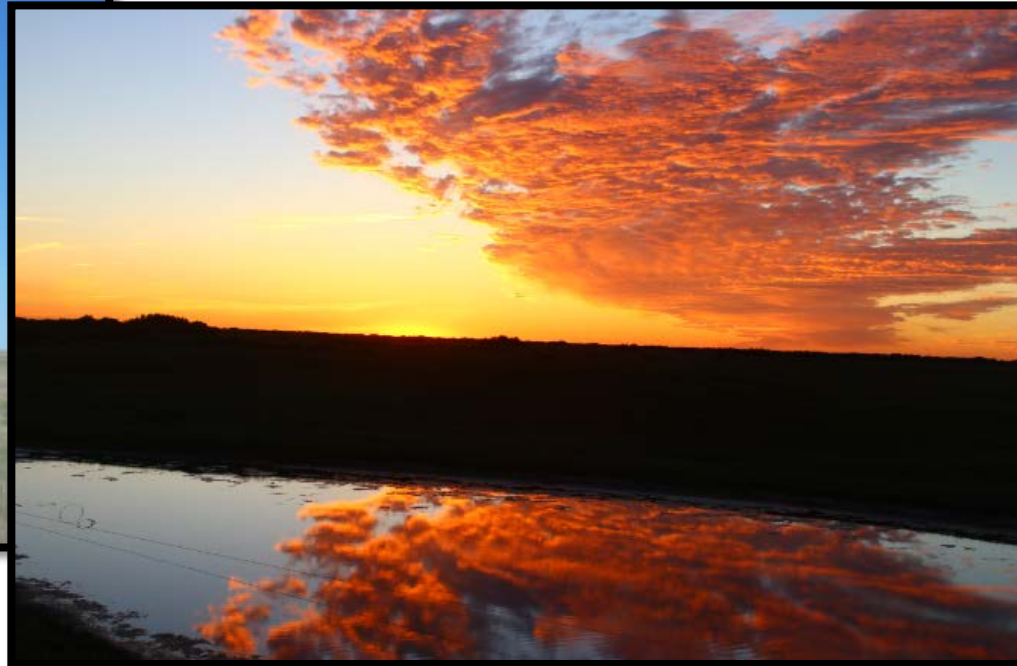
- Alberta Transportation's (AT) *Environmental Protection Plan for the Planning and Construction of Water and Transportation Projects (EPP)*
- AT's *Environmental Construction Operation Plan Framework 2017 Edition*
- AT's *Civil Works Master Specifications (CWMS)* outlines best practices for contractors
- AT's *Environmental Management System Manual (EMS Manual)* provides procedures and policies that would guide both AT and contractors through regulatory requirements and provides environmental best practices to be used during the construction and maintenance of Alberta's water infrastructure
- AT's *Erosion and Sediment Control Manual* provides guidelines for the design, construction, and maintenance of erosion and sediment control structures



► Volume II - Environmental Impact Assessment

Noise and Air Quality

- All potential effects controlled through mitigation and best practices



► Volume II - Environmental Impact Assessment

Aquatic Environment

Surface Water Quality

- Elevated *E. coli* levels in one sampling event at Lehman, so potential recreation use would require ongoing monitoring. Increased displacement of water could potential reduce occurrence of concentrations.
- Sediment loading associated with reservoir drawdown and channel erosion

Surface Water Quantity

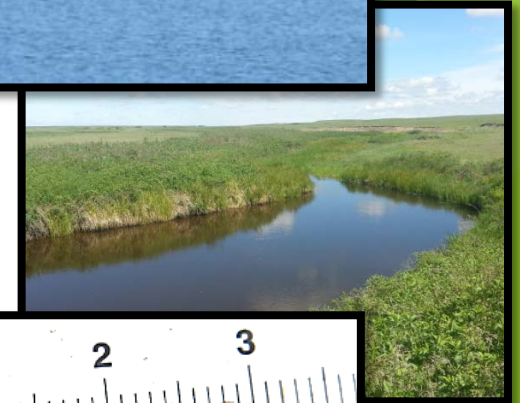
- Greater volume and persistence of water relative to baseline.
- May affect channel morphology

Groundwater

- Moderate increased recharge from waterbodies would be expected. Recharge would have higher quality of water relative to baseline

Fish and Fish Habitat

- No sport fish were found throughout the system during baseline studies
- Fish entrapment at pumphouse to be prevented by fish screens
- An increase in fish habitat is expected with increased presence of water
- Potential for creation for recreational fisheries at larger reservoirs



► Volume II - Environmental Impact Assessment

Terrain and Soils

- High prevalence of Solonetzic soils throughout the region.
- Typical soil conservation and weed issues during construction are expected and would be controlled with mitigation and best practices
- Potential soil erosion issues within reservoir drawdown zones identified and to be monitored.



► Volume II - Environmental Impact Assessment

Vegetation and Wetlands

- Net increase in wetland habitat is predicted
- Rare plants and communities found within or adjacent to project component footprints. Pre-disturbance surveys and specimen/seed collection would be conducted for conservation/reclamation.
- Some native prairie grassland will be inundated or lost to canal construction. Would be a low percent relative to regional prevalence.
- Potential for the introduction of weeds and invasive species



► Volume II - Environmental Impact Assessment

Project Component	Impact Description	Net Change	
		Forage (ha)	Wetland (ha)
Lehman Reservoir	Lehman Reservoir footprint	-43.7	88.2
	Diversion canals	0.0	-4.1
Oyen Tributary System	Diversion Reservoir footprint	0.0	23.1
	Oyen Tributary Reservoir footprint	-8.4	92.9
	Oyen Inlet canal	0.0	-0.8
	Sounding Creek Reservoir	0.0	-15.9
Craig Lake Bypass Canal	Canal footprint	-5.4	-3.0
Scaupshovel Bypass Canal	Canal footprint	0.0	-0.7
	Diversion headpond	0.0	3.2
Antelope Lake Bypass Canal	Canal footprint	0.0	-1.0
	Diversion headpond	0.0	35.9
Esther Hay Meadow Bypass Canal	Canal footprint	-7.4	-13.9
	Diversion headpond	0.0	1.8
BC-4 Fertility	MUP and infrastructure footprint	43.1	88.9
BC-5 Dale	MUP and infrastructure footprint	18.6	9.6
BC-7 Contracosta	MUP and infrastructure footprint	93.0	76.7
BC-8 Richdale	MUP and infrastructure footprint	0.0	17.3
SO-5-6 Motz	MUP and infrastructure footprint	4.4	12.5
SO-7 Mitchell	MUP and infrastructure footprint	-1.1	1.3
SO-10 Wingding	MUP and infrastructure footprint	0.1	0.5
SO-11 Scaupshovel	MUP and infrastructure footprint	31.1	41.0
SO-39 Esther Hay Meadow	MUP and infrastructure footprint	223.3	269.0
CR-6 Craig Lake	MUP and infrastructure footprint	109.7	108.6
CR-8 Sneath	MUP and infrastructure footprint	1.1	0.4
CR-10 Peter	MUP and infrastructure footprint	2.0	1.7
CR-13 Loon Slough	MUP and infrastructure footprint	37.2	36.8
CR-14 Scoville	MUP and infrastructure footprint	29.9	42.7
Total		527.5	912.7



Wildlife

- Sensitive species used as Key Indicators for the assessment (Burrowing Owls, Baird's Sparrow, Loggerhead Shrike, Piping Plover, Yellow Rail and Canadian Toad).
- Direct and indirect mortality during construction to be controlled through mitigation and best practices.
- Potential change in habitat availability was quantified. Local decrease in native grassland habitat due to inundation is likely at water bodies. Balanced by increase in habitat availability for aquatic and semi-aquatic species of wildlife. Regional change in habitat availability is not predicted to be significant.
- Increase in riparian habitat expected along channels.
- Turnouts and natural runoff is expected to maintain water along bypassed channels.
- Some disconnection in wildlife movements due to canals. Mitigated through provision of crossings (provided for pasture access and cattle management).



Landuse

► Volume II - Environmental Impact Assessment

- Potential 8000 acre increase in irrigated lands
- Increased availability of water for stock.
- Increased area for forage production at MUPs.
- Change in grazing management may be required with potential changes to pasture access due to canals and changes to road access.
- In addition to the potential introduction of weeds, clubroot was identified as potential effect to be mitigated

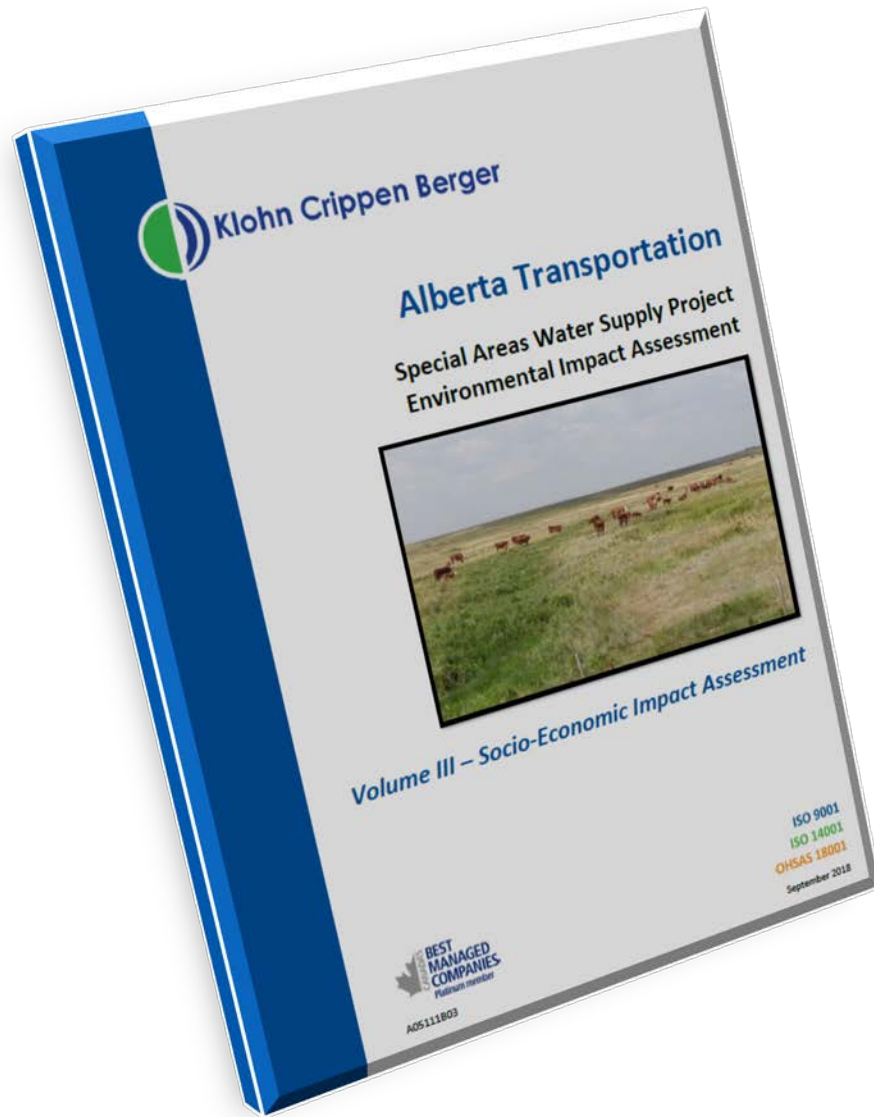


► Volume II - Environmental Impact Assessment

Historical Resources

- Areas of potential concern were identified.
- Pre-disturbance HRIAs would be conducted at components identified as high potential of archaeological and palaeontological resources.
- Clearance from Alberta Culture and Tourism would be required to proceed with construction.

Volume III – Socio-Economic Assessment



- Agricultural Impact Assessment
- Socio-economic Impact Assessment