Eastern Irrigation District

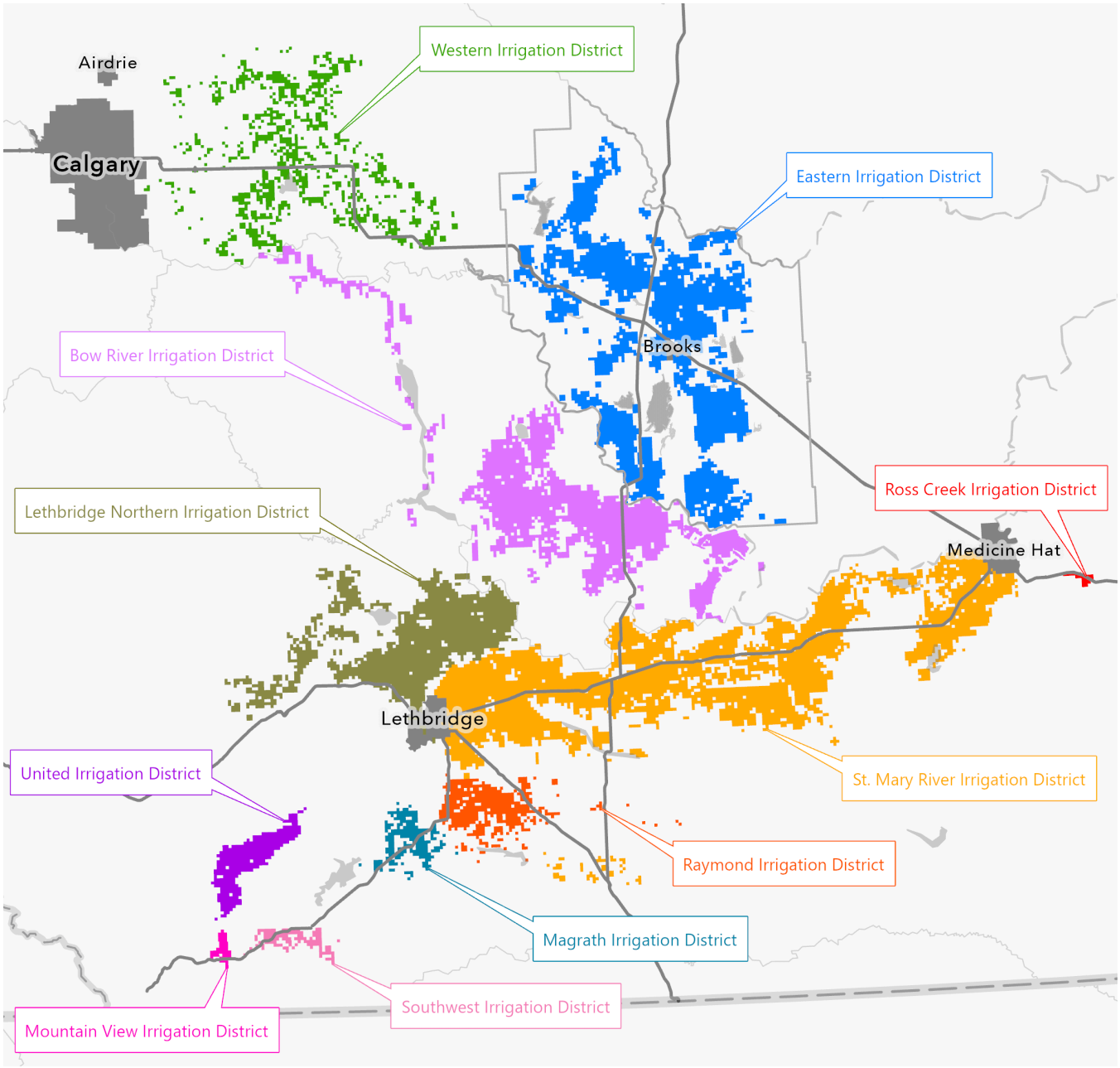
Expanded Version

More Than Just Water

June 19, 2025

Index

About



Map of Alberta Irrigation Districts

(Government of Alberta, Esri Canada, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NRCan, Parks Canada)

The Eastern Irrigation District (EID), one of 11 irrigation districts in southern Alberta, operates under the authority of the *Irrigation Districts Act* (RSA 2000 c. I-11). The purpose of the *Irrigation Districts Act* is to provide for the formation, dissolution, and governance of irrigation districts in order that the management and delivery of water in the districts occur in an efficient manner that provides for the needs of the users.

Purposes and powers of a district

6(1) The purpose of each district is:

- *(a) to convey and deliver water through the irrigation works of the district in accordance with this Act,*
- *(b) to divert and use quantities of water in accordance with the terms and conditions of its licence under the* Water Act*,*
- *(c) to construct, operate and maintain the irrigation works of the district, and*
- *(d) to maintain and promote the economic viability of the district.*

It is also governed by the *Water Act* (RSA 2000, c. W-3) which, through licenses issued, authorizes the District to divert and use water from the Bow River at the Bassano Dam.

The EID encompasses an area of 600,000 ha (1.5 million ac) and is bounded by the Red Deer River to the northeast and the Bow River to the southwest. For example, this area is 410 km^2 (158 mi^2) larger than the province of Prince Edward Island.

The District's primary business is the management of an extensive raw water distribution network in support of irrigated agriculture.

In addition to conveying raw water to over 129,500 ha (320,000 ac) of irrigated farmland owned by private families and corporations, the EID also conveys raw water through its distribution network to benefit municipal, industrial, wildlife habitat, and recreational purposes.

The EID is governed by a Board of 7 Directors elected by and from the approximate 900 irrigators of the District. The Board of Directors set policy and bylaws and give direction to management and staff. The EID is managed on a day-to-day and year-round basis by a professional staff of approximately 75 individuals, being assisted by seasonal staff in summer.

The Eastern Irrigation District has adopted a practice of staggered elections, in which 2 directors are elected in one year, 2 directors are elected the next year, and 3 directors are elected in the following year. This method of elections provides stability in the governance, administration, and operation of the District.

Vision Statement

The Eastern Irrigation District is dedicated to providing water security to the area and managing the District's diverse resources in a manner that will provide the greatest economic, social, and environmental benefit.

Mission Statement

The Eastern Irrigation District will divert and convey water through a maintained and continually improved infrastructure system while providing good stewardship of District lands and promotion of agriculture and the local economy in a collaborative, informed, sustainable, and fiscally responsible manner through District policy and practices.

Bassano Dam, 2019

Bassano Dam, October 1911

History

In 1903, the Dominion Government of Canada approved a 1,214,000 ha (3,000,000 ac) land grant to the Canadian Pacific Railway Company Ltd (CPR) as the final compensation package for the construction of the Trans-Continental Railway. The area now known as the Eastern Irrigation District (EID) was part of this land grant and was referred to by the CPR as the Eastern Section lands. The CPR welcomed the land transfer but felt settlement of the Eastern Section lands would be challenging because of the lack of precipitation in this area, known as the Palliser Triangle. The Palliser Triangle consists of a large tract of land in southwest Saskatchewan and southeast Alberta characterized by low precipitation. The Palliser Triangle received its name because of observations and remarks recorded during early explorations by Captain John Palliser.

"The South Saskatchewan, which in its upper part is called the Bow River...flows in a deep and narrow valley, through a region of arid plains, devoid of timber or pasturage of good quality...The sage and cactus abound and the whole of the scanty vegetation bespeaks an arid climate." – Captain John Palliser

How could the transformation of a western region of Canada, thought to be part of the "Great American Desert", be altered by the intervention of the CPR? The CPR believed the actual value of the land granted to them was less than the value calculated by the Dominion of Canada for payment. To add value to the land grant, the CPR convinced the Dominion of Canada to allow development of an irrigation

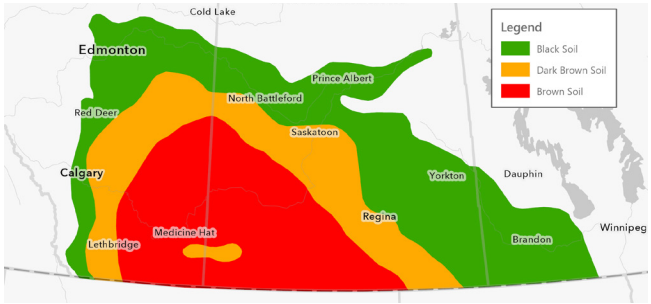
conveyance system on the Eastern Section lands. The proposed headworks of the irrigation system, to be located on the Bow River, would divert water into a network of canals to supplement precipitation and assist in the production of crops in the Eastern Section lands. The CPR hoped that construction and operation of an irrigation conveyance system would support the successful production of agricultural products and assure the company revenue from settlers in the form of land sales, water conveyance payments, and fees for the transportation of settlers, supplies, and agricultural products on the CPR rail line.

The CPR began construction of the Bassano Dam on May 10, 1910. This dam would serve as the diversion works required to bring water from the Bow River onto the plains region to allow for irrigated farming. In addition to building the Bassano Dam, the CPR constructed an elaborate network of canals, flumes, syphons, drains, reservoirs, and spillways. Much of the original construction was completed in just 4 years.

For close to 20 years the CPR owned and operated the irrigation conveyance infrastructure. Their ownership of the system coincided with the economic depression and drought of the late 1920s and 1930s. Plunging commodity prices resulted in many landowners being unable to sell and ship their products to market. As a result, many landowners, not able to sell their products and make their payments to the CPR, made the decision to leave the area and the operation of the irrigation system became a non-profitable venture for the CPR, a company whose main

Main Canal, 1911

Brooks Aqueduct, July 1915



Palliser Triangle
(Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NRCan, Parks Canada)

operations were already significantly impacted by the economic depression.

By the mid-1930s, a growing number of landowners from within the Eastern Section became more and more frustrated with the CPR's operation of the irrigation conveyance system. Unaddressed problems with water delivery and disputes over the classification of irrigable land by the CPR were just some of the issues contributing to landowner's frustrations. The CPR's Calgary based administration office added to the problems by increasing the cost and time required for landowners attempting resolution of disputes. As a result, in 1935 a group of landowners from within the Eastern Section approached the CPR proposing to take over ownership and operation of the irrigation conveyance system.

The Eastern Irrigation District was formed on April 23, 1935,

and received ownership of the irrigation system, 404,685 ha (1,000,000 ac) of land within the region, and a cash reserve fund of $300,000 to assist with startup operations of the District. To assist with the transfer and provide a legal basis for the activities of the irrigators, the Government of Alberta approved the *Eastern Irrigation District Act*. This Act set out the rules of operation and government for the irrigation project, provided a method for the election of trustees from amongst the irrigators, and gave guidance for the administration of the land and water resources.

The early achievements of the CPR in constructing the irrigation infrastructure were then, and remain today, impressive. In the midst of the bald prairie, Alberta's then largest man-made lake was constructed just south of Brooks. Lake Newell Reservoir is more than 16 km (10 mi) long and 6.5 km (4 mi) wide, an inland sea in a region naturally devoid of water. A number of wooden flumes were constructed across narrow valleys to provide water to areas that otherwise would have had very limited agricultural capability. Across a valley, north and east of Lake Newell Reservoir, the CPR constructed the Brooks Aqueduct, an engineering and construction marvel that has since been recognized as one of Canada's most impressive construction projects.

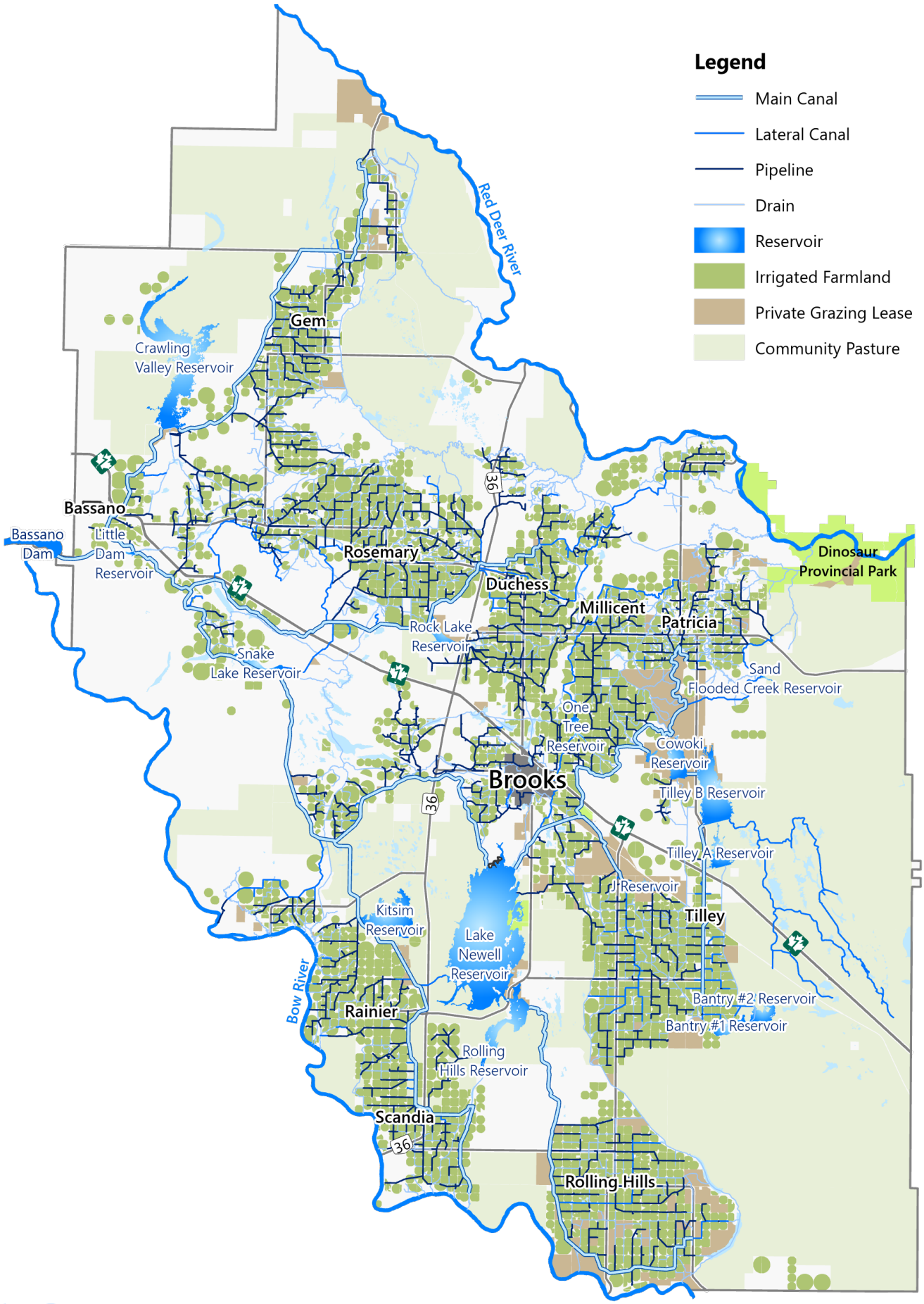
The introduction of irrigation water to this semi-arid landscape has created a virtual oasis in the desert. This is an area "Where Water Works Wonders."

For more information on the background of the Eastern Irrigation District, there are two highly recommended books available outlining the formation of the District and the Brooks Aqueduct called "Tapping the Bow" and "Much Brain and Sinew: The Brooks Aqueduct Story".

To bring awareness to the formation and importance of the Eastern Irrigation District an all-Albertan film, "Carl's Way", was produced in 2013. This production celebrated the accomplishment of southern Albertan hero Carl Anderson, a farmer who negotiated with the CPR to take over the irrigation conveyance system in the Eastern Section land and put it into the hands of the farmers of Southern Alberta. Smoke Signal Media, a production company in Rosebud, Alberta, was approached by the Eastern Irrigation District Historical Park to share this story and was supported largely by the Eastern Irrigation District, Government of Alberta, and the community of Scandia, Alberta.

https://www.eid.ca/irrigation_videos.html

CPR train arrives in Bassano carrying a `Train Load of Settlers for Alberta' which consisted of men, women and children. These settlers were from Colorado and would settle in the Gem area known as the Bassano Colony. March 1914


Legend
Main Canal
Lateral Canal
Pipeline
Drain
Reservoir
Irrigated Farmland
Private Grazing Lease
Community Pasture
Red Deer River
Gem
Crawling Valley Reservoir
Bassano
Bassano Dam
Little Dam Reservoir
Rosemary
Duchess
Millicent
Patricia
Dinosaur Provincial Park
Rock Lake Reservoir
Snake Lake Reservoir
Sand Flooded Creek Reservoir
One Tree Reservoir
Cowoki Reservoir
Brooks
Tilley B Reservoir
Tilley A Reservoir
J Reservoir
Tilley
Kitsim Reservoir
Lake Newell Reservoir
Bow River
Rainier
Bantry #2 Reservoir
Bantry #1 Reservoir
Rolling Hills Reservoir
Scandia
Rolling Hills
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Conveyance System

Bassano Dam

In the early 1900s, the Canadian Pacific Railway (CPR) began construction of a major irrigation project, now known as the Eastern Irrigation District (EID). Construction of the Bassano Dam and the Brooks Aqueduct were 2 of the major projects required to get the system into operation.

The Bassano Dam, owned and operated by the EID, is located approximately 6 km (3.7 mi) southwest of the Town of Bassano at the area on the Bow River known as Horseshoe Bend. Since 1914, water from the Bow River has been diverted from this location into an intricate irrigation conveyance system to serve the development of irrigated agricultural land within the District's boundaries, and for the resulting municipal, industrial, habitat, and recreational needs. Construction of the Bassano Dam began in September 1910 and was completed in the spring of 1914. The official opening took place on May 2, 1914, with a total construction cost of just over $1.4 million.

The Bassano Dam was designed by CPR Engineer Hugh B. Muckleston and is considered an Ambursen type dam (hollow gravity dam), coming from its hollow design. In this type of dam, the pressure of the water acts with the weight of the structure to assist instead of oppose its stability against sliding, rupture, and overturning.

The Bassano Dam consists of 3 parts:

- The concrete spillway is the portion of the structure in place across the Bow River. The spillway is approximately 220 m (720 ft) long with 24 gates and is constructed of reinforced concrete and steel. Construction of this segment required 42,000 m^3 (55,000 yd^3) of concrete (equivalent to over 800 basements of average sized houses today), 1,300,000 kg (3,000,000 lb) of reinforcing steel, and 450,000 kg (1,000,000 lb) of structural steel. The spillway included 24 sluice gates which could handle a river flow of up to approximately 2,800 m^3/s (99,000 cfs) at normal operating water levels.
- The earthen embankment/dike, situated on the west side of the spillway on the inside boundary of the Bow River, is approximately 2.2 km (1.3 mi) long, approximately 13 m (45 ft) high, and required 3,000,000 m^3 (10,000,000 ft^3) of fill material to construct. The original fill material was excavated from the east side of the dam and transported over railway trestle to the west side. The excavated area on the east side became the main water conveyance canal.
- The irrigation canal headgates, located at the southeast end of the spillway, are 36.5 m (120 ft) in length with 5 slide gates. The headgates are built at a right angle to the spillway and raise the water level 14 m (46 ft) above the riverbed enabling water to be diverted into the main water conveyance canal. The headgates have a design capacity of 96 m^3/s (3,400 cfs).

The 3 parts function together to divert water from the river and convey it into the EID conveyance system. The earthen embankment functions to contain the river water for delivery to the concrete spillway where the spillway raises the water level

of the Bow River approximately 13.7 m (45 ft) above the normal bed of the river. The increase in elevation enables water to be diverted through the headgates and into the main conveyance canal for distribution into the EID area.

Upon completion of construction in 1914, the Bassano Dam was noted as one of the most important structures of its kind in the world due to its composite character (the spillway and earthen embankment), as well as the spillway's length, foundation, and depth of water which could flow over the crest during flood periods.

After 70 years of operation, the original structure was beginning to deteriorate. In the 1980s, the Prairie Farm Rehabilitation Administration (PFRA) rehabilitated the Bassano Dam by rebuilding the upper (above ground) concrete for the spillway and adding a 400 m (¼ mile) long fuse plug near the west end of the earthen dam, bringing the dam up to safety standards of the day. Refurbishing work began in January 1985 with 2.5 years required to complete the project. This major facelift cost $14 million with the result being a very modern, motorized dam capable of diverting 100 m^3/s (3,500 cfs) into the District's water system.

In 2008, the EID undertook another upgrade on the Bassano Dam structure with all gate motors having been replaced and automated to a computer software system. This brought control and monitoring of the dam into the digital age, allowing the Dam Supervisor to respond to the flows of the river and demands from the water users at the click of a button, contributing to the efficient management of water diverted from the Bow River.

Virtually all the water found and used within the boundaries of the EID originates from the Bow River at the Bassano Dam.

This includes water to irrigate over 129,500 ha (320,000 ac) of farmland, water to supply over 12,140 ha (30,000 ac) of managed wetland habitat, water requirements for local industry, and the domestic needs of a population base close to 22,500 people.

The Bassano Dam was very noteworthy in 1914 for its unusual structure and capacity. The dam is a symbol of the challenges faced by the early pioneers to overcome obstacles and make irrigation farming a viable and prosperous agricultural enterprise in Western Canada.

Bow River during 2013 Flood

Bassano Dam during 2013 Flood

The 2013 Flood

A "One in 100 Years Flood" occurred June 21 & 22, 2013, on the Bow River system due to extreme rainfall. Up to 345 mm (13 ½ in) of rain fell in parts of the mountains, following a wet spring.

The maximum operating capacity of the Dam is 3,400 m^3/sec (120,000 cfs) at operating level. The highest flow rate passed over the dam previously was 2,540 m^3/sec (90,000 cfs) in 1929. In 2013, the flood peaked at 4,200 m^3/sec (148,000 cfs). This flow was almost 65% higher than any previous flood flow observed by the Bassano Dam in its history. The water level on the upstream side of the spillway was 1.4 m (4.6 ft) above normal operating level.

As part of the PFRA rehabilitation in the 1980's, a 400 m (¼ mile) fuse plug was built into the west end of the earth dam, meant to wash out creating a channel releasing the water from upstream of the dam structure, with the water bypassing the dam through the flood plain area and returning to the bed of the Bow River downstream of the Spillway. Due to the unprecedented flows during the 2013 flood, the District mechanically removed the clay cap of the fuse plug to ready the plug for washout and prevent the main structure from major damage. The water level was within 0.45 m (18 in) of washing out the fuse plug. The 100-year-old Dam held without the necessity of using the fuse plug, only incurring approximately $300,000 in repairable damage.

The Bassano Dam is rated as a "High Consequence Dam" because of the extreme economic loss if a failure were to occur.

Had the earthen fuse plug washed out, half the irrigated area of the District/County of Newell would have been without water for the rest of the year. If the concrete spillway was lost, the entire irrigated area of the District/County could have been without water for years during the process of rebuilding, and the social and economic loss would have been staggering.

Aftermath of the Flood: Construction of the Emergency Spillway

Emergency Spillway 2019

After the 4,200 m^3/s (148,000 cfs) 2013 flood of record, a Dam Safety Review of Bassano Dam was completed. This review recommended that the design inflow for Bassano Dam should be 7,500 m^3/s (264,860 cfs), 1/3 between 1:1,000 year flood and the Probable Maximum Flood – PMF. This required the construction of a new emergency spillway, and the $46 million project was approved in partnership with the Provincial Government as part of an extensive southern Alberta flood mitigation program.

The spillway was completed in the spring of 2019. With this new Emergency Spillway, along with the existing spillway, the Bassano Dam can handle a flood equal to 2013 at normal summer operating levels and can handle a flood 1.7 times larger than 2013, before having to use the fuse plug.

The Emergency Spillway cost $45.4 million:

- $30 million of funding was provided by Alberta Environment & Parks
- $15.4 million was funded by the EID
- The additional easement was negotiated with Siksika Nation

The negotiations with Siksika Nation for additional easement for the spillway, the environmental studies, the historic resources studies, and the engineering design of the emergency spillway started in the summer of 2014. MPE Engineering Ltd provided the general engineering and contract administration, with Klohn Crippen Berger Ltd completing the geotechnical engineering. Instream Water Control Projects Ltd supplied the gates and hoists. Niitsitapi Graham LP (owned by Siksika Nation and Graham Construction) was the prime contractor and worked with local contractors.

The project was completed under four contracts:

1 Engineering Services:

Detailed design and contract administration:

- MPE Engineering Ltd.

Geotechnical engineering:

- Klohn Crippen Berger Ltd.

2 Site Preparation:
Niitsitapi Graham LP

Main Components:

- Excavation of existing dam (80,000 m^3) (104,636 yd^3)
- Construction of cofferdam (61,500 m^3) (80,439 yd^3)
- Construction of working pad
- Supply and install bedding gravel & rip rap
- Supply and install sheet steel piling (8,830 m^3) (11,549 yd^3)
- Install 8 dewatering wells
- Install 6 depressurization wells

3 Supply of Gates & Hoists:
Instream Water Control Projects Ltd.

- Supply of 10, 10.5 m x 4.1 m (34 ft x 13 ft) radial gates & hoists
- Supply of 10, 10.5 m x 1.2 m (34 ft x 4 ft) stop logs

4 Spillway Structure Contract:
Niitsitapi Graham LP

Main Components:

- Excavation (265,000 m^3) (9,358,387 yd^3)
- Impervious backfill (90,000 m^3) (3,178,320 yd^3)
- Toe berm construction (120,000 m^3) (4,237,760 yd^3)
- Concrete (13,200 m^3) (466,154 yd^3)
- Reinforcing steel (rebar) (1,100 tonnes) (2,425,085 lb)
- Screw pile anchors (180)
- Filter and bedding gravel (47,300 tonnes) (104,278,650 lb)
- Rip rap (30,000 tonnes) (66,138,679 lb)

Construction began in the fall of 2016 and the first contract for site preparation was completed by the spring of 2017. The second contract was for the manufacture and supply of the radial gates, hoists, and stop logs and was completed in September of 2018. Work began on the third contract for the actual construction of the spillway in August 2017 and was completed in the spring of 2019. With this new Emergency Spillway, along with the existing spillway, the Bassano Dam can handle a flood equal to 2013 at normal summer operating levels and can handle a flood 1.7 times larger than 2013, before having to use the fuse plug.

Brooks Aqueduct / Main Bantry Canal

The Brooks Aqueduct was required to carry irrigation water across a valley to feed water to the regions that are now known as Millicent, Patricia, and Tilley. These areas include close to ¼ of the irrigated land within the EID. The CPR began construction of this structure in 1912, with water running through the Aqueduct in the spring of 1915. The result was the longest structure of this design in the world.

The Aqueduct had a span of over 3 km (just short of 2 mi) and a maximum height of 18 m (61 ft). The construction required a labour force of over 300, split into 38 construction crews, and required 19,000 m^3 (25,000 yd^3) of concrete (equivalent to 370 basements of average sized houses today) and 1,800 tonnes (4,000,000 lbs) of steel reinforcing. It is interesting to note that even though the structure was built to carry water, at the time, the closest reliable water source was 65 km (40 mi) away at Suffield. 136,000 litres (30,000 gal) of water a day was required for the concrete work and had to be hauled in by train.

One of the more notable features of the Aqueduct design was an inverted syphon that carried the water down under the CPR mainline and then back up to the elevated Aqueduct. The finished Aqueduct had a capacity of 18 m^3/s (640 cfs) and was built at a cost of $569,287.

During its history, the Brooks Aqueduct was plagued with problems of deteriorating concrete requiring annual maintenance work. By the 1970s, it had inadequate capacity to handle the increasing water demands. The structure conveyed water across the valley until 1979 when it was replaced by a new earthen canal. The canal is capable of carrying close to 50% more water than the original Aqueduct.

In 1983, the Brooks Aqueduct was declared a national historic site, and in 1987 it was designated as "one of 10 outstanding engineering milestones in Alberta", preserving it for its historic value. The Alberta Government-maintained site, located 3 km (2 mi) southeast of Brooks, is open for self-guided tours from May to September.

For more information visit
https://brooksaqueduct.ca/

Brooks Aqueduct
(Photo by Inge Ellefson)

Lake Newell Reservoir

The body of Lake Newell Reservoir begins approximately 6.5 km (4 mi) south of the City of Brooks, running 16 km (10 mi) long and reaching 6.5 km (4 mi) wide at its widest point. It has a surface area of 68 km^2 (26 mi^2), making it one of the largest manmade lakes in Alberta. The reservoir has a total shoreline of approximately 70 km (43 mi), a maximum depth of just under 20 m (65 ft) and holds 260,238 ac-ft at full supply level (FSL). The reservoir is fed via the East Branch Canal and Lake Newell South Feeder, bypassing the Snake Lake Reservoir, seeing the water conveyed 73.2 km (45.5 mi) from the Bassano Dam. The reservoir is foremost in its operational significance to the EID, feeding the Main Bantry Canal, Scott Pipeline, and Rolling Hills Reservoir, overall supporting over 57,546 ha (142,200 ac) of irrigated farmland. Pursuant to District operations and in response to weather extremes and available river diversion, Lake Newell Reservoir can be drawn down as low as 3 m (10 ft) below FSL and still meet all irrigation, municipal, industrial, and rural supply demand. In 2023, the reservoir was drawn down 1.9 m (6.3 ft) at its lowest point in meeting demand. Records back to the 1980s show the level of the reservoir fluctuated as low as 2.8 m (9.5 ft) below FSL.

Lake Newell Reservoir beach

Lake Newell Reservoir was named after Frederick H. Newell, a director of the Bureau of Reclamation Service from the USA Federation Irrigation Project. Mr. Newell served as an advisor to the Canadian Pacific Railway during the construction of the reservoir. On June 7, 1914, the water was officially turned into Lake Newell Reservoir via the East Branch canal. The reservoir did not reach its desired irrigation level until 1916, almost 2 years later, and the complete filling of the reservoir took 3 years.

Kinbrook Island Provincial Park is located on the east side of the reservoir and can be reached via Secondary Highway #873 or by using the new Kinbrook Connection Pathway.

For more information visit
https://www.albertaparks.ca/parks/south/kinbrook-island-pp

Crawling Valley Reservoir

The south end of Crawling Valley Reservoir begins 8 km (5 mi) north and 6 km (4 mi) east of the Town of Bassano, running approximately 16 km (10 mi) north and 2 km (1.6 mi) across at its widest point. It has a surface area of approximately 25.4 km^2 (9.8 mi^2), a maximum depth of 16 m (52 ft) and holds 107,216 ac-ft at full supply level (FSL), making it the second largest body of water within the EID. The reservoir is fed via the North Branch Canal, seeing the water conveyed a short 24.1 km (15 mi) from the Bassano Dam. The reservoir feeds the North Branch Canal and Secondary B and C North Branch Pipeline, ultimately supplying over 14,285 ha (35,300 ac) of irrigated farmland.

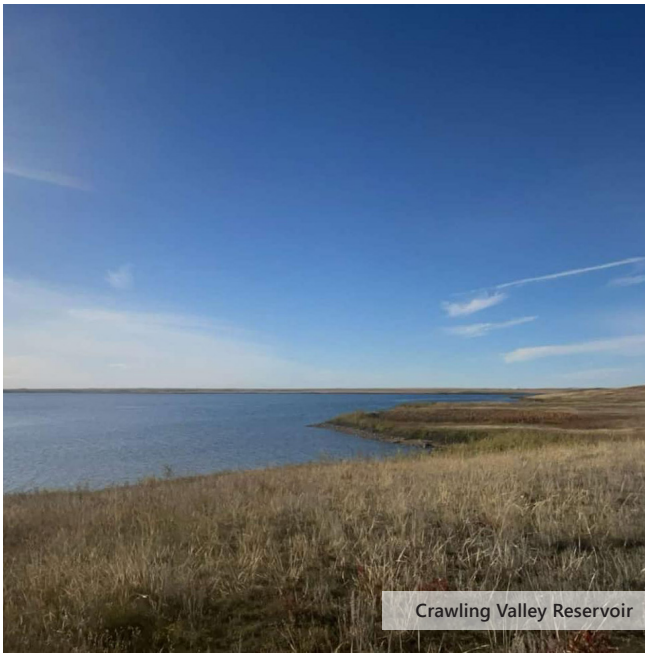
The Crawling Valley area was part of a land grant to the Canadian Pacific Railway Company Ltd. (CPR) by the Dominion of Canada in 1903. The CPR began construction of the irrigation system now known as the EID in 1910 with the construction of the Bassano Dam. Crawling Valley was a major obstruction to the gravity flow irrigation canal system of the time, requiring the construction of a wooden flume close to 500 m (1,500 ft) long, 10 m (33 ft) high, and 5 m (16 ft) across the top to transport the water across the valley.

The development of the reservoir began in 1983 with the PFRA overseeing the design and construction. The reservoir was created with the construction of an earth filled dam across the south end of the valley, 1.7 km (1.05 mi) long, 8 m (26 ft) wide at the top, and 19 m (62 ft) high. The first water was diverted into the reservoir on October 16, 1984. Although the present reservoir was not constructed until the mid-1980s, the value of this site as a water storage location was recognized as early as 1925. The reservoir was fully operational by the spring of 1985, at which time the old wooden flume was retired and lumber was salvaged.

Crawling Valley Reservoir is a very important addition to the water delivery system of the EID. This reservoir provides water delivery security to the northern section of the District, whereas in the past, this region was served directly from river diversion. This reservoir serves as another tool in the overall water management operations of the EID.

Crawling Valley Campground is located on the south end of the reservoir and can be accessed from Highway #1.

For more information visit
http://www.crawlingvalleycampground.ca/



Crawling Valley Reservoir

Rolling Hills Reservoir

Rolling Hills Reservoir begins approximately 17.5 km (11 mi) south of the City of Brooks, running 9.8 km (6 mi) long and 1.6 km (1 mi) wide at its widest point. It has a surface area of approximately 8.8 km^2 (3.4 mi^2), a maximum depth of 12 m (39 ft) and holds 43,778 ac-ft at full supply level (FSL), making it the third largest body of water within the EID. The reservoir is supplied via an outlet directly from Lake Newell Reservoir; however, the water is conveyed 86.2 km (53.6 mi) from the Bassano Dam to that point. The reservoir feeds the Rolling Hills Canal and supports over 14,366 ha (35,500 ac) of irrigated farmland.

The Eastern Irrigation District and the PFRA had made an agreement in the late 1930s to bring settlers to the Rolling Hills area amid a prolonged and disastrous drought. The PFRA was a branch under Agriculture and Agri-Food Canada (AAFC) established by the federal government in 1935 in response to the widespread drought, farm abandonment, and land degradation of the 1930s. Rolling Hills Reservoir was built in 1938-1939 to supply water for the area, with settlers arriving in 1939.

In 2003, the reservoir was expanded making it a tremendous benefit to the future management of the District's water diversions and supply. During the expansion of the Reservoir, a tiered campground was built on the west side of the reservoir and can be reached from Secondary Highway #873.

For more information visit
https://www.eid.ca/rhrcampground.html

Pivot irrigation

Snake Lake Reservoir

Snake Lake Reservoir is located approximately 15 km southeast of Bassano and 32 km northwest of Brooks, within the EID. In its present state it is 4.8 km (3 mi) long and .9 km (.6 mi) wide at its widest point. It has a surface area of approximately 3.06 km^2 (1.2 mi^2), a maximum depth of 11.7 m (38.5 ft) and holds 15,667 ac-ft at full supply level (FSL). The reservoir is currently contained by 2 earth-fill dams: 1 along the east end and 1 along the west end. The reservoir is fed from the East Branch Canal, with water conveyed a short 25.2 km (15.7 mi) from the Bassano Dam. Outflow from the reservoir is through the East Dam Outlet Structure, located near the north end of the East Dam. Water is conveyed from the reservoir via the Snake Lake Canal to the Springhill Canal, which supplements acres with 3.5 inches to approximately 20,234 hectares (50,000 acres) downstream.

Snake Lake Reservoir Expansion Project

The Board of Directors has given approval to expand the size and capacity of Snake Lake Reservoir, which will help offset the direct use of water from the Bow River when it tends to run lower in the summer. Earthworks will include the construction of approximately 8 km of earthen berms, up to 20 m (65 ft) in height, enlarging the surface area to 11.1 km^2 (4.3 mi^2).

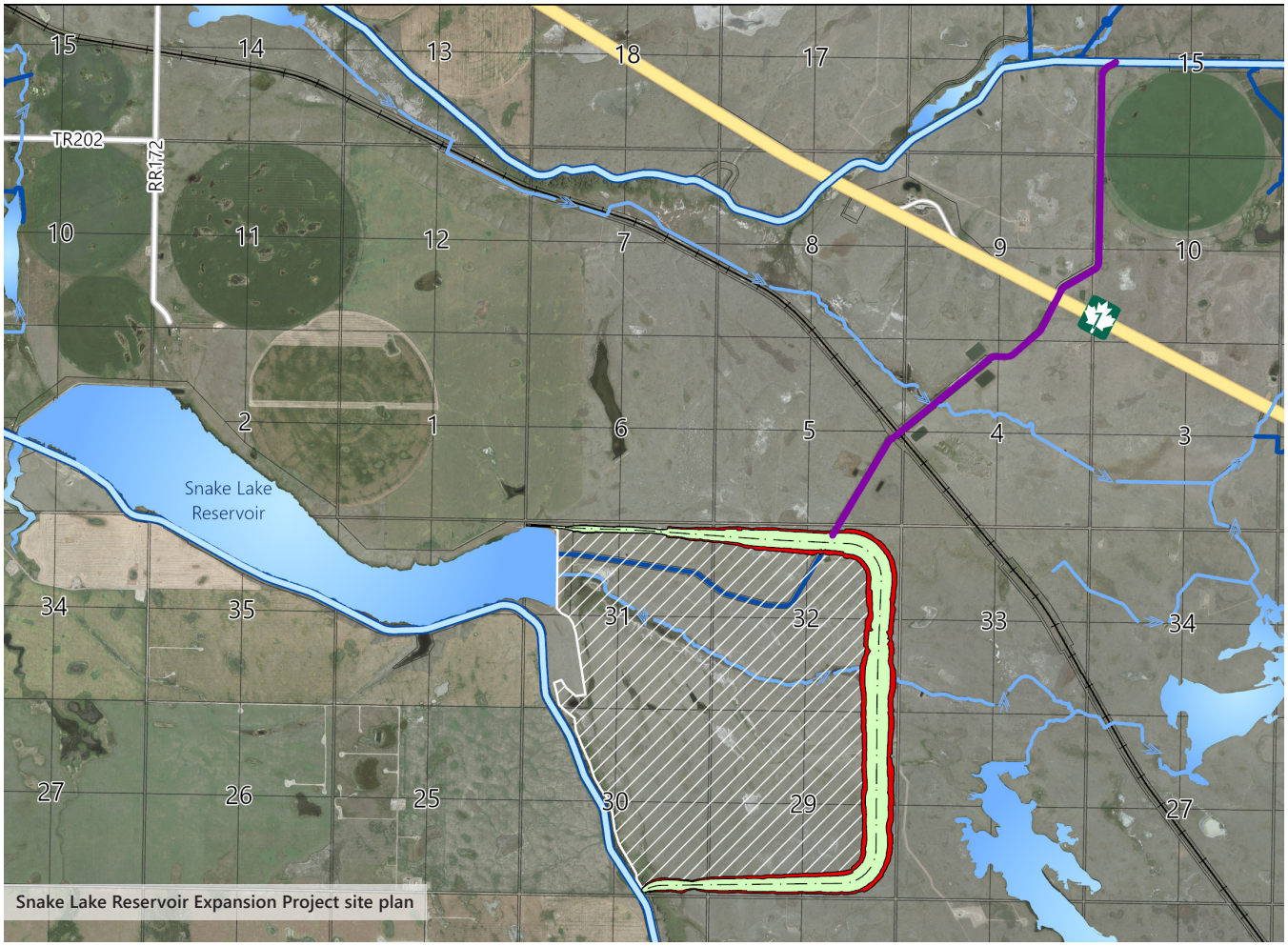
Total storage in the expanded reservoir is estimated to be 70,000 acre-feet which would support the 20,234 hectares (50,000 acres) downstream with 16.8 inches of water, excluding evaporation and operational spill.

A new low-level outlet structure will be constructed at the north end of the expanded reservoir to deliver water into the Snake Lake Canal, which will have its capacity increased to approximately 800 cfs under the IRP program to fully support the downstream acres. The expansion will be funded up to $218 M under the Alberta Irrigation Modernization (AIM) program, which consists of a 30% grant from the Alberta Government and 50% financing through the Canada Infrastructure Bank, and the remainder through the EID Capital Works program at an estimated cost of $273 million. Project updates are ongoing.

The expansion project was first presented to the EID Board of Directors in 2018 and was given extensive consideration regarding its operational benefits to fully supply 20,234 hectares (50,000 acres) irrigation acres downstream (thereby reducing off-river acres by 35%), its construction viability, and the project's overall feasibility. In 2020, the Government of Alberta (GOA) announced a historic investment to expand irrigation through Provincial funding grants and Federal financing, with the Snake Lake Reservoir expansion project receiving approval as one of the off-stream storage projects eligible for the Alberta Irrigation Modernization (AIM) program. In light of this, the District included the project in its irrigation expansion modelling and 2021 plebiscite proposal.

In March 2022, the project footprint lands were secured by the District. Throughout 2022 and 2023, extensive boreholes, penetration tests, rock cores and laboratory analysis were undertaken to analyze the physical, chemical, and geotechnical properties and to determine the existing ground conditions under the proposed dam berms and within the expanded reservoir.

A provincial Environmental Impact Assessment (EIA) is required, and the District is awaiting government comment on its Terms of Reference (TOR) which outline the potential impacts of expanding the reservoir that must be addressed. It is estimated that once the final EIA is submitted, it will take at least a year to receive approval from the Alberta Environment & Protected Areas (EPA) Environmental Assessment Group, EPA Water Act Group, and the Natural Resources Conservation Board.



Snake Lake Reservoir Expansion Project site plan

Engineering & Construction

Rehabilitation Programs

The Eastern Irrigation District (EID) owns, operates, and maintains the infrastructure on its lands and utility rights-of-way, including all reservoirs and the Bassano Dam. The vast majority of its infrastructure is designed, managed, and constructed in-house, with Operations Staff assisting construction crews in winter. Other landowners (irrigation farmers, acreage owners, industry owners, municipalities) are responsible for the construction, operation, maintenance and ownership of infrastructure on their lands. **For the past 30 years,** through 2 separate programs (GOA Irrigation Rehabilitation Program and EID Capital Works Program), **the District has undertaken an extensive rehabilitation plan, averaging $22 million/year.** This plan has saved significant water through efficiencies by lining main canals to prevent seepage and by replacing smaller lateral canals with buried pipelines to prevent seepage and evaporation losses and decrease operational spill. The goal of all rehabilitation programs within the District is to improve the efficiency of the overall system. This is achieved by reducing water losses as well as improving technologies that allow more efficient and monitored movement of water through the system.

Rehabilitation of irrigation infrastructure includes:

- replacing above ground canals with buried pipelines (up to 60" in diameter) (some portions of pipelines are twinned)
- lining above ground canals
- installing/replacing automated water control structures
- establishing flow measurement sites

The Irrigation Rehabilitation Program (IRP) is a cost-share program between the Government of Alberta and the 11 Alberta irrigation districts, that has been in existence since 1970. Rehabilitation projects, submitted to the Government of Alberta for review and approval, presently receive funding of 75% of the construction costs, up to a capped amount, with the irrigation district funding the remaining 25% or more. This funding from the Government of Alberta has supported

the development of highly efficient and technologically advanced irrigation conveyance systems in southern Alberta.

The EID also funds rehabilitation projects through its in-house Capital Works Program, where 100% of the cost of all projects is funded entirely from EID reserve funds. Approximately ¾ of the $22 million/year rehabilitation budget is funded under this program.

In an effort to ensure that all drainage systems function at optimum levels, the EID and the County of Newell have entered into a Drainage Rehabilitation Agreement funded at a 50/50 cost share arrangement. The coordinated rehabilitation of this infrastructure not only minimizes costs for both parties, but also minimizes issues with jurisdictional water flow.

For more information on the rehabilitation and maintenance programs visit https://www.eid.ca/documents/board/Annual_Report_EID_2024.pdf

C Springhill Pipeline installation

Turnout from East Branch to Springhill

Operations

The Bassano Dam is the EID diversion headworks on the Bow River. Water in the Bow River basin is fed by annual mountain snowpack and precipitation, with a very small amount of glacier melt. Snow pillows that are monitored to predict snowmelt flows that feed the Bow River system include: Lost, Sunshine, Little Elbow, Three Isle, Mount Odlum, and Skoki. Mountain snow typically accumulates from October through April/May, seeing a spring melt that may last from May through June or July. Opening date of diversion for the District is dictated by the amount of ice and snow remaining at the Bassano Dam and in the main canals and structures, but typically occurs late March/early April. District reservoirs are brought up from winter levels to Full Supply Level (FSL) while beginning to deliver to irrigators and other users. The earliest date and final date for water delivery to users each season is based on weather conditions, demand, and supply. The Eastern Irrigation District (EID) diverts water under the authority of licenses issued by the Government of Alberta.

The EID also conveys water for other license holders within its boundaries. License holders pay the District for this service and are also required to report their water usage to the Provincial Government. Maximum total diversion and maximum rate of diversion parameters are adhered to by the District, along with monitoring and reporting requirements. For downstream users and the health of the river, the District maintains flows passing the dam that are above or well above the minimum rate required. Return flows from the bottom ends of the conveyance system are routed to either the Bow River along the south end of the District or the Red Deer River to the north. The Bow and Oldman rivers converge midway between Lethbridge and Medicine Hat to become the South Saskatchewan River. The confluence of the Red Deer River and the South Saskatchewan is further north, along the Alberta/Saskatchewan border. Within the District's operations, the EID further strives to ensure all categories of its water conveyance, evaporation, operational spill, and farm spill are quantified. Additional District automation, accurate digital records of Water Operators, and timely water on/off orders from irrigators help the EID skillfully manage the water in its conveyance system.

Since 2006, the EID has contributed financial and in-kind support to the Irrigation District Water Quality Monitoring program. Currently, the program collects water samples at 15 different locations across the EID, 4 times over the irrigation season. This helps to ensure the results are representative of average water conditions in the EID. The samples are sent away to various labs and institutions to be analyzed for over 230 different biological, chemical, and physical parameters. This continued monitoring helps identify changes or trends in parameters. Results are published on the IDWQ.ca website.

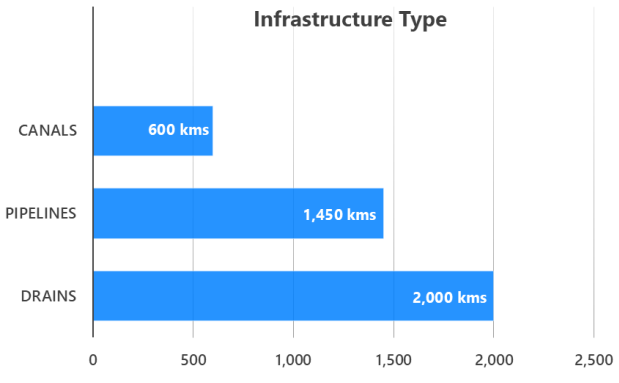
Water is first conveyed through the Main Canal, branching off to East Branch and North Branch canals. Through these arteries, water is provided to 13 storage reservoirs, 600 km (372 mi) of canals, and 1,450 km (870 mi) of underground pipelines. 46% of the District is currently served directly from river diversion (the water is not stored or does not pass through a significant

East Branch, Lake Newell Headgates
(Photo by Inge Ellefson)

reservoir) and the remaining 54% of the District is served from one of the reservoirs that is filled from river diversion.

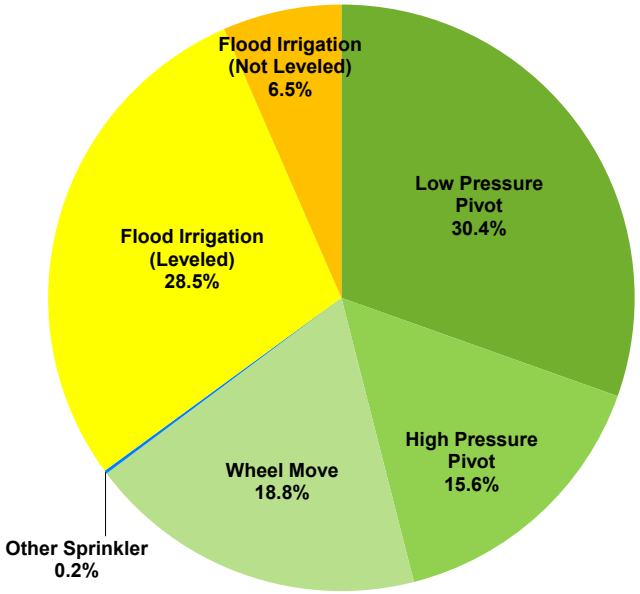
The reservoirs allow the EID to serve different areas of the District, meet demand fluctuations, and store and provide water security in years when the flow of the Bow River is reduced due to drought conditions. The reservoirs also provide important social benefits for the public in the form of recreational water activities. Canals and pipelines convey water to irrigate over 129,500 ha (320,000 ac) of farmland, 1,500 rural residences, 25 industries and large feedlots, approximately 12,140 ha (30,000 ac) of managed wetland habitat, and the domestic needs of a population base close to 22,500 people. The primary function of 2,000 km (1,243 mi) of natural and constructed drains is to remove excess water from the farm, moving it back into the EID conveyance system or back into the river system. In addition, most surface drainage from municipal road ditches empty into the EID drainage system, thereby providing an important service to minimize damage to private and municipal property, especially during extreme storm events.

The Dam Supervisor monitors river flows upstream and downstream to assess water volumes approaching the dam and what is being spilled over the dam. This helps to ensure enough water is being diverted to the District's users as well as being passed to downstream users. The District has 15 Water Operators who respond to

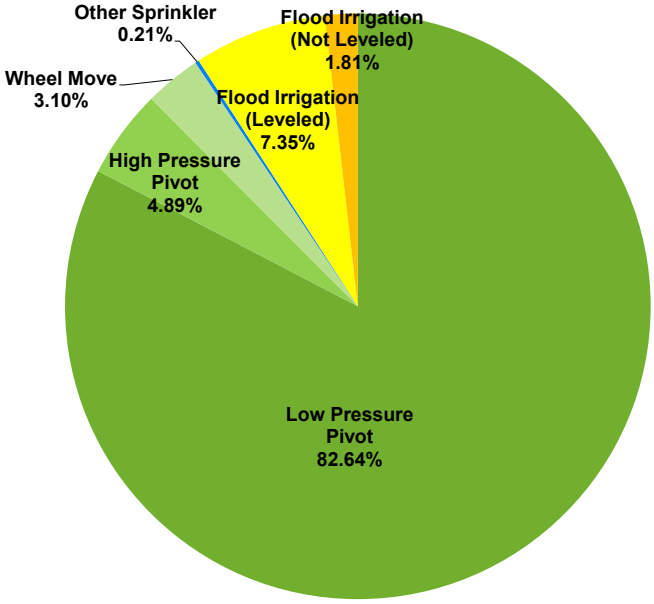


requests for water and control the flow of water through the canals, pipelines, and reservoirs in their area. Irrigators must give the Water Operators 48 hours' notice in advance of irrigating and 24 hours' notice within finish of use so that the Water Operators can adjust the water levels at smaller structures on the canals for efficient operation of the system and response to orders within their area. North and South Divisional Superintendents oversee operations, irrigator concerns, and maintenance activities (minor infrastructure repairs, mowing canal banks, clipping weeds, mitigating aquatics) in their region. An Operations Manager oversees all aspects of operations, receives daily reports on pending orders, system flows, and reservoir levels; and in turn communicates with the Dam Supervisor to ensure enough water is being diverted at the main canal to feed the canal system and supply water to the irrigators and other users, while also ensuring enough water is being diverted downstream.

The EID is committed to continually enhancing efficiencies in its conveyance system and operating practices and in promoting efficiencies for its users.

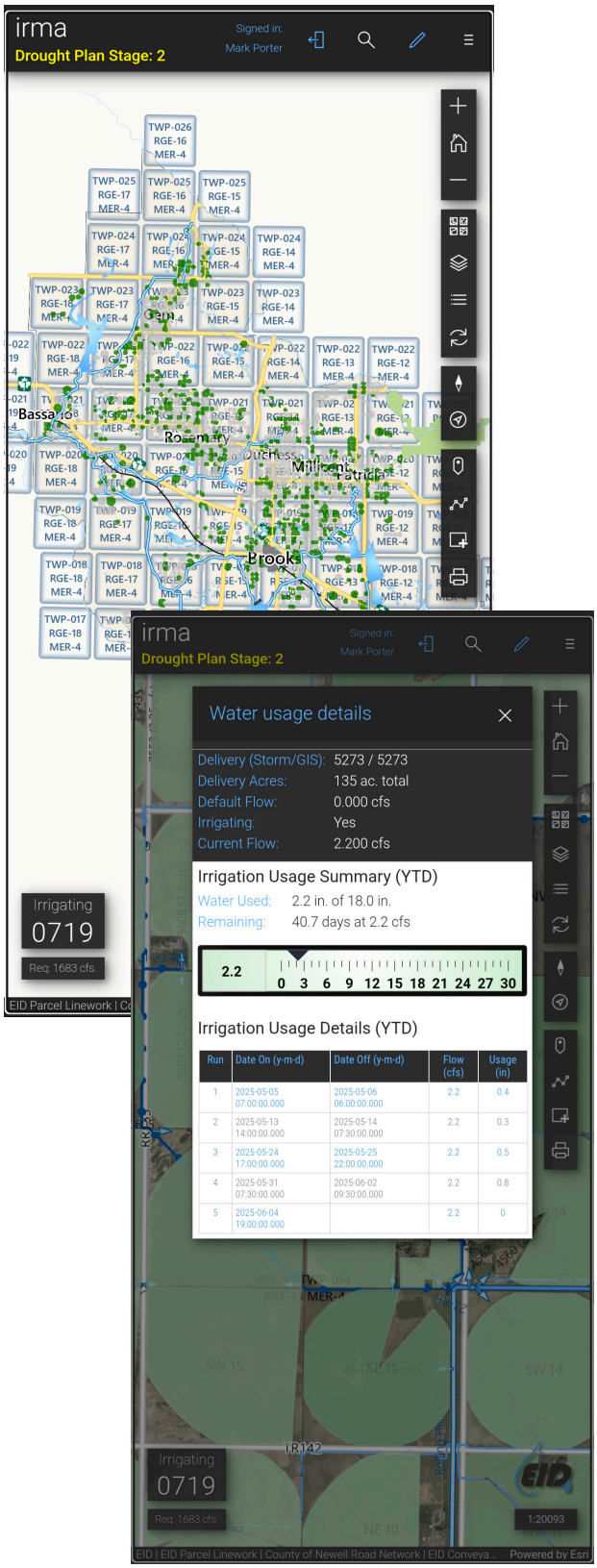


Acres by Method of Irrigation: 2002



Acres by Method of Irrigation: 2024

Converting open ditches and canals to pipelines and converting to more efficient methods of irrigation allows the District to irrigate more area without increasing the amount of water being diverted at the dam. Current irrigation methods within the EID are 90.8% sprinkler (82.6% low pressure pivot, 4.9% high pressure pivot, 3.1% wheels, .2% other) and 9.2% flood (7.4% leveled and 1.8% not leveled); compared to 65% sprinkler and 35% flood in 2002. Incentive grants are provided by the District through its Farm Improvement Program to irrigators for on-farm conversions to more efficient methods of irrigation. Since modernization of on-farm irrigation equipment and District conveyance infrastructure began to accelerate in the 1990s, a downward trend of water to the farmgate has been realized. The District is currently using approximately the same amount of water to irrigate over 129,500 ha (320,000 ac) of land as was used in 1935 to irrigate 40,468 ha (100,000 ac).



With technology advancements and an increasing demand for irrigation information and management tools, the District has deployed IRMA (Irrigation Recording & Management App). This app is a web-based tool that has been developed in-house to record and display water usage, flow rates, irrigation method, and crop type on all irrigated parcels within the EID, along with canal flows, reservoir elevations, and water orders. This management tool aids Operations staff in daily water management procedures and acts as an informational tool for irrigators to view real-time water usage on their irrigation parcels. The app may be accessed using a smart phone, tablet, laptop, or computer. Advancements in technology have also permitted 60% of District infrastructure to have some sort of automation; with 1 canal moving towards being fully automated (automation controlling flows throughout the system).

For more information on IRMA visit https://www.eid.ca/irma_app.html

The EID is committed to responsible stewardship of water.

The District has adopted a 4-stage drought plan within its Maximum Water Bylaw that sets reduced limits for the maximum amount of water per irrigation acre, and corresponding advisement for other users, when experiencing varying moisture conditions and water supply. The stages are triggered by Board directive in response to snowpack melt, river supply, reservoir supply, precipitation, soil moisture conditions, and weather forecasts.

Cooperative methods have been in place for years between irrigation districts on the Bow River, seeing districts collaboratively manage water resources and prioritize the various needs

of the users with consideration of instream objectives. The districts prioritize human consumption and provision for livestock, over irrigated agriculture, if licensed river supply decreases below anticipated diversion needs.

For more information on snowpack data visit https://rivers.alberta.ca/

Pivot irrigating a Canola field

Corn field east of Rolling Hills

Irrigated Agriculture

Crop & Irrigation Statistics

40% of food production in the world today is grown on irrigated land. Much more can be grown with irrigation than from precipitation alone. The average annual precipitation within the EID is 30 cm (12 in) with an average of approximately 15 cm (6 in) falling during the growing season. This average is much less than the water requirements to successfully grow most agricultural crops. Of the 45 different types of crops grown in Alberta's irrigation districts, only 10 of those crops could be grown here without irrigation, and with much less yield. The stability of an on-demand water supply from irrigation districts translates into broader food security and a major boost to the local economy, let alone the societal benefits for its residents and the environmental habitat it sustains. Half of the raw product for Alberta's multi-billion-dollar food processing industry comes from irrigated land.

In Alberta, 4.4% of the cultivated land base is irrigated within the 11 irrigation districts, generating 27% of the total primary agricultural sales.

A 2021 Study of the Economic Value of Alberta's Irrigation Districts found that:

- annually, irrigated land in the province provides:
  - **$5.4 billion** to Alberta's total GDP
  - **46,000** full-time equivalent jobs
  - **$3.2 billion** in direct labour income
  - **$102 million** to Alberta's GDP from activities related to operation, maintenance, and rehabilitation of irrigation infrastructure
  - **$500 million** in specialty crop sales (almost half of the total revenue from all irrigation crop sales)
  - **38%** of Alberta's total livestock sales
  - **27%** of Alberta's total agricultural sales
  - **$47 million** in savings for conveying municipal water supply to almost 50,000 Alberta residents
- irrigated crop and livestock production generates **8 times** more revenue per hectare than dry land
- every **$1** invested by the Government of Alberta to irrigation districts returns **$3.56** in revenue to the province
- water conveyance infrastructure supports hydropower generation, other agricultural activities, municipalities, industry, businesses, drought and flood mitigation, wildlife and wetlands, and recreation opportunities
- at least 45 types of crops, plus market gardens and nursery stock, are grown in Alberta irrigation districts
  - 36.7% cereals
  - 31.8% forages
  - 10.6% oil seeds
  - 20.2% specialty crops
  - 0.7% other

For more information on irrigation data visit https://open.alberta.ca/publications/3295832

2024 Total of All Crops within the EID

Crop Class		Acres
Summary	Forage Crops	129,132
	Cereal Crops	110,227
	Oil Seed Crops	26,681
	Specialty Crops	51,334
	Non-Irrigated	2,063
Total:		319,437

Lands & Reservoirs

The Eastern Irrigation District (EID) manages its land and water bodies with a multi-use philosophy which benefits everyone (irrigated agricultural producers, beef producers, the energy industry, recreationalists, hunters, researchers, etc.).

Approximately 90% of District owned lands is dryland prairie. The primary use of these lands is for cattle grazing. The major economic benefit from these lands is from oil and gas surface leases. Grazing lands support local private producers, the practice is an ideal grass management and fire prevention strategy, and it coexists well with Ducks Unlimited projects and oil and gas surface leases. In addition to being the chief revenue stream, the social and educational benefit of District lands is a natural fit for hunters, recreationalists, and researchers.

While the water itself belongs to the Crown, the infrastructure of reservoirs is owned and operated by the District. For a fee, the EID conveys water to its ag producers, other water users, and other license holders. Some water bodies have supported private businesses in the past such as a commercial fishery and waterski school; however, most activities on reservoirs are recreational. Campgrounds, public beaches, and marinas are located at Lake Newell, Rolling Hills, and Crawling Valley reservoirs.

EID Pasture Lands

The District has approximately 217,000 ha (535,000 ac) of community pastures which consist of approximately 201,000 ha (496,000 ac) of native prairie and approximately 16,000 ha (40,000 ac) of re-grassed (tame) pastures which are grazed during the first part of the growing season, with cattle being moved to native prairie fields as the season progresses. On average, 17,000 cow/calf pairs are grazed each year on EID community pastures. Approximately 625 bulls are added to the pastures during the breeding season. The land is leased to 10 Grazing Associations (GA) (Bassano Grazing Association, Bantry Grazing Association, Duchess Grazing Association, Eyremore Cattle Grazing Association, Gem Grazing Association, Newell Cattle Grazing Association, Patricia Grazing Association, Rolling Hills Grazing Association, Rosemary Grazing Association, and Tilley Grazing Association). Two areas not leased to a GA are utilized as "swing fields", one in the north and one in the south, enabling an annual redistribution of cattle to balance grazing needs and grass supply throughout the District and ensuring the fair allocation of cattle to all irrigators that wish to pasture cattle on EID lands. To assist in the governance of EID owned pasture lands, a Grazing Advisory Committee was established to provide advice and recommendations to the Board of Directors on grazing policy and initiatives. Improvements, such as cross fencing and the installation of additional water lines, water tanks, and dugouts, have increased the availability of pasture, and as a result, the carrying capacity has significantly increased over the past several years.

The District also leases approximately 20,000 ha (50,000 ac) of pasture as Private Grazing Leases (PGL), approximately 100 in total, to eligible irrigators. These parcels range from 2 ha (5 ac) to 1,200 ha (3,000 ac).

Irrigated Leases

2,350 ha (5,806 ac) of District owned lands are developed irrigated farm leases. Leased by term agreement, the parcels provide an opportunity for farmers to expand their farming operations, provide an important revenue stream for the EID, and support the District's mandate to promote and sustain irrigated agriculture.

Irrigation Development

When developing any parcel of land for irrigation, whether District owned or farmer owned, requirements include but are not limited to: soils meeting provincially regulated requirements for irrigation; irrigation acres being available, approved, and purchased via the District's Irrigation Acres Bylaw and Capital Assets Charges Bylaw; the feasibility of conveying water to the parcel; and the landowner deeming the project economically viable for them to develop.

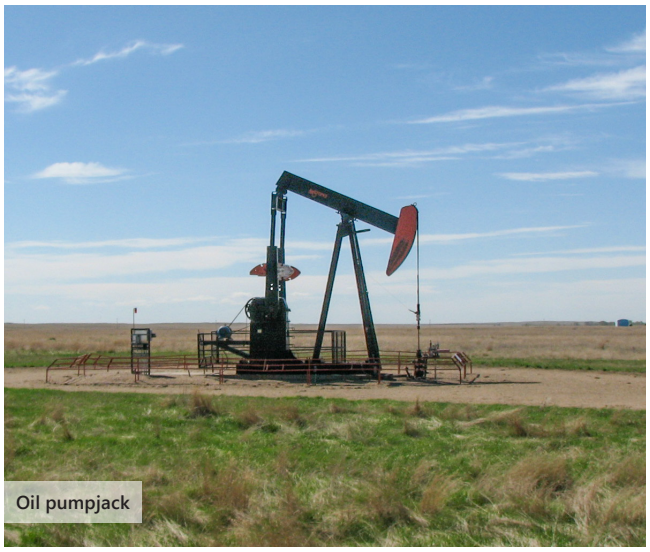
Because of on-farm conversions to more efficient methods of irrigation and efficiencies gained when rehabilitating the EID conveyance system, the District has been able to increase its expansion limit (the maximum number of acres allowable to be assessed as irrigation acres) twice since 2003, while staying well within its allotted volumetric water license. Farmer irrigation developments are ongoing, as well as the District's consideration and construction of feasible projects on EID owned parcels where the soil is well suited for irrigation.

Fall round-up on Community Grazing Pasture

Energy Industry

Oil and gas development within the EID requires access to fresh water to carry out their operations. Approximately 39 oil and gas companies currently operate on EID owned land with over 8,300 surface leases. The presence of the irrigation delivery system allows these companies to have access to a direct water source, saving the companies money and time. The presence of oil and gas companies within the District boosts the socio-economic status of the area, providing full-time jobs and services. The oil and gas revenue stream from District owned lands has allowed the EID to undertake several initiatives, the foremost being an aggressive infrastructure rehabilitation plan over the last 30 years. Once abandoned, surface lease sites are reclaimed as per the Alberta Energy Regulator criteria.

Other companion uses of District lands are being explored, such as solar energy production, to diversify revenue streams as a decline in oil and gas revenues is experienced. To date, 1 solar project has been constructed on District lands.



Oil pumpjack

Solar farm just north of Brooks

Research Access

A number of research projects are permitted to occur on District lands and wetlands with focuses on:

- various wildlife (Ferruginous Hawk survey, prairie birds study, duck banding, remote sensing wetland mapping, etc.)
- at-risk or endangered species (Northern Leopard Frog monitoring, Burrowing Owl research and population enhancement, etc.)
- paleontology (investigation site for Hadrosaur remains, access to excavation sites within Dinosaur Provincial Park, etc.).

Fossil site

Tyrannosaur fossils found on EID Land

Hunting & Public Access

The EID has excellent game bird populations and is widely known for its pheasant hunting. Pheasants can be found throughout the cultivated areas, but it must be remembered that the majority of these lands are privately owned, and permission must be sought for hunting access. There are a number of properties within these cultivated regions which are managed for wildlife, and foot access hunting is permitted. Other upland game birds found within the District include Gray Partridge and Sharp-tailed Grouse.

There are also excellent waterfowl hunting opportunities within the EID, with both pass-shooting over the Ducks Unlimited wetlands and irrigation reservoirs and stubble shoots in the farmlands. Big game animals found in the area include Pronghorn antelope, White-tailed deer, Mule deer, moose, and elk. Hunting for these ungulates is restricted to special license draws with the exception of White-tailed bucks which is a general license. The highest deer populations are generally found along the river drainages, although good numbers can often be found in much of the farming areas. Pronghorns may be found throughout the majority of the prairie rangelands.

Hunter with his dog and decoys

The EID manages its land and waterbodies with a multi-use philosophy which benefits everyone. The EID includes within its boundary the majority of the County of Newell. Almost all the land within the EID is privately owned with the District being the largest private landowner. In addition, many of the irrigation ditches within the EID are not on EID lands and the landowner has control of public access to these waterways.

Public access is generally permitted on the EID community pastures, with written permission being mandatory for hunters; however, certain guidelines are to be followed:

- DO NOT DISTURB LIVESTOCK. No public access near cattle.
- All automobiles MUST stay on established roads or designated routes where posted. No exceptions. No off-highway vehicles.
- Hunting and fishing are generally permitted on EID owned community pastures during the legal season by individuals in possession of the appropriate recreational licenses. NO HUNTING PERMITTED NEAR LIVESTOCK.
- Leave gates as you find them.
- No open fires permitted. Extreme caution must be used to prevent grass fires. EID lands may be closed to public access during high fire hazard conditions.
- No camping permitted, except in designated campgrounds.
- Pets must be supervised and kept under control at all times.
- OBEY ALL SIGNS. Some areas may have designated routes, some areas may be foot access only, or in some cases have temporary closures to public access.
- Only launch boats from approved launches.

By adhering to these simple access rules on EID owned lands and asking for permission to access other private lands, you are investing in the future.

Remember that access to these private lands is a privilege not a right. Please "Use Respect" and enjoy your visit to the EID.

For more information visit https://www.eid.ca/public_access.html
https://www.eid.ca/documents/publications/Brochure_Wildlife_Guide.pdf

Ice Fishing

All EID access rules remain in force during the winter. When accessing EID reservoirs:

- Keep highway vehicles on established roads and trails.
- No fires or camping on shore.
- Pets must always remain under control.
- If off-highway vehicles are to be used to access the ice, offload from the closest established trail, and then take the most direct route on and off the ice.

Ice conditions on EID reservoirs change frequently throughout the winter. Always use extreme caution when accessing reservoirs in the winter and do not assume what was safe ice yesterday is safe ice today. Be mindful of changing weather conditions and their effect on access roads & trails. Strong sunshine or chinooks, particularly later in the winter, can turn a trail from easily accessible by a small car in the morning to needing a serious four-wheel drive vehicle to get out later in the day. All individuals accessing EID lands and reservoirs do so at their own risk.

Ice fishing at Lake Newell Reservoir

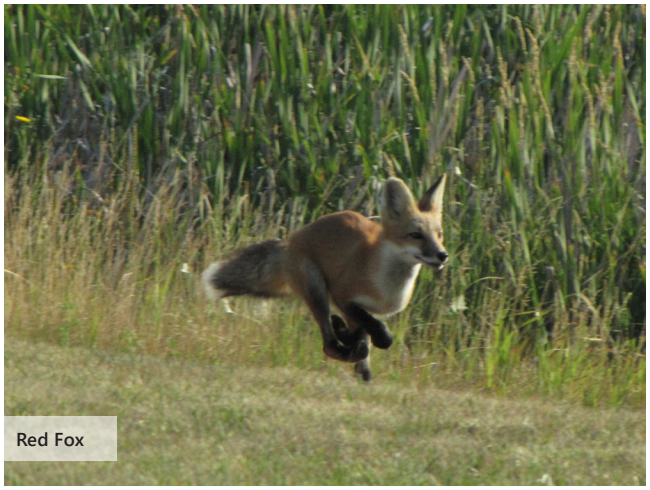
Canal/Drain Ownership & Salvage Fishing

In general, large canals and drains are owned by the EID and public access is allowed, unless otherwise indicated. Smaller canals and drains are often not owned by the EID and not open for public access, in which case the EID only has an easement across someone else's land for water conveyance infrastructure.

Salvage fishing after the canals have been dewatered has always been a popular activity. A $5.00 salvage licence is required and can be obtained from the Fish & Wildlife offices in Medicine Hat, Lethbridge, Hanna, Calgary, or Edmonton. The license allows a set number of sportfish of any size to be harvested from the dewatered canals using gear (dip net or beach seine) otherwise not permitted. The licence does not authorize the construction of fish traps in EID canals or the removal, addition, or relocation of armor (rock) from EID canals. The licence is not valid in locations where the fish may enter a reservoir on their own, typically downstream of the last drop structure before the canal flows into a reservoir. Please respect gates, instructional signs, and neighbouring landowners when salvage fishing. Use extreme caution if salvage fishing around EID water control structures.

Trapping

The EID permits trapping furbearers on EID lands and in EID waterbodies. Trapping may occur from October 1st – April 30th, but snaring (using only normal locking snares - no spring assistance) may only occur between December 1st and February 28th. Trapping for nuisance aquatic species may occur at any time of year. Contact the EID to receive trapping permission (WA 19A form), your trapping identification number, and/or if you believe there to be a serious issue with traps or snares located on EID land. All traps and snares used on EID land or in EID water bodies are required to be tagged with a unique, permanent, identification number assigned by the EID. Even during winter when the cattle are no longer on EID land pets must be kept under your control. Uncontrolled pets may encounter manmade risks (snares, barb wire, etc.) and natural hazards (wildlife, thin ice, etc.). All individuals accessing EID lands and reservoirs do so at their own risk and assume all responsibility for their pets.



Red Fox

White-Tailed Jackrabbit

Aquatic Invasive Species (AIS)

An invasive species is an organism not native to an area or ecosystem which when introduced establishes readily and alters the ecosystem, almost always with negative results, and are almost impossible to eradicate.

Aquatic invasive species are extremely detrimental to Alberta irrigation as they will:

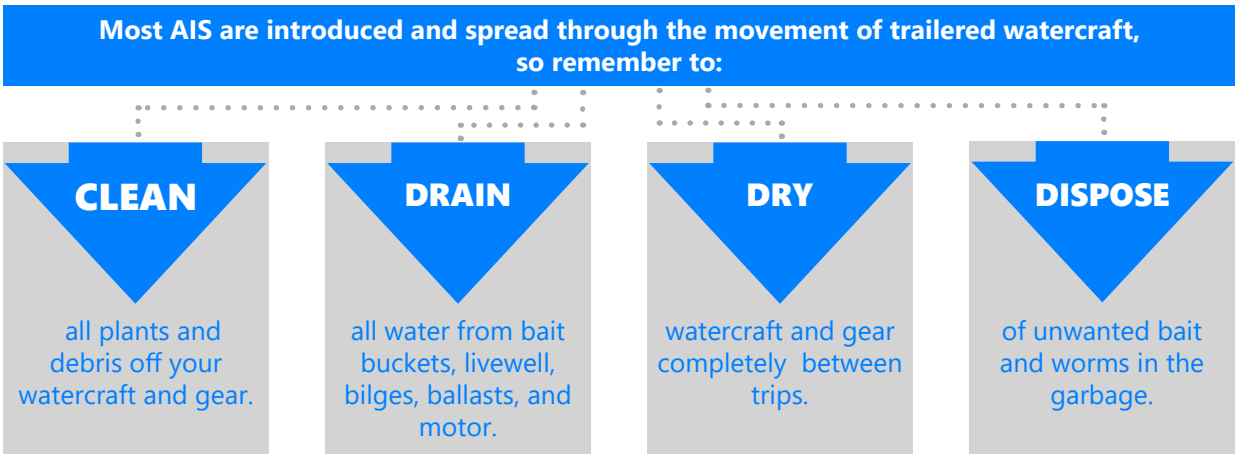
- pose a threat to the management and operation of irrigation conveyance infrastructure (including reservoirs)
- require permanent maintenance to unclog irrigation outlets/intakes, pipelines, screens, etc.
- cost millions of dollars in maintenance costs, infrastructure damage, and control measures
- deplete the quality of water risking food and crop production
- restrict availability of water for municipalities and acreages

Mussel infested watercraft, mix of Quagga and Zebra Mussels

Most aquatic invasive species are introduced and spread from one waterbody to another through transportation of infested trailered watercraft. Some aquatic invasive species may also be introduced through intentional dumping of fish and/or aquatic plants from household aquariums or backyard ponds into waterbodies. Zebra mussels (Dreissena polymorpha), Quagga mussels (Dreissena rostiformis bugensis), Flowering Rush (Butomus umbellatus), and Prussian Carp (Carassius gibelio) are examples of aquatic invasive species of concern in Southern Alberta.

What can YOU do to prevent the establishment and spread of aquatic invasive species into Alberta's waterbodies?

- If you are entering the Province with watercraft (motorized, canoe, kayak, paddleboards, other non-motorized watercraft, etc.) it is the law to stop for an inspection at an open Provincial inspection station. If you do not pass an inspection station you can call the Provincial AIS Hotline at **1-855-336-BOAT (2628)** to arrange for an inspection.
- Always **CLEAN**, **DRAIN,** and **DRY** your watercraft when removing it from any waterbody, reducing the potential of transporting any species from one waterbody to another.
- Report any suspected invasive species by calling the Provincial AIS Hotline at **1-855-336-BOAT (2628)**.
- Do not dump fish, plants, or invertebrates from household aquariums or backyard ponds into any waterbody.
- When planning a backyard pond development



use only native vegetation and know which aquatic plants are not native and/or invasive at www.abinvasives.ca.

- It is illegal to move live fish from one waterbody to another and illegal to use live bait when fishing.

Though not currently present in Alberta waterbodies, Zebra and Quagga mussels are of particular concern for a number of reasons. Most of Alberta's waterbodies are considered high risk for Zebra and Quagga mussel establishment as the chemical and physical properties of Alberta's waterbodies are favourable habitat for these mussels. If introduced, mussels will establish rapidly and quickly change the ecosystem by competing with native organisms for food and developing large, sessile colonies. These effects will be devastating to the ecology and recreational enjoyment of Alberta's waterbodies.

Due to their physiology, mussels are small and can attach to numerous small crevices and cracks found within watercraft and because of this are sometimes not visible upon observation. Adult mussels can survive up to 30 days out of water, given the right temperature and humidity levels, and the microscopic larvae of mussels (veligers) can survive within water in bilges and live wells for a number of days. Given this, it is easy to see that an infected boat transported to a different waterbody may easily infect the new waterbody without the owner's realization.

For more information visit https://www.alberta.ca/clean-drain-dry-your-gear.aspx

The Eastern Irrigation District is collaborating with other irrigation districts and the Government of Alberta in support of the fight against the introduction and establishment of aquatic invasive species into Alberta's waterbodies.

The southern Alberta irrigation districts, including the Eastern Irrigation District, are especially concerned with Zebra and Quagga mussels, and have collaborated on several projects to prevent the establishment of mussels in Alberta. Through the Alberta Irrigation Districts Association (AIDA), a trial Mussel Dog Detector Inspection Program was brought to Alberta in the spring of 2014/2015. Dogs trained to target mussels by scent were deployed at Alberta commercial Vehicle Inspection Stations (VIS) to efficiently and effectively search possible mussel infested and high-risk watercraft travelling into Alberta.

The program was proved such a success that in 2015, the Eastern, Bow River, Taber, Lethbridge Northern, Raymond, United, and Western irrigation districts funded the training of 4 Mussel Detection Dog teams for permanent deployment within the Province's AIS Inspection Program. In March 2015, the Government of Alberta announced mandatory inspection of all trailered watercraft entering Alberta from any other province or state with AIS Inspection Stations established at most Alberta commercial VIS.

In 2018, the EID initiated an Aquatic Invasive Species Prevention Program. **All boaters wishing to access EID reservoirs must follow approved prevention procedures and complete a watercraft information form** stating they will not knowingly spread aquatic invasive species. As part of the program, trailered watercraft must only be launched from approved boat launches and boaters must check in with the campgrounds, marina, or EID office before launching. Canoes, kayaks, and other non-trailered watercraft may continue to be launched at random locations, but the boaters must check in with the campgrounds, marina, or EID office before launching. Boaters can visit Lake Newell Resort Marina, Rolling Hills Campground, or Crawling Valley Campground to register for the program.

In the 2024 season, the Eastern Irrigation District inspected and registered 4,343 watercrafts, from sailboats to paddleboards, at Lake Newell Reservoir, Crawling Valley Reservoir, and Rolling Hills Reservoir.

Please clean, drain, and dry your watercraft before moving to a new waterbody and do not release garden plants or pets into the wild.

Zebra Mussel

MANDATORY REGISTRATION UNDER THE AIS PREVENTION

AQUATIC INVASIVE SPECIES PREVENTION PROGRAM

EID STOP

County of Newell
Bylaw No. 2001-21

Community Investment

It has been the longstanding practice of the Eastern Irrigation District (EID) to invest in the local area and southern Alberta region by contributing to initiatives which benefit the greater community.

Funding

Local and/or regional funding has been directed to:

- water related programs, research, sponsorships, and subsidies (reduced water conveyance rates for all customers, Bow River Basin Council sponsorship, river basin & water quality studies, flood and drought mitigation modelling, AIS prevention, river education through RiverWatch field trips, regional potable water grants)
- agricultural programs (education and research, on-farm efficiency grants)
- habitat support (land and water habitat development programs)
- reservoir multi-use (campground and marina developments)
- community projects (recreation, tourism, emergency response, health, and education)

The EID is dedicated to supporting and giving back to its local rural communities within the County of Newell and to the City of Brooks. The EID has made in-kind, monetary, or rent reduced contributions to projects that benefit the communities as a whole.

Donation to EID Aquatic Centre

Donation to HALO

Bassano Dam tours

Education

The EID continues to bring awareness to the importance of water in this region that, without irrigation, would not be able to support local businesses, municipalities, ag producers, or much of the habitat. The EID contributes to and collaborates with several like-minded organizations, such as Ag for Life and the Classroom Agriculture Program, that promote a better understanding of irrigated agriculture and of where food comes from.

Ag for Life delivers educational programming to children, youth, and adults across the province to build a genuine understanding of agriculture, where food comes from, and farm safety. Most recently, the EID contributed to Ag for Life's "Know Your Food" education trailer bringing food knowledge and awareness of sustainable food production and Alberta agriculture directly to communities, schools, fairs, rodeos, and other events.

Bassano Dam Tours

The EID showcases tours of the Bassano Dam to local classrooms, the public, and for various events to underline the history, engineering, and importance of this location and structure for the District.

Upon arriving at the parking lot of the Bassano Dam, you will be able to observe the entire dam, the spillway structure, and the diversion of water into the Eastern Irrigation District's main canal. An overview of the history and background of the EID is provided by tour guides demonstrating the importance of the water delivery system to agriculture, industry, and the region.

Next, the tour guides will take you to visit the control tower of the Bassano Dam and will walk across the spillway structure to observe the gates, hoists, and concrete spillway from a closer perspective. Discussion will focus on historical and recent construction activities, operation of, and operational technologies used in the running of the dam, as well as Provincial water management policy.

As the spillway structure is a hollow core concrete dam, an underground tour is provided by descending multiple flights of stairs to walk through the center of the structure and under the Bow River via the observation deck. This provides an interesting perspective of the over 100-year-old spillway structure and the engineering behind it. At the end of the tour an opportunity to ask questions either about the dam, water management, or agriculture in general are welcome.

The Bassano Dam is located on the Bow River, 6 km (4 mi) southwest of the Town of Bassano and provides the life blood of the EID. For more information or to schedule a tour please call: (403)-362-1400.

Irrigation Canal Safety

The EID, in partnership with Ag for Life, has presented numerous irrigation canal water safety presentations to elementary schools within the District. These presentations highlight the importance of using caution and staying away from irrigation canals, control structures, spillways, and other water conveyance infrastructure.

RiverWatch Field Trips

RiverWatch Institute of Alberta is a non-profit organization, established in 1995 by a group of local Calgary teachers to help educate students on river health, environmental monitoring, and what they can do to maintain the health of rivers. Today, the program has grown into tours of nearly 150,000 participants on 6 major Alberta waterways.

Student tours are interactive, hands-on river raft excursions tailored to correlate with various science curriculum, one being a Biology 20 component. Students work together to determine the environmental health of the river by collecting science data and comparing upstream test sites with those downstream of treated wastewater and storm water outlets. This exercise brings attention to environmental stewardship and gives students experience with environmental monitoring, data collection, and field work.

For schools within irrigation districts, the RiverWatch fieldtrip registration fee is currently being partially funded through a donation from the Alberta Irrigation Districts Association. The EID also subsidizes its local Biology 20 classes' participation by paying the net registration fees, plus 80% of the transportation costs, up to $1,200/class. These funding models are examined on a year-to-year basis.

Although the EID supports local classroom attendance to this program, please refer directly to the RiverWatch website at https://www.riverwatch.ab.ca/ for complete information regarding their tours.

Classroom Agriculture Program

The Classroom Agriculture Program was conceptualized in 1985 by Vickie King, a member of the Alberta Women in Support of Agriculture. The program was developed to enhance students' understanding of agriculture and where their food comes from, thereby fostering a greater respect for the industry and the individuals who make Alberta-based food production a reality.

The Classroom Agriculture Program (CAP) is dedicated to teaching Grade 4 and 5 students in Alberta the importance of agriculture in their daily lives and in Alberta's economy. CAP's objectives continue to carry the positive message that Alberta agriculture:

- adds directly to the economy,
- provides employment in both primary and secondary sectors, and
- has definite value for the everyday life of Canadians.

In turn, students learn:

- an appreciation of Alberta food production and processing,
- the need to protect and preserve the land base which supports the production of food for Canadians,
- the importance of soil conservation, and
- the career opportunities throughout the entire spectrum of agriculture, including support industries.

Current program sponsors include the Alberta Barley Commission, Alberta Beef Producers, Alberta–British Columbia Seed Growers, Alberta

Canola Producers Commission, Alberta Chicken Producers, Alberta Irrigation Districts Association, Alberta Milk, Alberta Pulse Growers Commission, Alberta Veterinary Medical Association, Alberta Wheat Commission, Eastern Irrigation District, and Egg Farmers of Alberta. The EID has been a supporting member since 2004.

Over 600,000 students (about 20,000 annually) have received the CAP presentation. CAP currently has about 300 active volunteers who deliver 1-hour presentations, free of charge, across Alberta. CAP is now part of Ag for Life, a long-time funding partner of the program.

For more information visit
https://www.classroomagricultureprogram.ca/

Scholarships

The Eastern Irrigation District Scholarship Program was established in 2008 to support its local students in furthering their education and trades skills.

As of 2024, a total of $747,000 has been granted to 388 recipients within the District.

Scholarships are awarded for trades, diplomas, certificates, or degrees in any career field:

- Post-secondary education at a university - $2,000
- Diploma or technical program - $2,000
- Certified trades - $1,000

One-time-only scholarships are awarded as follows:

- 10 of the scholarships will be given to students whose parents are irrigators or employees of the EID,
- 10 of the scholarships will be given to students who reside within the EID

Applicants must:

- Be entering their 3rd, 4th, or 5th year of post-secondary education at a recognized North American University; or
- Be entering their 2nd or 3rd year of diploma or certificate programs; or
- Be entering their 2nd, 3rd, or 4th year of a certified trade school.
- NOT have been a previous recipient (unsuccessful applicants are encouraged to reapply)
- NOT be applying under a Master's Program
- NOT be applying for a 2nd Trade, 2nd Diploma, 2nd Certificate, or 2nd Degree

For information on further requirements, or to obtain an application form, visit
https://www.eid.ca/scholarships.html

EID Directors presenting a scholarship

EIDNet

EIDNet was the area's first internet provider in 1995 and is thriving 30 years later. EIDNet is a local Wireless Internet Service Provider (WISP) that services the EID / County of Newell and all the communities within. It is a service of the EID and is based out of the main EID Office in Brooks and branches out through the countryside using a network of 18 towers. Customer service calls are answered by local, knowledgeable staff and all services are dispatched locally, enabling a prompt and efficient response to customers' needs. EIDNet is the only local WISP to have always had truly unlimited internet usage and guaranteed speeds on all its service plans.

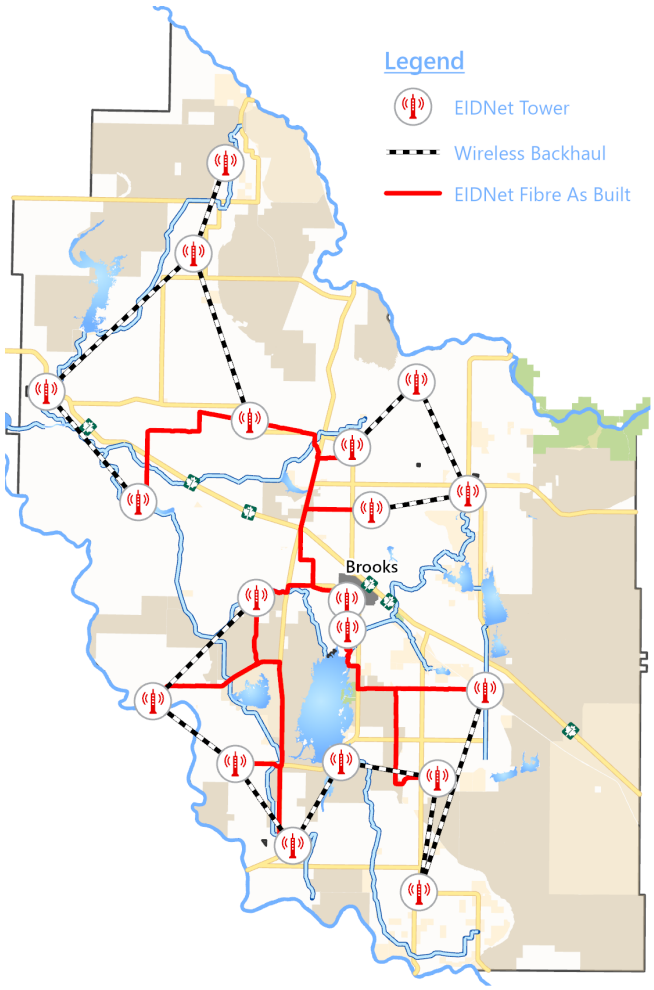
EIDNet currently has more than 1,800 local farms, ranches, businesses, and individuals as customers, serving community hubs and outlying rural areas, many of whom would not have affordable internet service without EIDNet.

In retrospect, the Eastern Irrigation District examined the feasibility of obtaining internet access for its main office in Brooks in 1994 due to the lack of rural internet providers. After extensive research it was concluded that it would be much easier to become an Internet Service Provider to its rural irrigators than to get an internet connection for just the office. The EID found partners to provide their main feed and EIDNet went live with 16 dial-up connections in June of 1995. Shortly afterwards, the dial-up service expanded to 32 lines and eventually up to 64 lines. With growing interest in the internet, dial-up service was no longer feasible for most users and EIDNet started researching high-speed options because the 'big providers' weren't interested in small rural markets such as within the District.

EIDNet tower in the Village of Duchess

In June of 2004, EIDNet, with the help of partners in Calgary, started providing high speed wireless internet to customers through a series of 12

towers. Within a couple of years, the number of towers grew to 15 EIDNet towers serving the majority of the Eastern Irrigation District / County of Newell. In November 2008, the last of the dial-up lines were shut down as most customers had switched to the higher speed wireless offerings. The demand for bandwidth continued to increase with the arrival of more video and music streaming services, prompting EIDNet to expand its staff, break from its Calgary partners, and become a self-sufficient Internet Service Provider in 2009. In October of 2009, EIDNet installed its own 100Mb fibre optic feed (which has since been increased to 20,000Mb) and upgraded equipment at all the tower sites, as well as the backhaul feeds between them. These changes have allowed EIDNet to provide a faster, more stable service to customers as well as offer a variety of service plans.



With an increase in automated technology required by irrigators and for the operations of the EID, and in addition to the growing number of streaming services, a dramatic increase in bandwidth is required by EIDNet customers. In order for EIDNet to continue to meet customer requirements now and into the future, EIDNet has invested in a 4-phase plan to increase bandwidth and replace the backhaul radios with fibre on 14 of EIDNet's 18 towers. The fibre network is being built with the future in mind and has been designed to allow for expansion, for a total estimated cost of $15 million. The project began in 2020 with the construction of phase 1 of an initial 8 phase plan. In 2024, confirmation of funding was received from the Federal and Provincial Governments through the Universal Broadband Fund and Alberta Broadband Fund. Each fund has committed 50/50 towards the EIDNet Fibre Project, for a total of $8,303,402. The Universal Broadband Fund is part of the Government of Canada's coordinated plan to connect Canadians with broadband services through its "High Speed Access for All: Canada's Connectivity Strategy". The Alberta Broadband Fund is part of the Alberta Broadband Strategy to improve access to high-speed internet. EIDNet condensed its 8 phase fibre project plan to 4 phases; Phase 1 (One Tree, Duchess & Rosemary), Phase 2 (Bantry, Tilley, Cassils & Snake Lake), and Phase 3 (Rainier, Bow City & Scandia) are now complete. Phase 4 (Patricia, Rolling Hills & Gem) is scheduled for completion in 2025. It is anticipated that the EID funded extension of fibre to Bassano will occur in the 2025-2026 budget year. As a result of the fibre network, EIDNet has been able to deploy new technology to provide up to 500Mb services to the communities reached by the network.

For EIDNet service plans and other enquiries go to www.eidnet.ca, or call 403-362-1401, email eidnet@eidnet.org , or visit the EID Office in person.

Recreation

Recreational activities abound on District owned lands and reservoirs, including hiking, boating, fishing, bird watching, and hunting. Camping is allowed at designated campgrounds, 2 of which are EID owned: Rolling Hills Reservoir Campground and Crawling Valley Campground. There are 3 Provincial Parks within the EID boundaries: Dinosaur Provincial Park, Kinbrook Island Provincial Park, and Tillebrook Provincial Park. Parks and EID have partnered through the years with various access, land use and grazing agreements, water conveyance, and patrolling of lands.

Watersports
(Photo by Lawrence Bremner)

Rolling Hills Reservoir Campground

Rolling Hills Reservoir Campground

Rolling Hills Reservoir Campground (RHRC) is located 19.7 km (12.2 mi) south of Brooks on Secondary Highway #873, on the west side of the Rolling Hills Reservoir. The reservoir was built in 1938 – 1939 to supply water for the area and in 2003, it was expanded, making it a tremendous benefit to the management of the District's water diversions and supply. During the expansion of the reservoir, a tiered campground was sculpted on a southwest hill along the water's edge. The camping area not only provided an adjacent dirt source for the main dam enlargement but resulted in 78 camping lots originally being developed. The campground has since been expanded to 150 campsites plus many amenities.

The RHRC is owned and operated by the EID. The campground features 35 seasonal and 115 daily campsites, with some pull through sites, each outfitted with 15, 30, and some 50 amp electrical outlets. Amenities include 2 large group camping areas, 2 sandy beaches with sheltered swimming areas, 1 on-leash dog beach, boat launch and 82 boat slip marina, 2 playgrounds, access to potable water, sani-dump station, and washroom, shower, and laundry facilities. The campground opens in mid-May and closes in September. A draw for seasonal lease sites takes place in April of each year. 2 group camping areas may be reserved up to 2 seasons in advance. Reservations for single sites are not available, although campers may call the campground office to hold an available site the same day. Eligible irrigators may reserve a site 48 hours in advance, with payment by credit card. The camper on site must be the irrigator who made the reservation and specific sites cannot be reserved unless a preferred site becomes available at time of check-in.

We invite you to come for a visit, enjoy the sun, bring your boat, and enjoy one of the many benefits of irrigated agriculture. For more information about the campground visit https://www.eid.ca/rhrcampground.html or call the EID office at 403-362-1400 or 403-363-5603 during the camping season.

Rolling Hills Reservoir Campground


Crawling Valley Campground marina

Crawling Valley Campground

Crawling Valley Campground is located on the south end of Crawling Valley Reservoir, 8 km (5 mi) north and 4.8 km (3 mi) east of the Town of Bassano and can be accessed from Highway #1. It is owned by the EID and operated by the Crawling Valley Recreation Society. The Crawling Valley Reservoir was constructed in the mid-1980s and fully operational by 1985. It is a very important addition to the water delivery system of the EID, providing water security to the northeastern section of the District. The original Crawling Valley Campground began in 1983 through the support of members of the Bassano community, volunteers, and EID stakeholders. The campground was redeveloped by the EID in 2010 and now features 164 powered campsites, (daily, seasonal, or group), 7 tenting sites, swimming beach, boat launch and 80 boat slip marina, playground, sports court, camp kitchen, access to potable water, sani-dump station, and washroom and shower facilities.

Along with its agricultural importance, the reservoir offers a multitude of recreational benefits such as camping, boating, fishing, and hunting. Crawling Valley is well known for its excellent fishing. The reservoir was originally stocked with 700,000 trout to provide a sports fishery, until species such as northern pike became naturally established. As the pike population increased, the trout population decreased. A total of 600,000 walleye fry were stocked in the reservoir between 1990 and 1993, to supplement the pike population. The walleye population appears to be doing well. Retention of walleye is restricted to those who possess a Special Harvest License; please refer to the Alberta Guide to Sportfishing Regulations. The reservoir has also become an important staging area for migrating waterfowl with the north end of the reservoir managed by Ducks Unlimited for waterfowl production. A variety of wading birds and colonial nesters, such as white pelicans are found in the area.

The campground opens May 1 and closes September 30 every year. For more information about the campground visit http://www.crawlingvalleycampground.ca/ or call 403-641-4095.

Kinbrook Island Provincial Park

Kinbrook Island Provincial Park is located on the east side of Lake Newell Reservoir, one of the largest manmade lakes in Alberta, and can be reached via Secondary Highway #873, 12 km (7.5 mi) south of Brooks or by using the new pathway that connects the City of Brooks to the Park. The Island is connected to the mainland by a paved road built on a causeway. Lake Newell Reservoir was constructed in 1914, taking 3 years to fill, and it remains the foremost reservoir in its operational significance to the EID. The campground was originally developed by the Brooks Kinsmen Club, who began planting trees in 1945. On November 14, 1951, it became the Kinbrook Island Provincial Park. The Park covers an area of 38 ha (95 ac) with 57 private cottages and a public campground. Amenities include 199 campsites (most are powered), a group camping area, large swimming beach, boat launch and

marina, 2 playgrounds, sani-dump station, access to potable water, and washroom and shower facilities.

A protected area of EID owned lands, Pelican Island is located in the southwest corner of Lake Newell Reservoir, and is a rocky island used for nesting by pelicans, cormorants, and gulls. There is an 800 m (0.5 mi) restricted zone around the island which is off limits to the public. Boaters are not permitted close to the island because these colonial nesting birds are very susceptible to disturbance and may abandon their nests if bothered.

The campground is open May 1 – October 31 each year, and winter camping is available. For more information visit https://www.albertaparks.ca/parks/south/kinbrook-island-pp/information-facilitiescamping/kinbrook-island/.

Kinbrook Connection Pathway

A newly constructed paved pathway connects the City of Brooks to Kinbrook Island Provincial Park and grants hikers, cyclists, and wildlife enthusiasts a safe off-highway route. A partnership between the County of Newell, City of Brooks, EID, and donors, the shared pathway is just over 12 km (7.5 mi) long, utilizes a steel bridge to span the Main Bantry Canal, and will have benches, shade shelters and informational signs placed along the path. It features views of the prairie, Lake Newell Reservoir, and wildlife habitats. To accommodate the route of the pathway, the EID contributed portions of land, easement, and fencing to the project. As well, approximately 100 acres of grazing land between the reservoir shoreline and pathway were removed from a community grazing lease and fenced inland to separate cattle from the pathway and shoreline. Future plans include extending the pathway into the hamlet of Lake Newell Resort.

Prairie Wind Regatta on Lake Newell Reservoir

Habitat

The irrigation system has created unique habitats within the cultivated portions of the District. The canal and reservoir system provides thousands of hectares of wildlife travel lanes, nesting areas, and staging habitat for many species which are not naturally found in this area. As the conveyance system is rehabilitated, irrigators may enter into agreements with the District in some cases to maintain a portion of the existing habitat or may choose to create alternate habitats with planting sites through the PHD program.

Partners in Habitat Development

Partners in Habitat Development (PHD) was initiated in 1998 as a partnership between the Eastern Irrigation District and Pheasants Forever Calgary and has attracted more partners and irrigation districts since that time. It is an initiative developed to work closely with landowners, irrigation districts, and municipalities in the cultivated areas of southern Alberta to create and preserve wildlife habitat.

The Program assists landowners with planning project sites and purchases seedlings and materials for the site. Staff assist the landowners by planting, mulching, and early maintenance of the newly created shelterbelt. These efforts greatly enhance wildlife habitat, in addition to providing wind shelter, a snow catch, and improving the aesthetics of the area. The Program also works with landowners to establish permanent grass cover on portions of previously cultivated drylands, fencing to protect existing habitat from livestock damage, and planned water management to improve the viability of wetland habitat.

Within the EID, the project has planted over 589,000 trees and shrubs, provided grass seed for 149 ha (368 ac) of nesting cover, provided approximately 144 km (89 mi) of fencing material to control livestock access to habitat sites, developed 42 wetland projects and developed habitat projects with over 200 landowners on over 350 project sites. Typical shelterbelt planting sites are pivot corners, field edges, and small pastures. Site size may range from 2 to 20+ rows with 200 to 2,000+ seedlings being planted onsite. The program had grown across southern Alberta to develop habitat projects within the agricultural community, but currently PHD works exclusively within the EID. PHD's greatest strength is that it is a cooperative project including many partners, with the landowners being the most critical component.

The PHD Program is continually working at developing new partnerships and funding opportunities to enable additional projects to be pursued. Key partners involved in the EID-PHD, past and present, include: The Eastern Irrigation District, Pheasants Forever Calgary, Prairie Farm Rehabilitation Administration, Ducks Unlimited Canada, Alberta Conservation Association, Brooks and District Fish and Game, Brooks Pheasant Festival, County of Newell, Lakeside Farm Industries, Summer Temporary Employment Program, Crop Diversification Center South, and the Agroforestry & Woodlot Extension Society.

PHD Program seedling maintenance

Ducks Unlimited Partnerships

The EID strives to manage its reservoir and land resources with a multi-use philosophy, fulfilling the District's mandate to provide water to the irrigation farmers while also considering wildlife habitat requirements and recreational opportunities of the area. Ducks Unlimited is a national, nonprofit, charitable organization that conserves, restores, and manages wetlands and associated habitats for North America's waterfowl and other wildlife. Ducks Unlimited Canada has been operational in the EID since the 1940s and the EID currently has the highest concentration of projects within all the irrigation districts. Within the EID, over 12,140 ha (30,000 ac) of wetlands are managed by Ducks Unlimited with a 30,000 ac-ft water license conveyed through the District's water conveyance infrastructure.

A Cooperative Ventures Program was initiated in 1987 to promote the multiple uses of water. The goals were to improve grazing potential, increase wildlife production, provide recreational opportunities, and help replace habitat lost by canal rehabilitation. The development of the Aqueduct Marshes, Carol Walker Project, Contra Costa, Dean Martin Project, Kinbrook Marshes, and Newell Backflood were partnered between the EID, Ducks Unlimited (Canada), and the Alberta Fish and Wildlife Division, with the District supplying much of the land and conveying the water, and partners supplying the biological knowledge and financing. Waterfowl are the most noticeable benefactors of this program, but these wetlands also become home to a variety of wildlife species including deer, shore birds, upland birds, and small mammals.

- Aqueduct Marshes

  This project was initiated in 1984 and was a cooperative project between Ducks Unlimited, Alberta Fish and Wildlife Division, the Public Lands Division, and the EID. The project encompasses a 148 ha (356 ac) parcel of land which includes 81 ha (200 ac) of wetlands split into 5 basins, a trout pond, and ungrazed upland nesting habitat. Water is provided via the Main Bantry Canal. This project is located 4.8 km (3 mi) southeast of Brooks on the south side of the Brooks Aqueduct. The area is open to the public year-round, but vehicle access is restricted. Pheasants are released annually to supplement the wild stock and hunting is permitted on a foot access only basis.

- Contra Costa

  Parts of this project were originally constructed in 1943 as the Louisiana Lakes project. Expansions of existing basins and new basins were constructed periodically until 1976. Through the decades the infrastructure fell into disrepair, and it was rebuilt in 1999 as part of the Cooperative Venture Program. It consists of 43 wetland basins totaling almost 3,300 ha (8,148 ac) of wetland on Tilley Grazing Association. The Tilley B Reservoir is the water source for this project. In addition to the wide variety and number of wildlife benefiting from this project it also assists with grazing management by providing many water sources to better disperse the cattle throughout the pasture.

- Kinbrook Marshes

  The Kinbrook Marshes were constructed in 1988 and consist of 2 basins totaling 200 ha (500 ac). In order to reduce the impact of the fluctuating water levels in the marsh areas, 3 dams were constructed with water control structures, isolating the wetlands from Lake Newell Reservoir, thereby enabling the marshes to be operated independently from the reservoir. The Kinbrook Marshes are located adjacent to the Kinbrook Island Provincial Park, 12 km (7 mi) south of Brooks. The marsh is home to an abundance of

different waterfowl, wading birds, songbirds, and raptors. White pelicans, double-crested cormorants, and great blue herons are seen on a regular basis, as well as beaver, muskrat, mink, White-tailed and Mule deer, Pronghorn antelope, and coyotes. The marsh is also home to a number of different reptiles and amphibians, plus a wide array of invertebrates. Hunting is not permitted on the Kinbrook Marshes.

A mixed flock of Canada Geese and Greater White-Fronted Geese at One Tree Reservoir
(Photo by Inge Ellefson)

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