Forms 2 A

Irrigation Districts Act
(Section 11)

Notice of Public Meeting

Bow River Irrigation District

Water Licence Transfer

TAKE NOTICE that a public meeting will be held at the Vauxhall Community Center at 417 4 St N on the 4th day of December 2023 beginning at 10:00 o'clock in the am to discuss the proposed transfer of 750 acre feet of water from the water licences issued to the Bow River Irrigation District to the Town of Cochrane. Additional information regarding this proposed transfer is available to the public at the offices of the district.

Dated at Vauxhall, this 30th day of October 2023.

Richard Phillips, P.Eng.
General Manager
Bow River Irrigation District

Bow River Irrigation District

Proposed Water Licence Transfer Required Information -Section 3(1) Irrigation Plebiscite Regulation

a) The total gross volume of water required for crop use including data on:

I. The average net depth of water required per acre for the last ten years including 2023 was 10.3 inches.

II. The expansion limit of the district is 295,000 acres and the current assessment is 290,183 acres.

III. In 2022 the percentage of each crop type was:
Forages 15.2%
Cereals 45.7%
Specialty 29.1%
Oilseeds 9.8%
Other 0.2%

IV. The level of risk of a water shortage (deficit and frequency): computer modelling done by Alberta Agriculture and Alberta Environment to support our 2018 expansion analyzed a 74 - year period, and it showed that at our current irrigated acreage there would be fewer than one year in twenty-five with a risk of a deficit between 25mm and 100mm, with none greater than that. However, the model conservatively assumed that only 1/3 of the useable water in McGregor Reservoir was available.

V. The volume of water lost from BRID's canals and reservoirs to seepage and evaporation is estimated to be 19,100 acre feet.

VI. The average return flow volume for the last three years was approximately 42,000 acre feet. Continued replacement of canals with pipelines is reducing return flow and in 2023 a new record low of 33,000 acre feet was achieved.

b) The volume of water allocated under the districts' licences for uses other than irrigation is 2,380 acre feet.

c) The total volume of water required based on adding the volumes under clauses a) and b) is:

Irrigation use: 295,000 acres x 10.3 inches =	253,200 acre feet
Return flow:	42,000 acre feet
Other canal and reservoir losses:	19,100 acre feet
Non-irrigation allocation:	2,380 acre feet
Total:	316,680 acre feet

In the highest water use year, 2023, the total volume required based on irrigation of the full expansion limit and actual return flow would be:

Irrigation use: 295,000 acres x 16.4 inches =	403,170 acre feet
Return Flow:	33,000 acre feet
Other canal and reservoir losses:	19,100 acre feet
Non-irrigation allocation:	2,380 acre feet
Total:	457,650 acre feet

d) The volume of the water allocated to the district under all the district's existing water licences is 490,000 acre feet.

e) The volume of water proposed for transfer is 750 acre feet. Alberta Environment and Protected Areas may require up to an additional 75 acre feet for a conservation holdback, for a total transfer of 825 acre feet.

f) The proposed recipient of the volume of water proposed for transfer is the Town of Cochrane.

In addition to the information required under the Irrigation Plebiscite Regulation provided above in a) through f), additional information on water use for the last ten years is shown in Table 1 and explained below. It is important to note that although the BRID's allocation under its water licence is 490,00 acre feet, the total allocation for the Carseland diversion is 544,314 acre feet. The most significant allocations other than the BRID's are for the Government of Alberta for headworks losses, primarily reservoir evaporation, Ducks Unlimited Canada for their wetland projects in our district, and the Siksika Nation's irrigation project.

Although in theory transferring a small portion of our allocation might seem to reduce our available water, the actual effect of the proposed transfer is expected to be an increase in the amount of water available for irrigation. As seen in Table 1, we do not divert the full allocation because drought conditions that create high irrigation demand also invariably cause low river flow, so even if the full allocated amount of water were required it is not physically available.

However, even in the extreme drought conditions experienced this year, had there been an unlimited water supply and unlimited allocation, the total diversion would have been only 500,000 acre feet to meet all water demands and refill the reservoirs to full winter levels. This is over 44,000 acre feet below the total current allocation of 544,314 acre feet, and reducing the allocation by 750 or 825 acre feet would have no effect on the diversion.

In addition, if this transfer is approved, we will receive $7,000 per acre foot as compensation, giving us $5.25 million if there is no holdback, and $5.775 million if there is a 10% holdback. With that money we will be able to accelerate the replacement of our remaining small canals with pipelines, which will save far more than 825 acre feet of water. For example, the Lateral O (Hays Block) pipeline became operational this year, and it reduced return flow on Drain A by 4,200 acre feet, based on the average return flow for the last five years. The total project cost was $4.74 million, so the water savings were nearly 900 acre feet per million dollars spent on the pipeline project.

Table 1

Year	Assessed acres	Total Diversion	Reservoir Depletion (negative if increase)	Effective net diversion	Water uses and losses other than BRID irrigation				BRID Irrigation Use		Unrequired allocation
					Return flow	Headworks loss (estimated)	BRID system loss	Other Licensees' Use (assume 80% of allocation)	ac.ft.	average inches	
2023	290,183	461,000	39,000	500,000	33,000	33,000	19,100	19,500	395,400	16.4	44,314
2022	289,954	383,092	-5,000	378,092	44,644	30,000	19,200	19,500	264,748	11.0	166,222
2021	286,707	424,000	-8,000	416,000	47,616	32,000	19,300	19,500	297,584	12.5	128,314
2020	279,411	284,400	27,000	311,400	62,735	30,000	19,400	19,500	179,765	7.7	232,914
2019	270,823	389,000	-8,000	381,000	66,319	30,000	19,500	19,500	245,681	10.9	163,314
2018	260,659	290,400	-9,000	281,400	48,875	30,000	19,600	19,500	163,425	7.5	262,914
2017	260,008	422,000	-16,000	406,000	46,182	32,000	19,700	19,500	288,618	13.3	138,314
2016	259,792	328,085	0	328,085	61,435	30,000	19,800	19,500	197,350	9.1	216,229
2015	258,114	331,900	8,000	339,900	68,245	30,000	19,900	19,500	202,255	9.4	204,414
2014	254,909	222,191	19,700	241,891	63,664	20,000	20,000	19,500	118,727	5.6	302,423
										10.3	

All volumes are in acre feet
Total diversion is the diversion from the Bow River for all users and losses on the system
The total licence allocation for all users and losses is 544,314 acre feet
Reservoir depletion is net depletion from the beginning to the end of the diversion period each year
Effective net diversion is diversion plus reservoir depletion
Headworks loss is primarily evaporation from McGregor,Travers, and Little Bow
BRID system loss is seepage and evaporation from BRID canals and reservoirs
Unrequired allocation is the total allocation for all licences (544,314) minus the effective net diversion
Reducing the BRID's allocation by 825 acre feet reduces the available allocation per acre by 3/100ths of an inch