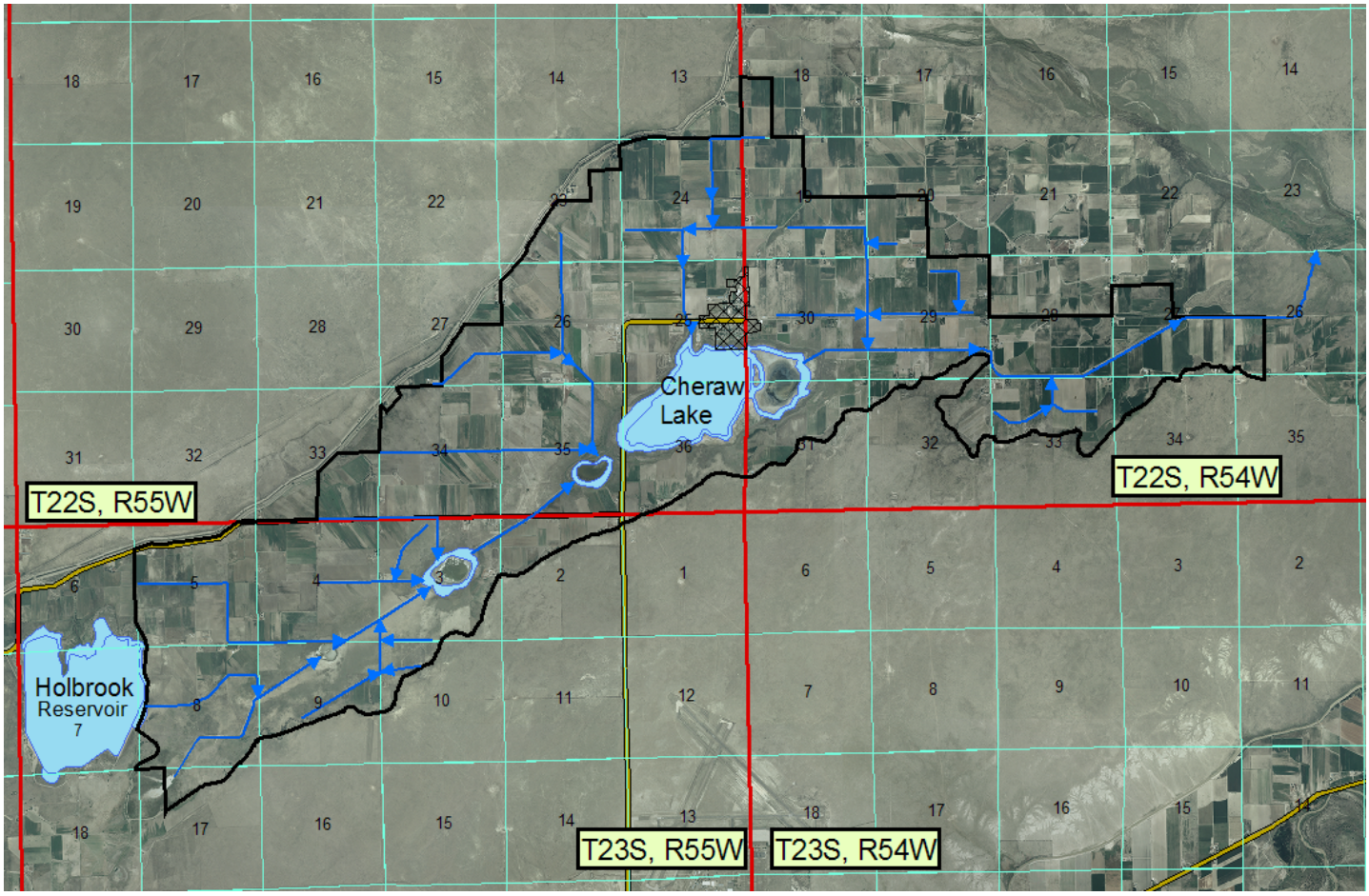
Holbrook Drainage District
System Inventory



May 9, 2007

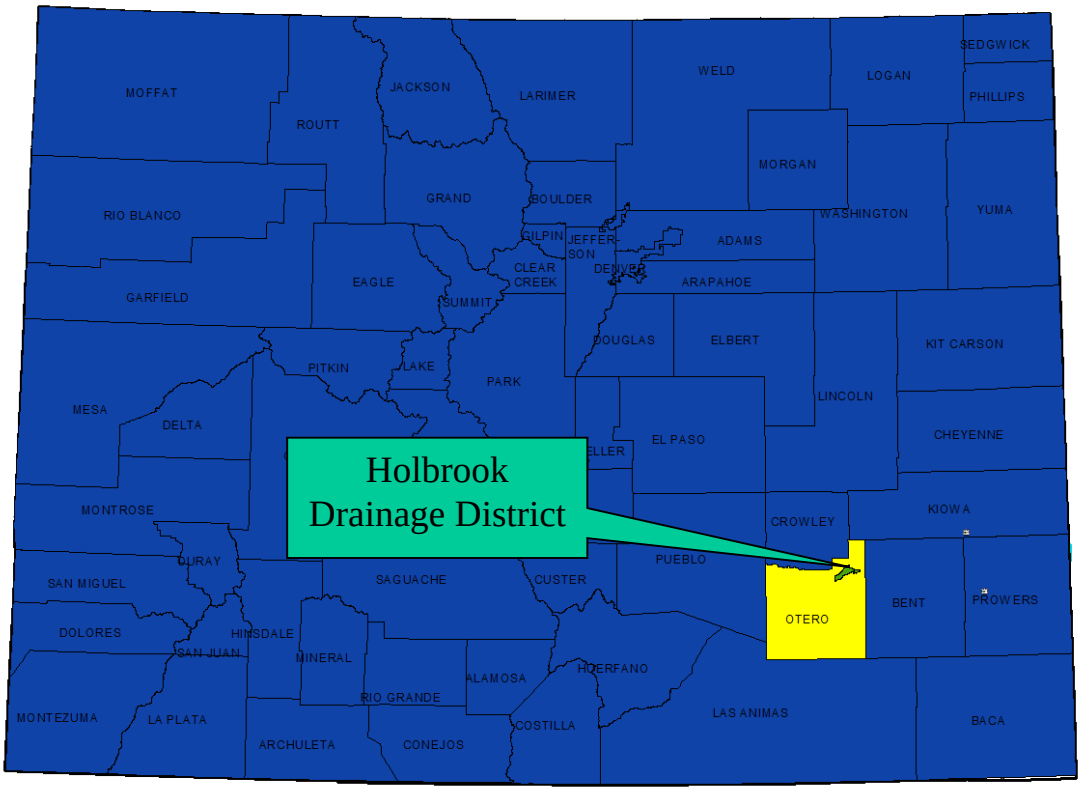
Prepared with the assistance of Jim Collins, David Froese and Walter Epley

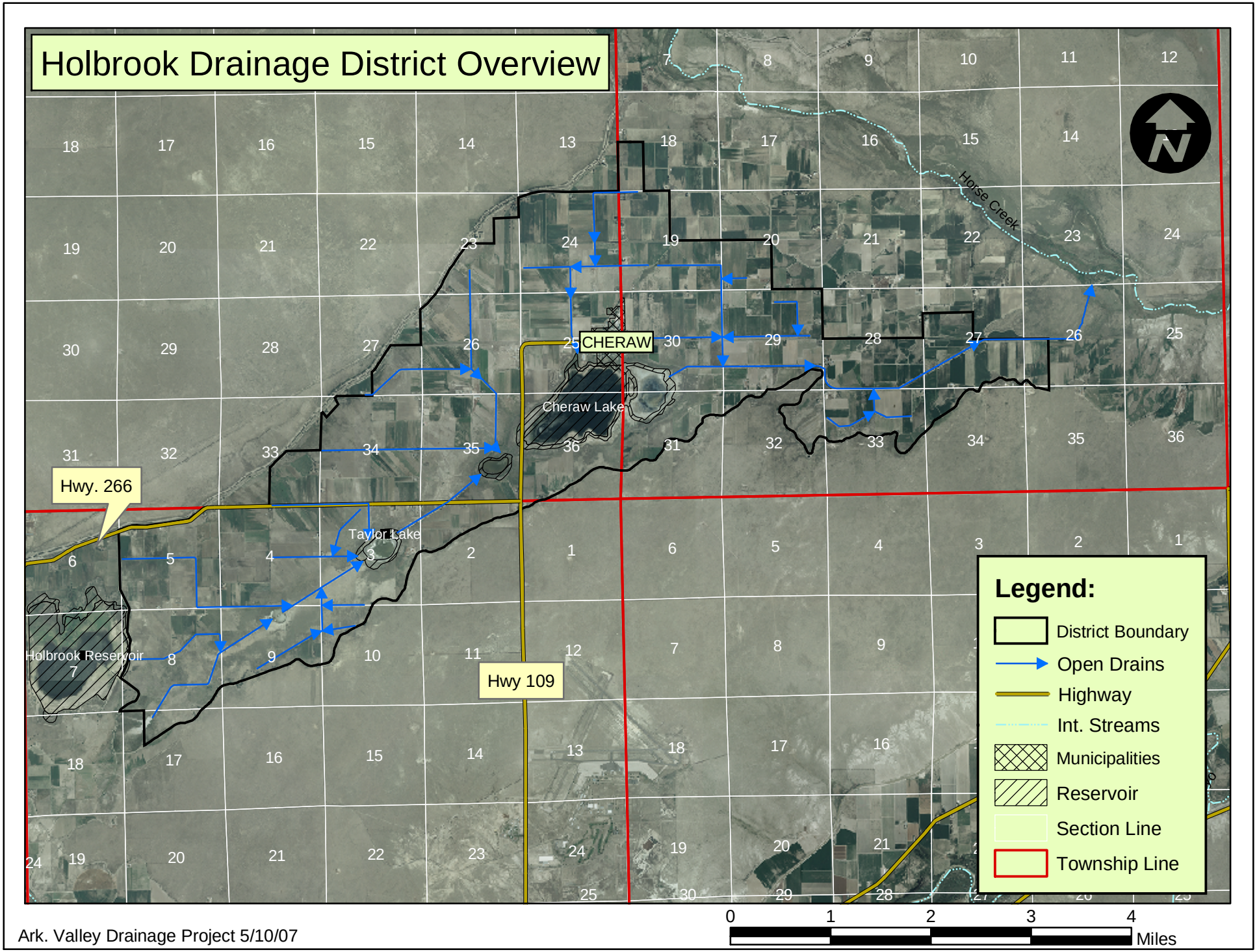
The Lower Arkansas Valley Drainage System Rehabilitation Study

Colorado State Univ., Dr. John Wilkins-Wells, Sociology Water Lab

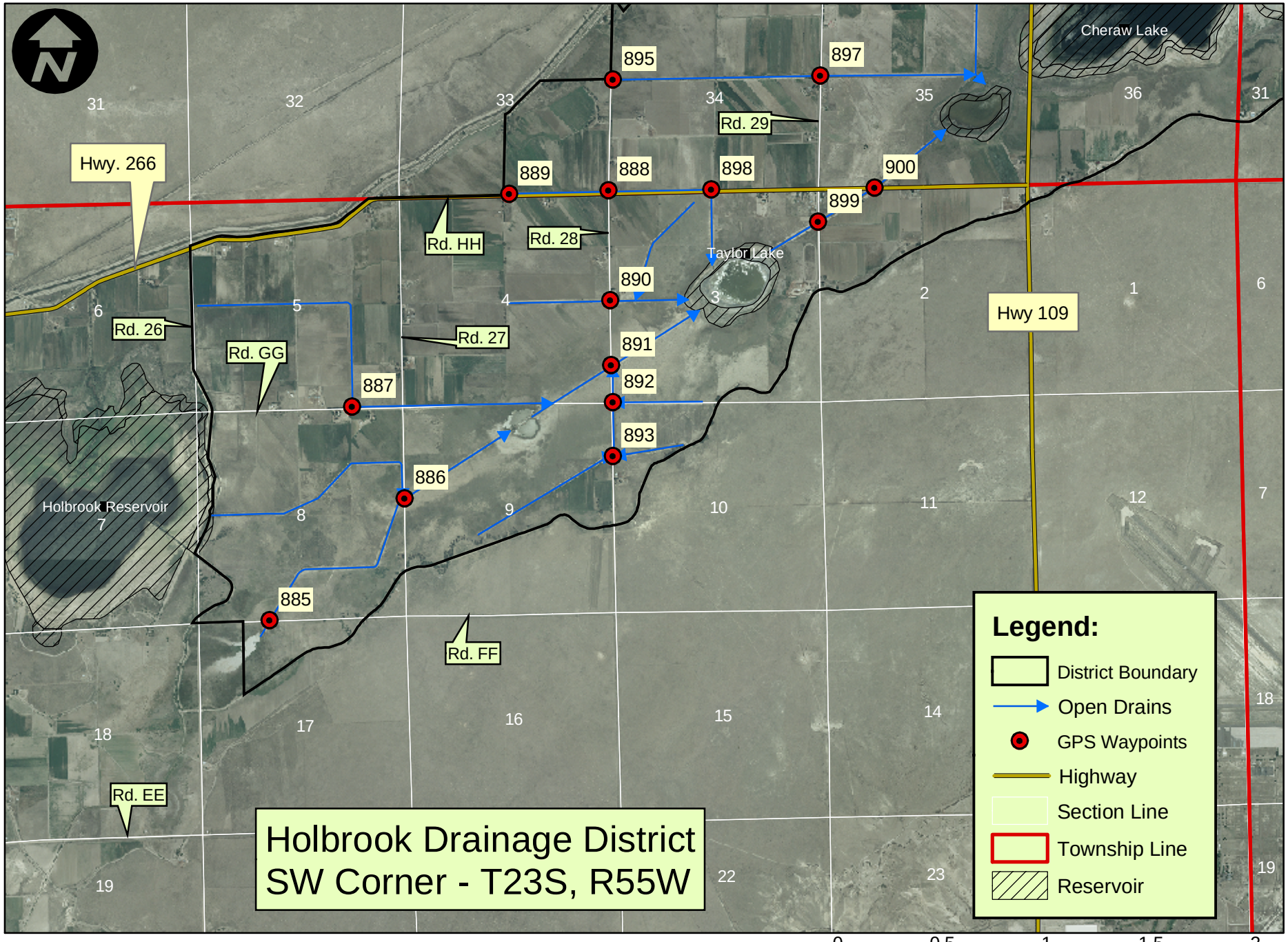
Clark Building B258, Fort Collins, CO 80523 Ph: 970-491-5635

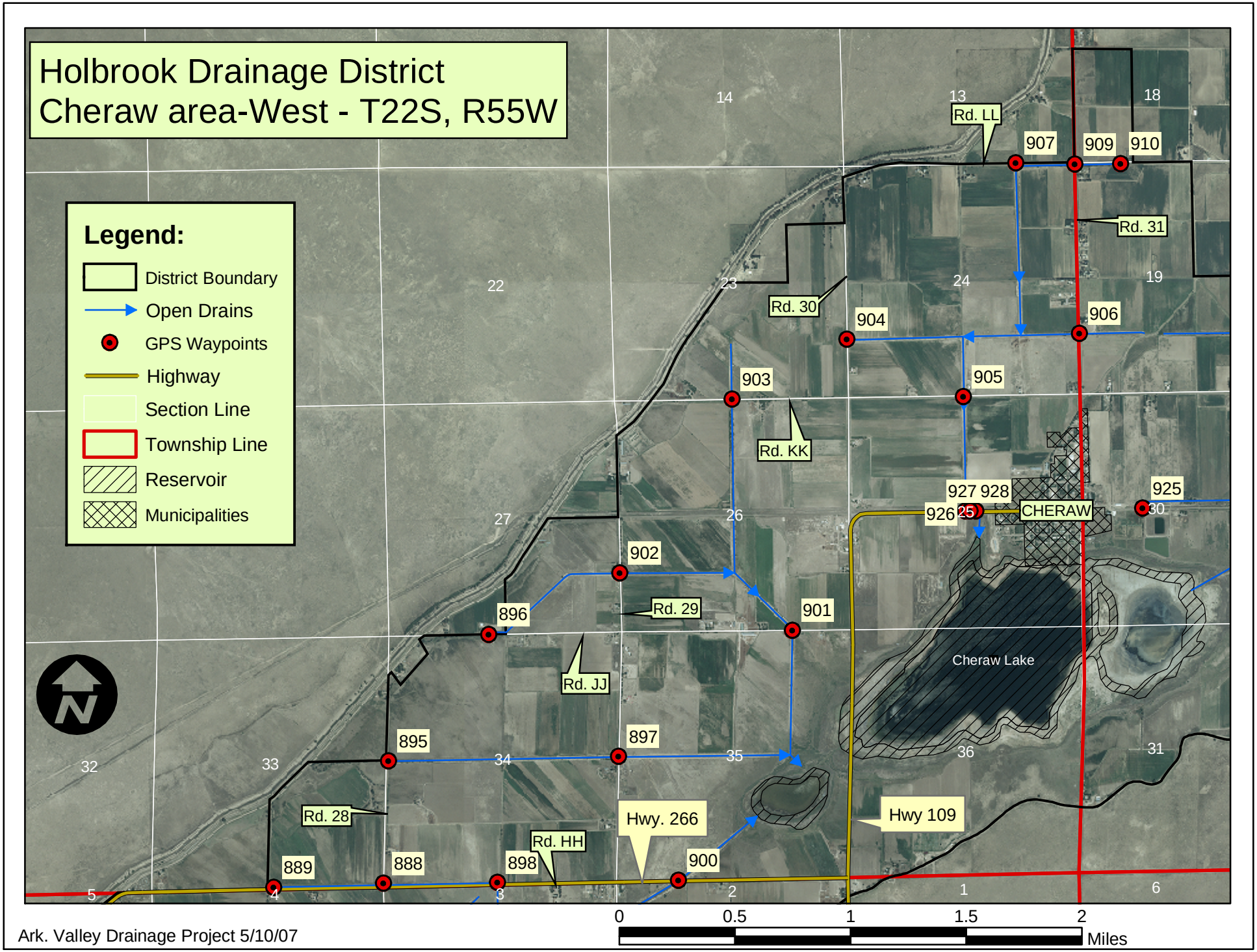
Location of Holbrook Drainage District In Colorado And Otero County



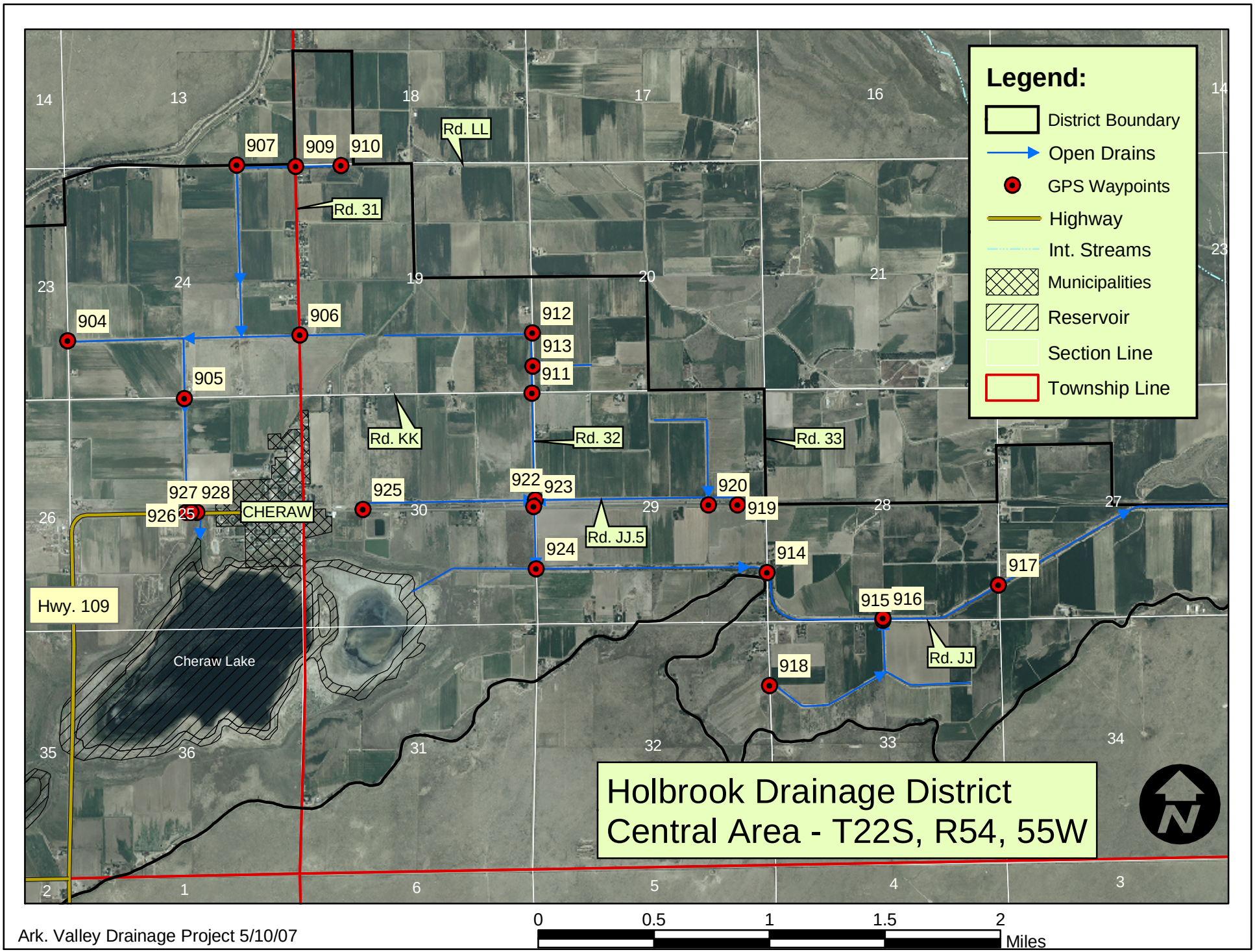


Ark. Valley Drainage Project 5/10/07

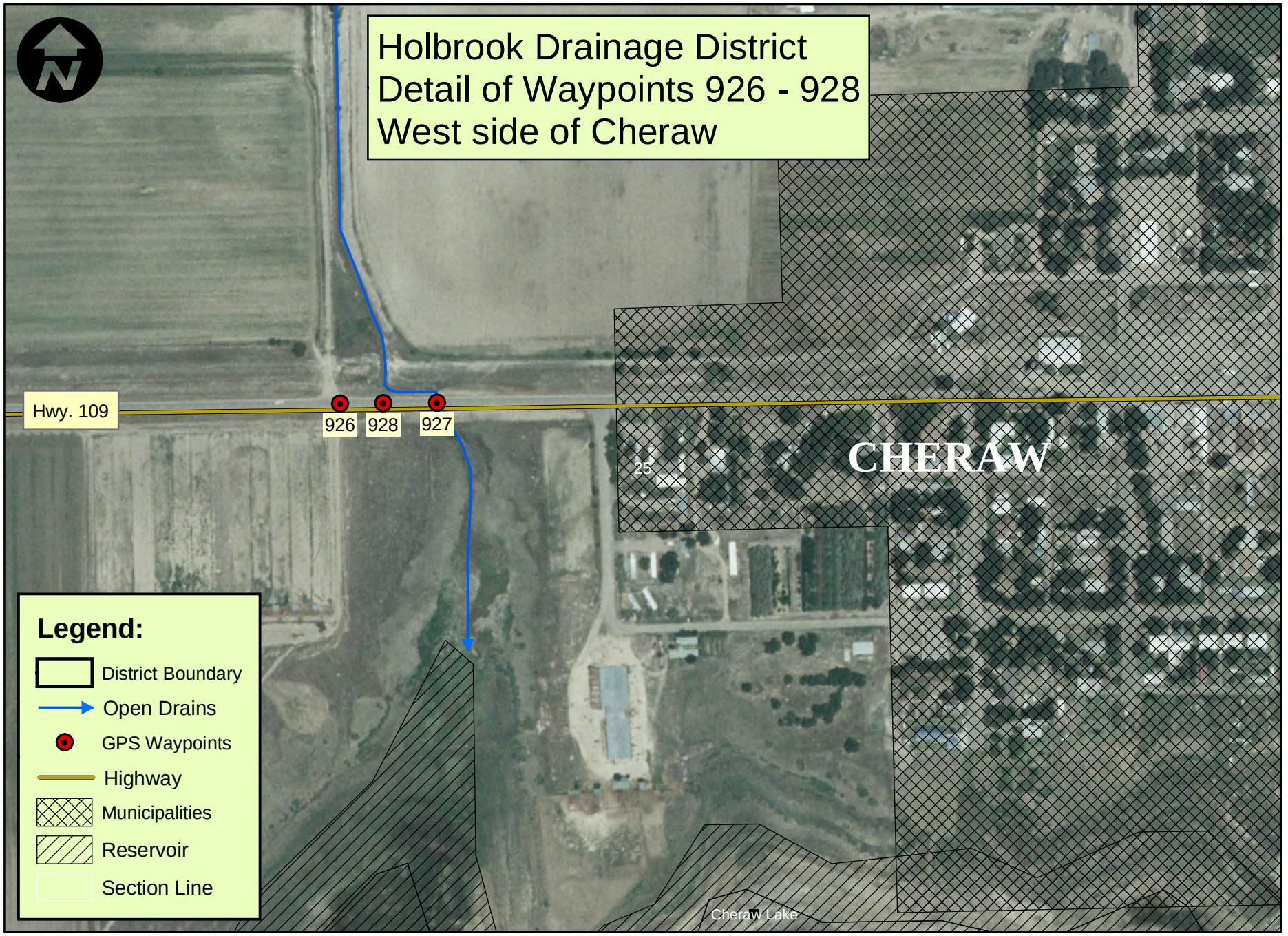

Cheraw Lake
Taylor Lake
Holbrook Reservoir
Hwy. 266
Hwy 109
Rd. 26
Rd. 27
Rd. 28
Rd. 29
Rd. GG
Rd. HH
Rd. EE
Rd. FF
885
886
887
888
889
890
891
892
893
895
897
898
899
900
Legend:
District Boundary
Open Drains
GPS Waypoints
Highway
Section Line
Township Line
Reservoir
0
0.5
1
1.5
2
Miles
Holbrook Drainage District
SW Corner - T23S, R55W
Ark. Valley Drainage Project 5/10/07



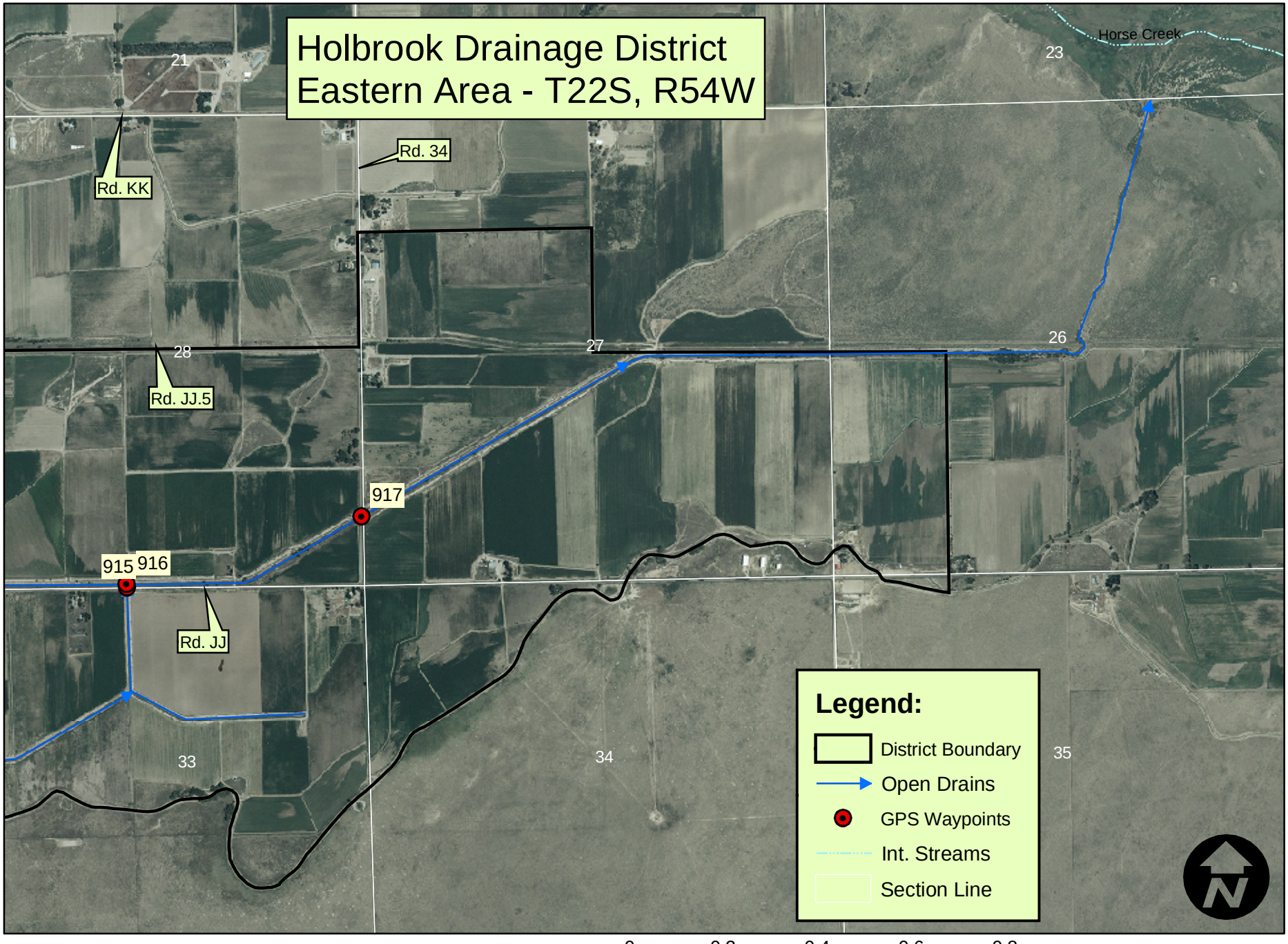
Ark. Valley Drainage Project 5/10/07



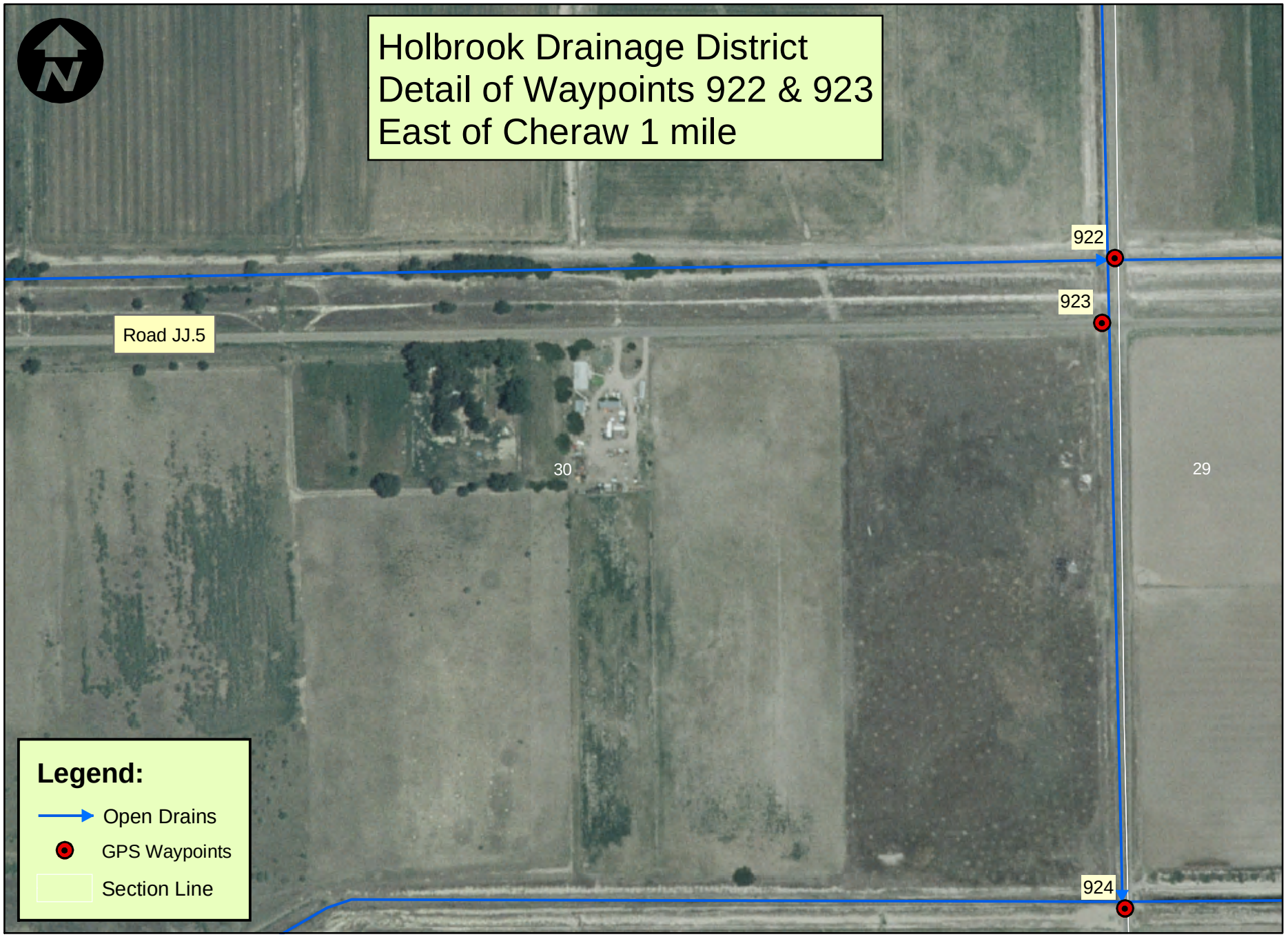
Ark. Valley Drainage Project 5/10/07



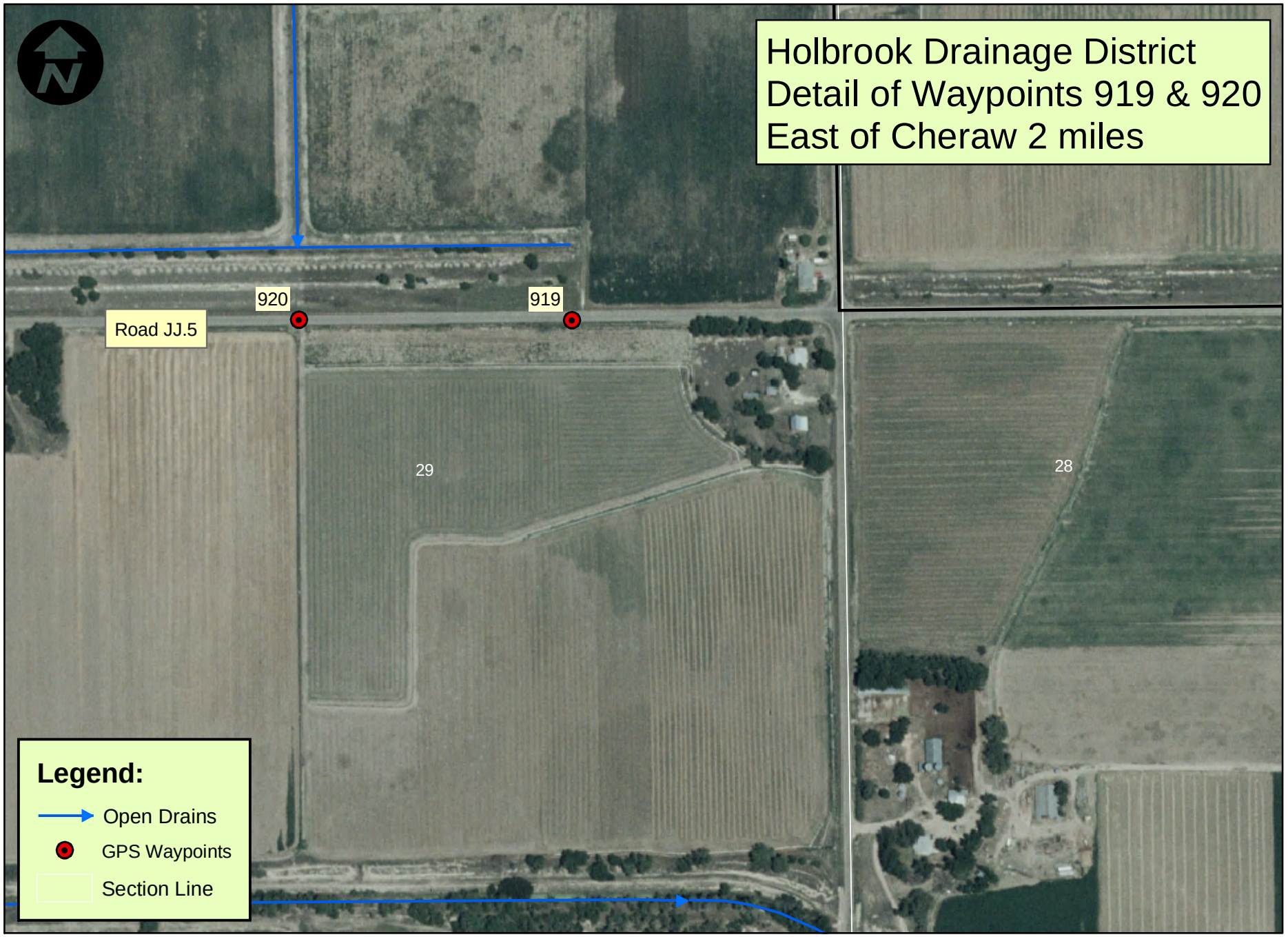
Ark. Valley Drainage Project 5/10/07



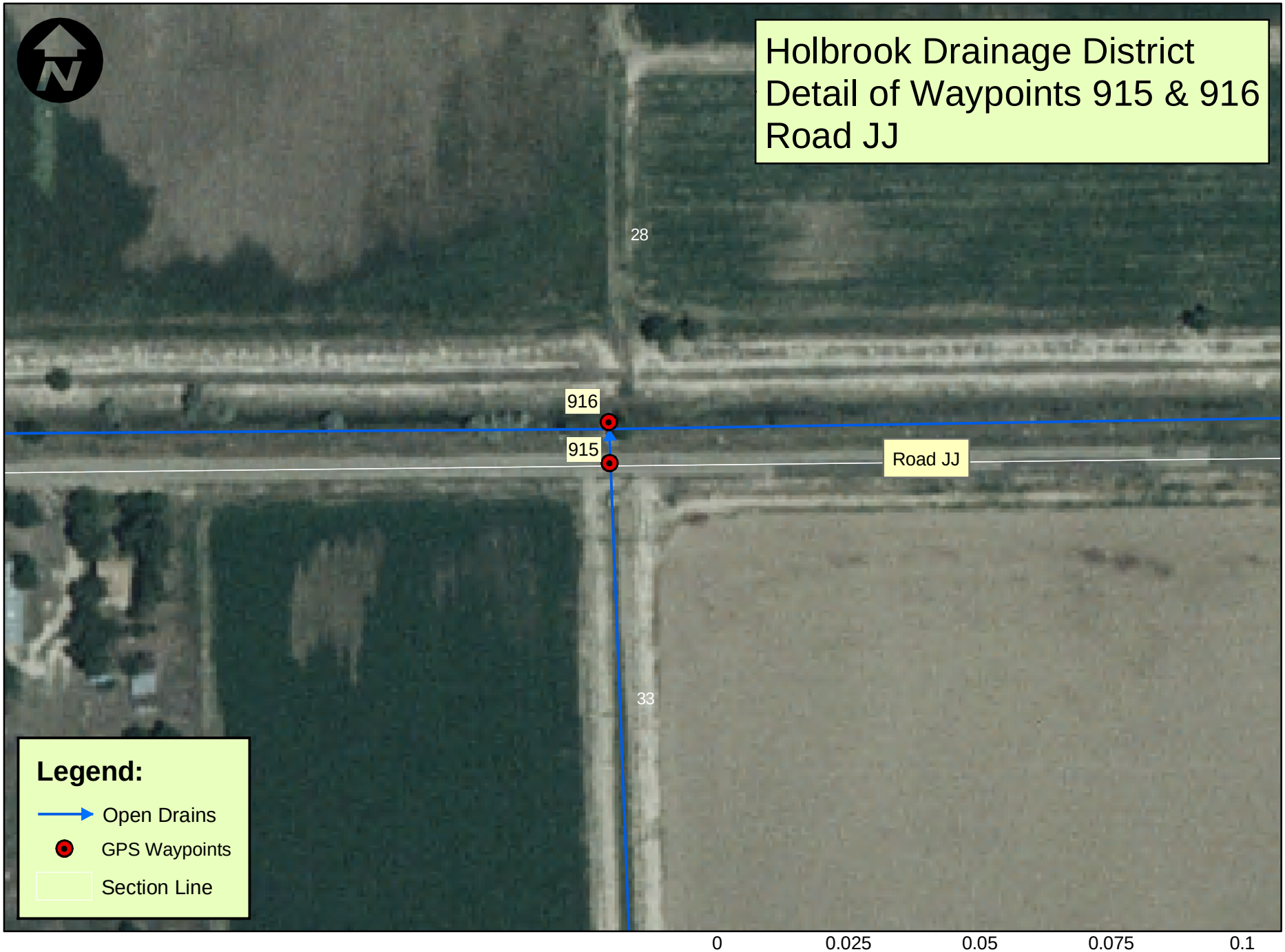
Ark. Valley Drainage Project 5/10/07



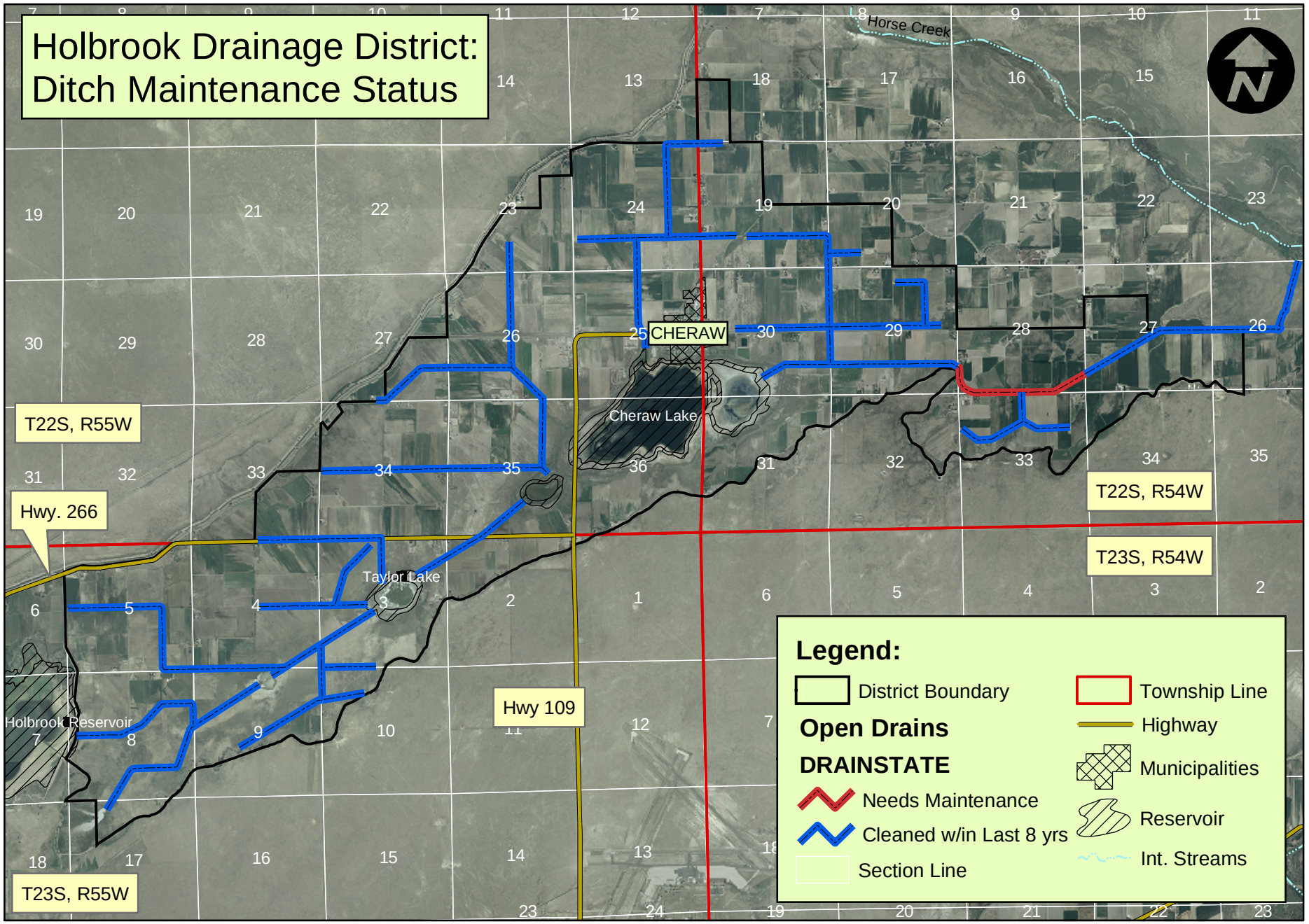
Ark. Valley Drainage Project 5/10/07



Ark. Valley Drainage Project 5/10/07



Ark. Valley Drainage Project 5/10/07



Ark. Valley Drainage Project 6/23/08

Drainage District Infrastructure notes on the Holbrook Drainage District located in Otero County, Colorado. This district includes all or parts of Sections 23 – 27, 33 – 36 of T22S, R55W, Sections 1 – 5, 8 – 10, 17 of T23S, R55W, and Sections 18 – 20, 26 – 35 of T22S, R54W.

Waypoints and notes were taken on March 13th and 14th at points where the open drains crossed local roads. We used the Garmin GPSmap76 handheld unit with a backpack differential correction unit for the waypoints. Additional notes on district operations were provided by district President, David Froese and Secretary-Treasurer, Jim Collins, as well as help with the verification of the detail of district drain maps.

General Notes:
1. Holbrook Drainage District, located in northern Otero County, and encompassing the community of Cheraw, Colorado, maintains open drains designed to drain irrigated lands served by the Holbrook Irrigation District. The district lies in a bowl, and is served by the Holbrook Lake Canal on the northeast and northwest sides, and on the south by the Reservoir Lateral. On the south, the district border is contiguous with the Reservoir Lateral. The district collects assessments for its operations through the Otero County Assessor.
2. For this report, we have located and identified the open drains that are functioning as district drains based on visual inspection. In addition, we have used information from several sources including aerial photo interpretation. Black and white aerial photos from the NRCS, and color photos for the year 2005 were used to assist in the location of the open drains.
3. Maintenance on drains north of Cheraw has been completed in the last 8 years. It was indicated that several years' assessments are needed to provide sufficient cash to clean just over a mile of open ditch, amounting to over $15,000 in expenses. The district has experienced difficulties in acquiring equipment with a sufficiently long reach to clean out the deep main ditch crossing through the south portions of Sections 28 and 29. Equipment was located in northern Colorado, although transport of heavy equipment increases job cost considerably. All land within the district is assessed at the same rate.
3. The spreadsheet included at the end of these notes includes the recorded waypoint number (ident), latitude, longitude, and date and time of reading.

Waypoint Log:

Waypoint 885:
Taken on the centerline of Road FF & the centerline of a north-northeast by south-southwest oriented open ditch. The bottom of the ditch is approximately 4 feet below the ground level, with 2 ft. high berms. At this time, snow is observed in the bottom of the ditch north of Road FF, and open water is in the bottom of the ditch to the south of Road FF.

Waypoint 886:
Taken on the centerline of Road 27 and the northeast by southwest oriented open ditch. There is water in the bottom of the ditch. The bottom of the open ditch is approximately 4 feet below the surrounding ground surface.

Waypoint 887:
Taken on the north side of Rd. GG, this waypoint is in-line with the centerline of the north-south oriented open ditch on the north side of Road GG, and in line with the centerline of an east-west oriented open ditch along the north side of Road GG east of this waypoint.

Waypoint 888:
Taken on the centerline of Road 28 (north-south oriented) and an east-west oriented open ditch in the north bar ditch of Hwy. 266.

Waypoint 889:
Taken on the north side of Hwy. 266 at the beginning of an open ditch running eastward from this waypoint in the north bar ditch of Hwy 266.

Waypoint 890:
Taken on the centerline of Road 28 and an east-west oriented open ditch running eastward to the nearby Taylor Lake.

Waypoint 891:
Taken on the centerline of Road 28 and northeast by southwest oriented open ditch draining toward the northeast toward Taylor Lake.

Waypoint 892:
Taken on the centerline of an open ditch in the east bar ditch of Road 28 and the centerline of an east-west oriented open ditch joining it at right angles from the east at this point.

Waypoint 893:
Taken on the centerline of Road 28 and centerline of an east-west oriented open ditch draining to this point from the east and the centerline of a northeast by southwest oriented open ditch draining from the southwest to this point. The drain from here northward lies in the east bar ditch of Road 28.
(Point 894 not used)

Waypoint 895:
Taken on the centerline at the west end of an east-west oriented open ditch running eastward. There is snow in the bottom, although no snow in the surrounding landscape.

Waypoint 896:
Taken on the centerline of Road JJ in line with the beginning of an east-west oriented open ditch (approx. 50 feet north of the road centerline) running parallel with Road JJ for a short distance (approx. 410 feet), then running northeastward. The bottom of the open ditch is approximately 4 feet below the surrounding ground surface, and 6 feet below the bank top. There is snow in the bottom of the ditch at this time.

Waypoint 897:
Taken on the centerline of Road 29 and an east-west oriented open ditch running eastward toward the southwest end of Lake Cheraw. There is snow in the bottom of the ditch at this time, which is approximately 6 feet below ground level elevation.

Waypoint 898:
Taken on the outside bank of a right-angle bend in an open ditch coming to this point from the west, running parallel to Hwy. 266 in the north bar ditch, and turning straight southward at this point flowing under Hwy. 266 (Rd. HH).

Waypoint 899:
Taken on the centerline of Road 29 and the centerline of a northeast by southwest oriented open ditch crossing under the road. The open ditch, flowing to the northeast, is about 12 – 15 feet wide at the bottom, and approximately 10 to 15 feet below the surrounding ground level. At this location, there are brush and grasses on the bottom of the ditch.

Waypoint 900:
Taken on the centerline of Hwy. 266 and the centerline of the northeast by southwest oriented open ditch, flowing northeastward. The bottom of the open ditch here is approximately 15 feet below ground level and 15 to 20 feet wide.

Waypoint 901:
Taken on the centerline of Road JJ and the centerline of an open ditch, which makes a quarter turn from northwest by southeasterly orientation on the north side of the road to a north – south orientation on the south side of Road JJ. The bottom of the open ditch is approximately 4 to 7 feet below the surrounding ground surface level. There is snow at the bottom of the ditch at this time. Water is running southward in the ditch.

Waypoint 902:
Taken on the centerline of Road 29 and the centerline of an east-west oriented open ditch. The bottom of the ditch west of this waypoint is approximately 4 feet below the surrounding ground level, and slightly deeper (4 to 7 feet deep) east of this waypoint.

Waypoint 903:
Taken on the centerline of Road KK (east-west oriented) and the centerline of a north-south oriented open ditch. The bottom of the open ditch is approximately 6 feet below the ground surface elevation south of this point, and 4 feet below ground surface elevation north of this waypoint.

Waypoint 904:
Taken on the centerline of Road 30 and in line with the centerline of an east-west oriented open ditch beginning approximately 150 feet east of the road centerline. The ditch is 12 to 20 feet wide at the bottom, and is approximately 4 feet below ground surface elevation in this area. There is snow in the bottom of the ditch at this time.

Waypoint 905:
Taken on the centerline of Road KK and the centerline of a north-south oriented open ditch. To the south of this point, the bottom of the ditch is approximately 6 feet below the ground surface elevation in the area.

Waypoint 906:
Taken on the centerline of Road 31 and the centerline of an east-west oriented open ditch running westward. The bottom of the open ditch to the west of this location is approximately 6 feet below ground surface, and 10 feet below the tops of its banks. The ditch is shallower to the east of this waypoint, being approximately 4 feet below the ground surface. There are weeds at the bottom of the open ditch.

Waypoint 907:
Taken on the centerline of Road LL in line with the centerline of a north-south oriented open ditch. This location is at a right-angle bend in the ditch, coming straight from the east in the south bar pit of Road LL. At this point, the ditch is 20 feet wide at the bottom and approximately 6 feet below the surrounding ground level in depth. Drainage flow is from the east toward this waypoint, then southward from this waypoint.
(Point 908 unused)

Waypoint 909:
Taken on the centerline of Road 31 and the centerline of the east-west oriented open ditch in the south bar pit of Rd. LL. The bottom of the ditch at this location is approximately 4 to 6 feet below ground level, and 6 feet below road grade.

Waypoint 910:
Taken on the top of the bank on the upper end of the open ditch in the south bar pit of Road LL. Ditch flow begins at this location, and flows westward from here. At this location, the bottom of the ditch is approximately 4 feet below ground level.

Waypoint 911:
Taken on the centerline of Road KK and the centerline of a north-south oriented open ditch in the west bar pit of Road 32. The open ditch is 6 feet wide at the bottom, and 4-6 feet below the surrounding ground surface elevation.

Waypoint 912:
Taken on the centerline of Road 32 in line with the centerline of an east-west oriented open ditch coming from the west toward this waypoint, and making a right-angle turn straight south along the west bar pit of Road 32. The ditch at this location is 6 to 10 feet wide at the bottom and approximately 4 feet below ground surface elevation.

Waypoint 913:
Taken on the centerline of Road 32 and the centerline of an east-west oriented open ditch coming from straight east of this point, passing under the road, and joining the north-south oriented ditch along the west side of Road 32 in the bar ditch.

Waypoint 914:
Taken on the centerline of Road 33 on a bridge over the deep open ditch. At this location, coming from the west with a straight east-west orientation, it turns southward on the east side of the bridge and road to a north-south orientation, flowing southward. At this location, the open ditch is 20 to 30 feet below the road level with banks of 10 to 15 feet in height. There is standing water in the ditch at this time.

Waypoint 915:
Taken on the centerline of Road JJ and the centerline of an open ditch passing under the road at this location from south of this point. The ditch to the south of this point is a north-south oriented open ditch flowing northward toward this point whose bottom is approximately 4 to 6 feet below the surface of the ground level. This ditch joins the east-west oriented main ditch for the district running on the north side of and parallel to Road JJ.

Waypoint 916:
Taken at water level on the bottom of the south high bank of the east-west oriented open ditch on the north side of Road JJ. This is also the entry point of the north-south oriented open ditch referenced in Waypoint 915. There is water at the bottom of the ditch at this time, which may be up to several feet deep in locations. There are cattails growing here, and the ponded water is 6 to 10 feet wide. This point is taken on the south side of the bottom of the ditch, which is approximately 10 to 15 feet below the road elevation.

Waypoint 917:
Taken on the centerline of Road 34 and the centerline of an open ditch northeast by southwest in orientation flowing toward the northeast. There is water and cattails at the bottom of the ditch, which is approximately 12 to 16 feet below the surrounding ground level.

Waypoint 918:
Taken on the centerline of Road 33 straight west of the beginning of a northwest-southeast oriented open ditch. The beginning of the ditch is approximately 100 feet straight east of this waypoint. The ditch flows to the southeast at this location and is shallow, approximately 4 to 6 feet below ground surface elevation.

Waypoint 919:
Taken on the centerline of Road JJ.5 directly south of the beginning of an east-west oriented open ditch on the north side of an adjacent abandoned railroad track bed. The open ditch flows westward from its beginning north of this point, running parallel to the abandoned tracks.

Waypoint 920:
Taken on the centerline of Road JJ.5 and in-line with the centerline of a north-south oriented open ditch coming straight from the north into the east-west oriented open ditch lying on the north side of the abandoned railroad tracks. The north-south ditch appears to be approximately 4 to 6 feet in depth below the surrounding ground surface elevation.

(Point 921 not used)
Waypoint 922:
Taken on the centerline of Road 32 and the centerline of an east-west oriented open ditch meeting at this point from both the east and the west and joining a north-south oriented open ditch in the west bar ditch of Road 32. Drainage flow at this point is southward from the ditch straight north of this point; westward from the ditch straight east of this waypoint; eastward from the ditch straight west of this waypoint, and southward from this point straight south.

Waypoint 923:
Taken on the centerline of the north-south oriented open ditch in the west bar ditch of Road 32 and the centerline of Road JJ.5. Flow is southward from this waypoint.

Waypoint 924:
Taken on the centerline of Road 32 and the centerline of the main open ditch of the district, an east-west oriented ditch going under the road at this point. There appear to be up to several feet of water in the bottom of the ditch at this time, approximately 8 feet in width. The bottom of the ditch appears to be approximately 6 to 10 feet below ground level on the east side of Road 32.

Waypoint 925:
Taken on the centerline of Road JJ.5 straight south of the beginning of an east-west oriented open ditch flowing eastward from here. It lies parallel to Road JJ.5 approximately 170 feet north of the centerline of the roadway. Flow is to the east at this location.

Waypoint 926:
Taken on the centerline of Hwy. 109 in-line with the north-south oriented open ditch north of this waypoint. The ditch flows southward in this area into Cheraw Lake.

Waypoint 927:
Taken on the centerline of Hwy. 109 over the culvert that transports the ditch drainage underneath the highway.

Waypoint 928:
Taken on the centerline of Hwy. 109 in-line with the point at which drainage water flows underneath the abandoned railroad track lying parallel to the highway immediately north of it.

Some District Statistics:
Area of district = 488,809,341 square feet
= 11,221.52 acres
= 17.534 square miles
Length of Open Drains: = 159,041 feet
= 30.12 miles

Brief discussion of maintenance: (inserted 6/21/07)

Drains have been cleaned on a regular basis over the past years. In the 1980's, drains in Sections 26, 27 and 34 of T22S, R55W were cleaned. During the years 2002 to 2007, Drains in the sections north of Cheraw have been cleaned. During this past year, the main ditch east of Cheraw Lake in Sections 29 and 30 (T22S, R54W) has been cleaned. It was previously cleaned in 1985 and 1986. Cleaning needs to be extended to the east through Section 28.
The main drain has provided draining relief for approximately 10 to 15 years out of the last 50 years. It provides for the long-term relief of high water levels throughout the whole district. Of course, this relief is especially notable during the wet cycles.
Overall, the system is in good shape, functioning well, and easily doing the job at the time of this writing.

Length of open drain to be cleaned on a maintenance basis next: 10,208 feet. Note: some of this is open drain which is very deep, which will be a bit more expensive.

Following is a spreadsheet of the waypoint logs showing the waypoint number (ident), the occasion of taking the waypoint, or what it was (Type), Latitude and Longitude readings, and the date and time (Comment) when the waypoint was taken. On the page following these logs is a key to the items under "Type".

Type	Ident	Lat	Long	Comment	Twnshp Loc'n
DitchRdCro	885	38.05506022	-103.5952484	3/13/2007 15:50	T23S, R55W
DitchRdCro	886	38.063392	-103.5832376	3/13/2007 15:57	T23S, R55W
DitchRdCro	887	38.06981991	-103.5877048	3/13/2007 16:07	T23S, R55W
DitchRdCro	888	38.08454893	-103.5649379	3/13/2007 16:17	T22S, R55W
OpenDitch	889	38.08439713	-103.5736597	3/13/2007 16:22	T22S, R55W
DitchRdCro	890	38.07691754	-103.5649213	3/13/2007 16:27	T23S, R55W
DitchRdCro	891	38.07240514	-103.5649095	3/13/2007 16:31	T23S, R55W
DitchRdCro	892	38.06982771	-103.5648054	3/13/2007 16:36	T23S, R55W
DitchRdCro	893	38.06610773	-103.5648922	3/13/2007 16:40	T23S, R55W
OpenDitch	895	38.09221585	-103.5643854	3/14/2007 13:30	T22S, R55W
FieldObs	896	38.10004354	-103.5563087	3/14/2007 13:39	T22S, R55W
DitchRdCro	897	38.09226774	-103.5461642	3/14/2007 13:46	T22S, R55W
OpenDitch	898	38.08448732	-103.5559106	3/14/2007 13:51	T22S, R55W
DitchRdCro	899	38.08212379	-103.5465567	3/14/2007 13:57	T23S, R55W
DitchRdCro	900	38.08444038	-103.5415711	3/14/2007 14:03	Boundary between T22S & T23S, R55W
DitchRdCro	901	38.10000398	-103.5322206	3/14/2007 14:14	T22S, R55W
DitchRdCro	902	38.10376888	-103.5458337	3/14/2007 14:26	T22S, R55W
DitchRdCro	903	38.11454407	-103.5367239	3/14/2007 14:33	T22S, R55W
FieldObs	904	38.11818467	-103.5275485	3/14/2007 14:39	T22S, R55W
DitchRdCro	905	38.11445916	-103.5183767	3/14/2007 14:45	T22S, R55W
DitchRdCro	906	38.11831375	-103.5091128	3/14/2007 14:51	Boundary between T22S, R54W & R55W
FieldObs	907	38.12904811	-103.5139256	3/14/2007 14:58	T22S, R55W
DitchRdCro	909	38.12890755	-103.5092487	3/14/2007 15:04	T22S, R55W
OpenDitch	910	38.1289099	-103.5056214	3/14/2007 15:09	T22S, R54W
DitchRdCro	911	38.11444064	-103.4907661	3/14/2007 15:17	T22S, R54W
FieldObs	912	38.11820596	-103.4906622	3/14/2007 15:22	T22S, R54W
DitchRdCro	913	38.11613814	-103.4906601	3/14/2007 15:26	T22S, R54W
DitchRdCro	914	38.10294586	-103.4723405	3/14/2007 15:36	T22S, R54W
DitchRdCro	915	38.09983115	-103.4631821	3/14/2007 15:43	T22S, R54W
OpenDitch	916	38.09994363	-103.4631833	3/14/2007 15:43	T22S, R54W
DitchRdCro	917	38.10191195	-103.4539789	3/14/2007 15:52	T22S, R54W
FieldObs	918	38.09584798	-103.4722857	3/14/2007 16:15	T22S, R54W
FieldObs	919	38.10721133	-103.4745954	3/14/2007 16:21	T22S, R54W
FieldObs	920	38.10724318	-103.4769042	3/14/2007 16:24	T22S, R54W
DitchRdCro	922	38.10774769	-103.4906457	3/14/2007 16:29	T22S, R54W
DitchRdCro	923	38.10731761	-103.4907646	3/14/2007 16:30	T22S, R54W
DitchRdCro	924	38.10339932	-103.490651	3/14/2007 16:35	T22S, R54W
FieldObs	925	38.10731208	-103.5043139	3/14/2007 16:42	T22S, R54W
FieldObs	926	38.10729867	-103.5183469	3/14/2007 16:48	T22S, R55W
FieldObs	927	38.10729431	-103.5175262	3/14/2007 16:49	T22S, R55W
FieldObs	928	38.10729708	-103.5179804	3/14/2007 16:50	T22S, R55W

ArcView Field Title	Possible Entry	Explanation Key
Ident		GPS Waypoint Identification Number
Lat		Latitude of reading
Lon		Longitude of reading
Comment		Date and time of reading
Type		
	Manhole	Manhole
	ManhBur	Buried Manhole
	ObsPoint	observation point - generally vert. Pipe extending to tile line from surface
	Inlet	Inlet, or beginning of line
	TileOutlet	End of tile line dumping into seep ditch, or open drain
	BurOutl	Outlet of a tile drain that is buried beneath the surface
	OpenDitch	Open drainage ditch. Seep Ditch
	TileLoc	Location of Tile Line
	TileJunc	Loc. of Tile Junction where more than two lines meet
	TileElbow	Loc. of Elbow in tile line where line bends
	TileRdCross	Crossing of Tile Line under Road
	DitchRdCro	Crossing of Open Ditch under Road/Railroad
	CanalTileCross	Crossing of Tile Line under Canal
	Repairscar	Location of point where tile has been repaired: generally visible soil disturbance
	Sinkhole	Loc. of place where soil has washed down into tile line, leaving an open hole
	Openhole	Open hole in ground, varying depths and sizes. Relates to tile location.
	FieldObs	Location of relevant condition observed in the field relating to the possible location of tile lines or open ditch.
	SurfDrainStr	Structure for drainage of surface water. May be culvert, or similar structure.

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D-100 SUMMARY OF DRAINAGE DISTRICTS

STATE Colorado
WATER DISTRICT OR AREA No. 17
DATE October 1942

SUMMARY OF DATA ON HOLBROOK DRAINAGE DISTRICT

GENERAL

LOCATION: STATE Colorado COUNTY Otero NEAR Cheraw-10 mi.N. of La Junta
ACRES: GROSS 9469 ASSESSED 9085 SUSTAINING 7500
UNIT OF ASSESSMENT (1) Dollar of assessed benefits
TOTAL UNITS: ORIGINAL 520,328 SUSTAINING 375,000
UNITS OF ASSESSMENT PER ACRE: AVERAGE $ 55 MAXIMUM $ 100 MINIMUM $ 2
LIABILITY FOR DISTRICT OBLIGATIONS Liable to last faithful acre under R.F.C. contract
LOCATION OF ASSESSMENT RECORDS D. A. Luginbill, Sec'y., Cheraw, Colo.
LAND: BAD ALKALI 15 %; SLIGHT ALKALI 25 %; HIGH WATER TABLE 8 %; TREND stable

ELEVATION 4200 FT. AVERAGE GROWING SEASON 164 DAYS April 26 TO October 8
PRECIPITATION IN INCHES: ANNUAL AVERAGE 12.13; CHARACTERISTICS OF RAINFALL 78% from 4/1 to 10/1
Erratic-maximum 21.8";minimum 5.9";maximum daily 6.2"; intense storms in summer.

ECONOMIC & FINANCIAL CONDITIONS

GENERAL TAXES ON LAND AND IMPROVEMENTS: AVERAGE $ 75 PER ACRE
CAPITAL DEBT AS OF December 1 1942; BONDS $ 99,500 @ 4 % PAYABLE 1939-68
WARRANTS $ @ % PAYABLE 19 ; OTHER DEBTS $ 11,940 @ 4 % PAYABLE 1939-42
NET CAPITAL DEBT: $111,440 , ADJUSTED TO AN EQUIVALENT 6% BASIS $ 94,320
OR $ .2515 PER SUSTAINING (1) Dollar of assessed benefits
B. & I. ASSESSMENTS FOR PERIOD 1935-41 AVERAGED $ .0109 PER (1) $1 of ass'd benefits

O. & M. ASSESSMENTS FOR PERIOD 1935-41 AVERAGED $ .0021 PER (1) $1 " " "

ESTIMATED FUTURE ANNUAL ASSESSMENTS PER SUSTAINING (1) per dollar of assessed benefits
B. & I. $ .0185 O. & M. $ (1) .0053
HISTORY AND TREND OF DEBT AND ASSESSMENTS District issued $182,000 of 6% serial bonds in 1924 and 1926, payable 1935-1951. In 1935, the R.F.C. refinanced $191,649 of indebtedness for $99,500. No bonds have been retired on this debt and interest is delinquent from 12/1/39. B&I levies made each year in amount sufficient to meet obligations but collections have been poor. Likewise O&M assessments. Anticipated future assessments as shown.
THESE LANDS ARE all SUBJECT TO OTHER ASSESSMENTS BY Holbrook Irrigation District

PHYSICAL CONDITIONS

EFFECTIVENESS OF SYSTEM AND ADEQUACY OF PAST MAINTENANCE System generally effective except in trough of closed basin and area bordering Cheraw Lake. See map for wet area. Very little maintenance work done in last 10 years and several lateral drains are rather badly filled. Has been adequate, however, during drought period of 1930s.

AREA HAS not BEEN ZONED. (SEE ZONE DESCRIPTIONS IF IT HAS BEEN ZONED)
EXPECTED FUTURE ADEQUACY OF MAINTENANCE Probably enough work will be done to protect the better properties over a reasonable period of time, but beyond that point the continued adequacy is somewhat doubtful.

CHARACTER OF FLOODS (2) No flood hazard. Hazardous area caused by backwater from Cheraw Lake designated as wet area on map.

RECOMMENDATIONS: APPRAISAL FACTORS IN (3) Percent of assessed benefits
TOTAL DEDUCTION $ 25.15% UNTIL 19 December 1 1943
ANNUAL B. & I. $ 1.85% ANNUAL O. & M. 0.53%

(1) Dollar of assessed benefits, or dollar of assessed valuation, or acre- district's method of assessment
(2) Supplement by attaching gage record tables where available
(3) % of assessed benefits, or % of assessed valuation, or dollars per acre

(SEE REVERSE SIDE FOR ADDITIONAL INFORMATION)
over

FORM D-101 DRAINAGE DISTRICTS

STATE Colorado
WATER DISTRICT OR AREA No. 17
DATE OF INSPECTION October 1942

NAME OF DISTRICT HOLBROOK DRAINAGE DISTRICT
Irrigated by Holbrook Irrigation District
LAND LOCATION MILES OF Area surrounding Cheraw - 10 mi. N. of La Junta
IN Otero COUNTY. TOWNSHIP 22S RANGE 54 and T 22S, 23S, R 55W

ORGANIZATION

DATE OF ORGANIZATION July 21, 1924 UNDER LAW OF 1911 and 1919
AMENDMENTS TO ORIGINAL ORGANIZATION --
ACRES: GROSS 9469 , ASSESSED 9085 , SUSTAINING 7,500
UNIT OF ASSESSMENT (1) Dollar of assessed benefits
TOTAL UNITS: ORIGINAL 520,328 SUSTAINING 375,000
UNITS OF ASSESSMENT PER ACRE: AVERAGE $ 55 , MAXIMUM $ 100 , MINIMUM $ 2.00
LIABILITY FOR DISTRICT OBLIGATIONS Liable to last faithful acre under R.F.C. contract
NAME AND ADDRESS OF SECRETARY D. A. Luginbill, Cheraw, Colorado
LOCATION OF ASSESSMENT RECORDS " " " " "

TYPE OF LAND

GENERAL Bench land lying principally in a topographically closed basin. U.S.B.R. classification: Cl. 1 - 45%; Cl. 2 - 35%; Cl. 5 & 6 - 20%. 8,000 a.cult
TOPOGRAPHY
Gently sloping to undulating.
SOILS: PREDOMINANT TYPES Otero clay loam - 68%; Otero sandy loam - 30%; Otero loamy sand - 2%.
PER CENT OF AREA: BAD ALKALI 15 %, SLIGHT ALKALI 25 %, HIGH WATER TABLE 8 %
TREND stable

CLIMATE

ELEVATION 4200 FT., AVERAGE GROWING SEASON 164 DAYS April 26 TO October 8
RAINFALL AT Rocky Ford STATION 8 MILES FROM DISTRICT 12.13
LENGTH OF RECORD 53 YEARS 1888 TO 1941 , ACCURACY good
CHARACTERISTICS OF RAINFALL 78% from 4/1 to 10/1. Erratic - maximum 21.8";minimum 5.9"; maximum daily 6.2". Intense storms of short duration in summer months.

CROPS Percent of assessed acreage

CROPS	% OF AREA	CROPS	% OF AREA	CROPS	% OF AREA
ALFALFA	34	POTATOES			
CLOVER		SUGAR BEETS	7		
OTHER HAY		beans	6		
PASTURE	10	melons	2		
CEREALS	17	truck	1		
CORN	12	waste	2		
SORGHUMS	9				

SOURCE OF INFORMATION U.S.B.R. survey & W.C. reports ACCURACY fair
YIELDS AND TRENDS Yields very erratic and fluctuate with water supply. Moderately good in normal water years. Trend from melons to corn and feed.
DISPOSITION OF CROPS About 50% of crops disposed of for cash, including 1/3 to 2/3 of hay crop. Remainder fed to farm livestock. Turkey raising an important industry.

ECONOMIC CONDITIONS

NO. OF FARMS 90 . TENANCY APPROX. 50 %. CONDITION OF FARM IMPROVEMENTS Generally fair but several good sets of improvements in good repair.
GENERAL CHARACTER OF FARMS AND FARMERS American farmers of mixed quality. Good farms north and northeast of Cheraw. Fair in other sections.

GENERAL TAXES ON LAND AND IMPROVEMENTS: AVERAGE $ .75 PER ACRE
TRANSPORTATION FACILITIES Branch line of A.T. & S.F. Ry. intersects area. Good gravel surfaced roads to Cheraw, Rocky Ford and La Junta from entire project.
MARKETING FACILITIES Alfalfa mill, beet dump, packing sheds, stockyards and turkey co-op at Cheraw and maximum haul 8 miles. Good outlet for cash crops. Fair for surplus feed crops.

(1) Dollar of assessed benefits, or dollar of assessed valuation, or acre - district's method of assessment

HOLBROOK DRAINAGE DISTRICT

OPERATION AND MAINTENANCE ACCOUNT AS OF October 1 19 42

ASSETS		LIABILITIES	
CASH ON HAND	$	WARRANTS OUTSTANDING	$
ASSESSMENTS RECEIVABLE		OTHER	
MISCELLANEOUS RECEIVABLE			
TOTAL	$	TOTAL	$

Not obtained - but no registered warrants

CAPITAL DEBT SCHEDULE

INDEBTEDNESS	AMOUNT	INT. RATE	AMOUNT PER UNIT	REPAYMENT PERIOD
BONDS	$ 99,500	4 %	$ .192 PER	$1 of Ass'd B. 12/1/39-68
BONDS		%	PER	R.F.C.
BONDS		%	PER	
WARRANTS		%	PER	
OTHER			PER	
TOTAL	$	%	PER	

NOTE: IF ANNUAL PAYMENTS ARE VARIABLE ATTACH DETAILED REPAYMENT SCHEDULES

CAPITAL DEBT ACCOUNT AS OF December 1 19 42

ASSETS		LIABILITIES	
CASH ON HAND	*$?	WARRANTS OUTSTANDING	$
CURRENT ASSESSMENTS RECEIVABLE		BOND PRINCIPAL UNMATURED	92,000
DELINQUENT ASSESSMENTS RECEIVABLE		BOND PRINCIPAL DELINQUENT	7,500
MISCELLANEOUS RECEIVABLE		INTEREST DELINQUENT from)	
		Dec. 1,1939)	11,940
TOTAL	$ --	TOTAL	$ 111,440

*Small cash balance - not available from Co. Treas.

CAPITAL DEBT IF ALL ASSESSMENTS ARE COLLECTED..... $

ESTIMATED CURRENT AND DELINQUENT ASSESSMENTS COLLECTIBLE.....

NET CAPITAL DEBT..... 111,440

NET DEBT ADJUSTED TO AN EQUIVALENT 6% BASIS $19,440 & $92,000 x 81.4%..... 94,320

NET ADJUSTED DEBT PER SUSTAINING (1) Dollar of assessed benefits..... 0.2515

PAST ANNUAL ASSESSMENTS IN DOLLARS PER dollar of assessed benefits

ITEM:	19 35	19 36	19 37	19 38	19 39	19 40	19 41	19	19	19	AVE.
A											
B	.0088	.0087	.0087	.0119	.0128	.0126	.0125				.0109
SUB-											
TOTAL											
C	.0021	.0021	.0021	.0021	.0021	.0021	.0021				.0021
TOTAL:	.0109	.0108	.0108	.0140	.0149	.0147	.0146				.0130

A - WARRANTS. B - BONDS & INTEREST. C - O. & M.

ESTIMATED FUTURE ANNUAL ASSESSMENTS PER SUSTAINING (1) Dollar of assessed benefits

ANNUAL B. & I. $ .0185 ANNUAL O. & M. $ .0053

HISTORY AND TREND OF DEBT AND ASSESSMENTS District issued $182,000 of 6% serial bonds in 1924 and 1926, due 1935-51. In 1935, the R.F.C. refinanced $191,649 of indebtedness for $99,500. 4% bonds were issued, maturing 1939-68. No principal payments have been made and interest is delinquent from 12/1/39. Levies for B&I have been made regularly in an amount sufficient to meet district's obligations but assessments have not been collected. O&M assessments are in the same status.

See remarks.

THESE LANDS ARE all SUBJECT TO OTHER ASSESSMENTS BY Holbrook Irrigation District

(1) Dollar of assessed benefits, or dollar of assessed valuation, or acre - district's method of assessment

DRAINAGE DISTRICTS - CONSTRUCTION

HOLBROOK DRAINAGE DISTRICT

CONSTRUCTION

COST OF CONSTRUCTION: ORIGINAL $ 182,000 PRESENT UNPAID $ 99,500 and delinquent int.

OUTLET OF SYSTEM: STREAM Cheraw Lake, Horse Creek SEC. 36 TWP. 22S R. 55W Cheraw L.

EFFECT OF BACKWATER and Arkansas River 23 22S 54W Horse Cr.

Drains in west and north part of district discharge into Cheraw Lake. Another outlet drain to Horse Creek serves east end of district and is intended to carry overflow from Cheraw Lake when it is filled. Backwater from Cheraw Lake is hazard to lands immediately bordering it.

LENGTH OF MAIN DRAIN 10 MILES; LATERALS 20 MILES. TOTAL LENGTH 30 MILES

ADEQUACY OF SYSTEM

System is generally adequate except in the trough of the closed basin, which includes Cheraw Lake and the smaller lakes southwest of it. Original plan was to pump water from Cheraw Lake into outlet drain to Horse Creek, thus keeping the lake at a low stage and the trough of the basin to the southwest dry, but this plan has been abandoned. Cultivated lands have good fall toward trough of basin and system is considered adequate except for lands designated as wet lands on the accompanying maps.

PROBABLE NEW CONSTRUCTION None contemplated.

GENERAL EFFECTIVENESS OF SYSTEM AND ADEQUACY OF PAST MAINTENANCE

System has been generally effective in past except in trough of closed basin and the area bordering Cheraw Lake, as described above. Almost entire area outside these boundaries is in cultivation. In the drought period of the 1930s the shortage of water supply was the factor which caused the economic difficulties in this area and not the need for drainage. With a return to normal water supply conditions, the drainage system will again be required. Very little maintenance work has been done in the last 10 years and at present some of the drains are rather badly filled.

FUTURE MAINTENANCE: ANNUAL COST (1) $ .0053 per dollar of assessed benefits.

EXPECTED FUTURE ADEQUACY

With a reasonable amount of maintenance work, this system will continue to be generally adequate, within the limits outlined above, and with a small amount the drains could be kept open sufficiently to prevent any serious damage to the greater part of the land now in cultivation. Under the present management and attitude of the farmers in paying drainage taxes, any definite prediction as to the system's future adequacy is impossible. It appears probable that enough work will be done, either by individuals or by the district to protect the better properties over a reasonable period of time, but beyond that point the continued adequacy is doubtful.

Estimated annual costs of necessary maintenance are $2,000 per year.

(1) Dollar of assessed benefits, or dollar of assessed valuation, or acre-district's method of assessment

HOLBROOK DRAINAGE DISTRICT

It was learned from the county treasurer of Otero County that there have been scarcely any drainage taxes collected in this district in the last three years. Many farmers who pay their irrigation district taxes regularly will not pay drainage assessments. This general default is reportedly due to the fact that there is so much land in the district that is not paying and has no ability to pay that the remainder are holding back hoping for a readjustment of debt and a definite determination of the debt against each individual tract.

During the course of the field investigations, there was a representative of the R.F.C. in the area endeavoring to work out some scheme whereby the lands without paying ability could be excluded from the district or relieved of assessment and a reclassification of the sustaining lands could be made for assessment purposes.

The district includes many good, well improved properties which are among the best in the Holbrook Irrigation District. Excellent crops were obtained on many farms in 1941 and 1942 and generally good crops were obtained throughout the district in these years, with favorable prices. The area no doubt had a serious setback in the depression and dry period of the 1930s but has made a good recovery and the attitude of the farmers probably has more to do with the default than the paying ability of the lands.

It is believed that the making of any type of loans in this drainage district should be deferred until a plan has been worked out whereby the district can make progress and the farmers begin paying their drainage assessments. With the somewhat erratic and limited water supply which exists along with the bonded irrigation and drainage debt, the district is locally in rather bad repute. Investors are reluctant to take a chance in the area and very few properties have changed hands in the last two years, while there has been considerable activity in other sections of the Arkansas Valley.

Very little information could be obtained from the district secretary relative to the financial status of the district or its future plans, as he seemed reluctant to discuss any details. He appeared to place confidence in the R.F.C. working out some kind of solution. Exact balances in the district's funds were not available from the county treasurer at the time of visitation, but he advised that there was only a very small cash balance.