



DEPARTMENT OF WATER AND POWER

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www.cityofloveland.org

May 27, 2010

Mr. Jim Fargo
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**RE: Descriptions of FERC Project No. 2829, Idylwilde Hydroelectric Project,
City of Loveland, CO, Licensee**

Dear Mr. Fargo:

Please find attached the following two documents:

- A brief Project Description for FERC Project No. 2829. This version includes minor enhancements to the one sent out earlier this year as notification that the project will be undergoing a relicensing process.
- A more comprehensive description for the same project including a number of attachments for your review and use as needed. We understand from email communications with Steve Hocking, the FERC officer previously assigned to this relicensing process, that a more complete description will be needed for Loveland's PAD, and perhaps this information can form the foundation for that document. An electronic copy of this document may be obtained from the City of Loveland FTP site at the following address: <ftp://colftp.ci.loveland.co.us>. The username for this site is: cityoflovetftp. Please obtain the password from Larry Howard at (970) 962-3703, or via email at howarl@ci.loveland.co.us.

Your suggestions on the attached draft will be helpful in providing the appropriate level of detail in a timely manner to foster a good understanding of the project and assist folks who will be providing comments.

Thank you for your insights and instruction as we move ahead. We look forward to working together on a successful relicensing for this Project.

Sincerely,

Bruno Lopez,
Technical Services Superintendent
(970) 962-3650

cc: Steve Adams, Manager, Water Utilities
Larry Howard, Sr. Civ. Eng./Water Resources
John Schlueter, Substation/Hydro Technician
Tom Pitts, Water Consult



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Loveland Project No. 2829

FERC Draft Project Description, 10/3/04

Revised 5/27/10

The existing project consists of: (1) a concrete gravity dam, 239 feet long with structural height 50.5 feet and approximately 38.5' of the structure visible above the stream bed, consisting of: (a) a 99-foot-long non-overflow spillway section with crest elevation at 6,033.5 feet msl, (b) a 110-foot-long concrete ogee overflow spillway section with crest elevation at 6,017.0 feet msl, and (c) a 30-foot-long non-overflow concrete inlet section with crest elevation at 6,028.0 feet msl; (2) a 3.67-surface-acre reservoir with a storage capacity of approximately 45 acre-feet at normal maximum elevation, including ten acre-feet of capacity in the top three feet used for typical operations; (3) a 6-feet-wide by 4-feet-high sluice gate with invert elevation at 5,998 feet, and a 3-foot-by-3-foot intake gate for the penstock with centerline intake elevation at 6,011 feet; (4) a 9,534-foot-long penstock, 36 inches in diameter, consisting of 300 feet of concrete pipe and 9,234 feet of steel pipe, with two fire protection hydrants and fifteen irrigation services attached along its length, which crosses US Forest Service, private, and municipally owned properties; (5) a 12" diameter outlet and pipeline for delivery through the dam of the current 7.0 cubic feet per second total minimum bypass flows; (6) a 30-foot-long, 26-foot-wide, and 15-foot-high powerhouse located in Viestenz-Smith Park which belongs to the licensee, City of Loveland; (7) two 450-kilowatt (kW) turbine-generator units with a total installed capacity of 900 kW; (8) a 300-foot-long, 48-inch diameter concrete tail race pipeline, discharging into a pond in Viestenz-Smith Park; (9) a 1,153-foot-long transmission line feeding power to the city's electric distribution system; and (10) appurtenant facilities.

FERC Project No. 2829
City of Loveland, Colorado, Licensee
Existing 900 Idylwilde Hydroelectric Project
5/17/10 Project Description

The Idylwilde Hydroelectric Project is located on the Big Thompson River along U.S. Hwy. 34 some fourteen miles west of the City of Loveland, Colorado, the licensee. Planning for the municipal project began in 1912, leading to completion of the dam on U.S. Forest Service property in 1917. The hydroelectric plant was then completed on municipally owned property, allowing generation and distribution of energy from the project to begin on February 11, 1925. Operation by the licensee continues to the present day, having only been interrupted following destruction of the original dam and hydroelectric plant in the Big Thompson River Flood on July 31, 1976, until the facilities were replaced.

The dam is of concrete gravity construction, built across the river with structural height of 50.5 feet and a total length of 239.1 feet, creating a forebay reservoir with a surface area of 3.67 acres at spillway elevation, impounding some 45 acre-feet of water. A minimum bypass flow of seven cubic feet per second is maintained through the dam to provide suitable habitat in the stream reach below. The 36" diameter penstock, 9,534 feet in length, originates at the dam and delivers water to two 450 kilowatt turbine-generator units located in Loveland's Viestenz-Smith Park. Two taps along the penstock provide access to water for fire protection, and 15 irrigation services are tapped into the line. The power generated is connected to the licensee's distribution system through a 22kV transmission line 1,153 feet in length.

Idylwilde reservoir provides year around access for public fishing, with parking and vault toilets provided. Viestenz-Smith Park provides popular public facilities for recreation including picnicking and hiking, and for family gatherings, reunions and weddings. Domestic water and vault toilets are provided. A trailhead area adjacent to Viestenz-Smith Park is provided with vault toilets and parking for users of the five mile Round Mountain Trail maintained jointly by the licensee and U.S. Forest Service, and a separate nature trail approximately a mile in length, connecting to a scenic overlook building constructed by the CCC (Civilian Conservation Corps) in the 1930's.

Attached for reference are the following documents:

- Idylwilde Reservoir Aerial View, including Vicinity Map and Location Map;
- Exhibit 'K', four pages describing the project, taken from the existing US Forest Service hydropower facility easement and previously filed with the FERC Application for the project;
- series of three aerial photos showing the project site and locations of the features;
- series of photographs on four pages taken in April, 2010 showing various project features;
- copy of a June 9, 1994 Memorandum of Agreement between the licensee and the Colorado Division of Wildlife concerning minimum bypass flows, accompanied by an additional July 13, 1994 letter to the Forest Supervisor of the Arapaho and Roosevelt National Forests containing a clarification of the Memorandum of Agreement.

Details are provided below on the basic project components, with information taken from the as-built drawings in the files, when applicable. Elevations shown are relative to mean sea level (msl).

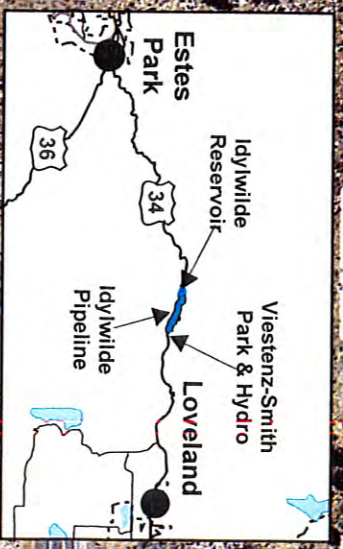
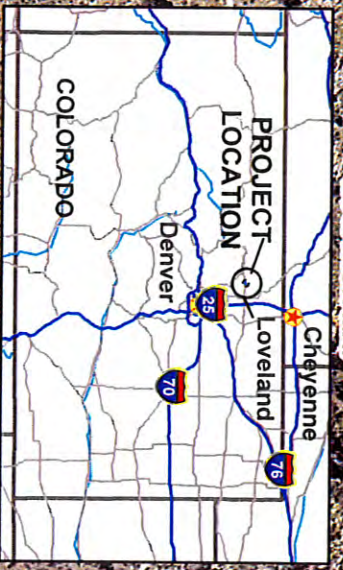
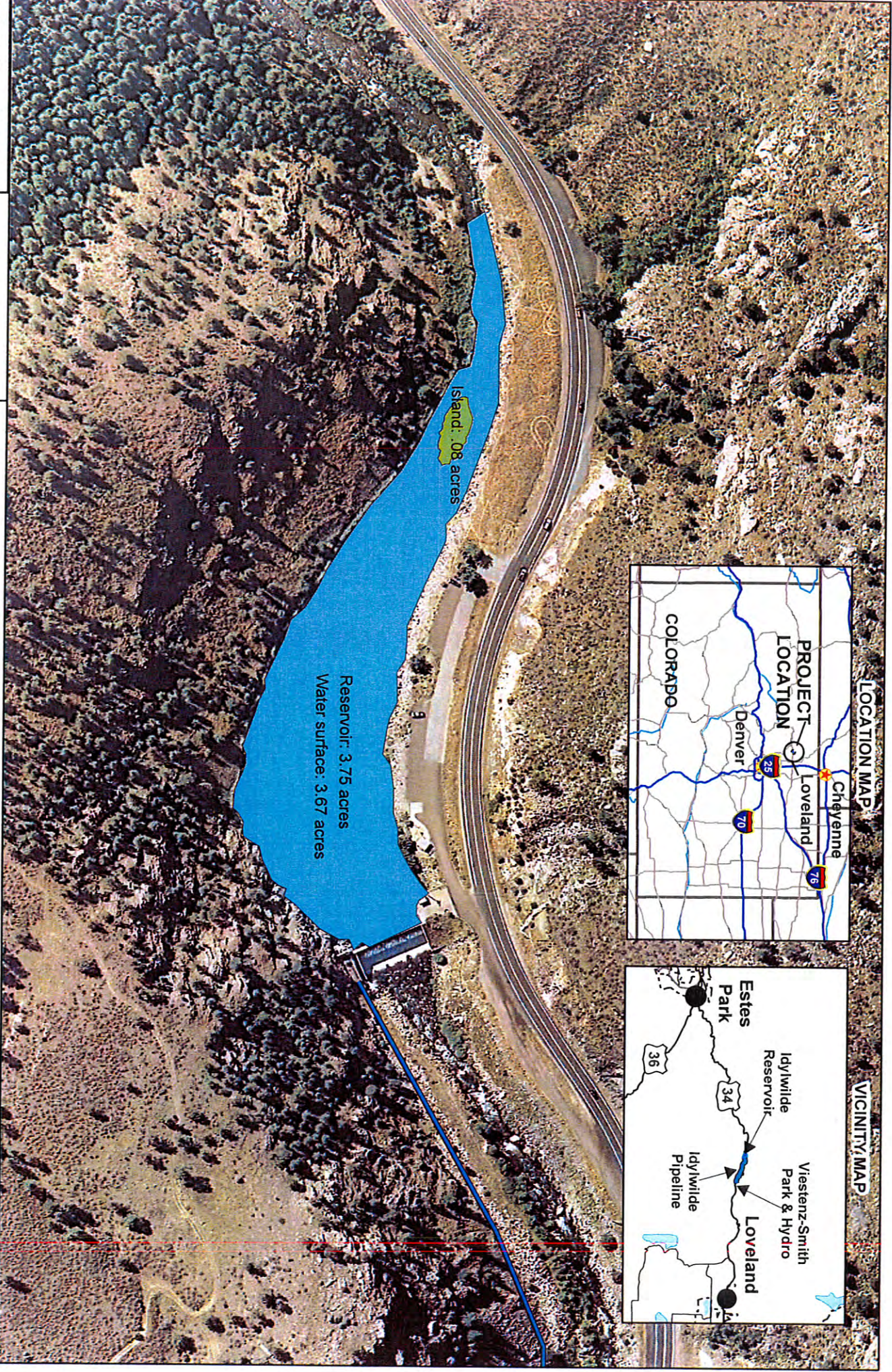
- (1) Concrete gravity dam, total length 239.1', structural height 50.5' (El. 6033.5 – 5983.0') with about 38.5' visible (El. 6033.5' – 5995.0') above the stream bed invert. The total length includes:
 - a. 99' non-overflow spillway section with a crest elevation at 6,033.5' msl
 - b. 110' concrete ogee overflow spillway section with crest elevation 6017.0' msl
 - c. 30.1' non-overflow concrete inlet section with crest elevation 6,028.0' msl
 - d. 100-year flood flow elevation at 6,025.6' msl over the structure.
- (2) 3.67-acre reservoir surface area at spillway elevation 6,017.0' msl, with approximately 45 acre-feet of total storage capacity, including approximately 10 acre-feet of active forebay capacity in the top 3' feet of the impoundment typically used for low flow generation (El. 6017.0' – 6014.0').

- (3) Two cast iron slide gates to control operating releases from the reservoir:
 - a. 72" wide by 48" high bypass/sluice gate, with invert elevation 5,998' msl.
 - b. 36" x 36" intake for penstock leading to the powerhouse, centerline intake elevation 6,011.0' msl.
- (4) 12" diameter outlet and pipeline for delivery of the current 7.0 cfs total minimum bypass flows (including 3.0 cfs as is required in existing FERC license #2829). This pipeline was added pursuant to a June 9, 1994 Memorandum of Agreement between the licensee and the Colorado Division of Wildlife. Centerline intake elevation at the upstream face of the dam for the bypass is 6,012.33' msl.
- (5) 8" pipeline for 3.0 cfs minimum bypass flows, in operating condition but currently kept closed, as the total bypass flow is carried in the 12" bypass outlet described above. Centerline intake elevation on the face of the dam is 6,012.33' msl, the same elevation as the 12" diameter pipeline now used to carry the entire 7.0 cfs minimum flow.
- (6) Penstock of 9,534' length, 36" in diameter, constructed of 300' of concrete pipe and 9,234' of steel pipe. The penstock delivers water vertically 335.5' (El. 6033.5' – 5698.0') to elevation 5,698.0' msl, the centerline of the turbines. Seven hundred feet of the pipe immediately upstream of the power house is sleeved with 30" HDPE pipe. Along private property portions of the penstock 15 irrigation taps are located. Two fire protection taps also are located on the line. One is in the private property crossed by the line to provide fire protection to surrounding forest and structures, and one is located at the Round Mountain trailhead above Viestenz-Smith Park.
- (7) 30' x 26.5' powerhouse, with 15' visible above grade, located in Viestenz-Smith Park, owned by the licensee.
- (8) Two 450-kilowatt (kW) turbine-generator units with a total installed capacity of 900 kW.
- (9) 300-foot-long concrete tail race pipeline, 48 inches in diameter, discharging into a pond in Viestenz-Smith Park.
- (10) 1,153-foot-long 22kV transmission line to feed power to the city's electric distribution system.
- (11) Appurtenant facilities.

Currently, the project is operated year around primarily in 'run of the river' mode. When flows in the river are adequate for full diversion of power and bypass flows, the remaining water flows over the crest of the spillway. Approximately half of the year up to 50 cubic feet per second (cfs) for power generation is diverted. The licensee has an existing diversion right for up to 74 cfs.

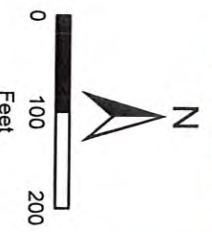
During low flow periods, operation remains 'run of the river' except bypass flows which remain undisturbed. On occasion, approximately once a month, diversions from the reservoir are made and the turbine generators are operated at higher capacity for a short period of no more than one hour in length when electric demand is high, in order to lower peak power demands from the city's primary power sources. The reservoir then refills as the bypass flow continues, and operation returns to 'run of the river.'

At full diversion over an entire year, 900 kW is capable of producing a maximum annual generation of 7.7 million kWh. As a renewable resource this will save the equivalent of approximately 14,000 barrels of oil, 4,430 tons of coal, or 99 million cubic feet of natural gas. For significant portions of the year flows in the Big Thompson River are lower than necessary for full operation, which of course reduces the projected resource savings. Adjusting for the conditions of the project, an annual generation of about 3.5 million kWh is experienced. This saves using the equivalent of approximately 2,000 barrels of oil, 561 tons of coal, or 11.4 million cubic feet of natural gas each year.



THIS DOCUMENT WAS PREPARED FOR INTERNAL USE BY THE CITY OF LOVELAND, CO. THE CITY MAKES NO CLAIM AS TO THE ACCURACY OR COMPLETENESS OF THE DATA CONTAINED HEREON.

DUE TO SECURITY CONCERNS, THE CITY REQUESTS THAT YOU DO NOT POST THIS DOCUMENT ON THE INTERNET OR MAKE IT AVAILABLE TO YOU.



Idylwild Reservoir Aerial View

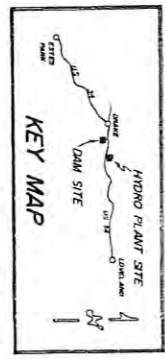
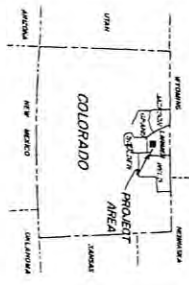


EXHIBIT K SHEET 1 of 4

1. WILLIAM M. STEPHAN, JR., BEING A REGISTERED LAND SUPERVISOR UNDER THE LAWS OF THE STATE OF COLORADO DO HEREBY STATE THAT THIS SURVEY WAS MADE BY ME ON UNDER MY SUPERVISION, AND THAT THE SURVEY IS ACCURATELY REPRESENTED ON THIS MAP.



2829-1

POINT NUMBER	ASSUMED ELEVATION	E. N. COORDINATES	N. E. COORDINATES
1	534.00	122.0	5.0
2	537.00	124.0	5.160
3	541.00	126.0	5.320
4	545.00	128.0	5.480
5	549.00	130.0	5.640
6	553.00	132.0	5.800
7	557.00	134.0	5.960
8	561.00	136.0	6.120
9	565.00	138.0	6.280
10	569.00	140.0	6.440
11	573.00	142.0	6.600
12	577.00	144.0	6.760
13	581.00	146.0	6.920
14	585.00	148.0	7.080
15	589.00	150.0	7.240
16	593.00	152.0	7.400
17	597.00	154.0	7.560
18	601.00	156.0	7.720
19	605.00	158.0	7.880
20	609.00	160.0	8.040
21	613.00	162.0	8.200
22	617.00	164.0	8.360
23	621.00	166.0	8.520
24	625.00	168.0	8.680
25	629.00	170.0	8.840
26	633.00	172.0	9.000
27	637.00	174.0	9.160
28	641.00	176.0	9.320
29	645.00	178.0	9.480
30	649.00	180.0	9.640
31	653.00	182.0	9.800
32	657.00	184.0	9.960
33	661.00	186.0	10.120
34	665.00	188.0	10.280
35	669.00	190.0	10.440
36	673.00	192.0	10.600
37	677.00	194.0	10.760
38	681.00	196.0	10.920
39	685.00	198.0	11.080
40	689.00	200.0	11.240
41	693.00	202.0	11.400
42	697.00	204.0	11.560
43	701.00	206.0	11.720
44	705.00	208.0	11.880
45	709.00	210.0	12.040
46	713.00	212.0	12.200
47	717.00	214.0	12.360
48	721.00	216.0	12.520
49	725.00	218.0	12.680
50	729.00	220.0	12.840
51	733.00	222.0	13.000
52	737.00	224.0	13.160
53	741.00	226.0	13.320
54	745.00	228.0	13.480
55	749.00	230.0	13.640
56	753.00	232.0	13.800
57	757.00	234.0	13.960
58	761.00	236.0	14.120
59	765.00	238.0	14.280
60	769.00	240.0	14.440
61	773.00	242.0	14.600
62	777.00	244.0	14.760
63	781.00	246.0	14.920
64	785.00	248.0	15.080
65	789.00	250.0	15.240
66	793.00	252.0	15.400
67	797.00	254.0	15.560
68	801.00	256.0	15.720
69	805.00	258.0	15.880
70	809.00	260.0	16.040
71	813.00	262.0	16.200
72	817.00	264.0	16.360
73	821.00	266.0	16.520
74	825.00	268.0	16.680
75	829.00	270.0	16.840
76	833.00	272.0	17.000
77	837.00	274.0	17.160
78	841.00	276.0	17.320
79	845.00	278.0	17.480
80	849.00	280.0	17.640
81	853.00	282.0	17.800
82	857.00	284.0	17.960
83	861.00	286.0	18.120
84	865.00	288.0	18.280
85	869.00	290.0	18.440
86	873.00	292.0	18.600
87	877.00	294.0	18.760
88	881.00	296.0	18.920
89	885.00	298.0	19.080
90	889.00	300.0	19.240
91	893.00	302.0	19.400
92	897.00	304.0	19.560
93	901.00	306.0	19.720
94	905.00	308.0	19.880
95	909.00	310.0	20.040
96	913.00	312.0	20.200
97	917.00	314.0	20.360
98	921.00	316.0	20.520
99	925.00	318.0	20.680
100	929.00	320.0	20.840
101	933.00	322.0	21.000
102	937.00	324.0	21.160
103	941.00	326.0	21.320
104	945.00	328.0	21.480
105	949.00	330.0	21.640
106	953.00	332.0	21.800
107	957.00	334.0	21.960
108	961.00	336.0	22.120
109	965.00	338.0	22.280
110	969.00	340.0	22.440
111	973.00	342.0	22.600
112	977.00	344.0	22.760
113	981.00	346.0	22.920
114	985.00	348.0	23.080
115	989.00	350.0	23.240
116	993.00	352.0	23.400
117	997.00	354.0	23.560
118	1001.00	356.0	23.720
119	1005.00	358.0	23.880
120	1009.00	360.0	24.040
121	1013.00	362.0	24.200
122	1017.00	364.0	24.360
123	1021.00	366.0	24.520
124	1025.00	368.0	24.680
125	1029.00	370.0	24.840
126	1033.00	372.0	25.000
127	1037.00	374.0	25.160
128	1041.00	376.0	25.320
129	1045.00	378.0	25.480
130	1049.00	380.0	25.640
131	1053.00	382.0	25.800
132	1057.00	384.0	25.960
133	1061.00	386.0	26.120
134	1065.00	388.0	26.280
135	1069.00	390.0	26.440
136	1073.00	392.0	26.600
137	1077.00	394.0	26.760
138	1081.00	396.0	26.920
139	1085.00	398.0	27.080
140	1089.00	400.0	27.240
141	1093.00	402.0	27.400
142	1097.00	404.0	27.560
143	1101.00	406.0	27.720
144	1105.00	408.0	27.880
145	1109.00	410.0	28.040
146	1113.00	412.0	28.200
147	1117.00	414.0	28.360
148	1121.00	416.0	28.520
149	1125.00	418.0	28.680
150	1129.00	420.0	28.840
151	1133.00	422.0	29.000
152	1137.00	424.0	29.160
153	1141.00	426.0	29.320
154	1145.00	428.0	29.480
155	1149.00	430.0	29.640
156	1153.00	432.0	29.800
157	1157.00	434.0	29.960
158	1161.00	436.0	30.120
159	1165.00	438.0	30.280
160	1169.00	440.0	30.440
161	1173.00	442.0	30.600
162	1177.00	444.0	30.760
163	1181.00	446.0	30.920
164	1185.00	448.0	31.080
165	1189.00	450.0	31.240
166	1193.00	452.0	31.400
167	1197.00	454.0	31.560
168	1201.00	456.0	31.720
169	1205.00	458.0	31.880
170	1209.00	460.0	32.040
171	1213.00	462.0	32.200
172	1217.00	464.0	32.360
173	1221.00	466.0	32.520
174	1225.00	468.0	32.680
175	1229.00	470.0	32.840
176	1233.00	472.0	33.000
177	1237.00	474.0	33.160
178	1241.00	476.0	33.320
179	1245.00	478.0	33.480
180	1249.00	480.0	33.640
181	1253.00	482.0	33.800
182	1257.00	484.0	33.960
183	1261.00	486.0	34.120
184	1265.00	488.0	34.280
185	1269.00	490.0	34.440
186	1273.00	492.0	34.600
187	1277.00	494.0	34.760
188	1281.00	496.0	34.920
189	1285.00	498.0	35.080
190	1289.00	500.0	35.240
191	1293.00	502.0	35.400
192	1297.00	504.0	35.560
193	1301.00	506.0	35.720
194	1305.00	508.0	35.880
195	1309.00	510.0	36.040
196	1313.00	512.0	36.200
197	1317.00	514.0	36.360
198	1321.00	516.0	36.520
199	1325.00	518.0	36.680
200	1329.00	520.0	36.840
201	1333.00	522.0	37.000
202	1337.00	524.0	37.160
203	1341.00	526.0	37.320
204	1345.00	528.0	37.480
205	1349.00	530.0	37.640
206	1353.00	532.0	37.800
207	1357.00	534.0	37.960
208	1361.00	536.0	38.120
209	1365.00	538.0	38.280
210	1369.00	540.0	38.440
211	1373.00	542.0	38.600
212	1377.00	544.0	38.760
213	1381.00	546.0	38.920
214	1385.00	548.0	39.080
215	1389.00	550.0	39.240
216	1393.00	552.0	39.400
217	1397.00	554.0	39.560
218	1401.00	556.0	39.720
219	1405.00	558.0	39.880
220	1409.00	560.0	40.040
221	1413.00	562.0	40.200
222	1417.00	564.0	40.360
223	1421.00	566.0	40.520
224	1425.00	568.0	40.680
225	1429.00	570.0	40.840
226	1433.00	572.0	41.000
227	1437.00	574.0	41.160
228	1441.00	576.0	41.320
229	1445.00	578.0	41.480
230	1449.00	580.0	41.640
231	1453.00	582.0	41.800
232	1457.00	584.0	41.960
233	1461.00	586.0	42.120
234	1465.00	588.0	42.280
235	1469.00	590.0	42.440
236	1473.00	592.0	42.600
237	1477.00	594.0	42.760
238	1481.00	596.0	42.920
239	1485.00	598.0	43.080
240	1489.00	600.0	43.240
241	1493.00	602.0	43.400
242	1497.00	604.0	43.560
243	1501.00	606.0	43.720
244	1505.00	608.0	43.880
245	1509.00	610.0	44.040
246	1513.00	612.0	44.200
247	1517.00	614.0	44.360
248	1521.00	616.0	44.520
249	1525.00	618.0	44.680
250	1529.00	620.0	44.840
251	1533.00	622.0	45.000
252	1537.00	624.0	45.160
253	1541.00	626.0	45.320
254	1545.00	628.0	45.480
255	1549.00	630.0	45.640
256	1553.00	632.0	45.800
257	1557.00	634.0	45.960
258	1561.00	636.0	46.120
259	1565.00	638.0	46.280
260	1569.00	640.0	46.440
261	1573.00	642.0	46.600
262	1577.00	644.0	46.760
263	1581.00	646.0	46.920
264	1585.00	648.0	47.080
265	1589.00	650.0	47.240
266	1593.00	652.0	47.400
267	1597.00	654.0	47.560
268	1601		

THE RIGHT OF WAY FOR THE PIPELINE WAS ACQUIRED BY THE CITY OF LOVELAND THROUGH GRANTS AND BY PRESCRIPTION AND IS BASED ON A WIDTH SUFFICIENT TO INSTALL, MAINTAIN, REPAIR AND OPERATE THE LINE AND IT IS THIS RIGHT OF WAY THAT IS CLAIMED BY THE CITY OF LOVELAND AND WHICH WOULD BE DEFENDED BY THE CITY OF LOVELAND FOR THE PURPOSES OF COMPUTATION OF ACREAGE ONLY, THE TOTAL ACREAGE REQUIRED FOR RIGHT OF WAY WOULD NOT EXCEED THE ACREAGE SHOWN IN THE TABLE BELOW WHICH IS COMPUTED ON THE BASIS OF A RIGHT OF WAY FIFTY FEET ON EACH SIDE OF THE DESCRIBED CENTERLINE. IT IS UNLIKELY THAT THE ACTUAL WIDTH NECESSARY TO INSTALL, MAINTAIN, OPERATE, AND REPAIR THE LINE WILL APPROACH SUCH A 100 FOOT WIDE EASEMENT, AND IN NO EVENT WILL EXCEED THE 100 FOOT WIDE EASEMENT

SECTION 7

NOTE, REVISION
RIGHT-OF-WAY THROUGH LAND OWNED BY USFS IS TEN (10) FEET ON EACH SIDE OF THE CENTER LINE OF THE PIPELINE FOR A TOTAL WIDTH OF TWENTY (20) FEET.

HYDRO PLANT
PIPELINE
CITY OF LOVELAND, COLORADO

OWNERSHIP MAP

2829-3

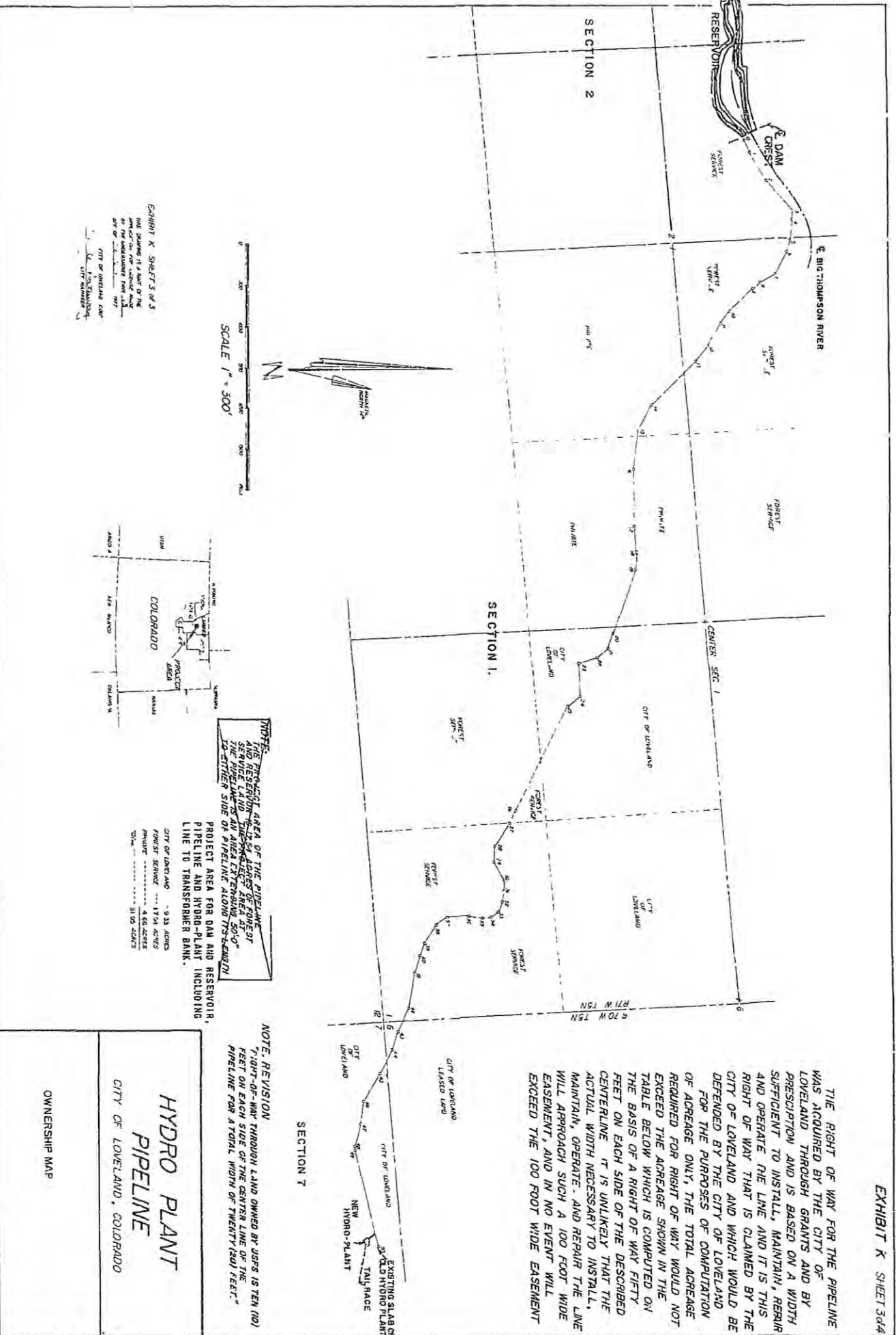


EXHIBIT K SHEET 3 OF 3
THIS DRAWING IS A PART OF THE PROJECT FOR THE ACQUISITION OF THE RIGHT OF WAY FOR THE PIPELINE AND RESERVOIR.
CITY OF LOVELAND, CO.
CITY ENGINEER

SCALE 1" = 300'



RECEIVED

UN 077

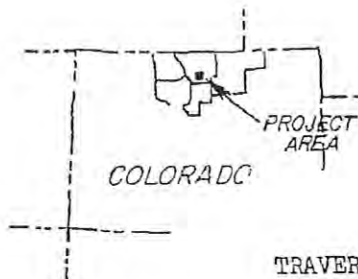
EXHIBIT K SHEET 4 of 4

FEDERAL POWER
COMMISSION

THIS DRAWING IS A PART OF THE
APPLICATION FOR LICENSE MADE
BY THE UNDERSIGNED THIS 29
DAY OF November, 1977

CITY OF LOVELAND, COLO

Don W. Hataway
CITY MANAGER

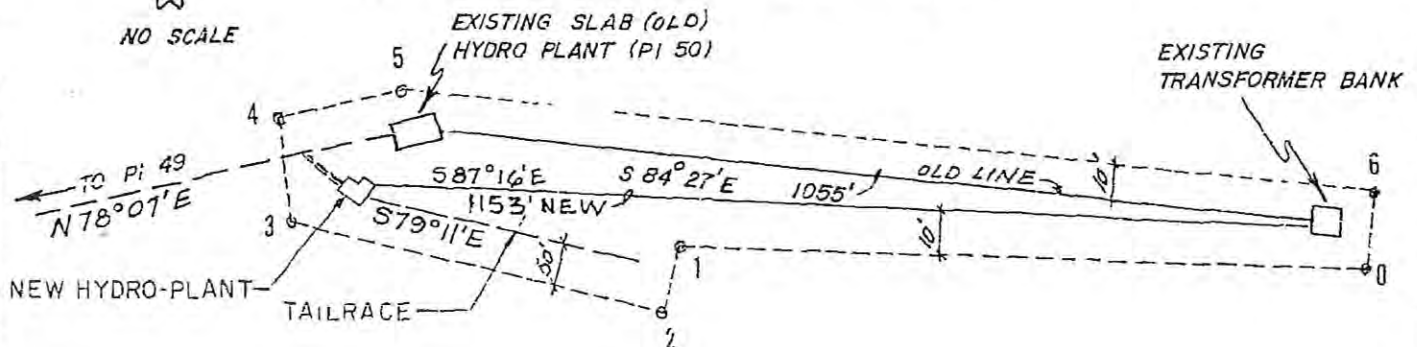


TRAVERSE CONFINEING PROJECT
AREA FOR HYDROPLANT

Pl.	Bearing	Length	Coordinates	
			E-W	N-S
0			0.00	0.00
1	N87°16'W	1143	W1141.70	N54.41
2	S10°49'W	120	W1164.22	S63.36
3	N79°11'W	379	W1536.49	N7.77
4	N11°53'W	100	W1557.08	N105.63
5	N78°07'E	195	W1365.26	N145.78
6	S84°27'E	1384	E11.25	N11.93
0	S43°22'W	16.4	0.00	0.00



NO SCALE



I, WILLIAM M STIDHAM JR BEING A
REGISTERED LAND SURVEYOR UNDER THE
LAWS OF THE STATE OF COLORADO DO
HEREBY STATE THAT THIS SURVEY WAS
MADE BY ME OR UNDER MY SUPERVISION,
AND THAT THE SURVEY IS ACCURATELY
REPRESENTED ON THIS MAP.

BY William M. Stidham Jr
COLO LS 13546

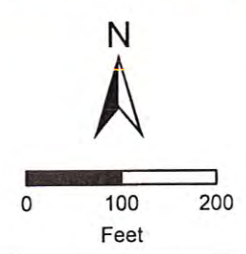
CITY OF LOVELAND
PRIMARY ELECTRICAL
TRANSMISSION LINE

2993-4



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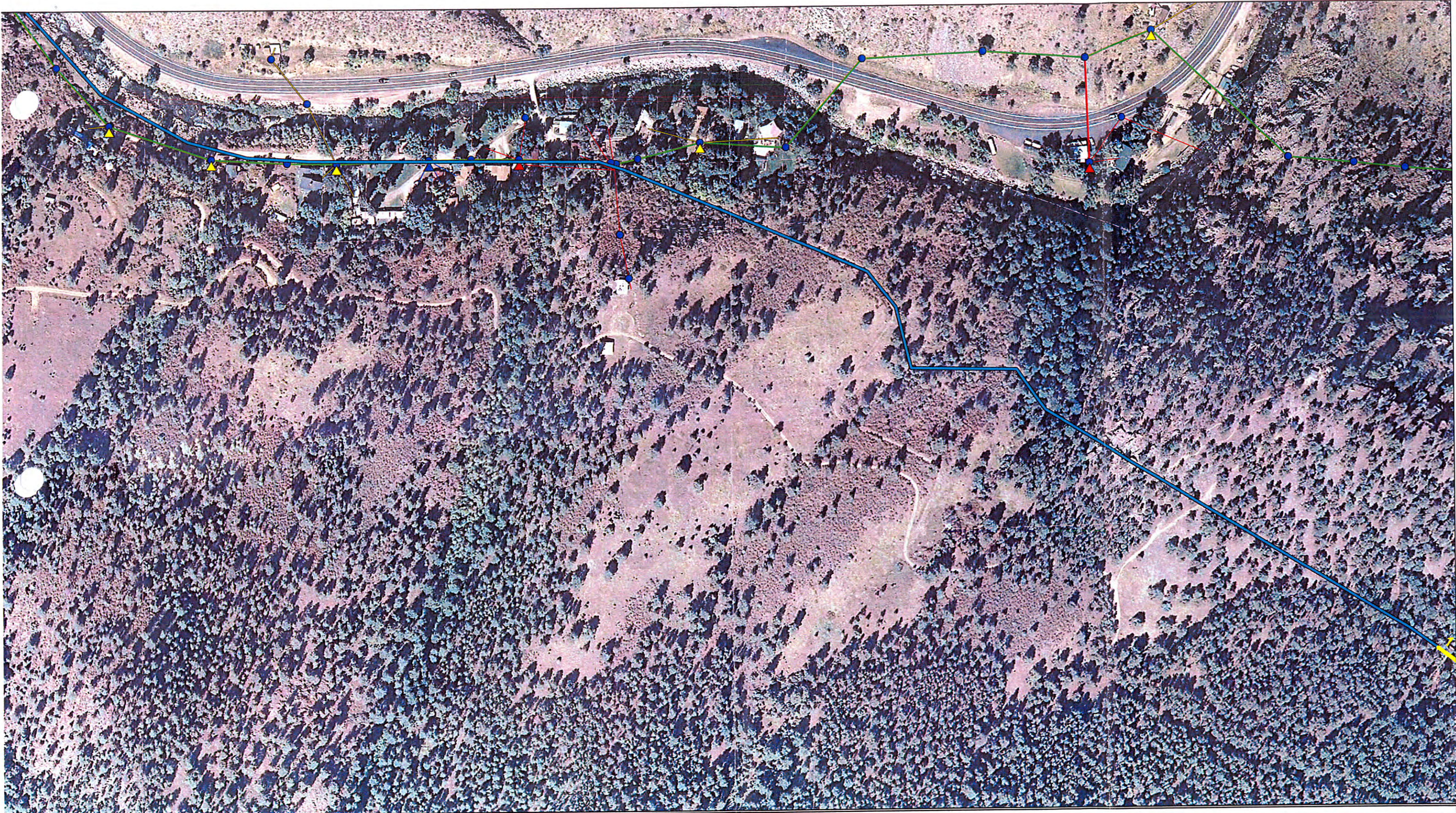
DUE TO SECURITY CONCERNS, THE CITY REQUESTS THAT YOU DO NOT POST THIS DOCUMENT ON THE INTERNET OR OTHERWISE MAKE IT AVAILABLE TO PERSONS UNKNOWN TO YOU.



Legend	
	Idylwilde Pipeline
	Trussels
	Surge Pipe

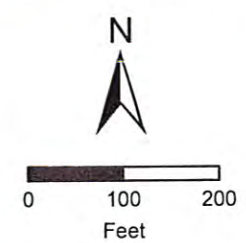
Idylwilde Project System Aerial

Approximate Locations of Penstock and Powerlines



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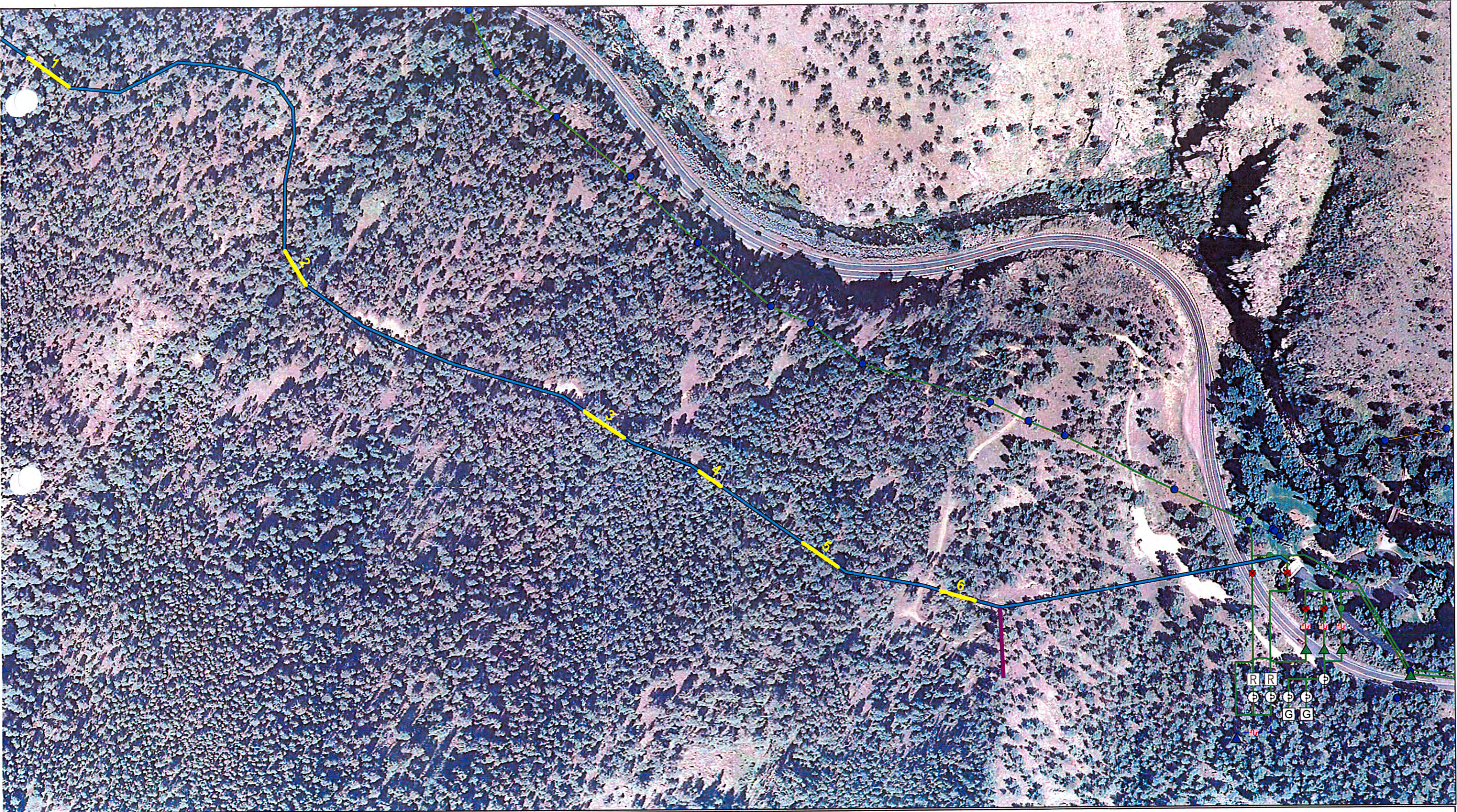


Legend	
	Idylwilde Pipeline
	Trussels
	Surge Pipe

Idylwilde Project System Aerial

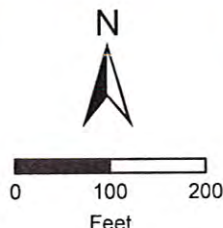
Approximate Locations of Penstock and Powerlines





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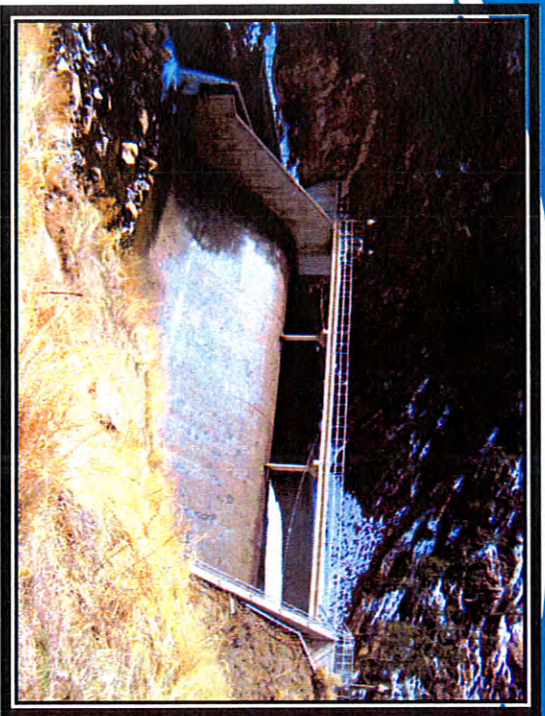


Legend	
	Idylwilde Pipeline
	Trussels
	Surge Pipe

Idylwilde Project System Aerial

Approximate Locations of Penstock and Powerlines





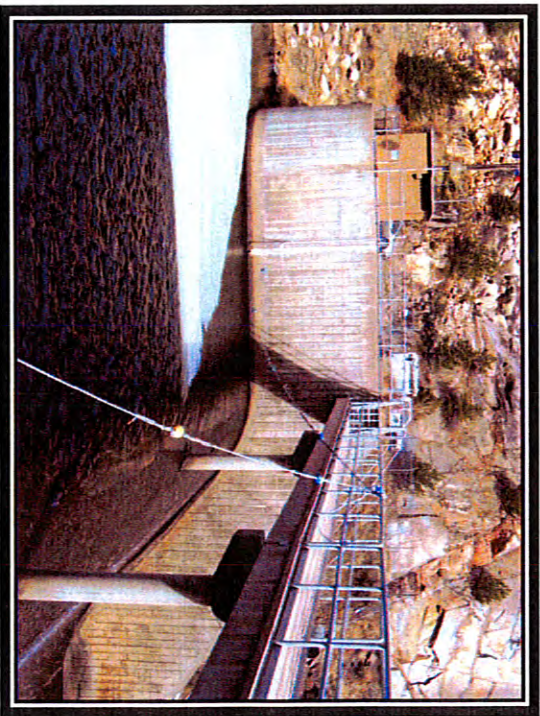
Idylwilde Dam, ogee crest and catwalk, southwesterly view



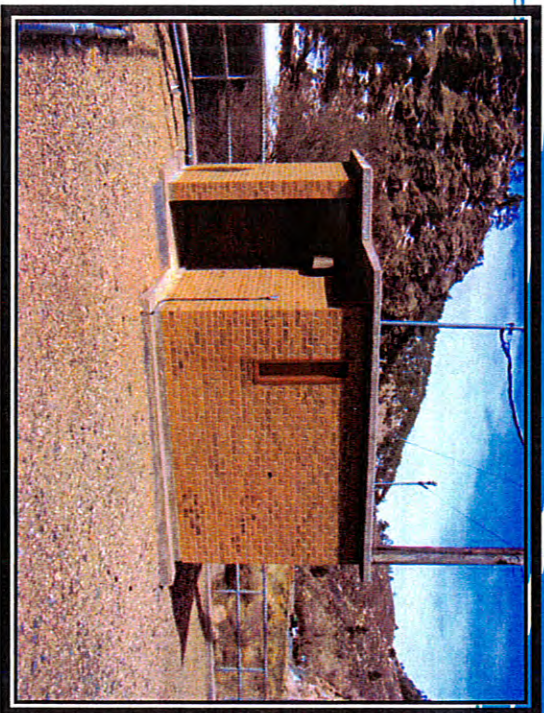
The control house at the dam
U.S. Highway 34 on the right



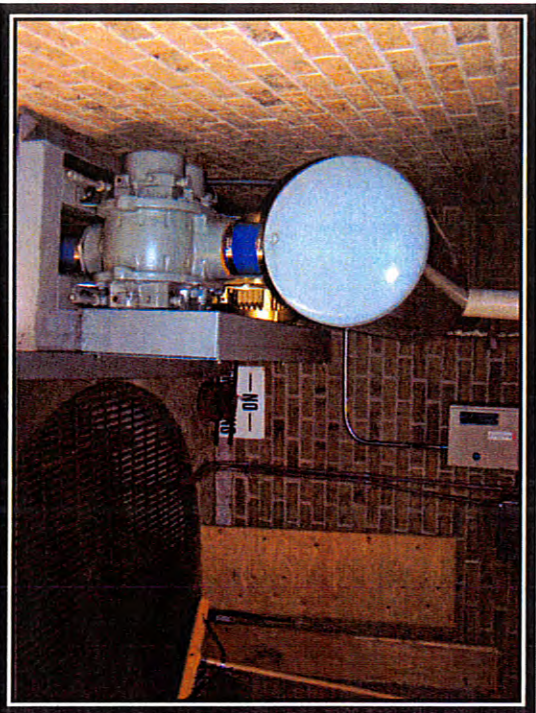
Catwalk, ogee crest, sluice and penstock gates at south abutment



Catwalk and control house on north end of dam



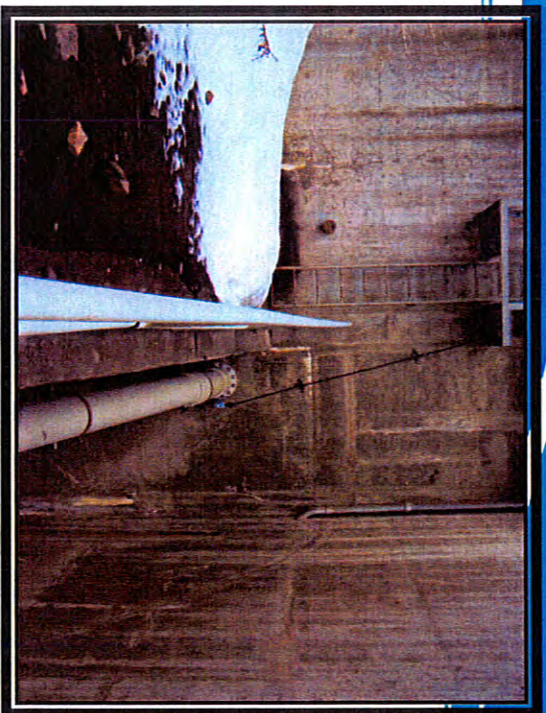
Control house at dam



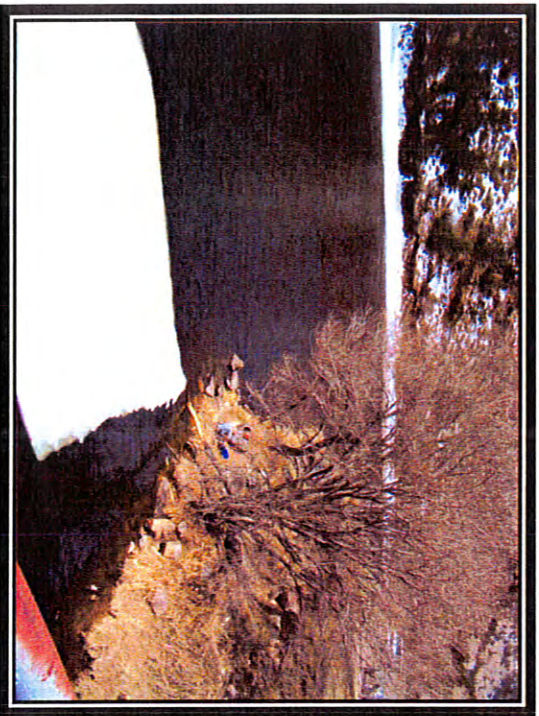
Control house interior



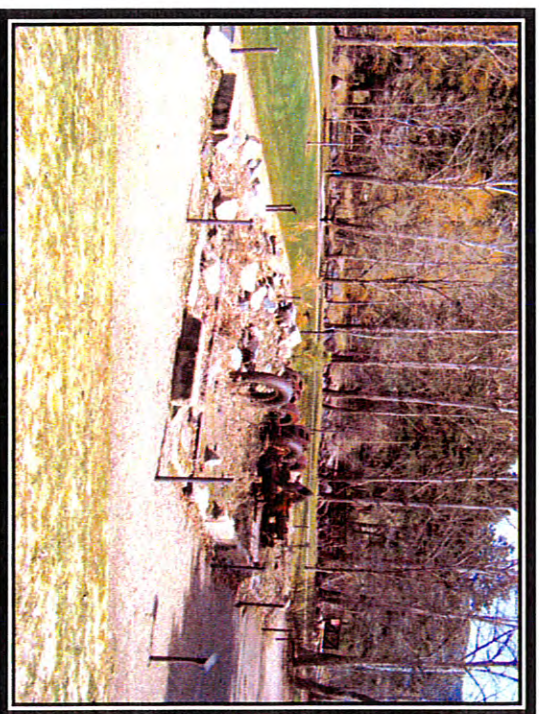
7.0 cfs minimum discharge low pipe, sluice gate channel, downstream view



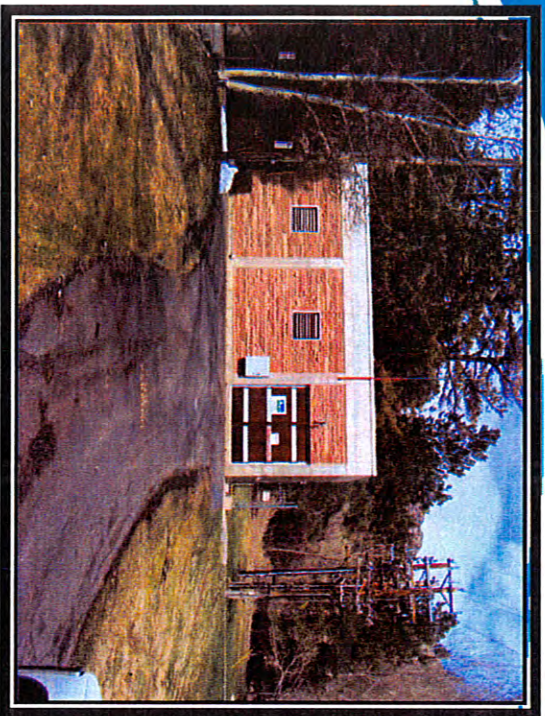
7.0 cfs minimum flow discharge pipe and valve coming through sluice gate wall, upstream view



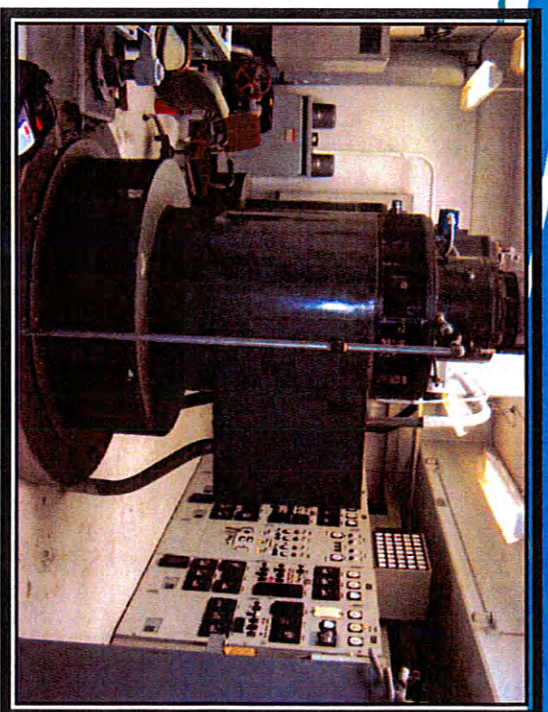
North bank of reservoir, fisherman



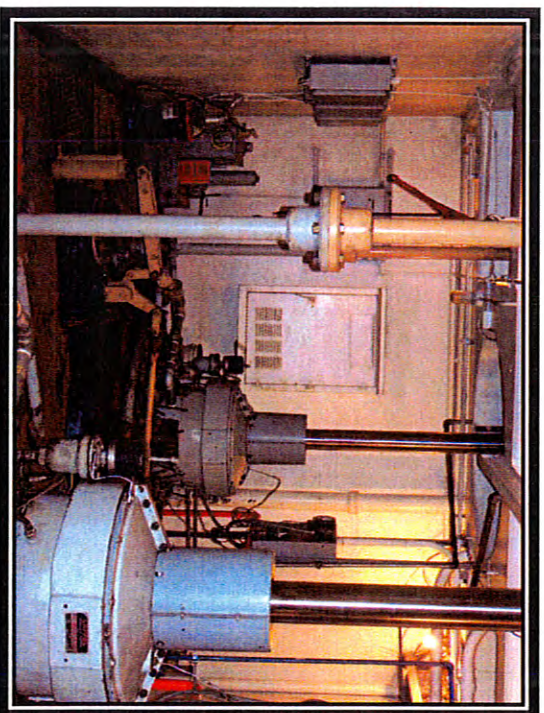
The hydro powerhouse site in Viestenz-Smith Park destroyed in 1976 flood



The 1978 hydro powerhouse in Viestenz Smith Park



Two Kato 450 kw generators and control panel



Two 650 hp Leffel hydro turbines

MEMORANDUM OF AGREEMENT

RECITALS

A. The City of Loveland ("City") has operated the Idylwilde Hydropower Facility ("Facility") since 1925 on the Big Thompson River below the Town of Drake. Major features of the Facility include Idylwilde Dam and Reservoir, turbines and generators at Viestenz-Smith Mountain Park, and a pipeline approximately 1.6 miles long connecting the reservoir and the turbines.

B. The Big Thompson Flood in 1976 destroyed the original dam, part of the pipeline, and the turbines and generators. The facility was subsequently rebuilt and brought back into service in the early 1980's.

C. The City's current 50-year Federal Energy Regulatory Commission ("FERC") license, which expires in the year 2016, requires a minimum bypass flow through Idylwilde Dam of 3.0 cubic feet per second (cfs).

D. At the verbal request of the Colorado Division of Wildlife ("CDOW"), since the early 1980's the City has voluntarily bypassed a minimum flow of 6.0 cfs except during infrequent emergency periods of extreme low flow in the Big Thompson River. Historically this has occurred about two or three times annually, during winter months.

E. *A Minimum Flow Study of the Big Thompson River Between Idylwilde Dam and Viestenz-Smith Park* was done with US Forest Service input by W.J. Miller & Associates in 1992 and 93. The final report was submitted on February 26, 1993. The conclusions state in part that, "The current trout populations in the bypass reach are in good condition with the current 6 cfs minimum flow regime based on a limited sampling of those populations."

F. A primary benefit of the Facility to the City is its use to decrease power consumption peaks ("Peaks") for purchased power. These Peaks are used to calculate future costs of power used by the City.

G. The City desires to operate its facility in a manner which will protect the fisheries habitat of the affected reach of the Big Thompson River as much as possible without seriously affecting the benefit of the facility to the City or increasing the cost of operating the facility.

H. CDOW has concluded that historic operations under which the City has bypassed 6 cfs have been sufficient to maintain aquatic habitat to a reasonable degree. However, the CDOW also believes that operational refinements designed to increase bypass flows from 6 to 7 cfs, minimize flow changes and rates of decrease, and avoid siltation problems downstream of the hydropower facility will serve to further protect and stabilize aquatic wildlife values.

CITY OF LOVELAND
CITY CLERK'S OFFICE
500 E. 3RD ST.
LOVELAND CO 80537

AGREEMENT

In light of the foregoing recitals, the City and the CDOW agree as follows:

1. The City will release a minimum flow of 7.0 cfs through Idylwilde Dam except during emergency periods of extreme low flow in the Big Thompson River during the winter. At no time will flow drop below 3 cfs, as required by the City's current FERC license for the Facility. Flows will drop below 7 cfs only when it is anticipated that power consumption will establish a Peak which could increase future power rates.
2. When it is deemed necessary by the City to decrease the bypass flow through Idylwilde Dam below the 7.0 cfs minimum for power generation purposes, the City will "ramp" the bypass flow so that the decrease in flow occurs at a rate of 1.0 cfs per hour or less.
3. The City will avoid silting the riverbed below Idylwilde Dam through its sluicing operations at the dam by performing those operations only during periods of high river flow during the spring runoff. The CDOW will be notified prior to this operation.
4. CDOW will report to the City the results of any fish population studies conducted on the bypass reach of the river, to evaluate the impact of this operational agreement.
5. This Agreement shall remain in effect until the parties hereto mutually agree in writing to amend it. In addition, should either party to the Agreement wish to terminate it, that party shall convey its desire to the other party at least 90 days prior to the effective date of termination.

Done this 9th day of June, 1994.

COLORADO DIVISION OF WILDLIFE

by: Walt Graul
Walt Graul, Regional Manager
Colorado Division of Wildlife

CITY OF LOVELAND

by: Ralph Mullinix
Ralph Mullinix, Director
Loveland Water & Power Department

APPROVED AS TO FORM:

Caroline Blackwell
Caroline Blackwell,
Assistant City Attorney
CITY OF LOVELAND
CITY CLERK'S OFFICE
500 E. 3RD ST.
LOVELAND CO 80537
15160

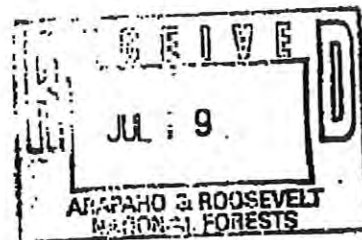


CITY OF LOVELAND

DEPARTMENT OF WATER & POWER

200 North Wilson, Bldg. #1 • Loveland, Colorado 80537
(303) 962-3000 • (303) 962-3400 FAX • (303) 962-2620 TDD

Wednesday, July 13, 1994



Mr. M. M. Underwood, Jr., Forest Supervisor
Arapaho and Roosevelt National Forests
240 West Prospect Road
Fort Collins, CO 80526

RE: Clarification of Memorandum of Understanding on Idylwilde Dam Operations

Dear Skip:

Jean Thomas has requested clarification on two questions concerning the June 9, 1994 *Memorandum of Understanding* between the Colorado Division of Wildlife and the City of Loveland. This letter may help explain those points for your office. A copy of the document is attached for your convenience. Jean's questions and our answers follow:

- 1) *Do the flow rates in the document refer to instantaneous or average daily flows?*

As we signed it, the flow values in the 'Agreement' portion of the *Memorandum* were intended to be instantaneous flow rates, including the 7.0 cfs in numbered Paragraph 1 of page 2.

- 2) *How often are flows expected to drop below 7.0 cfs, as anticipated in the last sentence of numbered Paragraph '1'?*

The last sentence of Paragraph 'D' in the 'Recitals' portion of the *Memorandum* says, "historically this has occurred about two or three times annually, during winter months", referring to how often flows dropped below the City's historical voluntary 6.0 cfs minimum flow rate. This sentence was intended to indicate how often that occurrence might be expected to happen in the future. We did not specifically limit ourselves to two or three annual occurrences in numbered Paragraph '1' because of the variability of conditions from year to year, but we do not expect to normally exceed that amount.



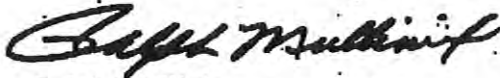
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Recycled Paper

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M. M. Underwood, Jr., ARNF Forest Supervisor
Wednesday, July 13, 1994
Page 2

If additional clarification or information is needed, please call Larry Howard at 962-3703.
Thank you.

Sincerely,



Ralph Mullinix,
Water & Power Director

cc: Jean Thomas, USFS
File - Idylwilde Hydropower Facility

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