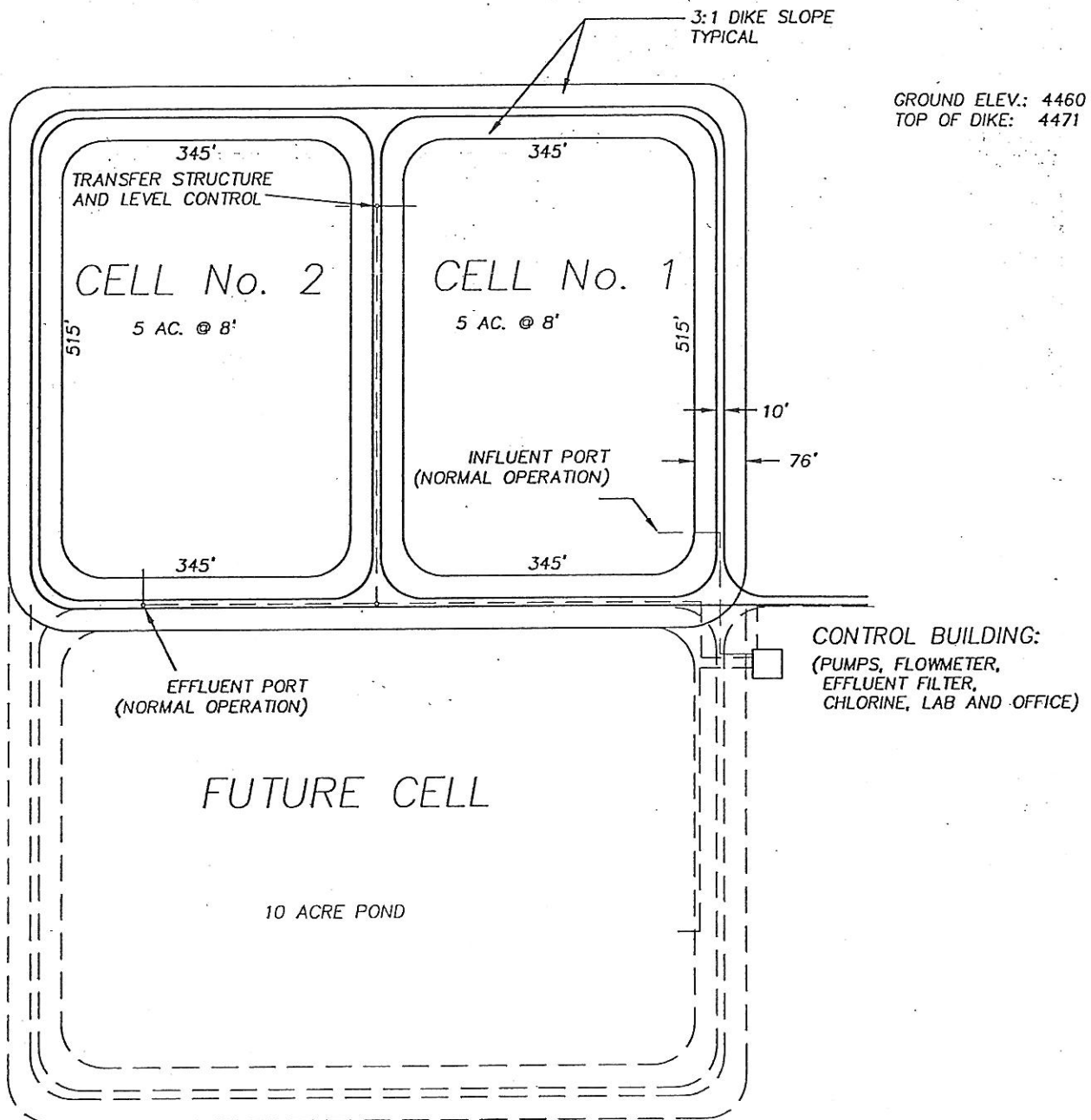


Table 10-5**OPINION OF PROBABLE COST - PROJECT # 1**

Serves entire Sanitary District with treatment site at southern end of Crescent

Description	Quantity	Unit	Unit Cost	Extension
Mobilization	1	LS		\$ 125,000
Dike Construction (excavated fill)	101,723	CY	\$ 5	\$ 508,615
Dike Construction (imported fill)	-	CY	\$ 7	\$ -
HDPE Liner (60 mil), Mat and Anchors	937,722	SF	\$ 0.80	\$ 750,177
Inlet Structure	1	EA	\$ 20,000	\$ 20,000
Outlet Structure	1	EA	\$ 20,000	\$ 20,000
Transfer Structure	2	EA	\$ 35,000	\$ 70,000
Transfer Piping	1	LS	\$ 70,000	\$ 70,000
Staff Gauges	3	EA	\$ 1,300	\$ 3,900
3/4" minus Road Surface	5,000	LF	\$ 17	\$ 85,000
Building	1,200	SF	\$ 100	\$ 120,000
Chlorine Equipment	1	LS	\$ 30,000	\$ 30,000
Pumps	2	EA	\$ 20,000	\$ 40,000
Effluent Screen	1	LS	\$ 20,000	\$ 20,000
Flowmeters	2	EA	\$ 8,000	\$ 16,000
Misc. Site Piping	1	LS	\$ 30,000	\$ 30,000
Controls and Electrical	1	LS	\$ 30,000	\$ 30,000
Alarm and Telemetry	1	LS	\$ 30,000	\$ 30,000
Lab Equipment	1	LS	\$ 10,000	\$ 10,000
Office Equipment	1	LS	\$ 5,000	\$ 5,000
Chlorine Contact Line	1	LS	\$ 80,000	\$ 80,000
Irrigation Equip. and Piping	1	LS	\$ 150,000	\$ 150,000
Supplemental Water Well	1	LS	\$ 20,000	\$ 20,000
Electrical to Site	1	LS	\$ 20,000	\$ 20,000
Access Road and Parking	300	LF	\$ 21	\$ 6,300
Seeding	1,200	CY	\$ 6	\$ 7,200
Fencing	4,500	LF	\$ 6	\$ 27,000
Signs	1	LS	\$ 200	\$ 200
Monitoring Wells	4	EA	\$ 2,500	\$ 10,000
Pump station	1	LS	\$ 135,000	\$ 135,000
Force Main	10,500	LF	\$ 20	\$ 210,000
Construction Subtotal				\$ 2,649,393
Contingencies				\$ 264,939
Engineering and Inspection				\$ 529,879
Legal and Administrative				\$ 132,470
Hydrogeological Study, Effluent Reuse				\$ 30,000
WPCF Permit Application				\$ 5,000
Land Acquisition	125	AC	\$ 2,000	\$ 250,000
TOTAL				\$ 3,861,680



PROJECT OPTION 2

PHASE I SERVES CRESCENT'S CORE AREA



ARCHITECTS, ENGINEERS,
SURVEYORS, & PLANNERS

375 Park Avenue/Coos Bay, Oregon 97420 (541) 269-1166
19 N. W. Fifth Avenue/Portland, Oregon 97209 (503) 222-1687

N.T.S.

FIGURE 10.4

Table 10-6**OPINION OF PROBABLE COST - PROJECT # 2 Phase I**

Project initially serves Crescent's core area with treatment site south of Crescent

Description	Quantity	Unit	Unit Cost	Extension
Mobilization	1	LS	\$ 100,000	\$ 100,000
Dike Construction (excavated fill)	62,830	CY	\$ 5	\$ 314,151
Dike Construction (imported fill)	-	CY	\$ 7	\$ -
HDPE Liner (60 mil), Mat and Anchors	459,969	SF	\$ 0.80	\$ 367,975
Inlet Structure	1	EA	\$ 20,000	\$ 20,000
Outlet Structure	1	EA	\$ 20,000	\$ 20,000
Transfer Structure	1	EA	\$ 35,000	\$ 35,000
Transfer Piping	1	LS	\$ 50,000	\$ 50,000
Staff Gauges	2	EA	\$ 1,300	\$ 2,600
3/4" minus Road Surface	3,000	LF	\$ 17	\$ 51,000
Building	1,200	SF	\$ 100	\$ 120,000
Chlorine Equipment	1	LS	\$ 30,000	\$ 30,000
Pumps	2	EA	\$ 20,000	\$ 40,000
Effluent Filter	1	LS	\$ 20,000	\$ 20,000
Flowmeters	2	EA	\$ 8,000	\$ 16,000
Misc. Site Piping	1	LS	\$ 30,000	\$ 30,000
Controls and Electrical	1	LS	\$ 30,000	\$ 30,000
Alarm and Telemetry	1	LS	\$ 30,000	\$ 30,000
Lab Equipment	1	LS	\$ 10,000	\$ 10,000
Office Equipment	1	LS	\$ 5,000	\$ 5,000
Chlorine Contact Line	1	LS	\$ 80,000	\$ 80,000
Irrigation Equip. and Piping	1	LS	\$ 150,000	\$ 150,000
Supplemental Water Well	1	LS	\$ 20,000	\$ 20,000
Electrical to Site	1	LS	\$ 20,000	\$ 20,000
Access Road and Parking	300	LF	\$ 21	\$ 6,300
Seeding	700	CY	\$ 6	\$ 4,200
Fencing	3,000	LF	\$ 6	\$ 18,000
Signs	1	LS	\$ 200	\$ 200
Monitoring Wells	4	EA	\$ 2,500	\$ 10,000
Pump station	1	LS	\$ 135,000	\$ 135,000
Force Main	10,500	LF	\$ 30	\$ 315,000
Construction Subtotal				\$ 2,050,426
Contingencies				\$ 205,043
Engineering and Inspection				\$ 410,085
Legal and Administrative				\$ 102,521
Hydrogeological Study, Effluent Reuse				\$ 30,000
WPCF Permit Application				\$ 5,000
Land Acquisition	65	AC	\$ 2,000	\$ 130,000
TOTAL				\$ 2,933,000

Table 10-6.a**OPINION OF PROBABLE COST - PROJECT # 2 Phase II**

Phase II of project provides service to remainder of District

Description	Quantity	Unit	Unit Cost	Extension
Mobilization	1	LS	\$ 40,000	\$ 40,000
Dike Construction (excavated fill)	35,037	CY	\$ 5	\$ 175,185
Dike Construction (imported fill)	-	CY	\$ 7	\$ -
HDPE Liner (60 mil), Mat and Anchors	487,616	SF	\$ 0.80	\$ 390,093
Outlet Structure	1	EA	\$ 20,000	\$ 20,000
Transfer Structure	1	EA	\$ 35,000	\$ 35,000
Transfer Piping	1	LS	\$ 50,000	\$ 50,000
Staff Gauges	1	EA	\$ 1,300	\$ 1,300
3/4" minus Road Surface	2,000	LF	\$ 17	\$ 34,000
Misc. Site Piping	1	LS	\$ 30,000	\$ 30,000
Seeding	500	CY	\$ 6	\$ 3,000
Fencing	1,500	LF	\$ 6	\$ 9,000
Signs	1	LS	\$ 200	\$ 200
Construction Subtotal				\$ 787,778
Contingencies				\$ 78,778
Engineering and Inspection				\$ 157,556
Legal and Administrative				\$ 39,389
Hydrogeological Study, Effluent Reuse				\$ 30,000
WPCF Permit Application				\$ 5,000
Land Acquisition	60	AC	\$ 2,000	\$ 120,000
TOTAL				\$ 1,218,501

Option 3. Gilchrist Adds Holding Pond and Irrigation System

Gilchrist may have to develop a storage and irrigation system in the future, depending on the results of future groundwater monitoring. An analysis was performed in order to evaluate the capacity of the existing lagoons. Table 10.7 shows design capacity for the lagoons based on surface area. The maximum population that the lagoons can serve is about 550 people. Therefore, there is capacity to serve Gilchrist for the design period, or provide immediate service to Gilchrist and Crescent's core area.

Table 10.7

Design Data for Gilchrist Lagoon system				
ADF (gpd)	21,000			
Design Water Depth (ft)	3.5			
	Cell # 1	Cell # 2	Cell # 3	Total
Surface area at design depth (ft ²) (acres)	55,400 1.27	55,200 1.27	39,600 0.91	150,200 3.45
Volume at design depth (ft ³) (ac-ft)	171,400 3.94	168,300 3.86	122,600 2.82	462,600 10.62
Maximum BOD Loading (ppd)	63 ¹	63 ¹		121 ²
Maximum Population Served (0.22 lb. BOD per capita-day)	549			

¹ based on loading as primary cell - 50 lbs. BOD/acre/day

² based on loading for entire area - 35 lbs. BOD/acre/day

Treated water from the lagoon could be stored in a holding pond during winter months, and irrigated during the summer. Storage requirements are about 55 ac-ft for Gilchrist alone (including projected growth in Gilchrist during design period). The holding pond would have a water surface of approximately 7 acres, and approximately 30 acres would be needed for irrigation. Table 10.8 gives an opinion of probable cost for Gilchrist to construct a storage pond and develop an irrigation project.

Table 10-8				
OPINION OF PROBABLE COST - PROJECT # 3				
Gilchrist remains independent and adds storage and irrigation facilities				
Description	Quantity	Unit	Unit Cost	Extension
Mobilization	1	LS	\$ 60,000	\$ 60,000
Dike Construction (excavated fill)	46,777	CY	\$ 5	\$ 233,884
HDPE Liner (60 mil), Mat and Anchors	246,030	SF	\$ 0.80	\$ 196,824
Inlet Structure	1	EA	\$ 20,000	\$ 20,000
Outlet Structure	1	EA	\$ 20,000	\$ 20,000
Transfer Structure	-	EA	\$ 35,000	\$ -
Transfer Piping	1	LS	\$ 60,000	\$ 60,000
Staff Gauges	1	EA	\$ 1,300	\$ 1,300
3/4" minus Road Surface	2,288	LF	\$ 17	\$ 38,896
Building	1,200	SF	\$ 100	\$ 120,000
Chlorine Equipment Upgrades	1	LS	\$ 10,000	\$ 10,000
Pumps	4	EA	\$ 15,000	\$ 60,000
Effluent Screen	1	LS	\$ 20,000	\$ 20,000
Flowmeters	2	EA	\$ 8,000	\$ 16,000
Misc. Site Piping	1	LS	\$ 25,000	\$ 25,000
Controls and Electrical	1	LS	\$ 30,000	\$ 30,000
Alarm and Telemetry	1	LS	\$ 30,000	\$ 30,000
Lab Equipment	1	LS	\$ 10,000	\$ 10,000
Office Equipment	1	LS	\$ 5,000	\$ 5,000
Chlorine Contact Line	1	LS	\$ 75,000	\$ 75,000
Irrigation Equip. and Piping	1	LS	\$ 150,000	\$ 150,000
Supplemental Water Well	1	LS	\$ 20,000	\$ 20,000
Electrical to Site	1	LS	\$ 20,000	\$ 20,000
Access Road and Parking	300	LF	\$ 21	\$ 6,300
Seeding	1,200	CY	\$ 6	\$ 7,200
Fencing	2,368	LF	\$ 6	\$ 14,208
Signs	1	LS	\$ 200	\$ 200
Monitoring Wells	4	EA	\$ 2,500	\$ 10,000
Construction Subtotal				\$ 1,259,813
Contingencies				\$ 125,981
Engineering and Inspection				\$ 251,963
Legal and Administrative				\$ 62,991
Groundwater impact study				\$ 25,000
Hydrogeological Study, Effluent Reuse				\$ 30,000
WPCF Permit Application				\$ 5,000
Land Acquisition	35	AC	\$ 2,000	\$ 70,000
TOTAL				\$ 1,830,747

Option 4. Regional System, Phased, Core Area of Crescent and Gilchrist Served Initially, Treatment and Disposal at Gilchrist

Project option 4 is the same as option II A.2 described in Section 8. The existing lagoons would be at capacity and additional treatment is necessary if any growth is allowed. A single, completely mixed, aerated lagoon, with a surface area of 0.275 acres, should provide sufficient treatment if the effluent is polished in the existing lagoons. Treatment computations are included in Appendix D. Treated effluent will be stored in a single, large holding pond with a volume of about 110 ac-ft, with a water surface of 11 acres. Approximately 75 acres would be needed for irrigation. A total of approximately 100 acres would be needed when the area for the ponds, irrigation, and buffer strips are included. Approximately 40 acres of land is available with the Gilchrist facilities. A potential layout is shown on Figure 10-5, and a hydraulic schematic is shown on Figure 10-6. When the remainder of the district is phased in, additional treatment and storage capacity could be provided by constructing a second aerated pond next to the first one, and the second cell of the storage pond will be constructed over or adjacent to the old lagoons. Final layout is dependent on topography, and would be determined during predesign. The second holding pond would have a volume of 80 ac-ft, and a surface area of approximately 8 acres. Another 60 acres of forest land would be required for irrigation. Opinions of probable cost for each phase is given in Table 10.9 and 10.9.a.

Table 10-9

OPINION OF PROBABLE COST - PROJECT OPTION # 4 (and # 6) Phase I

Project initially serves core area and Gilchrist at existing Gilchrist treatment site

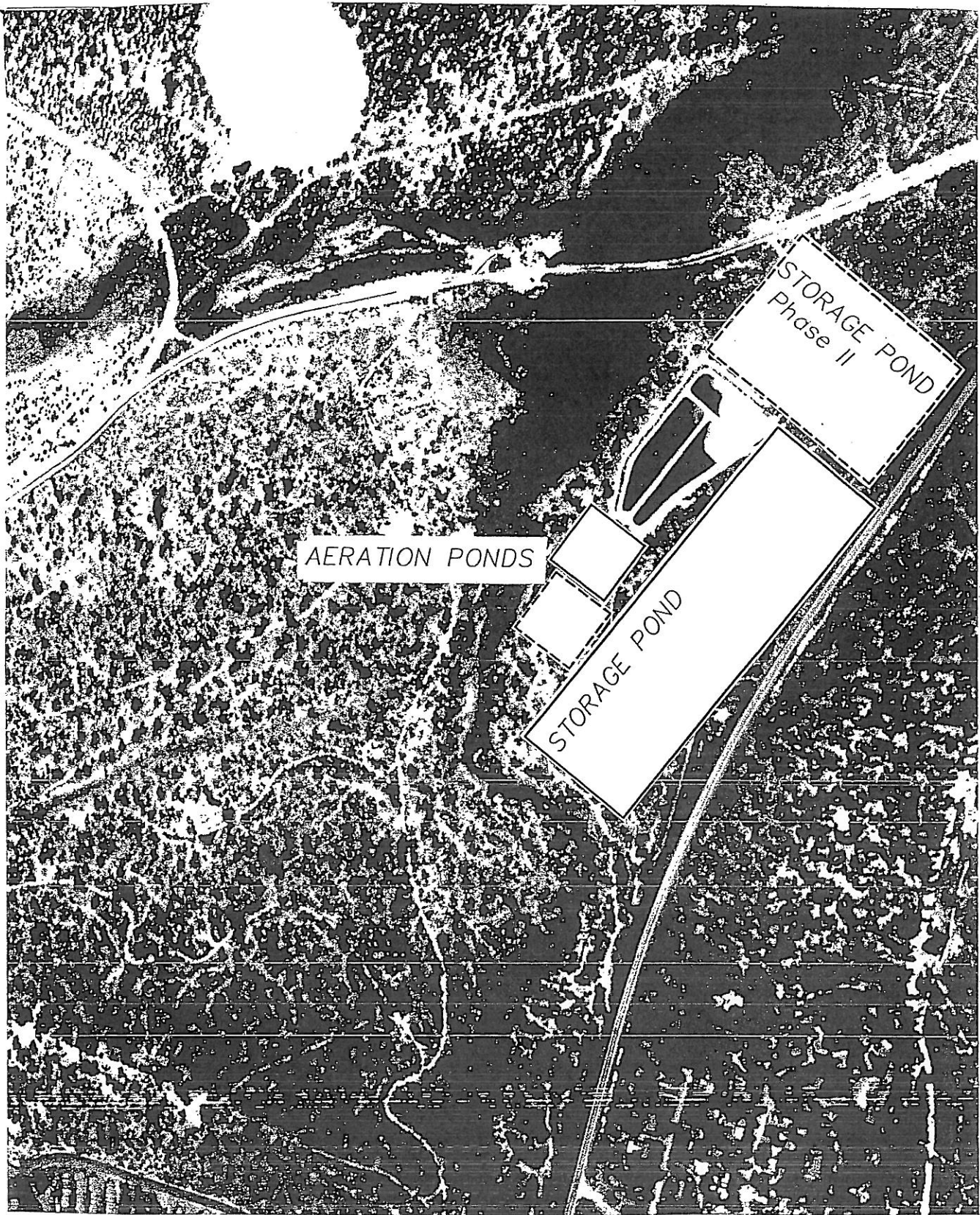
Description	Quantity	Unit	Unit Cost	Extension
Mobilization	1	LS	\$ 100,000	\$ 100,000
Dike Construction (excavated fill)	86,621	CY	\$ 5	\$ 433,106
Dike Construction (imported fill)*	-	CY	\$ 7	\$ -
HDPE Liner (60 mil), Mat and Anchors	527,243	SF	\$ 0.80	\$ 421,794
Inlet Structure	1	EA	\$ 20,000	\$ 20,000
Outlet Structure	1	EA	\$ 20,000	\$ 20,000
Transfer Structure	-	EA	\$ 35,000	\$ -
Transfer Piping	1	LS	\$ 60,000	\$ 60,000
Staff Gauges	1	EA	\$ 1,300	\$ 1,300
3/4" minus Road Surface	3,000	LF	\$ 17	\$ 51,000
Building	1,200	SF	\$ 100	\$ 120,000
Chlorine Equipment	1	LS	\$ 10,000	\$ 10,000
Pumps	4	EA	\$ 15,000	\$ 60,000
Effluent Screen	1	LS	\$ 20,000	\$ 20,000
Flowmeters	2	EA	\$ 8,000	\$ 16,000
Misc. Site Piping	1	LS	\$ 25,000	\$ 25,000
Controls and Electrical	1	LS	\$ 30,000	\$ 30,000
Alarm and Telemetry	1	LS	\$ 30,000	\$ 30,000
Lab Equipment	1	LS	\$ 10,000	\$ 10,000
Office Equipment	1	LS	\$ 5,000	\$ 5,000
Chlorine Contact Line	1	LS	\$ 80,000	\$ 80,000
Irrigation Equip. and Piping	1	LS	\$ 150,000	\$ 75,000
Supplemental Water Well	1	LS	\$ 20,000	\$ 20,000
Electrical to Site	1	LS	\$ 20,000	\$ 20,000
Access Road and Parking	300	LF	\$ 21	\$ 6,300
Seeding	1,200	CY	\$ 6	\$ 7,200
Fencing	2,800	LF	\$ 6	\$ 16,800
Signs	1	LS	\$ 200	\$ 200
Monitoring Wells	4	EA	\$ 2,500	\$ 10,000
Surface Aerators	2	EA	\$ 10,000	\$ 20,000
Pump station	1	LS	\$ 125,000	\$ 125,000
Force Main	3,500	LF	\$ 25	\$ 87,500
Effluent Disposal Pipeline	6,500	LF	\$ 20	\$ 130,000
Construction Subtotal				\$ 2,031,200
Contingencies				\$ 203,120
Engineering and Inspection				\$ 406,240
Legal and Administrative				\$ 101,560
Hydrogeological Study, Effluent Reuse				\$ 30,000
WPCF Permit Application				\$ 5,000
Land Acquisition	35	AC	\$ 2,000	\$ 70,000
TOTAL				\$ 2,847,120

Table 10-9.a**OPINION OF PROBABLE COST - PROJECT OPTION # 4 Phase II**

Phase II provides service to remainder of Sanitary District

Description	Quantity	Unit	Unit Cost	Extension
Mobilization	1	LS	\$ 55,000	\$ 55,000
Dike Construction (excavated fill)	84,124	CY	\$ 5	\$ 420,620
HDPE Liner (60 mil), Mat and Anchors	527,243	SF	\$ 0.80	\$ 421,794
Inlet Structure	1	EA	\$ 20,000	\$ 20,000
Outlet Structure	1	EA	\$ 20,000	\$ 20,000
Transfer Piping	1	LS	\$ 60,000	\$ 60,000
Staff Gauges	1	EA	\$ 1,300	\$ 1,300
3/4" minus Road Surface	1,500	LF	\$ 17	\$ 25,500
Misc. Site Piping	1	LS	\$ 25,000	\$ 25,000
Alarm and Telemetry	1	LS	\$ 30,000	\$ 30,000
Seeding	1,000	CY	\$ 6	\$ 6,000
Fencing	1,500	LF	\$ 6	\$ 9,000
Signs	1	LS	\$ 200	\$ 200
Replace 8" gravity main to lagoons w/ 18"	3,500	LF	\$ 45	\$ 157,500
Surface Aerators	2	EA	\$ 10,000	\$ 20,000
Construction Subtotal				\$ 1,271,915
Contingencies				\$ 127,191
Engineering and Inspection				\$ 254,383
Legal and Administrative				\$ 63,596
Hydrogeological Study, Effluent Reuse				\$ 30,000
WPCF Permit Application				\$ 5,000
Land Acquisition	65	AC	\$ 2,000	\$ 130,000
TOTAL				\$ 1,882,085

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FIGURE 10-5

PRELIMINARY SITE PLAN
PROJECTS 4, 5, & 6

