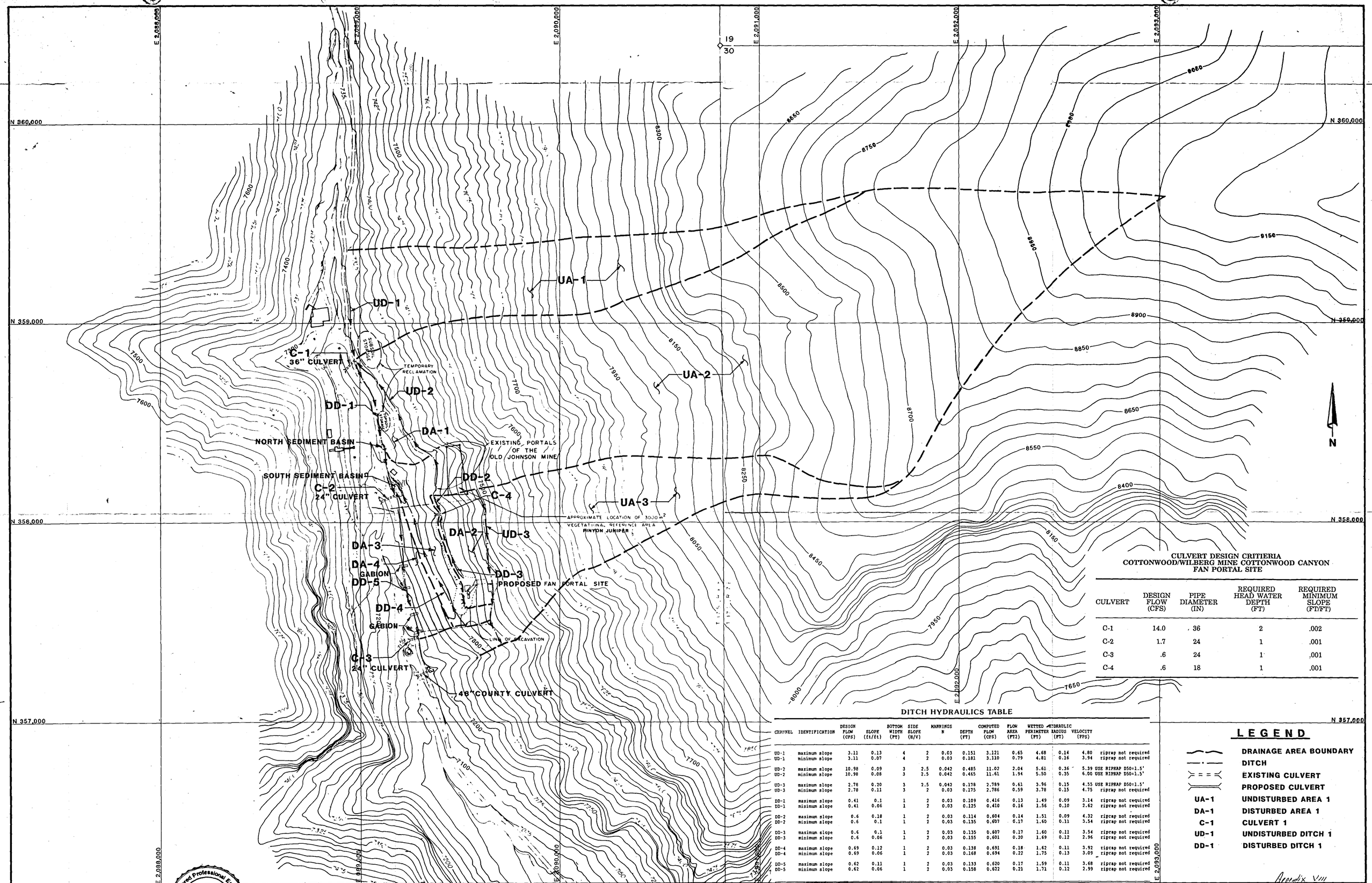

CULVERT DESIGN CRITERIA
COTTONWOOD/WILBERG MINE COTTONWOOD CANYON
FAN PORTAL SITE

CULVERT	DESIGN FLOW (CFS)	PIPE DIAMETER (IN)	REQUIRED HEAD WATER DEPTH (FT)	REQUIRED MINIMUM SLOPE (FT/FT)
C-1	14.0	36	2	.002
C-2	1.7	24	1	.001
C-3	.6	24	1	.001
C-4	.6	18	1	.001

DITCH HYDRAULICS TABLE

CHANNEL	IDENTIFICATION	DESIGN FLOW (CFS)	SLOPE (ft/ft)	BOTTOM WIDTH (FT)	SIDE SLOPE (H/V)	MANNINGS N	DEPTH (FT)	COMPUTED FLOW (CFS)	FLOW AREA (FT2)	WETTED PERIMETER (FT)	HYDRAULIC RADIUS (FT)	VELOCITY (FPS)	
UD-1	maximum slope	3.11	0.13	4	2	0.03	0.151	3.121	0.65	4.68	0.14	4.80	riprap not required
UD-1	minimum slope	3.11	0.07	4	2	0.03	0.181	3.110	0.79	4.81	0.16	3.94	riprap not required
UD-2	maximum slope	10.98	0.09	3	2.5	0.042	0.485	11.02	2.04	5.61	0.36	5.39	USE RIPRAP D50=1.5'
UD-2	minimum slope	10.98	0.08	3	2.5	0.042	0.465	11.61	1.94	5.50	0.35	6.00	USE RIPRAP D50=1.5'
UD-3	maximum slope	2.78	0.20	3	2.5	0.042	0.178	2.789	0.61	3.96	0.15	4.55	USE RIPRAP D50=1.5'
UD-3	minimum slope	2.78	0.11	3	2	0.03	0.175	2.786	0.59	3.78	0.15	4.75	riprap not required
DD-1	maximum slope	0.41	0.1	1	2	0.03	0.109	0.416	0.13	1.49	0.09	3.14	riprap not required
DD-1	minimum slope	0.41	0.06	1	2	0.03	0.125	0.410	0.16	1.56	0.10	2.62	riprap not required
DD-2	maximum slope	0.6	0.18	1	2	0.03	0.114	0.604	0.14	1.51	0.09	4.32	riprap not required
DD-2	minimum slope	0.6	0.1	1	2	0.03	0.135	0.607	0.17	1.60	0.11	3.54	riprap not required
DD-3	maximum slope	0.6	0.1	1	2	0.03	0.135	0.607	0.17	1.60	0.11	3.54	riprap not required
DD-3	minimum slope	0.6	0.06	1	2	0.03	0.155	0.601	0.20	1.69	0.12	2.96	riprap not required
DD-4	maximum slope	0.69	0.12	1	2	0.03	0.138	0.691	0.18	1.62	0.11	3.92	riprap not required
DD-4	minimum slope	0.69	0.06	1	2	0.03	0.168	0.694	0.22	1.75	0.13	3.09	riprap not required
DD-5	maximum slope	0.62	0.11	1	2	0.03	0.133	0.620	0.17	1.59	0.11	3.68	riprap not required
DD-5	minimum slope	0.62	0.06	1	2	0.03	0.158	0.622	0.21	1.71	0.12	2.99	riprap not required

LEGEND

- DRAINAGE AREA BOUNDARY
- DITCH
- EXISTING CULVERT
- PROPOSED CULVERT
- UA-1 UNDISTURBED AREA 1
- DA-1 DISTURBED AREA 1
- C-1 CULVERT 1
- UD-1 UNDISTURBED DITCH 1
- DD-1 DISTURBED DITCH 1

Appendix VIII

HANSEN ALLEN & LUCE inc
CONSULTANTS ENGINEERS
Salt Lake City Utah

Registered Professional Engineer No. 6503 GREGORY J. PONTIOUS State of Utah
PROJECT ENGINEER

DESIGNED	GJP	3	
DRAFTED	JVH	2	
CHECKED	MEA	1	
DATE	MAY, 1989	NO.	DATE

REVISIONS | BY | APVD.

SCALE 1" = 200'

VERIFY SCALE 0" 1" BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

UTAH POWER & LIGHT COMPANY
MINING DIVISION

COTTONWOOD / WILBERG MINE
COTTONWOOD FAN PORTAL

SHEET NO. MAP 2 OF
5 - 3 - 1