



DITCH ANALYSIS

PID : 95358 **Date :** 04/24/2015 **Project :** LOR-82-Drainage Study **Location :** Columbia Station, OH

Description : Open Ditch RT Side (South) from Columbia Airport to Plum Creek (3:1 Slopes)

Designer : SJD

Rainfall Area : A

Allowable Shears

	Seed:	0.40	Jute Mat:	0.45	Temporary Mat:	1.00
Permanent Mat	Type 1:	2.00	Type 2:	3.00	Type 3:	5.00
RCP	Type B:	6.00				

(*) Warning: Grade is steeper than allowable.

If value is parantheses, design parameters have been exceeded. - See user manual.

STATION BEGIN	STATION END	SIDE	LENGTH (ft.)	RADIUS WIDTH (ft.)	IN SLOPE (ft./ft.)	BACK SLOPE (ft./ft.)	GRADE (ft./ft.)	AREA (acres)	AREA SUM (acres)	RUNOFF COEFF.	CA (Sum)	PROTECT TYPE	RAIN INT. (in./hr.)	STORM FREQ. (yrs.)	MANN. COEFF.	TIME FLOW (min.)	VEL. FLOW (fps.)	SHEAR (lbs./ sq.ft.)	DESIGN FLOW (cfs.)	DEPTH FLOW (ft.)	WIDTH FLOW (ft.)
548+95	550+27	R	132.00	2.00	3.00	3.00	0.0035	0.29	0.29	0.61	0.18	Seed	3.27	5	0.030	18.30	0.93	0.05	0.58	0.23	3.39
												Seed	3.73	10	0.040	18.67	0.79	0.06	0.66	0.29	3.74
550+27	550+89	R	62.00	2.00	3.00	3.00	0.0035	0.38	0.67	0.65	0.42	Seed	3.03	5	0.030	21.14	1.18	0.08	1.28	0.35	4.13
												Seed	3.46	10	0.040	21.30	1.00	0.10	1.46	0.44	4.64
550+89	554+00	R	311.00	2.00	3.00	3.00	0.0035	3.99	4.66	0.57	2.70	Seed	2.47	5	0.030	29.47	1.86	0.18	6.66	0.81	6.86
												Seed	2.79	10	0.040	30.00	1.55	0.21	7.53	0.98	7.90
554+00	554+76	R	76.00	2.00	3.00	3.00	0.0035	3.05	7.71	0.59	4.50	Seed	2.44	5	0.030	30.07	2.11	0.22	10.96	1.02	8.14
												Seed	2.75	10	0.040	30.72	1.76	0.27	12.37	1.23	9.40
554+76	557+16	R	240.00	2.00	3.00	3.00	0.0035	1.71	9.42	0.56	5.46	Seed	2.34	5	0.030	31.87	2.20	0.24	12.79	1.10	8.59
												Seed	2.63	10	0.040	32.88	1.83	0.29	14.34	1.32	9.90
557+16	561+12	R	396.00	2.00	3.00	3.00	0.0035	1.37	10.79	0.55	6.21	Seed	2.21	5	0.030	34.77	2.24	0.25	13.72	1.13	8.80
												Seed	2.46	10	0.040	36.37	1.86	0.30	15.24	1.35	10.12
561+12	563+32	R	220.00	2.00	3.00	3.00	0.0035	6.20	16.99	0.51	9.37	Seed	1.64	5	0.030	51.83	2.31	0.26	15.40	1.20	9.17



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STATION BEGIN	STATION END	SIDE	LENGTH (ft.)	RADIUS WIDTH (ft.)	IN SLOPE (ft./ft.)	BACK SLOPE (ft./ft.)	GRADE (ft./ft.)	AREA (acres)	AREA SUM (acres)	RUNOFF COEFF.	CA (Sum)	PROTECT TYPE	RAIN INT. (in./hr.)	STORM FREQ. (yrs.)	MANN. COEFF.	TIME FLOW (min.)	VEL. FLOW (fps.)	SHEAR (lbs./ sq.ft.)	DESIGN FLOW (cfs.)	DEPTH FLOW (ft.)	WIDTH FLOW (ft.)
												Seed	1.90	10	0.040	52.13	1.93	0.32	17.83	1.45	10.71
563+32	565+47	R	215.00	2.00	3.00	3.00	0.0035	2.14	19.13	0.62	10.70	Seed	1.61	5	0.030	53.33	2.37	0.27	17.19	1.26	9.54
												Seed	1.86	10	0.040	53.93	1.99	0.33	19.86	1.52	11.13
565+47	566+15	R	68.00	2.00	3.00	3.00	0.0035	2.01	21.14	0.52	11.74	Seed	1.60	5	0.030	53.80	2.43	0.29	18.75	1.31	9.84
												Seed	1.84	10	0.040	54.48	2.03	0.35	21.64	1.58	11.48
566+15	568+54	L	239.00	2.00	3.00	3.00	0.0035	0.69	21.83	0.51	12.09	Seed	1.56	5	0.030	55.43	2.43	0.29	18.85	1.31	9.86
												Seed	1.80	10	0.040	56.43	2.03	0.35	21.71	1.58	11.50
568+54	570+49	R	195.00	2.00	3.00	3.00	0.0035	2.94	24.77	0.51	13.59	Seed	1.53	5	0.030	56.73	2.49	0.30	20.80	1.37	10.21
												Seed	1.76	10	0.040	57.98	2.08	0.36	23.92	1.65	11.91
570+49	572+50	R	201.00	2.00	3.00	3.00	0.0035	1.05	25.82	0.56	14.18	Seed	1.50	5	0.030	58.05	2.51	0.30	21.30	1.38	10.29
												Seed	1.72	10	0.040	59.57	2.10	0.36	24.46	1.67	12.00
572+50	575+65	R	315.00	2.00	3.00	3.00	0.0025	22.85	48.67	0.50	25.61	Seed	1.26	5	0.030	72.13	2.45	0.28	32.15	1.78	12.70
												Seed	1.49	10	0.040	72.52	2.07	0.34	38.05	2.17	15.00
575+65	578+05	R	240.00	2.00	3.00	3.00	0.0025	2.19	50.86	0.56	26.83	Seed	1.23	5	0.030	73.74	2.47	0.28	33.06	1.80	12.82
												Seed	1.46	10	0.040	74.44	2.08	0.34	39.09	2.19	15.15
578+05	579+59	R	154.00	2.00	3.00	3.00	0.0025	2.51	53.37	0.60	28.34	Seed	1.22	5	0.030	74.76	2.50	0.29	34.51	1.84	13.03
												Seed	1.44	10	0.040	75.66	2.10	0.35	40.77	2.23	15.39
579+59	581+04	R	145.00	2.00	3.00	3.00	0.0025	0.95	54.32	0.59	28.90	Seed	1.20	5	0.030	75.72	2.50	0.29	34.81	1.84	13.07
												Seed	1.42	10	0.040	76.80	2.11	0.35	41.10	2.24	15.43
581+04	581+99	R	95.00	2.00	3.00	3.00	0.0025	1.23	55.55	0.55	29.58	Seed	1.20	5	0.030	76.35	2.51	0.29	35.37	1.86	13.15



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												Seed	1.41	10	0.040	77.55	2.11	0.35	41.74	2.25	15.52
581+99	583+65	R	166.00	2.00	3.00	3.00	0.0025	1.56	57.11	0.57	30.47	Seed	1.18	5	0.030	77.44	2.53	0.29	36.00	1.87	13.23
												Seed	1.39	10	0.040	78.85	2.12	0.35	42.45	2.27	15.62
583+65	584+63	R	98.00	2.00	3.00	3.00	0.0025	2.82	59.93	0.60	32.16	Seed	1.17	5	0.030	78.08	2.56	0.30	37.73	1.91	13.46
												Seed	1.38	10	0.040	79.60	2.15	0.36	44.48	2.31	15.89
584+63	586+21	R	158.00	2.00	3.00	3.00	0.0025	2.05	61.98	0.59	33.37	Seed	1.16	5	0.030	79.10	2.57	0.30	38.71	1.93	13.59
												Seed	1.37	10	0.040	80.82	2.16	0.36	45.61	2.34	16.03
586+21	587+62	R	141.00	2.00	3.00	3.00	0.0025	1.04	63.02	0.65	34.04	Seed	1.15	5	0.030	80.01	2.58	0.30	39.11	1.94	13.64
												Seed	1.35	10	0.040	81.90	2.17	0.37	46.06	2.35	16.09
587+62	589+11	R	149.00	2.00	3.00	3.00	0.0025	0.77	63.79	0.70	34.58	Seed	1.14	5	0.030	80.97	2.58	0.30	39.32	1.94	13.66
												Seed	1.34	10	0.040	83.04	2.17	0.37	46.29	2.35	16.12
589+11	589+95	R	84.00	2.00	3.00	3.00	0.0025	1.27	65.06	0.62	35.37	Seed	1.13	5	0.030	81.51	2.59	0.31	39.99	1.96	13.75
												Seed	1.33	10	0.040	83.68	2.18	0.37	47.06	2.37	16.22
589+95	590+50	R	55.00	2.00	3.00	3.00	0.0025	0.24	65.30	0.80	35.56	Seed	1.13	5	0.030	81.86	2.59	0.31	40.06	1.96	13.76
												Seed	1.33	10	0.040	84.10	2.18	0.37	47.13	2.37	16.23
590+50	591+28	R	78.00	2.00	3.00	3.00	0.0030	2.88	68.18	0.63	37.38	Seed	1.12	5	0.030	82.32	2.81	0.36	41.89	1.92	13.53
												Seed	1.32	10	0.040	84.65	2.36	0.44	49.28	2.33	15.95
591+28	592+18	R	90.00	2.00	3.00	3.00	0.0030	0.05	68.23	0.90	37.42	Seed	1.11	5	0.030	82.86	2.81	0.36	41.71	1.92	13.50
												Seed	1.31	10	0.040	85.29	2.36	0.43	49.05	2.32	15.93
592+18	594+07	R	189.00	2.00	3.00	3.00	0.0030	0.44	68.67	0.84	37.79	Seed	1.10	5	0.030	83.98	2.80	0.36	41.63	1.92	13.49



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												Seed	1.30	10	0.040	86.62	2.36	0.43	48.94	2.32	15.91
594+07	595+38	R	131.00	2.00	3.00	3.00	0.0030	2.93	71.60	0.59	39.52	Seed	1.09	5	0.030	84.74	2.83	0.36	43.19	1.95	13.68
												Seed	1.28	10	0.040	87.54	2.38	0.44	50.76	2.35	16.13
595+38	596+90	R	152.00	2.00	3.00	3.00	0.0030	0.96	72.56	0.60	40.10	Seed	1.08	5	0.030	85.64	2.83	0.37	43.42	1.95	13.70
												Seed	1.27	10	0.040	88.60	2.38	0.44	51.02	2.36	16.16
596+90	598+16	R	126.00	2.00	3.00	3.00	0.0030	0.82	73.38	0.74	40.70	Seed	1.07	5	0.030	86.37	2.84	0.37	43.75	1.96	13.74
												Seed	1.26	10	0.040	89.48	2.39	0.44	51.39	2.37	16.20
598+16	598+58	R	42.00	2.00	3.00	3.00	0.0030	0.66	74.04	0.70	41.16	Seed	1.07	5	0.030	86.62	2.85	0.37	44.14	1.96	13.78
												Seed	1.26	10	0.040	89.77	2.39	0.44	51.84	2.38	16.25
598+58	600+02	R	144.00	2.00	3.00	3.00	0.0031	0.17	74.21	0.69	41.28	Seed	1.06	5	0.030	87.45	2.88	0.38	43.89	1.95	13.68
												Seed	1.25	10	0.040	90.76	2.42	0.46	51.54	2.35	16.12