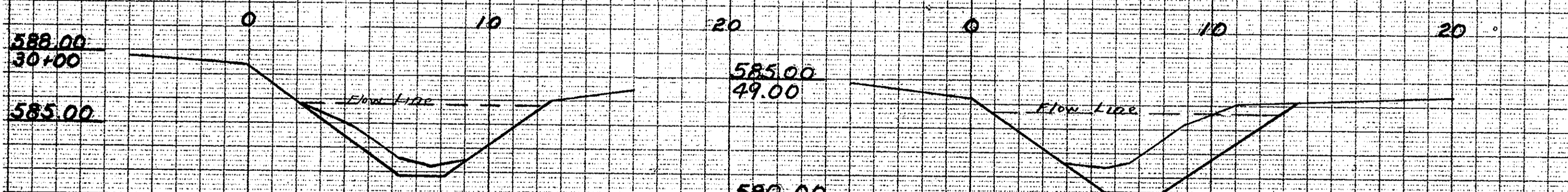


Bench Marks	3x24 Spike in pole W side ditch 588.18	30x30 Nail in pole 30N Elev 587.51	50x02 Spike in post 24" South Elev 585.83
Cubic yards	3.64 2.53		
Hub cuts	7 3.35 2.53		
Distance from hub to Q of ditch	2 3.00 3.47 2.53		
Sq yards of brush	3 3.00 9.35 2.50		
Station No	4 2.00 4.24 2.50		
	5 2.00 6.53 2.50		
	6 2.00 9.60 2.50		
	7 2.00 13.87 2.50		
	8 2.00 19.03 2.50		
	9 3.00 25.03 2.50		
	10 3.00 31.17 2.50		
	11 3.00 37.30 2.50		
	12 3.00 43.43 2.50		
	13 3.00 49.56 2.50		
	14 3.00 55.69 2.50		
	15 2.00 61.82 2.50		
	16 2.00 67.95 2.50		
	17 2.00 74.08 2.50		
	18 2.00 80.21 2.50		
	19 2.00 86.34 2.50		
	20 2.00 92.47 2.50		
	21 3.00 98.60 2.50		
	22 3.00 104.73 2.50		
	23 3.00 110.86 2.50		
	24 3.00 116.99 2.50		
	25 3.00 123.12 2.50		
	26 3.00 129.25 2.50		
	27 3.00 135.38 2.50		
	28 3.00 141.51 2.50		
	29 3.00 147.64 2.50		
	30 3.00 153.77 2.50		
	31 2.00 159.90 2.50		
	32 2.00 166.03 2.50		
	33 2.00 172.16 2.50		
	34 2.00 178.29 2.50		
	35 2.00 184.42 2.50		
	36 2.00 190.55 2.50		
	37 2.00 196.68 2.50		
	38 2.00 202.81 2.50		
	39 2.00 208.94 2.50		
	40 2.00 215.07 2.50		
	41 2.00 221.20 2.50		
	42 2.00 227.33 2.50		
	43 2.00 233.46 2.50		
	44 2.00 239.59 2.50		
	45 2.00 245.72 2.50		
	46 2.00 251.85 2.50		
	47 2.00 257.98 2.50		
	48 2.00 264.11 2.50		
	49 2.00 270.24 2.50		
	50 3.00 276.37 2.50		
	51 3.00 282.50 2.50		
	52 3.00 288.63 2.50		
	53 3.00 294.76 2.50		
	54 3.00 300.89 2.50		
	55 3.00 307.02 2.50		
	56 3.00 313.15 2.50		
	57 3.00 319.28 2.50		
	58 3.50 325.41 2.50		
	59 3.50 331.54 2.50		
	60 3.50 337.67 2.50		
	61 3.50 343.80 2.50		
	62 3.50 349.93 2.50		
	63 3.50 356.06 2.50		
	64 3.50 362.19 2.50		



	Present ditch	Proposed ditch	Present ditch	Proposed ditch
Acres drained	60.0	60.0	180	180
Area Sq Ft	14.4	18.4	11.8	24.0
Perimeter Ft	11.8	12.2	10.7	13.5
Hydraulic Radius	1.22	1.52	1.10	1.78
N	0.060	0.040	0.060	0.040
Slope	0.0003	0.0003	0.0010	0.0010
Velocity	0.049	0.85	1.72	1.72
Capacity CFS	7.05	13.80	9.80	41.40
Runoff in 24 hrs	2.82	5.50	7.29	5.43

**SLOPE CURVE CALCULATIONS**

Station to	Acres A	Bottom	Station Q	Sq Ft	Slope R	V	N	K	Slope	Fall	Elev
122+00	480	9.0	122+00	204	12.1	1.36	0.00078	1.36	577.67		577.67
128+00	370	2.1	128+00	233	12.1	1.30	0.00078	1.30	577.33		577.33
134+00	300	2.1	134+00	182	12.1	1.19	0.00088	1.65	577.65		577.65

Flow to smilt to calculate balance of curve is sketched

$Q = \frac{1.496}{n} A^{2/3} S^{1/2}$   $S = \frac{N^2}{2.2082 n^2}$   $K^2 = 2.2082 n^2$  Runoff used is 15' per 24 hrs.

**LEGEND & QUANTITIES**

- CLEARING 43300 Sqyd 12250 LFT
- Excavation dragline 5120 Cu yds 12250 LFT
- Excavation hand 200 Cu yds 12250 LFT
- Fence Rods 114
- Tile to be cleaned 340 LFT (outlets)
- Spoil bank leveling 5120 Cu yd 12250 LFT

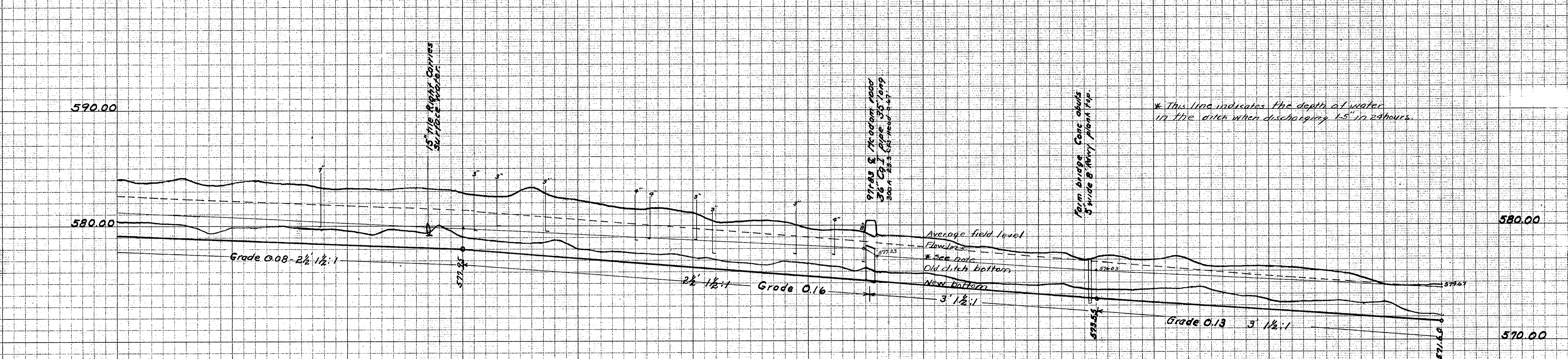
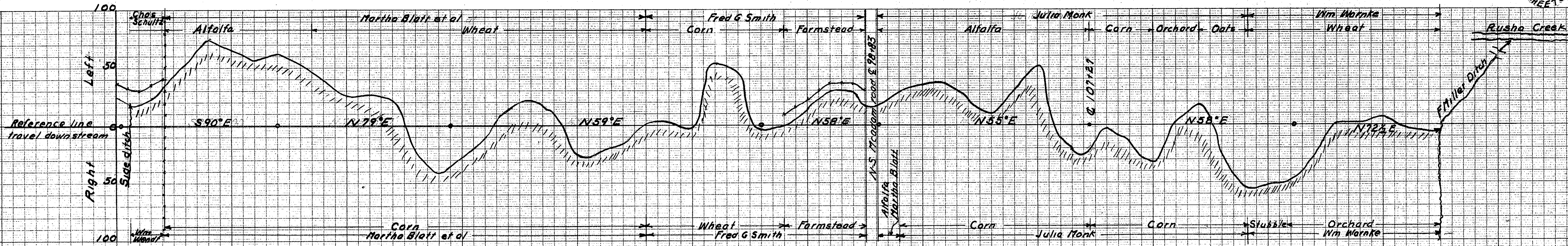
U.S. DEPARTMENT OF AGRICULTURE  
Soil Conservation Service  
CCC Camp 35-39 Bowling Green, Ohio  
Sand Beach Side camp Proj. R. 210

Corroll twp Ottawa Co Ohio  
Approved \_\_\_\_\_ Date 7/17/39

Approved \_\_\_\_\_ Date \_\_\_\_\_

Approved \_\_\_\_\_ Date \_\_\_\_\_

Approved \_\_\_\_\_ Date \_\_\_\_\_



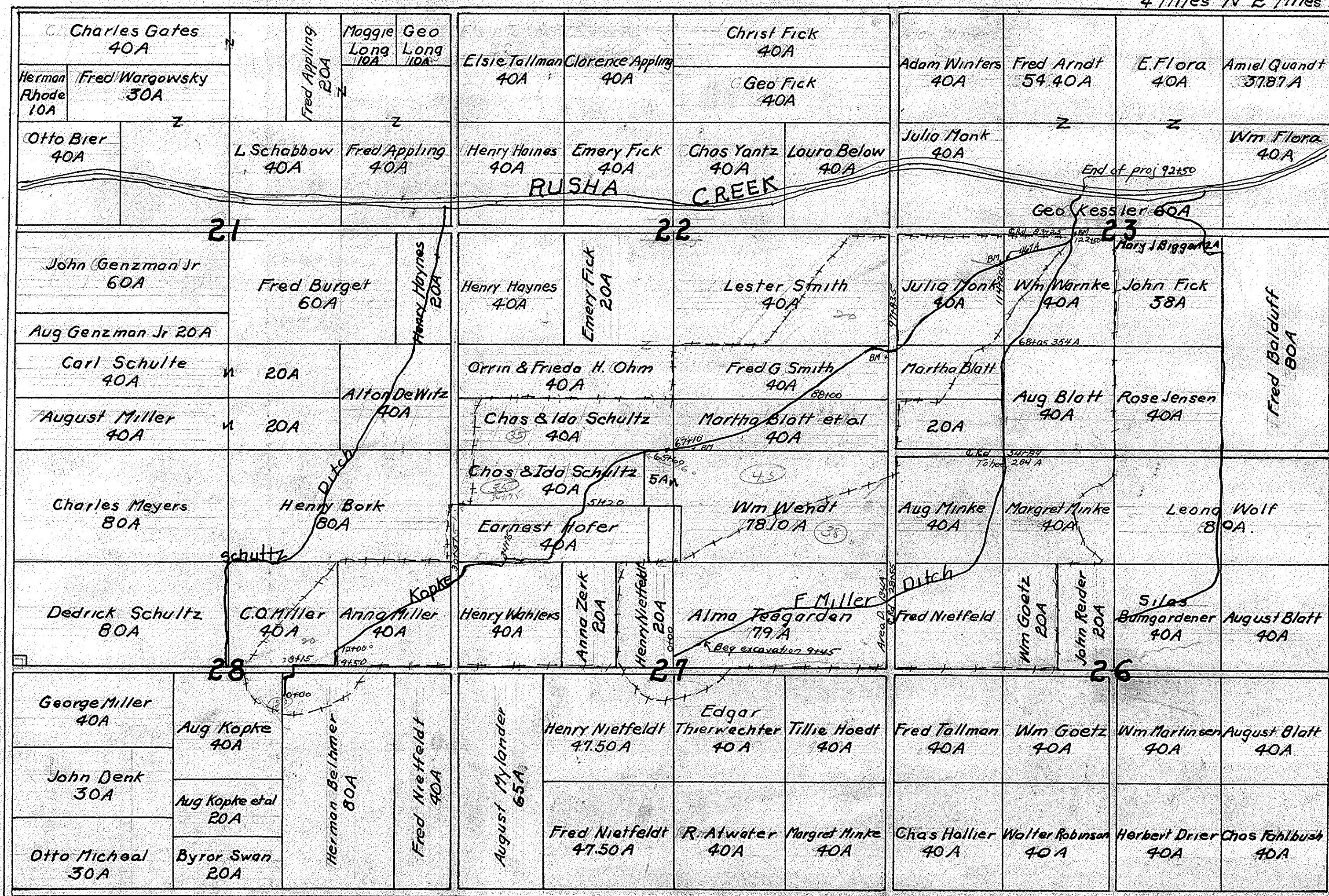
Bench marks	67+70 spike in twin 4" elm 30' South 584.22										97+83 Spike N side of transformer pole 580.28										107+00 x NWc N abut farm bridge 577.25										BM x SEc SE Wing public bridge 578.09									
Cubic yards	5.22	6.81	8.46	10.16	11.91	13.71	15.56	17.46	19.41	21.41	23.46	25.56	27.71	29.91	32.16	34.46	36.81	39.21	41.66	44.16	46.71	48.81	50.96	53.16	55.41	57.71	60.06	62.46	64.91	67.41	69.96	72.51	75.11	77.76	80.46	83.21	86.01	88.86	91.76	94.71
Hub cuts	5.22	6.81	8.46	10.16	11.91	13.71	15.56	17.46	19.41	21.41	23.46	25.56	27.71	29.91	32.16	34.46	36.81	39.21	41.66	44.16	46.71	48.81	50.96	53.16	55.41	57.71	60.06	62.46	64.91	67.41	69.96	72.51	75.11	77.76	80.46	83.21	86.01	88.86	91.76	94.71
Distance from hub to % of ditch	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0
Sq yards of brush	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Station No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104

	Present Ditch		Proposed Ditch		Present Ditch		Proposed Ditch		Present Ditch		Proposed Ditch	
Acres drained	230.0	230.0	370.0	370.0	450.0	450.0	450.0	450.0	450.0	450.0	450.0	450.0
Area Sq Ft	13.6	27.0	23.2	31.2	14.3	21.6	14.3	21.6	14.3	21.6	14.3	21.6
Perimeter Ft	11.0	15.3	16.0	16.6	11.5	15.0	11.5	15.0	11.5	15.0	11.5	15.0
Hydraulic Radius	1.23	1.76	1.45	1.88	1.24	1.44	1.24	1.44	1.24	1.44	1.24	1.44
N	0.060	0.040	0.060	0.040	0.060	0.040	0.060	0.040	0.060	0.040	0.060	0.040
Slope	0.0008	0.0008	0.0016	0.0016	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
Velocity	0.080	1.71	1.29	2.24	1.03	1.71	1.03	1.71	1.03	1.71	1.03	1.71
Capacity CFS	10.90	46.00	29.2	70.0	14.7	37.0	14.7	37.0	14.7	37.0	14.7	37.0
Runoff in 24 hours	1.12	4.75	1.86	4.50	0.78	1.95	0.78	1.95	0.78	1.95	0.78	1.95

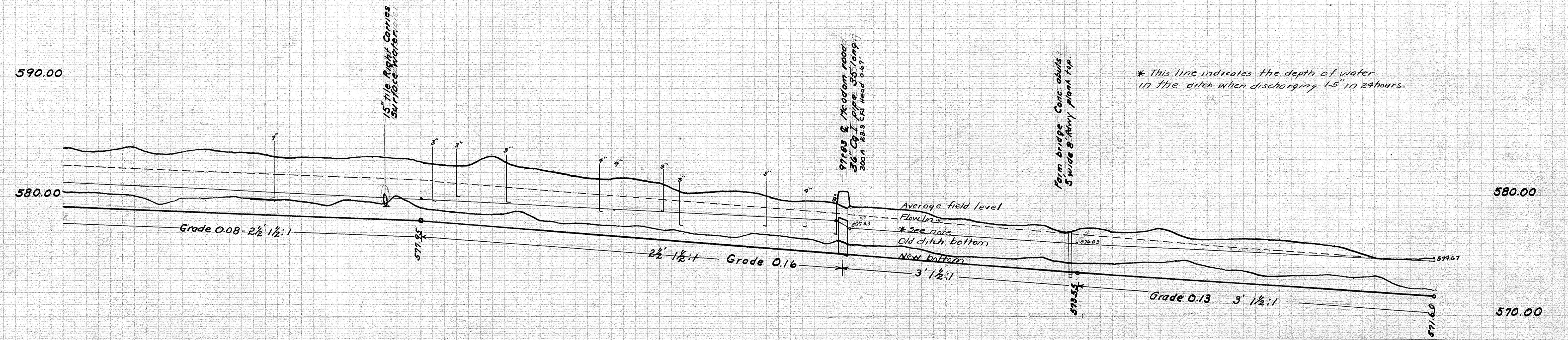
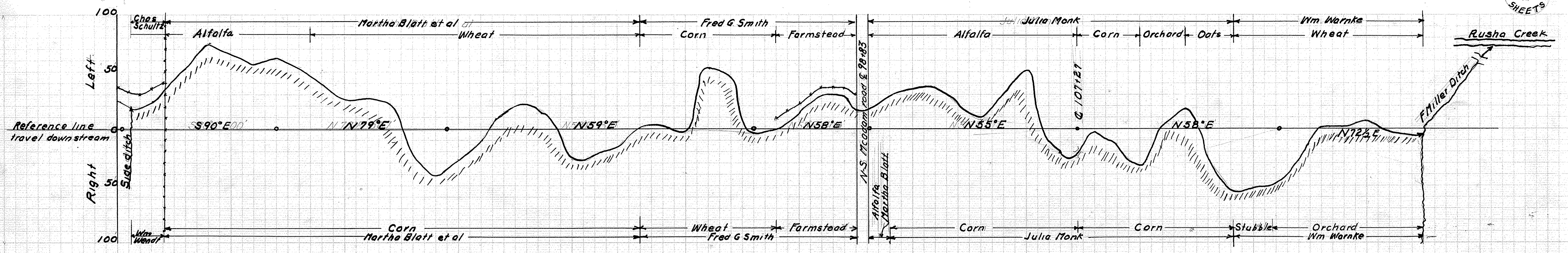
U.S. DEPARTMENT OF AGRICULTURE  
 Soil Conservation Service  
 CCC Comp SCS 34 Bowling Green Ohio  
 Sand Beach Side camp Proj. R. 210  
 Note Book 786  
 Carroll Twp. Ottawa Co Ohio  
 Approved *[Signature]* Date 2/12/59  
 Approved *[Signature]* Date  
 Approved *[Signature]* Date  
 Approved *[Signature]* Date

**CARROLL TOWNSHIP DITCH PROJECT**  
**CARROLL TWP OTTAWA CO OHIO**  
**CCC CAMP D-I-O PROJECT No A-154**  
**F.M. MILLER DITCH**

To Sand Beach CCC Camp  
4 Miles N 2 Miles W

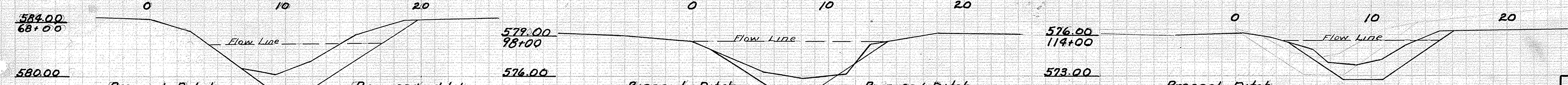






\* This line indicates the depth of water in the ditch when discharging 1.5" in 24 hours.

Bench marks	67+70 spike in twin 4" elm 30' South 584.22						97+83 Spike N side of transformer pole 580.28						107+00 x NWc N abut farm bridge 577.25						BM x SEc SE Wing public bridge 578.09																																															
Cubic yards	681	446	662	710	574	574	681	446	662	710	574	574	681	446	662	710	574	574	681	446	662	710	574	574																																										
Hub cuts	5.22	4.67	5.63	5.25	4.66	4.46	5.22	4.67	5.63	5.25	4.66	4.46	5.22	4.67	5.63	5.25	4.66	4.46	5.22	4.67	5.63	5.25	4.66	4.46																																										
Distance from hub to ☉ of ditch	11.0	9.67	10.5	9.2	9.66	9.46	11.0	9.67	10.5	9.2	9.66	9.46	11.0	9.67	10.5	9.2	9.66	9.46	11.0	9.67	10.5	9.2	9.66	9.46																																										
Sq yards of brush	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300																																										
Station No.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130



	Present Ditch	Proposed ditch
Acres drained	230.0	230.0
Area Sq Ft	13.6	27.0
Perimeter Ft	11.0	15.3
Hydraulic Radius	1.23	1.76
N	0.060	0.040
Slope	0.0008	0.0008
Velocity	0.080	1.71
Capacity CFS	10.90	46.00
Runoff in 24 hours	1.12	4.75

	Present Ditch	Proposed Ditch
Acres drained	370.0	370.0
Area Sq Ft	23.2	31.2
Perimeter Ft	16.0	16.6
Hydraulic Radius	1.45	1.88
N	0.060	0.040
Slope	0.0016	0.0016
Velocity	1.29	2.24
Capacity CFS	29.2	70.0
Runoff in 24 hours	1.86	4.50

	Present Ditch	Proposed Ditch
Acres drained	450.0	450.0
Area Sq ft	14.3	21.6
Perimeter Ft	11.5	15.0
Hydraulic Radius	1.24	1.44
N	0.060	0.040
Slope	0.0013	0.0013
Velocity	1.03	1.71
Capacity C.F.S.	14.7	37.0
Runoff in 24 hours	0.78	1.95

U.S. DEPARTMENT OF AGRICULTURE  
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CCC Comp. SCS-34 Bowling Green Ohio  
Sand Beach Side camp Proj. R-210  
Note Book 746  
Carroll Twp Ottawa Co Ohio  
Approved \_\_\_\_\_ Date 7/12/39  
Camp Supt  
Approved \_\_\_\_\_ Date  
Drainage Insp  
Approved \_\_\_\_\_ Date  
Dist Eng