



LOCATION & OWNERSHIP MAP

SPECIFICATIONS

- I. **EXCAVATION:**
 - A. Bottom Width: The bottom width shall be THREE (3) feet between sta. 0+00 and sta. 38+72.
 - B. Bank Slopes: The ditch bank slopes are to be constructed to at least 1 1/2 foot horizontal to 1 foot vertical.
 - C. Alignment: The centerline of the improvement shall be approximately the centerline of the existing ditch unless otherwise indicated on plan.
 - D. Total Excavation: The total excavation consists of 3,091 cubic yards of earth over 3,872 lineal feet of ditch. (the plan.)
 - E. Excess Yardage: No extra compensation will be paid for such excavation in excess of yardage herein estimated. This estimate was made from cross-sections of the proposed ditch. The contractor should view the proposed work to his own satisfaction.
 - F. The contractor shall be given a right-of-way on each side of the ditch 50 feet from the bank of the ditch at all points.
- II. **CLEARING:** All trees and/or brush which would interfere with the excavation operation must be cleared from the ditch right-of-way ahead of the construction operations. Stumps on the berm shall be removed or cut as low as cutting tools permit. All stumps on the slopes shall be removed. Cleared debris should be disposed of by burning or removed from the right-of-way.
- III. **BERM WIDTHS:** Unless otherwise noted the berms will have the following minimum widths: four (4) feet wide for ditches up to four (4) foot depth; six (6) feet wide for four to six foot depth; and ten (10) foot depth for ditches over six feet in depth.
- IV. **SPOIL BANKS:** Excavated material should be deposited and spread along one and/or both sides of the ditch, as determined, except where used for levees, and in overflow areas with timber or brush cover. Slope of the spoil after spreading should be at least 3:1 on the channel side and at least 4:1 on the field side. The height of the spoil should not exceed one foot above average ground level. Openings shall be provided for surface water to enter the ditch.
- V. **TILE OUTLETS:** Landowners shall protect their tile outlets with a section of continuous rigid pipe and flap-gates or grid to exclude rodents. For details of construction see your Soil Conservation Service Technician.
- VI. **SURFACE WATER OUTLETS:** Whenever a lateral or a surface ditch enters the main ditch at a higher elevation protection from erosion should be provided by: drop structures, pipe drops, other suitable structure or grassed waterway. For assistance on outlets see your Soil Conservation Service Technician.
- VII. **DITCH BANK SEEDING:** The ditch banks will be seeded, immediately after each day's work, to tall fescue (Kentucky 31 or Alta) at the rate of 25 lbs. per acre. A minimum of 500 lbs. of 10-10-10 fertilizer or equivalent will be applied. 2 acres of ditch bank seeding will be required.
- VIII. **CULVERTS:** Existing culverts will be cleaned and the inverts (Flow line) lowered to correspond to the proposed ditch grade as indicated on the plan. If necessary, culverts will be enlarged to meet drainage design.

sta. 15+35 Sta. _____ Sta. _____

IX. ALL OF THE ABOVE SPECIFICATIONS ARE TO BE COMPLETED BEFORE PERFORMANCE IS CERTIFIED.

HYDRAULIC CALCULATIONS

CHANNEL FLOW	$V = 1.486 \frac{R^{2/3}}{N} S^{1/2}$		
MAXIMUM VELOCITY	5 F.P.S.	25+00	35+00
REACH	STA.	0+00	25+00
	TO STA.	25+00	35+00
DRAINAGE AREA	AC.	330	348
Q _b FLOW	C.F.S.	53	55
	N	0.4	0.4
SLOPE	FT./FT.	.0012	.0030
S 1/2		.0346	.0548
Q / S 1/2 = KD		1.531	1.007
KD VALUE USED		1.617	1.079
SIDE SLOPE	FT.	1 1/2 : 1	1 1/2 : 1
BOTTOM WIDTH	FT.	3	3
DEPTH	FT.	3.5	2.9
AREA	SQ. FT.	28.89	21.33
VELOCITY	F.P.S.	1.83	2.58

HEADLOSS IN CULVERTS	$H = \frac{V^3}{2g} (1 + KE + KPL)$	
STATION	15+35	
DRAINAGE AREA	AC	312
Q _b FLOW	C.F.S.	50
DIAMETER	IN.	48
TYPE		R/C
N		.013
LENGTH	FT.	60
X SEC. AREA	SQ. FT.	12.57
KP		.0049
KPL		.294
KE		.50
VELOCITY	F.P.S.	4.0
HEADLOSS	FT.	0.44

BENCH MARK DESCRIPTIONS

- BM #1 - STA. 0+00 TOP OF EAST END OF 18" R/C AT BEGINNING OF DITCH. M.S.L. ELEV. 587.60
- BM #2 - STA. 2+89 TOP OF CHISELED X ON EAST END OF STRUCTURE HEADWALL ON SOUTH SIDE OF DITCH. M.S.L. ELEV. 589.65
- BM #3 - STA. 9+40 TOP OF CHISELED X ON CENTER OF STRUCTURE HEADWALL ON SOUTH SIDE OF DITCH. M.S.L. ELEV. 588.93
- T.B.M. - TOP OF CHISELED X ON CENTER OF CONCRETE HEADWALL WEST SIDE OF NISSEN ROAD. M.S.L. ELEV. 590.74
- BM #4 - TOP OF SPIKE IN UTILITY POLE ON EAST SIDE OF NISSEN RD. NORTH SIDE OF DITCH. M.S.L. ELEV. 588.34
- BM #5 - TOP OF SPIKE IN SOUTH SIDE OF AT & T. CABLE POLE ON WEST SIDE OF TURTLE CREEK 60' NORTH OF DITCH. M.S.L. ELEV. 584.52

INDEX TO SMALL PARCELS

SECTION	PARCEL	PROPERTY	OWNERS	ACRES
7-12-1		NORFOLK WESTERN R.R.		3
7-12		OTTAWA COUNTY		3
12-1		ALLEN TOWNSHIP		4

LEGEND

- PROPOSED IMPROVEMENT
- HIGHWAYS
- PROPERTY LINE
- SECTION CENTER
- SECTION CORNER
- WATERSHED
- ACRES OWNED
- ACRES BENEFITED
- DITCH
- STREAM
- RAILROAD
- SUB WATERSHED
- SEWERS

SUPPORTING DATA

- DRAINAGE AREA 360 ACRES
- DESIGN COEFFICIENT Q_b CURVE
- LAND USE GENERAL & SPECIAL
- SOIL TYPE TOLEDO, FULTON
- LAND SLOPE 0-2%
- TYPE DRAINAGE SURFACE & TILE

THIS DITCH PLAN HAS BEEN APPROVED BY:

John G. Pappas 12/18/69
OTTAWA COUNTY ENGINEER DATE

LOCATION - S. 1/2 OF N.E. 1/4 OF SEC. 12 - S. 1/2 OF N.W. 1/4 OF SEC. 7 T-7N R-13E R-14E ALLEN & BENTON TOWNSHIP, OTTAWA COUNTY, OHIO.

SURVEYED - JUNE 17, 1969 E. CAMPBELL D. SOMMER D. OPFER D. SAYRE

REFERENCE - FIELD NOTES ON FILE IN OTTAWA SOIL & WATER CONSERVATION OFFICE 149 CHURCH STREET OAK HARBOR, OHIO.

JOB CLASS IV GROUP 50

DITCH IMPROVEMENT	
YOUNKER-LENZ DITCH	
ALLEN & BENTON TOWNSHIP	
OTTAWA COUNTY, OHIO.	
U. S. DEPARTMENT OF AGRICULTURE	
SOIL CONSERVATION SERVICE	
Designed <i>Donald Oppfer</i> 7/69	Date
Drawn <i>Donald Oppfer</i> 6/69	Approved by <i>John G. Pappas</i>
Traced	Title <i>Good Earth</i>
Checked <i>R. K. Rowe</i> 12/69	Sheet
	Drawing No.
	No. 1
	of 3
	34-01-83-69-34