FED. RD. DIST. NO.	STATE	PROJECT	FISCAL YEAR	SHEET
10	OHIO		1938	1/4

S.H.440 SEC."H" (PT.)
OTTAWA COUNTY

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
PORT CLINTON~MARBLEHEAD RD.
S.H.440 SEC. H (PT.)
OTTAWA COUNTY
PORTAGE TOWNSHIP
NET LENGTH OF PROJECT = 17,899.4 LIN. FT. OR 3.390 MI.

CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
TOWNSHIP LINE
SECTION LINE
CENTER LINE
PROPERTY LINE
CITY OR VILLAGE LINE
FENCE LINE
STEAM RAILROAD
ELECTRIC RAILROAD
POLE LINE
GUARD RAIL

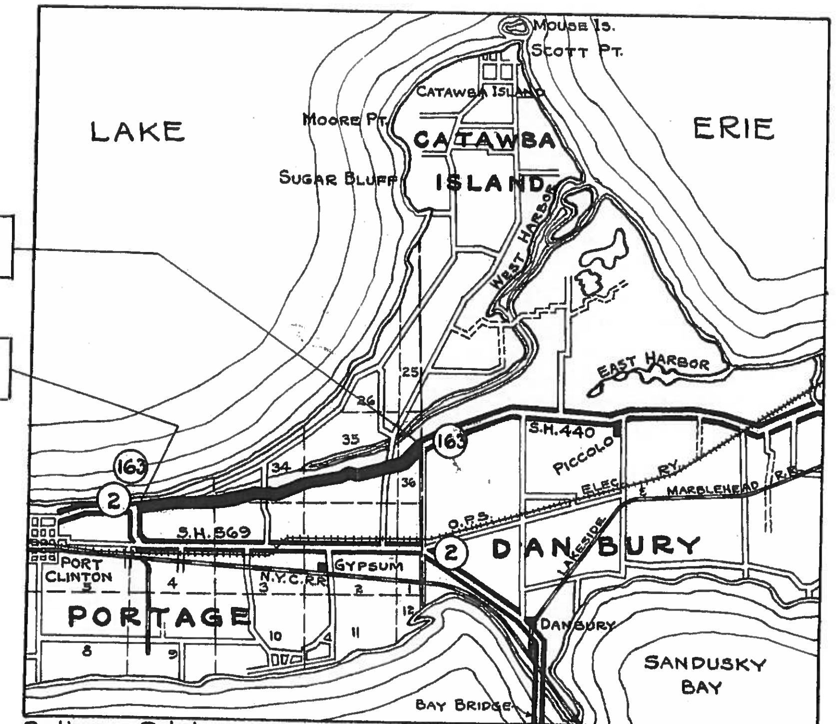
INDEX OF SHEETS

LINE DATA

Begin Project	Sta. 12+13.90
End Project	Sta. 191+13.30
Gross Length of Project =	17,899.4 Lin.Ft.
Deductions =	None
Net Length of Project =	17,899.4 Lin.Ft.or 3.390 Mi.

End of Project Station 191+13.3

Beginning of Project Station 12+13.9



Delivery Point ~ Port Clinton   Ave. Haul 3.5 Miles

LOCATION PLAN

SCALE OF MILES 0 1 2 3

PORTION TO BE IMPROVED
DETOURS SHOWN THUS
STATE HIGHWAYS
IMPROVED COUNTY ROADS
UNIMPROVED COUNTY ROADS

SUPPLEMENTAL PRINTS OF STANDARD CONST. DRAWINGS	
DRAWING	DATE
E-5	7-12-35
S-27 P.C.1	4-1-36
S-27 P.C.3	1-1-36
I-1,2,3,4 & 5	1-1-36
G-7.07	10-33
SBC-34	4-21-34

SCALES

PLAN   1" = 200'

The Standard Specifications of the State of Ohio, Department of Highways, including changes and Supplemental Specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway.

The right of way necessary for this improvement will be provided by the State of Ohio.

Approved ____________
Date ____ Resident District Deputy Director.

Approved ____________
Date ____ Resident Division Deputy Director.

Approved ____________
Date ____ Chief Engineer, Bureau of Maintenance.

Approved ____________
Date ____ Chief Engineer, Bureau of Bridges.

Approved K.L. Rothermund P.C. #83
Date 12/1/38 Chief Engineer, Location & Design.

Approved Archie E. Rauney
Date 12/1/38 First Asst. Director and Chief Engineer.

Approved J.A. Ault
Date 12/1/38 Director of Highways

REVISED SPECIFICATIONS :- G-6.05, T-30, B-35, T-35, T-50, M-2.11, M-2.7, M-5, E-1.11, I-19 dated June 7, 1938 and G-8 dated July 18, 1938, G-10 dated March 14, 1938

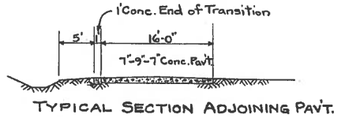
294

FILE No. 294	OTTAWA CO. S.H.440 SEC. H (PT.)
	DATE OF LETTING ________ 19__
	CONTRACT No. ________

FED. RD. DIST. NO.	STATE	PROJECT	FISCAL YEAR
10	OHIO		1938

2
4

OTTAWA COUNTY
S.H. 440 SEC. "H" (pt)



TYPICAL SECTION ADJOINING PAV'T.

P.I. - 4+55.5
Δ - 1°-36' Lt.
D - 0°-15'
E - 2.4'
T - 353.2'
L - 706.4'

P.I. - 10+76.1
Δ - 0°-40' Lt.
D - 0°-30'
E - 0.2'
T - 66.6'
L - 133.2'

P.I. - 24+71
Δ - 3°-38' Lt.
D - 2°-20'
E - 1.26'
T - 79.8'
L - 157.8'

P.I. - 27+86.6
Δ - 4°-41' Lt.
D - 1°-0'
E - 4.8'
T - 234.3'
L - 468.4'

P.I. - 34+23.6
Δ - 3°-13' Lt.
D - 1°-0'
E - 2.2'
T - 160.9'
L - 321.6'

Sta. 12+13.90
Begin Project

390.71'
Pavement Transition

Corp. Limits Pt. Clinton

Sta. 8+23.14 = Sta. 75+09.29 of S.H. 440 Sec. H (pt)
End of F.A.P. 1042-A(1)

10° Curve

8° Curve

S.H. 583 (1941)

Catawba Island Road

N 88°-26' E

P.I. - 39+28.5
Δ - 12°-14' Rt.
D - 4°-0'
E - 8.2'
T - 153.5'
L - 305.1

P.I. - 49+84.7
Δ - 1°-30' Lt.
D - 0°-15'
E - 2.0'
T - 300.'
L - 600.'

P.I. - 58+27.8
Δ - 4°-25' Lt.
D - 2°-0'
E - 2.1'
T - 110.4'
L - 220.5'

P.I. - 70+11.6
Δ - 0°-40' Lt.
D - 0°-30'
E - 0.2'
T - 66.6'
L - 133.2'

P.I. - 73+91.7
Δ - 3°-26' Lt.
D - 1°-30'
E - 1.8'
T - 114.5'
L - 228.9'

P.I. - 77+16.4
Δ - 5°-48' Lt.
D - 3°-0'
E - 2.4'
T - 96.7'
L - 193.3'

P.I. - 81+94.5
Δ - 2°-0' Lt.
D - 1°-0'
E - 0.9'
T - 100'
L - 200'

P.I. - 88+35.6
Δ - 24°-57' Rt.
D - 20°-0'
E - 6.9'
T - 63.4'
L - 124.7'

County Road

P.I. - 99+11.9
Δ - 25°-30' Lt.
D - 20°-0'
E - 7.2'
T - 64.8'
L - 127.5'

N 70°-04' E

P.I. - 120+59.8
Δ - 13°-27' Rt.
D - 10°-0'
E - 3.9'
T - 67.6'
L - 134.5'

P.I. - 129+57.1
Δ - 1°-20' Lt.
D - 0°-30'
E - 0.8'
T - 133.4'
L - 266.8'

P.I. - 137+71.9
Δ - 0°-40' Lt.
D - 0°-30'
E - 0.2'
T - 66.6'
L - 133.2'

P.I. - 149+35.5
Δ - 5°-28' Lt.
D - 1°-0'
E - 6.5'
T - 273.5'
L - 546.6'

Catawba Island Rd.

P.I. - 175+37.6
Δ - 16°-21' Lt.
D - 10°-0'
E - 5.9'
T - 82.3'
L - 163.5'

P.I. - 182+37.7
Δ - 11°-28' Lt.
D - 4°-30'
E - 6.4'
T - 127.8'
L - 254.7'

N 48°-14' E

Sta. 191+13.3
End S.H. 440 Sec. "H"
Begin S.H. 440 Sec. "F"
End of Project.

Port Clinton Township

Danbury Township

5' 16' Bit. Mac. Pavement 5'

TYPICAL SECTION ADJOINING PAV'T.

P.I. - 190+65.2
Δ - 16°-51' Rt.
D - 10°-0'
E - 6.2'
T - 84.8'
L - 168.6'

FED. RD. DIST. NO.	STATE	PROJECT	FISCAL YEAR
10	OHIO		1938

3/4

S.H. 440 SEC. "H" (PT.)
OTTAWA COUNTY

PROPOSED DRAINAGE STRUCTURE WORK

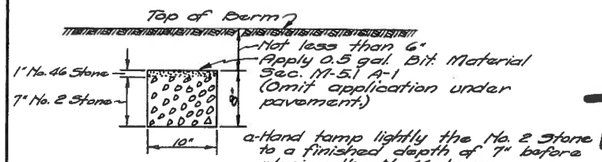
STATION	EXISTING STRUCTURE	PROPOSED WORK	Excavation for Structures (Unclass.) Cu. Yds.	Removal of Portions of Existing Masonry Cu. Yds.	1-5½ Concrete for Culvert Extension Cu. Yds.	Rein. Steel Lbs.	Hand Laid Stone Riprap (8" Thick) Sq. Yds.	Dowel Holes Each	1-5½ Concrete for Side Road Headwall Cu. Yds.	1-5½ Concrete for Pipe Collar Cu. Yds.	1-5½ Concrete for Headwall Coping Cu. Yds.	48" Pipe for Culvert Extension Lin. Ft.	Pipe for Roadway Drainage Extensions Lin. Ft. 15"	Pipe for Roadway Drainage Extensions Lin. Ft. 24"
19+69 x-over	12"x32' Pipe Culvert, Headwalls Rt. & Lt. & 3.5' F.L. to Gr.	No Work Required.												
34+30 x-over	12"x30' Pipe Culvert, Headwalls Rt. & Lt. & 4' F.L. to Gr.	No Work Required.												
38+50 x-over	6'x4'x28' Concrete Box Culvert, Conc. Headwalls & Wingwalls, 6' F.L. to Gr.	Extend 5' to Rt. Remove Existing Wingwalls & Portion of Headwall. Riprap at Ends of New Headwl.	10	4	6.7	520	20	8						
42+00 x-over	18"x32' Pipe Culvert, Headwall Lt., C.B. Rt., 4' F.L. to Gr.	No Work Required												
56+63 x-over	12"x32' Pipe Culvert, Headwall Lt, C.B. Rt. 5.5' F.L. to Gr.	No Work Required												
63+60 x-over	15"x38' Pipe Culvert, Headwall Lt, C.B. Rt. 9' F.L. to Gr.	No Work Required.												
69+32 x-over	12"x40' Pipe Culvert, Headwall Lt, C.B. Rt. 7' F.L. to Gr.	No Work Required.												
74+36 x-over	12"x37' Pipe Culvert, Headwall Lt., C.B. Rt 8' F.L. to Gr.	No Work Required.												
82+58 x-over	12"x28' Pipe Culvert, Headwalls Rt. & Lt., 3' F.L. to Gr.	No Work Required.												
85+62 x-over	12"x32' Pipe Culvert, Headwalls Rt. & Lt., 3' F.L. to Gr.	No Work Required.												
92+00 Side Rd. Rt.	15"x26' Pipe Culvert, 3' F.L. to Gr.	No Work Required												
92+26 x-over	48"x24' C.I. Pipe Culvert with 46" Corr. Pipe Extn, Conc. Headwalls & Wings Rt. & Lt., 24' Corr. Pipe to East	Extend 10' on Lt. with 48" Culvert Pipe. Build Side Road Headwall. Connect 15" Pipe to 48" Culvert Fitt. Extend 24" Pipe 20' to The East.	5	2		80	5	4	5.3	0.9		10	6	20
106+18 x-over	12"x38' Pipe Culvert, Headwall Rt., C.B. Lt., 3' F.L. to Gr.	Remove broken Concrete Coping on Headwall and replace with new Concrete Coping		0.3		12		4			0.3			
116+20 x-over	12"x32' Pipe Culvert, C.B. Rt. & Lt. 3.5' F.L. to Gr.	No Work Required												
120+70 Dr. Lt.	12"x24' Pipe under Drive	No Work Required												
122+30 x-over	12"x30' Pipe Culvert, Headwalls. Rt. & Lt. 4' F.L. to Gr.	No Work Required												
127+82 x-over	12"x30' Pipe Culvert, Headwalls Rt. & Lt. 3.5' F.L. to Gr.	No Work Required												
139+77 x-over	20"x32' Pipe Culvert, 5.5' F.L. to Gr. Extended by Property Owner.	No Work Required												
150+93 x-over	12"x38' Pipe Culvert, Headwall Lt, C.B. Rt. 7' F.L. To Gr.	Riprap on North Side of C.B.					2							
160+30 x-over	18"x31' Pipe Culvert, Headwalls Rt. & Lt. 5.5' F.L. to Gr.	Raise Headwalls 1'-6"				24		8			0.6			
167+83 x-over	12"x30' Pipe Culvert, Headwall Lt., C.B. Rt., 3' F.L. to Gr.	No Work Required												
169+10 x-over	12"x31' Pipe Culvert (Abandoned)	No Work Required												
174+00 x-over	12"x31' Pipe Culvert, C.B. Rt. & Lt., 3' F.L. to Gr.	No Work Required												
182+30 x-over	5'x3'x30' Concrete Box Culvert, Headwalls & Wingwalls Rt. & Lt., 5½' F.L. to Grade	Extend 5' Rt. and 5' Lt. Remove Portions of Existing Masonry to 1'-0" below grade. Riprap Ends	15	5	11.4	750	20	16						
		Totals	30	11.3	18.1	1386	47	40*	5.3	0.9	0.9	10	6	20

* Note—Dowels to extend 9 inches into existing concrete.

FED. RD. DIST. NO.	STATE	PROJECT	FISCAL YEAR	4 / 4
10	OHIO		1938	

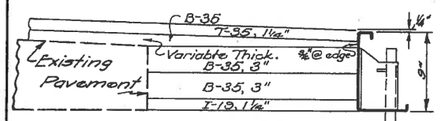
OTTAWA COUNTY
S.H. 440 - SEC. H (PT.)

TYPICAL SECTION TYPE — T-35



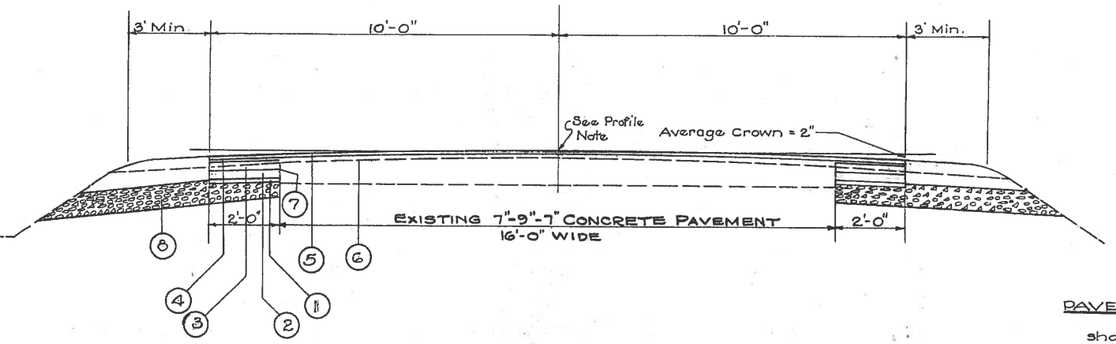
a-Hand tamp lightly the No. 2 Stone to a finished depth of 7" before placing the No. 46 layer.
b-Hand tamp lightly the No. 46 Stone to a finished depth of 1" before applying the Bituminous Material.
c-In the application of the Bituminous Material see that the trench is covered the full width forming an impervious mat.

DETAIL OF NO. 2 LOOSE STONE DRAIN:



Note: The forms shall be braced in a manner to prevent lateral and vertical movement.

FORM AND COURSE DETAIL:



1. Item I-19, 1¼" Insulation Course
2. Item B-35, 3" Asphaltic Concrete First Base Course
3. Item B-35, 3" Asphaltic Concrete Second Base Course
4. Item B-35, ¾" Minimum Thickness, Asphaltic Concrete Leveling Course
5. Item T-35, 1½" Asphaltic Concrete Surface Course, Type "A".
6. Item T-30, Bituminous Prime Coat using Bituminous Material Sec. M-5.12 A.E.3 applied at the rate of 0.15 gal. per sq.yd. and Sand Cover, 4 to 7 lbs. per sq.yd.
7. Item E-10, Sealing (only) of edge of existing pavement using Bituminous Material Sec. M-5.12 A.E.3 applied at the rate of 0.15 gal. per sq.yd.
8. Item I-9, 8"x10" Stone Underdrain (French Drain) No. 2

~ PAVEMENT COMPUTATIONS ~

Begin Project ~ Sta. 12+13.9 End Project Sta. 191+13.3
Net Length = Gross Length = 17899.4 Lin.Ft. or 3.390 Miles.
Area of New Widening (2.0' on Each Side) =
17899.4 x 4.0 ÷ 9 = 7955.3 Sq.Yds.

~ Additions for Extra Pavement ~

Approach (Sta. 10+70 to 12+13.9)	=	50	Sq.Yds.
Intersection (Sta. 39+29.5)	=	100	Sq.Yds.
Curve (Sta. 87+22.2 to 89+46.9)	=	110.8	Sq.Yds.
Curve (Sta. 97+97.1 to 100+24.6)	=	112.1	Sq.Yds.
Curve (Sta. 119+42.2 to 121+76.7)	=	60.5	Sq.Yds.
Curve (Sta. 174+05.3 to 176+68.8)	=	73.0	Sq.Yds.
Curve (Sta. 189+80.4 to 191+49)	=	80.0	Sq.Yds.
Total Additions	=	586.4	Sq.Yds.

Total Area New Widening = 7955.3 + 586.4 = 8541.7 Sq.Yds. Use 8542 Sq.Yds.

I-19 1¼" Insulation Course = 8542 Sq.Yds.

B-35 3" Base Courses. (2 Courses @ 3" each)
8542 x 6 ÷ 36 = 1423.7 Cu.Yds. Use 1425 Cu.Yds.

B-35 ¾" Leveling Course: (20' width)
[(17,899.4 x 16 ÷ 9) + 8542] x ¾ ÷ 36 = 840.8 Cu.Yds.
Add for Extra Leveling (Estimated 125 Cu.Yds. per mile)
3.390 x 125 = 424.0 Cu.Yds.
Total = 1264.8 Cu.Yds. Use 1265 Cu.Yds.

T-35 1½" Surface Course (20' Wide)
17899.4 x 20 ÷ 9 = 39776.4 Sq.Yds.
Add for Extra Pavement 586.4 Sq.Yds.
Total T-35 = 40362.8 Sq.Yds.
(40,362.8 x 1¼ ÷ 36) = 1401.5 Cu.Yds. Use 1402 Cu.Yds.

E-1 Roadway Excavation (Unclassified) = 1800 Cu.Yds. (Estimated)

I-9 Stone Underdrain (French Drain) No. 2 = 1000 Lin.Ft. (Estimated)

T-30 Bituminous Prime Coat (0.15 gal. per sq.yd.)
(17,899.4 x 16 ÷ 9) x 0.15 = 4773.2 gals. Use 4800 Gals.

E-10 Sealing (only) of Edge of Existing Pavement.
(17,899.4 x 2) = 35,798.8 Lin.Ft. Use 35,800 Lin.Ft.

E-4 Borrow (Estimated) 1500 Cu.Yds.

~ GENERAL NOTES ~

TRAFFIC :~
Traffic shall be maintained at all times to the satisfaction of the Division Engineer. The item of maintaining shall include furnishing lights, signs, barricades and watchmen necessary to secure the unimpeded flow of traffic twenty-four hours daily.

PROFILE :~
The profile of the asphaltic concrete surface course shall be approximately 2" above the existing profile.

EMBANKMENT :~
Watering embankments and density requirements, as referred to in Paragraph E-1.05 of the General Specifications, will not be required on this project.

FORMS :~
Side forms, set to line and grade established by the Engineer will be required.

SHOULDERS AND SLOPES :~
"Item E-1, Roadway Excavation (Unclassified)" except paragraph E-1.05 shall include the thoro compaction of Earthwork and the final operations of grading necessary to finish the shoulders and slopes to approximately the lines indicated on the typical section. The use of a templet and fine hand grading to secure satisfactory results will not be required.

SANDING :~
Bituminous Prime Coat, Item T-30, of Bituminous Material Sec. M-5.12 A.E.3 applied by distributor or by brooms at the rate of 0.15 gal. per sq.yd. and Sand Cover applied at the rate of 4 to 7 lbs. per sq.yd. After the Bituminous Material has been applied any material not required to give a uniform coating to the surface shall be swept into all open joints and cracks before the sand cover is placed. (Payment for Sand Cover is included in price bid per gallon for Bituminous Material)

GENERAL NOTES (CONT'D)

PAVEMENT :~
The designed depths of the Bituminous Concrete courses shown on the plans are subject to adjustment according to the ratio of volume to weight as indicated in the Specification for the item.

GENERAL SUMMARY

Item	ROADWAY	Quantity	Unit
E-1	Roadway Excavation (Unclassified) (Est.)	1800	Cu.Yds.
I-3	15" Pipe for Roadway Drainage Extension	6	Lin.Ft.
I-3	24" " " " "	20	Lin.Ft.
I-9	Stone Underdrain (French Drain) No. 2 (Est.)	1000	Lin.Ft.
E-10	Sealing (only) of Edge of Existing Pavement	35,800	Lin.Ft.
E-4	Borrow (Contractor to furnish) Estimated	1500	Cu.Yds.
	PAVEMENT		
I-19	1¼" Insulation Course	8542	Sq.Yds.
B-35	Asphaltic Concrete Base Course (Laid in two courses)	1425	Cu.Yds.
B-35	¾" Minimum Thickness, Asphaltic Conc. Leveling Course	1265	Cu.Yds.
T-35	1½" Asphaltic Concrete Surface Course, Type "A"	1402	Cu.Yds.
T-30	Bituminous Prime Coat (Sec. M-5.12 A.E.3)	4800	Gals.
	STRUCTURES 20' SPAN AND UNDER		
E-2	Excavation for Structures (Unclassified)	30	Cu.Yds.
S-22	Removal of Portions of Existing Masonry	11.3	Cu.Yds.
S-1	Concrete for Culvert Extensions (1-5½ Mix)	18.1	Cu.Yds.
S-1	Concrete for Headwall (1-5½ Mix)	5.3	Cu.Yds.
S-1	Concrete for Pipe Collar (1-5½ Mix)	0.9	Cu.Yds.
S-1	Concrete for Headwall Coping (1-5½ Mix)	0.9	Cu.Yds.
S-4	Reinforcing Steel	1386	Lbs.
S-23	Dowel Holes	40	Each
I-10	8" Hand-Laid Stone Rip Rap	4.7	Sq.Yds.
S-27	48" Pipe for Culvert Extension	10	Lin.Ft.