F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

60/100

ASHTABULA COUNTY
ATB-7-31.43

QUANTITY CALCULATIONS
BY N.S DATE 1-18-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

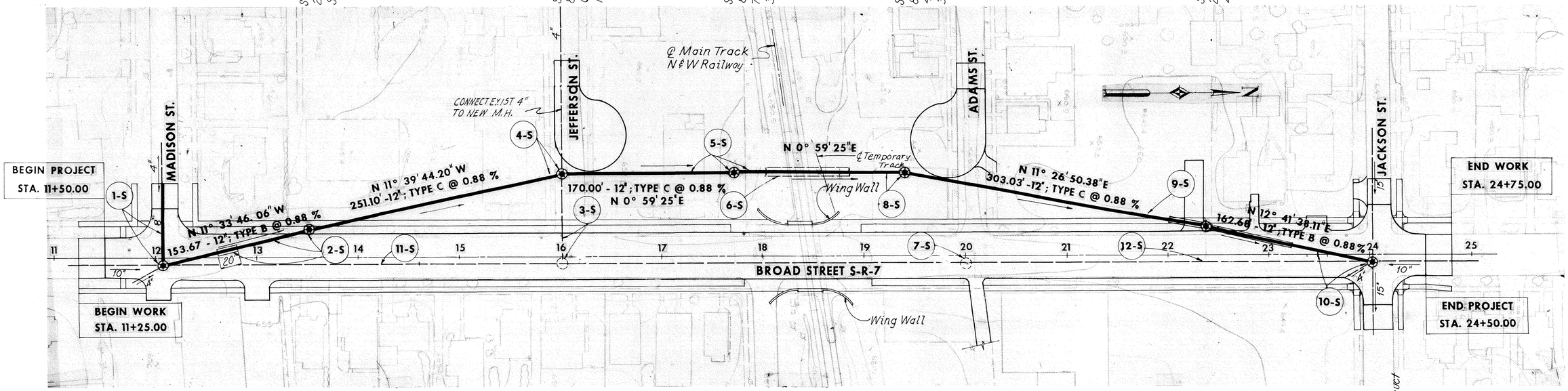
Sta 13+56.00 ℄ Broad, 27.00'L = San. Sta 1+33.67, Standard No. 3 M.H.

Sta 16+01.00 ℄ Broad, 82.00'L = San. Sta 4+04.77, Standard No. 3 M.H.

Sta 17+71.00 ℄ Broad, 82.00'L = San. Sta. 5+74.77, Standard No. 3 M.H.

Sta 19+41.00 ℄ Broad 82.00'L = San. Sta. 7+44.77, Standard No. 3 M.H.

Sta. 22+39.00 ℄ Broad, 27.00'L = San. Sta. 10+47.80, Standard No. 3 M.H.

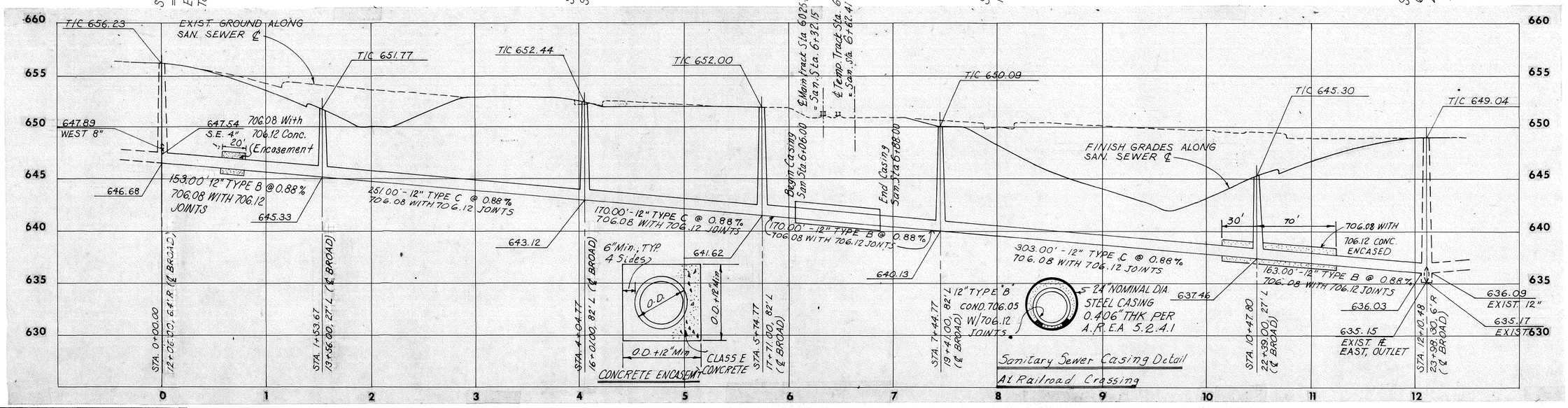


Sta ℄ Broad, 64'R = San. Sta 0+00 Exist. M.H. Reconstruct To Grade.

Sta 16+01.2 Exist San. M.H. Remove

Sta 19+98 Exist. San. M.H. Remove

Sta 23+98.3 ℄ Broad 60'R = San. Sta 12+10. 48, Exist. M.H. Reconstruct To Grade



SAN. SEWER STATIONS

SCALE
MADE N.S DATE
TRCD. J.H. DATE 8/13/79
CKD. A.J.M DATE 1/9/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR. 7 - BROAD STREET

SANITARY SEWER PLAN AND PROFILE (60)

SANITARY SEWER SUB-SUMMARY

QUANTITY CALCULATIONS
BY N.S. DATE 1-12-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

61
100

ASHTABULA COUNTY
ATB-7-31.43

REF. NO.	STATION		ITEM 202		ITEM 603						ITEM 604		REMARKS
			MANHOLE ABANDONED	PIPE REMOVED 24" AND UNDER	8" TYPE "B" CONDUIT 706.08 WITH 706.12 JOINTS	12" TYPE "B" CONDUIT 706.08 WITH 706.12 JOINTS	12" TYPE "C" CONDUIT 706.08 WITH 706.12 JOINTS	12" TYPE "B" CONDUIT 706.08 WITH 706.12 JOINTS CONCRETE ENCASED	12" TYPE "C" CONDUIT 706.08 WITH 706.12 JOINTS CONCRETE ENCASED	12"TYPE"B"CONDUIT 706.05; 706.12 JOINTS WITH STEEL CASING AS PER PLAN	MANHOLE RECONSTRUCTED TO GRADE	STANDARD NO. 3 MANHOLE WITH 706.11 JOINTS	
	FROM	TO	EACH	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	
1-S	0+00.0			80	80						1		ON Madison Street
2-S	0+00.0	1+53.67				134			20			1	
3-S	4+04.0		1	88									Broad Street Sta.16+01.2,6'R
4-S	1+53.67	4+04.77					251					1	
5-S	4+04.77	6+06.00				31	170					1	
6-S	6+06.0	6+88.0								82			
7-S	20+04		1										Broad Street Sta. 19+98.0;6'R
8-S	6+88.0	7+45.0				57						1	
9-S	7+45.0	10+48.0					273		30			1	
10-S	10+48.0	12+1048				93		70			1		
11-S	0+00.0	2+58.0		254									Broad St. Sta.12+06 to 14+60
12-S	10+51.0	12+1048		159									Brood St. Sta. 22+40 to 23+98.30
	TOTAL		2	581	80	315	694	70	50	82	2	5	

SCALE
DRAWN N.S. DATE
TRCD. BCK DATE 9/79
CHKD. AJM DATE 11/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR. 7-BROAD STREET

WATERWORK
GENERAL NOTES

QUANTITY CALCULATIONS
BY N.S DATE 1-16-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

ASHTABULA COUNTY
ATB-7-31.43

62
100

GENERAL

ALL WATER WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE OF OHIO DEPARTMENT OF TRANSPORATION SUPPLEMENTAL SPECIFICATIONS 814 UNLESS OTHERWISE NOTED IN THE PLANS. ALL NEW PIPE INSTALLATION SHALL BE DUCTILE IRON PIPE PUSH ON JOINT TYPE IN COMPLIANCE WITH ITEM 814.02(B) WHICH SHALL EQUALLY APPLY TO BID ITEMS LISTED AS ITEM 814 ____ INCH, WATER MAIN, AS PER PLAN.

SCOPE OF WORK

THE WORK CONTEMPLATED UNDER THIS CONTRACT COMPRISES THE FURNISHING AND INSTALLING COMPLETE WITH VALVES, FIRE HYDRANTS AND OTHER APPURTENANCES, THE FOLLOWING WATER MAIN CONSTRUCTIONS AND PERFORMING OTHER INCIDENTAL WORK NECESSARY TO ABANDON EXISTING WATER FACILITIES.

PART 1. 12" DUCTILE IRON, PUSH ON TYPE WATER MAIN TO REPLACE AN EXISTING 10" WATER MAIN ON BROAD STREET (S.R. 7) BETWEEN ITS INTERSECTIONS WITH STATE STREET AND MADISON STREET (BROAD STREET STA. 10+11 TO STA. 11+50).

PART 2. 12" DUCTILE CAST IRON, PUSH ON TYPE WATER MAIN LOCATED AS SHOWN ON PLANS ALONG THE WESTERLY SIDE OF BROAD STREET (S.R. 7) CROSSING NORFOLK & WESTERN RAILROAD TRACKS WEST OF THE PROPOSED GRADE SEPARATION. THIS PORTION OF THE NEW WATER MAIN WILL BE INSTALLED BETWEEN MADISON STREET AND JACKSON STREET (BROAD STREET STA. 11+50 TO STA. 24+50).

PART 3. 12" DUCTILE CAST IRON, PUSH ON TYPE WATER MAIN TO REPLACE AN EXISTING 10" WATER MAIN ON BROAD STREET FROM ITS INTERSECTION WITH JACKSON TO ITS INTERSECTION WITH DEPOT STREET (STA. 24+50 TO STA. 30+36).

PART (1) AND (3) LISTED ABOVE ARE OUTSIDE OF THE PROJECT LIMITS (BROAD STREET (S.R. 7) GRADE SEPARATION) AND TRENCHING IN THE EXISTING PAVEMENT FOR THE REMOVALS AND INSTALLATIONS IS NECESSARY. PART (2) WILL NOT NECESSITATE PAVEMENT REPLACEMENTS.

DEFINITIONS

WHENEVER IN THESE SPECIFICATIONS OR IN ANY DOCUMENTS OR INSTRUCTIONS IN CONSTRUCTION PLANS WHERE THESE SPECIFICATIONS GOVERN, THE FOLLOWING TERMS ARE USED, (OR PRONOUNS IN PLACE OF THEM). THE INTENT AND MEANING SHALL BE INTERPRETED AS FOLLOWS:

THE STATE

THE STATE IS THE STATE OF OHIO ACTING THROUGH ITS AUTHORIZED REPRESENTATIVE.

ENGINEER

THE ENGINEER IS THE DIVISION DEPUTY DIRECTOR OR DIVISION ENGINEER, THE DIVISION CONSTRUCTION ENGINEER OR THE DIVISION MAINTENANCE ENGINEER, OR THE PROJECT ENGINEER ASSIGNED TO ADMINISTER THE CONTRACT.

THE CITY OR THE CITY OF CONNEAUT

THE CITY OR THE CITY OF CONNEAUT WILL REFER TO THE CITY ENGINEER AND/OR THE DIRECTOR, DEPARTMENT OF PUBLIC UTILITIES.

GATE VALVES AND BOXES

THE GATES SHALL BE FORCED TO THEIR SEATS WITH EQUAL PRESSURE AT ALL POINTS BY ALL BRONZE SPREADERS AND HAVE REVOLVING DISCS FREE TO REVOLVE THEIR FULL CIRCUMFERENCE AS ACCEPTABLE TO THE ENGINEER. UNLESS OTHERWISE SPECIFIED, GATE VALVES SHALL HAVE BELL ENDS AND NON-RISING STEMS PROVIDED WITH OPERATING NUT, AND SHALL OPEN TO THE LEFT.

ALL VALVE CASTINGS SHALL BE PAINTED INSIDE, BEFORE ASSEMBLING, WITH TWO COATS ON AN APPROVED PAINT, AND AFTER ASSEMBLING, SHALL BE GIVEN AT LEAST TWO COATS OF APPROVED PAINT ON THE OUTSIDE.

CAST IRON VALVE BOXES SHALL BE THE ROUND SCREW TYPE, OF SUFFICIENT SIZE TO ACCOMODATE THE VALVE, AND ADJUSTABLE TO PROVIDE 4 TO 6 FEET LENGTH OVER PIPE, UNLESS OTHERWISE SPECIFIED OR INDICATED ON THE PLANS. THE COVERS SHALL BE CAST IRON WITH THE WORD "WATER" CAST ON IT WITH ROUND TOPS, AS ORDERED BY THE ENGINEER. COVERS OF THE SAME PATTERN SHALL BE INTERCHANGEABLE. THE CASTINGS SHALL BE CLEAR, FREE FROM RUST AND PAINTED AS SPECIFIED ABOVE FOR VALVE CASTINGS.

PAYMENT FOR GATE VALVE INSTALLATION SHALL BE MADE IN PAY ITEMS LISTED AS

814 ___ INCH GATE VALVE, AS PER PLAN
814 ___ INCH X ____ INCH TAPPING SLEEVE AND GATE VALVE, AS PER PLAN

RAILROAD CROSSING

RAILROAD CROSSING SHALL BE IN COMPLIANCE TO REQUIREMENTS OF THE AMERICAN RAILWAY ENGINEERING ASSOCIATION MANUAL FOR RAILWAY ENGINEERING AS SET FORTH IN CHAPTER 1-4 OF THE MANUAL AND IN ACCORDANCE TO THESE PLANS.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER TWO WEEKS IN ADVANCE TO ALLOW FOR PROPER CO-ORDINATION WITH THE RAILROAD COMPANY.

PAYMENT FOR SAID WORK SHALL BE INCLUDED IN THE BID PRICE PER LINEAR FT. ITEM 814 12" WATER MAIN RAILROAD CROSSING WITH STEEL CASING, AS PER PLAN.

FITTINGS

ALTHOUGH CONFLICTS BETWEEN EXISTING WATER MAIN AND OTHER UTILITIES AND/OR PROPOSED WATER MAIN HAVE BEEN AVOIDED IN ACCORDANCE WITH AVAILABLE INFORMATION. IT IS POSSIBLE SUCH CONFLICT MAY OCCUR DURING CONSTRUCTION OF THE PROJECT.

TO PROVIDE FOR THIS CONTINGENCY THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE WATERWORK SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER:

ITEM 814	- 12" WATER MAIN, AS PER PLAN	- 50 L.F.
ITEM 814	- 8" WATER MAIN, AS PER PLAN	- 15 L.F.
ITEM 814	- 3/4" SERVICE BRANCH LOWERED	- 50 L.F.

THE CONTRACTOR SHALL NOT ORDER THESE QUANTITIES UNLESS SO INSTRUCTED BY THE ENGINEER.

SERVICE BOXES ADJUSTED TO GRADE

WORK SHALL BE DONE IN ACCORDANCE WITH ITEM 814.18. NO SEPARATE PAY WILL BE MADE AND ALL COST SHALL BE INCLUDED IN THE BID PRICE PER LIN. FT. ITEM 814 3/4" SERVICE BRANCH LOWERED.

HOSE BIB CONNECTION

HOSE BIB CONNECTIONS SHALL BE INSTALLED AT LOCATIONS SHOWN IN PLAN AND AS DIRECTED BY THE ENGINEER. MATERIALS SHALL BE IN COMPLIANCE WITH ITEM 814.02 (E) AND ALL WORK SHALL BE DONE ACCORDING TO ITEM 814. PAYMENT FOR HOSE BIB CONNECTION SHALL BE INCLUDED IN THE BID PRICE PER FOOT ITEM 814, NEW 3/4 INCH SERVICE BRANCH WITH HOSE BIB CONNECTION, AS PER PLAN.

ABANDONED EXISTING 10" WATER LINE

AT LOCATION WHERE THE EXISTING WATER LINE IS NOT TO BE REMOVED WITH THE EXCAVATION FOR THE PROJECT; THE ABANDONED PIPE SHALL BE PLUGGED USING CLASS "D" CONCRETE AT EVERY CUT, AS DIRECTED BY THE ENGINEER. NO ADDITIONAL PAY WILL BE MADE AND COST SHALL BE INCLUDED IN CORRESPONDING BID ITEMS.

10" VALVE ON DEPOT STREET

THE EXISTING 10 INCH VALVE SHALL BE REMOVED AND STORED FOR PICK UP BY CITY FORCES. THE EXISTING 10" WATER LINE SHALL BE PLUGGED USING A TEST PLUG TO FIT THE EXISTING PIPE. THE ENTIRE COSTS SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 814,12INCH WATERLINE AS PER PLAN. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR SAID WORK.

MAINTENANCE OF SERVICE AND CONNECTING MAINS

SERVICE TO RESIDENTIAL AND COMMERCIAL PROPERTIES SHALL BE RESTORED DURING THE INSTALLATION OF THE NEW WATER MAIN.

THE CONTRACTOR WILL HAVE TO COORDINATE HIS WORK IN A MANNER SO THAT SERVICE IS BEING RESTORED TO EACH INDIVIDUAL USER THROUGH CONNECTIONS TO THE EXISTING OR THE PROPOSED MAIN AFTER CHLORINATION AND TESTING.

NO ADDITIONAL COMPENSATION WILL BE MADE FOR MAINTENANCE OF CONTINUOUS SERVICE. THE CONTRACTOR SHALL INCLUDE ALL COSTS OF ADDITIONAL MATERIAL, LABOR, EQUIPMENT IN THE CORRESPONDING BID ITEMS. ALSO THE CONTRACTOR SHALL COOPERATE WITH AND GIVE THE CITY OF CONNEAUT 48 HOURS PRIOR NOTICE ON ALL WORK WHICH WILL INTERRUPT THE WATER SERVICE, ALL INSTRUCTIONS SHALL BE WORKED THROUGH THE PROJECT ENGINEER. THE EXISTING 8" WATER MAIN SERVING THE ASTATIC CORPORATION WILL NOT BE TAKEN OUT OF SERVICE DURING THE CONSTRUCTION. PERIODS OF SHUT OUT NOT TO EXCEED (2) HOURS DURING SUNDAYS MAY BE ALLOWED AS COORDINATED WITH THE ASTATICS CORPORATION THROUGH THE PROJECT ENIGNEER.

CLEARING SITE AND RESTORING DAMAGED SURFACES

MINIMUM PAVEMENT REQUIREMENTS ABOVE TRENCHES SHALL BE AS SHOWN IN THE WATER LINE PLANS. THE SITE SHALL BE RESTORED AS PER THE REQUIREMENTS OF ITEM 603.09 UNLESS OTHERWISE STATED. PAYMENT FOR PAVEMENTS ABOVE WATER LINE TRENCHES SHALL BE INCLUDED IN THE PER LINEAR FOOT BID PRICE OF THE CORRESPONDING PIPE.

SCALE ____
MADE N.S DATE ____
TRCD EMK DATE 8-13-79
CKD. AJM DATE 1/9/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR. 7 - BROAD STREET

WATERWORK
SUMMARY OF QUANTITIES

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

63
100

ASHTABULA COUNTY
ATB-7-31.43

QUANTITY CALCULATIONS
BY N.S. DATE 1-18-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

WATERWORK SUMMARY OF QUANTITIES

SHEET NO.							ITEM	QUANTITY	UNIT	DESCRIPTION
62	64	66	67							
50	114	1298	561				814	2,023	Lin. Ft.	12" Water Main as per plan
15		207					814	222	Lin. Ft.	8" Water Main as per plan
		20					814	20	Lin. Ft.	6" Water Main as per plan
		20					814	20	Lin. Ft.	4" Water Main as per plan
		80					814	80	Lin. Ft.	12" Water Main Railroad Crossing with Steel Casing, as per plan
		2					814	2	Each	12" Gate Valve as per plan
		1					814	1	Each	8" Gate Valve as per plan
		1					814	1	Each	6" Gate Valve as per plan
		1					814	1	Each	4" Gate Valve as per plan
			1				814	1	Lin. Ft.	12"x12" Tapping Sleeve and Gate Valve as per plan
	1						814	1	Lin. Ft.	10"x 10" Tapping Sleeve and Gate Valve as per plan
	1	3	1				814	5	Each	Fire Hydrant Removed and Reset
		70					814	70	Lin. Ft.	1" New Service Branch
50		200	190				814	440	Lin. Ft.	$\frac{3}{4}$" Service Branch Lowered
		60					814	60	Lin. Ft.	New $\frac{3}{4}$" Service Branch with Hose Bib Connection, as per plan

SCALE
MADE N.S. DATE
TRCD RCK DATE 9/79
CKD. AJM DATE 1/9/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR. 7 - BROAD STREET

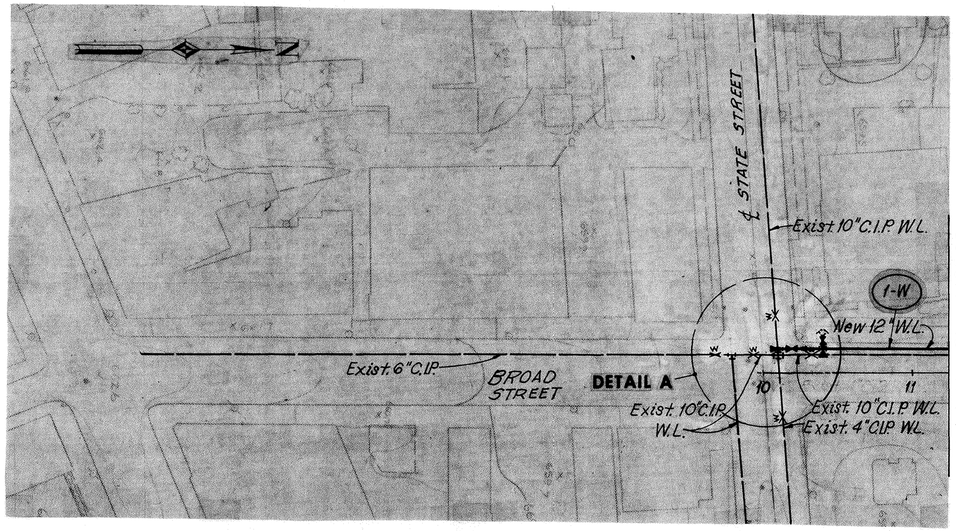
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

64
100

ASHTABULA COUNTY
ATB-7-31.43

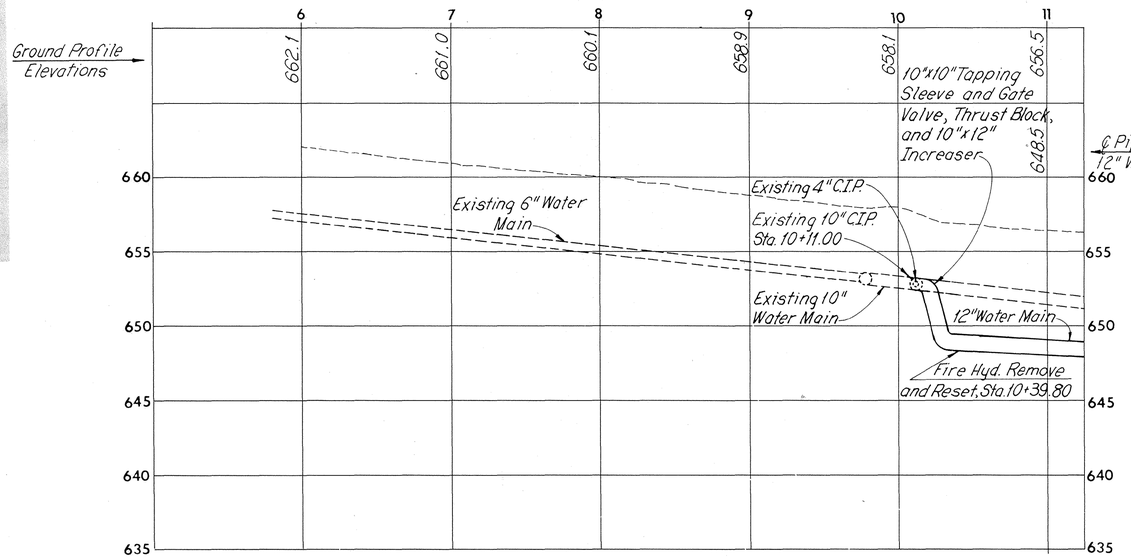
REF. NO.	STATION FROM	OFFSET FT.	STATION TO	OFFSET FT.	ITEM NO. SIDE	814 12" WATER MAIN AS PER PLAN LIN. FT.	814 FIRE HYDRANT REMOVED AND RESET EACH	814 & SPECIAL 10" x10" TAPPING SLEVE AND GATE VALVE AS PER PLAN EACH
1-W	10+11	16	11+25		L	114		
2-W	10+11	16			L			1
3-W	10+39.80	16			L		1	
TOTALS =						114	1	1

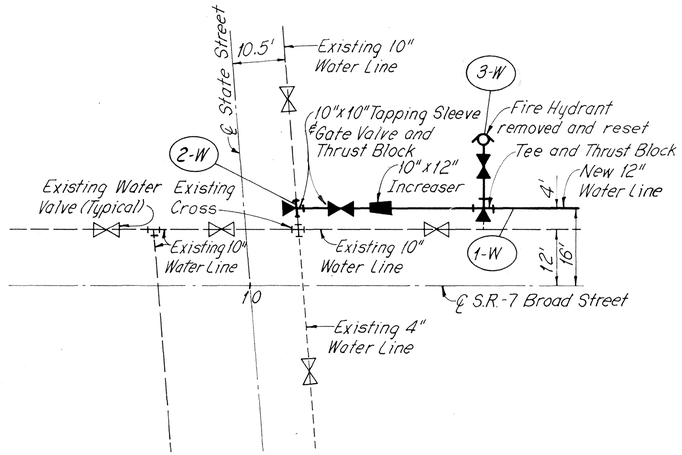
+06.5, Exist. W. Valve, 8.0'
+09.0, Exist. W. Valve, 12.0'
+10.5, Exist. W. Valve, 38.0'
+11.0, 10"x10" Tapping Sleeve and Gate Valve, 16.0'
+33.1, Exist. W. Valve, 12.3'
+39.8, Exist. F. Hyd., 27.7'
Remove and Reset.



LEGEND

- TEE
- THRUST BLOCK
- GATE VALVE
- FIRE HYDRANT REMOVED & RESET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- REDUCER





DETAIL A

SCALE
MADE NS DATE
TRCD. RCK DATE 5/79
CKD. AJM DATE 1/9/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR. 7- BROAD STREET

WATERLINE PLAN AND PROFILE (64)

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SCALE
MADE DATE
TECD DATE 4-1-69
CED DATE 4-1-69

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

65
100

ASHTABULA COUNTY
ATB-7-31.43

+67.34" Service Branch Lowered, 16'
+15.60, 12"x6" Tee & Thrust Block, 16'
+15.60, Exist. W. Valve, 40.5'
+20.40, Exist. W. Valve, 12.7'
+21.14, 12" Gate Valve, 16'
+26.60, Exist. F. Hyd. 54.80'
+45.00, 1/32 Bend & Thrust Block 16'
+76.1, 3/4" Service Branch Lowered 20'
+85, New 3/4" Service Branch With Hose Bib Connection 71'
+55, Exist. Hse. Connection (Approx. Location)
+74.3, Exist. F. Hyd. 25.4'
+00, 1/32 Bend & Thrust Block, 97'
+13.20, Exist. W. Valve 37.3'
+13.20, 12"x6" Tee, 6" Gate Valve, 97'
+18.20, F. Hyd. Removed and Reset, 97'
+70, New 3/4" Service Branch With Hose Bib Connection 97'
+98.50, Exist. 3/4" Connection
+98.50, Exist. W. Meter, 25.70
+98.50, New 1" Service Branch, 97'
+00, Begin Casing & Rail-Road Crossing, 97'
+80, End Casing & Rail Road Crossing 97'
+30, 1/32 Bend, 97'
+45, New 3/4" Service Branch With Hose Bib Connection, 102'
+67.20, Exist. W. Meter, 28'
+67.20, Exist. Hse. Connection
+81.8, Exist. F. Hyd 24.90'
+60, 1/32 Bend, 107'
+90, 1/32 Bend, 107'
+97, 12"x4" Tee, 4" Gate Valve 97'
+05, F. Hyd. Removed And Reset, 90'
+20, 1/32 Bend, 90'
+53.70, Exist. W. Valve, 15.2'
+78.00, Exist. W. Valve, 10'
+00, 1/32 Bend & Thrust Block 49'
+46, 1/32 Bend & Thrust Block 29'
+62, 3/4" Service Branch Lowered, 26'
+62, Exist. Hse. Connection (Approx Location)
+00, 3/4" Service Branch Lowered, 20'
+06, Exist. Hse. Connection (Approx. Location)
+12, 1/32 Bend & Thrust Block, 16'
+67.68, 12" Gate Valve, 16'
+72, 12"x8" Tee, 8" Gate Valve & Thrust Block, 16'
+80.00, Exist. W. Valve 16.4'
+05.40, Exist. W. Valve 47.8'
+05.40, 12"x8" Cross
+18.00, Exist. W. Valve, 89.5'
+20.80, Exist. W. Meter, 89.7'
+45.30, Exist. Hyd. 28.1'
+54, F. Hydrant Removed and Reset, 16'

STA 11+25.00
MATCH LINE
Exist. 6" C.I.P. W.L.
MADISON ST.
JEFFERSON ST.
ADAMS ST.
Exist. 4" C.I.P. W.L.
JACKSON ST.
Exist. 4" C.I.P. W.L.
STA 24+75.00
MATCH LINE
See Detail, Sheet No. 68
Exist. 4" C.I.P. W.L.
℄ Main Track N&W Railroad
12" Water Main
12" Sanitary
Exist. 10" Water Line
Concrete Encased Sanitary
1-W
2-W
3-W
4-W
5-W
6-W
7-W
8-W
9-W
10-W
11-W
12-W
13-W
14-W
15-W
16-W
17-W
18-W
19-W
20-W
21-W
15'

50 0 100 200
SCALE IN FEET

LEGEND
- TEE
- THRUST BLOCK
- GATE VALVE
- 1/32 BEND
- 3/4" SERVICE BRANCH WITH HOSE BIB CONNECTION
- 12" WATER MAIN WITH STEEL CASING
- FIRE HYDRANT REMOVED & RESET
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER METER
- REDUCER

+67.00, Exist. W. Valve, 24.6'
+67.00, Exist. HSE Connection
+76.10, Exist. W. Valve, 28.50'
+76.10, Exist. Hse Connection
+44, Exist. Hse Connection (Approx. Location)
+05, Exist. Hse Connection (Approx. Location)
+32.10, Exist. W. Valve, 30.40'
+32.10, Exist. Hse. Connection
+07.60, Exist. W. Meter, 25.9'
+07.60, Exist. Hse Connection
+59, , Exist. Hse Connection (Approx. Location)
+02.40, Exist. W. Valve, 67'
+02.40, Exist. Hse Connection
+54, Exist. Hse Connection (Approx. Location)
+08, Exist. Hse Connection (Approx. Location)
+60, Exist. Hse Connection (Approx. Location)
+35.2, Exist. W. Meter, 30.5'
+35.2, Exist. 3/4" Connection
+79.00, Exist. W. Vault. M.H. Cover, 48.8'
+79.80, Exist. Hyd. 50.9'
Exist. 8" Water Connection
+80.50, Exist. W. Valve, 52.5'
+08.00, Exist. W. Valve, 30.2'

GROUND PROFILE ELEVATION: 656.62 655.95 654.18 655.0 654.2 651.67 652.4 651.9 651.1 649.36 650.3 649.8 649.08 649.06
℄ PIPE ELEVATION 12" WATER MAIN: 648.5 648.4 647.6 647.6 647.3 645.6 644.0 643.7 644.0 643.9 643.0 640.7 641.4 642.1

660 655 650 645 640 635

15" Storm Sta. 11+75, FL. = 650.18
1'-0" Min. Clearance
Exist. 6" C.I.P. Sta. 12+15.60
3/4" Service Branch Lowered, Sta. 11+67
12"x6" Tee & Thrust Block, Sta. 12+15.60
12" Gate Valve Sta. 12+21.14
3/4" Service Branch Lowered Sta. 12+76.1
1/32 Bend & Thrust Block, Sta. 12+45.00
New 3/4" Service Branch With Hose Bib Connection, Sta. 14+85
Exist. 6" C.I.P. Sta. 16+13.20
New 3/4" Service Branch With Hose Bib Connection, Sta. 16+70
1/32 Bend & Thrust Block, Sta. 16+00
12"x6" Tee, 6" Gate Valve Sta. 16+13.20
15" Storm, Sta. 16+25.37 FL. = 646.70
1'-0" Min. Clearance
New 1" Service Branch Sta. 16+98.50
Fire Hydrant Removed & Reset, Sta. 16+18.20
Begin Casing & R.R. Crossing Sta. 18+00
24" Steel Casing
End Casing & R.R. Crossing Sta. 18+80
1/32 Bend Sta. 19+30
New 3/4" Service Branch With Hose Bib Connection, Sta. 19+45
1/32 Bend Sta. 19+60
1/32 Bend Sta. 19+90
12" Water main
Exist. 4" C.I.P. Sta. 20+00
1/32 Bend Sta. 20+20
Fire Hydrant Removed & Reset Sta. 20+05
12"x4" Tee, 4" Gate Valve, Sta. 19+97
1/32 Bend & Thrust Block, Sta. 22+00
1/32 Bend & Thrust Block Sta. 22+46
15" Storm, Sta. 23+75 FL. = 643.49
1'-0" Min. Clearance
1/32 Bend & Thrust Block Sta. 23+12
3/4" Service Branch Lowered Sta. 22+52
3/4" Service Branch Lowered Sta. 23+00
8" C.I.P. Sta. 24+05.40
Fire Hydrant Removed & Reset, Sta. 24+54
12"x8" Cross, Sta. 24+05.40
12" Gate Valve, Sta. 23+67.68
12"x8" Tee, 8" Gate Valve & Thrust Block, Sta. 23+72

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

SR.7 - BROAD STREET

WATERLINE PLAN AND PROFILE (65)

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

66
100

ASHTABULA COUNTY
ATB-7-31.43

QUANTITY CALCULATIONS
BY NS DATE 1-18-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

REF. NO.	STATION	OFFSET	STATION	ITEM NO.		814	814	814	814	814	814	814	814	814	814	814	814
				OFFSET	SIDE	12" WATER MAIN AS PER PLAN	8" WATER MAIN AS PER PLAN	6" WATER MAIN AS PER PLAN	4" WATER MAIN AS PER PLAN	12" WATER MAIN, RAILROAD CROSSING WITH STEEL CASING AS PER PLAN	FIRE HYDRANT REMOVED AND RESET	NEW 3/4" SERVICE BRANCH WITH HOSE BIB CONNECTION AS PER PLAN	NEW 1" SERVICE BRANCH	3/4" SERVICE BRANCH LOWERED	12" GATE VALVE AS PER PLAN	8" GATE VALVE AS PER PLAN	6" GATE VALVE AS PER PLAN	4" GATE VALVE AS PER PLAN
	FROM	FT.	TO	FT.		LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	EACH
1-W	11+25	19	18+00	97	L	684												
2-W	11+67	19			L									57				
3-W	12+15.60	19			L			10										
4-W	12+21.14	19			L										1			
5-W	12+76.1	20			L									58				
6-W	14+85	71			L							20						
7-W	16+13.20	97			L			10									1	
8-W	16+18.20	97			L						1							
9-W	16+70	97	16+98.50	97	L							20	70					
10-W	18+00	97	18+80	97	L					80								
11-W	18+80	97	24+75	19	L	614												
12-W	19+45	102			L							20						
13-W	19+97	97			L				20									1
14-W	20+05	90			L						1							
15-W	22+52	26			L									26				
16-W	23+00	20			L									34				
17-W	23+67.68	19			L										1			
18-W	23+72	19			L		57									1		
19-W	23+80.50	52.5	24+05.40	52.5	R									25				
20-W	24+05.40	75	24+05.40	75	L&R		150											
21-W	24+54	19			L						1							
TOTALS =						1,298	207	20	20	80	3	60	70	200	2	1	1	1

SCALE
LADE NS DATE
RCD. MA DATE 2-3-80
KD. AJM DATE 1/9/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR. 7-BROAD STREET

FHWA REGION	STATE	PROJECT	
5	OHIO	STATE	

67
100

ASHTABULA COUNTY
ATB-7-31.43

QUANTITY CALCULATIONS
BY N.S. DATE 1-18-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

REF. NO.	STA. FROM	OFFSET FT.	STA. TO	OFFSET FT.	SIDE	814 12" WATER MAIN AS PER PLAN L.F.	814 FIRE HYDRANT REMOVED & RESET EA.	814 12" x 12" TAPPING SLEEVE AND GATE VALVE AS PER PLAN EA.	814 ¾" SERVICE BRANCH LOWERED L.F.
1-W	24+7500	16	30+36	16	L	561			
2-W	25+19	16			L				10
3-W	25+40	16			L				10
4-W	25+65	16			L				10
5-W	25+75	16			L				10
6-W	26+07	16			L				10
7-W	26+32	16			L				10
8-W	26+38	16			L				10
9-W	26+75	16			L				10
10-W	26+79	16			L				10
11-W	27+01	16			L				10
12-W	27+08	16			L				10
13-W	27+68	16			L				10
14-W	27+70	16			L				10
15-W	27+86	16			L				10
16-W	28+22	16			L				10
17-W	28+58	16			L				10
18-W	29+36	16			L				10
19-W	29+40	16			L				10
20-W	29+82	16			L				10
21-W	29+84	24			L		1		
22-W	30+36	16			L			1	
	TOTALS					561	1	1	190

+40, ¾" Service Branch Lowered
+47, 5/4" Maple To Remain, 25.5'
+75, ¾" Service Branch Lowered
+735, 20 Maple to Remain, 38'

+32, ¾" Service Branch Lowered
+37, Gas Valve, 26.5'

+75, ¾" Service Branch Lowered
+91, Ohio Bell Tel. M.H, 21.5'

+01, Curb inlet, 20'
+01, No Parking Sign, 21.5
+02, Sto. M.H, 5'
+08, ¾" Service Branch Lowered
+10, Water Meter, 2.8'
+10.5 Shut off Valve, 26'
+23, 36" Maple, 25.5' To Remain
+42, Power Pole, 22'
+48, 26" Maple, 25 To Remain
+62.5, Water Meter, 2.5'
+62.5, Shut off Valve, 24'
+68, ¾" Service Branch Lowered

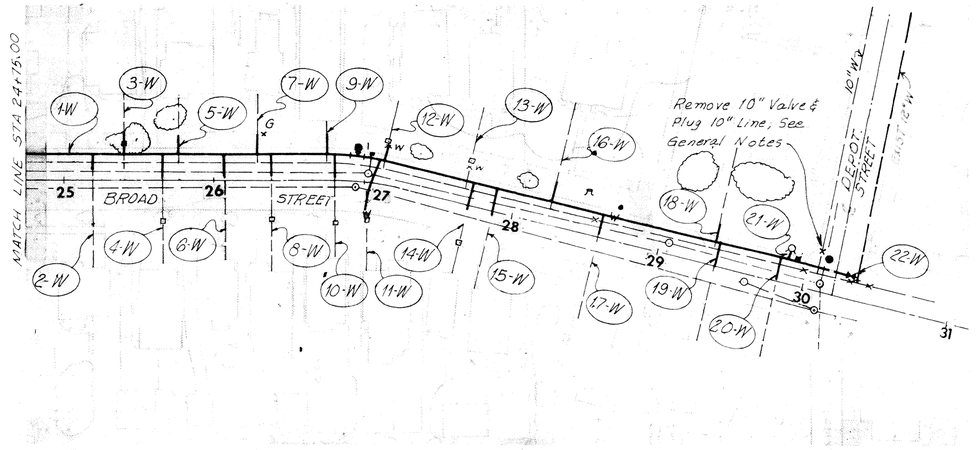
+00, 38" Tree, 25.5' To Remain
+22, ¾" Service Branch Lowered

+55' Water Valve, 14'

+88, Power Pole #40539, 22.5'
+05, Exist. 10" Valve, 23', Remove
+08, Storm M.H. 8'

+36, ¾" Service Branch Lowered

+84, Fire Hyd. Removed and Reset, 24'
+95, Inlet Basin, 2.5'
+09, Storm M.H. 6'
+10, Ohio Bell Tel. M.H. 2.2'
+30, Water Valve, 12'
+36, 12"x12" Tapping Sleeve and Gate Valve
+42, Water Valve, 12'



+19, ¾" Service Branch Lowered

+65, ¾" Service Branch Lowered
+85, Water Meter, 2.7'

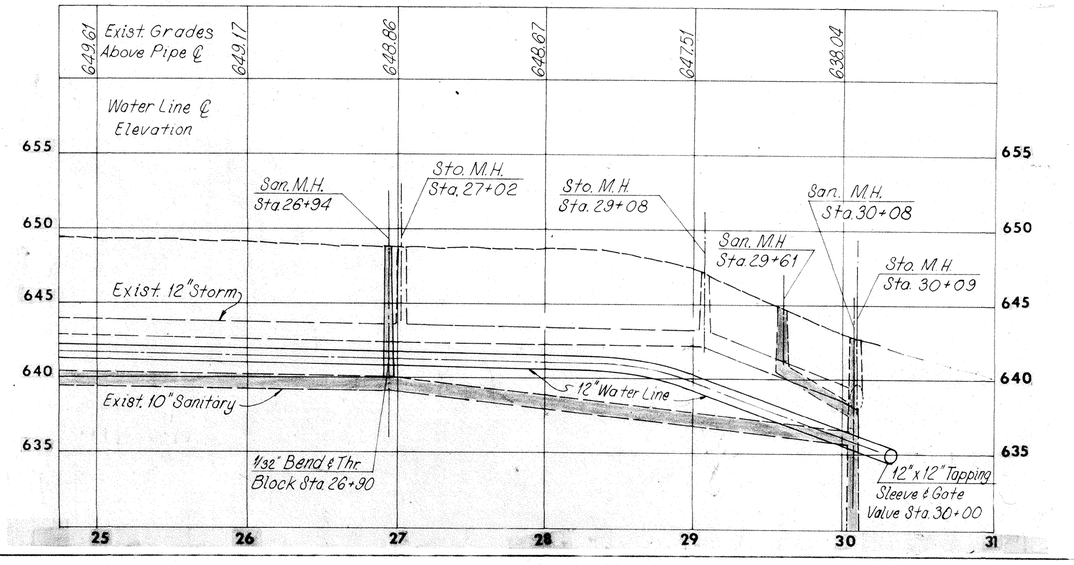
+07, ¾" Service Branch Lowered
+38, Water Meter
+38, ¾" Service Branch Lowered

+79, ¾" Service Branch Lowered
+79, Water Meter 2.9'
+90, ½" Bend
+94, Sanitary M.H. 6'
+01, ¾" Service Branch Lowered
+01, Water Meter

+70, ¾" Service Branch Lowered
+70, Water Meter, 2.4'
+86, ¾" Service Branch Lowered

+58, ¾" Service Branch Lowered

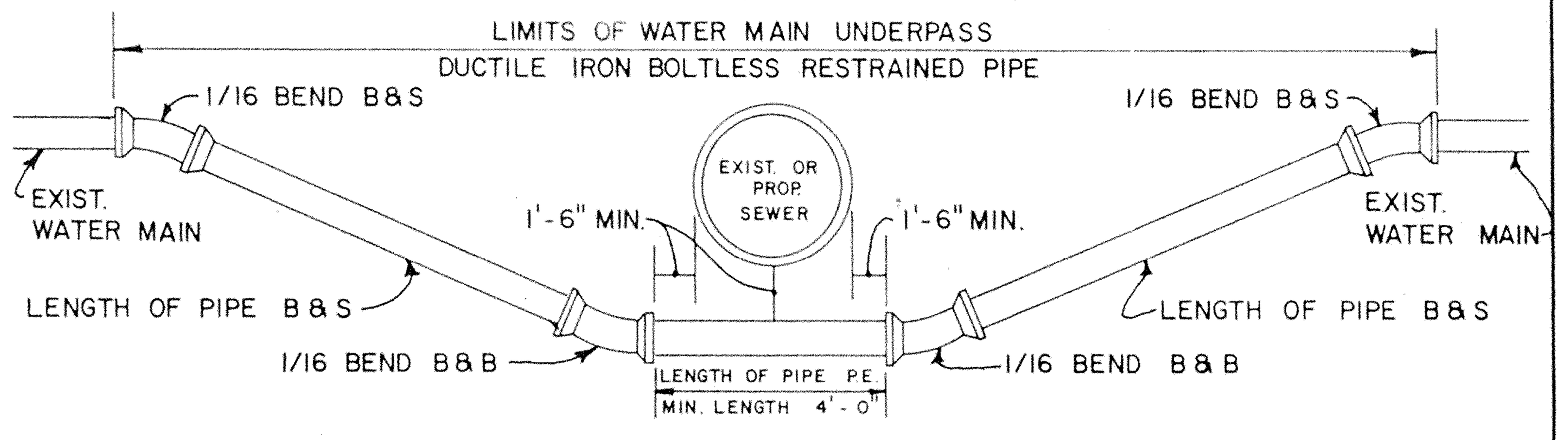
+40, ¾" Service Branch Lowered
+61, Sanitary M.H. 6'
+82, ¾" Service Branch Lowered
+08, Sanitary M.H. 14'



SCALE
MADE DATE
TRCD. MH DATE 3/1/79
CKD. AJM DATE 1/24/80

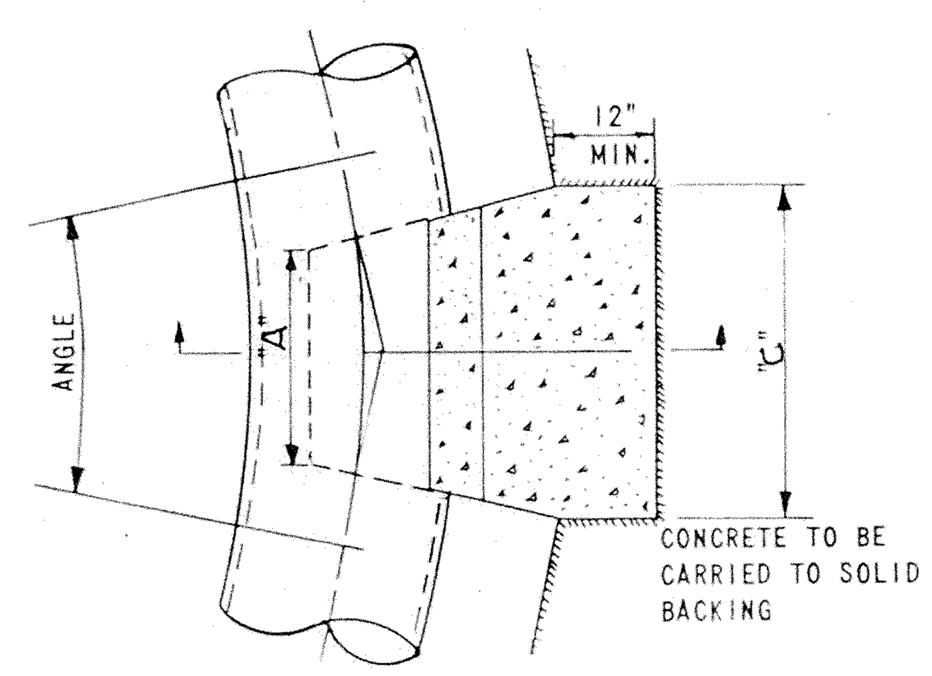
WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

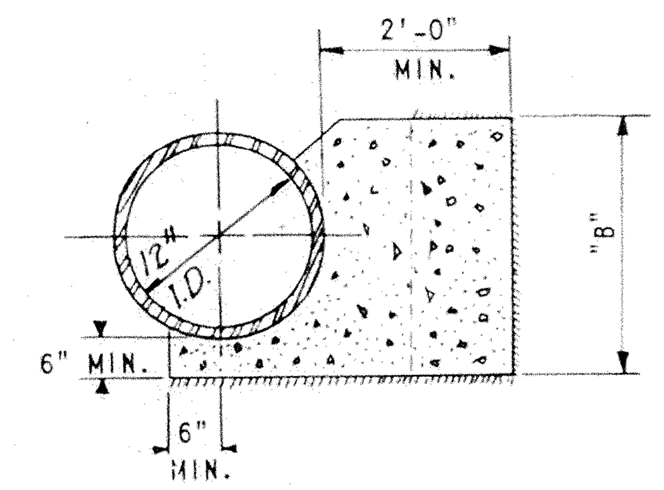
SR. 7-BROAD STREET



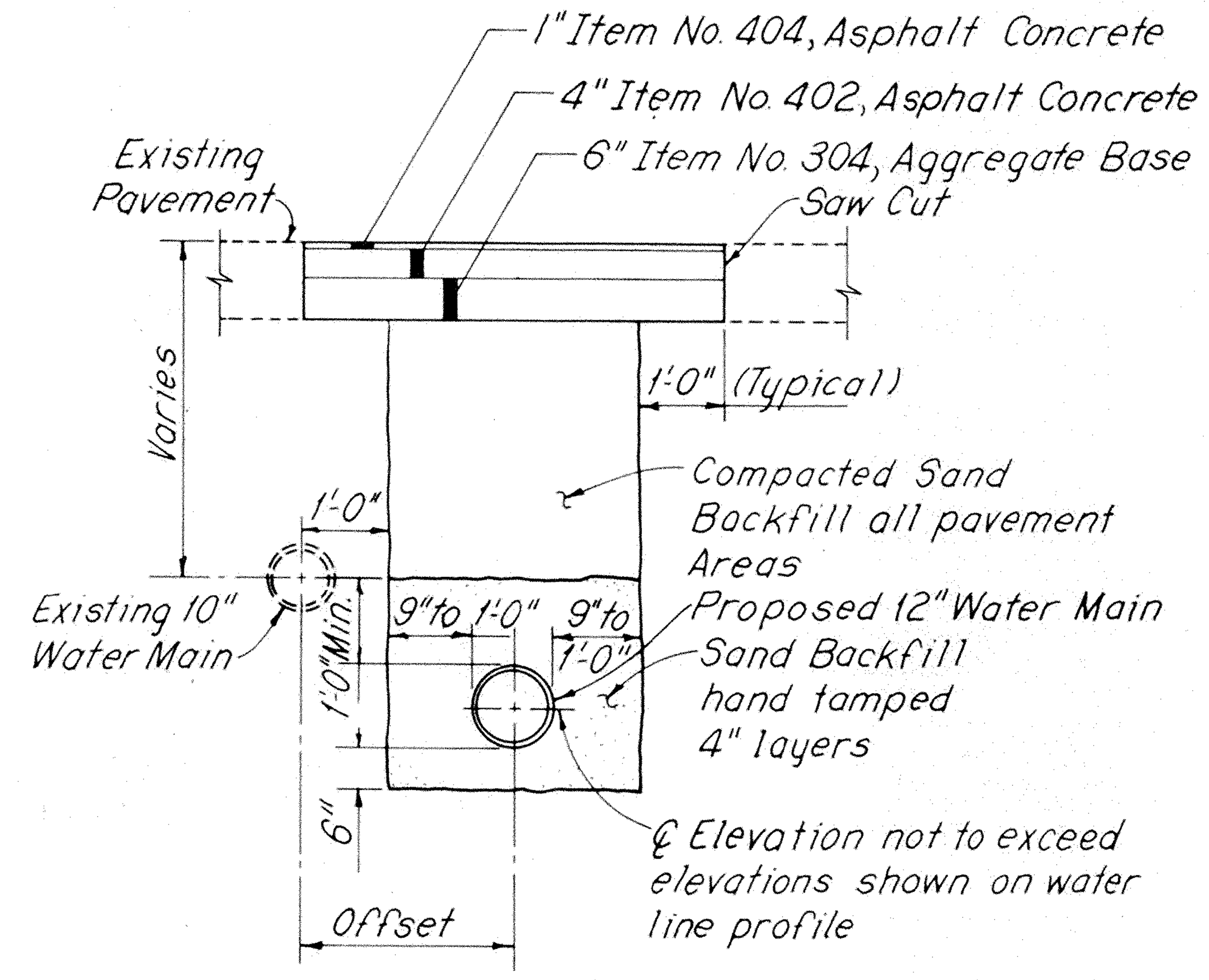
TYPICAL WATER MAIN UNDERPASS DETAIL
no scale

THRUST BLOCK DETAIL



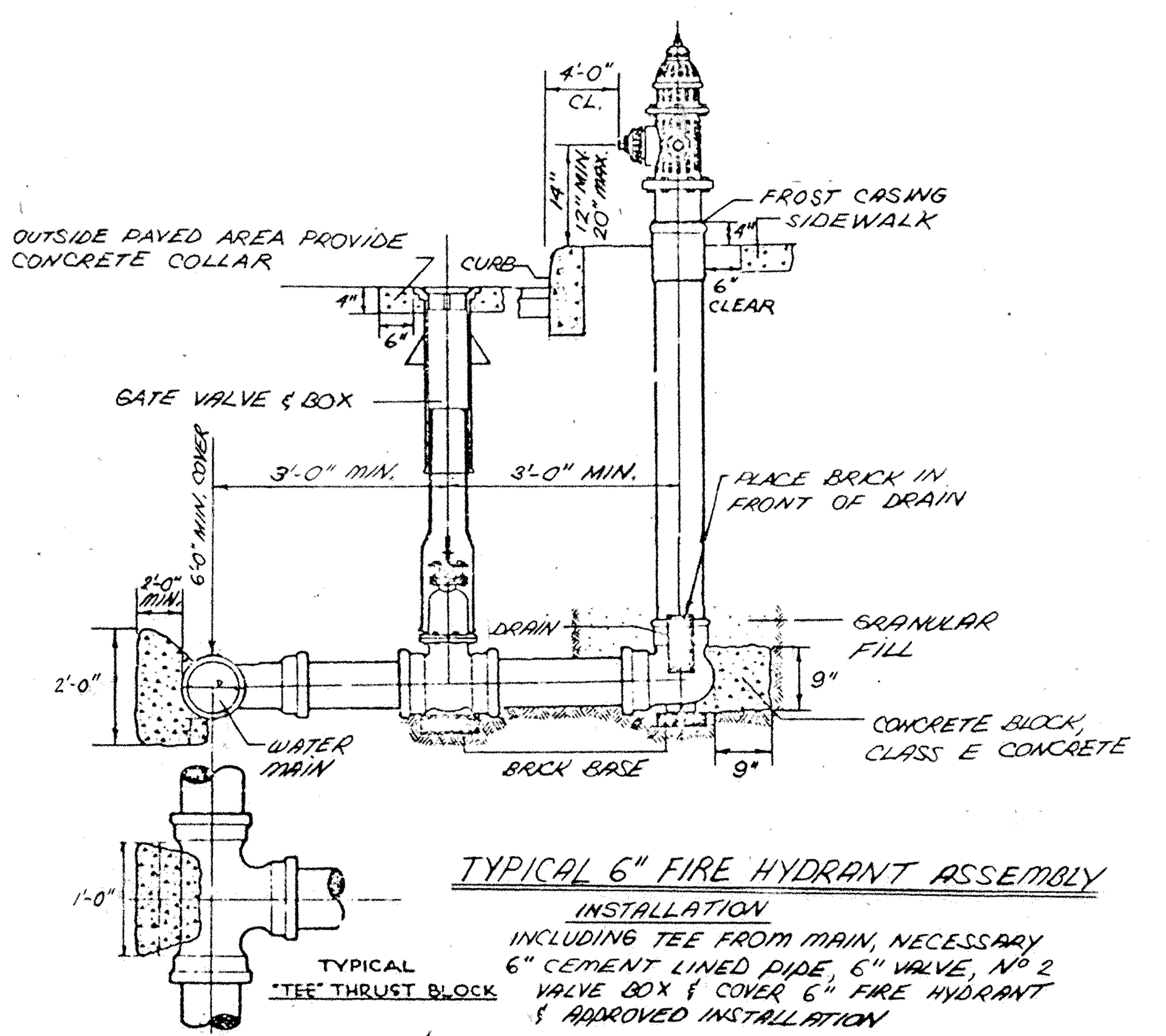


SIZE	ANGLE	A	B	C
4"	Tee or Bend	0'-4"	1'-2"	2'-0"
6"	Tee or Bend	0'-4"	1'-2"	2'-0"
8"	Tee or Bend	0'-4"	1'-2"	2'-0"
12"	Tee & 1/8	1'-0"	2'-0"	2'-0"



Trench Excavation

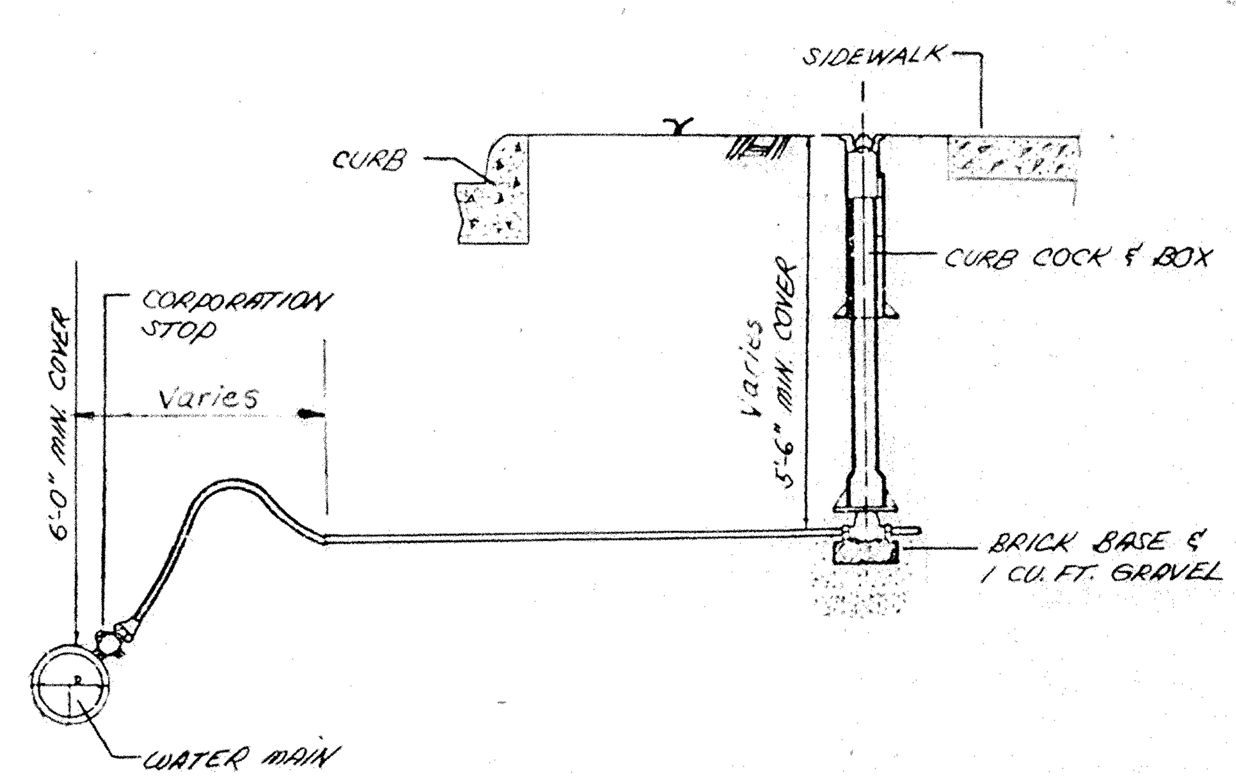
STATION		OFFSET
FROM	TO	FT.
Broad St.		
10+11	11+45	4.00'
11+45	23+12	As Per Plan
23+12	30+36	4.00'



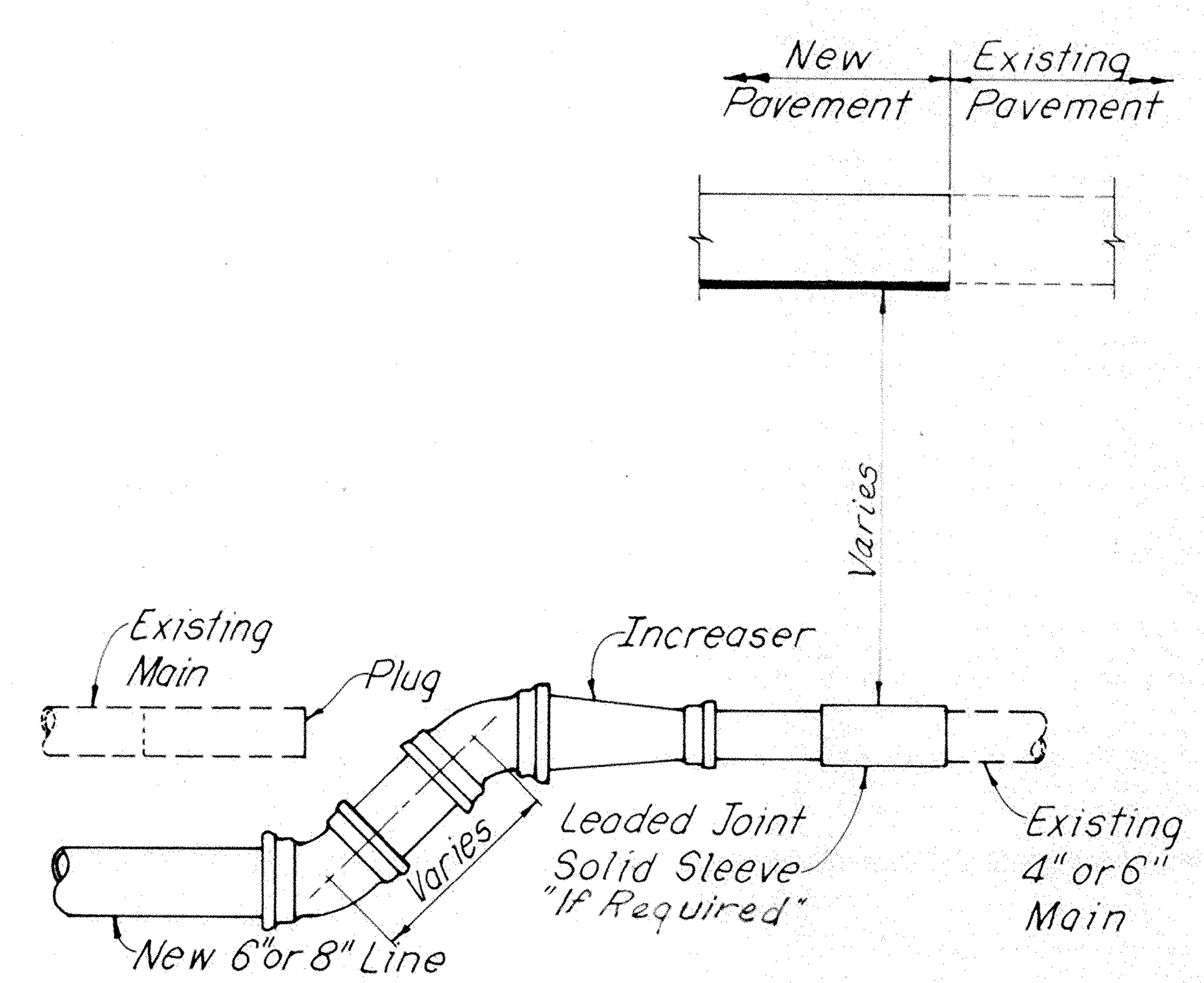
TYPICAL 6" FIRE HYDRANT ASSEMBLY
INSTALLATION
INCLUDING TEE FROM MAIN, NECESSARY 6" CEMENT LINED PIPE, 6" VALVE, No. 2 VALVE BOX & COVER 6" FIRE HYDRANT & APPROVED INSTALLATION

NOTES:

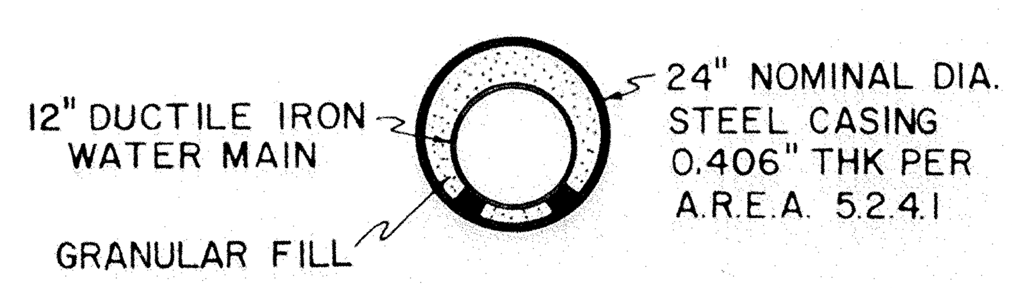
ALL FIRE HYDRANTS AND VALVE BOXES SHALL BE SECURELY BRACED WHEN SET AND BACKFILLED. ALL MATERIALS AND CONSTRUCTION SHALL MEET THE LATEST STANDARD SPECIFICATIONS FOR CONSTRUCTING WATER MAINS AND APPURTENANCES OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATIONS 814, UNLESS OTHERWISE NOTED ON THE PLANS.



TYPICAL HOUSE WATER CONNECTION
INCLUDING CORPORATION STOP, NECESSARY COPPER PIPE & STANDARD CURB COCK & BOX INSTALLED IN PLACE.



Detail ~ Connection To Existing Pipe



WATER LINE CASING DETAIL
AT RAILROAD CROSSING

Detail for Item 814, 12" Water Main Railroad Crossing with Steel Casing As Per Plan

SCALE	WOODRUFF, INC.
MADE MA DATE	CONSULTING ENGINEERS
TRCD. DATE 8/13/79	CLEVELAND OHIO
CKD. DATE 1/4/80	

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

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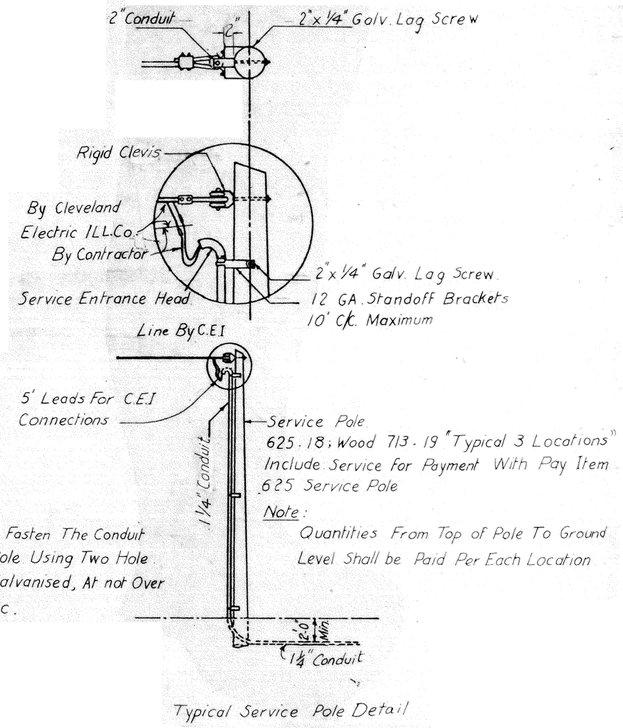
100

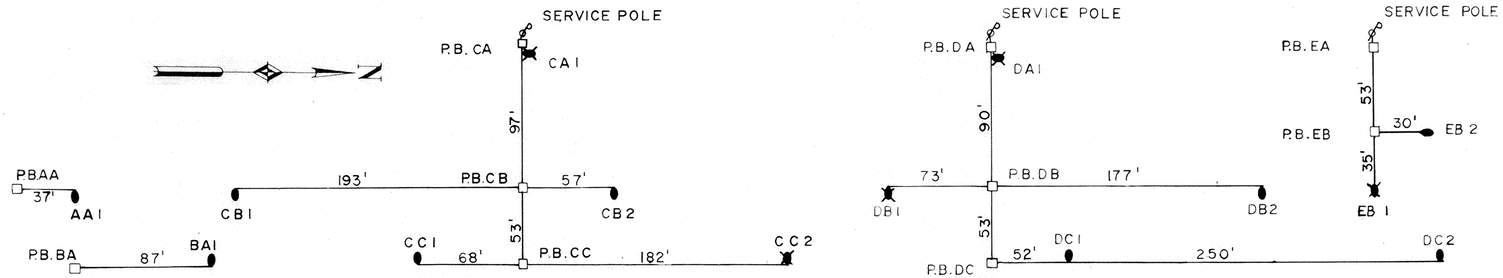
ASHTABULA COUNTY
ATB-7-31.43



Typical Service Pole Detail

Locations:

Adams St. Sta. 1+25 Lt.
Jefferson St. Sta. 1+35 Lt.
Jackson St. Sta. 6+00 Lt.



CIRCUIT DIAGRAM

DATA

Wire Factor = Ohms per 1000 ft. x 2 wires/1000
Ohms/MFT = 10.8 x 1000/ Circular Mils

For 4 AWG :-
Circular Mils = 41.742
Ohms / MFT = 0.259
Wire Factor = 0.518 /1000

For 120 Volts;-
150 Watt H.P.S. Oper. i = 1.6 Amps
250 Watt H.P.S. Oper i = 2.7 Amps

VOLTAGE DROP CALCULATIONS

Voltage = 120 v No. of Wires = 2 4 AWG
Wire Factor Used = 0.518 Ohm/1000 Ft.

Section From	To	Feet	Amp. At Pt.	Amp. Accum.	Amp. Ft	AWG	Voltage Drop In Sect.	Voltage Drop Accum.	%	At Point
EB 2	P.B.EB	40	1.6	1.6	64	4	0.033	0.178	0.15	EB 2
EB 1	P.B.EB	45	2.7	2.7	121.5	4	0.063	0.208	0.17	EB 1
P.B.EB	P.B.EA	63		4.3	297.5	4	0.145	0.145	0.12	P.B.EB
DC 2	DC 1	260'	1.6	1.6	416	4	0.22	0.97	0.81	DC 1
DC 1	P.B.DB	125	1.6	3.2	393.6	4	0.21	0.75	0.63	DC 1
DB 2	P.B.DB	187	1.6	1.6	304	4	0.16	0.70	0.58	DB 2
DB 1	P.B.DB	83	2.7	2.7	216	4	0.10	0.64	0.53	DB 1
P.B.DB	DA 1	130		7.5	1050	4	0.54	0.54	0.45	P.B.DB
CC 2	P.B.CC	192	2.7	2.7	513	4	0.27	0.98	0.82	CC 2
CC 1	P.B.CC	78	1.6	1.6	128	4	0.07	0.78	0.65	CC 1
P.B.CC	P.B.CB	63		4.3	270.9	4	0.14	0.71	0.59	P.B.CC
CB 2	P.B.CB	67	1.6	1.6	112	4	0.06	0.63	0.53	CB 2
CB 1	P.B.CB	203	1.6	1.6	328	4	0.17	0.74	0.62	CB 1
P.B.CB	CA 1	137		7.5	1102.5	4	0.57	0.57	0.48	P.B.CB
P.B.1	P.B.BA	97	1.6	1.6	160	4	0.08	0.08	0.07	BA 1
AA 1	P.B.AA	47	1.6	1.6	80	4	0.04	0.04	0.03	AA 1

SCALE _____ MADE N.K. DATE _____
TRCD. _____ DATE _____
CKD. N.S. DATE 4/4/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

S.R.7 - BROAD STREET

LIGHTING GENERAL NOTES

SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEM 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

REFERENCE SHALL BE MADE TO STANDARD CONSTRUCTION DRAWINGS LISTED ON THE TITLE SHEET OF THESE PLANS.

625.03 GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

THE ILLUMINATING COMPANY
2210 S. RIDGE WEST
ASHTABULA, OHIO 44004

THIS PROJECT HAS BEEN DESIGNED ON THE BASIS OF 5% VOLTAGE DROP, DESIGN UNIFORMITY RATIO 3:1. THE POWER SHALL BE SUPPLIED ON THE BASIS OF A 120 VOLT, 2 WIRE, ONE SIDE GROUNDED SYSTEM.

625.07 - 713.11 LUMINAIRES

STYLE A LUMINAIRES SHALL HAVE SINGLE RATED 120 VOLT, 150 WATT, INTEGRAL REGULATOR BALLASTS FOR USE WITH HIGH PRESSURE SODIUM LAMPS.

STYLE B LUMINAIRES SHALL HAVE SINGLE RATED 120 VOLT, 250 WATT, INTEGRAL REGULATOR BALLASTS FOR USE WITH HIGH PRESSURE SODIUM LAMPS.

UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO STANDARD DRAWING HL-10 FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 20 FEET. AN ESTIMATED QUANTITY OF "100 LINEAR FEET OF ITEM 605, 4" SHALLOW PIPE UNDERDRAINS" IS INCLUDED IN THE LIGHTING GENERAL SUMMARY FOR THIS PURPOSE.

ITEM SPECIAL - CABLE SPLICING KIT

THIS ITEM SHALL CONSIST OF PROVIDING AND INSTALLING AN APPROVED CABLE SPLICING KIT AS DESCRIBED IN PARAGRAPH 5 OF SECTION 713.15 OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE COST OF ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY FOR THIS ITEM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR EACH ITEM SPECIAL - CABLE SPLICING KIT."

STANDARD CONSTRUCTION DRAWING HL-3

POLE BASE DETAILS SHOWN ON THIS DRAWING ARE ESSENTIALLY FOR GALVANIZED STEEL POLES. FOR ALUMINUM DESIGNS, OR OTHER PERMITTED STEEL MATERIAL DESIGNS, VARIATIONS FROM THESE DETAILS WILL BE ACCEPTABLE, AS APPROVED BY THE ENGINEER.

CONNECTOR KITS

AT THE OPTION OF THE CONTRACTOR, TYPE IX CABLE CONNECTIONS MAY BE SUBSTITUTED WHERE TYPE II OR III CABLE CONNECTIONS ARE SPECIFIED IN HAND HOLES OR TRANSFORMER BASES OF LIGHT POLES.

625.13 CONDUIT

CONDUIT AT CROSSOVERS SHALL BE RIGID FERROUS METAL, 713.04.

713.14 LAMPS

HIGH PRESSURE SODIUM LAMPS SHALL BE GENERAL ELECTRIC "LUCALOX", WESTINGHOUSE "CERAMALUX", SYLVANIA "LUMALUX", OR EQUAL APPROVED BY THE ENGINEER. 150 WATT HPS LAMPS SHALL BE OF THE 100 VOLT DESIGN, ANSI S56.

HIGH VOLTAGE DIRECT CURRENT TEST

A HIGH VOLTAGE DIRECT CURRENT TEST AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 839, SHALL BE PERFORMED ON ALL DISTRIBUTION CABLE, AND DUCT CABLE SYSTEMS TO BE INSTALLED ON THIS PROJECT. THE TEST SHALL NOT BE PERFORMED UNTIL AFTER ALL NEW CONSTRUCTION, SUCH AS GUARDRAIL, FENCE, DELINEATOR POSTS, SIGN SUPPORTS, ETC., IN THE IMMEDIATE VICINITY OF THE LOCATION OF THE CABLE RUN BEING TESTED, HAS BEEN COMPLETED.

LIGHTING SUB-SUMMARY

Reference No.	Side	Station	Light Pole Design T6 B-30.0	Light Pole Foundation 24"x6"	Luminaire Style A, Type II, 150 W; HPS.	Luminaire Style B, Type II, 250 W; HPS	Pull Box 18" Circular	Trench 24" Deep	Conduit 3", 713.04	Conduit 1¼", 713.04	Distribution Cable No 4 AWG	Pole and Bracket Cable No 10 AWG	Duct-Cable, Two No 4 AWG, 600 V.	Connector Kit Type II	Connector Kit Type III	Connector Kit Type VII A	Connector Kit Type VII B	Connector Kit Type VII C	Cable Splicing Kit	Service Pole		Lamp 150 W; H.P.S.	Lamp 250 W; H.P.S.	
			Ea	Ea	Ea	Ea	Ea	Lin.ft.	Lin.ft.	Lin.ft	Lin.ft.	Lin.ft.	Lin.ft.	Ea.	Ea.	Ea	Ea	Ea.	Ea	Lump		Ea	Ea	
1	Lt.	11+35 S.R.7					1									2			2					
2	Lt.	11+35 to 11+72 S.R.7	1	1		1		37				75	47	1	1								1	
3	Rt.	11+85 S.R.7					1									2			2					
4	Rt.	11+85 to 12+72 S.R.7	1	1	1			87				75	97	1	1							1		
5	Lt.	13+97 S.R.7	1	1	1							75		1	1							1		
6	Lt.	13+97 to 15+90 S.R.7					1	193					203					2	4					
7	Lt.	15+90 S.R.7 to 1+25 Jefferson St.	1	1		1		97				75	107	1	1								1	
8	Lt.	1+25 to 1+35 Jefferson Street					1	10		35	90		20			2			4	1				
9	Lt.	15+90 to 16+47 S.R.7	1	1	1			57				75	67	1	1							1		
10	Lt&Rt	15+90 S.R.7					1	53	53		126						2		4					
11	Rt	15+22 to 15+90 S.R.7	1	1	1			68				75	78	1	1							1		
12	Rt	15+90 to 17+72 S.R.7	1	1		1		182				75	192	1	1								1	
13	Lt	18+72 S.R.7	1	1		1						75		1	1								1	
14	Lt	18+72 to 19+45 S.R.7					1	73					83					2	4					
15	Lt	19+45 S.R.7 to 1+15 Adams Street	1	1		1		90				75	100	1	1								1	
16	Lt	1+15 to 1+25 Adams Street					1	10		35	90		20			2			4	1				
17	Lt	19+45 to 21+22 S.R.7	1	1	1			177				75	187	1	1							1		
18	Lt&RT	19+45 S.R.7					1	53	53		126					2			2					
19	Rt	19+45 to 19+97 S.R.7	1	1	1			52				75	62	1	1	2						1		
20	Rt	19+97 to 22+47 S.R.7	1	1	1			250				75	260	1	1							1		
21	Lt	23+72 S.R.7	1	1		1						75		1	1								1	
22	Lt	23+72 S.R.7 to 5+47 Jackson St.					1	35					45				2		4					
23	Rt	5+47 to 5+63 Jackson Street	1	1	1			46	46		112	75		1	1							1		
24	Rt&Lt	5+47 to 6+00 Jackson Street.					1	53		35	90		63			2			4	1				
		Totals	14	14	8	6	10	1623	152	105	634	1050	1631	14	14	14	4	4	34	3		8	6	

GENERAL SUMMARY

QUANTITY CALCULATIONS
BY _____ DATE _____
CHKD. _____ DATE _____
WOODRUFF, INC.

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

ASHTABULA COUNTY
ATB-7-31.43

72
100

SHEET NO. 69	70	71	72	73	ESTIMATED QUANTITIES	MISCELL. LOCATIONS	PROPOSAL QUANTITIES	UNIT	ITEM NO.	DESCRIPTION
		14					14	Each	625	Light Pole, Design T6B 30.0 (Transformer base Pole)
		14					14	Each	625	Light Pole Foundation, 24" x 6' Deep
		8					8	Each	625	Luminaire Style A, Type II 150 Watt High Press. Sodium 713.11
		6					6	Each	625	Luminaire, Style B, Type II, 250 Watt, High Press Sodium 713.11
		8					8	Each	625	Lamp, 150 Watt, High Pressure Sodium
		6					6	Each	625	Lamp, 250 Watt, High Pressure Sodium
		10					10	Each	625	Pull Box, 18" Circular, Metal 713.09
		1623					1623	Lin.Ft.	625	Trench, 24" Deep.
		152					152	Lin.Ft.	625	Conduit, 3" 713.04,
		105					105	Lin.Ft.	625	Conduit 1¼" 713.04.
		634					634	Lin.Ft	625	NO. 4 AWG 600 Volt, Distribution Cable.
		1050					1050	Lin.Ft	625	NO. 10 AWG Pole and Bracket Cable.
		1631					1631	Lin.Ft.	625	1½" Duct-Cable With Two NO 4 AWG 600 Volt Cables
		14					14	Each	625	Connector Kit, Type II
		14					14	Each	625	Connector Kit, Type III
		14					14	Each	625	Connector Kit, Type VII A
		4					4	Each	625	Connector Kit, Type VII B.
		4					4	Each	625	Connector Kit Type VII C
		100					100	Lin.Ft.	605	4 Inch Shallow Pipe Underdrains
		Lump Sum					Lump Sum	Lump	839	High Voltage Test
		34					34	Each	Special	Cable Splicing Kit.
		Lump Sum					Lump Sum	Lump	625	Service Pole; Jefferson St. Sta 1+35 L
		Lump Sum					Lump Sum	Lump	625	Service Pole; Adams St. Sta 1+25 L
		Lump Sum					Lump Sum	Lump	625	Service Pole; Jackson St. Sta 6+00 L

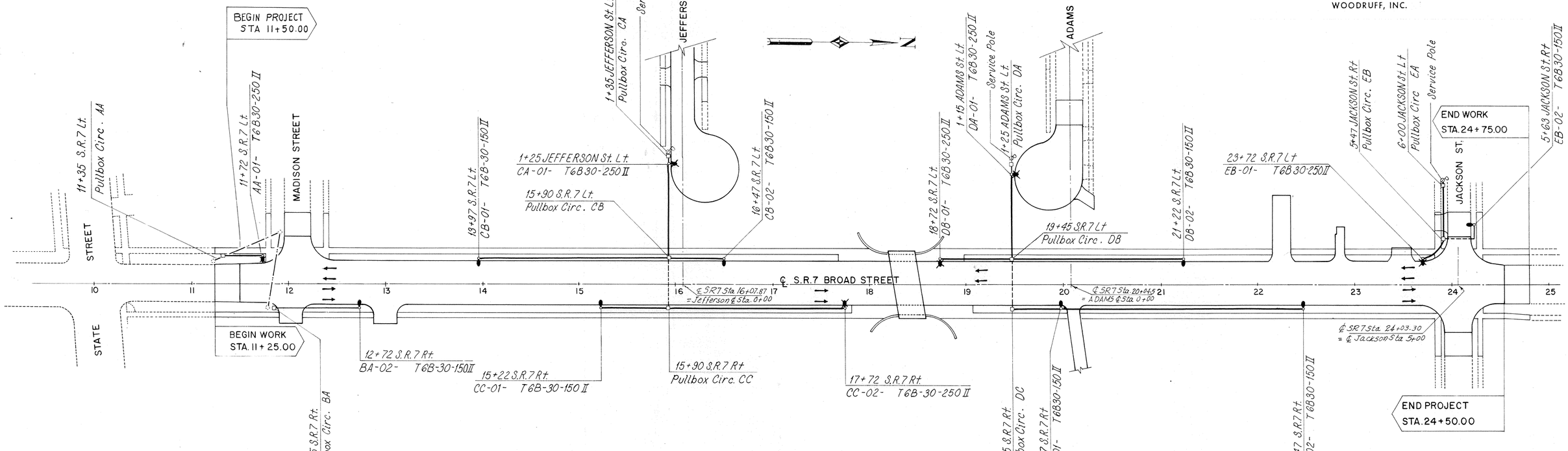
LIGHTING PLAN

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

73
100

ASHTABULA COUNTY
ATB-7-31.43

QUANTITY CALCULATIONS
BY N.S. DATE 1-18-80
CHKD. A.J.M. DATE 1/24/80
WOODRUFF, INC.



LEGEND

- EXISTING PULLBOX & CABLE
- PULLBOX
- FERROUS METAL CONDUIT 713.04
- DUCT - CABLE
- SERVICE POLE
- LIGHT POLE & 150 WATT LUMINAIRE (ARM PERPENDICULAR TO STATIONING ℄.)
- LIGHT POLE & 250 WATT LUMINAIRE (ARM PERPENDICULAR TO STATIONING ℄.)

18+72 S.R.7. Lt. — STATION & LOCATION
DB_01 T6B_30_250 II — POLE & LUMINAIRE DESCRIPTION

- ANSI-IES DISTRIBUTION TYPE
- LAMP WATTS
- LUMINAIRE MOUNTING HEIGHT
- BRACKET (B-SINGLE; BB-DOUBLE)
- BRACKET ARM LENGTH
- BASE (A-ANCHOR; T-TRANSFORMER)
- POLE NUMBER
- CIRCUIT NUMBER
- CONTROL CENTER NUMBER

SCALE ____
MADE A.L. DATE ____
TRCD. C.R. DATE 8/13/79
CKD. N.S. DATE 1/9/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

S.R.7 BROAD STREET

RAILROAD RUNAROUND
GENERAL NOTES

QUANTITY CALCULATIONS
BY N.S. DATE 1/28/80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

ASHTABULA COUNTY
ATB-7-31.43

74/100

SCOPE OF WORK

THE WORK INCLUDES THE FURNISHING AND INSTALLING ALL MATERIALS REQUIRED FOR LAYING, BALLASTING, LINING AND SURFACING OF A TEMPORARY TRACK AS SHOWN ON THE PLAN FROM RUN AROUND CENTERLINE STATION 6020+55.76(C.S.) TO CENTERLINE STATION 6026± 00.00 (545±); THE REMOVAL OF THE TEMPORARY TRACK AFTER THE PERMANENT TRACK HAS BEEN RESTORED TO SERVICE BY OTHERS; RESTORING THE SITE TO ITS ORIGINAL CONDITION IN A MANNER ACCEPTABLE TO THE ENGINEER. THE WORK ALSO WILL INCLUDE CONSTRUCTION ENGINEERING AS REQUIRED BY THE PROJECT.

THE TEMPORARY TRACKWORK MATERIAL IS THE PROPERTY OF THE CONTRACTOR AFTER ITS REMOVAL.

STANDARD SPECIFICATIONS

ALL TRACKWORK SHALL BE IN ACCORDANCE WITH AMERICAN RAILWAY ENGINEERING ASSOCIATION MANUAL FOR RAILWAY ENGINEERING AS SET FORTH IN CHAPTERS 1 THROUGH 5 AND IN ACCORDANCE WITH NORFOLK AND WESTERN RAILWAY COMPANY SPECIFICATIONS AND STANDARD PROCEDURES ON FILE IN THE OFFICE OF MR. BYRD FINLEY JR. OF THE STATE OF OHIO DEPARTMENT OF TRANSPORATION, 25 SOUTH FRONT STREET, COLUMBUS, OHIO 43216.

RAIL

RUN AROUND TRACK SHALL BE NEW 132 POUNDS PER LINEAL FOOT R.E SECTION OR HEAVIER.

THE RAIL FURNISHED FOR THE TRACK IS TO BE PREFERABLY OF STANDARD NORFOLK AND WESTERN RAILWAY SECTION OF CONTROLLED COOLED MAIN TRACK QUALITY AND SECTION AND SUBJECT TO THE APPROVAL OF THE NORFOLK AND WESTERN RAILWAY COMPANY.

JOINT OR SPLICE BARS

FIT JOINT BARS EQUIVALENT TO THOSE IN EXISTING TRACKS MAY BE USED, PUNCHED IN ACCORDANCE WITH NORFOLK AND WESTERN RAILWAY STANDARD DRILLINGS. JOINT BARS USED MUST MATCH THE RAIL, AND WHERE NECESSARY, MUST BE REFORMED JOINT BARS TO FIT WORN RAIL AND OBTAIN TIGHT JOINTS.

JOINT BARS SHOULD BE THE TYPE MANUFACTURED IN ACCORDANCE WITH CURRENT A.R.E.A. SPECIFICATIONS FOR QUENCHED CARBON STEEL JOINT BARS.

ALL JOINTS MUST BE FULLY BOLTED.

TRACK BOLTS

BOLTS USED SHALL CONFORM WITH CURRENT A.R.E.A. SPECIFICATIONS FOR HEAT-TREATED CARBON STEEL AND ALLOY STEEL TRACK BOLTS AND CARBON STEEL NUTS. THE THREAD MUST BE ROLLED AND FITTED WITH HEAVY U.S. SQUARE NUTS, THICKNESS AND LENGTH OF BOLTS SHALL CORRESPOND TO RAIL SECTIONS SUPPLIED IN ACCORDANCE WITH A.R.E.A. SPECIFICATIONS. FIT BOLTS AND NUTS MUST BE STRAIGHT WITH UNDAMAGED THREADS AND SUITABLE FOR PROPER TIGHTENING OF THE JOINT.

SPRING WASHERS

SPRING WASHERS, ONE ON EACH BOLT, SHALL BE USED IN MAKING THE RAIL JOINTS AND SHALL CONFORM TO CURRENT A.R.E.A. SPECIFICATIONS. WASHERS SHALL BE UNDAMAGED AND UNBROKEN AND SUITABLE FOR PROPER TIGHTENING OF THE JOINT.

TIE PLATES

TIE PLATES SHALL BE OF STANDARD SIZE FOR THE RAIL FURNISHES, CONFROM TO A.R.E.A. SPECIFICATIONS, OF EQUIVALENT AND ACCEPTABLE QUALITY TO THOSE IN EXISTING TRACKS. TIE PLATES SHALL BE USED UNDER RUNNING RAILS ON ALL CROSS TIES PROPERLY PLACED ON THE TIE AND WITH THE SHOULDER OF THE TIE PLATE IN FULL BEARING AGAINST THE RAIL.

RAIL ANCHORS

AN APPROVED TYPE OF ANCHOR SUCH AS IMPROVED FAIR, WOODINGS, OR TRUE TEMPER CHANNELOC, SHALL BE USED. RAIL ANCHORS SHALL BE EQUIVALENT TO THOSE IN EXISTING TRACK AND BE OF A SIZE TO CORRESPOND TO THE RAIL SECTION USED. SIXTEEN ANCHORS SHALL BE APPLIED TO EACH FULL RAIL. EIGHT ON EACH DIRECTION. ANCHORS SHALL BE APPLIED ON OPPOSITE SIDES OF THE SAME TIE, AND ON THE SAME TIES FOR EACH RAIL. INSTALLATION SHALL BE AS PER THE REQUIREMENTS OF NORFOLK AND WESTERN RAILWAY STANDARD PROCEDURE NO. 11.

TIES

CROSS TIES SHALL BE OF HARD WOOD, 8'-6" LONG, OF MAIN TRACK GRADES EQUIVALENT TO THOSE EXISTING TRACKS, THE CROSS TIES SHALL BE SPACED UNIFORMLY, 20" CENTER TO CENTER, LAID SQUARE WITH THE RAIL, HEART WOOD DOWN, AND BROUGHT TO UNIFORM LINE.

SPIKES

ALL SPIKES USED SHALL BE 5/8"x6 1/2" FULL THREADED. FOUR SPIKES SHALL BE APPLIED IN EACH TIE PLATE. TWO RAIL HOLDING SPIKES AND TWO PLATE HOLDING SPIKES. THE SPIKES SHALL BE DRIVEN VERTICALLY WITH HEAD POINTING TOWARDS THE RAIL. BENT, THROATCUT, BADLY RUSTED, OR BROKEN SPIKES WILL NOT BE USED. ALL WORK SHALL BE ACCORDING TO NORFOLK AND WESTERN RAILWAY STANDARD PROCEDURE NO. 27, 1-16-67.

BALLAST

THE BALLAST FOR THE TRACKS SHALL BE A.R.E.A. SIZE 2. THE BALLAST IS TO BE SPREAD IN UNIFORM LAYERS AND PROPERLY COMPACTED BY ROLLERS AND/OR TAMPERS TO A POINT WHERE THE TRACK CAN BE BUILT WITHIN A MINIMUM OF FOUR INCHES OF THE FINAL GRADE.

GAGE

THE GAGE SHALL BE 4'-8 1/2".

FINAL SURFACE AND LINE

THE TRACK, AFTER CONSTRUCTED ON THE BALLAST BED, SHALL THEN BE RAISED ON ADDITIONAL BALLAST AS REQUIRED, BY LIFTS TO ITS FINAL GRADE AND PROPERLY TAMPED BY AN APPROVED METHOD. AS WORKED UPON, THE TRACK SHALL BE MAINTAINED IN APPROXIMATELY TRUE ALIGNMENT. IN MAKING ALL LIFTS CARE SHOULD BE TAKEN TO LOOSEN JOINTS AND RESEAT THEM IF NECESSARY, MAINTAINING PROPER EXPANSION SPACE TO PREVENT KINKING OR BENDING. BOTH RAILS TO BE RAISED AT THE SAME TIME AS NEARLY UNIFORM AS POSSIBLE.

THE FINAL RAISE SHALL BE MADE TO THE FINAL GRADE AND THOROUGHLY TAMPED BY AN APPROVED METHOD FROM THE ENDS OF TIES TO 15" INSIDE OF EACH RAIL. THE SPACE AT THE CENTER OF THE TIES SHALL BE COMPLETELY FILLED WITH BALLAST, BUT NOT TAMPED. THE CONTRACTOR SHALL LINE AND DRESS THE BALLAST TO CONFORM TO THE STANDARD ROADED SECTION SHOWN ON THE PLANS. SUPERELEVATION FOR THE TRACKS SHALL BE IN ACCORDANCE WITH THE PLANS. AFTER FINAL TAMPING, TRACKS SHALL BE BROUGHT TO AN ACCEPTABLE FINAL ALIGNMENT.

ENGINEERING

THE CONTRACTOR SHALL PROVIDE WHATEVER ENGINEERING AND SURVEYING CORPS AS WILL BE REQUIRED TO CARRY OUT THE TRACKWORK AND AS REQUIRED TO AID THE NORFOLK AND WESTERN RAILWAY COMPANY'S ENGINEER IN CHECKING ALL WORK PERFORMED. PAYMENT SHALL BE INCLUDED IN THE TRACKWORK BID ITEM.

PAY ITEMS FOR RAILROAD WORK

ITEM 615 - NORFOLK & WESTERN RAILWAY COMPANY - RUN AROUND ROAD BED PREPARATION AS PER PLAN (SEE SHEETS 76, 77, AND 78)
ITEM SPECIAL - NORFOLK & WESTERN RAILWAY COMPANY RUN AROUND-TRACK-WORK- 545 L.F. SEE GENERAL NOTES THIS SHEET FOR TRACK WORK DESCRIPTION.
ITEM 202 - FENCE REMOVED FOR REUSE AS PER PLAN 107 L.F.
ITEM 607 - FENCE TYPE C.L. FOR TEMPORARY USE AS PER PLAN 70 L.F.

FENCE

PORTIONS OF THE EXISTING FENCE ALONG THE SOUTHERLY PROPERTY LINE OF THE ASTATIC CORPORATION SHALL BE REMOVED FOR REUSE AS SHOWN ON PLAN AND AS DIRECTED BY THE ENGINEER.

NEW FENCE SHALL BE INSTALLED TO PROTECT THE RUN-AROUND-TRACK AS SHOWN ON PLAN.
UPON THE RESTORATION OF TRAIN TRAFFIC TO THE MAIN TRACK THE CONTRACTOR SHALL REMOVE THIS FENCE, WHICH BECOMES THE CONTRACTOR'S PROPERTY, AND THE ORIGINAL FENCE SHALL BE REINSTALLED IN ITS ORIGINAL LOCATION AND AS DIRECTED BY THE ENGINEER.

DRAINAGE OF THE RUNAROUND

THE CONTRACTOR SHALL PROVIDE DRAINAGE FOR THE ROAD BED OF THE RUN-AROUND TRACK AS SHOWN ON THIS PLAN. THE DRAINAGE OUTLET AND DIRECTION MAY BE ALTERED ACCORDING TO THE CONSTRUCTION SITE CONDITIONS SUBJECT TO THE APPROVAL OF THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES TO BE PROVIDED AND SHALL BE USED AS DIRECTED BY THE ENGINEER.

ITEM		DESCRIPTION	QUANT.
(1)	605	6" DEEP PIPE UNDERDRAIN	850 L.F.
(2)	603	12" CONDUIT TYPE B	300 L.F.
(3)	603	12" CONDUIT TYPE B, 3000 D-LOAD	65 L.F.

UPON THE COMPLETION OF REMOVAL OF THE RUNAROUND TRACKS, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THESE DRAINAGE PIPES, THEN RESTORE THE SITE TO A CONDITION ACCEPTABLE TO THE ENGINEER.

NO ADDITIONAL COMPENSATION SHALL BE MADE FOR RUNAROUND TRACK DRAINAGE AND ALL COSTS MUST BE INCLUDED IN THE BID PRICE FOR ITEM 615 NORFOLK AND WESTERN RAILWAY COMPANY RUNAROUND ROAD BED PREPARATION AS PER PLAN.

SCALE
MADE N.S. DATE
TRCD EMK DATE 8-13-79
CKD. AJM DATE 1/5/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

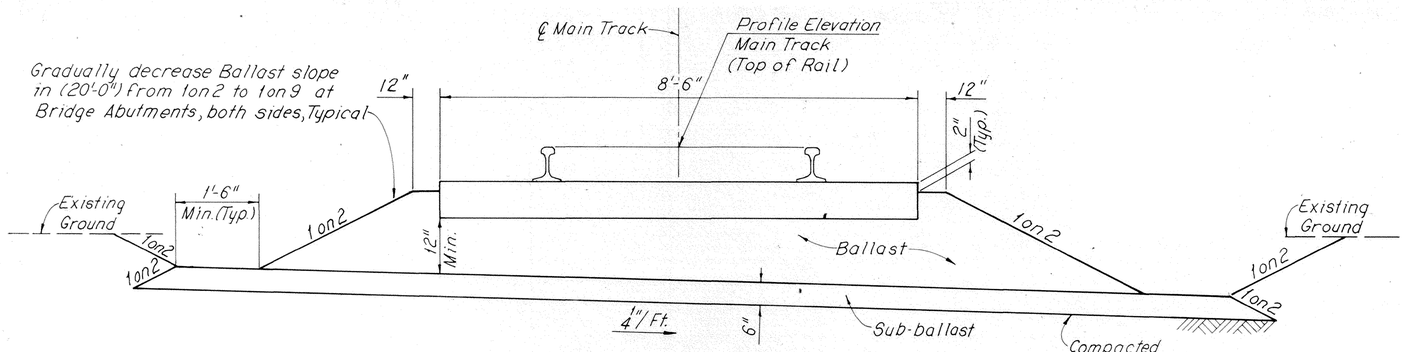
CONNEAUT, OHIO
SR.7 - BROAD STREET

TYPICAL SECTIONS

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

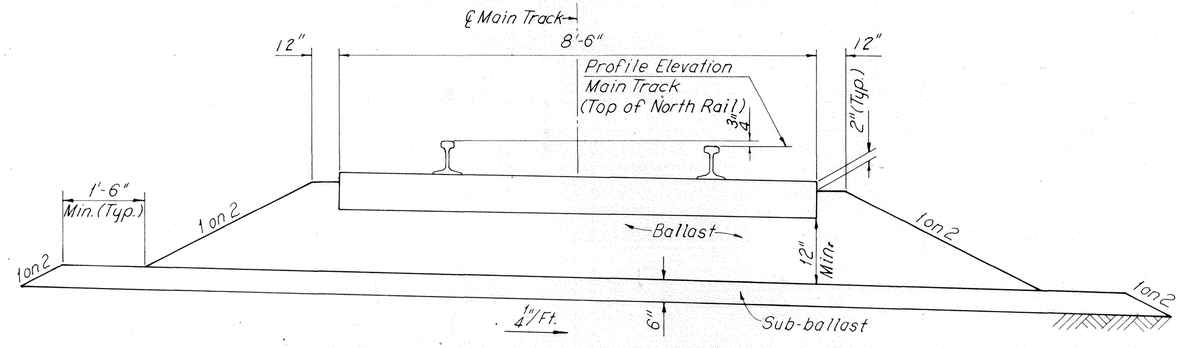
75
100

ASHTABULA COUNTY
ATB-7-31.43



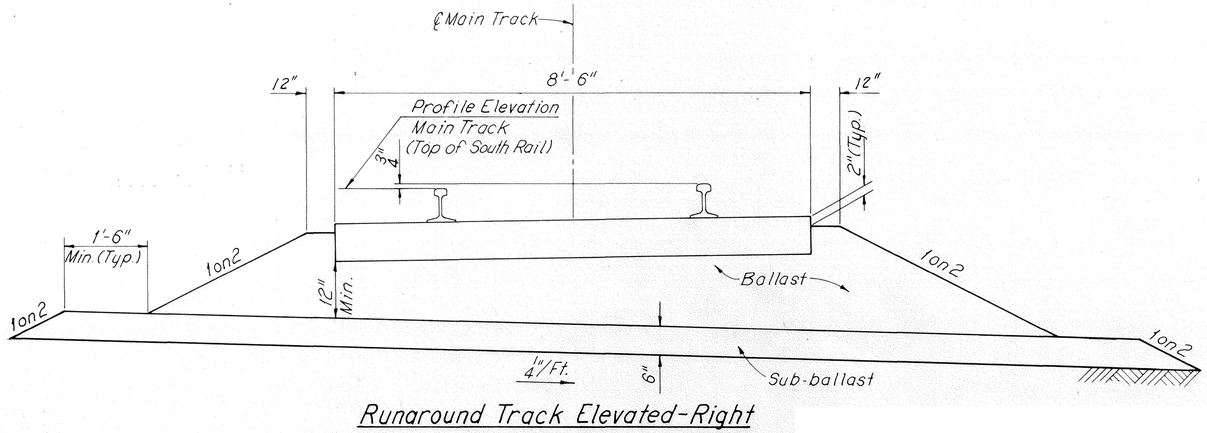
Runaround Track Tangent Location and Proposed Final Section

From Runaround Sta. 6021+05.76 To Sta. 6021+95.76
From Runaround Sta. 6025+45.76 To Sta. 6026+35.76
From Main Track Sta. 6024+24.57 To Sta. 6024+44.57 and
From Main Track Sta. 6025+14.65 To Sta. 6025+34.65



Runaround Track Elevated - Left

From Sta. 6019+55.76 To Sta. 6020+55.76
and From Sta. 6026+85.76 To Sta. 6027+85.76



Runaround Track Elevated - Right

From Sta. 6022+45.76 To Sta. 6024+95.76

NOTE:

OUTER RAIL ELEVATION ON ALL SPIRALS SHALL VARRY FROM 3/4" AT C.S. OR S.C. TO 0" AT T.S. OR S.T..

RUNAROUND ROADWAY WIDTH SHALL BE 22'-0" MINIMUM AT ALL LOCATIONS ALONG THE RUNAROUND TRACK. EXCAVATION , SUBALLAST AND BALLAST DEPTHS WILL BE ADJUSTED ACCORDING TO SITE SOIL CONDITIONS AS DIRECTED BY THE ENGINEER.

SCALE
MADE N.S. DATE
TRCD. RCK DATE 3/79
CKD. A.J.M. DATE 11/9/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

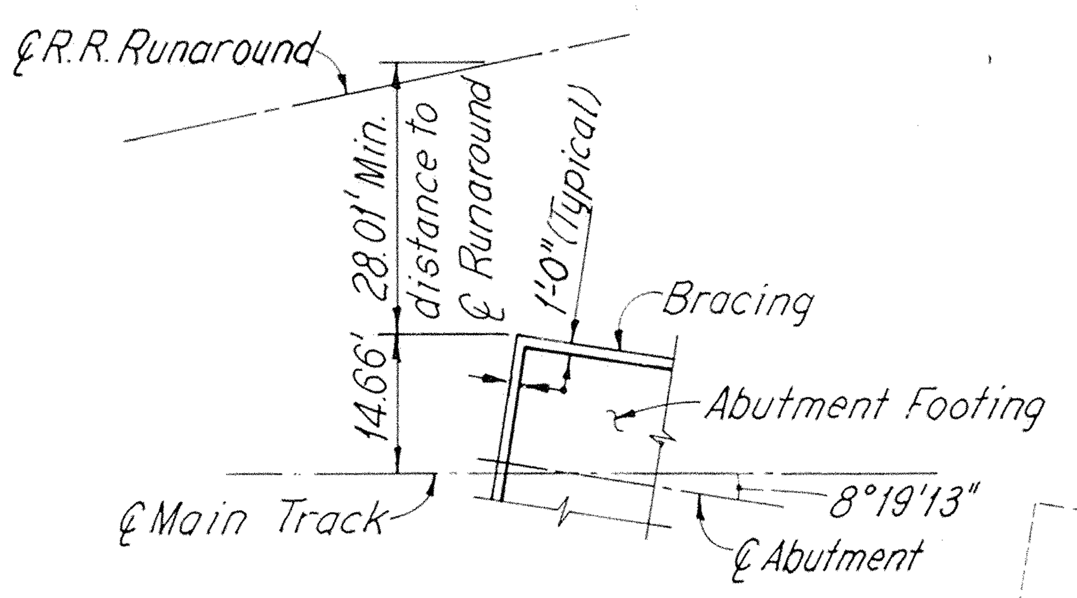
SR. 7 - BROAD STREET

RAILROAD RUNAROUND

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

ASHTABULA COUNTY
ATB-7-31.43

(S1) SPIRAL DATA	(C1) CURVE DATA	(C2) CURVE DATA
Δ=2°	R=716.78	R=716.78'
D=8°	D=8°	D=8°
L=50'	L=100'	Δ=20°
		L=250'



HORIZONTAL 50 0 100 200
VERTICAL 1 0 1 2 3 4
SCALE IN FEET

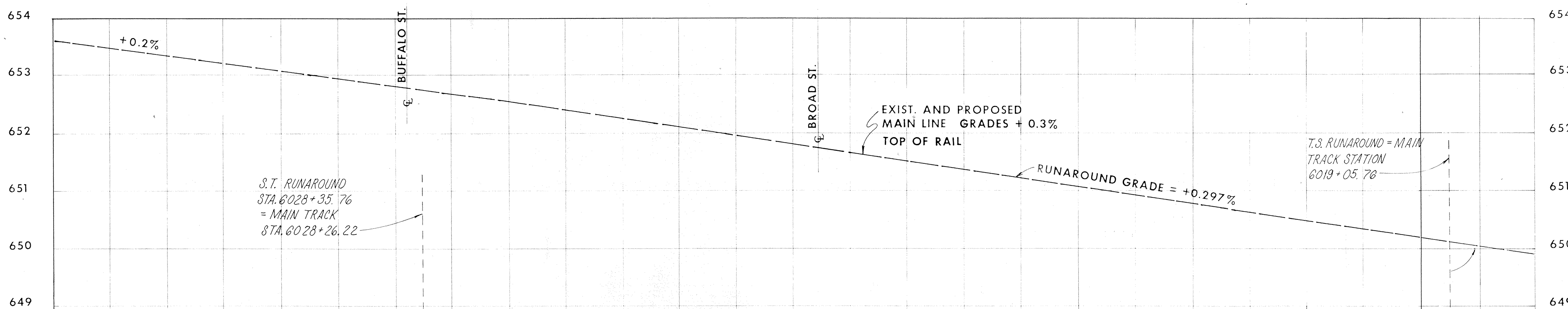
	BUFFALO ST.	S.T.	C.S.	S.C.	T.S.	S.T.	C.S.	MAXIMUM OFFSET	S.C.	T.S.	S.T.	C.S.	S.C.	T.S.	HARBOR ST.
OFFSET FROM EXIST. ℄		0'	2.33'	12.66'	20.78'	39.49'	47.61'	58.50'	47.61'	39.49'	20.78'	12.66'	2.33'	0'	
MAINLINE STATION	6028+40.3	6028+26.22	6027+76.23	6026+76.78	6026+27.62	6025+39.59	6024+90.46	6023+65.99	6022+41.52	6021+92.39	6021+04.36	6020+55.20	6019+55.75	6019+05.76	6018+35

GENERAL NOTES

MAX. SPEED (AVAILABLE FOR THIS LAYOUT) = 22 M.P.H.
MAX. ELEVATION = 3/4 INCH.
MAX. UNBALANCED ELEVATION = 2 INCH.
MAX. DEGREE OF CURVE 8°
SIMPLE CURVES INTRODUCED BETWEEN SPIRALS.
RATE OF ELEVATION DOES NOT EXCEED 1/744.

ALL LAYOUT IN ACCORDANCE TO A.R.E.A. CHAPTER 5.
LOCATION OF STANDARD CROSS OVER IS OPTIONAL TO N & W.
(EITHER SIDE OF BUFFALO STREET.)

BUILDINGS MARKED THUS [hatched] TO REMAIN.
BUILDINGS MARKED THUS [stippled] TO BE REMOVED.



PROPOSED RUNAROUND ELEVATIONS: 652.74, 652.69, 652.57, 652.42, 652.27, 652.12, 651.97, 651.82, 651.68, 651.53, 651.38, 651.23, 651.08, 650.93, 650.78, 650.64, 650.49, 650.34, 650.19, 650.06

EXIST. AND PROPOSED MAIN LINE GRADE ELEVATIONS: 653.41, 653.31, 653.21, 653.11, 653.01, 652.91, 652.81, 652.74, 652.71, 652.59, 652.44, 652.29, 652.14, 651.99, 651.84, 651.69, 651.54, 651.39, 651.24, 651.09, 650.94, 650.79, 650.64, 650.49, 650.34, 650.19, 650.06, 650.04, 649.89

6031+00 | 6030+00 | 6029+00 | 6028+00 | 6027+00 | 6026+00 | 6025+00 | 6024+00 | 6023+00 | 6022+00 | 6021+00 | 6020+00 | 6019+00

SCALE As Shown
MADE N.S. DATE
TRCD. KCK DATE 8-79
CKD. AJM DATE 1/4/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR. 7 - BROAD STREET

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

77
100

ASHTABULA COUNTY
ATB-7-31.43

30 20 10 ℄ 10 20 30 40 50 60 70

655 650 645

℄ EMT
R/W
℄ NST
℄ RT
INV 646.75
1"/4'/Ft.
651.24
23+00
650.6

℄ SST
℄ EMT
℄ NST
INV 646.25
650.94
22+00
650.2

Face of Ex. Building
℄ EMT & ℄ NST
INV 645.75
Existing Ballast See Notes
650.64
21+00
649.9

℄ EMT
℄ RT
Ex. Fence
INV 645.25
12" CONDUIT
Extend Existing Ballast as needed See Notes
650.34
20+00
649.6

℄ EMT & ℄ RT
℄ SST
INV 644.75
650.04 Top of Rail
19+00 Main Track
649.5 Top of Existing Ballast

Format For This Sheet of Cross Sections

NOTES:

RUNAROUND ROADWAY WIDTH SHALL BE 22'-0" MINIMUM AT ALL LOCATIONS ALONG THE RUNAROUND TRACK. EXCAVATION, SUBALLAST AND BALLAST DEPTHS WILL BE ADJUSTED ACCORDING TO SITE SOIL CONDITIONS AS DIRECTED BY THE ENGINEER.

EXISTING BALLAST ALONG THE SIDES OF THE MAIN TRACK ADJOINING THE RUNAROUND TRACK MAY BE USED AS A PART OF THE RUNAROUND BALLAST SUBJECT TO THE APPROVAL OF THE ENGINEER. UNACCEPTABLE BALLAST SHALL BE REMOVED AND REPLACED WITH NEW BALLAST. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR REPLACING UNSUITABLE EXISTING BALLAST AND COST MUST BE INCLUDED IN THE CORRESPONDING BID ITEM.

ABBREVIATIONS

EMT = Existing Main Track
RT = Runaround Track
SST = South Spur Track
NST = North Spur Track

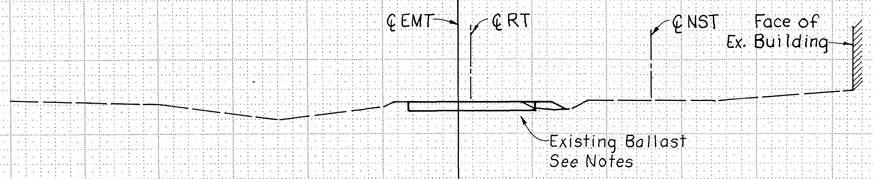
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

78/100

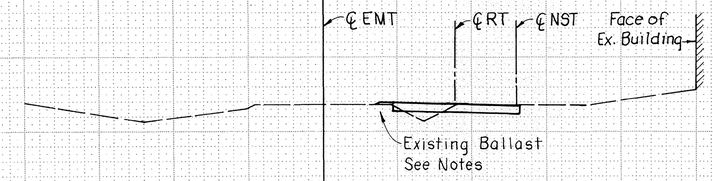
ASHTABULA COUNTY
ATB-7-31.43

30 20 10 ℄ 10 20 30 40 50 60 70

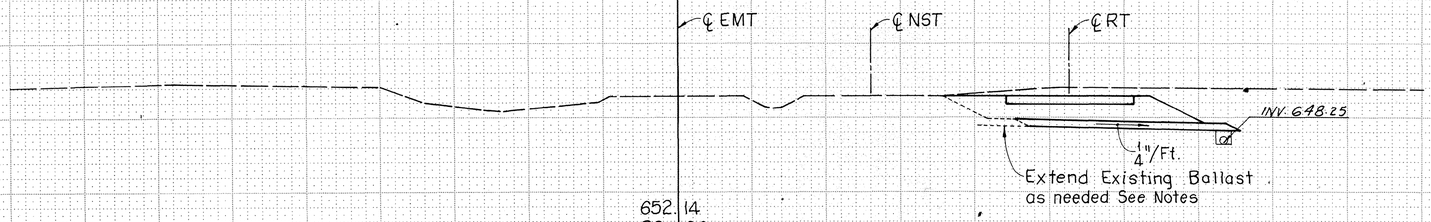
655 650 645



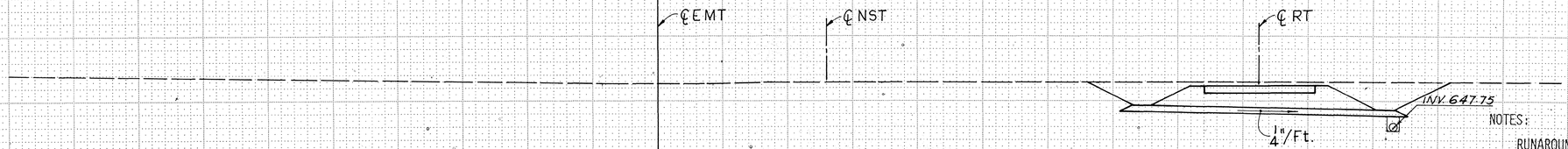
652.71
28+00
652.1



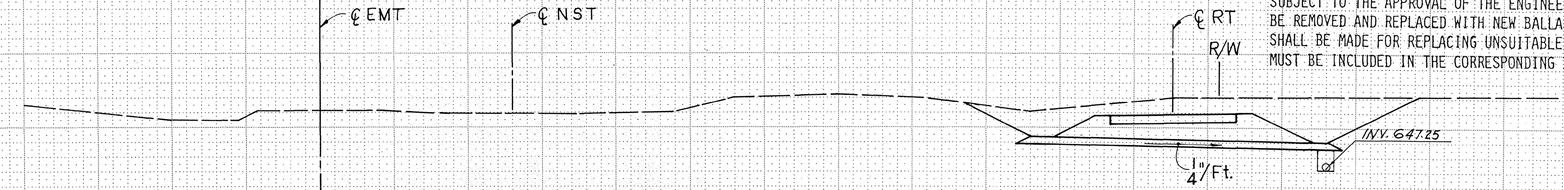
652.44
27+00
651.8



652.14
26+00
651.4



651.84
25+00
651.3



651.54 — Top of Rail
24+00 — Main Track
651.1 — Top of Existing Ballast

Format For This Sheet of Cross Sections

NOTES:

RUNAROUND ROADWAY WIDTH SHALL BE 22'-0" MINIMUM AT ALL LOCATIONS ALONG THE RUNAROUND TRACK. EXCAVATION, SUBALLAST AND BALLAST DEPTHS WILL BE ADJUSTED ACCORDING TO SITE SOIL CONDITIONS AS DIRECTED BY THE ENGINEER.

EXISTING BALLAST ALONG THE SIDES OF THE MAIN TRACK ADJOINING THE RUNAROUND TRACK MAY BE USED AS A PART OF THE RUNAROUND BALLAST SUBJECT TO THE APPROVAL OF THE ENGINEER. UNACCEPTABLE BALLAST SHALL BE REMOVED AND REPLACED WITH NEW BALLAST. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR REPLACING UNSUITABLE EXISTING BALLAST AND COST MUST BE INCLUDED IN THE CORRESPONDING BID ITEM.

ABBREVIATIONS

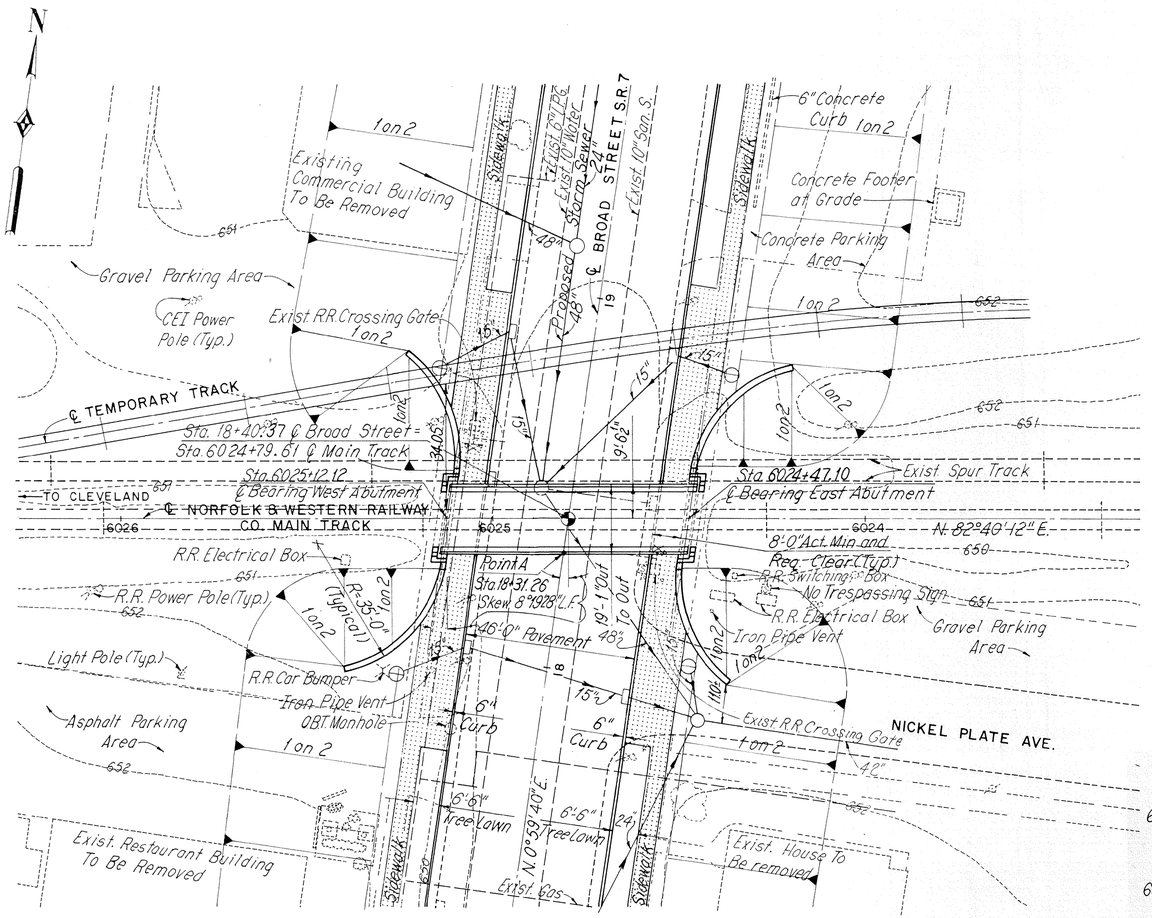
EMT = Existing Main Track
RT = Runaround Track
NST = North Spur Track

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

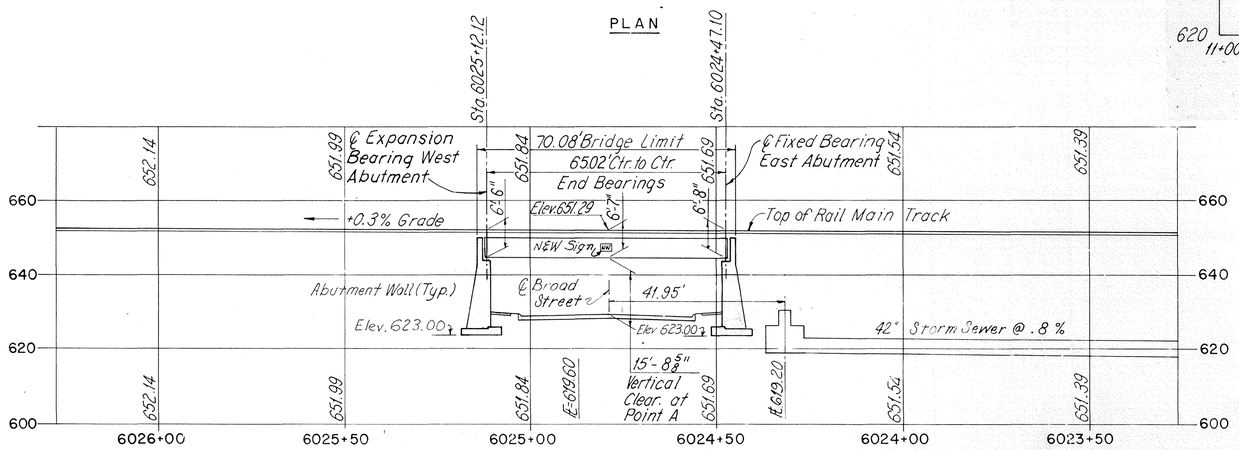
79 / 100

1 / 10

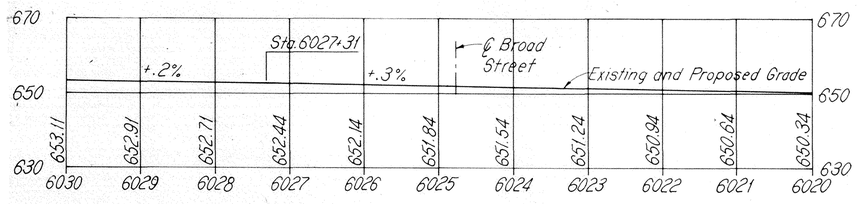
ASHTABULA COUNTY
ATB-7-31.43



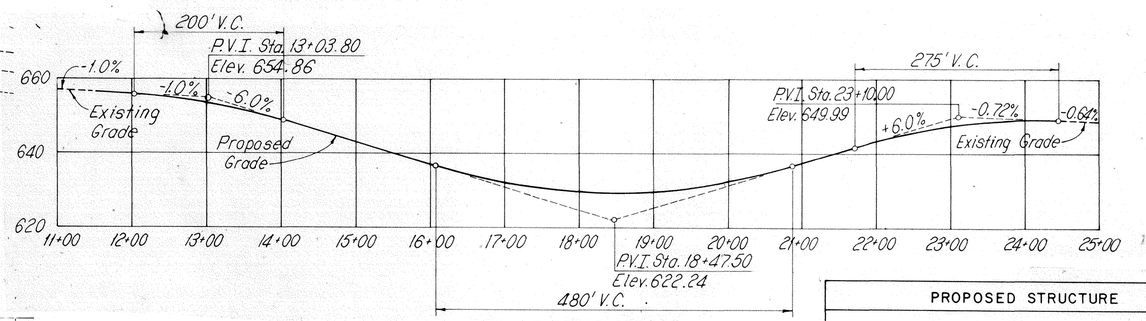
PLAN



ELEVATION



PROFILE N. & W. RY. MAIN TRACK



PROFILE BROAD STREET

STRUCTURE DEPTH		
TIE AND RAIL		1'-2 7/8"
BALLAST (VARIES- 6" MIN.	8" MAX.)	8"
DECK WATERPROOFING		0'-1 1/2"
DECK PLATE (A-588)		0'-0 5/8"
GIRDER		4'-7"
TOP OF RAIL TO LOW STEEL	6'-6" TO	6'-8"

PROPOSED STRUCTURE	
TYPE:	SIMPLE SPAN-WELDED STEEL GIRDER, (ASTM A588 UNPAINTED) WITH STEEL PLATE AND MASTIC DECK : REINFORCED CONCRETE SUBSTRUCTURE
SPAN:	65.02' ℄ BEARINGS
WIDTH:	18'-6" BETWEEN HANDRAILS ℄
LOADING:	COOPER E-80 WITH DIESEL IMPACT
SKEW:	8° 19' 28" LEFT FORWARD
ALIGNMENT:	TANGENT
SUPERELEVATION:	NONE

FOUNDATION DATA:

FOOTING TYPE: SEMI GRAVITY ABUTMENT WALL WITH SPREAD FOOTINGS.

SOIL BEARING CAPACITY: 8,000 LB./ S.F. (MAX.)
BEARING SOIL : STIFF TO VERY STIFF CLAY.

EARTHWORK

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

* NOTE:
15'-0" REQUIRED MINIMUM VERTICAL CLEARANCE. ACTUAL MINIMUM VERTICAL CLEARANCE OCCURS AT THE INTERSECTION OF THE ℄ OF BROAD STREET AND THE EXTREME EDGE OF THE SOUTH EXTERIOR GIRDER FLANGE (BROAD STREET ℄ 18 + 31.26)

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

SITE PLAN

S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS

BR. NO. STA. 6024+44.57 TO STA. 6025+14.65

ASHTABULA COUNTY CONNEAUT, OHIO

MADE	TRACED	CHECKED	REVIEWED	REVISED
RCK.	RCK.	NS		
DATE 9.8.78	DATE 9.11.78	DATE 7.30.79	DATE	SHEET 1 / 10

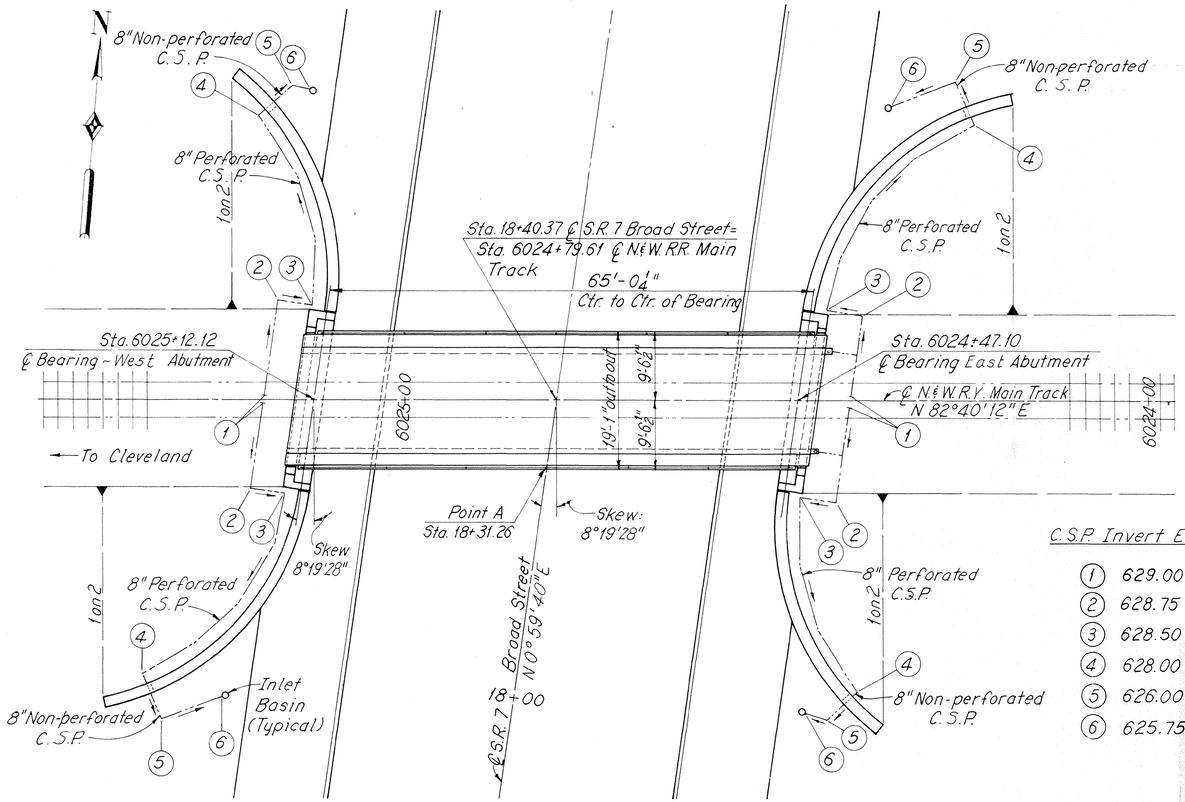
SR.7 - BROAD STREET

FHWA REGION	STATE	PROJECT	
5	OHIO	STATE	

ASHTABULA COUNTY
ATB-7-31.43

80/100

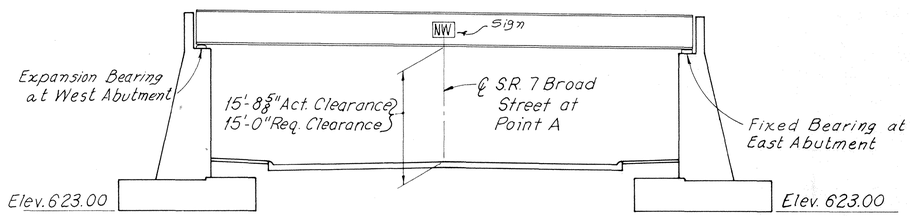
2/10



~ GENERAL PLAN ~

C.S.P Invert Elevations

(1)	629.00
(2)	628.75
(3)	628.50
(4)	628.00
(5)	626.00
(6)	625.75



~ ELEVATION ~

~ GENERAL NOTES ~

Design Specifications: The super structure conforms With the requirements of "Specifications for Steel Railway Bridges" by the American Railway Engineering Association 1978 edition. The substructure conforms to Standard Specifications for Highway Bridges adopted by the American Association of State Highway and Transportation officials, 1977, including the Ohio Supplements Thereto.

Construction and Material Specifications: State of Ohio, Department of Transportation manual dated January 1, 1979

Design Loading: Cooper's E-80 with diesel impact.
Concrete: Class "C" f'c = 4,000 P.S.I. (Unit Stress 1333 p.s.i. for substructure)
Structural Steel: A.S.T.M. A-588 (Unit Stress 27000 p.s.i.)
Steel fy = 50,000 p.s.i., fu = 70,000 P.S.I.
Reinforcing Steel: A.S.T.M. 615, unit yeild stress 60,000 P.S.I. (Allowable Unit Stress 24000 p.s.i.)

Sheeting and Bracing: Before construction is started, eight sets of prints showing detail of the sheeting and bracing to be used for excavation adjacent to the railroad tracks shall be submitted to the director for approval by the Dept. of High ways, and by the Railroad Company.

Railroad Aerial Lines: Will be relocted by the Railroad. The Contractor shall use all precautions necessary to see that the lines are not disturbed during the construction stage and shall cooperate with the railroad in the relocation of these lines. The cost of the relocation shall be included in the railroad force account work.

Reference Shall be made to State of Ohio Supp. Spec. #809 dated 1-1-79 & #810 dated 1-1-79
Maximum Soil Bearing Capacity = 4 Tons Per Square Foot
Maximum Design Contact Pressure = 2.8 Tons Per Square Foot
Excavation Quantity: Includes the removal of material required for construction of the abutments and wing walls.

QUANTITY CALCULATIONS
BY N.S. DATE 1-18-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

ESTIMATED QUANTITIES

ITEM	TOTAL QUANTITY	UNIT	DESCRIPTION	ABUT. & W.W.	SUPER. STRUCT.	GENERAL
503	Lump	Sum	Cofferdams, cribs and sheeting			Lump
503	2085	Cu. Yds.	Unclassified excavation	2085		
509	50,866	Pound	Reinforcing steel Grade 60	50,866		
511	302	Cu. Yds.	Class "C" Concrete Abutment and wing walls footings	302		
511	377	Cu. Yds.	Class "C" Concrete Abutments and wing walls above footings	377		
512	380	Sq. Yds.	Type A waterproofing	380		
512	31	Sq. Yds.	Type B waterproofing	31		
516	366	Sq. f.t.	1" Preformed expansion joint filler	366		
Special	36	Sq. f.t.	1/2" inch thick shock pad as per plan		36	
516	388	Pounds	Self lubricating bronze bearing Plates, As Per Plan	388		
518	253	Cu. Yd.	Porous backfill	253		
518	190	Lin. f.t.	8" Perforated Corrugated steel pipe including specials			
			707.01 bituminous coated as per 707.04	190		
518	88	Lin. f.t.	8" Non-perforated Corrugated Steel Pipe including			
			specials, 707.01 bituminous coated as per 707.04	88		
518	3	Lin. f.t.	6" Non-perforated Corrugated Steel Pipe including			
			specials, 707.01	3		
518	143	Lin. f.t.	8" Half Round Corrugated Steel Pipe including			
			specials 707.01 with bottom pan bituminous			
			coated as per 707.04		143	
809	174	Sq. Yds.	Membrane Waterproofing 3/32" Butyl Rubber		174	
809	174	Sq. Yds.	1" Protective Cover Asphaltic Panels		174	
810	191,350	Pounds	Structural Steel for Structures Carrying railroad			
			Traffic		191,350	
513	36	Each	Welded Stud Shear Connectors	36		
517	140	Lin. ft.	Railing, Galvanized Steel Pipe		140	
Special	1232	Sq. Ft.	Protection of Concrete Surfaces	1232		

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

GENERAL PLAN, GENERAL NOTES AND ESTIMATED QUANTITIES
S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS
BR. NO. STA. 6024+44.57 TO STA. 6025+14.65
ASHTABULA COUNTY CONNEAUT, OHIO

MADE C.H.	TRACED C.H.	CHECKED N.S.	REVIEWED	REVISED
DATE 8/13/79	DATE 8/13/79	DATE 1/9/80	DATE	SHEET 2 / 10

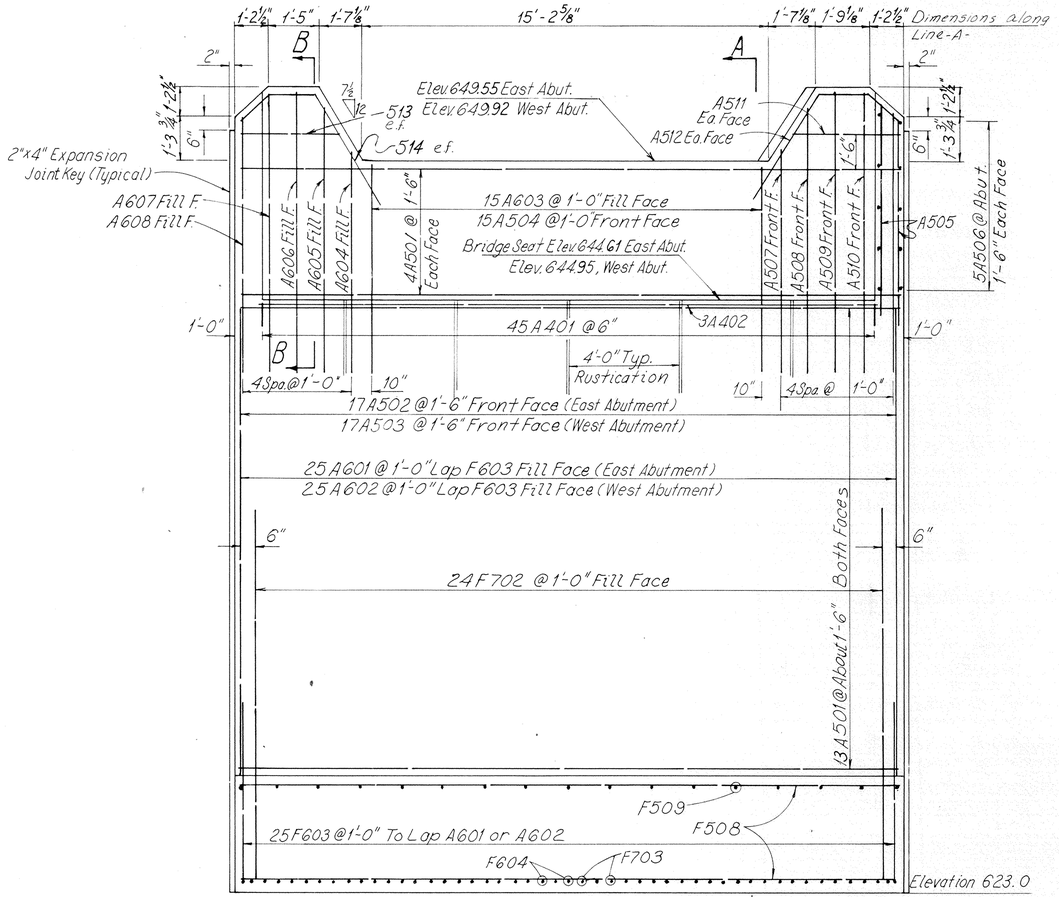
SR 7 - BROAD STREET

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

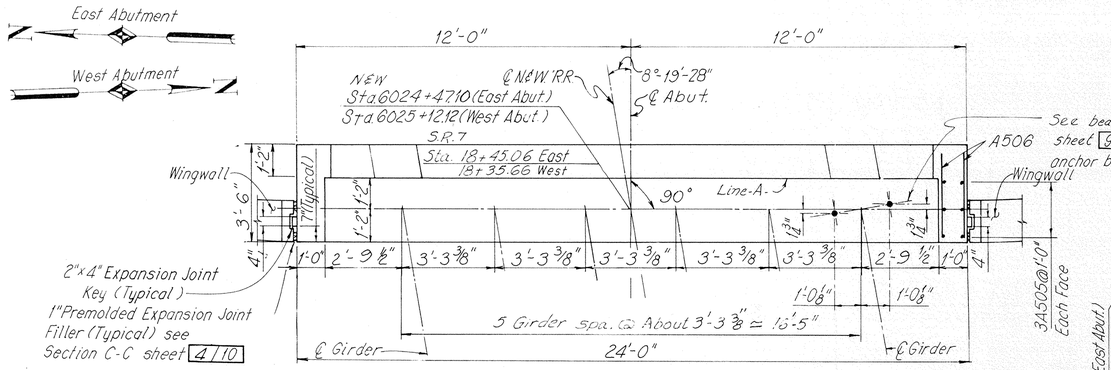
81/100

ASHTABULA COUNTY
ATB-7-31.43

3/10

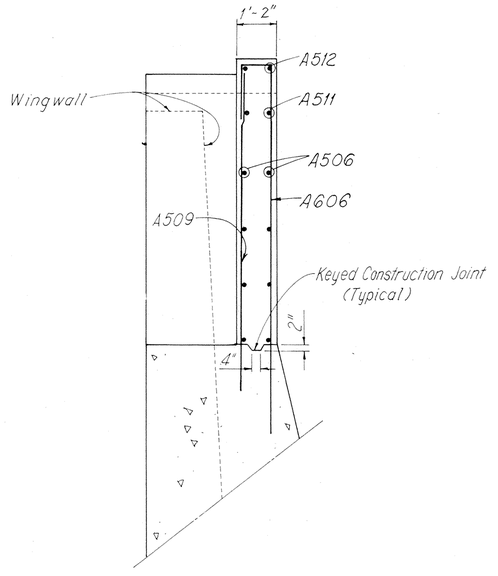


~Elevation~



Plan

~Section B-B~

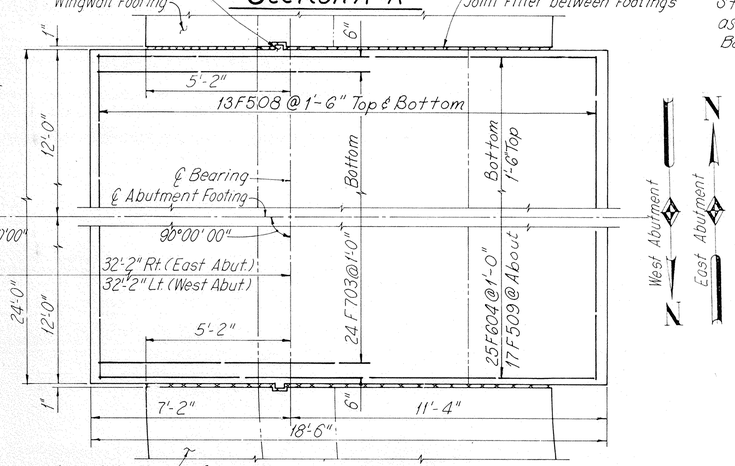


Notes:
Concrete: Shall be Class 'C.' Porous Backfill: 2ft. Thick full Length of Abutment and Wing walls Shall Extend Up to the Underside of the ballast. Bridge Seat Reinforcing: Special Care Shall be Taken in Placing Reinforcing Steel in the Vicinity of the Bridge Seat So as to Avoid Interference With Anchor Bolts.

2"x4" Expansion Joint Key (Typical)
Wingwall Footing

~Section A-A~

1" Preformed Expansion Joint Filler between Footings



Footing Plan

East Abutment Footing shown West Abutment Footing similar except opposite hand

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

ABUTMENTS

S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS

BR. NO. STA. 6024+44.57 TO STA. 6025+14.65

ASHTABULA COUNTY CONNEAUT, OHIO

MADE W.S.	TRACED G.H.	CHECKED J.W.H.	REVIEWED	REVISED
DATE	DATE 8/13/79	DATE 11/9/80	DATE	SHEET 3/10

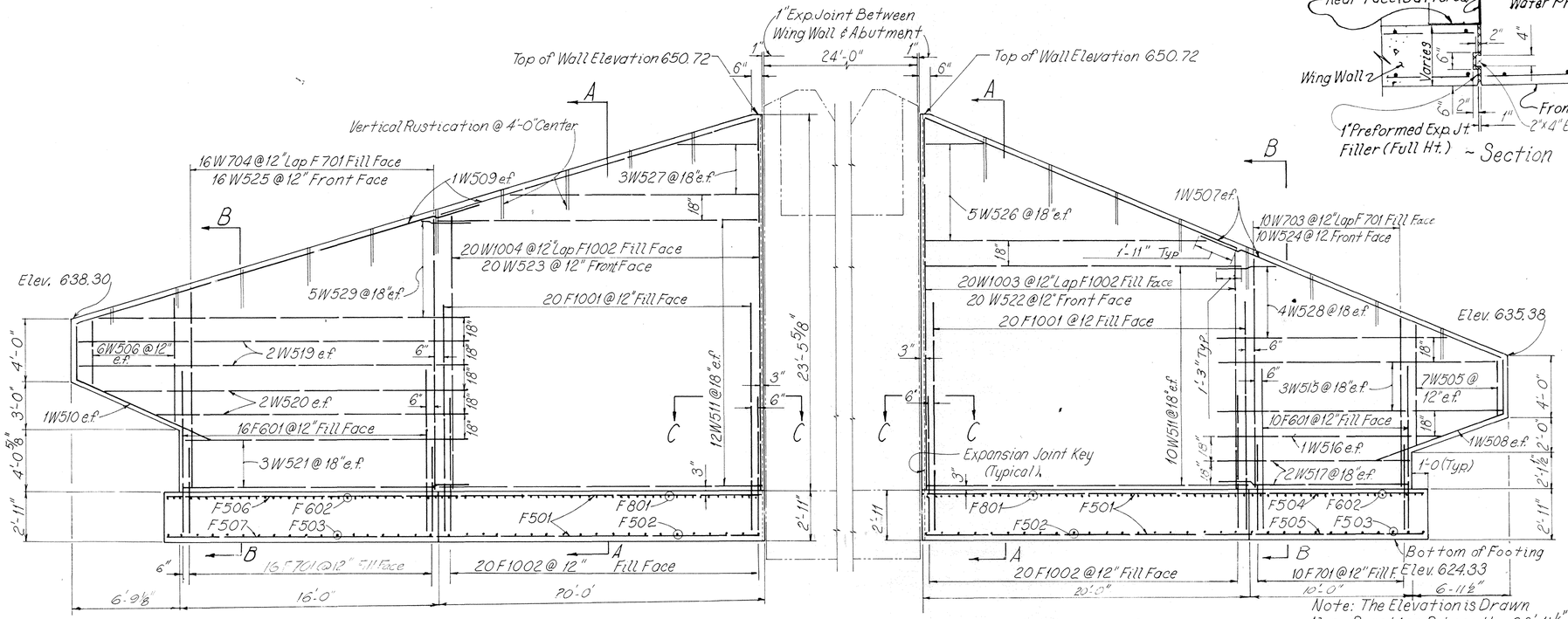
SR. 7 - BROAD STREET

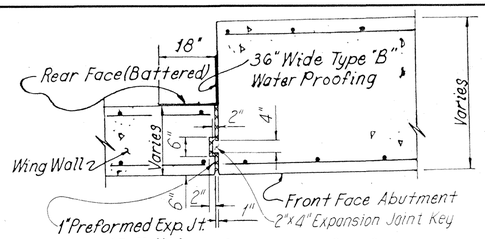
FHWA REGION	STATE	PROJECT	
5	OHIO	STATE	

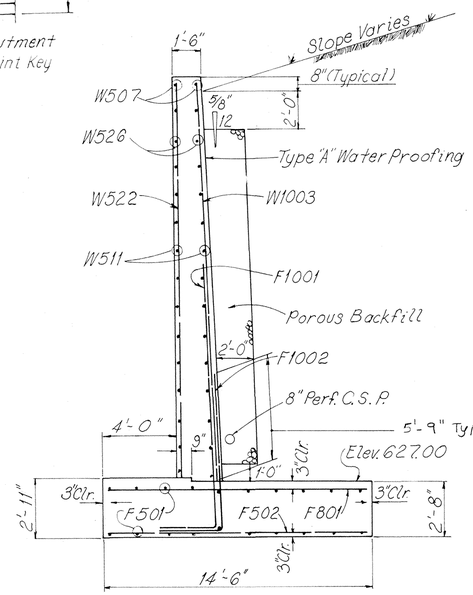
82 / 100

ASHTABULA COUNTY
ATB-7-31.43

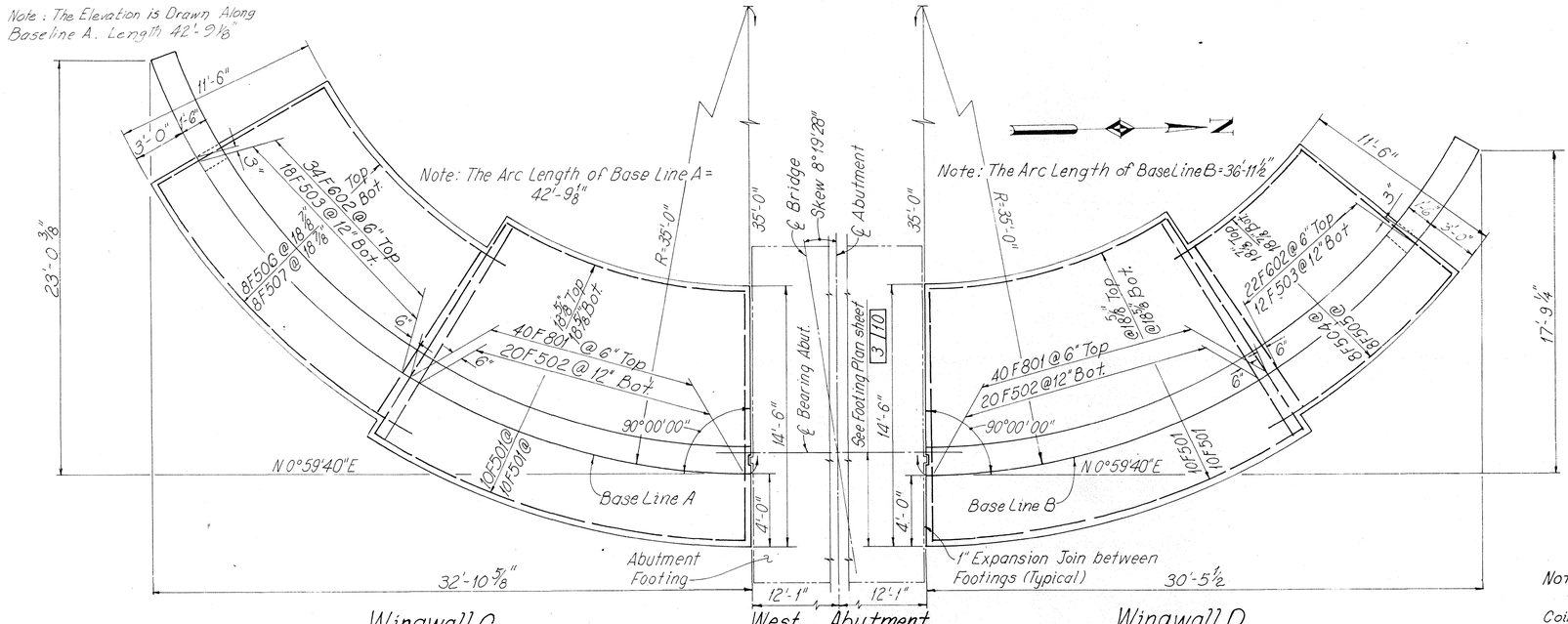
4 / 10





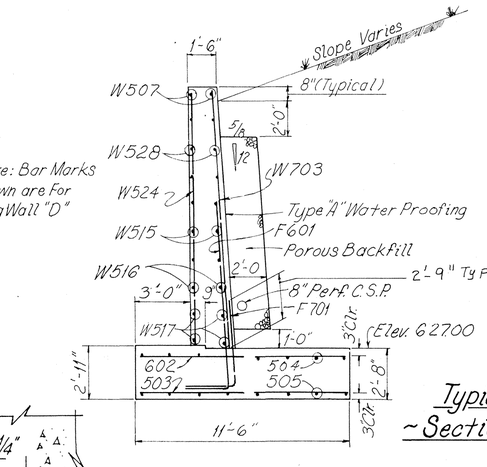


Typical
~Section A-A~



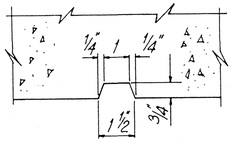
Wingwall C

Wingwall D



Note: Bar Marks Shown are For Wing Wall "D"

Typical
~Section B-B~



Note: Rustication Grooves to run from top of footing to top of wall. Coincide with form joints.

~Vertical Rustication Groove~

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

WEST ABUTMENT WING WALLS

S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS

BR. NO. STA. 6024+44.57 TO STA. 6025+14.65

ASHTABULA COUNTY CONNEAUT, OHIO

MADE N.S.	TRACED C.H.	CHECKED A.W.	REVIEWED	REVISED
DATE	DATE 8/13/79	DATE 1/9/80	DATE	SHEET 4/10

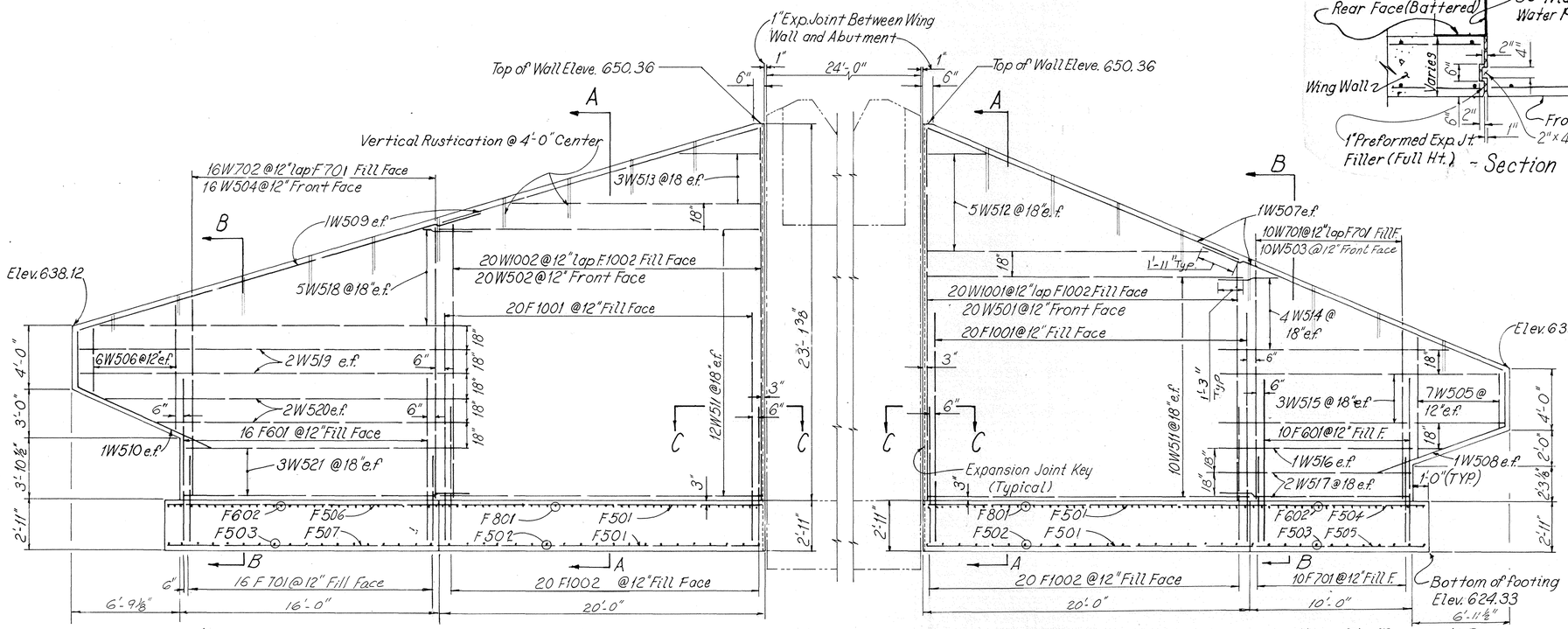
SR. 7 - BROAD STREET

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

ASHTABULA COUNTY
ATB-7-31.43

83 / 100

5 / 10

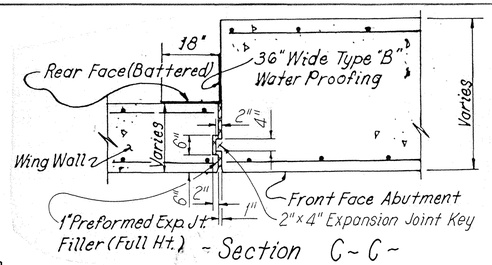


Wingwall A Elevation

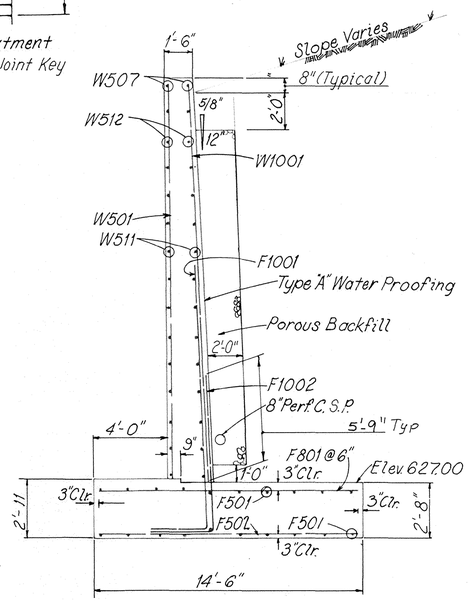
Wingwall B Elevation

Note: The Elevation is Drawn Along Base line A. Length = 42'-9 1/8"

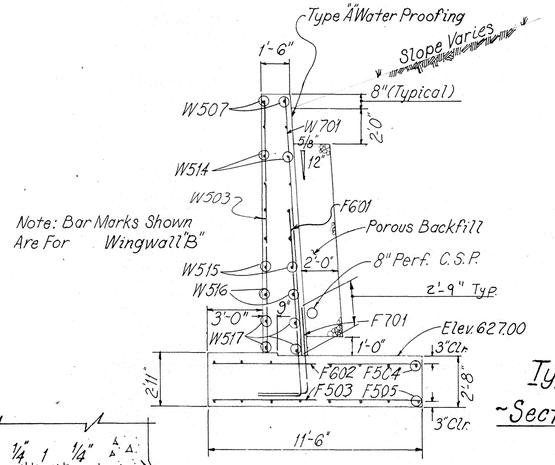
Note: The Elevation is Drawn Along Base Line B Length = 36'-11 1/2"



~ Section C ~ C ~

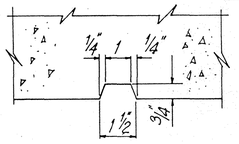


Typical
~ Section A-A ~



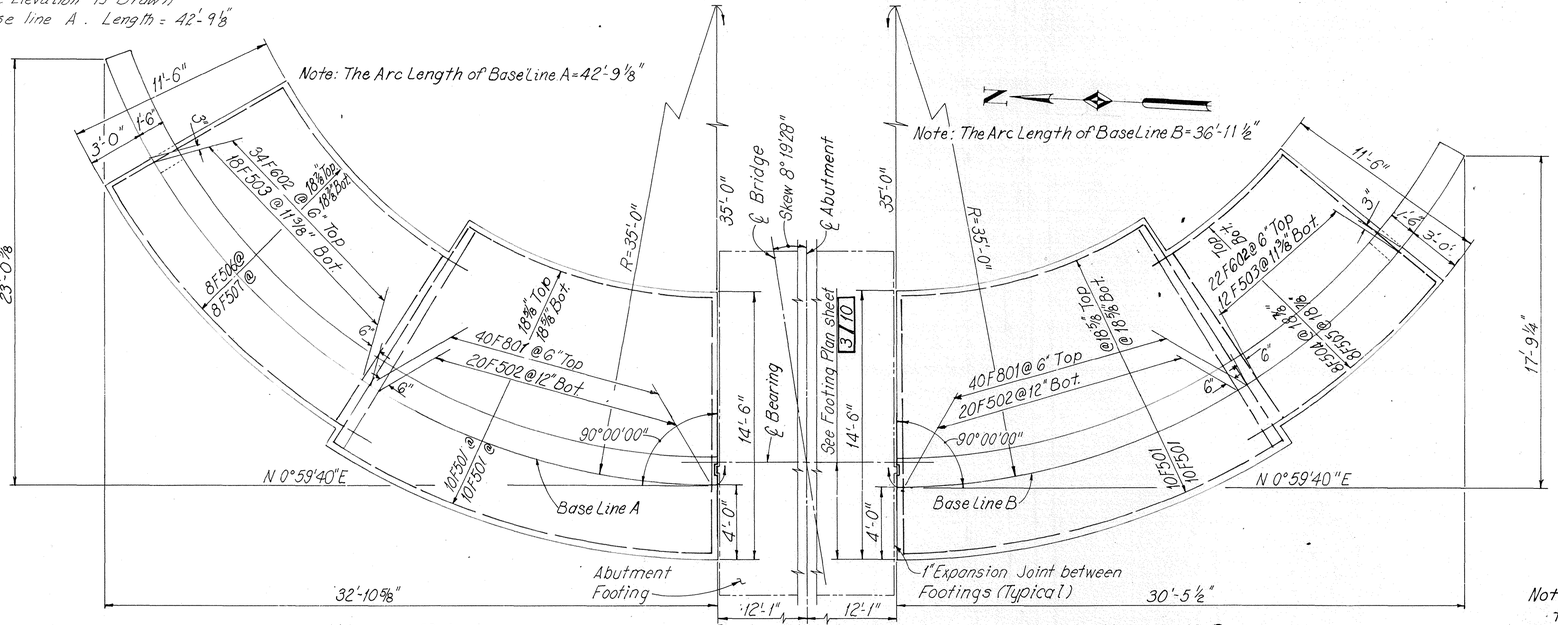
Note: Bar Marks Shown Are For Wingwall "B"

Typical
~ Section B-B ~



Note: Rustication Grooves to run from top of footing to top of wall. Coincide with form joints.

~ Vertical Rustication Groove ~



Wingwall A

East Abutment

Wingwall B

Plan

WOODRUFF, INC. CONSULTING ENGINEERS CLEVELAND, OHIO					
EAST ABUTMENT WING WALLS					
S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS					
BR. NO.	STA. 6024+44.57 TO STA. 6025+14.65				
ASHTABULA COUNTY CONNEAUT, OHIO					
MADE N.S. DATE	TRACED C.M. DATE 8/13/79	CHECKED A.M. DATE 11/9/80	REVIEWED DATE	REVISED SHEET	5 / 10

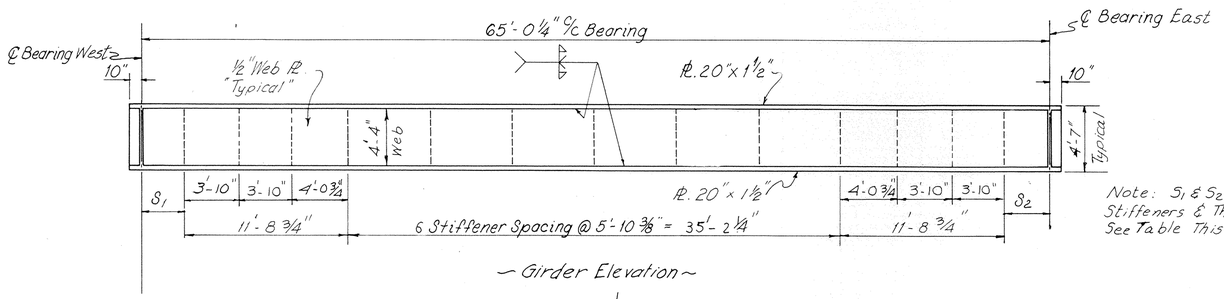
SR. 7 - BROAD STREET

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

84/100

ASHTABULA COUNTY
ATB-7-31.43

6/10

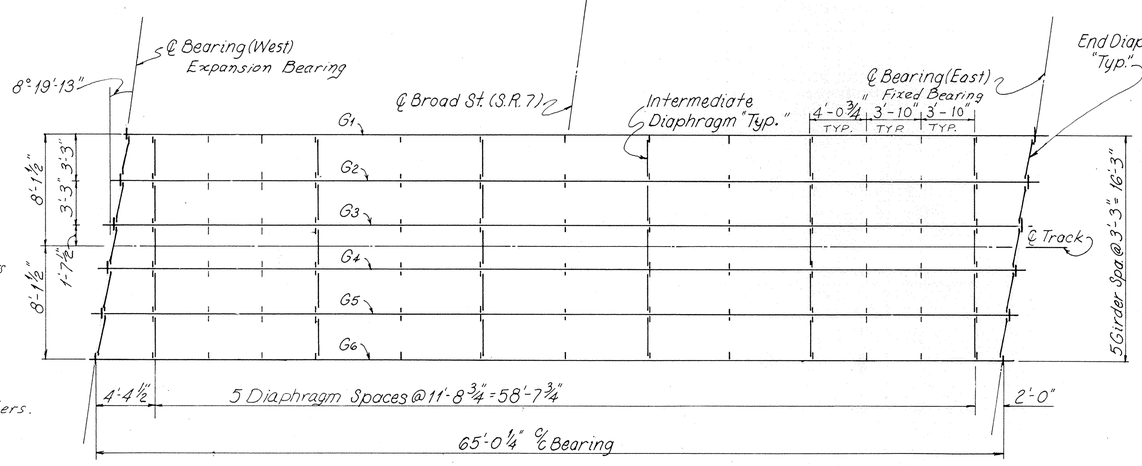


~ Girder Elevation ~

Note: S1 & S2 Are Spacings between End "Bearing" Stiffeners & The First Intermediate Stiffener c/c See Table This Sheet For S1 & S2 of Each Girder

Live Load Deflection:
At ¼ and ¾ points = 1"
At Mid-Span = 1¼"

Maximum Dead Load Deflection at Mid-Span is ⅜" No Camber required.



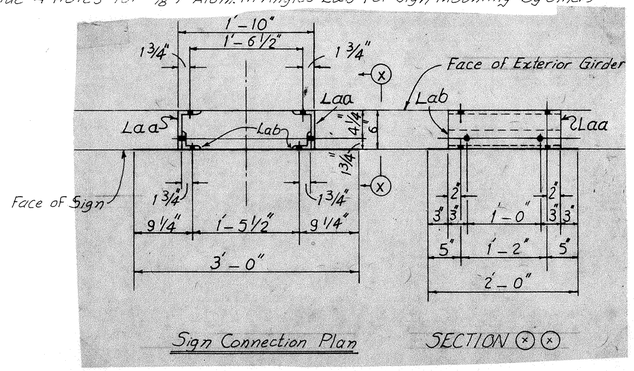
~ Framing Plan ~

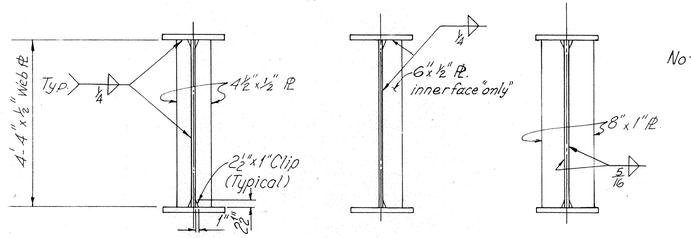
Girder	S1	S2
G1	2'-0"	4'-4½"
G2	2'-5 11/16"	3'-10 13/16"
G3	2'-11 3/8"	3'-5 1/8"
G4	3'-5 1/8"	2'-11 3/8"
G5	3'-10 11/16"	2'-5 11/16"
G6	4'-4½"	2'-0"

Note: Steel Bolts, Nuts, Washers And Angles For two Signs Shall be Provided & Installed As Shown. Payment Shall be Included in Item 810 "Structural Steel For ....." Aluminum Sign & Bolts By Others.

Materials Req'd Per Sign

Steel Angles 6"x 3"x ½" 1'-6" Mark Laa 2 Each
Steel Angles 3"x 3"x ½" 1'-6" Mark Lab 2 Each
Steel Bolts ½ ϕ x 2"W/Nut, Flat Washer & Lock Washer 8 Each
Provide 4 Holes For ⅜" ϕ Alum. In Angles Lab For Sign Mounting By Others





~ Intermediate Stiffener Detail ~ ~ G1 & G6 Stiffener Detail ~ ~ Bearing Stiffener Detail ~

Note: 1. The contractor shall submit to Director for approval, 3 prints showing his proposed erection procedure.

2. All holes 15/16 ø for 7/8" high strength bolts; unless noted.

3. All copes and blocks to have 1" radius

4. All structural steel elements including Girders, stiffeners and diaphragms shall meet the requirements of Charpy V-notch energy absorption as specified in item 711.01.

~ LOADING ~

Live Load Cooper's E-80 With Diesel Impact

Dead Load Per Foot of Track

Rail & Fastenings	:	200 #
Ballast & Ties	:	2305 #
Asph. Panels & Seal	:	300 #
Steel Girders & Deck	:	2834 #
Total Dead Load Per lin. ft	:	5639 #

Intermediate Girder Load = 5639 ÷ 5 = 1128 #/lin. ft.

	Girder Stresses Moment K'	Shear K	Abutment Reaction K
Dead Load	596	37	38
Live Load	1,501	104	107
Impact	850	59	61
	2947 K'	200 K	206 K

Butyl Rubber Membrane Waterproofing

Butyl rubber membrane water proofing shall be in accordance with latest American Railway Engineering Association Specifications, Chapter 29, with the following specific requirments.

1. Butyl rubber membrane shall be 3/32" thick. The sheet size shall be as large as practicable, and subject to the approval of the Engineer. Butt splices (Type 2, Figure 2, AREA 29-2-14) shall be used.
2. Immediately prior to the application of the waterproofing, all areas to be covered Shall be sand blasted.
3. Bonding adhesive shall be applied to the entire surface to be waterproofed.
4. Shop drawings and data on the material and its installation shall be submitted to the Engineer for approval.
5. Payment shall be made at the unit price bid per square yard for Membrane "Waterproofing, 3/32" butyl rubber. It shall consist of the butyl membrane, bonding adhesive, butyl gum tape and all labor and equipment necessary to complete this item of work.

Asphaltic Panel Protection

Asphaltic Panel Protection for waterproofing membrane shall be in accordance with AREA Specifications, 29-2-5(g), with the following specific requirements.

1. The protection for waterproofing shall consist of two layers of Asphaltic Panels, each ½" thick. The panels placed on the horizontal surface of the deck shall be placed dry. Those placed on the inclined surfaces shall be laid in a coating of bonding adhesive similar to that used for the butyl rubber membrane.
2. An asphalt seal coating meeting the requirement of ASTM D449-49, Type B, shall be applied hot by mopping to the top of the asphaltic panels so as to cover the top and fill the joints between the panels.
3. Payment shall be made at the unit price bid per square yard for 1" Protective cover aspaltic panels. It shall consist of asphaltic panels, bonding adhesive, asphalt seal and all labor and equipment necessary to complete this item of work.

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

FRAMING PLAN

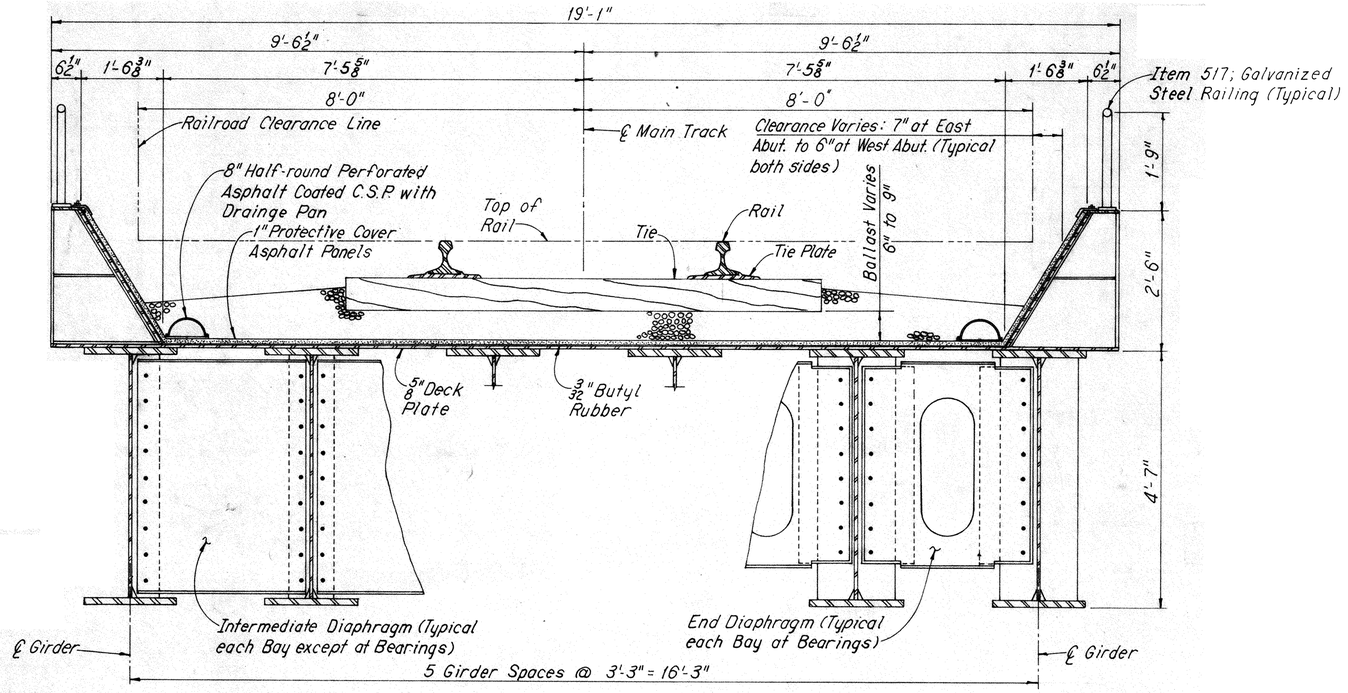
S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS

BR. NO. STA. 6024+44.57 TO STA. 6025+14.65

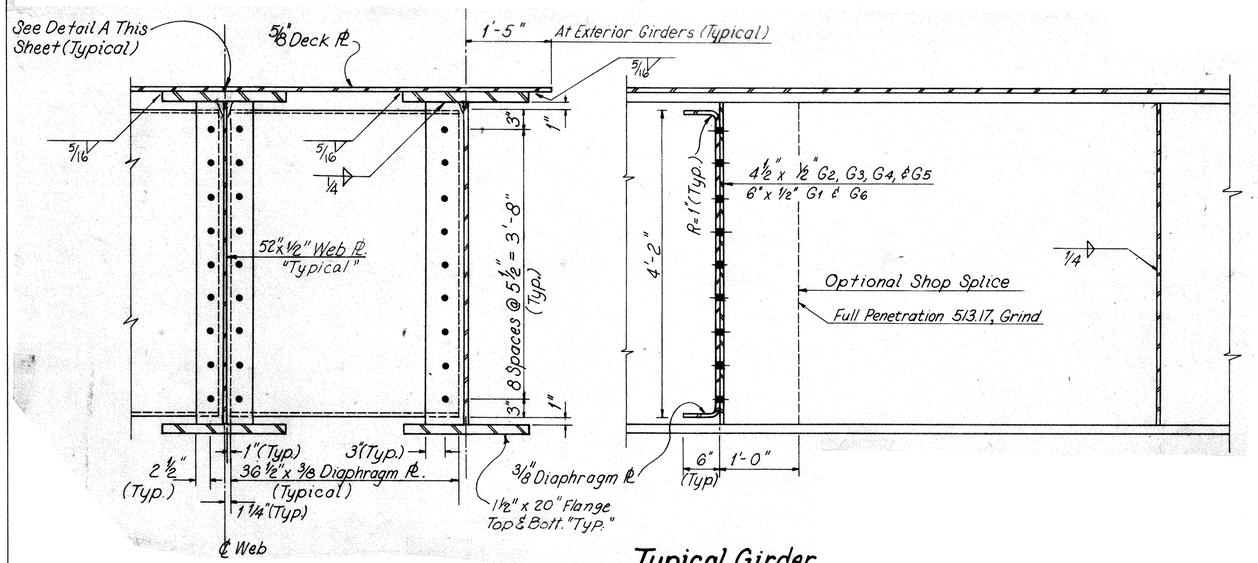
ASHTABULA COUNTY OHIO

MADE N.S	TRACED J.P.	CHECKED A.J.M	REVIEWED	REVISED
DATE	DATE 8/18/80	DATE 11/9/80	DATE	SHEET 6/10

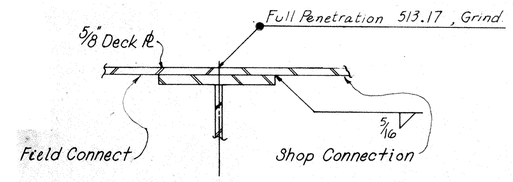
SR.7- BROAD STREET



Typical Cross Section



Typical Girder Details



Detail A

This Detail Will be As Shown For 2 Intermediate Girders & Opposite Hand For the Other two Intermediate Girders. Alternating Shall be Arranged by the Fabricator.

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

85/100

ASHTABULA COUNTY
ATB-7-31.43

7/10

STEEL NOTES:

SHOP DRAWINGS

1. THE CONTRACTORS ATTENTION IS CALLED TO THE REQUIREMENTS FOR SHOP DRAWINGS, ARTICLE 1.1.3 SHOP DRAWINGS, AREA SPECIFICATIONS, PARAGRAPH (B) AND (C).
2. ORIGINAL DRAWINGS OR PHOTOGRAPHIC REPRODUCIBLES ON MYLAR OR EQUIVALENT FILM SHALL BE FURNISHED AT THE COMPLETION OF THE CONTRACT UNDER 1.1.3 AREA SPECIFICATIONS. REPRODUCIBLES MADE BY THE DIAZO PROCESS ARE NOT ACCEPTABLE. THEY SHALL BE SENT TO: CHIEF ENGINEER, N & W R.R. CO., 8 N. JEFFERSON ST., ROANOKE, VA. 24042, ATTN: ENGINEER OF BRIDGES.
3. THE CONTRACTOR SHALL FURNISH TWO COMPLETE SETS OF DETAILED SHOP DRAWINGS TO THE COMPANY FOR APPROVAL PRIOR TO STARTING FABRICATION. UNCHECKED DRAWINGS SHALL NOT BE SUBMITTED FOR APPROVAL.
4. THE REJECTION OF OR THE PROCEDURE FOR THE CORRECTION OF SHOP DRAWINGS WILL NOT BE CONSIDERED AS CAUSE FOR DELAY.
5. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL OTHER WORKING DRAWINGS, AS REQUIRED BY THE COMPANY, FOR ANY OR ALL PARTS OF THE PROJECT WHICH DETAIL THE DESIGN AND ERECTION OF SHORING, FALSEWORK OR SPECIAL CONSTRUCTION PROCEDURES.
6. APPROVAL BY THE COMPANY OF DRAWINGS, DESIGNS OR SPECIAL PROCEDURES SHALL NOT RELIEVE THE CONTRACTOR FROM FURNISHING MATERIAL OF PROPER DIMENSIONS, QUANTITIES, AND QUALITY, NOR WILL SUCH APPROVAL RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE DRAWINGS FOR THE STRENGTH AND SUFFICIENCY OF BRACING, FALSEWORK, FORMS AND OTHER CONSTRUCTION PROPOSED OR DESIGNED BY HIM.

STRUCTURAL STEEL

1. EXCEPT AS OTHERWISE SPECIFIED THE 1978 AREA SPECIFICATION FOR STEEL RAILWAY BRIDGES APPLY TO ALL WORK UNDER THIS SECTION.
2. MATERIAL:
   A. STRUCTURAL STEEL SHALL MEET THE CURRENT REQUIREMENTS OF THE SPECIFICATIONS FOR STRUCTURAL STEEL OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS, DESIGNATION A588. IN ADDITION, ALL FLANGE PLATES, WEB PLATES AND ROLLED SECTIONS USED FOR PLATE GIRDERS, FLOOR BEAMS AND STRINGERS SHALL HAVE THE IMPROVED NOTCH TOUGHNESS AS OUTLINED IN SECTION 15.1.1.1 OF THE 1978 AREA SPECIFICATIONS.
   B. HIGH STRENGTH BOLTS SHALL MEET THE CURRENT REQUIREMENTS OF THE SPECIFICATIONS FOR HIGH STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS, DESIGNATION A-325.
   C. WELDING ELECTRODES FOR ARC-WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE STRUCTURAL WELDING CODE (AWS D1.1).
   D. PREFORMED FABRIC BEDDING PADS SHALL BE EITHER SHOCK PAD STYLE #15175 AS MANUFACTURED BY ALERT MANUFACTURING AND SUPPLY COMPANY, CHICAGO, ILLINOIS, OR FABREEKA PADS AS MANUFACTURED BY FABREEKA PRODUCTS COMPANY, 1190 ADAMS STREET, BOSTON, MASSACHUSETTS.
   E. SELF-LUBRICATING BRONZE PLATES
      1. SELF-LUBRICATING BRONZE PLATES SHALL MEET THE CURRENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR BRONZE BRIDGE CASTINGS FOR BRIDGES AND TURNTABLES OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS, DESIGNATION B-22, COPPER ALLOY NO. 911.
      2. SPECIAL RECESSES IN A UNIFORM PATTERN FILLED WITH A LUBRICATING COMPOUND SHALL BE PROVIDED IN THE REQUIRED SURFACE(S) OF THE PLATE. THE LUBRICATING COMPOUND SHALL CONSIST OF METALS, METALLIC OXIDES, GRAPHITE AND LUBRICATING BINDER. THE RECESSED LUBRICATING INSERTS SHALL COMPRISE NOT LESS THAN 30% OF THE TOTAL AREA OF THE PLATE, AND THE COEFFICIENT OF FRICTION SHALL NOT EXCEED 0.10.

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

GIRDER DETAILS

S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS

BR. NO. STA. 6024+44.57 TO STA. 6025+14.65

ASHTABULA COUNTY OHIO

MADE N.S.	TRACED A.M.	CHECKED A.M.	REVIEWED	REVISED
DATE	DATE 8/13/79	DATE 11/9/80	DATE	SHEET 7/10

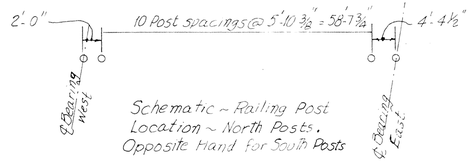
SR.7 - BROAD STREET

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

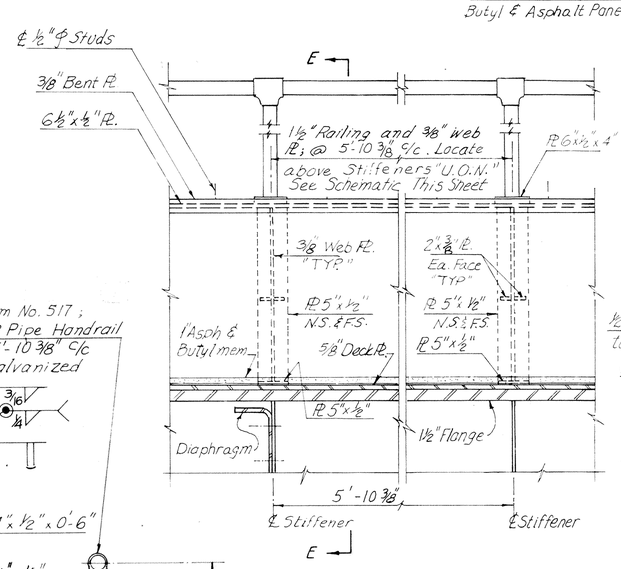
86/100

ASHTABULA COUNTY
ATB-7-31.43

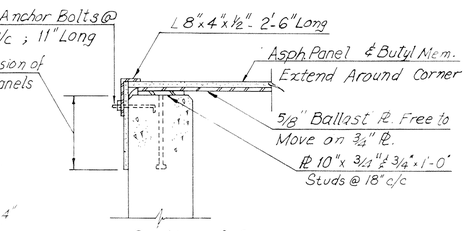
8/10



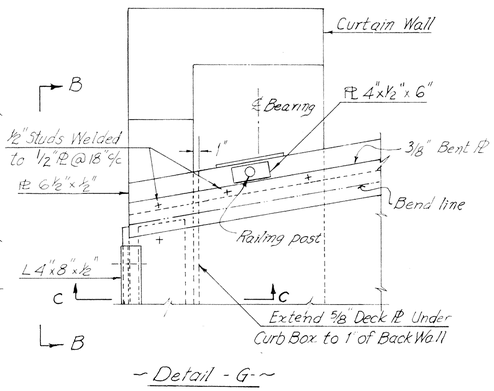
Schematic ~ Railing Post Location ~ North Posts. Opposite Hand for South Posts



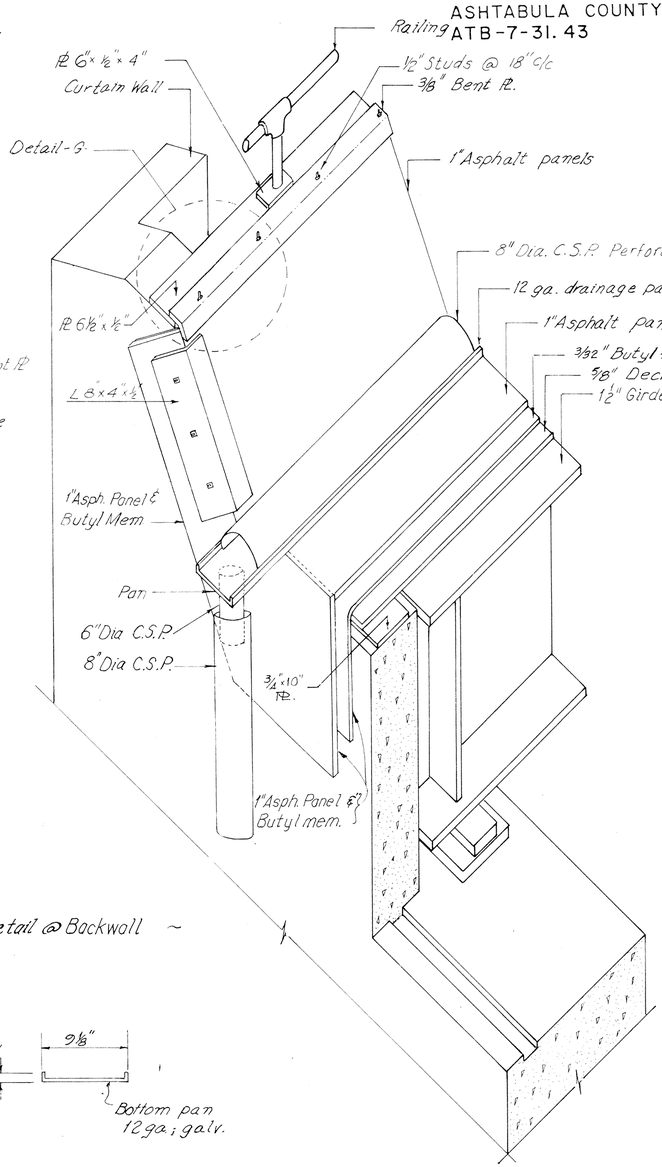
~ Section F-F ~



~ Section C-C ~



~ Detail - G ~



~ Detail @ Backwall ~

Protect welded surfaces with 2 coats of Zink rich paint (Typical)

Item No. 517 ; 1 1/2" ϕ Pipe Handrail @ 5'-10 3/8" c/c Galvanized

1/2" Stud Welded to Pl @ 18" c/c

5" x 3/8" Bent Pl.

1" Asphalt Panel

3/32" Butyl Membrane

5/8" Ballast Pl.

Pl. 4" x 1/2" x 0'-6"

Pl 6 1/2" x 1/2"

F

5" x 3/8" Bent Pl.

1" Asph. Panel

3/32" Butyl Membrane

5/8" Ballast Pl.

Pl 5"x 1/2"

2" x 3/8" Pl. N.S. & F.S.

3/8" Web Pl.

Pl 5"x 1/2"

1'-9"

2'-6"

7 1/2

12

8" Diameter, Half Round 14 Ga, Perforated, Asphalt Coated C.S.P. Continuous length of Bridge. Typical Both Sides

5/8" Deck Pl.

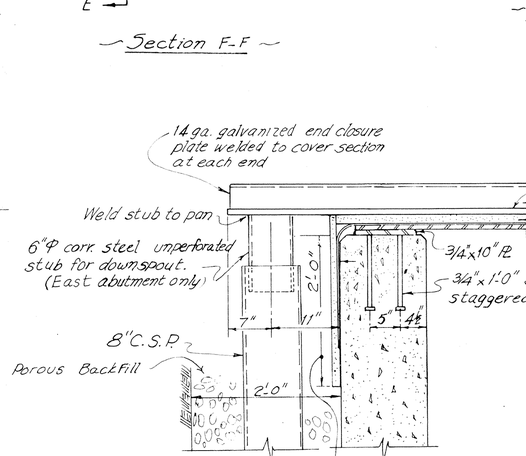
6" ϕ C.S.P.

F

7 7/8"

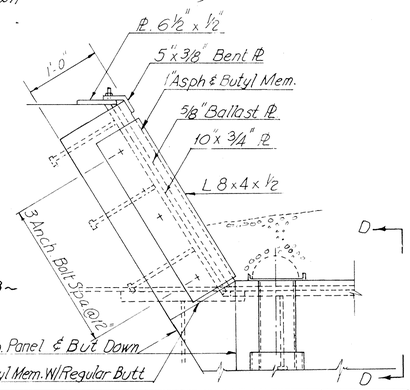
1'-5"

~ Section E-E ~

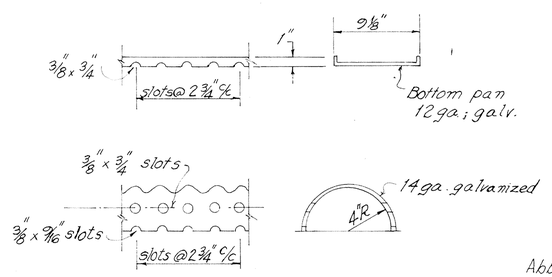


Extend Butyl membrane & Asphalt Panel Down Backwall As Shown

~ Section D-D ~



~ View B-B ~



~ Deck Drain Details ~

Abbreviations

U.O.N.	Unless Otherwise Noted
C.S.P.	Corrugated Steel Pipe
Ga. or ga.	Guage
N.S.	Near Side
F.S.	Far Side

Note: Stud Welding Shall be in Accordance With AWS D1.1 Section 4 Part F

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

DECK DETAILS

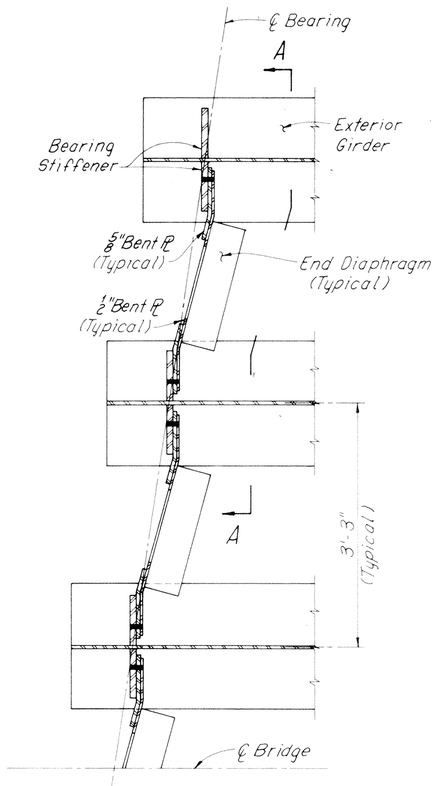
S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS

BR. NO. STA. 6024+44.57 TO STA. 6025+14.65

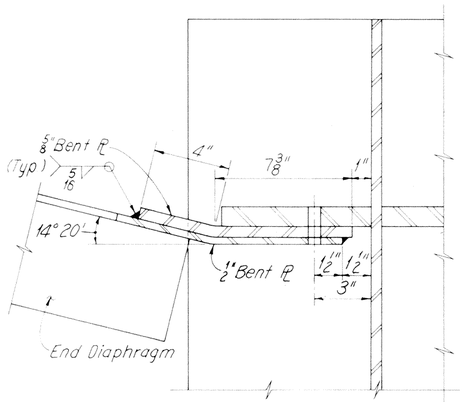
ASHTABULA COUNTY OHIO

MADE NS	TRACED	CHECKED A.M.	REVIEWED	REVISED
DATE	DATE	DATE 11/9/83	DATE	SHEET 8 / 10

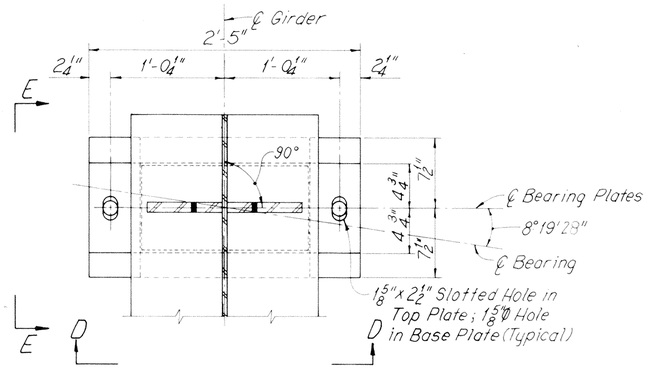
SR.7- BROAD STREET



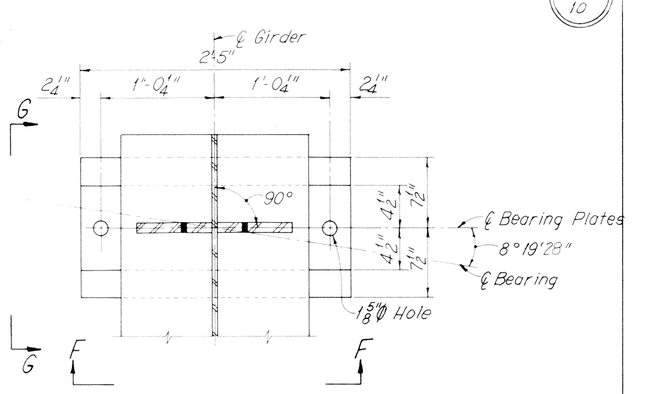
~PLAN~
~END DIAPHRAGM~



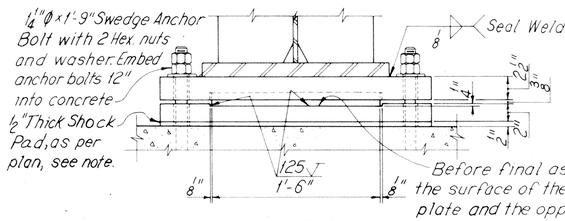
~Section C-C~



PLAN
Expansion Bearing
West Abutment

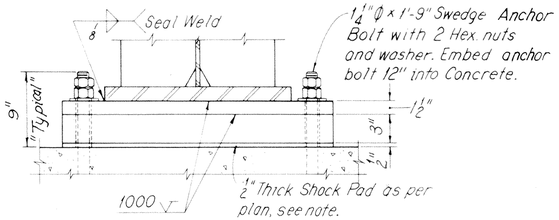


PLAN
Fixed Bearing
East Abutment

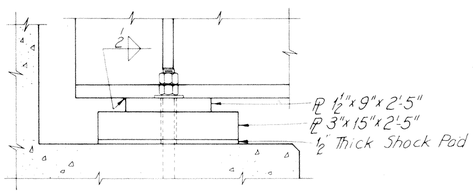


~View D-D~

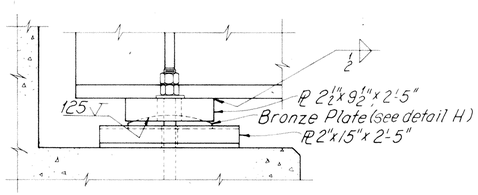
Note: Expansion Bearings shall be so placed that when the bridge is completed and at 60°F, the anchor bolt in the slotted hole will stand in the center of the slotted hole.



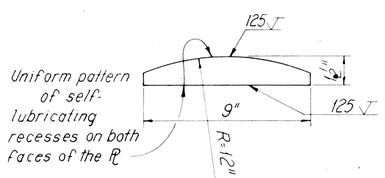
~View F-F~



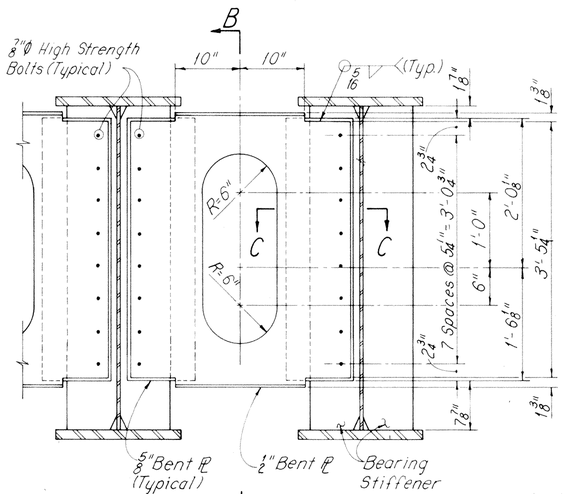
View G-G



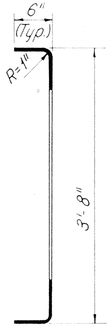
~View E-E~



~Detail H~



~View A-A~



~Section B-B~

Notes:
See Shock Pad Specifications on Sheet 7/10.
All Anchor Bolts shall be 1'-9" minimum in length and shall have 12" minimum embedment into concrete with 9" minimum above concrete.

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

MISCELLANEOUS DETAILS

S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS

BR. NO. STA. 6024+44.57 TO STA. 6025+14.65

ASHTABULA COUNTY CONNEAUT OHIO

MADE AJM	TRACED RCK	CHECKED WS	REVIEWED	REVISED
DATE	DATE 11/7/79	DATE 1/4/80	DATE	SHEET 9/10

QUANTITY CALCULATIONS
BY N.S. DATE 12-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

88/100

10/10

ASHTABULA COUNTY
ATB-7-31.43

FOOTERS

MARK	NO.	LENGTH	WT.	S.P.
F1001	80	17'-2"	5,910	B
F1002	80	11'-4"	3,902	B
F801	160	14'-0"	5,981	S
F701	52	6'-0"	638	B
F702	48	14'-7"	1,431	B
F703	48	18'-0"	1,766	S
F601	52	9'-3"	723	B
F602	112	11'-0"	1851	S
F603	50	7'-6"	564	B
F604	50	18'-0"	1,352	S
F501	8 Series of 10	13'-8" TO 21'-8"	1475	S Δ=10⅝" B Δ=10⅝"
F502	80	14'-0"	1,169	S
F503	60	11'-0"	689	S
F504	2 Series of 8	10'-8" TO 14'-1"	207	S Δ=5⅛" B Δ=5⅛"
F505	2 Series of 8	10'-1" TO 13'-6"	197	S Δ=5⅛" B Δ=5⅛"
F506	2 Series of 8	15'-3" TO 20'-7"	299	S Δ=9⅛" B Δ=9⅛"
F507	2 Series of 8	14'-8" TO 20'-0"	290	S Δ=9⅛" B Δ=9⅛"
F508	52	23'-6"	1,275	S
F509	34	18'-0"	639	S

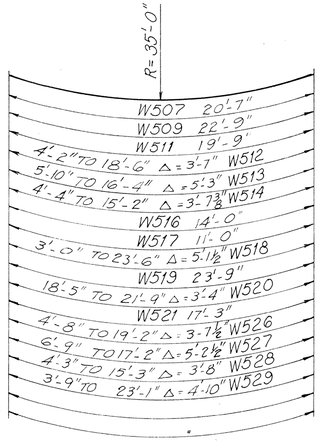
WING WALLS

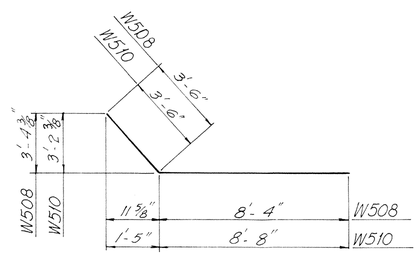
MARK	NO.	LENGTH	WT.	S.P.
W1001	1 Series of 20	15'-5" TO 23'-2"	1,660	S Δ=4⅞"
W1002	1 Series of 20	17'-8" TO 23'-2"	1,757	S Δ=3½"
W1003	1 Series of 20	15'-6" TO 23'-5"	1,675	S Δ=5"
W1004	1 Series of 20	17'-11" TO 23'-5"	1,779	S Δ=3½"
W701	1 Series of 10	11'-3" TO 15'-1"	270	S Δ=5⅛"
W702	1 Series of 16	12'-11" TO 17'-4"	495	S Δ=3½"
W703	1 Series of 10	11'-4" TO 15'-1"	270	S Δ=5"
W704	1 Series of 16	13'-2" TO 17'-7"	503	S Δ=3½"
W501	1 Series of 20	15'-2" TO 22'-11"	398	S Δ=4⅞"
W502	1 Series of 20	17'-5" TO 22'-11"	421	S Δ=3½"
W503	1 Series of 10	10'-10" TO 14'-10"	134	S Δ=5⅜"
W504	1 Series of 16	12'-8" TO 17'-0"	248	S Δ=3½"
W505	4 Series of 6	3'-11" TO 7'-11"	149	S Δ=8"
W506	4 Series of 6	4'-6" TO 8'-3"	160	S Δ=9"
W507	8	20'-7"	172	B
W508	4	11'-9"	49	B
W509	8	22'-9"	190	B
W510	4	12'-1"	51	B
W511	88	19'-9"	1813	B
W512	2 Series of 5	4'-2" TO 18'-6"	119	B Δ=3'-7"
W513	2 Series of 3	5'-10" TO 16'-4"	70	B Δ=3'-3"
W514	2 Series 4	4'-4" TO 15'-2"	82	B Δ=3'-7⅜"
W515	12	18'-0"	226	B
W516	4	14'-0"	59	B
W517	8	11'-0"	92	B
W518	2 Series 5	3'-0" TO 23'-6"	139	B Δ=5'-1½"
W519	8	23'-9"	199	B
W520	4 Series of 2	18'-5" TO 21'-9"	168	B Δ=3'-4"
W521	12	17'-3"	216	B
W522	1 Series of 20	15'-3" TO 23'-2"	401	S Δ=5"
W523	1 Series of 20	17'-8" TO 23'-2"	426	S Δ=3½"
W524	1 Series of 10	11'-1" TO 14'-10"	136	S Δ=5"
W525	1 Series of 16	12'-11" TO 17'-4"	253	S Δ=3½"
W526	2 Series of 5	4'-3" TO 19'-2"	125	B Δ=3'-7½"
W527	2 Series of 3	6'-9" TO 17'-2"	75	B Δ=5'-2½"
W528	2 Series of 4	4'-3" TO 15'-3"	82	B Δ=3'-8"
W529	2 Series of 5	3'-9" TO 23'-1"	140	B Δ=4'-10"

ABUTMENTS

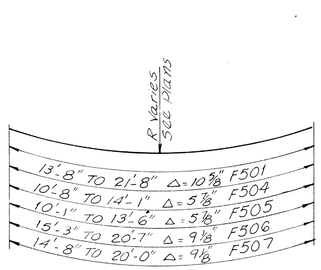
MARK	NO.	LENGTH	WT.	S.P.
A601	25	17'-2"	645	S
A602	25	17'-6"	658	S
A603	30	9'-6"	428	B
A604	4	9'-7"	58	B
A605	4	11'-3"	68	B
A606	4	12'-2"	73	B
A607	4	12'-1"	73	B
A608	4	10'-11"	66	B
A501	68	23'-6"	1667	S
A502	17	16'-11"	300	S
A503	17	17'-3"	306	S
A504	30	6'-0"	188	S
A505	24	7'-9	33	S
A506	40	3'-2"	132	S
A507	4	6'-1"	25	S
A508	4	7'-9"	33	S
A509	4	8'-7"	36	S
A510	4	8'-6"	36	S
A511	4	3'-7"	15	S
A512	4	7'-0"	30	B
A513	4	3'-2"	14	S
A514	4	6'-7"	28	B
A401	90	5'-1"	306	B
A402	6	22'-0"	88	S

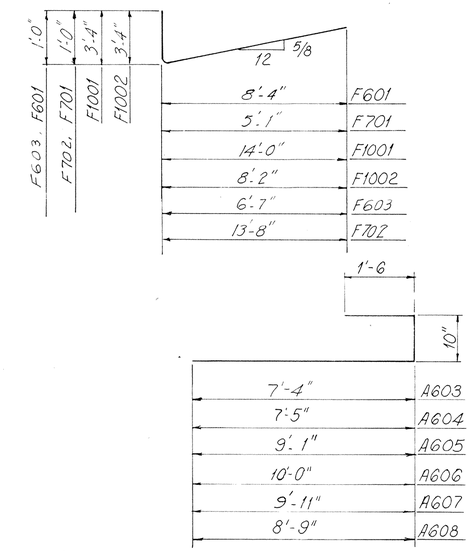
MARK	NO	LENGTH	W	SHAPE





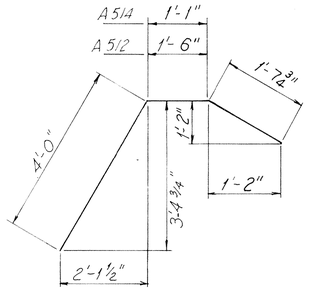
Radius of No. F501 Bars		
Radius	Length	No.
24'-9"	13'-8"	8
26'-4"		8
27'-10"		8
29'-5"		8
31'-0"		8
32'-6"	Δ=10⅝"	8
34'-1"		8
35'-7"		8
37'-2"		8
38'-9"	21'-8"	8





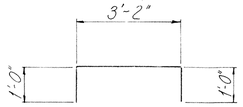
Refer to C.M.S. Sections 106.03, 700, 709.01 through 709.05 and 709.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the Structures by the additional steel, spliced in accordance with 509.08.

Radius of F504, F505, F506 and F507 Bars								
Radius	F504		F505		F506		F507	
	Length	No.	Length	No.	Length	No.	Length	No.
26'-9"	10'-8"	2	10'-1"	2	15'-3"	2	14'-8"	2
28'-3"		2		2		2		2
29'-10"		2		2		2		2
31'-5"	5⅛"	2	5⅛"	2	9⅛"	2	9⅛"	2
33'-0"	Δ=	2	Δ=	2	Δ=	2	Δ=	2
34'-7"		2		2		2		2
36'-2"		2		2		2		2
38'-9"	14'-1	2	13'-6"	2	20'-7"	2	20'-0"	2



A512 & A514

Bar size is indicated in the bar mark. The first digit where three digits are used and the first two digits where four are used indicate the bar size number for example: W501 is a no. 5 size bar and F1001 is a no. 10 bar.



A401

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND, OHIO

REINFORCING STEEL LIST

S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS

BR. NO. STA. 6024+44.57 TO STA. 6025+14.65

ASHTABULA COUNTY OHIO

MADE N.S.	TRACED C.H.	CHECKED AJM	REVIEWED	REVISED
DATE	DATE 8/13/79	DATE 1/9/80	DATE	SHEET 10/10

S.R. 7 - BROAD STREET

ASHTABULA COUNTY, CITY OF CONNEAUT

TOWNSHIP NO. 14 OF THE CONNECTICUT WESTERN RESERVE

RANGE NO. 1

CENTER LINE SURVEY PLAT

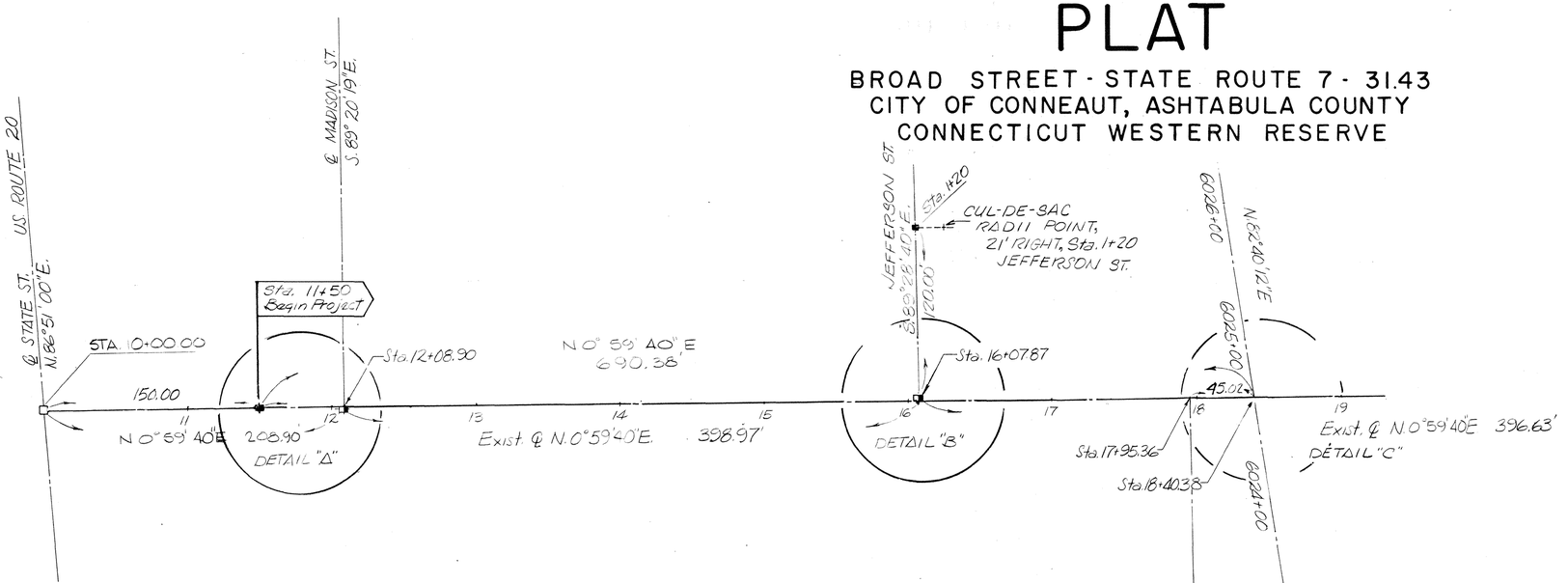
BROAD STREET - STATE ROUTE 7 - 31.43
CITY OF CONNEAUT, ASHTABULA COUNTY
CONNECTICUT WESTERN RESERVE

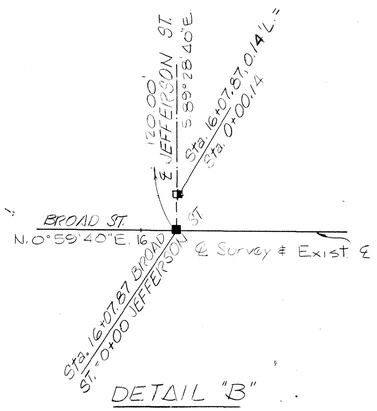
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	100% CITY	

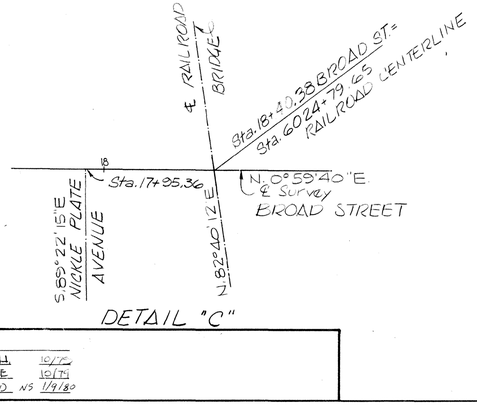
89 / 101

1 / 1

ASHTABULA COUNTY
BROAD ST. SR. 7 - 31.43







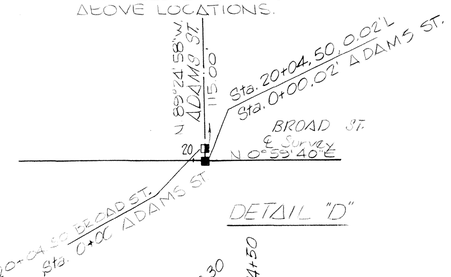
LEGEND

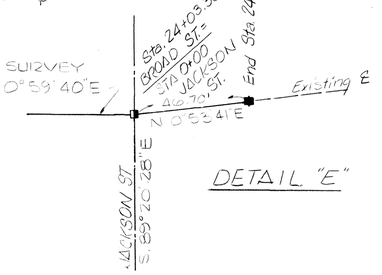
- EXISTING MON. BOX
- EXIST. MON.; SEE REMARKS
- PROPOSED MON. BOX
- IRON PIN, PK NAIL, ETC.

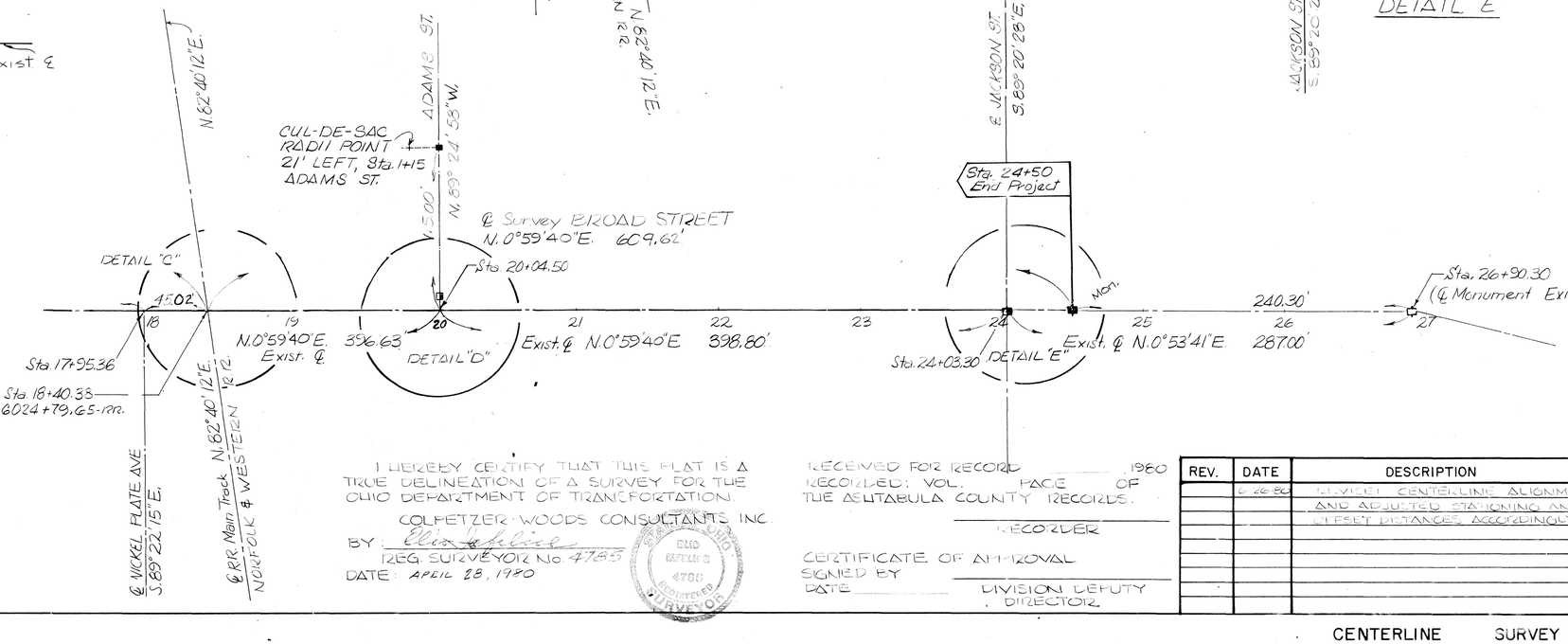
CIRCLED AREAS ARE ENLARGED ELSEWHERE ON THIS PAGE

PROPOSED MONUMENT ASSEMBLY LOCATION OF MONUMENTS		
SURVEY ℄ BROAD ST.	REMARKS	MONUMENT ASSEMBLIES
STA 11+50.00	BEGIN PROJECT	1
STA 12+08.90	RESET TO GRADE	1
STA 16+07.87	REPLACE ℄ MON.	1
STA. 20+04.50	" " "	1
STA 24+03.30	RESET TO GRADE	1
STA 24+50.00	END PROJECT	1
JEFFERSON STREET		
STA 1+20.00		1
ADAMS STREET		
Sta. 1+15		1
TOTAL		5

CENTERLINE MONUMENT ASSEMBLIES WILL BE PLACED AT THE DIRECTION OF THE FIELD ENGINEER AT THE ABOVE LOCATIONS.







I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY FOR THE OHIO DEPARTMENT OF TRANSPORTATION.

COLPETZER-WOODS CONSULTANTS INC.

BY: Eliot Colpetzer

REG. SURVEYOR No. 4765

DATE: APRIL 28, 1980

OHIO EUGENE E. ATOR REGISTERED SURVEYOR

RECEIVED FOR RECORD _____, 1980

RECORDED: VOL. _____ PAGE _____ OF THE ASHTABULA COUNTY RECORDS.

_____ RECORDER

CERTIFICATE OF APPROVAL

SIGNED BY _____

DATE _____ DIVISION DEPUTY DIRECTOR

REV.	DATE	DESCRIPTION
	6-26-80	REVISED CENTERLINE ALIGNMENT AND ADJUSTED STATIONING AND OFFSET DISTANCES ACCORDINGLY

T.H. 10/75
M.J.E. 10/75
C.K.D. NS 11/9/80

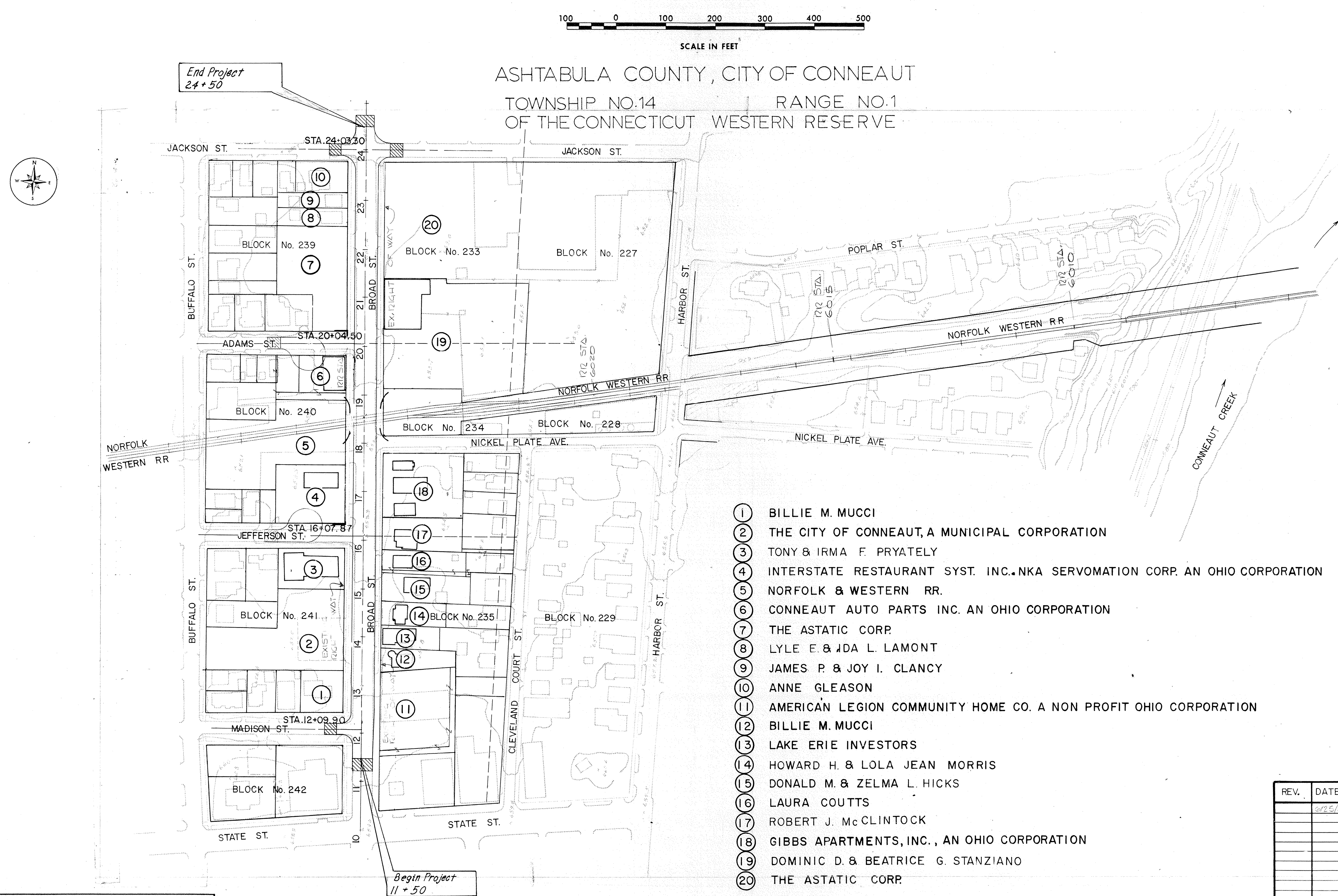
SR. 7- BROAD STREET

PROPERTY MAP

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	100% CITY	

ASHTABULA COUNTY
BROAD ST. SR. 7–31.43

90 / 101 — 2



1. BILLIE M. MUCCI
2. THE CITY OF CONNEAUT, A MUNICIPAL CORPORATION
3. TONY & IRMA F. PRYATELY
4. INTERSTATE RESTAURANT SYST. INC. NKA SERVOMATION CORP. AN OHIO CORPORATION
5. NORFOLK & WESTERN RR.
6. CONNEAUT AUTO PARTS INC. AN OHIO CORPORATION
7. THE ASTATIC CORP.
8. LYLE E. & IDA L. LAMONT
9. JAMES P. & JOY I. CLANCY
10. ANNE GLEASON
11. AMERICAN LEGION COMMUNITY HOME CO. A NON PROFIT OHIO CORPORATION
12. BILLIE M. MUCCI
13. LAKE ERIE INVESTORS
14. HOWARD H. & LOLA JEAN MORRIS
15. DONALD M. & ZELMA L. HICKS
16. LAURA COUTTS
17. ROBERT J. McCLINTOCK
18. GIBBS APARTMENTS, INC., AN OHIO CORPORATION
19. DOMINIC D. & BEATRICE G. STANZIANO
20. THE ASTATIC CORP.

UTILITIES
THE CLEVELAND ELECTRIC ILLUM. CO. P.O. BOX 5000 CLEVELAND, OHIO 44101
CONNEAUT PHONE CO. STATE STREET CONNEAUT, OHIO 44030
EAST OHIO GAS-ASHTABULA 1010 W. 30th STREET ASHTABULA, OHIO 44004
WATER DEPT.-CITY OF CONNEAUT CITY HALL BLDG. MAIN STREET CONNEAUT, OHIO 44030
SANITARY-CITY OF CONNEAUT CITY HALL BLDG. MAIN STREET CONNEAUT, OHIO 44030

REV.	DATE	DESCRIPTION
	6/25/80	CHANGED OWNERSHIP PCLS 2 & 18
		REV NAMES 1, 4, 6 & 11

SCALE ___ MADE THL DATE 10/79 TRCD. MJE DATE 10/79 CKD. NS DATE 11/1/80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR. 7 - BROAD STREET

SCHEMATIC PLAN

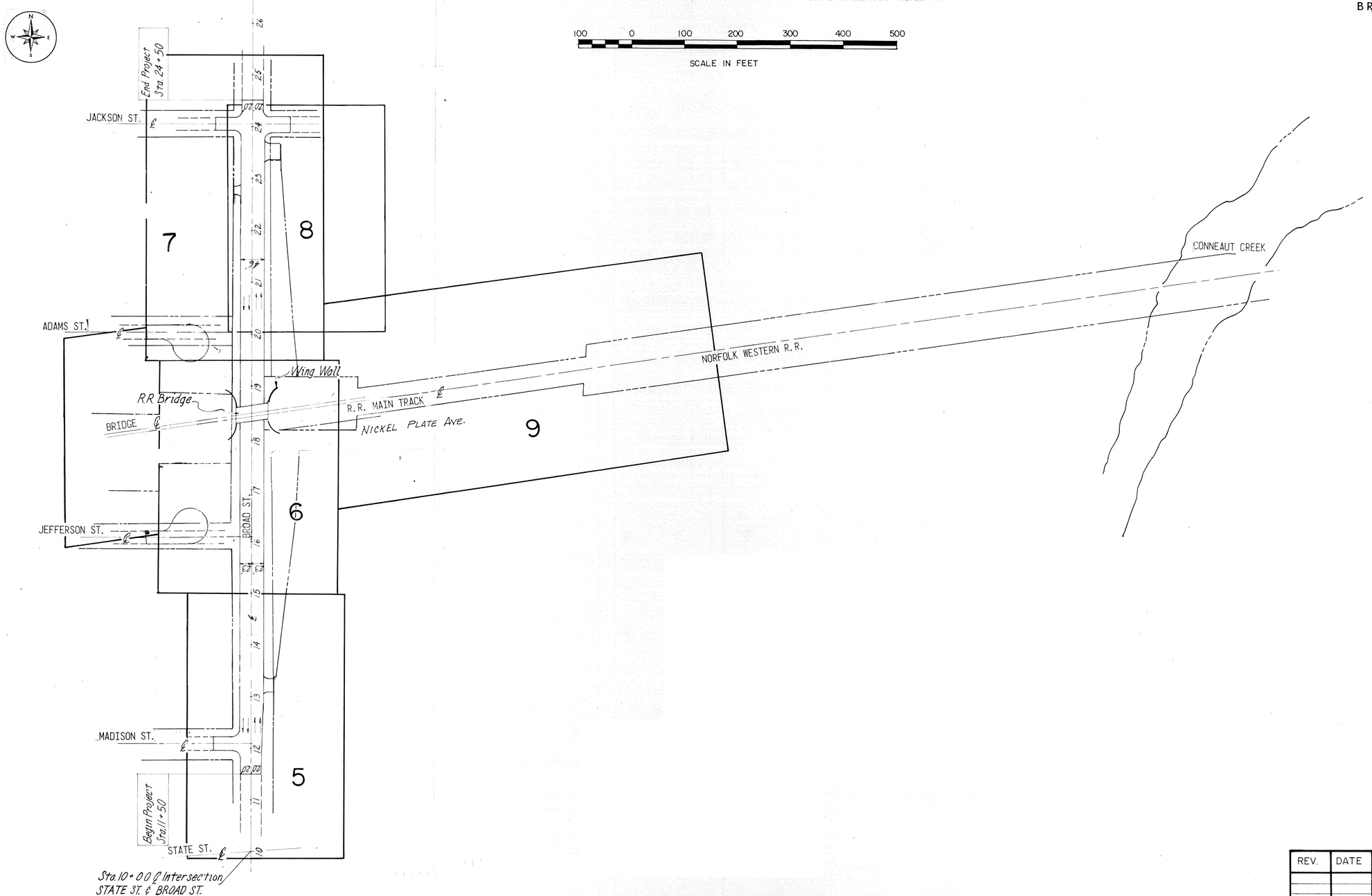
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	100% CITY	

ASHTABULA COUNTY
BROAD ST. SR. 7 – 31.43

91
101

3

100 0 100 200 300 400 500
SCALE IN FEET



REV.	DATE	DESCRIPTION

SCALE 1" = 1'
MADE TTH DATE 10/72
TRCD MJE DATE 10/73
CKD. NS DATE 11/9/73

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR.7 - BROAD STREET

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	100% CITY	

92/101

ASTABULA COUNTY
BROAD ST. SR.7-31.43

4/10

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

TOTAL NUMBER OF ---

20 OWNERSHIPS

3 TOTAL TAKES

12 OWNERSHIPS WITH STRUCTURES INVOLVED

2 OWNERSHIPS WITH PERSONALTY ITEMS

REVISIONS 6/26/80
1. CHANGED OWNERSHIP PCLS 2SL & 18 SL
2. REV. NAMES PCLS 1-T, 4WD, 6WD & 11-T
3. ADDED VOL. & PAGE PCL 1-T
4. REV DEED & RESIDUE AREA PER REV CENTERLINE ALIGNMENT.

REVISIONS 9/24/80 †
1. REV. AREAS FOR PCLS 5A, 5B
2. ADD PARCELS 5-SL1, 5-SL2, 5-SL3 AND 5-SL4
3. ADD DRIVEWAY CONSTRUCTION TO 10-T
4. 10 PR DELETED.

	PARCEL NO.	OWNER	SHEET NO.	OWNER'S RECORD VOL.	OWNER'S RECORD PAGE	RECORD AREA	TOTAL P.R.O.	TO BE ACQUIRED GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRU.	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED VOL.	AS ACQUIRED PAGE
	1-T	BILLIE M. MUCCI	5	1&837	9&694&171	8,127		592		592		8,127			FOR GRADING AND SIDEWALK REBUILDING		
	2-SL	THE CITY OF CONNEAUT MUNICIPAL	5&6	6	5834	39,204		5,372		3,372		35,832					
	2-U	CORPORATION	5					3,366		3,366							
	2-T		5					410		410					FOR GRADING AND SIDEWALK CONSTRUCTION		
	3-WD	TONY AND IRMA F. PRYATELY	6	736	197	11,330				8,646	YES				PARCEL TO BE USED FOR EXTENSION OF CITY PARK;		
	3-SL		6					2,684		2,684					REMAINDER OF PARCEL TO BE ACQUIRED		
	3-U		6					2,069		2,069					FOR CITY.		
	4-WD	INTERSTATE RESTAURANT SYSTEMS INC.	6	697	949	20,066		3,310		3,310	YES	10,514			CUL-DE-SAC ON JEFFERSON STREET		
		N.K.A. SERVOMATION CORP. AN	6	697	922										PARCEL TO BE USED FOR EXTENSION OF CITY PARK;		
	4-SL	OHIO CORPORATION	6					6,241		6,241					REMAINDER OF PARCEL TO BE ACQUIRED		
	4-U		6					2,055		2,055					FOR CITY		
	4-S		6					675		675							
	4-T		6					1,730		1,730					FOR BUILDING REMOVAL		
†	5B	NORFOLK AND WESTERN RAILWAY Co.	6&10	118	618			1,020		1,020					FOOTER		
†	5A	A.K.A. NEW YORK, CHICAGO AND ST. LOUIS	6&10					806		806					FOOTER		
	5-U	RAILROAD A.K.A. N.Y.C. & S.L.R.R.	6&10					5,413	✓	3,413	✓						
*	6-WD	CONNEAUT AUTO PARTS INC.	6&7	587	251	12,106		3,239		3,239	YES	5,122			CUL-DE-SAC ON ADAMS STREET, REMAINDER OF		
		AN OHIO CORPORATION													PARCEL TO BE ACQUIRED FOR CITY		
			6&7	MISC. 14	483												
			6&7														
	6-SL		6&7					3,745		3,745							
	6-U		6&7					1,100		1,100							
	6-S		6&7					870		870							
	7-SL	THE ASTATIC CORPORATION	7	559	338	24,774		6,700		6,700		18,074					
	7-U		7					4,650		4,650							
	7-T		7					171		171					FOR DRIVEWAY CONSTRUCTION		
	7A-T		7					1,204		1,204					FOR DRIVEWAY CONSTRUCTION		
	8-WD	LYLE E. AND IDA L. LAMONT	7	687	168	5,683		399		399		5,284					
	8A-WD		7														
	8-T		7					64		64					FOR DRIVEWAY CONSTRUCTION		
	9-WD	JAMES P. AND JOY I. CLANCY	7	502	376	4,412		232		232		4,180					
	9-T		7					87		87					FOR DRIVEWAY CONSTRUCTION		
†**	10-T	ANNE L. GLEASON	7	546	254	7,367		326		326		7,367			FOR GRADING & DRIVEWAY CONSTRUCTION		
**	11-T	AMERICAN LEGION COMMUNITY HOME Co.	5	277	141	22,350		460		460			21,890		FOR DRIVEWAY AND SIDEWALK CONSTRUCTION		
	11A-T	A NON PROFIT OHIO CORPORATION	5	438	94			859		859					FOR DRIVEWAY AND SIDEWALK REMOVAL		
	12-SL	BILLIE M. MUCCI	5	1&837	9&694&171	6,368		928		928	YES		5,440				
	12-T		5					2,214		2,214					FOR BUILDING REMOVAL		
	13-SL	ROBERT E. NAYLOR AND ROBERT F. NAYLOR	5	876	185	6,029		1,210		1,210	YES		4,819				
	13-T	LAKE ERIE INVESTORS	5					2,553		2,553					FOR BUILDING REMOVAL		
	14-SL	HOWARD H. & LOLA JEAN MORRIS	5	808	91	6,598		1,441		1,441	YES		5,157				
	14-T		5					1,549		1,549					FOR BUILDING REMOVAL		
	15-SL	DONALD M. AND ZELMA L. HICKS	5&6	434	86	10,396		1,931		1,931	YES		8,465				
	15-PR		5&6					2,918		2,918	YES				FOR BUILDING REMOVAL		
	16-SL	LAURA COUTTS	6	619	361	7,903		1,818		1,818	YES		6,085				
	16-T		6					1,329		1,329					FOR BUILDING REMOVAL		
	17-SL	ROBERT J. MCCLINTOCK	6	707	744	12,024		3,137		3,137	YES		8,887				
	17-T		6					2,235		2,235					FOR BUILDING REMOVAL		
	18-SL	GIBBS APARTMENTS, INC. AN	6	6	5060	21,430		6,991		6,991	YES		14,439				
	18-T	OHIO CORPORATION	6					3,162		3,162					FOR REMOVAL OF THREE BUILDINGS		
	19-SL	DOMINIC D. AND BEATRICE G. STANZIANO	6,7,&8	714	191	66,759		9,600		9,600	YES		57,159				
	19-T		6&8					6,115		6,115					FOR RAILROAD RUN-AROUND		
	19A-T		6&8					122		122					FOR REMOVAL OF OLD FOOTER.		
***	19B-T		7&8					9,742		9,742					FOR BUILDING REMOVAL AND DRIVE CONSTRUCTION		
***	20-SL	THE ASTATIC CORPORATION	7	499	573	201,683		3,976		3,976			197,707		COST OF RELOCATING WATER LINE TO BE REFLECTED IN PURCHASE		
	20-T		8					651		651					FOR RAILROAD RUN-AROUND		
	20A-T		7&8					500		500					FOR GRADING AND SIDEWALK CONSTRUCTION		
*	5-PR	NORFOLK & WESTERN RAILWAY Co.	6												LOSS OF IMPROVEMENTS MADE BY LESSEE		
***	19C-T	DOMINIC D. AND BEATRICE G. STANZIANO	7&8					307		307					FOR BUILDING REMOVAL		
†	5-SL1	NORFOLK & WESTERN RAILWAY CO.	6&10	118	618			3,518		3,518							
†	5-SL2	NORFOLK & WESTERN RAILWAY CO.	6&10					2,172		2,172							
†	5-SL3	NORFOLK & WESTERN RAILWAY CO.	6&10					1,040		1,040							
†	5-SL4	NORFOLK & WESTERN RAILWAY CO.	6&10					2,858		2,858							

100% CITY

SCALE
MADE TH DATE 9/79
TRCD. MJE DATE 9/79
CKD. W.S. DATE 1-9-80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SR 7 – BROAD STREET

ASHTABULA COUNTY, CITY OF CONNEAUT

TOWNSHIP NO. 14 OF THE CONNECTICUT WESTERN RESERVE — RANGE NO. 1

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	100% CITY	

ASHTABULA COUNTY
BROAD ST. SR. 7-31.43

93 / 101

5

BILLIE M. MUCCI
(1-T) T.B.A. 592 SQ.FT.

BOARD OF EDUCATION
(2-QC) T.B.A. 33,654 SQ.FT.
(2-T) T.B.A. 410 SQ.FT.
(2-SL) T.B.A. 3,372 SQ.FT.
(2-U) T.B.A. 3,366 SQ.FT.
SEE OVERLAPS THIS SHEET

AMERICAN LEGION
(11-T) T.B.A. 460 SQ.FT.
(11A-T) T.B.A. 859 SQ.FT.
TOTAL 1,300 SQ.FT. T.B.A.

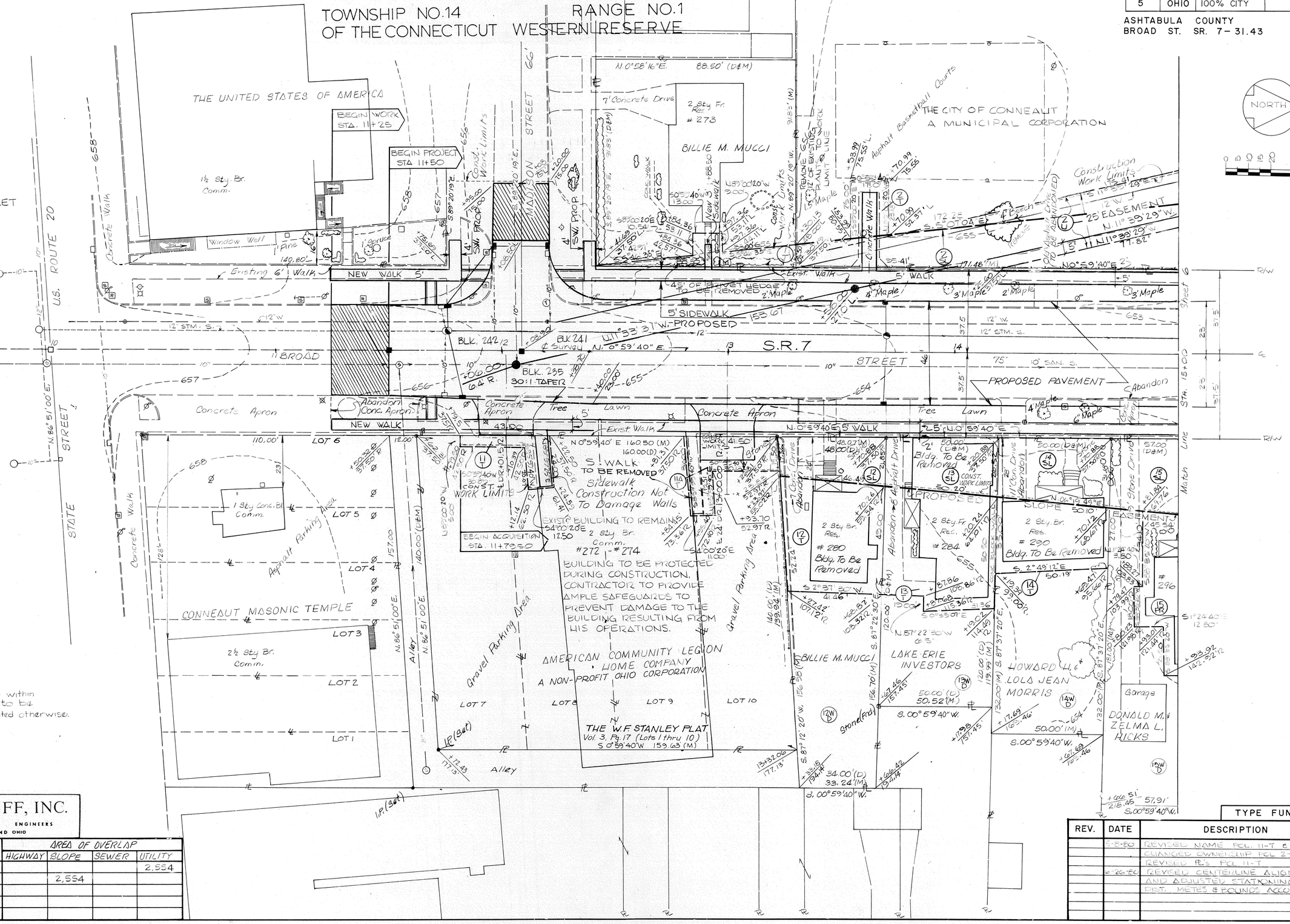
BILLIE M. MUCCI
(12-SL) T.B.A. 928 SQ.FT.
(12-T) T.B.A. 2,215 SQ.FT.

LAKE ERIE INVESTORS
(13-SL) T.B.A. 1210 SQ.FT.
(13-T) T.B.A. 2,553 SQ.FT.

HOWARD H. MORRIS
(14-SL) T.B.A. 1,442 SQ.FT.
(14-T) T.B.A. 1,549 SQ.FT.

DONALD M. HICKS
(15-PR) T.B.A. 2,919 SQ.FT.
(15-SL) T.B.A. 1,932 SQ.FT.

NOTE: All items of value within work limits are to be removed unless noted otherwise.



PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA	AREA OF OVERLAP			
			HIGHWAY	SLOPE	SEWER	UTILITY
2 SL	SLOPE	3,372				2,554
2 U	UTILITY	3,366		2,554		

SCALE
MADE TFW DATE 10/79
TRCD. MJE DATE 10/79
CKD. W.S. DATE 1-9-80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

TYPE FUND-100% CITY

REV.	DATE	DESCRIPTION
	5-5-80	REVISED NAME PCL 11-T & 11-T
		CHANGED OWNERSHIP PCL 2-SL
		REVISED ft's PCL 11-T
	6-26-80	REVISED CENTERLINE ALIGNMENT AND ADJUSTED STATIONING, OFFSET DIST. METES & BOUNDS ACCOLDINGLY

F.H.W.A. REGION	STATE	PROJECT
5	OHIO	100% CITY

94 / 101

6

ASHTABULA COUNTY
BROAD ST. SR. 7-31.43

TONY PRYATELY
(3 WD) T.B.A. 11,330 S.F.
(3 SL) T.B.A 2684 S.F. (SEE OVERLAPS)
(3 U) T.B.A 2069 S.F. (SEE OVERLAPS)
ENTIRE PARCEL (11,330 S.F.) T.B.A.
REMAINDER (8646 S.F.)

INTERSTATE RESTAURANT
(4 WD) T.B.A. 20,066 S.F.
(4 SL) T.B.A. 6241 S.F.
(4 U) T.B.A. 2055 S.F.
(4 S) T.B.A. 675 S.F.
(4 T) T.B.A. 1730 S.F.
(4) T.B.A. 3311 S.F.

(5 E) T.B.A. 913 S.F.
(5 PR) T.B.A. 6836 S.F.
(5 U) T.B.A. 3413 S.F.

CONNEAUT AUTO PARTS
(6 WD) T.B.A. 12,106 S.F.
(6) T.B.A. 3239 S.F.
(6 SL) T.B.A. 3745 S.F.
(6) T.B.A. 1100 S.F.
(6 S) T.B.A. 870 S.F.
SEE OVERLAPS SHEET No. 7

FOR (15 PK) AND (15 SL) SEE SHEET No. 5

LAURA COUTTS
(16 SL) T.B.A. 1819 S.F.
(16 T) T.B.A. 1329 S.F.

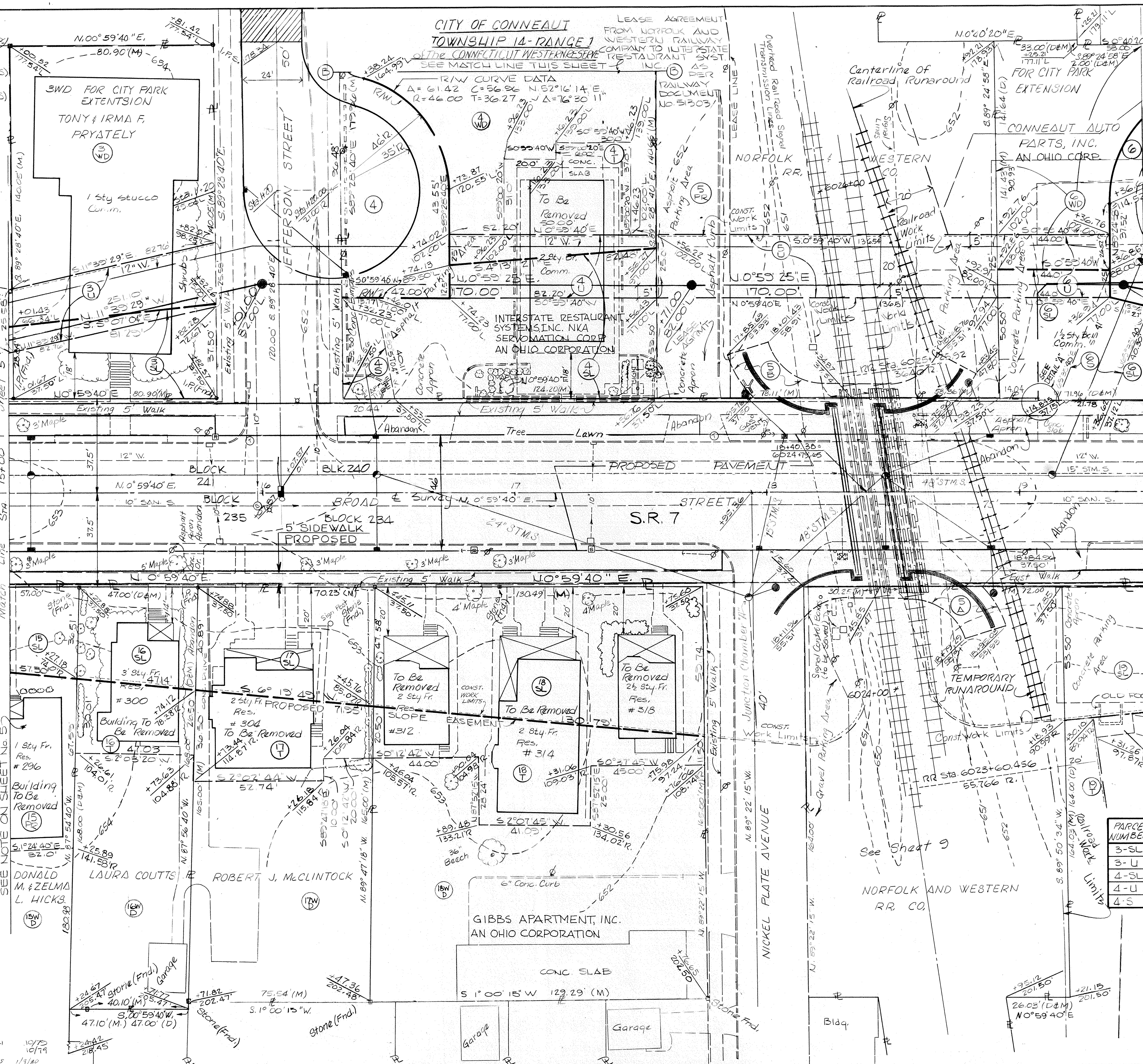
ROBERT J. McCLINTOCK
(17 SL) T.B.A. 3138 S.F.
(17 T) T.B.A. 2235 S.F.

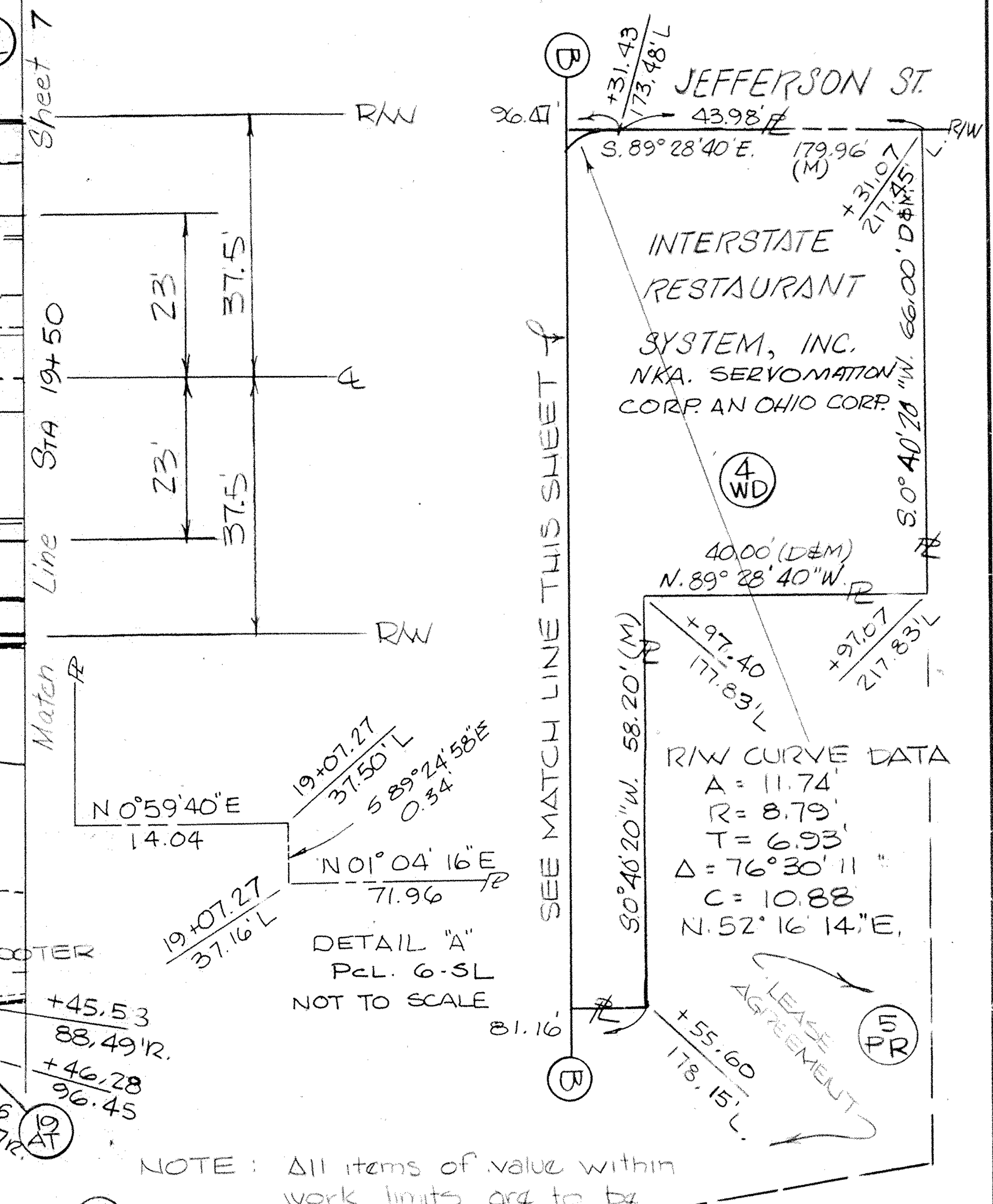
THE ANDOVER BANK
(18 SL) T.B.A. 6991 S.F.
(18 T) T.B.A. 3162 S.F.

MADE TPH 10/79
TCCD MJE 10/79
CKD NS 1/3/80

DOMINIC L. STANZIANO
(19 SL) T.B.A. 9600 S.F.
(19 T) T.B.A. 6115 S.F.
(19A T) T.B.A. 122 S.F.
(19 E) T.B.A. 9742 S.F.
(19 C) T.B.A. 307 S.F.

FOR (19 C) SEE SHEET No. 7
FOR (19 T) SEE ALSO SHEET No. 8 & 9
FOR (19 SL) SEE ALSO SHEET No. 7 & COMPLETE PARCEL SHEET No. 9





NOTE: All items of value within work limits are to be removed unless noted otherwise.

PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA (SQ FT)	AREA OF OVERLAP HIGHWAY	SLOPE	SEWER	UTILITY
3-SL	SLOPE	2,684				572
3-U	UTILITY	2,069		572		
4-SL	SLOPE	6,241			675	1,336
4-U	UTILITY	2,055		1,336		
4-S	SEWER	675		675		

FOR OVERLAP PARCEL 6 SEE SHEET No. 7

TYPE FUND-100% CITY

REV.	DATE	DESCRIPTION
	5-8-80	CHANGED OWNERSHIP PCL. 18-SL REVISED NAME PCL'S 4-WD, 6-WD; REVISED ℄'S PCL. 6-WD
	6-26-80	REVISED ℄ ALIGNMENT ADJUSTED STA'S OFFSET DIST. METES & BOUNDS

ASHTABULA COUNTY, CITY OF CONNEAUT

TOWNSHIP NO.14 RANGE NO.1
OF THE CONNECTICUT WESTERN RESERVE

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	100 % CITY	

ASHTABULA COUNTY
BROAD ST. SR. 7-31.43

95
101

7

DOMINIC D. & BEATRICE G. STANZIANO

Concrete Parking Area

MATCH LINE SEE SHEET No.8

FOR 19 T SEE SHEET No.8

NOTE: All items of value within work limits are to be removed unless noted otherwise.

PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA (SQ FT)	AREA OF OVERLAP			
			HIGHWAY	SLOPE	SEWER	UTILITY
6-SL	SLOPE	3,745			871	484
6-U	UTILITY	1,100		484	27	
6-S	SEWER	870		870		27
7-SL	SLOPE	6,700				4,468
7-U	UTILITY	4,651		4,468		
7-T	TEMPORARY	171				36

TYPE FUND - 100% CITY

REV.	DATE	DESCRIPTION
	6/25/80	REVISED R/S PCL 6WD, TBA-6-SL METES &
		BOUNDS, STATIONS & OFFSETS PCL 6-SL.
	6/25/80	REVISED CENTERLINE ALIGNMENT, ADJUSTED
		STATIONS & OFFSETS ACCORDINGLY

CALE
MADE TPH DATE 10/79
RCD. MJB DATE 10/79
KD. N.S. DATE 1-9-80

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO


F.H.W.A. REGION | STATE | PROJECT
5 | OHIO | 100 % CITY
96
101
8
10
ASHTABULA COUNTY
BROAD ST. SR. 7-31.43
NORTH
CITY OF CONNEAUT
TOWNSHIP 14 RANGE I
ADAMS STREET
BLK. 239
BLK. 240
BLK. 234
BLK. 233
BROAD
PROPOSED PAVEMENT
℄ Survey N.0°59'40"E.
Abandon Drive
N.12°41'38"E
162.68'
BLK. 239
BLK. 238
BLK. 233
BLK. 232
SEE NOTE SHEET No. 7
Existing 5' Walk
5' SIDEWALK PROPOSED
WATER METER VAULT & LINE TO BE RELOCATED
CONST. WORK LIMITS
EASEMENT
PROPOSED SLOPE
T.B.A. 9,600 S.F.
Concrete Parking Area
Old Footer
Office
T.B.A. 122 S.F.
1 Sty. Br. & Fr. Comm.
Building To Be Removed
Rubbish Pile
T.B.A. 9743 SF BLDG. REMOVAL & DRIVE
Underground Electric Cable
Gravel & Stone Parking Area
THE ASTATIC CORPORATION
Manhole Filled With Water
JACKSON STREET
Drive
DOMINIC D & BEATRICE G. STANZIANO
T.B.A. 6,115 SF.
℄ MAIN TRACKS
℄ TEMPORARY TRACKS
STA. 6024
STA. 6023
STA. 6022
STA. 6021+26
Shed
Storage Shed
Factory Building
SEE SHEET 9
SEE SHEET No. 7
ASHTABULA COUNTY, CITY OF CONNEAUT
TOWNSHIP NO.14 RANGE NO.1
OF THE CONNECTICUT WESTERN RESERVE
TYPE FUND - 100% CITY
REV. | DATE | DESCRIPTION
REVISED & ALIGNMENT ADJUSTED
STA. OFFSET DIST. METES & BOUNDS
WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO
SCALE
MADE
TRCD
CKD
DATE

ASHTABULA COUNTY, CITY OF CONNEAUT

TOWNSHIP NO. 14 RANGE NO. 1 OF THE CONNECTICUT WESTERN RESERVE

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	100% CITY	

97/101 · 9/12

ASHTABULA COUNTY
BROAD ST. SR. 7 - 31.43

RAILROAD MAP REFERENCE

NORFOLK & WESTERN R.R. (N.Y.C. & St. L. R.R.) MAP No. 1151

TYPE FUND - 100% CITY

REV.	DATE	DESCRIPTION
	6-26-80	REVISED ℄ BRG OF BROAD ST. ADJUSTED STA & OFFSETS METES AND BOUNDS ACCORDINGLY

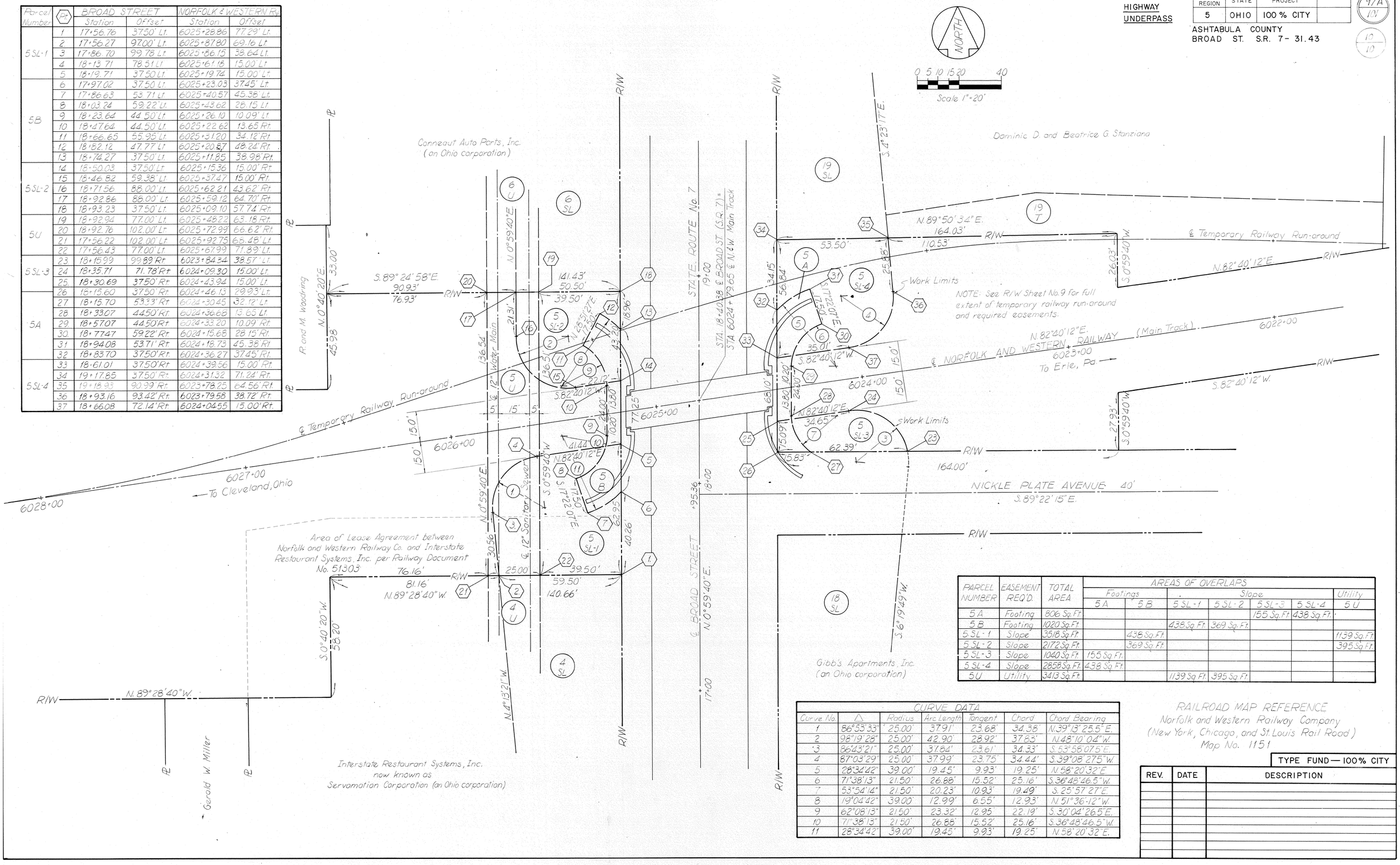
Station 6024+68.73 to Station 6015+82.00

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

MADE TEH DATE 10/79
CKD. MJE DATE 10/79
APPD. N.S. DATE 1-4-80

NORFOLK & WESTERN RAILROAD

Parcel Number	Pt.	BROAD STREET Station	BROAD STREET Offset	NORFOLK & WESTERN Ry. Station	NORFOLK & WESTERN Ry. Offset
5SL-1	1	17+56.76	37.50' Lt.	6025+28.86	77.29' Lt.
	2	17+56.27	97.00' Lt.	6025+87.80	69.16 Lt.
	3	17+86.70	99.78 Lt.	6025+86.15	38.64 Lt.
	4	18+13.71	78.51 Lt.	6025+61.16	15.00' Lt.
	5	18+19.71	37.50 Lt.	6025+19.74	15.00' Lt.
5B	6	17+97.02	37.50 Lt.	6025+23.03	37.45' Lt.
	7	17+86.63	53.71 Lt.	6025+40.57	45.38 Lt.
	8	18+03.24	59.22' Lt.	6025+43.62	26.15 Lt.
	9	18+23.64	44.50 Lt.	6025+26.10	10.09' Lt.
	10	18+47.64	44.50' Lt.	6025+22.62	13.65 Rt.
	11	18+66.65	55.95 Lt.	6025+31.20	34.12' Rt.
	12	18+82.12	47.77' Lt.	6025+20.57	48.24' Rt.
	13	18+74.27	37.50' Lt.	6025+11.85	38.98' Rt.
5SL-2	14	18+50.03	37.50' Lt.	6025+15.36	15.00' Rt.
	15	18+46.82	59.38' Lt.	6025+37.47	15.00' Rt.
	16	18+71.56	88.00' Lt.	6025+62.21	43.62' Rt.
	17	18+92.66	86.00' Lt.	6025+59.12	64.70' Rt.
	18	18+93.23	37.50' Lt.	6025+09.10	57.74 Rt.
5U	19	18+92.94	77.00' Lt.	6025+48.22	63.18 Rt.
	20	18+92.76	102.00' Lt.	6025+72.99	66.62' Rt.
	21	17+56.22	102.00' Lt.	6025+92.75	65.48' Lt.
	22	17+56.43	77.00' Lt.	6025+67.99	71.89' Lt.
5SL-3	23	18+15.99	99.89 Rt.	6023+84.34	38.57' Lt.
	24	18+35.71	71.78' Rt.	6024+09.30	15.00' Lt.
	25	18+30.69	37.50' Rt.	6024+43.94	15.00' Lt.
	26	15+15.60	37.50' Rt.	6024+46.13	29.93' Lt.
5A	27	18+15.70	53.33' Rt.	6024+30.45	32.12' Lt.
	28	18+33.07	44.50' Rt.	6024+36.66	13.65 Lt.
	29	18+57.07	44.50' Rt.	6024+33.20	10.09' Rt.
	30	18+77.47	59.22' Rt.	6024+15.68	28.15' Rt.
	31	18+94.08	53.71' Rt.	6024+18.73	45.38' Rt.
	32	18+83.70	37.50' Rt.	6024+36.27	37.45' Rt.
5SL-4	33	18+61.01	37.50' Rt.	6024+39.56	15.00' Rt.
	34	19+17.85	37.50' Rt.	6024+31.32	71.24' Rt.
	35	19+18.93	90.99' Rt.	6023+78.25	64.56' Rt.
	36	18+93.16	93.42' Rt.	6023+79.58	38.72' Rt.
	37	18+66.08	72.14' Rt.	6024+04.55	15.00' Rt.



PARCEL NUMBER	EASEMENT REQ'D.	TOTAL AREA	AREAS OF OVERLAPS: Footings 5A	Footings 5B	Slope 5SL-1	Slope 5SL-2	Slope 5SL-3	Slope 5SL-4	Utility 5U
5A	Footing	806 Sq.Ft.					155 Sq.Ft.	438 Sq.Ft.	
5B	Footing	1020 Sq.Ft.			438 Sq.Ft.	369 Sq.Ft.			
5SL-1	Slope	3518 Sq.Ft.		438 Sq.Ft.					1139 Sq.Ft.
5SL-2	Slope	2172 Sq.Ft.		369 Sq.Ft.					395 Sq.Ft.
5SL-3	Slope	1040 Sq.Ft.	155 Sq.Ft.						
5SL-4	Slope	2858 Sq.Ft.	438 Sq.Ft.						
5U	Utility	3413 Sq.Ft.			1139 Sq.Ft.	395 Sq.Ft.			

CURVE DATA

Curve No.	△	Radius	Arc Length	Tangent	Chord	Chord Bearing
1	86°53'33"	25.00'	37.91'	23.68'	34.38'	N.39°13'25.5"E.
2	98°19'28"	25.00'	42.90'	28.92'	37.83'	N.48°10'04"W.
3	86°43'21"	25.00'	31.84'	23.61'	34.33'	S.53°56'07.5"E.
4	87°03'29"	25.00'	37.99'	23.75'	34.44'	S.39°08'27.5"W.
5	28°34'42"	39.00'	19.45'	9.93'	19.25'	N.58°20'32"E.
6	71°38'13"	21.50'	26.88'	15.52'	25.16'	S.36°48'46.5"W.
7	53°54'14"	21.50'	20.23'	10.93'	19.49'	S.25°57'27"E.
8	19°04'42"	39.00'	12.99'	6.55'	12.93'	N.51°36-12"W.
9	62°08'13"	21.50'	23.32'	12.95'	22.19'	S.30°04'26.5"E.
10	71°38'13"	21.50'	26.88'	15.52'	25.16'	S.36°48'46.5"W.
11	28°34'42"	39.00'	19.45'	9.93'	19.25'	N.58°20'32"E.

RAILROAD MAP REFERENCE
Norfolk and Western Railway Company
(New York, Chicago, and St. Louis Rail Road)
Map No. 1151

HIGHWAY UNDERPASS

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	100 % CITY	

ASHTABULA COUNTY
BROAD ST. S.R. 7- 31.43

97A 10/

10/10

TYPE FUND — 100% CITY

REV.	DATE	DESCRIPTION

NORFOLK AND WESTERN RAILWAY RIGHT-OF-WAY PLAN

DETOUR PLAN

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

98
100

ASHTABULA COUNTY
ATB-7-31.43

*NOTE: INSTALL PERMANENT SIGN AT START OF PROJECT.

LEGEND

SCALE
MADE AJM DATE
TRCD. [illegible] DATE 8/10/79
CKD. [illegible] DATE 1/9/80

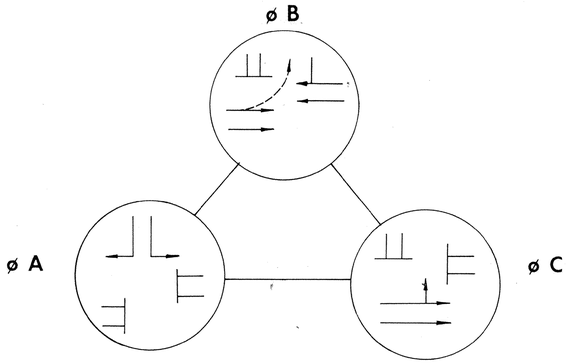
WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

SIGNAL PLAN

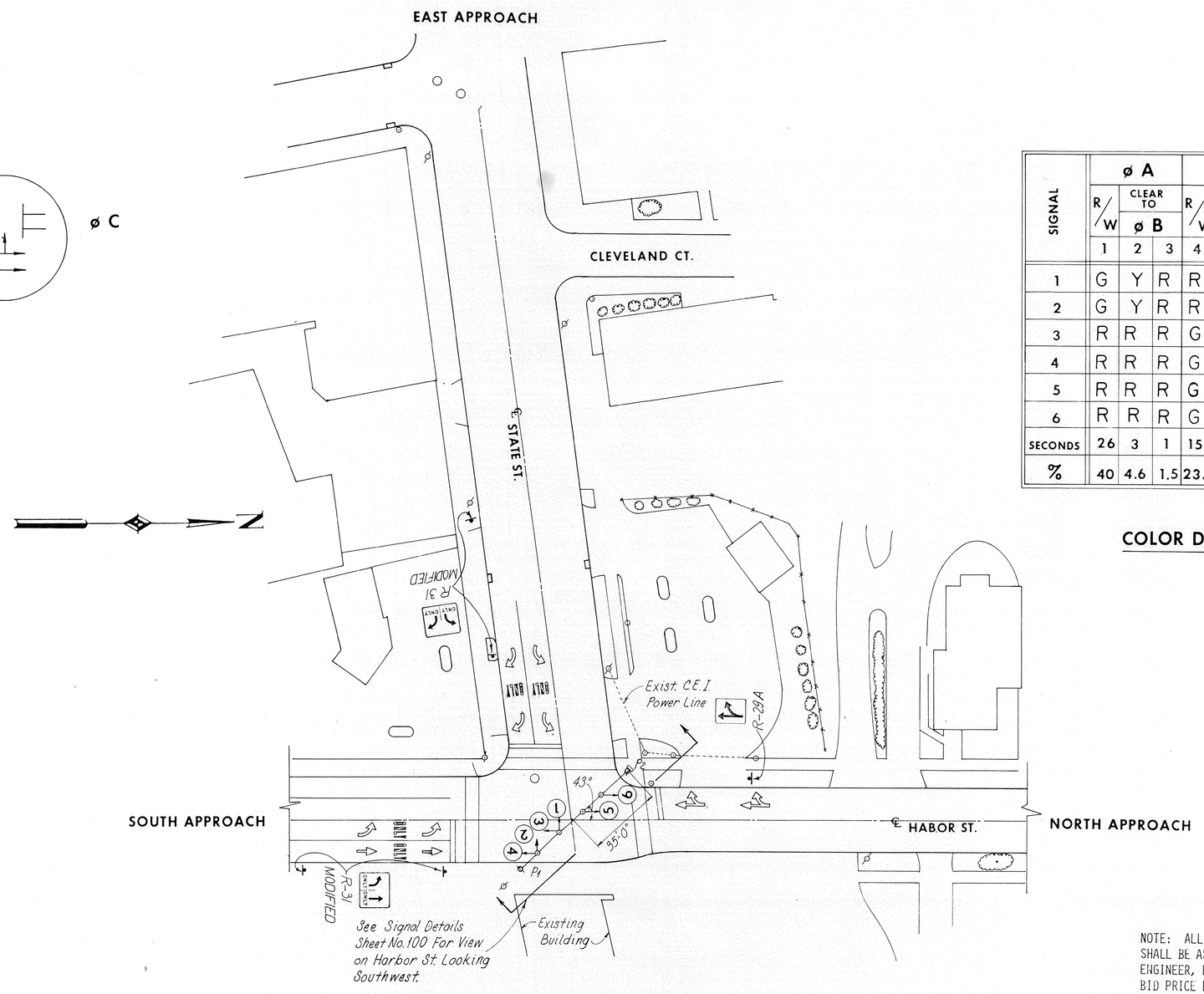
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

99/100

ASHTABULA COUNTY
ATB-7-31.43

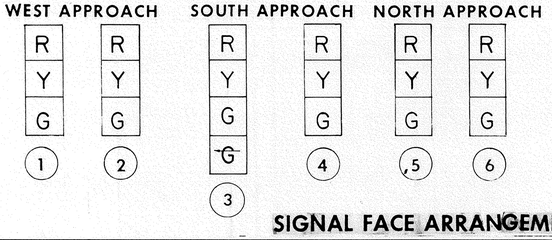


SIGNAL PHASING PLAN



SIGNAL	ø A			ø B			ø C			FLASH		
	R/W	CLEAR TO ø B		R/W	CLEAR TO ø C		R/W	CLEAR TO ø A				
	1	2	3	4	5	6	7	8	9			
1	G	Y	R	R	R	R	R	R	R	Y		
2	G	Y	R	R	R	R	R	R	R	Y		
3	R	R	R	G	G	G	G/G	Y	R	R		
4	R	R	R	G	G	G	G	Y	R	R		
5	R	R	R	G	Y	R	R	R	R	R		
6	R	R	R	G	Y	R	R	R	R	R		
SECONDS	26	3	1	15	3	1	12	3	1		TOTAL CYCLE 65 SEC.	
%	40	4.6	1.5	23.1	4.6	1.5	18.6	4.6	1.5			

COLOR DISPLAY CHART & SIGNAL TIMING



SIGNAL FACE ARRANGEMENT

NOTE: ALL PAVEMENT MARKINGS FOR THE DETOUR ROUTE SHALL BE AS PER ITEM 614 AND AS DIRECTED BY THE ENGINEER, PAYMENT SHALL BE INCLUDED IN THE LUMP BID PRICE FOR ITEM 614 MAINTAINING TRAFFIC AS PER PLAN.

30 0 30 60 90 120

SCALE IN FEET

SCALE As shown
MADE JM DATE March 79
TRCD. JM DATE 3/1979
CKD. JMM DATE 3/79

WOODRUFF, INC.
CONSULTING ENGINEERS
CLEVELAND OHIO

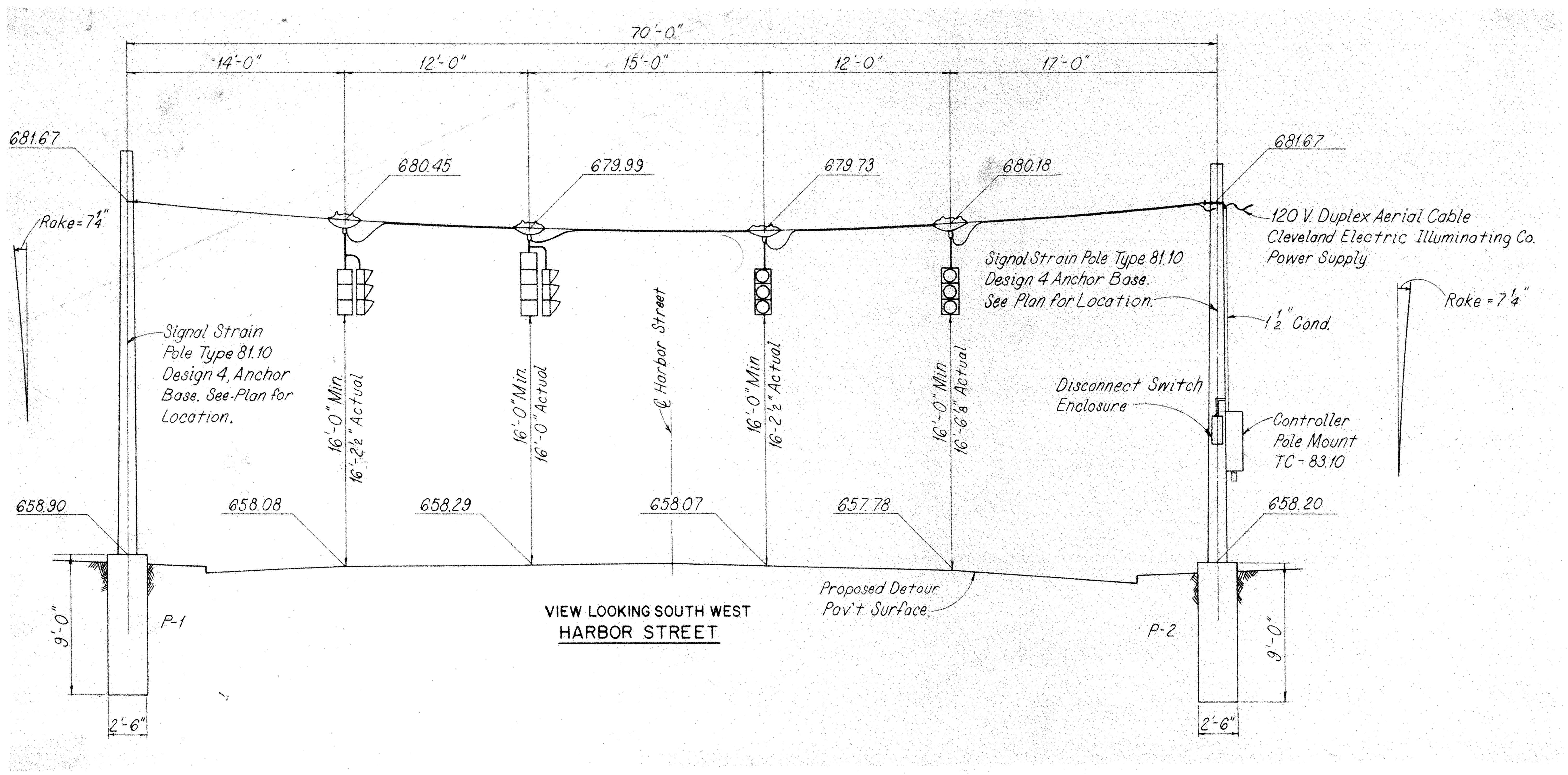
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

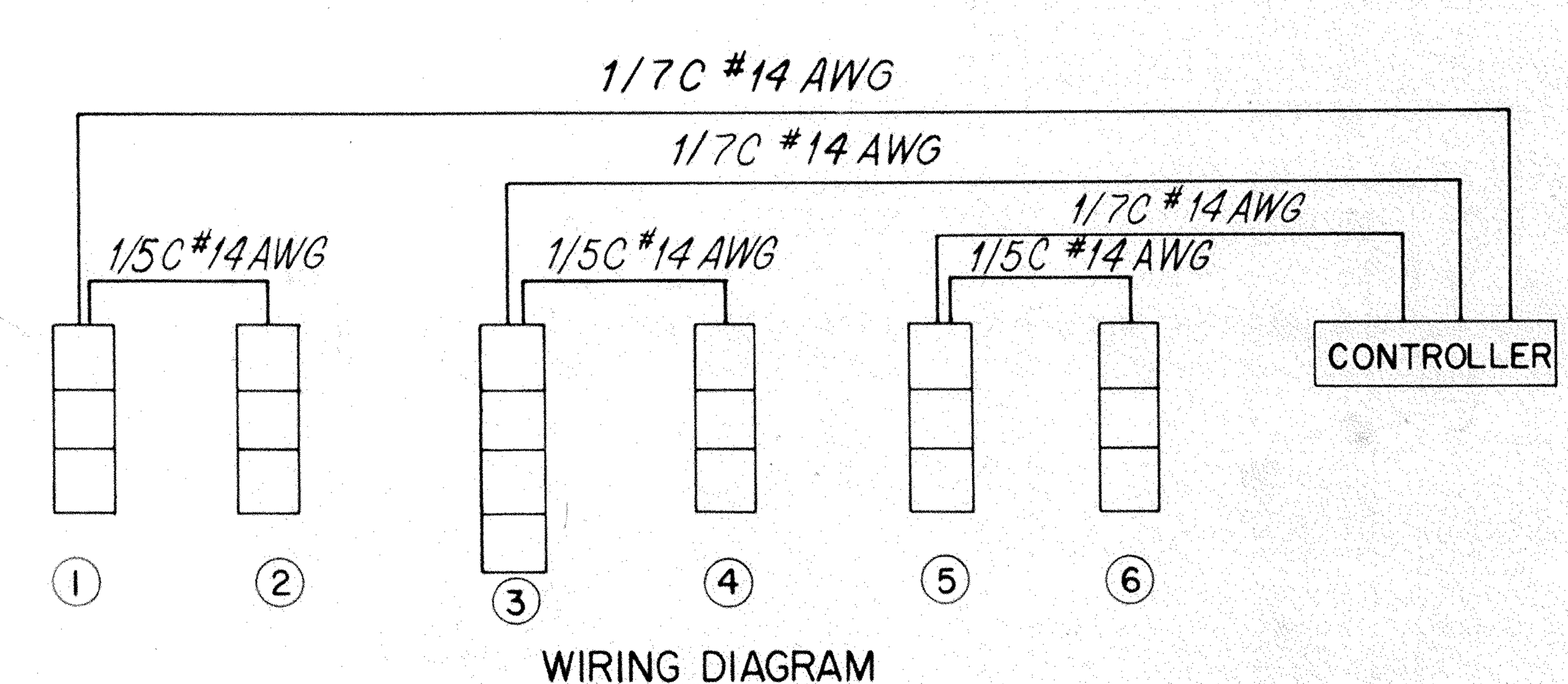
100/100

ASHTABULA COUNTY
ATB-7-31. 43

TRAFFIC SIGNAL DETAIL

QUANTITY CALCULATIONS
BY N.S. DATE 1-18-80
CHKD. AJM DATE 1/24/80
WOODRUFF, INC.





Note
Traffic Signal Quantities Are Not Pay Items & Cost must be included in the Lump Bid Price For Item 614 Maintaining Traffic As Per Plan See General Notes ; Sheet No. 12.

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
842	Signal Strain Pole, Type 81.10, Design 4 Anchor Base	2	Ea.
842	Concrete For Anchor Base Foundation	4	Cu. Yd.
842	Messenger Wire, 7 Strands ⅜" Dia. with Accessories	69	L.F.
842	Vehicular Signal Head, 3 Section 8 Inch Lens, One Way	5	Ea.
842	Vehicular Signal Head, 5 Section 8 Inch Lens, One Way	1	Ea.
842	Cable Support Assemblies	1	Ea.
842	Signal Cable, 7 Conductor No. 14 AWG	189	L.F.
842	Signal Cable, 5 Conductor No. 14 AWG	60	L.F.
625	1½" Conduit S 713.04	22	L.F.
625	Ground Rad	1	Ea.
842	Power Cable 2 Conductor #8 AWG	51	L.F.
843	Controler, Pretimed, 3 Phase, One Dial		
	Electromechanical Type as Per Plan	1	Ea.

SCALE	WOODRUFF, INC.
MADE N.S. DATE	CONSULTING ENGINEERS
TRCD. C.H. DATE 8/13/79	CLEVELAND OHIO
CKD. AJM DATE 1/9/80	

S.R. 7 - BROAD STREET

GENERAL INFORMATION

INTRODUCTION

THE PROJECT CONSISTS OF CONSTRUCTION OF APPROXIMATELY 0.38 MILES OF ROADWAY INCLUDING 0.25 MILES ALONG THE PRESENT BROAD STREET ALIGNMENT, AND 0.13 MILES OF ACCESS ROADWAY. THE ACCESS ROADWAY MILEAGE IS DIVIDED BETWEEN TWO DRIVES, ONE TO JEFFERSON STREET AND THE OTHER TO ADAMS STREET.

PROPOSED GRADES INDICATE MAXIMUM 23.5 FEET OF CUT AND NO FILL.

GEOLOGY OF THE PROJECT AND FIELD OBSERVATIONS

THE ALIGNMENT IS ON A GLACIATED LAKE PLAIN LOCATED JUST NORTH OF AN OLD LAKE WARREN BEACH RIDGE, 1.5 MILES SOUTH OF LAKE ERIE, AND ONE THIRD OF A MILE WEST OF CONNEAUT CREEK. BEACH RIDGE AND GROUND MORAINE DEPOSITS IN THIS AREA ARE THICK ENOUGH TO COMPLETELY MASK THE PREGLACIAL TOPOGRAPHY.

BEDROCK OUTCROPPINGS IN CONNEAUT CREEK'S VALLEY, DIRECTLY EAST OF THE SITE, EXPOSE A GRAY SHALE WITH SEAMS OF SANDSTONE WITH A SOIL-ROCK CONTACT ELEVATION OF APPROXIMATELY 607 FEET. THIS SHALE IS THE CHAGRIN SHALE MEMBER OF THE OHIO SHALE FORMATION OF DEVONIAN AGE.

EXPLORATION

FOUR SPLIT-SPOON SAMPLED BORINGS AND TWO BULK SAMPLES WERE TAKEN FOR ROADWAY SUBGRADE ELEVATION. ALL BORINGS WERE DRILLED AND SAMPLED BY TRUCK-MOUNTED EQUIPMENT IN ACCORDANCE WITH ODOT SPECIFICATIONS AND ASTM STANDARDS.

INVESTIGATIONAL FINDINGS

NEAR SURFACE SOILS ENCOUNTERED ALONG THE ALIGNMENT ARE GENERALLY VERY LOOSE TO LOOSE FINE-GRAINED SANDS AND SILTS DEPOSITED BY THE NEARBY LAKE WARREN BEACH RIDGE. THESE MATERIALS ARE CLASSIFIED AS A-3a, A-4a AND A-4b. BORINGS ENCOUNTERED THESE MATERIALS TO DEPTHS AS GREAT AS 13± FEET BELOW THE EXISTING GROUND SURFACE.

CBR TEST RESULTS FROM A TYPICAL SAMPLE OF BROWN SILTY FINE SANDS (A-3a), TAKEN FROM BELOW THE EXISTING ROADWAY GRADE AT A-1, GAVE A BEARING RATIO VALUE OF 5. STANDARD PROCTOR VALUES OF MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT FOR THIS SAMPLE WERE 119.8 PCF @ 11.4%.

TO DETERMINE SUBGRADE CONDITIONS BENEATH THE UNDERPASS CUT, A SAMPLE WAS TAKEN FROM 10 TO 15 FEET BELOW EXISTING GRADE AT A-3. THE GRAY CLAYEY SILT SAMPLE (A-4b) HAD A CBR VALUE OF 6.0 WITH STANDARD PROCTOR VALUES OF MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT OF 121.7 PCF @ 12.8%.

LEGEND FOR PROJECT AVERAGE RESULTS OF TEST - ROADWAY BORINGS

DESCRIPTION	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
COARSE AND FINE SAND	A-3a	1	1	70	18	10	—	—	22	4
SANDY SILT	A-4a	6	6	21	40	27	25	3	15	12
SILT	A-4b	2	3	9	62	25	25	2	19	9
TOPSOIL			VISUAL CLASSIFICATION							
BLACKTOP OVERLAY ON BRICK (BR)			VISUAL CLASSIFICATION							

AUGER BORING – PLAN VIEW

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY-PROFILE

WC FREE WATER LEVEL AT COMPLETION

▼ STATIC WATER LEVEL

NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT. E.G. 15

SOIL PROFILE

ASHTABULA COUNTY

BROADST. S.R.7-31.43

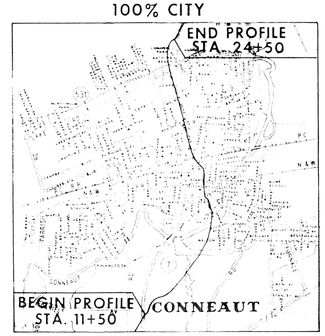
TRIGGS & ASSOCIATES, INC.

CONSULTING GEOTECHNICAL ENGINEERS

34025 CHARDON RD.WILLOUGHBY HILLS, OH.

NOTE: INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA AND IT IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.

100% CITY



LOCATION MAP

DRILLING-AUGER- 11/7/78 TO 12/1/78

DRAFTING _____

PROJECT INDEX

STATIONS FROM	TO	PLAN VIEW SHEET	PROFILE SHEET	CUT MAX	FILL EMB. MAX
S.R. 7					
10+00 –	24+00	3	3	23.5'	—

SR 7-BROAD STREET

TYPICAL SOIL PROFILE

SOIL PROFILE
ASHTABULA COUNTY
BROADST. S.R.7-31.43
TRIGGS & ASSOCIATES, INC.
CONSULTING GEOTECHNICAL ENGINEERS
34025 CHARDON RD.WILLOUGHBY HILLS, OH.

ROADWAY

SUMMARY OF SOIL TEST DATA

STATION & OFFSET	DEPTH FROM	DEPTH TO	% AGG	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL. CLASS
A-1 13+5.0 C.L.	0.0	0.9	BLACKTOP OVERLAY ON BRICK			--	--	--	--	--	Visual
	0.9	4.5	0	2	77	13	8	--	--	--	A-3a
	4.5	5.5	3	0	64	20	13	--	--	--	A-3a
	5.5	6.5	0	1	6	49	44	30.5	7.3	10.0	A-4a
	6.5	8.5	10	11	13	42	24	--	NP	10.2	A-4a
	8.5	15.0	11	10	11	54	24	--	NP	10.1	A-4b
	15.0	20.0	21	9	10	39	21	--	NP	10.2	A-4a
	20.0	25.0	4	8	8	50	30	--	NP	11.9	A-4b
A-2 15+13 85' LT.	0.0	0.5	TOPSOIL	--	--	--	--	--	--	--	Visual
	0.5	3.5	1	4	69	15	11	--	--	15.6	A-3a
	3.5	5.0	0	0	46	33	21	--	--	29.0	A-4a
	5.0	8.0	0	0	70	23	7	--	--	29.3	A-3a
	8.0	10.0	4	4	8	50	34	24.2	6.8	17.2	A-4b
	10.0	15.0	8	11	13	45	23	--	NP	11.1	A-4a
A-3 21+37 C.L.	0.0	0.4	BLACKTOP OVERLAY ON BRICK			--	--	--	--	--	Visual
	0.4	2.5	0	1	58	28	13	--	--	--	A-4a
	2.5	5.5	0	0	19	63	18	--	--	27.1	A-4b
	5.5	7.0	0	0	1	81	18	--	NP	22.5	A-4b
	7.0	10.0	0	1	4	51	44	25.8	5.3	20.4	A-4b
	10.0	13.5	2	2	6	47	43	25.1	5.2	22.3	A-4a
	13.5	15.5	3	8	12	47	30	22.0	3.5	14.6	A-4a
	15.5	18.0	10	13	14	43	20	21.2	2.7	12.1	A-4a
	18.0	20.5	14	14	14	38	20	--	NP	11.5	A-4a
A-4 23+54 C.L.	0.0	1.0	BLACKTOP OVERLAY ON BRICK			--	--	--	--	--	Visual
	1.0	3.5	0	4	56	26	14	--	--	--	A-4a
	3.5	6.0	0	3	27	53	17	--	--	21.2	A-4b
	6.0	8.0	0	0	1	89	10	--	NP	24.4	A-4b
	8.0	11.5	0	1	2	67	30	--	NP	19.2	A-4b
	11.5	15.0	1	1	4	42	52	26.9	5.9	23.0	A-4a

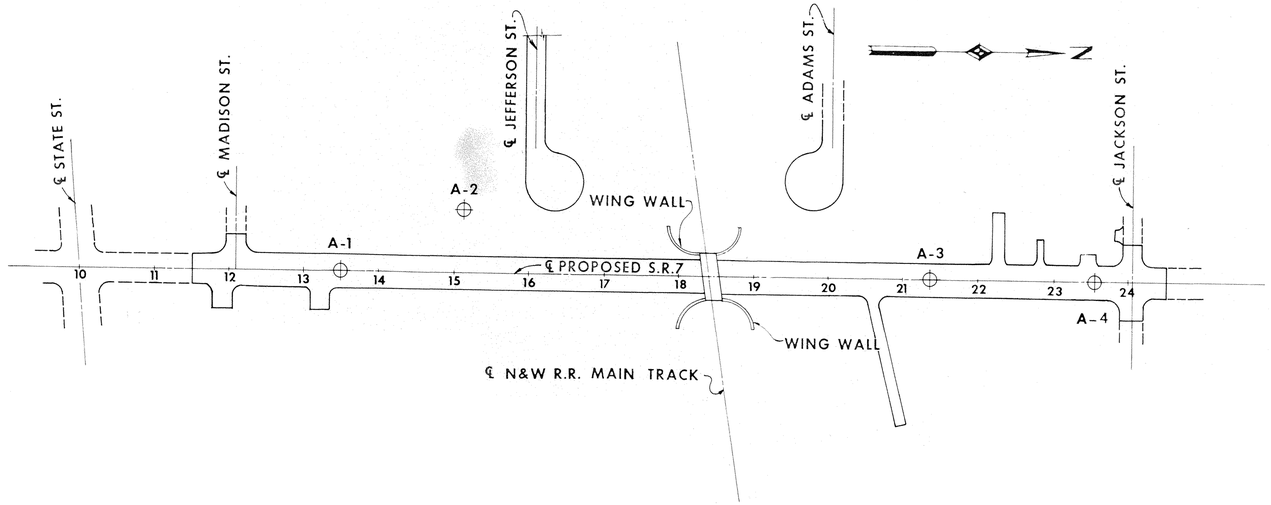
NOTE: NP SHOWN IN LIQUID LIMIT AND PLASTICITY INDEX COLUMNS INDICATES THAT THE MATERIAL IS NON-PLASTIC MATERIAL

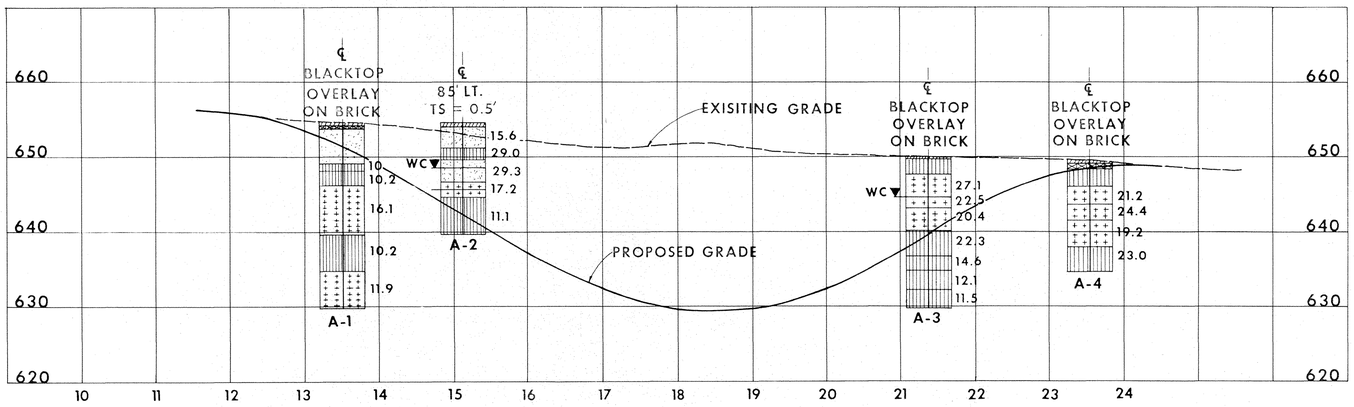
TYPICAL SOIL PROFILE

SR 7 - BROAD STREET

SOIL PROFILE

ASHTABULA COUNTY
BROADST. S.R.7-31.43
TRIGGS & ASSOCIATES, INC.
CONSULTING GEOTECHNICAL ENGINEERS
34025 CHARDON RD.WILLOUGHBY HILLS, OH.





TYPICAL SOIL PROF

ASHTABULA COUNTY
S.R.7-31.43

INTRODUCTION

THE NORFOLK AND WESTERN RAILROAD BRIDGE OVER BROAD STREET WILL BE CENTERED ABOUT THE INTERSECTION OF ALIGNMENTS--R.R. MAIN TRACK STATION 6024 + 78.59, 7.00'RT. AND BROAD STREET STATION 18 + 47.44, C.L.

A 15.0± FOOT MINIMUM CLEARANCE IS PLANNED BENEATH THE BRIDGE. EMBANKMENTS BEYOND THE ENDS OF THE BRIDGE WILL RESULT IN APPROXIMATELY 27 FEET OF BACKFILL FROM BOTTOM OF ABUTMENT FOOTING TO THE FINISH RAILROAD GRADE.

THE BRIDGE WILL BE A SINGLE SPAN STRUCTURE APPROXIMATELY 69 FEET LONG BY 19 FEET WIDE. THE STRUCTURE DEPTH IS PLANNED TO BE APPROXIMATELY 6'-8" FROM TOP OF RAIL TO BOTTOM OF GIRDERS.

GEOLOGY OF THE SITE

THE SITE IS LOCATED ON A GLACIATED LAKE PLAIN JUST NORTH OF AN OLD LAKE WARREN BEACH RIDGE, 1.5 MILES SOUTH OF LAKE ERIE AND ONE THIRD OF A MILE WEST OF CONNEAUT CREEK. BEACH RIDGE AND GROUND MORAINE DEPOSITS ON THE SITE COMPLETELY MASK PREGLACIAL TOPOGRAPHY.

BEDROCK OUTCROPPINGS IN CONNEAUT CREEK'S VALLEY, DIRECTLY EAST OF THE SITE, EXPOSE A GRAY SHALE WITH SEAMS OF SANDSTONE WITH A SOIL-ROCK CONTACT ELEVATION OF APPROXIMATELY 607 FEET. THIS SHALE IS THE CHAGRIN SHALE MEMBER OF THE OHIO SHALE FORMATION OF DEVONIAN AGE.

EXPLORATION

SIX SPLIT-SPOON SAMPLED BORINGS WERE TAKEN AT THE BRIDGE SITE. ALL SIX WERE BETWEEN 58 AND 59 FEET DEEP. TWELVE RELATIVELY UNDISTURBED SAMPLES WERE OBTAINED FROM THE BRIDGE BORINGS FOR TESTING IN THE LABORATORY. ALL DRILLING AND SAMPLING OPERATIONS WERE PERFORMED IN ACCORDANCE WITH ODOT SPECIFICATIONS AND ASTM STANDARDS.

LABORATORY TESTING

ALL SOIL SAMPLES WERE TESTED FOR MOISTURE CONTENT. REPRESENTATIVE SAMPLES FROM EACH SOIL STRATUM ENCOUNTERED WERE TESTED FOR GRADATION, PLASTIC LIMIT, LIQUID LIMIT, AND CLASSIFIED BY THE SHTL SYSTEM.

TEN SAMPLES WERE TESTED FOR UNCONFINED COMPRESSION AND TWELVE FOR SPECIFIC GRAVITY. THREE REPRESENTATIVE SOILS WERE TESTED USING THE DIRECT SHEAR METHOD. TWO OF THESE SOILS WERE TESTED USING THREE DIRECT SHEAR POINTS EACH, AND THE OTHER SOIL WAS TESTED USING A TWO POINT TEST FOR A TOTAL OF EIGHT DIRECT SHEAR SAMPLES TESTED.

INVESTIGATIONAL FINDINGS

BOTTOM OF BRIDGE ABUTMENTS FOOTINGS ARE PLANNED TO BE AT APPROXIMATELY ELEVATION 623.5± FEET. FROM ELEVATION APPROXIMATELY 640.0 TO ELEVATION 605.0 BORINGS ENCOUNTERED A DENSE TO VERY DENSE, GRAY, CLAYEY SILT WITH A LITTLE SAND AND TRACES OF GRAVEL. BELOW ELEVATION 623.5 FEET THE CONSISTENCY OF THIS CLAYEY SILT STRATUM IS VERY DENSE AND ITS SHEAR STRENGTH IS HIGH.

SHALE BEDROCK WAS ENCOUNTERED BY ALL SIX BRIDGE BORINGS. AVERAGE TOP OF ROCK ELEVATION IS 605.0 FEET.

A PERCHED WATER CONDITION WAS ENCOUNTERED IN THE NEAR SURFACE LOOSE SAND AND SILT DEPOSITS OVER THE DENSE CLAY SILT STRATUM. WATER LEVEL IN THE UPPER TWELVE FEET OF LOOSE MATERIALS CAN BE EXPECTED TO FLUCTUATE SEASONALLY WITH RAINFALL.

LEGEND

- AUGER BORING LOCATION - PLAN VIEW
- TR — TOP OF ROCK
- HORIZONTAL BAR ON BORING LOG INDICATES THE DEPTH THE SAMPLE WAS TAKEN
- INDICATES STATIC WATER ELEVATION
- FOOTING
- X/Y — FIGURES BESIDE THE BORING LOG IN PROFILE INDICATE THE NUMBER OF BLOWS FOR STANDARD PENETRATION TEST
  - X = NUMBER OF BLOWS FOR FIRST 6 INCHES
  - Y = NUMBER OF BLOWS FOR SECOND 6 INCHES
- W3____ INDICATES FREE WATER ELEVATION AFTER A NUMBER OF DAYS, I.E.3
- WC____ INDICATES FREE WATER ELEVATION AT COMPLETION

SYMBOLS OF ROCK TYPES

- COARSE AND FINE SAND A-3a
- SANDY SILT A-4a
- SILT A-4b
- SHALE WITH SEAMS OF SANDSTONE VISUAL
- GRAVEL VISUAL
- GRAVEL OR STONE FRAGMENTS WITH SAND AND SILT VISUAL

NOTE: INFORMATION SHOWN BY THIS SUBSURFACE INVESTIGATION WAS OBTAINED SOLELY FOR THE USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA AND IT IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.

TRIGGS & ASSOCIATES. INC.
CONSULTING GEOTECHNICAL ENGINEERS
34025 CHARDON RD.WILLOUGHBY HILLS, OH.

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO.

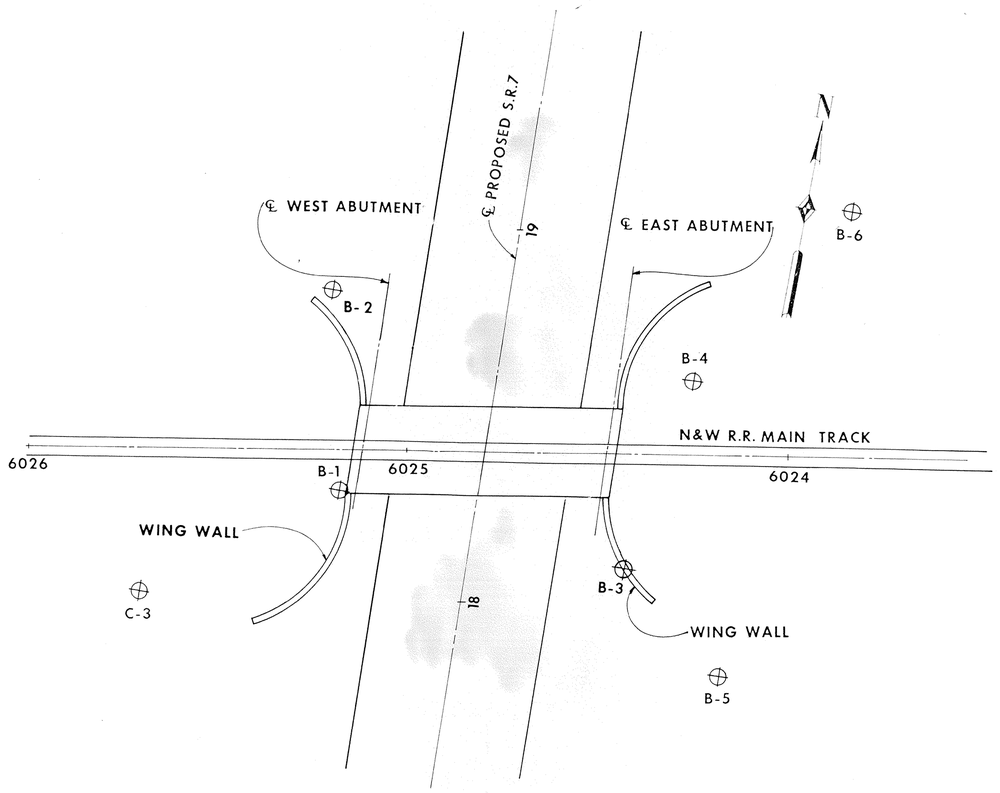
OVER S. R. 7

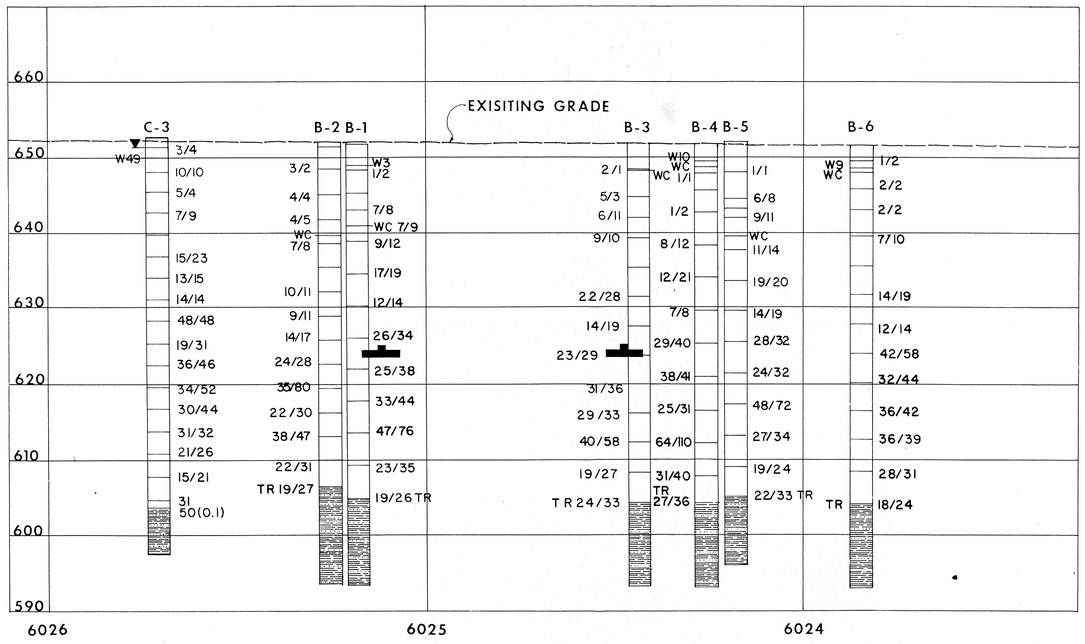
SEC.

CHECKED BY	REVIEWED BY	DATE

ROAD STREET

TYPICAL BRIDGE FOUNDATION INVESTIGATION





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STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO.

OVER S. R. 7

SEC.

PLAN AND PROFILE

CHECKED BY	DRAWN BY	REVIEWED	DATE

SR. 7 - BROAD STREET

TYPICAL BRIDGE FOUNDATION INVESTIGATION

LOG OF BORING

Date Started 12-19-78 Sampler: Type SS Dia 1.38" Water Elev 648.8 (3 days)
Date Completed 12-19-78 Casing: Length 7.5' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. B-1 Station & Offset 18+24, 36'L Surface Elev. 651.76

Elev.	Depth	Std. Pen. (N)	Description	Field No.	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
	0													
	2		Very Loose Brown Layered Silty Fine SAND and SILT with little Sand, with traces of Clay and Gravel											
	4	1-1-2		1									23.9	
645.1	6	Shelby R.2.0'		2		0	1	10	77	12			30.0	A-4b
	8	5-7-8	Medium Dense Gray Clayey SILT with a little SAND	3									15.3	
	10	6-7-9		4									14.8	
638.8	12	8-9-12		5									13.7	
	14	9-17-19	Dense to Very Dense Gray Clayey SILT with some to little Sand and little to trace Gravel	6		12	10	12	46	20		NP	12.5	A-4a
	16													
	18													
	20	12-12-14		7									12.7	
	22													
	24	20-26-34		8									12.4	
	26													
	28													
	30	24-25-28		9									13.1	
	32													
	34													
	36	22-33-44		10									13.8	

LOG OF BORING

Date Started 12-19-78 Sampler: Type SS Dia 1.38" Water Elev 648.8 (3 days)
Date Completed 12-19-78 Casing: Length 7.5' Dia 3.25"

Project Identification: Bridge Borings
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. B-1 Station & Offset 18+24, 36'L Surface Elev. 651.76

Elev.	Depth	Std. Pen. (N)	Description	Field No.	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
	36													
	38	25-47* 76-113	Dense to Very Dense Gray Clayey SILT with some to little Sand and little to trace Gravel	11		4	5	6	46	39	23.6	2.2	12.5	A-4a
	40	17-23-35		12									17.3	
	42													
	44	15-19-26		13		5	7	7	74	7	26.1	4.0	18.5	A-4b
604.8	46													
	48		Soft Gray SHALE with seams of Sandstone											
600.1	50	Cored Rec=100%		14										
	52		Intermediate Gray SHALE with seams of Sandstone											
596.9	54													
	56	Cored Rec=93%	Medium to Sound Gray SHALE with seams of Sandstone	15										
593.3	58													
	60		Bottom of Boring at 58.5' Water Level at Completion 11.0' Water Level after 3 days - 3.0' *3" split spoon											

LOG OF BORING

Date Started 12-14-78 Sampler: Type SS Dia 1.38" Water Elev 648.2
Date Completed 12-14-78 Casing: Length 7.5' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. B-3 Station & Offset 18+15, 41'R Surface Elev. 651.7

Elev.	Depth	Std. Pen. (N)	Description	Field No.	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
	0													
	2		Very Loose to Loose Brown and Gray Silty Fine SAND with some Clay and seams of Sandy Silt											
	4	1-2-1		1									25	
644.7	6	4-5-3		2		0	0	46	33	21	25.1	3.0	27.6	A-4a
	8	5-6-11		3									26.0	
	10	8-9-10	Medium Dense Brown with Gray Clayey SILT with some Sand, traces of gravel and seams of silty sand	4									14.7	
639.2	12	Shelby R.1.6'												
	14	16-22-28		5		12	12	14	40	22		NP	10.1	A-4a
	16		Dense to Very Dense Gray Clayey SILT with little to traces of Sand and Traces of Gravel	6									12.4	
	18													
	20	9-13-19		7									13.3	
	22													
	24	9-23-29		8		7	9	9	49	26	22.2	4.2	13.2	A-4a
	26													
	28													
	30	24-31-36		9									12.6	
	32													
	34	18-29-33		10									13.7	
	36													

LOG OF BORING

Date Started 12-18-78 Sampler: Type SS Dia 1.38" Water Elev 639.9
Date Completed 12-18-78 Casing: Length 8.0' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. B-2 Station & Offset 18+76, 46'L Surface Elev. 651.88

Elev.	Depth	Std. Pen. (N)	Description	Field No.	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
651.3	0		GRAVEL											
	2	5-3-2	Loose Black CINDER and SAND FILL	1		0	2	52	46					A-4a
648.4	4													
	6	3-4-4	Loose Brown Clayey SILT with a trace of Sand	2		0	1	8	62	29	29.5	3.9	30.9	A-4b
644.9	8	4-4-5		3									19.6	
	10	6-7-8		4									18.2	
	12	Shelby R.2.0'	Medium Dense to Very Dense Gray Clayey SILT with little to trace of Sand and trace of Gravel	5		2	5	8	46	39		NP	18.1	A-4a
	14	6-10-11		6									11.9	
	16	6-9-11		7									12.2	
	18													
	20	11-14-17		8									12.9	
	22													
	24	18-24-28		9									11.9	
	26													
	28													
	30	22-35-80		10									13.0	
	32													
	34	18-22-		11									13.5	

LOG OF BORING

Date Started 12-18-78 Sampler: Type SS Dia 1.38" Water Elev 639.9
Date Completed 12-18-78 Casing: Length 8.0' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. B-2 Station & Offset 18+76, 46'L Surface Elev. 651.88

Elev.	Depth	Std. Pen. (N)	Description	Field No.	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
	36													
	38	22-38-47-70*	Medium Dense to Very Dense Gray Clayey SILT with little to trace of Sand and trace of Gravel	12		2	4	5	48	41	25.1	4.7	13.0	A-4a
	40	18-22-31		13									14.5	
	42													
	44	19-19-27		14									19.0	
606.4	46													
	48		Soft Gray SHALE with seams of fine grained Sandstone											
601.6	50	Cored Rec=93%												
	52		Intermediate to Medium Gray SHALE with seams of fine grained Sandstone	15										
	54													
	56	Cored Rec=98%		16										
593.4	58													
	60		Bottom of Boring 58.5' Water Level at Completion - 12.0' *3" slit-spoon											

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BRIDGE NO.

OVER S. R. 7

SEC.

BORING DATA

TYPED BY	DRAWN BY	REVIEWED	DATE

SR. 7 - BROAD STREET

TYPICAL BRIDGE FOUNDATION INVESTIGATION

LOG OF BORING

Date Started 12-14-78 Sampler: Type SS Dia 1.38" Water Elev 648.2
Date Completed 12-14-78 Casing: Length 7.5' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No B-3 Station & Offset 18+15, 41'R Surface Elev 651.7

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	% Agg	% G	% S	% F	% Silt	% Clay	LL	PI	W.C.	SHTL Class
	36														
	38	34-40-58-80*	Dense to Very Dense Gray Clayey SILT with little to traces of Sand and Traces of Gravel	11		2	1	6	53	38		24.	3	7.5	13.0 A-4b
	40	14-19-27		12											21.3
	42														
	44	14-24-33													
	46			13											20.1
604.2	48														
			Soft Gray SHALE with seams of fine grained Sandstone												
601.2	50	Cored Rec=98%													
	52		Intermediate to Medium Gray SHALE with seams of fine-grained Sandstone	14											
	54														
	56	Cored Rec=98%		15											
593.2	58														
	60		Bottom of Boring - 58.5' Water Level at Completion 3.5' *3" split spoon												

LOG OF BORING

Date Started 12-12-78 Sampler: Type SS Dia 1.38" Water Elev 649.3 (10 days)
Date Completed 12-12-78 Casing: Length 7.0' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No B-4 Station & Offset 18+67, 51'R Surface Elev 651.60

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	% Agg	% G	% S	% F	% Silt	% Clay	LL	PI	W.C.	SHTL Class
	0														
	2		Very Loose Black and Brown FILL; Silty Sand, Cinders, pieces of Sandstone, Organic	1		19	24	31	19	7		NP		26.8	A-3a
647.9	4	1-1-1													
			Very Loose, Brown & Gray, Tr. Black Organically Contaminated Silty Clayey Fine SAND & Tr. roots												
645.6	6	Shelby R.9.0'		2		0	0	55	20	25		NP		24.3	A-4a
	8	1-1-2	Very Loose, Gray Sandy Clayey SILT, with trace Gravel, trace roots.	3		1	3	16	57	23		25.	3	7.0	24.6 A-4b
642.6	10	6-8-12		4											19.8
	12	10-12-2	Medium Dense to Very Dense Gray Clayey SILT with a little Sand and traces of Gravel	5		2	5	9	58	26		21.	8	8.4	12.9 A-4b
	14														
	16														
	18	7-7-8		6											13.7
	20														
	22														
	24	17-29-40		7											12.3
	26														
	28														
	30	26-38-41		8											13.6
	32														
	34	15-25-31		9											13.4
	36														

LOG OF BORING

Date Started 12-15-78 Sampler: Type SS Dia 1.38" Water Elev 639.5
Date Completed 12-15-78 Casing: Length 8.0' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No B-5 Station & Offset 17+91, 70'R Surface Elev 652.00'

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	% Agg	% G	% S	% F	% Silt	% Clay	LL	PI	W.C.	SHTL Class
	36														
	38		Dense to Very Dense Gray Clayey SILT with a little Sand and Traces of Gravel												
	40	16-19-24		12										17.6	
	42														
	44	11-32-33													
	46			13										13.8	
605.0	48														
			Soft Gray SHALE with seams of fine-grained Sandstone												
602.5	50	Cored Rec=74%		14											
	52		Intermediate to Medium Gray SHALE with seams of fine-grained Sandstone												
	54	Cored Rec=99%													
596.0	56			15											
	58		Bottom of Boring - 56.0' Water Level at Completion - 12.5' *3" split spoon												

LOG OF BORING

Date Started 12-12-78 Sampler: Type SS Dia 2.38" Water Elev 649.3 (10 days)
Date Completed 12-12-78 Casing: Length 7.0' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No B-4 Station & Offset 18+67, 51' R Surface Elev 651.60

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	% Agg	% G	% S	% F	% Silt	% Clay	LL	PI	W.C.	SHTL Class
	36														
	38	30-64-110-175*	Medium Dense to Very Dense Gray Clayey SILT with a little Sand and traces of Gravel	10		6	5	5	49	35		25.	0	7.4	12.3 A-4a
	40	19-31-40		11											13.7
	42														
	44	13-27-36													
	46			12											12.0
604.1	48														
			Soft Gray SHALE with seams of fine-Grained Sandstone												
	50	Cored Rec=81%													
	52			13											
598.1	54														
	56	Cored Rec=99%	Intermediate to Medium Gray SHALE with seams of fine-grained Sandstone	14											
593.1	58														
	60		Bottom of Boring 58.5' Water Level at Completion - 3.0' Water Level after 10 days - 2.3' * 3" split spoon												

LOG OF BORING

Date Started 12-15-78 Sampler: Type SS Dia 1.38" Water Elev 639.5
Date Completed 12-15-78 Casing: Length 8.0' Dia 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No B-5 Station & Offset 17+91, 70'R Surface Elev 652.00'

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	% Agg	% G	% S	% F	% Silt	% Clay	LL	PI	W.C.	SHTL Class
	0														
	2		Very Loose, Brown, Clayey Silty Fine SAND with traces of Gravel	1		3	3	44	30	20		24.	0	3.9	23.1 A-4a
648.0	4	1-1-1													
	6	4-6-8	Stiff to Very Stiff Brown with Gray Silty CLAY, with trace Sand	2											22.5
644.5	8	Shelby 8.2.0'	Very Stiff Gray SILT & CLAY with trace sand	3		0	2	4	38	56		35.	0	9.1	21.1 A-4a
642.0	10	6-9-11		4		0	1	3	48	48		26.	9	6.4	21.8 A-4a
	12	8-11-14		5											12.7
	14	6-19-20		6											12.4
	16														
	18		Dense to Very Dense Gray Clayey SILT with a little Sand and Traces of Gravel												
	20	13-14-19		7											
	22														
	24	20-28-32		8											13.3
	26														
	28														
	30	18-24-32		9											13.4
	32	30-48-72-90*		10		4	6	6	47	37		24.	0	7.1	12.6 A-4a
	34	23-27-34		11											13.4
	36														

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BRIDGE NO.

OVER S. R. 7

SEC.

BORING DATA

TYPED BY	DRAWN BY	REVIEWED	DATE

TYPICAL BRIDGE FOUNDATION INVESTIGATION

LOG OF BORING

Date Started 12-13-78 Sampler: Type SS Dia. 1.38" Water Elev 648.45 (9 days)
Date Completed 12-13-78 Casing: Length 9.0' Dia. 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. B-6 Station & Offset 19+18, 85'R Surface Elev. 651.45

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
	0		Very Loose Brown & Gray Silty Fine SAND with seams of Silty Clay										24.7	
	2	1-1-2		1										
	4													
	6	2-2-2		2		0	0	66	26	8		NP	27.8	A-3a
643.0	8	2-2-2		3									27.6	
	10	6-7-10	Dense Gray Sandy Clayey SILT with a little Gravel	4									19.2	
639.5	12	Shelby R.1.9'		5		13	8	9	38	32	24	24	14.8	A-4a
	14	9-14-19	Medium Dense to Very Dense Sandy Clayey SILT with a little Gravel	6									13.6	
	16													
	18													
	20	12-12-14		7		14	9	12	44	21	22.4	5.4	13.7	A-4a
	22	31-42-58-80*		8		15	9	10	49	17	18.7	1.9	10.0	A-4a
	24	21-32-44		9									11.8	
	26													
	28													
	30	23-36-42		10									13.6	
	32													
	34	20-36-39		11									14.0	
	36													

LOG OF BORING

Date Started 12-13-78 Sampler: Type SS Dia. 1.38" Water Elev 648.45 (9 days)
Date Completed 12-13-78 Casing: Length 9.0' Dia. 3.25"

Project Identification: Bridge Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. B-6 Station & Offset 19+18, 85'R Surface Elev. 651.45

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
	36													
	38		Medium Dense to Very Dense Sandy Clayey SILT with a little Gravel											
	40	24-28-31		12									14.5	
	42													
	44	15-18-24		13									13.7	
604.0	46													
	48		Soft Gray SHALE with seams of fine-grained Sandstone											
600.7	50	Cored Rec=84%												
	52			14										
	54		Intermediate Gray SHALE with seams of fine-grained Sandstone											
	56	Cored Rec=97%		15										
	58													
593.0	60													
			Bottom of Boring - 58.5' Water at Completion - 3.5' Water after 9 days - 3.0' *3" split spoon											

LOG OF BORING

Date Started 11-3-78 Sampler: Type SS Dia. 1.38" Water Elev 649.9 (49 days)
Date Completed 11-3-78 Casing: Length 9.0' Dia. 3.25"

Project Identification: Retaining Wall
Boring
Broad St. N & W - Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. C-3 Station & Offset 17+90, 84'L Surface Elev. 652.52

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
	0		Loose Black Cinders, Coal, Sand and Silt (FILL)	1									28.3	
650.5	2	2-3-4	Loose Brown Silty Fine SAND with trace of Clay											
	4	4-10-10		2									26.9	
	6			3									20.2	
	8	5-5-4												
642.5	10	5-7-9		4		0	0	59	33	8			24.4	A-4a
	12	Shelby R.1.5'	Dense to Very Dense Gray Clayey SILT with traces of Sand and Gravel	5		0	2	6	49	43	22.7	5.6	18.6	A-4a
	14	10-15-23		6									10.9	
	16	13-13-15		7									12.0	
	18													
	20	11-14-14		8									12.0	
	22	26-48-48		9									10.4	
	24	16-19-31		10									11.4	
	26	22-26-46		11									11.3	
	28													
	30	23-34-52		12									13.0	
	32	20-30-44		13									13.9	
	34	20-31-32		14		9	4	5	47	35	26.1	3.7	14.5	A-4a
	36													

LOG OF BORING

Date Started 11-3-78 Sampler: Type SS Dia. 1.38" Water Elev 649.9 (49 days)
Date Completed 11-3-78 Casing: Length 9.0' Dia. 3.25"

Project Identification: Retaining Wall
Boring
Broad St. - N & W Underpass
Conneaut, Ashtabula Co., Ohio

Boring No. C-3 Station & Offset 17+90, 84'L Surface Elev. 652.52

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos. So	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	PI	W.C.	SHTL Class
	36													
	38		Medium Dense to Very Dense Gray Clayey SILT with traces of Sand and Gravel											
	40	17-21-26		15									14.2	
	42													
	44	9-15-21		16									19.2	
	46													
604.5	48													
603.5	50	50-31 50/.1'	Weathered SHALE	17										
	52	Cored Rec.100%	Intermediate Gray SHALE with seams of Sandstone and weathered Shale	18										
597.5	54													
	56		Bottom of Boring 55' Encountered Water @ 1.5' Water at 49 days - 2.7'											
	58													

TRIGGS & ASSOCIATES, INC.
CONSULTING GEOTECHNICAL ENGINEERS
34025 CHARDON RD. WILLOUGHBY HILLS, OH

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO. OVER S. R. 7

SEC.

BORING DATA

TYPED BY	DRAWN BY	REVIEWED	DATE

TYPICAL BRIDGE FOUNDATION INVESTIGATION