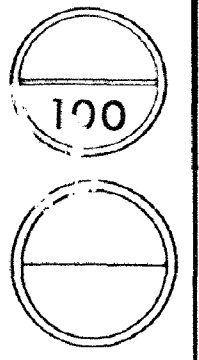


F.N.W.A. REGION	STATE	PROJECT
5	OHIO	STATE

ASHTABULA COUNTY  
BROAD ST. SR. 7-31.43



# STATE OF OHIO DEPARTMENT OF TRANSPORTATION ATB-SR. 7-31.43 BROAD STREET GRADE SEPARATION WITH NORFOLK & WESTERN RAIL CITY OF CONNEAUT ASHTABULA COUNTY

## COMPANY

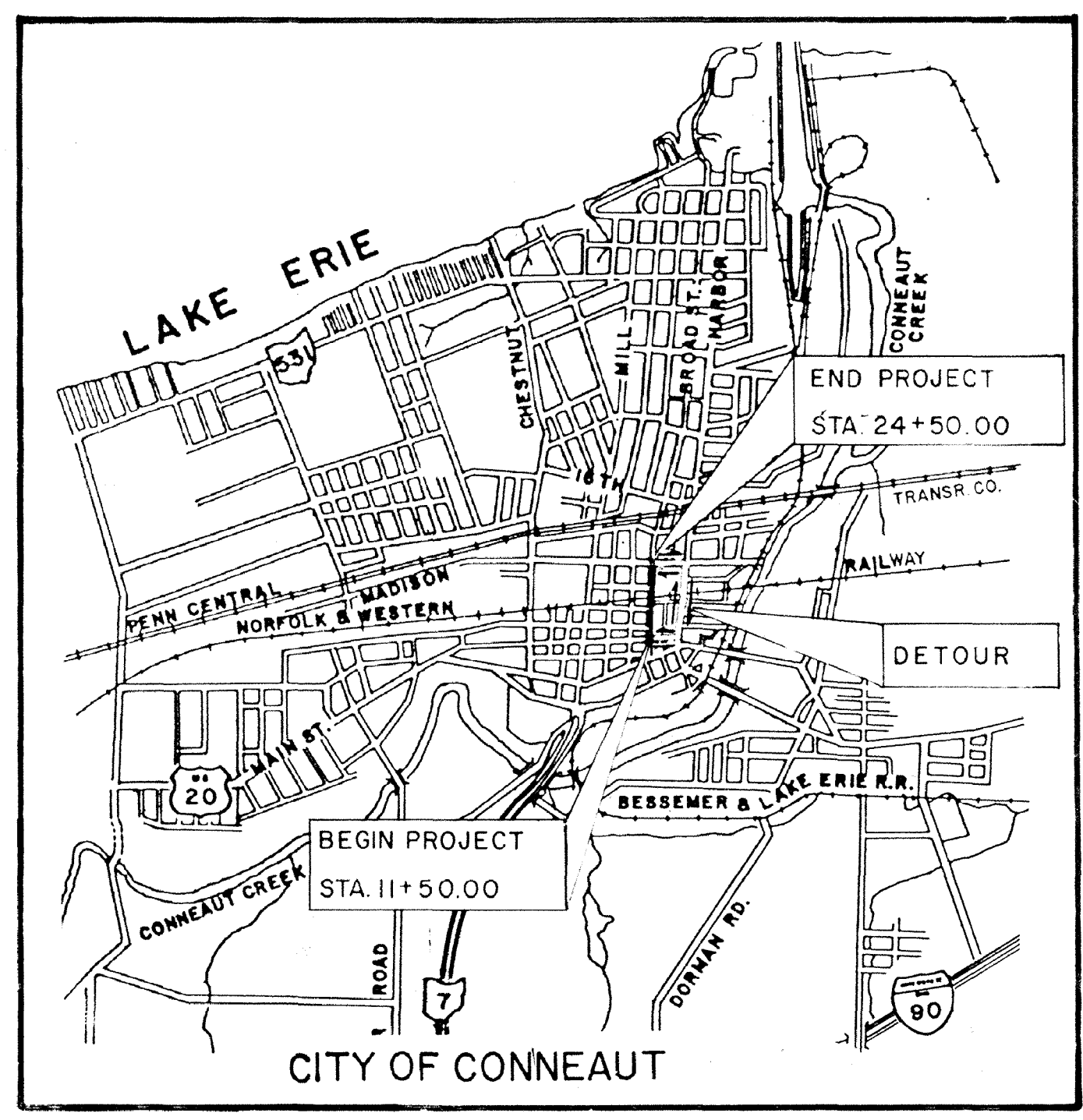
48 HOURS  
BEFORE YOU DIG  
*Call*  
OHIO UTILITIES  
PROTECTION SERVICE  
800-362-2764 TOLL FREE

### CONVENTIONAL SIGNS

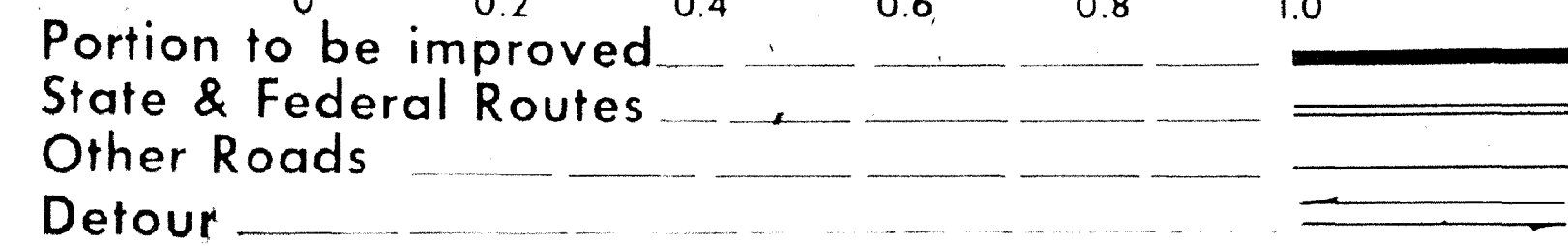
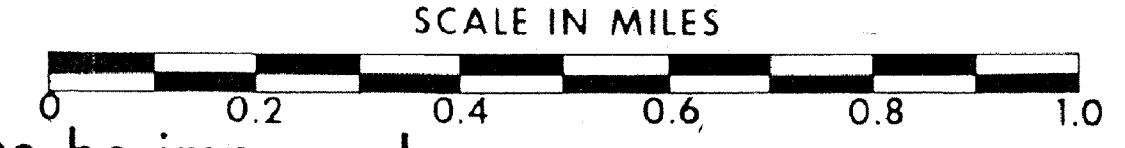
County Line	-----	Limited Access (only)	-----	LA
Township Line	-----	Right of Way (only)	-----	R/W
Section Line	-----	Limited Access & Right of Way	-----	LA&RW
Corporation Line	-----	Existing Right of Way	-----	R/W
Fence Line (existing)	-----	Property Line (in existing fence)	-----	P
Center Line	-----	Railroad	-----	R
Tree Stump (to be removed)	-----	Guardrail (existing)	-----	G
Utility Pole: Telephone	-----	Road Sign (existing)	-----	S
Power	-----	Sign (existing)	-----	S
Light	-----	Storm Sewer (existing)	-----	12" STM. S.
Gas Line	-----	Storm Sewer (proposed)	-----	15" STM. S.
Water Line (existing)	-----	Sanitary Sewer (existing)	-----	6" SAN. S.
Manhole (existing)	-----	Sanitary Sewer (proposed)	-----	8" SAN. S.
Inlet (existing)	-----			
Catch Basin (existing)	-----			

### INDEX OF SHEETS

TITLE SHEET	1	JEFFERSON CUL-DE-SAC	38-39	LIGHTING PLANS	69-73
SCHEMATIC PLAN AND DETOUR MAP	2	ADAMS CUL-DE-SAC	40-41	NORFOLK & WESTERN RAILWAY	
SCHEMATIC GEOMETRIC	3	DRIVEWAY PLAN & PROFILE	42-48	RUNAROUND	74-78
TYPICAL SECTIONS	4-9	GRADING AND PAVING PLANS	49-51	STRUCTURES OVER 20' SPAN	79-88
GENERAL NOTES & SUB SUMMARIES	10-16	INTERSECTION DETAILS	52-53	RIGHT OF WAY PLANS	89-97
GENERAL SUMMARY	17-21	DRAINAGE PROFILES	54-57	TRAFFIC MAINTENANCE PLANS	98-100
PLAN & PROFILE BROAD ST.	22-24	TRAFFIC CONTROL	58-59	SUBSOIL INVESTIGATION	
JUNCTION CHAMBER DETAILS & PLAN & PROFILE QUANTITIES	25	SANITARY	60-61	OUTFALL SEWER PLANS	
PLAN & PROFILE QUANTITIES	25-26	WATER WORK	62-68		
CROSS SECTIONS BROAD ST.	27-37				



LOCATION MAP

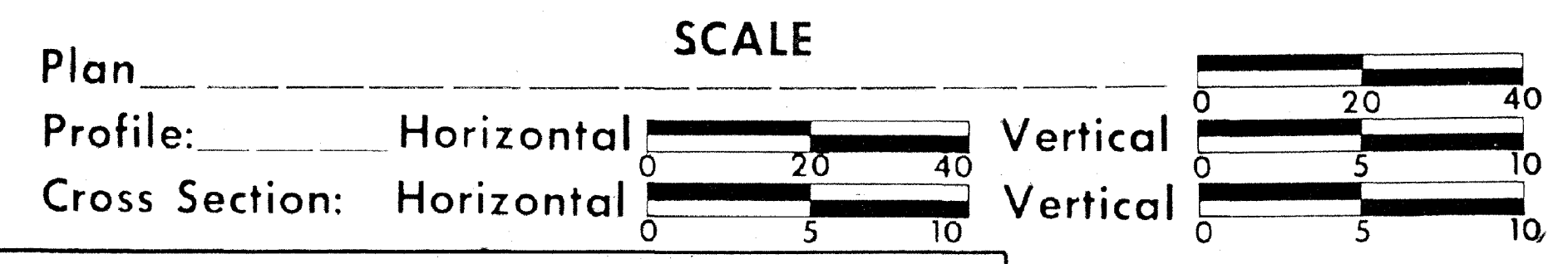


### LINE DATA

BEGIN PROJECT	STA. 11+50.00
END PROJECT	STA. 24+50.00
(NO ADDITION OR DEDUCTION)	
LENGTH OF PROJECT	1300 L.F. OR 0.246 MI.
APPROACHES	50 L.F.
TOTAL LENGTH OF WORK	1350 L.F. OR 0.255 MI.

Plan Prepared By  
**WOODRUFF, INC.**  
CONSULTING ENGINEER CLEVELAND, OHIO.

GEORGE C. FENKER, P.E.



SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS					
B.P.1	6-1-65	F-6	5-1-76	TC-81-10	4-10-79
B.P.2	12-6-76	GR-2C	12-6-76	TC-83-10	4-13-79
B.P.3	12-6-76	I-1	6-1-65	TC-83-20	4-17-79
B.P.4	12-6-76	MC-1	6-13-69	TC-84-20	4-17-79
B.P.5	4-16-79	MC-3	6-1-73	TC-85-20	4-18-79
B.P.6	6-1-65	MC-4	7-26-73	HL-1	9-6-73
B.P.7	12-6-76	MC-5	6-12-75	HL-2	7-27-73
B.P.8	5-20-70	MC-11	8-1-78	HL-3	7-27-73
B.P.12	8-11-75	MH-1	6-12-75	HL-8	1-21-76
C.B.3	5-1-79	MH-3	6-12-75	HL-9	3-22-77
C.B.3A	5-1-79	TC-41-20	3-26-79	HL-10	6-1-79
F-1	5-1-76	TC-42-20	3-26-79	HL-11	6-1-79
F-4	5-1-76	TC-71-10	4-9-79	HL-15	1-21-76
				HL-16	4-6-73

SUPPLEMENTAL SPECIFICATIONS	
809	1-1-71
810	1-1-71
814	1-1-69
840	12-13-73
842	8-29-74
843	10-23-75
844	11-8-74
857	12-19-78
858	12-19-78
859	12-19-78
927	1-1-71
957	12-19-78
959	12-19-78

DATE: 10/27/80

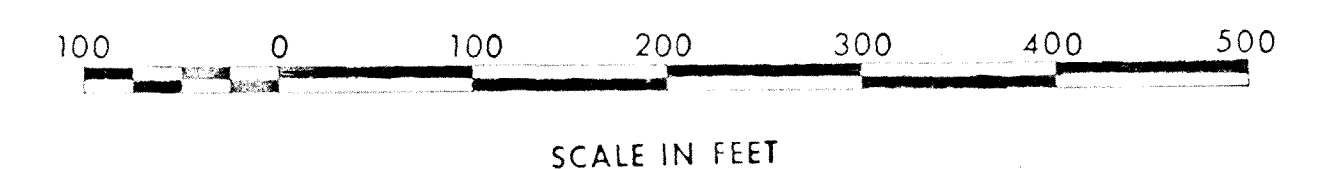
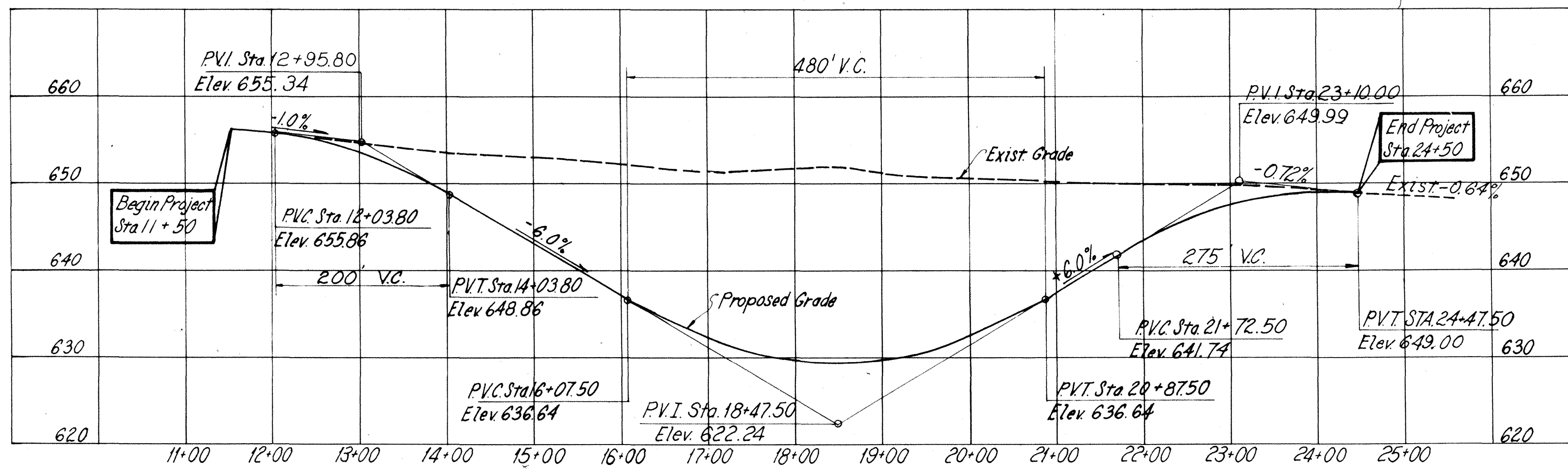
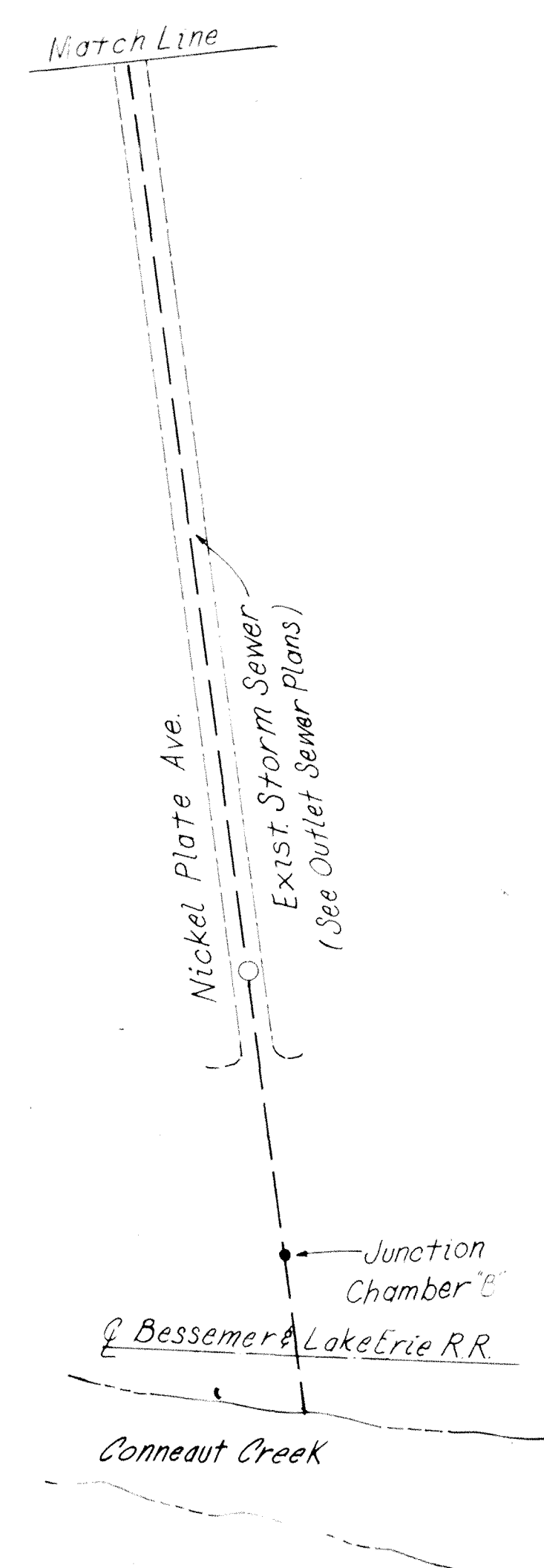
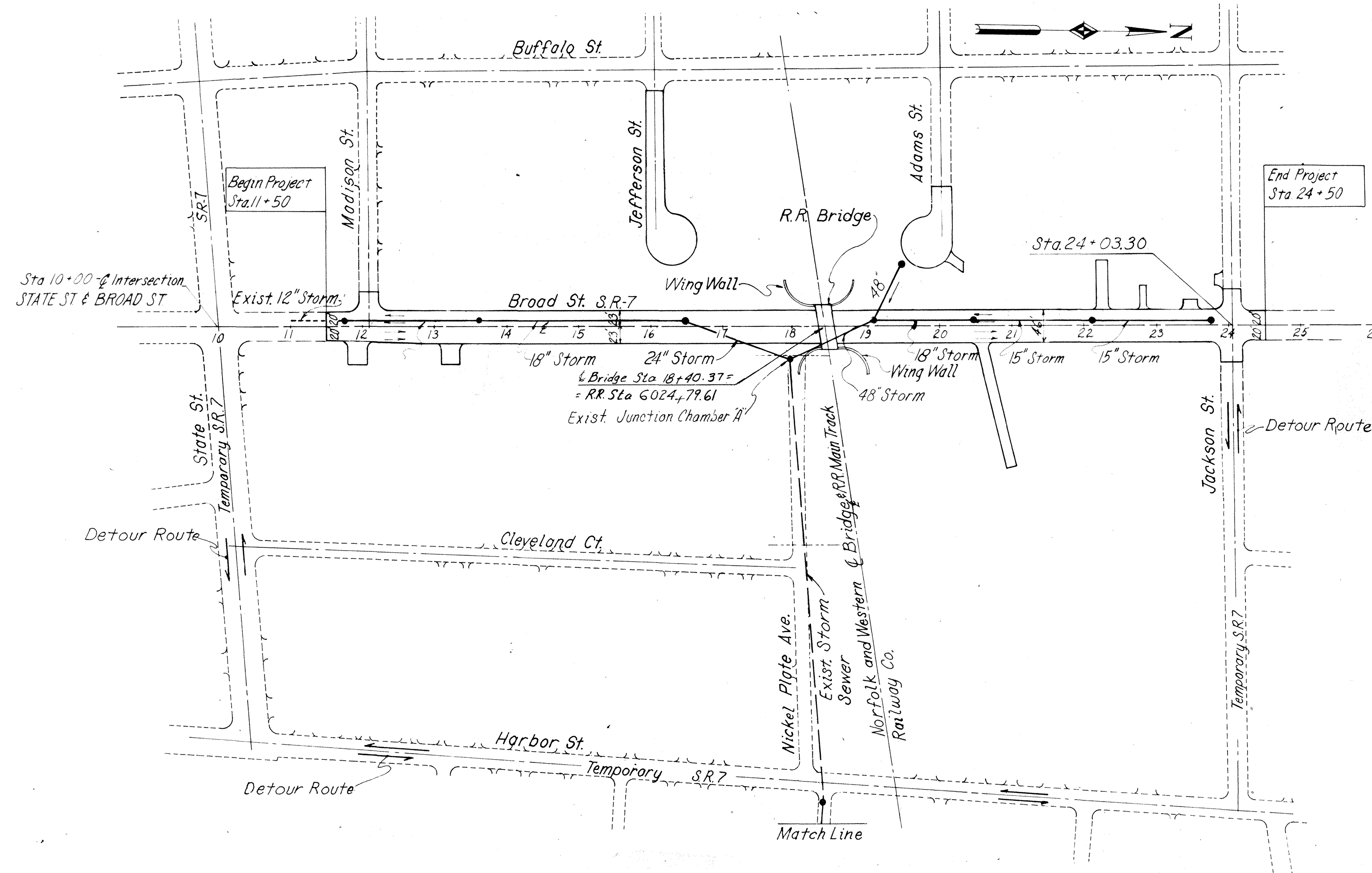
### DESIGN DESIGNATIONS

DIRECTIONAL DIST. = 60%	
DESIGN SPEED = 30 M.P.H.	
BROAD ST.	
ADT. 1980 = 11,151 V.P.D.	N & W RY
ADT. 2000 = 22,189 V.P.H.	
DHV. 2000 = 1,597 V.P.H.	1980: 24 TRAINS PER DAY
TRUCK TRAFFIC = 6%	2000: 44 TRAINS PER DAY

Project: ATB - S.R.7 - 31.43  
Date of Letting: \_\_\_\_\_ 19, Contract No. \_\_\_\_\_

SR. 7 - BROAD STREET

# SCHEMATIC PLAN



SCALE \_\_\_\_\_  
MADE \_\_\_\_\_ DATE \_\_\_\_\_  
TRCD \_\_\_\_\_ DATE \_\_\_\_\_  
CXD \_\_\_\_\_ DATE \_\_\_\_\_

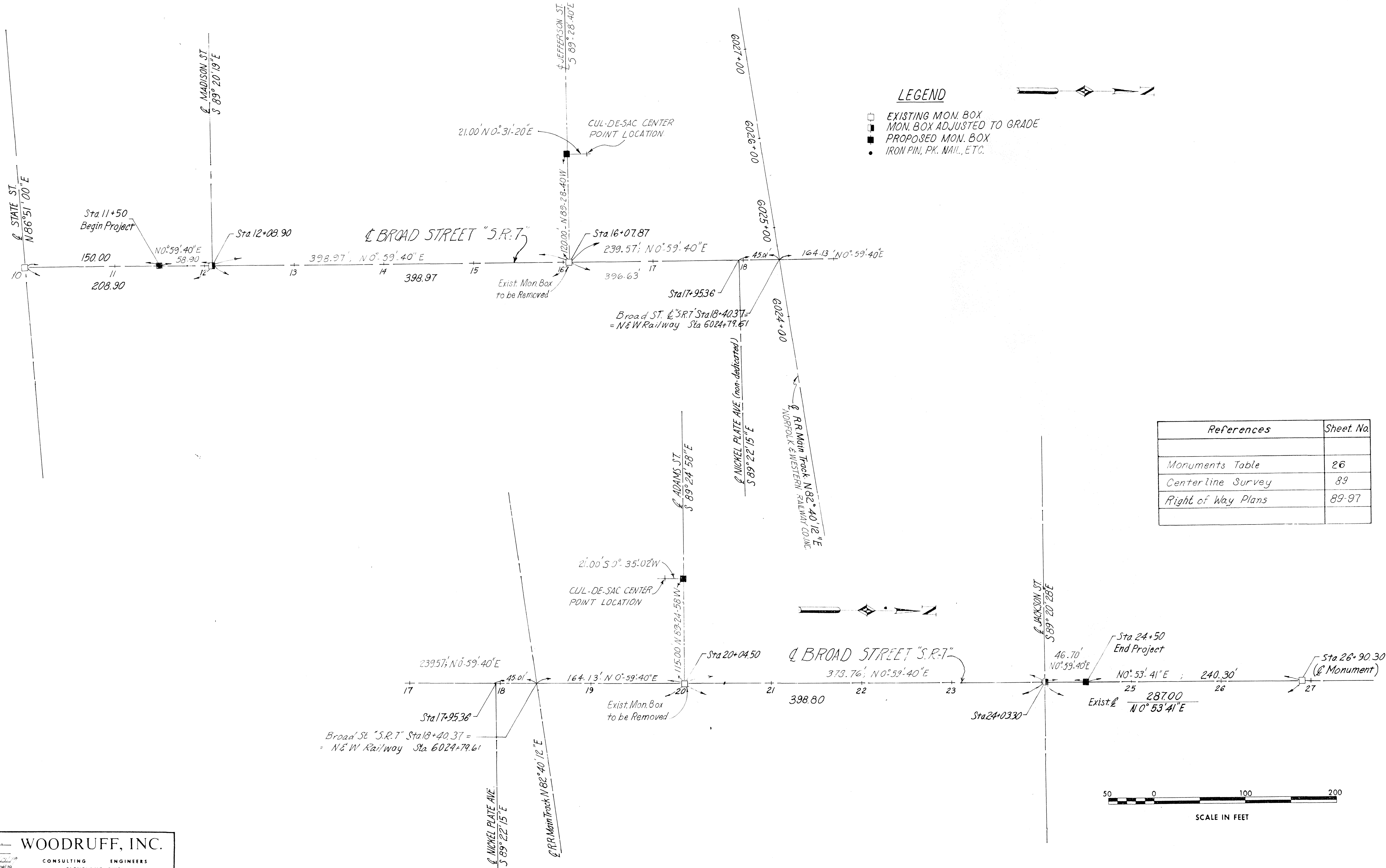
**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO

# SCHEMATIC GEOMETRIC PLAN

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

3  
100

ASHTABULA COUNTY  
BROAD ST. SR. 7-31.43

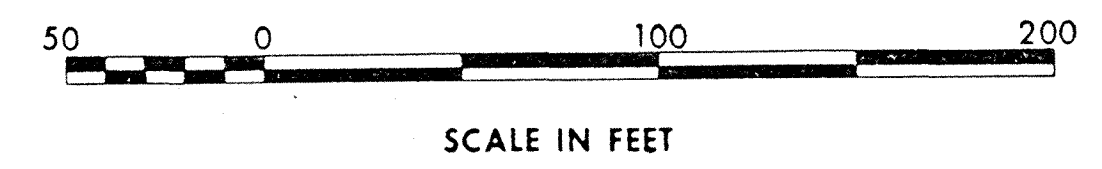


### LEGEND

- EXISTING MON. BOX
- MON. BOX ADJUSTED TO GRADE
- ▣ PROPOSED MON. BOX
- IRON PIN, PK. NAIL, ETC.



References	Sheet No.
Monuments Table	26
Centerline Survey	89
Right of Way Plans	89-97



SCALE \_\_\_\_\_ DATE \_\_\_\_\_  
 MADE BY \_\_\_\_\_  
 TRCD. *CH* DATE *8/27/99*  
 C.X.D. *AJM* DATE *12/28/99*

**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

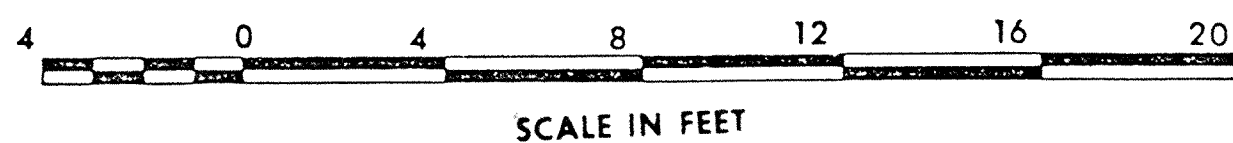
SR. 7 - BROAD STREET

# TYPICAL SECTIONS

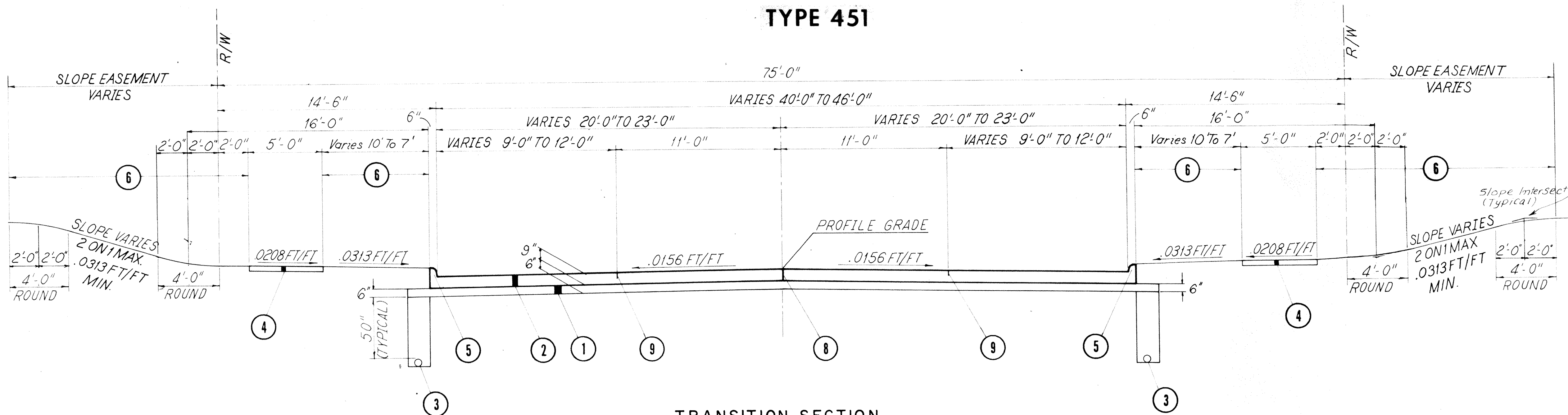
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	STATE

4  
100

ASHTABULA COUNTY  
ATB-7-31.43

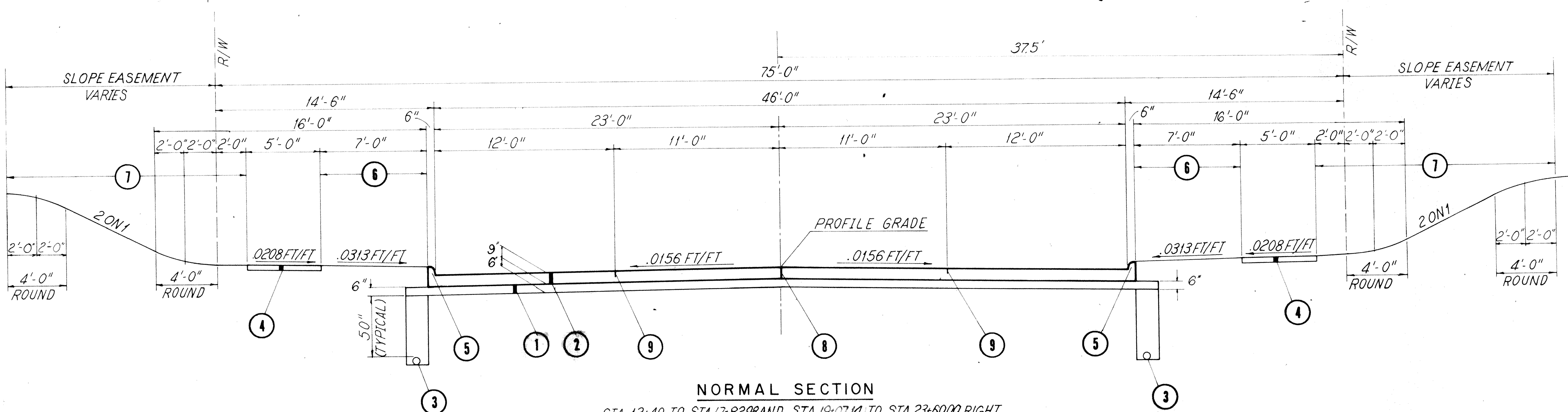


## TYPE 451



### TRANSITION SECTION

STA. 11+50 TO STA. 12+40 AND STA. 23+60 TO STA. 24+50



### NORMAL SECTION

STA. 12+40 TO STA. 17+82.98 AND STA. 19+07.14 TO STA. 23+60.00 RIGHT  
STA. 12+40 TO STA. 17+73.58 AND STA. 18+97.74 TO STA. 23+60.00 LEFT

### LEGEND

- ① ITEM 310 6" SUBBASE TYPE II
- ② ITEM 451 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
- ③ ITEM 605 6" DEEP PIPE UNDERDRAINS.
- ④ ITEM 608 4" CONCRETE WALK

- ⑤ ITEM 609 CURB STANDARD TYPE 2A
- ⑥ ITEM 659 SEEDING AND MULCHING AS PER PLAN
- ⑦ ITEM 660 SODDING
- ⑧ LONGITUDINAL KEYED JOINT WITHOUT TIE BARS
- ⑨ STANDARD LONGITUDINAL JOINT SAWED AND TIED

### NOTE

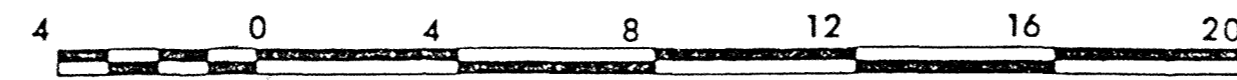
TYPICAL SECTIONS ARE INTENDED TO SHOW GENERAL PAVEMENT AND ROADWAY FEATURES ONLY. FOR DETAILS SEE PLAN AND PROFILE SHEETS, GRADING AND PAVING PLANS AND CROSS-SECTIONS SHEETS. THE ROUNDED CORNERS SHOWN ON TYPICAL SECTIONS APPLY TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

# TYPICAL SECTIONS

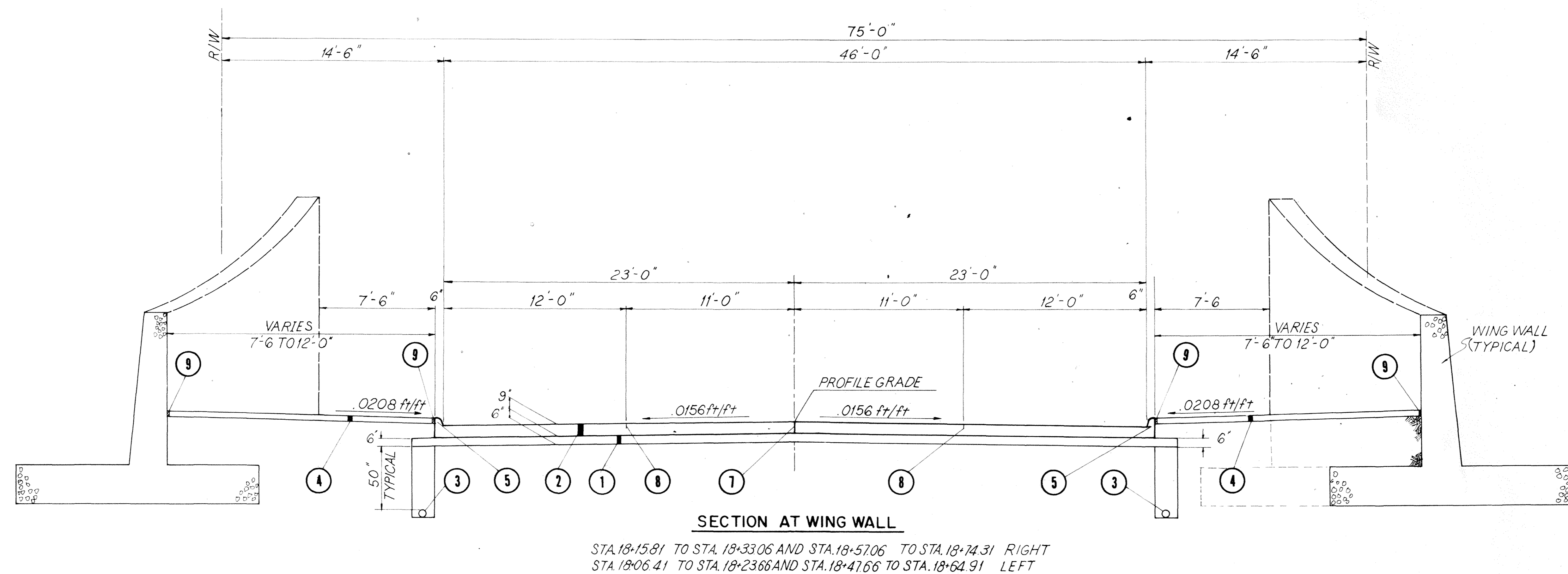
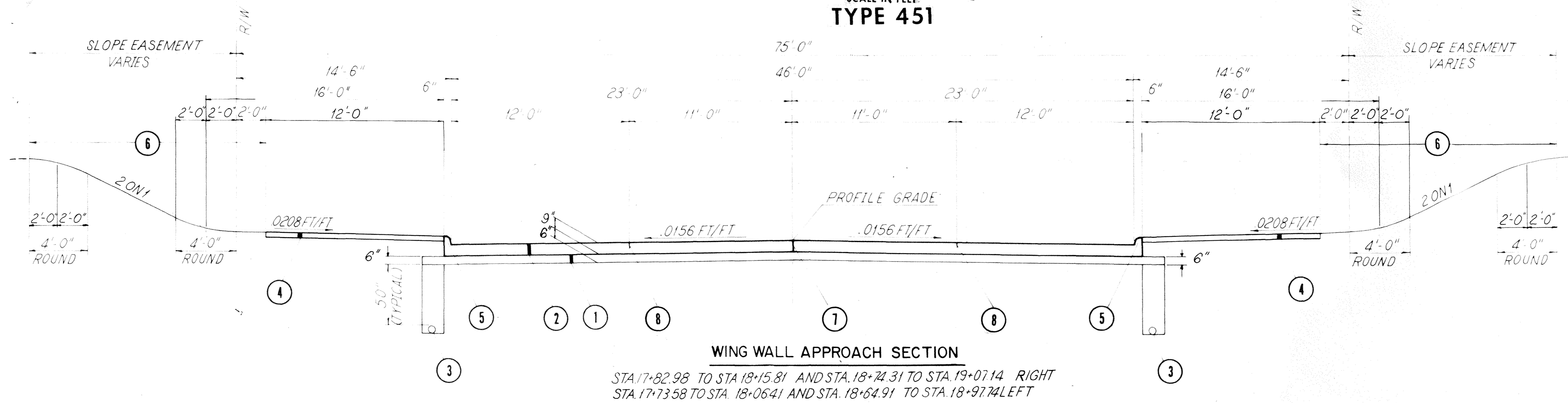
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

5  
100

ASHTABULA COUNTY  
ATB-7-31.43



SCALE IN FEET  
**TYPE 451**



**LEGEND**

- ① ITEM 310 6" SUBBASE TYPE II
- ② ITEM 451 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
- ③ ITEM 605 6" DEEP PIPE UNDERDRAINS
- ④ ITEM 608 4" CONCRETE WALK
- ⑤ ITEM 609 CURB STANDARD TYPE 2A
- ⑥ ITEM 660 SODDING
- ⑦ LONGITUDINAL KEYED JOINT WITHOUT TIE BARS
- ⑧ STANDARD LONGITUDINAL JOINT SAWED AND TIED
- ⑨ PREMOLDED JOINT FILLER

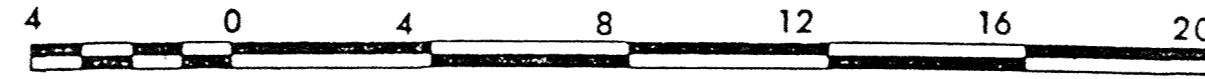
**NOTE**

TYPICAL SECTIONS ARE INTENDED TO SHOW GENERAL PAVEMENT AND ROADWAY FEATURES ONLY. FOR DETAILS SEE PLAN AND PROFILE SHEETS, GRADING AND PAVING PLANS AND CROSS-SECTIONS SHEETS.  
 THE ROUNDED CORNERS SHOWN ON TYPICAL SECTIONS APPLY TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

SCALE \_\_\_\_\_ DATE \_\_\_\_\_  
 MADE \_\_\_\_\_ DATE \_\_\_\_\_  
 TRCD. 24 DATE 8/13/79  
 C.X.D. AJM DATE 12/28/79

**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

# TYPICAL SECTIONS

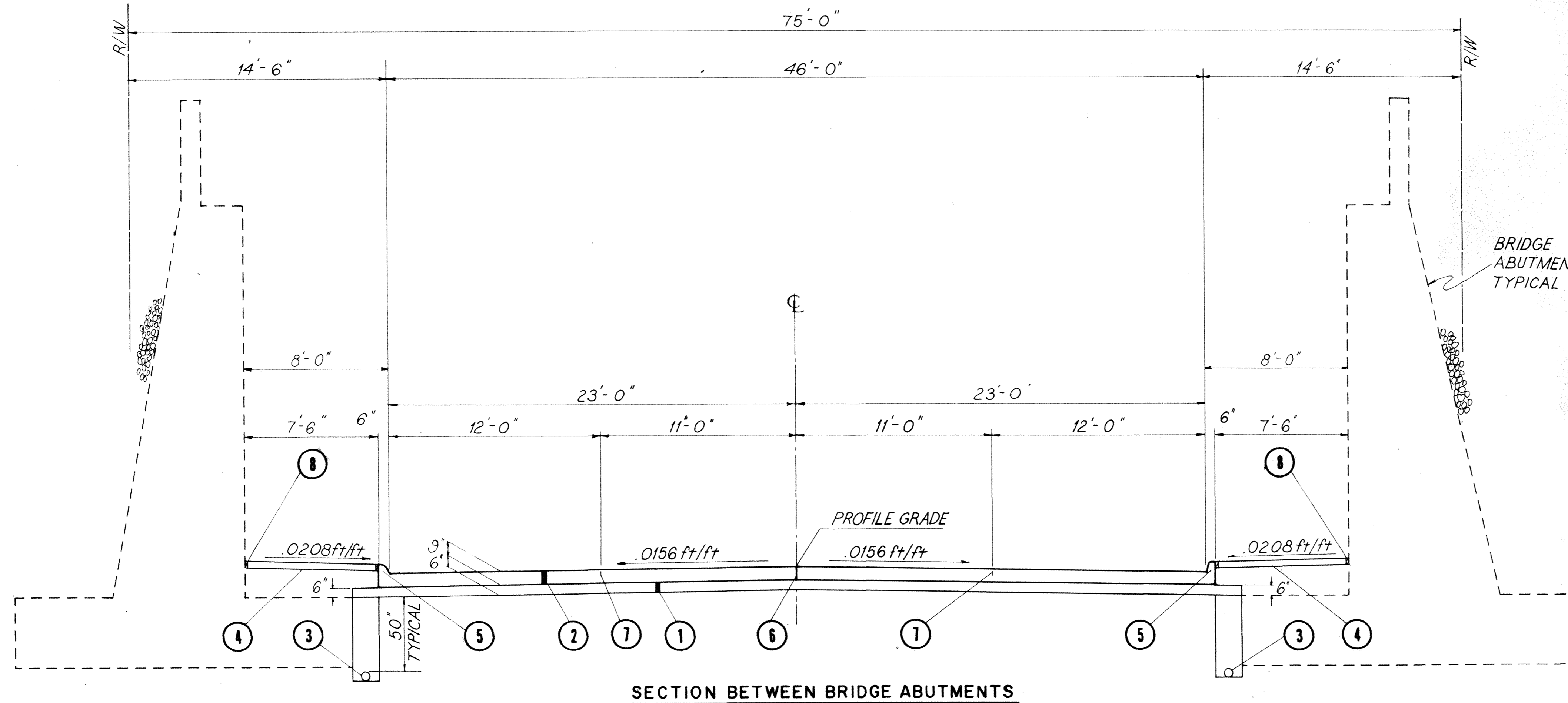


SCALE IN FEET  
TYPE 451

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

6  
100

ASHTABULA COUNTY  
ATB-7-31.43



**SECTION BETWEEN BRIDGE ABUTMENTS**

STA.18+33.06 TO STA.18+57.06 RIGHT  
STA.18+23.66 TO STA.18+47.66 LEFT

### LEGEND

- ① ITEM 310 6" SUBBASE TYPE II
- ② ITEM 451 9" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
- ③ ITEM 605 6" DEEP PIPE UNDERDRAINS
- ④ ITEM 608 4" CONCRETE WALK
- ⑤ ITEM 609 CURB STANDARD TYPE 2A
- ⑥ LONGITUDINAL KEYED JOINT WITHOUT TIE BARS
- ⑦ STANDARD LONGITUDINAL JOINT SAWED AND TIED
- ⑧ PREMOLDED JOINT FILLER

### NOTE

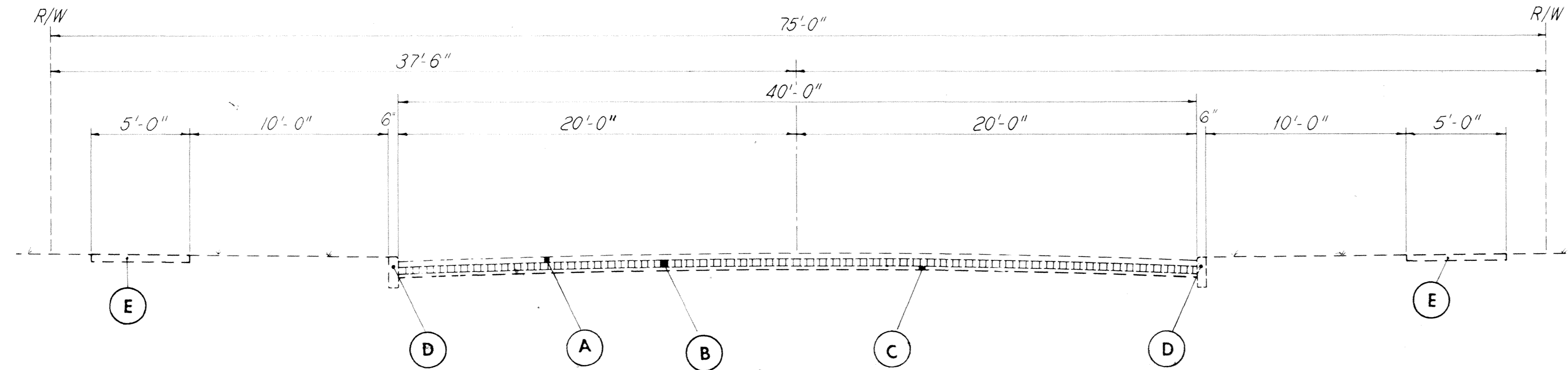
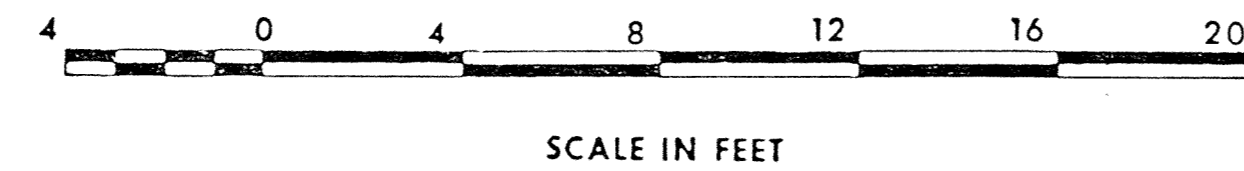
TYPICAL SECTIONS ARE INTENDED TO SHOW GENERAL PAVEMENT AND ROADWAY FEATURES ONLY. FOR DETAILS SEE PLAN AND PROFILE SHEETS, GRADING AND PAVING PLANS AND CROSS-SECTIONS SHEETS. THE ROUNDED CORNERS SHOWN ON TYPICAL SECTIONS APPLY TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

# EXISTING TYPICAL SECTIONS BROAD STREET S.R.7

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

7  
100

ASHTABULA COUNTY  
ATB-7-31.43



EXISTING BROAD STREET

### LEGEND

- (A) ASPHALT CONCRETE SURFACE COURSE
- (B) BRICK
- (C) SAND CUSHION
- (D) SANDSTONE CURB
- (E) EXISTING SIDEWALK

SCALE \_\_\_\_\_  
MADE BY \_\_\_\_\_ DATE \_\_\_\_\_  
TRCD R.C.K. DATE 8/13/78  
CKD A.J.M. DATE 12/29/79

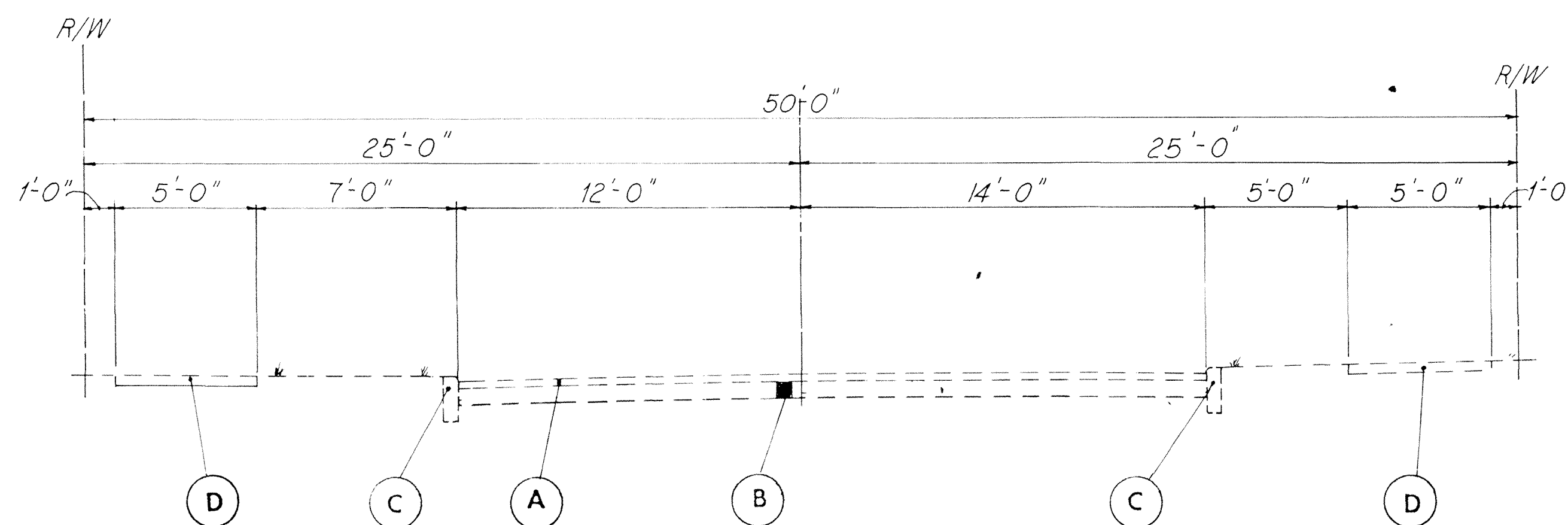
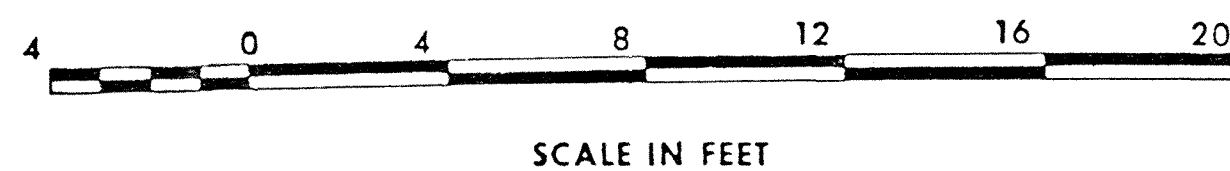
**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO

# EXISTING TYPICAL SECTIONS

ENRWA REGION	STATE	PROJECT	
5	OHIO	STATE	

8  
100

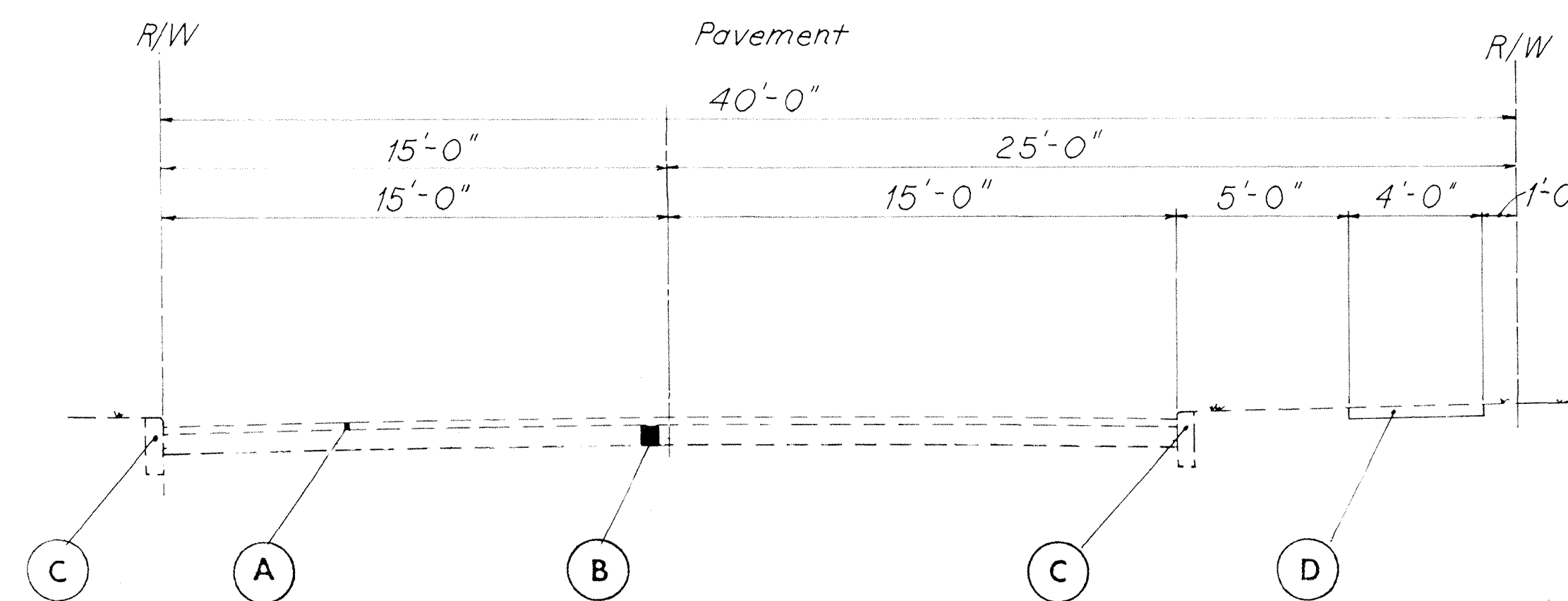
ASHTABULA COUNTY  
ATB-7-31.43



EXISTING ADAMS STREET

### LEGEND

- (A) GRAVEL
- (B) SAND CUSHION
- (C) SANDSTONE CURB
- (D) CONCRETE SIDEWALK



EXISTING NICKEL PLATE AVE.

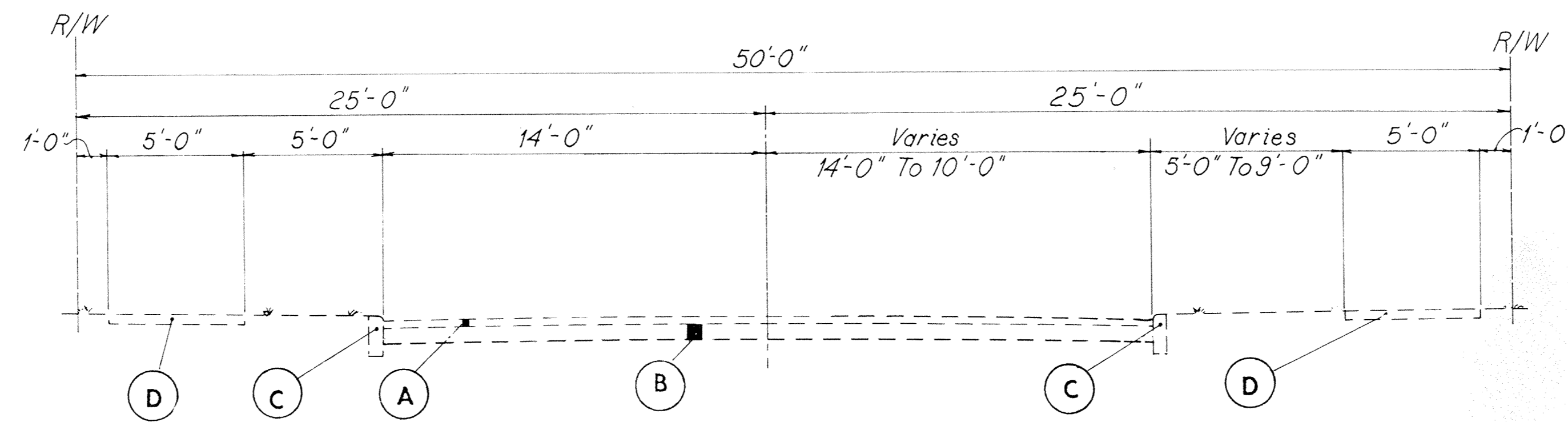
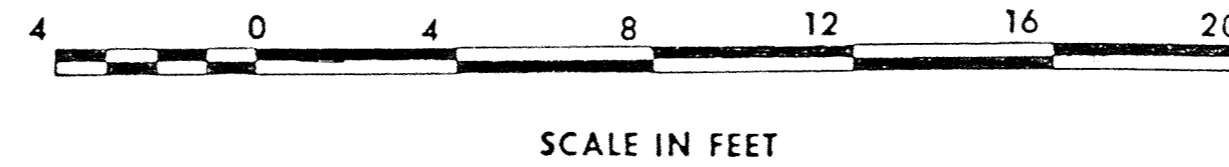


# EXISTING TYPICAL SECTION JEFFERSON STREET

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

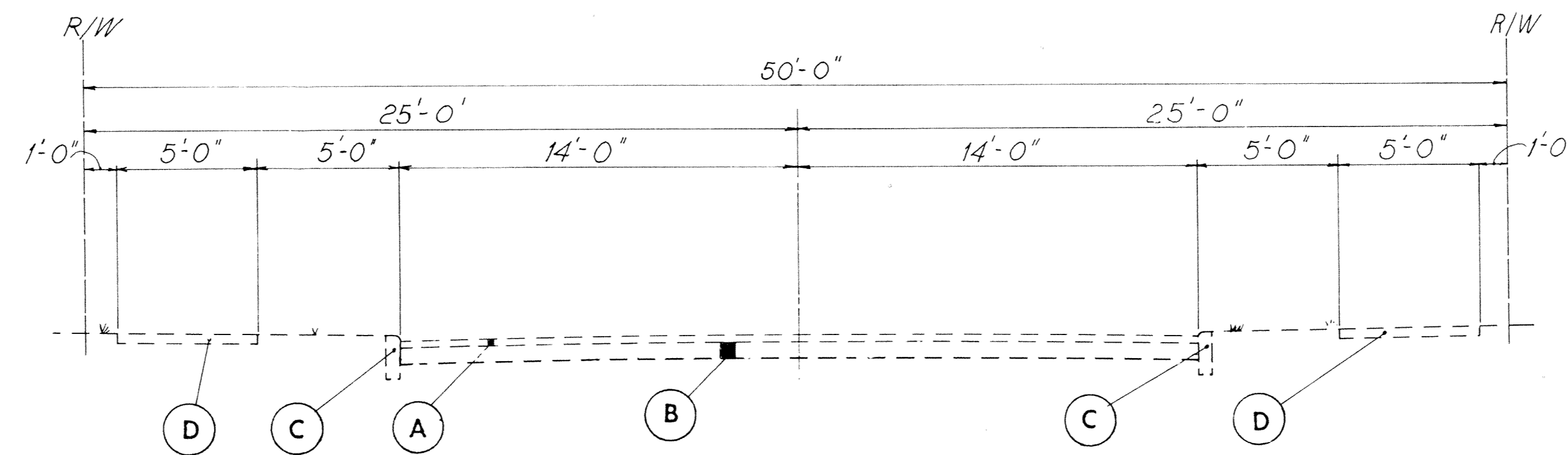
9  
100

ASHTABULA COUNTY  
ATB-7-31.43

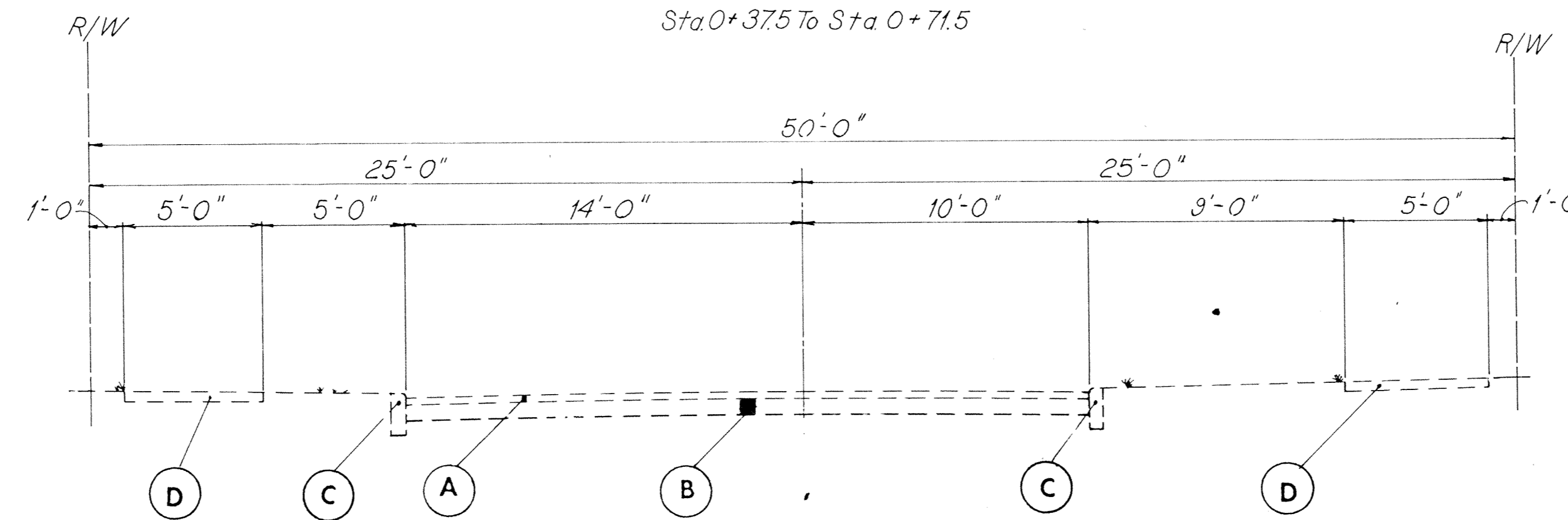


EXISTING TRANSITION SECTION

Sta.0+71.5 To Sta.1+84.00



Sta.0+375 To Sta.0+71.5



Sta.1+84.00 To Sta.2+03.84

## LEGEND

- (A) ASPHALT CONCRETE SURFACE COURSE
- (B) GRAVEL
- (C) SANDSTONE CURB
- (D) CONCRETE SIDEWALK

# GENERAL NOTES

QUANTITY CALCULATIONS

BY N.S. DATE 1/13/77

CHKD. AJM DATE 1/24/80

WOODRUFF, INC.

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

10  
100

ASHTABULA COUNTY  
ATB-7-31.43

## GENERAL

### DESIGN STANDARDS:

THE GEOMETRIC DESIGN FOR THIS PROJECT IS BASED ON DESIGN SPEED OF 30 M.P.H. AS OUTLINED BY THE A.A.S.H.T.O. POLICIES ON GEOMETRIC DESIGN.

### FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 800 SQ.FT. OF FLOOR SPACE.

### ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

### UNDERGROUND UTILITIES:

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO AND THE CITY OF CONNEAUT DO NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

### UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

SANITARY SEWERS CITY OF CONNEAUT  
CITY HALL BUILDING  
CONNEAUT, OHIO

WATER LINES CITY OF CONNEAUT  
CITY HALL BUILDING  
CONNEAUT, OHIO

TELEPHONE THE CONNEAUT TELEPHONE COMPANY  
224 STATE STREET  
CONNEAUT, OHIO 44030

GAS EAST OHIO GAS COMPANY  
1010 WEST 30TH STREET  
ASHTABULA, OHIO 44004

ELECTRICITY THE CLEVELAND ELECTRIC  
ILLUMINATING COMPANY  
ASHTABULA BRANCH  
2210 SOUTH RIDGE  
ASHTABULA, OH. 44004

WORK IS REQUIRED FOR REMOVING, RELOCATING AND CONSTRUCTION OF NEW FACILITIES FOR PRIVATE UTILITIES WILL BE DONE BY AND AT THE EXPENSE OF THE RESPECTIVE OWNERS UNLESS OTHERWISE NOTED ON THE PLAN. THE CONTRACTOR SHALL COORDINATE HIS OPERATIONS WITH THE WORK OF THE UTILITY OWNERS OR OTHERS WHO MAY BE MAKING THE RELOCATIONS AND NOTIFY THE OWNERS OF THE UTILITIES OF HIS SCHEDULE SUFFICIENTLY IN ADVANCE TO PERMIT THEM TO MAKE THE NECESSARY ALTERATIONS.

### ESTIMATED QUANTITIES

THESE ITEMS ARE TO BE USED AS DIRECTED BY THE ENGINEER AND SHALL NOT BE ORDERED BY THE CONTRACTOR UNTIL DIRECTED BY THE ENGINEER.

### TEMPORARY RAILROAD CROSSING

IF THE CONTRACTOR DESIRES A TEMPORARY RAILROAD CROSSING OVER THE NORFOLK & WESTERN RAILWAY COMPANY, RAILROAD TRACK(S), TO BE USED IN CONJUNCTION WITH THE CONSTRUCTION OF THIS PROJECT, HE SHALL MAKE ALL ARRANGEMENTS WITH THE RAILROAD AND ASSUME ALL COSTS FOR SUCH CROSSING. THE CONTRACTOR SHALL NOT USE THE NEW CROSSING AS A PART OF HIS HAUL ROAD DURING CONSTRUCTION OF THIS PROJECT.

## GENERAL

### DUST PROTECTION:

THE CONTRACTOR SHALL, WHEN SO ORDERED BY THE ENGINEER, PROTECT THE ADJACENT PROPERTIES FROM DUST. HE SHALL KEEP DOWN THE DUST BY THE USE OF WATER, OR CALCIUM CHLORIDE WHICHEVER IS CONSIDERED NECESSARY BY THE ENGINEER, PERFORMED AS PER ITEM 616. THE FOLLOWING QUANTITIES ARE PROVIDED IN THE GENERAL SUMMARY:

ITEM 616	CALCIUM CHLORIDE	15 TONS
ITEM 616	WATER	100 M. GALLONS

### PROFILE

THE PROFILE OF THE PROPOSED ASPHALT CONCRETE COURSE SHALL BE APPROXIMATELY 1 1/2" TO 2" ABOVE THAT OF THE EXISTING PAVEMENTS, AS INDICATED ON THE TYPICAL SECTIONS FOR PORTIONS OF CUL-DE-SACS ON ADAMS STREET AND JEFFERSON STREET UNLESS OTHERWISE NOTED, SEE SHEETS NO. 38 & 40

## ROADWAY

### REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING, EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.

THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED:

SIZES	NO. TREES	NO. STUMPS
18"	7	-
30"	10	-
48"	4	-
60"	3	2

THE ABOVE ESTIMATE IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE OF THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT-OF-WAY AND/OR EASEMENT LINES. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

### REMOVAL OF EXISTING PIPE

THE REMOVAL OF ALL EXISTING PIPES, WHICH WOULD NORMALLY BE REMOVED IN VARIOUS EXCAVATION ITEMS, SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICES BID FOR THE RESPECTIVE EXCAVATION ITEMS, UNLESS OTHERWISE ITEMIZED IN THE PLANS.

### NONRIGID PAVEMENT REMOVAL:

REMOVAL AND DISPOSAL OF EXISTING NONRIGID PAVEMENT, INCLUDING DRIVES, SHALL BE INCLUDED FOR PAYMENT IN ITEM 203 EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION AS PER PLAN.

### ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION, AS PER PLAN

#### A. DISPOSAL SITE

A DISPOSAL SITE ON A PROPERTY OWNED BY "BESSEMER AND LAKE ERIE RAILROAD COMPANY" MAY BE USED AS A DISPOSAL SITE FOR THE EXCAVATED MATERIAL. THIS SITE IS APPROXIMATELY 3 MILES FROM THE PROPOSED GRADE SEPARATION SITE. THE USE OF THIS LAND FOR DISPOSAL OF EXCAVATED MATERIAL SHALL BE SUBJECT TO THE TERMS OF AN AGREEMENT BETWEEN THE "CITY" AND "BESSEMER AND LAKE ERIE RAILROAD COMPANY". SAID AGREEMENT IS AVAILABLE FOR REVIEW BY INTERESTED PARTIES AND A COPY SHALL BE RETAINED IN THE OFFICE OF MR. R.W. WADSWORTH THE CITY ENGINEER, CITY HALL, CONNEAUT, OHIO.

NO ADDITIONAL COMPENSATION SHALL BE MADE TO THE CONTRACTOR FOR DISPOSAL OF EXCAVATED MATERIAL REGARDLESS OF THE DISPOSAL SITE LOCATION OR AVAILABILITY.

## ROADWAY (CONTINUED)

### B. SALVAGE OF REUSABLE MATERIAL

THE CONTRACTOR WILL, WHEN SO ORDERED BY THE ENGINEER, SALVAGE CASTINGS, WATER METER BOXES, AND/OR ANY OTHER ITEMS WHICH IN THE OPINION OF THE ENGINEER ARE REUSABLE. SAID MATERIAL SHALL BE CAREFULLY REMOVED FROM THE PAVEMENT OR THE EXCAVATION AREA AND STORED AS PER THE REQUIREMENTS OF ITEM 202 REMOVAL OF STRUCTURES AND OBSTRUCTIONS.

PAYMENT FOR SAID WORK SHALL BE MADE AT THE CONTRACT BID PRICE FOR ITEMS 202. COST FOR SALVAGING ALL OTHER REUSABLE MATERIALS WHICH ARE NOT LISTED UNDER ITEMS 202 AND/OR NOT SHOWN ON THESE PLANS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION AS PER PLAN AND NO ADDITIONAL COMPENSATION SHALL BE MADE. ALL SALVAGED MATERIALS SHALL BE STORED ON SITE FOR PICK UP BY CITY FORCES.

### MONUMENTS

MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1. FOR LOCATIONS, SEE SHEET NO. 26

### LOCATION OF GUARD RAILS

THE LOCATION OF GUARD RAIL RUNS SHOWN ON THESE PLANS ARE SUBJECT TO ADJUSTMENT TO ASSURE THAT THE PLANNED INSTALLATIONS WILL AFFORD THE MAXIMUM PROTECTION FOR TRAFFIC.

### WALK GATE, AS PER PLAN

WALK GATE STANDARD CL. MODIFIED TO 6'-0" WIDTH. ALL OTHER DETAILS OF CONSTRUCTION SHALL BE AS PER STANDARD DRAWING F-4 FOR WALK GATE TYPE CL. (FOR LOCATION SEE SHEETS NO. 22 & 49).

### BUILDING REMOVALS:

THE EXISTING PAVEMENTS, CURBS, CONCRETE PADS AND OTHER MISCELLANEOUS ITEMS IN PARCELS NOS. 3-WD, 4-WD AND 6-WD SHALL BE COMPLETELY REMOVED AND THE ENTIRE PARCELS SHALL BE PREPARED FOR SEEDING AND/OR SODDING. NO SEPARATE PAY WILL BE MADE FOR THE PREPARATION OF THESE PARCELS, PAYMENT SHALL BE INCLUDED IN THE LUMP BID PRICE FOR BUILDING REMOVAL ITEM 202.

### REMOVAL OF FROST SUSCEPTIBLE SUBGRADE

A-4b FROST SUSCEPTIBLE SILT IN SUBGRADE BETWEEN APPROXIMATE STA. 21+00 & STA. 23+50 SHALL BE UNDERCUT TO A DEPTH OF 18" AND REPLACED WITH SUITABLE SUBGRADE MATERIAL. THE QUANTITIES OF EXCAVATION AND EMBANKMENT HAVE BEEN ADJUSTED TO INCLUDE THIS WORK.

### GUARD RAIL TYPE 7 AS PER PLAN

GUARD RAILS INSTALLED ON JEFFERSON AND ADAMS CUL-DE-SACS SHALL BE AS PER GUARD RAIL TYPE 7 AS SHOWN ON STANDARD CONSTRUCTION DRAWING GR-2A WITH POSTS AS PER GUARD RAIL TYPE 4 THE ENDS OF THE GUARD RAILS SHALL FLAIR AS PER "BUFFER END SECTION" AS SHOWN ON STANDARD DRAWING GR-1.

## EROSION CONTROL

### TEMPORARY WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL:

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY CONTROL MEASURES.

ITEM 207 - STRAW OR HAY BALES	100 EACH
ITEM 207 - TEMPORARY SEEDING & MULCHING	2,600 SQ. YDS.
ITEM 659 - WATER	57 M. GAL.

### SEEDING, AS PER PLAN

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN BACK OF CURB AND SIDEWALK AND BETWEEN THE SLOPE EASEMENT LINE AND THE WORK LIMIT LINE. SEE SHEETS 49, 50, 51 AND SHEETS 22, 23 AND 24.

THE FOLLOWING SEED MIXTURE SHALL, IN LIEU OF THE MIXTURES LISTED IN 659.09 BE USED THROUGHOUT THE LIMITS OF THIS PROJECT:

50% FESCUE  
50% KENTUCKY BLUE

# GENERAL NOTES

QUANTITY CALCULATIONS

BY AWJ DATE 8/23/79

CHKD. AWJ DATE 1/24/80

WOODRUFF, INC.

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

ASHTABULA COUNTY  
ATB-7-31.43

11  
100

## EROSION CONTROL (CONTINUED)

### SODDING:

QUANTITIES FOR SODDING ARE CALCULATED FOR AREAS BETWEEN THE OUTER EDGE OF SIDEWALKS AND THE SLOPE EASEMENT LINE. SEE SHEETS 49,50,51 AND SHEETS 22,23,24.

### AGRICULTURAL LIMING AS PER PLAN:

THE LOCATION AND NEED FOR AGRICULTURAL LIMING WILL BE DETERMINED BY LABORATORY TESTING, AFTER ROUGH GRADING OPERATIONS HAVE BEEN PERFORMED. AN ESTIMATED QUANTITY OF 5.37 TONS WILL BE SUFFICIENT FOR THE ENTIRE PROJECT, BUT WILL BE NON-PERFORMED FOR THE AREAS WHERE TESTS SHOW THAT LIMING IS NOT REQUIRED.

### WATERING PERMANENT SEEDED OR SODDED AREAS:

THE FOLLOWING ESTIMATED QUANTITIES IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED OR SODDED AREAS.

ITEM 659	WATER	100 M. GAL.
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## DRAINAGE (CONTINUED)

### AREA DRAINS, DOWN SPOUTS, AND FIELD DRAINS:

ALL EXISTING STORM DRAINAGE FACILITIES WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER. EXISTING COLLECTORS AND ISOLATED FARM TILES WHICH ARE ENCOUNTERED ABOVE THE ROADWAY STORM SEWERS SHALL BE OUTLETTED INTO THE ROADWAY SEWER. THE OPTIMUM OUTLET FOR CONDUIT SHALL BE ONE (1) FOOT ABOVE FLOW LINE ELEVATION OF THE RECEIVING DRAINAGE SYSTEM. THE LOCATION, TYPE, SIZE, AND GRADE OF REQUIRED REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS. THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED:

ITEM 603	6" CONDUIT TYPE B	100 L.F.
ITEM 603	6" CONDUIT TYPE C	100 L.F.
ITEM 603	8" CONDUIT TYPE B	100 L.F.
ITEM 603	8" CONDUIT TYPE C	100 L.F.
ITEM 603	12" CONDUIT TYPE B	100 L.F.
ITEM 603	12" CONDUIT TYPE C	100 L.F.
ITEM 602	CONCRETE MASONRY	5 CU. YDS.

### CONNECTIONS TO EXISTING PIPE:

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS.

### EXISTING UNDERDRAINS:

WHERE SHOWN ON THE PLANS OR WHERE ENCOUNTERED IN THE FIELD, EXISTING UNDERDRAINS, SHALL BE REMOVED AND THE TRENCH BACKFILLED TO THE FINISHED GRADE ACCORDING TO THE REQUIREMENTS OF ITEM 203. EXISTING UNDERDRAINS UNDERNEATH EMBANKMENT AREAS AND WITHIN THE PROPOSED PAVEMENT SHALL REMAIN IN PLACE AND SHALL BE OUTLETTED AS PER PLAN OR AS DIRECTED BY THE ENGINEER. THAT PORTION OF EXISTING UNDERDRAIN WHICH IS DIRECTED FOR REMOVAL AND WHICH IS BELOW THE SPECIFICATION SUBGRADE DEPTH WILL BE PAID FOR UNDER ITEM 202, PIPE REMOVED 24" AND UNDER. THAT PORTION OF EXISTING UNDERDRAIN WHICH IS WITHIN THE PROPOSED SUBGRADE SHALL BE REMOVED BUT WILL NOT BE PAID FOR DIRECTLY. THE REMOVAL SHALL BE CONSIDERED AS A SUBSIDIARY OBLIGATION OF THE CONTRACTOR UNDER ITEM 203.

AN ESTIMATED QUANTITY FOR THIS ITEM IS PROVIDED AND CARRIED TO THE GENERAL SUMMARY UNDER: ITEM 202, PIPE REMOVED 24" AND UNDER.....100 LIN. FT.

### SALVAGED CASTINGS:

EXISTING CASTINGS FOR MANHOLES, CATCH BASINS, INLETS, ETC. ENCOUNTERED IN THE CONSTRUCTION OF THIS PROJECT WHICH, DUE TO ALTERATION OR REMOVAL OF THE EXISTING STRUCTURE, ARE NOT REQUIRED FOR RE-USE ON THE PROJECT SHALL BE REMOVED AND STORED ON SITE FOR PICK UP BY CITY FORCES.

### SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS:

THIS PLAN MAKES NO PROVISION FOR CONNECTING, NOR SHALL THE ENGINEER OR CONTRACTOR CONNECT, ANY EXISTING OR NEW DRAINAGE INTO THE HIGHWAY DRAINAGE SYSTEM WHEN SUCH DRAINS CARRY FLOW FROM ANY FIXTURES, INCLUDING FLOOR DRAINS AND SINK DRAINS.

THE EXISTING PIPE CARRYING FLOW WHICH COMES WITHIN THE CATEGORY OUTLINED ABOVE, MUST BE CONNECTED INTO SANITARY SEWER OR PLUGGED WITH CLASS C CONCRETE IN THE RIGHT-OF-WAY. PAYMENT FOR SAID PLUGGING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 EXCAVATION (OR THE PERTINENT 202 ITEM), PAYMENT FOR THE SANITARY CONNECTIONS SHALL BE MADE ACCORDING TO "CONNECTING SERVICE BRANCHES", SEE SANITARY SEWERS THIS SHEET.

### LOWERING CASTING OF EXISTING JUNCTION CHAMBER

THE EXISTING 48 INCH RISER ABOVE THE JUNCTION CHAMBER (STA. 18+92.18, 41.95' LEFT) WAS PROVIDED TO ALLOW FOR CONSTRUCTION SITE DRAINAGE. UPON THE COMPLETION OF THE NEW DRAINAGE SYSTEM, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SAID RISER AND REINSTALL THE CASTING AT THE FINAL GRADES. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED AND THE COST FOR THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 202 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION AS PER PLAN.

## DRAINAGE (CONTINUED)

### BULKHEADS:

BULKHEADS SHALL BE CONSTRUCTED BY THE CONTRACTOR AT THE LOCATION SHOWN ON PLAN AND AS DIRECTED BY THE ENGINEER. BULKHEADS SHALL BE CONSTRUCTED OF CLASS E CONCRETE WITH VITRIFIED STOPPERS OF PROPER SIZE TO FIT THE PIPE (SEE SHEET NO. 40 FOR LOCATION AND DETAILS). PAYMENT SHALL BE INCLUDED IN PAY ITEM 652 CONCRETE MASONRY, AN ESTIMATED QUANTITY IS GIVEN HERE AND SHALL BE USED AS DIRECTED BY THE ENGINEER.

ITEM 602	CONCRETE MASONRY	5 CU. YDS.
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## SANITARY SEWERS

### RAILROAD CROSSING

THE CROSSING OF N & W RAILROAD TRACK SHALL BE ACCORDING TO RAILROAD STANDARDS AS SET BY "AMERICAN RAILWAY ENGINEERING ASSOCIATION LATEST EDITION OF MANUAL FOR RAILWAY ENGINEERING" AND AS SHOWN ON THESE PLANS. MINIMUM LENGTHS OF STEEL CASING AND FOR CARRIER CONDUIT SHALL BE AS DETAILED IN THESE PLANS. PAYMENT SHALL BE MADE PER ITEM 706.05; 706.12 JOINTS WITH STEEL CASING, AS PER PLAN.

THE CARRIER CONDUIT MAY AT THE OPTION OF THE CONTRACTOR BE EPOXY COATED

REINFORCED CONCRETE PIPE. THE REINFORCED CONCRETE PIPE SHALL BE "TYPE B" CONDUIT 706.02 WITH EPOXY COATING. THE INTERIOR BARREL AND JOINT SURFACE AREAS OF THE CONCRETE PIPE SHALL BE PREPARED SO AS TO REMOVE ALL FORMS OF OIL, LAITANCE AND OTHER DELETERIOUS MATERIALS AND THEN BE LINED WITH A HIGH BUILD, POLYAMIDE-CURED, 2 COMPONENT COAL TAR EPOXY COATING, MILITARY SPECIFICATION MIL-P-23236. THE LINING COMPOUND SHALL BE SPRAYED SO AS TO OBTAIN A CONTINUOUS AND RELATIVELY UNIFORM AND SMOOTH LINING WITH A MINIMUM DRY FILM THICKNESS OF 0.03 INCHES. ALL INTERIOR BARREL SURFACE SHALL BE THOROUGHLY INSPECTED FOR "HOLIDAYS", UTILIZING AN ELECTRICAL INSTRUMENT SPECIALLY DESIGNED FOR THAT PURPOSE. JUST PRIOR TO INSTALLATION OF EACH JOINT OF PIPE IN THE FIELD, A FIBRATED COAL TAR JOINT COMPOUND SHALL BE APPLIED AROUND THE INSIDE CORNER OF THE BELL OR GROOVE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. COATING OF THE CONDUIT SHALL BE A PLANT OPERATION. COST OF LABOR AND MATERIALS FOR COATING THE PIPE SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAL FOOT FOR THE ITEM. CONSTRUCTION SHALL BE SO SCHEDULED AS TO ASSURE THE CONTINUITY OF TRAIN TRAFFIC WITHOUT INTERRUPTION. THE COST OF ALL PROTECTIVE DEVICES AND OPERATIONS FOR SAFETY SHALL BE INCLUDED IN THE BID PRICE FOR THE FOREMENTIONED PAY ITEM.

### CONNECTING SERVICE BRANCHES

FLOW FROM ALL SERVICE BRANCHES OF THE SANITARY SYSTEM SHALL BE PRESERVED AT ALL TIMES; FOLLOWING ARE ESTIMATED QUANTITIES FOR THE SEWER CONNECTIONS; WHICH MAY BE USED AS DIRECTED BY THE ENGINEER:

ITEM 603	6" CONDUIT TYPE "B"	706.08 WITH 706.12 JOINTS	100 LIN.FT.
ITEM 603	8" CONDUIT TYPE "B"	706.08 WITH 706.12 JOINTS	100 LIN.FT.

## DRAINAGE

### REVIEW OF DRAINAGE FACILITIES:

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE, CITY AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING STORM AND SANITARY SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION, ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE PERTINENT 603 CONDUIT ITEMS OF THE CONTRACT.

### AGGREGATE DRAINS:

AGGREGATE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 605. THE LOCATION, LENGTH OF EACH RUN AND THE ELEVATIONS OF THE AGGREGATE DRAIN SHALL BE AS DIRECTED BY THE ENGINEER, THE ESTIMATED QUANTITY FOR THIS WORK IS AS FOLLOWS:

ITEM 605	AGGREGATE DRAINS	400 LIN FT.
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# GENERAL NOTES

QUANTITY CALCULATIONS

BY N.S. DATE 8-13-79

CHKD. AJM DATE 1/24/80

WOODRUFF, INC.

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

12  
100

ASHTABULA COUNTY  
ATB-7-31.43

## PAVEMENT

### CONTRACTION AND EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN EXPANSION AND CONTRACTION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES AND THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS SHALL, IN ALL CASES, BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWINGS AND THE SPECIFICATIONS.

### REPLACEMENT OF PAVEMENT ON JEFFERSON STREET

EXISTING ROADWAY SURFACE ON JEFFERSON STREET SHALL BE REMOVED TO A DEPTH OF 5" BELOW THE NEW DESIGN GRADES. NEW PAVEMENT SHALL REPLACE THE EXISTING SURFACE. NEW SIDEWALKS AND CURBS SHALL BE CONSTRUCTED AS DETAILED IN THESE PLANS.

PAYMENT FOR THE ABOVE WORK SHALL BE AS PER BID PRICE FOR CORRESPONDING PAVEMENT ITEM.

### REPLACEMENT OF PAVEMENT ON THE CUL-DE-SAC LOCATION - ADAMS STREET

EXISTING PAVEMENT ON ADAMS STREET SHALL BE REMOVED TO THE LIMITS SHOWN ON PLANS.

PAYMENT FOR NEW PAVEMENT SHALL BE AS PER BID PRICE FOR CORRESPONDING PAVEMENT ITEM.

### APPROACH TO NEW PAVEMENTS

THE EXISTING PAVEMENT SHALL BE SAW CUT FOR A DEPTH NOT LESS THAN THE NEW PAVEMENT THICKNESS AT THE LINE OF BEGINNING OF NEW PAVEMENT.

THE WEARING SURFACE OF THE APPROACH AREA WILL BE REMOVED AND REPLACED WITH ITEM 404 AND MATCH NEW PAVEMENT AT JOINT.

### FENCE REMOVED FOR RE-USE AS PER PLAN

EXISTING FENCES AT THE LOCATIONS LISTED ON SHEET 14 SHALL BE REMOVED AND STORED IN SITE ACCORDING TO THE REQUIREMENTS OF ITEM NO. 202. UPON THE COMPLETION OF EXCAVATION THESE FENCES SHALL BE REINSTALLED IN THE LOCATIONS INDICATED ON THESE PLANS OR AS DIRECTED BY THE ENGINEER.

PAYMENT FOR THE REMOVAL, STORAGE AND REINSTALLATION SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 202 FENCE REMOVED FOR REUSE AS PER PLAN AND NO SEPARATE PAYMENT SHALL BE MADE FOR THE REINSTALLATION.

### FENCES FOR RAILROAD RUNAROUND.

SEE RAILROAD RUNAROUND GENERAL NOTES SHEET NO. 74.

## ITEM 614 MAINTAINING TRAFFIC AS PER PLAN

### GENERAL

TWO WAY TRAFFIC FOR STATE ROUTE 7 SHALL BE DETOURED DURING THE PERIOD OF CONSTRUCTION AS INDICATED ON THESE PLANS. SEE SHEETS 98, 99, 100. THE DETAILED REQUIREMENTS SHOWN AND/OR SPECIFIED IN THESE PLANS ARE MINIMUM REQUIREMENTS IN ADDITION TO ALL THE PROVISIONS OF ITEM 614. PAYMENT SHALL BE MADE FOR ALL WORK PER 614.05 AND NO ADDITIONAL COMPENSATION SHALL BE MADE FOR THE COMPLIANCE WITH THE DETAILED REQUIREMENTS OF THESE PLANS UNLESS OTHERWISE NOTED.

### PAVEMENT OF PARTS OF THE DETOUR ROUTE

THE DETOUR ROUTE SHALL BE UPDATED AS FOLLOWS:-

THE NORTHWEST CORNER AT THE INTERSECTION OF STATE AND HARBOR STREETS AND ALSO THE SOUTHWEST CORNER AT JACKSON AND HARBOR STREETS SHALL BE CUT BACK TO 25 FEET MINIMUM RADIUS. NEW BASE, BINDER, AND WEARING SURFACE AND CURB SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER. THE EXISTING PAVEMENT SHALL BE PATCHED, WHERE NECESSARY, AS DIRECTED BY THE ENGINEER. THE STRETCH OF HARBOR STREET BETWEEN STATE AND JACKSON STREETS AS WELL AS THE STRETCH OF JACKSON STREET BETWEEN HARBOR AND BROAD STREETS SHALL BE UPDATED WITH A NEW OVERLAY OF 3 INCHES OF ITEM NO. 404. ALSO BOTH INTERSECTIONS SHALL BE UPDATED.

ALL WORK SHALL BE AS DIRECTED BY THE ENGINEER.

THE FOLLOWING ARE THE ESTIMATED QUANTITIES FOR THIS WORK AND SHALL BE USED AS DIRECTED BY THE ENGINEER.

ITEM 301	BITUMINOUS AGGREGATE BASE AC-20 ; OR RT-11 OR RT-12	5	CU.YDS.
ITEM 402	ASPHALT CONCRETE (AC-20)	5	CU.YDS.
ITEM 404	ASPHALT CONCRETE (AC-20)	520	CU.YDS.
ITEM 407	TACK COAT RC-250, MS-2, RS-1, SS-1 OR SS-1H	610	GAL.
ITEM 407	COVER AGGREGATE	19	TONS
ITEM 608	4" CONCRETE WALK	300	SQ.FT.
ITEM 609	CURB TYPE 2A	80	LIN.FT.
ITEM 616	CALCIUM CHLORIDE	3	TONS
ITEM 410	TRAFFIC COMPACTED SURFACE TYPE A	150	CU.YDS.

ABOVE QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY AND PAYMENT SHALL BE MADE AT THE BID PRICE FOR EACH ITEM.

### MAINTENANCE OF ACCESS TO PRIVATE PROPERTIES

TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES TO PARCELS NO. 8, NO. 9, NO. 11 AND NO. 20. SEE SHEET NO. 90 FOR LOCATION OF THESE PARCELS.

### TEMPORARY TRAFFIC SIGNALS

THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN SIGNALS AS SHOWN ON PLAN SHEETS NO. 99 AND NO. 100, AND AS SPECIFIED HEREAFTER.

### (A) 625 - PLAN SPECIFICATION REFERENCES

REFERENCES WITHIN THE PLANS TO ITEMS 625 AND 713 SHALL BE CONSIDERED AS REFERRING TO ITEMS S625 AND S713.

### (B) (842) - POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM CLEVELAND ELECTRIC ILLUMINATING COMPANY, ASHTABULA BRANCH, 2210 S. RIDGE ROAD, ASHTABULA, OHIO 44004.

### (C) (842) - POWER SERVICE AS PER PLAN

POWER SERVICE SHALL CONFORM TO THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATIONS 842.17 EXCEPT THAT THE ELECTRIC METER SHALL NOT BE INSTALLED.

### (D) (843) - CONTROLLER, PRETIMED, 3 PHASE, ONE DIAL ELECTROMECHANICAL TYPE

THE PHASING AND TIMING SPLIT SHALL BE SET AS SPECIFIED ON PLAN SHEET NO. 99

THE CONTROLLER AND/OR CONTROLLER CABINET SHALL HAVE THE FOLLOWING MINIMUM FEATURES:

1. SIX SIGNAL CIRCUITS
2. TIME SWITCH FLASHING
3. POLICE DOOR PANEL
4. MANUAL SWITCH AND CHORD

THE CONTROLLER SHALL BE SIMILAR TO "TRAFLO, PCN-351BRP" OR EQUAL.

SIGNAL QUANTITIES SHOWN ON PLAN SHEET NO. 100 ARE NOT PAY ITEMS AND ARE SHOWN FOR GUIDANCE ONLY. THE PROVISIONS OF ITEM 614.03(E) SHALL APPLY AND THE ENTIRE COST OF ALL WORK AND MATERIALS SHALL BE INCLUDED IN THE LUMP BID PRICE FOR ITEM 614 MAINTENANCE OF TRAFFIC AS PER PLAN.

# COMPUTATIONS AND SUBSUMMARIES

QUANTITY CALCULATIONS

BY M.A. DATE 2-13-39

CHKD. W.S. DATE 1-15-39

WOODRUFF, INC.

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

13  
100

ASHTABULA COUNTY  
ATB-7-31.43

ITEM 202 PAVEMENT REMOVED					
STATION		SIDE	OFFSET	AREA	REMARKS
FROM	TO		FEET	SQ. YDS.	
<i>Broad St.</i>					
11+25	11+68.5	Rt.	19.9	74	2 Slabs, 38.9'x16.5', 4.6'x11.2' $\frac{1}{2}$
11+90.2	12+15.8	Rt.	19.9	47	Slab, 25.6'x16.5'
12+82.2	13+32.2	Rt.	19.8	96	3 Slabs, 4.2'x17.7', 13.6'x16.3'
13+24.8	13+31.8	Rt.	37.5	40	Slab 52'x7'
13+70.2	13+81.3	Rt.	20.0	20	Slab 11.1'x16.5'
14+19.4	14+34.3	Rt.	20.0	57	3 Slab, 2.1'x3.2' $\frac{1}{2}$ , 11.0'x45.7', 1.8'x3.1' $\frac{1}{2}$
14+73.6	14+82.3	Rt.	20.0	16	Slab, 8.7'x16.3'
15+69.1	15+77.8	Rt.	27.8	8	Slab, 8.7'x8.7'
16+42.5	16+76.9	Lt.	20.2	52	4 Slabs, 7'x11.1' $\frac{1}{2}$ , 25'x16', 2.4'x11.2' $\frac{1}{2}$ , 2.4'x5'
16+95	17+35	Lt.	12.9	49	Slab, 40'x11'
17+51	17+85	Lt.	20.2	45	3 Slabs, 10.2'x11.2' $\frac{1}{2}$ , 20.1'x16.1', 3.7'x11.2' $\frac{1}{2}$
18+83.6	19+07.1	Lt.	31.1	179	4 Slabs, 10.2'x11.2' $\frac{1}{2}$ , 2.2'x33.1' $\frac{1}{2}$ , 23.5'x39.1', 18.2'x32.9'
19+07.1	19+25.3	Lt.	20.2	33	Slab 18.2'x16.1'
19+07.1	19+79.1	Lt.	83.6	164	3 Slabs, 34'x34' $\frac{1}{2}$ , 72'x15.6', 39'x9'
19+10.4	19+30.6	Rt.	20.2	26	3 Slabs, 5.2'x11.2' $\frac{1}{2}$ , 11.5'x16.2', 3.5'x11.2' $\frac{1}{2}$
19+15.6	20+33.7	Rt.	36.2	639	2 Slabs, 48'x118.1', 8.5'x9.0'
19+79.1	19+90.8	Lt.	84.8	16	3 Slabs, 11.7'x11.4', 2.5'x2.4' $\frac{1}{2}$ , 2.5'x8.2' $\frac{1}{2}$
20+18.1	20+39.5	Rt.	20.0	26	3 Slabs, 4.1'x10.8' $\frac{1}{2}$ , 10'x17.4', 7.3'x10.7' $\frac{1}{2}$
21+99.6	22+24.6	Rt.	19.8	40	3 Slabs, 2.4'x11.4' $\frac{1}{2}$ , 20.4'x16.4', 2.2'x11.2' $\frac{1}{2}$
TOTAL				1,627	

ITEM 202 WEARING COURSE REMOVED					
STATION		LENGTH	WIDTH	AREA	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	
<i>Broad St.</i>					
11+25.0	11+50.0	25.0	40.0	111	
24+50.0	24+75.0	25.0	40.0	111	
<i>Madison Street</i>					
0+49.0	0+74.0	25.0	26.0	72	
<i>Jackson Street</i>					
4+25.0	4+50.0	25.0	29.0	81	
5+50.0	5+75.0	25.0	24.0	67	
TOTAL				442	

ITEM 202 WALK REMOVED					
STATION		SIDE	OFFSET	AREA	REMARKS
FROM	TO		FEET	SQ. FT.	
<i>Broad St.</i>					
11+25.0	11+95.6	Lt.	31.5	424	6'x70.6'
11+78.6		Lt.	20.2	120	6'x26'-(6'x6')
12+21.9	12+40.0	Lt.	31.8	72	4'x18.1'
12+38.0		Lt.	20.0	48	4'x12'
12+38.0		Lt.	35.8	50	5'x10'
13+63.0		Lt.	36.5	328	9'x29.5'+13'x4.8'
11+25.0	12+15.8	Rt.	31.2	150	90.8'x5.2'-(5.2'x38)'-(5.2'x24')
12+15.8	12+40.0	Rt.	19.9	436	24.2'x18'
12+19.0		Rt.	37.8	113	5'x23'
12+84.0		Rt.	37.5	164	4'x41'
23+41.2	23+91.2	Lt.	31.5	250	5'x50'
23+81.0		Lt.	20.5	115	5'x28'-(5'x5')
24+15.3	24+75.0	Lt.	31.7	299	5'x59.7'
24+24.7		Lt.	20.7	100	5'x25'-(5'x5')
23+38.5	23+88.5	Rt.	30.8	250	5'x50'
23+81.95		Rt.	19.6	115	5'x28'-(5'x5')
24+18.5	24+75.0	Rt.	31.1	283	5'x56.5'
24+24.75		Rt.	19.9	105	5'x26'-(5'x5')
TOTAL				3,422	

SR. 7 - BROAD STREET

# COMPUTATIONS AND SUBSUMMARIES

QUANTITY CALCULATIONS

BY AVM DATE 1/22/82

CHKD. AVM DATE 1/22/82

WOODRUFF, INC.

FHWA REGION	STATE	PROJECT
5	OHIO	STATE

14  
100

ASHTABULA COUNTY  
ATB-7-31.43

ITEM 202 CURB REMOVED				
STATION		SIDE	LENGTH	REMARKS
FROM	TO		LIN. FT.	
<i>Broad St.</i>				
11+50.0	11+95.90	L	72	
12+21.90	13+03.0	L	106	
11+50.0	13+03.0	R	153	
23+31.0	23+91.3	L	86	
24+15.3	24+50.0	L	62	
23+31.0	23+88.8	R	86	
24+17.8	24+50.0	R	60	
			<b>TOTAL</b>	<b>625</b>

ITEM 202 FENCE REMOVED FOR RE-USE AS PER PLAN						
STA.	OFFSET	STA.	OFFSET	SIDE	LENGTH	REMARKS
FROM		TO			LIN. FT.	
<i>Broad St.</i>						
13+30.4	37.5	13+30.4	53.5	L	16	4' Chain Link
13+30.4	37.5	14+49.0	37.7	L	119	4' Chain Link
14+54.0	37.8	15+01.0	37.7	L	47	4' Chain Link
13+22.4	37.5	13+23.0	60.0	R	23	Cable
16+16.0	116	16+42.6	38.6	R	97	4' Chain Link
					<b>TOTAL</b>	<b>302</b>
						See General Notes SH #12

ITEM 203 SUBGRADE COMPACTION					
STATION		LENGTH LIN. FT.	WIDTH LIN. FT.	AREA SQ. YDS.	REMARKS
FROM	TO				
<i>Broad St.</i>					
11+50.0	12+40.0	90.0	46.0	460	
12+40.0	23+60.0	1120	50.0	6444	46 + 2 x 2 = 50
23+60.0	24+50.0	90.0	46.0	460	$\frac{44 + 50}{2}$
11+50	11+96	65	2.0	16	Widening Under Asph Curbs
<i>Madison Street Int.</i>					
		28.0	28.5	125	Includes Curb Returns
<i>Jackson Street Int.</i>					
		28.4	26.5	122	Includes Curb Returns
		28.4	31.5	137	Includes Curb Returns
			<b>TOTAL</b>	<b>7764</b>	

ITEM 310 SUBBASE, TYPE II						
STATION		LENGTH	WIDTH	DEPTH	VOLUME	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	INCHES	CU. YDS.	
<i>Broad St.</i>						
11+50.0	12+40.0	90.0	46.0	6	76.7	
12+40.0	23+60.0	1120.0	49.0	6	1016.0	
23+60.0	24+50.0	90.0	46.0	6	76.7	
<i>Madison Street Intersection</i>						
		28.0	29.0	6	21.9	Includes Curb Returns
<i>Jackson Street Intersection</i>						
		28.4	27.0	6	21.3	Includes Curb Returns
		28.4	32.0	6	23.9	Includes Curb Returns
					<b>TOTAL</b>	<b>1236.5</b>

# COMPUTATIONS AND SUBSUMMARIES

QUANTITY CALCULATIONS

BY AS DATE 8/20/79

CHKD. AWM DATE 1/29/80

WOODRUFF, INC.

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

15  
100

ASHTABULA COUNTY  
ATB-7-31.43

ITEM 404 ASPHALT CONCRETE, AC-20						
STATION		LENGTH	WIDTH	DEPTH	VOLUME	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	INCHES	CU. YDS.	
<i>Broad St</i>						
11+25.0	11+50.0	25.0	40.0	1.5	4.63	
24+50.0	24+75.0	25.0	40.0	1.5	4.63	
<i>Madison Street</i>						
0+49.0	0+74.0	25.0	26.0	1.5	3.01	
<i>Jackson Street</i>						
4+25.0	4+50.0	25.0	29.0	1.5	3.30	
5+50.0	5+75.0	25.0	24.0	1.5	2.78	
					TOTAL	18.41

ITEM 407 COVER AGGREGATE						
STATION		LENGTH	WIDTH	QUANT.	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	TONS		
<i>Broad St</i>						
11+25.0	11+50.0	25.0	40.0	.278	Application Rate = 5*/Sq. Yd	
24+50.0	24+75.0	25.0	40.0	.278		
<i>Madison Street</i>						
0+49.0	0+74.0	25.0	26.0	.181		
<i>Jackson Street</i>						
4+25.0	4+50.0	25.0	29.0	.201		
5+50.0	5+75.0	25.0	24.0	.167		
					TOTAL	1.105

ITEM 607 FENCE TYPE CL						
STA.	OFFSET	STA.	OFFSET	SIDE	LENGTH	REMARKS
FROM		TO			LIN. FT.	
<i>Broad St</i>						
13+30.4	58.5	16+06.0	87.0	L	299	
13+22.4	37.5	13+23.0	60.0	R	23	
					Total	322
<i>N&amp;W Rail Road</i>						
20+52.0	26	21+38.0	42	R	*	* See Runaround General Notes

ITEM 407 TACK COAT RC-250, MS-2, RS-1, SS-1 OR SS-1H						
STATION		LENGTH	WIDTH	QUANT.	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	GALS.		
<i>Broad St</i>						
11+25.0	11+50.0	25.0	40.0	11.1	Application Rate = 0.1 Gal./Sq. Yd.	
24+50.0	24+75.0	25.0	40.0	11.1		
<i>Madison Street</i>						
0+49.0	0+74.0	25.0	26.0	7.2		
<i>Jackson Street</i>						
4+25.0	4+50.0	25.0	29.0	8.1		
5+50.0	5+75.0	25.0	24.0	6.7		
					TOTAL	44.2

ITEM 451 9" REINFORCED PORTLAND CEMENT CONCRET PAVEMENT						
STATION		LENGTH	WIDTH	AREA	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.		
<i>Broad St</i>						
11+50.0	12+40.0	90.0	44.0	440		
12+40.0	23+60.0	1120.0	47.0	5849		
23+60.0	24+50.0	90.0	44.0	440		
11+50.0	11+71.47	22	3	7	Pavement Widening	
<i>Madison Street Int.</i>						
		28.0	27	117	Includes Curb Returns	
<i>Jackson Street Int.</i>						
		28.4	27.0	123	Includes Curb Returns	
		28.4	30.0	129	Includes Curb Returns	
					TOTAL	7,105

# COMPUTATIONS AND SUB-SUMMARIES

FWHA REGION	STATE	PROJECT	
5	OHIO	STATE	

16  
100

ASHTABULA COUNTY  
ATB-7-31.43

QUANTITY CALCULATIONS  
BY W.S. DATE 8-13-79  
CHKD. AJM DATE 1/24/80  
WOODRUFF, INC.

**ITEM NO. 659 COMMERCIAL FERTILIZER**  
SEEDER AREAS TOTAL 5597 S.Y.  
SODDED AREAS TOTAL 8025 S.Y.  
13622 S.Y.  
RATE OF APPLICATION = 0.00009 TON/S.Y.  
FERTILIZER QUANTITY = 0.00009 x 13,622 = 1.23 TONS

ITEM 608 4" CONCRETE WALK				
STATION	SIDE	WIDTH	AREA	REMARKS
FROM	TO	FT.	SQ. FT.	
<i>Broad St.</i>				
11+25.0	11+77.0	L 5	260	
11+77.0	11+93.0	L Varies	128	
12+26.0	12+41.0	L Varies	96	
12+41.0	15+00.0	L 5	1295	
12+93.0	L=10'	L 3	30	
13+62.0	L=35'	L 6	210	
11+25.0	11+91.0	R 5	330	
12+15.0	12+88.0	R 5	365	
13+12.0	15+00.0	R 5	940	
15+00.0	17+73.83	L 5	1370	
17+73.83	18+06.66	L 12	396	
18+06.66	18+238.3	L Varies	170	12' TO 7'-6"
18+238.3	18+47.83	L 7'-6"	180	
18+47.83	18+65.00	L Varies	170	7'-6" TO 12'
18+65.00	18+97.83	L 12	396	
18+97.83	20+00.0	L 5	511	
15+00.0	17+82.89	R 5	1415	
17+82.89	18+15.72	R 12	396	
18+15.72	18+32.89	R Varies	170	12' TO 7'-6"
18+32.89	18+56.89	R 7'-6"	180	
18+56.89	18+74.06	R Varies	170	7'-6" TO 12'
18+74.06	19+06.89	R 12	396	
19+06.89	20+00.0	R 5	466	
20+00.0	22+16.0	L 5	1080	
22+36.0	22+77.5	L 5	208	
22+86.5	23+80.0	L 5	468	
23+80.0	23+88.0	L Varies	32	
24+17.0	24+28.0	L Varies	60	
24+28.0	24+75.0	L 5	235	
20+00.0	21+02.0	R 5	510	
21+14.0	23+83.0	R 5	1345	
24+21.0	24+28.0	R Varies	40	
24+28.0	24+75.0	R 5	235	
<i>Madison Street</i>				
0+35.5	0+49.0	L & R 5	135	
<i>Jackson Street</i>				
4+50.0	4+69.5	L & R 5	195	
5+30.5	5+50.0	L & R 5	195	
			TOTAL	14,178

ITEM 659 SEEDING AND MULCHING AS PER PLAN						
STA.	OFFSET	STA.	OFFSET	SIDE	AREA	REMARKS
FROM	FEET	TO	FEET		SQ. YDS.	
<i>Broad St.</i>						
11+25.0	20.5	11+50.0	20.5	L	28	
11+50.0	20.5	12+00.0	22.17	L	29	
12+00.0	22.17	12+50.0	23.5	L	5	
12+50.0	23.5	17+50.0	23.5	L	389	
12+84.32	42.96	12+97.32	44.5	L	10	
13+54.13	48.28	13+71.13	50.10	L	34	
13+71.13	50.10	15+82.28	75.0	L	290	
16+74.14	89.5	18+16.0	97.0	L	115	
17+50.0	23.5	19+50.0	23.5	L	127	
18+41.0	89.0	19+36.87	88.0	L	150	
19+50.0	23.5	21+50.0	23.5	L	156	
21+50.0	23.5	23+00.0	23.5	L	82	
23+00.0	23.5	23+50.0	23.5	L	39	
23+50.0	23.5	24+00.0	22.17	L	19	
24+00.0	22.17	24+50.0	20.5	L	21	
24+50.0	20.5	24+75.0	20.5	L	28	
11+25.0	20.5	11+50.0	20.5	R	28	
11+50.0	20.5	12+00.0	22.17	R	23	
12+00.0	22.17	12+50.0	23.5	R	25	
12+50.0	23.5	13+00.0	23.5	R	28	
13+00.0	23.5	13+50.0	23.5	R	28	
13+23.98	55.0	14+70.26	68.67	R	695	
13+50.0	23.5	17+50.0	23.5	R	312	
14+80.51	70.0	18+47.0	108.0	R	1148	
17+50.0	23.5	18+00.0	23.5	R	26	
18+68.0	98.0	19+45.52	88.49	R	70	
19+00.0	23.5	19+50.0	23.5	R	25	
19+50.0	23.5	23+50.0	23.5	R	298	
20+26.85	80.82	20+84.0	75.0	R	261	
23+50.0	23.5	24+00.0	22.17	R	19	
24+00.0	22.17	24+50.0	20.5	R	23	
24+50.0	20.5	24+75.0	20.5	R	28	
				TOTAL	4559	

ITEM 609 ASPHALT CONCRETE CURB TYPE I				
STATION	SIDE	LENGTH	REMARKS	
FROM	TO	LIN. FT.		
<i>BROAD ST</i>				
11+50.0	11+95.9	L 65		
		TOTAL	65	

ITEM 609 CURB, STANDARD TYPE 2A				
STATION	SIDE	LENGTH	REMARKS	
FROM	TO	LIN. FT.		
<i>Broad St.</i>				
12+46.6	22+11.0	L 964.4		
22+41.0	22+68.0	L 270		
22+96.0	23+65.2	L 69.2		
24+39.2	24+50.0	L 10.8		
11+50.0	11+86.0	R 36.0		
12+20.0	12+83.0	R 63.0		
13+17.0	20+97.0	R 780		
21+19.0	23+63.2	R 244.2		
24+42.2	24+50.0	R 7.8		
<i>Madison Street Intersection</i>				
12+21.9	12+46.6	L 41.3	Includes Curb Returns at Intersec.	
<i>Jackson Street Intersection</i>				
23+69.2	24+39.2	L 170.8	Includes Curb Returns at Intersec.	
23+63.2	24+42.2	R 86.3	Includes Curb Returns at Intersec.	
		TOTAL	2500.8	

ITEM 660 SODDING								
STA.	OFFSET	WIDTH	STA.	OFFSET	WIDTH	SIDE	AREA	REMARKS
FROM	LIN. FT.	LIN. FT.	TO	LIN. FT.	LIN. FT.		SQ. YDS.	
<i>Broad St.</i>								
11+25.0	35.5	2.0	12+41.69	35.5	2.0	L	18	
12+41.69	35.5	2.0	15+82.28	35.62	39.38	L	771	
15+82.28	35.62	39.38	16+74.14	35.61	53.89	L	476	
16+74.14	35.61	53.89	17+56.28	35.56	61.44	L	527	
17+56.28	35.56	61.44	18+24	36.0	61.0	L	434	
18+49	37.0	52.0	19+50	37.0	52.0	L	611	
19+50	31.0	48.5	20+28.93	33.0	48.0	L	424	
20+28.93	33.0	48.0	20+69.5	31.5	40.5	L	200	
20+69.5	31.5	40.5	22+41.81	35.45	22.55	L	553	
22+41.81	35.45	22.55	22+81.82	35.44	12.06	L	72	
22+81.82	35.44	12.06	23+12.85	35.44	7.06	L	24	
23+12.85	37.0	2.0	24+75.0	37.0	2.0	L	9	
11+25.0	35.5	2.0	13+22.82	35.5	2.0	R	31	
13+22.82	35.5	19.5	17+76.0	35.44	43.79	R	1594	
17+76.0	35.44	43.79	18+36.0	32.5	66.5	R	402	
18+36.0	32.0	59.0	19+18.92	36.0	50.0	R	325	
19+18.92	36.0	50.0	21+41.5	35.54	34.46	R	994	
21+41.5	35.54	34.46	23+28.53	35.5	12.0	R	483	
23+28.53	35.5	12.0	23+78.53	35.57	11.93	R	67	
23+78.53	36.5	2.0	24+75.0	36.5	2.0	R	10	
			TOTAL				8025	

WOODRUFF, INC.  
CONSULTING ENGINEERS  
CLEVELAND OHIO

SR. 7 - BROAD STREET











# GENERAL SUMMARY

QUANTITY CALCULATIONS

BY C.H. DATE 12-7-79

CHKD. N.S. DATE 1-18-80

WOODRUFF, INC.

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

ASHTABULA COUNTY  
ATB-7-31.43

SHEET NUMBER										PROPOSAL QUANTITIES	UNIT	ITEM NO.	DESCRIPTION
10	12									58	72 74		<u>TRAFFIC CONTROL</u>
										49		Sq.Ft.	844 Sign Flat Sheet
										156		Lin.Ft.	844 Ground Mounted Supports, No. 2 Post Driven
										54		Lin.Ft.	844 Ground Mounted Supports, No. 3 Post Driven
										.31		MI.	621 4" Center Line
										.43		MI.	621 4" Lane Line
										160		Lin.Ft.	621 16" Stop Line
										507		Lin.Ft.	621 8" Crosswalk
													<u>RAILROAD RUNAROUND</u>
											Lump	Sum	615 Norfolk and Western Railway Company Runaround Roadbed Preparation As Per Plan.
											545	Lin.Ft.	Special Norfolk and Western Railway Company Runaround Track Work As Per Plan
											107	Lin.Ft.	202 Fence Removed For Reuse As Per Plan
											70	Lin.Ft.	607 Fence Type C.L. For Temporary Use As Per Plan
													<u>LIGHTING</u>
										100		Lin.Ft.	605 4" Shallow Pipe Underdrains
										14		Each	625 Light Pole, Design T6B 30.0 (Transformer base pole)
										14		Each	625 Light Pole Foundation 24" x 6' Deep.
										8		Each	625 Luminaire, Type II, 150 Watt High Press. Sodium Ballast.
										6		Each	625 Luminaire, Type II, 250 Watt, High Press. Sodium Ballast.
										8		Each	625 Lamp, 150 Watt, High Press. Sodium.
										6		Each	625 Lamp, 250 Watt High Press. Sodium.
										10		Each	625 Pull Box, 18" Circular, Metal 713.09.
										1623		Lin.Ft.	625 Trench, 24" Deep.
										152		Lin.Ft.	625 Conduit, 3" 713.04
										105		Lin.Ft.	625 Conduit, 1 1/4" 713.04
										634		Lin.Ft.	625 No. 4 AWG 600 Volt Distribution Cable
										1050		Lin.Ft.	625 No. 10 AWG Pole and Bracket Cable
										1631		Lin.Ft.	625 1/2" Duct-Cable With Two No. 4 AWG 600 Volt Cables
										14		Each	625 Connector Kit, Type II
										14		Each	625 Connector Kit, Type III
										14		Each	625 Connector kit, Type VII A
										4		Each	625 Connector kit, Type VII B
										4		Each	625 Connector Kit Type VII C
										Lump	Sum	625 Service Pole; Jefferson St. Sta. 1+35 L	
										Lump	Sum	625 Service Pole; Adams St. Sta. 1+25 L	
										Lump	Sum	625 Service Pole; Jackson St. Sta. 6+00 L	
										Lump	Sum	839 High Voltage Test	
										34		Each	Special Cable Splicing Kit
													<u>GENERAL</u>
										Lump	Sum	623 Construction Layout Stakes	
										Lump	Sum	619 Field Office	
										Lump	Sum	614 Maintaining Traffic As Per Plan	
										Lump	Sum	624 Mobilization	

Lump  
Lump

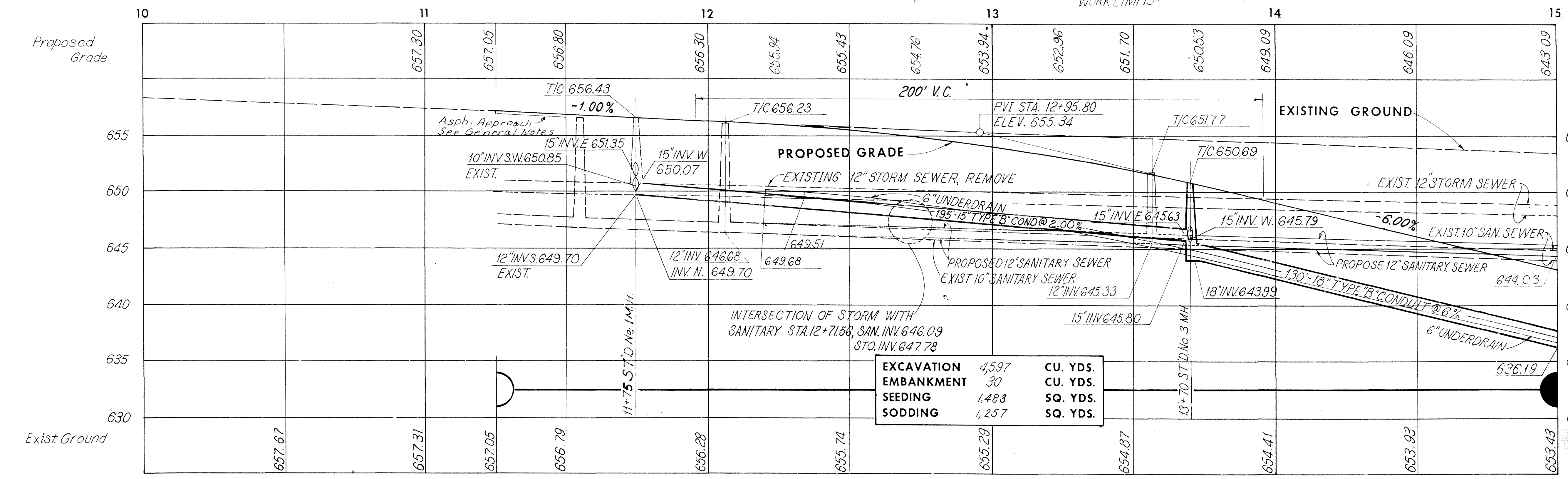
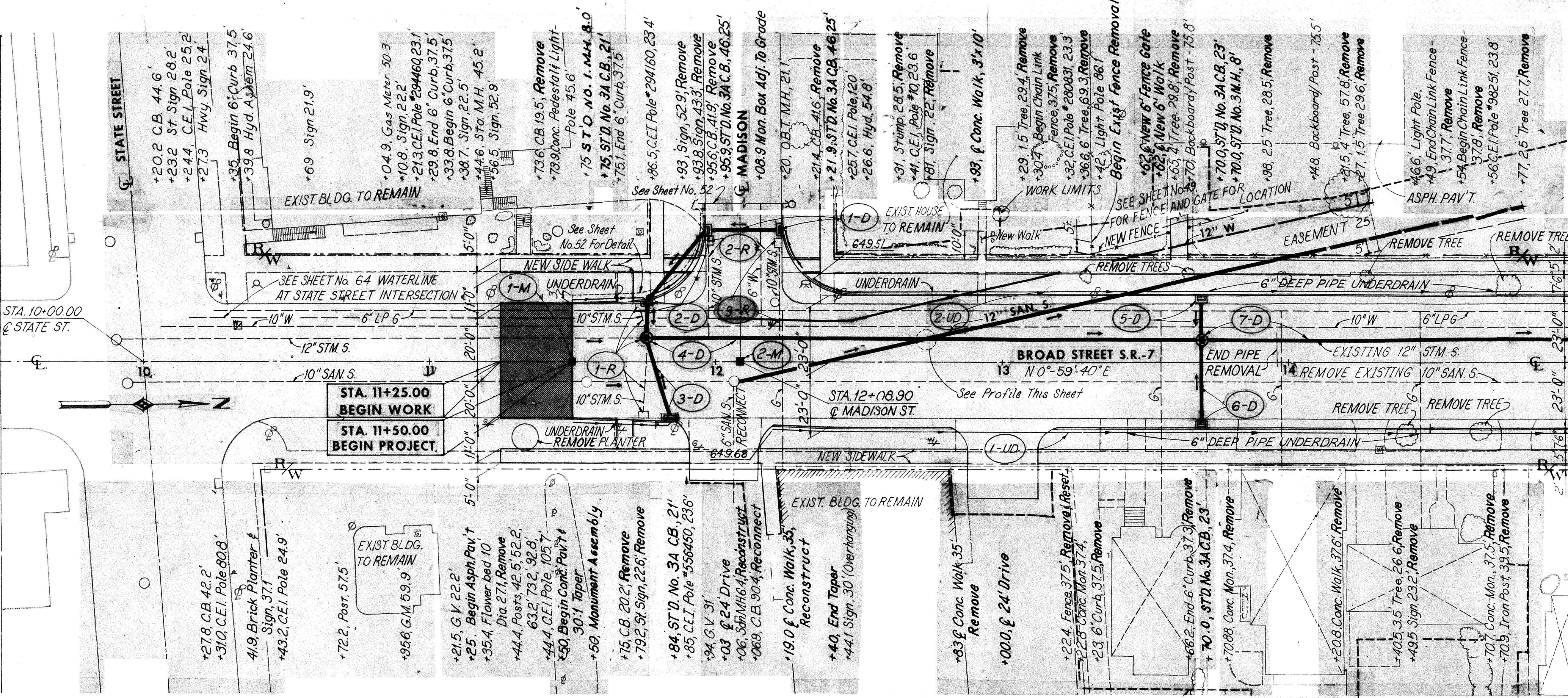
SR. 7 - BROAD STREET

ASHTABULA COUNTY  
ATB-7-31.43

QUANTITY CALCULATIONS  
BY W.S. DATE 8-13-79  
CHKD. A.J.M. DATE 1/24/80  
WOODRUFF, INC.

BEGIN SHEET STA. 9 + 50

END SHEET STA. 15 + 00



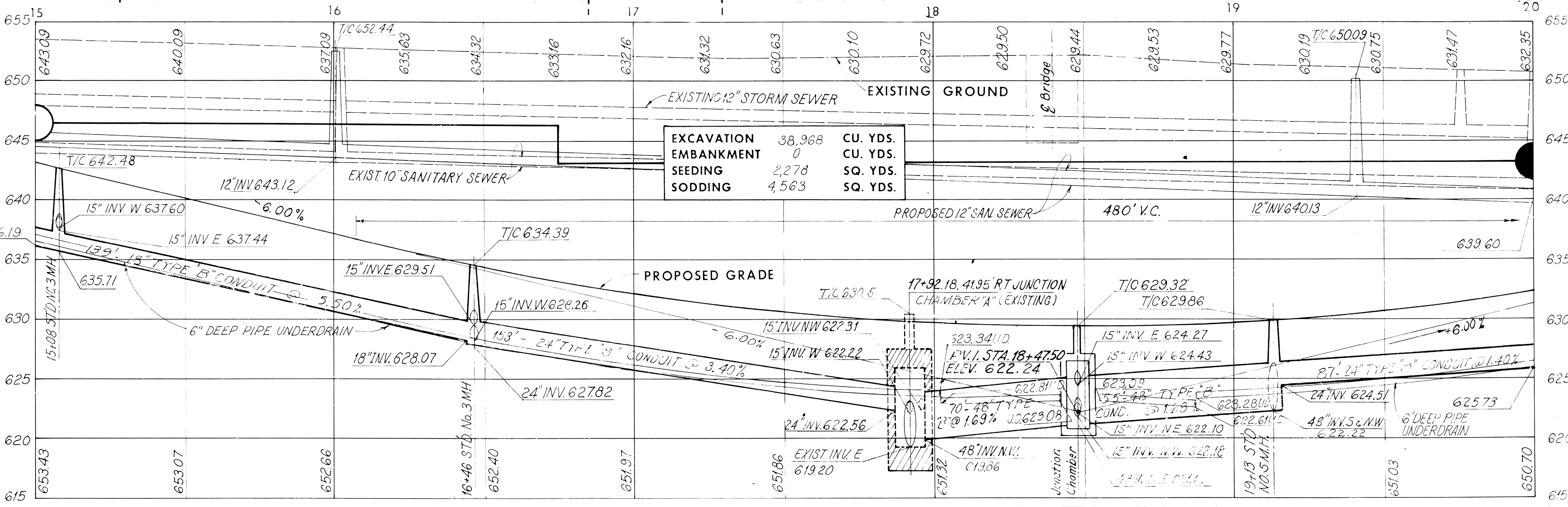
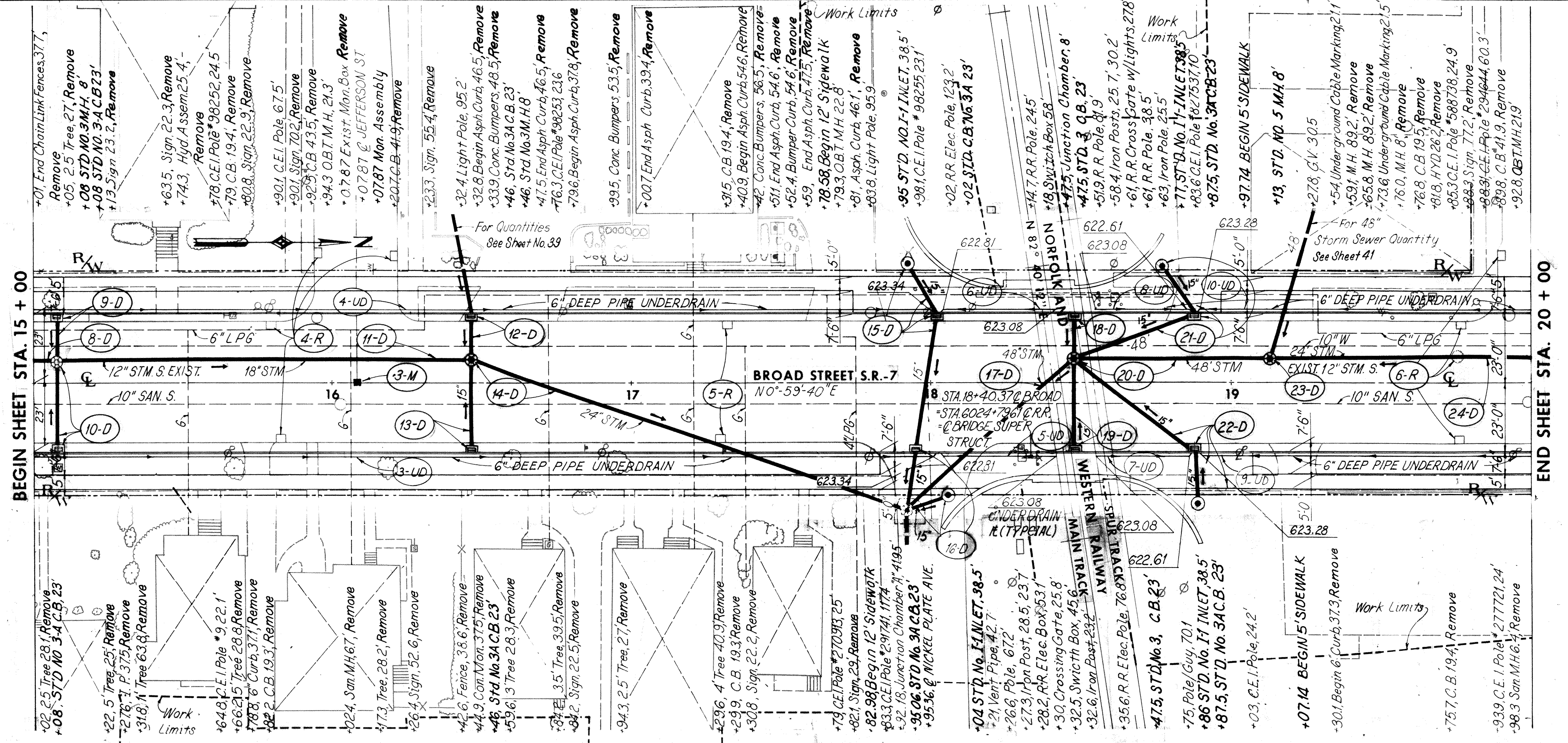
EXCAVATION	4,597	CU. YDS.
EMBANKMENT	30	CU. YDS.
SEEDING	1,483	SQ. YDS.
SODDING	1,257	SQ. YDS.

References	Sheet No.
Sanitary Sewer	60
Waterline	64,65,67
Grading & Pavement & Work Limits	49,50,51
Driveways	42,43,44
Madison Intersection	52
Plan & Profile Quantities	25, 26
Sewer Profiles	54
Drainage Quantities	25

Note:  
For additional details outside of Broad Street right of way see Grading and Paving Plan.

SR. 7 - BROAD STREET

QUANTITY CALCULATIONS  
BY AJM DATE 12.5.79  
CHKD. A DATE 1.3.80  
WOODRUFF, INC.

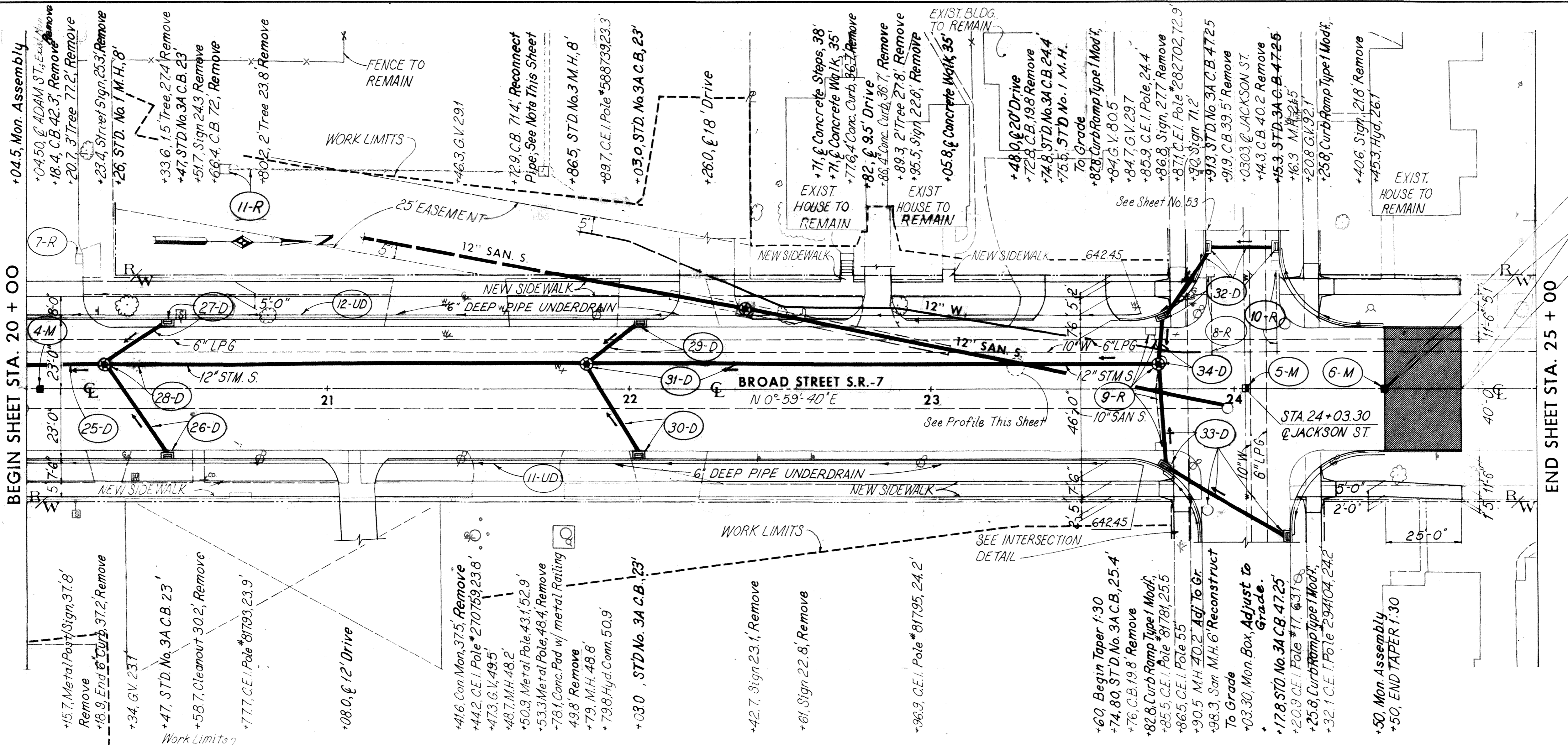


EXCAVATION	38,968	CU. YDS.
EMBANKMENT	0	CU. YDS.
SEEDING	2,278	SQ. YDS.
SODDING	4,563	SQ. YDS.

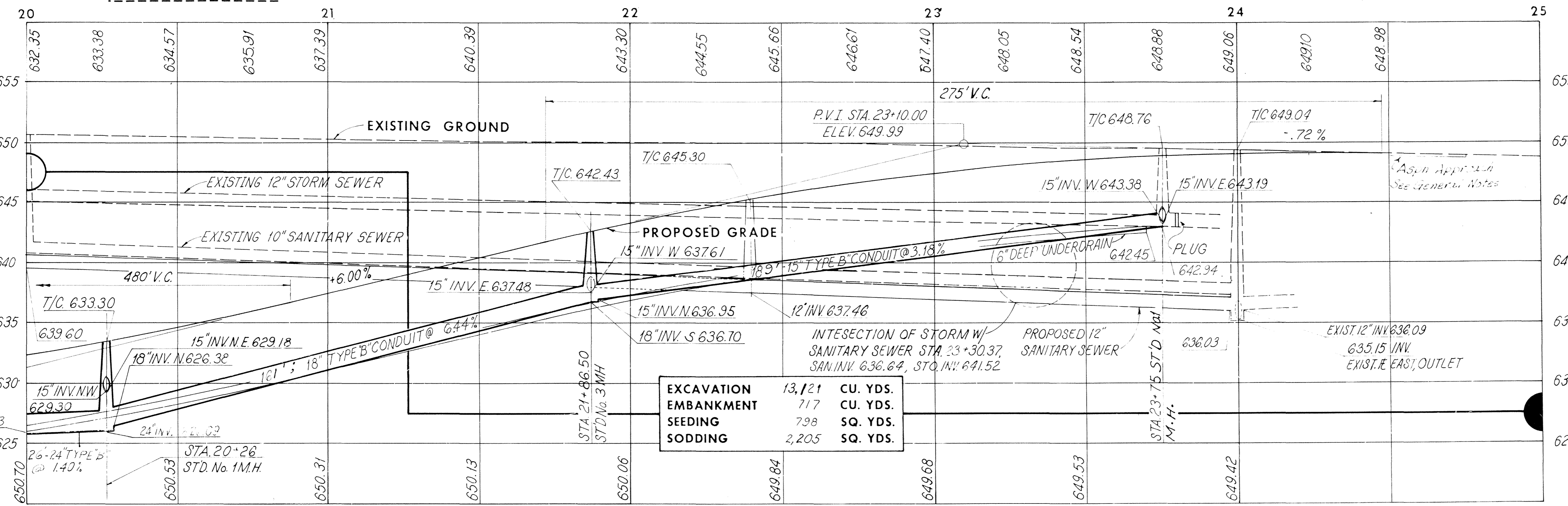
References	Sheet No.
Sanitary Sewer	60
Waterline	64, 65, 67
Grading & Pavement & Work Limits	49, 50, 51
Adams Cul-De-Sac	40
Jefferson Cul-De-Sac	38
Norfolk and Western R.W. Bridge	79 - 88
Plan and Profile Quantities	25, 26
Sewer Profile	55, 56
Drainage Quantities	25

Note:  
For additional details outside of Broad Street right of way see Grading and Paving Plans.

QUANTITY CALCULATIONS  
BY AJM DATE 12/15/79  
CHKD. DATE 1/3/80  
WOODRUFF, INC.



STA. 24+50.00  
END PROJECT  
STA. 24+75.00  
END WORK



References	Sheet No.
Driveways	42,43,44
Sanitary Sewer	60
Waterline	64,65,67
Grading & Pavement & Work Limits	49,50,51
Jefferson Cul-De-Sac	38
Jackson Intersection	53
Plan and Profile Quantities	25,26
Sewer Profiles	56,57
Drainage Quantities	25

Note:  
For additional details outside of Broad Street right of way see Grading and Paving Plan.  
The location of the outlet pipe connection for the existing catch basin at Sta 21+72.9, 71'4" L. was not available, the catch basin is plugged.  
Provide drainage for this catch basin when pipe is encountered during excavation. See General Notes.

SR. 7 - BROAD STREET



# ESTIMATED QUANTITIES

QUANTITY CALCULATIONS

BY N.S. DATE 1-18-79

CHKD. A.J.M. DATE 1/24/80

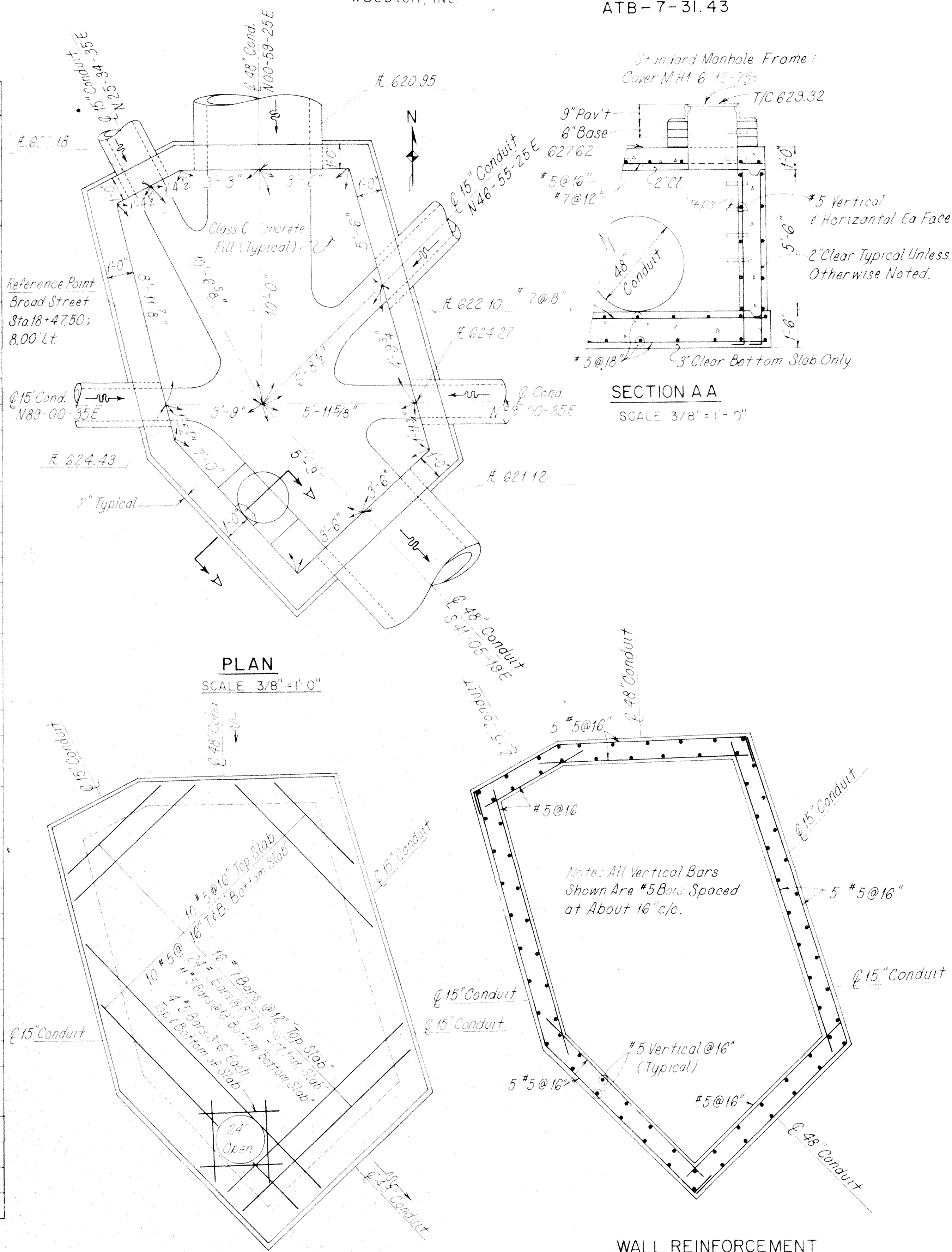
WOODRUFF, INC.

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

25  
100

ASHTABULA COUNTY  
ATB-7-31.43

REF. NO.	BROAD ST. STATION				ITEM NO. 603					ITEM NO. 604							
	FROM	SIDE	TO	SIDE	15" CONDUIT TYPE "B"	15" CONDUIT TYPE "C"	18" CONDUIT TYPE "B"	24" CONDUIT TYPE "B"	48" CONDUIT TYPE "B"	STANDARD NO. 3 CATCH BASIN	STANDARD NO. 3-A CATCH BASIN	STANDARD NO. 1 INLET	MANHOLE ADJUSTED TO GRADE	JUNCTION CHAMBER	STANDARD NO. 1 MANHOLE	STANDARD NO. 5 MANHOLE	STANDARD NO. 3 MANHOLE
					LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
1-D	11+95.9	L	12+22.9	L	26						1						
2-D	11+75.0	L	11+95.9	L	13	33					2						
3-D	11+75.0	L&R	11+82.15	L&R	30						1						
4-D	11+75.0	L	13+70.0	L	195										1		
5-D	13+70.0	L			15						1						
6-D	13+70.0	R			30						1						
7-D	13+70.0	L	15+00.0	L			130										1
8-D	15+00.0	L	15+08.0	L			8										
9-D	15+08.0	L			15						1						
10-D	15+08.0	L&R			31						1						1
11-D	15+08.0	L	16+46.0	L			139										
12-D	16+46.0	L			15						1						
13-D	16+46.0	L&R			31						1						
14-D	16+46.0	L	17+92.18	R				153									1
15-D	17+95	R	18+02	L	47	18					1	1					
16-D	17+92.18	R	18+04.0	R	19	7					1	1					
17-D	17+92.18	R	18+47.5	L					70								
18-D	18+47.5	L			15						1						
19-D	18+47.5	L&R			31						1						
20-D	18+47.5	L	19+13.0	L					55					1			
21-D	18+47.5	L	18+87.5	L	43	16					1	1					
22-D	18+47.5	L&R	18+98.0	L&R	51	17					1	1					
23-D	19+13.0	L														1	
24-D	19+13.0	L	20+00.0	L				87									
25-D	20+00.0	L	20+26.0	L				26									
26-D	20+26.0	L&R	20+47.0	R	36						1						
27-D	20+26.0	L	20+47.0	L	23						1						
28-D	20+26.0	L	21+86.50				161								1		
29-D	21+86.50	L	22+03.0	L	23						1						
30-D	21+86.50	L&R	22+03.0	R	36						1						
31-D	21+86.50	L	23+75.0	L	189												1
32-D	23+74.8	L	24+15.30	L	24	29					3						
33-D	23+75.0	L&R	24+17.80		83						2			1			
34-D	23+75.0	L			17										1		
TOTALS =					1038	120	438	266	125	2	23	4	1	1	3	1	4



SCALE \_\_\_\_\_  
 MADE N.S. DATE 1/17/79  
 TRCD R.W.C. DATE 1/17/79  
 CKD. A.J.M. DATE 1/23/80  
**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

SLAB REINFORCEMENT  
 SCALE 3/8" = 1'-0"  
 WALL REINFORCEMENT  
 SCALE 3/8" = 1'-0"  
**JUNCTION CHAMBER DETAILS**  
 JUNCTION CHAMBER DETAILS AND ESTIMATED QUANTITIES

SR. 7 - BROAD STREET

# ESTIMATED QUANTITIES

QUANTITY CALCULATIONS  
 BY AJM DATE 12/15/79  
 CHKD. NB DATE 1/12/80  
 WOODRUFF, INC.

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

26  
100

ASHTABULA COUNTY  
 ATB-7-31.43

ROADWAY; STORM SEWER REMOVAL ITEM 202							
REF. NO.	BROAD ST. STATION		SIDE	PIPE REMOVED 24" AND UNDER	CATCH BASIN REMOVED	MANHOLE REMOVED	REMARKS
	FROM	TO		LIN. FT.	EACH	EACH	
1-R	11+73	11+75	L & R	40	2	1	
	19.5'L	20.20'					
2-R	11+95.9		L	38	1		
	46'L						
3-R	12+22	4+6'L	L	38	1		
4-R	15+79	16+20	L & R		4		
5-R	17+30		L & R		2		
6-R	19+76		L & R		3	1	
7-R	20+18		L		1		
8-R	23+92		L	32	1		
	40'						
9-R	23+73	23+76	L & R	41	2	1	
10-R	39.5'L	40'L	L	32	1		
11-R	20+66A	72'L	L	30	1		
TOTAL				251	19	3	

BENCH MARKS					
REF. NO.	BROAD ST. STATION	LOCATION	ELEVATION * See Note	ITEM 604	
				MONUMENT ASSEMBLY STANDARD	MONUMENT BOX ADJUSTED TO GRADE
				EACH	EACH
1-M	11+50.00	Located at the beginning point of the project, 150 Feet North of the C of U.S. Route 20, AKA State Street measured along the C of State Route 7, AKA Broad Street.	656.30	1	
2-M	12+08.90	Located at the intersection of the C of the R/W, also being the C of pavement of State Route 7, AKA Broad Street, with the C of the R/W of Madison Street, and located approximately 209 Feet North of the C of U.S. Route 20, AKA State Street, measured along the C of State Route 7, AKA Broad Street.	655.69		1
3-M	16+07.87	Located at the intersection of the C of the R/W, also being the C of pavement of State Route 7, AKA Broad Street, with the extension of the C of R/W of Jefferson Street, and located approximately 608 Feet North of the C of U.S. Route 20 AKA State Street, measured along the C of State Route 7, AKA Broad Street.	636.13	1	
4-M	20+04.50	Located at the intersection of the C of the R/W, also being the C of pavement of State Route 7, AKA Broad Street, with the extension of the C of R/W of Adams Street, and located approximately 1005 Feet North of the C of U.S. Route 20, AKA State Street, measured along the C of State Route 7, AKA Broad Street.	632.04	1	
5-M	24+03.30	Located at the intersection of the C of the R/W, also being the C of pavement of State Route 7, AKA Broad Street, with the C of the R/W of Jackson Street, and located approximately 1403 Feet North of the C of U.S. Route 20, AKA State Street, measured along the C of State Route 7, AKA Broad Street.	644.42		1
6-M	24+50.00	Located at the end point of the project, 1450 feet North of the C of U.S. Route 20, AKA State Street, measured along the C of State Route 7, AKA Broad Street.	648.48	1	
TOTALS				4	2

\* Note: Monument elevations as given are located 6 inches below the Broad Street design C grade.

ITEM 605 6" DEEP PIPE UNDERDRAIN					
REF. NO.	BROAD ST. STA.		SIDE	LENGTH	REMARKS
	FROM	TO		LIN. FT.	
1-UD	12+20.0	15+00.0	R	280	
2-UD	12+34.0	15+00.0	L	266	
3-UD	15+00.0	18+02.0	R	302	
4-UD	15+00.0	18+02.0	L	302	
5-UD	18+02.0	18+42.0	R	40	
6-UD	18+02.0	18+42.0	L	40	
7-UD	18+55.0	18+87.5	R	33	
8-UD	18+55.0	18+87.5	L	33	
9-UD	18+87.5	20+00.0	R	113	
10-UD	18+87.5	20+00.0	L	113	
11-UD	20+00.0	23+70.0	R	370	
12-UD	20+00.0	23+70.0	L	370	
TOTAL				2,262	

ITEM 607 WALK GATE TYPE CL AS PER PLAN						
STA.	OFFSET	STA.	OFFSET	SIDE	QUANT.	REMARKS
FROM		TO			EACH	
BROAD ST.						
13+61.0	46.0	13+87.0	46.8	L	1	
TOTAL					1	See General Notes Sheet #10

SR.7 - BROAD STREET

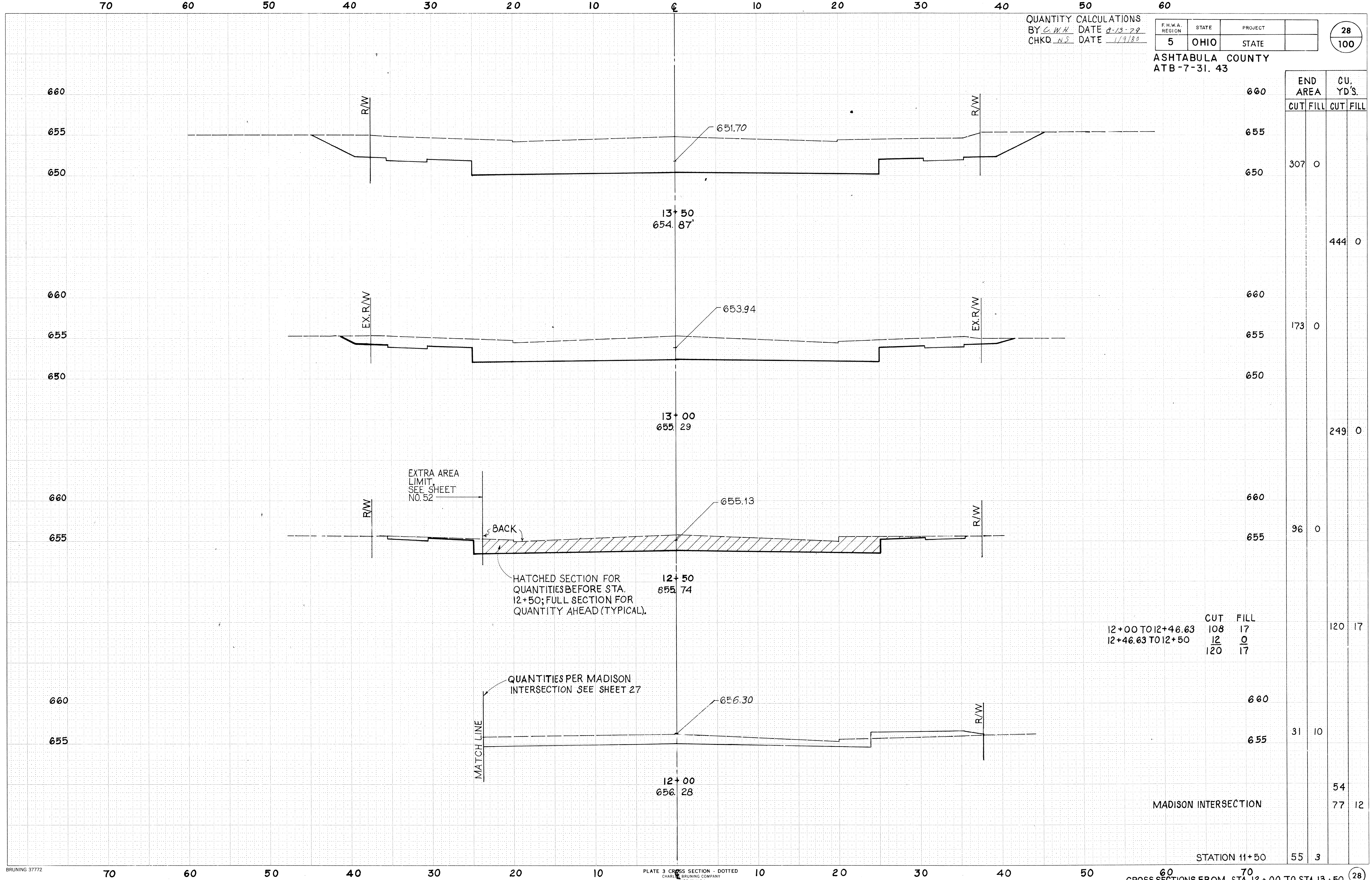


QUANTITY CALCULATIONS  
 BY C.W.H. DATE 8-13-79  
 CHKD N.S. DATE 1/9/80

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

28  
100

ASHTABULA COUNTY  
 ATB-7-31. 43



END AREA		CU. YD'S.	
CUT	FILL	CUT	FILL
307	0		
		444	0
173	0		
		249	0
96	0		
		120	17
		31	10
		54	
		77	12
55	3		

	CUT	FILL
12+00 TO 12+46.63	108	17
12+46.63 TO 12+50	12	0
	120	17

HATCHED SECTION FOR QUANTITIES BEFORE STA. 12+50; FULL SECTION FOR QUANTITY AHEAD (TYPICAL).

QUANTITIES PER MADISON INTERSECTION SEE SHEET 27

MADISON INTERSECTION

STATION 11+50

CROSS SECTIONS FROM STA. 12+00 TO STA. 13+50

S.R.7 BROAD STREET



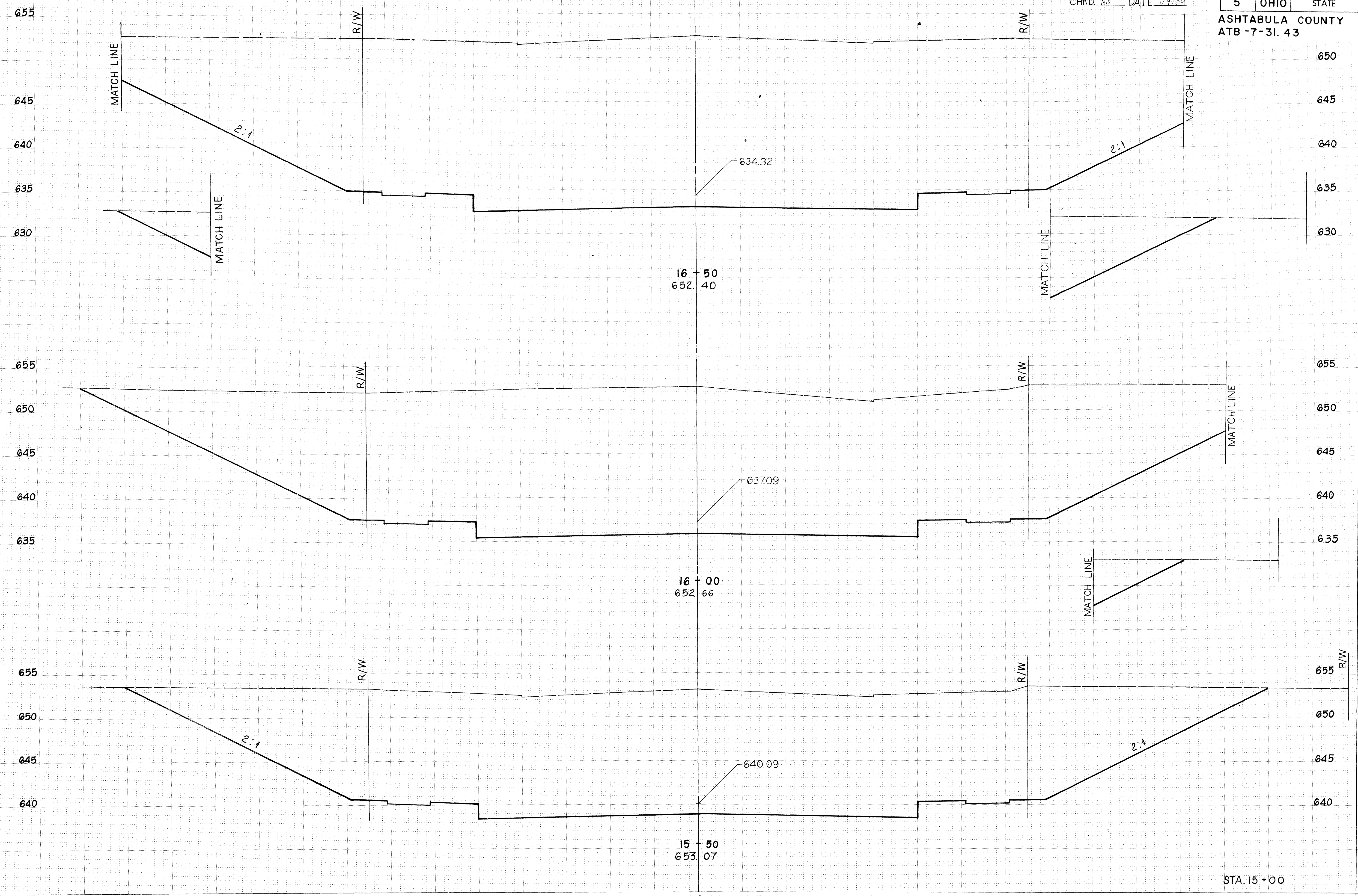
70 60 50 40 30 20 10 0 10 20 30 40 50 60

QUANTITY CALCULATIONS  
 BY C.W.H. DATE 8-13-29  
 CHKD. NS DATE 1/9/30

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

30  
100

ASHTABULA COUNTY  
 ATB -7-31.43



END AREA	CU. YD'S.	
	CUT	FILL
2074		
1729		
1388		
1061		
	3521	
	2886	
	2268	

STA. 15+00

CROSS SECTIONS FROM STA. 15+50 TO STA. 16+50

S.R. 7 - BROAD STREET

70

60

50

40

30

20

10

0

10

20

30

40

50

60

QUANTITY CALCULATIONS  
 BY C.W.H. DATE 8-13-79  
 CHKD. N.S. DATE 1/9/80

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

31  
100

ASHTABULA COUNTY  
 ATB-7-31.43

END AREA	CU. YD'S.	
	CUT	FILL
2579		
	4552	
2337		
	4084	
2074		

655

650

645

640

635

630

655

650

645

640

635

630

655

650

645

640

635

630

655

650

645

640

635

630

625

625

17+50  
651.86'

17+00  
651.97'

630.63

632.16

MATCH LINE

2:1

MATCH LINE

R/W

R/W

MATCH LINE

2:1

MATCH LINE

MATCH LINE

R/W

MATCH LINE

2:1

MATCH LINE

MATCH LINE

R/W

60

70

80

90

60

70

80

60

STA. 16+50

CROSS SECTIONS FROM STA. 17+00 TO STA. 17+50

S.R.7-BROAD STREET

31

70 60 50 40 30 20 10 0 10 20 30 40 50 60

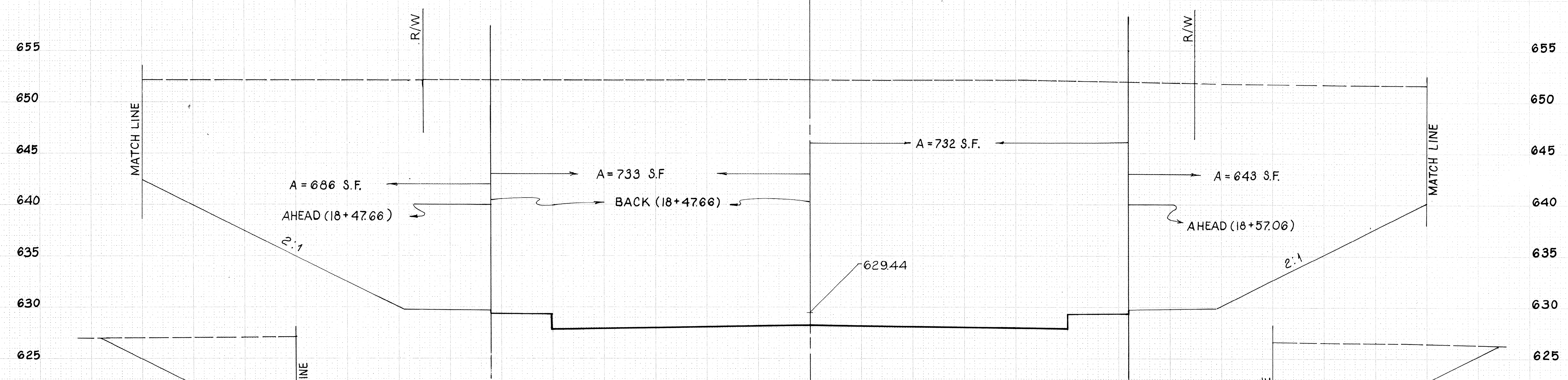
QUANTITY CALCULATIONS  
 BY C.W.H. DATE 8-13-79  
 CHKD. N.S. DATE 1/9/80

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

32  
100

ASHTABULA COUNTY  
 ATB-7-31.43

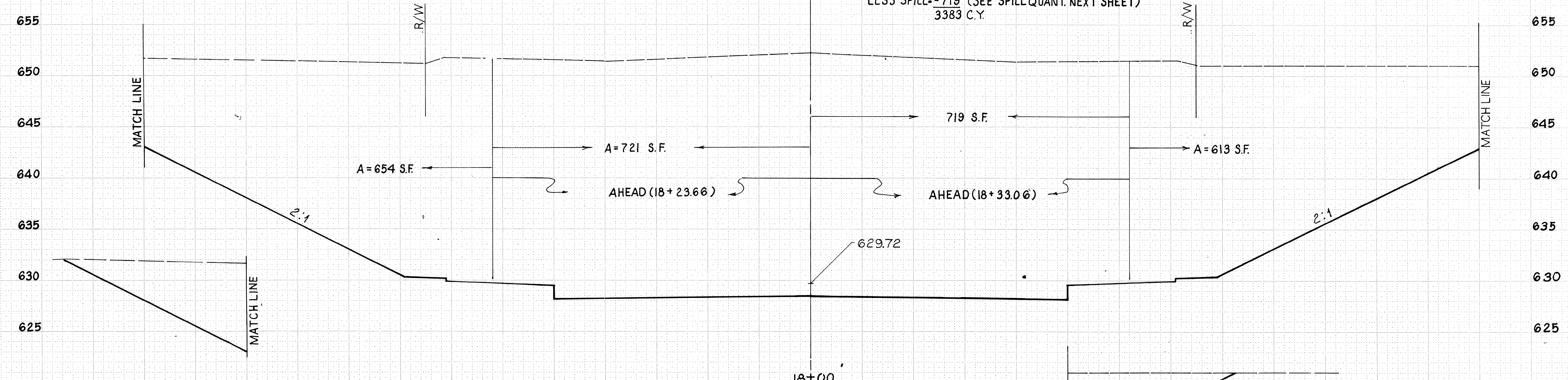
END AREA		CU. YD'S.	
CUT	FILL	CUT	FILL
		2794	
			3383
		2707	
			4894
		2579	



L.H.S. +00 TO +23.66  $V = \frac{654 + 721 + 733 + 686}{2} \times \frac{23.66}{27} = 1233 \text{ C.Y.}$   
 +23.66 TO +47.66  $V = \frac{721 + 733}{2} \times \frac{24}{27} = 646 \text{ C.Y.}$   
 +47.66 TO +50  $V = \frac{654 + 721 + 733 + 686}{2} \times \frac{2.17}{27} = 112 \text{ C.Y.}$   
 1991 C.Y.

R.H.S. +00 TO +33.06  $V = \frac{613 + 719 + 643 + 732}{2} \times \frac{32.89}{27} = 1649 \text{ C.Y.}$   
 +33.06 TO +50  $V = \frac{719 + 732}{2} \times \frac{17.11}{27} = 462 \text{ C.Y.}$   
 2111 C.Y.

TOTAL = 4102  
 LESS SPILL = -719 (SEE SPILL QUANT. NEXT SHEET)  
 3383 C.Y.



18+00  
 652.07

STA. 17+50

CROSS SECTIONS FROM STA. 18+00 TO STA. 18+50

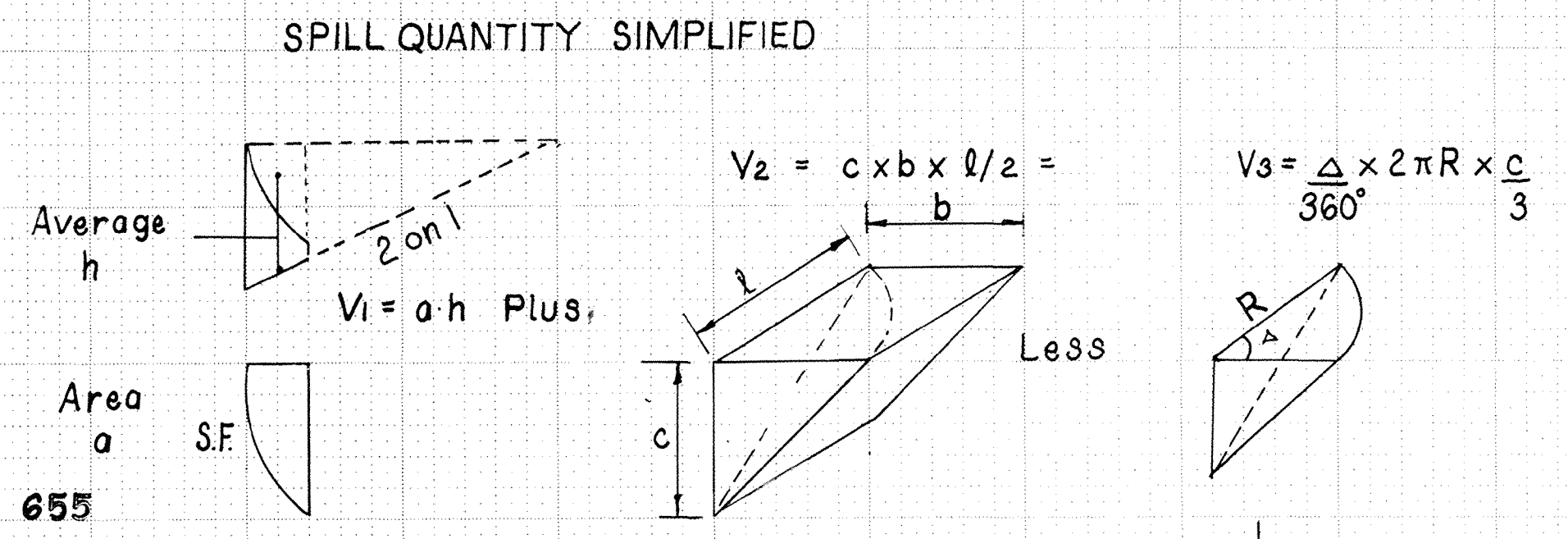
SR 7 BROAD STREET



QUANTITY CALCULATIONS		F.H.W.A. REGION	STATE	PROJECT
BY C.W.H.	DATE 8-13-79	5	OHIO	STATE
CHKD. N.S.	DATE 11/9/80			

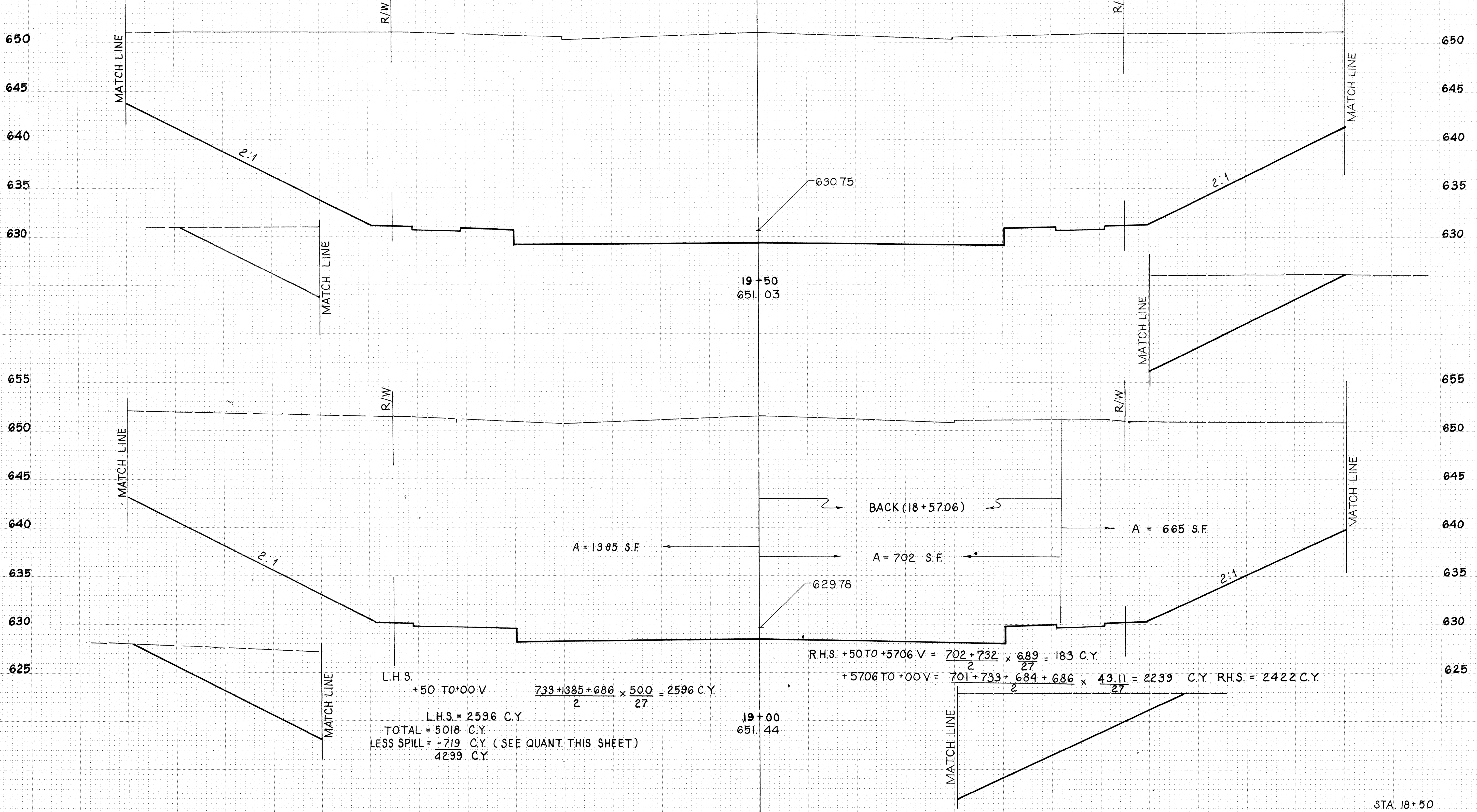
ASHTABULA COUNTY  
ATB-7-31. 43

$$SPILL = a \cdot h + \frac{cbl}{2} - \frac{\Delta \times 2\pi R c}{360}$$



LOCATION	a Ft. <sup>2</sup>	h Ft.	b Ft.	c Ft.	l Ft.	Δ°	v	VOL. C.Y.
18+32.89 RT.	181	13.5	32.7	16.2	30.5	98.3	32.7	378
18+23.83 LT.	253	12.5	27.5	13.8	32.9	81.7	27.5	341
18+56.89 RT.	253	12.5	27.5	13.8	32.9	81.7	27.5	341
18+47.83 LT.	181	13.5	32.7	16.2	30.5	98.3	32.7	378

END AREA	CU. YD'S.	
	CUT	FILL
655		
650		
645		
640	2458	
635		
630		
625		
620		
615		
610		
605		
600		
595		
590		
585		
580		
575		
570		
565		
560		
555		
550		
545		
540		
535		
530		
525		
520		
515		
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390		
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375		
370		
365		
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340		
335		
330		
325		
320		
315		
310		
305		
300		
295		
290		
285		
280		
275		
270		
265		
260		
255		
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230		
225		
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215		
210		
205		
200		
195		
190		
185		
180		
175		
170		
165		
160		
155		
150		
145		
140		
135		
130		
125		
120		
115		
110		
105		
100		
95		
90		
85		
80		
75		
70		
65		
60		
55		
50		
45		
40		
35		
30		
25		
20		
15		
10		
5		
0		
2794		
2752		
4824		
2458		
4299		



QUANTITY CALCULATIONS  
 BY C.W.H. DATE 8-13-79  
 CHKD N.P. DATE 1/9/80

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

34  
100

ASHTABULA COUNTY  
 ATB-7-31.43

END AREA	CU. YD'S.	
	CUT	FILL
1797		
	3645	
2140		
	4257	
2458		

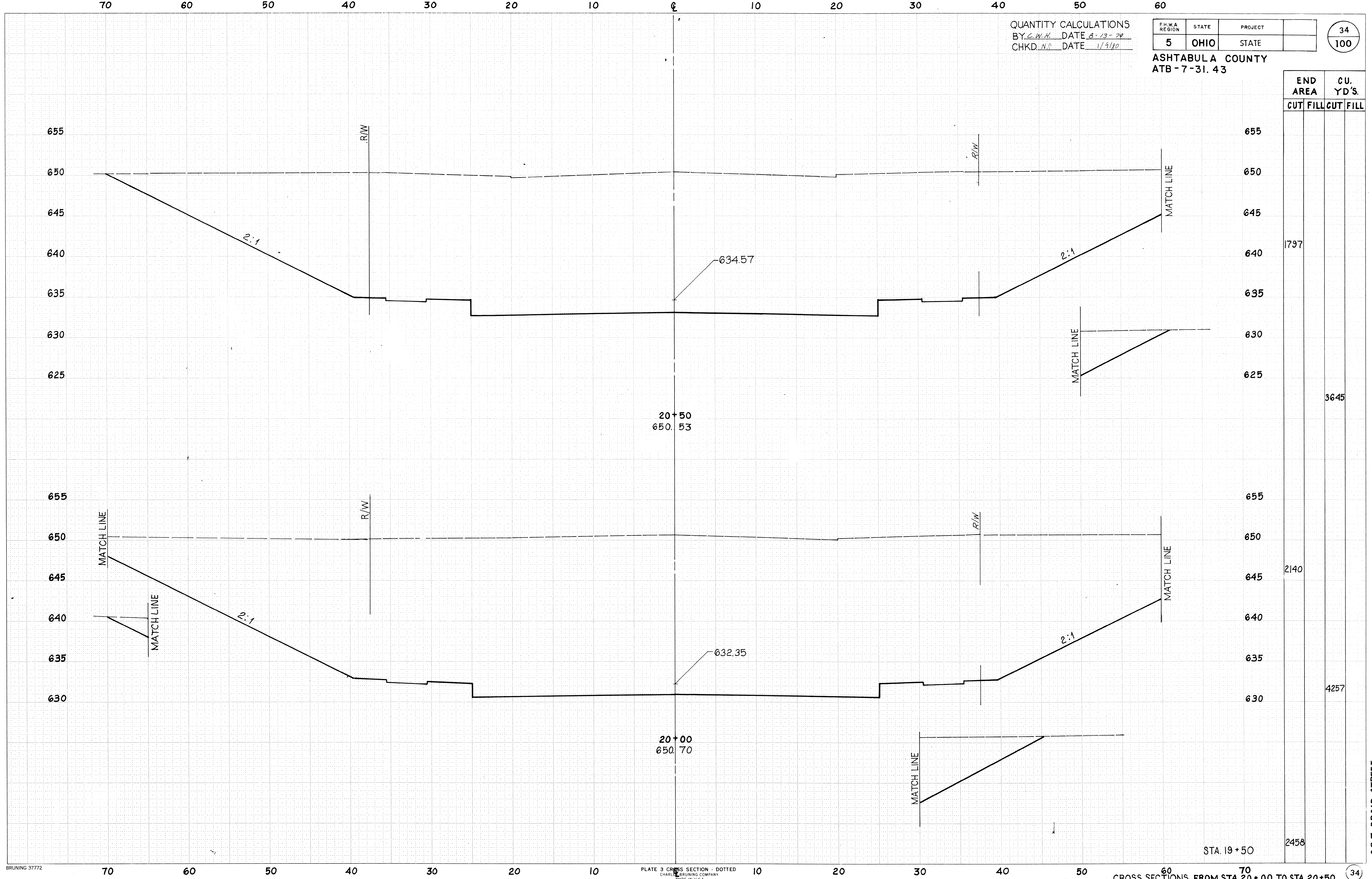


PLATE 3 CROSS SECTION - DOTTED  
 CHARLES BRUNING COMPANY  
 MADE IN U.S.A.

CROSS SECTIONS FROM STA. 20+00 TO STA. 20+50

S.R. 7 - BROAD STREET

QUANTITY CALCULATIONS  
 BY C.W.H. DATE 8-13-79  
 CHKD. N.S. DATE 1/9/80

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

35  
100

ASHTABULA COUNTY  
 ATB-7-31.43

END AREA	CU. YD'S.	
	CUT	FILL
635		
978		
1383		
1797		
1633	139	
2234	139	
2944		

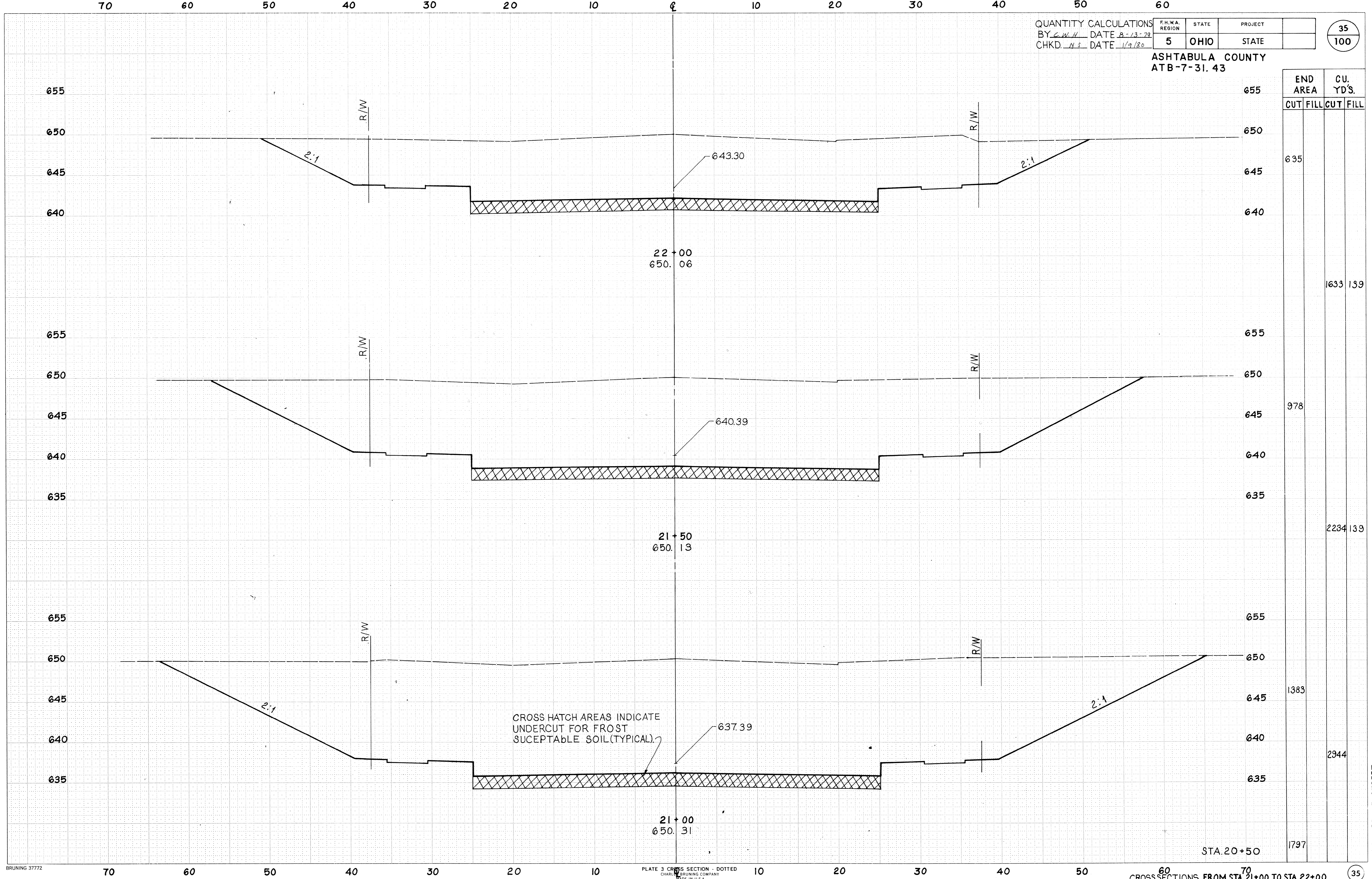


PLATE 3 CROSS SECTION - DOTTED  
 CHARLES BRUNING COMPANY  
 MADE IN U.S.A.

CROSSSECTIONS FROM STA 21+00 TO STA 22+00

S.R.7-BROAD STREET

35

QUANTITY CALCULATIONS  
 BY C.W.H. DATE 8-13-79  
 CHKD. N.S. DATE 1/9/80

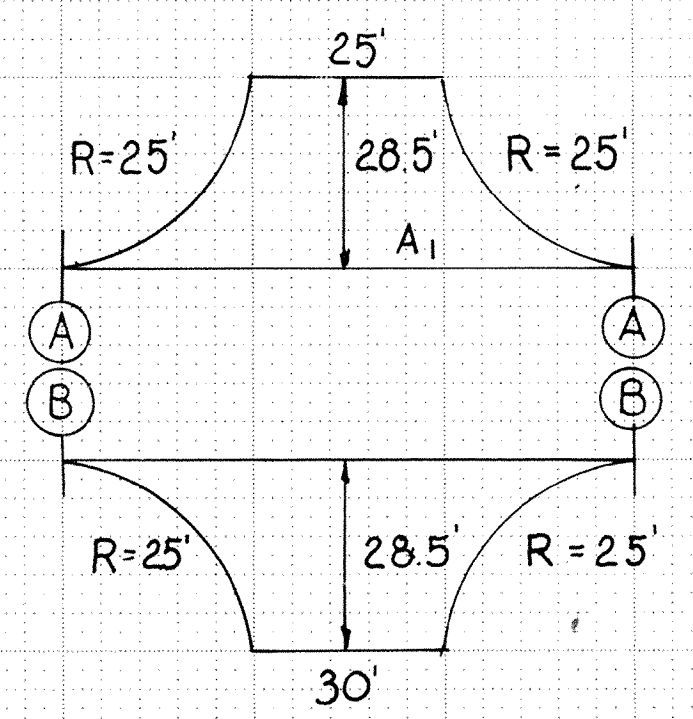
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	STATE

36  
100

ASHTABULA COUNTY  
 ATB-7-31.43

END AREA	CU. YD'S.	
	CUT	FILL
60		
645		126
650	35	1
645	147	1
650		
645		99
650		
645		231
650		
645		713
650		
645		389
650		
645		1087
650		
645		635

JACKSON INTERSECTION



AVE. H = 1.62'

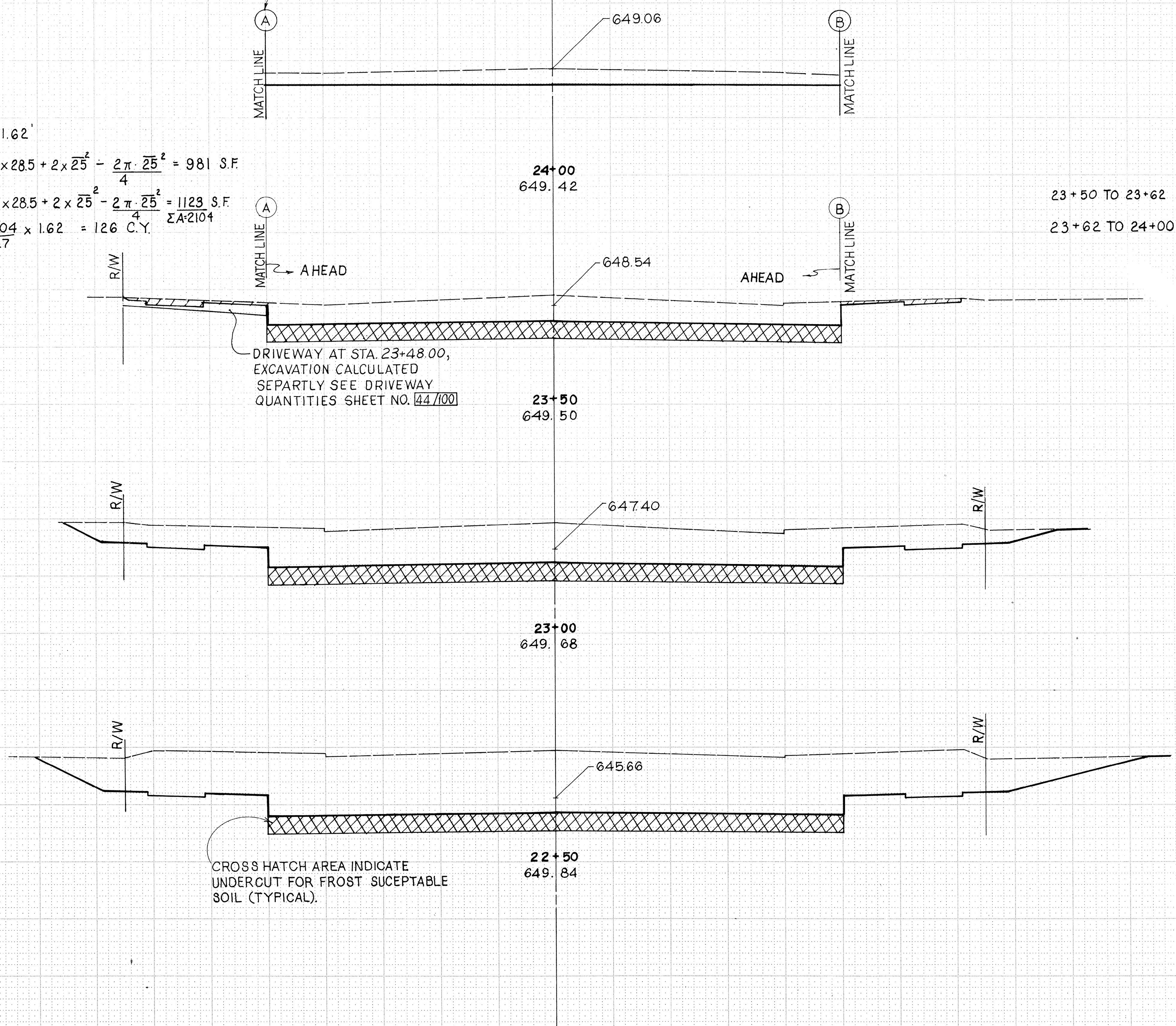
$$A_1 = 25 \times 28.5 + 2 \times \frac{25^2}{4} - \frac{2\pi \cdot 25^2}{4} = 981 \text{ S.F.}$$

$$= 30 \times 28.5 + 2 \times \frac{25^2}{4} - \frac{2\pi \cdot 25^2}{4} = 1123 \text{ S.F.}$$

$$V = \frac{2104}{27} \times 1.62 = 126 \text{ C.Y.}$$

ΣA=2104

SEE JACKSON INTERSECTION THIS SHEET (TYPICAL).



CROSS HATCH AREA INDICATE UNDERCUT FOR FROST SUCEPTABLE SOIL (TYPICAL).

R/W

AHEAD

STA. 22+00

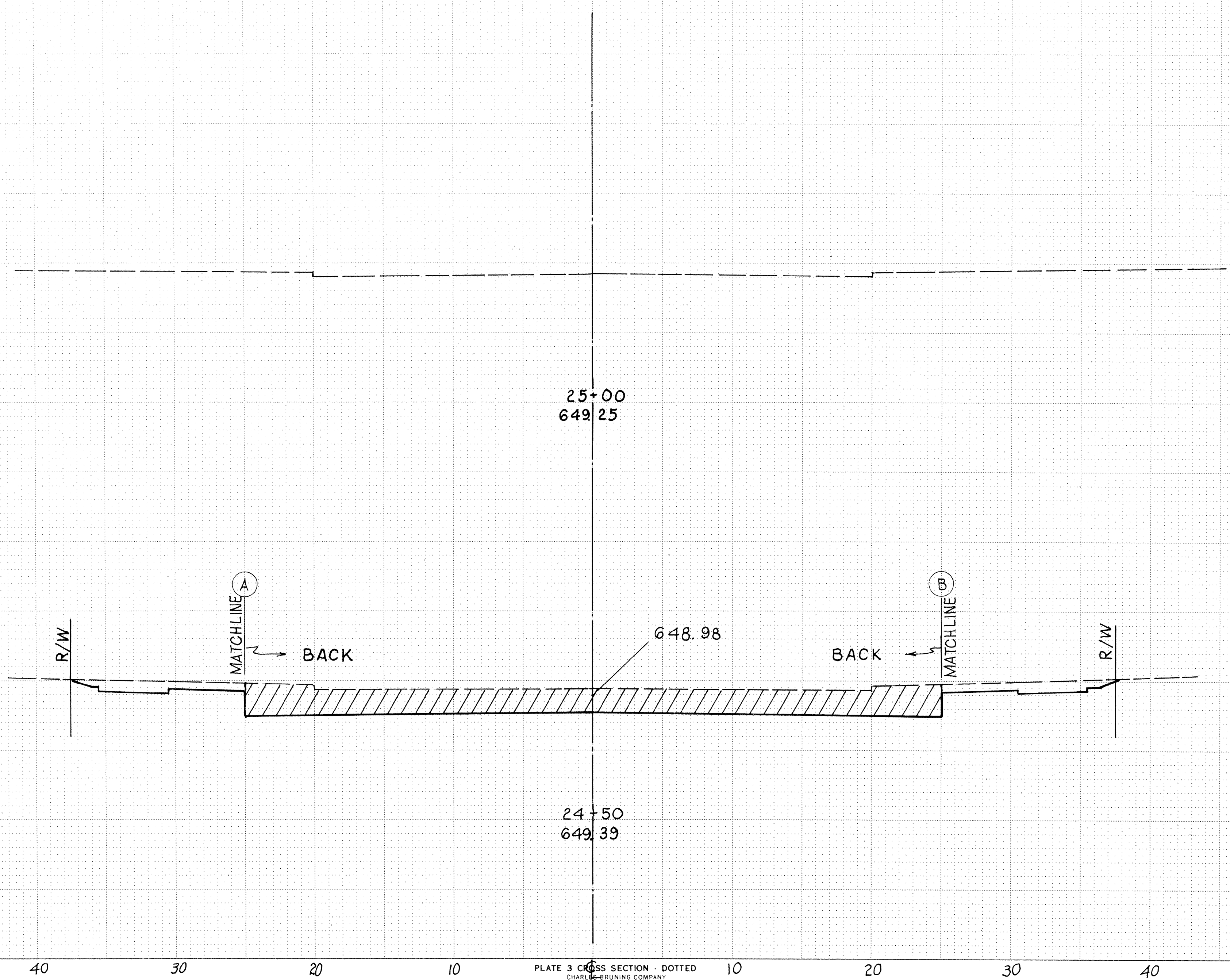
QUANTITY CALCULATIONS  
 BY C.W.H. DATE 8-13-79  
 CHKD. NS DATE 1/9/83

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

37  
100

ASHTABULA COUNTY  
 ATB-7-31.43

END AREA		CU. YDS	
CUT	FILL	CUT	FILL



STATION	CUT	FILL	END AREA CUT	END AREA FILL	CU. YDS CUT	CU. YDS FILL
24+00 TO 24+42	124	0	645	147	5	
24+42 TO 24+50	$\frac{23}{147}$	$\frac{5}{5}$				
STA. 24+00	60	0				

# CUL-DE-SAC - JEFFERSON ST.

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

38  
100

ASHTABULA COUNTY  
ATB-7-31.43

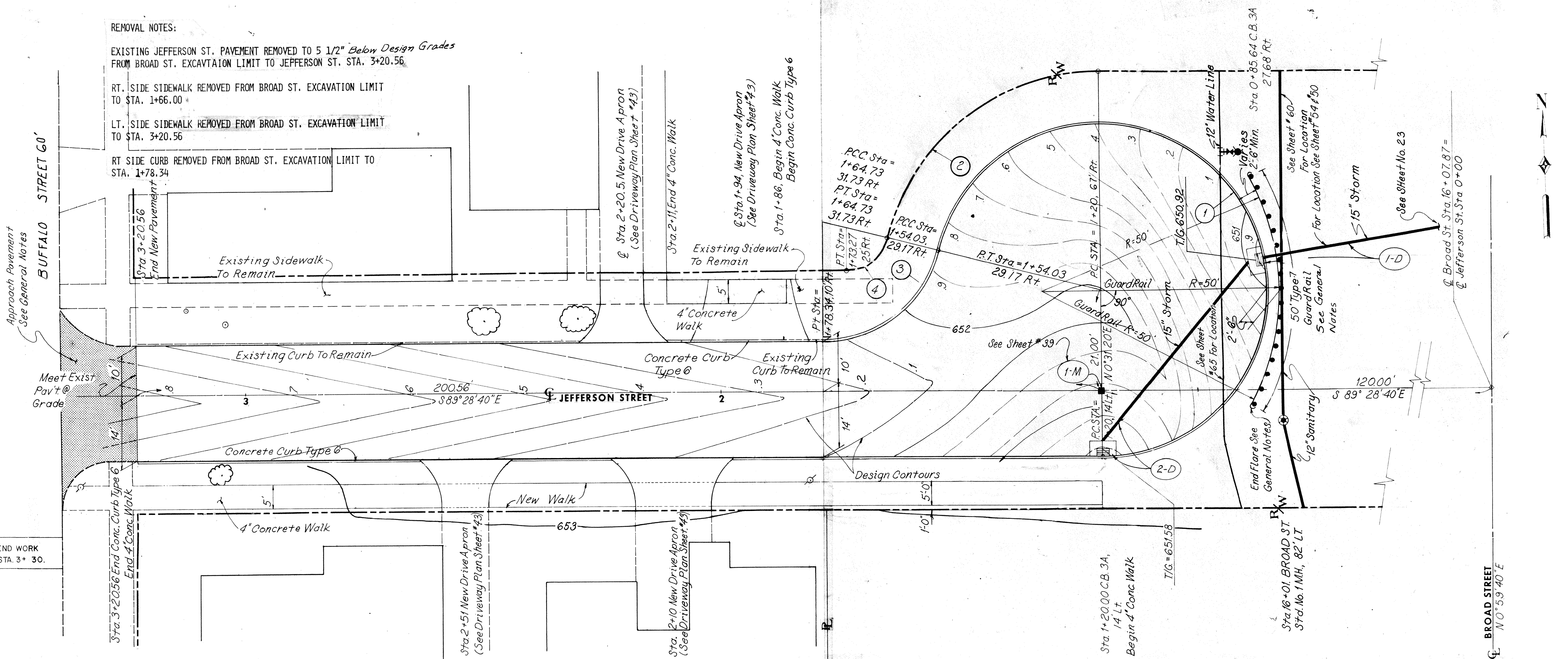
**REMOVAL NOTES:**

EXISTING JEFFERSON ST. PAVEMENT REMOVED TO 5 1/2" Below Design Grades FROM BROAD ST. EXCAVATION LIMIT TO JEFFERSON ST. STA. 3+20.56

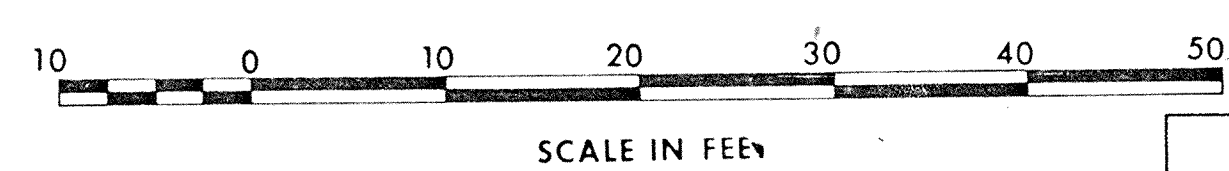
RT. SIDE SIDEWALK REMOVED FROM BROAD ST. EXCAVATION LIMIT TO STA. 1+66.00

LT. SIDE SIDEWALK REMOVED FROM BROAD ST. EXCAVATION LIMIT TO STA. 3+20.56

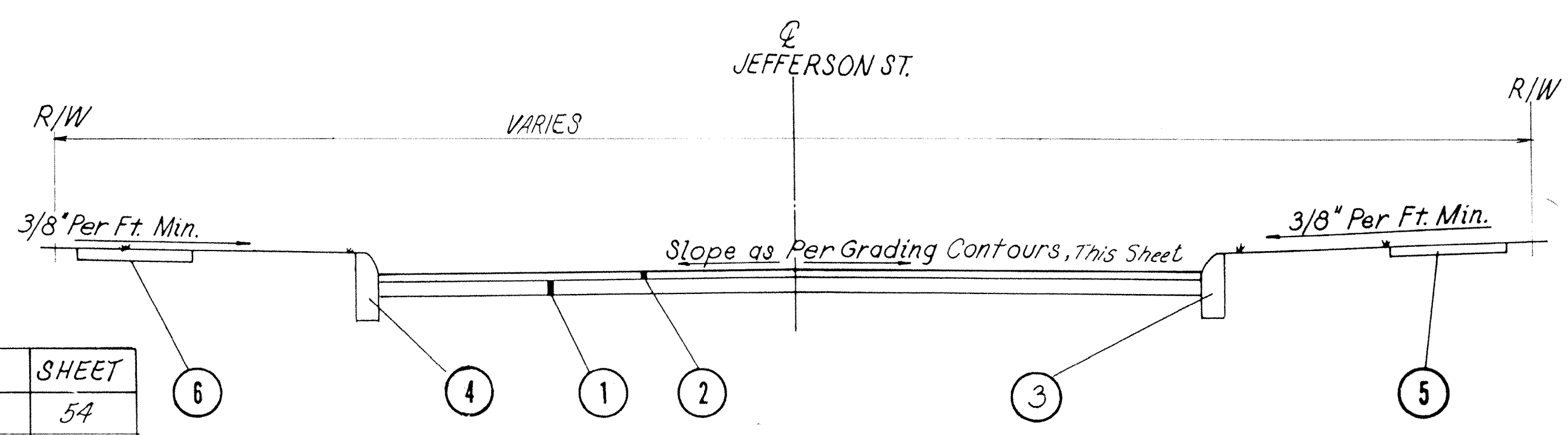
RT SIDE CURB REMOVED FROM BROAD ST. EXCAVATION LIMIT TO STA. 1+78.34



①	②	③	④
<b>CURVE DATA</b>	<b>CURVE DATA</b>	<b>CURVE DATA</b>	<b>CURVE DATA</b>
$\Delta = 256^{\circ} 30' 24''$	$\Delta = 76^{\circ} 30' 24''$	$\Delta = 76^{\circ} 30' 24''$	$\Delta = 76^{\circ} 30' 24''$
$R = 35'$	$R = 46'$	$R = 25'$	$R = 8.78'$
$T = 44.39'$	$T = 36.27'$	$T = 19.71'$	$T = 6.92'$
$L = 156.69'$	$L = 61.42'$	$L = 33.38'$	$L = 11.73'$
$C = 54.97'$	$C = 56.96'$	$C = 30.96'$	$C = 10.88'$



REFERENCES	SHEET
STORM SEWER PROFILE	54
SANITARY SEWER PLAN & PROFILE	60
WATERLINE PLAN & PROFILE	65
ESTIMATED QUANTITIES	39



**LEGEND**

①	ITEM 301 BIT. CONC. AGGREGATE BASE.
②	ITEM 404 1 1/2" ASPHALT CONCRETE, AC-20
③	EXISTING CURB
④	ITEM 609 CURB, STANDARD TYPE 6
⑤	EXISTING SIDEWALK
⑥	ITEM 608 4" CONCRETE WALK

SCALE \_\_\_\_\_  
MADE, M.A. DATE \_\_\_\_\_  
TRCO, C.L. DATE 2/1/24  
C.K.D., K.S. DATE 1.2.24

**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO

# ESTIMATED QUANTITIES

CUL-DE-SAC - JEFFERSON

QUANTITY CALCULATIONS

BY A.C. DATE 1-12-80

CHKD. A.J.M. DATE 1/24/80

WOODRUFF, INC.

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

39  
100

ASHTABULA COUNTY  
ATB-7-31.43

ITEM 606 GUARDRAIL, TYPE 7 AS PER PLAN						
STA.	OFFSET	STA.	OFFSET	SIDE	LENGTH	REMARKS
FROM	FEET	TO	FEET		LIN. FT.	
0+88.5	3.0	0+88.5	45.0	L to R	50	
					TOTAL	50

ITEM 202 PAVEMENT REMOVAL				
STATION	OFFSET	SIDE	AREA	REMARKS
FROM	TO	FEET	SQ. YDS.	
1+86.0	2+11.0	10	R	37
			TOTAL	37

ITEM 202 WALK REMOVED				
STATION	OFFSET	SIDE	AREA	REMARKS
FROM	TO	FEET	SQ. FT.	
0+68.0	3+20.56	18.0	L	1263
0+71.5	1+66.0	17.5	R	473
			TOTAL	1736

ITEM 301 BITUMINOUS AGGREGATE BASE AC-20; OR RT-11; OR RT-12						
STATION	LENGTH	WIDTH	AREA	VOLUME	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	CU. YDS.	
0+85.0	3+20.56	235.56	Varies	910	102	4" Depth
				TOTAL	102	

ITEM 404 ASPHALT CONCRETE, AC-20						
STATION	LENGTH	WIDTH	AREA	VOLUME	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	CU. YDS.	
0+85.0	3+20.56	235.56	Varies	910	38	1 1/2" Depth
3+20.56	3+36.00	15.44	Varies	52	3	
				TOTAL	41	

BENCH MARK				ITEM 604
REFERENCE NUMBER	JEFFERSON STREET STATION	LOCATION	ELEVATION SEE NOTE	MONUMENT ASSEMBLY STANDARD EACH
1-M	1+20	Located 21 Feet North of the Center Point of Jefferson Cul-De-Sac, also being on Jefferson St. Centerline Extension into the Cul-De-Sac. Said Monument is Approximately 230 ft East of the intersection of Buffalo St. Centerline With Jefferson St. Centerline. The Monument is also Located 120 ft West of the Centerline of Broad St. AKA SR-7.	651.07	1
			TOTAL	1

NOTE: Monument Elevations as give are located 6 inches below the Broad Street design @ grade.

ITEM 407 TACK COAT RC-250, MS-2, RS-1, SS-1 OR SS-1h						
STATION	LENGTH	WIDTH	AREA	QUANT.	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	GALS.	
0+85.0	3+20.56	235.56	Varies	910	91	Application Rate=0.10 Gal./Sq. Yd.
				TOTAL	91	

ITEM 608 4" CONCRETE WALK					
STATION	SIDE	WIDTH	AREA	REMARKS	
FROM	TO	LIN. FT.	SQ. FT.		
1+20.0	3+20.56	L	5	1003	
1+86.0	2+11.0	R	5	125	
			TOTAL	1128	

ITEM 407 COVER AGGREGATE						
STATION	LENGTH	WIDTH	AREA	QUANT.	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	TONS	
0+85.0	3+20.56	235.56	Varies	910	2.28	Application Rate=5 Lbs/Sq. Yd.
				TOTAL	2.28	

ITEM 609 CURB, STANDARD TYPE 6					
STATION	SIDE	LENGTH	REMARKS		
FROM	TO	LIN. FT.			
0+84.5	1+78.34	L & R	249		
1+78.34	3+20.56	L	118		
1+86.0	2+11.0	R	25		
		TOTAL	392		

ITEM 202 CURB REMOVED				
STATION	SIDE	LENGTH	REMARKS	
FROM	TO	LIN. FT.		
0+71.0	1+78.34	R	108	
		TOTAL	108	

ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT <small>CONST. AS PER PLAN</small>						
STATION	LENGTH	WIDTH	AREA	VOLUME	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	CU. YDS.	
0+69.0	3+20.56	251.56	Varies	1019	156	5 1/2" DEPTH
				TOTAL	156	

ITEM 203 SUBGRADE COMPACTION					
STATION	LENGTH	WIDTH	AREA	REMARKS	
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	
0+85.0	3+20.56	235.56	Varies	910	
			TOTAL	910	

REF. NO.	ITEM NO.				603		604	
	STATION				15" CONDUIT TYPE "B"	15" CONDUIT TYPE "C"	STANDARD NO. 3-A CATCH BASIN	
	FROM	SIDE	TO	SIDE	LIN. FT.	LIN. FT.	EACH	
1-D	16+46.0	L	0+85.64	R		64	1	
2-D	0+85.64	R	1+20.0	L	54		1	
				TOTAL	54	64	2	

ITEM 659 SEEDING AND MULCHING AS PER PLAN						
STA.	OFFSET	STA.	OFFSET	SIDE	AREA	REMARKS
FROM		TO			SQ. YDS.	
0+76.0	25.0	1+20.0	25.0	L	114	
1+20.0	25.0	3+20.56	25.0	L	109	
0+89.0	0.0	1+20.0	56.5	R	97	
1+20.0	56.5	1+78.34	25.0	R	96	
1+78.34	25.0	2+11.0	25.0	R	28	
					TOTAL	444

SR. 7 - BROAD STREET

SCALE \_\_\_\_\_ WOODRUFF, INC.  
MADE IN OHIO DATE \_\_\_\_\_  
TRCD RJK DATE 1/17  
CKD N.S. DATE 1/28  
CONSULTING ENGINEERS  
CLEVELAND OHIO

# CUL-DE-SAC - ADAMS ST.

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

40  
100

ASHTABULA COUNTY  
ATB-7-31.43

**REMOVAL NOTES:**

EXISTING ADAMS ST. PAVEMENT REMOVED TO 5 1/2" Below Design Grades  
FROM BROAD ST. EXCAVATION LIMIT TO ADAMS ST. STA. 1+72.80

RT. SIDE SIDEWALK REMOVED FROM BROAD ST. EXCAVATION  
LIMIT TO STA. 0+97.00

LT. SIDE SIDEWALK REMOVED FROM BROAD ST. EXCAVATION  
LIMIT TO STA. 1+60.00

RT. SIDE CURB REMOVED FROM BROAD ST. EXCAVATION  
LIMIT TO STA. 1+08.50

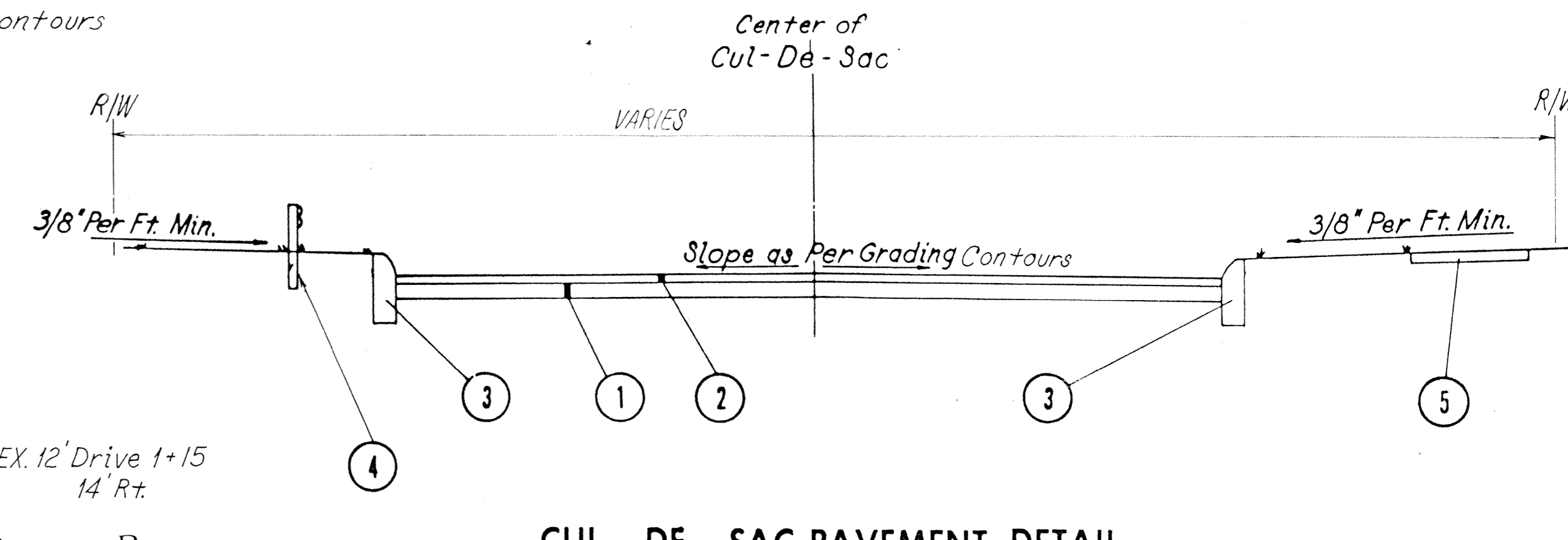
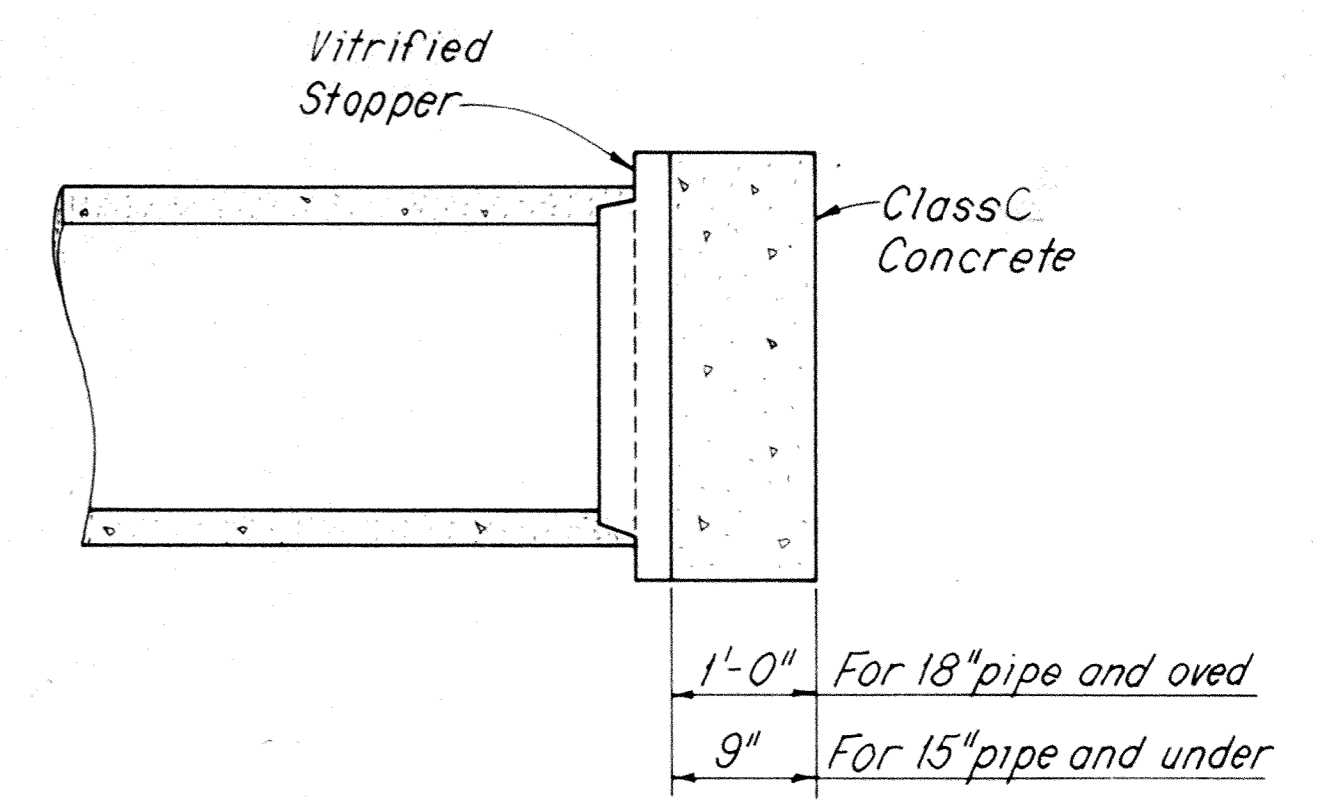
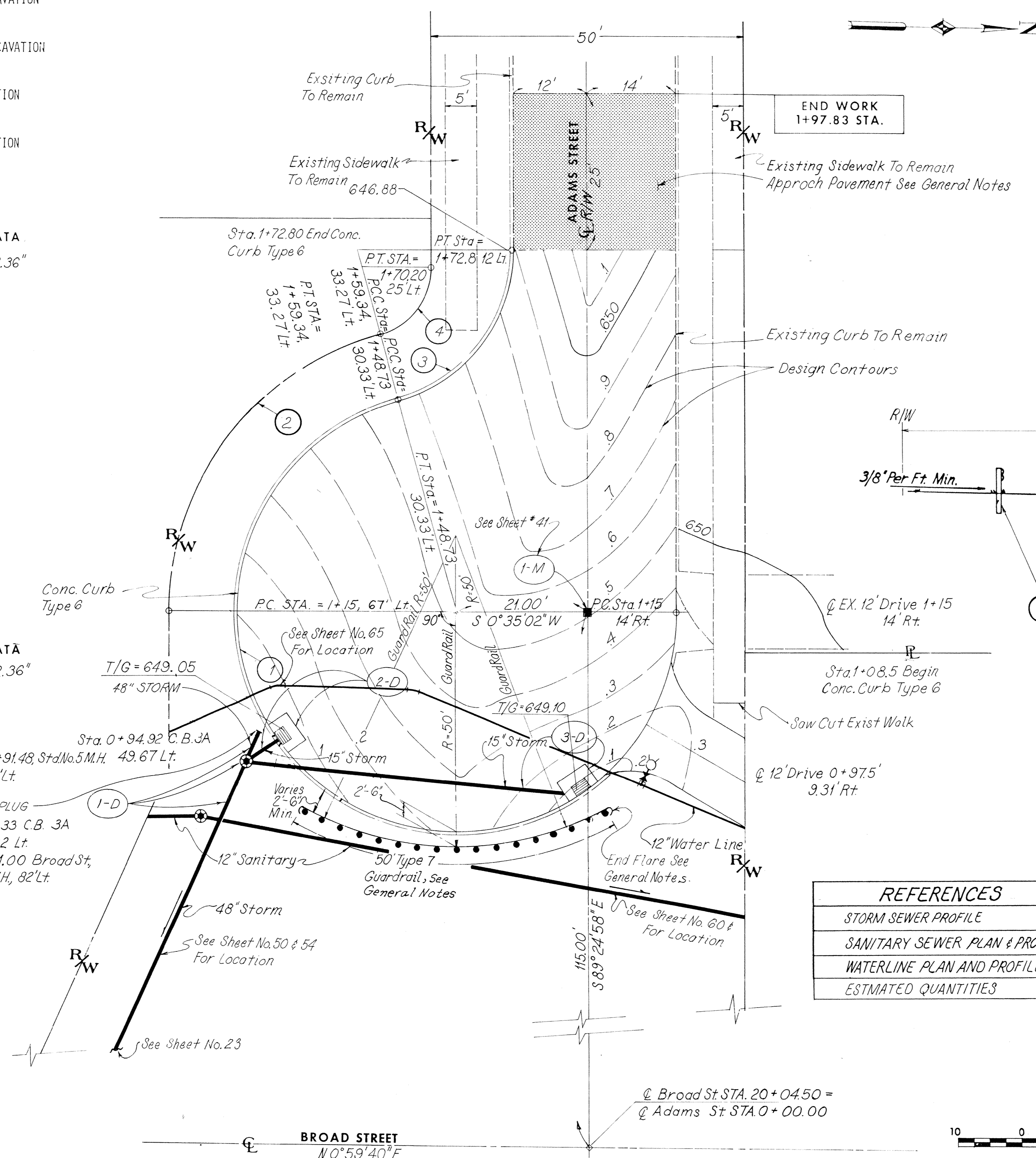
LT. SIDE CURB REMOVED FROM BROAD ST. EXCAVATION  
LIMIT TO STA. 1+72.83

**3**  
**CURVE DATA**  
Δ = 74° 32' 2.36"  
R = 25'  
T = 19.02'  
L = 32.52'  
C = 30.28'

**4**  
**CURVE DATA**  
Δ = 74° 32' 2.36"  
R = 11.27'  
T = 8.58'  
L = 14.66'  
C = 13.65'

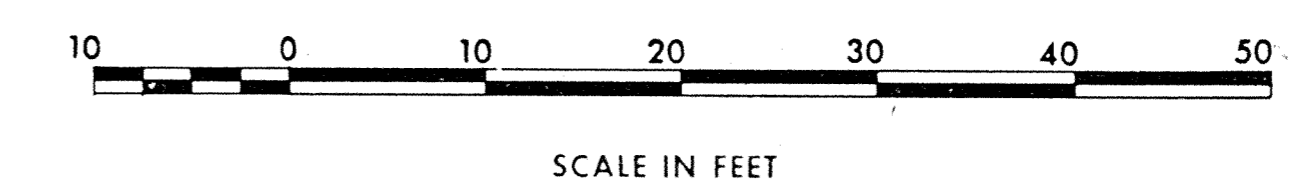
**1**  
**CURVE DATA**  
Δ = 254° 32' 2.36"  
R = 35'  
T = 46.00'  
L = 155.49'  
C = 55.71'

**2**  
**CURVE DATA**  
Δ = 74° 32' 2.36"  
R = 46'  
T = 35.00'  
L = 59.84'  
C = 55.71'



- LEGEND**
- 1 ITEM 301 BIT. CONC. AGGREGATE BASE.
  - 2 ITEM 404 1 1/2" ASPHALT CONCRETE, AC-20
  - 3 ITEM 609 CURB, STANDARD TYPE 6
  - 4 ITEM 606 GUARDRAIL, TYPE 7 AS PER PLAN
  - 5 EXISTING SIDEWALK

REFERENCES	SHEET
STORM SEWER PROFILE	56
SANITARY SEWER PLAN & PROFILE	60
WATERLINE PLAN AND PROFILE	65
ESTIMATED QUANTITIES	41



WOODRUFF, INC.  
CONSULTING ENGINEERS  
CLEVELAND OHIO

SR. 7 - BROAD STREET



# ESTIMATED QUANTITIES

CUL-DE-SAC - ADAMS ST.

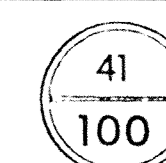
QUANTITY CALCULATIONS

BY N.S. DATE 1-18-80

CHKD. AJM DATE 1/24/80

WOODRUFF, INC.

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



ASHTABULA COUNTY  
ATB-7-31.43

ITEM 202 WEARING COURSE REMOVED					
STATION		LENGTH	WIDTH	AREA	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	
1+72.83	1+97.83	92.83	Varies	535	
TOTAL				535	

ITEM 301 BITUMINOUS AGGREGATE BASE AC-20; OR RT-11; OR RT-12						
STATION		LENGTH	WIDTH	AREA	VOLUME	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	CU. YDS.	
0+80.0	1+97.83	117.83	Varies	607	68	4" Depth
TOTAL					68	

BENCH MARK				ITEM 604
REFERENCE NUMBER	ADAMS ST STATION	LOCATION	ELEVATION SEE NOTE	MONUMENT ASSEMBLY STANDARD EACH
1-M	1+15	Located 21 ft. South of the Center Point of Adams Cul-De-Sac, also being on Adams St. Centerline extension into the Cul-de-Sac. Said Monument is approximately 115 ft West of Broad Street A.K.A. S.R.7	650.02	1
TOTAL				1

NOTE: Monument Elevations as given are located 6 inches below the Broad Street design @ grade.

ITEM 202 WALK REMOVED					
STATION		OFFSET	SIDE	AREA	REMARKS
FROM	TO	FEET		SQ. FT.	
0+76.0	1+60.0	18.0	L	420	
0+70.0	0+97.0	20.0	R	135	
TOTAL				555	

ITEM 404 ASPHALT CONCRETE, AC-20						
STATION		LENGTH	WIDTH	DEPTH	VOLUME	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	INCHES	CU. YDS.	
0+80.0	1+97.83	117.83	Varies	607	26	1 1/2" Depth
TOTAL					26	

ITEM 202 CURB REMOVED				
STATION		SIDE	LENGTH	REMARKS
FROM	TO		LIN. FT.	
0+65.0	1+72.83	L	111	
0+63.0	1+08.5	R	46	
TOTAL			157	

ITEM 407 COVER AGGREGATE						
STATION		LENGTH	WIDTH	AREA	QUANT.	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	TONS	
0+80.0	1+97.83	117.83	Varies	607	1.52	Application Rate = 5 Lbs./Sq. Yd.
TOTAL					1.52	

ITEM 606 GUARDRAIL, TYPE 7AS PER PLAN						
STA.	OFFSET	STA.	OFFSET	SIDE	LENGTH	REMARKS
FROM	FEET	TO	FEET		LIN. FT.	
0+83.0	45.0	0+83.0	3.0	L to R	50	
TOTAL					50	

ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT <small>CONST. AS PER PLAN</small>						
STATION		LENGTH	WIDTH	AREA	VOLUME	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	CU. YDS.	
0+72.0	1+72.83	100.83	Varies	635	97	5 1/2" DEPTH
TOTAL					97	

ITEM 407 TACK COAT RC-250, MS-2, RS-1, SS-1 OR SS-1h						
STATION		LENGTH	WIDTH	AREA	QUANT.	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	GALS.	
0+80.0	1+97.83	117.83	Varies	607	61	Application Rate = 0.10 Gal./Sq. Yd.
TOTAL					61	

ITEM 609 CURB, STANDARD TYPE 6				
STATION		SIDE	LENGTH	REMARKS
FROM	TO		LIN. FT.	
1+08.5	1+72.83	L & R	171	
TOTAL			171	

ITEM 203 SUBGRADE COMPACTION					
STATION		LENGTH	WIDTH	AREA	REMARKS
FROM	TO	LIN. FT.	LIN. FT.	SQ. YDS.	
0+80.0	1+72.83	92.83	Varies	535	
TOTAL				535	

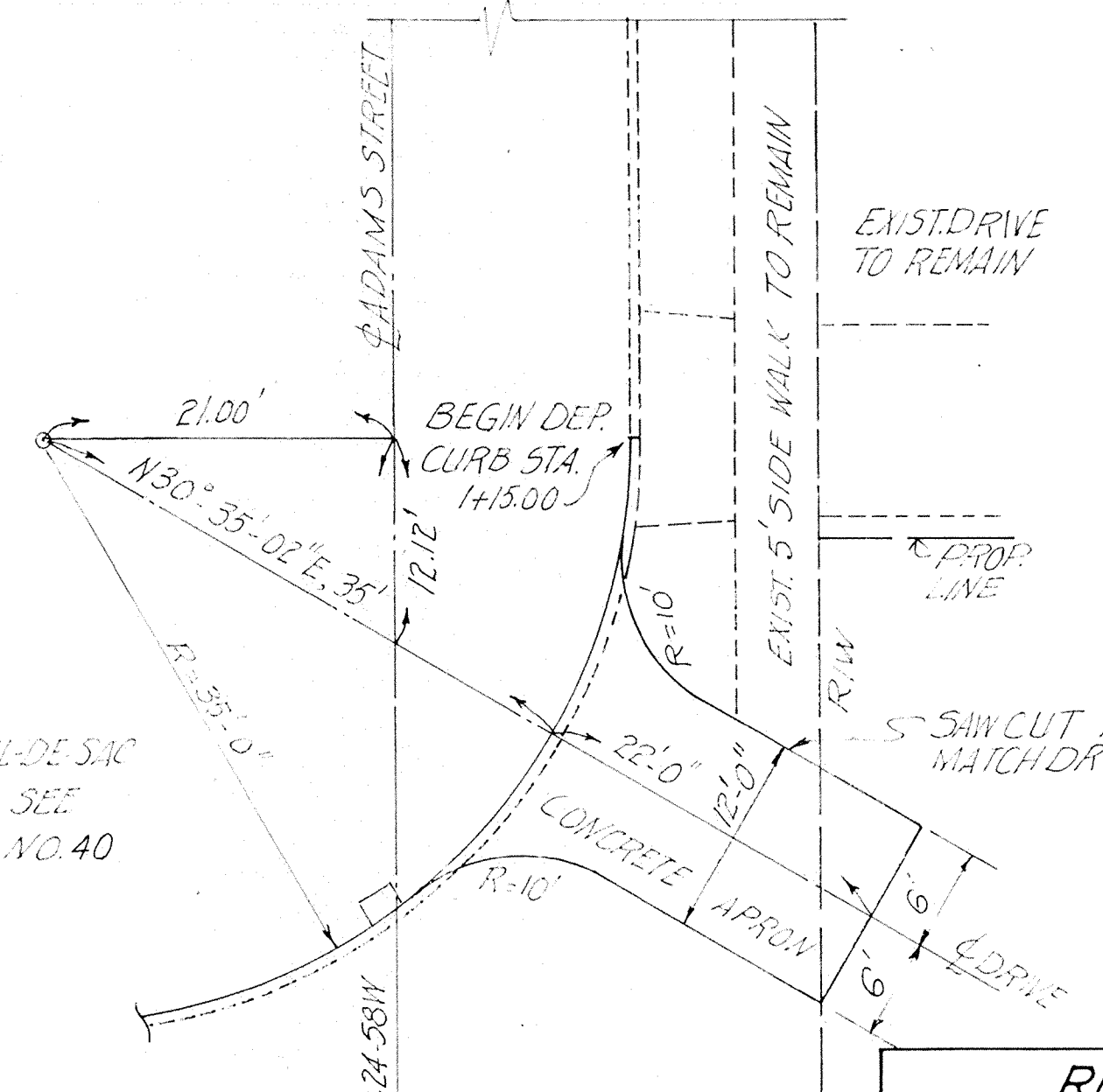
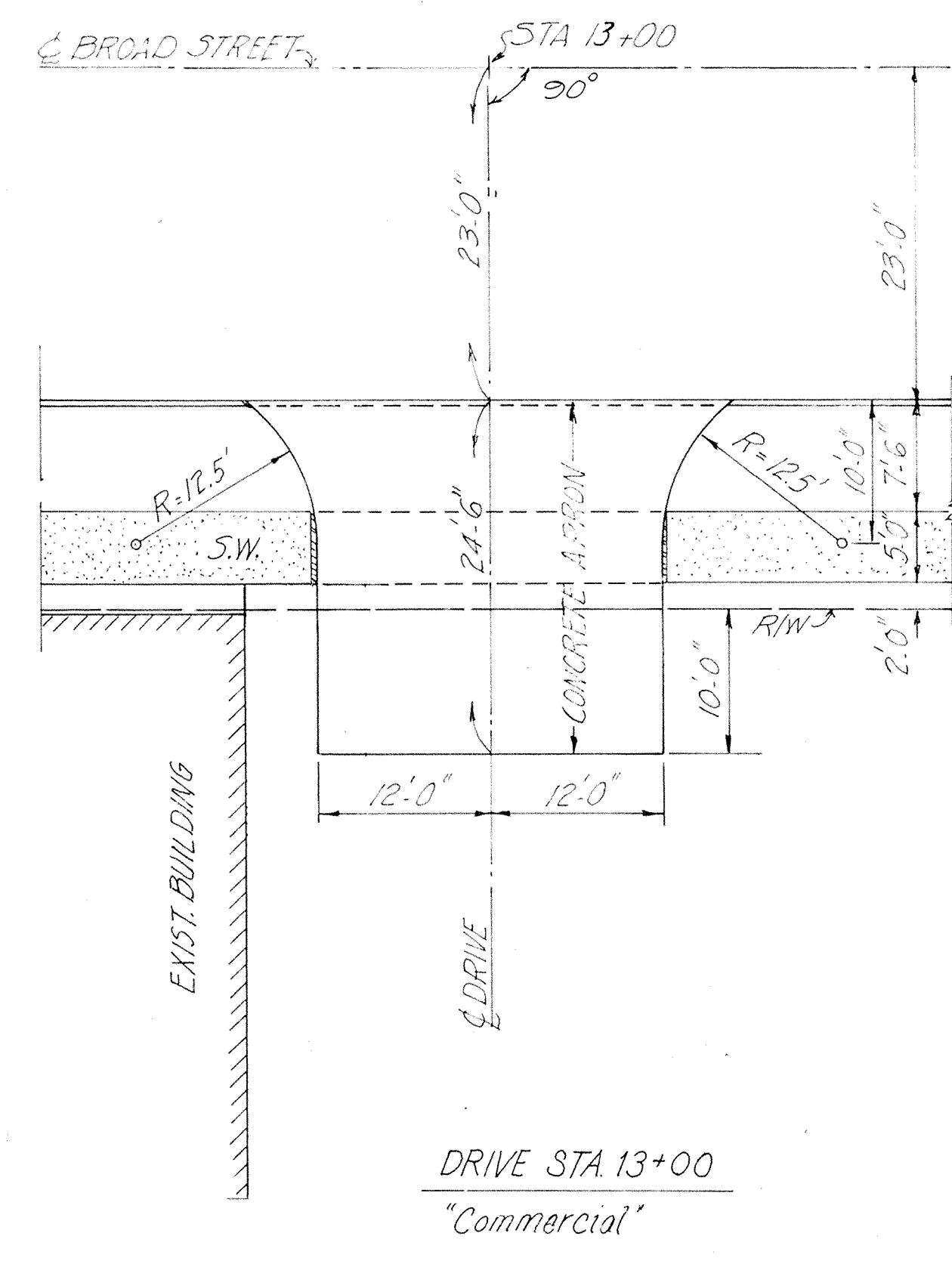
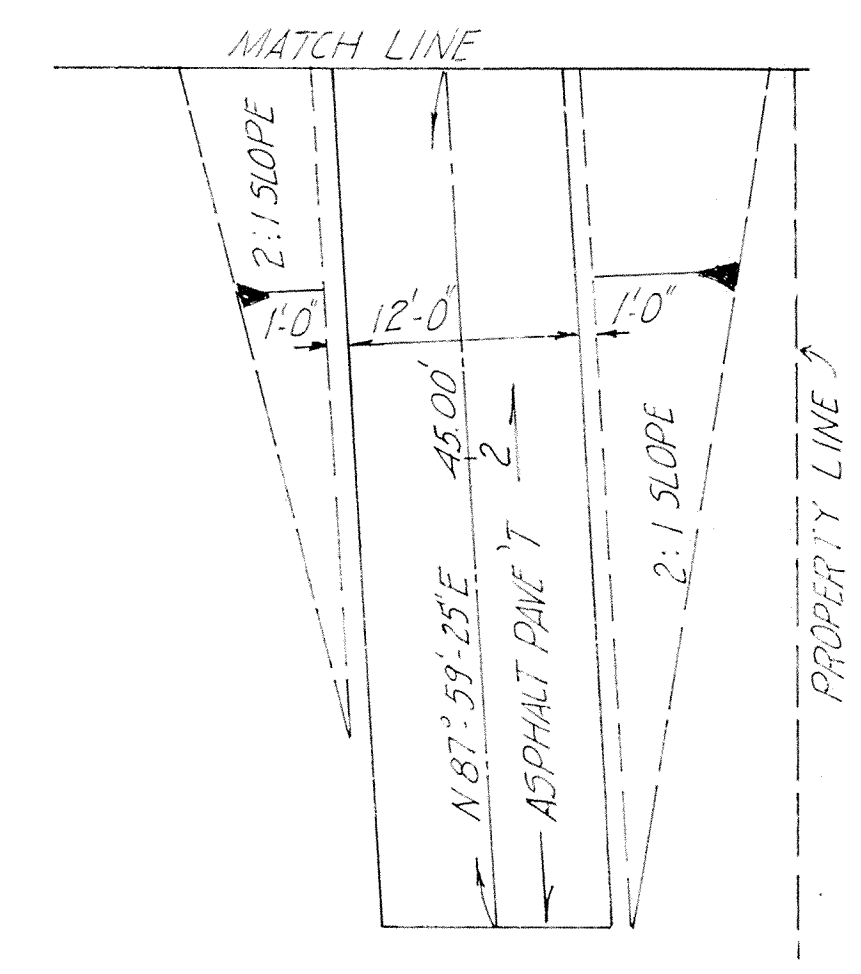
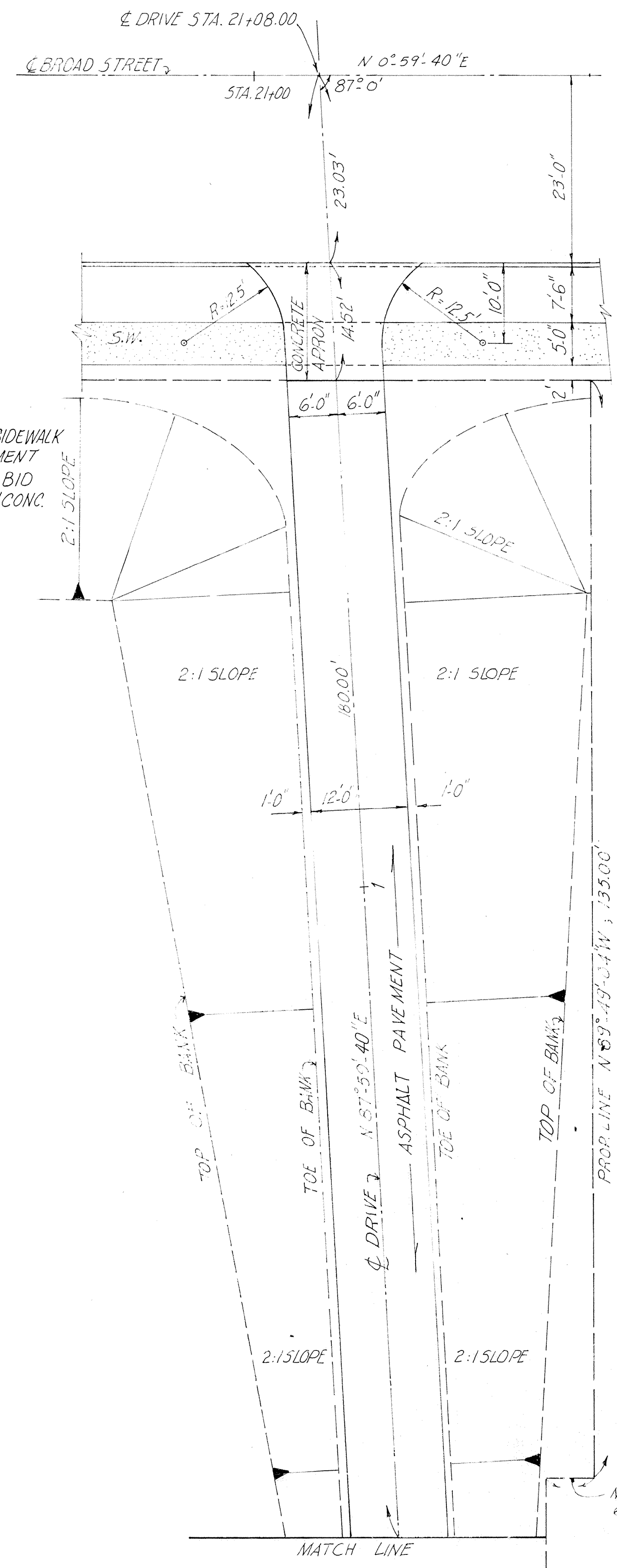
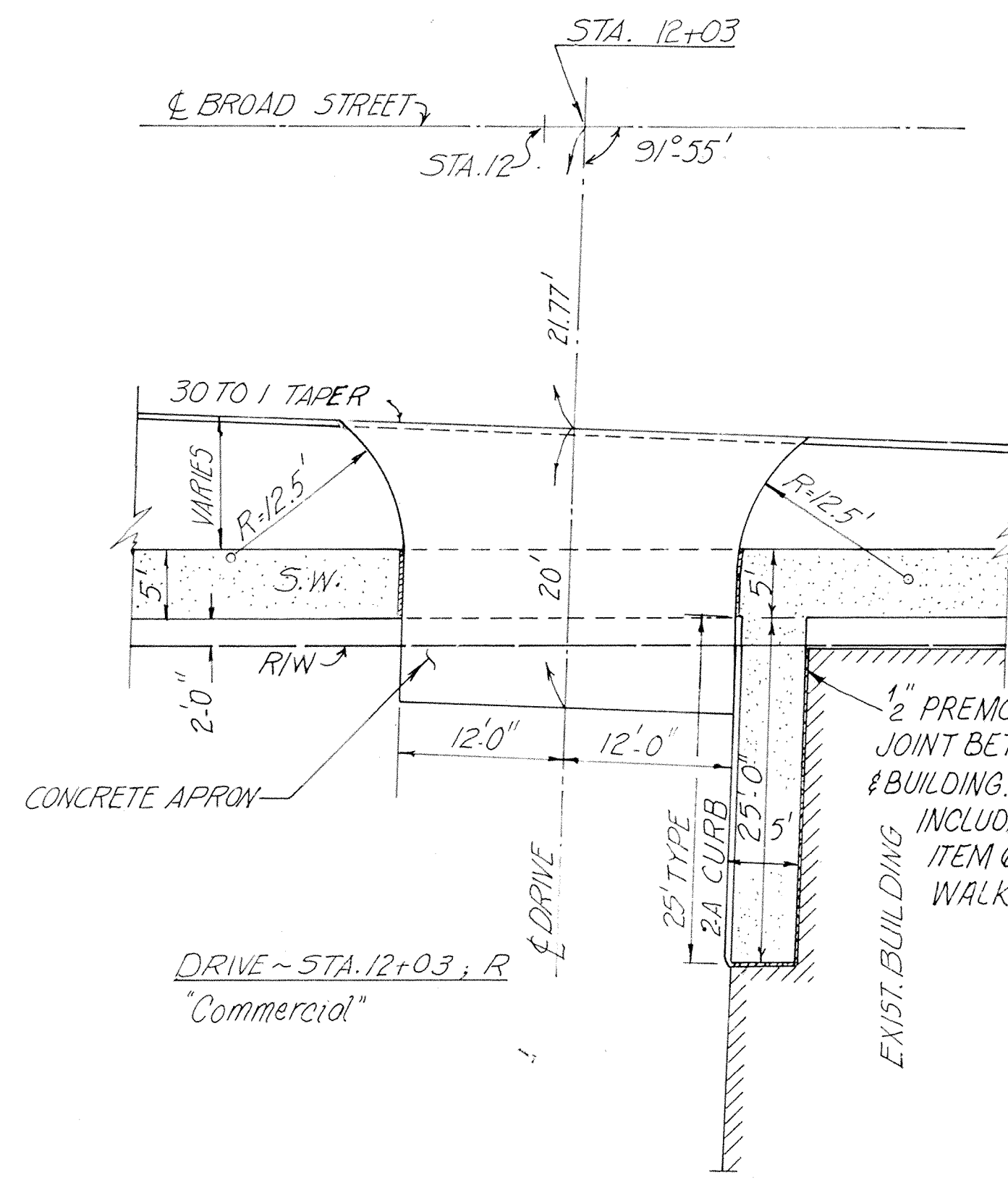
REF. NO.	STATION				ITEM NO. 603			ITEM NO. 604	
					15" CONDUIT TYPE "B" CLASS "B" BEDDING	15" CONDUIT TYPE "C" CLASS "B" BEDDING	48" CONDUIT TYPE "B" CLASS "B" BEDDING	STANDARD NO. 3-A CATCH BASIN	STANDARD NO. 5 MANHOLE
	FROM	SIDE	TO	SIDE	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH
2-D	0+91.48	L	0+91.92	L		6		1	
3-D	0+86.33	L	0+91.48	L	55			1	
TOTAL					55	6	95	2	

ITEM 659 SEEDING AND MULCHING AS PER PLAN						
STA.	OFFSET	STA.	OFFSET	SIDE	AREA	REMARKS
FROM		TO			SQ. YDS.	
0+79.5	21.0	1+72.83	12.5	L	157	
1+72.83	12.5	1+97.83	12.5	L	21	
1+21.5	14.5	1+97.83	14.5	R	47	
TOTAL					225	

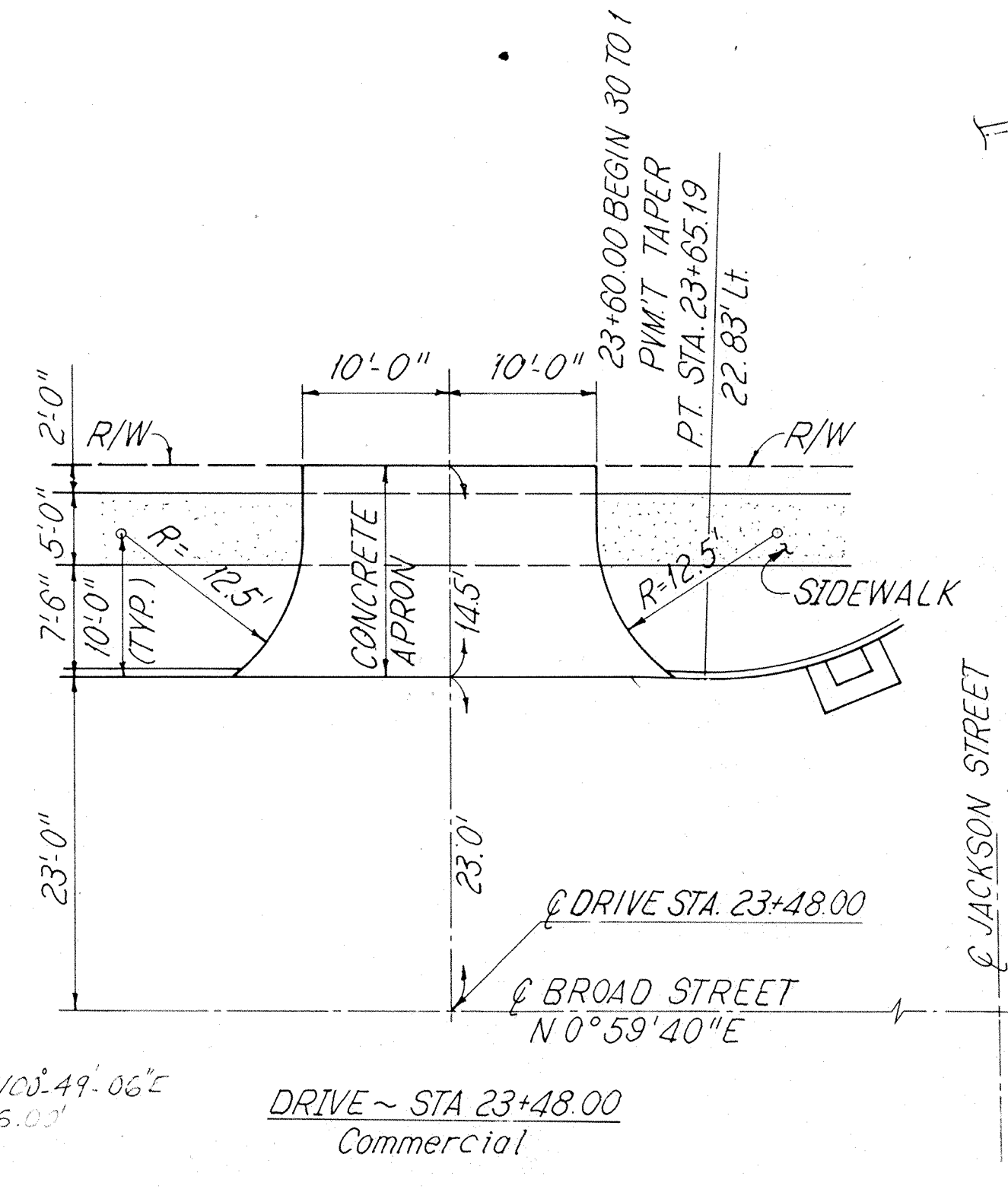
# DRIVEWAY PLANS

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

ASHTABULA COUNTY  
ATB-7-31.43



REFERENCES	SHEET
DRIVE PROFILE	45, 46
DRIVE QUANTITIES	44
DRIVE DETAIL	48



SCALE \_\_\_\_\_  
MADE, N.S. DATE \_\_\_\_\_  
TRCD. DATE \_\_\_\_\_  
CHKD. A.J.M. DATE 11/9/82

**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO

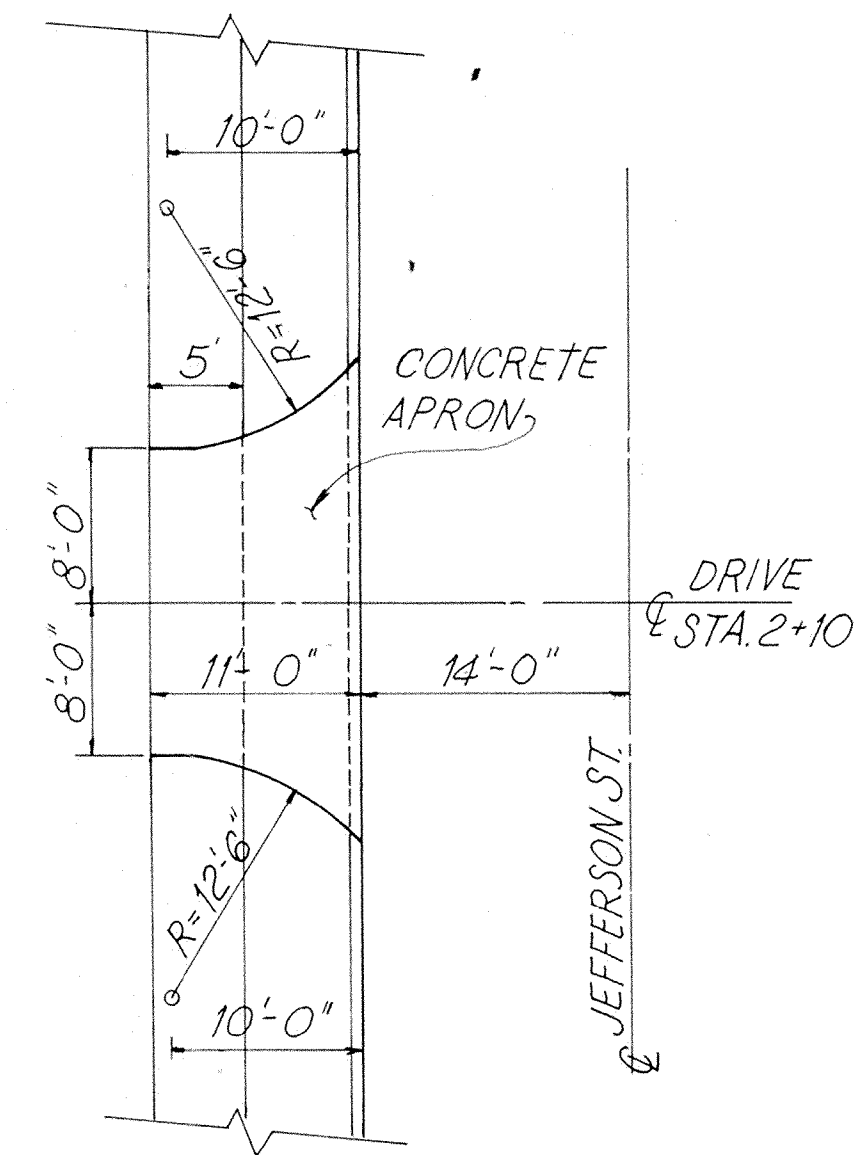
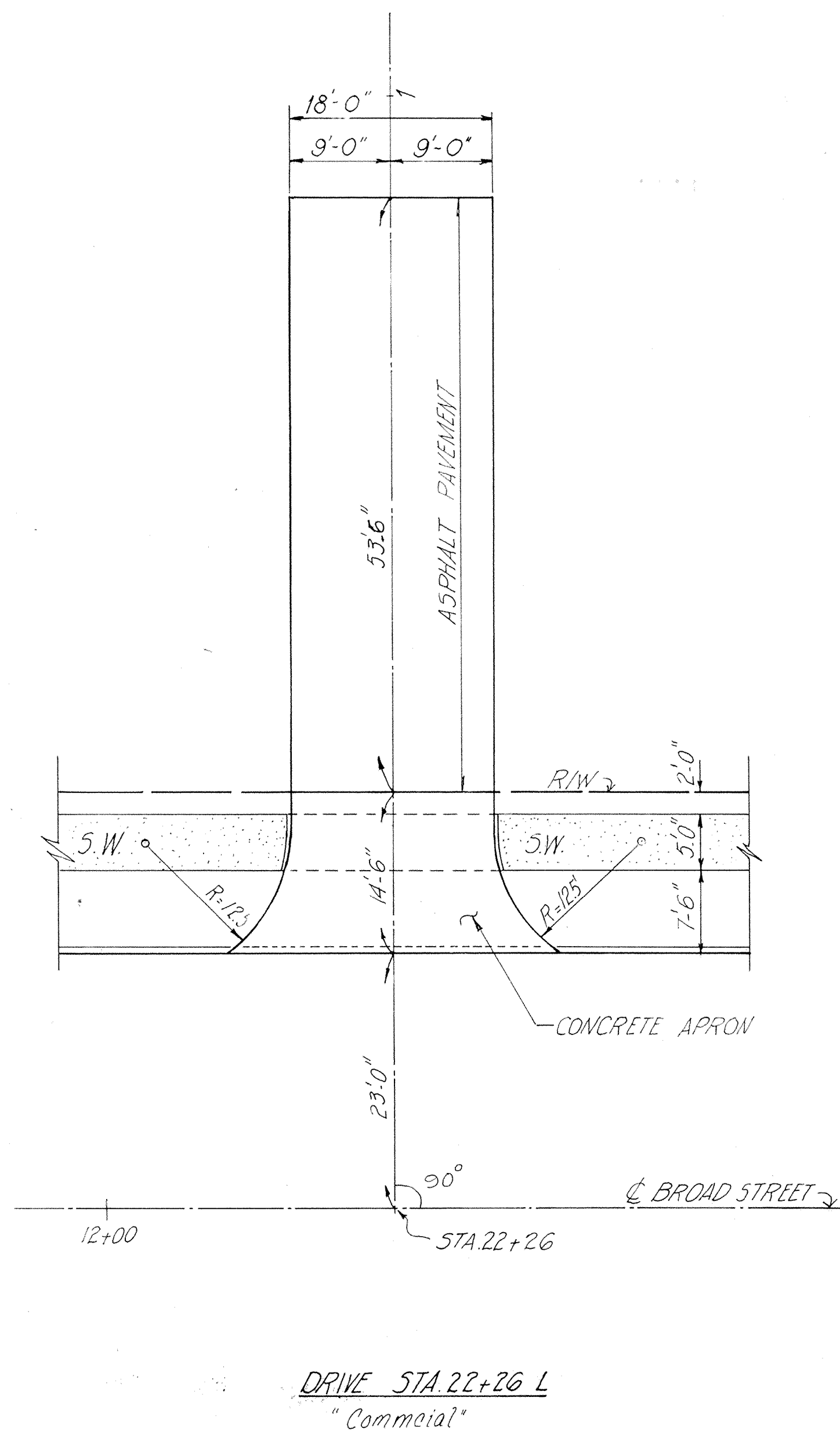
SR. 7 - BROAD STREET

# DRIVEWAY PLANS

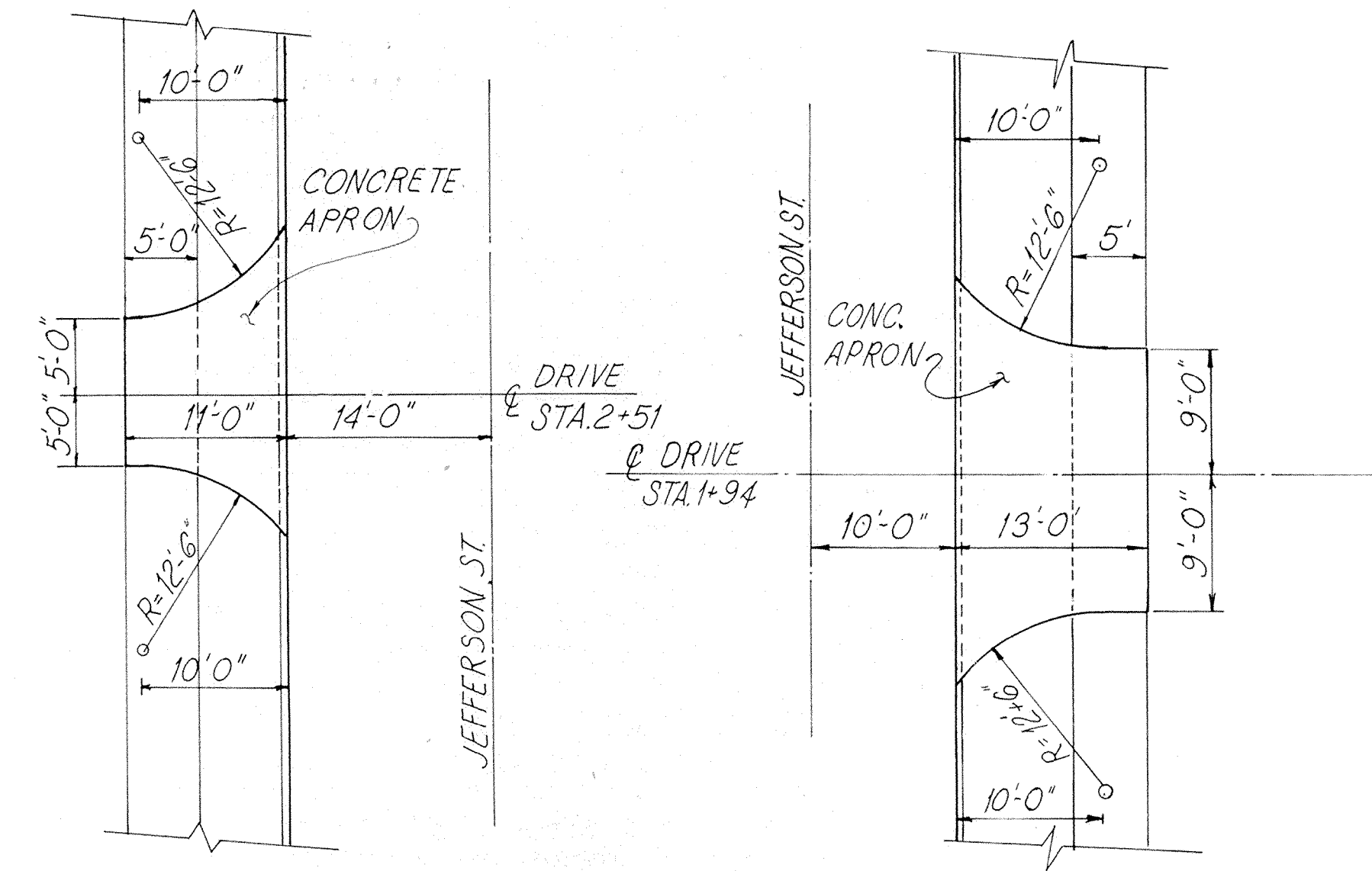
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	STATE

43  
100

ASHTABULA COUNTY  
ATB-7-31.43

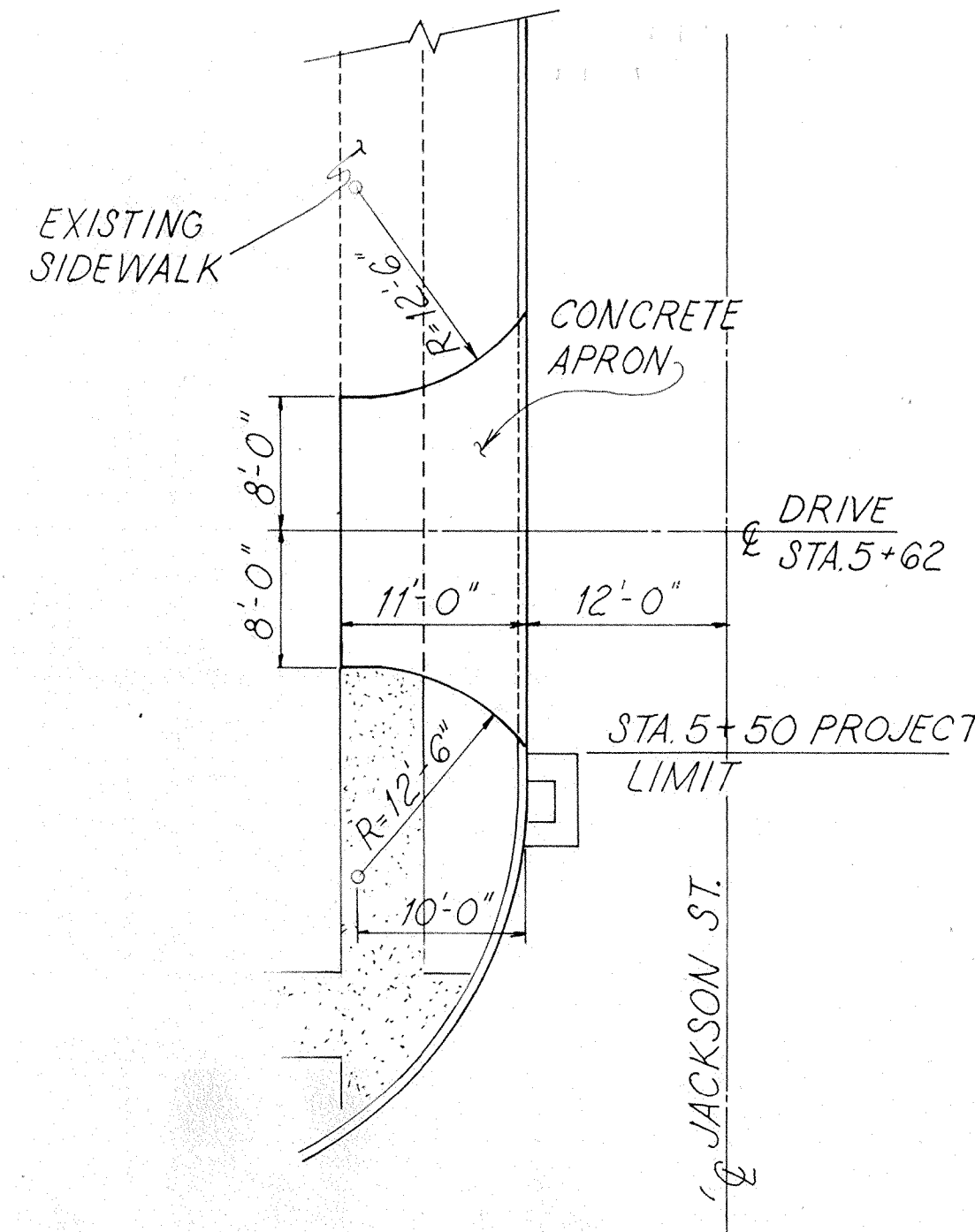


DRIVE STA 2+10  
JEFFERSON ST.  
"Residential"

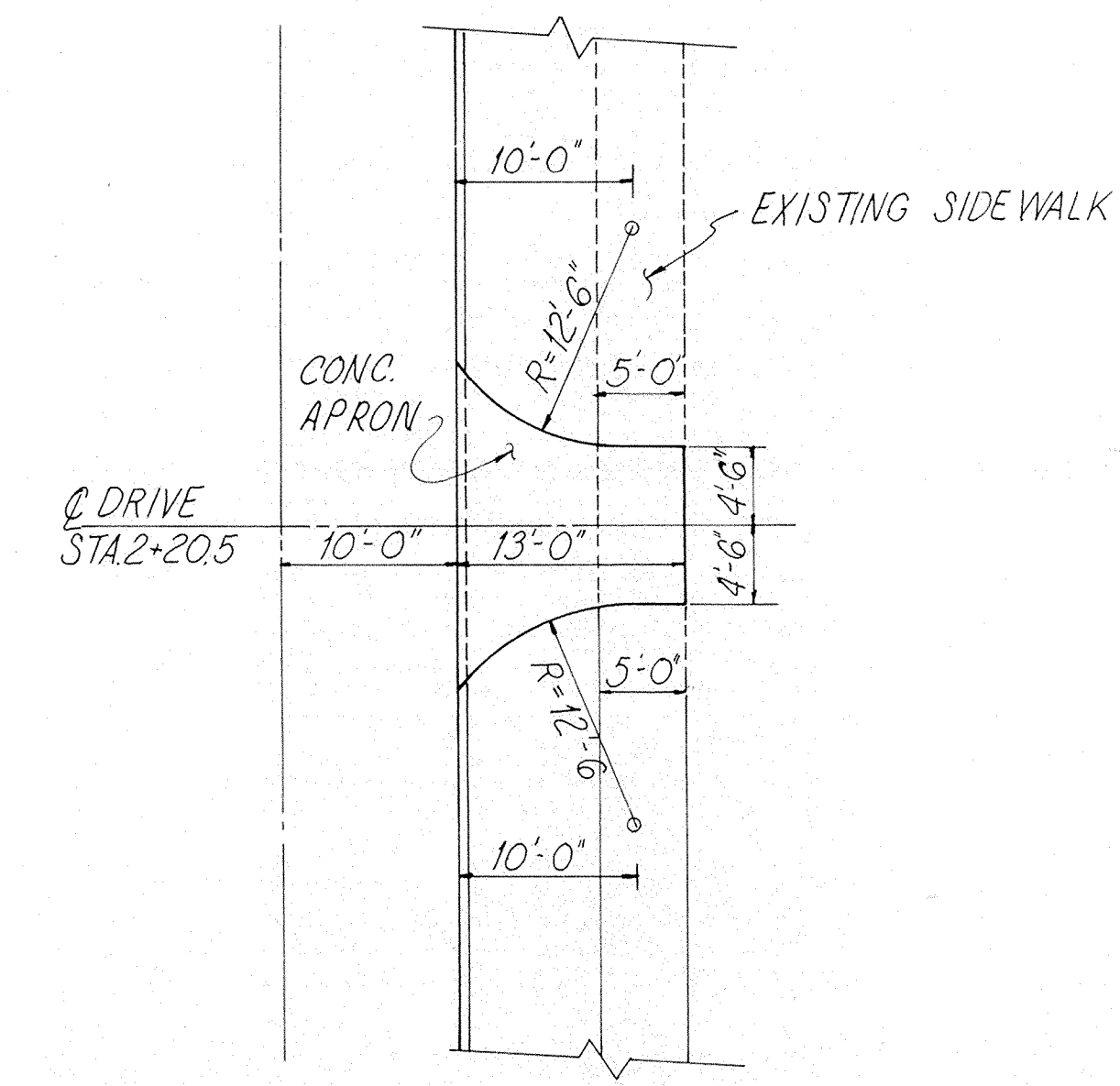


DRIVE STA 2+51  
JEFFERSON ST.  
"Residential"

DRIVE STA 1+94  
JEFFERSON ST.  
"Residential"



DRIVE STA 5+62  
JACKSON ST.  
"Residential"



DRIVE STA 2+20.5  
JEFFERSON ST.  
"Residential"

REFERENCES	SHEET
DRIVE PROFILE	45, 46
DRIVE QUANTITIES	44
DRIVE DETAIL	48

SCALE \_\_\_\_\_ DATE \_\_\_\_\_  
MADE \_\_\_\_\_ DATE \_\_\_\_\_  
TRCD \_\_\_\_\_ DATE \_\_\_\_\_  
CRD. A.M. DATE 1/9/80

**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO

# DRIVEWAY PLANS AND QUANTITIES

QUANTITY CALCULATIONS

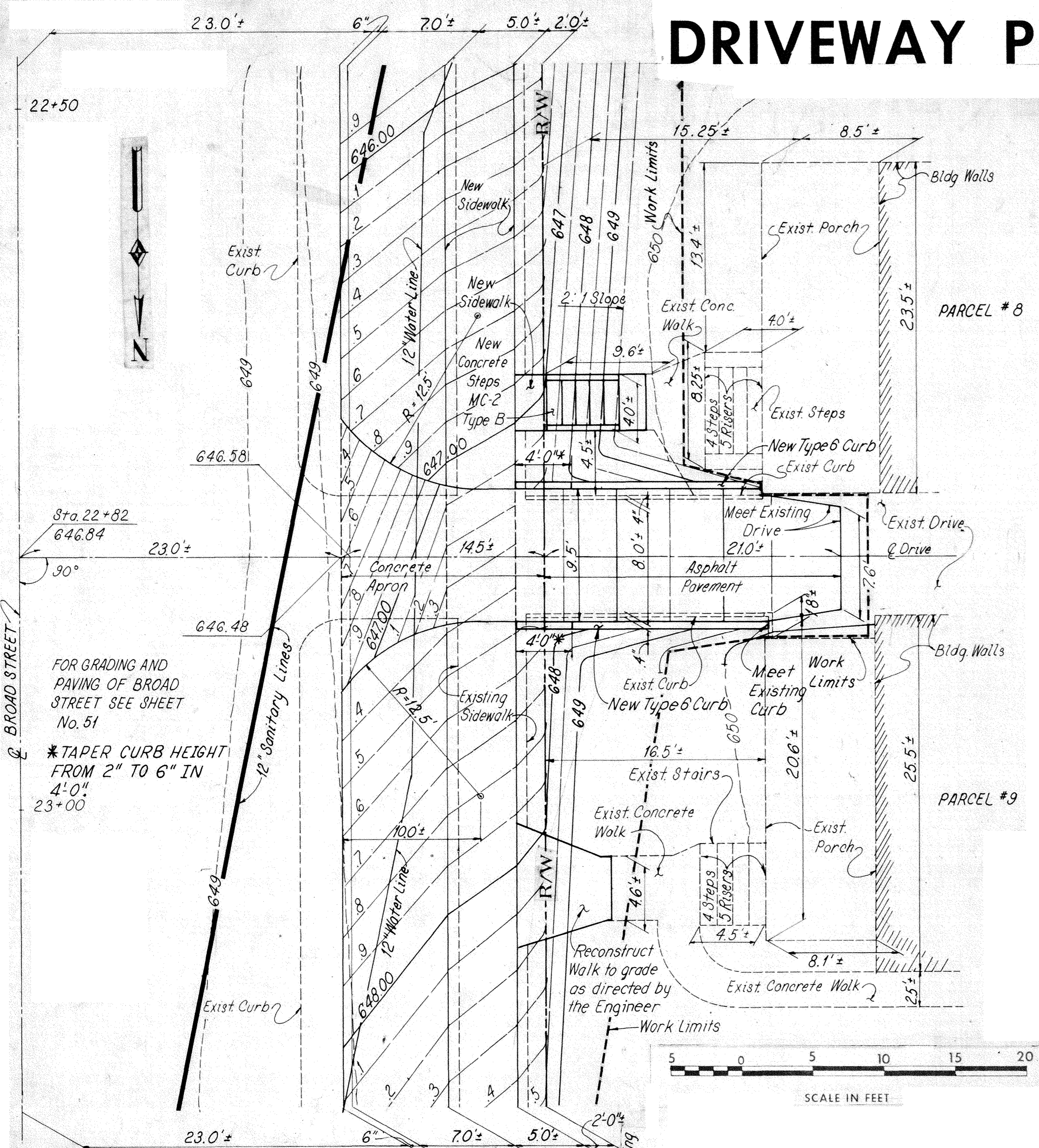
BY W.S. DATE 1-18-80

CHKD. AJM DATE 1/24/80

WOODRUFF, INC.

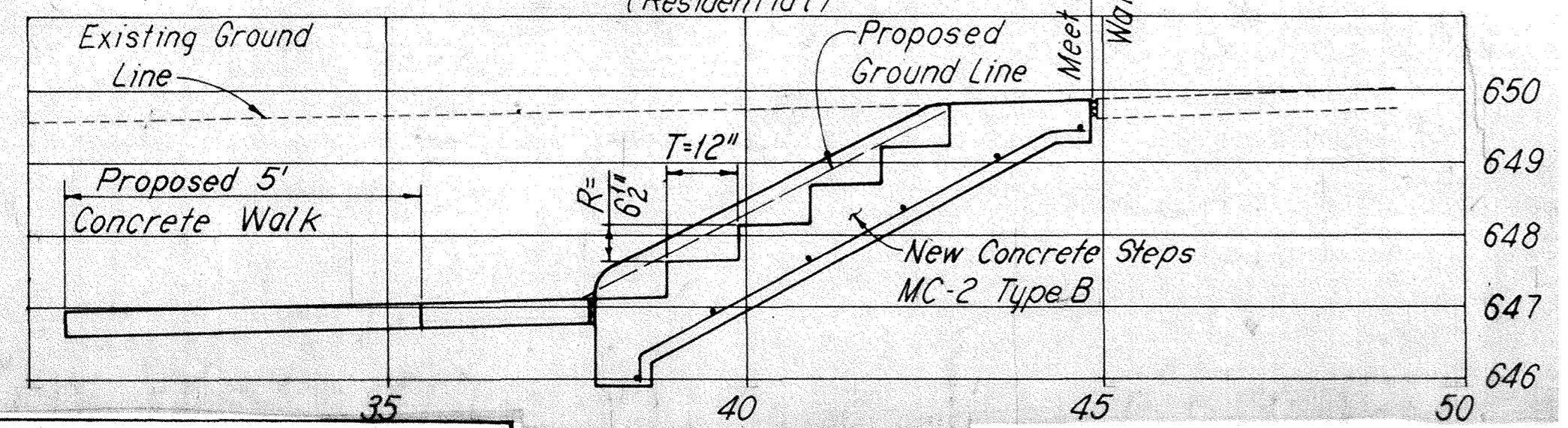
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	STATE

ASHTABULA COUNTY  
ATB-7-31.43



FOR GRADING AND PAVING OF BROAD STREET SEE SHEET No. 51  
\*TAPER CURB HEIGHT FROM 2" TO 6" IN 4'-0" 23+00

PLAN DRIVE STA. 22+82 (Residential)



PROFILE ALONG STEPS STA. 22+71

STATION	SIDE	DRIVEWAYS									
		ITEM 203	ITEM 304	ITEM 402	ITEM 404	ITEM 407	ITEM 452	ITEM 452	ITEM 608	ITEM 609	ITEM 609
		EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION AS PER PLAN	AGGREGATE BASE	ASPHALT CONCRETE AC-20	ASPHALT CONCRETE AC-20	TACK COAT, RC-250, MS-2, RS-1, SS-1, OR SS-1h	8" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT	6" PLAIN PORTLAND CEMENT CONCRETE PAVEMENT	4" CONCRETE WALK	CURB STANDARD TYPE 2-A	CURB STANDARD TYPE 6
	CU. YDS.	CU. YDS.	CU. YDS.	CU. YDS.	GALLONS	SQ. YDS.	SQ. YDS.	SQ. FT.	LIN. FT.	LIN. FT.	
<b>BROAD ST.</b>											
12+030	R	19					57		125	25	
13+00.0	R	23					69			37	
21+08.0	R	1160	61	11	7	100	23				
22+26.0	L	92	26	5	3.1	45	33				
22+71	L							10			
22+82.0	L	6	4		1.2	9		19		37	
23+05.8	L							44			
<b>Jefferson St.</b>											
2+10.0	L	8					23				
2+20.5	R	6					18				
2+54.0	L	5					16				
1+94	R	11					34				
<b>Adams St.</b>											
1+03.0	R	10					33				
<b>Jackson St.</b>											
5+62.0	L	8					23				
<b>TOTAL</b>		<b>1,348</b>	<b>91</b>	<b>16</b>	<b>11.3</b>	<b>154</b>	<b>329</b>	<b>19</b>	<b>179</b>	<b>62</b>	<b>37</b>

ITEM 606 GUARDRAIL, TYPE 4						
STA.	OFFSET	STA.	OFFSET	SIDE	LENGTH	REMARKS
FROM	FEET	TO	FEET		LIN. FT.	
<b>BROAD ST.</b>						
17+76.61	97	18+14.11	97	R	37.5	
					<b>TOTAL</b>	<b>38</b>

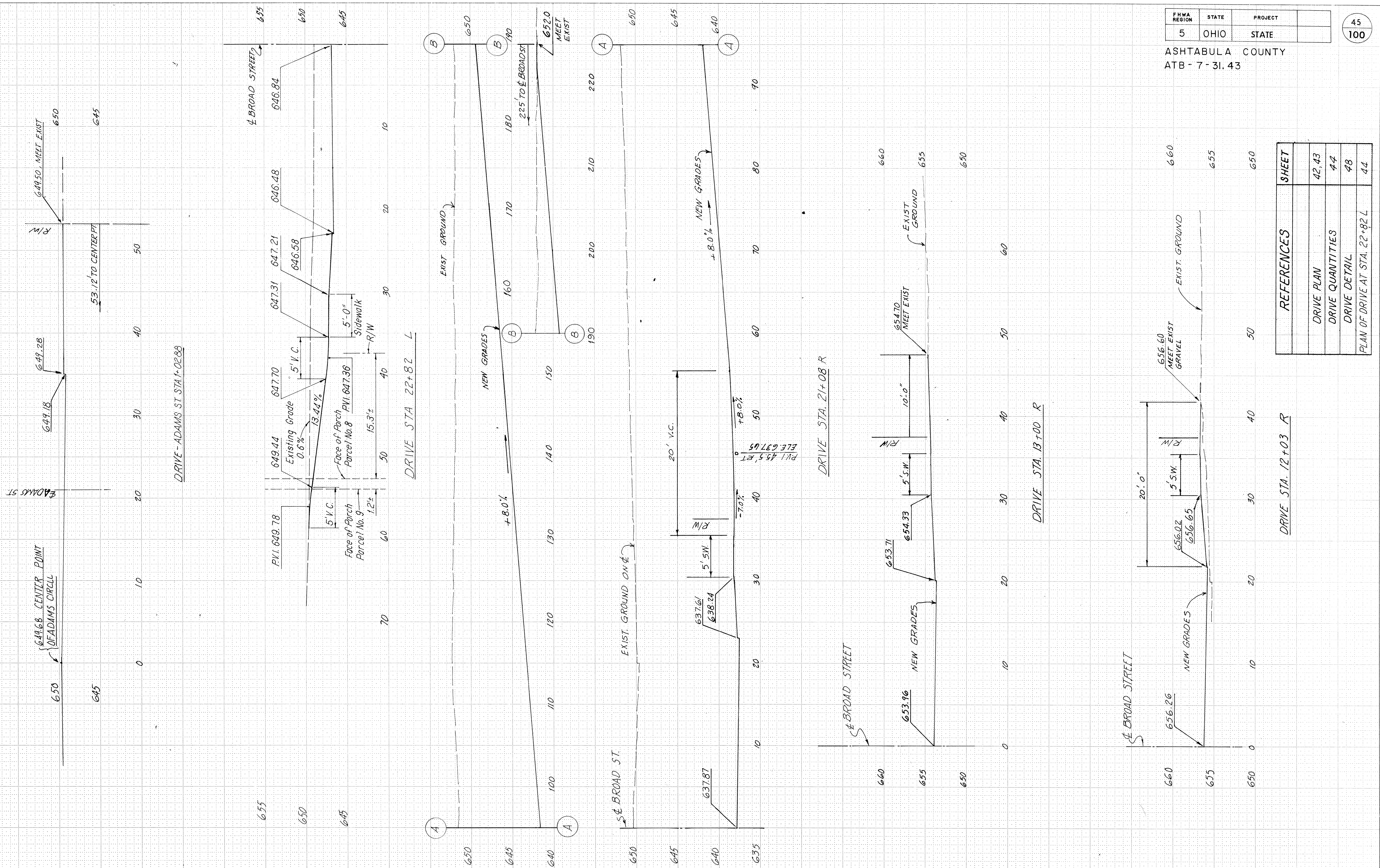
ITEM 659 SEEDING AND MULCHING AS PER PLAN						
STA.	OFFSET	STA.	OFFSET	SIDE	AREA	REMARKS
FROM		TO			SQ. YDS.	
<b>BROAD ST.</b>						
19+90.0	80.0	20+28.89	81.0	L	31	
22+06.0	61.7	22+41.81	58.0	L	32	
20+81.0	75.5	21+43.0	70.0	R	306	
					<b>TOTAL</b>	<b>369</b>

References	Sheet No.
Grading & Pavement & Work Limits	49,50,51
Sanitary Sewer	60
Water Line	64,65,67
Drive Detail	48
Right-of-Way Plans	89-97
Drive Profile	45

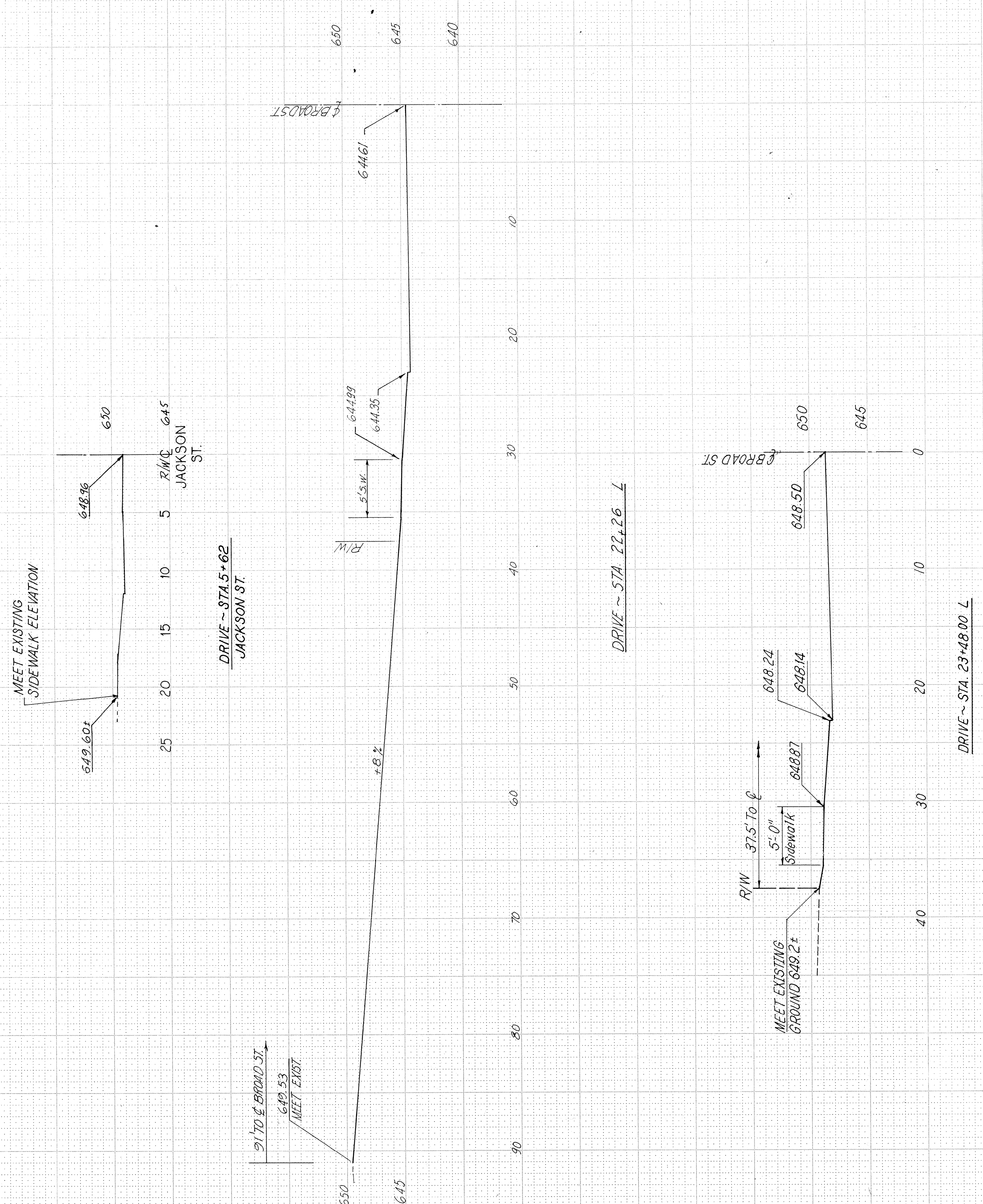
ITEM 608 CONCRETE STEPS				
STA.	OFFSET	SIDE	LENGTH	REMARKS
			LIN. FT.	
<b>Broad St.</b>				
22+71	37.8'	L	24'	
			<b>TOTAL</b>	<b>24'</b>

WOODRUFF, INC.  
CONSULTING ENGINEERS  
CLEVELAND OHIO

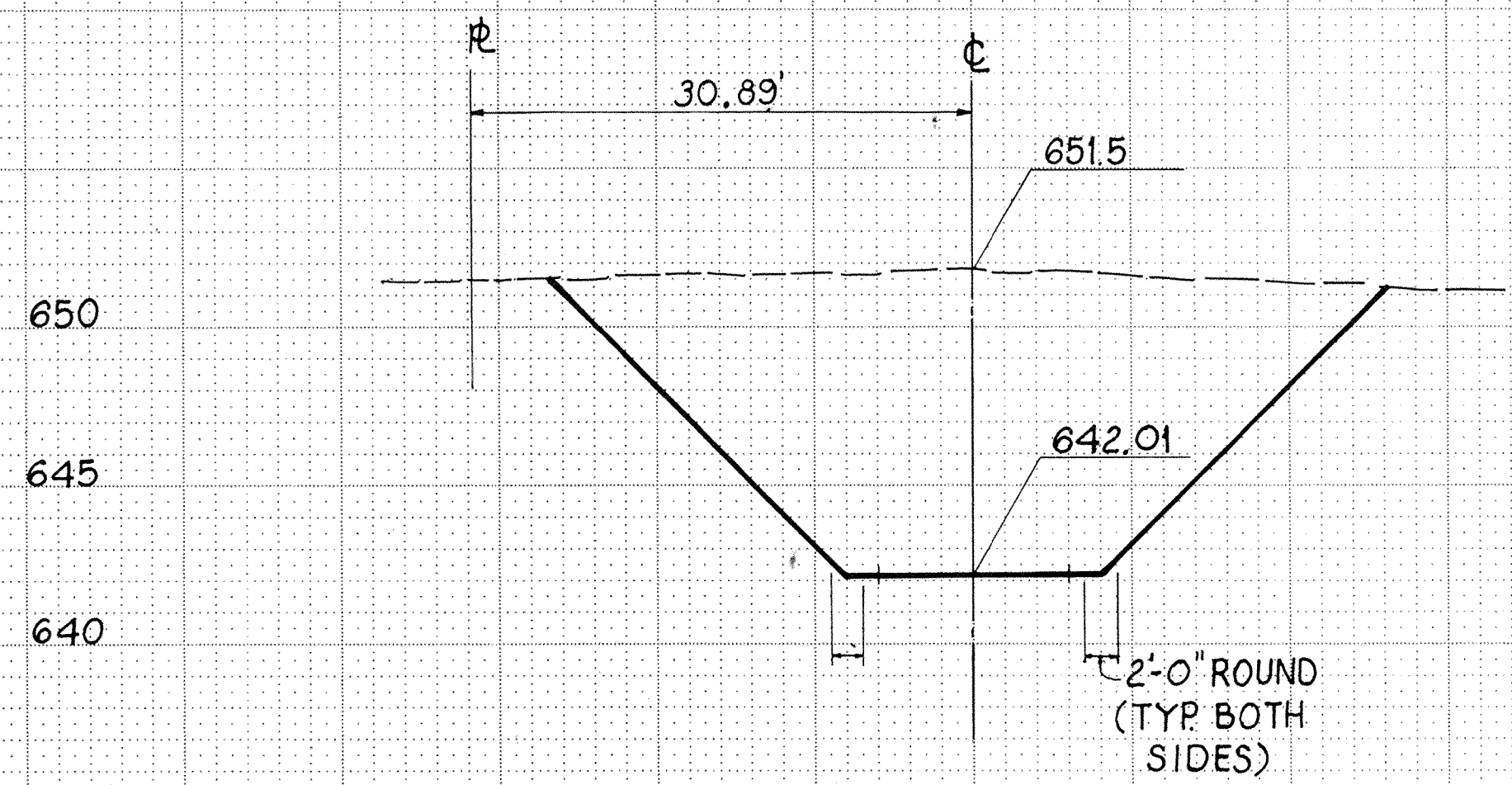
SR. 7 - BROAD STREET



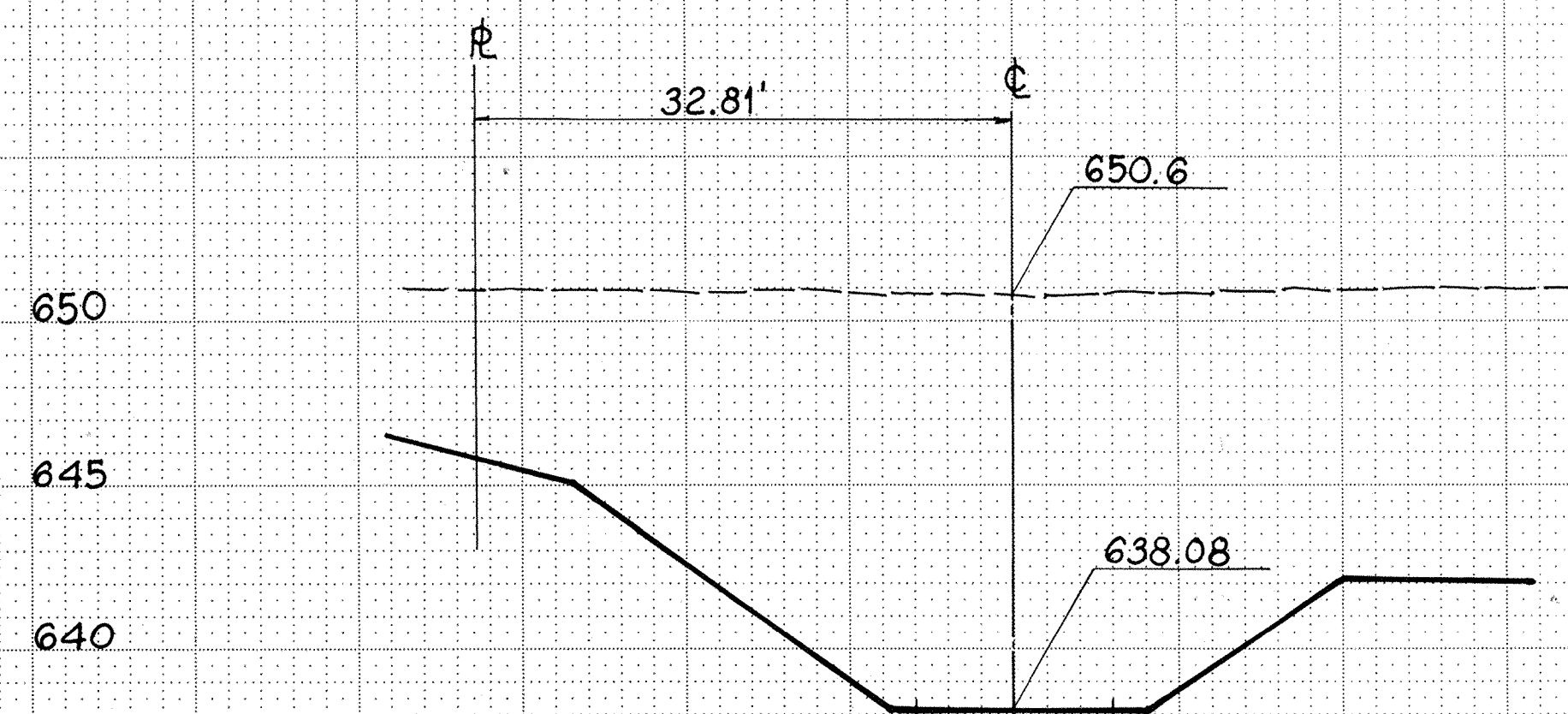
REFERENCES	SHEET
DRIVE PLAN	42, 43
DRIVE QUANTITIES	44
DRIVE DETAIL	48
PLAN OF DRIVE AT STA. 22+82 L	44



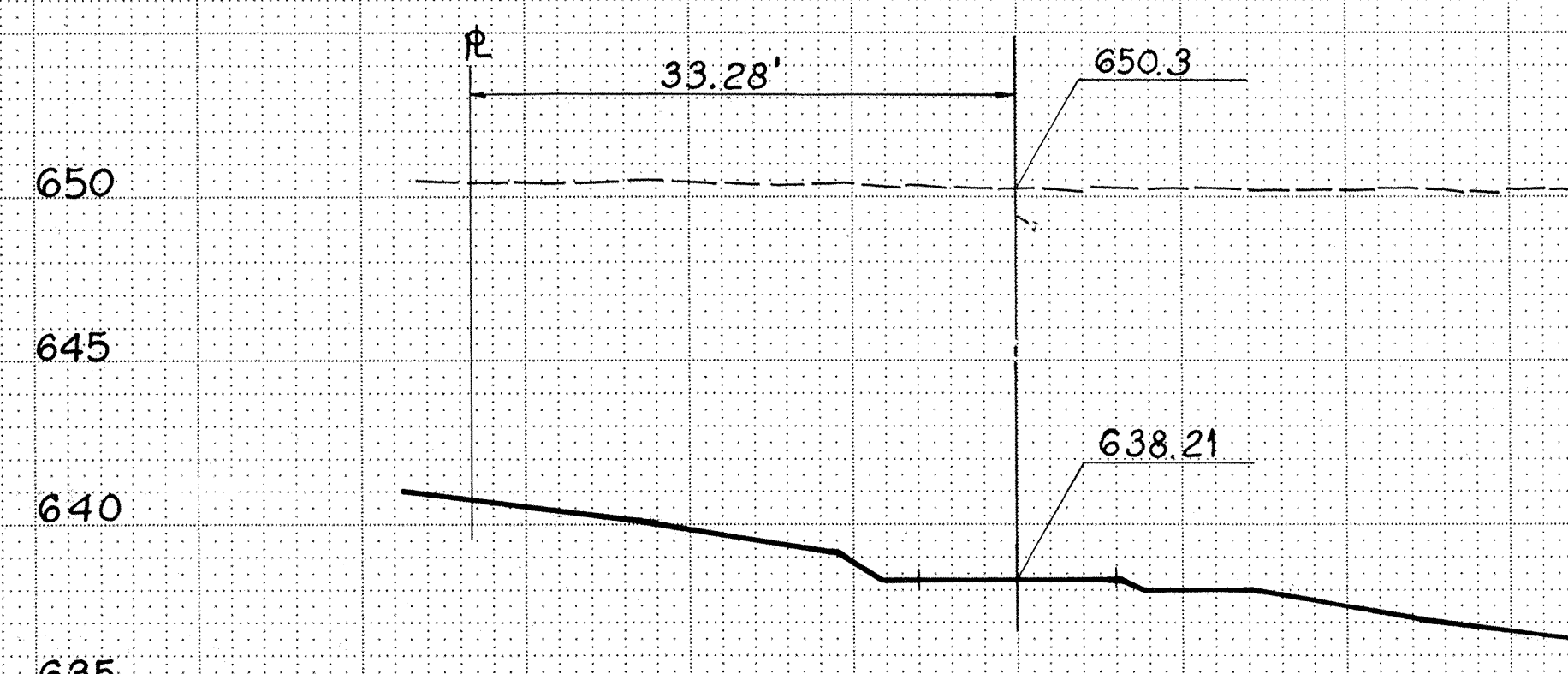
REFERENCES	SHEET
DRIVE PLAN	42,43,44
DRIVE QUANTITIES	44
DRIVE DETAIL	48



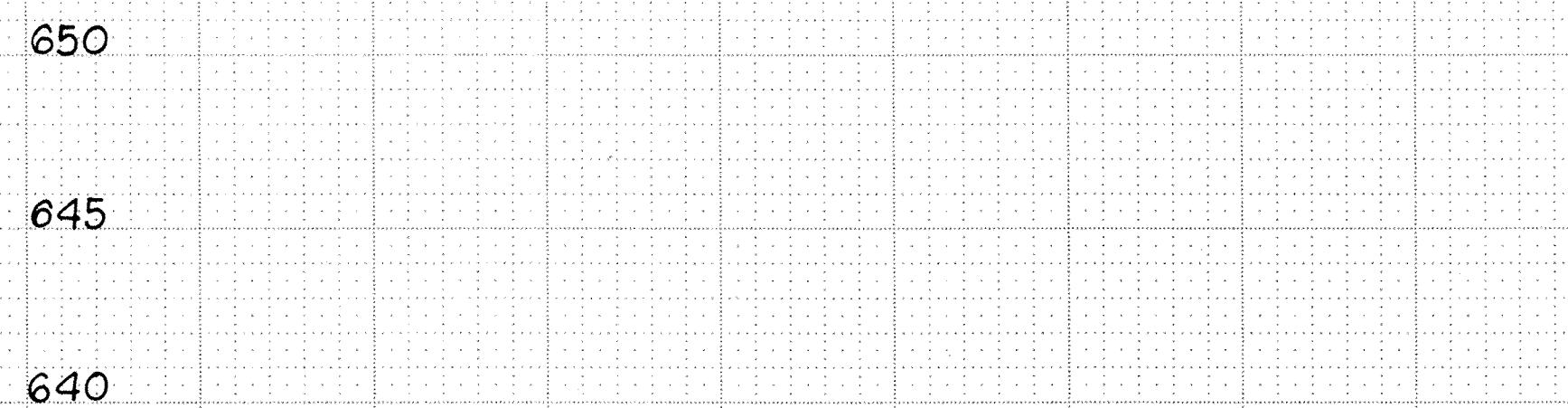
STA. 1+00



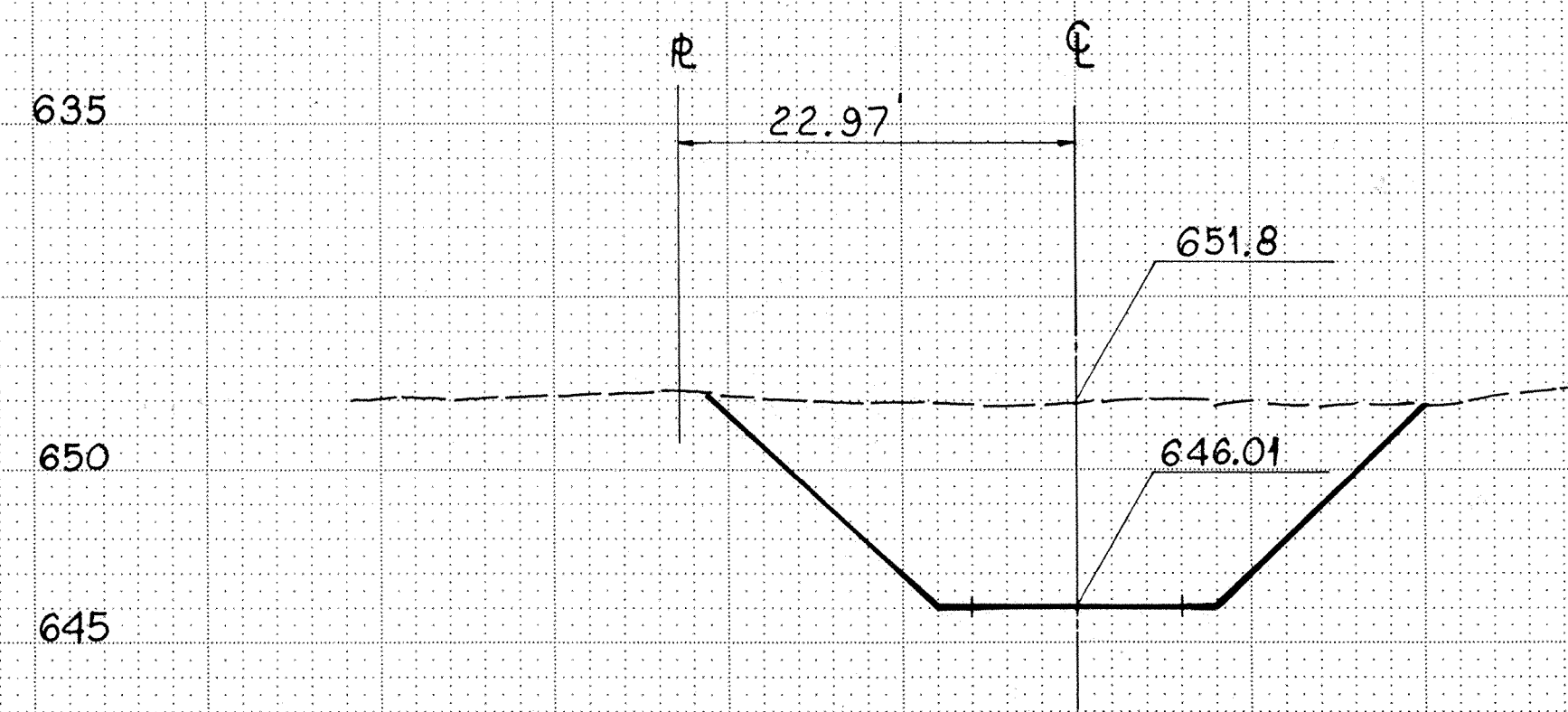
STA. 0+50



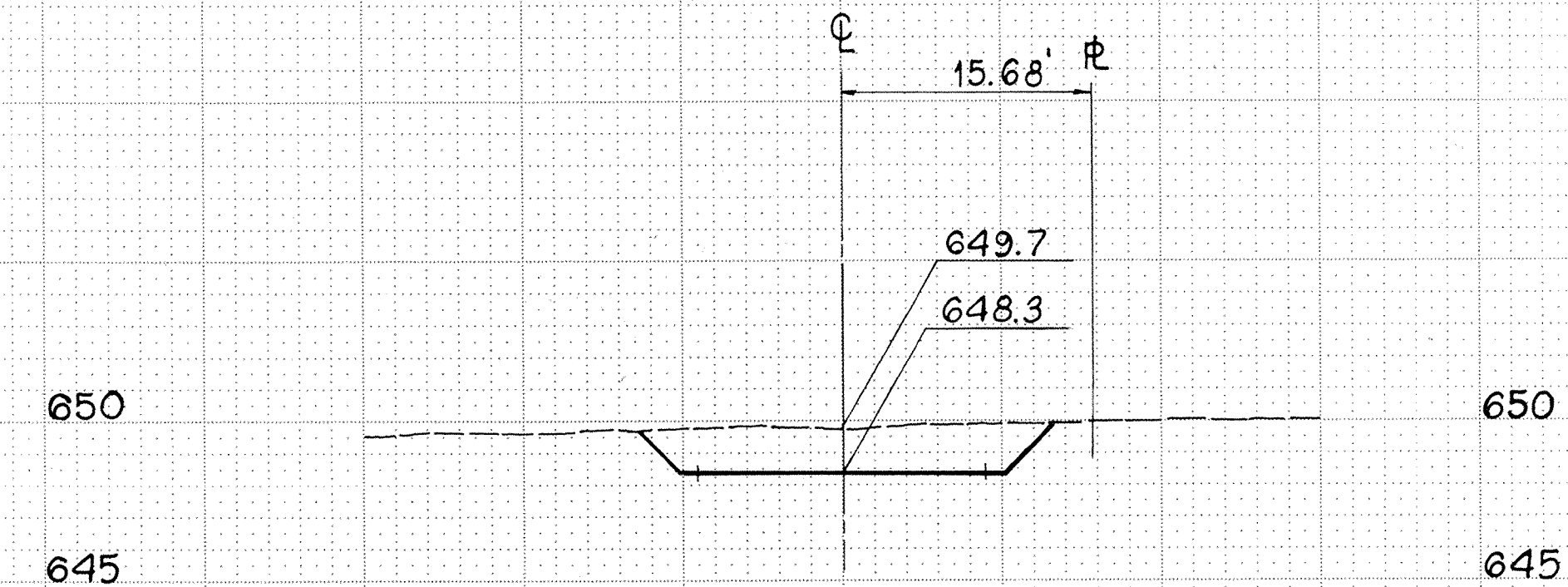
STA. 0+37.5 (R/W)



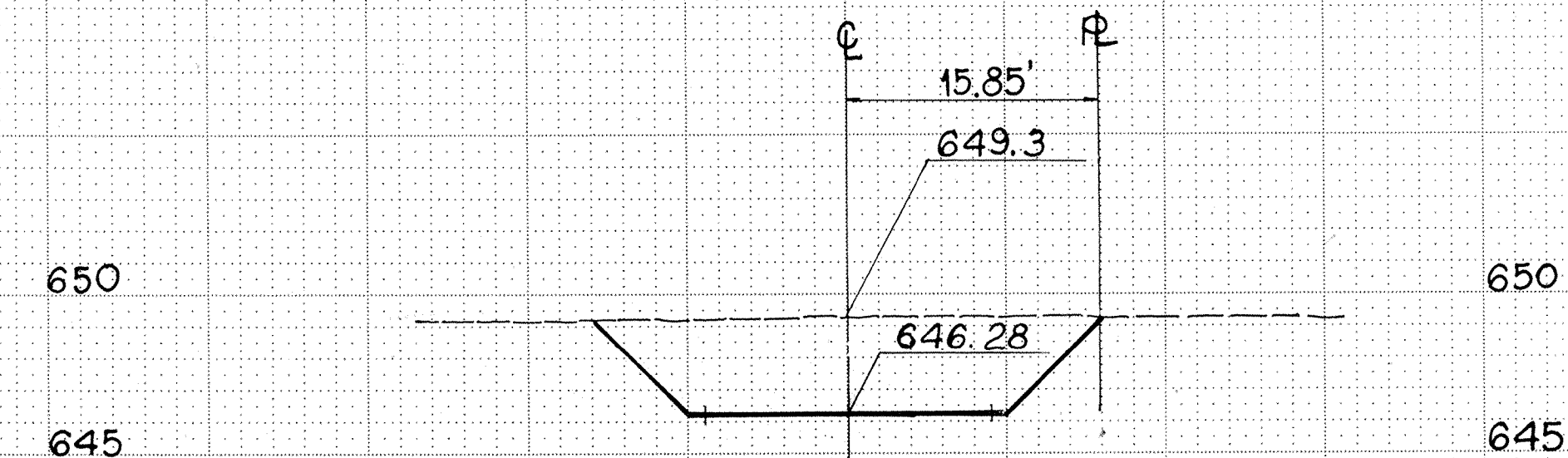
STA. 2+00



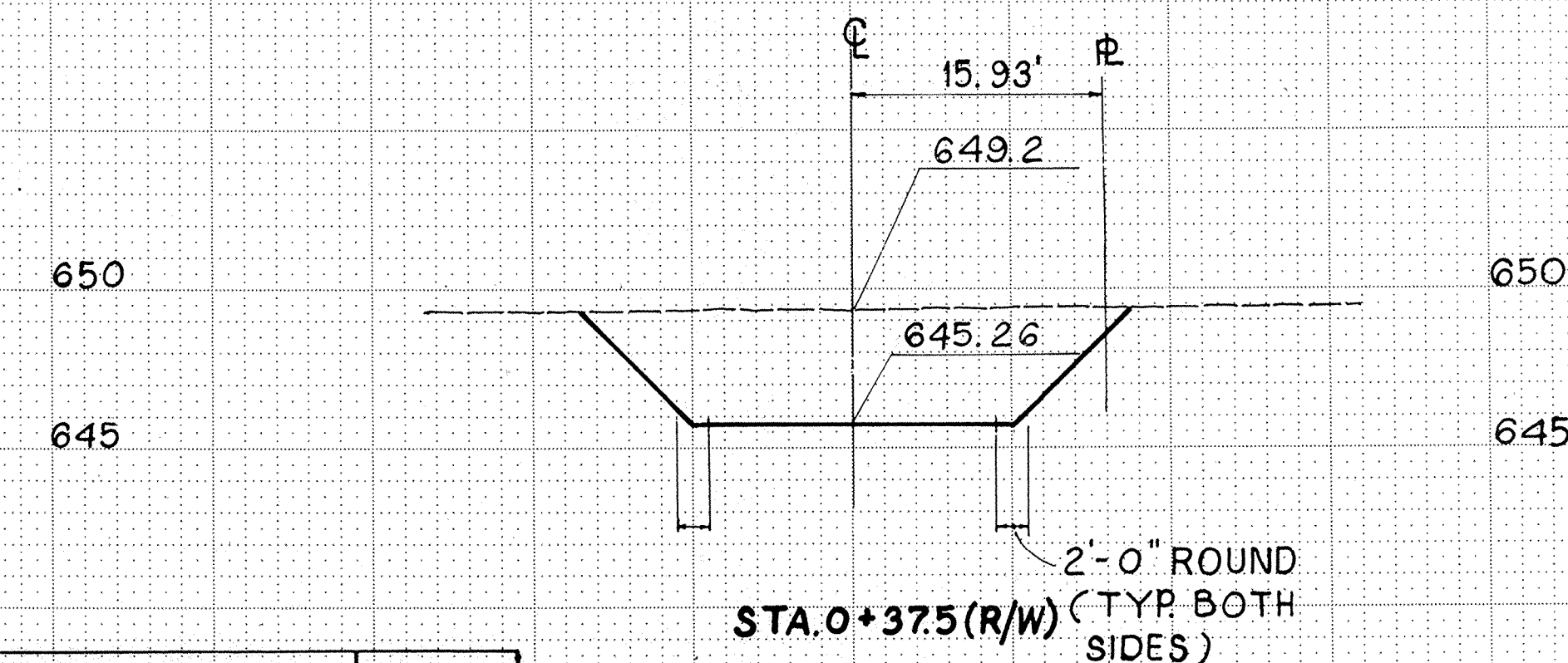
STA. 1+50



STA. 0+75



STA. 0+50



STA. 0+37.5 (R/W) (TYP BOTH SIDES)

CROSS SECTIONS  
DRIVEWAY STA. 21+00 R

CROSS SECTIONS  
DRIVEWAY STA. 22+26 L

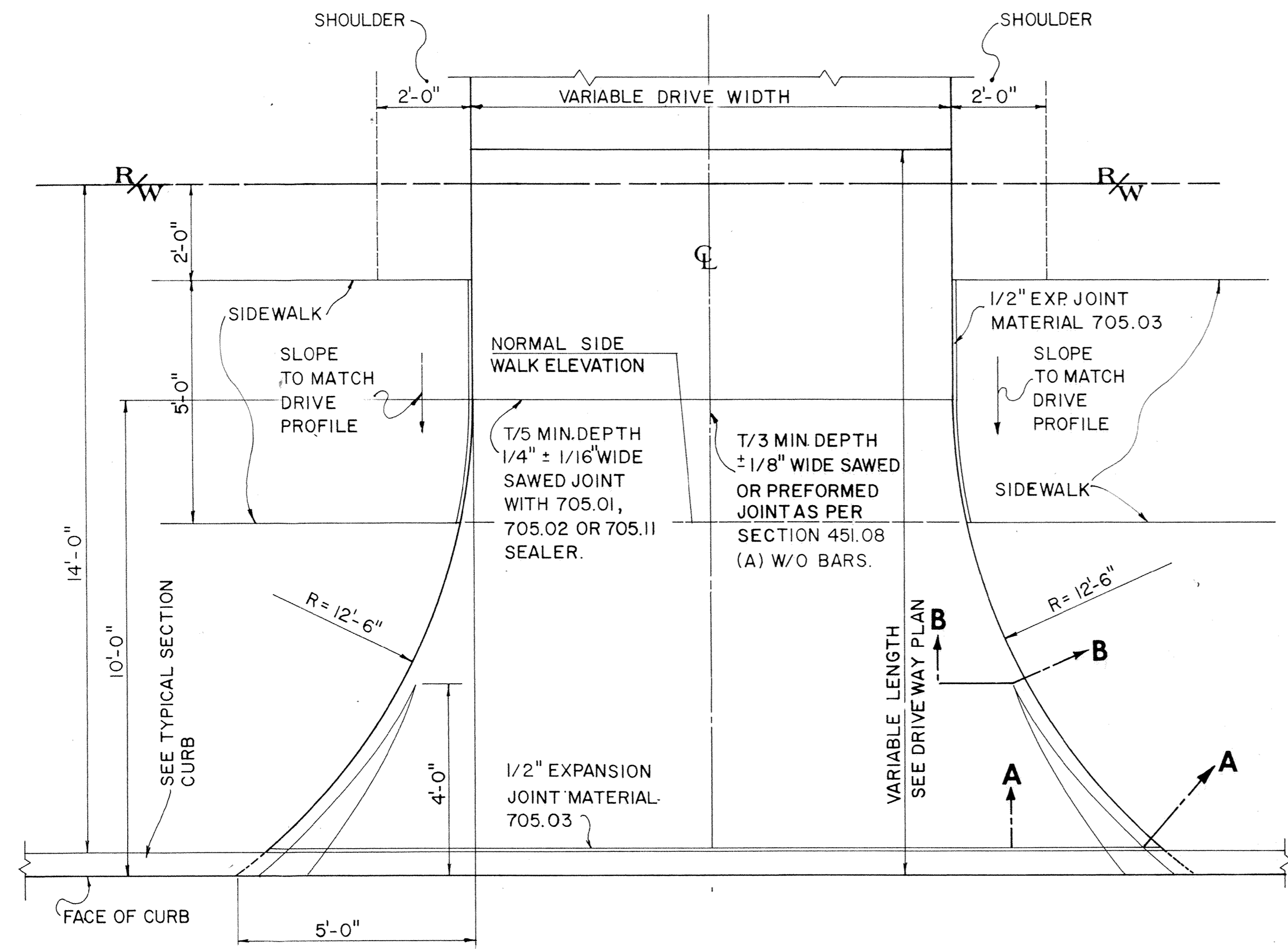
REFERENCES	SHEET
DRIVE PROFILE	45, 46
DRIVE PLAN	42, 43, 44
DRIVE QUANTITIES	44
DRIVE DETAIL	47

# DRIVE DETAIL

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

48  
100

ASHTABULA COUNTY  
ATB-7-31.43



**CONCRETE DRIVE**

SCALE: 1/2" = 1'-0"

**NOTE:**

RESIDENCE DRIVES HAVING AN EXISTING HARD SURFACE OR EXISTING AGGREGATE SURFACE SHALL BE REPLACED WITH A PAVEMENT OF A SIMILAR TYPE INSOFAR AS PRACTICABLE, USING ONE OF THE FOLLOWING DESIGNS FOR THE PORTION BEYOND THE FLARED APRON, UNLESS OTHERWISE NOTED.

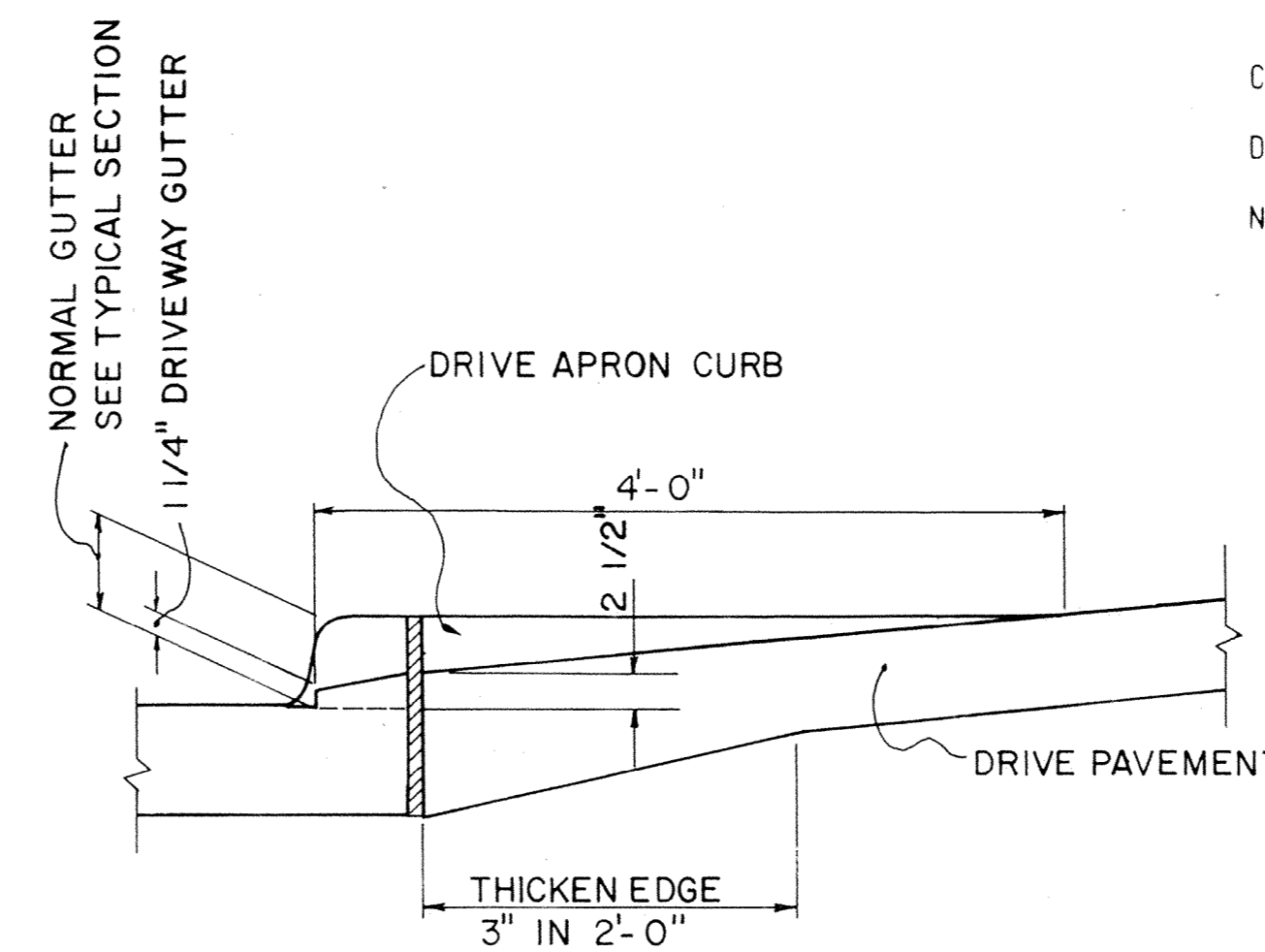
- A. 6" PLAIN PORTLAND CEMENT CONCRETE, ITEM 452
- B. 2" 404 ASPHALT CONCRETE, 407 PRIME COAT USING 0.4 GALLON 702 09 RT 2 OR 3 PER SQUARE YARD
- 6" 304 AGGREGATE BASE OR 7" OF 411 STABILIZED CRUSHED AGGREGATE
- C. 1" 404 ASPHALT CONCRETE
- 4" 301 BITUMINOUS AGGREGATE BASE
- D. 8" 411 OR 304

FOR ASPHALTIC CONCRETE AND SLAG DRIVE THE PLAN VIEW SHOWN SHALL BE USED. SHAPE DRIVE SECTION TO PROVIDE FOR PROPER DRAINAGE, AS DIRECTED BY THE ENGINEER.

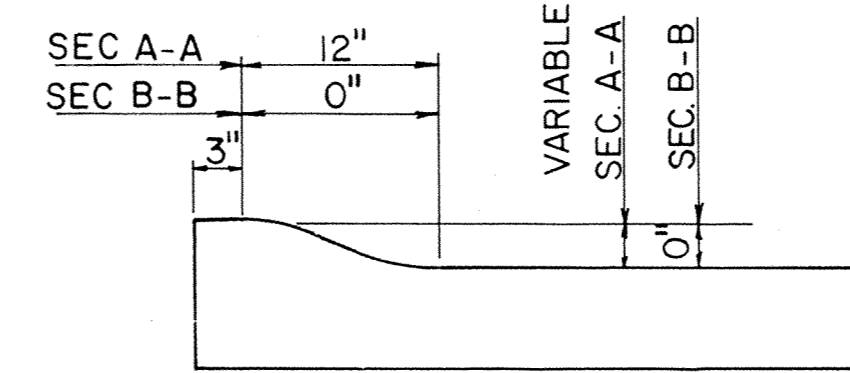
BUSINESS DRIVES HAVING AN EXISTING HARD SURFACE OR AGGREGATE SURFACE SHALL BE REPLACED WITH A PAVEMENT OF A SIMILAR TYPE INSOFAR AS PRACTICABLE USING ONE OF THE FOLLOWING DESIGNS FOR THE PORTION BEYOND THE RETURN, UNLESS OTHERWISE NOTED.

- A. 8" PLAIN PORTLAND CEMENT CONCRETE, ITEM 452
- B. 1 1/4" 404 ASPHALT CONCRETE
- 1 1/4" 402 ASPHALT CONCRETE, 407 PRIME COAT USING 0.4 GALLON 702 09 RT 2 OR 3 PER SQUARE YARD
- 8" 304 AGGREGATE BASE
- C. 1" 404 ASPHALT CONCRETE
- 5" BITUMINOUS AGGREGATE
- D. 10" 411 OR 304 AGGREGATE BASE

NOTE: ADDITIONAL THICKNESSES MAY BE PROVIDED FOR THE ABOVE COURSES WHERE UNUSUAL WEIGHTS OR TYPES OF VEHICLES ARE EXPECTED TO USE THE BUSINESS DRIVE



**APRON CURB TRANSITION**



**DETAIL OF APRON CURB**

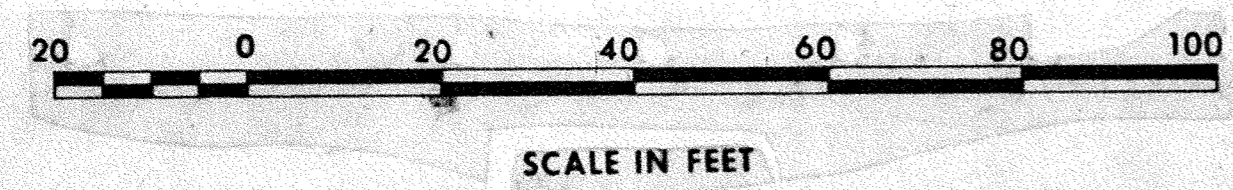
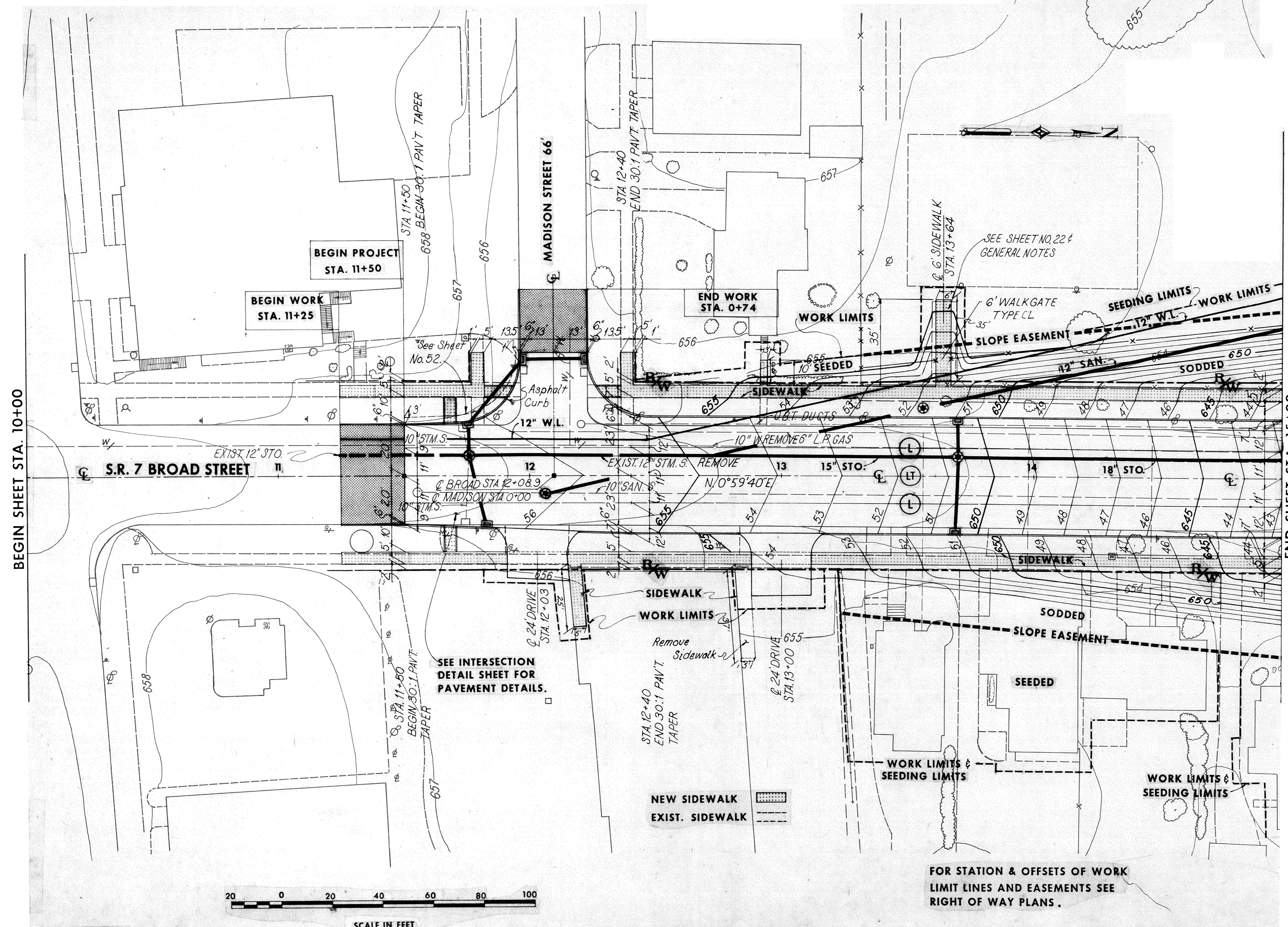
SCALE: 1" = 1'-0"

REFERENCES	SHEET
DRIVE PROFILE	45,46
DRIVE PLAN	42,43,44
DRIVE QUANTITIES	44

SCALE \_\_\_\_\_  
MADE \_\_\_\_\_ DATE \_\_\_\_\_  
TRCD \_\_\_\_\_ DATE 8/13/99  
CKD. A.J.M. DATE 1/13/02

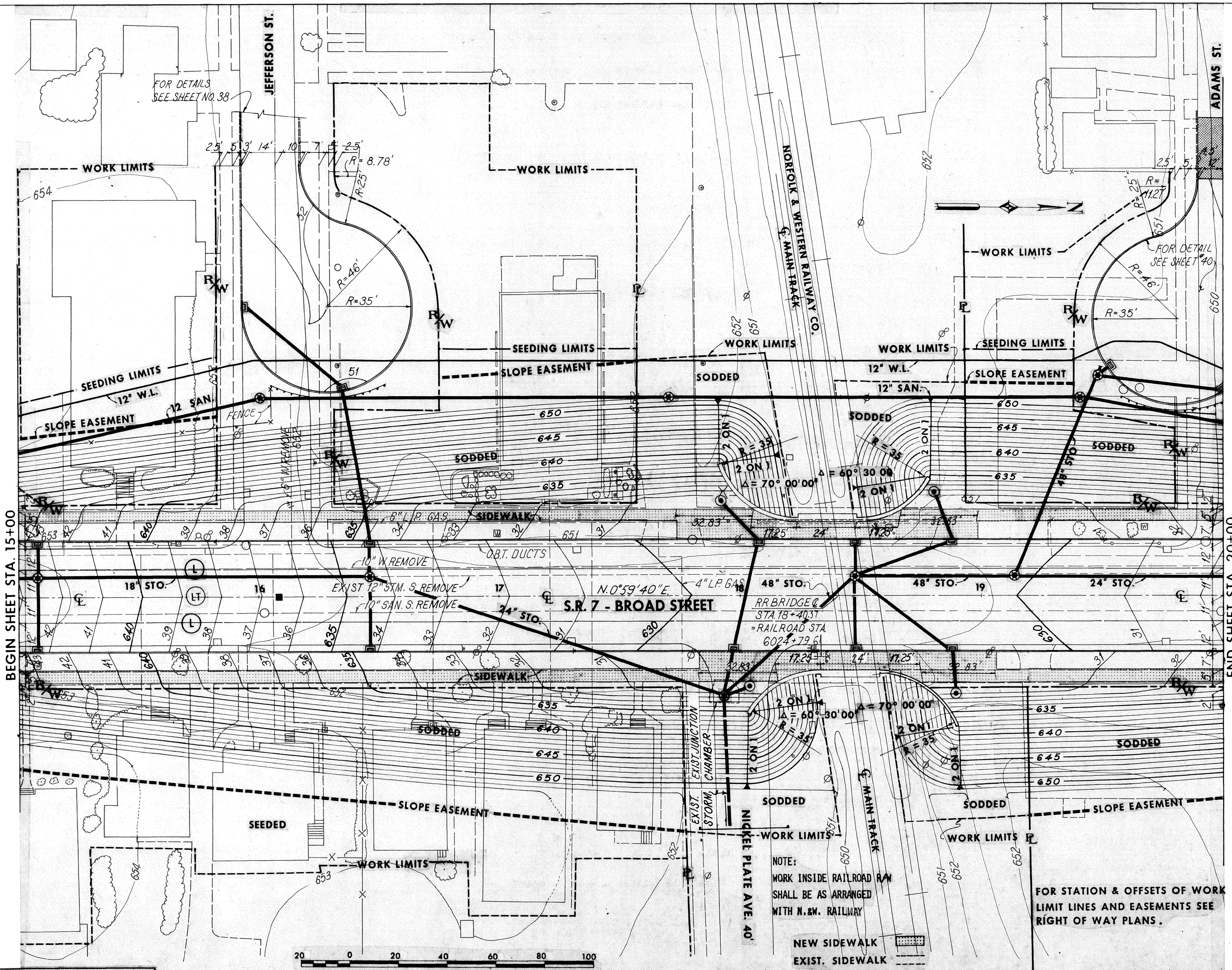
**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO





References	Sheet No.
PLAN AND PROFILE	22-24
SANITARY SEWER	60
WATERLINE	64,65,67
DRIVEWAYS	42,43,44
MADISON INTERSECTION	52
RIGHT OF WAY PLANS	89-97

JOINT LEGEND	
(LT)	LONGITUDINAL KEYED JOINT WITHOUT TIE BARS
(L)	STANDARD LONGITUDINAL JOINT SAWED AND TIED

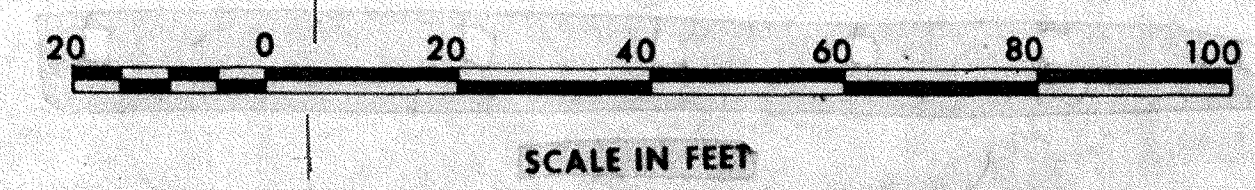


References	Sheet No.
PLAN AND PROFILE	22-24
SANITARY SEWER	60
WATERLINE	64,65,67
DRIVEWAYS	42,43,44
JEFFERSON ST. DETAIL	38
RIGHT OF WAY PLANS	89-97

JOINT LEGEND	
(LT)	LONGITUDINAL KEED JOINT WITHOUT TIE BARS
(L)	STANDARD LONGITUDINAL JOINT SAWED AND TIED

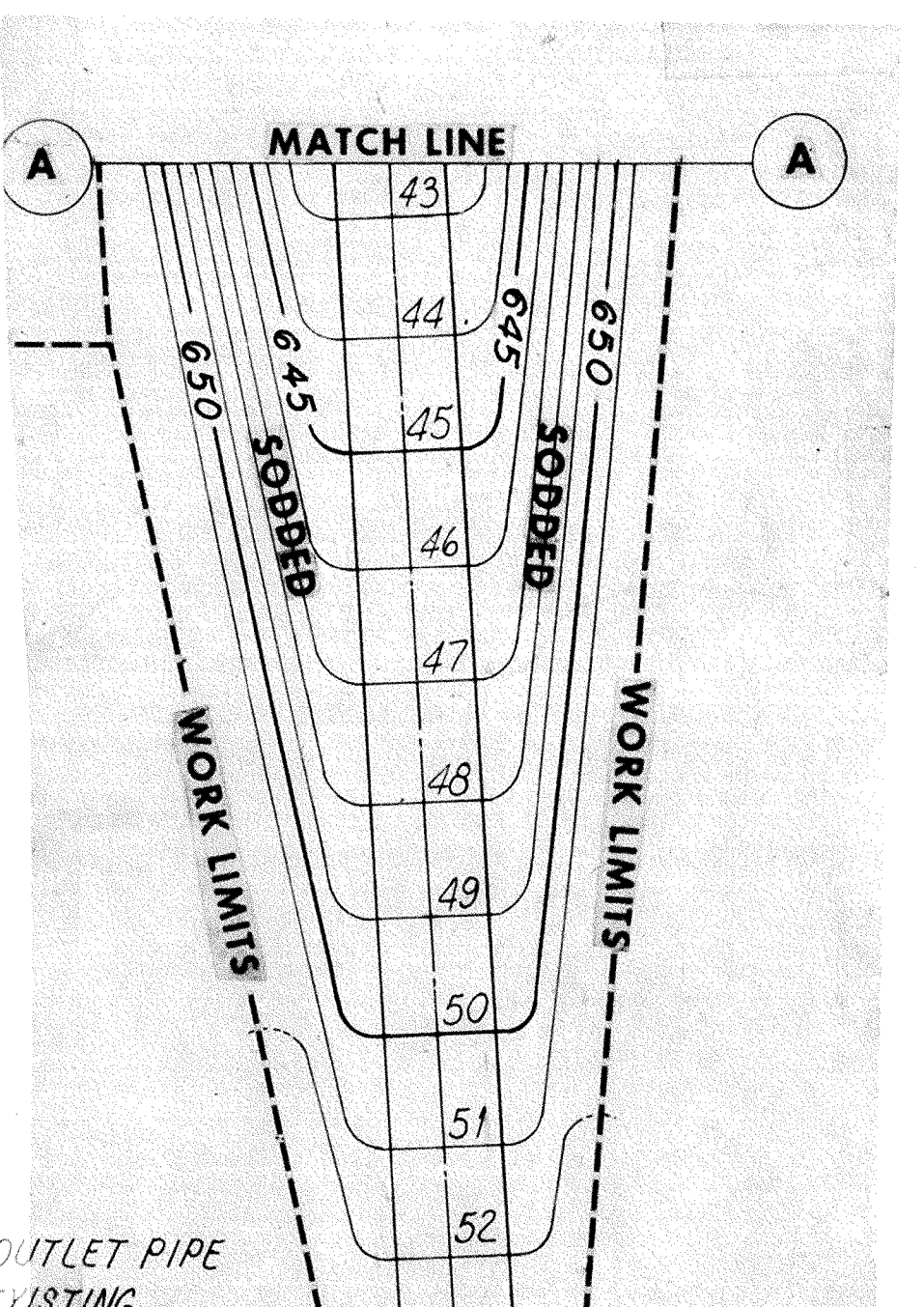
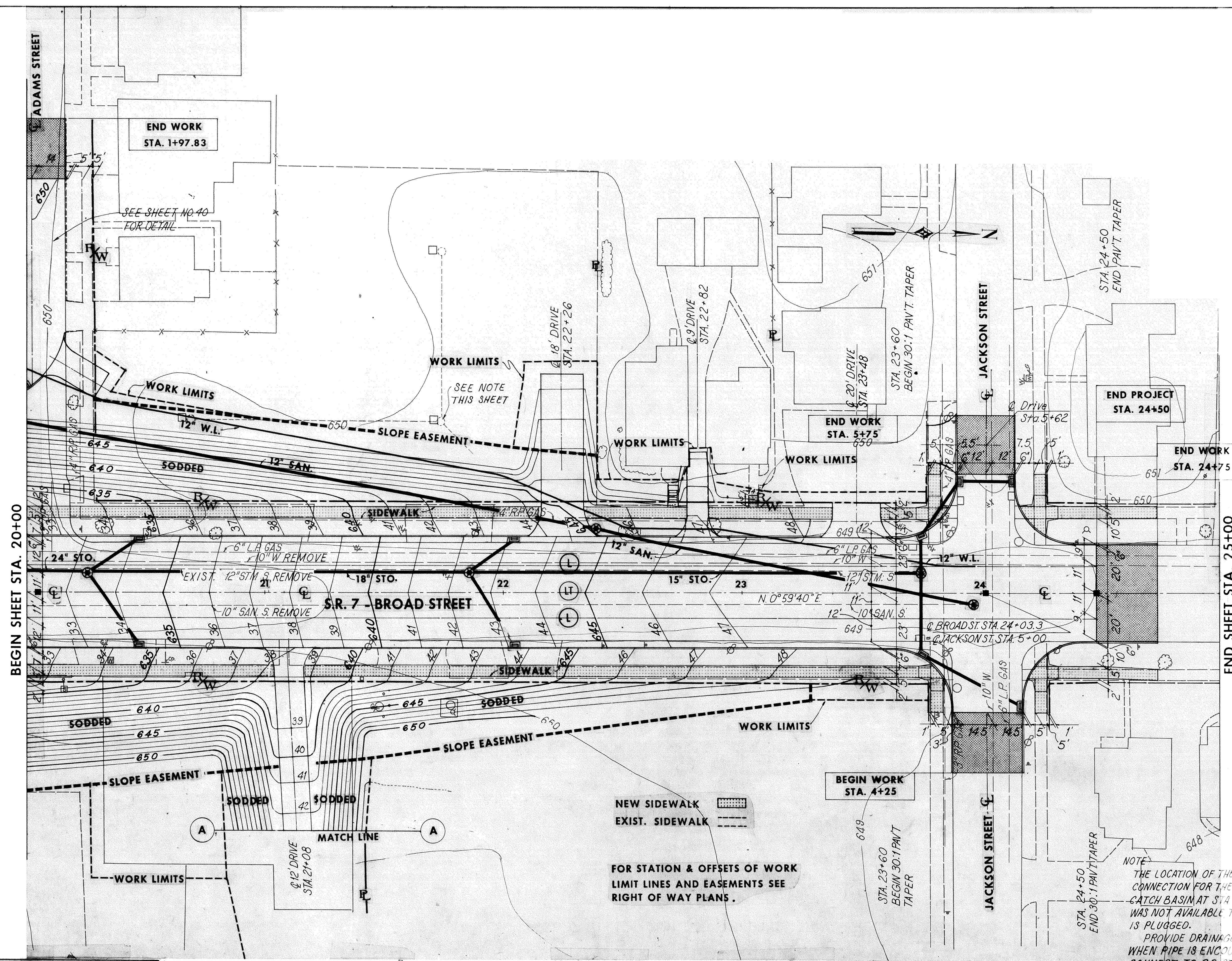
NOTE:  
WORK INSIDE RAILROAD R/W  
SHALL BE AS ARRANGED  
WITH N.&W. RAILWAY

FOR STATION & OFFSETS OF WORK  
LIMIT LINES AND EASEMENTS SEE  
RIGHT OF WAY PLANS.



References	Sheet No.
PLAN AND PROFILE	22-24
SANITARY SEWER	60
WATERLINE	64,65,67
DRIVEWAYS	42,43,44
JACKSON INTERSECTION	53
ADAMS CUL-DE-SAC	40
RIGHT OF WAY PLANS	89-97

JOINT LEGEND	
(LT)	LONGITUDINAL KEYED JOINT WITHOUT TIE BARS
(L)	STANDARD LONGITUDINAL JOINT SAWED AND TIED



NOTE:  
THE LOCATION OF THE OUTLET PIPE CONNECTION FOR THE EXISTING CATCH BASIN AT STA 21+72.9, 71.4'L WAS NOT AVAILABLE. THE CATCH BASIN IS PLUGGED.  
PROVIDE DRAINAGE FOR THIS CATCH BASIN WHEN PIPE IS ENCOUNTERED DURING EXCAVATION. CONNECT TO CB STA 22+03, 23'L. AMPLE DROP IS AVAILABLE.

NEW SIDEWALK [hatched pattern]  
EXIST. SIDEWALK [dashed pattern]

FOR STATION & OFFSETS OF WORK LIMIT LINES AND EASEMENTS SEE RIGHT OF WAY PLANS.

# INTERSECTION DETAILS

QUANTITY CALCULATIONS

BY N.S. DATE 1-18-80

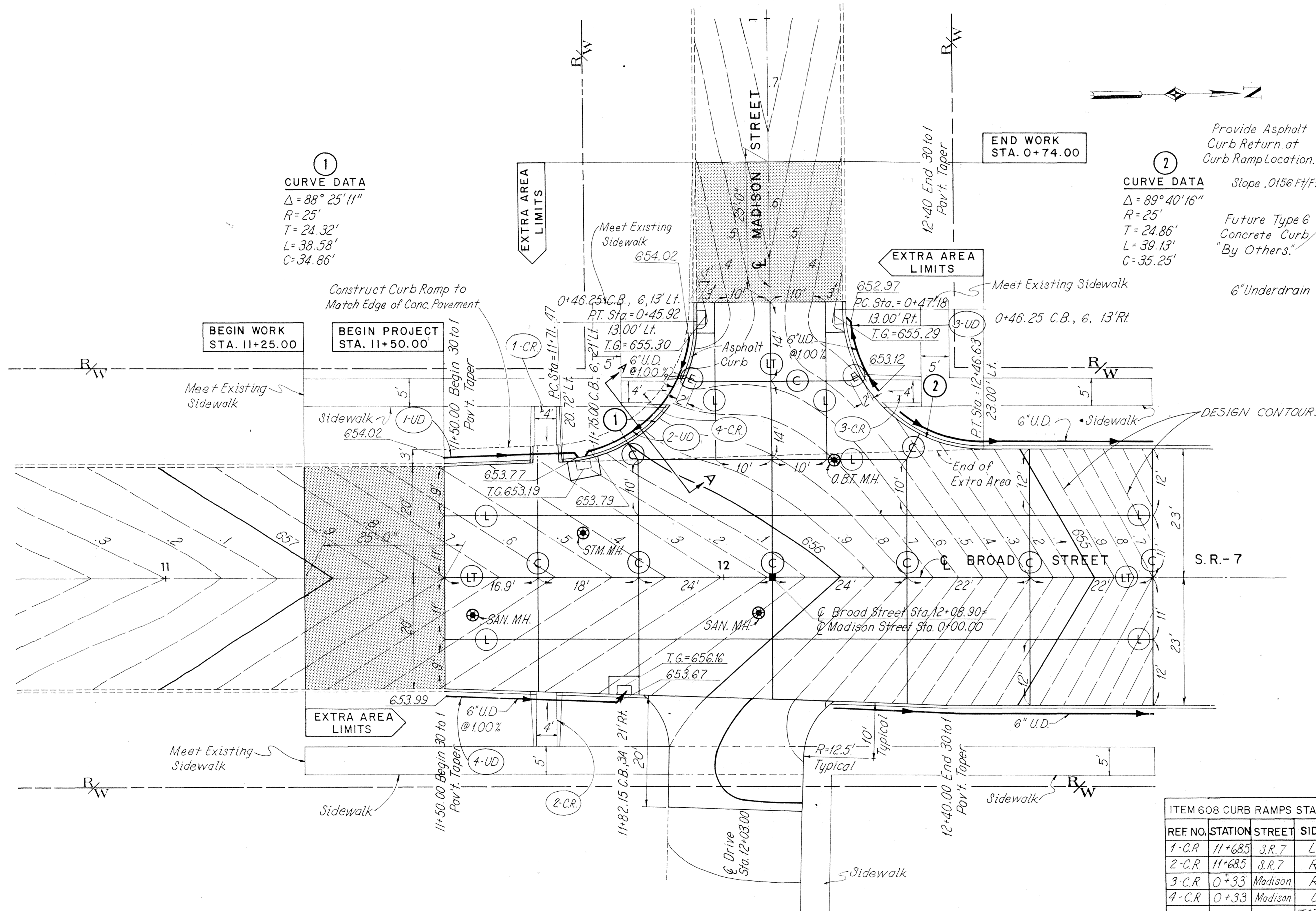
CHKD. AJM DATE 1/24/80

WOODRUFF, INC.

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

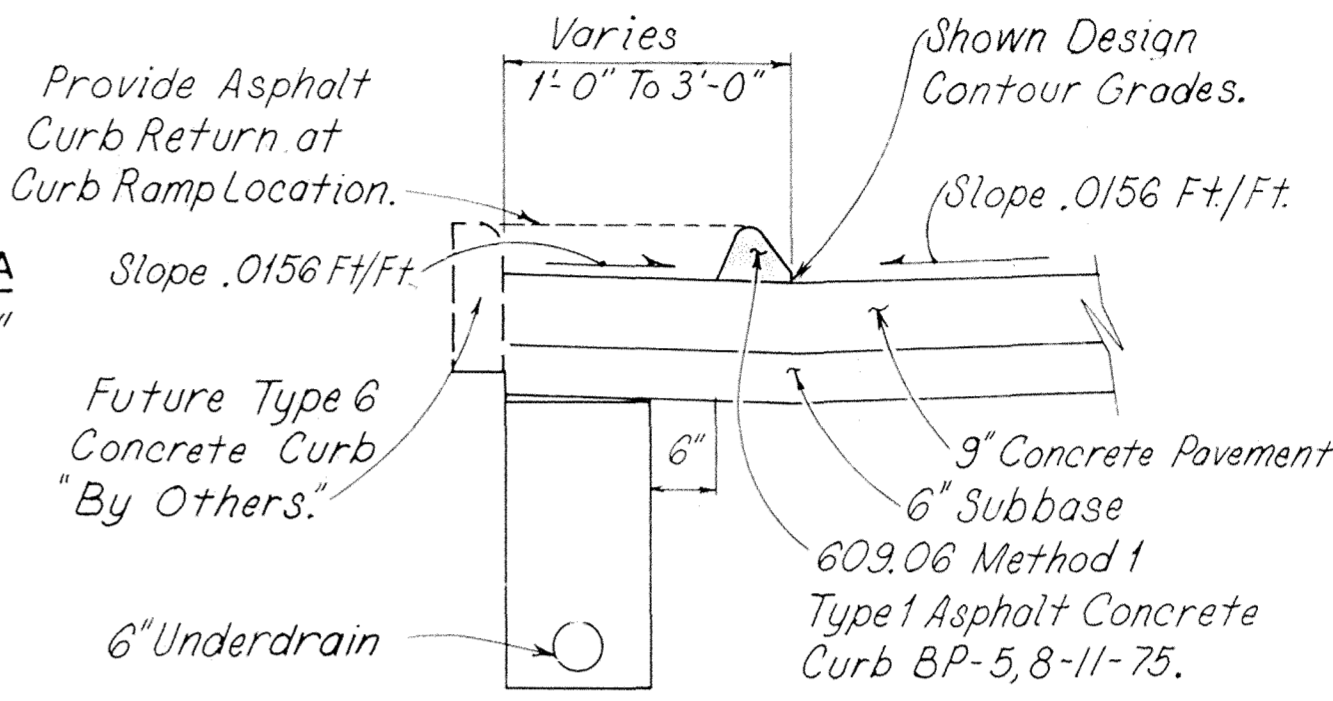
52  
100

ASHTABULA COUNTY  
ATB-7-31.43



**1**  
CURVE DATA  
 $\Delta = 88^\circ 25' 11''$   
 $R = 25'$   
 $T = 24.32'$   
 $L = 38.58'$   
 $C = 34.86'$

**2**  
CURVE DATA  
 $\Delta = 89^\circ 40' 16''$   
 $R = 25'$   
 $T = 24.86'$   
 $L = 39.13'$   
 $C = 35.25'$



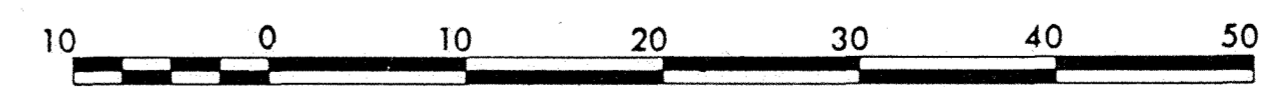
SECTION A-A

ITEM 605					
REF. NO.	STATION		SIDE	6" SHALLOW PIPE UNDERDRAIN	6" UNCLASSIFIED PIPE UNDERDRAIN
	FROM	TO		LIN. FT.	LIN. FT.
1-UD	11+50.00	11+75.00	L		25
2-UD	11+75.00	0+43.50	L	31	
3-UD	0+46.25	12+28.00	L	15	
4-UD	11+50.00	11+82.15	R		33
TOTAL				46	58

ITEM 608 CURB RAMPS STANDARD TYPE 2				
REF. NO.	STATION	STREET	SIDE	EACH
1-C.R.	11+68.5	S.R.7	L	1
2-C.R.	11+68.5	S.R.7	R	1
3-C.R.	0+33	Madison	R	1
4-C.R.	0+33	Madison	L	1
TOTAL				4

JOINT LEGEND	
(LT)	LONGITUDINAL KEYED JOINT WITHOUT TIE BARS
(L)	STANDARD LONGITUDINAL JOINT SAWED AND TIED
(C)	STANDARD CONTRACTION JOINT
(E)	EXPANSION JOINT WITHOUT DOWELS

"EXTRA AREA" INDICATES AREA WHOSE QUANTITIES ARE ESTIMATED SEPARATELY, SEE SHEET 28 & SUBSUMMARIES.



SCALE IN FEET

SR. 7 - BROAD STREET

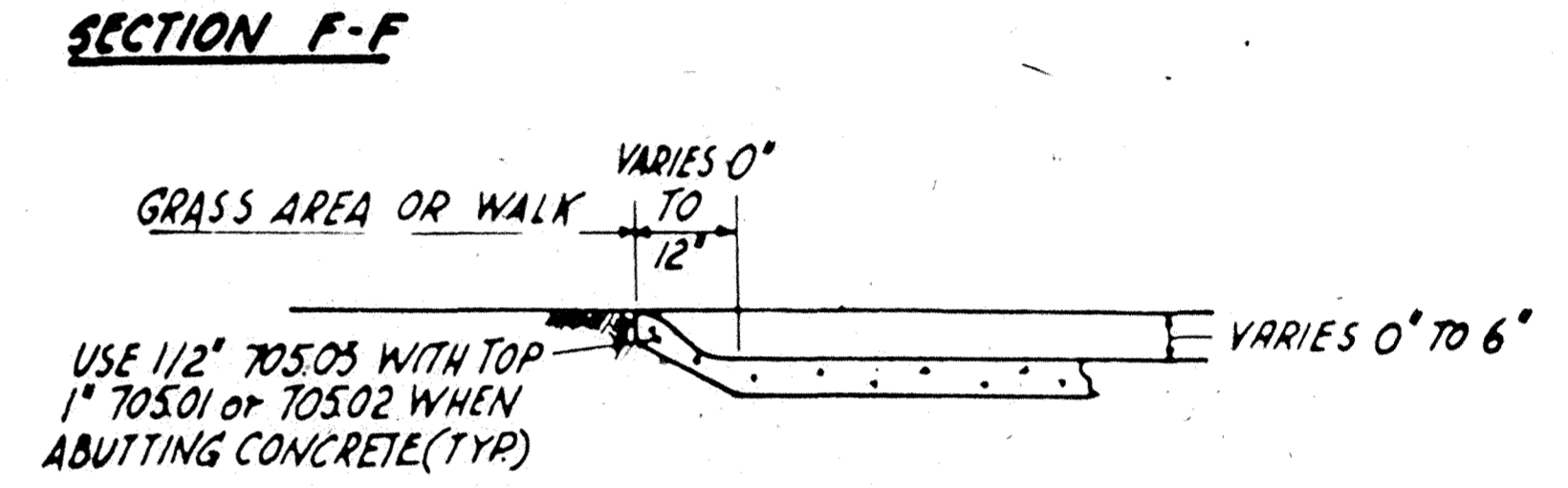
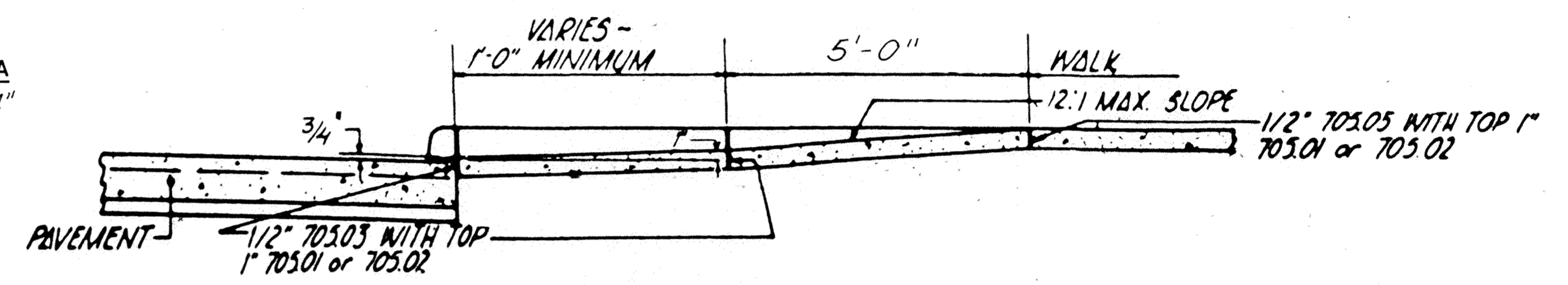
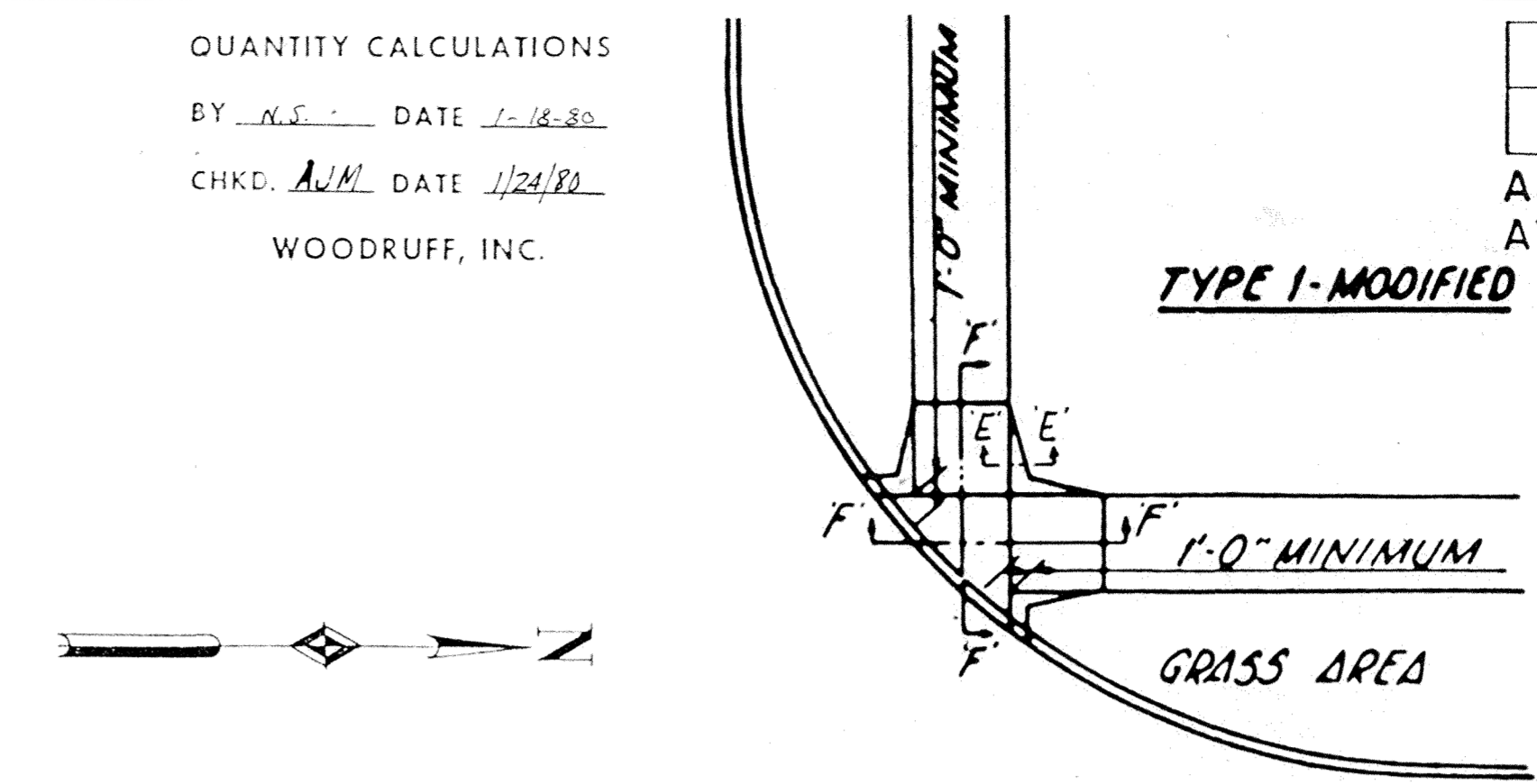
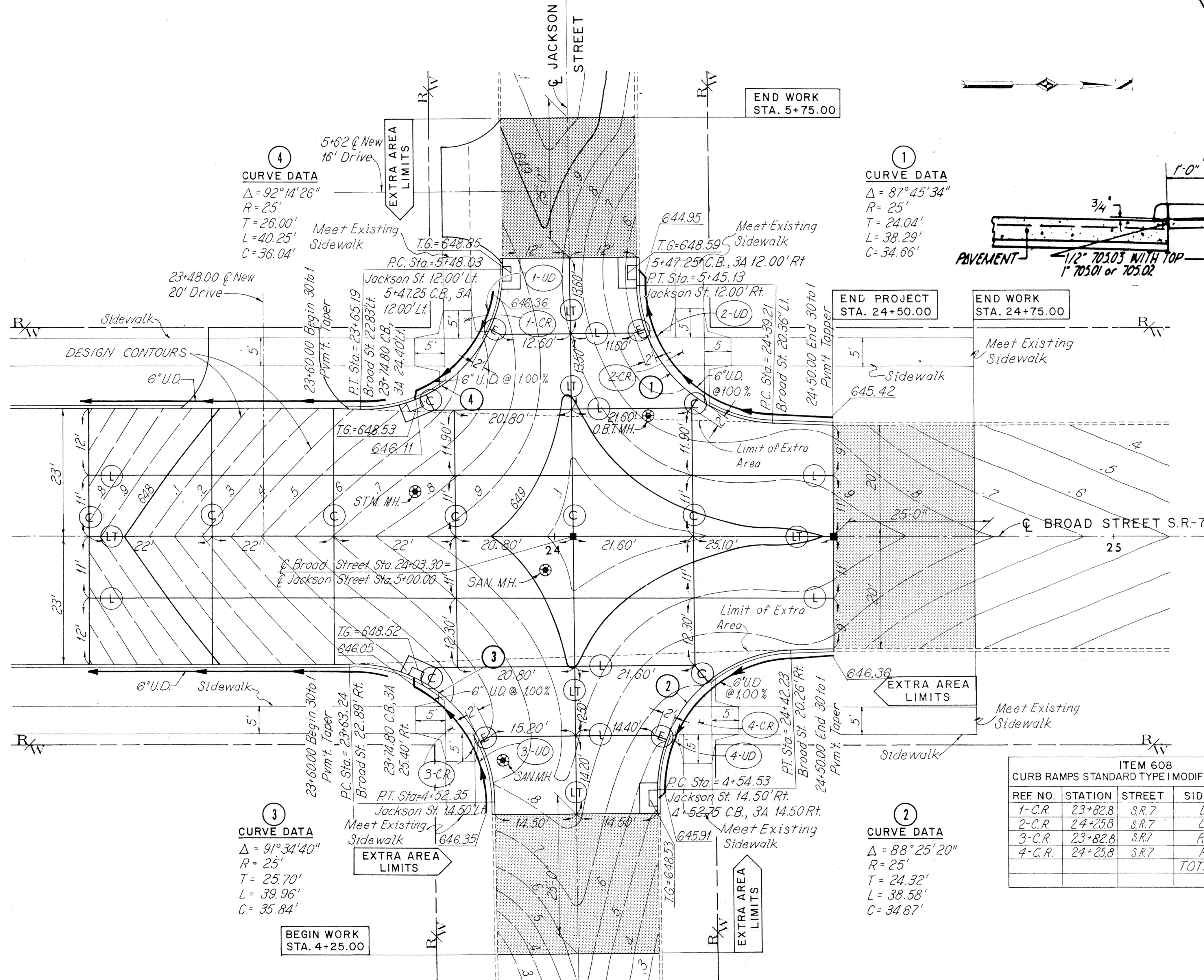
# INTERSECTION DETAILS

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

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

53  
100

ASHTABULA COUNTY  
 ATB-7-31.43



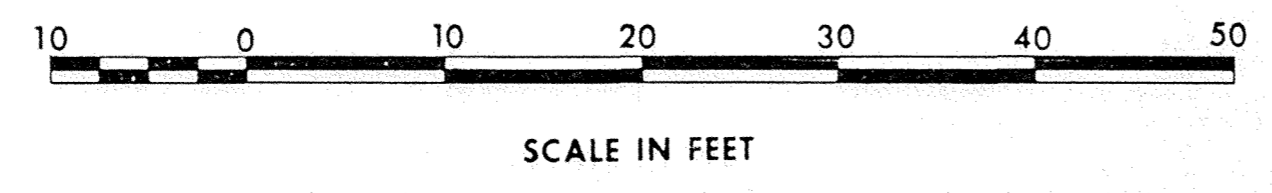
CURB RAMPS STANDARD TYPE I MODIFIED DETAILS

ITEM 605					
REF. NO.	STATION		SIDE	6\"/>	
	FROM	TO		SHALLOW PIPE UNDERDRAIN	6\"/>
			LIN. FT.	LIN. FT.	
1-UD	23+74.8	5+44.5	L	25	
2-UD	5+47.25	24+50.0	L		47
3-UD	23+74.8	4+50.35	R		31
4-UD	4+52.75	24+50.0	R		45
			TOTAL	25	123

ITEM 608 CURB RAMPS STANDARD TYPE I MODIFIED AS PER PLAN				
REF. NO.	STATION	STREET	SIDE	EACH
1-C.R.	23+82.8	S.R.7	L	1
2-C.R.	24+25.8	S.R.7	L	1
3-C.R.	23+82.8	S.R.7	R	1
4-C.R.	24+25.8	S.R.7	R	1
			TOTAL	4

JOINT LEGEND	
(LT)	LONGITUDINAL KEYED JOINT WITHOUT TIE BARS
(L)	STANDARD LONGITUDINAL JOINT SAWED AND TIED
(C)	STANDARD CONTRACTION JOINT
(E)	EXPANSION JOINT WITHOUT DOWELS

SCALE As Shown  
 MADE BY DATE  
 TRCD. R.C.K. DATE 2-1-79  
 C.K.D. DATE 1/1/80  
**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO



"EXTRA AREA" INDICATES AREA WHOSE QUANTITIES ARE ESTIMATED SEPARATELY, SEE SHEET 36 & SUBSUMMARIES.

SR. 7 - BROAD STREET

QUANTITY CALCULATIONS

BY X.S. DATE 1-18-80

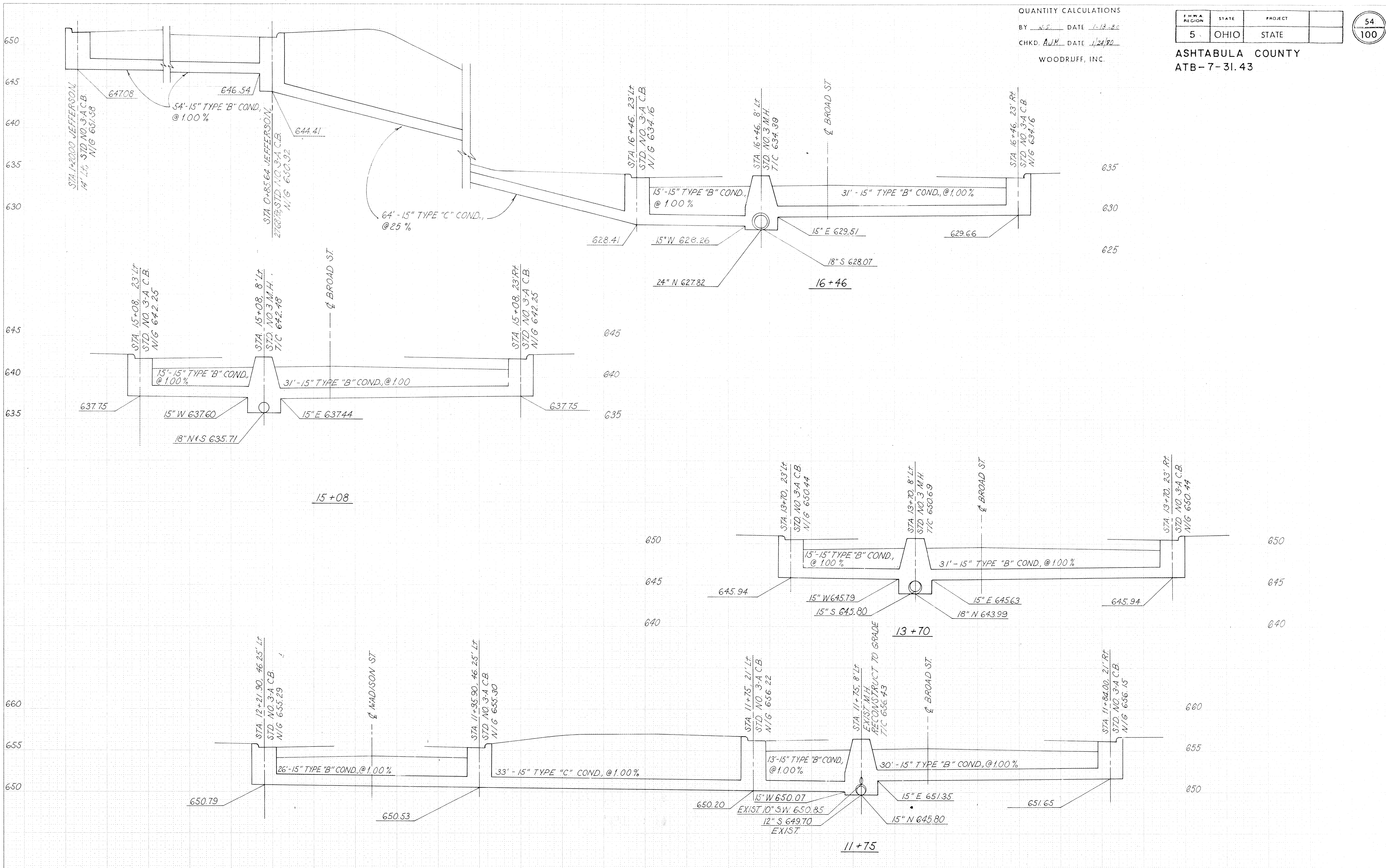
CHKD. AJM DATE 1/24/80

WOODRUFF, INC.

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

54  
100

ASHTABULA COUNTY  
ATB-7-31.43



QUANTITY CALCULATIONS

BY V.S. DATE 1-18-80

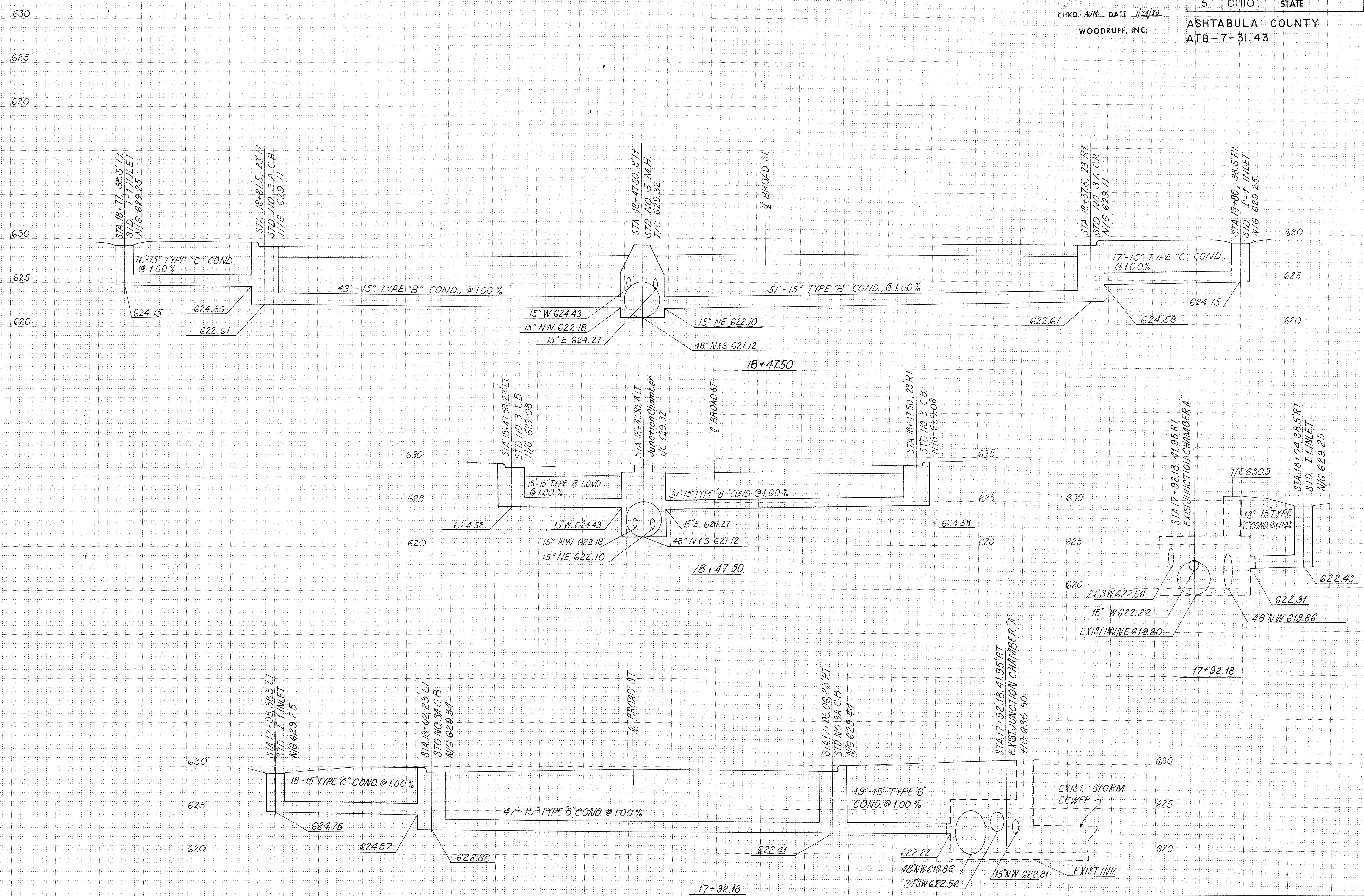
CHKD. AVM DATE 1/24/80

WOODRUFF, INC.

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

55  
100

ASHTABULA COUNTY  
ATB-7-31.43



SR. 7 - BROAD STREET

QUANTITY CALCULATIONS

BY A.S. DATE 1-18-80

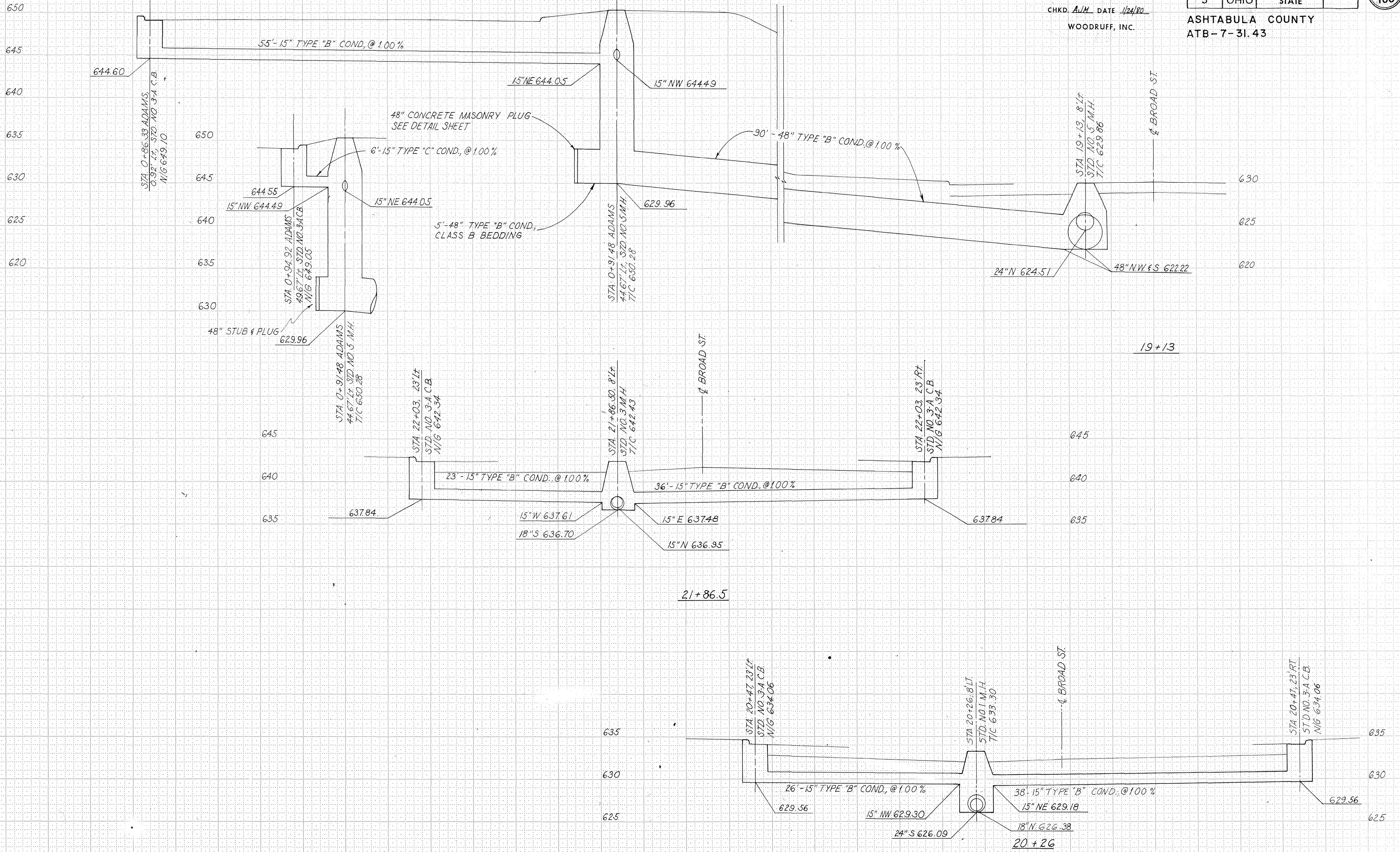
CHKD. AJM DATE 1/24/80

WOODRUFF, INC.

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

56  
100

ASHTABULA COUNTY  
ATB-7-31.43





QUANTITY CALCULATIONS

BY N.S. DATE 1-18-80

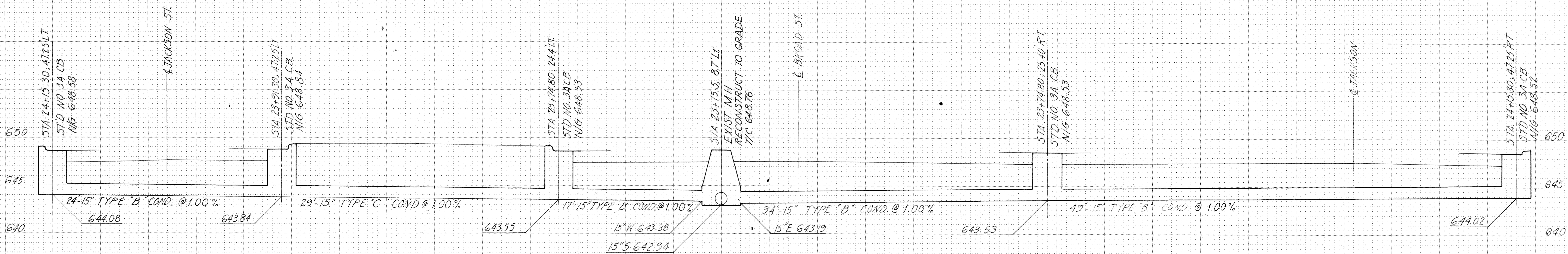
CHKD. AVM DATE 1/24/80

WOODRUFF, INC.

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

57  
100

ASHTABULA COUNTY  
ATB-7-31.43



SR. 7 - BROAD STREET

621 PAVEMENT MARKING, POLYESTER, AS PER PLAN

POLYESTER PAVEMENT MARKINGS SHALL CONFORM TO 621 EXCEPT AS FOLLOWS:

ALL REFERENCES TO PAINT SHALL BE CONSIDERED TO READ POLYESTER MATERIAL.

ITEM 621.02 MATERIALS IS HEREBY DELETED EXCEPT FOR GLASS BEAD REQUIREMENTS. IN ADDITION, PAVEMENT MARKING MATERIAL SHALL BE A RETROREFLECTORIZED POLYESTER COMPOUND AS MANUFACTURED BY THE GLIDDEN-DURKEE COMPANY OR AN APPROVED EQUAL.

ITEM 621.05 APPLICATION IS HEREBY MODIFIED AS FOLLOWS: PARAGRAPH 4 IS CHANGED TO READ: WHEN POLYESTER MATERIAL IS APPLIED TO NEW BITUMINOUS PAVEMENT SURFACES, THE SPECIFIED APPLICATION RATE SHALL BE INCREASED 25 PERCENT ABOVE THE MINIMUM RATES SPECIFIED.

THE APPLICATION RATE TABLE IS HEREBY DELETED AND THE FOLLOWING ADDED:

THE MATERIAL SHALL BE APPLIED TO PROVIDE A UNIFORM THICKNESS NOT LESS THAN 15 MILS NOR MORE THAN 30 MILS. THE APPLICATION RATE FOR A SOLID LINE OF 4 INCHES IN WIDTH SHALL BE NOT LESS THAN 16 GALLONS PER MILE NOR MORE THAN 33 GALLONS PER MILE CORRESPONDING TO THE ALLOWED VARIATION IN LINE THICKNESS. APPLICATION RATES FOR DASHED OR DOTTED LINES AND FOR LINES WIDER THAN 4 INCHES SHALL BE PROPORTIONAL TO THE SOLID LINE RATES.

PARAGRAPH 5 IS HEREBY MODIFIED AS FOLLOWS: THE RATE OF APPLICATION SHALL BE NOT LESS THAN 15 POUNDS OF GLASS BEADS PER GALLON OF POLYESTER MATERIAL APPLIED.

PARAGRAPH 6 IS HEREBY DELETED.

IN ADDITION TO 621 THE FOLLOWING SHALL BE REQUIRED:

EQUIPMENT

THE CONTRACTOR'S STRIPER SHALL BE EQUIPPED WITH AN ODOMETER GRADUATED TO 1/1000 OF A MILE. THE ENGINEER SHALL DETERMINE THE DEGREE OF ACCURACY OF THE CONTRACTOR'S ODOMETER AND ESTABLISH AN ADJUSTMENT FACTOR AS MAY BE REQUIRED TO ACCURATELY DETERMINE THE PAY ITEM QUANTITIES. THE ENGINEER SHALL PERIODICALLY CHECK THE ODOMETER OPERATION TO ASSURE MAINTENANCE OF ACCURATE MEASUREMENTS.

FAILURE OF THE ODOMETER TO FUNCTION PROPERLY SHALL BE CAUSE TO STOP THE WORK UNTIL THE ODOMETER IS MADE TO FUNCTION PROPERLY. IF MEASUREMENT OF THE WORK HAS TO BE PERFORMED BY THE DEPARTMENT, THE COST OF THE DEPARTMENT LABOR AND EQUIPMENT PLUS 10 PERCENT SHALL BE DEDUCTED FROM PAYMENT DUE THE CONTRACTOR FOR THE WORK. WHEN MEASURING LANE AND CENTERLINE MARKING, THE ODOMETER SHALL BE STARTED AT THE FIRST MARKED LINE AND REMAIN IN OPERATION, EXCEPT AT INTERSECTIONS AND OTHER LOCATIONS NOT MARKED, UNTIL THE END OF THE SECTION BEING MARKED, WHERE IT SHALL BE SHUT OFF AND THE READING OF THE ODOMETER RECORDED.

THE PAVEMENT MARKING EQUIPMENT SHALL BE EQUIPPED WITH A PRESSURE REGULATED AIR JET WHICH SHALL REMOVE ALL DEBRIS FROM THE PAVEMENT IN ADVANCE OF THE APPLICATOR GUN. THE AIR JET SHALL OPERATE WHEN MARKING MATERIAL IS BEING APPLIED AND SHALL BE SYNCHRONIZED WITH MARKING MATERIAL APPLICATION OR REMAIN "ON" AT ALL TIMES.

THE CONTRACTOR SHALL USE AN ACCURATE DASHING MECHANISM, CAPABLE OF BEING EASILY ADJUSTED, TO RETRACE EXISTING LANE OR CENTERLINE MARKINGS AS SPECIFIED IN THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN THE RADIO EQUIPMENT NECESSARY FOR 2-WAY VOICE COMMUNICATION BETWEEN THE CONTRACTOR AND THE ENGINEER AT ALL TIMES DURING THE PAVEMENT MARKING OPERATION. THIS EQUIPMENT SHALL BE PROVIDED FOR THE TERM OF THE CONTRACT ONLY.

PROVISIONS FOR THE DESCRIBED SPECIAL EQUIPMENT BY THE CONTRACTOR SHALL BE INCIDENTAL TO THE APPLICATION.

ITEMS 621.12, 621.131 AND 621.132 RATE OF APPLICATIONS ARE HEREBY MODIFIED AS FOLLOWS:

POLYESTER MATERIAL SHALL BE APPLIED AT A RATE OF NOT LESS THAN 1 NOR MORE THAN 2 GALLONS PER 100 SQUARE FEET OF MARKING SURFACE.

ITEM 621.14 DEDUCTION FOR DEFICIENCY SHALL BE MODIFIED BY THE FOLLOWING ADDITIONAL REQUIREMENTS:

THE QUANTITY OF POLYESTER MARKING MATERIAL OR GLASS BEADS APPLIED PER UNIT OF MEASUREMENT WILL BE COMPUTED BY THE ENGINEER AT THE END OF EACH DAY'S WORK. A DAY'S APPLIED QUANTITY OF LESS THAN 5 GALLONS MAY BE INCLUDED IN THE NEXT DAY'S APPLIED MARKINGS FOR THE PURPOSE OF COMPUTING MARKING MATERIAL AND BEAD APPLICATION RATES.

THE CONTRACTOR SHALL PROVIDE A CALIBRATED MEASURING DEVICE TO MEASURE THE POLYESTER COMPONENTS IN THE TANKS.

THE QUANTITY OF POLYESTER MARKING MATERIAL USED SHALL BE DETERMINED BY MEASURING THE MARKING MATERIAL IN THE TANKS BEFORE AND AFTER MARKING MATERIAL IS APPLIED. THE CONTRACTOR SHALL PERMIT THE ENGINEER TO TAKE MEASUREMENTS WHENEVER REQUESTED. THE MARKING MATERIAL APPLICATION RATE SHALL BE DETERMINED BY DIVIDING THE TOTAL GALLONS USED BY THE APPROPRIATE MARKING LENGTH. ANY DETERMINATION OF PAY DEDUCTION RESULTING FROM SHORTAGES IN MARKING MATERIALS SHALL BE BASED ON THE MEASUREMENTS OBTAINED BY THIS METHOD. THE AMOUNT OF GLASS BEADS APPLIED SHALL BE ASCERTAINED BY THE ENGINEER BY OBSERVATION AND FROM INFORMATION SUPPLIED BY THE CONTRACTOR AS TO QUANTITY USED.

ITEM 621.16 BASIS OF PAYMENT SHALL BE MODIFIED BY ADDING THE WORDS "POLYESTER, AS PER PLAN" TO EACH ITEM DESCRIPTION.

REMOVAL OF GROUND MOUNTED SIGNS

ALL EXISTING GROUND MOUNTED SIGNS SHALL BE REMOVED WITHIN THE PROJECT LIMITS BY CITY FORCES PRIOR TO CONSTRUCTION.

844-SIGNS, BY TYPE

REFLECTIVE SHEETING FOR SIGN FACES SHALL BE TYPE F IN ACCORDANCE WITH 844.03.

SIGNING SUB SUMMARY 844

STATION	SIDE	SIGN CODE NUMBER	SIGN SIZE	NO. OF SUPPORTS		SIGN FLAT SHEET	GROUND MOUNTED SUPPORTS, NO. 2 POST DRIVEN	GROUND MOUNTED SUPPORTS, NO. 3 POST DRIVEN	REMARKS
				EA	SQ. FT.				
<b>BROAD ST</b>									
12+50	RT	R-55-12	12"x18"	1	1.50	12			
12+50	LT	R-31B-36	36"x30"	1	7.50			14	
12+72	LT	R-55-12	12"x18"	1	1.50	12			
14+25	LT	R-31B-36	36"x30"	1	7.50			14	
15+30	RT	R-55-12	12"x18"	1	1.50	12			
15+50	LT	R-55-12	12"x18"	1	1.50	12			
17+30	RT	R-55-12	12"x18"	1	1.50	12			
17+50	LT	R-55-12	12"x18"	1	1.50	12			
19+30	RT	R-55-12	12"x18"	1	1.50	12			
19+60	LT	R-55-12	12"x18"	1	1.50	12			
21+30	RT	R-55-12	12"x18"	1	1.50	12			
21+60	LT	R-55-12	12"x18"	1	1.50	12			
23+30	RT	R-55-12	12"x18"	1	1.50	12			
23+60	LT	R-55-12	12"x18"	1	1.50	12			
23+80	RT	R-31 A	36"x30"	1	7.50			14	
<b>MADISON ST</b>									
	LT	R23	24"x24"	*	2.00				*Hung To Right of Traffic Signal
<b>JACKSON ST</b>									
	RT	R-23	24"x24"	*	2.00				*Hung To Right of Traffic Signal
<b>JEFFERSON ST</b>									
3+18	LT	W-48-30	30"x30"	1	6.25			14	
<b>ADAMS ST</b>									
3+18	LT	W-48-30	30"x30"	1	6.25			14	
<b>NICKLE PLATE</b>									
	RT	W-48-30	30"x30"	1	6.25			14	
<b>TOTAL</b>						67.25	144	84	

ITEM 621 PAVEMENT MARKING SUB SUMMARY

STATION	FROM	TO	CENTERLINES		LANELINES	1/8" STOP LINES	5" CROSSWALK LINES
			LF	L.F.			
<b>BROAD ST</b>							
	11+25	11+71	46		20.5	83	
	12+47	23+78	1131	2262	47	112	
	24+37	24+75	38		23.5	108	
<b>MADISON ST</b>							
	0+41	0+75	34		14	70	
<b>JACKSON ST</b>							
	4+25	4+61	36		15	70	
	5+42	5+75	33		13	64	
<b>JEFFERSON ST</b>							
	1+60	3+18	158		12.5		
<b>TOTAL</b>			1476	2262	1455	507	
			*1476 LIN. FT.	.28 MI.	+2262 LIN. FT.	= .43 MI.	

SCALE \_\_\_\_\_  
 MADE AJM DATE \_\_\_\_\_  
 TRCD. C.H. DATE 8/12/79  
 C.K.D. N.S. DATE 1/18/80

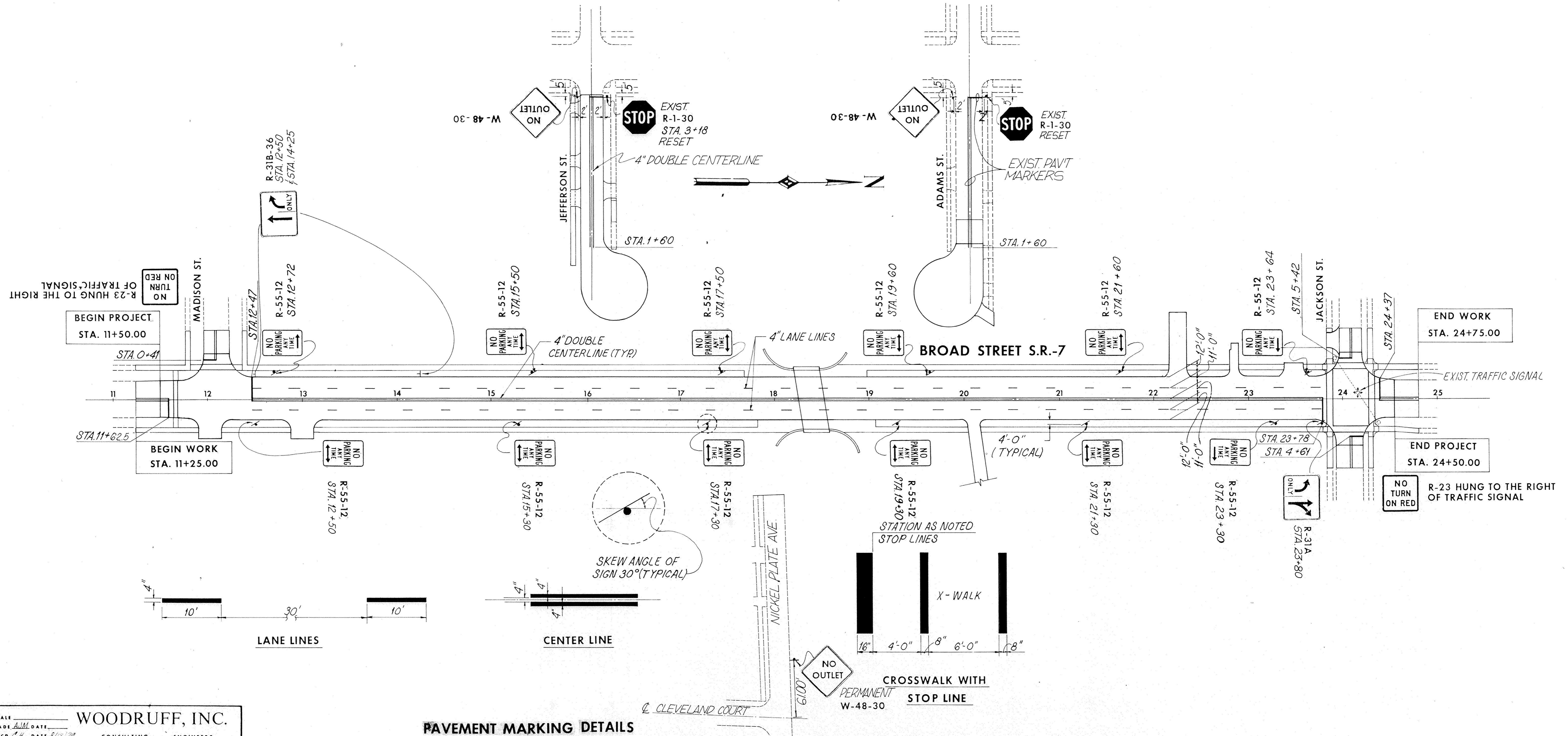
**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

# PAVEMENT MARKING AND SIGN PLAN

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

59  
100

ASHTABULA COUNTY  
ATB-7-31.43



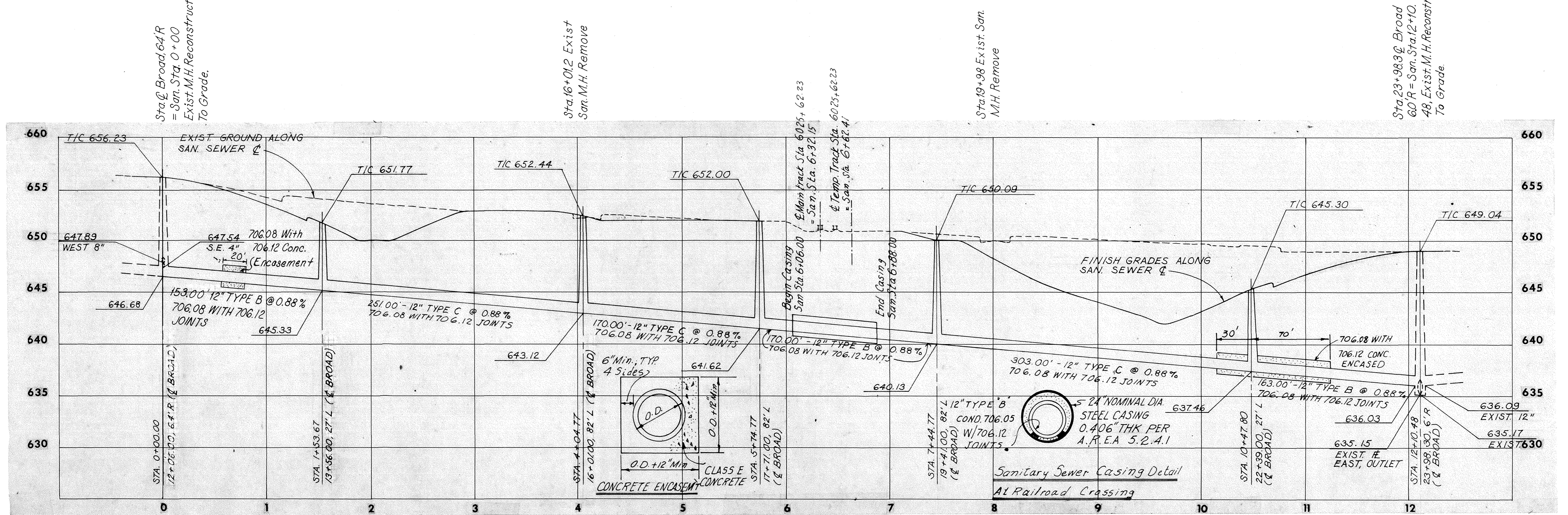
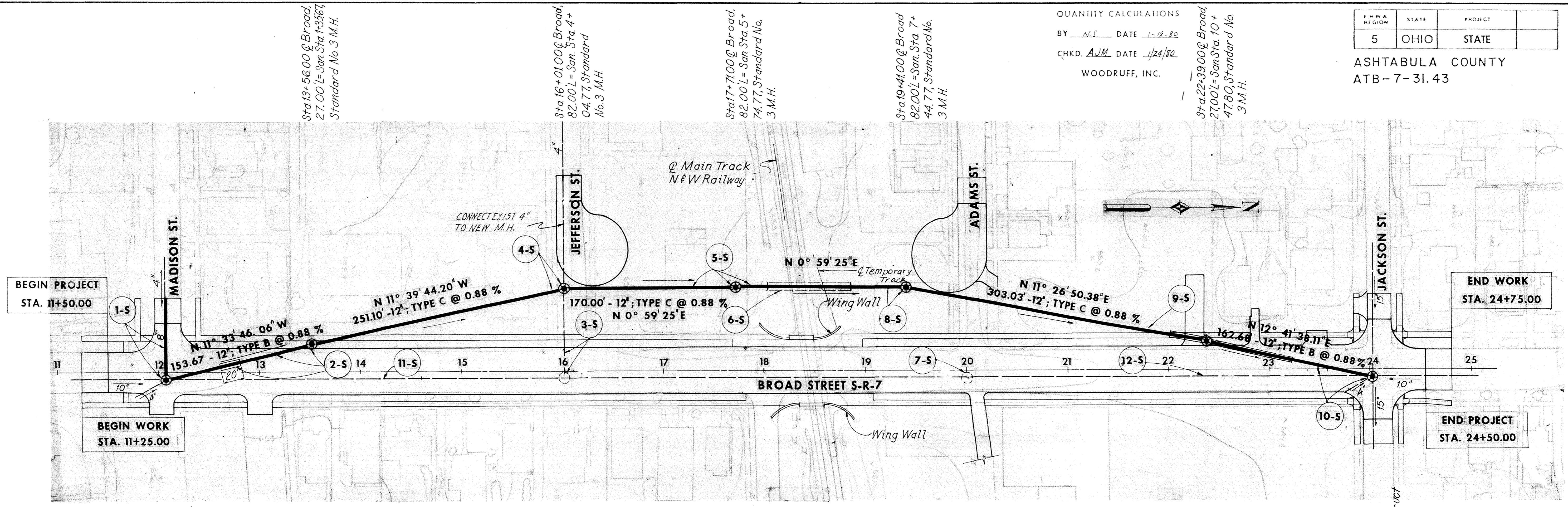
SCALE \_\_\_\_\_  
MADE BY DATE \_\_\_\_\_  
TRCO DATE \_\_\_\_\_  
CRD. DATE \_\_\_\_\_

**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO

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

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

ASHTABULA COUNTY  
 ATB-7-31.43



SCALE \_\_\_\_\_  
 MADE 1-18-80 DATE  
 TRCD. 1-18-80 DATE  
 CKD. AJM DATE 1/24/80  
**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

SAN. SEWER STATIONS

SR-7 - BROAD STREET

# SANITARY SEWER SUB-SUMMARY

QUANTITY CALCULATIONS

BY N.S. DATE 1-12-80

CHKD. A.J.M. 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+10.48				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+10.48		159									Broad St. Sta. 22+40 to 23+98.30
	TOTAL		2	581	80	315	694	70	50	82	2	5	

SCALE \_\_\_\_\_  
 MADE N.S. DATE \_\_\_\_\_  
 RCD. R.C.K. DATE 9/79  
 E.D. A.J.M. DATE 11/80  
**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

SR. 7-BROAD STREET

# WATERWORK

## GENERAL NOTES

QUANTITY CALCULATIONS

BY H.S. DATE 1-18-80

CHKD. AJM DATE 1/24/80

WOODRUFF, INC.

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

62  
100

ASHTABULA COUNTY  
ATB-7-31.43

### GENERAL

ALL WATER WORK SHALL BE PERFORMED IN ACCORDANCE WITH STATE OF OHIO DEPARTMENT OF TRANSPORTATION 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, 12 INCH 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.

# 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. A.J.M. DATE 1/29/80

WOODRUFF, INC.

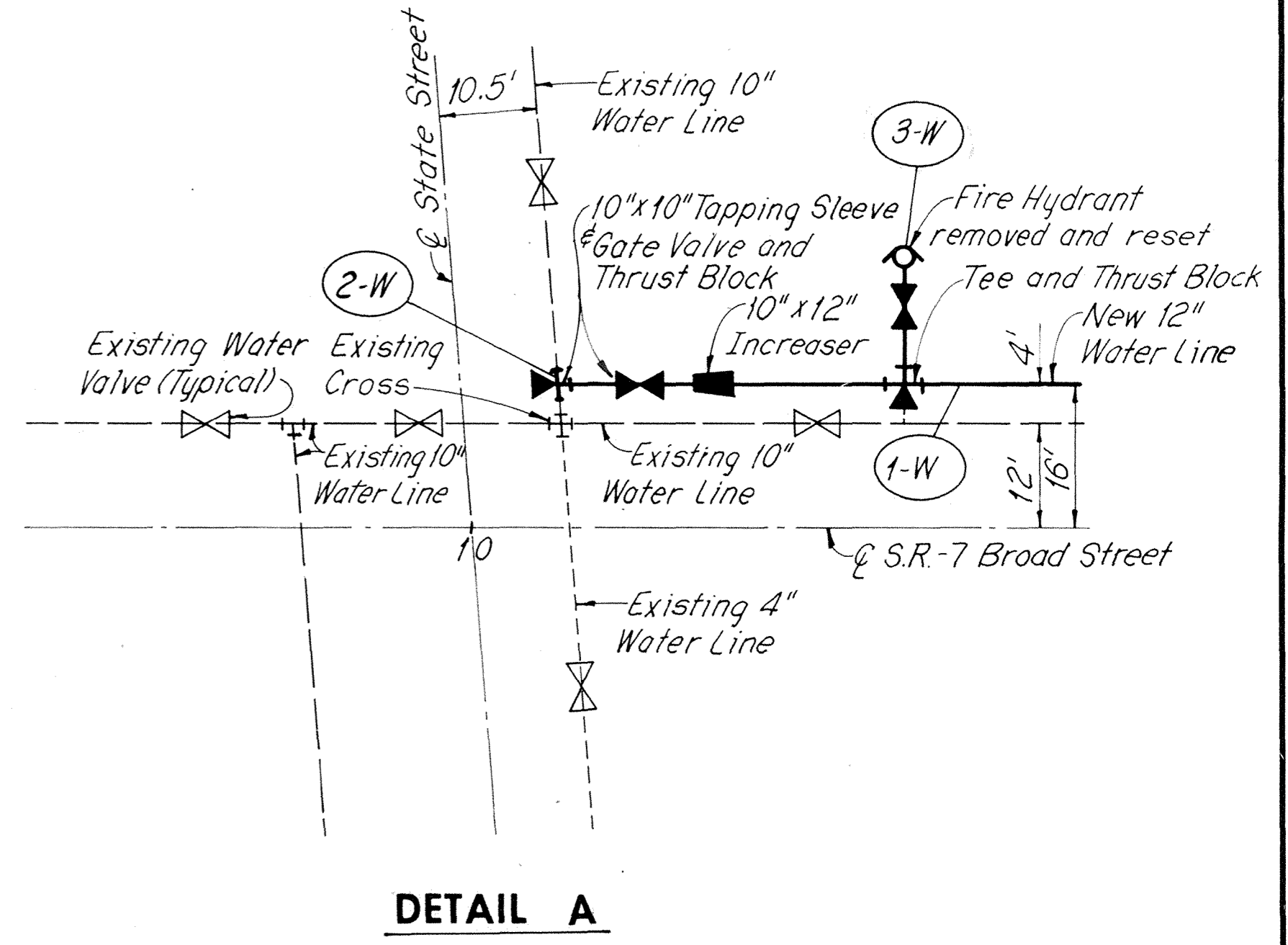
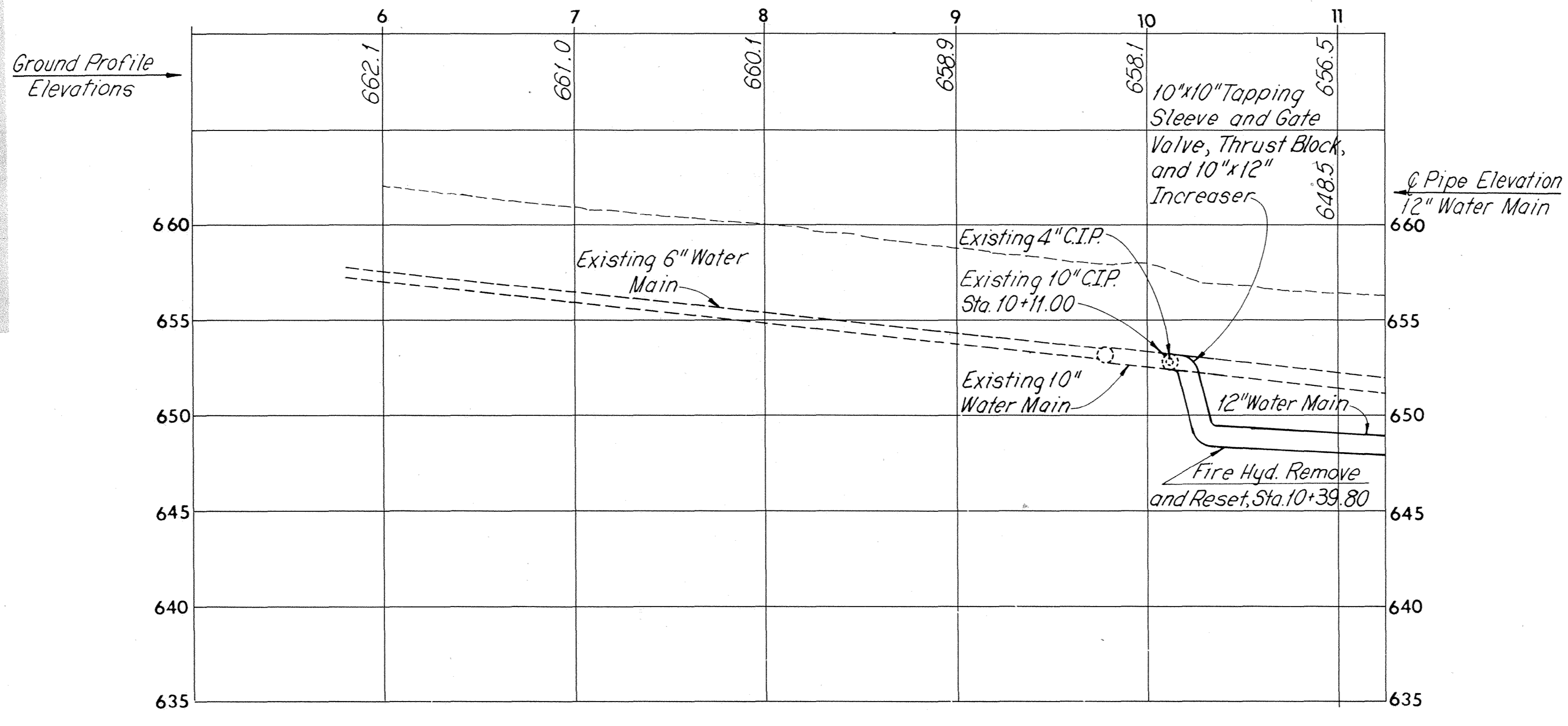
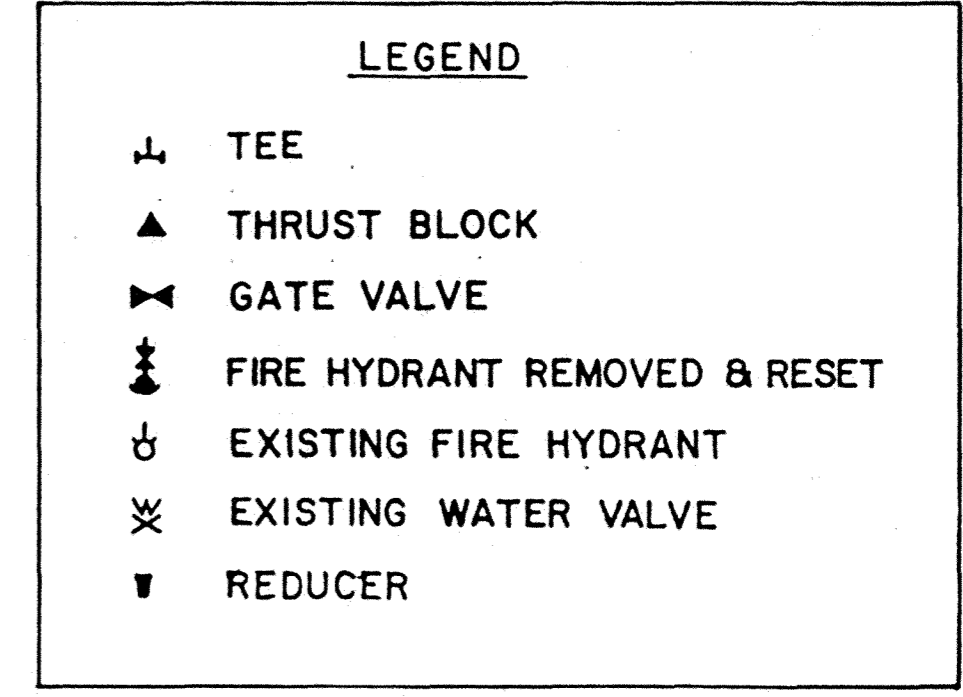
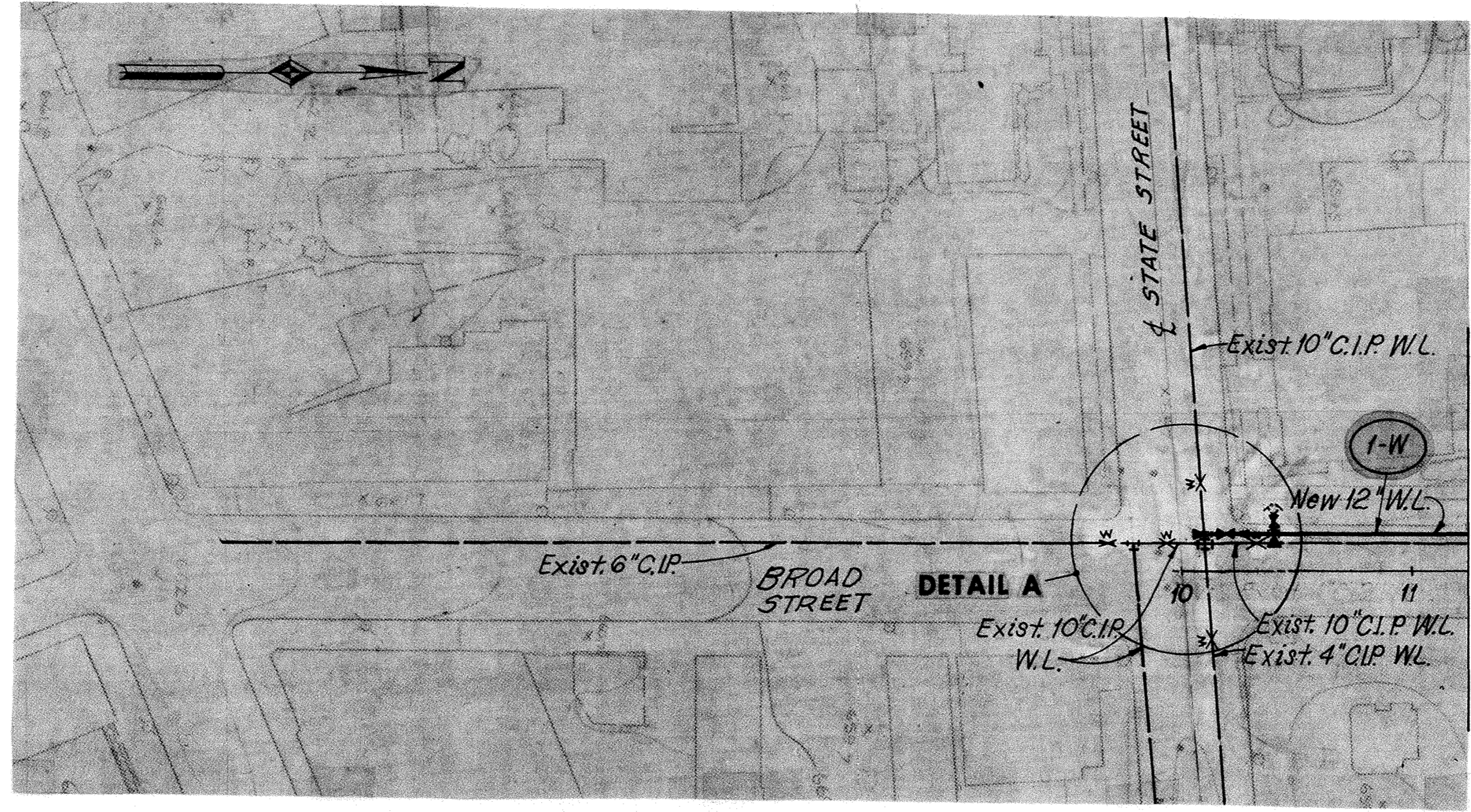
WATERWORK SUMMARY OF QUANTITIES										
SHEET NO.					ITEM	QUANTITY	UNIT	DESCRIPTION		
	62	64	66	67						
	50	114	1298	561	814	2,023	Lin. Ft.	12" Water Main as per plan		
	15		207		814	222	Lin. Ft.	8" Water Main as per plan		
			20		814	20	Lin. Ft.	6" Water Main as per plan		
			20		814	20	Lin. Ft.	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"x10" 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.	3/4" Service Branch Lowered		
			60		814	60	Lin. Ft.	New 3/4" Service Branch with Hose Bib Connection, as per plan		

SCALE \_\_\_\_\_  
 MADE N.S. DATE \_\_\_\_\_  
 TRCO ELK DATE 9/79  
 CKD. A.J.M. DATE 1/19/80

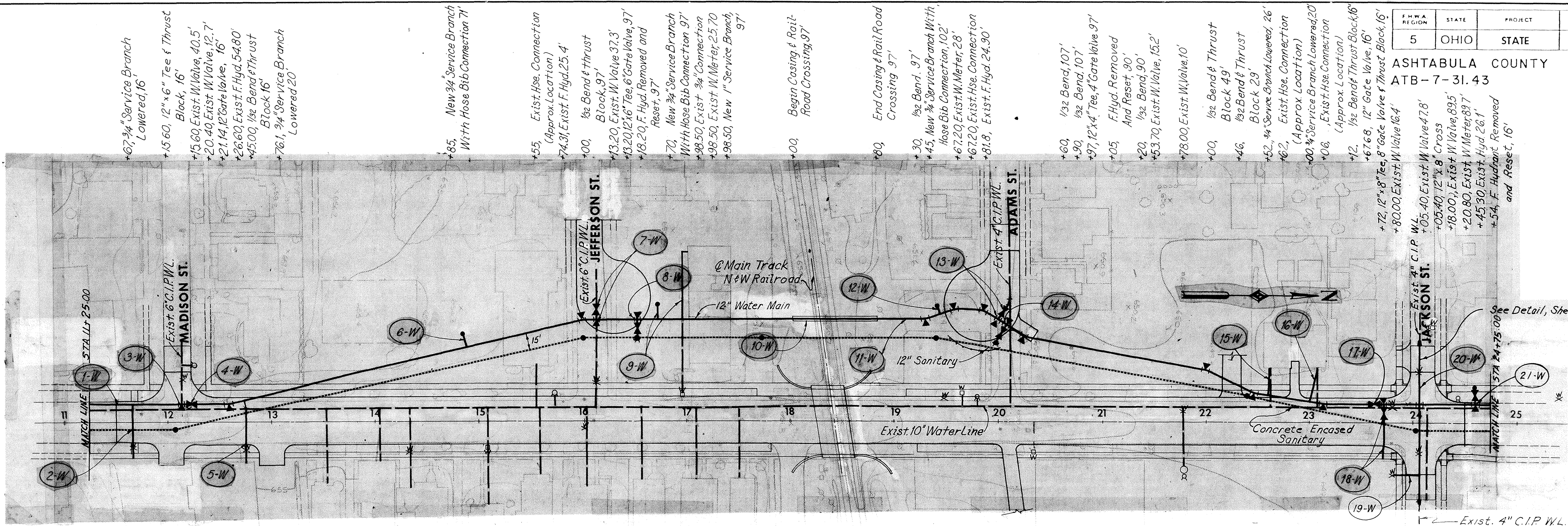
**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

+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.

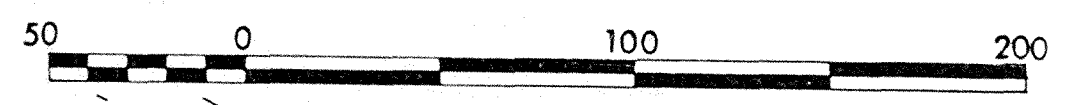
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	FROM	TO						
814	7-W	10+11	16	L	114			
814	2-W	10+11	16	L				1
814	3-W	10+39.80	16	L				1
TOTALS=						114		1





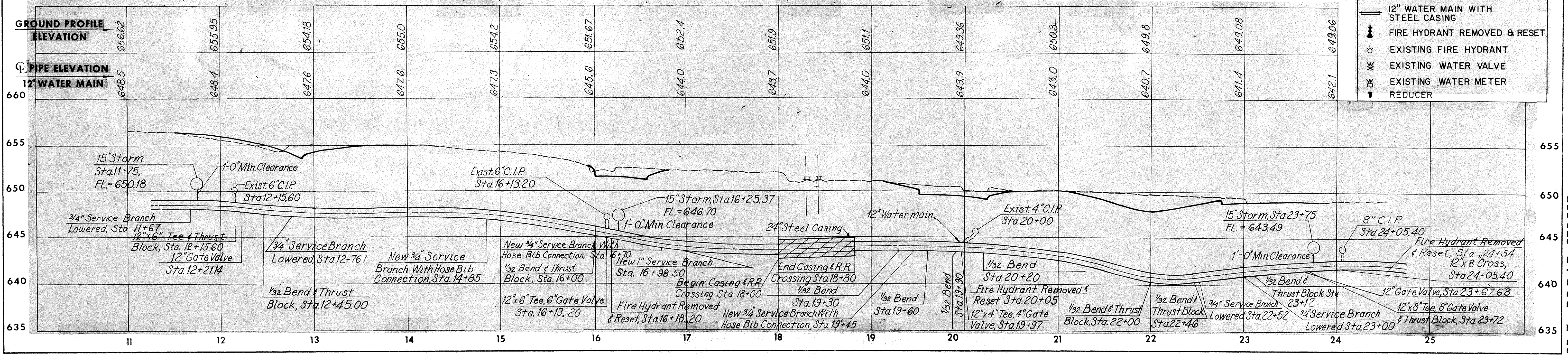


- +67.00, Exist. W. Valve, 24.6'
- +67.00, Exist. HSE Connection
- +76.10, Exist. W. Valve, 28.50'
- +76.10, Exist. Hse Connection
- +44, Exist. Hse Connection (Approx. Location)
- +05, Exist. Hse Connection (Approx. Location)
- +32.10, Exist. W. Valve, 30.40'
- +32.10, Exist. Hse Connection
- +07.60, 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 (Approx. Location)
- +54, Exist. Hse Connection (Approx. Location)
- +09, 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'
- +79.80, Exist. 8" Water Connection
- +80.50, Exist. W. Valve, 52.5'
- +06.00, Exist. W. Valve, 30.2'



**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



AREA REGION	STATE	PROJECT	
5	OHIO	STATE	

66  
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.	STATION	OFFSET	STATION	OFFSET	ITEM NO.	814													
						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
							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+560	19			L			10											
4-W	12+2114	19			L								1						
5-W	12+76.1	20			L								58						
6-W	14+85	71			L							20							
7-W	16+1320	97			L			10									1		
8-W	16+1820	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	

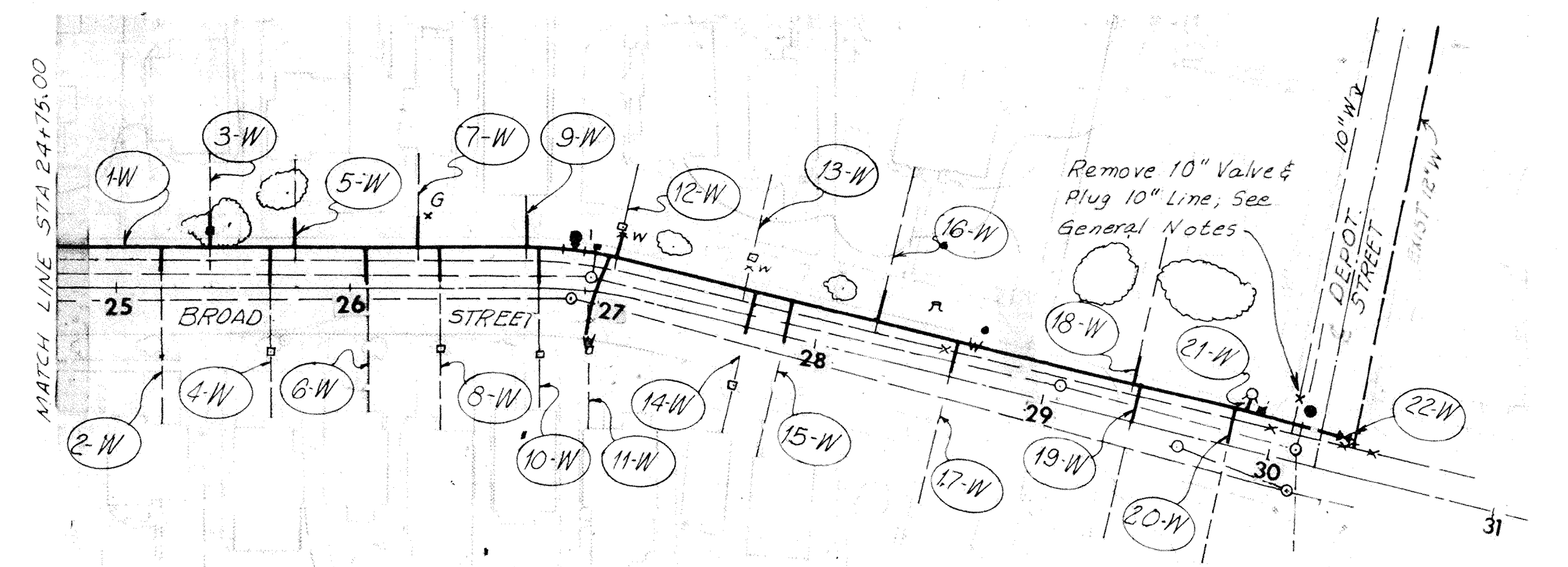
ASHTABULA COUNTY  
ATB-7-31.43

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

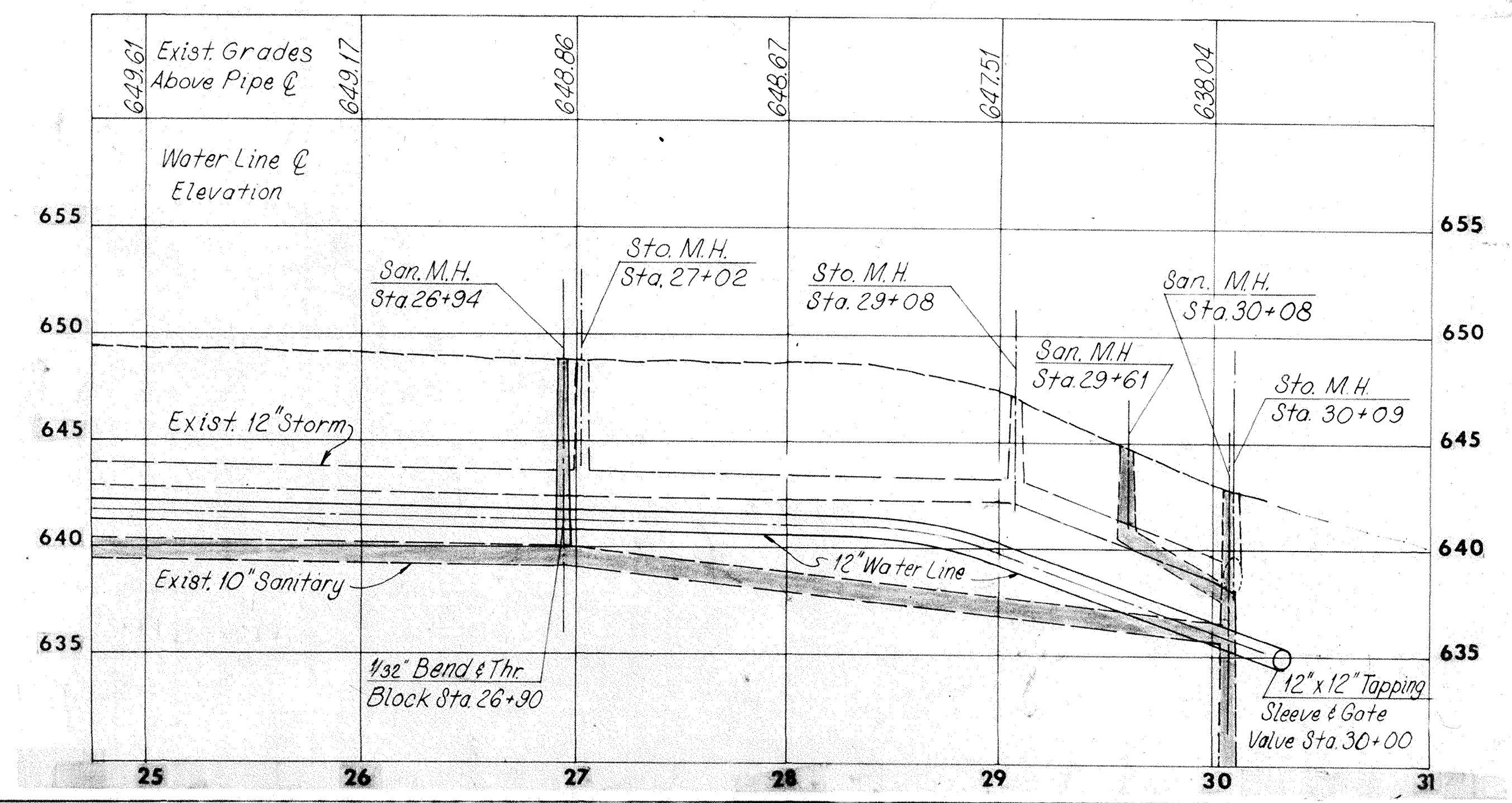


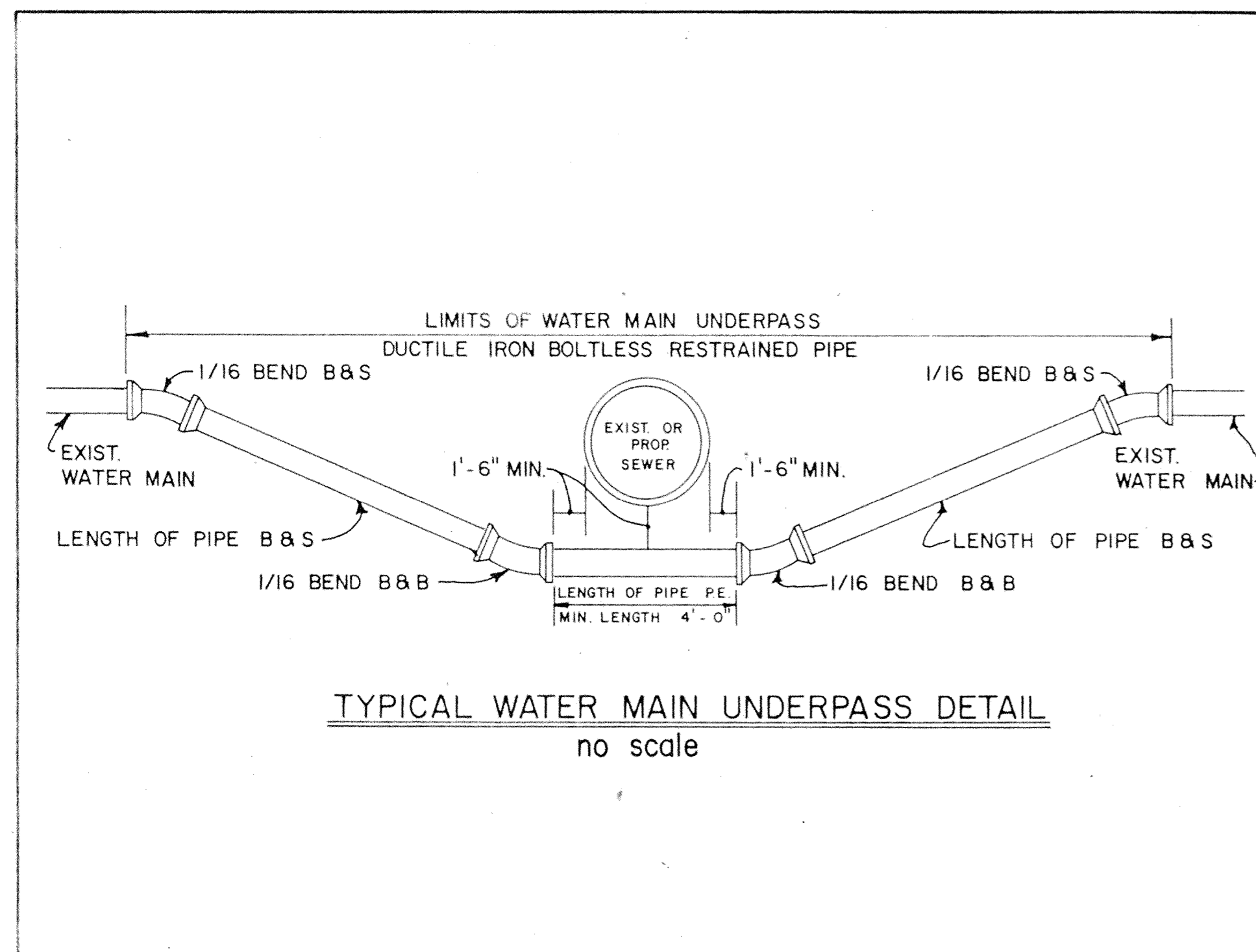
REF. NO.	STA. FROM	OFFSET FT.	STA. TO	OFFSET FT.	SIDE	814	814	814	814
						12" WATER MAIN AS PER PLAN	FIRE HYDRANT REMOVED & RESET	12" x 12" TAPPING SLEEVE AND GATE VALVE AS PER PLAN	3/4" SERVICE BRANCH LOWERED
						L.F.	EA.	EA.	L.F.
1-W	24+75.00	16	30+36	16	L	561			
2-W	25+19	16			L				10
3-W	25+40	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 3/4" Service Branch Lowered  
+47.54" Maple To Remain, 25.5'  
+75 3/4" Service Branch Lowered  
+73.5, 20" Maple To Remain, 38'  
  
+32, 3/4" Service Branch Lowered  
+37, Gas Valve, 26.5'  
  
+75 3/4" 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 3/4" Service Branch Lowered  
+10, Water Meter 28"  
+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, 25'  
+62.5, Shut off Valve, 24'  
+68, 3/4" Service Branch Lowered  
  
+00, 38" Tree, 25.5' To Remain  
+22, 3/4" Service Branch Lowered  
  
+55, Water Valve, 14'  
  
+88, Power Pole #74539, 22.5'  
+05, Exist. 10" Valve, 23' Remove  
+08, Storm M.H., 8'  
+36, 3/4" Service Branch Lowered  
  
+84, Fire Hyd. Removed and Reset 24'  
+95.5, Inlet Basin, 25'  
+03, Storm M.H., 6'  
+10, Ohio Bell Tel. M.H., 22'  
+30, Water Valve, 12'  
+36, 12" x 12" Tapping Sleeve and Gate Valve  
+42, Water Valve, 12'

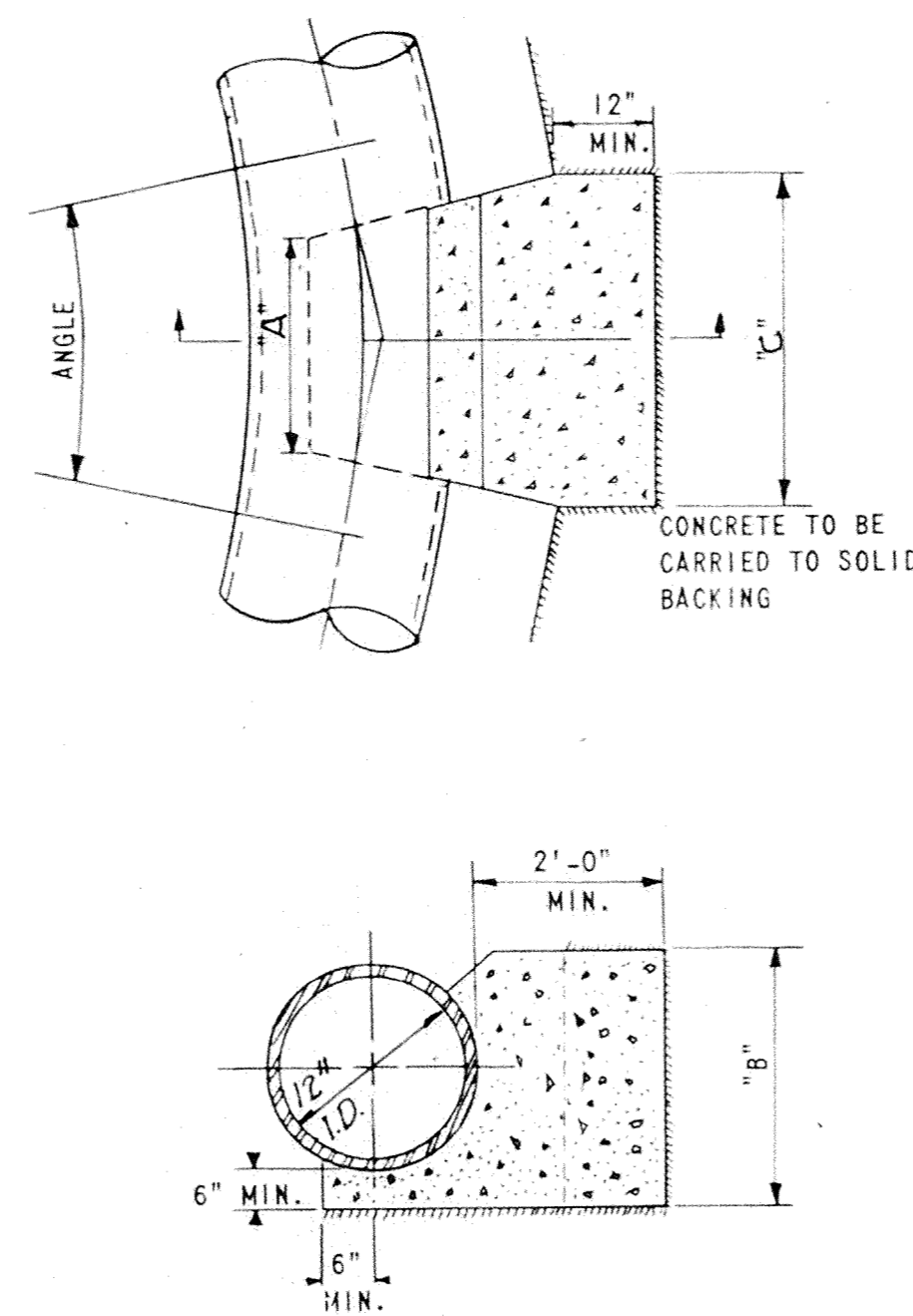


+19 3/4" Service Branch Lowered  
+65 3/4" Service Branch Lowered  
+65, Water Meter, 27'  
  
+07 3/4" Service Branch Lowered  
+38, Water Meter  
+38, 3/4" Service Branch Lowered  
+79 3/4" Service Branch Lowered  
+79, Water Meter 29"  
+90 1/2 Bend  
+94, Sanitary M.H., 6'  
+01, 3/4" Service Branch Lowered  
+01, Water Meter  
  
+70 3/4" Service Branch Lowered  
+70, Water Meter 24"  
+86, 3/4" Service Branch Lowered  
  
+58 3/4" Service Branch Lowered  
  
+40 3/4" Service Branch Lowered  
+61, Sanitary M.H., 6'  
+82, 3/4" Service Branch Lowered  
+08, Sanitary M.H., 14'

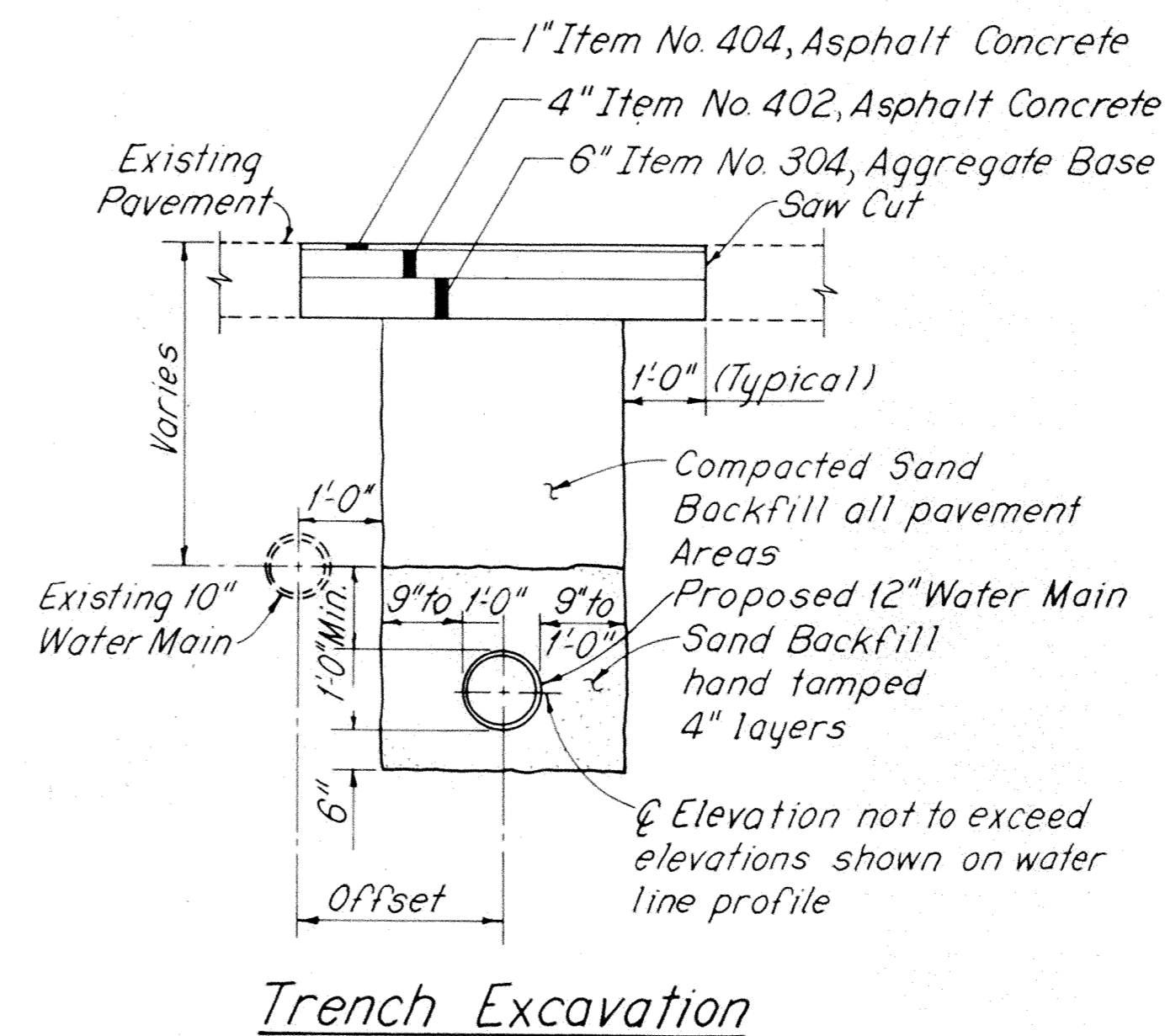




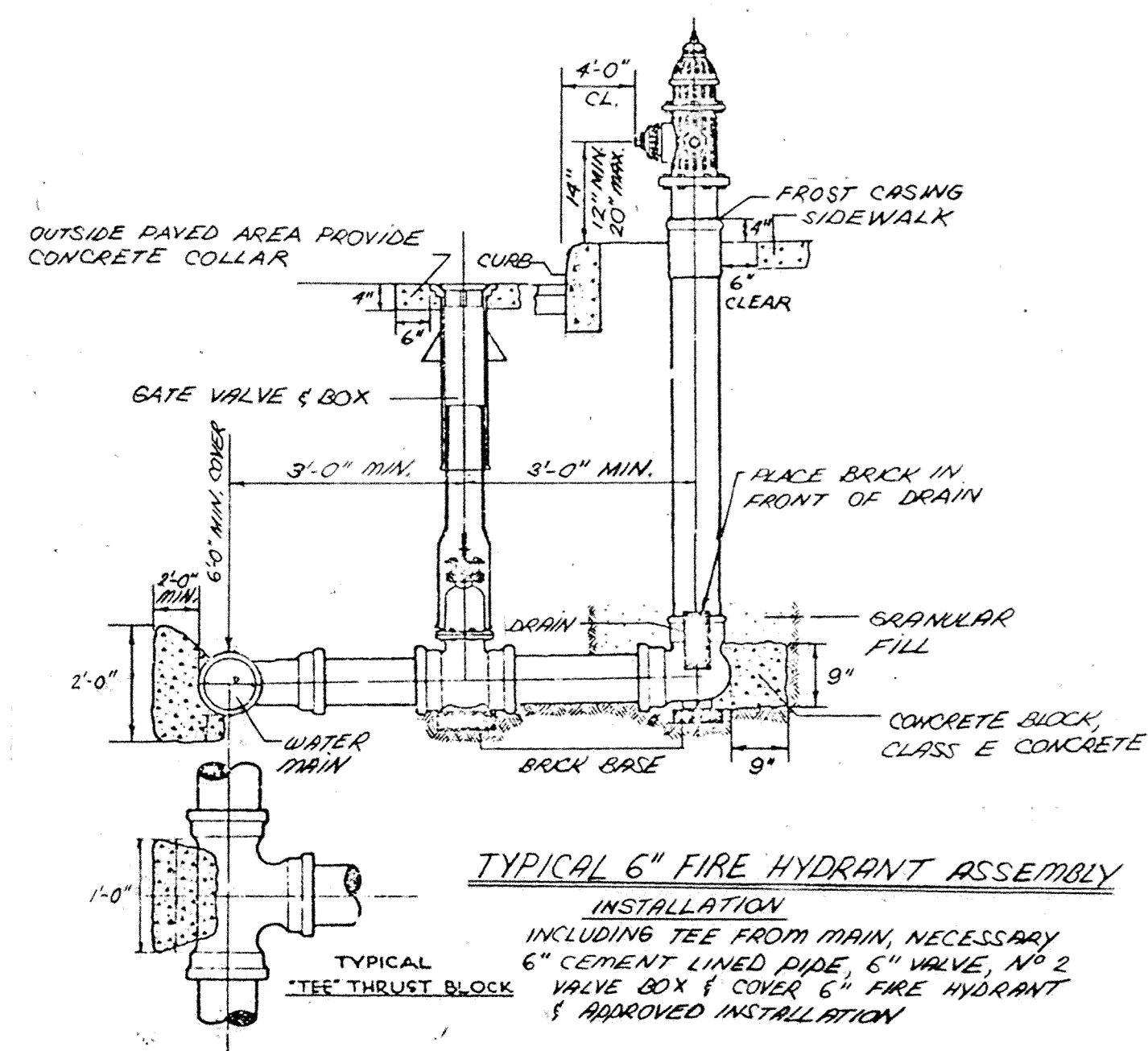
**THRUST BLOCK DETAIL**



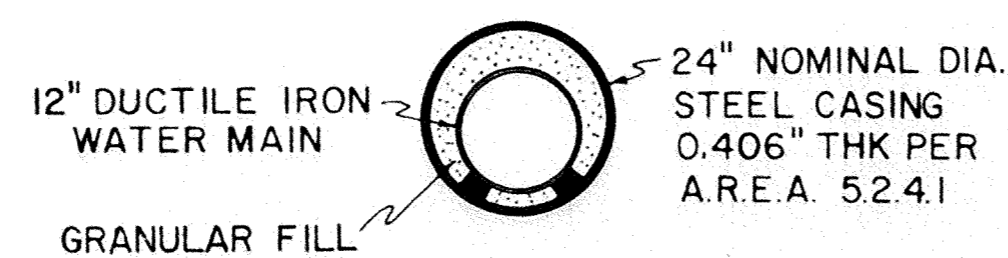
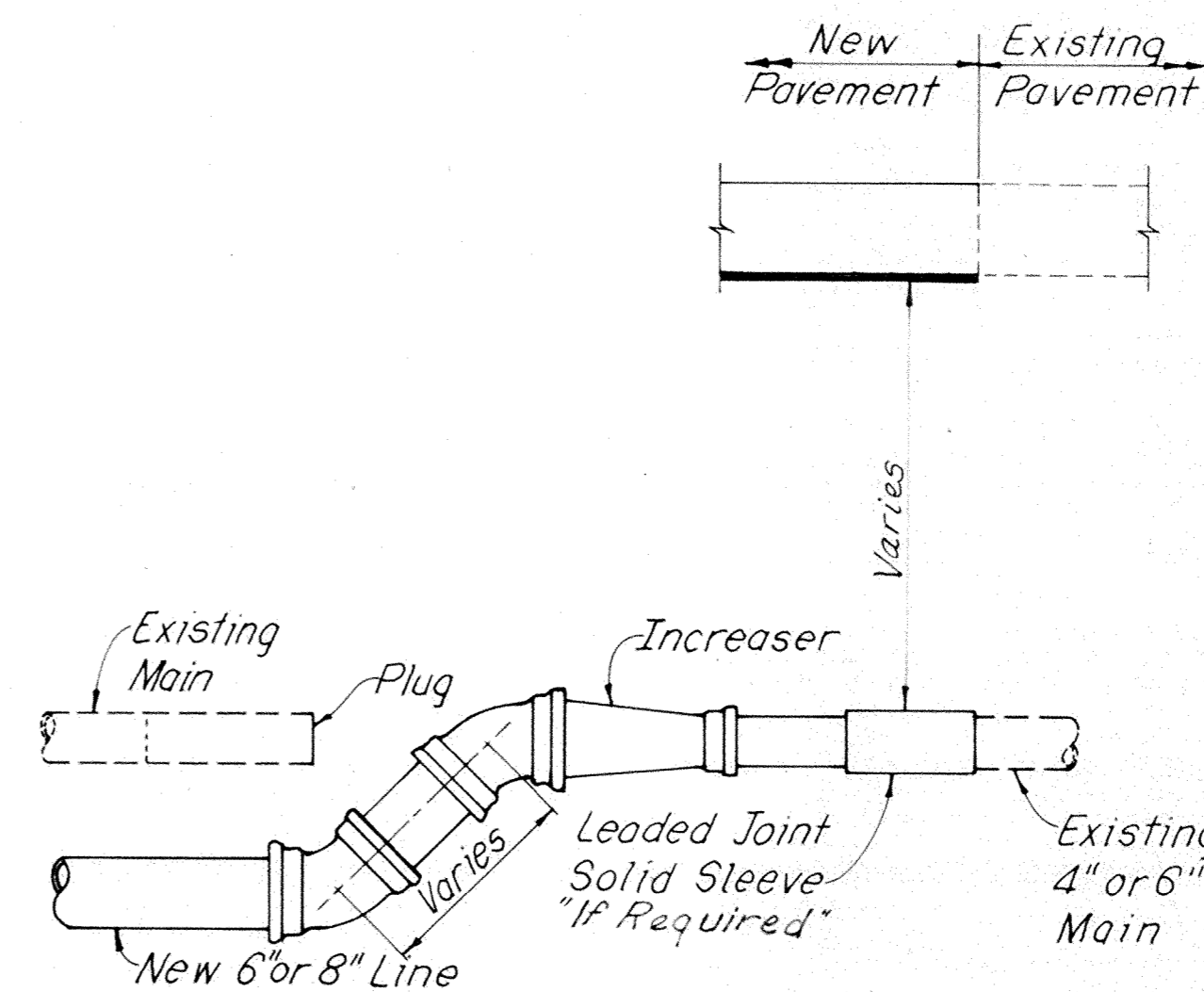
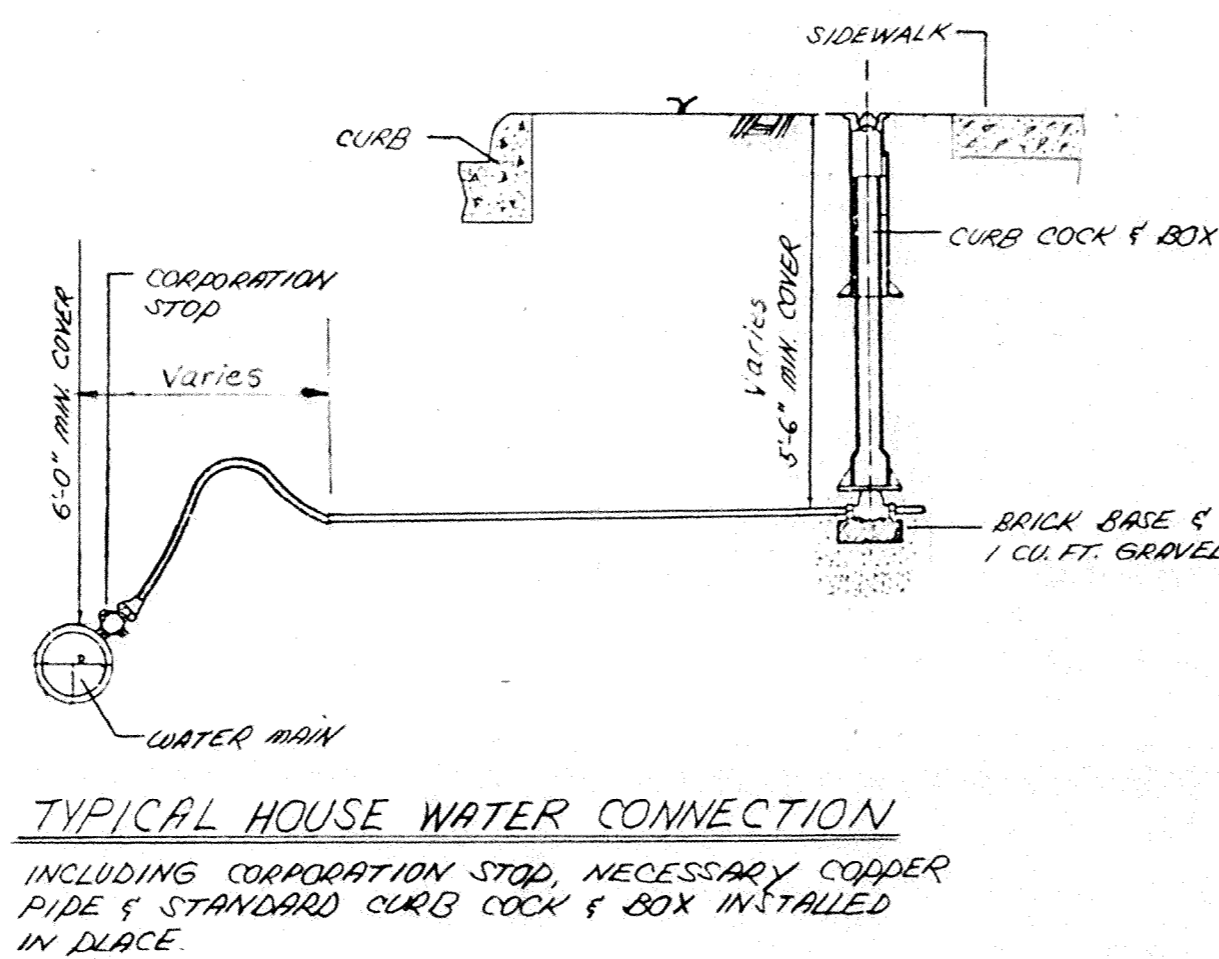
SIZE	ANGLE	A	B	C
4"	Tee or Bend	0'-4"	1'-2"	2'-0"
6"	Tee or Bend	0'-4"	1'-2"	2'-0"
8"	Tee or Bend	0'-4"	1'-2"	2'-0"
12"	Tee & 1/8	1'-0"	2'-0"	2'-0"



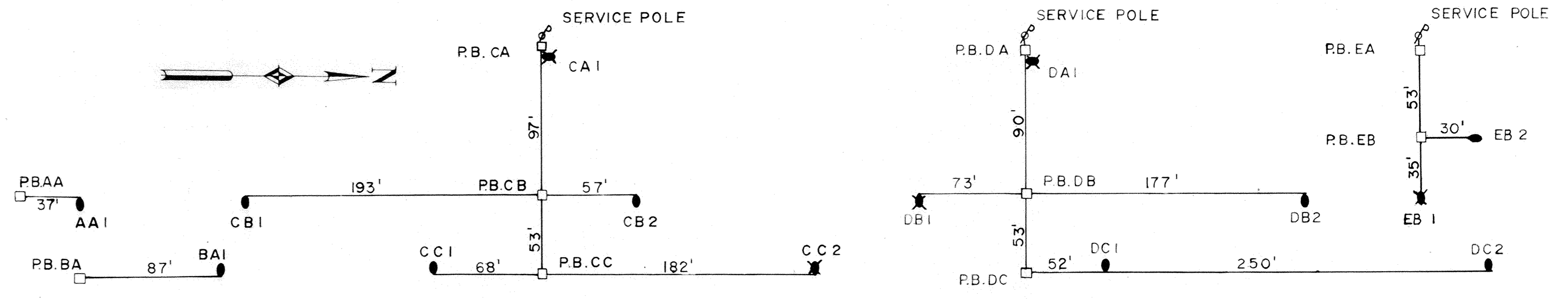
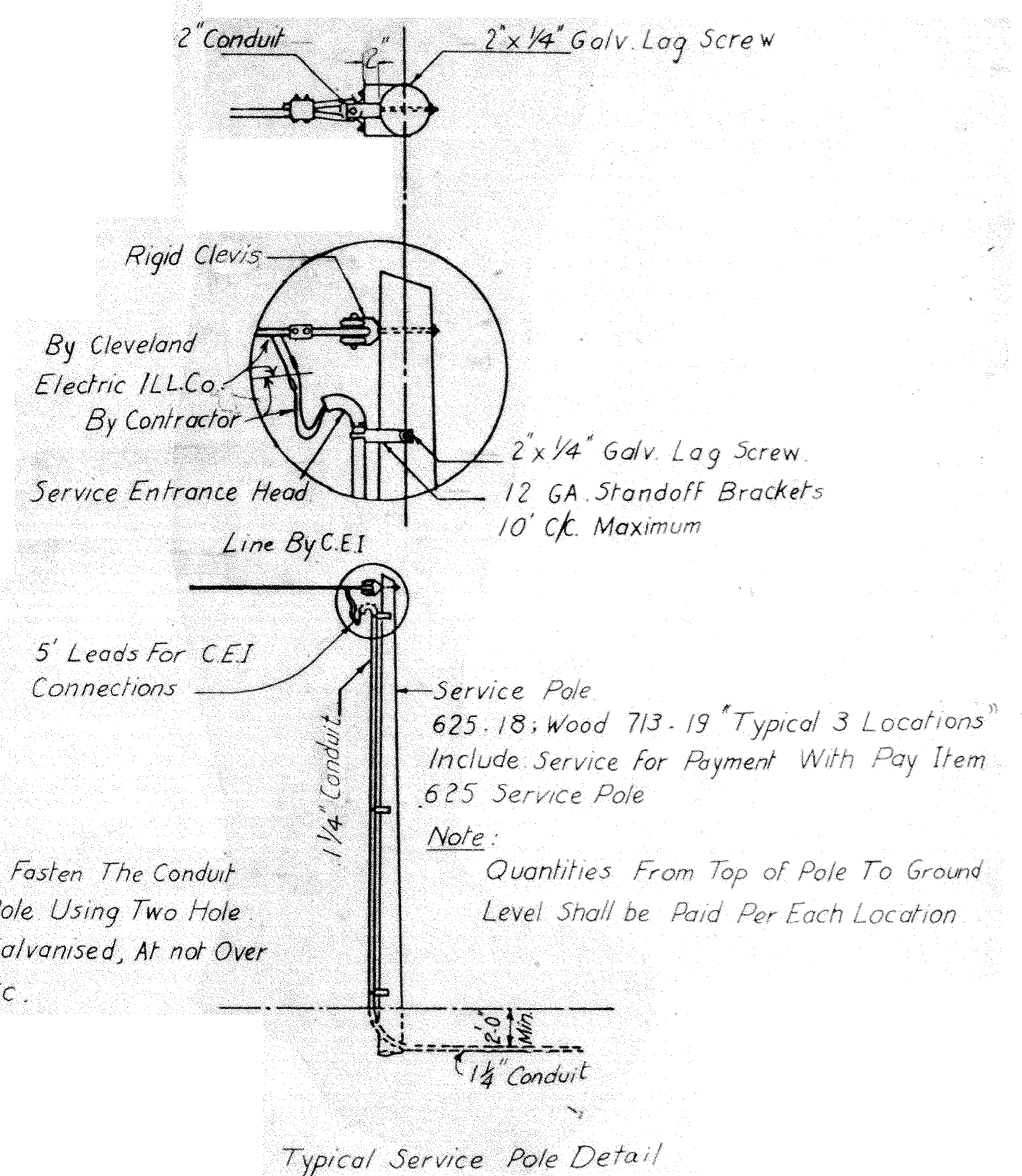
STATION		OFFSET
FROM	TO	FT.
<i>Broad St</i>		
10+11	11+45	4.00'
11+45	23+12	<i>As Per Plan</i>
23+12	30+36	4.00'



NOTES:  
ALL FIRE HYDRANTS AND VALVE BOXES SHALL BE SECURELY BARRICADED 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 S/A, UNLESS OTHERWISE NOTED ON THE PLANS.



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



CIRCUIT DIAGRAM

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

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

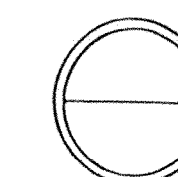
VOLTAGE DROP CALCULATIONS  
Voltage = 120 v No. of Wires = 2 4AWG  
Wire Factor Used = 0.518 Ohm/1000 Ft.

Section		Amp.	Amp.	A	Voltage Drop		%	At		
From	To	Feet	At Pt.	Accum	ft	W G	Vn Sec#	Accum	%	Point
EB 2	PBEB	40	1.6	1.6	64	4	0.033	0.178	0.15	EB 2
EB 1	PBEB	45	2.7	2.7	121.5	4	0.063	0.208	0.17	EB 1
PBEB	PBEA	63		4.3	297.5	4	0.145	0.145	0.12	PBEB
DC 2	DCI	260'	1.6	1.6	416	4	0.22	0.97	0.81	DCI
DC 1	PBDB	125	1.6	3.2	393.6	4	0.21	0.75	0.63	DC 1
DB 2	PBDB	187	1.6	1.6	304	4	0.16	0.70	0.58	DB 2
DB 1	PBDB	83	2.7	2.7	216	4	0.10	0.64	0.53	DB 1
PBDB	DA 1	130		7.5	1050	4	0.54	0.54	0.45	PBDB
CC 2	PBCC	192	2.7	2.7	513	4	0.27	0.98	0.82	CC 2
CC 1	PBCC	78	1.6	1.6	128	4	0.07	0.78	0.65	CC 1
PBCC	PBCB	63		4.3	270.9	4	0.14	0.71	0.59	PBCC
CB 2	PBCB	67	1.6	1.6	112	4	0.06	0.63	0.53	CB 2
CBI	PBCB	203	1.6	1.6	328	4	0.17	0.74	0.62	CBI
PBCB	CA 1	137		7.5	1102.5	4	0.57	0.57	0.48	PBCB
PB 1	PBBA	97	1.6	1.6	160	4	0.08	0.08	0.07	BAI
AA 1	PBAA	47	1.6	1.6	80	4	0.04	0.04	0.03	AA 1

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# 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

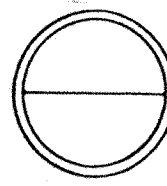
CONDUIT AT CROSSOVERS SHALL BE RIGID FERROUS METAL, 713.04.

### 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	Light Pole Foundation	Luminaire Style A,	Luminaire Style B,	Pull Box 18" Circular	Trench 24" Deep	Conduit 3", 713.04	Conduit 1 1/4", 713.04	Distribution Cable	Pole and Bracket	Duct-Cable, Two	Connector Kit	Connector Kit	Connector Kit	Connector Kit	Connector Kit	Connector Kit	Service Pole	Lamp 150W; H.P.S.	Lamp 250W; H.P.S.	
			T6 B-30.0	24" x 6"	Type II, 150W; H.P.S.	Type II, 250W; H.P.S.		Lin.ft.	Lin.ft.	Lin.ft.	No 4 AWG	No 10 AWG	No 4 AWG, 600V.	Type II	Type III	Type VII A	Type VII B	Type VII C	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

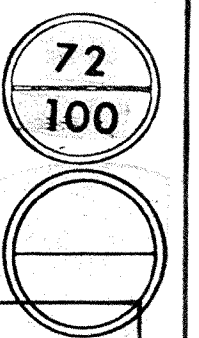
BY \_\_\_\_\_ DATE \_\_\_\_\_

CHKD. \_\_\_\_\_ DATE \_\_\_\_\_

WOODRUFF, INC.

F.H.W.A. REGION	STATE	PROJECT
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ASHTABULA COUNTY  
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SHEET NO.					ESTIMATED QUANTITIES	MISCELL. LOCATIONS	PROPOSAL QUANTITIES	UNIT	ITEM NO.	DESCRIPTION
69	70	71	72	73						
			14				14	Each	625	Light Pole, Design T 6 B 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 1 1/4" 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	1/2" 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

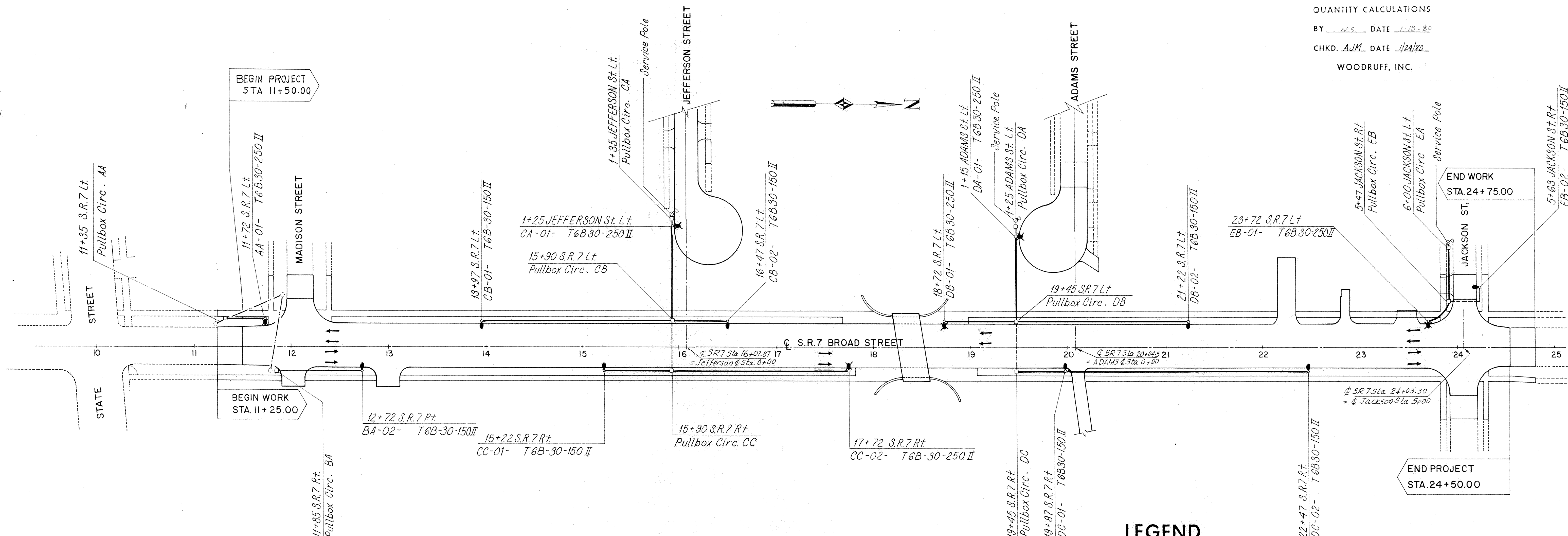
ASHTABULA COUNTY  
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QUANTITY CALCULATIONS

BY N.S. DATE 1-18-80

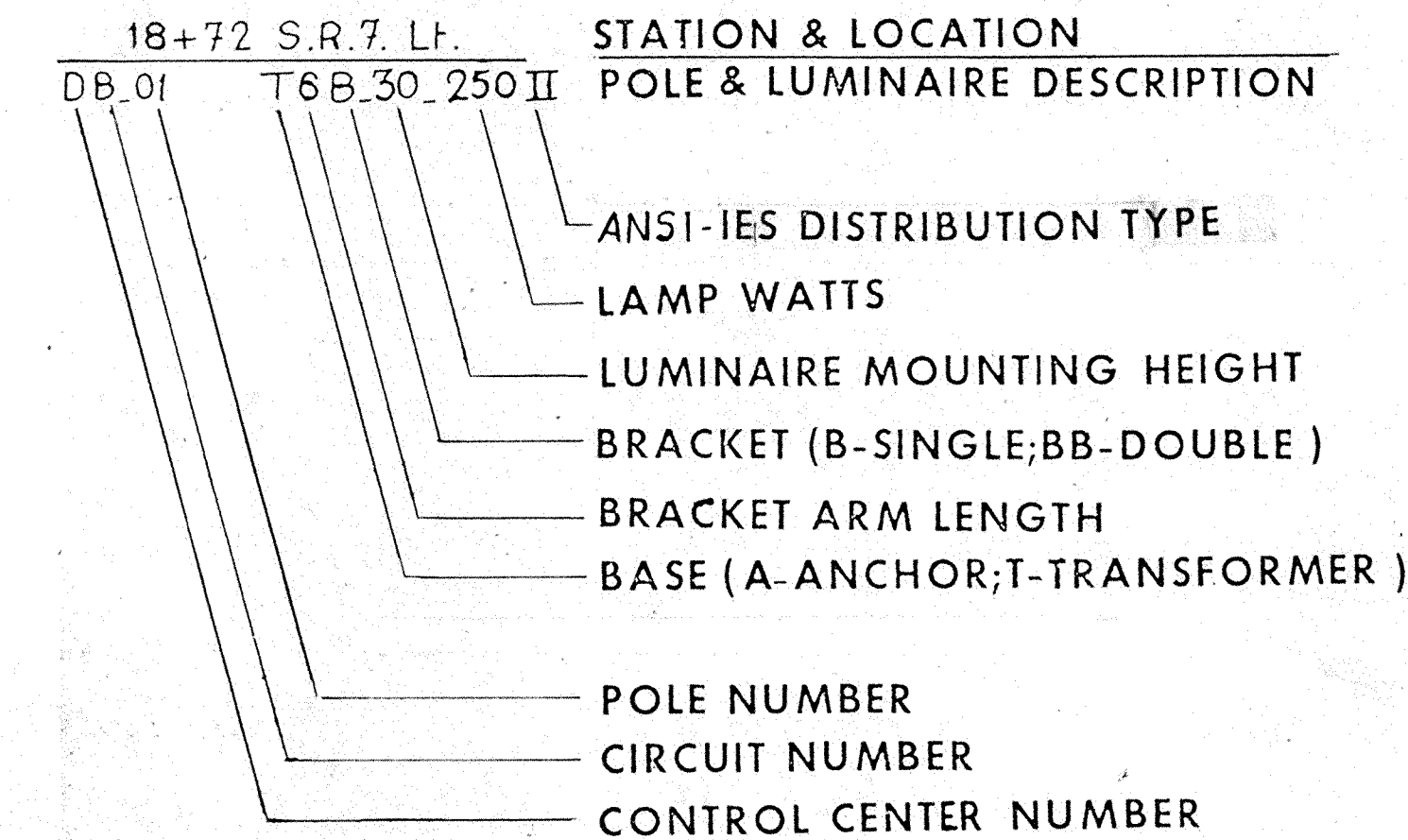
CHKD. A.J.M. DATE 1/24/80

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 ⊥)



SCALE \_\_\_\_\_  
MADE 1/18 DATE 1/18/80  
TRCD 2/11 DATE 2/11/80  
CRD. N.S. DATE 1/18/80

**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO

S.R.7 BROAD STREET

# RAILROAD RUNAROUND

## GENERAL NOTES

QUANTITY CALCULATIONS

BY N.S. DATE 1/18/80

CHKD. AJM DATE 1/24/80

F.H.W.A. REGION	STATE	PROJECT
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WOODRUFF, INC.

### 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 TRANSPORTATION, 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 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 UNMOUNTED 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 UNMOUNTED AND UNBROKEN AND SUITABLE FOR PROPER TIGHTENING OF THE JOINT.

### TIE PLATES

TIE PLATES SHALL BE OF STANDARD SIZE FOR THE RAIL FURNISHES, CONFORM 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 Z. 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.

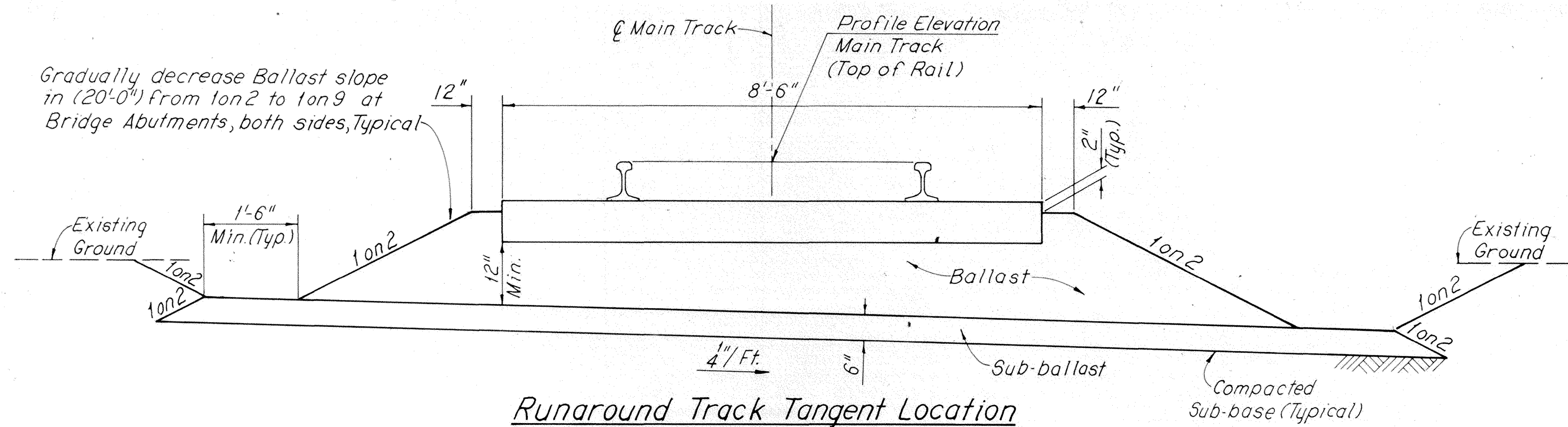
NO ADDITIONAL COMPENSATION SHALL BE MADE FOR RUNAROUND TRACK DRAINAGE AND ALL COSTS MUST BE INCLUDED IN THE BID PRICE FOR ITEM 615 NORFOLK AND WESTERN RAILWAY COMPANY RUNAROUND ROAD BED PREPARATION AS PER PLAN.

# TYPICAL SECTIONS

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

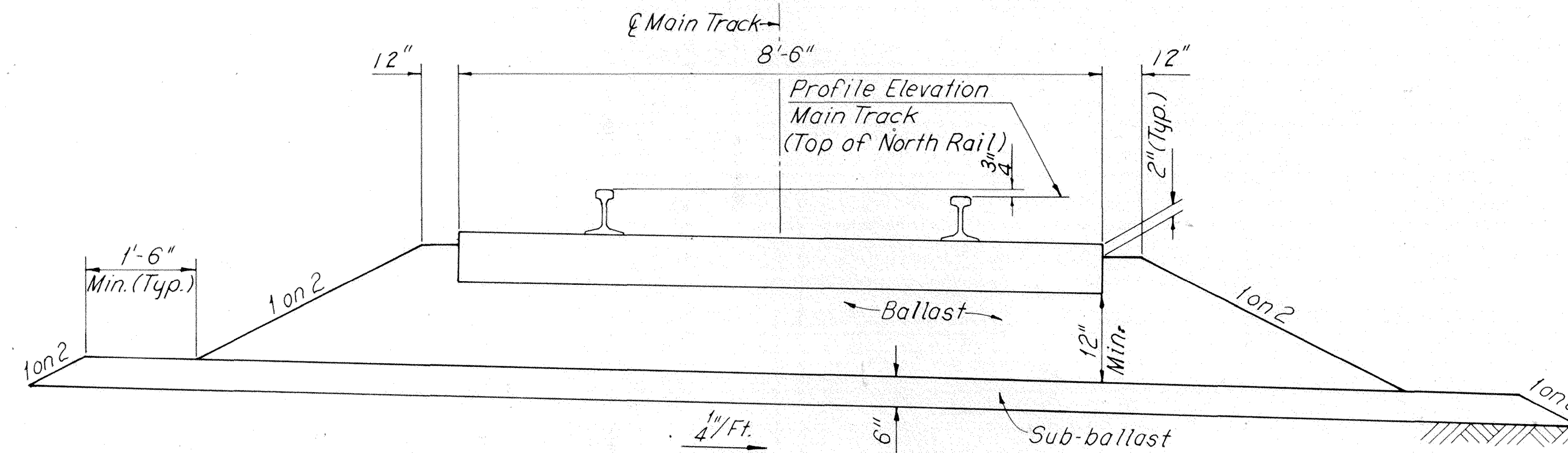
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ASHTABULA COUNTY  
ATB-7-31. 43



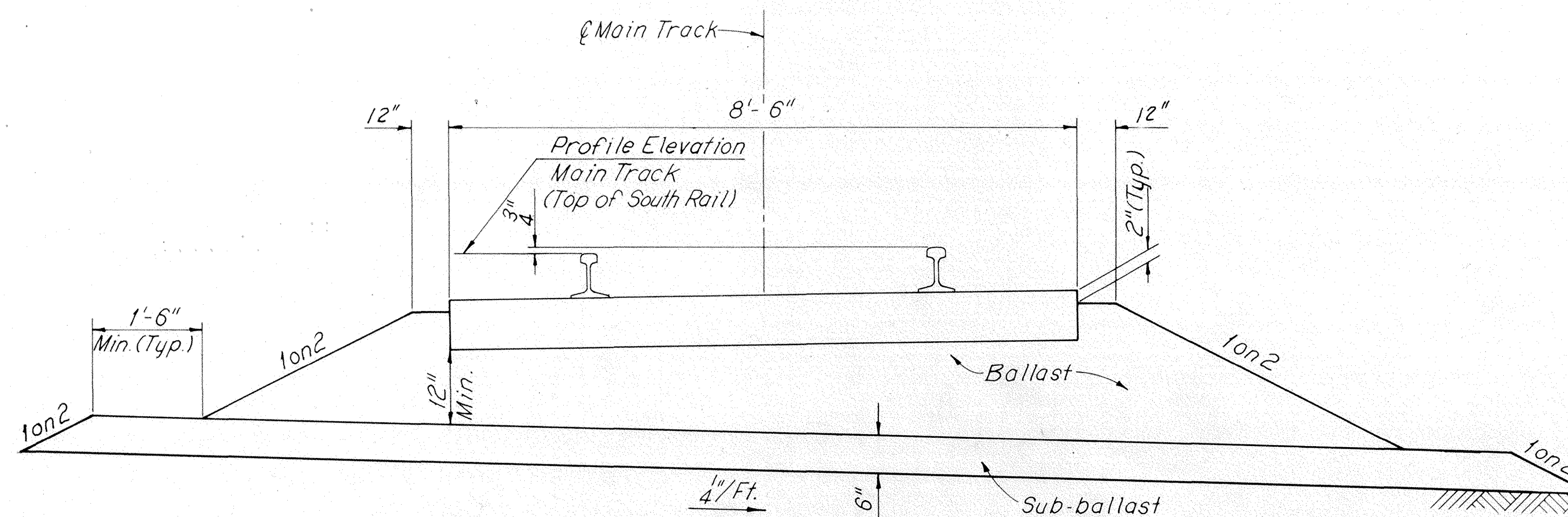
## Runaround Track Tangent Location and Proposed Final Section

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

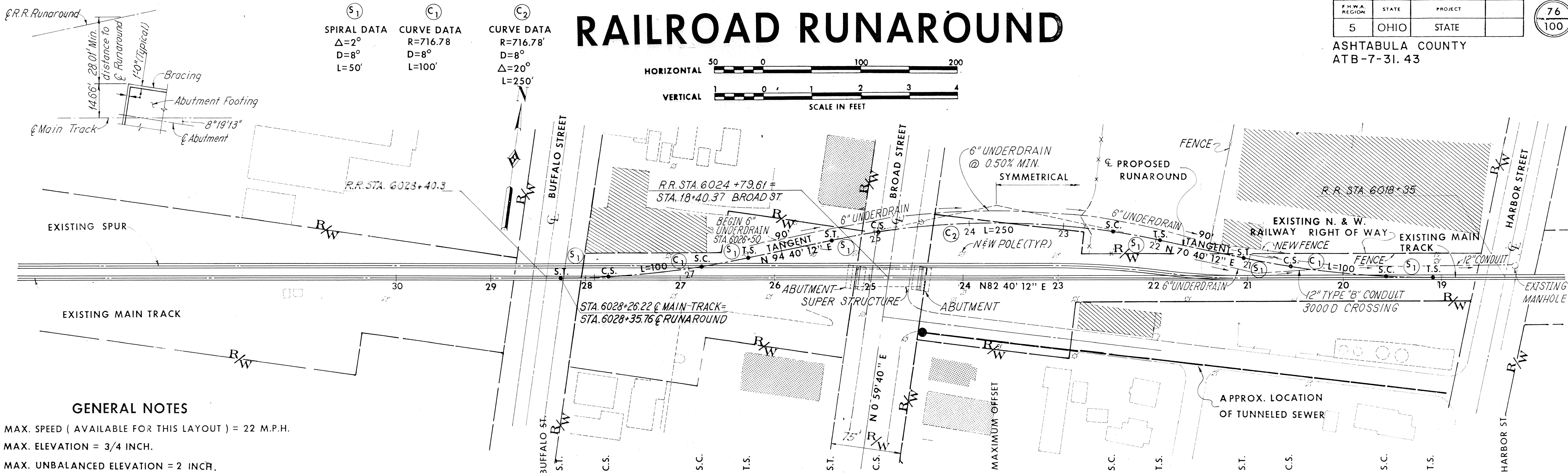
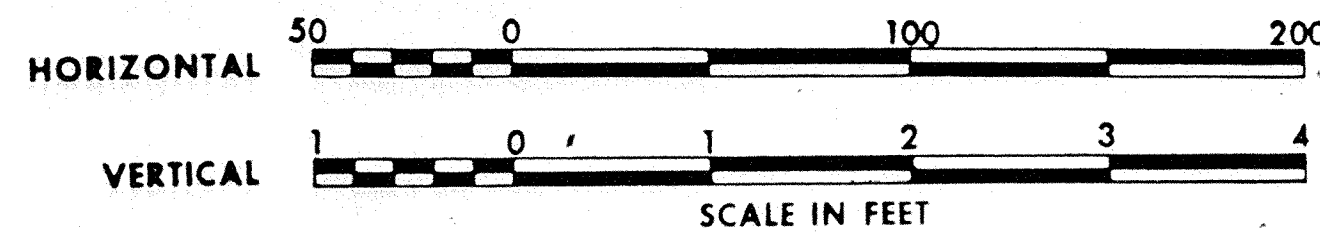
From Sta. 6022+45.76 To Sta. 6024+95.76

NOTE:  
OUTER RAIL ELEVATION ON ALL SPIRALS SHALL VARY 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, SUBBALLAST AND BALLAST DEPTHS WILL BE ADJUSTED ACCORDING TO SITE SOIL CONDITIONS AS DIRECTED BY THE ENGINEER.

SCALE \_\_\_\_\_ WOODRUFF, INC.  
MADE IN U.S.A. DATE \_\_\_\_\_  
TRCD. DATE 9/79  
CKD. DATE 1/9/80  
CONSULTING ENGINEERS  
CLEVELAND OHIO

# RAILROAD RUNAROUND

(S<sub>1</sub>) SPIRAL DATA  
 Δ=2°  
 D=8°  
 L=50'  
 (C<sub>1</sub>) CURVE DATA  
 R=716.78  
 D=8°  
 L=100'  
 (C<sub>2</sub>) CURVE DATA  
 R=716.78'  
 D=8°  
 Δ=20°  
 L=250'



### 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.)

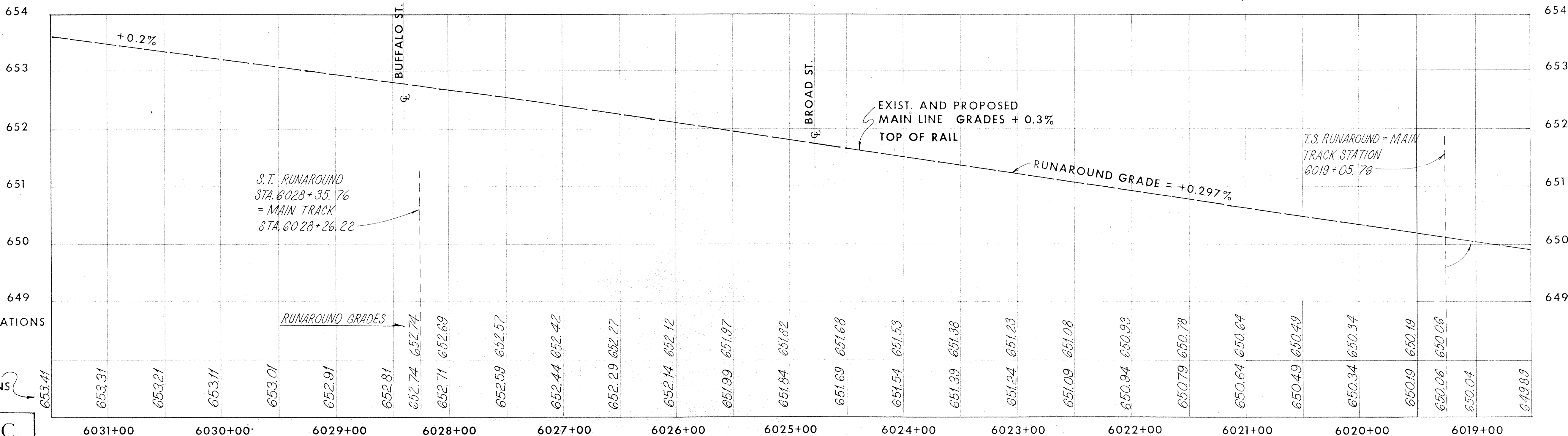
BUILDINGS MARKED THUS TO REMAIN.

BUILDINGS MARKED THUS TO BE REMOVED.

PROPOSED RUNAROUND ELEVATIONS

EXIST. AND PROPOSED MAIN LINE GRADE ELEVATIONS

MAINLINE STATION	OFFSET FROM EXIST. E
6028+40.3	0'
6028+26.22	2.33'
6027+76.23	12.66'
6026+76.78	20.78'
6026+27.62	39.49'
6025+39.59	47.61'
6024+90.46	58.50'
6023+65.99	47.61'
6022+41.52	39.49'
6021+92.39	20.78'
6021+04.36	12.66'
6020+55.20	2.33'
6019+55.75	0'
6019+05.76	0'
6018+35	0'



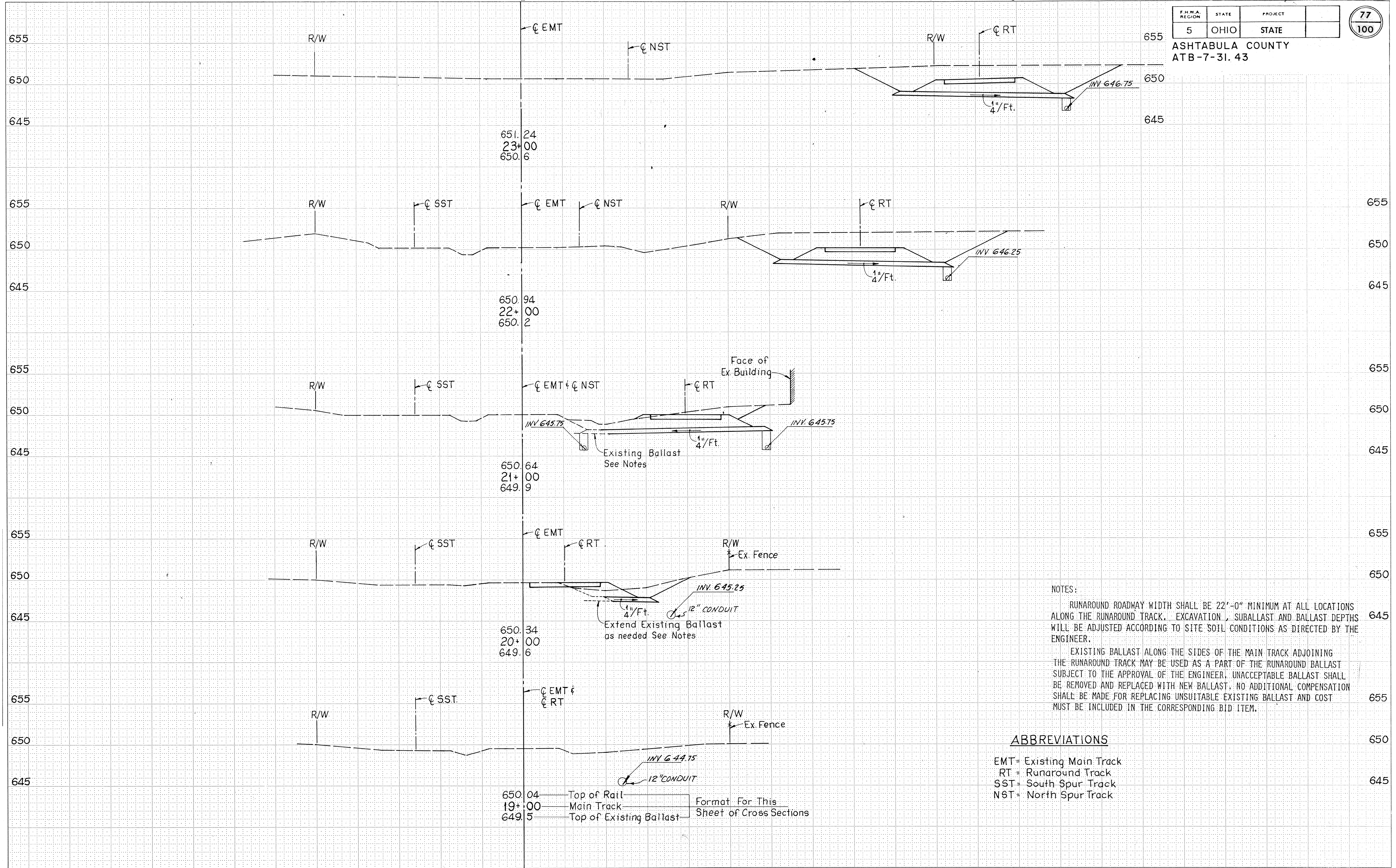
SR. 7 - BROAD STREET

30 20 10 0 10 20 30 40 50 60 70

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

77  
100

ASHTABULA COUNTY  
ATB-7-31. 43



NOTES:  
 RUNAROUND ROADWAY WIDTH SHALL BE 22'-0" MINIMUM AT ALL LOCATIONS ALONG THE RUNAROUND TRACK. EXCAVATION, SUBBALLAST 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

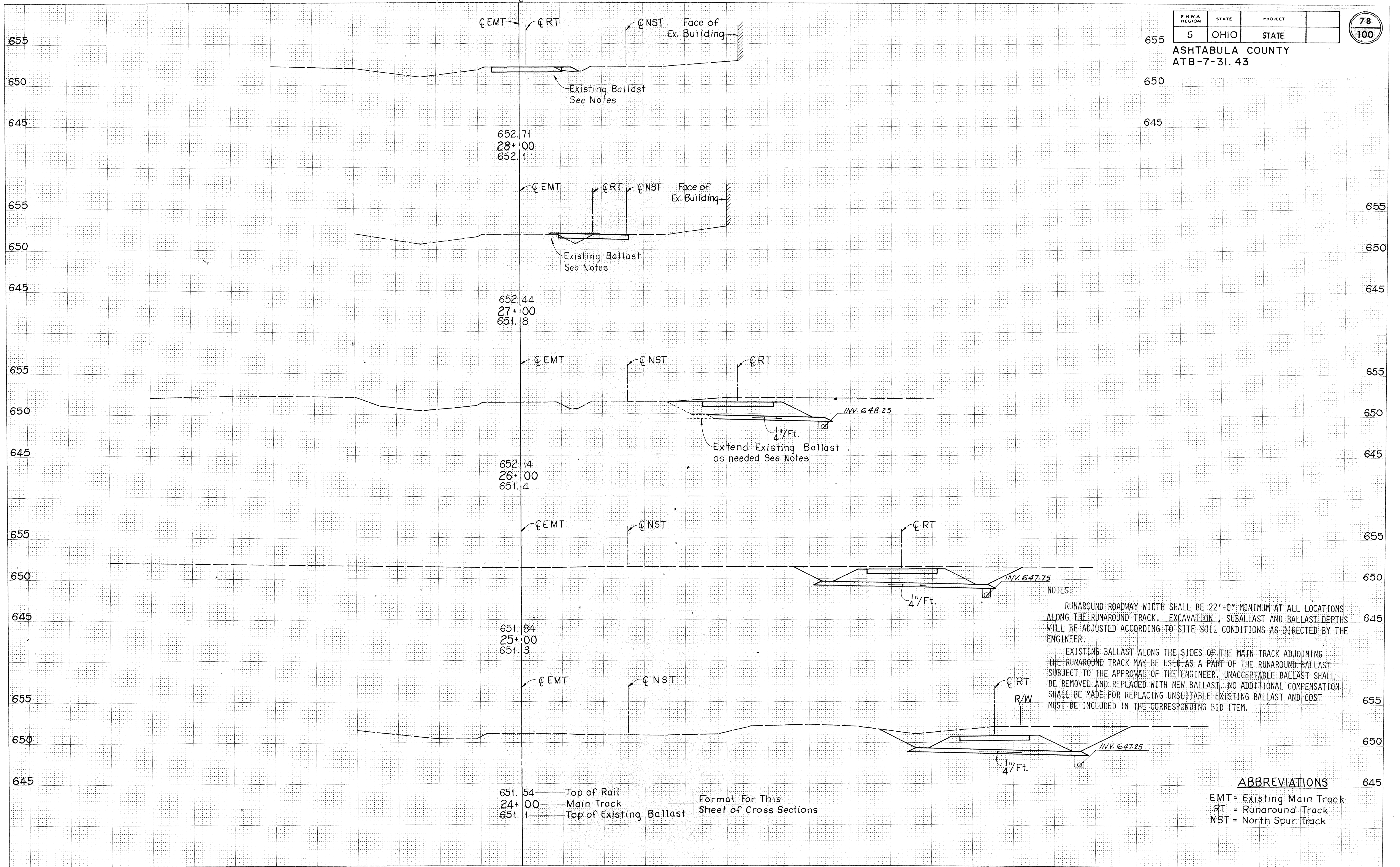
650.04 Top of Rail  
 19+00 Main Track  
 649.5 Top of Existing Ballast  
 Format For This Sheet of Cross Sections

30 20 10 0 10 20 30 40 50 60 70

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

78  
100

ASHTABULA COUNTY  
ATB-7-31.43



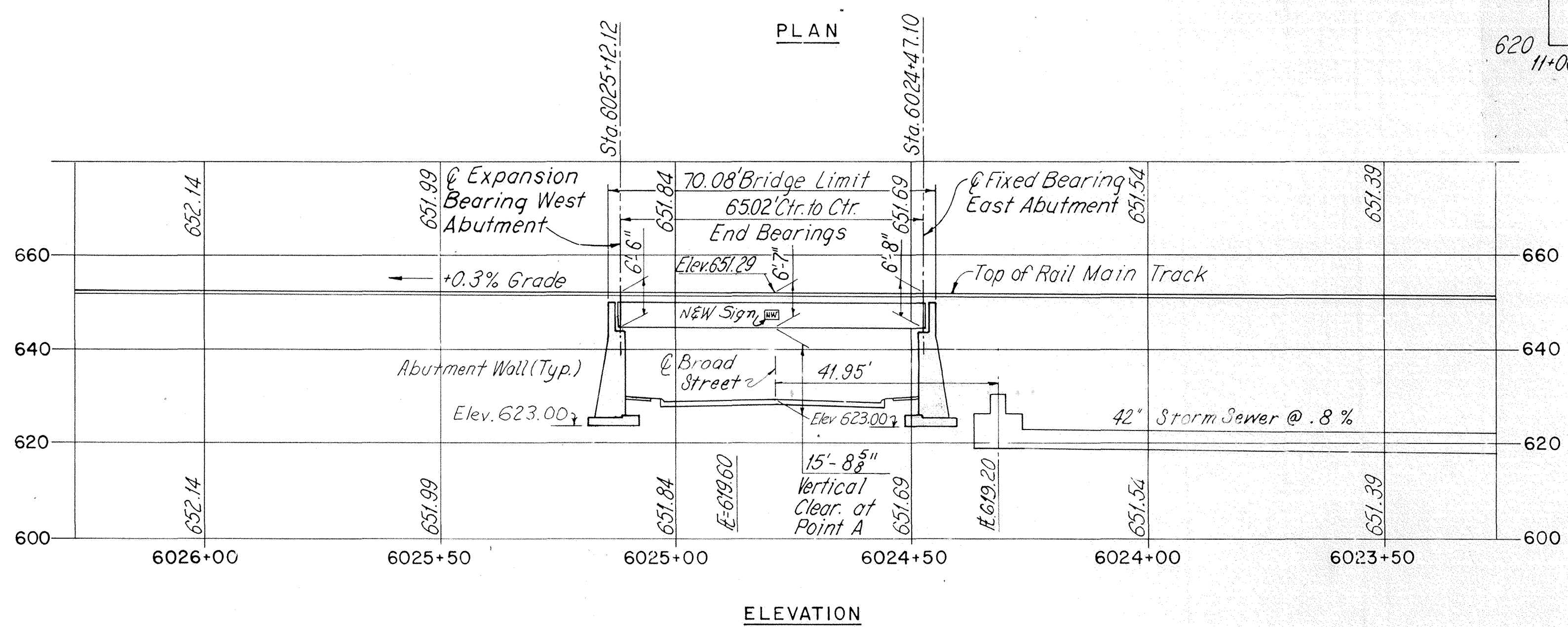
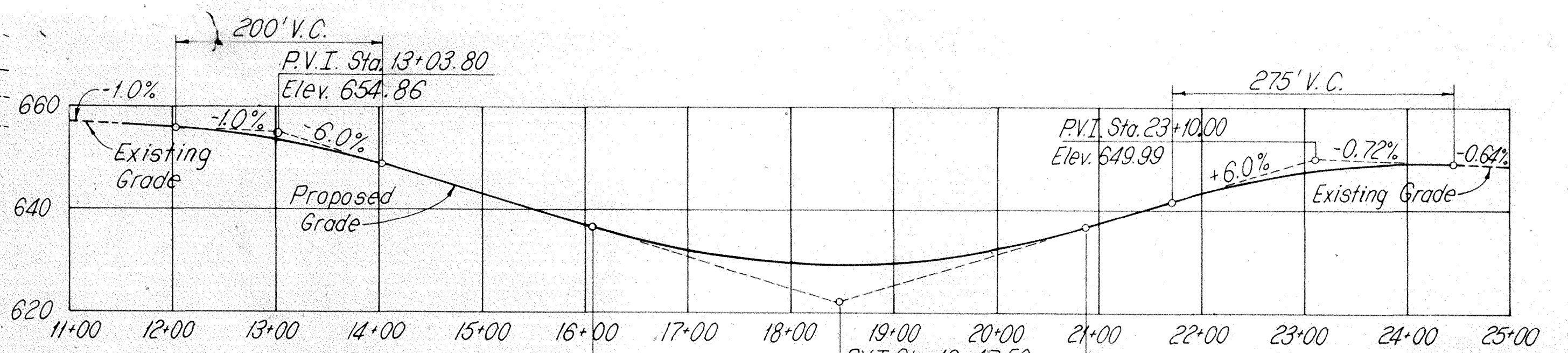
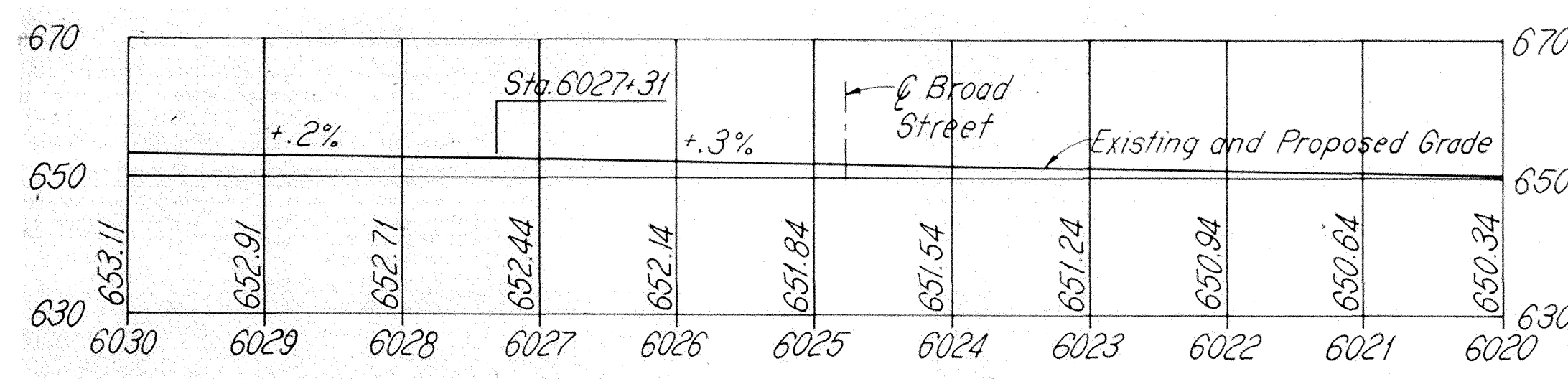
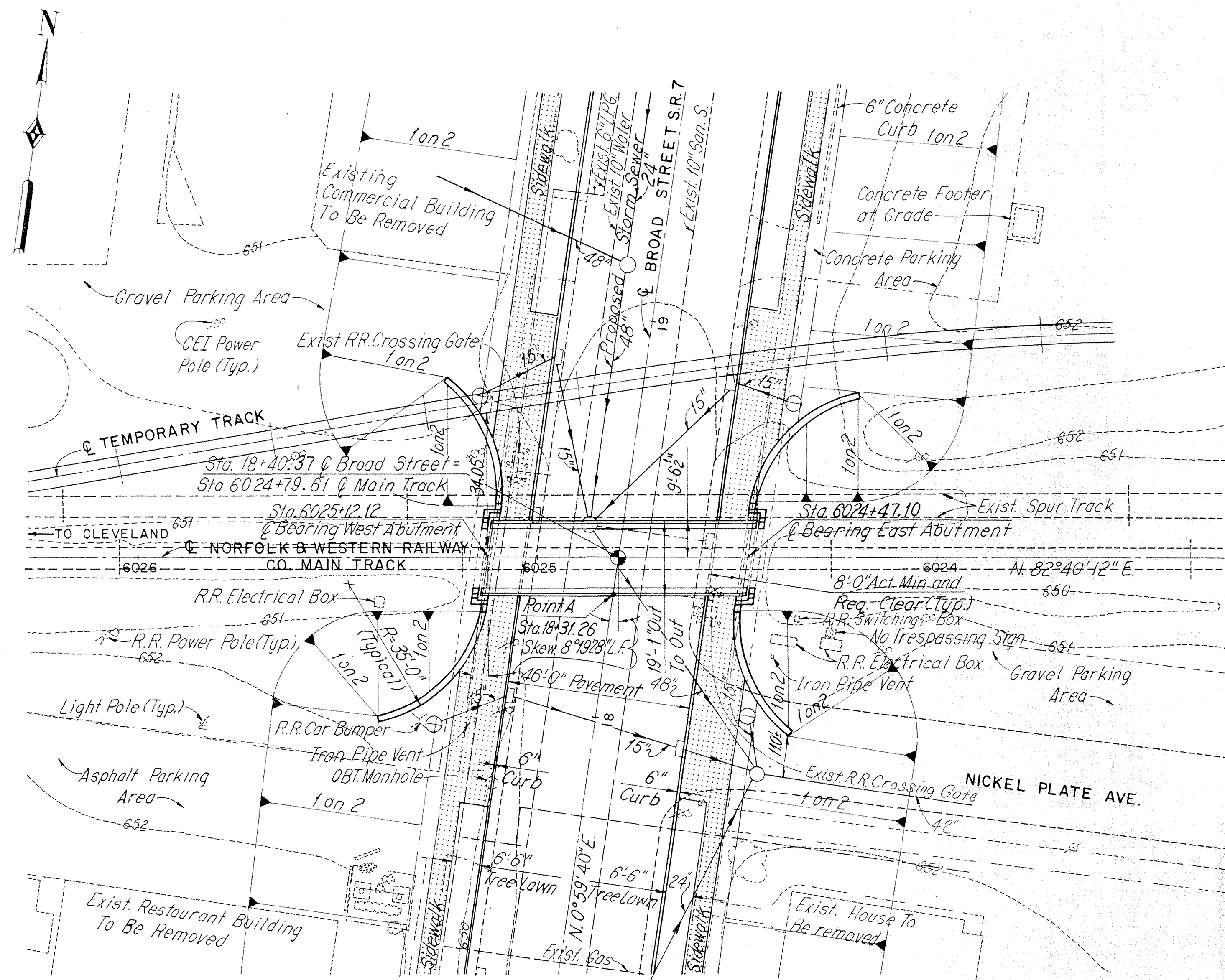
NOTES:  
 RUNAROUND ROADWAY WIDTH SHALL BE 22'-0" MINIMUM AT ALL LOCATIONS ALONG THE RUNAROUND TRACK. EXCAVATION, SUBBALLAST AND BALLAST DEPTHS WILL BE ADJUSTED ACCORDING TO SITE SOIL CONDITIONS AS DIRECTED BY THE ENGINEER.  
 EXISTING BALLAST ALONG THE SIDES OF THE MAIN TRACK ADJOINING THE RUNAROUND 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.

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

Format For This  
 Sheet of Cross Sections

ABBREVIATIONS

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



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 Q 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/RCK	TRACED/RCK	CHECKED/NS	REVIEWED/NS	REVISED
DATE 9-8-78	DATE 9-11-78	DATE 7-30-79	DATE	SHEET 1 / 10

SR.7 - BROAD STREET

~ 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 Thereof.

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

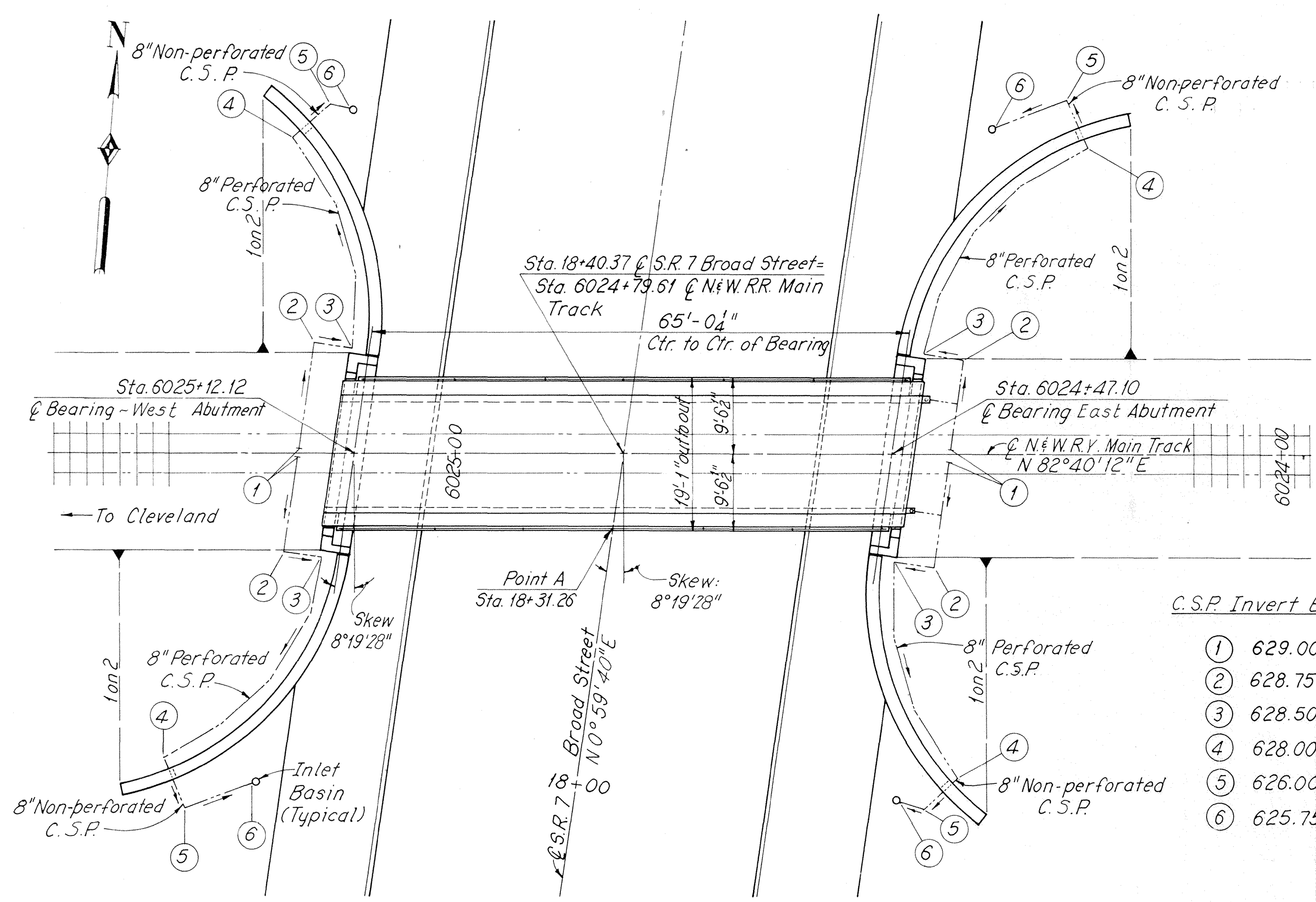
**Design Loading:** Cooper's E-80 with diesel impact.  
**Concrete:** Class "C"  $f_c = 4,000$  P.S.I. (Unit Stress 1333 p.s.i. for substructure)  
**Structural Steel:** A.S.T.M. A-588 (Unit Stress 27000 p.s.i.)  
 Steel  $f_y = 50,000$  p.s.i.,  $f_u = 70,000$  P.S.I.

**Reinforcing Steel:** A.S.T.M. 615, unit yield stress 60,000 P.S.I. (Allowable Unit Stress 24,000 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 Highways, and by the Railroad Company.

**Railroad Aerial Lines:** Will be relocated 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.

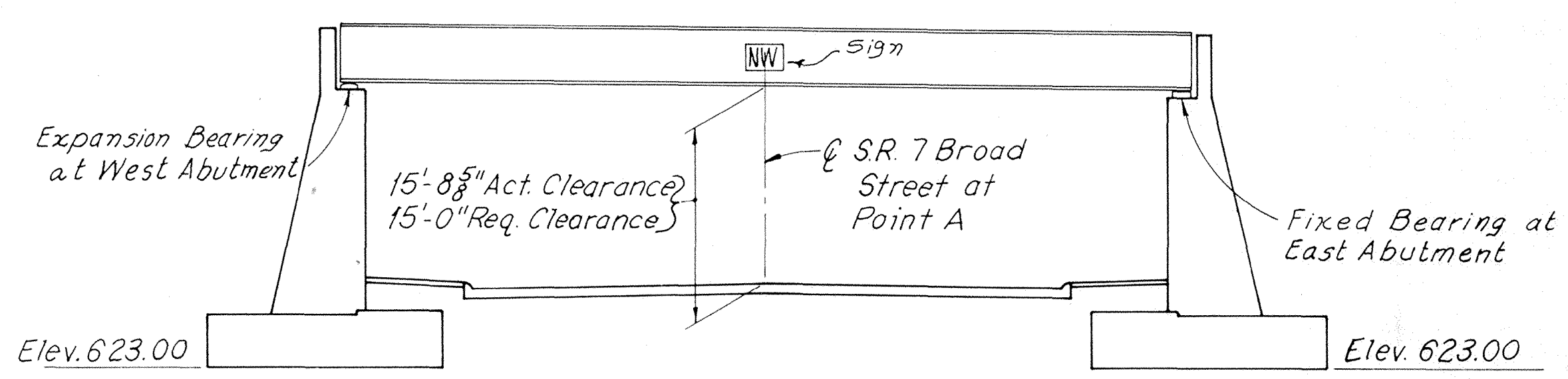
Reference shall be made to State of Ohio Supp. Spec. #809 dated 1-1-79 & #810 dated 1-1-79  
 Maximum Soil Bearing Capacity = 4 Tons Per Square Foot  
 Maximum Design Contact Pressure = 2.8 Tons Per Square Foot  
 Excavation Quantity: Includes the removal of material required for construction of the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



C.S.P. Invert Elevations

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

~ GENERAL PLAN ~



~ ELEVATION ~

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. ft.	1" Preformed expansion joint filler	366		
Special	36	Sq. ft.	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. ft.	8" Perforated Corrugated steel pipe including specials 707.01 bituminous coated as per 707.04	190		
518	88	Lin. ft.	8" Non-perforated Corrugated Steel Pipe including specials, 707.01 bituminous coated as per 707.04	88		
518	3	Lin. ft.	6" Non-perforated Corrugated Steel Pipe including specials, 707.01	3		
518	143	Lin. ft.	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 3/8" 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		

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

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 BY	TRACED BY	CHECKED BY	REVIEWED	REVISED
DATE 8/13/77	DATE 8/13/77	DATE 1/9/80	DATE	SHEET 2 / 10

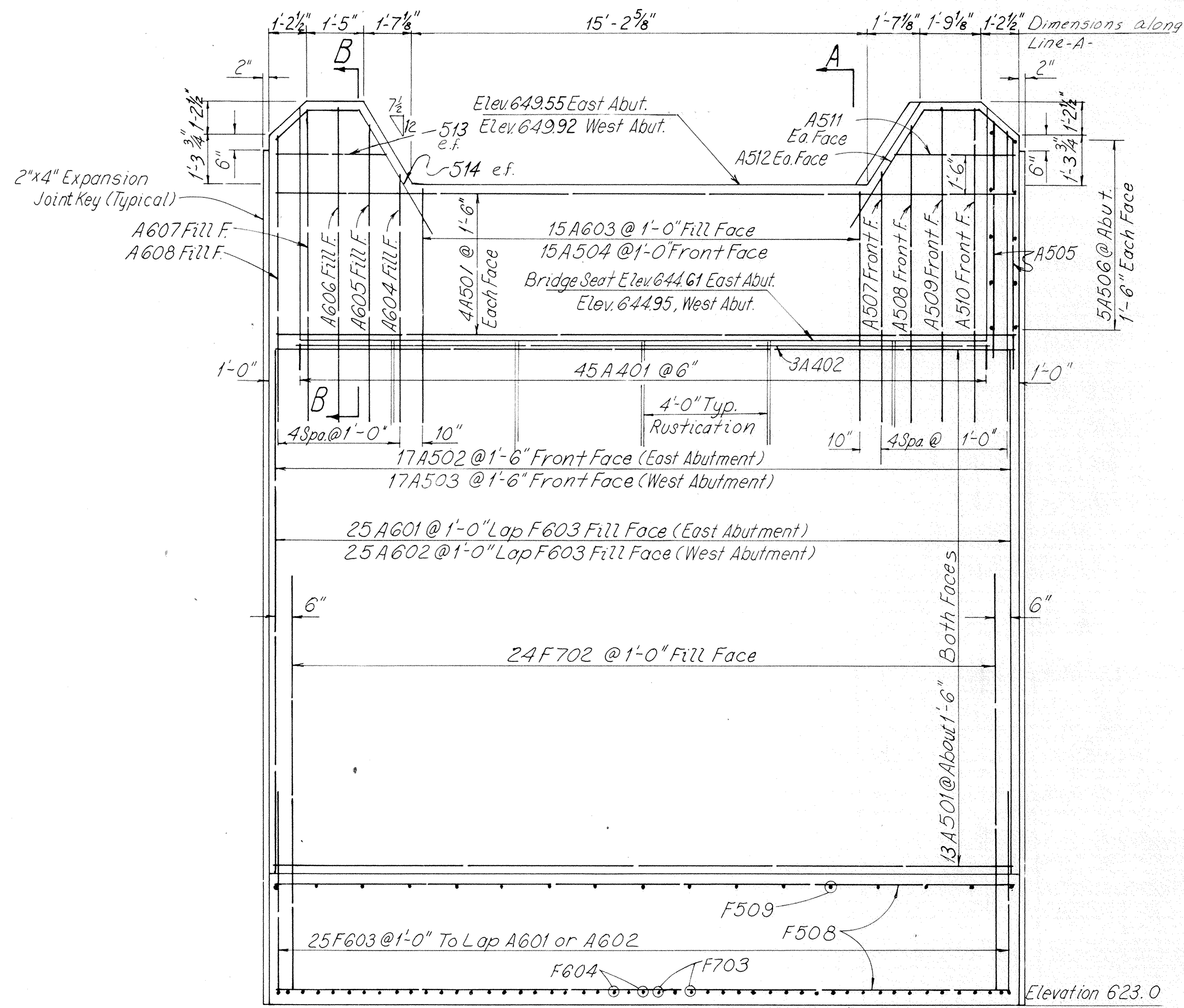
SR 7 - BROAD STREET



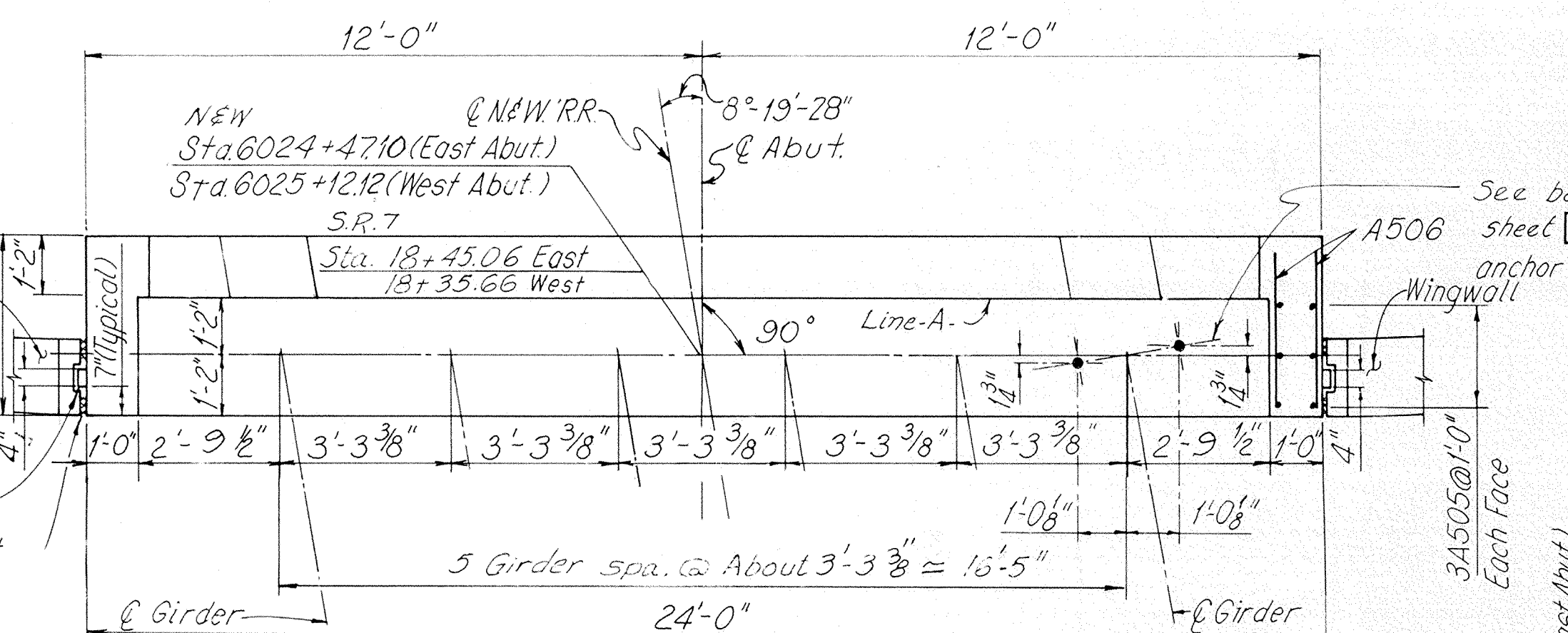
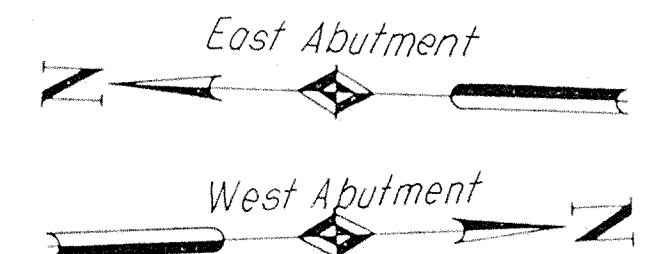
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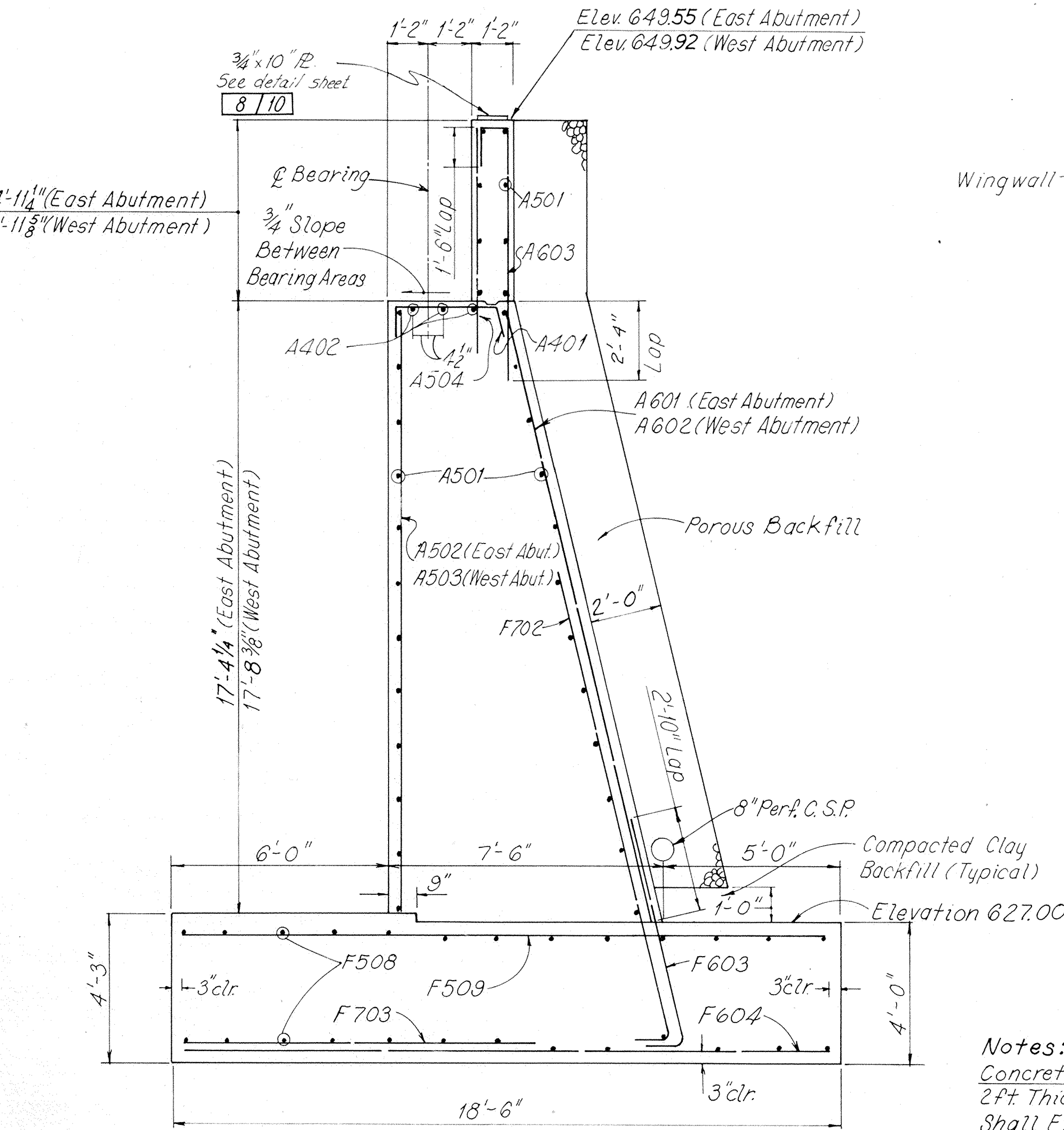
ASHTABULA COUNTY  
ATB-7-31.43



~Elevation~

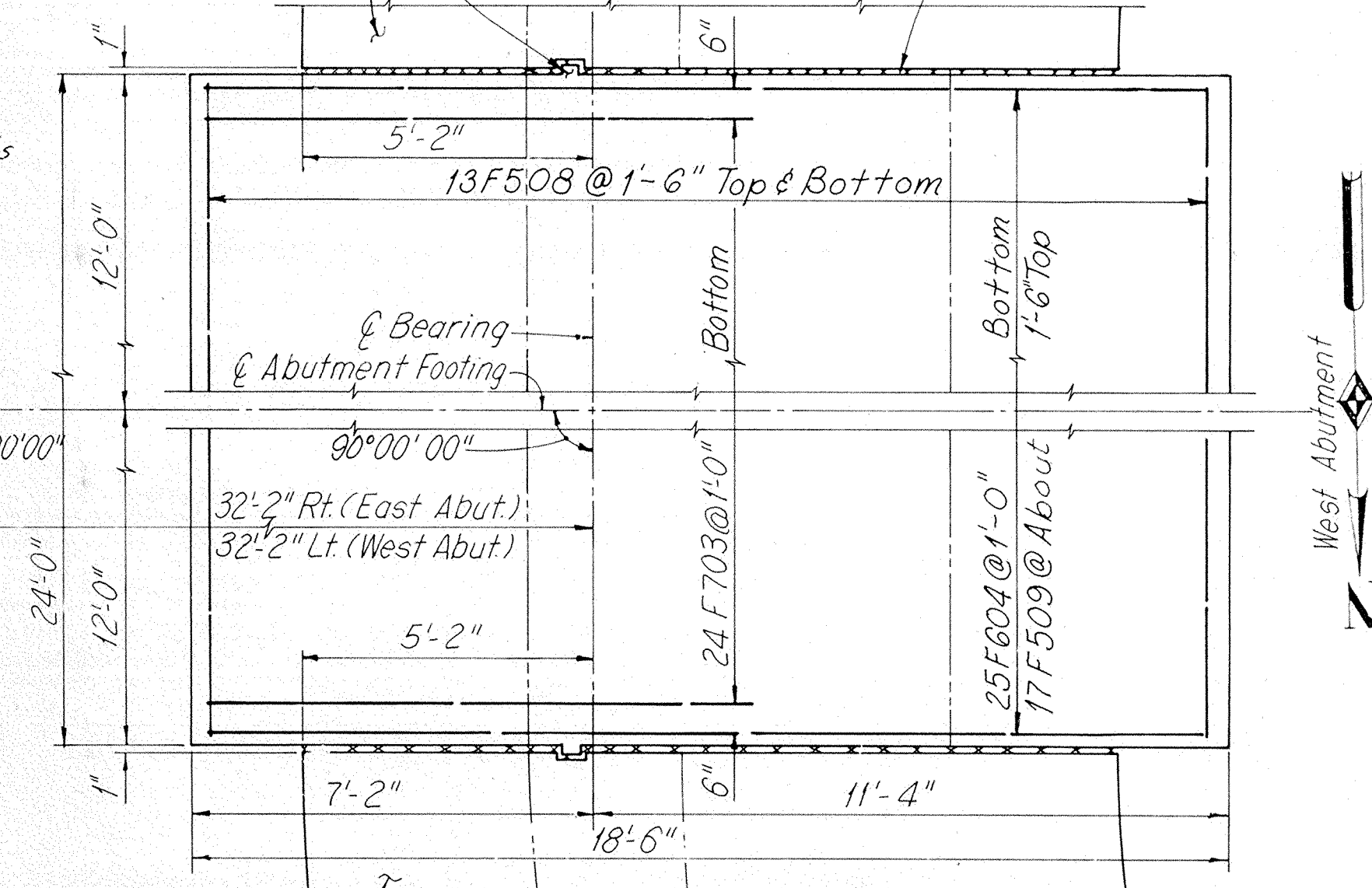


Plan



~Section B-B~

~Section A-A~

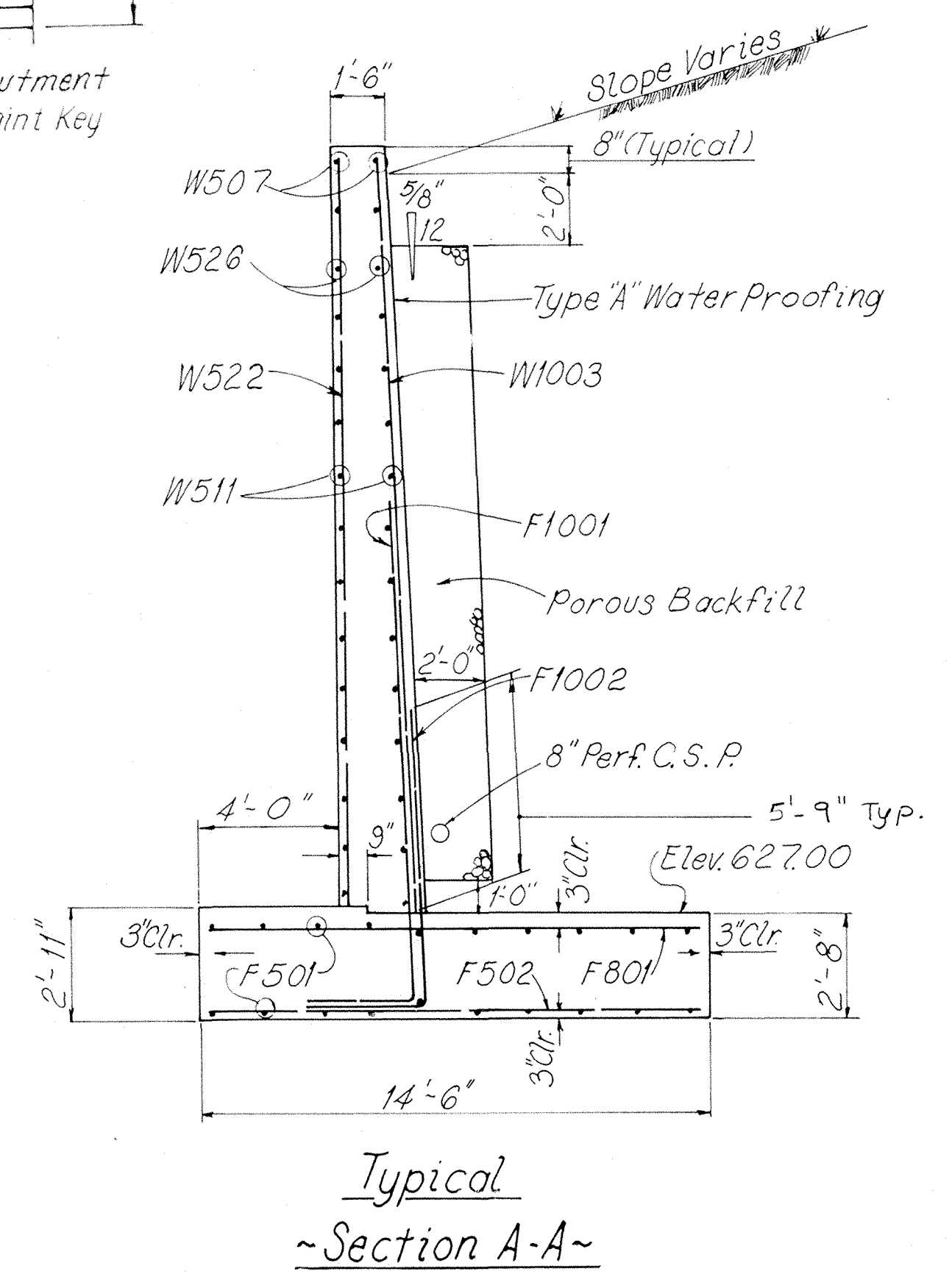
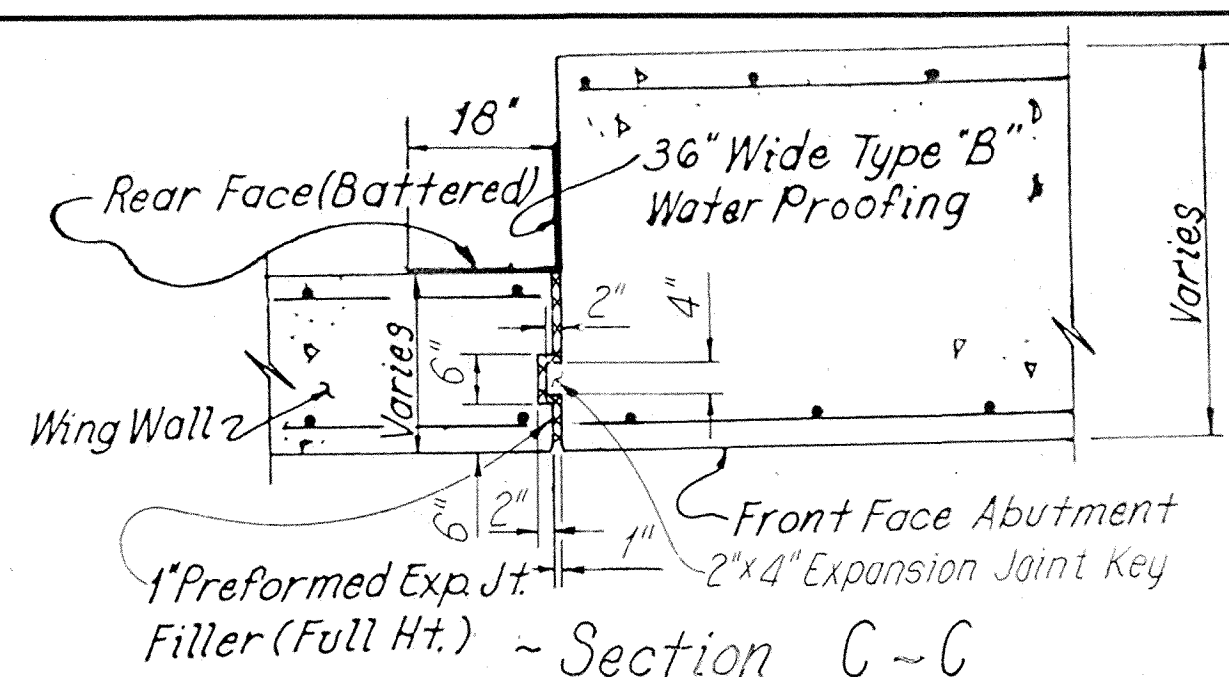
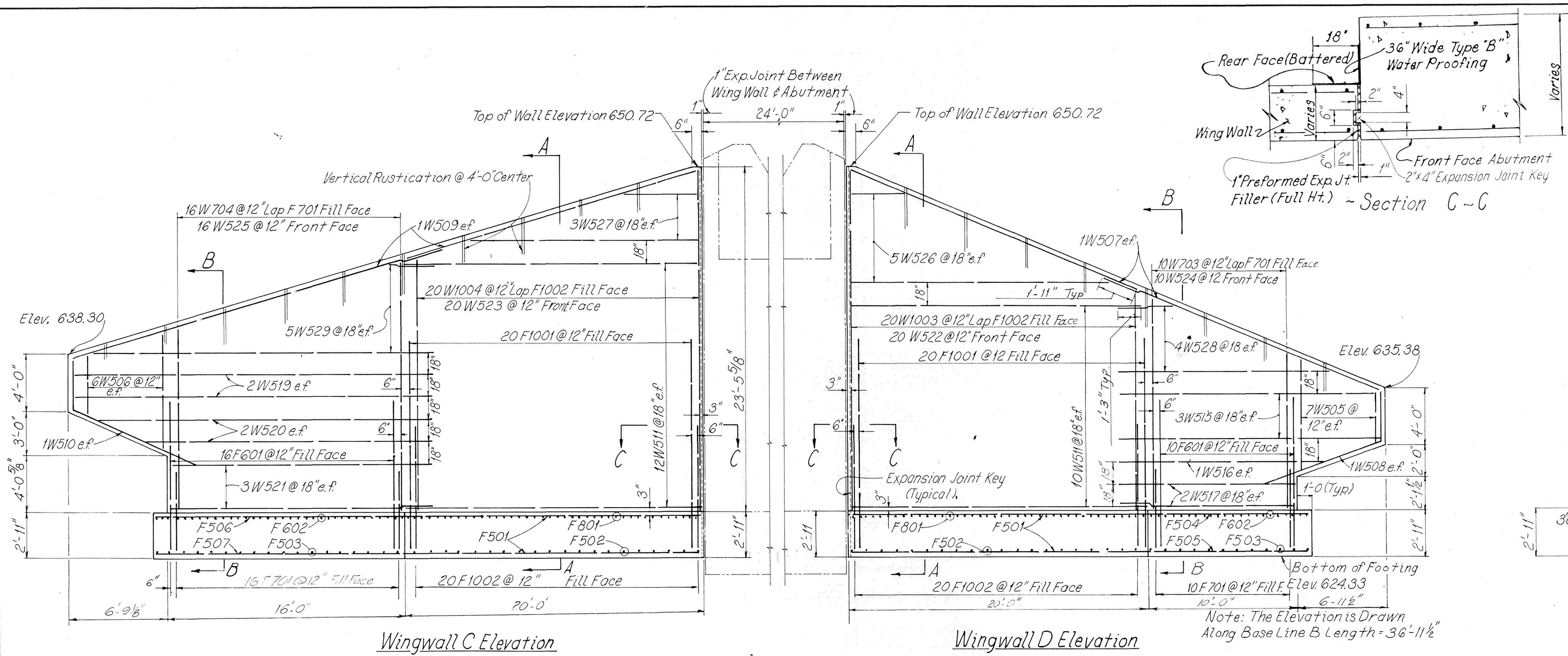


Footing Plan

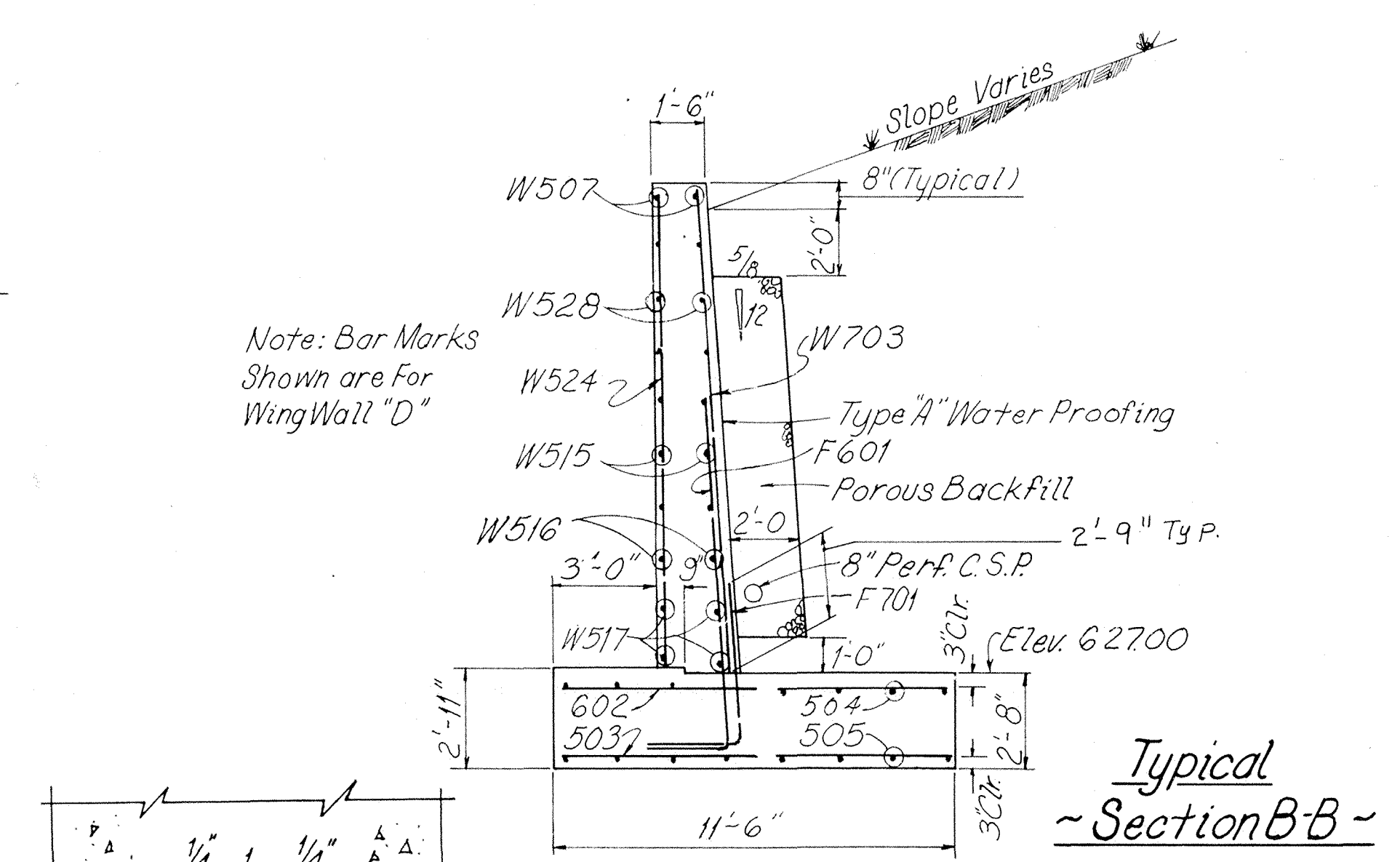
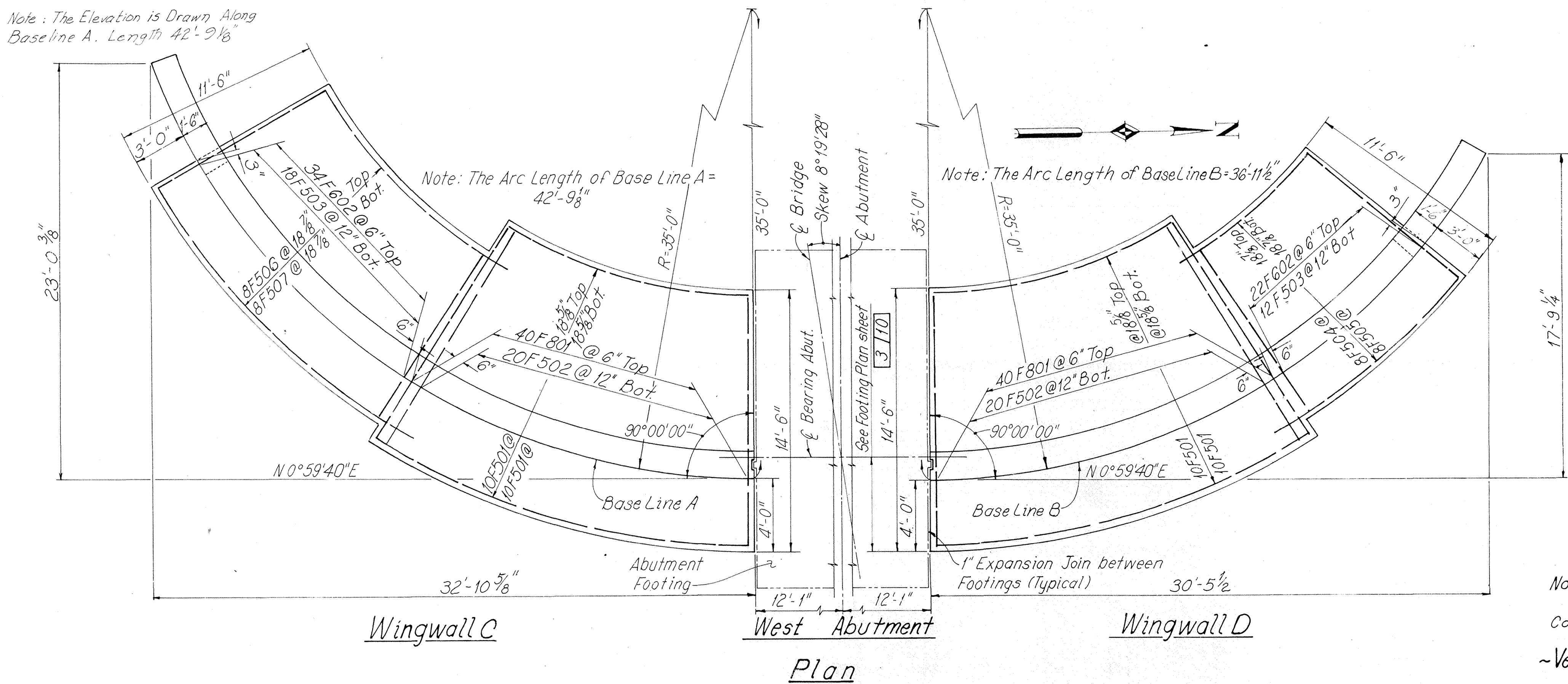
Notes:  
Concrete: Shall be Class 'C' Porous Backfill:  
2ft Thick full Length of Abutment and Wing walls  
Shall Extend Up to the Underside of the  
ballast Bridge Seat Reinforcing: Special  
Care Shall be Taken in Placing Reinforcing  
Steel in the Vicinity of the Bridge Seat So  
as to Avoid Interference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

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 AS	TRACED BY	CHECKED BY	REVIEWED	REVISED
DATE	DATE 8/13/79	DATE 1/9/80	DATE	SHEET 3 / 10

SR. 7 - BROAD STREET



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

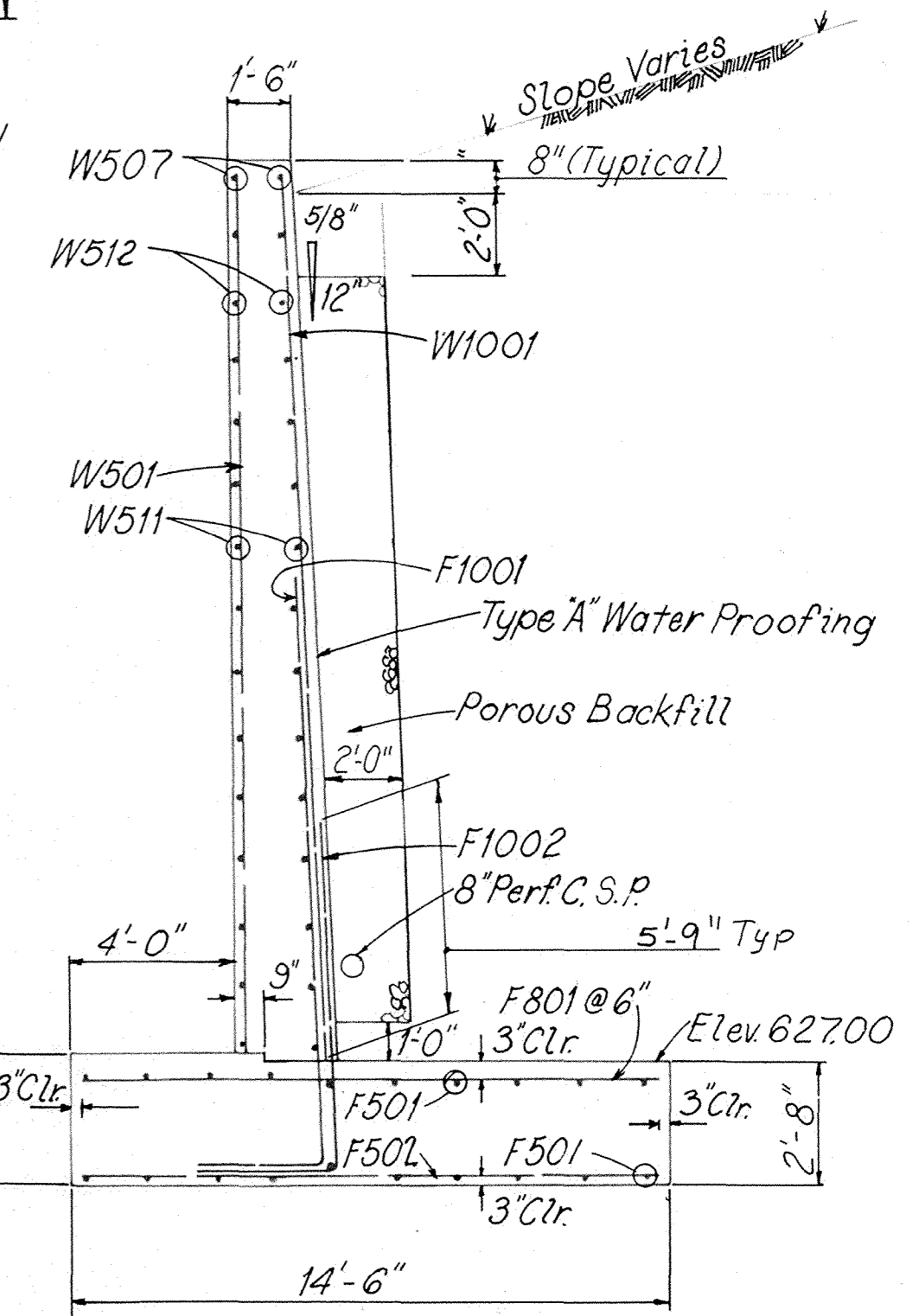
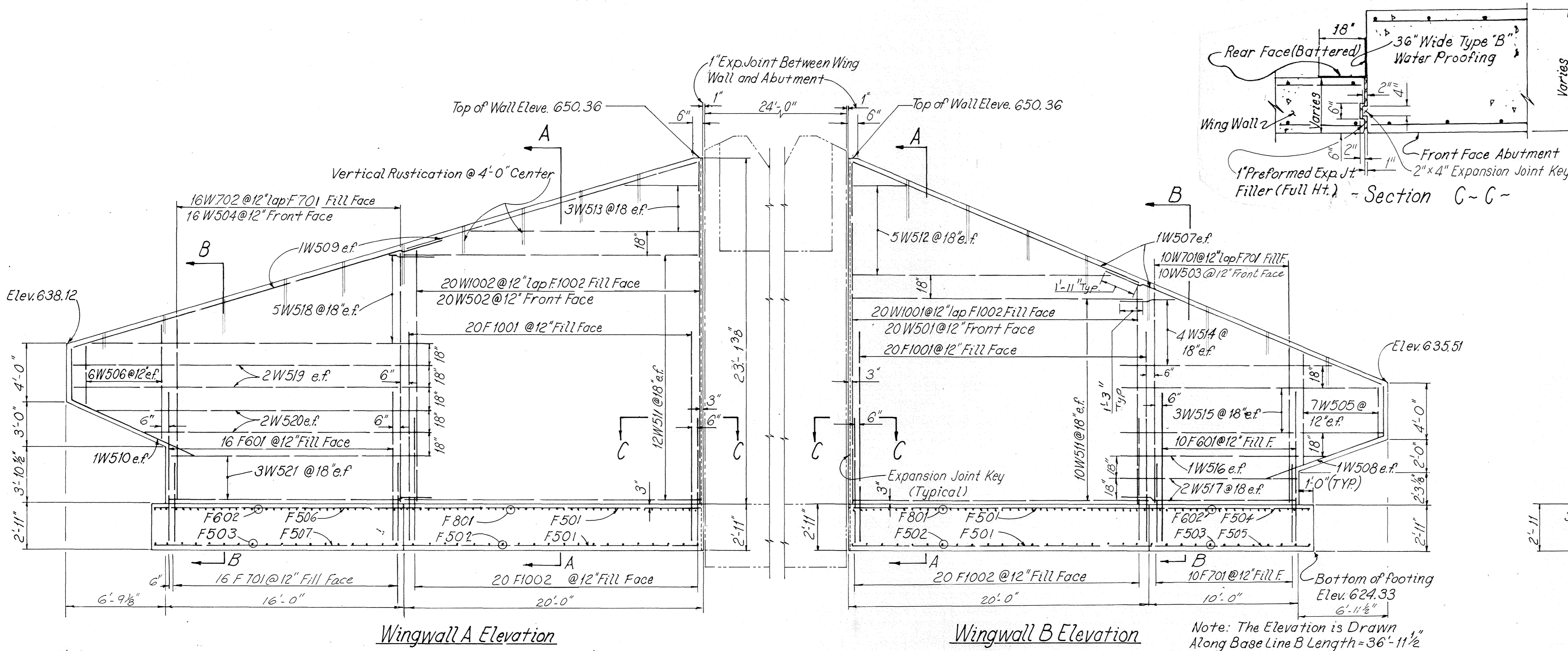


Note: Rustication Grooves to run from top of footing to top of wall. Coincide with form joints.  
~Vertical Rustication Groove~

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CONSULTING ENGINEERS  
CLEVELAND, OHIO

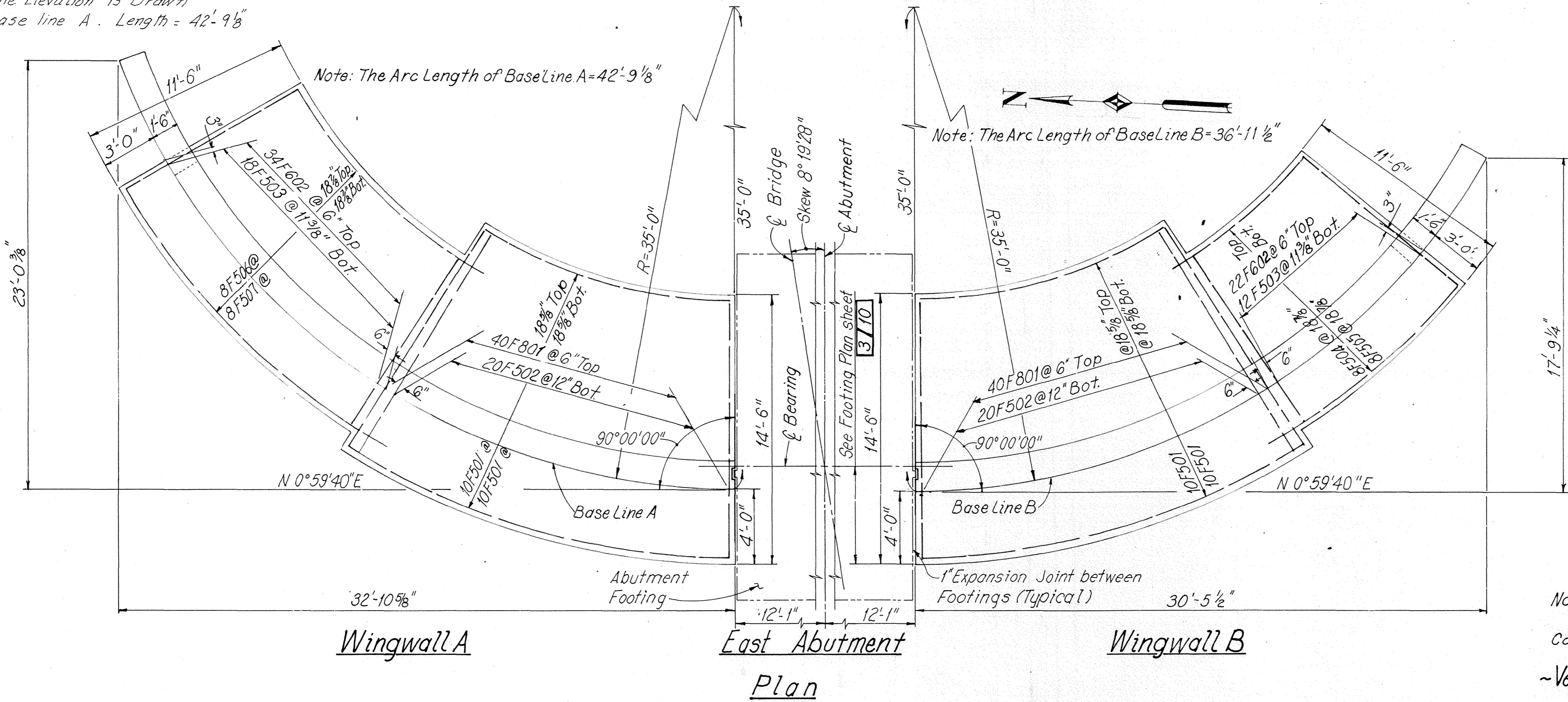
WEST ABUTMENT WING WALLS  
S.R. 7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS  
BR. NO. STA. 6024+44.57 TO STA. 6025+14.65  
ASHTABULA COUNTY CONNEAUT, OHIO

MADE BY	TRACED C.H.	CHECKED A.W.	REVIEWED	REVISED
DATE	DATE 8/13/77	DATE 1/9/80	DATE	SHEET 4/10



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"



Note: Bar Marks Shown Are For Wingwall B

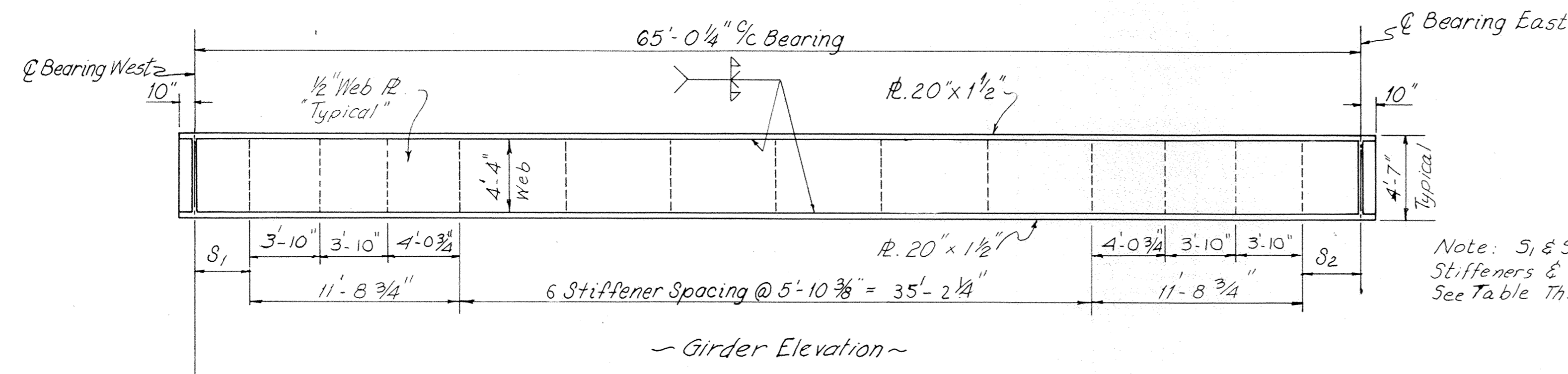
Note: Rustication Grooves to run from top of footing to top of wall. Coincide with form joints.

~Vertical Rustication Groove~

WOODRUFF, INC.  
CONSULTING ENGINEERS  
CLEVELAND, OHIO

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	TRACED	CHECKED	REVIEWED	REVISED
DATE	DATE	DATE	DATE	SHEET
	8/13/77	1/9/80		5/10



Note: S<sub>1</sub> & S<sub>2</sub> Are Spacings between End "Bearing" Stiffeners & The First Intermediate Stiffener/c/c See Table This Sheet For S<sub>1</sub> & S<sub>2</sub> of Each Girder

Live Load Deflection:  
At 1/4 and 3/4 points = 1"  
At Mid-Span = 1 1/4"

Maximum Dead Load Deflection at Mid-Span is 3/8" No Camber required.

~ LOADING ~

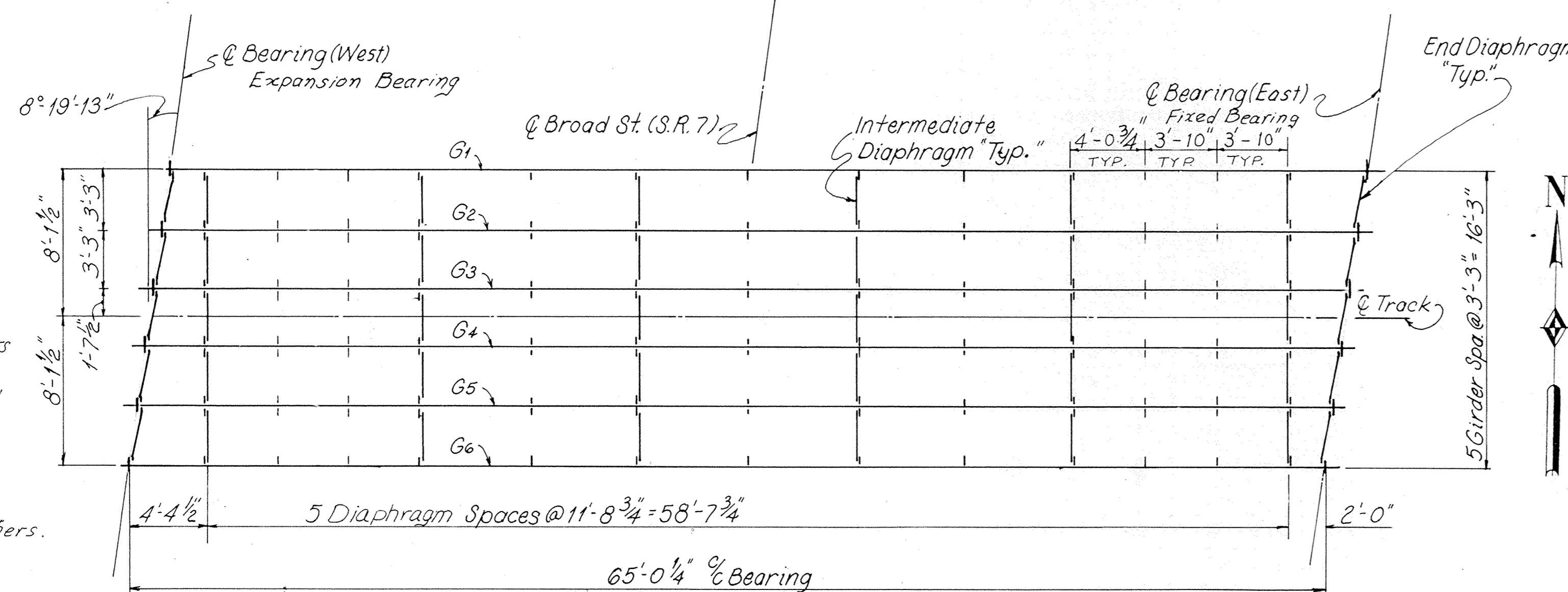
Live Load Cooper's E-80 With Diesel Impact

Dead Load Per Foot of Track

Rail & Fastenings	: 200 #
Ballast & Ties	: 2305 #
Asph. Panels & Seal	: 300 #
Steel Girders & Deck	: 2834 #
<b>Total Dead Load Per lin. Ft.</b>	<b>: 5639 #</b>
Intermediate Girder Load =	5639 ÷ 5 = 1128 #/lin. Ft.

	Girder Stresses	Abutment
	Moment K'	Shear K
Dead Load	596	37
Live Load	1,501	104
Impact	850	59
	<u>2947 K'</u>	<u>200 K</u>
		206 K

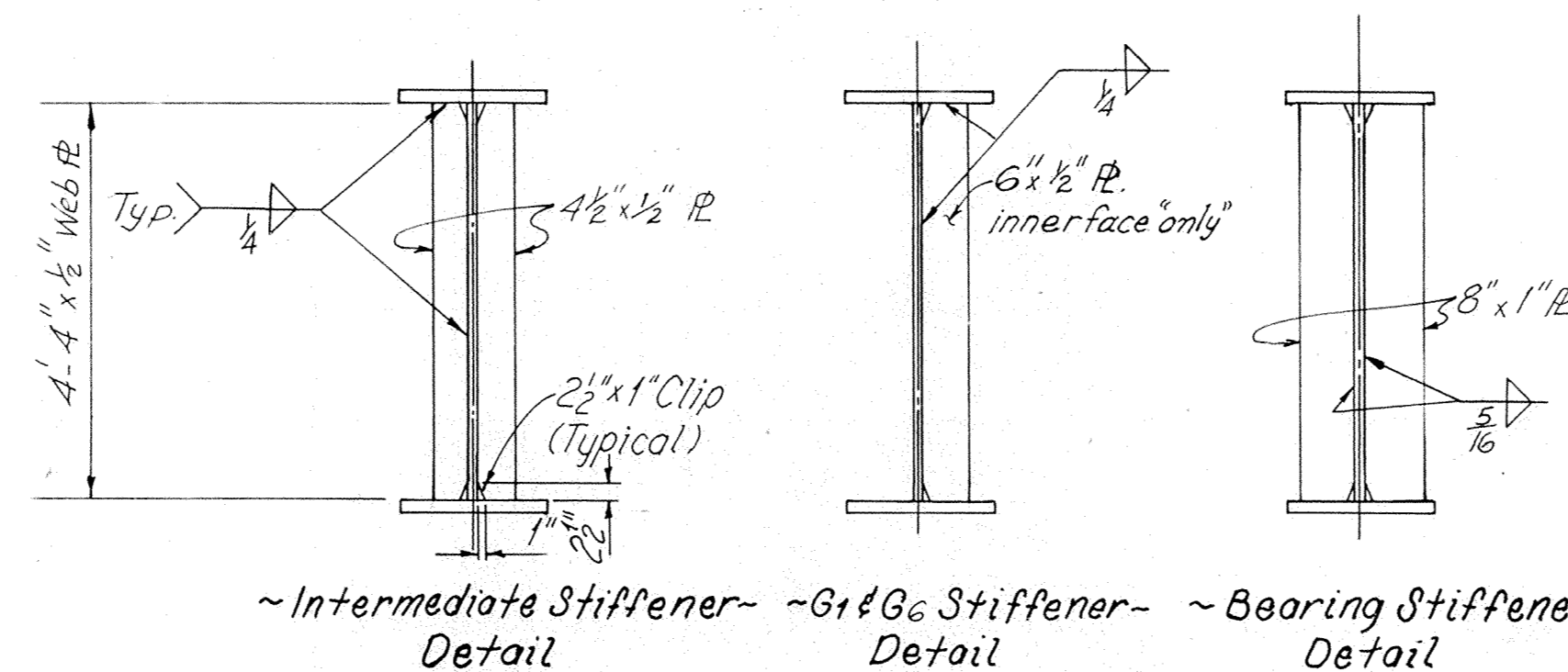
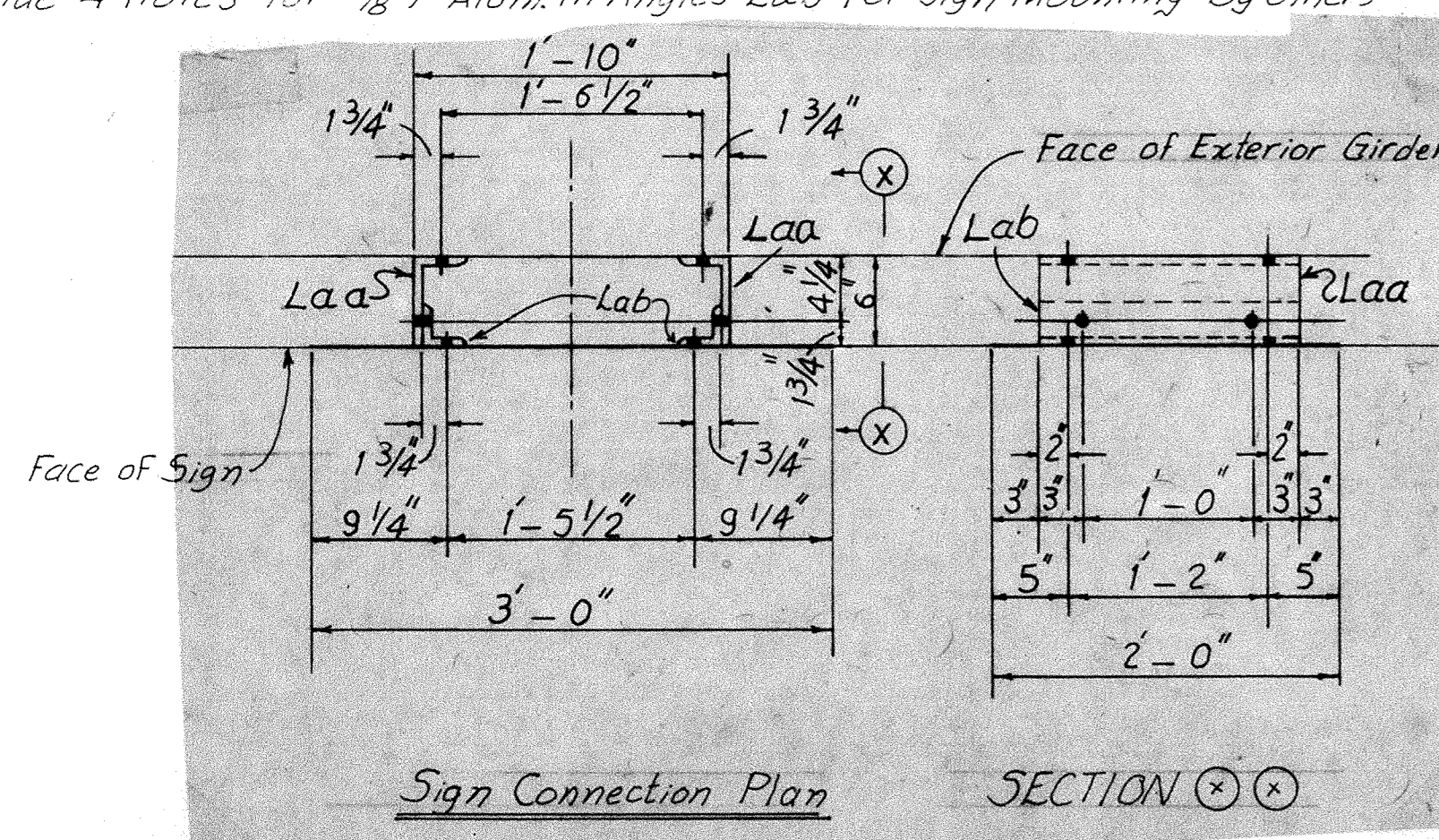


Girder	S <sub>1</sub>	S <sub>2</sub>
G <sub>1</sub>	2'-0"	4'-4 1/2"
G <sub>2</sub>	2'-5 1/8"	3'-10 13/16"
G <sub>3</sub>	2'-11 3/8"	3'-5 5/8"
G <sub>4</sub>	3'-5 1/8"	2'-11 3/8"
G <sub>5</sub>	3'-10 1/8"	2'-5 1/8"
G <sub>6</sub>	4'-4 1/2"	2'-0"

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



- Note: 1. The contractor shall submit to Director for approval, 3 prints showing his proposed erection procedure.
2. All holes 15/16" φ 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.

Butyl Rubber Membrane Waterproofing

Butyl rubber membrane waterproofing shall be in accordance with latest American Railway Engineering Association Specifications, Chapter 29, with the following specific requirements:

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:

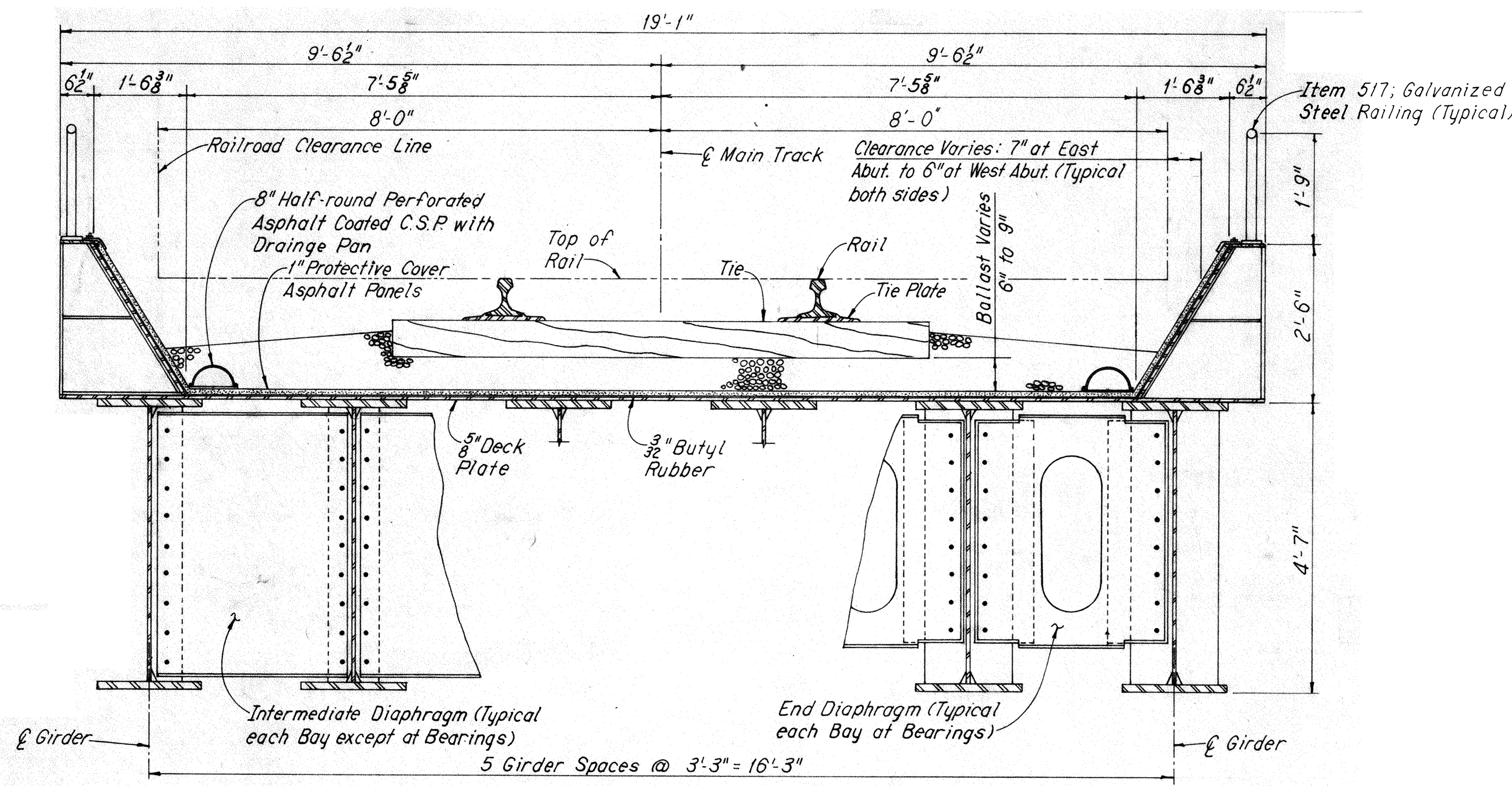
1. The protection for waterproofing shall consist of two layers of Asphaltic Panels, each 1/2" thick. The panels placed on the horizontal surface of the deck shall be placed dry. Those placed on the inclined surfaces shall be laid in a coating of bonding adhesive similar to that used for the butyl rubber 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 asphaltic 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	
<b>FRAMING PLAN</b>	
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 BY	TRACED BY
DATE	DATE
CHECKED BY	REVIEWED
DATE	DATE
REVISION	SHEET
	6/10

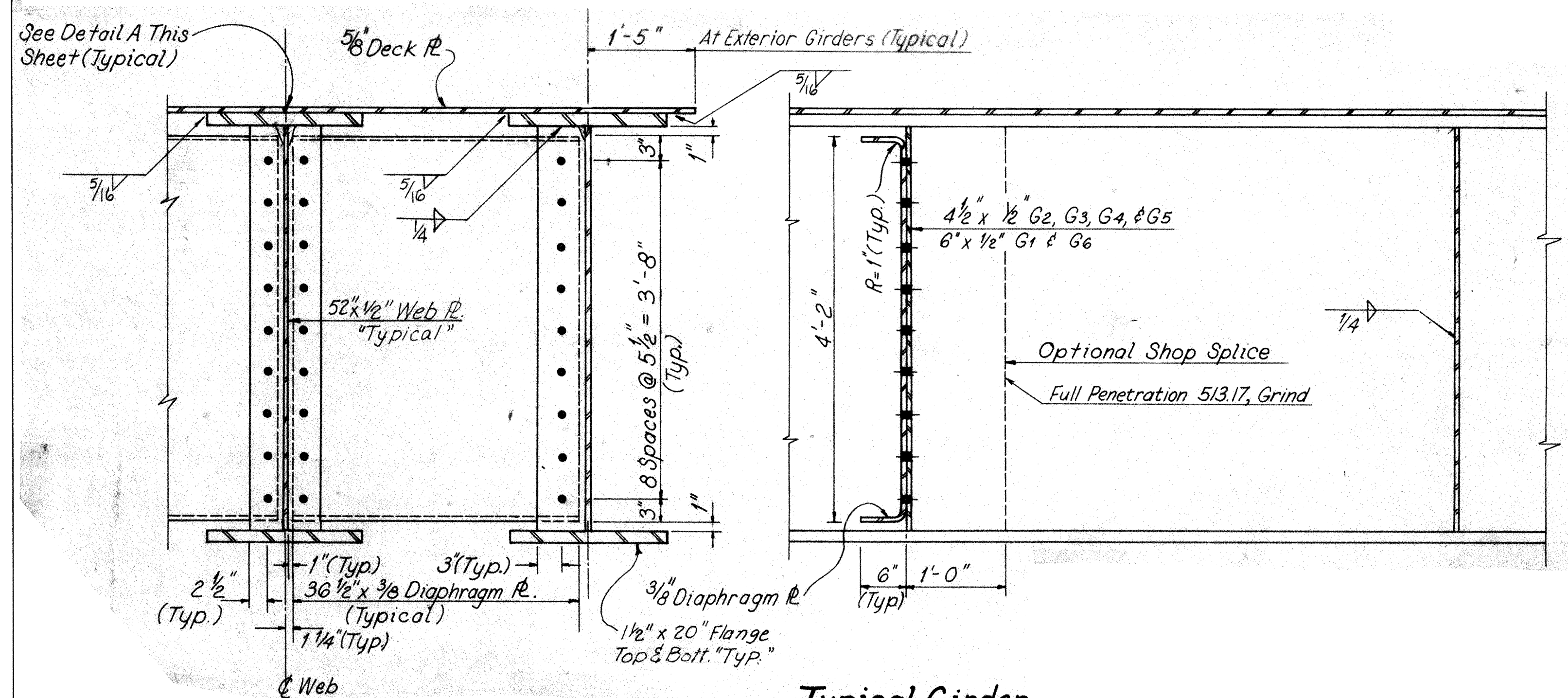
F.H.W.A. REGION	STATE	PROJECT
5	OHIO	STATE

ASHTABULA COUNTY  
ATB-7-31.43

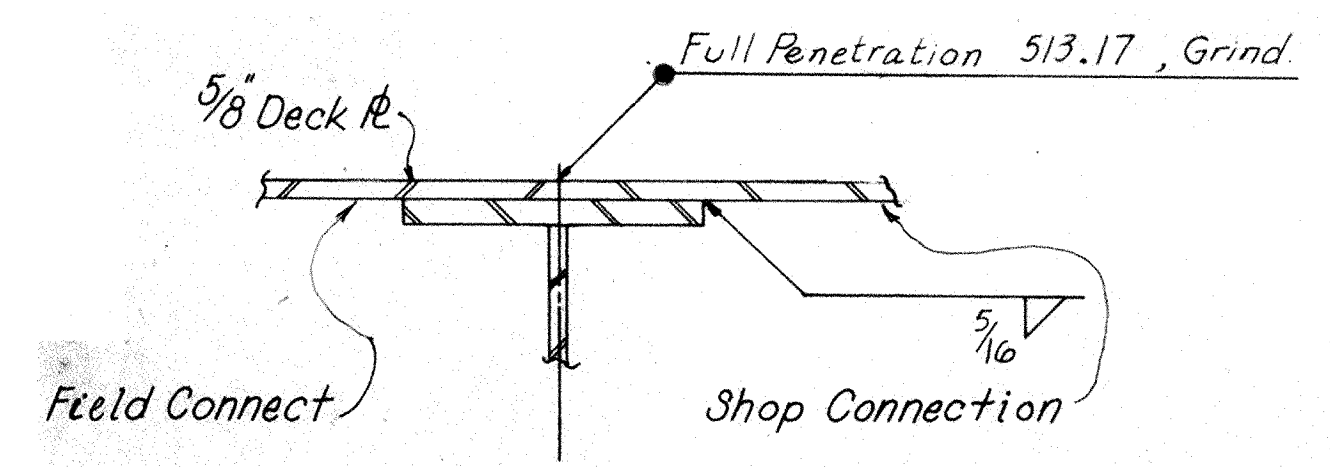
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Typical Cross Section



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.

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.

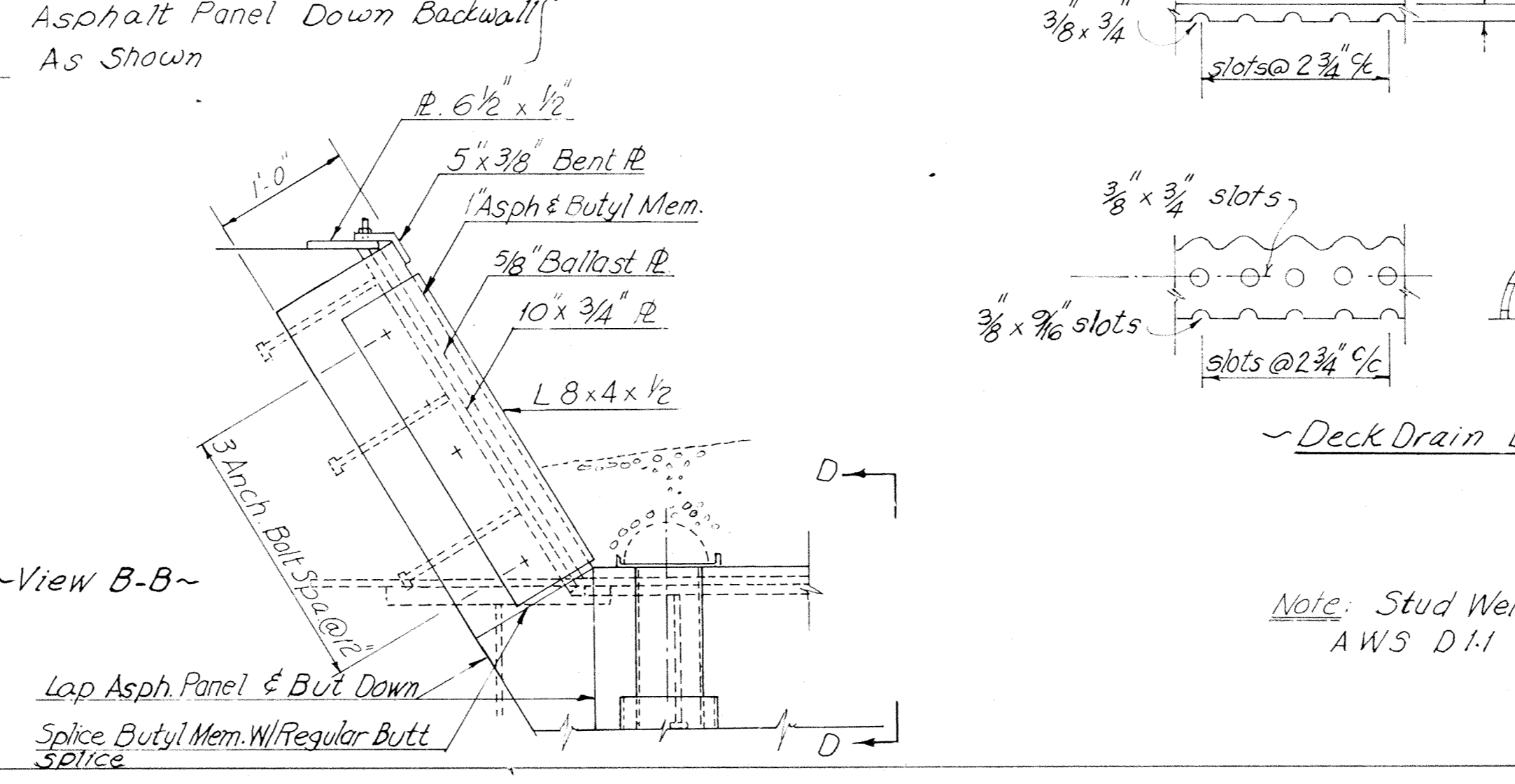
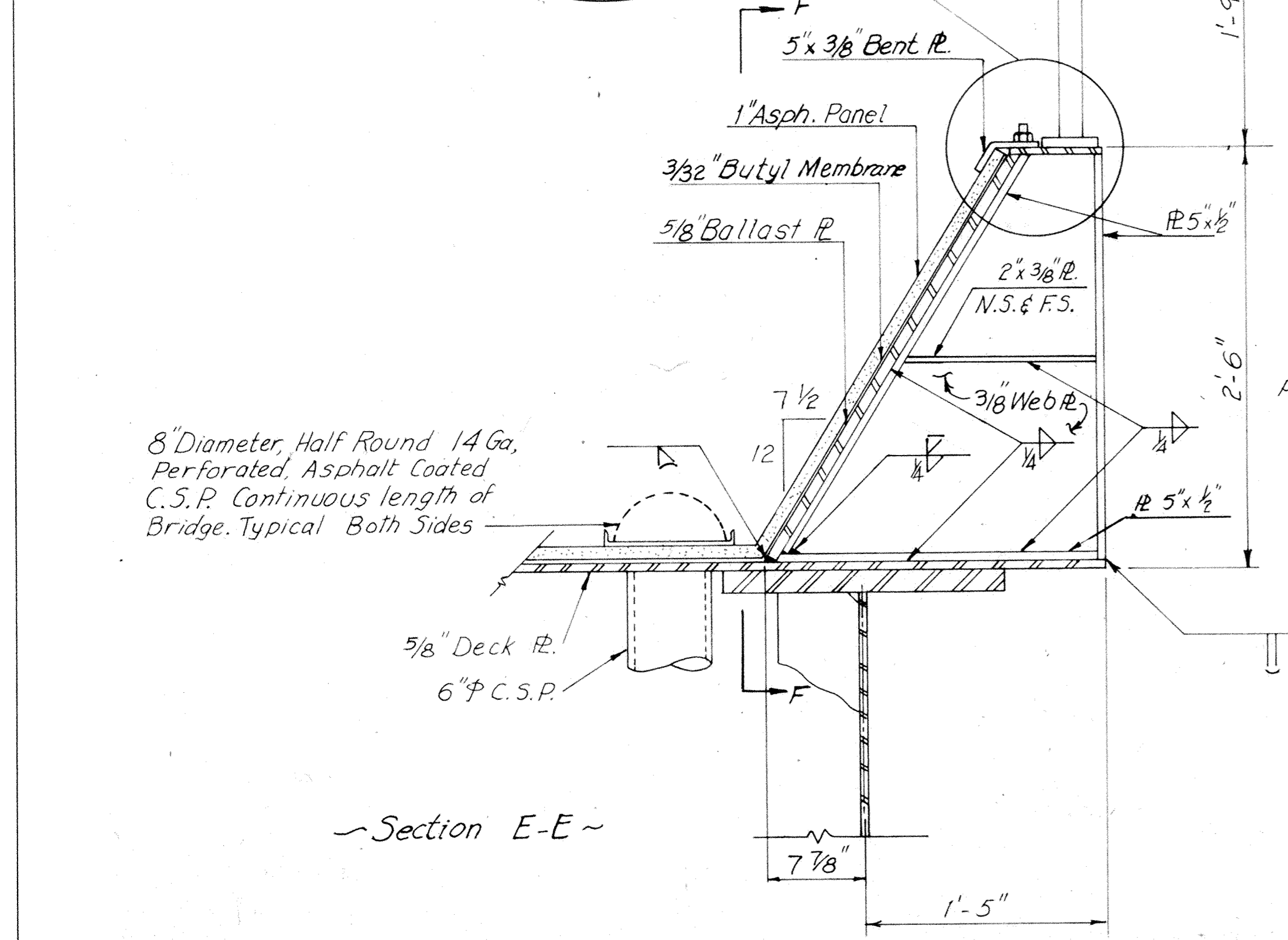
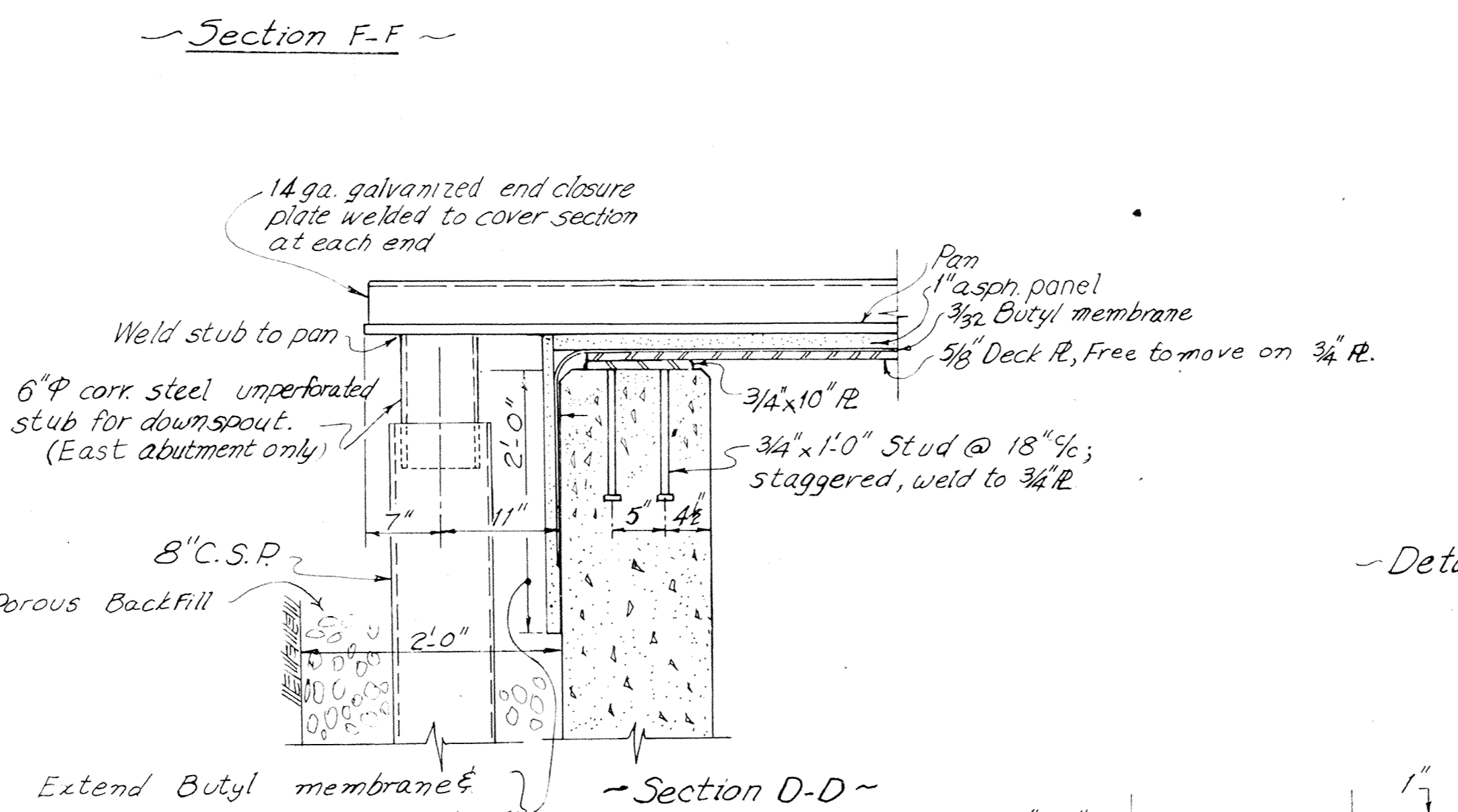
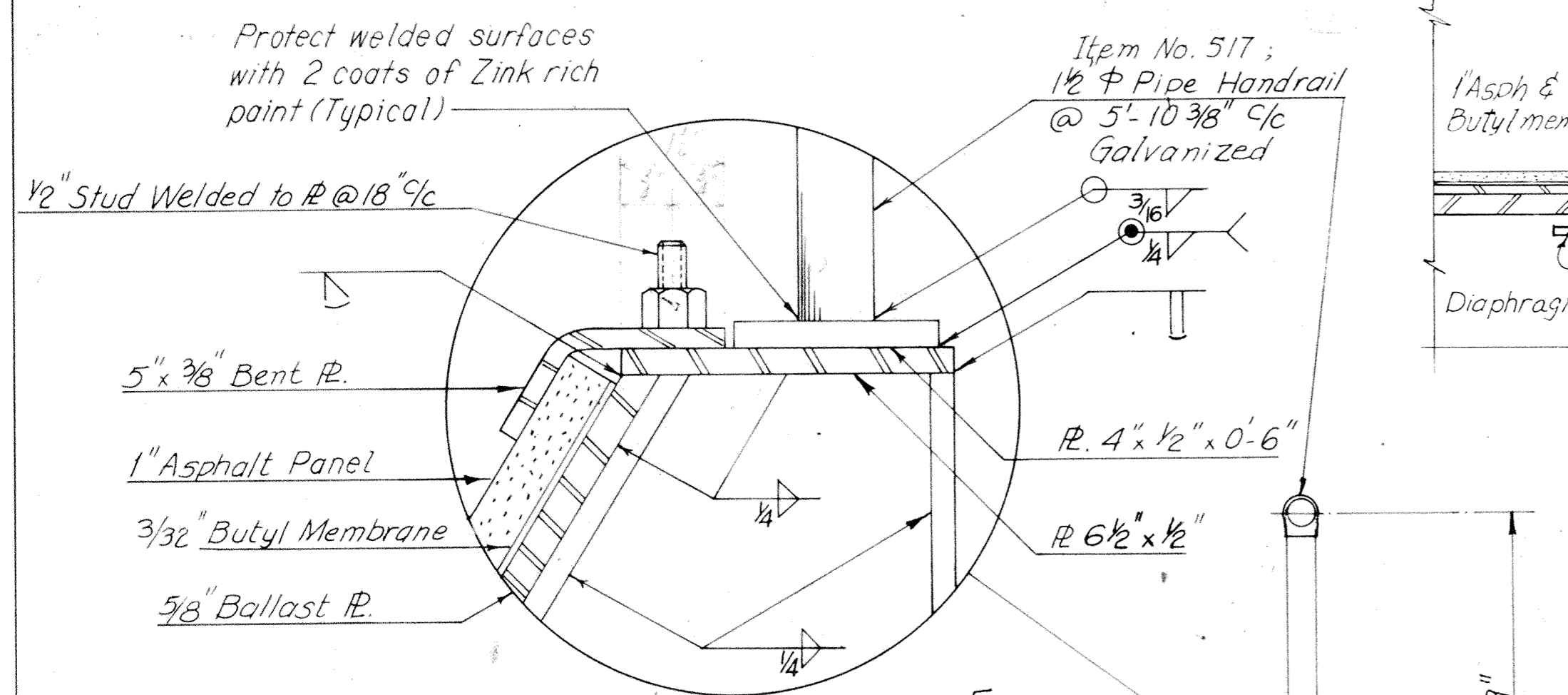
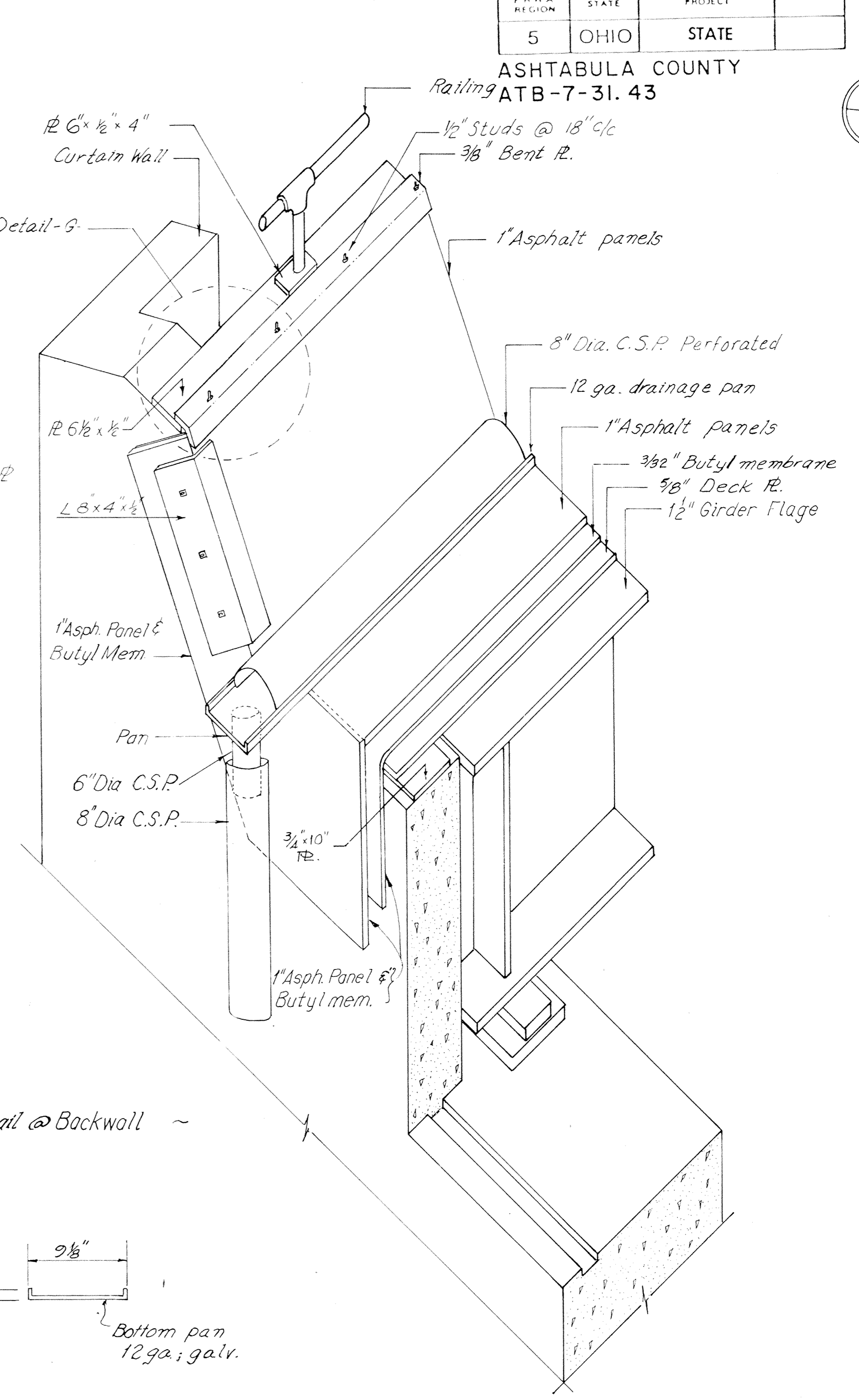
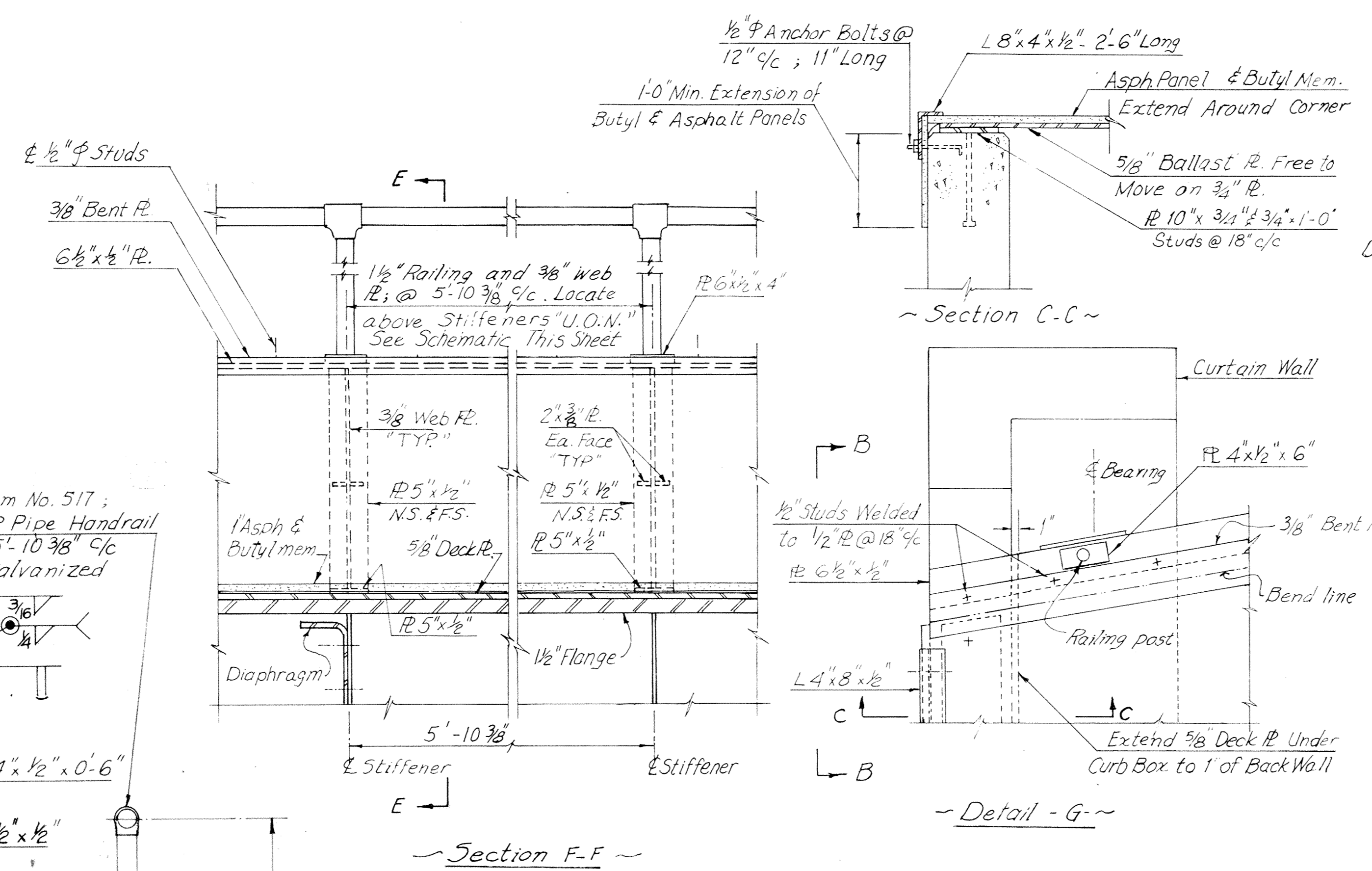
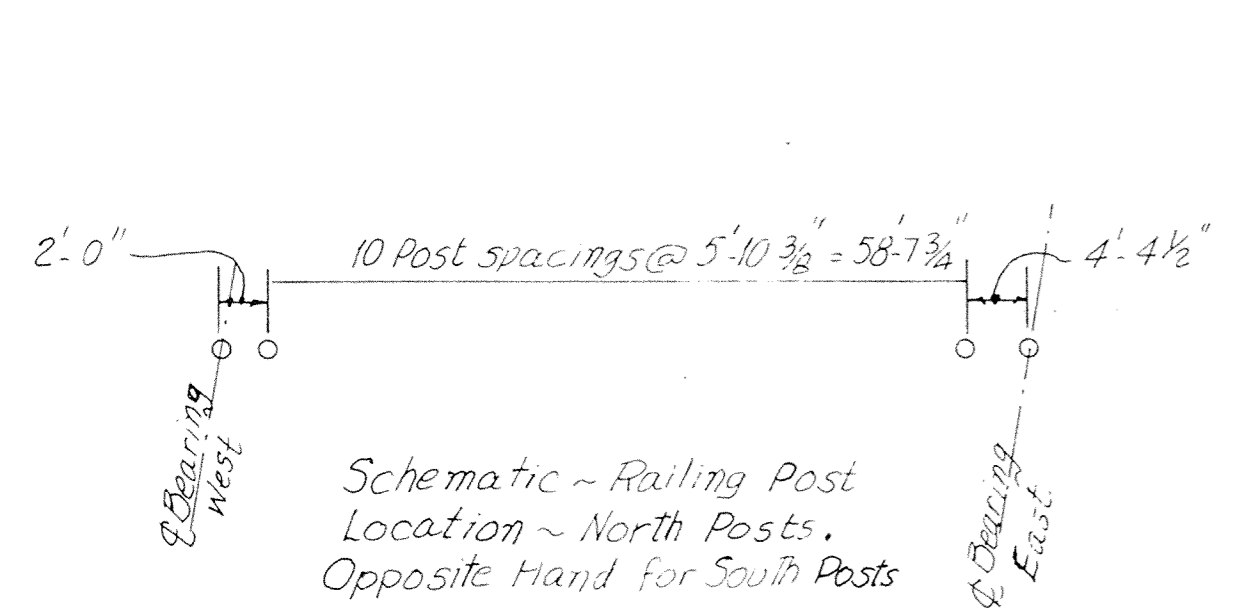
STRUCTURAL STEEL

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 TURNABLES 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 IN S.	TRACED BY
DATE	CHECKED BY
DATE	REVIEWED
DATE	REVISED
DATE	SHEET 7/10

SR.7 - BROAD STREET

ASHTABULA COUNTY  
ATB-7-31.43



- Abbreviations
- U.O.N. Unless Otherwise Noted
  - C.S.P. Corrugated Steel Pipe
  - Ga. or ga. Gauge
  - N.S. Near Side
  - F.S. Far Side
- Note: Stud Welding Shall be in Accordance With AWS D.1.1 Section 4 Part F

WOODRUFF, INC. CONSULTING ENGINEERS CLEVELAND, OHIO				
DECK DETAILS				
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ASHTABULA COUNTY				OHIO
MADE	TRACED	CHECKED	REVIEWED	REVISED
DATE	DATE	DATE	DATE	DATE
				8 / 10

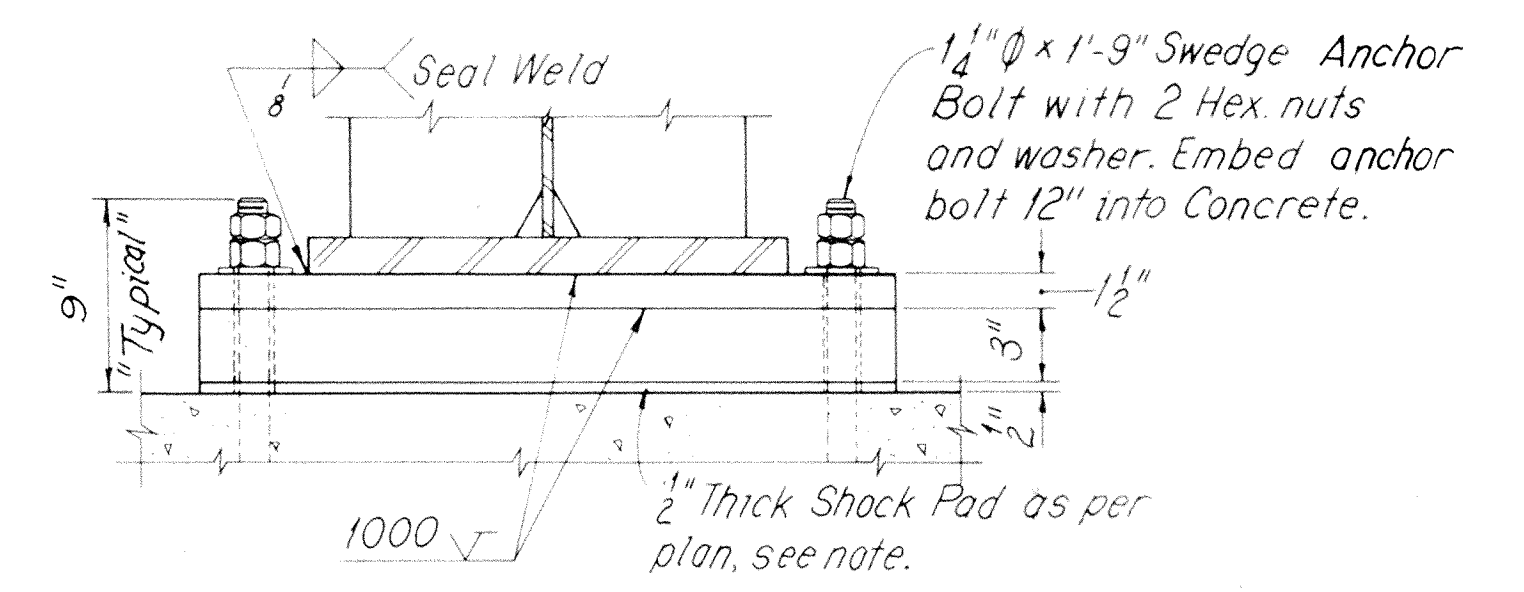
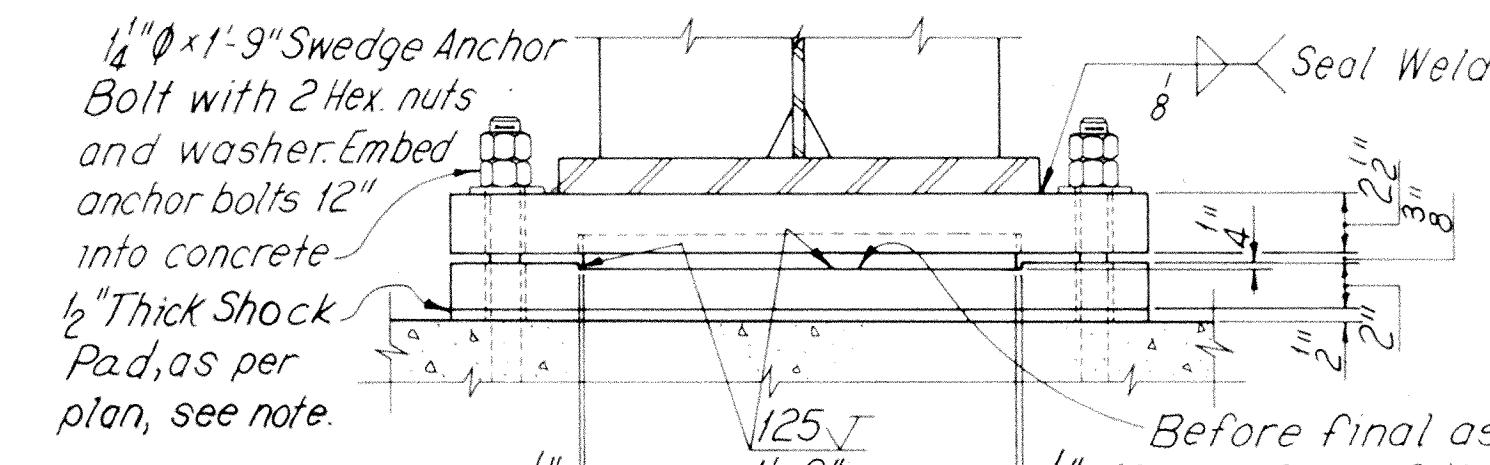
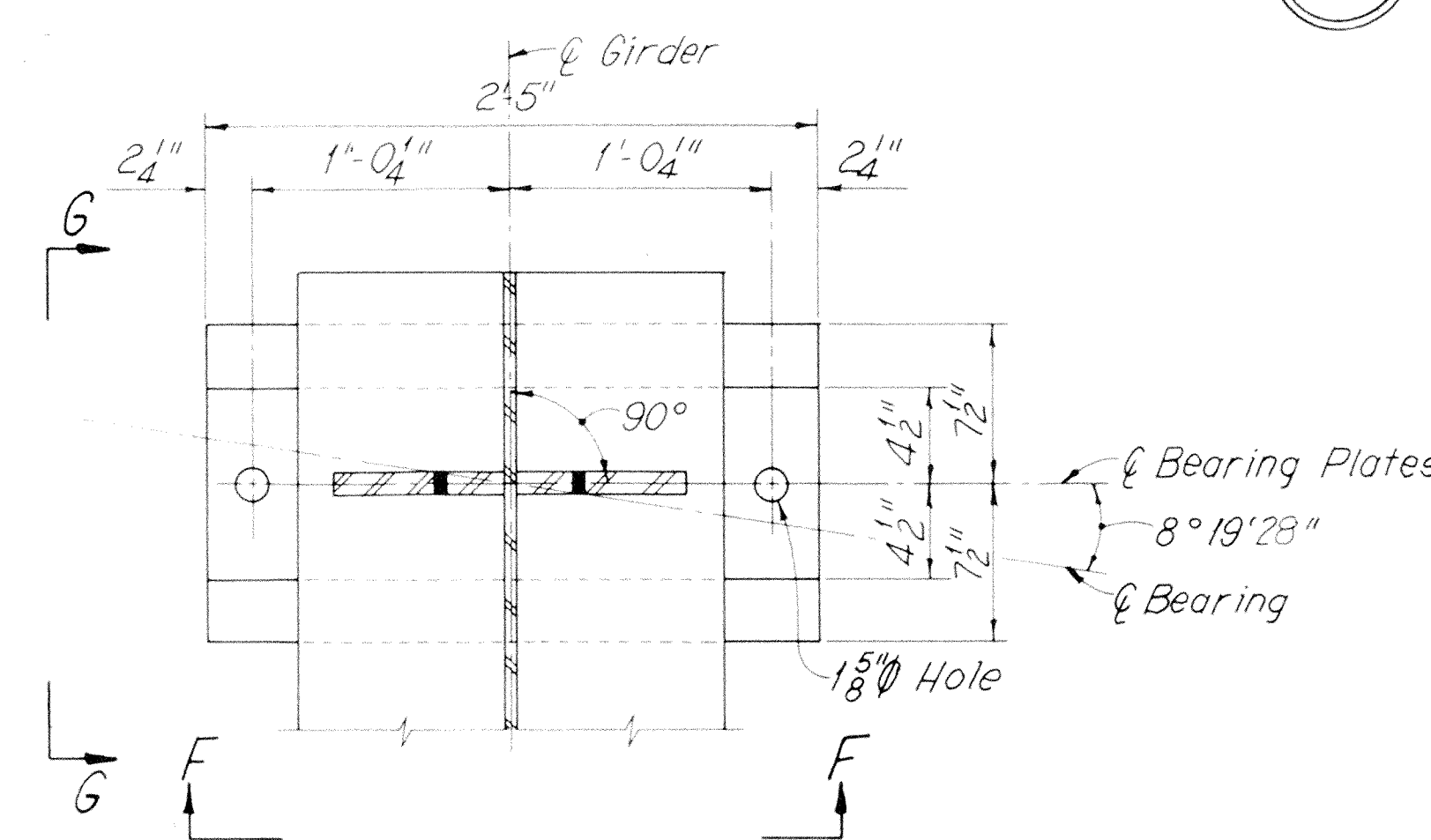
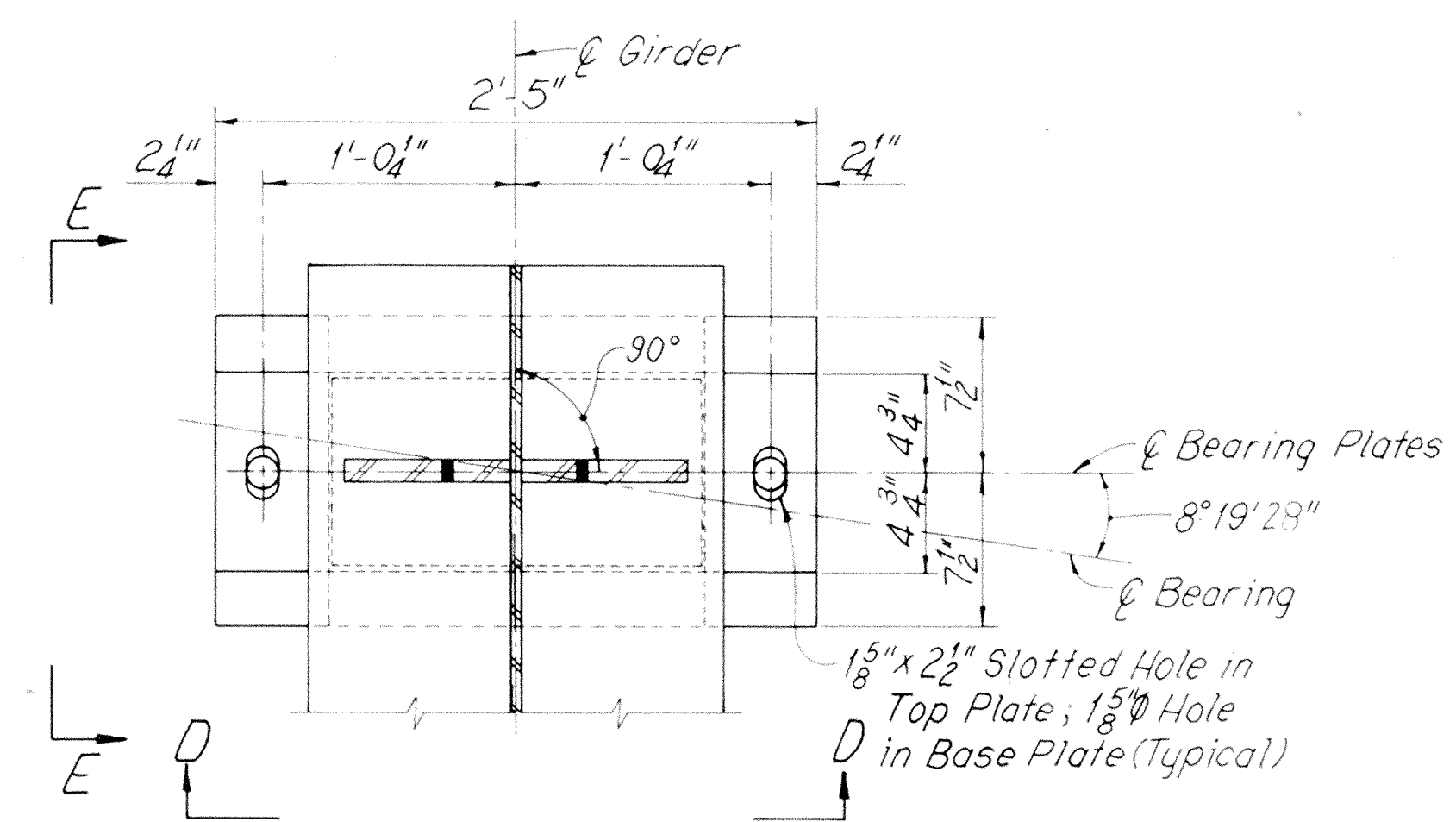
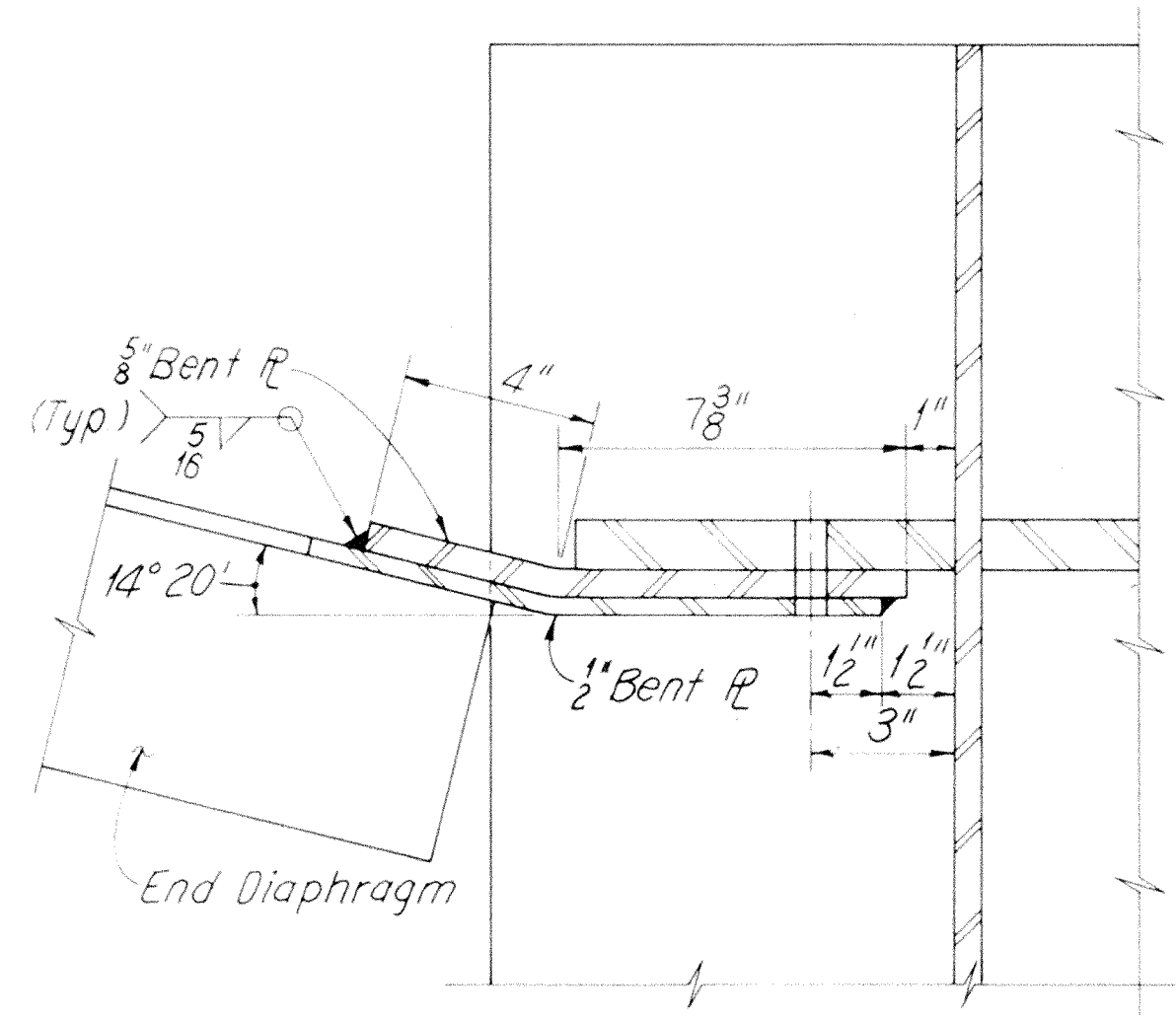
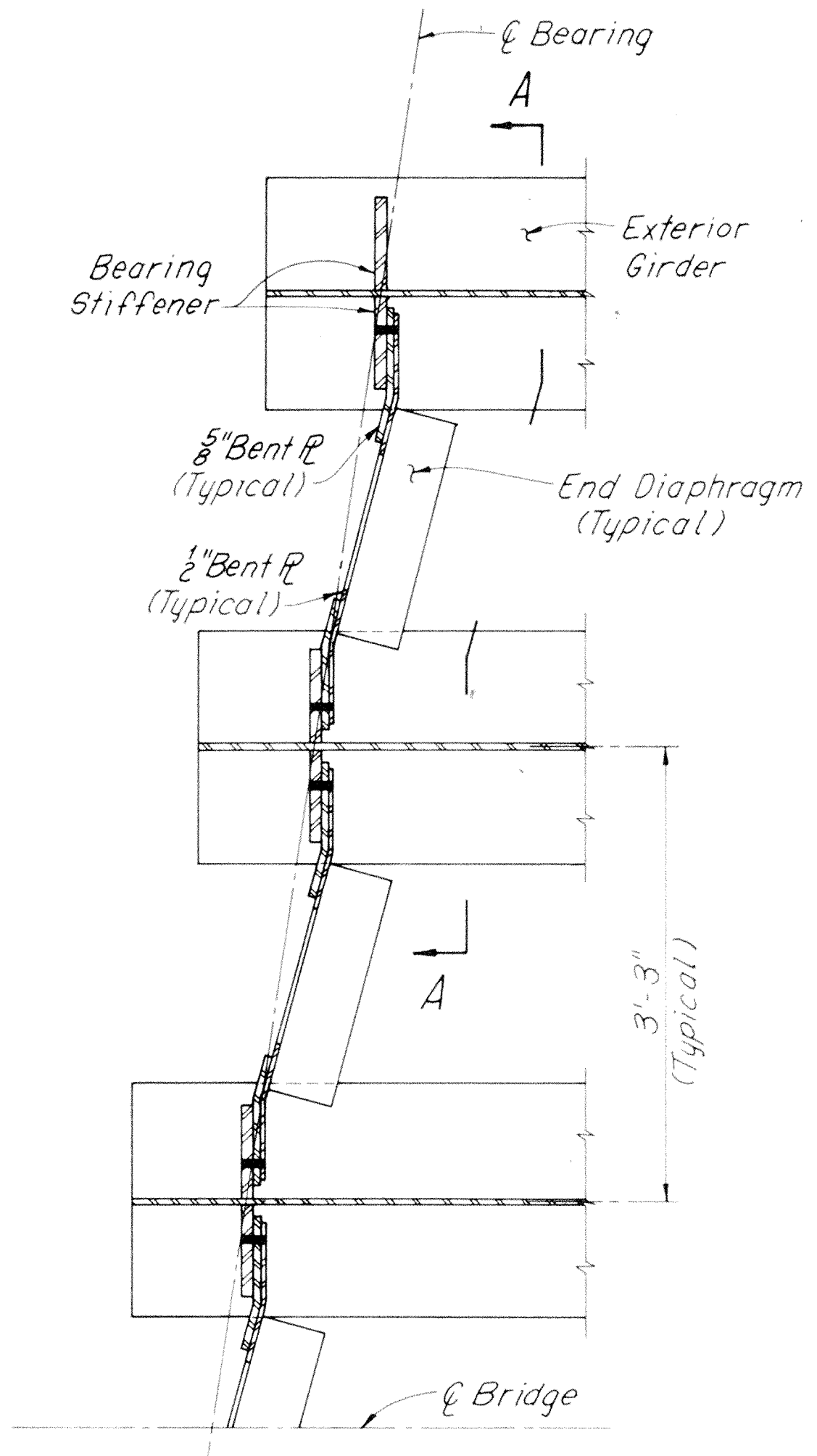
SR.7 - BROAD STREET

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

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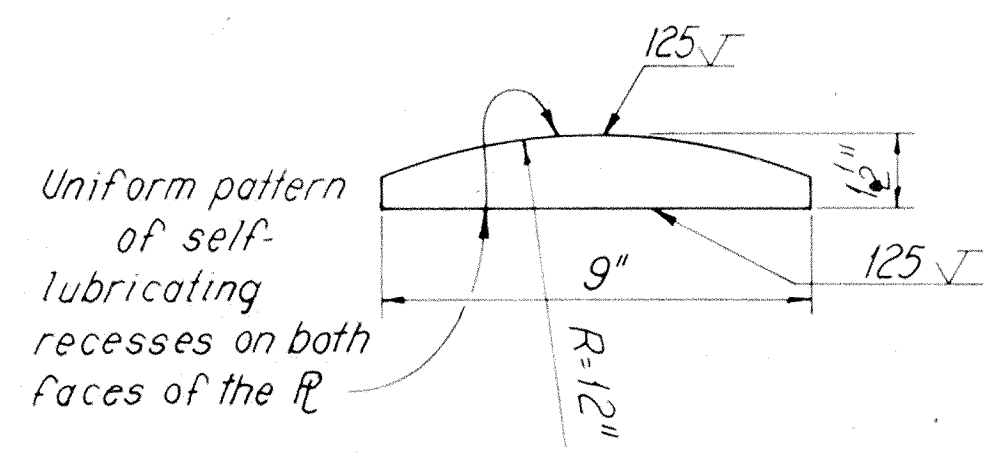
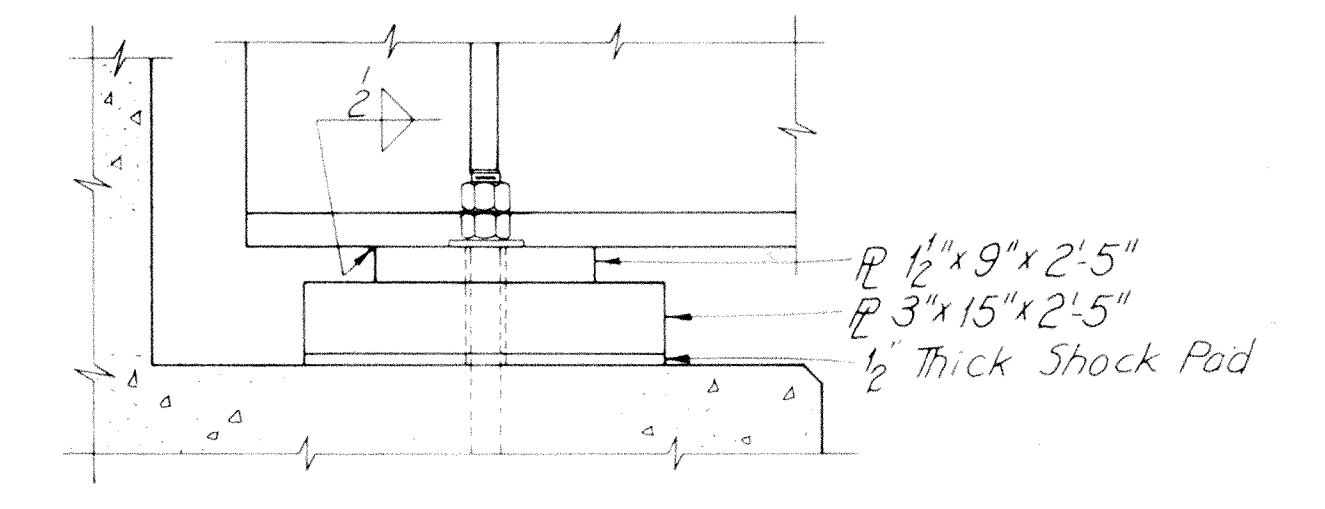
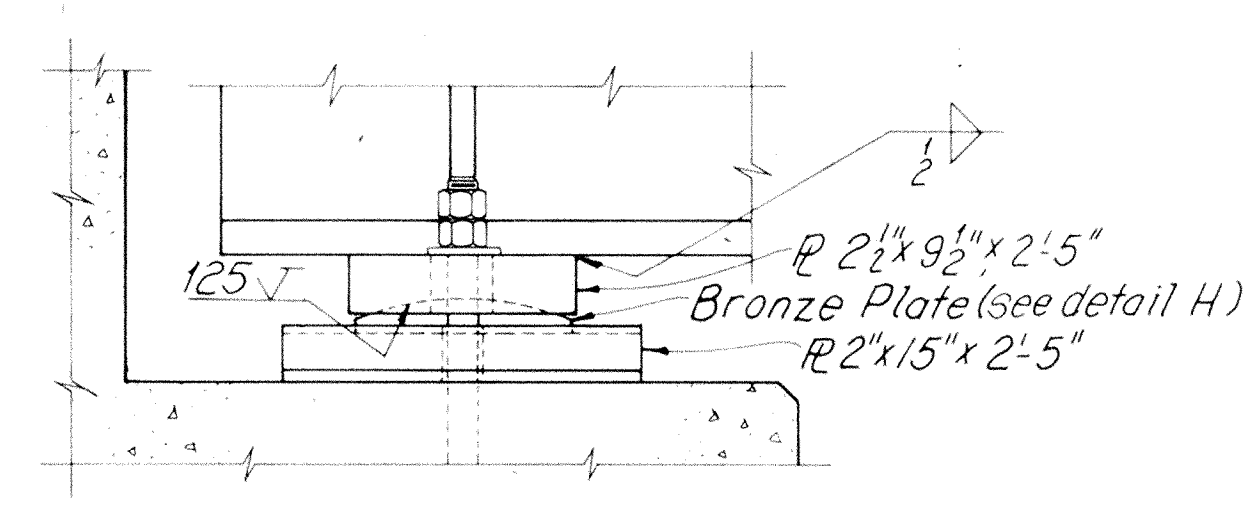
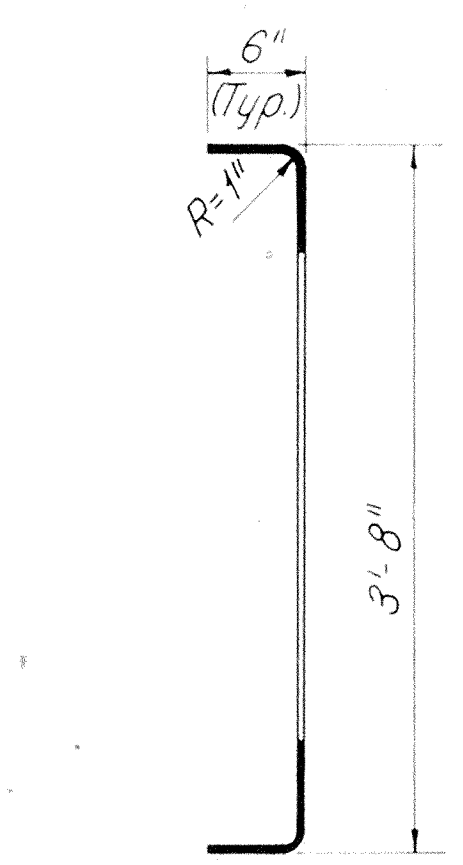
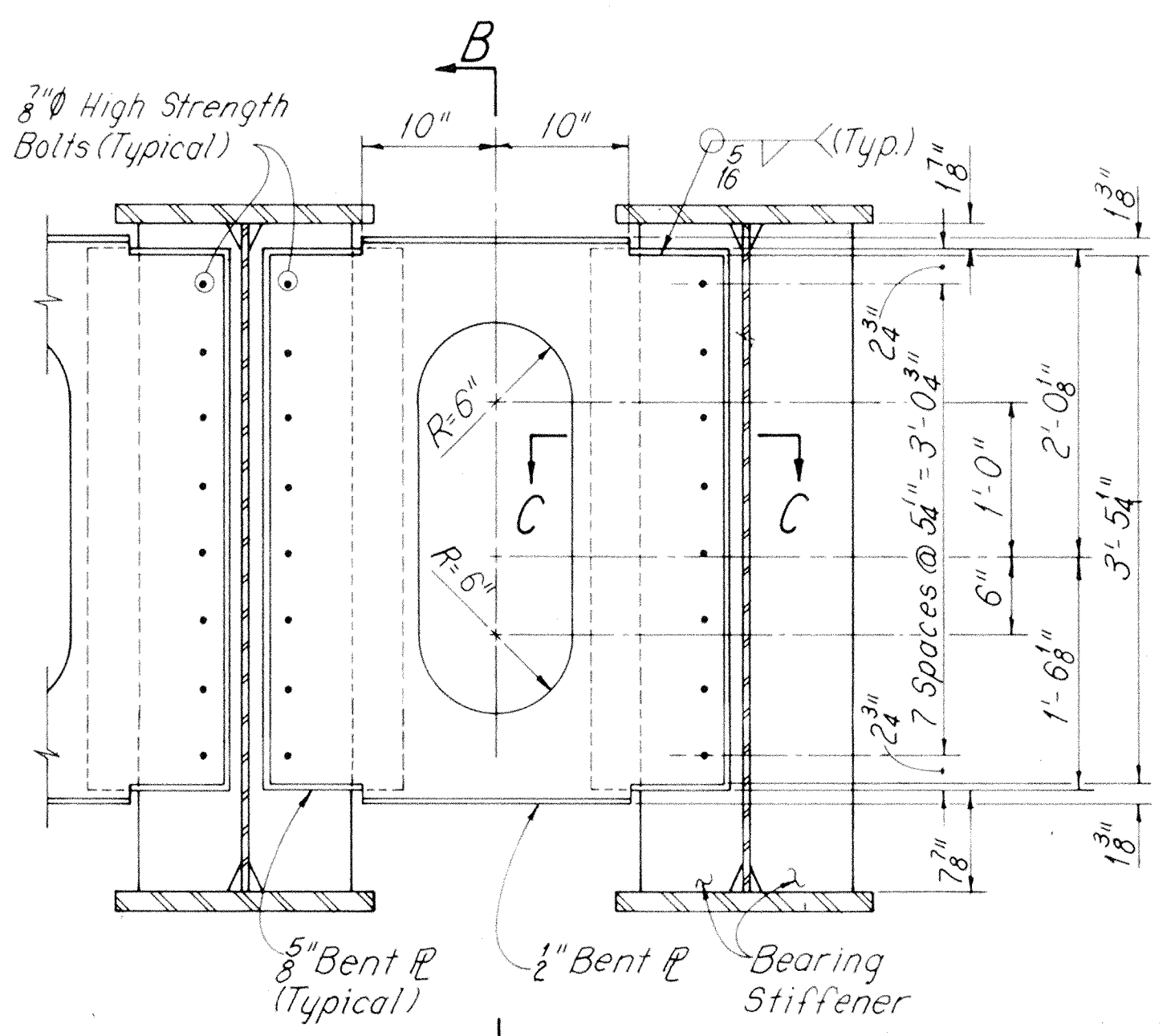
ASHTABULA COUNTY  
ATB-7-31. 43

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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.

Before final assembly the surface of the Bronze plate and the opposing steel plates shall be coated with a lubricant similar to that in the recesses of the Bronze plate. The three parts shall be banded together for shipment.



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.

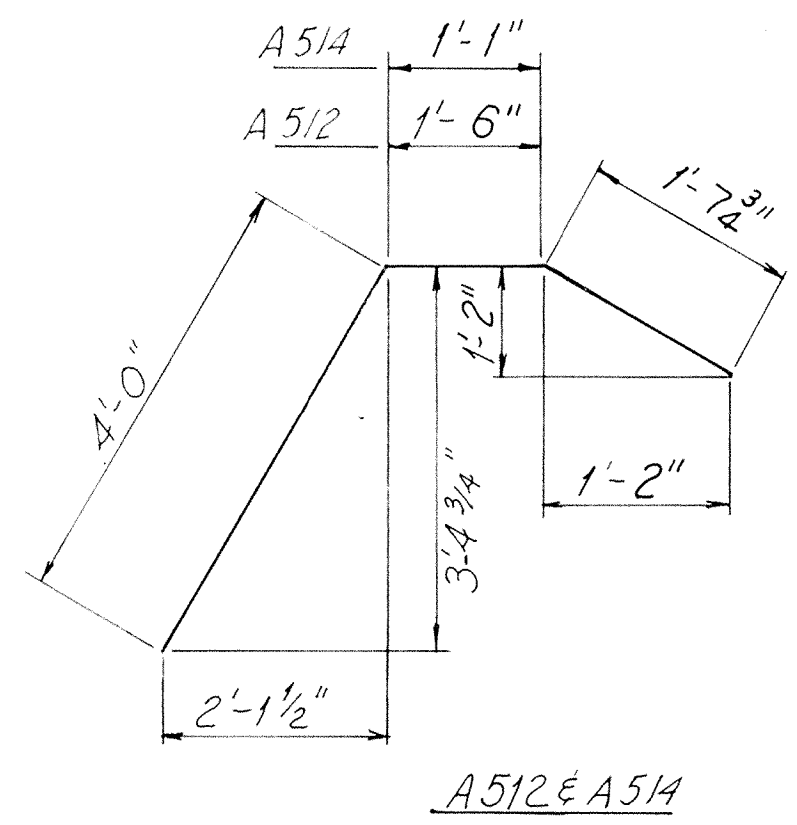
WOODRUFF, INC. CONSULTING ENGINEERS CLEVELAND, OHIO			
MISCELLANEOUS DETAILS			
S.R.-7 BROAD STREET UNDER NORFOLK AND WESTERN RAILWAY COMPANY TRACKS			
BR. NO.	STA. 6024+44.57 TO STA. 6025+14.65		
ASHTABULA COUNTY		CONNEAUT OHIO	
MADE A/JM	TRACED/RCK	CHECKED V/S	REVIEWED
DATE	DATE 11/17/79	DATE 1/18/80	DATE
SHEET			9 / 10

MARK	NO.	LENGTH	WT.	SP.
F1001	80	17'-2"	5910	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"	1,851	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	$\Delta = \frac{B}{10 \frac{5}{8}}$
F502	80	14'-0"	1,169	S
F503	60	17'-0"	689	S
F504	2 Series of 8	10'-8" TO 14'-1"	207	$\Delta = \frac{B}{5 \frac{1}{2}}$
F505	2 Series of 8	10'-1" TO 13'-6"	197	$\Delta = \frac{B}{5 \frac{3}{8}}$
F506	2 Series of 8	15'-3" TO 20'-7"	299	$\Delta = \frac{B}{9 \frac{1}{8}}$
F507	2 Series of 8	14'-8" TO 20'-0"	290	$\Delta = \frac{B}{9 \frac{3}{8}}$
F508	52	23'-6"	1,275	S
F509	34	18'-0"	639	S

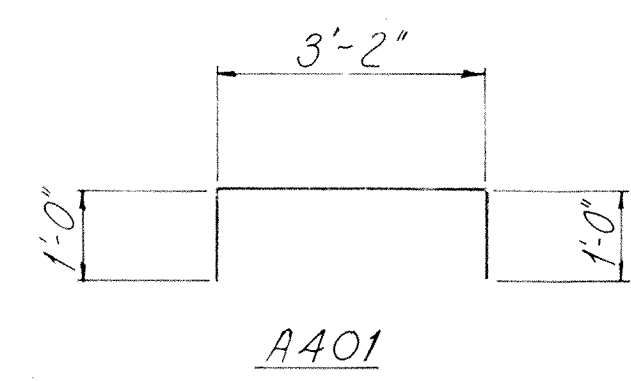
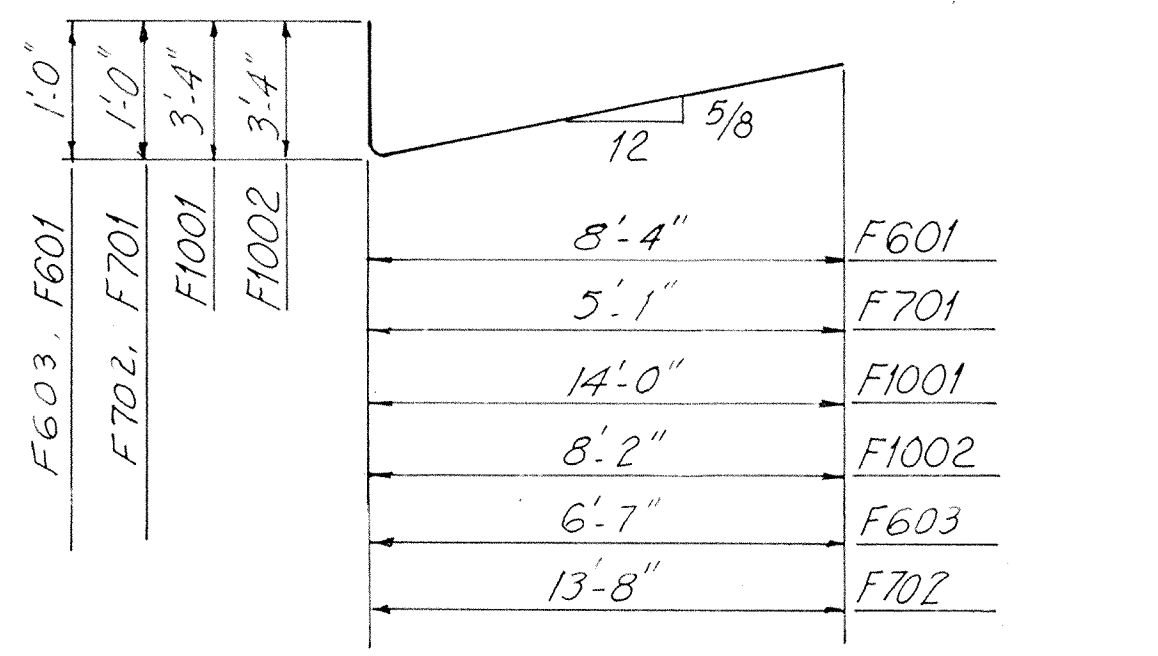
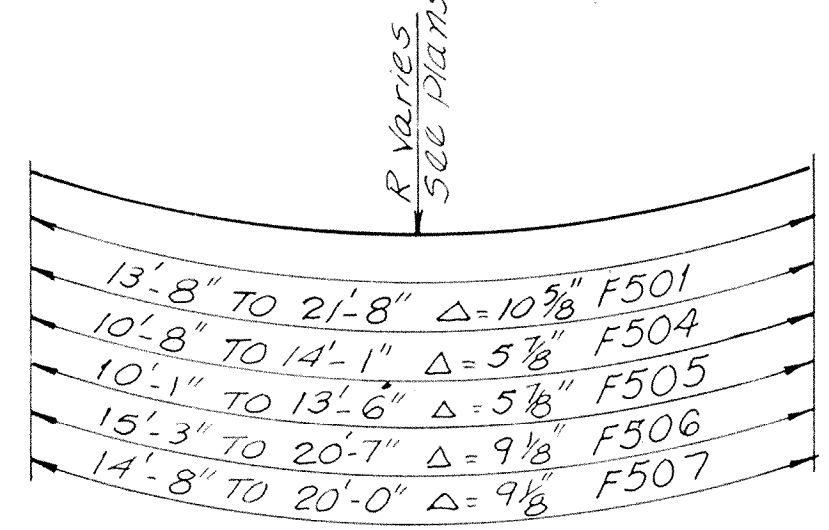
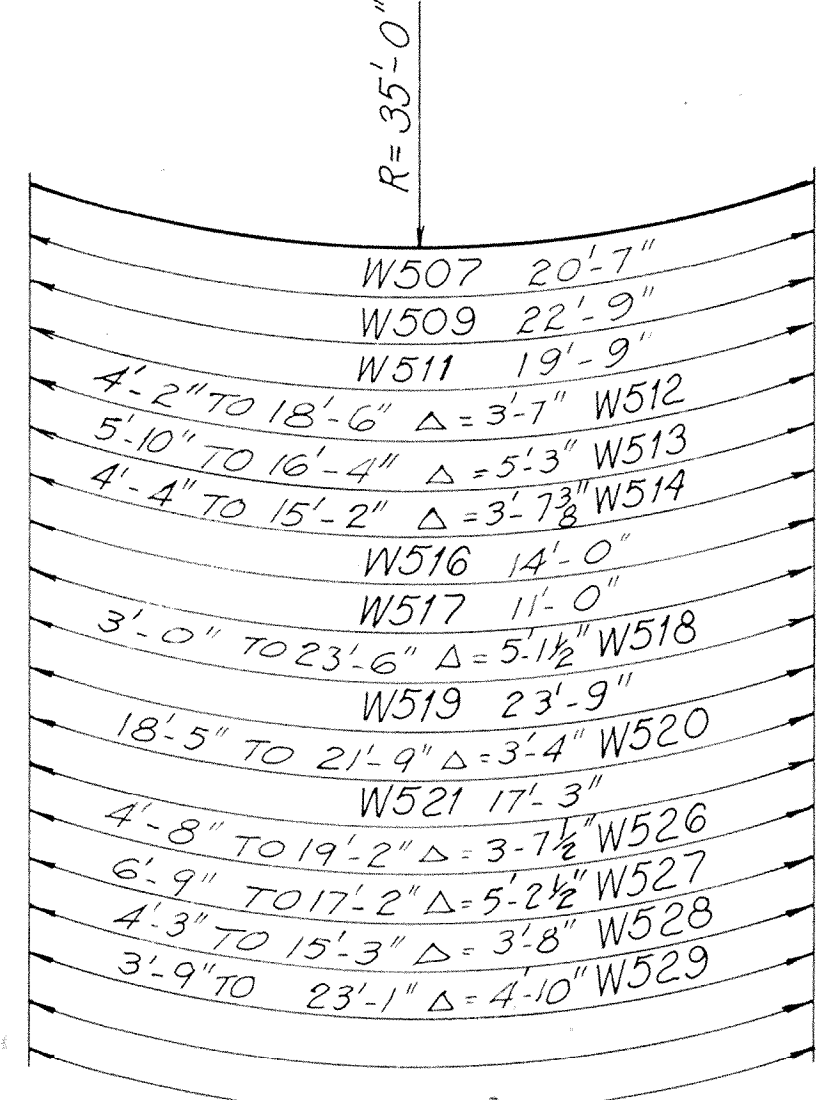
MARK	NO.	LENGTH	WT.	SP.
W1001	1 Series of 20	15'-5" TO 23'-2"	1,660	$\Delta = 4 \frac{3}{8}$
W1002	1 Series of 20	17'-8" TO 23'-2"	1,757	$\Delta = 3 \frac{1}{2}$
W1003	1 Series of 20	15'-6" TO 23'-5"	1,675	$\Delta = 5"$
W1004	1 Series of 20	17'-11" TO 23'-5"	1,779	$\Delta = 3 \frac{1}{2}$
W701	1 Series of 10	11'-3" TO 15'-1"	270	$\Delta = 5 \frac{1}{2}$
W702	1 Series of 16	12'-11" TO 17'-4"	495	$\Delta = 3 \frac{1}{2}$
W703	1 Series of 10	11'-4" TO 15'-1"	270	$\Delta = 5"$
W704	1 Series of 16	13'-2" TO 17'-7"	503	$\Delta = 3 \frac{1}{2}$
W501	1 Series of 20	15'-2" TO 22'-11"	398	$\Delta = 4 \frac{3}{8}$
W502	1 Series of 20	17'-5" TO 22'-11"	421	$\Delta = 3 \frac{1}{2}$
W503	1 Series of 10	10'-10" TO 14'-10"	134	$\Delta = 5 \frac{3}{8}$
W504	1 Series of 16	12'-8" TO 17'-0"	248	$\Delta = 3 \frac{1}{2}$
W505	4 Series of 6	3'-11" TO 7'-11"	149	$\Delta = 8"$
W506	4 Series of 6	4'-6" TO 8'-3"	160	$\Delta = 9"$
W507	8	20'-7"	172	B
W508	4	11'-9"	49	B
W509	8	22'-4"	190	B
W510	4	12'-1"	51	B
W511	88	19'-9"	1,813	B
W512	2 Series of 5	4'-2" TO 18'-6"	119	$\Delta = 3 \frac{1}{2}$
W513	2 Series of 3	5'-10" TO 16'-4"	70	$\Delta = 3 \frac{1}{2}$
W514	2 Series of 4	4'-4" TO 15'-2"	82	$\Delta = 3 \frac{1}{2}$
W515	12	18'-0"	226	B
W516	4	14'-0"	59	B
W517	8	11'-0"	92	B
W518	2 Series of 5	3'-0" TO 23'-6"	139	$\Delta = 5 \frac{1}{2}$
W519	8	23'-9"	199	B
W520	4 Series of 2	18'-5" TO 21'-9"	168	$\Delta = 3 \frac{1}{2}$
W521	12	17'-3"	216	B
W522	1 Series of 20	15'-3" TO 23'-2"	401	$\Delta = 5"$
W523	1 Series of 20	17'-8" TO 23'-2"	426	$\Delta = 3 \frac{1}{2}$
W524	1 Series of 10	11'-1" TO 14'-10"	136	$\Delta = 5"$
W525	1 Series of 16	12'-11" TO 17'-4"	253	$\Delta = 3 \frac{1}{2}$
W526	2 Series of 5	4'-3" TO 19'-2"	125	$\Delta = 3 \frac{1}{2}$
W527	2 Series of 3	6'-9" TO 17'-2"	75	$\Delta = 5 \frac{1}{2}$
W528	2 Series of 4	4'-3" TO 15'-3"	82	$\Delta = 3 \frac{1}{2}$
W529	2 Series of 5	3'-9" TO 23'-1"	140	$\Delta = 4 \frac{1}{2}$

MARK	NO.	LENGTH	WT.	SP.
A601	25	17'-2"	645	S
A602	25	17'-6"	658	S
A603	30	9'-8"	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"	1,667	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



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.



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

Refer to CMS 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	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"	15'-8"	2	15'-8"	2	9'-6"	2	9'-6"	2
33'-0"		2		2		2		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

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 BY W.S. TRACED BY D.H. CHECKED BY AJM REVIEWED   REVISED    
 DATE 8/29/79 DATE 1/9/80 DATE   DATE   SHEET 10/10



ASHTABULA COUNTY, CITY OF CONNEAUT  
 TOWNSHIP NO. 14 RANGE NO. 1  
 OF THE CONNECTICUT WESTERN RESERVE

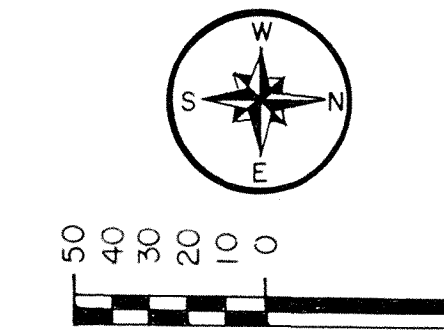
# CENTER LINE SURVEY PLAT

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

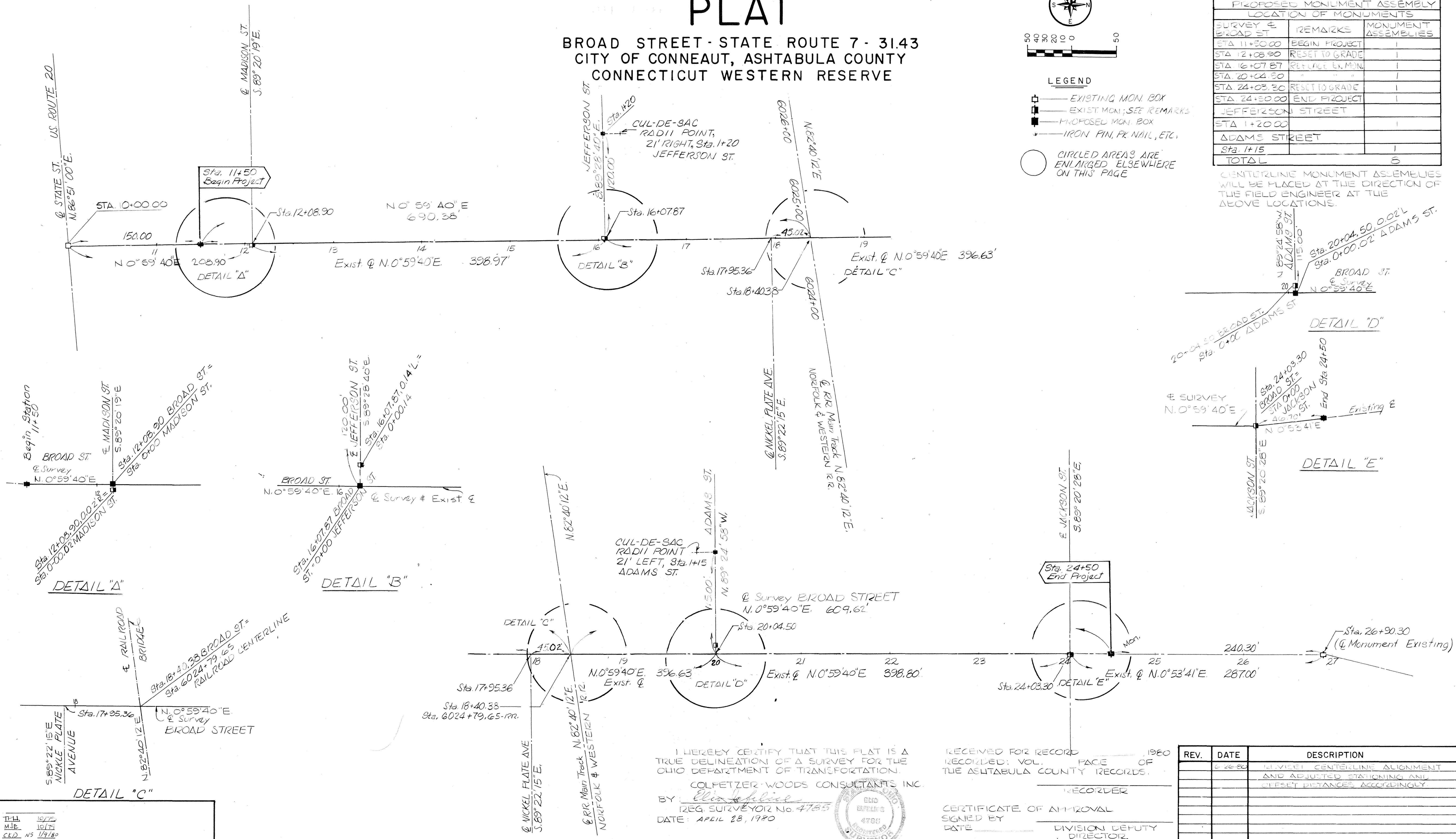
ASHTABULA COUNTY  
 BROAD ST. SR. 7 - 3143



- 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 #	REMARKS	MONUMENT ASSEMBLIES
BROAD ST		
STA 11+30.00	BEGIN PROJECT	1
STA 12+08.90	RESET TO GRADE	1
STA 16+07.87	REF. POINT EX. MON.	1
STA 20+04.50	" " " "	1
STA 24+03.30	RESULT TO GRADE	1
STA 24+50.00	END PROJECT	1
JEFFERSON STREET		
STA 1+20.00		1
ADAMS STREET		
Sta. 1+15		1
<b>TOTAL</b>		<b>6</b>

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.

COLFETZER WOODS CONSULTANTS INC.  
 BY: *Elin J. Colfetz*  
 REG. SURVEYOR No. 4783  
 DATE: APRIL 28, 1990



RECEIVED FOR RECORD \_\_\_\_\_ 1990  
 RECORDED: VOL. \_\_\_\_\_ PAGE \_\_\_\_\_ OF \_\_\_\_\_  
 THE ASHTABULA COUNTY RECORDS.  
 RECORDER \_\_\_\_\_

CERTIFICATE OF APPROVAL  
 SIGNED BY \_\_\_\_\_  
 DATE \_\_\_\_\_ DIVISION DEPUTY DIRECTOR

REV.	DATE	DESCRIPTION
0	6-26-90	REVIEW CENTERLINE ALIGNMENT AND ADJUSTED STATIONING AND OFFSET DISTANCES ACCORDINGLY

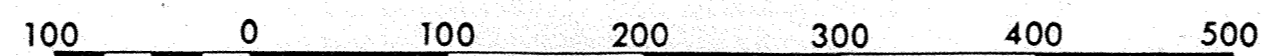
TLL	10/72
MJE	10/75
CRD	NS 1/180

# PROPERTY MAP

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

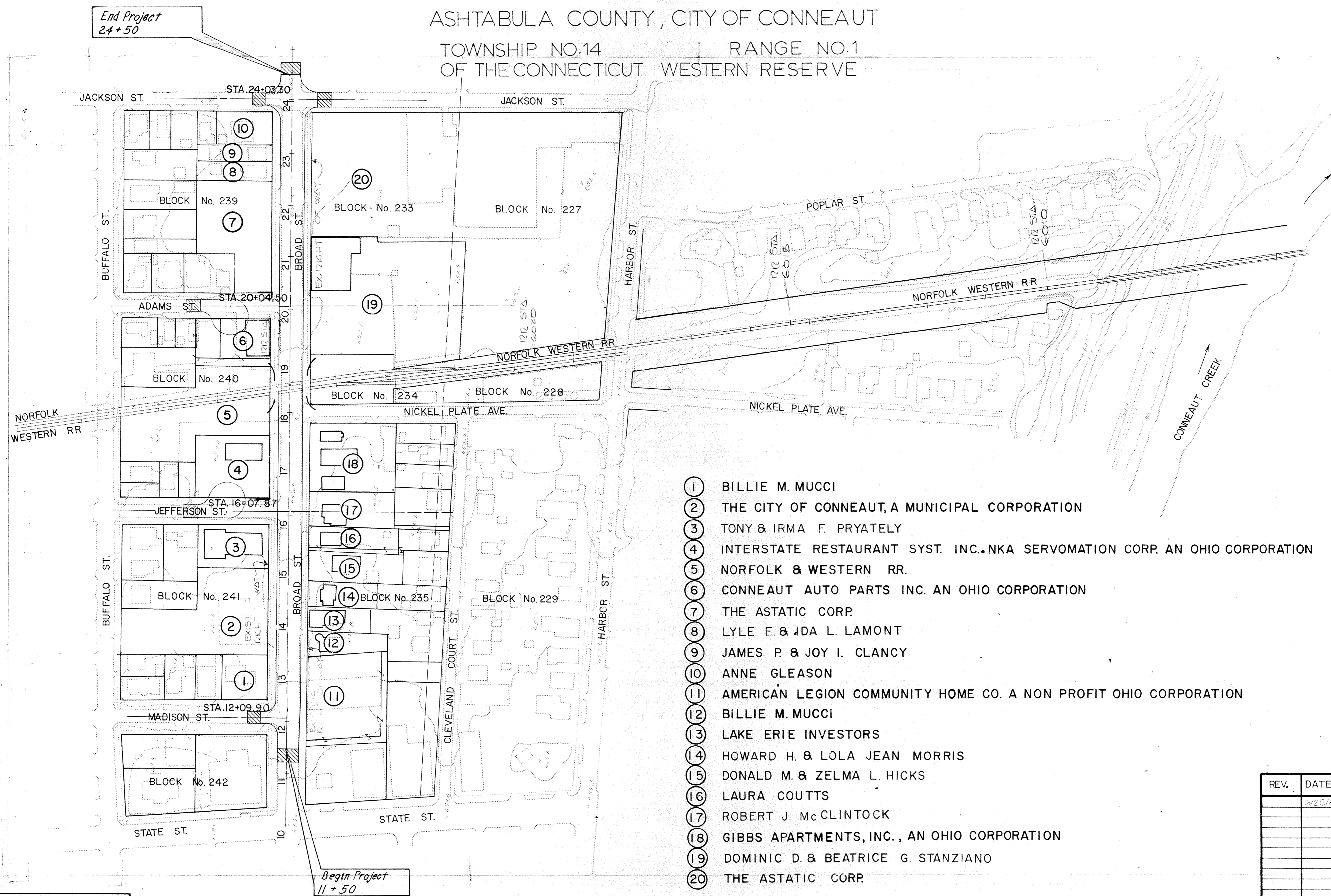
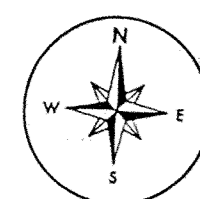
90  
101  
2

ASHTABULA COUNTY  
BROAD ST. SR. 7-31.43



SCALE IN FEET

ASHTABULA COUNTY, CITY OF CONNEAUT  
TOWNSHIP NO.14 RANGE NO.1  
OF THE CONNECTICUT WESTERN RESERVE



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 SUPPLY - CITY OF CONNEAUT	CITY HALL BLDG. MAIN STREET CONNEAUT, OHIO 44030
SANITARY - CITY OF CONNEAUT	CITY HALL BLDG. MAIN STREET CONNEAUT, OHIO 44030

- 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. & JDA 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. Mc CLINTOCK
- ⑱ GIBBS APARTMENTS, INC., AN OHIO CORPORATION
- ⑲ DOMINIC D. & BEATRICE G. STANZIANO
- ⑳ THE ASTATIC CORP.

REV.	DATE	DESCRIPTION
	6/25/80	CHANGED OWNERSHIP PLS 2 & 18 REVISED 2, 4, & 11

SCALE: 1" = 100'  
MADE: 11/14/77 DATE: 10/78  
TRCO: 11/14/78 DATE: 11/14/78  
CKD: 11/14/78 DATE: 11/14/78

**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND, OHIO

SR. 7 - BROAD STREET

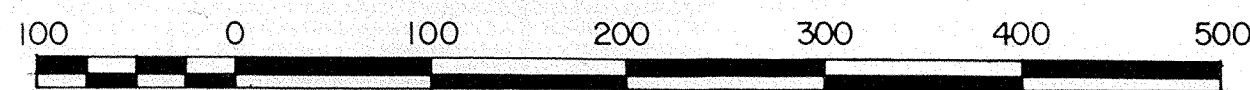
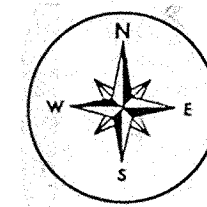
# SCHEMATIC PLAN

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

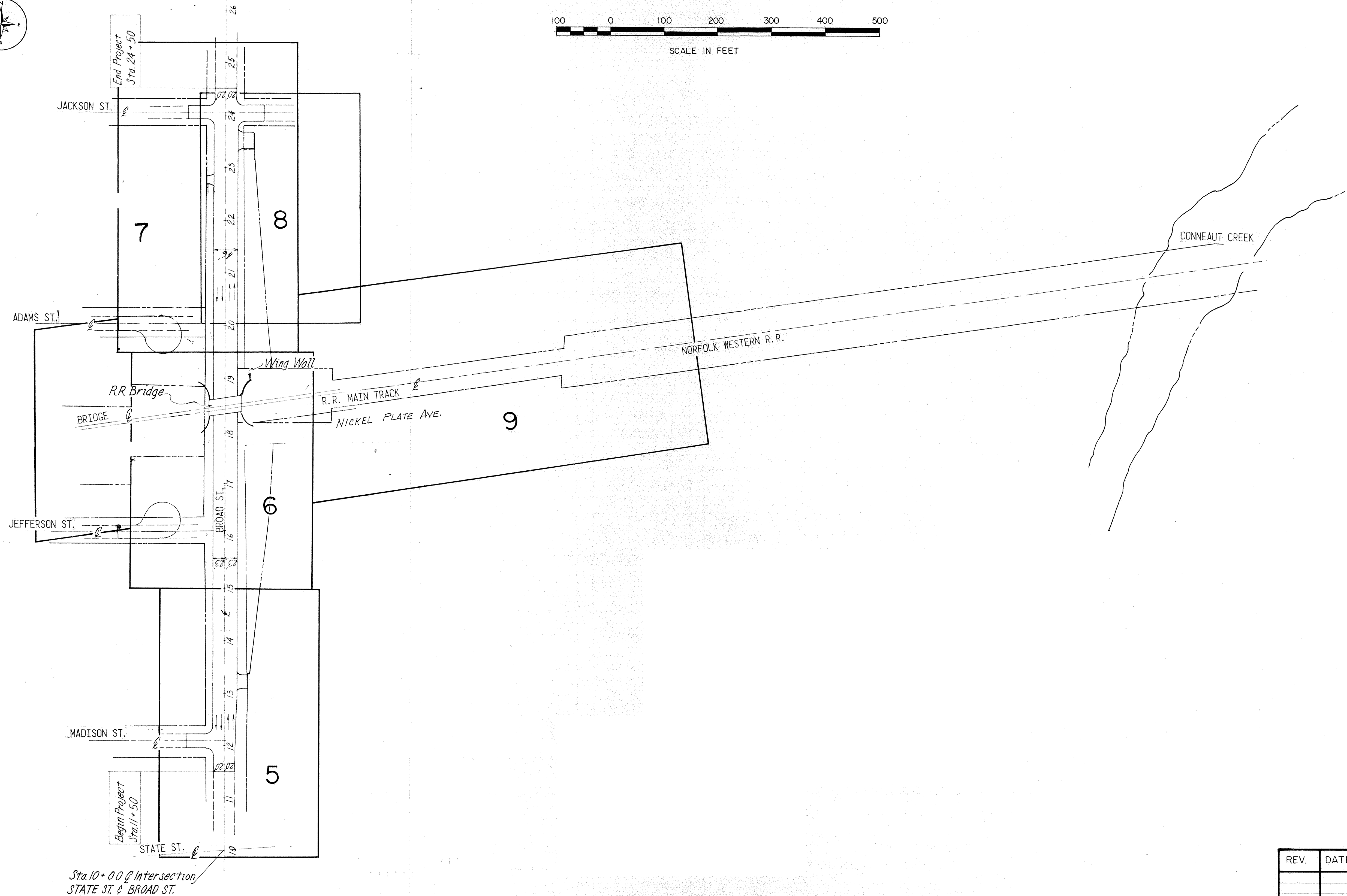
ASHTABULA COUNTY  
BROAD ST. SR. 7 - 31.43

91  
101

3



SCALE IN FEET



REV.	DATE	DESCRIPTION

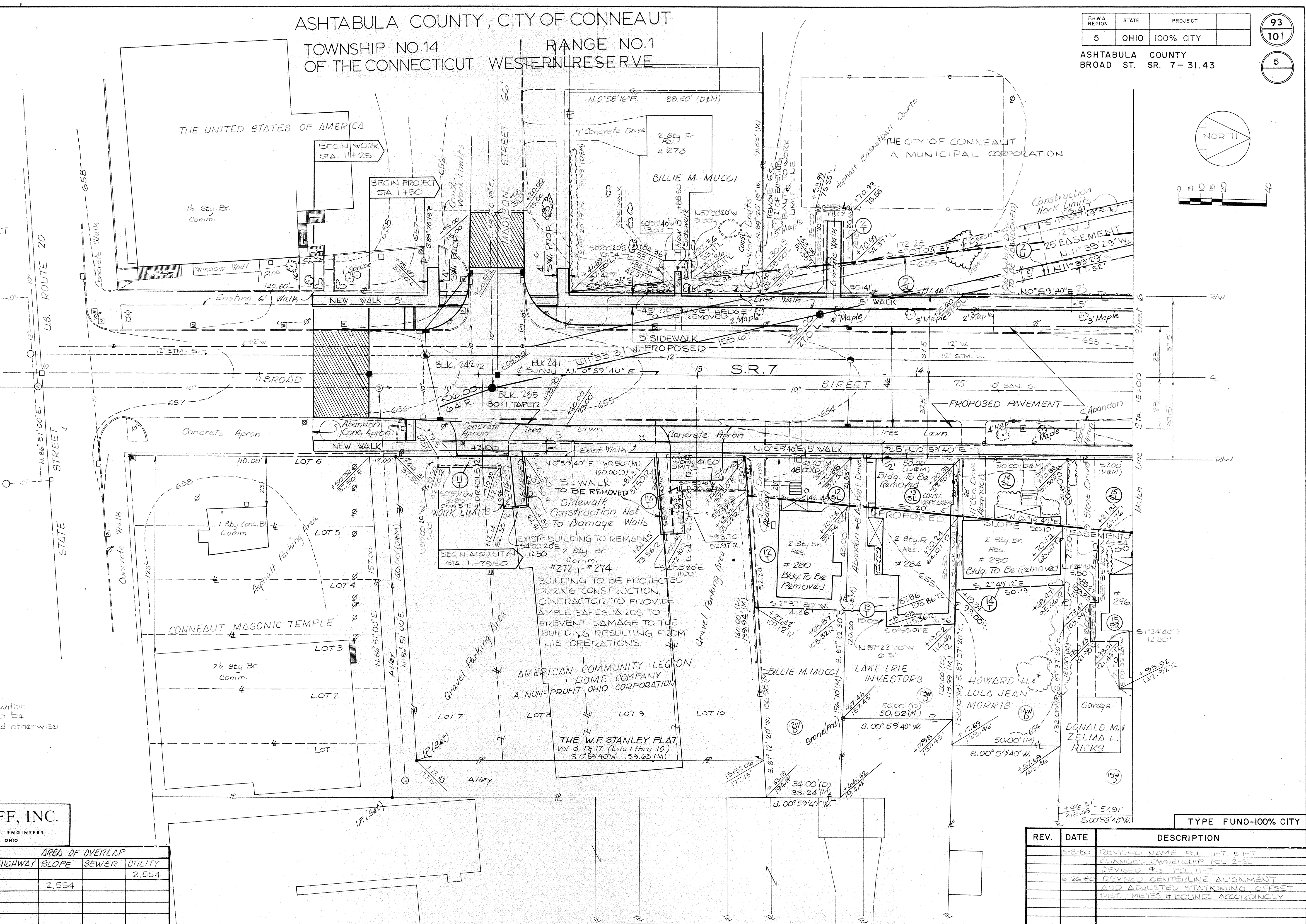
SCALE \_\_\_\_\_  
MADE BY DATE 10/77  
TRCO MJE DATE 10/79  
CKD. N.S. DATE 11/80

**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO



ASHTABULA COUNTY, CITY OF CONNEAUT  
 TOWNSHIP NO. 14 RANGE NO. 1  
 OF THE CONNECTICUT WESTERN RESERVE

- BILLIE M. MUCCI
- 1 T.B.A. 592 SQ. FT.
- BOARD OF EDUCATION
- 2 T.B.A. 33,654 SQ. FT.
  - 2 T.B.A. 410 SQ. FT.
  - 2 T.B.A. 3,572 SQ. FT.
  - 2 T.B.A. 3,366 SQ. FT.  
SEE OVERLAPS THIS SHEET
- AMERICAN LEGION
- 1 T.B.A. 460 SQ. FT.
  - 1 T.B.A. 859 SQ. FT.  
TOTAL 1,300 SQ. FT. T.B.A.O.
- BILLIE M. MUCCI
- 12 T.B.A. 923 SQ. FT.
  - 12 T.B.A. 2,215 SQ. FT.
- LAKE ERIE INVESTORS
- 13 T.B.A. 1,210 SQ. FT.
  - 13 T.B.A. 2,553 SQ. FT.
- HOWARD H. MORRIS
- 14 T.B.A. 1,442 SQ. FT.
  - 14 T.B.A. 1,549 SQ. FT.
- DONALD M. HICKS
- 15 T.B.A. 2,919 SQ. FT.
  - 15 T.B.A. 1,932 SQ. FT.



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

SCALE \_\_\_\_\_

MADE PER DATE 10/20

TRCD. M.D.E. DATE 10/29

CKG. M.S. DATE 1-2-80

**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

PARCEL NUMBER	EASEMENT REQUIRED	TOTAL AREA	AREA OF OVERLAP		
			HIGHWAY	SEWER	UTILITY
2 SL	SLOPE	3,372			2,954
2 U	UTILITY	3,366	2,554		

REV.	DATE	DESCRIPTION
5-8-80		REVISED NAME PCL 11-T & 1-T
		CHANGED OWNERSHIP PCL 2-SL
		REVISED PCL 11-T
6-26-80		REVISED CENTERLINE ALIGNMENT AND ADJUSTED STATKING OFFSET DIST. METES & FOUNDS ACCORDINGLY

TONY FRYATELY  
 (S) T.B.A. 11,330 S.F.  
 (SL) T.B.A. 2684 S.F. (SEE OVERLAPS)  
 (C) T.B.A. 2069 S.F. (SEE OVERLAPS)  
 ENTIRE PARCEL (11,330 S.F.) T.B.A. REMAINDER (8646 S.F.)

INTERSTATE RESTAURANT  
 (4) T.B.A. 20,066 S.F.  
 (4) T.B.A. 6241 S.F.  
 (4) T.B.A. 2053 S.F.  
 (4) T.B.A. 675 S.F.  
 (4) T.B.A. 1730 S.F.  
 (4) T.B.A. 3311 S.F.

(S) T.B.A. 913 S.F.  
 (A) T.B.A. 686 S.F.  
 (S) T.B.A. 3413 S.F.

CONNEAUT AUTO PARTS  
 (S) T.B.A. 12,106 S.F.  
 (S) T.B.A. 3233 S.F.  
 (S) T.B.A. 3745 S.F.  
 (S) T.B.A. 1100 S.F.  
 (S) T.B.A. 870 S.F.  
 SEE OVERLAPS SHEET No.7

FOR (S) AND (SL) SEE SHEET No.5  
 LAURA COUTTS  
 (S) T.B.A. 1819 S.F.  
 (S) T.B.A. 1329 S.F.

ROBERT J. McCLINTOCK  
 (S) T.B.A. 3138 S.F.  
 (S) T.B.A. 2235 S.F.  
 THE ANDOVER BANK  
 (S) T.B.A. 6991 S.F.  
 (S) T.B.A. 3162 S.F.

MADE THY 10/75  
 T.C.D. M.J.E. 10/79  
 C.F.D. N.S. 1/1/80

CITY OF CONNEAUT  
 TOWNSHIP 14-RANGE 1  
 OF THE CONNECTICUT WESTERN RAILROAD  
 SEE MATCH LINE THIS SHEET

LEASE AGREEMENT  
 FROM NORFOLK AND WESTERN RAILWAY COMPANY TO INTERSTATE RESTAURANT, INC.  
 AS PER RAILWAY DOCUMENT NO. 51503

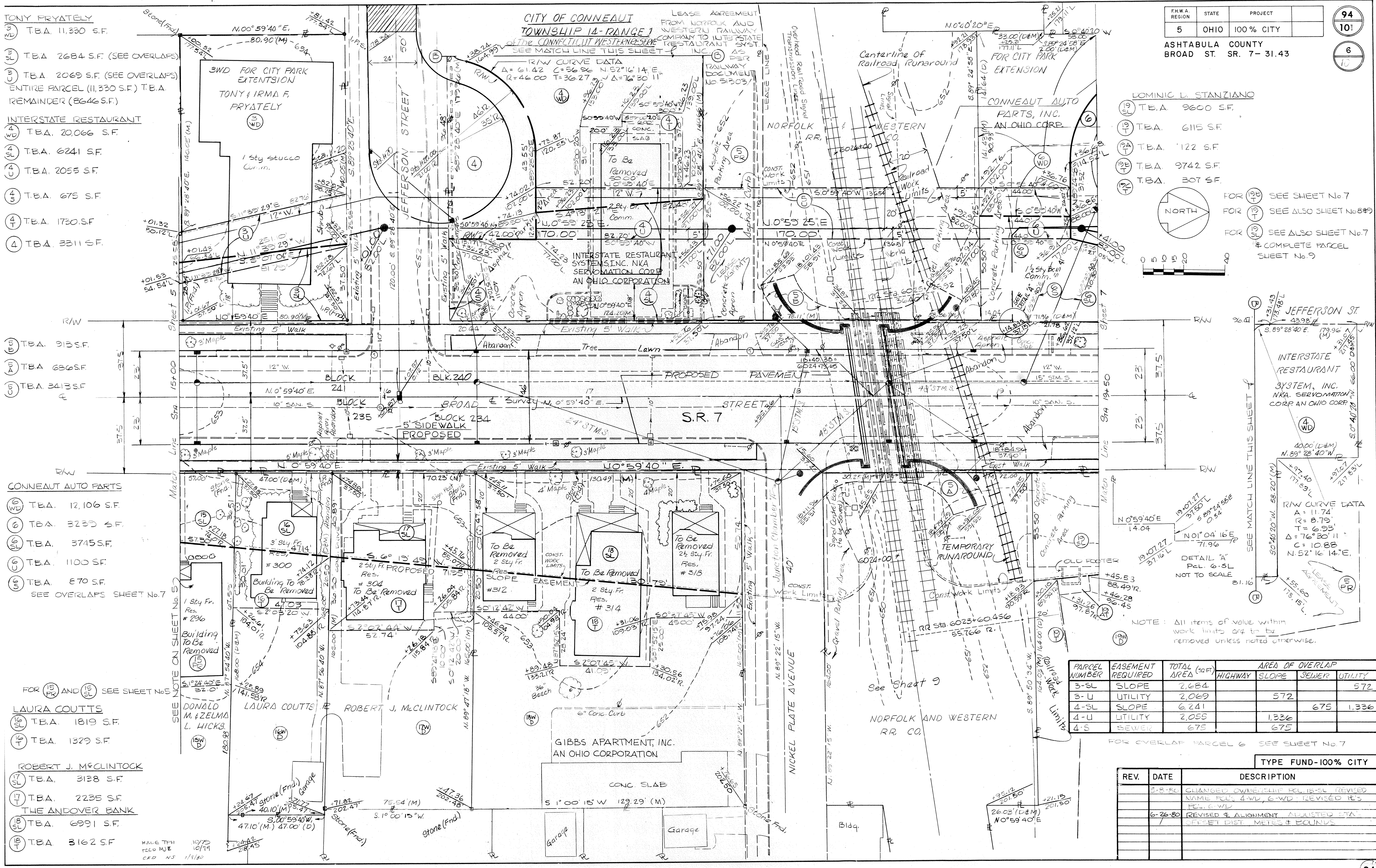
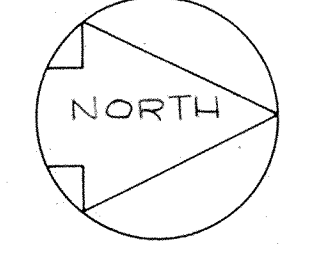
R/W CURVE DATA  
 $\Delta = 61.42$   $C = 56.26$   $N. 52^{\circ} 16' 14" E$   
 $R = 46.00$   $T = 36.27$   $J \Delta = 76^{\circ} 30' 11"$

F.H.W.A. REGION	STATE	PROJECT	94
5	OHIO	100% CITY	101
ASHTABULA COUNTY BROAD ST. SR. 7-31.43			6

DOMINIC D. STANZIANO  
 (S) T.B.A. 9600 S.F.  
 (S) T.B.A. 6115 S.F.  
 (S) T.B.A. 122 S.F.  
 (S) T.B.A. 9742 S.F.  
 (S) T.B.A. 307 S.F.

FOR (S) SEE SHEET No.7  
 FOR (S) SEE ALSO SHEET No.849  
 FOR (S) SEE ALSO SHEET No.7  
 # COMPLETE PARCEL SHEET No.9

0 5 10 20 40



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	SEWER	UTILITY
3-SL	SLOPE	2,684			572
3-U	UTILITY	2,069		572	
4-SL	SLOPE	6,241			675
4-U	UTILITY	2,055		1,336	
4-S	SEWER	675		675	

FOR OVERLAP PARCEL 6 SEE SHEET No.7

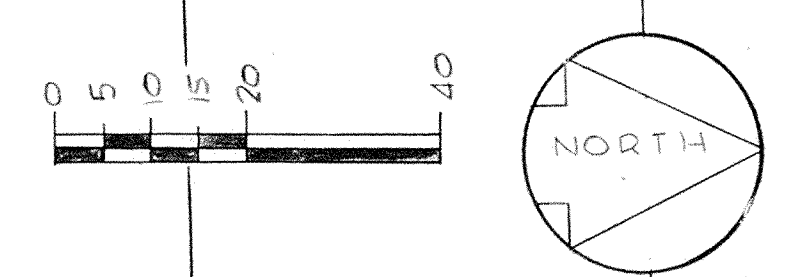
REV.	DATE	DESCRIPTION
	5-8-80	CHANGED OWNERSHIP POL. 15-SL REVISED NAME POL. 4-WD, 6-WD REVISED 15'S POL. 6-WD
	6-26-80	REVISED & ALIGNMENT ADJUSTED STA. OFFSET DIST. METES & BOUNDS

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

95  
101  
7

ASHTABULA COUNTY  
 BROAD ST. SR. 7-31.43



R/W CURVE DATA  
 A = 14.66  
 R = 11.27  
 T = 8.58  
 Δ = 74° 32' 10"  
 C = 13.65'  
 ΔS = 08' 53" W

ADAMS ST. OFFSET

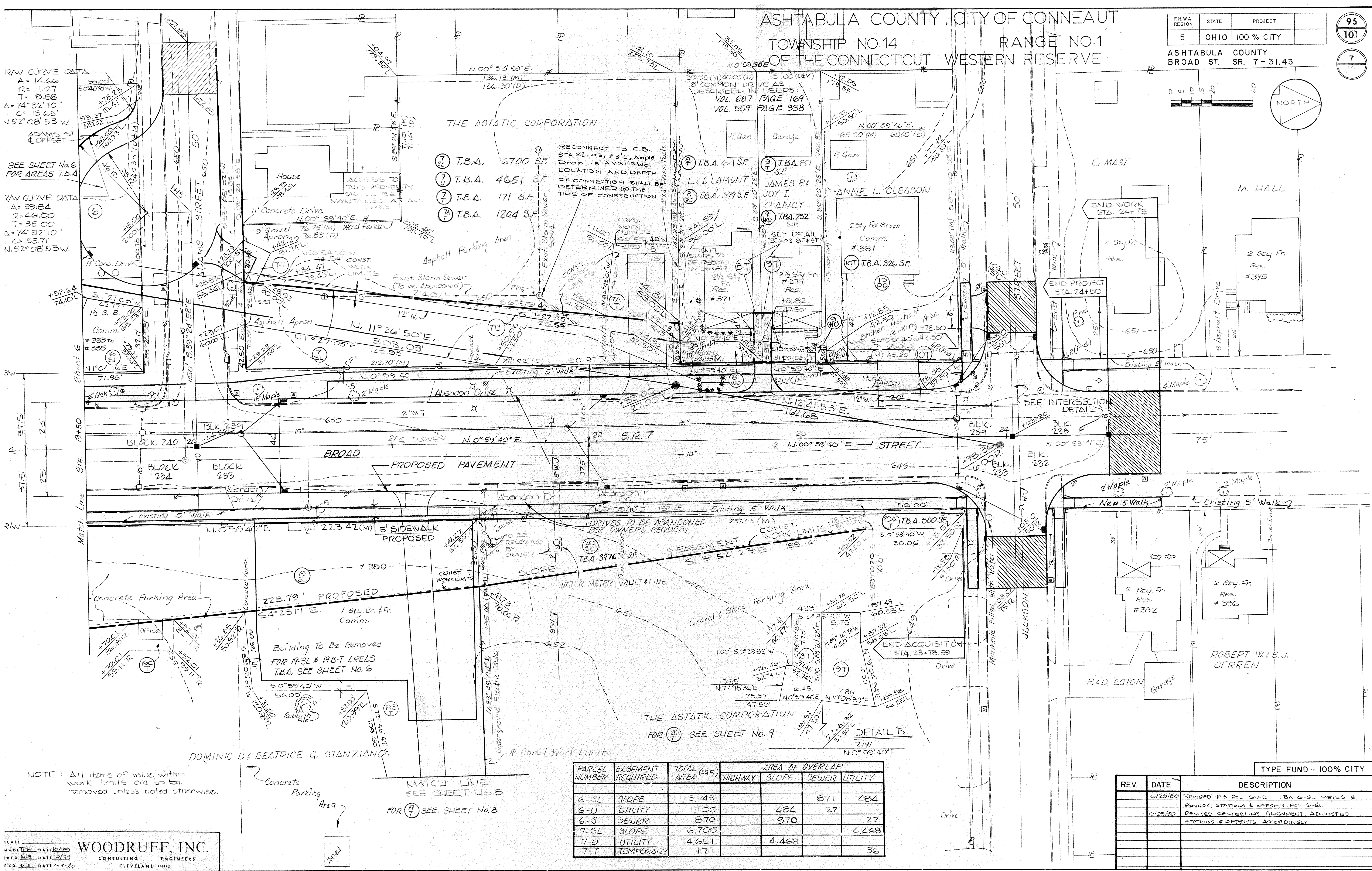
SEE SHEET No. 6 FOR AREAS T.B.A.

R/W CURVE DATA  
 A = 59.84  
 R = 46.00  
 T = 35.00  
 Δ = 74° 32' 10"  
 C = 55.71'  
 ΔS = 08' 53" W

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

SCALE: 1" = 40'  
 MADE BY DATE: 12/13/13  
 RECD. DATE: 12/13/13  
 C.E.D. DATE: 12/13/13

**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO



- ⑦ T.B.A. 6700 SF
- ⑦ T.B.A. 4651 SF
- ⑦ T.B.A. 171 SF
- ⑦ T.B.A. 1204 SF

RECONNECT TO C.B. STA 22+03, 23 L. Ampe Drop is Available. LOCATION AND DEPTH OF CONNECTION SHALL BE DETERMINED @ THE TIME OF CONSTRUCTION

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

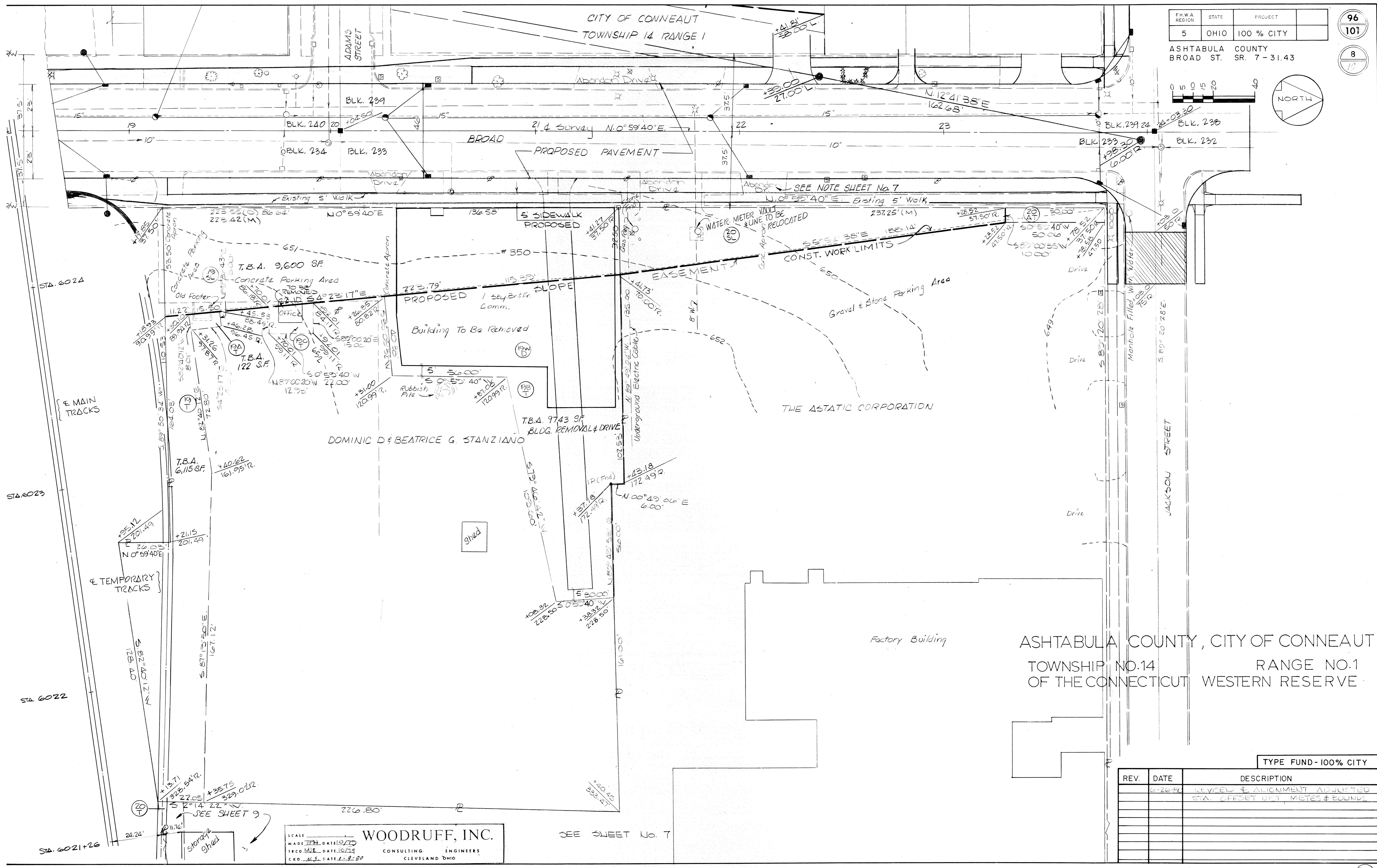
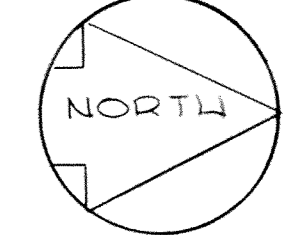
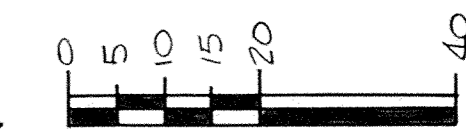
REV.	DATE	DESCRIPTION
	6/25/80	REVISED AS PER G.W.D., T.B.A.-G-SL METES & BOUNDS, STATIONS & OFFSETS PER G-SL
	6/25/80	REVISED CENTERLINE ALIGNMENT, ADJUSTED STATIONS & OFFSETS ACCORDINGLY

TYPE FUND - 100% CITY

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

96  
101  
8  
10

ASHTABULA COUNTY  
BROAD ST. SR. 7-31.43



SCALE: 1" = 40'  
 MADE BY: JPH DATE: 10/25/14  
 TRCD. MLE DATE: 10/14  
 CRO. M.S. DATE: 1-2-80

**WOODRUFF, INC.**  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

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
	6-26-80	REVISED & ALIGNMENT ADJUSTED STA. OFFSET DFT, METES & FOUNDS

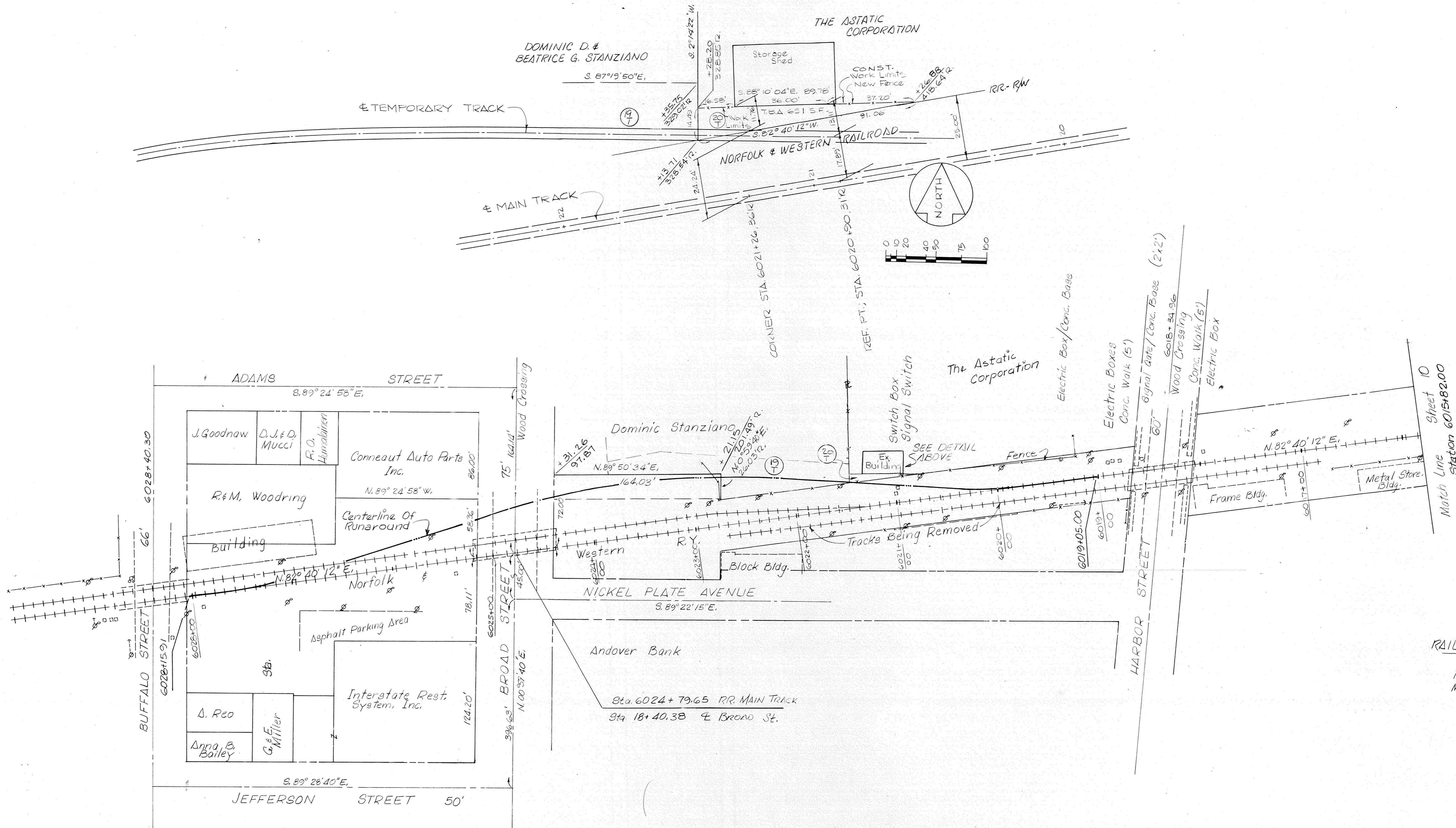


ASHTABULA COUNTY, CITY OF CONNEAUT  
 TOWNSHIP NO.14 RANGE NO.1  
 OF THE CONNECTICUT WESTERN RESERVE

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

ASHTABULA COUNTY  
 BROAD ST. SR. 7 - 31.43

97  
 101  
 9  
 10



RAILROAD MAP REFERENCE  
 NORFOLK & WESTERN R.R. (N.Y.C. & N.H. R.R.)  
 MAP No. 1151

WOODRUFF, INC.  
 CONSULTING ENGINEERS  
 CLEVELAND OHIO

Station 6024+68.73 to Station 6015+82.00

REV.	DATE	DESCRIPTION
	6-26-80	REVISED & P.L.G. OF BROAD ST. ADJUSTED STA # OFFSETS METES AND BOUNDS ACCORDINGLY

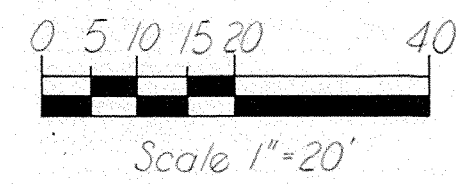
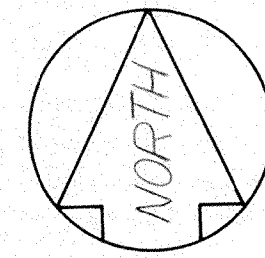
NORFOLK & WESTERN RAILROAD

Parcel Number	Pct.	BROAD STREET		NORFOLK & WESTERN RY.	
		Station	Offset	Station	Offset
5 SL-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+61.18	15.00' Lt.
	5	18+19.71	37.50' Lt.	6025+19.74	15.00' Lt.
5 B	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	28.15' 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+20.87	48.24' Rt.
	13	18+74.27	37.50' Lt.	6025+11.85	38.98' Rt.
	14	18+50.03	37.50' Lt.	6025+15.36	15.00' Rt.
5 SL-2	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+92.86	88.00' Lt.	6025+59.12	64.70' Rt.
5 U	18	18+93.23	37.50' Lt.	6025+09.10	57.74' Rt.
	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.
5 SL-3	21	17+56.22	102.00' Lt.	6025+92.75	68.48' Lt.
	22	17+56.43	77.00' Lt.	6025+67.99	71.39' Lt.
	23	18+15.99	99.89' Rt.	6023+84.34	38.57' Lt.
5 A	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	18+15.60	37.50' Rt.	6024+46.13	29.93' Lt.
	27	18+15.70	53.33' Rt.	6024+30.45	32.12' Lt.
	28	18+33.07	44.50' Rt.	6024+36.68	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.
5 SL-4	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.
	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.

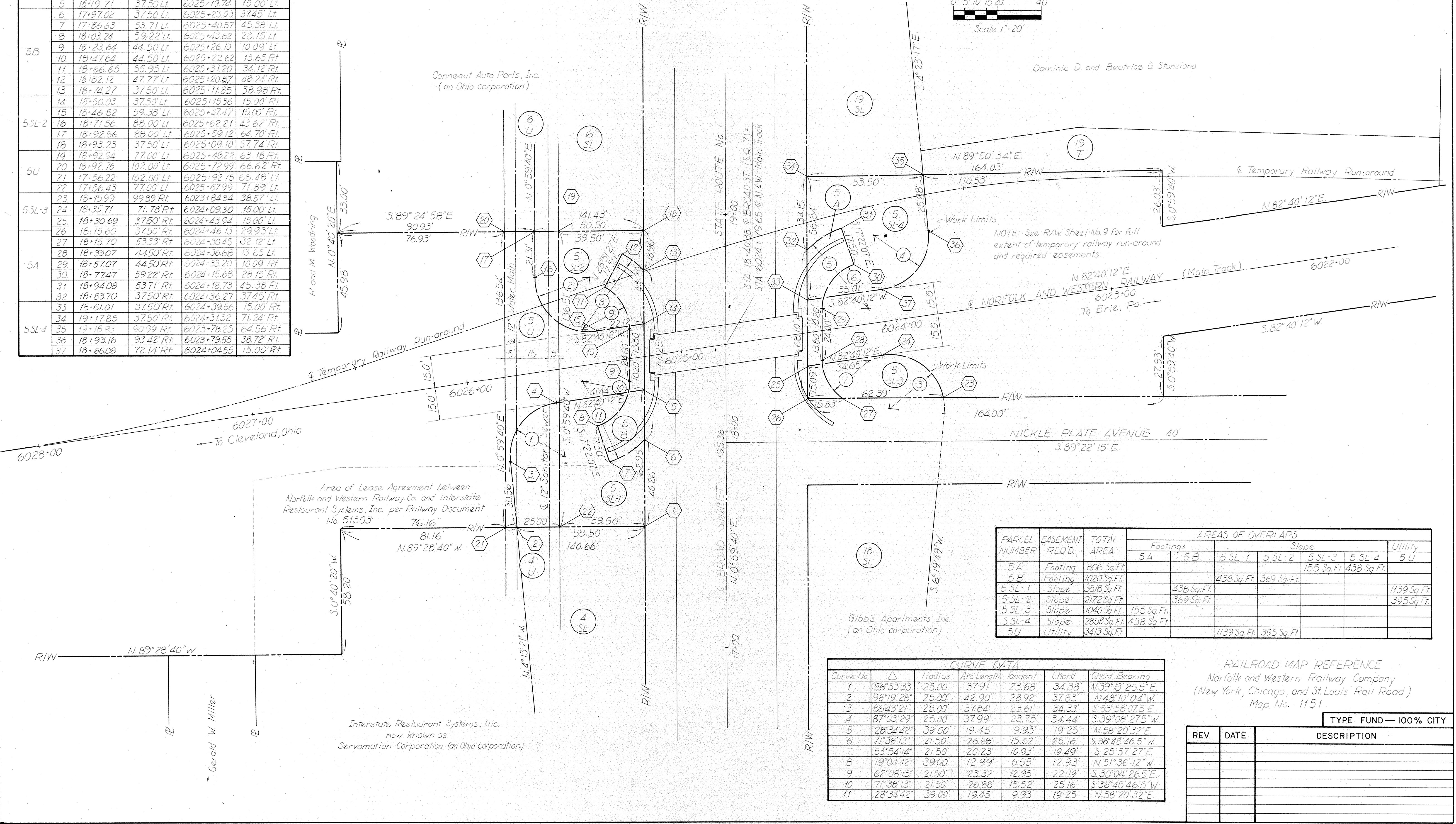
HIGHWAY UNDERPASS

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

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



97A  
10  
10



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

CURVE DATA						
Curve No.	Δ	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'	37.64'	23.61'	34.33'	S.53°58'07.5"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

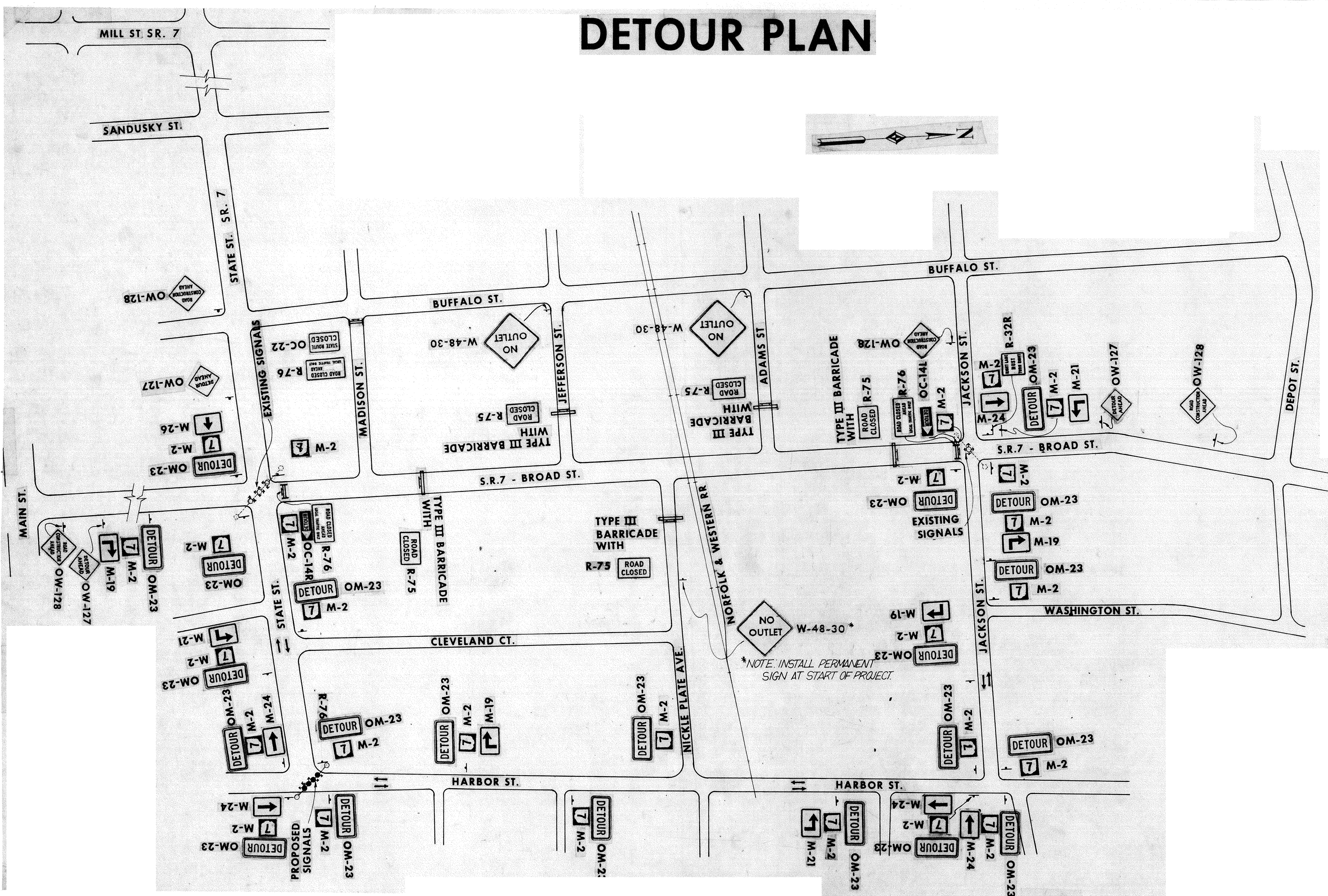
TYPE FUND— 100% CITY		
REV.	DATE	DESCRIPTION

# DETOUR PLAN

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

98  
100

ASHTABULA COUNTY  
ATB-7-31.43



## LEGEND

M-2-24-2	M-19-21	M-21-21
M-24-21	M-26-21	OC-14L
OC-14R	OC-22	
OM-23	OW-14-36	
OW-127-36	OW-143	R-32R-30
OW-127	OW-128	
R-75	R-76 A	
R-120-24	R-121-24	RP-120-24
RP-121-24	NO RIGHT TURN	NO LEFT TURN
PORTABLE TYPE III BARRICADE WITH SIGN	FIXED TYPE III BARRICADE WITH SIGN	

SCALE \_\_\_\_\_  
MADE, A.M. DATE \_\_\_\_\_  
TR CD, DATE 8/19/29  
CKD, DATE 1/1/80

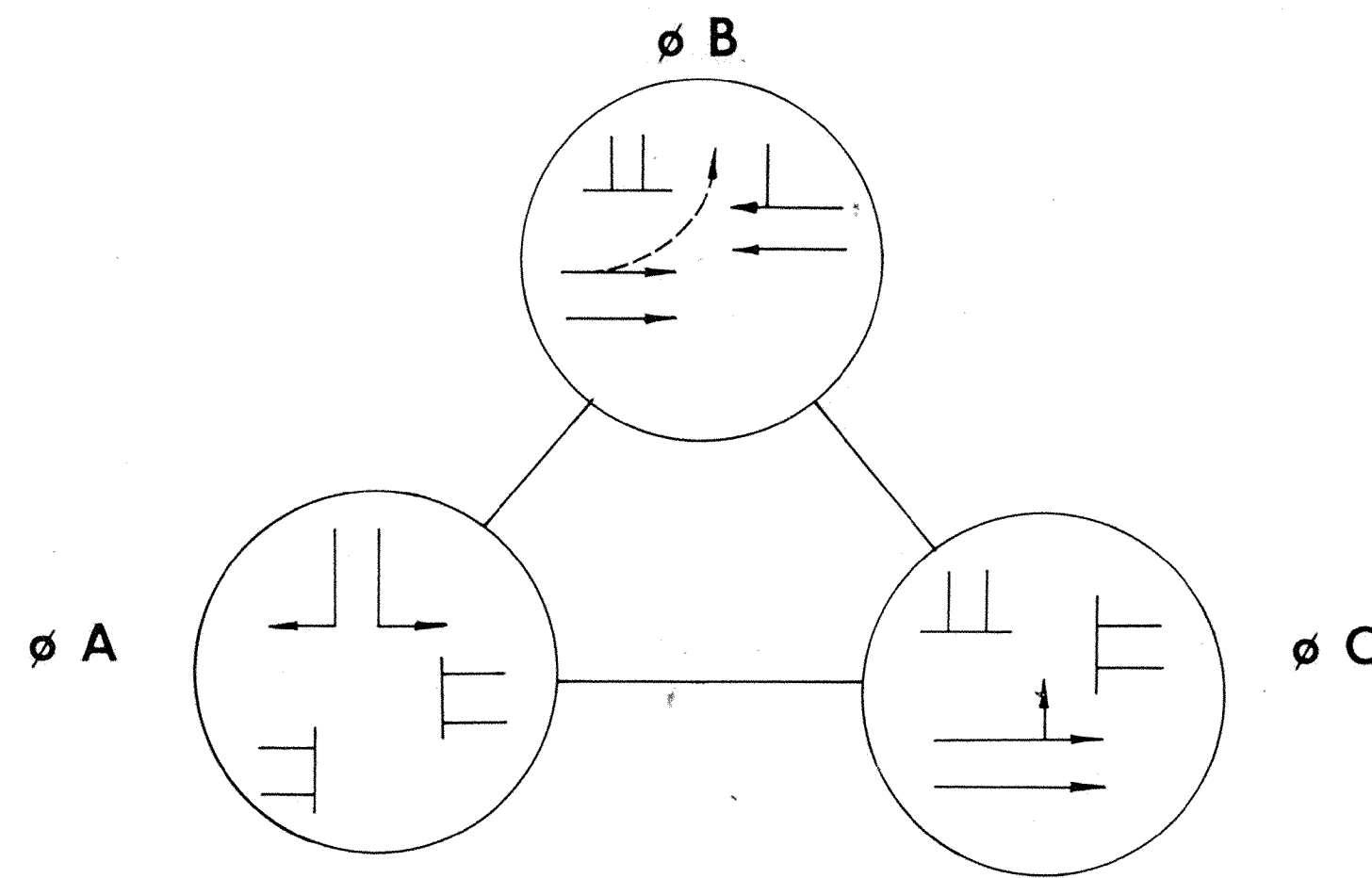
**WOODRUFF, INC.**  
CONSULTING ENGINEERS  
CLEVELAND OHIO

# SIGNAL PLAN

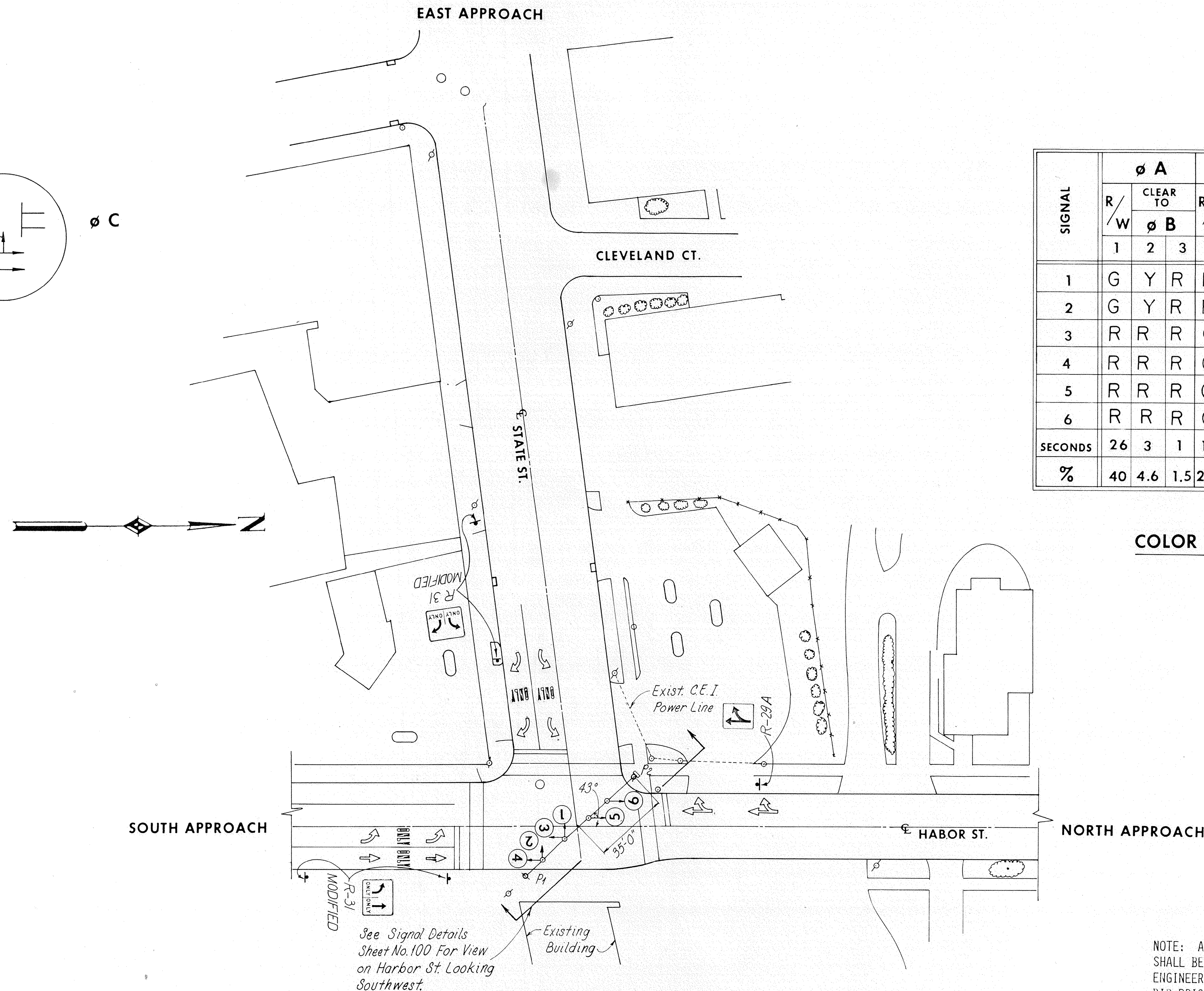
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	STATE	

99  
100

ASHTABULA COUNTY  
ATB-7-31.43

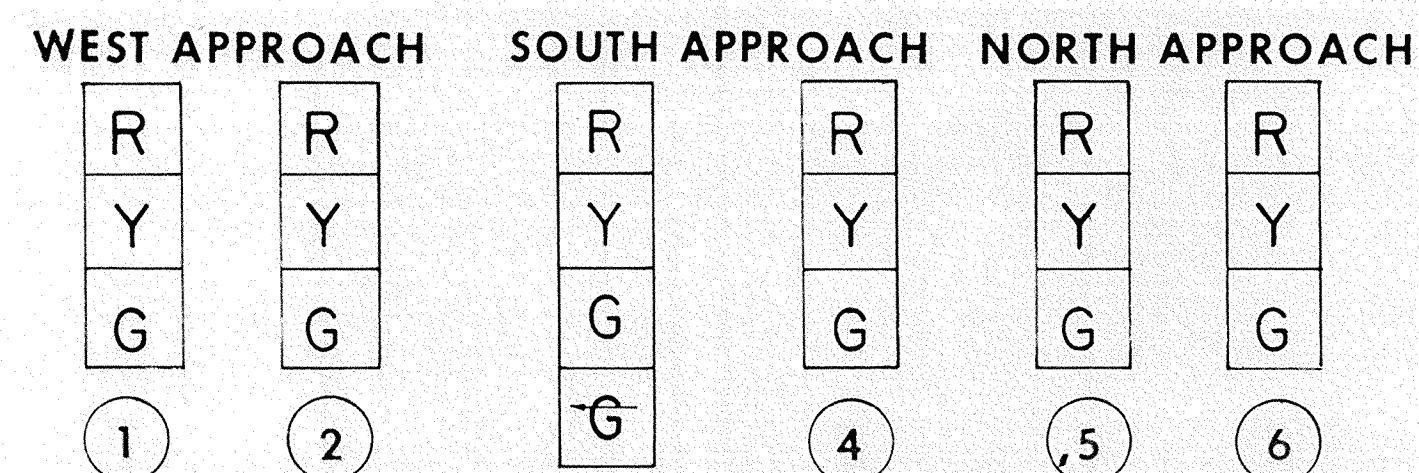


**SIGNAL PHASING PLAN**



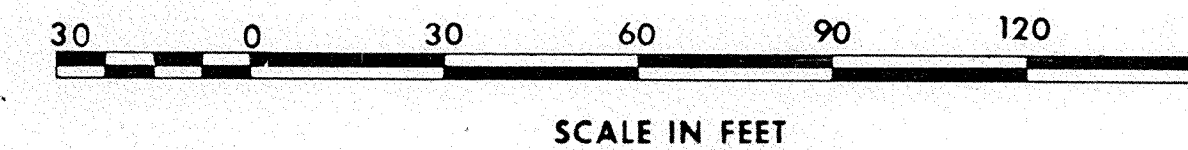
SIGNAL	ø A			ø B			ø C			FLASH
	R/W	CLEAR TO		R/W	CLEAR TO		R/W	CLEAR TO		
		ø B	ø C		ø C	ø A				
	1	2	3	4	5	6	7	8	9	
1	G	Y	R	R	R	R	R	R	R	Y
2	G	Y	R	R	R	R	R	R	R	Y
3	R	R	R	G	G	G	G	Y	R	R
4	R	R	R	G	G	G	G	Y	R	R
5	R	R	R	G	Y	R	R	R	R	R
6	R	R	R	G	Y	R	R	R	R	R
SECONDS	26	3	1	15	3	1	12	3	1	TOTAL CYCLE 65 SEC.
%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



# TRAFFIC SIGNAL DETAIL

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

100  
100

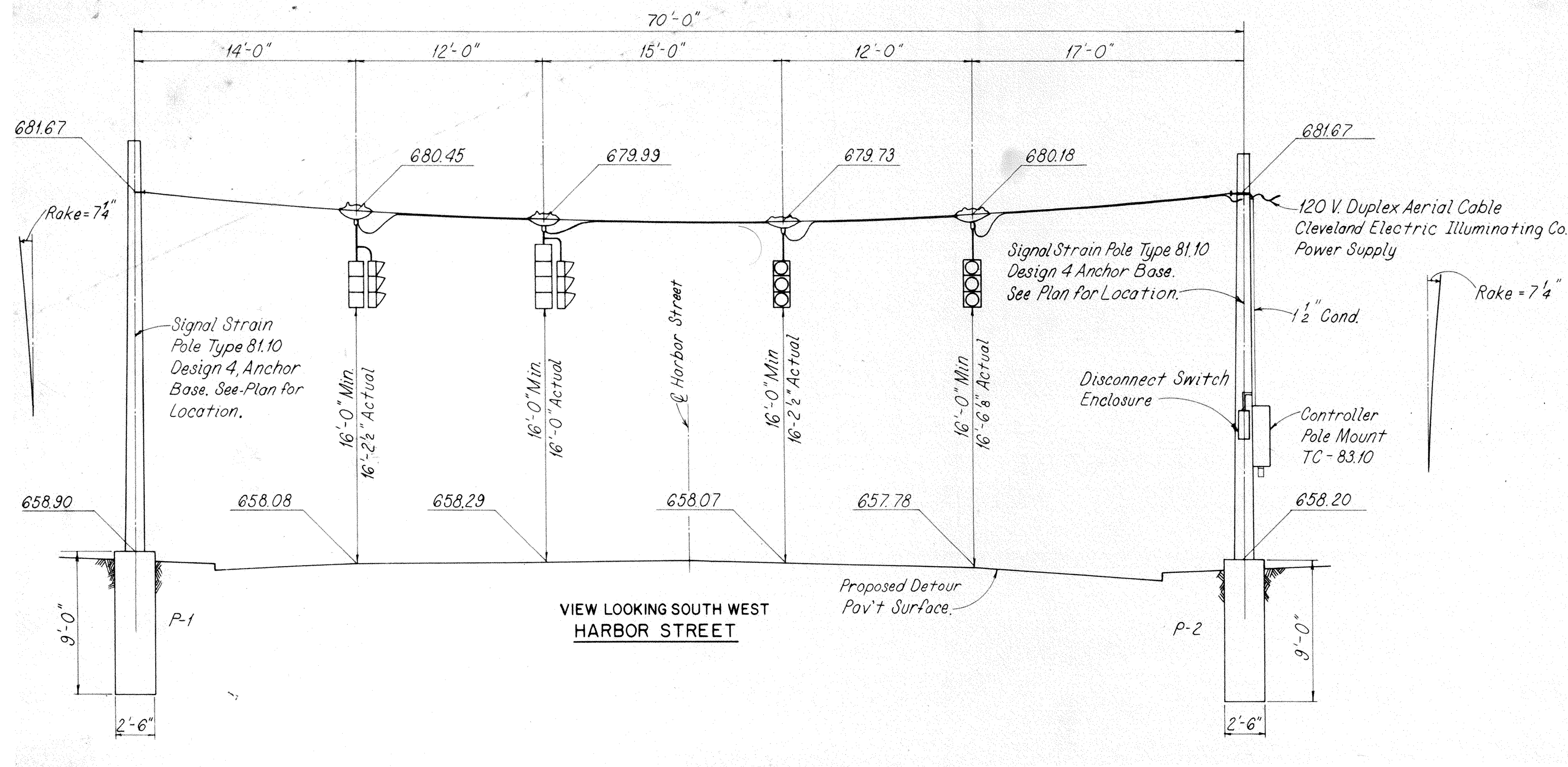
ASHTABULA COUNTY  
ATB-7-31. 43

### QUANTITY CALCULATIONS

BY MS DATE 1/12/80

CHKD. AJM DATE 1/24/80

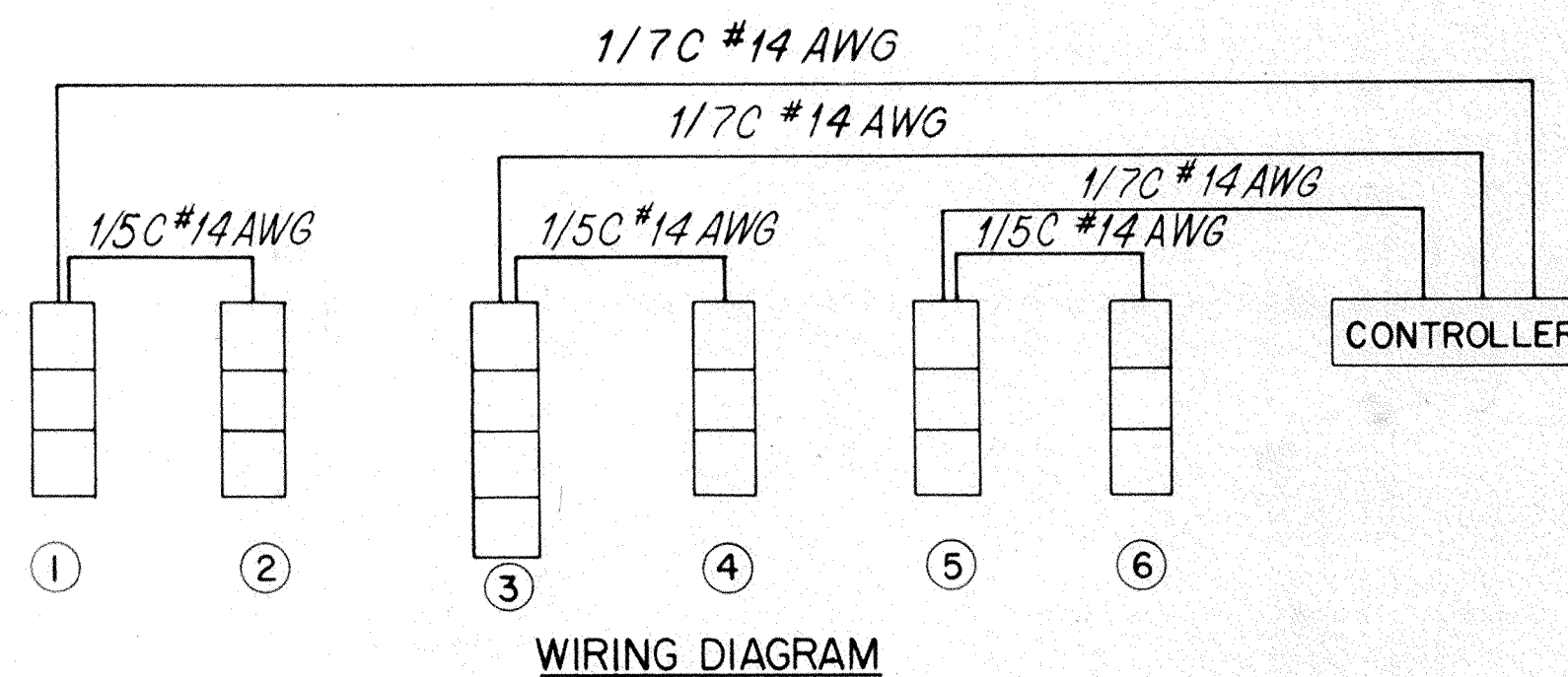
WOODRUFF, INC.



VIEW LOOKING SOUTH WEST  
HARBOR STREET

### 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 3/8" 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	1/2" Conduit S 713.04	22	L.F.
625	Ground Rod	1	Ea.
842	Power Cable 2 Conductor #8 AWG	51	L.F.
843	Controller, Pre-timed, 3 Phase, One Dial Electromechanical Type as Per Plan	1	Ea.



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.

# 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 MORAIN 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%.

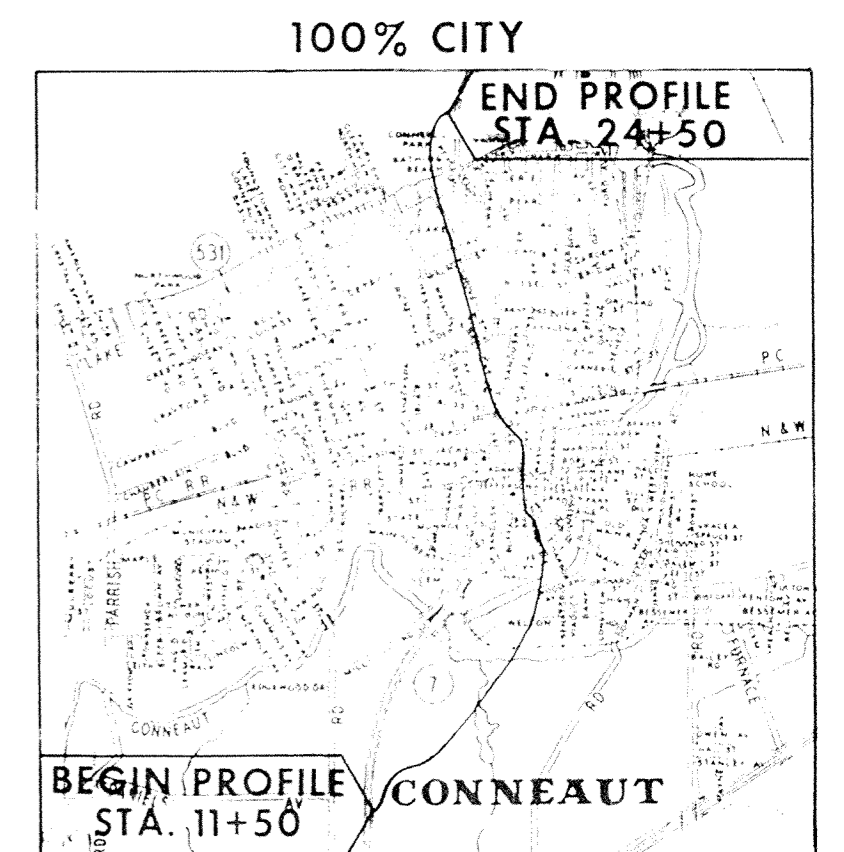
# LEGEND FOR PROJECT AVERAGE RESULTS OF TEST - ROADWAY BORINGS

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	VISUAL CLASSIFICATION									
 AUGER BORING - PLAN VIEW										
 AUGER BORING PLOTTED TO VERTICAL SCALE ONLY-PROFILE										
 WCFREE 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.



LOCATION MAP  
 DRILLING-AUGER- 11/7/78 TO 12/1/78  
 DRAFTING \_\_\_\_\_

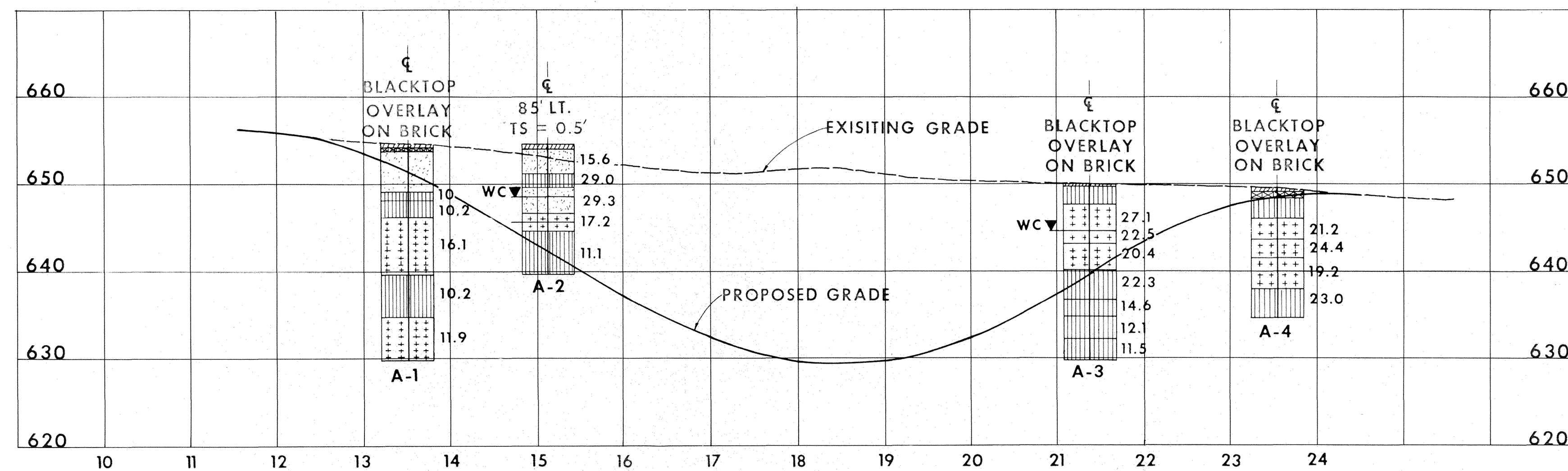
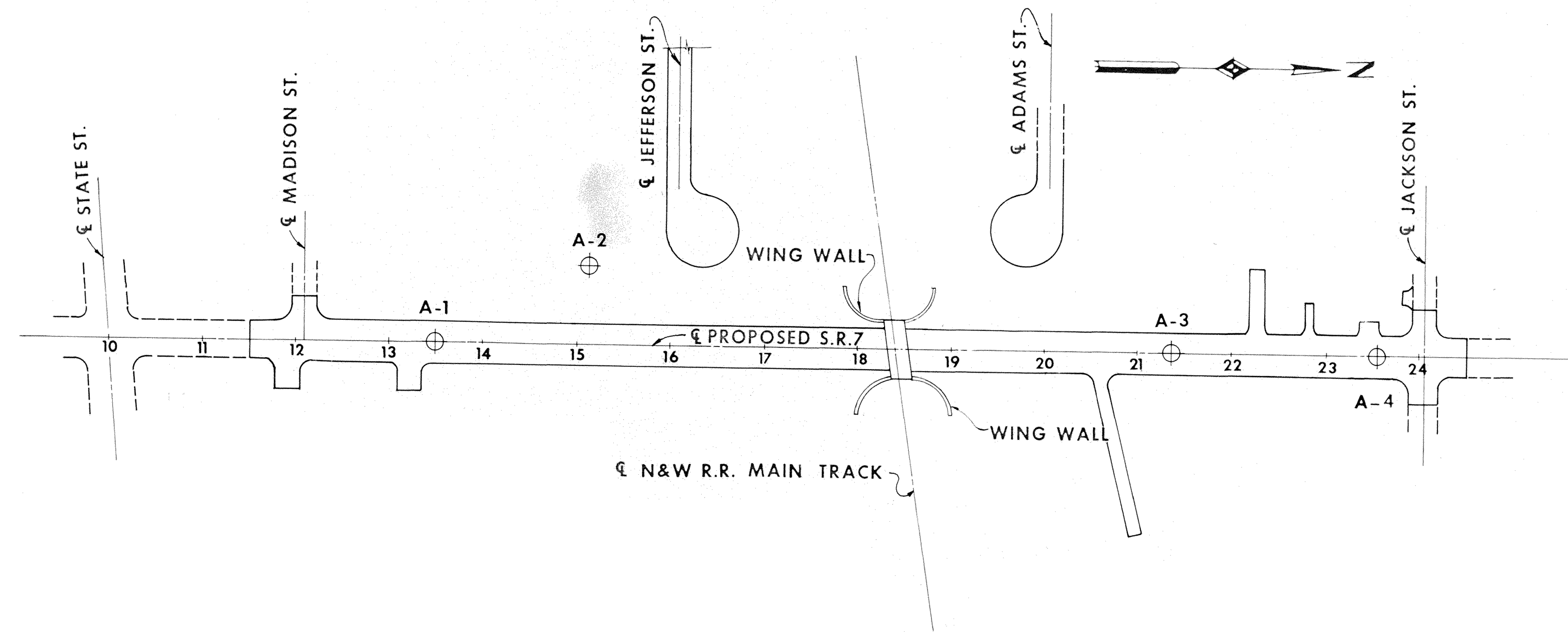
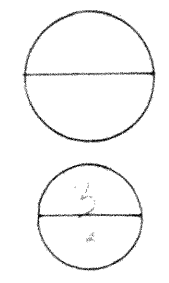
PROJECT INDEX					
STATIONS FROM	STATIONS TO	PLAN VIEW SHEET	PROFILE SHEET	CUT MAX	FILL EMB. MAX
S.R. 7	10+00 - 24+00	3	3	23.5'	—

**ROADWAY**

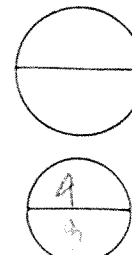
SUMMARY OF SOIL TEST DATA

STATION & OFFSET	DEPTH		% AGG	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	% W.C.	SHTL. CLASS
	FROM	TO									
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	11	10	11	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







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.

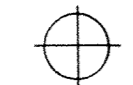


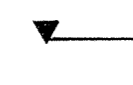

INVESTIGATIONAL FINDINGS

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.


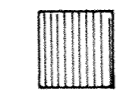
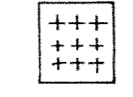

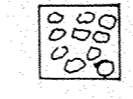
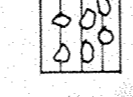
SHALE BEDROCK WAS ENCOUNTERED BY ALL SIX BRIDGE BORINGS. AVERAGE TOP OF ROCK ELEVATION IS 605.0 FEET.

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
-  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 CONSIDERED AS A PART OF THE PLANS GOVERNING CONSTRUCTION OF THE PROJECT.

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

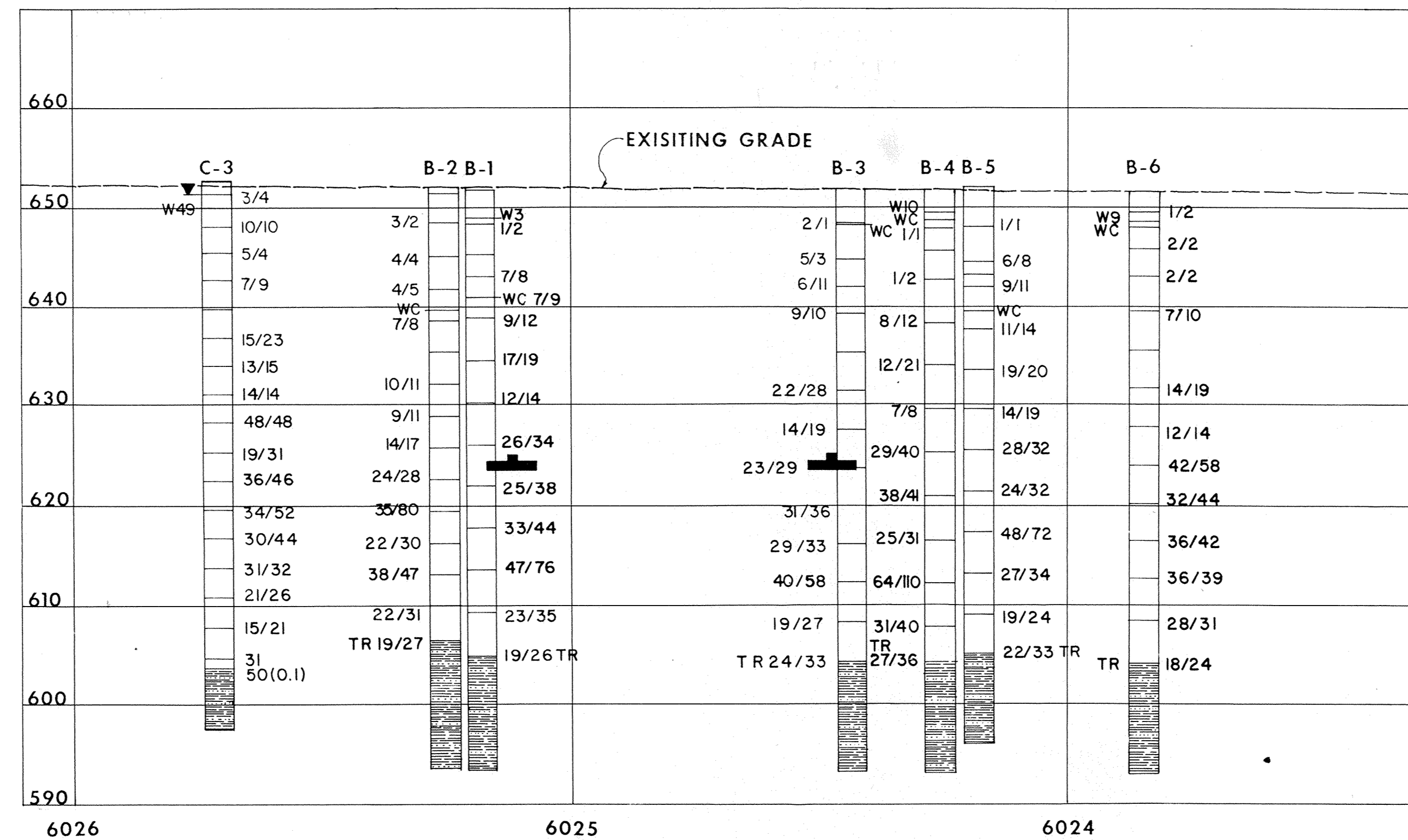
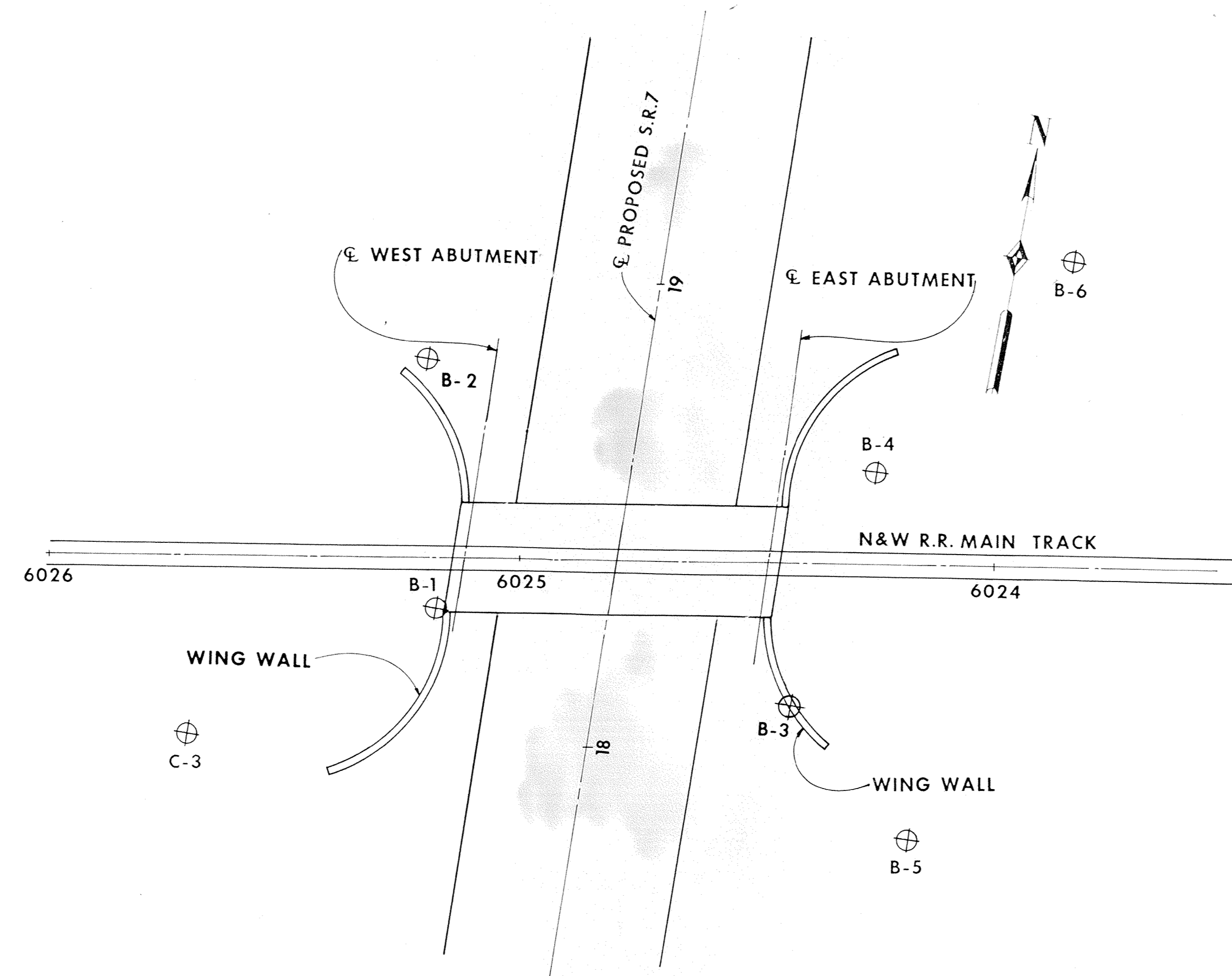
STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO.

SEC. OVER S. R. 7

CHECKED BY	REVIEWED BY	DATE
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BROAD STREET



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

STRUCTURE FOUNDATION INVESTIGATION

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PLAN AND PROFILE

CHECKED BY	DRAWN BY	REVIEWED	DATE
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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

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	Physical Characteristics									SHTL Class			
						% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L	PI	WC					
0	0		Very Loose Brown & Gray Silty Fine SAND with seams of Silty Clay	1												24.7		
2	1-2																	
4	2-2-2																	
643.0	6	2-2-2	Dense Gray Sandy Clayey SILT with a little Gravel	2		0	0	66	26	8	NP				27.8A-3a			
8	2-2-2																27.6	
10	6-7-10																	19.2
639.5	12	Shelby 3.1.9'	Medium Dense to Very Dense Sandy Clayey SILT with a little Gravel	5		13	8	9	38	32	24.24	214	8A-4a					
14	9-14-19																13.6	
18	12-12-14																	
20	31-42-58-80*																	
24	21-32-44				7	14	9	12	44	21	22.45	413.7A-4a						
26	26-48-38-80*				8	15	9	10	49	17	18.71	910.0A-4a						
28	28-48-38-80*				9										11.8			
30	23-36-42				10										13.6			
32	20-36-39				11										14.0			

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Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	Physical Characteristics									SHTL Class		
						% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L	PI	WC				
36	38	24-28-31	Medium Dense to Very Dense Sandy Clayey SILT with a little Gravel	12												14.9	
40	42																
44	15-18-24																
604.0	46		Soft Gray SHALE with seams of fine-grained Sandstone	13												13.7	
48	50																
600.7	52																
593.0	54		Intermediate Gray SHALE with seams of fine-grained Sandstone	14													
56	58																
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

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	Physical Characteristics									SHTL Class		
						% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L	PI	WC				
650.5	0		Loose Black Cinders, Coal, Sand and Silt (FILL)	1												28.3	
2	2-3-4																
642.5	4	4-10-10	Loose Brown Silty Fine SAND with trace of Clay	2												26.9	
6	5-5-4																
8	5-7-9																
642.5	10		Dense to Very Dense Gray Clayey SILT with traces of Sand and Gravel	5		0	0	59	33	8			24.4A-4a				
12	10-15-23																
14	13-13-15																
16	11-14-14																
18	26-48-48																
20	26-48-48																
22	16-31-19																
24	22-48-48																
26	23-34-52																
28	20-30-44																
30	20-31-32					9	4	5	47	35	26.13	714.5A-4a					

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

Elev	Depth	Std Pen (N)	Description	Field No	Lab Nos.	Physical Characteristics									SHTL Class		
						% Agg	% C.S.	% F.S.	% Silt	% Clay	L.L	PI	WC				
36	38	17-21-26	Medium Dense to Very Dense Gray Clayey SILT with traces of Sand and Gravel	15												14.2	
40	42																
44	9-15-21																
604.5	46		Weathered SHALE	16												19.2	
603.5	48																
50	50-7.1																
597.5	52		Intermediate Gray SHALE with seams of Sandstone and weathered Shale	17													
54	56																
58																	

Bottom of Boring 55'  
 Encountered Water @ 1.5'  
 Water at 49 days - 2.7'

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BORING DATA

TYPED BY DRAWN BY REVIEWED DATE