THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 REVISED CODE OF OHIO.

MICROFILMED
NOV 22 1989

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

AKRON EXPRESSWAY SYSTEM

SUM-8-11.65
SUMMIT COUNTY
CITY OF AKRON

LIMITED ACCESS

PART 10 - SOUTH STREET INTERCHANGE

ACI-1093(4)
ACI-1086(8)

551-F

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO	ACIH 086(8) ACIH 093(4)	

1 / 176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65

NOTE:- FEDERAL NUMBERS I-1093(4) AND I-1086(8) SHOWN THROUGHOUT THESE PLANS SHALL BE CONSIDERED TO BE ACI-1093(4) AND ACI-1086(8) RESPECTIVELY.

5

INDEX OF SHEETS

1	TITLE SHEET	45-87	CROSS SECTIONS
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6-7	GEOMETRIC LAYOUT	94	SITE PLAN BRIDGE NOS. SUM-8-1256 SUM-8-1254, AND SUM-18-1212
8-10	TYPICAL SECTIONS	95-104	BRIDGE NO. SUM-8-1256
11-13	PAVEMENT DETAILS	105	SUPER STRUCTURE DETAILS BRIDGE NOS. SUM-8-1256 AND SUM-8-1254.
14-17	QUANTITY CALCULATIONS	106-115	BRIDGE NO. SUM-8-1254
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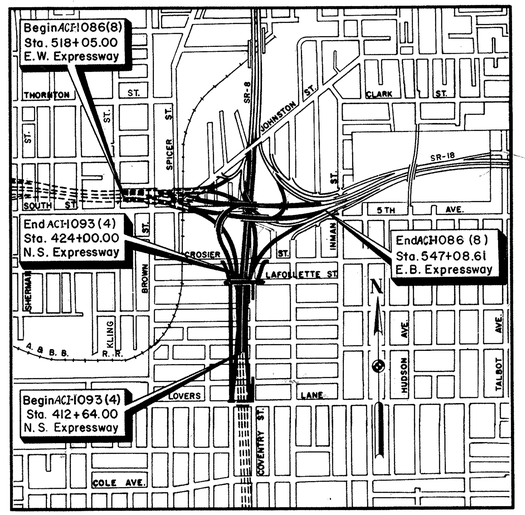
NOTE:
THIS SET OF PLANS, THE EXPRESSWAY FROM LOVERS LANE TO JOHNSTON STREET COVERS ONLY PART 10 OF THIS PROJECT. PARTS 1 THROUGH 9 ARE IN EARLIER CONTRACTS.



LINE DATA

ACI-1086(8)

NET LENGTH OF ACI-1086(8) FROM STA. 518+05 TO STA. 547+08.61	=	2903.61 LIN. FT. OR 0.550 MI.
ADD FOR APPROACH 547+08.61 TO 549+35	=	226.39 LIN. FT.
NET LENGTH OF WORK, ACI-1086(8)	=	3130.00 LIN. FT. OR 0.592 MI.

ACI-1093(4)

NET LENGTH OF ACI-1093(4) FROM STA. 412+64 TO STA. 424+00	=	1136.00 LIN. FT. OR 0.215 MI.
ADD FOR APPROACH 407+12 TO 412+64	=	552.00 LIN. FT.
ADD FOR LAFOLLETTE ST. 10+75 TO 16+19	=	544.00 LIN. FT.
ADD FOR APPROACH 424+00 TO 448+25	=	2425.00 LIN. FT.
NET LENGTH OF WORK, ACI-1093(4)	=	4657.00 LIN. FT. OR 0.882 MI.
TOTAL NET LENGTH OF PROJECT, ACI-1086(8) & ACI-1093(4)	=	4039.61 LIN. FT. OR 0.765 MI.
TOTAL NET LENGTH OF WORK, ACI-1086(8) & ACI-1093(4)	=	7787.00 LIN. FT. OR 1.474 MI.

DELIVERY POINT: A & B. R. R. AVERAGE HAUL. 1/2 MILE

LOCATION PLAN

H. G. SOURS
ASSOCIATE
COLUMBUS

1000 0 1000 2000 3000
SCALE IN FEET

PORTION TO BE IMPROVED
STATE HIGHWAYS
OTHER HIGHWAYS & STREETS
FUTURE WORK
GRADING ONLY

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF HIGHWAYS, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH IN THE PLANS AND ESTIMATE.

THE RIGHT OF WAY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.

APPROVED DATE 9-29-58	Leo G. Walter	DIRECTOR OF PUBLIC SERVICE, CITY OF AKRON
APPROVED DATE 9-30-58	W. R. Gamble	DIVISION DEPUTY DIRECTOR
APPROVED DATE 10-10-58	C. E. Hageseer	DEPUTY DIRECTOR OF PLANNING AND PROGRAMMING
APPROVED DATE 10-4-58	D. R. Overman	ENGINEER OF BRIDGES
APPROVED DATE 10-6-58	R. E. Shultz	ENGINEER OF LOCATION AND DESIGN
APPROVED DATE 10-6-58	P. E. Maddox	DEPUTY DIRECTOR OF DESIGN AND CONSTRUCTION
APPROVED DATE 10/10/58	George F. Thompson	FIRST ASSISTANT DIRECTOR
APPROVED DATE 10/10/58	Charles M. Noble	DIRECTOR OF HIGHWAYS

Sheets 103 & 114 revised 12-23-58.
Sheets 109, 111, 112, 113, 115, 156, 157, 159, 165, 175 & 176 revised 1-19-59.
Sheets 118, 120, 121, 122, 123, 126, 133, 143, 144, 146 & 152 revised 2-20-59.
Sheets 139 & 140 revised 3-30-59.
Sheet 134 revised 4-28-59.
Sheets 131, 132 & 135 revised 10-14-59.

SEP 1 1961
GROUND PHOTOLAB

PREPARED AND RECOMMENDED BY
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

K. H. Bergendoff

507

FILE NO.	SUMMIT COUNTY
	SEC: SUM-8-11.65 PART 10
	DATE OF LETTING _____, 195__
	CONTRACT NO. _____

301

SUPPLEMENTAL SPECIFICATIONS

NUMBER		DATE	NUMBER		DATE
5		6-8-55	9		6-24-58
18	R	2-6-57	M-106.6(4)	R	4-1-58
E-101		1-1-57	S-114	R	8-1-57
B-119	R	8-11-57	S-207		4-28-55
B-219	R	7-23-58			

STANDARD DRAWINGS

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
L-3-A	4-1-50	I-8C.B2-3 & 2-4	5-1-52	B-T-50-70-71E NO.	10-1-47
L-3	4-1-50	I-8 CB NO. 3-A	5-1-52	B-T-71R	3-2-53
R.I.-1	7-15-58	I-8 CB NO. 3	5-1-52	AS-1-54	12-1-54
T-35	1-2-56	I-8 M.H. NO. 1	5-1-52	L-1	4-1-50
L.J. NO.1	7-1-55	I-8 M.H. NO.2	5-1-52	F-1	4-1-57
T.J.	5-1-56	I-12	7-1-54		
S-27 P.C.1	5-1-52	I-14G	1-22-52		
S-27 P.C.3	2-20-45	I-15 NO.1	8-1-55	RB-1-55	3-1-55
I-1,2,3,4 & 5	4-24-58	I-15 NO.2-A	6-1-57	G-7.07	6-1-56
I-8C.B2-2A & B	8-1-56	I-15 NO.2-B	6-1-57		
I-8 C.B NO. 6	5-1-52	I-15 NO. 6	12-9-57		
I-8 C B NO.7	5-1-52	I-8 CB2-5&2-6	5-1-52		
I-8 CB NO.4	7-1-58	I-8 M.H.No.1-A	1-3-55		

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

SEP 1 1961
GROUND PHOTOLAB

APPROVED: _____

DIVISION ENGINEER _____ DATE

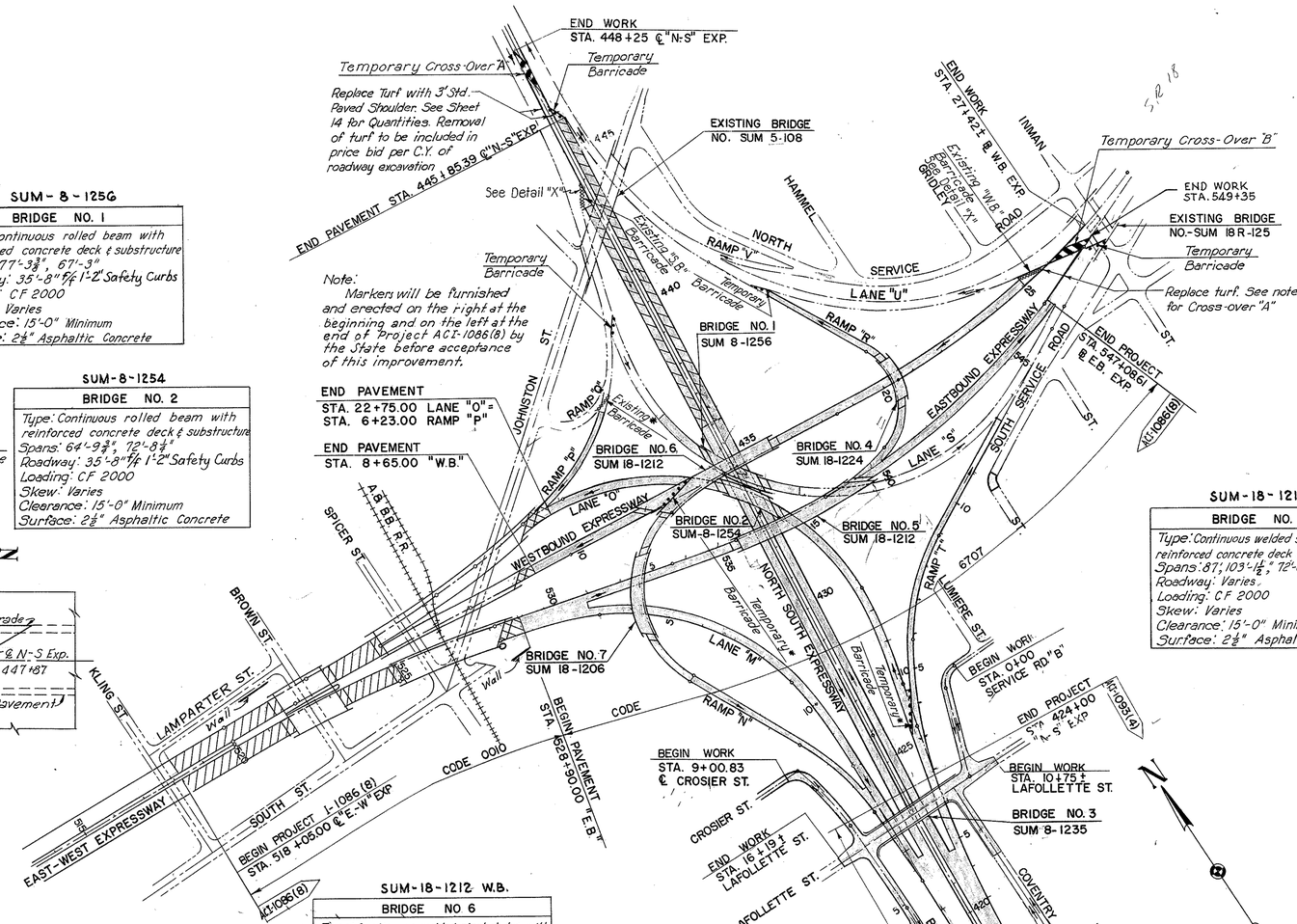
MICROFILMED
NOV 22 1999

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

2 / 176

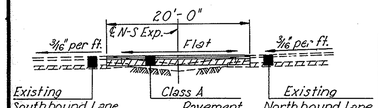
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SCHEMATIC PLAN

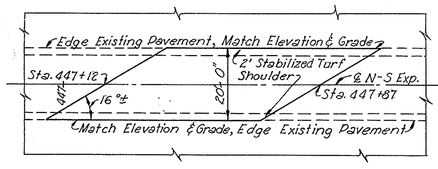


SUM-8-1254

BRIDGE NO. 2
Type: Continuous rolled beam with reinforced concrete deck & substructure
Spans: 64'-9⅜", 72'-8½"
Roadway: 35'-8" f/f 1'-2" Safety Curbs
Loading: CF 2000
Skew: Varies
Clearance: 15'-0" Minimum
Surface: 2½" Asphaltic Concrete



TYPICAL SECTION
STA. 446+83 ± TO STA. 447+43 ± N-S EXP.
Scale 1"=10'



PLAN
Scale-None

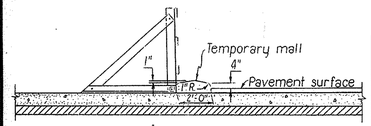
TEMPORARY CROSS-OVER "A"
ITEM S-15
Lump Sum

SUM-18-1212 W.B.

BRIDGE NO 6
Type: Continuous welded steel girder with reinforced concrete deck & substructure
Spans: 84'-6", 104', 96'-9", 64'.
Roadway: Varies
Loading: CF 2000
Skew: Varies
Clearance: 15'-0" Minimum
Surface: 2½" Asphaltic Concrete

SUM-18-1206

BRIDGE NO. 7
Type: Continuous slab bridge with reinforced concrete deck & substructure
Spans: 46'-8", 52'-1⅛", 40'-1", 52'-2⅜", 43'-5½"
Roadway: 33'-8" f/f 1'-2" Safety Curbs
Loading: CF 2000
Skew: Varies
Clearance: 15'-0" Minimum
Surface: 2½" Asphaltic Concrete



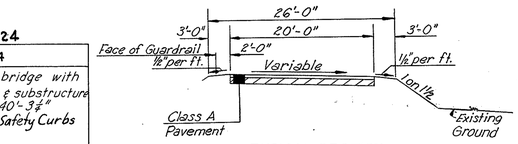
DETAIL "X"
BARRICADE-TYPE "B"
Scale: ½" = 1'-0"

Barricade Ohio Department of Highways Standard G7.07 modified in area of pavement as shown. Posts and braces secured to pavement by clip angles and expansion bolts. Pay for removal shall be included in price bid per linear foot for "Item Special-Removal of Existing Type "B" Wood Barricade with Concrete Mall." This pay item shall include the careful removal of the barricade and mall pavement, disposal of all removed materials, and for furnishing all materials, labor, tools, and equipment, haulage, and incidentals necessary to complete this item. The wood members of the Barricade shall be stored on R.O.W. for disposal by the City.

Notes:
Barricades and temporary crossovers shown are to facilitate movement of traffic around the interchange area during construction.
Barricades marked with an asterisk (*) are to remain in place after completion of this project. All other barricades and temporary crossovers are to be removed at the completion of this project.

SUM-18-1224

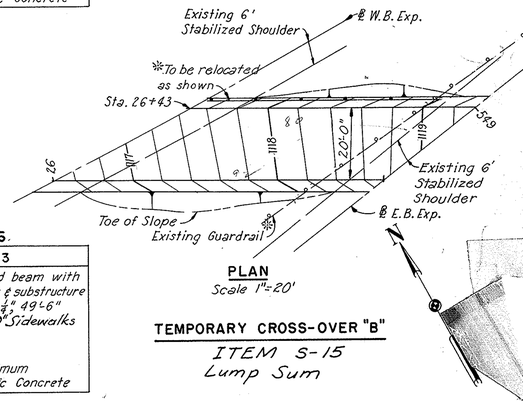
BRIDGE NO. 4
Type: Continuous slab bridge with reinforced concrete deck & substructure
Spans: 40'-1", 49'-6⅜", 40'-3¼"
Roadway: 33'-8" f/f 1'-2" Safety Curbs
Loading: CF 2000
Skew: Varies
Clearance: 15'-0" Minimum
Surface: 2½" Asphaltic Concrete



TYPICAL SECTION
Scale 1"=10'

SUM-18-1212 E.B.

BRIDGE NO. 5
Type: Continuous welded steel girder with reinforced concrete deck & substructure
Spans: 87', 103'-1½", 72'-6", 105'-0", 91'-0"
Roadway: Varies
Loading: CF 2000
Skew: Varies
Clearance: 15'-0" Minimum
Surface: 2½" Asphaltic Concrete



PLAN
Scale 1"=20'

SUM-8-1235

BRIDGE NO. 3
Type: Continuous rolled beam with reinforced concrete deck & substructure
Spans: 53'-5⅛", 59'-10¾", 49'-6"
Roadway: 44'-0" f/f 4'-9" Sidewalks
Loading: CF 400
Skew: Varies
Clearance: 15'-0" Minimum
Surface: 2½" Asphaltic Concrete

TEMPORARY CROSS-OVER "B"
ITEM S-15
Lump Sum

Note:
Temporary Cross-overs shall meet the requirements set forth by Ohio Specifications Section S-15. All work in connection with constructing, maintaining, and removing cross-overs (including removal, relocation and future replacement of guardrail and removal of stabilized turf shoulder shall be included in a lump sum price bid for "Run-arounds" Item S-15.
* Prior to construction of Temporary Cross-over "B" the existing guardrail along Eastbound Expressway shall be removed and stored. Upon completion of the cross-over this same guard rail shall be located as shown in PLAN and TYPICAL SECTION. The guardrail shall be relocated in its original position along Eastbound Expressway after Temporary Cross-over "B" is removed.

Note:
Markers will be furnished and erected on the right at the beginning and on the left at the end of Project ACI-1093(4) by the State before acceptance of this improvement.

Item S-15 Temp. Run-Around Rds. Using Cl. "A" Pvt.	
Temp. Cross-Over "A"	Lump Sum
Temp. Cross-Over "B"	Lump Sum
Total carried to Sheet No. 4	Lump Sum

LEGEND
- Complete Roadway Construction under this contract
- Major Grading Construction previously completed
- Grading Construction Only under this contract
- Existing Construction
- Future Construction
- Temporary Crossover

SCALE	1" = 200'
MADE	C.E.G. DATE 5-9-58
TRCD	A.M.G. DATE 5-9-58
CKD	D.E.D. DATE 5-9-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 2

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

3
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART (9)
SUM-8-11.65 10
GENERAL NOTES

GENERAL

DESIGN SPEED 50 MPH

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE IN ACCORDANCE WITH SEC. S-0.01 (b) HAVING A MINIMUM OF 500 SQ. FT. OF FLOOR SPACE. THE CONTRACTOR SHALL HAVE A TELEPHONE INSTALLED AND MAINTAINED DURING CONSTRUCTION OF THIS PROJECT.

ADJACENT CONTRACTS

CONTRACTS FOR THE CONSTRUCTION OF ADJACENT PROJECTS MAY BE LET WHILE CONSTRUCTION UNDER THIS CONTRACT IS IN PROGRESS. THE CONTRACTOR FOR THIS PROJECT SHALL COORDINATE HIS OPERATIONS WITH THOSE OF THE CONTRACTORS FOR THE ADJACENT PROJECTS SO AS TO COMPLETE THE SEVERAL PROJECTS IN AN ORDERLY FASHION AND WITHOUT UNDUE DELAY OR INTERFERENCE TO THE OTHER CONTRACTORS.

WORK BY THE CITY OF AKRON

THE CITY OF AKRON WILL PERFORM ANY WORK (NOT INCORPORATED IN THESE PLANS) NECESSARY TO PROPERLY JOIN THE NEW AND EXISTING PAVEMENTS AND WALKS AT THE TERMINI OF THE NEW PAVEMENTS AND WALKS.

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 THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO MAKES NO GUARANTEES AS TO THEIR ACCURACY OR COMPLETENESS.

UTILITY NOTE

ANY AND ALL WORK REQUIRED FOR REMOVING, RELOCATING AND CONSTRUCTION OF NEW FACILITIES FOR PRIVATE OR PUBLIC UTILITIES WILL BE DONE BY AND AT THE EXPENSE OF THE RESPECTIVE OWNERS UNLESS OTHERWISE NOTED ON THE PLANS.

WATER METER BOXES

THE CITY WATER WORKS DEPARTMENT WILL RELOCATE ALL PRIVATELY OWNED WATER METER BOXES AND THIS ITEM WILL NOT BE INCLUDED AS A PART OF THE WORK TO BE PERFORMED BY THE CONTRACTOR.

WATER MAINS

SALVAGED MATERIAL PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED", SHALL REMAIN THE PROPERTY OF THE CITY AND SHALL BE DELIVERED TO AND STORED AT THE WATER DEPARTMENT STOREYARD LOCATED AT 565 JOHNSTON ST. PAYMENT WILL BE MADE ONLY FOR SALVAGED MATERIAL STORED IN A USABLE CONDITION. PAYMENT WILL NOT BE MADE FOR SALVAGED MATERIAL DAMAGED BECAUSE OF CARELESS HANDLING ON THE PART OF THE CONTRACTOR.

REMOVAL OF EXISTING HYDRANTS WHERE CALLED FOR IN THE PLANS SHALL BE ACCOMPLISHED IN SUCH A WAY AS TO FACILITATE THE RE-USE OF THE HYDRANTS, AND SHALL BE PAID FOR UNDER "ITEM E-12, HYDRANTS REMOVED AND STORED". PAYMENT SHALL BE MADE ONLY FOR THOSE HYDRANTS CLEANED, DELIVERED, AND STORED IN A USABLE CONDITION AT THE WATER DEPARTMENT STOREYARD, 565 JOHNSTON STREET.

AS SHOWN ON THE PAVEMENT DETAIL SHEETS, THE EXISTING WATER MAINS INDICATED FOR REMOVAL WILL BE CUT AND PLUGGED BY OTHERS OUTSIDE THE LIMITS OF EXPRESSWAY CONSTRUCTION. NECESSARY EXCAVATION FOR CUTTING AND PLUGGING WILL BE DONE BY THE CONTRACTOR. THE CONTRACTOR SHALL REMOVE THE MAINS INDICATED ON THE PAVING PLAN SHEETS WITHIN THE LIMITS OF EXPRESSWAY CONSTRUCTION, ALL WORK TO BE PAID FOR UNDER "ITEM E-12, PIPE REMOVED AND STORED".

THE CONTRACTOR SHALL INSTALL AND TEST A NEW 6" WATER MAIN ALONG BURKHARDT AVENUE EXTENSION BETWEEN CROSIER STREET AND MORGAN AVENUE, AND A NEW 8" WATER MAIN ADJACENT TO SERVICE ROAD "B" BETWEEN CROSIER STREET AND LA FOLLETTE STREET.

THE CONTRACTOR SHALL INSTALL AND TEST NEW WATER HYDRANTS AT THE LOCATIONS SHOWN ON THE PLANS.

THESE MAINS SHALL BE CONSTRUCTED IN THE LOCATION AND TO THE GRADE INDICATED ON THE PAVEMENT DETAIL SHEETS. IN GENERAL, THE AXIS OF THE PIPE SHALL BE 5'-0" BELOW THE FINISHED GRADE. CONNECTIONS TO THE EXISTING MAINS WILL BE MADE BY THE CITY OF AKRON WATER DEPARTMENT. NECESSARY EXCAVATION FOR CONNECTIONS WILL BE BY THE CONTRACTOR.

ALL PIPE, FITTINGS, VALVES, ETC., SHALL BE PURCHASED BY THE CONTRACTOR FROM THE CITY OF AKRON WATER DEPARTMENT AND WILL BE AVAILABLE AT THE DEPARTMENT'S STOREYARD AT 565 JOHNSTON STREET. ALL WORKMANSHIP AND MATERIALS SHALL BE AS SPECIFIED BY THE CITY OF AKRON SPECIFICATIONS. THE PRICE OF THIS MATERIAL TO THE CONTRACTOR WILL BE THE ACTUAL PURCHASE COST TO THE WATER DEPARTMENT. INSTALLATION OF THE PIPE AND HYDRANTS, INCLUDING EXCAVATION, FURNISHING LEAD AND JUTE, FURNISHING AND PLACING SAND CUSHION, BACKFILLING, BLOCKS. ALL FITTINGS, VALVES, ETC., DISPOSAL OF SURPLUS EXCAVATION AND ALL INCIDENTALS WILL BE PAID FOR UNDER "ITEM SPECIAL, INSTALLING WATER MAIN" AND "ITEM SPECIAL, INSTALLING HYDRANTS".

CITY OF AKRON SPECIFICATIONS GOVERNING WORKMANSHIP AND MATERIALS MAY BE OBTAINED AT THE OFFICE OF THE DIRECTOR OF PUBLIC SERVICE.

TRAFFIC

WHERE ANY OF THE WORK CALLED FOR UNDER THIS CONTRACT INVOLVES THE CLOSING OF EXISTING STREETS AND/OR THE RE-ROUTING OF TRAFFIC, THE CONTRACTOR FOR THIS PROJECT SHALL PROSECUTE TO THE FULLEST EXTENT THE WORK INVOLVED SO AS TO REDUCE TO A MINIMUM THE LENGTH OF TIME THAT THE ROADWAY WILL BE CLOSED TO TRAFFIC. NO STREET OR ALLEY WILL BE CLOSED UNTIL NECESSARY FOR CONSTRUCTION AS DETERMINED BY THE PROJECT ENGINEER.

LANE "S" SHALL BE SUFFICIENTLY COMPLETED TO CARRY TRAFFIC AS SOON AS POSSIBLE.

TWO WAY TRAFFIC SHALL BE MAINTAINED ON LANE "U" UNTIL LANE "S" CAN BE OPENED TO TRAFFIC. TWO WAY TRAFFIC SHALL ALSO BE MAINTAINED ON EITHER BAIRD OR KIPLING STREET UNTIL COMPLETION OF THE LAFOLLETTE STREET OVERPASS AND ITS APPROACHES.

IN ADDITION TO THE ABOVE, SECTION G-4.05 "MAINTENANCE OF LOCAL TRAFFIC", WILL BE IN FORCE DURING THE ENTIRE LIFE OF THE CONTRACT.

ALL OF THE ABOVE ARE INCLUDED IN THE LUMP SUM BID FOR "MAINTAINING TRAFFIC".

ATTENTION IS DIRECTED PARTICULARLY TO THE NEED FOR PROVIDING ADEQUATE FACILITIES TO ACCOMMODATE SCHOOL CHILDREN AND OTHER PEDESTRIAN TRAFFIC IN THE VICINITY OF THE PROJECT. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SUCH TEMPORARY BOARDWALKS, CINDER WALKS, HANDRAILS ADJACENT TO EXCAVATION, ETC., AS MAY BE NECESSARY TO ACCOMMODATE IN A REASONABLE AND SAFE MANNER PEDESTRIAN TRAFFIC IN THE VICINITY OF THE PROJECT.

AGGREGATE AND CALCIUM CHLORIDE ARE CARRIED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

RAMP "Q" IS TO REMAIN OPEN TO LOCAL TRAFFIC DURING CONSTRUCTION.

PAVEMENT

PLACING AND FINISHING CONCRETE PAVEMENT

PAVEMENT IN SUPERELEVATED CURVES SHALL BE PLACED WITHOUT CROWN. THE CROWN SHALL BE TRANSITIONED TO A PLANE SURFACE AS INDICATED ON THE PROFILES.

PARTICULAR CARE SHALL BE EXERCISED BY THE CONTRACTOR IN OBTAINING IN A UNIFORM MANNER THE CURB TRANSITIONS CALLED FOR ON THE PLANS.

SIDEWALK

IN LIEU OF THE SURFACE GROOVING CALLED FOR IN THE SPECIFICATIONS, STEEL PLATES 1/8 INCH IN THICKNESS SHALL BE USED TO DIVIDE THE WALK, FOR ITS FULL WIDTH AND THICKNESS, INTO BLOCKS APPROXIMATELY 5 FEET IN LENGTH UNLESS OTHERWISE ORDERED BY THE ENGINEER. THE STEEL PLATES SHALL BE REMOVED AS SOON AS THE CONCRETE HAS SUFFICIENTLY SET THAT THE REMOVAL OF THE PLATE WILL NOT DISTURB OR DAMAGE THE FORMED JOINT.

THE LIMITS AND QUANTITY OF NEW SIDEWALK AS SHOWN ON THE PLANS MAY BE ADJUSTED BY THE ENGINEER.

GRAVEL AGGREGATE, ITEMS I-12, I-21, T-70, T-71; I-13, I-14:

GRAVEL AGGREGATES WILL NOT BE PERMITTED IN ANY PORTLAND CEMENT CONCRETE EXPOSED TO VIEW. GRAVEL AGGREGATES MAY BE USED ONLY IN PORTLAND CEMENT BASES TO BE SURFACED WITH ASPHALT.

ROADWAY

REMOVAL OF REFUSE AND DEBRIS

ANY EXISTING REFUSE OR DEBRIS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR OUTSIDE OF THE LIMITS OF THE RIGHT OF WAY. THE QUANTITY OF REFUSE OR DEBRIS REMOVED AND DISPOSED OF WILL BE DETERMINED BY FINAL CROSS SECTIONS, AND THE YARDAGE SO DETERMINED WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ROADWAY EXCAVATION, ITEM E-101.

ROUNDING OF CORNERS ON CROSS SECTIONS

THE ROUNDED CORNERS SHOWN ON STANDARD DRAWING R1-1 AND L-3 APPLY TO ALL SECTIONS EXCEPT WHERE OTHERWISE SHOWN IN THE TYPICAL SECTIONS. ALL "V" DITCHES SHALL HAVE TWO FEET MINIMUM ROUNDINGS, ONE FOOT ON EITHER SIDE OF DITCH CENTER LINE.

TEMPORARY GUARD RAIL

TEMPORARY GUARD RAIL INDICATED ON THE PLANS TO FORM TEMPORARY BARRICADES SHALL BE FURNISHED AND MAINTAINED BY THE CITY OF AKRON.

ESTIMATED QUANTITIES

SPECIFIC LOCATION AND USAGE OF ESTIMATED QUANTITIES SET UP IN THIS PLAN ARE TO BE UTILIZED AS DIRECTED BY THE ENGINEER AND SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

EMBANKMENT CONSTRUCTION

THE CONTRACTOR'S SCHEDULE FOR EARTHWORK OPERATIONS SHALL PROVIDE FOR THE IMMEDIATE COMPLETE CONSTRUCTION OF EMBANKMENTS IN AREAS AS FOLLOWS:

STATION 520+00 TO 535+70, EASTBOUND EXPRESSWAY

STATION 0+00 TO 13+00, WESTBOUND EXPRESSWAY

SUBGRADE COMPACTION UNDER 7" T-70 DRIVES

THE SUBGRADE FOR DRIVES PAVED WITH 7" T-70 MATERIAL SHALL BE COMPACTED FOR A DEPTH SIX (6) INCHES TO THE DENSITY REQUIREMENTS SHOWN IN TABLE III, ITEM E-101. PAYMENT FOR SUBGRADE COMPACTION, AS SPECIFIED ABOVE, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM E-101, ROADWAY EXCAVATION.

NEW CURB ON COVENTRY STREET AND JOHNSTON STREET

A QUANTITY OF "ITEM I-12, STANDARD TYPE 6 CURB", IS CARRIED IN THE GENERAL SUMMARY TO BE USED IN THE CLOSING OF DRIVEWAYS ALONG THE WEST SIDE OF COVENTRY STREET FROM LA FOLLETTE STREET TO LOVERS LANE AND ALONG THE EAST SIDE OF JOHNSTON STREET FROM AZAR COURT TO SOUTH STREET. THE PROJECT ENGINEER SHALL MAKE SUCH MODIFICATIONS IN CURB SECTION AND TRANSITIONS IN CURB HEIGHT AS ARE NECESSARY TO EFFECT A PROPER MATCHING AT THE NEW CURB WITH THE ABUTTING EXISTING CURB. PAYMENT FOR ALL INCIDENTALS IN CONNECTION WITH THE COMPLETION OF THIS ITEM SHALL BE CONSIDERED INCLUDED IN THE UNIT PRICE BID FOR ITEM I-12, STANDARD TYPE 6 CURB.

SPECIAL DITCHES

FOR SPECIAL DITCH GRADES, SEE CROSS SECTIONS AND DRAINAGE PLANS.

SEEDING AND PROTECTING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN RIGHT OF WAY LINES.

ALL AREAS OUTSIDE THESE LIMITS WHERE THE VEGETATIVE GROWTH HAS BEEN INJURIOUSLY DISTURBED OR DESTROYED BY THE CONTRACTOR SHALL BE RESTORED AND SEEDED IN ACCORDANCE WITH THE PROVISIONS OF ITEM L-9 BY THE CONTRACTOR AT HIS OWN EXPENSE.

IN LIEU OF THE SEED MIX SPECIFIED UNDER L-9.12 OF THE SPECIFICATIONS THE FOLLOWING SEED MIX WILL BE USED AT THE RATE OF 3 POUNDS PER THOUSAND SQUARE FEET.

20% KENTUCKY BLUE GRASS	5% WHITE DUTCH CLOVER	10% RED TOP
20% CREEPING RED FESCUE	45% KENTUCKY 31 FESCUE	

ON SLOPES OF 1 ON 2 OR OVER SIX (6) FEET IN HEIGHT YELLOW BLOSSOM SWEET CLOVER SHALL BE SUBSTITUTED FOR WHITE DUTCH CLOVER.

L-9 COMMERCIAL FERTILIZER

ALL AREAS TO BE SEEDED OR SODDED SHALL HAVE COMMERCIAL FERTILIZER (10-6-4) APPLIED AT THE RATE OF TWENTY (20) POUNDS PER 1,000 SQ. FT.

FENCING

FENCING SHALL BE PLACED TO WITHIN LIMITS AS SHOWN ON THE PLANS, TO THE LINE AND GRADE DIRECTED BY THE ENGINEER. THIS LOCATION SHALL GENERALLY BE TWO FEET INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE SHOWN ON THE PLAN.

THE FENCING SHALL BE TYPE "C".

UTILITIES

FOLLOWING, IS A LIST OF THE UTILITIES WITHIN THE LIMITS OF PART 10 CONSTRUCTION:

EAST OHIO GAS CO.	OHIO EDISON CO.
CITY OF AKRON WATER DEPARTMENT	OHIO BELL TELEPHONE CO.

FOR UTILITIES PLAN SEE PAVEMENT DETAILS SHEETS 11 THRU 13 AND DRAINAGE PLANS SHEETS 26 THRU 30.

OTHER NOTES

DRAINAGE - SHEETS 26 THRU 40

STRUCTURES - SHEETS 92 THRU 176

LIGHTING - SHEETS 23, 24, AND 25.

CONTRACTION & EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN CONTRACTION AND EXPANSION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. THE MAXIMUM DISTANCE BETWEEN CONTRACTION JOINTS AND THE PROVISION FOR EXPANSION JOINTS ALL MAJOR STRUCTURES SHALL BE AS REQUIRED BY STANDARD DRAWING T.J. AND THE SPECIFICATIONS.

REINFORCED CONCRETE CATCH BASINS
CATCH BASINS OVER 12 FEET IN DEPTH SHALL BE REINFORCED BY PLACING 3/4" diameter BARS 12 INCHES CENTER TO CENTER BOTH VERTICALLY AND HORIZONTALLY WITH 2 INCHES CLEARANCE FROM THE INSIDE FACE OF THE WALL. THE COST OF FURNISHING AND PLACING OF THE REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR REINFORCED CONCRETE CATCH BASINS.

SCALE None
MADE F.W.H. DATE 8-6-58
TRCD. DATE
CKD. H.H.B. DATE 8-12-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 3

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

4
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
QUANTITIES

EARTHWORK QUANTITIES

ITEM	QUANTITY
Excavation	561,044
Embankment	329,042
Embankment x 1.15	378,398
Waste	182,644

GENERAL SUMMARY
ESTIMATED QUANTITIES

PLAN SHEET NUMBER 11	12	13	14	15	16	17	I-1086(8) Code 0010	I-1086(8) Code 6707	I-1093(4) Code 6707	100% CITY PARTICIPATION	GRAND TOTAL	UNIT	ITEM NO.	DESCRIPTION
PAVEMENT														
				1,457				729	728		1,457	Cu.Yds.	B-219	Water proofed Aggregate Base Course, Type B
			1,569					769	800		1,569	Cu.Yds.	B-35	Asphaltic Concrete Leveling Course (60-70)
			37,147					18,267	18,880		37,147	Sq.Yds.	B-70	9" Portland Cement Concrete Base Course
					1,133			880	253		1,133	Sq.Yds.	I-7	Reinforced Concrete Approach Slabs (T=13")
					5,928			513	4,793	622	5,928	Lin.Ft.	I-12	Standard Type 2-A Concrete Curb, as per plan
					1,280			1,097	183		1,280	Lin.Ft.	I-12	Standard Type 4-A Concrete Curb, as per plan
				80				80	–		80	Lin.Ft.	I-12	Standard Type 4-B Concrete Curb, as per plan
				822				* 682	* 240		* 922	Lin.Ft.	I-12	Standard Type G Concrete Curb, as per plan
				160				160	–		160	Lin.Ft.	I-12	Mod. Type G Concrete Curb, as per plan
				7,265				–	7,265		7,265	Lin.Ft.	I-12	Standard Type 2 Combination Curb and Gutter, as per plan
				130				130	–		130	Lin.Ft.	I-12	Standard Type 2 Modified Combination Curb and Gutter, as per plan
				2,516				1,251	1,265		2,516	Cu.Yds.	I-18	Stabilized Crushed Aggregate Shoulders and Approaches
			10,532	2,784				5,522	7,638	156	13,316	Cu.Yds.	I-22	Subbase
			3,780		114			1,936	1,958		3,894	Gals.	T-30	Bituminous Tack Coat, Sec. M-5.5, MS-2 or RS-1 or Sec. M-5.2, RC-1 or RC-2 as per Sec. T-30.02
				6,119				3,059	3,060		6,119	Gals.	T-30	Bituminous Prime Coat, Sec. M-5.3, MC-0 or MC-1 or Sec. M-5.7, RT-2 or RT-3
				140				70	70		140	Cu.Yds.	T-31	Bituminous Surface Treatment, No. 6 Aggregate, as per plan
				4,371				2,163	2,208		4,371	Gals.	T-31	Bituminous Surface Treatment, Bituminous Material, as per plan
			1,575		79			830	824		1,654	Cu.Yds.	T-35	Asphaltic Concrete Surface Course Type "C" (60-70)
			21					–	21		21	Sq.Yds.	T-70	7" Portland Cement Concrete Pavement, as per plan
					1,115			–	1,115		1,115	Sq.Yds.	T-70	9" Portland Cement Concrete Pavement, as per plan
			18,233					4,976	12,393	864	18,233	Sq.Yds.	T-71	9" Reinforced Portland Cement Concrete Pavement, as per plan
WATER MAIN (100% CITY PARTICIPATION)														
120										120	120	Lin.Ft.	E-12	12" Pipe Removed and Stored, as per plan
	440									440	440	Lin.Ft.	E-12	8" Pipe Removed and Stored, as per plan
2,400	190									2,590	2,590	Lin.Ft.	E-12	6" Pipe Removed and Stored, as per plan
	910	55								965	965	Lin.Ft.	E-12	4" Pipe Removed as per plan
2	4									6	6	Each	E-12	Removal and Storage of Existing Hydrants, as per plan
342										342	342	Lin.Ft.	Special	8" Water Main, as per plan
1,663										1,663	1,663	Lin.Ft.	Special	6" Water Main, as per plan
3		1								4	4	Each	Special	Hydrants, as per plan

PLAN SHEET NUMBER 11	12	13	16	17	24	2	I-1086(8) Code 0010	I-1086(8) Code 6707	I-1093(4) Code 6707	100% CITY PARTICIPATION	GRAND TOTAL	UNIT	ITEM NO.	DESCRIPTION
ROADWAY														
							381	111,528	449,135		561,044	Cu.Yds.	E-101	Roadway Excavation, as per plan
			75,111					32,786	41,461	864	75,111	Sq.Yds.	E-101	Compacted Subgrade
				1,867				1,650	217		1,867	Sq.Yds.	E-8	Removal and Disposal of Existing Rigid Pavement
				1,083				433	650		1,083	Lin.Ft.	E-8	Removal and Disposal of Existing Curb, Curb and Gutter, or Header Curb
				3,390				–	3,390		3,390	Sq.Ft.	E-8	Removal and Disposal of Existing Sidewalk
			Lump				Lump	Lump	Lump		Lump	Lump Sum	E-9	Removal of Trees and Stumps
			2,459				484	1,810	165		2,459	M.Gals.	E-11	Water
			13,313					–	11,913	1,400	13,313	Sq.Ft.	I-13	4" Portland Cement Concrete Sidewalk, as per plan
500	37.5	50						–	587.5		587.5	Lin.Ft.	I-15	Guard Rail, Steel Beam 3/4 Type (Deep) as per Std. Drawing I-15 No. 2-A
750	3,825	1,825						3,650	2,750		6,400	Lin.Ft.	I-15	Guard Rail, Steel Beam 3/4 Type (Deep) as per Std. Drawing I-15 No. 2-B
								452	–		ϕ 452	Lin.Ft.	I-15	Guard Rail, Removed and Stored
				141,924				100,564	41,360		141,924	Sq.Yds.	L-9	Seeding and Protecting, as per plan
				13.58				9.33	4.25		13.58	Tons	L-9	Commercial Fertilizer (10-6-4)
			760					760	–		760	Sq.Yds.	L-10	Sodding, Including 2" Galvanized Wire Mesh, as per plan
				8,977				3,547	5,430		8,977	Sq.Yds.	L-10	Sodding
								0.5	0.5		1	Ton	M-10	Calcium Chloride Furnished and Applied
								1,158	3,098		†4,256	Lin.Ft.	SS-18	Fence Type "C"
								25	25		50	Cu.Yds.	T-10	Traffic Compacted Surface Course for Maintaining Traffic
							Lump	Lump	Lump		Lump	Lump Sum	S-15	Temporary Run-Around Roads Using Class "A" Pav't.
							281	106	175		# 281	Lin.Ft.	Special	Removal of Existing Type "B" Wood Barricade with Concrete Mall
LIGHTING ( ) Indicates no State or Federal Participation														
				127				71	56		127	Each	S-25	Pole Foundations, Concrete
				41				–	(41)	41	41	Each	S-25	Luminaire; 15,000 Lumen, Type IV
				96				(81)	(15)	96	96	Each	S-25	Luminaire; 10,000 Lumen, Type III
				6				6	–		6	Each	S-25	Remove and Reinstall Existing Lights
				845				330	515		845	Lin.Ft.	S-25	Concrete encased Duct, as per plan
				6,000				(3,500)	(2,500)	6,000	6,000	Lin.Ft.	S-25	Pole and Bracket Cable, 2 Conductor, Size #8 AWG, 5 KV.
				25,650				(15,050)	(10,600)	25,650	25,650	Lin.Ft.	S-25	Lighting Cable, No. 6, Single Conductor Cable
				20,700				(11,900)	(8,800)	20,700	20,700	Lin.Ft.	S-25	Ground Grid Wire, No. 2, Single Conductor, Bare
				79				64	15		79	Each	S-25	Standards, 27'-3" Pole with 10' Bracket
				41				–	41		41	Each	S-25	Standards, 29'-3" Pole with 15' Bracket
STRUCTURES OVER 20 FT. SPAN														
Bridge No. SUM-8-1256, For Quantities See Sheet No. 93.														
" " " -8-1254, " " " " " 106														
" " " -8-1235, " " " " " 116														
" " " -18-1224, " " " " " 131														
" " " -18-1212 EB " " " " " 137														
" " " -18-1212 WB " " " " " 155														
" " " -18-1206 " " " " " 167														

SCALE None
MADE HHB DATE 5-9-58
TRCD. JVR DATE 5-26-58
CKD. FWH DATE 8-14-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 4

* 100 Lin. Ft. of Standard Type 6 Concrete Curb included in total for new curb on Coventry and Johnston Streets. See General Notes Sheet 3.

† See R.O.W. sheets 88-90 for locations.

Total obtained from "As Builts" (Part 6). See Schematic Plan Sheet 2 of Part 10 for detail of Barricade.

ϕ See Sheets 42 and 43 for breakdown.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

5
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
QUANTITIES

GENERAL SUMMARY
ESTIMATED QUANTITIES

PLAN SHEET NUMBER						I-1086(8)		I-1093(4)	100% CITY PARTICIPATION	GRAND TOTAL	UNIT	ITEM NO.	DESCRIPTION
26	27	28	29	30		CODE 0010	CODE 6707	CODE 6707					
DRAINAGE													
	848	82	140				838	232		1070	Lin.Ft.	I-2	12" Class "B" Storm Sewer
760	1038	216	238				1070	1182		2252	Lin. Ft.	I-2	12" Class "B" Storm Sewer U.P.
			82				82			82	Lin. Ft.	I-2	12" Class "B" Storm Sewer, Sec. M-6.5(b) or M-6.8(b)
			192				192			192	Lin Ft	I-2	12" Class "B" Storm Sewer, Sec. M-6.6(a)
	308	98	220	192		192	420	136	70	818	Lin. Ft.	I-2	15" Class "B" Storm Sewer
152	180			112		112	160	150	22	444	Lin. Ft.	I-2	15" Class "B" Storm Sewer U.P.
				194		194				194	Lin. Ft.	I-2	15" Class "B" Storm Sewer, Sec. M-6.5(b) or M-6.8(b)
			192				192			192	Lin. Ft.	I-2	15" Class "B" Storm Sewer, Sec. M-6.6(b)
		134					134			134	Lin. Ft.	I-2	15" Class "B" Storm Sewer, Sec. M-6.8(b)
	24							24		24	Lin. Ft.	I-2	18" Class "B" Storm Sewer
	212						86	126		212	Lin. Ft.	I-2	18" Class "B" Storm Sewer, U.P.
			378				378			378	Lin. Ft.	I-2	24" Class "B" Storm Sewer, Sec. M-6.6(c)
			32				32			32	Lin. Ft.	I-2	24" Class "B" Storm Sewer, U.P.
58								58		58	Lin. Ft.	I-2	24" Class "B" Storm Sewer, U.P., Sec. M-6.8(b)
784								784		784	Lin. Ft.	I-2	30" Class "B" Storm Sewer, Sec. M-6.6(a) or Sec. M-6.8(b)
238								238		238	Lin. Ft.	I-2	30" Class "B" Storm Sewer, U.P.
510								510		510	Lin. Ft.	I-2	33" Class "B" Storm Sewer, Sec. M-6.6(c)
	300								300	300	Lin. Ft.	I-2	33" Class "B" Storm Sewer, U.P., Sec. M-6.6(b) or Sec. M-6.8(b)
514								514		514	Lin. Ft.	I-2	33" Class "B" Storm Sewer, U.P.
	296							296		296	Lin. Ft.	I-2	36" Class "B" Storm Sewer
196								196		196	Lin. Ft.	I-2	36" Class "B" Storm Sewer, Sec. M-6.6(a) or Sec. M-6.8(b)
470								470		470	Lin. Ft.	I-2	36" Class "B" Storm Sewer, Sec. M-6.6(b) or Sec. M-6.8(b)
	218							218		218	Lin. Ft.	I-2	36" Class "B" Storm Sewer, Sec. M-6.6(c)
	422							422		422	Lin. Ft.	I-2	42" Class "B" Storm Sewer
	492						190	302		492	Lin. Ft.	I-2	42" Class "B" Storm Sewer U.P., Sec. M-6.6(c)
	464							464		464	Lin. Ft.	I-2	48" Class "B" Storm Sewer U.P.
		86					86			86	Lin. Ft.	I-2	48" Class "B" Storm Sewer U.P., Sec. M-6.6(c)
		856	342				1198			1198	Lin. Ft.	I-2	48" Class "B" Storm Sewer U.P., Sec. M-106.6(d)
			300				300			300	Lin Ft.	I-2	48" Class "B" Storm Sewer U.P. Sec. M-106.6(d) with Class "A" Bedding as per plan.
				246		246				246	Lin. Ft.	I-2	54" Class "B" Storm Sewer U.P., Sec. M-106.6(d)
				154		154				154	Lin. Ft.	I-2	54" Class "B" Storm Sewer under Railroad, Sec. M-106.6(d) as per plan.
				20		20				20	Lin. Ft.	I-2	54" (Radius Pipe) Cl. B Storm Sewer Under Railroad, Sec. M-106.6(d) as per plan.
	1193							1193		1193	Lin. Ft.	I-4	6" Underdrain Pipe, Perforated Corrugated Metal M-6.4(h)
7240	4664	3907	3005				6912	11904		18816	Lin. Ft.	I-4	6" Underdrains as per plan
268	258	280	191				471	526		997	Lin. Ft.	I-4	6" Outlet Pipes for Underdrains, as per plan, Sec. M-6.4(h) w/o perf.
58	136	50	50				100	194		294	Lin. Ft.	I-4	8" Outlet Pipes for Underdrains, Sec. M-6.4(a) as per plan
	9							9		9	Each	I-5	8" Pipe Specials M-6.4(a) for Outlets for Underdrains
25	16	15	10				25	41		66	Each	I-5	6" Pipe Special for Underdrains, as per plan
58								58		58	Lin. Ft.	I-2	33" (Radius Pipe) Class B Storm Sewer U.P.

PLAN SHEET NUMBER						I-1086(8)		I-1093(4)	100% CITY PARTICIPATION	GRAND TOTAL	UNIT	ITEM NO.	DESCRIPTION
26	27	28	29	30		CODE 0010	CODE 6707	CODE 6707					
DRAINAGE													
	56							56		56	Lin. Ft.	I-2	36" (Radius Pipe) Class B Storm Sewer U.P., Sec. M-6.6(c)
	58						14	44		58	Lin. Ft.	I-2	42" (Radius Pipe) Class B Storm Sewer U.P., Sec. M-6.6(c)
		12	58				70			70	Lin. Ft.	I-2	48" (Radius Pipe) Class B Storm Sewer U.P., Sec. M-106.6(d)
1								1		1	Each	I-8	Std. No. 2-3 Reinforced Concrete Catch Basin, Modified as per plan.
2	9	4	8	2		2	20	3		25	Each	I-8	Std. No. 2-2-A Catch Basins
1			2				2	1		3	Each	I-8	Std. No. 2-3 Catch Basins Modified as per plan
1	14	2					6	11		17	Each	I-8	Std. No. 3-A Catch Basins
2	9	1					2	8	2	12	Each	I-8	Std. No. 3 Catch Basins
17	7	2	1				5	22		27	Each	I-8	Akron No. 3 Inlet, Modified as per plan.
	1						1			1	Each	I-8	Std. No. 6 Catch Basins, Modified as per plan
		1		1		1	1			2	Each	I-8	Std. No. 7 Catch Basin
1	3							4		4	Each	I-8	Std. No. 4 Catch Basin, Modified as per plan
1								1		1	Each	I-8	Std. No. 4 Reinforced Concrete Catch Basin, Modified as per plan.
3	5			1		1	2	6		9	Each	I-8	Std. No. 1 Manholes, as per plan
5	3	3	1				4	8		12	Each	I-8	Std. No. 2 Manholes with drop pipe, as per plan
1	1	3		1		1	2	3		6	Each	I-8	Std. No. 2 Manholes without drop pipe, as per plan
4							1	3		4	Each	I-8	Manholes adjusted to grade, as per plan
	1	2	1				2	2		4	Each	I-8	Manhole reconstructed to Grade
				3			1	2		3	Each	I-8	Std. Akron Manhole Frame and Cover Furnished and Placed.
				95		95				95	Lin. Ft.	I-14	12" Half Round Gutter, as per plan
				225		225				225	Lin. Ft.	I-14	Std. Type 2 paved gutter as per plan
2	2	5	8				14	3		17	Each	I-16	Manholes Abandoned As Per Plan
16	2	4	5				9	18		27	Each	I-16	Inlets Abandoned As Per Plan
									2				
			56				56			56	Lin. Ft.	E-12	Pipe Removed-15" and under, as per plan
2	1	2	1	2		2	6			8	Each	Special	Paved Aprons
		1	1	1		1	2			3	Each	Special	Junction Chambers
15	5		1				2	19		21	Each	I-5	12" Flap Gates, as per plan
	2			2		2		1	1	4	Each	I-5	15" Flap Gates, as per plan
		485	125				610			610	Lin. Ft.	Special	Filled 48" Sewer
		341							341	341	Lin. Ft.	Special	Existing 15" Pipe Encased
		193							193	193	Lin. Ft.	Special	Existing 18" Pipe Encased
		50							50	50	Lin. Ft.	Special	Existing 20" Pipe Encased

SHEET NO.									
175	176								
RETAINING WALLS									
Lump Sum	Lump Sum	Lump Sum				Lump Sum	Lump Sum	E-2	Cofferdams, Cribs and Sheeting.
65	80	145				145	Cu.Yd.	E-2	Excavation for Structures (Unclassified).
20	25	45				45	Cu.Yd.	S-1	Class "C" Concrete (Walls).
22	29	51				51	Cu.Yd.	S-1	Class "E" Concrete (Footings).
10	15	25				25	Lin. Ft.	S-3	Waterproofing, Premolded Sealing Strip.
1220	1700	2920				2920	Lbs.	S-4	Reinforcing Steel.
15	20	35				35	Cu.Yd.	S-29	Porous Backfill.

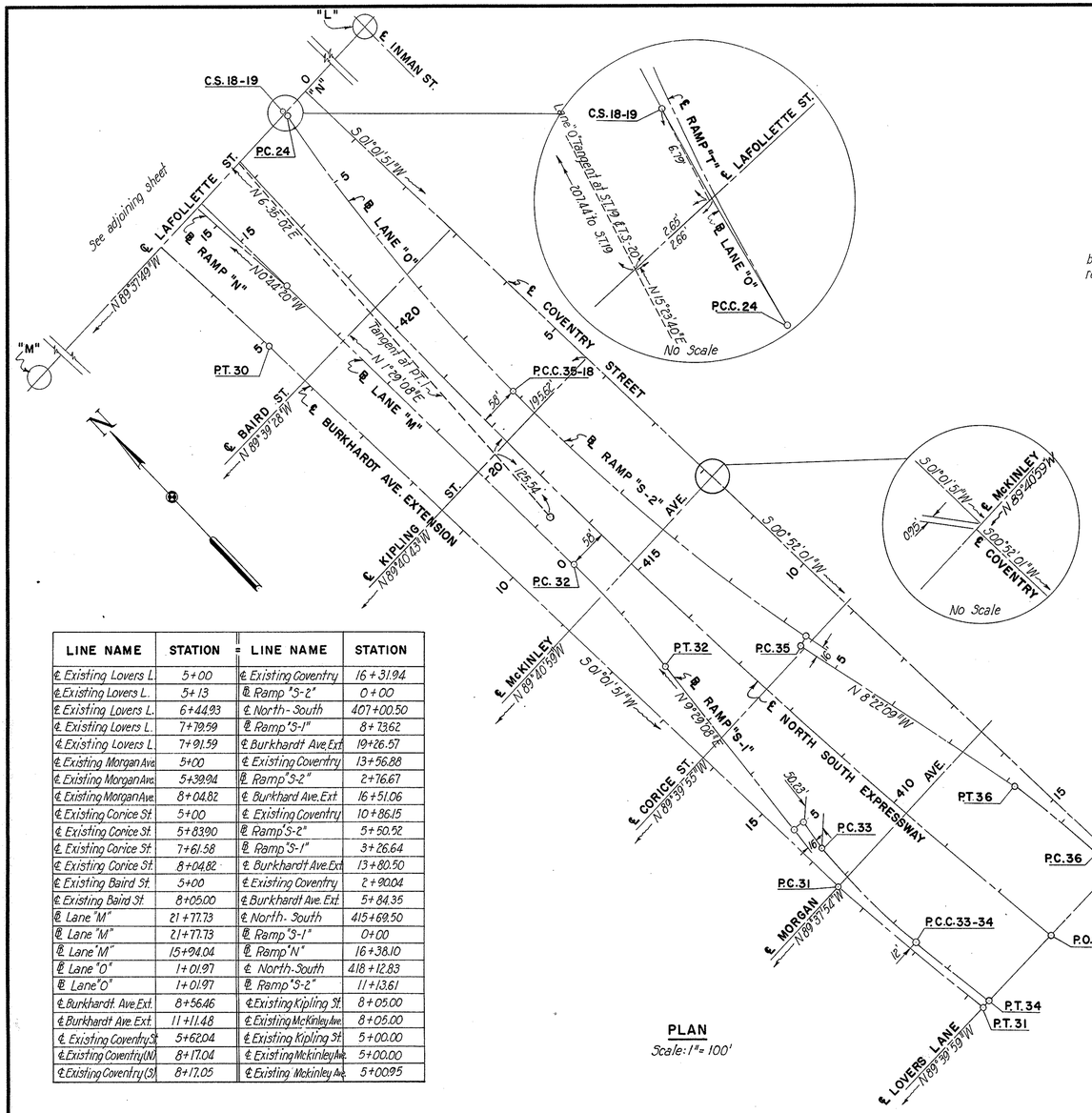
SCALE None
MADE RJD DATE 5-13-58
TRCD. JVR DATE 5-19-58
CKD. HKM DATE 8-16-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 5

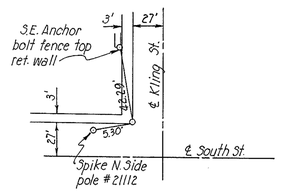
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

6
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65
GEOMETRIC LAYOUT



LINE NAME	STATION	LINE NAME	STATION
℄ Existing Lovers L.	5+00	℄ Existing Coventry	16+31.94
℄ Existing Lovers L.	5+13	℄ Ramp "S-2"	0+00
℄ Existing Lovers L.	6+44.93	℄ North-South	407+00.50
℄ Existing Lovers L.	7+19.59	℄ Ramp "S-1"	8+13.62
℄ Existing Lovers L.	7+91.59	℄ Burkhardt Ave. Ext.	19+26.57
℄ Existing Morgan Ave.	5+00	℄ Existing Coventry	13+56.88
℄ Existing Morgan Ave.	5+39.94	℄ Ramp "S-2"	2+16.67
℄ Existing Morgan Ave.	8+04.82	℄ Burkhard Ave. Ext.	16+51.06
℄ Existing Corice St.	5+00	℄ Existing Coventry	10+86.15
℄ Existing Corice St.	5+83.90	℄ Ramp "S-2"	5+50.52
℄ Existing Corice St.	7+61.58	℄ Ramp "S-1"	3+26.64
℄ Existing Corice St.	8+04.82	℄ Burkhardt Ave. Ext.	13+80.50
℄ Existing Baird St.	5+00	℄ Existing Coventry	2+90.04
℄ Existing Baird St.	8+05.00	℄ Burkhardt Ave. Ext.	5+84.35
℄ Lane "M"	21+77.73	℄ North-South	415+69.50
℄ Lane "M"	21+77.73	℄ Ramp "S-1"	0+00
℄ Lane "M"	15+94.04	℄ Ramp "N"	16+38.10
℄ Lane "O"	1+01.97	℄ North-South	418+12.83
℄ Lane "O"	1+01.97	℄ Ramp "S-2"	11+13.61
℄ Burkhardt Ave. Ext.	8+56.46	℄ Existing Kipling St.	8+05.00
℄ Burkhardt Ave. Ext.	11+11.48	℄ Existing McKinley Ave.	8+05.00
℄ Existing Coventry St.	5+62.04	℄ Existing Kipling St.	5+00.00
℄ Existing Coventry (N)	8+17.04	℄ Existing McKinley Ave.	5+00.00
℄ Existing Coventry (S)	8+17.05	℄ Existing McKinley Ave.	5+00.95



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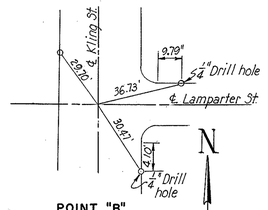

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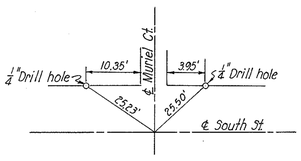

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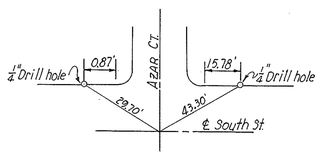

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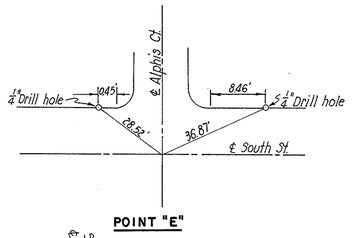

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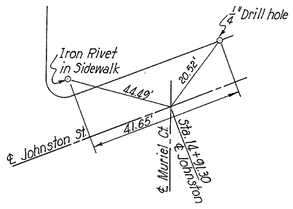

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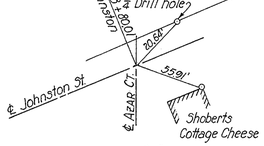

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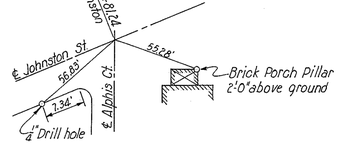

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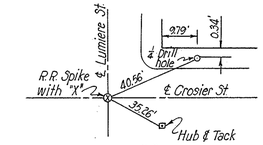

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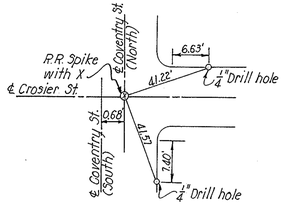

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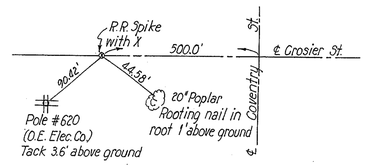

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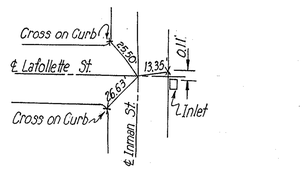

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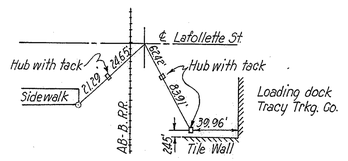

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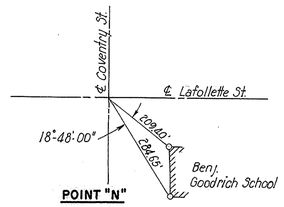

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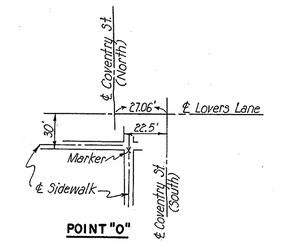


POINT "O"

CURVE NO.	BEGINNING STATION	P.I. STATION	ENDING STATION	CURVE DATA						LINE NAME
				D	Δ	R	T	L	E	
1	P.O.C. 407+00.50	416+46.97	P.T. 425+89.16	0°30'-00"	9°26'36"	11459.16	946.47	1888.66	39.02	℄ North-South
18	P.C. 1+01.97	3+10.05	C.S. 6+36.58	2°00'00"	10°41'32"	2864.79	268.08	534.61	12.52	℄ Lane "O"
30	P.C.C. 2+23.63	3+67.49	P.T. 5+11.28	1°00'00"	2°52'36"	5729.58	143.86	287.65	1.81	℄ Burkhardt Ext.
31	P.C. 16+51.06	17+88.93	P.T. 19+26.57	2°00'00"	5°30'37"	2864.79	137.87	275.51	3.31	℄ Burkhardt Ext.
32	P.C. 0+00.00	1+00.16	P.T. 2+00.00	4°00'00"	8°00'00"	1432.39	100.16	200.00	3.50	℄ Ramp "S-1"
33	P.C. 5+50.23	6+44.10	P.C.C. 7+37.38	6°00'00"	11°13'44"	954.93	93.87	187.15	4.60	℄ Ramp "S-1"
34	P.C.C. 7+37.38	8+05.51	P.T. 8+73.62	2°00'30"	2°44'10"	2852.79	68.13	136.24	0.81	℄ Ramp "S-1"
35	P.C. 5+60.04	8+37.69	P.T. 11+13.61	2°00'00"	11°04'17"	2864.79	277.65	553.57	13.42	℄ Ramp "S-2"
36	P.C. 0+32.00	1+09.14	P.T. 1+85.94	6°00'00"	9°14'10"	954.93	77.14	153.94	3.11	℄ Ramp "S-2"

SCALE As Shown
MADE R.P.B. DATE 11-15-57
TRCD R.R. DATE 5-12-58
CKD D.E.D DATE 5-17-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET- 6

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

7/176

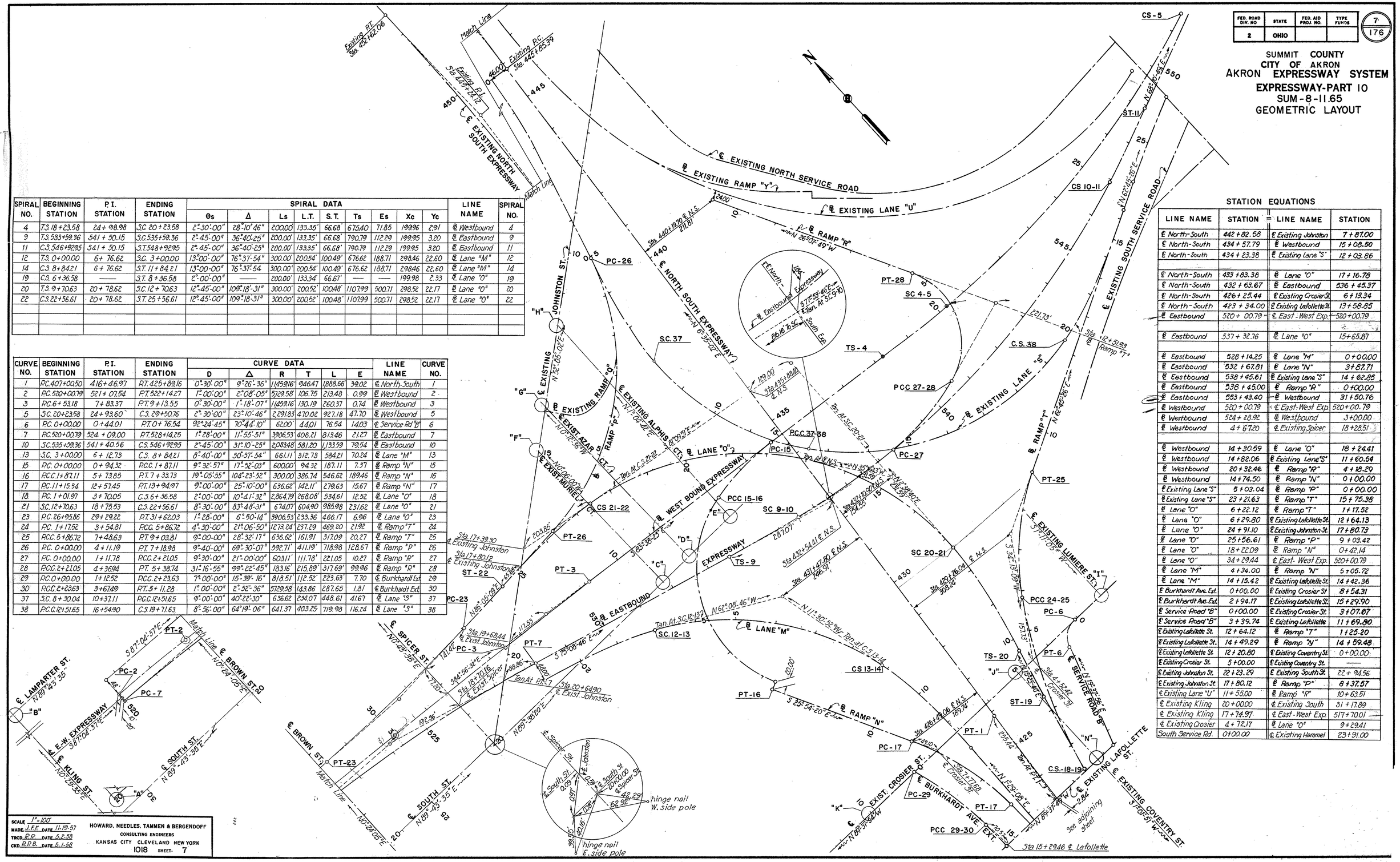
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
GEOMETRIC LAYOUT

SPIRAL NO.	BEGINNING STATION	P.I. STATION	ENDING STATION	SPIRAL DATA									LINE NAME	SPIRAL NO.
				θs	Δ	Ls	L.T.	S.T.	Ts	Es	Xc	Yc		
4	T.S. 18+23.58	24+ 08.98	S.C. 20+23.58	2°-30'-00"	28°-10'-46"	200.00'	133.35'	66.68	67.540	11.85	199.96	2.91	℄ Westbound	4
9	T.S. 533+59.36	541 + 50.15	S.C. 535+59.36	2°-45'-00"	36°-40'-25"	200.00'	133.35'	66.68'	790.79	112.29	199.95	3.20	℄ Eastbound	9
11	C.S. 546+92.95	541 + 50.15	S.T. 548+92.95	2°-45'-00"	36°-40'-25"	200.00'	133.35'	66.68'	790.79	112.29	199.95	3.20	℄ Eastbound	11
12	T.S. 0+00.00	6+ 76.62	S.C. 3+00.00	13°-00'-00"	76°-37'-54"	300.00'	200.54'	100.49'	676.62	188.71	298.46	22.60	℄ Lane "M"	12
14	C.S. 8+84.21	6+ 76.62	S.T. 11+84.21	13°-00-00"	76°-37'-54	300.00'	200.54'	100.49'	676.62	188.71	298.46	22.60	℄ Lane "M"	14
19	C.S. 6+36.58	——	S.T. 8+36.58	2°-00'-00"	——	200.00'	133.34'	66.67'	——	——	199.98	2.33	℄ Lane "O"	19
20	T.S. 9+70.63	20+ 78.62	S.C. 12+70.63	12°-45'-00"	109°-18'-31"	300.00'	200.52'	100.48'	1107.99	500.71	298.52	22.17	℄ Lane "O"	20
22	C.S. 22+56.61	20+ 78.62	S.T. 25+56.61	12°-45'-00"	109°-18'-31"	300.00'	200.52'	100.48'	1107.99	500.71	298.52	22.17	℄ Lane "O"	22

CURVE NO.	BEGINNING STATION	P.I. STATION	ENDING STATION	CURVE DATA						LINE NAME	CURVE NO.
				D	Δ	R	T	L	E		
1	P.C. 407+00.50	416+46.97	P.T. 425+89.16	0°-30'-00"	9°-26'-36"	11,459.16'	946.47	1888.66'	39.02	℄ North-South	1
2	P.C. 520+00.79	521+ 07.54	P.T. 522+14.27	1°-00'-00"	2°-08'-05"	5729.58'	106.75	213.48	0.99	℄ Westbound	2
3	P.C. 6+ 53.18	7+ 83.37	P.T. 9+13.55	0°-30'-00"	1°-18'-07"	11,459.16'	130.19	260.37	0.74	℄ Westbound	3
5	S.C. 20+23.58	24+ 93.60	C.S. 29+50.76	2°-30'-00"	23°-10'-46"	2,291.83'	470.02	927.18	47.70	℄ Westbound	5
6	P.C. 0+00.00	0+44.01	P.T. 0+ 76.54	92°-24'-45"	70°-44'-10"	62.00'	44.01	76.54	14.03	℄ Service Rd "B"	6
7	P.C. 520+00.79	524 + 09.00	P.T. 528+14.25	1°-28'-00"	11°-55'-51"	3906.53'	408.21	813.46	21.27	℄ Eastbound	7
10	S.C. 535+59.36	541 + 40.56	C.S. 546+92.95	2°-45'-00"	31°-10'-25"	2,083.48'	581.20	1,133.59	79.54	℄ Eastbound	10
13	S.C. 3+00.00	6+ 12.73	C.S. 8+ 84.21	8°-40'-00"	50°-37'-54"	661.11'	312.73	584.21	70.24	℄ Lane "M"	13
15	P.C. 0+00.00	0+ 94.32	P.C.C. 1+ 87.11	9°-32'-57"	17°-52'-03"	600.00'	94.32	187.11	7.37	℄ Ramp "N"	15
16	P.C.C. 1+87.11	5+ 73.85	P.T. 7+ 33.73	19°-05'-55"	104°-23'-52"	300.00'	386.74	546.62	189.46	℄ Ramp "N"	16
17	P.C. 11+15.34	12+ 57.45	P.T. 13+ 94.97	9°-00'-00"	25°-10'-00"	636.62'	142.11'	279.63	15.67	℄ Ramp "N"	17
18	P.C. 1+01.97	3+ 70.05	C.S. 6+ 36.58	2°-00'-00"	10°-21'-32"	2,864.79	268.08	534.61	12.52	℄ Lane "O"	18
21	S.C. 12+70.63	18+ 15.53	C.S. 22+56.61	8°-30'-00"	83°-48'-31"	674.07'	604.90	985.98	231.62	℄ Lane "O"	21
23	P.C. 26+95.86	29+ 29.22	P.T. 31+ 62.03	1°-28'-00"	6°-50'-14"	3906.53'	233.36	466.17	6.96	℄ Lane "O"	23
24	P.C. 1+17.52	3+ 54.81	P.C.C. 5+86.72	4°-30'-00"	21°-06'-50"	1273.24'	237.29	469.20	21.92	℄ Ramp "T"	24
25	P.C. 5+86.72	7+48.63	P.T. 9+ 03.81	9°-00'-00"	28°-32'-17"	636.62'	161.91	317.09	20.27	℄ Ramp "T"	25
26	P.C. 0+00.00	4+ 11.19	P.T. 7+ 18.98	9°-40'-00"	69°-30'-07"	592.71'	411.19'	718.98	128.67	℄ Ramp "P"	26
27	P.C. 0+00.00	1+ 11.78	P.C.C. 2+ 21.05	9°-30'-00"	21°-00'-00"	603.11'	111.78'	221.05	10.27	℄ Ramp "R"	27
28	P.C.C. 2+ 21.05	4+ 36.94	P.T. 5+ 38.74	31°-16'-55"	99°-22'-45"	183.16'	215.80'	317.69'	99.96	℄ Ramp "R"	28
29	P.C. 0+00.00	1+ 12.52	P.C.C. 2+ 23.63	7°-00'-00"	15°-39'-16"	818.51'	112.52'	223.63'	7.70	℄ Burkhardt Ext.	29
30	P.C.C. 2+ 23.63	3+ 67.49	P.T. 5+ 11.28	1°-00'-00"	2°-52'-36"	5729.58	143.86	287.65	1.81	℄ Burkhardt Ext.	30
37	S.C. 8+ 30.04	10+ 37.11	P.C.C. 12+ 51.65	9°-00'-00"	40°-22'-30"	636.62	234.07	448.61	41.67	℄ Lane "S"	37
38	P.C.C. 12+ 51.65	16+ 54.90	C.S. 19+ 71.63	8°-56'-00"	64°-19'-06"	641.37	403.25	719.98	116.24	℄ Lane "S"	38

STATION EQUATIONS

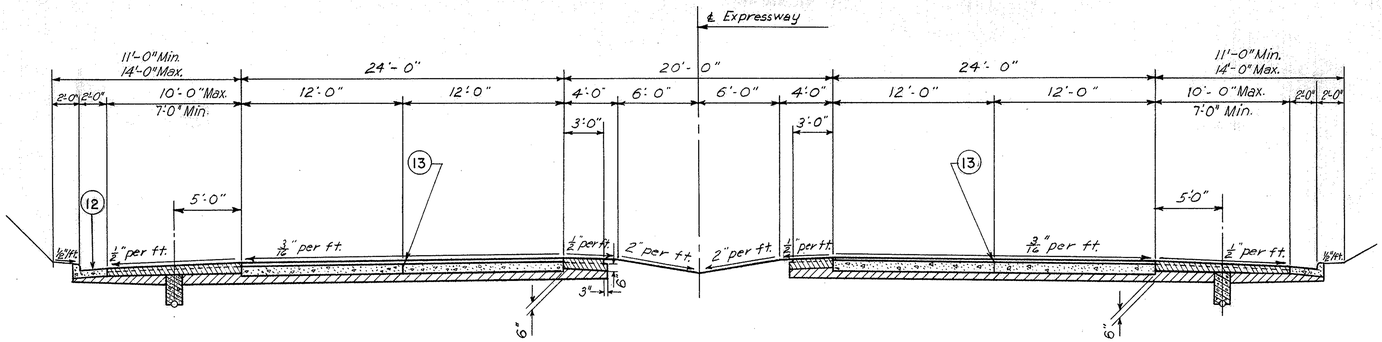
LINE NAME	STATION	=	LINE NAME	STATION
℄ North-South	442 + 82.58		℄ Existing Johnston	7 + 87.00
℄ North-South	434 + 57.79		℄ Westbound	15 + 08.50
℄ North-South	434 + 23.38		℄ Existing Lane "S"	12 + 03.86
℄ North-South	433 + 83.38		℄ Lane "O"	17 + 16.78
℄ North-South	432 + 63.67		℄ Eastbound	536 + 45.37
℄ North-South	426 + 25.44		℄ Existing Crosier St.	6 + 13.34
℄ North-South	423 + 34.00		℄ Existing Lafollette St.	13 + 58.85
℄ Eastbound	520 + 00.79	=	℄ East - West Exp.	520 + 00.79
℄ Eastbound	537 + 32.16		℄ Lane "O"	15 + 65.87
℄ Eastbound	528 + 14.25		℄ Lane "M"	0 + 00.00
℄ Eastbound	532 + 67.61		℄ Lane "N"	3 + 87.71
℄ Eastbound	538 + 45.61		℄ Existing Lane "S"	14 + 62.85
℄ Eastbound	538 + 45.00		℄ Ramp "R"	0 + 00.00
℄ Eastbound	553 + 43.40		℄ Westbound	31 + 60.76
℄ Westbound	520 + 00.79	=	℄ East-West Exp.	520 + 00.79
℄ Westbound	524 + 28.92		℄ Westbound	3 + 00.00
℄ Westbound	4 + 67.20		℄ Existing Spicer	18 + 28.51
℄ Westbound	14 + 30.59		℄ Lane "O"	18 + 24.41
℄ Westbound	14 + 82.06		℄ Existing Lane "S"	11 + 60.54
℄ Westbound	20 + 32.46		℄ Ramp "R"	4 + 18.29
℄ Westbound	14 + 74.50		℄ Ramp "N"	0 + 00.00
℄ Existing Lane "S"	5 + 03.04		℄ Ramp "P"	0 + 00.00
℄ Existing Lane "S"	23 + 21.63		℄ Ramp "T"	15 + 75.38
℄ Lane "O"	6 + 22.12		℄ Ramp "T"	1 + 17.52
℄ Lane "O"	6 + 29.80		℄ Existing Lafollette St.	12 + 64.13
℄ Lane "O"	24 + 91.10		℄ Existing Johnston St.	17 + 80.73
℄ Lane "O"	25 + 56.61		℄ Ramp "P"	9 + 03.42
℄ Lane "O"	18 + 22.09		℄ Ramp "N"	0 + 42.14
℄ Lane "O"	34 + 29.44		℄ East - West Exp.	520 + 00.79
℄ Lane "M"	4 + 34.00		℄ Ramp "N"	5 + 05.72
℄ Lane "M"	14 + 15.42		℄ Existing Lafollette St.	14 + 42.36
℄ Burkhardt Ave. Ext.	0 + 00.00		℄ Existing Crosier St.	8 + 54.31
℄ Burkhardt Ave. Ext.	2 + 94.17		℄ Existing Lafollette St.	15 + 29.90
℄ Service Road "B"	0 + 00.00		℄ Existing Crosier St.	3 + 07.67
℄ Service Road "B"	3 + 39.74		℄ Existing Lafollette	11 + 69.80
℄ Existing Lafollette St.	12 + 64.12		℄ Ramp "T"	1 + 25.20
℄ Existing Lafollette St.	14 + 49.29		℄ Ramp "N"	14 + 59.48
℄ Existing Lafollette St.	12 + 20.80		℄ Existing Coventry St.	0 + 00.00
℄ Existing Crosier St.	5 + 00.00		℄ Existing Coventry St.	——
℄ Existing Johnston St.	22 + 23.29		℄ Existing South St.	22 + 94.56
℄ Existing Johnston St.	17 + 80.12		℄ Ramp "P"	8 + 37.57
℄ Existing Lane "U"	11 + 55.00		℄ Ramp "R"	10 + 63.51
℄ Existing Kling	20 + 00.00		℄ Existing South	31 + 17.89
℄ Existing Kling	17 + 14.97		℄ East - West Exp.	517 + 70.01
℄ Existing Crosier	4 + 72.17		℄ Lane "O"	9 + 29.41
South Service Rd.	0 + 00.00		℄ Existing Hammel	23 + 91.00


Existing P.T. Sta. 452+62.06
Match Line
Existing P.C. Sta. 445+65.39
Existing P.T. Sta. 447+24.12
℄ EXISTING NORTH SOUTH EXPRESSWAY
℄ EXISTING NORTH SERVICE ROAD
℄ EXISTING RAMP "Y"
℄ EXISTING LANE "U"
℄ RAMP "R"
℄ EXISTING SOUTH SERVICE ROAD
℄ NORTH SOUTH EXPRESSWAY
℄ EXISTING RAMP "O"
℄ EXISTING ALPHIS CT.
℄ EXIST. AZAR CT.
℄ EXIST. MURIEL CT.
℄ WEST BOUND EXPRESSWAY
℄ EASTBOUND EXPRESSWAY
℄ LANE "O"
℄ LANE "M"
℄ RAMP "T"
℄ RAMP "N"
℄ EXISTING LUMIERE ST.
℄ EXISTING LAFOLLETTE ST.
℄ EXISTING COVENTRY ST.
℄ BURKHARDT AVE. EXT.
℄ EXIST. CROSIER ST.
℄ SPICER ST.
℄ BROWN ST.
℄ SOUTH ST.
℄ LAMPARTER ST.
℄ E-W EXPRESSWAY
℄ KLING ST.
℄ JOHNSTON ST.
℄ EASTBOUND EXPRESSWAY
JOHNSTON ST.
SERVICE ROAD "B"
JOHNSTON ST.
Ramp "T"
Ramp "P"
Ramp "N"
Ramp "R"
Ramp "O"
Ramp "Y"
Ramp "U"
Ramp "M"
Ramp "S"
Ramp "T"
Ramp "N"
Ramp "P

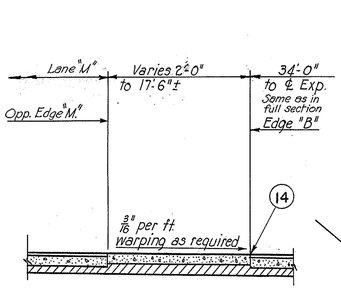
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	8
2	OHIO			176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM-8-11.65
TYPICAL EXPRESSWAY
CROSS SECTIONS

TYPE T-35 ON B-70

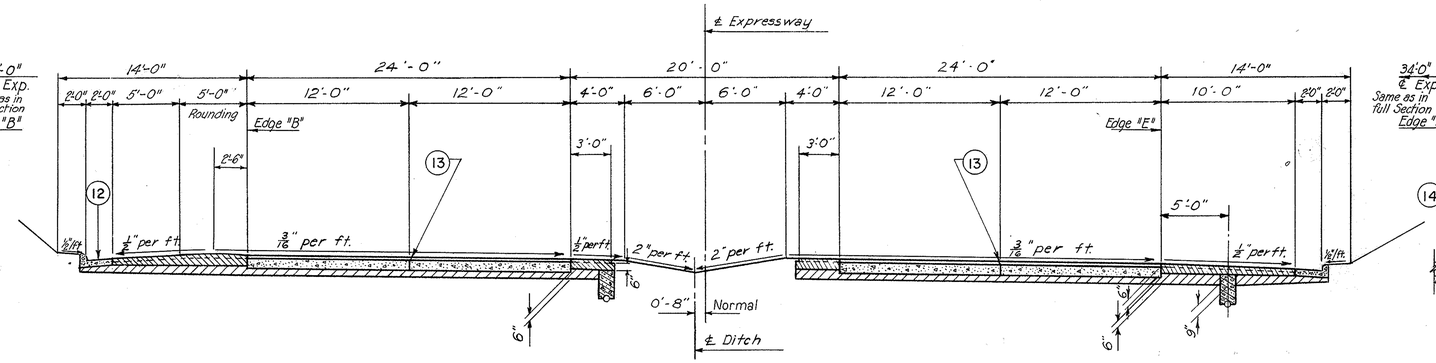


FULL SECTION N.S. EXPRESSWAY STA. 425+00.00 TO STA. 443+23.54 = 1823.54 LIN. FT.
RIGHT HALF ONLY N.S. EXPRESSWAY STA. 443+23.54 TO STA. 445+85.39 = 261.85 LIN. FT.

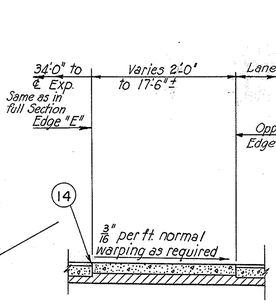


PARTIAL SECTION

LEFT SIDE N.S. EXPRESSWAY
STA. 417+83.28 TO STA. 421+92.52

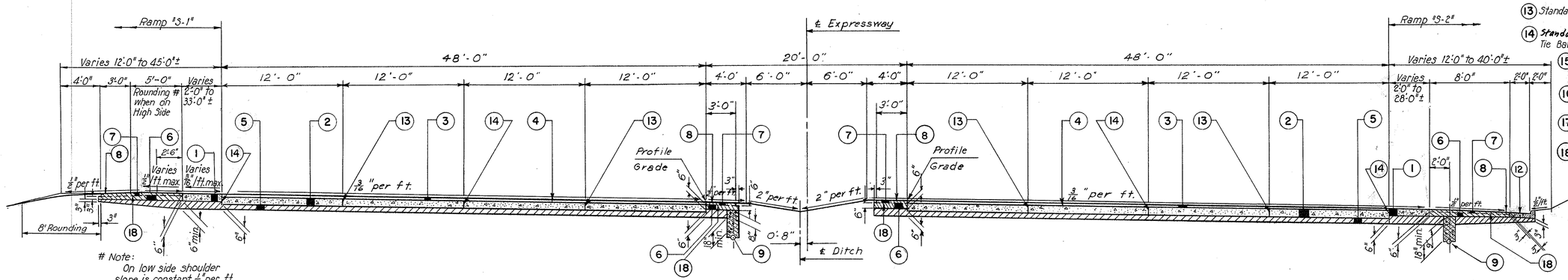


RIGHT HALF ONLY N.S. EXPRESSWAY STA. 421+76.43 TO STA. 421+92.52 = 16.09 LIN. FT.
FULL SECTION N.S. EXPRESSWAY STA. 421+92.52 TO STA. 425+00.00 = 307.48 LIN. FT.



PARTIAL SECTION

RIGHT SIDE N.S. EXPRESSWAY
STA. 419+33.66 TO STA. 421+76.43



Note:
On low side shoulder slope is constant 1/2" per ft. away from pavement edge.
In addition, 1-22 Subbase shall be sloped to drain to underdrain. For underdrain location see right side this section and Drainage sheet #26

LEFT HALF ONLY N.S. EXPRESSWAY STA. 412+64.00 TO STA. 413+47.16 = 83.16 LIN. FT.
FULL SECTION N.S. EXPRESSWAY STA. 413+47.16 TO STA. 415+69.50 = 222.34 LIN. FT.
RIGHT HALF ONLY N.S. EXPRESSWAY STA. 415+69.50 TO STA. 418+12.83 = 243.33 LIN. FT.

GENERAL NOTES

For treatment of sideslopes, see earthwork sections and grading plans.

For limits of guardrails, see Pavement Detail Sheets.

For limits of underdrains, see drainage plans.

For paved shoulder width transitions see Pavement Detail Sheets.

Unless otherwise noted, dimensions and/or callouts for materials as shown in bottom section apply to all sections.

LEGEND

(1) Item T-71 9" Reinforced Portland Cement Concrete Pavement

(2) Item B-70 9" Portland Cement Concrete Base Course.

(3) 3" Asphaltic Concrete Consisting of Item T-35, 1 1/2" Asphaltic Concrete Surface Course, Type "C" and Item B-35, 1 1/2" Asphaltic Concrete Leveling Course (60-70)

(4) Item T-30, Bituminous Tack Coat: Sec. M-5.5, MS-2 or RS-1; or Sec. M 5.2 RC-1 or RC-2; as per Sec. T-30.02, applied at the rate of 0.10 gal. per Sq. Yd.

(5) Item I-22, Subbase

(6) Item 1-18, Stabilized Crushed Aggregate Shoulders and Approaches.

(7) Item B-219 Waterproofed Aggregate Base Course, Type B, 3" Thick.

(8) Item T-31, Bituminous Surface Treatment, using #6 aggregate meeting the requirements of Sec. M-3.1 or M-3.6. Rate of application 0.25 gal./sq. yd., Aggregate .005 cu. yd./sq. yd.

(9) Item I-4, Underdrain

(10) Item I-12, Standard Type 2-A Curb

(11) Item I-12, Standard Type 6 Curb

(12) Item I-12, Standard Type 2 Curb and Gutter

(13) Standard Longitudinal Joint.

(14) Standard Longitudinal Key Joint without Tie Bars. *

(15) Item I-12, Type 2 Modified Curb and Gutter.

(16) Item I-13, 4" Portland Cement Concrete Sidewalk.

(17) Item T-70 9" Portland Cement Concrete Pavement

(18) Item T-30, Bituminous Prime Coat: Sec. M-5.3, MC-0 or MC-1; or Sec. M-5.7, RT-2 or RT-3, applied at the rate of 0.35 gal. per Sq. Yd.

* NOTE: Key shall be centered in area of contact between items B-70 and T-71 where this joint is specified between these two items.

SCALE 3/16" = 1'-0"
MADE K.L.M. DATE 10-16-57
TRCD. R.R. DATE 5-15-58
CKD H.H.B. DATE 5-22-58

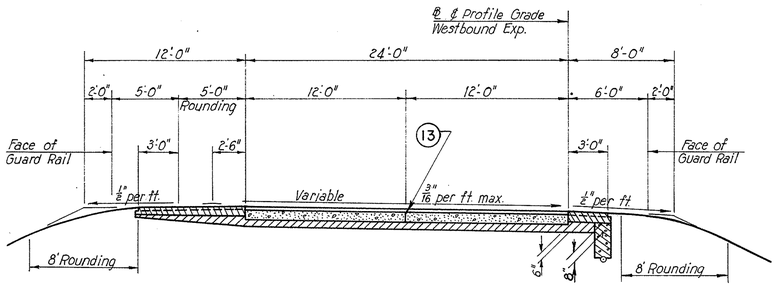
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 8

TYPE T-35 ON B-70

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

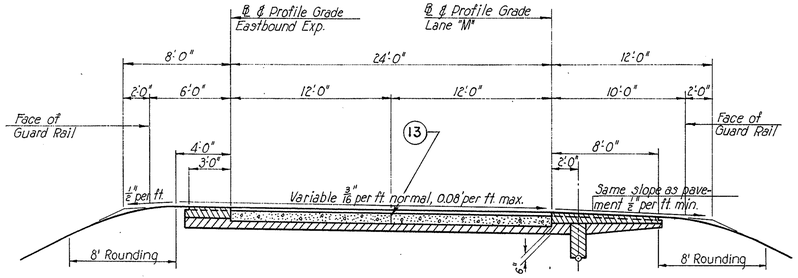
9
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM 8-11.65
TYPICAL EXPRESSWAY
AND LANE
CROSS SECTIONS



WESTBOUND EXPRESSWAY - STA. 8+65.00 TO STA. 12+40.30 = 375.30 LIN. FT.
WESTBOUND EXPRESSWAY - STA. 16+45.50 TO STA. 18+25.00 = 179.50 LIN. FT.

Note:
Sta. 12+40.30 to Sta. 16+45.50
W.B. Expressway Bridge #6.



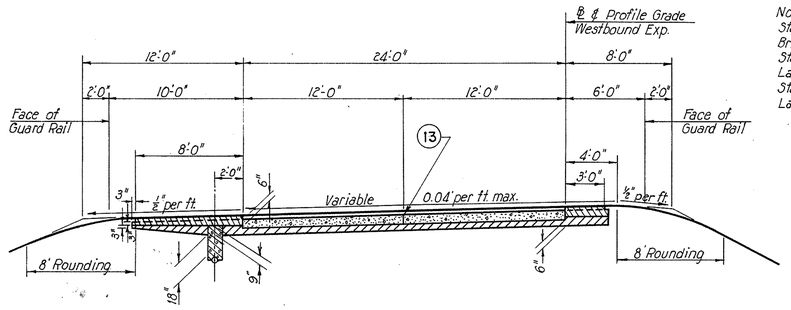
EASTBOUND EXPRESSWAY - STA. 528+90.00 TO 533+50.00 = 460.00 LIN. FT.
LANE "M" - STA. 0+00.00 TO STA. 17+50.00 = 1750.00 LIN. FT.
LANE "O" - STA. 1+01.97 TO STA. 8+75.00 = 773.03 LIN. FT.

GENERAL NOTES

For treatment of side slopes, see earthwork sections and grading plans.
For treatment of the expressway system, involving grading only and west of the limits shown by the typical sections, see cross sections.
For limits of guardrail, see Pavement Detail Sheets.
For limits of underdrains, see drainage plans.
Unless otherwise noted, dimensions and/or callouts shown on bottom section shall apply to all sections on this sheet.

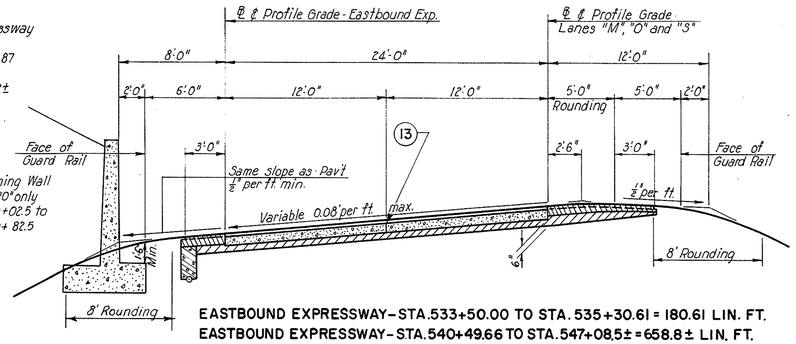
LEGEND

1. Item T-71 9" Reintorced Portland Cement Concrete Pavement.
2. Item B-70 9" Portland Cement Concrete Base Course.
3. 3" Asphaltic Concrete Consisting of Item T-35, 1 1/2" Asphaltic Concrete Surface Course, Type "C" and Item B-35, 1 1/2" Asphaltic Concrete Leveling Course (60-70)
4. Item T-30, Bituminous Tack Coat; Sec. M-5.5, MS-2 or RS-1; or Sec. M 5.2, RC-1 or RC-2; as per Sec. T-30.02, applied at the rate of 0.10 gal. per Sq. Yd.
5. Item I-22, Subbase.
6. Item I-18, Stabilized Crushed Aggregate Shoulders and Approaches.
7. Item B-219, Waterproofed Aggregate Base Course, Type B, 3" Thick.
8. Item T-31, Bituminous Surface Treatment, using #6 aggregate meeting the requirements of Sec. M-3.1 or M-3.6. Rate of application 0.25 gal./sq. yd., Aggregate .008 cu. yd./sq. yd.
9. Item I-4, Underdrain.
10. Item I-12, Standard Type 2-A Curb.
11. Item I-12, Standard Type 6 Curb.
12. Item I-12, Standard Type 2 Curb and Gutter.
13. Standard Longitudinal Joint
14. Standard Longitudinal Key Joint without Tie Bars.
15. Item I-12 - Type 2 Modified Curb and Gutter.
16. Item I-13 4" Portland Cement Concrete Sidewalk.
17. Item T-70 9" Portland Cement Concrete Pavement.
18. Item T-30 Bituminous Prime Coat; Sec. M-5.3, MC-0 or MC-1; or Sec. M 5.1, RT-2 or RT-3, applied at the rate of 0.35 gal. per Sq. Yd.

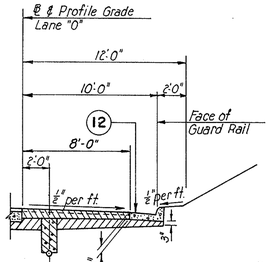


WESTBOUND EXPRESSWAY - STA. 18+25.00 TO STA. 25+07.62 = 682.62 LIN. FT.

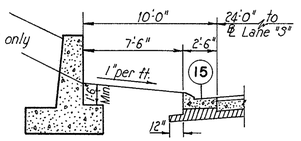
Note: Sta. 535+30.61 to Sta. 540+49.66 E.B. Expressway Bridge #5.
Sta. 10+96.49 to Sta. 12+99.87 Lane "S" Bridge #1
Sta. 16+14.78 to Sta. 18+12± Lane "O" Bridge #2.



EASTBOUND EXPRESSWAY - STA. 533+50.00 TO STA. 535+30.61 = 180.61 LIN. FT.
EASTBOUND EXPRESSWAY - STA. 540+49.66 TO STA. 547+08.5± = 658.8± LIN. FT.
LANE "M" - STA. 17+50.00 TO STA. 21+77.73 = 427.73 LIN. FT.
LANE "O" - STA. 8+75.00 TO STA. 16+14.35 = 739.35 LIN. FT.
LANE "O" - STA. 18+10.32 TO STA. 22+75.00 = 464.68 LIN. FT.
LANE "S" - STA. 9+25.00 TO STA. 10+96.49 = 171.49 LIN. FT.
LANE "S" - STA. 12+99.87 TO STA. 13+75.00 = 75.13 LIN. FT.

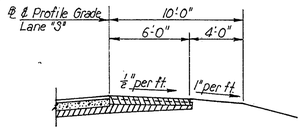


PARTIAL SECTION
LANE "O"
STA. 1+01.97 TO STA. 6+22.12
520.15 LIN. FT.



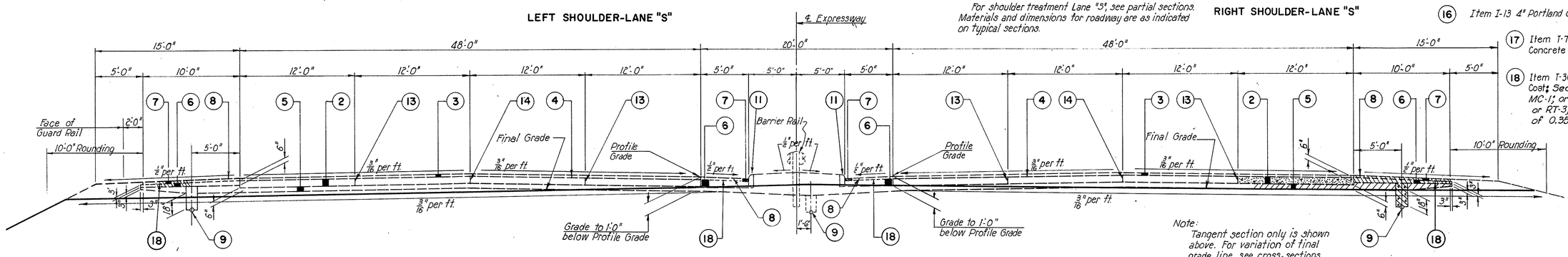
Retaining wall only
Sta. 16+75 to
Sta. 18+30

LEFT SHOULDER-LANE "S"



RIGHT SHOULDER-LANE "S"

Note:
For shoulder treatment Lane "S", see partial sections. Materials and dimensions for roadway are as indicated on typical sections.



EAST-WEST EXPRESSWAY
(GRADING ONLY)

Note:
Tangent section only is shown above. For variation of final grade line, see cross-sections.

SCALE 3/16" = 1'-0"
MADE K.L.M. DATE 10-22-57
TRCD. R.R. DATE 4-16-58
CKD. H.H.B. DATE 5-22-58

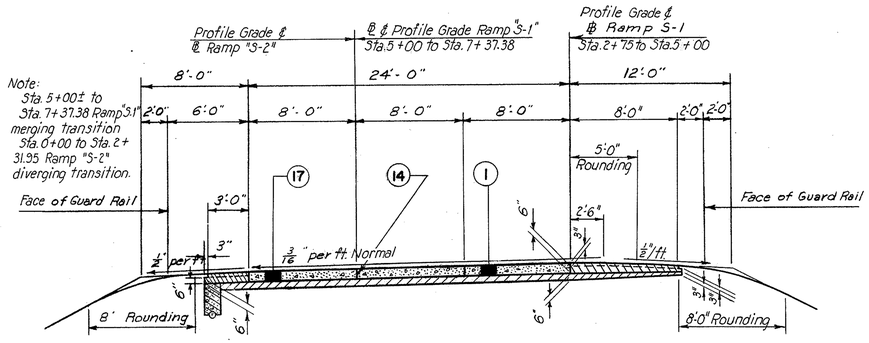
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 9

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	10
2	OHIO			176

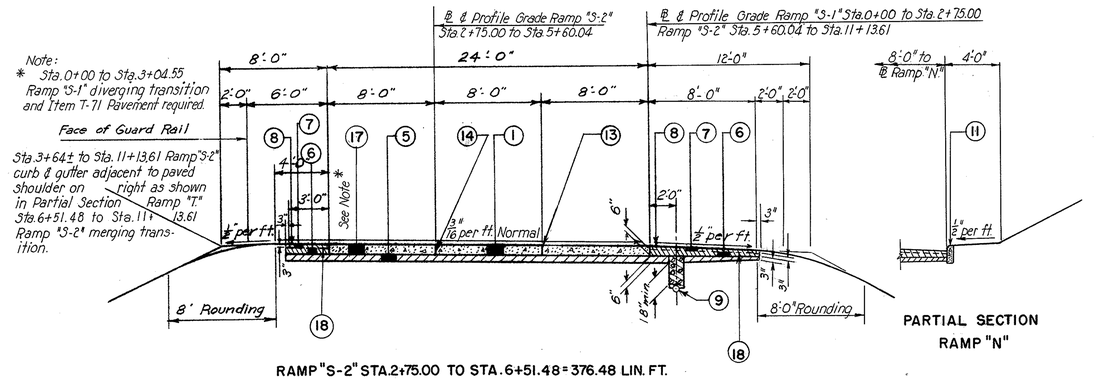
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM-8-11.65

TYPE T-71

TYPICAL RAMP & STREET CROSS SECTIONS



RAMP "S-1" STA. 3+04.55 TO STA. 5+00 = 195.45 LIN. FT.
RAMP "S-2" STA. 2+31.95 TO STA. 2+75.00 = 43.05 LIN. FT.

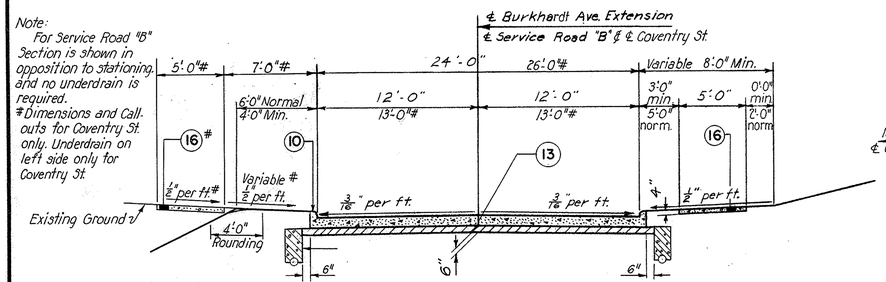


RAMP "S-2" STA. 2+75.00 TO STA. 6+51.48 = 376.48 LIN. FT.

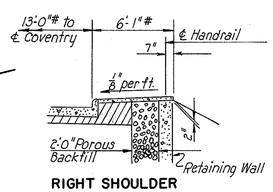
PARTIAL SECTION
RAMP "N"

GENERAL NOTES:

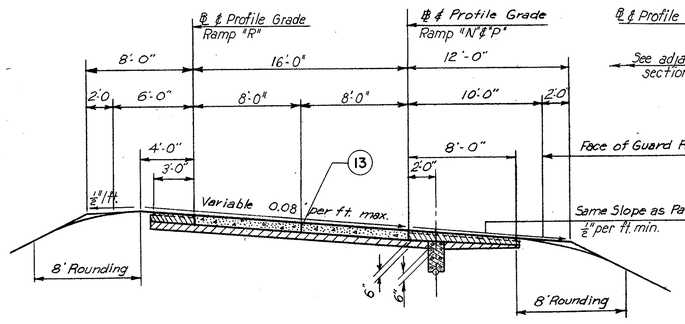
For treatment of side slopes, see earthwork sections and grading plans.
For limits of guardrail, see Pavement Detail sheets.
For limits of underdrains, see drainage plans.
Unless otherwise noted, dimensions and/or callouts for materials as shown for upper right section also apply to remaining sections on this sheet.
For paved shoulder width transitions, see Pavement Detail sheets.



BURKHARDT AVE. EXTENSION STA. 0+00 TO STA. 19+26.57 = 1926.57 LIN. FT.
SERVICE ROAD "B" STA. 0+00 TO STA. 3+39.74 = 339.74 LIN. FT.
COVENTRY STREET STA. 0+37± TO STA. 2+28.0 = 191± LIN. FT.



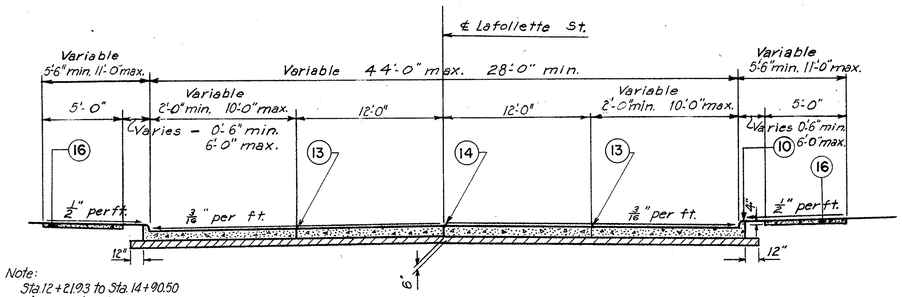
RIGHT SHOULDER
COVENTRY STREET



RAMP "N" STA. 10+37.50 TO STA. 12+80± = 243± LIN. FT.
RAMP "P" STA. 3+54.91 TO STA. 6+23± = 268± LIN. FT.
RAMP "R" STA. 6+75.00 TO STA. 8+68.28 = 193.28 LIN. FT.

PARTIAL SECTION
RAMP "T"
STA. 4+35± TO STA. 12+85 = 815 LIN. FT.

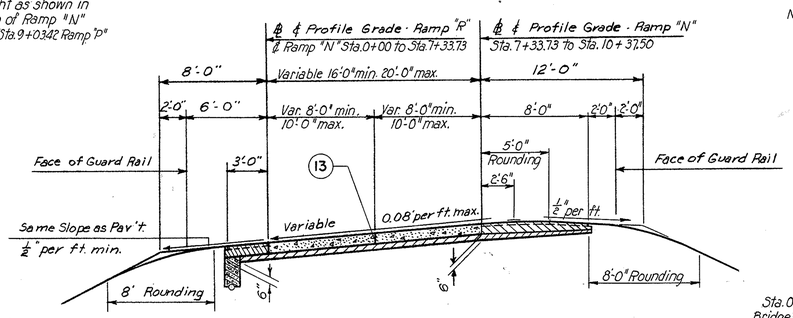
Note: Sta.12+80± to Sta.16+38.10 Ramp "N" merging transition Sta.9+50 to Sta.13+50 Ramp "N" Type 6 curb adjacent to paved shoulder on right as shown in Partial Section of Ramp "N" Sta.6+23.0± to Sta.9+03.42 Ramp "P" future work.



Note: Sta.12+21.93 to Sta.14+90.50 Lafollette St. Bridge #3.

LAFOLLETTE STREET STA. 10+77± TO STA. 12+21.93 = 145± LIN. FT.
LAFOLLETTE STREET STA. 14+90.50 TO STA. 16+18± = 128 ± LIN. FT.

Note: Sta.0+00 to Sta.2+10± Ramp "N" Diverging transition and Bridge #6 Sta.3+02.53 to Sta.5+92.73 Ramp "N" Bridge #7.



RAMP "N" STA. 2+10± TO STA. 3+02.53 = 93± LIN. FT.
RAMP "N" STA. 5+92.73 TO STA. 10+37.50 = 444.77 LIN. FT.
RAMP "R" STA. 2+37± TO STA. 3+39.61 = 102.61 LIN. FT.
RAMP "R" STA. 5+24.50 TO STA. 6+75.00 = 150.50 LIN. FT.

Note: Sta.1+17.52 to Sta.4+35± Ramp "T" diverging transition. Sta.12+85± to Sta.15+75.38 Ramp "T" merging transition.

Sta.0+00 to Sta.2+37± Ramp "R" Bridge #5 and diverging transition. Sta.3+39.61 to Sta.5+24.50 Ramp "R" Bridge #4.

LEGEND

(1) Item T-71 9" Reinforced Portland Cement Concrete Pavement.
(2) Item B-70 9" Portland Cement Concrete Base Course.
(3) 3" Asphaltic Concrete Consisting of Item T-35, 1½" Asphaltic Concrete Surface Course, Type "C" and Item B-35, 1½" Asphaltic Concrete Leveling Course (60-70)
(4) Item T-30, Bituminous Tack Coat: Sec. M-5.5, M5-2 or RS-1; or Sec. M 5.2, RC-1 or RC-2; as per Sec. T-30.02, applied at the rate of 0.10 gal. per Sq. Yd.
(5) Item I-22, Subbase.
(6) Item I-18, Stabilized Crushed Aggregate Shoulders and Approaches.
(7) Item B-219 Waterproofed Aggregate Base Course, Type B, 3" Thick.
(8) Item T-31, Bituminous Surface Treatment, using "6 aggregate meeting the requirements of Sec. M-3.1 or M-3.6. Rate of application 0.25 gal./sq. yd. Aggregate .008 cu.yd./sq. yd.
(9) Item I-4, Underdrain.
(10) Item I-12, Standard Type 2-A Curb.
(11) Item I-12, Standard Type 6 Curb.
(12) Item I-12, Standard Type 2 Curb and Gutter.
(13) Standard Longitudinal Joint.
(14) Standard Longitudinal Key Joint without Tie Bars.
(15) Item I-12 Type 2 Modified Curb and Gutter.
(16) Item I-13, 4" Portland Cement Concrete Pavement.
(17) Item T-10 9" Portland Cement Concrete Pavement.
(18) Item T-30, Bituminous Prime Coat: Sec. M-5.3 MC-0 or MC-1; or Sec. M 5.7, RT-2 or RT-3, applied at the rate of 0.35 gal. per Sq. Yd.

SCALE 3/16" = 1'-0"
MADE K.L.M. DATE 10-17-57
TRCD R.R. DATE 5-15-58
CKD H.H.B. DATE 5-22-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

1018 SHEET 10

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

11
176

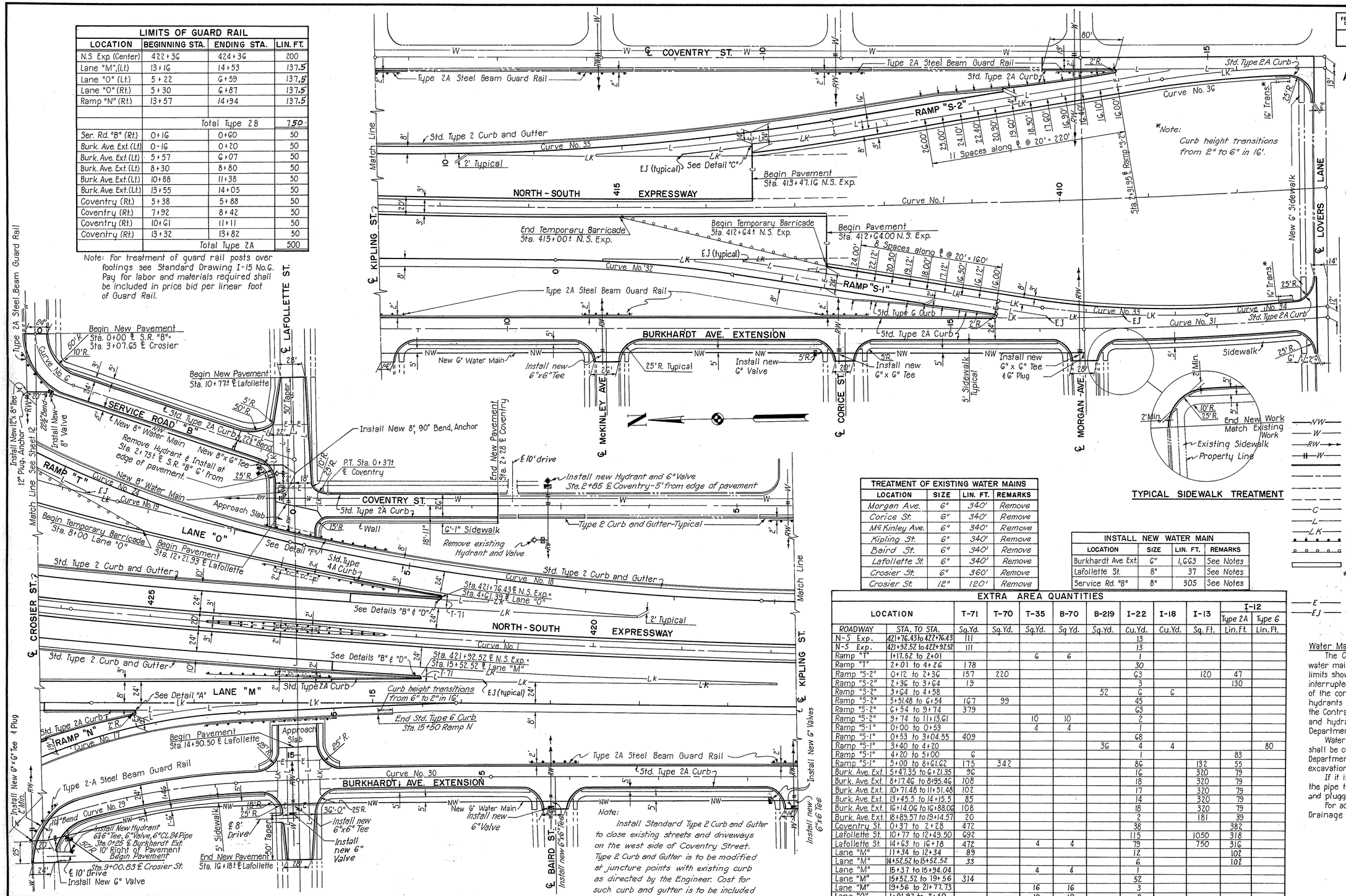
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM-8-11.65

PAVEMENT DETAILS

LIMITS OF GUARD RAIL			
LOCATION	BEGINNING STA.	ENDING STA.	LIN. FT.
N.S. Exp. (Center)	422+36	424+36	200
Lane "M" (Lt.)	13+16	14+53	137.5
Lane "O" (Lt.)	5+22	6+59	137.5
Lane "O" (Rt.)	5+30	6+87	137.5
Ramp "N" (Rt.)	13+57	14+94	137.5
		Total Type 2B	750
Ser. Rd. "B" (Rt.)	0+16	0+60	50
Burk. Ave. Ext. (Lt.)	0-16	0+20	50
Burk. Ave. Ext. (Lt.)	5+57	6+07	50
Burk. Ave. Ext. (Lt.)	8+30	8+80	50
Burk. Ave. Ext. (Lt.)	10+88	11+38	50
Burk. Ave. Ext. (Lt.)	13+55	14+05	50
Coventry (Rt.)	5+38	5+88	50
Coventry (Rt.)	7+92	8+42	50
Coventry (Rt.)	10+61	11+11	50
Coventry (Rt.)	13+32	13+82	50
		Total Type 2A	500

Note: For treatment of guard rail posts over footings see Standard Drawing I-15 No.6. Pay for labor and materials required shall be included in price bid per linear foot of Guard Rail.



Notes:
For joint locations see Typical Sections and Miscellaneous Details, sheets 8, 9, 10, and 22.
For Details "A", "B", "D" and "G", see sheet 22.
For Geometrics, see Geometric Layout Sheets 6 and 7.
For joint treatment at Ramp "S-2" and North-South Expressway Nose, see Detail "C", sheet 22.
For additional utility information see Drainage Plans sheets 26, 27, 28, 29 and 30.
New construction shall match adjoining sidewalks, curbs, and street surfaces of existing streets as shown by the plans. Necessary adjustments may be made as directed by the Engineer.

TYPICAL SIDEWALK TREATMENT

LEGEND

- NW — New Water Main
- W — Existing Water Main
- RW → Remove Existing Water Main
- ‖ W — Cut and Plug (by others)
- New Pavement Edge or Curb Line
- Base Line or Center Line
- Existing Pavement Edge or Curb Line
- Future Pavement Edge or Curb Line
- C — Std. Construction Joint
- L — Std. Longitudinal Joint
- LK — Std. Longitudinal Key Joint without tie bars
- Guard Rail*
- Item I-15 Temporary Guard Rail (by others)
- Paved Shoulder-See Typical Sections
- *Steel Beam Standard Type (Deep) as per Standard Drawing I-15 No. 2-B unless otherwise noted.
- E — Std. Expansion Joint
- EJ — Std. Expansion Joint without dowels

TREATMENT OF EXISTING WATER MAINS			
LOCATION	SIZE	LIN. FT.	REMARKS
Morgan Ave.	6"	340'	Remove
Corice St.	6"	340'	Remove
McKinley Ave.	6"	340'	Remove
Kipling St.	6"	340'	Remove
Baird St.	6"	340'	Remove
Lafollette St.	6"	340'	Remove
Crosier St.	6"	360'	Remove
Crosier St.	12"	120'	Remove

INSTALL NEW WATER MAIN			
LOCATION	SIZE	LIN. FT.	REMARKS
Burkhardt Ave. Ext.	6"	1,663	See Notes
Lafollette St.	8"	37	See Notes
Service Rd. "B"	8"	305	See Notes

Water Main Notes:
The Contractor shall install the new 6" & 8" water mains and the new hydrants, within the limits shown on this sheet, before service is interrupted in existing mains. Upon completion of the connections of the new mains and hydrants by the City of Akron Water Department, the Contractor shall remove the existing mains and hydrants and haul them to the Water Department Store Yard for storage.
Water mains to be abandoned by the City shall be cut and plugged by the City Water Department at limits shown. Necessary excavation shall be done by the Contractor.
If it is necessary to remove a section of the pipe to be abandoned, it shall be cut and plugged 3'-0" from the final grade.
For additional utility information see Drainage Plans.

Note:
Install Standard Type 2 Curb and Gutter to close existing streets and driveways on the west side of Coventry Street. Type 2 Curb and Gutter is to be modified at juncture points with existing curb as directed by the Engineer. Cost for such curb and gutter is to be included in the price bid per linear foot for Standard Type 2 Curb and Gutter.

EXTRA AREA QUANTITIES											
LOCATION		T-71	T-70	T-35	B-70	B-219	I-22	I-18	I-13	I-12	
										Type 2A	Type 6
ROADWAY	STA. TO STA.	Sq.Yd.	Sq.Yd.	Sq.Yd.	Sq.Yd.	Sq.Yd.	Cu.Yd.	Cu.Yd.	Sq. Ft.	Lin.Ft.	Lin.Ft.
N-S Exp.	421+76.43 to 422+76.43	111					13				
N-S Exp.	421+92.52 to 422+92.52	111					13				
Ramp "T"	1+17.52 to 2+01			6	6		1				
Ramp "T"	2+01 to 4+26	178					30				
Ramp "S-2"	0+12 to 2+36	157	220				63		120	47	
Ramp "S-2"	2+36 to 3+64	19					3			130	
Ramp "S-2"	3+64 to 4+58					52	6	6			
Ramp "S-2"	5+51.48 to 6+54	167	99				45				
Ramp "S-2"	6+54 to 9+74	379					63				
Ramp "S-2"	9+74 to 11+13.61			10	10		2				
Ramp "S-1"	0+00 to 0+53			4	4		1				
Ramp "S-1"	0+53 to 3+04.55	409					68				
Ramp "S-1"	3+40 to 4+20					36	4	4			80
Ramp "S-1"	4+20 to 5+00	6					1		83		
Ramp "S-1"	5+00 to 8+61.62	175	342				86		132	55	
Burk. Ave. Ext.	5+47.35 to 6+21.35	96					16		320	79	
Burk. Ave. Ext.	8+17.46 to 8+95.46	108					18		320	79	
Burk. Ave. Ext.	10+71.48 to 11+51.48	102					17		320	79	
Burk. Ave. Ext.	13+45.5 to 14+15.5	85					14		320	79	
Burk. Ave. Ext.	16+14.06 to 16+88.06	108					18		320	79	
Burk. Ave. Ext.	18+89.57 to 19+14.57	20					2		181	39	
Coventry St.	0+37 to 2+28	472					38			382	
Lafollette St.	10+77 to 12+49.50	692					115		1050	318	
Lafollette St.	14+63 to 16+18	472		4	4		79		750	316	
Lane "M"	11+34 to 12+34	89					12			102	
Lane "M"	14+52.52 to 15+52.52	33					6			102	
Lane "M"	15+37 to 15+94.04			4	4		1				
Lane "M"	15+52.52 to 19+56	314					52				
Lane "M"	19+56 to 21+77.73			16	16		3				
Lane "O"	1+01.97 to 2+40			10	10		2				
Lane "O"	2+40 to 4+61.39	175					29				
Lane "O"	4+61.39 to 5+61.39	33					6				
Ramp "N"	11+78 to 12+78	535					89			103	
	TOTALS	4,576	661	54	54	88	916	10	3833	2072	80

SCALE 1" = 50'
MADE CEG 8MD DATE 5-21-58
TRCD. JVR DATE 5-22-58
CKD. H.H.B. DATE 5-23-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 11

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

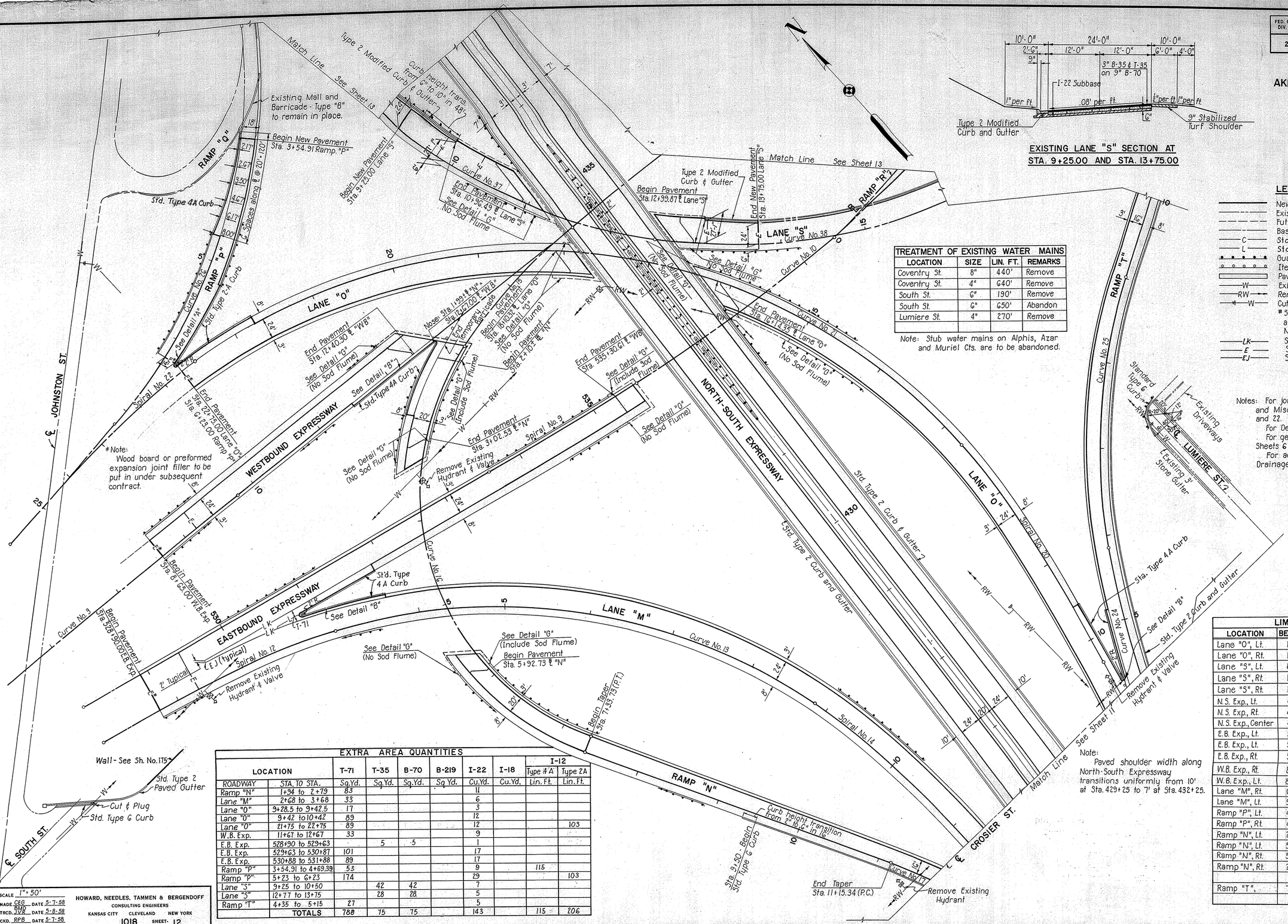
12
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65

PAVEMENT DETAILS

EXISTING LANE "S" SECTION AT STA. 9+25.00 AND STA. 13+75.00



*Note:
Wood board or preformed expansion joint filler to be put in under subsequent contract.

TREATMENT OF EXISTING WATER MAINS			
LOCATION	SIZE	LIN. FT.	REMARKS
Coventry St.	8"	440'	Remove
Coventry St.	4"	640'	Remove
South St.	6"	190'	Remove
South St.	6"	650'	Abandon
Lumiere St.	4"	270'	Remove

Note: Stub water mains on Alphis, Azar and Muriel Cts. are to be abandoned.

LEGEND

- New Pavement Edge or Curb Line
- Existing Pavement Edge or Curb Line
- Future Pavement Edge or Curb Line
- Base Line or Center Line
- C — Std. Construction Joint
- L — Std. Longitudinal Joint
- Guard Rail *
- Item I-15 Temporary Guard Rail
- Paved Shoulder - See Typical Sections
- W — Existing Water Main
- RW — Remove Existing Water Main
- W — Cut and Plug (by others)
- * Steel Beam Standard Type (Deep) as per Standard Drawing I-15 No. 2-B unless otherwise noted.
- LK — Std. Longitudinal Key Joint without tie bars
- E — Std. Expansion Joint
- EJ — Std. Expansion Joint without dowels

Notes: For joint locations see Typical Sections and Miscellaneous Details, sheets 8, 9, 10 and 22.
For Details "A", "B", and "G" see Sheet 22.
For geometrics see Geometric Layout Sheets 6 and 7.
For additional utility information see Drainage Plans sheets 26, 27, 28, 29 and 30.

EXTRA AREA QUANTITIES									
LOCATION		T-71	T-35	B-70	B-219	I-22	I-18	I-12 Type 4A	I-12 Type 2A
ROADWAY	STA. TO STA.	Sq.Yd.	Sq.Yd.	Sq.Yd.	Sq.Yd.	Cu.Yd.	Cu.Yd.	Lin.Ft.	Lin.Ft.
Ramp "N"	1+34 to 2+79	83				11			
Lane "M"	2+68 to 3+68	33				6			
Lane "O"	9+28.5 to 9+42.5	17				3			
Lane "O"	9+42 to 10+42	89				12			
Lane "O"	21+75 to 22+75	89				12			103
W.B. Exp.	11+67 to 12+67	33				9			
E.B. Exp.	528+90 to 529+63		5	5		1			
E.B. Exp.	529+63 to 530+87	101				17			
E.B. Exp.	530+88 to 531+88	89				17			
Ramp "P"	3+54.91 to 4+69.39	53				9		115	
Ramp "P"	5+23 to 6+23	174				29			103
Lane "S"	9+25 to 10+50		42	42		7			
Lane "S"	12+77 to 13+75		28	28		5			
Ramp "T"	4+35 to 5+15	27				5			
	TOTALS	788	75	75		143		115	206

LIMITS OF GUARD RAIL			
LOCATION	BEGINNING STA.	ENDING STA.	LIN. FT.
Lane "O", Lt.	14+05	15+11	100
Lane "O", Rt.	14+44	16+40	200
Lane "S", Lt.	8+89	9+88	100
Lane "S", Rt.	10+27	11+24	100
Lane "S", Rt.	12+95	14+20	125
N.S. Exp., Lt.	435+45	436+20	75
N.S. Exp., Rt.	432+00	432+75	75
N.S. Exp., Center	431+53	435+53	800
E.B. Exp., Lt.	530+00	531+25	125
E.B. Exp., Lt.	533+60	535+22	162.5
E.B. Exp., Rt.	534+49	535+24	75
W.B. Exp., Rt.	8+65	11+15	250
W.B. Exp., Lt.	8+72	12+10	337.5
Lane "M", Rt.	0+79	3+54	275
Lane "M", Lt.	9+00	10+25	125
Ramp "P", Lt.	4+50	5+25	75
Ramp "P", Rt.	4+70	6+20	150
Ramp "N", Lt.	2+02	3+08	100
Ramp "N", Lt.	5+83	7+36	150
Ramp "N", Rt.	5+76	8+83	325
Ramp "N", Rt.	2+44	3+36	100
	Total Type 2B		3825
Ramp "T",	7+27± (56' Rt.)	7+64± (58' Rt.)	37.5
	Total Type 2A		37.5

Note:
Paved shoulder width along North-South Expressway transitions uniformly from 10' at Sta. 429+25 to 7' at Sta. 432+25.

SCALE 1"= 50'
MADE CEG DATE 5-7-58
TRCD. DMD DATE 5-8-58
CKD. RPB DATE 5-7-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 12

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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176

SUMMIT COUNTY
CITY OF AKRON

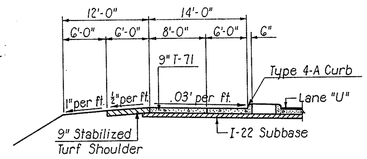
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM-8-11.65

PAVEMENT DETAILS

EXISTING STATE ROUTE 8 SECTION AT STA. 445+85.39

EXISTING STATE ROUTE 18 SECTION AT STA. 547+08.6± EB

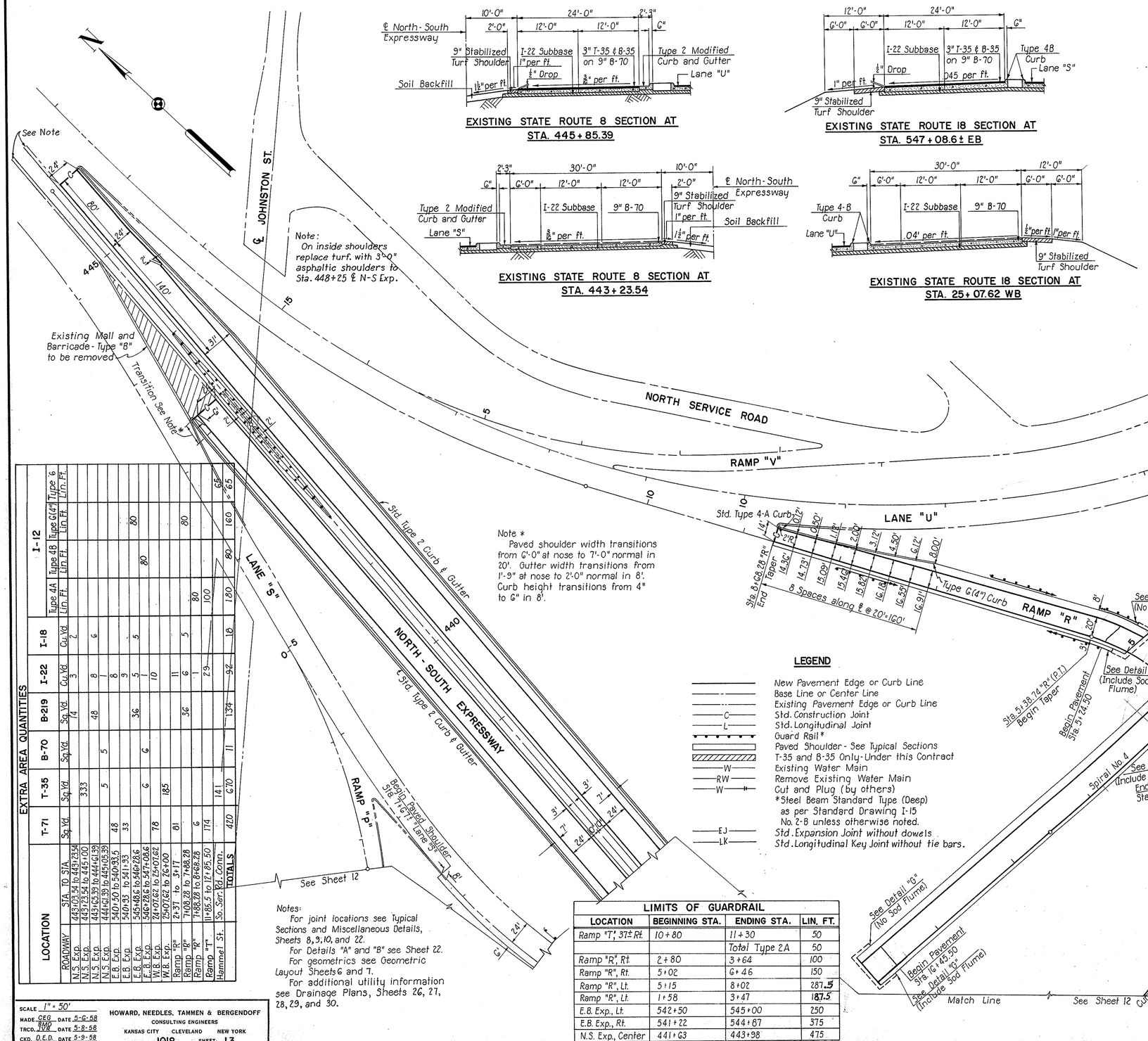
EXISTING RAMP "R" SECTION AT STA. 8+68.28



Note **
On inside shoulders, replace turf with 3' Asphaltic shoulders to West Abutment at Inman St.

EXISTING STATE ROUTE 8 SECTION AT STA. 443+23.54

EXISTING STATE ROUTE 18 SECTION AT STA. 25+07.62 WB



Note *
Paved shoulder width transitions from G'-0" at nose to 7'-0" normal in 20'. Gutter width transitions from 1'-9" at nose to 2'-0" normal in 8'. Curb height transitions from 4" to G" in 8'.

Notes:
For joint locations see Typical Sections and Miscellaneous Details, Sheets 8, 9, 10, and 22.
For Details "A" and "B" see Sheet 22.
For geometrics see Geometric Layout Sheets 6 and 7.
For additional utility information see Drainage Plans, Sheets 26, 27, 28, 29, and 30.

LEGEND

- New Pavement Edge or Curb Line
- Base Line or Center Line
- Existing Pavement Edge or Curb Line
- C — Std. Construction Joint
- L — Std. Longitudinal Joint
- Guard Rail*
- Paved Shoulder - See Typical Sections
- T-35 and B-35 Only - Under this Contract
- W — Existing Water Main
- RW — Remove Existing Water Main
- W — Cut and Plug (by others)
- *Steel Beam Standard Type (Deep) as per Standard Drawing I-15 No. 2-8 unless otherwise noted.
- EJ — Std. Expansion Joint without dowels
- LK — Std. Longitudinal Key Joint without tie bars.

LIMITS OF GUARDRAIL

LOCATION	BEGINNING STA.	ENDING STA.	LIN. FT.
Ramp "T", 37± Rt.	10+80	11+30	50
		Total Type 2A	50
Ramp "R", Rt.	2+80	3+64	100
Ramp "R", Rt.	5+02	6+46	150
Ramp "R", Lt.	5+15	8+02	287.5
Ramp "R", Lt.	1+58	3+47	187.5
E.B. Exp., Lt.	542+50	545+00	250
E.B. Exp., Rt.	541+22	544+87	375
N.S. Exp., Center	441+63	443+98	475
		Total Type 2B	1,825

EXTRA AREA QUANTITIES

LOCATION			T-71	T-35	B-70	B-219	I-22	I-18	I-12			
									Type 4A	Type 4B	Type G(4")	Type 6
	ROADWAY	STA. TO STA.	Sq. Yd.	Sq. Yd.	Sq. Yd.	Sq. Yd.	Cu. Yd.	Cu. Yd.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.
	N.S. Exp.	443+03.34 to 443+23.54					2					
	N.S. Exp.	443+23.54 to 445+00		333			3					
	N.S. Exp.	443+63.39 to 444+61.39				48	8	6				
	N.S. Exp.	444+61.39 to 445+06.39		5	5		1					
	E.B. Exp.	540+50 to 540+93.5	48				8					
	E.B. Exp.	540+93 to 541+93	33				9	5				
	E.B. Exp.	545+40.6 to 546+28.6				36	5	5		80		
	E.B. Exp.	546+28.6 to 547+08.6		6	6		1					
	W.B. Exp.	24+07.62 to 25+07.62	78				10					
	W.B. Exp.	25+07.62 to 26+00		185								
	Ramp "R"	2+31 to 3+17	81				11					
	Ramp "R"	7+08.28 to 7+88.28				36					80	
	Ramp "R"	7+88.28 to 8+68.28	6				6	5			80	
	Ramp "T"	11+65.5 to 12+85.50	174				29					
	Hammel St.	So. Ser. Rd. Conn.							80	80	100	160
		TOTALS	420	670	11	134	92	10	80	80	180	160

TREATMENT OF EXISTING WATER MAINS

LOCATION	SIZE	LIN. FT.	REMARKS
Hammel St.	4"	55'	Remove

SCALE 1" = 50'
MADE CEG DATE 5-6-58
TRCD. JVR DATE 5-8-58
CKD. D.E.D. DATE 5-9-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 13

QUANTITY CALCULATIONS

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	14 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM 8-1165
QUANTITY CALCULATIONS

B-70 9" CONCRETE BASE COURSE

I-1093 (4)	North-South Expressway	(L.S.)	Sta. 412+64.00	to Sta. 413+47.16	= 83.16 Lin. Ft.			
"	"	(R.S.)	Sta. 415+69.50	to Sta. 418+12.83	= 243.33 " "			
					326.49 Lin. Ft. x 48 ÷ 9 =	1741	Sq. Yds.	
"	North-South Expressway		Sta. 413+47.16	to Sta. 415+69.50	= 222.34 Lin. Ft. x 96 ÷ 9 =	2372	" "	
"	North-South Expressway	(L.S.)	Sta. 415+69.50	to Sta. 422+24.00	= 654.50 Lin. Ft.			
"	"	(R.S.)	Sta. 418+12.83	to Sta. 422+24.00	= 411.17 " "			
"	"	(R.S.)	Sta. 443+23.54	to Sta 445+85.39	= 261.85 " "			
					1327.52 Lin. Ft. x 24 ÷ 9 =	3540	" "	
"	North-South Expressway		Sta. 422+24.00	to Sta. 443+23.54	= 2099.54 Lin. Ft. x 48 ÷ 9 =	11198	" "	
I-1086(8)	Westbound Expressway		Sta. 8+65.00	to Sta. 12+28.00	= 363.00 Lin. Ft.			
"	" "		Sta. 16+45.50	to Sta. 25+07.62	= 862.12 " "			
"	Eastbound Expressway		Sta. 528+90.00	to Sta. 535+30.61	= 640.61 " "			
"	" "		Sta. 540+70.50	to Sta. 547+08.61	= 638.11 " "			
"	Lane "M"		Sta. 0+75.75	to Sta. 21+77.73	= 2101.98 " "			
"	Lane "O"		Sta. 1+01.97	to Sta. 15+94.00	= 1492.03 " "			
"	" "		Sta. 17+99.50	to Sta. 22+75.00	= 475.50 " "			
"	Lane "S"		Sta. 9+25.00	to Sta. 10+12.00	= 147.00 " "			
"	" "		Sta. 12+87.00	to Sta. 13+75.00	= 88.00 " "			
					6808.35 Lin. Ft. x 24 ÷ 9 =	18156	" "	
				SUB-TOTAL	=	37007	Sq. Yds.	
	Summary of Extra Area Quantities		Sheet Nº 11	I-1086(8)=30 Sq. Yds.	I-1093(4)=24 Sq. Yds. =	54	" "	
	" " " "		Sheet Nº 12	I-1086(8)	=	75	" "	
	" " " "		Sheet Nº 13	I-1086(8)=6 " "	I-1093(4)=5 " " =	11	" "	
	TOTAL B-70 CONCRETE BASE COURSE				=	37,147	SQ. YDS.	

T-35 ASPHALTIC CONCRETE SURFACE COURSE

	Sub-Total from B-70 Calculations	I-1086(8)=18,156 Sq. Yds. I-1093(4)=18,851 Sq. Yds. =	37007	Sq. Yds.	
	Summary of Extra Area Quantities	Sheet Nº 11 I-1086(8)=30 Sq. Yds. I-1093(4)=24 Sq. Yd. =	54	" "	
	" " " "	Sheet Nº 12 I-1086(8) =	75	" "	
	" " " "	Sheet Nº 13 I-1086(8)=191 Sq. Yds. I-1093(4)=479 Sq. Yds =	670	" "	
		0.125 ÷ 3 x 37806 Sq. Yds. =	1575	Cu. Yds.	
	TOTAL T-35 ASPHALTIC CONCRETE SURFACE COURSE	=	1575	CU. YDS.	

B-35 ASPHALTIC CONCRETE LEVELING COURSE

	Total from T-35 Calculations I-1086(8)=769 Cu. Yds., I-1093(4)=806 Cu. Yds.	=	1575 Cu. Yds.
	Minus T-35 Volume required for Hammel St. South Service Road Connection	=	- 6 " "
	TOTAL B-35 ASPHALTIC CONCRETE LEVELING COURSE	=	1569 CU. YDS.

T-30 BITUMINOUS TACK COAT @ 0.10 GAL./SQ. YD.

	Total from T-35 Calculations I-1086(8)=1847 Gal. I-1093(4)=1933 Gal.	0.10 x 37806 =	3780	Gal.
	TOTAL T-30 BITUMINOUS TACK COAT	=	3780	GAL.

T-70 7" DRIVEWAYS

I-1093(4)	10' Drive at 640 Crosier St.	=	14 Sq. Yds.
"	8' Drive at 631 Lafollette St.	=	7 " "
	TOTAL T-70 7" DRIVEWAYS	=	21 Sq. Yds.

Note:
Inside shoulders to be paved from Sta. 443+23.54 to Sta. 448+25 and from Sta. 445+85.39 to Sta. 448+25 ℄ N.-S. Exp.
Total = 741.07 Lin. Ft.

T-71 9" REINFORCED CONCRETE PAVEMENT

I-1086(8)	Ramp "N"	Sta. 2+10	to Sta. 3+10	= 103.33 Lin. Ft.				
"	" "	Sta. 5+86	to Sta. 7+33.73	= 152.65 " "				
"	Ramp "R"	Sta. 1+83	to Sta. 3+42	= 166.23 " "				
"	" "	Sta. 5+21.50	to Sta. 5+38.74	= 18.56 " "				
				440.77 Lin. Ft. x 20 ÷ 9 =		989	Sq. Yds.	
"	Ramp "N"	Sta. 7+33.73	to Sta. 11+15.34	= 381.61 Lin. Ft. x 18 ÷ 9 =		763	" "	
"	Ramp "R"	Sta. 5+38.74	to Sta. 8+68.28	= 329.54 Lin. Ft. x 17 ÷ 9 =		622	" "	
"	Ramp "N"	Sta. 11+15.34	to Sta. 11+78.00	= 63.45 Lin. Ft. x 16 ÷ 9 =		113	" "	
"	Ramp "P"	Sta. 3+54.91	to Sta. 5+2.00	= 170.36 " " x 16 ÷ 9 =		303	" "	
I-1093(4)	Ramp "T"	Sta. 3+68.00	to Sta. 11+85.50	= 822.85 " " x 16 ÷ 9 =		1463	" "	
				1056.66 Lin. Ft.				
"	Ramp "S-1"	Sta. 3+04.55	to Sta. 5+00.00	= 195.45 Lin. Ft.				
"	Ramp "S-2"	Sta. 2+36	to Sta. 5+51.48	= 315.48 " "				
				510.93 Lin. Ft. x 16 ÷ 9 =		908	" "	
"	Burkhardt Ave. Extension	Sta. 0+00.00	to Sta. 19+14.57	= 1946.79 Lin. Ft. x 25 ÷ 9 =		5408	" "	
100% City	Service Road "B"	Sta. 0+00.00	to Sta. 3+11.00	= 311.00 " " x 25 ÷ 9 =		864	" "	
1093(4)	Coventry Street	Sta. 0+37	to Sta. 2+28	= 191.00 Lin. Ft. x 27 ÷ 9 =		573	" "	
"	Coventry Street	Sta. 13+12.88	to Sta. 16+19.94	= 307.06 Lin. Ft. x 13 ÷ 9 =		444	" "	
			SUB-TOTAL	=		12,449	Sq. Yds.	
	Summary of Extra Area Quantities	Sheet Nº 11	I-1086(8)=1,179 Sq. Yds.	I-1093(4)=3,397 Sq. Yds. =		4576	" "	
	" " " "	Sheet Nº 12	I-1086(8)= 761 " "	I-1093(4)= 27 " " =		788	" "	
	" " " "	Sheet Nº 13	I-1086(8)= 246 " "	I-1093(4)= 174 " " =		420	" "	
	TOTAL T-71 9" REINFORCED CONCRETE PAVEMENT			=		18,233	SQ. YDS.	

I-22 SUBBASE

Ramps "S-1" & "S-2"	(Sub-Total T-70) All I-1093(4)	454	Sq. Yds.	
Expressways & Lanes	(Sub-Total B-70) I-1086(8)=18,156 I-1093(4)=18,851	37007	" "	
Ramps & Streets	(Sub-Total T-71)	12449	" "	I-1086(8)=2790 sq. yd., I-1093(4)=8,795 sq. yds, 100% City=864 sq. yds.
Approach Slabs	(Total I-7) I-1086(8)=880 I-1093(4)=253	1133	" "	
		51043 Sq. Yds. x 6 ÷ 36 =	8507	Cu. Yds.

UNDER PAVED SHOULDERS :

I-1093(4)	North-South Expressway (Inside Shoulders) See Note Below and B-70 for Stationing			= 7038.84 Lin. Ft. x 3.25 ÷ 36 =	635	" "	
"	North-South Expressway (Outside Shoulders)						
"	"	R.S. Sta. 422+76.43	to Sta. 443+65.39	= 2088.96 Lin. Ft.			
"	"	L.S. Sta. 422+92.52	to Sta. 443+03.54	= 2011.02 " "			
				4099.98 Lin. Ft. x 41.25 ÷ 324 =	521	" "	
"	"	R.S. Sta. 422+76.43	to Sta. 429+25.00	= 648.57 Lin. Ft.			
"	"	L.S. Sta. 422+92.52	to Sta. 429+25.00	= 632.48 " "			
				1281.05 Lin. Ft. x 34.4 ÷ 324 =	136	" "	
"	"	Sta. 429+25	to Sta. 432+25	= 600 Lin. Ft. x 24 ÷ 324 =	44	" "	
"	"	R.S. Sta 432+25.0	to Sta. 443+65.39	= 1140.39 Lin. Ft.			
"	"	L.S. Sta. 432+25.0	to Sta. 443+03.54	= 1018.54 " "			
				2218.93 Lin. Ft. x 13.76 ÷ 324 =	94	" "	
I-1086(8)	Westbound Expressway (R.S.)	Sta. 8+65.0	to Sta. 11+66.5	= 301.50 Lin. Ft.			
"	" " "	Sta. 16+20.50	to Sta. 27+42	= 1121.50 " "			
"	Eastbound Expressway (L.S.)	Sta. 528+90.0	to Sta. 535+54.5	= 664.50 " "			
"	" " "	Sta. 541+93.5	to Sta. 549+23	= 729.50 " "			
				2817.00 Lin Ft. x 3.25 ÷ 36 =	254	" "	
"	Westbound Expressway (L.S.)	Sta. 8+65.0	to Sta. 12+39.3	= 374.30 Lin. Ft.			
"	" " "	Sta. 16+20.50	to Sta. 24+07.62	= 787.12 " "			
"	Eastbound Expressway (R.S.)	Sta. 531+88	to Sta. 535+59	= 371.00 " "			
"	" " "	Sta. 540+81.0	to Sta. 545+48.6	= 467.60 " "			
				2000.02 Lin. Ft. x 4.6 ÷ 27 =	341	" "	
	I-22 SUBBASE - SHEET TOTAL			=	10532	Cu. Yds.	

(Continued)

SCALE None
MADE R.P.B. DATE 5-8-58
TRCD. B.U. DATE 6-2-58
CKD. F.W.H. DATE 5-20-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY, CLEVELAND NEW YORK
1018 SHEET- 14

QUANTITY CALCULATIONS

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	15 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM. 8-1165
QUANTITY CALCULATIONS

I-22 SUBBASE

TOTAL I-22 SUBBASE - PREVIOUS SHEET = 10532 Cu. Yds
UNDER PAVED SHOULDERS:

I-1086(8)	Lane "M"	(R.S.)	Sta. 0+74.5	to	Sta. 11+33	=	1058.50	Lin. Ft. x 3.3 ÷ 27 =	129 " "
"	"	"	Sta. 15+94.04	to	Sta. 21+77.73	=	583.69	" " " " =	71 " "
"	Lane "O"	"	Sta. 1+01.97	to	Sta. 6+22.12	=	520.15	" " " " =	64 " "
"	"	"	Sta. 10+42	to	Sta. 16+44	=	602.00	" " " " =	73 " "
"	"	"	Sta. 17+88	to	Sta. 21+75	=	387.00	" " " " =	47 " "
"	Ramp "N"	"	Sta. 2+79	to	Sta. 3+45	=	71.28	" " " " =	9 " "
"	"	"	Sta. 5+53.5	to	Sta. 16+38.1	=	1099.02	" " " " =	134 " "
"	Ramp "P"	"	Sta. 4+74.91	to	Sta. 6+23	=	147.09	" " " " =	18 " "
"	Ramp "R"	"	Sta. 3+17	to	Sta. 3+72	=	61.80	" " " " =	8 " "
"	"	"	Sta. 4+91.50	to	Sta. 7+08.28	=	222.97	" " " " =	27 " "
I-1093(4)	Ramp "T"	"	Sta. 1+17.52	to	Sta. 12+85.50	=	1164.52	" " " " =	142 " "
"	Ramp "S-1"	"	Sta. 0+00	to	Sta. 3+40	=	340.00	" " " " =	42 " "
"	Ramp "S-2"	"	Sta. 4+58.00	to	Sta. 11+13.61	=	655.61	" " " " =	80 " "
	TOTAL RIGHT SIDE =						6913.63	Lin. Ft.	" "
I-1086(8)	Lane "M"	(L.S.)	Sta. 3+68.00	to	Sta. 14+52.52	=	1084.52	Lin. Ft. x 1.6 ÷ 27 =	64 " "
"	Lane "O"	"	Sta. 5+61.39	to	Sta. 15+96.50	=	1035.11	" " x " ÷ " =	61 " "
"	"	"	Sta. 17+60	to	Sta. 22+75	=	515.00	" " x " ÷ " =	31 " "
"	Ramp "N"	"	Sta. 1+85	to	Sta. 3+27	=	141.30	" " x " ÷ " =	8 " "
"	"	"	Sta. 5+69.5	to	Sta. 11+78.0	=	607.68	" " x " ÷ " =	36 " "
"	Ramp "P"	"	Sta. 2+30	to	Sta. 5+23.00	=	301.65	" " x " ÷ " =	18 " "
"	Ramp "R"	"	Sta. 1+49	to	Sta. 3+60	=	209.68	" " x " ÷ " =	12 " "
"	"	"	Sta. 5+01.00	to	Sta. 8+68.28	=	366.97	" " x " ÷ " =	22 " "
I-1093(4)	Ramp "T"	"	Sta. 5+15	to	Sta. 11+85.5	=	687.03	" " x " ÷ " =	41 " "
"	Ramp "S-1"	"	Sta. 3+09.55	to	Sta. 8+39.62	=	527.89	" " x " ÷ " =	31 " "
"	Ramp "S-2"	"	Sta. 0+39	to	Sta. 6+54	=	615.00	" " x " ÷ " =	36 " "
	TOTAL LEFT SIDE =						6091.83	Lin. Ft.	
I-1086(8)	Lane "S"	(R.S.)	Sta. 7+67	to	Sta. 11+26	=	360.69	Lin. Ft.	
"	"	"	Sta. 12+77	to	Sta. 13+75	=	98.00	" "	
							458.69	Lin. Ft. x 2.3 ÷ 27 =	39 " "

100% City = 12 Cu. Yd.
Under Integral Curb - (See I-12) I-1086(8) = 30 Cu. Yd., I-1093(4) = 91 Cu. Yd. 7208 ÷ 54 = 133 " "
Under 2' Curb & Gutter - (See I-12) All I-1093(4) 7395 x 11.25 ÷ 324 = 257 " "

Summary of Extra Area Quantities Sheet Nº 11 I-1086(8) = 200 Cu. Yd., I-1093(4) = 716 Cu. Yd. Sheet Nº 11 = 916 " "
" " " " Sheet Nº 12 I-1086(8) = 138 " " , I-1093(4) = 5 " " Sheet Nº 12 = 143 " "
" " " " Sheet Nº 13 I-1086(8) = 51 " " , I-1093(4) = 41 " " Sheet Nº 13 = 92 " "

TOTAL I-22 SUBBASE = 13,316 CU. YDS.

B-219 WATERPROOFED AGGREGATE COURSE TYPE B

I-1086(8)	Lane "S"	(Right Side - See I-22 for Stations)	= 458.69 Lin. Ft. x 6 ÷ 9 =	306	Sq. Yds.
I-1093(4)	North-South Expressway	(Inside Shoulders - See I-22)	= 7038.84 Lin. Ft. x 3 ÷ 9 =	2346	" "
I-1086(8)	Westbound-Eastbound Exp.	(See I-22)	= 2817.00 " " x 3 ÷ 9 =	939	" "
	Lanes & Ramps	(Total Left Side - Lanes & Ramps I-22)	= 6091.83 " " x 3 ÷ 9 =	2031	" "
	I-1086(8) = 1421 Sq. Yd. I-1093(4) = 610 Sq. Yd.		15,947.67 Lin. Ft.		
I-1093(4)	North-South Expressway	Sta. 429+25 to Sta. 431+25	= 600 Lin. Ft. x 8.5 ÷ 9 =	567	" "
"	"	(See I-22 Outside Shoulders)	= 2218.93 Lin. Ft. x 7 ÷ 9 =	1726	" "
"	"	(" ")	= 1281.05 Lin. Ft. x 10 ÷ 9 =	1423	" "
I-1086(8)	Westbound-Eastbound Exp.	(See I-22)	= 2000.01 Lin. Ft. x 8 ÷ 9 =	1778	" "
	Lanes & Ramps	(Total Right Side - Lanes & Ramps I-22)	= 6913.63 " " x 8 ÷ 9	6145	" "
			8913.65 Lin. Ft.		
	I-1086(8) = 4225 Sq. Yd., I-1093(4) = 1920 Sq. Yd.	SUB-TOTAL	=	17,350	Sq. Yds.
	Summary of Extra Area Quantities All I-1093(4)	Sheet Nº 11	=	88	" "
	" " " " "	1086(8) = 72, I-1093(4) = 62 Sheet Nº 13	=	134	" "
	TOTAL B-219 WATERPROOFED AGGREGATE BASE COURSE TYPE B		=	17,483	SQ. YDS. x .25 ÷ 3 = 1,457 Cu. Yds.

T-30 BITUMINOUS PRIME COAT @ 0.35 GAL./SQ.YD.

Total from B-219 Calculations I-1086(8) = 8741 x 0.35 = 3,059 Gal. I-1093(4) = 8742 x 0.35 = 3,060 Gal. 0.35 x 17,483 = 6119 Gal.
TOTAL T-30 BITUMINOUS PRIME COAT = 6,119 GAL.

T-31 BITUMINOUS SURFACE TREATMENT

Bituminous Material, as per plan, @ 0.25 Gal./Sq. Yd B-219 x 17,483 = 4,371 Gal. I-1086(8) = 2163 Gal. I-1093(4) = 2208 "
Nº 6 Aggregate @ 0.008 Cu. Yd./Sq. Yd. B-219 x 17,483 = 140 Cu. Yds. I-1086(8) = 70 Cu. Yds. I-1093(4) = 70 " "

I-18 STABILIZED CRUSHED AGGREGATE

I-1086(8)	Lane "S"	(See I-22 for Stations)	458.69 Lin. Ft. x 6.25 x 4.5 ÷ 324 =	40	Cu. Yds.	I-1093(4) = 534 Cu. Yd.
	Expressways, Ramps & Lanes	(See B-219)	15,947.67 Lin. Ft. x 3.25 x .5 ÷ 27 =	960	" "	I-1086(8) = 426 " "
I-1093(4)	North-South Expressway	"	600 Lin. Ft. x 38.75 ÷ 324 =	71	" "	
"	" " "	"	2218.93 Lin. Ft. x 31.5 ÷ 324 =	216	" "	
"	" " "	"	1281.05 Lin. Ft. x 45 ÷ 324 =	178	" "	
	Expressways, Ramps & Lanes	"	8913.65 Lin. Ft. x 3.1 ÷ 27 =	1023	" "	I-1086(8) = 775 Cu. Yd. I-1093(4) = 248 Cu. Yd.
	Summary of Extra Area Quantities	Sheet Nº 11 All 1093(4)	=	10	" "	
			=			
	" " " "	Sheet Nº 13 I-1086(8) = 10 cu. yd. I-1093(4) = 8 Cu. Yd.	=	18	" "	
	TOTAL I-18 STABILIZED CRUSHED AGGREGATE		=	2,516	CU. YDS.	

I-12 CURBS - CURB & GUTTER

TYPE 2 STANDARD CURB & GUTTER:

I-1093(4)	Ramp "S-2" Sta. 3+64	to	Ramp "T" Sta. 12+85.5			=	2433 Lin. Ft.
"	North-South Expressway	(R.S.)	Sta. 421+76.43	to	Sta. 445+85.39	=	2409 " "
"	"	(L.S.)	Sta. 421+92.52	to	Sta. 443+23.54	=	2131 " "
"	Coventry Street	(R.S.)	Sta. 2+52.04	to	Sta. 3+28.04	=	76 " "
"	"	"	Sta. 5+24.04	to	Sta. 5+98.04	=	76 " "
"	"	"	Sta. 7+82.04	to	Sta. 8+52.04	=	70 " "
"	"	"	Sta. 10+51.15	to	Sta. 11+21.15	=	70 " "
					TOTAL	=	7265 LIN. FT.

TYPE 2 MODIFIED CURB & GUTTER:

I-1086(8)	Lane "S"	(L.S.)	Sta. 9+25	to	Sta. 9+90	=	65 Lin. Ft.
"	"	"	Sta. 13+10	to	Sta. 13+75	=	65 " "
					TOTAL	=	130 LIN. FT.

TYPE 6 STANDARD 6" CURB:

I-1093(4)	Lumiere Street - Ramp "T"		Sta. 7+15 ±	to	Sta. 7+62 ±	=	45 Lin. Ft.
I-1086(8)	Ramp "N" (R.S.)		Sta. 9+34	to	Sta. 15+66	=	632 " "
	Summary Extra Area Quantities	All 1093(4)	Sheet Nº 11			=	80 " "
	" " " "	All 1093(4)	" " 13			=	65 " "
			TOTAL			=	822 Lin. Ft.

TYPE 6 (4") CURB, MOD.
Summary - Extra Area Quantities Sheet Nº 13 TOTAL = 160 LIN. FT. All 1086(8)

TYPE 4-B STANDARD 4" CURB:
Summary - Extra Area Quantities Sheet Nº 13 TOTAL = 80 LIN. FT. All 1086(8)

(Continued Sheet 16)

SCALE None
MADE R.P.B. DATE 5-9-58
TRCD T.E.R. DATE 6-2-58
CKD F.W.H. DATE 6-24-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 15

QUANTITY CALCULATIONS

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM. 8-1165
QUANTITY CALCULATIONS

I-12 CURBS

TYPE 2-A STANDARD 6" CURB:

I-1093(4)	Coventry Street	(R.S.)	Sta.	13+18.5	to Sta.	13+98.5	=	83 Lin. Ft.
100% City	Service Road "B"		Sta.	0+00	to Sta.	3+11	=	622 " "
I-1093(4)	Burkhardt Ave. Ext.		Sta.	0+00	to Sta.	2+47.17	=	561 " "
"	"	(L.S.)	Sta.	3+41.17	to Sta.	15+50	=	1209 " "
"	"	(R.S.)	Sta.	3+37.17	to Sta.	5+47.35	=	210 " "
"	"	"	Sta.	6+21.35	to Sta.	8+17.46	=	196 " "
"	"	"	Sta.	8+95.46	to Sta.	10+71.48	=	176 " "
"	"	"	Sta.	11+51.48	to Sta.	13+45.50	=	194 " "
"	"	"	Sta.	14+15.50	to Sta.	16+14.06	=	199 " "
"	"	"	Sta.	16+88.06	to Sta.	18+87.57	=	200 " "
	Summary of Extra Area Quantities -					Sheet Nº 11	=	2072 " " I-1086(8)=307', I-1093(4)=1,765'
	" " " "					Sheet Nº 12	=	206 " " All I-1086(8)
						TOTAL		5,928 LIN.FT.

STANDARD TYPE 4-A CURB

I-1086(8)	Eastbound Expressway	(L.S.)	Sta.	540+93	to Sta.	541+93	=	103 Lin. Ft.
"	" "	(R.S.)	Sta.	530+87	to Sta.	531+87	=	103 " "
"	Westbound Expressway	(L.S.)	Sta.	24+07.62	to Sta.	25+57.62	=	100 " "
"	" "	(R.S.)	Sta.	11+68.5	to Sta.	12+68.5	=	103 " "
"	Lane "M"	(L.S.)	Sta.	2+68	to Sta.	3+66	=	103 " "
"	Lane "O"	(L.S.)	Sta.	4+61.39	to Sta.	5+60.00	=	102 " "
"	"	(R.S.)	Sta.	9+42.5	to Sta.	10+42.5	=	103 " "
"	Ramp "R"	(R.S.)	Sta.	2+37	to Sta.	3+17	=	95 " "
"	Ramp "N"	(R.S.)	Sta.	1+99	to Sta.	2+79	=	90 " "
I-1093(4)	Ramp "T"	(L.S.)	Sta.	4+36	to Sta.	5+15	=	83 " "
	Summary of Extra Area Quantities -					Sheet Nº 12	=	115 " " All 1086(8)
	" " " "					Sheet Nº 13	=	180 " " I-1086(8)=80', I-1093(4)=100'
						TOTAL	=	1,280 LIN. FT.

I-13 SIDEWALK

100% City	Service Road "B"	(L.S.)	Sta.	0+00	to Sta.	3+00	=	280 Lin.Ft.
I-1093(4)	Coventry Street	(L.S.)	Sta.	0+37	to Sta.	2+28	=	191 " "
"	Burkhardt Ave. Ext.	(R.S.)	See Type 2-A Curb - I-12				=	1425 " "
								1896 Lin. Ft. x 5 = 9480 Sq. Ft.
	Summary of Extra Area Quantities - All I-1093(4)					Sheet Nº 11	=	3833 " "
	TOTAL I-13 SIDEWALKS						=	13,313 SQ. FT.

I-7 APPROACH SLABS (T = 13")

			I-7	T-30	T-35
I-1086(8)	Bridge Nº 1	Lane "S" over North-South Exp. - 2 x 25 x 28.83 ÷ 9 =	160.2 Sq. Yds.	16.0 Gal.	11.1 Cu. Yds.
"	" Nº 2	Lane "O" " " - 2 x 25 x 24 ÷ 9 =	133.4 " "	13.3 "	9.3 " "
I-1093(4)	" Nº 3	Lafollette Street - 133 + 25 x 44 ÷ 9 =	253.1 " "	25.3 "	17.6 " "
I-1086(8)	" Nº 4	Ramp "R" over Westbound Exp. - 2 x 25 x 20 ÷ 9 =	111.2 " "	11.1 "	7.7 " "
"	" Nº 5	Eastbound over North-South Exp. - 109 + 25 x 24 ÷ 9 =	175.3 " "	17.5 "	12.2 " "
"	" Nº 6	Westbound " " - 2 x 25 x 24 ÷ 9 + 25 x 20 ÷ 9 =	189.0 " "	18.9 "	13.1 " "
"	" Nº 7	Ramp "N" over Eastbound Exp. - 2 x 25 x 20 ÷ 9 =	111.2 " "	11.1 "	7.7 " "
	TOTAL I-7 APPROACH SLABS (T=13")	=	1133 SQ. YDS.	113.2 Gal.	78.7 Cu. Yds.

E-101 COMPACTED SUBGRADE

Total	T-70 9" Portland Cement Concrete Pavement	=	1115 Sq. Yds.	All 1093(4)
Total	T-71 9" Reinforced Concrete Pavement	=	18233 Sq. Yds.	I-1086(8) = 4,968; I-1093(4)=12,401; 100% City = 864 Sq. Yd.
Total	I-7 Approach Slabs	=	1133 " "	I-1086(8) = 880 " " , I-1093(4) = 253 Sq. Yd.
Total	B-70 Concrete Base Course	=	37147 " "	I-1086(8) = 16,197 " " I-1093(4) = 18950 " "
Total	B-219 Waterproofed Aggregate Base Course Type B	=	17483 " "	I-1086(8) = 8,741 Sq. Yd. , I-1093(4) = 8,742 Sq. Yd.
TOTAL	E-101 COMPACTED SUBGRADE	=	75,111 SQ. YDS.	

E-11 WATER @ 6.5 GAL. / CU. YD.

Total Embankment from Earthwork Quantities = 329,042 x 1.15 x 6.5 = 2459 M.Gal. I-1086(8) = 2,294 M. Gal. I-1093(4) = 165 M. Gal.

TOTAL E-11 WATER = 2459 M.GAL.

T-70 9" PORTLAND CEMENT CONCRETE PAVEMENT

I-1093(4)	Ramp "S-1"	Sta. 3+04.55	to Sta. 5+00.00	= 195.45 Lin. Ft.
"	Ramp "S-2"	Sta. 2+36.00	to Sta. 5+51.48	= 315.48 " "
				510.93 Lin. Ft. x 8÷9 = 454 Sq. Yds.
	Summary of Extra Area Quantities		Sheet Nº 12	= 661 " " All I-1093(4)
	TOTAL T-70 9" PORTLAND CEMENT CONCRETE PAVEMENT		=	1,115 SQ. YDS.

L-10 SODDING INCLUDING 2" WIRE MESH

	Sheet Nº 42:				
I-1086(8)	Eastbound Expressway	Sta.	535+10±	(Left) =	604 Sq. Ft.
"	Ramp "N"	Sta.	3+00±	" =	1116 " "
"	"	Sta.	6+00±	" =	764 " "
	Sheet Nº 43:				
"	Ramp "R"	Sta.	5+25±	(Left) =	1452 Sq. Ft.
"	"	Sta.	3+50±	" =	1356 " "
"	Eastbound Expressway	Sta.	540+10±	" =	1052 " "
"	Westbound Expressway	Sta.	16+50±	(Right) =	492 " "
				6836 Sq. Ft. ÷ 9 =	760 Sq. Yds.
	TOTAL L-10 SODDING INCLUDING 2" WIRE MESH			=	760 SQ. YDS.

E-9 TREE & STUMP REMOVAL *

Tree Size	Sheet 88	Sheet 89	Sheet 90	Sheet 91	Total No.
12-18	23	6	23	12	64
18-24	8	4	5	11	28
24-30	2	1	7	—	10
30-36	—	—	—	—	—
36-42	—	—	—	—	—
42-48	1	—	—	—	1

TOTAL E-9 TREE & STUMP REMOVAL - LUMP SUM * = 103

* Note:
This list of trees and stumps to be removed is supplied for informational purposes only. The exact number of trees and stumps to be removed under the lump sum bid for "Item E-9 Removal of Trees and Stumps" may be adjusted by the project engineer during construction.
Trees less than 12" in diameter shall be removed under Item E-101 "Roadway Excavation."

SCALE None
MADE R.P.B. DATE 5-9-58
TRCD B.U. DATE 6-2-58
CKD F.W.H. DATE 5-20-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 16

QUANTITY CALCULATIONS

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10

SUM. 8-11.65
QUANTITY CALCULATIONS

L-9 SEEDING, L-9 FERTILIZER, L-10 SODDING

	AREA	SHEET Nº	SEEDIING (L-9)	SODDING (L-10)	FERTILIZER (L-9)
I-1093(4)	A	41	6533 Sq. Yds.	1,999	1,535 Lbs.
"	B	41	5303	1,169	1,160
"	C	41	1986	28	357
"	C	42	1672	0	302
"	C	43	1571	8	283
"	D	41	6472	0	1,164
"	E	41	2497	453	531
"	F	41	1821	310	383
"	F	42	2661	277	528
"	F	43	549	18	178
I-1086(8)	6	42	10,910	190	1,978
I-1093(4)	6	43	2125	0	382
I-1086(8)	H	41	1600	0	288
"	H	42	5039	274	956
"	I	41	722	0	130
"	I	42	10,180	452	1,912
"	J	41	178	0	32
"	J	42	6990	140	1,284
I-1093(4)	K	41	819	91	164
"	L	41	1838	312	386
I-1086(8)	L	42	391	45	78
"	M	42	6535	429	1,246
"	N	42	1965	92	369
"	N	43	5022	147	930
"	O	42	3983	307	772
"	P	42	5517	423	1,069
"	Q	42	5437	270	1,026
"	R	42	2518	97	470
"	S	42	4718	47	857
I-1093(4)	T	42	560	65	112
"	T	43	1545	135	302
"	U	42	484	83	102
"	U	43	17987 (I-1093(4)=2924 Sq.Yd. I-1086(8)=15063 " ")	710 (I-1093(4)=482 Sq.Yd. I-1086(8)=228 ")	3,363 (I-1093(4)=640 lbs. I-1086(8)=2,723 lbs.)
I-1086(8)	V	43	7180	111	1,292
"	W	43	2811	210	543
"	X	43	3805	85	700
		TOTAL=	141,924 YDS.	8,977 SQ. YDS.	27,164 LBS. = 13.47 TONS

TOTAL L-9 SEEDING & PROTECTING, AS PER PLAN = 141,924 SQ. YDS.
TOTAL L-9 COMMERCIAL FERTILIZER = 13.58 TONS
TOTAL L-10 SODDING = 8,977 SQ. YDS.

E-8 REMOVAL & DISPOSAL OF EXISTING RIGID PAVEMENT

I-1086(8)	Lane "S" Sta. 9+25 to Sta. 13+75 = 441.5 Lin. x 24 ÷ 9	=	1177	Sq. Yds.
I-1093(4)	Existing Hammel Street & Existing South Service Road	=	217	" "
	Summary of Extra Area Quantities Sheet No. 42 All 1086(8)	=	473	" "
	TOTAL E-8 REMOVAL & DISPOSAL OF EXISTING RIGID PAVEMENT	=	1867	SQ. YDS.

*E-8 REMOVAL & DISPOSAL OF EXISTING SIDEWALK

SHEET Nº 41:

I-1093(4)	Existing Lovers Lane	Sta. 8+14 to Sta. 8+34	= 20 Lin. Ft. x 6 =	60 Sq. Ft.	
"	Existing Morgan Ave.	Sta. 8+26 to Sta. 8+41	= 30 Lin. Ft.		
"	Existing Corice Street	Sta. 8+26 to Sta. 8+41	= 30 " "		
"	Existing Mc Kinley Ave.	Sta. 8+26 to Sta. 8+41	= 30 " "		
"	Existing Kipling Street	Sta. 8+26 to Sta. 8+41	= 30 " "		
"	Existing Baird Street	Sta. 8+26 to Sta. 8+41	= 30 " "		
"	Existing Lafollette Street	Sta. 10+75 to Sta. 12+00	= 180 " "		
"	" " "	Sta. 15+53 to Sta. 16+18	= 130 " "		
"	Existing Coventry Street	Sta. 0+22 to Sta. 2+28	= 206 " "		
			660 Lin. Ft. x 5 =	3,330 Sq. Ft.	
	TOTAL E-8 REMOVAL & DISPOSAL OF EXISTING SIDEWALK			3,390 SQ. FT.	

*E-8 REMOVAL & DISPOSAL OF EXISTING CURB

SHEET Nº 41:

I-1093(4)	Existing Coventry Street	Sta. 0+22 to Sta. 2+28	= 440 Lin. Ft

SHEET Nº 42:

I-1086(8)	Lane "S"	Sta. 9+25 to Sta. 13+75	= 433 " "

SHEET Nº 43:

I-1093(4)	EXISTING HAMMEL STREET & EXISTING SOUTH SERVICE ROAD	= 210 Lin. Ft.

TOTAL E-8 REMOVAL & DISPOSAL OF EXISTING CURB 1083 LIN. FT.

* All other necessary curb and sidewalk removal shall be paid for under "Item E-101 Roadway Excavation."

SCALE None
MADE R.P.B. DATE 5-12-58
TRCD. D.U. DATE 6-2-58
CKD. F.W.H. DATE 5-26-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

1018 SHEET: 17

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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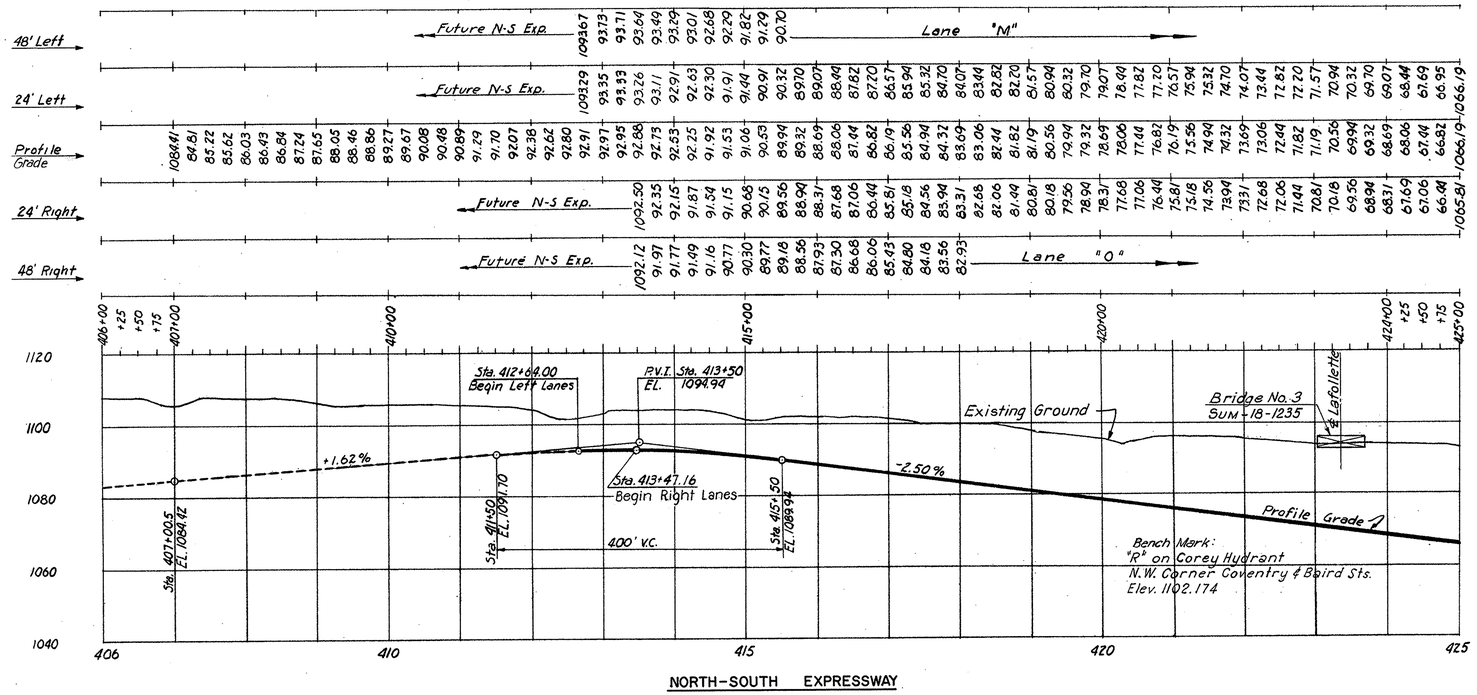
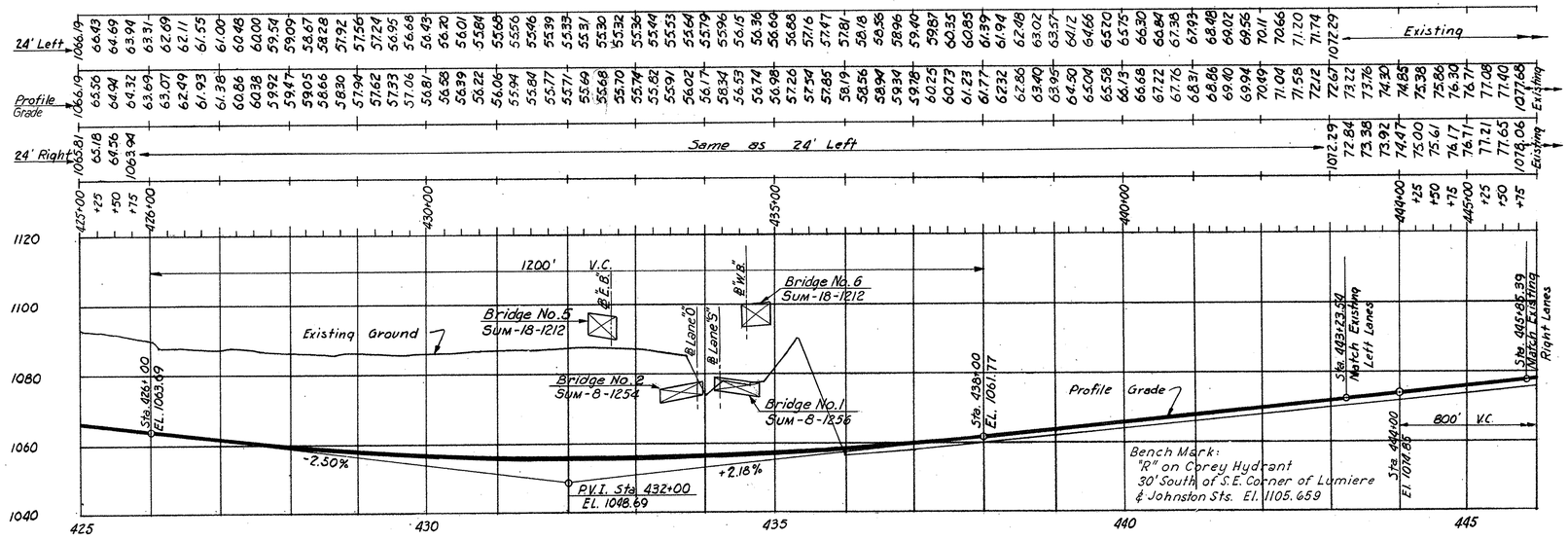
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65
EXPRESSWAY PROFILES



NORTH-SOUTH EXPRESSWAY



NORTH-SOUTH EXPRESSWAY

SCALE 1"=100' Hor. 1"=20' Ver.
MADE R.P.B. DATE 11-15-57
TRCD C.T.H. DATE 5-16-58
CKD. E.W.H. DATE 5-16-58
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 18

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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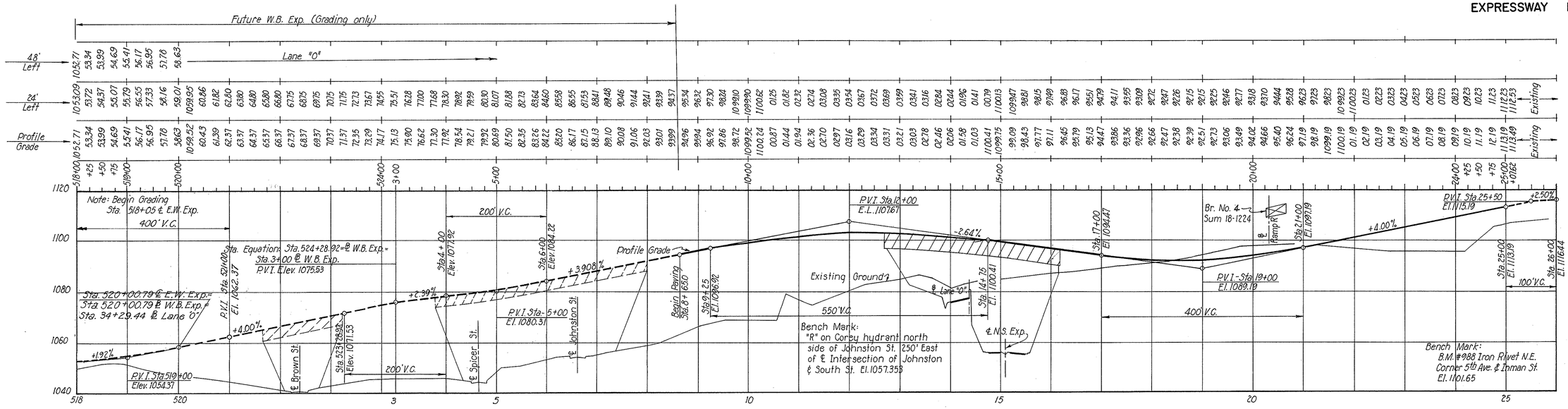
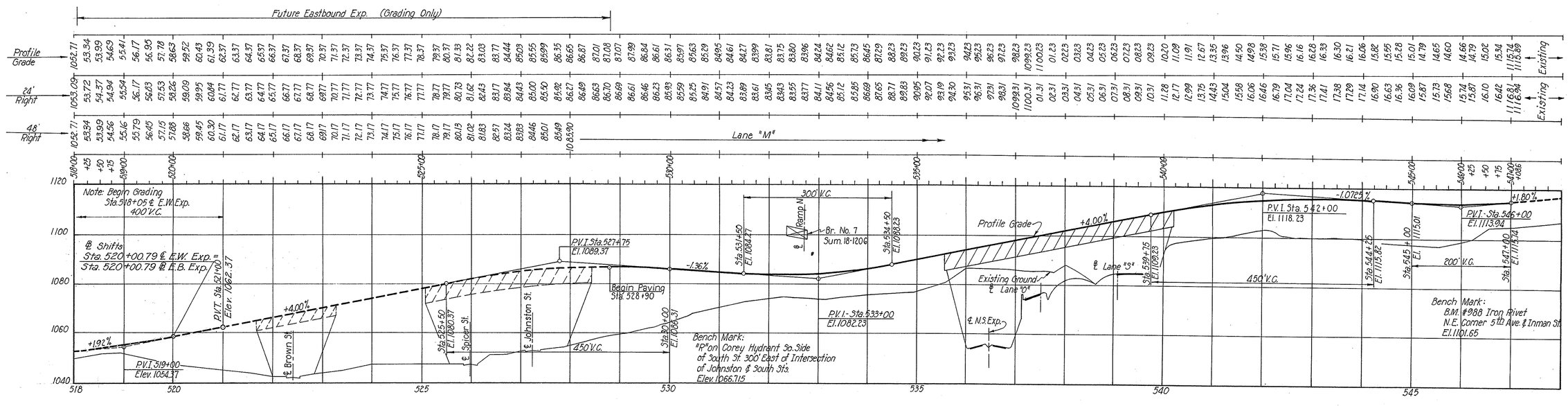
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65
EXPRESSWAY PROFILES



WESTBOUND EXPRESSWAY



EASTBOUND EXPRESSWAY

SCALE	1"=100' Horiz. 1"= 20' Vert.
MADE	DWM DATE 10.16.57
TRCD.	RPB DATE 5.8.58
CKD.	RPB DATE 12-6-57

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 19

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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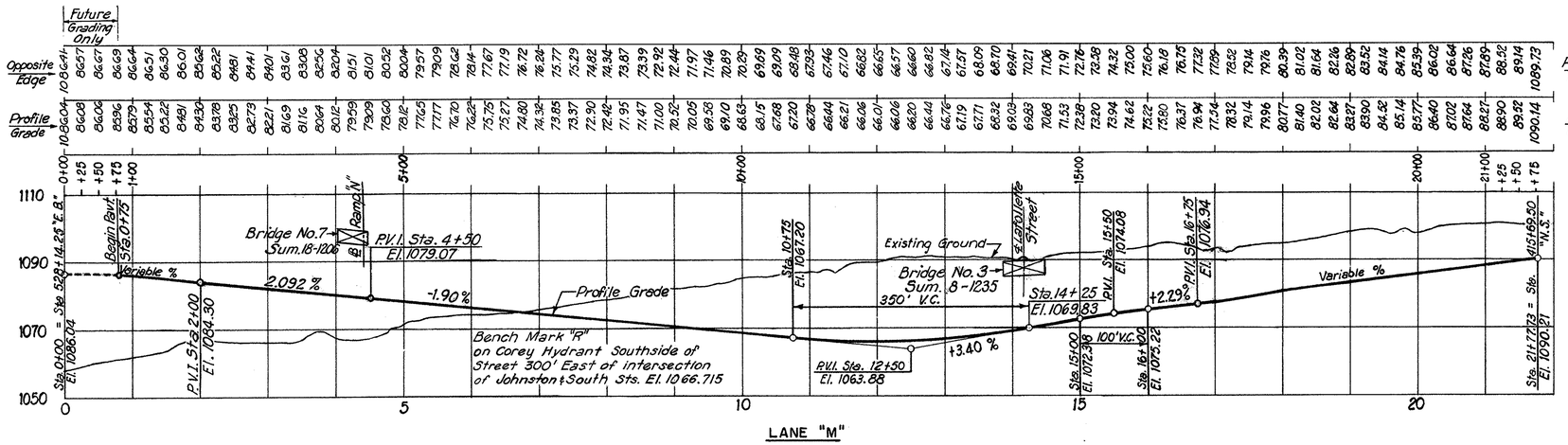
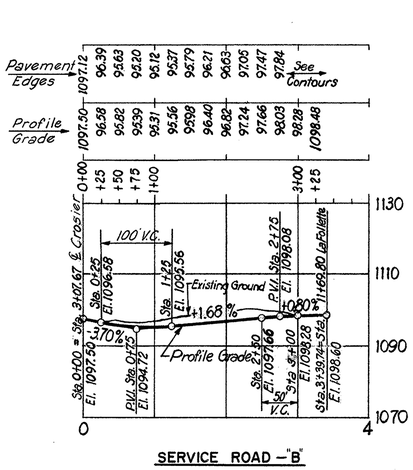
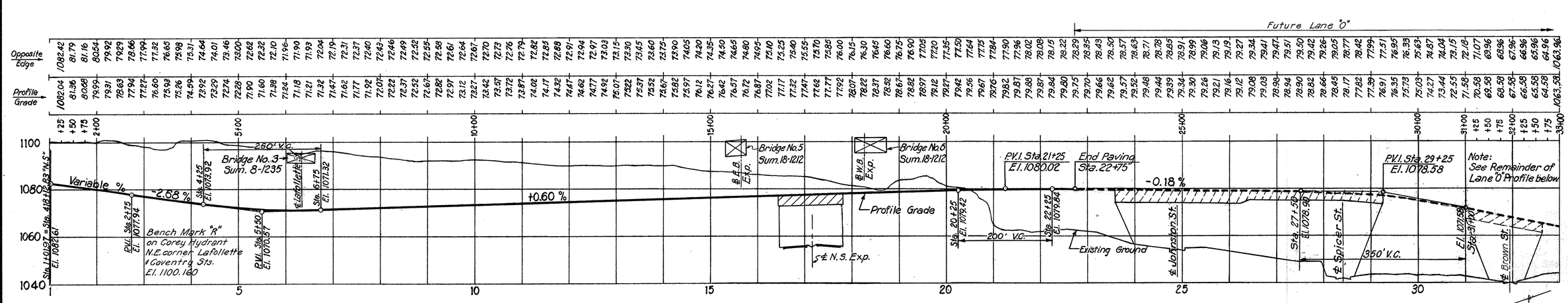
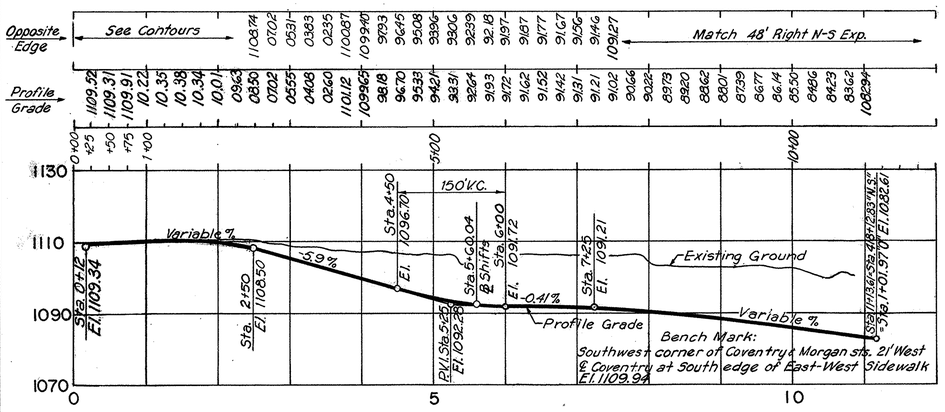
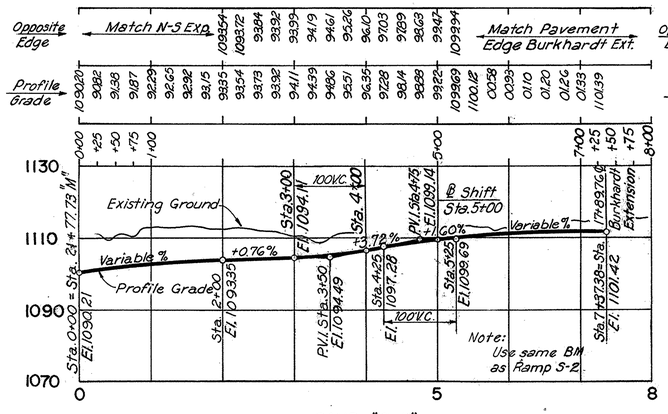
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65
LANE, RAMP & STREET PROFILES

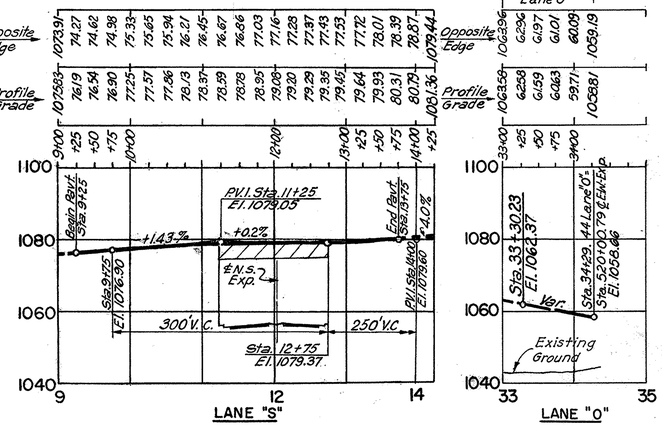












SCALE 1" = 100' Hor. 1" = 20' Ver.
MADE J.F.F. DATE 10-11-57
TRCD. C.T.H. DATE 5-7-58
CKD. E.W.H. DATE 5-8-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

1018 SHEET 20

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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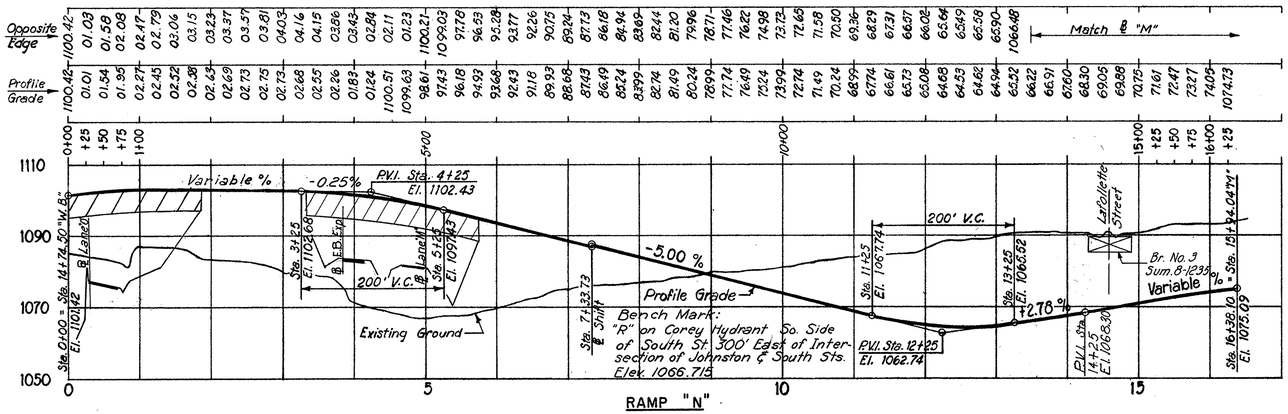
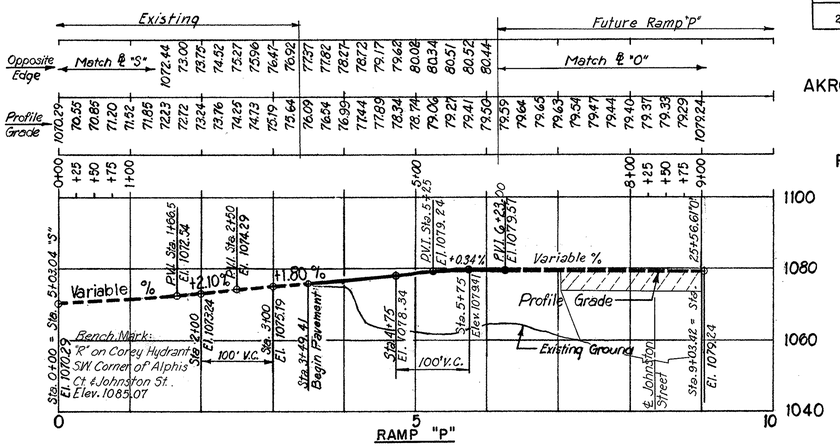
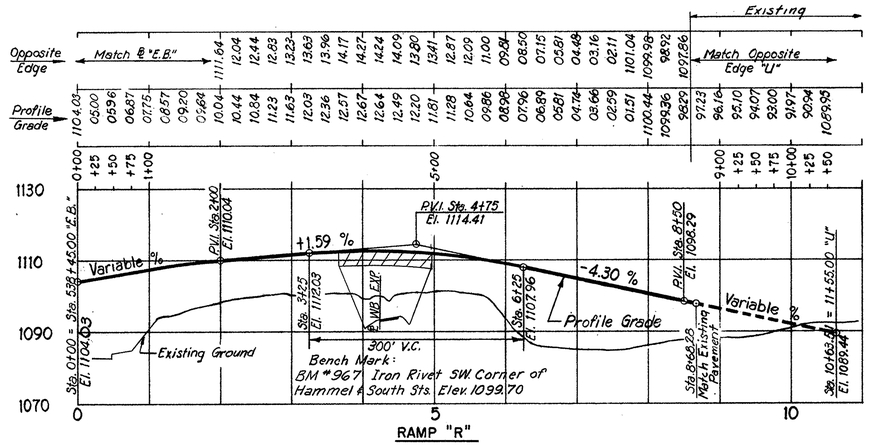
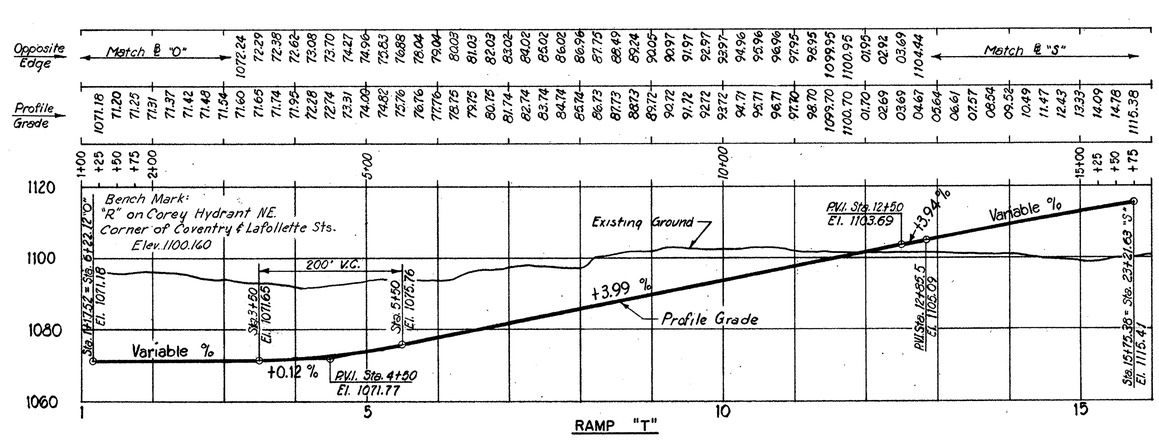
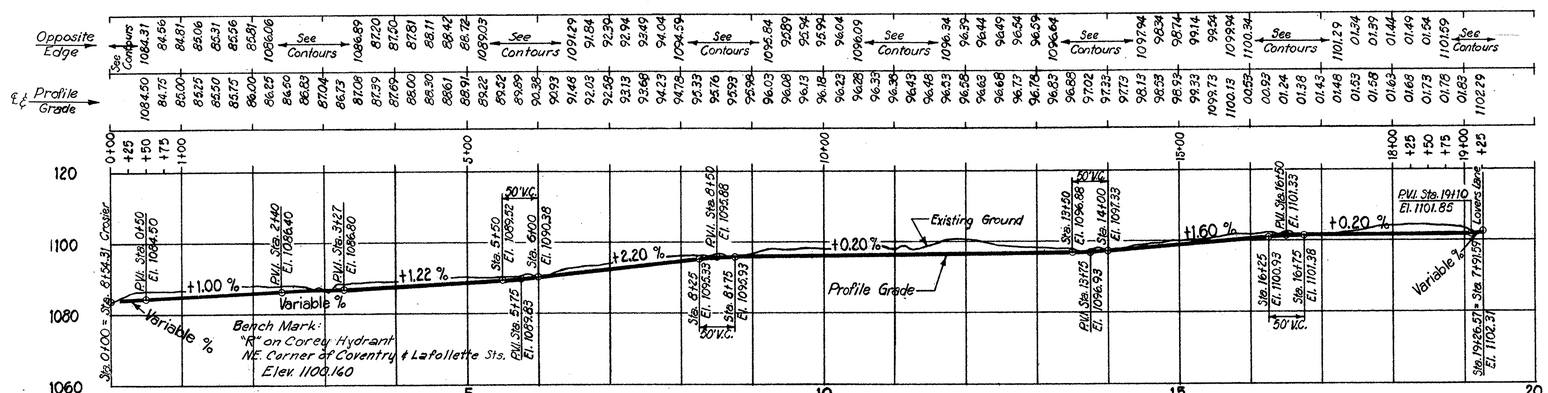
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65
RAMP & STREET PROFILES

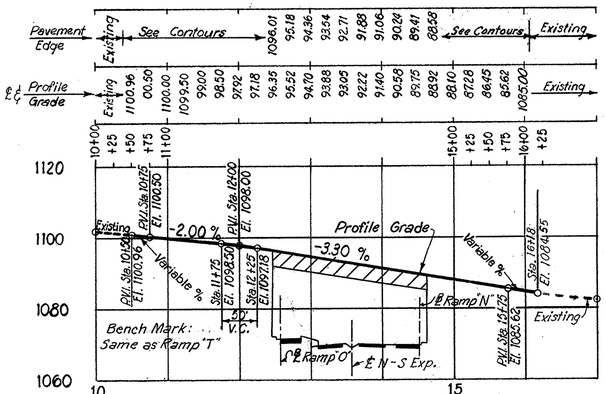












SCALE 1"=100' Horiz. 1"=20' Vert.
MADE J.F.F. DATE 10-16-57
TRCD T.E.D. DATE 5-6-58
CKD. F.W.H. DATE 5-8-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 21

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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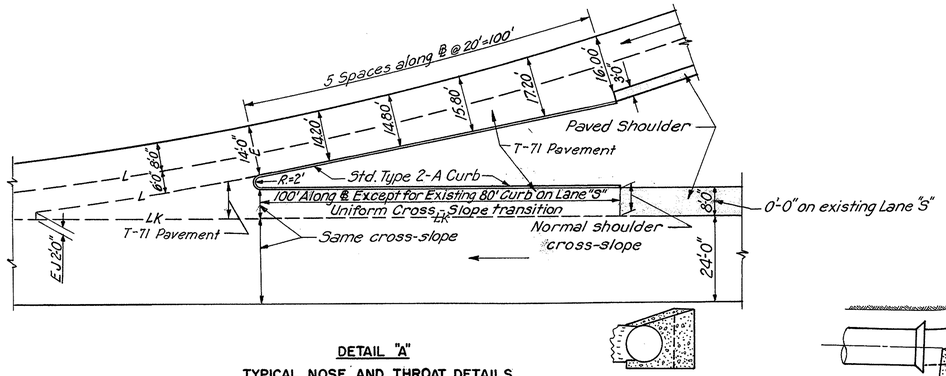
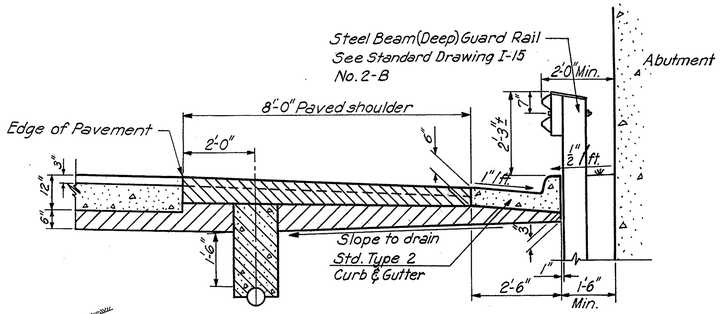
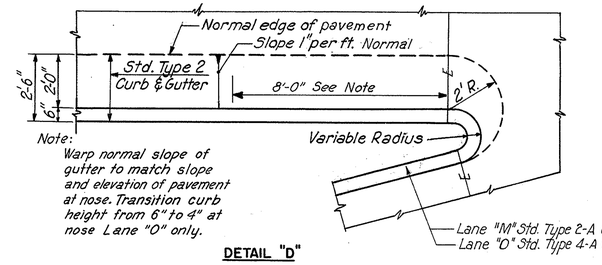
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM-8-11.65
MISCELLANEOUS DETAILS



DETAIL "A"
TYPICAL NOSE AND THROAT DETAILS
ENTRANCE RAMP
Scale 1"=20'-0"

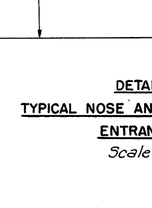


DETAIL "F"
GUARD RAIL PLACEMENT AT EAST ABUTMENT
LAFOLLETTE STREET UNDERPASS
Scale 1"=1'-0"



Note:
Warp normal slope of gutter to match slope and elevation of pavement at nose. Transition curb height from 6" to 4" at nose Lane "O" only.

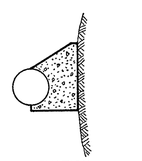
DETAIL "D"
PLAN OF CURB AND GUTTER TRANSITION
scale 3/8"=1'-0"



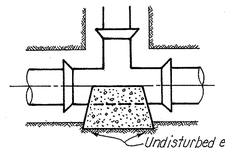
END ELEVATION

HORIZONTAL BEND

PLAN

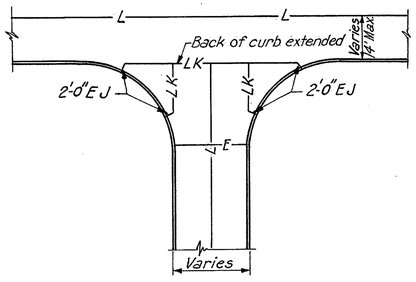


END ELEVATION

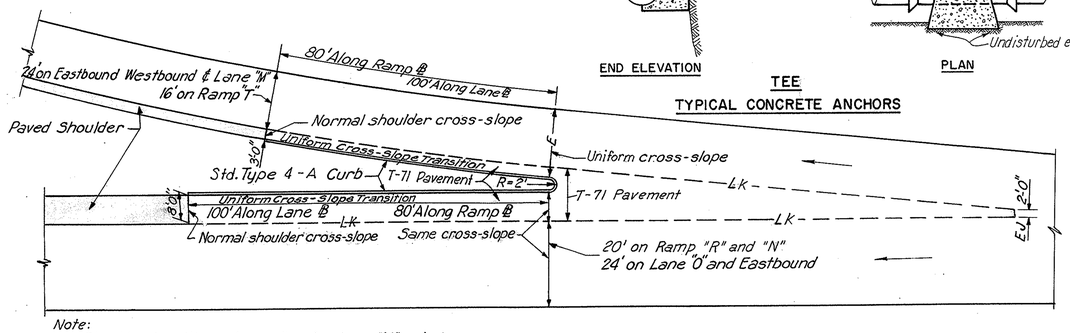


PLAN

TEE
TYPICAL CONCRETE ANCHORS

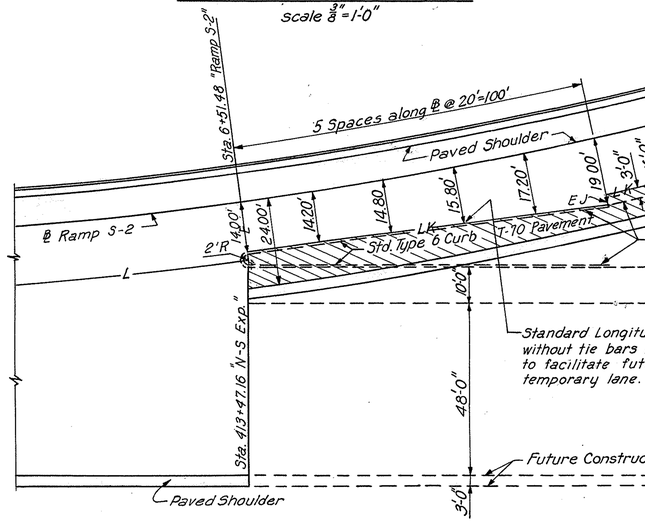


DETAIL "E"
TYPICAL INTERSECTION
SHOWING JOINT LOCATION
Not to Scale



Note:
Shoulder transition only applies for Lane "M" entering and Lane "O" leaving North-South Expressway.

DETAIL "B"
TYPICAL NOSE AND THROAT DETAILS
EXIT RAMP AND LANE
Scale 1"=20'

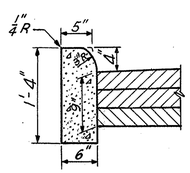


DETAIL "C"
CONNECTION
RAMP S-2 AND N-S EXPRESSWAY
Scale 1"=20'

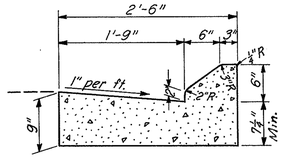
JOINT LEGEND

L	Standard Longitudinal Joint.
LK	Standard Longitudinal key Joint Without Tie Bars
E	Standard Expansion Joint
EJ	Standard Expansion Joint Without Dowels.
C	Standard Construction Joint.

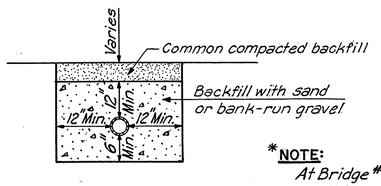
Note:
In addition to joints indicated on these details, "L" joints shall be placed as specified on typical sections. Also, additional expansion and contraction joints shall be in accordance with requirements of the specifications and Standard Drawing TJ.



DETAIL "H"
TYPE 6 (4") MODIFIED CURB
Scale 1"=1'-0"



DETAIL "K"
TYPE 2 MODIFIED CURB AND GUTTER
Scale 1½"=1'-0"

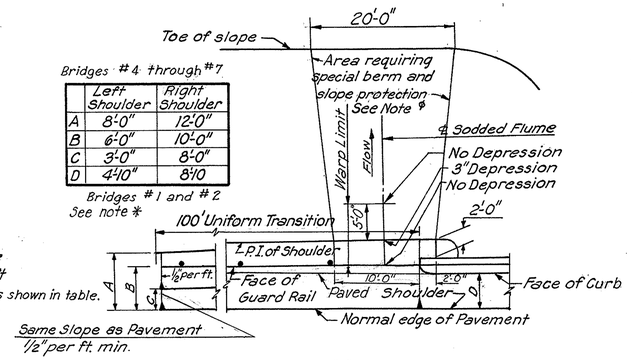


DETAIL "J"
TYPICAL BEDDING DETAIL
WATER MAINS
Not to Scale

	Left Shoulder	Right Shoulder
A	8'-0"	12'-0"
B	6'-0"	10'-0"
C	3'-0"	8'-0"
D	4'-10"	8'10

Bridges #1 and #2 See note *
Bridges #4 through #7

*NOTE:
At Bridge #2, "D" = 6'-10" on the right side and 4'-10" on the left side. Dimensions A, B, and C are as shown in table.
Left side Bridge #1 only "A" = 10'-0", "B" = 6'-0", "C" = 0, "D" = 4'-10".
Curb and Gutter is on left side adjacent to pavement instead of paved shoulder.
Right side Bridge #1 only "A" = 10'-0", B = 8'-0", C = 6'-0", D = 6'-10".



DETAIL "G"
SHOULDER TREATMENT ADJACENT TO WINGWALLS
Not to Scale

ϕ NOTE:
Prior to placement of sod, galvanized Straight Line Poultry Fence or equivalent having 2" mesh and all wires No. 20 Gauge shall be placed on the finished grade. The 4' wide strands shall be placed at right angles to the direction of flow. The edges of each strand shall be staked with 1"x1"x24" wood stakes placed at a maximum spacing of 4' and driven flush with finished grade. The strands of fencing shall be fastened together at twelve inch intervals by means of hog rings. The fence shall be secured to the wood stakes by metal staples.

Sod shall be laid in accordance with Construction and Material Specifications Section L-10.07. The price bid per Sq. Yd. for Sodding (including 2" galvanized wire mesh) shall constitute full compensation for furnishing all labor, equipment, tools and incidentals necessary to complete this item in place, completed and accepted.

For locations of Special Berm and Slope Protection see Pavement Details, Sheets 12, 13, 14, and Site Grading Plans, Sheets 41, 42, and 43.

SCALE As Shown
DES. JFF 12-19-57
MADE FWH DATE 2-3-58
TRCD. C.T.H. DATE 4-30-58
CKD. HHB DATE 5-2-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 22

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10

SUM-8-11.65
LIGHTING NOTES

LIGHTING NOTES

INSPECTION AND TESTING

COSTS OF ALL OF THE FOLLOWING INSPECTIONS AND TESTS SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS ITEMS, S-25, ON THIS PROJECT, EXCEPT FOR THE FURNISHING OF POWER, WHICH COSTS SHALL BE BORNE BY THE CITY OF AKRON.

THE INSTALLATION OF ALL STREET LIGHTING EQUIPMENT WILL BE INSPECTED BY A REPRESENTATIVE OF THE OHIO EDISON COMPANY WHILE BEING INSTALLED. THE COST OF SUCH INSPECTION SHALL BE BORNE BY THE CONTRACTOR.

UPON COMPLETION OF THE LIGHTING SYSTEM, THE FOLLOWING TESTS WILL BE CONDUCTED BY THE OHIO EDISON COMPANY, SUCH TESTS TO BE PAID FOR BY THE CONTRACTOR.

POTENTIAL TEST: THE POTENTIAL OF THE SYSTEM SHALL BE CONSIDERED SATISFACTORY WHEN THE TEST VOLTAGE OF TWICE THE OPERATING VOLTAGE PLUS 1,000 VOLTS IS HELD FOR ONE MINUTE.

BURNING TEST: THE COMPLETED LIGHTING SYSTEM SHALL BE OPERATED FROM SUNSET TO SUNRISE EACH NIGHT FOR A PERIOD OF ONE WEEK PRIOR TO ACCEPTANCE. DURING THIS TRIAL OPERATION, THE CONTRACTOR SHALL CORRECT ANY DEFECTS WHICH MAY DEVELOP, AT NO EXTRA COST TO THE STATE.

LIGHTING STANDARD FOUNDATIONS

THE LAMP STANDARD FOUNDATIONS SHALL BE CLASS "C" CONCRETE WITH FOUR (4) 1" x 3'-4" STEEL ANCHOR RODS, CADMIUM COATED 6" ON THREADED END, EXTENDED 2-11/16" ABOVE THE TOP OF THE FOUNDATION. EACH CABLE SHALL ENTER THE STANDARD THRU ONE 2" TRANSITE CONDUIT, OR EQUAL, INSTALLED IN THE CONCRETE FOUNDATION ON THE SAME SIDE AS EACH CABLE IS INSTALLED. CONDUIT SHALL EXTEND AT LEAST 4" ABOVE TOP OF FOUNDATION.

CABLE

THE NO. 6 AWG CABLE, AS INDICATED ON THE PLANS, SHALL BE 5,000 VOLT, STRANDED COPPER, SERIES CABLE WITH 10/64" RUBBER INSULATION, NON-SHIELDED, WITH 4/64" NEOPRENE JACKET, SUPER CORONAL-GEOPRENE OR EQUAL.

THE NO. 2 AWG CABLE, AS INDICATED ON THE PLANS, SHALL BE SEVEN-STRAND TINNED COPPER CABLE WITH 2/64" FLAMENOL INSULATION OR EQUAL.

STANDARDS

THE STANDARDS SHALL BE OF SUCH DESIGN AS TO MAKE A COMPLETE WIRING RACEWAY AFTER THE STANDARDS HAVE BEEN ASSEMBLED AND ERECTED. THE BRACKET SHALL NOT BE LESS THAN 2" INSIDE DIAMETER. THE STANDARDS SHALL BE EQUIPPED WITH A "J" HOOK PLACED INSIDE AND ABOVE THE BRACKET MOUNTING HEIGHT, TO ATTACH A CABLE GRIP IN SUCH A MANNER TO PREVENT THE CABLE FROM HANGING IN THE POLE AND BRACKET BUSHING AT THE POINT OF BRACKET ATTACHMENT TO POLE. THE LIGHT STANDARDS SHALL BE SUPPLIED WITH A GROUNDING LUG INSIDE THE BASE.

LUMINAIRE

THE LUMINAIRES SHALL BE AS FOLLOWS:

A. EXPRESSWAY - G.E. FORM 101AR-AGG129 OR WESTINGHOUSE AK-14 EXCEPT FOR 2" SLIP FITTER, OR EQUAL WITH ASA-IES TYPE IV DISTRIBUTION AND 15,000 LUMEN, 20 AMP. INCANDESCENT SERIES LAMPS.

B. RAMPS AND LANES - G.E. FORM 101R-AAG171 OR WESTINGHOUSE AK-10 (ROLLER LATCH) EXCEPT FOR 2" SLIP FITTER, OR EQUAL, WITH ASA-IES TYPE III DISTRIBUTION AND 10,000 LUMEN, 20 AMP. INCANDESCENT SERIES LAMPS.

C. UNDERSTRUCTURE UNITS - G.E. FORM-795-AAG157 OR WESTINGHOUSE AK-10 PENDENT, TYPE V DISTRIBUTION, OR EQUAL, WITH 6,000 LUMEN, 20 AMP. INCANDESCENT SERIES LAMPS.

CABLE INSTALLATION

CABLES SHALL BE CONTINUOUS FROM LUMINAIRE TO LUMINAIRE AND SHALL BE LAID NO LESS THAN 20" BELOW FINISHED GRADE. THE BURIED CABLES SHALL BE COMPLETELY SURROUNDED BY 3" OF "CONCRETE" SAND AND THE TRENCH FILL SHALL NOT CONTAIN STONE LARGER THAN 1/4" DIAMETER. WHERE THE CABLE AND GROUND ARE TO BE PLACED UNDER RAMPS OR PAVEMENT CROSSINGS, THEY SHALL BE INSTALLED IN A 4" DIAMETER JOHNS-MANVILLE KORDUCT OR EQUIVALENT, CENTERED IN A 10" x 10" CLASS "C" CONCRETE ENCASEMENT. THE CONDUIT AND CONCRETE ENCASEMENT SHALL EXTEND 1'-0" BEYOND THE EDGE OF STABILIZED SHOULDER OR BACK OF CURB. THE CONDUIT SHALL BE GRADED TO PREVENT ANY WATER POCKETS.

CABLE TERMINATION AND SPLICING

THE CABLE TERMINATIONS AND SPLICES SHALL BE MADE IN ACCORDANCE WITH THE LATEST CABLE MANUFACTURERS' RECOMMENDATIONS AND UNDER THE SUPERVISION OR DIRECTION OF THE OHIO EDISON COMPANY'S INSPECTOR.

CABLE ENDS AT THE LUMINAIRES SHALL BE REINFORCED BACK SIX INCHES FROM THE ENDS BY WRAPPING WITH GLASS TAPE AND COVERING WITH CLEAR INSULATING LACQUER.

GROUNDING

A GROUND ROD OR RODS SHALL BE DRIVEN UNDER THE BASE OF EACH LAMP STANDARD WITH A TINNED FLEXIBLE #6 BARE COPPER WIRE TAIL OF SUFFICIENT LENGTH TO REACH THE GROUNDING LUG ON THE STANDARD. STANDARD AND GROUND ROD MUST NOT MEASURE MORE THAN 15 OHMS RESISTANCE.

THE #2 CABLE SHALL BE GROUNDED TO THE LIGHTING STANDARD GROUND AT EACH STANDARD. AT THE MID POINT AND AT EACH END OF THE CIRCUIT, THE #2 GROUND CONDUCTOR SHALL BE CONNECTED TO THE OHIO EDISON COMPANY NEUTRAL GROUND GRID. LOCATION OF THESE GROUND POINTS AND METHOD OF INSTALLATION SHALL BE OBTAINED FROM THE OHIO EDISON COMPANY.

IF ADDITIONAL GROUND RODS ARE REQUIRED TO OBTAIN 15 OHMS RESISTANCE, THEY MAY BE DRIVEN 5'-0" OR MORE FROM THE BASE OF THE STANDARD AND TAILS FROM THE ADDITIONAL GROUND RODS SHALL BE EXTENDED FROM THESE RODS THROUGH THE CABLE ENTRANCE CONDUIT TO THE GROUNDING LUG IN THE STANDARD. ALL GROUNDING RODS AND TAILS SHALL NOT BE EXPOSED ABOVE THE GRADE LINE.

ELECTRICAL SYSTEM PRINTS

THE CONTRACTOR SHALL FURNISH TO THE OHIO EDISON COMPANY AT LEAST THREE (3) PRINTS OF THE ELECTRICAL SYSTEM SHOWING THE EXACT LOCATION OF CABLE, CONNECTIONS AND OTHER PERTINENT INFORMATION.

PAINTING

LIGHT STANDARDS SHALL BE GIVEN TWO FIELD COATS OF ALUMINUM PAINT CONFORMING TO SEC. M-9.12. THE FIRST COAT SHALL BE SUITABLY TINTED.

RE-USE OF EXISTING POLES

PAYMENT FOR ITEM S-25, "RE-USE OF EXISTING POLES", OF EXISTING LIGHTING UNITS SHALL INCLUDE THE REMOVAL AND THE DISPOSAL OF THE EXISTING POLE BASE WITH ANCHOR RODS, BACKFILLING, COMPACTING, CAREFUL STORAGE OF POLE, BRACKET, BRACKET ARM, LUMINAIRE, POLE AND BRACKET CABLE; THE REINSTALLATION OF THE LIGHTING UNITS ELSEWHERE ON THE LANES, AND THE REPAINTING OF THE POLES AND BRACKETS. QUANTITIES ARE INCLUDED IN THE ESTIMATED QUANTITIES FOR THE NEW POLE BASES FOR THESE RE-USED LIGHTING UNITS. THE LOCATIONS OF THE LIGHTING UNITS ON LANE "S" TO BE REMOVED ARE:

STA. 7+95
STA. 10+63
STA. 11+77
STA. 13+12
STA. 15+80
STA. 16+91

NO SPECIAL PAYMENT WILL BE MADE FOR NEW ANCHOR BOLTS FOR RE-USED POLES, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICE PAID FOR CONCRETE POLE FOUNDATIONS.

SCALE None
MADE G.J.C. DATE 6-9-58
TRCD. DATE
CKD. DATE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 23

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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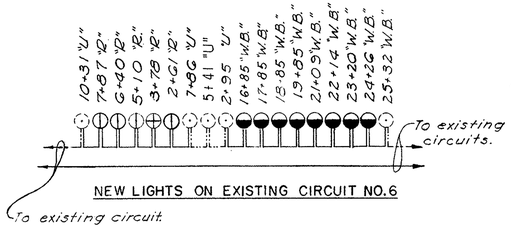
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
LIGHTING DETAILS

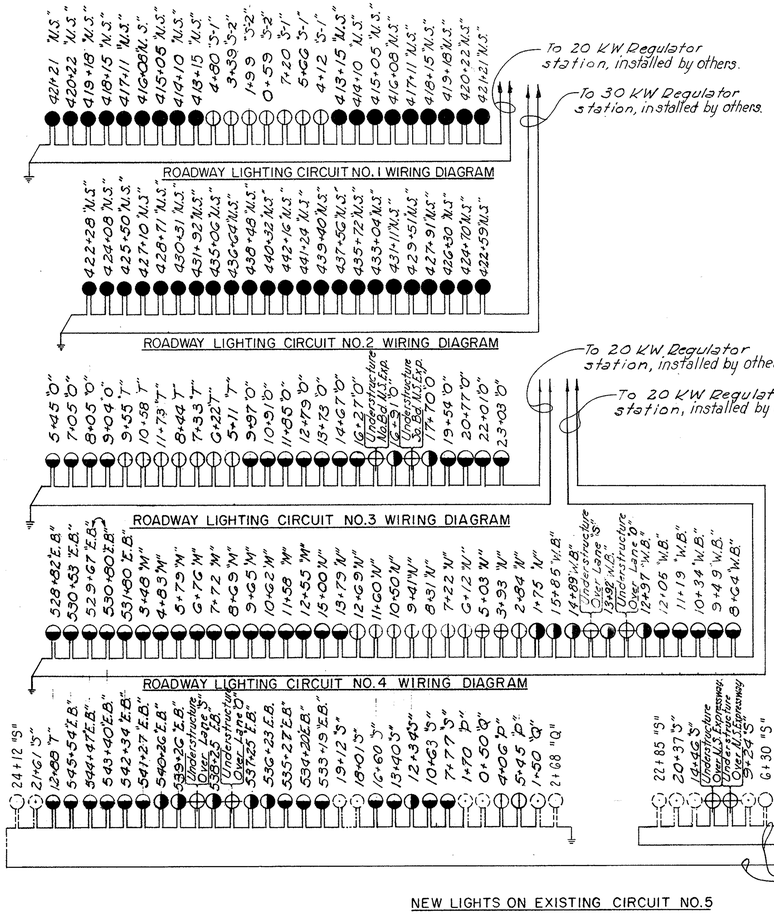
ESTIMATED LIGHTING QUANTITIES			
ITEM	DESCRIPTION	UNIT	QUANTITIES
S-25	Pole Foundations, Concrete	Each	127
S-25	Luminaire; 15,000 Lumen, Type IV	Each	41
S-25	Luminaire; 10,000 Lumen, Type III	Each	96
S-25	Concrete encased Duct, as per Plan	Lin.Ft.	845
S-25	Pole and Bracket Cable, 2 Conductor, Size #8 AWG, 5KV	Lin. Ft.	6000'
S-25	Lighting Cable, No.6, Single Condctor Cable	Lin. Ft.	25,650
S-25	Ground Grid wire, No. 2, Single Conductor, Bare	Lin.Ft.	20,700
S-25	Standards, 27'-3" Pole with 10' Bracket	Each	79
S-25	Standards 29'-3" Pole with 15 Bracket.	Each	41
S-25	Remove and Reinstall Existing Lights	Each	6



NEW LIGHTS ON EXISTING CIRCUIT NO.6

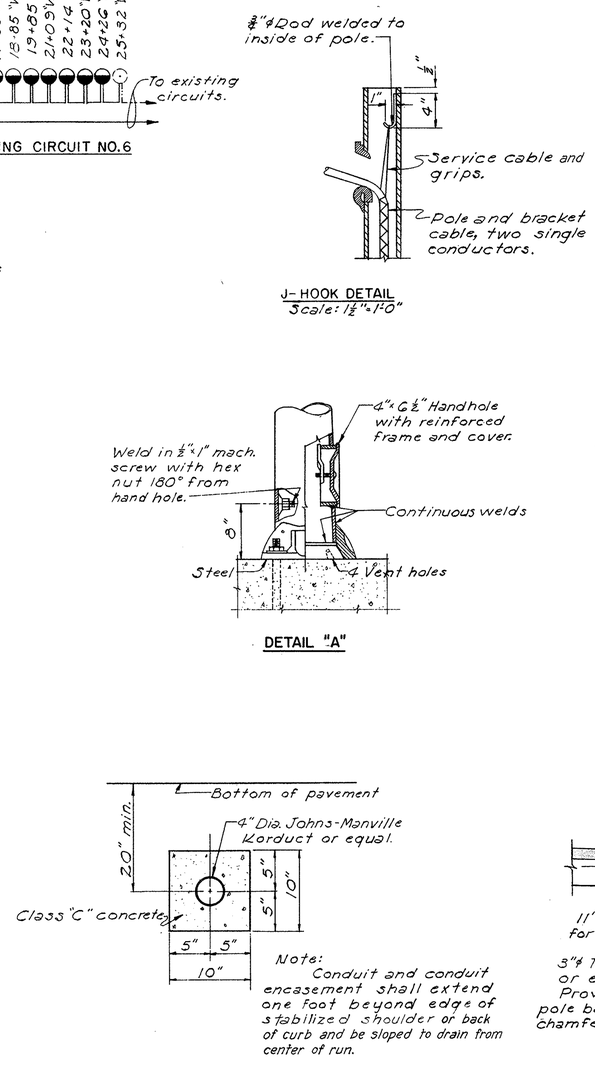
Note: Quantities for Standards on bridges and undecked Luminaires are shown on bridge plans.

J-HOOK DETAIL
Scale: 1½"=1'0"

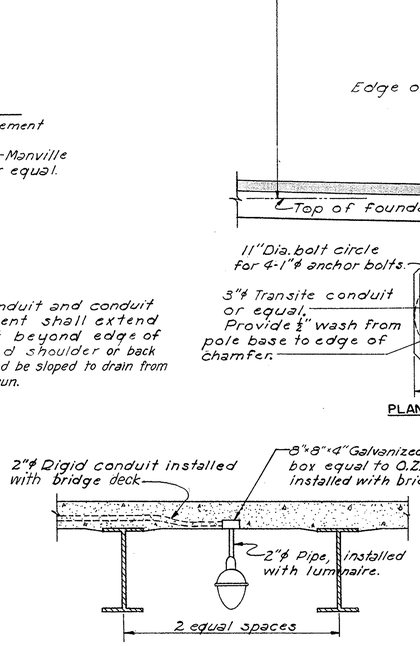


NEW LIGHTS ON EXISTING CIRCUIT NO.5

DETAIL "A"

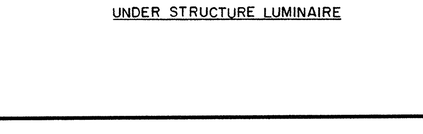


SECTION OF CONDUIT RUN UNDER PAVEMENT
Scale: ½" = 1'-0"



PLAN AT TOP OF BASE

TYPICAL ROADWAY LIGHTING UNIT
Scale: ½"=1'-0"



UNDER STRUCTURE LUMINAIRE

SCALE As Shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE JRK DATE 5-20-58	CONSULTING ENGINEERS
TRCD. JVR DATE 6-18-58	KANSAS CITY CLEVELAND NEW YORK
CHD. GJC DATE 6-18-58	1018 SHEET- 24

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

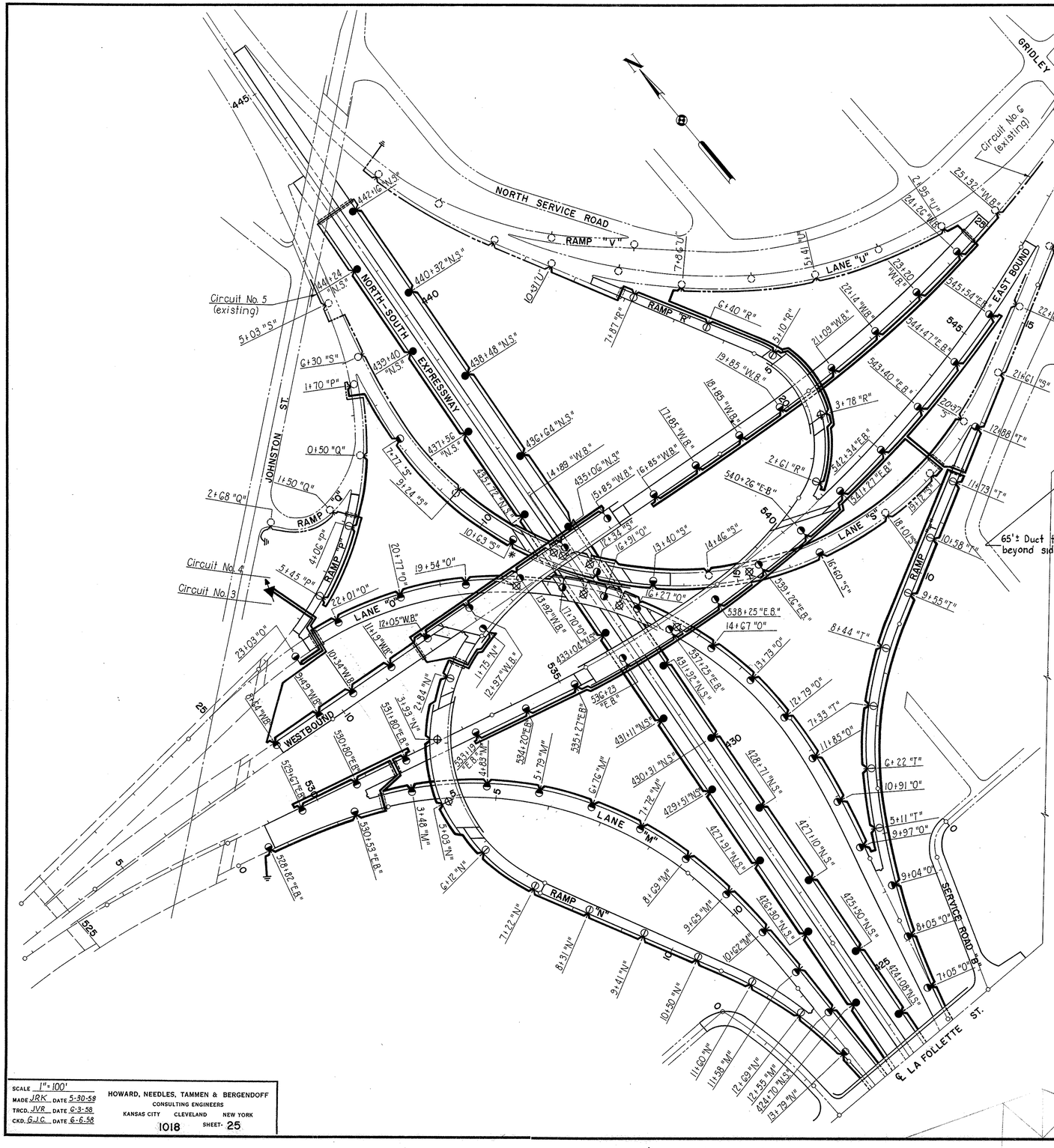
25
176

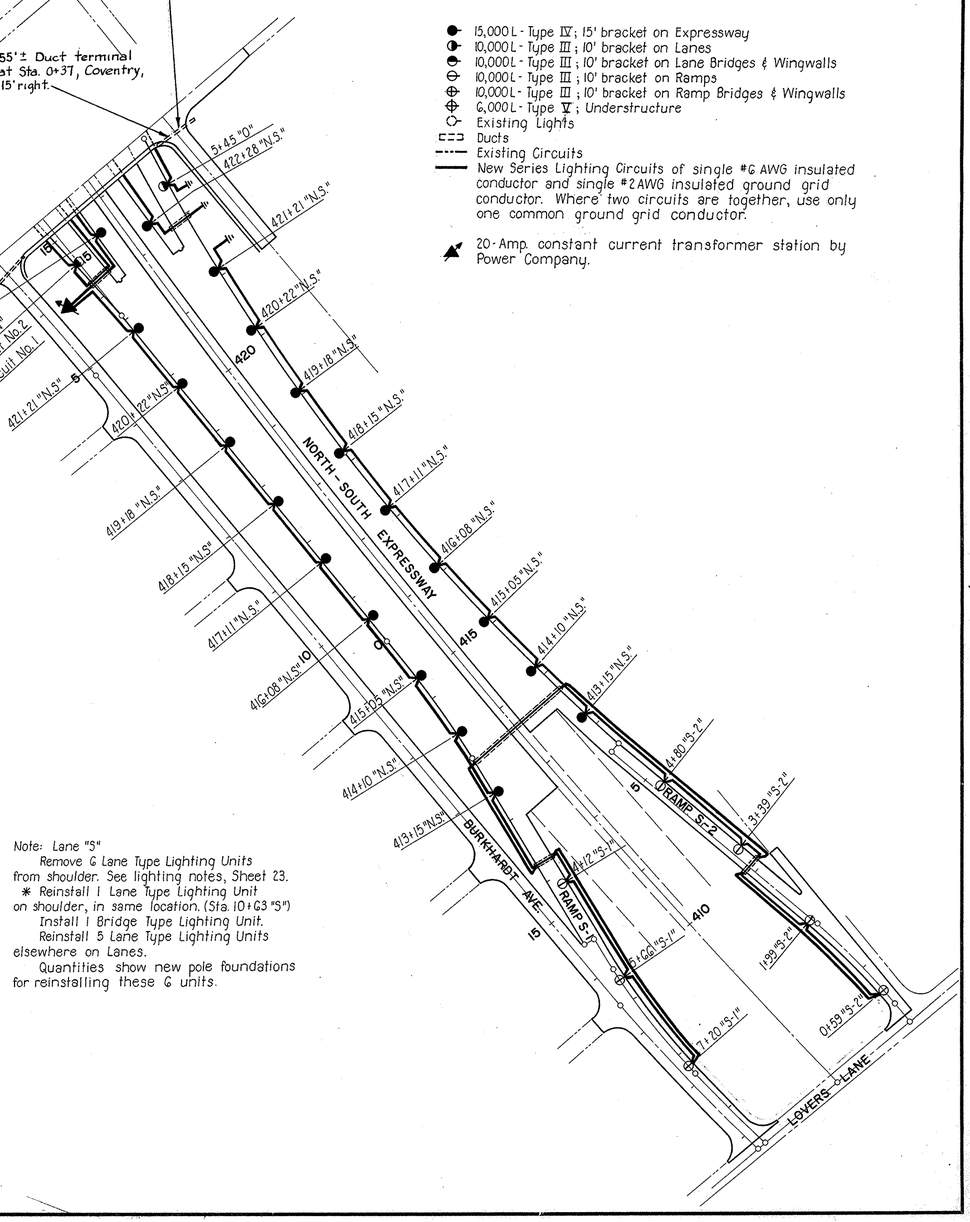
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10

SUM-8-11.65

LIGHTING LAYOUT





KEY

- ● 15,000 L - Type IV; 15' bracket on Expressway
- ◑ 10,000 L - Type III; 10' bracket on Lanes
- ◓ 10,000 L - Type III; 10' bracket on Lane Bridges & Wingwalls
- ⊖ 10,000 L - Type III; 10' bracket on Ramps
- ⊕ 10,000 L - Type III; 10' bracket on Ramp Bridges & Wingwalls
- ⊕ 6,000 L - Type V; Understructure
- ○ Existing Lights
- Ducts
- Existing Circuits
- New Series Lighting Circuits of single #6 AWG insulated conductor and single #2 AWG insulated ground grid conductor. Where two circuits are together, use only one common ground grid conductor.
- 20-Amp. constant current transformer station by Power Company.

Note: Lane "S"
Remove 6 Lane Type Lighting Units from shoulder. See lighting notes, Sheet 23.
* Reinstall 1 Lane Type Lighting Unit on shoulder, in same location. (Sta. 10+63 "S")
Install 1 Bridge Type Lighting Unit.
Reinstall 5 Lane Type Lighting Units elsewhere on Lanes.
Quantities show new pole foundations for reinstalling these 6 units.

SCALE 1" = 100'
MADE JRK DATE 5-30-58
TRCD. JVR DATE 6-3-58
CKD. GJC DATE 6-6-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 25

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	26 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM.-8-11.65
DRAINAGE & UTILITIES
PLAN SHEET

CODE	LOCATION		ESTIMATED QUANTITIES - CATCH BASINS & INLETS								
			I-8 2-2A C.B. Each	I-8 2-3 Mod C.B. Reinf. Concr. Each	I-8 Std. 4 Mod C.B. Each	I-8 Std. 3 C.B. Each	I-8 Akron No.3 Each	I-8 Std. 3-A C.B. Each	Special Paved Apron Each	I-8 Std. No.4 Mod. C.B. Reinf. Concr. Each
A-1	412+40 ℄ N.S., 1°± Lt.	†		1						
A-2	417+50 ℄ N.S., 1°± Lt.	†								1
A-3	422+25 ℄ N.S., 1°± Lt.	†			1					
A-4	15+75 ℄ N, 20' Rt.	*	1						1	
A-5	5+00 ℄ O, 10' Rt.	*				1				
A-6	10+50 ℄ S-2, 10' Rt.	†				1				
A-7	20+00 ℄ M, 20' Rt.	*	1						1	
A-8	5+50 ℄ S-2, 26' Rt.	†						1		
A-9	19+16 ℄ Burk., 50' Lt.	†					1			
A-10	16+90 ℄ Burk., 12' Rt.	†					1			
A-11	14+15 ℄ Burk., 12' Rt.	†					1			
A-12	13+80 ℄ Burk., 12' Lt.	†					1			
A-13	11+50 ℄ Burk., 12' Rt.	†					1			
A-14	11+11 ℄ Burk., 12' Lt.	†					1			
A-15	8+95 ℄ Burk., 12' Rt.	†					1			
A-16	8+56 ℄ Burk., 12' Lt.	†					1			
A-17	6+20 ℄ Burk., 12' Rt.	†					1			
A-18	5+84 ℄ Burk., 12' Lt.	†					1			
A-19	3+45 ℄ Burk., 12' Rt.	†					1			
A-20	3+45 ℄ Burk., 12' Lt.	†					1			
A-21	14+90 ℄ Lafollette, 22' Lt.	†					1			
A-22	0+40 ℄ Coventry, 13' Lt.	†					1			
A-23	11+90 ℄ Lafollette, 20' Lt.	†					1			
A-24	0+40 ℄ Coventry, 13' Rt.	†					1			
A-93	16+12 ℄ Lafollette, 14' Lt.	†					1			
	Sheet Total		2	1	1	2	17	1	2	1

CODE	LOCATION		ESTIMATED QUANTITIES - MANHOLE						
			I-8 Std. I M.H. Each	I-8 Std. 2M.H. W/Drop Each	I-8 Std. 2M.H. W/O Drop Each	I-8 M.H. Adj. to Grade Each		I-16 M.H. Abandoned Each	I-16 Inlet Abandoned Each
S-1	0+35 @ S-2, 14' Lt.	†	1						
S-2	13+57± ℄ Coven., 18' Rt.	†		1					
S-3	10+87± ℄ Coven., 18' Rt.	†		1					
S-4	8+18± ℄ Coven., 18' Rt.	†		1					
S-5	5+63± ℄ Coven., 18' Rt.	†		1					
S-6	2+90± ℄ Coven., 18' Rt.	†		1					
S-7	0+46 ℄ Coven., @ ℄	†			1				
S-9	5+83± ℄ Burk., 20' Rt.	†	1						
S-10	15+28 ℄ Lafollette, @ ℄	†	1						
U-2	16+50± ℄ Burk., 25'± Rt.	†						1	
U-3	16+50± ℄ Burk., 15'± Rt.	†				1			
U-4	13+80± ℄ Burk., 20'± Rt.	†				1			
U-5	11+12± ℄ Burk., 25'± Rt.	†				1			
U-6	8+55± ℄ Burk., 6'± Lt.	†				1			
U-7	5+84± ℄ Burk., 32'± Lt.	†						1	
B-1	19+12± ℄ Burk., 20' Lt.	†							1
B-2	16+65± ℄ Burk., 9' Lt.	†							1
B-3	16+36± ℄ Burk., 5' Lt.	†							1
B-4	16+36± ℄ Burk., 22' Rt.	†							1
B-5	16+65± ℄ Burk., 22' Rt.	†							1
B-6	13+90± ℄ Burk., 7' Rt.	†							1
B-7	13+70± ℄ Burk., 3' Rt.	†							1
B-8	11+25± ℄ Burk., 12' Rt.	†							1
B-9	10+96± ℄ Burk., 12' Rt.	†							1
B-10	8+71± ℄ Burk., 15' Lt.	†							1
B-11	8+42± ℄ Burk., 15' Lt.	†							1
B-12	16+12± ℄ Lafollette, 13' Lt.	†							1
B-13	14+05± ℄ Coven., 13' Rt.	†							1
B-14	12+33± ℄ Lafollette, 35' Lt.	†							1
B-15	11+81± ℄ Lafollette, 13' Lt.	†							1
B-16	12+05± ℄ Lafollette, 36' Lt.	†							1
	Sheet Total		3	5	1	4		2	16

CODE	ROADWAY	FROM	TO	ESTIMATED QUANTITIES - PIPES (DESCRIPTION)										
				I-2 12" B.U.P. L.F.	I-2 15" B.U.P. L.F.	I-2 24" B.U.P. M6.8b L.F.	I-2 30" B M6.6a M6.8b L.F.	I-2 30" B.U.P. M6.6a M6.8b L.F.	I-2 33" B M6.6c L.F.	I-2 33" B.U.P. M6.6a M6.8b L.F.	I-2 36" B M6.6a M6.8b L.F.	I-2 36" B M6.6b M6.8b L.F.	I-5 Flap Gate 12" Each	I-2 33" Pipe Radius M6.6a M6.8b L.F.
P-1	Ramp S-2 †	A-8	A-1	106										
P-2	N.S. Exp. †	A-1	A-2						510*					
P-3	N.S. Exp. †	A-7	A-2	80										
P-4	N.S. Exp. †	A-6	A-2		66									
P-5	N.S. Exp. †	A-2	A-3									470		
P-6	Lane "O" *	A-5	A-3		86									
P-7	Lane "M" *	A-4	A-3	96										
P-8	N.S. Exp. †	A-3	A-27								196			
P-9	Lovers Lane †	A-9	U-10	38									1	
P-10	Burkhardt †	A-10	U-3	36									1	
P-11	Burkhardt †	A-11	U-4	32									1	
P-12	Burkhardt †	A-13	U-5	36									1	
P-13	Burkhardt †	A-15	U-6	42									1	
P-14	Burkhardt †	A-17	S-9	32									1	
P-15	Burkhardt †	A-19	A-20	24										
P-16	Burkhardt †	A-20	S-10	48									1	
P-17	Lafollette †	A-21	S-10	42									1	
P-18	Coventry +	A-24	S-7	14									1	
P-19	Coventry +	A-22	S-7	14									1	
P-20	Lafollette †	A-23	S-8	18									1	
P-84	Burkhardt †	A-12	U-4	32									1	
P-85	Burkhardt †	A-14	U-5	36									1	
P-86	Burkhardt †	A-16	U-6	4									1	
P-87	Burkhardt †	A-18	S-9	30									1	
N-1	Lovers Lane +	U-1	S-1			58								
N-2	Coventry †	S-1	S-2					238						
N-3	Coventry †	S-2	S-3				266							
N-4	Coventry †	S-3	S-4				266							
N-5	Coventry †	S-4	S-5				252							
N-6	Coventry †	S-5	S-6							270				
N-7	Coventry +	S-6	S-7							228				20
N-8	Coventry +	S-7	S-8							16				38
	Sheet Total			760	152	58	784	238	510	514	196	470	15	58

ESTIMATED QUANTITIES - UNDERDRAINS		
I-4 6" Underdrains,	L.F.	7,240
I-4 6" Outlet Pipe for Underdrains,	L.F.	268
I-4 8" Outlet Pipe for Underdrains,	L.F.	58
I-5 6" Pipe Specials,	Ea.	25

Notes:

*Length of 33"×4' stub at A-1 included with P-2. A plug of brick masonry extending 6" beyond the outer edge of the pipe shall be constructed to effectively block end of stub. Cost of plug included in Item I-2 as per Sec. I-2.04.

All existing inlets as shown to be abandoned on this sheet shall also require the plugging at the lower end of the outlet pipe at the manhole. Payment to be included in Item I-16, "Inlets Abandoned".

Manholes S-2 thru S-8 shall be located on existing sewers as shown on this sheet; their installation shall require the cutting and plugging of existing sewers flowing to the west.

Existing combined sewers from east into M.H.'s U-3 thru U-6, S-9 and S-10 shall be plugged. See General Drainage Note.

Existing 15" sewer at U-2 shall be connected thru U-2, and service will be maintained.

P-8 shall be constructed as to clear horizontally pier footings by a minimum of 1.0' and a maximum of 2'. This shall be accomplished by breaking the joint between two successive pipes no more than 1", and at no sacrifice to smoothness or hydraulic characteristics at the joint. At no place or joint between A-3 and A-27 shall there be a counterdirectional or reverse curve.

Existing 24" sewer flowing west from U-1 shall be cut and plugged at U-1.

I-4 Underdrain along S.B. Exp. in the pier footing area @ Lafollette St. Bridge may be installed less than 3'-0" from edge of pavement in order to obtain vertical and horizontal clearance of B-8.

K-18 shall be cut and plugged at U-8 and U-9. Payment will be considered with U-9.

Note: The radii of curved sewer on N-7 and N-8 are 21'-6" min. P.I.'s of curves from S-6 to S-8 are:
Sta. 2+83 ℄ Coven., 18' Rt.
Sta. 2+35 ℄ Coven., @ ℄
Sta. 0+28 ℄ Coven., @ ℄
Sta. 11+94 ℄ Lafollette, 12' Lt.
FL. 1092.55
Sta. 11+88 ℄ 11+92 ℄ Lafollette
FL. 1093.75
Sta. 0+41 ℄ 0+45

B-12 shall be abandoned and replaced with A-93 which will be relocated @ proposed curb. Connection of A-93 to existing outlet pipe of B-12 shall be included in Unit Price Bid for I-8 Akron #3 C.B.

CODE	LOCATION OF EXISTING STRUCTURES
U-1	0+00 ℄ S-2 (Exist. M.H.) 38' Rt.
U-8	2+90± ℄ Coventry (Exist M.H.) @ ℄
U-10	19+26± ℄ Burk., (Exist M.H.) 9' Lt.

SCALE 1"=50'
MADE R.J.D. DATE 8-12-58
TRCD. M.C.M. DATE 8-13-58
CKD. B.H.R. DATE 8-15-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 26

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

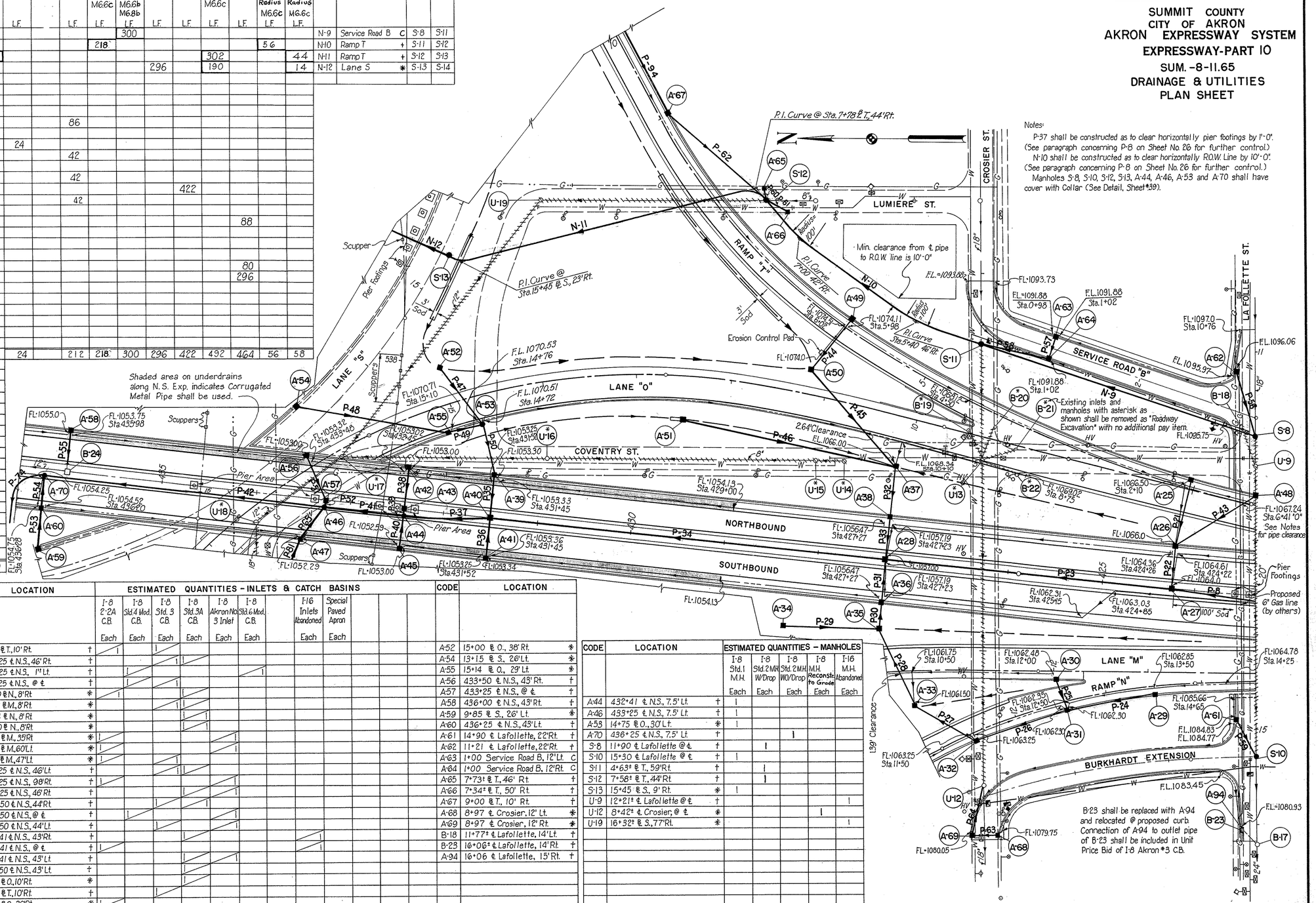
27/176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM.-8-11.65
DRAINAGE & UTILITIES
PLAN SHEET

CODE	ROADWAY	FROM	TO	ESTIMATED QUANTITIES - PIPES																
				I-5 Flap Gate 12" 15" Each	I-2 12"B L.F.	I-2 12"B.U.P. L.F.	I-2 15"B L.F.	I-2 15"B.U.P. L.F.	I-2 18"B L.F.		I-2 18"B.U.P. L.F.	I-2 36"B M6.6c L.F.	I-2 33"B.U.P. M6.6b M6.8b L.F.	I-2 36"B L.F.	I-2 42"B L.F.	I-2 42"B.U.P. M6.6c L.F.	I-2 48"B.U.P. L.F.	I-2 36"Pipe Radius M6.6c L.F.	I-2 42"Pipe Radius M6.6c L.F.
P-21	Lane "O" *	A-25	A-26			68						218	300					56	
P-22	Northbound Exp. †	A-26	A-27					42								302			44
P-23	N.S. Exp. †	A-27	A-28											296		190			14
P-24	Ramp "N" *	A-29	A-31		94														
P-25	Ramp "N" *	A-30	A-31			32													
P-26	Ramp "N" *	A-31	A-32				102												
P-27	Ramp "N" *	A-32	A-33					74											
P-28	Lane "M" *	A-33	A-35								86								
P-29	Lane "M" *	A-34	A-35		100														
P-30	Southbound Exp. †	A-35	A-36						24										
P-31	Southbound Exp. †	A-36	A-28								42								
P-32	Northbound Exp. †	A-37	A-38		50														
P-33	Northbound Exp. †	A-38	A-28								42								
P-34	N.S. Exp. †	A-28	A-40												422				
P-35	Northbound Exp. †	A-39	A-40								42								
P-36	Southbound Exp. †	A-41	A-40			42													
P-37	Southbound Exp. †	A-40	A-44														88		
P-38	Northbound Exp. †	A-42	A-43			40													
P-39	Northbound Exp. †	A-43	A-44			4													
P-40	Southbound Exp. †	A-45	A-44			32													
P-41	Southbound Exp. †	A-44	A-46														80		
P-42	Southbound Exp. †	A-46	A-70														296		
P-43	Lane "O" *	A-48	A-26			100													
P-44	Ramp "T" †	A-49	A-50			66													
P-45	Lane "O" *	A-50	A-37			134													
P-46	Lane "O" *	A-51	A-37		230														
P-47	Lane "O" *	A-52	A-53			74													
P-48	Lane "S" *	A-54	A-55			160													
P-49	Lane "O" *	A-55	A-53		36				24		212	218	300	296	422	492	464	56	58
P-50	Lane "O" *	A-53	A-39		54														
P-51	Northbound Exp. †	A-56	A-57			48													
P-52	Southbound Exp. †	A-57	A-46			4													
P-53	Lane "S" *	A-59	A-60		50														
P-54	Southbound Exp. †	A-60	A-70			32													
P-55	Northbound Exp. †	A-58	B-24			36													
P-56	Lafollette †	A-62	S-8	1		70													
P-57	Service Road B C	A-63	A-64																22
P-58	Service Road B C	A-64	S-11	1													70		
P-59	Lafollette †	A-61	S-10	1		40													
P-60	Ramp "T" †	A-65	S-12	1		12													
P-61	Ramp "T" †	A-66	S-12	1		20													
P-62	Ramp "T" †	A-67	S-12	1				136											
P-63	Crosier *	A-68	A-69			24													
P-64	Crosier *	A-69	U-12	1	52														
P-65	Southbound Exp. †	A-47	A-46																42
P-94	Ramp T †	A-100	A-67		182														
	Sheet Total			5	2	848	1038	308	180										

CODE	ROADWAY	FROM	TO
N-9	Service Road B C	S-8	S-11
N-10	Ramp T +	S-11	S-12
N-11	Ramp T +	S-12	S-13
N-12	Lane S *	S-13	S-14

Notes:
P-37 shall be constructed as to clear horizontally pier footings by 1'-0". (See paragraph concerning P-8 on Sheet No. 26 for further control.)
N-10 shall be constructed as to clear horizontally R.O.W. Line by 10'-0". (See paragraph concerning P-8 on Sheet No. 26 for further control.)
Manholes S-8, S-10, S-12, S-13, A-44, A-46, A-53 and A-70 shall have cover with Collar (See Detail, Sheet #39).



ESTIMATED QUANTITIES - UNDERDRAINS		
I-4 6" Underdrain Pipe	L.F.	4664
I-4 6" Pipe Outlet for Underdrains	L.F.	258
I-5 6" Pipe Special	Each	16
I-4 6" Underdrain Pipe Perforated Corrugated Metal Pipe M-6.4(b)	L.F.	1193
I-4 8" Pipe Outlet for Underdrains Corrugated Metal Pipe M-6.4(a)	L.F.	136
I-5 8" Pipe Specials M-6.4(a)	Each	9

PARTICIPATION

* Indicates I-1086(8) Code 6707
** Code 0010
\+ Indicates I-1093(4) Code 6707
C Indicates 100% City Participation

CODE	LOCATION	ESTIMATED QUANTITIES - INLETS & CATCH BASINS								
		I-8 2-2A C.B. Each	I-8 Std.4 Mod. C.B. Each	I-8 Std. 3 C.B. Each	I-8 Std.3A C.B. Each	I-8 Akron No 3 Inlet Each	I-8 Std.6 Mod. C.B. Each		I-16 Inlets Abandoned Each	Special Paved Apron Each
A-25	2+00 ℄ T., 10' Rt. †									
A-26	424+25 ℄ N.S., 46' Rt. †									
A-27	424+25 ℄ N.S., 11' Lt. †									
A-28	427+25 ℄ N.S., @ ℄ †									
A-29	13+50 ℄ M., 8' Rt. *									
A-30	12+02 ℄ M., 8' Rt. *									
A-31	12+54 ℄ N., 8' Rt. *									
A-32	11+50 ℄ N., 8' Rt. *									
A-33	10+50 ℄ M., 35' Rt. *									
A-34	9+25 ℄ M., 60' Lt. *									
A-35	10+20 ℄ M., 47' Lt. *									
A-36	427+25 ℄ N.S., 46' Lt. †									
A-37	427+25 ℄ N.S., 98' Rt. †									
A-38	427+25 ℄ N.S., 46' Rt. †									
A-39	431+50 ℄ N.S., 44' Rt. †									
A-40	431+50 ℄ N.S., @ ℄ †									
A-41	431+50 ℄ N.S., 44' Lt. †									
A-42	432+41 ℄ N.S., 43' Rt. †									
A-43	432+41 ℄ N.S., @ ℄ †									
A-45	432+41 ℄ N.S., 45' Lt. †									
A-47	433+50 ℄ N.S., 43' Lt. †									
A-48	6+29 ℄ O., 10' Rt. *									
A-49	6+00 ℄ T., 10' Rt. †									
A-50	11+21 ℄ O., 26' Rt. *									
A-51	12+50 ℄ O., 46' Lt. *									
	Sheet Total	9	3	9	14	7	1		2	1

CODE	LOCATION	
A-52	15+00 ℄ O., 36' Rt. *	
A-54	13+15 ℄ S., 26' Lt. *	
A-55	15+14 ℄ O., 29' Lt. *	
A-56	433+50 ℄ N.S., 43' Rt. †	
A-57	433+25 ℄ N.S., @ ℄ †	
A-58	436+00 ℄ N.S., 43' Rt. †	
A-59	9+85 ℄ S., 26' Lt. *	
A-60	436+25 ℄ N.S., 43' Lt. †	
A-61	14+90 ℄ Lafollette, 22' Rt. †	
A-62	11+21 ℄ Lafollette, 22' Rt. †	
A-63	1+00 Service Road B, 12' Lt. C	
A-64	1+00 Service Road B, 12' Rt. C	
A-65	7+73± ℄ T., 46' Rt. †	
A-66	7+34± ℄ T., 50' Rt. †	
A-67	9+00 ℄ T., 10' Rt. †	
A-68	8+97 ℄ Crosier, 12' Lt. *	
A-69	8+97 ℄ Crosier, 12' Rt. *	
B-18	11+77± ℄ Lafollette, 14' Lt. †	
B-23	16+06± ℄ Lafollette, 14' Rt. †	
A-94	16+06 ℄ Lafollette, 15' Rt. †	

CODE	LOCATION	ESTIMATED QUANTITIES - MANHOLES				
		I-8 Std.1 M.H. Each	I-8 Std.2 MH W/Drop Each	I-8 Std.2 M.H. W/O Drop Each	I-8 M.H. Reconstr. to Grade Each	I-16 M.H. Abandoned Each
A-44	432+41 ℄ N.S., 7.5' Lt. †	1				
A-46	433+25 ℄ N.S., 7.5' Lt. †	1				
A-53	14+75 ℄ O., 30' Lt. *	1				
A-70	436+25 ℄ N.S., 7.5' Lt. †			1		
S-8	11+90 ℄ Lafollette @ ℄ †		1			
S-10	15+30 ℄ Lafollette @ ℄ †	1				
S-11	4+63± ℄ T., 59' Rt. †		1			
S-12	7+58± ℄ T., 44' Rt. †		1			
S-13	15+45 ℄ S., 9' Rt. *	1				
U-9	12+21± ℄ Lafollette @ ℄ †					1
U-12	8+42± ℄ Crosier, @ ℄ *				1	
U-19	16+32± ℄ S., 77' Rt. *					1
	Sheet Total	5	3	1	1	2

SCALE 1"=50'-0"	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE F.W.H. DATE 6-16-58	CONSULTING ENGINEERS
TRCD M.C.M. DATE 6-16-58	KANSAS CITY NEW YORK
CKD R.J.D. DATE 6-18-58	1018 SHEET- 27

Note:

The placing of N-13 and N-14 requires the removal of Existing 48" Seg. Block Sewer, this constitutes an obstruction and Item I-2 para. I-203 shall govern.

See Detail, Sheet #40 for Details of S-17.

Existing Manholes thus ⊛ noted shall be replaced with Std. #2 Manhole, and payment for removal shall be included in the Unit Price Bid per each I-8 Type 2 manholes.

See Detail Sheet #40 for connection of Existing 8" and 18" Sewers to manhole S-16.

K-1 Thru. K-4 shall be encased in 5" class "E" Concrete. Limits of encasement shall be as shown on plans or specified by the Engineer. See Detail sheet #37 A.

The abandoning of U-21 shall include the connecting thru of K-3 to N-18.

Concrete collars on N-13, N-14 and N-16 shall be included in the Unit price bid per lineal foot of pipe. See detail sheet #37.

The abandoning of U-23 shall include the connecting thru. from K-6 to Junction Chamber S-17 with 48" M-106.6(d). See detail Sheet #40.

Payment for connecting K-4 and K-7 to S-16 shall be included in Unit price bid of I-8, Std. #2 manhole with drop. See Detail Sheet #40.

Existing 48" Seg. Block sewer K-8 shall be sealed when cut at the limits of trench excavation for N-15 in the area of U-20, sewer shall also be sealed at Sta. 24+00.

The complete Sand filling to Crown of Pipe, placement of seals and any incidental work and/or materials shall be included in Unit bid price of "Special-filled 48" Pipe" Item I-16 shall govern. sealing.

CODE	LOCATION		ESTIMATED QUANTITIES - MANHOLES & CATCH BASINS											
			I-8 2-2A C.B. Each	I-8 Std. 3 C.B. Each	I-8 Std. 3A C.B. Each	I-8 Std. 7 C.B. Each	I-8 Std. E.M.H. W/Drop Each	I-8 Std. E.M.H. W/O Drop Each	I-8 M.H. Reconstr. to Grade Each	I-16 Inlet Abandoned Each	I-16 Manhole Abandoned Each	Special Paved Apron Each	Special Junction Chamber Each	I-8 Akron 3 C.B. Each
A-71	21+30 ℄ W.B., 104' Lt.	*	1											
A-72	21+15 ℄ W.B., 16' Rt.	*	1									1		
A-73	18+25 ℄ W.B., 35' Rt.	*	1											
A-74	7+00 ℄ R., 125' Lt.	*				1								
A-75	440+00 ℄ N.S., 43' Rt.	†		1										
A-76	440+00 ℄ N.S., 43' Lt.	†			1									
A-77	24+60 ℄ W.B., 18' Rt.	*	1									1		
B-25	23+38 ℄ W.B., 15' Lt.	*								1				
B-26	23+40 ℄ W.B., 17' Rt.	*								1				
B-27	7+27 ℄ R., 118' Lt.	*								1				
B-28	7+39 ℄ R., 141' Lt.	*								1				
U-20	24+48 ℄ W.B., 11' Rt.	*					1†							
U-21	21+08 ℄ W.B., 4' Lt.	*									1			
U-22	18+20 ℄ W.B., 17' Rt.	*									1			
U-23	7+54 ℄ R., 121' Lt.	*									1			
U-24	7+75 ℄ R., 132' Lt.	*									1			
U-25	7+56 ℄ R., 106' Lt.	*									1			
U-26	8+53 ℄ R., 69' Lt.	*							1					
U-27	11+48 ℄ T., 28' Lt.	†							1					
U-28	19+08 ℄ S., 42' Lt.	*								1				
U-29	436+90 ℄ N.S., 39' Rt.	†							1					
S-14	18+10 ℄ W.B. 36' Rt.	*							1					
S-15	5+25 ℄ Ramp R, 9.3' Rt.	*					1							
S-16	7+54 ℄ Ramp R 107' Lt.	*					1†							
A-98	24+15 ℄ Hammel, 13' Lt.	*												1
A-99	24+15 ℄ Hammel, 13' Rt.	*												1
A-100	10+85 ℄ T, 10' Rt.	†			1									
S-17	7+75 ℄ R, 132' Lt.	*											1	
	Sheet Total		4	1	2	1	3	3	2	4	5	2	1	2

†NOTE: If Std. I-8 MH № 1-A Manholes are constructed at these locations, precast reinf. conc. rings shall meet requirements of Sec. M-6.4(c), Ex. Str. Reinf. Conc. Pipe.

CODE	ROADWAY		FROM	TO	ESTIMATED QUANTITIES - PIPES										
					I-2 12"B L.F.	I-2 12"B.W.P. L.F.	I-2 15"B L.F.	I-2 15"B.W.P. M 68b L.F.	Special Filled 48" Pipe L.F.	I-2 48"B.W.P. M 66c L.F.	I-2 48" B.W.P. M-106.6(d) L.F.	I-2 48" Pipe Radius M-106.6(d) L.F.	Special 15" Pipe Encased L.F.	Special 18" Pipe Encased L.F.	Special 21" Pipe Encased L.F.
P-92	Hammel	*	A-93	A-98		26									
N-13	Westbound	*	S-14	K-6						86					
P-66	Westbound	*	A-77	U-20	10										
P-67	Westbound	*	A-71	S-15			44								
P-68	Westbound	*	A-72	A-71		118									
P-69	Westbound	*	A-73	S-14	10										
P-70	Southbound	†	A-76	B-29		36									
P-71	Northbound	†	A-75	B-29		36									
P-72	Ramp R	*	A-74	S-16			54								50
N-14	Westbound	*	K-5	U-20							192		114		
N-15	Westbound	*	U-20	S-15							352	12	227		
N-16	Ramp R	*	S-15	S-16							304			193	
N-17	Ramp R	*	S-16	S-17							8				
N-18	Westbound	*	K-3	S-15				134							
P-93	Hammel	*	A-99	A-100	62										
K-8	Westbound	*	U-22	Seal					485						
	Sheet Total				82	216	98	134	485	86	856	12	341	193	50

ESTIMATED QUANTITIES - UNDERDRAINS			
I-4	6" Underdrains	L.F.	3907
I-4	6" Outlet Pipe for Underdrains	L.F.	280
I-4	8" Outlet Pipe for Underdrains	L.F.	50
I-5	6" Pipe Specials	Each	15

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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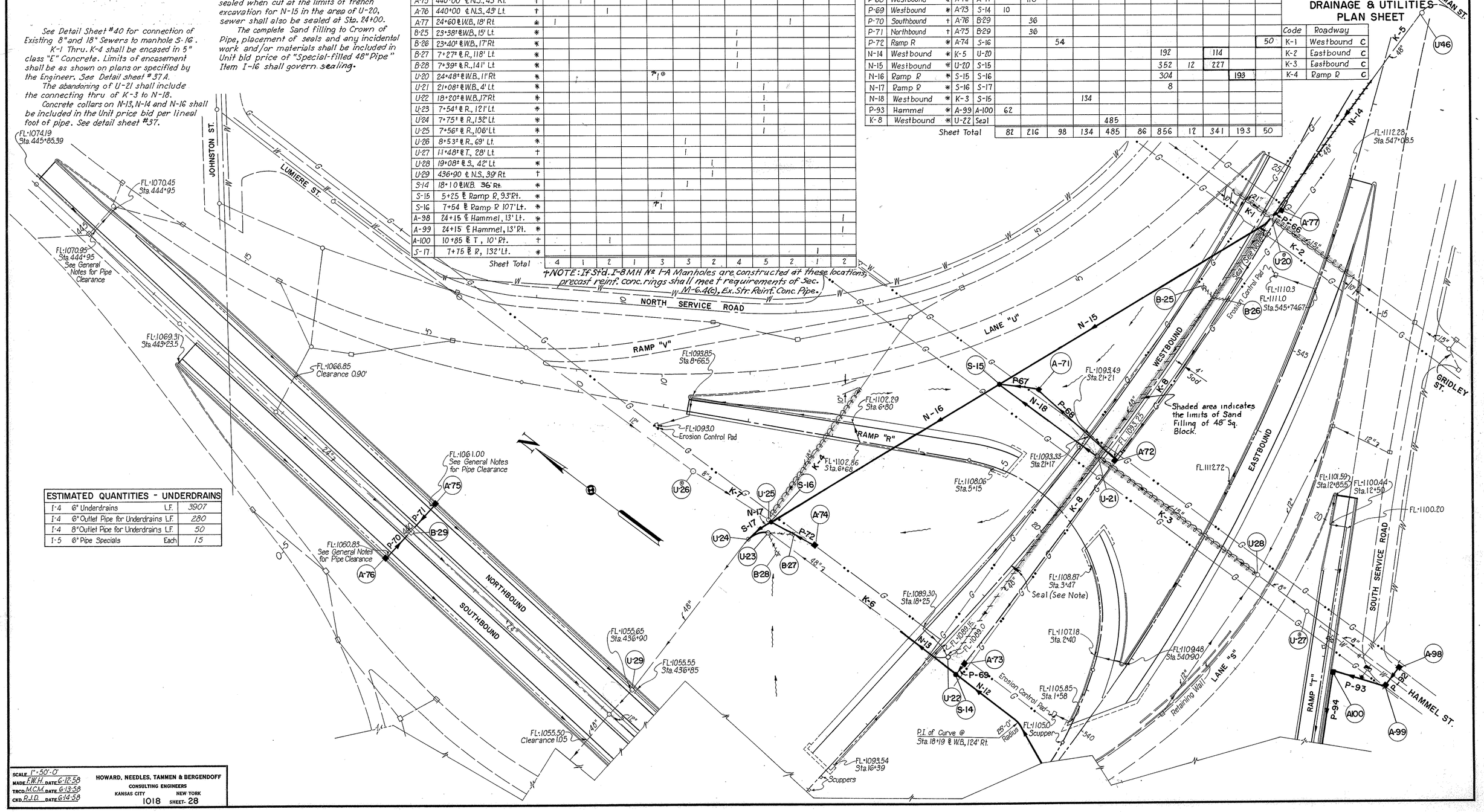
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM.-8-11.65
DRAINAGE & UTILITIES
PLAN SHEET

Code	Roadway	
K-1	Westbound	C
K-2	Eastbound	C
K-3	Eastbound	C
K-4	Ramp R	C



SCALE	1"=50'-0"
MADE	F.W.H. DATE 6-12-58
TRCD.	M.C.M. DATE 6-13-58
CKD.	R.J.D. DATE 6-14-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET- 28

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

29
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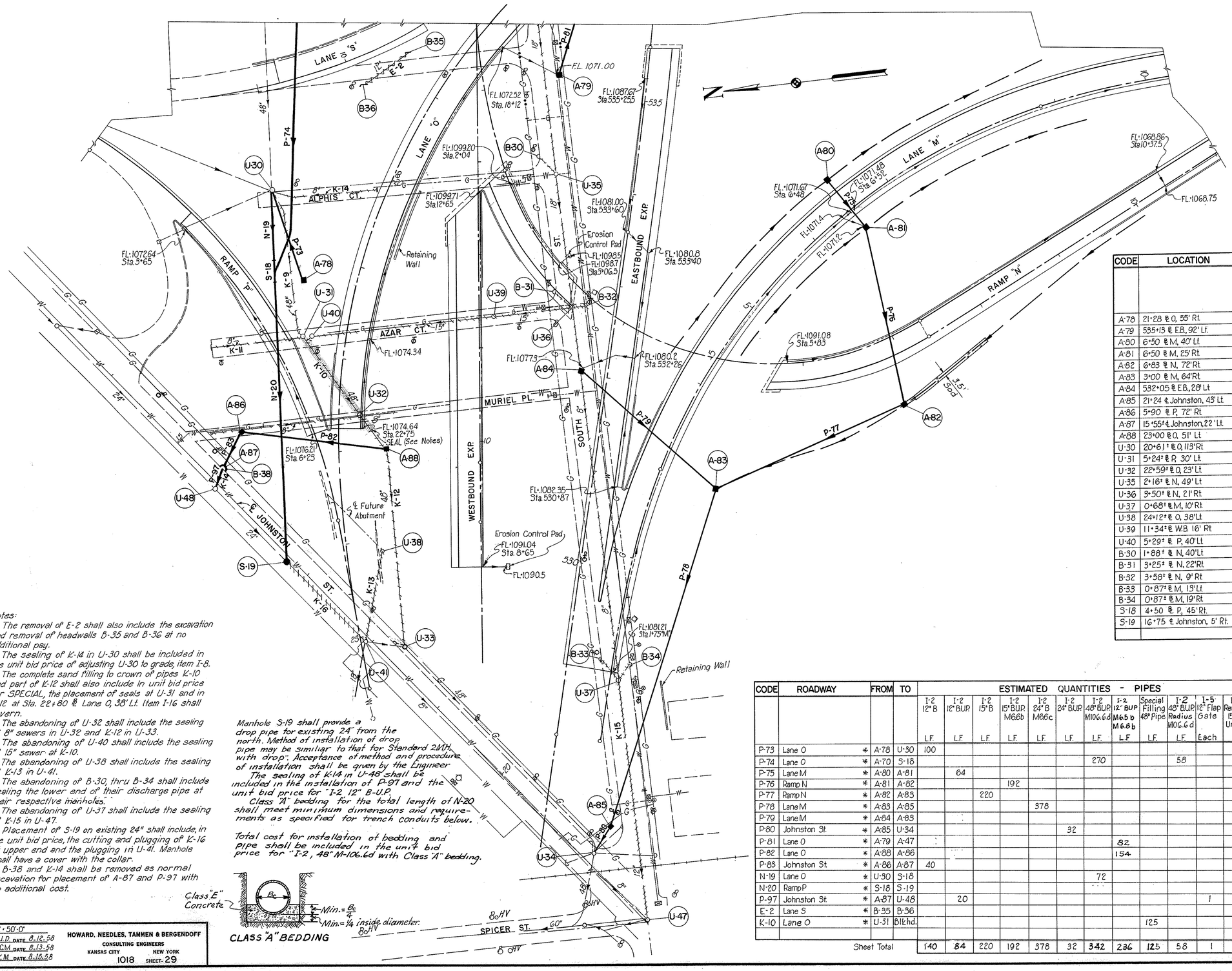
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM.-8-11.65
DRAINAGE & UTILITIES
PLAN SHEET



Notes:

The removal of E-2 shall also include the excavation and removal of headwalls B-35 and B-36 at no additional pay.

The sealing of K-14 in U-30 shall be included in the unit bid price of adjusting U-30 to grade, item I-8.

The complete sand filling to crown of pipes K-10 and part of K-12 shall also include in unit bid price for SPECIAL, the placement of seals at U-31 and in K-12 at Sta. 22+80 ℄ Lane O, 38' Lt. Item I-16 shall govern.

The abandoning of U-32 shall include the sealing of 8" sewers in U-32 and K-12 in U-33.

The abandoning of U-40 shall include the sealing of 15" sewer at K-10.

The abandoning of U-38 shall include the sealing of K-13 in U-41.

The abandoning of B-30, thru B-34 shall include sealing the lower end of their discharge pipe at their respective manholes.

The abandoning of U-37 shall include the sealing of K-15 in U-47.

Placement of S-19 on existing 24" shall include, in the unit bid price, the cutting and plugging of K-16 at upper end and the plugging in U-41. Manhole shall have a cover with the collar.

B-38 and K-14 shall be removed as normal excavation for placement of A-87 and P-97 with no additional cost.

Manhole S-19 shall provide a drop pipe for existing 24" from the north. Method of installation of drop pipe may be similar to that for Standard 2MH. with drop". Acceptance of method and procedure of installation shall be given by the Engineer

The sealing of K-14 in U-48 shall be included in the installation of P-97 and the unit bid price for "I-2 12" B-U.P.

Class "A" bedding for the total length of N-20 shall meet minimum dimensions and requirements as specified for trench conduits below.

Total cost for installation of bedding and pipe shall be included in the unit bid price for "I-2, 48" M-106.6d with Class "A" bedding.

CODE	LOCATION		ESTIMATED QUANTITIES - CATCH BASINS, INLETS & MANHOLES									
			I-8 2-2A C.B. Each	I-8 2-3 Mod. C.B. Each	I-8 Std.#2 M.H. Each	I-8 M.H. Reconstr. to Grade Each	I-16 M.H. Abandoned Each	I-16 Inlet Abandoned Each	Special Junction Chamber Each	Special Paved Apron Each	I-8 Akronite.3 Inlet Each	
A-78	21+28 ℄ O, 55' Rt.	*	1									
A-79	535+13 ℄ E.B., 92' Lt.	*	1									
A-80	6+50 ℄ M, 40' Lt.	*	1									
A-81	6+50 ℄ M, 25' Rt.	*	1									
A-82	6+83 ℄ N, 72' Rt.	*	1							1		
A-83	3+00 ℄ M, 64' Rt.	*		1								
A-84	532+05 ℄ E.B., 28' Lt.	*	1									
A-85	21+24 ℄ Johnston, 43' Lt.	*		1								
A-86	5+90 ℄ P, 72' Rt.	*	1									
A-87	15+55± ℄ Johnston, 22' Lt.	*									1	
A-88	23+00 ℄ O, 51' Lt.	*	1									
U-30	20+61± ℄ O, 113' Rt.	*				1						
U-31	5+24± ℄ P, 30' Lt.	*					1					
U-32	22+59± ℄ O, 23' Lt.	*					1					
U-35	2+16± ℄ N, 49' Lt.	*					1					
U-36	3+50± ℄ N, 21' Rt.	*					1					
U-37	0+68± ℄ M, 10' Rt.	*					1					
U-38	24+12± ℄ O, 38' Lt.	*					1					
U-39	11+34± ℄ W.B. 16' Rt.	*					1					
U-40	5+29± ℄ P, 40' Lt.	*					1					
B-30	1+88± ℄ N, 40' Lt.	*						1				
B-31	3+25± ℄ N, 22' Rt.	*						1				
B-32	3+58± ℄ N, 9' Rt.	*						1				
B-33	0+87± ℄ M, 13' Lt.	*						1				
B-34	0+87± ℄ M, 19' Rt.	*						1				
S-18	4+50 ℄ P, 45' Rt.	*							1			
S-19	16+75 ℄ Johnston, 5' Rt.	*			†1							
			8	2	1	1	8	5	1	1	1	

†See note on Sheet No 28 if Std. No 1-A M.H. is used.

CODE	ROADWAY		FROM	TO	ESTIMATED QUANTITIES - PIPES													
					I-2 12" B L.F.	I-2 12" B.U.P. L.F.	I-2 15" B L.F.	I-2 15" B.U.P. M.66.b L.F.	I-2 24" B M.66.c L.F.	I-2 24" B.U.P. L.F.	I-2 48" B.U.P. M106.6.d L.F.	I-2 12" B.U.P. M.65.b M.6.8.b L.F.	Special Filling 48" Pipe L.F.	I-2 48" B.U.P. Radius M106.6.d L.F.	I-5 12" Flap Gate Each	E-12 Reinf. Pipe 15" and Under L.F.	I-2 12" B M.66.a L.F.	I-2 48" B.U.P. M.106.6d CL."A" Bed L.F.
P-73	Lane O	*	A-78	U-30	100													
P-74	Lane O	*	A-70	S-18							270			58				
P-75	Lane M	*	A-80	A-81		64												
P-76	Ramp N	*	A-81	A-82				192										
P-77	Ramp N	*	A-82	A-83			220											
P-78	Lane M	*	A-83	A-85					378									
P-79	Lane M	*	A-84	A-83													192	
P-80	Johnston St.	*	A-85	U-34						32								
P-81	Lane O	*	A-79	A-47								82						
P-82	Lane O	*	A-88	A-86								154						
P-83	Johnston St.	*	A-86	A-87	40													
N-19	Lane O	*	U-30	S-18							72							
N-20	Ramp P	*	S-18	S-19														300
P-97	Johnston St.	*	A-87	U-48		20									1			
E-2	Lane S	*	B-35	B-36												56		
K-10	Lane O	*	U-31	Blk'hd.									125					
	Sheet Total				140	84	220	192	378	32	342	236	125	58	1	56	192	300

ESTIMATED QUANTITIES - UNDERDRAINS		
I-4 6" Underdrain Pipe	L.F.	3,005
I-4 6" Pipe Outlet for Underdrains	L.F.	191
I-4 8" Pipe Outlet for Underdrains	L.F.	50
I-5 6" Pipe Special	Each	10

SCALE	1" = 50'-0"
MADE	R.J.D. DATE 8-12-58
TRCD	M.C.M. DATE 8-13-58
CKD.	H.K.M. DATE 8-15-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET 29

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM.-8-11.65
DRAINAGE PLAN SHEET

GENERAL DRAINAGE NOTES

1. Normal Grade for all pavement inlets and catch basins is the normal gutter elevation at the intersection of the center of structure and the curb face. Normal Grade for all ditch catch basins is the normal ditch elevation at the center of the structure.

2. At places where the plans provide for proposed drainage pipes to be connected to existing pipes, it shall be the responsibility of the contracter to locate the existing pipe both as to line and grade before he starts to lay the proposed sewer. The cost of this operation shall be included in the unit price bid for the pertinent pipe item.

3. The contracter shall so conduct his operations that the flow of all existing sewers will be maintained at all times. Any additional labor or cost involved in maintaining this flow by pumping or by any other approved method found necessary for the completion of this project shall be included in the price bid for Item I-2, "Storm Sewers".

4. Items L-10, "Sodding", and I-14, "Paved Gutter", are provided for on the plans for erosion control. The Engineer shall check and make adjustments in location and quantities for these items where indicated by field conditions during construction.

5. Payment for L-10, "Sodding", L-10, "Sodding", (including 2" Galvanized Wire Mesh, as per plan) shall be shown under Roadway Quantities.

6. Where an existing sewer is to be abandoned, the abandoned portion shall be cut and plugged at the limits of the new construction and at each intervening manhole or inlet, to the satisfaction of the Engineer. The cost to be included in the Unit Price Bid for the various I-16 items.

7. Where previously abandoned sewer pipes are encountered during construction, the pipes shall be cut at the limits of new construction and plugged in accordance with methods outlined in Sec. I-16.03. Payment for cutting and plugging shall be included in the Unit Price Bid for Item E-101, "Excavation."

8. Where it is necessary under Item I-8, "Manholes Adjusted to Grade" to replace unsatisfactory manhole frame and cover castings, they shall be replaced with the Akron standard frame and cover. (See Sheet No. 33). An estimated quantity of 3 Each, Item E-8 Std. Akron M.H. Frame & Cover or Reconstructed have been provided in the Summary for use if and as directed by the Engineer.

9. Standard city manhole covers and frames as shown on Sheet 33 shall be used on all new manholes.

10. Steps for manholes Std. 2-3 modified and Std. 2-4 modified C.B.'s shall be cast iron in lieu of wrought iron as specified on Standard Drawings.

11. Akron No. 3 Inlet is a City of Akron Standard Inlet. For Details see Sheet 33.

12. All underdrains and pipe specials for underdrains shall be six (6) inches in diameter, ten (10) feet back from point of outlet, where it becomes eight (8) inch diam. corrugated metal pipe. (See Detail Sheet 38)

13. For locations of underdrains in relation to pavement edges see typical sections. The flow lines indicated on the drainage plan sheets are for underdrains.

14. Where a top of rock profile is indicated, it shall be considered approximate and the accuracy there is not guaranteed by the state.

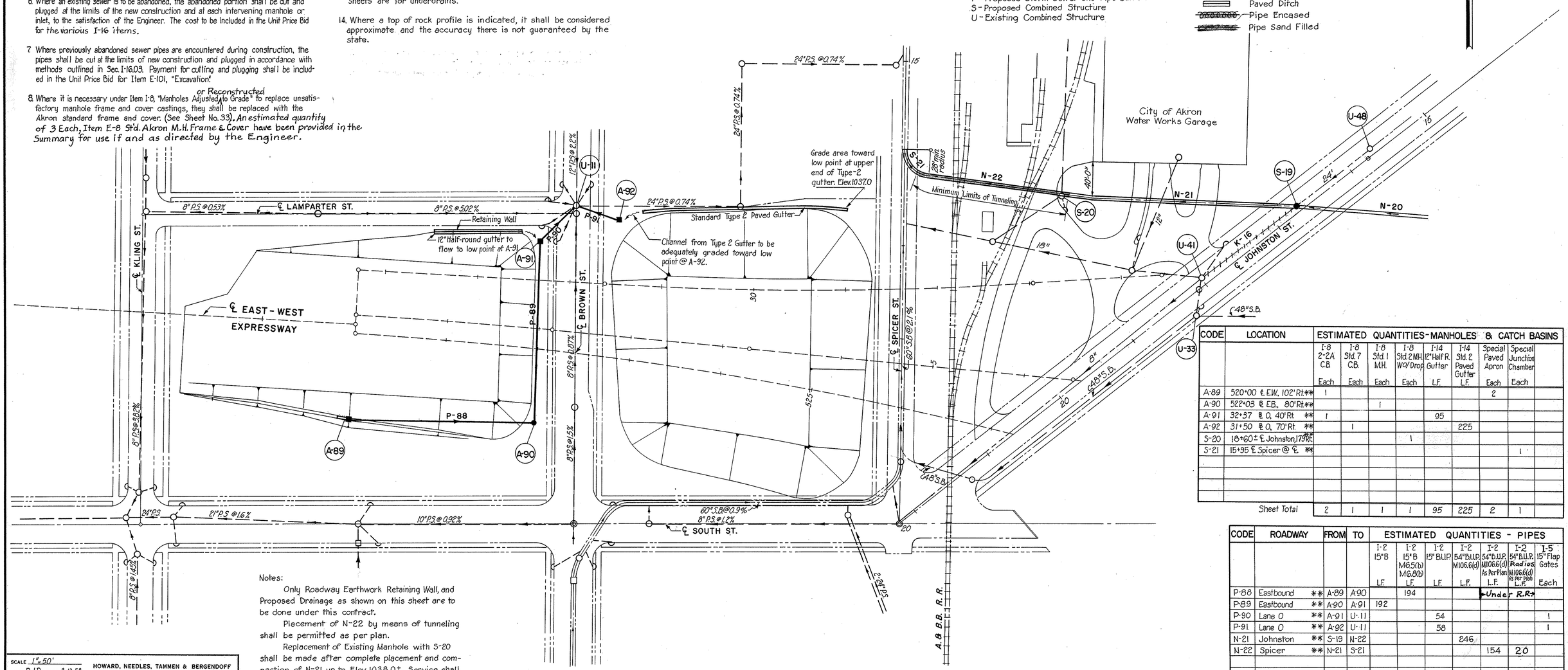
ABBREVIATIONS USED IN DRAINAGE PLANS AND PROFILES

Rt. - Right
Lt. - Left
U.P. - Under pavement or approaches
T/G - Top of Grate
T/C - Top of Cover
N.G. - Normal Grade
C.B. - Catch Basin
M.H. - Manhole
No. - Number
S.B. - Segmental Block
Exp. - Expressway
Directions are noted as N, S, E and W.

Call Letters: Drainage structures and pipes are prefixed with the following call letters.
A - Proposed Storm Structure
B - Existing Storm Structure
E - Existing Storm Sewer and Culvert
H - Proposed Headwall
K - Existing Combined Sewer
N - Proposed Combined Sewer
P - Proposed Storm Sewer and Pipe Culvert
S - Proposed Combined Structure
U - Existing Combined Structure

DRAINAGE LEGEND

- Proposed Sewer
- Existing Storm Sewer
- Existing Combined Sewer
- Proposed Underdrain
- Proposed Catch Basin and/or Inlet
- Proposed Catch Basin with Paved Apron
- Proposed Manhole
- Existing Inlet
- Existing Manhole
- Direction of Flow
- Sod
- Pipe Abandoned
- Pipe Removed
- Paved Ditch
- Pipe Encased
- Pipe Sand Filled



CODE	LOCATION	ESTIMATED QUANTITIES - MANHOLES & CATCH BASINS							
		I-8 2-2A C.B. Each	I-8 Std. 7 C.B. Each	I-8 Std. 1 M.H. Each	I-8 Std. 2 MH. W/O Drop	I-14 12" Half R. Gutter L.F.	I-14 Std. 2 Paved Gutter L.F.	Special Paved Apron Each	Special Junction Chamber Each
A-89	520+00 ℄ E.W. 102' Rt. **	1						2	
A-90	522+03 ℄ E.B., 80' Rt. **			1					
A-91	32+37 ℄ O, 40' Rt. **	1				95			
A-92	31+50 ℄ O, 70' Rt. **		1				225		
S-20	18+60± ℄ Johnston, 179' Rt. **				1				
S-21	15+95 ℄ Spicer @ ℄ **								1
Sheet Total		2	1	1	1	95	225	2	1

CODE	ROADWAY		FROM	TO	ESTIMATED QUANTITIES - PIPES						
					I-2 15" B L.F.	I-2 15" B M6.5(b) M6.8(b) L.F.	I-2 15" B.U.P. L.F.	I-2 54" B.U.P. M106.6(d) L.F.	I-2 54" B.U.P. M106.6(d) As Per Plan L.F.	I-2 54" B.U.P. Radius M106.6(d) as per Plan L.F.	I-5 15" Flap Gates Each
P-88	Eastbound	**	A-89	A-90		194			← Under R.R. →		
P-89	Eastbound	**	A-90	A-91	192						
P-90	Lane O	**	A-91	U-11			54				1
P-91	Lane O	**	A-92	U-11			58				1
N-21	Johnston	**	S-19	N-22				246			
N-22	Spicer	**	N-21	S-21					154	20	
Sheet Total					192	194	112	246	154	20	2

Notes:
Only Roadway Earthwork Retaining Wall, and Proposed Drainage as shown on this sheet are to be done under this contract.
Placement of N-22 by means of tunneling shall be permitted as per plan.
Replacement of Existing Manhole with S-20 shall be made after complete placement and compaction of N-21 up to Elev. 1038.0±. Service shall be maintained in Existing 21" Sewer.

SCALE 1" = 50'
MADE R.J.D. DATE 8-12-58
TRCD. M.G.M. DATE 8-15-58
CKD. H.K.M. DATE 8-15-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 30

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

3-I
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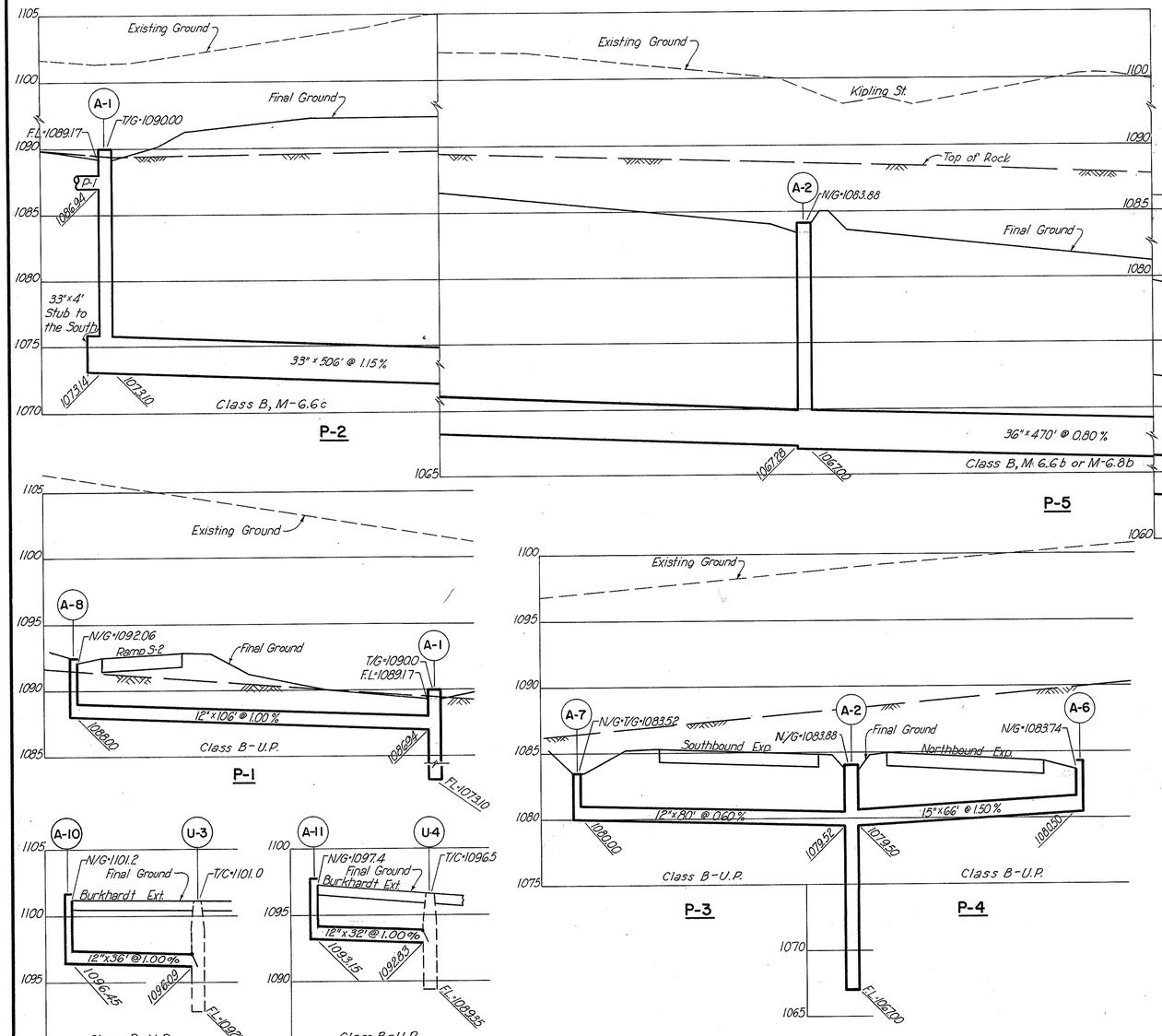
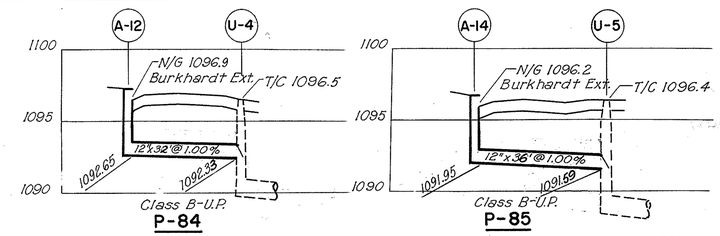
SUMMIT COUNTY
CITY OF AKRON

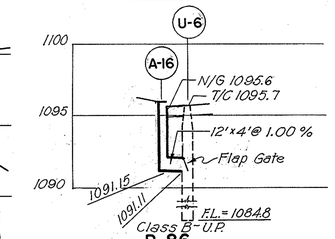
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
DRAINAGE PROFILES

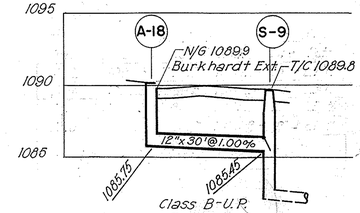
Profiles for Plan Sheet No. 26

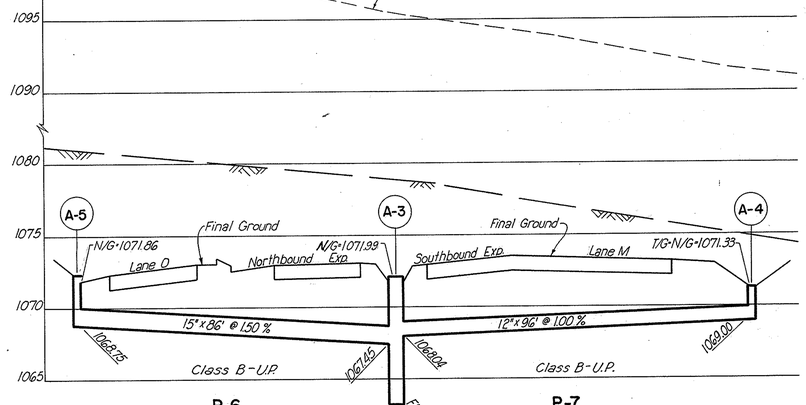
P-1 Thru P-20
P-84 Thru P-87

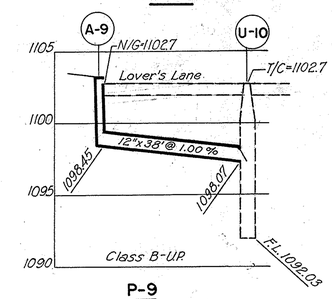


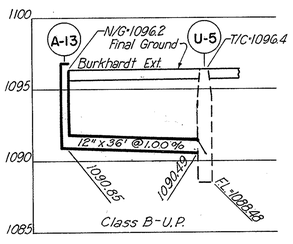


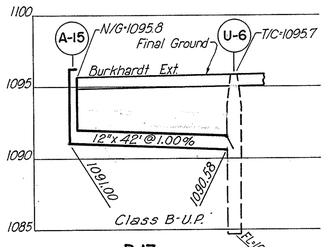


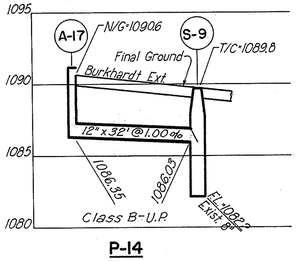


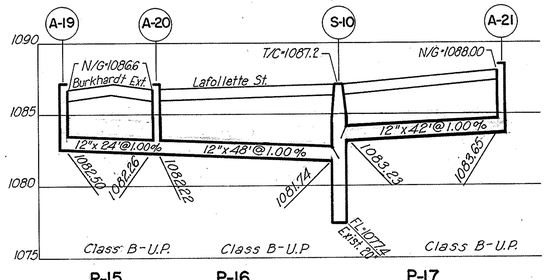


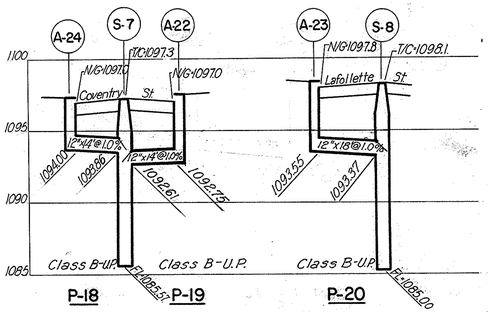












SCALE	1"=20' Horiz. 1"=5' Vert.
MADE	R.J.D. DATE 8.12.58
TRCD.	M.C.M. DATE 8.13.58
CKD.	H.K.M. DATE 8.15.58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 31

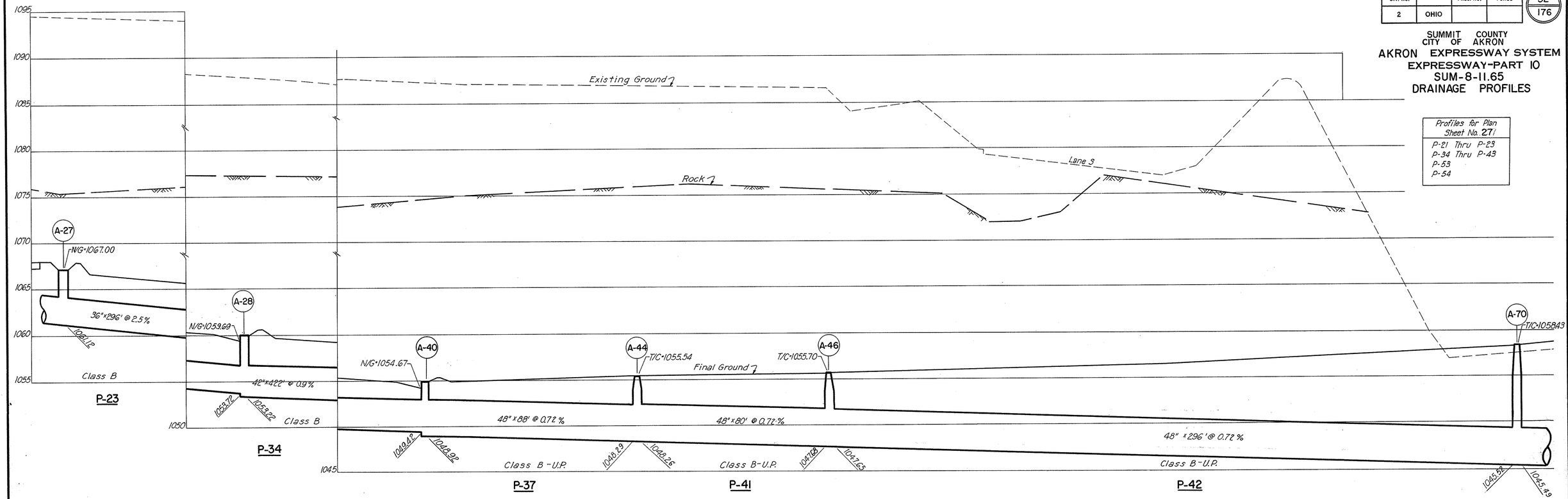
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

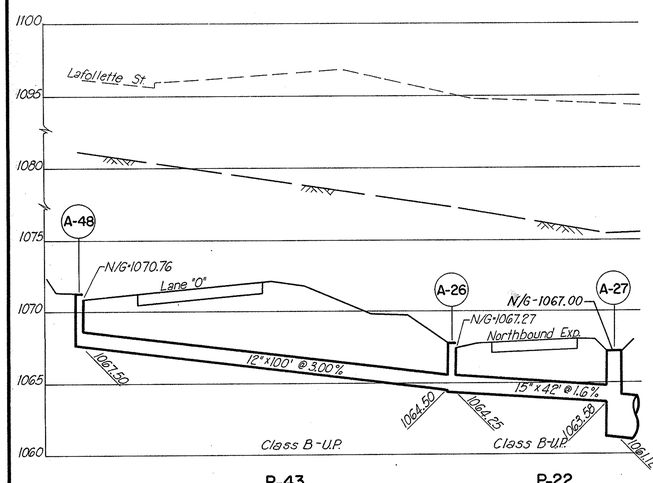
32
176

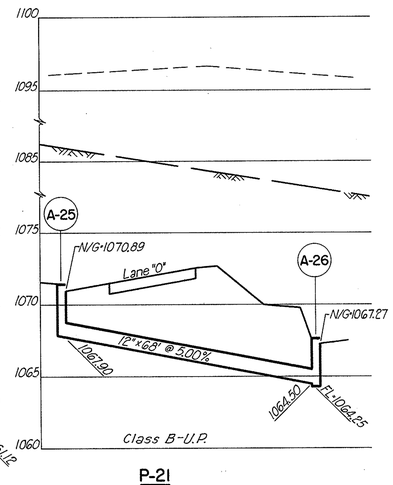
SUMMIT COUNTY
CITY OF AKRON

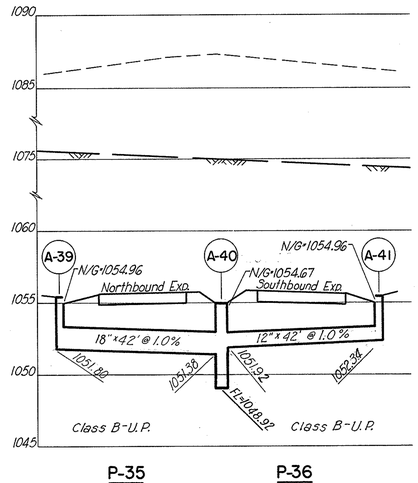
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
DRAINAGE PROFILES

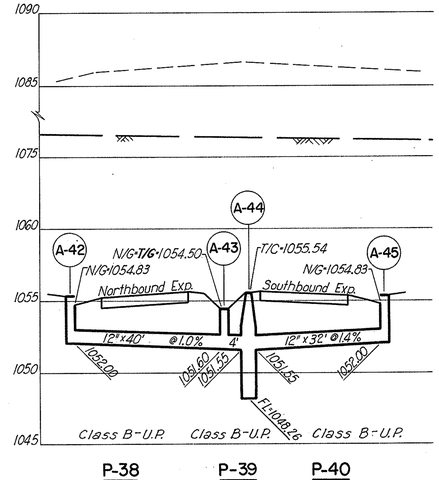
Profiles for Plan Sheet No. 27
P-21 Thru P-23
P-34 Thru P-43
P-53
P-54

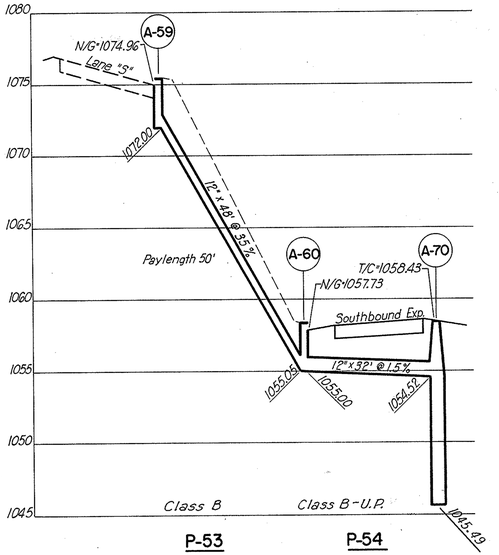












SCALE 1"=20' Horiz. 1"=5 Vert.
MADE R.J.D. DATE 8-15-58
TRCD. T.E.R. DATE 8-16-58
CKD. H.K.M. DATE 8-16-58

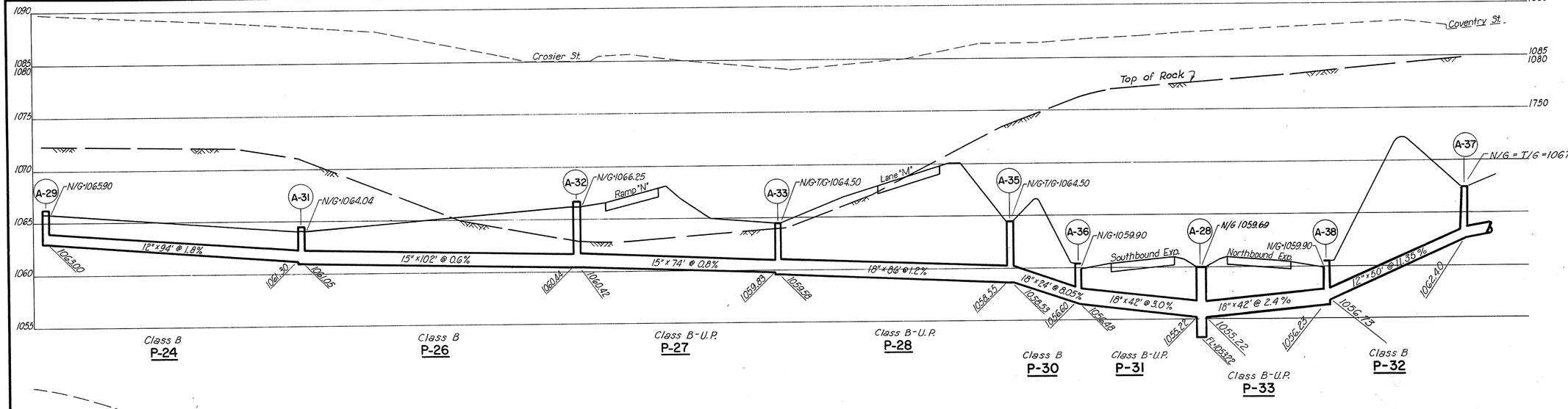
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 32

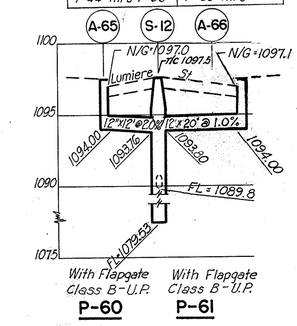
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

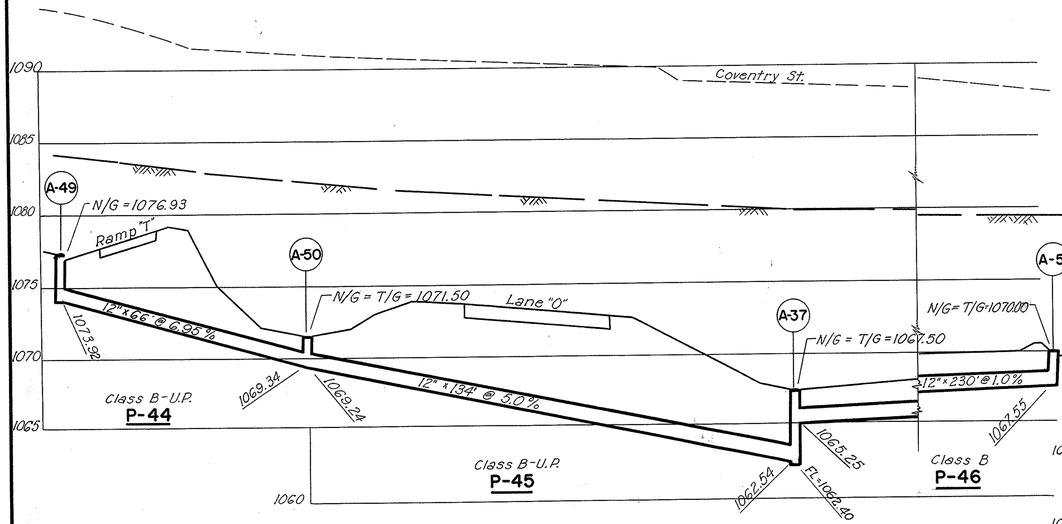
33
176

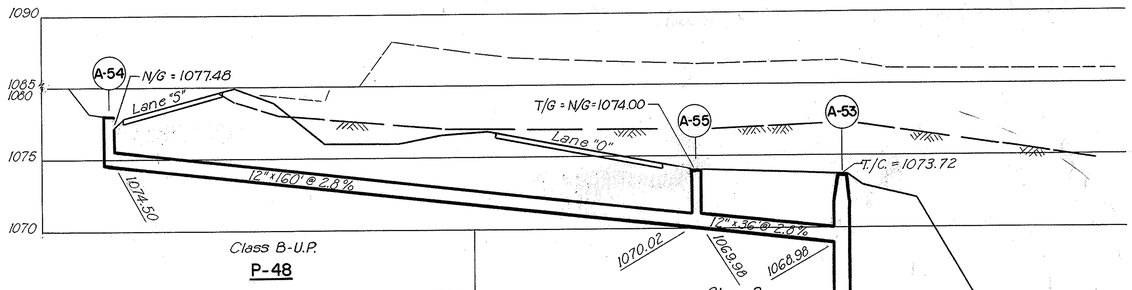
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
DRAINAGE PROFILES

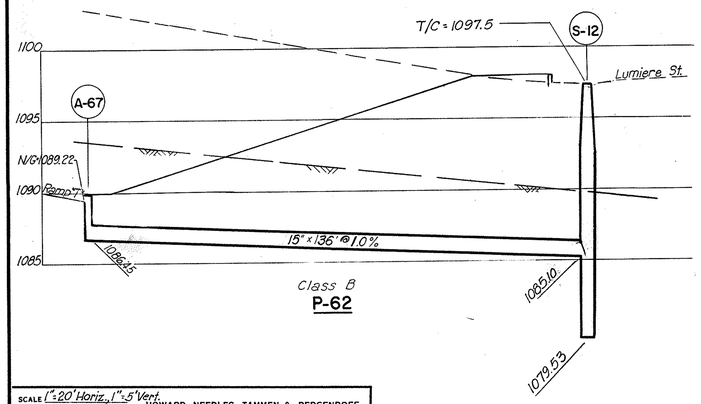
Profiles for Plan Sheet No. 27	
P-24	P-55
P-26 Thru P-29	P-56
P-30 Thru P-33	P-59
P-44 Thru P-50	P-60 Thru P-64

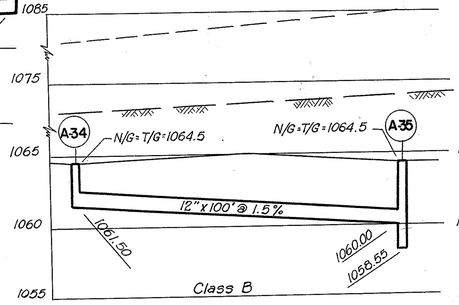


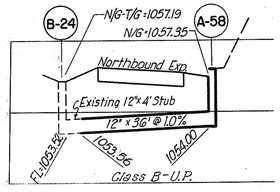


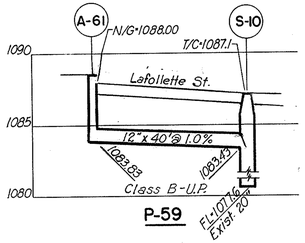


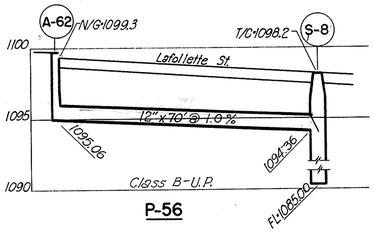


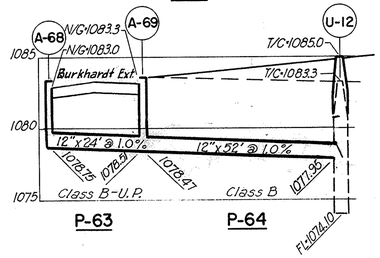


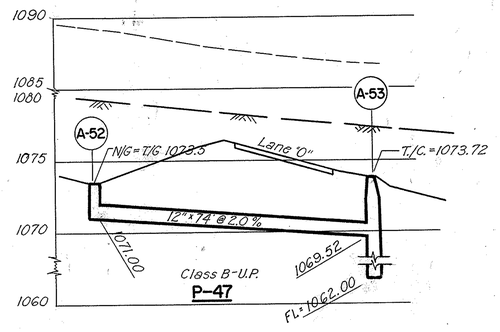


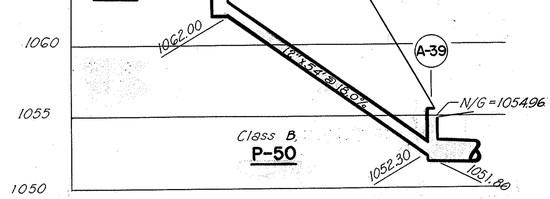












SCALE 1"=20' Horiz., 1"=5' Vert.
MADE R.J.D. DATE 8-12-58
TRCD. C.P.W. DATE 8-13-58
CKD. H.K.M. DATE 8-15-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 33

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

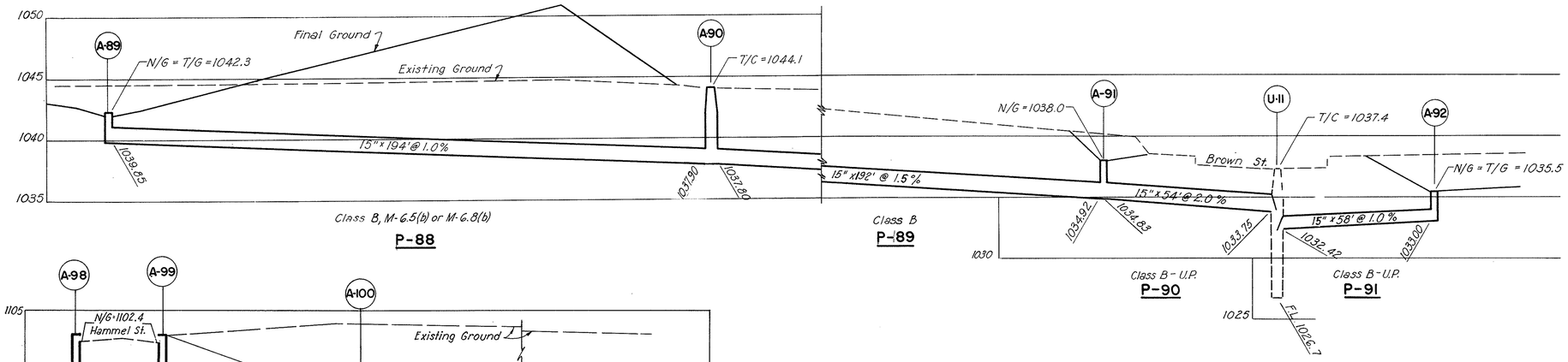
34
176

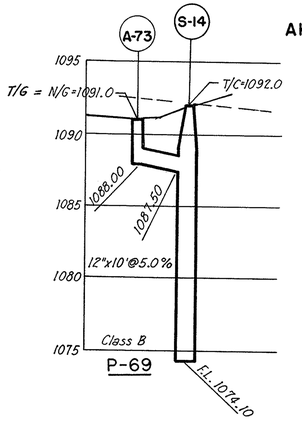
SUMMIT COUNTY
CITY OF AKRON

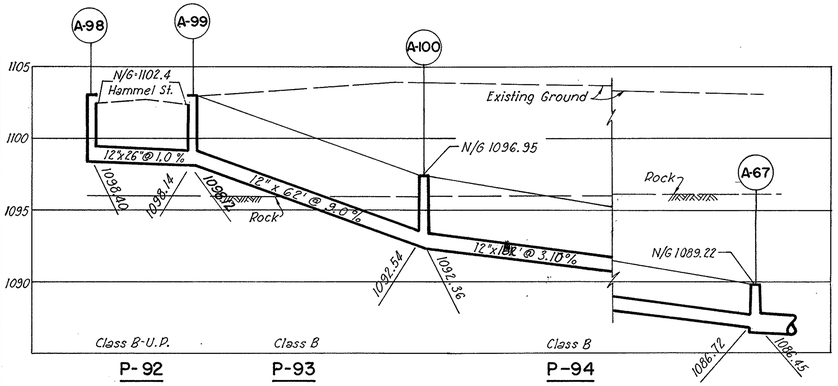
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
DRAINAGE PROFILES

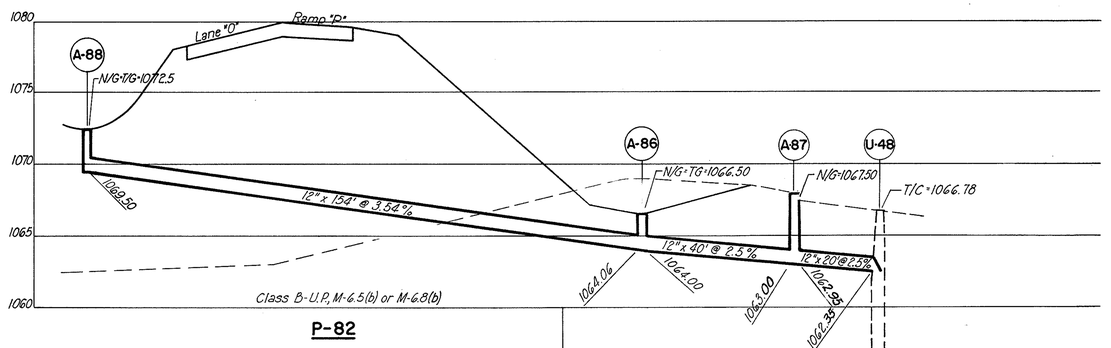
Profiles for Plan Sheet No. 29

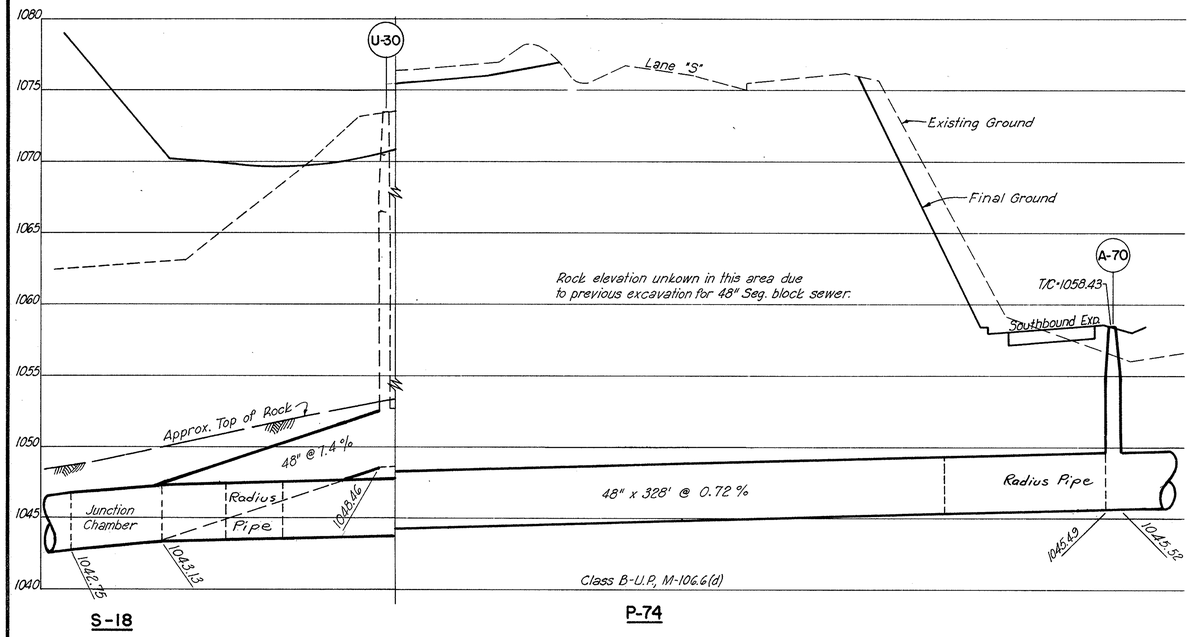
P-73
P-74
P-81 thru. P-83
P-97
Sheet No. 30
P-88 thru P-91
Sheet No. 28
P-69
P-92, P-93
Sheet No. 27
P-94

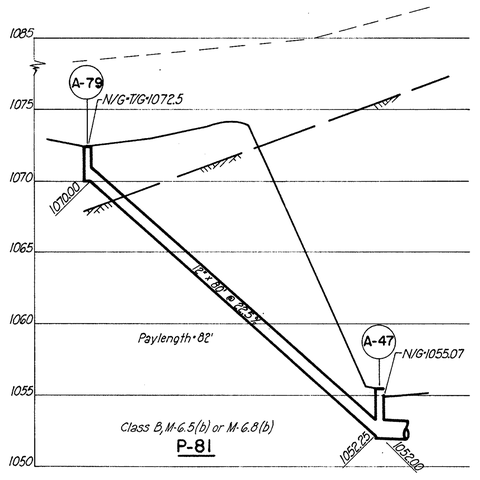


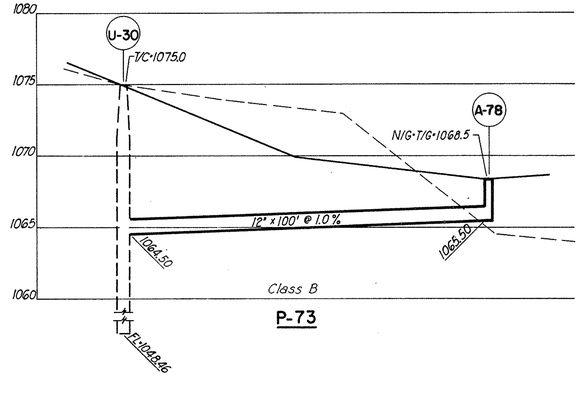












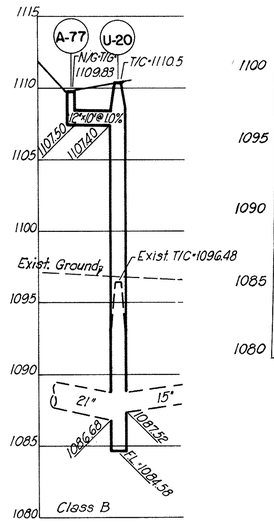
SCALE 1"=20' Hor. 1"=5' Vert.	HOWARD, NEEDLES, TAMMEN & BERGENDOFF		
MADE R.J.D. DATE 8-11-58	CONSULTING ENGINEERS		
TRCD. R. R. DATE 8-12-58	KANSAS CITY	CLEVELAND	NEW YORK
CKD. H.L.M. DATE 8-13-58	1018	SHEET 34	

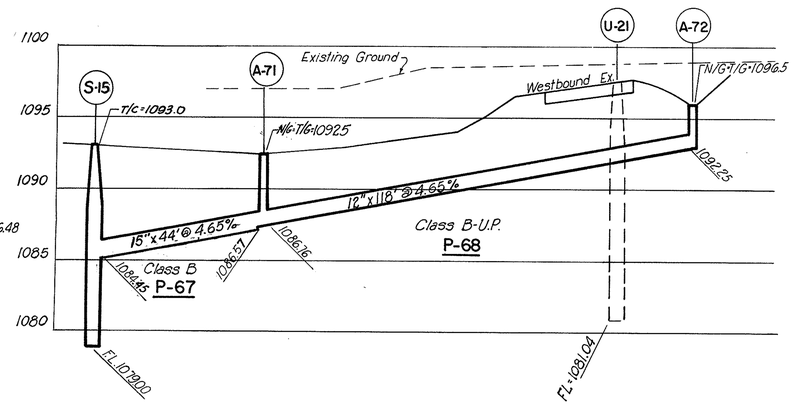
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	35 / 176
2	OHIO			

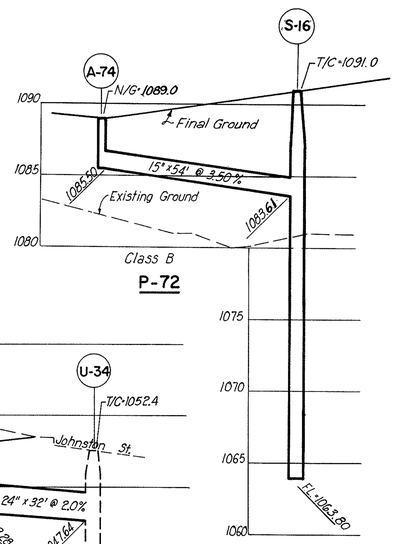
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
DRAINAGE PROFILES

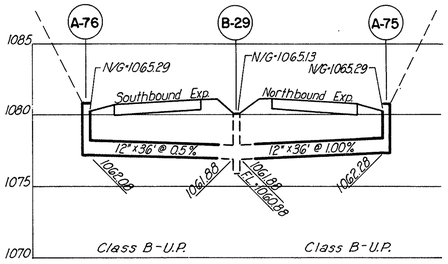
Profiles For Plan Sheet No. 27

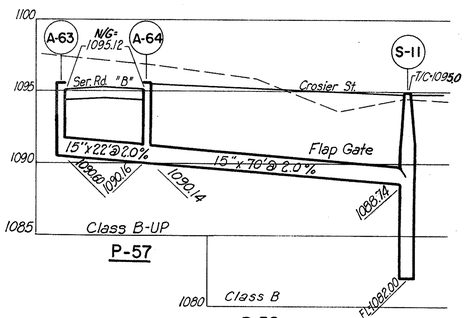
P-25	P-51
P-57	P-52
P-58	P-65
No. 28	
P-66 Thru P-72	
No. 29	
P-75 Thru P-80	

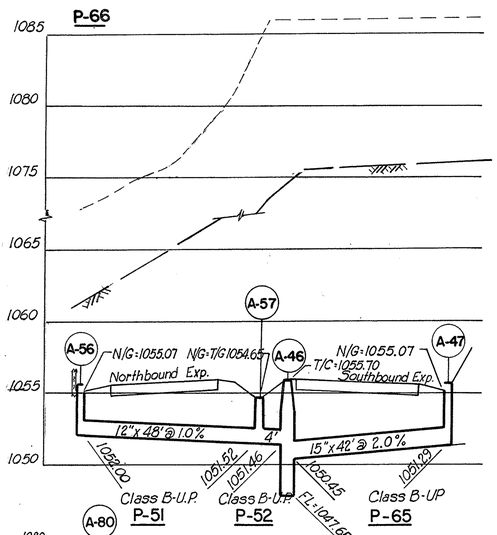


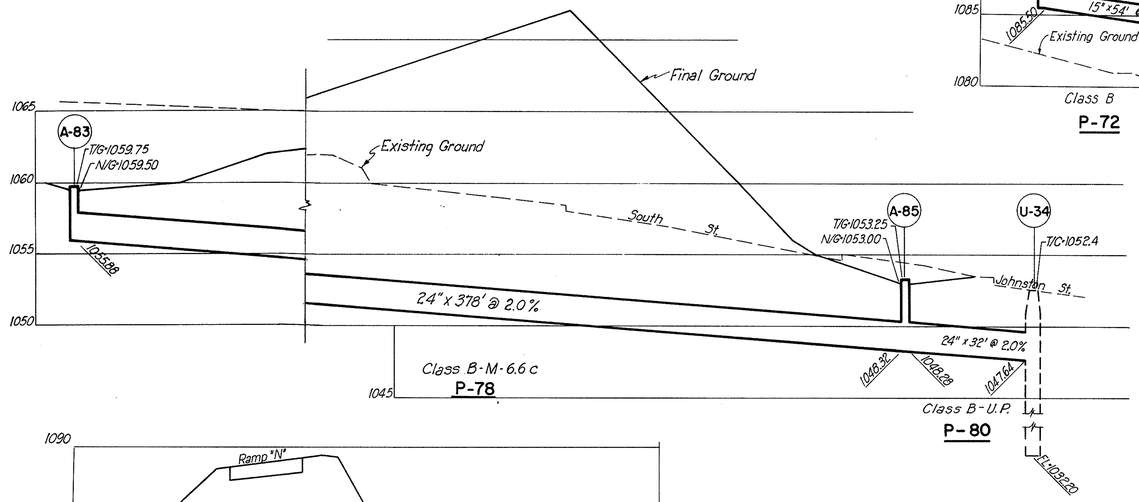


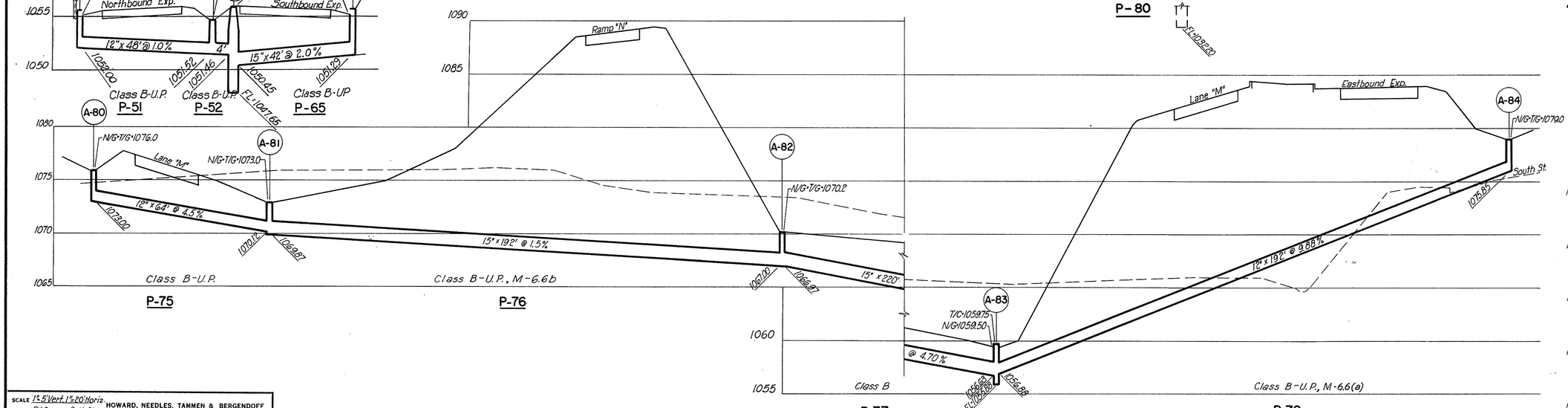


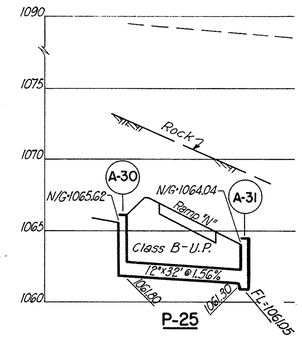












SCALE 1"=5' Vert. 1"=20' Horiz.	HOWARD, NEEDLES, TAMMEN & BERGENDOFF		
MADE R.J.D. DATE 8-12-58	CONSULTING ENGINEERS		
TRCD. C.P.W. DATE 8-13-58	KANSAS CITY	CLEVELAND	NEW YORK
CKD. H.K.M. DATE 8-15-58	1018	SHEET. 35	

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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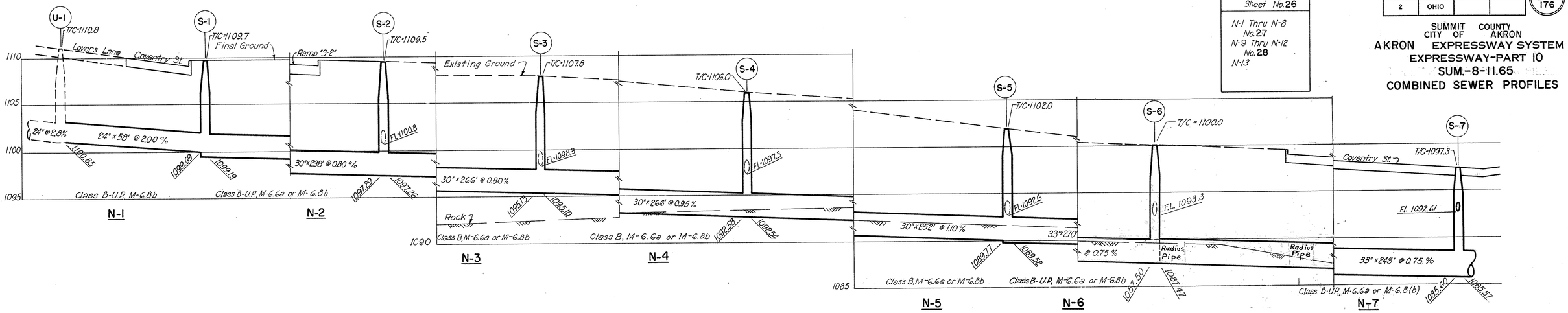
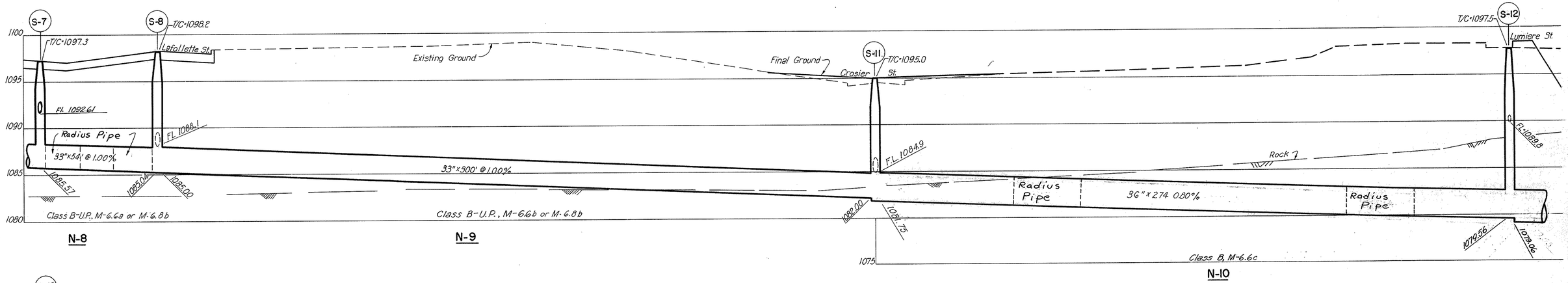
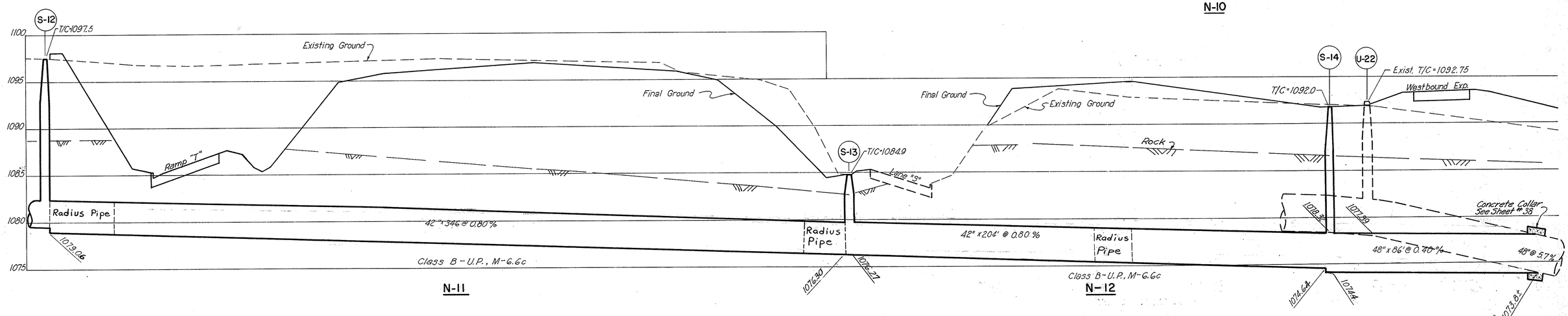
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM.-8-11.65
COMBINED SEWER PROFILES

Profiles For Plan Sheet No. 26

N-1 Thru N-8 No. 27
N-9 Thru N-12 No. 28
N-13







K-6

SCALE 1"=20 Horiz, 1"=5 Vert.
MADE R.J.D. DATE 8-12-58
TRCD. M.C.M DATE 8-13-58
CKD. H.K.M. DATE 8-15-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET-36

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		POST WAR

37A
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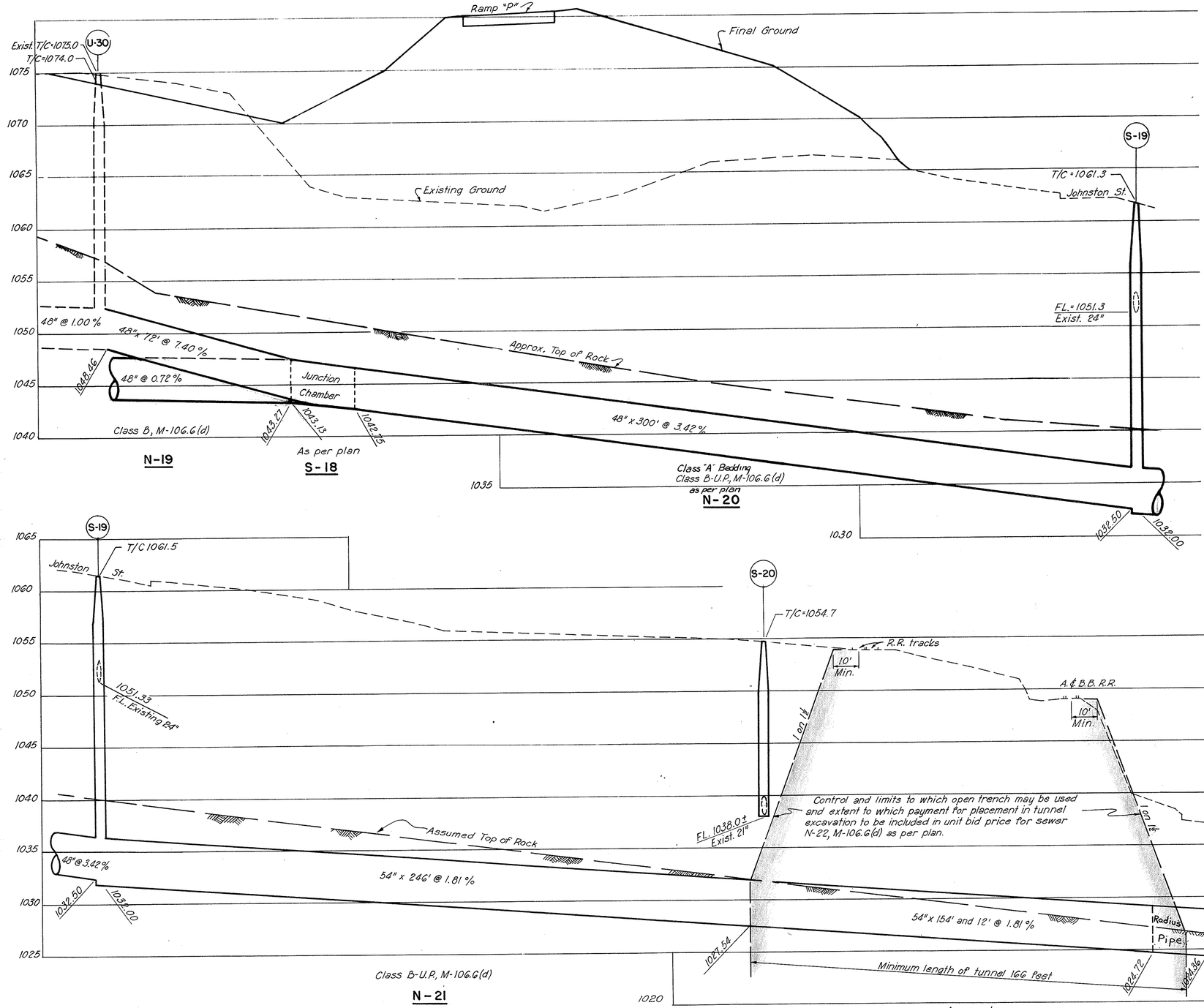
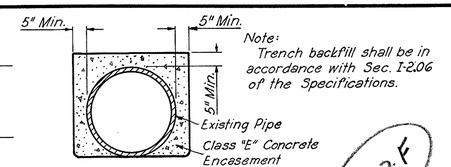
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
COMBINED SEWER PROFILES

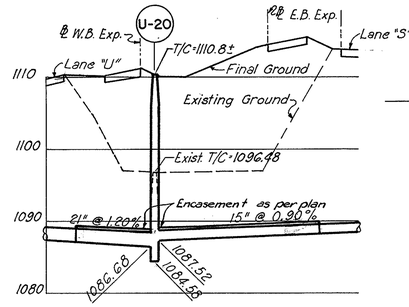


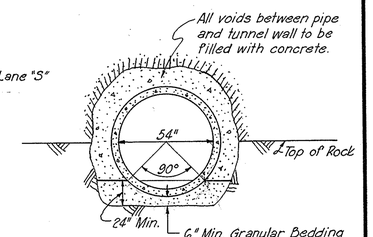


Note:
Trench backfill shall be in accordance with Sec. I-2.06 of the Specifications.

CONCRETE ENCASEMENT DETAIL

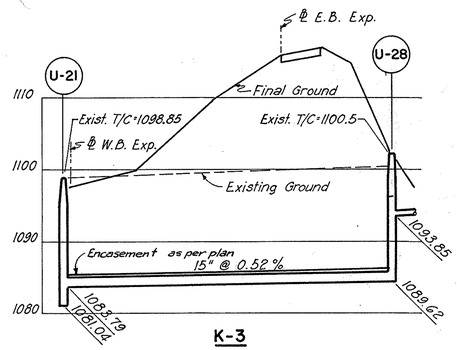
L-552F

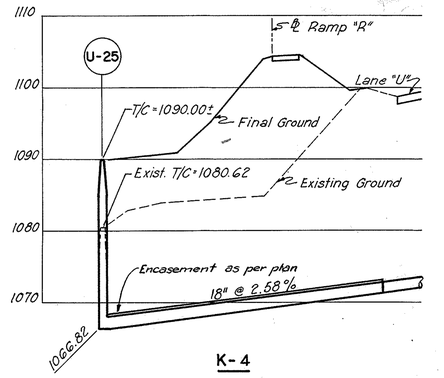




Note:
Payment for tunnelling shall be for Item I-2 54" Class B-U.P. Sec. M 106.6d, as per plan.

TYPICAL TUNNEL SECTION





SCALE	1"=20' Hor. 1"=5' Vert.
MADE	R.J.D. DATE 8/13/58
TRCD	C.P.W. DATE 8/14/58
CKD	H.K.M. DATE 8/14/58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET- 37A

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE PHASE
2	OHIO		

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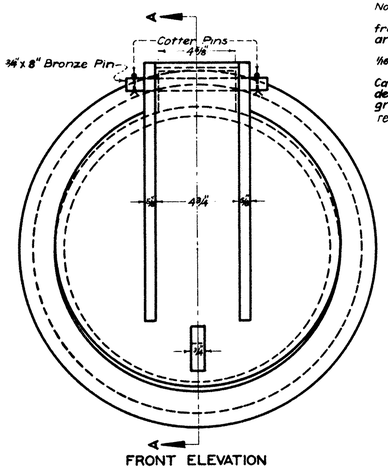
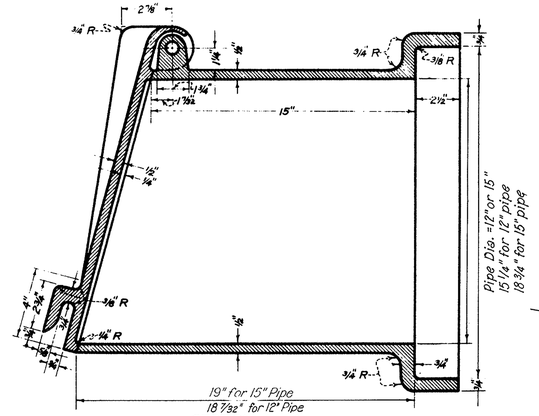
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
MISCELLANEOUS DRAINAGE DETAILS

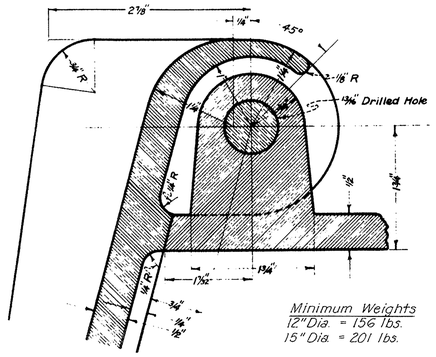


FRONT ELEVATION

Note~
Bearing parts of flap gate and flap gate frame shall be machined to provide a firm and even seat.
Finished castings shall not vary more than 1/16" per foot in any dimension.
Material shall be cast iron of good quality. Castings shall be free from blowholes and other defects. They shall be cleaned of all scale and grease, and receive two coats of paint meeting the requirements of Sec. M-9.18 or M-9.19.



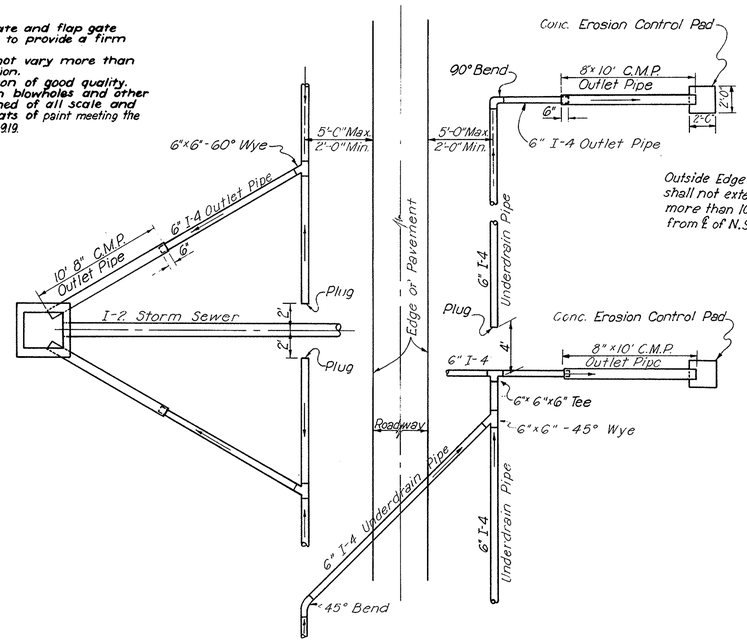
SECTION A - A



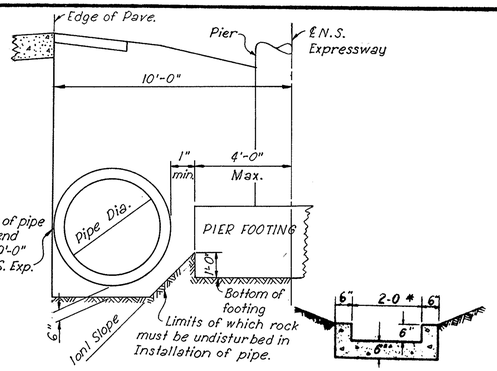
Minimum Weights
12" Dia. = 156 lbs.
15" Dia. = 201 lbs.

SECTION THRU HINGE 12" AND 15"

FLAP GATE DETAILS

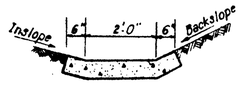


TYPICAL UNDERDRAIN AND OUTLET PIPE DETAIL

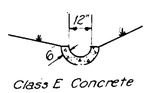


PIPE INSTALLATION IN PIER AREAS

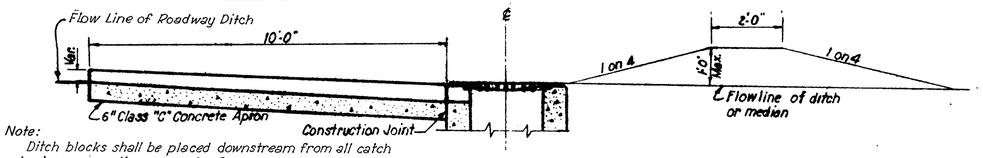
SECTION G-G



SECTION F-F

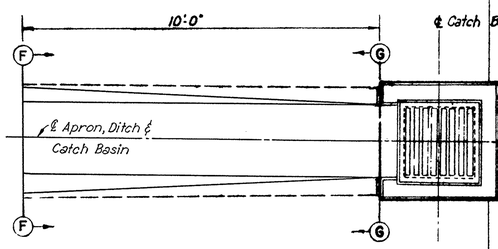


Class E Concrete
12" HALF ROUND GUTTER

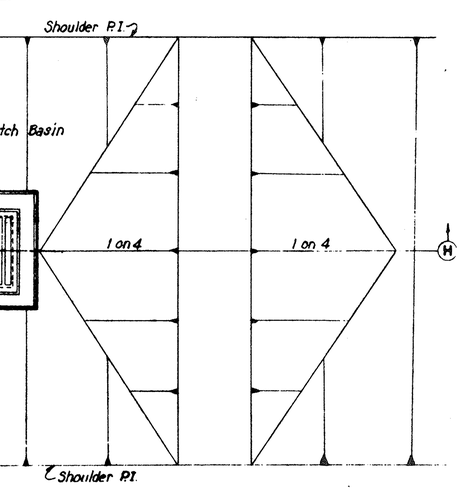


SECTION H-H

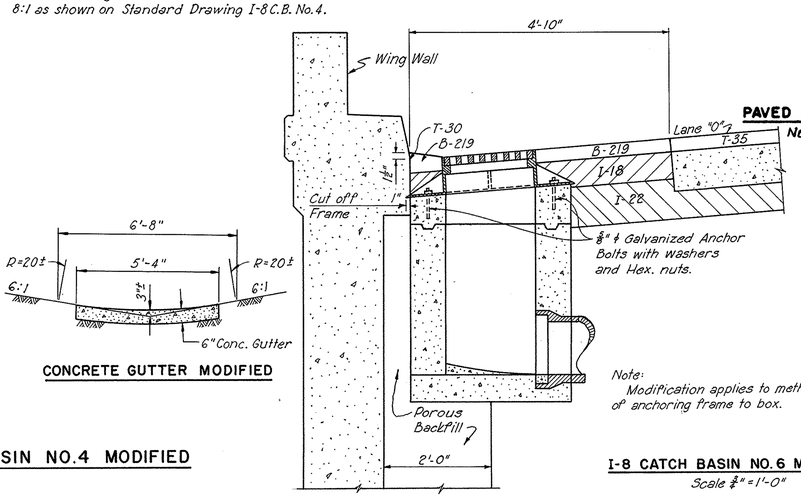
Note:
Ditch blocks shall be placed downstream from all catch basins on a continuous grade. Payment shall be included in the unit price bid for Item E-101, Excavation.
The paved apron and catch basin are separate pay items. See summary sheet.
The appropriate paved apron shall be installed upstream from all catch basins located in a defined ditch or median. Minimum thickness of concrete is 6", concrete shall be Class "E"



PLAN-ROADWAY DITCH APRON AND DITCH BLOCK

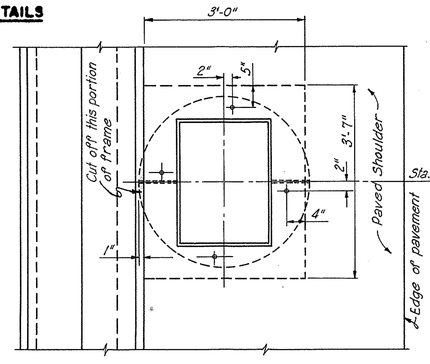


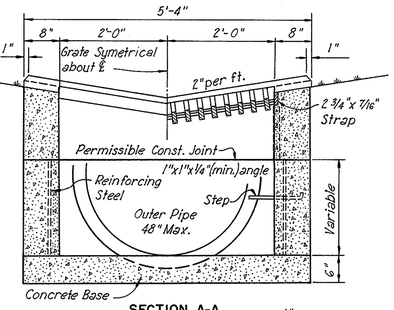
PAVED APRON DETAILS
No Scale



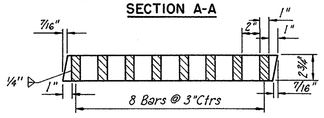
Note:
Modification applies to method of anchoring frame to box.

I-8 CATCH BASIN NO. 6 MODIFIED
Scale 3/4" = 1'-0"



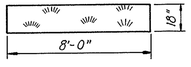


SECTION A-A



SECTION THRU. GRATE

Min. Weight of Grates 420 lbs.
Min. Weight of Frame 90 lbs.



MODIFIED SOD DETAIL

CONCRETE GUTTER MODIFIED

I-8 CATCH BASIN NO.4 MODIFIED

SCALE As shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF		
DES. R.J.D. DATE 8/13/58	CONSULTING ENGINEERS		
TRCD. C.D.W. DATE 8/14/58	KANSAS CITY	NEW YORK	
CKD. H.K.M. DATE 8/14/58	1018 SHEET-38		

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

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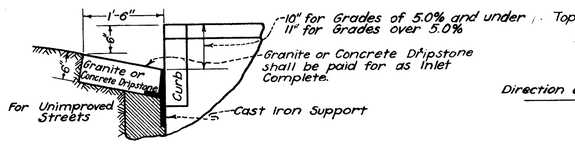
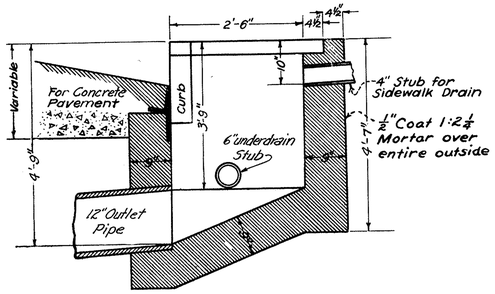
SUMMIT COUNTY
CITY OF AKRON

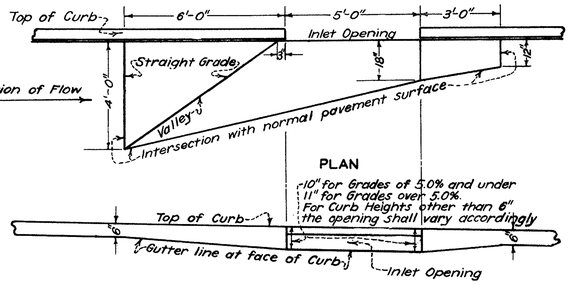
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM.-8-11.65

AKRON NO.3 INLET
STAND. 2-3 MOD. & 2-4 MOD.
AKRON STAND. MANHOLE FRAME & COVER



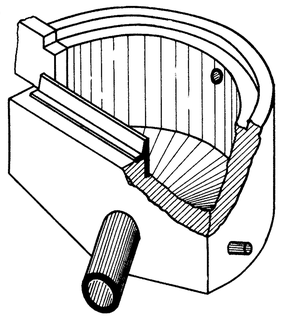


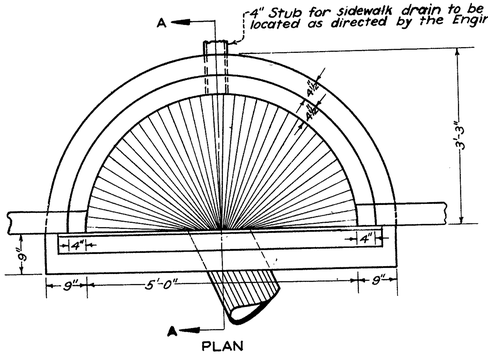
SECTION A - A



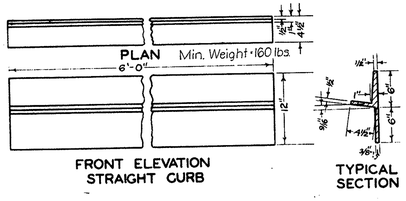
ELEV. SHOWING GUTTER DEPRESSION IN PAVEMENT FOR INLET

Scale- 3/8"=1'

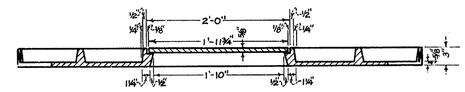


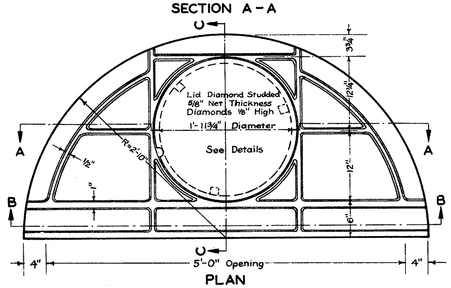


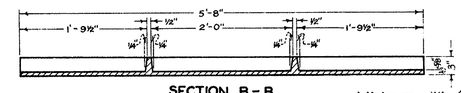
Scale- 3/4"=1'



CASTING TO SUPPORT PAVEMENT AT OPENINGS

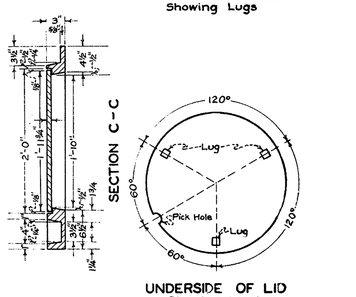






Minimum Wt.=435 lbs.

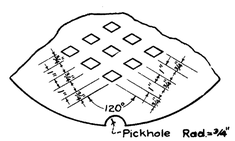
TOP CASTING FOR STRAIGHT CURB



UNDERSIDE OF LID Showing Lugs

UNDERSIDE OF LID Showing Location of Lugs and Pickhole

Note~
Material shall be cast iron of good quality. Castings shall be free from blowholes and other defects. They shall be cleaned of all scale and grease and receive two coats of paint, meeting the requirements of Sec. M-9.18 or M-9.19



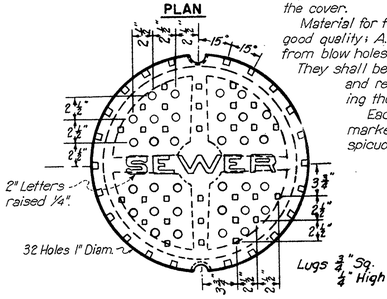
Notes:
Finished castings shall not vary more than one sixteenth (1/16) inch per foot in any dimension or more than five percent (5%) in weight from those called for on the drawing.

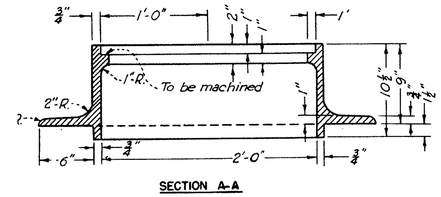
Bearing parts of frame and cover shall be machined to provide a firm and even seat for any position of the cover.

Material for frame and cover to be cast iron of good quality; A.S.T.M.- A48-48. Castings to be free from blow holes or other defects.

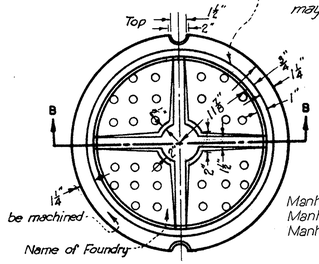
They shall be cleaned of all scale and grease and recieve two (2) coats of paint meeting the requirements of Sec. M-9.18 or M-9.19.

Each casting when delivered shall be marked with its actual shop weight, conspicuously painted in white.

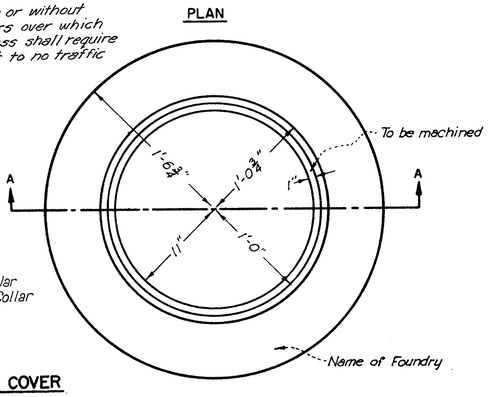




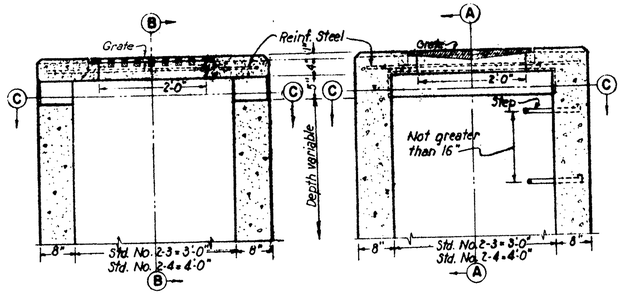
Note:
Covers to be cast with or without collars as ordered. Covers over which vehicular traffic could pass shall require the collars, those subject to no traffic may be without collars.

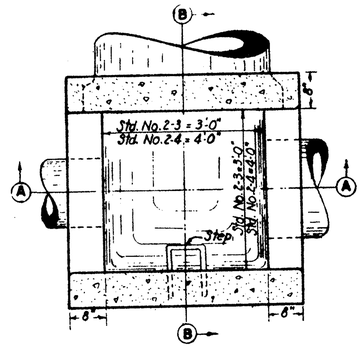


Minimum Weights
Manhole Frame 325#
Manhole Cover 195# with Collar
Manhole Cover 142# without Collar



CITY OF AKRON
STANDARD FRAME AND COVER FOR MANHOLES





STANDARD NO. 2-3 & 2-4 CATCH BASIN MODIFICATION

No Scale

Note: Steps shall be Cast Iron and are only required on Catch Basins greater than 6' in depth.

For depths greater than 12', the sidewalls shall be reinforced as specified in [illegible] drw. for I-8, C.B. 2-5 & 2-6. Top reinforcing shall be as specified in std. drw. I-8., C.B. 2-3 & 2-4.

AKRON NO.3 INLET

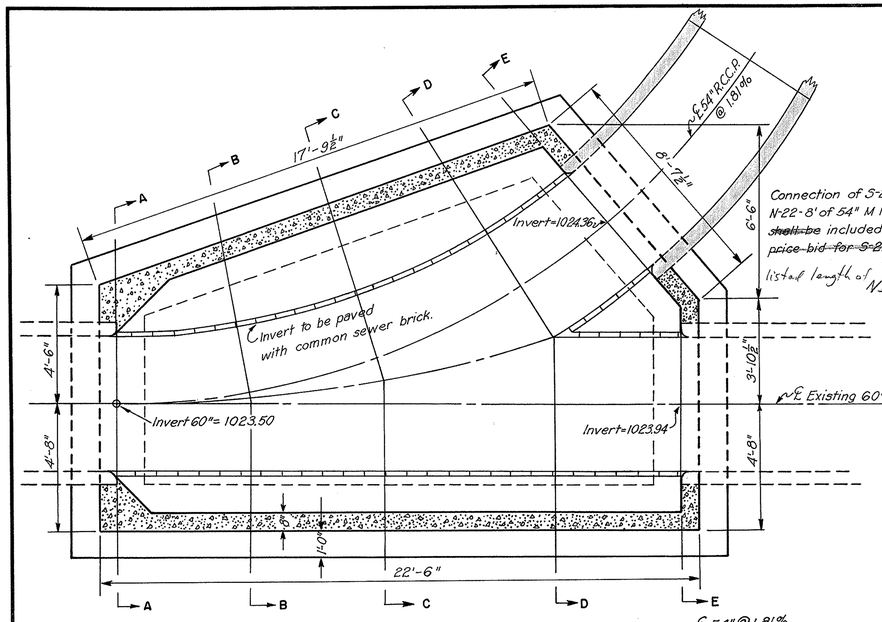
SCALE	As Shown	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE	R.J.D. DATE 8.12.58	CONSULTING ENGINEERS
TRCD.	C.P.W. DATE 8.13.58	KANSAS CITY CLEVELAND NEW YORK
CKD.	H.K.M. DATE 8.15.58	1018 SHEET- 39

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

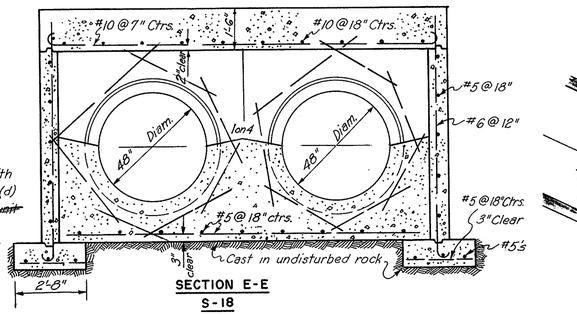
40
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM.-8-11.65

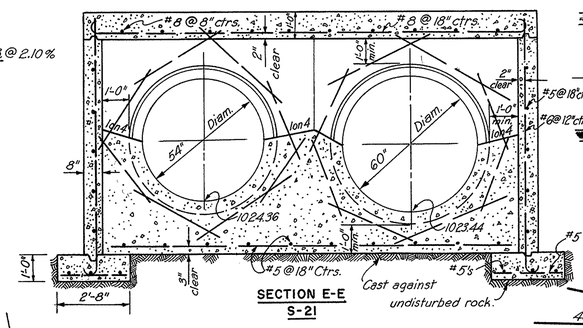
JUNCTION CHAMBERS



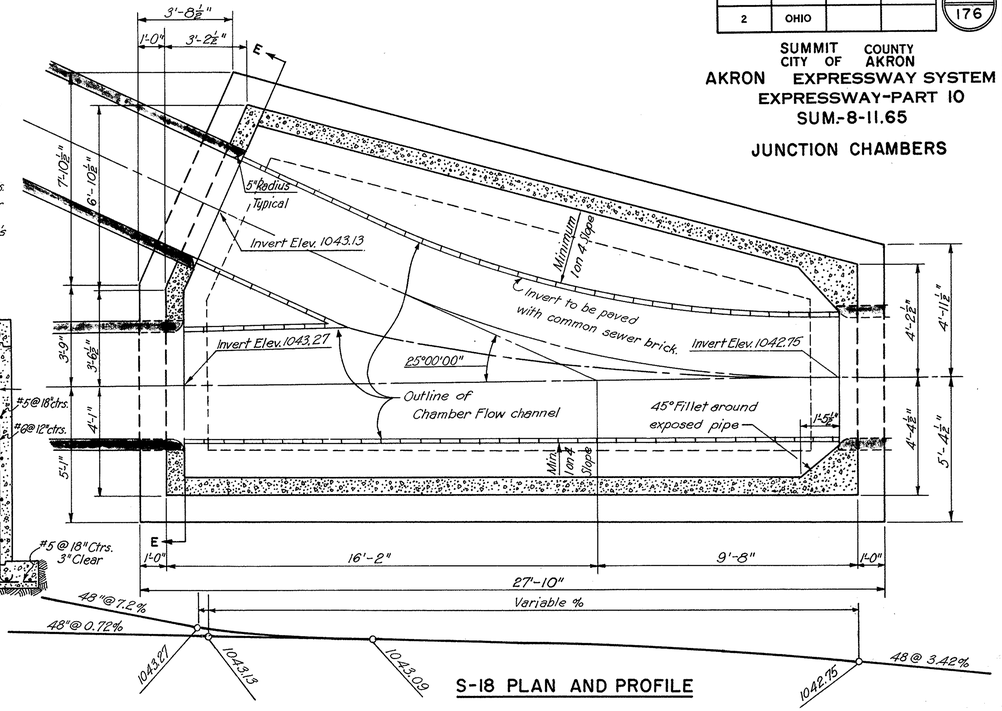
S-21 PLAN AND PROFILE



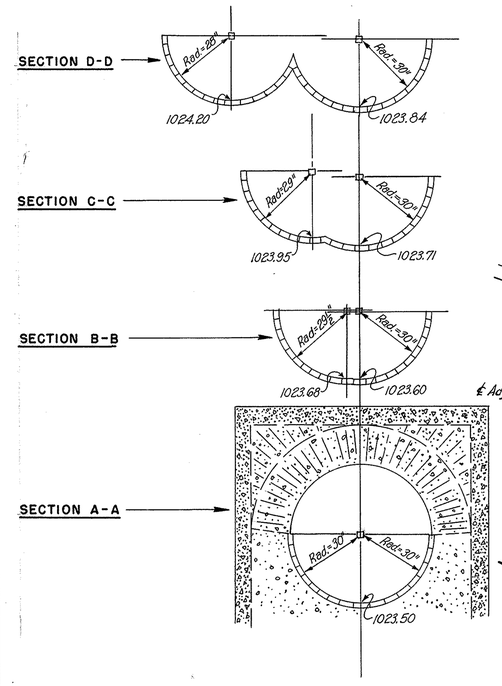
SECTION E-E
S-18

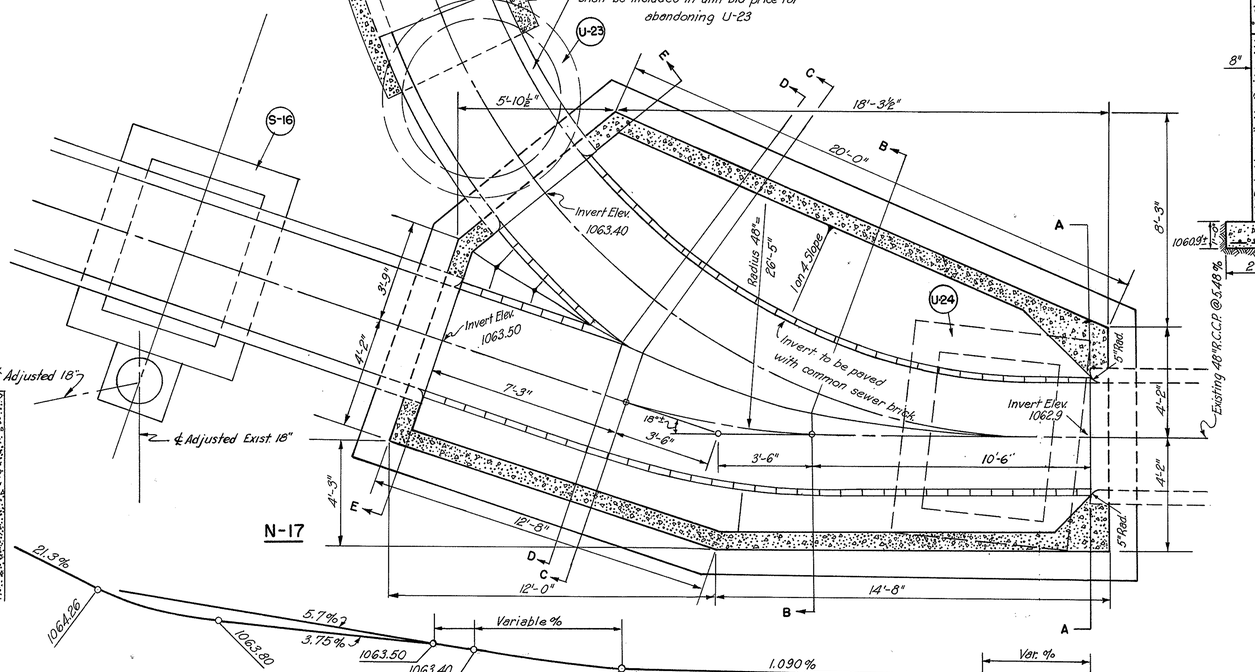


SECTION E-E
S-21

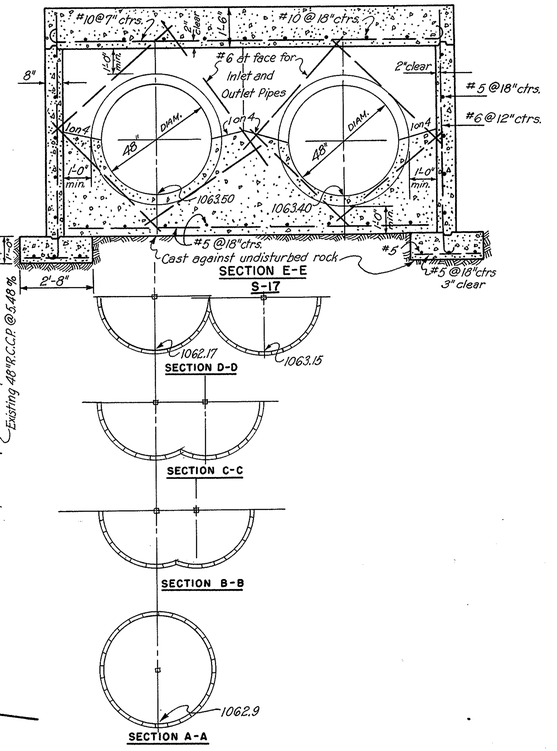


S-18 PLAN AND PROFILE





S-17 PLAN AND PROFILE



SCALE	⅜" = 1'-0"
MADE	R.J.D. DATE 8-15-58
TRCD.	M.A.C. DATE 8-15-58
CKD.	B.H.R. DATE 8-15-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 40

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

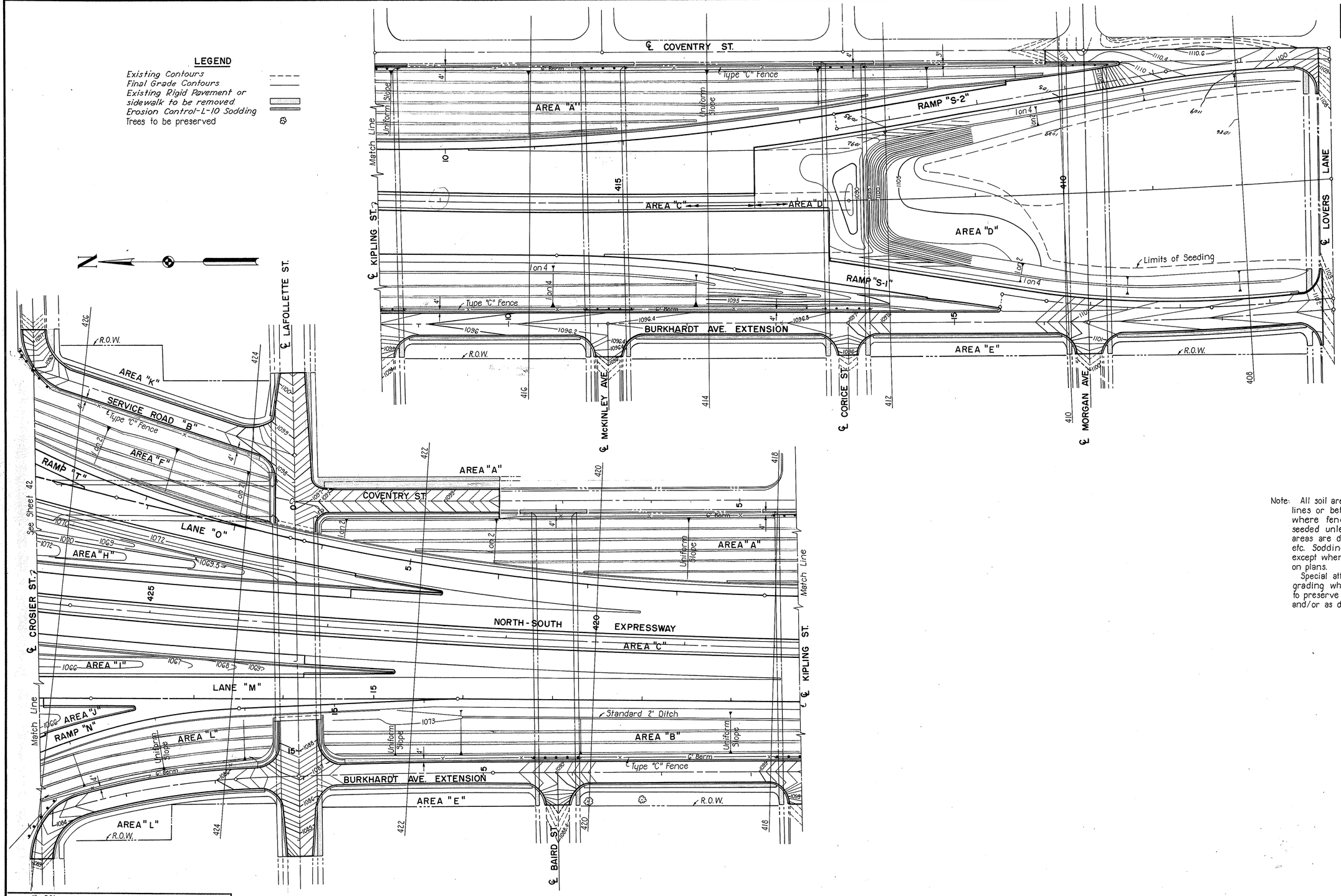
41
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM-8-11.65
SITE GRADING PLANS

LEGEND

- Existing Contours
- Final Grade Contours
- Existing Rigid Pavement or sidewalk to be removed
- Erosion Control-L-10 Sodding
- Trees to be preserved



Note: All soil areas between the proposed fence lines or between the right of way lines where fence is not specified shall be seeded unless otherwise noted. These areas are designated as "Area A", "Area B", etc. Sodding shall be in strips 1'-6" wide except where special dimensions are shown on plans.

Special attention, including local site grading where required, shall be given to preserve trees indicated on the plans and/or as designated by the Engineer.

SCALE 1" = 50'
MADE RPB DATE 5-2-58
TRCD. JVR DATE 5-9-58
CKD. FWH DATE 8-14-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 41

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

42
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65
SITE GRADING PLANS

REMOVAL OF PAVEMENT EXTRA AREA

LOCATION	E-8 Sq. Yds.
South St.- 13+85 to 15+39	386
South St.- 21+42 to 21+90	87
Total	473

REMOVAL AND STORAGE GUARD RAIL

LOCATION	I-15 Lin. Ft.
Left Side Lane "S" 9+50 to 11+00	150
Temporary Connection "B"	138
Temporary Connection "C"	139
Total	427

LEGEND

- Existing Contours
- Final Grade Contours
- Existing Rigid Pavement or sidewalk to be removed
- Erosion Control-L-10 Sodding
- Trees to be preserved
- Guard Rail to be removed and stored

Note: Slope Facing consists of Porous Drain Material Item I-10. See Bridge Detail Sheets for quantities.

Notes: All soil areas between the proposed fence lines or between the right of way lines where fence is not specified shall be seeded unless otherwise noted. These areas are designated as "Area A", "Area B", etc. Sodding shall be in strips 1'-6" wide except where special dimensions are shown on plans.

Special attention, including local site grading where required, shall be given to preserve trees indicated on the plans and/or as designated by the Engineer.

SCALE 1" = 50'
MADE CEG DATE 3-12-58
TRCD. JVR DATE 5-5-58
CKD. FWH DATE 5-7-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 42

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

43
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART-10
SUM-8-11.65
SITE GRADING PLANS

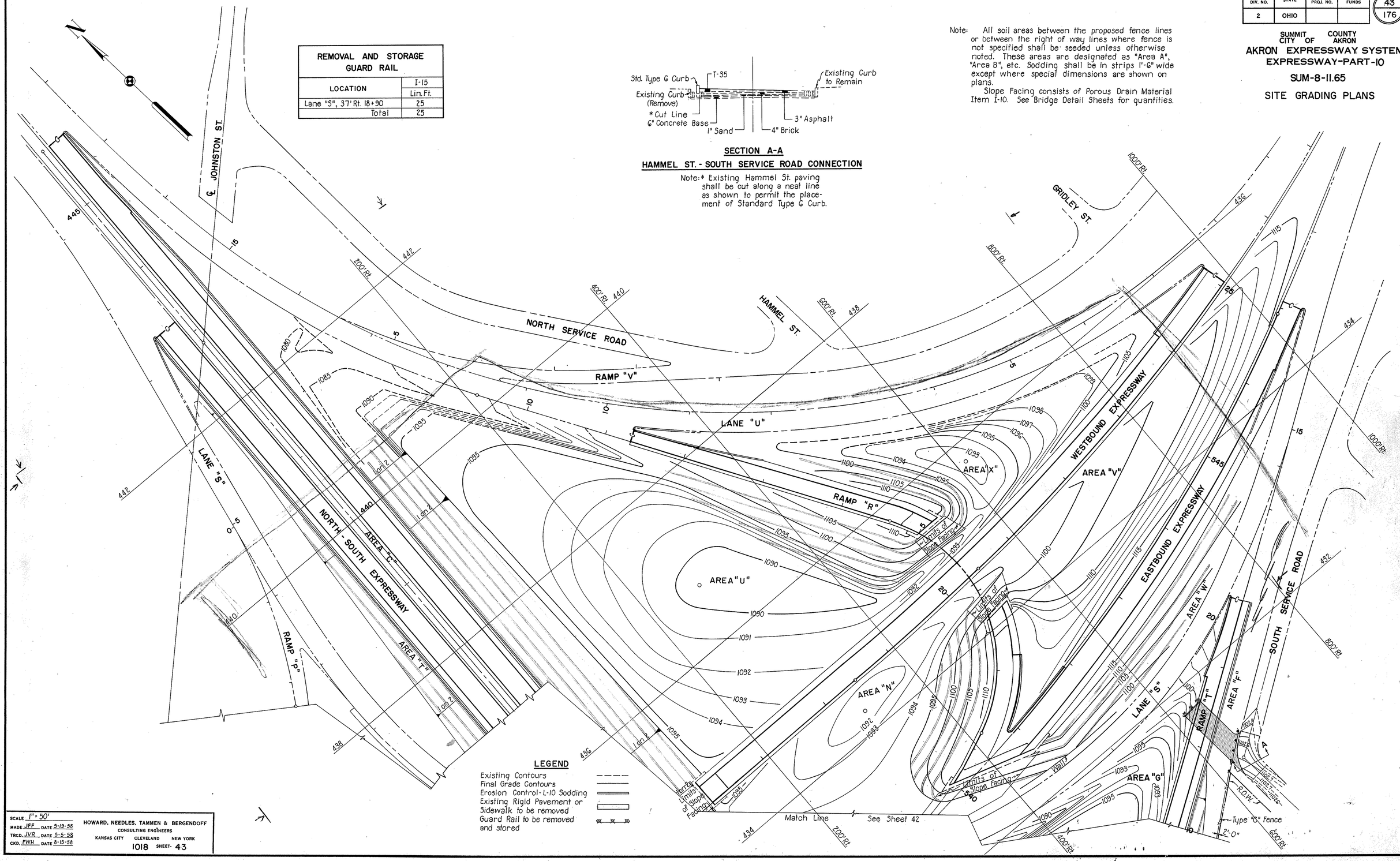
REMOVAL AND STORAGE GUARD RAIL	
LOCATION	I-15 Lin. Ft.
Lane "S", 37' Rt. 18+90	25
Total	25

SECTION A-A
HAMMEL ST. - SOUTH SERVICE ROAD CONNECTION

Note: * Existing Hammel St. paving shall be cut along a neat line as shown to permit the placement of Standard Type G Curb.

Note: All soil areas between the proposed fence lines or between the right of way lines where fence is not specified shall be seeded unless otherwise noted. These areas are designated as "Area A", "Area B", etc. Sodding shall be in strips 1'-6" wide except where special dimensions are shown on plans.

Slope Facing consists of Porous Drain Material Item I-10. See Bridge Detail Sheets for quantities.



LEGEND

- Existing Contours
- Final Grade Contours
- Erosion Control-I-10 Sodding
- Existing Rigid Pavement or Sidewalk to be removed
- Guard Rail to be removed and stored

SCALE	1" = 50'
MADE	JFF DATE 5-19-58
TRCD.	JVR DATE 5-5-58
CKD.	FWH DATE 5-15-58

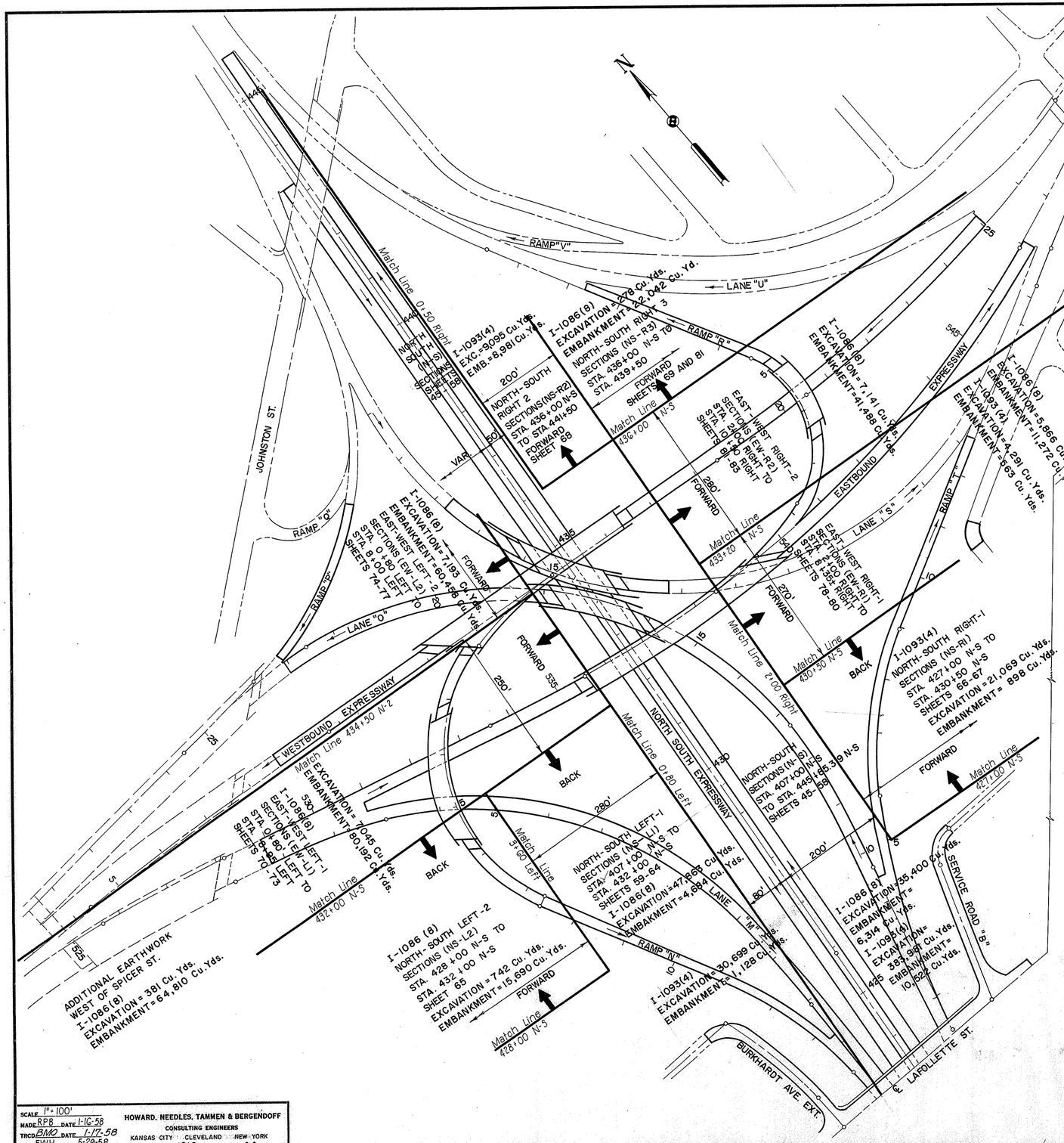
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET- 43

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

44
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

CROSS SECTION KEY



NOTE:
North-South grid lines are parallel to ℄ North-South Expressway and are referenced in feet to the right or left of it. East-West grid lines are normal to ℄ North-South Expressway and are in accordance with North-South Expressway stationing.
Additional sections normal to future East-West Expressway or ℄ Eastbound Expressway are shown on Sheets 84-87.
Right of Way limits where shown on Cross Sections are for informational purposes only. For exact limits see R.O.W. Sheets 88-91.

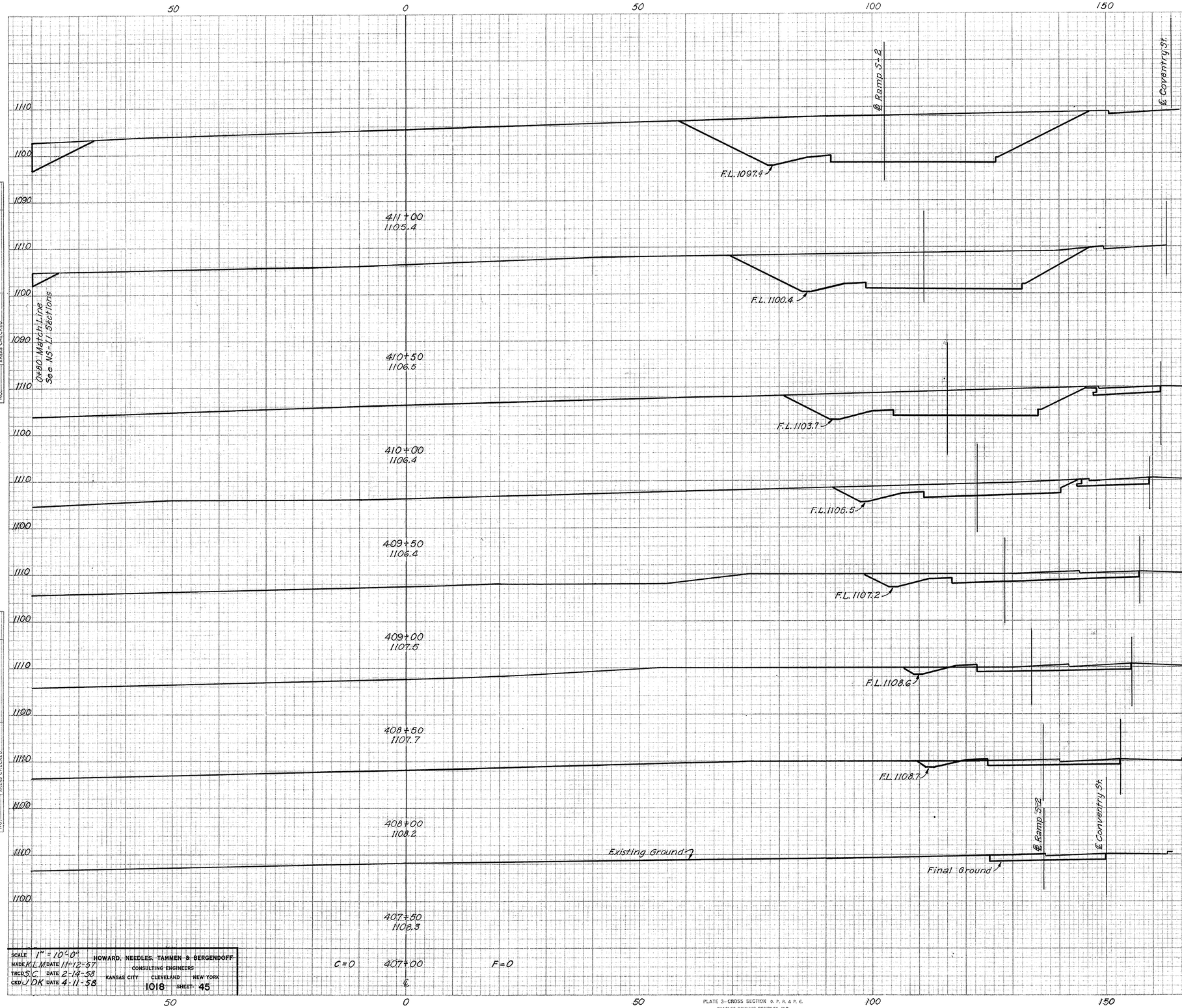
SCALE	1"=100'
MADE	RPB DATE 1-16-58
TRCD	BMO DATE 1-17-58
CKD	FWH DATE 5-29-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 44

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

45
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						1680	0
				736	0		
						1129	0
				483	0		
						732	0
				308	0		
						411	0
				136	0		
						219	0
				100	0		
						132	2
				43	2		
						71	3
				34	1		
						60	1
				31	0		
						29	0
				0	0		

411+00			
410+50			
410+00			
409+50			
409+00			
408+50			
408+00			
407+50			
407+00			

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS CHECKED — BY — DATE

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS CHECKED — BY — DATE

SCALE 1" = 10'-0"
MADE K.L.M. DATE 11-12-57
TRCD S.C. DATE 2-14-58
CKD J.O.K. DATE 4-11-58
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 45

PLATE 3--CROSS SECTION O. P. R. & P. E.
CHARLES BRUNING COMPANY, INC.

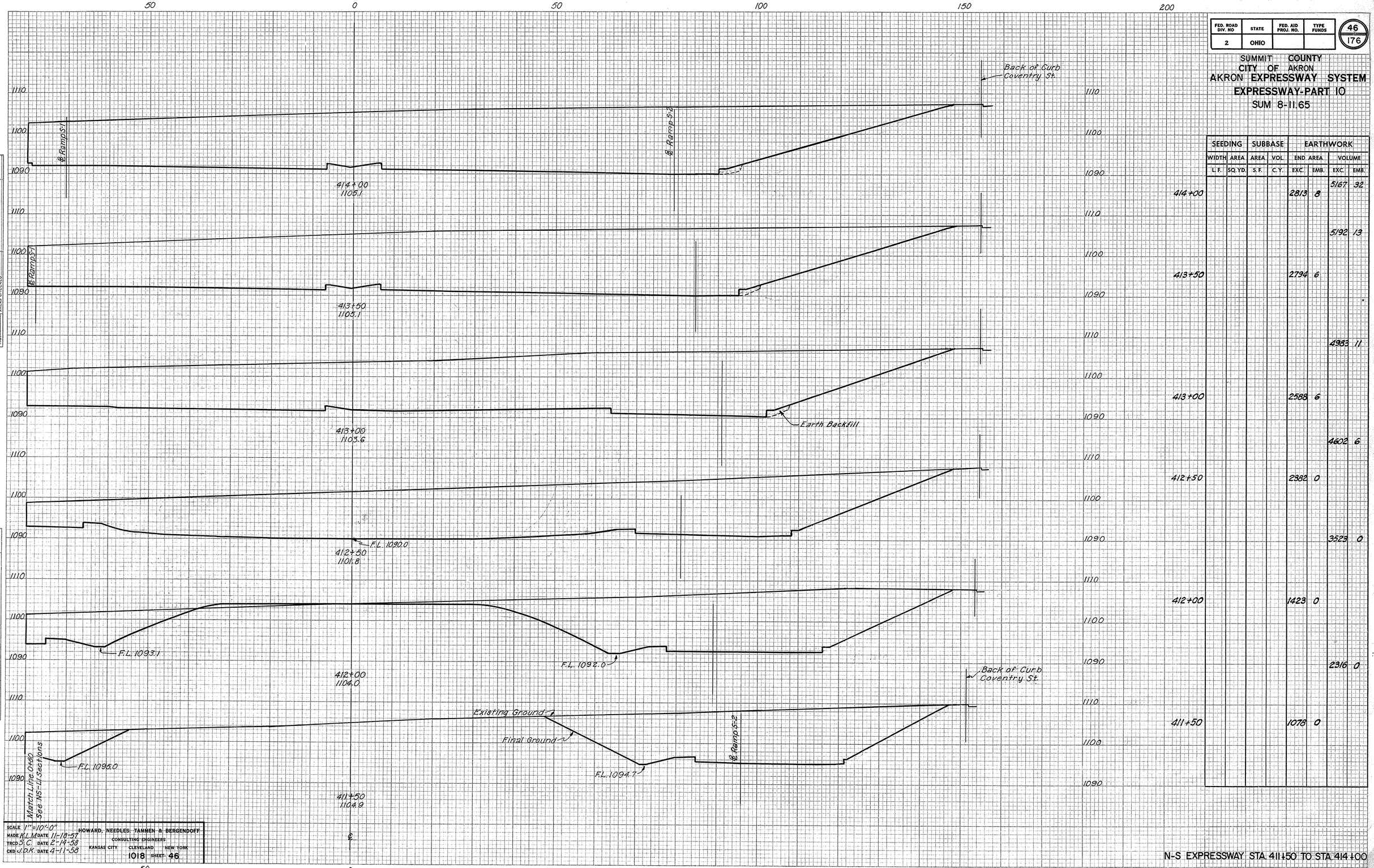
N-S EXPRESSWAY STA. 407+00 TO STA. 411+00

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

46
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
414+00					2813	8		5167 32
								5192 13
413+50					2794	6		
								4983 11
413+00					2588	6		
								4602 6
412+50					2382	0		
								3523 0
412+00					1423	0		
								2316 0
411+50					1078	0		



ORIGINAL SURVEY — NOTE BOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

FINAL SURVEY — NOTE BOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

SCALE 1"=10'-0"
MADE K.L.M. DATE 11-18-57
TRCD S.C. DATE 2-14-58
CKD J.D.K. DATE 4-11-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

1018 SHEET 46

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

N-S EXPRESSWAY STA. 411+50 TO STA. 414+00

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

47
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
							5814 100
				416+50 3123	55		
							5562 101
				416+00 2884	54		
							5198 96
				415+50 2730	50		
							4756 80
				415+00 2406	36		
							4790 58
				414+50 2767	27		

50 0 50 100 150 200

1110 1100 1090 1080

℄ Lane N.

℄ Ramp S-2

Variable Slope

Back of Curb Coventry St.

F.L. 1085.8

416+50
1102.2

F.L. 1087.0

416+00
1102.0

F.L. 1088.4

415+50
1102.0

415+00
1101.5

Back of Curb Coventry St.

Existing Ground

Match Line 0+80 See N5-4 Sections

℄ Ramp S-1

℄ Ramp S-2

Variable Slope

Final Ground

Earth Backfill

414+50
1104.0

℄

FINAL SURVEY — SURVEYED — PLOTTED — PLANIMETER AREAS — AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

ORIGINAL SURVEY — SURVEYED — PLOTTED — PLANIMETER AREAS — AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

SCALE 1" = 10'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE K.L.M. DATE 11-18-57
TRCD S.C. DATE 2-17-58
CKD J.D.K. DATE 4-11-58
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 47

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

N-S EXPRESSWAY STA. 414+50 TO STA. 416+50

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

48
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
419+00					3545	59		
							6606	119
418+50					3488	68		
							6512	118
418+00					3290	66		
							6276	124
417+50					2861	54		
							5695	111
417+00					3156	53		
							5571	99

1100
1090
1080
1110

℄ Lane W
℄ Lane O
℄ Ramp S-2
℄ Ramp S-2

419+00
1098.0
418+50
1099.9
418+00
1099.6
417+50
1098.9
417+00
1101.0

Back of Curb
Coventry St.

Variable slope

Existing Ground

Final Ground

Earth Backfill

F.L. 1083.7

F.L. 1084.9

Match Line
0+80
See N-S 1-1
Sections

ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

SCALE 1"=10'-0"
MADE K.L.M. DATE 11-12-57
TRCD. S.C. DATE 2-15-58
CKD. J.D.K. DATE 4-11-58
1018 SHEET 48

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

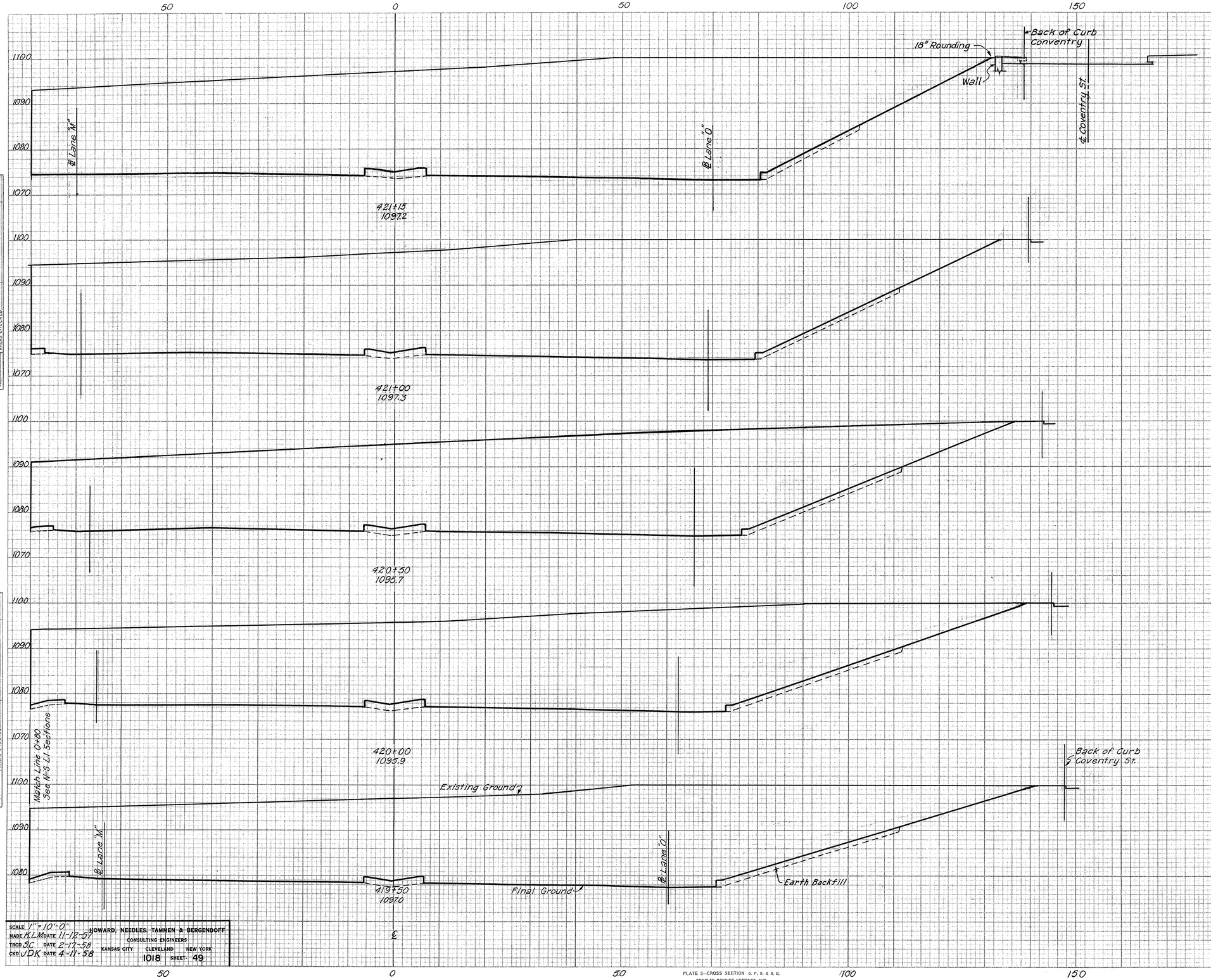
N-S EXPRESSWAY STA. 417+00 TO STA. 419+00

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

49
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
								9267 106
421+15					4348	48		
								2422 30
421+00					4371	59		
								7470 115
420+50					3697	65		
								6831 126
420+00					3681	71		
								6732 131
419+50					3590	70		

ORIGINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

FINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

SCALE 1" = 10'-0"
MADE A.L.M. DATE 11-12-58
TRCD S.C. DATE 2-17-58
CKD J.D.K. DATE 4-11-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 49

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

N-S EXPRESSWAY STA. 419+50 TO STA. 421+15

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	50 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK				
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME		
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.	
							6900	749
				5215	387			
							3832	239
				5130	76			
							8442	348
				4998	160			
							9046	230
				4772	88			
							5291	78
				4751	56			

50 0 50 100 150 200

Face of Abutment
Curving Wingwall
See Note *
℄ Lane "O"
℄ Conventry St.
Note: Backfill within limits shown computed separately. Pay for such work shall be included in price bid per Cu.Yd. for Structural Excavation.
℄ Lane "M"
423+15 1093.9
See Note *
Wingwall
422+95 1094.1
See Note *
422+50 1095.3
Match Line 0+80 See NS-L1 Section
℄ Lane "M"
See Note *
℄ Ramp "N"
422+00 1095.7
Existing Ground
See Note *
18" Rounding
℄ Wingwall
℄ Conventry St.
℄ Lane "O"
1 on 2 Slope
Final Ground
Earth Backfill
421+70 1096.6
℄

1090 1080 1070 1100

DATE | BY | SURVEYED | PLOTTED | TEMPLATE | TIES | AREAS CHECKED | NOTE BOOK | NO.
FINAL SURVEY
ORIGINAL SURVEY

SCALE 1"=10'-0"
MADE K.L.M. DATE 11-12-57
TRCD S.C. DATE 2-18-58
CKD J.D.K. DATE 4-11-58
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 50

N-S EXPRESSWAY STA. 421+70 TO STA. 423+15

PLATE 3—CROSS SECTION O. P. 8, 4 & E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	51 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
							11961	201
424+50					6267	102		
							11247	133
424+00					5880	96		
							7095	114
423+67					5730	22/704		
12+47					84	0		
							3510	463
							338*	0*
11+27					68	0		
423+50					5403	767	90*	7*
10+77					29	8		

* See Lafollette St Sections

F.L. 1066.3
424+50
1094.5
℄ Lane "O"
℄ Ramp "T"
℄ Service Road "B"
Match Line
Existing Ground
Final Ground
1090
200
250

F.L. 1067.8
424+00
1094.7
℄ Ramp "T"
℄ Lane "O"
℄ Service Road "B"
Match Line
1100
Final Ground
Service Road "B" 25' Back
Cut=30, Fill=0
1090
180
200

F.L. 1068.4
Match Line 0+80
See N-S-L.L. Sections
423+67
1094.9
Face of Abutment
Existing Ground
Back Only
12+47
1096.5
11+27
1099.3
℄ Ramp "T"
℄ Lane "O"
Final Ground
Earth Backfill
St.
Existing Ground
Final Ground
℄ Lafollette
423+50
1093.5
10+77
1100.4
30 20 10 10 20 30
Auxillary Sections along Lafollette Street

℄

SCALE 1"=10'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE KLM DATE 11-14-57 CONSULTING ENGINEERS
TRCD SC. DATE 2-26-58 KANSAS CITY CLEVELAND NEW YORK
CKD JDK DATE 4-14-58 1018 SHEET 51

PLATE 3--CROSS SECTION O. P. R. & R. E.
CHARLES BRUSHING COMPANY, INC.

N-S EXPRESSWAY STA. 423+50 TO STA. 424+50

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

52 / 176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM-8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L. F.	SQ. YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
							503 284
				6863	157		
							869 269
				7036	134		
							12,922 234
				6920	119		
							12,566 217
				6651	115		

50 0 50 100 150 200

1100 / 1090 / 1080 — Match Line — 2.50

250

1090 / 1080 / 1070 — 426+50 — F.L. 1064.7 — 1088.4 — F.L. 1068.3 — ℄ Lane "O" — ℄ Ramp "T" — Match Line

1090 / 1080 / 1070 / 1060 — 426+00 — F.L. 1065.0 — 1090.7 — F.L. 1068.7 — ℄ Lane "B" — Forward 85 Ft. to Cut=30, Fill=0

1090 / 1080 / 1070 / 1060 — 425+50 — F.L. 1065.3 — 1091.8 — F.L. 1068.9 — Existing Ground — Match Line

1090 / 1080 / 1070 / 1060 — 425+00 — F.L. 1065.6 — Match Line 0+80 See N-S-L-1 Sections — Final Ground — 1 on 2 — Earth Backfill — F.L. 1069.1 — 1095.0 — ℄ Lane "O" — ℄ Ramp "T"

1100 / 1090 — Match Line — ℄ Service Road "B"

200 250

℄

SCALE 1"=10'-0" HORIZ.
MADE K.L.M. DATE 11-14-57
TRCD S.C. DATE 2-25-57
CKD J.D.K. DATE 4-14-58
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET: 52

N-S EXPRESSWAY STA. 425+00 TO STA. 426+50

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TRACED — AREAS — AREAS CHECKED — BY — DATE

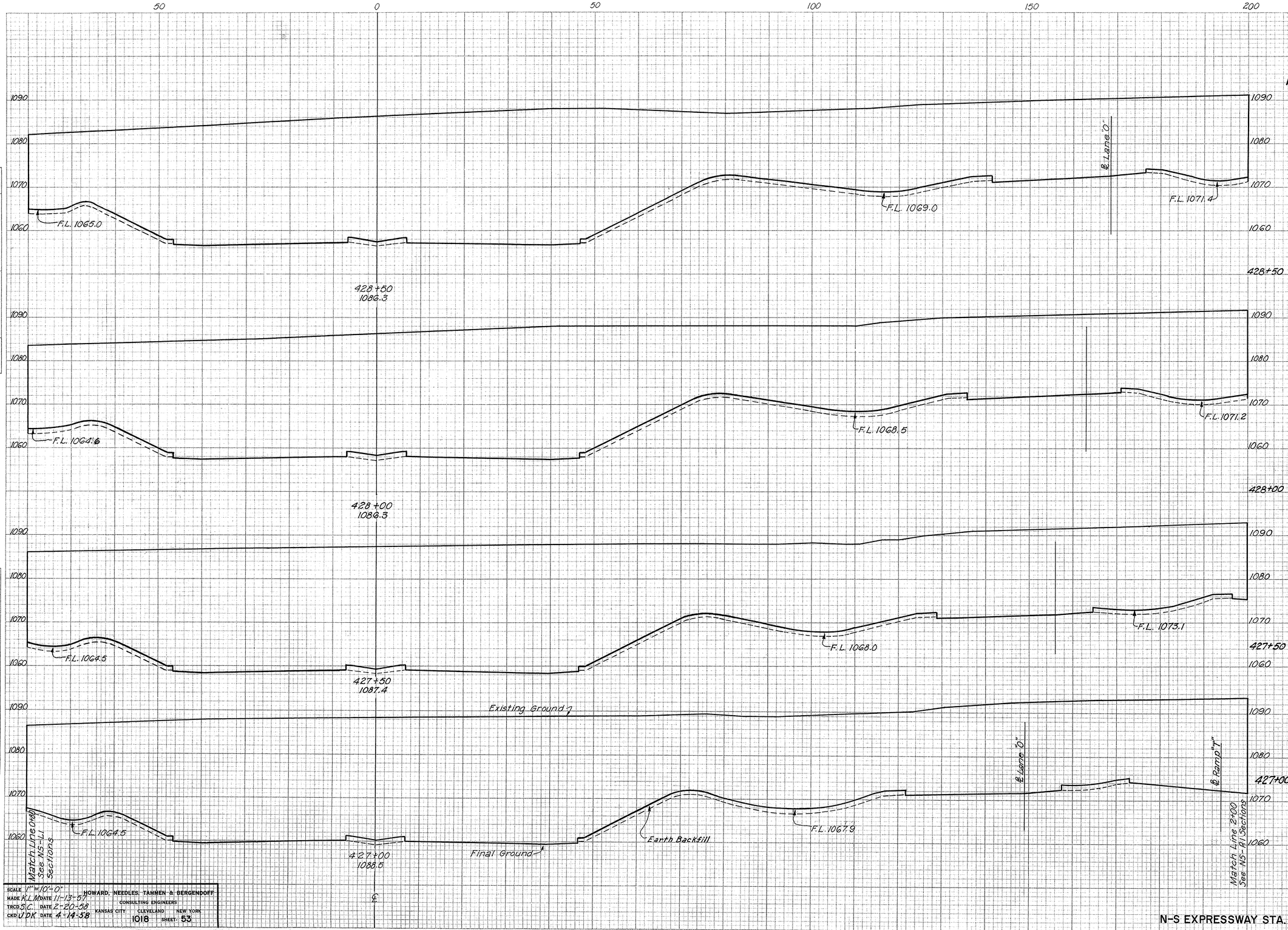
ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TRACED — AREAS — AREAS CHECKED — BY — DATE

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

53
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L. F.	SQ. YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
						11722	318
				6380	165		
						11870	319
				6440	180		
						11991	328
				6510	174		
						12176	300
				6640	150		



ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

SCALE 1"=10'-0"
MADE K.L.M. DATE 11-13-57
TRCD S.C. DATE 2-20-58
CKD J.D.K. DATE 4-14-58

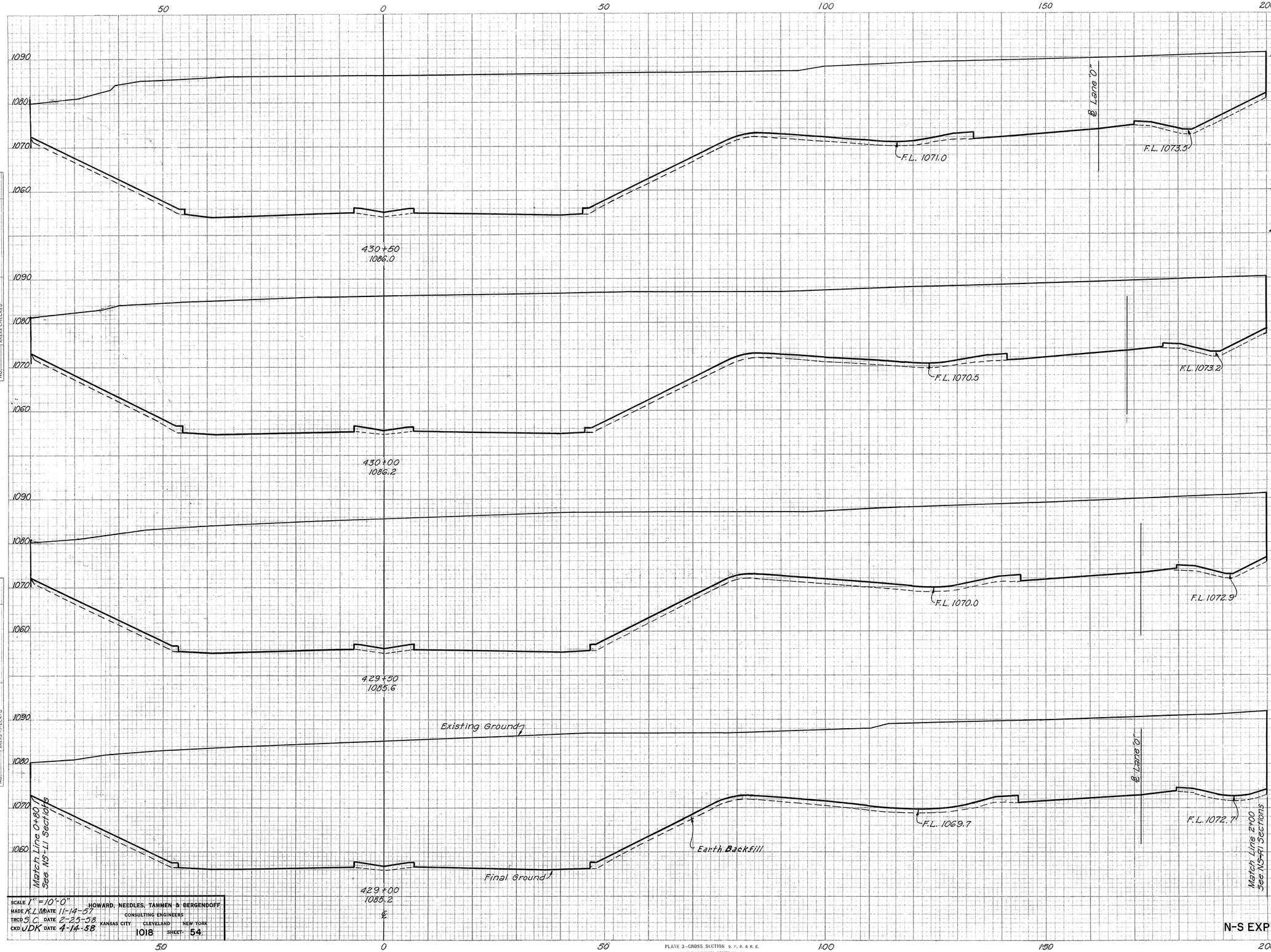
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

1018 SHEET 53

N-S EXPRESSWAY STA. 427+00 TO STA. 428+50

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	54 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L. F.	SQ.YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
						11806	170
				6340	184		
						11731	337
				6330	180		
						11649	331
				6300	177		
						11648	329
				6280	178		

FINAL SURVEY NOTE BOOK NO. — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, DATE, BY

ORIGINAL SURVEY NOTE BOOK NO. — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, DATE, BY

SCALE 1" = 10'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE K.L. DATE 11-14-57 CONSULTING ENGINEERS
TRCD S.C. DATE 2-25-58 KANSAS CITY CLEVELAND NEW YORK
CKD JDK DATE 4-14-58
1018 SHEET 54

N-S EXPRESSWAY STA. 429+00 TO STA. 430+50

PLATE 3-CROSS SECTION O. F. R. & R. E.
CHARLES BRUNICK COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

55
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
							13072 686
				5240	0		
						14648	0
				6060	0		
						11,259	0
				6100	0		
						11583	0
				6410	0		

Match Line 0+80
See EW-LI Sections

1 on 2 Slope

See Note *

Wingwall

℄ Lane 0'

F.L. 1073.6

*Note:
Backfill behind abutments and wing walls computed separately. Pay for such work shall be included in price bid per Cu.Yd. for roadway excavation.

432+70
1086.0

F.L. 1074.2

432+00
1086.0

F.L. 1072.0

F.L. 1074.7

431+50
1087.0

Existing Ground

F.L. 1071.5

F.L. 1073.9

Earth Backfill

Final Ground

Match Line
See EW-RI Sections

431+00
1087.0
℄

℄ Lane 0'

N-S EXPRESSWAY STA. 431+00 TO STA. 432+70

ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
FIELD
AREAS CHECKED
BY
DATE

FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
FIELD
AREAS CHECKED
BY
DATE

SCALE 1" = 10'-0"
MADE K.L.M. DATE 11-13-37
TRCD S.C. DATE 2-24-38
CKD F.W.H. DATE 4-19-38
1018 SHEET 55

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

56
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L. F.	SQ. YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
							3020 687
				3470	775		
							4247 809
				3479	712		
							2776 488
							3643 543
							2346 320
							3810 475

50 0 50 100 150 200

1060 1070 1080 1090 1050

West Abutment Bridge #2

See Note * Sheet 55

1on1 slope

East Abutment Bridge #1

1on2 slope

Match Line

434+19
1079.0

433+86
1080.6

433+65
1085.0

433+48
1085.0

Match Line 0+80
See Sections EW-11

Existing Ground

Final Ground

Earth Backfill

East Abutment Bridge #2

℄ Lane 5

Match Line 2+00
See Sections EW-R2

℄

SCALE 1" = 10'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE K.L.M DATE 1-10-58 CONSULTING ENGINEERS
TRCD S.C. DATE 3-14-58 KANSAS CITY CLEVELAND NEW YORK
CKD J.D.K. DATE 4-14-58
1018 SHEET 56

PLATE 3--CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

N-S EXPRESSWAY STA. 433+48 TO STA. 434+19

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, LEVELS, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, LEVELS, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

57
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						4038	1222
				3588	655		
						7585	1811
				3859	1123		
						3346	943
				3670	1001		
						2449	601
				3674	803		
						1216	273
				3620	837		

1 on 2 Slope
Wingwall
Bridge #1
Match Line
435+48
1082.0
℄ Lane 8"
See Note* Sheet 53
Abutment
434+93
1081.4
East Abutment
Bridge #6
See Note* Sheet 55
West Abutment
Bridge #1
Match Line 0+80
See Sections EW-L-2
434+69
1078.3
See Note* Sheet 53
Match Line 0+80
See Section EW-L-1
℄ Lane 0"
434+51
1080.0
Existing Ground
See Note* Sheet 53
1 on 1 Slope
West Abutment
Bridge #2
Final Ground
Earth Backfill
434+42
1080.0
℄
Match Line 2+00
See Sections EW-R-3

1090
435+48
1080
1070
434+93
1060
1050
1090
434+69
1080
1070
434+51
1060
1050
1090
434+42
1070
1060
1050

SCALE	1"=10'-0"	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE	A.L.M. DATE 2-7-58	CONSULTING ENGINEERS
TRCD	S.C. DATE 3-17-58	KANSAS CITY CLEVELAND NEW YORK
CKD	J.D.K. DATE 4-14-58	1018 SHEET 57

N-S EXPRESSWAY STA. 434+42 TO STA. 435+48

PLATE 3 - CROSS SECTION U. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

ORIGINAL SURVEY — SURVEYED, PLOTTED, NOTE BOOK, AREAS, AREAS CHECKED, BY, DATE

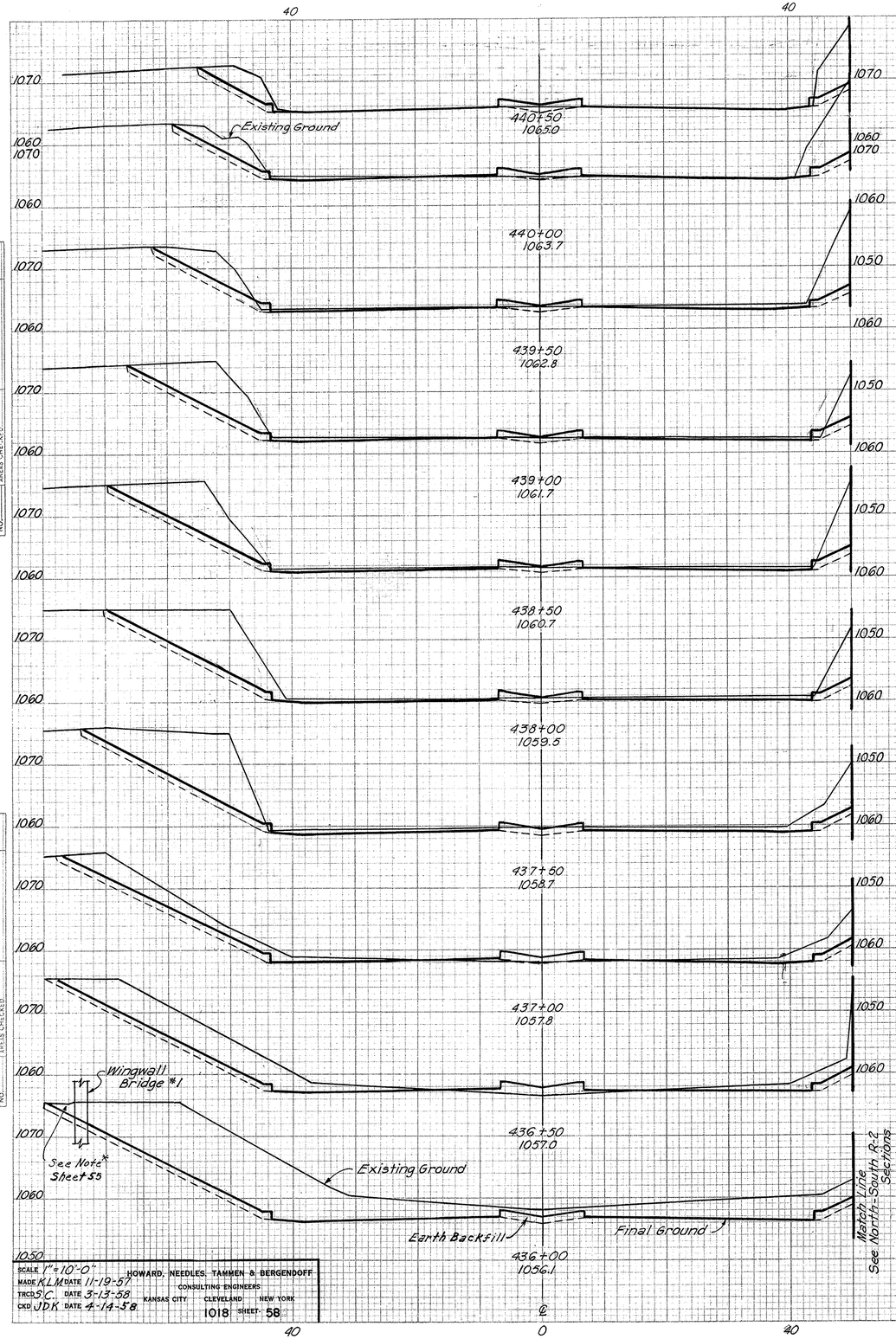
FINAL SURVEY — SURVEYED, PLOTTED, NOTE BOOK, AREAS, AREAS CHECKED, NO., BY, DATE

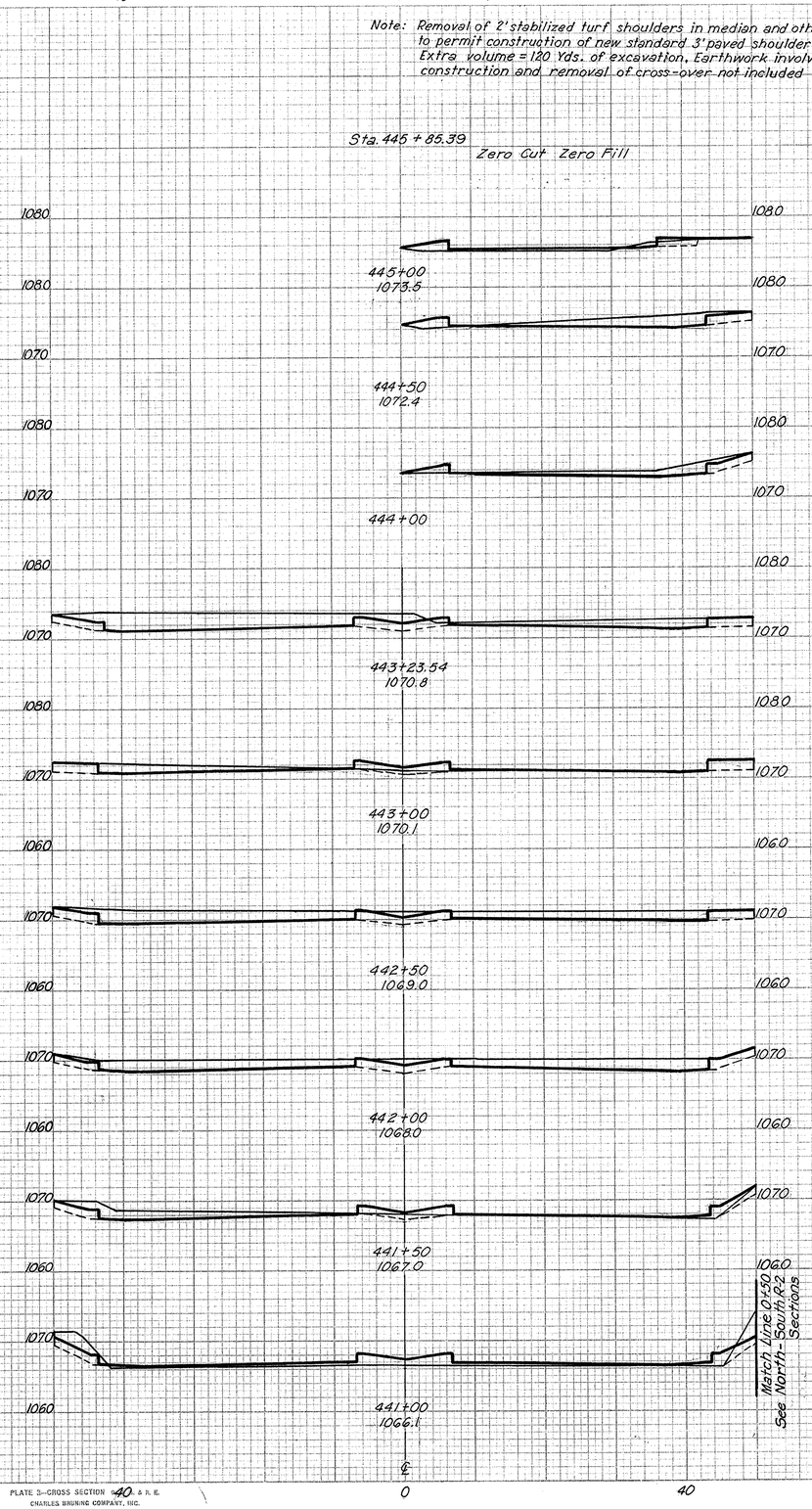
FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

58 / 176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

Note: Removal of 2' stabilized turf shoulders in median and other excavation required to permit construction of new standard 3' paved shoulder is computed separately. Extra volume = 120 Yds. of excavation. Earthwork involved in construction and removal of cross-over not included. See Sheet 2.





	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
Extra Volume							120	0
445+85.39					0	0		
							14	30
445+00					9	19		
							50	32
+50					45	16		
							71	29
444+00					32	15		
							85	24
+23.54					142	11		
							82	21
443+00					46	26		
							196	40
+50					166	40		
							303	52
442+00					161	28		
							191	48
+50					45	24		
							72	59
441+00					33	48		
							110	67
+50					86	32		
							185	63
440+00					114	36		
							219	76
+50					122	46		
							256	89
439+00					154	50		
							341	98
+50					214	56		
							419	104
438+00					239	56		
							498	107
+50					299	60		
							437	114
437+00					173	63		
							400	121
+50					259	68		
							800	115
436+00					605	Ah 56 Bk 614		

ORIGINAL SURVEY — STAKED, PLOTTED, TEMPLATE, NOTE BOOK, AREAS CHECKED, NO., BY, DATE

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, AREAS CHECKED, NO., BY, DATE

SCALE 1"=10'-0" | MADE KLM DATE 11-19-57 | TRCD SC. DATE 3-13-58 | CKD JDK DATE 4-14-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 58

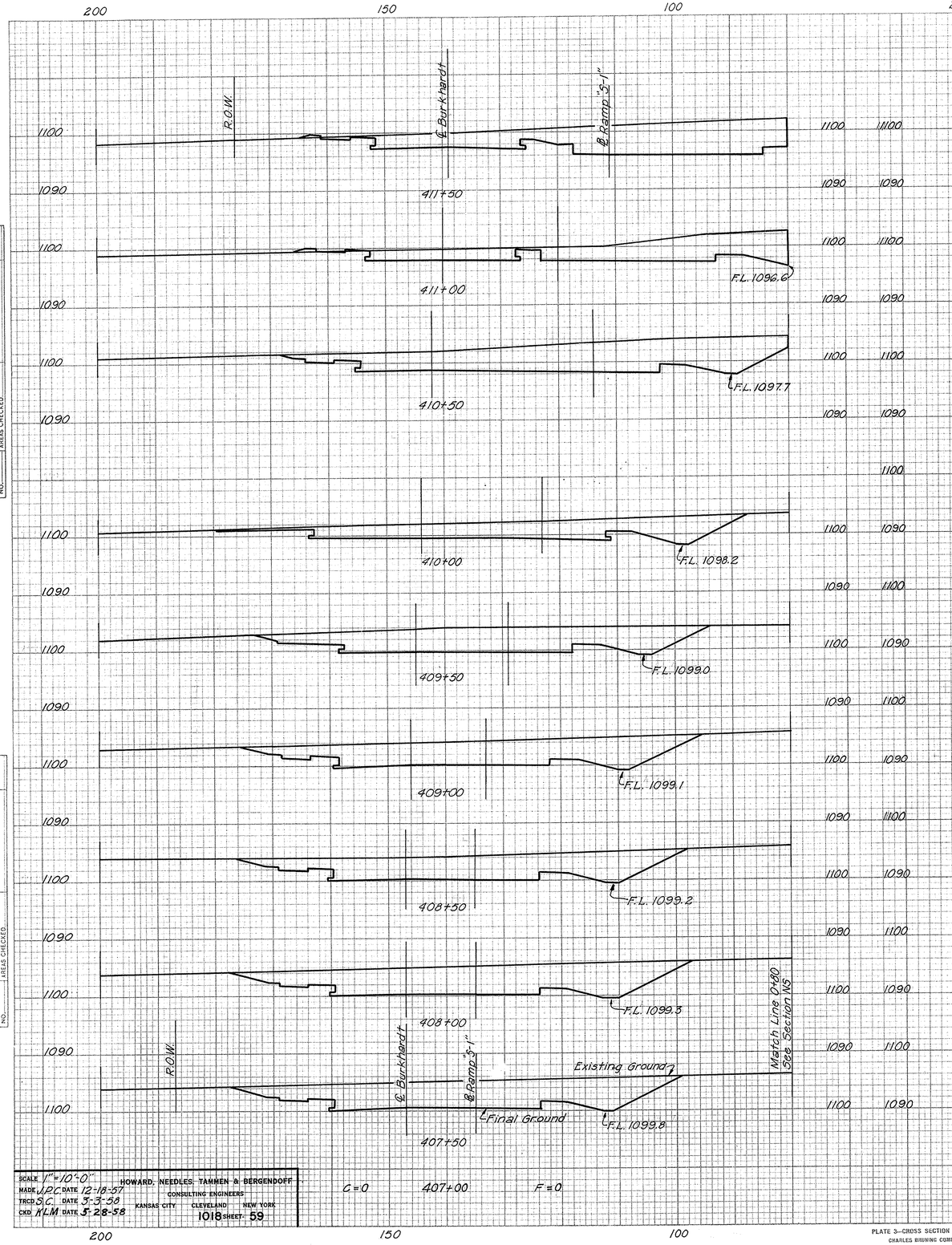
PLATE 3—CROSS SECTION
H. H. & R. E.
CHARLES BRUNING COMPANY, INC.

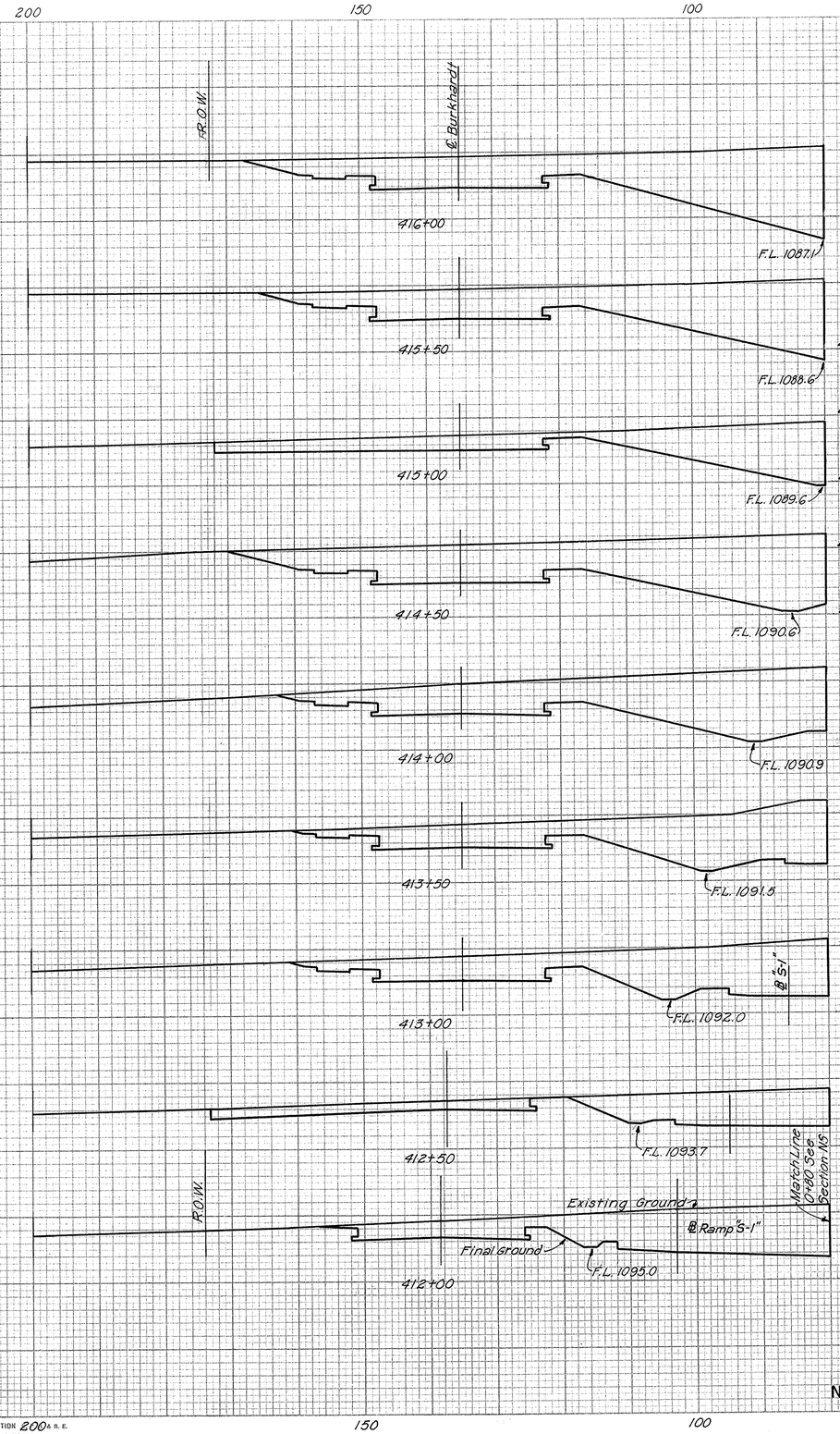
N-S EXPRESSWAY STA. 436+00 TO STA. 445+85.59

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

59
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65





SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						849	0
				487	0		
						843	0
				423	0		
						668	0
				298	0		
						762	0
				525	0		
						904	0
				451	0		
						760	0
				370	0		
						671	0
				355	0		
						548	0
				237	0		
						530	0
				335	0		
						592	1
				304	1		
						472	3
				206	2		
						518	2
				353	0		
						526	0
				215	0		
						459	0
				281	0		
						517	0
				277	0		
						493	0
				255	0		
						521	0
				308	0		
						563	0
				300	0		
						278	0
				0	0		

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

SCALE 1"=10'-0" — MADE J.P.C. DATE 12-18-57 — TRCD S.C. DATE 3-3-58 — CKD K.L.M. DATE 3-28-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 59

PLATE 3—CROSS SECTION 200' & R. E.
CHARLES BRUNING COMPANY, INC.

N-S L-1 STA. 407+00 TO STA. 416+00

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

60
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK				
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME		
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.	
						2038	694	1090
				1066	Ah3M BK.O			1080
						1904	0	1070 423+00
				930	0			1060 422+50
						1778	0	
				930	0			1090 422+00
						1671	0	
				875	0			1080 421+50
						1542	0	
				780	0			1070 421+00
						1212	0	
				529	0			1100 420+50
						1010	0	
				562	0			1090 420+00
						983	0	
				500	0			1080 419+50
						935	0	
				570	0			1070 419+00
						926	0	
				490	0			1100 418+50
						815	0	
				390	0			1090 418+00
						627	0	
				287	0			1080 417+50
						638	0	
				467	0			1070 417+00
						831	0	
				430	0			1090 416+50
								1080
								1070

N-S L-1 STA. 416+50 TO STA. 423+00

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, AREAS CHECKED, NO., BY, DATE

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, NOTE BOOK, AREAS CHECKED, NO., BY, DATE

SCALE 1"=10'-0
MADE V.P.C. DATE 12-18-57
TRCD. S.C. DATE 3-3-58
CKD. K.L.M. DATE 5-28-58

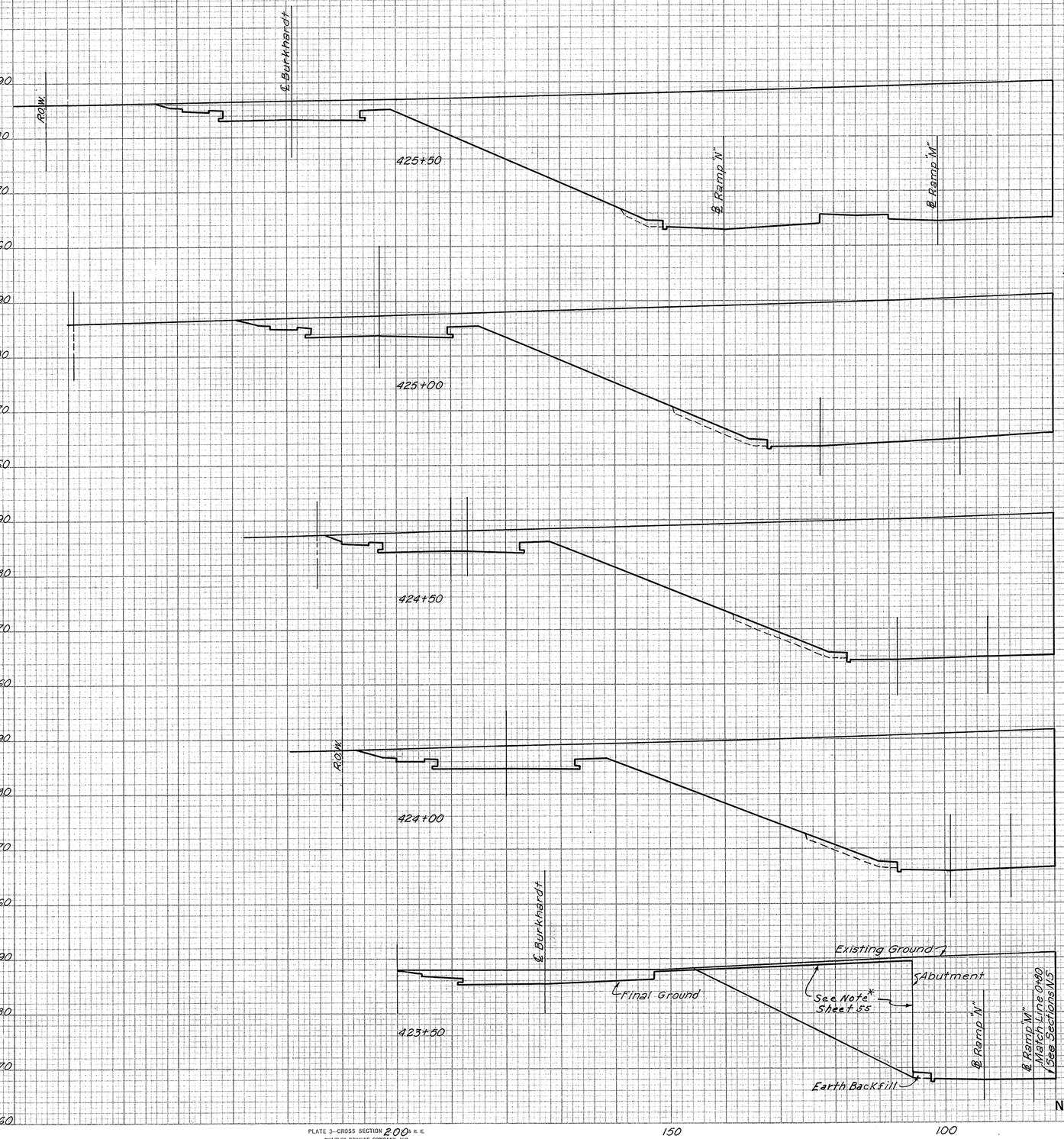
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET 60

PLATE 200 S SECTION O. P. R. & R. S.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

61
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8 - 11.65



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
								4579 50
425+50					2540	9		
								4444 26
425+00					2260	19		
								3824 38
424+50					1870	22		
								3208 37
424+00					1595	18		
								2134 419
423+50					710 / 1135	18 / 435		

N-S L-1 STA. 423+50 TO STA. 425+50

SCALE	1"=10'	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE	J.P.C. DATE 12-19-57	CONSULTING ENGINEERS
TRCD	J.C. DATE 2-27-58	KANSAS CITY CLEVELAND NEW YORK
CKD	J.D.K. DATE 4-11-58	1018 SHEET 61

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

PLATE 3—CROSS SECTION 200 R. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

62
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						4306	55
				2400	21		
						4667	39
				2640	21		
						4875	30
				2625	11		
						4819	44
				2580	37		
						4616	76
				2405	45		

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TRACED — CHKD — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TRACED — AREAS — AREAS CHECKED — BY — DATE

SCALE 1"=10'-0"
MADE LRC DATE 12-19-57
TRCD SC DATE 2-28-58
CKD JDK DATE 4-11-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 62

PLATE 3—CROSS SECTION 200 R. E.
CHARLES BRUNING COMPANY, INC.

N-S L-1 STA. 426+00 TO STA. 428+00

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

63
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART IO
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L. F	SQ.YD.	S. F.	C. Y.	EXC.	EMB.	EXC.	EMB.
						191	504
				127	114		
						743	161
				675	60		
						1667	231
						1125	190
						2449	338
						1520	175
						3491	198
						2250	39

1090
1080
1070
300
250
200
150
100
430+50
430+00
429+50
429+00
428+50
℄ Lane "M"
℄ Ramp "N"
F.L. 1073.4
F.L. 1075.3
F.L. 1072.0
F.L. 1074.0
F.L. 1070.7
F.L. 1072.8
F.L. 1069.4
F.L. 1071.7
F.L. 1074.5
F.L. 1068.2
F.L. 1065.0
Existing Ground
Final Ground
Earth Backfill
Match Line 3+60
See Section N-S L-2
Match Line 0+80
See Section N-S

N-S L-1 STA. 428 + 50 TO STA. 430 + 50

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

FINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

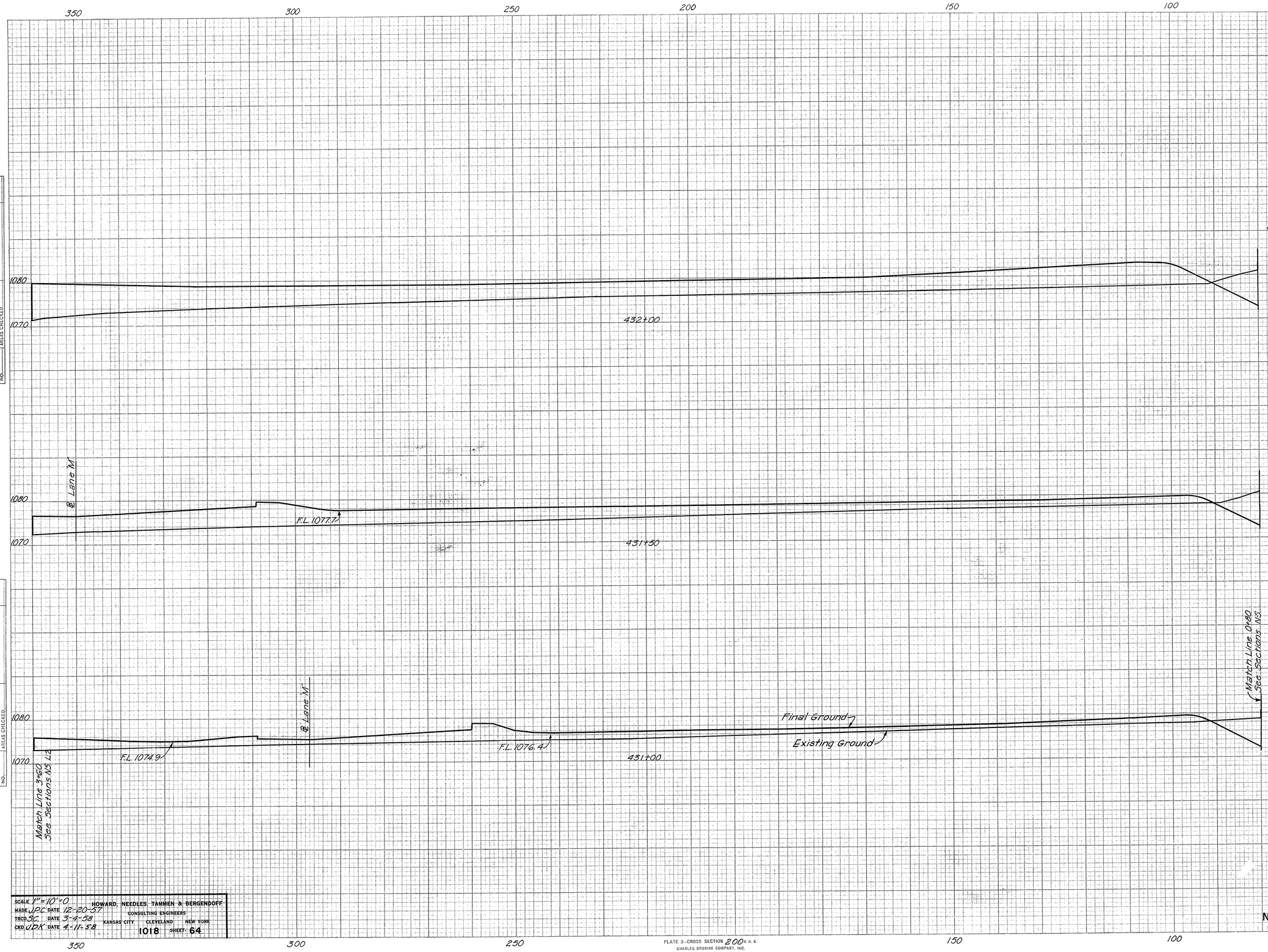
SCALE 1"=10'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE J.P.C. DATE 12-20-57 CONSULTING ENGINEERS
TRCD S.C. DATE 3-4-58 KANSAS CITY CLEVELAND NEW YORK
CKD J.D.K. DATE 4-11-58 1018 SHEET 63

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

64
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
				44	1165		
						76	1773
				38	750		
						69	1093
				36	430		



ORIGINAL SURVEY — SURVEYED, PLOTTED, CALCULATE, AREAS, AREAS CHECKED — BY — DATE — NOTE BOOK — NO.

FINAL SURVEY — SURVEYED, PLOTTED, CALCULATE, AREAS, AREAS CHECKED — BY — DATE — NOTE BOOK — NO.

SCALE 1"=10'-0 — HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE JPC DATE 12-20-57 — CONSULTING ENGINEERS
TRCD SC DATE 3-4-58 — KANSAS CITY CLEVELAND NEW YORK
CKD JDK DATE 4-11-58 — 1018 SHEET 64

PLATE 3--CROSS SECTION 200 A. R. E.
CHARLES BRUSING COMPANY, INC.

N-S L-1 STA. 431+00 TO STA. 432+00

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

65
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
				260	1475		
						324	3505
				90	2310		
						116	4222
				35	2250		
						71	3611
				42	1650		
						67	2472
				30	1020		
						56	1352
				30	440		
						67	468
				42	65		
						40	60
				1	0		
				0	0	1	0

C=0 428+00 F=0

N-S L-2 STA. 428 +00 TO STA. 432 +00

FINAL SURVEY — NOTE BOOK NO. — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — BY — DATE

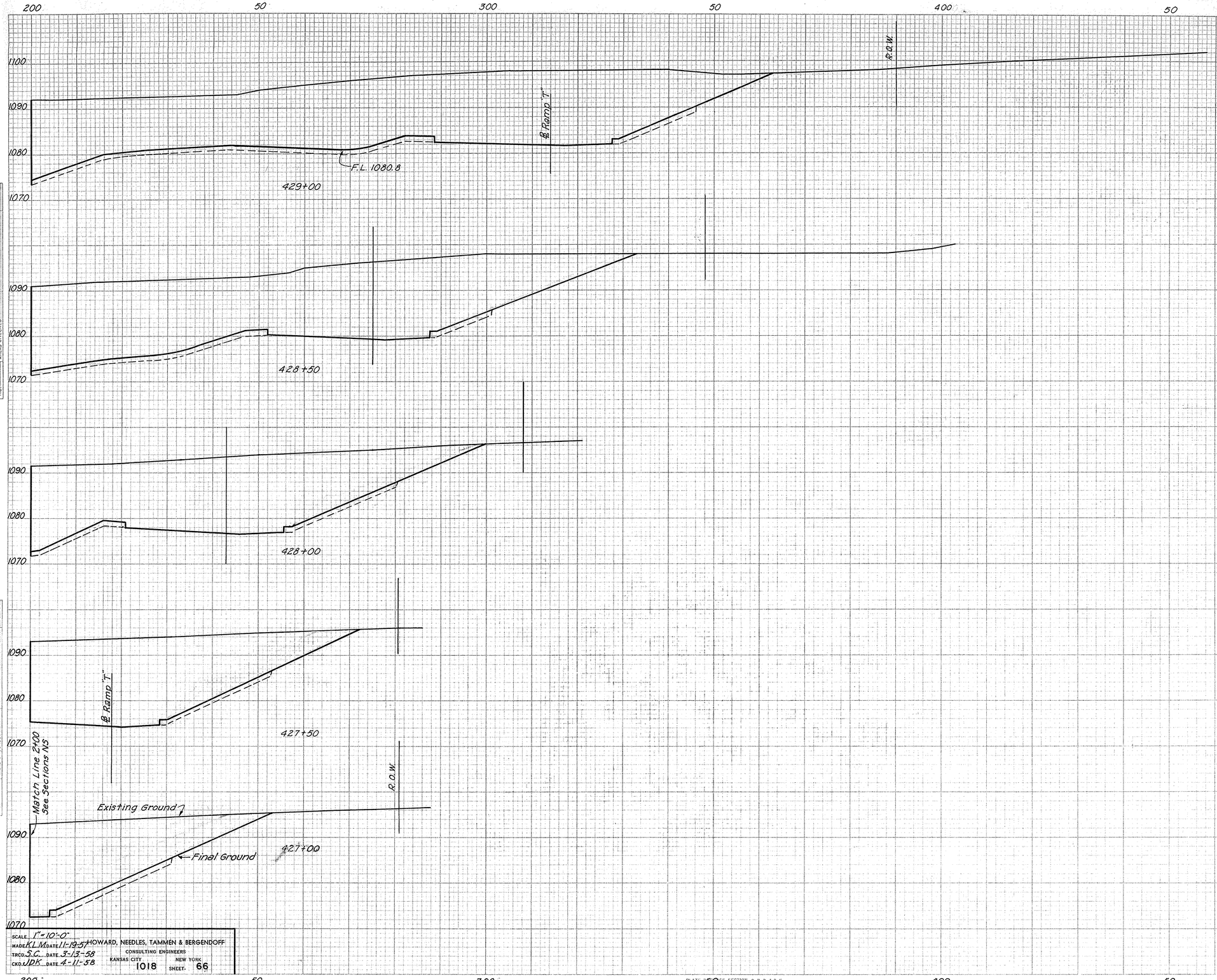
ORIGINAL SURVEY — NOTE BOOK NO. — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED — BY — DATE

SCALE 1"=10'-0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE D.M. DATE 12-9-57 CONSULTING ENGINEERS
TRCD S.C. DATE 2-27-58 KANSAS CITY CLEVELAND NEW YORK
CKD JDK DATE 4-11-58 1018 SHEET: 65

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	66 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
							3946	196
429+00					2188	126		
							3711	188
428+50					1820	77		
							2880	119
428+00					1290	51		
							2065	72
427+50					940	27		
							1389	51
427+00					560	28		

FINAL SURVEY — SURVEYED — PLOTTED — NOTE BOOK — AREAS — AREAS CHECKED — NO. — BY — DATE

ORIGINAL SURVEY — SURVEYED — PLOTTED — NOTE BOOK — AREAS — AREAS CHECKED — NO. — BY — DATE

SCALE 1"=10'-0"
MADE K.L.M DATE 11-19-57
TRCD. S.C. DATE 3-13-58
CKD. JPK DATE 4-11-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET 66

N-S R-1 STA. 427+00 TO STA. 429+00

CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

67
176

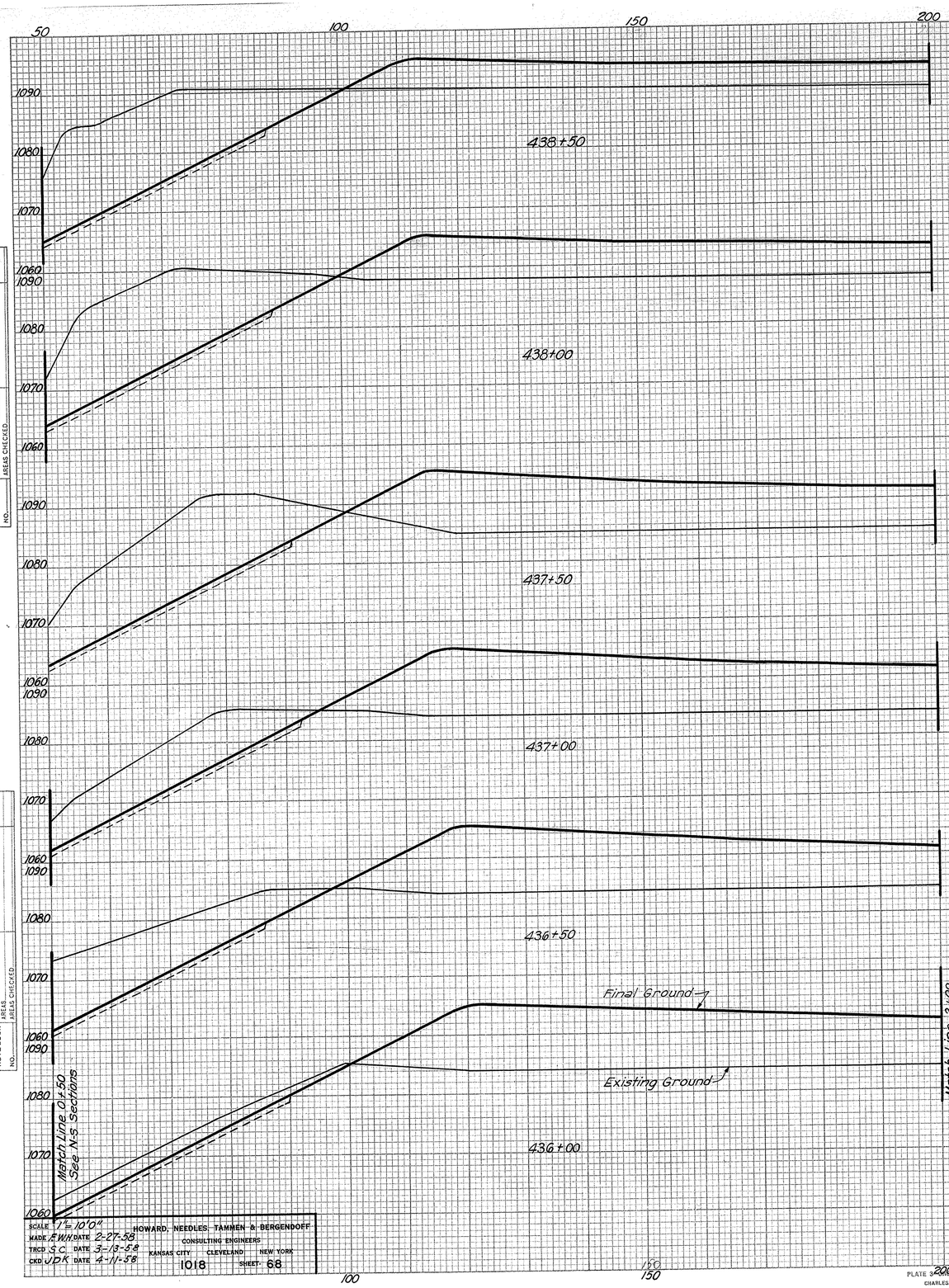
SUMMIT COUNTY
CITY OF AKRON

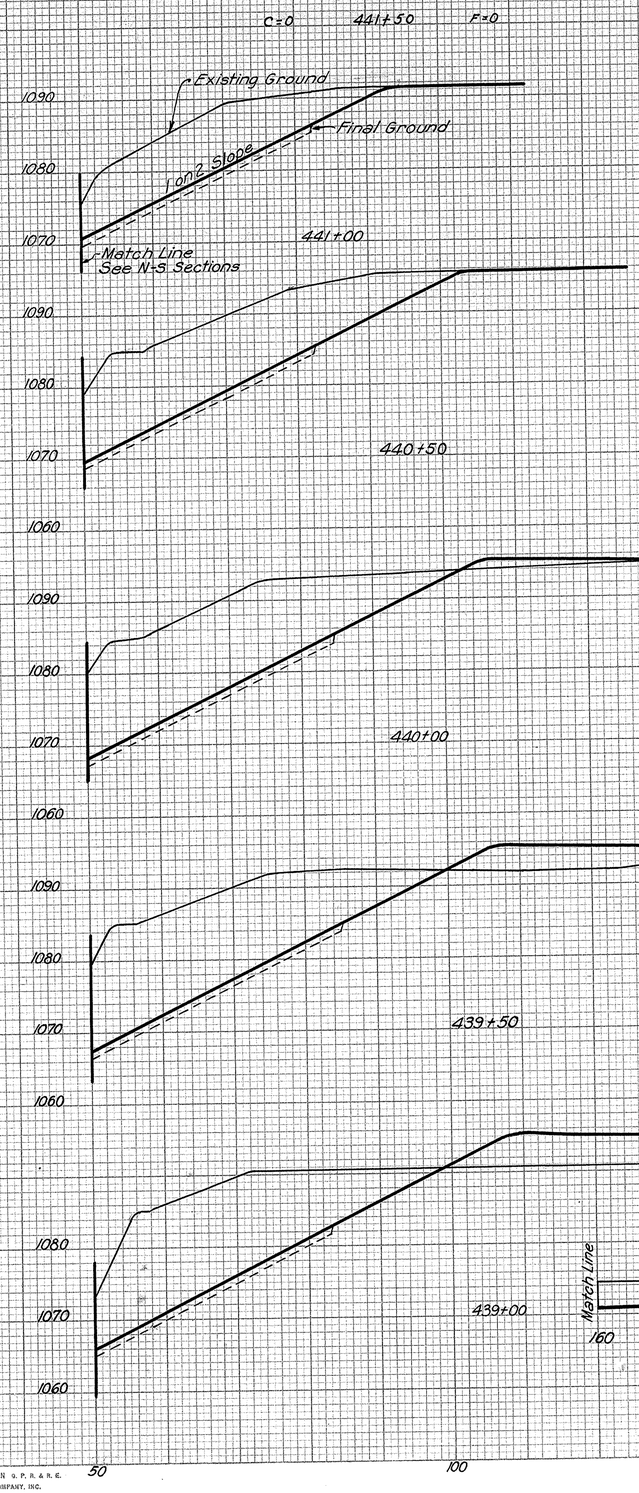
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ. YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
				1850	64		

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	68 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65





SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ. YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
				441+50 0	0		
							289 33
				441+00 312	36		
							725 67
				440+50 471	36		
							928 90
				440+00 531	61		
							978 191
				439+50 525	145		
							968 503
				439+00 520	398		
							1019 778
				438+50 580	442		
							1093 986
				438+00 600	623		
							1093 1342
				437+50 580	826		
							849 1627
				437+00 337	931		
							668 1686
				436+50 384	890		
							485 1678
				436+00 140	922		

N-S R-2 STA. 436+00 to STA. 441+50

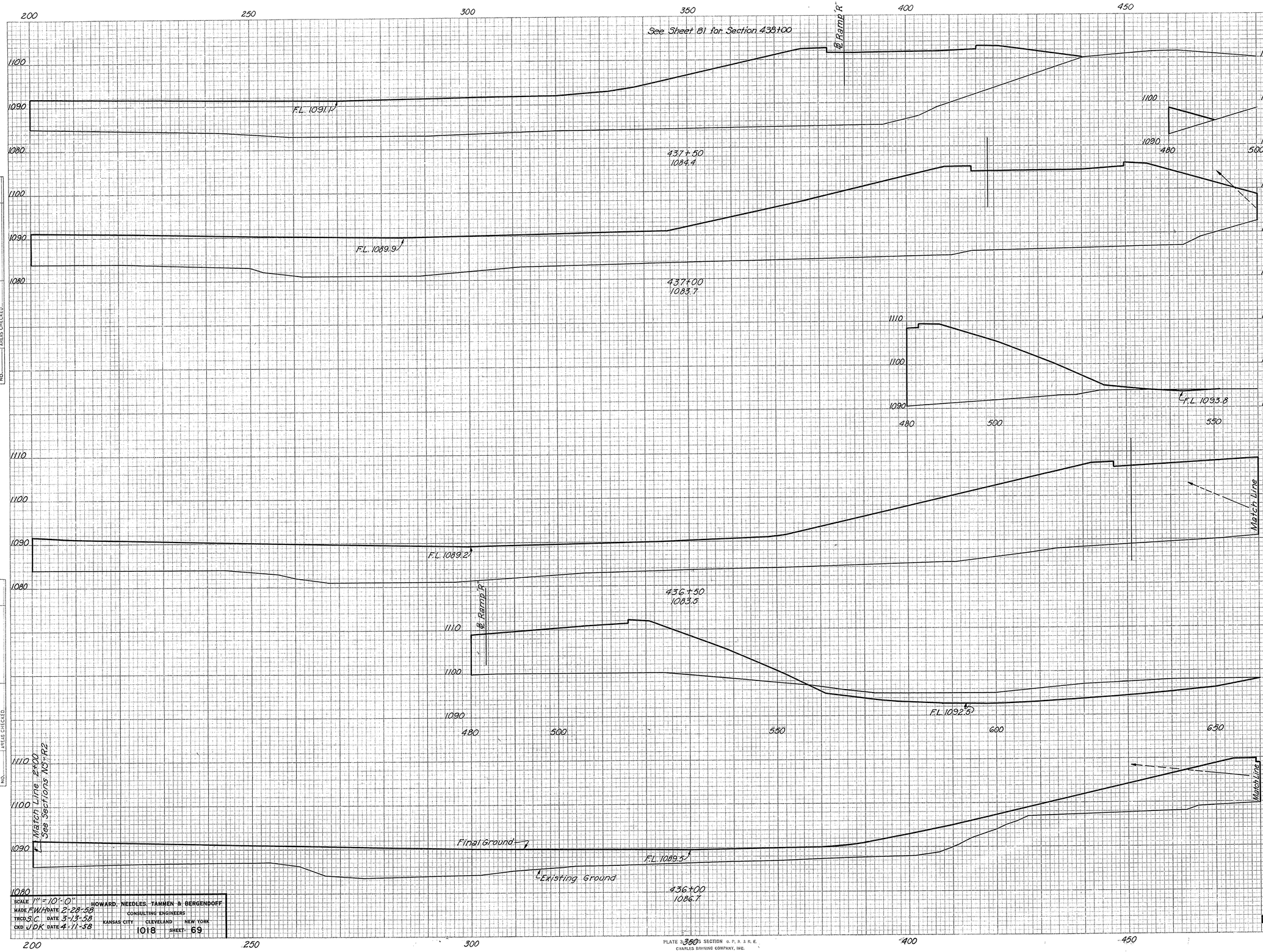
SCALE 1"=10'0"	HOWARD, NEEDLES, TAMMEN & BERGENDOFF		
MADE RWH DATE 2-27-58	CONSULTING ENGINEERS		
TRCD SC DATE 3-13-58	KANSAS CITY	CLEVELAND	NEW YORK
CKD JDK DATE 4-11-58	1018	SHEET 68	

FINAL SURVEY	DATE	BY
NOTE BOOK	SURVEYED	
NO.	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	DATE	BY
NOTE BOOK	SURVEYED	
NO.	PLOTTED	
	TEMPLATE	
	AREAS	
	AREAS CHECKED	

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS	69
2	OHIO			176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8 11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						0	3407
				0	2360		
						0	5148
				0	3200		
						11	6137
						12	3428
						229	5044
						235	2020

FINAL SURVEY — SURVEYED, PLOTTED, PLANIMETERED, AREAS, AREAS CHECKED — BY — DATE — NOTE BOOK — NO.

ORIGINAL SURVEY — SURVEYED, PLOTTED, PLANIMETERED, AREAS, AREAS CHECKED — BY — DATE — NOTE BOOK — NO.

SCALE 1" = 10'-0" | MADE F.W.M. DATE 2-28-58 | TRCD S.C. DATE 3-13-58 | CKD J.D.K. DATE 4-11-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 69

N-S R-3 STA. 436+00 TO STA. 437+50

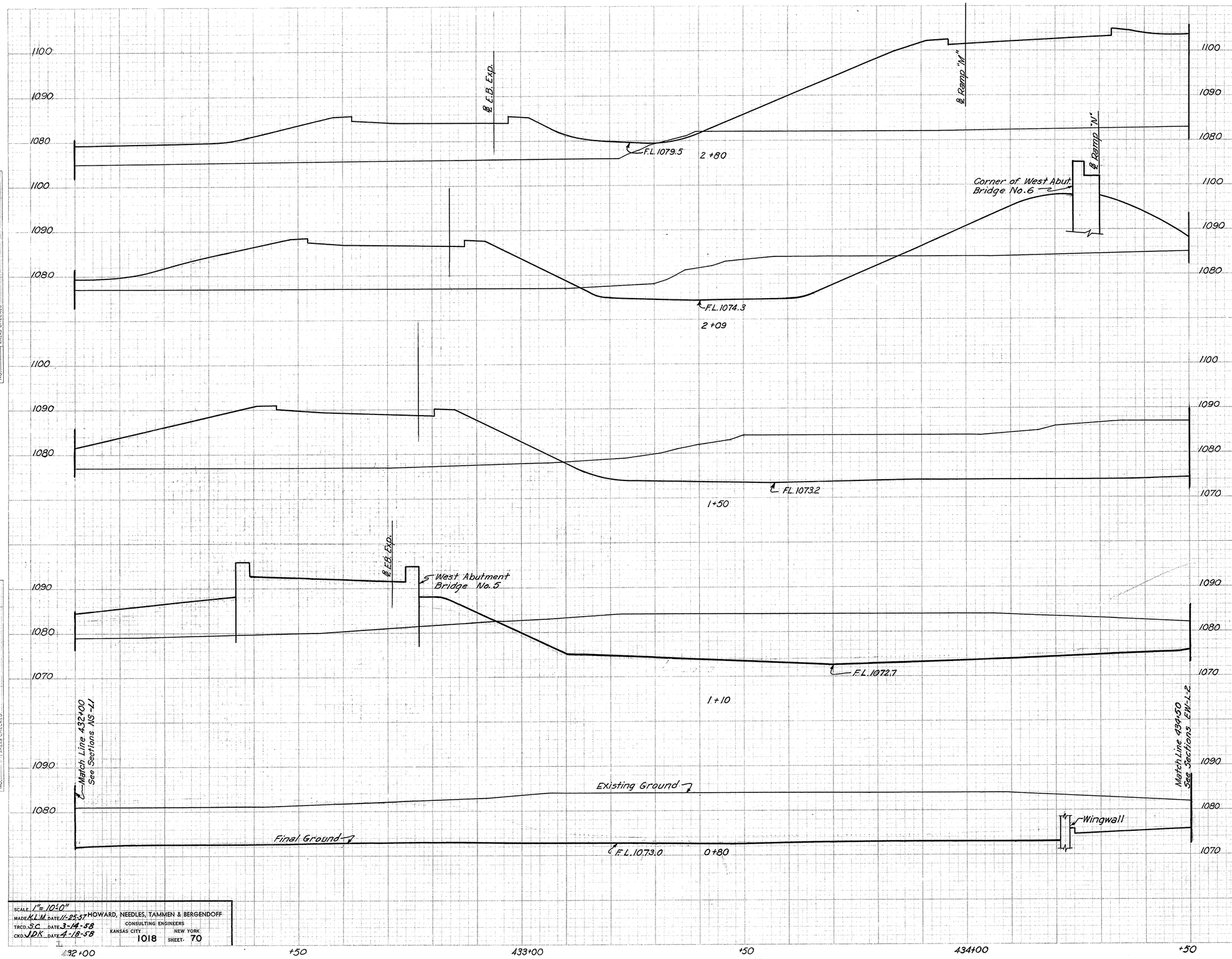
PLATE 3 SECTION O. P. R. 3 R. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

70
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK				
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME		
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.	
							4	6292
					4	2540		
							530	5211
					399	1423		
							1900	2733
					1340	1078		
							2047	1044
					1423	332		
							2152	184
					2450	0		

2+80
2+09
1+50
1+10
0+80

FINAL SURVEY — SURVEYED / PLOTTED / TEMPLATE / AREAS / AREAS CHECKED — DATE — BY — NOTE BOOK — NO.

ORIGINAL SURVEY — SURVEYED / PLOTTED / TEMPLATE / AREAS / AREAS CHECKED — DATE — BY — NOTE BOOK — NO.

SCALE 1"= 10'-0"
MADE K.L.M. DATE 11-25-57
TRCD. S.C. DATE 3-14-58
CKD. J.D.K. DATE 4-18-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET 70

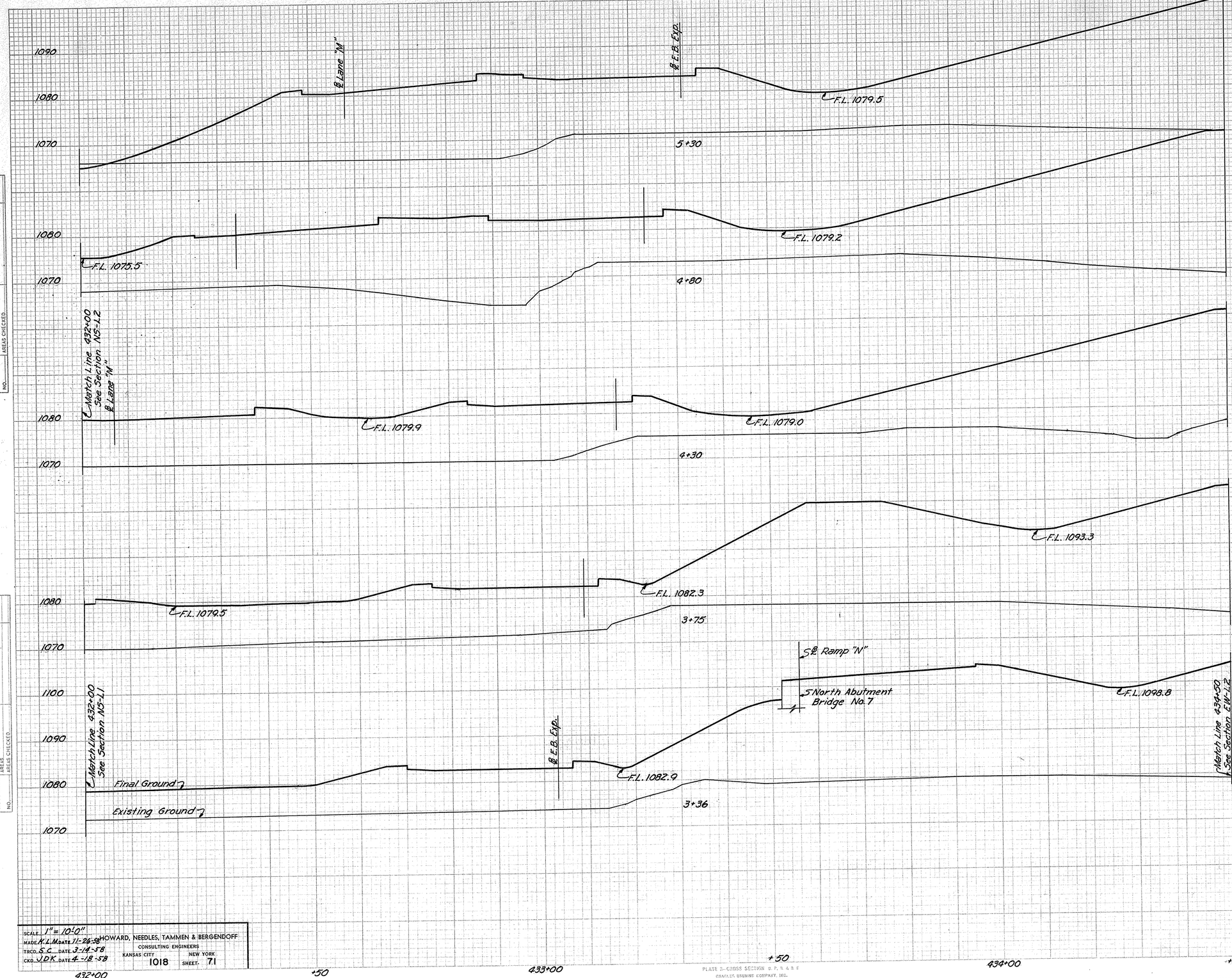
E-W L-1 STA. 0+80 TO STA. 2+80

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

71
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB
							133 6284
				5+30	4 3410		
						4	6407
				4+80	0 3510		
							0 5960
				4+30	0 2927		
						0	6577
				3+75	0 3530		
						0	5097
				3+36	0 3527		

E-W L-1 STA. 3+36 TO STA. 5+30

FINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	TEMPLATE	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	TEMPLATE	
	AREAS	
	AREAS CHECKED	

SCALE 1"= 10:0"
MADE K.L.M. DATE 11-26-58
TRCD. S.C. DATE 3-14-58
CKD. JDK DATE 4-18-58

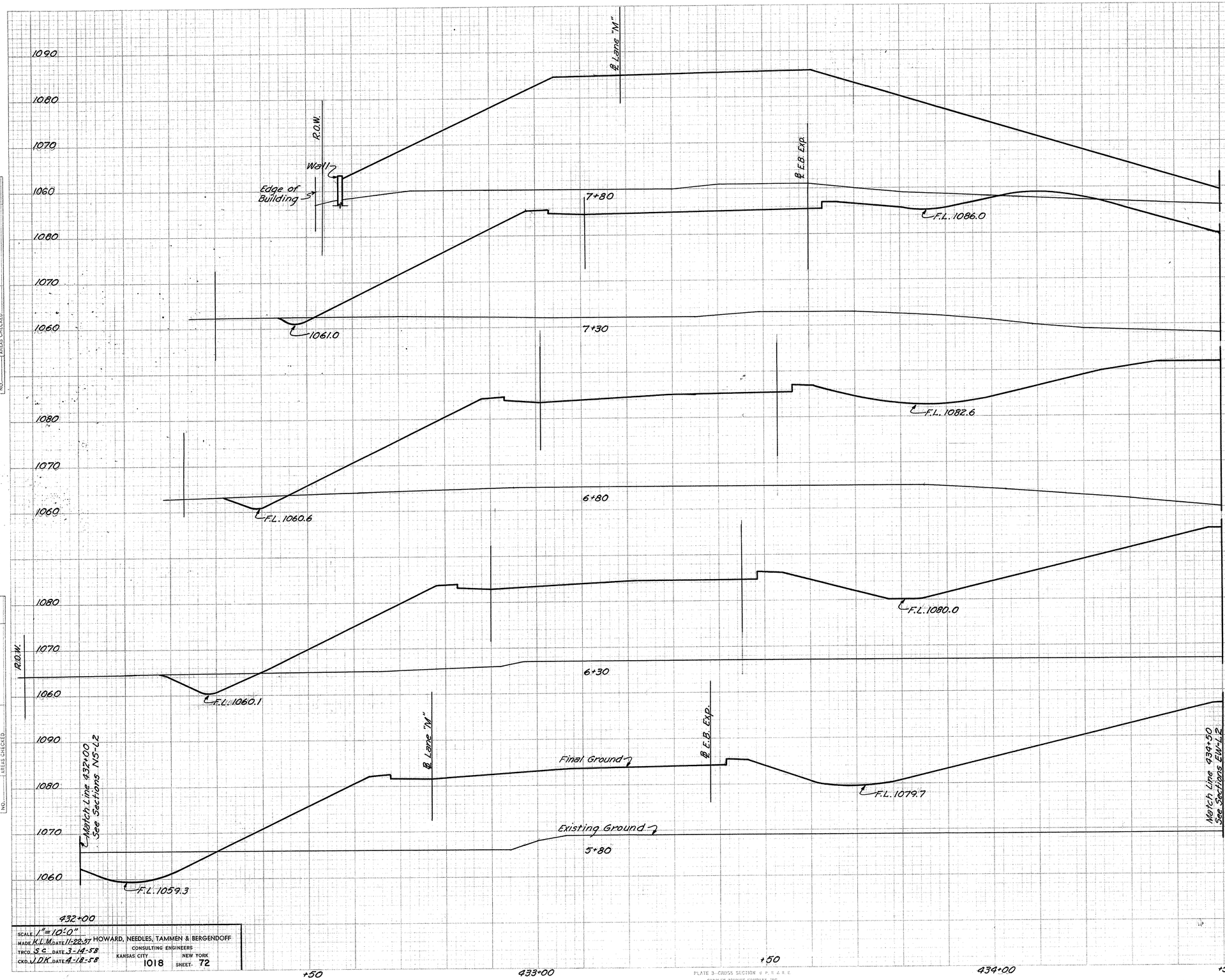
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET- 71

PLATE 3-CROSS SECTION U. P. & R. P.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

72
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						0	4794
7+80				0	3325		
						6	6963
7+30				6	4195		
						24	7531
6+80				20	3939		
						67	6902
6+30				52	3515		
						178	6381
5+80				140	3377		

FINAL SURVEY — DATE — BY
SURVEYED
PLOTTED
TEMPLATE
NOTE BOOK
AREAS
NO.
AREAS CHECKED

ORIGINAL SURVEY — DATE — BY
SURVEYED
PLOTTED
TEMPLATE
NOTE BOOK
AREAS
NO.
AREAS CHECKED

SCALE 1"=10'-0"
MADE K.L.M. DATE 11-22-57
TRCD. S.C. DATE 3-14-58
CKD. J.D.K. DATE 4-18-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 1018 NEW YORK
SHEET- 72

E-W L-1 STA. 5+80 TO STA. 7+80

PLATE 3-CROSS SECTION
CHARLES BROSIUS COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

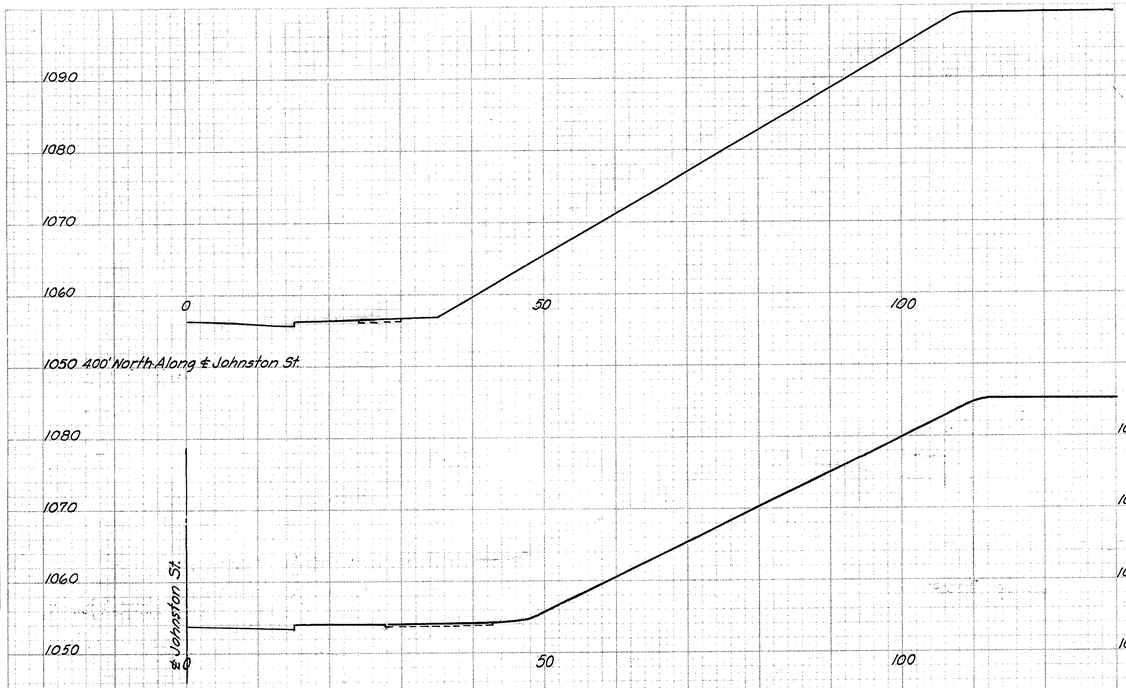
73
176

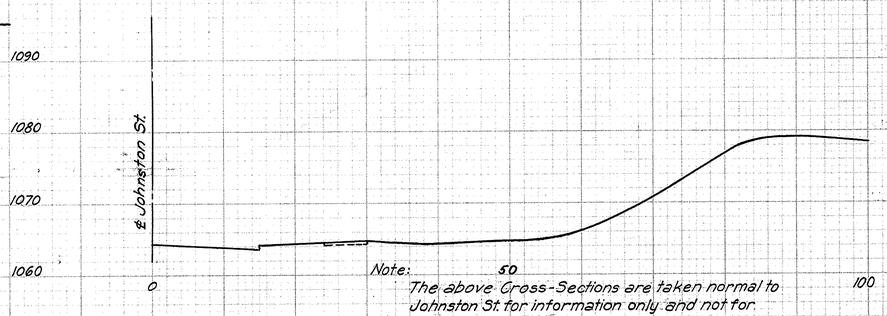
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

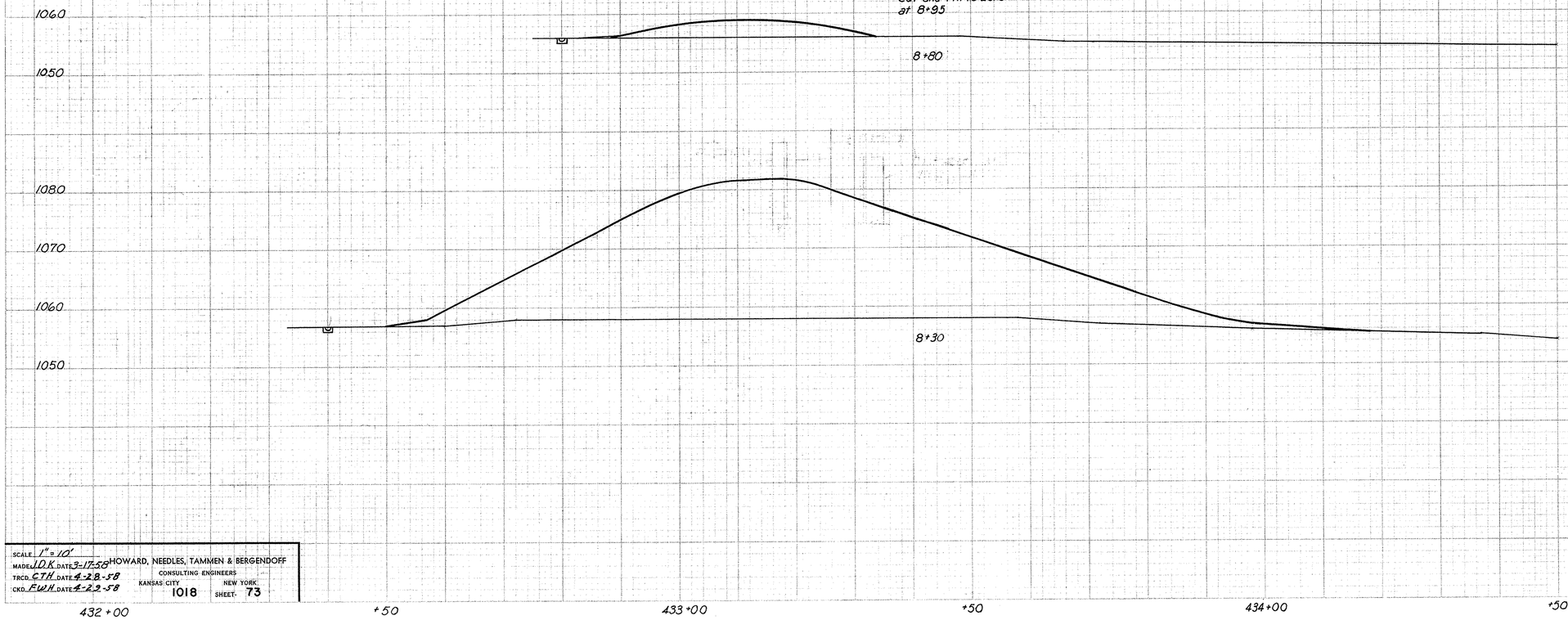
FINAL SURVEY — DATE, BY, SURVEYED, PLOTTED, NOTE BOOK, AREAS CHECKED, NO.

ORIGINAL SURVEY — DATE, BY, SURVEYED, PLOTTED, NOTE BOOK, AREAS CHECKED, NO.





Note:
The above Cross-Sections are taken normal to Johnston St. for information only and not for the Quantities involved.



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
				106.0	8+95		
						0	0
				0	0		
						0	27
				105.0	8+80		
				0	96		
						0	1805
				108.0	8+30		
				0	1853		

E-W L-1 STA. 8+30 TO STA. 8+95

SCALE 1" = 10'
MADE JDK DATE 3-17-58
TRCD CTH DATE 4-28-58
CKD FWH DATE 4-29-58

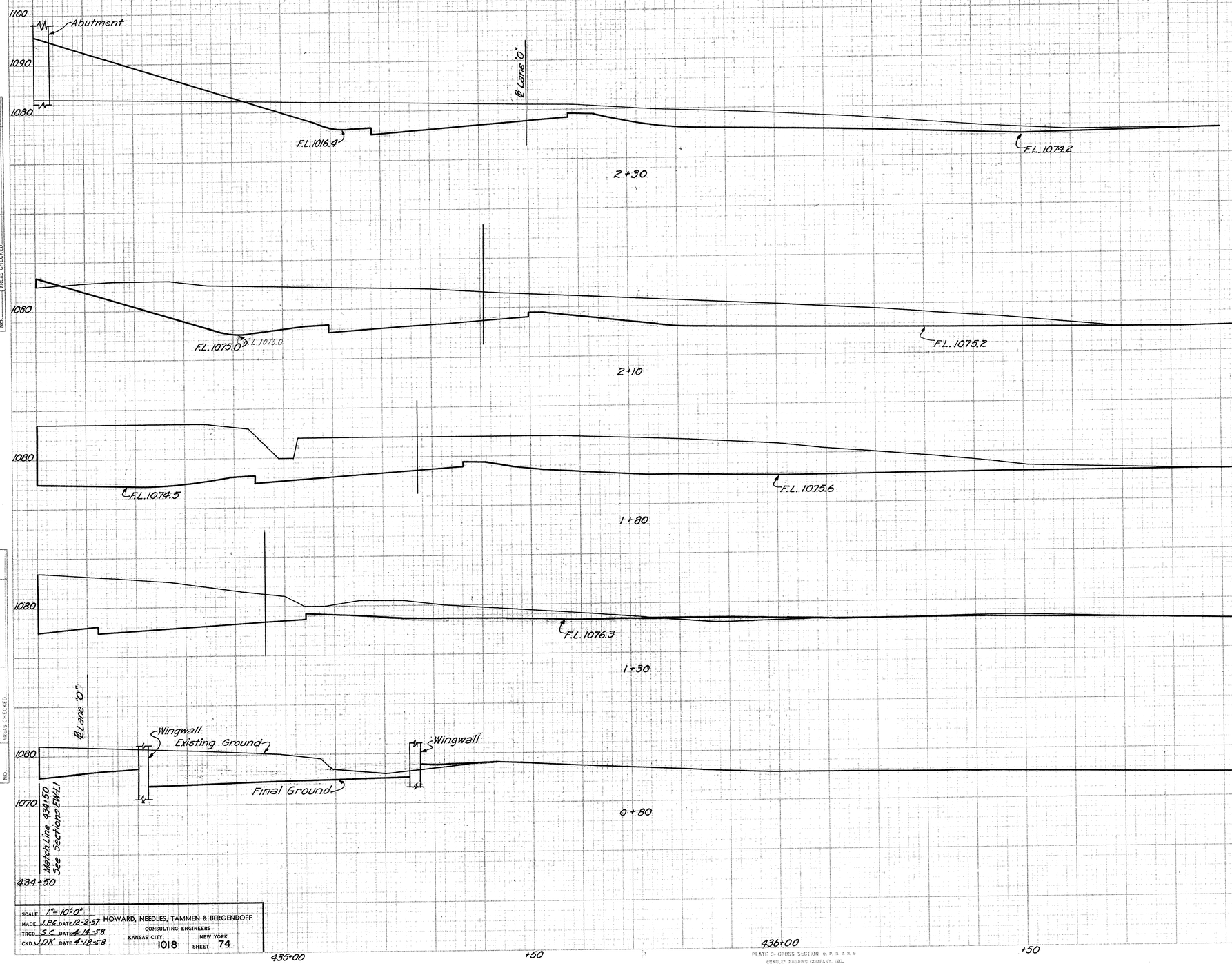
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET 73

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

74
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						881	1481
2+30				516	266		
						581	100
2+10				1052	4		
						1400	2
1+80				1468	0		
						1921	17
1+30				607	18		
						905	21
0+80				370	5		

FINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
NOTE BOOK
AREAS
AREAS CHECKED
NO.
BY
DATE

ORIGINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
NOTE BOOK
AREAS
AREAS CHECKED
NO.
BY
DATE

SCALE 1"=10'-0"
MADE J.P.G. DATE 12-2-57
TRCD. S.C. DATE 4-14-58
CKD. J.D.K. DATE 4-18-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET 74

E-W L-2 STA. 0+80 TO STA. 2+30

PLATE 3-CROSS SECTION O. P. S. & R.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

75
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

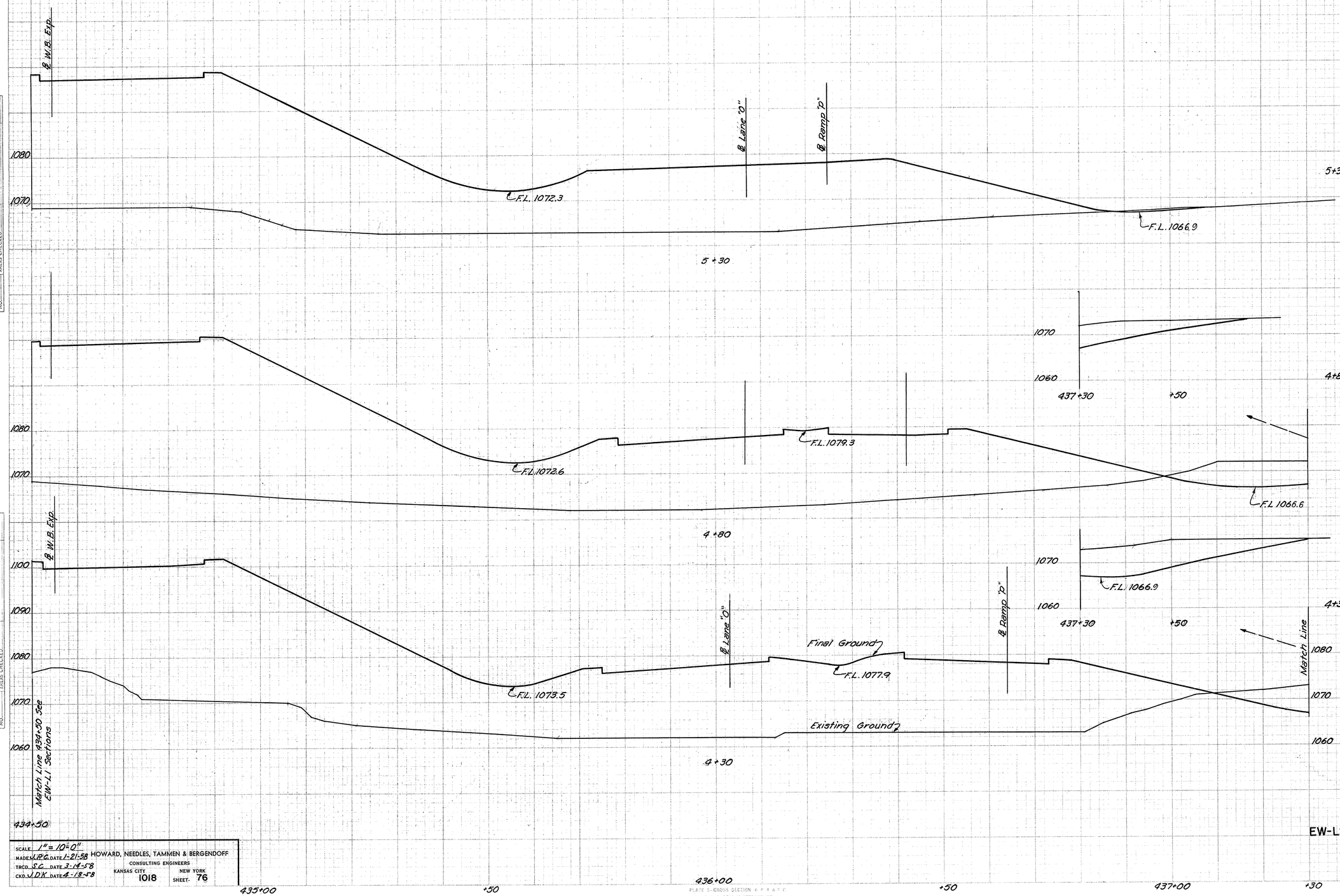
SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
							269 8514

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

76
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC	EMB.
						37	6897
				40	3894		
						282	7722
				265	4446		
						514	8288
				290	4505		

EW-L2 SECTIONS STA. 4+30 TO 5+30

FINAL SURVEY — SURVEYED / PLOTTED / TRUPLATE / NOTE BOOK / AREAS CHECKED / NO. / BY / DATE

ORIGINAL SURVEY — SURVEYED / PLOTTED / TRUPLATE / NOTE BOOK / AREAS CHECKED / NO. / BY / DATE

SCALE 1" = 10'-0"
MADE V.R.G. DATE 1-21-58
TRCD S.C. DATE 3-14-58
CKD J.D.K. DATE 4-18-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018
SHEET- 76

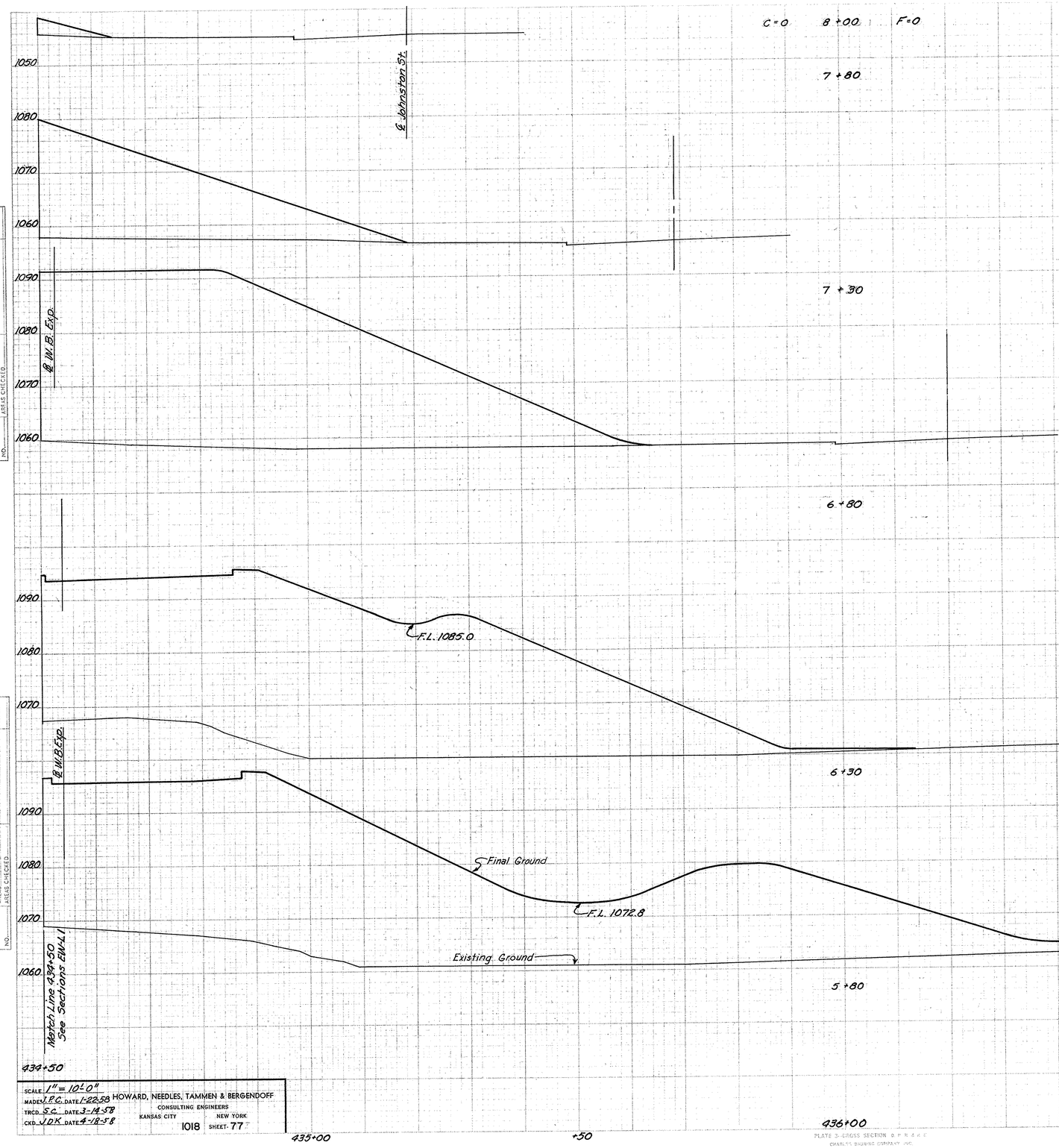
PLATE 5-CROSS SECTION GRAPH
CHARLES BRUNO COMPANY INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

77
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
8+00					0	0		
							0	8
7+80					0	22		
							0	715
7+30					0	750		
							0	2907
6+80					0	2390		
							0	5037
6+30					0	3050		
							0	6116
5+80					0	3555		

ORIGINAL SURVEY	DATE	BY
SURVEYED		
PLOTTED		
NOTE BOOK		
NO.	AREAS CHECKED	

FINAL SURVEY	DATE	BY
SURVEYED		
PLOTTED		
NOTE BOOK		
NO.	AREAS CHECKED	

SCALE 1" = 10'-0"
MADE I.P.C. DATE 1-22-58
TRCD S.C. DATE 3-14-58
CKD J.D.K. DATE 4-18-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET- 77

EW-L2 SECTIONS STA. 5+80 TO STA. 8+00

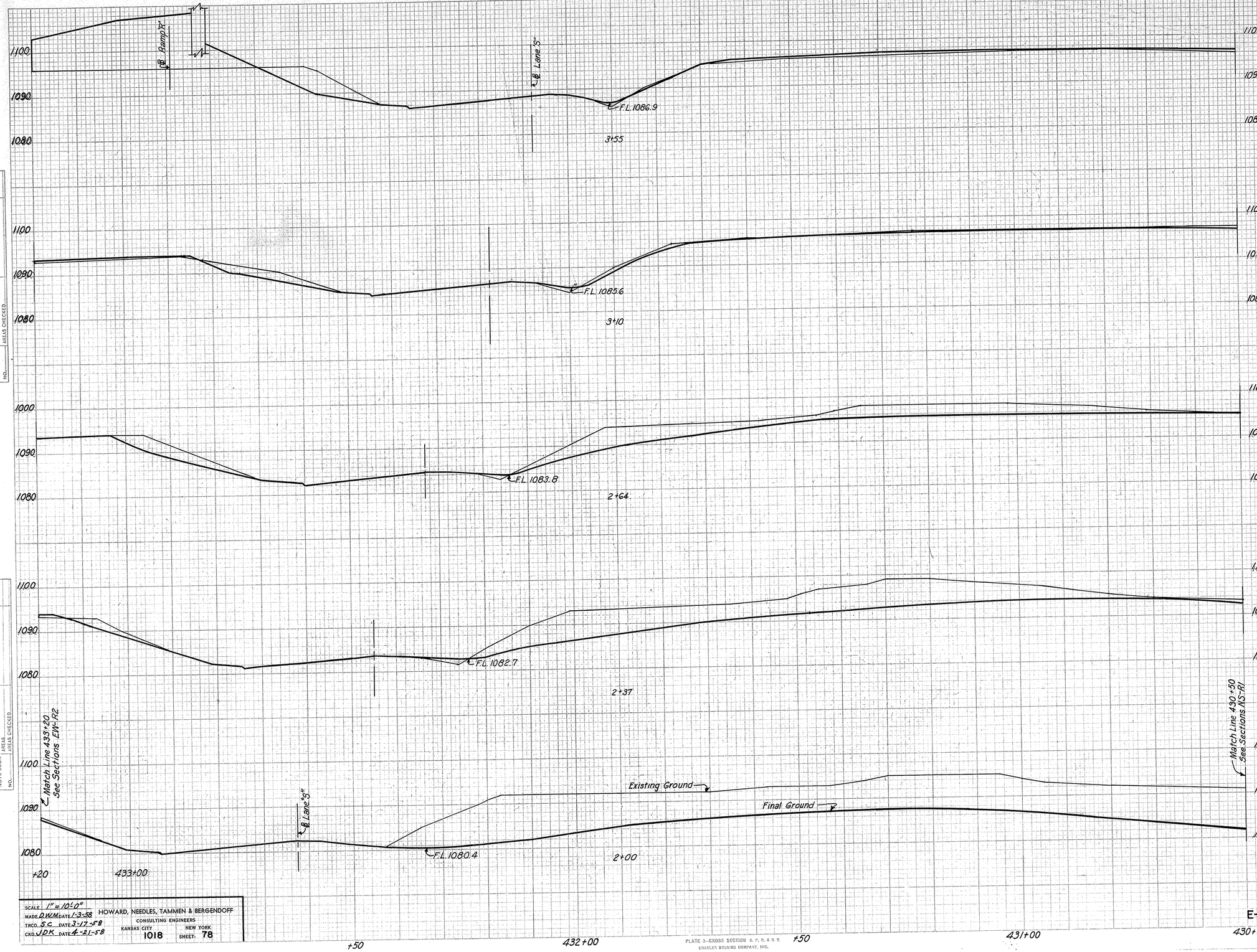
PLATE 3-CROSS SECTION O F R A K E
CHARLES ENGINEERING COMPANY INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

78
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ. YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						568	913
				3+55 86	465		
						130	404
				3+10 70	20		
						390	20
				2+64 388	4		
						525	7
				2+37	662	10	
						1423	7
				2+00 1415	0		

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK, NO., BY, DATE

SCALE 1" = 10'-0"
MADE D.W.M. DATE 1-3-58
TRCD. S.C. DATE 3-17-58
CKD. J.D.K. DATE 4-21-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY 1018 NEW YORK
SHEET 78

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

E-W R-1 SECTIONS STA. 2+00 TO STA. 3+55

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

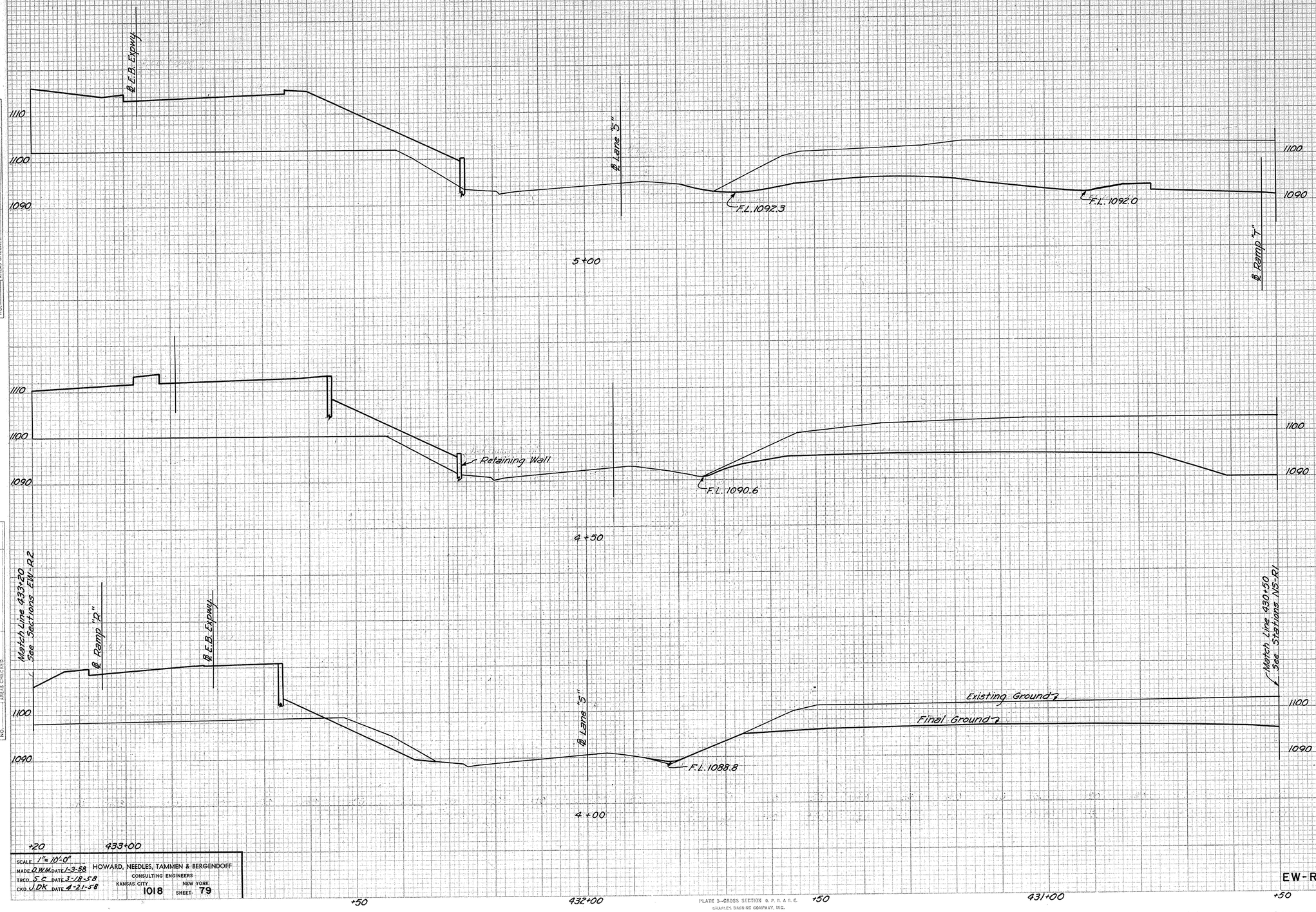
79
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						1861	1577
				1030	956		
						1798	1706
						1376	1404
				890	886		
						596	630

5+00
4+50
4+00



ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

SCALE 1"=10'-0"
MADE D.W.M. DATE 1-3-58
TRCD. S.C. DATE 3-18-58
CKD. J.D.K. DATE 4-21-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY NEW YORK
1018 SHEET 79

PLATE 3—CROSS SECTION © P. B. A. E.
CHARLES BRUNING COMPANY, INC.

EW-R1 SECTIONS STA. 4+00 TO STA. 5+00

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

80
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
7+80					0	0		
							5	617
7+51					9	439		
							30	941
7+00					23	557		
							169	1198
6+50					160	737		
							571	1516
6+00					457	900		
							1331	1525
5+50					980	747		

Fill to 0 at 8+35 ± Ahd.
℄ Lane 5
℄ Ramp T
℄ South St.
Cut and Fill to 0 at 7+80 ± Ahd.
7+51±
7+00
6+50
℄ EB Exp.
Match Line 433+20 See Sections EW-R2
℄ EB Exp.
6+00
Match Line 430+50 See Sections WS-R1
Retaining wall
℄ Lane 5
Existing Ground
Final Grade
℄ Ramp
5+50

EW-RI STA. 5+50 TO STA. 7+80±

FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS CHECKED
BY
DATE

SCALE 1"=10'-0"
MADE F.W.H. DATE 2-18-58
TRCD S.C. DATE 5-18-58
CKD JDK DATE 4-21-58
1018 SHEET 80

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

81
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
							1024
							1466
				730	660		
						1287	898
				660	310		
						965	481
				382	210		
						354	769
				0	620		
						0	1204
				0	680		
						0	1750
				0	1210		
				0	0		
						19	542
				21	585		
						19	1764
				0	1320		

N-S R-3 STA. 438+00 TO STA. 439+50
E-W R-2 STA. 2+00 TO STA. 4+50

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — PLOTTED — CHECKED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

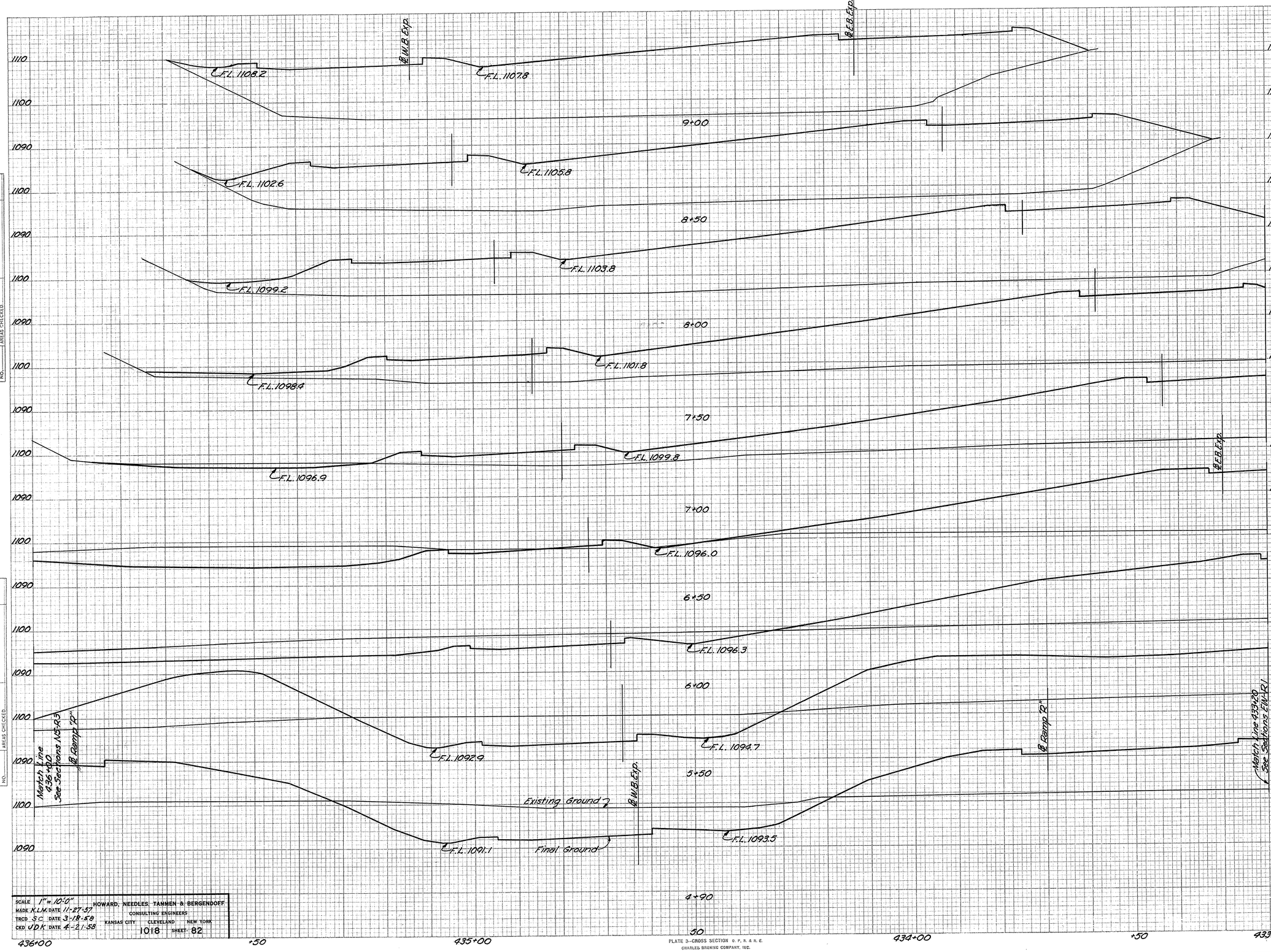
SCALE 1"=10'0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE KLM DATE 11-27-57 CONSULTING ENGINEERS
TRCD SC DATE 3-10-58 KANSAS CITY CLEVELAND NEW YORK
CKD JDK DATE 4-21-58 1018 SHEET 81

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

82
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8 11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						0	4219
				0	2580		
						0	5031
				0	2854		
						0	5194
				0	2755		
						0	4588
				0	2200		
						37	3398
				40	1470		
						373	2259
				363	970		
						792	1769
				492	941		
						925	2308
				507	1552		
						1288	3190
				652	1319		

FINAL SURVEY NOTE BOOK — DATE — BY
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
NO.

ORIGINAL SURVEY NOTE BOOK — DATE — BY
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
NO.

SCALE 1" = 10'0" HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE K.L.M. DATE 11-27-57 CONSULTING ENGINEERS
TRCD S.C. DATE 3-18-58 KANSAS CITY CLEVELAND NEW YORK
CKD U.D.K. DATE 4-21-58
1018 SHEET 82

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

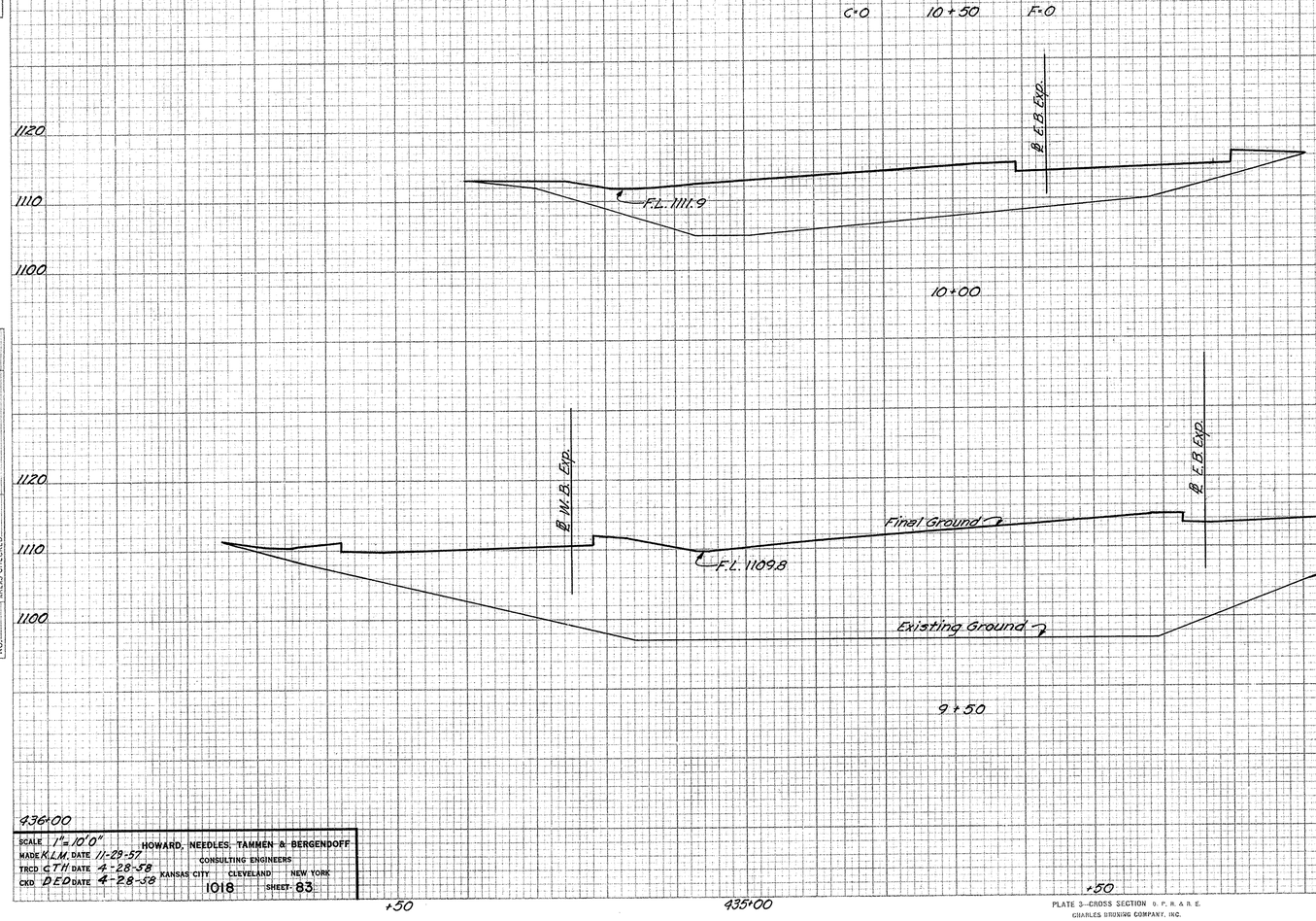
E-W-R-2 STA. 4+90 TO STA. 9+00

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

83
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

Note:
Removal of 6' Stabilized Turf Shoulder between E.B. and W.B. Expressway required to permit construction of new standard 3' paved shoulder and necessary backfill is computed separately.
Extra Volumes: Cut=96 Yds. Fill=35 Yds.
Earthwork involved in construction and subsequent removal of cross-over not included. See Sheet 2.



	SEEDING		SUBBASE		EARTHWORK			
	WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
	L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
Extra Volume							96	35
10+50					0	0		
							0	551
10+00					0	595		
							0	2381
9+50					0	1976		

E-W R2 STA. 9+50 TO STA. 10+50

SCALE	1"= 10'0"	HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE	K.L.M. DATE 11-29-57	CONSULTING ENGINEERS
TRCD	C.T.H. DATE 4-28-58	KANSAS CITY CLEVELAND NEW YORK
CKD	D.E.D. DATE 4-28-58	1018 SHEET 83

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED — BY — DATE — NOTE BOOK — PAGE — NO.

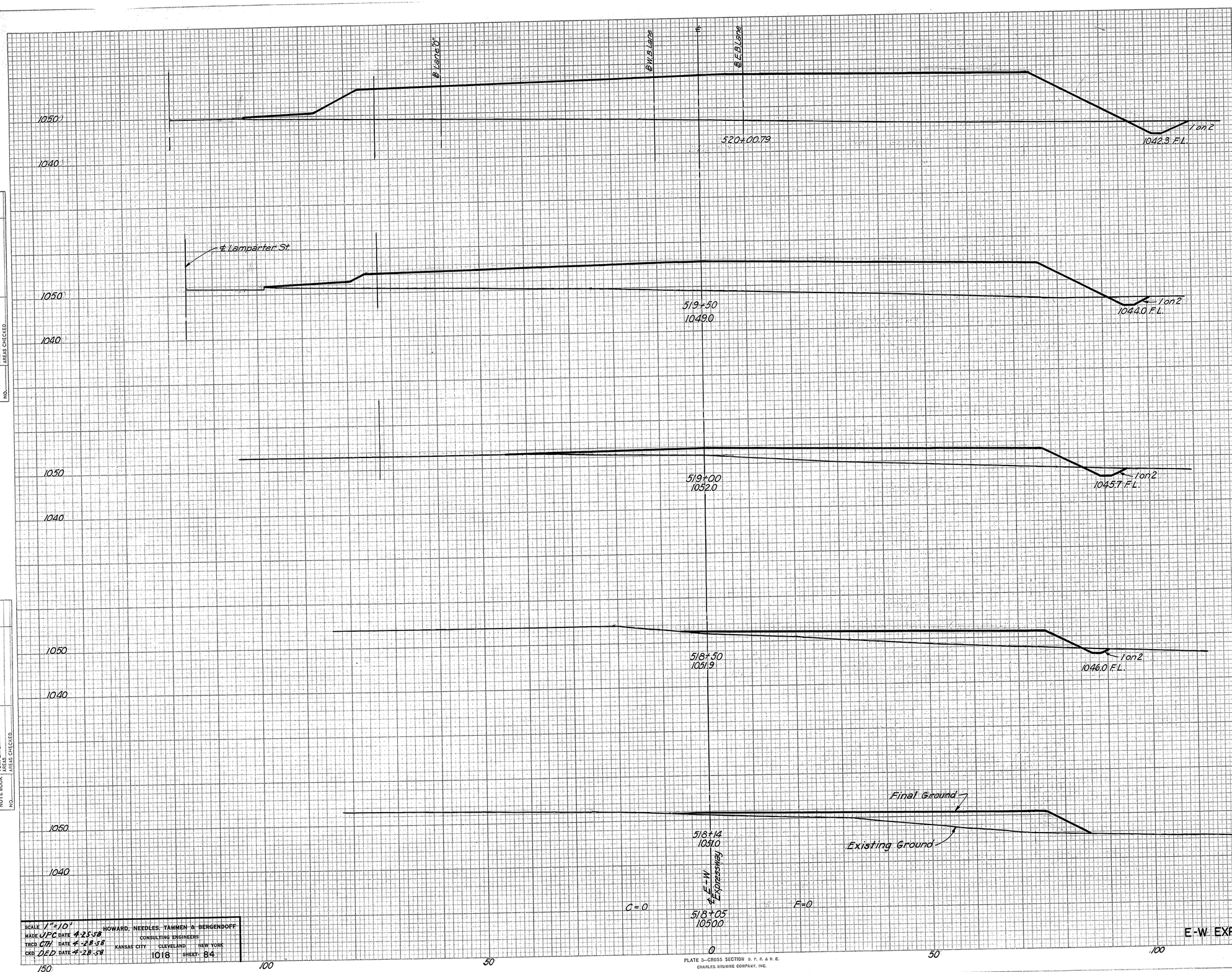
ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS CHECKED — BY — DATE — NOTE BOOK — PAGE — NO.

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

84
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65



SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
					41		3467
				27	1600		
						36	2440
				11	994		
						20	1188
				11	289		
						14	436
				4	182		
						3	251
				0	195		
						0	33
				0	0		

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

SCALE 1"=10' HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE UPC DATE 4-25-58 CONSULTING ENGINEERS
TRCD CTH DATE 4-28-58 KANSAS CITY CLEVELAND NEW YORK
CKD DED DATE 4-29-58 1018 SHEET 84

PLATE 3—CROSS SECTION D. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

E-W EXPRESSWAY STA. 518+05 TO STA. 520+00.79

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

85
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-1165

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
						0	0
				0	0		
						7	1957
				10	2642		
						0	310
						4	1131
				11	3468		
						0	450
						19	5771
				10	2765		
						26	4602
				18	2205		

522+00
C=0 F=0
Forward Only
℄ Lane "0"
℄ W.B. Lane
Back Only
Forward - Conic Section Computed Separately
1070
1060
1050
1040
522+00
521+60
Conic
1 on 4
1043.3 F.L.

521+60
1044.0
Forward Only
Back Full Section
Forward Conic Section Computed Separately
℄ Lamparter St.
521+50
Conic
1043.2 F.L.

521+50
1044.0
521+00
1042.9 F.L.

521+00
10450
℄ Lane "0"
℄ W.B. Lane
Final Ground
℄ Lamparter St.
Existing Ground
1 on 2
1042.6 F.L.
520+50
10460
℄ E.B. Expressway

150 100 50 0 50 100 150

E.B. EXPRESSWAY-STA. 520+50 TO STA. 522+00

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — AREAS — AREAS CHECKED — BY — DATE

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — AREAS — AREAS CHECKED — BY — DATE

SCALE 1"=10'
MADE J.P.C. DATE 4-25-58
TRCD C.T.H. DATE 4-28-58
CKD D.E.D. DATE 4-28-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 85

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

86
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

FINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, TYPICAL SECTIONS, AREAS, AREAS CHECKED — DATE, BY, NOTE BOOK, NO.

ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, TYPICAL SECTIONS, AREAS, AREAS CHECKED — DATE, BY, NOTE BOOK, NO.

Standard Type 2 Paved Gutter
1036.3 F.L.
Match Line
℄ Lane "0"
℄ W.B. Lane
1040
1030
1060
1050
1070
1080
524+00
1048.0
Back-Conic Section
Computed Separately
R.O.W.
1040
1030
10360 F.L.
Back Only - Forward Full Section
523+50
1045.3
Back-Conic Section
Computed Separately
Ahead Only
Back Only
523+31
1044.8
1035.9 F.L.
Final Ground
Back and Forward
Here Only
Existing Ground
Standard Type 2 Paved Gutter
1035.7 F.L.
523+00
1044.0
522+70
1043.0
℄ E.B. Expy.
C=0
F=0
150
100
50
0
50
100

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
							14 11866
				9	6023		
							17 10906
				9	5755/5221		606
							6 3516
				9	4772/3757		1740
							12 2747
				12	1028		
							7 571
				0	0		

523+31 Conic
523+00
522+70

SCALE 1" = 10'
MADE J.C.P. DATE 4-25-58
TRCD C.H. DATE 4-28-58
CKD D.E.D. DATE 4-28-58
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET: 86

PLATE 3—CROSS SECTION O. P. R. & R. E.
CHARLES BRUNING COMPANY, INC.

E.B. EXPRESSWAY-STA. 522+70 TO STA. 524+00

FED. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

87
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY-PART 10
SUM 8-11.65

SEEDING		SUBBASE		EARTHWORK			
WIDTH	AREA	AREA	VOL.	END AREA		VOLUME	
L.F.	SQ.YD.	S.F.	C.Y.	EXC.	EMB.	EXC.	EMB.
				0	0		
						0	236
				0	1070		
						68	3019
				114	4025/485		1012
						74	4922
				20	4010/5153		1656
						13	7511
				G	G792		

Cut=0 525+63 Fill=0

℄ Lane "0"

℄ W.B. Lane

Back and forward to here only

525+38
1048.0

525+63

525+38

Forward Conic Section Computed Separately

Forward Only

Back Only

525+06
1048.0

525+06
Conic

R.O.W.

200

Standard Type 2 Paved Gutter

1037.0 F.L.

1036.8 F.L.

Foward Conic Section Computed Separately

Forward Only - Back Full Section

524+76
1048.0

524+76
Conic

1036.6 F.L.

Final Ground

Existing Ground

524+50
1048.0

524+50

℄ Expressway

E.B.

1050
1040
1060

150 100 50 0 50 100

SCALE 1"=10'
MADE J.C.P. DATE 4-25-58
TRCD C.H. DATE 4-28-58
CKD D.E.D. DATE 4-29-58

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
1018 SHEET 87

E.B. EXPRESSWAY-STA.524+50 TO STA.525+63

PLATE 3-CROSS SECTION E.B. & W.B.
CHARLES MUNNING COMPANY, INC.

FINAL SURVEY NOTE BOOK NO. — SURVEYED BY — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — DATE

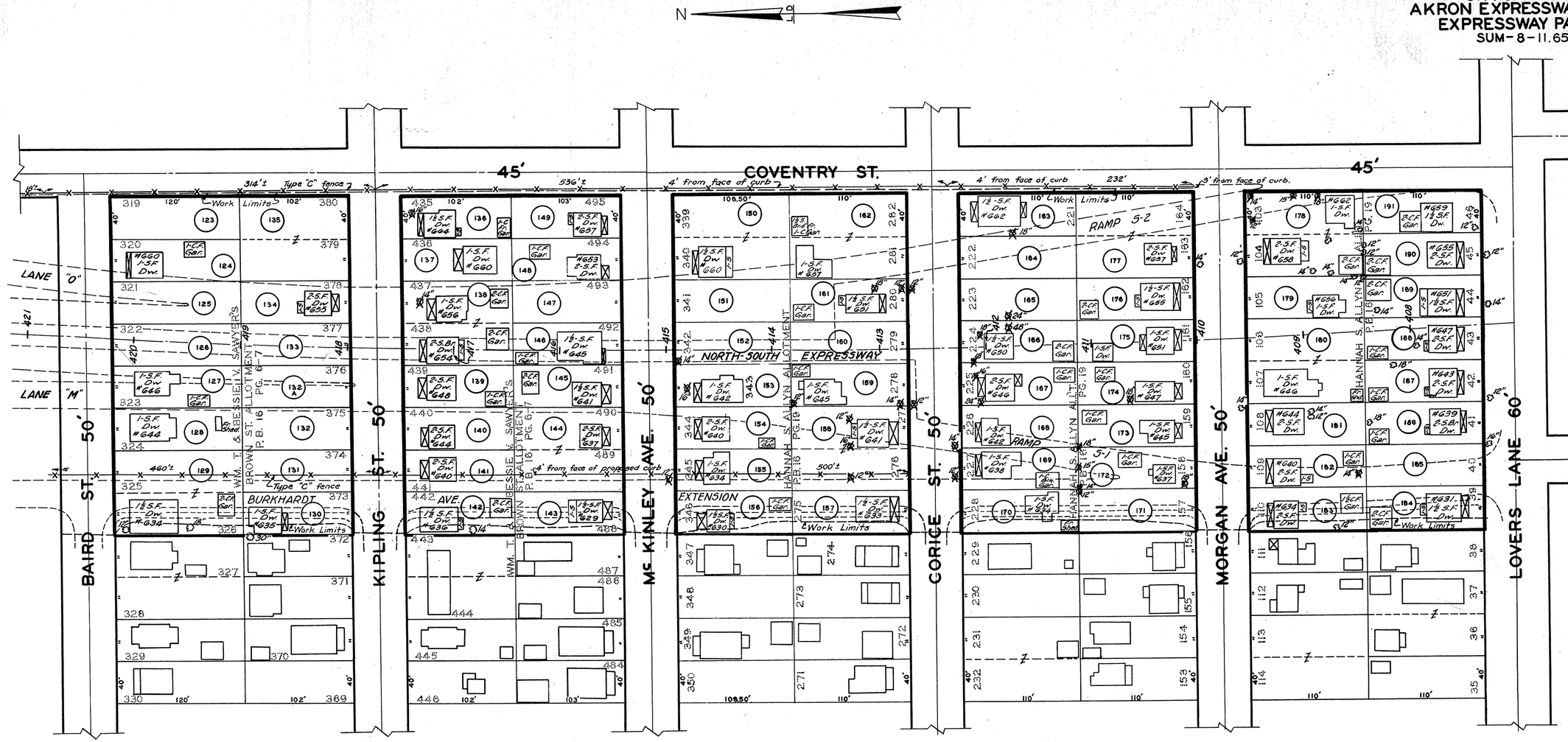
ORIGINAL SURVEY NOTE BOOK NO. — SURVEYED BY — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — DATE

FED. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

88
176

SUMMIT COUNTY
CITY OF AKRON, OHIO

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 10
SUM-8-11.65



50 0 50 100 150

NOTE: IN REFERRING TO THE VARIOUS PARCELS THE NUMBER ENCIRCLED SHOULD CARRY A PREFIX OF S. AND A SUFFIX OF L.A. PARCEL SHOWN AS (150) IS ACTUALLY S 150 L.A.

PARCEL NO	OWNER	AREA SQ.FT	BLDGS.
123 LA	Wohlford, C.C. & Sigler, L. J.	4800	No
124 LA	Elliott, V.D.	"	Yes
125 LA	Nat. Exch. Bk. & Tr. Co. Tr.	"	No
126 LA	Layton E. E. Jr.	"	No
127 LA	Fikes, J. Jr., & B.L.	"	Yes
128 LA	Garson, H.M.	"	Yes
129 LA	Williams, E. & C.	9600	Yes
130 LA	McWain, J.L.	4080	Yes
131 LA	Jones, S.	"	No
132 LA	Wright, J.	4080	No
133 LA	Brock, G.M.	4080	No
134 LA	Lewis, H.	"	Yes
135 LA	Gauthier, J.C. et al	8160	No
136 LA	Ukrainiec, N. & F.	4080	Yes
137 LA	Powell, H. & E.D.	"	Yes
138 LA	Bordonaro, C.	8160	Yes
139 LA	Jones, T.A. & O.C.	4080	Yes
140 LA	Mosley, F.G. & G.	"	Yes
141 LA	Allen, T.V. & W.N.	"	Yes
142 LA	McWain, L.B.	"	Yes
143 LA	Moss, L.M. & H.M.	4120	Yes
144 LA	Meese, C. & F.	8240	Yes
145 LA	Collins, L.M. & P.	4120	Yes
146 LA	Rasberry, G.	"	Yes

PARCEL NO	OWNER	AREA SQ.FT	BLDGS.
147 LA	Halter, Geo. W.	4120	No
148 LA	Kovalcsik, J. & F.	"	Yes
149 LA	Brown, C.M. & G.M.	"	Yes
150 LA	Keller, A. & Klitskey, M.	8240	Yes
151 LA	Aleman, A. & M.	4420	Yes
152 LA	Patrick, Guy et lal	"	No
153 LA	Christopher, L. & W.	"	Yes
154 LA	Estlock, J.F. & W.B.	"	Yes
155 LA	Mazzagatti, L.M.	"	Yes
156 LA	Yost, H.	"	Yes
157 LA	Posey, O.D. & N.M.	4400	Yes
158 LA	Devlin, A.	8800	Yes
159 LA	Mamone, D. & M.	4400	Yes
160 LA	Harper, E. et als	"	No
161 LA	Leidholm, G.A. & M.F.	"	Yes
162 LA	Koutlas, T.W. & A.	8800	Yes
163 LA	Sterner, J. & M.E.	4400	Yes
164 LA	Green, B.	"	No
165 LA	Riley, Thelma Marguerite	"	No
166 LA	Riley, Thelma Marguerite	"	Yes
167 LA	Cox, K.I. & C.B.	"	Yes
168 LA	Stewart, B.	"	Yes
169 LA	Gonen, J. & M.	"	Yes
170 LA	Schultz, G. & A.	"	Yes

PARCEL NO	OWNER	AREA SQ.FT	BLDGS.
171 LA	Clark, M.	4400	No
172 LA	McKinley, L.B.	"	Yes
173 LA	Godfrey, T.H.	"	Yes
174 LA	Brandt, R.J. & K.	"	Yes
175 LA	Tillman, T.M.	"	Yes
176 LA	Lopane, P. & P.	"	Yes
177 LA	Lentz, B.F. & N.J.	8800	Yes
178 LA	Falatok, G. & S.	"	Yes
179 LA	Davis, H. & R.	4400	Yes
180 LA	Saunders, M.J. & T.	8800	Yes
181 LA	Kolbas, M.	4400	Yes
182 LA	Hall, A. & L.	"	Yes
183 LA	Greathouse, O.P.	"	Yes
184 LA	Wallace, K. et lal	"	Yes
185 LA	Harris, D.F.	"	No
186 LA	Csizmadia, R.	"	Yes
187 LA	Hawthorne, W.	"	Yes
188 LA	Williams, S.B. & B.B.	"	Yes
189 LA	McDavid, R.H.	"	Yes
190 LA	Maloney, W.F. & R.E.	"	Yes
191 LA	Atchison, J.B. & V.	"	Yes
* 132 ALA	Wright, Rosie	4080	No

NOTE: TREES SHOWN THUS: ✱ ARE TO BE REMOVED DURING OR PRECEDING GRADING OPERATIONS.

TYPE "C" FENCE ITEM SS-18		
LOCATION	I-1086-8 LIN. FT.	I-1093-4 LIN. FT.
Rt. Side Ramp "S-2" and Lane "O"	0	1,039
Lt. Side Burkhardt Ave. Extension	0	776
Totals	0	1,815

FED. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

89
176

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 10
SUM-8-11.65

PARCEL NO.	OWNER	AREA SQ. FT.	BLDGS
66 L.A.	Tramonte, G.	4464	No
67 L.A.	Porter, C.	4462	Yes
68 L.A.	Christian, D.	3331	Yes
~~69 L.A.~~			
70 L.A.	Lurry, K.E. & J.W.	4800	Yes
71 L.A.	Newberry, M.	"	Yes
72 L.A.	Wohlford, C.C. & Sigler, L.J.	9600	No
73 L.A.	Zilman, D.G. & N.	4640	Yes
74 L.A.	Garson, H.M.	4640	Yes
75 L.A.	Fann, R.	"	Yes
76 L.A.	Henderson, B. & C.	4320	Yes
77 L.A.	Grant, U.S. & M.M.	"	Yes
78 L.A.	Rosen, B.J.	4800	No
79 L.A.	Horton, M.D.	"	Yes
80 L.A.	Werab, P.	1200	Yes
~~81 L.A.~~	~~Traschel, H.R. & C.A.~~	~~-=-~~	~~Yes~~
82 L.A.	Davis, J.H. & R.	3799	Yes
83 L.A.	Tracy, F.J. & G.M.	4464	Yes
84 L.A.	Baker, A.M.	"	Yes
85 L.A.	Crawford, R.A.	472	No
86 L.A.	Whitlatch, W.H. & A.F.	4800	No
87 L.A.	E.T. Keller, Inc.	"	No
88 L.A.	Traschsel, H.R. & C.A.	"	Yes
89 L.A.	Watson, D.A.	3840	Yes
90 L.A.	Moore, R.I.	4800	No
91 L.A.	Wohlford, C.C. & Sigler, L.J.	"	No
92 L.A.	Levin, F.K.	3840	No
93 L.A.	Stallings, O.	4800	Yes
94 L.A.	Sigler, L.J. & Wohlford, C.C.	14400	No
95 L.A.	Merkley, J.C.	4800	No
96 L.A.	Randall, R.J.	"	No
97 L.A.	Valentine, L.	"	No
98 L.A.	Carter, A. & S.M.	"	Yes
99 L.A.	Johnson, C.	9600	Yes
100 L.A.	Levin, F.K.	"	No
101 L.A.	Thomas, W. & E.	4800	Yes
102 L.A.	Moss, L. & E.	"	Yes
103 L.A.	Mirman, R.	"	Yes
104 L.A.	Nalencz, S.	"	Yes
105 L.A.	Reider, W.P.	"	Yes
106 L.A.	Byrd, G.M. & L.	"	Yes
107 L.A.	Levin, F.K.	"	No
108 L.A.	Atchison, L.E.A.	"	Yes
109 L.A.	Levin, F.K.	"	No
110 L.A.	White, R.H.	"	No
111 L.A.	McDonald, G. & G.	"	Yes
112 L.A.	Tolliver, A. & E.	"	No
~~113 L.A.~~	~~Marlow, M.~~	~~-=-~~	~~No~~
~~114 L.A.~~	~~White, M.~~	~~"~~	~~Yes~~
115 L.A.	Howard, F.H. & E.R.	"	Yes
116 L.A.	Sturgies, H.C. & A.	9600	Yes
117 L.A.	Sigler, L.J. & Wohlford, C.C.	14400	Yes
118 L.A.	Ogurchak, J.G. & M.C.	4800	Yes
119 L.A.	Harris, O.	"	Yes
120 L.A.	Lampley, J.L. & C.	"	Yes
~~121 L.A.~~	~~Hottinger, J.P.D.~~	~~-=-~~	~~Yes~~
~~122 L.A.~~	~~Pramon, G.A. & J.M.~~	~~"~~	~~Yes~~

Match Line 7

Roof Overhang
Loading Dock
Tile & Brick Offices & Loading Dock

Reservation for Street Purposes

RAMP "N"
Work Limits
Type "C" Fence
2' from R.O.W. line

LANE "M"
LANE "O"
RAMP "T"

NORTH-SOUTH EXPRESSWAY

CROSIER ST.
BROWN ST.
CENTRAL ALLOTMENT
ALLOTMENT
P.B. 15
P.B. 16
P.B. 18
PG. 8-7
PG. 20

LUMIERE ST. 45'
HAMMEL ST. 50'
COVENTRY ST.
LA FOLLETTE ST. 50'
BAIRD ST. 50'

BURKHARDT AVE. EXTENSION
Work Limits
Type "C" Fence
2' from face of curb

SERVICE ROAD "B"

Match Line

NOTE: TREES SHOWN THUS: ⊗, ARE TO BE REMOVED DURING OR PRECEDING GRADING OPERATIONS.

TYPE "C" FENCE - ITEM SS-18		
LOCATION	I-1086-8 LIN. FT.	I-1093-4 LIN. FT.
Rt. Side Ramp "N"	576	0
Lt. Side Burkhardt Ave. Extension	0	239
Rt. Side Ramp "T" and Lane "O"	0	826
Totals	576	1,065

50 0 50 100 150

NOTE: IN REFERRING TO THE VARIOUS PARCELS THE NUMBER ENCIRCLED SHOULD CARRY A PREFIX OF S AND A SUFFIX OF L.A. PARCEL SHOWN AS (80) IS ACTUALLY S-80-L.A.

FED. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	90 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON, OHIO

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 10

SUM-8-11.65

NOTE: TREES SHOWN THUS: ⊗ ARE TO BE REMOVED DURING OR PRECEDING GRADING OPERATIONS.

PARCEL NO.	OWNER	AREA SQ.FT.	BLDGS.
1 L.A.	Fox, D.E. & Perry, D.E.	5314	Yes
2 L.A.	Paschal, Ind. Inc.	17803	Yes
3 L.A.	McCormick, E.C. Jr.	22284	Yes
4 L.A.	Kramer, A.C.	14206	Yes
5 L.A.	Mangus, E.W.	3460	Yes
6 L.A.	Ashman, T.E.	3182	Yes
7 L.A.	Elliott, E.M.	6898	Yes
8 L.A.	McCormick, E.C. Jr.	9131	No
9 L.A.	Grant, E.	4410	Yes
10 L.A.	Leavell, C.A. & D.V.	5925	Yes
11 L.A.	Denham, E.F. & A.	3997	Yes
12 L.A.	McKinney, D.L. & G.	5550	Yes
13 L.A.	Good, O.W. & L.L.	3731	Yes
14 L.A.	Ianizio, N.M.	3731	Yes
15 L.A.	Johnson, H.W. & H.J.	3733	Yes
16 L.A.	Allison, A.	4800	Yes
17 L.A.	Robinson, B.S.	4800	Yes
18 L.A.	Knecht, A.O. et 4 als.	2363	Yes
19 L.A.	Dengler, R.T. & G.D.	2363	Yes
20 L.A.	Bibler, D. & B.	1951	Yes
21 L.A.	Hartman, W.L.	1953	Yes
22 L.A.	DeMask, H.F. & A.L.	1953	Yes
23 L.A.	King, E.I.	1955	Yes
24 L.A.	Callahan, T.M.	1956	Yes
25 L.A.	Moon, B.	1956	Yes
26 L.A.	Troup, F.D. & E.E.	1958	Yes
27 L.A.	Burke, E.W.	1959	Yes
28 L.A.	Murphy, W.E.	3512	No
29 L.A.	Beaty, A.E. & H.A. Jr.	3882	Yes
30 L.A.	Whalen, L.	3864	Yes
31 L.A.	Mawby, C.K. & M.B.	2635	Yes
32 L.A.	McClure, Anna B.	4440	Yes
33 L.A.	Anderson, J.K. & M.	5580	Yes
34 L.A.	Lam, J.H. & N.	6108	Yes
35 L.A.	Jackson, H.A. & M.	4800	Yes

PARCEL NO.	OWNER	AREA SQ.FT.	BLDGS.
36 L.A.	Whalen, L.R.	6991	Yes
37 L.A.	Smalukas, E.	3251	Yes
38 L.A.	McCormick, E.C. Jr.	6527	Yes
39 L.A.	Ernsthausen, J.F.	10608	Yes
40 L.A.	Egan, M.	4320	Yes
41 L.A.	Cucuzza, G. & N.	3950	Yes
42 L.A.	Romansky, S. & T.	4473	Yes
43 L.A.	Craig, L.J.	4471	Yes
44 L.A.	Gibson, R.L. & D.M.	3939	Yes
45 L.A.	White, J.F.	4467	Yes
46 L.A.	Meaux, S.L. & R.D.	4466	Yes
47 L.A.	Liggens M.	4465	No
48 L.A.	Edwards, C.J. & B.M.	4640	Yes
49 L.A.	Averiett, R.	"	Yes
50 L.A.	Wilson, W.B. & T.H.	"	Yes
51 L.A.	Cole, E. & A.L.	9280	Yes
52 L.A.	Lindsey, P. & E.R.	4640	Yes
53 L.A.	Breckenridge, G.J.	"	Yes
54 L.A.	Humbert, B.B.	"	No
55 L.A.	Honodle, H.S.	"	No
56 L.A.	Myers, Marian, H.	"	No
57 L.A.	Nemeth, F.J. & F.	"	Yes
58 L.A.	George, A.P. & C.M.	4800	Yes
59 L.A.	Bracken, H.B. & W.B.	9600	Yes
60 L.A.	Mundy, H.P.	4800	No
61 L.A.	Mundy, H. & M.	"	Yes
62 L.A.	Fasick, J.E. & J.E.	"	Yes
63 L.A.	Livers, H.E.	"	Yes
64 L.A.	Schneider, W.W.	4800	No
65 L.A.	~~Samuelson, R.M. & Pa.~~	~~4800~~ Yes	
* 38A L.A.	Summit County Commissioners	1445	No

TYPE "C" FENCE - ITEM SS-18

LOCATION	I-1086-8 LIN. FT.	I-1093-4 LIN. FT.
Rt. Side Lane "M" and Ramp "N"	582	0
Rt. Side Ramp "T"	0	218
Totals	582	218

NOTE: IN REFERRING TO THE VARIOUS PARCELS THE NUMBER ENCIRCLED SHOULD CARRY A PREFIX OF S AND A SUFFIX OF L.A. PARCEL SHOWN AS (15) IS ACTUALLY S 15 L.A.

FED. RD. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

91/176

SUMMIT COUNTY
CITY OF AKRON OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 10
SUM.- 8-11.65

PART 10

ALLYN ST. 60' — VORIS. — 40' — ST. — KLING ST. 60' — BROWN ST. 60' — SPICER ST. 60'

548.56 OBS. — 468.76 OBS. — 364.33 OBS. — 381.67 OBS. — 698.81 OBS. — 596.70 OBS.

MINNIE CT. — SAN DIEGO CT. — BIHLER CT. — LEDGE ALL'T PB-11 P-15 — LAMPARTER ST. 45' 469.39 OBS. — STEINBACHER ALL'T PB-5 P-39 — Akron Barberton Belt R.R. — 50' — Lang "O" — E.B. — W.B. EXP. — JOHNSTON ST. — Work Limits — Conc. Blk. Foundation — Brick Area — 5-car-Tile Gar. — Underground Tanks — Gas Sta. — Asph. — Cone. — Gravel — Cinders — Dirt Dr. — Grav. Dr. — Grass — Shed — 1-Sty. Stone Office — 1-Sty. Brick Store — Tank — Pump — Island — Limits

SOUTH 469.92 obs. 60' ST

546.39 OBS. — 354.16 OBS. — 332.37 OBS. — 332.36 OBS.

NOTE: See End Of Table For Parcels 1-X, 2-X

PARCEL NO.	OWNER	AREA S.F.	BLDG.
1 LA	Standard Oil Co.	18096	yes
2 LA	J.W. Gehm	23624	yes
3 LA	L. Baughman	4857	yes
4 LA	A. Edwards	4857	yes
5 LA	J. Erickson	3600	yes
6 LA	E. Stein	6688	yes
7 LA	A. Mignand	3595	yes
8 LA	F. Minick	5176	yes
9 LA	L. Carney	5884	yes
10 LA	H. Gehm	11495.3	yes
11 LA	B. Heiges	5611	yes
12 LA	Shell Oil Co.	2880	yes
13 LA	H. Gehm	2800	yes
14 LA	M. Parnisky	2000	yes
15 LA	E. & M. Starcher	3200	yes
16 LA	R. & I. Tri-Ebelz	4020	yes
17 LA	H. Burghardt	4000	yes
18 LA	A.G. Johston & H. Winfrey	5600	yes
19 LA	L. & W. Gehm	3480	yes

PARCEL NO.	OWNER	AREA S.F.	BLDG.
20 LA	W. Harnach	3240	yes
21 LA	F. & E. Kalain	5600	yes
22 LA	S. Hansel	5600	yes
23 LA	J.C. McKinnon	3000	yes
24 LA	J.W. Gill	5600	yes
25 LA	T. E. Ashman	2760	yes
26 LA	R.J. Petty	5600	yes
27 LA	A & A. Prior	2520	yes
~~28 LA~~	~~R. Silverstein~~		
~~29 LA~~	~~N. Cottrill~~		
30 LA	J. & D. Bucy	5204	yes
31 LA	A. H. Koehn	5204	yes
32 LA	M. & E. Semelsberger	5174	yes
33 LA	H.G. Rhodes Inc.	5172	yes
34 LA	A. Mc Alarney	3370	yes
35 LA	M. & M. Habel	1800	yes
~~36 LA~~	~~C.F.P. Wasylower~~	~~3324~~	
~~37 LA~~	~~C. Powell~~	~~3760~~	
~~38 LA~~	~~E. Sloan~~	~~1875.53~~	

PARCEL NO.	OWNER	AREA S.F.	BLDG.
~~39 LA~~	~~J.F.B. Hafter~~	~~7376~~	
~~40 LA~~	~~L. Hammer~~	~~2760~~	
~~41 LA~~	~~L. Petty~~	~~5220~~	
~~42 LA~~	~~W. Alexander~~	~~5175.6~~	
~~43 LA~~	~~G. Stanley~~	~~7800~~	
~~44 LA~~	~~J.M. Nemeth~~	~~6760~~	
~~45 LA~~	~~J.F. Cross~~	~~3780~~	
~~46 LA~~	~~J.F.M. Shanks~~	~~7776~~	
~~47 LA~~	~~O.F.M. Shoemaker~~	~~2430~~	
~~48 LA~~	~~J. DeShum~~	~~2430~~	
~~49 LA~~	~~G.A.S. Mary~~	~~2430~~	
~~50 LA~~	~~F.F.M. Stokes~~	~~2430~~	
~~51 LA~~	~~G. Shafer~~	~~3760~~	
~~52 LA~~	~~A. Hartman~~	~~3062~~	
~~53 LA~~	~~R.A. Shoemake~~	~~9614~~	
~~54 LA~~	~~J.W. Gehm~~	~~1160~~	
~~55 LA~~	~~G. Mellick~~	~~6895~~	
~~56 LA~~	~~G. Petrunek~~	~~8824~~	
~~57 LA~~	~~N.S. Stein~~		
~~58 LA~~	~~E. Ebert~~		

PARCEL NO.	OWNER	AREA S.F.	BLDG.
~~59 LA~~	~~Akron Barb. Belt R.R.~~		
~~60 LA~~	~~Akron Barb. Belt R.R.~~		
1-X	City of Akron		
2-X LA	Akron Barb. Belt R.R.	Overhead	Easement
~~45-A~~	~~Lane~~		
~~45-B~~	~~Hk. Zeis~~	~~00~~	

50 0 50 100 150

NOTE: IN REFERRING TO THE VARIOUS PARCELS THE NUMBER ENCIRCLED SHOULD CARRY A PREFIX OF W AND A SUFFIX OF LA. PARCEL SHOWN AS (50) IS ACTUALLY W-50-LA

MICROFILMED
NOV 22 1989

1. DESIGN SPECIFICATIONS

Design Specifications for Highway Structures of the State of Ohio, Department of Highways, dated September 1, 1957 and revised February 21, 1958.

2. CONSTRUCTION SPECIFICATIONS

"Construction and Material Specifications", State of Ohio, Department of Highways, dated January 1, 1957, as modified by notes on the plans and in the proposal, shall govern.

Reference shall be made to Supplemental Specifications No. S-207, High Strength Steel Bolts, dated April 28, 1955, and No. S-114, Aluminum For Bridge Railing, dated August 1, 1957.

3. REFERENCE DRAWINGS

Reference shall be made to Standard Drawing numbers RB-1-55 dated 3-1-55 and to AS-1-54 revised 12-1-54.

4. DIMENSIONS

Dimensions given are measured horizontally and at 60°F. unless otherwise noted.

5. UTILITIES

Any existing utility facilities encountered at the site of the work which will interfere with portions of the finished expressway or structures will be removed or relocated by others. The Contractor shall coordinate his operations with the work of the utility owners or others who may be making the relocations, and shall notify the owners of the utilities of his schedule sufficiently in advance to permit them to make the necessary alterations.

Existing water lines and sewers will be relocated by the Contractor as shown on the Roadway Plans.

6. EXCAVATION

At piers and abutments in areas of roadway cut, the excavation quantity for payment will be computed from the completed construction cross sections and grade lines of the lower roadway.

At piers and abutments on roadway embankments, the excavation quantity assumes that all embankment is in place to a line from final toe of slope to the grade line of the upper roadway.

For abutments and walls on piles, the embankment must be in place to an elevation above bottom of footings before construction is started.

7. FOUNDATION BEARING PRESSURES

Spread type footings are designed for a maximum bearing pressure of 6 tons per sq. ft. for Bridges No. 1, 2, and 5 and 10 tons per sq. ft. for Bridges No. 3, 4, and 6.

9. STEEL BEARING PILES

Piles shall be driven to firm contact with shale. If the length of penetration is approximately equal to the depth to shale according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in Sec. S-18.05 is not less than the following value for a pile hammer of the indicated energy rating:

For all piles

65 tons per pile using an 11,000 foot-pound hammer
55 tons per pile using a 15,000 foot-pound hammer

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons for all piles in Bridges No. 4, 5, and 6 and is 40 tons for all piles in Bridge No. 7.

The estimated length of piles shown on the plans is based on Borings and is approximate only. The Contractor shall assume full responsibility for lengths of piles selected for driving.

10. GRAVEL

Gravel aggregate will be permitted only in concrete used for footings.

11. CONCRETE

a. The concrete roadway slabs shall be so constructed that, after completion and after removal of forms and any falsework, and after the steelwork has deflected under the weight of the concrete and wearing surface, the top surface of the roadway shall conform as nearly as practicable to the elevations and contour lines shown on the plans.

b. The thickness of the concrete floor slab over each beam (top of wearing surface to back of flange) at the supports is given on the plans. Steel beams shall be fabricated with camber, where the total deflection exceeds 3/4 inch, to compensate for the deflection due to weight of slab and steel. The slab shall be of uniform thickness between beams, with camber setting obtained by thickening the haunches over the beams which are not cambered.

12. REINFORCING STEEL

Bars shall, unless otherwise shown, be 3 inches clear from the face of concrete in footings and 2 inches clear elsewhere, except in slabs where bars shall be 1 inch clear. In faces having rustications, the clear distance shall be measured from the inner face of the rustication.

All bars are designated on the plans by bar numbers. The bar size is indicated by the first digit of three-digit numbers and by the first two digits of four-digit numbers.

If reinforcing bars are fabricated from stock which has previously been tested and approved by the Ohio Highway Testing Laboratory, test samples as provided in Sec. S-4.02 need not be furnished, and replacement bars will not be required.

13. WATERPROOFING

All construction joints in back face of substructure against which earth is to be placed, except for joint at the top of the footing, shall be waterproofed with 1/2 inch x 12 inch premolded sealing strip or Type "B" waterproofing as shown in the plans.

All concrete surfaces in contact with bituminous roadway surfacing shall be waterproofed with Type "C" waterproofing.

14. BRONZE BEARINGS

Bronze for bearings at the abutments of Bridges No. 4 and 7 shall conform to Sec. M-7.10 of the specifications and shall be included in Item S-9, "Structural Steel Expansion Joints," for payment.

15. STRUCTURAL CARBON STEEL

The steel for all beams in Bridges No. 1 and 2 and for all flanges and webs of girders in Bridges No. 5 and 6 shall conform to ASTM Designation A-373. All other structural steel shall conform to either ASTM A-7 (as per Sec. M-7.4(a) of the Construction and Material Specifications) or to A-373.

All welding shall be Class "A" except as noted in the tail of the welding symbol. B

16. RADIOGRAPHIC EXAMINATION OF WELDS

This work shall consist of the performance and interpretation of a radiographic examination of butt welds as required by these specifications. It shall include the preparation and positioning of welds for examination, the radiographing of welds, the processing and examination of radiographs, the interpretation of radiographs for compliance with these specifications, and the performance and interpretation of any retakes of radiographs required for welds made to replace unsatisfactory welds.

a. Approval of Director

The Contractor shall furnish evidence, acceptable to the Director, of the adequacy of the equipment to be used and the competence of the personnel.

The interpretation of radiographs and the correction of defective welds shall be subject to the approval of the Director.

b. Scope of Examination

By means of radiographic examination, the Contractor shall furnish evidence of the acceptable quality of the butt welds of all girders. The parts of these members to be radiographed are as follows:

(1) The complete butt welds in the flanges of each girder except the bottom flange over the bearing devices.

(2) One foot at each end of each of the web splice welds.

The shop examination of the butt welds of the flange plates and of the web plates shall be determined to be acceptable before these flange and web plates are assembled and welded to form the girders. The examination of field welds shall be made as soon as practicable after welding at each field splice is completed.

Radiographic inspection of welds of rolled beams will not be required.

c. Weld Condition

All welded joints which are to be radiographed shall be free of paint, scale, and grease and shall be ground free of all weld ripples and surface irregularities on both sides. The direction of grinding shall be perpendicular to the length of the weld. The welds shall be ground to such a degree that the resulting radiographic contrast, due to remaining irregularities, cannot mask or be confused with that of any objectionable defect and that the weld surface will merge smoothly into the plate surface. Unless specified to be ground flush, the finished surface of the reinforcement may have a crown equal to one-eighth the thickness of the metal but not more than 1/8 inch.

d. Radiographic Technique

The weld shall be radiographed with a technique which will determine quantitatively the size of defects with thicknesses equal to or greater than 2 per cent of the thickness of the base metal. In the case of a weld joining plates of unequal thickness, both plates must be radiographed at 2 per cent sensitivity together or singly, with the weld junction evident in both views.

To determine whether the radiographic technique employed is detecting defects of a thickness equal to or greater than 2 per cent of the thickness of the base material, thickness gages or penetrameters of the type hereinafter specified shall be placed on the side of the welded plate nearest the source of radiation at an extreme edge of the radiographic plate or film.

The material of the penetrameter shall be substantially the same as that of the welded plate.

The thickness of the penetrameter shall be not more than 2 per cent of the thickness of the plate exclusive of any weld reinforcement. Penetrameters designed for increments of 1/8" of plate thickness are acceptable.

In each penetrameter there shall be three holes with diameters equal respectively to two, three, and four times the penetrameter thickness, but in no case shall less than 1/16" diameter be used.

Each penetrameter shall carry an identifying number representing in two significant figures the minimum thickness in inches of the plate for which it may be used. Penetrameters may be established for differences in thickness not to exceed 1/8" so that a set of penetrameters varying for increments of plate thickness of 1/8" will be adequate to serve plates having thicknesses between these 1/8" dimensions.

The images of identifying numbers and the holes of each penetrameter must appear clearly on the radiograph to establish the 2 per cent sensitivity.

For plates up to and including 2-1/2" in thickness, each penetrameter shall be 1-1/2" long and 1/2" wide. For plates thicker than 2-1/2", each penetrameter shall be 2-1/4" long and 1" wide.

The film during exposure shall be as close to the weld as practicable. If possible, this distance shall be not greater than 1 inch. In any event, the ratio

$$\frac{\text{Distance from source of radiation to weld surface toward radiation}}{\text{Distance from weld surface toward radiation to film}}$$

shall be at least 7 to 1.

All radiographs shall be free from excessive mechanical processing defects which would interfere with proper interpretation of the radiograph.

Identification markers, the images of which will appear on the film, shall be placed adjacent to the weld, and their locations shall be accurately and permanently marked on the outside surface near the weld so that a defect appearing on the radiograph may be accurately located.

The size of film to be used shall be 4" wide x 15" long unless permission to use a different size is obtained in writing from the Director.

e. Standards of Acceptability

The acceptability of the welds examined by radiography shall be judged by the following standards:

(1) Cracks:

Definition - A discontinuity resulting from a very narrow separation of metal.

Standard - No weld containing cracks, regardless of length, size, or location, shall be considered acceptable.

(2) Gas Porosity:

Definition - Gas pockets or voids in metal.

Standard - The maximum dimension of any individual gas pocket shall not exceed 1/8 inch. The maximum accumulation of gas pockets shall not exceed that shown in the

(3) Slag Inclusions:

Definition - Nonmetallic, solid material entrapped in weld metal or between weld metal and base metal.

Standard-A - Elongated slag inclusions: No elongated slag inclusion shall exceed two-thirds of the thickness of the thinner plate of the joint in length and 1/16" in width, except that regardless of the plate thickness, no such inclusion shall be longer than 3/4" and except that no such inclusion which is shorter than 1/4" shall be cause for rejection.

B - Isolated slag inclusions: In any 12 inch length of weld, the maximum width of any isolated slag inclusion shall not exceed 1/8 inch, the summation of lengths of isolated slag inclusions shall not exceed 1 inch, and there shall be no more than four isolated slag inclusions of the maximum width of 1/8 inch. Any two such inclusions shall be separated by at least 2 inches of sound weld metal.

(4) Incomplete Fusion:

Definition - Failure of the weld metal to fuse completely with the base metal or preceding beads.

Standard - No individual lack of fusion shall exceed 1/2 inch in length. In any 12 inch length of weld, the summation of lengths of lack of fusion shall not exceed 3/4 inch and individual defects shall be separated by at least 6 inches of sound metal.

(5) Incomplete Penetration:

Definition - Root penetration which is less than complete or failure of a root pass and a backing pass to fuse with each other.

Standard - No individual lack of penetration shall exceed 1/2 inch in length. In any 12 inch length of weld, the summation of lengths of lack of penetration shall not exceed 3/4 inch and individual defects shall be separated by at least 6 inches of sound metal.

f. Repair of Defective Welds

Defective welds shall be repaired by chipping or melting out such defects from one or both sides of the joint as required, removing only sufficient weld metal to correct the defect. The joint shall then be rewelded and again radiographed.

g. Additional Radiographs

Wherever an unacceptable weld occurs, a radiograph shall be made of the adjoining 12-inch lengths of weld to determine if the flaws extend beyond the limits of the original radiograph. If unacceptable flaws occur in these adjoining lengths of weld, these defective welds shall be repaired, and this entire procedure repeated for the next adjoining 12-inch length of weld.

h. Custody of Radiographs

As soon as the radiographing of the weldments on the full length of each flange or web plate between field splices has been completed, the Contractor shall send to the State the processed contact film (that film closest to the source of radiation) of all original and retake radiographs. These radiographs shall be accompanied by a certification from the Contractor that the radiographic examination was performed in conformance with these specifications. The radiographs shall become the property of the State. Each radiograph shall be clearly identified to show the location on the structure at which it was taken. Unacceptable defects shall be identified in each radiograph in which they occur, and the repair or replacement of each unacceptable weld defect shall be noted and identified.

i. Report of Cost

After the completion of the radiographic inspection of welds, the Contractor shall furnish the State a complete report of the cost of performing this work, separated into the items mentioned in the following paragraph.

j. Basis of Payment

Payment for this work, including all labor, equipment, materials, and incidentals, shall be included in the unit price bid for S-7, "Structural Steel."

17. ASPHALTIC CONCRETE SURFACE COURSE

The asphaltic concrete surface course (60-70) shall be laid in two 1-1/4" courses. It shall be of Type "C" composition and place in accordance with provisions of Item T-35 of the specifications.

18. ROADWAY LIGHTING

The bridge electrical items include the conduit system, boxes for understructure luminaires, and anchor bolts for light standards where indicated on the plans. The longitudinal conduits for overhead lighting units shall be 2" ϕ galvanized rigid conduits with OZ Type EX expansion fitting across expansion joints at abutments. The conduits at the bases for light standards shall extend at least 4" above the base. Payment for conduit will be made under Item S-25, "2" Electric Conduit (Metal)." Anchor bolts for light standards shall be included for payment in Item S-7, *except as noted on Sheet 174.*

For the understructure luminaires, the Contractor shall provide a junction box in the longitudinal run and extend a 2" ϕ galvanized conduit to an 8" x 8" x 4" deep outlet box for the attachment of the luminaire as indicated on the plans. Payment for the junction and outlet boxes will be made under Item S-25, "Electrical Equipment." Payment for the conduit will be made under Item S-25, "2" Electric Conduit (Metal)."

19. ELECTRICAL GROUNDS

Electrical grounds are required for all bridges. A solid No. 0 bare copper wire shall be embedded in the outside column on each side of the structure of one pier near the center of each bridge. The lower ends of the wires shall be brazed to one of the steel piles, or for spread type footings, the ends shall terminate in a 25 ft. length coiled under the footing and separated from the concrete by two layers of tar paper. The upper ends shall extend sufficiently above the top of the concrete to provide for a suitable splice and extension for connection to the superstructure. Connection to the superstructure shall be with a No. 6 bare stranded, tinned copper wire brazed or bolted to a girder or beam flange and to the solid copper wire in the pier. At the base of the light standards, there shall be a tinned No. 6 copper wire brazed to one anchor bolt and the other end brazed or bolted to the outside beam or girder. On Bridges No. 4 and 7, which are slab type bridges, the light standard ground wires shall connect directly to the solid copper wires in the pier columns.

Payment for electrical grounds will be under Item S-25, "Electrical Equipment."

20. GROUT CLEANING

The underneath portions of the superstructure of Bridges No. 4 and 7 shall be grout cleaned as set forth in Sec. S-1.22 of the specifications.

PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GENERAL NOTES

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED JJ	REVISED
DATE	DATE	DATE	DATE 9-8-58	SHEET

185

MICROFILMED
NOV 22 1965

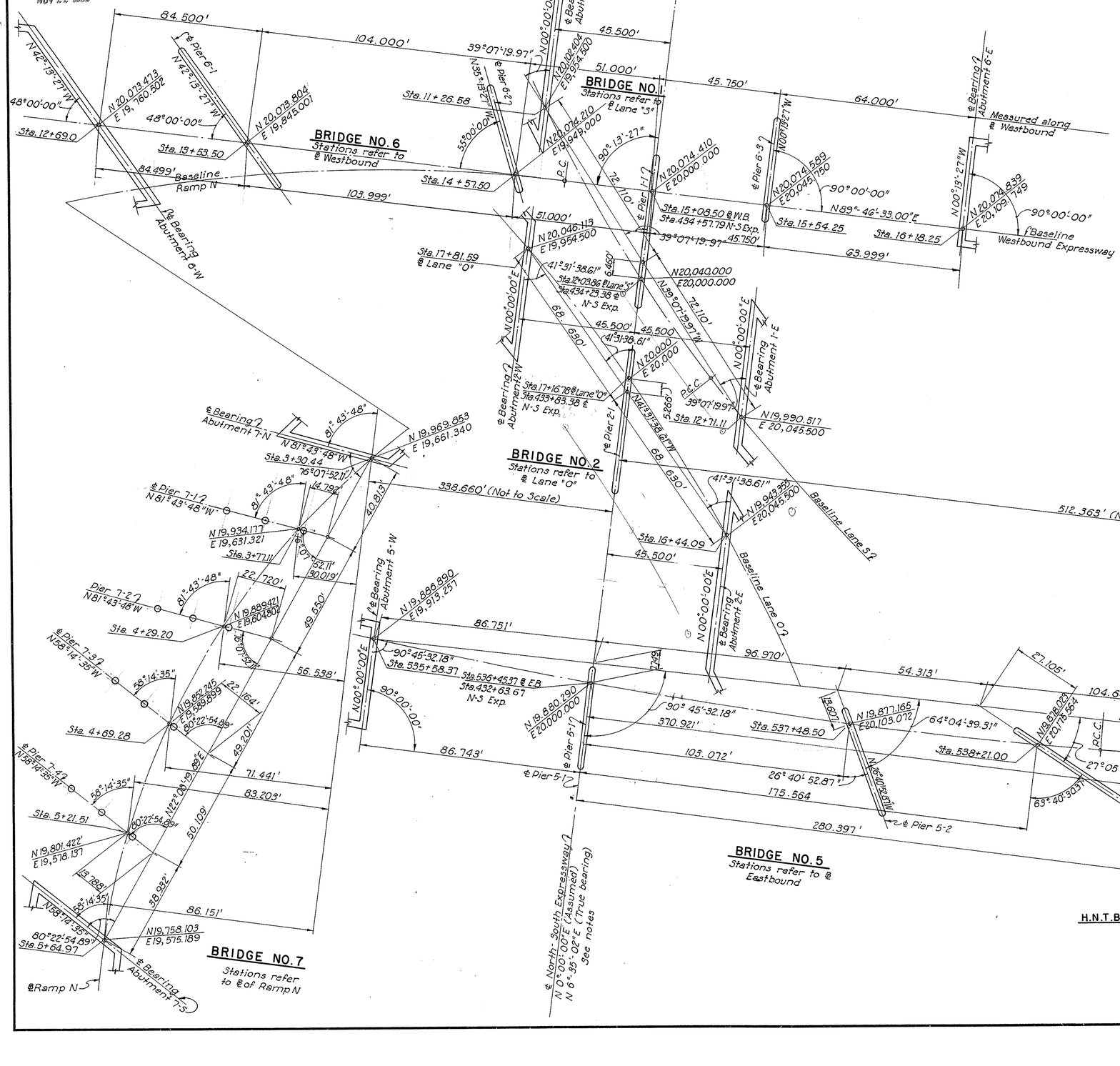
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

93
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Notes:
The true bearing of the centerline of the North-South Expressway is N 6°-35'-02"E. For simplicity of reference this line is given an assumed bearing of N 00°-00'-00"E.
All bearings and coordinates given for piers and abutments are relative to the assumed bearing of N 00°-00'-00" E.
All coordinate values are based on an arbitrary assignment of N 20,000, E 20,000 to the intersection of the Lane O Baseline and the centerline of the North-South Expressway



H.N.T.B. BR. NO.		STATE BR. NO
1	=	SUM-8-1256
2	=	SUM-8-1254
4	=	SUM-18-1224
5	=	SUM-18-1212 (E.B.EXP.)
6	=	SUM-18-1212 (W.B.EXP.)
7	=	SUM-18-1206

H.N.T.B. BR. NOS. 1,2,4,5,6 AND 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FIELD STAKE-OUT DIMENSIONS

BRIDGE NOS. SUM-8-1256, SUM-8-1254, SUM-18-1224, SUM-18-1212EB, SUM-18-1212 WB, AND SUM-18-1206

SCALE: 1" = 20'

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
J.T.	B.S.L.	LWL	J.T.	
DATE 3-25-58	DATE 4-13-58	DATE 6-5-58	DATE 9-8-58	1018 SHEET 93

MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

94
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SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

BRIDGE NO. 1

Lane "S" Curve Data
D = 9°-00'-00"
Δ = 40°-22'-30"
R = 636.62'
T = 234.07'
L = 448.61'

BRIDGE NO. 2

Lane "S" Curve Data
D = 8°-56'-00"
Δ = 64°-19'-06"
R = 641.37'
T = 403.25'
L = 719.98'

Lane "O" Curve Data
D = 8°-30'-00"
Δ = 63°-48'-31"
R = 674.07'
T = 604.90'
L = 985.98'

BRIDGE NO. 6

Ramp "N" Curve Data
D = 9°-32'-57"
Δ = 17°-52'-03"
R = 600'
T = 94.32'
L = 187.11'

Ramp "N" Curve Data
D = 19°-05'-55"
Δ = 104°-23'-52"
R = 300'
T = 386.74'
L = 546.62'

BRIDGE NO. 5

Eastbound Expressway Curve Data
D = 2°-45'-00"
Δ = 31°-10'-25"
R = 2083.48'
T = 581.20'
L = 1133.59'

Eastbound Expressway Spiral Data
θs = 2°-45'-00"
Ls = 200'
LT = 133.35'
ST = 66.68'

Ramp "R" Curve Data
D = 9°-30'-00"
Δ = 21°-00'-00"
R = 603.11'
T = 111.78'
L = 221.05'

Notes.

The following items are not included in the bridge plans. See Roadway Plans for details.
Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading, pavements, and slabs.
Guard rails.

Boring information, logs and samples of materials encountered may be examined at the Division Office in Ravenna, Ohio, and at the Bridge Bureau Office at Columbus, Ohio, but the State does not guarantee these borings to present a complete picture of subsurface conditions to be encountered.

Foundation design and foundation quantities are based on a study of the borings.

8"ø Bituminous coated corrugated metal pipes shall be run from behind Abutment 2-E to connect with new catch basin at Sta. 432+41 ℄ N.S. Expressway, 43' right and from behind Abutment 1-W to connect with new catch basin at Sta. 436+25 ℄ N.S. Expressway, 43' left.

LEGEND

- G — G — Existing gas lines
- W — W — Existing water lines
- Remove water lines
- New sewer
- Existing sewer
- Pipe abandoned
- Existing inlet
- New inlet
- New manhole
- Existing manhole
- Existing valve
- Guard Rail
- Erosion control pad
- New Underdrain
- Boring

H.N.T.B. BR. NOS. 1,2,5 AND 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SITE PLAN

BRIDGE NOS. SUM-8-1256, SUM-8-1254
SUM-18-1212 EB AND SUM-18-1212 WB
SCALE: 1" = 30'

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

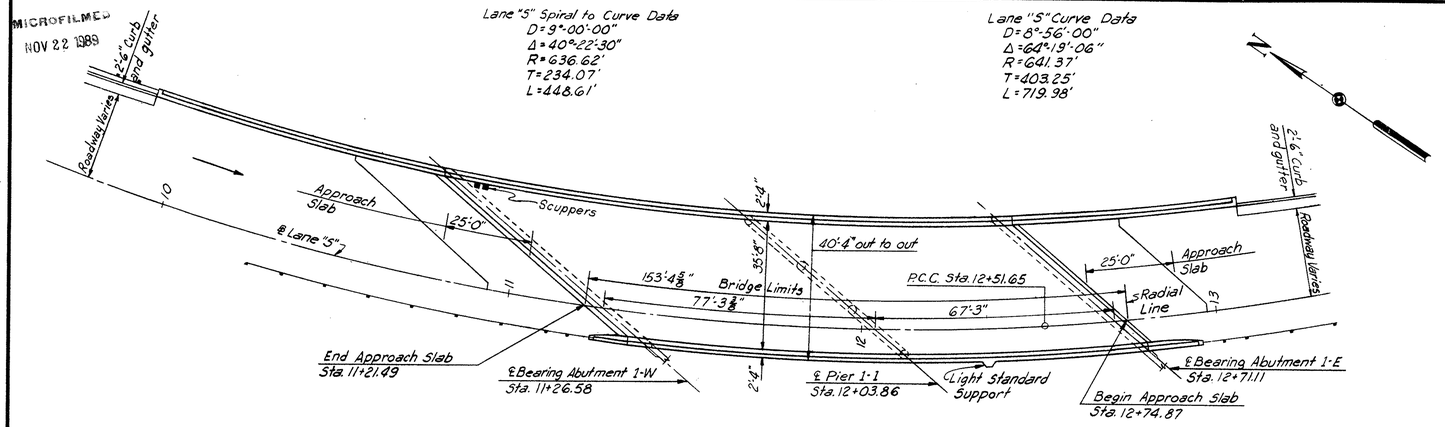
DRAWN S.M.A.	TRACED	CHECKED WL	REVIEWED JT	REVISED
DATE 5-29-58	DATE	DATE 8-22-58	DATE 9-8-58	1018 SHEET 94

MICROFILMED
NOV 22 1989

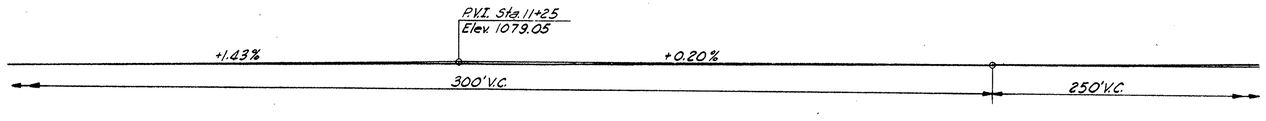
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

95/176

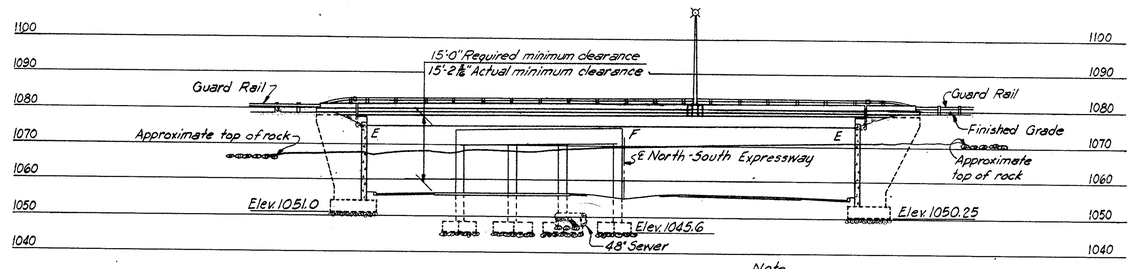
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



PLAN



PROFILE LANE "S"



ELEVATION

Note:
Point of actual minimum vertical clearance occurs at the intersection of the ℄ North exterior beam and the West edge of pavement of the Southbound roadway of No.-5a Expressway.

Note:
Rock lines shown are determined by interpolation of borings and are approximate only.

Note:
Northeast and Northwest wingwalls are to be built on a curve. Southeast and Southwest wingwalls are to be built on a chord.

ESTIMATED QUANTITIES

Item	Description	Unit	Abutments ②	Wingwalls	Piers	Superstructure	General	Total	As Built	
E-2	Cofferdams, Cribs and Sheeting	Lump Sum						Lump Sum		
E-2	Excavation for Structures (Unclassified)	Cu.Yd.	66	82	17			165	C.O.6 -168	0
E-2	Excavation for Structures (Rock or Shale)	Cu.Yd.	280	246	89			615	C.O.6 +123	738
S-1	Class "C" Concrete (Superstructure)	Cu.Yd.				185		185		
S-1	Class "C" Concrete (Abutments and Walls)	Cu.Yd.	422	138				560		
S-1	Class "C" Concrete (Pier Caps and Columns)	Cu.Yd.			44			44		
S-1	Class "E" Concrete (Footings)	Cu.Yd.	130	70	35			235		
S-3	Waterproofing, Premolded Sealing Strip	Lin.Ft.	31	69				100		
S-3	Type "B" Waterproofing, 36" wide	Sq.Yd.	15					15		
S-3	Type "C" Waterproofing	Sq.Yd.				610		610		
S-4	Reinforcing Steel	Lbs.	41,350	22,300	17,280	59,280		140,210		
S-7	Structural Steel	Lbs.				290,000		290,000	C.O.4 -5821	284179
S-8	Field Painting Structural Steel	Lbs.				290,000		290,000	C.O.4 -5821	284179
S-9	½" Preformed Gray Rubber Expansion Joint Filler	Sq.Ft.	110	175				285		
S-14	Aluminum Handrail (Including Parapet)	Lin.Ft.		175		308		483		
S-25	2" ϕ Rigid Metal Conduit	Lin.Ft.		185		345		530		
S-25	Electrical Equipment	Lump Sum						Lump Sum		
S-25	Luminaire, 6000 lumen, type 5 (Understructure) ①	Each				2		2		
S-25	Standard, 24'×9⅜" pole with 10'-0" bracket ①	Each				1		1		
S-29	6" W.I. or Galvanized Steel Pipe including Fastenings and Specials	Lin.Ft.	40					40		
S-29	8" ϕ Bituminous Coated-Corrugated-Metal Pipe including Specials	Lin.Ft.	100					100		
S-29	Porous Backfill	Cu.Yd.	225	65				290		
S-29	Subdrainage for Wearing Surface Course	Lin.Ft.				310		310		
T-35	2½" Asphaltic Concrete Surface Course Type C (60-70)	Cu.Yd.				42		42		

① These quantities are not included in the summary of lighting on sheet 24 of the highway plans.
② Includes wall between abutments 1-E and 2-E. Wall between abutments 1-W and 2-W included in Bridge 2 quantities.

* There will be no Federal or State participation in this Item.

PROPOSED STRUCTURE

Type: Two span continuous rolled beam with reinforced concrete deck and substructure.
Spans: 77'-3⅜" and 67'-3" = 144'-6⅝" ctr. to ctr. end bearings.
Rdwy: 35'-8" b/f 1'-2" safety curbs
Loading: CF 2000 (Adequate for A.A.S.H.O. alternate loading.
Skew: Varies 44°-23'-09.60" to 57°-22'-50.89"
Surface Course: 2½" Asphaltic Concrete
Approach Slabs: A51-54 (25'-0" long)

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GENERAL PLAN AND ELEVATION

LANE "S" OVER NORTH SOUTH EXPRESSWAY
BR. NO. SUM-8-1256 STA. 11+21.49
SCALE: 1" = 20' STA. 12+74.87
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN S.M.A.	TRACED	CHECKED J.W.L.	REVIEWED J.T.	REVISED
DATE 3-25-58	DATE	DATE 8-29-58	DATE 9-8-58	1018 SHEET 95

Revised As-Built G.R.G. 9-15-61

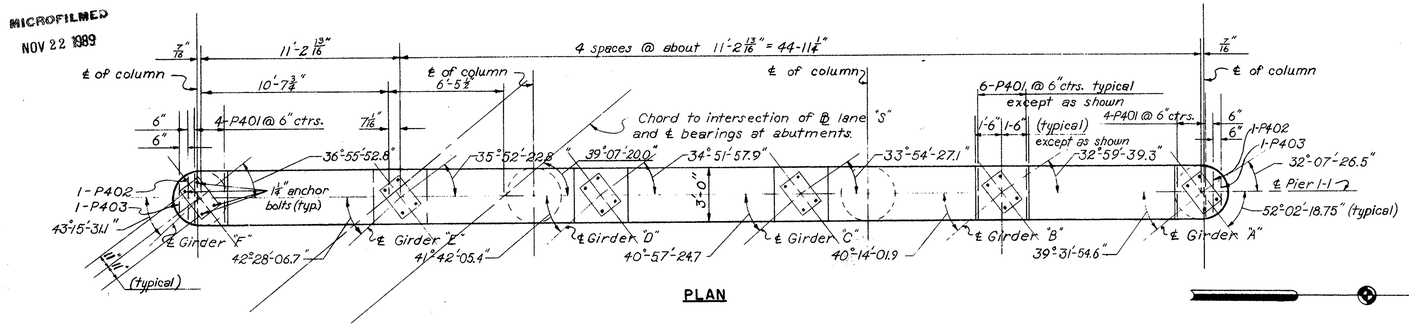
MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

96/176

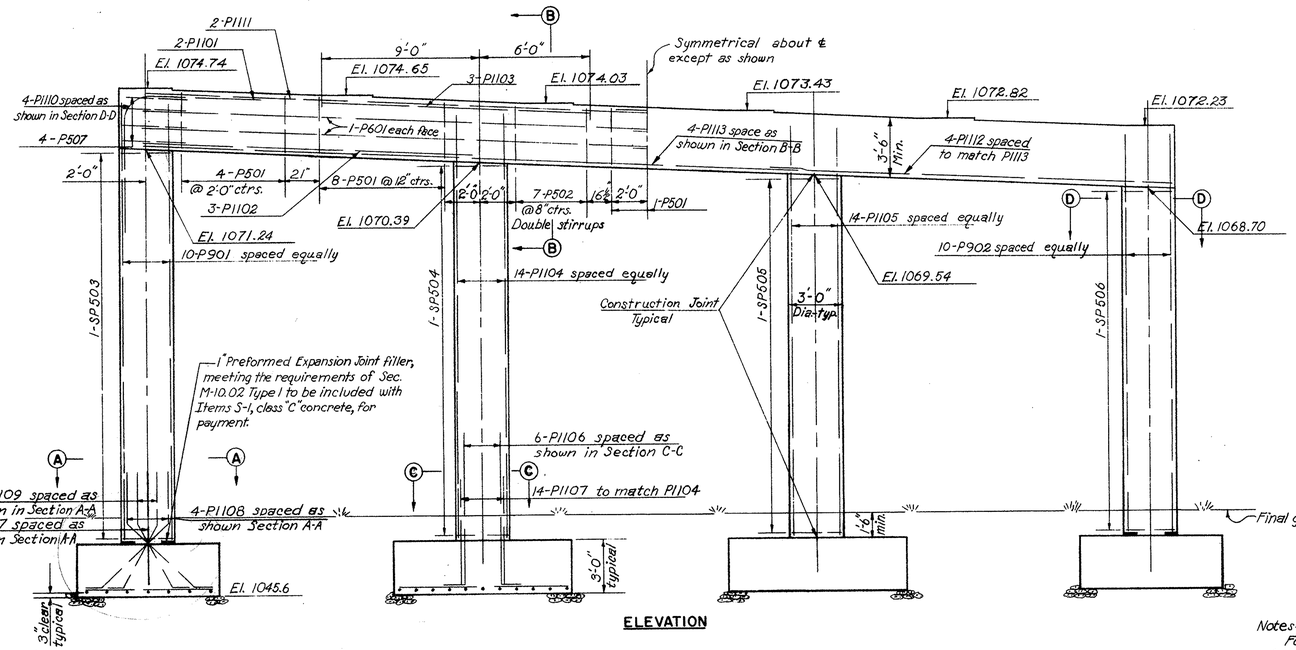
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

507



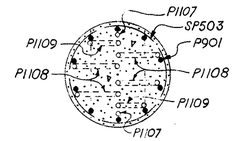
PLAN

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with the anchor bolt setting.

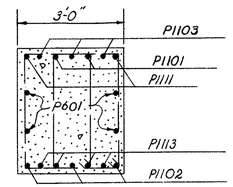


ELEVATION

Notes:
Footings shall extend a minimum of 6" into solid rock.



SECTION A-A
1/2"=1'-0"



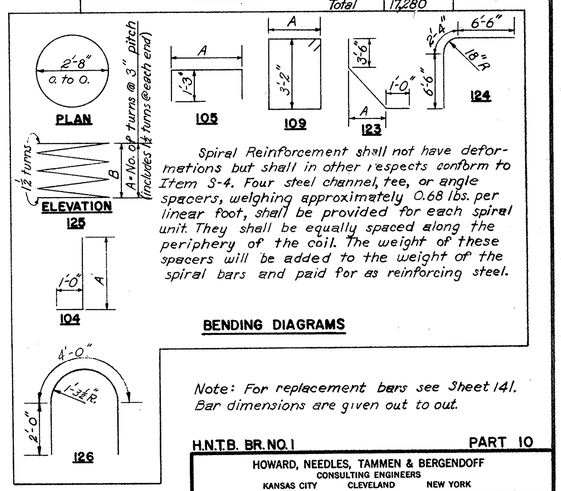
SECTION B-B
1/2"=1'-0"

Note:
Special care should be taken in placing vertical column steel so as not to interfere with bottom bars in cap-beam.

SECTION C-C
1/2"=1'-0"

SECTION D-D
1/2"=1'-0"

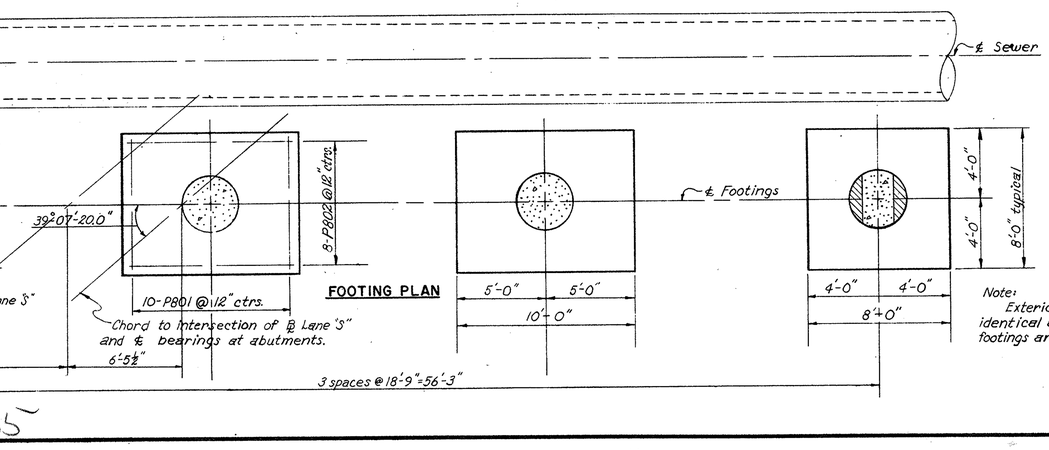
REINFORCEMENT SCHEDULE						
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
P401	32	4'-11"	105	2'-8		105
P402	2	4'-8"	105	2'-5"		6
P403	2	4'-1"	105	1'-10"		5
P501	27	12'-2"	109	2'-8"		343
P502	14	10'-6"	109	1'-10"		154
SP503	1	772'-6"	125	94	22'-7"	807
SP504	1	739'-8"	125	90	21'-9"	772
SP505	1	715'-1"	125	87	20'-11"	748
SP506	1	690'-4	125	84	20'-1"	724
P507	8	8'-0"	126			67
P601	8	29'-3"	Str.			352
P701	28	7'-6"	Str.			430
P801	20	9'-6"	Str.			506
P802	16	7'-6"	Str.			321
P901	10	25'-6"	Str.			866
P902	10	22'-9"	Str.			775
P1101	4	31'-6"	Str.			670
P1102	6	18'-9"	Str.			598
P1103	6	15'-0"	Str.			479
P1104	14	24'-9"	Str.			1841
P1105	14	23'-9"	Str.			1766
P1106	12	9'-3"	104	8'-7"		590
P1107	32	6'-9"	104	6'-1"		1151
P1108	8	3'-11"	123	3'-0"		421
P1109	4	8'-11"	123	2'-6"		190
P1110	8	15'-4"	124			651
P1111	4	30'-0"	Str.			639
P1112	4	24'-3"	Str.			516
P1113	4	37'-0"	Str.			787
					Total	17280



Spiral Reinforcement shall not have deformations but shall in other respects conform to Item S-4. Four steel channel, tee, or angle spacers, weighing approximately 0.68 lbs. per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The weight of these spacers will be added to the weight of the spiral bars and paid for as reinforcing steel.

BENDING DIAGRAMS

Note: For replacement bars see Sheet 141.
Bar dimensions are given out to out.



FOOTING PLAN

Note:
Exterior footings are identical and interior footings are identical.

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 1-1

LANE "S" OVER NORTH-SOUTH EXPRESSWAY

BR. NO. SUM.-8-1256 STA. 11+21.49
SCALE: 1/4" = 1'-0" STA. 12+74.87

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
DATE 4-5-58	DATE	DATE 9-7-58	DATE 9-8-58	1018 SHEET 96

587

Summit-8-11.65

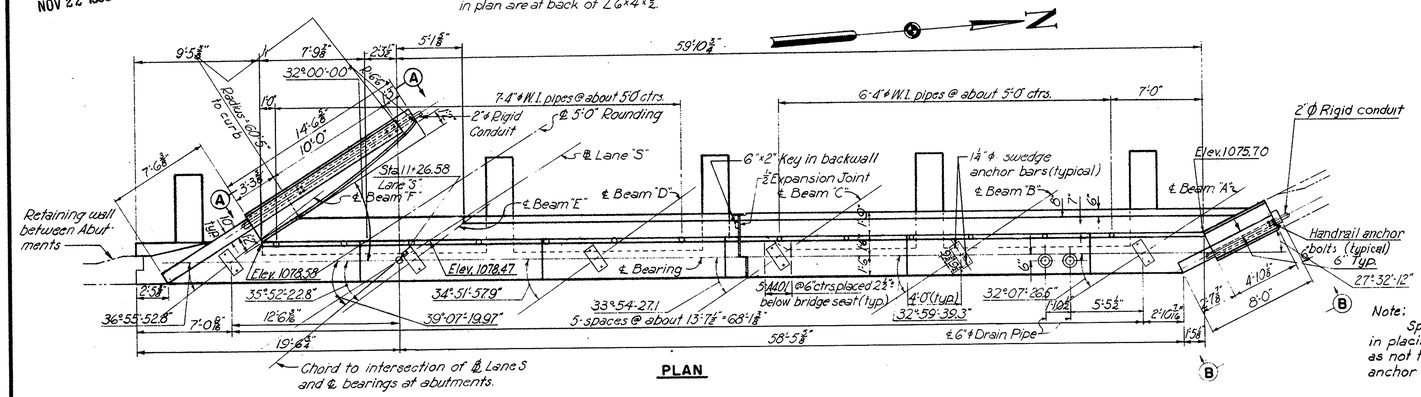
MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

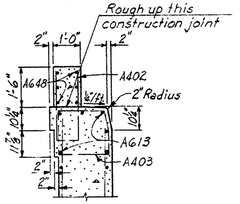
97
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM- 8 - 11.65

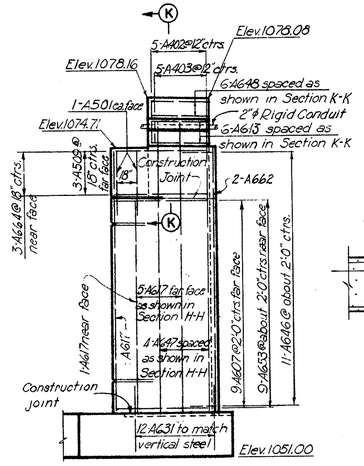
Note: Backwall elevations shown in plan are at back of L6x4x½.



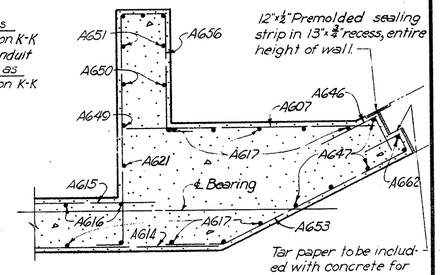
PLAN



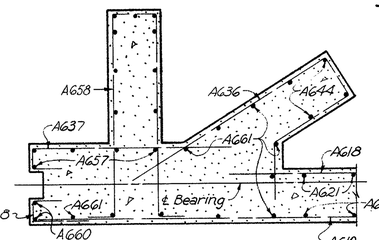
SECTION K-K
⅜" = 1'-0"



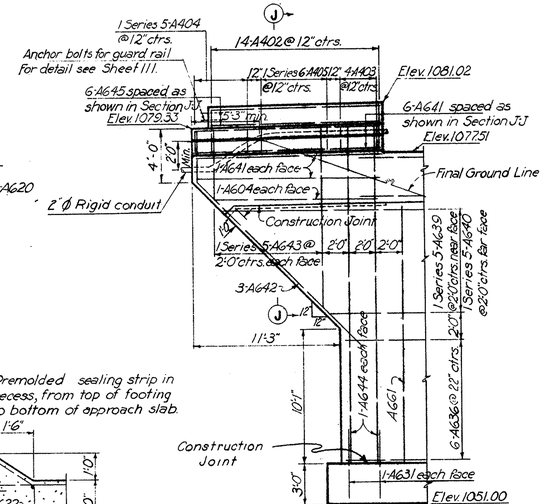
VIEW B-B



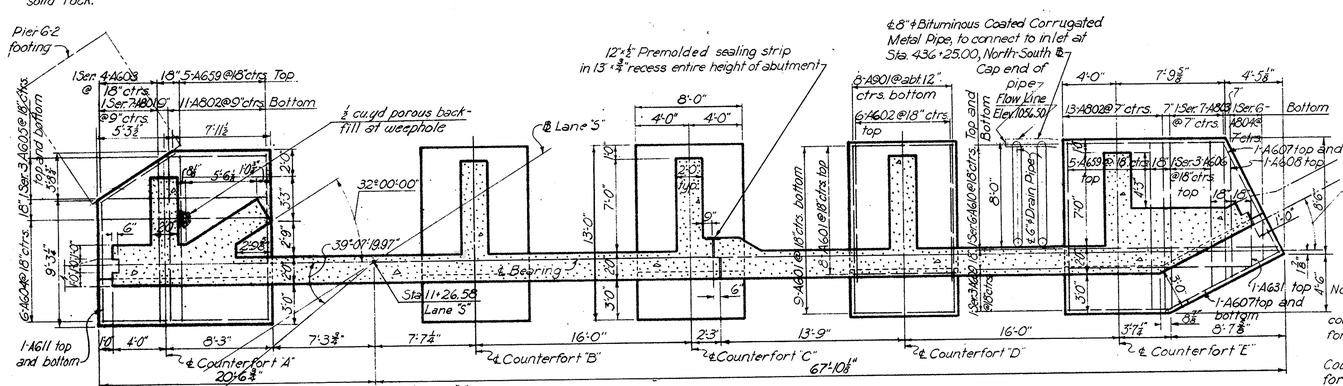
SECTION H-H
⅜" = 1'-0"



SECTION F-F
⅜" = 1'-0"



VIEW A-A



ELEVATION

Note: Footings shall extend a minimum of 6 inches into solid rock.

FOOTING PLAN

SECTION G-G
⅜" = 1'-0"

Notes:
For backwall, counterforts, View C-C, and Sections D-D, E-E, and JJ see Sheet 98.
For rustication detail, see Sheet 111.
For base plate detail, see Sheet 103.
For section showing backfill see Sheet 98
For section showing drain pipe details see Sh. 98
For reinforcement schedule see Sheet 98.
For handrail spacing and details see Sheet 173.

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 1-W

LANE "S" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1256 STA. 11+21.49
SCALE: 3/16" = 1'-0" STA. 12+74.87

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

DRAWN W.R.K.	TRACED	CHECKED G.D.	REVIEWED J.T.	REVISED
DATE 6-25-58	DATE	DATE 8-16-58	DATE 9-8-58	1018 SHEET 97

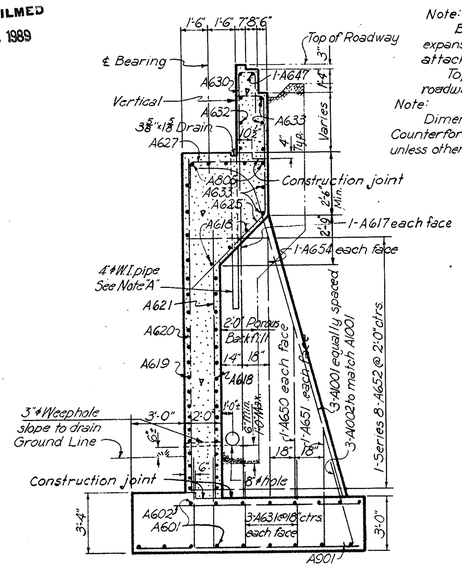
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

98/176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note "A"
The 4"ϕ W.I. pipes shall extend 3'± into the porous backfill. That portion of the pipe in the backfill (but not that above) shall be perforated with ⅜" holes at about 3⅜" ctrs. around circumference of pipes and about 4" ctrs. in the direction of the length of pipe. Included with abutment concrete for payment.

MICROFILMED
NOV 22 1989

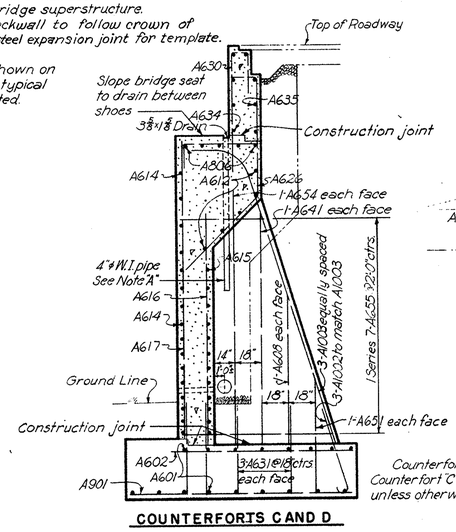


COUNTERFORT B

For expansion joint detail see Sheet 105.

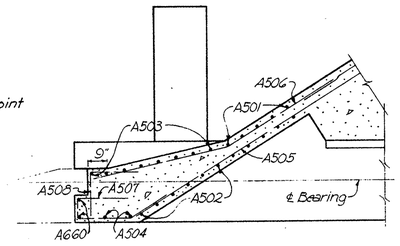
Note:
Backwall to be poured after expansion joint steel has been attached to bridge superstructure.
Top of backwall to follow crown of roadway. Use steel expansion joint for template.

Note:
Dimensions shown on Counterfort "B" are typical unless otherwise noted.

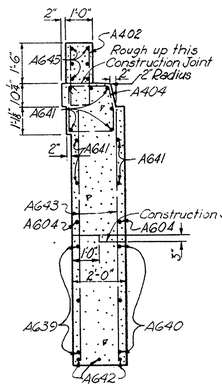


COUNTERFORTS C AND D

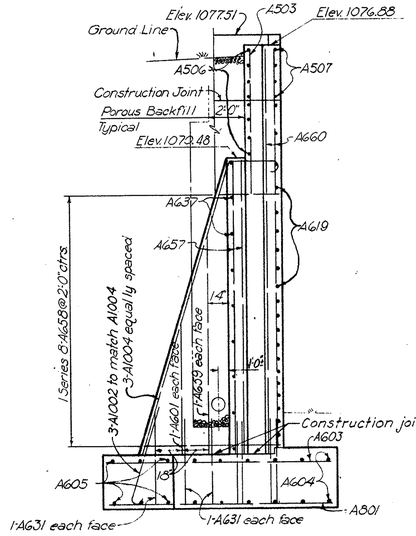
Counterfort "D" shown, Counterfort "C" is similar unless otherwise noted.



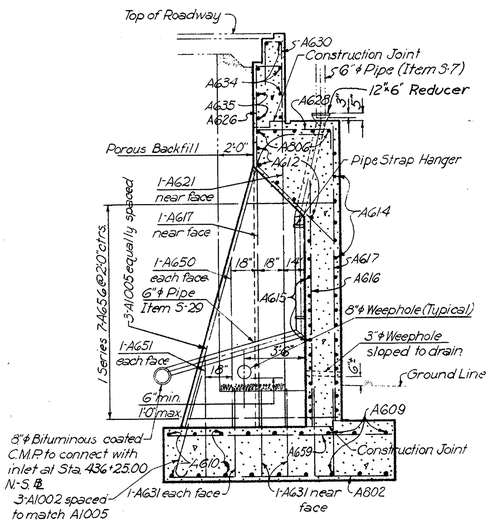
SECTION E-E
⅜" = 1'-0"



SECTION J-J
⅜" = 1'-0"



VIEW C-C



SECTION D-D

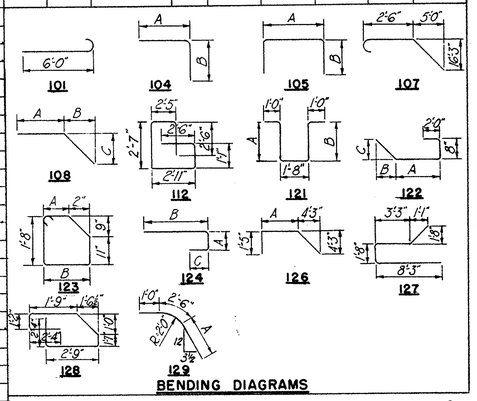
Notes:
For rustication detail, abutment bridge seat drain detail and pipe strap hanger detail see Sheet 111.
Reinforcing bars are measured out to out.
For replacement bar list see Sheet 141.
Bars of a series shall vary by a constant increment.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
A401	30	3'-4"	104	2'-6"	1'-0"			67
A402	19	5'-11"	105	10"	2'-8"			75
A403	9	7'-6"	123	1'-10"	2'-0"			45
A404	1Serof5	5'-2" to 6'-8"	123	8" to 1'-5"	10" to 1'-7"		4⅛"	20
A405	1Serof6	6'-10" to 7'-6"	123	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅞"	29
A601	53	7'-6"	Str.					596
A602	18	10'-0"	Str.					271
A603	1Serof 4	9'-3" to 12'-6"	Str.				1'-2"	65
A604	14	12'-9"	Str.					269
A605	2Serof 3	7'-6" to 12'-6"	Str.				2'-6"	90
A606	1Serof 3	10'-9" to 12'-6"	Str.				10⅝"	53
A607	13	9'-3"	Str.					181
A608	5	9'-0"	Str.					68
A609	2Serof 3	8'-0" to 13'-6"	Str.				2'-9"	97
A610	2Serof 6	11'-6" to 15'-6"	Str.				9⅜"	243
A611	2	6'-0"	Str.					18
A612	5	31'-0"	Str.					232
A613	6	4'-6"	Str.					41
A614	16	32'-6"	Str.					780
A615	12	29'-6"	Str.					531
A616	13	13'-9"	Str.					268
A617	24	16'-6"	Str.					594
A618	19	37'-3"	Str.					1061
A619	20	45'-0"	Str.					1350
A620	17	18'-6"	Str.					472
A621	18	15'-9"	Str.					425
A622	12	17'-9"	Str.					320
A623	17	13'-2"	112					336
A624	13	13'-1"	128					255
A625	1Serof 21	12'-3" to 13'-0"	126	5'-0" to 5'-9"			⅝"	398
A626	1Serof 29	13'-0" to 14'-3"	126	5'-9" to 7'-0"			⅝"	593
A627	21	7'-0"	104	4'-5"	2'-9"			220
A628	17	7'-6"	104	4'-5"	3'-3"			191
A629	13	13'-3"	108	7'-3"	4'-3"	4'-3"		259
A630	57	8'-7"	124	1'-5"	5'-3"	2'-3"		734
A631	95	5'-3"	Str.					748
A632	4	36'-10"	108	35'-3"	11"	1'-6"		222
A633	5	34'-6"	Str.					259
A634	4	36'-3"	108	34'-5"	10"	1'-7⅛"		218
A635	4	38'-9"	Str.					232
A636	6	14'-10"	127					134
A637	9"	9'-10"	124	8"	7'-6"	2'-0"		133
A638	21	4'-4"	105	8"	2'-0"			136
A639	1Serof 5	9'-6" to 17'-6"	Str.				2'-0"	101
A640	1Serof 5	6'-3" to 14'-3"	108	4'-5" to 12'-5"	11"	1'-6"	2'-0"	77
A641	15	14'-3"	Str.					320
A642	3	20'-9"	108	17'-9"	2'-1½"	2'-1½"		93
A643	2Serof 5	4'-6" to 12'-6"	Str.				2'-0"	128
A644	4	24'-6"	Str.					147
A645	6	15'-0"	Str.					*
A646	11	3'-10"	104	2'-6"	1'-6"			63
A647	5	22'-0"	Str.					165
A648	6	4'-6"	Str.					*
A649	14	9'-7"	124	1'-5"	6'-6"	2'-0"		201
A650	4	9'-6"	Str.					57
A651	4	6'-9"	Str.					41
A652	1Serof 8	12'-4" to 20'-0"	121	4'-8" to 8'-6"	4'-8" to 8'-6"		1-1⅛"	193
A653	9	12'-0"	122	7'-8"	1'-9"	11"		162
A654	6	15'-0"	Str.					135
A655	2Serof 7	13'-0" to 20'-0"	121	5'-0" to 8'-6"	5'-0" to 8'-6"		1'-2"	346
A656	1Serof 7	8'-8" to 15'-10"	121	8" to 4'-3"	5'-0" to 8'-7"		1'-2⅝"	129
A657	5	16'-3"	Str.					122
A658	1Serof 8	9'-6" to 18'-0"	121	3'-3" to 7'-6"	5'-3" to 7'-6"		1'-2⅝"	165
A659	12	12'-6"	Str.					225
A660	2	22'-3"	Str.					67
A661	10	19'-3"	Str.					289

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
A662	2	20'-0"	Str.					
A663	9	6'-9"	104	1'-5"	3'-6"			91
A664	3	10'-0"	124	8"	7'-8"	2'-0"		45
A501	14	5'-3"	Str.					77
A502	6	7'-0"	124	6"	5'-3"	1'-6"		44
A503	8	8'-0"	Str.					67
A504	2	7'-6"	Str.					16
A505	6	9'-0"	Str.					56
A506	8	9'-9"	108	4'-9"	4'-9"	1'-7"		81
A507	4	6'-2"	122	2'-2"	1'-4"	10"		26
A508	4	3'-4"	104	2'-0"	1'-6"			14
A509	3	4'-0"	Str.					13
A801	1Serof 7	9'-0" to 12'-3"	Str.					199
A802	24	12'-6"	Str.					800
A803	1Serof 7	10'-6" to 12'-3"	Str.					212
A804	1Serof 6	2'-6" to 9'-6"	Str.					96
A805	1Serof 5	34'-6" to 44'-0"	Str.					525
A806	1Serof 5	32'-3" to 39'-3"	Str.					476
A901	24	12'-6"	Str.					1020
A1001	3	21'-0"	129	17'-6"				271
A1002	15	7'-5"	101					479
A1003	6	19'-9"	129	16'-3"				310
A1004	3	20'-11"	107					270
A1005	3	19'-0"	129	15'-6"				246
							Total	22,250

* Included for payment in unit price bid for Item 5-14.



BENDING DIAGRAMS

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT I-W DETAILS
LANE "S" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1256 STA. 11+21.49
SCALE: 1/4" = 1'-0" STA. 12+74.87

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN M.P.A.	TRACED	CHECKED G.D.	REVIEWED J.T.	REVISED
DATE 6-30-58	DATE	DATE 8-16-58	DATE 9-8-58	1018 SHEET 98

MICROFILMED
NOV 22 1989

Note: Backwall elevations are given to back of $\mathcal{L}$ 6'-4½".

Note:
- Special care shall be taken when placing reinforcing steel, so as not to interfere with the anchor bar setting.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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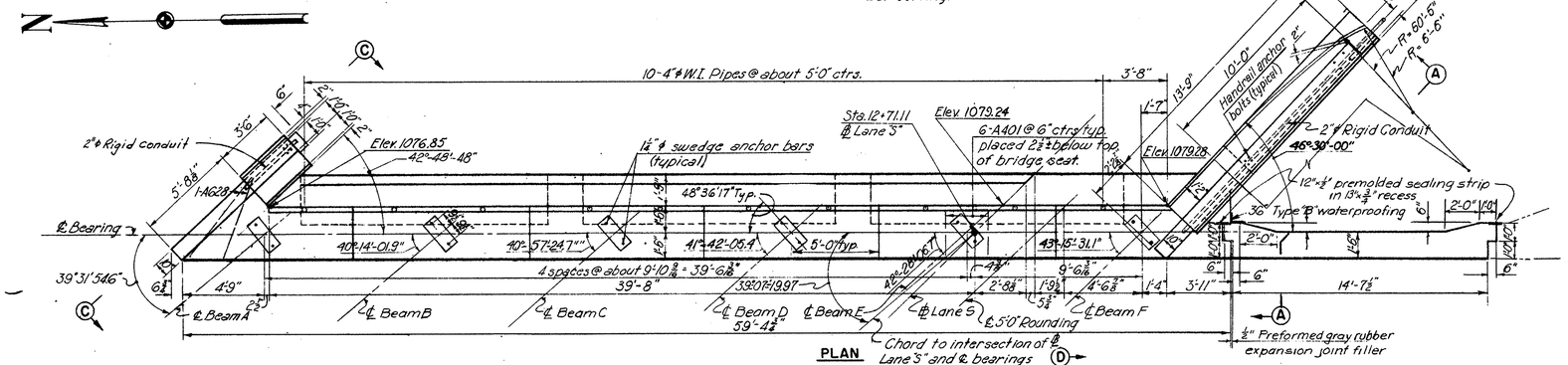
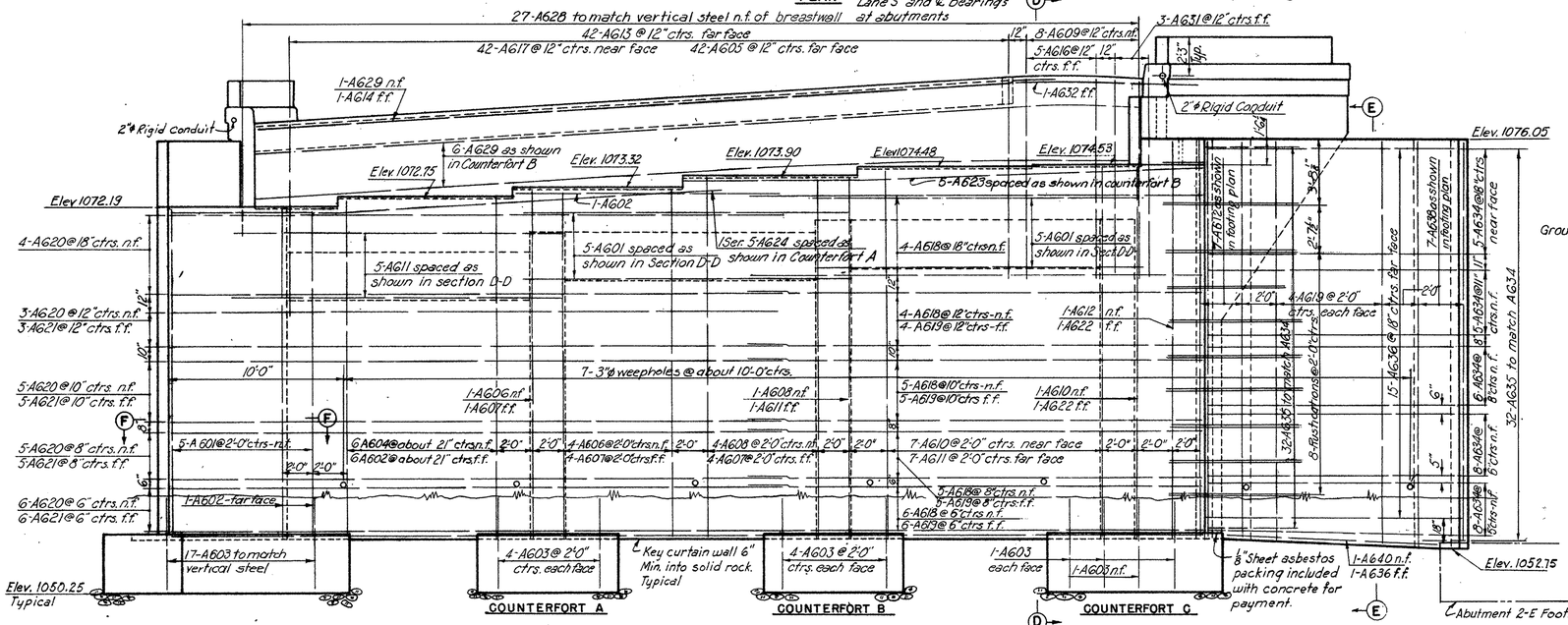
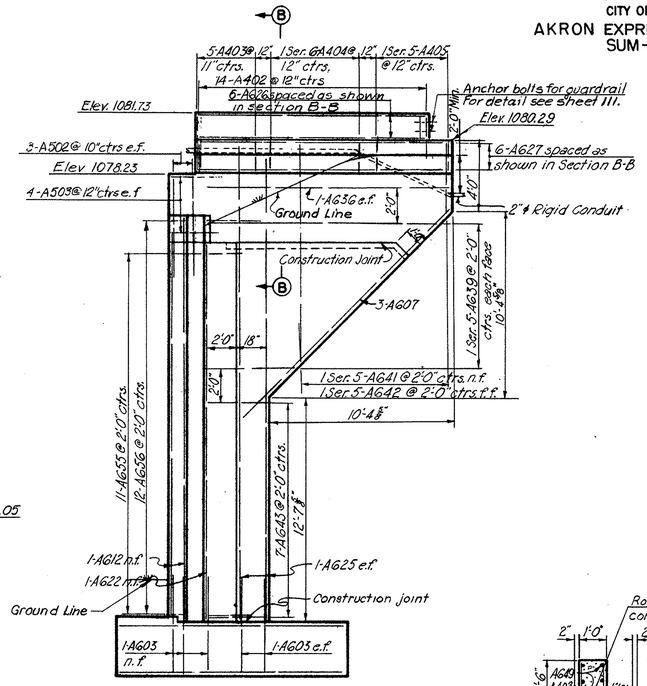
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

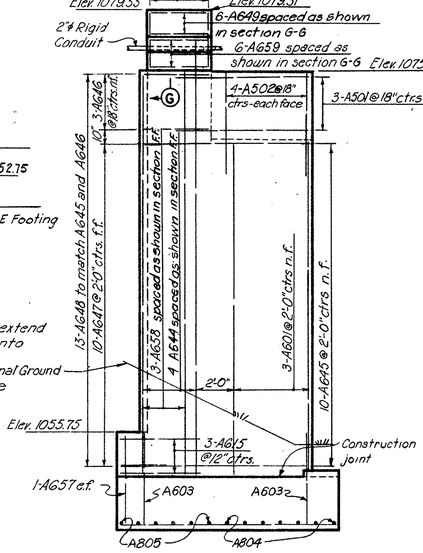


PLAN

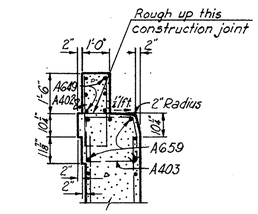




VIEW A-A
Retaining wall not shown



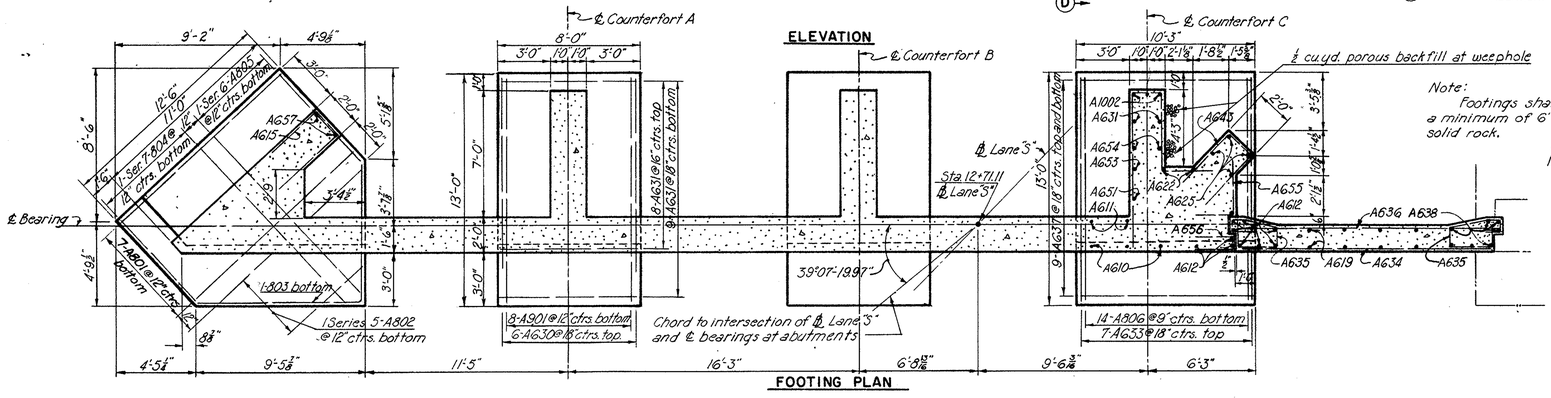
SECTION C-C



SECTION G-G
3/8" = 1'-0"

Notes:
For rustication detail see sheet 111.
For section B-B, section D-D, section E-E, and section F-F see sheet 100
For base plate detail see sheet 103.
For typical section thru key at buttress see sheet 101.
e.f. denotes each face, n.f. denotes near face and f.f. denotes far face.

ELEVATION



FOOTING PLAN

Note:
Footings shall extend a minimum of 6" into solid rock.

Note:
Dimensions and reinforcing shown for Counterfort "A" are typical for Counterfort "B"

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 1-E
LANE "S" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1256 STA. 11+21.49
SCALE: 1/4" = 1'-0" STA. 12+74.87

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN AMM	TRACED	CHECKED S.D.	REVIEWED JT	REVISED
DATE 7-8-58	DATE	DATE 7-21-58	DATE 9-8-58	1018 SHEET 99

MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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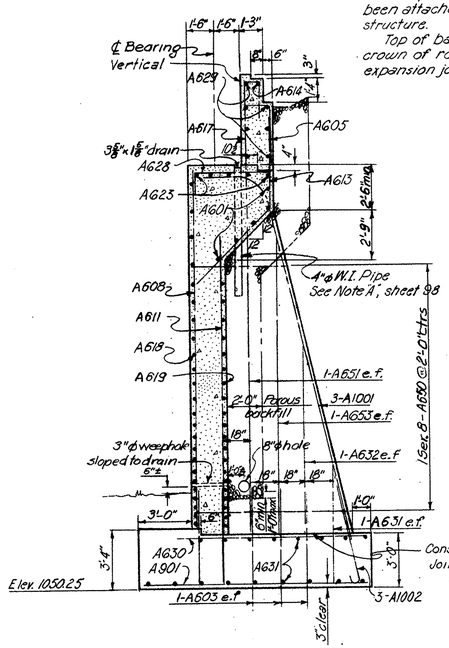
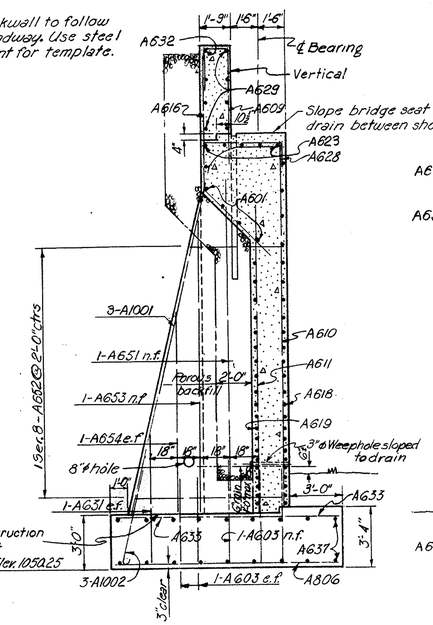
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

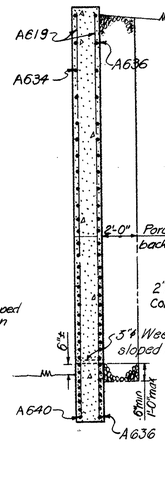
Note:
Backwall is to be poured after expansion joint steel has been attached to bridge superstructure.
Top of backwall to follow crown of roadway. Use steel expansion joint for template.



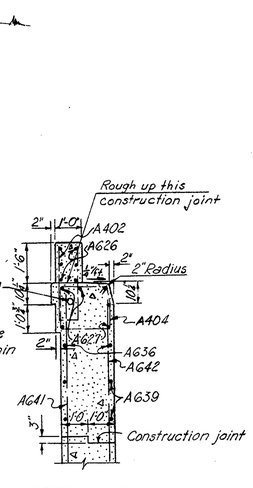
COUNTERFORT A AND B
Counterfort B shown, Counterfort A similar except as shown.



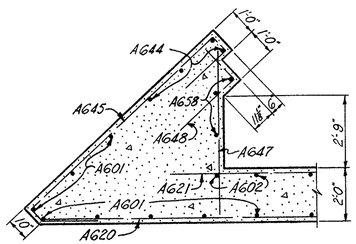
SECTION D-D



SECTION E-E



SECTION B-B
⅜" = 1'-0"

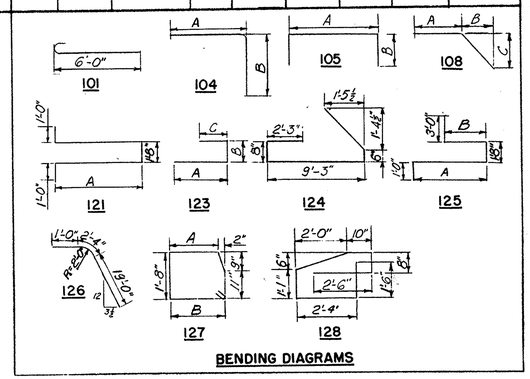


SECTION F-F
⅜" = 1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT LBS.	MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT LBS.
A401	36	3'-1"	104	2'-6"	1'-0"			80	AG39	2 Ser of 5	5'-6" to 13'-6"	Str.				2'-0"	142
A402	18	5'-11"	103	10"	2'-8"			71	AG40	1	12'-3"	Str.					18
A403	9	7'-8"	127	1'-10"	2'-0"			46	AG41	1 Ser of 5	4'-0" to 12'-0"	Str.				2'-0"	60
A404	1 Ser of 6	6'-10" to 7'-6"	127	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅛"	29	AG42	1 Ser of 5	3'-2" to 11'-2"	Str.				2'-0"	53
A405	1 Ser of 5	5'-4" to 6'-10"	127	8" to 1'-5"	10" to 1'-7"		4⅛"	20	AG43	7	9'-4"	123	4'-9"	1'-8"	3'-3"		98
									AG44	4	24'-3"	Str.					146
									AG45	10	14'-2"	124					212
A501	6	7'-3"	Str.					45	AG46	3	6'-3"	123	3'-10"	8"	2'-3"		29
A502	14	5'-3"	Str.					77	AG47	10	6'-0"	Str.					90
A503	8	4'-0"	Str.					33	AG48	13	4'-3"	104	2'-9"	1'-8"			83
									AG49	6	3'-0"	Str.					*
									AG50	2 Ser of 8	15'-0" to 19'-10"	121	5'-0" to 8'-5"			11⅞"	394
AG01	18	18'-1"	Str.					494	AG51	6	18'-6"	Str.					139
AG02	10	13'-9"	Str.					236	AG52	1 Ser of 8	10'-11" to 18'-1"	125	5'-2" to 8'-8"	9" to 4'-5"		1'-0½"	174
AG03	64	5'-3"	Str.					504	AG53	5	16'-6"	Str.					124
AG04	6	18'-0"	Str.					171	AG54	2	11'-3"	Str.					54
AG05	42	4'-0"	104	1'-5"	2'-9"			252	AG55	11	4'-10"	104	3'-0"	2'-0"			80
AG06	5	19'-6"	Str.					146	AG56	12	4'-4"	105	8"	2'-0"			78
AG07	12	16'-9"	Str.					302	AG57	2	5'-0"	Str.					15
AG08	5	20'-0"	Str.					150	AG58	3	2'-6"	Str.					106
AG09	8	9'-10"	123	6'-9"	1'-5"	2'-0"		118	AG59	6	3'-0"	Str.					27
AG10	8	20'-6"	Str.					246									
AG11	13	17'-6"	Str.					341	A801	7	12'-0"	Str.					224
AG12	10	22'-3"	Str.					334	A802	1 Ser of 5	3'-0" to 11'-0"	Str.				2'-0"	94
AG13	42	11'-4"	108	5'-6"	4'-3"	4'-3"		715	A803	1	16'-10"	104	9'-3"	7'-9"			45
AG14	1	42'-0"	Str.					63	A804	1 Ser of 7	6'-3" to 11'-9"	Str.				11"	167
AG15	3	9'-0"	123	4'-6"	1'-8"	3'-2"		41	A805	1 Ser of 6	6'-9" to 12'-3"	Str.				1'-1½"	132
AG16	5	13'-4"	108	7'-6"	4'-3"	4'-3"		100	A806	14	12'-6"	Str.					467
AG17	42	9'-4"	123	6'-6"	11"	2'-3"		588									
AG18	24	26'-3"	Str.					945									
AG19	28	22'-6"	Str.					945	A901	16	12'-6"	Str.					680
AG20	23	35'-0"	Str.					1215									
AG21	19	30'-3"	Str.					863									
AG22	5	20'-9"	Str.					93	A1001	9	22'-4"	126					680
AG23	5	29'-0"	Str.					218	A1002	9	7'-5"	101					227
AG24	1 Ser of 5	27'-6" to 31'-6"	Str.				1'-0"	221								Total	19,100
AG25	4	25'-9"	Str.					154									
AG26	6	13'-3"	Str.					*									
AG27	6	14'-6"	Str.					131									
AG28	29	5'-3"	104	4'-5"	1'-0"			228									
AG29	7	52'-0"	Str.					546									
AG30	12	10'-3"	Str.					185									
AG31	43	7'-6"	Str.					484									
AG32	5	10'-6"	Str.					79									
AG33	7	12'-6"	Str.					131									
AG34	36	14'-0"	Str.					756									
AG35	64	10'-1"	128					1004									
AG36	16	15'-0"	Str.					360									
AG37	18	9'-9"	Str.					263									
AG38	7	22'-9"	Str.					238									

* Included for payment in unit price bid for Item S-14



BENDING DIAGRAMS

Notes:
For replacement bar list see sheet 141
Bar dimensions are given out to out
n.f. denotes near face
f.f. denotes far face
e.f. denotes each face
Bars of a series shall vary by a constant increment.

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT I-E DETAILS
LANE "S" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1256 STA. 11+21.49
SCALE: 1/4" = 1'-0" STA. 12+74.87

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

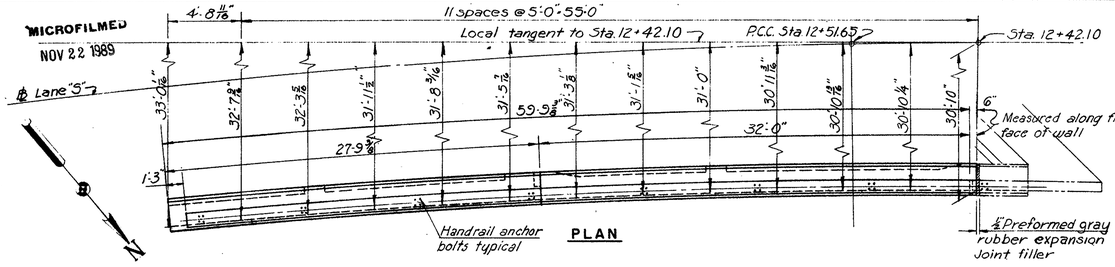
DRAWN A(M)	TRACED	CHECKED G.D.	REVIEWED J.T.	REVISED
DATE 7-8-58	DATE	DATE 7-25-58	DATE 9-8-58	1018 SHEET 100

MICROFILMED
NOV 22 1989

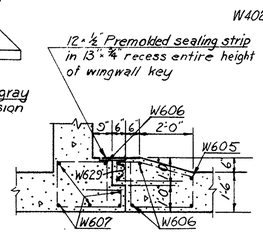
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

101
176

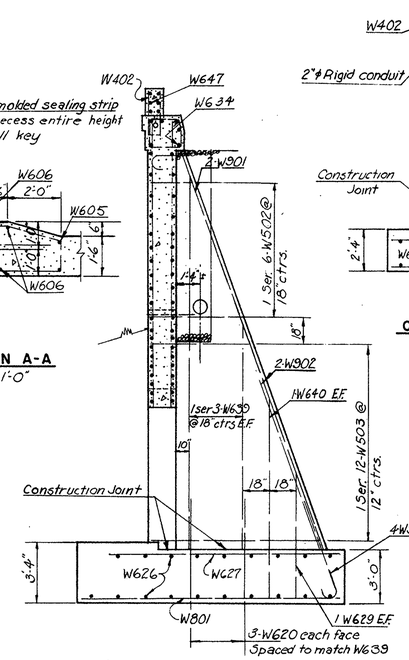
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



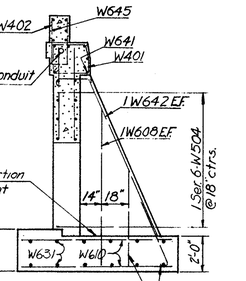
PLAN



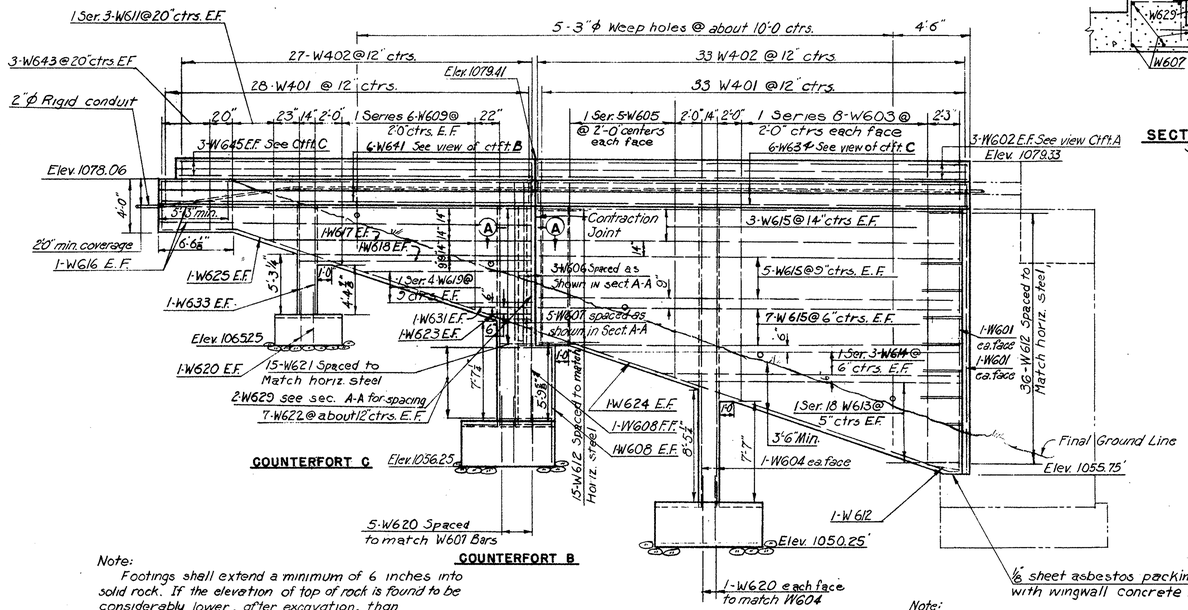
SECTION A-A
⅜"=1'-0"



COUNTERFORT A
¼"=1'-0"



COUNTERFORT C
¼"=1'-0"



COUNTERFORT C

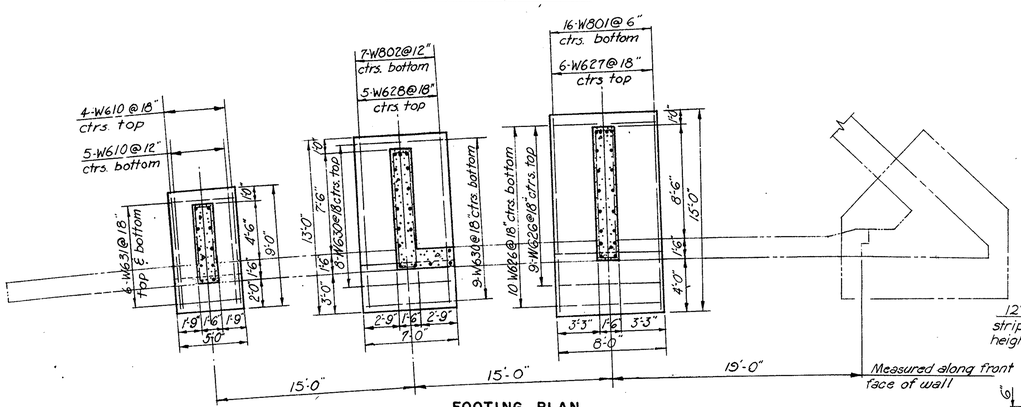
COUNTERFORT B

COUNTERFORT A

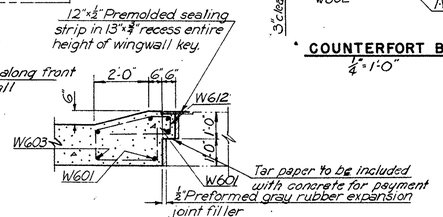
Note:
Footings shall extend a minimum of 6 inches into solid rock. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on the plans, a new wingwall design shall be provided.

DEVELOPED ELEVATION

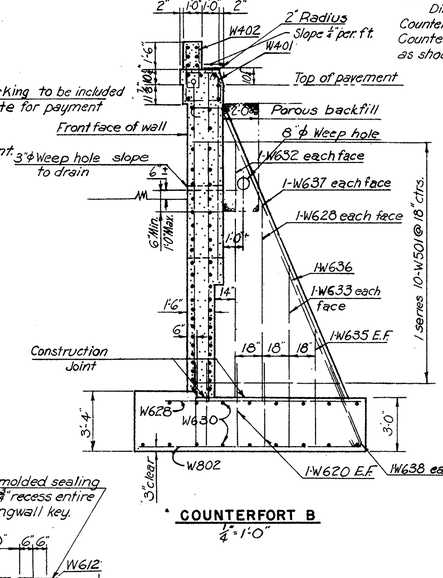
Note:
Rustications to parallel top of wall. Spacing same as for abutment.



FOOTING PLAN



TYPICAL SECTION THRU KEY AT BUTTRESS
⅜"=1'-0"



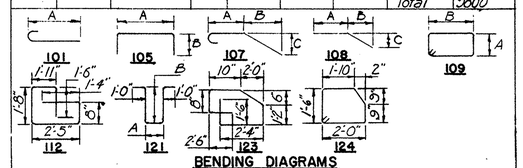
COUNTERFORT B
¼"=1'-0"

Note:
Dimensions shown for Counterfort B are typical for Counterforts A and C except as shown.

Notes:
For rustication detail see sheet 111.
For handrail details see sheet 173.
E.F. denotes each face.
Bars of a series shall vary by a constant increment.
Bar dimensions are given out to out.
For replacement bar list see Sheet 141.
* Included for payment in unit price bid for Item 5-14.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
W401	61	7'-6"	124					303
W402	60	5'11"	105	10"	2'-8"			237
W501	1 Ser. 10	8'-0" to 19'-4"	109	1'-2"	2'-8" to 8'-4"		1'-3½"	143
W502	1 Ser. 6	7'-2" to 12'-6"	121	1'-2"	2'-4" to 5'-0"		1'-0¾"	62
W503	1 Ser. 12	13'-0" to 21'-8"	109	1'-2"	5'-1" to 9'-6"		0'-8¼"	272
W504	1 Ser. 6	6'-9" to 13'-7"	109	1'-2"	2'-0" to 5'-3"		1'-4 7/16"	64
W601	4	21'-5"	Str.					131
W602	6	3'-6"	Str.					*
W603	2 Ser. 8	21'-3" to 16'-6"	Str.				0'-8½"	454
W604	4	23'-9"	Str.					143
W605	2 Ser. 5	12'-0" to 14'-9"	Str.				0'-8¼"	201
W606	3	12'-0"	Str.					54
W607	5	18'-0"	Str.					135
W608	5	8'-9"	Str.					66
W609	2 Ser. 6	6'-6" to 9'-9"	Str.				0'-7 15/16"	147
W610	9	8'-6"	Str.					115
W611	2 Ser. 3	3'-9" to 4'-9"	Str.				0'-6"	39
W612	51	10'-8"	123					816
W613	2 Ser. 18	2'-9" to 23'-9"	Str.				1'-2¾"	217
W614	2 Ser. 3	25'-3" to 28'-0"	Str.				1'-4½"	240
W615	30	31'-8"	Str.					1425
W616	4	27'-3"	Str.					164
W617	2	20'-6"	Str.					62
W618	4	16'-9"	Str.					101
W619	2 Ser. 4	6'-0" to 12'-9"	Str.				2'-3"	113
W620	23	5'-0"	Str.					173
W621	14	8'-8"	112					182
W622	14	4'-0"	Str.					84
W623	2	3'-0"	Str.					9
W624	2	32'-10"	108	32'-0"	5"	3"		99
W625	2	28'-6"	108	23'-7"	4'-8"	1'-7"		86
W626	19	7'-6"	Str.					214
W627	6	13'-0"	Str.					117
W628	7	11'-0"	Str.					116
W629	2	7'-0"	Str.					21
W630	17	6'-6"	Str.					166
W631	14	4'-6"	Str.					95
W632	2	14'-9"	Str.					45
W633	6	10'-3"	Str.					93
W634	6	3'-6"	Str.					284
W635	2	6'-9"	Str.					21
W636	1	12'-4"	101	11'-7"				19
W637	2	20'-5"	107	1'-9"	6'-11"	16'-6"		62
W638	4	5'-9"	101	5'-0"				35
W639	2 Ser. 3	12'-9" to 21'-3"	Str.				4'-3"	153
W640	2	11'-3"	Str.					34
W641	6	27'-9"	Str.					250
W642	2	12'-0"	107	1'-9"	4'-0"	8'-8"		36
W643	6	3'-6"	Str.					32
W644	2	5'-3"	Str.					16
W645	6	26'-6"	Str.					*
W801	16	14'-6"	Str.					610
W802	7	12'-6"	Str.					234
W301	2	27'-0"	107	1'-9"	7'-11"	22'-7"		184
W302	2	10'-5"	Str.					75
W303	4	6'-11"	101	5'-8"				34
							Total	9800



H.N.T.B. BR. NO. I PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

NORTHEAST WINGWALL

LANE "S" OVER NORTH SOUTH EXPRESSWAY
BR. NO. SUM-8-1256 STA. 11+21.49
SCALE: 3/16" = 1'-0" STA. 12+74.87

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

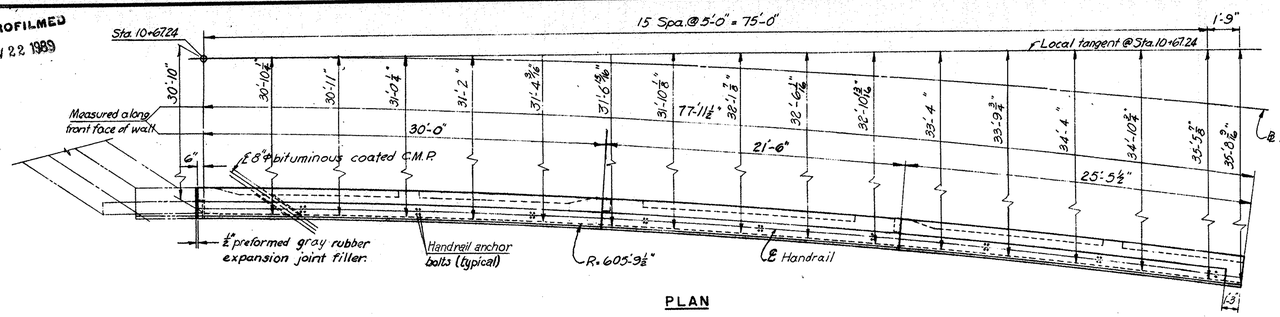
DRAWN W.E.S.	TRACED	CHECKED W.R.K.	REVIEWED J.T.	REVISED
DATE 6-4-58	DATE	DATE 8-22-58	DATE 9-8-58	1018 SHEET 101

MICROFILMED
NOV 22 1989

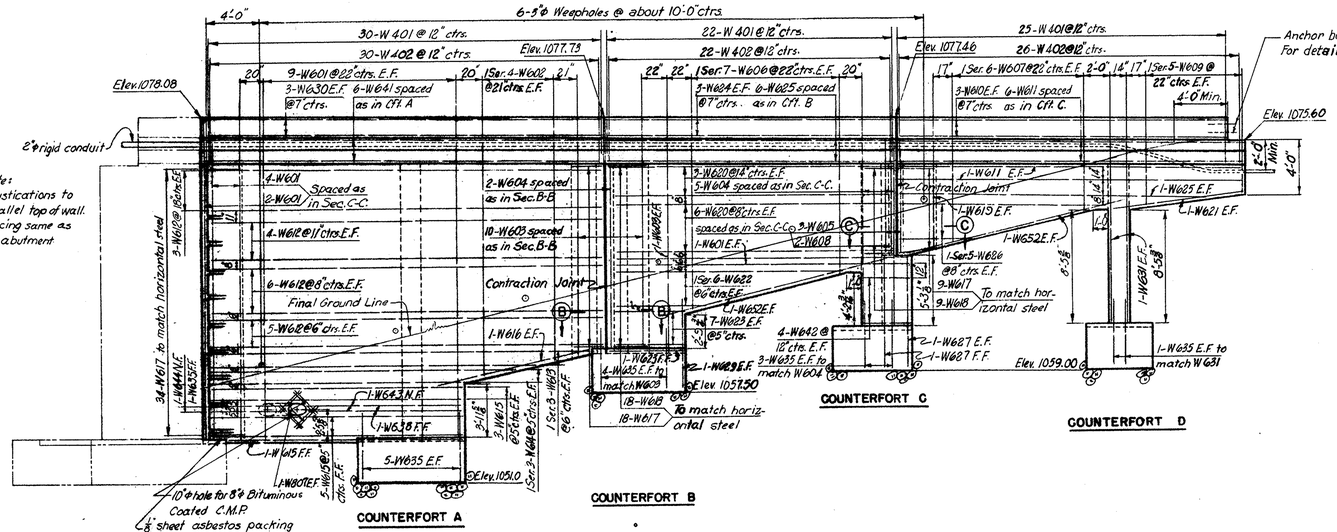
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

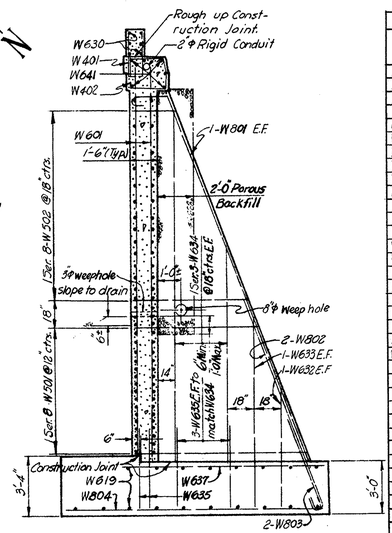
102
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.-8-11.65



PLAN



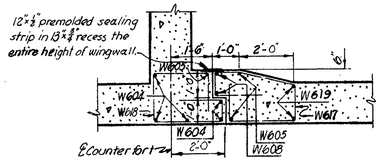


COUNTERFORT A
1" = 1'-0"

REINFORCEMENT SCHEDULE

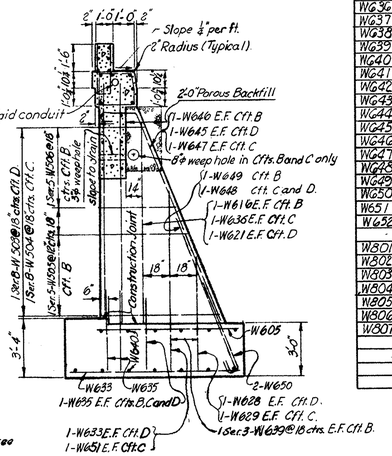
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
W401	77	5'-11"	105	10"	2'-8"			305
W402	78	7'-6"	124					391
W501	1Ser. 8	16'-2" to 21'-8"	121	1'-2"	6'-9" to 6'-10"			138
W502	1Ser. 8	6'-10" to 15'-0"	121	1'-2"	2'-1" to 6'-2"			31
W503	1Ser. 8	6'-8" to 15'-6"	109	2'-0" to 6'-5"	1'-2"			32
W504	1Ser. 8	7'-0" to 11'-6"	109	2'-2" to 5'-5"	1'-2"			102
W505	1Ser. 5	15'-4" to 19'-6"	121	1'-2"	6'-4" to 6'-5"			31
W506	1Ser. 5	7'-8" to 13'-10"	121	1'-2"	2'-6" to 5'-1"			56
WG01	28	21'-9"	Str.					915
WG02	2Ser. 4	16'-0" to 17'-3"	Str.				5"	199
WG03	12	15'-3"	Str.					275
WG04	9	13'-3"	Str.					139
WG05	7	8'-9"	Str.					87
WG06	2Ser. 7	9'-3" to 12'-0"	Str.				5 3/16"	223
WG07	2Ser. 6	5'-0" to 7'-6"	Str.				6"	113
WG08	21	6'-6"	Str.					205
WG09	2Ser. 5	3'-9" to 4'-6"	Str.				2 1/4"	62
WG10	6	24'-6"	Str.					*
WG11	6	25'-0"	Str.					225
WG12	36	29'-9"	Str.					1606
WG13	2Ser. 3	23'-6" to 27'-9"	Str.				2'-1 7/16"	231
WG14	2Ser. 3	18'-0" to 21'-6"	Str.				1'-6"	180
WG15	17	18'-6"	Str.					474
WG16	4	12'-0"	Str.					72
WG17	61	10'-5"	123					953
WG18	27	8'-8"	112					351
WG19	21	7'-6"	Str.					237
WG20	18	20'-3"	Str.					547
WG21	4	9'-9"	Str.					59
WG22	2Ser. 6	5'-0" to 15'-6"	Str.				2'-1 3/16"	185
WG23	15	4'-9"	Str.					107
WG24	6	21'-3"	Str.					*
WG25	6	21'-3"	Str.					255
WG26	2Ser. 5	3'-3" to 14'-0"	Str.				2'-8 1/4"	129
WG27	3	8'-0"	Str.					36
WG28	17	5'-6"	Str.					140
WG29	4	7'-0"	Str.					42
WG30	6	30'-3"	Str.					*
WG31	4	13'-0"	Str.					78
WG32	2	5'-9"	Str.					17
WG33	12	9'-6"	Str.					171
WG34	2Ser. 3	10'-6" to 18'-3"	Str.				3' 10 1/2"	129
WG35	42	5'-0"	Str.					315
WG36	2	10'-3"	Str.					32
WG37	11	12'-6"	Str.					207
WG38	2	12'-3"	Str.					37
WG39	2Ser. 3	6'-0" to 11'-9"	Str.				2'-10 1/2"	80
WG40	13	4'-6"	Str.					88
WG41	6	30'-3"	Str.					272
WG42	8	3'-6"	Str.					42
WG43	2	10'-6"	Str.					32
WG44	2	6'-0"	Str.					18
WG45	2	15'-1"	107	1'-9"	4'-11"	11'-7"		45
WG46	2	17'-8"	107	1'-9"	6'-10"	13'-6"		53
WG47	2	15'-8"	107	1'-9"	5'-11"	11'-9"		47
WG48	2	10'-9"	101	9'-6"				31
WG49	1	12'-6"	101	11'-3"				19
WG50	6	5'-9"	101	5'-0"				52
WG51	2	10'-0"	Str.					30
WG52	4	17'-6"	Str.					105
W801	2	24'-7"	107	1'-9"	7'-11"	20'-3"		131
W802	2	13'-7"	101	12'-6"				73
W803	2	6'-5"	101	5'-4"				34
W804	12	14'-6"	Str.					464
W805	7	13'-6"	Str.					252
W806	6	11'-6"	Str.					184
W807	16	3'-0"	Str.					128
							Total	12,500

Notes:
Footings shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found after excavation, to be considerably higher or lower than shown on the plans, a new wingwall design shall be provided.



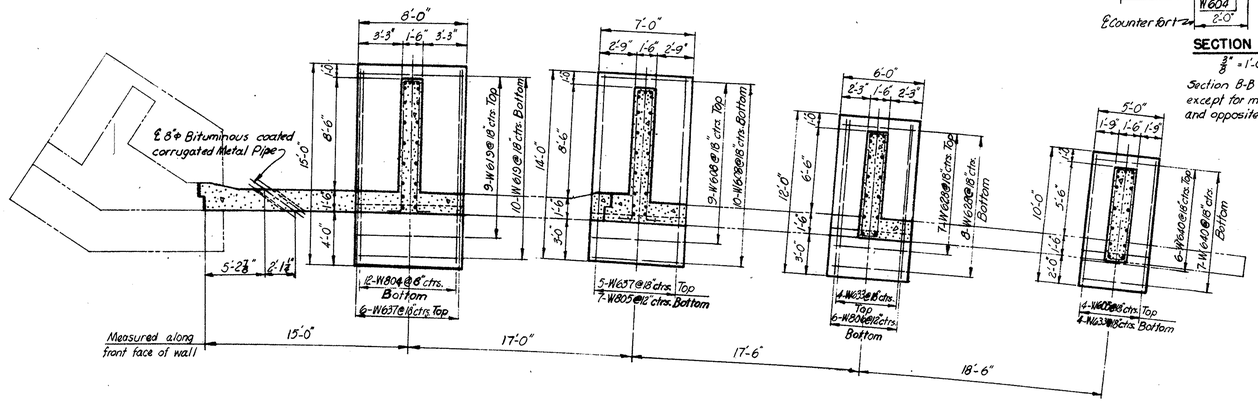
SECTION C-C
⅜" = 1'-0"

Section B-B is similar except for mark numbers and opposite hand.



COUNTERFORTS B, C & D
½" = 1'-0"

Cft. D is shown. Cfts. B and C are similar except as shown.



FOOTING PLAN

Notes:
For typical key detail at buttress see sheet 101.
For rustication detail see sheet 111.
For handrail details see sheet 173.
For bar bending diagrams see sheet 101.
N.F. denotes near face, F.F. denotes far face
E.F. denotes each face.
Cft. denotes counterfort.
For replacement bar list see sheet 141.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.

* To be included for payment in unit price bid for Item S-14.

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

NORTHWEST WINGWALL
LANE "S" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM.-8-1256 STA. 11+21.49
SCALE: 3/16" = 1'-0" STA. 12+74.87

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.I.D.	TRACED	CHECKED WRK	REVIEWED JT	REVISED
DATE 5-27-58	DATE .	DATE 6-10-58	DATE 9-8-58	1018 SHEET 102

MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

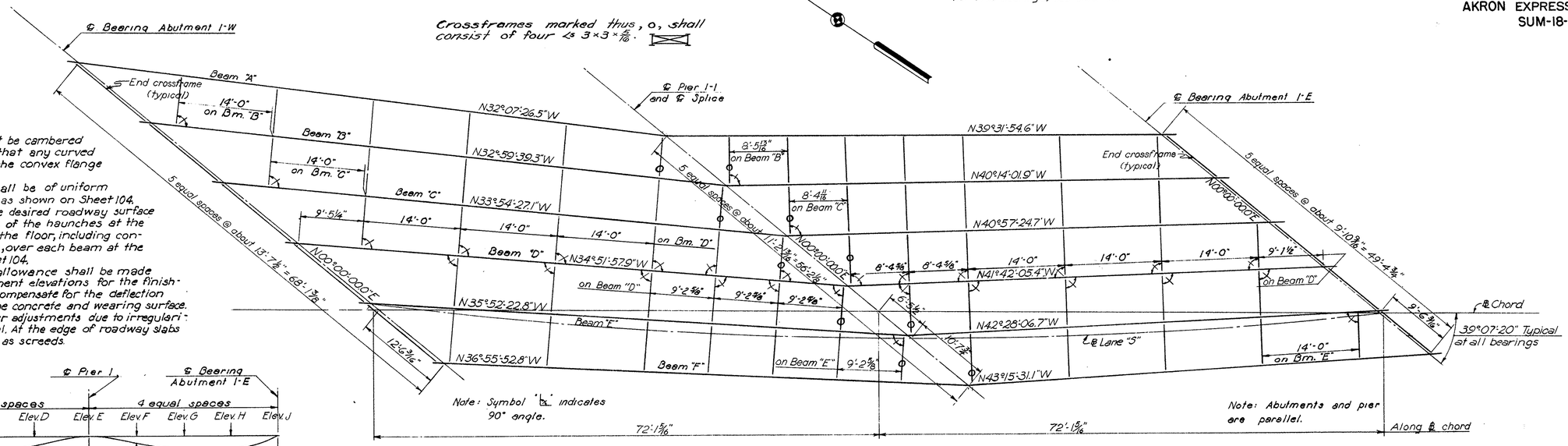
103 / 176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-18-11.65

Camber Note:
The WF beams shall not be cambered but shall be fabricated so that any curved beam will be placed with the convex flange down.
The concrete floor shall be of uniform thickness between beams as shown on Sheet 104, and shall be set up to the desired roadway surface by increasing the thickness of the haunches at the beams. The thickness of the floor, including concrete and wearing surface, over each beam at the supports, is given on Sheet 104.
The screed setting allowance shall be made above the top of the pavement elevations for the finished pavement surface to compensate for the deflection due to the dead load of the concrete and wearing surface. Screeds may need further adjustments due to irregularities of the fabricated steel. At the edge of roadway slabs the bulb angles will serve as screeds.

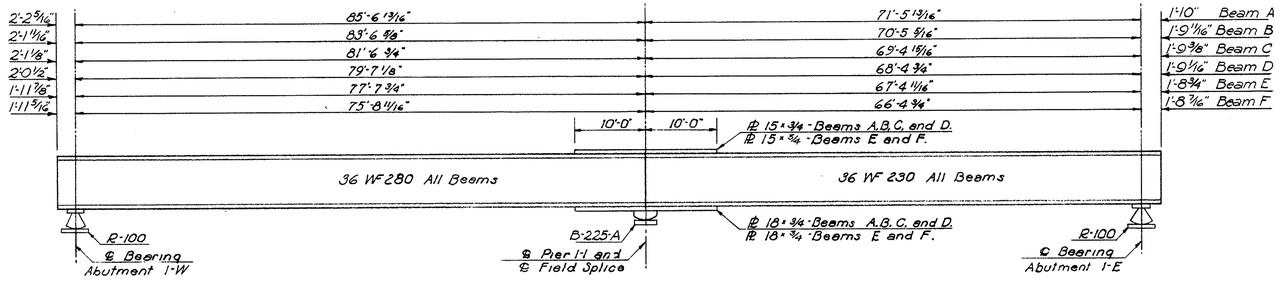
Note:
Bearings shown on framing plan are not true bearings, see Sheet 93.

Crossframes marked thus, o, shall consist of four L 3×3×5/16.

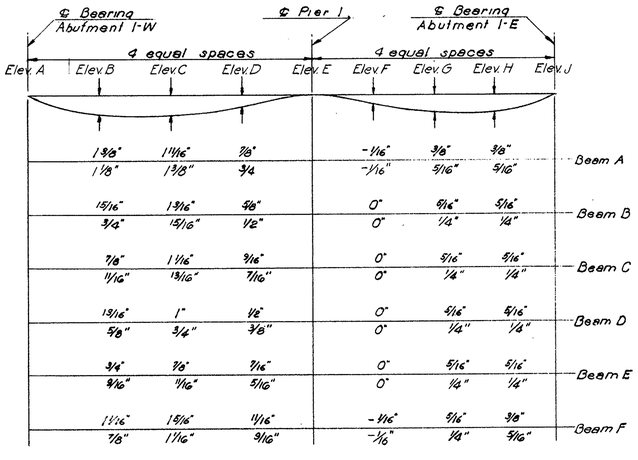


Notes:
For crossframe details see sheet 104.
For other rocker details see Ohio Standard RB-1-55
For details of B-225-A bolster see sheet 105.
For expansion joint details see Sheet 105

FRAMING PLAN
1/8" = 1'-0"



BEAM ELEVATION
No Scale

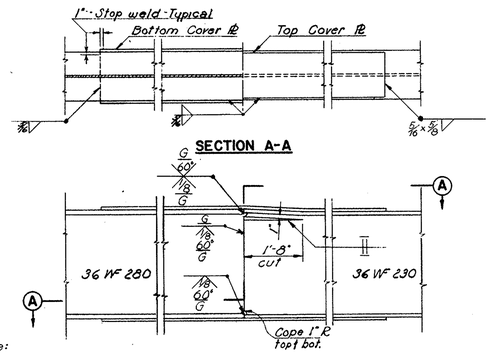


DEAD LOAD DEFLECTION DIAGRAM

Note: Total Dead Load deflections are shown above the lines. Deflections due to concrete and wearing surface are shown below the lines.
Negative deflections are upward.
Deflections are measured to nearest 1/16 inch.

TOP OF PAVEMENT ELEVATIONS

BEAM	A	B	C	D	E	F	G	H	J
A	1075.90	1076.03	1076.20	1076.41	1076.66	1076.71	1076.79	1076.90	1077.03
B	1076.55	1076.67	1076.83	1077.02	1077.25	1077.30	1077.37	1077.47	1077.60
C	1077.21	1077.31	1077.46	1077.64	1077.85	1077.89	1077.96	1078.05	1078.17
D	1077.87	1077.97	1078.10	1078.26	1078.46	1078.49	1078.55	1078.63	1078.74
E	1078.55	1078.63	1078.74	1078.89	1079.07	1079.10	1079.15	1079.22	1079.32
F	1078.70	1078.84	1078.96	1079.07	1079.16	1079.23	1079.29	1079.34	1079.38



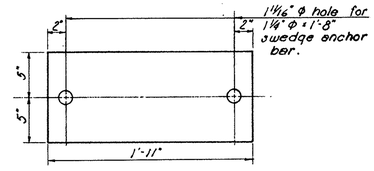
Note:
"G" indicates flush ground weld shall be ground in direction of stress.

BEAM SPLICE DETAILS
No Scale

BEAM SPLICE WELDING PROCEDURE

1. Weld bottom flange cover plates to beam on one side of joint only.
2. Raise end of beam at Abutment 1-E amount shown in table.
3. Butt weld the beam flanges and web, using the following sequence: make one pass on each flange, then one on the web; repeat until welds are completed.
4. Weld the top cover plates on each side of the joint.
5. Complete welding of bottom cover plates.
6. Lower the beam end to final position.

AMOUNT OF JACKING AT ABUTMENT 1-E	
Beam A	2 5/8"
Beam B	2 7/16"
Beam C	2 1/4"
Beam D	2 1/8"
Beam E	1 13/16"
Beam F	1 13/16"



BASE PLATE FOR STRUCTURAL STEEL ROCKER (R-100)
1½" = 1'-0"

Revised 12-23-58.

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN

LANE "S" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM - 8-1256 STA. 11 + 21.49
SCALE: AS SHOWN STA. 12 + 74.87

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

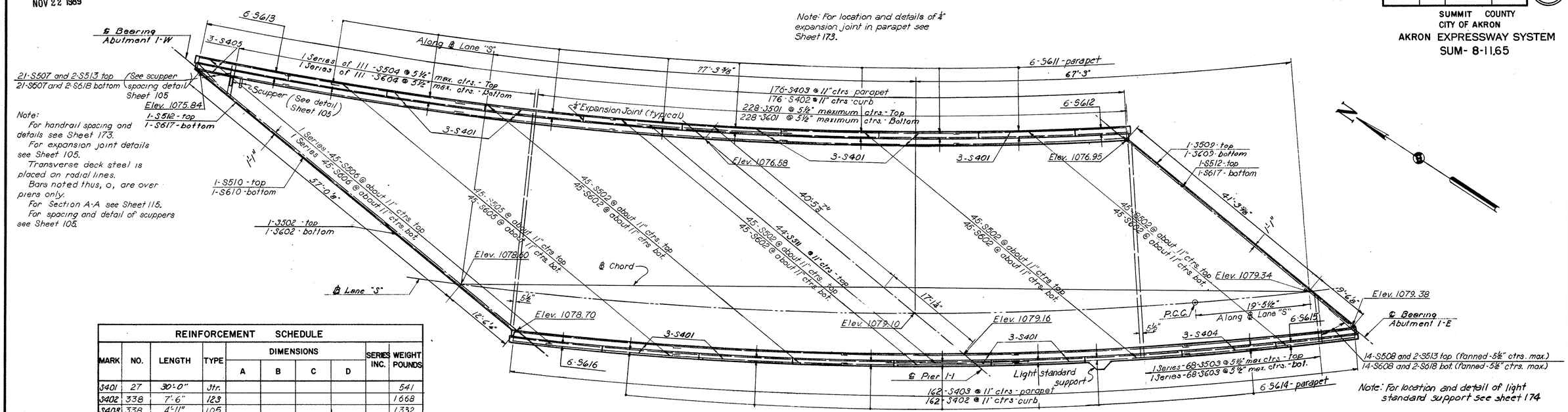
DRAWN T.K.M.	TRACED	CHECKED E.L.M.	REVIEWED J.T.	REVISED
DATE 11-12-57	DATE	DATE 8-16-58	DATE 9-8-58	1018 SHEET 103

MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

104
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM- 8-11.65



Note: For location and details of ¼" expansion joint in parapet see Sheet 173.

Note: For handrail spacing and details see Sheet 173.
For expansion joint details see Sheet 105.
Transverse deck steel is placed on radial lines.
Bars noted thus, ○, are over piers only.
For Section A-A see Sheet 115.
For spacing and detail of scuppers see Sheet 108.

Note: For location and detail of light standard support see sheet 174

DECK PLAN
⅛" = 1'-0"

Note:
In order to facilitate water curing of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are normal to the centerline of bridge and are located near the center of the span.

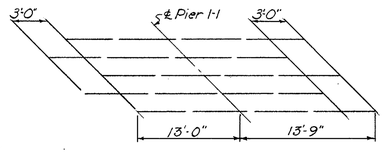
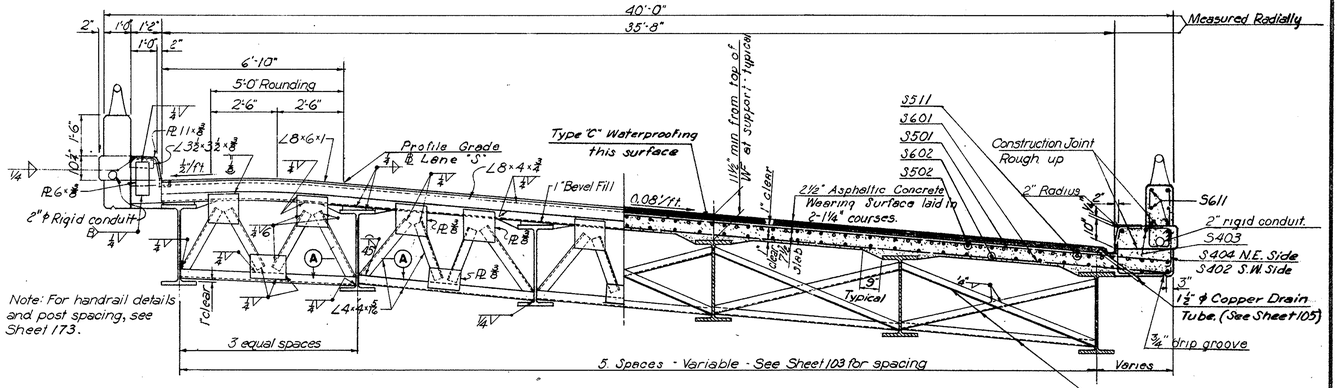
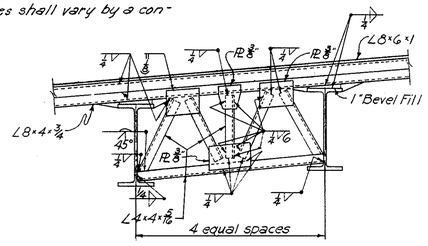


DIAGRAM SHOWING STAGGER OF S511 OVER PIER 1-1

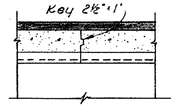


HALF SECTION AT END FINISH (ABUTMENT 1-E)
⅜" = 1'-0"

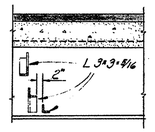
HALF SECTION AT INTERMEDIATE CROSSFRAME
⅜" = 1'-0"



PART SECTION AT END FINISH (ABUTMENT 1-W)
⅜" = 1'-0"



SECTION THRU CONSTRUCTION JOINT
½" = 1'-0"

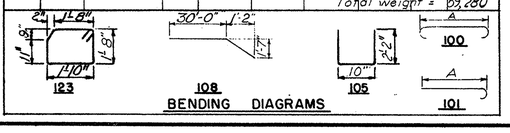


SECTION THRU INTERMEDIATE CROSSFRAME
½" = 1'-0"

* Payment included in unit price bid for Item 511.
‡ For reinforcement schedule see sheet 174. Bar dimensions are given out to out. For replacement bars see sheet 141. Bars of a series shall vary by a constant increment.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INC.	WEIGHT POUNDS
S401	27	30'-0"	Str.						541
S402	338	7'-6"	123						1668
S403	338	4'-11"	105						1332
S404	3	32'-9"	str.						66
S405	3	16'-6"	Str.						33
S501	238	40'-11"	100	39'-9"					9871
S502	181	30'-0"	Str.						5661
S503	1 Series of 68	9'-8" to 38'-8"	100	8'-6" to 37'-6"				5⅛"	1711
S504	1 Series of 111	7'-11" to 38'-8"	100	6'-9" to 37'-6"				3⅝"	2692
S505	45	25'-0"	Str.						1173
S506	1 Series of 45	10'-6" to 23'-3"	Str.					3½"	791
S507	21	7'-0"	101	6'-5"					154
S508	14	8'-11"	101	8'-4"					133
S509	1	22'-6"	Str.						23
S510	1	12'-9"	Str.						13
S511	44	26'-9"	Str.						1228
S512	2	32'-0"	108						67
S513	4	4'-9"	str.						20
S601	238	39'-9"	Str.						14211
S602	181	30'-0"	Str.						8161
S603	1 Series of 68	8'-6" to 37'-6"	Str.					4⅛"	2349
S604	1 Series of 111	6'-9" to 37'-6"	Str.					3⅝"	3668
S605	45	25'-0"	Str.						1690
S606	1 Series of 45	12'-6" to 25'-3"	Str.					3½"	1275
S607	21	6'-3"	Str.						197
S608	14	8'-3"	Str.						173
S609	1	22'-9"	Str.						34
S610	1	13'-3"	Str.						20
S611	48	16'-9	Str.						*
S612	6	9'-0"	Str.						*
S613	6	16'-0"	Str.						*
S614	42	16'-3"	Str.						*
S615	6	15'-3"	Str.						*
S616	6	15'-6"	Str.						*
S617	2	32'-0"	108						96
S618	4	4'-9"	Str.						29
‡ Light Standard Support =									200
								Total weight =	59,280



BENDING DIAGRAMS

H.N.T.B. BR. NO. 1 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK PLAN AND CROSS SECTION
LANE "S" OVER NORTH SOUTH EXPRESSWAY
BR. NO. SUM-8-1256 STA. 11+21.49
SCALE: AS SHOWN STA. 12+74.87

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

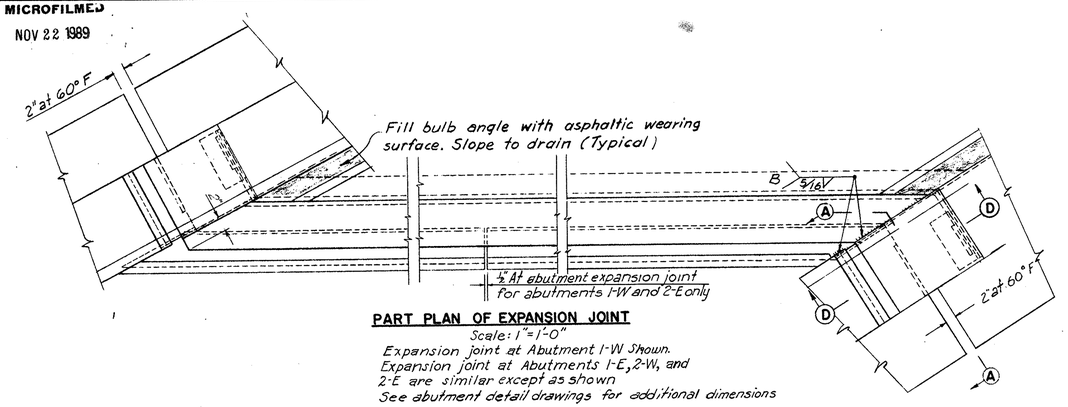
DRAWN T.K.H.	TRACED	CHECKED P.L.H.	REVIEWED J.T.	REVISED
DATE 11-18-57	DATE	DATE 8-14-58	DATE 9-8-58	1018 SHEET 104

MICROFILMED
NOV 22 1989

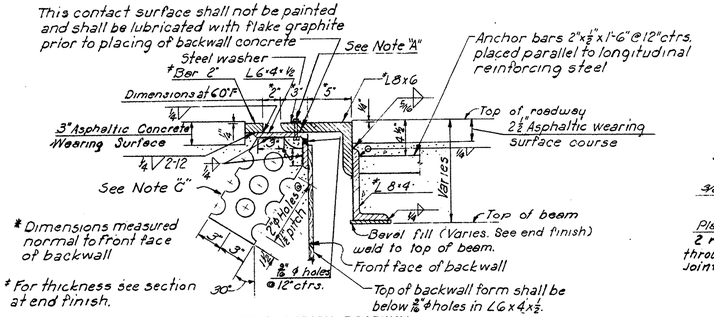
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

105
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

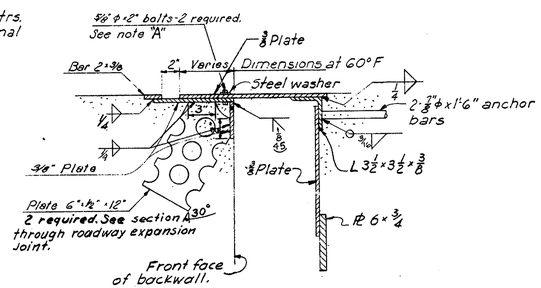


PART PLAN OF EXPANSION JOINT
Scale: 1"=1'-0"
Expansion joint at Abutment 1-W Shown.
Expansion joint at Abutments 1-E, 2-W, and 2-E are similar except as shown
See abutment detail drawings for additional dimensions



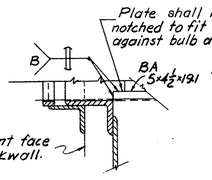
SECTION THRU ROADWAY EXPANSION JOINT
1½"=1'-0"
Typical for Abutments 1-W, 1-E, 2-W, 2-E, 3-W, 3-E & 6W.

Note "C":
6"×½"×12" plates @ 15" ctrs except near joints in the angle, where the plates shall be placed within 6" of each side of the joint. The holes may be burned in the plate.

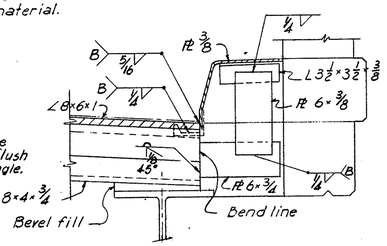


SECTION D-D
1½"=1'-0"

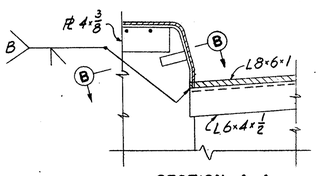
Note "A"
⅝"x2" Bolts at 2'-0" ctrs. with nuts tack-welded to under side of lower angle. 1 1/16" Holes in upper angle. Apply flake graphite between washers and angle. Turn bolt tight and release ¼ turn. Remove bolts within two hours after backwall concrete is placed. Fill holes with bituminous material.



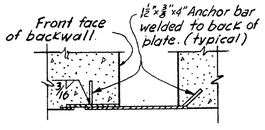
CURB ELEVATION
1" = 1'-0"



SECTION THRU CURB AT EXPANSION JOINT
1"=1'-0"

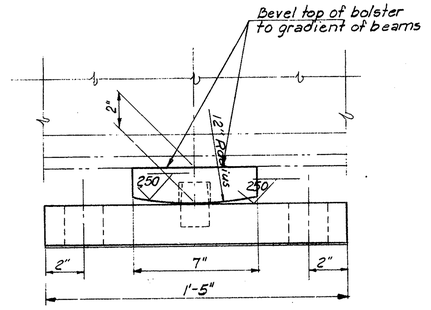


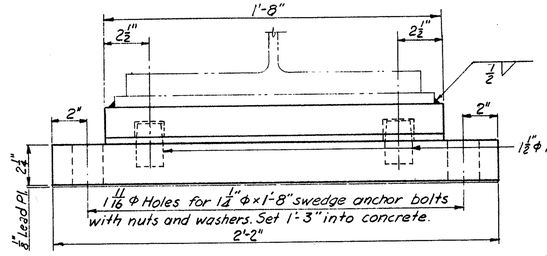
SECTION A-A
1"=1'-0"



SECTION B-B
1"=1'-0"

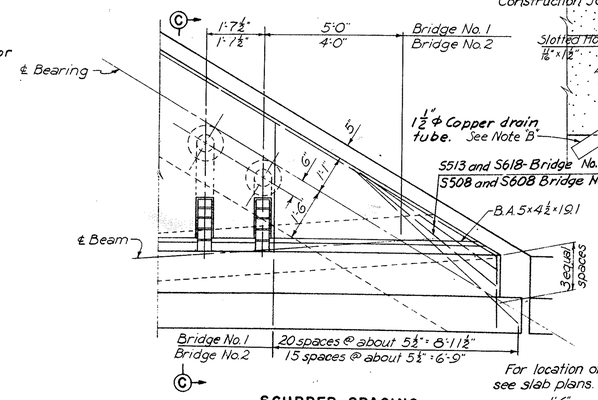
Note:
Roadway and curb joints shall be shop assembled, corrected to provide uniform close contact between the two mating parts of each joint, match-marked and erected to required line and grade.
Omit shop coat on all portions of end dam. Portions in contact with steel or concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the two field coats.





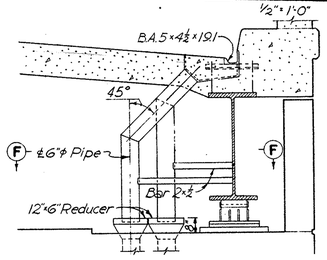
Note: For Pintle and anchor bolt details see Ohio Standard Drawing RB-1-55

BOLSTER B-225-A
3"=1'-0"

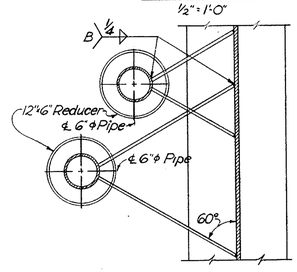


For location of scuppers see slab plans.

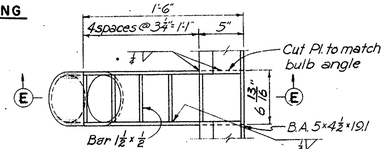
SCUPPER SPACING
½"=1'-0"



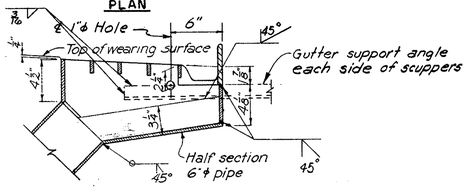
SECTION C-C
½"=1'-0"



SECTION F-F
1"=1'-0"



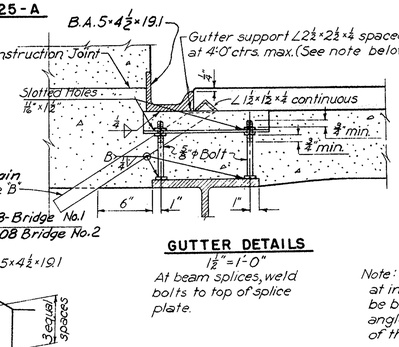
PLAN



SECTION E-E

Note: Scuppers are to be made from ⅜" Pl. except as noted.

SCUPPER DETAILS
1½"=1'-0"



GUTTER DETAILS
1½"=1'-0"
At beam splices, weld bolts to top of splice plate.

Note "B":
Copper drain tubes shall be made from metal having a nominal weight of 16 ounces per sq. ft. and shall have an inside diameter of not less than 1⅛". The tubes shall be at about 6'-0" ctrs. set to clear piers and crossframes at least 6". End drain tubes to be placed at not more than 1'-0" from pipe scuppers. Drain tubes shall be depressed ¼" below top of slab and shall extend 1" below slab. See Sec. S-29.08.

Note: Joints in bulb angle gutters, preferably at intervals of not less than 25 ft., are to be butt joints with milled ends. Support angles shall be placed 6" to 9" on each side of the joint.

Notes: The subdrainage for wearing surface course and all the pipes attached to substructure including fittings, supports, and accessories will be included in Item S-29 for payment.
All other metalwork of the drainage system will be included in Item S-7.
All welds on drainage fittings shall be ⅜ fillet welds except as shown.
Downspouts shall be 6" standard weight wrought iron or hot dipped galvanized steel pipe. Joints shall be made by welding or by the use of a clamp type coupling with a ring gasket. All welding shall be done before galvanizing. Straps or clamps for attaching downspouts shall be wrought iron or hot-dipped galvanized steel. Bolts shall be galvanized, but this need not be hot dipped.

H.N.T.B. BR. NOS. 1 AND 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SUPERSTRUCTURE DETAILS

LANE "S" OVER NORTH-SOUTH EXPRESSWAY
LANE "O" OVER NORTH-SOUTH EXPRESSWAY
BR.NO. SUM-8-1256 STA.11+21.49—STA.12+74.87
BR.NO. SUM-8-1254 STA.16+39.35—STA.17+85.32
SCALE: AS SHOWN

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

DRAWN WEH/4	TRACED	CHECKED ALM	REVIEWED JT	REVISED
DATE 7-16-58	DATE	DATE 9-5-58	DATE 9-8-58	1018 SHEET 105

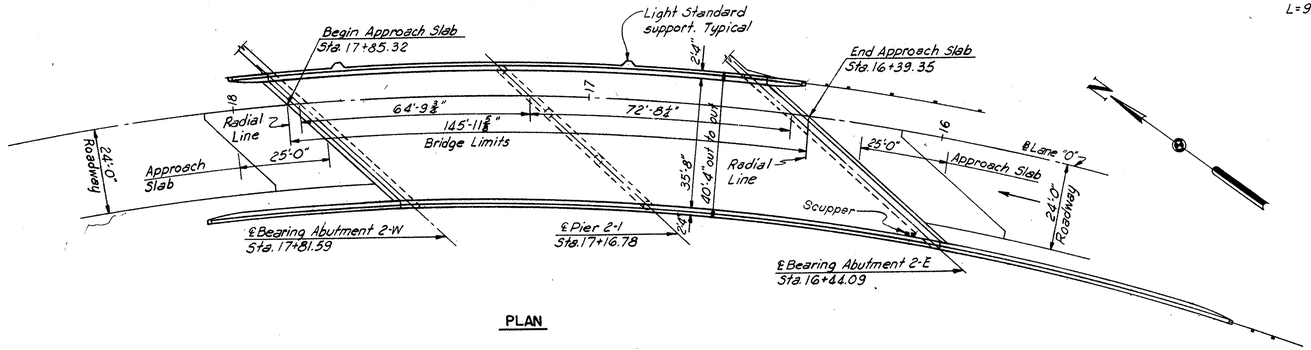
MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

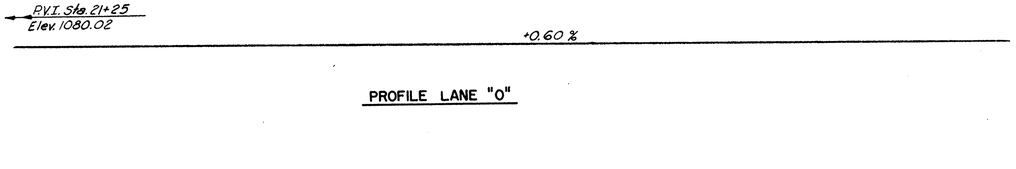
106/176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Lane "O" Curve Data
D = 8°-30'-00"
Δ = 83°-48'-31"
R = 674.07'
T = 604.90'
L = 985.95'



PLAN



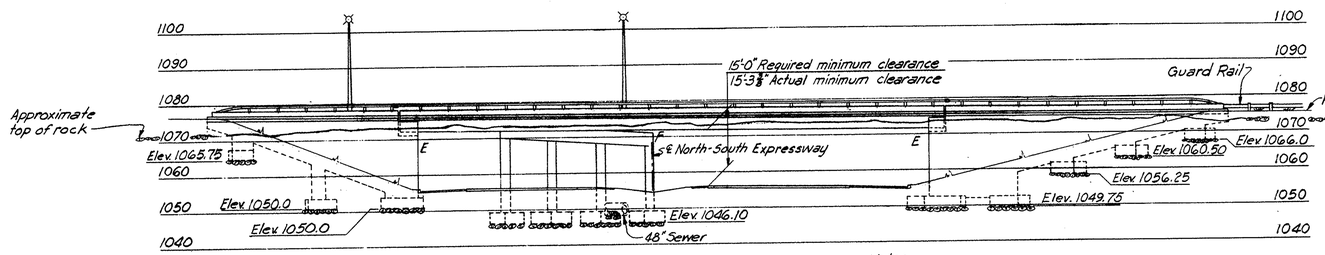
PROFILE LANE "O"

ESTIMATED QUANTITIES

Item	Description	Unit	Abutments ①	Wing-walls	Piers	Super-structure	General	Total
E-2	Cofferdams, Cribs and Sheeting	Lump Sum						Lump Sum
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	66	38	16			120
E-2	Excavation for Structures (Rock or Shale)	Cu. Yd.	261	190	79			530
S-1	Class "C" Concrete (Superstructure)	Cu. Yd.				180		180
S-1	Class "C" Concrete (Abutment and Walls)	Cu. Yd.	402	123				525
S-1	Class "C" Concrete (Pier Caps and Columns)	Cu. Yd.			42			42
S-1	Class "E" Concrete (Footings)	Cu. Yd.	127	51	32			210
S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.	35	75				110
S-3	Type "B" Waterproofing, 36" wide	Sq. Yd.	15					15
S-3	Type "C" Waterproofing	Sq. Yd.				560		560
S-4	Reinforcing Steel	Lbs.	43,450	19,180	17,310	55,960		135,900
S-7	Structural Steel	Lbs.				250,000		250,000
S-8	Field Painting Structural Steel	Lbs.				250,000		250,000
S-9	½" Preformed Gray Rubber Expansion Joint Filler	Sq. Ft.	117	178				295
S-14	Aluminum Handrail (Including Parapet)	Lin. Ft.		159		294		453
S-25	2" ϕ Rigid Metal Conduit	Lin. Ft.		35		180		215
S-25	Electrical Equipment	Lump Sum						Lump Sum
* S-25	Luminaire, 6000 lumen, Type 5 (Understructure) ②	Each				2		2
S-25	Standards, 24'x9¾" pole with 10'-0" bracket ②	Each				2		2
S-29	6" W.I. or Galvanized Steel Pipe			—				
	including Fastenings and Specials	Lin. Ft.	45					45
S-29	8" ϕ Bituminous Coated-Corrugated-Metal Pipe							
	including Specials	Lin. Ft.	45					45
S-29	Porous Backfill	Cu. Yd.	230	120				350
S-29	Subdrainage for Wearing Surface Course	Lin. Ft.				285		285
T-35	2½" Asphaltic Concrete Surface Course Type C (60-70)	Cu. Yd.				40		40

① Includes wall between abutments 1-W and 2-W. Wall between abutments 1-E and 2-E included in Bridge I quantities.
② These quantities are not included in the summary of lighting on Sheet 24 of the highway plans.

* There will be no Federal or State participation in this Item.



ELEVATION

Note:
Point of actual minimum vertical clearance occurs at the intersection of the South exterior beam and the West edge of pavement of the East roadway.

Note:
Rock lines shown are determined by interpolation of borings and are approximate only.

Note:
Southeast and Southwest wingwall are to be built on a curve. Northeast and Northwest wingwalls are to be built on a chord.

PROPOSED STRUCTURE

Type: Two span continuous rolled beam with reinforced concrete deck and substructure.
Spans: 64'-9⅜" and 72'-8¼" = 137'-6" ctr. to ctr. end bearings.
Rdwy. 35'-8" ℄ f. 1'-2" safety curbs
Loading: CF 2000 (Adequate for A.A.S.H.O. alternate loading.
Skew: Varies 42°-37'-44.3" to 54°-18'-58.46"
Surface Course: 2½" Asphaltic concrete.
Approach Slabs: A5-1-54 (25'-0" long)

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GENERAL PLAN AND ELEVATION

LANE "O" OVER NORTH SOUTH EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: 1"= 20' STA. 17+85.32
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN S.M.A.	TRACED	CHECKED J.W.	REVIEWED J.T.	REVISED
DATE 4-9-58	DATE	DATE 8-29-58	DATE 9-8-58	1018 SHEET 106

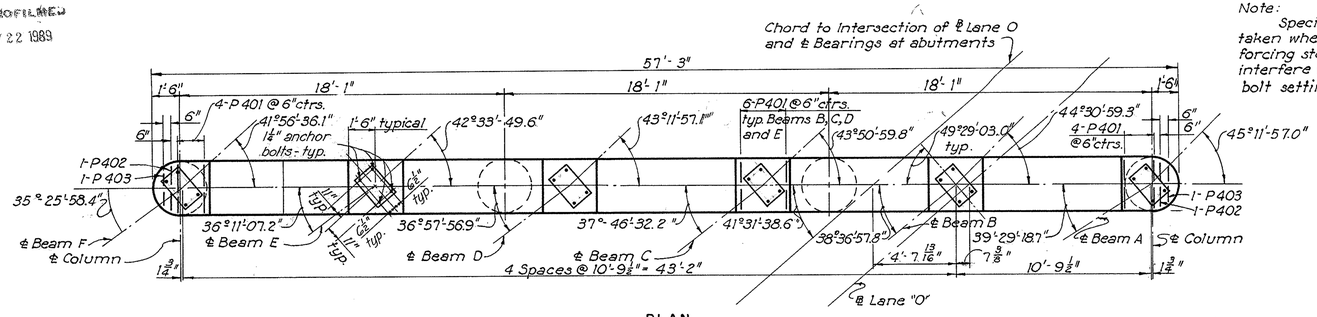
MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		107 / 176
2	OHIO			

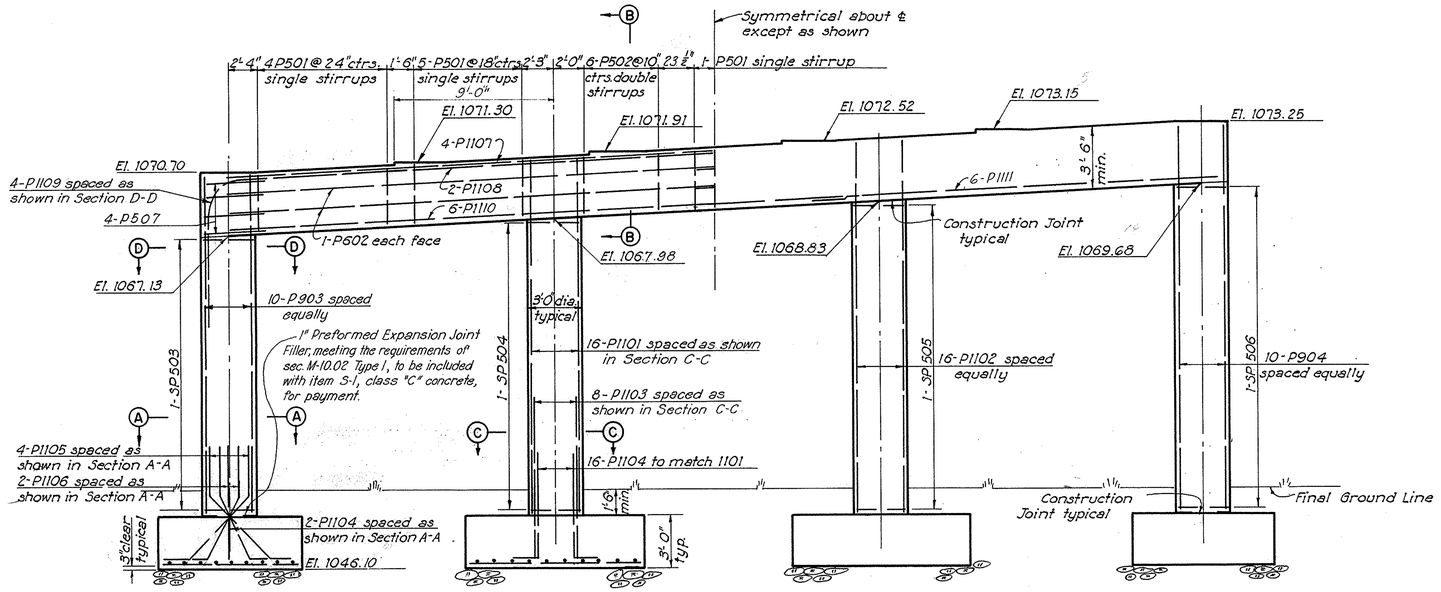
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

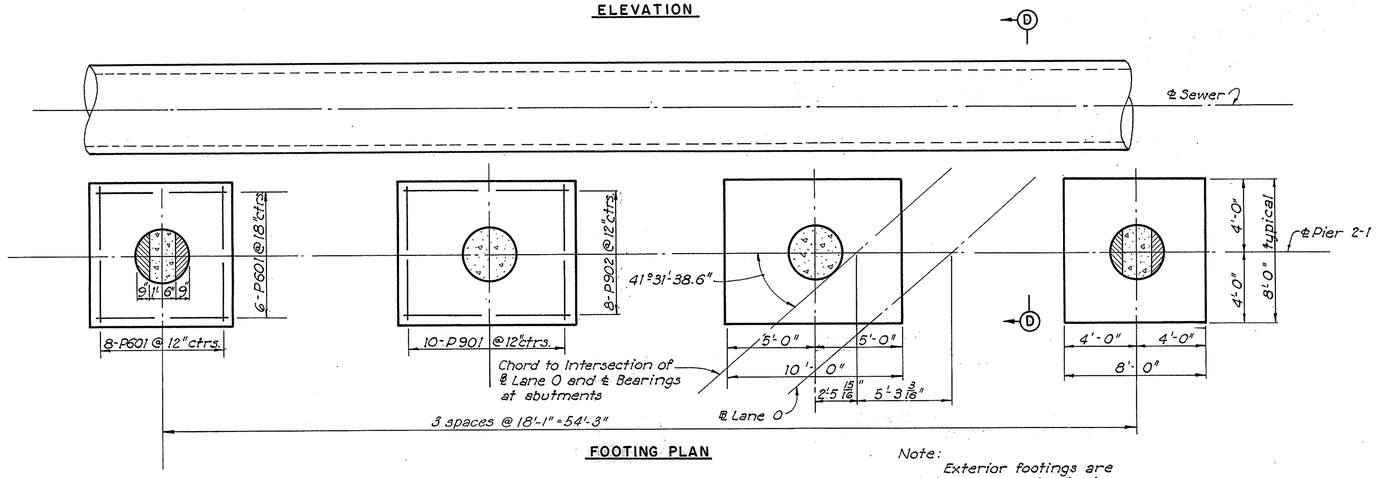
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with the anchor bolt setting.



PLAN

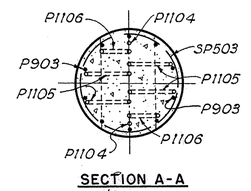


ELEVATION

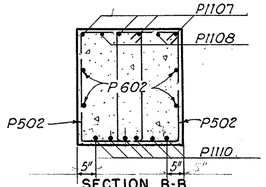


FOOTING PLAN

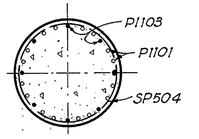
Note:
Exterior footings are identical and interior footings are identical.



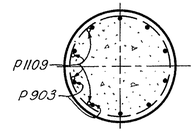
SECTION A-A
½" = 1'-0"



SECTION B-B
½" = 1'-0"



SECTION C-C
½" = 1'-0"



SECTION D-D
½" = 1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
P 401	32	5'-0"	105	2'-8"		107
P 402	2	4'-9"	105	2'-5"		6
P 403	2	4'-0"	105	1'-10"		5
P 501	20	12'-2"	109	2'-8"		254
P 502	12	10'-6"	109	1'-10"		131
SP 503	1	599'-7"	125	13	18'-0"	625
SP 504	1	624'-3"	125	16	18'-9"	651
SP 505	1	657'-1"	125	80	19'-9"	685
SP 506	1	681'-9"	125	83	20'-6"	711
P 507	18	8'-0"	126			66
P 601	28	7'-6"	Str.			315
P 602	8	28'-3"	Str.			339
P 901	20	9'-6"	Str.			646
P 902	16	7'-6"	Str.			405
P 903	10	20'-9"	Str.			706
P 904	10	23'-3"	Str.			791
P 1101	16	21'-6"	Str.			1828
P 1102	16	22'-6"	Str.			1913
P 1103	16	11'-7"	104	10'-7"		985
P 1104	36	7'-0"	104	6'-1"		1340
P 1105	8	9'-9"	123	3'-3"		414
P 1106	4	9'-3"	123	2'-5"		197
P 1107	8	30'-3"	Str.			1287
P 1108	4	15'-0"	Str.			319
P 1109	8	15'-4"	124			652
P 1110	6	37'-0"	Str.			1180
P 1111	6	23'-6"	Str.			749
					Total =	17,310

Notes:
Footings shall extend a minimum of 6" into solid rock.
For replacement bars see sheet 141.
Bar dimensions are given out to out.
For bar bending diagram & spiral reinforcing notes see sheet 96.

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 2-1

LANE "O" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: 1/4" = 1'-0" STA. 17+85.32

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
B.S.L	B.S.L	A.M.M	J.T.	
DATE 10-19-57	DATE 6-12-58	DATE 9-6-58	DATE 9-8-58	1018 SHEET 107

MICROFILMED
NOV 22 1989

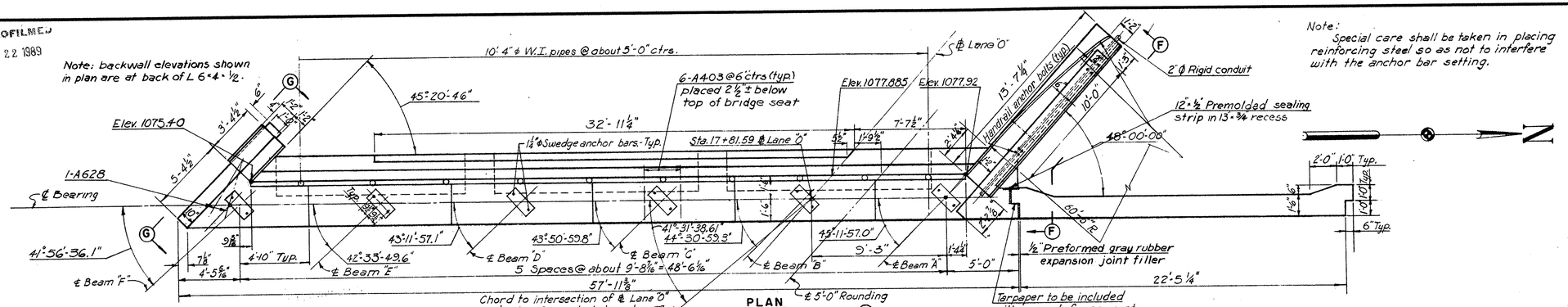
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

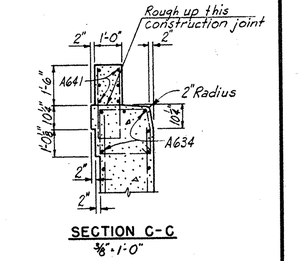
108
176

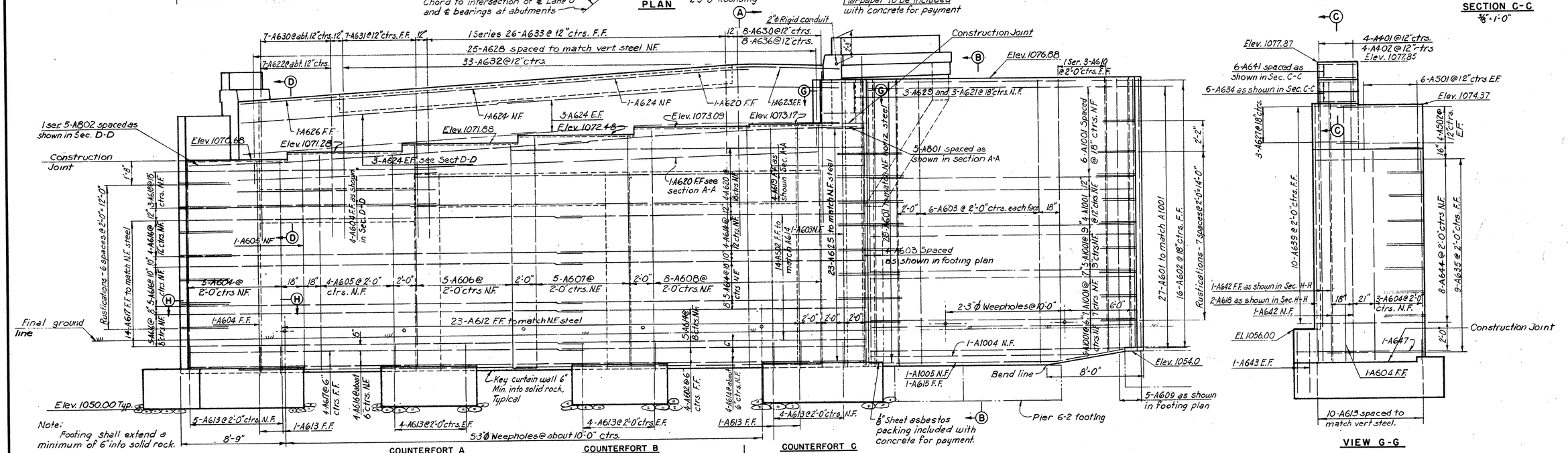
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

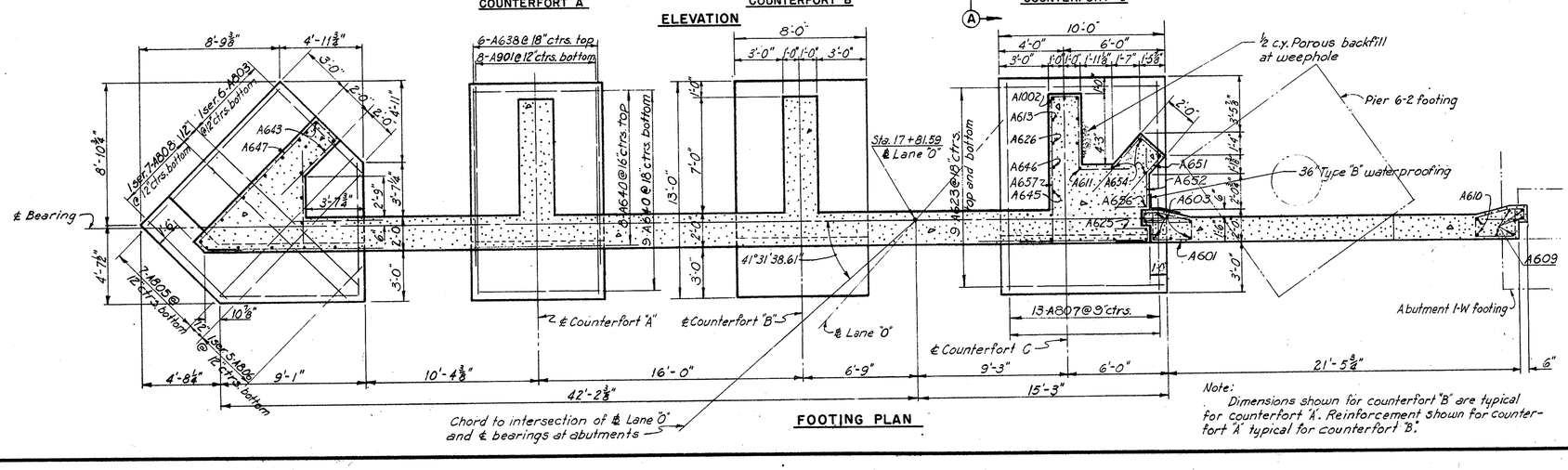
Note: backwall elevations shown in plan are at back of L 6"x4"x½".

Note:
Special care shall be taken in placing reinforcing steel so as not to interfere with the anchor bar setting.









Notes:
For counterfort detail, sections A-A, B-B, H-H, DD, E-E, G-G and view F-F see sheet 109.
For rustication detail see Sheet 111.
For detail of base plate see sheet 114.
For drain detail see sheet 111.
For reinforcement schedule see sheet 109.
For section showing porous backfill see Sheet 109.
NF denotes near face
FF denotes far face
E.F. denotes each face

Note:
Dimensions shown for counterfort "B" are typical for counterfort "A". Reinforcement shown for counterfort "A" typical for counterfort "B".

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 2-W

LANE "O" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: 1/4"=1'-0" STA. 17+85.32

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

DRAWN W.E.S.	TRACED	CHECKED G.D.	REVIEWED J.T.	REVISED
DATE 7-10-58	DATE	DATE 8-26-58	DATE 9-8-58	1018 SHEET 108

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

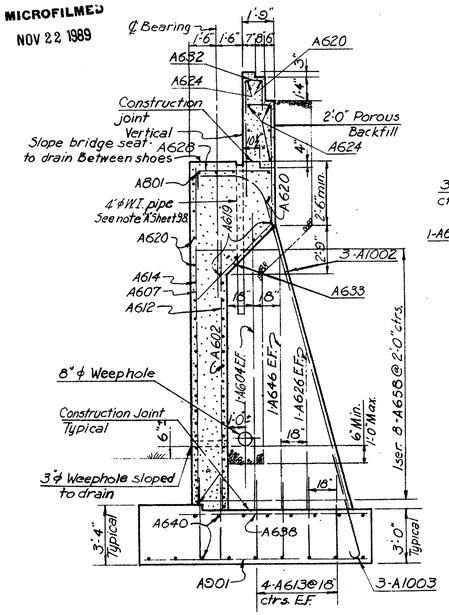
109
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

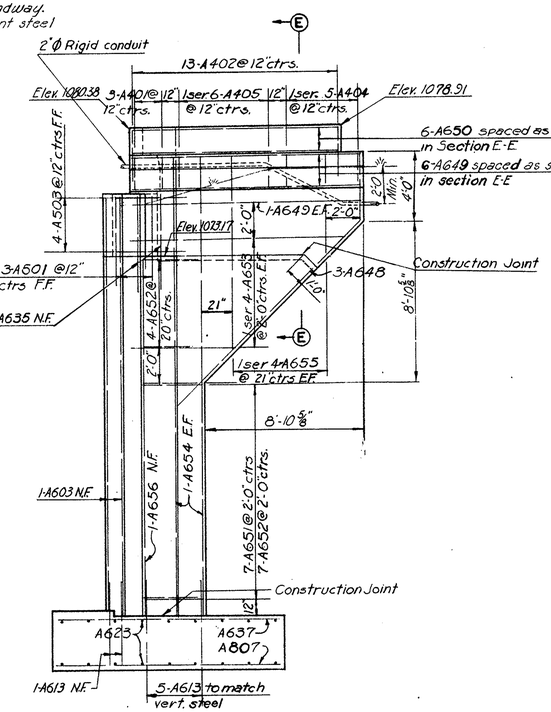
MICROFILMED
NOV 22 1989

Note:
Backwall to be poured after the expansion joint steel has been attached to the bridge superstructure.

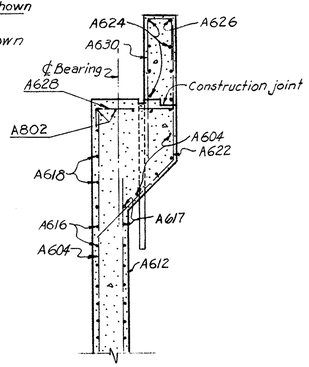
Note: Top of backwall shall follow crown of roadway. Use expansion joint steel for template.



COUNTERFORT A AND B
Counterfort 'B' shown. Counterfort 'A' similar.

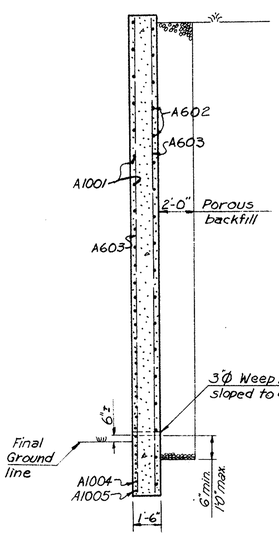


VIEW F-F
Retaining wall not shown

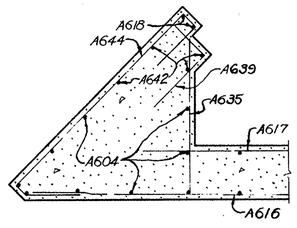


SECTION D-D

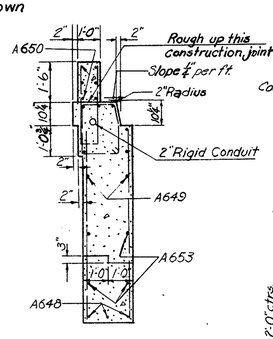
Note:
Dimensions shown in Cft A and B are typical for Sections A-A and D-D.



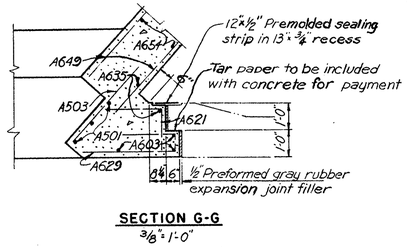
SECTION B-B



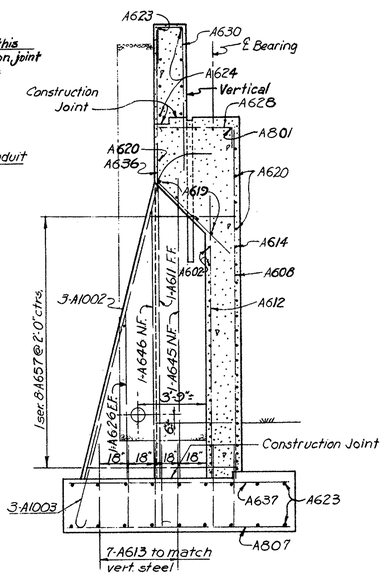
SECTION H-H
3/16" = 1'-0"



SECTION E-E
3/8" = 1'-0"



SECTION G-G
3/16" = 1'-0"



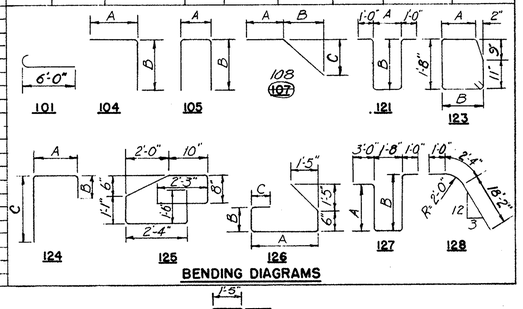
SECTION A-A

Notes:
For replacement bars see sheet 141.
Bar dimensions are given out to out.
For section and view locations see sheet 108.
E.F. denotes each face.
N.F. denotes near face.
F.F. denotes far face.
Bars of a series shall vary by a constant increment.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
A401	7	7'-6"	123	1'-10"	2'-0"			35
A402	17	5'-11"	105	10"	2'-8"			67
A403	42	3'-4"	104	2'-6"	1'-0"			53
A404	1Ser. 5	5'2" to 6'-8"	123	8" to 1'-5"	10" to 1'-7"		4½"	20
A405	1Ser. 6	6'-10" to 7'-6"	123	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅜"	29
A501	15	5'-3"	Str.					82
A502	8	6'-9"	Str.					57
A503	4	3'-9"	Str.					16
A601	56	10'-1"	125					848
A602	34	22'-6"	Str.					1148
A603	22	23'-3"	Str.					768
A604	18	17'-0"	Str.					459
A605	5	17'-9"	Str.					133
A606	5	18'-3"	Str.					137
A607	5	19'-0"	Str.					142
A608	8	19'-6"	Str.					234
A609	5	22'-3"	Str.					167
A610	2Ser. 3	22'-6" to 23'-3"	Str.				4½"	206
A611	1	24'-9"	Str.					37
A612	23	15'-6"	Str.					535
A613	69	5'-0"	Str.					518
A614	18	26'-0"	Str.					703
A615	1	21'-7"	108	14'-3"	7'-3"	1'-5"		32
A616	16	33'-3"	Str.					839
A617	10	29'-0"	Str.					783
A618	5	21'-0"	Str.					158
A619	4	34'-0"	Str.					204
A620	6	38'-0"	Str.					342
A621	3	3'-5"	104	2'-0"	1'-7"			15
A622	7	13'-0"	108	7'-0"	4'-3"	4'-3"		137
A623	19	9'-6"	Str.					271
A624	14	27'-0"	Str.					567
A625	23	4'-3"	105	7"	2'-0"			147
A626	7	8'-9"	Str.					92
A627	3	6'-3"	124	7"	2'-0"	4'-0"		28
A628	27	5'-9"	104	4'-5"	1'-6"			233
A629	3	5'-7"	124	7"	2'-0"	3'-4"		25
A630	15	11'-7"	124	1'-5"	2'-4"	7'-2"		261
A631	1Ser. 7	13'-6" to 13'-10"	129	6'-3" to 6'-7"	4'-3"	4'-3"	3/16"	144
A632	33	10'-7"	124	11"	3'-4"	6'-8"		523
A633	1Ser. 26	12'-7" to 14'-3"	129	5'-4" to 5'-8"	4'-3"	4'-3"	3/4"	525
A634	6	3'-0"	Str.					27
A635	11	5'-9"	Str.					95
A636	8	14'-5"	108	8'-5"	4'-3"	4'-3"		173
A637	7	12'-6"	Str.					131
A638	12	10'-0"	Str.					180
A639	10	4'-1"	104	2'-8"	1'-7"			61
A640	34	7'-6"	Str.					383
A641	6	3'-0"	Str.					*
A642	4	23'-0"	Str.					138
A643	4	5'-6"	Str.	8'-10"				33
A644	8	13'-5"	126	(483)	7"	2'-0"		161
A645	1	17'-6"	Str.					26
A646	5	14'-6"	Str.					109
A647	1	18'-11"	126	10'-7"	1'-7"	4'-9"		28
A648	3	17'-4"	108	2'-10"	10'-3"	10'-3"		76
A649	8	13'-3"	Str.					159
A650	6	12'-0"	Str.					*
A651	7	10'-0"	105	1'-8"	4'-4"			105
A652	11	5'-4"	104	3'-6"	2'-0"			88
A653	2Ser. 4	6'-6" to 12'-6"	Str.				2'-0"	114
A654	4	25'-9"	Str.					154
A655	2Ser. 4	5'-0" to 10'-3"	Str.					92
A656	1	20'-0"	Str.					30
A657	1Ser. 8	10'-2" to 17'-6"	127	4" to 4'-0"	4'-10" to 8'-6"			167
A658	2Ser. 8	12'-6" to 20'-0"	121	4'-9" to 6'-4"	4'-9" to 8'-6"		1'-0½"	390
				2'-1-8"				
A801	5	26'-6"	Str.					354
A802	1Ser. 5	29'-6" to 33'-6"	Str.				1'-0"	421
A803	1Ser. 6	6'-9" to 11'-9"	Str.				1'-0"	148
A804	1	16'-10"	104	8'-9"	8'-3"			45
A805	7	12'-0"	Str.					224
A806	1Ser. 5	3'-0" to 11'-0"	Str.				2'-0"	93
A807	13	12'-6"	Str.					434
A808	1Ser. 7	6'-3" to 12'-3"	Str.				1'-0"	173
A901	16	12'-6"	Str.					680
A1001	27	22'-0"	Str.					2560
A1002	9	21'-6"	128					832
A1003	9	7'-5"	101					287
A1004	1	18'-0"	Str.					77
A1005	1	19'-10"	108	15'-6"	6'-3"	1'-0"		85
							Total	21990

* To be included for payment in unit price bid for Item S-14.



BENDING DIAGRAMS

Revised 1-19-59.

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 2-W DETAILS

LANE 0 OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: 1/4" = 1'-0" STA. 17+85.32

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.E.S.	TRACED	CHECKED GD	REVIEWED JJ	REVISED
DATE 6-27-58	DATE	DATE 8-28-58	DATE 9-8-58	1018 SHEET 109

MICROFILMED
NOV 22 1989

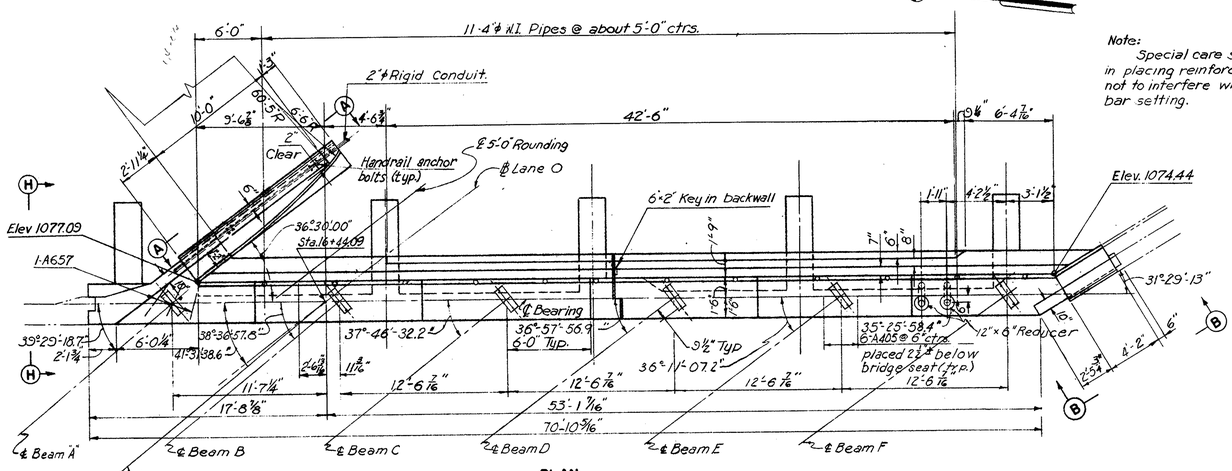
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

110
176

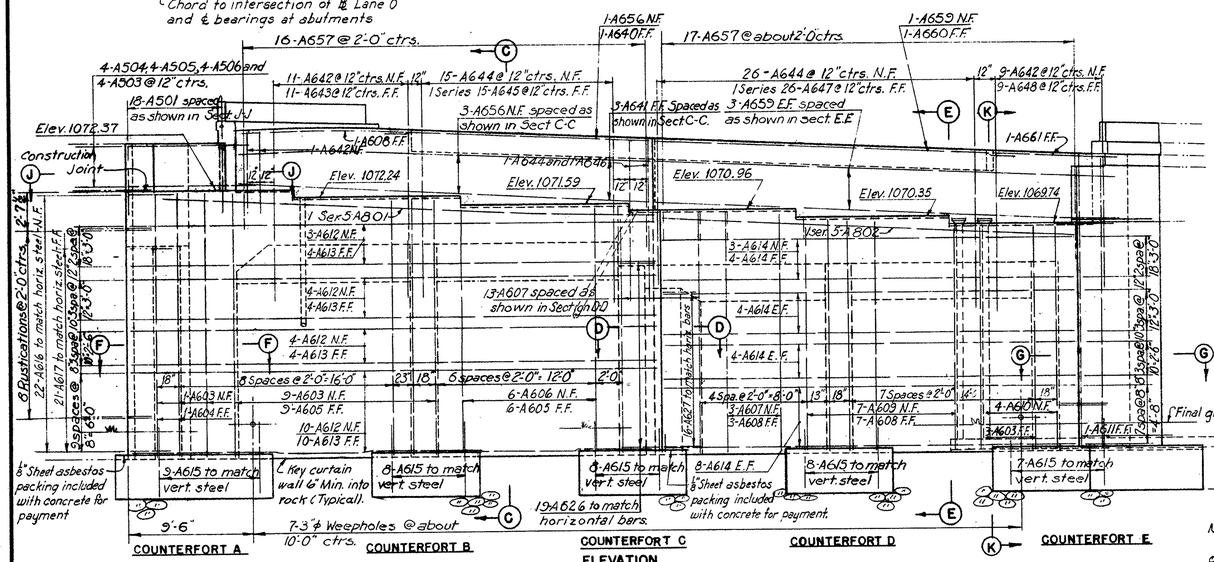
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note:
Backwall elevations shown in plan are at back of L 6"×4"×½".

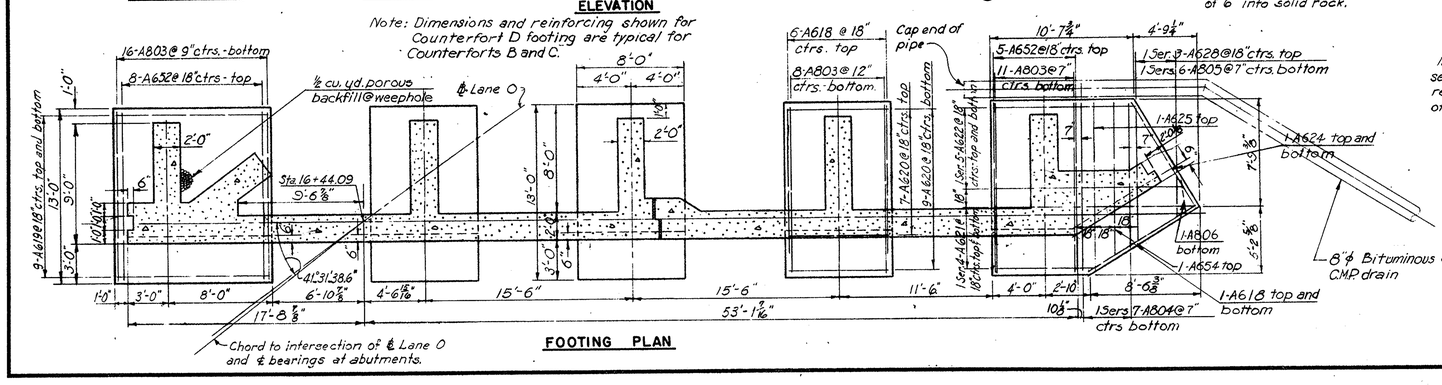
Note:
Special care shall be taken in placing reinforcing steel so as not to interfere with the anchor bar setting.

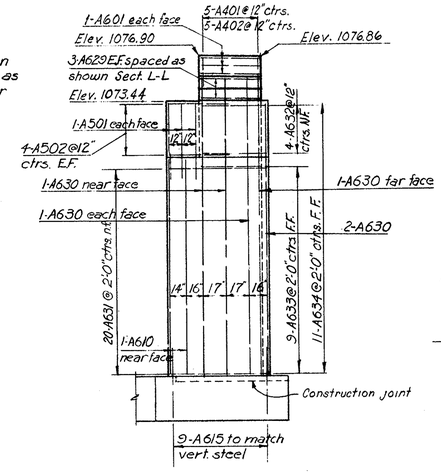


PLAN

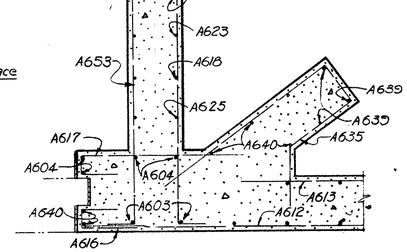


ELEVATION

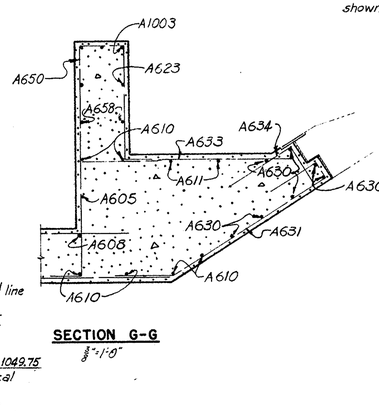




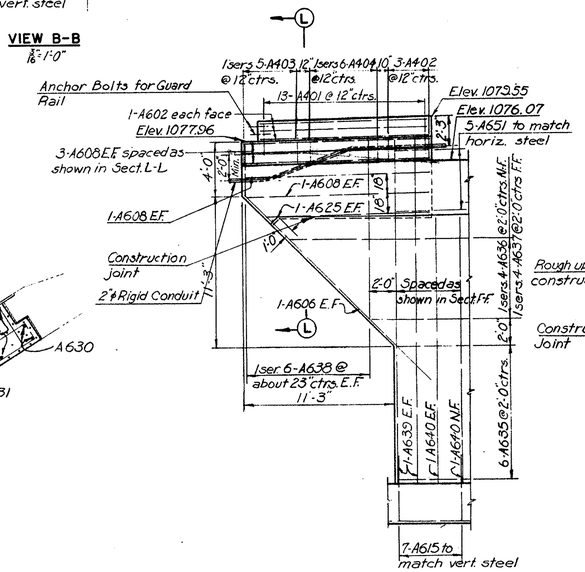
VIEW B-B



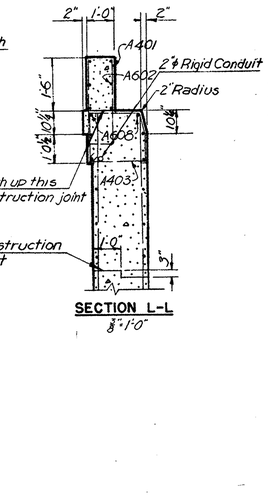
SECTION F-F



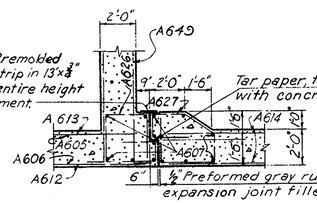
SECTION G-G



VIEW A-A



SECTION L-L



SECTION D-D

Notes:
For sections C-C, E-E, K-K and J-J see sheet 111.
For view H-H and details of pipe hanger, Guard rail anchor, rustication and Beam seat drain details see sheet 111.
E.F. denotes each face.
N.F. denotes near face.
F.F. denotes far face.

For reinforcement schedule see sheet 111.
For handrail spacing and details see sheet 173.

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 2-E

LANE O OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM.-8-1254 STA. 16+39.35
SCALE: 3/16" = 1'-0" STA. 17+85.32

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN ABG	TRACED	CHECKED WPZ	REVIEWED J.T.	REVISED
DATE 12-19-57	DATE	DATE 9-2-58	DATE 9-8-58	1018 SHEET 110

MICROFILMED
NOV 22 1989

For expansion joint detail see sheet 105.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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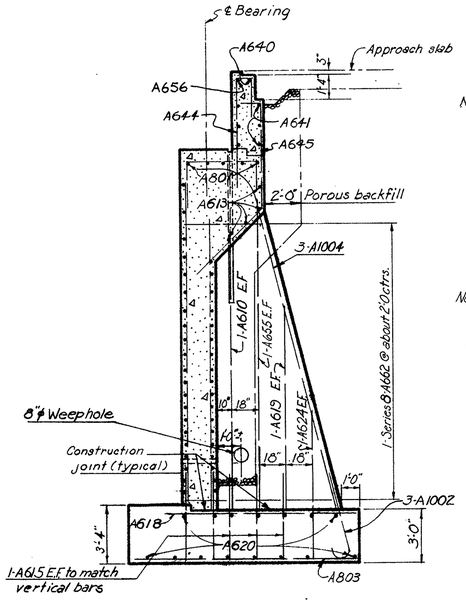
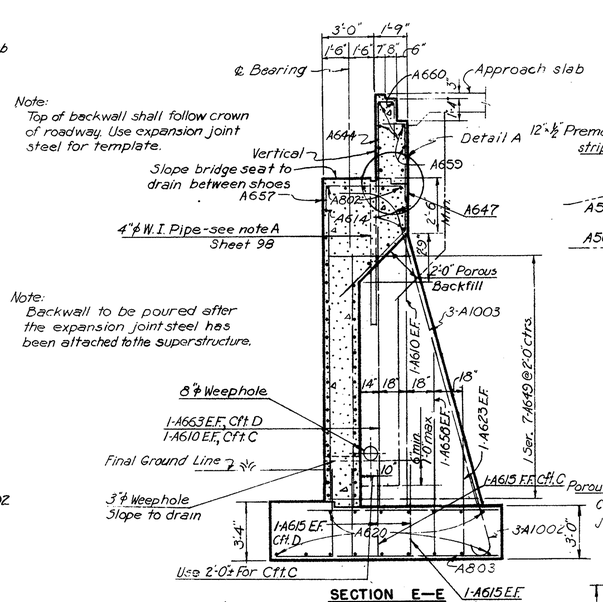
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



SECTION C—C

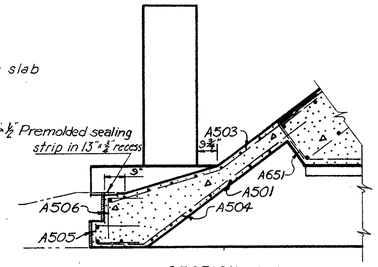


SECTION E—E

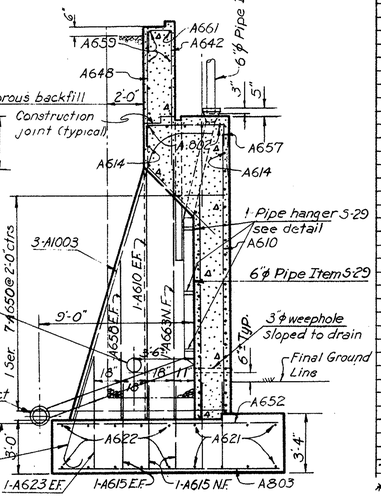
Note:
Top of backwall shall follow crown of roadway. Use expansion joint steel for template.

Note:
Backwall to be poured after the expansion joint steel has been attached to the superstructure.

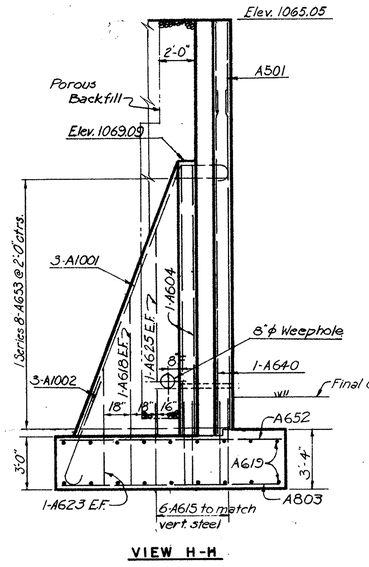
Note: Section E-E typical for Counterforts C and D unless otherwise shown.



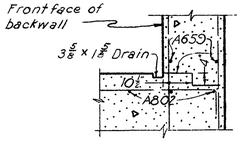
SECTION J-J
¾" = 1'-0"



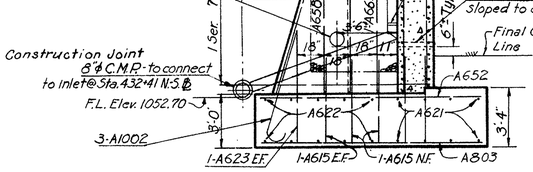
SECTION K-K

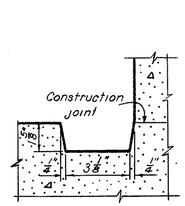


VIEW H-H

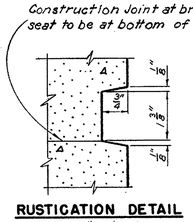


DETAIL A
½" = 1'-0"

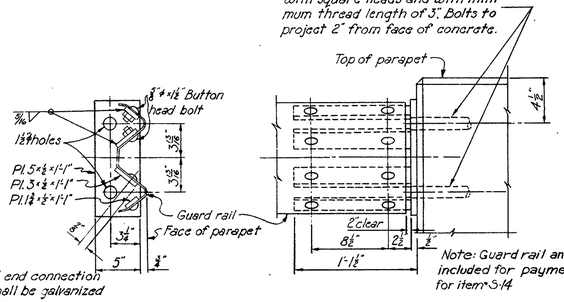




ABUTMENT BRIDGE SEAT DRAIN
3" = 1'-0"

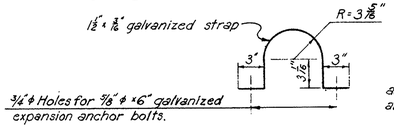


RUSTICATION DETAIL
6" = 1'-0"



Note: Guard rail anchor shall be included for payment in unit price for item 5-14.

GUARD RAIL ANCHOR DETAILS
1½" = 1'-0"
(As seen from pavement side)



STRAP PIPE HANGER
1½" = 1'-0"

Guard rail end connection assembly shall be galvanized after welding.

REINFORCEMENT SCHEDULE

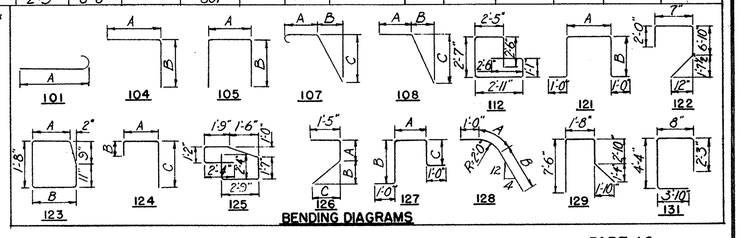
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
A401	18	5'-11"	105	10"	2'-8"			71
A402	8	7'-6"	123	1'-10"	2'-0"			40
A403	Ser. 5	5'-2 to 6'-8"	123	8 to 1'-5"	10 to 1'-7"		4½	20
A404	Ser. 6	6'-10 to 7'-6"	123	1'-6 to 1'-10	1'-8 to 2'-0		1⅜	25
A405	36	3'-4"	104	2'-6"	1'-0"			80
A501	24	5'-3"	Str.				9'-8½ to 20'-0"	131
A502	8	4'-0"	Str.					33
A503	4	8'-8"	108	4'-4"	4'-0"	1'-6"		36
A504	4	10'-1"	108	8'-3"	1'-3"	11"		42
A505	4	4'-1"	105	8"	1'-10"			17
A506	4	3'-4"	104	1'-8"	1'-10"			14
A601	6	4'-0"	Str.					*
A602	6	12'-6"	Str.					*
A603	12	19'-0"	Str.					342
A604	4	16'-0"	Str.					96
A605	15	15'-6"	Str.					349
A606	8	18'-3"	Str.					219
A607	16	17'-9"	Str.					426
A608	24	13'-9"	Str.					496
A609	7	17'-0"	Str.					179
A610	16	16'-6"	Str.					396
A611	2	21'-3"	Str.					64
A612	21	59'-0"	Str.					1229
A613	22	33'-3"	Str.					1097
A614	39	30'-6"	Str.					1785
A615	80	5'-0"	Str.					600
A616	22	3'-6"	124	8"	1'-4"	2'-0"		121
A617	21	8'-3"	124	8"	1'-4"	6'-7"		260
A618	22	10'-6"	Str.					347
A619	20	11'-6"	Str.					345
A620	48	7'-6"	Str.					540
A621	Ser. 4	6'-9 to 14'-3"	Str.				2'-6"	126
A622	Ser. 5	10'-3 to 14'-0"	Str.				11¼"	182
A623	8	6'-9"	Str.					81
A624	4	8'-9"	Str.					52
A625	5	12'-0"	Str.					90
A626	19	13'-2"	112					375
A627	16	13'-1"	125					314
A628	Ser. 3	3'-0 to 9'-9"	Str.				3'-4½"	29
A629	6	4'-0"	Str.					36
A630	7	22'-0"	Str.					231
A631	20	11'-0"	122					330
A632	4	10'-7"	131					63
A633	9	8'-0"	Str.					108
A634	11	4'-1"	104	2'-9"	1'-6"			67
A635	6	13'-11"	129					125
A636	Ser. 4	9'-6 to 15'-6"	Str.				2'-0"	75
A637	Ser. 4	7'-1 to 13'-1"	108	4'-10 to 10'-10	1'-4"	1'-10"	2'-0"	61
A638	Ser. 6	3'-9 to 13'-0"	Str.				1'-10¾"	131
A639	4	25'-0"	Str.					150
A640	6	19'-3"	Str.					173
A641	3	30'-9"	Str.					138
A642	22	9'-10"	124	1'-5"	2'-3"	6'-6"		324
A643	11	13'-7"	108	7'-4"	4'-5"	4'-5"		224
A644	43	5'-4"	124	11"	2'-3"	6'-6"		601

* To be included for payment in unit price bid for Item 5-14.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
A645	Ser. 15	13'-0 to 13'-6"	126	5'-6 to 6'-0	4'-5"	4'-5"	7/16	298
A646	2	14'-6"	126	7'-0"	4'-5"	4'-5"		44
A647	Ser. 26	13'-3 to 14'-6"	126	5'-9 to 7'-0	4'-5"	4'-5"	⅝	542
A648	9	13'-1"	108	6'-10"	4'-5"	4'-5"		176
A649	Ser. 7	13'-0 to 20'-0"	121	1'-8"	5'-0 to 8'-6		1'-2	346
A650	Ser. 7	8'-7 to 15'-8"	127	1'-8"	5'-0 to 8'-6	7'-10 to 12"	1'-2 3/16	127
A651	5	3'-7"	104	2'-0"	1'-5"			27
A652	13	12'-6"	Str.					244
A653	Ser. 8	6'-4 to 11'-6"	121	1'-8"	3'-4 to 8'-6		8⅛"	107
A654	1	11'-0"	Str.					17
A655	2	18'-0"	Str.					34
A656	4	32'-6"	108	30'-9"	1'-1"	1'-5"		195
A657	36	5'-9"	104	4'-5"	1'-6"			310
A658	6	9'-3"	Str.					83
A659	7	34'-9"	Str.					365
A660	1	27'-6"	Str.					41
A661	1	5'-9"	Str.					15
A662	Ser. 8	12'-8 to 20'-0"	121	1'-8"	4'-10 to 8'-6		1'-0 9/16	196
A663	3	15'-0"	Str.					68
A801	Ser. 5	33'-6 to 37'-6"	Str.				1'-0"	474
A802	Ser. 5	30'-9 to 35'-6"	Str.				1'-2¼	443
A803	51	12'-6"	Str.					1703
A804	Ser. 7	10'-6 to 12'-6"	Str.				4"	215
A805	Ser. 6	3'-0 to 9'-9"	Str.				1'-4⅜	102
A806	1	2'-6"	Str.					7
A1001	3	21'-4"	107	2'-9"	6'-0"	16'-1"		298
A1002	15	7'-5"	101	6'-0"				476
A1003	9	16'-8"	128	2'-6"	15'-2"			732
A1004	3	21'-5" 20'-9"	126	2'-9"	17'-0"			273
							Total	21,460

BENDING DIAGRAMS



Notes:
For replacement bars see sheet 141
Bar dimensions are given out to out.
For section and view locations see sheet 110,
E.F. denotes each face.
N.F. denotes near face.
F.F. denotes far face.
Bars of a series shall vary by a constant increment.
For note 'A' see sheet 98

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 2-E DETAILS

LANE "O" OVER NO.-SO. EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: ¼" = 1'-0" STA. 17+85.32

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN ABG	TRACED	CHECKED WWK	REVIEWED JT	REVISED
DATE 12/1957	DATE	DATE 9-2-58	DATE 9-8-58	1018 SHEET 111

Revised 1-19-59.

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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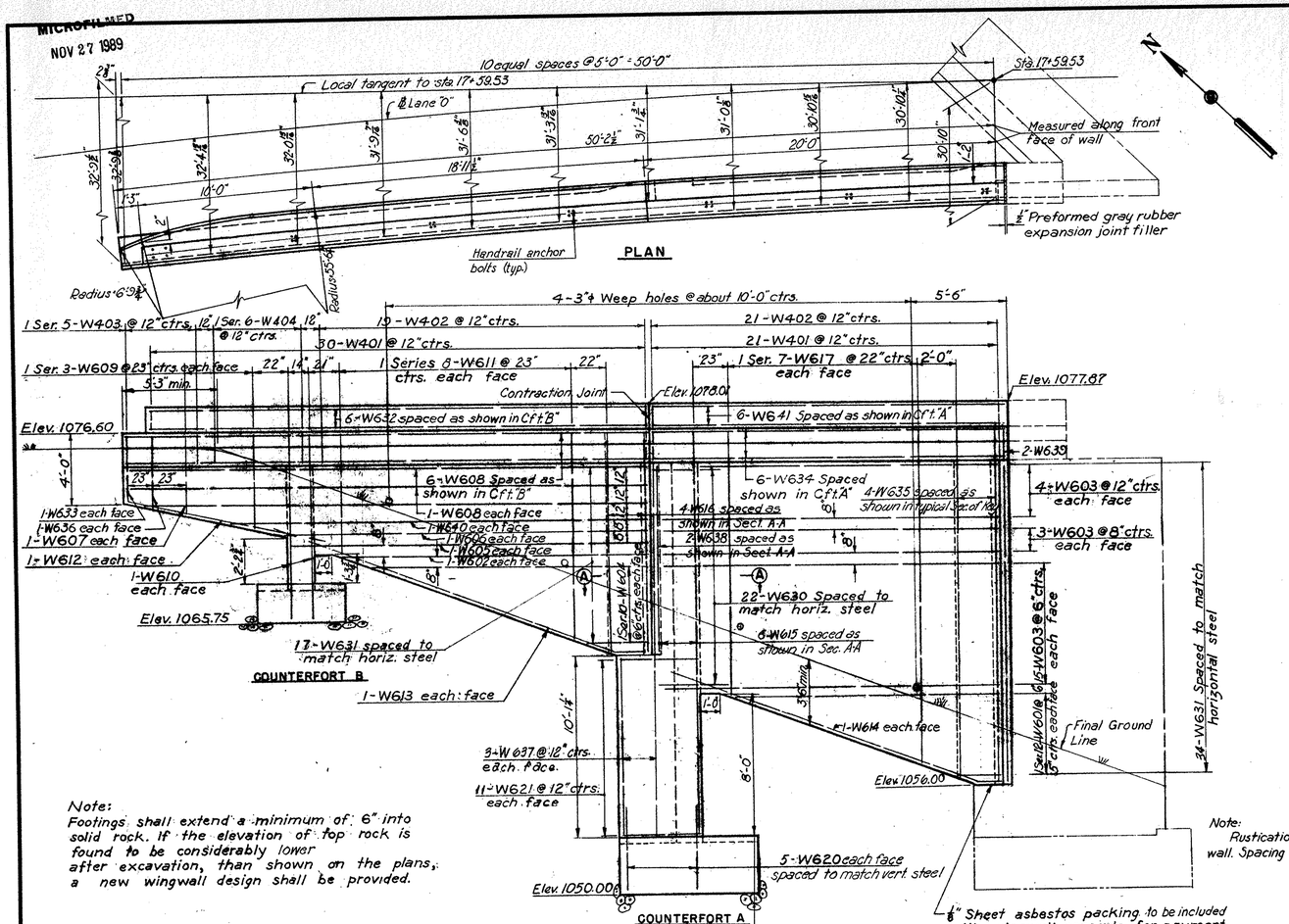
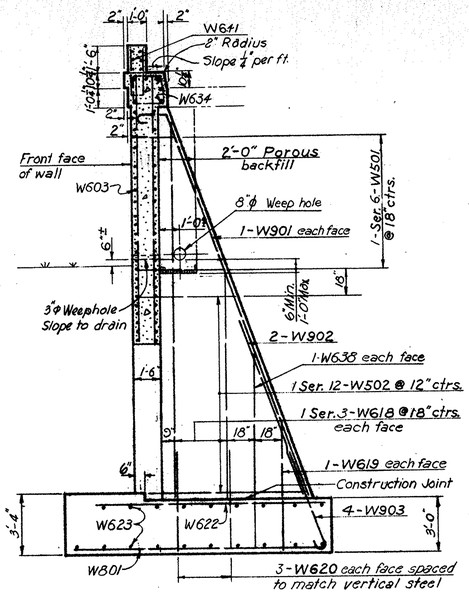
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

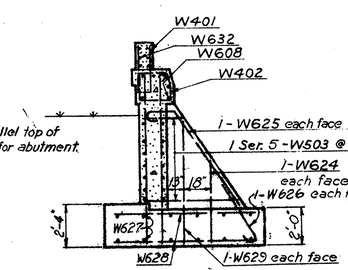
PLAN



Note:
Footings shall extend a minimum of 6" into solid rock. If the elevation of top rock is found to be considerably lower after excavation, than shown on the plans, a new wingwall design shall be provided.



COUNTERFORT A



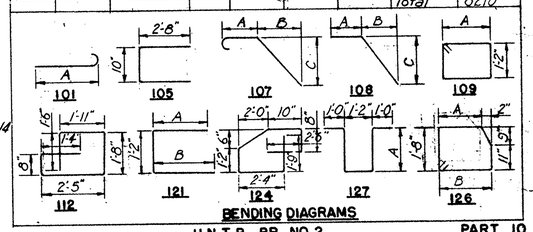
COUNTERFORT B

Note:
Rustications to parallel top of wall. Spacing same as for abutment

Note:
Dimensions shown for Counterfort "A" are typical for Counterfort "B" except as noted

REINFORCEMENT SCHEDULE

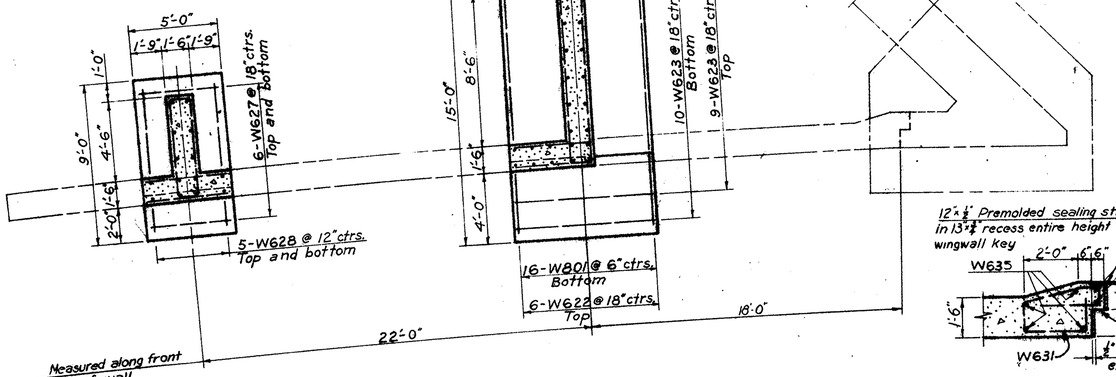
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
W401	51	5'-11"	105					202
W402	40	7'-8"	126	1'-10	2'-0"			205
W403	1 Ser. 5	5'-4" to 6'-10"	126	8" to 1'-5"	10" to 1'-7"		4½"	20
W404	1 Ser. 6	7'-0" to 7'-8"	126	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅛"	29
W501	1 Ser 6	6'-6" to 12'-3"	109	1'-10⅝" to 8'-3"			1'-1¼"	59
W502	1 Ser. 12	13'-4" to 21'-7"	109	5'-3¾" to 9'-5"			3"	218
W503	1 Ser. 5	6'-8" to 13'-6"	109	1'-1¾" to 5'-4¾"			1'-8½"	53
W601	2 Ser 12	3'-0" to 15'-6"	Str.				1'-1½"	333
W602	2	17'-9"	Str.					53
W603	44	18'-9"	Str.					1239
W604	2 Ser. 10	3'-9" to 15'-9"	Str.				1'-4"	293
W605	2	20'-6"	Str.					62
W606	2	21'-9"	Str.					65
W607	2	24'-6"	Str.					74
W608	10	29'-9"	Str.					446
W609	2 Ser. 3	4'-6" to 5'-6"	Str.				6"	45
W610	4	10'-3"	Str.					62
W611	2 Ser. 8	7'-0" to 11'-9"	Str.				8½"	225
W612	2	11'-0	Str.					33
W613	2	21'-9"	108	20'-0"	1'-8"	7½"		65
W614	2	19'-10"	108	18'-3"	1'-6"	6½"		60
W615	6	23'-0"	Str.					207
W616	4	12'-6"	Str.					75
W617	2 Ser. 7	15'-0" to 19'-0"	Str.				8"	357
W618	2 Ser. 3	12'-0" to 20'-0"	Str.				4'-0"	144
W619	2	6'-9"	Str.					20
W620	16	5'-0"	Str.					120
W621	22	4'-3"	Str.					140
W622	6	12'-9"	Str.					115
W623	19	7'-6"	Str.					213
W624	1	4'-3"	Str.					7
W625	2	10'-6"	107	1'-9" to 2'-10½"	3'-10½" to 5'-3"	6'-9"		32
W626	2	4'-6"	101	4'-0"				14
W627	12	4'-6"	Str.					81
W628	10	8'-6"	Str.					128
W629	2	7'-3"	Str.					22
W630	22	8'-8"	112					286
W631	51	10'-8"	124					818
W632	6	28'-9"	Str.					*
W633	1	7'-4"	121	2'-10"	3'-8"			11
W634	6	19'-9"	Str.					178
W635	4	20'-0"	Str.					120
W636	1	8'-4"	121	3'-4"	4'-2"			13
W637	6	5'-9"	Str.					68
W638	4	10'-9"	Str.					65
W639	2	21'-6"	Str.					65
W640	2	28'-6"	Str.					86
W641	6	19'-9"	Str.					*
W801	16	14'-6"	Str.					620
W901	2	25'-11"	107	1'-9" to 8'-3"	8'-1" to 21'-5"	21'-5"		176
W902	2	10'-9"	Str.					73
W903	4	7'-0"	101	5'-9"				95
							Total	8210



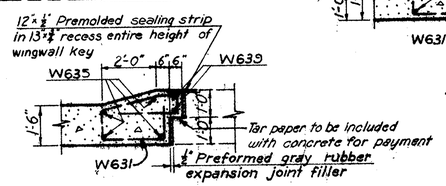
BENDING DIAGRAMS

* To be included for payment in unit price bid for Item 511

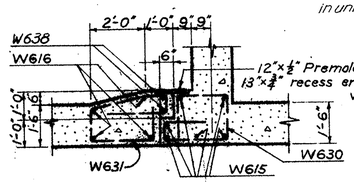
Notes:
For Rustication detail see sheet 111
For handrail details see sheet 173
Bar dimensions are given out to out.
For replacement bar list see sheet 141
Bars of a series shall vary by a constant increment.



FOOTING PLAN



TYPICAL SECTION THRU KEY AT BUTTRESS
⅜" = 1'-0"



SECTION A-A
⅜" = 1'-0"

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTHWEST WINGWALL
LANE "D" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: 1/4" = 1'-0" STA. 17+85.32

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN E.C.P	TRACED	CHECKED W.R.K	REVIEWED J.T	REVISED
DATE 6-2-58	DATE	DATE 8-25-58	DATE 9-8-58	1018 SHEET 112

Revised 1-19-59

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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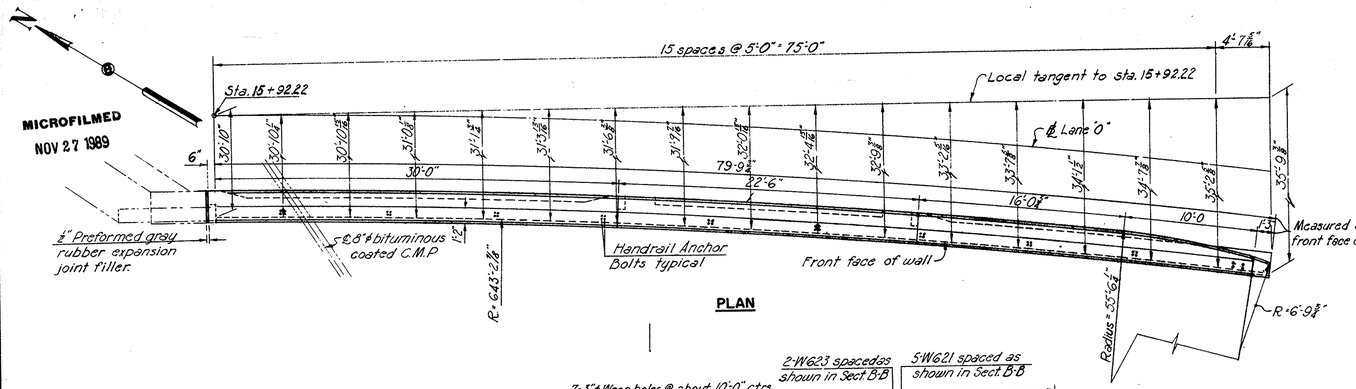
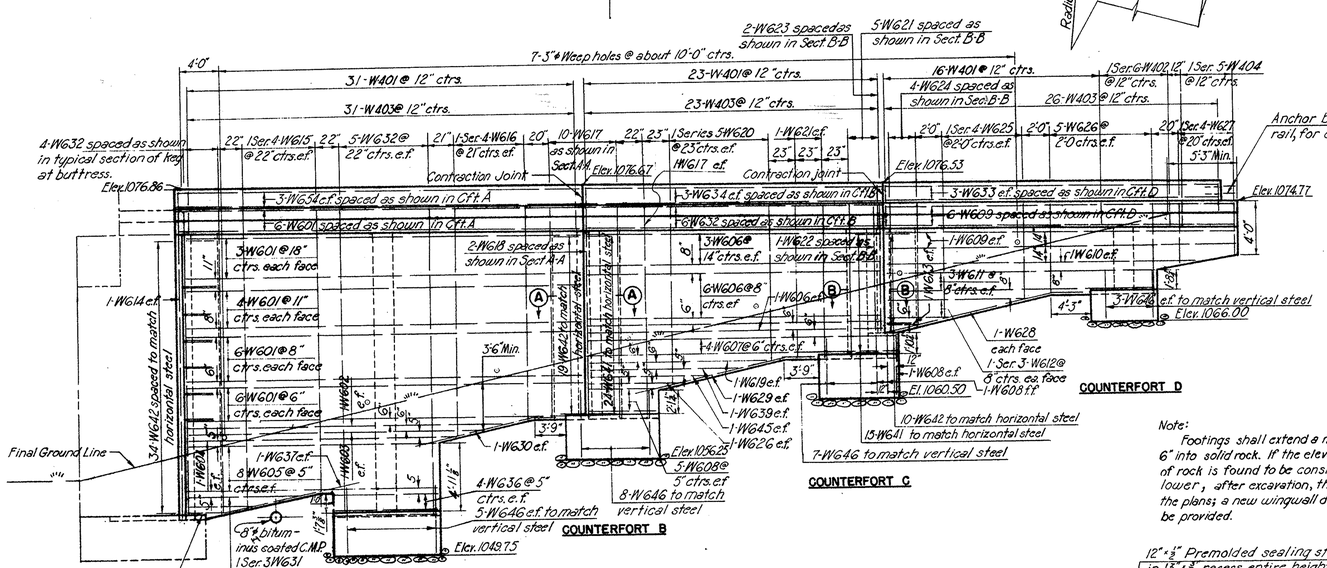
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



PLAN

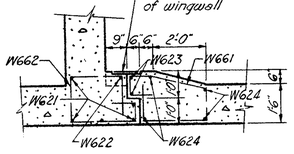


DEVELOPED ELEVATION

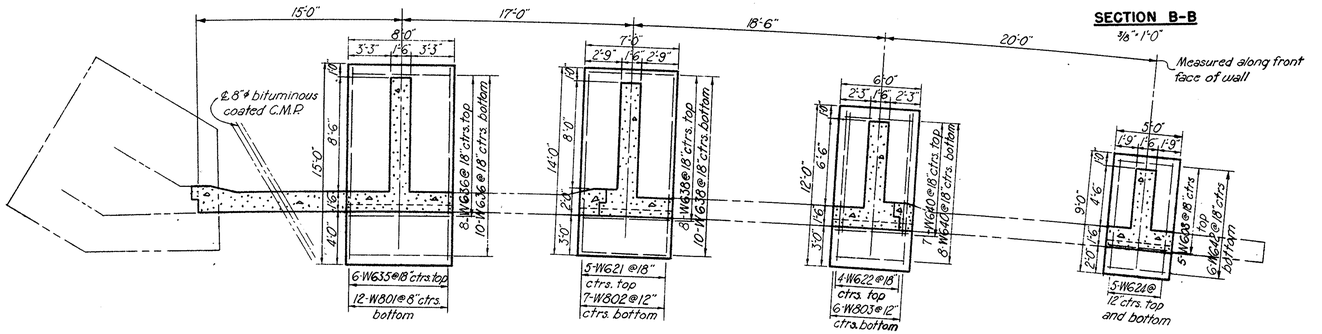
½" sheet asbestos packing to be included with wingwall concrete for payment

Note: Rustications to parallel top of wall. Spacing same as for abutment.

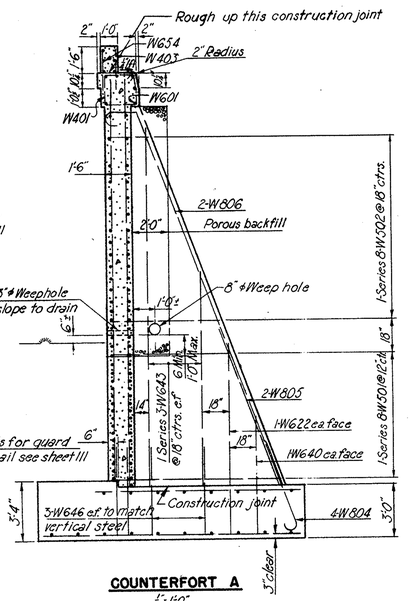
Note: Footings shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on the plans; a new wingwall design shall be provided.



SECTION B-B
3/16" = 1'-0"

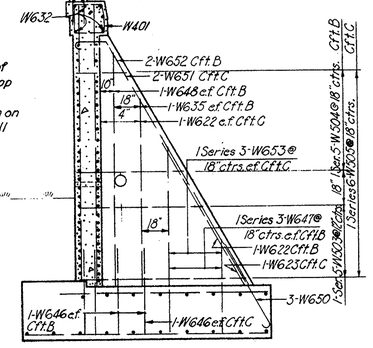


FOOTING PLAN



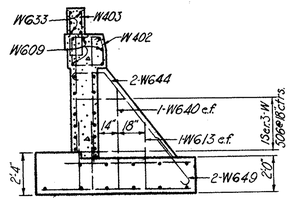
COUNTERFORT A
¼" = 1'-0"

Note: Dimensions shown for Counterfort 'A' are typical for Counterforts 'B', 'C' and 'D' unless otherwise noted.



COUNTERFORTS B AND C
¼" = 1'-0"

Counterfort B is shown, Counterfort C is similar except as noted.



COUNTERFORT D
¼" = 1'-0"

Notes:
For rustication detail see sheet 111
For handrail details see sheet 173
e.f. denotes each face, f.f. denotes far face
For typical section thru key at buttress see sheet 112
For replacement bar list see sheet 141
Section AA similar to Section B-B except opposite hand and for bar marks
For bending diagrams see sheet 112
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.

Revised 1-19-59.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
W401	70	7'-8"	126	1'-10"	2'-0"			358
W402	1 Ser. of 6	7'-0" to 7'-8"	126	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅝"	50
W403	80	5'-11"	105					316
W404	1 Ser. of 5	5'-4" to 6'-10"	126	8" to 1'-5"	10" to 1'-7"		4½"	20
W501	1 Ser. of 8	16'-5" to 21'-11"	127	6'-9" to 9'-6"			9⅜"	160
W502	1 Ser. of 8	7'-1" to 15'-5"	127	2'-1" to 6'-2"			1'-2"	93
W503	1 Ser. of 5	17'-1" to 21'-9"	127	7'-1" to 9'-5"			1'-2"	102
W504	1 Ser. of 5	8'-5" to 15'-5"	127	2'-9" to 6'-5"			1'-9"	62
W505	1 Ser. of 6	8'-3" to 11'-7"	127	2'-6" to 4'-4"			1'-10½"	81
W506	1 Ser. of 3	8'-9" to 13'-5"	127	2'-11" to 5'-5"			2'-4"	55
W601	44	29'-6"	Str.					195
W602	2	23'-3"	Str.					10
W603	2	27'-9"	Str.					62
W604	2	19'-0"	Str.					57
W605	16	18'-6"	Str.					444
W606	22	21'-0"	Str.					694
W607	8	22'-9"	Str.					273
W608	24	4'-6"	Str.					162
W609	10	27'-0"	Str.					405
W610	2	25'-9"	Str.					77
W611	6	20'-0"	Str.					180
W612	2 Ser. of 3	5'-6" to 10'-3"	Str.				2'-4½"	70
W613	4	3'-3"	Str.					20
W614	2	23'-3"	Str.					70
W615	2 Ser. of 4	20'-3" to 21'-6"	Str.				5"	251
W616	2 Ser. of 4	15'-6" to 16'-9"	Str.				5"	194
W617	12	15'-6"	Str.					279
W618	2	13'-9"	Str.					41
W619	2	12'-3"	Str.					37
W620	2 Ser. of 5	11'-3" to 13'-0"	Str.				5"	182
W621	14	11'-3"	Str.					236
W622	6	9'-3"	Str.					83
W623	3	7'-3"	Str.					33
W624	14	8'-6"	Str.					179
W625	2 Ser. of 4	6'-9" to 8'-3"	Str.				6"	90
W626	12	6'-3"	Str.					113
W627	2 Ser. of 4	3'-9" to 4'-3"	Str.				2"	48
W628	2	15'-6"	108	11'-9"	3'-8"	9"		47
W629	2	13'-8"	108	10'-6"	3'-0"	8½"		41
W630	2	10'-5"	108	7'-6"	2'-10"	8"		31
W631	2 Ser. of 3	4'-6" to 8'-6"	Str.				2'-0"	58
W632	20	22'-0"	Str.					660
W633	6	25'-9"	Str.					*
W634	6	22'-3"	Str.					*
W635	8	10'-6"	Str.					126
W636	26	11'-6"	Str.					292
W637	2	15'-0"	108	10'-6"	2'-6"	7"		39
W638	18	6'-6"	Str.					116
W639	2	9'-9"	Str.					29
W640	19	5'-6"	Str.					157
W641	59	8'-8"	112					507
W642	63	10'-8"	124					1,002
W643	2 Ser. of 3	10'-6" to 18'-3"	Str.				3'-10⅝"	129
W644	2	8'-7"	107	1'-9"	3'-10"	4'-9"		26
W645	2	7'-9"	Str.					23
W646	43	5'-3"	Str.					339
W647	2 Ser. of 3	5'-3" to 10'-6"	Str.				2'-7⅛"	71
W648	2	13'-0"	Str.					39
W649	2	4'-9"	101	4'-0"				14
W650	6	5'-0"	101	4'-3"				45
W651	2	13'-7"	107	1'-9"	5'-11"	9'-5"		55
W652	2	18'-4"	107	1'-9"	7'-11"	13'-9"		66
W653	2 Ser. of 3	5'-0" to 9'-9"	Str.				1'-10½" 2'-4½"	*
W654	6	30'-3"	Str.					*
W801	12	14'-6"	Str.					465
W802	7	13'-6"	Str.					252
W803	6	11'-6"	Str.					185
W804	4	6'-3"	Str.					69
W805	2	9'-9"	Str.					52
W806	2	24'-9"	107	1'-9"	7'-11"	20'-5"		132
							Total	10,970

* To be included for payment in unit price bid for Item 514

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTHEAST WINGWALL

LANE "O" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: 3/16" = 1'-0" STA. 17+85.32

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

DRAWN ALG	TRACED	CHECKED WRA	REVIEWED JT	REVISED
DATE 6-12-58	DATE	DATE 8-5-58	DATE 9-8-58	1018 SHEET 113

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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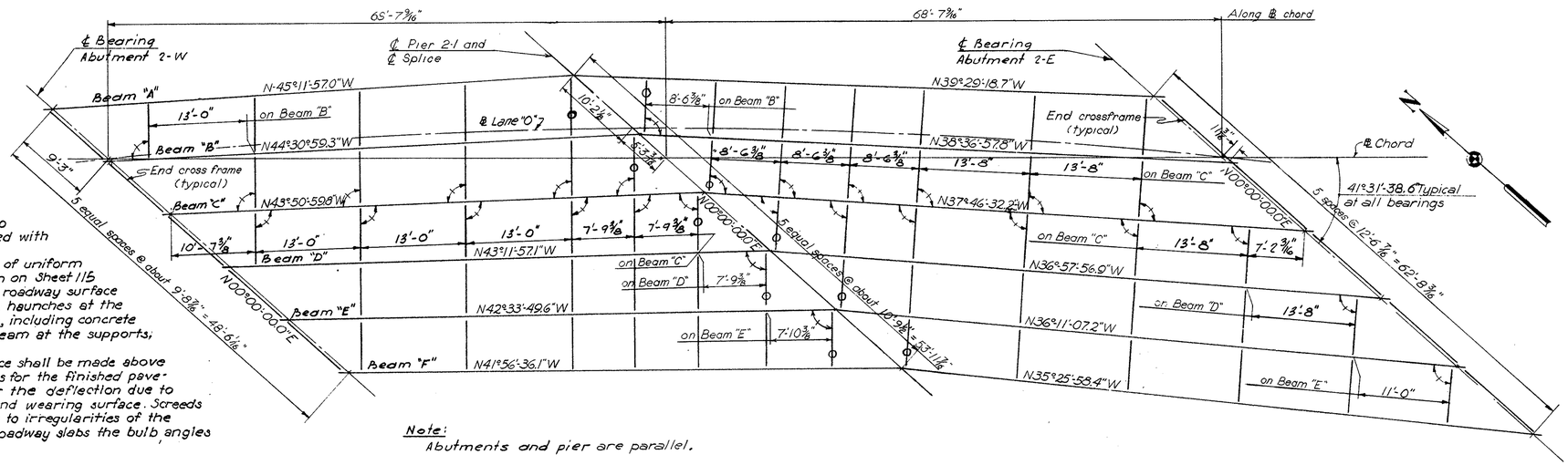
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Camber Note:
The WF beams shall not be cambered but shall be fabricated so that any curved beam will be placed with the convex flange down.
The concrete floor shall be of uniform thickness between beams as shown on Sheet 115 and shall be set up to the desired roadway surface by increasing the thickness of the haunches at the beams. The thickness of the floor, including concrete and wearing surface, over each beam at the supports, is given on Sheet 115.
The screed setting allowance shall be made above the top of the pavement elevations for the finished pavement surface to compensate for the deflection due to the dead load of the concrete and wearing surface. Screeds may need further adjustment due to irregularities of the fabricated steel. At the edge of roadway slabs the bulb angles will serve as screeds.

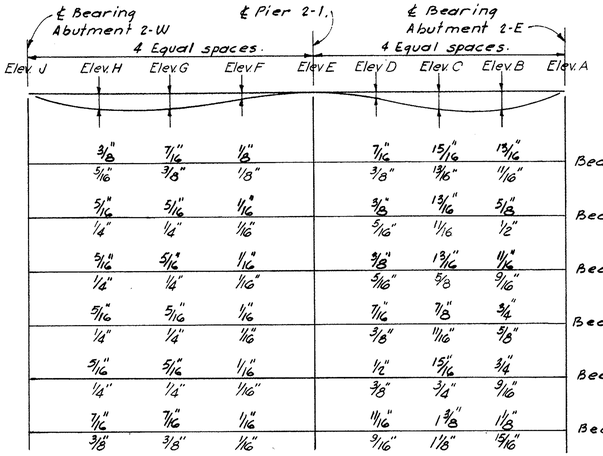


Note:
Bearings shown on framing are not true bearings, see notes Sheet 93.

Note:
Abutments and pier are parallel.

FRAMING PLAN
1/8" = 1'-0"

Crossframes marked thus, ○, shall consist of four ls 3×3×7/16. ⊠

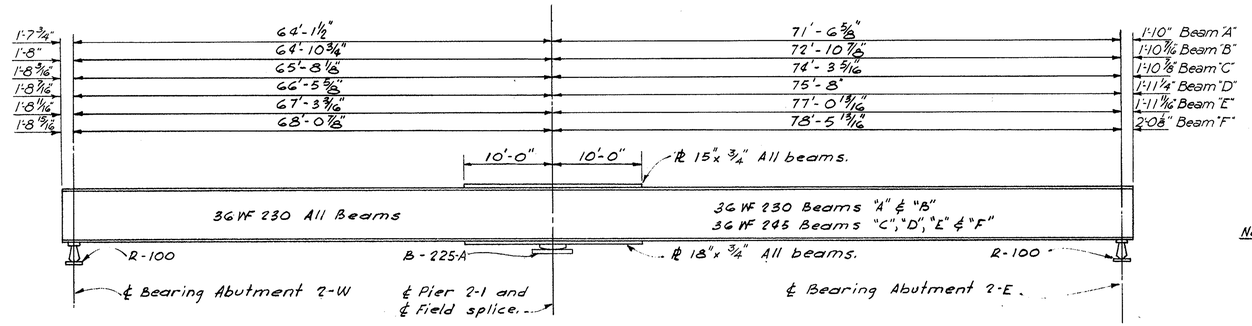


Beam "A"	3/8"	7/16"	1/8"		7/16"	15/16"	13/16"		
Beam "B"	5/16"	3/8"	1/8"		3/8"	13/16"	11/16"		
Beam "C"	5/16"	5/16"	1/16"		3/8"	13/16"	5/8"		
Beam "D"	1/4"	1/4"	1/16"		5/16"	11/16	1/2"		
Beam "E"	5/16"	5/16"	1/16"		9/8"	13/16"	11/16"		
Beam "F"	1/4"	1/4"	1/16"		5/16"	5/8	9/16"		
	5/16"	5/16"	1/16"		7/16"	7/8"	3/4"		
	1/4"	1/4"	1/16"		3/8"	11/16"	5/8"		
	5/16"	5/16"	1/16"		1/2"	15/16"	3/4"		
	1/4"	1/4"	1/16"		3/8"	3/4"	9/16"		
	7/16"	7/16"	1/16"		11/16"	1 3/8"	1 1/8"		
	3/8"	3/8"	1/16"		9/16"	1 1/8"	15/16"		

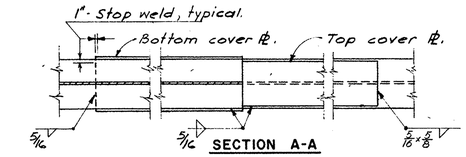
Note:
Total dead load deflections are shown above the lines. Deflections due to concrete and wearing surface only are shown below the lines. Deflections are measured to nearest 1/16 inch.

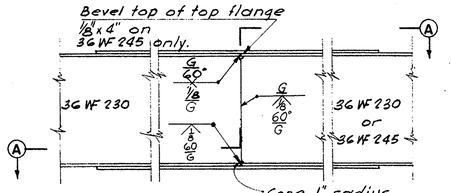
DEAD LOAD DEFLECTION DIAGRAM

TOP OF PAVEMENT ELEVATIONS									
BEAM	A	B	C	D	E	F	G	H	J
A	1077.21	1077.32	1077.42	1077.53	1077.64	1077.73	1077.83	1077.92	1078.02
B	1077.09	1077.14	1077.23	1077.36	1077.54	1077.59	1077.67	1077.79	1077.93
C	1076.45	1076.50	1076.60	1076.74	1076.91	1076.97	1077.05	1077.17	1077.32
D	1075.82	1075.87	1075.97	1076.12	1076.30	1076.36	1076.44	1076.56	1076.72
E	1075.20	1075.26	1075.36	1075.50	1075.69	1075.75	1075.84	1075.96	1076.12
F	1074.60	1074.65	1074.75	1074.90	1075.10	1075.15	1075.24	1075.36	1075.53



BEAM ELEVATION
No Scale





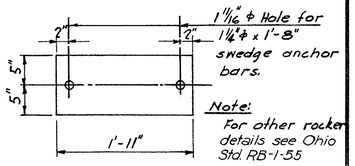
Note:
"G" indicates flush ground weld shall be ground in direction of stress.

BEAM SPLICE DETAILS
No Scale

BEAM SPLICE WELDING PROCEDURE

1. Weld bottom flange cover plates to beam on one side of joint only.
2. Raise end of beam at Abutment 2-W. amount shown in table.
3. Butt weld the beam flanges and web, using the following sequence: make one pass on each flange, then one on the web; repeat until welds are completed.
4. Weld the top cover plates on each side of the joint.
5. Complete welding of bottom cover plates.
6. Lower the beam end to final position.

AMOUNT OF JACKING AT ABUTMENT 2-W	
Beam "A"	1 9/16"
Beam "B"	1 5/8"
Beam "C"	1 3/4"
Beam "D"	1 7/8"
Beam "E"	2"
Beam "F"	2 1/8"



Note:
For other rocker details see Ohio Std. RB-1-55

BASE PLATE FOR STRUCTURAL STEEL ROCKER (R-100)
1" = 1'-0"

Notes:
For Cross Frame details see Sheet 115.
Angles marked thus: ⊾ are 90°
For details of bolster B-225-A see Sheet 105.
For expansion joint details see Sheet 108.

Revised 12-23-58.

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN
LANE "O" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: AS SHOWN STA. 17+85.32
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN L.D.F.	TRACED	CHECKED D.L.H	REVIEWED J.T	REVISED
DATE 11-21-57	DATE	DATE 8-7-58	DATE 9-8-58	1018 SHEET 114

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

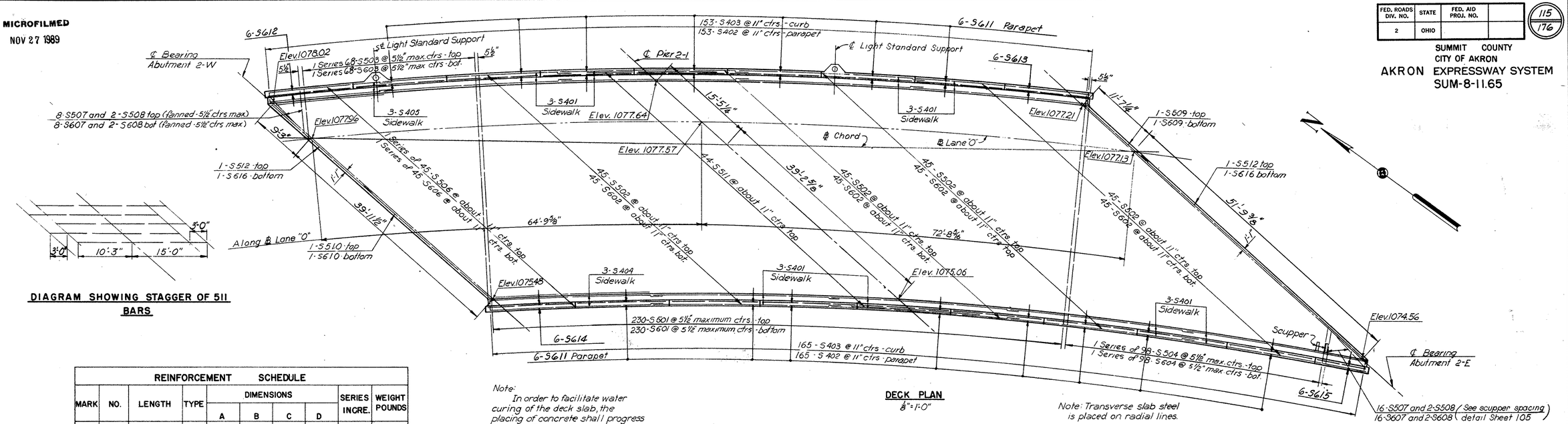


DIAGRAM SHOWING STAGGER OF 511 BARS

DECK PLAN
⅛"=1'-0"

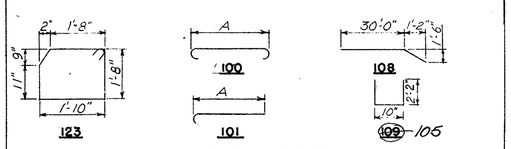
Note: Transverse slab steel is placed on radial lines.

Note:
In order to facilitate water curing of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are normal to the centerline of bridge and are located near the center of the span. For section thru construction joint see Sheet 104.

Notes:
For spacing and details of handrail and for parapet joint details see Sheet 173.
For expansion joint details see Sheet 105
For spacing and details of scuppers see Sheet 105.
Bars noted thus, o, are over piers only.
For location and detail of light standard support see Sheet 174.

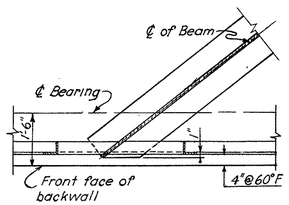
REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	D	SERIES INCRE.	WEIGHT POUNDS
S401	24	30'-0"	Str.						482
S402	318	4'-11"	105						1045
S403	318	7'-6"	123						1592
S404	3	35'-9"	Str.						72
S406	3	25'-0"	Str.						50
S501	230	40'-11"	100	39'-9"					9816
S502	180	30'-0"	Str.						5632
S503	1 Series of 68	7'-3" to 38'-8"	100	6'-1" to 37'-6"				5⅜"	1630
S504	1 Series of 98	7'-3" to 38'-8"	100	6'-1" to 37'-6"				3⅜"	2350
S506	1 Series of 68	26'-6" to 37'-0"	Str.					2⅜"	1490
S507	24	6'-4"	101	5'-9"					158
S508	4	4'-4"	101	3'-9"					18
S509	1	35'-6"	Str.						37
S510	1	21'-6"	Str.						22
S511	44	25'-3"	Str.						1160
S512	2	32'-0"	108						67
S601	230	39'-9"	Str.						13733
S602	180	30'-0"	Str.						8110
S603	1 Series of 68	6'-0" to 37'-6"	Str.					5⅜"	2221
S604	1 Series of 98	6'-0" to 37'-6"	Str.					3⅜"	3202
S606	1 Series of 45	28'-0" to 38'-9"	Str.					2⅜"	2260
S607	24	5'-9"	Str.						207
S608	4	3'-9"	Str.						23
S609	1	36'-0"	Str.						54
S610	1	21'-9"	Str.						33
S611	80	15'-6"	Str.						*
S612	6	15'-0"	Str.						*
S613	6	14'-6"	Str.						*
S614	6	15'-3"	Str.						*
S615	6	8'-6"	Str.						*
S616	2	32'-0"	108						96
# Light Standard Support =									400
								Total =	55,960

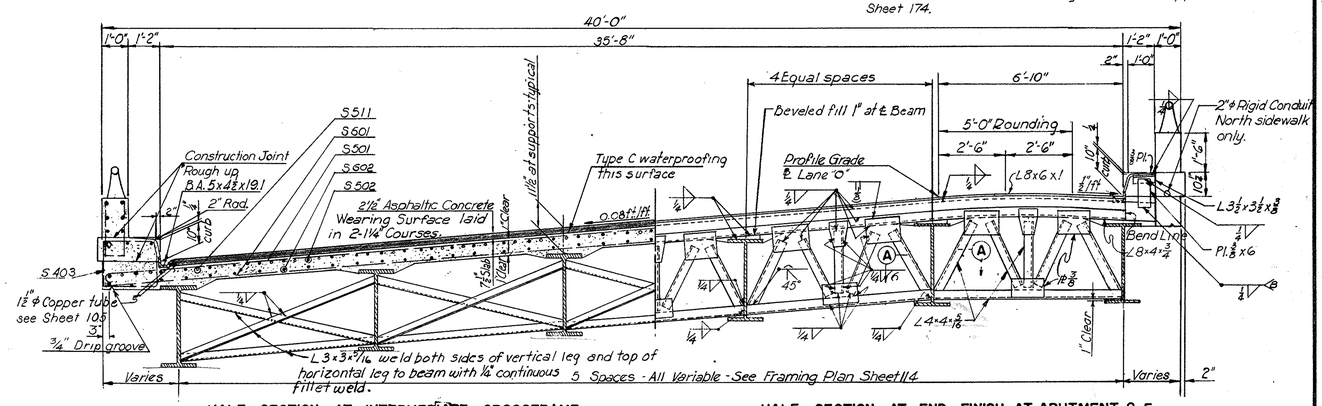


BENDING DIAGRAMS

* Payment included in unit price bid for Item S-14.
# For reinforcement schedule see sheet 174
" Bars of a series shall vary by a constant increment.
Bars are dimensioned out to out.
For replacement bars see Sheet 141.



SECTION A-A
½"=1'-0"

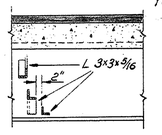


HALF SECTION AT INTERMEDIATE CROSSFRAME
⅜"=1'-0"

Note: All horizontal dimensions are measured radially.

HALF SECTION AT END FINISH AT ABUTMENT 2-E
⅜"=1'-0"

End finish for abutment 2-W is similar to end finish for abutment 1-E, see sheet 104.



SECTION THRU INTERMEDIATE CROSSFRAME
½"=1'-0"

Revised 1-19-59.

H.N.T.B. BR. NO. 2 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK PLAN AND CROSS SECTION

LANE "0" OVER NORTH-SOUTH EXPRESSWAY
BR. NO. SUM-8-1254 STA. 16+39.35
SCALE: AS SHOWN STA. 17+85.32

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

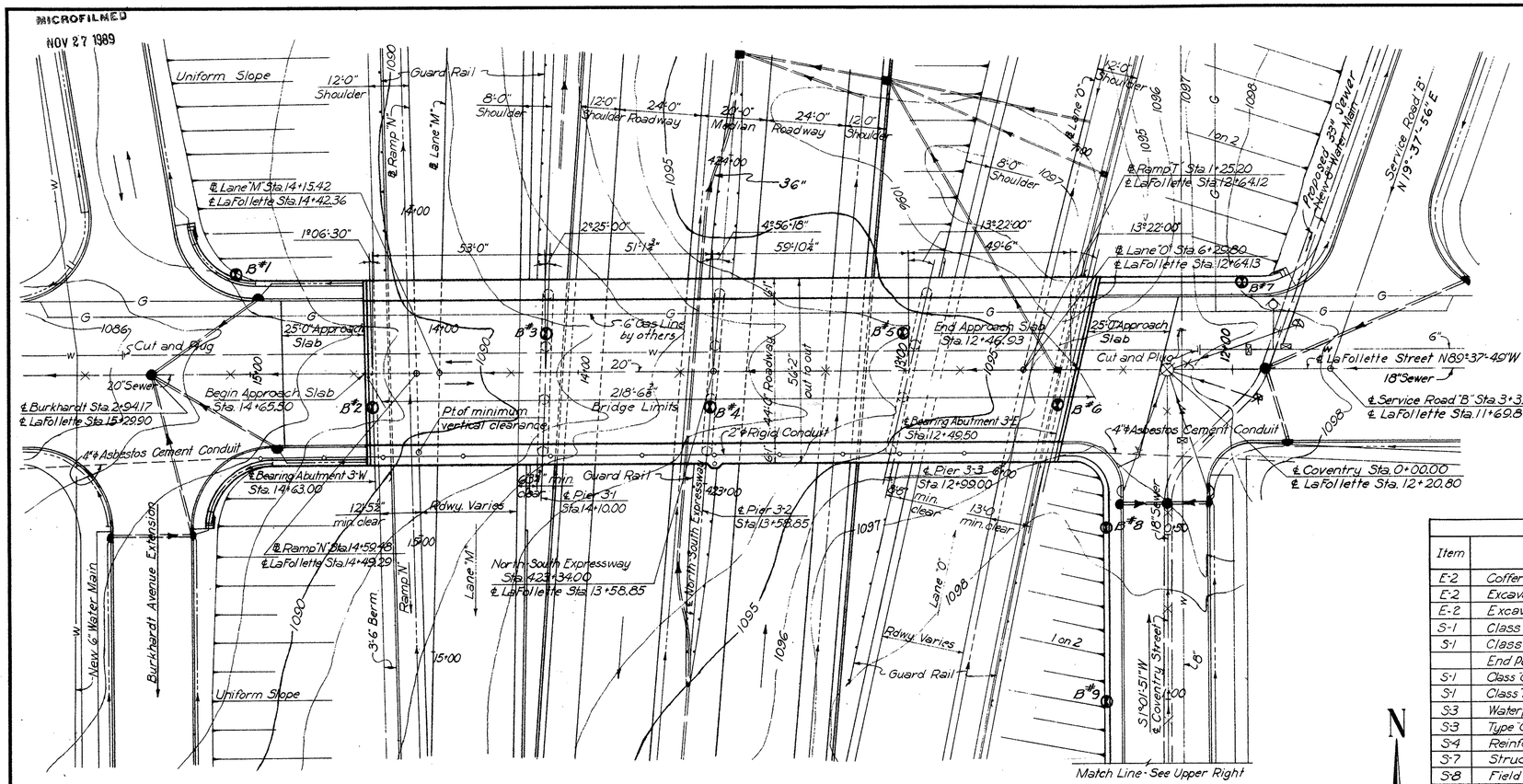
DRAWN F.L.B.	TRACED	CHECKED D.L.M.	REVIEWED J.T.	REVISED
DATE 12/2/57	DATE	DATE 8-19-58	DATE 9-8-58	1018 SHEET 115

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

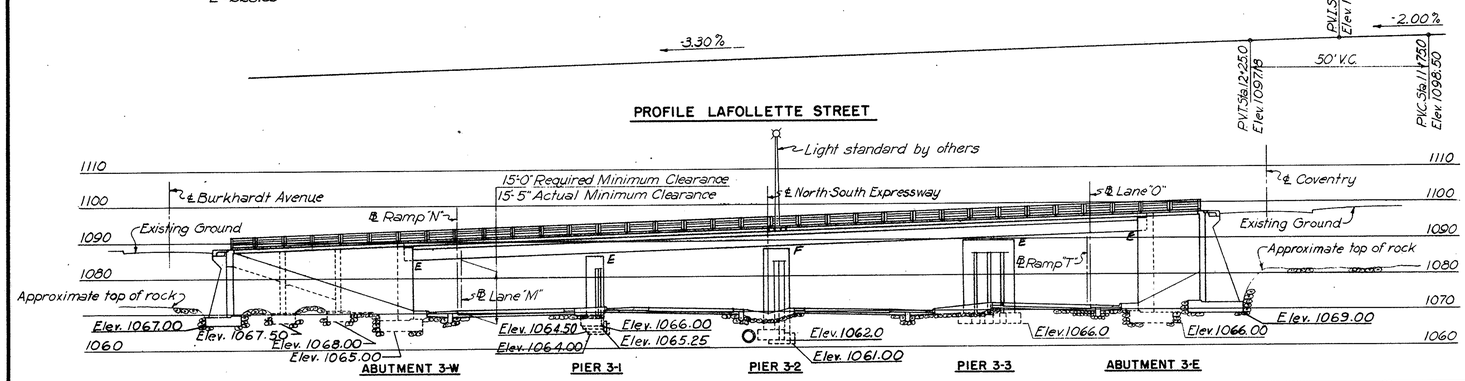
116/176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



Burkhardt Extension
D = 7°00'00"
Δ = 15°39'16"
R = 818.51
T = 112.52
L = 223.63

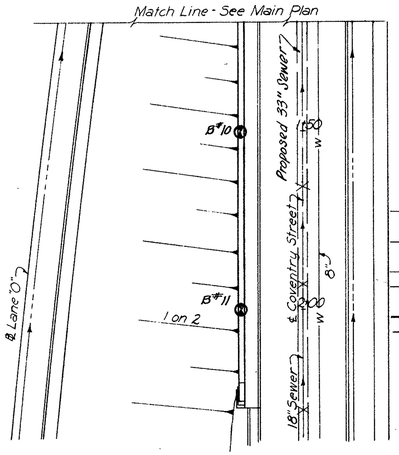
PLAN



ELEVATION

Note: Point of actual minimum vertical clearance occurs at the intersection of the South exterior beam and ℄ Ramp "N".

Note:
Rock lines shown are determined by interpolation of borings and are approximate only.



PART PLAN SHOWING SOUTHEAST WINGWALL

LEGEND

- ⊠ Manhole to be abandoned or removed
- ● New Manhole
- △ Existing Inlet
- ▬ New Inlet
- —G— Existing Gas Lines
- ⊠ Existing Hydrant or Valve
- Water Lines to be abandoned or removed
- —w— Existing Water Mains
- Sewer Lines to be abandoned or removed
- New Sewer Lines
- New Underdrains
- (1) Boring

ESTIMATED QUANTITIES

Item	Description	Unit	Abut-ments	Wing-walls	Piers	Super-structure	General	Total
E-2	Cofferdams, Cribs and Sheeting	Lump Sum						Lump Sum
E-2	Excavation for Structures (Unclassified)	Cu.Yd.	55	761	44			860
E-2	Excavation for Structures (Rock or Shale)	Cu.Yd.	235	300	65			600
S-1	Class "C" Concrete (Superstructure)	Cu.Yd.				330		330
S-1	Class "C" Concrete (Abutment, Wells, End Post and Approach Sidewalks and Curbs)	Cu.Yd.	305	400			45*	750
S-1	Class "C" Concrete (Pier Caps and Columns)	Cu.Yd.			115			115
S-1	Class "E" Concrete (Footings)	Cu.Yd.	105	175	50			330
S-3	Waterproofing, Premolded Sealing Strip	Lin.Ft.		165				165
S-3	Type "C" Waterproofing	Sq.Yd.				1050		1,050
S-4	Reinforcing Steel	Lbs.	39,640	57,290	27,030	95,170	7,570*	226,700
S-7	Structural Steel	Lbs.				300,000		300,000
S-8	Field Painting Structural Steel	Lbs.				300,000		300,000
S-9	½" Preformed Gray Rubber Expansion Joint Filler	Sq.Ft.		290				290
S-14	Steel Handrail	Lin.Ft.		362		434		796
S-25	2" ℄ Rigid Metal Conduit	Lin.Ft.		275		225		500
S-25	Electrical Equipment	Lump Sum						Lump Sum
S-29	Porous Backfill	Cu.Yd.	168	202				370
S-29	Subdrainage for Wearing Surface Course	Lin.Ft.				440		440
T-35	2½" Asphaltic Wearing Surface Course (Type C (60-70))	Cu.Yd.				72		72

* Includes Approach Sidewalks and Curbs

PROPOSED STRUCTURE

Type: 4 span continuous rolled beam with reinforced concrete deck and substructure.
Spans: 53'-5¾", 59'-10½", and 49'-6"
= 213'-6" ctr. to ctr. end bearings.
Rdwy. 44' f/f 4'-9" sidewalks
Loading: CF-400
Skew: Varies (1°06'30" to 13°22'30")
Surface Course: 2½" Asphaltic Concrete
Approach Slabs: AS-1-54 (25'-0" long)

Notes:
The following items are not included in the bridge plans. See Roadway Plans for details.
Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading, pavements, and slabs.
Guard rails.
Boring information, logs and samples of materials encountered may be examined at the Division Office at Ravenna, Ohio, and at the Bridge Bureau Office at Columbus, Ohio, but the State does not guarantee these borings to present a complete picture of subsurface conditions to be encountered.
Foundation design and foundation quantities are based on a study of the borings.

H.N.T.B. BR. NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SITE PLAN
NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: 1" = 20' STA. 14+65.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

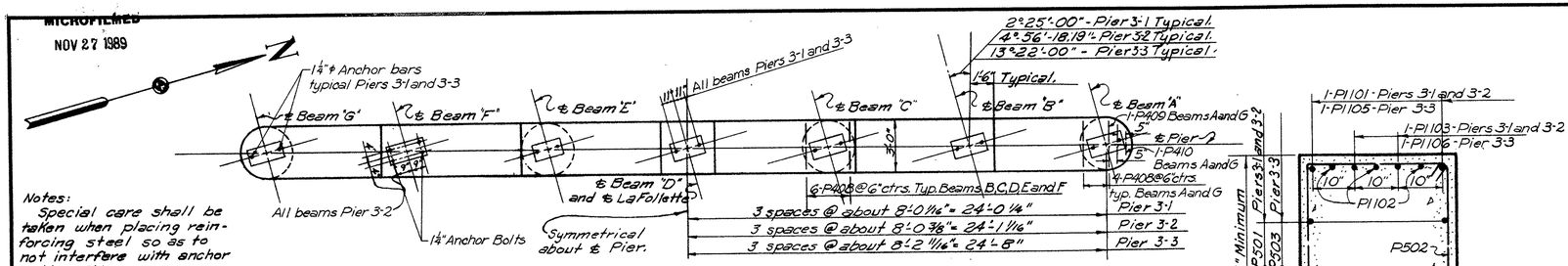
DRAWN W.R.K.	TRACED	CHECKED J.W.L.	REVIEWED T.T.	REVISED
DATE 3-5-58	DATE	DATE 9-6-58	DATE 9-8-58	1018 SHEET 116

MICROFILMED
NOV 27 1989

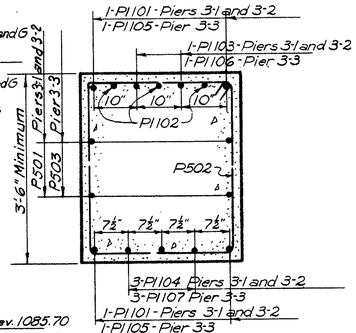
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

117/176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

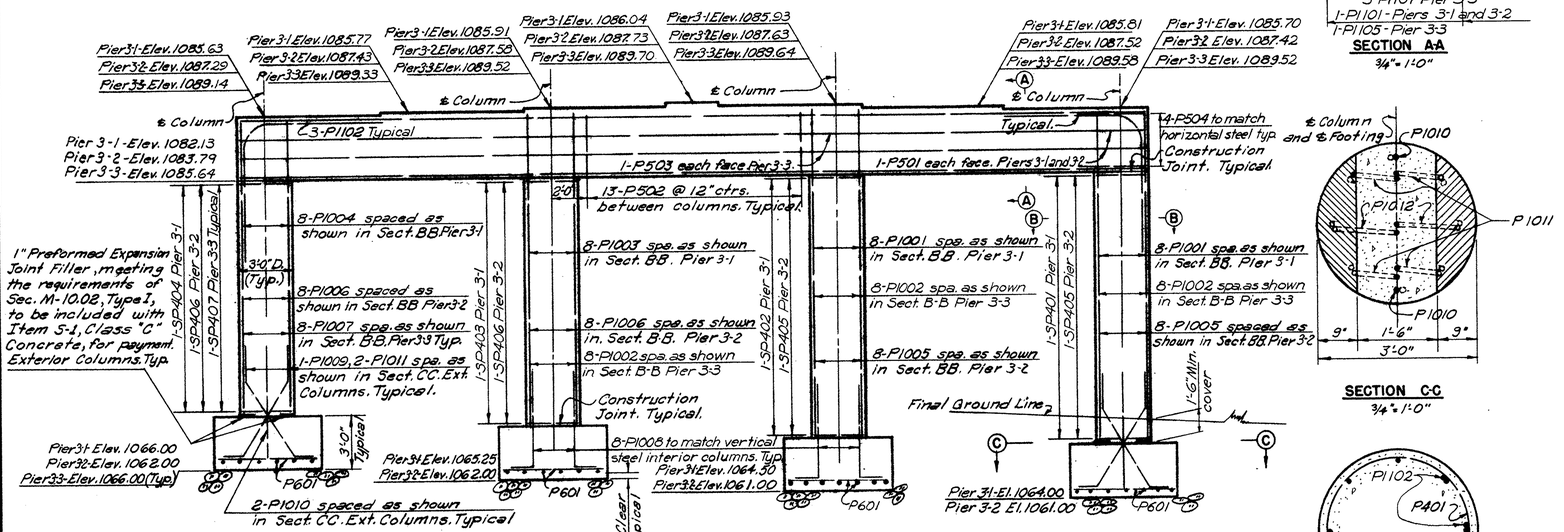


Notes:
Special care shall be taken when placing reinforcing steel so as to not interfere with anchor bolt setting.



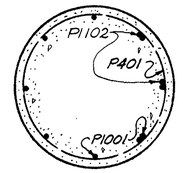
SECTION A-A
3/4" = 1'-0"

PLAN



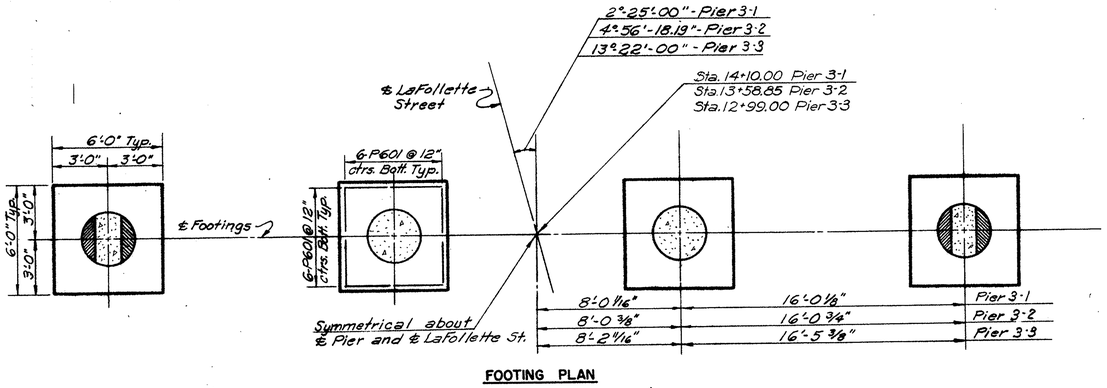
ELEVATION

SECTION C-C
3/4" = 1'-0"



SECTION B-B
3/4" = 1'-0"

Pier 3-1 exterior column shown, Piers 3-2 and 3-3 similar except for bar marks and for interior columns which will not have P1102 bars.

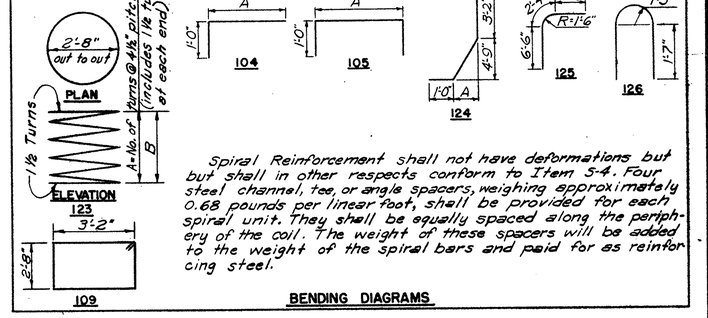


FOOTING PLAN

PIERS 3-1, 3-2, AND 3-3
Pier 3-1 shown. Piers 3-2 and 3-3 similar as noted.

REINFORCEMENT SCHEDULE

MARK	NUMBER PIER 3-1	NUMBER PIER 3-2	NUMBER PIER 3-3	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS PIER 3-1	WEIGHT POUNDS PIER 3-2	WEIGHT POUNDS PIER 3-3
SP401	1			354'-7"	123	43	15'-0½"	237		
SP402	1			346'-4"	123	42	14'-7½"	232		
SP403	1			329'-10"	123	40	13'-10½"	220		
SP404	1			313'-5"	123	38	13'-0½"	209		
SP405		2		461'-10"	123	56	19'-8½"		616	
SP406		2		437'-1"	123	53	18'-8½"		583	
SP407			4	387'-7"	123	47	16'-7"			1033
P408	38	38	38	4'-5"	105	2'-8"	1'-0"	112	112	112
P409	2	2	2	4'-2"	105	2'-5"		6	6	6
P410	2	2	2	3'-7"	105	1'-10"		5	5	5
P501	4	4		48'-9"	Str.			204	204	
P502	39	39	39	12'-2"	109			494	494	494
P503			4	50'-0"	Str.					209
P504	8	8	8	7'-2"	126			60	60	60
P601	48	48	48	5'-6"	Str.			397	397	397
P1001	16			18'-3"	Str.			1256		
P1002			24	20'-3"	Str.					2085
P1003	8			17'-3"	Str.			595		
P1004	8			16'-3"	Str.			561		
P1005		16		23'-0"	Str.				1582	
P1006		16		22'-0"	Str.				1514	
P1007			8	19'-9"	Str.					680
P1008	16	16	16	6'-8"	104	5'-11"		461	460	460
P1009	4	4	4	9'-6"	124	2'-6"		163	163	163
P1010	4	4	4	6'-0"	Str.			103	103	103
P1011	8	8	8	9'-4"	124	2'-1"		321	321	321
P1101	4	4		48'-9"	Str.			1037	1034	
P1102	6	6	6	15'-4"	125			488	488	488
P1103	2	2		50'-6"	Str.			537	537	
P1104	3	3		50'-3"	Str.			802	801	
P1105			4	50'-0"	Str.					1062
P1106			2	51'-9"	Str.					550
P1107			3	51'-6"	Str.					822
						Totals =		8500	9480	9050



Spiral Reinforcement shall not have deformations but but shall in other respects conform to Item 5-4. Four steel channel, tee, or angle spacers, weighing approximately 0.68 pounds per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The weight of these spacers will be added to the weight of the spiral bars and paid for as reinforcing steel.

BENDING DIAGRAMS

Notes:
All bar dimensions are given out to out.
Footings shall extend a minimum of 6 inches into solid rock. If the elevation of top of rock is found to be considerably lower, after excavation than shown on the plans, a new pier design will be provided.
For replacement bar list see Sheet 141.

H.N.T.B. BR. NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

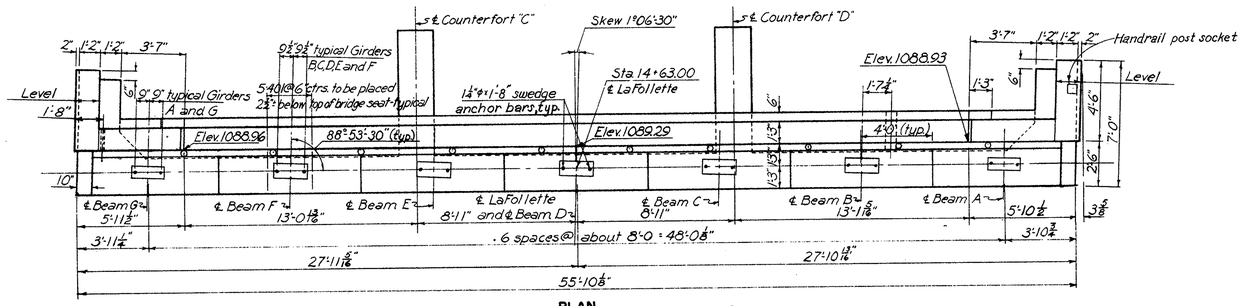
PIERS
NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM.-8-1235 STA. 12+46.93
SCALE: 1/4" = 1'-0" STA. 14+65.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY, OHIO

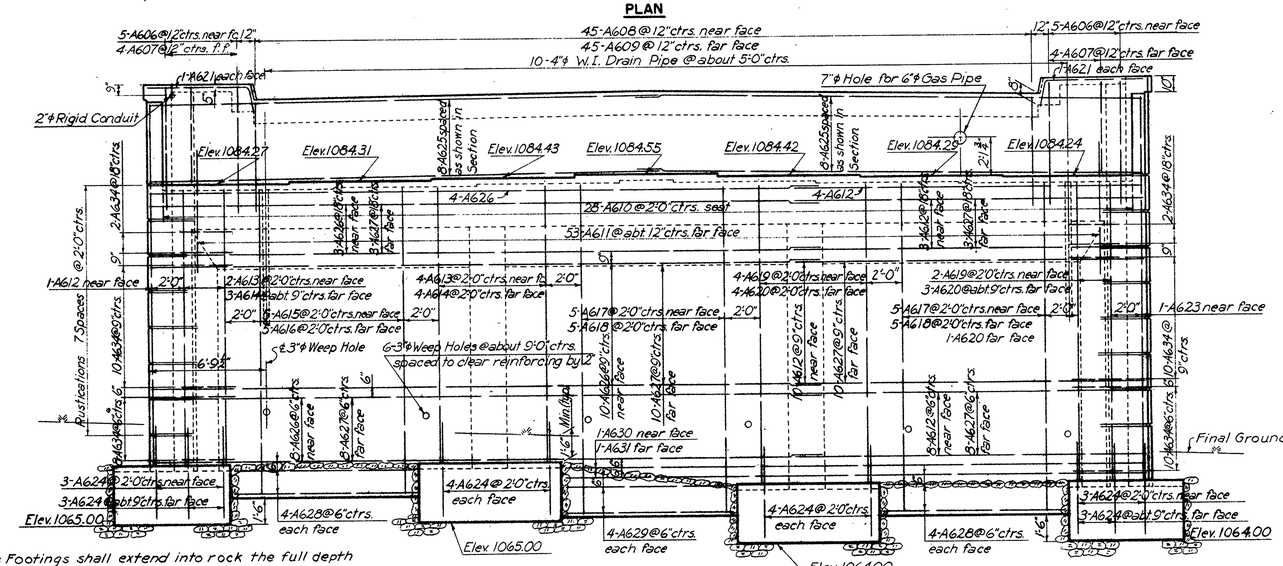
DRAWN GKG	TRACED	CHECKED AM	REVIEWED JT	REVISED
DATE 12-2057	DATE	DATE 7-22-58	DATE 9-8-58	1018 SHEET 117

MICROFILMED
NOV 27 1989

Note: Backwall elevations shown in plan are at back of L 6"x4"x½".

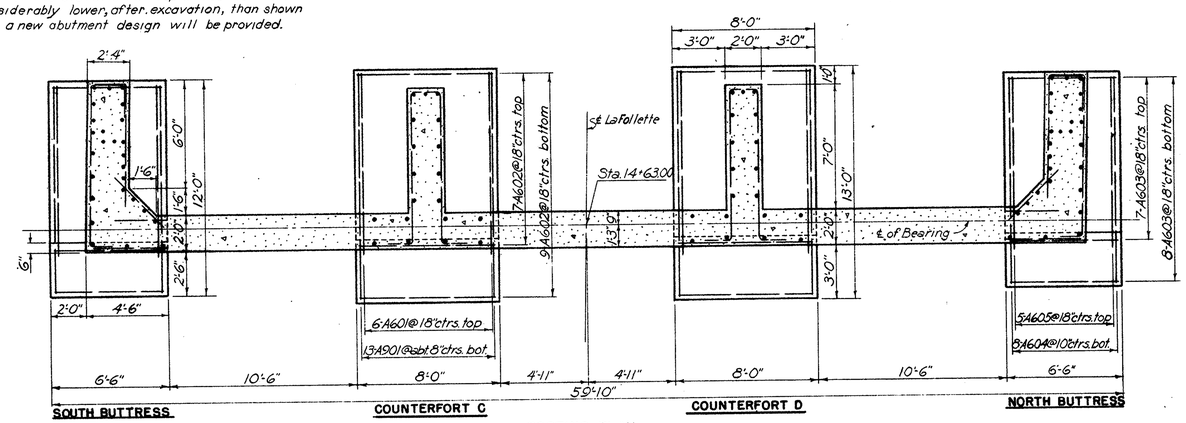


PLAN



ELEVATION

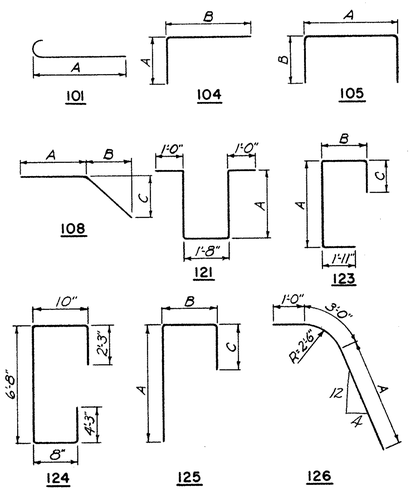
Note: Footings shall extend into rock the full depth of footings and special care shall be taken to provide full bearing of rock against toe of footings. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on plans, a new abutment design will be provided.



FOOTING PLAN

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INC.	WEIGHT POUNDS
A401	35	3'-2"	104	1'-0"	2'-3"			74
A601	12	10'-0"	Str.					180
A602	32	7'-6"	Str.					360
A603	30	6'-0"	Str.					270
A604	16	11'-6"	Str.					276
A605	10	9'-6"	Str.					143
A606	10	8'-10"	125	7'-3"	1'-5"	6"		132
A607	8	6'-7"	104	1'-5"	5'-4"			80
A608	45	9'-1"	125	6'-5"	1'-0"	2'-0"		613
A609	45	4'-6"	104	1'-5"	3'-3"			303
A610	28	4'-10"	104	2'-6"	2'-6"			203
A611	53	10'-4"	108	5'-0"	3'-9"	3'-9"		823
A612	26	20'-0"	Str.					781
A613	8	15'-6"	Str.					186
A614	7	13'-3"	Str.					140
A615	5	17'-6"	Str.					132
A616	7	13'-6"	Str.					141
A617	10	18'-3"	Str.					273
A618	10	15'-0"	Str.					225
A619	6	16'-9"	Str.					150
A620	7	14'-0"	Str.					147
A621	4	7'-9"	108	5'-9"	2"	2'-0"		47
A622	2	7'-9"	Str.					24
A623	1	21'-3"	Str.					32
A624	72	5'-0"	Str.					540
A625	16	29'-0"	Str.					697
A626	25	38'-0"	Str.					1429
A627	42	27'-0"	Str.					1706
A628	16	10'-6"	Str.					252
A629	8	9'-9"	Str.					117
A630	2	32'-6"	Str.					98
A631	2	30'-6"	Str.					92
A632	2	6'-9"	Str.					21
A633	2	9'-0"	Str.					27
A634	48	4'-0"	Str.					288
A635	37	10'-11"	123	6'-8"	10"	2'-0"		608
A636	37	6'-6"	104	1'-5"	5'-3"			361
A637	10	14'-0"	124					210
A638	10	4'-11"	104	1'-5"	3'-8"			74
A639	10	4'-4"	125	3'-0"	10"	10"		65
A640	8	3'-7"	104	1'-5"	2'-4"			44
A641	6	13'-2" (5-5")	105	6"	6'-6"			78
A642	5	21'-6"	Str.					162
A643	8	21'-9"	Str.					261
A644	5	20'-3"	Str.					152
A645	8	20'-6"	Str.					246
A646	2	9'-11"	123	4'-2"	10"	3'-6"		30
A647	2	12'-6"	Str.					38
A648	2	8'-0"	Str.					24
A649	1-Ser 9	11'-8" to 20'-0"	121	4'-4" to 8'-6"			12½"	215
A650	1-Ser 10	11'-4" to 20'-0"	121	4'-2" to 8'-6"			11½"	236
A651	2	14'-6"	Str.					44
A652	10	14'-7"	123	5'-2"	2'-0"	2'-0"		221
A653	10	9'-4"	104	7'-6"	2'-0"			140
A901	26	12'-6"	Str.					1105
A902	3	18'-3"	126	14'-3"				187
A903	3	19'-4"	126	15'-4"				197
A904	6	6'-10"	101	5'-7"				140
							Total =	15,840



Notes:
For Buttress details see sheet 119.
For Counterfort details see Sheet 119.
For Rustication detail see Sheet 111.
For Base Plate details see Sheet 130.
For Abutment Seat Drain Detail see Sheet 111.
Special care shall be taken in placing reinforcing steel so it will not interfere with anchor bar setting.
Counterfort footing reinforcing and dimensions are typical; Buttress footing reinforcing and dimensions are typical.
For replacement bars see Sheet 141.
Bar dimensions are given out to out.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

118
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

H.N.T.B. BRIDGE NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 3-W

NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.

BR. NO. SUM- 8-1235 STA. 12+46.93
SCALE: ¼" = 1'-0" STA. 14+65.50

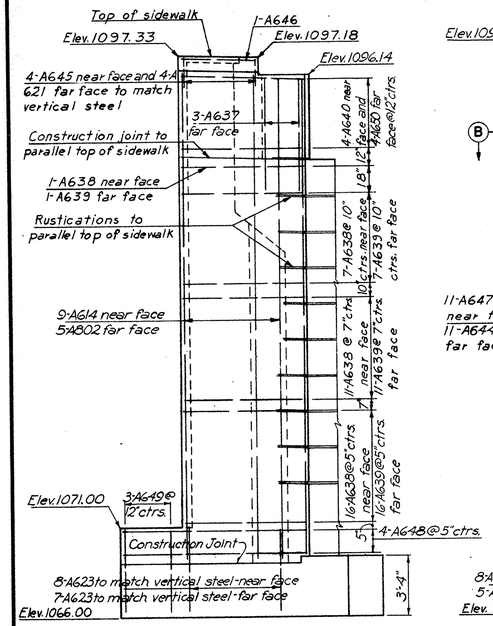
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.R.K.	TRACED	CHECKED A.B.G.	REVIEWED A.T.	REVISED 2-20-59
DATE 1-17-58	DATE	DATE 4-9-58	DATE 9-8-58	1018 SHEET 118

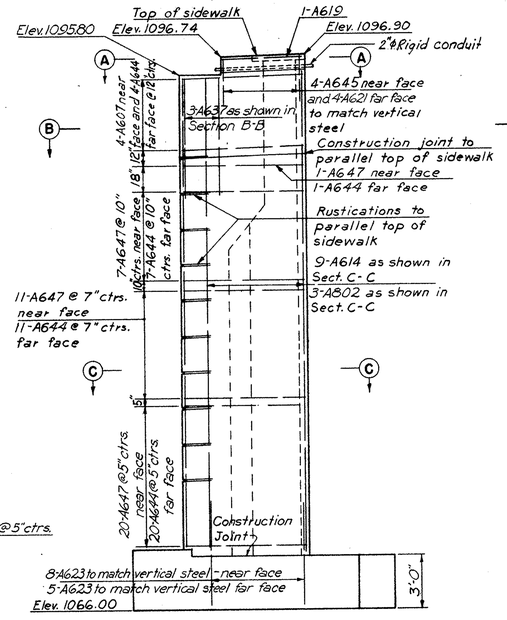
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		119
2	OHIO			176

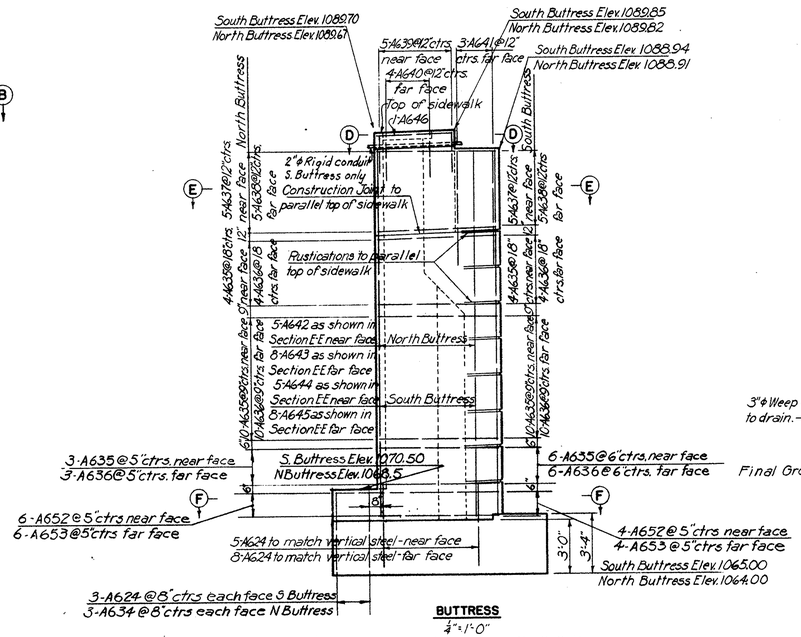
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



NORTH BUTTRESS
1/4" = 1'-0"

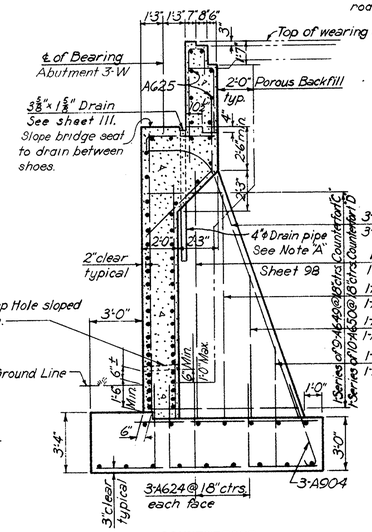


SOUTH BUTTRESS
1/4" = 1'-0"

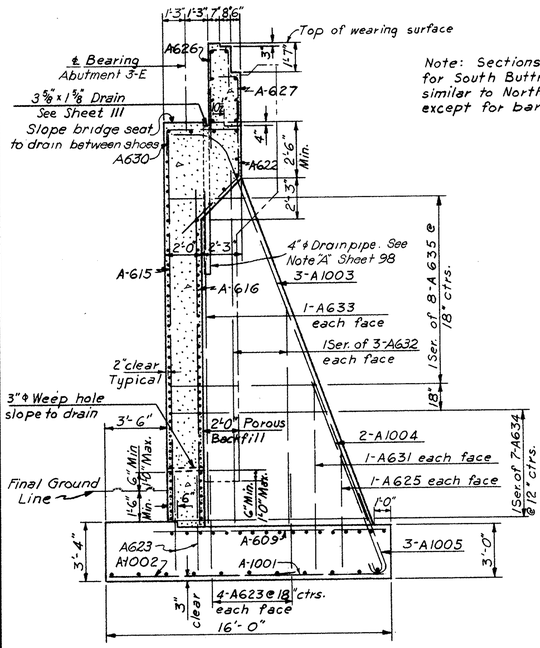


BUTTRESS
1/4" = 1'-0"
South Buttress shown, North Buttress similar except as noted.

Note: Backwall is to be poured after expansion joint steel has been attached to superstructure. Top of backwall to follow crown of roadway. Use steel expansion joint for template.



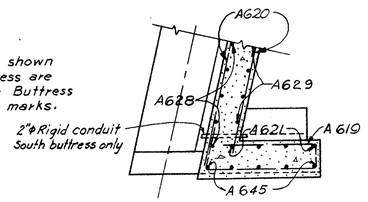
COUNTERFORT
1/4" = 1'-0"
Counterfort C shown. Counterfort D similar except as noted



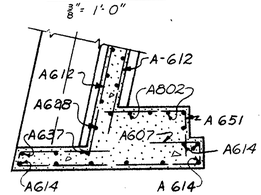
COUNTERFORT A AND B
1/4" = 1'-0"

ABUTMENT 3-E DETAILS

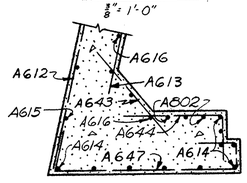
Note: Sections shown for South Buttress are similar to North Buttress except for bar marks.



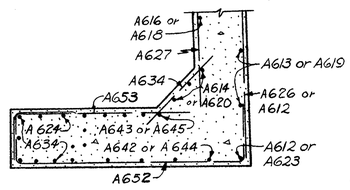
SECTION A-A
3/8" = 1'-0"



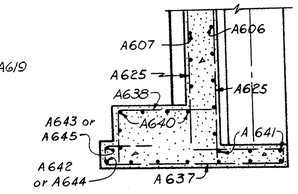
SECTION B-B
3/8" = 1'-0"



SECTION C-C
3/8" = 1'-0"

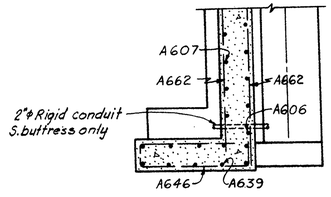


SECTION F-F
3/8" = 1'-0"



SECTION E-E
3/8" = 1'-0"

ABUTMENT 3-W DETAILS



SECTION D-D
3/8" = 1'-0"

H.N.T.B. BRIDGE NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

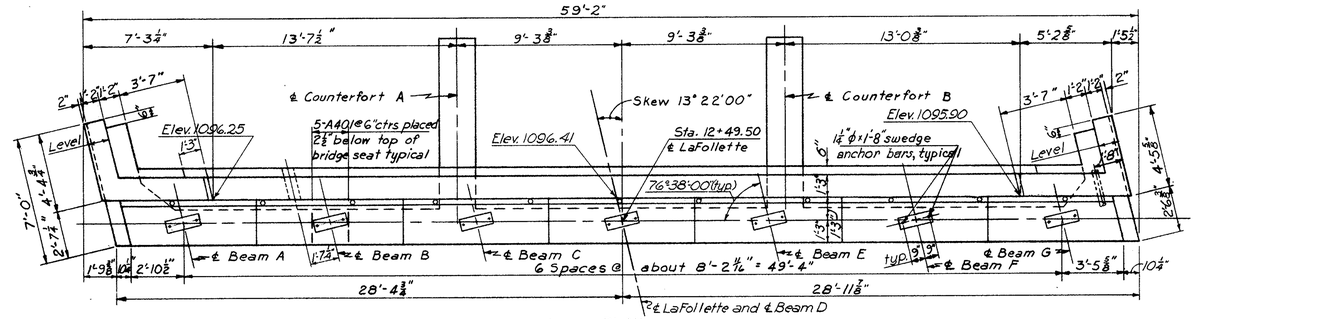
ABUTMENT DETAILS

NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: AS NOTED STA. 14+65.50
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

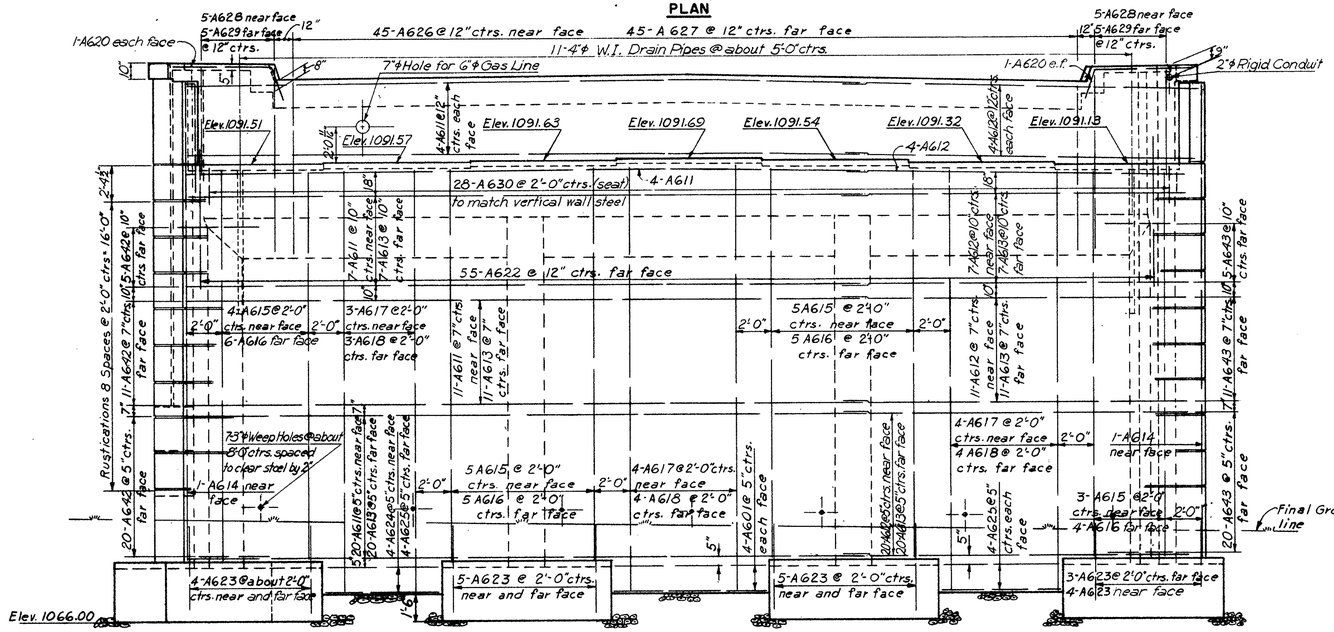
DRAWN	TRACED	CHECKED	REVIEWED	REVISED
J.W.L. W.R.K.		A.B.G.	J.T.	1018 SHEET 119
DATE 5-1-58	DATE	DATE 4-9-58	DATE 9-8-58	

MICROFILMED
NOV 27 1989

Note: Backwall elevations shown in plan are at back of L 6"x4"x⅝"

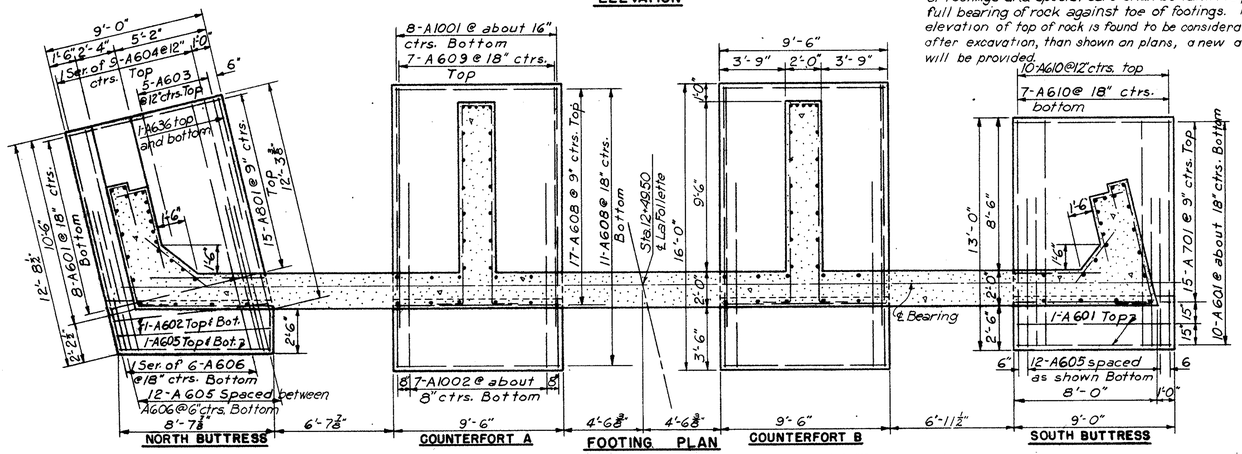


PLAN



ELEVATION

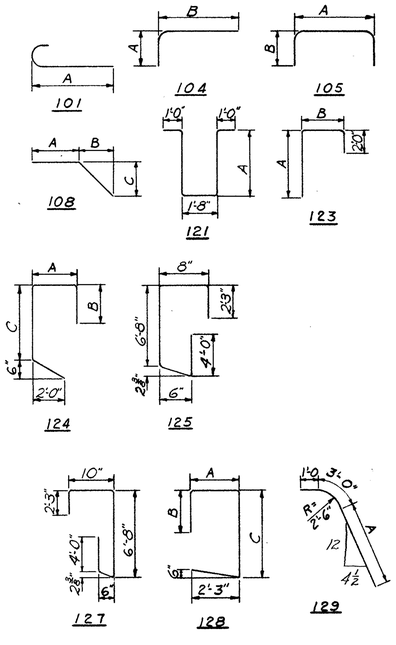
Note: Footings shall extend into rock the full depth of footings and special care shall be taken to provide full bearing of rock against toe of footings. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on plans, a new abutment design will be provided.



REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INC.	WEIGHT POUNDS
A401	35	3'-2"	104	1'-0"	2'-3"			74
A601	28	8'-6"	Str.					357
A602	4	8'-9"	Str.					53
A603	5	7'-0"	Str.					53
A604	1-Ser 9	12'-3" to 14'-0"	Str.				2⅜"	177
A605	26	8'-3"	Str.					321
A606	1-Ser 6	12'-3" to 14'-0"	Str.				4½"	119
A607	4	13'-7"	127					81
A608	56	9'-0"	Str.					756
A609	14	13'-6"	Str.					284
A610	17	12'-6"	Str.					318
A611	50	38'-3"	Str.					2872
A612	50	21'-0"	Str.					1577
A613	76	28'-3"	Str.					3229
A614	20	26'-9"	Str.					803
A615	17	21'-6"	Str.					549
A616	20	18'-6"	Str.					557
A617	11	23'-3"	Str.					384
A618	11	20'-6"	Str.					339
A619	1	9'-1"	128	10"	2'-6"	4'-0"		14
A620	4	8'-4"	108	5'-7"	2"	2'-9"		50
A621	8	4'-1"	104	1'-9"	2'-6"			50
A622	55	10'-4"	108	5'-0"	3'-9"	3'-9"		853
A623	80	5'-0"	Str.					601
A624	4	6'-3"	Str.					38
A625	16	6'-9"	Str.					162
A626	45	9'-0"	123	6'-6"	1'-0"			608
A627	45	4'-3"	104	1'-5"	3'-0"			287
A628	10	10'-2"	123	7'-6"	1'-0"			153
A629	10	5'-4"	104	1'-5"	4'-1"			80
A630	27	6'-1"	104	2'-6"	3'-9"			246
A631	4	11'-0"	Str.					66
A632	4-Ser. 3	12'-0" to 19'-9"	Str.				3 10⅝"	287
A633	4	19'-0"	Str.					114
A634	25-Ser. 7	10'-9" to 12'-9"	121	99" to 10'-9"			8" (A)	246
A635	25-Ser. 8	6'-3" to 10'-3"	121	43" to 8'-3"			13 15/16" (B)	198
A636	2	14'-6"	108	12'-0"	2'-3"	9"		44
A637	6	8'-8"	123	6'-6"	6"			78
A638	35	11'-4"	124	10"	2'-3"	6'-6"		594
A639	35	6'-7"	104	1'-9"	5'-0"			345
A640	4	13'-9"	125					83
A641	4	4'-7"	104	1'-9"	3'-0"			27
A642	36	4'-6"	Str.					243
A643	36	4'-0"	Str.					216
A644	39	5'-7"	104	1'-9"	4'-0"			327
A645	8	5'-6"	105	10"	2'-6"			66
A646	1	10'-1"	124	10"	3'-9"	4'-0"		15
A647	39	12'-3"	128	10"	3'-0"	6'-8"		718
A648	4	20'-0"	124	2'-0"	6'-6"	10'-0"		120
A649	3	10'-10"	105	2'-0"	4'-7"			50
A701	15	8'-6"	Str.					262
A801	15	8'-6"	Str.					342
A802	8	26'-9"	Str.					571
A1001	16	15'-6"	Str.					1067
A1002	14	10'-3"	Str.					620
A1003	6	24'-6"	129	20'-6"				633
A1004	4	12'-11"	101	11'-6"				224
A1005	6	7'-5"	101	6'-0"				194
							Total	23,800

20'-6" to 24'-6"
11'-6" to 19'-6"



BENDING DIAGRAMS

Notes:
For Buttress details see Sheet 119.
For Counterfort details see Sheet 119.
For Rustication detail see sheet 111.
For Base Plate details see sheet 130.
For Abutment seat drainage details see sheet 111.
Special care shall be taken in placing reinforcing steel so it will not interfere with anchor bar setting.
Reinforcing and dimensions on footings for Counterforts A and B are typical.
For replacement bars see Sheet 141.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

120
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

H.N.T.B. BRIDGE NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 3-E

NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.

BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: 1" = 1'-0" STA. 14+65.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

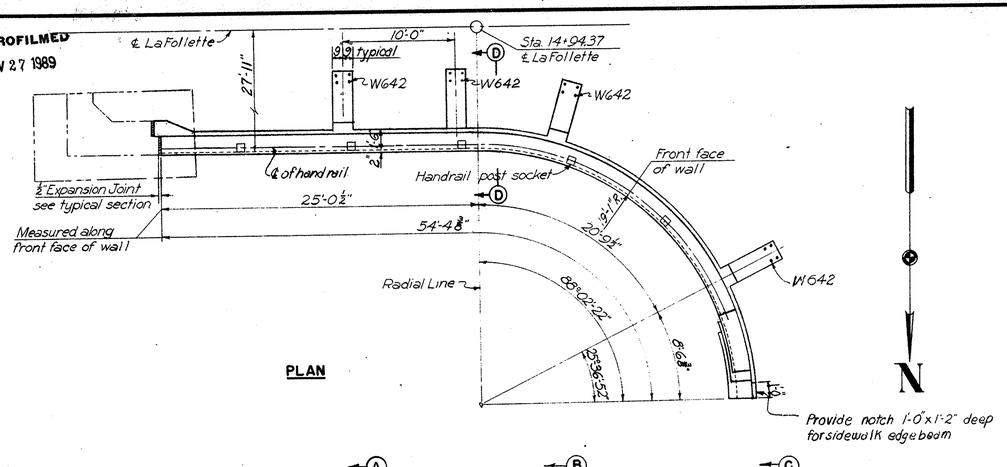
DRAWN	TRACED	CHECKED	REVIEWED	REVISED 2-20-59
L.W.L.		A.B.G.	M.T.	
DATE 1-26-58	DATE	DATE 4-14-58	DATE 9-8-58	1018 SHEET 120

MICROFILMED
NOV 27 1989

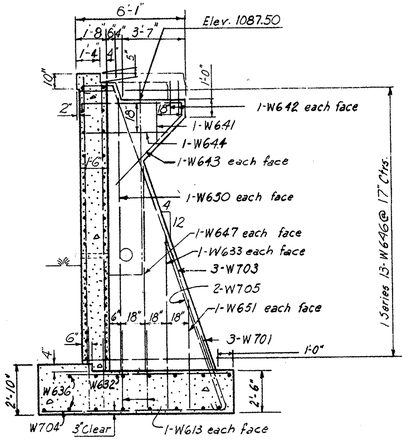
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

121
176

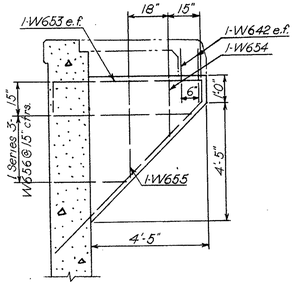
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



PLAN

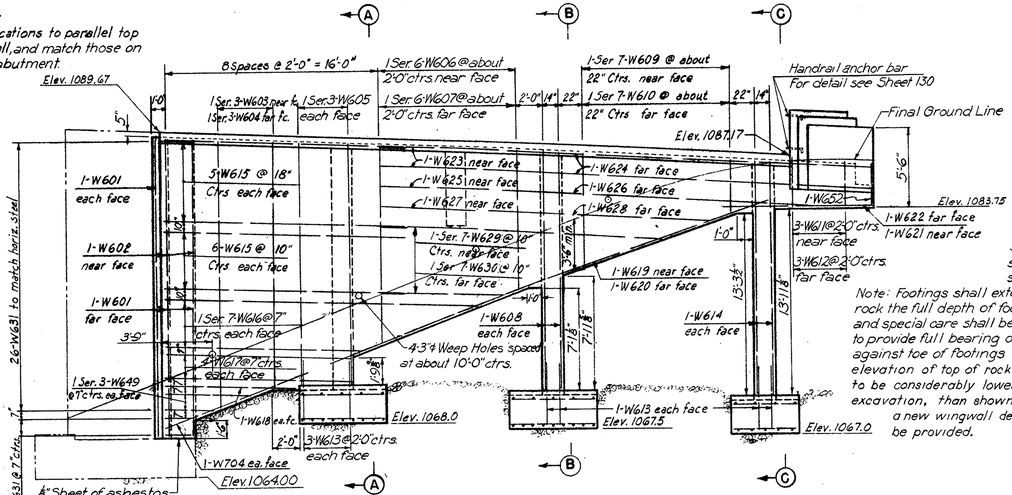


Note: Dimensions shown for Section A-A are typical for Sections B-B and C-C except as noted.



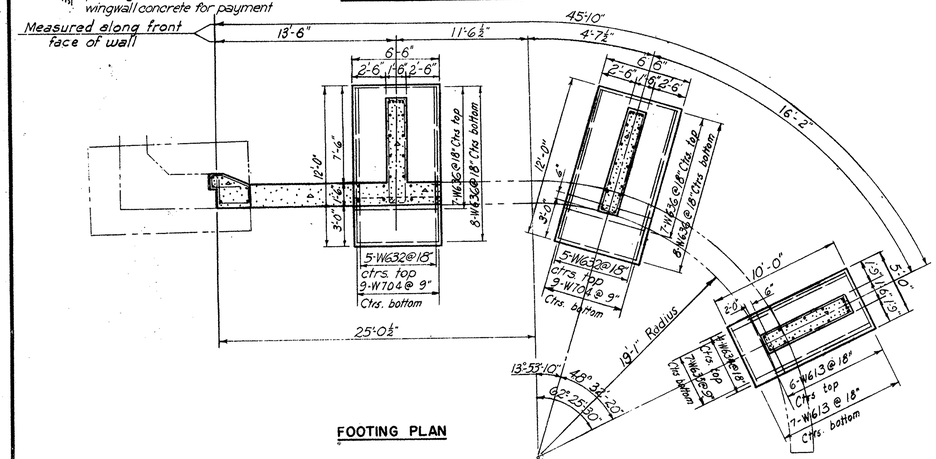
SECTION D-D

Note:
Rustications to parallel top of wall, and match those on the abutment.

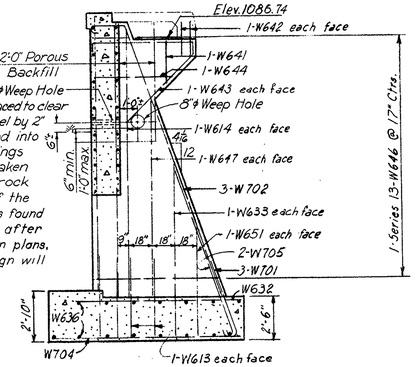


DEVELOPED ELEVATION

Note: Footings shall extend into rock the full depth of footings and special care shall be taken to provide full bearing of rock against toe of footings. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on plans, a new wingwall design will be provided.

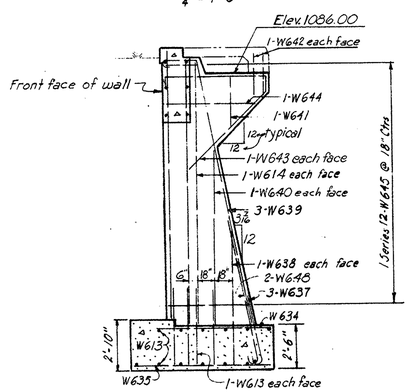


FOOTING PLAN

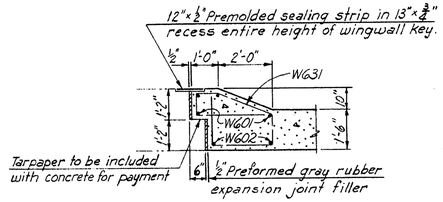


SECTION A-A
¼" = 1'-0"

SECTION B-B
¼" = 1'-0"



SECTION C-C
¼" = 1'-0"



TYPICAL SECTION THRU KEY AT BUTTRESS
⅜" = 1'-0"

Bar marks shown for section thru key are typical for Northwest Wingwall only.

Notes:
For rustication detail see Sheet 111
For end post and handrail details see Sheet 130
For sidewall details see Sheet 127
For bending diagrams see Sheet 122
Bar dimensions are given out to out.
For replacement bars see Sheet 141
Bars of a series shall vary by a constant increment.

REINFORCEMENT SCHEDULE

MARK	NO	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
W601	4	22'-0"	Str.					132
W602	2	22'-6"	Str.					68
W603	1 Ser. 3	18'-3" to 20'-0"	Str.				10½"	86
W604	1 Ser. 3	17'-9" to 19'-6"	Str.				10½"	84
W605	2 Ser. 3	17'-9" to 18'-0"	Str.				1½"	161
W606	1 Ser. 6	11'-0" to 15'-0"	Str.				3⅜"	117
W607	1 Ser. 6	10'-6 to 14'-6	Str.				3⅜"	112
W608	4	17'-6	Str.					105
W609	1 Ser. 7	4'-6" to 5'-0"	Str.				9"	71
W610	1 Ser. 7	4'-0" to 8'-6"	Str.				5"	66
W611	3	3'-6"	Str.					16
W612	3	3'-0"	Str.					14
W613	39	4'-6"	Str.					263
W614	8	17'-0"	Str.					204
W615	22	18'-0"	Str.					554
W616	2 Ser. 7	14'-5" to 22'-9"	Str.				1'-6"	392
W617	8	13'-9"	Str.					165
W618	2	9'-9"	Str.					29
W619	1	36'-0"	125	12'-6"	23'-6"	19'-3"		54
W620	1	37'-6"	125	12'-6"	25'-0"	20'-5"		56
W621	1	10'-6"	124	10'-6"	19'-3"			16
W622	1	11'-3"	124	11'-3"	20'-5"			17
W623	2	38'-5"	125	9'-0"	29'-5"	19'-3"		115
W624	2	40'-2"	125	9'-0"	31'-2"	20'-5"		120
W625	1	34'-3"	125	9'-0"	25'-3"	19'-3"		51
W626	1	35'-10"	125	9'-0"	26'-10"	20'-5"		54
W627	1	25'-8"	125	9'-0"	16'-8"	19'-3"		39
W628	1	26'-8"	125	9'-0"	17'-8"	20'-5"		40
W629	1 Ser. 7	9'-11" to 22'-3"	125	9'-0"	0'-11" to 13'-3"	19'-3"	2'-0⅛"	169
W630	1 Ser. 7	10'-0" to 23'-2"	125	9'-0"	1'-0" to 14'-2"	20'-5"	2'-2"	174
W631	29	10'-10"	123					476
W632	10	5'-0"	Str.					135
W633	4	10'-6"	Str.					63
W634	4	8'-0"	Str.					48
W635	7	5'-6"	Str.					100
W636	30	6'-0"	Str.					270
W637	3	5'-0"	101	4'-3"				23
W638	2	7'-0"	Str.					21
W639	3	20'-5"	107	1'-9"	5'-0"	17'-3"		93
W640	2	11'-3"	Str.					34
W641	3	7'-0"	109	1'-2"	2'-2"			32
W642	16	2'-0"	Str.					49
W643	6	12'-7"	126	4'-0"	4'-0"			112
W644	3	11'-8"	121	1'-2"	4'-7"			52
W645	1 Ser. 12	6'-2" to 15'-8"	109	1'-2"	1'-9" to 6'-6"		10¾	197
W646	2 Ser. 13	6'-2" to 17'-6"	109	1'-2"	1'-9" to 7'-6"		11½	466
W647	4	13'-0"	Str.					78
W648	2	9'-3"	101	8'-6"				28
W649	2 Ser. 3	3'-6" to 6'-9"	Str.				1'-7½"	46
W650	2	17'-9"	Str.					53
W651	4	6'-3"	Str.					38
W652	1	4'-11"	105	1'-2"	2'-11"	1'-2"		7
W653	2	14'-9"	126	6@5'-7"	6@4'-5"	5'-7"		44
W654	1	5'-0"	105	1'-2"	2'-1"	2'-1"		9
W655	1	8'-0"	105	1'-2"	3'-7"	3'-7"		13
W656	1 Ser. 3	T@8" to 12'-0" @8"	121	1'-2"	2@9" to 5'-0" @7"		2'-6"	43
W701	6	5'-2"	101	4'-3"				63
W702	3	21'-2"	107	1'-9"	6'-0"	17'-7"		131
W703	3	21'-6"	107	1'-9"	6'-0"	17'-11"		133
W704	20	11'-6"	Str.					471
W705	4	10'-8"	101	9'-9"				87
		END POST						
W687	1	4'-3"	124	4'-3"	19'-0"			6
W688	5	6'-0"	124	6'-0"	20'-6"			45
W689	5	4'-9"	124	4'-9"	19'-0"			36
W690	8	5'-9"	Str.					69
W691	4	4'-6"	Str.					27
W694	3	3'-0"	Str.					23
W697	1	4'-0"	124	4'-0"	19'-0"			6
W698	1	4'-0"	124	4'-0"	20'-6"			6
W699	1	4'-9"	124	4'-9"	20'-6"			7
						Total Weight		7,220

H.N.T.B.BR.NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

NORTHWEST WINGWALL

NO. SO. EXPRESSWAY UNDER LAFOLLETTE ST.

BR. NO. SUM-8-1235 STA. 12+46.93
SCALE 3/16" = 1'-0" STA. 14+65.50

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

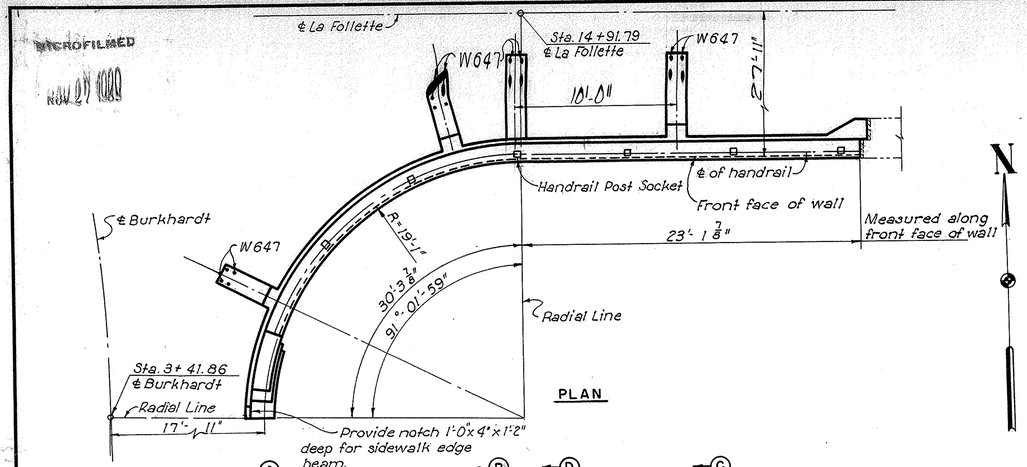
DRAWN	TRACED	CHECKED	REVIEWED	REVISED 2-20-59
AJT PCS		A.B.G	K.J.T	
DATE 2-6-58	DATE	DATE 4-30-58	DATE 9-8-58	1018 SHEET 121

MICROFILMED
NOV 27 1959

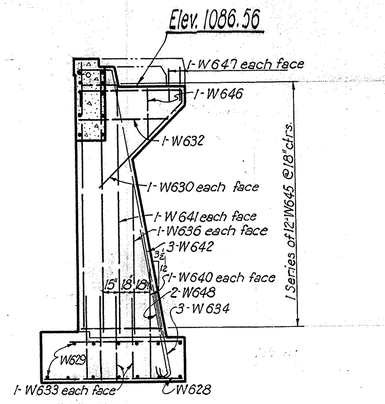
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

122
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

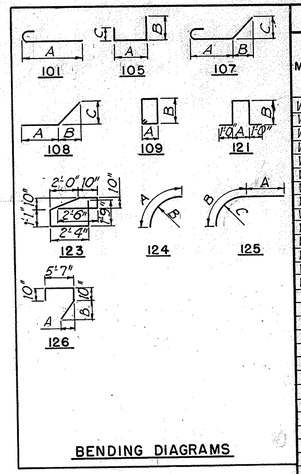


PLAN

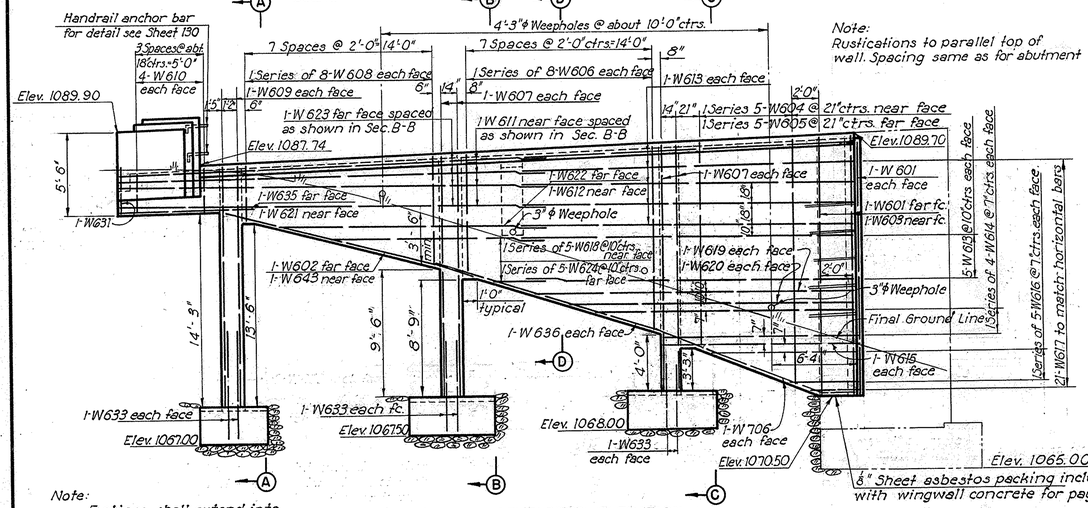


SECTION A-A
Scale: 1/4"=1'-0"

Note: Dimensions shown for Section C-C are typical for Sections A-A and B-B except as shown.

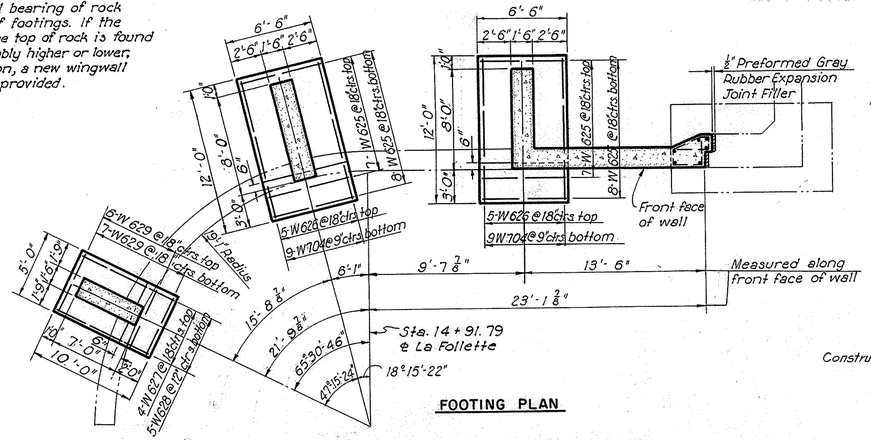


BENDING DIAGRAMS

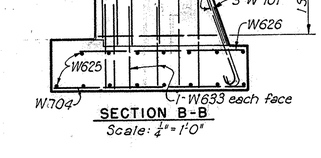


DEVELOPED ELEVATION

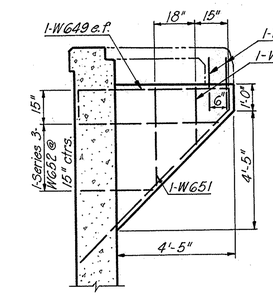
Note:
Footings shall extend into rock the full depth of footings and special care shall be taken to provide full bearing of rock against toe of footings. If the elevation of the top of rock is found to be considerably higher or lower, after excavation, a new wingwall design will be provided.



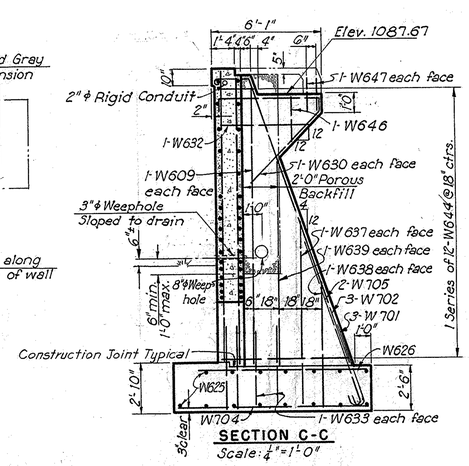
FOOTING PLAN



SECTION B-B
Scale: 1/4"=1'-0"



SECTION D-D
Scale: 3/8"=1'-0"



SECTION C-C
Scale: 1/4"=1'-0"

Notes:
For rustication detail, see Sheet 111.
For end post and handrail details see Sheet 130.
For typical section thru key at buttress, see Sheet 121.
For sidewalk details see Sheet 127.
Bar dimensions are given out to out.
For replacement bars see Sheet 141.
Bars of a series shall vary by a constant increment.

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES ING.	WEIGHT POUNDS
W601	4	21'-0"	Str.					126
W602	1	20'-3"	125	2'-0	18'-3"	20'-5"		30
W603	2	21'-3"	Str.					65
W604	1 Series 5	15'-0" to 18'-0"	Str.				9"	124
W605	1 Series 5	14'-6" to 17'-6"	Str.				7 1/2"	135
W606	2 Series 8	8'-9" to 13'-6"	Str.				8"	268
W607	8	18'-0"	Str.					216
W608	2 Series 8	4'-3" to 8'-0"	Str.				6 1/2"	147
W609	8	17'-9"	Str.					214
W610	8	3'-6"	Str.					42
W611	4	32'-6"	125	2'-0"	30'-6"	19'-3"		195
W612	1	20'-3"	125	2'-0"	18'-3"	19'-3"		30
W613	20	24'-6"	Str.					738
W614	2 Series 4	13'-9" to 19'-3"	Str.				1'-10"	198
W615	2	19'-9"	Str.					41
W616	2 Series 5	4'-6" to 10'-6"	Str.				1'-6"	113
W617	21	10'-10"	123					342
W618	1 Series 5	3'-0" to 12'-0"	125	2'-0"	1'-0" to 10"	19'-3"	2'-3"	57
W619	2	22'-9"	Str.					69
W620	2	20'-6"	Str.		0"			62
W621	1	10'-0"	124	10'-0"	19'-3"			15
W622	1	21'-0"	125	2'-0"	19'-0"	20'-5"		32
W623	4	34'-3"	125	2'-0"	32'-3"	20'-5"		206
W624	1 Series 5	3'-6" to 12'-6"	125	2'-0"	1'-6" to 10'-6"	20'-5	2'-3"	60
W625	30	6'-0"	Str.					270
W626	10	9'-3"	Str.					140
W627	4	8'-3"	Str.					50
W628	5	9'-6"	Str.					72
W629	13	4'-6"	Str.					89
W630	6	12'-7"	126	4'-0"	4'-0"			110
W631	1	5'-10"	103	1'-2"	3'-6"	1'-6"		9
W632	3	12'-0"	121	1'-2"	4'-9"			54
W633	24	4'-9"	Str.					171
W634	3	5'-6"	101	4'-9"				26
W635	1	11'-3"	124	11'-3"	20'-5"			17
W636	4	10'-6"	Str.					63
W637	4	10'-9"	Str.					65
W638	4	6'-6"	Str.					39
W639	4	13'-0"	Str.					78
W640	2	7'-0"	Str.					21
W641	2	16'-9"	Str.					51
W642	3	20'-9"	107	1'-9"	4'-10"	17'-8"		93
W643	1	19'-0"	125	2'-0"	17'-0"	19'-3"		29
W644	2 Series 12	6'-10 to 11'-6"	109	1'-2"	2'-4" to 7'-5"		11 3/8"	440
W645	1 Series 12	6'-6 to 16'-8"	109	1'-2"	1'-11" to 6'-0"		10"	200
W646	3	6'-10"	109	1'-2"	2'-3"			49
W647	16	2'-0"	Str.					64
W648	2	9'-3"	101	8'-6"	5'-7"			29
W649	2	14'-10" to 9"	126	6"-0"	6"-0"			45
W650	1	5'-0"	106	1'-2"	2'-1"	2'-1"		8
W651	1	8'-0"	105	1'-2"	3'-7"	3'-7"		12
W652	1 Series 3	7'-10" to 12'-10"	121	1'-2"	2'-8 to 5'2"		2'-6"	47
W701	6	5'-8"	101	4'-9"				68
W702	3	21'-8"	107	1'-9"	6'-1"	18'-0"		131
W703	3	21'-5"	107	1'-9"	5'-10"	17'-9"		128
W704	18	11'-6"	Str.					423
W705	4	10'-6"	101	9'-7"				84
W706	2	14'-4"	103	11'-8"	2'-6"	1'-0"		59
		END POST						
W687	1	4'-3"	124	4'-3"	19'-0"			6
W686	5	6'-0"	124	6'-0"	20'-6"			45
W689	5	4'-9"	124	4'-9"	19'-0"			36
W690	8	5'-9"	Str.					69
W691	4	4'-6"	Str.					27
W694	3	5'-0"	Str.					23
W697	1	4'-0"	124	4'-0"	19'-0"			6
W698	1	4'-0"	124	4'-0"	20'-6"			6
W699	1	4'-9"	124	4'-9"	20'-6"			7
							Total=	6,950

H.N.T.B. BR. NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTHWEST WINGWALL
NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: 3/16" = 1'-0" STA. 14+65.50
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

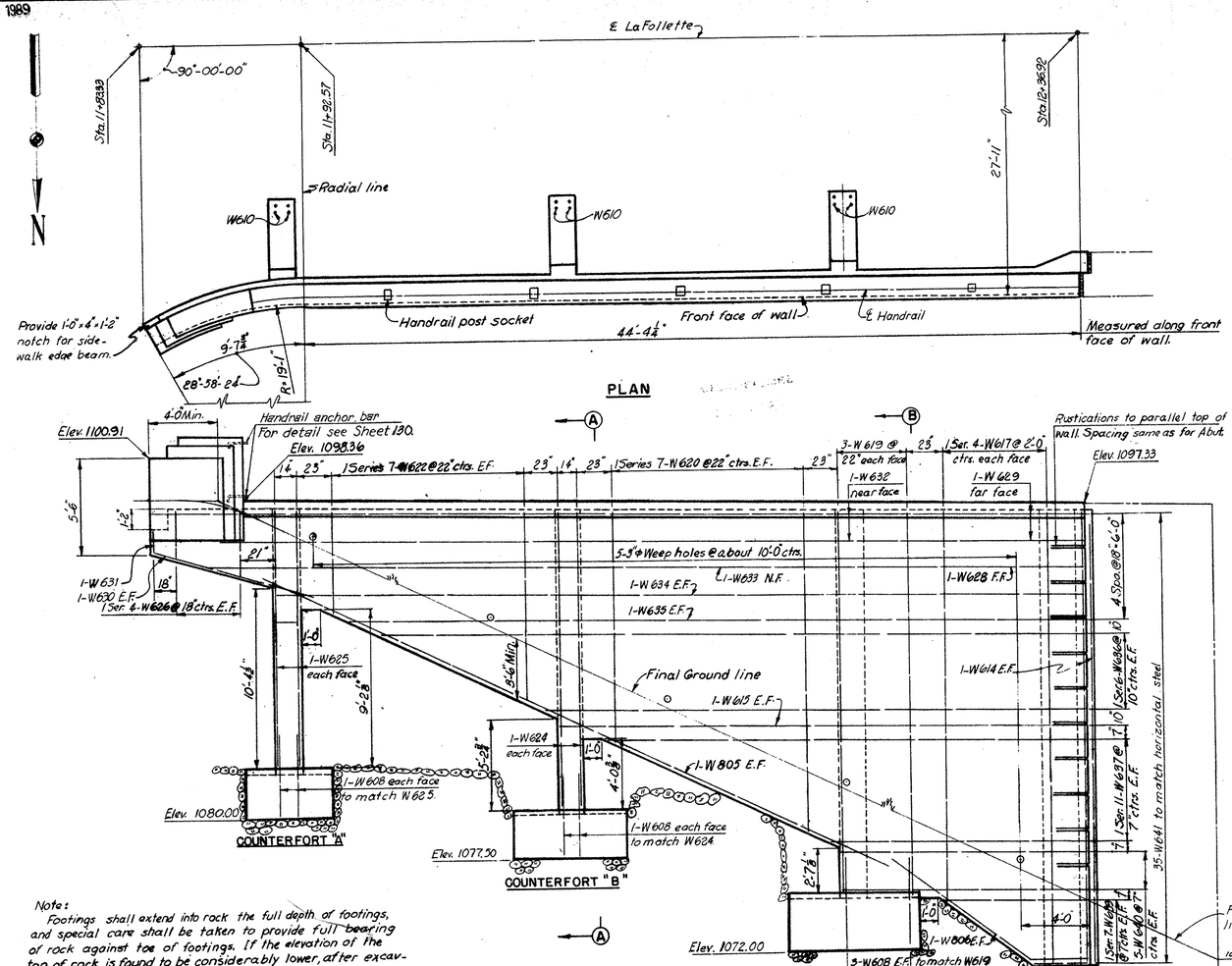
DRAWN	TRACED	CHECKED	REVIEWED	REVISED
R.C.S.	B.S.L.	J.W.L.	J.T.	2-20-59
DATE 1-17-58	DATE 3-17-58	DATE 2-18-58	DATE 3-8-58	1018 SHEET 122

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

123
176

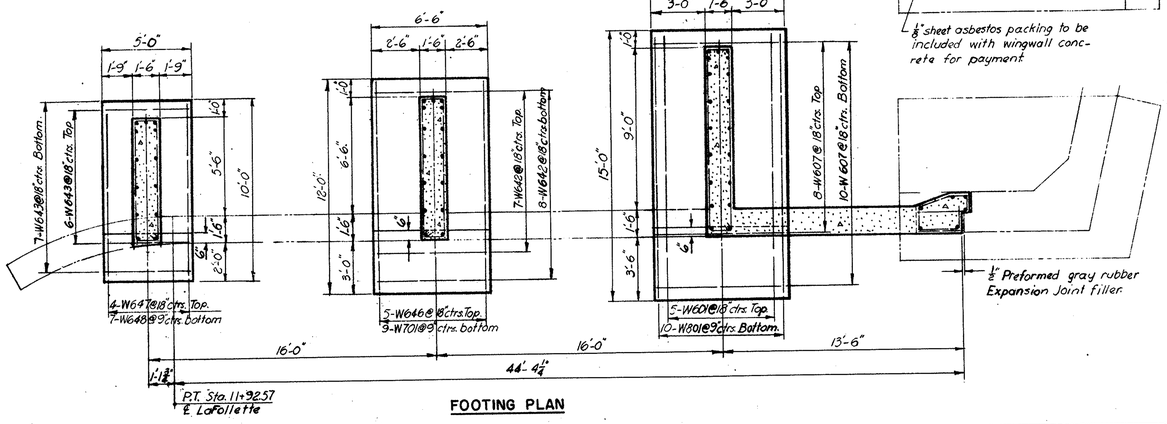
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.- 8-11.65



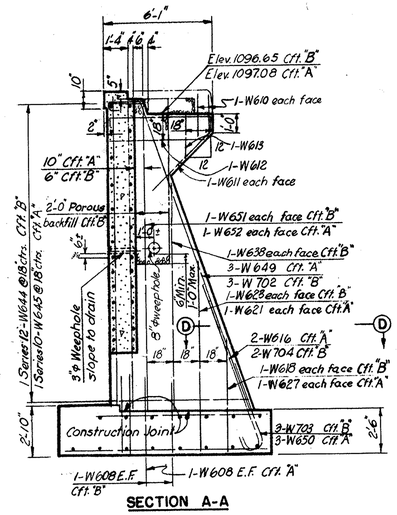
PLAN

DEVELOPED ELEVATION

Note:
Footings shall extend into rock the full depth of footings, and special care shall be taken to provide full bearing of rock against toe of footings. If the elevation of the top of rock is found to be considerably lower, after excavation, a new wingwall design will be provided.

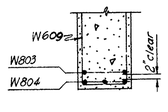


FOOTING PLAN



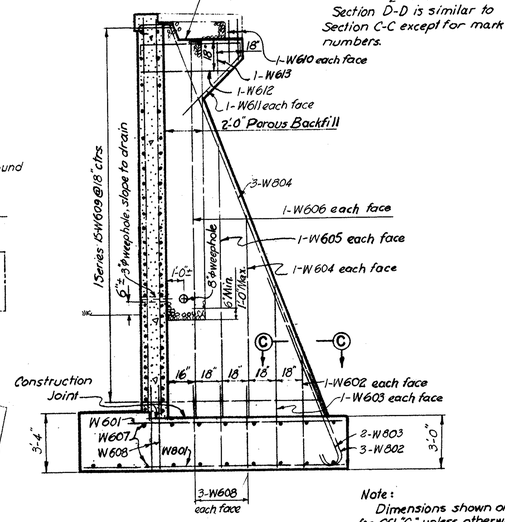
SECTION A-A

Cft. "A" is similar to Cft. "B" except as noted.



SECTION C-C
½"=1'-0"

Section D-D is similar to Section C-C except for mark numbers.



SECTION B-B

Notes:
For replacement bar list see sheet 141.
Bars of a series shall vary by a constant increment.
For typical key detail at buttress see sheet 121.
Dimensions are measured along front face of wall.
For sidewalk details see sheet 127.
For end post and handrail details see sheet 130.
N.F. denotes near face. , F.F. denotes far face.
E.F. denotes each face. , Cft. denotes Counterfort.
For bending diagrams see sheet 122.
Bar dimensions are given out to out.

Note:
Dimensions shown on Cft. "B" are typical for Cft. "C" unless otherwise shown.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
W601	5	12'-0"	str.					90
W602	2	6'-3"	str.					19
W603	2	10'-0"	str.					30
W604	2	11'-3"	str.					34
W605	2	15'-0"	str.					45
W606	2	21'-6"	str.					63
W607	18	7'-0"	str.					189
W608	26	5'-0"	str.					195
W609	1 Ser. 15	22'-2" to 6'-0"	109	1'-2"	9'-8" to 1'-7"		1'-1⅛"	317
W610	12	2'-0"	str.					36
W611	6	12'-7"	126	4'-0"	4'-0"			113
W612	3	12'-6"	121	1'-2"	5'-0"			56
W613	3	7'-4"	109	1'-2"	2'-3"			33
W614	4	25'-6"	str.					153
W615	2	30'-0"	str.					90
W616	2	9'-3"	101	8'-6"				28
W617	2 Ser. 4	21'-6" to 25'-5"	str.					282
W618	2	6'-3"	str.					19
W619	6	22'-0"	str.					198
W620	2 Ser. 7	17'-9" to 12'-9"	str.					321
W621	2	9'-3"	str.					28
W622	2 Ser. 7	10'-6" to 5'-6"	str.					168
W623	2	10'-8"	str.					32
W624	4	17'-3"	str.					104
W625	4	15'-3"	str.					92
W626	2 Ser. 4	3'-6" to 2'-9"	str.				3"	38
W627	2	6'-9"	str.					20
W628	1	48'-11"	125	44'-2"	4'-9"	20'-5"		73
W629	2	49'-8"	125	44'-2"	5'-6"	20'-5"		149
W630	2	9'-0"	str.					27
W631	1	4'-1"	105	1'-2"	2'-3"	1'-0"		6
W632	2	49'-2"	125	44'-2"	5'-0"	19'-4"		148
W633	1	48'-8"	125	44'-2"	4'-6"	19'-4"		73
W634	2	45'-9"	str.					137
W635	2	41'-3"	str.					124
W636	2 Ser. 6	39'-6" to 30'-0"	str.				1'-10⅝"	630
W637	2 Ser. 11	26'-9" to 14'-6"	str.				1'-2⅞"	687
W638	2	12'-6"	str.					38
W639	2 Ser. 7	8'-0" to 2'-9"	str.				10½"	113
W640	10	13'-9"	str.					207
W641	35	10'-10"	123					550
W642	15	6'-0"	str.					135
W643	13	4'-6"	str.					88
W644	1 Ser. 12	17'-10" to 6'-6"	109	1'-2"	7'-6" to 1'-10"		1'-0⅜"	220
W645	1 Ser. 10	15'-10" to 7'-2"	109	1'-2"	6'-6" to 2'-2"		11⅜"	173
W646	5	9'-9"	str.					73
W647	4	8'-6"	str.					51
W648	7	9'-6"	str.					100
W649	3	18'-6"	107	1'-9"	4'-10"	15'-2"		84
W650	3	5'-1"	101	4'-4"				23
W651	2	16'-9"	str.					50
W652	2	12'-6"	str.					43
W701	9	11'-6"	str.					212
W702	3	20'-7"	107	1'-9"	6'-0"	17'-4"		134
W703	3	5'-4"	101	4'-5"				33
W704	2	10'-8"	101	9'-9"				44
W801	10	14'-6"	str.					388
W802	3	6'-5"	101	5'-4"				51
W803	2	12'-1"	101	11'-0"				65
W804	3	26'-4"	107	1'-9"	8'-6"	21'-11"		211
W805	2	40'-0"	str.					214
W806	2	12'-8"	108	9'-6"	2'-3"	1'-9"		68
END POST								
W687	1	4'-3"	124	4'-3"	19'-0"			6
W688	5	6'-0"	124	6'-0"	20'-6"			45
W689	5	4'-9"	124	4'-9"	19'-0"			36
W690	8	5'-9"	str.					69
W691	4	4'-6"	str.					27
W694	3	5'-0"	str.					23
W697	1	4'-0"	124	4'-0"	19'-0"			6
W698	1	4'-0"	124	4'-0"	20'-6"			6
W699	1	4'-9"	124	4'-9"	20'-6"			7
							Total Weight	8,440

H.N.T.B. BR. NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

NORTHEAST WINGWALL
NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: 1/4" = 1'-0" STA. 14+65.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
W.Z.D.		W.R.K.	J.T.	2-20-59
DATE 4-29-58	DATE	DATE 8-22-58	DATE 9-8-58	1018 SHEET 123

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

PLAN

DEVELOPED ELEVATION

FOOTING PLAN

COUNTERFORT A | COUNTERFORT B | COUNTERFORT C | COUNTERFORT D | COUNTERFORT E | COUNTERFORT F | COUNTERFORT G | COUNTERFORT H

Note: Footings shall extend into rock the full depth of footings and special care shall be taken to provide full bearing of rock against toe of footings. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on plans, a new wingwall design will be provided.

Notes:
For rustication detail see sheet 111.
For end post details see sheet 130.
For handrail details see sheet 130.
For sidewalk details see sheet 127.
For counterfort details see sheet 125 and 126.
For section A-A see sheet 125.
F.F. denotes far face.
N.F. denotes near face.
E.F. denotes each face.
For section B-B see section A-A sheet 125.
For section thru key at buttress see sheet 121.
For counterfort H footing plan see sheet 125.

Note: Reinforcement and dimensions shown for Counterfort C footing are typical for Counterfort B and D footings unless otherwise noted.

Note: Reinforcement and dimensions shown for Counterfort F footing are typical for Counterfort E, G and H footings unless otherwise noted.

H.N.T.B. BR. NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTHEAST WINGWALL
NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: 3/16" = 1'-0" STA. 14+65.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN AMM	TRACED	CHECKED W.R.K.	REVIEWED W.T.	REVISED
DATE 5-27-58	DATE	DATE 8-18-58	DATE 9-8-58	1018 SHEET 124

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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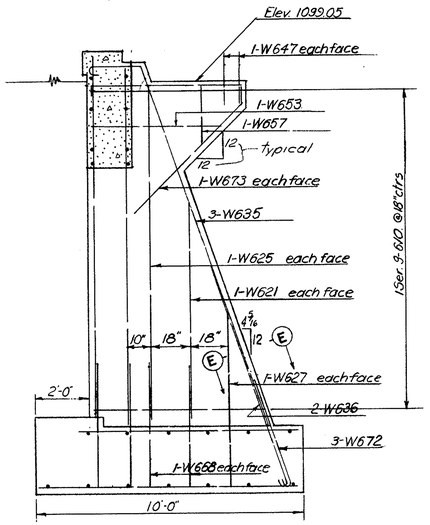
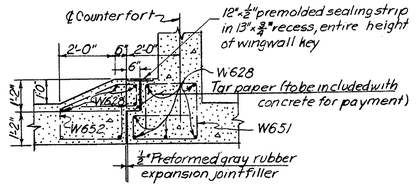
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

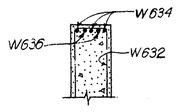


COUNTERFORT M
$\frac{3}{8}$"=1'-0"

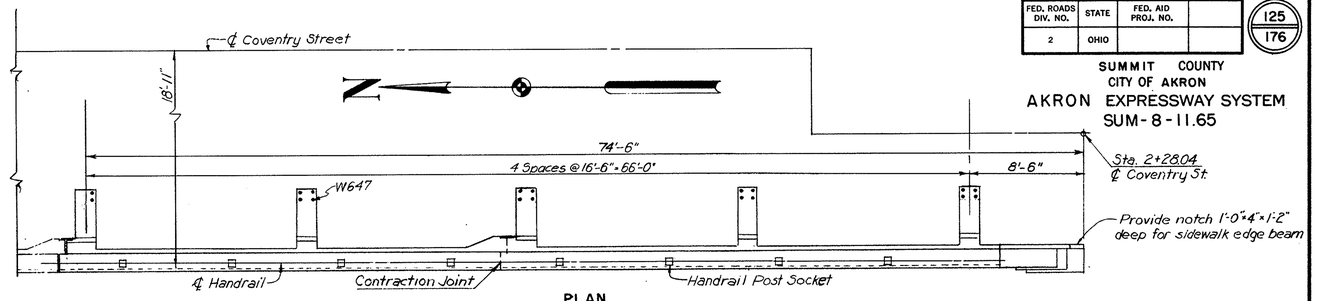
Note:
Dimensions shown on Cft. F are typical for Cfts. E,G,H,J,K,L, and M unless otherwise shown.



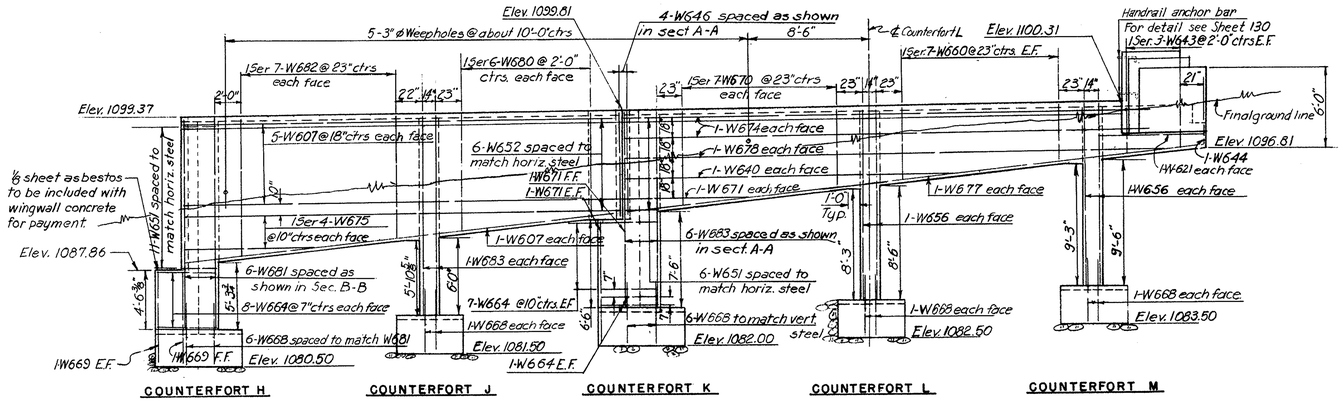
SECTION A-A
$\frac{3}{8}$"=1'-0"
Sec. B-B similar to Sec. A-A except expansion joint filler will be omitted at contraction joints and for bar marks.



SECTION C-C
$\frac{3}{8}$"=1'-0"
Sections D-D and E-E similar to Section C-C except for bar marks.

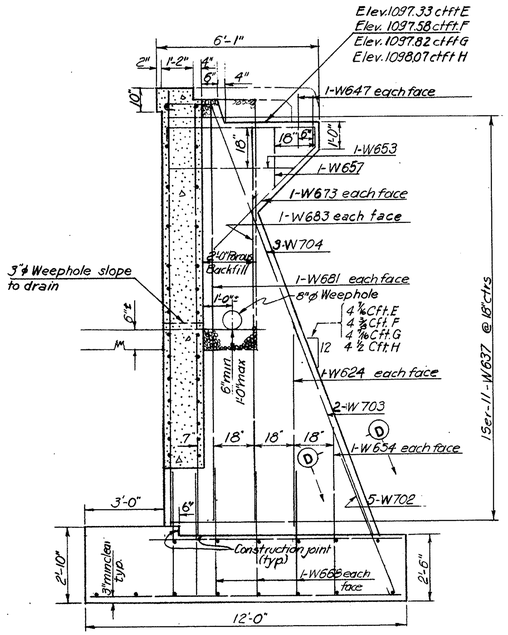


PLAN

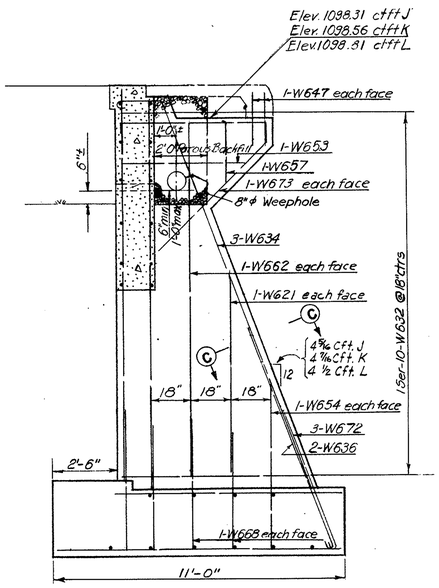


Note:
Footings shall extend into rock the full depth of footings and special care shall be taken to provide full bearing of rock against toe of footings. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on plans, a new wingwall design will be provided.

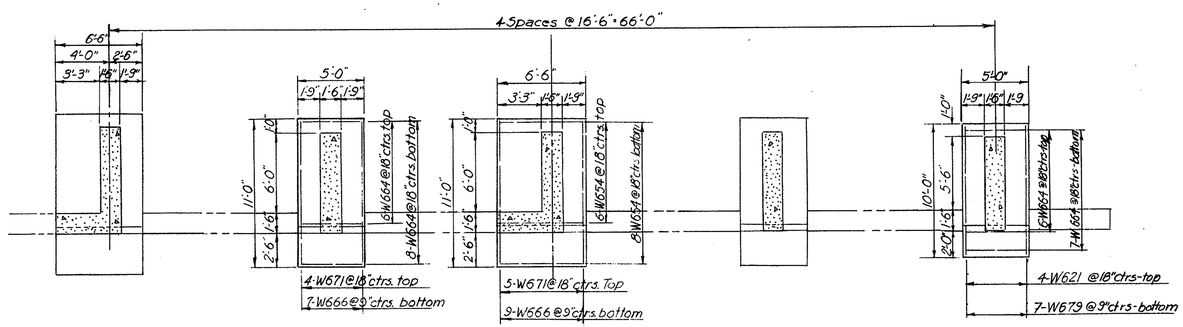
DEVELOPED ELEVATION



COUNTERFORTS E,F,G AND H
$\frac{3}{8}$"=1'-0"
Counterfort F shown. Counterforts E, G and H similar except as shown.



COUNTERFORTS J,K AND L
$\frac{3}{8}$"=1'-0"
Counterfort K shown. Counterforts J and L similar except as shown.



Note:
For Counterfort H reinforcement and dimensions see Counterfort F, sheet 124.

Note: Footing reinforcement and dimensions shown for Counterfort I are typical for Counterfort L.

FOOTING PLAN

Note:
For additional notes see sheets 124 and 126.

H.N.T.B. BR. NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTHEAST WINGWALL
NO.- SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: 3/16" = 1'-0" STA. 14+65.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN AMM	TRACED	CHECKED W.R.K.	REVIEWED J.T.	REVISED
DATE 5-27-58	DATE	DATE 8-18-58	DATE 9-8-58	1018 SHEET 125

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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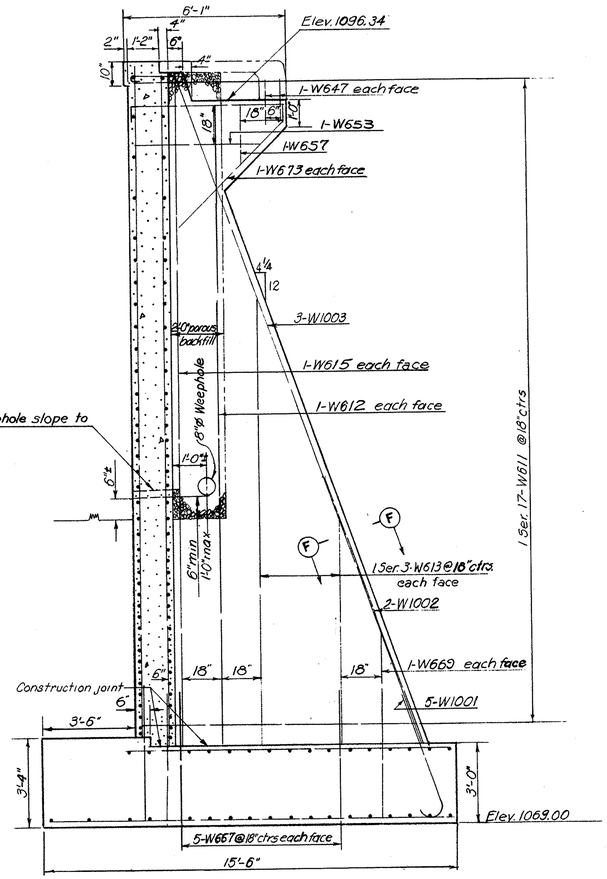
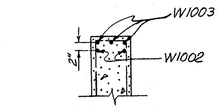
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

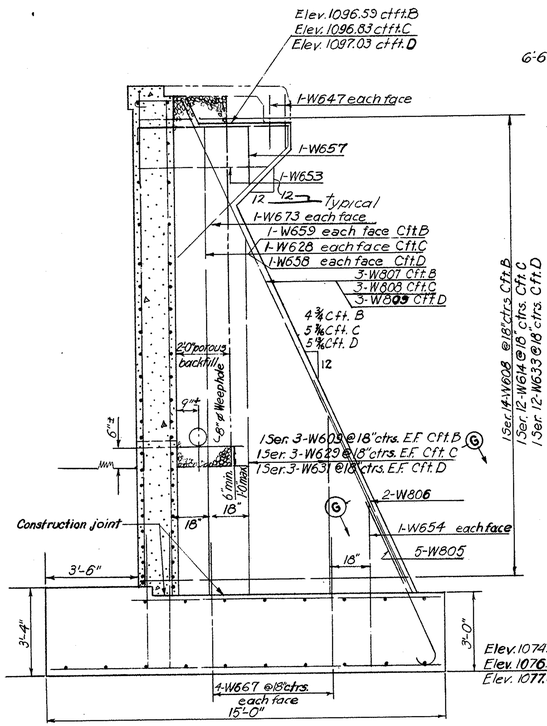


COUNTERFORT A



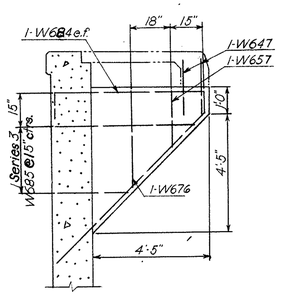
SECTION F-F

Section G-G similar to Section F-F, except for bar marks



COUNTERFORTS B, C AND D

Counterfort C shown. Counterforts B and D similar except as shown.



SECTION D-D

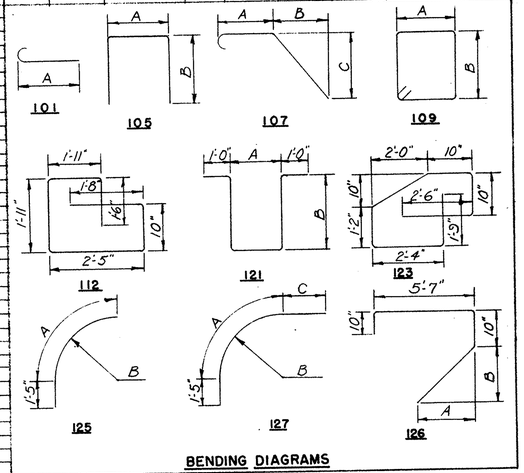
Note:
Dimensions shown on Counterfort A are Typical for Counterforts B, C, and D unless otherwise noted.

Notes:
For location of counterforts see sheet 124.
For replacement bars see sheet 141.
Bar dimensions are given out to out
Bars of a series shall vary in length by a constant increment
For location Section D-D see sheet 124.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
W601	29	31'-5"	127	14'-8"	9'-3"	15'-4"		1360
W602	29	33'-2"	127	16'-5"	10'-5"	15'-4"		1443
W603	8	17'-8"	127	14'-8"	9'-3"	1'-7"		214
W604	8	19'-5"	127	16'-5"	10'-5"	1'-7"		233
W605	7	12'-9"	125	11'-4"	9'-3"			134
W606	7	14'-5"	125	13'-0"	10'-5"			152
W607	102	32'-6"	Str.					4380
W608	1Ser. 14	~~6'-6" to 6'-6"~~	121	1'-2"	2'-0 to 3'-11"		1'-2⅝"	33
W609	2Ser. 3	7'-6" to 14'-9"	Str.				3'-7½"	102
W610	1Ser. 9	7'-8 to 16'-0"	109	1'-2"	2'-2 to 6'-4"		1'-0½"	160
W611	1Ser. 17	6'-0 to 23'-2"	121	1'-2"	1'-5 to 10'-4"		1'-1"	374
W612	4	23'-9"	Str.					145
W613	2Ser. 3	8'-6 to 16'-9"	Str.				4'-1½"	114
W614	1Ser. 12	7'-2 to 22'-2"	121	1'-2"	2'-4 to 9'-10"		1'-4⅜"	264
W615	2	24'-5"	Str.					75
W616	1	26'-1"	127	14'-8"	9'-3"	10'-0"		42
W617	1	27'-10"	127	16'-5"	10'-5"	10'-0"		39
W618	1	22'-7"	127	14'-8"	9'-3"	6'-6"		42
W619	1	24'-4"	127	16'-5"	10'-5"	6'-6"		34
W620	2	28'-3"	Str.					85
W621	14	8'-3"	Str.					175
W622	2Ser. 3	5'-0 to 12'-0"	Str.				3'-6"	77
W623	2	10'-9"	Str.					33
W624	8	7'-9"	Str.					94
W625	2	12'-9"	Str.					39
W626	6	25'-6"	Str.					231
W627	2	6'-9"	Str.					20
W628	18	17'-6"	Str.					473
W629	2Ser. 3	6'-6 to 13'-0"	Str.				3'-3"	88
W630	18	21'-0"	Str.					517
W631	2 Ser. 3	6'-0 to 12'-3"	Str.				3'-1½"	83
W632	3Ser. 10	6'-6 to 16'-10"	109	1'-2"	1'-10 to 7'-0"		1'-1¾"	524
W633	1Ser. 12	6'-0 to 22'-2"	121	1'-2"	1'-3 to 9'-10"		1'-5⅛"	233
W634	3	~~17'-11" to 17'-11"~~	107	1'-9"	5'-7"	14'-5"		254
W635	3	~~16'-11" to 16'-11"~~	107	1'-9"	4'-9"	13'-8"		80
W636	8	9'-5"	101	5'-0"				118
W637	4Ser. 11	6'-6 to 19'-0"	109	1'-2"	1'-10 to 7'-5"		1'-3"	843
W638	2Ser. 6	27'-3" to 28'-0"	Str.				1'-3⅛"	497
W639	6	26'-0"	Str.					236
W640	8	25'-3"	Str.					303
W641	2	4'-0"	Str.					12
W642	2Ser. 5	21'-0" to 21'-9"	Str.				2⅛"	322
W643	2Ser. 3	3'-0" to 3'-6"	Str.				3"	30
W644	1	~~6'-6" to 6'-6"~~	105	1'-2"	2'-10"	~~(1-8)~~		8
W645	34	7'-6"	Str.					385
W646	2Ser. 5	21'-3 to 18'-6"	Str.				8¼"	300
W647	44	2'-0"	Str.					132
W648	8	18'-9"	Str.					226
W649	21	12'-3"	Str.					386
W650	2Ser. 4	17'-6 to 18'-6"	Str.				4"	218
W651	81	9'-4"	112					1162
W652	126	10'-10"	123					1905
W653	12	12'-6"	121	1'-2"	5'-0"			226
W654	50	6'-0"	Str.					810
W655	2Ser. 5	16'-0 to 16'-6"	Str.				1½"	246
W656	12	14'-0"	Str.					254
W657	13	7'-4"	109	1'-2"	2'-3"			143
W658	20	16'-0"	Str.					480
W659	2	19'-9"	Str.					60
W660	2Ser. 7	4'-0 to 5'-3"	Str.				2½"	99
W661	2Ser. 5	14'-0 to 15'-9"	Str.				5¼	225
W662	6	13'-6"	Str.					123
W663	2Ser. 7	12'-3 to 13'-3"	Str.				2"	270
W664	83	4'-6"	Str.					560
W665	2Ser. 5	10'-9" to 11'-9"	Str.				3"	170
W666	83	10'-6"	Str.					362
W667	67	5'-3"	Str.					527
W668	84	4'-9"	Str.					599
W669	55	7'-0"	Str.					613
W670	2Ser. 7	5'-9" to 6'-6"	Str.				1½"	130
W671	38	9'-0"	Str.					513
W672	12	6'-3"	101	5'-6"				114
W673	24	12'-11"	126	4'-0"	4'-0"			465
W674	4	39'-3"	Str.					237
W675	2Ser. 4	10'-0" to 32'-6"	Str.				7'-6"	255
W676	1	10'-8"	109	1'-2"	3'-6"			17
W677	2	43'-0"	Str.					130
W678	2	40'-6"	Str.					123
W679	7	9'-6"	Str.					100
W680	2Ser. 6	7'-9" to 8'-3"	Str.				1¾⅛	144
W681	14	15'-9"	Str.					333
W682	2Ser. 7	8'-6 to 9'-9"	Str.				2½"	193
W683	16	14'-9"	Str.					400
W684	2	14'-3"	126	5'-4"	5'-4"			45
W685	1Ser. 3	7'-0" to 12'-0" 28" 28"	121	5'-2 to 2'-5" C 1'-2"	2'-7 to 5'-1"		2'-6"	47
W701	2	32'-6"	Str.					133
W702	20	6'-3"	101	5'-4"				255
W703	8	7'-0"	Str.					114
W704	12	19'-9"	107	1'-9"	5'-11"	16'-7"		486
W705	36	11'-6"	Str.					845
W706	2	29'-0"	Str.					118

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
W801	2	15'-3"	Str.					82
W802	2	13'-0"	Str.					70
W803	2	10'-6"	Str.					56
W804	30	14'-6"	Str.					1165
W805	3	6'-6"	101	7'-5"				114
W806	2	9'-0"	Str.					48
W807	3	25'-5"	107	1'-5"	8'-7"	21'-0"		204
W808	3	23'-6"	107	1'-5"	8'-7"	18'-8"		188
W809	3	22'-3"	107	1'-5"	8'-7"	17'-5"		179
W501	11	15'-0"	Str.					361
W1001	5	7'-8"	101	6'-3"				165
W1002	2	10'-6"	Str.					90
W1003	3	29'-8"	107	1'-9"	9'-0"	24'-11"		384
END POST								
W690	8	5'-5"	Str.					70
W691	4	4'-6"	Str.					27
W692	2	4'-0"	Str.					12
W693	1	4'-3"	Str.					6
W694	3	5'-0"	Str.					23
W695	5	6'-0"	Str.					45
W696	6	4'-9"	Str.					43
							Total	34,680



BENDING DIAGRAMS

H.N.T.B. BR. NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTHEAST WINGWALL DETAILS
NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM- 8-1235 STA. 12+46.93
SCALE: 3/8" = 1'-0" STA. 14+65.50
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN A.M.M.	TRACED	CHECKED W.R.K.	REVIEWED J.T.	REVISED 2-20-59
DATE 5-27-58	DATE	DATE 8-18-58	DATE 9-8-58	1018 SHEET 126

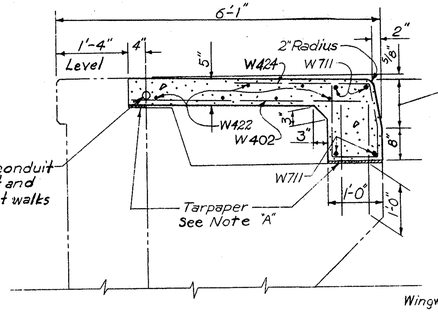
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

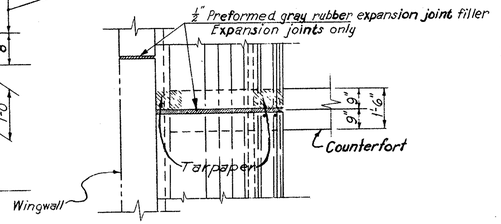
127
176

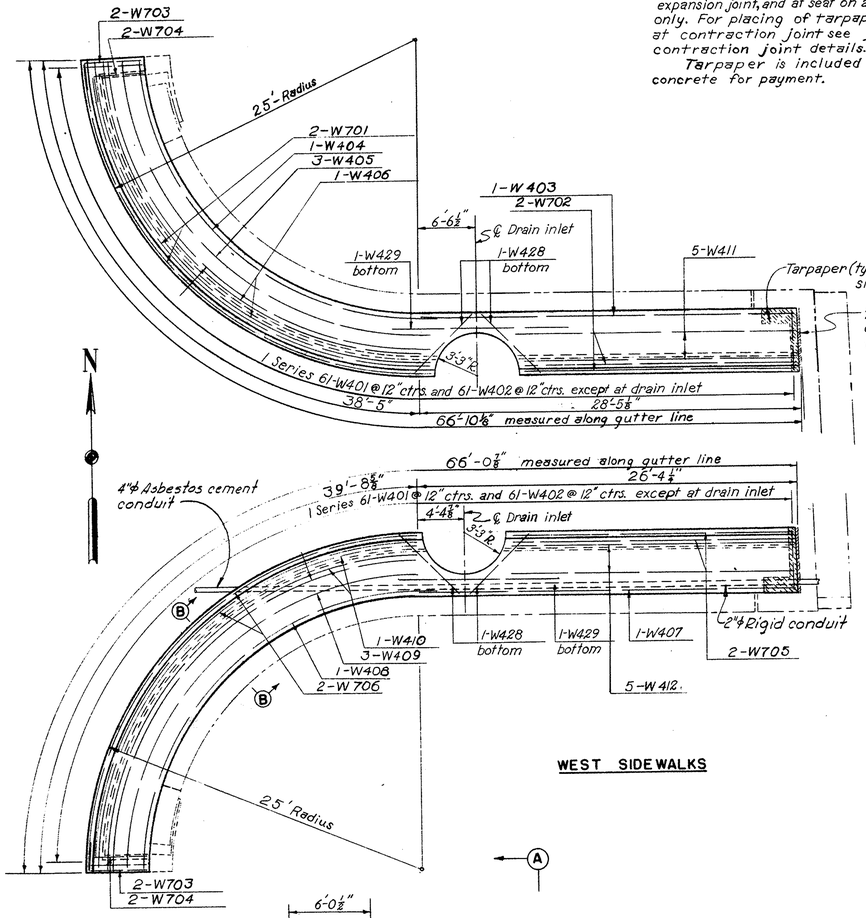
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note "A":
Tarpaper at contraction joint, expansion joint, and at seat on abutment only. For placing of tarpaper at contraction joint see contraction joint details.
Tarpaper is included with concrete for payment.

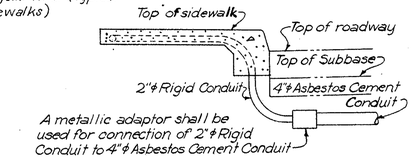


Note "B":
The curb height shall vary from 10" at approach slab seat on abutment to 6" at end of sidewalk.



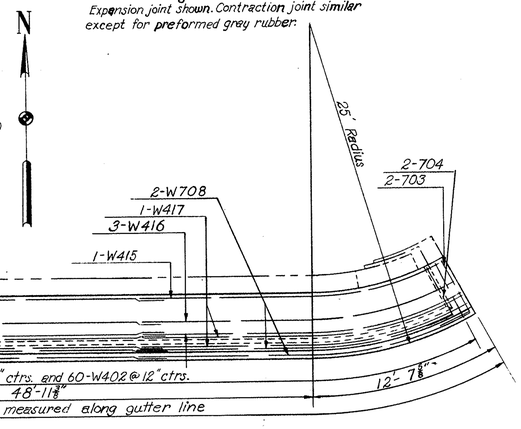


SECTION A-A
¾"=1'-0"

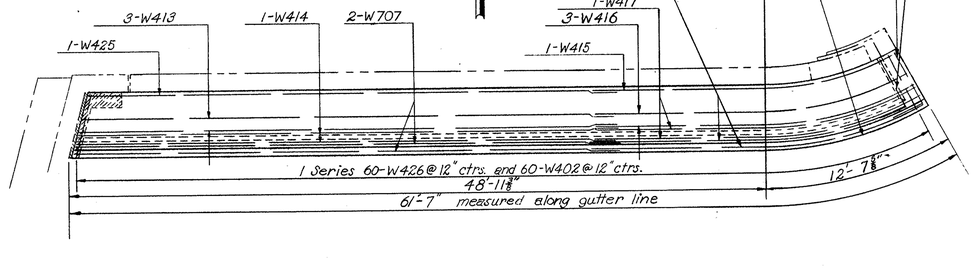


A metallic adaptor shall be used for connection of 2"ϕ Rigid Conduit to 4"ϕ Asbestos Cement Conduit

EXPANSION AND CONTRACTION JOINT DETAILS
¾"=1'-0"
Expansion joint shown. Contraction joint similar except for preformed grey rubber.

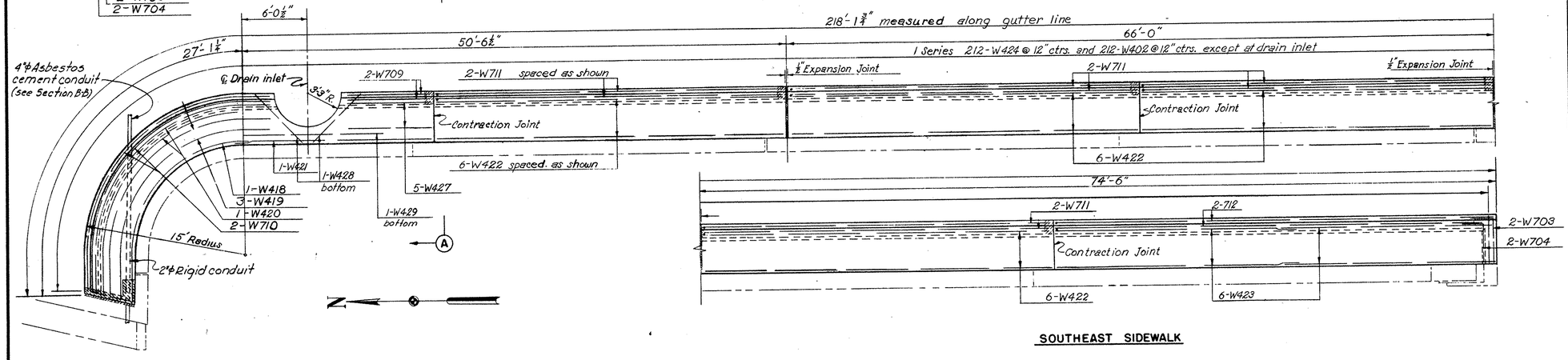


SECTION B-B



NORTHEAST SIDEWALK

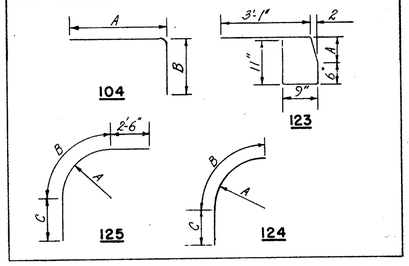
WEST SIDEWALKS



SOUTHEAST SIDEWALK

REINFORCING SCHEDULE

MARK	NO	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INC.	WEIGHT POUNDS
W401	2 Series	5'-5" to 6'-9"	123	5' to 9			0'-1⅛"	455
W402	394	4'-3"	Str.					1118
W403	1	28'-0"	Str.					19
W404	1	33'-0"	124	20'-9"	31'-9"	1'-3"		22
W405	3	38'-0"	124	23'-0"	35'-0"	3'-0"		76
W406	2	39'-9"	124	24'-0"	36'-9"	3'-0"		53
W407	1	26'-6"	Str.					18
W408	1	34'-0"	124	20'-9"	32'-9"	1'-3"		23
W409	3	37'-0"	124	23'-0"	36'-3"	9"		74
W410	2	38'-9"	124	24'-0"	38'-0"	9"		52
W411	6	18'-3"	Str.					61
W412	5	18'-6"	Str.					62
W413	3	36'-9"	Str.					76
W414	2	36'-0"	Str.					48
W415	1	24'-9"	124	20'-9"	10'-3"	14'-0"		16
W416	3	25'-6"	124	23'-0"	11'-6"	14'-0"		51
W417	2	26'-0"	124	24'-0"	12'-0"	14'-0"		35
W418	1	27'-6"	124	10'-9"	17'-0"	4'-6"		14
W419	3	26'-6"	125	12'-6"	19'-9"	4'-3"		53
W420	2	28'-6"	125	14'-0"	22'-0"	4'-0"		38
W421		18'-6"	Str.					12
W422	24	32'-6"	Str.					521
W423	12	21'-3"	Str.					170
W424	Var.212	5'-5" to 5'-9"	123	5' to 9			0'-1⅛"	791
W425	1	35'-6"	Str.					24
W426	Var.60	5'-5" to 5'-9"	123	5' to 9			0'-1⅛"	224
W427	5	7'-9"	Str.					26
W428	6	6'-3"	Str.					25
W429	3	13'-0"	Str.					26
W701	4	41'-0"	124	24'-10"	38'-0"	3'-0"		336
W702	4	18'-3"	Str.					150
W703	8	6'-7"	104	4'-6"	2'-3"			108
W704	8	5'-10"	104	3'-9"	2'-3"			96
W705	4	18'-6"	Str.					152
W706	4	39'-9"	124	24'-10"	39'-0"	0'-9"		326
W707	4	36'-6"	Str.					298
W708	4	27'-3"	124	24'-10"	12'-3"	15'-0"		223
W709	4	7'-9"	Str.					63
W710	4	29'-6"	126	14'-10"	23'-6"	3'-6"		241
W711	16	32'-6	Str.					1063
W712	4	41'-0"	Str.					335
							Total	7570



Notes:
Bar dimensions are out to out.
For replacement bars see Sheet 141.
Bars of a series shall vary by a constant increment.
For drainage inlet details see roadway plans.

H.N.T.B. BRIDGE NO.3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

APPROACH SIDEWALKS AND CURBS
NO-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
BR. NO. SUM.-8-1235 STA. 12+46.93
SCALE: 3/16 = 1'-0" STA. 14+65.50
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

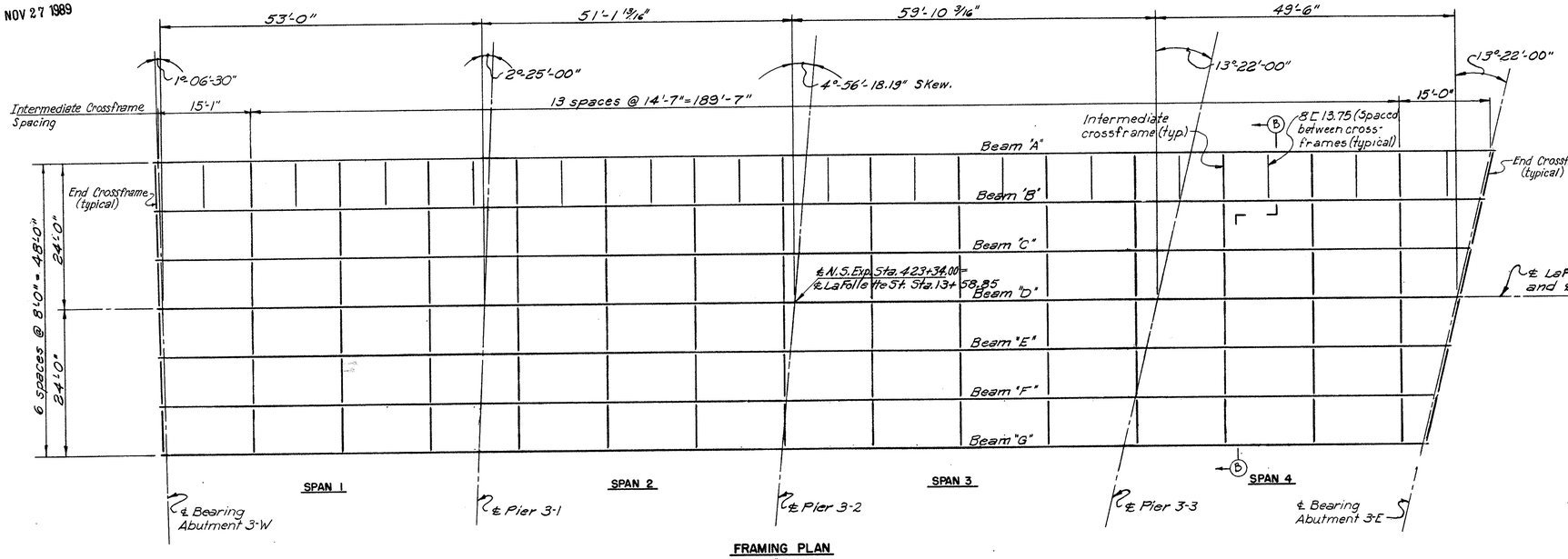
DRAWN CWC	TRACED	CHECKED CJO	REVIEWED JT	REVISED
DATE 2-6-58	DATE	DATE 9/3/58	DATE 9-8-58	1018 SHEET 127

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

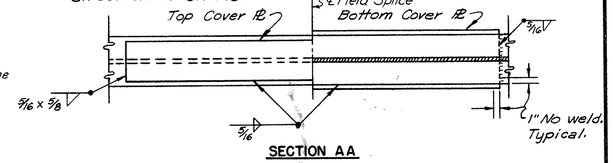
128
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

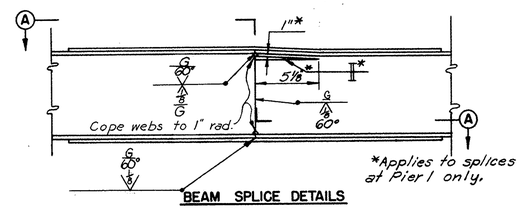


FRAMING PLAN
3/32" = 1'-0"

Note:
"G" Indicates flush ground weld shall be ground in the direction of stress.



SECTION AA
3/4" = 1'-0"

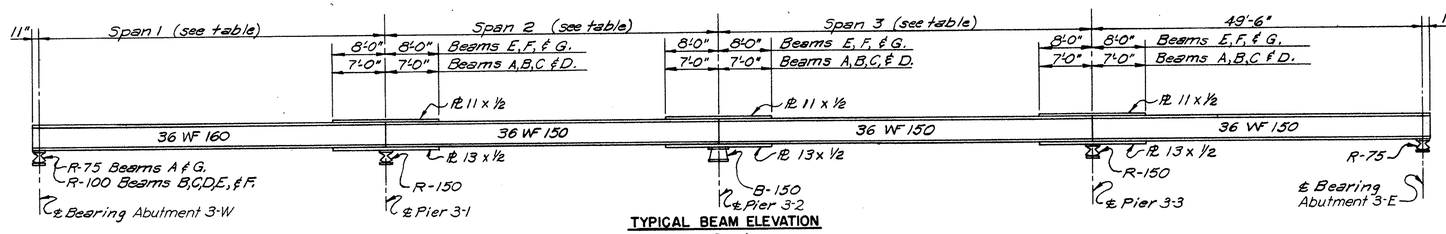


BEAM SPLICE DETAILS
3/8" = 1'-0"

N

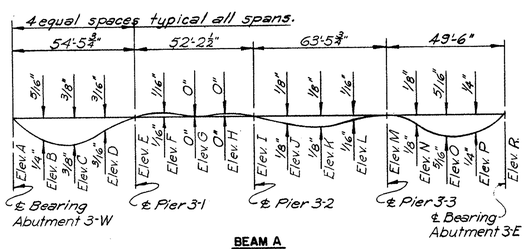
BEAM SPLICE WELDING PROCEDURE

1. Weld bottom flange cover plate to beam on one side of joint only.
2. Raise end of beam in Span 2 at Pier 3-1, 3/4". Follow Steps 3, 4, 5, and 6 at Pier 3-2.
3. Butt weld the beam flanges and web using the following sequence, make one pass on each flange, then one on the web, repeat until welds are completed.
4. Weld the top cover plate on each side of joint.
5. Complete welding of bottom cover plate.
6. Lower the beam end to final position.
7. Raise end of beam in Span 1 at Abutment 3-W, 7/16". Follow Steps 3, 4, 5, and 6 at Pier 3-1.
8. Raise end of beam in Span 4 at Abutment 3-E, 1/2". Follow Steps 3, 4, 5, and 6 at Pier 3-3.

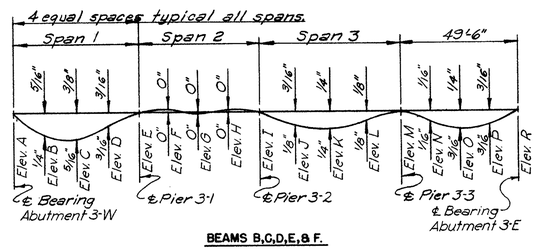


TYPICAL BEAM ELEVATION
No Scale

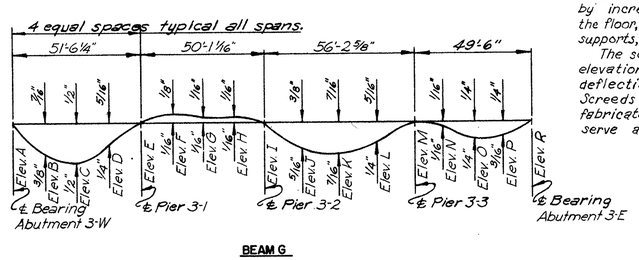
Note:
Sole plates of bolsters and rockers shall be beveled to grade.



BEAM A



BEAMS B, C, D, E, & F.



BEAM G

DEAD LOAD DEFLECTION DIAGRAMS

Notes:
Deflections are given at quarter points and are measured to the nearest 1/16 inch.
Dimensions shown below the base line are dead load deflections to be expected due to concrete. Dimensions shown above the base line are the total dead load deflections expected.

BEAM DIMENSION TABLE			
Beam	Span 1	Span 2	Span 3
"A"	54'-5 3/4"	52'-2 1/2"	63'-5 3/4"
"B"	53'-11 13/16"	51'-10 3/16"	62'-3 1/4"
"C"	53'-5 1/8"	51'-6 1/16"	61'-0 1/16"
"D"	53'-0"	51'-1 13/16"	59'-10 7/16"
"E"	52'-6 1/8"	50'-9 9/16"	58'-7 11/16"
"F"	52'-0 3/16"	50'-5 5/16"	57'-5 3/4"
"G"	51'-6 1/4"	50'-1 1/16"	56'-2 5/8"

TOP OF PAVEMENT ELEVATION

BEAM	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R
A	1088.93	1089.38	1089.83	1090.28	1090.73	1091.16	1091.59	1092.02	1092.45	1092.96	1093.50	1094.02	1094.55	1094.96	1095.36	1095.77	1096.18
B	1089.06	1089.51	1089.95	1090.40	1090.84	1091.27	1091.70	1092.13	1092.55	1093.07	1093.58	1094.09	1094.61	1095.02	1095.43	1095.83	1096.24
C	1089.19	1089.63	1090.07	1090.51	1090.96	1091.38	1091.81	1092.23	1092.66	1093.16	1093.66	1094.17	1094.67	1095.08	1095.49	1095.90	1096.30
D	1089.32	1089.76	1090.20	1090.63	1091.07	1091.49	1091.91	1092.34	1092.76	1093.25	1093.75	1094.24	1094.73	1095.14	1095.55	1095.96	1096.37
E	1089.20	1089.63	1090.07	1090.50	1090.93	1091.35	1091.77	1092.19	1092.61	1093.09	1093.58	1094.06	1094.55	1094.95	1095.36	1095.77	1096.18
F	1089.08	1089.51	1089.94	1090.37	1090.80	1091.21	1091.63	1092.05	1092.46	1092.94	1093.41	1093.88	1094.36	1094.77	1095.17	1095.58	1095.99
G	1088.96	1089.39	1089.81	1090.24	1090.66	1091.08	1091.49	1091.90	1092.32	1092.78	1093.24	1093.71	1094.17	1094.58	1094.99	1095.40	1095.80

Notes:
For intermediate and end crossframe details see Sheet 129.
For details of expansion joints see Sheet 130.
For details of rocker base plate see Sheet 130.
For other rocker details and details of bolster see Ohio Standards RB-1-55.
For section B-B see sheet 129

Camber Note:
The WF beams shall not be cambered but shall be fabricated so that any curved beam will be placed with the convex flange up.
The concrete floor shall be of uniform thickness between beams as shown on Sheet 129 and shall be set up to the desired roadway surface by increasing the thickness of the haunches at the beams. The thickness of the floor, including concrete and wearing surface, over each beam at the supports, is given on Sheet 129.
The screed setting allowance shall be made above the top of the pavement elevations for the finished pavement surface to compensate for the deflection due to the dead load of the concrete and wearing surface. Screeds may need further adjustments due to irregularities of the fabricated steel. At the edge of the roadway slabs the bulb angles will serve as screeds.

H.N.T.B. BRIDGE NO. 3 PART 10

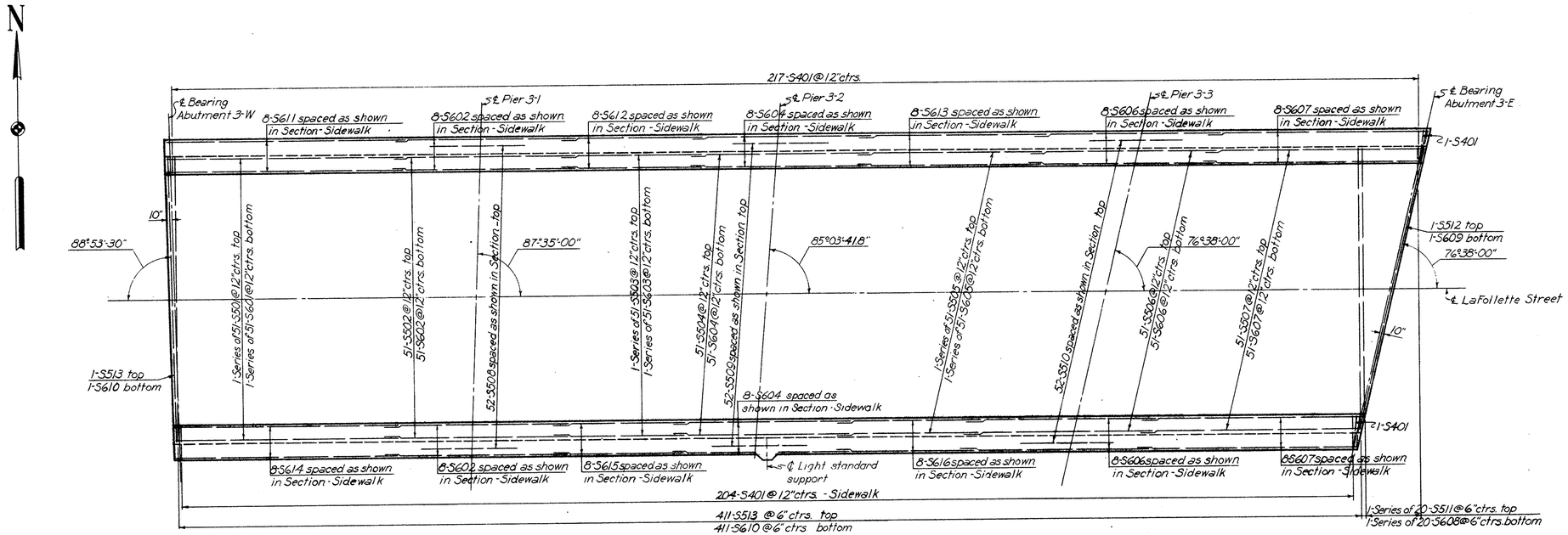
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN
NO.-SO. EXPRESSWAY UNDER LA FOLLETTE STREET
BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: AS SHOWN STA. 14+65.50

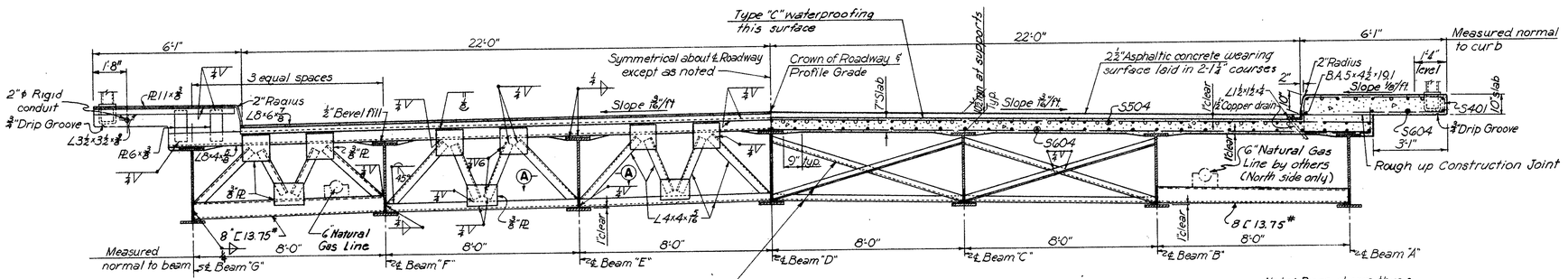
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN K.K.G.	TRACED	CHECKED R.M.	REVIEWED J.T.	REVISED
DATE 12/1957	DATE	DATE 3-10-58	DATE 9-8-58	1018 SHEET 128

MICROFILMED
NOV 27 1989



DECK PLAN
$\frac{3}{32}$"=1'-0"



HALF SECTION AT END FINISH
$\frac{3}{8}$"=1'-0"

Note: End finish shown in Panel between Beams 'F' and 'G' is for North side between Beams 'A' and 'B' only. South side is similar to panel between Beams 'E' and 'F'

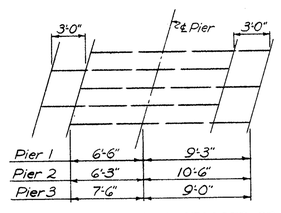
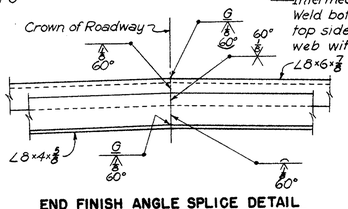
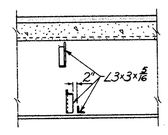


DIAGRAM SHOWING STAGGER OF S508, S509 AND S510 OVER PIERS



END FINISH ANGLE SPLICE DETAIL
$\frac{3}{4}$"=1'-0"

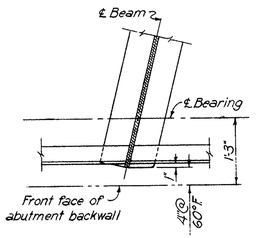
Intermediate crossframe is 3x3x5/16 Weld both sides of vertical leg and top side of horizontal leg to beam web with 1/4" fillet weld.



SECTION THROUGH INTERMEDIATE DIAPHRAGM
$\frac{3}{8}$"=1'-0"

HALF SECTION B-B
$\frac{3}{8}$"=1'-0"

Note: Bars shown thus ° are over piers only.



SECTION A-A
$\frac{3}{4}$"=1'-0"

Notes:
In order to facilitate water curing of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are normal to the centerline of bridge and are located near the center of any span.
For handrail details see Sheet 130.
For sidewalk expansion joint details see sheet 130.
For bridge lighting details see Sheet 174.
For location of section B-B see sheet 128.
For details of light standard support see Sheet 174
For roadway expansion joint see sheet 105.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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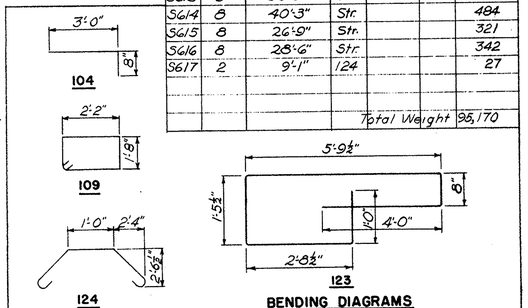
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMEN. A	SER. ING.	WEIGHT POUNDS
S401	425	15'-0"	123			4259
S402	4	3'-6"	104			9
S403	4	8'-0"	109			21
S404	2	3'-3"	str.			4
S405	2	3'-9"	Str.			5
S501	1 Ser. 51	39'-9" to 42'-9"	Str.			2194
S502	51	27'-9"	Str.			1476
S503	1 Ser. 51	26'-3" to 28'-6"	Str.			1451
S504	51	29'-6"	Str.			1569
S505	1 Ser. 51	28'-0" to 33'-6"	Str.			1689
S506	51	29'-3"	Str.			1556
S507	51	38'-6"	Str.			2048
S508	52	15'-9"	Str.			854
S509	52	16'-9"	Str.			908
S510	52	16'-6"	Str.			895
S511	1 Ser. 20	5'-3" to 45'-9"	Str.			532
S512	1	51'-0"	Str.			53
S513	412	49'-6"	Str.			21,271
S601	1 Ser. 51	40'-0" to 43'-0"	Str.			3179
S602	67	28'-0"	Str.			2818
S603	1 Ser. 51	26'-6" to 28'-9"	Str.			2116
S604	67	29'-9"	Str.			2994
S605	1 Ser. 51	28'-3" to 35'-9"	Str.			2451
S606	67	29'-6"	Str.			2969
S607	67	38'-9"	Str.			3900
S608	1 Ser. 20	5'-3" to 45'-9"	Str.			766
S609	1	51'-0"	Str.			77
S610	412	49'-6"	Str.			30,632
S611	8	43'-3"	Str.			520
S612	8	29'-0"	Str.			348
S613	8	36'-0"	Str.			432
S614	8	40'-3"	Str.			484
S615	8	26'-9"	Str.			321
S616	8	28'-6"	Str.			342
S617	2	9'-1"	124			27
				Total Weight		95,170



BENDING DIAGRAMS

Bars are dimensioned out to out
For replacement bars see sheet 141
Bars of a series shall vary by a constant increment.

H.N.T.B. BR. NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK PLAN AND CROSS SECTIONS
NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.

BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: AS SHOWN STA. 14+65.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.R.K.	TRACED	CHECKED K.K.M.	REVIEWED J.T.	REVISED
DATE 12-13-57	DATE	DATE 5-12-58	DATE 9-8-58	1018 SHEET 129

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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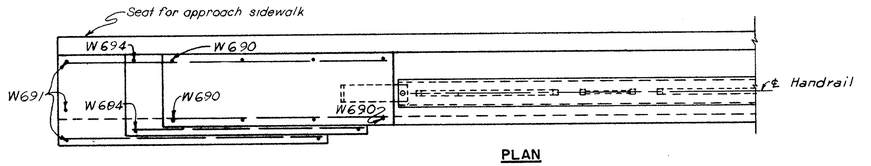
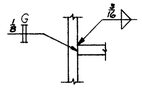
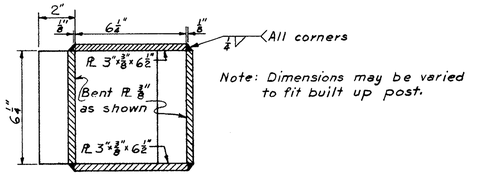
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



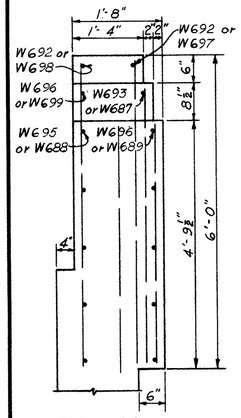
PLAN



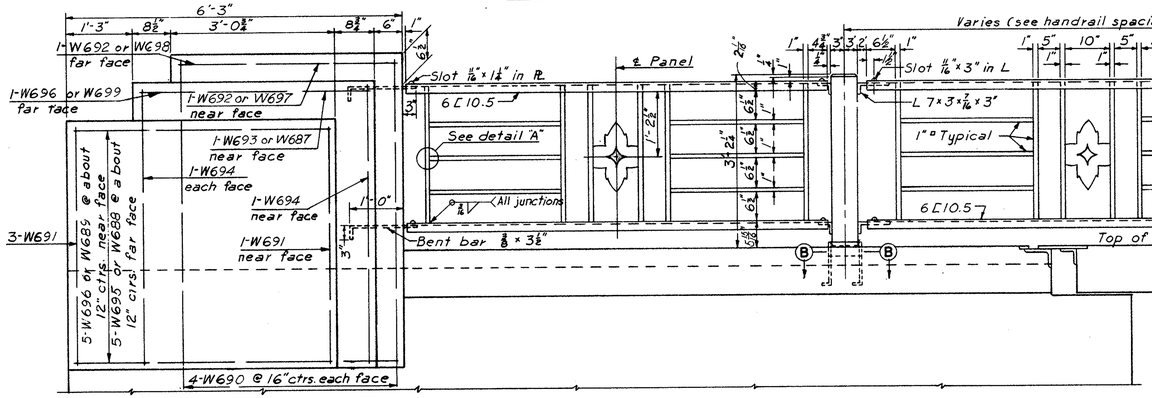
DETAIL "A"



SECTION B-B



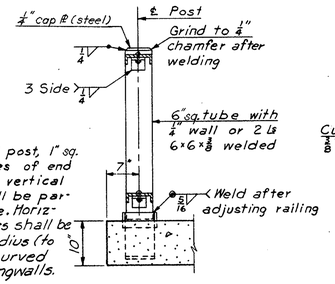
END VIEW



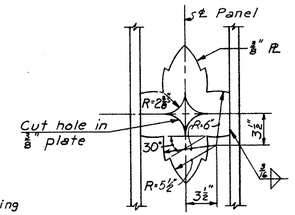
END POST

EXPANSION JOINT

TYPICAL POST CONNECTION

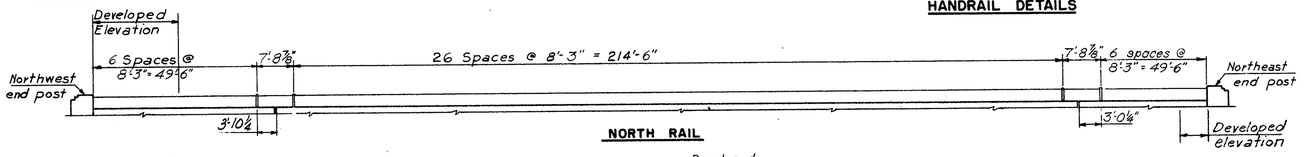


SECTION A-A

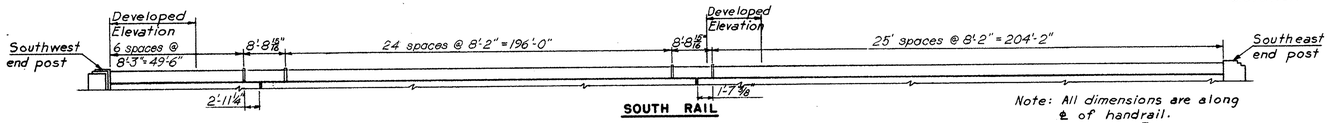


SHIELD DETAIL

HANDRAIL DETAILS



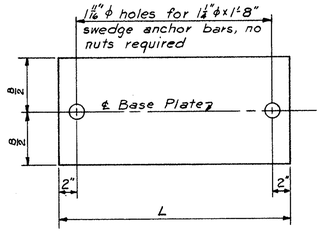
NORTH RAIL



SOUTH RAIL

HANDRAIL SPACING
No Scale

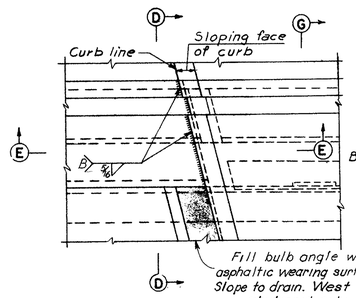
Note: All dimensions are along ℄ of handrail.



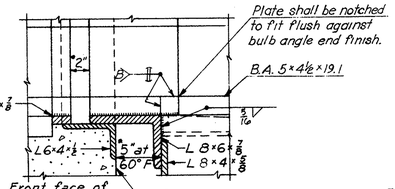
Rocker No.	Dimension (inches) L	B
R-75	22	8
R-100	23	10
R-125	24	11
R-150	26	12
R-175	27	14
R-200	28	16
R-225	29	17
R-250	30	18

BASE PLATE FOR STRUCTURAL STEEL ROCKER

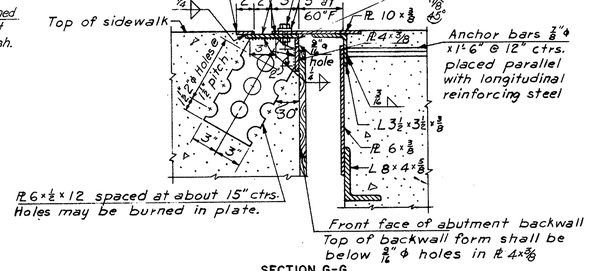
Notes: Anchor bars shall be set 1'-5" in concrete.
For other rocker details and bolster details see OHIO Standard RB-1-55.



PART PLAN

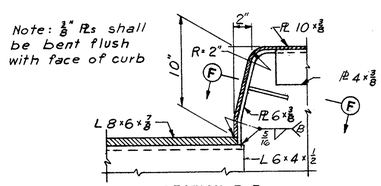


SECTION D-D



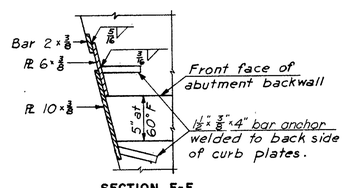
SECTION G-G

Notes: "A" This contact surface shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete.
"B" ⅞"ϕ x 2" Bolt at about 2'-0" ctrs. with nuts tack-welded to under side of lower plate. 1¼ hole in upper plate. Center ⅞" bolts in 1¼" holes. Apply flake graphite between washer and plate. Turn bolt-tight and release one-half turn. Remove bolts within two hours after placing backwall concrete. Fill holes with bituminous material.
Omit shop coat on all portions of end finish. Portions in contact with steel or concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the two field coats.
For roadway expansion joint see sheet 105



SECTION E-E

CURB EXPANSION JOINT



SECTION F-F

SIDEWALK EXPANSION JOINT DETAILS

H.N.T.B. BRIDGE NO. 3 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

MISCELLANEOUS DETAILS

NO.-SO. EXPRESSWAY UNDER LAFOLLETTE ST.

BR. NO. SUM-8-1235 STA. 12+46.93
SCALE: 1½" = 1'-0" STA. 14+65.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN LWL	TRACED	CHECKED RLO	REVIEWED JT	REVISED
DATE 7-17-58	DATE	DATE 8-22-58	DATE 9-8-58	1018 SHEET 130

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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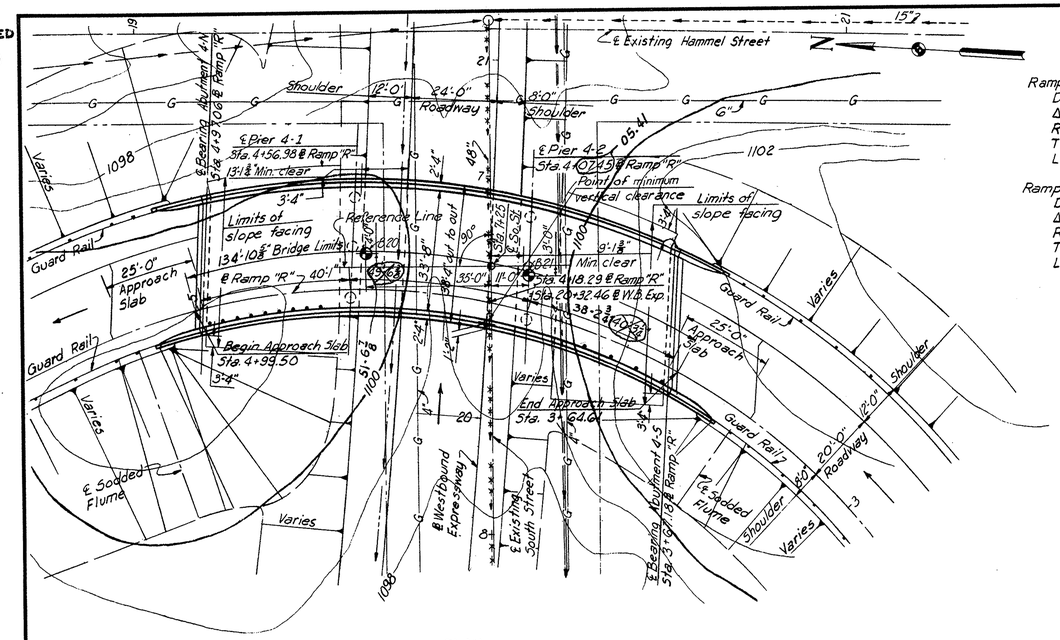
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65


℄ Existing Hammel Street
Shoulder
12'-0"
24'-6"
Roadway
8'-0"
Shoulder
℄ Pier 4-1
Sta. 4+56.98 ℄ Ramp "R"
31⅛" Min. clear
℄ Pier 4-2
Sta. 4+70.45 ℄ Ramp "R"
Point of minimum vertical clearance
Limits of slope facing
Guard Rail
Varies
1098
1102
Limits of slope facing
134'-10⅛" ℄ Bridge Limits
℄ Ramp "R" 40°
25'-0" Approach Slab
Reference Line
Begin Approach Slab
Sta. 4+99.50
End Approach Slab
Sta. 3+64.61
Sta. 4+18.29 ℄ Ramp "R"
Min. clear
Sta. 4+20.32.46 ℄ W.b. Exp.
38-2¾" 24 Spa. @ 1'-7"
25'-0" Approach Slab
Guard Rail
Varies
Shoulder
12'-0"
20'-0"
Roadway
Shoulder
Varies
℄ Sodded Flume
Varies
℄ Westbound Expressway
℄ Existing South Street
Varies
℄ Bearing Abutment 4-5
Sta. 3+64.61 ℄ Ramp "R"
Sodded Flume
Guard Rail
Varies
Guard Rail
Varies
Shoulder
Varies
1098
1080
1080
1100
1120
1140
1160
1180
1200
1220
1240
1260
1280
1300
1320
1340
1360
1380
1400
1420
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1480
1500
1520
1540
1560
1580
1600
1620
1640
1660
1680
1700
1720
1740
1760
1780
1800
1820
1840
1860

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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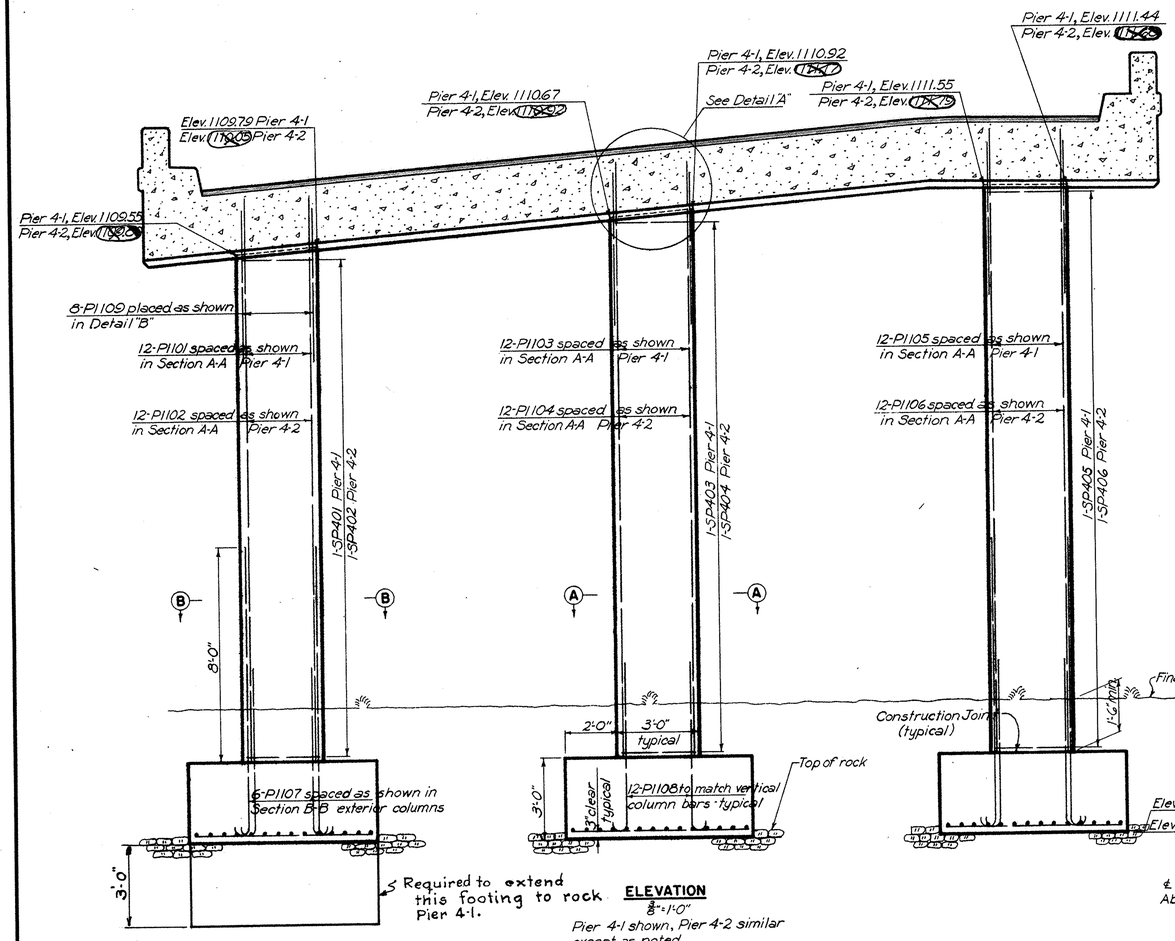
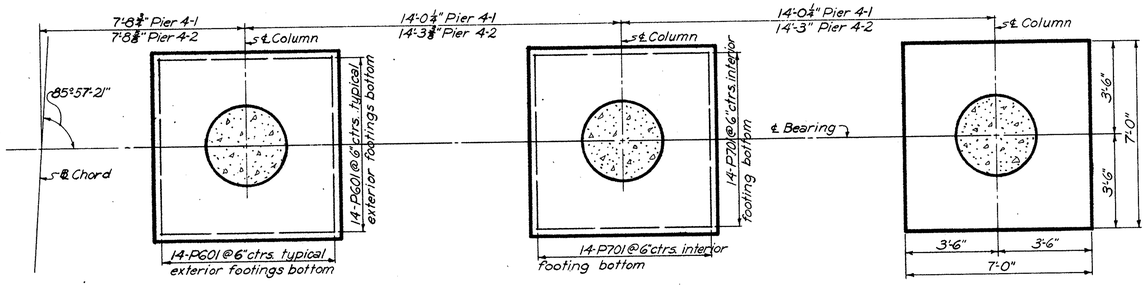
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

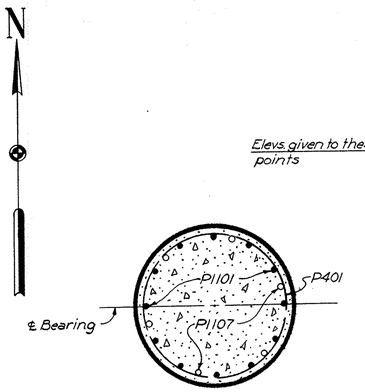


ELEVATION
3/8"=1'-0"

Pier 4-1 shown, Pier 4-2 similar except as noted.



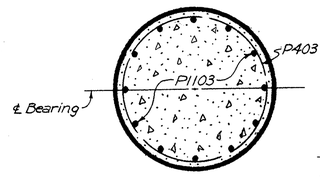
FOOTING PLAN
3/8"=1'-0"



DETAIL "A"
3/4"=1'-0"

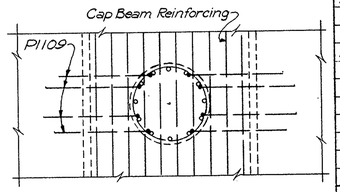
SECTION B-B
3/4"=1'-0"

Note:
Section A-A and Section B-B are typical for Pier 4-2 except for bar marks.

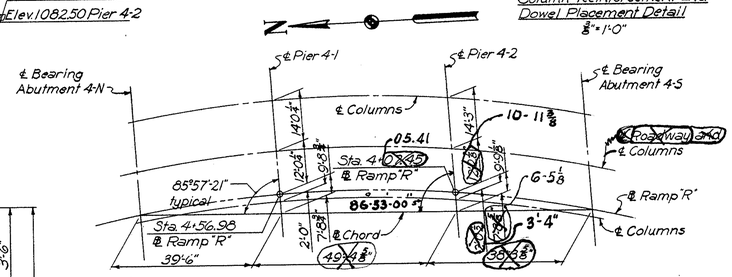


SECTION A-A
3/4"=1'-0"

Note:
When placing column reinforcement, care shall be taken to clear cap beam and deck reinforcement when placed.
Dowels shall be placed parallel to longitudinal steel as shown in Section B-B, Sheet 172.



DETAIL "B"
Column Reinforcement and Dowel Placement Detail
3/8"=1'-0"



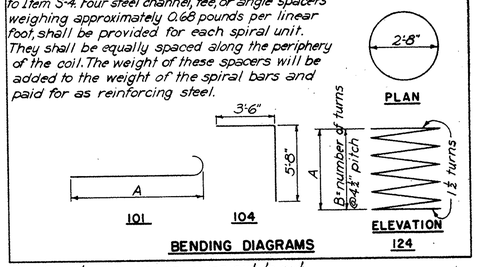
PIER LAYOUT
No Scale

Notes:
Footings shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on plans, a new pier design will be provided.

REINFORCEMENT SCHEDULE

MARK	NUMBER PIER 4-1	NUMBER PIER 4-2	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS PIER 4-1	WEIGHT POUNDS PIER 4-2
SP401	1		437'-1"	124	18'-9"	53	292	
SP402		1	560'-9"	124	24'-5"	68		375
SP403	1		461'-10"	124	19'-11"	56	309	
SP404		1	585'-6"	124	25'-6"	71		391
SP405	1		478'-4"	124	20'-8"	58	320	
SP406		1	602'-0"	124	26'3"	73		402
P601	56	56	6'-6"	Str.			547	547
P701	28	28	6'-6"	Str.			372	372
P1101	12		20'-6"	Str.			1309	
P1102		12	26'-0"	Str.				1659
P1103	12		21'-6"	Str.			1373	
P1104		12	27'-0"	Str.				1721
P1105	12		22'-6"	Str.			1436	
P1106		12	27'-9"	Str.				1771
P1107	12	12	12'-4"	101	10'-9"		787	787
P1108	36	36	7'-10"	101	6'-3"		1498	1498
P1109	24	24	8'-11"	104			1137	1137
						Totals	9380	10660

Spiral Reinforcement shall not have deformations but shall in other respects conform to Item 5-4. Four steel channel, tee, or angle spacers weighing approximately 0.68 pounds per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The weight of these spacers will be added to the weight of the spiral bars and paid for as reinforcing steel.



Bar dimensions are given out to out. For replacement bars see sheet 141.

H.N.T.B. BR. NO. 4 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS
WESTBOUND EXPRESSWAY UNDER RAMP "R"

BR. NO. SUM -18 1224 STA. 3+64.61
SCALE: 3/8" = 1'-0" STA. 4+99.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.R.K.	TRACED	CHECKED L.W.L.	REVIEWED J.T.	REVISED 10-14-59
DATE 2-24-58	DATE	DATE 9-6-58	DATE 9-8-58	1018 SHEET 132

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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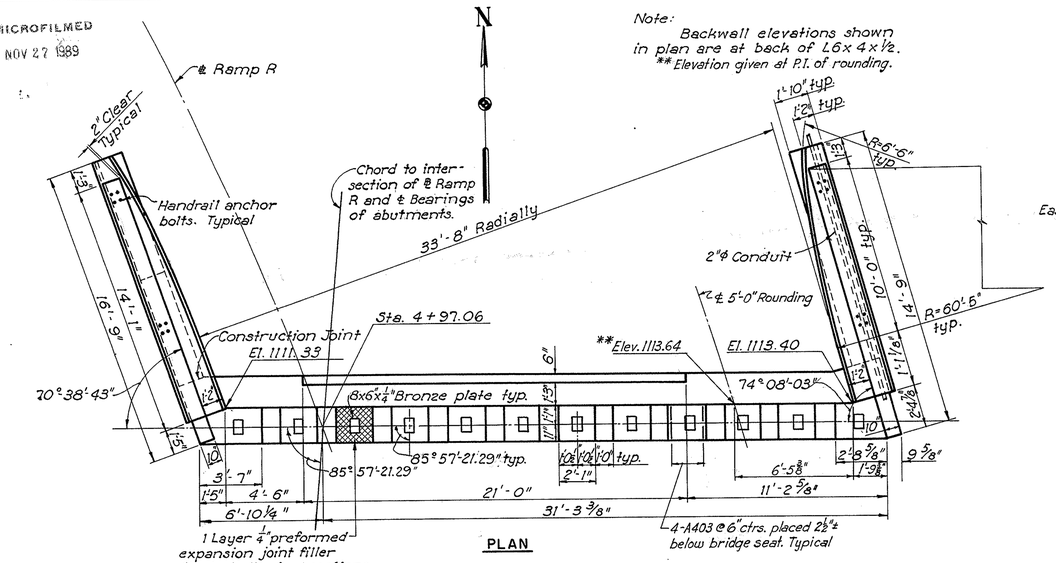
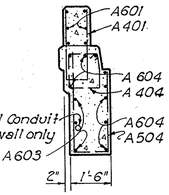
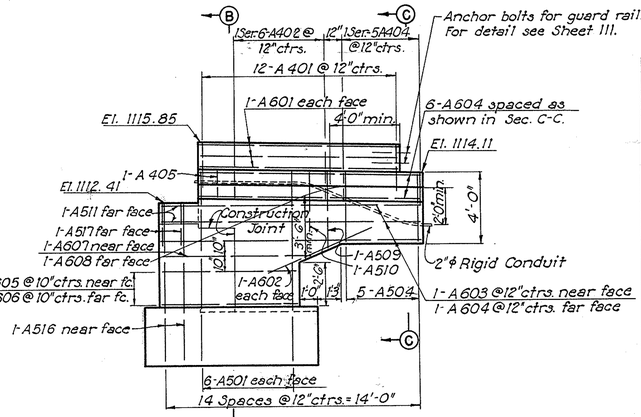
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



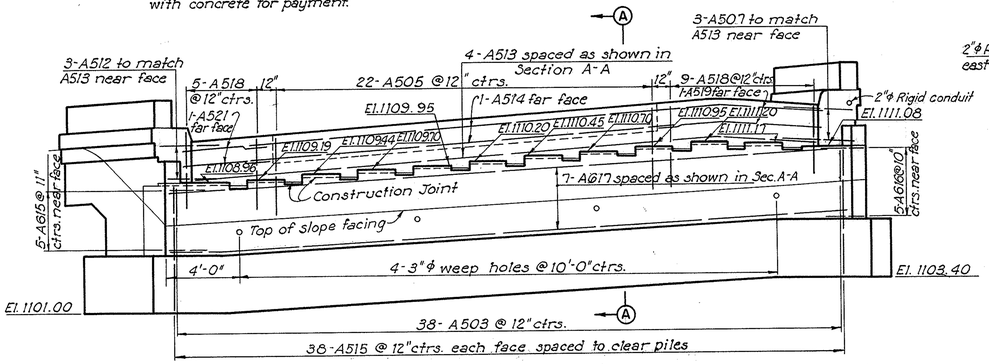
PLAN



SECTION C-C
⅜" = 1'-0"
Section E-E similar except for bar marks.

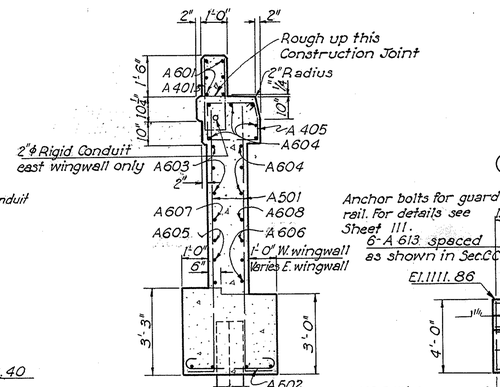


EAST WINGWALL ELEVATION

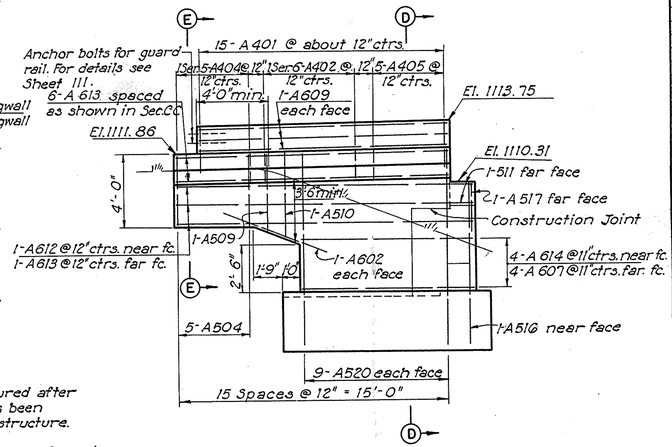


ELEVATION

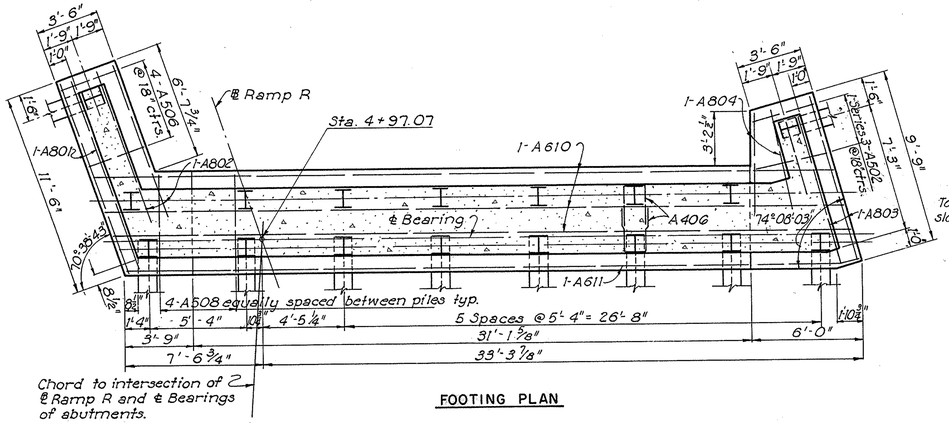
Note: Piles not shown in elevation.



SECTION B-B
⅜" = 1'-0"
Section D-D similar except for bar marks.

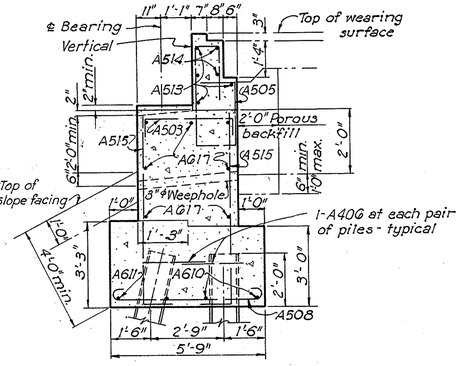


WEST WINGWALL ELEVATION



FOOTING PLAN

Note: Backwall shall be poured after expansion joint steel has been attached to bridge superstructure.



SECTION A-A
⅜" = 1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SER. INCRE.	WEIGHT POUNDS
A401	27	5'-11"	105	(2"-8") 10"±	2'-8"			107
A402	2 Ser. 6	6'-4" to 7'-0"	123	1'-6" to 1'-10"	1'-8" to 1'-10"		1⅜"	53
A403	48	2'-8"	104	1'-10"	1'-0"			87
A404	2 Ser. 5	4'-8" to 6'-2"	123	8" to 1'-5"	10" to 1'-1"		4½"	36
A405	7	7'-10"	123	1'-10"	2'-0"			32
A406	12	6'-5"	105	1'-2"	2'-9"			47
A501	12	10'-7"	104	9'-9"	1'-0"			133
A502	1 Ser. 3	4'-5" to 5'-1"	100	3'-5" to 3'-11"			4"	15
A503	38	6'-2"	105	3'-5"	1'-6"			245
A504	10	7'-5"	124	1'-2"	3'-8"	2'-10"		77
A505	22	10'-4"	112					237
A506	4	4'-4"	100	3'-2"				18
A507	3	5'-7"	125	1'-9"				18
A508	26	6'-7"	100	5'-5"				190
A509	2	8'-11"	105	1'-2"	4'-0"			19
A510	2	8'-11"	105	1'-2"	4'-6"			21
A511	4	4'-0"	Str.					17
A512	3	5'-8"	104	2'-0"	3'-10"			18
A513	4	35'-6"	Str.					148
A514	2	24'-0"	Str.					50
A515	76	7'-7"	104	6'-9"	1'-0"			602
A516	3	9'-4"	104	8'-6"	1'-0"			29
A517	3	2'-9"	Str.					9
A518	14	9'-7"	109	1'-5"	3'-3"			141
A519	2	10'-6"	Str.					22
A520	18	11'-4"	104	10'-6"	1'-0"			213
A521	2	6'-6"	Str.					14
A601	6	10'-9"	Str.					*
A602	4	6'-6"	Str.					39
A603	3	14'-3"	Str.					64
A604	9	12'-0"	Str.					162
A605	3	7'-3"	Str.					33
A606	3	5'-0"	Str.					23
A607	5	8'-0"	Str.					60
A608	1	5'-5"	Str.					9
A609	6	13'-9"	Str.					*
A610	3	40'-6"	Str.					182
A611	1	40'-6"	108	38'-9"	1'-7"	6½"		61
A612	3	16'-5"	Str.					73
A613	9	15'-0"	Str.					203
A614	4	9'-3"	Str.					56
A615	5	4'-0"	108	2'-0"	8"	1'-10½"		30
A616	5	4'-6"	125	8"				34
A617	7	37'-9"	Str.					398
A801	2	11'-0"	Str.					59
A802	2	9'-0"	Str.					48
A803	2	9'-3"	Str.					49
A804	2	5'-6"	Str.					29
							Total	4,210

Notes:
For typical section thru abutment and slab see Sheet 136.
All piles shall be 12 BP 53.
All battered piles are battered 3 in 12.
For details of expansion joint see Sheet 136.
Pile spacing given along bottom of footing.
For replacement bars see Sheet 141.
For bending diagrams see Sheet 134.
*Included for payment in unit price bid for Item 3-14.

H.N.T.B. BR. NO. 4 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 4-N

WESTBOUND EXPRESSWAY UNDER RAMP "R"
BR. NO. SUM-18-1224 STA. 3+64.61
SCALE: 1/4"= 1'-0" STA. 4+99.50

AKRON EXPRESSWAY SYSTEM

OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
P.C.S.	B.J.L.	C.D.	J.T.	2-20-59
DATE 3-3-58	DATE 5-29-58	DATE 4-15-58	DATE 9-8-58	1018 SHEET 133

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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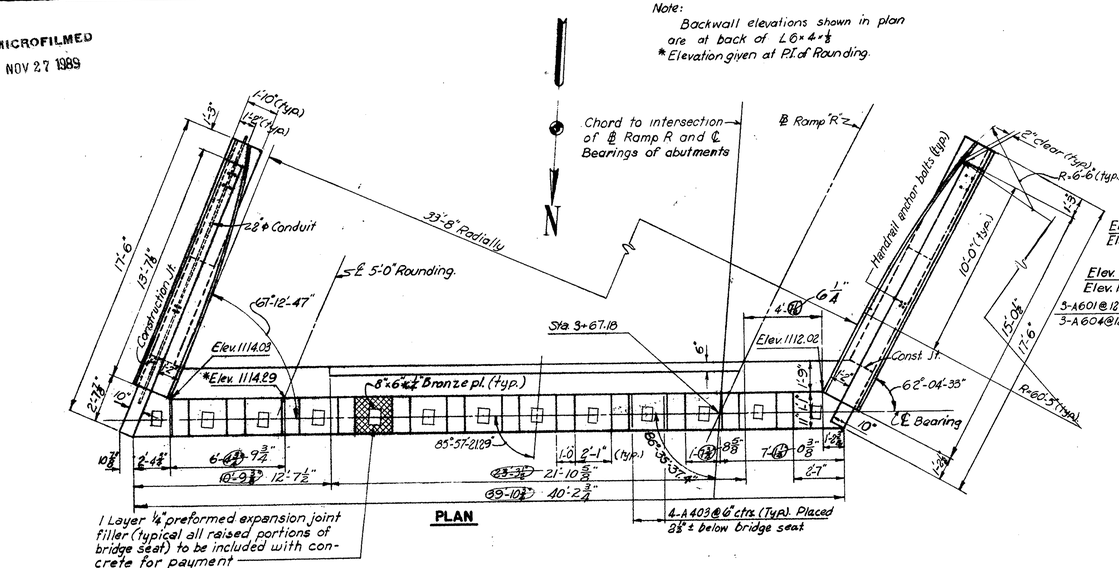
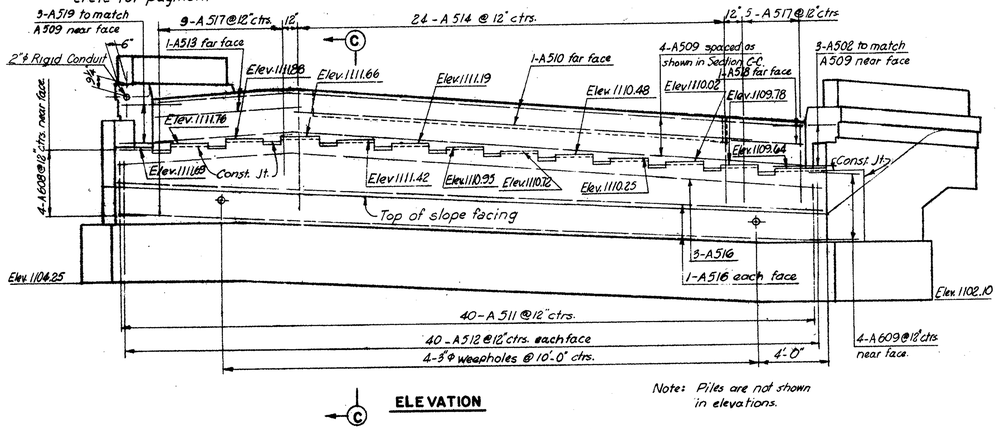
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note:
Backwall elevations shown in plan are at back of L6×4×½
*Elevation given at P.I. of Rounding.

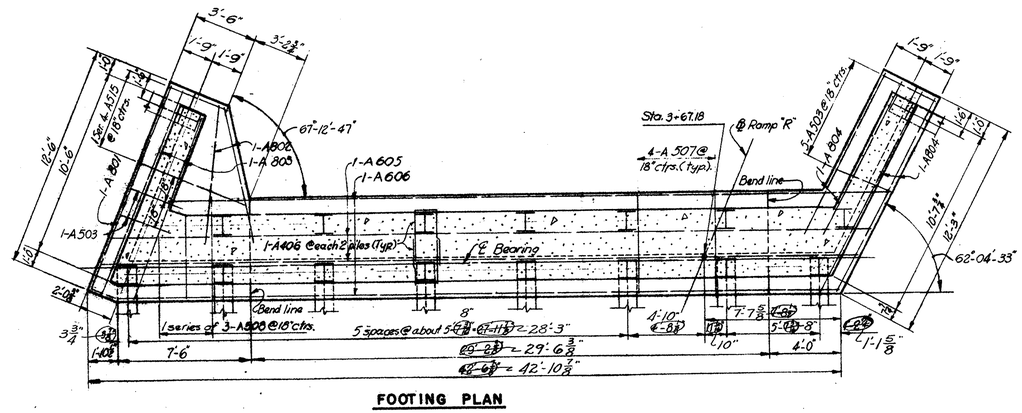


PLAN

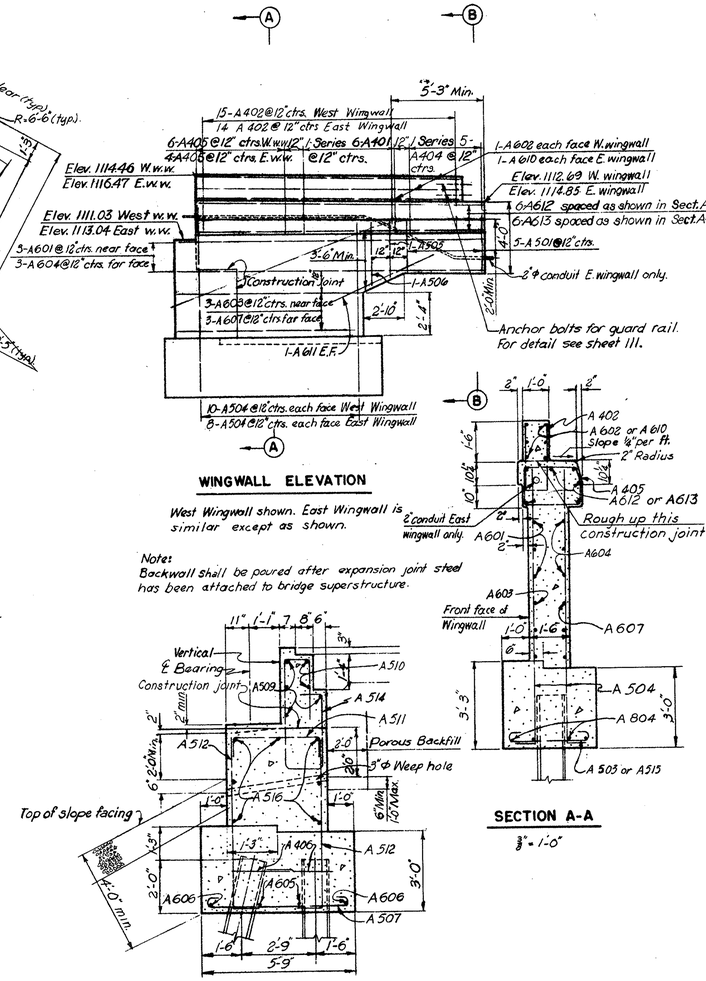


ELEVATION

Note: Piles are not shown in elevations.



FOOTING PLAN



WINGWALL ELEVATION

West Wingwall shown. East Wingwall is similar except as shown.

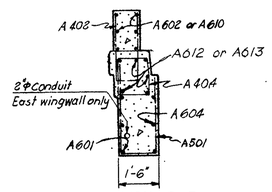
Note:
Backwall shall be poured after expansion joint steel has been attached to bridge superstructure.

SECTION A-A

⅜" = 1'-0"

SECTION C-C

⅜" = 1'-0"

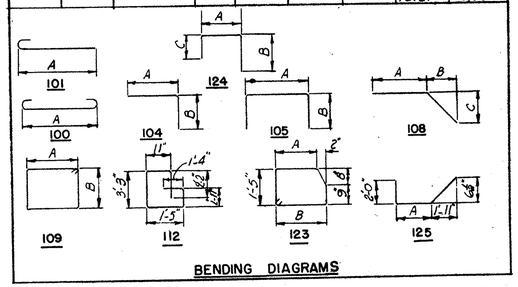


SECTION B-B

⅜" = 1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES ING.	WEIGHT POUNDS
A401	2 Ser. 6	6'-4" to 7'-0"	123	1'-6" to 1'-10"	1'-8" to 2'-0"		1½"	58
A402	29	5'-11"	105	1'-0"	2'-8"			118
A403	52	2'-8"	104	1'-10"	1'-0"			93
A404	2 Ser. 5	4'-8" to 6'-2"	123	8" to 1'-5"	10" to 1'-7"		4½"	36
A405	10	7'-0"	123	1'-10"	2'-0"			47
A406	12	6'-5"	105	1'-2"	2'-9"			54
A501	10	7'-5"	124	1'-2"	3'-8"	2'-10"		77
A502	3	5'-8"	104	3'-10"	2'-0"			18
A503	7	4'-4"	100	3'-2"				32
A504	36	11'-2"	104	10'-3"	1'-0"			419
A505	2	8'-0"	124	1'-2"	4'-0"	3'-2"		17
A506	2	8'-8"	124	1'-2"	4'-4"	3'-6"		18
A507	24	6'-7"	100	5'-5"				165
A508	1 Ser. 3	4'-1" to 5'-4"	101	3'-6" to 4'-9"			7⅛"	15
A509	4	37'-6"	str.					157
A510	2	25'-6"	str.					53
A511	40	5'-2"	105	3'-5"	1'-0"			216
A512	80	8'-0"	104	7'-0"	1'-0"			669
A513	2	10'-3"	str.					21
A514	24	10'-4"	112					259
A515	1 Ser. 4	4'-4" to 7'-7"	100	3'-2" to 6'-5"				25
A516	7	39'-9"	str.					291
A517	14	9'-7"	109	1'-5"	3'-3"			140
A518	2	7'-0"	str.					16
A519	3	5'-7"	125	1'-9"				17
A601	6	17'-0"	str.					153
A602	6	14'-6"	str.					*
A603	6	10'-0"	str.					90
A604	6	16'-0"	str.					144
A605	2	42'-6"	str.					128
A606	2	40'-6"	str.					122
A607	6	8'-0"	str.					72
A608	4	4'-6"	125	8"				27
A609	4	4'-0"	108	2'-0"	8"	1'-10½"		24
A610	6	13'-0"	str.					*
A611	4	6'-6"	str.					39
A612	6	15'-9"	str.					142
A613	6	14'-6"	str.					131
A801	1	13'-10"	104	12'-2"	1'-10"			37
A802	2	7'-9"	str.					41
A803	4	11'-9"	str.					126
A804	2	9'-9"	str.					52
							Total	4,350



BENDING DIAGRAMS

Notes:
All piles shall be 12 BP 53.
For details of expansion joints see sheet 136.
For typical section thru abutment and slab see sheet 136.
For replacement bars see sheet 141.
Pile spacing given along bottom of footing.
Bar dimensions are given out to out.
All battered piles shall be battered 3 in 12.
* This item included for payment in unit price bid for item S-14.

H.N.T.B. BRIDGE NO. 4 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 4-S
WESTBOUND EXPRESSWAY UNDER RAMP "R"

BR. NO. SUM.-18-1224 STA. 3+64.61
SCALE: 1/4" = 1'-0" STA. 4+99.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.Z.D.	TRACED	CHECKED G.D.	REVIEWED J.T.	REVISED 4-28-59
DATE 2-26-58	DATE	DATE 9-15-58	DATE 9-8-58	1018 SHEET 134

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

135
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SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.8-11.65

130-S401, 130-S402 and 130-S404 @ 12" ctrs

3-S604 curb-typical

6-S602 parapet-typical except as shown

6-S601 parapet

EAST CURB AND PARAPET

Elev. 1114.20

Move bars to maintain 12" spacing each side of pier.

℄ Pier 42

℄ Standard Light Supports

℄ Bearing Abutment 4S

Elev. 1114.13

Start S1002 Start S1001 11'-0" 9'-6" ℄ Pier 4-1 Elev. 1113.96

Gutter Line

℄ Bearing Abutment 4N

Elev. 1113.51

1 Ser. 21-S807 @ 12" ctrs top
1 Ser. 21-S813 @ 12" ctrs bottom

21-S806 @ 12" ctrs top
21-S811 @ 12" ctrs bottom

2-S403 stirrups typ.

1 Ser. 18-S808 @ 12" ctrs top
1 Ser. 18-S814 @ 12" ctrs bottom

10-S306 equally spaced top
10-S306 equally spaced bottom

1 Ser. 17-S809 @ 12" ctrs top
1 Ser. 18-S815 @ 12" ctrs bottom

1 Ser. 19-S805 @ 12" ctrs top
1 Ser. 19-S810 @ 12" ctrs bottom
1-S812 bottom

18-S806 @ 12" ctrs top
18-S811 @ 12" ctrs bottom

1-S816 top

7"

42-S601 @ 11" ctrs top

78-S601 @ 5½" ctrs bottom

42-S602 @ 11" ctrs top

41-S1001 @ 11" ctrs bottom

33-S802 @ 11" ctrs bottom

41-S1002 @ 11" ctrs top

41-S811 lap S1001 - top.

42-S603 @ 11" ctrs top

42-S1002 @ 11" ctrs top

42-S604 @ 11" ctrs top

78-S902 @ 5½" ctrs bottom

Reinforcing steel in drop panel to be centered over pier.

12-S403 stirrups @ 11" ctrs

2-S403 stirrups typ.

1-S802 bottom

34'-11½"

36'-7⅝"

11"

3'-0"

9-4" ø W.I. pipe scuppers at about 4'-0" ctrs

12"

Start S902

Stop S901

8'-0"

8'-6"

Elev. 1112.02

Elev. 1112.28

6'-0"

Start S901

4-4" W.I. pipe scuppers @ about 8'-0" ctrs.

Elev. 1112.12

Elev. 1111.44

S401 and S402

6-S605 parapet

6-S607 parapet-typical except as shown

3-S604-curb-typical

131-S401, 131-S402 and 131-S404 @ 12" ctrs

S401 and S402

6-S605 parapet

WEST CURB AND PARAPET

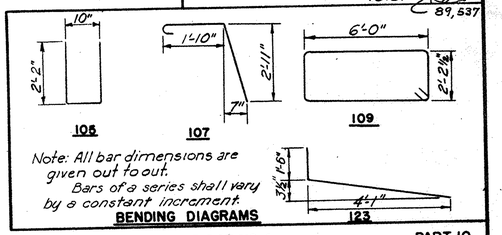
DECK PLAN

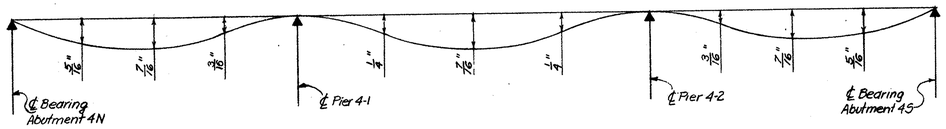
* Included for payment in unit price bid for Item S-14

+ See sheet 174

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT LBS.
S401	261	5'-7"	123		973
S402	261	5'-1"	107		886
S403	56	16'-8"	109		624
S404	261	4'-1"	105		859
S601	6	17'-6"	Str.		*
S602	36	16'-3"	Str.		*
S603	6	14'-9"	Str.		*
S604	18	44'-6"	Str.		1,205
S605	6	15'-0"	Str.		*
S606	6	14'-0"	Str.		*
S607	36	16'-6"	Str.		*
S801	42	32'-9"	Str.		3,671
S802	80	21'-6"	Str.		4,692
S803	42	31'-6"	Str.		3,530
S804	42	32'-6"	Str.		3,647
S805	1 ser. 19	38'-3" to 39'-0"	Str.	½"	1,962
S806	39	37'-9"	Str.		3928
S807	1 ser. 21	37'-9" to 38'-3"	Str.	5/16"	2,131
S808	1 ser. 18	38'-6" to 39'-6"	Str.	11/16"	1,874
S809	1 ser. 17	39'-6" to 41'-0"	Str.	1⅛"	1,826
S810	1 ser. 19	35'-9" to 36'-6"	Str.	½"	1,832
S811	39	35'-6"	Str.		3,695
S812	1	36'-6"	Str.		99
S813	1 ser. 21	35'-6" to 36'-0"	Str.	5/16"	2,003
S814	1 ser. 18	36'-3" to 37'-0"	Str.	½"	1,762
S815	1 ser. 18	37'-0" to 38'-6"	Str.	1 1/16"	1,816
S816	1	40'-3"	Str.		107
S817	44	6'-0"	Str.		657
S901	156	32'-9"	Str.		17,370
S902	78	32'-6"	Str.		8,619
S903	10	37'-9"	Str.		1,284
S904	10	35'-6"	Str.		1,207
S905	10	38'-3"	Str.		1,301
S906	10	35'-9"	Str.		1,216
S1001	82	18'-6"	Str.		6,528
S1002	84	22'-6"	Str.		8,133
# Light Standard Support					200
				Total =	89,537





DEAD LOAD DEFLECTIONS
Horizontal 1"=10'
Vertical 1"=1'-0"
Deflections given at quarter points of spans.

Notes:
For replacement bars see Sheet 141.
For handrail and parapet joint spacing see Sheet 173.
For roadway lighting see Sheet 174.
For expansion joint details at abutments see Sheet 136.
For Section A-A and Section B-B see Sheet 136.
For Section thru construction joint see Sheet 172

In order to facilitate water curing of the concrete of the deck slab, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are normal to the ℄ of bridge and are located near the center of any span.

H.N.T.B. BRIDGE NO. 4 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK PLAN
WESTBOUND EXPRESSWAY UNDER RAMP R
BR. NO. SUM. 18-1224 STA. 3 + 64 .61
SCALE: NONE STA. 4 + 99 .50

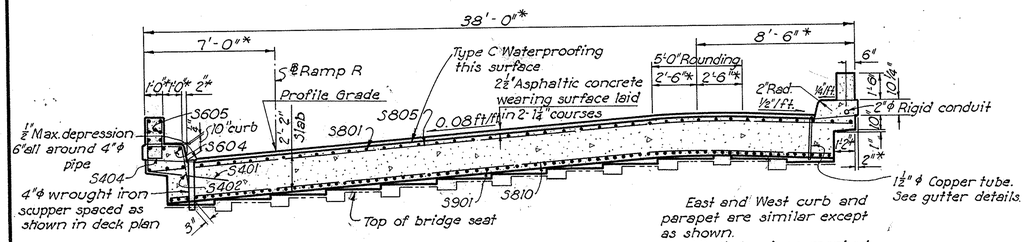
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN A.M.M	TRACED	CHECKED A.B.G.	REVIEWED J.T.	REVISED 10-14-59
DATE 3-21-58	DATE	DATE 4-20-58	DATE 9-8-58	1018 SHEET 135

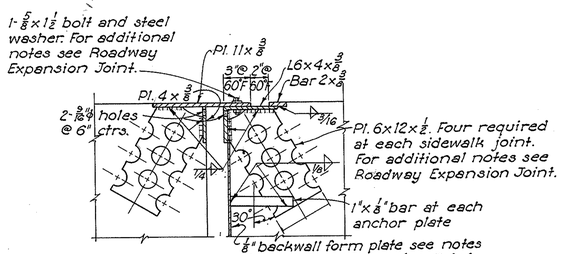
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		136
2	OHIO			176

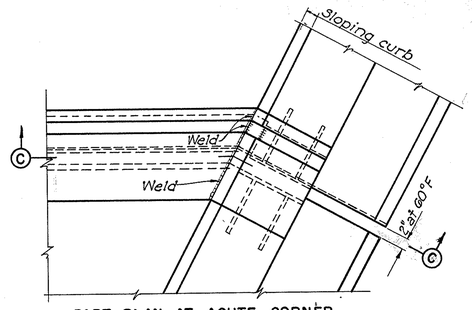
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



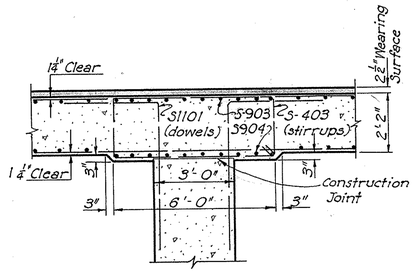
SECTION A-A
1/4" = 1'-0"



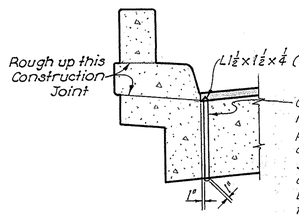
TYPICAL SECTION THRU CURB JOINT
1½" = 1'-0"



PART PLAN AT ACUTE CORNER
1" = 1'-0"

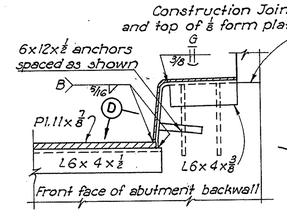


SECTION B-B
⅜" = 1'-0"

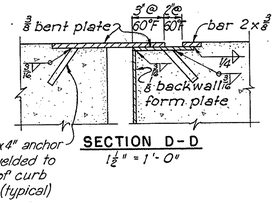


Copper drain tubes shall be made from metal having a nominal weight of 16 ozs. per sq. ft. and shall have an inside diameter of not less than 1⅛ in. The tubes shall be at about 6'-0" ctrs. and set to clear drop panels at piers at least 3". End drain tubes to be placed at not more than 1'-0" from pipe scuppers. Drain tubes shall be depressed ¼" below top of slab and shall extend 1" below slab. See Sec. 5-29.08.

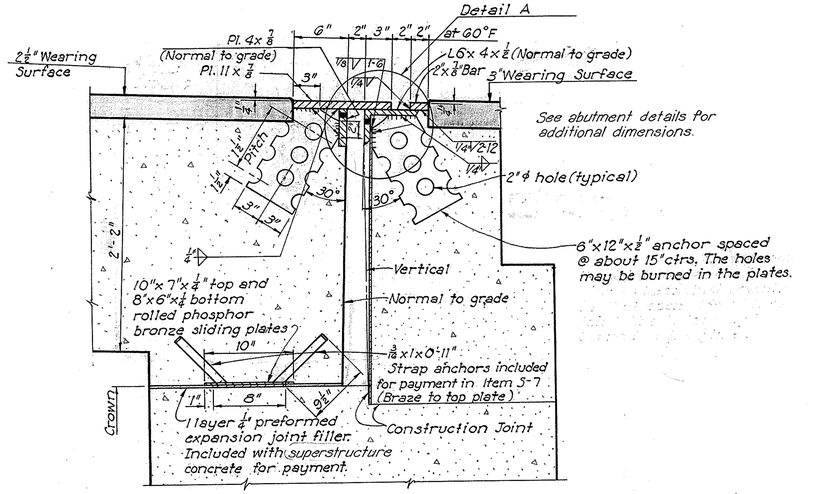
GUTTER DETAILS
½" = 1'-0"



SECTION C-C
1" = 1'-0"



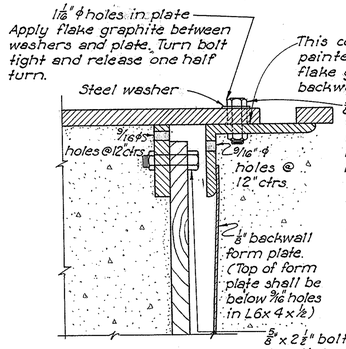
SECTION D-D
1½" = 1'-0"



Joint shown normal to front face of backwall.

⅛" backwall form plates shall be provided in lengths not to exceed 6'-0"; joints between lengths shall be tightly butted and no joints shall be placed opposite drainage slots in bridge seat; plates shall be notched to fit around anchor plates. Included for payment in unit price bid for Item 5-9.

ROADWAY EXPANSION JOINT
1½" = 1'-0"



Omit shop coat on all portions of end finish. Portions in contact with steel or with concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the two field coats.

DETAIL A
3" = 1'-0"

Notes:
For locations of Sections A-A and B-B see Sheet 135.
Roadway and curb expansion joints are typical for H.N.T.B. bridges 4 and 7.

H.N.T.B. BR. NO. 4 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK DETAILS

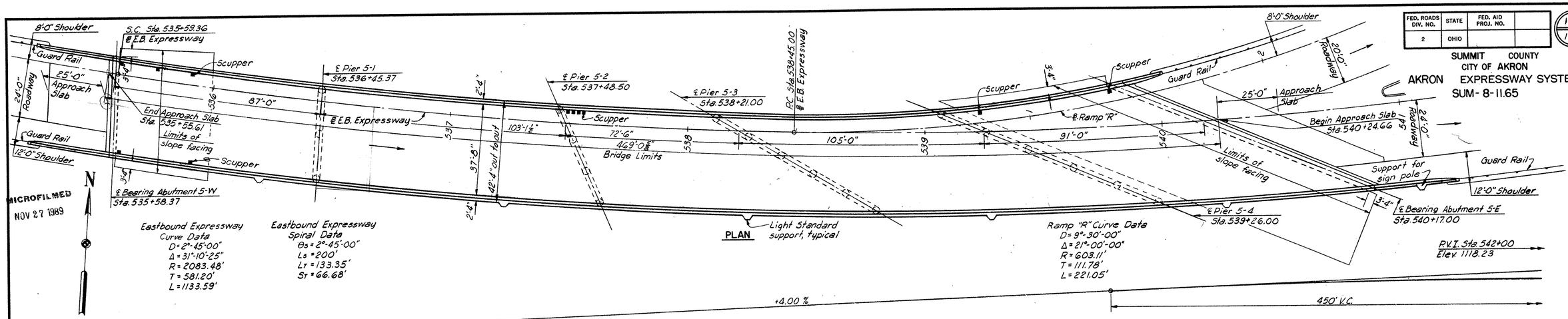
WESTBOUND EXPRESSWAY UNDER RAMP R
BR. NO. SUM. 18-1224 STA. 3+64.61
SCALE: AS SHOWN STA. 4+99.50
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
A.M.M.	B.S.L.	M.B.G.	J.T.	
DATE 3-28-58	DATE 5-21-58	DATE 4-24-58	DATE 9-8-58	1018 SHEET 136

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

137
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



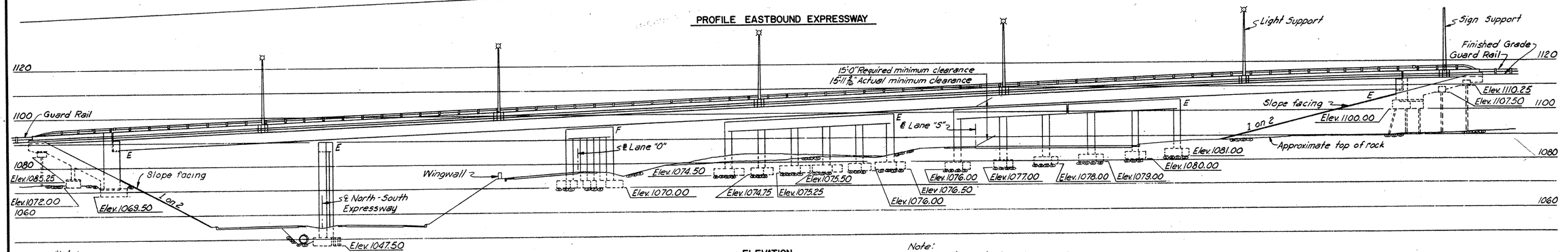
Eastbound Expressway Curve Data
D = 2°-45'-00"
Δ = 31°-10'-25"
R = 2083.48'
T = 581.20'
L = 1133.59'

Eastbound Expressway Spiral Data
θs = 2°-45'-00"
Ls = 200'
Lr = 133.35'
St = 66.68'

Ramp "R" Curve Data
D = 9°-30'-00"
Δ = 21°-00'-00"
R = 603.11'
T = 111.78'
L = 221.05'

P.V.I. Sta 542+00
Elev. 1118.23
+4.00 %
450' V.C.

PROFILE EASTBOUND EXPRESSWAY



ELEVATION

Note:
Rock lines shown are determined by interpolation of borings and are approximate only.

Note:
Point of actual minimum vertical clearance of Lane "5" occurs at the intersection of ℄ Lane "5" and the North exterior girder.

ESTIMATED QUANTITIES

	Item	Description	Unit	Abut-ments	Wing-walls	Retaining Wall	Piers	Super-structure	General	Total
	E-2	Cofferdams, Cribs and Sheeting	Lump Sum							Lump Sum
	E-2	Excavation for Structures (Unclassified)	Cu. Yd.	460	165		75			700
	E-2	Excavation for Structures (Rock or Shale)	Cu. Yd.	78	6	105	291			480
	S-29	Slope Facing (S-29.05 type)	Cu. Yd.	260						260
	S-1	Class "C" Concrete (Superstructure)	Cu. Yd.					630		630
	S-1	Class "C" Concrete (Abutment 5-W and Walls) ①	Cu. Yd.	100	65	60				225
	S-1	Class "C" Concrete (Pier Caps and Columns)	Cu. Yd.				* 220			220
	S-1	Class "E" Concrete (Footings)	Cu. Yd.	155	23	58	144			380
	S-3	Type "C" Waterproofing	Sq. Yd.					2200		2200
	S-4	Reinforcing Steel	Lbs.	26,410	6,880	6,400	83,670	164,720		288,080
	S-7	Structural Steel	Lbs.					830,000		830,000
	S-8	Field Painting Structural Steel	Lbs.					830,000		830,000
	S-14	Aluminum Handrail (Including Parapet)	Lin. Ft.		122			962		1084
	S-16	First Test Pile	Lump Sum							Lump Sum
	S-18	Steel Bearing Piles (12 BP 53)	Lin. Ft.	440	140					580
	S-25	2" ϕ Rigid Metal Conduit	Lin. Ft.		80			600		680
	S-25	Electrical Equipment	Lump Sum							Lump Sum
*	S-25	Luminaire, 6000 lumen, type 5 (Understructure) ③	Each					2		2
*	S-25	Standards 24'X9⅜ pole with 10'-0" bracket ③	Each					5		5
	S-29	8" W.I. or Galvanized Steel Pipe including Fastenings and Specials	Lin. Ft.				20			20
	S-29	Porous Backfill	Cu. Yd.	120	30	50				200
	S-29	Subdrainage for Wearing Surface Course	Lin. Ft.					960		960
	T-35	2½" Asphaltic Concrete Surface Course Type C (60-70)	Cu. Yd.					151		151
	S-1	Class "E" Concrete (Stub Abutment 5-E) ②	Cu. Yd.	170						170
	S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.	60		40				100
	S-9	½" Preformed Gray Rubber Expansion Joint Filler	Sq. Ft.	150		20				170

* Includes splash block at Pier 5-2

① This item includes all concrete in Abutment 5-W, N.W. Wingwall, S.W. Wingwall, S.E. Wingwall, and Retaining Wall except for footings

② This item includes all concrete in Abutment 5-E and N.E. Wingwall except for footing.

③ These quantities are not included in the summary of lighting on sheet 24 of the highway plans.

* There will be no Federal or State participation in this Item.

Notes:
All piles to be 12BP53 with an estimated average vertical length of 10'-0" for Abutment 5-E, 20'-0" for the Southeast wingwall and 14'-0" for the Northwest and Southwest wingwalls. These estimates are based on boring data and are approximate only. The contractor shall assume full responsibility for lengths of piling selected for driving.

The slope facing (S-29.05 type) shall be 12" thick and shall be placed within the limits shown on the plan of the structure.

For location of sodded flume see sheet 94.

Wingwalls are built on a chord.

PROPOSED STRUCTURE

Type: Five span continuous welded steel girder with reinforced concrete deck and substructure
Spans: 87', 103'-1½", 72'-6", 105'-0" and 91'-0" = 458'-7½" ctr. to ctr. end bearings.
Out to Out of Structure: 42'-6" (widening at East end)
Loading: CF 2000 (Adequate for A.A.S.H.O. alternate loading)
Skew Varies: 3°-09'-17" to 68°
Surface Course: 2½" Asphaltic concrete
Approach Slabs: AS-1-54 (25'-0" long)

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GENERAL PLAN AND ELEVATION
EASTBOUND EXPRESSWAY OVER NO-SO. EXPRESSWAY

BR. NO. SUM-18-1212 EB STA. 535+55.61
SCALE: 1" = 20' STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN S.M.A.	TRACED	CHECKED J.W.L.	REVIEWED J.T.	REVISED
DATE 2-22-58	DATE	DATE 9-8-58	DATE 9-8-58	1018 SHEET 137

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

158
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with the anchor bolt setting.

PLAN

ELEVATION

PLAN

ELEVATION

FOOTING PLAN
PIER 5-1

FOOTING PLAN
PIER 5-2

SECTION AA
3/4" = 1'-0"

SECTION BB
3/4" = 1'-0"

SECTION CC
3/4" = 1'-0"

SECTION DD
3/4" = 1'-0"

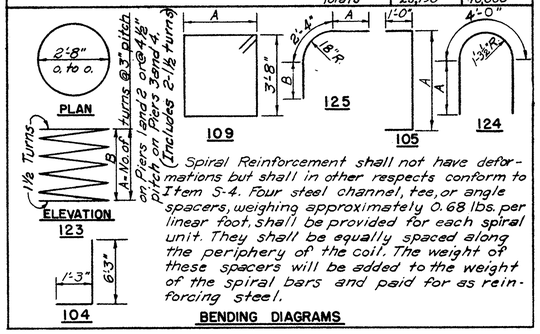
SECTION EE
3/4" = 1'-0"

SECTION FF
3/4" = 1'-0"

Notes:
For typical pier notes see Sheet 140.
For replacement bars see Sheet 141.
For downspout details see Sheet 153.
Bar dimensions are given out to out.

REINFORCEMENT SCHEDULE

MARK	NUMBER PIER 5-1	NUMBER PIER 5-2	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS PIER 5-1	WEIGHT POUNDS PIER 5-2
P401	32	32	4'-5"	105	2'-8"		89	89
P402	2	2	4'-1"	105	2'-4"		5	5
P403	2	2	3'-6"	105	1'-9"		5	5
SP501	1		1150'-2"	123	140	34'-2"	1200	
SP502	1		1166'-7"	123	142	34'-9"	1217	
SP503	1		1191'-3"	123	145	35'-4"	1242	
SP504		1	551'-5"	123	67	15'-10"		575
SP505		1	567'-11"	123	69	16'-5"		592
SP506		1	584'-4"	123	71	17'-0"		609
SP507		1	608'-0"	123	74	17'-7"		635
P508		35	13'-3"	109	2'-8"			484
P509		4	42'-9"	Str.				178
P510	6		11'-0"	124	3'-6"		70	
P511		8	9'-8"	124	2'-10"			81
P601		24	7'-6"	Str.				270
P602	36		11'-10"	109	2'-0"		640	
P603	2		38'-0"	Str.			114	
P604	12		13'-2"	109	2'-8"		237	
P801		44	7'-6"	Str.				881
P802		22	9'-6"	Str.				558
P901		2	42'-9"	Str.				291
P902		4	30'-6"	Str.				415
P903		4	16'-6"	Str.				224
P904		4	13'-9"	Str.				187
P905		8	12'-0"	125	4'-6"	5'-2"		326
P1101	60	88	7'-3"	104			2311	3389
P1102		24	8'-0"	Str.				1020
P1103	20		38'-0"	Str.			4039	
P1104	20		38'-6"	Str.			4092	
P1105	20		39'-0"	Str.			4145	
P1106		16	19'-6"	Str.				1658
P1107		16	20'-0"	Str.				1700
P1108		16	20'-9"	Str.				1764
P1109	2		16'-0"	Str.			170	
P1110	4		24'-0"	Str.			510	
P1111	2		38'-0"	Str.			404	
P1112	3		36'-0"	Str.			574	
P1113	8		13'-0"	125	4'-10"	5'-10"	553	
P1114		16	21'-3"	Str.				1806
P1115	8		39'-6"	Str.			1680	
P1116	4		18'-6"	Str.			393	
P906	36		9'-6"	Str.			1131	
P907	38		7'-6"	Str.			969	
P908		6	45'-0"	Str.				918
				Totals			25,790	18,660



Spiral Reinforcement shall not have deformations but shall in other respects conform to Item 5-4. Four steel channel, tee, or angle spacers, weighing approximately 0.68 lbs. per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The weight of these spacers will be added to the weight of the spiral bars and paid for as reinforcing steel.

BENDING DIAGRAMS

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 5-1 AND 5-2
EASTBOUND EXPRESSWAY OVER NO. - SO. EXPRESSWAY

BR. NO. SUM.-18-1212 EB STA .535 + 55.61
SCALE: 3/16 = 1-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY, OHIO

DRAWN GKG	TRACED	CHECKED AMM	REVIEWED JT	REVISED
DATE 12-28-57	DATE	DATE 8-20-58	DATE 9-8-58	1018 SHEET 138

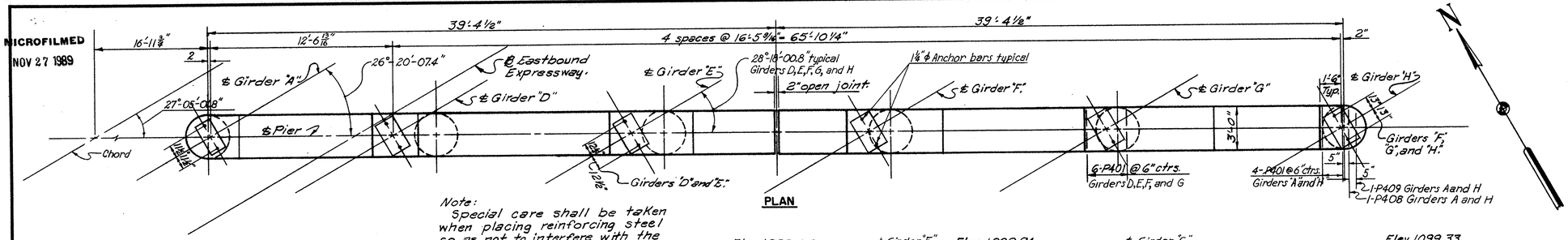
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

139
176

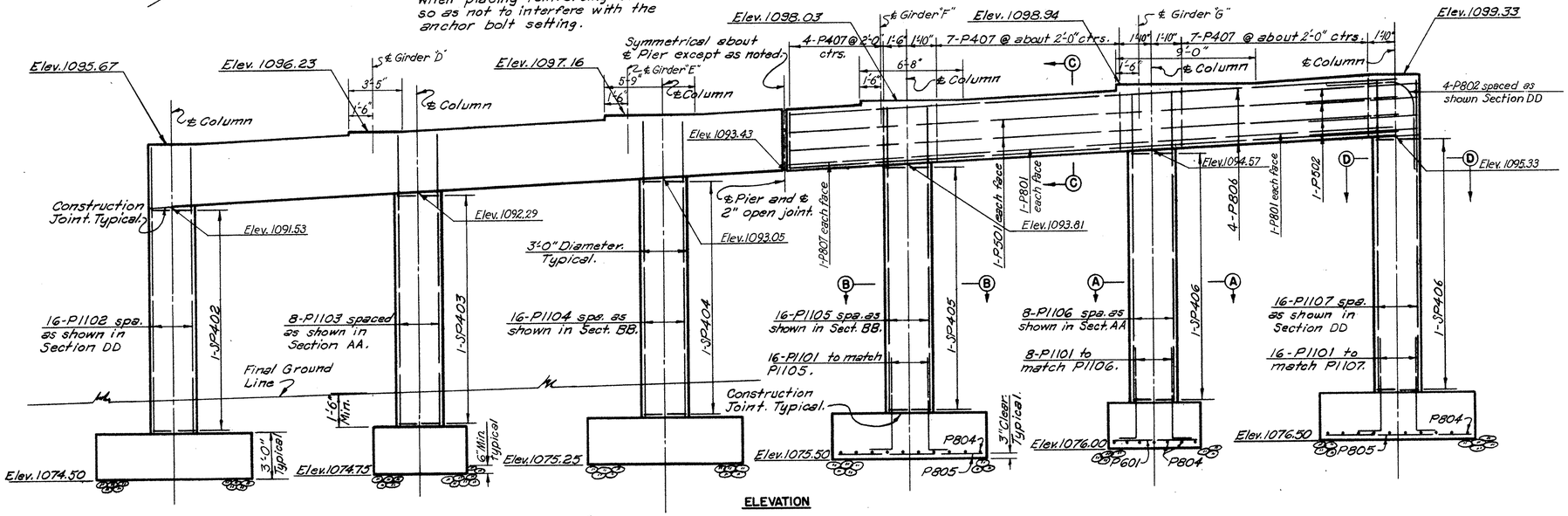
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

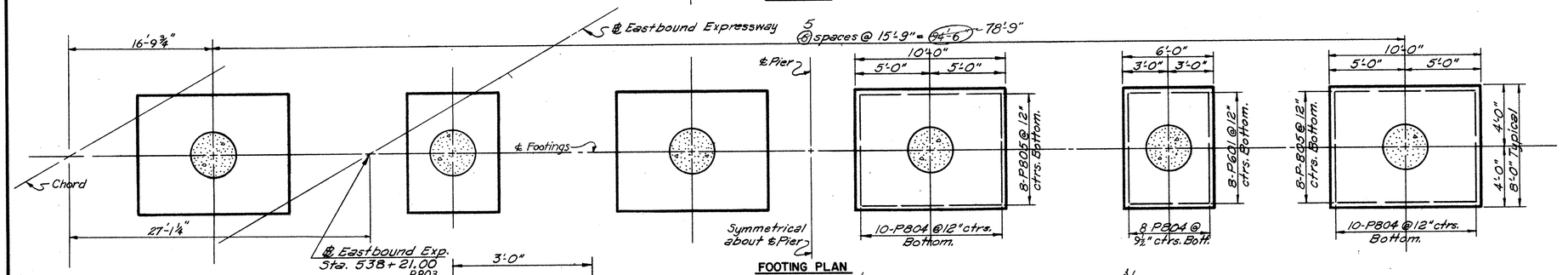


PLAN

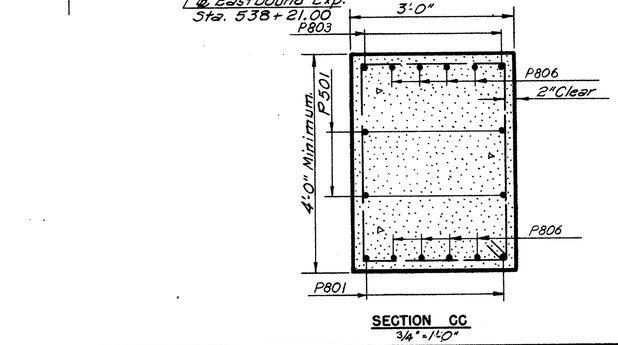
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with the anchor bolt setting.



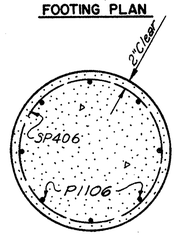
ELEVATION



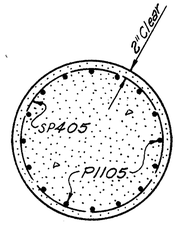
FOOTING PLAN



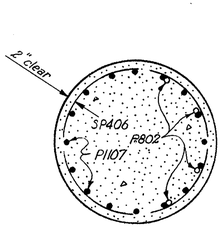
SECTION CC
3/4" = 1'-0"



SECTION AA
3/4" = 1'-0"



SECTION BB
3/4" = 1'-0"



SECTION DD
3/4" = 1'-0"

REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
P401	32	4'-5"	105	2'-8"		94
SP402	1	338'-2"	123	41	14'-0"	226
SP403	1	346'-5"	123	42	14'-6"	231
SP404	1	354'-8"	123	43	14'-9"	237
SP405	1	362'-11"	123	44	15'-3"	242
SP406	2	371'-2"	123	45	15'-6"	496
P407	36	13'-0"	109	2'-8"		313
P408	2	4'-1"	105	2'-4"		5
P409	2	3'-6"	105	1'-9"		5
P501	8	39'-3"	Str.			328
P502	8	9'-0"	124	2'-6"		76
P601	16	5'-6"	Str.			132
P801	8	15'-3"	Str.			326
P802	8	9'-8"	125	2'-6"	4'-10"	206
P803	4	39'-3"	Str.			419
P804	56	7'-6"	Str.			1122
P805	32	9'-6"	Str.			812
P806	16	40'-0"	Str.			1710
P807	4	7'-3"	Str.			77
P1101	80	7'-3"	104			3082
P1102	16	17'-6"	Str.			1488
P1103	8	18'-3"	Str.			776
P1104	16	18'-6"	Str.			1574
P1105	16	19'-0"	Str.			1616
P1106	8	19-3	Str.			818
P1107	16	19'-6"	Str.			1659
					Total	18,070

Note:
For Bending Diagrams see Sheet 138.
Footings shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found to be considerably lower, after excavation, than show on plans, a new pier design will be provided.

For replacement bars see Sheet 141
All bar dimensions are given out to out.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 5-3
EASTBOUND EXPRESSWAY OVER NO.-SO. EXPRESSWAY

BR. NO. SUM-18-1212 EB STA. 535+55.61
SCALE: 1/4" = 1'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY, OHIO

DRAWN GKG	TRACED	CHECKED AMM	REVIEWED J.T.	REVISED 3-30-59
DATE 1-7-58	DATE	DATE 8-21-58	DATE 9-8-58	1018 SHEET 139

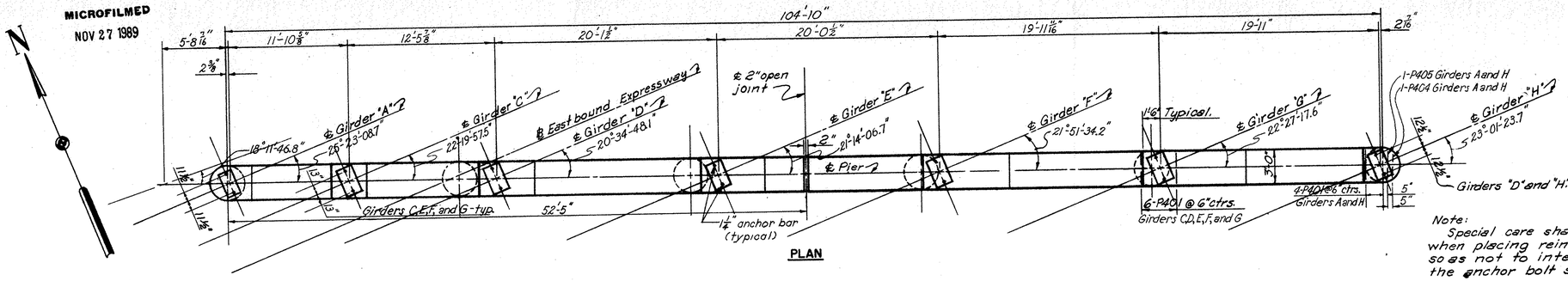
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

140
176

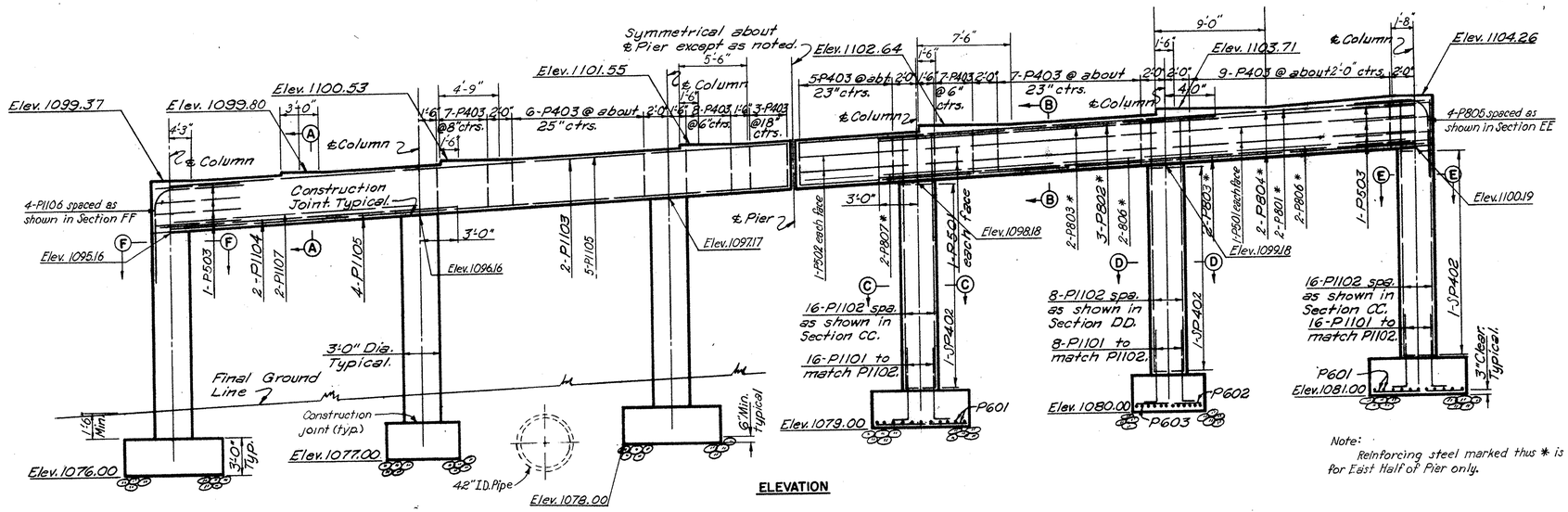
SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



PLAN

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with the anchor bolt setting.

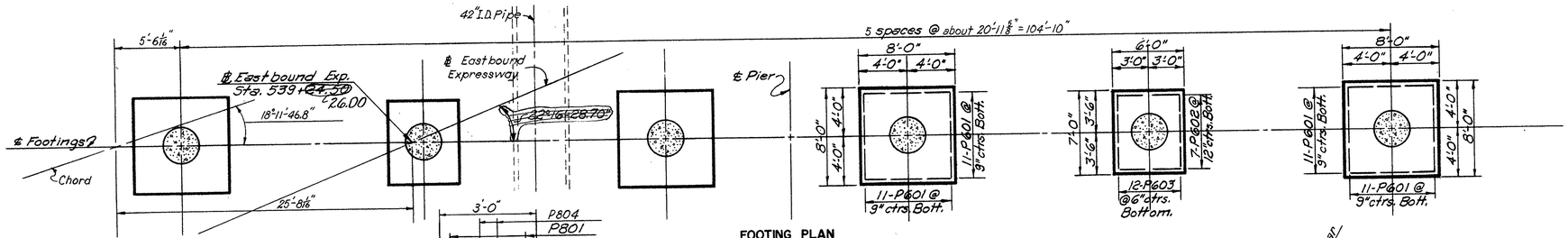


ELEVATION

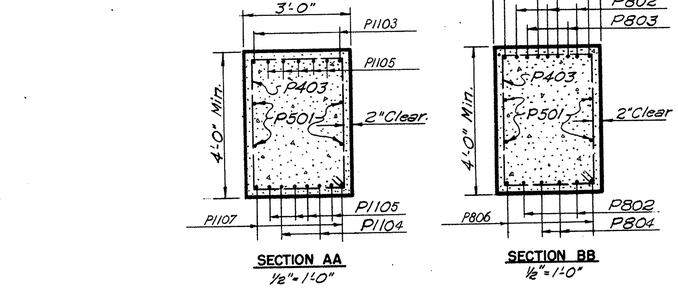
Note:
Reinforcing steel marked thus * is for East Half of Pier only.

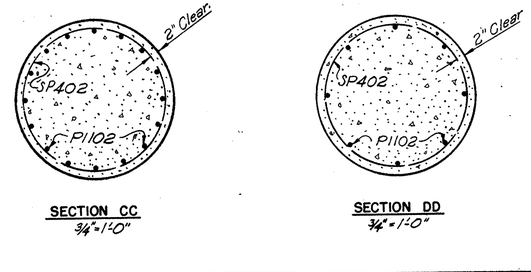
REINFORCEMENT SCHEDULE

MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
P401	38	4'-5"	105	2'-8"		112
SP402	6	379'-4"	123	46	16'-1"	1520
P403	61	13'-3"	109	2'-8		540
P404	2	3'-6"	105	1'-9"		5
P405	2	4'-1"	105	2'-4"		5
P501	16	20'-0"	Str.			334
P502	8	9'-9"	Str.			81
P503	8	9'-0"	124	2'-6"		76
P601	88	7'-6"	Str.			991
P602	14	5'-6	Str.			116
P603	24	6'-6"	Str.			234
P801	2	53'-3"	Str.			284
P802	3	28'-0"	Str.			224
P803	4	45'-9"	Str.			489
P804	4	53'-3"	Str.			569
P805	4	9'-8"	125	2'-6"	4'-10"	103
P806	4	20'-6"	Str.			219
P807	2	9'-9"	Str.			20
P1101	80	7'-3"	104			3083
P1102	80	19'-6"	Str.			8289
P1103	2	52'-3"	Str.			555
P1104	2	24'-6"	Str.			260
P1105	9	53'-3"	Str.			2547
P1106	4	13'-0"	125	4'-10"	5'-10"	276
P1107	2	20'-6"	Str.			218
					Total	21,150



FOOTING PLAN





Typical Pier Notes:
Footings shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found to be considerably lower, after excavating, than shown on plans, a new pier design will be provided.

Notes:
For replacement bars see Sheet 141.
All bar dimensions given out to out.
For bend diagram see sheet 138.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 5-4
EASTBOUND EXPRESSWAY OVER NO. - SO. EXPRESSWAY

BR. NO. SUM-18-1212 EB STA. 535+55.61
SCALE: 3/16" = 1'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY, OHIO

DRAWN GKG	TRACED	CHECKED AHN	REVIEWED J.T.	REVISED 3-30-59
DATE 1-1958	DATE	DATE 8-2558	DATE 9-8-58	1018 SHEET 140

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

141
176

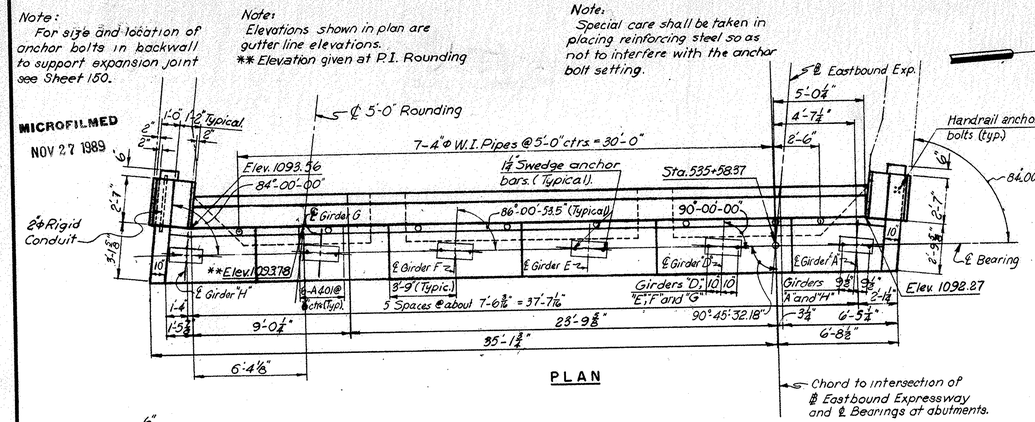
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.-8-11.65

MICROFILMED
NOV 27 1989

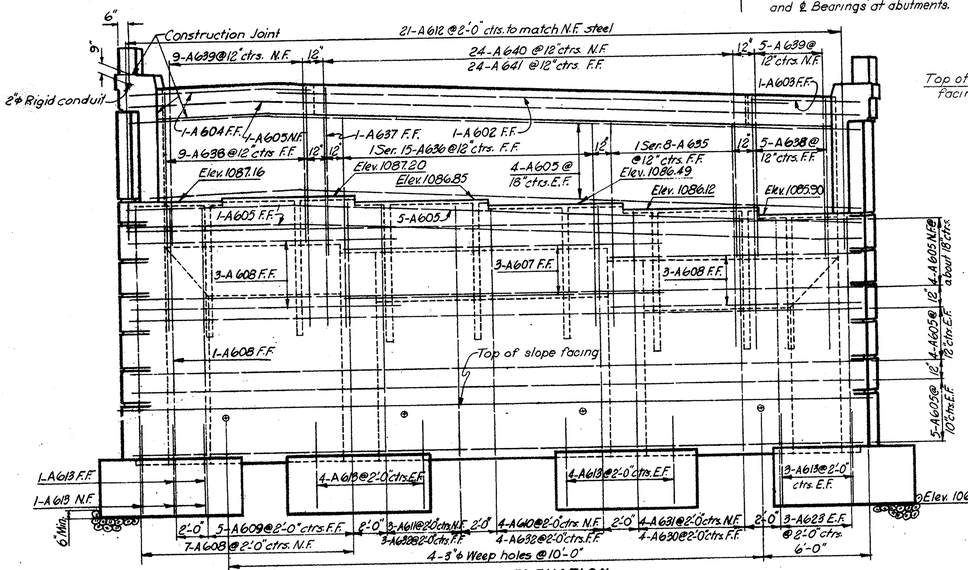
Note:
For size and location of anchor bolts in backwall to support expansion joint see Sheet 150.

Note:
Elevations shown in plan are gutter line elevations.
** Elevation given at P.I. Rounding

Note:
Special care shall be taken in placing reinforcing steel so as not to interfere with the anchor bolt setting.

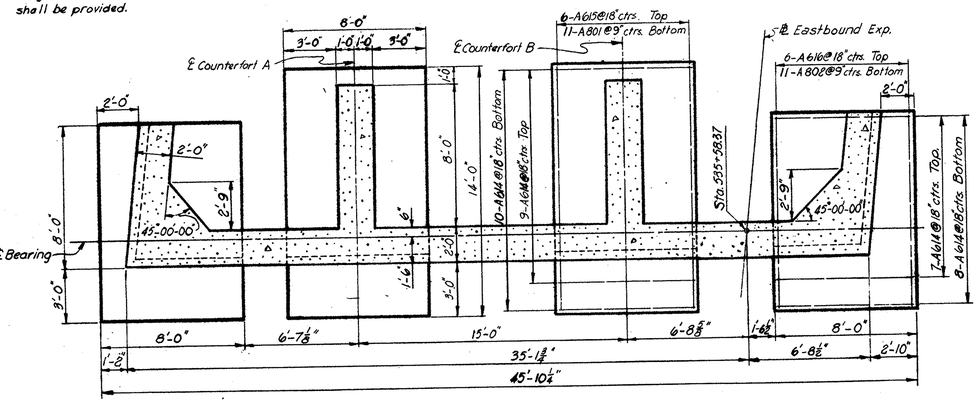


PLAN

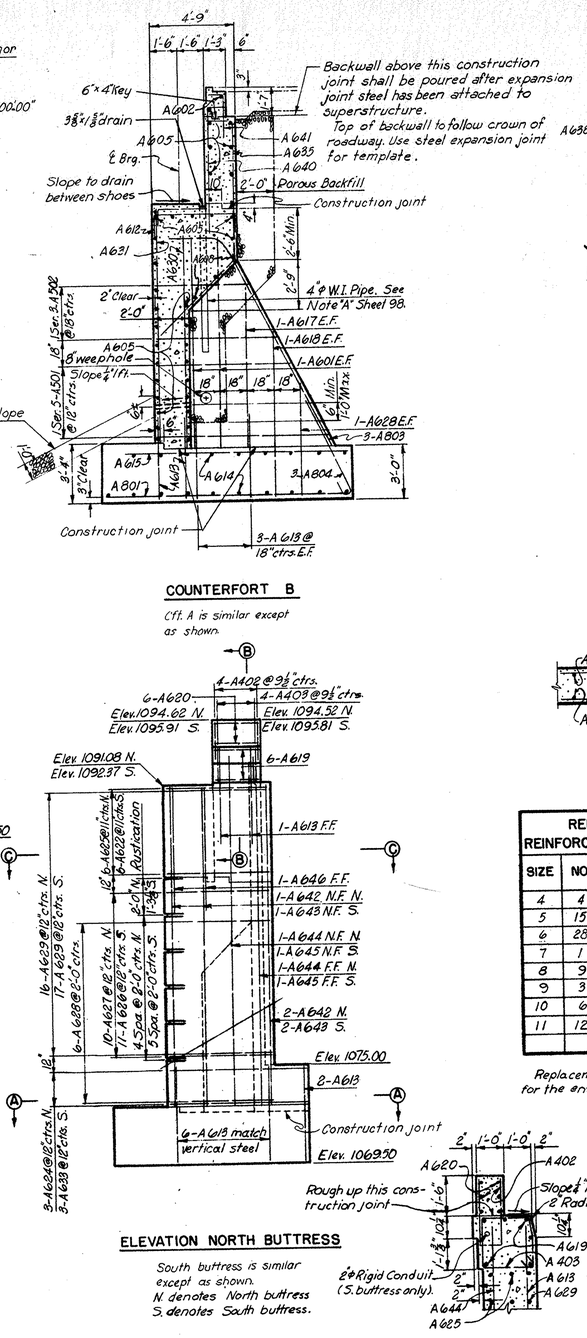


ELEVATION

Note:
Footings shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found, after excavation, to be considerably lower than shown on the plans, a new abutment design shall be provided.



FOOTING PLAN

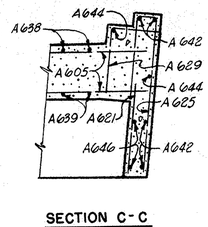


COUNTERFORT B

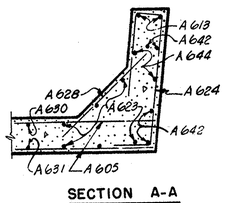
Cft. A is similar except as shown.

ELEVATION NORTH BUTTRESS

South buttress is similar except as shown.
N. denotes North buttress
S. denotes South buttress.



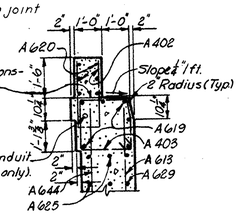
SECTION C-C
⅜" = 1'-0"



SECTION A-A

REPLACEMENT REINFORCEMENT SCHEDULE			
SIZE	NO.	LENGTH	TYPE
4	4	5'-3"	Str.
5	15	5'-9"	Str.
6	28	6'-0"	Str.
7	1	6'-3"	Str.
8	9	6'-6"	Str.
9	3	7'-0"	Str.
10	6	7'-3"	Str.
11	12	7'-6"	Str.

Replacement bars are listed for the entire contract.



SECTION B-B
⅜"-1'-0"

Notes:
For typical section thru key at buttress see sheet 112.
E.F. denotes each face.
N.F. denotes near face. F.F. denotes far face.
Bars of a series shall vary by a constant increment.
Bar dimensions are given out to out.
For expansion joint steel see sheet 150.
For handrail detail see sheet 173.
For lighting details see sheet 174.
For 1⅛"Φ drain detail and rustication detail see sheet 111.
For base plate details see sheet 130.
For bar bending diagrams see sheet 148.

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES ING.	WEIGHT POUNDS
A401	36	3'-7"	104	2'-8"	1'-0"			80
A402	8	5'-11"	105	10"	2'-8"			82
A403	8	7'-10"	124	1'-10"	2'-0"			62
A501	2 Ser. 5	21'-10" to 17'-10"	121	9'-4" to 7'-4"	1'-8"		1'-0"	208
A502	2 Ser. 3	16'-4" to 13'-2"	121	6'-7" to 5'-0"	1'-8"		1'-7"	93
A601	8	11'-9"	Str.					141
A602	1	28'-0"	Str.					42
A603	1	6'-6"	Str.					10
A604	8	10'-9"	Str.					129
A605	37	41'-6"	Str.					2312
A606	4	7'-0"	Str.					42
A607	3	18'-0"	Str.					81
A608	15	14'-0"	Str.					316
A609	5	11'-6"	Str.					86
A610	4	18'-2"	Str.					80
A611	3	13'-9"	Str.					62
A612	21	5'-3"	104	4'-5"	1'-0"			165
A613	59	5'-0"	Str.					443
A614	68	7'-6"	Str.					767
A615	12	12'-6"	Str.					226
A616	12	9'-9"	Str.					176
A617	4	9'-0"	Str.					54
A618	4	8'-9"	Str.					53
A619	12	2'-3"	Str.					41
A620	12	2'-5"	Str.					*
A621	12	3'-3"	Str.					55
A622	6	8'-7"	127	5'-10"	7"	2'-6"		77
A623	6	12'-9"	Str.					115
A624	3	15'-10"	131	1'-7"	7'-5"	5'-2"		71
A625	6	8'-3"	127	5'-6"	7"	2'-6"		74
A626	11	10'-7"	132	7"	5'-10"	2'-6"		175
A627	10	10'-3"	131	7"	5'-6"	2'-6"		154
A628	16	6'-0"	Str.					144
A629	33	3'-11"	104	1'-7"	2'-6"			194
A630	4	10'-3"	Str.					62
A631	4	18'-0"	Str.					78
A632	2	19'-9"	Str.					59
A633	3	16'-2"	132	1'-7"	7'-9"	5'-2"		73
A634	2	21'-0"	Str.					48
A635	1 Ser. 8	14'-5" to 14'-7"	128	7'-5½ to 7'-7"	1'-5"	4'-1"	9/16"	174
A636	1 Ser. 15	14'-6" to 13'-10"	128	7'-6 to 6'-10"	1'-5"	4'-1"	9/16"	820
A637	1	14'-0"	128	7'-0"	1'-5"	4'-1"		21
A638	14	15'-5"	128	8'-5"	1'-5"	4'-1"		826
A639	14	8'-8"	104	7'-5"	1'-5"			182
A640	24	8'-2"	104	7'-5"	11"			294
A641	24	3'-11"	104	5'-4"	9"			141
A642	4	18'-0"	Str.					108
A643	4	19'-5"	Str.					116
A801	22	18'-6"	Str.					795
A802	22	10'-6"	Str.					617
A803	6	17'-6"	133					280
A804	6	6'-4"	101	5'-3"				101
							Total =	10,560

* To be included for payment in unit price bid for item S-14.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 5-W
EASTBOUND EXPRESSWAY OVER NO.-SO. EXPRESSWAY
BR. NO. SUM.-18-1212 EB STA. 535+55.61
SCALE : 1/4" = 1'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.Z.D	TRACED	CHECKED R.L.H.	REVIEWED J.T.	REVISED
DATE 6-16-58	DATE	DATE 7-19-58	DATE 9-8-58	1018 SHEET 141

MICROFILMED
NOV 22 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

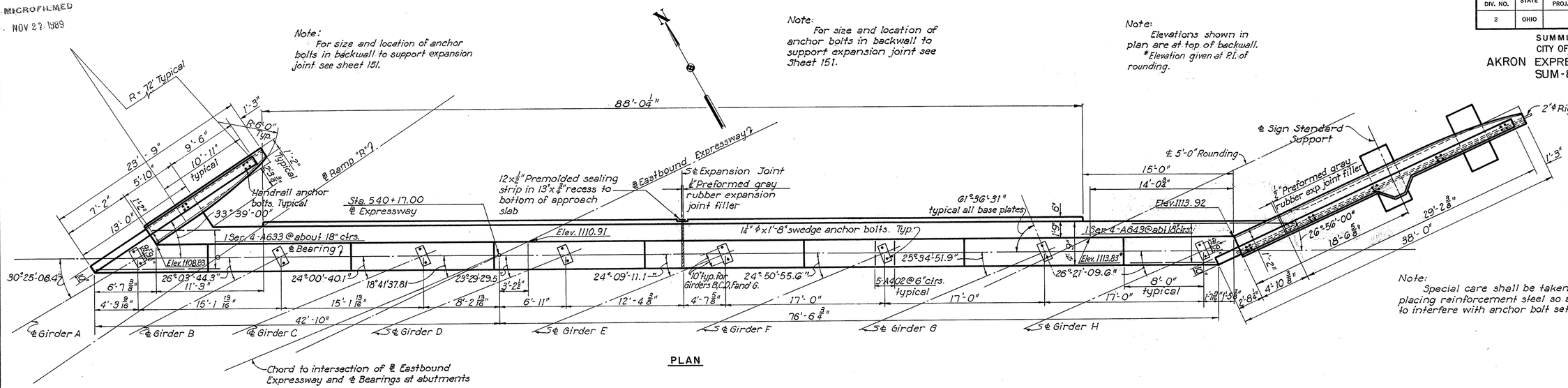
142
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note:
For size and location of anchor bolts in backwall to support expansion joint see sheet 151.

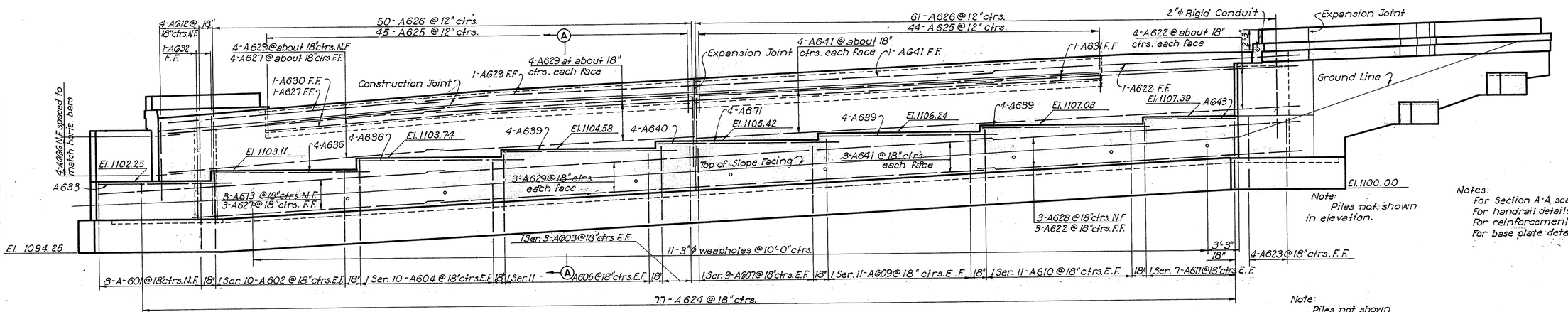
Note:
For size and location of anchor bolts in backwall to support expansion joint see Sheet 151.

Note:
Elevations shown in plan are at top of backwall.
*Elevation given at P.I. of rounding.



PLAN

Note:
Special care shall be taken when placing reinforcement steel so as not to interfere with anchor bolt setting.

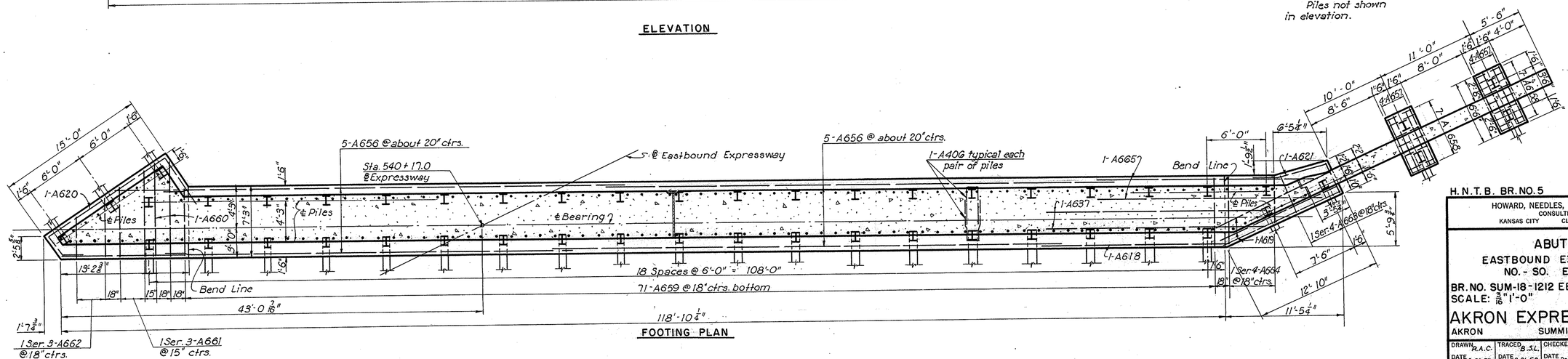


ELEVATION

Note:
Piles not shown in elevation.

Notes:
For Section A-A see Sheet 143
For handrail details see Sheet 173.
For reinforcement schedule see Sheet 143.
For base plate detail see Sheet 130.

Note:
Piles not shown in elevation.



FOOTING PLAN

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 5-E

EASTBOUND EXPRESSWAY OVER NO. - SO. EXPRESSWAY

BR. NO. SUM-18-1212 EB STA. 535+55.61
SCALE: 3/16" = 1'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

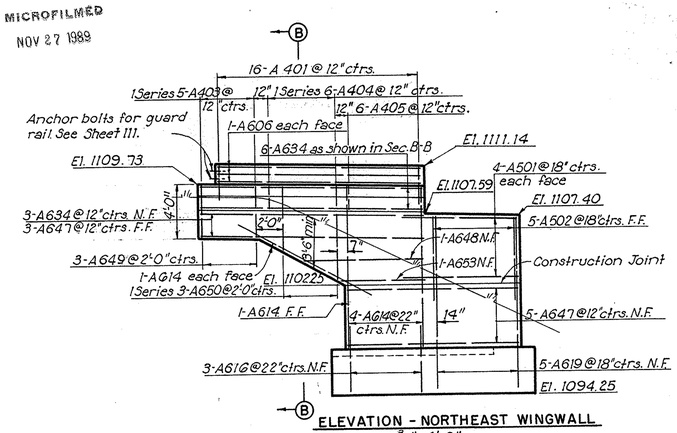
DRAWN	TRACED	CHECKED	REVIEWED	REVISED
R.A.C.	B.S.L.	G.D.	J.T.	
DATE 12-31-57	DATE 9-21-58	DATE 9-10-58	DATE 9-16-58	1018 SHEET 142

MICROFILMED
NOV 27 1989

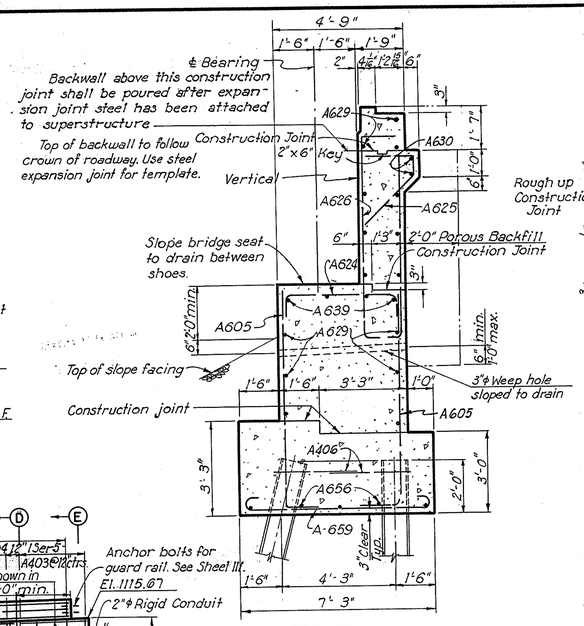
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

143
176

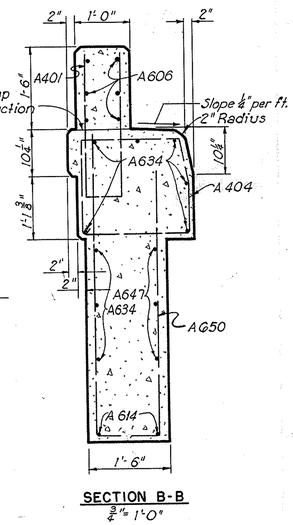
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



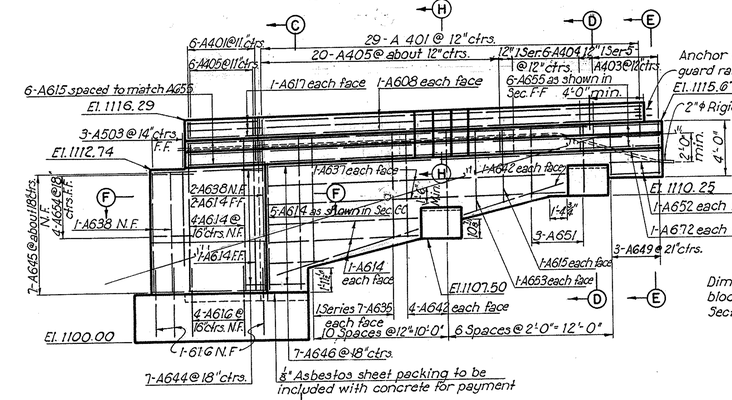
ELEVATION - NORTHEAST WINGWALL
3/16" = 1'-0"



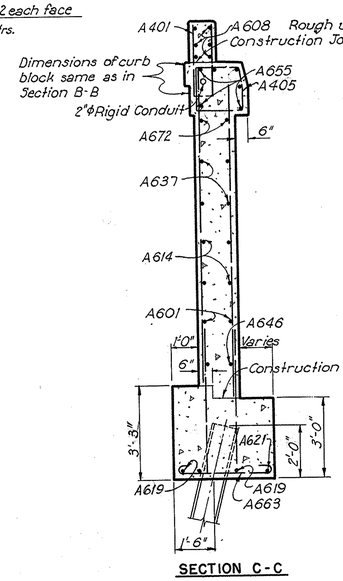
SECTION A-A



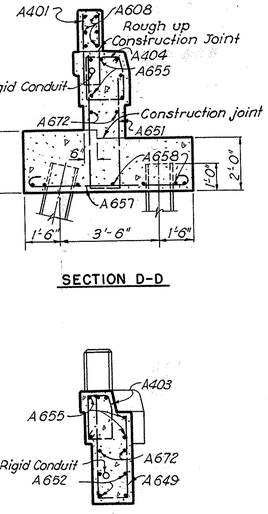
SECTION B-B
3/4" = 1'-0"



ELEVATION - SOUTHEAST WINGWALL
3/16" = 1'-0"

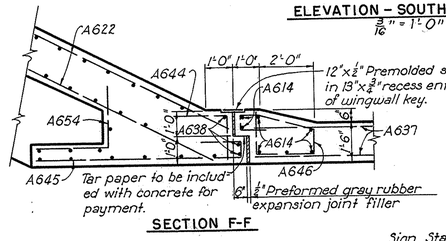


SECTION C-C

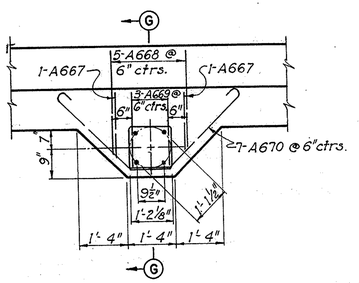


SECTION D-D

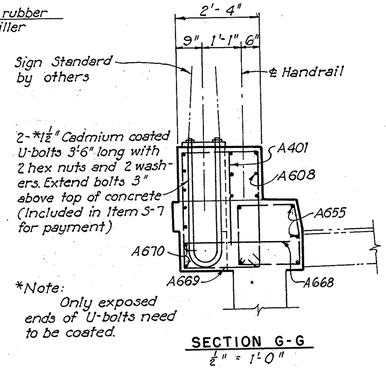
SECTION E-E



SECTION F-F



SECTION H-H
½" = 1'-0"



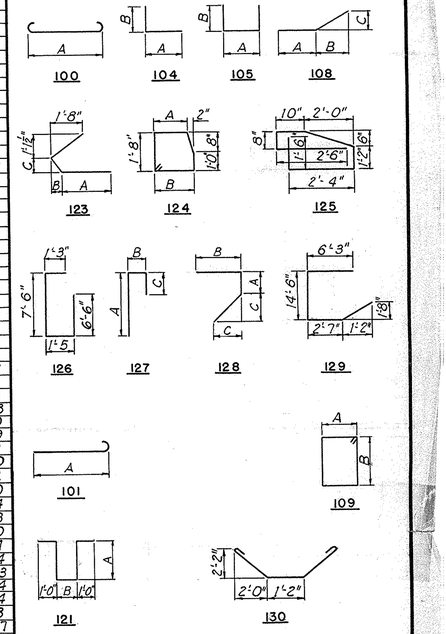
*Note:
Only exposed ends of U-bolts need to be coated.

SECTION G-G
½" = 1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES ING.	WEIGHT POUNDS
A401	51	5'-11"	105	10"	2'-8"			202
A402	40	3'-8"	104	2'-10"	1'-0"			98
A403	2 Ser. 5	5'-4 to 6'-10"	124	8'-10 to 1'-5"	10'-10 to 1'-7"		4½"	41
A404	2 Ser. 6	7'-0 to 7'-8"	124	1'-6 to 1'-10"	18'-10 to 2'-0"		1 5/8"	59
A405	32	7'-6 3/8"	124	1'-10"	2'-0"			160
A406	38	6'-11"	105	1'-2"	3'-0"			176
A501	8	8'-6"	Str.					71
A502	5	6'-9"	Str.					35
A503	3	8'-0"	Str.					25
A601	8	7'-7"	104	6'-9"	1'-0"			91
A602	2 Ser. 10	8'-2" to 9'-8"	104	7'-4 to 8'-10"	1'-0"		2"	268
A603	2 Ser. 3	8'-10 to 9'-1"	104	8'-0 to 8'-3"	1'-0"		1"	81
A604	2 Ser. 10*	8'-4 to 8'-10"	104	7'-6 to 8'-0"	1'-0"		5/8"	258
A605	2 Ser. 11	8'-7" to 9'-1"	104	7'-9" to 8'-3"	1'-0"		5/8"	292
A606	6	15'-0"	Str.					*
A607	2 Ser. 9	8'-1" to 8'-10"	104	7'-3 to 8'-0"	1'-0"		1 1/8"	228
A608	6	28'-9"	Str.					*
A609	2 Ser. 11	8'-1" to 8'-7"	104	7'-3" to 7'-9"	1'-0"		5/8"	275
A610	2 Ser. 11	7'-10" to 8'-7"	104	7'-0" to 7'-9"	1'-0"		5/8"	271
A611	2 Ser. 7	8'-1" to 8'-7"	104	7'-3" to 7'-9"	1'-0"		1"	175
A612	4	10'-0"	Str.					60
A613	3	37'-11"	123	35'-4"	4"	6"		171
A614	25	11'-0"	Str.					413
A615	8	4'-6"	Str.					54
A616	10	5'-3"	Str.					79
A617	6	4'-6"	Str.					*
A618	1	19'-0"	Str.					29
A619	8	12'-9"	Str.					153
A620	1	25'-0"	129					38
A621	1	8'-5"	108	6'-5"	1'-11"	7½"		13
A622	12	54'-0"	Str.					613
A623	4	7'-10"	104	7'-0"	1'-0"			47
A624	77	6'-1"	105	4'-5"	1'-0"			703
A625	99	5'-2"	128	9"	1'-11"	1'-10½"		768
A626	111	16'-2"	126					2700
A627	8	26'-2 1/2"	108	22'-6"	2'-0"	3'-0"		349
A628	3	30'-6"	108	28'-6"	1'-9¼"	11"		137
A629	19	28'-9"	Str.					820
A630	2	44'-0"	Str.					132
A631	2	43'-3"	Str.					130
A632	2	11'-3"	Str.					34
A633	1 Ser. 4	7'-6 to 13'-6"	Str.				2'-0"	63
A634	9	16'-3"	Str.					220
A635	2 Ser. 7	7'-9 to 9'-6"	Str.				3½"	181
A636	8	17'-0"	Str.					204
A637	6	22'-6"	Str.					203
A638	4	9'-0"	Str.					54
A639	12	18'-0"	Str.					324
A640	4	3'-0"	Str.					18
A641	15	30'-6"	Str.					687
A642	10	7'-6"	Str.					113
A643	1 Ser. 4	9'-3 to 16'-6"	Str.				3'-1"	83
A644	7	4'-4"	104	1'-8"	2'-10"			46
A645	7	10'-0"	127	8'-2"	8"	1'-6		105
A646	7	10'-5"	125					110
A647	8	12'-9"	Str.					153
A648	1	8'-9"	Str.					13
A649	6	7'-4"	127	3'-8"	1'-2"	2'-10"		66
A650	1 Ser. 3	9'-0 to 13'-4"	127	4'-6 to 6'-8"	1'-2"	3'-8 to 5'-10"	2'-3"	50
A651	3	10'-0"	127	5'-0"	1'-2"	4'-2"		45
A652	4	3'-9"	Str.					23
A653	3	6'-0"	Str.					27
A654	4	5'-0"	104	2'-8"	2'-6"			30
A655	7	30'-0"	Str.					270
A656	10	52'-0"	Str.					782
A657	8	7'-8"	100	6"-2"				92
A658	14	4'-2"	100	2"-8				98
A659	71	8'-5"	100	6"-11"				900
A660	2	10'-10"	100	9'-4"				33
A661	1 Ser. 3	8'-4 to 10'-0"	100	6'-10 to 8'-8"			10"	41
A662	1 Ser. 3	5'-8 to 7'-6"	100	4'-0 to 6'-0"			1'-0"	29
A663	1 Ser. 4	4'-9 to 5'-6"	100	3'-3 to 4'-0"			3"	31
A664	1 Ser. 4	5'-10 to 7'-10"	100	4'-4 to 6'-4"			8"	41
A665	2	23'-6"	Str.					71
A666	4	5'-5"	123	2'-0"	11"	1'-4"		33
A667	2	10'-2"	109	1'-8"	3'-2"			30
A668	5	9'-11"	101	3'-2"				26
A669	3	11'-2"	109	2'-2"	3'-2"			49
A670	7	8'-4"	130					88
A671	4	15'-0"	Str.					90
A672	2	29'-6"	Str.					89
							Total	15,850

Notes:
Piles not shown in elevations.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
*This item to be included for payment in unit price bid for Item S-14.



BENDING DIAGRAMS

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 5-E DETAILS

EASTBOUND EXPRESSWAY OVER NO. - SO. EXPRESSWAY

BR. NO. SUM-18-1212 EB STA. 535 + 55.61
SCALE: 3/8" = 1'-0" STA. 540 + 24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

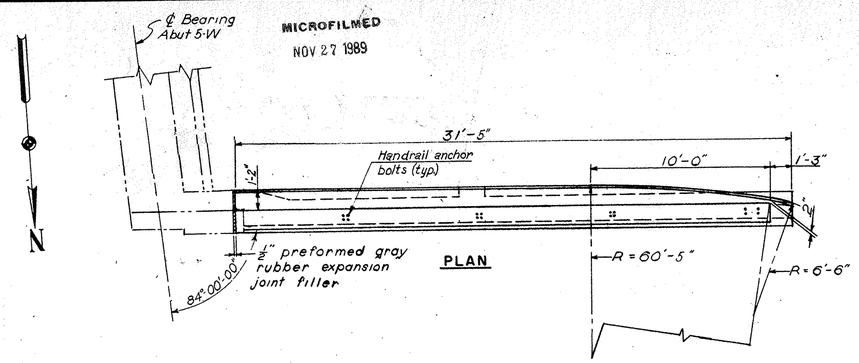
DRAWN	TRACED	CHECKED	REVIEWED	REVISED
R.A.C.	B.S.L.	G.D.	J.T.	2-20-59
DATE 1-17-58	DATE 3-18-58	DATE 3-10-58	DATE 9-8-58	1018 SHEET 143

MICROFILMED
NOV 27 1989

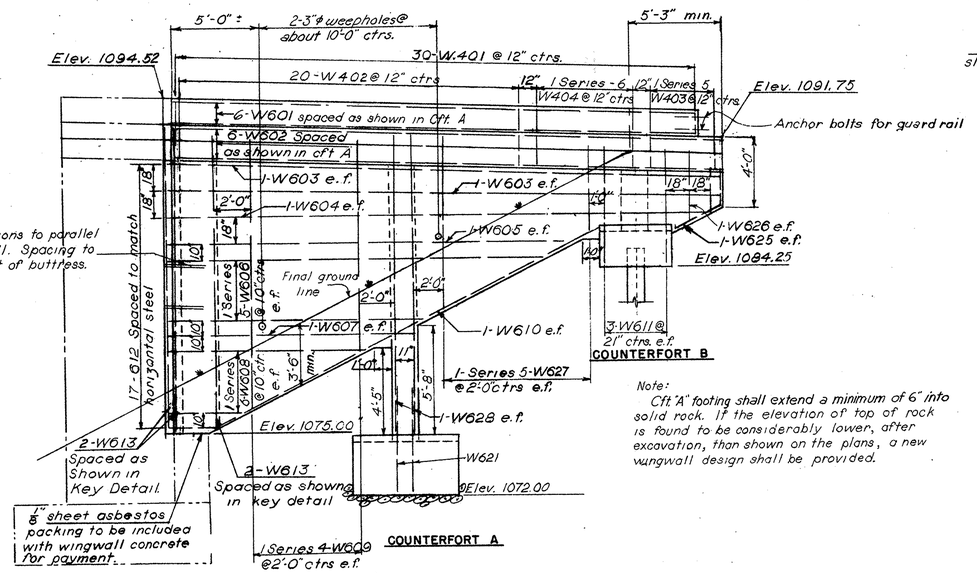
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

144
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

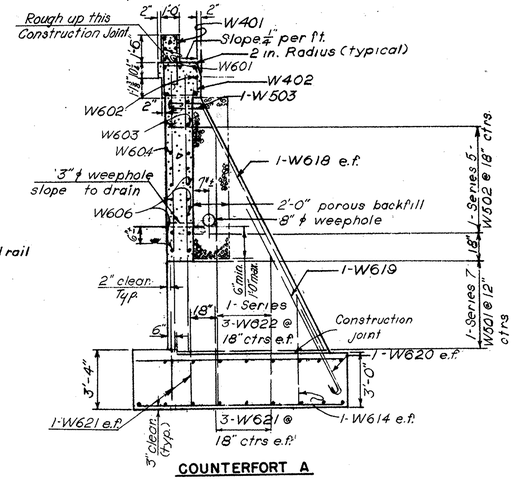


PLAN

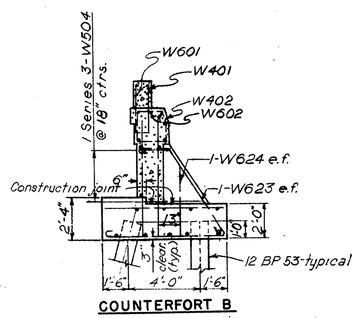


ELEVATION

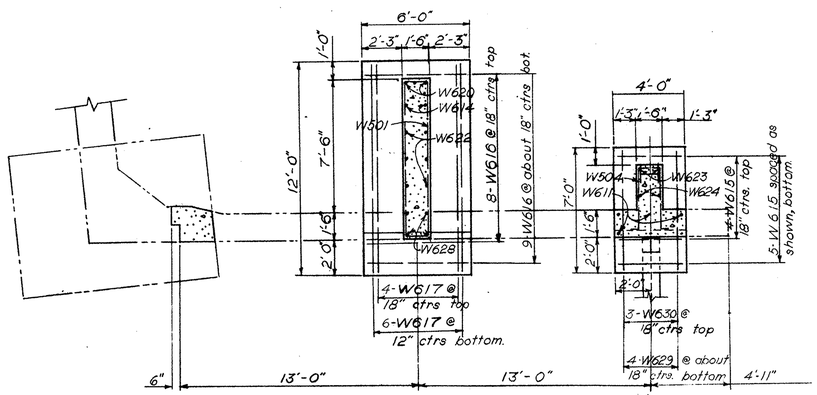
Note:
Cft "A" footing shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on the plans, a new wingwall design shall be provided.



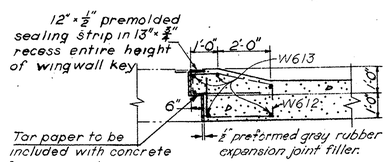
COUNTERFORT A



COUNTERFORT B



FOOTING PLAN

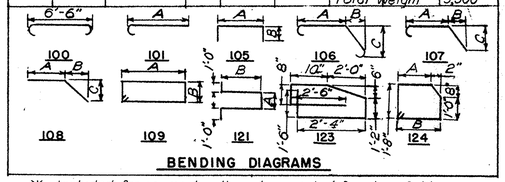


TYPICAL SECTION THRU KEY

AT BUTTRESS

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INCRE.	WEIGHT POUNDS
W401	30	6'-0"	105	9"	2'-9"			120
W402	20	7'-8"	124	1'-10"	2'-0"			102
W403	I Ser. 5	5'-4" to 6'-10"	124	8" to 1'-5"	10" to 1'-7"		4½"	20
W404	I Ser. 6	7'-0" to 7'-8"	124	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅜"	30
W501	I Ser. 7	14'-4" to 19'-4"	109	8'-6" to 6'-0"	1'-2"		10"	123
W502	I Ser. 5	7'-8" to 13'-8"	121	1'-2"	2'-6" to 5'-6"		1'-6"	57
W503	1	6'-4"	121	1'-2"	1'-10"			6
W504	I Ser. 3	6'-2" to 10'-2"	121	1'-2"	1'-9" to 3'-6"		(2'-0" C'-1'-9"	25
		2'-9"						
W601	6	29'-9"	str.					*
W602	6	30'-3"	str.					273
W603	4	30'-6"	str.					184
W604	2	29'-6"	str.					89
W605	2	22'-3"	str.					67
W606	2 Ser. 5	15'-3" to 22'-0"	str.				1'-8¾"	277
W607	2	13'-9"	str.					41
W608	2 Ser. 6	3'-6" to 12'-0"	str.				1'-8¾"	140
W609	2 Ser. 4	12'-6" to 15'-6"	str.				1'-0"	168
W610	2	27'-6"	108	24'-9"	2'-3"	1'-3"		83
W611	6	7'-3"	str.					65
W612	17	10'-4"	123					264
W613	6	12'-6"	str.					158
W614	2	6'-9"	str.					20
W615	9	3'-6"	str.					47
W616	17	5'-6"	str.					141
W617	10	11'-6"	str.					173
W618	2	19'-0"	107	1'-9"	6'-9"	15'-3"		57
W619	1	12'-2"	101	11'-5"				18
W620	2	4'-9"	101	4'-0"				14
W621	10	5'-3"	str.					79
W622	2 Ser. 3	7'-0" to 13'-6"	str.			12'-8" (3'-0") 15'-3" (4'-0")	3'-3"	93
W623	2	8'-11" (4'-5")	106	1'-9"				27
W624	2	4'-0"	str.					12
W625	2	6'-6"	108	3'-8"	1'-3"	2'-6"		20
W626	2	4'-9"	str.					14
W627	2 Ser. 5	5'-6" to 9'-9"	str.				1'-0⅞"	116
W628	4	16'-6"	str.					100
W629	4	8'-0"	100					48
W630	3	6'-6"	str.					29
							Total Weight	3,300



BENDING DIAGRAMS

* Included for payment with unit price bid for item S-14.

Notes:
For handrail details see sheet 173.
For rustication detail see Sheet 111.
e.f. denotes each face.
Pile spacing is measured along the bottom of footing.
All piles are 12 BP 53.
All battered piles are battered 3 in 12.
For replacement bar list see Sheet 141.
Bar dimensions are given out to out.
For guard rail anchor details see sheet 111.
Bars of a series shall vary by a constant increment.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

NORTHWEST WINGWALL
EASTBOUND EXPRESSWAY OVER NO-SO EXPRESSWAY

BR. NO. SUM-18-1212 EB STA. 535+55.61
SCALE: 1/4" = 1'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

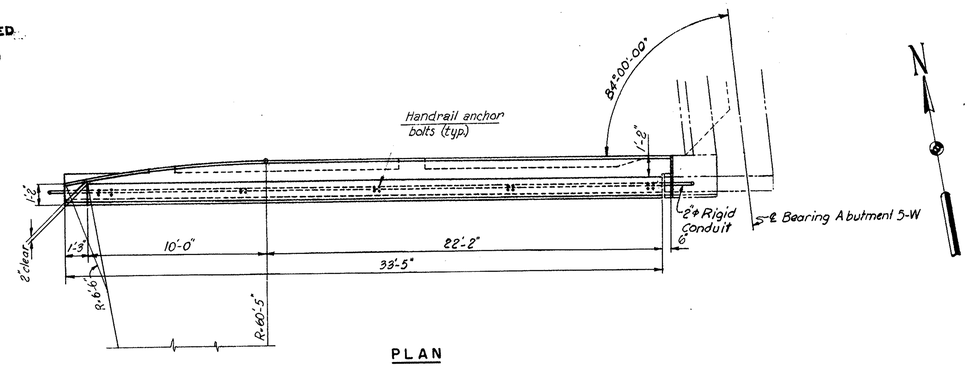
DRAWN E.P.A.	TRACED	CHECKED E.P.A.	REVIEWED J.T.	REVISED 2-20-59
DATE 6-25-58	DATE	DATE 4/29/58	DATE 9-8-58	1018 SHEET 144

MICROFILMED
NOV 27 1989

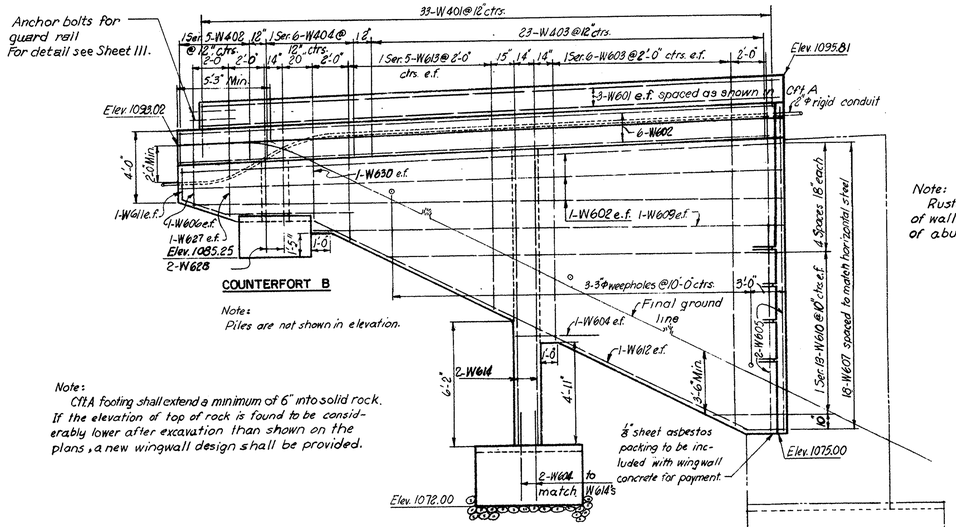
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

145/176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



PLAN

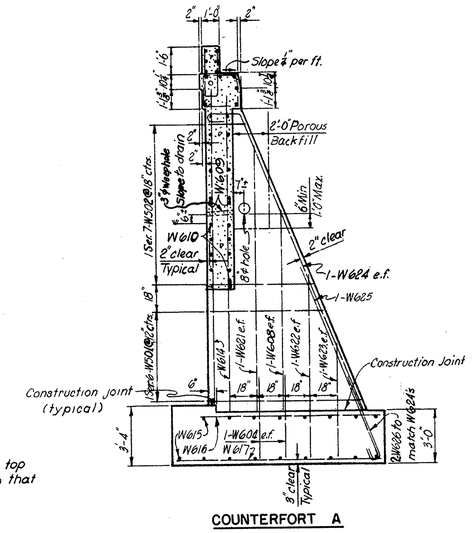


Note:
Piles are not shown in elevation.

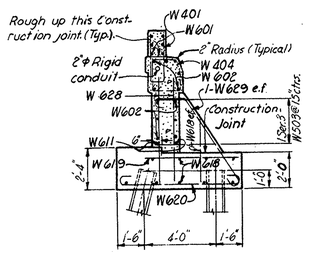
Note:
CftA footing shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found to be considerably lower after excavation than shown on the plans, a new wingwall design shall be provided.

ELEVATION

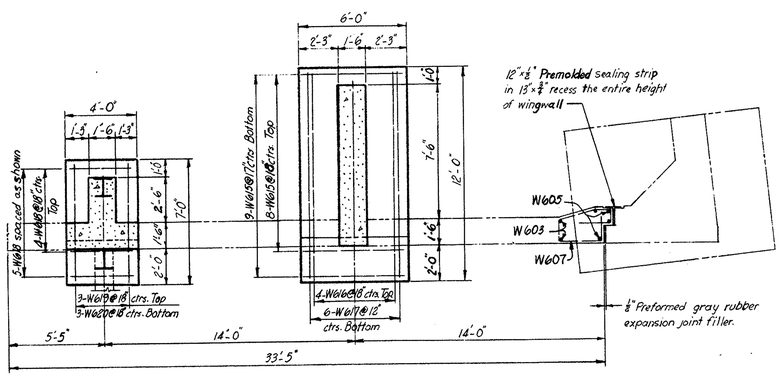
Note:
Rustications to parallel top of wall. Spacing to match that of abutment.



COUNTERFORT A



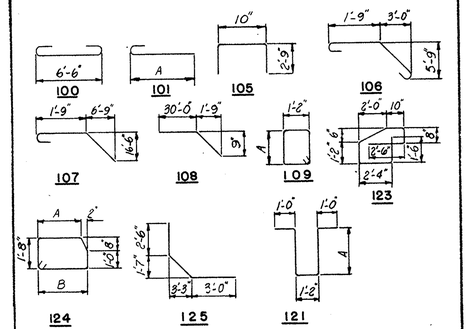
COUNTERFORT B



FOOTING PLAN

REINFORCEMENT SCHEDULE							
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	SERIES INCRE.	WEIGHT POUNDS
W 401	33	6'-5"	105				135
W 402	1 Ser. 5	5'-4" to 6'-10"	124	8" to 1'-5"	10" to 1'-7"	4½"	20
W 403	23	7'-8"	124	1'-10"	2'-0"		118
W 404	1 Ser. 6	7'-0" to 7'-8"	124	1'-6 to 1'-10	1'-8 to 2'-0	1⅜"	29
W 501	1 Ser. 6	15'-4" to 19'-4"	109	6'-4 to 8'-4		9⅜"	109
W 502	1 Ser. 7	6'-8" to 14'-2"	121	2'-0" to 5'-9		1'-3"	76
W 503	1 Ser. 3	6'-0 to 9'-4"	121	1'-8" to 3'-4		1'-8"	24
W 601	6	32'-3"	Str.				*
W602	12	33'-0"	Str.				596
W603	2 Ser. 6	18'-0 to 18'-3"	Str.			1'-0⅜"	285
W604	10	4'-6"	Str.				68
W605	4	18'-6"	Str.				111
W606	4	4'-0"	Str.				24
W607	18	10'-4"	123				281
W608	2	11'-0"	Str.				33
W609	2	25'-9"	Str.				77
W610	2 Ser. 13	3'-0 to 23'-3"	Str.			1'-7½"	566
W611	2	9'-6"	125				29
W612	2	31'-6"	108				95
W613	2 Ser. 5	7'-0" to 11'-3"	Str.			1'-0½"	137
W 614	4	18'-0"	Str.				108
W615	17	5'-6"	Str.				140
W616	4	10'-3"	Str.				60
W617	6	11'-6"	Str.				104
W618	9	3'-6"	Str.				47
W 619	3	5'-0"	Str.				23
W 620	3	8'-0"	100				36
W 621	2	14'-9"	Str.				44
W 622	2	10'-0"	Str.				30
W 623	2	6'-3"	Str.				19
W 624	2	20'-3"	107				61
W 625	1	12'-3"	101	11'-6"			18
W 626	2	5'-9"	101	5'-0"			17
W 627	2	5'-3"	Str.				16
W 628	4	6'-6"	Str.				39
W 629	2	9'-9"	106				29
W 630	2	6'-0"	Str.				18
						Total	3,580

* To be included for payment in unit price bid for Item S-14.



Notes:
For typical key detail at buttress see sheet 144.
For handrail detail see sheet 173.
For replacement bar list see sheet 141.
All piles shall be 12 BP 53.
All battered piles are battered 3 in 12.
e.f. denotes each face.
n.f. denotes near face, f.f. denotes far face.
Bar dimensions are given out to out.
Pile spacing is given along bottom of footing.
Bars of a series shall vary by a constant increment.
For rustication details see sheet 111.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SOUTHWEST WINGWALL
EASTBOUND EXPRESSWAY OVER NO.-SO. EXPRESSWAY
BR. NO. SUM-18-1212 EB STA. 535+55.61
SCALE: 1/4" = 1'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

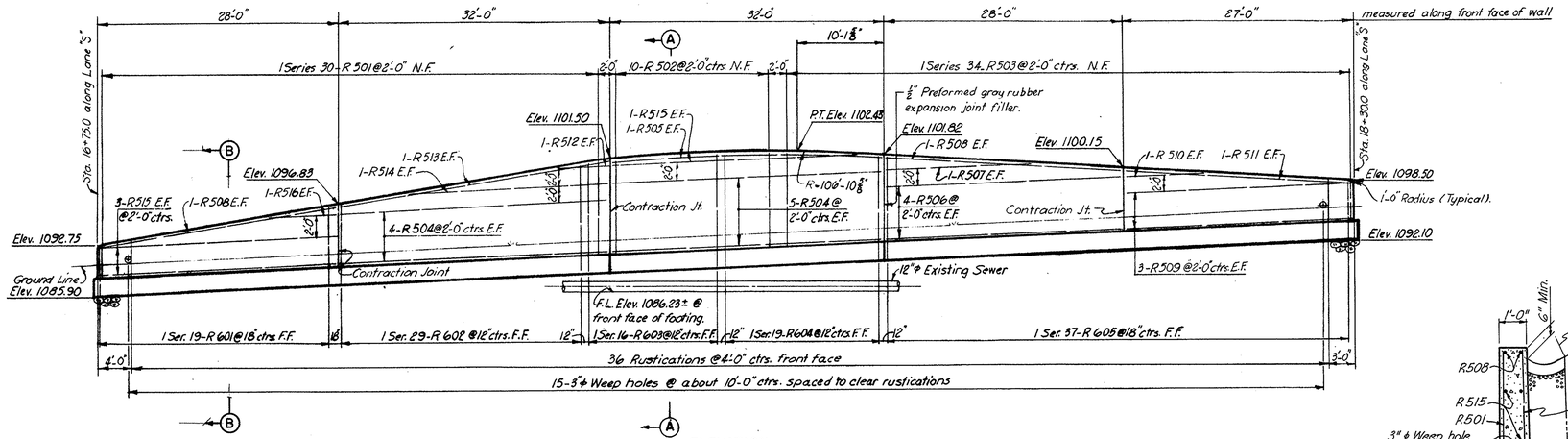
DRAWN WZO	TRACED	CHECKED ZZO	REVIEWED J.K.	REVISED
DATE 6-23-58	DATE	DATE 9-5-58	DATE 9-8-58	1018 SHEET 145

MICROFILMED
NOV 27 1989

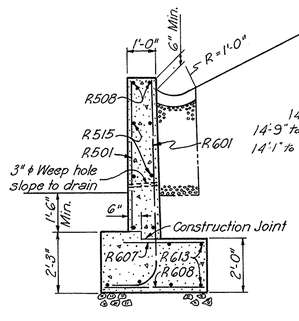
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

146
176

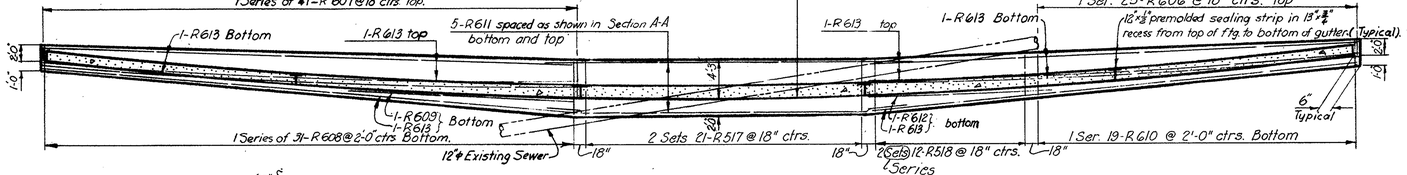
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.- 8-11.65



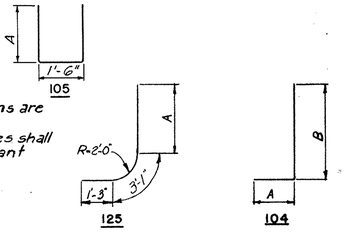
ELEVATION



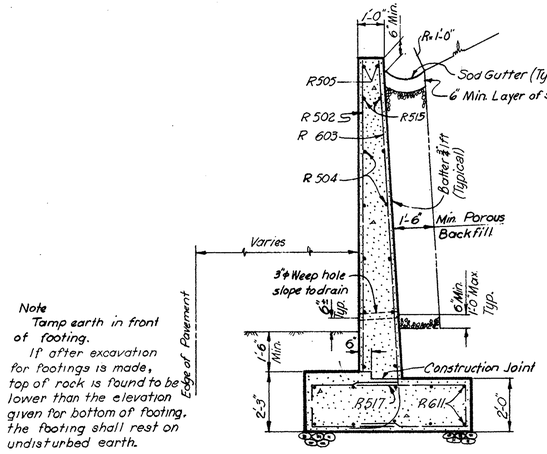
SECTION B-B
⅜"=1'-0"



REINFORCEMENT SCHEDULE								
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INC.	WEIGHT POUNDS
R501	1 Ser. 30	4'-3" to 10'-6"	Str.				2⅛"	231
R502	10	10'-9"	Str.					112
R508	1 Ser. 34	4'-0" to 10'-9"	Str.				2⅛"	262
R504	18	31'-6"	Str.					263
R505	2	32'-0"	Str.					67
R506	14	27'-6"	Str.					403
R507	2	14'-3"	Str.					30
R508	4	28'-0"	Str.					117
R509	6	26'-6"	Str.					166
R510	2	7'-6"	Str.					17
R511	2	26'-9"	Str.					55
R512	2	5'-0"	Str.					10
R513	2	32'-3"	Str.					67
R514	2	24'-6"	Str.					51
R515	2	27'-3"	Str.					57
R516	2	12'-0"	Str.					25
R517	42	9'-1"	105	3'-11"				399
R601	1 Ser. 19	7'-7" to 10'-1"	104	1'-5"	6'-6 to 9'-0		1⅛"	252
R602	1 Ser. 29	10'-1 to 15'-2	104	1'-3 to 2'-5	9'-0 to 12'-3	1⅛"	2⅛"	551
R603	1 Ser. 16	12'-10 to 16'-10	125	11'-3 to 12'-3	10'-5" to 10'-8"		2⅛"	391
R604	1 Ser. 19	13'-1 to 16'-10	125	10'-6 to 12'-3	10'-8" to 9'-9"		1⅞" 2⅛"	455
R605	1 Ser. 37	7'-1 to 13'-7"	104	1'-3 to 2'-5	6'-0 to 11'-6		2⅛" 1⅞"	576
R606	1 Ser. 25	1'-9 to 3'-0"	Str.				1⅞"	89
R607	1 Ser. 41	1'-9 to 4'-0"	Str.				1⅞" 2⅛"	177
R608	1 Ser. 31	2'-6 to 5'-9"	Str.				1⅞" 2⅛"	192
R609	1	25'-6"	Str.					38
R610	1 Ser. 19	2'-6 to 4'-9"	Str.				1⅞"	104
R611	10	46'-0"	Str.					691
R612	1	20'-6"	Str.					31
R613	10	53'-0"	Str.					797
R518	42	7'-11" to 9'-1"	105	3'-4" to 3'-11"				214
	2 Series 12						Total	6890



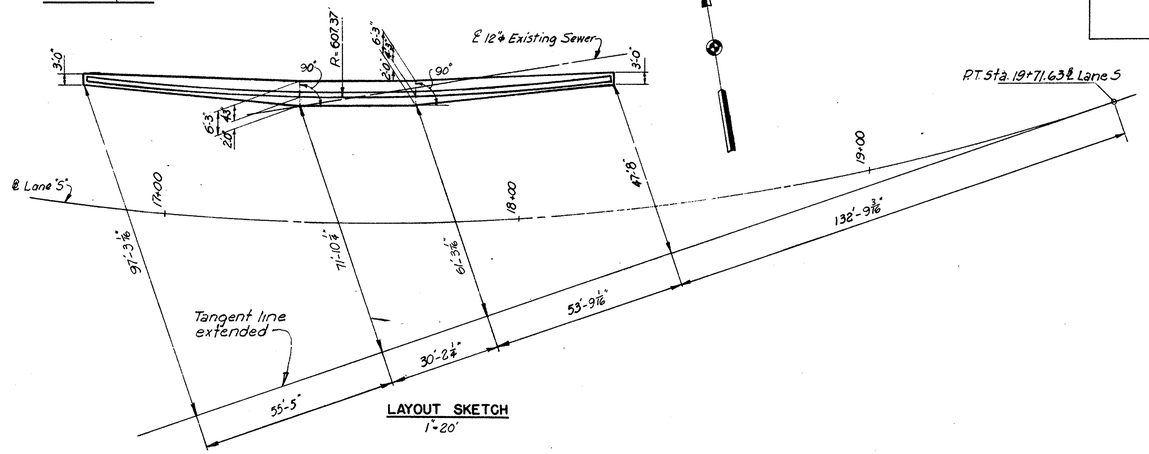
BENDING DIAGRAM



Note
Tamp earth in front of footing.
If after excavation for footings is made, top of rock is found to be lower than the elevation given for bottom of footing, the footing shall rest on undisturbed earth.

SECTION A-A
⅜"=1'-0"

FOOTING PLAN



LAYOUT SKETCH
1"=20'

Notes:
Payment for sod gutter is included in Roadway Item L-10.
For rustication detail see sheet 175.
N.F. denotes near face.
E.F. denotes each face.
F.F. denotes far face.
Ftg. denotes footing.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

RETAINING WALL ALONG LANE "S"
EASTBOUND EXPRESSWAY OVER NO.- SO. EXPRESSWAY

BR. NO. SUM- 18-1212 EB STA. 535+55.61
SCALE: 1/8"=1'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.T.D.	TRACED	CHECKED LWL	REVIEWED DJT	REVISED 2-20-59
DATE 3-26-58	DATE	DATE 9-4-58	DATE 9-8-58	1018 SHEET 146

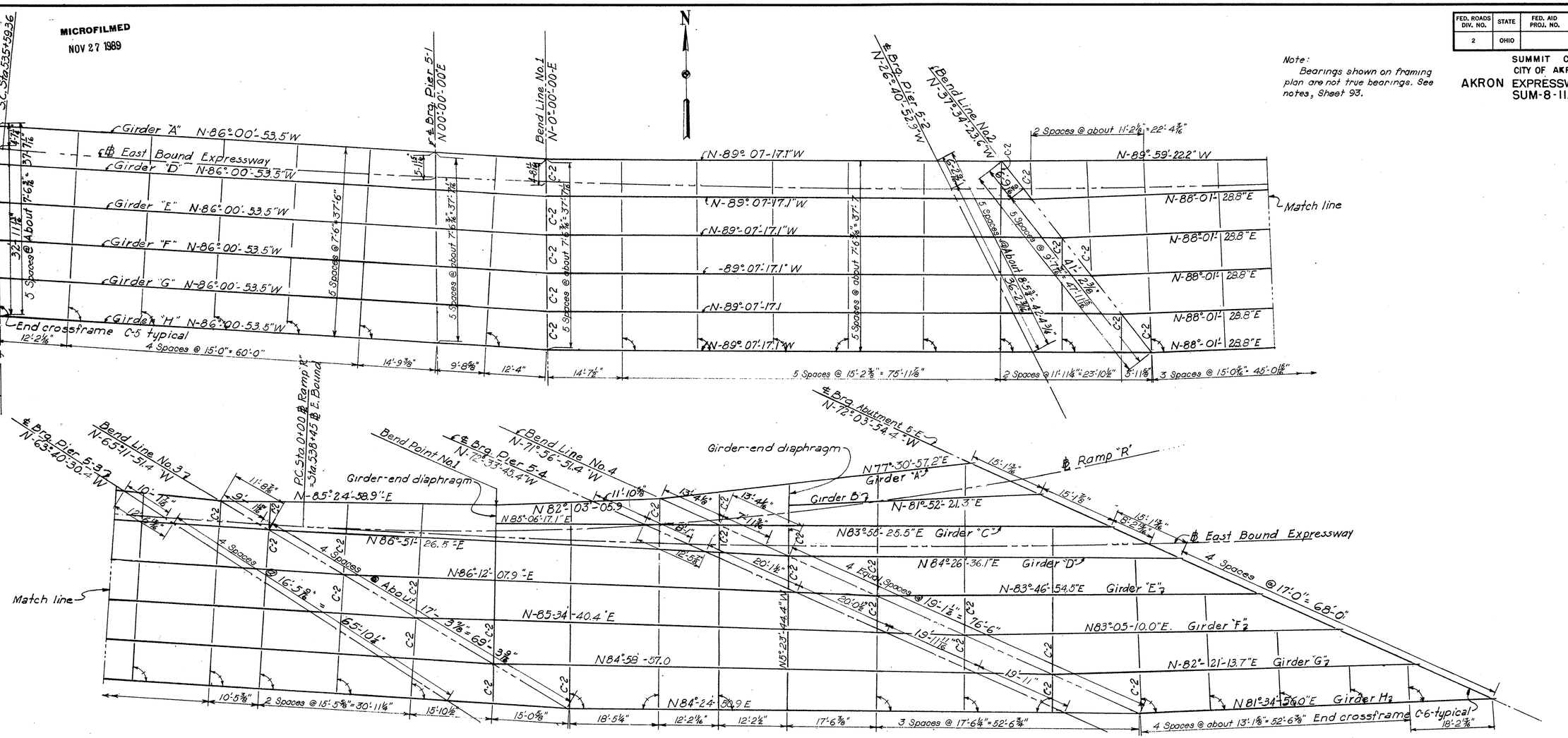
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

147
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note:
Bearings shown on framing plan are not true bearings. See notes, Sheet 93.



FRAMING PLAN

Notes:
All intermediate crossframes not designated C-2 are C-1.
For details of intermediate crossframes, end crossframes, and girder-end diaphragms see sheet 154.
For girder elevations see sheets 148 and 149.
Angles marked thus, ⌐, are 90° angles.

TABLE OF GIRDER COORDINATES

Girder	West Abutment		Pier 5-1		Bend Line No. 1		Pier 5-2		Bend Line No. 2		Pier 5-3		Bend Line No. 3		Bend Point No. 1		Pier 5-4		Bend Line No. 4		East Abutment	
	North	East	North	East	North	East	North	East	North	East	North	East	North	East	North	East	North	East	North	East	North	East
A	19,891.50	19,913.26	19,885.45	20,000.00	19,883.92	20,022.00	19,882.72	20,100.28	19,882.52	20,113.18	19,882.51	20,166.49	19,882.51	20,186.24	19,886.92	20,241.31	19,889.72	20,261.34	19,891.50	20,274.09	19,904.82	20,334.25
B	———	———	———	———	———	———	———	———	———	———	———	———	———	———	———	———	———	———	*19,892.93	*20,298.51	19,900.15	20,348.67
C	———	———	———	———	———	———	—	———	———	———	———	———	———	———	*19,883.50	*20,241.61	19,886.16	20,272.68	19,887.36	20,286.77	19,895.49	20,363.09
D	19,883.98	19,913.26	19,877.93	20,000.00	19,876.40	20,022.00	19,875.14	20,104.09	19,874.91	20,119.03	19,876.94	20,177.76	19,877.60	20,196.86	———	———	19,882.41	20,284.60	19,883.23	20,299.46	19,890.62	20,377.50
E	19,876.46	19,913.26	19,870.42	20,000.00	19,868.88	20,022.00	19,867.57	20,107.90	19,867.3	20,124.88	19,869.64	20,192.51	19,870.33	20,212.59	———	———	19,876.39	20,305.80	19,877.30	20,317.64	19,885.59	20,393.67
F	19,868.94	19,913.26	19,862.90	20,000.00	19,861.37	20,022.00	19,859.99	20,111.70	19,859.70	20,130.74	19,862.34	20,207.27	19,863.06	20,228.31	———	———	19,870.58	20,327.92	19,871.38	20,335.83	19,880.35	20,409.85
G	19,861.42	19,913.26	19,855.38	20,000.00	19,853.85	20,022.00	19,852.41	20,115.51	19,852.09	20,136.59	19,855.04	20,222.02	19,855.80	20,244.04	———	———	19,864.39	20,341.97	19,865.45	20,354.01	19,875.12	20,426.02
H	19,853.90	19,913.26	19,847.86	20,000.00	19,846.33	20,022.00	19,844.84	20,119.32	19,844.48	20,142.44	19,847.74	20,236.78	19,848.53	20,259.77	———	———	19,858.43	20,360.97	19,859.52	20,372.16	19,869.88	20,442.20

* West end of girders "B" ℄ "C"

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN
EASTBOUND EXPRESSWAY OVER NO.- SO. EXPRESSWAY

BR. NO. SUM-18-1212 EB STA. 535+55.61
SCALE: 1"= 10'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

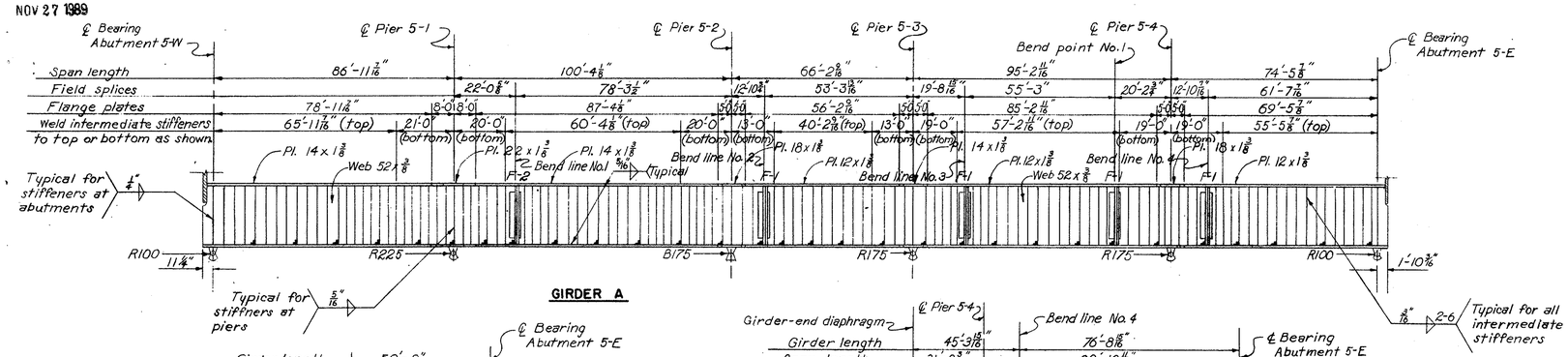
DRAWN JLD	TRACED	CHECKED WW	REVIEWED JT	REVISED
DATE 1-20-58	DATE	DATE 5-27-58	DATE 9-8-58	1018 SHEET 147

MICROFILMED
NOV 27 1989

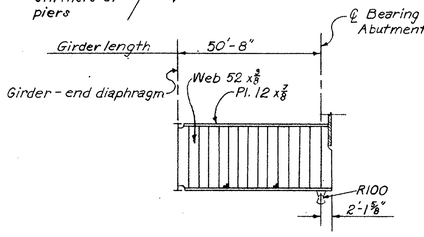
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

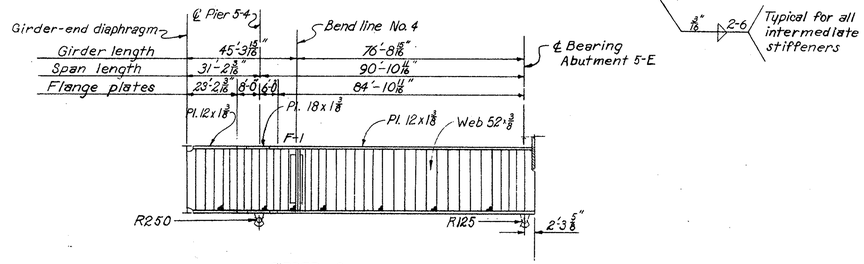
148
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

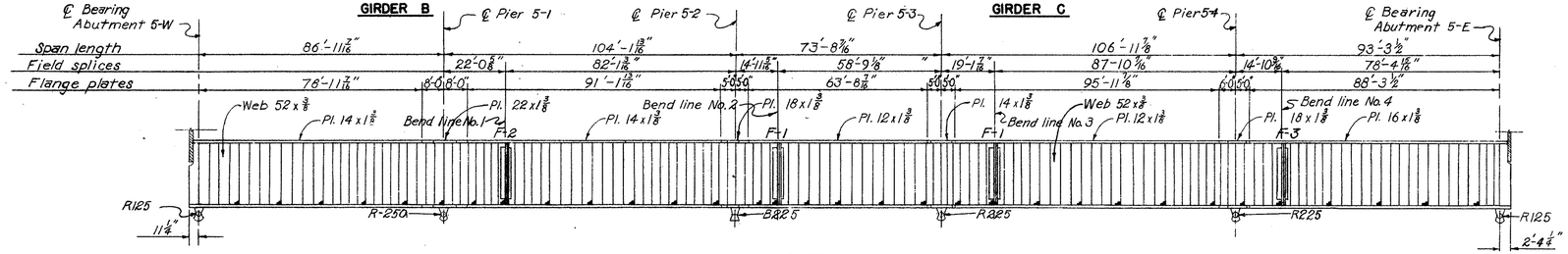


GIRDER A



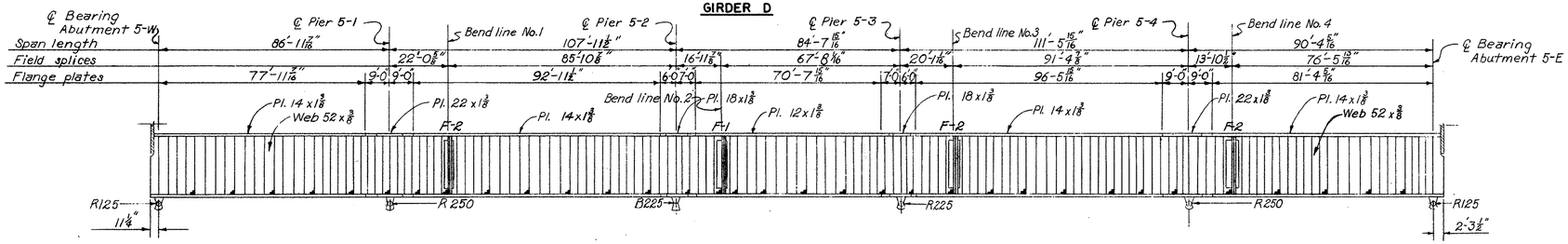


GIRDER B

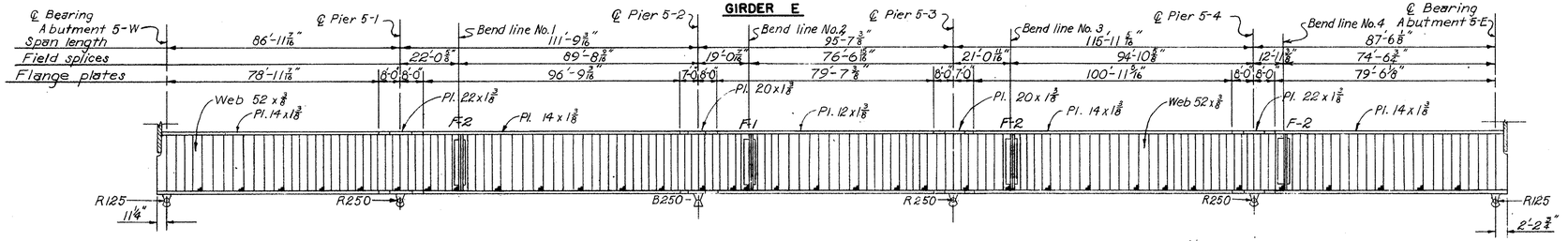


GIRDER C

GIRDER D



GIRDER E



GIRDER F

Notes:

Bearing stiffeners shall be 2-5 1/2 x 1/2 plates at abutments and 2-7 x 3/8 plates at piers.

Intermediate stiffeners shall be 5 x 3/8 plates, except ∠ 5 x 3 1/2 x 3/8 shall be used at all field splices. Intermediate stiffeners shall be used in pairs on all interior girders & shall be used on inside only of exterior girders.

The intermediate stiffeners on the exterior girders shall be welded to the flanges as shown on the girder elevations with a 3/16" fillet weld on both sides of the stiffeners for a distance of 2 inches from outside edge of stiffener.

Intermediate stiffeners shall not be welded to the flanges of the interior girders but shall be fitted to the flanges in close enough contact that when shop paint is applied it will fill and close the openings.

The bearing stiffeners over piers and end abutments shall be grooved and fully butt welded to the lower flange and fitted in close contact, without welding, at the upper flange.

The welding shown for girder A is typical for all girders, except as noted.

For other notes on girder welding see Sheet 154.

For rocker base plates see sheet 130

For other rocker details and bolster details see Ohio Standard RB-1-55.

For expansion joint details see Sheets 150 and 151.

Bottom and top flange plates are identical.

For girder details see sheet 154.

Sole plates of rockers and bolsters shall be beveled to grade at respective pier or abutment.

For cross frame spacing see sheet 147.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GIRDER ELEVATIONS
EASTBOUND EXPRESSWAY OVER NO. - SO. EXPRESSWAY

BR. NO. SUM.-18-1212 EB STA. 535+55.61

SCALE: NONE STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

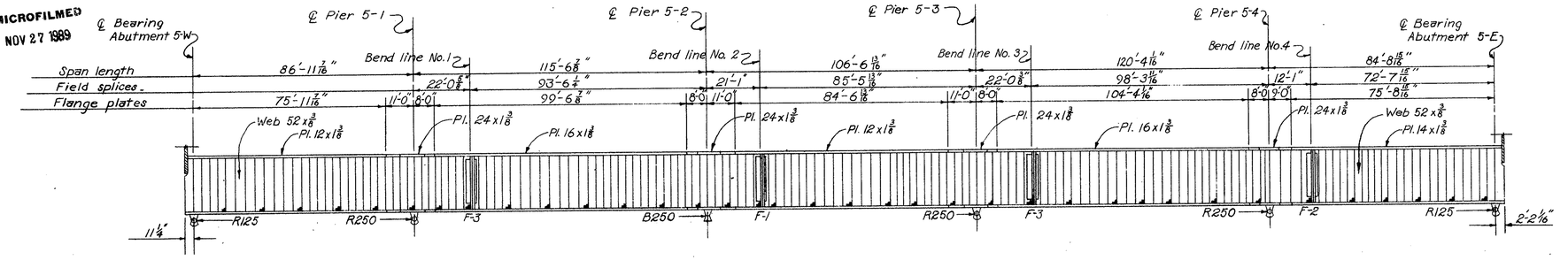
DRAWN CWC	TRACED	CHECKED R.E.A	REVIEWED JT	REVISED
DATE 3-17-58	DATE	DATE 8/11/58	DATE 9-8-58	1018 SHEET 148

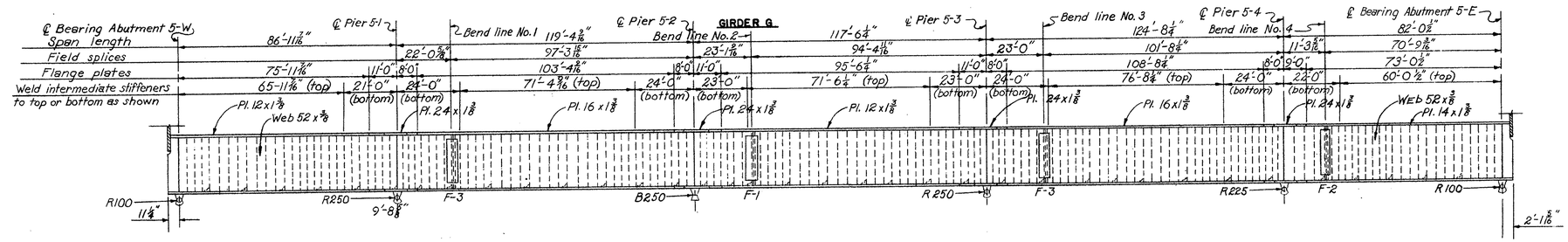
MICROFILMED
NOV 27 1989

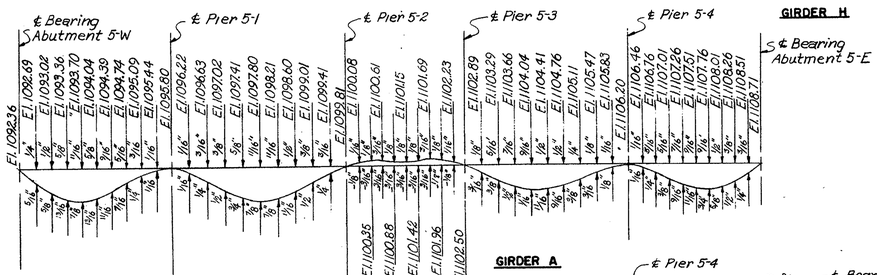
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

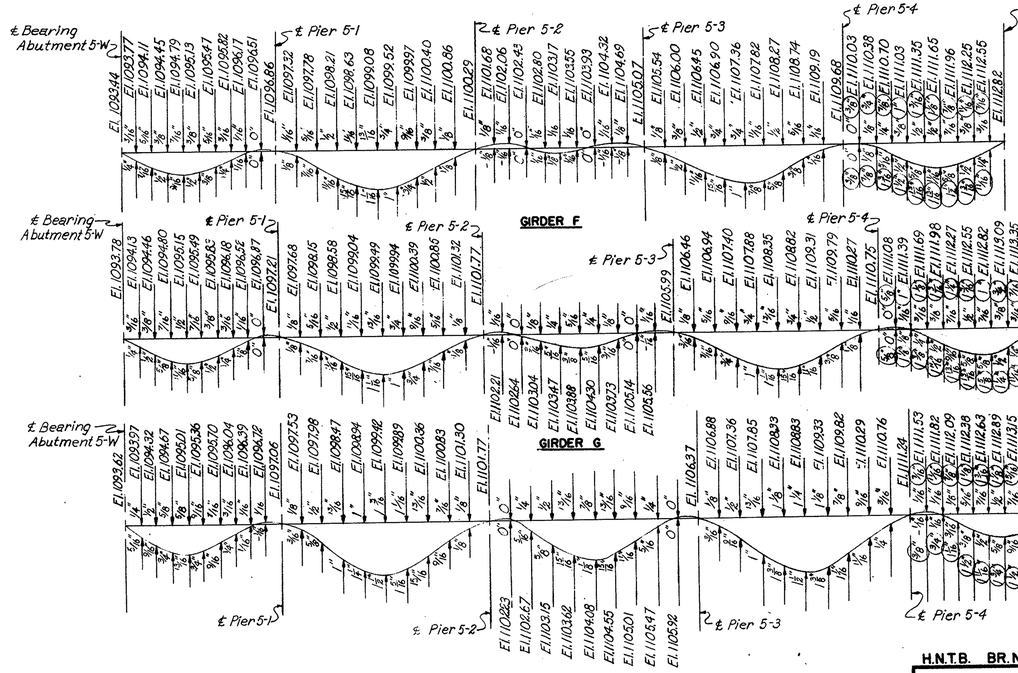
149
176

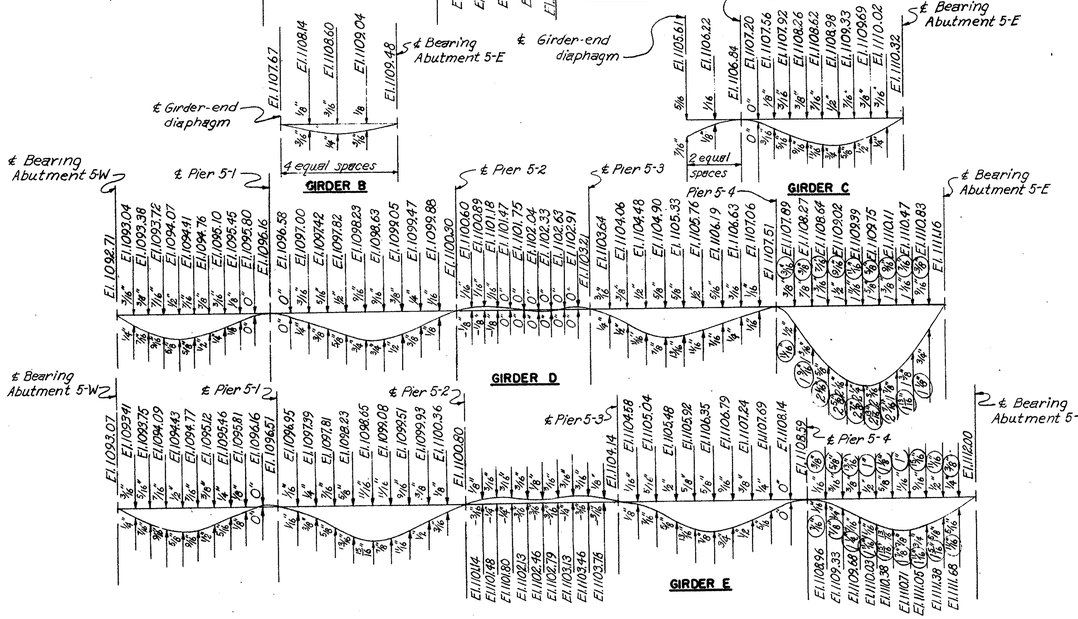
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65











DEAD LOAD DEFLECTIONS
No Scale

The circled value shown above the base line is the convexity correction and the other value shown above the base line is the dead load deflection due to concrete and wearing surface. The circled value shown below the base line is the total dead load deflection plus the convexity correction. The other value shown below the base line is the total dead load deflection.

Notes:

The elevations given in the deflection diagrams are top of finished wearing surface along ℄ girders and are given at one-tenth span points between bearings unless shown otherwise. The girders under full dead load shall parallel these elevations by being fabricated to lines parallel to profiles formed by the given elevations plus additional camber equal to the amount of the anticipated dead load deflections.

The thickness of the floor, including concrete slab and wearing surface, over each beam at the beam supports is given on Sheet 158.

The allowance to be made in screed setting to compensate for the deflections due to the dead load weight of the concrete and wearing surface are to be made above the elevation shown for finished pavement surfaces. Screeds may require further adjustments due to irregularities in the fabricated steel. At the edge of roadway slabs the bulb angles will serve as screeds.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GIRDER ELEVATIONS AND DEFLECTIONS

EASTBOUND EXPRESSWAY OVER NO.- SO. EXPRESSWAY
BR. NO. SUM.-18-1212 EB STA. 535+55.61
SCALE: NONE STA. 540+24.66
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

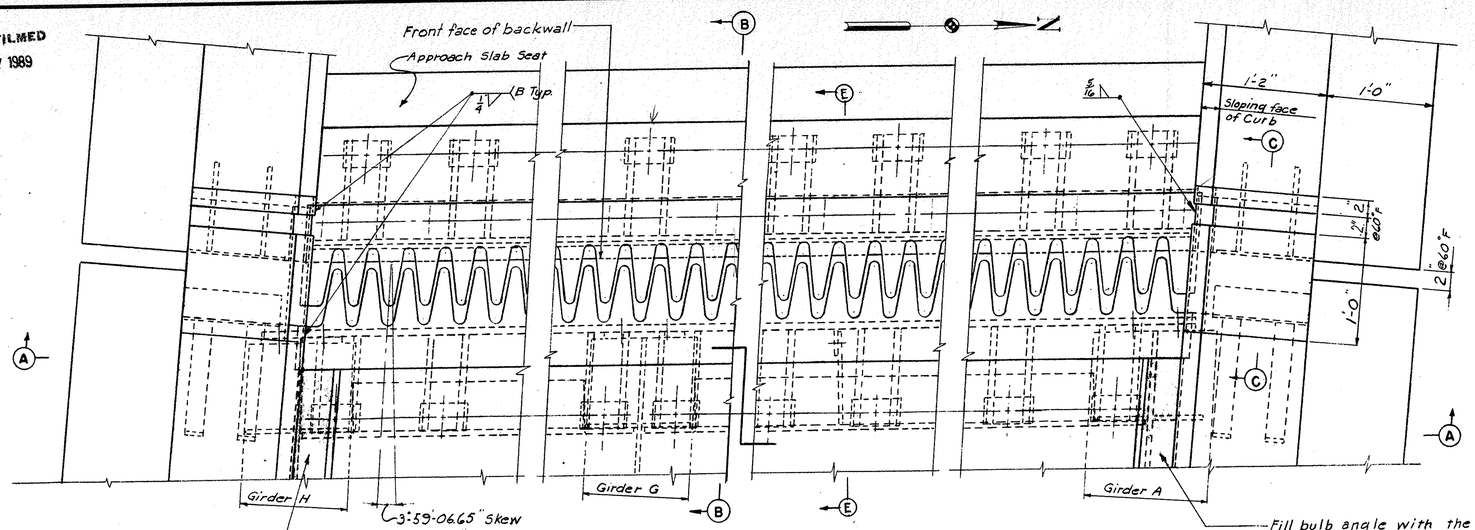
DRAWN CWC.	TRACED	CHECKED E.C.O	REVIEWED JF	REVISED
DATE 3-24-58	DATE	DATE 8/27/58	DATE 9-8-58	1018 SHEET 149

MICROFILMED
NOV 27 1989

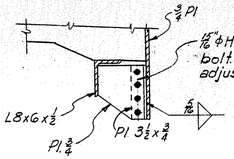
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

150/176

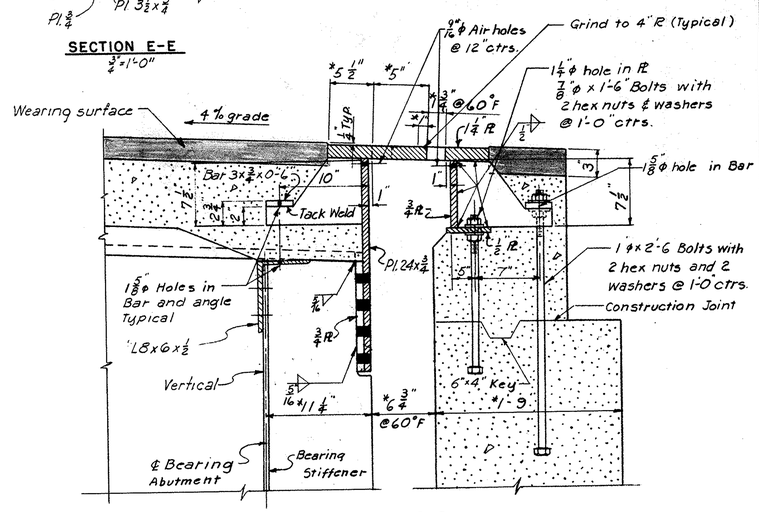
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.-8-11.65



PART PLAN OF EXPANSION JOINT AT ABUTMENT 5-W

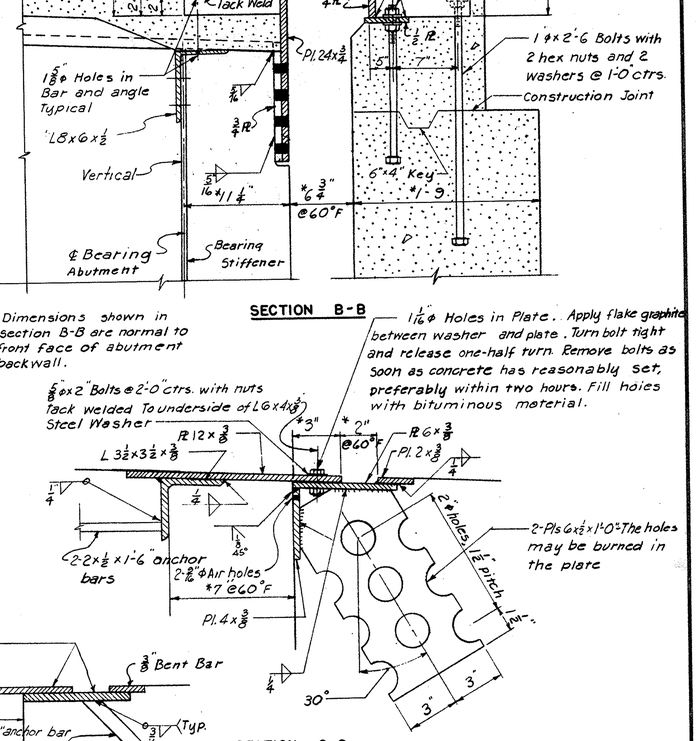


SECTION E-E
¾"=1'-0"



SECTION B-B

Note: Dimensions shown in section B-B are normal to front face of abutment backwall.

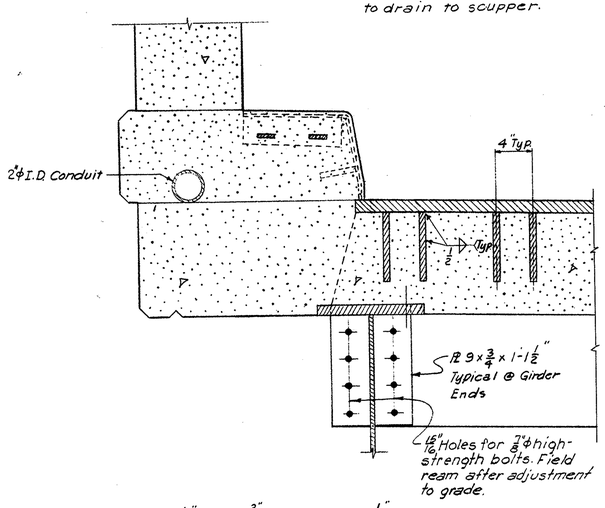


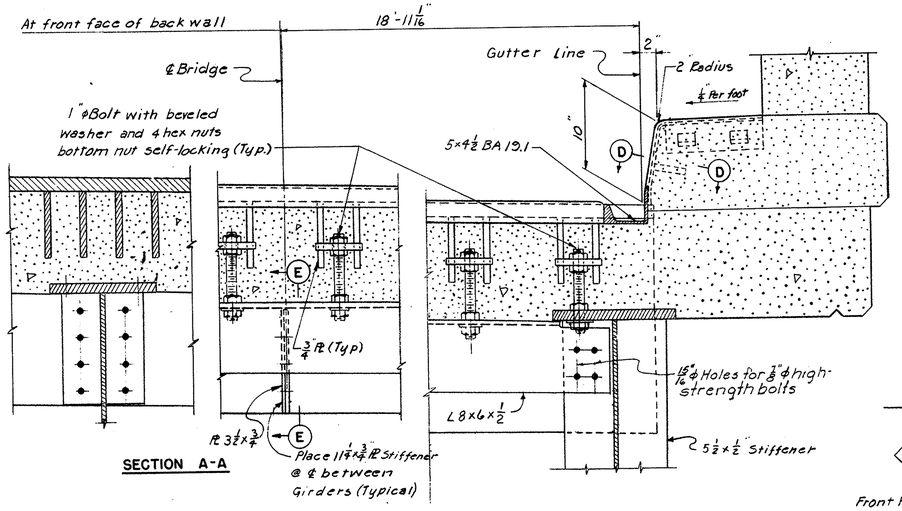
SECTION C-C
3"=1'-0"

SECTION D-D
3"=1'-0"

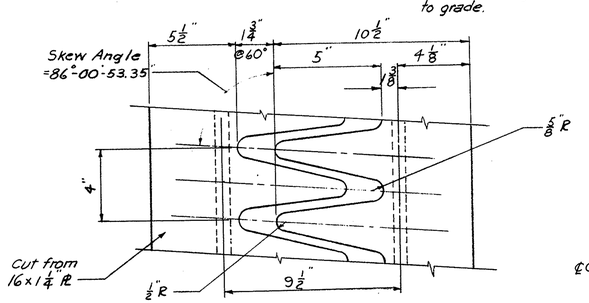
1⅛"φ Holes in Plate. Apply flake graphite between washer and plate. Turn bolt tight and release one-half turn. Remove bolts as soon as concrete has reasonably set, preferably within two hours. Fill holes with bituminous material.

Note
Dimension marked thus * are normal to front face of backwall. See abutment detail drawings for additional dimensions.

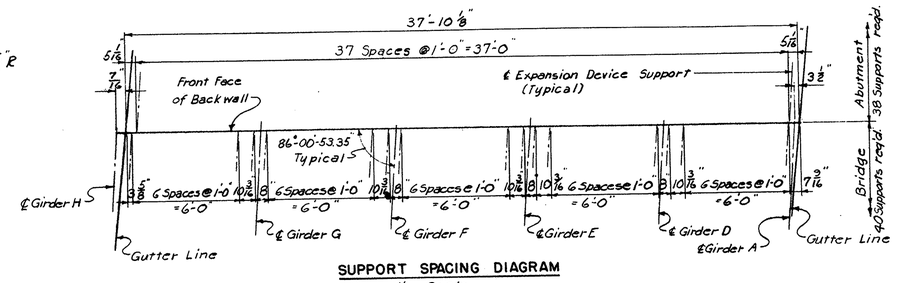




SECTION A-A



TOOTH DETAIL
3"=1'-0"



SUPPORT SPACING DIAGRAM
No Scale

Notes:
Roadway and Curb Joints shall be shop assembled and corrected to provide uniform close contact between the two matching parts of each joint, match-marked and erected to required lines and grades.
Omit shop coat on all portions of end finish. Portions in contact with steel or with concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the two field coats.
All sliding contact surfaces of the expansion joint materials shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

EXPANSION JOINT AT ABUTMENT 5-W
EASTBOUND EXPRESSWAY OVER NO.- SO. EXPRESSWAY
BR.NO. SUM-18-1212 EB STA. 535+55.61
SCALE: 1½ = 1'-0" STA. 540+24.66
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN K N W	TRACED	CHECKED CED	REVIEWED JT	REVISED
DATE 1-2-58	DATE	DATE 3-5-58	DATE 9-8-58	1018 SHEET 150

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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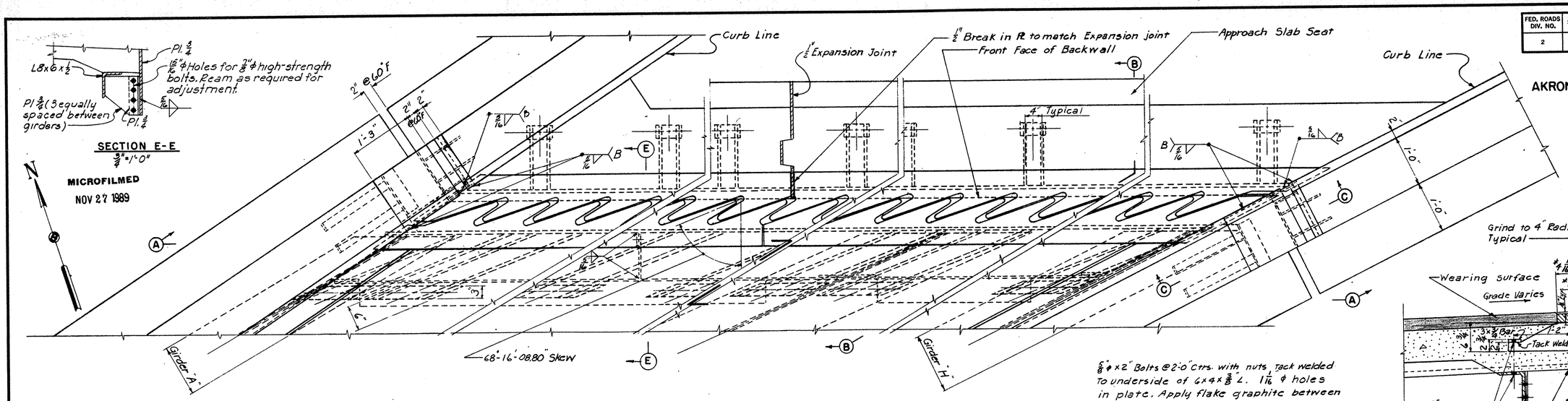
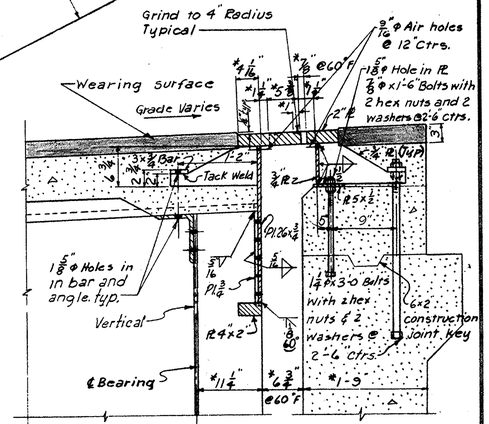
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

MICROFILMED
NOV 27 1989



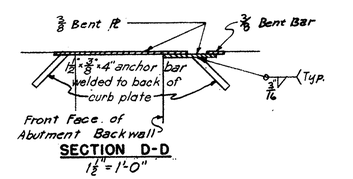
PART PLAN OF EXPANSION JOINT AT ABUTMENT 5-E

⅝"ϕ x 2" Bolts @ 2'-0" Ctrs. with nuts tack welded to underside of 6x4x⅜ ∠. 1 1/16" ϕ holes in plate. Apply flake graphite between washer and plate. Turn bolt tight and release one-half turn. Remove bolts as soon as concrete has reasonably set, preferably within two hours. Fill holes with bituminous material.

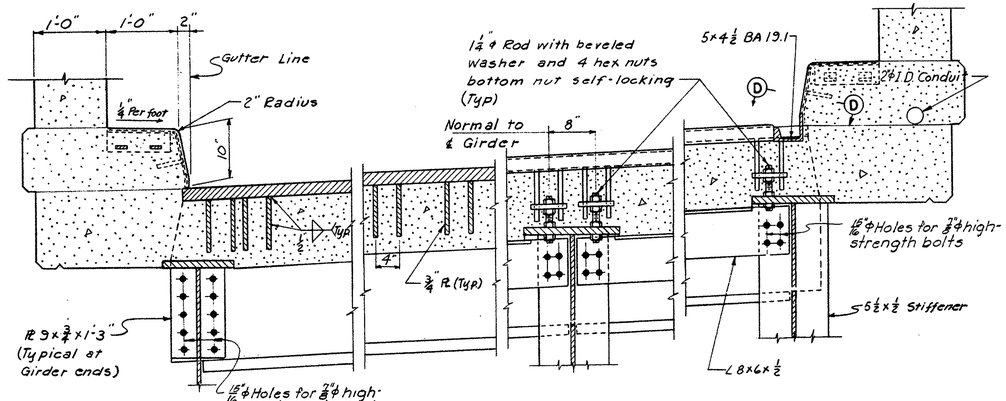


SECTION B-B

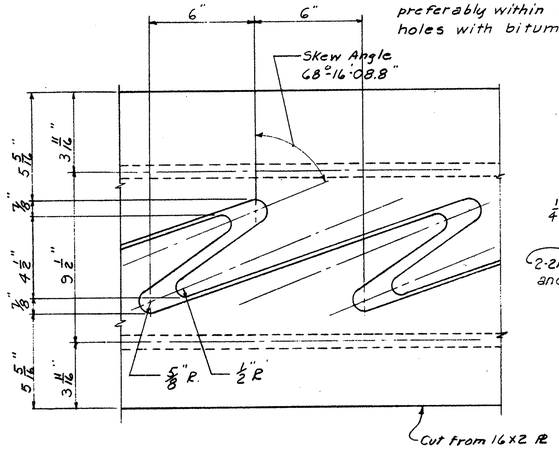
Note: Dimensions shown in Section B-B are normal to front face of abutment backwall.



SECTION D-D
1½"=1'-0"



SECTION A-A



TOOTH DETAIL
3"=1'-0"

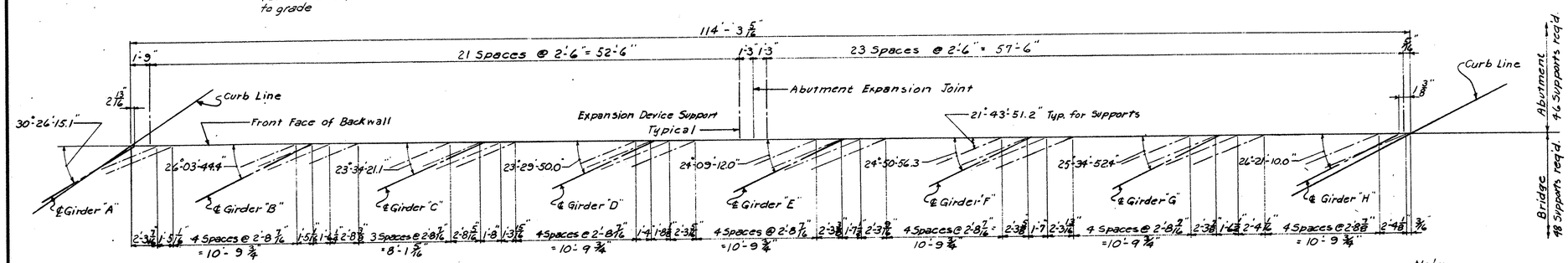
SECTION C-C
1½"=1'-0"

Notes:

Roadway and curb joints shall be shop assembled and corrected to provide uniform close contact between the two matching parts of each joint, match-marked and erected to required lines and grades.

Omit shop coat on all portions of end finish. Portions in contact with steel or with concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the two field coats.

All sliding contact surfaces of the expansion joint materials shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete.



SUPPORT SPACING DIAGRAM
No Scale

Note:
Dimensions marked thus * are measured normal to backwall.
See abutment detail drawings for additional dimensions.

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

EXPANSION JOINT AT ABUTMENT 5-E
EASTBOUND EXPRESSWAY OVER NO. - SO. EXPRESSWAY
BR. NO. SUM-18-1212 E.B. STA. 535+55.61
SCALE: 1"=1'-0" STA. 540+24.66

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN K.H.M.	TRACED	CHECKED C.E.D.	REVIEWED J.T.	REVISED
DATE 2-4-58	DATE	DATE 3-6-58	DATE 9-8-58	1018 SHEET 151

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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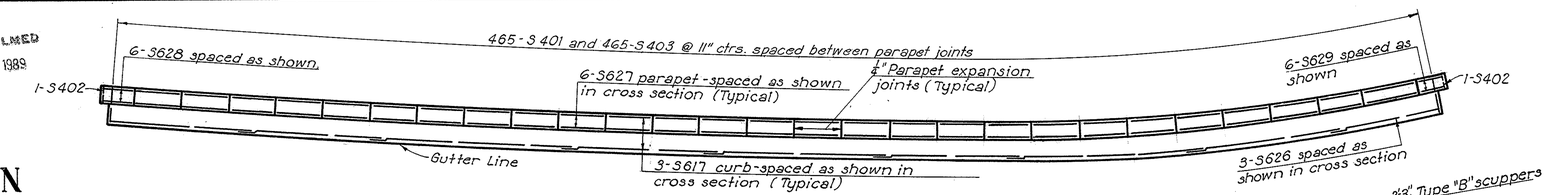
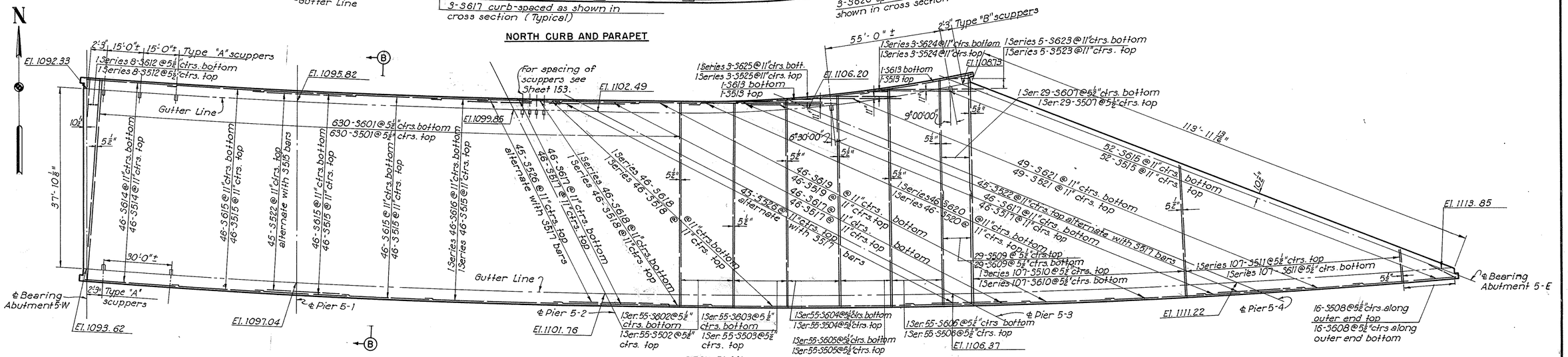
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



NORTH CURB AND PARAPET


N
El. 1092.33
2'3" 15'-0"± 15'-0"± Type "A" scuppers
1 Series 8-S612 @ 5½" ctrs. bottom
1 Series 8-S512 @ 5½" ctrs. top
El. 1095.82
Gutter Line
630-S601 @ 5½" ctrs. bottom
630-S501 @ 5½" ctrs. top
37'-10⅛"
10½"
5½"
46-S614 @ 11" ctrs. bottom
46-S514 @ 11" ctrs. top
46-S615 @ 11" ctrs. bottom
46-S515 @ 11" ctrs. top
45-S522 @ 11" ctrs. top alternate with 35/5 bars
46-S615 @ 11" ctrs. bottom
46-S515 @ 11" ctrs. top
46-S615 @ 11" ctrs. bottom
46-S515 @ 11" ctrs. top
1 Series 46-S616 @ 11" ctrs. bottom
1 Series 46-S516 @ 11" ctrs. top
30'-0"±
2'3" Type "A" scuppers
℄ Bearing Abutment 5-W
El. 1093.62
El. 1097.04
℄ Pier 5-1
El. 1099.86
For spacing of scuppers see Sheet 153.
El. 1102.49
45-S526 @ 11" ctrs. alternate with 35/7 bars
46-S617 @ 11" ctrs. top
1 Series 46-S618 @ 11" ctrs. bottom
1 Series 46-S518 @ 11" ctrs. top
1 Series 46-S618 @ 11" ctrs. bottom
1 Series 46-S518 @ 11" ctrs. top
Gutter Line
℄ Pier 5-2
El. 1101.76
1 Ser. 55-S602 @ 5½" ctrs. bottom
1 Ser. 55-S502 @ 5½" ctrs. top
1 Ser. 55-S603 @ 5½" ctrs. bottom
1 Ser. 55-S503 @ 5½" ctrs. top
1 Series 3-S625 @ 11" ctrs. bott.
1 Series 3-S525 @ 11" ctrs. top
1-S613 bottom
1-S513 top
El. 1106.20
55'-0"±
2'3" Type "B" scuppers
1 Series 3-S624 @ 11" ctrs. bottom
1 Series 3-S524 @ 11" ctrs. top
El. 1108.13
1 Series 5-S623 @ 11" ctrs. bottom
1 Series 5-S523 @ 11" ctrs. top
1 Ser. 29-S607 @ 5½" ctrs. bottom
1 Ser. 29-S507 @ 5½" ctrs. top
9°00'00"
6°30'00"
5½"
5½"
5½

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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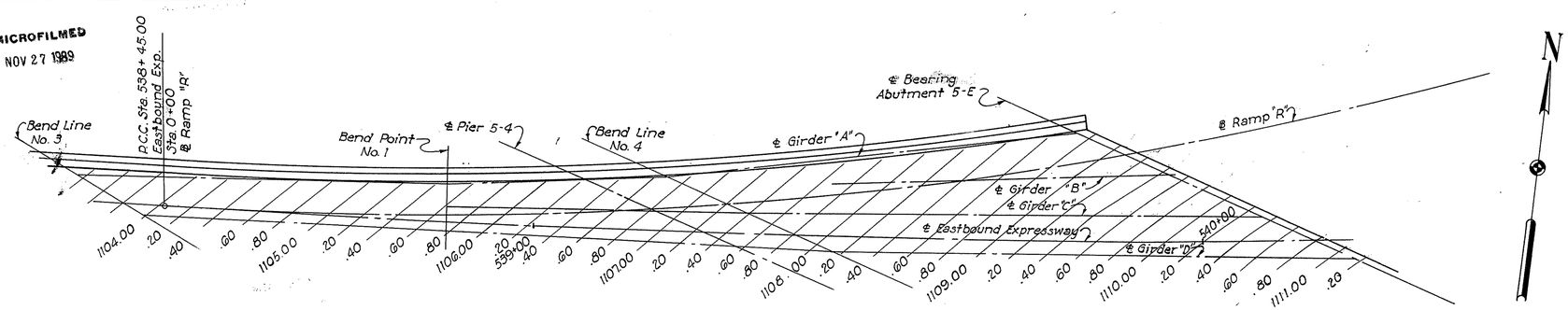
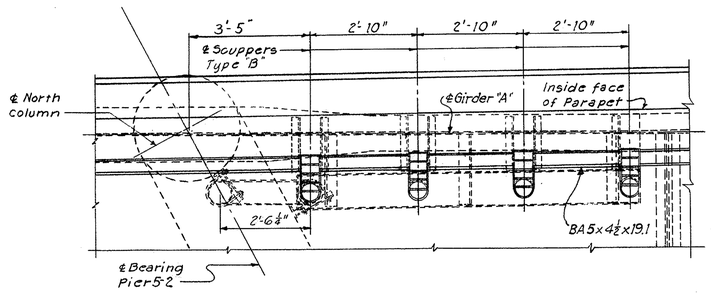
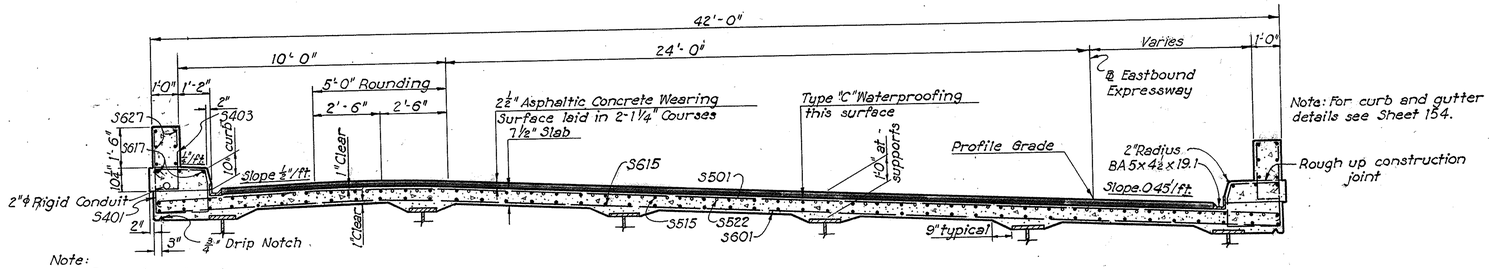
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



PART CONTOUR PLAN
Scale: 1" = 1'-0"



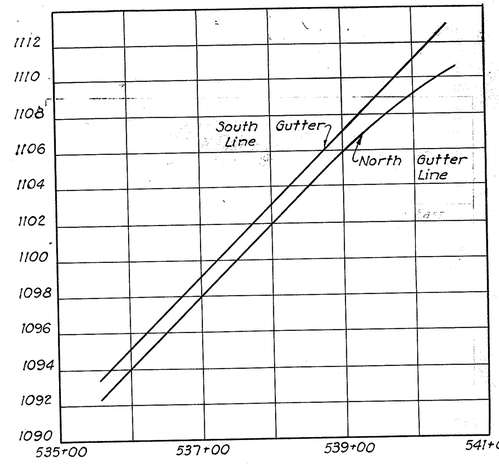
PLAN
Scale: ½" = 1'-0"



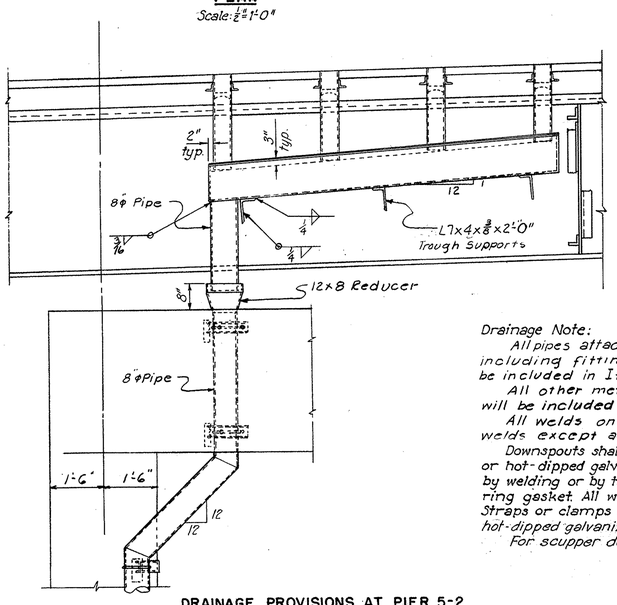
Note: For curb and gutter details see Sheet 154.

Note:
Parapets and curbs similar except as shown.
For location of Section B-B see Sheet 153.

SECTION B-B
Scale: ⅜" = 1'-0"

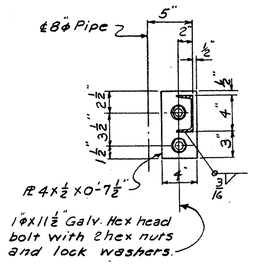


GUTTER LINE PROFILES
H: 1" = 100'-0"
V: 1" = 4'-0"

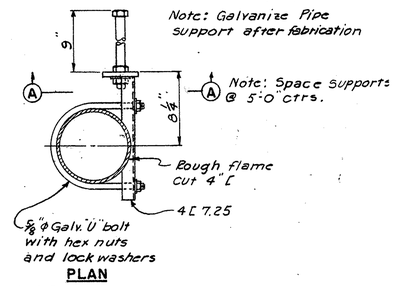


DRAINAGE PROVISIONS AT PIER 5-2
(Looking North)
Scale: ½" = 1'-0"

Drainage Note:
All pipes attached to substructure including fittings, supports, and accessories will be included in Item S 29 for payment.
All other metalwork of the drainage system will be included in Item S-7.
All welds on drainage fittings shall be 3/16" fillet welds except as shown.
Downspouts shall be 8" standard weight wrought iron pipe or hot-dipped galvanized steel pipe. Joints shall be made by welding or by the use of a clamp type coupling with a ring gasket. All welding shall be done before galvanizing. Straps or clamps for attaching downspouts shall be hot-dipped galvanized steel.
For scupper details see Sheet 154.

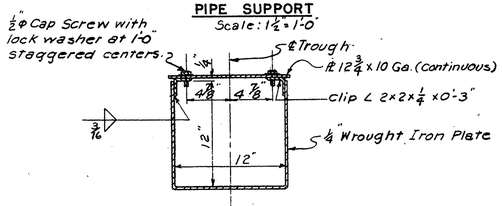


SECTION A-A



PLAN

PIPE SUPPORT
Scale: 1½" = 1'-0"



TYPICAL TROUGH SECTION
Scale: 1½" = 1'-0"

H.N.T.B. BR. NO. 5 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK DETAILS

EASTBOUND EXPRESSWAY OVER NO.- SO. EXPRESSWAY

BR. NO. SUM-18-1212 EB STA. 535+55.61
SCALE: AS SHOWN STA. 540+24.66

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

DRAWN A.B.G. K.N.W.	TRACED	CHECKED R.E.O.	REVIEWED J.T.	REVISED
DATE 6-25-58	DATE	DATE 8-18-58	DATE 9-8-58	1018 SHEET 153

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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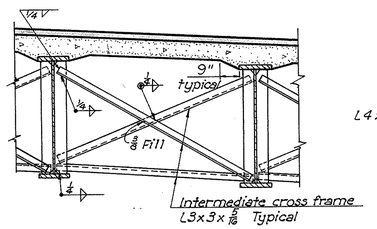
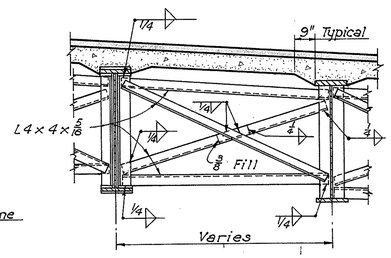
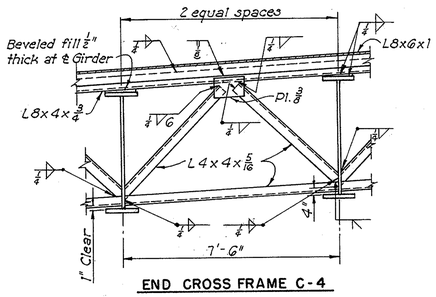
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



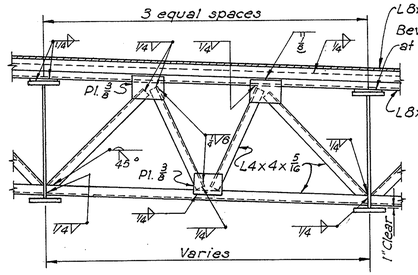
INTERMEDIATE CROSS FRAME C-1



INTERMEDIATE CROSS FRAME C-2

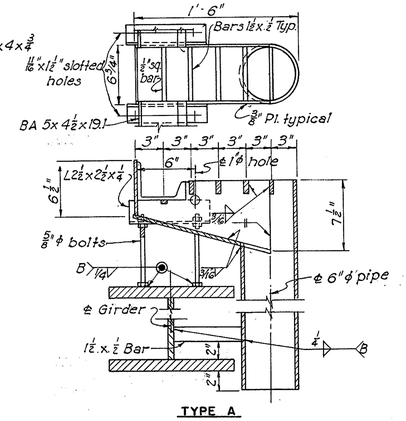


END CROSS FRAME C-4

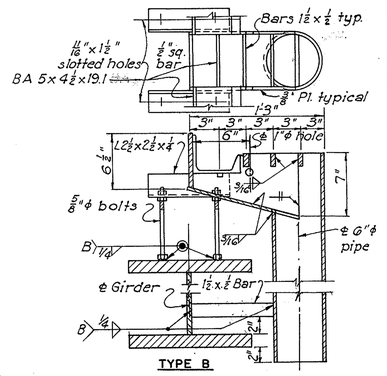


END CROSS FRAME C-4

Note:
For other notes concerning drainage see Drainage Notes Sheet 153.

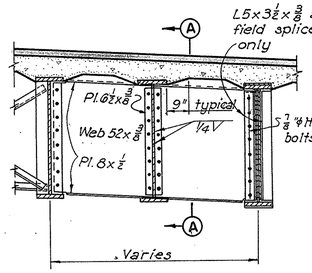


TYPE A

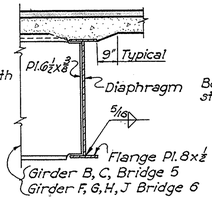


TYPE B

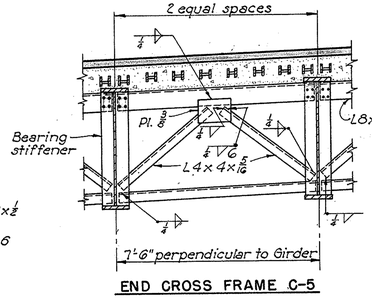
SCUPPER DETAILS
1 1/2" = 1'-0"



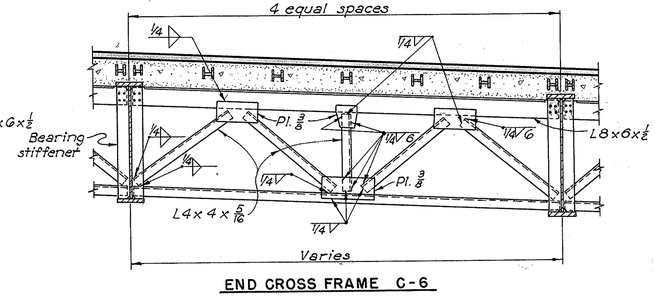
GIRDER END DIAPHRAGM



SECTION A-A



END CROSS FRAME C-5



END CROSS FRAME C-6

Notes:

Girder end field connections and girder field splices shall be made with 7/8" high-strength bolts conforming to Supplemental Spec. S-207.

The 7/8" high strength bolts shall be placed with the heads on the outside face of exterior girders and on bottom of girder flanges.

Where shown on the framing plans, at locations defined as bend points, the girders change directions at the centerline of the field splice. Specially cut splice plates will be required at these locations.

Shop butt welds in the flanges and in the webs shall be completed before the flanges and web are welded together. Automatic submerged arc welding equipment shall be used in making the butt welds in the flanges and in the web and in the welds connecting the flanges and the web.

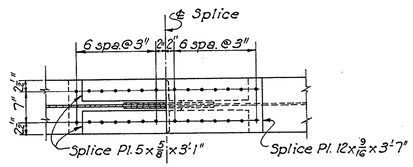
The butt welds in the flanges of girders shall be extended beyond the edges of the flanges by use of temporary extension bars having a joint preparation similar to that of the parts being joined. The extension bars shall be tack welded to and shall project beyond each edge of the flanges a distance equal to the greatest flange thickness but not less than 1 inch. Butt welds in web plates may terminate on flat run-off plates. Each weld pass shall extend at least 3/4 inch beyond the edges of the flanges and webs. The temporary extension bars and run-off plates shall be removed after the completion of the welds and the ends of the welds shall be made smooth and flush with the edges of the abutting parts.

Butt welds in flanges and webs shall be made the full thickness of the metal and, unless otherwise indicated on the Plans, such welds may have convex reinforcement equal to 1/8 the thickness of the metal but not more than 1/8 inch. When it is required that the surface of such welds be finished flush with the adjacent metal or when the convexity is excessive, the additional reinforcement shall be removed by chipping and grinding normal to the length of the weld. Single V butt welds not backed up shall have a finishing pass on the reverse side.

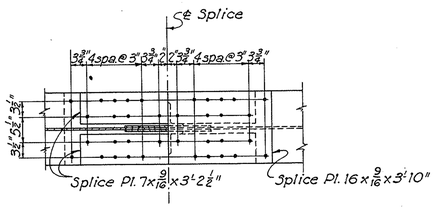
Shop web splices may be located as required by available plate lengths.

For girder spacing and location of cross-frames see Sheets 147 and 162.

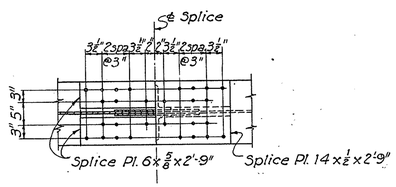
For expansion joint details see Sheets 105, 150, 151 and 166.



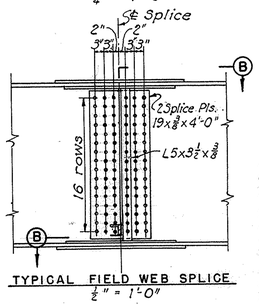
SECTION B-B AT FIELD FLANGE SPLICE F-1
3/4" = 1'-0"



SECTION B-B AT FIELD FLANGE SPLICE F-3
3/4" = 1'-0"

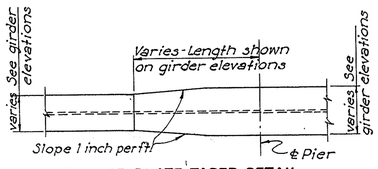


SECTION B-B AT FIELD FLANGE SPLICE F-2
3/4" = 1'-0"



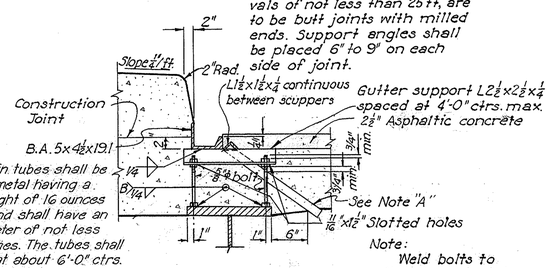
TYPICAL FIELD WEB SPLICE
1/2" = 1'-0"

GIRDER FIELD SPLICE DETAILS



FLANGE PLATE TAPER DETAIL

Note:
Joints in bulb angle gutters, preferably at intervals of not less than 25 ft, are to be butt joints with milled ends. Support angles shall be placed 6" to 9" on each side of joint.



CURB AND GUTTER DETAILS
1" = 1'-0"

Note "A":
Copper drain tubes shall be made from metal having a nominal weight of 16 ounces per sq. ft. and shall have an inside diameter of not less than 1 1/2 inches. The tubes shall be spaced at about 6'-0" ctrs. set to clear piers and cross-frames at least 6" ℄ End drain tubes to be placed at not more than 1'-0" from scuppers. Drain tubes shall be depressed 1/4" below top of slab and shall extend 1" below slab. See Sec. S 29.08.

Note:
Weld bolts to splice plate at girder field splices.

H.N.T.B. BR. NOS. 5 AND 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

CROSS FRAME AND GIRDER SPLICE DETAILS
EASTBOUND EXPWY. OVER NO. - SO. EXPWY.
WESTBOUND EXPWY. OVER NO. - SO. EXPWY.
BR. NO. SUM-18-1212 EB STA. 12+65.30 - STA. 16+20.50
BR. NO. SUM-18-1212 WB STA. 535+55.61 - STA. 540+24.66
SCALE: 3/8"=1'-0"

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
C.E.D.	B.S.L.	R.N.W.	J.T.	
DATE 2-7-58	DATE 5-19-58	DATE 2-15-58	DATE 9-8-58	1018 SHEET 154

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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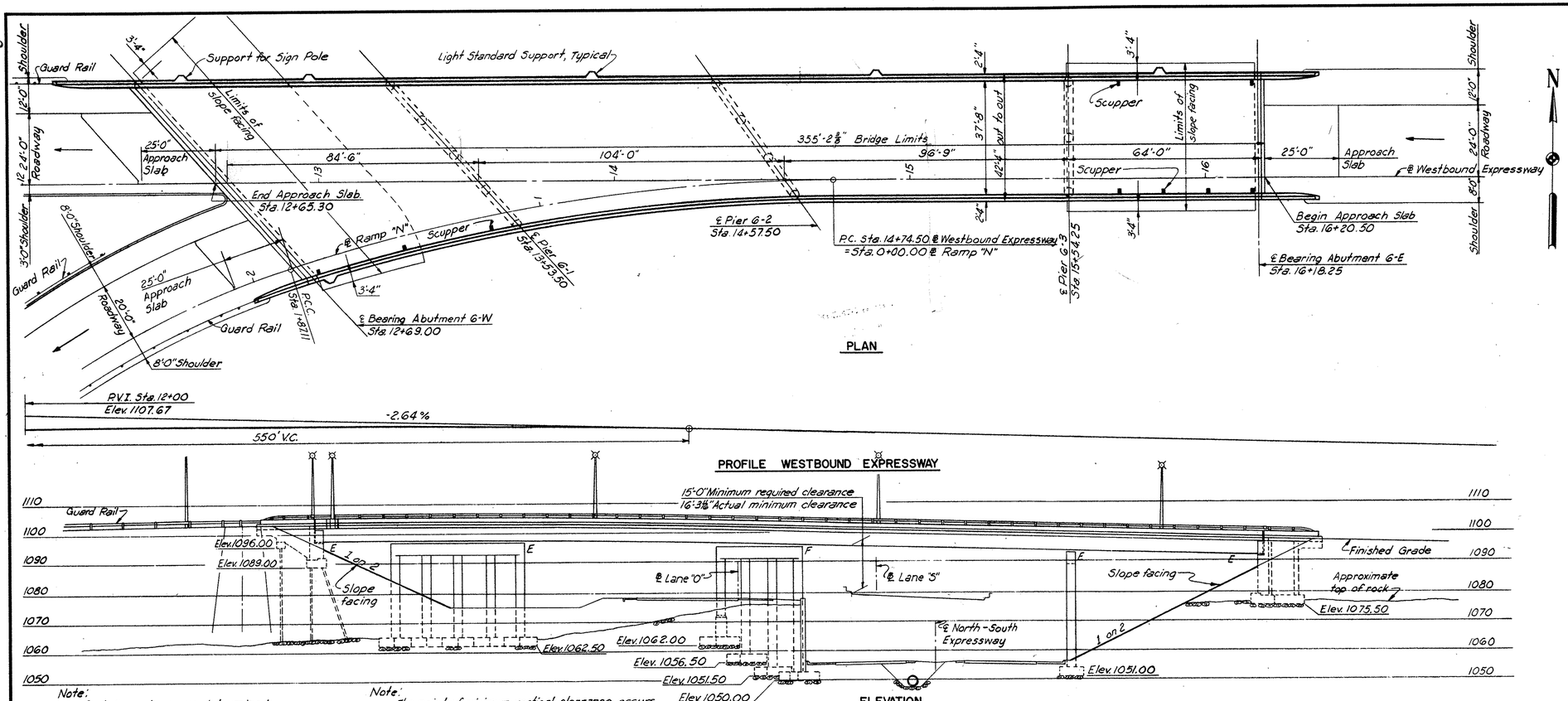
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



PLAN

Ramp "N" Curve Data
D = 9°-32'-57"
Δ = 17°-52'-03"
R = 600'
T = 94.32'
L = 187.11'

Ramp "N" Curve Data
D = 19°-05'-55"
Δ = 104°-23'-52"
R = 300'
T = 386.74'
L = 546.62'

PROFILE WESTBOUND EXPRESSWAY

Note:
Rock lines shown are determined by interpolation of borings and are approximate only.

Note:
The point of minimum vertical clearance occurs at the intersection of the West gutter line of Lane "5" and the South exterior girder of Westbound Expressway.

ELEVATION

Note:
All pile to be 12 BP 53 with an estimated average vertical length of 25'-0" for abutment G-W, and 30'-0" for Northwest and Southwest wingwalls. These estimates are based on boring data and are approximate only. The contractor shall assume full responsibility for lengths of piling selected for driving.
The slope facing (S-29.05 type) shall be 12" thick and shall be placed within the limits shown on the plan of the structure.
For location of sodded flume see sheet 94.
Northwest and Southwest wingwalls are to be built on chords.

ESTIMATED QUANTITIES

	Item	Description	Unit	Abutments	Retaining Wall	Piers	Superstructure	General	Total
	E-2	Cofferdams, Cribs and Sheeting	Lump Sum						Lump Sum
	E-2	Excavation for Structures (Unclassified)	Cu. Yd.	408	48	304			760
	E-2	Excavation for Structures (Rock or Shale)	Cu. Yd.	10		325			335
	S-1	Class "C" Concrete (Superstructure)	Cu. Yd.				510		510
	S-1	Class "C" Concrete (Pier Caps and Columns)	Cu. Yd.			165			165
	S-1	Class "E" Concrete (Stub Abutments)	Cu. Yd.	245	30				275
	S-1	Class "E" Concrete (Footings)	Cu. Yd.	139	34	92			265
	S-3	Type "C" Waterproofing	Sq. Yd.				1725		1725
	S-4	Reinforcing Steel	Lbs.	22,930	3,540	69,890	167,240		263,600
	S-7	Structural Steel	Lbs.				630,000		630,000
	S-8	Field Painting Structural Steel	Lbs.				630,000		630,000
	S-14	Aluminum Handrail (Including Parapet)	Lin. Ft.	83			706		789
	S-16	First Test Pile	Lump Sum						Lump Sum
	S-18	Steel Bearing Piles (12 BP 53)	Lin. Ft.	1120					1120
	S-25	2" ø Rigid Metal Conduit	Lin. Ft.	55			420		475
	S-25	Electrical Equipment	Lump Sum						Lump Sum
	S-29	Porous Backfill	Cu. Yd.	86	24				110
	S-29	Subdrainage for Wearing Surface Course	Lin. Ft.				710		710
	T-35	2½" Asphaltic Concrete Surface Course Type C (60-70)	Cu. Yd.				118		118
	S-3	Waterproofing Premolded Sealing Strip	Lin. Ft.	10	25				35
	S-9	½" Preformed Gray Rubber Expansion Joint Filler	Sq. Ft.	30					30
*	S-25	Luminaire, 6000 lumen, type 5 (Understructure) ①	Each				2		2
	S-25	Standards, 24'x9¾" pole with 10'-0" bracket ①	Each				6		6
	S-29	Slope Facing (S-29.05 type)	Cu. Yd.	290					290

① These quantities are not included in the summary of lighting on sheet 24 of the highway plans.

* There will be no Federal or State participation in this Item.

PROPOSED STRUCTURE

Type: Four span continuous welded steel girder with reinforced concrete deck and substructure
Spans: 84'-6", 104'-0", 96'-9" and 64'-0" = 349'-3" ctr. to ctr. end bearings.
Out to Out of Structure: 42'-0" (widening at West end)
Loading: C.F. 2000 (Adequate for A.A.S.H.O. alternate loading)
Skew: Varies 48°-4" to 90°
Surface Course: 2½" Asphaltic concrete
Approach Slabs: AS-1-54 (25'-0" long)

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GENERAL PLAN AND ELEVATION
WESTBOUND EXPRESSWAY OVER
NO.- SO. EXPRESSWAY
BR. NO. SUM-18-1212 WB STA. 12 + 65.30
SCALE: 1" = 20' STA. 16 + 20.50
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

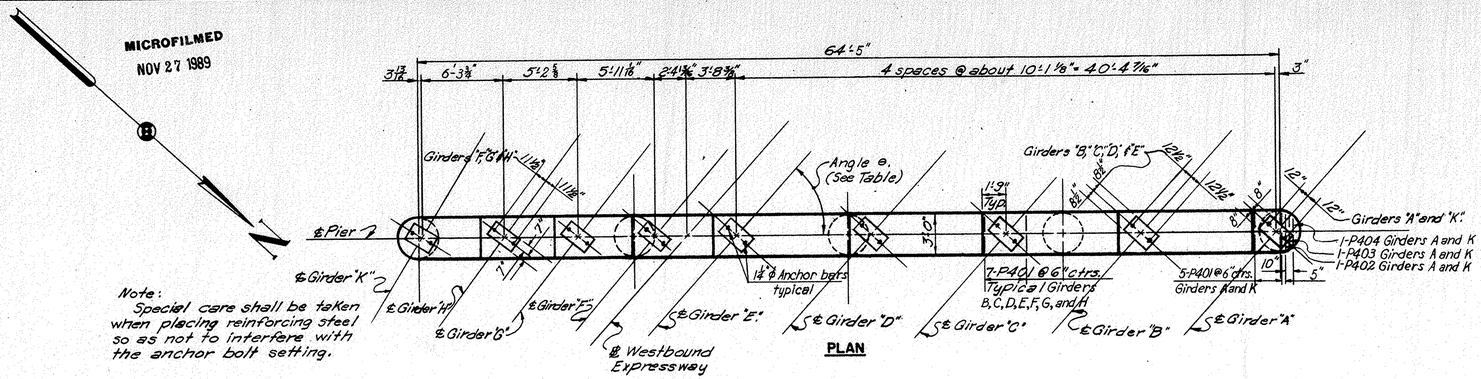
DRAWN S.M.A.	TRACED	CHECKED J.W.L.	REVIEWED J.T.	REVISED
DATE 2-14-58	DATE	DATE 3-29-59	DATE 9-8-58	1018 SHEET 155

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

156
176

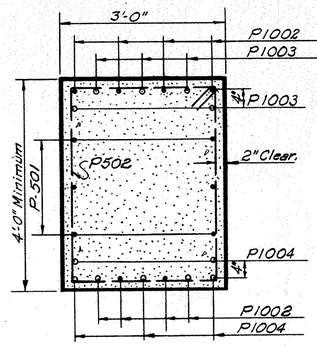
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



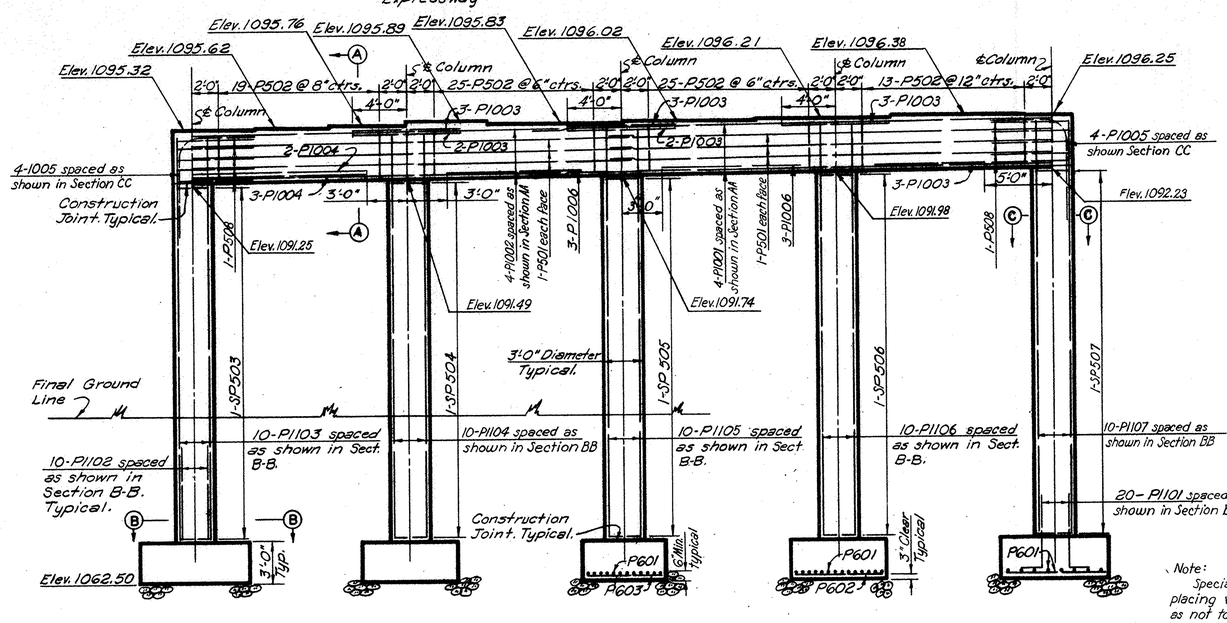
PLAN

Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with the anchor bolt setting.

TABLE OF ANGLES	
Girder	Angle θ
"A"	48°-00'-00"
"B"	48°-00'-00"
"C"	48°-00'-00"
"D"	48°-00'-00"
"E"	48°-00'-00"
"F"	49°-38'-04.1"
"G"	51°-27'-02.0"
"H"	53°-46'-48.4"
"K"	58°-28'-04.8"

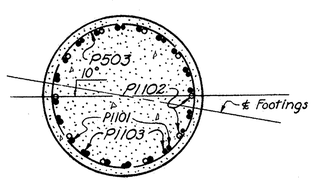


SECTION AA
¾" = 1'-0"

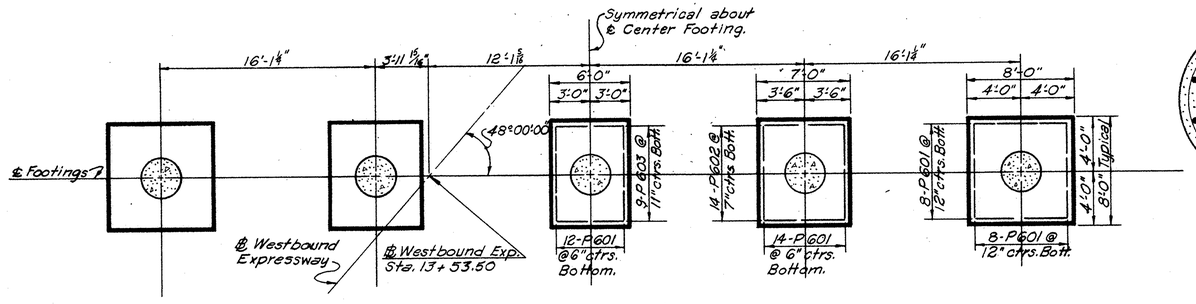


ELEVATION

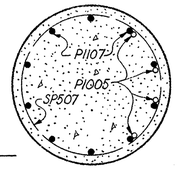
Note:
Special care should be taken in placing vertical column bars, so as not to interfere with bars in bottom of cap beam.



SECTION BB
¾" = 1'-0"



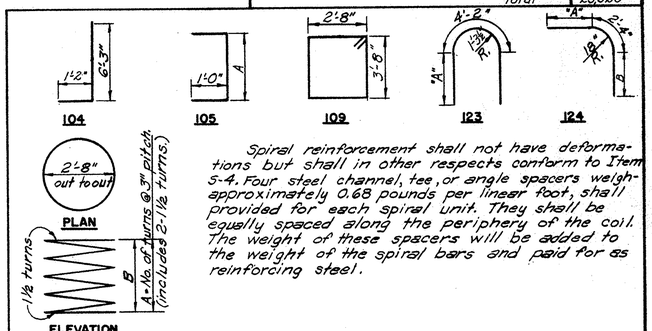
FOOTING PLAN



SECTION CC
¾" = 1'-0"

Note:
Footings shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found to be considerably lower after excavating than shown on the plans, a new pier design will be provided.
For replacement bars see sheet 141.
All bar dimension are given out to out.

REINFORCEMENT SCHEDULE						
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS
P401	59	4'-5"	105	2'-8"		174
P402	2	4'-4"	105	2'-7"		6
P403	2	4'-0"	105	2'-3"		5
P404	2	3'-1"	105	1'-4"		4
P501	12	33'-3"	Str.			416
P502	82	13'-1"	109			1091
SP503	1	870'-8"	125	106	25'-8"	908
SP504	1	878'-10"	125	107	25'-11"	917
SP505	1	887'-1"	125	108	26'-2"	925
SP506	1	895'-3"	125	109	26'-4"	935
SP507	1	903'-6"	125	110	26'-7"	942
P508	10	10'-6"	123	3'-2"		110
P601	72	7'-6"	Str.			812
P602	28	6'-6"	Str.			274
P603	9	5'-6"	Str.			74
P1001	8	40'-9"	Str.			1403
P1002	8	29'-0"	Str.			998
P1003	16	8'-0	Str.			551
P1004	5	14'-0"	Str.			301
P1005	8	11'-0"	124	3'-2"	5'-6"	379
P1006	6	10'-0"	Str.			258
P1101	100	7'-2"	104			3809
P1102	50	8'-0"	Str.			2125
P1103	10	29'-3"	Str.			1554
P1104	10	29'-6"	Str.			1567
P1105	10	29'-9"	Str.			1581
P1106	10	30'-0	Str.			1594
P1107	10	30'-3"	Str.			1607
				Total		25,320



Spiral reinforcement shall not have deformations but shall in other respects conform to Item 5-4. Four steel channel, tee, or angle spacers weighing approximately 0.68 pounds per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The weight of these spacers will be added to the weight of the spiral bars and paid for as reinforcing steel.

BENDING DIAGRAMS

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIER 6-1
WESTBOUND EXPRESSWAY OVER NO. - SO. EXPRESSWAY

BR. NO. SUM-18-1212 WB STA. 12+65.30
SCALE: 3/16" = 1'-0" STA. 16+20.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY, OHIO

DRAWN GKG	TRACED	CHECKED AMM	REVIEWED JT	REVISED
DATE 1-20-58	DATE	DATE 9-5-58	DATE 9-8-58	1018 SHEET 156

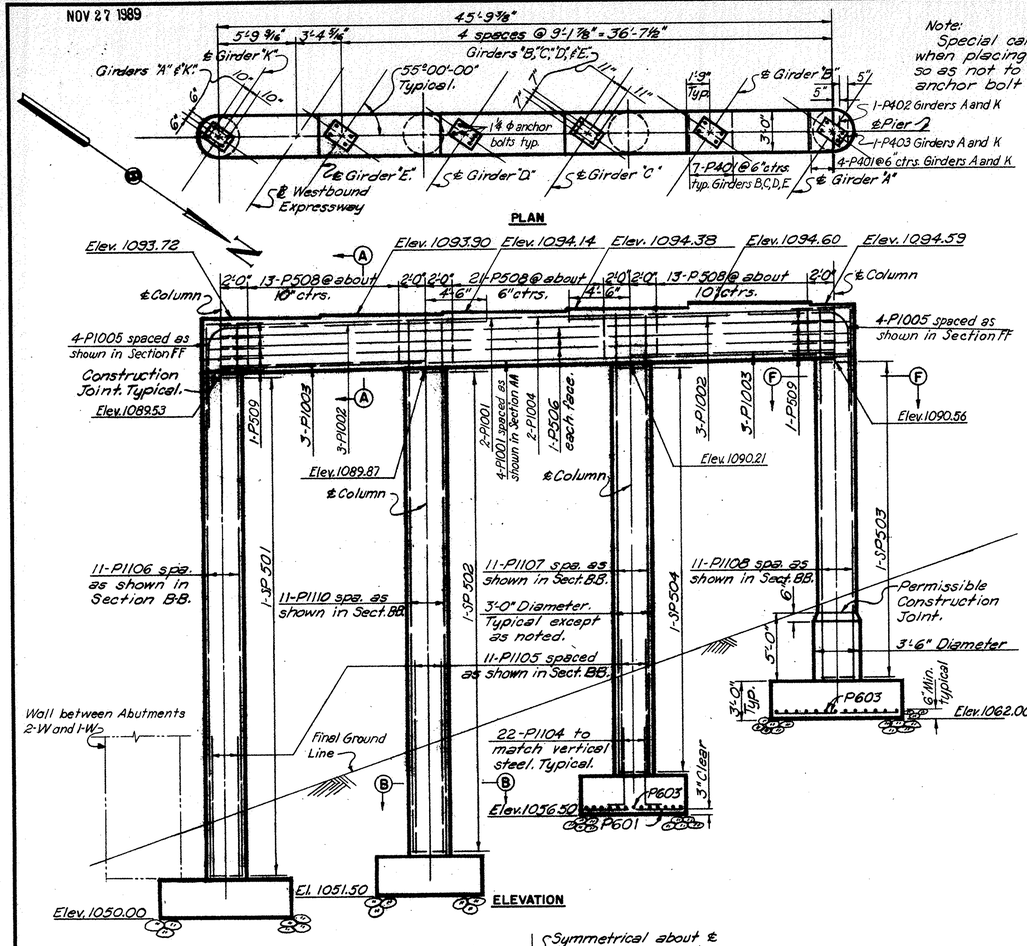
Revised 1-19-59.

MICROFILMED

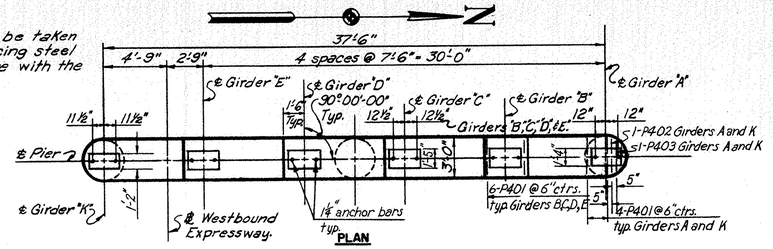
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		157 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM - 8 - 11.65

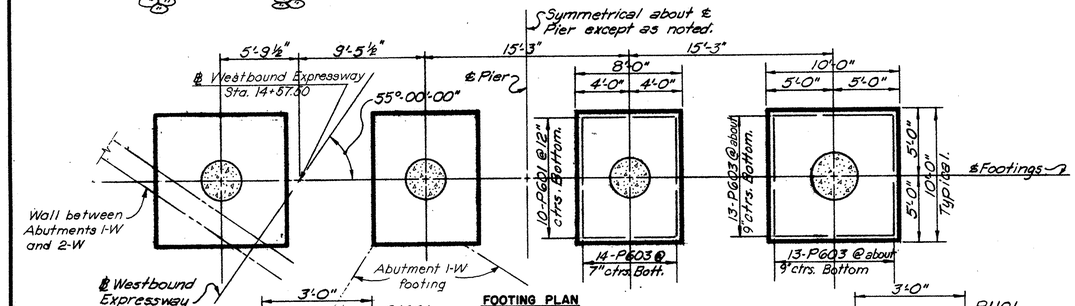


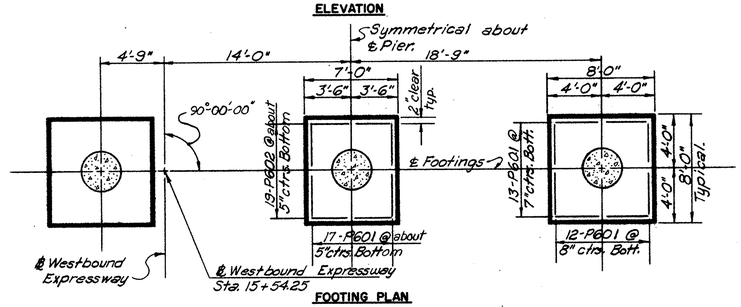
Note:
Special care shall be taken when placing reinforcing steel so as not to interfere with the anchor bolt setting.

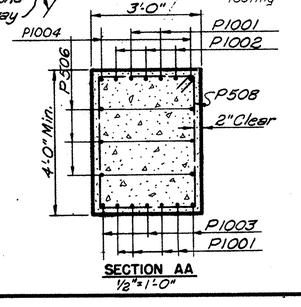


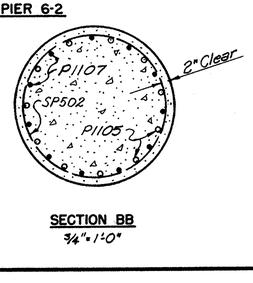
REINFORCEMENT SCHEDULE								
MARK	NUMBER		LENGTH	TYPE	DIMENSIONS		WEIGHT POUNDS	
	PIER 6-2	PIER 6-3			A	B	PIER 6-2	PIER 6-3
P401	36	32	4'-5"	105	2'-8"		106	95
P402	2	2	4'-1"	105	2'-4"		5	5
P403	2	2	3'-6"	105	1'-9"		5	5
SP501	1		1223'-11"	125	149	36'-5"	1277	
SP502	1		1182'-10"	125	144	35'-3"	1234	
SP503	1		862'-6"	125	105	25'-5"	900	
SP504	1		1026'-9"	125	125	30'-7"	1072	
SP505		3	1125'-4	125	137	33'-4"		3521
P506	6		45'-9"	Str.			286	
P507		6	37'-6"	Str.				235
P508	47	52	13'-1"	109			641	709
P509	10		10'-6"	123	3'-2"		110	
P510		10	11'-2"	123	3'-6"			116
P601	20	67	7'-6"	Str.			225	755
P602		19	6'-6"	Str.				185
P603	80		9'-6"	Str.			1143	
P1001	6		47'-6"	Str.			1227	
P1002	6		12'-0"	Str.			310	
P1003	6		15'-0"	Str.			387	
P1004	9		45'-9"	Str.			394	
P1005	8		2 @ 11'-0"	124	3'-2"	5'-6"	298	
P1101		2	37'-6"	Str.				398
P1102		6	39'-0"	Str.				1243
P1103		1	11'-0"	Str.				292
P1104	77	54	7'-0"	104			293.2	2056
P1105	33		10'-0"	Str.			1753	
P1106	11		40'-4"	Str.			2358	
P1107	11		34'-6"	Str.			2017	
P1108	11		29'-3"	Str.			1710	
P1109		54	37'-0"	Str.				10,617
P1110	11		39'-0"	Str.			2280	
P1111		14	15'-9"	Str.				1172
P1112		8	11'-8"	124	3'-6"	5'-10"		496
						Totals	22,670	21,900

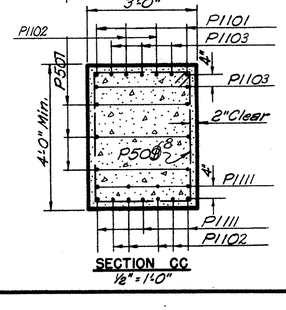
Note: For Bending Diagrams see Sheet 156.
Footings shall extend a minimum of 6" into solid rock. If the elevation of top of rock is found to be considerably lower, after excavation, than shown on the plans, a new pier design will be provided.
For replacement bars see sheet 141.
All bar dimensions are given out to out.

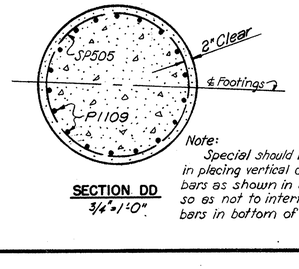




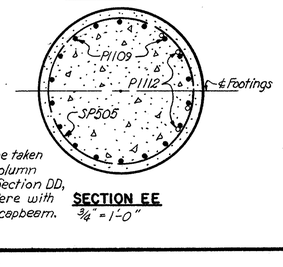


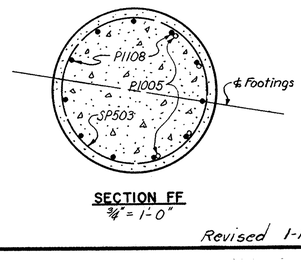






Note:
Special should be taken in placing vertical column bars as shown in Section DD, so as not to interfere with bars in bottom of capbeam.





Revised 1-19-59.

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS 6-2 AND 6-3
WESTBOUND EXPRESSWAY OVER NO.-SO. EXPRESSWAY
BR. NO. SUM. - 18 - 1212 WB STA. 12 +65.30
SCALE: 3/16" = 1'-0" STA. 16 +20.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY, OHIO

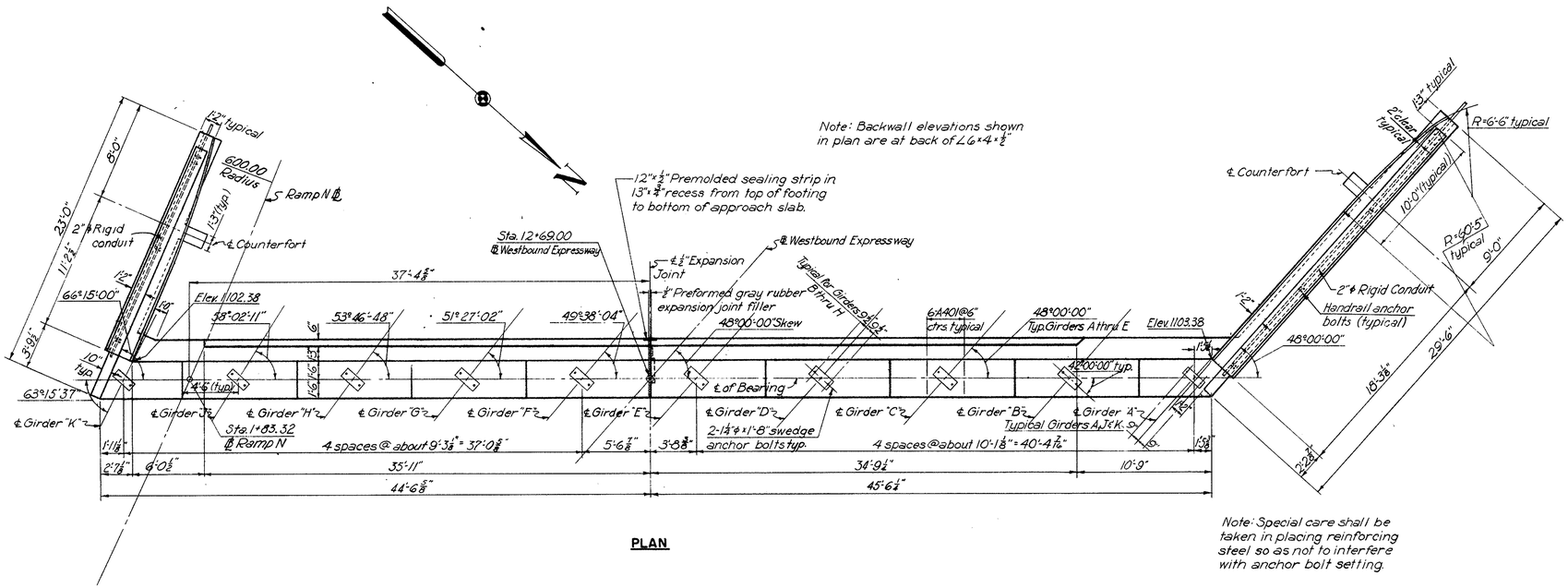
DRAWN GKG	TRACED	CHECKED MM	REVIEWED LT	REVISED
DATE 1-23-58	DATE	DATE 9-6-58	DATE 9-8-58	1018 SHEET 157

MICROFILMED
NOV 27 1989

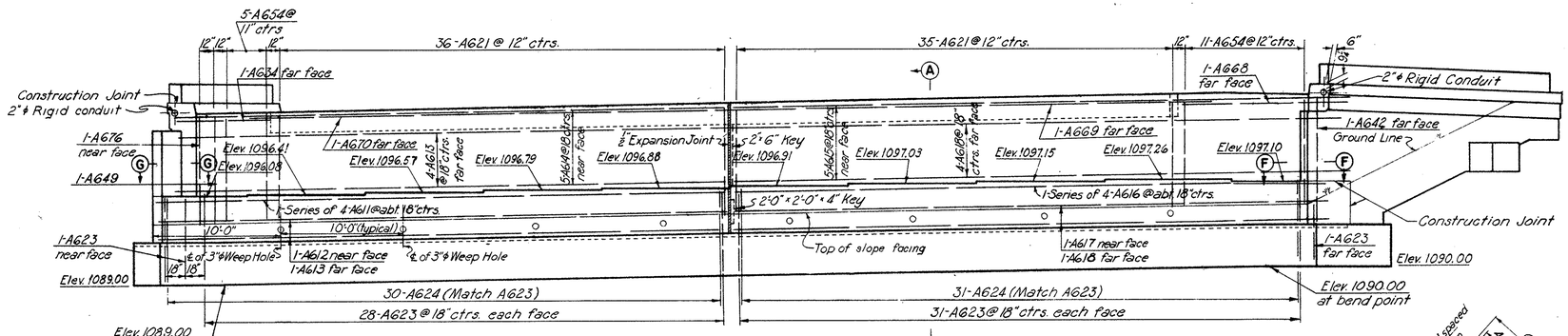
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

158
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

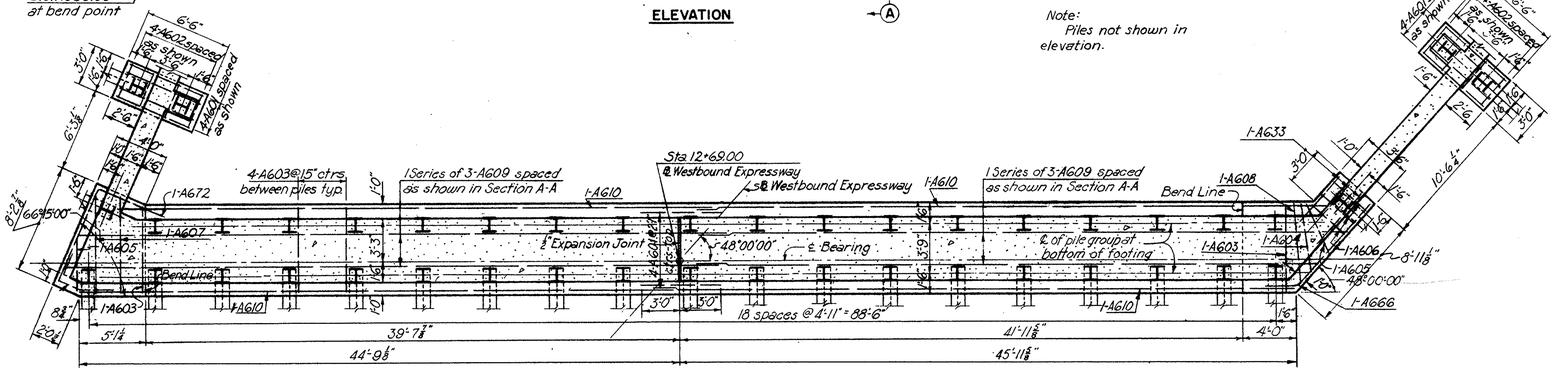


PLAN



ELEVATION

Note:
Piles not shown in elevation.



FOOTING PLAN

Notes:
For reinforcement schedule see Sheet 159.
For Sections AA, FF and GG, see sheet 159.
For handrail spacing and details see Sheet 173.
For wingwall elevations see Sheet 159
All piles shall be 12BP53.
All battered piles are battered 3 in 12.
For base plate details and anchor bar details, see sheet 130

H.N.T.B. BRIDGE NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 6-W
WESTBOUND EXPRESSWAY OVER
NO.-SO. EXPRESSWAY
BR. NO. SUM.-18-1212 WB STA. 12+65.30
SCALE: 3/16 = 1'-0" STA. 16+20.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.F.K.	TRACED	CHECKED P.L.M.	REVIEWED J.T.	REVISED
DATE 1-31-58	DATE	DATE 7-1-58	DATE 9-11-58	1018 SHEET 158

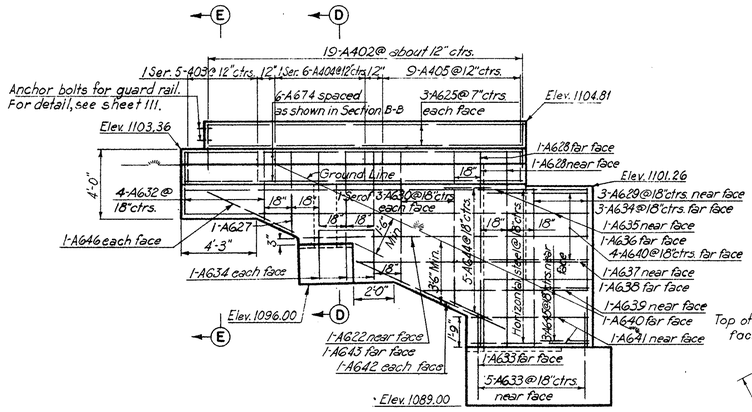
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

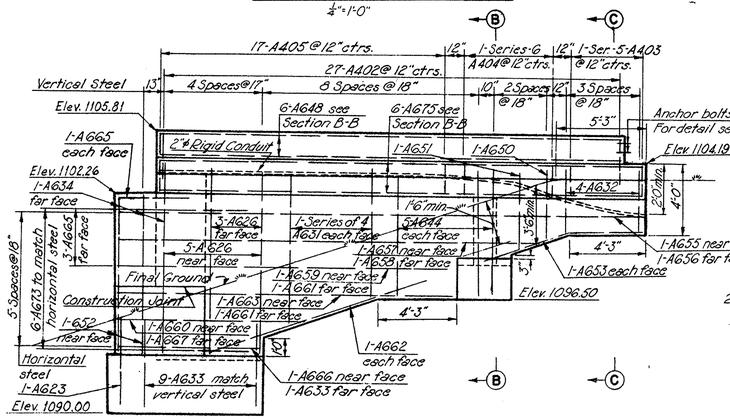
159
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note:
Backwall is to be poured after expansion joint steel has been attached to the bridge superstructure.

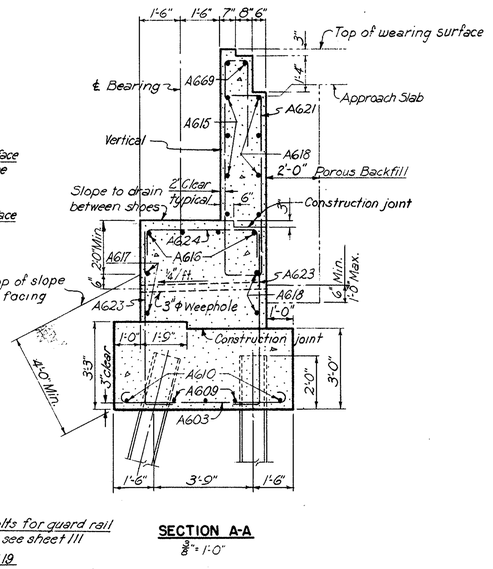


ELEVATION SOUTHWEST WINGWALL
$\frac{1}{4}$"=1'-0"

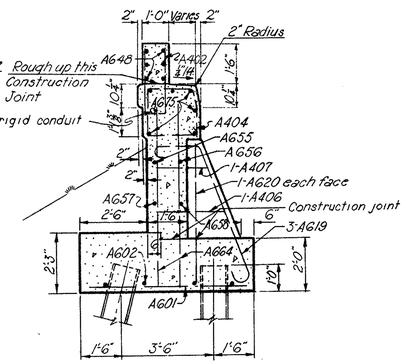


Note: Piles not shown in elevation.

ELEVATION NORTHWEST WINGWALL
$\frac{1}{4}$"=1'-0"

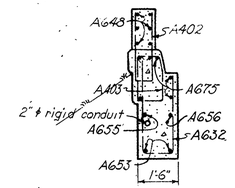


SECTION A-A
$\frac{3}{8}$"=1'-0"



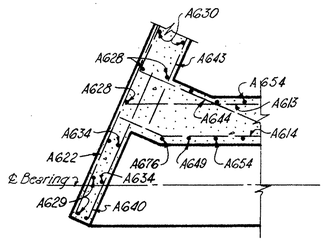
SECTION B-B
$\frac{3}{8}$"=1'-0"

Section D-D is similar except for bar marks and as noted.

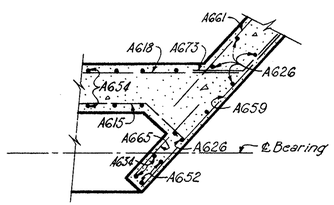


SECTION C-C
$\frac{3}{8}$"=1'-0"

Section E-E is similar except for bar marks.



SECTION G-G
$\frac{3}{8}$"=1'-0"

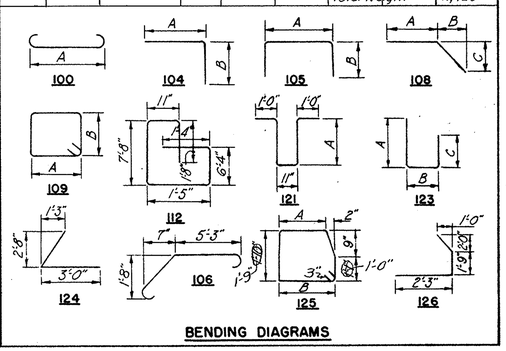


SECTION F-F
$\frac{3}{8}$"=1'-0"

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INC.	WEIGHT POUNDS
				2'-10"				WEST ABUTMENT
A401	60	3'-8"	104		1'-0"			147
A402	46	5'-11"	105		10"	2'-8"		182
A403	2 Ser. of 5	6'-10" to 5'-4"	125	8" to 1'-5"	10" to 1'-7"		4½"	41
A404	2 Ser. of 6	7'-8" to 7'-0"	125	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅝"	59
A405	26		7-8	1'-10"	2'-0"			146
A406	2	7'-10"	121	2'-7"				10
A407	2	6'-8"	121	2'-0"				9
A601	8	6'-0"	Str.					72
A602	8	2'-6"	Str.					18
A603	70	7'-9"	100	6'-3"				813
A604	1	6'-7"	100	5'-1"				10
A605	2	5'-6"	100	4'-0"				17
A606	3	4'-6"	100	3'-0"				20
A607	2	8'-8"	100	7'-2"				26
A608	1	7'-5"	100	5'-11"				11
A609	2 Ser. of 3	47'-9" to 48'-6"	Str.				4½"	440
A610	4	46'-6"	Str.					280
A611	1 Ser. of 4	43'-0" to 44'-3"	Str.				5"	262
A612	2	44'-3"	Str.					133
A613	6	43'-0"	Str.					388
A614	5	43'-6"	108	4'-9"	1'-7"	8½"		327
A615	5	47'-1"	108	45'-4"	1'-4"	1'-2"		354
A616	1 Ser. of 4	45'-3" to 49'-3"	Str.				1'-4"	284
A617	2	45'-3"	Str.					136
A618	6	49'-3"	Str.					444
A619	6	8'-5"	106					76
A620	4	5'-3"	Str.					32
A621	71	18'-8"	112					1990
A622	1	16'-3"	Str.					24
A623	122	7'-4"	104	6'-6"	1'-0"			1342
A624	62	6'-1"	105	4'-5"	1'-0"			567
A625	6	17'-9"	Str.					*
A626	8	10'-6"	Str.					126
A627	1	8'-8"	123	4'-4"	1'-2"	3'-6"		13
A628	3	10'-9"	Str.					49
A629	3	8'-9"	Str.					39
A630	2 Ser. of 3	7'-0" to 8'-6"	Str.				9"	70
A631	2 Ser. of 4	7'-6" to 9'-0"	Str.				6"	99
A632	8	7'-4"	123	3'-8"	1'-2"	2'-10"		88
A633	20	5'-0"	Str.					150
A634	11	7'-0"	Str.					115
A635	2	22'-6"	Str.					68
A636	2	18'-9"	Str.					56
A637	1	13'-3"	Str.					20
A638	1	9'-6"	Str.					14
A639	1	9'-3"	Str.					14
A640	5	5'-6"	Str.					41
A641	2	6'-9"	Str.					20
A642	2	10'-0"	Str.					30
A643	1	12'-6"	Str.					19
A644	6	7'-1"	104	5'-3"	2'-0"			64
A645	3	6'-0"	124	3'-0"	1'-3"	2'-8"		27
A646	2	4'-6"	Str.					14
A647	4	4'-0"	Str.					24
A648	6	25'-9"	Str.					*
A649	1	16'-10"	109	1'-10"	6'-7"			25
A650	1	7'-10"	123	4'-2"	1'-2"	3'-4"		12
A651	1	8'-4"	123	4'-8"	1'-2"	3'-10"		12
A652	1	8'-6"	Str.					13
A653	2	8'-8"	108	4'-6"	3'-10"	1'-4"		26
A654	16	16'-0"	109	1'-5"	6'-7"			385
A655	1	29'-0"	Str.					44
A656	1	26'-3"	Str.					39
A657	1	23'-6"	Str.					35
A658	1	21'-6"	Str.					32
A659	1	18'-9"	Str.					28
A660	1	13'-4"	108	10'-4"	1'-5"	1'-7"		20
A661	2	15'-9"	Str.					47
A662	2	12'-0"	Str.					36
A663	1	21'-9"	108	18'-9"	1'-5"	1'-7"		33
A664	10	7'-3"	Str.					109
A665	5	4'-0"	Str.					30
A666	2	11'-0"	108	8'-0"	1'-5"	1'-7"		33
A667	1	7'-9"	Str.					12
A668	1	14'-0"	Str.					21
A669	1	36'-9"	Str.					55
A670	1	37'-9"	Str.					57
A671	1	6'-1"	126					9
A672	1	13'-4"	104	7'-9"	5'-9"			20
A673	6	4'-6"	108	2'-3"	1'-5"	1'-7"		41
A674	6	19'-0"	Str.					171
A675	6	27'-0"	Str.					243
A676	1	8'-3"	Str.					12
							Total Weight	11,420

* Included for payment in unit price bid for Item S-14.



BENDING DIAGRAMS

Notes:
For replacement bar list see sheet 141.
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.

Revised 1-19-59.

H.N.T.B. BRIDGE NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 6-W DETAILS
WESTBOUND EXPRESSWAY OVER NO.-SO. EXPRESSWAY
BR. NO. SUM.-18-1212 WB STA. 12+65.30
SCALE: AS NOTED STA. 16+20.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

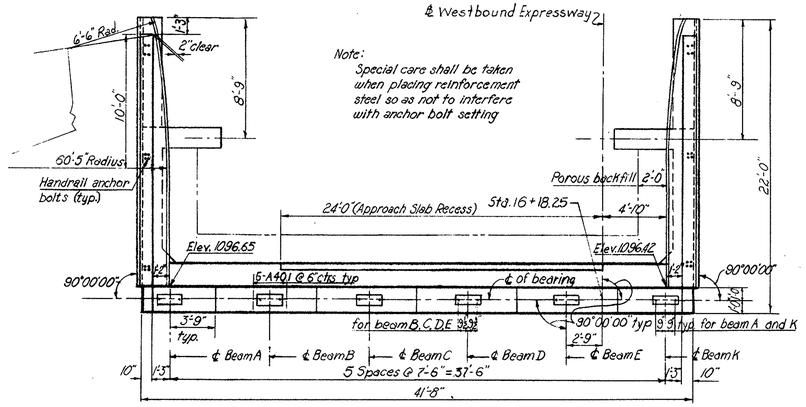
DRAWN W.R.K.	TRACED	CHECKED R.L.H.	REVIEWED J.T.	REVISED
DATE 2-8-58	DATE	DATE 7-1-58	DATE 9-11-58	1018 SHEET 159

MICROFILMED
NOV 27 1989

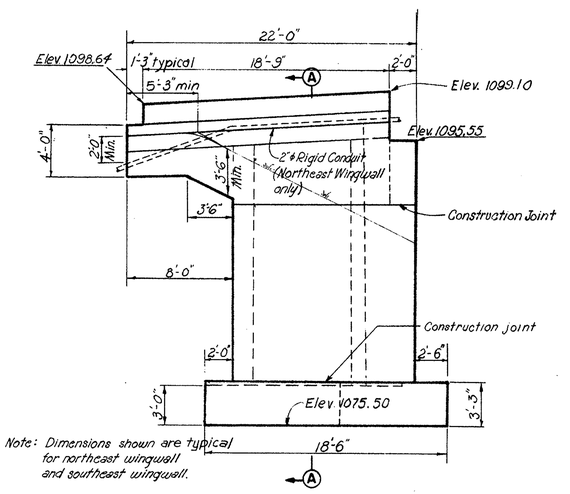
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		160 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note: Backwall elevations shown in plan are at back of L 6"x4"x3/4

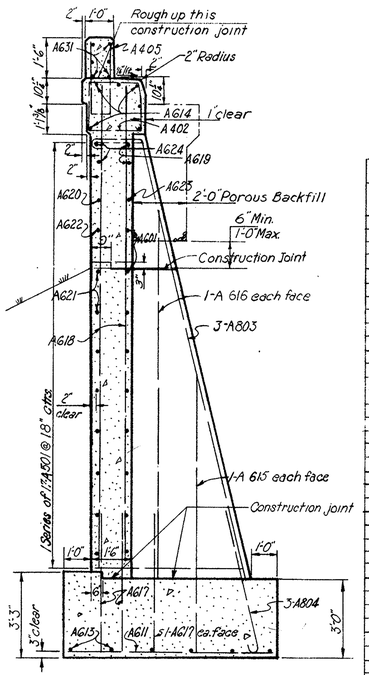


PLAN



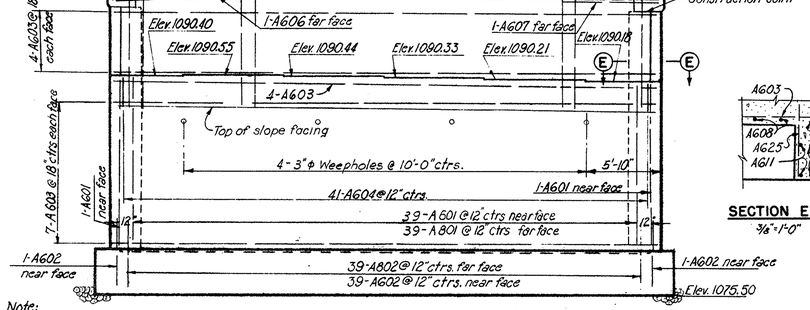
Note: Dimensions shown are typical for northeast wingwall and southeast wingwall.

NORTHEAST WINGWALL



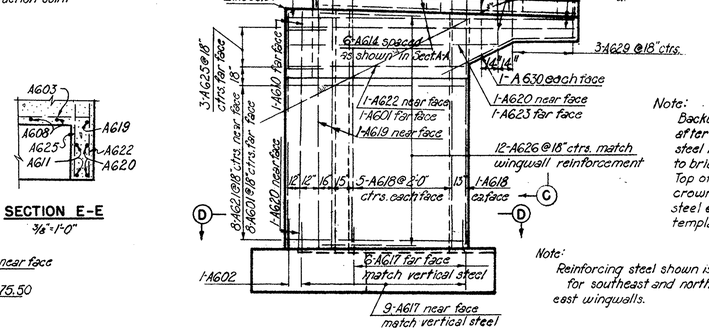
SECTION A-A

REINFORCEMENT SCHEDULE								
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INCRE.	WEIGHT POUNDS
A401	36	2'-8"	104	1'-9"	1'-2"			64
A402	20	7'-8"	124	1'-10"	2'-0"			103
A403	2 Ser. 6	7'-0" to 7'-8"	124	1'-6" to 1'-10"	1'-8" to 2'-0"		1 3/8"	64
A404	2 Ser. 5	5'-4" to 6'-10"	124	8" to 1'-5"	10" to 1'-7"		4 1/2"	48
A405	38	5'-11"	105	10"	2'-8"			130
A501	2 Ser. 17	6'-5" to 13'-11"	109	1'-10" to 8'-7"	1'-2"		5 3/8"	361
A601	59	11'-0"	Str.					976
A602	41	5'-10"	104	5'-0"	1'-0"			359
A603	27	41'-3"	Str.					1672
A604	41	5'-1"	105	3'-5"	1'-0"			313
A605	1	28'-0"	Str.					42
A606	1	10'-6"	Str.					16
A607	1	6'-6"	Str.					10
A608	16	18'-5"	109	1'-5"	7'-8"			443
A609	24	18'-8"	112					673
A610	44	7'-9"	Str.					512
A611	18	7'-6"	Str.					203
A612	6	43'-3"	Str.					390
A613	12	12'-0"	Str.					216
A614	12	19'-9"	Str.					356
A615	4	10'-0"	Str.					60
A616	4	14'-0"	Str.					84
A617	34	5'-0"	Str.					255
A618	24	17'-9"	Str.					640
A619	4	18'-0"	Str.					108
A620	6	16'-0"	Str.					144
A621	16	15'-5"	104	13'-2"	2'-0"			371
A622	2	13'-6"	Str.					40
A623	2	12'-6"	Str.					38
A624	4	21'-6"	Str.					129
A625	8	4'-10"	Str.					48
A626	24	7'-8"	125					276
A627	2	9'-6"	105	1'-2"	4'-4"			29
A628	2	10'-10"	105	1'-2"	5'-0"			33
A629	6	7'-4"	123					66
A630	4	10'-2"	108					30
A631	12	18'-6"	Str.					*
A801	39	11'-0"	Str.					1144
A802	39	6'-1"	104	5'-3"	1'-0"			634
A803	6	19'-3"	107					313
A804	6	6'-1"	101					97
							Total Weight	11510



ELEVATION

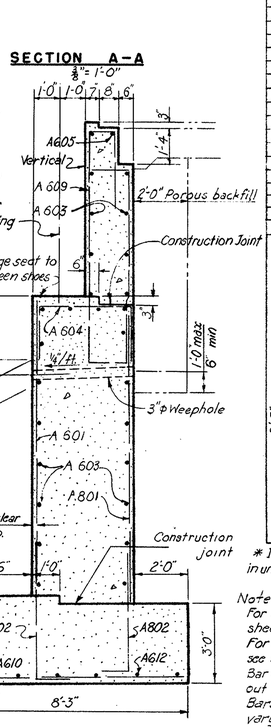
Note: Footings shall extend a minimum of 6 inches into solid rock. If the elevation of top of rock is found to be considerably higher or lower after excavation than shown on the plans; a new abutment design shall be provided.



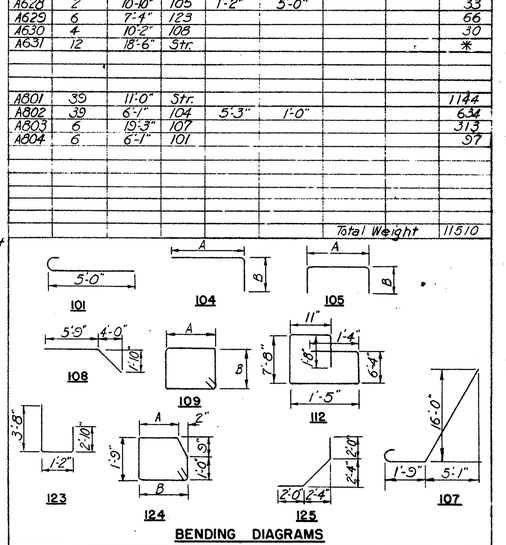
SOUTHEAST WINGWALL

Note: Backwall is to be poured after expansion joint steel has been attached to bridge superstructure. Top of backwall to follow crown of roadway. Use steel expansion joint for template.

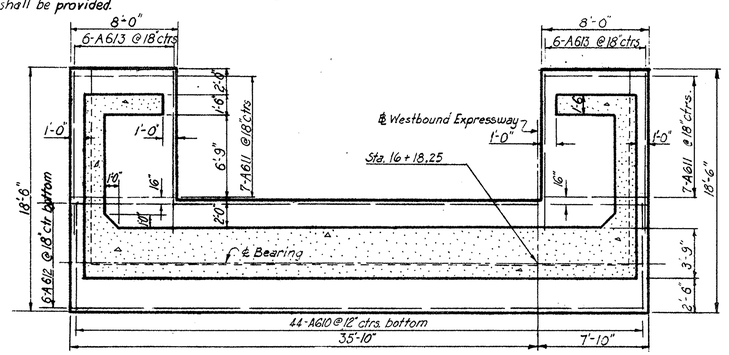
Note: Reinforcing steel shown is typical for southeast and northeast wingwalls.



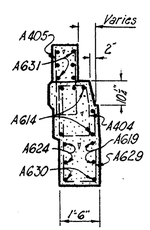
SECTION B-B



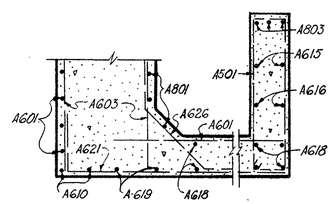
BENDING DIAGRAMS



FOOTING PLAN



SECTION C-C
3/8" = 1'-0"



SECTION D-D
3/8" = 1'-0"

* Included for payment in unit price bid for Item S-14.

Notes:
For handrail details see sheet 173.
For expansion joint details see sheet 136
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bars see sheet 141.

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 6-E
WESTBOUND EXPRESSWAY OVER NO.-SO. EXPRESSWAY
BR. NO. SUM.-18-1212 WB STA. 12+65.30
SCALE 1/16 = 1'-0" STA. 16+20.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

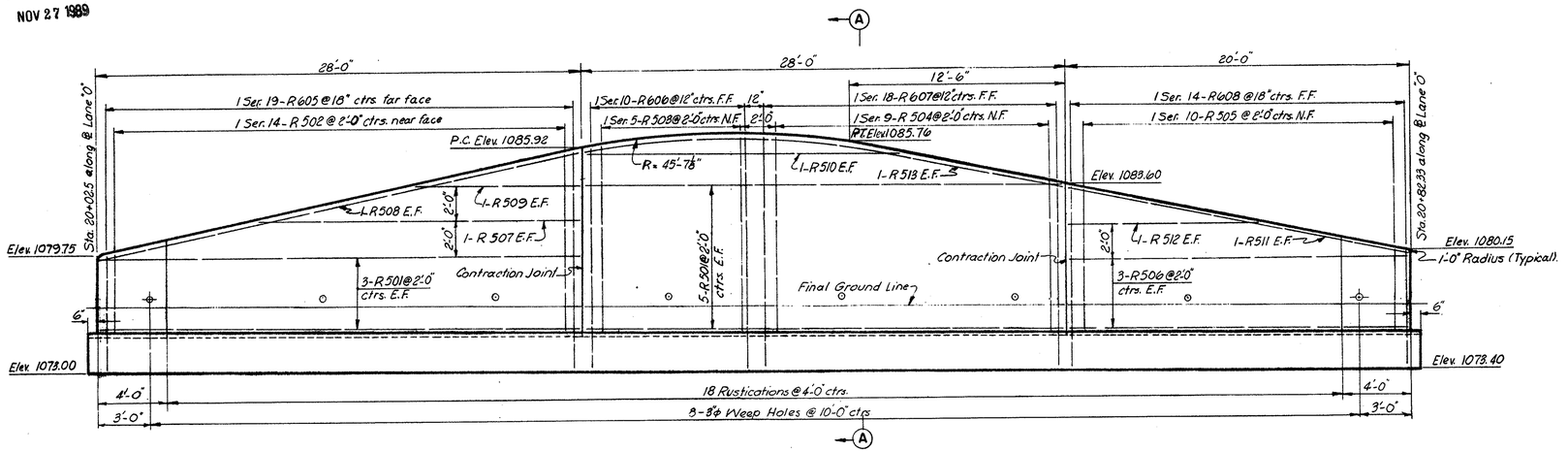
DRAWN P.C.S.	TRACED	CHECKED P.L.H	REVIEWED J.T	REVISED
DATE 1-30-58	DATE	DATE 6-19-58	DATE 9-11-58	1018 SHEET 160

MICROFILMED
NOV 27 1989

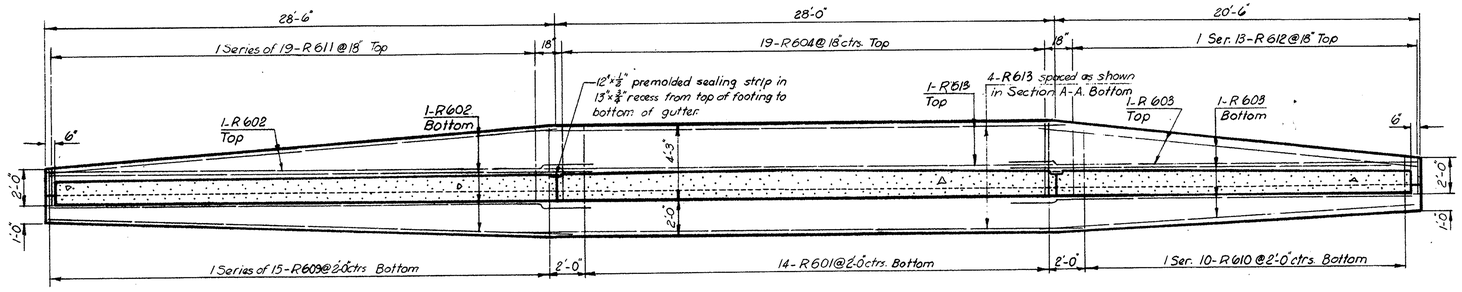
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

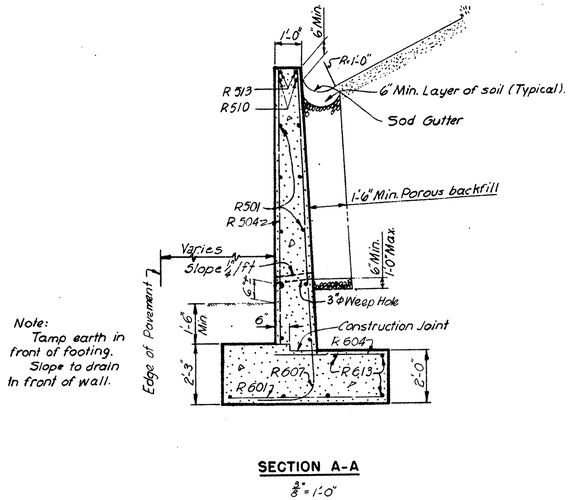
161
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.-8-11.65



ELEVATION

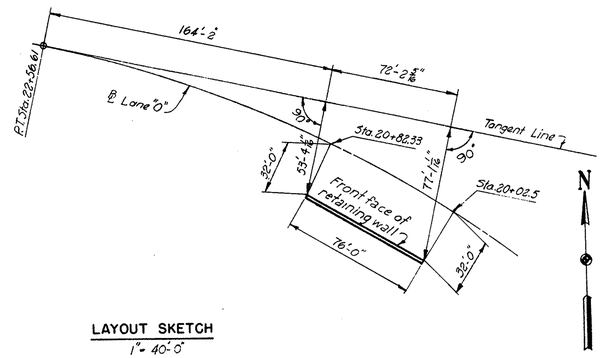




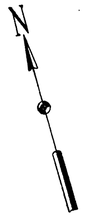
Note:
Tamp earth in front of footing.
Slope to drain in front of wall.

SECTION A-A
¾" = 1'-0"

FOOTING PLAN

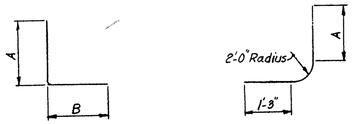


LAYOUT SKETCH
1" = 40'-0"



REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES	WEIGHT POUNDS
R501	16	27'-9"	Str.					464
R502	1 Ser. 14	4'-6" to 10'-3"	Str.				5⅝"	108
R503	1 Ser. 5	10'-3" to 11'-9"	Str.				9"	56
R504	1 Ser. 9	8'-0" to 11'-3"	Str.				4⅞"	91
R505	1 Ser. 10	4'-6" to 8'-0"	Str.				4 11/16"	65
R506	6	19'-9"	Str.					124
R507	2	18'-6"	Str.					39
R508	2	28'-3"	Str.					59
R509	2	9'-6"	Str.					20
R510	2	18'-3"	Str.					38
R511	2	20'-0"	Str.					42
R512	2	11'-3"	Str.					24
R513	2	28'-9"	Str.					60
R601	14	5'-9"	Str.					121
R602	6	30'-6"	Str.					275
R603	6	22'-6"	Str.					202
R604	19	4'-0"	Str.					114
R605	1 Ser. 19	7'-7" to 14'-10"	104	6'-3" to 12'-3"	1'-6 to 2'-9"		4¾"	320
R606	1 Ser. 10	13'-11" to 14'-2"	125	11'-1" to 11'-4"			15/16"	211
R607	1 Ser. 18	11'-8" to 13'-11"	125	8'-10" to 11'-1"			1 3/16"	345
R608	1 Ser. 14	7'-7" to 12'-4"	104	6'-3" to 9'-8"	1'-6 to 2'-9"		4 11/16"	210
R609	1 Ser. 15	2'-6" to 5'-9"	Str.				2⅝"	93
R610	1 Ser. 10	2'-6" to 5'-9"	Str.				4⅞"	62
R611	1 Ser. 19	2'-0" to 4'-0"	Str.				1⅝"	86
R612	1 Ser. 13	2'-0" to 4'-0"	Str.				2"	59
R613	6	28'-0"	Str.					252
							Total =	3540



BENDING DIAGRAM

Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
For replacement bars see sheet 141.

Notes:
For rustication detail see sheet 175.
Stationing is along ℄ Lane "0".
E.F. denotes each face
N.F. denotes near face
F.F. denotes far face.
Payment for Sod gutter is included in Roadway Item L-10.

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

RETAINING WALL ALONG LANE "0"
WESTBOUND EXPRESSWAY OVER
NO.-SO. EXPRESSWAY
BR. NO. SUM.-18-1212 WB STA. 12+65.30
SCALE: 1/4" = 1'-0" STA. 16+20.50
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.Z.D.	TRACED	CHECKED W.L.	REVIEWED J.T.	REVISED
DATE 3-20-58	DATE	DATE 8-26-58	DATE 9-11-58	1018 SHEET 161

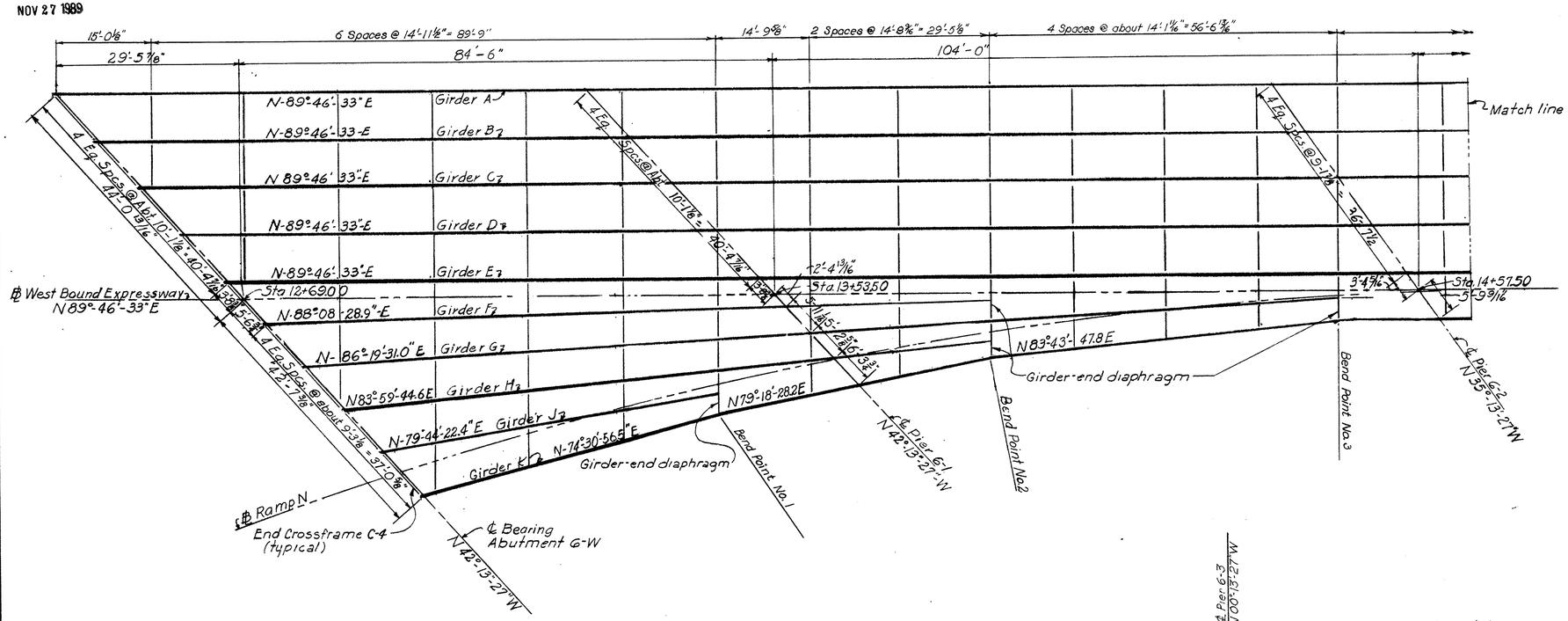
MICROFILMED
NOV 27 1989

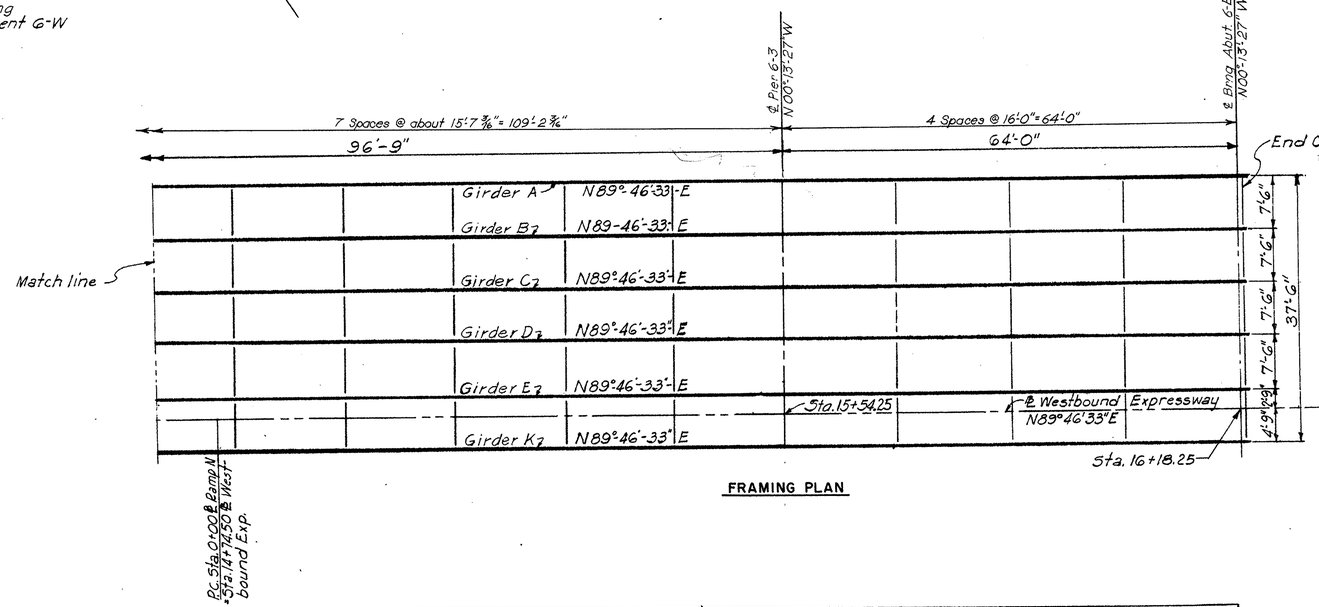
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

162
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note:
Bearings shown on framing plan are not true bearings.
See notes, Sheet 93.





FRAMING PLAN

Notes:
All intermediate crossframes are type C-1.
For details of intermediate crossframes, end crossframes and girder-end diaphragms, see Sheet 154.
For girder elevations see sheets 163 and 164.

TABLE OF GIRDER COORDINATES

Girder	Coord. Abutment G-W North	Coord. Abutment G-W East	Coord. Bend Point No.1 North	Coord. Bend Point No.1 East	Coord. Pier G-1 North	Coord. Pier G-1 East	Coord. Bend Point No.2 North	Coord. Bend Point No.2 East	Coord. Bend Point No.3 North	Coord. Bend Point No.3 East	Coord. Pier G-2 North	Coord. Pier G-2 East	Coord. Pier G-3 North	Coord. Pier G-3 East	Coord. Abutment G-E North	Coord. Abutment G-E East
A	20,106.11	19,730.89	———	———	20,106.44	19,815.38	———	———	———	———	20,106.87	19,925.94	20,107.34	20,045.62	20,107.59	20,109.62
B	20,098.63	19,737.67	———	———	20,098.97	19,822.17	———	———	———	———	20,099.39	19,931.22	20,099.84	20,045.65	20,100.09	20,109.65
C	20,091.16	19,744.45	———	———	20,091.49	19,828.95	———	———	———	———	20,091.91	19,936.50	20,092.34	20,045.68	20,092.59	20,109.68
D	20,083.69	19,751.23	———	———	20,084.02	19,835.73	———	———	———	———	20,084.43	19,941.78	20,084.84	20,045.71	20,085.09	20,109.71
E	20,076.21	19,758.01	———	———	20,076.54	19,842.51	———	———	———	———	20,076.95	19,947.06	20,077.34	20,045.74	20,077.59	20,109.74
F	20,069.35	19,764.24	———	———	20,072.03	19,846.61	*20,073.11	*19,880.00	———	———	———	———	———	———	———	———
G	20,062.49	19,770.47	———	———	20,067.64	19,850.60	———	———	*20,073.16	*19,936.57	———	———	———	———	———	———
H	20,055.63	19,776.69	———	———	20,063.78	19,854.10	*20,066.45	*19,880.03	———	———	———	———	———	———	———	———
J	20,048.77	19,782.92	*20,058.35	*19,835.83	———	———	———	———	———	———	———	———	———	———	———	———
K	20,041.92	19,789.14	20,054.85	19,835.84	20,059.10	19,858.34	20,063.20	19,880.04	20,069.41	19,936.59	20,069.47	19,952.34	20,069.84	20,045.77	20,070.09	20,109.77

*East end of girders "F"; "G"; "H"; & "J"

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FRAMING PLAN
WESTBOUND EXPRESSWAY OVER
NO.-SO. EXPRESSWAY

BR. NO. SUM-18-1212 WB STA. 12+65.30
SCALE: NONE STA. 16+20.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN JLD	TRACED	CHECKED KNM	REVIEWED JT	REVISED
DATE 12-11-57	DATE	DATE 6-18-58	DATE 9-8-58	1018 SHEET 162

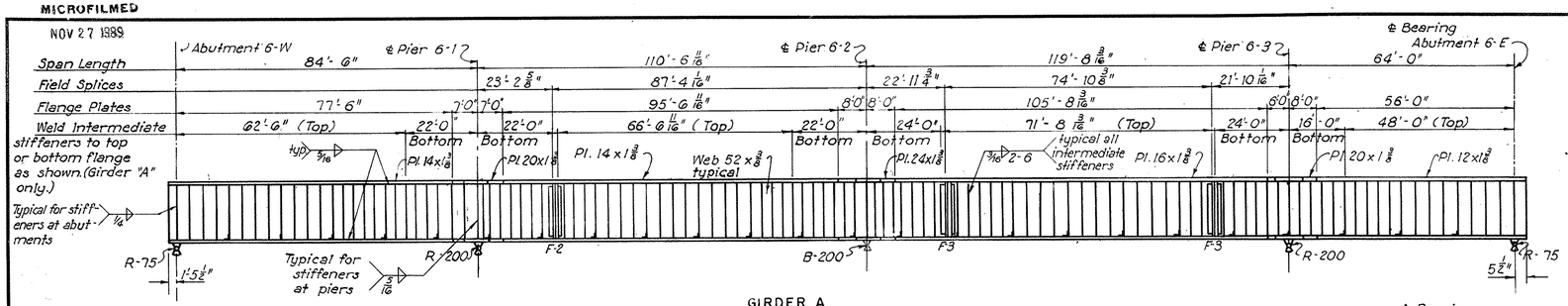
REDUCE TO 8½"

MICROFILMED
NOV 27 1989

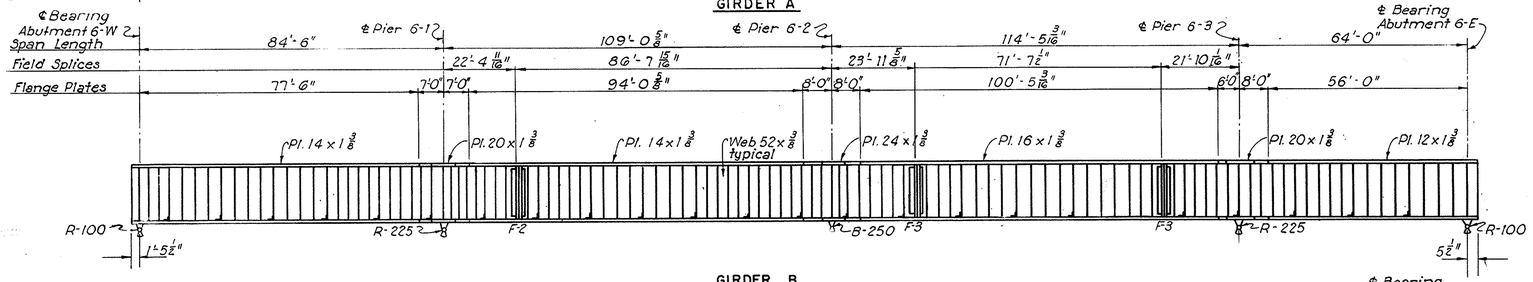
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

163
176

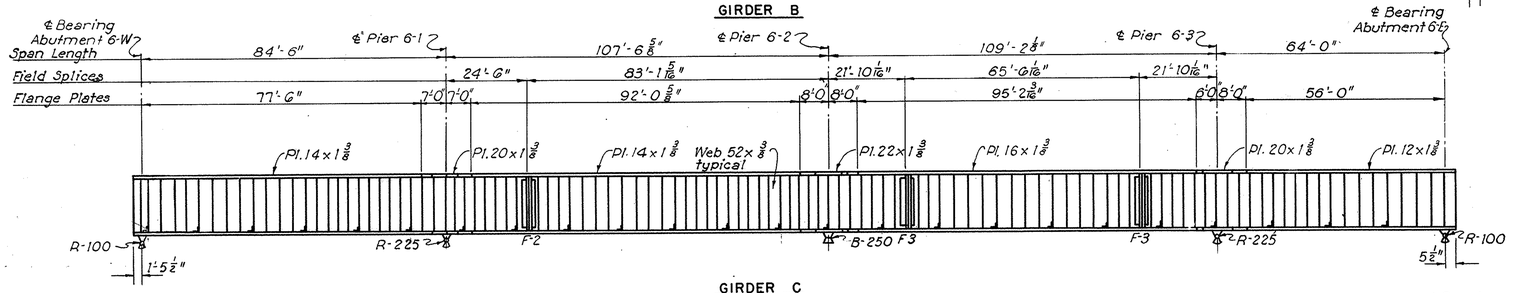
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM- 8 - 11.65



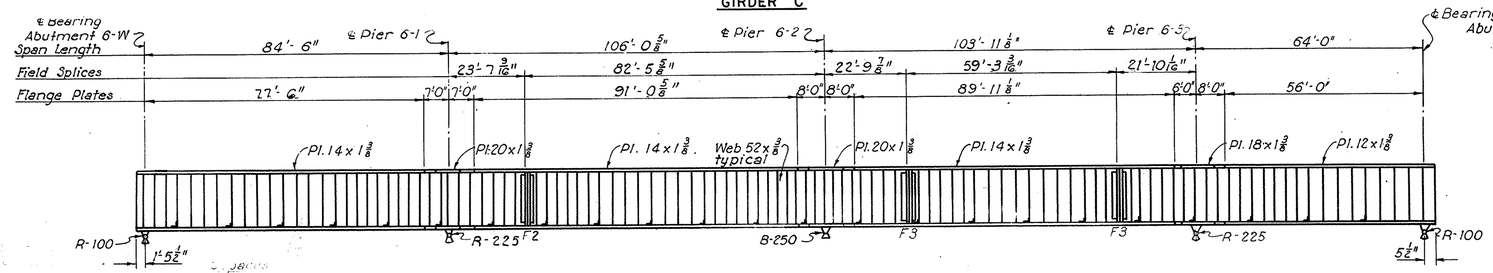
GIRDER A



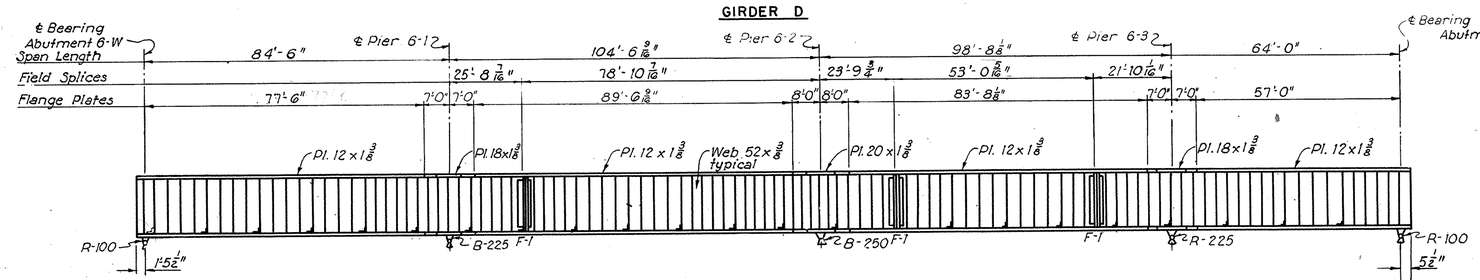
GIRDER B



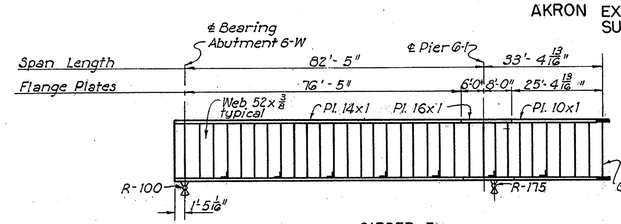
GIRDER C



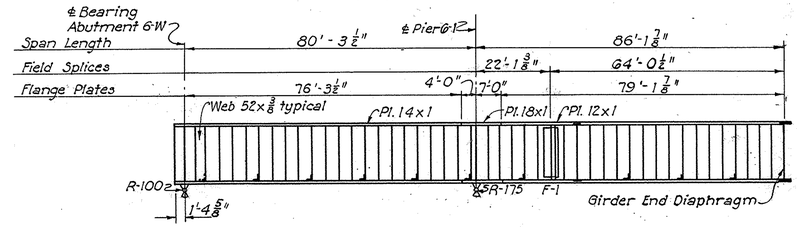
GIRDER D



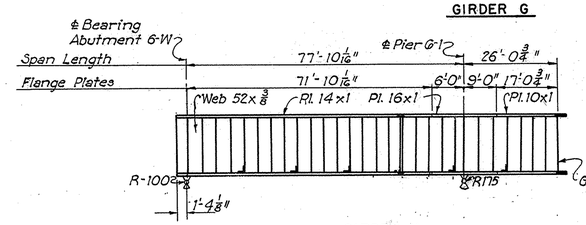
GIRDER E



GIRDER F



GIRDER G



GIRDER H

Notes:

Intermediate stiffeners shall be 5x3/8 plates, except L5x3 1/2x3/8 shall be used at all field splices. Intermediate stiffeners shall be in pairs on all interior girders and shall be used on inside only on exterior girders.

Bearing stiffeners shall be 2-5x1/2 plates at abutments and 2-7"x1 3/8" plates at piers.

The intermediate stiffeners on the exterior girders shall be welded to the flanges as shown on the girder elevations with a 5/16" fillet weld on both sides of the joints for a distance of 2 inches from outside edge of stiffener.

Intermediate stiffeners on the interior girders shall not be welded to the flanges but shall be fitted to the flanges in close enough contact that when shop paint is applied it will fill and close the openings.

The bearing stiffeners over piers and abutments shall be grooved and fully butt welded to the lower flange and fitted in close contact, without welding, at the upper flange.

The welding shown for Girder A is typical for all girders except as noted.

For other notes on girder welding see Sheet 154.

For girder details see Sheet 154.

For expansion joint details see Sheet 105 and 166.

Bottom and top flange plates are identical.

For rocker base plates see Sheet 130.

For other rocker and bolster details see Ohio Standard Drawing RB-1-55.

Sole plates at rockers and bolsters shall be beveled to grade at respective piers and abutments.

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GIRDER ELEVATIONS

WESTBOUND EXPRESSWAY OVER
NO.- SO. EXPRESSWAY
BR.NO. SUM.- 18 - 1212 WB STA. 12+65.30
NO SCALE STA. 16+20.50

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN A.L.H.	TRACED B.S.L.	CHECKED KAM	REVIEWED J.T.	REVISED
DATE 2-13-58	DATE 3-4-58	DATE 7-3-58	DATE 9-8-58	1018 SHEET 163

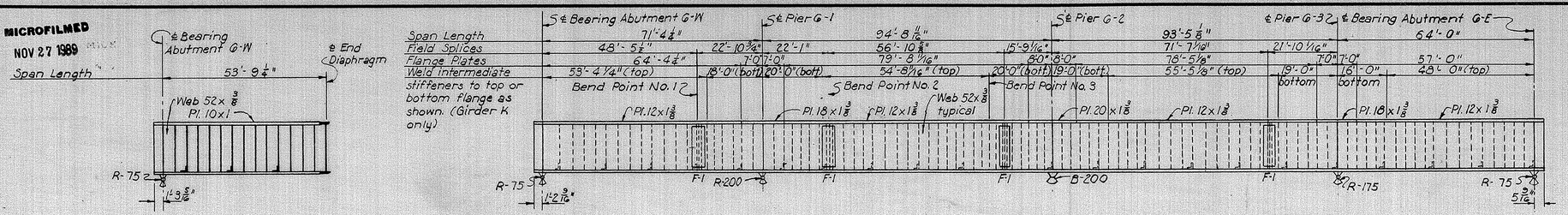
MICROFILMED
NOV 27 1989

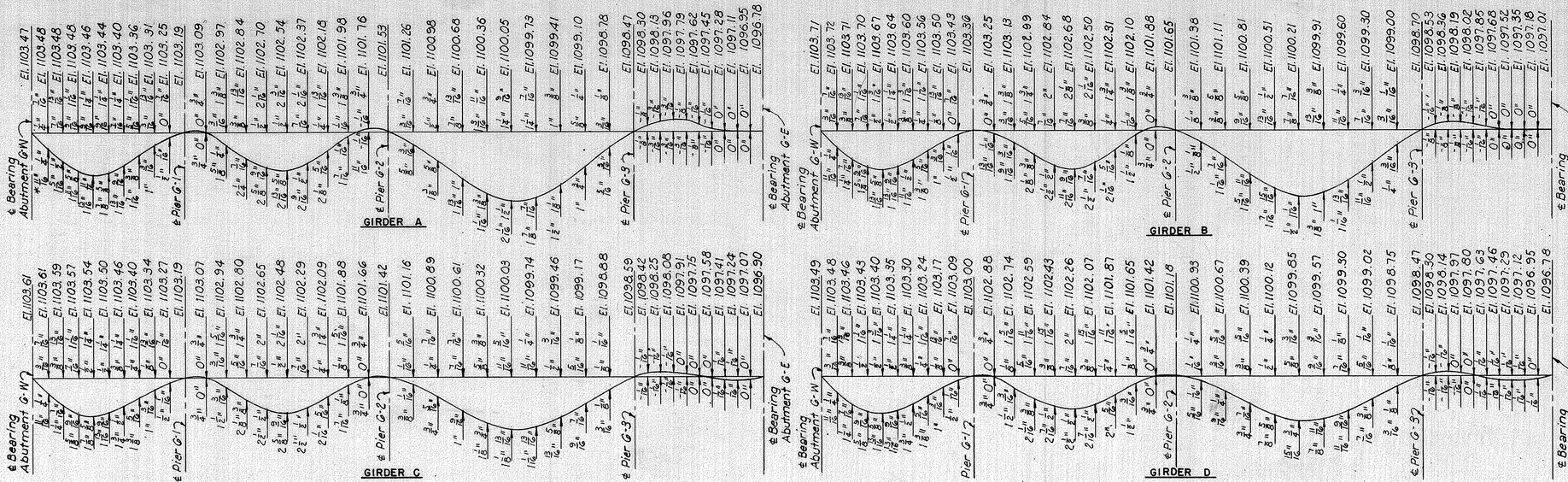
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

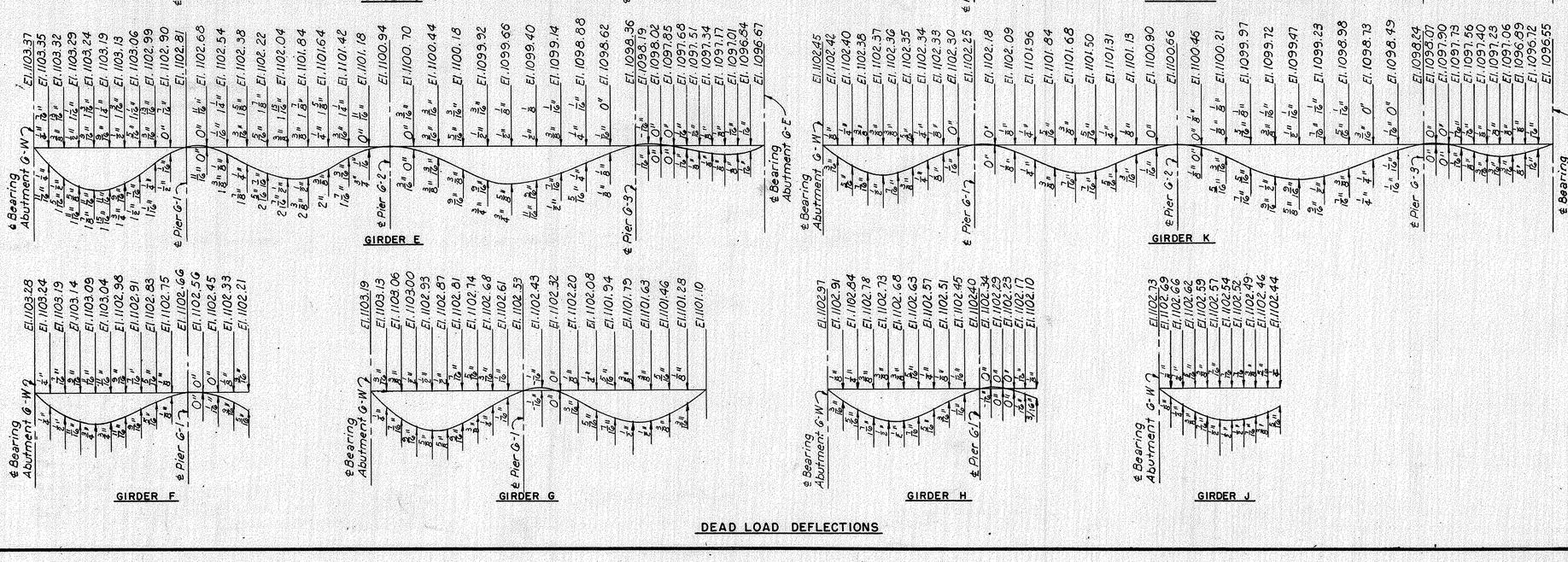
164
176

SUMMIT COUNTY
CITY OF AKRON

AKRON EXPRESSWAY SYSTEM
SUM-8-11.65







DEAD LOAD DEFLECTIONS

Notes:

The elevations given in the deflection diagrams are top of finished wearing surface along ℄ girders and are given at one tenth span points between bearings unless shown otherwise. The girders under full dead load shall parallel these elevations by being fabricated to lines parallel to profiles formed by the given elevations plus additional camber equal to the amount of the anticipated dead load deflections.

The thickness of the floor, including concrete slab and wearing surface, over each beam at the beam supports is given on Sheet 166.

The allowance to be made in screed setting to compensate for the deflections due to the dead load weight of the concrete and wearing surface are to be made above the elevation shown for finished wearing surfaces. Screeds may require further adjustments due to irregularities in the fabricated steel. At the edge of roadway slabs the bulb angles will serve as screeds.

The first value shown above the base line is the dead load deflection due to concrete and wearing surface. The other value shown above the base line is the convexity correction. The first value shown below the base line is the total dead load deflection. The other value shown below the base line is the total dead load deflection plus the convexity correction.

For additional notes see Sheets 154 and 163.
For girder details see Sheet 154.

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GIRDER ELEVATIONS AND DEFLECTIONS

WESTBOUND EXPRESSWAY OVER
NO.-SO. EXPRESSWAY

BR. NO. SUM-18-1212 WB STA. 12+65.30
SCALE: NONE STA. 16+20.50

AKRON EXPRESSWAY SYSTEM

AKRON SUMMIT COUNTY OHIO

DRAWN S.L.	TRACED	CHECKED D.L.H.	REVIEWED J.T.	REVISED
DATE 7-13-58	DATE	DATE 8-1-58	DATE 9-8-58	1018 SHEET 164

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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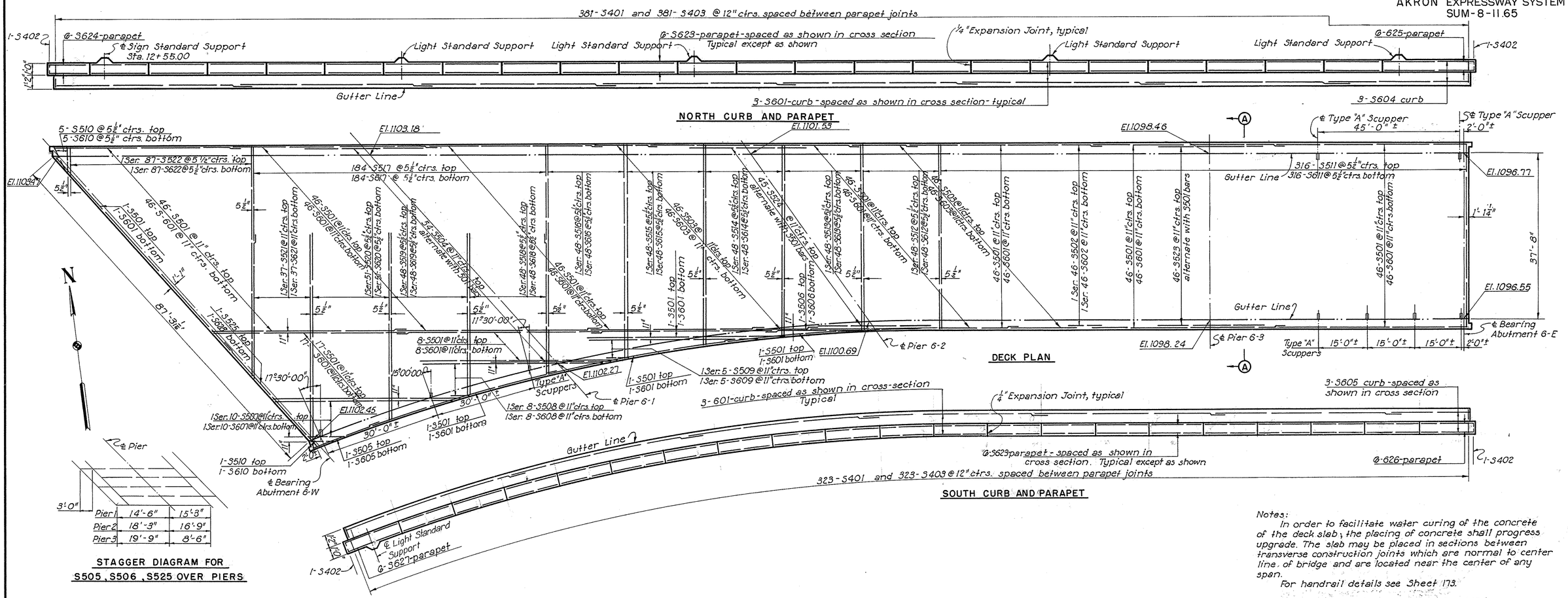
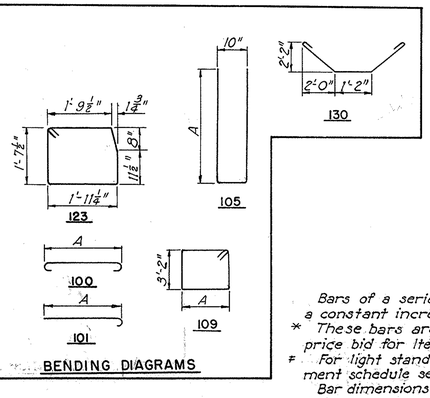
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMEN. A	SER. INC.	WEIGHT LBS.	MARK	NO.	LENGTH	TYPE	DIMEN. A	SER. INC.	WEIGHT LBS.	MARK	NO.	LENGTH	TYPE	DIMEN. A	SER. INC.	WEIGHT LBS.
3501	308	52'-0"	Str.			16,596	3524	45	35'-0"	Str.			1,643	3617	184	23'-3"	Str.			6,426
3502	1 Ser 46	16'0" to 51'9"	Str.		9½"	1,625	3525	1	27'-0"	Str.			28	3618	1 Ser 48	30'9" to 35'3"	Str.		1 1/8"	2,379
3503	92	15'-9"	Str.			1,511								3619	1 Ser 48	35'3" to 40'9"	Str.		1 3/4"	2,740
3504	54	29'-9"	Str.			1,676								3620	1 Ser 5	40'9" to 45'6"	Str.		1 3/16"	3,303
3505	1	23'-3"	Str.			24								3621	1 Ser 37	26'6" to 45'9"	Str.		6 1/16"	2,007
3506	1	17'-0"	Str.			18								3622	1 Ser 87	4'9" to 47'6"	Str.			3,413
3507	1 Ser 10	8'6" to 46'0"	Str.		4'2"	284								3623	246	15'-9"	Str.			5,819
3508	68	6'6" to 44'0"	Str.	5'-4 14/16" - 5'5 1/16"		211	3601	345	52'-0"	Str.			26,947	3624	6	11'-9"	Str.			*
3509	1 Ser 5	7'0" to 43'0"	Str.		9'-0"	130	3602	1 Ser 46	16'-3" to 52'-0"	Str.		9 9/16"	2,358	3625	6	18'-3"	Str.			*
3510	6	5'-0"	Str.			31	3603	92	15'-9"	Str.			2,176	3626	6	10'-3"	Str.			*
3511	316	43'-0"	100	41'-10"		14,171	3604	3	30'-0"	Str.			135	3627	6	9'-6"	Str.			*
3512	1 Ser 48	43'-0" to 43'-4"	100	41'0" to 42'2"	1/16"	2,161	3605	4	23'-6"	Str.			141	3628	1	27'-6"	Str.			41
3513	1 Ser 46	43'-4" to 44'-6"	100	42'2" to 43'4"	5/16"	2,199	3606	1	17'-3"	Str.			26	3667	2	10'-2"	109	1'-8"		31
3514	1 Ser 48	44'-6" to 46'-8"	100	43'-4" to 45'-6"	9/16"	2,282	3607	1 Ser 10	8'-6" to 46'-0"	Str.		4'-2"	409	3668	5	3'-11"	101	3'-2"		29
3515	1 Ser 48	46'-8" to 49'-6"	100	45'-6" to 48'-4"	3/4"	2,407	3608	1 Ser 8	6'-6" to 44'-6"	Str.			306	3669	3	11'-2"	109	2'-2"		50
3516	1 Ser 48	49'-6" to 53'-2"	100	48'-4" to 52'-0"	15/16"	2,570	3609	1 Ser 5	7'-0" to 43'-0"	Str.		9'-0"	188	3670	7	8'-4"	130			88
3517	184	23'-7"	101	23'-0"		4,525	3610	6	5'-0"	Str.			45							
3518	1 Ser 48	31'-4" to 35'10"	101	30'9" to 35'3"	1 1/8"	1,681	3611	316	41'-9"	Str.			19,815	3401	704	7'-6"	123			3,549
3519	1 Ser 48	35'10" to 41'-3"	101	35'3" to 40'9"	1 3/8"	1,929	3612	1 Ser 48	41'9" to 42'0"	Str.		1/16"	3,019	3402	4	6'-11"	105	3'-2"		19
3520	1 Ser 5	41'-3" to 46'4"	101	40'9" to 45'6"	1 7/16"	2,323	3613	1 Ser 48	42'3" to 43'-3"	Str.		1/4"	3,082	3403	704	4'-11"	105	2'-2"		2,314
3521	1 Ser 37	27'-1" to 46'-4"	101	26'6" to 45'9"	1 5/16"	1,416	3614	1 Ser 46	43'-3" to 45'-8"	Str.		5/8"	3,200	* Light Standard Supports =						1,000
3522	1 Ser 87	5'-5" to 48'0"	101	4'10" to 47'6"		2,424	3615	1 Ser 48	45'6" to 48'-3"	Str.		11/16"	3,380							
3523	45	28'-3"	Str.			1,326	3616	1 Ser 48	48'3" to 52'-0"	Str.		13/16"	3,614					Total		167,240

40'-8" to 45'-6"
26'-6" to 45'-9"



Bars of a series shall vary by a constant increment.
* These bars are included in unit price bid for Item 3-14.
\# For light standard support reinforcement schedule see Sheet 174.
Bar dimensions are given out to out.

Notes:
In order to facilitate water curing of the concrete of the deck slab; the placing of concrete shall progress upgrade. The slab may be placed in sections between transverse construction joints which are normal to center line of bridge and are located near the center of any span.
For handrail details see Sheet 173.
For bridge lighting details see Sheet 174.
For expansion joint details see Sheet 166.
Scupper spacing shall be adjusted to fit between transverse steel.
For Section A-A see Sheet 166.
For detail and location of parapet expansion joints see Sheet 173.
For scupper details see Sheet 154.
For typical section thru construction joint see Sheet 104.
For location of details of light standard support see Sheet 174.
For details of sign standard support see Sheet 166.

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK PLAN
WESTBOUND EXPRESSWAY OVER NO-SO. EXPRESSWAY
BR. NO. SUM-18-1212 WB STA. 12+65.30
SCALE: NONE STA. 16+20.50
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN A.M.M.	TRACED B.S.L.	CHECKED KAW	REVIEWED J.T.	REVISED
DATE 1-29-58	DATE 4-8-58	DATE 5-24-58	DATE 9-8-58	1018 SHEET 165

Revised 1-19-59.

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

166
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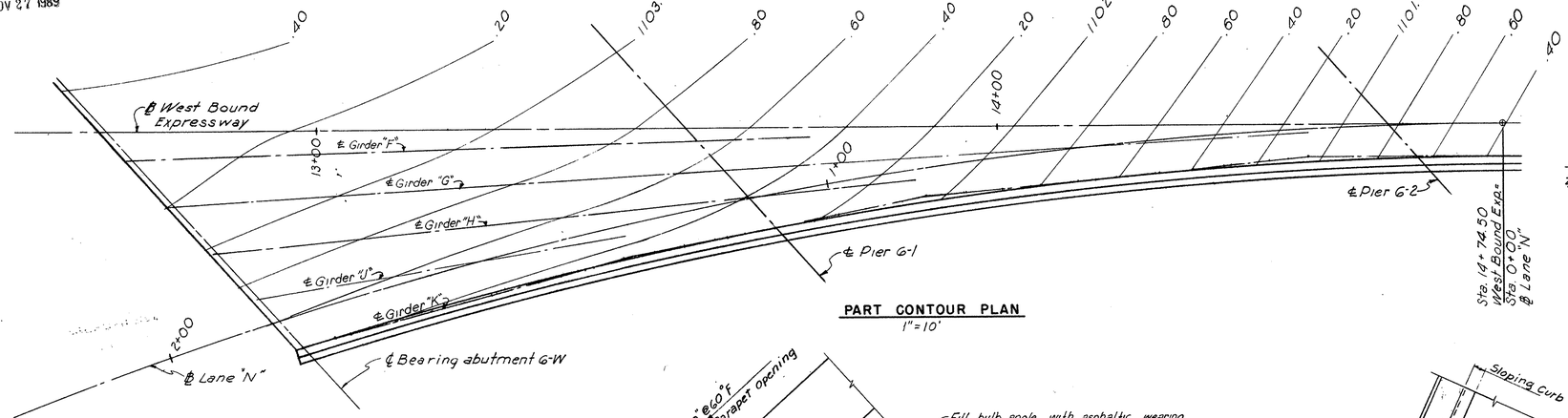
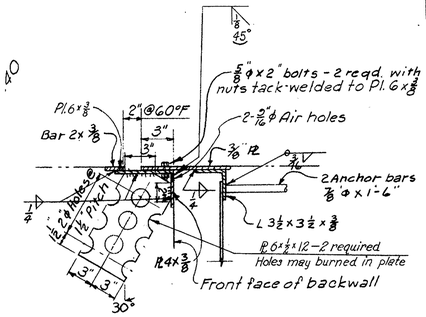
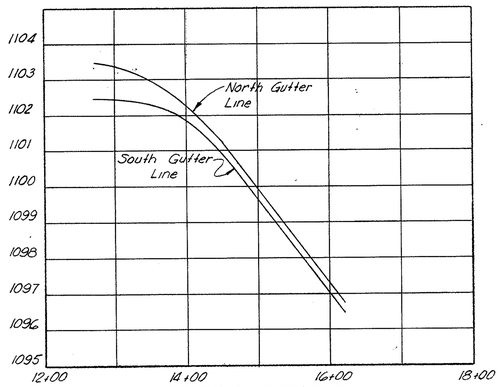
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



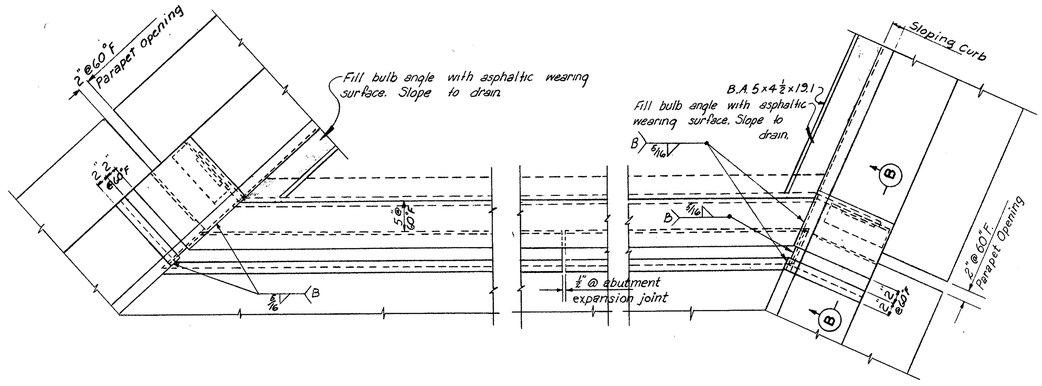
PART CONTOUR PLAN
1" = 10'



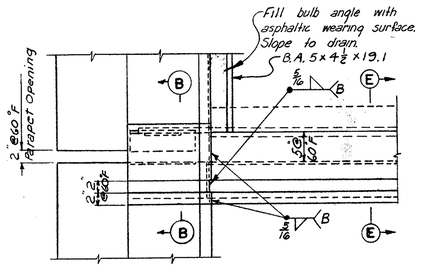
SECTION B-B
1½" = 1'-0"



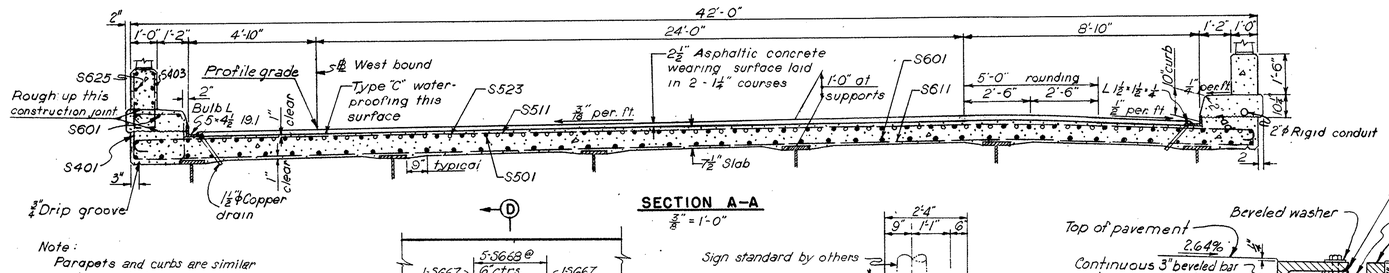
GUTTER LINE PROFILES
H: 1" = 100'-0"
V: 1" = 2'-0"



PART PLAN EXPANSION JOINT AT ABUTMENT 6-W
1" = 1'-0"

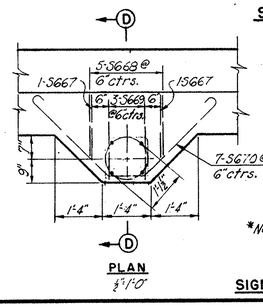


PART PLAN EXPANSION JOINT AT ABUTMENT 6-E
1" = 1'-0"

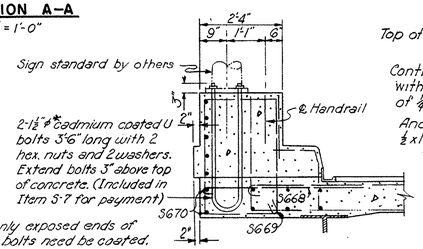


SECTION A-A
⅜" = 1'-0"

Note:
Parapets and curbs are similar except as noted.



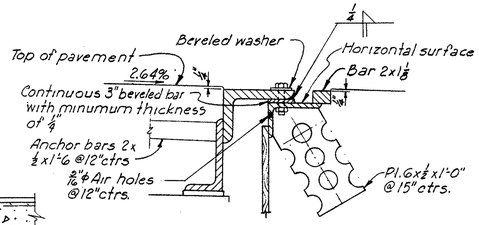
PLAN
½" = 1'-0"



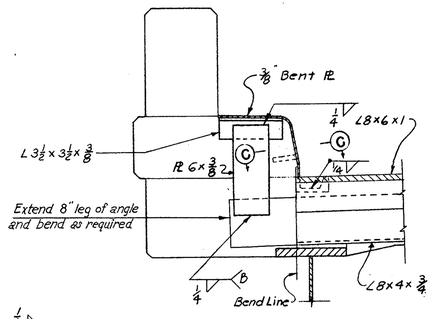
*Note: Only exposed ends of U bolts need be coated.

SECTION D-D
½" = 1'-0"

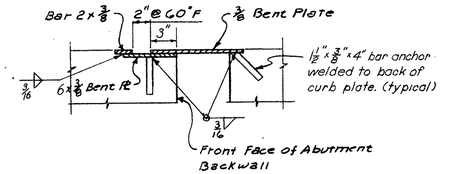
SIGN STANDARD SUPPORT DETAIL



SECTION E-E
1½" = 1'-0"



DETAIL OF END FINISH AT CURB
1" = 1'-0"



SECTION C-C
1½" = 1'-0"

Notes:
For location of section A-A see sheet 165.
For section thru roadway expansion joint at Abutment G-W see sheet 105
For additional notes concerning roadway and curb expansion joints see sheet 105

H.N.T.B. BR. NO. 6 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

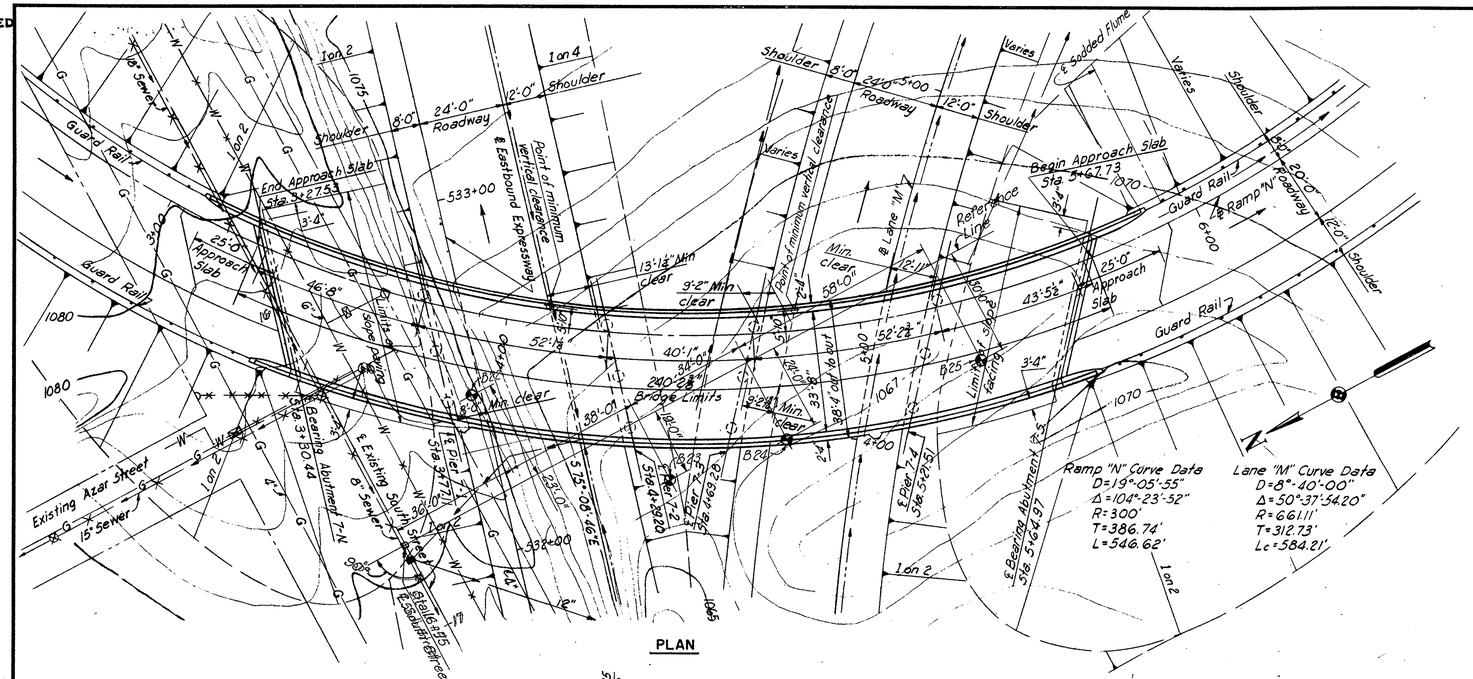
DECK DETAILS
WESTBOUND EXPRESSWAY OVER NO. - SO. EXPRESSWAY

BR. NO. SUM-18-1212 WB STA. 12 + 65.30
SCALE: AS SHOWN STA. 16 + 20.50

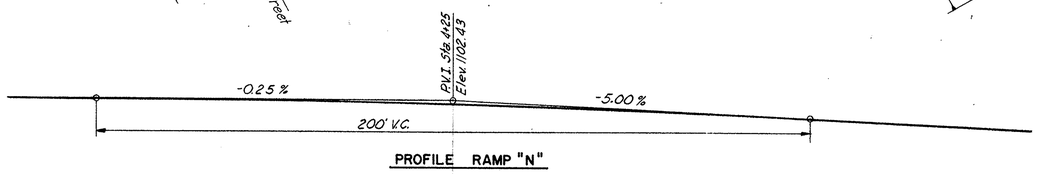
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
ABG RNW		PLH	JT	
DATE 6-18-58	DATE	DATE 7-25-58	DATE 9-8-58	1018 SHEET 166

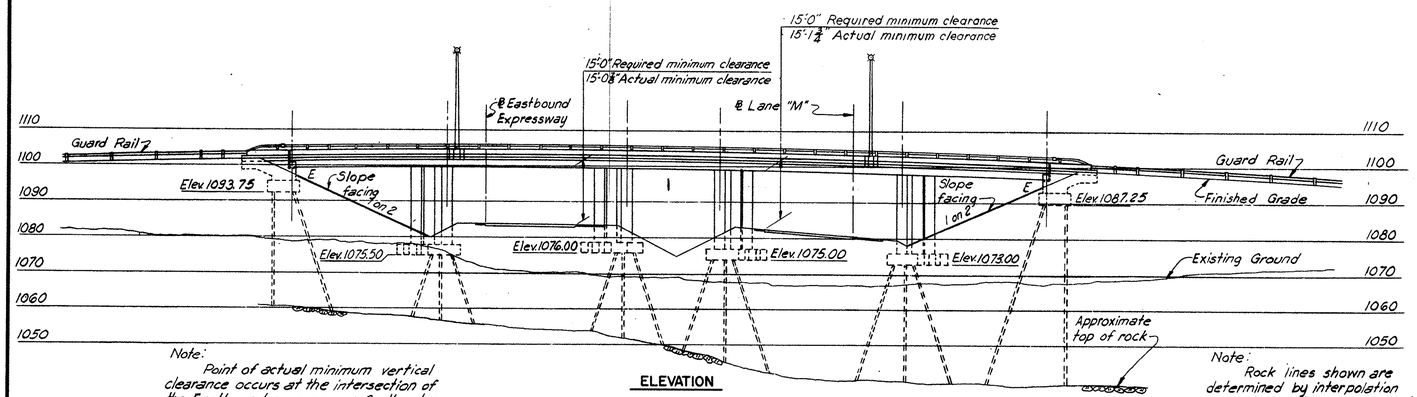
MICROFILMED
NOV 27 1989



PLAN



PROFILE RAMP "N"



ELEVATION

Note:
Point of actual minimum vertical clearance occurs at the intersection of the Eastbound expressway South edge and the East edge of Ramp "N" slab.

Note:
Rock lines shown are determined by interpolation of borings and are approximate only.

Ramp "N" Curve Data
D=19°-05'-55"
Δ=104°-23'-52"
R=300'
T=386.74'
L=546.62'

Lane "M" Curve Data
D=8°-40'-00"
Δ=50°-37'-54.20"
R=661.11'
T=312.73'
Lc=584.21'

LEGEND

- Existing Manhole
- Existing Inlet
- Sewer Lines to be abandoned or removed.
- Existing Gas Lines
- Existing Hydrant or Valve
- Water Lines to be abandoned or removed.
- New Sewer
- New Manhole
- New Underdrain
- Boring

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

ESTIMATED QUANTITIES

Item	Description	Unit	Abut-ments	Piers	Super-structure	General	Total
E-2	Cofferdams, Cribs and Sheeting	Lump Sum					Lump Sum
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	190	295			485
S-1	Class "C" Concrete (Superstructure)	Cu. Yd.			715		715
S-1	Class "C" Concrete (Pier Columns)	Cu. Yd.		65			65
S-1	Class "E" Concrete (Stub Abutments)	Cu. Yd.	80				80
S-1	Class "E" Concrete (Footings)	Cu. Yd.	70	110			180
S-3	Type "C" Waterproofing	Sq. Yd.			860		860
S-4	Reinforcing Steel	Lbs.	8,570	42,700	207,430		258,700
S-9	Structural Steel Expansion Joint	Lbs.			8300		8300
S-9	1/4" Rolled Phosphor Bronze Sliding Plates	Lbs.			280		280
S-14	Aluminum Handrail (Including Parapet)	Lin. Ft.	59		446		505
S-16	First Test Pile	Lump Sum					Lump Sum
S-18	Steel Bearing Piles (12 BP 53)	Lin. Ft.	1385	1895			3280
S-25	2" ϕ Rigid Metal Conduit	Lin. Ft.	34		236		270
S-29	Porous Backfill	Cu. Yd.	23				23
S-29	Subdrainage for Wearing Surface Course	Lin. Ft.			465		465
T-35	2 1/2" Asphaltic Concrete Surface Course Type C (60-70)	Cu. Yd.			59		59
S-29	4" W. I. Scuppers	Each			22		22
S-29	Slope Facing (S-29.05 type)	Cu. Yd.	165				165
S-25	Standards, 24'x 9 3/8" pole with 10'-0" bracket ①	Each			2		2
S-25	Electrical equipment	Lump sum					Lump sum

① These quantities are not included in the summary of lighting on sheet 24 of the highway plans.

Notes:
The following items are not included in the bridge plans. See Roadway Plans for details.
Removal of existing pavements, etc.
Relocation or removal of existing utilities.
Approach grading, pavements, and slabs.
Guard rails.

All piles to be 12 BP 53 with an estimated average vertical length of 30'-0" for Abutment 7-N, Pier 7-3, and Pier 7-4, 20'-0" for Pier 7-1, 25'-0" for Pier 7-2, and 50'-0" for Abutment 7-S. These estimates are based on boring data and are approximate only. The contractor shall assume full responsibility for lengths of piling selected for driving.

Boring information, logs and samples of materials encountered may be examined at the Division Office in Ravenna, Ohio, and at the Bridge Bureau Office at Columbus, Ohio, but the State does not guarantee these borings to present a complete picture of subsurface conditions to be encountered.

Foundation design and foundation quantities are based on a study of the borings.

The slope facing (S-29.05 type) shall be 12" thick and shall be placed within the limits shown on the plan of the structure.

PROPOSED STRUCTURE

Type: Five span continuous slab bridge with reinforced concrete deck and substructure.
Spans: 46'-8", 52'-1 1/2", 40'-1", 52'-2 3/8", and 43'-5 1/2" = 234'-6 3/8" ctr. to ctr. end bearings.
Rdwy. 33'-8" ± 1'-2" safety curbs.
Loading: CF 2000 (Adequate for A.A.S.H.O. alternate loading.
Skew: Varies 32°-00'-51.24" to 36°-15'-54.02"
Surface Course: 2 1/2" Asphaltic concrete.
Approach Slabs: AS-1-54 (25'-0" long.

H.N.T.B. BR. NO. 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

SITE PLAN

EASTBOUND EXPRESSWAY UNDER RAMP "N"
BR. NO. SUM-18-1206 STA. 3+27.53
SCALE: 1"= 20' STA. 5+67.73

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

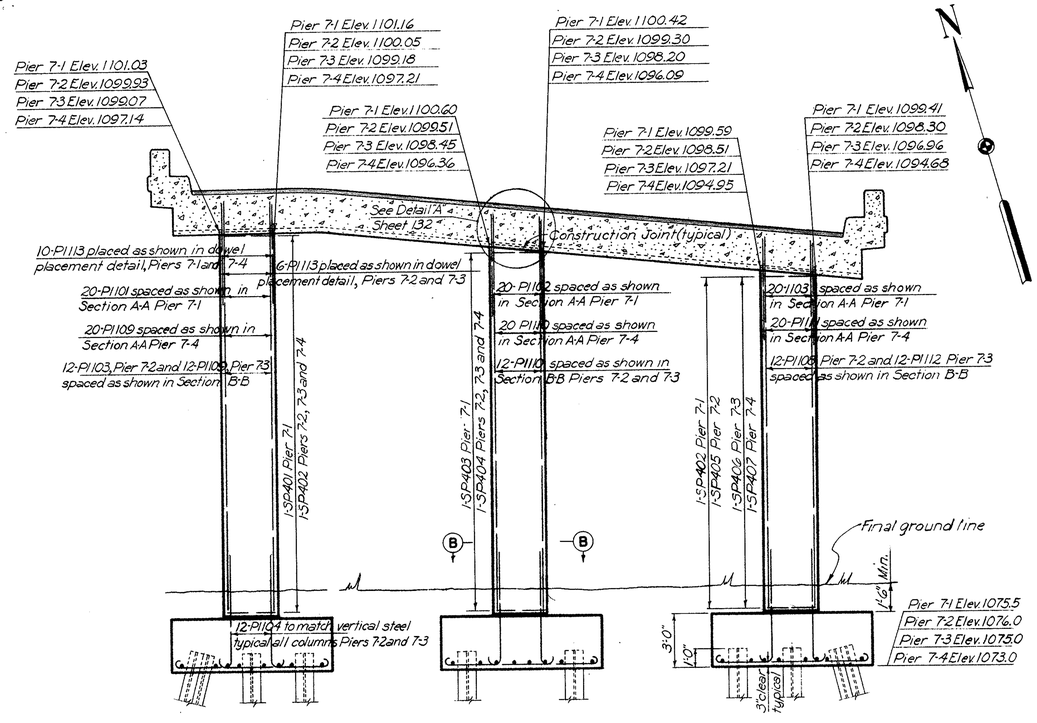
DRAWN S.M.A.	TRACED	CHECKED W.L.	REVIEWED J.T.	REVISED
DATE 1-27-58	DATE	DATE 8-29-58	DATE 9-8-58	10-8 SHEET 167

MICROFILMED
NOV 27 1989

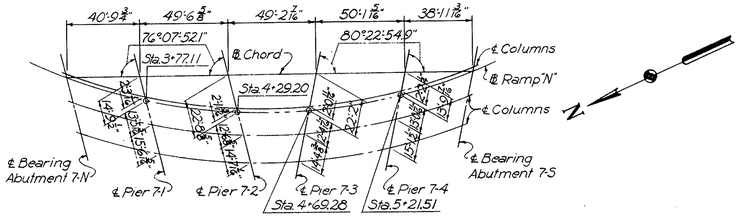
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.		
2	OHIO			

168
176

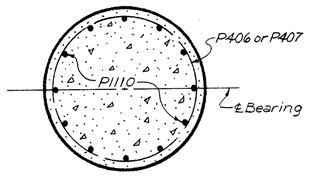
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



ELEVATION
$\frac{1}{4}$"=1'-0"



PIER LAYOUT
No Scale

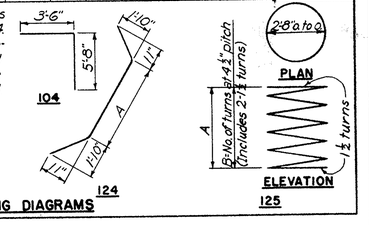


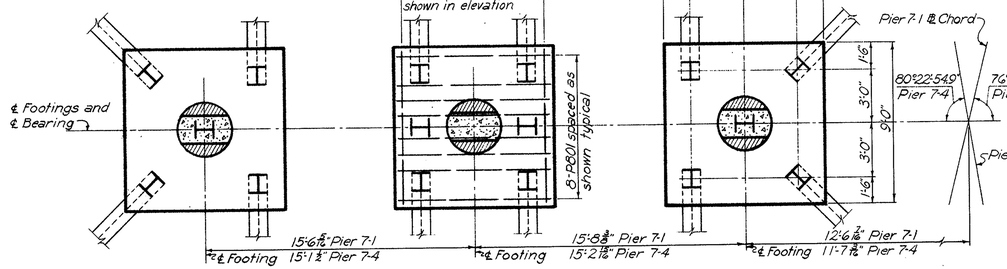
SECTION B-B
$\frac{1}{4}$"=1'-0"

Note: Section B-B is typical for all columns Piers 7-2 and 7-3 except for bar marks.

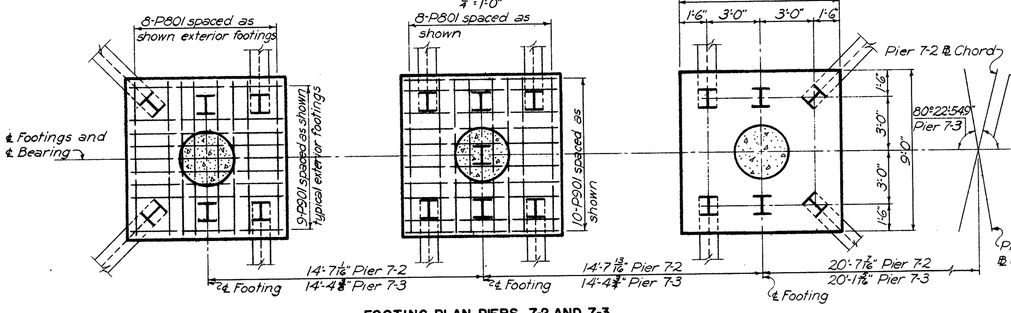
MARK	NUMBER PIER 7-1	NUMBER PIER 7-2	NUMBER PIER 7-3	NUMBER PIER 7-4	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	WEIGHT POUNDS PIER 7-1	WEIGHT POUNDS PIER 7-2	WEIGHT POUNDS PIER 7-3	WEIGHT POUNDS PIER 7-4
SP401	1				519'-7"	125	22'-6	63	347			
SP402	1	1	1	1	486'-7"	125	21'-0	59	325	325	325	325
SP403	1				511'-4"	125	22'-2	62	342			
SP404		1	1	1	470'-1"	125	20'-3	57		322	322	322
SP405		1			553'-7"	125	19'-6	55		303		
SP406			1		445'-4"	125	19'-2	54			298	
SP407				1	437'-1"	125	18'-9	53				292
P801	48	24	24	48	10'-8"	100			1366	683	683	1366
P901		28	28		11'-0"	100				1047	1047	
P1101	20				24'-3"	Str.			2589			
P1102	20				23'-9"	Str.			2524			
P1103	20	12			22'-9"	Str.			2410	1451		
P1104		36	36		7'-10"	101				1499	1499	
P1105	12			12	9'-6"	124	5'-6"		606			606
P1106	6			6	9'-0"	124	5'-0"		287			287
P1107	6			6	7'-0"	Str.			223			223
P1108		12			21'-3"	Str.				1355		
P1109			12	20	23'-0"	Str.					1468	2444
P1110		12	12	20	22'-0"	Str.				1402	1402	2337
P1111				20	20'-6"	Str.						2177
P1112			12		20'-9"	Str.					1323	
P1113	30	18	18	30	6'-1"	104			1421	853	853	1421
								Totals	12,440	9,240	9,220	11,800

Spiral Reinforcement shall not have deformations but shall in other respects conform to Item S-4. Four steel channel, tee or angle spacers, weighing approximately 0.681bs. per linear foot, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The weight of these spacers will be added to the weight of the spiral bars and paid for as reinforcing steel.

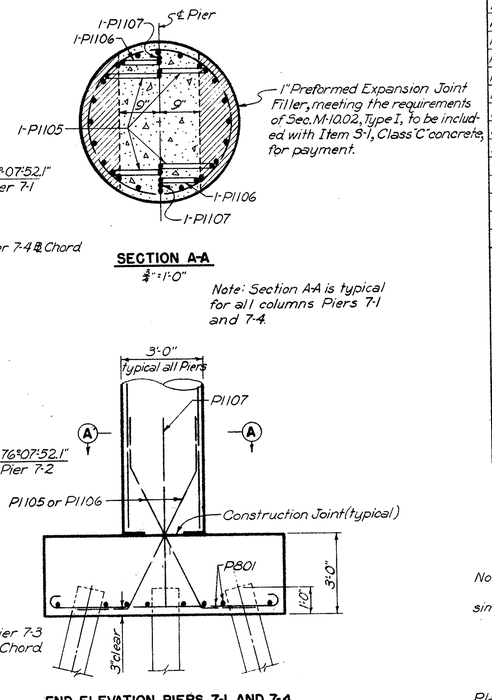




FOOTING PLAN PIERS 7-1 AND 7-4
$\frac{1}{4}$"=1'-0"



FOOTING PLAN PIERS 7-2 AND 7-3
$\frac{1}{4}$"=1'-0"



SECTION A-A
$\frac{1}{4}$"=1'-0"

Note: Section A-A is typical for all columns Piers 7-1 and 7-4.

END ELEVATION PIERS 7-1 AND 7-4
$\frac{3}{8}$"=1'-0"

Notes:
Pier 7-4 shown, Piers 7-1, 7-2 and 7-3 are similar except as shown.
All piles are 12 BP 53.
All battered piles to be battered 3 in 12.
For replacement bars see sheet 141.
All bar dimensions given out to out.
For Dowel Reinforcement and Dowel Placement Detail, see Sheet 172.
Special care shall be taken in placing column reinforcement and column dowels, so as not to interfere with the placing of the transverse reinforcing steel in slab.

H.N.T.B. BR. NO. 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

PIERS
EASTBOUND EXPRESSWAY UNDER RAMP "N"

BR. NO. SUM-18-1206 STA. 3+27.53
SCALE: $\frac{1}{4}$" = 1'-0" STA. 5+67.73

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.R.H.	TRACED	CHECKED J.W.	REVIEWED J.T.	REVISED
DATE 2-20-58	DATE	DATE 9-4-58	DATE 9-8-58	1018 SHEET 168

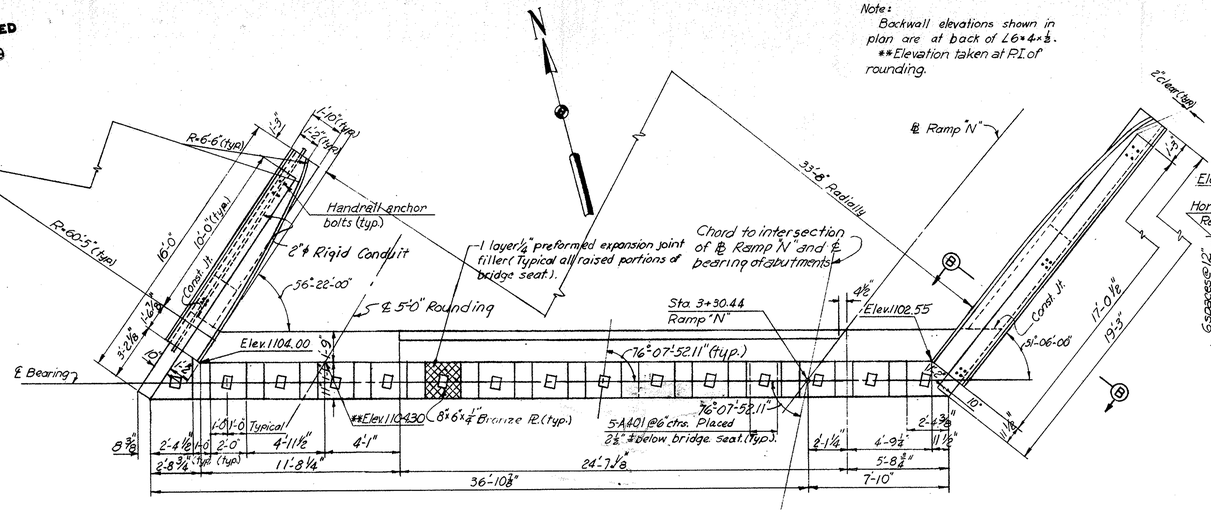
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO	-	

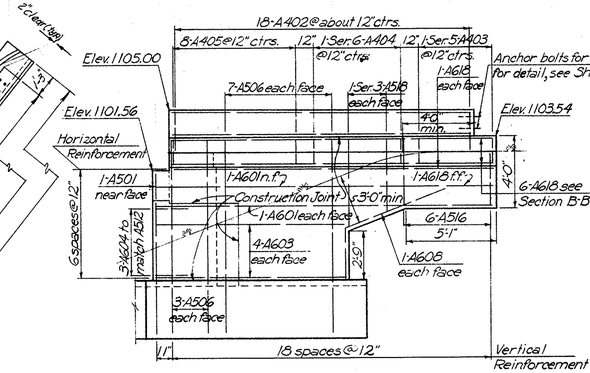
169/176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.-8-11.65

Note:
Backwall elevations shown in plan are at back of L6×4×½.
**Elevation taken at P.I. of rounding.



PLAN

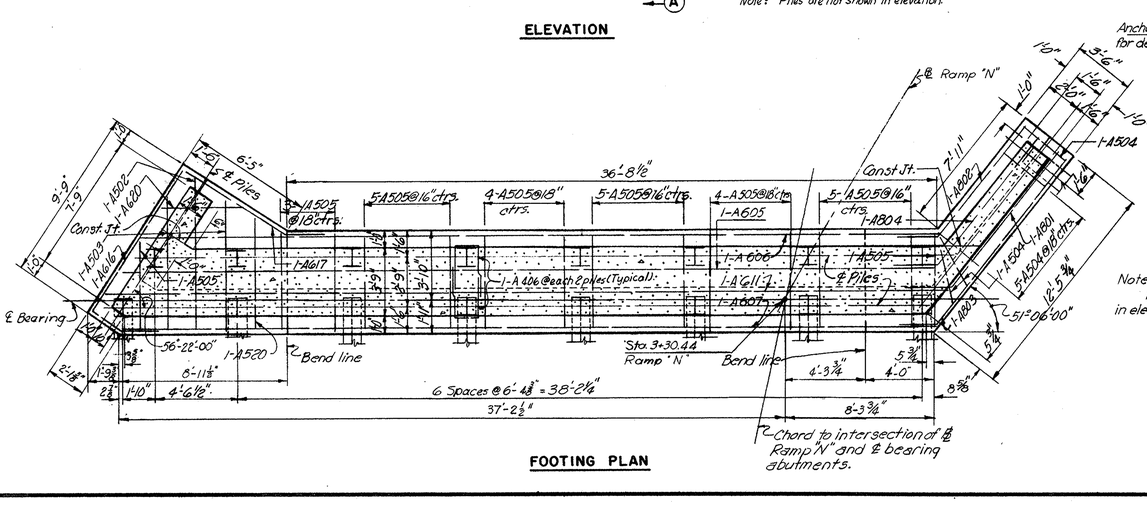


NORTHEAST WINGWALL ELEVATION

Note: Piles not shown in elevation.

ELEVATION

Note: Piles are not shown in elevation.



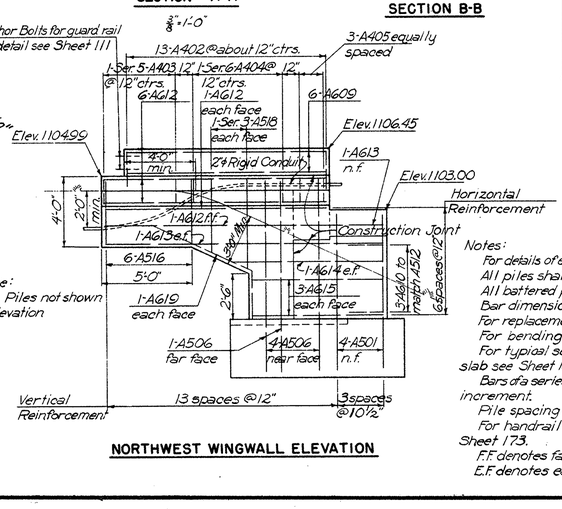
FOOTING PLAN

Note:
Backwall shall be poured after expansion joint steel has been attached to ℄ bearing superstructure.
Top of backwall to follow crown of roadway. Use steel expansion joint for template.

SECTION A-A

SECTION B-B

Note: West Wingwall is similar except for bar marks and 2"ϕ rigid conduit.



NORTHWEST WINGWALL ELEVATION

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	SERIES INC.	WEIGHT POUNDS
A401	75	2'-6"	104	1'-8"	1'-0"			125
A402	31	4'-1"	105	10"	2'-2"			102
A403	25 each of 5	5'-0" to 6'-6"	123	8" to 1'-5"	10" to 1'-7"		4½"	38
A404	25 each of 6	6'-8" to 7'-4"	123	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅜"	56
A405	11	7'-4"	123	1'-10"	2'-0"			54
A406	14	6'-3"	105	1'-2"	2'-8"			58
A501	5	9'-8"	104	8'-9"	1'-0"			51
A502	1	9'-8"	100	8'-6"				10
A503	2	8'-7"	100	7'-5"				18
A504	8	4'-2"	100	3'-0"				35
A505	28	6'-5"	100	5'-3"				188
A506	23	11'-8"	104	10'-9"	1'-0"			280
A507	1	8'-3"	Str.					9
A508	1	11'-6"	Str.					12
A509	2	27'-9"	Str.					58
A510	25	10'-5"	112					272
A511	4	42'-0"	Str.					175
A512	7	44'-9"	Str.					327
A513	43	4'-8"	105	3'-5"	9"			210
A514	18	11'-0"	109					207
A515	25 each of 29	7'-7" to 8'-4"	104	6'-8" to 7'-5"	1'-0"		3/16"	483
A516	12	5'-1"	105	1'-2"	2'-6"			74
A517	20	8'-0"	104	7'-1"	1'-0"			167
A518	4 each of 3	3'-6" to 4'-6"	Str.				6"	50
A519	8	7'-7"	104	6'-8"	1'-0"			63
A520	1	7'-5"	100	6'-3"				8
A601	3	19'-0"	Str.					86
A602	6	16'-9"	Str.					*
A603	8	10'-9"	Str.					129
A604	3	4'-0"	108	2'-0"	1'-1"	1'-9"		18
A605	1	45'-9"	Str.					69
A606	1	44'-6"	Str.					67
A607	1	45'-6"	Str.					68
A608	2	8'-4"	108	5'-6"	1'-0"	2'-8"		25
A609	6	11'-3"	Str.					*
A610	3	4'-5"	124	2'-0"	7"			20
A611	1	47'-3"	Str.					71
A612	9	12'-6"	Str.					169
A613	3	15'-9"	Str.					71
A614	2	8'-6"	Str.					26
A615	6	7'-6"	Str.					68
A616	1	12'-1"	124	9'-3"	1'-10"			19
A617	1	8'-2"	108	6'-2"	1'-9"	1'-1"		12
A618	9	18'-0"	Str.					244
A619	2	8'-5"	108	5'-9"	1'-2"	2'-5"		25
A620	1	4'-6"	Str.					7
A801	1	12'-0"	108	10'-0"	1'-3"	1'-7"		32
A802	1	9'-8"	108	7'-8"	1'-3"	1'-7"		26
A803	1	13'-1"	108	11'-1"	1'-3"	1'-7"		37
A804	1	11'-6"	108	9'-6"	1'-3"	1'-7"		31
							Total	4,450

* Included for payment in unit price bid for Item S-14.

Notes:
For details of expansion joint see Sheet 136.
All piles shall be 12 BP53.
All battered piles are battered 3 in 12.
Bar dimensions are given out to out.
For replacement bars see Sheet 141.
For bending diagrams, see Sheet 170.
For typical section thru abutment and slab see Sheet 136.
Bars of a series shall vary by a constant increment.
Pile spacing given along bottom of footing
For handrail details and spacing, see Sheet 173.
F.F. denotes far face; n.f. denotes near face
E.F. denotes each face.

H.N.T.B. BR. NO. 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 7-N
EASTBOUND EXPRESSWAY UNDER RAMP "N"
BR. NO. SUM.-18-1206 STA. 3+27.53
SCALE: 1/4" = 1'-0" STA. 5+67.75

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
W.Z.O.				
DATE 3-14-58	DATE	DATE 9-11-58	DATE 9-8-58	1018 SHEET 169

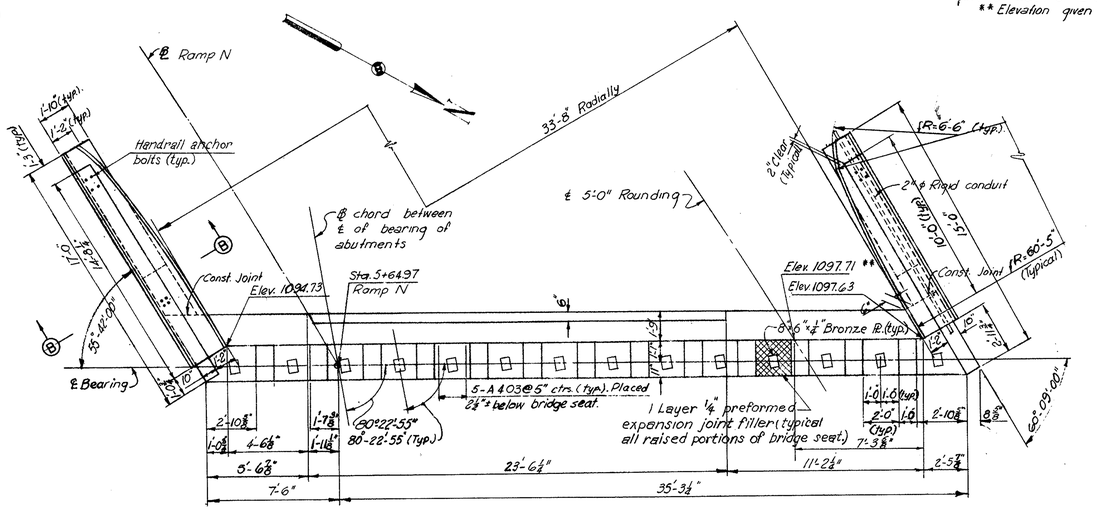
MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

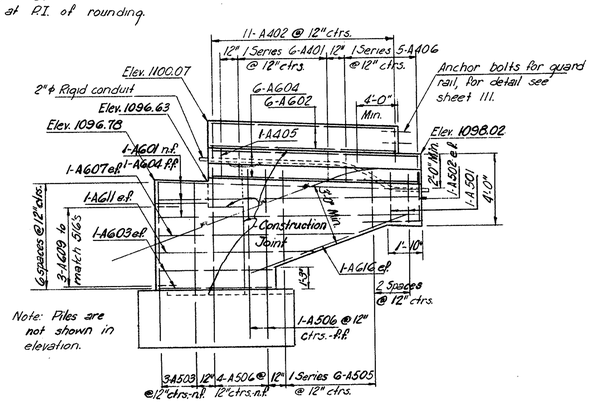
170
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

Note:
Backwall elevations shown in plan are at back of L 6"x4"x⅜.
** Elevation given at P.I. of rounding.

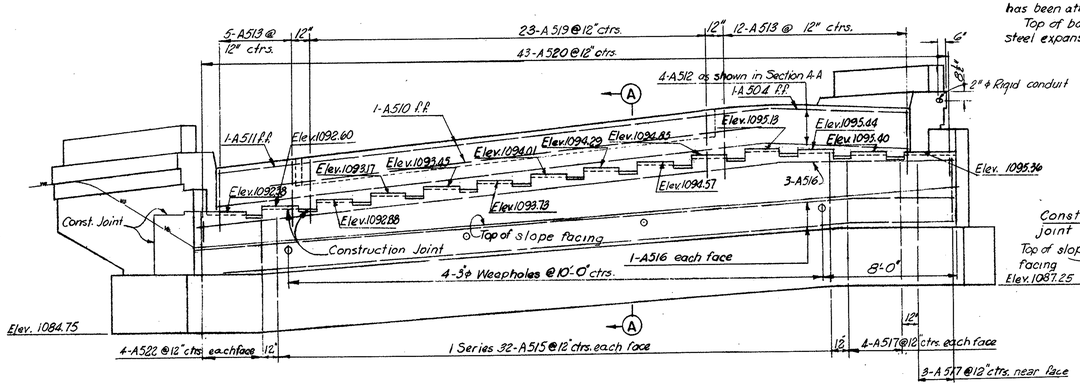


PLAN



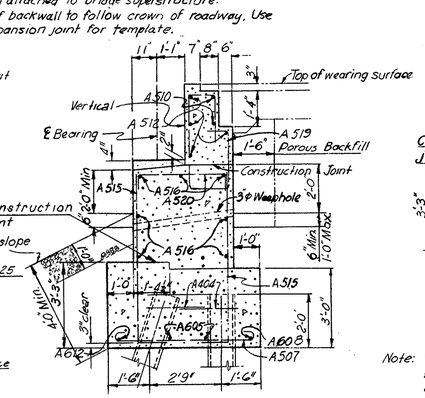
SOUTHWEST WINGWALL

Note:
Backwall is to be poured after expansion joint steel has been attached to bridge superstructure.
Top of backwall to follow crown of roadway. Use steel expansion joint for template.

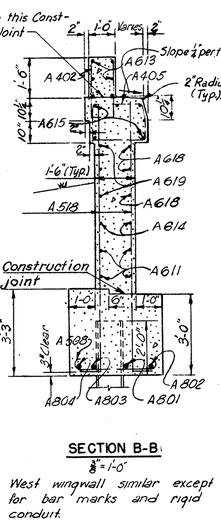


ELEVATION

Note: Piles are not shown in elevation.

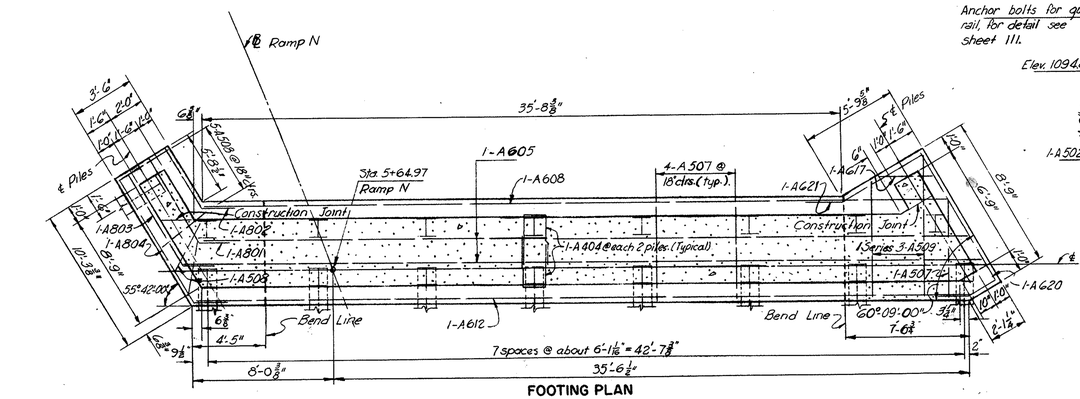


SECTION A-A
⅜" = 1'-0"



SECTION B-B
⅜" = 1'-0"

Note: West wingwall similar except for bar marks and rigid conduit.



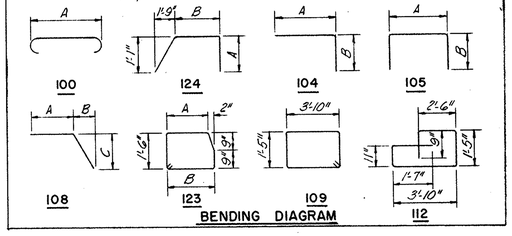
SOUTHEAST WINGWALL

FOOTING PLAN

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	SERIES INC.	WEIGHT POUNDS
A401	2 Ser. of 6	6'-8" to 7'-4"	123	1'-6" to 1'-10"	1'-8" to 2'-0"		1⅛"	56
A402	26	4'-11"	105	10"	2'-2"			86
A403	70	2'-6"	104	1'-8"	1'-0"			117
A404	14	6'-3"	105	1'-2"	2'-8"			58
A405	6	7'-1"	123	1'-10"	2'-0"			29
A406	2 Ser. of 5	5'-0" to 6'-6"	123	8" to 1'-5"	10" to 1'-7"		4½"	38
A501	5	5'-11"	105	1'-2"	2'-6"			31
A502	4	4'-8"	104	2'-6"	2'-3"			19
A503	3	9'-5"	104	8'-9"	9"			30
A504	1	11'-0"	Str.					11
A505	1 Ser. of 6	7'-5" to 11'-5"	105	1'-2"	3'-3" to 5'-3"		9½"	59
A506	6	11'-2"	104	10'-6"	9"			70
A507	25	6'-5"	100	5'-3"				168
A508	7	4'-0"	100	3'-0"				30
A509	1 Ser. of 3	7'-2" to 8'-11"	100	6'-0" to 7'-9"			10½"	25
A510	2	27'-6"	Str.					57
A511	1	6'-6"	Str.					66
A512	4	41'-0"	Str.					171
A513	17	11'-0"	109					195
A514	1 Ser. of 5	7'-5" to 10'-11"	105	1'-2"	3'-3" to 5'-3"		10½"	48
A515	2 Ser. of 32	7'-11" to 8'-7"	104	6'-9" to 7'-5"	1'-3"		¼"	551
A516	7	42'-6"	Str.					310
A517	11	8'-5"	104	7'-3"	1'-3"			97
A518	13	10'-8"	104	10'-0"	9"			145
A519	23	10'-5"	112					251
A520	43	4'-8"	105	3'-5"	9"			210
A521	1	8'-11"	104	8'-3"	9"			9
A522	8	7'-11"	104	6'-9"	1'-3"			66
A601	3	14'-6"	Str.					65
A602	6	10'-3"	Str.					*
A603	4	6'-3"	Str.					38
A604	9	11'-6"	Str.					155
A605	2	44'-0"	Str.					132
A606	2	8'-9"	Str.					26
A607	2	11'-0"	Str.					33
A608	1	42'-0"	Str.					63
A609	3	4'-6"	124	2'-0"	8"			20
A610	3	4'-0"	108	2'-0"	1'-1"	1'-9"		18
A611	6 *	8'-3"	Str.					74
A612	1	43'-6"	Str.					65
A613	6	14'-3"	Str.					*
A614	2	10'-3"	Str.					31
A615	6	15'-6"	Str.					140
A616	2	10'-6"	Str.					32
A617	1	3'-0"	Str.					5
A618	3	15'-3"	Str.					69
A619	3	16'-6"	Str.					74
A620	1	12'-1"	124	8'-3"	2'-0"			18
A621	1	7'-0"	108	5'-3"	1'-9"	1'-1"		11
A801	1	9'-9"	108	7'-3"	1'-6"	2'-3"		26
A802	1	8'-3"	108	5'-9"	1'-6"	2'-3"		22
A803	1	10'-3"	108	7'-9"	1'-6"	2'-3"		27
A804	1	12'-3"	108	9'-9"	1'-6"	2'-3"		33
							Total	4,120

* Included for payment with unit price bid for item S-14.



Notes:
f.f. denotes far face.
n.f. denotes near face.
e.f. denotes each face.
For details of expansion joint see sheet 136.
All piles shall be 12BP53.
All battered piles are battered 3 in 12.
Bar dimensions are given out to out.
For replacement bars see sheet 141.
For typical section thru abutment and slab see sheet 136.
Bars of a series shall vary by a constant increment.
For handrail details and spacing see sheet 173.
Pile spacing is measured along the bottom of footing.

H.N.T.B. BR. NO. 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

ABUTMENT 7-S
EASTBOUND EXPRESSWAY UNDER RAMP "N"
BR. NO. SUM:-18-1206 STA. 3 + 27.53
SCALE: 1/4" = 1'-0" STA. 5 + 67.73

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

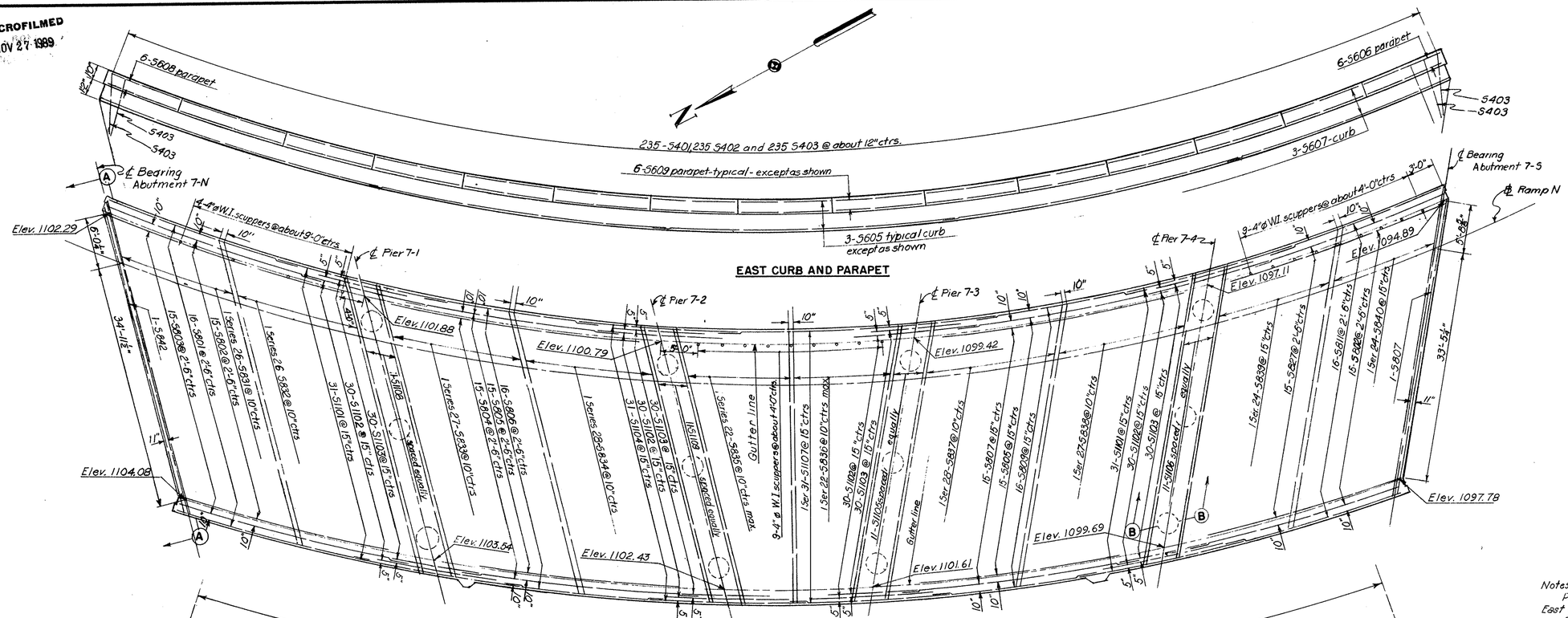
DRAWN	TRACED	CHECKED	REVIEWED	REVISED
N.Z.D.		R.E.O.	J.T.	
DATE 3-7-58	DATE	DATE 9-10-58	DATE 9-8-58	1018 SHEET 170

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

171
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65



Notes:
Place transverse steel @ 10" ctrs. top and bottom along East gutterline.
For scupper details see sheet 172
For expansion joint details at abutments see Sheet 136
For replacement bars see sheet 141
For handrail and parapet joint spacing and details see Sheet 173
For sections A-A and B-B see sheet 172
In order to facilitate deck slab concrete water curing, the placing of concrete shall progress upgrade. The slab may be placed in sections, between transverse construction joints which are normal to the ℄ of the bridge and are located near the center of any span.
For section through transverse construction joint see sheet 172
For placing of longitudinal reinforcing steel see longitudinal section through slab on sheet 172
For location and details of light standard support see Sheet 174.
For reinforcement schedule see Sheet 172.

Note:
Scuppers not shown in bottom deck plan.

* 550I bars (stirrups) shown @ Pier 7-3 are typical for Pier 7-2
‡ 3502 bars (stirrups) shown @ Pier 7-1 are typical for Pier 7-4.

H.N.T.B. BR. NO. 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK PLAN
EASTBOUND EXPRESSWAY UNDER RAMP N
BR. NO. SUM 18-1206 STA. 3+27.53
SCALE: NONE STA. 5+67.53
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

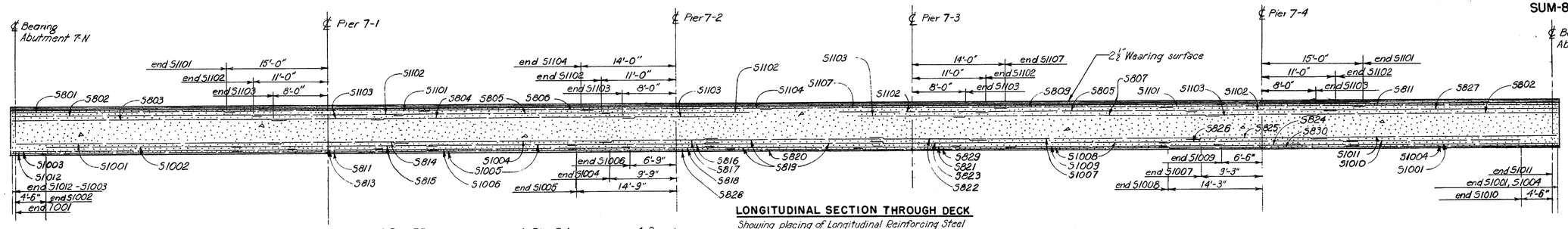
DRAWN AHM	TRACED	CHECKED ZLH	REVIEWED JT	REVISED
DATE 3-10-58	DATE	DATE 9-4-58	DATE 9-8-58	1018 SHEET 71

MICROFILMED
NOV 27 1989

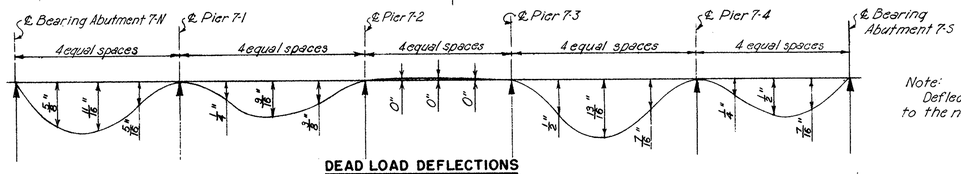
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

172
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

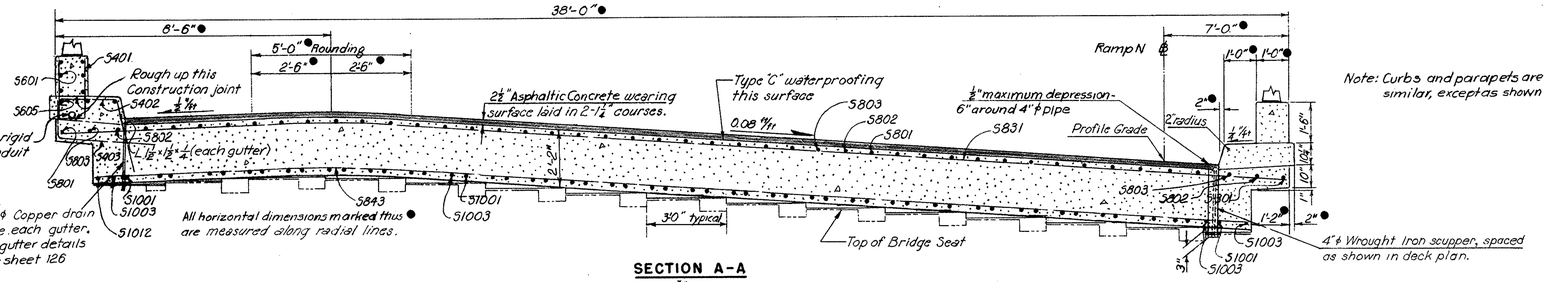


LONGITUDINAL SECTION THROUGH DECK
Showing placing of Longitudinal Reinforcing Steel
No scale



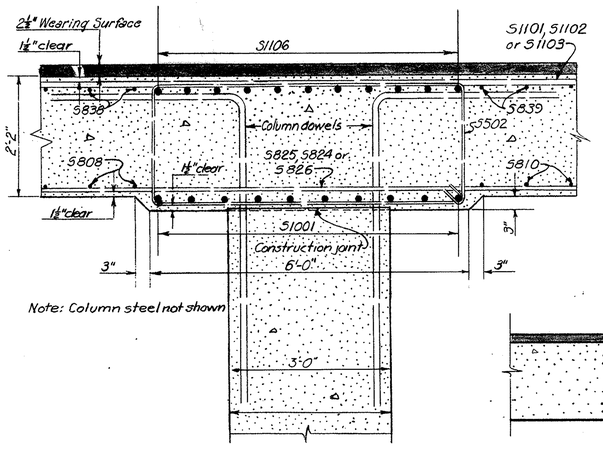
DEAD LOAD DEFLECTIONS
No scale

Note:
Deflections are given to the nearest 1/16"



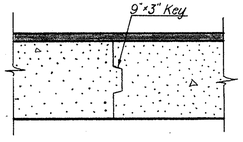
SECTION A-A
⅜"=1'-0"

Note: Curbs and parapets are similar, except as shown

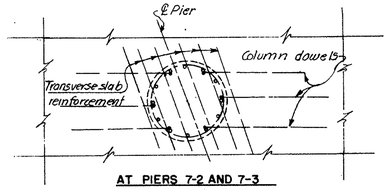


Note: Column steel not shown

SECTION B-B
⅜"=1'-0"
Typical for all columns except for bar marks



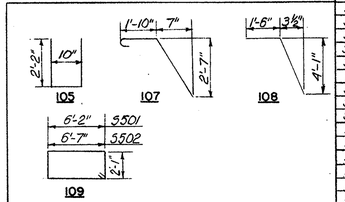
SECTION THRU CONSTRUCTION JOINT
½"=1'-0"



COLUMN REINFORCEMENT AND DOWEL PLACING DETAIL
⅜"=1'-0"

Dowel half of column bars in all columns, placing top of dowels parallel to longitudinal deck steel.

* Included for payment in item S-14
# For light standard support reinforcing schedule see sheet 174



BENDING DIAGRAMS

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	SERIES ING	WEIGHT LBS.	MARK	NO.	LENGTH	TYPE	SERIES ING	WEIGHT LBS.
5401	458	4'-11"	105		1604	5848	15er22	35'-6" to 37'-0"	Str.	5/16"	2100
5402	458	5'-1"	107		1853	5849	15er28	36'-3" to 37'-0"	Str.	5/16"	2735
5403	458	5'-7"	108		1710						
5501	60	17'-0"	109		1063	51001	67	38'-6"	Str.		11,109
5502	60	17'-10"	109		1118	51002	28	29'-0"	Str.		3,500
						51003	29	42'-6"	Str.		5,310
						51004	29	32'-0"	Str.		4,000
5601	6	8'-9"	Str.		*	51005	29	22'-0"	Str.		2,750
5602	3	21'-9"	Str.		98	51006	29	38'-0"	Str.		4,750
5603	72	16'-0"	Str.		*	51007	28	34'-0"	Str.		4,105
5604	6	17'-9"	Str.		*	51008	29	24'-0"	Str.		3,000
5605	24	82'-0"	Str.		1878	51009	29	40'-0"	Str.		5,000
5606	6	13'-6"	Str.		*	51010	28	26'-0"	Str.		3,135
5607	3	33'-9"	Str.		152	51011	28	35'-6"	Str.		4,280
5608	6	11'-0"	Str.		*	51012	1	35'-0"	Str.		151
5609	78	15'-9"	Str.		*	51013	10	36'-3"	Str.		1,562
						51014	10	37'-0"	Str.		1,993
						51015	10	39'-3"	Str.		1,690
5801	16	35'-3"	Str.		1507						
5802	30	39'-0"	Str.		3125						
5803	16	42'-3"	Str.		1808	51101	62	30'-0"	Str.		3890
5804	15	41'-3"	Str.		1650	51102	120	22'-0"	Str.		14,050
5805	30	35'-6"	Str.		2845	51103	120	16'-0"	Str.		10,190
5806	16	28'-3"	Str.		1207	51104	31	28'-0"	Str.		4,810
5807	16	41'-6"	Str.		1773	51105	11	38'-9"	Str.		2270
5808	15er.28	37'-0" to 38'-3"	Str.	3/16"	2815	51106	11	41'-0"	Str.		2,395
5809	16	28'-6"	Str.		1218	51107	15er.31	30'-6" to 46'-9"	Str.	6½"	6,360
5810	15er.24	38'-3" to 39'-6"	Str.	5/16"	2490	51108	11	42'-0"	Str.		2,250
5811	17	31'-6"	Str.		1430	51109	11	39'-3"	Str		2,295
5812	15er.24	39'-6" to 41'-3"	Str.	15/16"	2585						
5813	15er.15	15'-0" to 17'-6"	Str.	2 1/16"	651			# Light Standard Support =			400
5814	15er.14	21'-0" to 23'-6"	Str.	2 1/16"	832						
5815	15er.14	31'-0" to 33'-6"	Str.	2 1/16"	1205						
5816	15er.14	20'-9" to 27'-9"	Str.	6 1/16"	907						
5817	15er.14	16'-0" to 23'-0"	Str.	6 1/16"	728						
5818	15er.15	12'-9" to 20'-0"	Str.	6 1/16"	658						
5819	43	26'-0"	Str.		2985						
5820	43	20'-0"	Str.		2295						
5821	15er 15	11'-9" to 19'-0"	Str.	6 3/16"	615						
5822	15er.14	15'-0" to 22'-0"	Str.	6 1/16"	691						
5823	15er.14	19'-9" to 26'-9"	Str.	6 1/16"	869						
5824	15er.15	15'-0" to 16'-9"	Str.	1½"	636						
5825	15er.14	20'-9" to 22'-6"	Str.	1⅜"	810						
5826	15er.14	30'-9" to 32'-6"	Str.	1⅜"	1184						
5827	15	36'-0"	Str.		1440					Total	207330
5828	1	23'-6"	Str.		63						
5829	1	22'-6"	Str.		60						
5830	1	30'-9"	Str.		82						
5831	15er.26	43'-9" to 45'-9"	Str.	15/16"	3105						
5832	15er.26	42'-3" to 43'-9"	Str.	3/4"	2985						
5833	15er.27	40'-6" to 41'-9"	Str.	3/16"	2970						
5834	15er.28	39'-3" to 40'-6"	Str.	9/16"	2980						
5835	15er.22	37'-9" to 39'-3"	Str.	7/8"	2255						
5836	15er.22	37'-9" to 38'-6"	Str.	7/16"	2240						
5837	15er.28	38'-9" to 39'-6"	Str.	5/16"	2928						
5838	15er.27	39'-6" to 40'-9"	Str.	5/16"	2895						
5839	15er.24	41'-0" to 42'-3"	Str.	3/4"	2640						
5840	15er.25	42'-3" to 44'-0"	Str.	7/8"	2885						
5841	1	43'-0"	Str.		108						
5842	1	43'-3"	Str.		115						
5843	15er.26	41'-0" to 43'-0"	Str.	15/16"	2915						
5844	15er.26	39'-6" to 41'-0"	Str.	3/4"	2795						
5845	15er.27	38'-0" to 39'-3"	Str.	9/16"	2,785						
5846	15er.28	36'-9" to 38'-0"	Str.	5/16"	2,775						
5847	15er.22	35'-6" to 37'-0"	Str.	7/8"	2,130						

H.N.T.B. BR. NO. 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

DECK DETAILS
EASTBOUND EXPRESSWAY UNDER RAMP N
BR. NO. SUM 18-1206 STA. 3+27.53
SCALE: AS SHOWN STA. 5+67.73

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

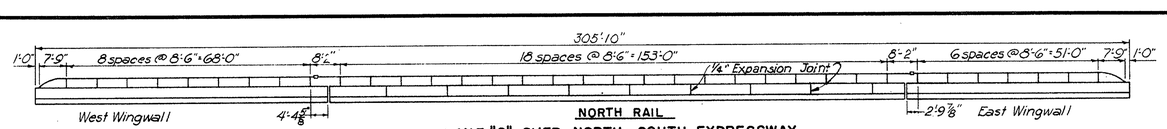
DRAWN AMM	TRACED	CHECKED PLH	REVIEWED JT	REVISED
DATE 3-10-58	DATE	DATE 9-8-58	DATE 9-8-58	1018 SHEET 172

MICROFILMED
NOV 27 1989

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

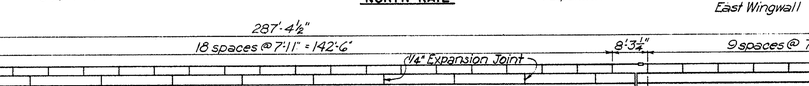
175
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

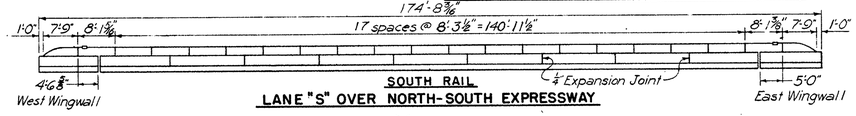


NORTH RAIL

LANE "S" OVER NORTH-SOUTH EXPRESSWAY

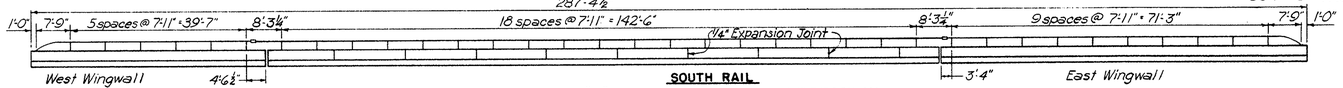


NORTH RAIL



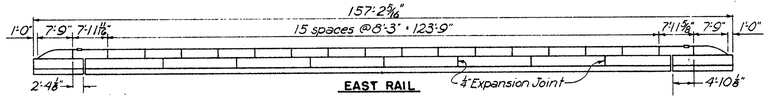
SOUTH RAIL

LANE "S" OVER NORTH-SOUTH EXPRESSWAY

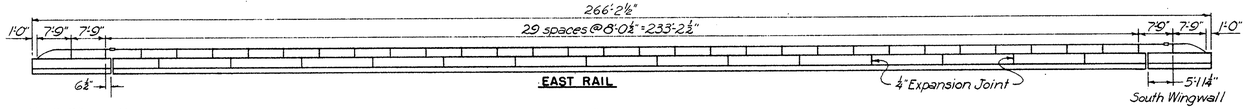


SOUTH RAIL

LANE "O" OVER NORTH-SOUTH EXPRESSWAY

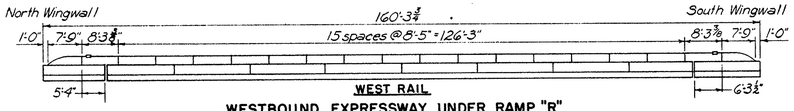


EAST RAIL



EAST RAIL

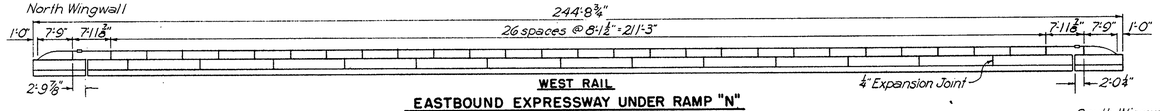
North Wingwall



WEST RAIL

WESTBOUND EXPRESSWAY UNDER RAMP "R"

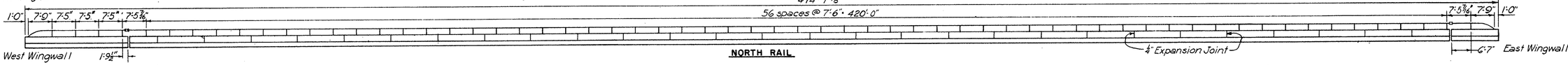
North Wingwall



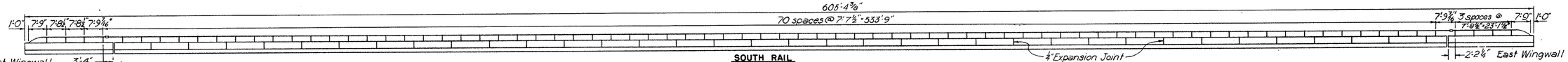
WEST RAIL

EASTBOUND EXPRESSWAY UNDER RAMP "N"

North Wingwall

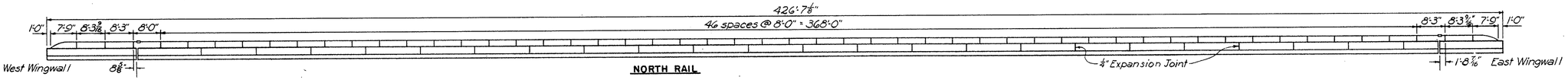


NORTH RAIL

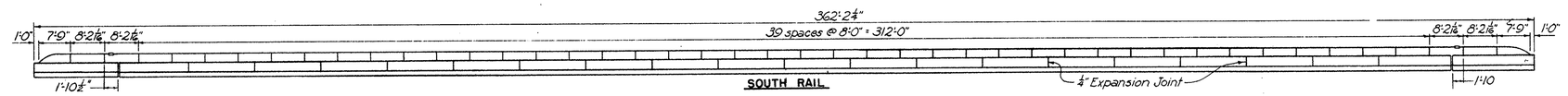


SOUTH RAIL

EASTBOUND EXPRESSWAY OVER NO.-SO. EXPRESSWAY



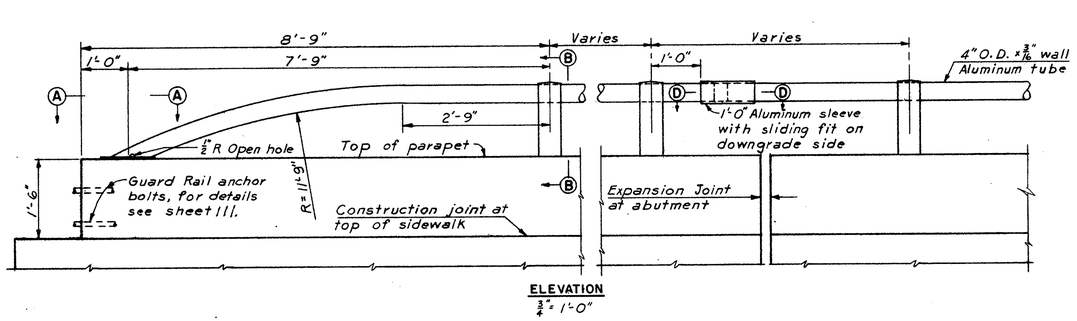
NORTH RAIL



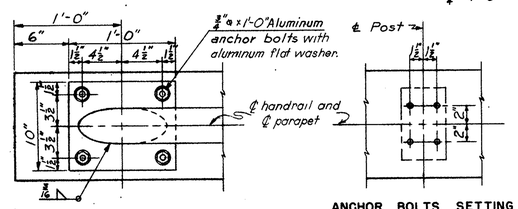
SOUTH RAIL

WESTBOUND EXPRESSWAY OVER NO.-SO. EXPRESSWAY

West Wingwall

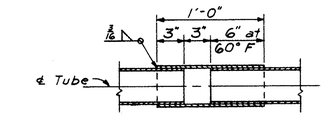


ELEVATION
3/4" = 1'-0"



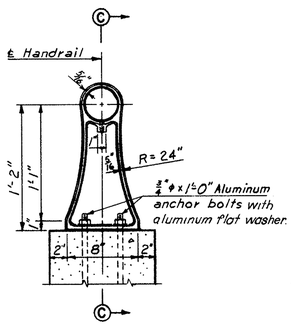
SECTION A-A

ANCHOR BOLTS SETTING

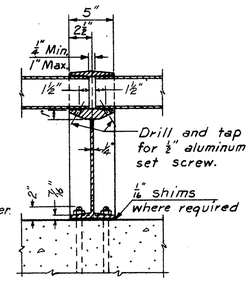


SECTION D-D

HANDRAIL DETAILS
1 1/2" = 1'-0"



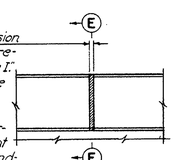
SECTION B-B



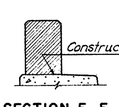
SECTION C-C

1/2" Preformed gray rubber expansion joint filler, meeting the requirements of Section M-10.02 "Type I." Include with parapet concrete for payment. (Item S-14).

Note: Expansion joints in superstructure parapets shall be at the midpoints of alternate handrail panels. See handrail post spacing.



PARAPET JOINT DETAIL
1" = 1'-0"



SECTION E-E
1" = 1'-0"

Notes:

Handrail shall be fabricated in lengths not less than three panels each and furnished handrail shall be free of burrs, sharp corners, and rough surfaces. Shims if required for adjustment to line or grade, shall be of aluminum alloy, 2 3/8" x 1/2" x 6", and shall be slotted to permit insertion after posts are in place. Anchor bolts shall be aluminum with a head or nut at lower end. They shall be 1'-0" long and shall have a minimum diameter of 0.62" at the root of the thread. Bolts and nuts shall be anodized. Handrail posts shall be normal to grade and the final adjustment of the handrail shall be such that the top rail shall not depart more than 1/8" from correct line or grade. For other requirements see Supplemental Spec. No. S-114, "Aluminum for Bridge Railing."

Payment for handrail shall be made at the contract unit price bid for Item S-14, Aluminum Handrail (including parapet). Pay length shall be the overall length of the parapets and shall include cost of anchor bolts, set screws, nuts, shims and etc. necessary to properly complete the installation of handrail.

Payment for concrete parapet, including longitudinal reinforcing steel, in Item S-14, Aluminum Handrail (including parapet). All other reinforcing steel in parapet shall be included in Item S-4 for payment.

H.N.T.B. BR. NO.		STATE BR. NO
1	=	SUM-8-1256
2	=	SUM-8-1254
4	=	SUM-18-1224
5	=	SUM-18-1212 (E.B. EXP.)
6	=	SUM-18-1212 (W.B. EXP.)
7	=	SUM-18-1206

H.N.T.B. BR. NOS. 1, 2, 4, 5, 6 AND 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

HANDRAIL DETAILS

BRIDGE NOS. SUM-8-1256, SUM-8-1254, SUM-18-1224, SUM-18-1212EB, SUM-18-1212WB, AND SUM-18-1206

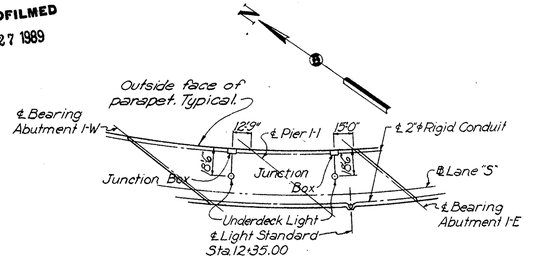
SCALE: NONE

AKRON EXPRESSWAY SYSTEM

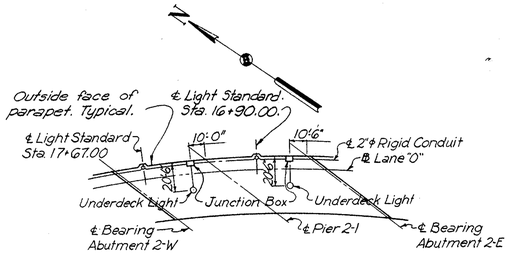
AKRON SUMMIT COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
W.P.L. L.W.L.		D.E.J.	J.T.	
DATE 7-3-58	DATE	DATE 7-28-58	DATE 9-8-58	1018 SHEET 175

MICROFILMED
NOV 27 1989



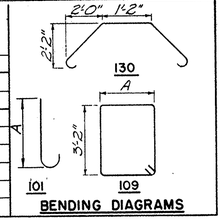
LANE "S" OVER NORTH-SOUTH EXPRESSWAY
H.N.T.B. Bridge No. 1
No Scale.



LANE "O" OVER NORTH-SOUTH EXPRESSWAY
H.N.T.B. Bridge No. 2
No Scale.

***REINFORCEMENT SCHEDULE FOR TYPE "A" LIGHT STANDARD**

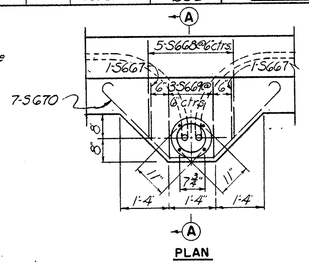
MARK	NO.	LENGTH	TYPE	DIMENSIONS A	WEIGHT POUNDS
S667	2	10'-2"	109	1'-8"	31
S668	5	3'-11"	101	3'-2"	29
S669	3	11'-2"	109	2'-2"	51
S670	7	8'-4"	130		89
				Total	200



BENDING DIAGRAMS

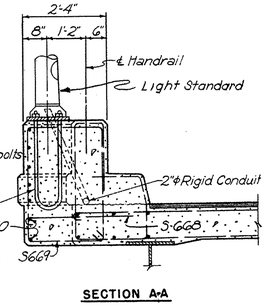
*Reinforcing steel for type "B" light standard is listed in reinforcement schedule on Sheet 129.

Note: Bar List is for one light standard support. Bar dimensions are given out to out.

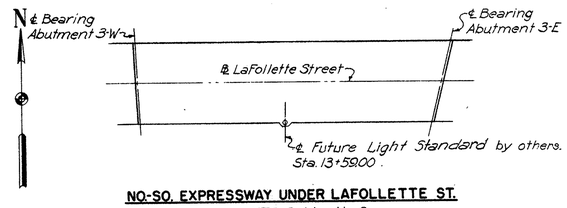


PLAN

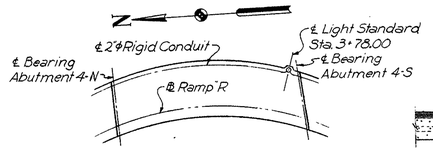
2-1"ϕ cadmium coated U-bolts 7'-1" long with 2 hex nuts and 2 washers. Extend bolts 2-3/4" above top of concrete. Included for payment in Item 5-7 for bridges 1, 2, 5 and 6 and Item 5-9 for bridges 4 and 7.



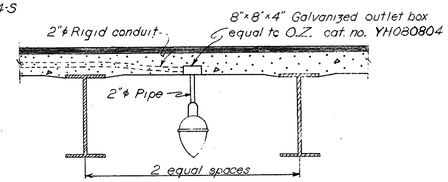
SECTION A-A



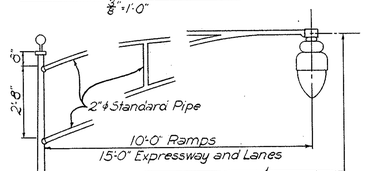
NO-SO. EXPRESSWAY UNDER LAFOLLETTE ST.
H.N.T.B. Bridge No. 3
No Scale.



WESTBOUND EXPRESSWAY UNDER RAMP "R"
H.N.T.B. Bridge No. 4
No Scale.



UNDER STRUCTURE LUMINAIRE
3/8"=1'-0"



BRIDGE LIGHTING UNIT
3/8"=1'-0"

ELECTRICAL EQUIPMENT

Bridge Contractor to provide conduit system, terminal box, and outlets only for understructure lighting where indicated. Bridge Contractor shall also furnish all conduit, electrical grounds, and anchor bolts for light standards which are on the structures.

Furnishing and installing of luminaires and wiring is not a part of the lump sum item.

Expansion joint in 2"ϕ rigid conduit shall consist of oversize sleeve and insulated bushings and shall be equal to OZ Type AX as required. The finish shall be hot dip galvanized and each shall be made electrically continuous by bonding jumper.

Expansion joint in conduit shall be provided at joints between wingwalls and abutments, at joints in wingwalls, at joints between abutment backwalls and bridge superstructures.

Conduit shall extend at least 2 feet beyond end of wingwalls and shall be capped.

Note: Luminaire shall be similar to Westinghouse AK-15 or General Electric Form 79-AR, of Type IV distribution with 15,000 lumen, 20 Amp. incandescent street series lamp.

The cable ends of the luminaire shall be reinforced back 6 inches from the ends by wrapping with glass tape and covering with clear insulating lacquer.

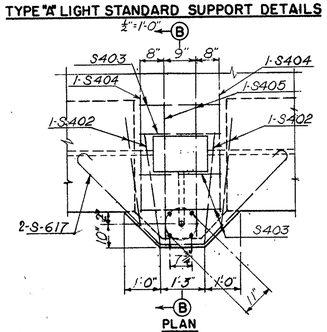
The series cable shall consist of single #6 conductors conforming to I.P.C.E.A. Spec. S-19-81 Append. O. similar to G.E. Super Coronal-Geoprene for direct burial, insulated to 5 K.V.

At the pole base there shall be a tinned #6 copper wire brazed to one anchor bolt and connecting to a No. 2 bare single conductor ground grid wire.

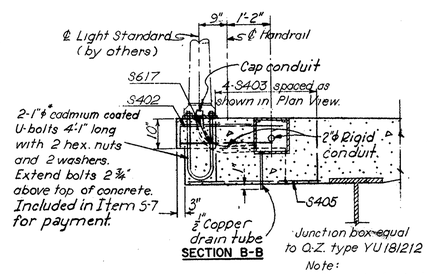
Extend conduit at least 4" above base.

The Contractor shall obtain a factory certified drawing giving complete information before setting anchor bolts.

TYPE "A" LIGHT STANDARD SUPPORT DETAILS



PLAN

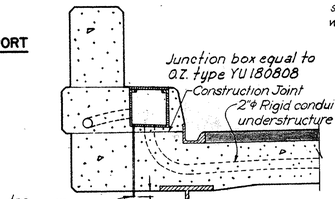


SECTION B-B

Junction box equal to O.Z. type YU181212

Note: Concrete for light support shall be poured with sidewalk.

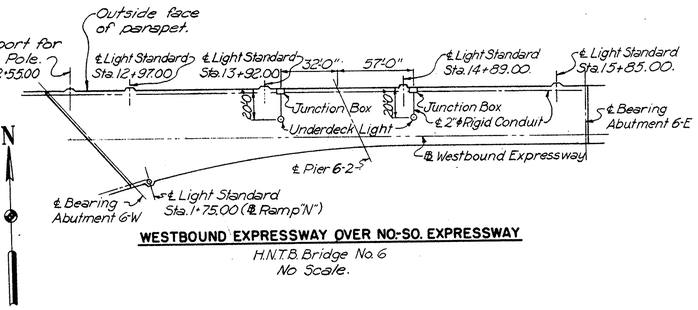
TYPE "B" LIGHT STANDARD SUPPORT
1/2"=1'-0"



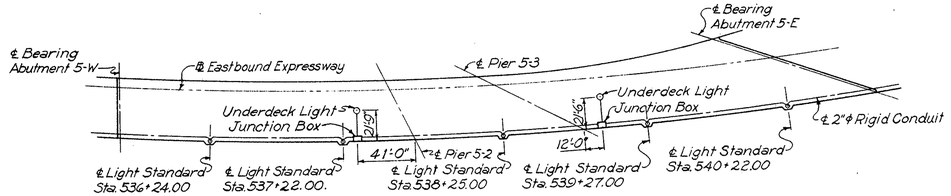
CURB JUNCTION BOX DETAIL
3/4"=1'-0"

Note: Cover of junction boxes shall be painted to match finished concrete color.

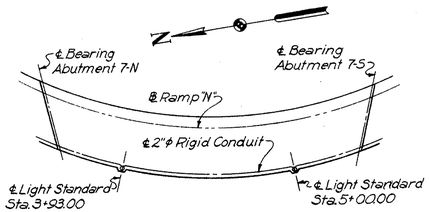
Notes: *Only exposed ends need be coated.
Type "B" Light Standard Support is typical for Bridge Number 3.
Type "A" Light Standard Support is typical for Bridge Numbers 1, 2, 4, 5, 6 and 7.



WESTBOUND EXPRESSWAY OVER NO-SO. EXPRESSWAY
H.N.T.B. Bridge No. 6
No Scale.



EASTBOUND EXPRESSWAY OVER NO-SO. EXPRESSWAY
H.N.T.B. Bridge No. 5
No. Scale.



EASTBOUND EXPRESSWAY UNDER RAMP "N"
H.N.T.B. Bridge No. 7
No Scale.

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

174
176

SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM-8-11.65

H.N.T.B. BR. NOS. 1,2,3,4,5,6 AND 7 PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

LIGHTING DETAILS

BRIDGE NOS. SUM-8-1256, SUM-8-1254, SUM-18-1235, SUM-18-1224, SUM-18-1212EB, SUM-18-1212WB AND SUM-18-1206
SCALE: AS SHOWN

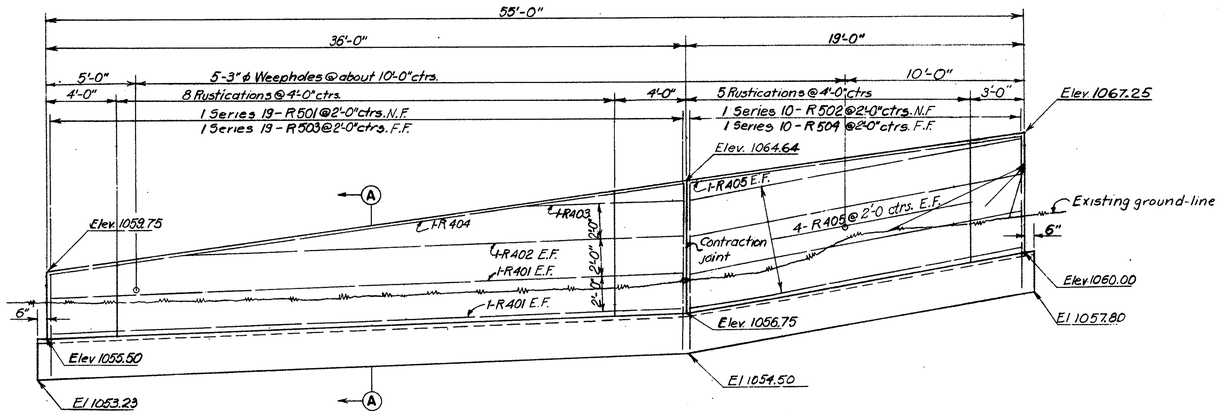
AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.P.K.	TRACED	CHECKED W.L.	REVIEWED J.T.	REVISED
DATE 4-2-58	DATE	DATE 8-22-58	DATE 9-8-58	1018 SHEET 174

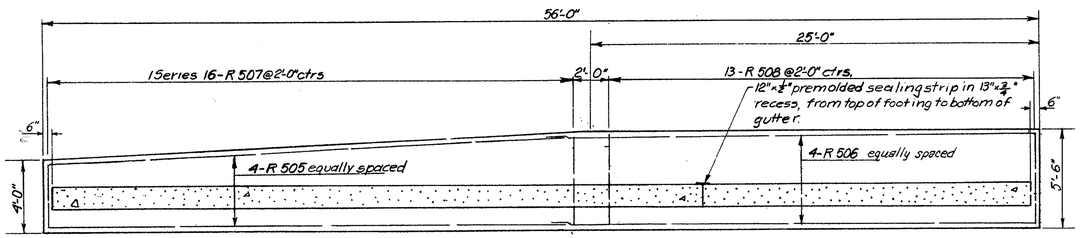
FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

175
176

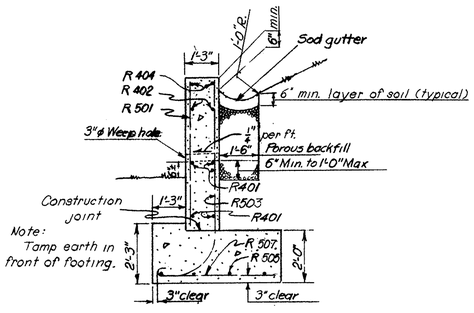
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.-8-11.65



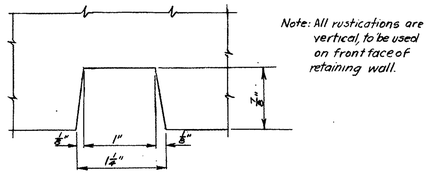
ELEVATION



PLAN

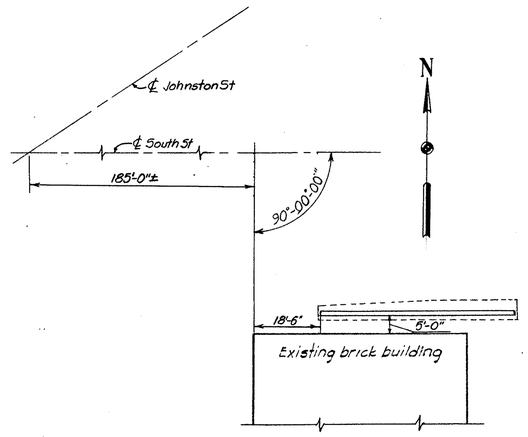


SECTION A-A
3/8" = 1'-0"



Note: All rustications are vertical, to be used on front face of retaining wall.

RUSTICATION DETAIL
1" = 1"



LOCATION DIAGRAM
1" = 20'-0"

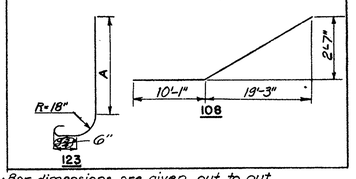
ESTIMATED QUANTITIES

Item	Description	Unit	Total
E-2	Cofferdams, Cribs, and Sheeting	Lump Sum	
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	65
S-1	Class "C" Concrete (Walls)	Cu. Yd.	20
S-1	Class "E" Concrete (Footings)	Cu. Yd.	22
S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.	10
S-4	Reinforcing Steel	Lbs.	1220
S-29	Porous Backfill	Cu. Yd.	15

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	DIMEN A	SER. INCR.	WEIGHT LBS.
R-ϕ401	4	35'-9"	str.			96
R-ϕ402	2	31'-9"	str.			43
R-ϕ403	2	12'-3"	str.			17
R-ϕ404	2	36'-0"	str.			48
R-ϕ405	10	18'-9"	str.			125
		7'-3" to 7'-9"				
		4'-3" to 7'-9"				
R-ϕ501	1 Ser. 19	8'-0" to 7'-0"	str.		2 5/16"	120
R-ϕ502	1 Ser. 10	7'-0" to 7'-6"	str.	4'7"-8'2"	1/16"	77
R-ϕ503	1 Ser. 19	8'-0" to 11'-7"	123	6'10"-8'2"	2 5/16"	197
R-ϕ504	1 Ser. 10	11'-0" to 11'-7"	123	6'10"-8'2"	1/16"	119
R-ϕ505	4	27'-9"	str.	7'7"-8'2"		116
R-ϕ506	4	29'-7"	108			123
R-ϕ507	1 Ser. 16	3'-6" to 5'-0"	str.		1 1/16"	71
R-ϕ508	13	5'-0"	str.			68
				Total Weight		1,220

BENDING DIAGRAMS



Note: Bar dimensions are given out to out. For replacement bars see Sheet 141.

Notes:
Bars of a series shall vary by a constant increment.
E.F. denotes each face.
N.F. denotes near face.
F.F. denotes far face.
Payment for sod gutter is included in Roadway Item L-10.

Revised 1-19-59.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

RETAINING WALL ALONG LANE M

SCALE: 1/4" = 1'-0"

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN AMM	TRACED	CHECKED LWL	REVIEWED JF	REVISED
DATE 4-14-58	DATE	DATE 9-4-58	DATE 9-8-58	1018 SHEET 175

FED. ROADS DIV. NO.	STATE	FED. AID PROJ. NO.	
2	OHIO		

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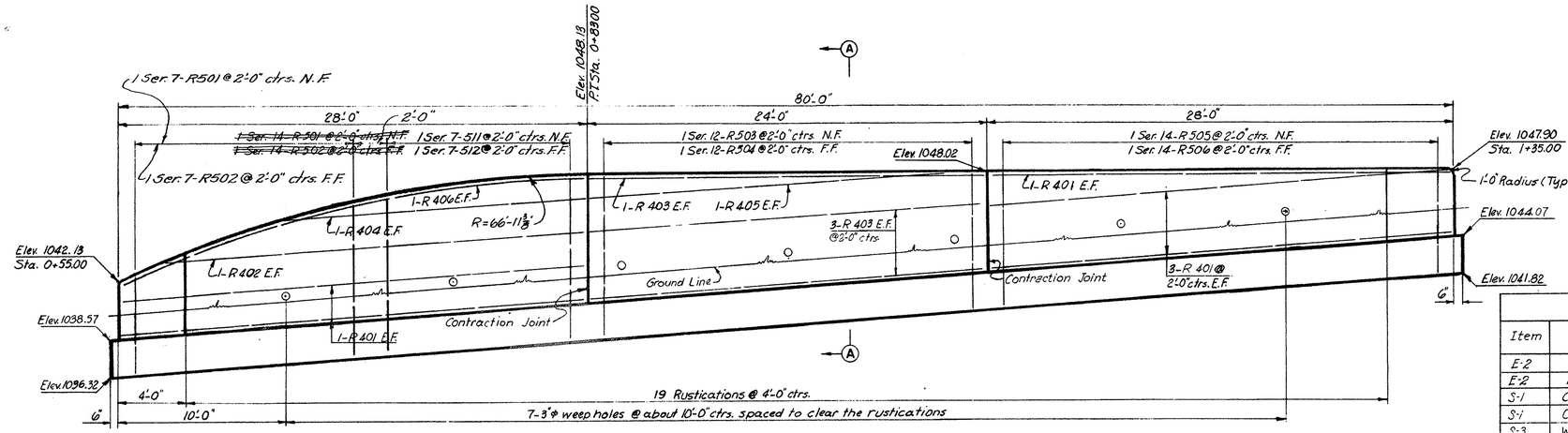
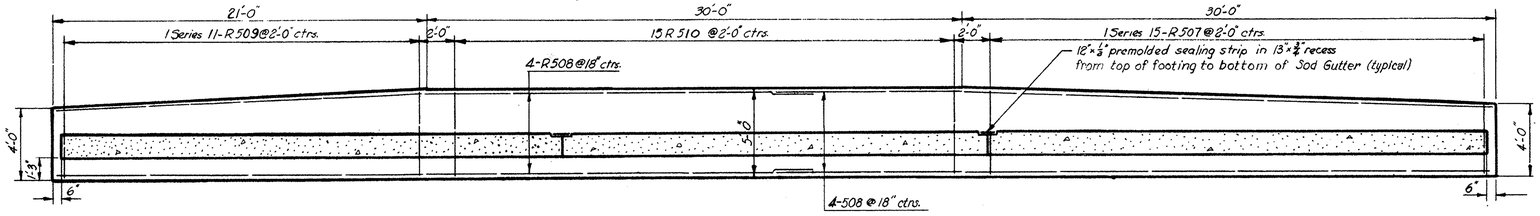
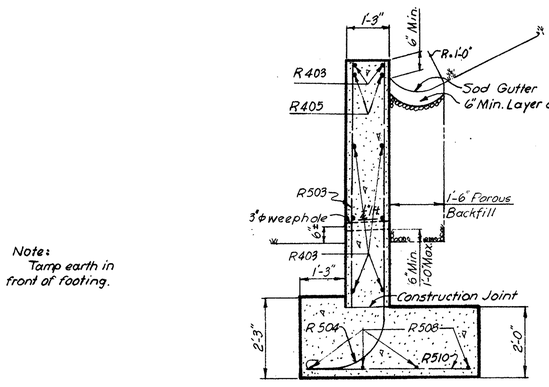
SUMMIT COUNTY
CITY OF AKRON
AKRON EXPRESSWAY SYSTEM
SUM.-8-11.65



ELEVATION

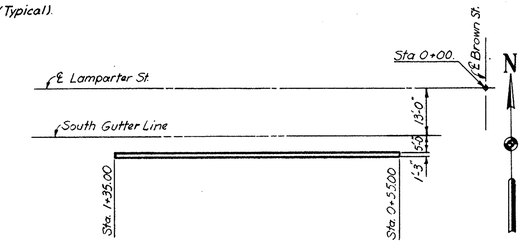


FOOTING PLAN



SECTION A-A
1/2" = 1'-0"

Note:
Tamp earth in front of footing.



LAYOUT SKETCH
1" = 20'

Notes:
For rustication detail see sheet 176.
E.F. denotes each face.
N.F. denotes near face.
F.F. denotes far face.
Stationing is along ℄ Lamparter St.
For replacement bars see Sheet 141.
Bars of a series shall vary by a constant increment.
Bar dimensions are given out to out.
Payment for Sod Gutter is included in roadway Item L-10.

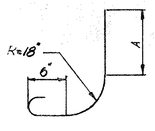
ESTIMATED QUANTITIES

Item	Description	Unit	Total		
E-2	Cofferdams, Cribs, and Sheeting	Lump Sum			
E-2	Excavation for Structures (Unclassified)	Cu. Yd.	80		
S-1	Class "C" Concrete (Walls)	Cu. Yd.	25		
S-1	Class "E" Concrete (Footings)	Cu. Yd.	29		
S-3	Waterproofing, Premolded Sealing Strip	Lin. Ft.	15		
S-4	Reinforcing Steel	Lbs.	1700		
S-29	Porous Backfill	Cu. Yd.	20		

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	"A" DIMENSION	SERIES INCRE.	WEIGHT POUNDS
R 401	12	27'-6"	Str.			221
R 402	2	24'-9"	Str.			35
R 403	8	23'-9"	Str.			127
R 404	2	17'-9"	Str.			24
R 405	2	21'-0"	Str.			28
R 406	2	28'-6"	Str.			38
R 501	1 Ser. 7	3'-9" to 7'-0"	Str.		3"	82
R 502	1 Ser. 7	6'-9" to 11'-0"	123	4'-1" to 7'-4"	3"	138
R 503	1 Ser. 12	5'-9" to 7'-0"	Str.	6'-2" to 7'-11"	3"	82
R 504	1 Ser. 12	9'-7" to 11'-0"	123	6'-9" to 7'-4"	3"	129
R 505	1 Ser. 14	6'-8" to 8'-9"	Str.	4'-2" to 6'-2"	1 3/8"	35
R 506	1 Ser. 14	6'-1" to 6'-10"	123	2'-3" to 3'-0"	1 3/8"	190
R 507	1 Ser. 15	3'-6" to 4'-6"	Str.		1/2"	68
R 508	8	41'-6"	Str.			347
R 509	1 Ser. 11	3'-6" to 4'-6"	Str.		1 1/2"	92
R 510	15	4'-6"	Str.			71
R 511	1 Ser. 7	7'-3" to 7'-9"	Str.		1"	
R 512	1 Ser. 7	10'-11" to 11'-5"	123	7'-6" to 8'-0"	1"	1700

7'-6" to 10'-9"
3'-9" to 5'-9"
7'-7" to 9'-7"



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BENDING DIAGRAM

PART 10

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

RETAINING WALL ALONG LAMPARTER ST.

SCALE: 1/4" = 1'-0"

AKRON EXPRESSWAY SYSTEM
AKRON SUMMIT COUNTY OHIO

DRAWN W.Z.D.	TRACED	CHECKED L.W.	REVIEWED J.T.	REVISED
DATE 5-2-58	DATE	DATE 9-2-58	DATE 9-8-58	1018 SHEET 176

Revised 1-19-59.

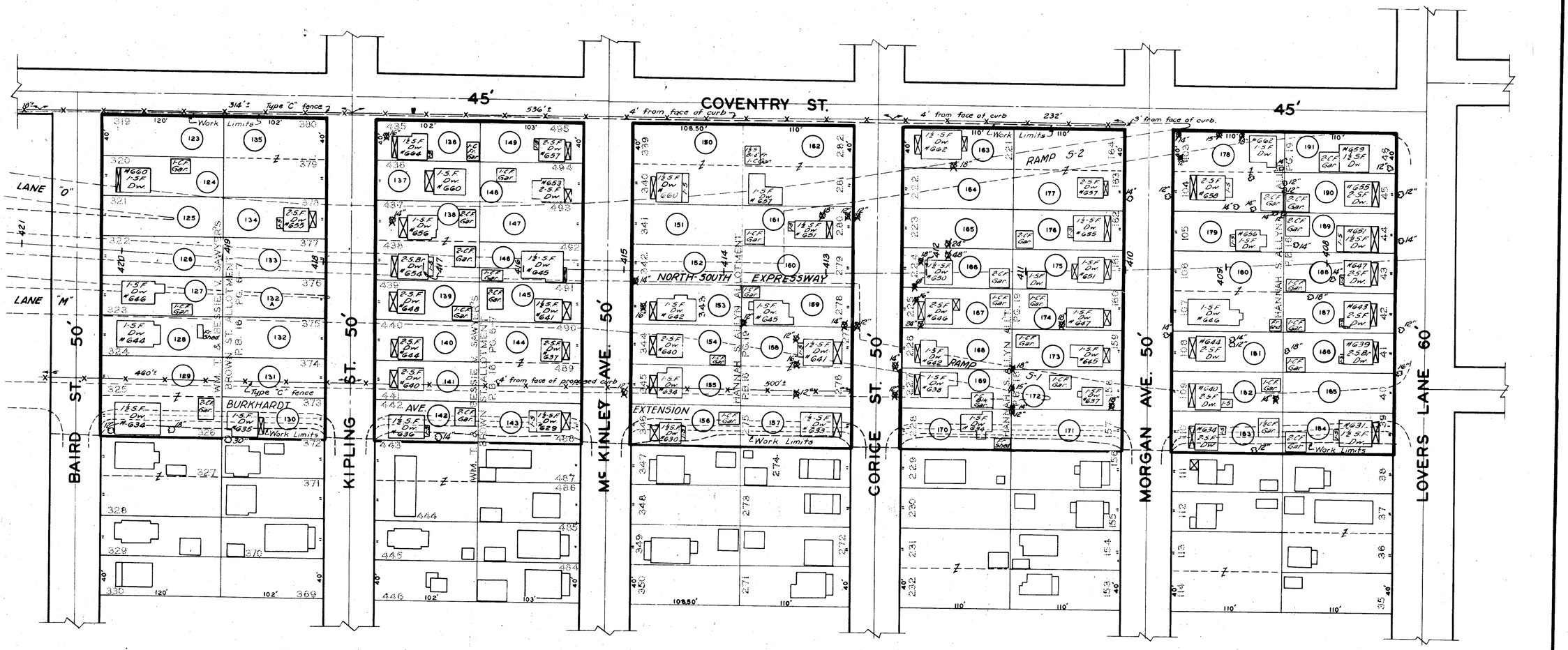
35/85

I-77

FED. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

88/176

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 10
SUM-8-11.65



Log Cards carried as Sum. 8/18-11.65/11.97

PARCEL NO	OWNER	AREA SQ.FT	BLDGS.
123LA	Wohlford, C.C & Sigler, L.J.	4800	No
124LA	Elliott, V.D.	"	Yes
125LA	Nat Exch. Bk & Tr. Co. Tr.	"	No
126LA	Layton, E.E. Jr.	"	No
127LA	Fikes, J. Jr. & B.L.	"	Yes
128LA	Garsun, H.M.	"	Yes
129LA	Williams, E. & C.	9600	Yes
130LA	McWain, J.L.	4080	Yes
131LA	Jones, S.	"	No
132LA	Wright, J.	4080	No
*133LA	Brock, G.M.	4080	No
134LA	Lewis, H.	"	Yes
135LA	Gauthier, J.C. et al	8160	No
136LA	Ukrainiec, N. & F.	4080	Yes
137LA	Powell, H. & E.D.	"	Yes
138LA	Bordonaro, C.	8160	Yes
139LA	Jones, T.A. & O.C.	4080	Yes
140LA	Mosley, F.G. & G.	"	Yes
141LA	Allen, T.V. & W.N.	"	Yes
142LA	McWain, L.B.	"	Yes
143LA	Moss, L.M. & H.M.	4120	Yes
144LA	Meese, C. & F.	8240	Yes
145LA	Collins, L.M. & P.	4120	Yes
146LA	Rasberry, G.	"	Yes

PARCEL NO	OWNER	AREA SQ.FT	BLDGS.
147LA	Halter, Geo. W.	4120	No
148LA	Kovalcsik, J. & F.	"	Yes
149LA	Brown, C.M. & G.M.	"	Yes
150LA	Keller, A. & Klitskey, M.	8240	Yes
151LA	Aleman, A. & M.	4420	Yes
152LA	Patrick, Guy et lal	"	No
153LA	Christopher, J. & W.	"	Yes
154LA	Estlock, J.F. & W.B.	"	Yes
155LA	Mazzagatti, L.M.	"	Yes
156LA	Yost, H.	"	Yes
157LA	Posey, O.D. & N.M.	4400	Yes
158LA	Devlin, A.	8800	Yes
159LA	Mamone, D. & M.	4400	Yes
160LA	Harper, E. et als	"	No
161LA	Leidholm, G.A. & M.F.	"	Yes
162LA	Koutlas, T.W. & A.	8800	Yes
163LA	Sterner, J. & M.E.	4400	Yes
164LA	Green, B.	"	No
165LA	Riley, Thelma Marguerite	"	No
166LA	Riley, Thelma Marguerite	"	Yes
167LA	Cox, K.I. & C.B.	"	Yes
168LA	Stewart, B.	"	Yes
169LA	Gonan, J. & M.	"	Yes
170LA	Schultz, G. & A.	"	Yes

PARCEL NO	OWNER	AREA SQ.FT	BLDGS.
171LA	Clark, M.	4400	No
172LA	McKinley, L.B.	"	Yes
173LA	Godfrey, T.H.	"	Yes
174LA	Brandt, R.J. & K.	"	Yes
175LA	Tillman, T.M.	"	Yes
176LA	Lopane, P. & P.	"	Yes
177LA	Lentz, B.E. & N.J.	8800	Yes
178LA	Falatok, G. & S.	"	Yes
179LA	Davis, H. & R.	4400	Yes
180LA	Saunders, M.J. & T.	8800	Yes
181LA	Kolbas, M.	4400	Yes
182LA	Hall, A. & L.	"	Yes
183LA	Greathouse, O.P.	"	Yes
184LA	Wallace, K. et lal	"	Yes
185LA	Harris, D.F.	"	No
186LA	Csizmadia, R.	"	Yes
187LA	Hawthorne, W.	"	Yes
188LA	Williams, S.B. & B.B.	"	Yes
189LA	McDavid, R.H.	"	Yes
190LA	Maloney, W.F. & R.E.	"	Yes
191LA	Atchison, J.B. & V.	"	Yes
*132ALA	Wright, Rosie	4080	No

NOTE: TREES SHOWN THUS: ✱ ARE TO BE REMOVED DURING OR PRECEDING GRADING OPERATIONS.

TYPE "C" FENCE ITEM SS-18		
LOCATION	I-1086-8 LIN. FT.	I-1093-4 LIN. FT.
Rt. Side Ramp "S-2" and Lane "O"	0	1,039
Lt. Side Burkhardt Ave. Extension	0	776
Totals	0	1,815

50 0 50 100 150

NOTE: IN REFERRING TO THE VARIOUS PARCELS THE NUMBER ENCIRCLED SHOULD CARRY A PREFIX OF S. AND A SUFFIX OF L.A. PARCEL SHOWN AS (150) IS ACTUALLY S 150 L.A.

LJD

I-77

FED. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

89
176

SUMMIT COUNTY
CITY OF AKRON, OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 10
SUM-8-11.65

PARCEL NO	OWNER	AREA SQ FT	BLDGS
66LA	Tramonte, G	4464	No
67LA	Porter, C	4462	Yes
68LA	Christian, D	3331	Yes
~~69LA~~			
70LA	Lurry, KE & JW	4800	Yes
71LA	Newberry, M	"	Yes
72LA	Wohlford, CC & Sigler, LJ	9600	No
73LA	Zilman, DG & N	4640	Yes
74LA	Garson, HM	4640	Yes
75LA	Fann, R	"	Yes
76LA	Henderson, B & C	4320	Yes
77LA	Grant, US & MM	"	Yes
78LA	Rosen, BJ	4800	No
79LA	Horton, MD	"	Yes
80LA	Werab, P	1200	Yes
~~81LA~~	~~Traschel, HR & CA~~	=	~~Yes~~
82LA	Davis, JH & R	3799	Yes
83LA	Tracy, FJ & GM	4464	Yes
84LA	Baker, AM	"	Yes
85LA	Crawford, RA	472	No
86LA	Whitlatch, WH & AF	4800	No
87LA	ET Keller Inc	"	No
88LA	Traschsel, HR & CA	"	Yes
89LA	Watson, DA	3840	Yes
90LA	Moore, RI	4800	No
91LA	Wohlford, CC & Sigler, LJ	"	No
92LA	Levin, FK	3840	No
93LA	Stallings, O	4800	Yes
94LA	Sigler, LJ & Wohlford, CC	4400	No
95LA	Markley, JC	4800	No
96LA	Randall, RJ	"	No
97LA	Valentine, L	"	No
98LA	Carter, A & SM	"	Yes
99LA	Johnson, C	9600	Yes
100LA	Levin, FK	"	No
101LA	Thomas, W & E	4800	Yes
102LA	Moss, L & E	"	Yes
103LA	Mirman, R	"	Yes
104LA	Nalencz, S	"	Yes
105LA	Reider, WP	"	Yes
106LA	Byrd, GM & L	"	Yes
107LA	Levin, FK	"	No
108LA	Atchison, L & A	"	Yes
109LA	Levin, FK	"	No
110LA	White, RH	"	No
111LA	Mc Donald, G & G	"	Yes
112LA	Tolliver, A & E	"	No
~~113LA~~	~~Mayton, M~~	=	~~No~~
~~114LA~~	~~White, M~~	=	~~Yes~~
115LA	Howard, FH & ER	"	Yes
116LA	Sturgies, HC & A	9600	Yes
117LA	Sigler, LJ & Wohlford, CC	4400	Yes
118LA	Ogurchak, JG & MC	4800	Yes
119LA	Harris, O	"	Yes
120LA	Lampley, JL & C	"	Yes
~~121LA~~	~~Hollinger, J & D~~	=	~~Yes~~
~~122LA~~	~~Pearson, GA & JM~~	=	~~Yes~~

NOTE: IN REFERRING TO THE VARIOUS PARCELS THE NUMBER ENCIRCLED SHOULD CARRY A PREFIX OF S AND A SUFFIX OF L.A. PARCEL SHOWN AS (80) IS ACTUALLY S-80-LA.

50 0 50 100 150

NOTE. TREES SHOWN THUS: ⊠, ARE TO BE REMOVED DURING OR PRECEDING GRADING OPERATIONS.

TYPE "C" FENCE - ITEM SS-18		
LOCATION	I-1086-B LIN. FT.	I-1093-4 LIN. FT.
Rt Side Ramp "N"	576	0
Lt Side Burkhardt Ave. Extension	0	239
Rt Side Ramp "T" and Lane "O"	0	826
Totals	576	1,065

FED. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS	90 / 176
2	OHIO			

SUMMIT COUNTY
CITY OF AKRON, OHIO

AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 10

SUM-8-11.65

PARCEL NO.	OWNER	AREA SQ.FT.	BLDGS
1 L.A.	Fox, D.E. & Perry, D.E.	5314	Yes
2 L.A.	Paschal, Ind. Inc.	17303	Yes
3 L.A.	McCormick, E.C. Jr.	22244	Yes
4 L.A.	Kramer, A.C.	14206	Yes
5 L.A.	Mangus, E.W.	3460	Yes
6 L.A.	Ashman, T.E.	3402	Yes
7 L.A.	Elliott, E.M.	6390	Yes
8 L.A.	McCormick, E.C. Jr.	9131	No
9 L.A.	Grant, E.	4410	Yes
10 L.A.	Leavell, C.A. & D.V.	5925	Yes
11 L.A.	Denham, E.F. & A.	3997	Yes
12 L.A.	McKinney, D.L. & G.	5550	Yes
13 L.A.	Good, O.W. & L.L.	3731	Yes
14 L.A.	Ignizio, N.M.	3731	Yes
15 L.A.	Johnson, H.W. & H.J.	3733	Yes
16 L.A.	Allison, A.	4800	Yes
17 L.A.	Robinson, B.S.	4800	Yes
18 L.A.	Knecht, A.O. et 4 als	2363	Yes
19 L.A.	Dengler, R.T. & G.D.	2363	Yes
20 L.A.	Bibler, D. & B.	1951	Yes
21 L.A.	Hartman, W.L.	1963	Yes
22 L.A.	DeMask, H.F. & A.L.	1953	Yes
23 L.A.	King, E.T.	1955	Yes
24 L.A.	Callahan, T.M.	1956	Yes
25 L.A.	Moon, B.	1956	Yes
26 L.A.	Troup, F.D. & F.E.	1958	Yes
27 L.A.	Burke, E.W.	1959	Yes
28 L.A.	Murphy, W.E.	3512	No
29 L.A.	Beaty, A.E. & H.A. Jr.	3882	Yes
30 L.A.	Whalen, L.	3864	Yes
31 L.A.	Mawby, C.K. & M.B.	2635	Yes
32 L.A.	McClure, Anna B.	4440	Yes
33 L.A.	Anderson, J.K. & M.	5580	Yes
34 L.A.	Lam, J.H. & N.	6108	Yes
35 L.A.	Jackson, H.A. & M.	4800	Yes

PARCEL NO.	OWNER	AREA SQ.FT.	BLDGS
36 L.A.	Whalen, L.R.	699	Yes
37 L.A.	Smalukas, E.	325	Yes
* 38 L.A.	McCormick, E.C. Jr.	6527	Yes
39 L.A.	Ernsthausen, J.F.	120600	Yes
40 L.A.	Egan, M.	4320	Yes
41 L.A.	Cucuzza, G. & N.	3950	Yes
42 L.A.	Romansky, S. & T.	4473	Yes
43 L.A.	Craig, L.J.	4471	Yes
44 L.A.	Gibson, R.L. & D.M.	8939	Yes
45 L.A.	White, J.F.	4467	Yes
46 L.A.	Meaux, S.L. & R.D.	4466	Yes
47 L.A.	Liggens M.	4465	No
48 L.A.	Edwards, C.J. & B.M.	4640	Yes
49 L.A.	Averiett, R.	"	Yes
50 L.A.	Wilson, W.B. & T.H.	"	Yes
51 L.A.	Cole, E. & A.L.	9280	Yes
52 L.A.	Lindsey, B. & E.R.	4640	Yes
53 L.A.	Breckenridge, G.J.	"	Yes
54 L.A.	Humbert, B.B.	"	No
55 L.A.	Honodle, H.S.	"	No
56 L.A.	Myers, Marian, H.	"	No
57 L.A.	Nemeth, E.J. & E.F.	"	Yes
58 L.A.	George, A.P. & C.M.	4800	Yes
59 L.A.	Bracken, H.B. & W.B.	9600	Yes
60 L.A.	Mundy, H.P.	4800	No
61 L.A.	Mundy, H. & M.	"	Yes
62 L.A.	Fasick, J.E. & J.E.	"	Yes
63 L.A.	Livers, H.E.	"	Yes
64 L.A.	Schneider, W.W.	4800	No
65 L.A.	~~Schaefer, R.M. & Pt.~~	~~4800~~	~~Yes~~
* 38A L.A.	Summit County Commissioners	1445	No

NOTE: TREES SHOWN THUS: ⊗ ARE TO BE REMOVED DURING OR PRECEDING GRADING OPERATIONS.

JOHNSTON ST. 60'

WEST BOUND EXPRESSWAY

EASTBOUND EXPRESSWAY

SOUTH ST. 60'

MURIEL PL.

AZAR CT.

ALPHIS CT.

RAMP "O"

RAMP "P"

RAMP "N"

RAMP "R"

RAMP "T"

LANE "M"

LANE "S"

LANE "O"

SPICER ST.

AKRON & BARBERTON BELT RAILROAD

COVENTRY ST. 45'

LUMIERE ST. 45'

HAMMEL ST. 50'

CENTRAL ALLOTMENT P.B. 15 PG. 25

Office and Garage

Brick Building

Brick Store Bldg #567

Brick & Conc. Blk. Truck Terminal

Brick & Tile Loading Dock

Conc. Blk. Garage

Brick & Tile Bldg. Partly Demolished

Frame Shed

Shed

Retaining Wall

Reservation for Street Purposes

Work Limits

385' Type "C" Fence - 2' from R.O.W. line

Match Line

Type "C" Fence - T

TYPE "C" FENCE - ITEM SS-18		
LOCATION	I-1086-8 LIN. FT.	I-1093-4 LIN. FT.
Rt. Side Lane "M" and Ramp "N"	582	0
Rt. Side Ramp "T"	0	218
Totals	582	218

50 0 50 100 150

NOTE: IN REFERRING TO THE VARIOUS PARCELS THE NUMBER ENCIRCLED SHOULD CARRY A PREFIX OF S AND A SUFFIX OF L.A. PARCEL SHOWN AS (15) IS ACTUALLY S 15 L.A.

L.W.D.

I-77

FED. RD. NO.	STATE	FED. AID PROJ. NO.	TYPE FUNDS
2	OHIO		

91
176

SUMMIT COUNTY
CITY OF AKRON OHIO
AKRON EXPRESSWAY SYSTEM
EXPRESSWAY PART 10
SUM.-8-11.65

PART 10

VORIS ST. 60' — 548.56 OBS. — 40' — 468.79 OBS. — ST.

ALLYN ST. 60' — KLING ST. 60' — BROWN ST. 60' — SPICER ST. 60'

MINNIE CT. — VORIS ALL'T PB-2 P-1 — BIHLER CT. — SAN DIEGO CT. — LEDGE ALL'T PB-11 P-15

LAMPARTER ST. 45' — 469.39 OBS. — LEDGE ALL'T PB-11 P-15 — Work Limits — Rel. Wall-2

STEINBACHER ALL'T PB-5 P-39 — Work Limits — Conc. Blk. Foundation — Brick Fence — Gravel

Akron Barberton Belt R.R. — 50' — Lane — W.B. Exp. — JOHNSTON ST. — Work Limits

SOUTH 469.92 obs. 60' ST — 548.39 OBS. — 354.16 OBS.

NOTE: See End Of Table For Parcels 1-X, 2-X

PARCEL NO.	OWNER	AREA S.F.	BLDG.
1 LA	Standard Oil Co.	18096	yes
2 LA	J.W. Gehm	23624	Yes
3 LA	L. Baughman	4857	Yes
4 LA	A. Edwards	4857	Yes
5 LA	J. Frickson	3600	Yes
6 LA	E. Stein	6688	Yes
7 LA	A. Mignand	3595	Yes
8 LA	F. Minick	5176	Yes
9 LA	L. Carney	5884	Yes
10 LA	H. Gehm	114953	Yes
11 LA	B. Heiges	5611	Yes
12 LA	Shell Oil Co.	2880	Yes
13 LA	H. Gehm	2800	Yes
14 LA	M. Parnisky	2000	Yes
15 LA	E. & M. Starcher	3200	Yes
16 LA	R. & I. Tri-Ebels	4030	Yes
17 LA	H. Burghardt	4000	Yes
18 LA	A.G. Johnston & H. Winfrey	5600	Yes
19 LA	L. & W. Gehm	3480	Yes

PARCEL NO.	OWNER	AREA S.F.	BLDG.
20 LA	W. Harnach	3240	yes
21 LA	F. & E. Kalain	5600	yes
22 LA	S. Hansel	5600	Yes
23 LA	J.C. McKinnon	3000	yes
24 LA	J.W. Gill	5600	Yes
25 LA	T.E. Ashman	2760	Yes
26 LA	R.J. Petty	5600	Yes
27 LA	A & A. Prior	2520	Yes
~~28 LA~~	~~P. Solerchio~~		
~~29 LA~~	~~N. Cottrell~~		
30 LA	J. & D. Bucy	5204	yes
31 LA	A.H. Koehn	5204	Yes
32 LA	M. & E. Semelsberger	5174	Yes
33 LA	H.G. Rhodes Inc.	5172	Yes
34 LA	A. Mc Alarney	3370	Yes
35 LA	M. & M. Habel	1800	yes
~~36 LA~~	~~C.E.R. Westover~~	~~5394~~	
~~37 LA~~	~~A. Fowls~~	~~5760~~	
~~38 LA~~	~~E. Steen~~	~~18,063~~	

PARCEL NO.	OWNER	AREA S.F.	BLDG.
~~39 LA~~	~~C.F.B. Hafer~~	~~13170~~	
~~40 LA~~	~~E. Hartman~~	~~2496~~	
~~41 LA~~	~~A. Kohler~~	~~8226~~	
~~42 LA~~	~~M. Wilkinson~~	~~2484~~	
~~43 LA~~	~~G. Stanley~~	~~7092~~	
~~44 LA~~	~~J. McKenzie~~	~~6768~~	
~~45 LA~~	~~F.H. Glass~~	~~5760~~	
~~46 LA~~	~~C.F.W. Shanks~~	~~2496~~	
~~47 LA~~	~~D.F.W. Shoemaker~~	~~2436~~	
~~48 LA~~	~~J. De Shong~~	~~2436~~	
~~49 LA~~	~~G.S. Mary~~	~~2436~~	
~~50 LA~~	~~E.F.M. Stokes~~	~~2436~~	
~~51 LA~~	~~G. Mayer~~	~~5760~~	
~~52 LA~~	~~A. Hartman~~	~~3052~~	
~~53 LA~~	~~R.A. Bigelow~~	~~9270~~	
~~54 LA~~	~~J.W. Gehm~~	~~4180~~	
~~55 LA~~	~~G. Mattico~~	~~6888.6~~	
~~56 LA~~	~~G. Reynolds~~	~~9826~~	
~~57 LA~~	~~N.S. Zeis~~		
~~58 LA~~	~~C. Gehm~~		

PARCEL NO.	OWNER	AREA S.F.	BLDG.
~~59 LA~~	~~C.F.B. Hafer~~		
~~60 LA~~	~~C.F.B. Hafer~~		
1-X	City of Akron		
2-X LA	Akron Barb. Belt R.R.	Overhead	Easement
~~43-A~~	~~I. Lane~~		
~~43-B~~	~~H.K. Zeis~~	~~OO~~	

50 0 50 100 150

NOTE: IN REFERRING TO THE VARIOUS PARCELS THE NUMBER ENCIRCLED SHOULD CARRY A PREFIX OF W AND A SUFFIX OF LA. PARCEL SHOWN AS (50) IS ACTUALLY W-50-LA

TE-54-A
200-8-57

MICROFILMED
NOV 27 1989

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS- 64 SAMPLES TESTED

DESCRIPTION	H. R. B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
Stone fragments	$A\text{-}1\text{-}a_{(0)}$	A-1-a	86	2	3	6	3	24	6	10	1
Gravel with sand	$A\text{-}1\text{-}b_{(0)}$	A-1-b	54	4	36	5	1	NP	NP	9	1
Coarse and fine sand	—	A-3a	18	22	44	14	2	NP	NP	14	2
Gravel and stone fragments with sand and silt.	$A\text{-}2\text{-}4_{(0)}$	A-2-4	54	6	13	19	8	20	5	12	8
Stone fragments with sand, silt, and clay.	$A\text{-}2\text{-}6_{(0)}$	A-2-6	60	4	5	19	12	33	12	16	3
Sandy silt	$A\text{-}4_{(5)}$	A-4a	18	6	17	39	20	24	7	16	32
Silt	$A\text{-}4_{(7)}$	A-4b	9	5	15	54	17	16	4	15	7
Silt and clay	$A\text{-}6_{(6)}$	A-6a	26	5	11	34	24	32	13	19	8
Clay	$A\text{-}7\text{-}6_{(13)}$	A-7-6	8	2	5	43	42	43	20	28	2

Overburden Shale Weathered shale Sandstone (Visual classification)

Auger boring - plan view (Drilled by State of Ohio)

Auger boring-plan view (Drilled by The H.C.Nutting Co.)

—W Free water Sod-X'-Approx. depth

Number of blows for "Standard Penetration" Test. X=number of blows for the first 6 inches. Y=number of blows for the second 6 inches.

Auger boring plotted to vertical scale only

Note: Borings numbered A-1 thru A-15 and B-45 thru B-52 inclusive drilled by State of Ohio. Borings numbered B-1 thru B-44 inclusive drilled by The H.C.Nutting Co.

Samples Taken Lab. Nos. So. 83602-83666 incl.

● Water content nearly equal to or greater than the liquid limit.

Note: Figures beside borings indicate water contents in percent.

SOIL PROFILE
SUMMIT COUNTY
SUM-8-11.65
AKRON EXPRESSWAY-PART 10
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

1/14

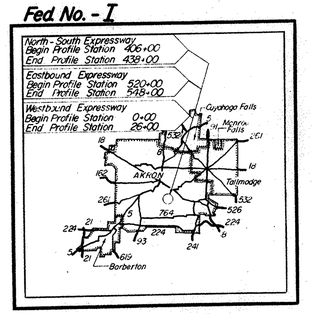
NOTE: THE INFORMATION SHOWN BY THIS SUBGRADE PROFILE WAS SECURED FOR THE USE OF THE STATE OF OHIO AND IS NOT TO BE CONSTRUED AS A PART OF THE PLANS GOVERNING THE CONSTRUCTION OF THE PROJECT.

Fed No. - I

North-South Expressway
Begin Profile Station 406+00
End Profile Station 438+00

Eastbound Expressway
Begin Profile Station 520+00
End Profile Station 548+00

Westbound Expressway
Begin Profile Station 0+00
End Profile Station 26+00



LOCATION MAP

Recon-C.J.K.- 1/28/58
Drilling-C.A.C.-2/12/58
Drafting-G.V.T., M.J.H.-6/24/58

Summary of Soil Test Data

Note: NP shown in the Liquid Limit and Plasticity Index columns indicates that the material is a Non-Plastic.

Boring Location	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
A-1	0.3-2.0	0	2	6	46	46	41	19	28	A-7-6
	2.0-9.5	8	6	18	44	24	22	6	16	A-4a
	9.5-15.0	4	5	14	56	21	21	6	12	A-4b
	15.0-17.5	8	4	20	52	16	19	5	15	A-4b
	17.5-18.0	9	4	21	47	19	22	7	19	A-4a
A-2	0.3-2.0	5	7	16	44	28	31	10	25	A-4a
	2.0-6.5	18	5	15	47	15	22	4	20	A-4a
	6.5-10.0	6	5	16	56	17	23	8	20	A-4b
	10.0-12.0	10	5	14	54	17	NP	NP	14	A-4b
A-3	0.3-3.0	6	4	16	48	26	29	11	19	A-6a
	3.0-8.0	13	7	24	38	20	21	7	14	A-4a
	8.0-12.0	15	2	9	58	16	NP	NP	16	A-4b
A-4	0.3-5.0	13	5	19	39	24	31	12	31	A-6a
	5.0-9.0	11	5	14	44	26	24	8	18	A-4a
	9.0-11.0	20	8	15	36	21	23	8	13	A-4a
A-5	0.2-4.0	11	6	13	54	16	27	9	16	A-4b
	4.0-9.0	14	5	18	33	30	23	8	11	A-4a
	9.0-11.0	23	5	16	38	18	24	5	12	A-4a
A-6-	0.3-5.0	0	2	9	54	35	33	14	24	A-6a
	5.0-8.0	11	4	17	48	20	25	8	18	A-4a
	8.0-11.0	28	7	22	28	15	20	6	12	A-4a
A-7	0.3-6.0	13	4	18	34	31	33	15	20	A-6a
	6.0-11.0	19	9	16	34	22	26	8	14	A-4a
	11.0-11.5	54	8	6	22	10	29	8	12	A-2-4
A-8	0.3-2.0	32	20	19	25	4	NP	NP	11	A-2-4
	2.0-4.0	18	7	16	48	11	22	5	17	A-4a
	4.0-8.0	19	6	15	42	18	25	10	20	A-4a
	8.0-13.0	24	7	16	39	14	24	9	23	A-4a
	13.0-18.0	15	9	22	33	21	25	8	18	A-4a
	18.0-24.0	11	7	24	36	22	20	4	19	A-4a
A-9	0.0-8.0	48	3	23	15	11	20	5	11	A-2-4
A-10	0.4-4.0	BRICK FRAGMENTS AND CINDERS							11	VISUAL
	4.0-8.0	5	6	16	49	24	22	7	18	A-4a
	8.0-10.0	62	4	11	12	11	29	11	17	A-6a

Boring Location	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class.
A-11 15'N.	0.3-6.0	15	5	16	47	17	23	7	16	A-4a
	6.0-12.0	41	4	5	32	18	28	9	12	A-4a
	12.0-17.0	39	5	9	29	18	26	8	12	A-4a
A-12	0.3-5.0	55	6	12	18	9	25	6	15	A-2-4
	5.0-8.0	33	3	33	23	8	NP	NP	16	A-2-4
A-13 10'E.	0.3-6.0	19	8	17	33	18	29	7	22	A-4a
	6.0-7.0	27	9	16	28	20	25	5	13	A-4a
A-14 43'N.	0.3-3.0	54	4	36	5	1	NP	NP	9	A-1-b
	3.0-10.0	86	2	3	6	3	24	6	10	A-1-a
	10.0-14.0	41	4	8	27	20	31	12	21	A-6a
	14.0-21.0	63	3	4	18	12	34	12	14	A-2-6
A-15	0.3-6.0	10	5	15	41	29	29	10	18	A-4a
	6.0-9.0	66	3	3	18	10	34	14	12	A-2-6
	9.0-10.0	28	8	7	28	29	35	15	12	A-6a
B-45 20'E.	0.3-3.5	16	1	4	40	39	46	20	27	A-7-6
	3.5-7.0	25	4	14	40	17	23	4	16	A-4a
	7.0-9.0	46	5	4	29	16	35	11	14	A-6a
B-46 4'S.E.	0.3-5.0	5	9	27	40	19	22	3	15	A-4a
	5.0-8.5	9	6	17	46	22	22	5	18	A-4a
B-47	0.0-3.5	7	5	17	52	19	24	5	12	A-4b
	3.5-9.0	69	4	3	17	7	28	8	8	A-2-4
B-48 10'N.	0.3-5.5	26	8	17	29	20	33	6	18	A-4a
	5.5-6.5	74	4	4	12	6	31	9	10	A-2-4
B-49	0.0-2.0	13	11	20	38	18	25	8	18	A-4a
	2.0-3.0	26	22	40	10	2	NP	NP	13	A-3a
B-50	0.3-2.0	53	3	7	28	9	21	5	6	A-4a
	2.0-7.0	65	1	1	25	8	26	6	8	A-2-4
B-51	0.0-3.0	26	7	20	29	18	28	6	14	A-4a
B-52	0.0-5.0	10	22	40	17	2	NP	NP	15	A-3a
	5.0-9.0	15	6	11	46	22	24	7	19	A-4a
	9.0-11.0	52	6	7	20	15	31	11	21	A-2-6

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Boring Location	Depth From-To	Description
B-1	0.0-1.8	Topsoil and clay.
	1.8-8.0	Brown and gray sandy clay with fine gravel and limestone fragments, moist with wet sand seams, medium stiff.
	8.0-14.5	Brown and gray sandy clay and weathered shale, moist - stiff.
	14.5-18.5	Gray weathered shale, moist-stiff to hard
	18.5-23.5	Gray shale, silty 1/8" - 1" layers
B-2	0.0-0.5	Black top and cinders, fill.
	0.5-6.5	Brown and gray sandy clay with fine gravel and limestone fragments, moist - stiff.
	6.5-13.0	Brown and gray sandy clay and weathered shale, moist medium stiff.
	13.0-17.2	Gray weathered shale, moist to dry - hard.
B-3	0.0-2.5	Black top, brown sandy clay, cinders and gravel, fill, moist - medium stiff.
	2.5-7.0	Brown and gray sandy clay with fine gravel and sandstone fragments, moist - medium stiff.
	7.0-13.0	Brown and gray sandy clay, weathered shale and sandstone fragments, moist - stiff.
	13.0-17.0	Gray sandstone loosely cemented and shale, wet to dry - hard.
B-5	0.0-1.0	Black top and cinders.
	1.0-8.0	Brown and gray sandy clay with fine gravel and limestone fragments, moist - medium stiff.
	8.0-12.5	Gray sandy clay and weathered shale, moist - medium stiff.
	12.5-15.2	Gray sandstone, loosely cemented, and weathered shale, moist to wet-hard.
B-6	0.0-1.0	Black top and cinders, fill
	1.0-9.0	Brown sandy clay with fine gravel and limestone fragments moist - medium stiff.
	9.0-15.2	Brown and gray sandy clay and weathered shale, moist-hard.
B-12	0.0-1.5	Top soil, brown sandy clay, very moist.
	1.5-8.2	Brown sandy clay with fine gravel, moist - stiff.
	8.2-11.5	Brownish gray silty clay (weathered shale) moist - stiff.
	11.5-13.0	Blue gray silty clay (weathered shale) moist - hard.
B-13	0.0-1.5	Top soil, cinders, brown medium clay, fill, moist - medium stiff.
	1.5-5.0	Brown and gray sandy clay, moist - medium stiff.
	5.0-8.0	Brown sandy clay with sandstone fragments, moist - hard.
	8.0-11.0	Blue gray silty clay (weathered shale) moist - hard.
	11.0-16.0	Gray shale, silty.

Boring Location	Depth From-To	Description
B-16	0.0-5.0	Brown sandy clay with fine gravel, moist - medium stiff to stiff.
	5.0-10.1	Brown sandy clay and layered sandstone, loosely cemented, moist - dense.
	10.1-15.5	Tan sandstone, medium grained 1/2" - 2" pieces with 1/2" - 1" lenses of light gray silt shale.
B-17A	0.0-3.5	Brown sandy clay, topsoil and cinders, fill, moist - soft.
	3.5-14.0	Brown sandy clay with fine gravel and sandstone fragments, moist - stiff.
	14.0-17.5	Tan sandstone, iron oxide stained, weakly cemented.
	17.5-20.5	Light gray sandstone with some interbedded soft shale.
	20.5-23.6	Gray weathered shale, moist to dry - stiff.
	23.6-28.5	Sandstone fine grained, well cemented.
B-18	0.0-3.5	Brown and gray sandy clay (weathered shale) with limestone fragments, moist - stiff.
	3.5-5.0	Brown and gray weathered shale, with sandstone fragments and coal, moist to dry - hard.
B-19	0.0-1.5	Brown sandy clay with cinders, fill, moist - soft.
	1.5-7.5	Brown and gray sandy clay with fine gravel and sandstone fragments, moist - medium stiff.
	7.5-11.0	Brown and gray weathered shale, moist to dry-medium dense to dense.
	11.0-16.0	Laminated light and dark gray shale, silty 1/8" - 2" pieces.
B-20	0.0-3.0	Brown sandy clay with fine gravel, moist-medium stiff.
	3.0-11.5	Brown sandy clay with gravel and sandstone fragments, moist - stiff.
	11.5-16.5	Sandstone, rust brown to tan, coarse to fine grained downward, 2" - 6" pieces.
B-21	0.0-3.0	Brown sandy clay, topsoil, and cinders, fill moist - medium stiff.
	3.0-11.5	Brown clayey sand and layered sandstone, loosely cemented, moist - medium dense to dense.
B-22	0.0-1.0	Brown sandy clay, topsoil, moist - soft.
	1.0-6.5	Brown sandy clay with fine gravel, moist with wet sand seams, medium - stiff.
	6.5-8.8	Brown sandy clay with fine gravel, moist - stiff.
	8.8-13.5	Gray sandy clay, weathered shale and sandstone fragments, moist - stiff.
	13.5-20.2	Gray weathered shale, moist - stiff.
	20.2-25.5	Dark gray shale, silty, laminal to 1/2" layers.
B-24	0.0-21.0	Cinders, brick, wood, brown sandy clay, fill, moist-to wet, medium dense to very loose.
	21.0-23.7	Gray and brown sandy clay, some fine gravel, moist-medium stiff.
	23.7-23.8	Blue gray shale, dry - hard.

Boring Location	Depth From-To	Description
B-25	0.0-3.0	Gravel, cinders, broken stone, clay, fill, moist-dense.
	3.0-17.5	Brown sandy clay with cinders, brick and gravel, fill wet - soft.
	17.5-24.7	Brown and gray sandy clay with fine gravel, wet-medium stiff.
	24.7-24.9	Gray weathered shale, dry- hard
	24.9-29.7	Mottled gray shaly sandstone 1"-2" layers.
	29.7-30.0	Dark gray shale.
B-26	0.0-12.5	Concrete, cinders, brick, clay, topsoil (etc.) fill, moist - loose.
	12.5-15.5	Brown sandy clay, fine gravel and weathered shale, moist - medium stiff.
	15.5-18.5	Dark gray shale, silty 1/2" 1" layers.
	18.5-20.5	Dark gray shale, silty 1/4"- 1" layers.
B-27	0.0-13.0	Topsoil, cinders, brown sandy clay, gravel and broken stone, fill, moist - soft to medium stiff.
	13.0-17.0	Brown and gray sandy clay and weathered shale, moist to dry - stiff to hard.
B-28	0.0-0.6	Concrete slab.
	0.6-20.5	Brown and gray sandy clay, sand, gravel and cinders, fill, moist to wet - soft to medium stiff.
	20.5-22.3	Black weathered shale, moist to dry - hard
	22.3-22.3	Dark gray shale, silty 1/4" - 1" layers.
B-29	0.0-22.0	Topsoil, brown sandy clay, brick, gravel, broken stone and sand, fill, moist - to wet-soft to medium stiff.
	22.0-28.0	Gray weathered shale, moist - to dry - hard.
	28.0-28.5	Black shale, dry - hard.
B-30	0.0-18.0	Topsoil, brown sand clay and broken stone, fill, moist to wet - medium stiff to soft.
	18.0-21.9	Black weathered shale, dry - hard
B-31	0.0-17.0	Topsoil, brown sandy clay, cinders, gravel and broken stone, fill moist to wet - soft.
	17.0-18.0	Brown and gray sandy clay, weathered shale, moist - stiff.
	18.0-19.0	Gray weathered shale, dry - hard.
B-32	0.0-17.0	Brown and gray sandy clay, cinders and gravel fill, moist - soft.
	17.0-19.3	Brown & gray sandy clay, weathered shale and sandstone fragments, stiff.
	19.3-24.3	Gray shale, silty, 1/4" -2" layers.
B-33	0.0-6.5	Cinders, topsoil and clay, fill, moist - loose.
	6.5-12.0	Brown clayey sand some fine gravel, moist to wet-medium dense.
	12.0-14.2	Brown and gray weathered sandy shale, dry-hard.

Boring Location	Depth From-To	Description
B-34	0.0-10.5	Topsoil, brown sandy clay, gravel, cinders and broken stone, fill, moist - soft to medium dense - stiff.
	10.5-17.5	Brown silty fine sand with sandstone fragments, moist to dry- dense to very dense.
	17.5-18.5	Gray weathered shale, dry - hard.
B-35	0.0-8.0	Topsoil, brown sandy clay, brick and gravel, fill, moist - medium stiff.
	8.0-12.3	Brown sandy clay and broken stone, moist-stiff.
	12.3-17.9	Brown and gray sandy clay and weathered shale, dry-hard.
	17.9-22.9	Dark gray shale, silty slightly carbonaceous, 1/4" - 1" layers.
B-36	0.0-4.5	Black top and concrete, cinders, and clay, fill, moist - medium dense.
	4.5-7.5	Brown sandy clay and broken sandstone, moist - medium stiff.
	7.5-12.3	Brown and gray weathered shale, moist - to dry-hard.
B-37	0.0-9.5	Crushed stone, cinders, clay, topsoil, fill, moist to wet - medium dense to loose.
	9.5-13.0	Brown clayey sand with sandstone fragments, moist-medium dense.
	13.0-24.9	Brown sandy clay and weathered sandy shale, moist to dry-hard.
B-38	0.0-3.5	Cinders, topsoil, & clay, (act.) fill, moist - loose.
	3.5-6.5	Brown sandy clay, moist - medium stiff
	6.5-13.0	Brown clayey sand with sandstone fragments, moist - to wet - loose.
	13.0-14.5	Gray sandy clay and weathered shale, moist to dry-hard.
	14.5-19.0	Mottled gray shaly sandstone 1.5- 3" layers.
	19.0-19.5	Dark gray shale, silty 1-1/2" layers.
B-39	0.0-0.5	Black top.
	0.5-10.3	Brown sandy clay with sand seams, moist - medium stiff.
	10.3-13.2	Brown and gray weathered shale, moist to dry-hard.
B-40	0.0-4.0	Brown sandy clay, topsoil, fill, moist -soft.
	4.0-8.5	Brown sandy clay with fine gravel, moist -medium stiff.
	8.5-14.0	Gray layered sandy silt and brown sandy clay, moist to wet-medium stiff.
	14.0-19.5	Brown fine and medium sand, some silt, wet - loose.
	19.5-21.0	Gray silty fine sand, some clay and fine gravel, wet-loose.
	21.0-35.5	Gray sandy clay with fine gravel and westhered shale, wet-stiff.

Boring Location	Depth From-To	Description
B-41	0.0-3.5	Brown sandy clay, topsoil, fill, moist - soft.
	3.5-9.0	Brown sandy clay with fine gravel, moist -medium stiff.
	9.0-24.5	Brown fine to medium sand some clay, moist to wet - loose to medium dense.
	24.5-33.0	Gray sandy clay with fine gravel, wet - stiff.
	33.0-34.4	Gray weathered shale, dry - hard.
	34.4-37.0	Dark gray shale, silty, 1" - 4" layers.
	37.0-38.4	Dark gray shale, silty 1/2" - 2" layers.

Boring Location	Depth From-To	Description
B-43	0.0-4.5	Brown sandy clay, cinders and gravel, fill moist - medium stiff.
	4.5-10.0	Brown and gray sandy clay with fine gravel, moist-hard.
	10.0-24.5	Brown fine and medium sand, some fine gravel, moist - to wet - loose and medium dense.
	24.5-29.5	Gray medium sand and fine gravel, wet - medium dense.
	29.5-32.0	Gray sandy clay with fine gravel wet - stiff.
	32.0-33.0	Gray sandy clay, weathered shale and sandstone, fragments, moist - hard.

Boring Location	Depth From-To	Description
B-44	0.0-7.5	Brown sandy clay, cinders, bricks, and gravel, fill moist - medium stiff.
	7.5-29.8	Brown fine and medium sand, some clay and fine grevel, moist, to wet - medium dense.
	29.8-30.1	Black weathered shale, dry - hard.

BORINGS BY H.C. NUTTING CO.

TE-04 B
(00-8-57

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SOIL PROFILE
SUMMIT COUNT
SUM-8-11.65
AKRON EXPRESSWAY-PART 10
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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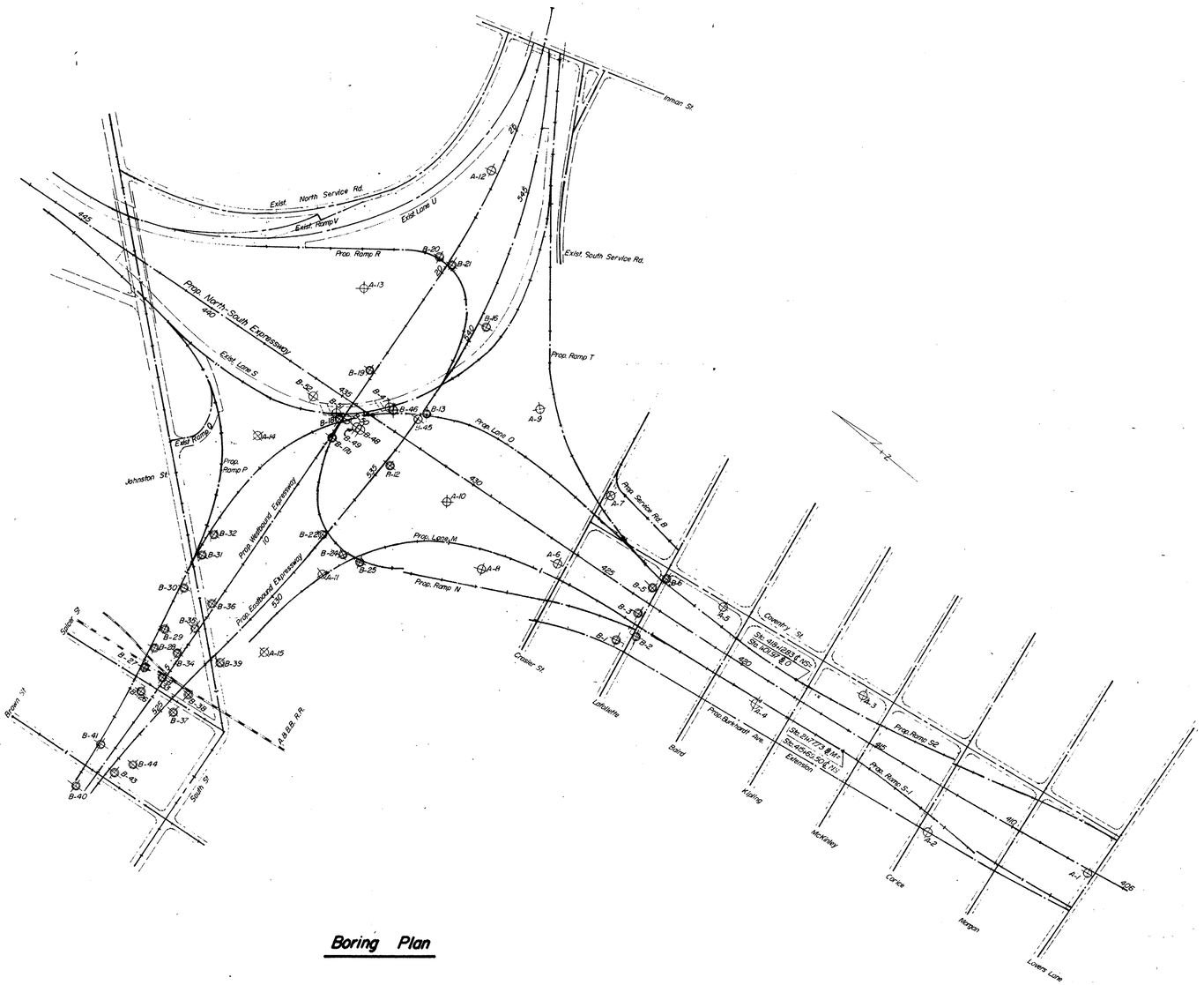

Boring Plan

TE-54-B
100-8-57

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AKRON EXPRESSWAY-PART 10
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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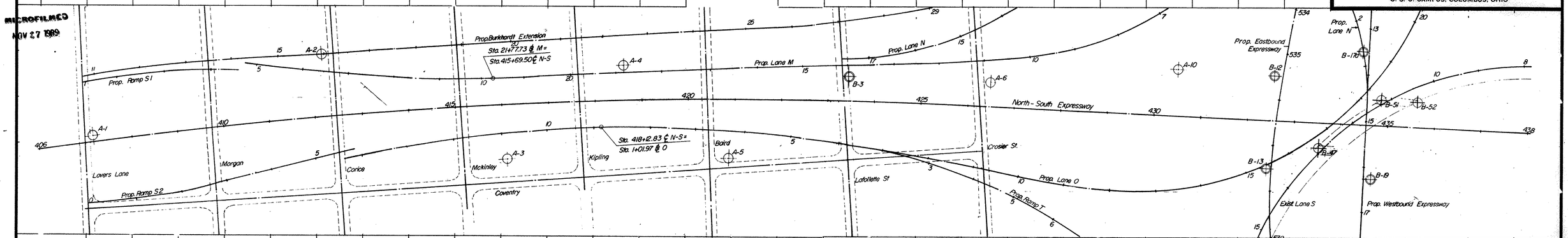

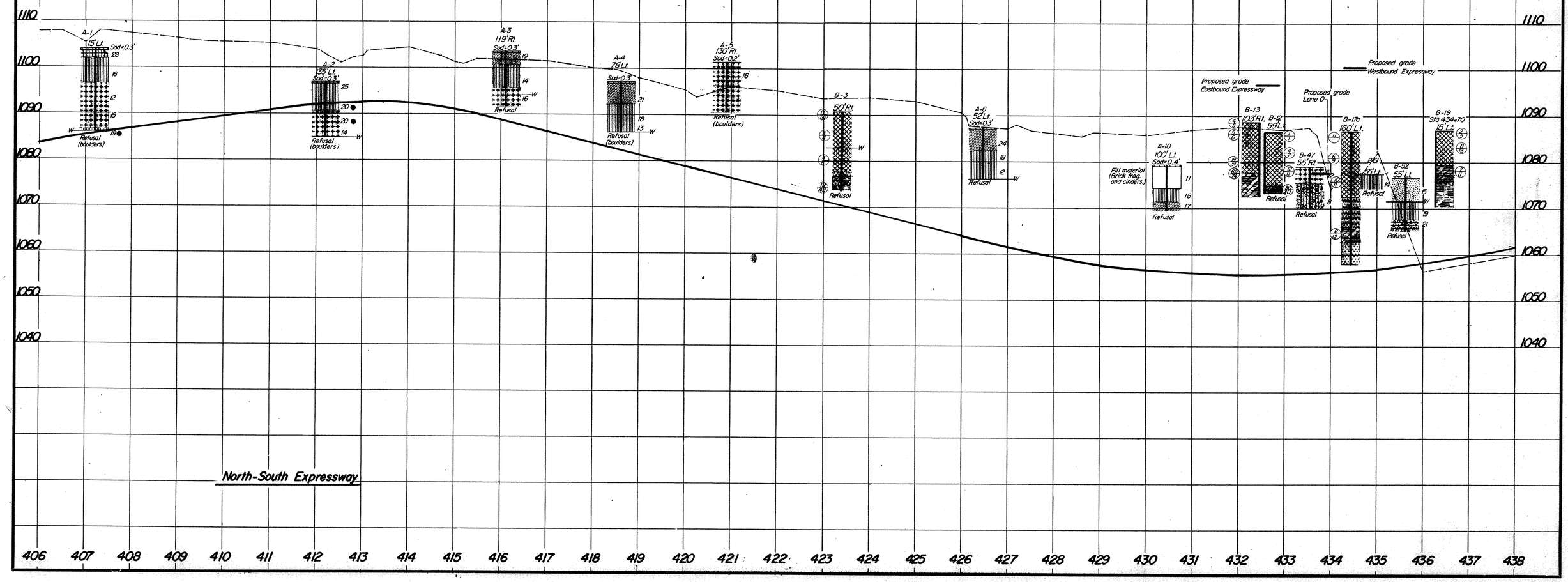

E-54-B
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STATE HIGHWAY TESTING AND RESEARCH LABORATORY
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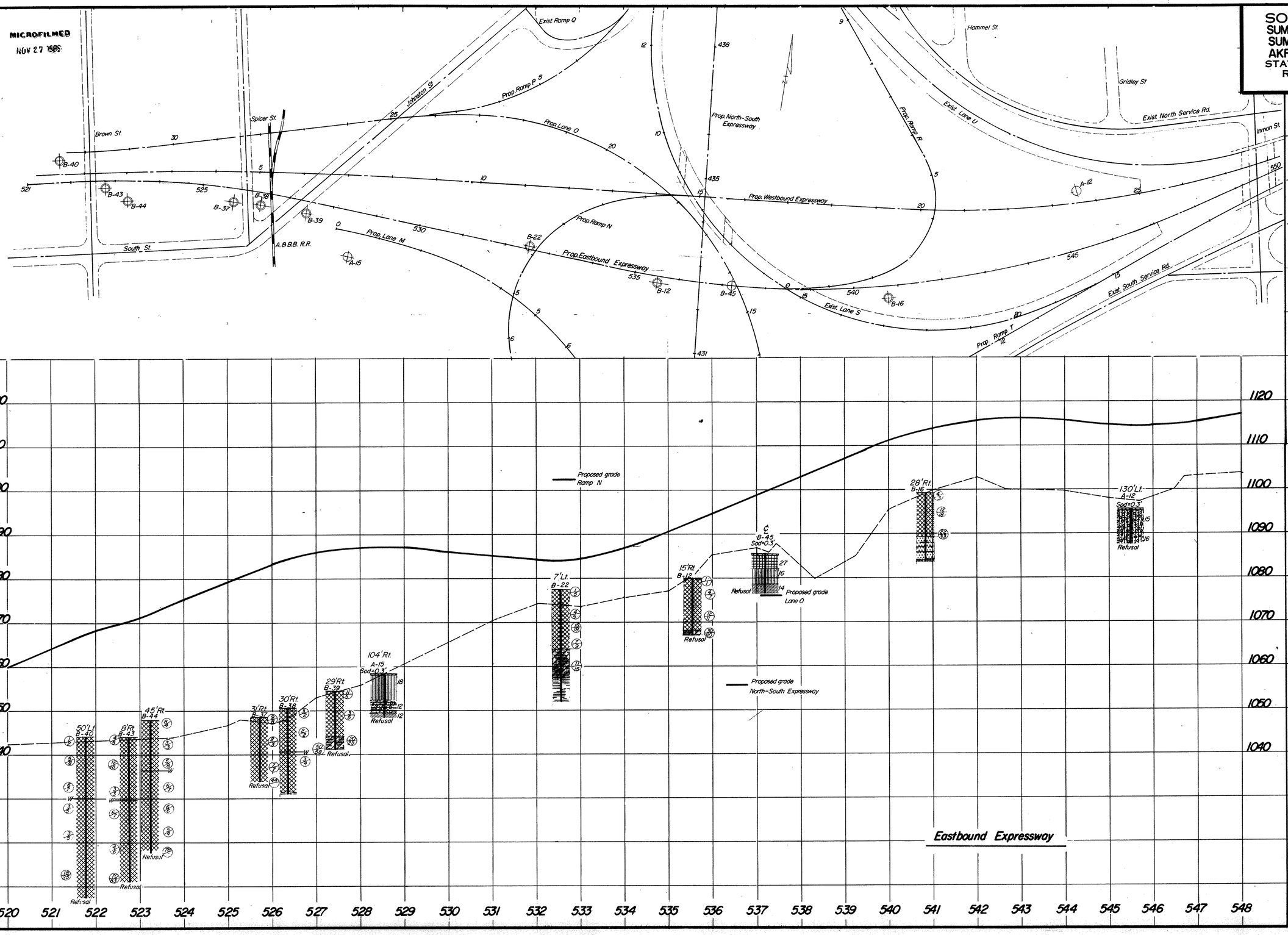

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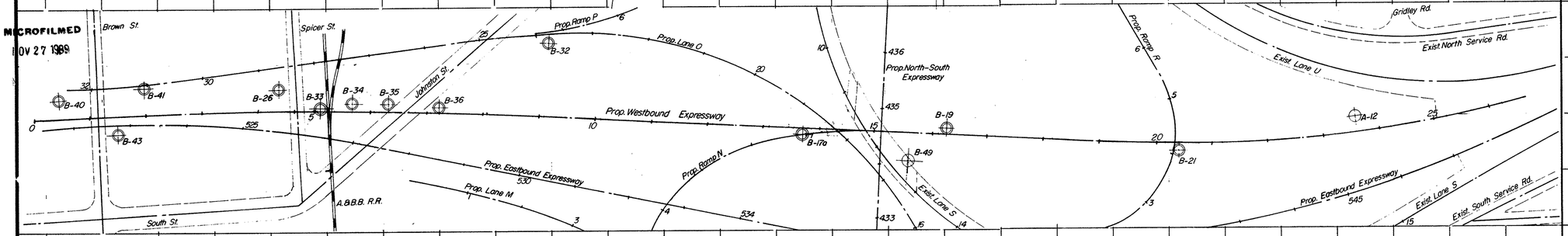

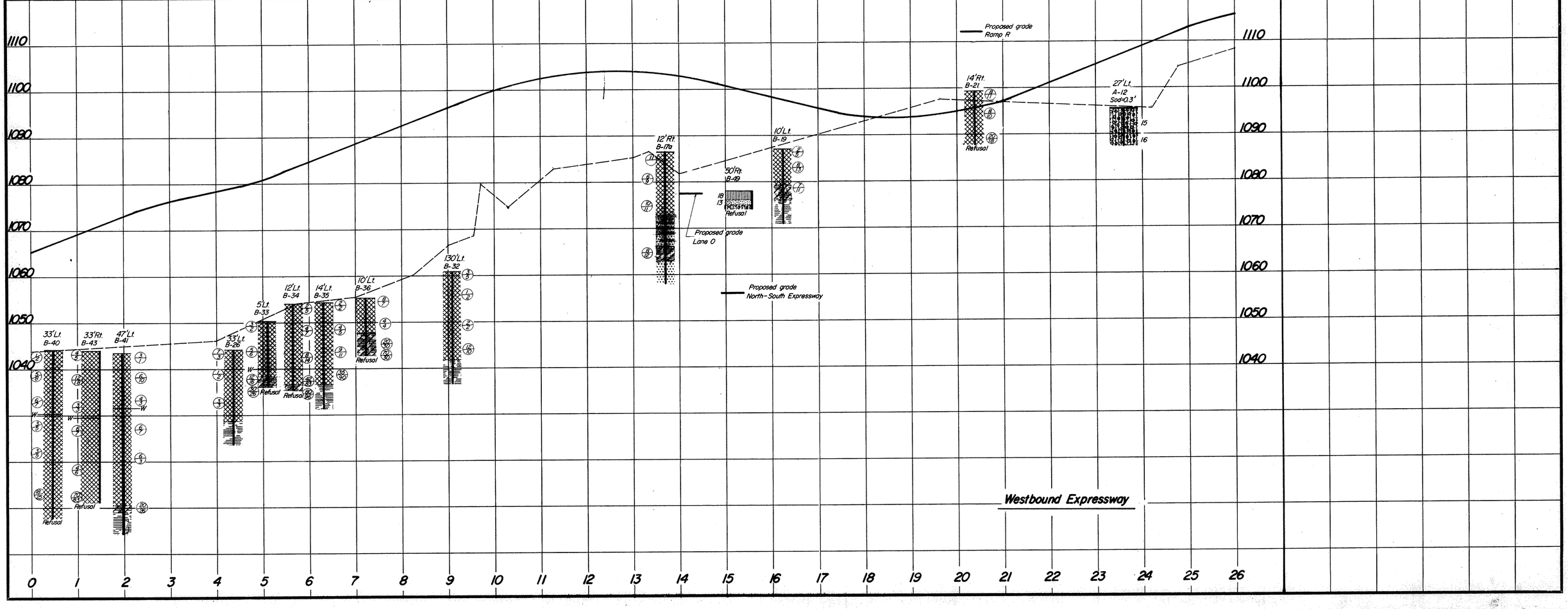

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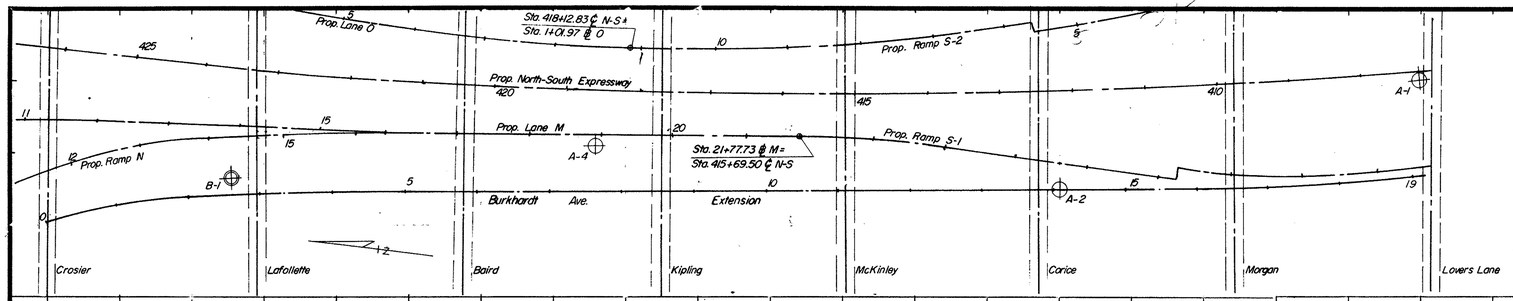

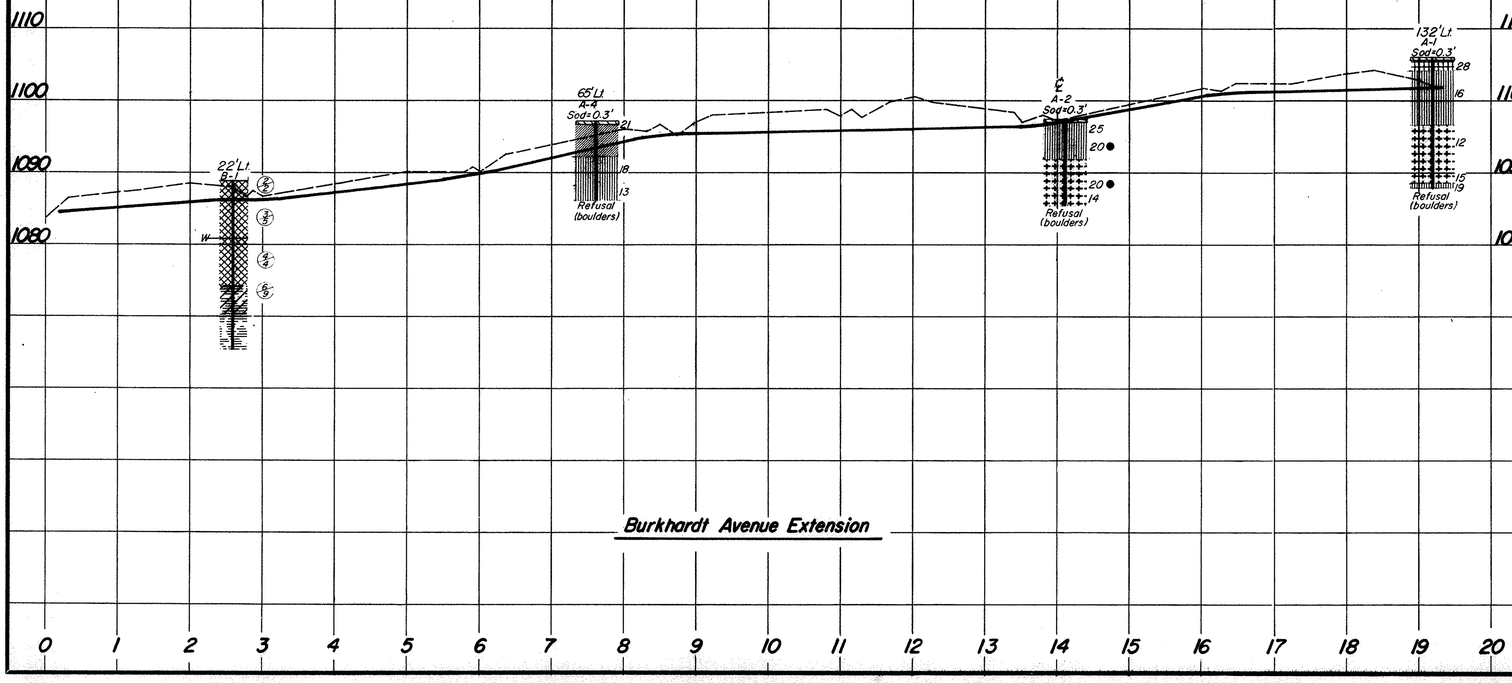

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Exist. Lane S
Prop. North-South Expressway
Prop. Service Rd. B
Prop. Ramp T
Coventry St.
Prop. Lane O
Sta. 418+12.83 ℄ N-S =
Sta. 1+01.97 ℄ O
Prop. Lane S-2
Prop. Lane M
Prop. Ramp N
Prop. Ramp P
Prop. Lane O
Prop. Westbound Expressway
Prop. Eastbound Expressway
Burkhardt Ave. Extension
Crosier St.
Lafollette St.
Baird St.
Kipling St
A-10
A-6
B-3
A-8
A-4
B-24
B-25
A-11
A-15

Proposed grade
Ramp N

A-15
59 Rt.
Sod=0.3'
18
12
12
Refusol

A-11
4' Lt.
Sod=0.3'
Refusol

B-24
26' Lt.

B-25
22' Rt.
Refusol

A-10
125' Lt.
Sod=0.4'
11
18
17
Refusol
Cinders

A-8
63' Rt.
Sod=0.3'
11
17
20
23
18
19
Refusol

A-6
45' Lt.
Sod=0.3'
24
18
12
W
Refusol

B-3
33' Lt.
W
Refusol

A-4
18' Rt.
Sod=0.3'
21
18
13
W
Refusol
(boulders)

1100
1090
1080
1070
1060
1050

Lane M

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

SOIL PROFILE
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STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

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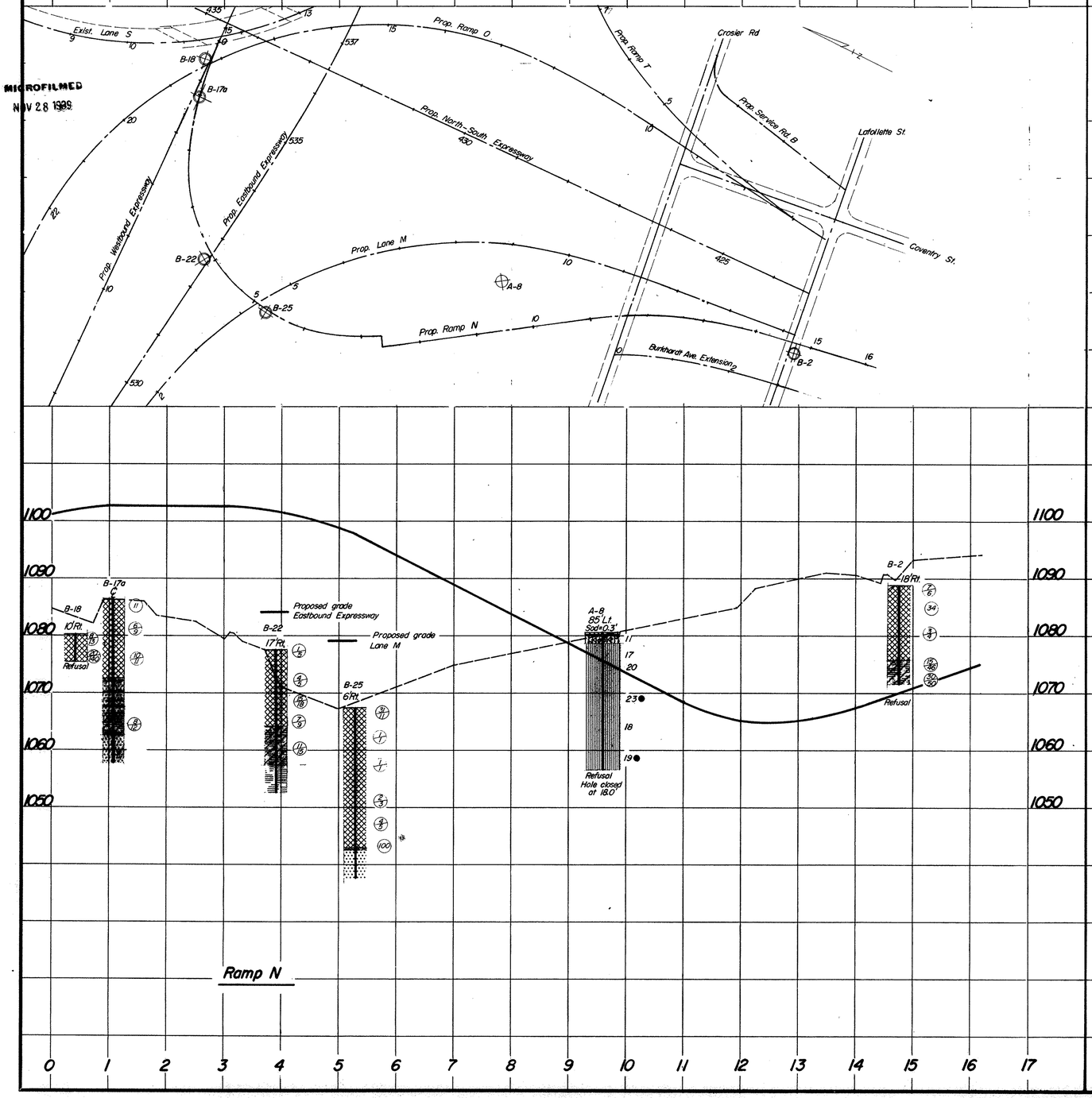

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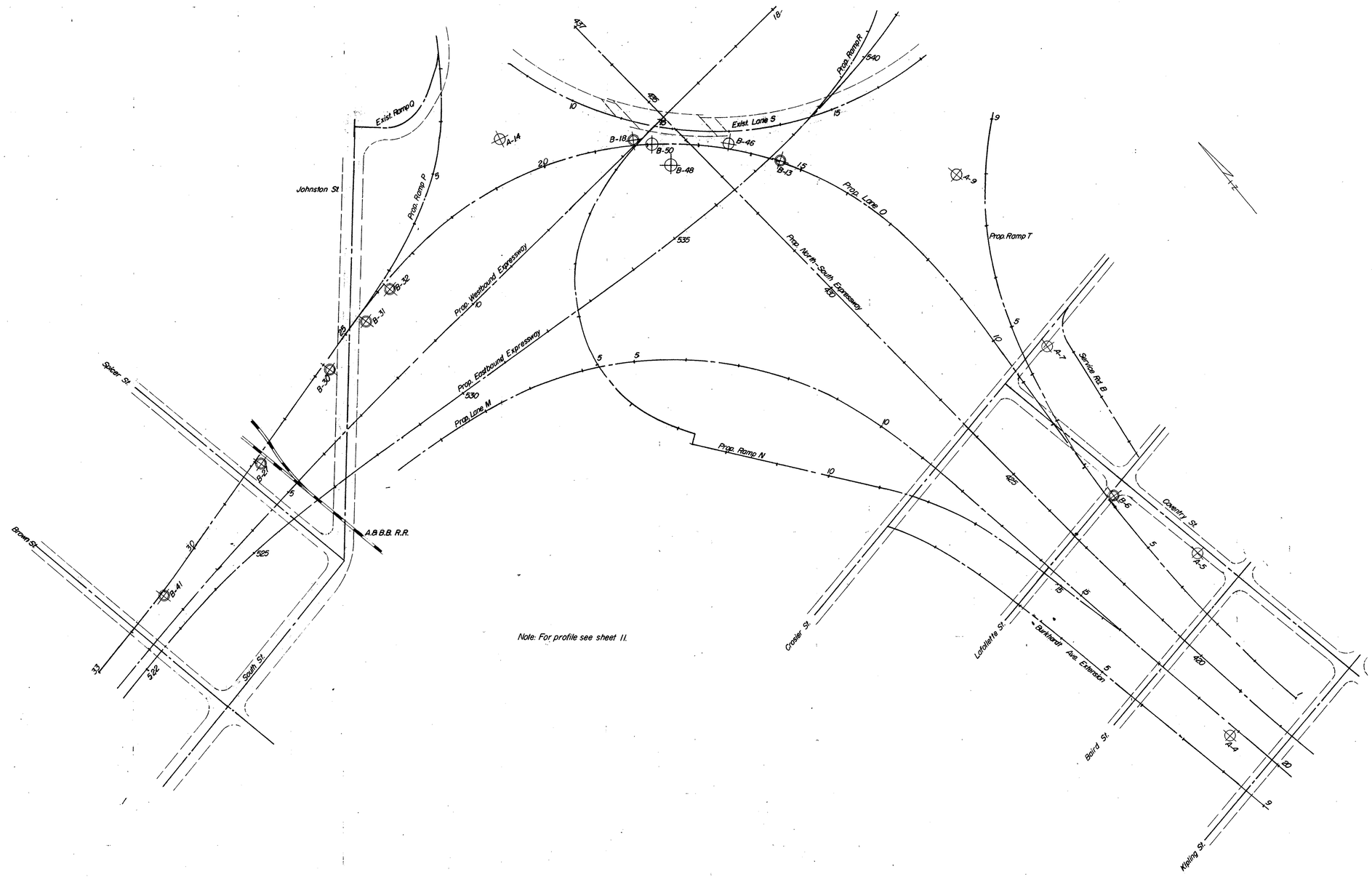


Note: For profile see sheet 11.

Plan view - Lane O

SOIL PROFILE
SUMMIT COUNTY
SUM-8-11.65
AKRON EXPRESSWAY-PART 10
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

11
14

1110
1100
1090
1080
1070
1060
1050
1040

A-3
138' Lt.
Sod=0.3'
21
18
13
Refusal (boulders)

A-5
65' Rt.
Sod=0.2'
16
11
12
Refusal

B-6
12' Rt.
4
4
5
8
30
50
Refusal

A-7
76' Rt.
Sod=0.3'
20
14
12
Refusal

A-9
154' Rt.
11
Refusal

Proposed grade
Eastbound Expressway

B-13
3' Rt.
4
6
9
9
12
15
Refusal

B-46
10' Rt.
Sod=0.3'
15
18
Refusal

B-48
42' Rt.
Sod=0.3'
18
10
Refusal

B-18
10' Rt.
11
80
140
Refusal

A-12
8' Rt.
Sod=0.3'
9
10
21
14
Refusal

Proposed grade
North-South Expressway

B-32
15' Lt.
3
5
1
2
3
3
12
10

B-31
17' Lt.
3
3
(1)
3
2
(2)
5
10
(2)
28
(8)

B-30
15' Lt.
3
3
(3)
3
2
(3)
3
3
(2)
32
46
42
74

B-27
41' Lt.
1
2
1
4
2
43
Refusal

B-41
6' Lt.
(7)
5
10
3
3
6
6
5
50

Log of Auger Boring
Sta 17+90, ℄ (B-50)
1080
Sod=0.3'
6
8
Refusal

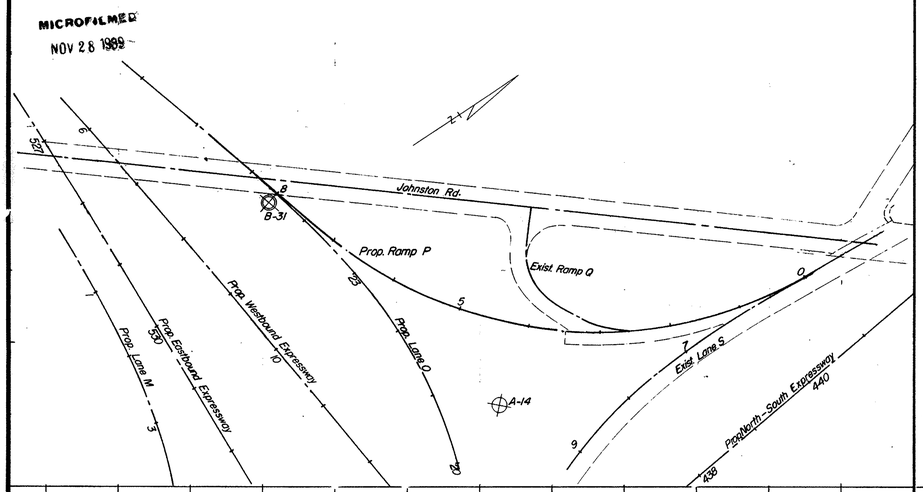
Profile - Lane 0

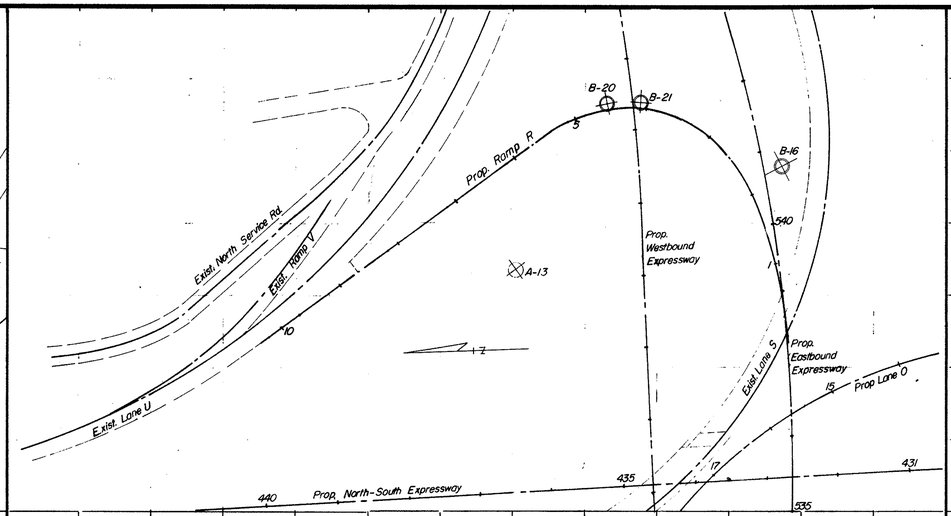
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

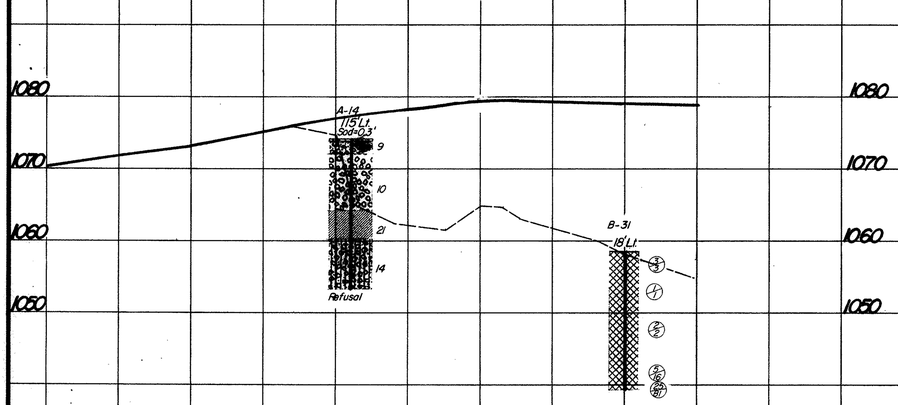
MICROFILMED
NOV 28 1989

SOIL PROFILE
SUMMIT COUNTY
SUM-8-11.65
AKRON EXPRESSWAY-PART 10
STATE HIGHWAY TESTING AND RESEARCH LABORATORY
O. S. U. CAMPUS, COLUMBUS, OHIO

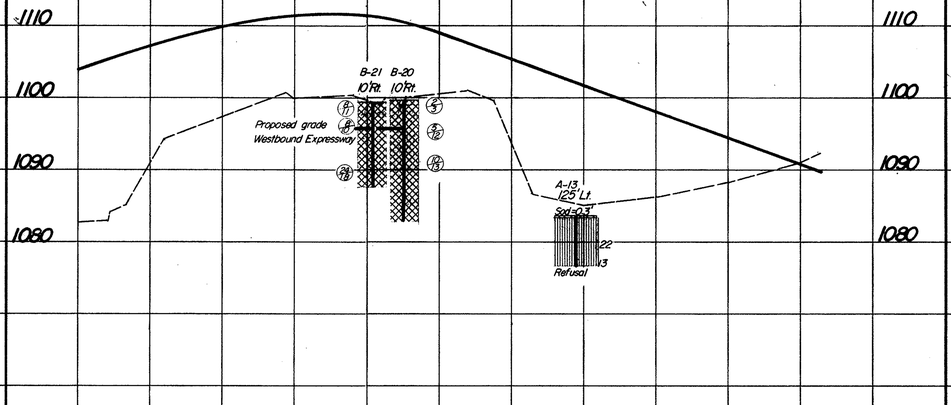
12
14







Ramp P



Ramp R

TE-54-B
10-8-57

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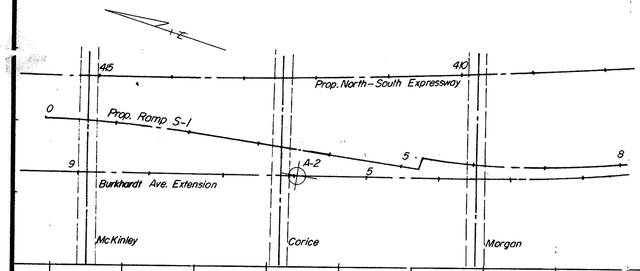
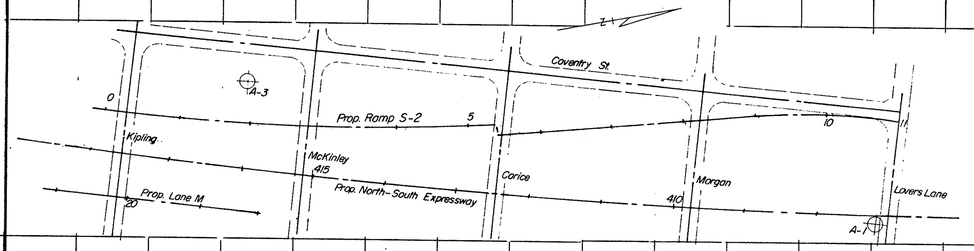
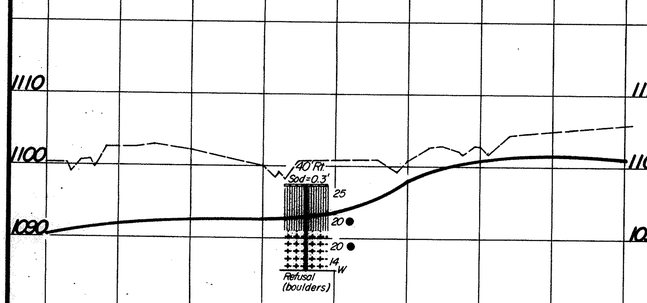
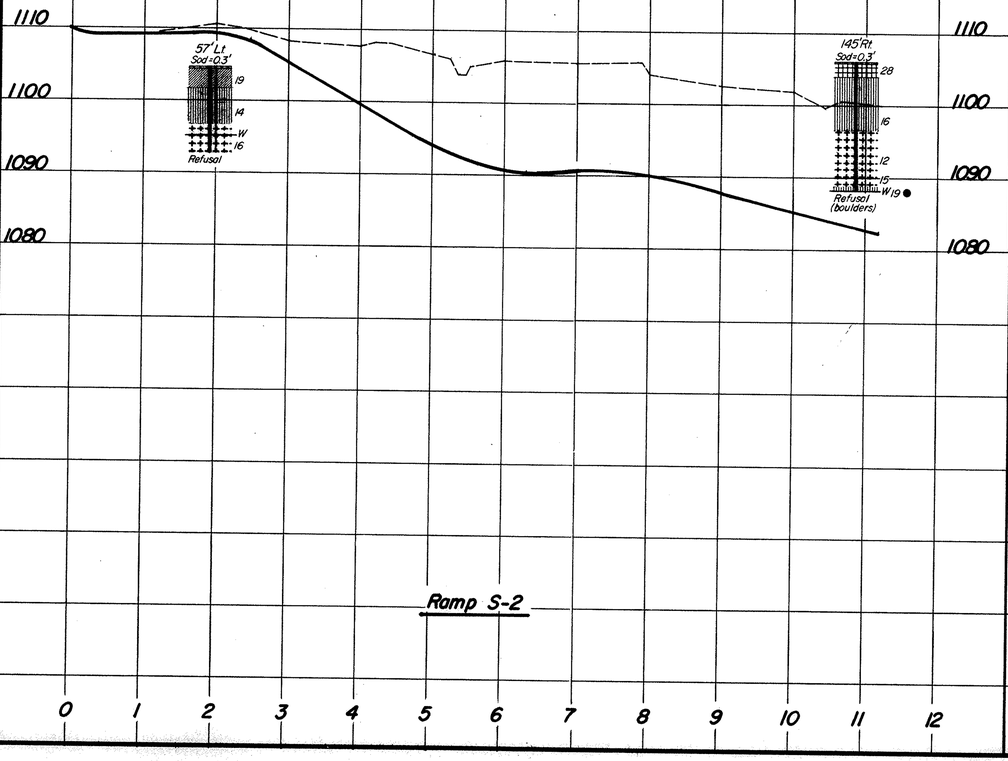
13
14









TE-54-B
10-8-57

SOIL PROFILE

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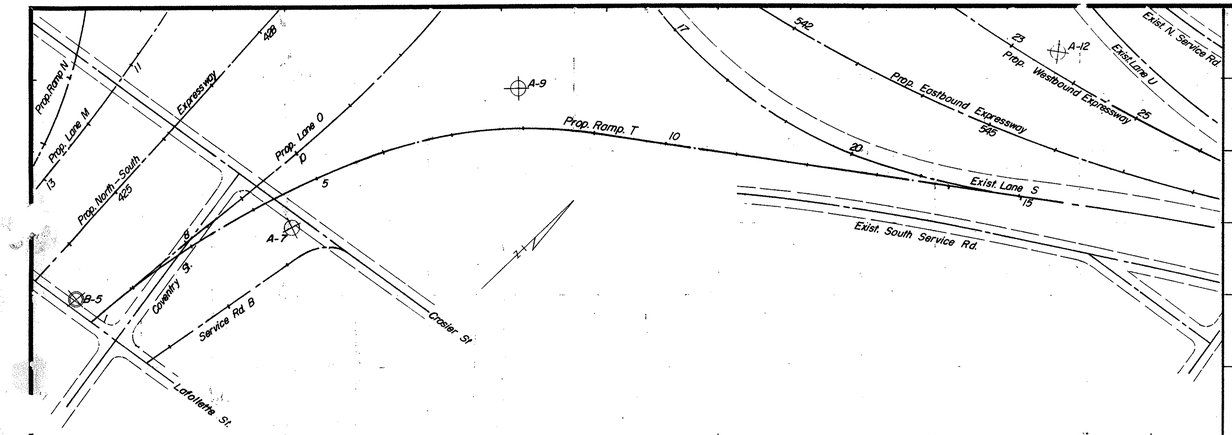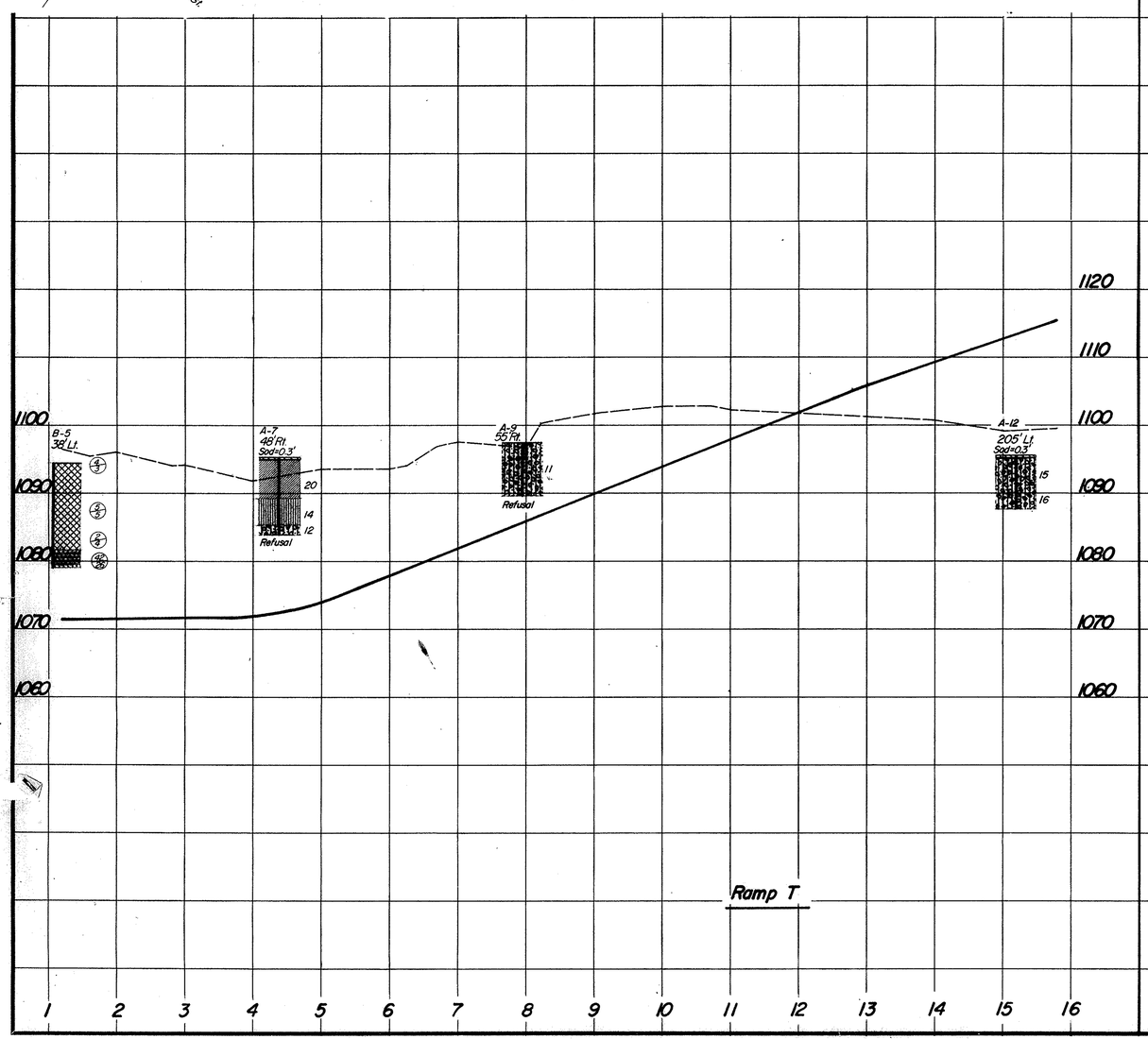
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